COMBINED AQUATICS WORKING GROUP

CAWG 6-HYDROLOGY

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CAWG 6 HYDROLOGY

1.0 EXECUTIVE SUMMARY

This report presents the results of the Hydrology Study for the Big Creek Hydroelectric Project ALP Relicensing. The Hydrology study objectives, which were collaboratively determined, as part of that plan are listed in Section 2.0 of this report.

Available U.S. Geological Survey (USGS) electronic data were obtained and evaluated to assess the existing hydrology of the basin. Some Southern California Edison (SCE) electronic data records for locations where gaging records are not reviewed and published by USGS (such as small tributary streams or diversions) also were used. Data were generally available as mean daily flow (cubic feet per second (cfs)). Only available electronic data were evaluated quantitatively as part of this study.

Most of the river and stream locations had reasonable periods of record (>15 years). The longest period of record is 81 years for Bear and Mono Creeks above their diversions, and the shortest record was three years for Bolsillo Creek above the diversion. Several smaller streams and diversions frequently had records of less than 10 years. Some of these gaging locations did not have data during the winter (and summer) months due to seasonal operation of the diversions associated with them.

An analysis period was selected for the focus of the study. This period was selected to be representative of current (existing) Project operations and to have relatively complete electronic gaging records available. An analysis period, including 20 years of recent records (WY 1983 through 2002), was approved by the Combined Aquatics Working Group (CAWG).

Hydrographs were plotted for each station for the entire period of record, for stations with long-term electronic records. Hydrographs also were plotted for the analysis period. The hydrographs were carefully reviewed as part of quality assurance (QA) of the data to evaluate potential problems. Hydrographs of daily flows comparing historic and unimpaired flows for the 20-year study period were prepared and included in the appendices. Plots of median monthly with 25 and 75 percent exceedance flows were also plotted comparing historic and unimpaired flows by water year type and for all water year types.

For the lakes and reservoirs, elevation (mean feet above sea level (msl)) and storage (acre-feet) data were plotted and evaluated. For the smaller diversions with generally shorter periods of record (Hooper, Chinquapin, Camp 62, Ely, Bolsillo, and Crater diversions), individual annual records also were plotted to examine the data and potential problems. Some problematic data were identified in the records for both large and small streams and were excluded from further quantitative analysis.

Standard hydrological data summaries and indices were calculated. Annual and extreme flows, such as the mean annual peak flow, 10-year flood, and seven-day low flow, were computed for each river and stream gaged location.

There are five water year types identified and classified by the California Department of Water Resources based on predicted run-off. These are Wet, Above Normal, Below Normal, Dry, and Critically Dry. This water year classification was selected and approved by the CAWG for analyzing the data to better resolve differences between years with differing amounts of run-off. For each period of interest, data were analyzed for all water year types collectively. Data also were evaluated by each individual water year type.

The following statistics were calculated for each analysis:

- number of years of record,
- number of days of record,
- minimum,
- mean,
- maximum, and
- percentiles/exceedances at five percent intervals, including the median (50^{th} percentile).

Exceedance tables and graphs also were provided for each station, by water year type and for all water year types collectively, showing flow (or storage/elevation for lakes) versus cumulative percent of data greater than a range of flow values.

The general confidence (high, medium, low) in the flow data for each station was evaluated based on qualitative criteria and professional judgement. In addition, confidence intervals for mean flow values were calculated for representative months and gaged locations. The monthly means for June and September were used to represent wet and dry months, respectively for the purpose of discussing hydrologic characteristics of those periods.

Five gaged locations in the basin monitor flow from unimpaired sub-basins: Bear, Pitman, Bolsillo, Rock, and Ross Creeks above the diversions. For all other locations, unimpaired flow data were estimated or synthesized using two general methods: an area-based method and water balance method. The area-based method was used for most locations, using the daily flow and sub-basin area for one of the two reference basins (Bear and Pitman Creeks above the diversions) as the basis for estimating daily flow at other locations. Regression analysis showed that sub-basin area is a relatively good predictor of flow. The comparison of results from the area-based method to actual data or results from the water balance method showed that the difference in the mean and median were generally small. The exception was the smallest basin, Bolsillo Creek, which was so small that even small flow errors accounted for a large percentage of the total.

A water balance approach using available gaging data was applied to Hooper Creek (using diversion plus below-diversion data) and all of the major reservoirs in an attempt to estimate unimpaired natural inflows and outflows. The water balance approach produced generally acceptable estimated flows for Lake Thomas A. Edison (Mono Creek above the diversion). For Mono Creek below the diversion unimpaired flows, Shaver Lake, Huntington Lake, and Mammoth Pool Reservoir, the area-based approach was used. For Florence Lake (South Fork San Joaquin River (SFSJR) below Florence Lake) the water balance approach was used when data were available and reliable, the area-based method was used when data were missing or were considered questionable.

The unimpaired hydrology record for the analysis period (WY 1983-2002) was estimated for the river and stream gaging locations included. Flow statistics were computed for each station and all water year types collectively and for each water year type, individually.

Indicators of Hydrologic Alteration (IHA) analysis was performed, for all gaged locations using the 20-year period (1983-2002) where possible, comparing the unimpaired flows to the existing hydrology. For each station analyzed, the results include tables for monthly median results for each of the 33 IHA parameters and monthly results for nonparametric percentile statistics. The output tables also include results for the Range of Variability Approach (RVA) analysis, and results for the IHA and hydrologic alteration scorecard.

2.0 STUDY OBJECTIVES

This report presents the Hydrology Study methods and results for the Big Creek Hydroelectric Project ALP Relicensing. A CAWG 6 Hydrology Study Plan was developed in 2001 (SCE 2001, Appendix A). The study objectives were to:

1. Describe the unimpaired ("without Project") and current (existing) Project Area hydrology. Provide information whose significance will be assessed in other studies.
2. Determine if additional gages are needed.
3. Describe water balance between hydroelectric diversions and other flows, including minimum flow requirements, throughout the Project Area.
4. Determine how to classify water year type.
5. Determine the effects of PM&Es on the hydrologic regime.

The general methodology included the following tasks:

1. Evaluate existing hydrology at all river and stream gaged locations.
2. Evaluate existing hydrology at gaged diversions, conduits, lakes/reservoirs, and other locations.

3. Estimate and evaluate unimpaired hydrology at gaged river and stream locations.

4. Compare existing and unimpaired hydrology using the Indicators of Hydrologic Alteration (IHA) and other methods.

3.0 STUDY IMPLEMENTATION

Most of the study objectives listed above were achieved. The determination of whether additional gages or other appropriate means of estimating stream and/or release flows within the Study Area are needed will be made by SCE in collaboration with stakeholders. This decision will be made in conjunction with the need for compliance monitoring associated with PM&Es and the comprehensive settlement agreement. This will occur later in the overall relicensing process.

Specific study elements were outlined as a way of organizing and measuring the achievement of the study objectives. These study elements and their current statuses are identified in the table below.

Study Element	Status	Outstanding Study Elements
1. Assemble and present the existing hydrologic database for the relicensing basin.	Existing hydrologic data from USGS and SCE were identified, collected, analyzed, and presented in this report.	Complete.
2. The magnitude, timing, duration, rate of change and frequency of flows will be described with hydrographs and exceedance tables. The time-scales will be those allowed by the existing data, daily, monthly, hourly, or in 15-minute increments. A series of tables will also be generated from the streamflow gaging data including: monthly flow statistics tables summarizing: mean monthly flow and monthly exceedance flows; average monthly flow; mean daily flow for each year of the period of record; and duration curves depicting the median flow for each station. The timing of construction of various Project components will be highlighted in the data presentation.	These flow characteristics have been presented and described using hydrographs and exceedance tables and graphs. The mean daily flows (in cfs) used for these analyses are based on the daily flow data available in electronic format from USGS and SCE. The tables developed consist of monthly flow statistics summarizing mean monthly flow and monthly exceedance flows; average monthly flow; and duration curves depicting the median (and other percentile) flow for each station. The timing of construction of various Project components has also been presented in a table.	Ramping rate analysis is in progress. The mean daily flows for each year of the period of record are available for most sites on the USGS website (http://water.usgs.gov/). Other work is complete.
3. Hydrographs illustrating mean daily stream flow at the point of diversion and in the bypassed	Hydrographs of mean daily flows over the period of record and for the WY 1983-2002 period for all	The determination of whether additional gages or other appropriate means of estimating

Study Element	Status	Outstanding Study Elements
reaches for each month of representative water year types will be presented. For areas with no or limited data, we will augment the available data using a comparison to similar-sized nearby subwatersheds, precipitation estimates, or other hydrologic techniques. The proposed approach should be discussed with CAWG prior to proceeding. In addition, for areas with limited or no data, a recommendation will be made to the CAWG whether additional gages are needed.	water year types have been developed for all gaged locations. For areas with no or limited data, the available data were augmented using a comparison to similar-sized nearby subwatersheds or other hydrologic techniques. These estimated or “synthetic” data were used to compute unimpaired statistics, but hydrographs of the synthetic data were not explicitly plotted or presented. The approach for estimating unimpaired flows was discussed with and approved by the CAWG.	stream and/or release flows will be made in conjunction with the impacts analysis and PM&E identification phase. This will occur after the current report.
4. The data will be used to describe the balance of flows in the Study Area, comparing the volume of water diverted for hydroelectric generation and the volume remaining instream, including minimum flow requirements. The analysis will evaluate this balance based on water year type.	Water balances for each water year type were computed to the extent feasible using all existing data. The volumes of water diverted for hydroelectric generation and the volume remaining instream were compared.	Complete.
5. The data will also be used to describe the unregulated hydrology to the extent feasible, and allow comparison to existing hydrology. For streams at high elevations with single diversions, the unregulated hydrology will represent flow above the point of the diversion. Where accretion flow downstream of the diversion has been estimated, it will be included. For streams subject to more complex hydrologic change, the unregulated hydrology will be reconstructed to the extent feasible. This will generally result in a more limited number of locations than are currently gaged.	Data were used to describe or estimate the unregulated (unimpaired) hydrology for all gaged river and stream locations. This was done using Bear and Pitman creeks above the diversions (actual unimpaired sub-basins) as reference basins to estimate unimpaired flows in other sub-basins using an “area-based” approach. Simple water balance methods were also used in some locations where appropriate. These methods were discussed with, and approved by, the CAWG. Comparison of unimpaired hydrology to existing hydrology was accomplished using IHA.	Complete.
6. The IHA program will be used with the available daily streamflow data for gages with available and usable periods of record, using the methods in Richter et al. (1996).	IHA was used for all gaged river and stream locations to quantitatively compare existing hydrology with estimated or actual unimpaired hydrology.	Complete.

4.0 STUDY METHODOLOGY

Figures CAWG 6-1a through d present a generalized flowchart of the hydrology study elements and process. These elements and the methods used to implement the study are discussed below.

4.1 EXISTING HYDROLOGY - HYDROGRAPHS AND DATA SUMMARY FOR GAGED LOCATIONS

Analysis of existing hydrology primarily relied on gaging data in electronic format obtained from the U.S. Geological Survey (USGS) National Water Resources website. All gaged locations in the Study Area and relevant associated basins were obtained and analyzed to evaluate the existing hydrology. These gaged locations included river and stream locations, as well as diversions, conduits, and lakes/reservoirs within the Project vicinity. Some SCE electronic data records for locations where gaging records are not reviewed and published by USGS (such as small tributary streams or diversions) also were used. Flow data were generally recorded as mean daily flow (in cubic feet per second [cfs]). Storage data for large study impoundments were generally available in terms of lake elevation (feet above mean sea level [ft msl]) and/or lake storage (acre-feet [a-f]). While SCE had some additional data in hard copy format, only data available in electronic format were evaluated quantitatively. The availability of electronic records is shown in Table CAWG 6-1.

The period from water year (WY) 1983 through 2002 was selected for quantitative data analysis. This was approved by the CAWG and is identified as the analysis period in this report. This period was selected based on several factors. These factors included the availability of data in electronic format, the need for data representative of the current Big Creek Project facilities, and the need to represent how the Project is currently operated. For gaging stations, where longer periods of record were available in electronic format, these data were used to provide information about the longer period of record, as well as the analysis period.

Hydrographs are a basic tool of hydrology used to review flow data for an extended period. Hydrographs plotted for the analysis period of WY 1983 through 2002. For stations with long-term records, hydrographs also were plotted for the entire periods of record. The hydrographs were carefully reviewed as part of quality assurance (QA) of the data. This was done to evaluate potential problems, such as outliers, data gaps, and shifts in the hydrologic record. Such a shift might indicate a change in station location, measuring device, or in upstream conditions. The hydrographs were used to help determine which periods of the available record should be analyzed quantitatively.

Map CAWG 6-1 shows the locations of Big Creek Project diversions, dams, reservoirs, flow lines, and powerhouses. The smaller diversions generally had shorter periods of record. These included Hooper, Chinquapin, Camp 62, Ely, Bolsillo, and Crater Creeks. For these streams, individual annual records were plotted to examine the data and to identify potential problems. Common problems identified for these diversions and their data included:

- Diversion not operational due to low flow or freezing in winter (up to seven months of the year at some locations);
- Blockage by debris;
- Overtopping of the diversion during very high flows; and
- Damage due to ice, flooding, or debris.

Based on careful examination of the individual annual hydrographs and review of the available written operational records for these diversions, some problematic data were identified. Such data were excluded from the record and from further quantitative analysis. The diversion turn-in and turnout dates (to the extent available) also were evaluated to determine when unimpaired flows passed downstream of the diversion. This commonly occurred in late summer through early spring.

Annual and extreme flows, which are used by hydrologists to describe the flow characteristics of streams also were identified or calculated. These included the mean annual peak flow, 10-year flood, and seven-day low flow for each river and stream gage location included in the analysis.

A summary of Big Creek study stream and relevant near-by gage station locations and available data is presented in Table CAWG 6-1 for stream, river, diversion, conduit, and lake/reservoir locations. Table CAWG 6-2 shows the timing of major construction and/or operational changes that affected both the selections of periods of record and time periods used for quantitative analysis. Based on all of the analyses discussed above, the periods of record shown in Table CAWG 6-1 were presented to and approved by the CAWG for use in the quantitative data analysis.

Ramping rates of gaged flow will be addressed in a supplemental document by analyzing available (15-minute or one-hour) flow data downstream of the major Project impoundments, which experience spill.

4.2 EXISTING HYDROLOGY STATISTICS

4.2.1 WATER YEAR TYPES

The California Department of Water Resources (DWR) identifies and defines five water year types for the San Joaquin River Basin. These WY types each represent a different range of the expected volume of runoff within the basin. The classifications from highest volume of runoff to lowest volume are Wet, Above Normal, Below Normal, Dry, and Critically Dry. This WY classification system provides a means to assess the amount of water originating in the basin and is useful for general water planning and management. This type of classification system has been developed for several hydrologic basins in California (http://www.dwr.water.ca.gov/). Classification of water year types, and quantitative analysis of data according to these types, allows more detailed evaluation of conditions within the wide range of natural variability of runoff. This approach provides a valuable tool to understand differences in flows and operations based on this classification approach to natural hydrologic variability. Table

CAWG 6-3 presents the DWR WY classifications for the San Joaquin River Basin for the period of record.

Data analyses for both the entire historical period of record and the analysis period (WY 1983-2002) were performed in two separate groups. One group was an analysis of all data for all water years combined for a gaging location. The second group was to divide the data up by water year type and analyze each type separately. No below normal water years occurred within the analysis period; the most recent below normal WY in the San Joaquin Basin was 1971. Therefore, below normal WY types were only analyzed for longer-term records (going back to 1971 or earlier).

4.2.2 Analysis

The following monthly statistics were calculated:

- number of years of record,
- number of days of record,
- minimum (flow, elevation, or storage),
- mean (flow, elevation, or storage),
- maximum (flow, elevation, or storage), and
- percentiles/exceedances at five percent intervals, including the median (50^{th} percentile).

Exceedance tables were produced containing the above statistical results for each month for each gaging location. Exceedance graphs also were plotted showing flow (or storage/elevation for lakes) versus cumulative percent of data greater than a given value.

For small streams with diversions listed in Section 4.1, measured data for both upstream of the diversion and the bypass reach were generally available only during late spring and summer months. These were the periods when the diversions and stream gages were in operation for the small diversions. During other periods, the full flow of the stream passed downstream of the diversion. In order to provide a year-round analysis of these small diversions, the gaged data were used in combination with unimpaired estimates for periods when the diversion was turned out (not in operation) and flow was neither diverted nor recorded. This approach was discussed with the CAWG and approved. The unimpaired data were estimated using the methods discussed in Section 4.3.

As part of the analysis, the general level of confidence (high, medium, low) in the flow data for each station was evaluated based on qualitative criteria and professional judgement. The criteria used are as follows: A confidence level of “high” generally means that there were data with a relatively long and complete record with few data gaps observed or obvious errors. “Medium” generally means that the data record was not as long or complete. Either the amount of data was limited during some winter months or water balance checks of the data had poor results, such as for Mammoth Pool and Huntington and Shaver lakes. "Low" means that the data record was very limited or of poor quality, such as for Bolsillo Creek above the diversion where there were only three years of data.

In addition, confidence limits were calculated for mean flow values for representative months and gaged locations. These confidence limits were calculated using the software program "Statgraphics" as the lower and upper 95 percent confidence intervals on the mean using standard statistical methods. The confidence limit calculations assume that the mean flow is normally distributed, even though the underlying variable (daily flow) is not normally distributed. This is typically a valid statistical assumption under the Central Limit Theorem (Helsel and Hirsch 1992). The monthly means for June and September were used to represent wet and dry periods of the year, respectively. These months were selected to assist the reader in understanding the range of hydrologic conditions that occur within the study streams during the course of a year.

Water balances were used to estimate the percentage of flow diverted, as called for in the CAWG 6 Study Plan (SCE 2001) for diverted streams and reservoirs, to the extent feasible using all appropriate existing data between 1983 and 2002. The water balance analysis for creeks utilizes the average monthly flow upstream and downstream of diversions. Average monthly flows for each water year type were computed from daily flow values. The percent of water diverted for hydroelectric generation was calculated based on flow diverted relative to flow above the diversion or conversely, flow below the diversion was subtracted from flow above the diversion and the difference was the diverted portion. Unless otherwise stated, discharges used in these calculations were measured by a gage.

To estimate water balance at Hooper Creek, the flow above the diversion was estimated by summing both the discharges below the diversion and the diverted flow, both of which are measured by gages. Discharges for Chinquapin and Camp 62 Creeks above the diversions were estimated using the area-based method. Discharge for Bolsillo Creek above the diversion was estimated by the area-based method for years when there was no gaged record.

A water balance also was computed for Florence Lake. The water balance considers natural and diverted inflows to the lake and releases and piped outflow from the reservoir. The piped outflow (Ward Tunnel) is a diversion for hydroelectric generation. The limited data available for the diversion structures at Balsam Meadow Forebay, Dams 4, 5, and 6, Mammoth Pool Reservoir, Huntington Lake, and Shaver Lake between 1983 and 2002 preclude computation of reasonable water balances.

4.2.3 Cloud Seeding

The following summarizes the results of a literature review of the cloud seeding activities preformed in the Big Creek Study area. Cloud seeding is used by SCE to boost precipitation, which has influenced the hydrology of the Project Area throughout the study period. The CAWG 4 Water Quality, CAWG 8 Amphibians and Reptiles and Land 5 Storage Capacity and Generation Assessment technical studies included reviews of cloud seeding activities. The following material was prepared as part of the CAWG-8 Amphibian and Reptile technical study (SCE 2004).

"Cloud seeding programs have been operated continuously in the Sierras (California) since 1948. SCE annually contracts for cloud seeding services in the Big Creek ALP study area, utilizing silver iodide (AgI) to boost precipitation at elevations above about 6,000 feet (Atmospherics, Inc.). Eighteen ground generators sited primarily in the southern and western parts of the study area expel silver iodide "ice nuclei" into the atmosphere to precipitate moisture from "seedable clouds" (clouds with appropriately high area density and with large concentrations of supercooled water distributed vertically in a characteristic pattern). These generators operated about 1,300 hours (about 54 days) per year during the 1990's. Aircraft seeding supplements the ground generators during the summer, about 135 flight hours per year during the 1990's (Henderson Pers. Com.). Data from Atmospherics, Inc., suggest that cloud seeding boosts winter precipitation about five to ten percent annually (Henderson Pers. Com., Henderson undated).

4.3 UNIMPAIRED HYDROLOGY ESTIMATION

4.3.1 GENERAL APPROACHES

All gaging stations used and corresponding sub-basins within the Study Area are shown in the basin maps (Maps CAWG 6-2 through 6-5). The maps show sub-basins for all gages used in addition to other points of interest (e.g. tributaries of the main channel). Five gaged locations in the basin monitor flow from unimpaired sub-basins: Bear, Pitman, Bolsillo, Rock, and Ross Creeks above the diversions. For these locations, the actual measured data were used to the extent possible to evaluate unimpaired hydrology. Because the records at Bear and Pitman Creeks above the diversions are long-term with few data problems, statistical analyses were performed using the last 20 years of data for these stations. Bolsillo, Rock, and Ross Creeks all have five years or less of flow record, with very little data available during the winter months. The existing unimpaired gaged data at these three sites were evaluated using the statistics discussed above. In addition, the estimated unimpaired data (using the methods discussed below) during winter months and other periods with data gaps were used in combination with the measured data to fill in the gaps in the flow records. A second statistical analysis was performed on this more complete data set to better evaluate the existing unimpaired hydrology at these three locations.

4.3.2 AREA-BASED APPROACH

For all locations other than the five gaged locations monitoring flow from unimpaired sub-basins (Bear, Pitman, Bolsillo, Rock, and Ross Creeks above the diversions), unimpaired flow data were estimated or synthesized using two general methods: an area-based method or a water balance method. The area-based method was used for most locations, using the daily flow and sub-basin area for one of the two reference basins (Bear and Pitman above the diversions) as the basis for estimating daily flow at other locations. This methodology used for estimating runoff based on watershed area is a standard practice in hydrology (Maidment 1993). Figures CAWG 6-2a through c present the specific basins and methods used for estimating flows. These include identifying each location where the area-based methodology was applied. This is further discussed in Section 5.3.

This “area-based” flow was computed as:

$$Flow_u = Flow_r \frac{A_u}{A_r}$$

where:

$Flow_u$ = estimated synthetic mean daily flow (cfs) in unimpaired sub-basin
$Flow_r$ = actual mean daily flow (cfs) in unimpaired reference sub-basin
A_u = area of unimpaired sub-basin
A_r = area of unimpaired reference sub-basin

4.3.3 Water Balance Approach

The water balance approach generally made use of existing gaging or storage data to estimate unimpaired flows. For small stream diversions, this approach may be applied by adding gage records from above and below a diversion. Hooper Creek was one location that had good flow data for both the diversion and below the diversion in the creek. Therefore, the diversion daily flow was added to the below diversion daily flow to estimate the unimpaired flow for this station below the diversion.

This type of water balance approach using available gaged data also was applied to all of the major reservoirs in an attempt to estimate unimpaired natural inflows and outflows. These included Florence Lake, Lake Thomas A. Edison (to estimate flows at Mono Creek below the diversion), Mammoth Pool Reservoir, Huntington Lake, and Shaver Lake. Acceptable water balances were not obtained for Shaver Lake, Huntington Lake, and Mammoth Pool Reservoir. This was due to the fact that the daily diverted or generation outflow volumes into and out of these reservoirs are generally much larger than the natural flows. Therefore, relatively small errors in the generation or diversion flow data can result in errors that are considerably larger than the estimated natural flows. In these cases, therefore, the area-based approach was used. The water balance approach provided acceptable results for both Florence Lake (SJSJR below Florence Lake) and Lake Thomas A. Edison.

4.3.4 General Application and Confirmation

Unimpaired flows also were estimated for sites downstream of Florence Lake (SJSJR below Florence Lake) and Lake Thomas A. Edison using a water balance approach (Mono Creek below the Mono Diversion was estimated using an area based approach). Unimpaired flows at the downstream sites were estimated by adding incremental unimpaired flows based on the area-based approach to those unimpaired flows estimated by water balance for the upstream location.

All methods used to estimate unimpaired flows for gaged locations are presented in Table CAWG 6-4. The specific equations used for each location are shown in Table CAWG 6-5. A schematic of the basin with all gaged sub-basins, specific equations used to estimate flows, and other relevant information is shown in Figures CAWG 6-2a through c.

To determine the potential accuracy or uncertainty of the area-based method, the mean and median monthly flows from representative unimpaired sub-basins were plotted against sub-basin area and a linear regression analysis was performed. The regression results were used to indicate whether there was a strong linear relationship between flow and area within the basin, thereby indicating the general accuracy of the method.

In addition to the linear regression analysis, a comparison of results from the area-based method to actual data or results from the water balance method was performed for some representative locations. These locations were chosen because they had a reasonable gaged flow data set that could be used to evaluate the uncertainty of the area-based method. These locations included:

- Hooper Creek below diversion,
- Bolsillo Creek above diversion, and
- Mono Creek above diversion.

4.4 UNIMPAIRED HYDROLOGY STATISTICS

Once the unimpaired hydrology record for the 20-year analysis period was estimated for all selected river and stream gaging locations, flow statistics were computed. The statistics for each station were calculated for each water year type, as discussed above for existing hydrology. Statistics were also computed for all water year types collectively. Plots were prepared presenting the median, 25, and 75 percent exceedance flows by month for historic and unimpaired flows for all water year types, and by water year type.

4.5 INDICATORS OF HYDROLOGIC ALTERATION

The IHA methodology was used in this study to evaluate some of the hydrologic statistics and other indices produced by this analytical software. IHA was also used to quantitatively compare these indices between existing hydrology and estimates of unimpaired hydrology at gaged river locations. IHA and its associated software were developed by The Nature Conservancy to provide an easy-to-use tool for calculating hydrologic regime characteristics, and to analyze changes in those characteristics over time (Richter et al. 1996; The Nature Conservancy and Smythe Scientific Software 2001). The IHA method allows calculation of up to 33 hydrologic parameters. These parameters are used to compare the degree of hydrologic alteration based on the magnitude, timing, frequency, duration, and rate of change in a system using biologically relevant variables.

The IHA User's Manual recommends a minimum 20–year record for use of IHA. IHA analysis was performed for all gaged locations using the 20-year analysis period (WY 1983-2002) where possible, comparing the estimated or actual unimpaired daily flows to the measured existing flows. However, there were some exceptions to this approach when some stations exhibited the following:

- actual unimpaired data were available for a different, previous period of time and used instead of estimated unimpaired data over the last 20 years;

- actual existing (historic) hydrology data were only available for a much shorter than recommended period, but an IHA analysis was used to provide an indication (with limitations); and

- actual historic flow data were not available for the entire period, including missing values and missing years, but were available for 10 to 15 years.

For Mono Creek below Mono diversion, existing hydrology data from 1984-2002 were compared to 20 years of Mono Creek above diversion data prior to 1953 (1933-1952; prior to construction of Vermilion Valley Dam) and by use of the area-based method to estimate unimpaired flows as a basis for the same period of record. This comparison uses actual unimpaired data from above the Mono Creek diversion from a previous period, instead of using estimated unimpaired flows from above the diversion for the last 20 years. Differences in the frequency and magnitude of runoff for the periods of record, between the gages used may contribute some artifacts to the analysis. The area-based estimates were incorporated to avoid those artifacts.

For Bear and Pitman Creeks, the existing hydrology below the diversions was compared to the measured unimpaired hydrology above the diversions. For Bolsillo Creek, the measured data used in combination with estimated unimpaired data above the diversion was used as the unimpaired data set. These data were compared to the measured data (during some summer months) and estimated unimpaired data (for some winter months) below the diversion (for existing hydrology). For Chinquapin and Camp 62 Creeks, the estimated unimpaired data below the diversions were used as the unimpaired data sets. These data were compared to the measured data (during some summer months) in combination with estimated unimpaired data (for some winter months) below the diversion as the existing hydrology set. The estimated unimpaired data were used for existing flows during periods when the diversions were turned out.

There also were several other cases where there was not a complete 20-year record for existing hydrology. For example, some records might have started in 1987 or have one or more years missing. In addition, missing values within years had to be addressed. The IHA software program calculates annual as well as monthly statistics. In order to do this, the program fills in missing values by interpolating between values at both ends of the missing record. This is generally adequate if the record is short, such as less than a two- or three-week period, or not very variable, such as during fall or winter lower flows. If a significant percentage of the data for a given year was missing, the entire year of data was excluded from IHA analysis to avoid artifacts from the program estimating the missing data. The data were screened to identify appropriate periods to exclude from or include in the analysis.

Most of the periods of record for the sites considered were generally considered long enough to use for the IHA analysis and provide results representative of recent conditions. However, Bolsillo and Chinquapin Creeks below the diversions both had usable records of less than 10 years. Although these results are presented here, they may not be of sufficient duration to be representative of flow conditions. Table CAWG 6-6 presents the periods of record used for each station for the IHA analysis for both existing and unimpaired flows. The table also indicates the number of years with significant amounts of missing date. Table CAWG 6-7 shows the number of missing values by month and year for each station used in the IHA analysis.

The most recent measured flow data record for San Joaquin River above Big Creek was from 1943-1962. This station is now inoperable. This period and data set is not representative of conditions over the last 20 years. Mammoth Pool Reservoir (above the station) was constructed in 1960 and now influences flows at the location of the station. In addition, the 1943-1962 period differed from the 1983-2002 period in the type and frequency of runoff conditions and water year types. Data from this station, therefore, were excluded from IHA analysis because results from the comparison would not be representative of existing operations or flow conditions.

Inflows to Redinger Lake from the Big Creek Project were calculated from flows from the San Joaquin River downstream of Dam 6, Stevenson Creek upstream of the SJR, and Big Creek Powerhouse 3 discharges. However, data from all three locations were simultaneously available for only 10 of the last 20 years. These were compared to unimpaired flows for the 20-year period. To reduce bias that may be caused by differing periods of record, a comparison also was made for the same period of record for both historical flows and unimpaired estimates. The results of these analyses, calculation of flow exceedances, and plots related to these data are provided in each of the appropriate appendices.

Non-parametric statistics (such as the median and other percentiles of the data) were used for most analyses because they are generally more robust and provide better estimates for skewed data (data that are not normally distributed) (Richter et al. 1996). It is well recognized that most hydrologic data are skewed (Maidment 1993). A relatively large difference in the mean and median of the flow data (such as observed for many of the stations in the Upper San Joaquin Basin) indicates that the data are skewed and that nonparametric statistical analysis is generally preferred.

Selected IHA-generated plots were selected by the CAWG to facilitate interpretation of IHA outputs. These were prepared for each location.

5.0 STUDY RESULTS AND ANALYSIS

5.1 EXISTING HYDROLOGY-HYDROGRAPHS AND DATA SUMMARY FOR GAGED LOCATIONS

A summary of the gaging station locations, data, and the evaluation of the data records and hydrographs is presented in Table CAWG 6-1 for all stream and river, diversion, conduit, and lake/reservoir locations. This table shows the USGS period of record, the sample size used for statistical analysis, and additional periods of record available for additional analysis. For stations with long periods of record, generally greater than 25 years, the period WY 1983–2002 also was evaluated. The table shows data gaps as well as the availability of hard copy data for some stations. Most of the river and stream locations had reasonable periods of record (>15 years). The greatest period of record is 81 years for both Bear and Mono Creeks above the diversions, and the shortest is three years for Bolsillo Creek above the diversion. Seven smaller streams and diversions have records of less than 10 years, at least for several months of the year. Those with incomplete annual records generally do not have data during the winter months (and sometimes additional seasons, as well) when the diversions are not in operation. Table CAWG 6-1 also shows additional gaging stations that are outside of the Study area, associated with SCE projects undergoing traditional relicensing, or not currently gaged (but were operated in the past).

Hydrographs for all gaged river and stream locations used for existing hydrology are presented in Appendix C. Hydrographs for all diversions (including annual hydrographs for the small diversions), lakes, and other locations are shown in Appendix D.

Table CAWG 6-8 summarizes information for each of the gaging locations considered for inclusion in the unimpaired flow analysis. This table shows our general confidence level in the gaged data at each location and its applicability to estimation of unimpaired flows for the period WY 1983-2002. The bases for the classifications also are presented in the table. A confidence level of “high” generally means that there were data with a relatively long and complete record with few data gaps or observed or obvious errors. “Medium” generally means that the data record was not as long or complete. Either the amount of data was limited during some winter months or water balance checks of the data had poor results, such as for Mammoth Pool and Huntington and Shaver lakes. “Low” means that the data record was very limited or of poor quality, such as for Bolsillo Creek above the diversion where there were only three years of data.

Summaries of historical annual and extreme flows for river and stream gaged locations that are considered for further analyses are presented in Table CAWG 6-9. Mean annual flows ranged from less than two cfs for many of the small streams to over 581 cfs for the San Joaquin River (SJR) downstream of Dam 6. Mean annual maximum daily flows ranged from less than two cfs for Middle Fork Balsam Creek below Balsam Meadow Forebay to over 6,800 cfs for SJR downstream of Dam 6. Mean annual peak flows (instantaneous peaks based on the maximum 15-minute interval data for the year) ranged from about two cfs at Middle Fork Balsam Creek to over 15,000 cfs for SJR below Dam 6. The average difference between the mean annual peak flow and mean annual maximum daily flow for all stations was approximately 58 percent. These ranges of flows are generally representative of flows in the Upper San Joaquin Basin watershed (USFS 1972), although they are somewhat lower and less variable than unimpaired flows in the basin due to Project operations[1].

Mean annual low flows ranged from less than one cfs in many of the small streams to 5.7 cfs at Bear Creek. Mean annual seven-day low flows ranged from less than one cfs in the small streams to 9.4 cfs at Bear Creek below the diversion.

The small stream diversion turn-in and turn-out dates for the period 1992 to 2003 are presented in Table CAWG 6-10. This is the only period that these types of records are available. The table shows that during the winter months most of these diversions are continuously turned out. These records were used in determining when unimpaired flows could be used to estimate flows that occurred when diversions were not in operation (were turned out).

5.2 EXISTING HYDROLOGY STATISTICS

The water year type for each year in the period of record is shown in Table CAWG 6-3. These water year types are based on designations by the California Department of Water Resources, as discussed in Section 4.2.1. Over the analysis period of WY 1983-2002, 35 percent of the years were classified as wet and 35 percent classified as critical. This is a more bimodal distribution than that indicated for the overall period of record of 1901-2002.

Existing hydrology exceedance tables for river and stream gaging station locations are presented in Appendix E, and corresponding graphs are in Appendix F. Exceedance tables for all diversion, conduit, and lake/reservoir gaged locations are shown in Appendix G with corresponding graphs presented in Appendix H.

The exceedance tables show monthly summary statistics for all water year types lumped together. They also present results for each water year type that occurs within the period of record being analyzed. During the analysis period (WY 1983-2002) no below normal water years occurred. The most recent such water year was 1971. The contents of the exceedance tables include:

- number of years of record,
- number of days of record,
- minimum,
- mean, and
- maximum.

[1] Differences in periods of record between mean annual maximum daily flows and peak flows may result in artifacts in comparisons of these parameters.

The tables also show the exceedances of specific data values at 5 percent intervals, including the median (50th percentile or exceedance value). For example, for an exceedance value of 25 percent, a table may show a value of 30 cfs in September. This means that the flow exceeded 30 cfs on any day during that month only 25 percent of the time based on the gaged data.

The exceedance graphs show the same information in graphic form, so that the probability of any flow being exceeded during any month can be read directly from the graph.

As discussed in Section 4.2.1, 95 percent confidence interval estimates were calculated for June and September (representing wet and dry periods of the year, respectively). The relationship of the upper confidence interval to the monthly mean was expressed as the monthly percentage of the mean value (upper confidence limit minus mean, all divided by mean). For selected gaged locations, these ranged from less than one percent of the mean for Florence and Shaver Lake elevations to a little over 30 percent for the Chinquapin conduit for June high flows (Table CAWG 6-11). Confidence intervals for most of the river and stream locations ranged from two percent for unimpaired flows at Bear Creek above the diversion to 22 percent for Mono Creek below the diversion in June. The percentage of the mean differed with the different periods of records presented for these locations in Table CAWG 6-11. For Pitman Creek above the diversion, which is another unimpaired sub-basin, confidence intervals ranged from nine to 13 percent in June.

For September low flows, upper confidence intervals ranged from less than one percent for lake elevations to greater than 40 percent in some SFSJR, SJR, and Big Creek mainstem locations. Most of the river and stream locations ranged from two percent to 35 percent in September. Bear and Pitman Creeks above the diversions ranged from nine to 17 percent in September, depending on the length of the period of record used in the analysis. Bear and Pitman Creeks above the diversions are used as reference basins to estimate unimpaired flows in other ungaged sub-basins by the area method. The uncertainty estimates for their gaged data represent the minimum uncertainty associated with the estimated unimpaired flows for the other sub-basins.

Water balances for diverted creeks are presented in Tables CAWG 6-12a through d. The water balances include the volume of water above and below diversions and the percentage of above-diversion flow that was diverted for eventual hydroelectric generation. These tables present comparisons for all water year types and for each water year type that occurred in the 1983-2002 study period. No below normal water year type occurred during the study period. In the large creeks, such as Bear and Pitman Creeks, most water was diverted year-round in all water year types. In the small creeks, such as Hooper and Bolsillo, typical diversions ranged from 15 to 90 percent during spring in all water year types. Typical diversions in late summer, fall, and winter were zero percent in all water year types except wet years. During wet water years flow often was diverted well into fall. Most diversions on the small creeks were turned out (not diverting) during winter. Frequently, diversions on these creeks were halted in summer. Minimum instream flow requirements for Project streams are presented in Appendix B.

A water balance for Florence Lake is presented in Table CAWG 6-13 using specific water years in the analysis period to represent water year types. In all water year types except February and March in critical years, total inflow exceeded total outflow from January through June. This indicates that storage in Florence Lake generally increased during winter and spring. From July to December, outflow generally exceeded inflow except in November and December, indicating Florence Lake storage decreased in summer and early fall. In all water year types, a majority of the water discharged from Florence Lake was used for hydroelectric generation through the Ward Tunnel.

5.3 UNIMPAIRED HYDROLOGY ESTIMATED FLOWS AND STATISTICS

As discussed in Section 4.3, an area-based methodology was used to estimate unimpaired flows at many locations (Maidment 1993). Table CAWG 6-14 presents an example (for October 1982) of the estimated unimpaired daily flows at gaged river and stream locations. This table also shows the general method used to estimate these flows at each station. Estimated unimpaired hydrology exceedance tables for river and stream gaging station locations are presented in Appendix I, and graphs are located in Appendix J. Twenty-year hydrographs of daily flows comparing historical and unimpaired flows are presented in Appendix N. Comparisons of monthly exceedance values (median, 25, and 75 percent) of unimpaired and historical flows for the period of record and by water year type are presented in Appendix O.

Figure CAWG 6-3 shows the mean and median annual flows for representative unimpaired sub-basins plotted against sub-basin area. The graphs show linear regressions performed as a check on the potential accuracy of the area-based method. A good relationship exists, with R^2 values of 0.98 and 0.94 ($p<0.05$) for the mean and median, respectively. These indicate that the sub-basin area is a relatively good predictor of flow.

Results from the area-based and water balance methods were compared for Hooper Creek below the diversion and Mono Creek above the diversion. The results showed that the difference in the means and medians of these values was relatively small and less than 6.3 percent. This is considered a relatively good match and generally confirms that the uncertainty associated with the area-based method results is within an acceptable range. Differences in the results for Bolsillo Creek above the diversion between the area-based method and gage data, however, were between 20 and 30 percent. This range of uncertainty may be expected because this sub-basin is much smaller (1.3 mi^2) than Hooper Creek (7.3 mi^2) or Mono Creek (92.8 mi^2) sub-basins. Bear and Pitman Creeks were used for area-based calculations. These sub-basins were 52.5 and 23.1 mi^2 in area, respectively. These areas are within the range of Hooper and Mono Creeks and similar uncertainties may be expected for these sub-basins. The use of much larger basins also may result in similar uncertainty. Table CAWG 6-15a presents a comparison of historical gage flows and flows estimated using the area-based approach, both for the period 1983-1991, for the San Joaquin River at

Miller's Crossing (unimpaired large subbasin with area of 249 mi^2). This comparison shows that differences in mean or median flows for this large subbasin are still in the range of 24 to 30 percent. This indicates that on average differences or uncertainty of up to 30 percent may be expected for any of the subbasins. In addition, a comparison of all of the historical gage data and flows estimated using the area-based approach for the period 1983-1991 using linear regression shows an R^2 value of 0.89. This indicates a very good correlation between estimated unimpaired flows and gage data in this large subbasin. It is generally accepted in hydrology that a single good instantaneous flow measurement typically has error or uncertainty in the range of 10 to 15 percent. This uncertainty increases as hydrologic statistics are calculated from the measured data, and increases even more as ungaged or unimpaired flows must be estimated from the gaged data in many areas. Therefore, these average differences of up to 30 percent for unimpaired flow estimates for the basins studied (including the very large and very small basins) are considered reasonable and adequate for general assessment and comparison of the statistical characteristics of the unimpaired and existing flows using IHA. Because individual daily flow values can have greater differences or uncertainties, however, it is not recommended that daily values be compared directly. A more detailed deterministic hydrologic model would be required to estimate unimpaired daily flows this purpose, but the reduction of uncertainty using this type of method would still be questionable.

Table CAWG 6-8 shows the general or qualitative confidence level of the unimpaired data at each location. The basis for these confidence levels also is presented in the table. A confidence level of "high" generally means that there were good actual unimpaired data, either at the station (such as Bear Creek above diversion) or immediately upstream of the station (such as Pitman Creek below diversion). "High" confidence may also mean that good data for the diversion and below the diversion were added to estimate unimpaired flows (such as Hooper Creek below diversion). "Medium" confidence generally means that the unimpaired flow estimates were based on good synthetic data (from an acceptable water balance, such as for Mono Creek below diversion) or the station sub-basin area was somewhat similar in size to the reference basin area used for the area-based method. "Low" Confidence means that the station sub-basin area was much larger or much smaller than the reference basin area used for the area-based method. In this case, there is generally more uncertainty associated with the estimated unimpaired flows than if the sub-basin area was similar.

Bear and Pitman Creeks above the diversions were used as reference basins to estimate unimpaired flows in other ungaged sub-basins. Confidence interval estimates for Bear Creek ranged from two percent to about five percent, and for Pitman Creek ranged from nine to 13 percent in June, and from nine to 17 percent in September, depending on the period of record used for calculation. The uncertainty estimates for the gaged data at these locations represent an estimate of the minimum uncertainty associated with the estimate of unimpaired statistical parameters for other sub-basins.

5.4 INDICATORS OF HYDROLOGIC ALTERATION

Definitions of the primary IHA parameters and terminology taken from the IHA Users Manual (The Nature Conservancy and Smythe Scientific Software 2001) are presented in Appendix K. Some additional interpretation of the parameters is also presented in the same Appendix. This includes some discussion of the terms “predictability, constancy, and contingency” with regard to periodic phenomena (Colwell 1974, Poff and Ward 1989).

IHA results in table format for the river and stream gaging stations are presented in Appendix L as IHA output files with minimal annotation. For each station, these results include the following four types of output tables:

ann – monthly median results for each of the 33 IHA parameters

pct – monthly results for nonparametric percentile statistics

rva – results for the RVA (Range of Variability Approach) analysis

sco – results for the IHA and hydrologic alteration scorecard

The analyses contained in these tables are explained in detail in Appendix K. Information in this appendix will help in interpreting the tables and data for the IHA results as part of the analysis of impacts in subsequent studies. For many locations, large differences were observed between estimated or actual unimpaired flows and historic flows in the basin. Indices reflected these differences. Please remember that there is uncertainty in the magnitude of daily unimpaired flow estimates, as described in Section 5.3. This can affect the results of IHA indices.

In order to assist the reader in interpreting the results of the IHA analyses, the results for Bear Creek are used as an example. The resulting tables and figures are discussed below.

Table CAWG 6 Appendix L-3a presents the IHA annual summary statistics for Bear Creek below the diversion. In this case, we are actually comparing measured unimpaired flows above the diversion with measured existing (historic) flows below the diversion for the 1983 through 2002 study period. This can be done because Bear Creek is one of the few locations in the basin where actual unimpaired flow data from above the diversion are available. The table shows the 33 IHA parameters and the median value for each parameter for every year used in the analysis. This is done for both the unimpaired flows and existing flows. Most of the monthly flow values are considerably lower for the below diversion (existing) data. Detailed comparisons of the two data sets are presented in subsequent tables.

Table CAWG 6 Appendix L-3b shows the IHA percentile data for the 33 parameters for the unimpaired and below diversion data. The 50 percent values are the medians, and the last column for each of the two data sets [(75-25)/50] shows the coefficient of dispersion [(75th percentile minus 25th percentile)/50th percentile] values for each parameter. Most of the monthly flows are considerably smaller for the below diversion flows data set. The below diversion flows exhibit coefficients of dispersion that are generally smaller (smaller variability) during the low-flow months in fall and winter, but considerably greater (greater variability) during the spring and early summer high-flow months.

Most of the minimum and maximum (1- through 90-day duration) flows are smaller for below diversion flows, although the 90th percentile maximum flows tend to be higher for below diversion conditions compared to unimpaired conditions. This may be due to large overflows and bypass of the diversion structure under extremely high-flow or flood conditions. The coefficients of variation are generally smaller for the minimum flows and larger for the maximum flows for below diversion flows. The dates of minimum and maximum flows are similar between unimpaired and below diversion flows. The dates of minimum flows are similar between unimpaired and existing conditions, but the dates of maximum flows are shifted somewhat later in the season for existing conditions (generally beginning of June to mid July) compared to unimpaired flows (generally end of May to mid June). Low and high-pulse counts and durations generally have smaller coefficients of variation for below diversion data. Rise rates, fall rates, and the number of reversals are considerably more variable for below diversion flows (having greater coefficients of variation).

Table CAWG 6 Appendix L-3c shows the non-parametric RVA scorecard for all 33 parameters. RVA is the "Range of Variability Approach" as defined in IHA by Richter (1997). In an RVA analysis, the software user defines three different categories that divide the full range of pre-impact (unimpaired) data values. For example, the default in non-parametric RVA analysis is an automatic delineation of three categories of equal size. The lowest category contains all values less than or equal to the 33rd percentile; the middle category contains all values falling in the range of the 34th to 67th percentiles; and the highest category contains all values greater than the 67th percentile. During the pre-impact period, 33% of the annual IHA parameter values fell into each of these three categories.

In an RVA analysis, the program computes the expected frequency with which the observed (post-impact or in this case below diversion) values of the IHA parameters should fall within each category (in the non-parametric default, this would be 33% for each of the three categories). It then computes the frequency with which the post-impact annual values of IHA parameters actually fell within each of the three categories. The output of the RVA analysis will tell you how well the observed (post-impact) values of the IHA parameters "fit" the expected (pre-impact) distribution, assessed for each of the three categories. This fit is described by a "Hydrologic Alteration Factor" (HAF) that is computed for each of the three categories as:

(observed frequency – expected frequency) / expected frequency

Therefore, if all of the observed values are outside the expected range, the HAF will be equal to –1. For example, if high flows do not occur anymore because these flows are diverted as part of the project, the observed frequency in the high RVA category (flows

> the 67th percentile of the unimpaired data) may be zero and the HAF will be –1. Alternatively, if flows have not changed due to the project and the observed frequency is equal to the expected frequency, the HAF will be zero.

Table CAWG 6 Appendix L-3c includes for each data set (unimpaired and below diversion) the median, coefficient of variation, high and low range limits (high and low extreme values), the RVA categories for the unimpaired data (in this case, the 33rd and 67th percentiles using the IHA default values), and the HAF hydrologic alteration for the middle RVA category (data between the 33rd and 67th percentiles). Appendix K contains a definition of hydrologic alteration and example values. In general and as stated above, hydrologic alteration values close to -1 indicate large flow alteration.

This table also contains an assessment of hydrologic alteration for all 33 parameters with the middle (data between the 33rd and 67th percentiles), high (data above the 67th percentile), and low (data below the 33rd percentile) RVA categories. Each of these categories shows the expected frequency of occurrence of flow values for unimpaired conditions within the category, and the observed frequency of occurrence of flow values for below diversion conditions within the category. Expected frequencies are generally much more consistent than observed frequencies among the three RVA categories. Observed frequencies for the middle and high RVA categories are considerably lower than the expected frequencies, and the observed frequencies for the low RVA category are generally much higher (explained further below for hydrologic alteration). Each of the three categories also shows the HAF (hydrologic alteration) based on the differences between the expected and observed frequencies. Appendix K contains a definition of hydrologic alteration and example values. In general, hydrologic alteration values close to -1 or +1 or greater indicate large alteration. Large positive hydrologic alteration values are shown for the low RVA category. This indicates that observed frequencies (for below diversion conditions) of flow values below the 33rd percentile of each of the 33 parameters are much greater than expected frequencies (for unimpaired conditions). This means that most of the flow parameters are lower for existing conditions compared to unimpaired conditions.

Table CAWG 6 Appendix L-3d presents the non-parametric IHA scorecard for Bear Creek below the diversion. This table first shows some of the overall flow characteristics for both the unimpaired and below diversion conditions. The watershed area of one is used as a reference to normalize the rest of the statistics to be able to directly compare the values between the unimpaired and below diversion conditions. The mean annual flow is considerably greater for the unimpaired data. The annual coefficient of variation (CV) is also greater for the unimpaired conditions. The flow predictability and constancy/predictability are higher for below diversion conditions. These parameters are defined in Appendix K. Although the percent of floods in a 60-day period is very similar between the two flow conditions, the number of days of the flood-free season is considerably higher for below diversion conditions (144 days vs. 93 days).

The remainder of the table shows the medians and coefficients of dispersion for the unimpaired (pre-impact) and below diversion (post-impact) conditions. It also shows the deviation factors and significance counts for the medians and coefficients of variation for each of the 33 parameters. These statistics are defined in detail in Appendix K. In general the medians for most of the parameters are much higher for the unimpaired (pre-impact) conditions. The coefficients of dispersion tend to be considerably greater for the high-flow months and maximum (1- through 90-day duration) flows for below diversion conditions, indicating greater variability in high flows.

The deviation factors for the median and coefficient of variation for the number of zero days are shown in the table as the value "99999.00" because this is the default value for the IHA program when the factors are calculated using a denominator of zero. In other words, because the number of zero flow days was zero for both the unimpaired and below diversion conditions, the zero is in the denominator of the equation used to calculate the deviation factors, so the factors cannot be calculated and they show up as "99999.00" in the table.

Low significance count values tend to indicate large differences between the flow parameter values for the unimpaired and below diversion conditions. For example, smaller values are observed for the high-flow months and maximum (1- through 90-day duration) flows, indicating large differences.

The last table for Bear Creek below the diversion (Table CAWG 6 Appendix L-3e) is the raw input data file used for the IHA analysis.

Appendix M presents IHA graphs that aid in visualization and interpretation of some of the important results in the IHA tables. For each gaging station where IHA analyses were performed, the graphs include:

- Average monthly flows for May, June, and July (representing typical high-flow months) and for September and October (representing typical low-flow months).
- Annual 3- and 7-day minimum flows.
- Annual 3- and 7-day maximum flows.
- Annual number of reversals in flow (the number of times that the hydrograph switched from a rising to a falling condition or visa versa).
- Hydrographs of all estimated unimpaired (pre-impact) and below diversion (post-impact) mean daily flows for the 20-year periods.

IHA graphic results for Bear Creek are discussed in more detail in this section as an example of the results and interpretation. Appendix M Graph M-21 shows the average flow (in cfs) for May for Bear Creek below the diversion. The graph shows a pre-impact period from 1963 through 1992, and a post-impact period from 1983 through 2002. In this case we are actually comparing measured unimpaired flows above the diversion with measured impaired (below diversion) flows below the diversion for the same period, 1983 through 2002. This can be done because Bear Creek is one of the few locations in the basin where we have actual unimpaired flow data from above a diversion. The IHA software, however, requires the use of two different time periods (the pre- and post-impact periods) in order to compare flows, so the data is input and processed this way in the program and shown this way in the graphs. For most of the other stations, the graphs are shown the same way, i.e. a pre-impact period from 1963 through 1982 (which represents unimpaired flows) and a post-impact period from 1983 through 2002 (which represents below diversion flows). For most of these stations, however, estimated unimpaired flows for the location are used for the pre-impact period because actual measured unimpaired flow data are not available.

Appendix M Graph M-21 shows a considerable difference in average May flows between pre-impact (unimpaired) and post-impact (below diversion) conditions. The median flow for unimpaired conditions is highest in June (above 300 cfs). The median and 75th and 25th percentiles of the data are all lower for below diversion conditions. Appendix M Graphs M-22 and M-23 show differences in average June and July flows, respectively, for this location. The below diversion conditions median flows during all these months in late spring/early summer months are always less than 20 cfs for existing conditions. Differences in average flows during these typically wet months are generally not as great as for May (Graph M-21) because some flow peaks occur for below diversion conditions. Differences in average flows for September and October are shown in Appendix M Graphs M-24 and M-25, respectively. The unimpaired median flow during the late summer/early fall period is lowest in October (less than 20 cfs). The below diversion condition medians for flows during this time period are all less than five cfs.

The 3- and 7-day minimum flows are shown in Appendix M Graph M-26 and M-27, respectively, and are lower for below diversion conditions relative to unimpaired conditions. All median values for existing flows are less than six cfs. The 3- and 7-day maximum flows are presented in Appendix M Graphs M-28 and M-29, respectively. Although there are some significant spikes under below diversion conditions, the median flows are considerably higher for unimpaired conditions (more than 500 cfs).

The number of flow reversals is lower for below diversion conditions (Appendix M Graph M-30), indicating that flow is generally more steady with increased consistency in rising or falling hydrograph conditions.

A comparison plot of daily unimpaired and below diversion flows for the study period also is presented in Appendix N, Figure N-3. Unimpaired flows are shown from 1963 through 1982 (although these flows are actually for 1983 through 2002), and below diversion flows are shown from 1983 through 2002. This graph shows that there are some flow peaks during a number of years for below diversion conditions, especially during the late 1990s. Several peaks for both unimpaired and below diversion conditions are greater than 800 cfs. However, there also are many years when below diversion flows were much lower relative to the peaks and natural, cyclic unimpaired flows. Appendix O, Figure O-3 presents the comparisons of monthly exceedance values (median, 25, and 75 percent) of unimpaired and historical flows for the period of record and by water year type.

6.0 LITERATURE CITED

Colwell, R.K. 1974. Predictability, constancy, and contingency of periodic phenomena. Ecology 55: 1148-1153.

Helsel, D.R. and Hirsch, R.M. 1992. Statistical Methods in Water Resources. Elsevier Science, The Netherlands.

Henderson, T. Atmospherics, Inc. Personal Communication.

Henderson, T. Undated. The San Joaquin River Weather Resources Management Program: A summary of cloud seeding activities conducted over the San Joaquin River during the period 1 October 2001-30 September 2002. Report prepared for Southern California Edison Company, San Dimas, California.

Maidment, D.R, (ed). 1993. Handbook of Hydrology. McGraw-Hill, Inc. N.Y.

Poff, N.L. and Ward, J.V. 1989. Implications of streamflow variability and predictability for lotic community structure: A regional analysis of streamflow patterns. Canadian Journal of Fisheries and Aquatic Science 46: 1805-1818.

Richter, B.D. Baumgartner, J.V., Powell, J. and Braun, D.P. 1996. A method for assessing hydrologic alteration within ecosystems. Conservation Biology 10(4): 1163-1174.

Richter, B.D., Baumgartner, J.V., Wigington, R. and Braun, D.P. 1997. 'How much water does a river need?', Freshwater Biology, 37, 231-249.

Southern California Edison. 2004. CAWG-8 Amphibian and Reptile technical study, *In* Draft Technical Study Report Package for the Big Creek Hydroelectric System Alternative Licensing Process.

The Nature Conservancy and Smythe Scientific Software. 2001. Indicators of Hydrologic Alteration User's Manual.

U.S. Forest Service. 1972. A Streamflow Data Program for the Sierra National Forest. Prepared by Robert E. Breazeale, Sierra National Forest , California Region.

http://water.usgs.gov/. USGS Water Resources Website.

http://www.dwr.water.ca.gov/. California Department of Water Resources Website.

TABLES

Table CAWG 6-1. Summary of Flow Locations and Data[1].

Station Name	SCE_ID	USGS	From	To	Comments	Start	End	Missing		Added some estimated unimpaired data during winter	N	Start2	End2	Missing2	N2	Start3	End3	Missing3	N3	Count
ALP LOCATIONS																				
Rivers and Streams																				
Bear Creek near Lake Thomas A Edison CA	103	11230500	10/01/21	09/30/02	10-21 HC	1922	2002				81	1971	2002	12	20	1984	2002		**19**	1
Big Creek near Mouth near Big Creek CA	105	11238500	05/10/23	09/30/02		1923	2002				80	1983	2002		20					2
Pitman Creek below TamaraCreek Creek CA	120	11237500	12/01/27	09/30/02		1928	2002				75	1983	2002		20					3
Big Creek below Huntington Lake CA	104	11237000	06/09/25	09/30/02	1901-24 HC, 71-85 missing	1925	2002	15			63	1987	2002		16					4
SF San Joaquin River near Florence Lake CA[2]	128	11230000	10/01/21	09/30/84	92-93, 96-02 E, 82-83, 94-95 missing	1922	1984	2			61	1983	2002	2	18					5
San Joaquin River above Big Creek CA[3]	122	11235000	10/01/12	09/30/62	16-21 missing	1913	1962	6			44									6
San Joaquin River above Shakeflat Creek near Big Creek CA	157	11234760	10/01/59	09/30/02	53-59 HC	1960	2002				43	1983	2002		20					7
Pitman Creek near TamaraCreek Mountain CA	121	11237700	10/01/74	09/30/02	28-41 HC	1975	2002				28	1983	2002		20					8
SF San Joaquin River below Hooper Creek	129	11230215	10/01/75	09/30/02	53-74 HC	1976	2002				27	1983	2002		20					9
San Joaquin River below Dam 6 (above Stevenson Creek, spill and release)	124	11238600	10/01/73	09/30/02	51-54 HC, 87-92 missing	1974	2002	6			23	1983	2002		20					10
Mono Creek below Diversion	176	11231600	10/01/70	09/30/02	72-77, 79, 81-82 missing	1971	2002	9			23	1984	2002		19					11
Bear Creek below Diversion	175	11230530	10/01/70	09/30/02	71-73, 78-79 HC	1971	2002	9			23	1984	2002		19					12
Hooper Creek at Diversion Dam (Spill And Release)	114	11230200	10/01/86	09/30/02	67, 79-82, 84 HC	1987	2002				16									13
Stevenson Creek at Shaver Lake CA	131	11241500	10/01/16	09/30/02	17-28 E, 68-78 HC	1987	2002				16									14
Camp 62 Creek below Diversion Dam	180	11230600	10/01/83	07/15/02	79-80 HC, 97-00 missing	1984	2002	4		Yes	15									15
Bolsillo Creek below Diversion Dam near Big Creek CA	117	11230670	10/01/85	06/29/02	99, 01-02 E, 99-02 missing	1986	2002	3		Yes	14									16
MF Balsam Creek below Balsam M Fb near Big Creek CA	100	11238270	01/24/89	09/30/02		1989	2002				14									17
NF Stevenson Creek at Perimeter Rd near Big Creek CA	99	11239300	01/25/89	09/30/02		1989	2002				14									18
Chinquapin Creek below Diversion Dam (Release)	181	11230560	05/12/86	06/26/02	79-80 HC, 97-00 missing	1986	2002	4		Yes	13									19
Rock Creek	144		10/1/1991	05/05/96		1992	1996				5									20
Ross Creek	143		10/1/1991	07/25/96		1992	1996				5									21
Bolsillo Creek above Diversion Dam near Big Creek CA	106	11230650	10/01/85	09/30/95	49-85 HC, 87-92, 94, 02 missing	1986	1995	7			3									22
Dam 6 Spill (old station)	146				24-81 HC															23
SF San Joaquin River below Mono Creek	130				53-59 HC															24
North Slide Release	182				79-80 HC															25
South Slide Release	183				79-80 HC															26
Pitman at Big Creek	931				10-16, 22-27 E															27
Diversions																				
Bear Creek Conduit near Lake Thomas Edison CA	102	11230520	10/01/70	09/30/02		1971	2002				32	1984	2002		19					1
Mono Creek Conduit near Mono Hot Springs CA	118	11231550	10/01/70	09/30/02	28-41, 49-69, 71-72, 86-88 HC	1971	2002				32	1984	2002		19					2
Balsam Creek Diversion	101				58, 61, 66, 88-90 HC															3
Ely Creek at Diversion	112		1992	2002	58,61,66, 88-90, HC	1992	2002	9	*		2									4
Camp 62 Creek at Diversion Dam (Diverted Water)	109		1992	2002	52-81, 84, 87-90 HC	1992	2002	5	*		6									5
Chinquapin Creek at Intake (Diverted Water)	110		1992	2002	52-78, 80 HC	1992	2002	4	*		7									6
Crater Creek Diversion	111		1992	2002	57-78, 80-83, 87-90 HC	1992	2002	7	*		4									7
North Slide Creek at Diversion	126				53-59, 65-77, 80 HC															8
South Slide Creek at Diversion	127				53-59, 65-73, 80 HC															9
Tombstone Creek at Diversion	132				49-59, 65-78 HC															10
Bolsillo Creek at Intake (Diverted Water)	117D/117		1992	2002	56-85 HC	1992	2002	1	*		10									11
Pitman Creek Shaft Below TamaraCreek Creek near Big Creek CA	179	11237600	10/01/70	09/30/02	72-73, 84-85 missing, 68-70, 72-73 HC	1971	2002	6			26	1984	2002		19					12
Hooper Creek Conduit at Diversion Dam	113		1992	2002	46-84, 87-90, HC	1992	2002	0			11									13
Conduits																				
Ward Tunnel (Tunnel 6) at Intake at Florence Lake CA	133	11229500	05/01/25	09/30/02		1925	2002				78	1979	2002		24					1
Ward Tunnel Discharge at Huntington Lake CA	136/170	11235500	10/01/27	09/30/02	28-80 HC	1928	2002				75									2
Huntington-Shaver Conduit (Tunnel 7) Intake at Huntington Lake CA	115	11236080	10/01/74	09/30/83	68-74 HC	1975	1983				9									3
Huntington-Shaver Conduit (Tunnel 7) Outlet near Shaver Lake CA	116	11239000	10/19/28	07/24/85		1929	1985				57	1983	2002		20					4
Lakes																				
Florence Lake near Big Creek CA	148/182	11229600	11/02/25	09/30/02	than 1000 af	1926	2002				77	1979	2002		24					1
Mammoth Pool Reservoir near Big Creek CA	156	11234700	10/17/59	09/30/02		1960	2002				43	1983	2002		20					2
Huntington Lake near Big Creek CA	149	11236000	10/01/26	09/30/00		1927	2002				76	1983	2002		20					3
Shaver Lake near Big Creek CA	150	11239500	01/11/27	09/30/02		1927	2002				76	1983	2002		20					4
Ungaged Locations																				
Rock Creek below diversion					Some records above diversion															1
Ross Creek below diversion					Some records above diversion															2
Tombstone Creek below diversion					Some records above diversion															3
Crater Creek below diversion																				4
Ely Creek below diversion																				5
Balsam Creek below diversion																				6
Big Creek (Dam 4 to PH No. 2)																				7

Table CAWG 6-1. Summary of Flow Locations and Data[1] (cont).

Station Name	SCE_ID	USGS	From	To	Comments	Start	End	Missing		Added some estimated unimpaired data during winter	N	Start2	End2	Missing2	N2	Start3	End3	Missing3	N3	Count
OTHER LOCATIONS (INCLUDING TRADITIONAL RELICENSING)																				
Rivers and Streams																				
Mono Creek below Lake Thomas A Edison CA	119	11231500	10/01/21	09/30/02	10-21 HC	1922	2002				81	1971	2002	12	20	1984	2002		**19**	1
San Joaquin River at Miller Xing	141	11226500	10/01/21	09/30/91	22-28, 52-80 HC															2
San Juaquin River below Willow Creek	192				68-80 HC															3
San Joaquin River above Willow Creek	194				68-81 HC															4
San Joaquin River above Willow Creek	125				51-02 E															5
Willow Creek near Mouth	137				52-02 E															6
Warm Creek below Diversion Dam near Lake Thomas A Edison CA	152	11231700	10/01/85	06/30/02	67, 79-80 HC	1986	2002	1			16									7
San Jauquin River Horseshoe Bend (Dam 7 to PH No. 4)					Calculated flows															8
Diversions, Lakes and Others																				
East Camp 61 Creek above Portal Forebay (all diverted)	107		10/01/91	09/29/98	58-78, 82-84, 87-90 HC, 92-96, 98 E	1992	1998				7									1
West Camp 61 Creek above Portal Forebay (all diverted)	108		10/01/91	10/05/98	52-78, 82, 87-90 HC, 92-96, 98 E	1992	1998				7									2
Warm Creek Diversion Ditch	153		10/01/00	09/30/01	55-78 HC, 92-02 E	1992	2002				11									3
Portal Forebay	168/169		10/18/94	08/12/02	tailrace, 168 is storage, 169 is spill	1995	2002				8									4
Lake Thomas A. Edison near Big Creek CA	151	11231000	10/12/54	09/30/02		1955	2002				48									5
Redinger Lake nr Auberry CA	147	11241950	11/18/50	09/30/02		1951	2002				52									6
Ungaged Locations																				
Rancheria Creek above Portal Tailrace																				1
Adit #2 Seepage (below Portal Forebay)					Partial records at irregular intervals															2

[1] USGS = USGS station identification #
From and To = starting and ending dates for USGS data
Start and End = starting and ending water years for statistical analysis
Missing = # of years of missing data
N = sample size for 1st set of statistical analysis (period 1)
Start2, End2, Missing2 = same as above for 2nd set of statistical analysis (period 2)
Start3, End3, Missing3 = same as above for 3rd set of statistical analysis (period 3)
Count = count of number of stations in category
HC = hard copy data only
E = electronic data
* = Data are not “missing”, but flows are zero
No electronic data

[2] Due to unresolved issues of data reliability after 1987, station was not used.

[3] Due to little data availability after construction of Mammoth Pool Reservoir and under current operating conditions, station was not used.

Table CAWG 6-2. Construction Dates for Primary Big Creek System Locations.

Location	Construction Start Year	Construction End Year
Huntington Lake	1912	1913
Dam 4	1912	1913
Dam 5	1920	1921
Dam 6	1922	1923
Florence Lake	1925	1926
Pitman Creek Diversion	1925	1928
Shaver Lake	1926	1927
Bear Creek Diversion	1927	1927
Mono Creek Diversion	1927	1927
Hooper Creek Diversion	1945	1945
North Slide Creek Diversion	1945	1945
South Slide creek Diversion	1945	1945
Tombstone Creek Diversion	1945	1945
Bolsillo Creek Diversion	1945	1945
Camp 62 Creek Diversion	1948	1948/2001
Chinquapin Creek Diversion	1948	1948/2001
Redinger Lake	1949	1951
Lake Edison	1953	1954
Portal Forebay	1955	1956
Mammoth Pool	1958	1960
Rock Creek Diversion	1960	1960
Ross Creek Diversion	1960	1960
Balsam Meadow Forebay	1983	1987

Table CAWG 6-3. San Joaquin Valley Water Year Types (from http://www.water.ca.gov/).

San Joaquin Valley WY Index			
WY	**Year type**	**WY**	**Year type**
1901	W	1952	W
1902	AN	1953	BN
1903	AN	1954	BN
1904	W	1955	D
1905	AN	1956	W
1906	W	1957	BN
1907	W	1958	W
1908	D	1959	D
1909	W	1960	C
1910	AN	1961	C
1911	W	1962	BN
1912	BN	1963	AN
1913	C	1964	D
1914	W	1965	W
1915	W	1966	BN
1916	W	1967	W
1917	W	1968	D
1918	BN	1969	W
1919	BN	1970	AN
1920	BN	1971	BN
1921	AN	1972	D
1922	W	1973	AN
1923	AN	1974	W
1924	C	1975	W
1925	BN	1976	C
1926	D	1977	C
1927	AN	1978	W
1928	BN	1979	AN
1929	C	1980	W
1930	C	1981	D
1931	C	1982	W
1932	AN	1983	W
1933	D	1984	AN
1934	C	1985	D
1935	AN	1986	W
1936	AN	1987	C
1937	W	1988	C
1938	W	1989	C
1939	D	1990	C
1940	AN	1991	C
1941	W	1992	C
1942	W	1993	W
1943	W	1994	C
1944	BN	1995	W
1945	AN	1996	W
1946	AN	1997	W
1947	D	1998	W
1948	BN	1999	AN
1949	BN	2000	AN
1950	BN	2001	D
1951	AN	2002	D

W = wet
AN = above normal
BN = below normal
D = dry
C = critical

San Joaquin Valley WY Index	1901-2002		1960-2002		1983-2002	
	count	percent	count	percent	count	percent
Wet year type	16	31%	15	35%	7	35%
Above normal year type	14	27%	7	16%	3	15%
Below normal year type	10	20%	3	7%	0	0%
Dry year type	5	10%	7	16%	3	15%
Critical year type	6	12%	11	26%	7	35%
N=	51		43		20	

Table CAWG 6-4. Summary of Methods for Unimpaired Flow Estimation and Comparison of Existing and Unimpaired Hydrology Methods for River and Stream Gaging Locations.

Station Name	SCE_ID	USGS	From	To	Start	End	Unimpaired Flow Method[1]	Explanation of Method	Comparison Method[2]
Rivers and Streams									
Bear Creek near Lake Thomas A Edison CA	**103**	**11230500**	**10/01/21**	**09/30/02**	1922	2002	**data - reference basin**	**Actual unimpaired data from above diversion**	**IHA**
Big Creek near Mouth near Big Creek CA	105	11238500	05/10/23	09/30/02	1923	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
Pitman Creek below Tamarack Creek CA	**120**	**11237500**	**12/01/27**	**09/30/02**	1928	2002	**data - reference basin**	**Actual unimpaired data from above diversion**	**IHA**
Big Creek below Huntington Lake CA	104	11237000	06/09/25	09/30/02	1925	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
SF San Joaquin River near Florence Lake CA	128	11230000	10/01/21	09/30/84	1922	1984	water balance and area	Unimpaired/natural outflow from Florence Lake using lake water balance. Area proportion using Bear Creek above diversion for periods with missing and questionable data.	N/A[5]
San Joaquin River above Big Creek CA	122	11235000	10/01/12	09/30/62	1913	1962	synth u/s data & area	Synthetic unimpaired u/s data from SFSJR above Shakeflat plus remaining area proportion using Pitman Ck above diversion area and daily flows	N/A[6]
San Joaquin River above Shakeflat Creek near Big Creek CA	157	11234760	10/01/59	09/30/02	1960	2002	synth u/s data & area	Synthetic unimpaired u/s data from SFSJR below Hooper plus remaining area proportion using Pitman Ck above diversion area and daily flows	IHA
San Joaquin River below Dam 6 (above Stevenson Creek)	124	11238600	10/01/73	09/30/02	1974	2002	synth u/s data & area	Synthetic unimpaired u/s data from SFSJR above Big Ck plus remaining area proportion using Pitman Ck above diversion area and daily flows	IHA
Pitman Creek near Tamarack Mountain CA	121	11237700	10/01/74	09/30/02	1975	2002	u/s data & area	Unimpaired data from above diversion plus remaining area proportion using Pitman Ck above diversion area and daily flows	IHA
SF San Joaquin River below Hooper Creek	129	11230215	10/01/75	09/30/02	1976	2002	synth u/s data & area	Synthetic unimpaired u/s data from SFSJR below Florence plus remaining area proportion using Bear Ck above diversion area and daily flows	IHA
Mono Creek below Diversion	176	11231600	10/01/70	09/30/02	1971	2002	area	area proportion using Bear Ck above diversion area and daily flows	IHA
Bear Creek below Diversion	175	11230530	10/01/70	09/30/02	1971	2002	u/s data & area	Unimpaired data from above diversion plus area below diversion proportion using Bear Ck above diversion area and daily flows	IHA
Hooper Creek at Diversion Dam (Spill And Release)	114	11230200	10/01/86	09/30/02	1987	2002	data & diversion data	Hooper diversion plus below diversion data	IHA
Stevenson Creek at Shaver Lake CA	131	11241500	10/01/16	09/30/02	1987	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
Camp 62 Creek below Diversion Dam[3]	180	11230600	10/01/83	07/15/02	1984	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
Bolsillo Creek below Diversion Dam near Big Creek CA[3]	117	11230670	10/01/85	06/29/02	1986	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
MF Balsam Creek below Balsam M Fb near Big Creek CA	100	11238270	01/24/89	09/30/02	1989	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
NF Stevenson Creek at Perimeter Road near Big Creek CA	99	11239300	01/25/89	09/30/02	1989	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
Chinquapin Creek below Diversion Dam (Release)[3]	181	11230560	05/12/86	06/26/02	1986	2002	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA
Rock Creek[4]	144		10/01/91	05/05/96			data & area	Some actual unimpaired data from above diversion (when available) and some area proportion using Pitman Ck above diversion area and daily flows	No downstream impaired station so no comparison
Ross Creek[4]	143		10/01/91	07/25/96			data & area	Some actual unimpaired data from above diversion (when available) and some area proportion using Pitman Ck above diversion area and daily flows	No downstream impaired station so no comparison
Bolsillo Creek above Diversion Dam near Big Creek CA	106	11230650	10/01/85	09/30/95	1986	1995	area	Area proportion using Pitman Ck above diversion area and daily flows	IHA

Locations in bold are reference basins used to calculate area-based flows in other basins

1 data - reference basin = use actual data from this station
water balance = use water balance of upstream reservoir = measured outflow + change in storage + pumped outflow - pumped inflow - evaporation
area = use area relationship and actual flow data from nearby unimpaired reference station
synth u/s data & area = use synthetic unimpaired upstream data plus estimated flow from contributing area between upstream station and this station (based on area relationship and actual flow data from nearby unimpaired reference station)
u/s data & area = use actual upstream data plus estimated flow from contributing area between upstream station and this station (based on area relationship and actual flow data from nearby unimpaired reference station)
data & diversion data = use actual data from this station plus adequate upstream diversion data
data & area = use actual data from this station when available and area method for remainder of period

*existing (impaired) hydrology record prior to 1983

2 IHA = Indicators of Hydrologic Alteration
summary stats = compare mean annual flow; mean annual flood; mean annual low flow; and monthly summary statistics including mean, median, maximum, minimum

3 IHA comparsion for existing hydrology included some estimated unimpaired data for winter months

4 Most of Rock and Ross Creek flows are diverted

5 Missing data and questionable data in exiting data set, IHA not used. Unimpaired data supplemented by use of Area Method.

6 Existing data not available for analysis period of WY 1983-2002. Most of available record predates Mammoth Pool Reservoir and current operations.

Table CAWG 6-5. Method Used to Calculate Unimpaired Flow at River Gages.

Station	Method	Equation
SF San Joaquin River near Florence Lake	Water balance and Area (1983-2002)	$\text{Gauged Flow at SFSJR near Florence Lake} + \text{Flow at Ward Tunnel at Florence} + \text{Change in Lake Storage} + \text{Lake Evaporation - Crater Ck Diversion - Hooper Ck Diversion or } \frac{\text{Unique Area of SFSJR near Florence Lake}}{\text{Area of Bear above Diversion}} \times \text{Flow at Bear above Diversion}$
SF San Joaquin River below Hooper Creek	Area (1983-2002)	$\text{Flow at SFSJR near Florence} + \frac{\text{Unique Area of SFSJR below Hooper}}{\text{Area of Bear above Diversion}} \times \text{Flow at Bear above Diversion}$
Hooper Creek below Diversion	Area (1983-1991) Gage (1992-2002)	$\text{Flow at gauge} + \text{Flow at diversion or } \frac{\text{Area of Hooper below Diversion}}{\text{Area of Bear above Diversion}} \times \text{Flow at Bear above Diversion}$
Bear Creek near Lake Thomas A Edison (above Diversion)	Gage (1983-2002)	Flow at gauge
Bear Creek below Diversion	Area (1983-2002)	$\frac{\text{Area of Bear below Diversion}}{\text{Area of Bear above Diversion}} \times \text{Flow at Bear above Diversion}$
Chinquapin Creek below Diversion	Area (1983-2002)	$\frac{\text{Area of Chinquapin below Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Camp 62 Creek below Diversion	Area (1983-2002)	$\frac{\text{Area of Camp 62 below Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Bolsillo Creek above Diversion	Area (1983-1985, 1987-1992, 1994, 1996-2002) Gage (1986, 1993, 1995)	$\text{Flow at gauge or } \frac{\text{Area of Bolsillo above Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Bolsillo Creek below Diversion	Area (1983-2002)	$\text{Flow at Bolsillo above Diversion} + \frac{\text{Unique Area of Bolsillo below Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Mono Creek below Diversion	Water balance and area (1983-2002)	$\text{Gauged Flow at Mono above Diversion} + \text{Change in Lake Edison Storage} + \text{Lake Edison Evaporation - Flow at Warm Ck Diversion} + \frac{\text{Unique Area of Mono below Diversion}}{\text{Area of Bear above Diversion}} \times \text{Flow at Bear above Diversion}$

Table CAWG 6-5. Method Used to Calculate Unimpaired Flow at River Gages (cont).

Station	Method	Equation
San Joaquin River above Shakeflat Creek	Area (1983-2002)	$\text{Flow at SFSJR below Hooper} + \text{Flow at SJR at Miller Crossing}^{a} + \frac{\text{Unique Area above Shakeflat}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
San Joaquin River above Big Creek	Area (1983-2002)	$\text{Flow at SJR above Shakeflat} + \frac{\text{Unique Area of SJR above Big Creek}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
San Joaquin River above Stevenson Creek	Area (1983-2002)	$\text{Flow at SJR above Big Creek} + \frac{\text{Unique Area of SJR abv Stevenson Ck}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Rock Creek above Diversion	Gage (1983-1991) Area (1992-2002)	$\text{Flow at gauge or } \frac{\text{Area of Rock above Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Ross Creek above Diversion	Gage (1983-1991) Area (1992-2002)	$\text{Flow at gauge or } \frac{\text{Area of Ross above Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Big Creek below Huntington Lake	Area (1983-2002)	$\frac{\text{Area of Big Creek below Huntington Lake}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Big Creek near Mouth	Area (1983-2002)	$\frac{\text{Area of Big Creek near Mouth}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Pitman Creek below Tamarack Creek (above Diversion)	Gage (1983-2002)	*Flow at gauge*
Pitman Creek near Tamarack Mountain (below Diversion)	Area (1983-2002)	$\frac{\text{Area of Pitman below Diversion}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Balsam Creek below Balsam Meadow Forebay	Area (1983-2002)	$\frac{\text{Area of Balsam below Balsam M Fb}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
NF Stevenson Creek at Perimeter Rd (above Shaver Lake)	Area (1983-2002)	$\frac{\text{Area of NF Stevenson at Perimenter Rd}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$
Stevenson Creek at Shaver Lake (below Shaver Lake)	Area (1983-2002)	$\frac{\text{Area of Stevenson Ck at Shaver Lake}}{\text{Area of Pitman above Diversion}} \times \text{Flow at Pitman above Diversion}$

[a] Between 1983 and 1991, flow at SJR at Miller Crossing was recorded by a gage. Between 1992 and 2002, flow at SJR at Miller Crossing was estimated by an area relationship with Bear Creek above Diversion.

$$\text{Flow at SJR at Miller Crossing} = \frac{\text{Area of SJR at Miller Crossing}}{\text{Area of Bear above Diversion}} \times \text{Flow at Bear above Diversion}$$

Table CAWG 6-6. Periods of records and missing data for IHA analysis.

Station Name	Unimpaired Comparison Location	Unimpaired Record Used for IHA	Years Significant Amounts of Existing Data Missing	Existing Record Used for IHA	Existing # of Years Used for IHA
SF San Joaquin River below Hooper Creek	same location	83-02	98	83-97, 99-02	19
Hooper Creek at Diversion Dam (Spill And Release)	same location	83-02	83-86	87-02	16
Bear Creek below Diversion	above diversion	83-02	83	84-02	19
Chinquapin Creek below Diversion Dam (Release)[1]	same location	83-02	83-92, 96, 02	93-95, 97-01	8[1]
Camp 62 Creek below Diversion Dam	same location	83-02	83, 85-92, 96	84, 93-95, 97-02	10
Bolsillo Creek below Diversion Dam near Big Creek CA[1]	above diversion	83-02	83-85, 87-93, 98, 01-02	86, 94-97, 99-00	7[1]
Mono Creek below Diversion	above diversion	33-52	0	83-02	20
San Joaquin River above Shakeflat Creek near Big Creek CA	same location	83-02	0	83-02	20
San Joaquin River below Dam 6 (above Stevenson Creek)	same location	83-02	88-92, 95	83-87, 93-94, 96-02	14
Big Creek near Mouth near Big Creek CA	same location	83-02	83-86	87-02	16
Big Creek below Huntington Lake CA	same location	83-02	83-86	87-02	16
Pitman Creek near Tamarack Mountain CA	above diversion	83-02	96-97	83-95, 98-02	18
MF Balsam Creek below Balsam M Fb near Big Creek CA	same location	83-02	83-89	90-02	13
NF Stevenson Creek at Perimeter Road near Big Creek CA	same location	83-02	83-89	90-02	13
Stevenson Creek at Shaver Lake CA	same location	83-02	83-86	87-02	16

[1] Less than 10-15 years of data may not be representative of existing conditions but are presented here because the information is available.

Table CAWG 6-7. Stations and Number of Missing Values by Water Year and Month Used for IHA Analysis.

Station Location	WY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP
Bear Creek below Diversion Dam near Lake Thomas A Edison CA	1993	0	0	0	0	0	0	0	13	21	26	2	0
Bolsillo Creek below Diversion Dam near Big Creek CA	1995	0	0	0	0	0	0	0	23	1	2	0	0
	1996	0	0	0	0	0	0	0	0	0	0	25	11
	1997	0	0	0	0	0	0	0	0	0	0	17	19
	1999	0	0	0	0	0	0	7	31	6	0	0	0
Camp 62 Creek below Diversion Dam near Big Creek CA	1993	0	0	0	0	0	0	0	7	30	14	0	0
	2001	0	0	0	0	0	0	0	0	1	3	0	0
	2002	0	0	0	0	0	0	0	0	0	16	0	0
Chinquapin Creek below Diversion Dam near Big Creek CA	1993	0	0	0	0	0	0	0	7	30	15	0	0
	2001	0	0	0	0	0	0	0	0	16	5	0	0

Table CAWG 6-8. Summary of General Confidence in Gaged Data and Estimated Unimpaired Flows.

Station Name	SCE_ID	USGS	From	To	Start	End	Number of years of record for existing hydrology data (maximum for any month)	Number of mths with <5 yrs data	Confidence Level for Gaged Data	Confidence Explanation for Gaged Data	Area (mi^2)	Confidence Level for Unimpaired Data	Confidence Explanation for Unimpaired Data
Rivers and Streams													
Bear Creek near Lake Thomas A Edison CA	**103**	**11230500**	**10/01/21**	**09/30/02**	1922	2002	**19**	**0**	**high**	**Good data**	**52.5**	**high**	**Good actual data**
Pitman Creek below Tamarack Creek CA	**120**	**11237500**	**12/01/27**	**09/30/02**	1928	2002	**20**	**0**	**high**	**Good data**	**23.1**	**high**	**Good actual data**
Big Creek below Huntington Lake CA	104	11237000	06/09/25	09/30/02	1925	2002	16	0	medium	Poor Huntington Lake outflow water balance check	81.1	medium	Subbasin area somwhat larger than reference basins
San Joaquin River above Big Creek CA	122	11235000	10/01/12	09/30/62	1913	1962	20	0	medium	Poor Mammoth Pool outflow water balance check	1050	low	Subbasin area much larger than reference basins
San Joaquin River above Shakeflat Creek near Big Creek CA	157	11234760	10/01/59	09/30/02	1960	2002	20	0	medium	Poor Mammoth Pool outflow water balance check	1003	low	Subbasin area much larger than reference basins
San Joaquin River below Dam 6 (above Stevenson Creek)	124	11238600	10/01/73	09/30/02	1974	2002	14	0	medium	Poor Mammoth Pool outflow water balance check	1197	low	Subbasin area much larger than reference basins
Pitman Creek near Tamarack Mountain CA	121	11237700	10/01/74	09/30/02	1975	2002	20	0	high	Good data	23.2	high	Good u/s actual data
SF San Joaquin River below Hooper Creek	129	11230215	10/01/75	09/30/02	1976	2002	19	0	high	Good data	184	medium	Subbasin area somwhat larger than reference basins
Mono Creek below Diversion	176	11231600	10/01/70	09/30/02	1971	2002	19	0	high	Good data	92.8	medium	Good u/s synthetic data
Bear Creek below Diversion	175	11230530	10/01/70	09/30/02	1971	2002	19	0	high	Good data	52.8	high	Good u/s actual data
Hooper Creek at Diversion Dam (Spill And Release)	114	11230200	10/01/86	09/30/02	1987	2002	16	0	high	Good data	7.2	high	Good diversion and below diversion data
Stevenson Creek at Shaver Lake CA	131	11241500	10/01/16	09/30/02	1987	2002	16	0	medium	Poor Shaver Lake outflow water balance check	29.4	medium	Subbasin area similar to reference basins
Camp 62 Creek below Diversion Dam	180	11230600	10/01/83	07/15/02	1984	2002	14	6	medium	Limited data during some months	2.1	low	Subbasin area much smaller than reference basins
Bolsillo Creek below Diversion Dam near Big Creek CA	117	11230670	10/01/85	06/29/02	1986	2002	14	7	medium	Limited data during some months	1.4	low	Subbasin area much smaller than reference basins
MF Balsam Creek below Balsam M Fb near Big Creek CA	100	11238270	01/24/89	09/30/02	1989	2002	14	0	high	Relatively good data	0.32	low	Subbasin area much smaller than reference basins
NF Stevenson Creek at Perimeter Road near Big Creek CA	99	11239300	01/25/89	09/30/02	1989	2002	14	0	high	Relatively good data	4.4	low	Subbasin area much smaller than reference basins
Chinquapin Creek below Diversion Dam (Release)	181	11230560	05/12/86	06/26/02	1986	2002	12	8	medium	Limited data during some months	1.8	low	Subbasin area much smaller than reference basins
Rock Creek[1]	144		10/01/91	05/05/96	1992	1996	5	5	medium	Limited data	16.1	medium	Some actual data, but subbasin area smaller than reference basins
Ross Creek[1]	143		10/01/91	07/25/96	1992	1996	5	2	medium	Limited data	6.1	medium	Some actual data, but subbasin area smaller than reference basins
Bolsillo Creek above Diversion Dam near Big Creek CA	106	11230650	10/01/85	09/30/95	1986	1995	3	12	low	Very limited data	1.3	low	Very limited actual data and subbasin area much smaller than reference basins

Locations in bold are reference basins used to calculate area-based flows in other basins

[1] Most of Rock and Ross Creek flows are diverted

Table CAWG 6-9. Annual and Representative Extreme Flows for River and Stream Gaged Locations (all values in cfs).

Station Name	USGS	SCE_ID	N	Mean Annual Flow	Mean Annual Maximum Daily Flow[1]	Mean Annual Peak Flow[2]	% Difference between MAP and MAMD[3]	Geometric Mean	2-yr Flood	10-year Flood	N2[4]	Mean Annual Low Flow	Mean Annual 7-day Low Flow
Bear Creek near Lake Thomas A Edison CA	11230500	103	81	93	637	889	40	778	736	1494	78	5.72	6.33
Big Creek near Mouth Near Big Creek CA	11238500	105	80	31	602	1442	140	711	883	3891	21	2.23	2.39
Pitman Creek below Tamarack Creek CA	11237500	120	75	42	465	789	70	533	496	1615	75	0.27	0.31
Big Creek below Huntington Lake CA	11237000	104	63	6.08	72	115	60	23	18	191	56	0.84	0.88
San Joaquin River above Shakeflat Creek near Big Creek CA	11234760	157	43	412	4840	7399	53	1162	809	36899	40	10	11
Pitman Creek near Tamarack Mountain CA	11237700	121	28	8.73	184	292	59				3	0.15	0.18
SF San Joaquin River below Hooper Creek	11230215	129	27	69	950	1131	19	275	248	3729	19	10	11
San Joaquin River below Dam 6 (above Stevenson Creek)	11238600	124	23	581	6803	15201	123	3862	5102	51234	9	3.33	3.39
Mono Creek below Diversion	11231600	176	19	44	258	223	-14	**73**	**74**	**776**	**22**	5.9	13
Bear Creek below Diversion	11230530	175	19	51	381	626	64	259	415	1834	10	1.42	9.41
Hooper Creek at Diversion Dam (Spill And Release)	11230200	114	16	5.58	34	39	15	*	**16**	**81**	**16**	1.77	1.91
Stevenson Creek at Shaver Lake CA	11241500	131	16	37	210	376	79	126	155	1361	19	2.24	2.33
Camp 62 Creek Below Diversion Dam	11230600	180	15	0.85	8.21	*	*	*	**3.23**	**25**	**15**	0.26	0.35
Bolsillo Creek below Diversion Dam near Big Creek CA	11230670	117	14	1.78	7.32	*	*	*	**3.85**	**20**	**14**	0.58	0.77
MF Balsam Creek below Balsam M Fb near Big Creek CA	11238270	100	14	0.99	1.61	1.9	18	1.86	1.68	2.6	11	0.58	0.62
NF Stevenson Creek at Perimeter Road Near Big Creek CA	11239300	99	14	13	341	719	111	200	196	2256	10	3.46	3.86
Chinquapin Creek Below Diversion Dam (Release)	11230560	181	13	1.94	8.1	*	*	*	**3.83**	**19**	**13**	0.52	0.71
Bolsillo Creek above Diversion Dam near Big Creek CA[5]	11230650	106	8										

[1] Mean annual maximum daily is greatest mean daily flow
[2] Mean annual peak flow is greatest instantaneous (recorded at 15-minute intervals) flow
[3] MAP = mean annual peak, MAMD=mean annual maximum daily
[4] N2 is sample size for extreme flows
[5] Not enough data available to estimate annual and extreme flow values
* No data available for annual peak flows

Table CAWG 6-10. Small Stream Diversions: Available Turn-in and Turn-out Dates.

	Turned In	Turned Out
CAMP 62 DIVERSION – Station 109	04/19/1992	08/20/92
	04/29/1993	09/10/93
	04/19/1994	07/09/94
	1995 – No data.	No data.
	1997 through 2001 – station out of service (1997 flood).	
	04/13/2002	07/22/02
	05/21/2003	07/21/03
CHINQUAPIN DIVERSION – Station 110	04/17/1992	07/17/92
	04/27/1993	08/09/93
	04/19/1994	06/17/94
	08/16/1995	10/16/95
	03/25/1996	09/13/96
	1997 through 2001 – station out of service (1997 flood).	
	04/12/2002	08/01/02
	05/20/2003	07/08/03
BOLSILLO DIVERSION – Station 117D	04/19/1992	08/06/92
	04/28/1993	08/24/93
	04/18/1994	06/21/94
	04/29/1995	09/15/95
	03/20/1996	09/12/96
	04/17/1997	11/24/97
	05/24/1998	08/08/98
	04/24/1999	06/07/99
	10/01/2000	Unknown
	04/04/2001	Unknown
	04/24/2002	07/02/02
	05/20/2003	07/10/03
HOOPER DIVERSION – Station 113	04/16/1992	09/15/92
	04/19/1993	08/31/93
	04/19/1994	Unknown
	06/17/1995	11/01/95
	03/28/1996	11/21/96
	07/01/1997	10/30/97
	08/10/1998	10/19/98
	05/27/1999	09/09/99
	05/28/2000	10/15/00
	04/25/2001	10/04/01
	04/01/2002	10/08/02
	04/09/2003	08/19/03
CRATER CREEK DIVERSION – Station 111	Diversion normally turned in year round.	

Table CAWG 6-11. Confidence Limits on Mean Flow Values (cfs) for Representative Months and Gaged Locations.

	Period	June					September				
		N	Mean	95%LCL[1]	95%UCL[2]	% of mean[3]	N	Mean	95%LCL	95%UCL	% of mean
Bear above diversion	22-02	2288	347	339	355	**2.31**	2288	28.6	24.9	32.3	**12.94**
Bear above diversion	83-02	565	342	324	360	**5.26**	565	30.4	27.7	33.1	**8.88**
Bear below diversion	83-02	537	122	102	143	**17.21**	565	3.8	3.4	4.1	**7.89**
Bear conduit	83-02	537	189	178	200	**5.82**	537	22.7	20.3	25	**10.13**
Pitman above diversion	28-02	510	116	104	127	**9.48**	510	0.42	0.37	0.47	**11.90**
Pitman above diversion	83-02	510	140	122	158	**12.86**	510	1.2	1	1.4	**16.67**
Pitman below diversion	83-02	510	52	40	64	**23.08**	510	0.73	0.66	0.8	**9.59**
Pitman conduit	83-02	510	86	72	99	**15.12**	510	0.46	0.33	0.59	**28.26**
Mono above diversion	22-02	2288	286	273	299	**4.55**	2288	112	106	118	**5.36**
Mono above diversion	83-02	565	122	106	138	**13.11**	565	203	190	216	**6.40**
Mono below diversion	83-02	537	38.3	29.9	46.6	**21.67**	537	12.9	12.5	13.2	**2.33**
Mono conduit	83-02	527	57.4	48.8	66	**14.98**	527	182	167	197	**8.24**
Big Creek near mouth	23-02	594	99.4	82.1	116.7	**17.40**	594	22.8	14.4	31.2	**36.84**
Chinquapin conduit	92-02	321	2.4	1.7	3.2	**33.33**	321	3.1	2	4.2	**35.48**
SFSJR below Florence[4]	22-84	1891	269	241	297	**10.41**	1891	7.4	4.1	10.8	**45.95**
SJR above Shakeflat	60-02	1215	2176	1992	2360	**8.46**	1215	23.5	22.7	24.2	**2.98**
SJR above Shakeflat	83-02	565	2193	1898	2487	**13.41**	565	25	24.3	25.8	**3.20**
SJR below Dam 6	74-02	649	2840	2567	3113	**9.61**	649	6.1	3.2	9	**47.54**
SJR below Dam 6	83-02	395	2756	2371	3141	**13.97**	395	4.5	3.8	5.3	**17.78**
Ward intake	25-02	2146	549	533	565	**2.91**	2146	346	336	356	**2.89**
Ward intake	83-02	565	542	509	574	**5.90**	565	360	337	384	**6.67**
Shaver Lake elevation (msl)	27-02	2139	5347	5346	5348	**0.02**	2139	5336	5335	5337	**0.02**
Shaver Lake elevation (msl)	83-02	565	5349	5347	5350	**0.02**	565	5344	5342	5346	**0.04**
Shaver Lake storage	27-02	2139	93736	92241	95232	**1.60**	2139	76570	74935	78204	**2.13**
Shaver Lake storage	83-02	565	95545	92804	98285	**2.87**	565	89403	86130	92676	**3.66**
Florence Lake elevation (msl)	26-02	2165	7304	7303	7305	**0.01**	2165	7283	7282	7284	**0.01**
Florence Lake elevation (msl)	83-02	565	7312	7310	7313	**0.01**	565	7274	7272	7276	**0.03**
Florence Lake storage	26-02	2165	45027	44309	45745	**1.59**	2165	30295	29488	31103	**2.67**
Florence Lake storage	83-02	565	50386	49307	51465	**2.14**	565	23277	21872	24683	**6.04**

[1] LCL=lower confidence limit

[2] UCL=upper confidence limit

[3] calculated as (UCL-mean)/mean

msl = mean ft above sea level

CL calculations assume that the mean is normally distributed, even the the underlying variable (daily flow) is not normally distributed. This is typically a valid statistical assumption under the Cental Limit Theorem

The software package "Statgraphics" was used for all calculations

[4] Data presented for period available from USGS only

Table CAWG 6-12a. Water balance for all water years and by water year type showing average monthly discharge (cfs) above and below diversion and percent of above diversion flow diverted for hydroelectric generation.

		J	F	M	A	M	J	J	A	S	O	N	D
Bear Creek													
All	Above Diversion	25.6	25.8	40.8	100.9	261.7	314.5	187.1	61.6	25.2	17.1	17.1	19.1
	Below Diversion	5.0	3.2	5.3	9.3	31.4	119.8	91.4	11.0	3.7	2.8	2.4	2.6
	Amount Diverted	80%	88%	87%	91%	88%	62%	51%	82%	85%	84%	86%	86%
W	Above Diversion	41.9	36.8	55.9	107.4	289.9	483.0	410.6	134.7	46.3	21.6	20.2	26.4
	Below Diversion	10.9	5.0	11.7	24.2	73.4	365.7	306.2	28.7	4.6	3.1	2.4	3.5
	Amount Diverted	74%	86%	79%	77%	75%	24%	25%	79%	90%	86%	88%	87%
AN	Above Diversion	20.0	27.7	39.5	84.7	359.5	351.0	149.6	50.3	28.4	24.8	22.2	22.2
	Below Diversion	3.0	3.0	2.8	2.8	46.7	65.6	18.0	3.7	4.4	3.2	2.9	2.8
	Amount Diverted	85%	89%	93%	97%	87%	81%	88%	93%	85%	87%	87%	87%
D	Above Diversion	33.1	29.5	36.6	111.9	265.3	202.7	63.7	18.0	10.6	14.1	18.1	24.1
	Below Diversion	2.6	2.9	3.0	2.9	4.5	3.9	2.6	2.6	2.7	4.1	3.3	2.6
	Amount Diverted	92%	90%	92%	97%	98%	98%	96%	86%	75%	71%	82%	89%
C	Above Diversion	10.8	13.9	30.3	97.6	194.0	202.4	64.4	22.5	12.1	11.3	11.7	9.4
	Below Diversion	1.9	1.8	1.9	2.0	3.0	6.5	2.6	2.6	3.2	2.0	1.8	1.8
	Amount Diverted	82%	87%	94%	98%	98%	97%	96%	88%	74%	82%	85%	81%
Mono Creek													
All	Above Diversion	161.9	150.9	192.4	151.9	85.9	116.3	263.2	291.1	203.0	111.0	156.7	148.8
	Below Diversion	8.5	8.7	8.3	9.2	12.9	36.9	65.8	20.6	12.9	10.3	9.4	9.1
	Amount Diverted	95%	94%	96%	94%	85%	68%	75%	93%	94%	91%	94%	94%
W	Above Diversion	153.4	210.6	315.6	280.9	171.4	232.3	399.2	284.4	242.0	165.4	158.4	121.3
	Below Diversion	9.4	10.3	9.7	11.9	15.1	90.3	179.5	40.0	14.9	9.2	10.2	10.2
	Amount Diverted	94%	95%	97%	96%	91%	61%	55%	86%	94%	94%	94%	92%
AN	Above Diversion	292.8	219.0	147.3	89.6	28.1	25.4	228.4	321.4	228.1	110.5	302.0	235.8
	Below Diversion	9.6	9.0	8.6	9.9	15.5	15.2	21.4	14.6	16.1	10.7	9.6	10.2
	Amount Diverted	97%	96%	94%	89%	45%	40%	91%	95%	93%	90%	97%	96%
D	Above Diversion	242.0	214.9	195.8	44.8	21.7	19.7	170.7	324.9	197.7	28.7	20.2	146.3
	Below Diversion	9.4	9.3	8.7	8.6	12.1	12.0	11.3	11.1	11.2	15.9	11.9	10.6
	Amount Diverted	96%	96%	96%	81%	44%	39%	93%	97%	94%	45%	41%	93%
C	Above Diversion	80.0	34.8	87.0	95.4	52.7	80.7	181.8	270.4	155.5	91.9	151.2	140.1
	Below Diversion	6.8	6.9	6.8	7.0	10.3	11.1	10.8	10.6	10.6	8.6	7.4	7.1
	Amount Diverted	92%	80%	92%	93%	80%	86%	94%	96%	93%	91%	95%	95%

Table CAWG 6-12b. Water balance for all water years and by water year type showing average monthly discharge (cfs) above and below diversion and percent of above diversion flow diverted for hydroelectric generation.

		J	F	M	A	M	J	J	A	S	O	N	D
Pitman Creek													
All	Above Diversion	18.2	17.5	39.9	113.9	184.0	123.7	30.8	3.1	1.1	3.4	6.5	8.7
	Below Diversion	1.6	2.9	5.1	17.6	33.7	44.1	14.1	1.0	0.7	0.7	1.3	1.5
	Amount Diverted	91%	83%	87%	85%	82%	64%	54%	68%	36%	79%	80%	83%
W	Above Diversion	41.0	33.2	63.8	135.8	297.9	301.7	80.8	7.6	2.4	7.2	10.2	12.9
	Below Diversion	1.1	4.0	3.4	46.2	92.2	124.0	38.4	1.9	1.2	0.7	1.0	1.0
	Amount Diverted	97%	88%	95%	66%	69%	59%	52%	75%	50%	90%	90%	92%
AN	Above Diversion	16.5	22.2	37.8	118.4	183.9	42.4	5.8	1.1	0.5	3.2	13.9	21.6
	Below Diversion	3.1	1.4	1.0	1.1	3.2	1.0	1.0	0.7	0.5	1.0	2.7	3.6
	Amount Diverted	81%	94%	97%	99%	98%	98%	83%	36%	0%	69%	81%	83%
D	Above Diversion	4.2	8.0	24.7	110.4	150.8	22.5	2.6	0.3	0.3	0.8	2.3	3.0
	Below Diversion	1.5	4.3	8.4	5.8	1.4	1.6	1.4	0.3	0.3	0.7	1.5	1.2
	Amount Diverted	64%	46%	66%	95%	99%	93%	46%	0%	0%	13%	35%	60%
C	Above Diversion	2.2	4.0	23.4	91.8	84.5	24.0	3.6	0.5	0.3	0.9	1.4	1.4
	Below Diversion	1.4	2.1	7.0	3.3	2.1	1.0	0.8	0.4	0.3	0.6	0.8	1.0
	Amount Diverted	36%	48%	70%	96%	98%	96%	78%	20%	0%	33%	43%	29%
Hooper Creek													
All	Above Diversion	3.2	2.9	4.3	10.0	33.7	35.3	20.9	9.2	5.0	3.8	3.2	2.6
	Below Diversion	3.2	2.9	4.2	7.1	14.2	17.6	16.4	5.6	3.0	2.9	2.8	2.6
	Amount Diverted	0%	0%	1%	29%	58%	50%	21%	39%	41%	24%	14%	0%
W	Above Diversion	4.3	3.6	5.7	11.9	39.3	50.2	37.7	14.7	6.9	4.4	3.6	2.8
	Below Diversion	4.3	3.6	5.6	9.1	21.6	33.4	31.3	8.6	3.5	3.1	2.9	2.8
	Amount Diverted	0%	0%	1%	24%	45%	34%	17%	41%	49%	29%	20%	0%
AN	Above Diversion	2.6	2.7	3.4	7.5	23.4	28.5	8.7	5.2	4.2	3.7	3.5	2.8
	Below Diversion	2.6	2.7	3.4	7.5	16.9	6.0	5.0	3.7	3.2	3.6	3.5	2.8
	Amount Diverted	0%	0%	0%	0%	28%	79%	43%	29%	24%	3%	0%	0%
D	Above Diversion	2.1	2.1	3.1	9.2	34.1	19.1	5.6	2.7	1.9	2.2	2.2	2.0
	Below Diversion	2.1	2.1	3.1	4.4	3.5	3.2	3.2	2.6	1.9	2.2	2.2	2.0
	Amount Diverted	0%	0%	0%	52%	90%	83%	43%	3%	1%	0%	0%	0%
C	Above Diversion	2.1	2.2	2.6	8.4	29.3	21.1	6.4	5.8	4.2	4.3	3.2	2.4
	Below Diversion	2.1	2.2	2.6	4.3	3.7	4.0	4.0	3.1	2.4	2.6	2.4	2.4
	Amount Diverted	0%	0%	0%	49%	87%	81%	37%	47%	43%	39%	23%	0%

Table CAWG 6-12c. Water balance for all water years and by water year type showing average monthly discharge (cfs) above and below diversion and percent of above diversion flow diverted for hydroelectric generation.

		J	F	M	A	M	J	J	A	S	O	N	D
Chinquapin Creek													
All	Above Diversion[a]	1.9	1.2	2.9	6.4	13.4	9.2	3.4	0.4	0.1	0.1	0.3	0.5
	Below Diversion	1.9	1.2	2.9	6.4	8.0	9.2	3.4	0.4	0.1	0.1	0.3	0.5
	Amount Diverted	0%	0%	0%	0%	40%	0%	0%	0%	0%	0%	0%	0%
W	Above Diversion[a]	3.7	2.4	4.7	10.0	22.7	25.2	6.2	0.7	0.2	0.7	0.7	1.0
	Below Diversion	3.7	1.8	4.2	8.7	15.6	25.2	6.2	0.7	0.2	0.1	0.5	0.8
	Amount Diverted	0%	26%	10%	13%	31%	0%	0%	0%	0%	86%	33%	16%
AN	Above Diversion[a]	1.2	1.6	2.8	9.2	16.4	4.0	0.4	0.1	0.0	0.1	0.2	0.3
	Below Diversion	1.0	1.4	2.0	9.2	16.4	4.0	0.4	0.1	0.0	0.1	0.2	0.3
	Amount Diverted	18%	14%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0%
D	Above Diversion[a]	0.3	0.7	2.2	8.7	16.6	4.4	0.3	0.0	0.0	0.0	0.2	0.2
	Below Diversion	0.3	0.7	2.2	5.0	4.1	1.4	0.2	0.0	0.0	0.0	0.2	0.2
	Amount Diverted	0%	0%	0%	43%	75%	68%	40%	0%	0%	0%	0%	0%
C	Above Diversion[a]	0.1	0.2	1.7	6.8	6.6	2.0	0.3	0.0	0.0	0.1	0.1	0.1
	Below Diversion	0.1	0.2	1.1	1.0	1.0	1.0	0.3	0.0	0.0	0.1	0.1	0.1
	Amount Diverted	0%	0%	36%	85%	85%	51%	0%	0%	0%	0%	0%	0%
Camp 62 Creek													
All	Above Diversion[a]	2.1	1.6	3.7	10.7	16.1	8.8	2.4	0.3	0.2	0.2	0.4	0.7
	Below Diversion	2.1	1.4	3.2	6.5	7.7	7.4	2.4	0.3	0.2	0.2	0.4	0.7
	Amount Diverted	0%	10%	13%	40%	52%	16%	0%	0%	0%	0%	0%	0%
W	Above Diversion[a]	4.4	3.0	5.8	12.4	27.2	31.5	7.4	0.7	0.2	0.7	0.9	1.2
	Below Diversion	4.4	2.1	4.9	9.8	16.0	31.5	6.1	0.6	0.2	0.2	0.6	1.0
	Amount Diverted	0%	31%	16%	21%	41%	0%	17%	14%	0%	71%	36%	17%
AN	Above Diversion[a]	1.5	2.0	3.4	10.8	16.8	3.9	0.5	0.2	0.1	0.4	1.3	2.0
	Below Diversion	0.7	1.3	1.9	7.4	14.7	3.6	0.4	0.2	0.1	0.4	0.4	0.6
	Amount Diverted	54%	36%	45%	31%	12%	7%	24%	0%	0%	0%	69%	70%
D	Above Diversion[a]	0.4	0.8	2.6	10.1	17.8	3.1	0.3	0.2	0.2	0.0	0.2	0.3
	Below Diversion	0.4	0.8	2.6	4.5	3.9	1.7	0.3	0.2	0.2	0.0	0.2	0.3
	Amount Diverted	0%	0%	0%	56%	78%	45%	0%	0%	0%	0%	0%	0%
C	Above Diversion[a]	0.2	0.4	2.1	8.6	7.8	2.2	0.4	0.1	0.0	0.1	0.1	0.1
	Below Diversion	0.2	0.4	1.4	2.9	1.2	0.6	0.4	0.1	0.0	0.1	0.1	0.1
	Amount Diverted	0%	0%	34%	66%	85%	73%	0%	0%	0%	0%	0%	0%

[a] Above Diversion daily discharge estimated using area-based method. Average monthly discharge calculated from daily flow values.

Table CAWG 6-12d. Water balance for all water years and by water year type showing average monthly discharge (cfs) above and below diversion and percent of above diversion flow diverted for hydroelectric generation.

		J	F	M	A	M	J	J	A	S	O	N	D
Bolsillo Creek													
All	Above Diversion[a]	0.7	0.9	2.0	5.9	9.0	5.5	1.9	0.3	0.1	0.1	0.3	0.5
	Below Diversion	0.7	0.9	1.8	3.6	3.6	2.7	1.4	0.2	0.1	0.1	0.3	0.5
	Amount Diverted	0%	0%	7%	39%	60%	51%	26%	0%	0%	0%	0%	0%
W	Above Diversion[b]	2.1	1.2	2.1	4.8	13.3	17.4	5.8	0.8	0.3	0.4	0.6	0.7
	Below Diversion	1.2	1.2	2.1	3.7	6.2	5.2	2.3	0.4	0.3	0.4	0.5	0.7
	Amount Diverted	42%	0%	0%	23%	53%	70%	61%	49%	0%	9%	20%	3%
AN	Above Diversion[a]	0.9	1.2	2.1	7.1	14.0	2.7	0.3	0.1	0.0	0.2	0.8	1.2
	Below Diversion	0.4	1.1	1.6	7.1	14.0	2.7	0.3	0.1	0.0	0.1	0.2	0.2
	Amount Diverted	57%	12%	25%	0%	0%	0%	6%	0%	0%	44%	74%	84%
D	Above Diversion[a]	0.2	0.5	1.7	6.6	8.5	1.3	0.2	0.0	0.0	0.0	0.1	0.2
	Below Diversion	0.2	0.5	1.7	6.6	0.6	0.6	0.2	0.0	0.0	0.0	0.1	0.2
	Amount Diverted	0%	0%	0%	0%	93%	52%	0%	0%	0%	0%	0%	0%
C	Above Diversion[a]	0.1	0.2	1.3	5.2	4.7	1.3	0.3	0.0	0.0	0.1	0.1	0.1
	Below Diversion	0.1	0.2	1.1	1.0	0.6	0.5	0.3	0.0	0.0	0.1	0.1	0.1
	Amount Diverted	0%	0%	16%	81%	87%	63%	0%	0%	0%	0%	0%	0%

[b] Bolsillo Creek above diversion daily flows composed of measured flow and area-based estimated flow.

Table CAWG 6-13. Water balance of Florence Lake showing total average monthly inflow to and outflow from (cfs) the reservoir for the period of record and representative water years. For inflow, the number in parentheses shows the inflow without the hydroelectric diversions. For outflow, the first number in parentheses shows the outflow to South Fork San Joaquin River. The second number in parentheses shows the outflow to Ward Tunnel.

		J	F	M	A	M	J
All	Inflow	93.9 (91.0)	91.2 (90.6)	144.9 (144.9)	353.2 (350.2)	904.3 (888.4)	1096.7 (1084.7)
	Outflow	64.2 (13.4, 50.8)	84.8 (14.7, 70.1)	145.6 (17.1, 128.4)	293.6 (15.5, 278.1)	477.4 (24.3, 453.1)	843.2 (293.7, 549.6)
W (1993)*	Inflow	89.3 (89.3)	79.6 (79.6)	163.5 (163.5)	367.6 (353.5)	1363.8 (1271.9)	1672.0 (1598.9)
	Outflow	102.0 (11.4, 90.7)	85.7 (11.2, 74.4)	184.1 (11.5, 172.6)	335.8 (10.3, 325.5)	938.3 (7.2, 931.1)	1076.6 (402.5, 674.1)
AN (1999)	Inflow	56.2 (56.2)	91.5 (91.5)	106.4 (106.4)	226.3 (226.3)	1048.8 (1042.4)	1153.1 (1147.0)
	Outflow	40.4 (15.4, 25.0)	74.6 (15.2, 59.4)	86.4 (15.0, 71.4)	190.7 (15.1, 175.6)	445.1 (25.2, 419.9)	734.3 (21.0, 713.3)
D (2002)*	Inflow	107.7 (98.9)	111.7 (111.7)	121.4 (121.4)	467.7 (459.5)	793.3 (767.8)	847.1 (823.6)
	Outflow	68.2 (11.9, 56.3)	70.5 (13.1, 57.4)	94.7 (6.6, 88.1)	242.3 (5.7, 236.6)	279.2 (23.8, 255.4)	729.6 (24.3, 705.3)
C (1987)	Inflow	23.6 (23.6)	23.1 (23.1)	63.9 (63.9)	377.1 (377.1)	657.8 (657.8)	581.4 (581.4)
	Outflow	21.7 (12.8, 8.9)	38.0 (13.1, 24.9)	72.3 (16.9, 55.4)	279.4 (15.8, 263.6)	483.6 (20.4, 463.2)	204.9 (19.4, 185.4)

		J	A	S	O	N	D
All	Inflow	648.2 (645.1)	236.2 (233.2)	90.2 (89.0)	60.9 (60.4)	61.8 (59.9)	71.1 (66.5)
	Outflow	838.0 (259.3, 578.8)	538.8 (59.1, 479.7)	376.9 (24.3, 352.6)	217.9 (16.9, 201.0)	125.0 (14.2, 110.8)	97.4 (12.5, 84.9)
W (1993)*	Inflow	1223.2 (1202.9)	340.3 (331.3)	106.7 (103.0)	19.4 (19.4)	52.5 (52.5)	47.3 (47.3)
	Outflow	1224.4 (420.7, 803.8)	819.8 (32.7, 787.1)	617.0 (25.0, 592.0)	229.5 (13.8, 215.7)	41.0 (12.0, 29.0)	36.2 (11.4, 24.8)
AN (1999)	Inflow	369.4 (368.9)	101.3 (101.2)	87.1 (86.9)	63.8 (63.5)	57.5 (57.5)	56.2 (56.2)
	Outflow	550.1 (25.4, 524.7)	580.3 (26.8, 553.5)	315.9 (28.3, 287.6)	261.9 (16.4, 245.5)	43.9 (16.3, 27.7)	43.3 (14.8, 28.5)
D (2002)*	Inflow	216.3 (212.7)	44.8 (44.6)	19.8 (19.8)	11.7 (11.7)	50.3 (35.7)	143.8 (108.1)
	Outflow	387.0 (27.5, 359.5)	490.0 (27.7, 462.3)	196.6 (27.0, 169.6)	214.1 (13.0, 201.1)	18.2 (12.2, 6.0)	91.6 (12.4, 79.2)
C (1987)	Inflow	138.3 (138.3)	47.0 (47.0)	22.4 (22.4)	65.7 (65.7)	30.3 (30.3)	19.8 (19.8)
	Outflow	416.9 (20.2, 396.7)	484.3 (20.7, 463.6)	263.4 (21.0, 242.5)	337.1 (14.8, 322.4)	260.3 (13.4, 246.9)	19.7 (12.2, 7.5)

* Data from the gage at SFSJR near Florence Lake used in the outflow calculations. The data used were qualified as estimates.

Table CAWG 6-14. Unimpaired Flows for Big Creek Gaged River Locations WY 1983-2002 (mean daily flow in cfs).

Station	**Bear Creek near Lake Thomas A Edison CA**	Bear Creek below Diversion	**Pitman Creek below Tamarack Creek CA**	Pitman Creek near Tamarack Mountain CA	Mono Creek below Diversion	Big Creek near Mouth near Big Creek CA	Big Creek below Huntington Lake CA	SF San Joaquin River near Florence Lake CA	SF San Joaquin River below Hooper Creek	San Joaquin River above Shakeflat Creek near Big Creek CA	San Joaquin River below Dam 6 (above Stevenson Creek)	Hooper Creek at Diversion Dam (Spill And Release)	Stevenson Creek at Shaver Lake CA	Camp 62 Creek below Diversion Dam	Bolsillo Creek below Diversion Dam near Big Creek CA	MF Balsam Creek below Balsam M Fb near Big Creek CA	NF Stevenson Creek at Perimeter Road near Big Creek CA	Chinquapin Creek below Diversion Dam (Release)	Rock Creek	Ross Creek	Bolsillo Creek above Diversion Dam near Big Creek CA
Method	**Data - Reference Basin**	U/s Data and Additional Area	**Data - Reference Basin**	U/s Data and Additional Area	Area	Area	Area	Water Balance and Area	Synthetic U/s Data and Area	Synthetic U/s Data and Area	Synthetic U/s Data and Area	Data and Diversion data	Area	Area	Area	Area	Area	Area	Data and Area	Data and Area	Area
Area (mi^2)	**52.5**	52.8	**23.13**	23.22	92.8	131	81.1	171	184	1003	1197		29.4	2.14	1.4	0.32	4.42	1.82			1.3
Additional Area		0.3		0.09	0.3				13	819	147										
Date	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**	**Flow (cfs)**
10/1/1982	**123**	123.7	**22**	22.1	218.1	124.6	77.1	400.6	431.1	1573	1757.8	16.9	28.0	2.0	1.3	0.3	4.2	1.7	15.3	5.8	1.2
10/2/1982	**104**	104.6	**19**	19.1	184.4	107.6	66.6	338.7	364.5	1360	1519.1	14.3	24.2	1.8	1.2	0.3	3.6	3.6	13.2	5.0	1.1
10/3/1982	**89**	89.5	**16**	16.1	157.8	90.6	56.1	289.9	311.9	1179	1313.4	12.2	20.3	1.5	1.0	0.2	3.1	3.1	11.2	4.2	0.9
10/4/1982	**77**	77.4	**14**	14.1	136.5	79.3	49.1	250.8	269.9	1035	1152.3	10.6	17.8	1.3	0.8	0.2	2.7	2.7	9.8	3.7	0.8
10/5/1982	**68**	68.4	**13**	13.1	120.6	73.6	45.6	221.5	238.3	931	1039.7	9.4	16.5	1.2	0.8	0.2	2.5	2.4	9.1	3.4	0.7
10/6/1982	**62**	62.4	**12**	12.0	109.9	68.0	42.1	201.9	217.3	854	954.7	8.5	15.3	1.1	0.7	0.2	2.3	2.1	8.4	3.2	0.7
10/7/1982	**57**	57.3	**11**	11.0	101.1	62.3	38.6	185.7	199.8	794	886.1	7.8	14.0	1.0	0.7	0.2	2.1	2.0	7.7	2.9	0.6
10/8/1982	**52**	52.3	**11**	11.0	92.2	62.3	38.6	169.4	182.2	758	850.6	7.2	14.0	1.0	0.7	0.2	2.1	1.8	7.7	2.9	0.6
10/9/1982	**48**	48.3	**10**	10.0	85.1	56.6	35.1	156.3	168.2	693	776.5	6.6	12.7	0.9	0.6	0.1	1.9	1.7	7.0	2.6	0.6
10/10/1982	**44**	44.3	**9.7**	9.7	78.0	54.9	34.0	143.3	154.2	652	733.6	6.1	12.3	0.9	0.6	0.1	1.9	1.5	6.8	2.6	0.5
10/11/1982	**41**	41.2	**9.4**	9.4	72.7	53.2	33.0	133.5	143.7	621	700.2	5.6	11.9	0.9	0.6	0.1	1.8	1.4	6.6	2.5	0.5
10/12/1982	**39**	39.2	**9.1**	9.1	69.2	51.5	31.9	127.0	136.7	596	672.3	5.4	11.6	0.8	0.6	0.1	1.7	1.4	6.3	2.4	0.5
10/13/1982	**38**	38.2	**8.8**	8.8	67.4	49.8	30.9	123.8	133.2	577	650.9	5.2	11.2	0.8	0.5	0.1	1.7	1.3	6.1	2.3	0.5
10/14/1982	**36**	36.2	**8.5**	8.5	63.8	48.1	29.8	117.3	126.2	556	626.9	5.0	10.8	0.8	0.5	0.1	1.6	1.2	5.9	2.2	0.5
10/15/1982	**36**	36.2	**8.2**	8.2	63.8	46.4	28.8	117.3	126.2	544	613.0	5.0	10.4	0.8	0.5	0.1	1.6	1.2	5.7	2.2	0.5
10/16/1982	**35**	35.2	**7.9**	7.9	62.1	44.7	27.7	114.0	122.7	526	592.6	4.8	10.0	0.7	0.5	0.1	1.5	1.2	5.5	2.1	0.4
10/17/1982	**34**	34.2	**7.9**	7.9	60.3	44.7	27.7	110.7	119.2	517	583.1	4.7	10.0	0.7	0.5	0.1	1.5	1.2	5.5	2.1	0.4
10/18/1982	**32**	32.2	**7.6**	7.6	56.7	43.0	26.6	104.2	112.2	494	558.2	4.4	9.7	0.7	0.5	0.1	1.5	1.1	5.3	2.0	0.4
10/19/1982	**32**	32.2	**7.4**	7.4	56.7	41.9	25.9	104.2	112.2	487	548.6	4.4	9.4	0.7	0.4	0.1	1.4	1.1	5.2	2.0	0.4
10/20/1982	**32**	32.2	**7.3**	7.3	56.7	41.3	25.6	104.2	112.2	481	542.3	4.4	9.3	0.7	0.4	0.1	1.4	1.1	5.1	1.9	0.4
10/21/1982	**31**	31.2	**7.3**	7.3	55.0	41.3	25.6	101.0	108.6	475	535.8	4.3	9.3	0.7	0.4	0.1	1.4	1.1	5.1	1.9	0.4
10/22/1982	**41**	41.2	**7.6**	7.6	72.7	43.0	26.6	133.5	143.7	714	777.7	5.6	9.7	0.7	0.5	0.1	1.5	1.4	5.3	2.0	0.4
10/23/1982	**44**	44.3	**11**	11.0	78.0	62.3	38.6	143.3	154.2	1007	1099.5	6.1	14.0	1.0	0.7	0.2	2.1	1.5	7.7	2.9	0.6
10/24/1982	**59**	59.3	**17**	17.1	104.6	96.3	59.6	192.2	206.8	1468	1610.3	8.1	21.6	1.6	1.0	0.2	3.2	2.0	11.8	4.5	1.0
10/25/1982	**111**	111.6	**84**	84.3	196.8	475.7	294.5	361.5	389.0	4659	5363.6	15.3	106.8	7.8	5.1	1.2	16.1	3.8	58.5	22.2	4.7
10/26/1982	**138**	138.8	**362**	363.4	244.7	2050.2	1269.3	449.5	483.7	12485	15520.8	19.0	460.1	33.5	21.9	5.0	69.2	4.8	252.3	95.8	20.3
10/27/1982	**96**	96.5	**87**	87.3	170.2	492.7	305.0	312.7	336.5	3610	4340.1	13.2	110.6	8.0	5.3	1.2	16.6	3.3	60.6	23.0	4.9
10/28/1982	**84**	84.5	**62**	62.2	149.0	351.1	217.4	273.6	294.4	2635	3155.3	11.6	78.8	5.7	3.8	0.9	11.8	2.9	43.2	16.4	3.5
10/29/1982	**78**	78.4	**53**	53.2	138.3	300.2	185.8	254.1	273.4	2277	2722.0	10.7	67.4	4.9	3.2	0.7	10.1	2.7	36.9	14.0	3.0
10/30/1982	**83**	83.5	**267**	268.0	147.2	1512.2	936.2	270.3	290.9	8311	10550.1	11.4	339.4	24.7	16.2	3.7	51.0	2.9	186.1	70.6	15.0
10/31/1982	**83**	83.5	**123**	123.5	147.2	696.6	431.3	270.3	290.9	4402	5433.7	11.4	156.3	11.4	7.4	1.7	23.5	2.9	85.7	32.5	6.9

EXPLANATION OF METHODS

Data - Reference Basin: use actual data from this station

Water Balance: use water balance of upstream reservoir = measured outflow + change in storage + diverted or released outflow - inflow - evaporation

Area: use area relationship and actual flow data from nearby unimpaired reference station

Synth U/s Data and Area: use synthetic unimpaired upstream data plus estimated flow from contributing area between upstream station and this station
(based on area relationship and actual flow data from nearby unimpaired reference station)

U/s Data and Area: use actual upstream data plus estimated flow from contributing area between upstream station and this station
(based on area relationship and actual flow data from nearby unimpaired reference station)

Data and Diversion Data: use actual data from this station plus adequate upstream diversion data

Data and Area: use actual data from this station when available and area method for remainder of period

Table CAWG 6-15. Comparison of Area-based Method and Actual Data or Water Balance Method for Unimpaired Flow Calculation (mean daily flow in cfs).

Hooper Below Diversion		
	Area-based	Water Balance
Mean=	13.4	11.2
Median=	4.7	4.5
% diff Mean=	16	
% diff Median=	3.3	

Mono Creek Above Diversion		
	Area-based	Water Balance
Mean=	171	171
Median=	60	64
% diff Mean=	-0.1	
% diff Median=	-6.3	

Bolsillo Above Diversion		
	Area-based	Gage_Data
Mean=	4.3	3.2
Median=	0.5	0.4
% diff Mean=	27	
% diff Median=	20	

Mean and median are calculated for the same period of record for both the area method and data or water balance method for each station

% difference in mean = (area method mean - data mean)/area mean

% difference in mean = (area method median - data median)/area median

FIGURES

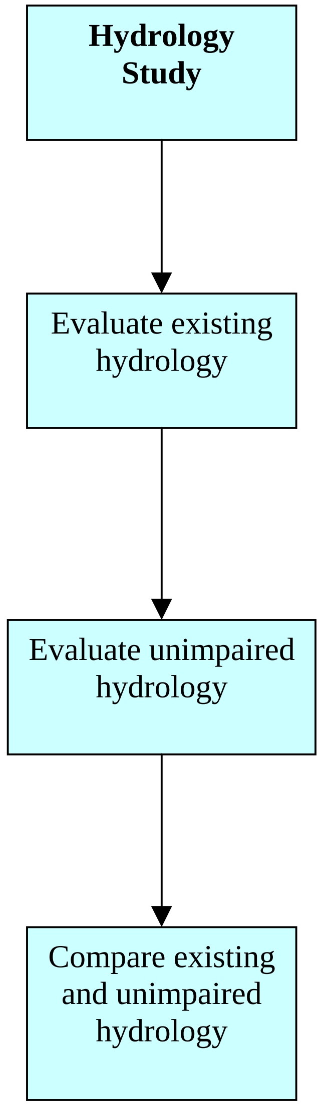


Figure CAWG 6-1a. Flowchart of the Hydrology Study Elements and Process.

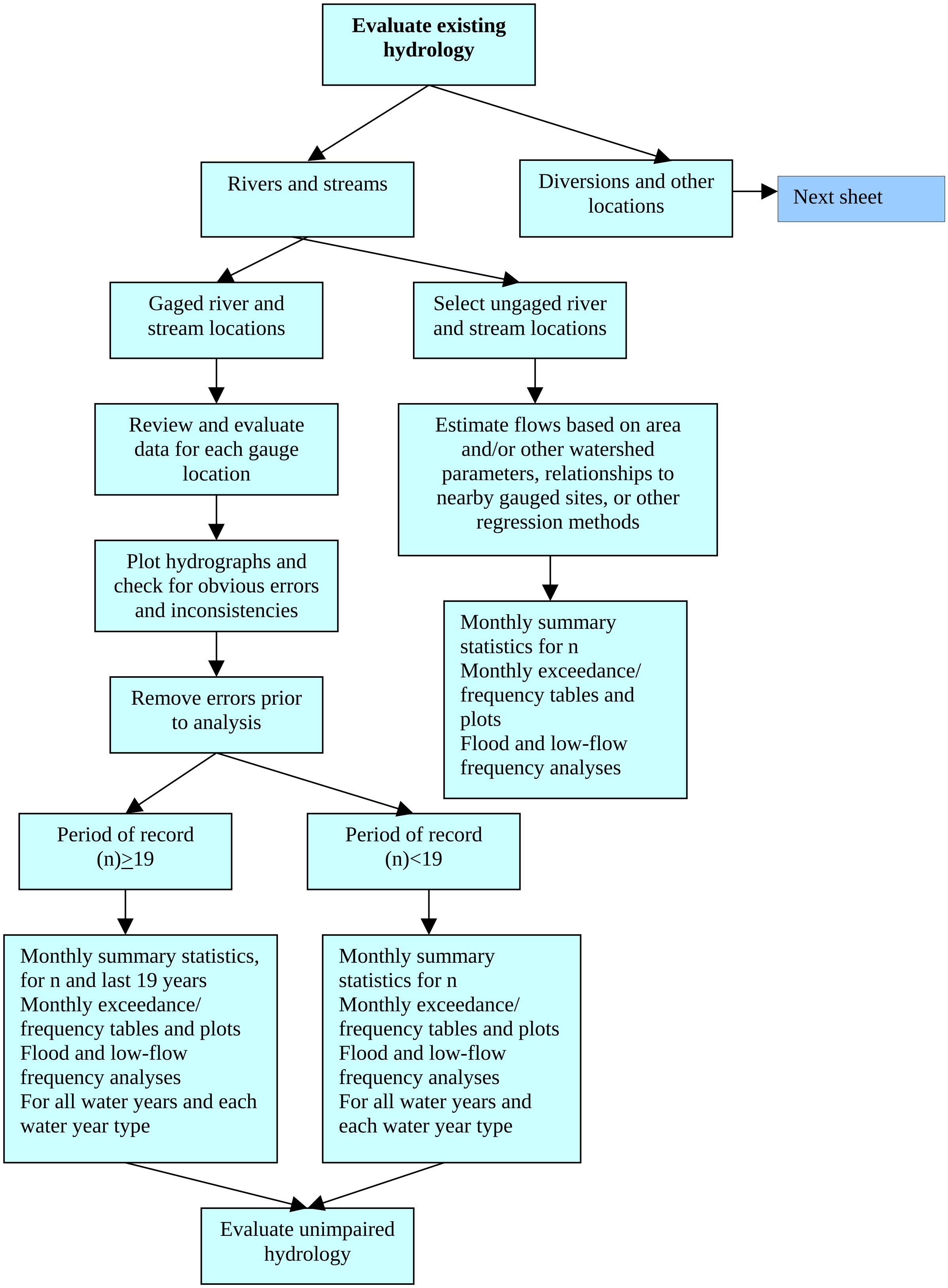


Figure CAWG 6-1b. Flowchart of the Hydrology Study Elements and Process.

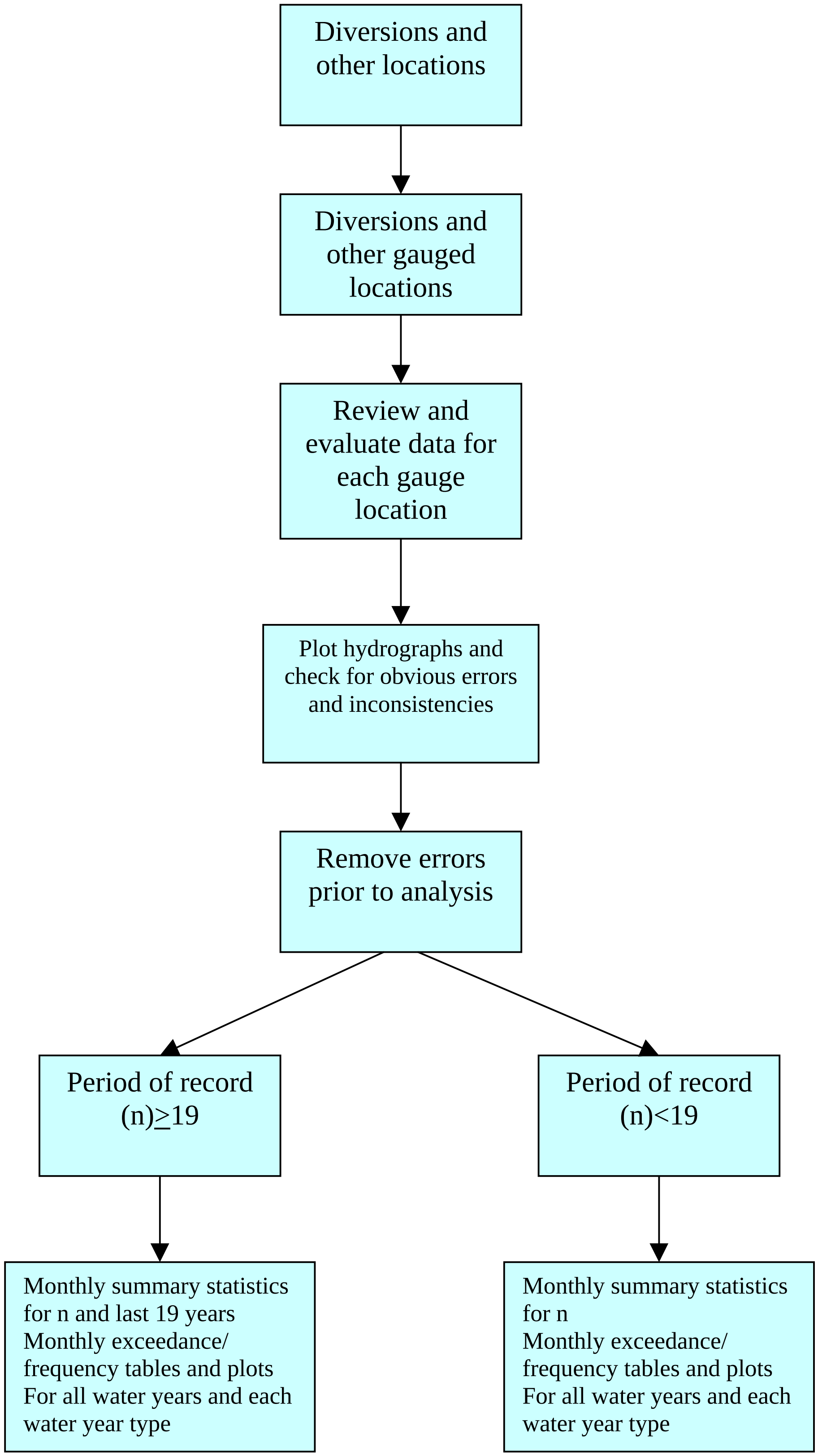


Figure CAWG 6-1c. Flowchart of the Hydrology Study Elements and Process.

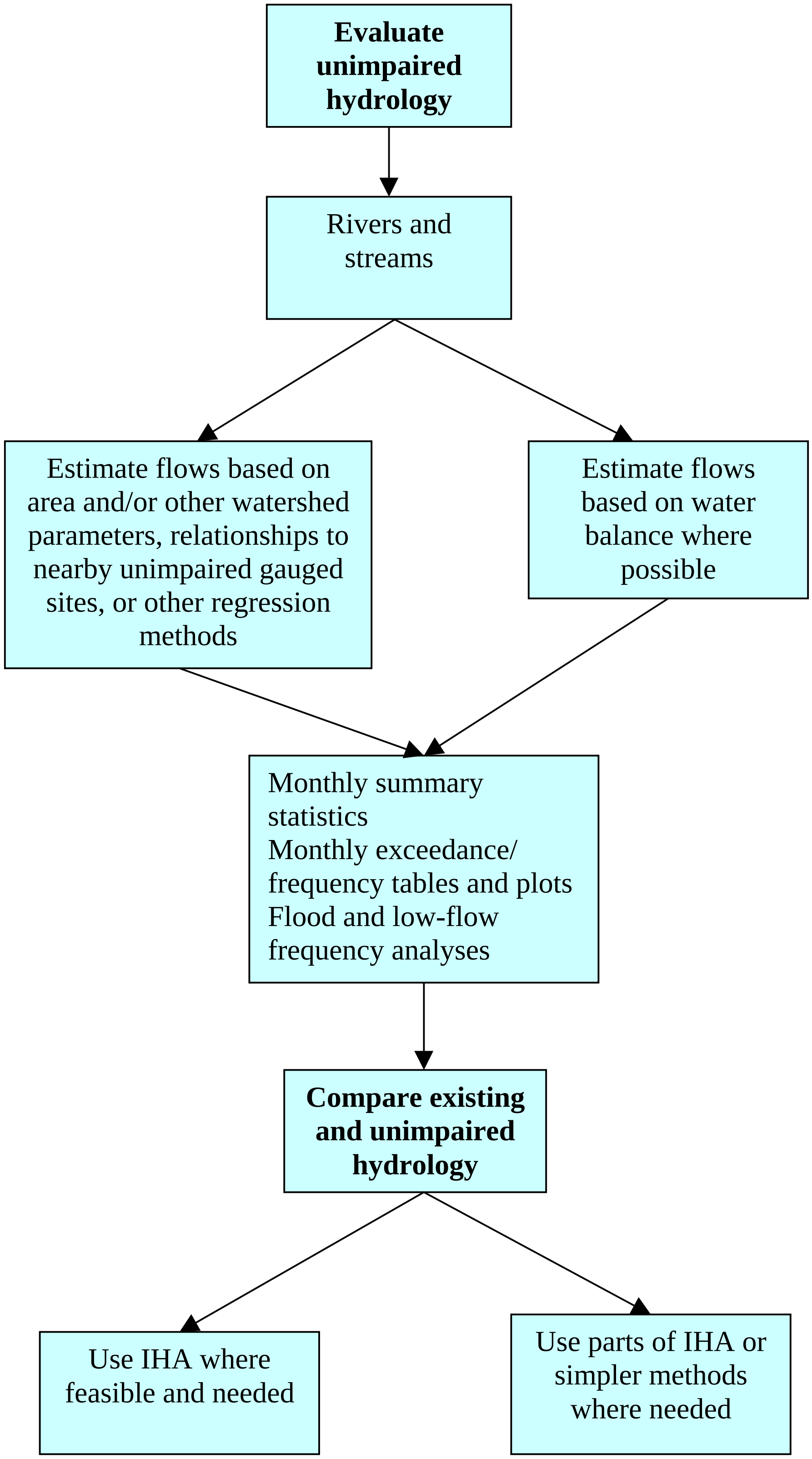


Figure CAWG 6-1d. Flowchart of the Hydrology Study Elements and Process.

Figure CAWG 6-2a. Schematic of River Gages in Big Creek Project Reach – South Fork San Joaquin River. Four Pieces of Information are Presented for Each Gage: 1) Basin Area Used in the Unimpaired Flow Calculation; 2) Method (area, water balance, or gage) Used to Calculate Unimpaired Flow; 3) Period of Record for Which Each Method was Used; and 4) Equation Used to Calculate Unimpaired Flow. Gages in Bold Outline are in Unimpaired Basins.

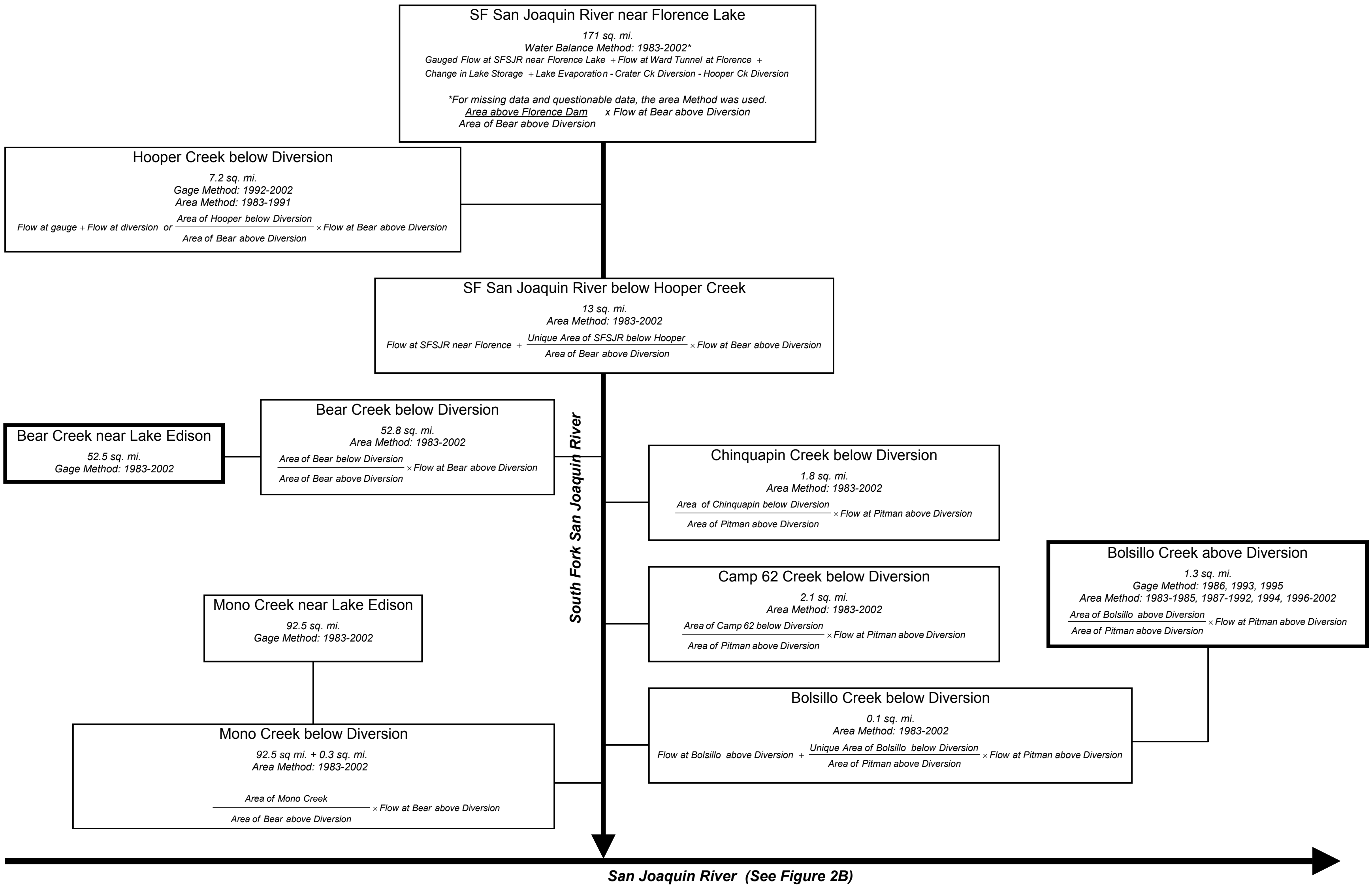


Figure CAWG 6-2b. Schematic of River Gages in Big Creek Project Reach – San Joaquin River. Four Pieces of Information are Presented for Each Gage: 1) Basin Area Used in the Unimpaired Flow Calculation; 2) Method (area, water balance, or gage) Used to Calculate Unimpaired Flow; 3) Period of Record for Which Each Method was Used; and 4) Equation Used to Calculate Unimpaired Flow. Gages in Bold Outline are in Unimpaired Basins.

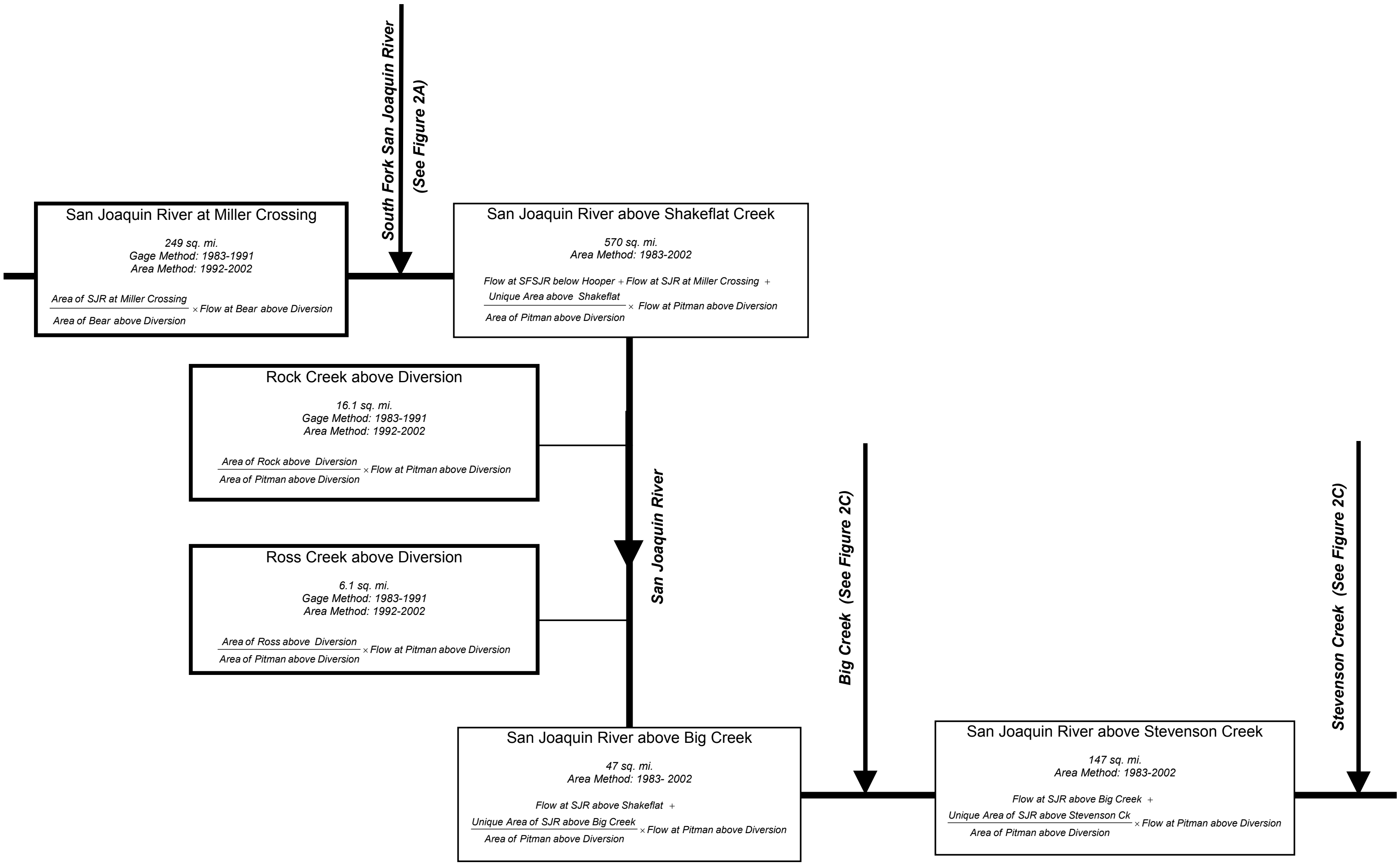


Figure CAWG 6-2c. Schematic of River Gages in Big Creek Project Reach – Big Creek and Stevenson Creek. Four Pieces of Information are Presented for Each Gage: 1) Basin Area Used in the Unimpaired Flow Calculation; 2) Method (area, water balance, or gage) Used to Calculate Unimpaired Flow; 3) Period of Record for Which Each Method was Used; and 4) Equation Used to Calculate Unimpaired Flow. Gages in Bold Outline are in Unimpaired Basins.

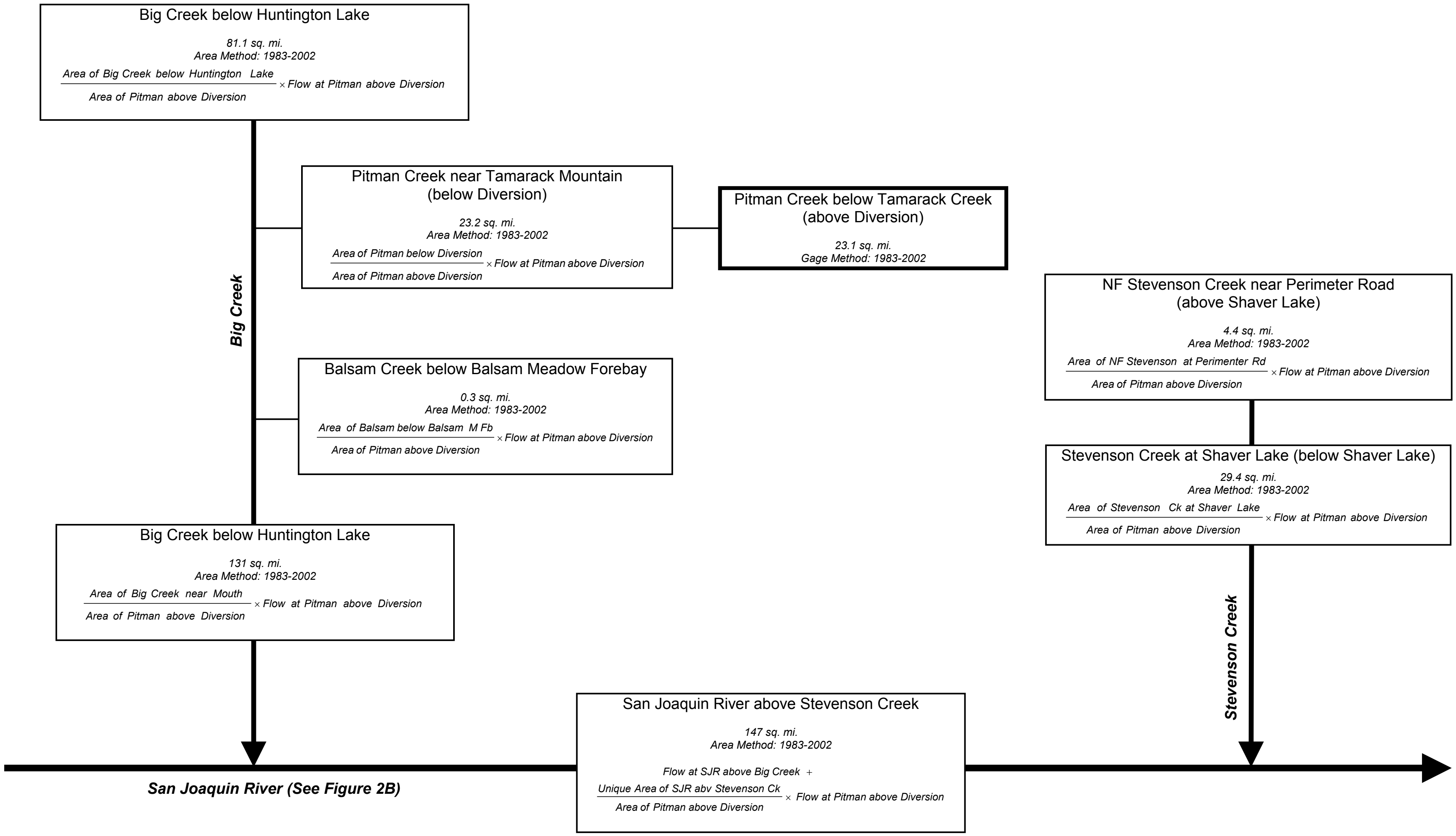
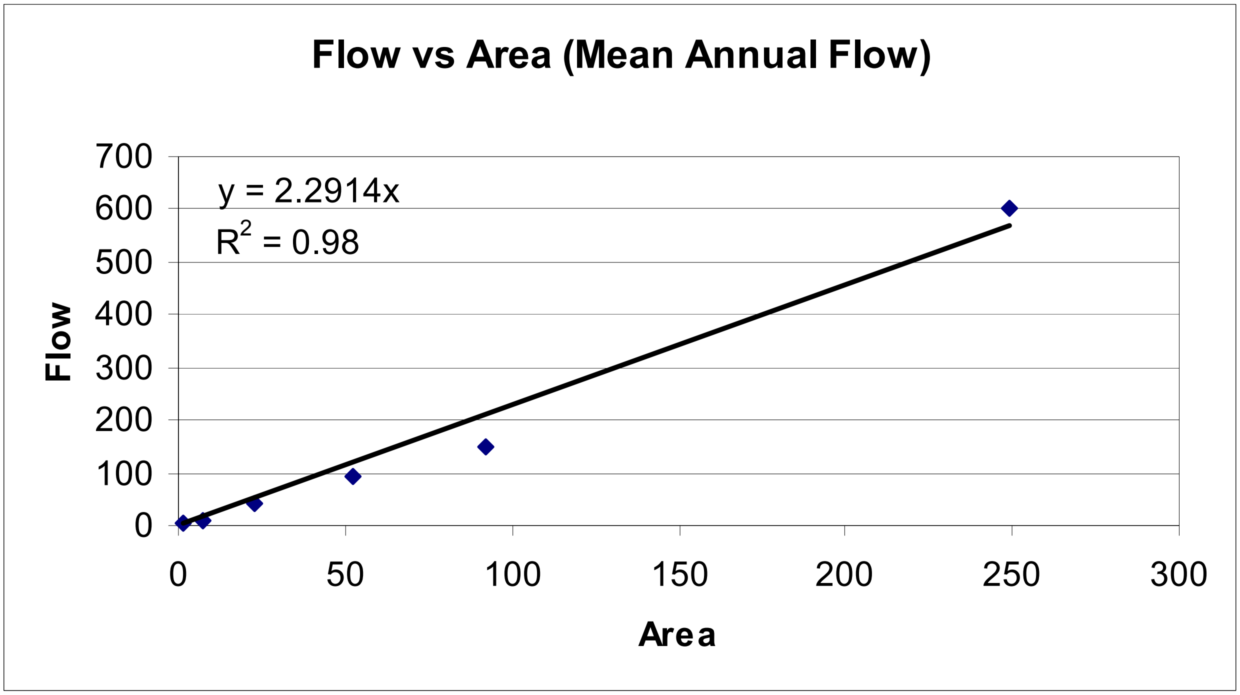
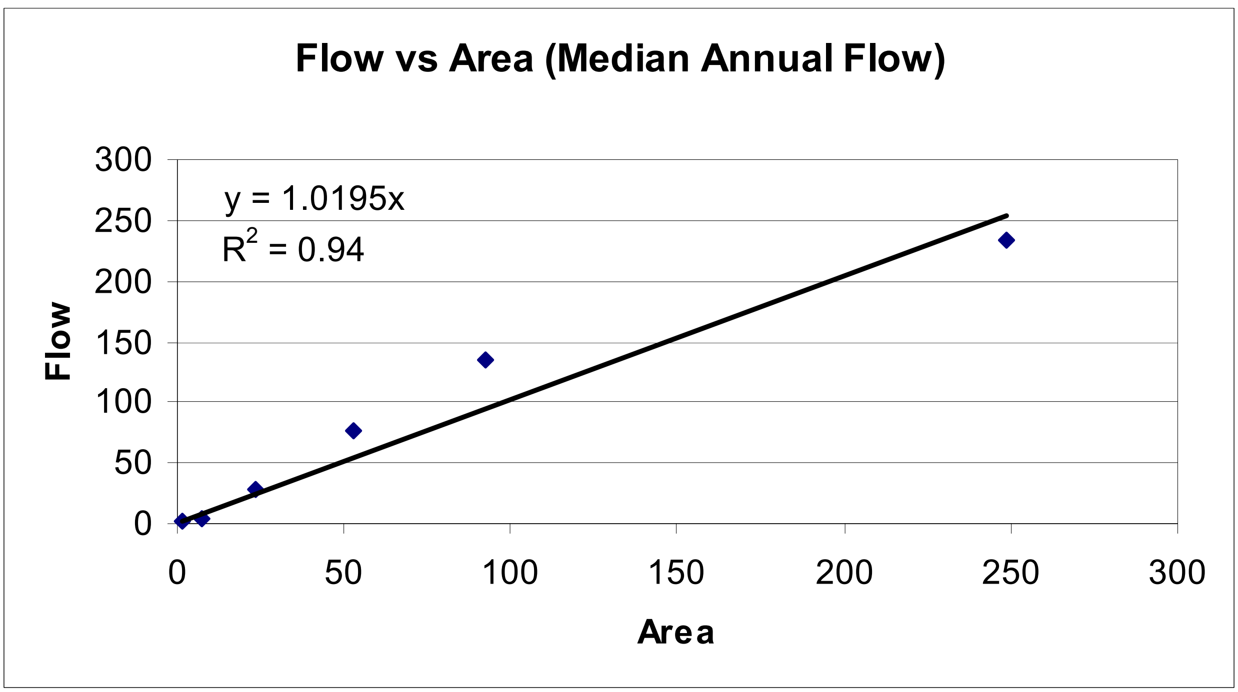


Figure CAWG 6-3. Mean and Median Annual Flow Versus Area for Six Unimpaired Sub-basins.





Regression uses:
- Bear Creek above diversion
- Pitman Creek above diversion
- Mono Creek above diversion (pre-1953)
- Hooper Creek above diversion (diversion plus below diversion data)
- Bolsillo Creek above diversion
- SJR at Miller's Crossing

MAPS

Placeholder for Maps

Non-Internet Public Information

These Maps have been removed in accordance with the Commission regulations at 18 CFR Section 388.112.

These Maps are considered Non-Internet Public information and should not be posted on the Internet. This information is provided in Volume 4 of the Application for New License and is identified as “Non-Internet Public” information. This information may be accessed from the FERC’s Public Reference Room, but is not expected to be posted on the Commission’s electronic library, except as an indexed item.

APPENDIX A

CAWG 6 HYDROLOGY STUDY PLAN

RESOURCE INTEREST:

Hydrology

STAKEHOLDER MANAGEMENT GOAL(S):

1. Achieve a hydrologic regime that better mimics the natural hydrograph.
2. Provide a balanced hydrologic regime that achieves the important functions of the natural hydrograph while simultaneously preserving the beneficial additional uses made possible by water storage, including: hydroelectric generation, reservoir-based recreation, downstream consumptive uses, and moderation of floods. [SCE]
3. Maintain the current hydrologic regime unless it is shown that an alternate regime provides measurable ecological benefit. [SCE]
4. Maintain and restore the connections of floodplains, channels, and water tables to distribute flood flows and sustain diverse habitats. [USFS]
5. Maintain and restore soils with favorable infiltration characteristics and diverse vegetative cover to absorb and filter precipitation and to sustain favorable conditions of stream flows. [USFS]
6. Maintain and restore in-stream flows sufficient to sustain desired conditions of riparian, aquatic, wetland, and meadow habitats and keep sediment regimes as close as possible to those with which aquatic and riparian biota evolved. [USFS]
7. Maintain and restore spatial and temporal connectivity for aquatic and riparian species within and between watersheds to provide physically, chemically and biologically unobstructed movement for their survival, migration and reproduction. [USFS]
8. Maintain and restore the physical structure and condition of stream banks and shorelines to minimize erosion and sustain desired habitat diversity. [USFS]

STAKEHOLDER MANAGEMENT OBJECTIVE(S):

1. Manage flow magnitude, timing, duration, and rate of change to mimic the natural hydrograph.
2. Maintain or restore: (1) the geomorphic and biological characteristics of special aquatic features, including lakes, meadows, bogs, fens, wetlands, vernal pools, springs; (2) streams, including in-stream flows; and (3) hydrologic connectivity both within and between watersheds to provide for the habitat needs of aquatic-dependent species. [USFS]

3. Maintain to the extent possible the existing beneficial uses of the available water supply made possible by storage of water runoff from the upper South Fork San Joaquin River basin, including: (1) hydroelectric generation; (2) downstream consumptive uses, such as municipal supply and agriculture, throughout the year; (3) moderation of the destructive effects of floods; and (4) increased recreation made possible by the existence of large reservoirs. [SCE]
4. Perform changes to current flow regime only when measurable benefits show the change to be cost effective. [SCE]

STUDY OBJECTIVE(S):

1. Describe the unimpaired and impaired ("without Project") and current ("Project") Project area hydrology. Provide information whose significance will be assessed in other studies.
2. Determine if additional gages are needed.
3. Describe water balance between hydroelectric diversions and other flows, including minimum flow requirements, throughout the Project area.
4. Determine how to classify water year type.
5. Determine the effects of PM&Es on the hydrologic regime.

PROJECT NEXUS:

The following Project-related structures and operations can impact the relicensing basin hydrology: diversions, flow augmentation, reservoirs, and timing of operations.

GENERAL APPROACH:

1. The existing network of U.S. Geological Survey (USGS) and SCE gaging stations will be used to describe the surface water hydrology of the relicensing basin. Magnitude, timing, duration, rate of change and frequency of flows will be described with hydrographs and exceedance tables. Time-scales will be those allowed by the existing data. This will generally be daily, monthly, hourly, or in 15-minute increments.
2. The Indicators of Hydrologic Alteration (IHA) analysis will be conducted for the available daily streamflow data for gages with reasonably long periods of record (at least 10-20 years). The daily streamflow data also will be used to reconstruct the unregulated hydrology at sites agreed upon by CAWG.
3. Identify data gaps in the existing gaging network. For areas with limited data or no data, hydrologic analysis may be augmented using comparison to similar-sized, nearby subwatersheds, precipitation estimates, or other hydrologic techniques. If necessary, additional gages will be installed.
4. Using the above analyses, Project-related alterations to the surface water hydrology, including magnitude, timing, duration, frequency, and rate of change will be identified.

DETAILED METHODOLOGY:

The first task of the Hydrology Study is to assemble and present the existing hydrologic database (both USGS and SCE) for the relicensing basin. Much of these tabular data were presented in the *Initial Information Package* (SCE 2000). These data will either be carried over to the Hydrology report, or augmented with a longer period of record if available.

The magnitude, timing, duration, rate of change and frequency of flows will be described with hydrographs and exceedance tables. The time-scales will be those allowed by the existing data, daily, monthly, hourly, or in 15-minute increments. A series of tables will also be generated from the streamflow gaging data including: monthly flow statistics tables summarizing mean monthly flow and monthly exceedance flows; tables summarizing average monthly flow; tables summarizing mean daily flow for each year of the period of record; duration curves depicting the median flow for each station. The timing of construction of various Project components will be highlighted in the data presentation.

In addition, hydrographs illustrating mean daily stream flow at the point of diversion and in the bypassed reaches for each month of representative water year types will be presented. This depiction will assist in understanding the recurrence interval of peak flows by water year type. For example, in the bypassed reaches, peak flows are rare during dry years. Accordingly, periods of record primarily containing drought years will not provide an adequate statistical representation of long-term stream hydrology. For areas with no or limited data, we will augment the available data (and note as such) using comparison to similar-sized, nearby subwatersheds, precipitation estimates, or other hydrologic techniques (Linsley and Franzini 1979; Linsley *et al*., 1982; USGS 2001). The proposed approach should be discussed with the CAWG prior to proceeding. In addition, for areas with limited or no data, a recommendation will be made to the CAWG whether additional gages are needed.

The data will be used to describe the balance of flows in the Project area, comparing the volume of water diverted for hydroelectric generation and the volume remaining instream, including minimum flow requirements. The analysis will evaluate this balance based upon water year type.

The data also will be used to describe the unregulated hydrology to the extent feasible, and allow comparison to Project-related hydrology. For streams at high elevation with a single diversion, the unregulated hydrology will represent flow above the point of the diversion. Where accretion flow downstream of the diversion has been estimated, it will be included. For streams subject to more complex hydrologic change, the unregulated hydrology will be reconstructed to the extent feasible. This will generally result in a more limited number of locations than are currently gaged.

The Indicators of Hydrologic Alteration (IHA) program will be used with the available daily streamflow data for gages with as available and usable periods of record, using the methods in Richter et al. (1996). The IHA method allows calculation of up to 32 hydrologic parameters to compare the degree of hydrologic alteration on the magnitude, timing, frequency, duration, and rate of change in a system using biologically relevant variables.

Both regulated and unregulated hydrology will be statistically compared using calculations of selected indicators of hydrologic alteration. The results will illustrate general Project changes to the magnitude, timing, frequency, duration, and rate of change of flow conditions. The IHA indices will supplement hydrographs and exceedance tables, and provide basic hydrologic information to be interpreted in other studies (see Coordination Needs). IHA will also be run for PM&E measures.

STUDY AREA:

The Hydrology Study will include all Project effected streams and impoundments in the relicensing basin.

ANALYSIS/OUTPUT:

The study will be primarily descriptive in nature. Areas used for modeling will be determined on the adequacy of the gaging network, and availability of data. IHA indices will then be calculated for specific locations determined by the CAWG. If changes to flows are specified as mitigation for aquatic biology, sediment transport/channel maintenance, recreation, or other studies, then the results of the Hydrology Study will be used to identify the best timing, magnitude, duration, frequency, and rate of change to better mimic the natural hydrograph.

Fifteen-minute data will be provided and analyzed to determine ramping effects for specific locations as determined by the CAWG.

ASSUMPTIONS:

Elucidation of hydrologic alterations alone does not describe or predict biological resources or channel maintenance responses (Richter *et al*. 1996). The significance of the hydrologic alteration will be determined in other studies, such as Geomorphology, CAWG-3 Determine Flow-Related Physical Habitat in Bypass Reaches, and CAWG-11 Riparian.

COORDINATION NEEDS:

The Hydrology Study will be coordinated with the following studies:

- CAWG-1 Characterize Stream and Reservoir Habitats
- CAWG-2 Geomorphology
- CAWG-3 Determine Flow-Related Physical Habitat In Bypass Reaches
- CAWG-5 Water Temperature
- CAWG-8 Amphibians and Reptiles

- CAWG-11 Riparian
- CAWG-13 Anadromous Salmonids
- CAWG-14 Fish Passage
- CUL - 1 Prehistoric Cultural Resources
- LAND - 5 Storage Capacity and Generation Assessment
- REC - 2 Manage Spill-Event Feasibility Study
- REC – 3 Whitewater Recreation Assessment Study
- REC – 4 Whitewater Play-Site Feasibility Study
- REC – 5 Reconnaissance Stream Corridor Recreation Assessment
- REC – 8 Angling Opportunities and Experience Assessment

SCHEDULE:

Development of the hydrologic database and preparation of hydrographs will occur during 2001. The need to augment records will be determined in 2001, and will occur in 2002. IHA will be conducted beginning in late 2001, early 2002 and in 2003-2004 as results of the CAWG-12 routing model will become available.

REFERENCES:

Linsley, R. K. and J. B. Franzini. 1979. Water-Resources Engineering, Third Edition. McGraw-Hill Series in Water Resources and Environmental Engineering.

Linsley, Kohler, and Paulhus. 1982. Hydrology for Engineers, Third Edition. McGraw-Hill Series in Water Resources and Environmental Engineering.

Richter, B. D., J. V. Baumgartner, J. Powell, and D. P. Braun. 1996. A Method for Assessing Hydrologic Alteration Within Ecosystems. Conservation Biology 10: 1163-1174.

Southern California Edison Company. May, 2000. Initial Information Package for the Big Creek Hydroelectric System Alternative Licensing Process.

United States Geological Survey (USGS). 2001. Streamstats. Internet: http://ma.water.usgs.gov/streamstats.

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APPENDIX B

MINIMUM INSTREAM FLOW REQUIREMENTS

Table CAWG 6 Appendix B-1. Current Big Creek ALP Project License NORMAL Water Year Minimum Instream Flow Release Requirements[1].

Source	USGS STA. NO.	STREAM REACH	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
			Minimum Instream Flow Release Requirements (cfs)[1]											
		FERC # 67, Big Creek 2A, 8 & Eastwood												
				(Nov1-15 / Nov 16-30)										
Order Issuing New License (Major) (Issued August 9, 1978)	11230530	Bear Creek below Diversion	2	2	2	2	2	2	2	3	3	3	3	3
	11231600	Mono Creek below Diversion	9	7.5	7.5	7.5	7.5	7.5	7.5	13	13	13	13	13
	11230215	South Fork San Joaquin River below Hooper Creek	17	15	15	15	15	15	15	27	27	27	27	27
	11237700	Pitman Creek near Tamarack Mountain[2]	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	11241500	Stevenson Creek below Shaver Lake	3	3 / 2	2	2	2	2	3	3	3	3	3	3
	11238500	Big Creek near Mouth (below Dam 5)	3	3 / 2	2	2	2	2	3	3	3	3	3	3
	11230600	Camp 62 Creek below Diversion	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
	11230560	Chinquapin Creek below Diversion	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1
	11230670	Bolsillo Creek below Diversion	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
	11230120	North Slide Creek Below Diversion	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	11230100	South Slide Creek Below Diversion	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
	--	Tombstone Creek from Diversion to SF San Joaquin	Diversion turned out per 1983 Project License Amendment - currently full natural flow.											
Department of Fish and Game. Letter (response to inquiries) to Richard M. Boyd, USGS. March 17, 1981.	11230200	Hooper Creek below Diversion[3]	2	2	2	2	2	2	2	2	2	2	2	2
Order Amending License (Oct. 28, 1983) & Order Amending Minimum Flow Requirement (Sept. 24, 1987) (Article 47)	11239300	NF Stevenson Creek above Shaver Lake[4]	4	4	4	3.5	3.5	3.5	5	5	5	4.5	4.5	4.5
	11238270	Balsam Creek below Balsam Meadow Forebay[5]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1
		FERC #120 Big Creek No. 3												
Order Issuing New License (Sept. 7, 1977) Article 38	11238600	San Joaquin River below Dam 6 (above Stevenson Creek)	3	3	3	3	3	3	3	3	3	3	3	3
		FERC #2085 Mammoth												
									(April 1-15 / April 16-30)					(Sep 1-15 / Sep 16-30)
Federal Power Commission. Order Issuing License (Major), December 30, 1957. (Article 30) & Order Amending License, Approving Revised Exhibit M, and Revising Annual Charges. March 24 1997.	11234760	San Joaquin River above Shakeflat Creek[6]	25	10	10	10	10	10	10 / 25	25	25	30	30	30 / 25
		FERC #2175 Big Creek No's 1 & 2												
					(Dec. 1-15 / Dec. 16-31)				(April 1-14 / April 15-30)					
Federal Power Commission. Order Issuing License (Major), Issued March 27, 1959. Article 28.	11237000	Big Creek below Huntington Lake[7]	2	2	2 / --	--	--	--	-- / 2	2	2	2	2	2

[1] When natural flow is at/or below the minimum instream flow requirement, the diversions are turned out. Therefore, flows in a diverted reach may drop below the minimum instream flow requirement when SCE is not diverting

[2] When gaging is not possible due to freezing water (from Dec. 15 to April 15), record daily at downstream weir.

[3] Included in SF San Joaquin River below Hooper.

[4] Intersection of NF Stevenson Creek and Shaver Lake perimter road.

[5] West Fork Balsam Creek. As measured in downstream channel immediately below project forebay.

[6] Measured approximately 1/2 mile below the dam and above the confluence of Shakeflat Creek. Per USGS, revert to SCE Sta. No. 158 (USGS 11234750; Mammoth Pool fishwater turbine).

[7] Big Creek below Huntington Lake (Dam 1) at existing gaging point located approximately 0.9 mile below Dam 1.

Table CAWG 6 Appendix B-2. Current Big Creek ALP License DRY Water Year Minimum Instream Flow Release Requirements[1].

(Shaded areas denote where dry criteria apply. Dry year releases are the same as normal releases for unshaded areas.)

USGS STA. NO.	STREAM REACH	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
		Minimum Instream Flow Release Requirements (cfs)[1]											
FERC # 67, Big Creek 2A, 8 & Eastwood													
			(Nov1-15 / Nov 16-30)										
11230530	Bear Creek below Diversion 1953-1971	1	1	1	1	1	1	1	1	1	1	1	1
11231600	Mono Creek below Diversion 1962-1971	1	1	1	1	1	1	1	1	1	1	1	1
11230530	Bear Creek below Diversion 1971-present	1	1	1	1	1	1	1	2	2	2	2	2
11231600	Mono Creek below Diversion 1971-present	6	5	5	5	5	5	5	9	9	9	9	9
11230215	South Fork San Joaquin River below Hooper Creek	13	11	11	11	11	11	11	20	20	20	20	20
11237700	Pitman Creek near Tamarack Mountain[2]	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
11241500	Stevenson Creek below Shaver Lake	3	3 / 2	2	2	2	2	3	3	3	3	3	3
11238500	Big Creek near Mouth (below Dam 5)	2	2 / 1	1	1	1	1	2	2	2	2	2	2
11230600	Camp 62 Creek below Diversion	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
11230560	Chinquapin Creek below Diversion	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1
11230670	Bolsillo Creek below Diversion	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
11230120	North Slide Creek Below Diversion	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
11230100	South Slide Creek Below Diversion	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
--	Tombstone Creek from Diversion to SF San Joaquin	Diversion turned out per 1983 Project License Amendment - currently full natural flow.											
11230200	Hooper Creek below Diversion[3]	2	2	2	2	2	2	2	2	2	2	2	2
11239300	NF Stevenson Creek above Shaver Lake[4]	3	3	3	3	3	3	4	4	4	3.5	3.5	3.5
1128270	Balsam Creek below Balsam Meadow Forebay[5]	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1
FERC #120 Big Creek No. 3													
11238600	San Joaquin River below Dam 6 (above Stevenson Creek)	3	3	3	3	3	3	3	3	3	3	3	3
FERC #2085 Mammoth													
								(April 1-15 / April 16-30)					(Sep 1-15 / Sep 16-30)
11234760	San Joaquin River above Shakeflat Creek[6] 1957-1997	12.5	10	10	10	10	10	10 / 12.5	12.5	12.5	12.5	12.5	12.5
11234760	San Joaquin River above Shakeflat Creek[6] 1997-present	12.5	10	10	10	10	10	10 / 12.5	12.5	12.5	30	30	30 / 12.5
FERC #2175 Big Creek No's 1 & 2													
				(Dec. 1-15 / Dec. 16-31)				(April 1-14 / April 15-30)					
11237000	Big Creek Below Huntington Lake[7]	2	2	2 / --	--	--	--	-- / 2	2	2	2	2	2

[1] When natural flow is at/or below the minimum instream flow requirement, the diversions are turned out. Therefore, flows in a diverted reach may drop below the minimum instream flow requirement when SCE is not diverting

[2] When gaging is not possible due to freezing water (from Dec. 15 to April 15), record daily at downstream weir.

[3] Included in So. Fk. San Joaquin River below Hooper.

[4] Intersection of No. Fk. Stevenson Creek and Shaver Lake perimter road.

[5] West Fork Balsam Crk. As measured in downstream channel immediately below project forebay.

[6] Measured approximately 1/2 mile below the dam and above the confluence of Shakeflat Creek. Per USGS, revert to SCE Sta. No. 158 (USGS 11234750; Mammoth Pool fishwater turbine).

[7] Big Creek below Huntington Lake (Dam 1) at existing gaging point located approximately 0.9 mile below Dam 1.

APPENDIX C

RIVER AND STREAM GAGING STATION EXISTING HYDROLOGY - HYDROGRAPHS

APPENDIX C

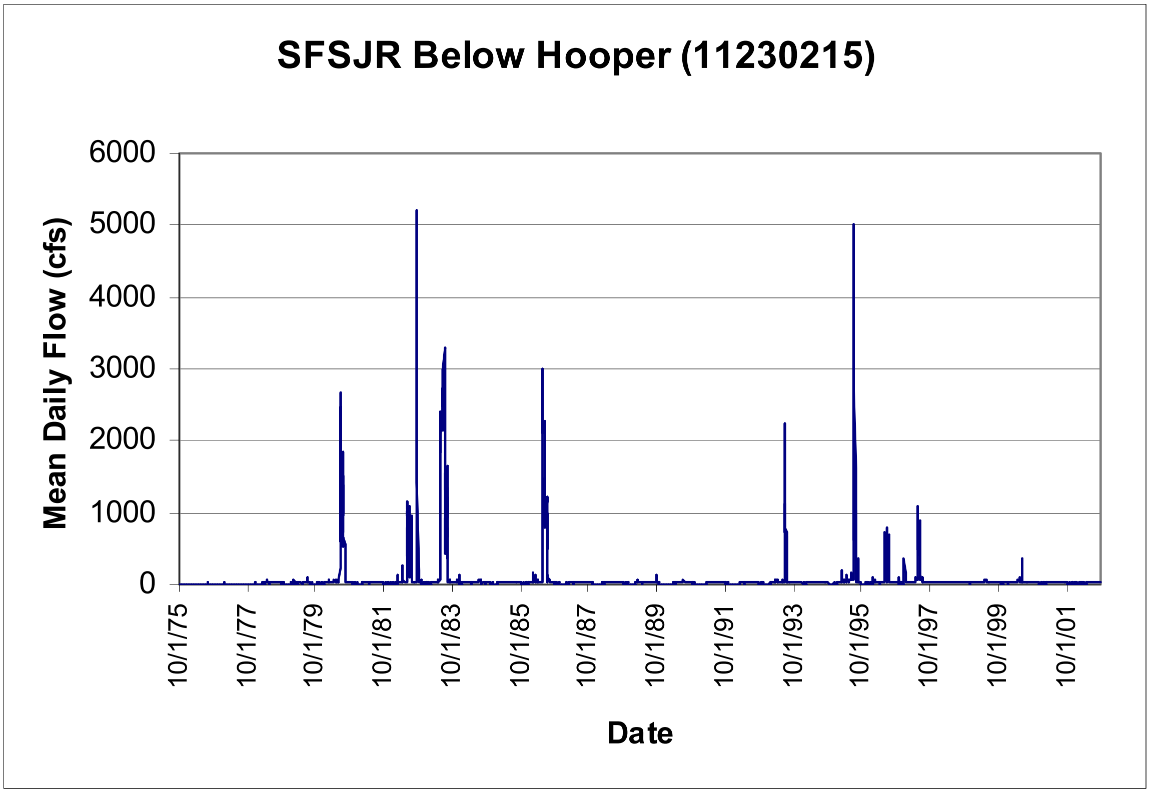
BIG CREEK

CAWG 6 HYDROLOGY

RIVER AND STREAM GAGING STATION EXISTING HYDROLOGY HYDROGRAPHS

List of locations in order of appearance:

South Fork San Joaquin River Below Hooper Creek
Hooper Creek Below Diversion
Bear Creek Above Diversion
Bear Creek Below Diversion
Mono Creek Above Diversion
Mono Creek Below Diversion
Chinquapin Creek Below Diversion
Camp 62 Creek Below Diversion
Bolsillo Creek Below Diversion
Bolsillo Creek Above Diversion
San Joaquin River Above Shakeflat Creek
San Joaquin River Below Dam 6 (Above Stevenson Creek)
Ross Creek
Rock Creek
North Fork Stevenson Creek Above Shaver Lake
Stevenson Creek Below Shaver Lake
Pitman Creek Above Diversion
Pitman Creek Below Diversion
Balsam Creek Above Diversion (Below Balsam Meadow Forebay)
Big Creek Below Huntington Lake
Big Creek Near Mouth


SFSJR Below Hooper (11230215)
Mean Daily Flow (cfs)
6000
5000
4000
3000
2000
1000
0
10/1/75
10/1/77
10/1/79
10/1/81
10/1/83
10/1/85
10/1/87
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10/1/91
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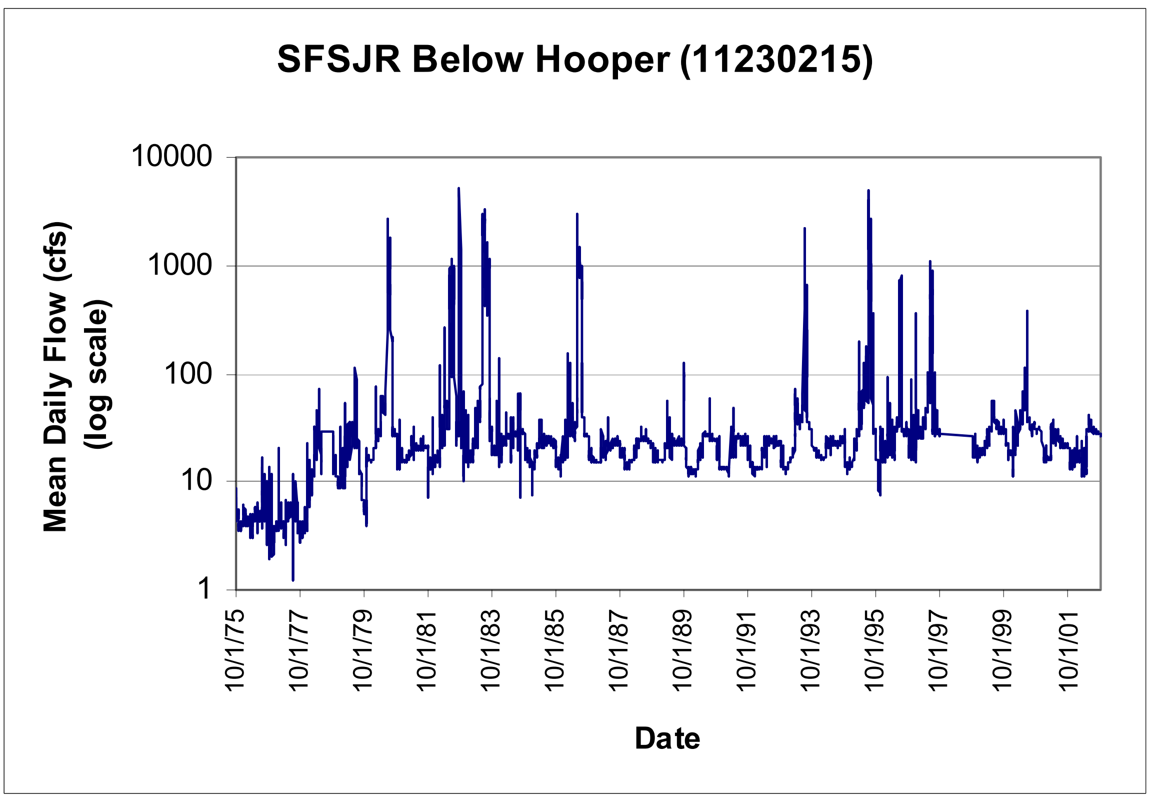
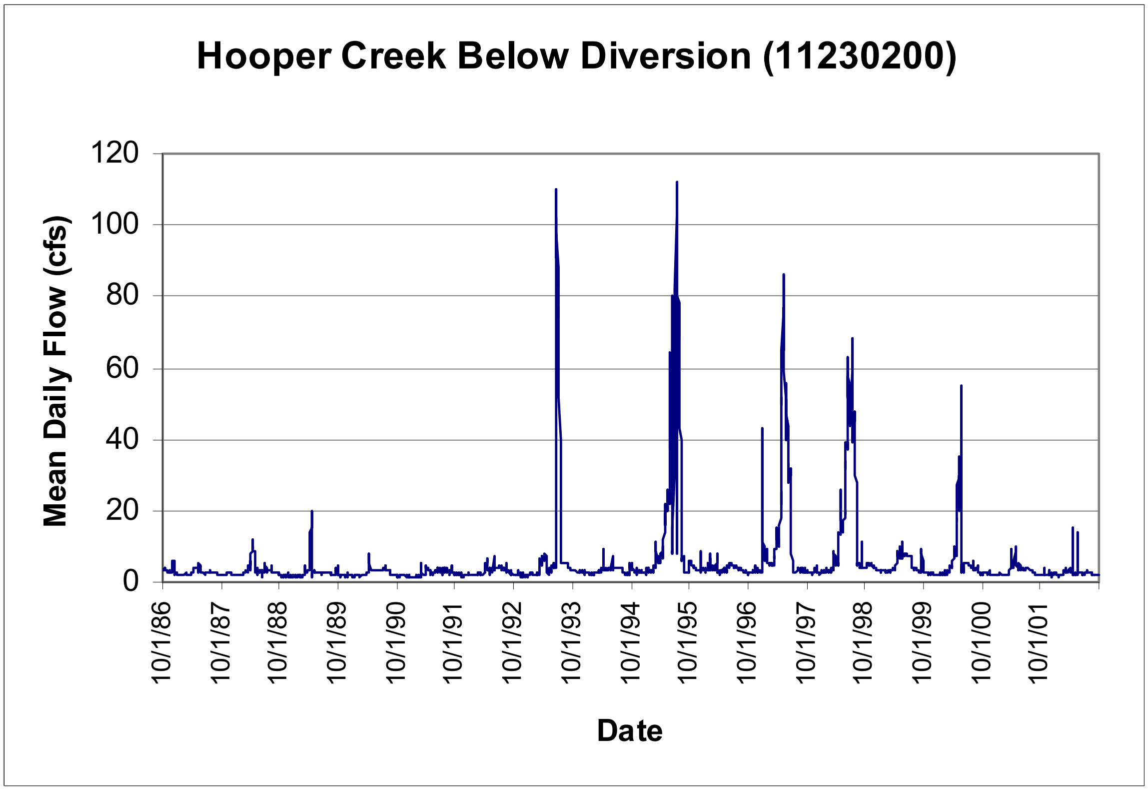
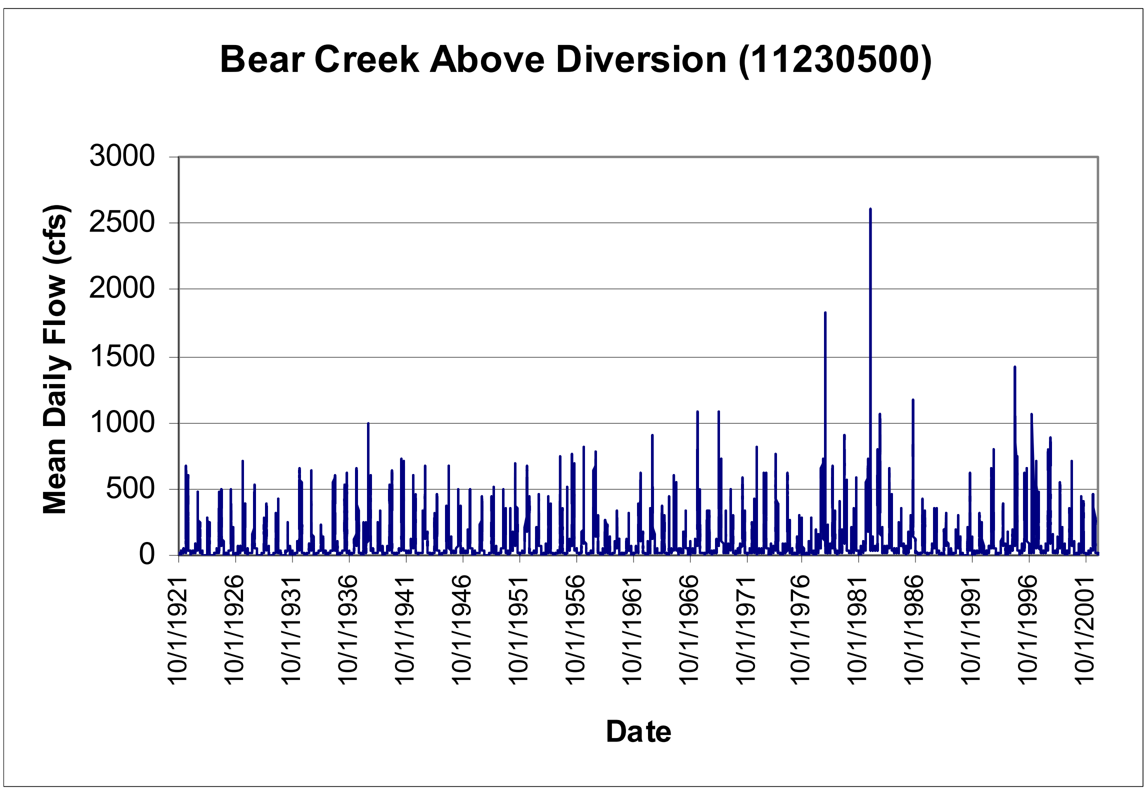
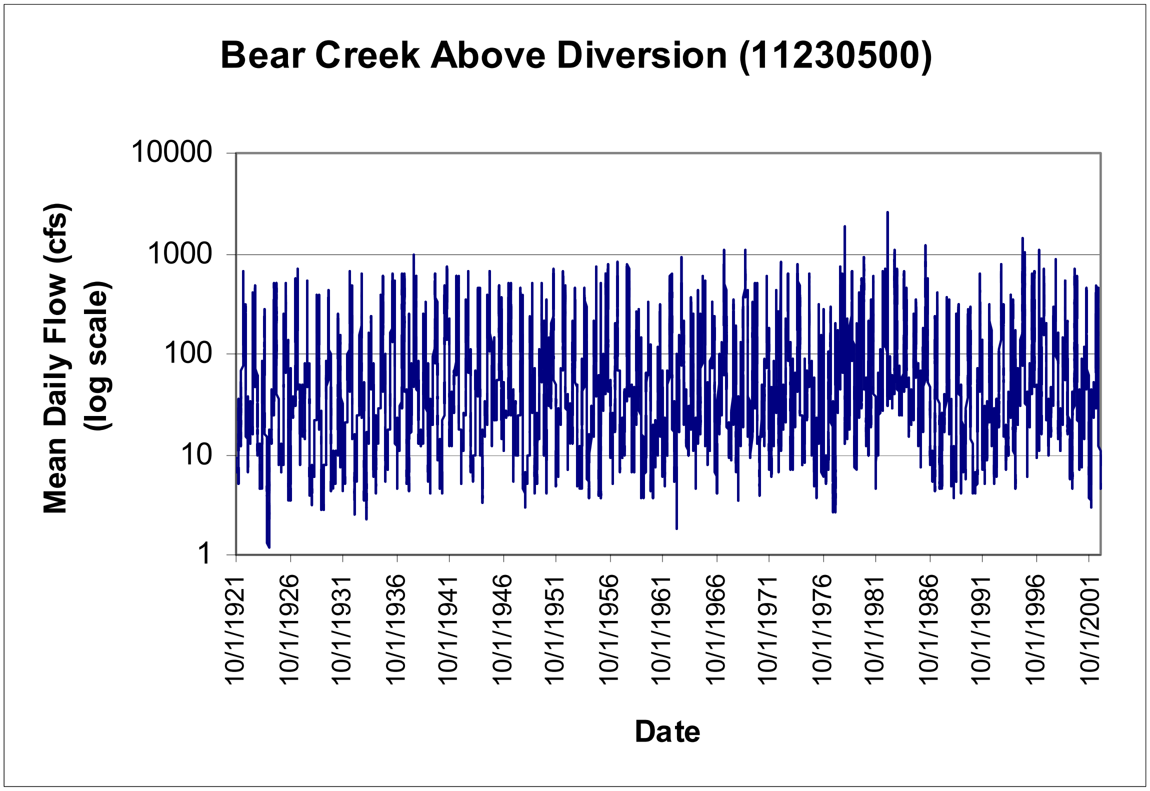
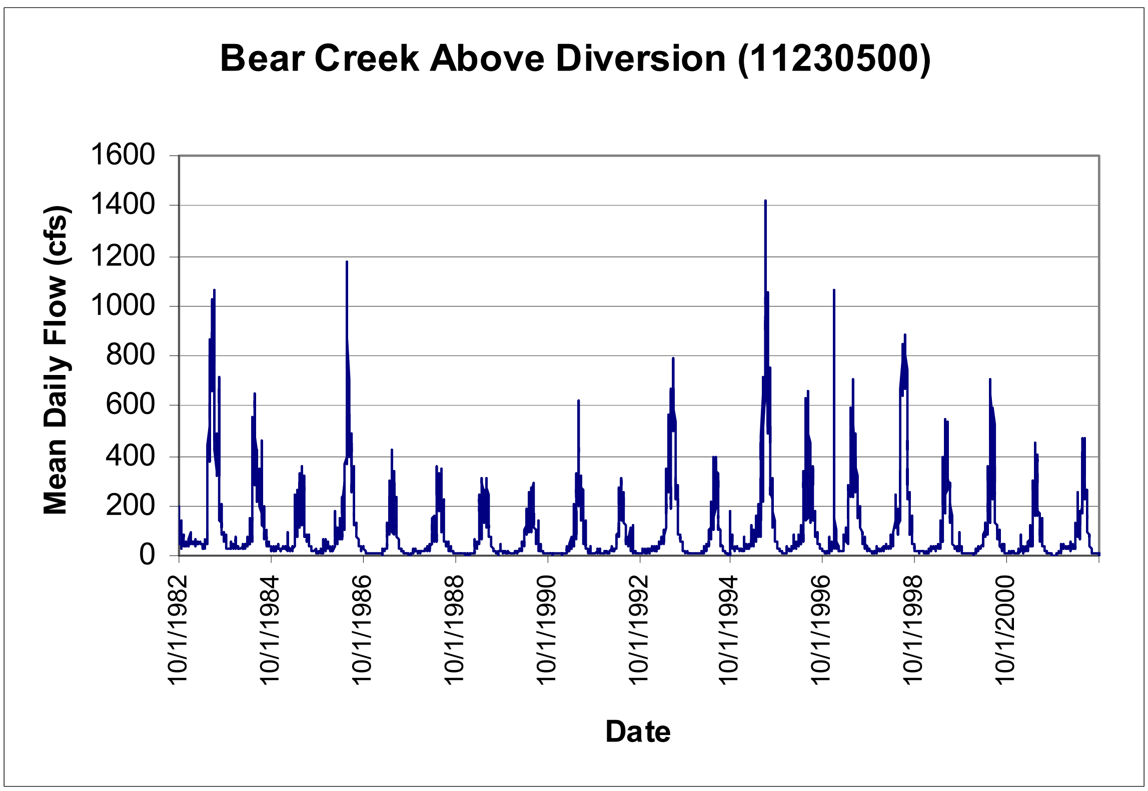
10/1/99
10/1/01
Date

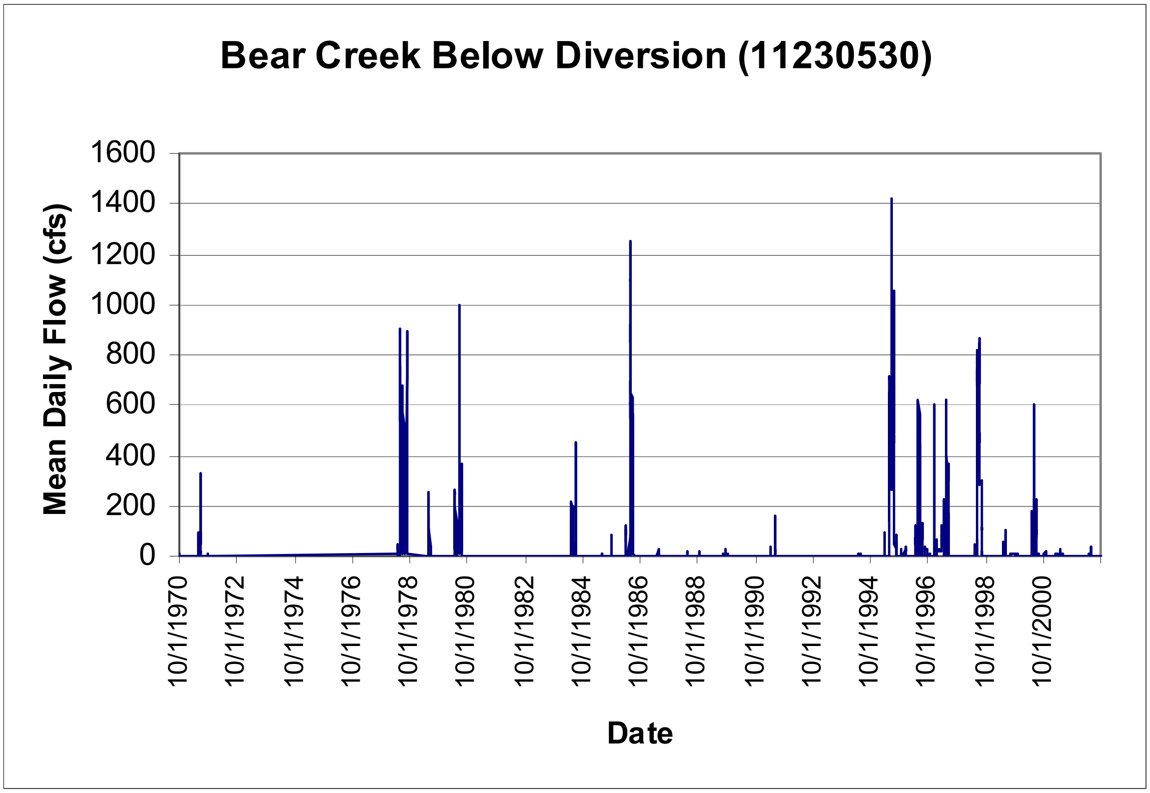

SFSJR Below Hooper (11230215)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
10/1/75
10/1/77
10/1/79
10/1/81
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

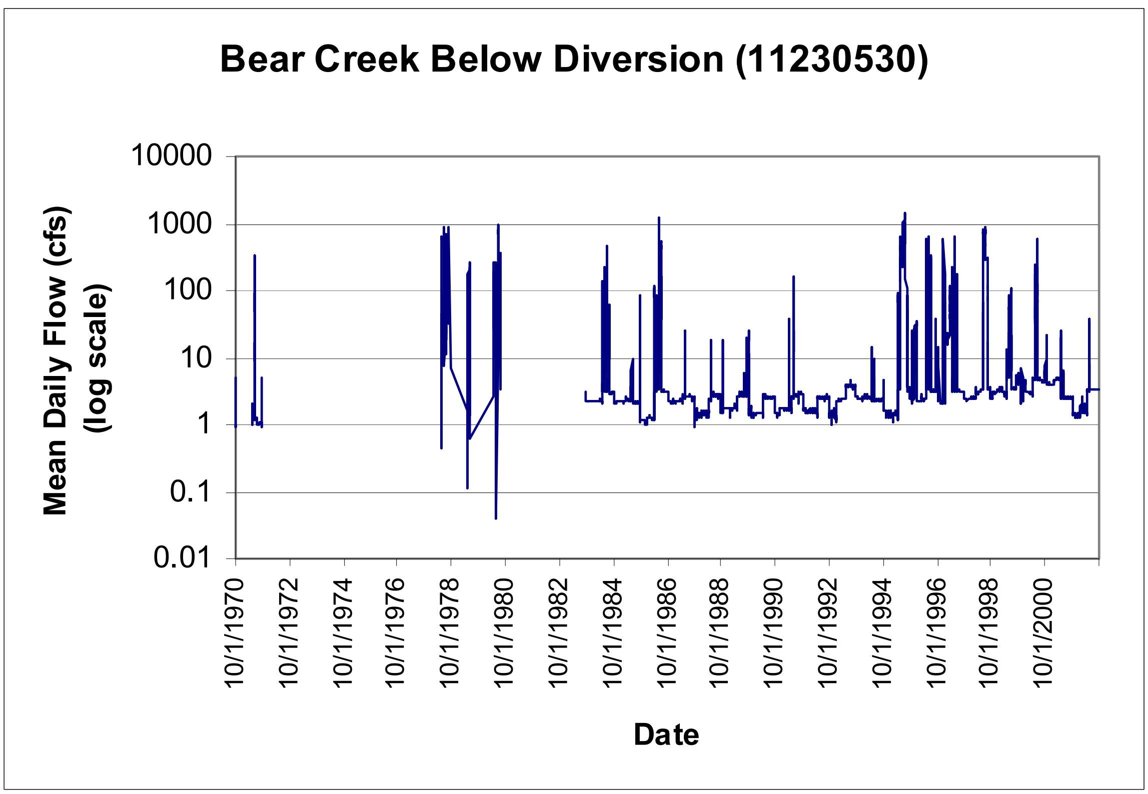

Hooper Creek Below Diversion (11230200)
Mean Daily Flow (cfs)
0
20
40
60
80
100
120
10/1/86
10/1/87
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date

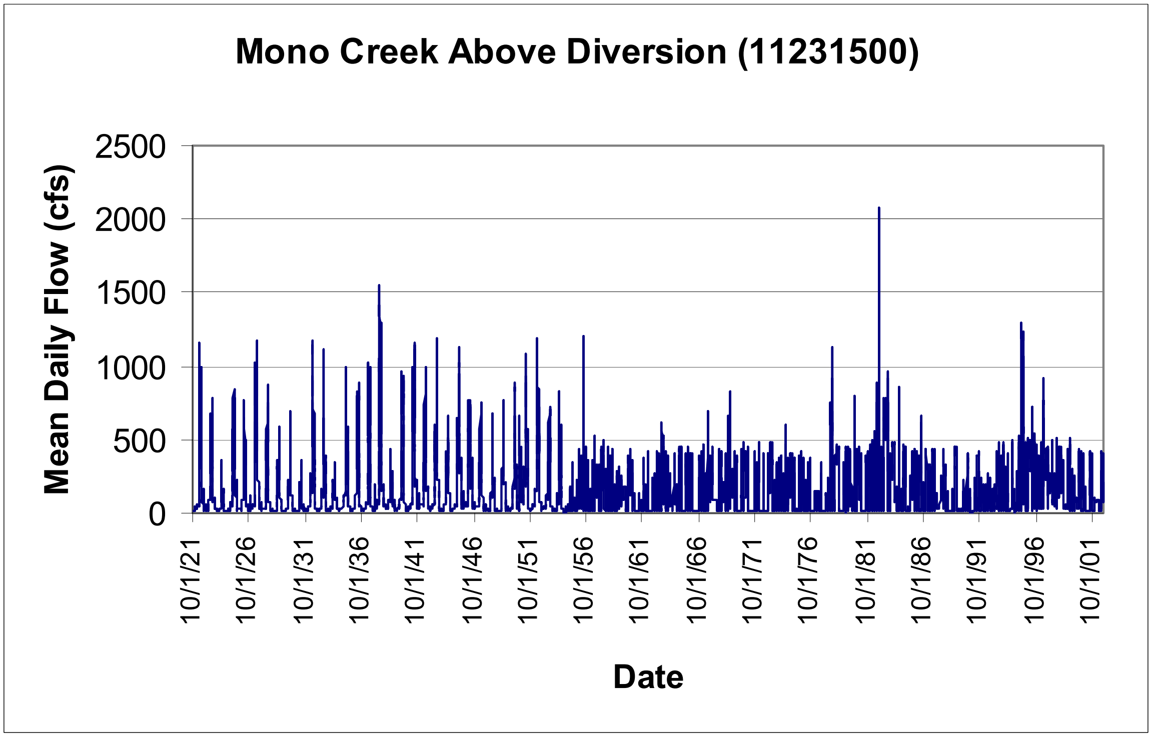

Bear Creek Above Diversion (11230500)
Mean Daily Flow (cfs)
0
500
1000
1500
2000
2500
3000
10/1/1921
10/1/1926
10/1/1931
10/1/1936
10/1/1941
10/1/1946
10/1/1951
10/1/1956
10/1/1961
10/1/1966
10/1/1971
10/1/1976
10/1/1981
10/1/1986
10/1/1991
10/1/1996
10/1/2001
Date

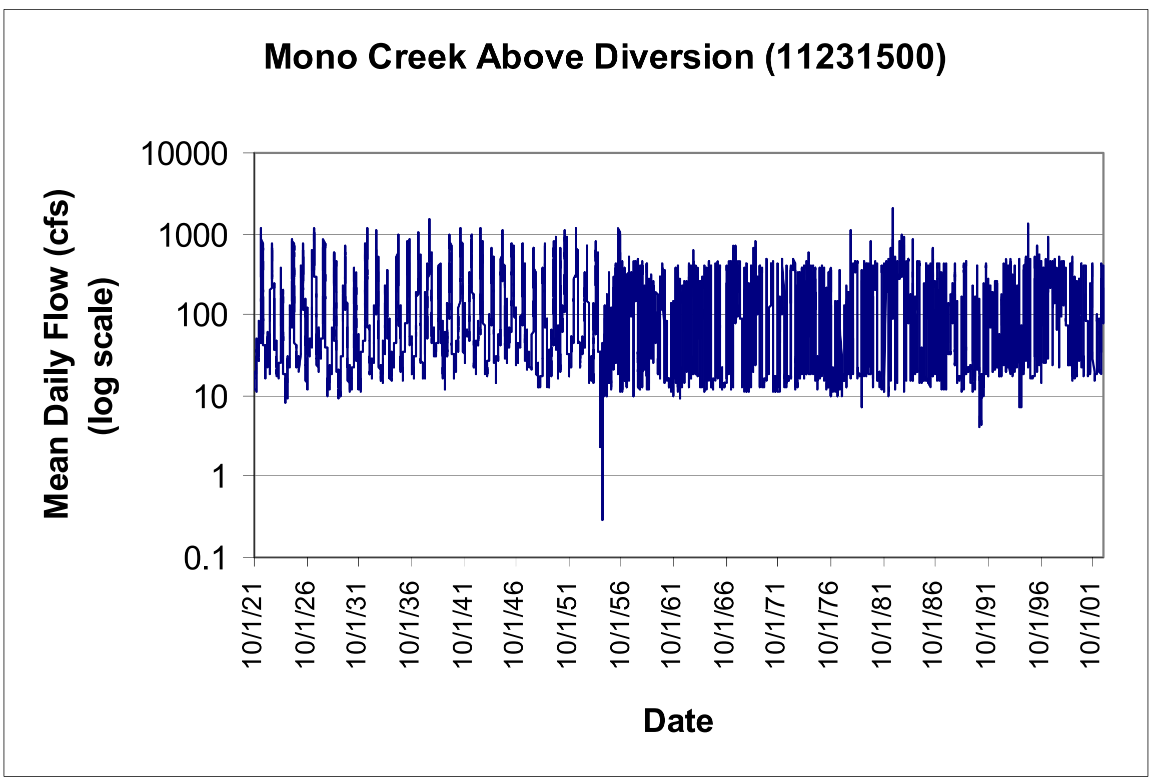

Bear Creek Above Diversion (11230500)
Mean Daily Flow (cfs)
(log scale)
10000
1000
100
10
1
10/1/1921
10/1/1926
10/1/1931
10/1/1936
10/1/1941
10/1/1946
10/1/1951
10/1/1956
10/1/1961
10/1/1966
10/1/1971
10/1/1976
10/1/1981
10/1/1986
10/1/1991
10/1/1996
10/1/2001
Date

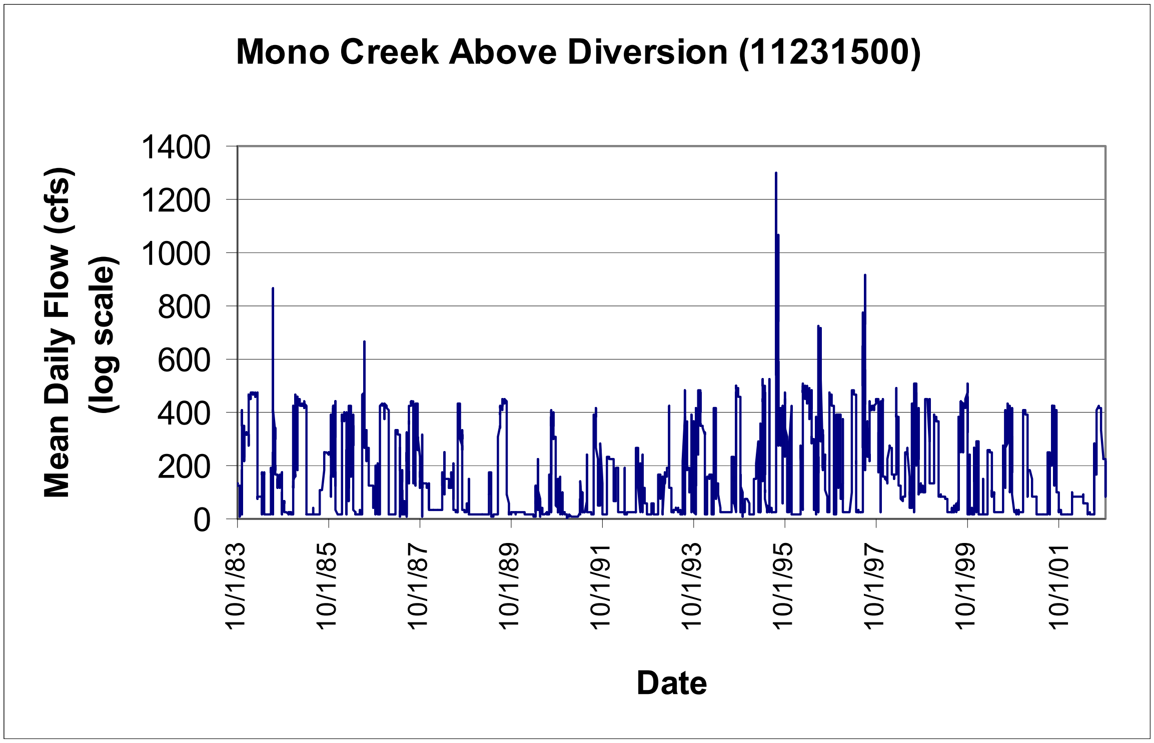

Bear Creek Above Diversion (11230500)
Mean Daily Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

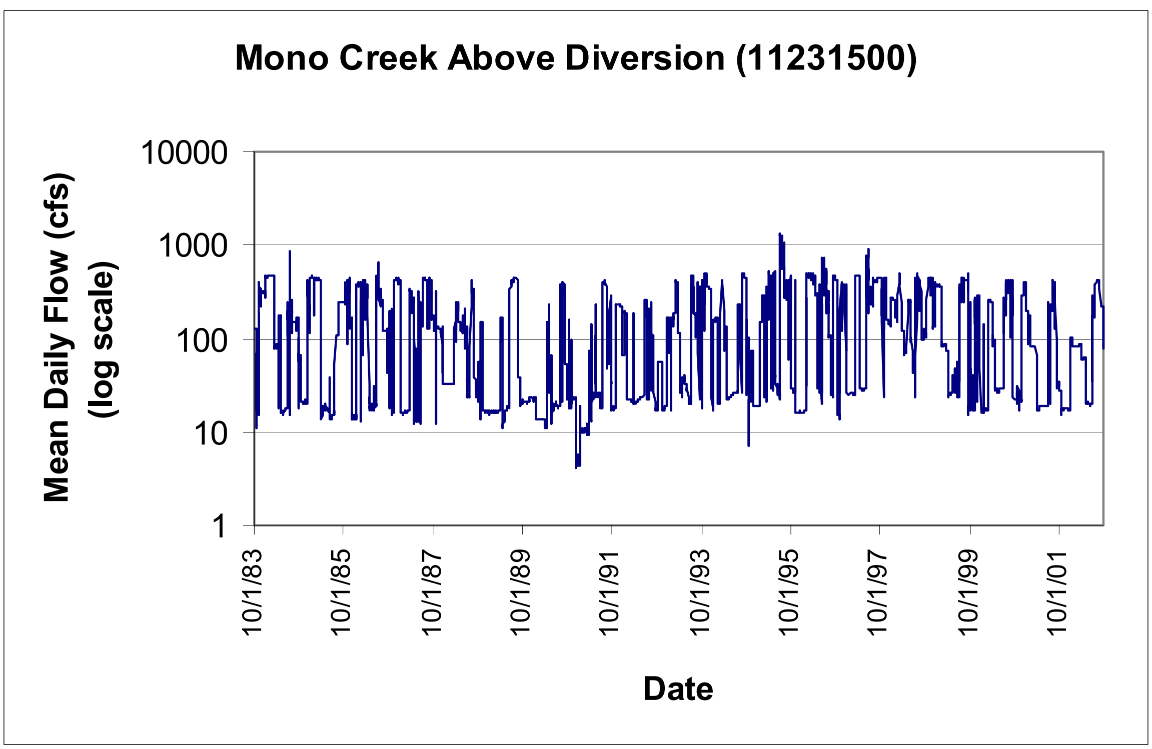

Bear Creek Below Diversion (11230530)
Mean Daily Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

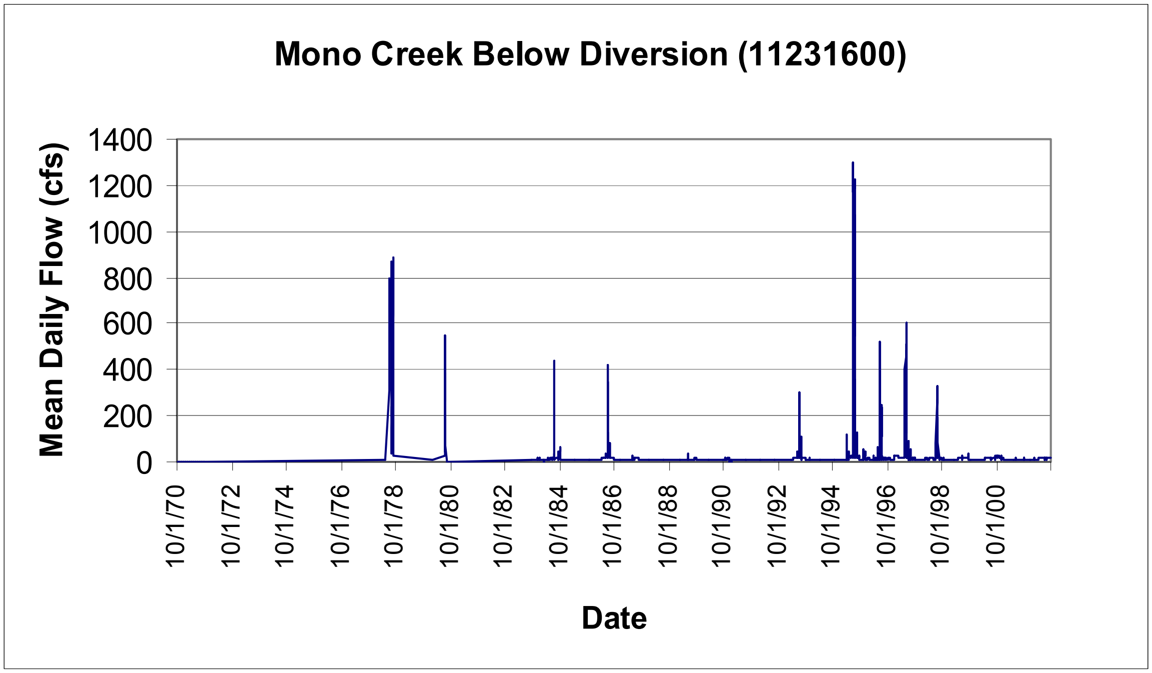

Bear Creek Below Diversion (11230530)
Mean Daily Flow (cfs)
(log scale)
10000
1000
100
10
1
0.1
0.01
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

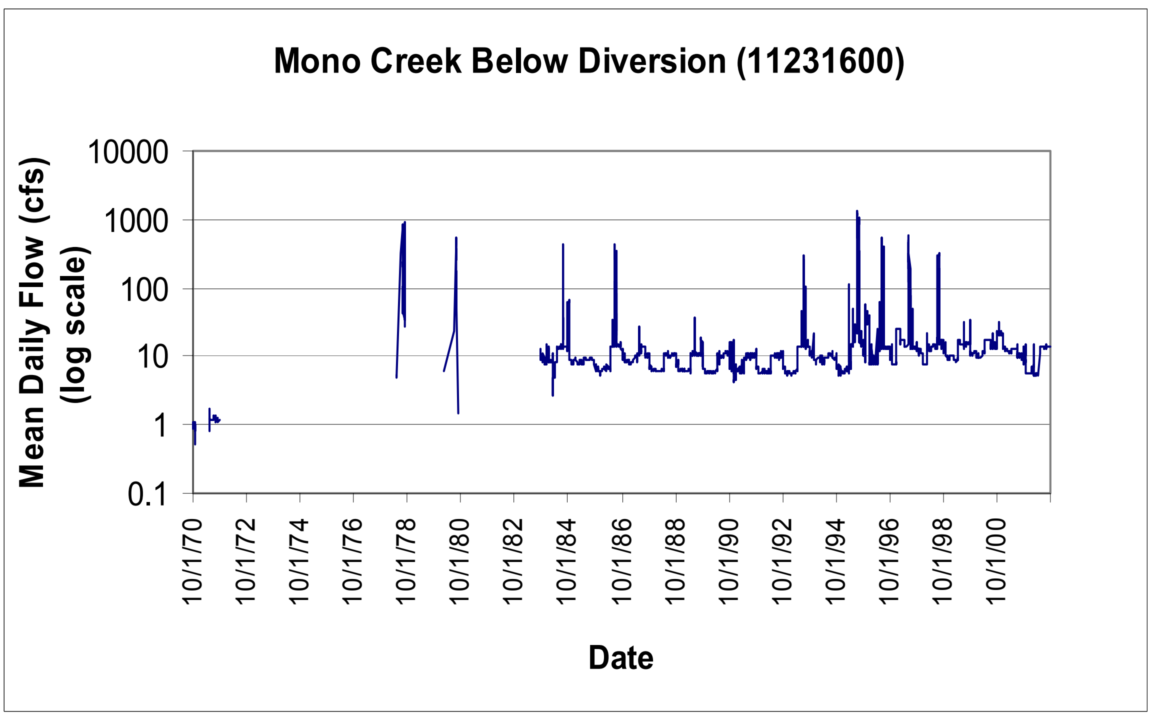

Mono Creek Above Diversion (11231500)
Mean Daily Flow (cfs)
2500
2000
1500
1000
500
0
10/1/21
10/1/26
10/1/31
10/1/36
10/1/41
10/1/46
10/1/51
10/1/56
10/1/61
10/1/66
10/1/71
10/1/76
10/1/81
10/1/86
10/1/91
10/1/96
10/1/01
Date

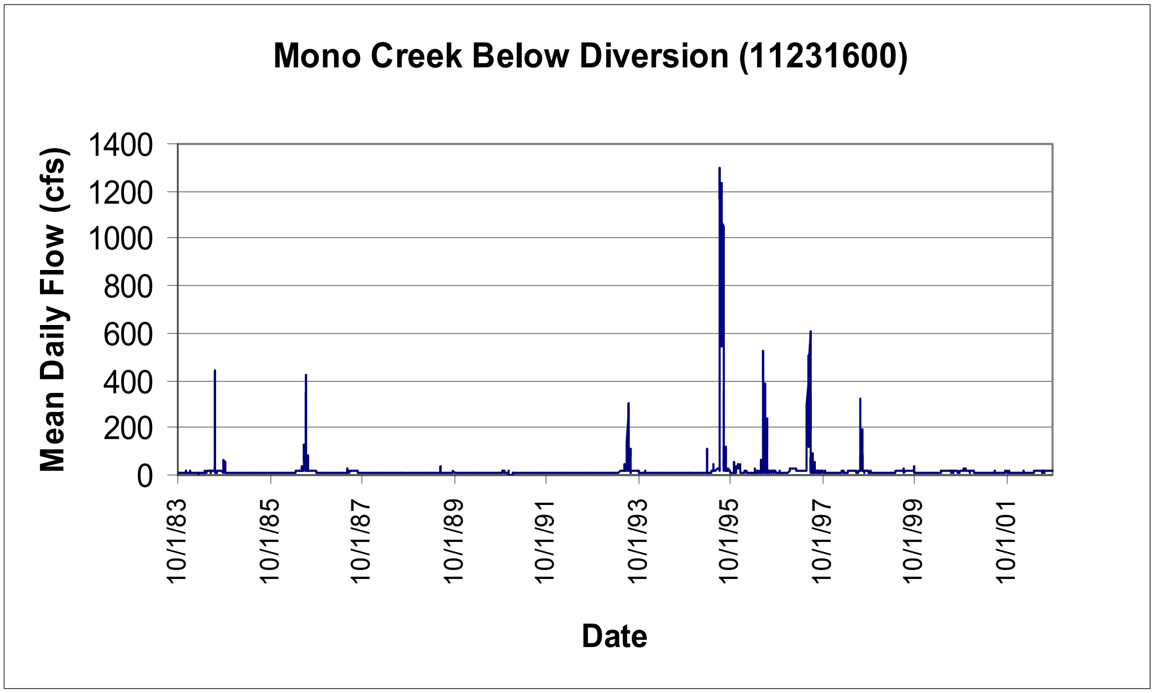

Mono Creek Above Diversion (11231500)
Mean Daily Flow (cfs)
(log scale)
10000
1000
100
10
1
0.1
10/1/21
10/1/26
10/1/31
10/1/36
10/1/41
10/1/46
10/1/51
10/1/56
10/1/61
10/1/66
10/1/71
10/1/76
10/1/81
10/1/86
10/1/91
10/1/96
10/1/01
Date

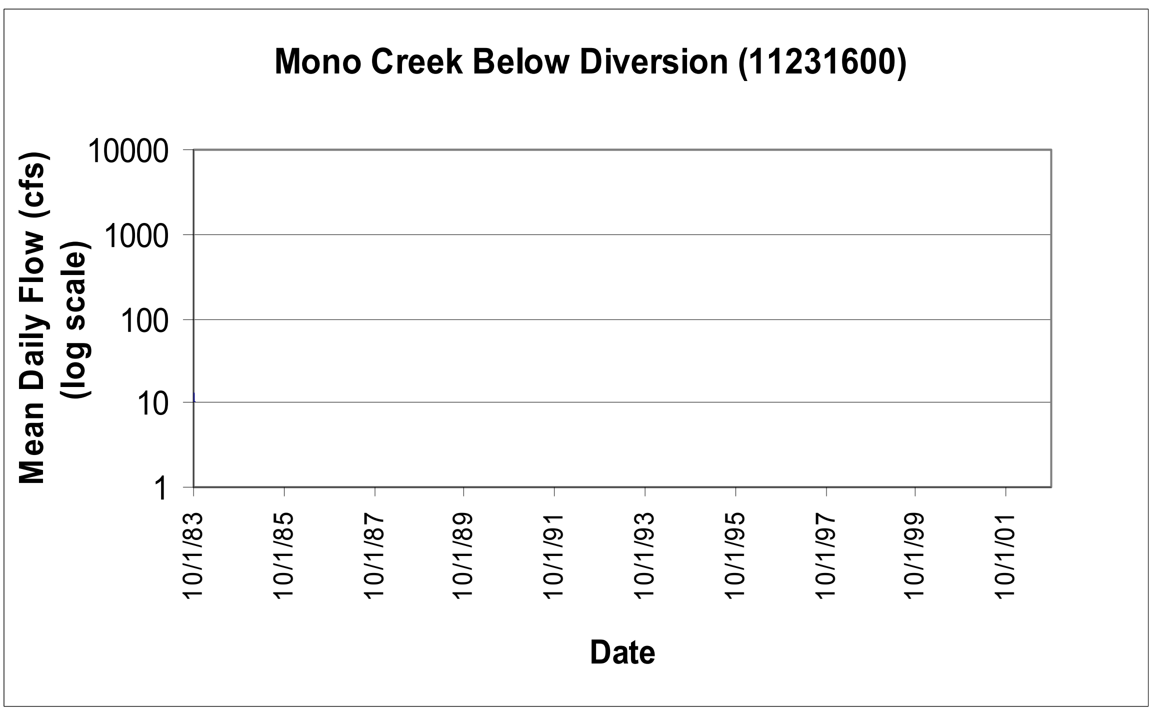

Mono Creek Above Diversion (11231500)
Mean Daily Flow (cfs) (log scale)
1400
1200
1000
800
600
400
200
0
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

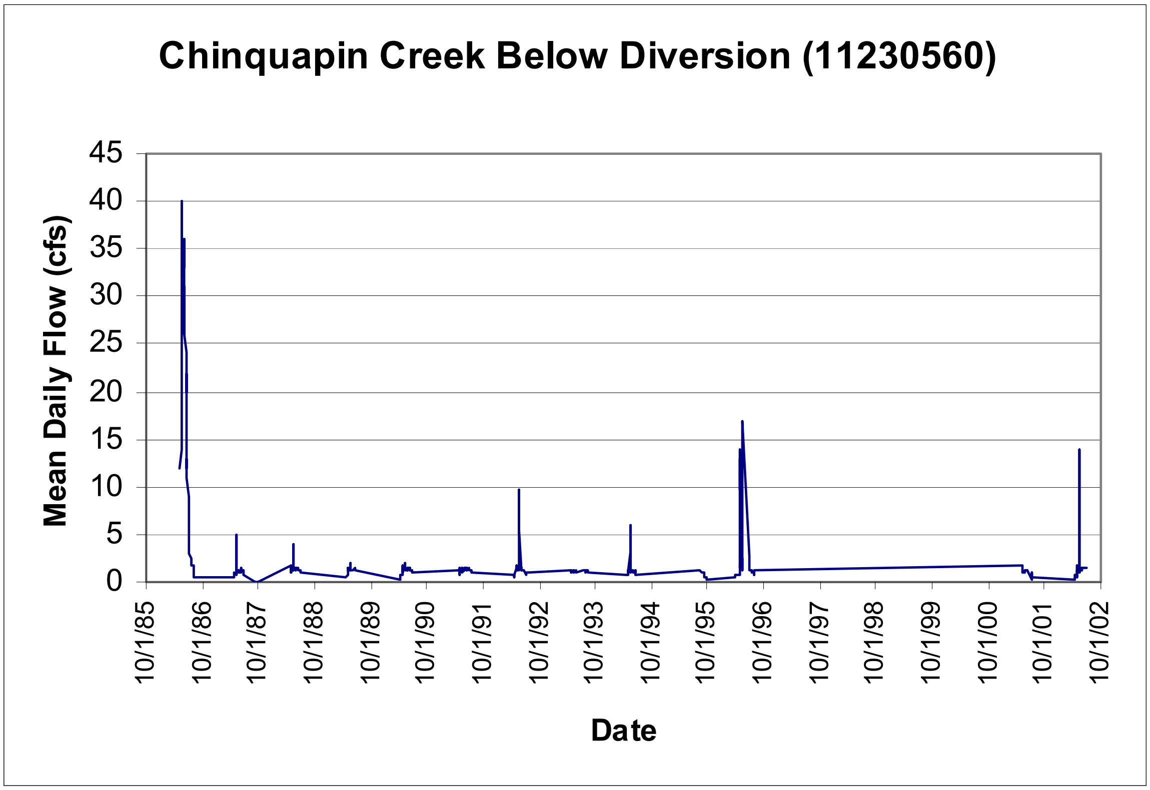

Mono Creek Above Diversion (11231500)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

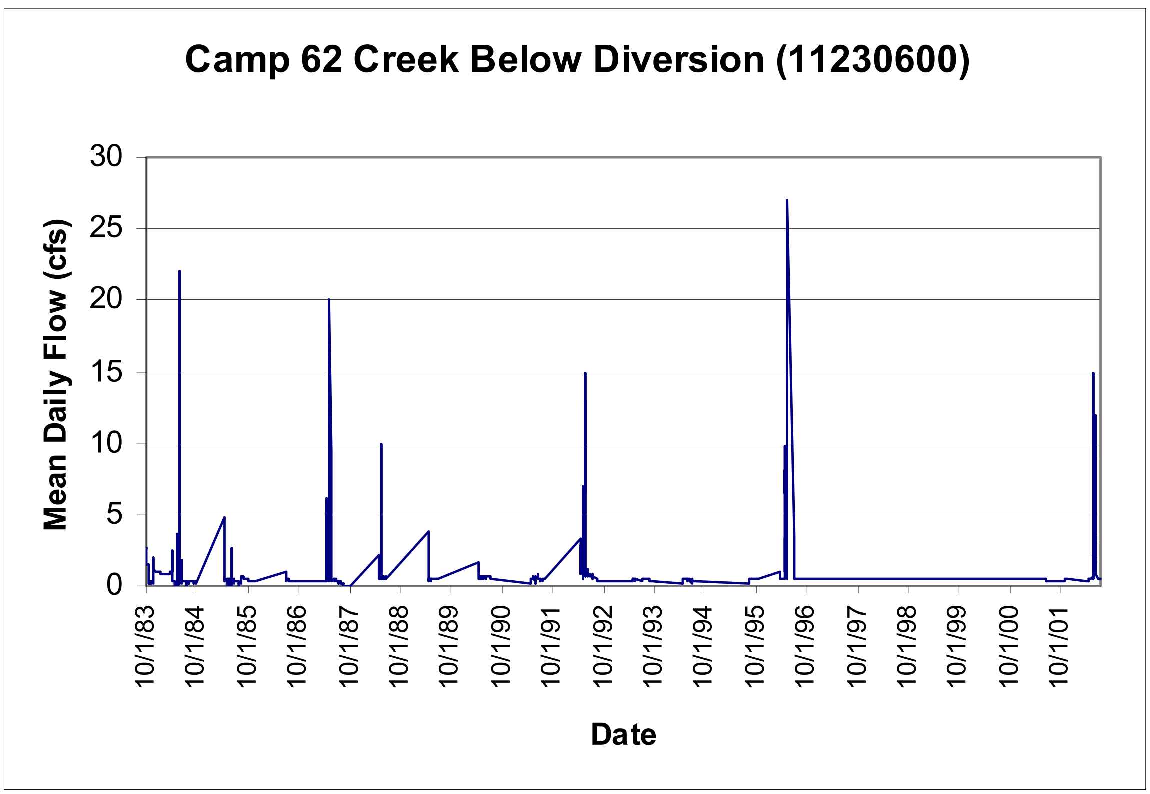

Mono Creek Below Diversion (11231600)
Mean Daily Flow (cfs)
1400
1200
1000
800
600
400
200
0
10/1/70
10/1/72
10/1/74
10/1/76
10/1/78
10/1/80
10/1/82
10/1/84
10/1/86
10/1/88
10/1/90
10/1/92
10/1/94
10/1/96
10/1/98
10/1/00
Date

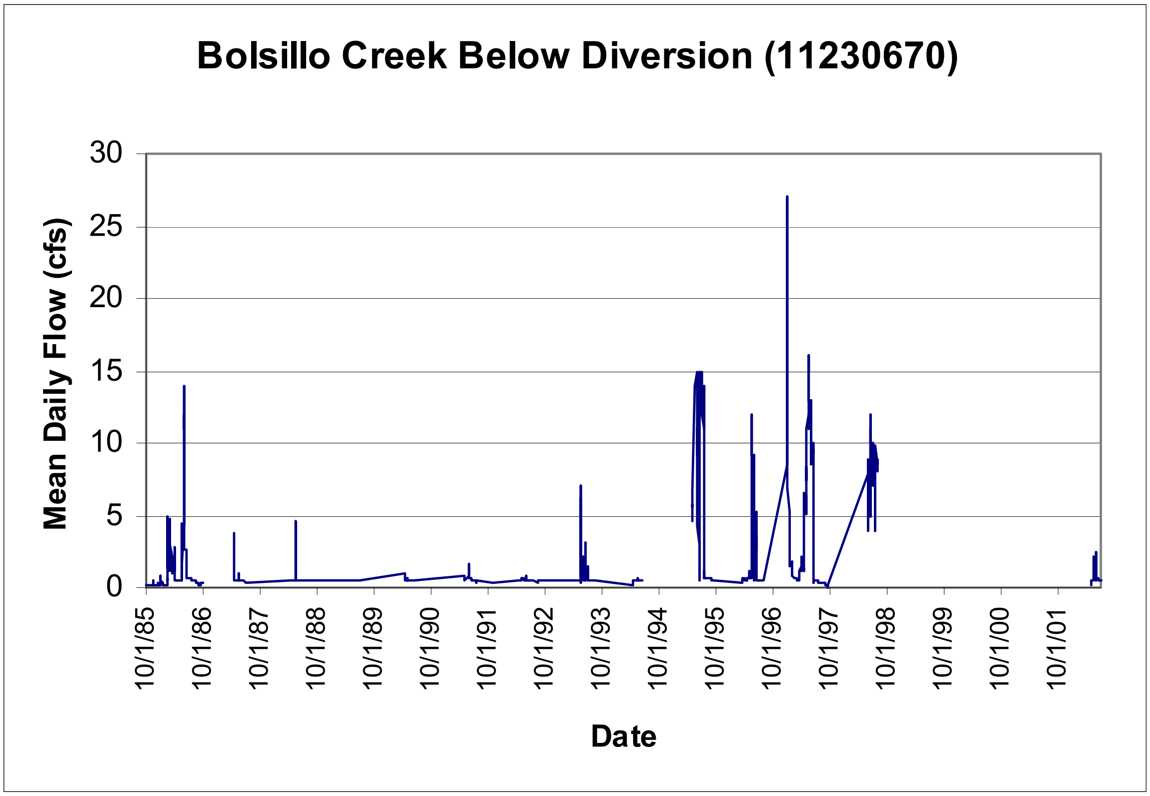

Mono Creek Below Diversion (11231600)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
0.1
10/1/70
10/1/72
10/1/74
10/1/76
10/1/78
10/1/80
10/1/82
10/1/84
10/1/86
10/1/88
10/1/90
10/1/92
10/1/94
10/1/96
10/1/98
10/1/00
Date

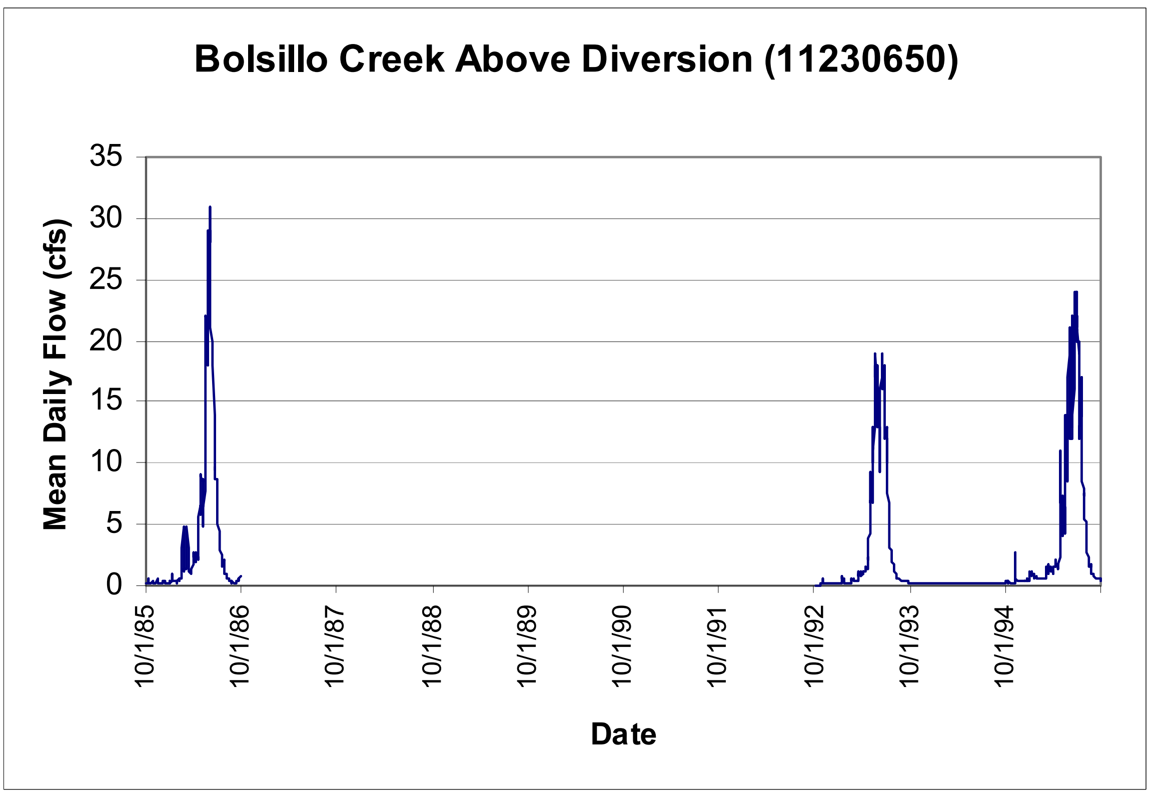

Mono Creek Below Diversion (11231600)
Mean Daily Flow (cfs)
1400
1200
1000
800
600
400
200
0
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

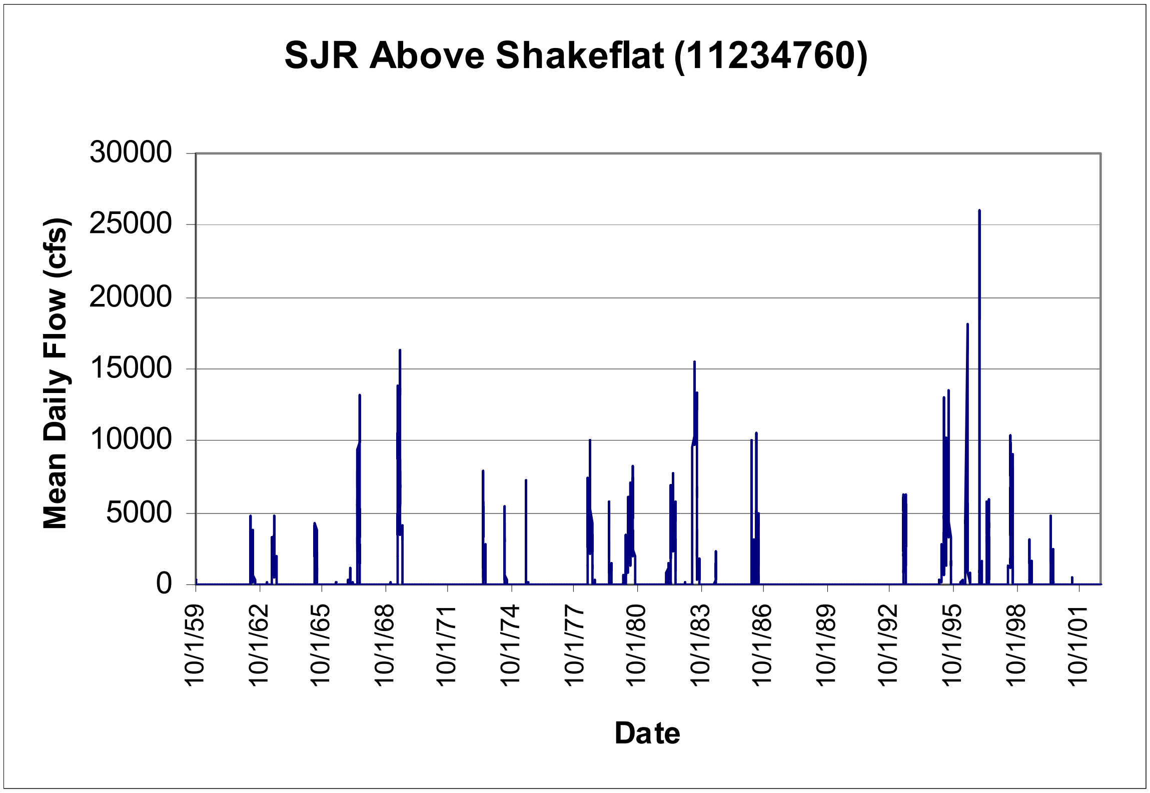

Mono Creek Below Diversion (11231600)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

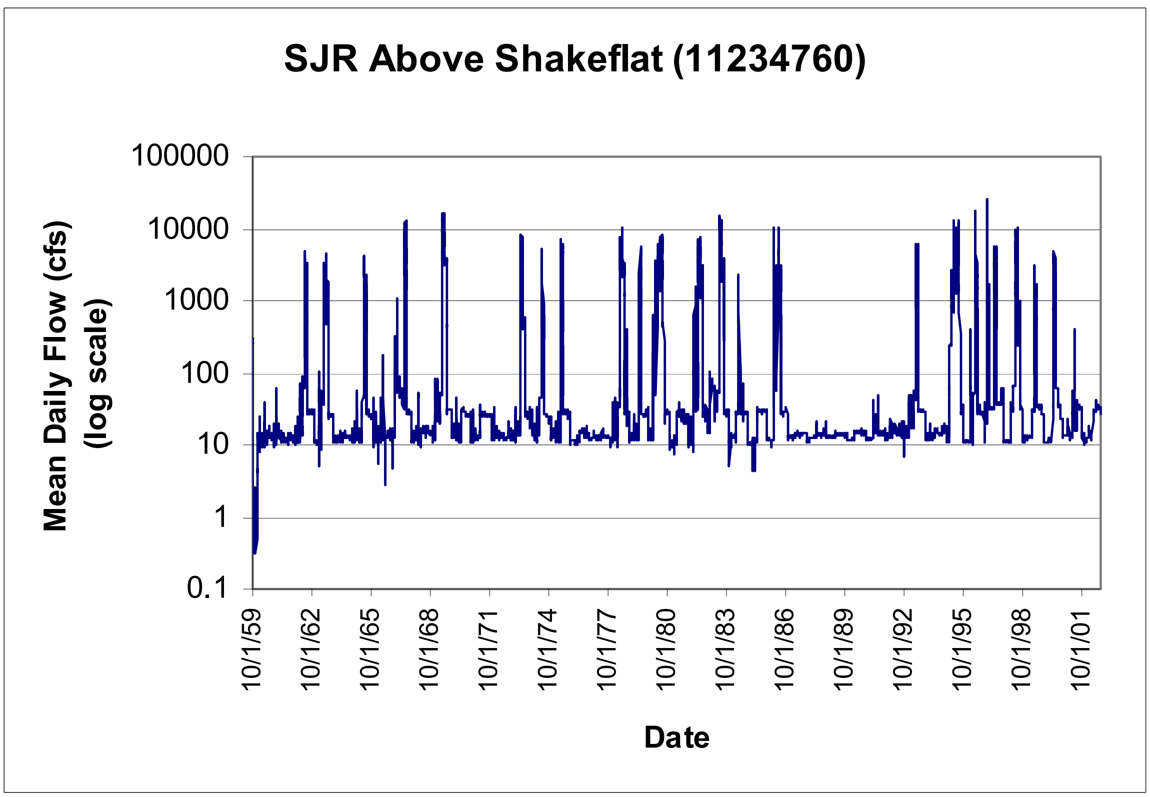

Chinquapin Creek Below Diversion (11230560)
Mean Daily Flow (cfs)
45
40
35
30
25
20
15
10
5
0
10/1/85
10/1/86
10/1/87
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
10/1/02
Date

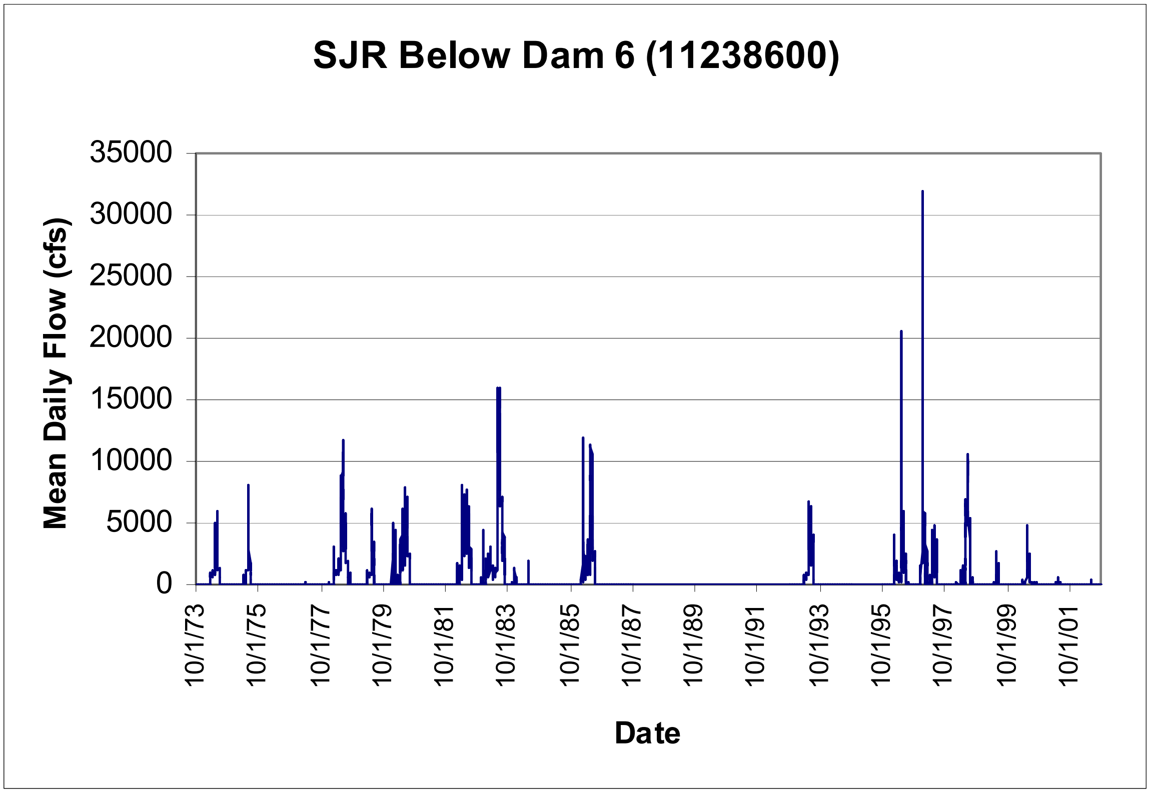

Camp 62 Creek Below Diversion (11230600)
Mean Daily Flow (cfs)
30
25
20
15
10
5
0
10/1/83
10/1/84
10/1/85
10/1/86
10/1/87
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date

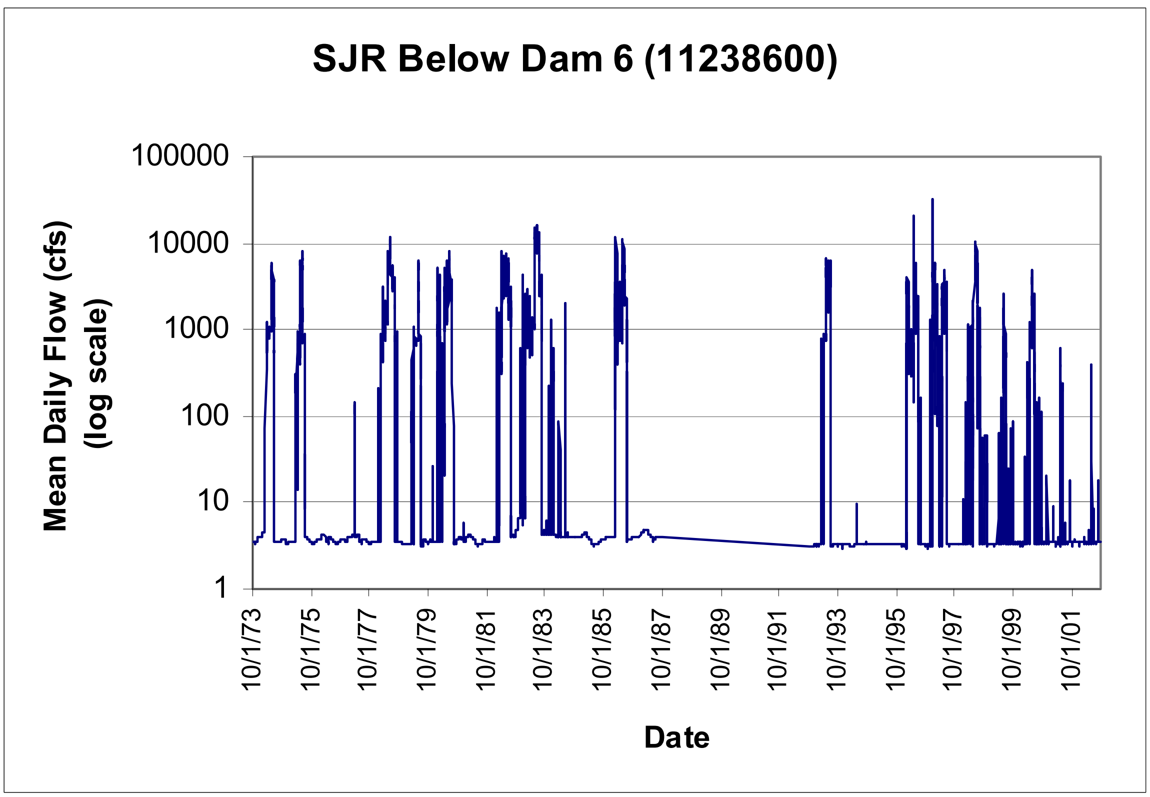

Bolsillo Creek Below Diversion (11230670)
Mean Daily Flow (cfs)
30
25
20
15
10
5
0
10/1/85
10/1/86
10/1/87
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date

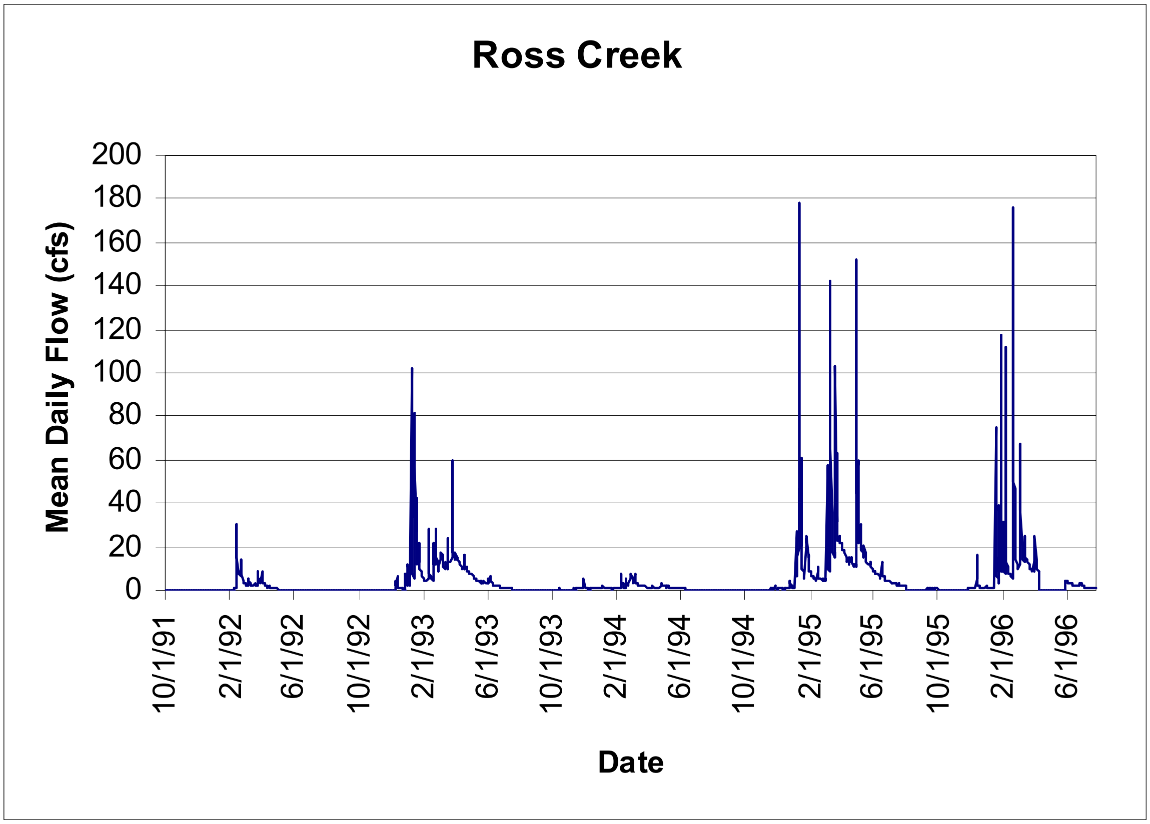

Bolsillo Creek Above Diversion (11230650)
Mean Daily Flow (cfs)
35
30
25
20
15
10
5
0
10/1/85
10/1/86
10/1/87
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
Date

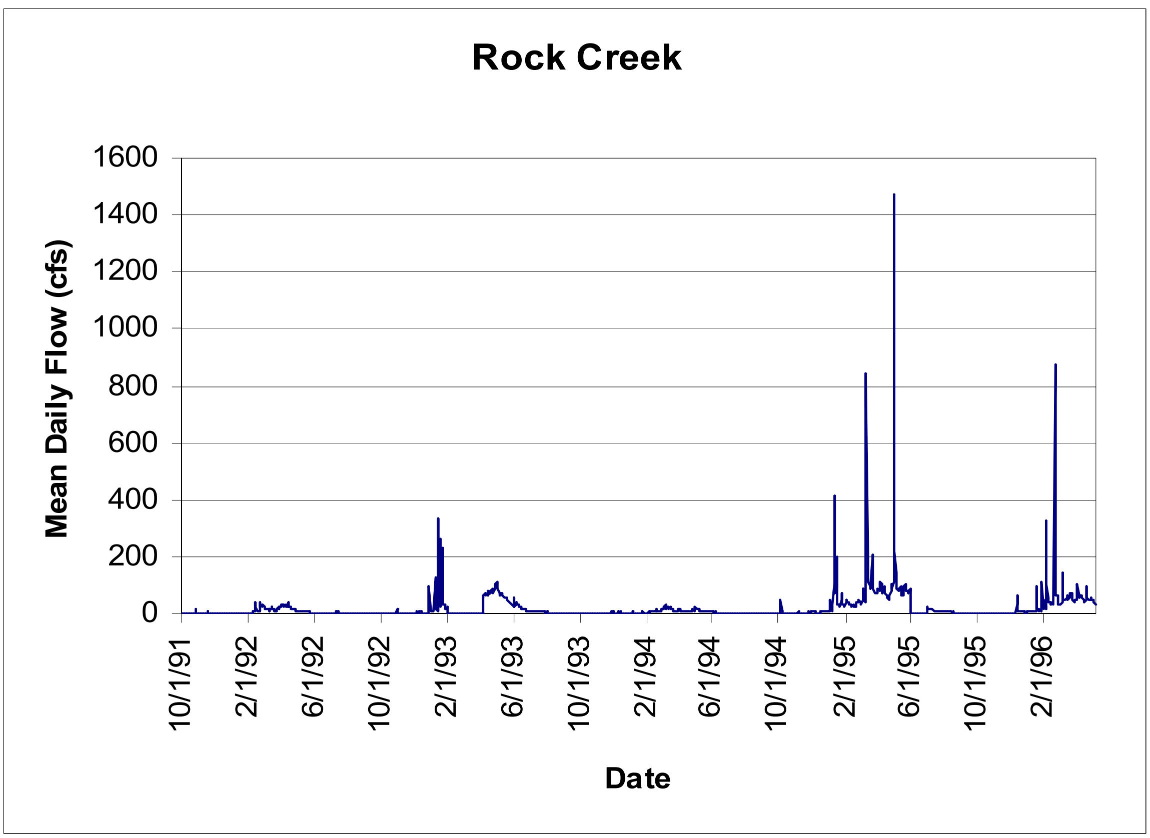

SJR Above Shakeflat (11234760)
Mean Daily Flow (cfs)
30000
25000
20000
15000
10000
5000
0
10/1/59
10/1/62
10/1/65
10/1/68
10/1/71
10/1/74
10/1/77
10/1/80
10/1/83
10/1/86
10/1/89
10/1/92
10/1/95
10/1/98
10/1/01
Date

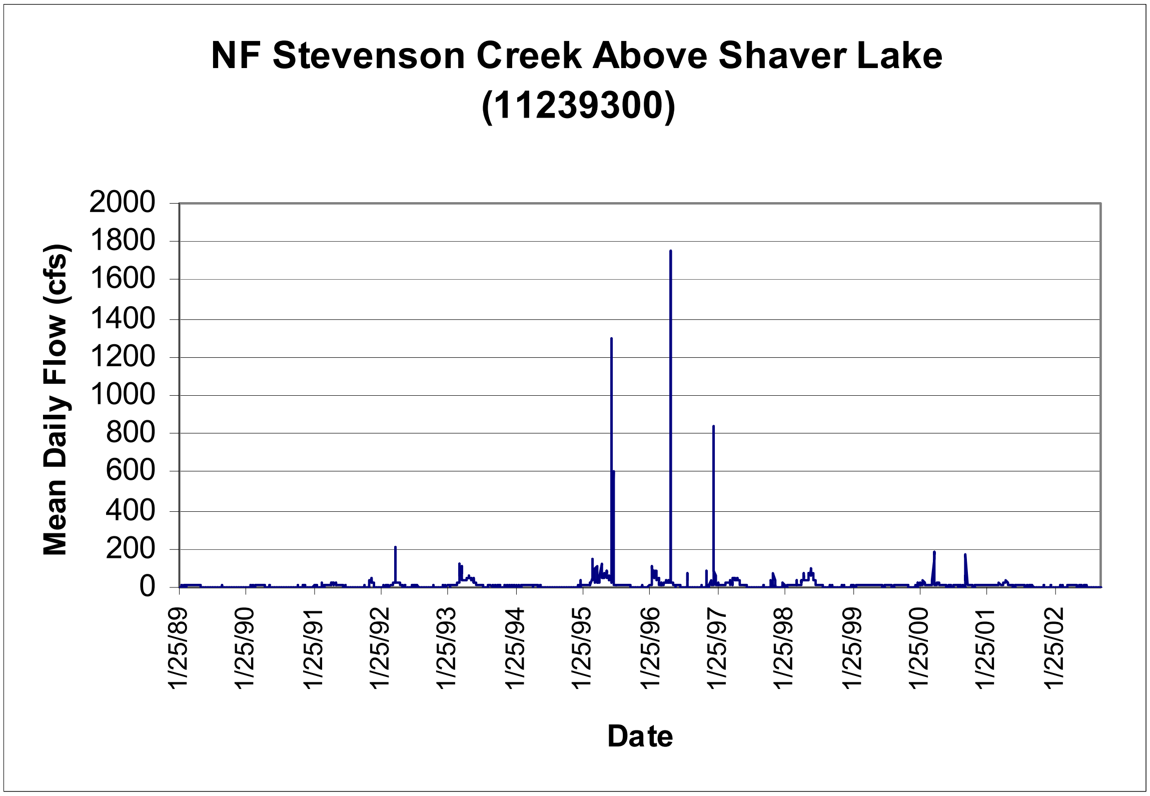

SJR Above Shakeflat (11234760)
Mean Daily Flow (cfs)
(log scale)
100000
10000
1000
100
10
1
0.1
10/1/59
10/1/62
10/1/65
10/1/68
10/1/71
10/1/74
10/1/77
10/1/80
10/1/83
10/1/86
10/1/89
10/1/92
10/1/95
10/1/98
10/1/01
Date

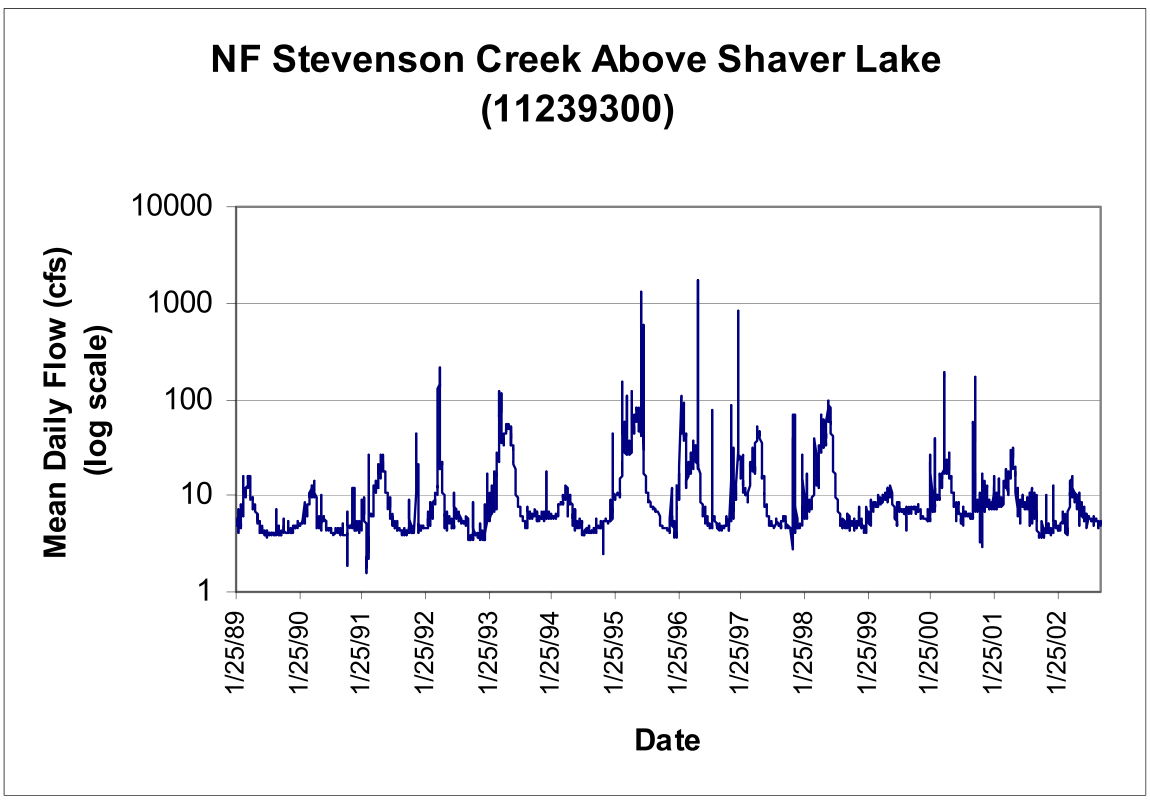

SJR Below Dam 6 (11238600)
Mean Daily Flow (cfs)
35000
30000
25000
20000
15000
10000
5000
0
10/1/73
10/1/75
10/1/77
10/1/79
10/1/81
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

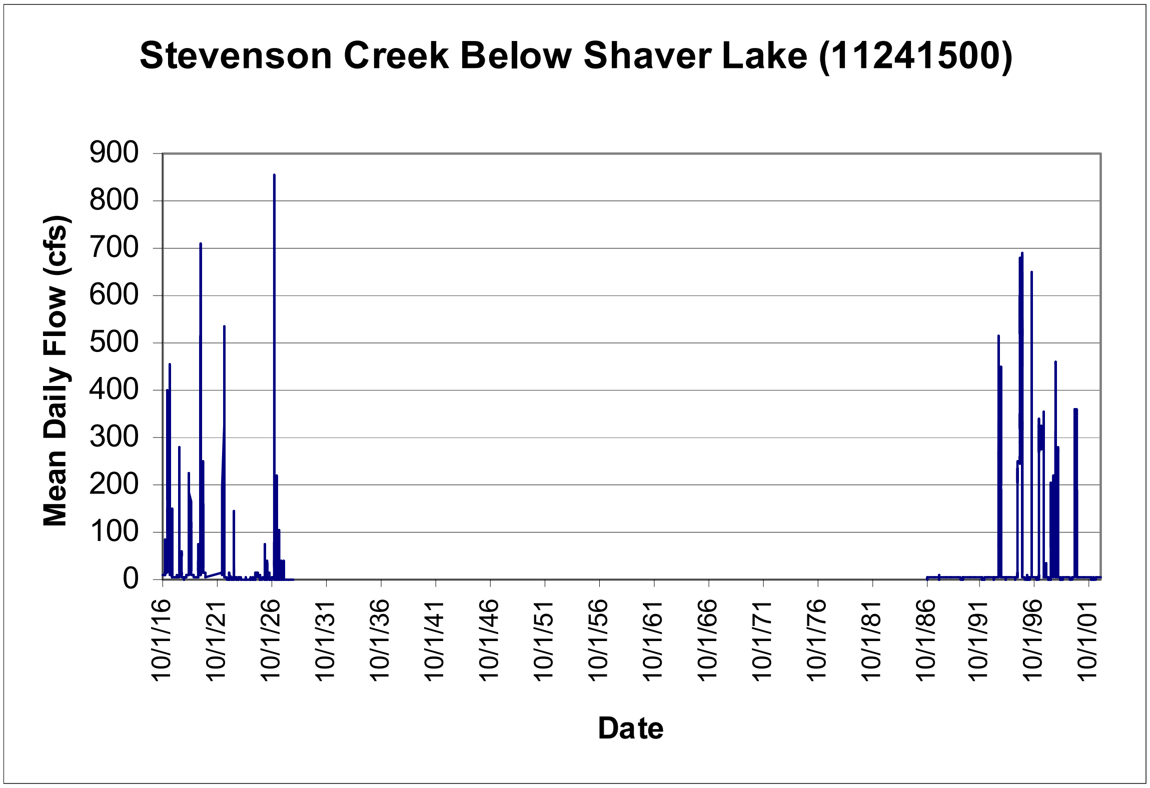

SJR Below Dam 6 (11238600)
Mean Daily Flow (cfs) (log scale)
100000
10000
1000
100
10
1
10/1/73
10/1/75
10/1/77
10/1/79
10/1/81
10/1/83
10/1/85
10/1/87
10/1/89
10/1/91
10/1/93
10/1/95
10/1/97
10/1/99
10/1/01
Date

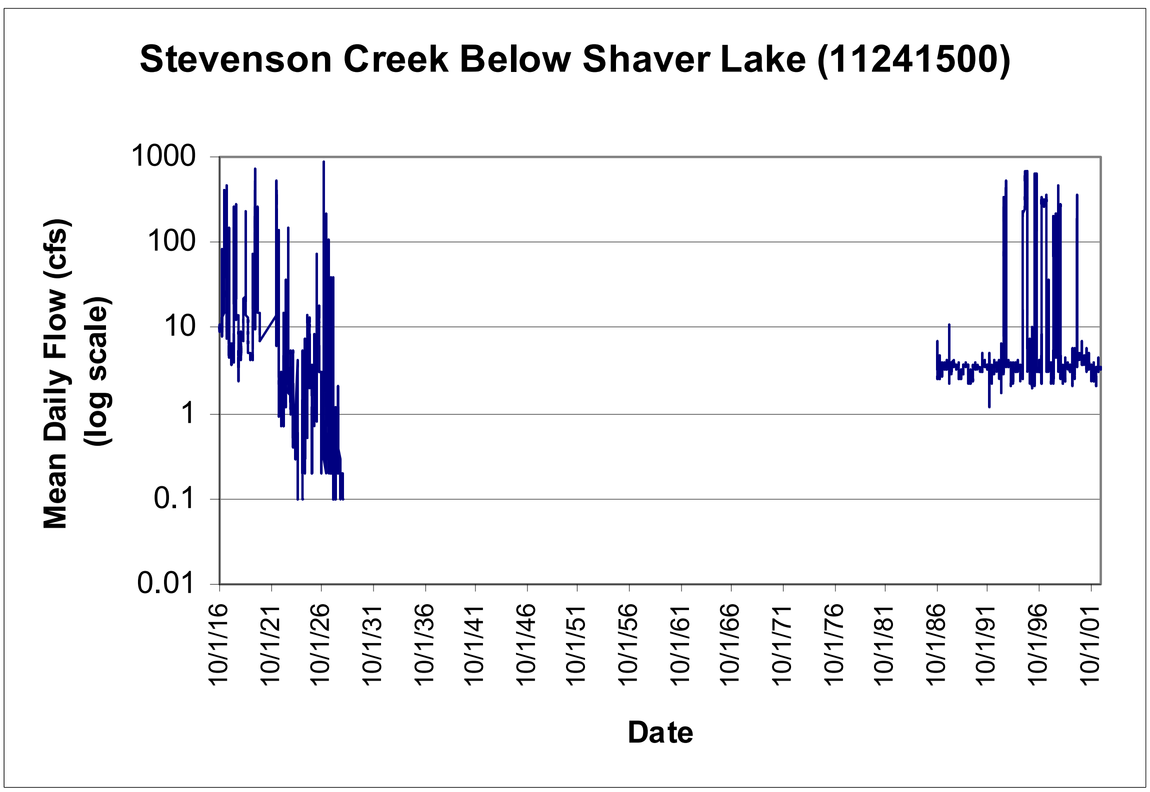

Ross Creek
Mean Daily Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
10/1/91
2/1/92
6/1/92
10/1/92
2/1/93
6/1/93
10/1/93
2/1/94
6/1/94
10/1/94
2/1/95
6/1/95
10/1/95
2/1/96
6/1/96
Date

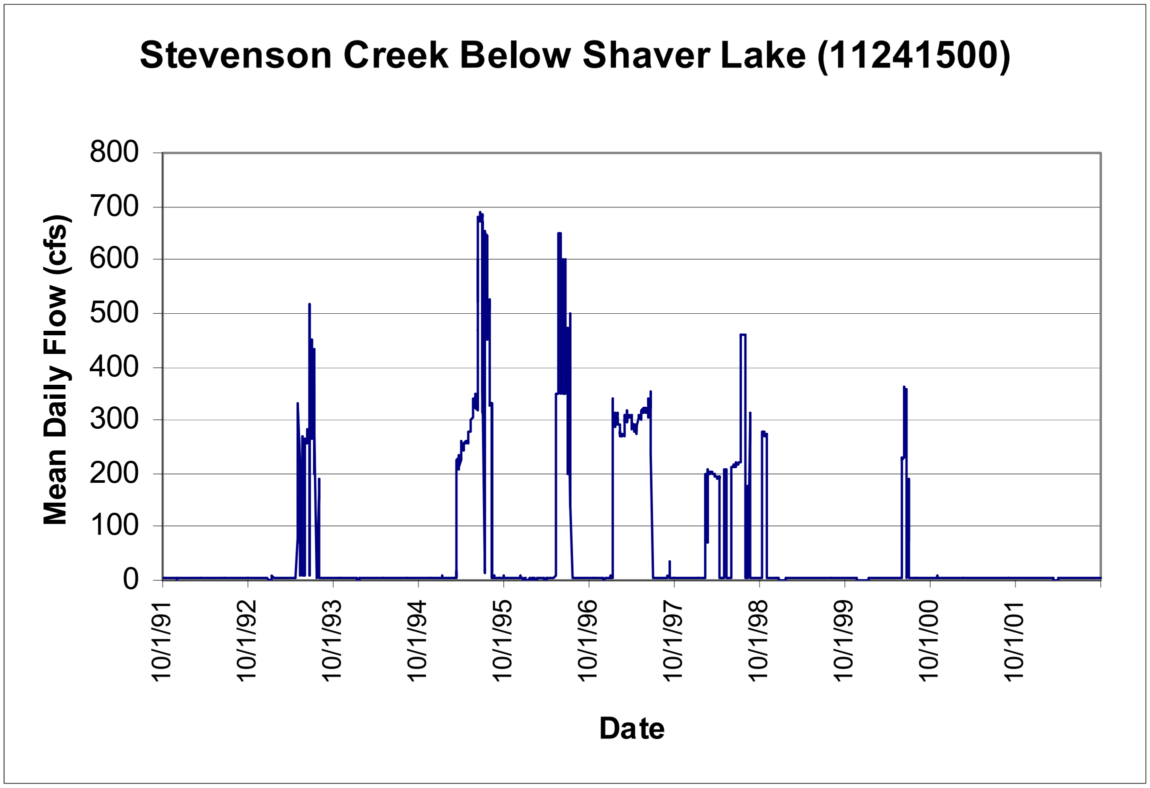

Rock Creek
Mean Daily Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
10/1/91
2/1/92
6/1/92
10/1/92
2/1/93
6/1/93
10/1/93
2/1/94
6/1/94
10/1/94
2/1/95
6/1/95
10/1/95
2/1/96
Date

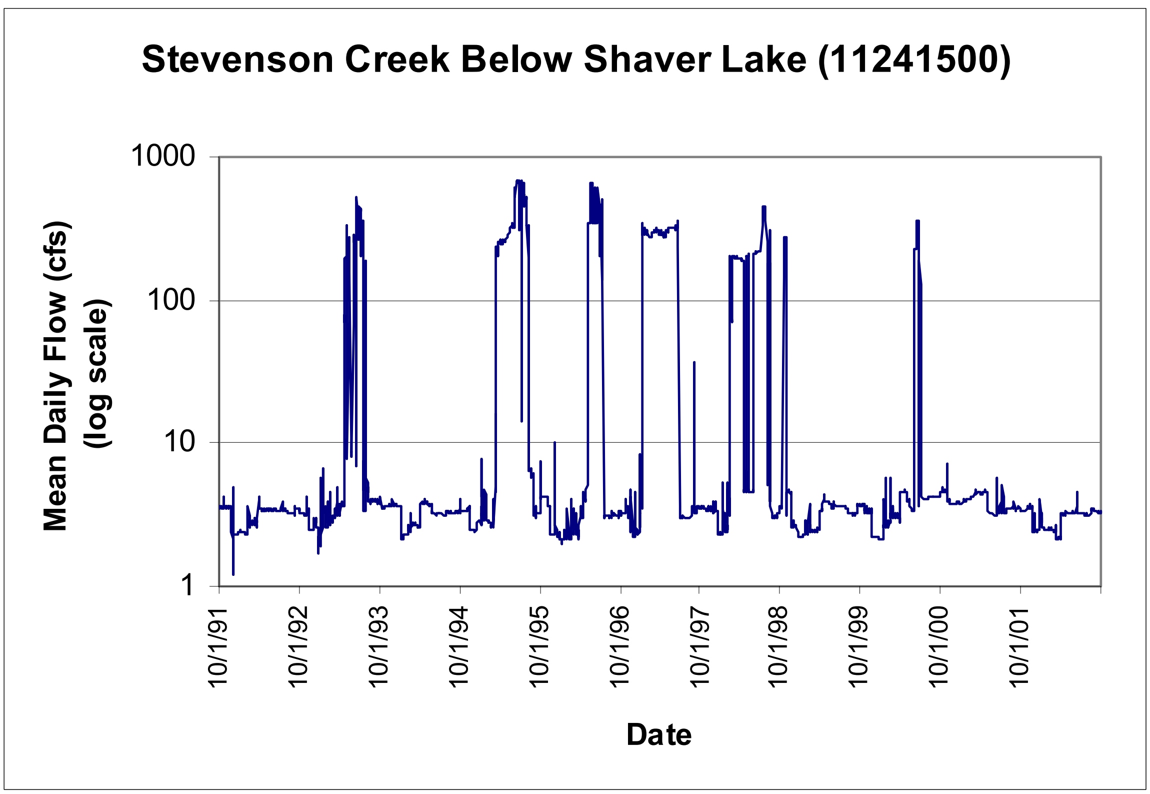

NF Stevenson Creek Above Shaver Lake
(11239300)
Mean Daily Flow (cfs)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
1/25/89
1/25/90
1/25/91
1/25/92
1/25/93
1/25/94
1/25/95
1/25/96
1/25/97
1/25/98
1/25/99
1/25/00
1/25/01
1/25/02
Date

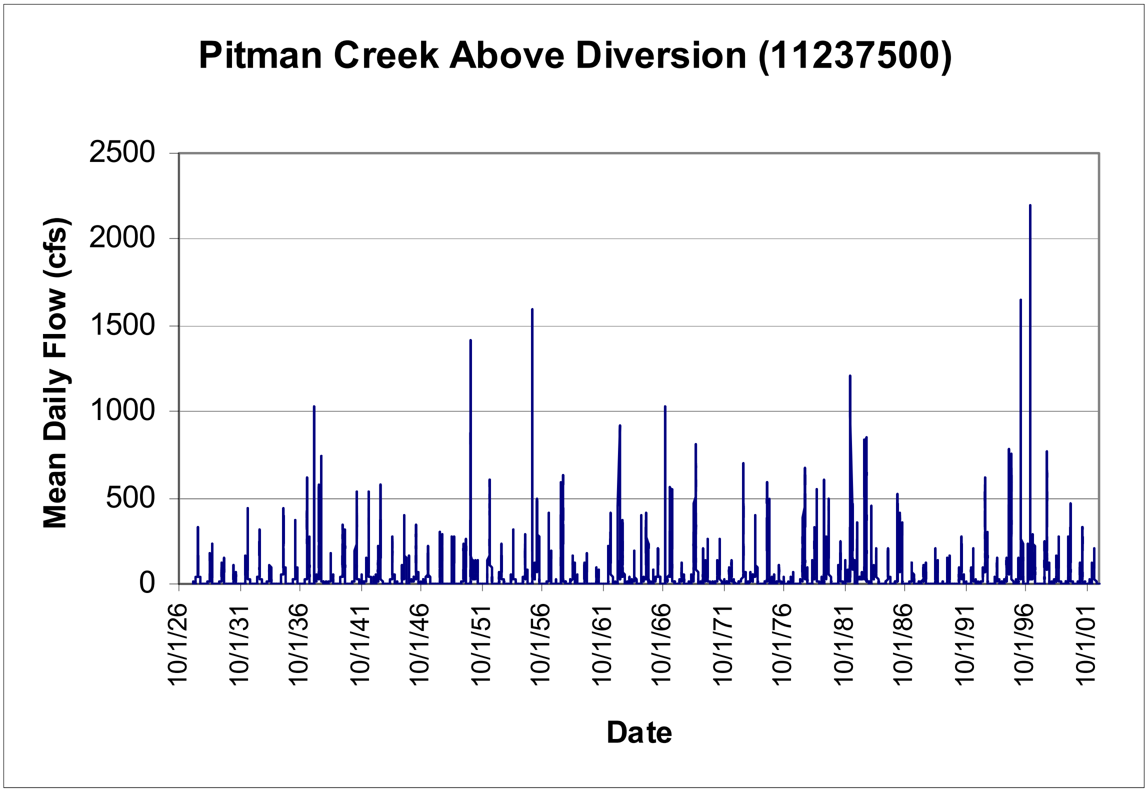

NF Stevenson Creek Above Shaver Lake
(11239300)
Mean Daily Flow (cfs)
(log scale)
10000
1000
100
10
1
1/25/89
1/25/90
1/25/91
1/25/92
1/25/93
1/25/94
1/25/95
1/25/96
1/25/97
1/25/98
1/25/99
1/25/00
1/25/01
1/25/02
Date

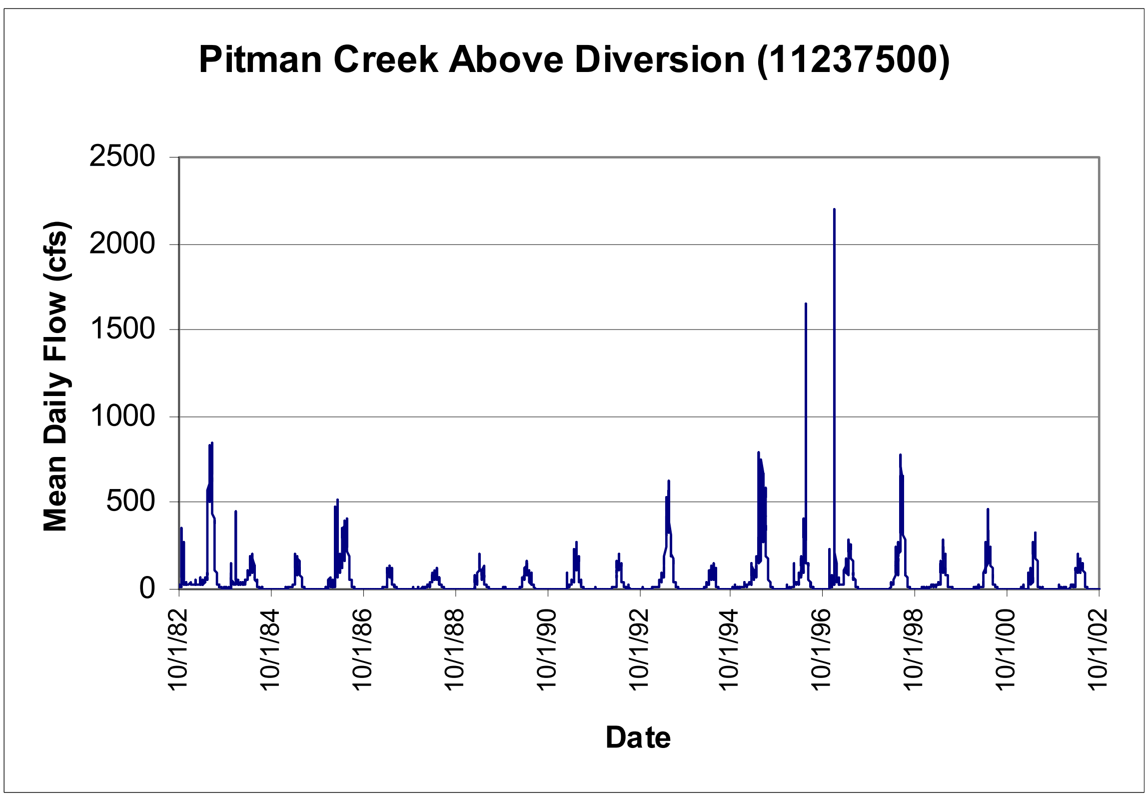

Stevenson Creek Below Shaver Lake (11241500)
Mean Daily Flow (cfs)
900
800
700
600
500
400
300
200
100
0
10/1/16
10/1/21
10/1/26
10/1/31
10/1/36
10/1/41
10/1/46
10/1/51
10/1/56
10/1/61
10/1/66
10/1/71
10/1/76
10/1/81
10/1/86
10/1/91
10/1/96
10/1/01
Date

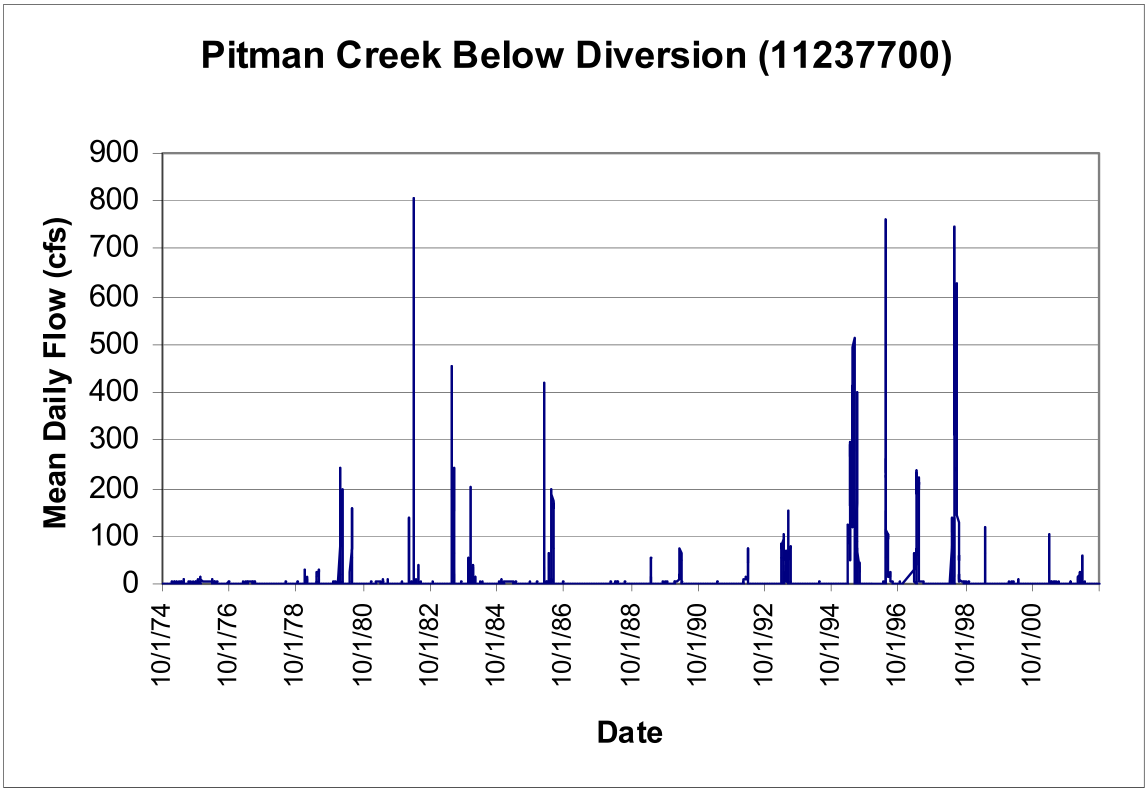

Stevenson Creek Below Shaver Lake (11241500)
Mean Daily Flow (cfs)
(log scale)
1000
100
10
1
0.1
0.01
10/1/16
10/1/21
10/1/26
10/1/31
10/1/36
10/1/41
10/1/46
10/1/51
10/1/56
10/1/61
10/1/66
10/1/71
10/1/76
10/1/81
10/1/86
10/1/91
10/1/96
10/1/01
Date

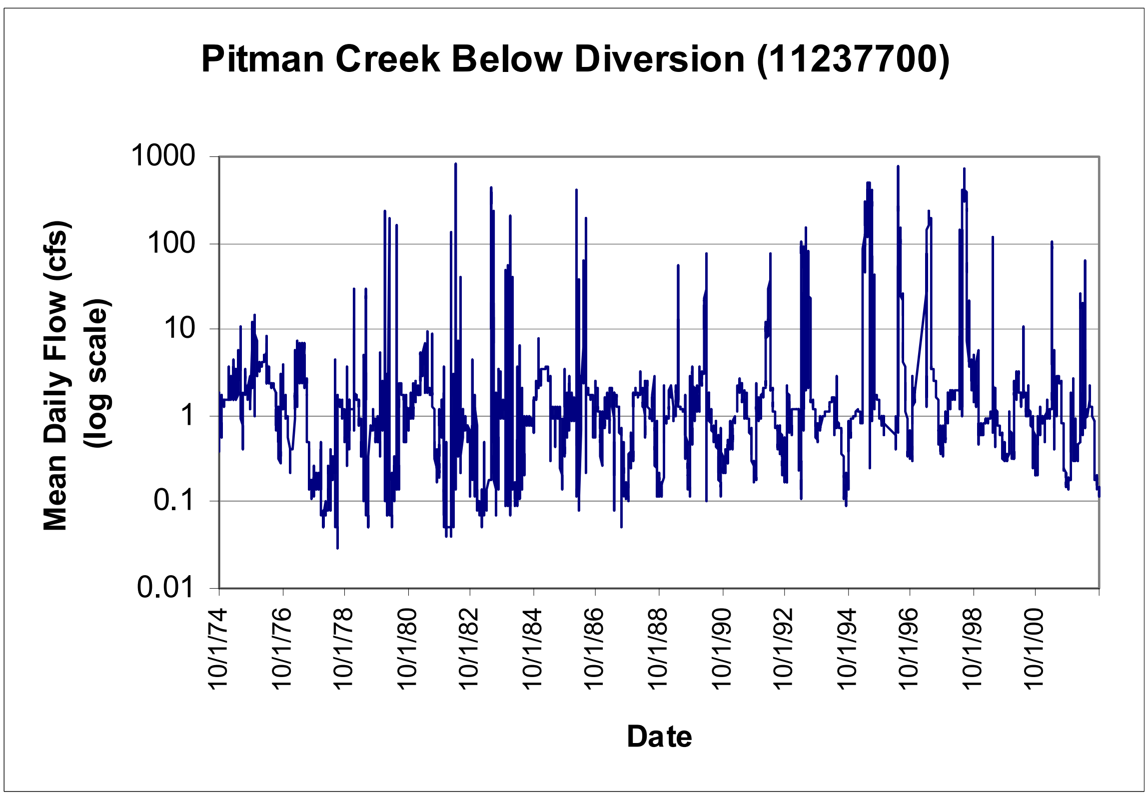

Stevenson Creek Below Shaver Lake (11241500)
Mean Daily Flow (cfs)
800
700
600
500
400
300
200
100
0
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date

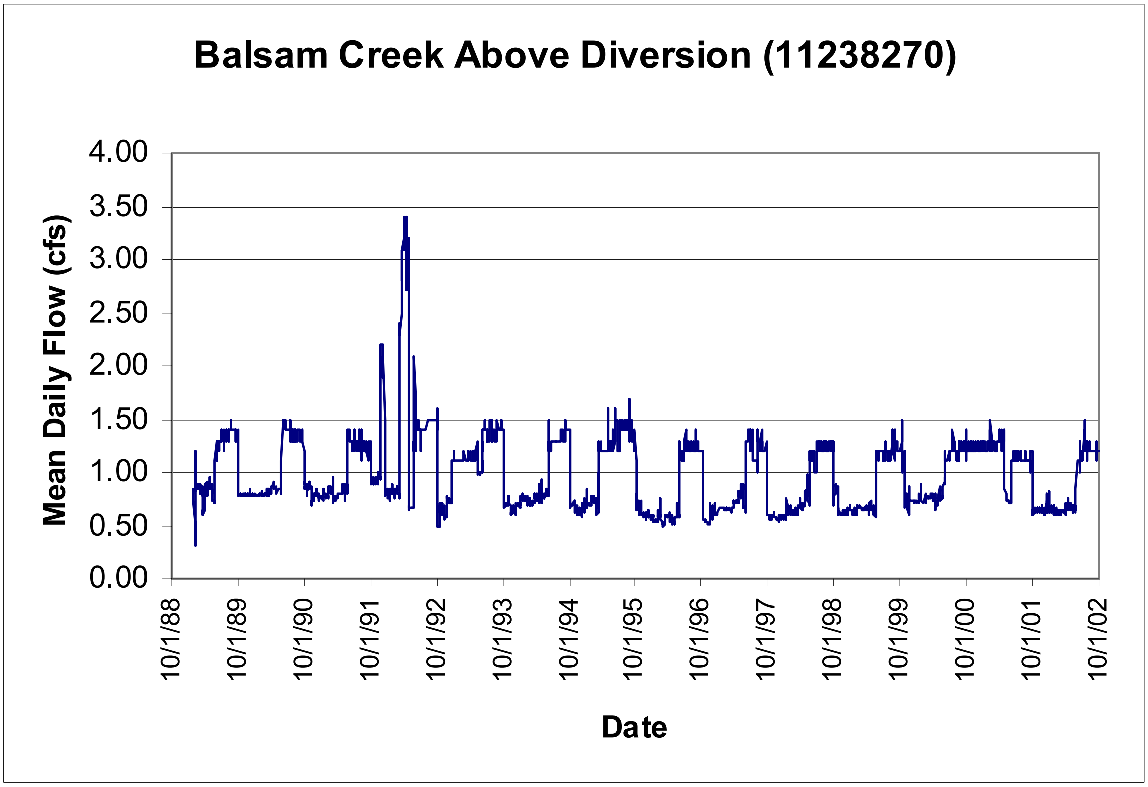

Stevenson Creek Below Shaver Lake (11241500)
Mean Daily Flow (cfs) (log scale)
1000
100
10
1
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date

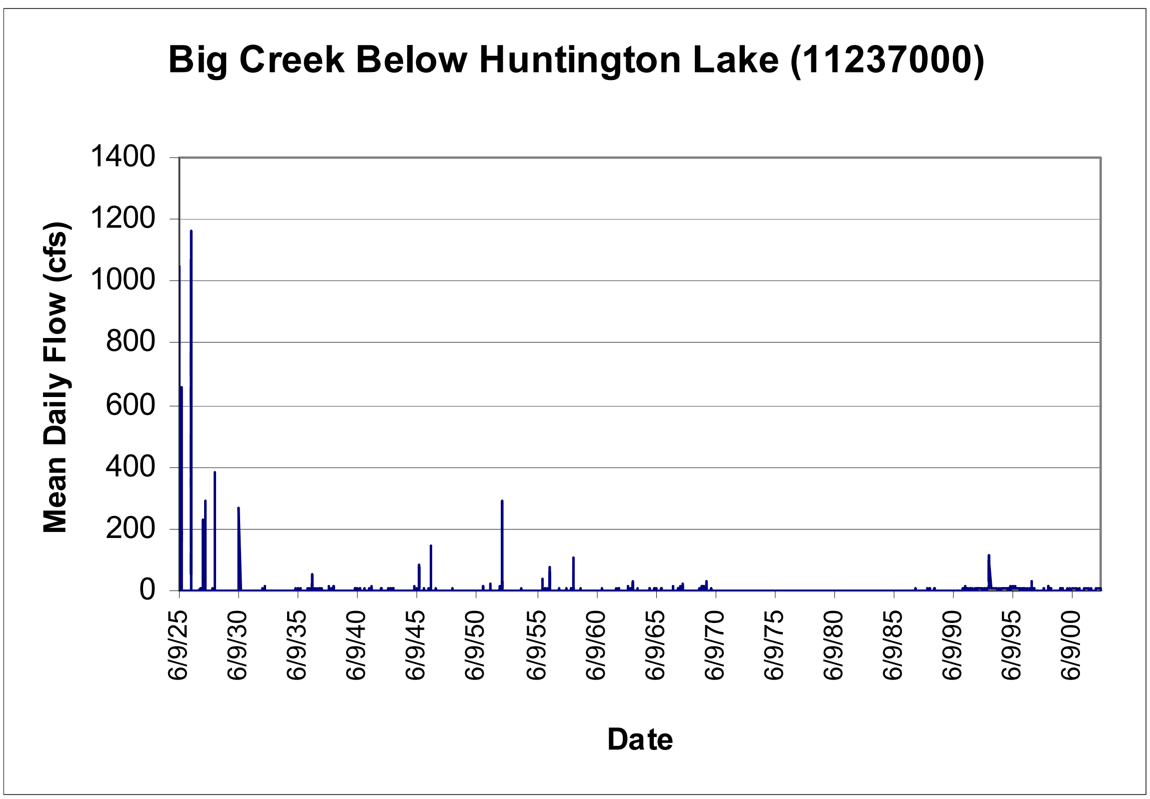

Pitman Creek Above Diversion (11237500)
Mean Daily Flow (cfs)
2500
2000
1500
1000
500
0
10/1/26
10/1/31
10/1/36
10/1/41
10/1/46
10/1/51
10/1/56
10/1/61
10/1/66
10/1/71
10/1/76
10/1/81
10/1/86
10/1/91
10/1/96
10/1/01
Date

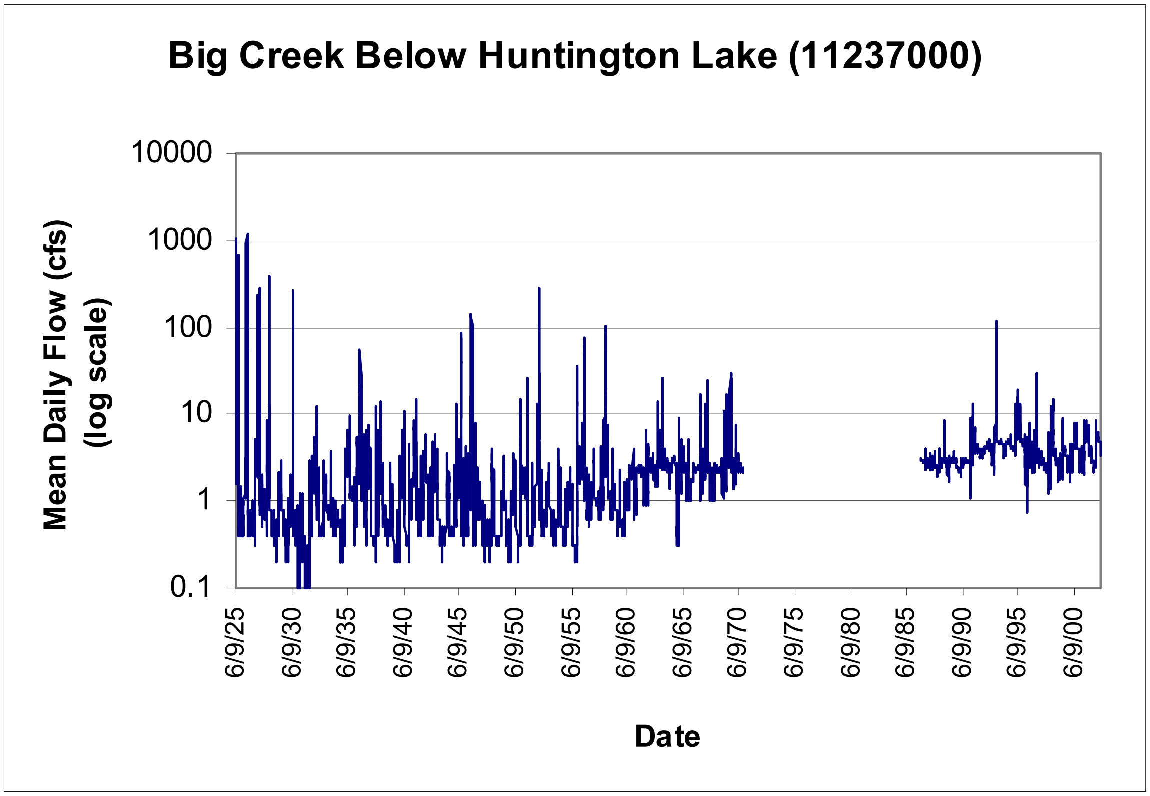

Pitman Creek Above Diversion (11237500)
Mean Daily Flow (cfs)
2500
2000
1500
1000
500
0
10/1/82
10/1/84
10/1/86
10/1/88
10/1/90
10/1/92
10/1/94
10/1/96
10/1/98
10/1/00
10/1/02
Date

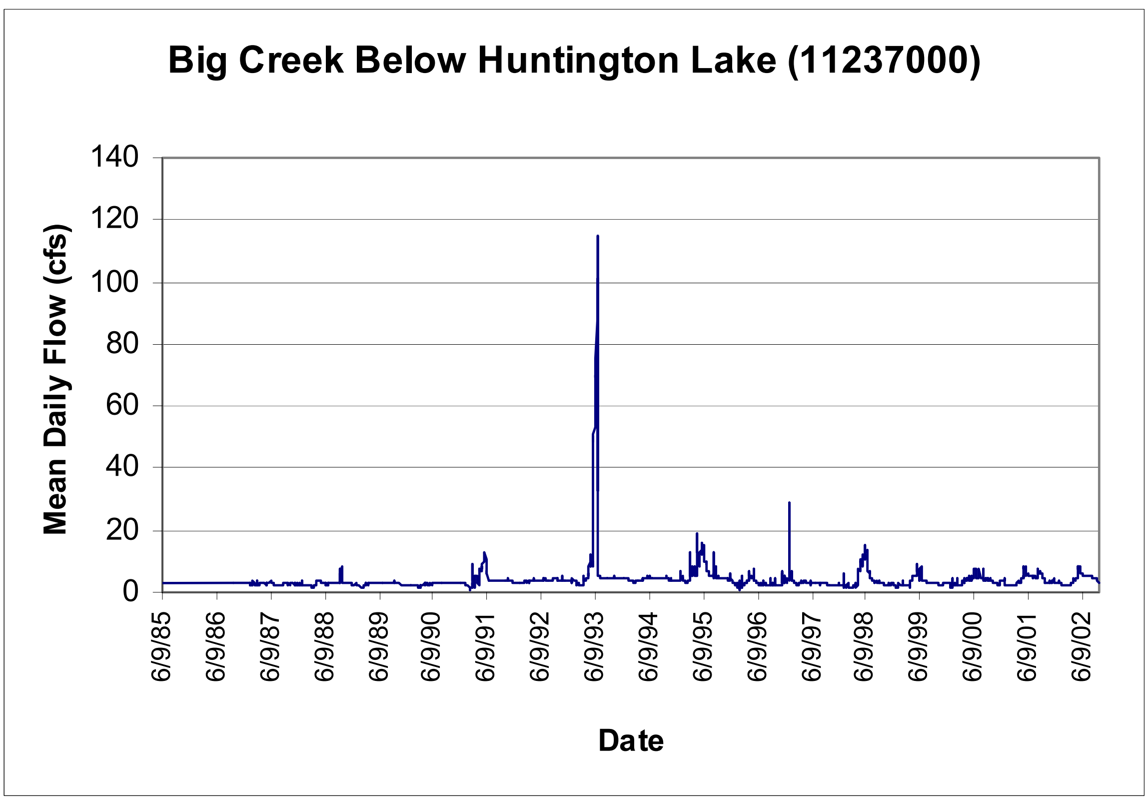

Pitman Creek Below Diversion (11237700)
Mean Daily Flow (cfs)
900
800
700
600
500
400
300
200
100
0
10/1/74
10/1/76
10/1/78
10/1/80
10/1/82
10/1/84
10/1/86
10/1/88
10/1/90
10/1/92
10/1/94
10/1/96
10/1/98
10/1/00
Date

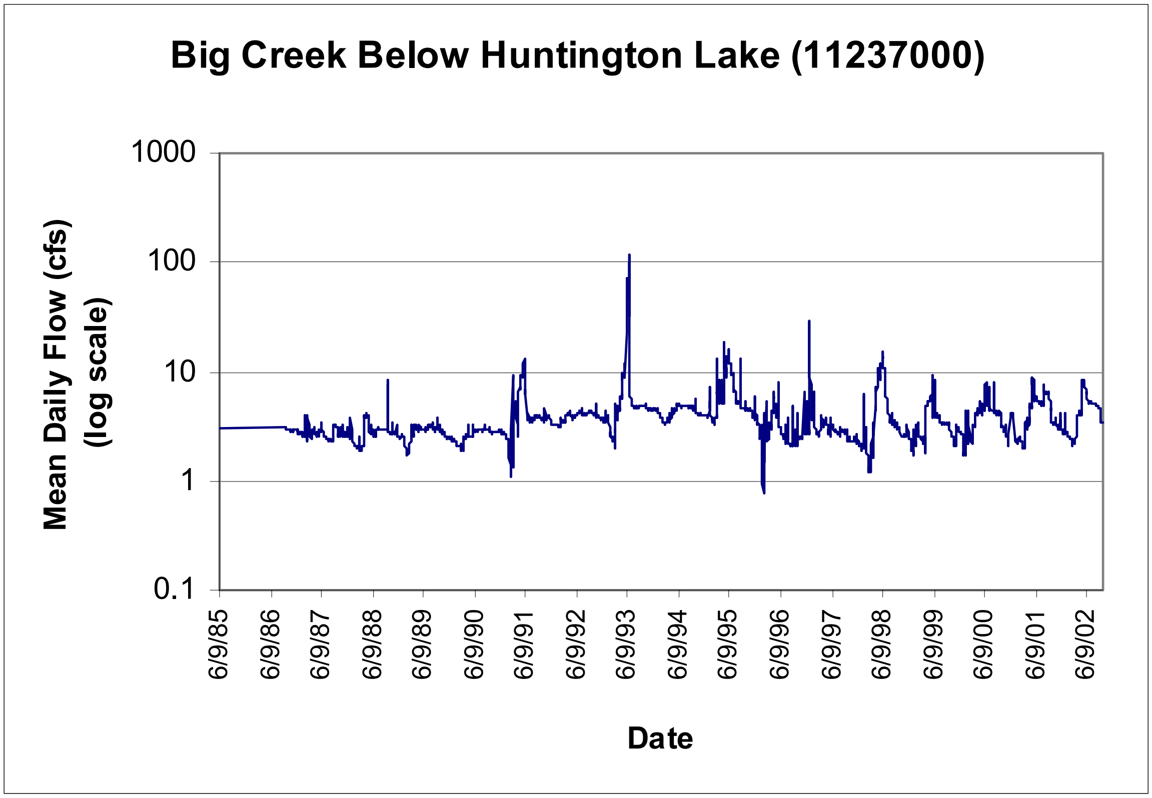

Pitman Creek Below Diversion (11237700)
Mean Daily Flow (cfs) (log scale)
1000
100
10
1
0.1
0.01
10/1/74
10/1/76
10/1/78
10/1/80
10/1/82
10/1/84
10/1/86
10/1/88
10/1/90
10/1/92
10/1/94
10/1/96
10/1/98
10/1/00
Date

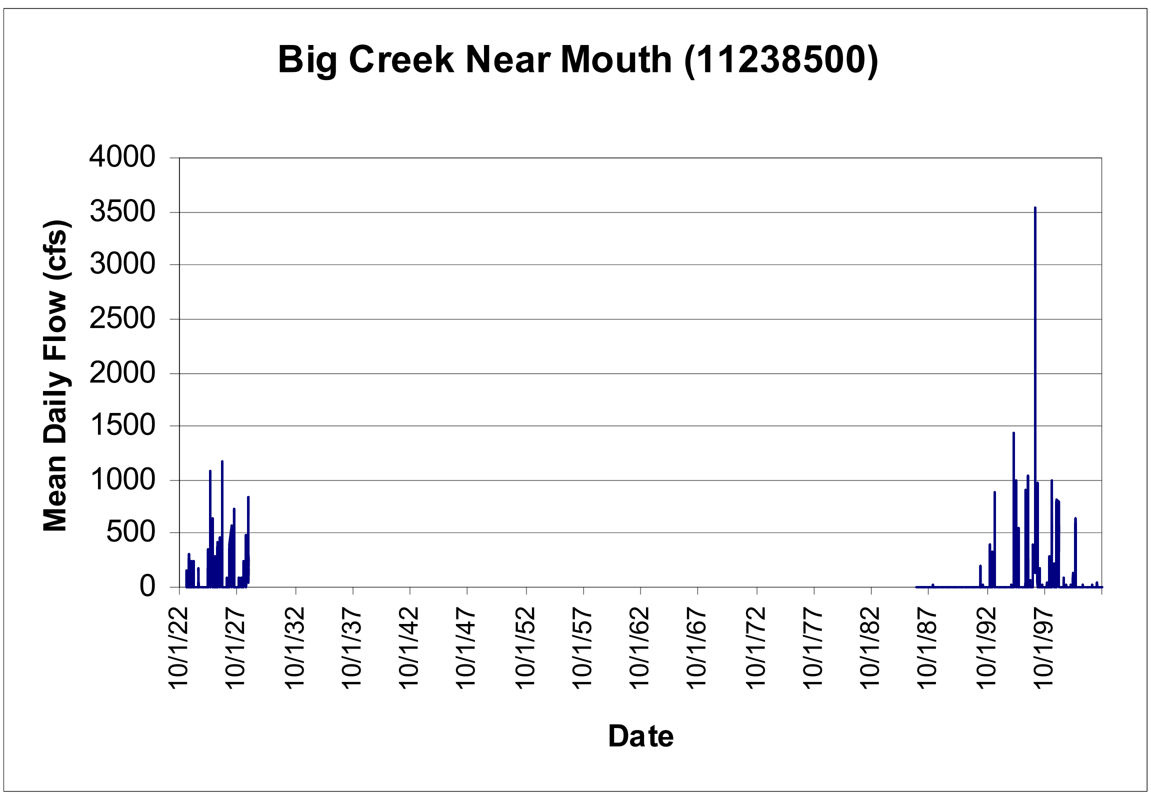

Balsam Creek Above Diversion (11238270)
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Mean Daily Flow (cfs)
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
10/1/02
Date

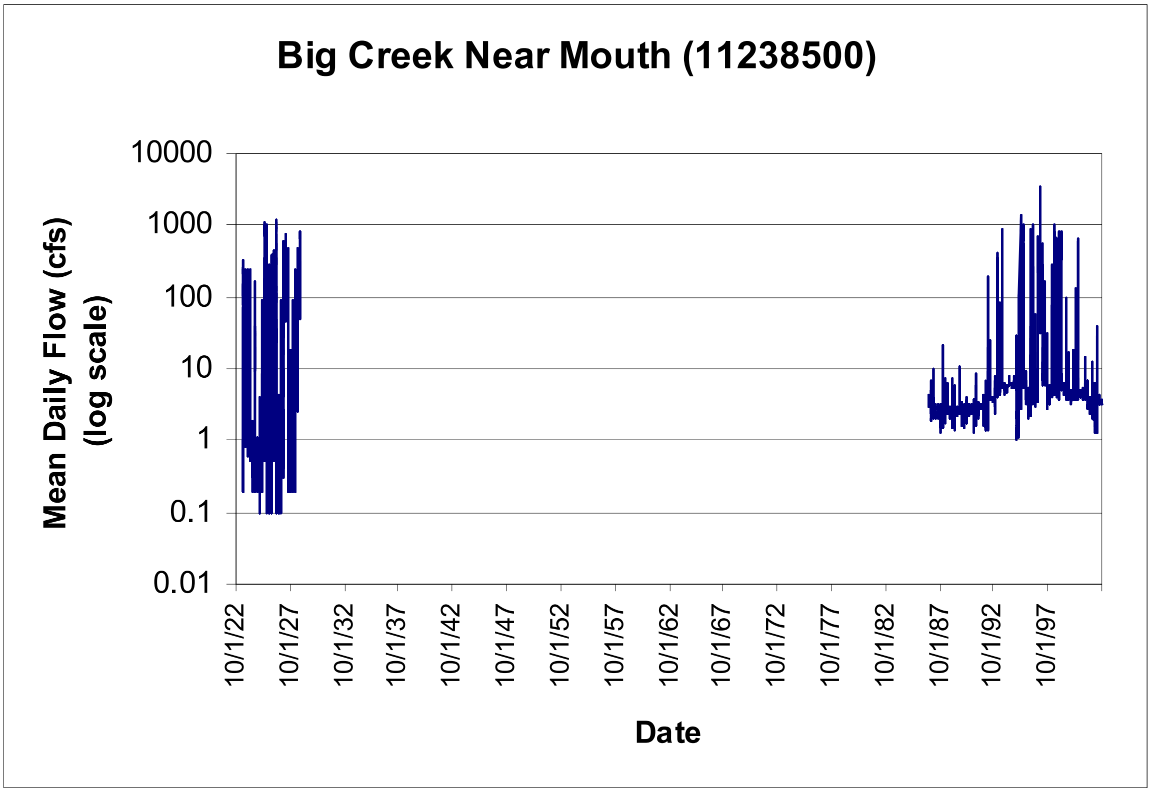

Big Creek Below Huntington Lake (11237000)
1400
1200
1000
800
600
400
200
0
Mean Daily Flow (cfs)
6/9/25
6/9/30
6/9/35
6/9/40
6/9/45
6/9/50
6/9/55
6/9/60
6/9/65
6/9/70
6/9/75
6/9/80
6/9/85
6/9/90
6/9/95
6/9/00
Date

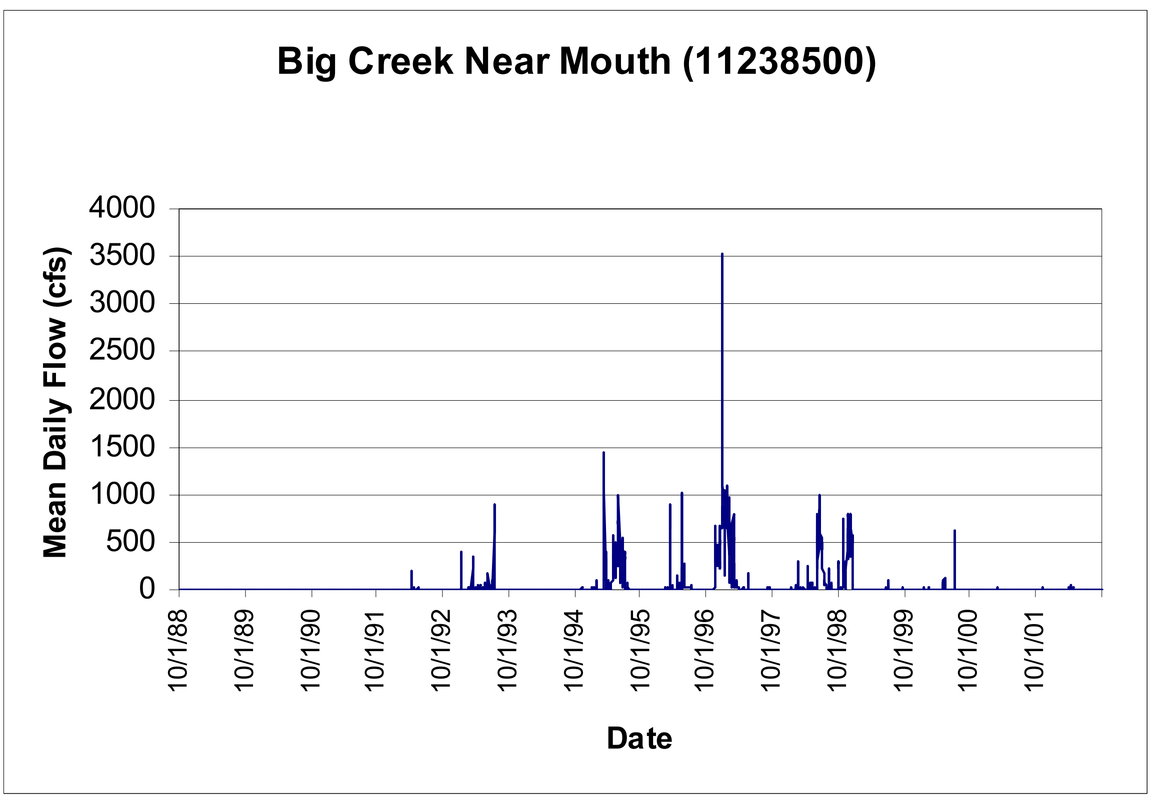

Big Creek Below Huntington Lake (11237000)
Mean Daily Flow (cfs)
(log scale)
10000
1000
100
10
1
0.1
6/9/25
6/9/30
6/9/35
6/9/40
6/9/45
6/9/50
6/9/55
6/9/60
6/9/65
6/9/70
6/9/75
6/9/80
6/9/85
6/9/90
6/9/95
6/9/00
Date

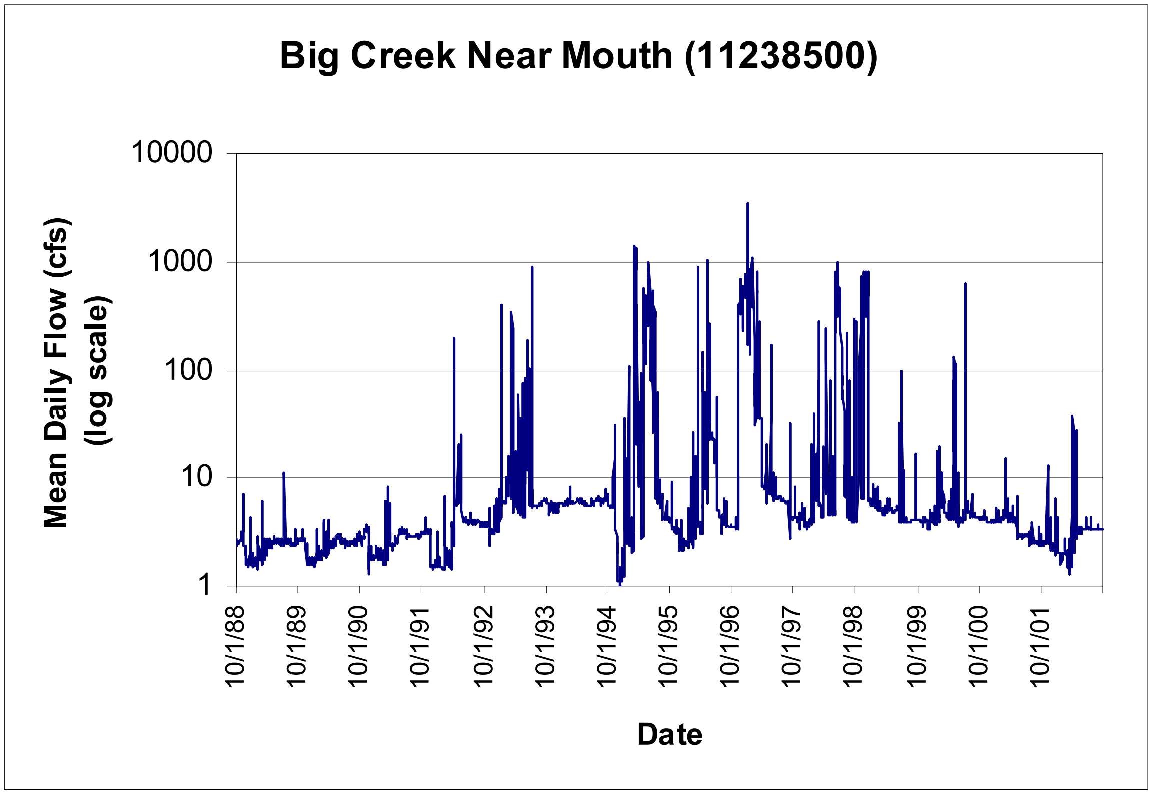

Big Creek Below Huntington Lake (11237000)
Mean Daily Flow (cfs)
140
120
100
80
60
40
20
0
6/9/85
6/9/86
6/9/87
6/9/88
6/9/89
6/9/90
6/9/91
6/9/92
6/9/93
6/9/94
6/9/95
6/9/96
6/9/97
6/9/98
6/9/99
6/9/00
6/9/01
6/9/02
Date


Big Creek Below Huntington Lake (11237000)
Mean Daily Flow (cfs)
(log scale)
1000
100
10
1
0.1
6/9/85
6/9/86
6/9/87
6/9/88
6/9/89
6/9/90
6/9/91
6/9/92
6/9/93
6/9/94
6/9/95
6/9/96
6/9/97
6/9/98
6/9/99
6/9/00
6/9/01
6/9/02
Date


Big Creek Near Mouth (11238500)
Mean Daily Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/22
10/1/27
10/1/32
10/1/37
10/1/42
10/1/47
10/1/52
10/1/57
10/1/62
10/1/67
10/1/72
10/1/77
10/1/82
10/1/87
10/1/92
10/1/97
Date


Big Creek Near Mouth (11238500)
Mean Daily Flow (cfs)
(log scale)
10000
1000
100
10
1
0.1
0.01
10/1/22
10/1/27
10/1/32
10/1/37
10/1/42
10/1/47
10/1/52
10/1/57
10/1/62
10/1/67
10/1/72
10/1/77
10/1/82
10/1/87
10/1/92
10/1/97
Date


Big Creek Near Mouth (11238500)
Mean Daily Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date


Big Creek Near Mouth (11238500)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
10/1/88
10/1/89
10/1/90
10/1/91
10/1/92
10/1/93
10/1/94
10/1/95
10/1/96
10/1/97
10/1/98
10/1/99
10/1/00
10/1/01
Date

APPENDIX D

DIVERSION, LAKE, AND OTHER LOCATIONS EXISTING HYDROLOGY - HYDROGRAPHS

APPENDIX D

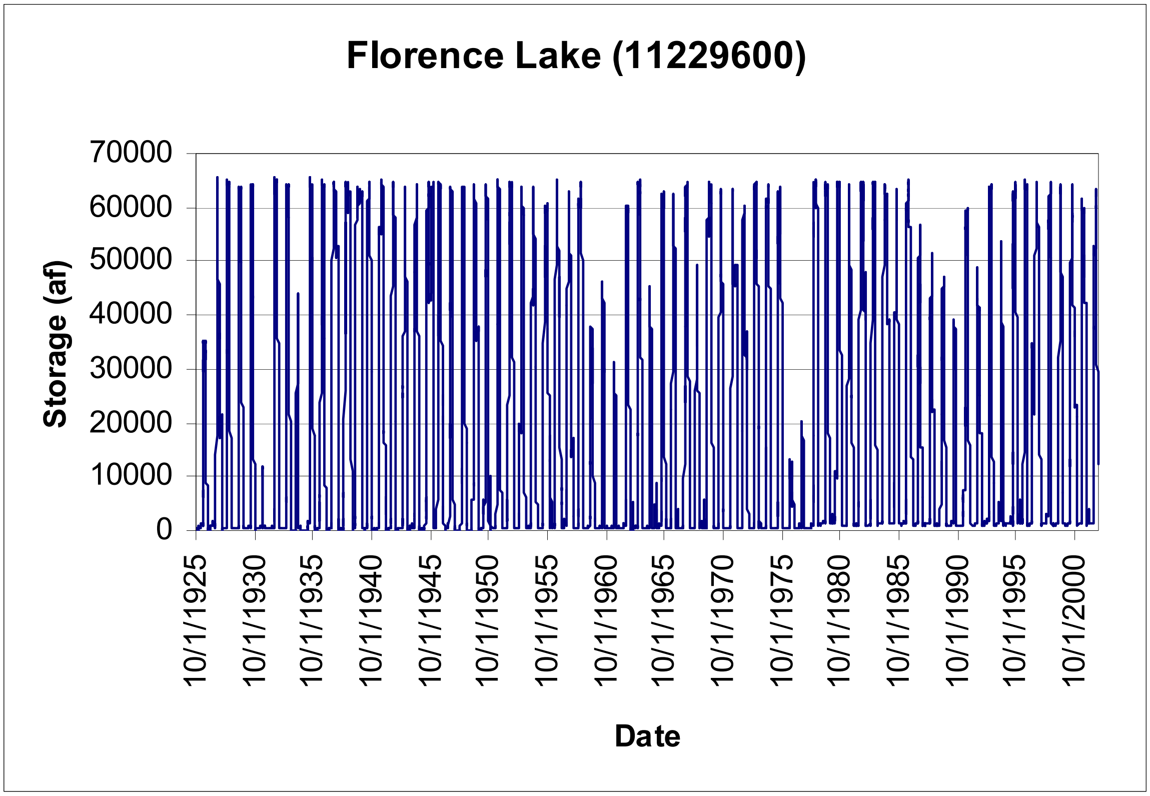
BIG CREEK

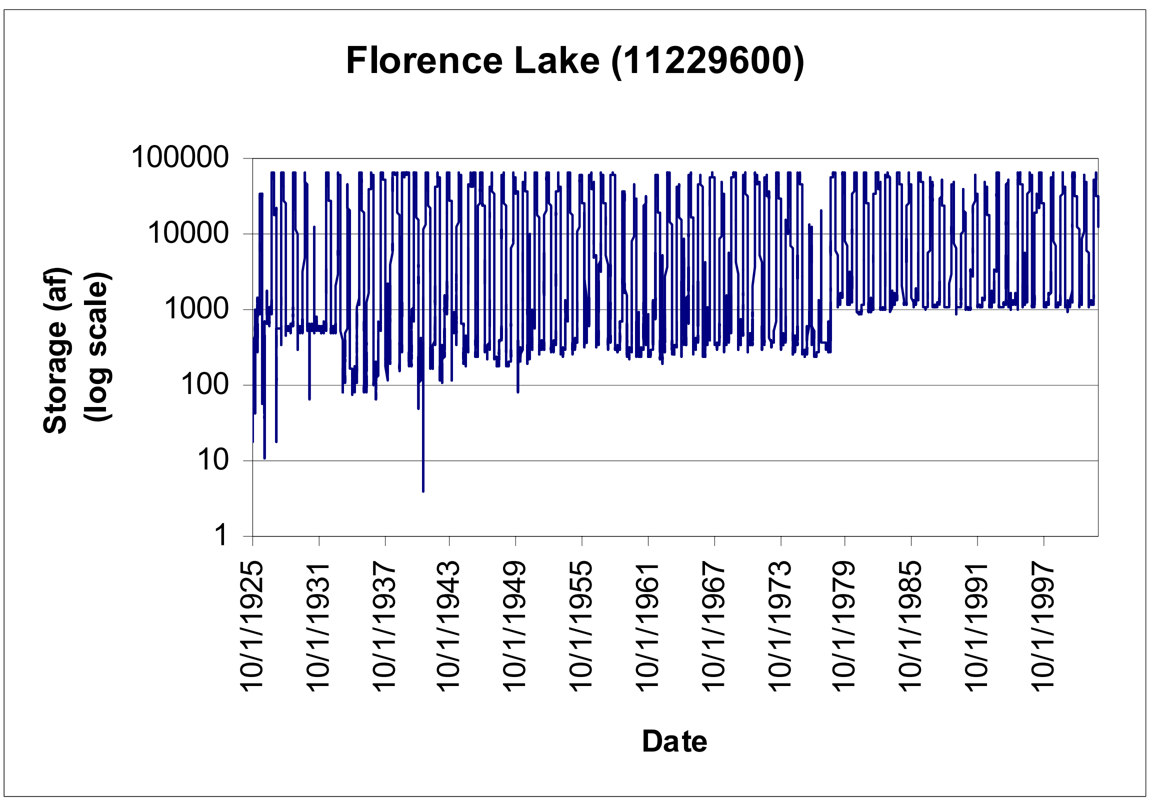
CAWG 6 HYDROLOGY

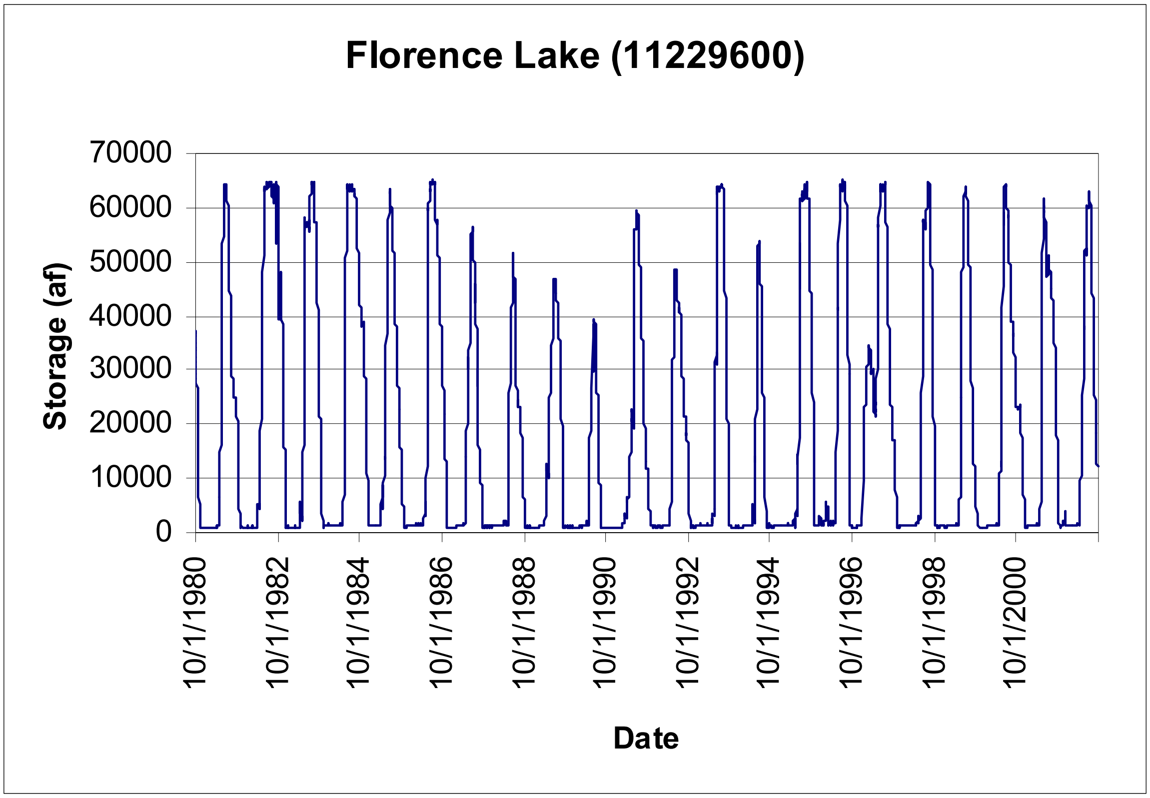
DIVERSION AND OTHER HYDROGRAPHS

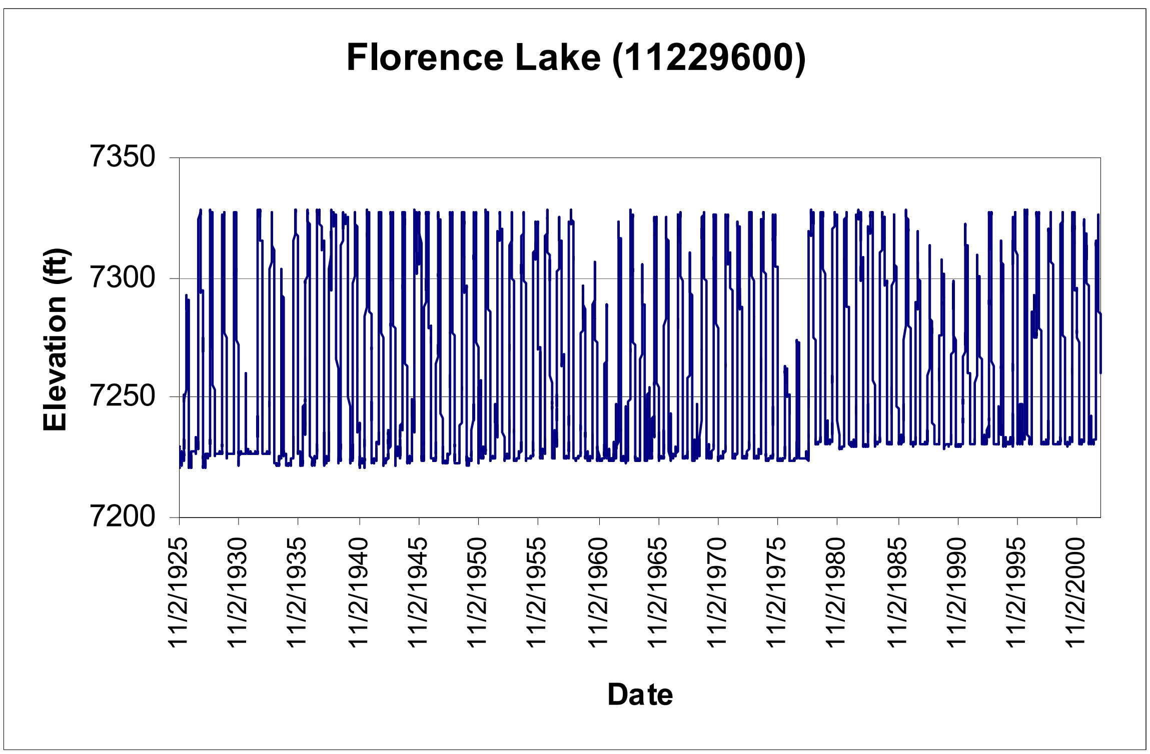
List of locations in order of appearance:

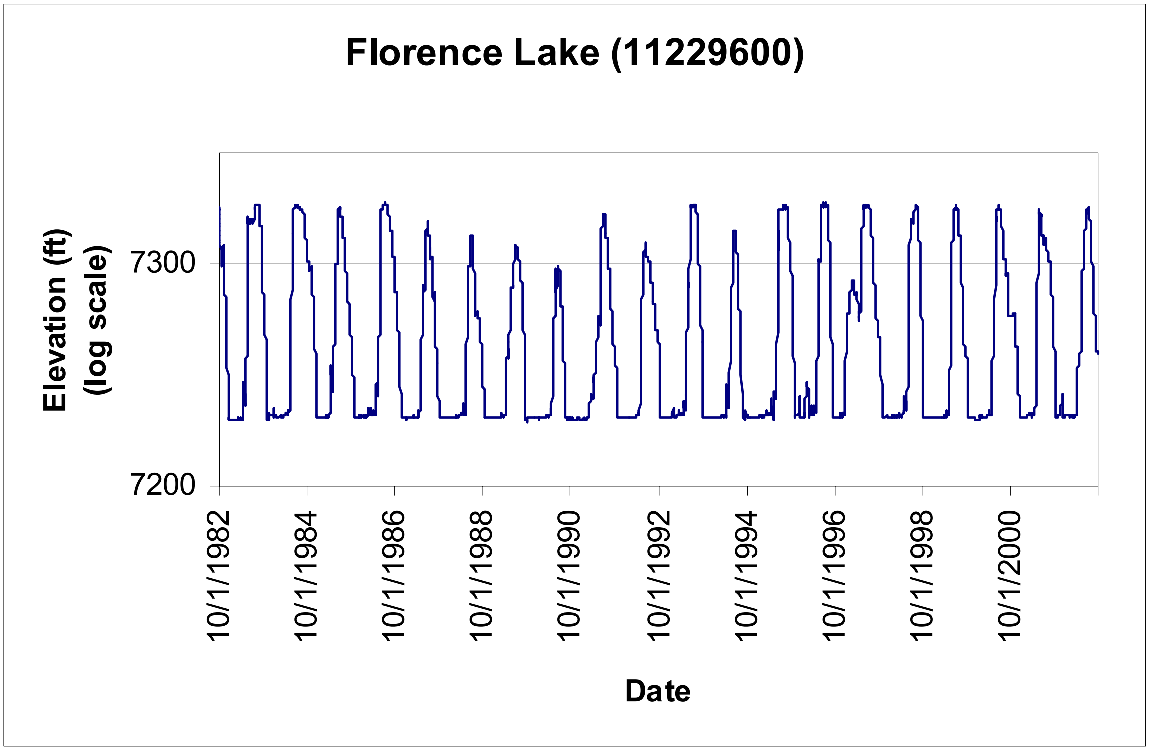
Florence Lake Storage
Florence Lake Elevation
Ward Tunnel Intake
Bear Creek Conduit
Mono Creek Conduit
Hooper Creek Diversion
Crater Creek
Chinquapin Creek Diversion
Camp 62 Creek Diversion
Bolsillo Creek Diversion
Mammoth Pool Storage
Mammoth Pool Elevation
Huntington Lake Storage
Huntington Lake Elevation
Tunnel 7 Intake at Huntington
Tunnel 7 Outlet
Pitman Creek Shaft
Ely Creek Diversion
Shaver Lake Storage
Shaver Lake Elevation

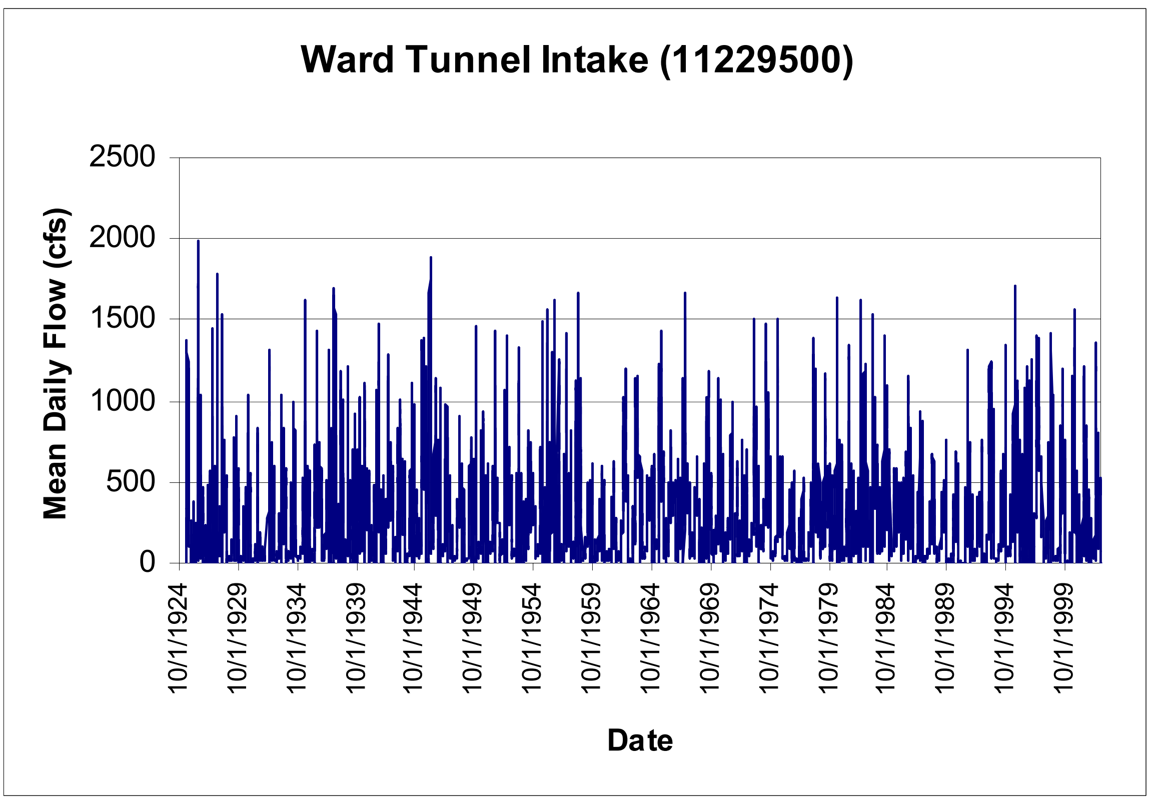

Florence Lake (11229600)
Storage (af)
70000
60000
50000
40000
30000
20000
10000
0
10/1/1925
10/1/1930
10/1/1935
10/1/1940
10/1/1945
10/1/1950
10/1/1955
10/1/1960
10/1/1965
10/1/1970
10/1/1975
10/1/1980
10/1/1985
10/1/1990
10/1/1995
10/1/2000
Date

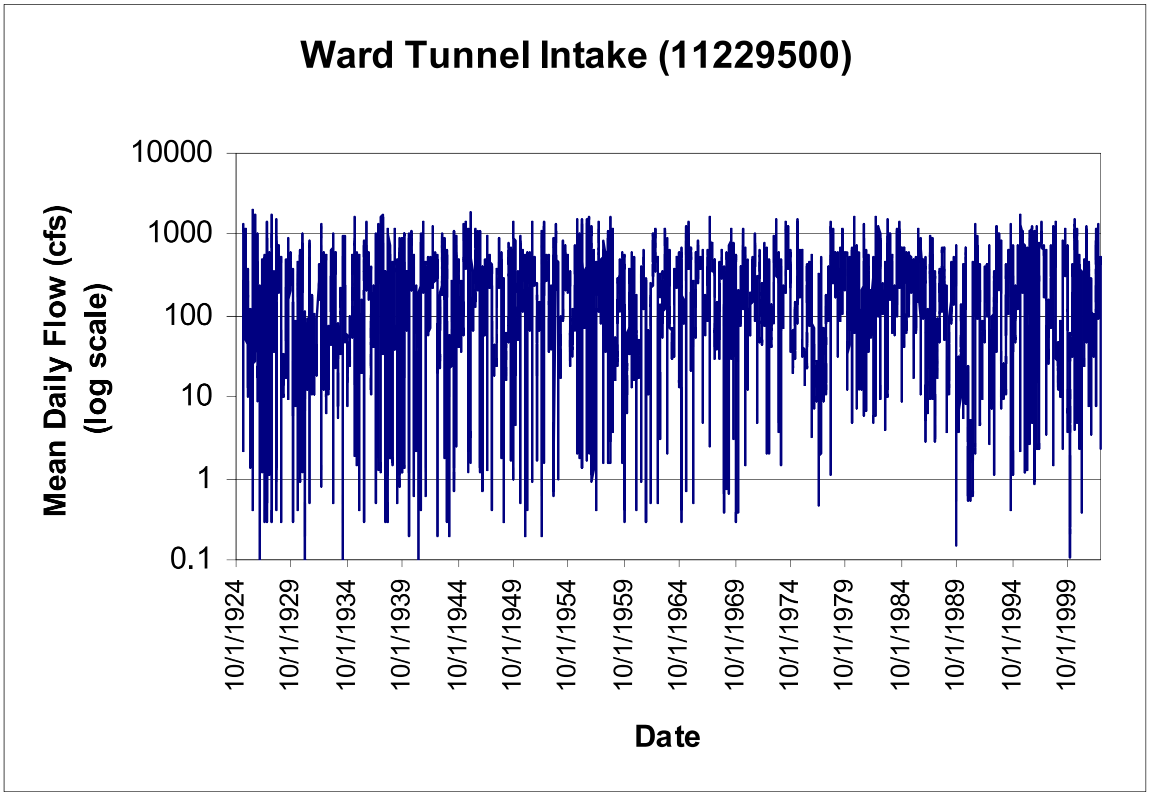

Florence Lake (11229600)
Storage (af)
(log scale)
100000
10000
1000
100
10
1
10/1/1925
10/1/1931
10/1/1937
10/1/1943
10/1/1949
10/1/1955
10/1/1961
10/1/1967
10/1/1973
10/1/1979
10/1/1985
10/1/1991
10/1/1997
Date

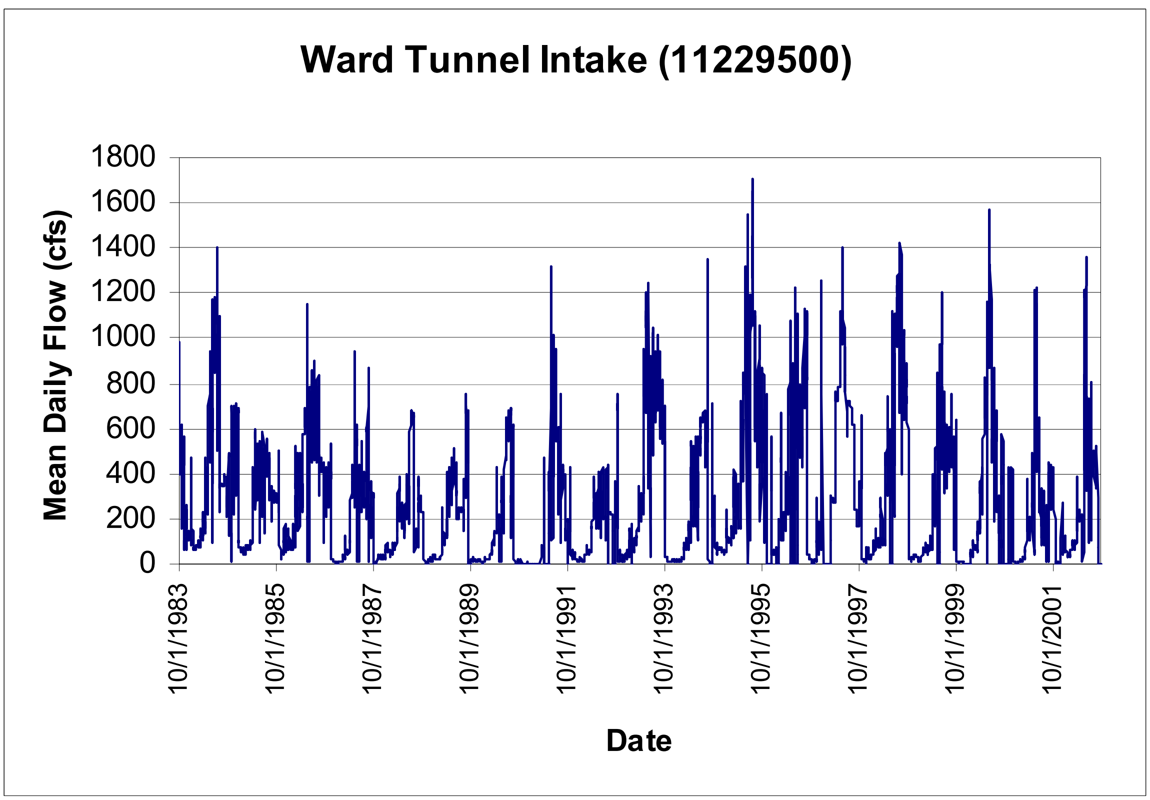

Florence Lake (11229600)
Storage (af)
70000
60000
50000
40000
30000
20000
10000
0
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

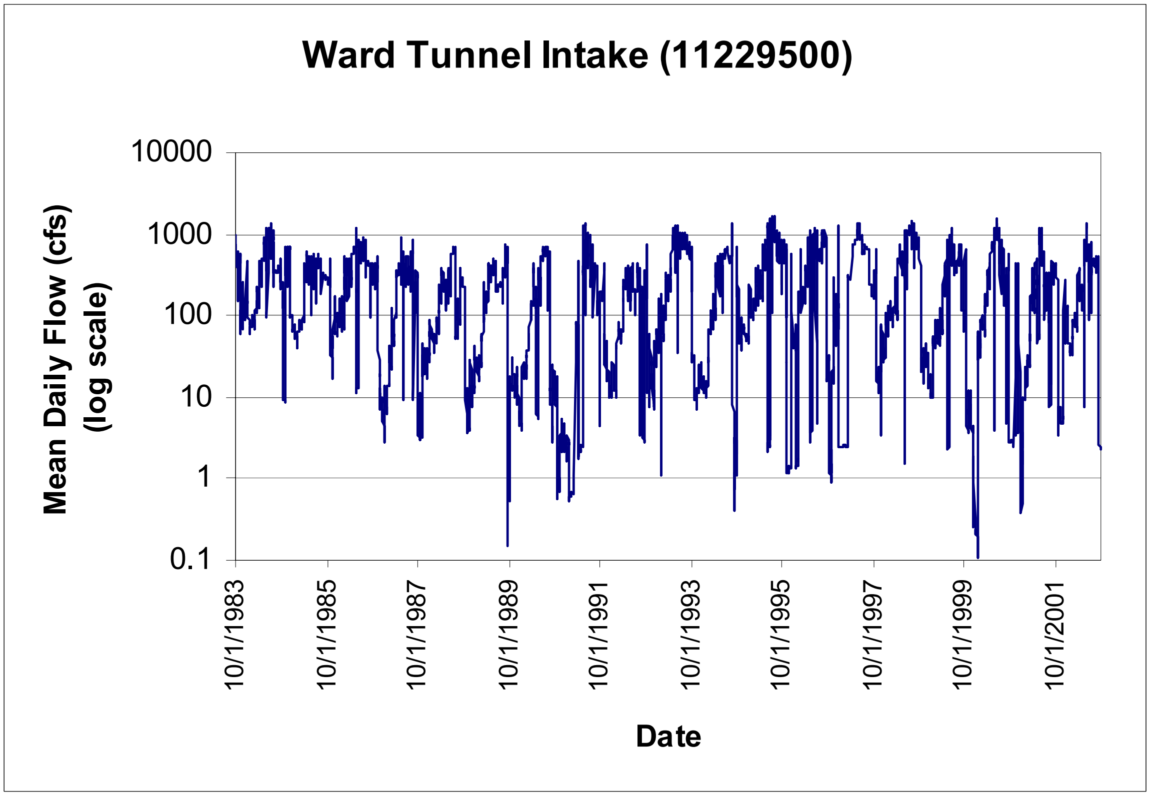

Florence Lake (11229600)
Elevation (ft)
7350
7300
7250
7200
11/2/1925
11/2/1930
11/2/1935
11/2/1940
11/2/1945
11/2/1950
11/2/1955
11/2/1960
11/2/1965
11/2/1970
11/2/1975
11/2/1980
11/2/1985
11/2/1990
11/2/1995
11/2/2000
Date

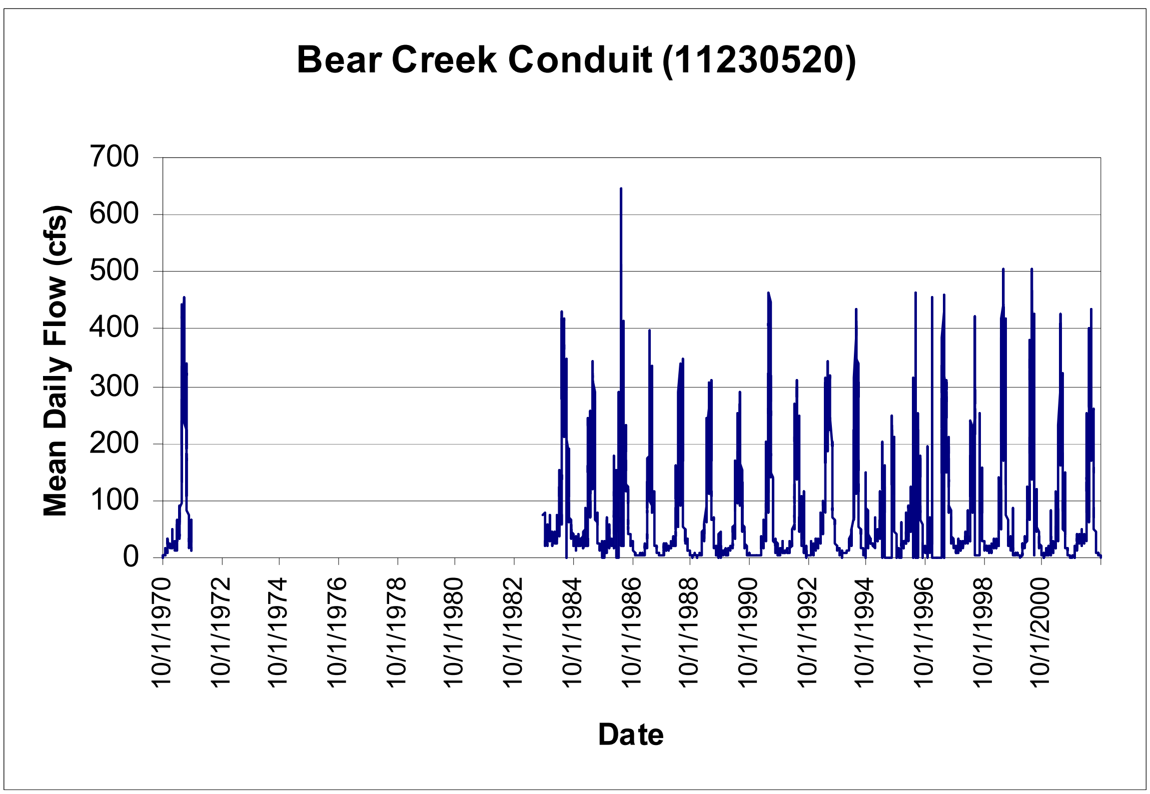

Florence Lake (11229600)
Elevation (ft) (log scale)
7300
7200
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

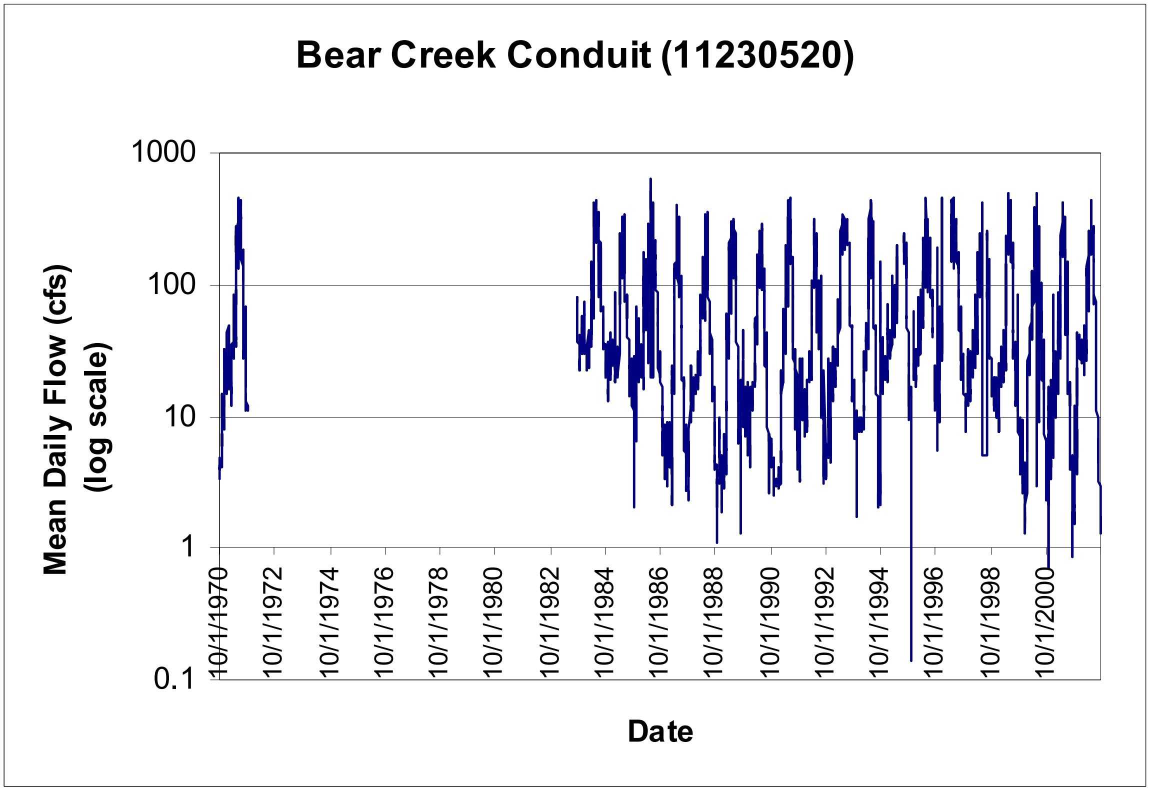

Ward Tunnel Intake (11229500)
Mean Daily Flow (cfs)
2500
2000
1500
1000
500
0
10/1/1924
10/1/1929
10/1/1934
10/1/1939
10/1/1944
10/1/1949
10/1/1954
10/1/1959
10/1/1964
10/1/1969
10/1/1974
10/1/1979
10/1/1984
10/1/1989
10/1/1994
10/1/1999
Date

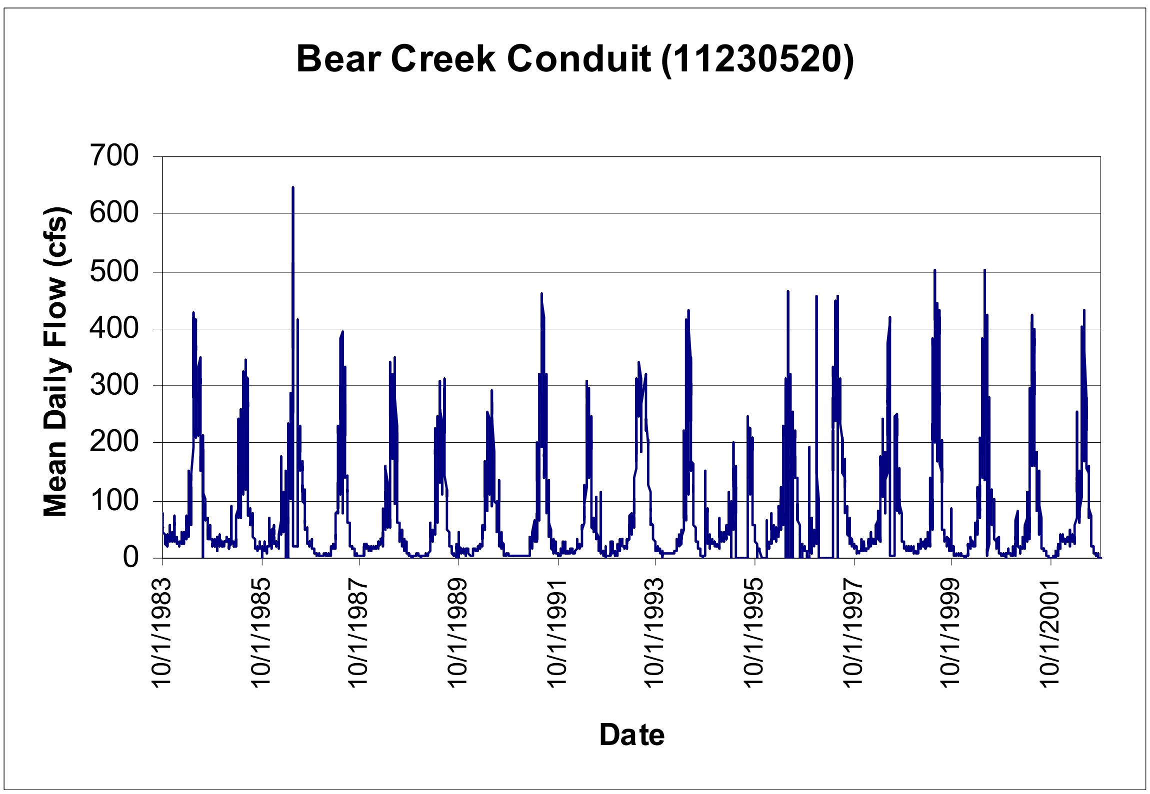

Ward Tunnel Intake (11229500)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
0.1
10/1/1924
10/1/1929
10/1/1934
10/1/1939
10/1/1944
10/1/1949
10/1/1954
10/1/1959
10/1/1964
10/1/1969
10/1/1974
10/1/1979
10/1/1984
10/1/1989
10/1/1994
10/1/1999
Date

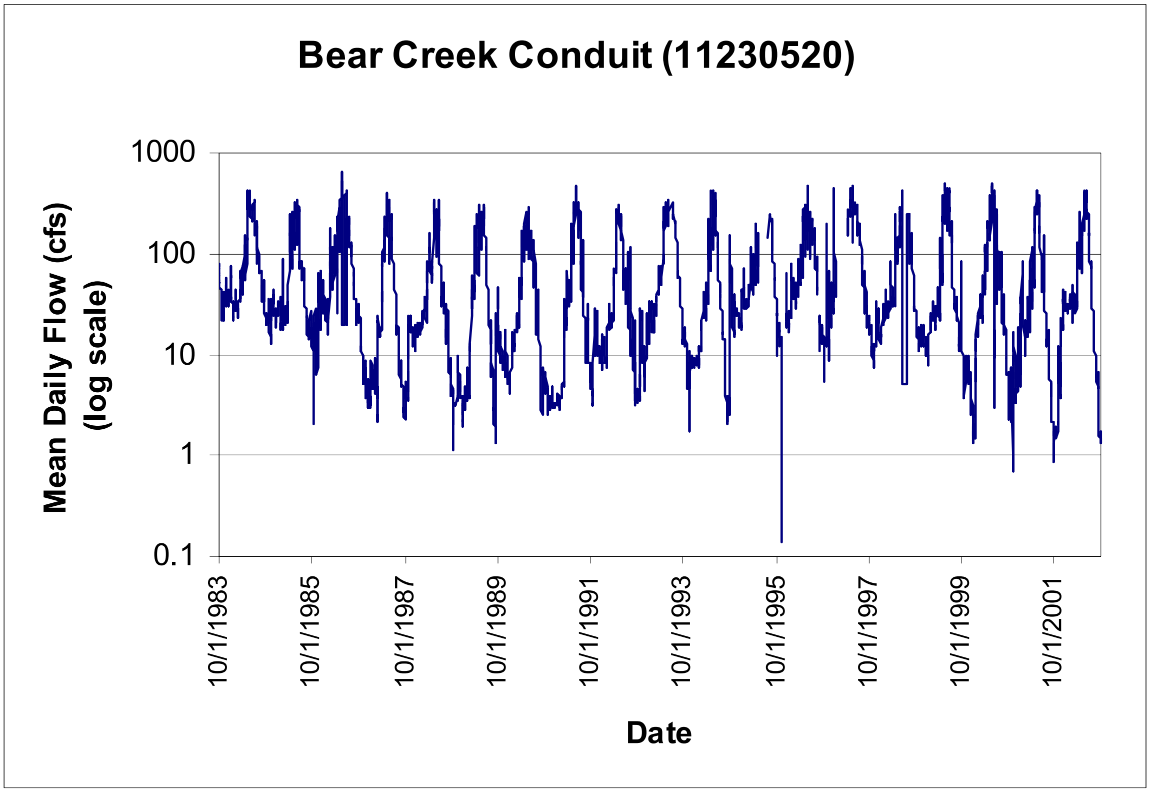

Ward Tunnel Intake (11229500)
Mean Daily Flow (cfs)
1800
1600
1400
1200
1000
800
600
400
200
0
10/1/1983
10/1/1985
10/1/1987
10/1/1989
10/1/1991
10/1/1993
10/1/1995
10/1/1997
10/1/1999
10/1/2001
Date

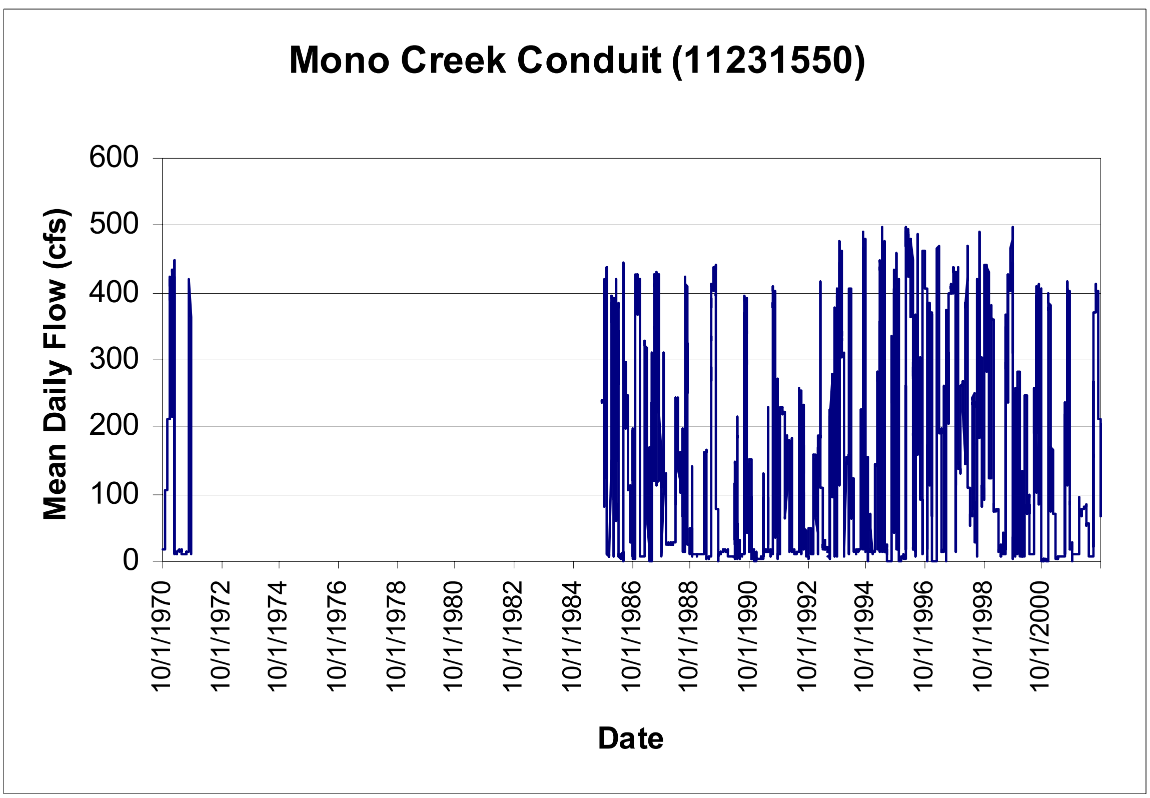

Ward Tunnel Intake (11229500)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
0.1
10/1/1983
10/1/1985
10/1/1987
10/1/1989
10/1/1991
10/1/1993
10/1/1995
10/1/1997
10/1/1999
10/1/2001
Date

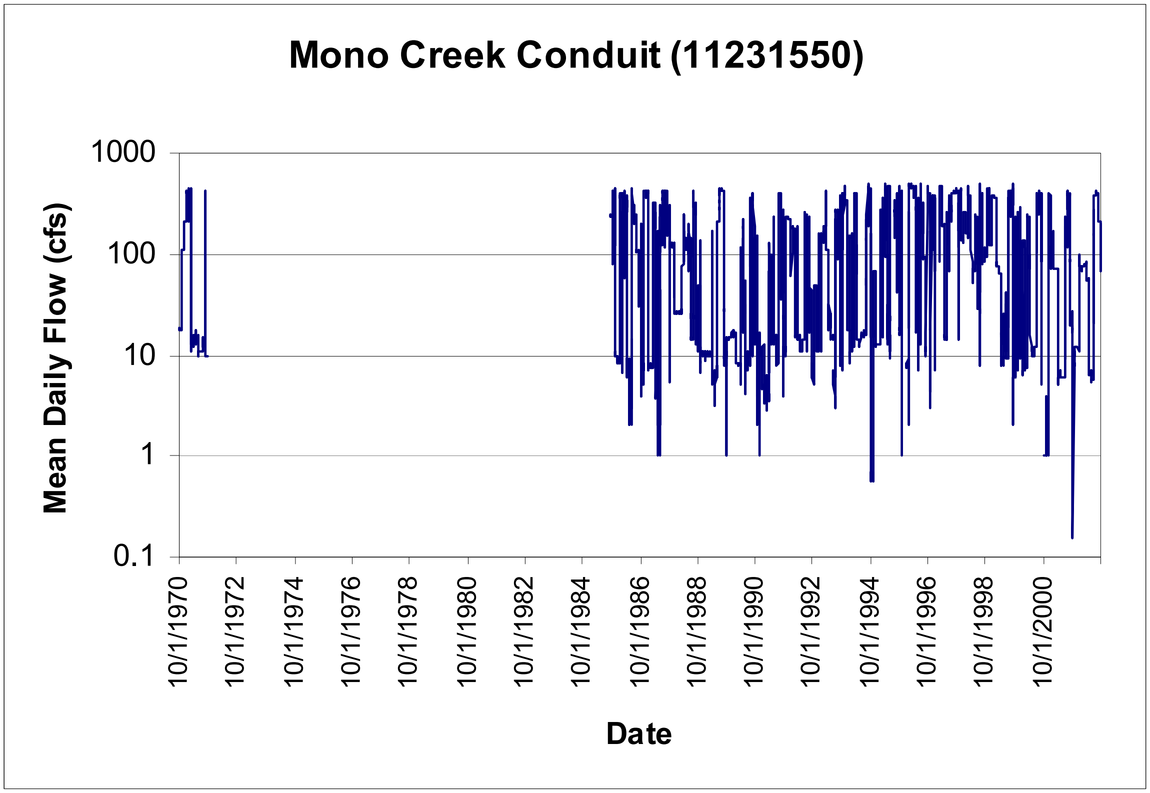

Bear Creek Conduit (11230520)
Mean Daily Flow (cfs)
700
600
500
400
300
200
100
0
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

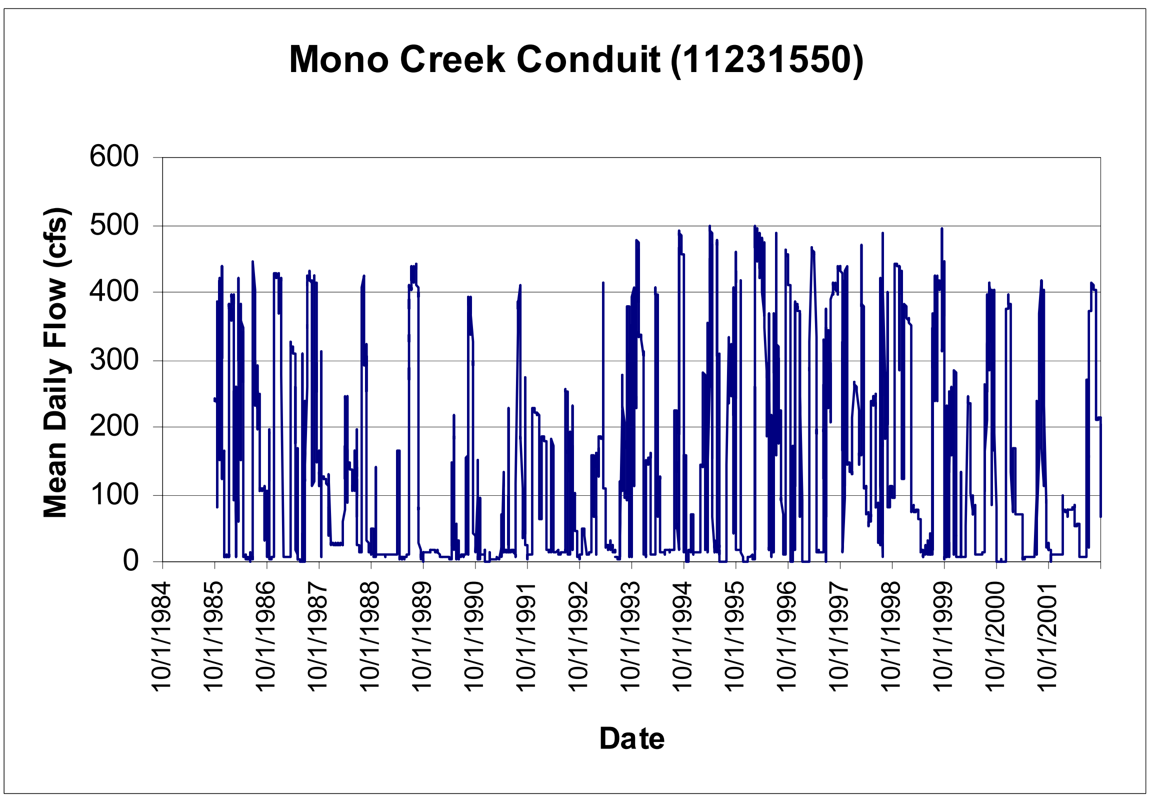

Bear Creek Conduit (11230520)
Mean Daily Flow (cfs) (log scale)
1000
100
10
1
0.1
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

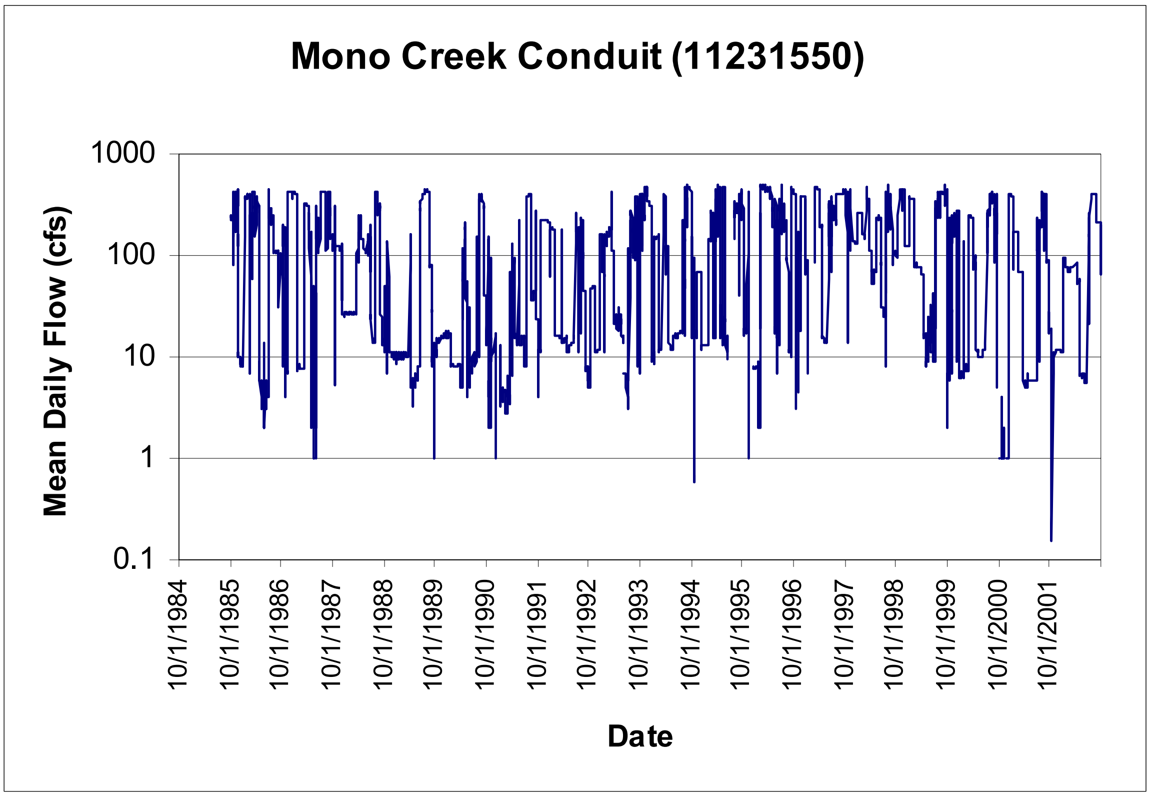

Bear Creek Conduit (11230520)
Mean Daily Flow (cfs)
700
600
500
400
300
200
100
0
10/1/1983
10/1/1985
10/1/1987
10/1/1989
10/1/1991
10/1/1993
10/1/1995
10/1/1997
10/1/1999
10/1/2001
Date

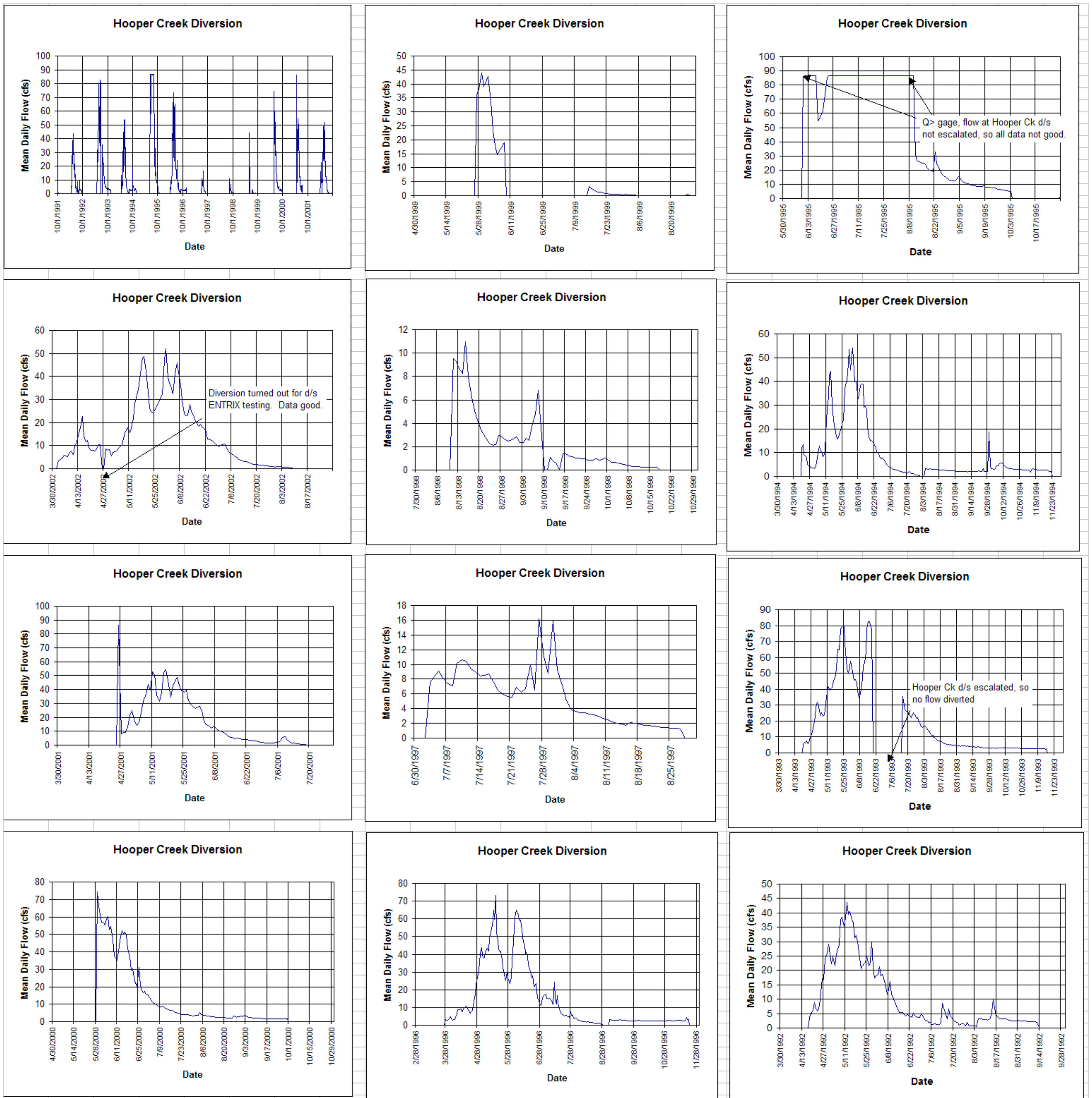

Bear Creek Conduit (11230520)
Mean Daily Flow (cfs) (log scale)
1000
100
10
1
0.1
10/1/1983
10/1/1985
10/1/1987
10/1/1989
10/1/1991
10/1/1993
10/1/1995
10/1/1997
10/1/1999
10/1/2001
Date


Mono Creek Conduit (11231550)
Mean Daily Flow (cfs)
600
500
400
300
200
100
0
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

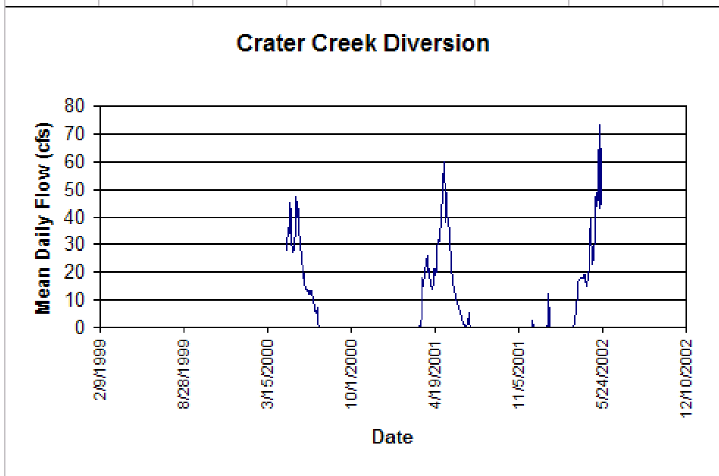

Mono Creek Conduit (11231550)
Mean Daily Flow (cfs)
1000
100
10
1
0.1
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

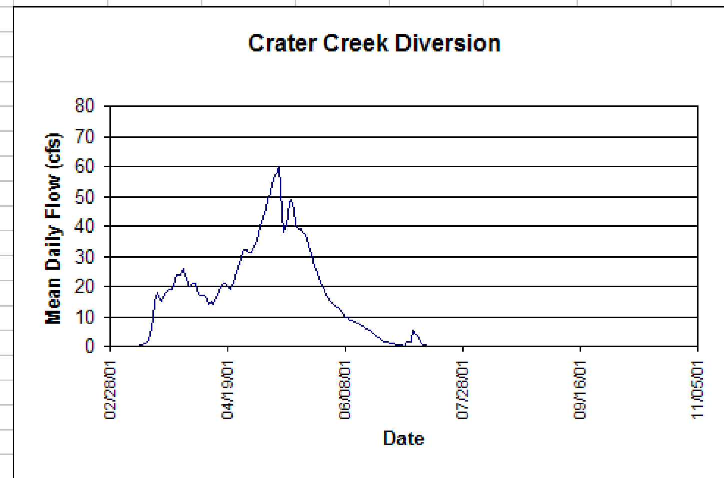

Mono Creek Conduit (11231550)
Mean Daily Flow (cfs)
600
500
400
300
200
100
0
10/1/1984
10/1/1985
10/1/1986
10/1/1987
10/1/1988
10/1/1989
10/1/1990
10/1/1991
10/1/1992
10/1/1993
10/1/1994
10/1/1995
10/1/1996
10/1/1997
10/1/1998
10/1/1999
10/1/2000
10/1/2001
Date

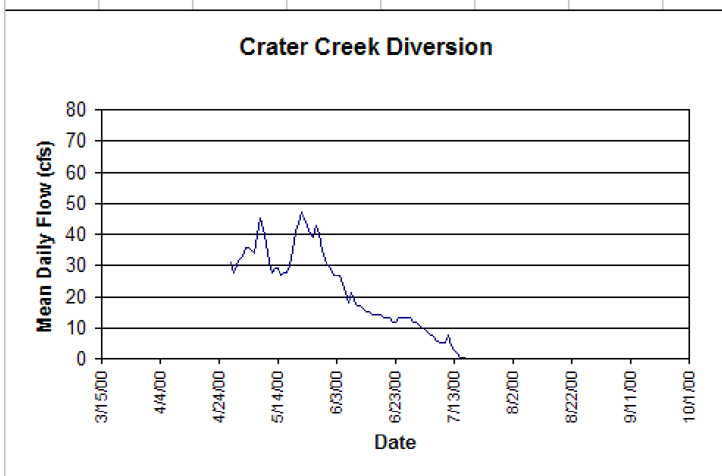

Mono Creek Conduit (11231550)
1000
100
10
1
0.1
Mean Daily Flow (cfs)
10/1/1984
10/1/1985
10/1/1986
10/1/1987
10/1/1988
10/1/1989
10/1/1990
10/1/1991
10/1/1992
10/1/1993
10/1/1994
10/1/1995
10/1/1996
10/1/1997
10/1/1998
10/1/1999
10/1/2000
10/1/2001
Date

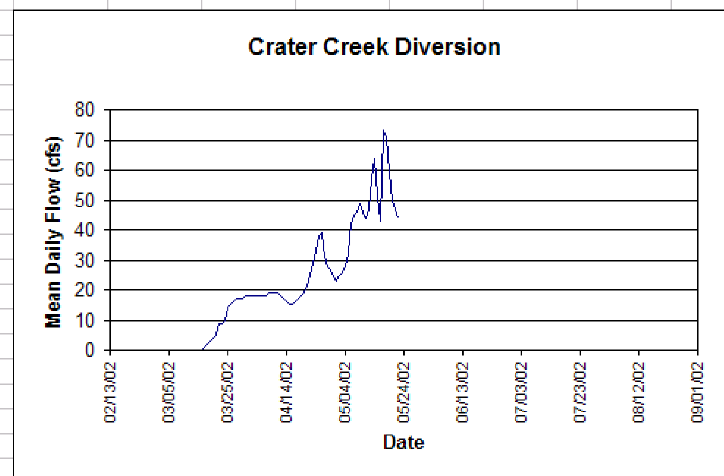


DISCLAIMER: All flows estimated and not verified by USGS

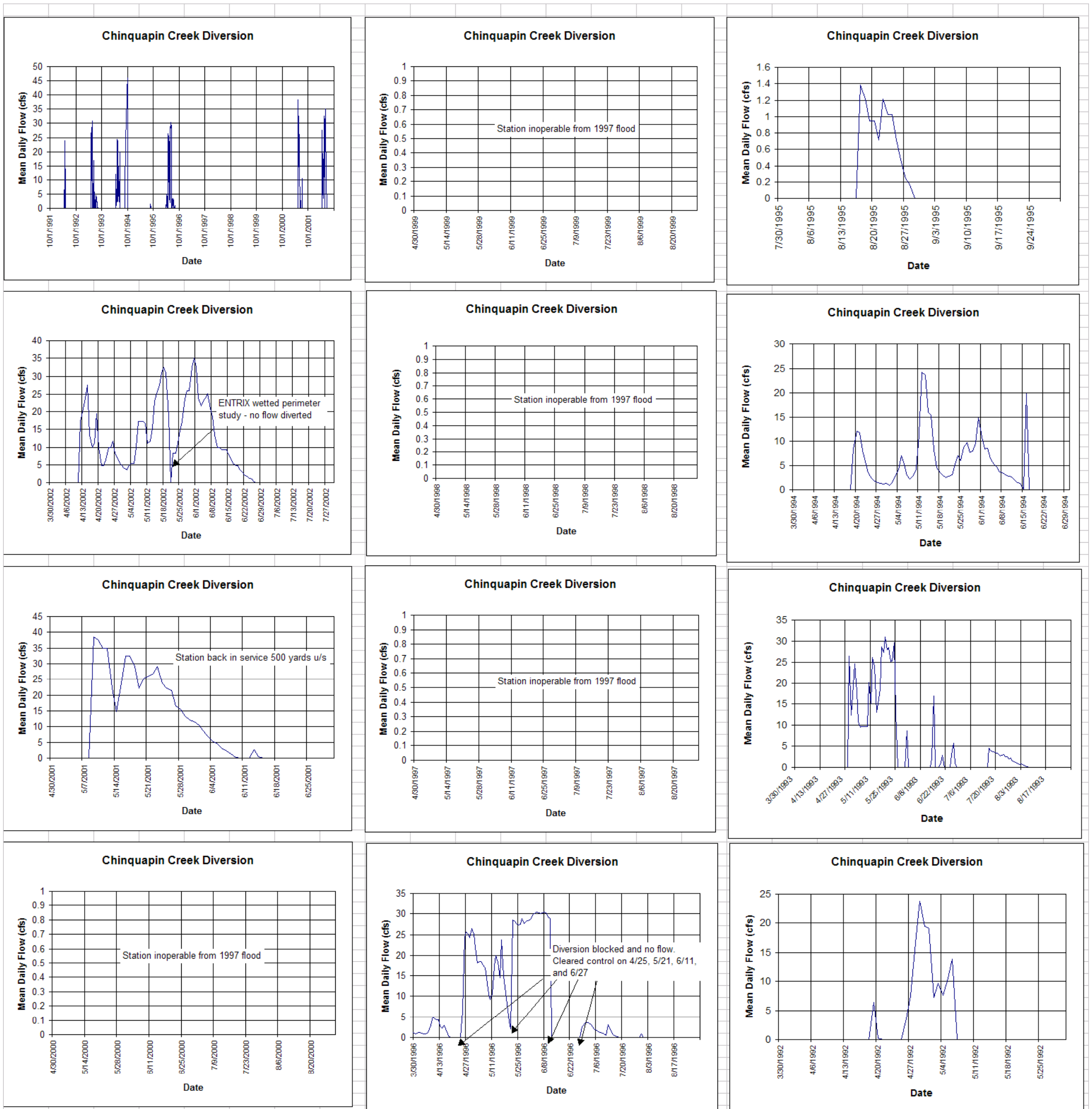




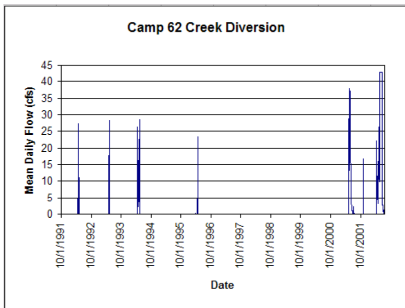


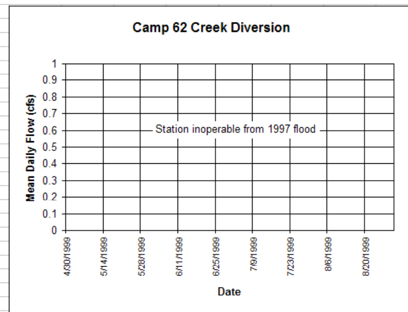


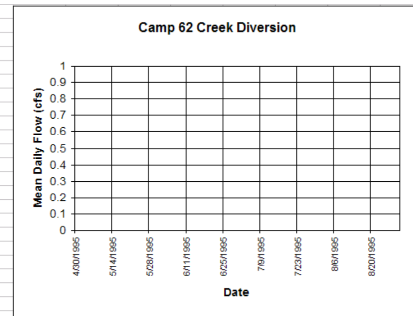
DISCLAIMER: all flows estimated and not verified by USGS

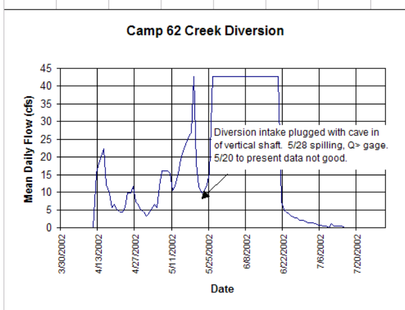


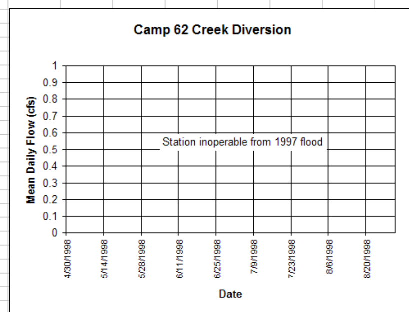
DISCLAIMER: All flows estimated and not verified by USGS

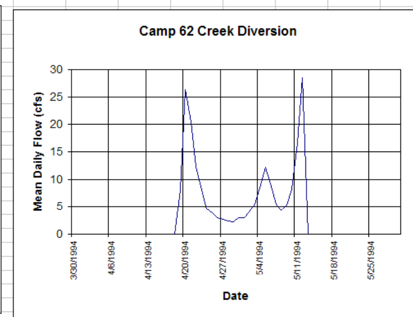


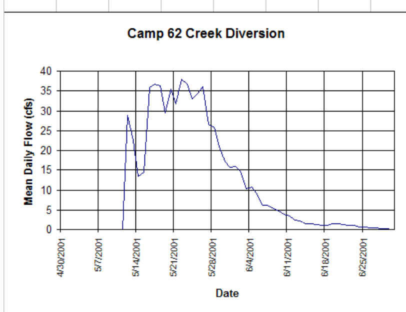


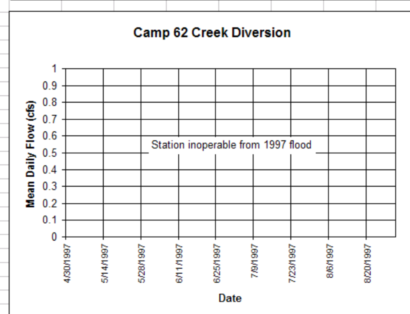


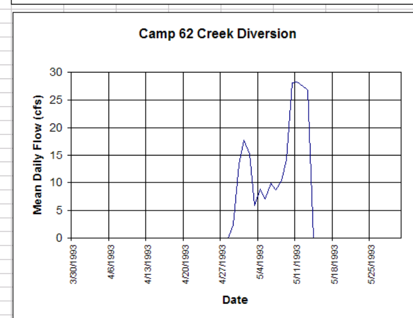


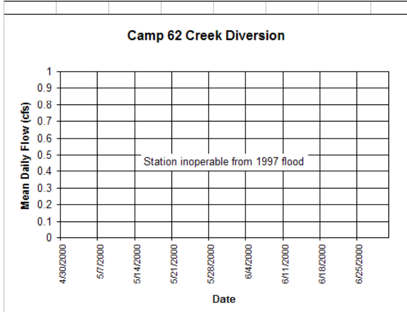


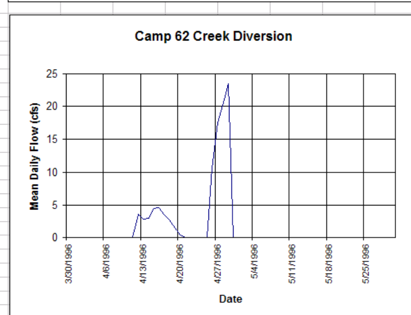


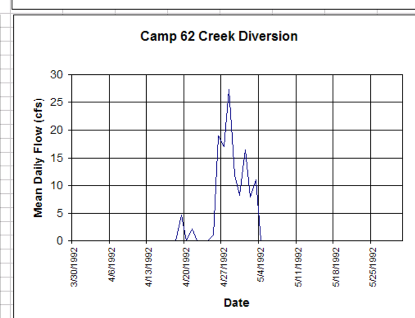




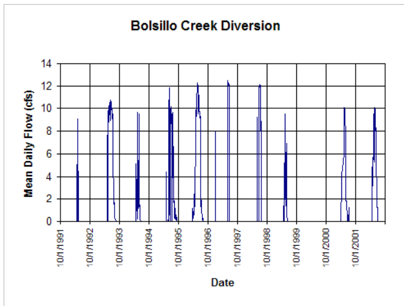


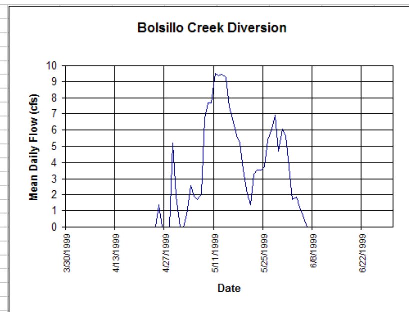


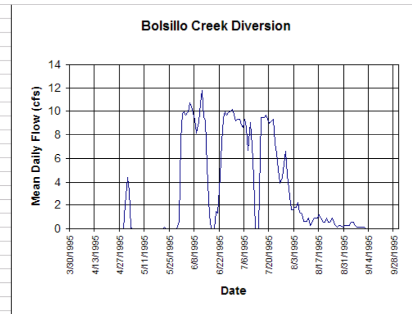


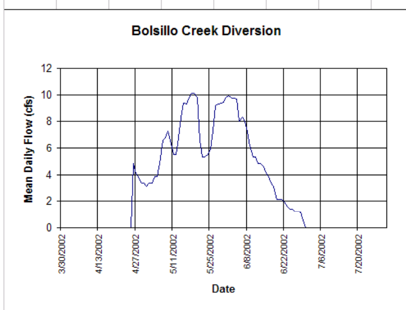


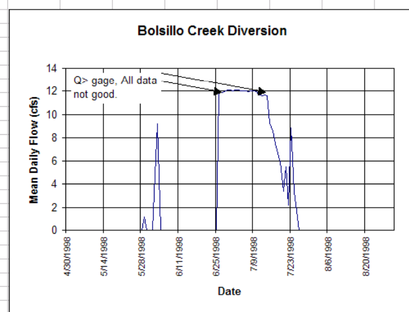
DISCLAIMER: All flows estimated and not verified by USGS

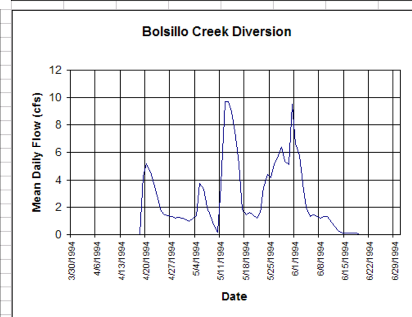


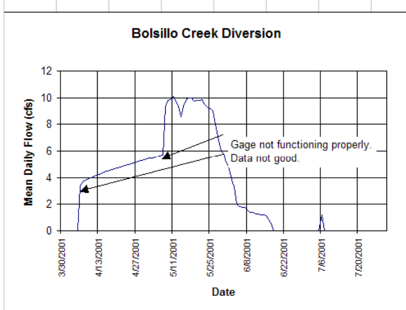


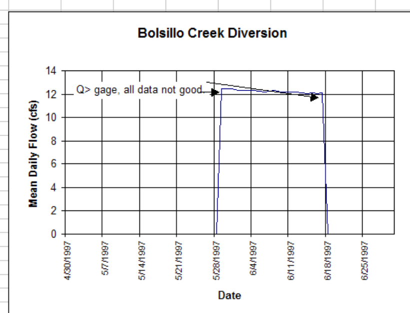


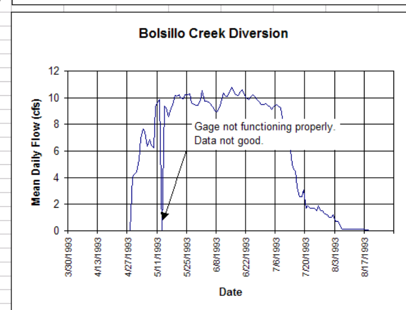


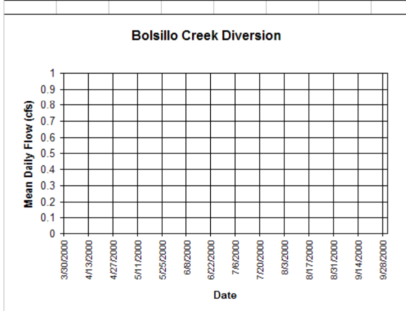


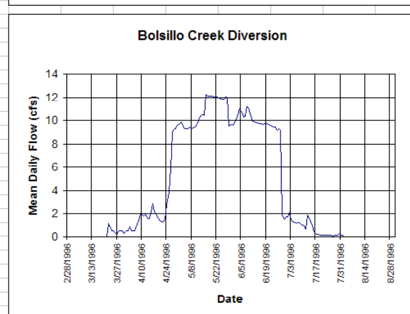


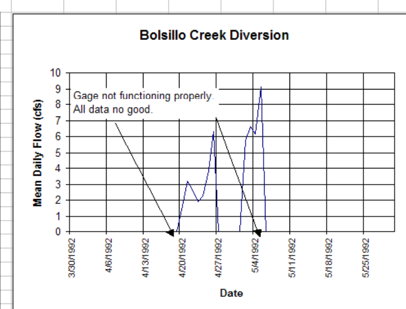




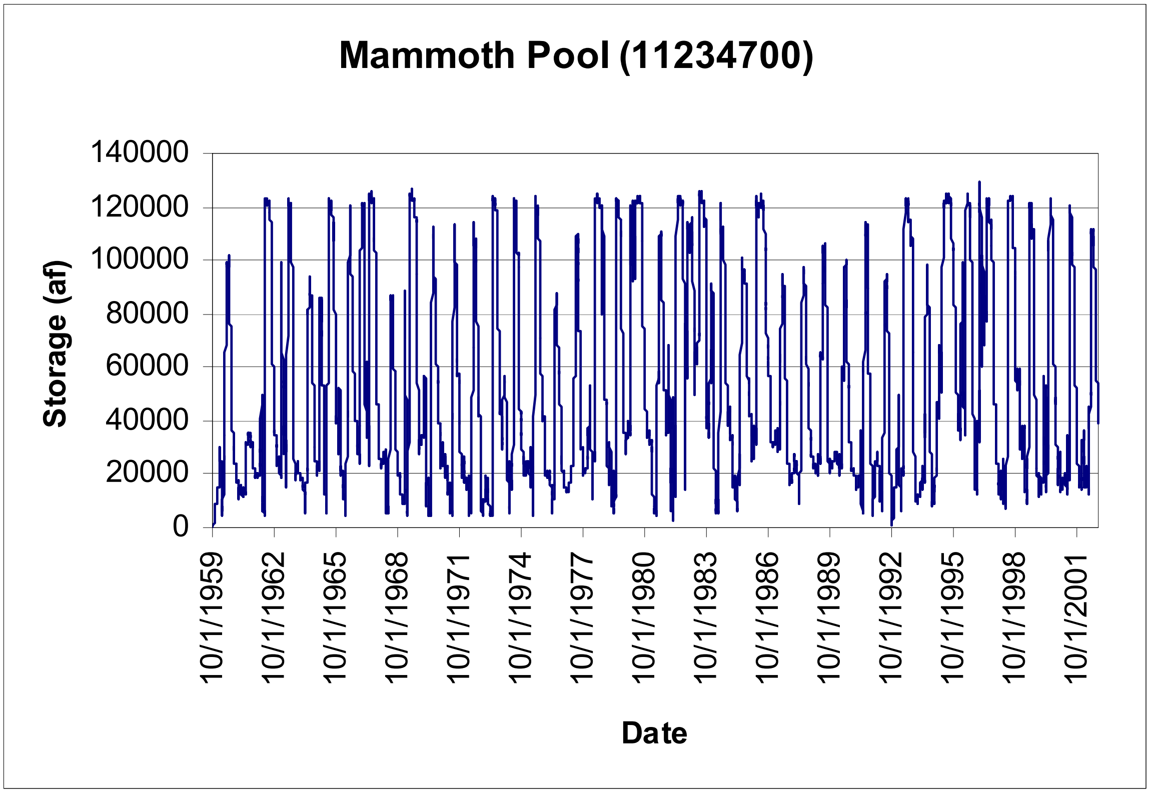


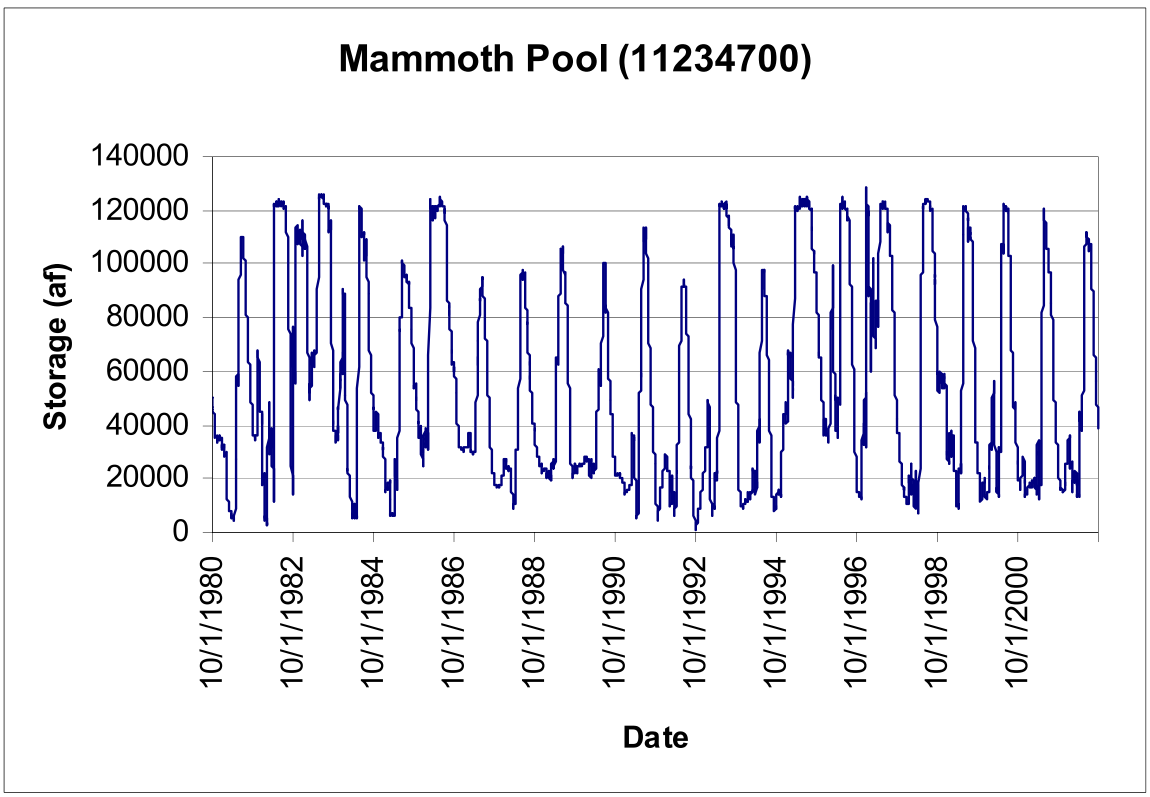


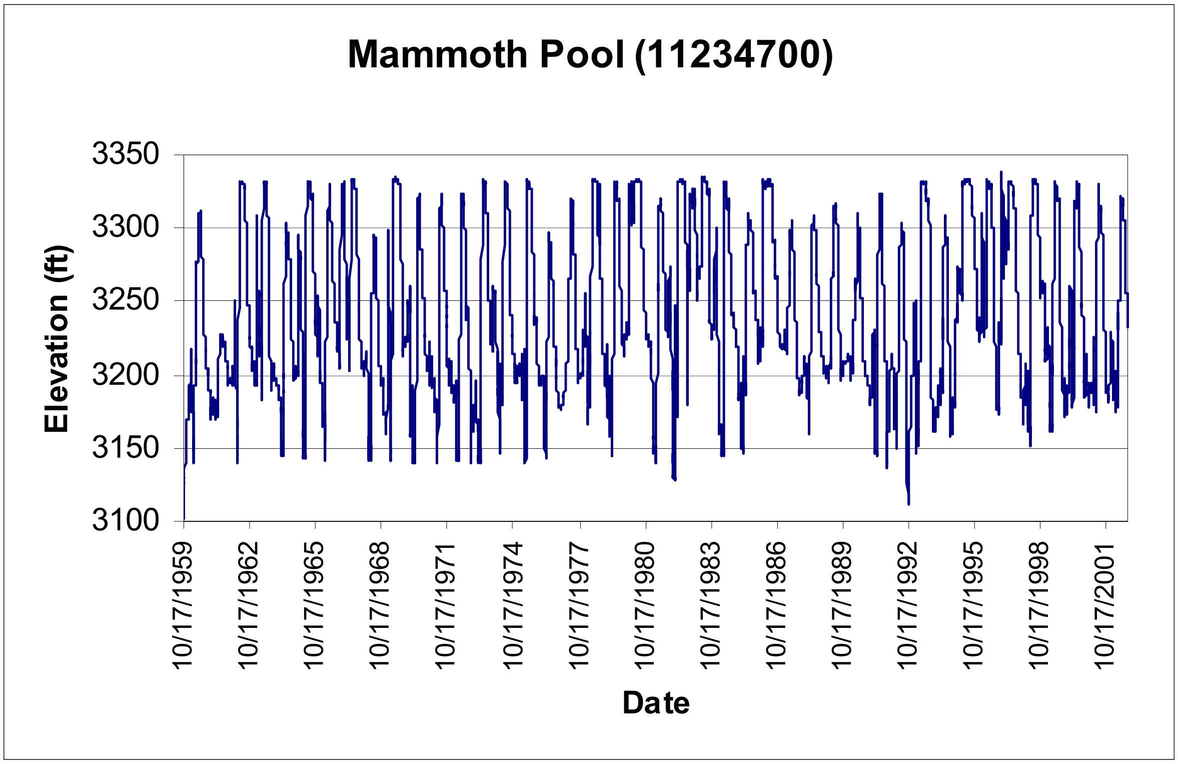


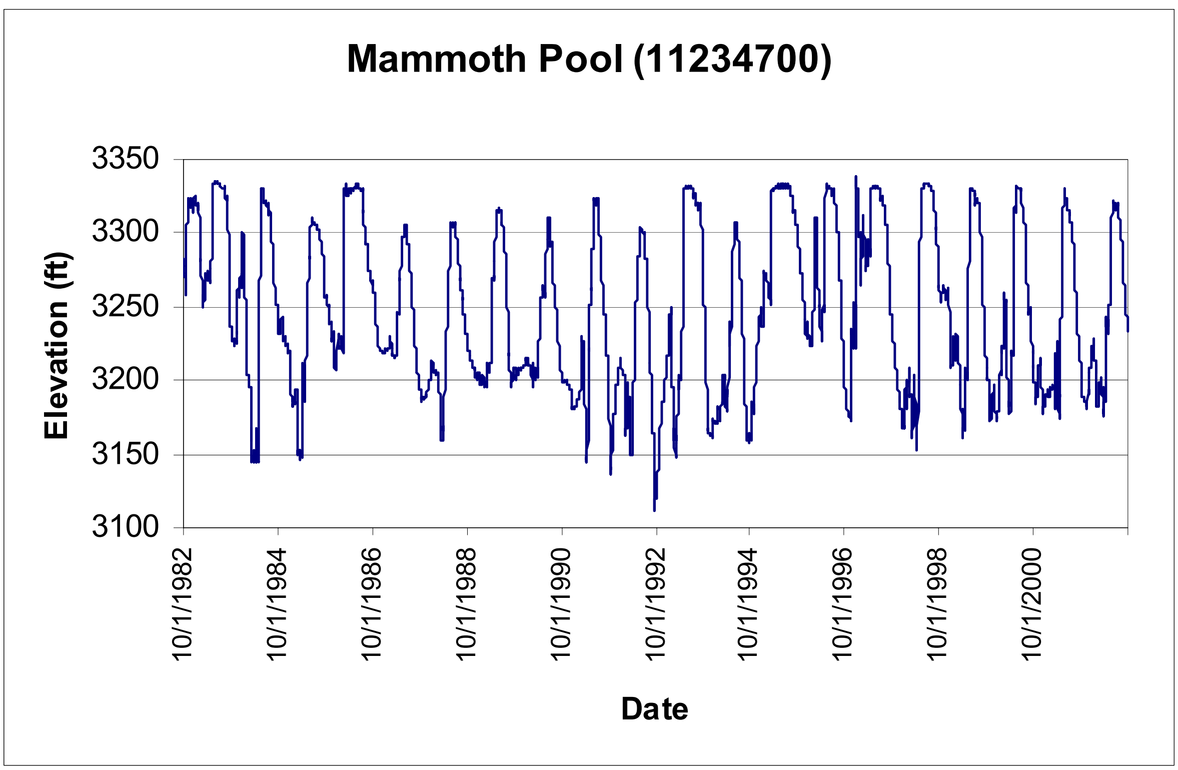


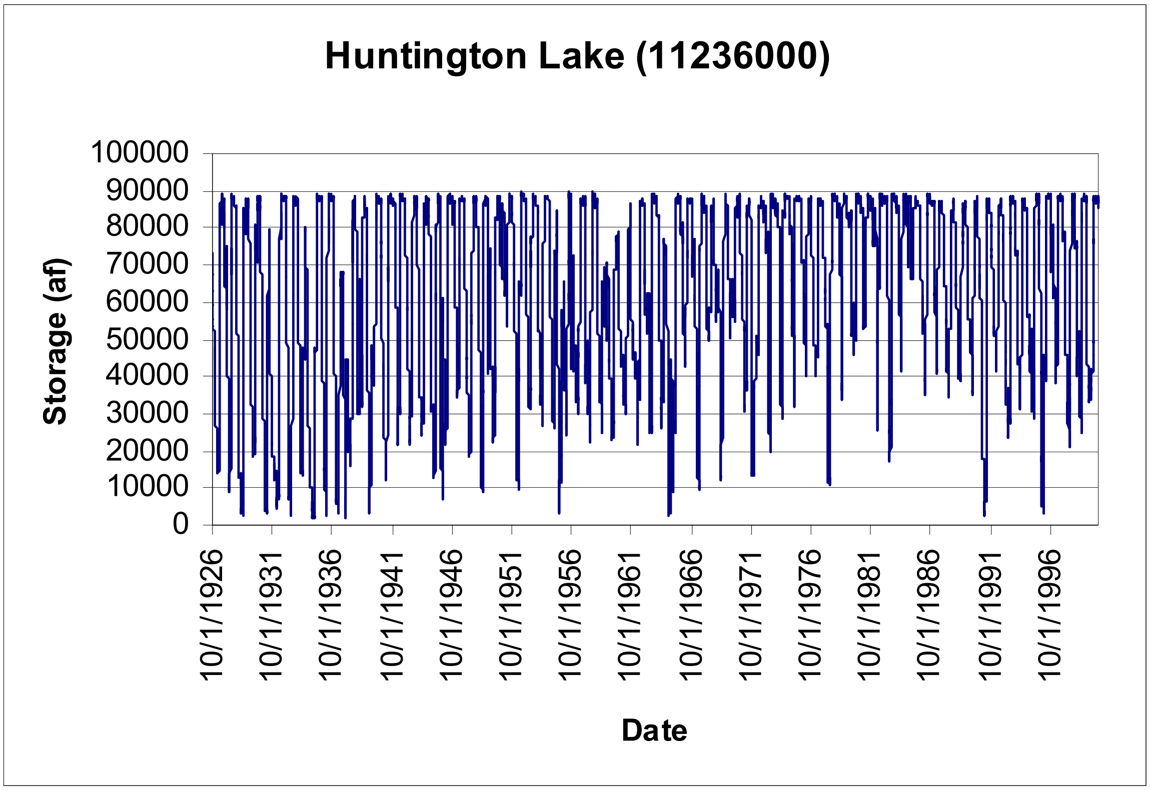
DISCLAIMER: All flows estimated and not verified by USGS

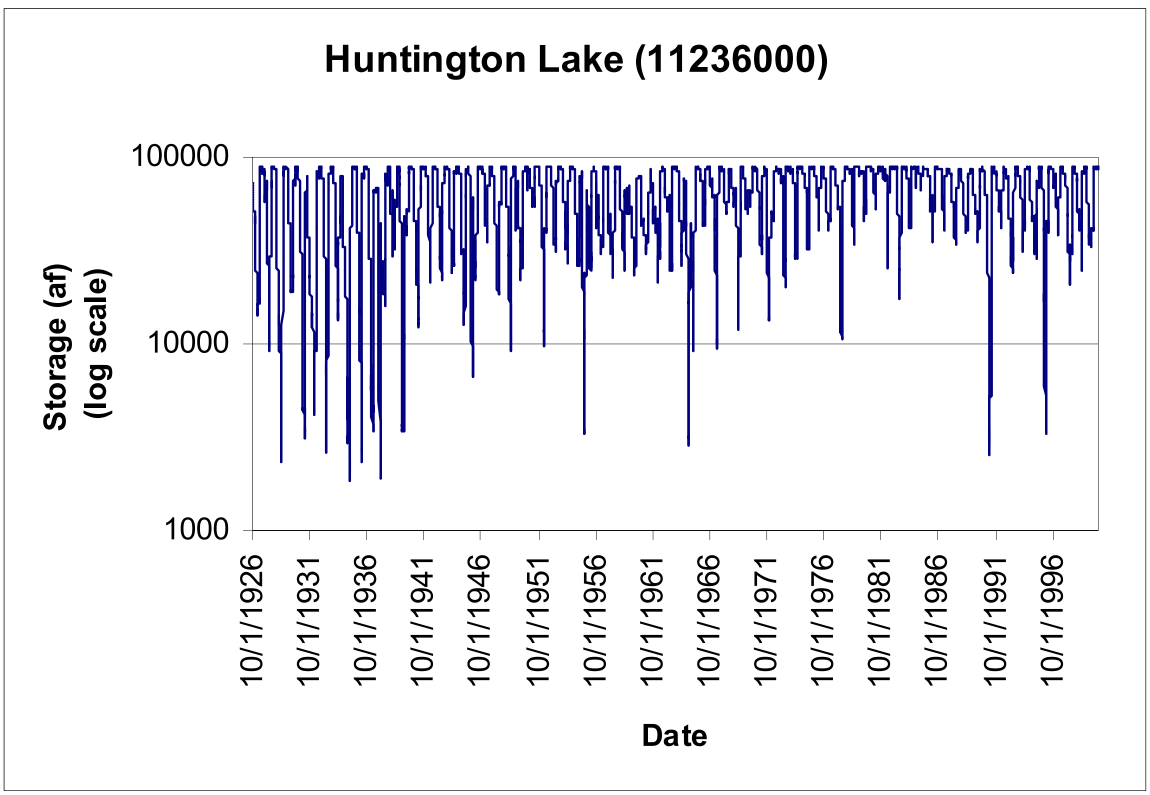

Mammoth Pool (11234700)
Storage (af)
140000
120000
100000
80000
60000
40000
20000
0
10/1/1959
10/1/1962
10/1/1965
10/1/1968
10/1/1971
10/1/1974
10/1/1977
10/1/1980
10/1/1983
10/1/1986
10/1/1989
10/1/1992
10/1/1995
10/1/1998
10/1/2001
Date

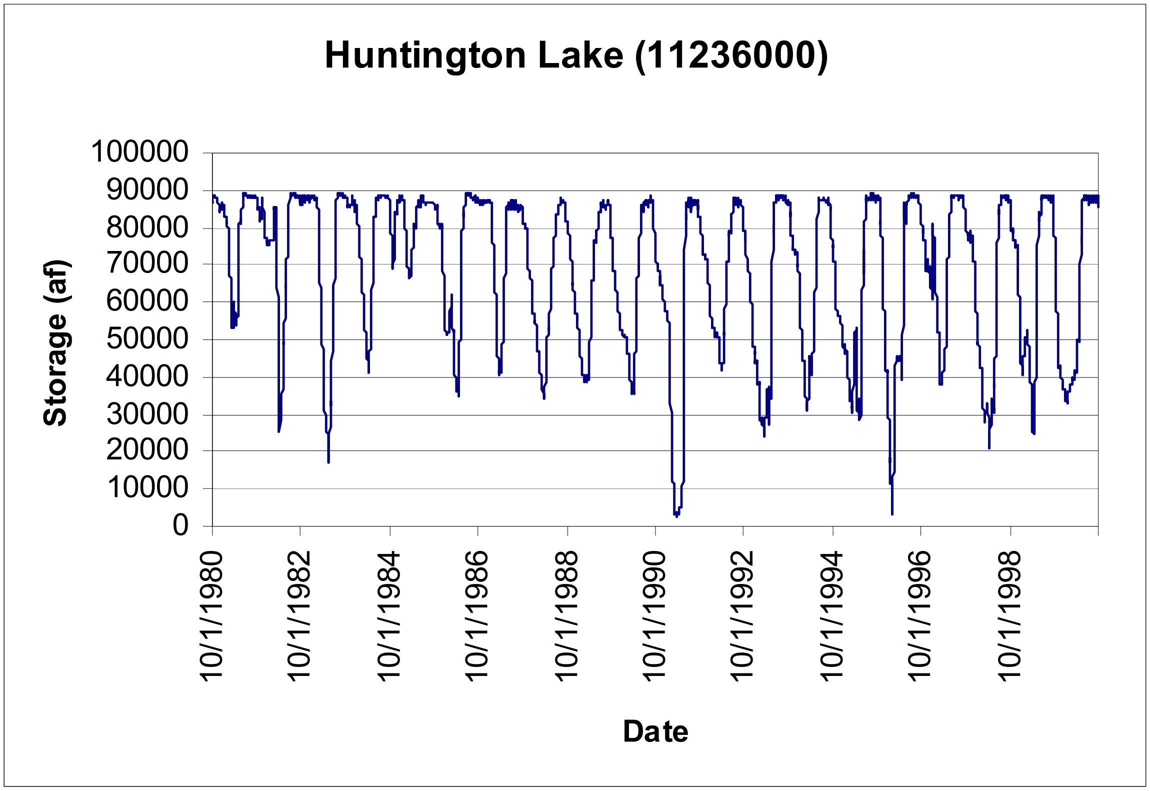

Mammoth Pool (11234700)
Storage (af)
140000
120000
100000
80000
60000
40000
20000
0
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

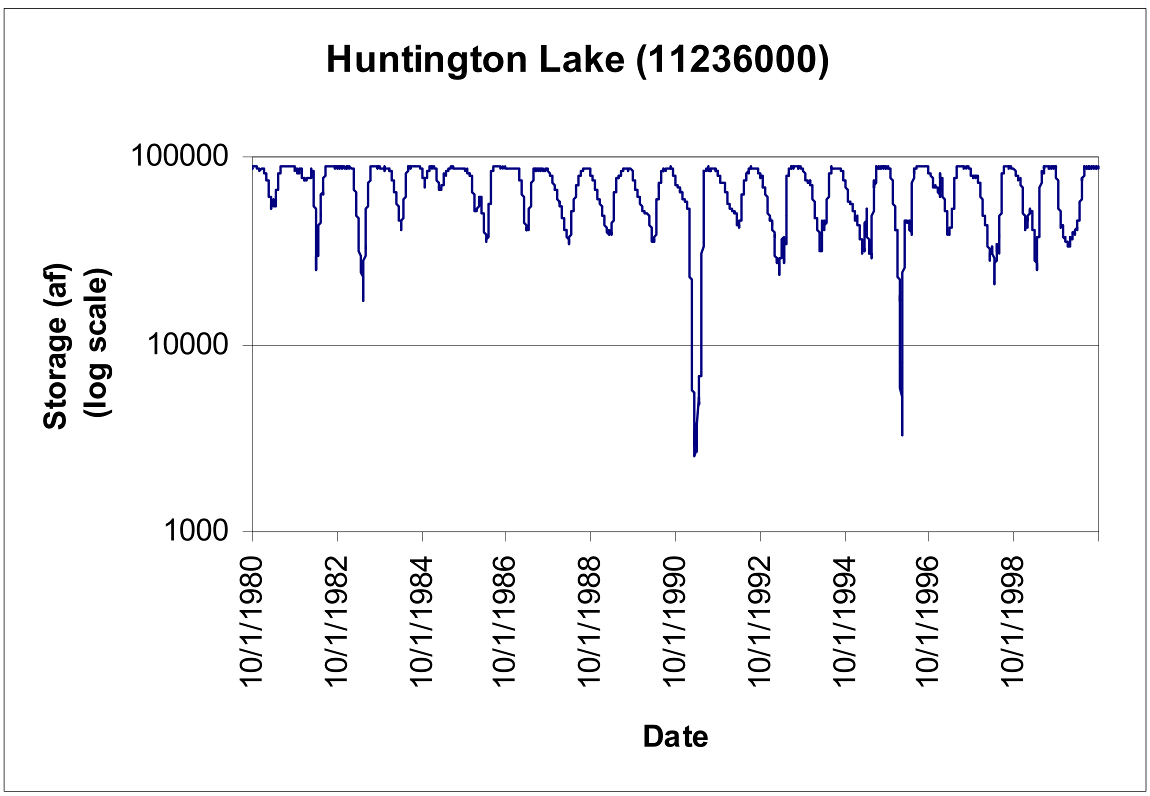

Mammoth Pool (11234700)
Elevation (ft)
3350
3300
3250
3200
3150
3100
10/17/1959
10/17/1962
10/17/1965
10/17/1968
10/17/1971
10/17/1974
10/17/1977
10/17/1980
10/17/1983
10/17/1986
10/17/1989
10/17/1992
10/17/1995
10/17/1998
10/17/2001
Date

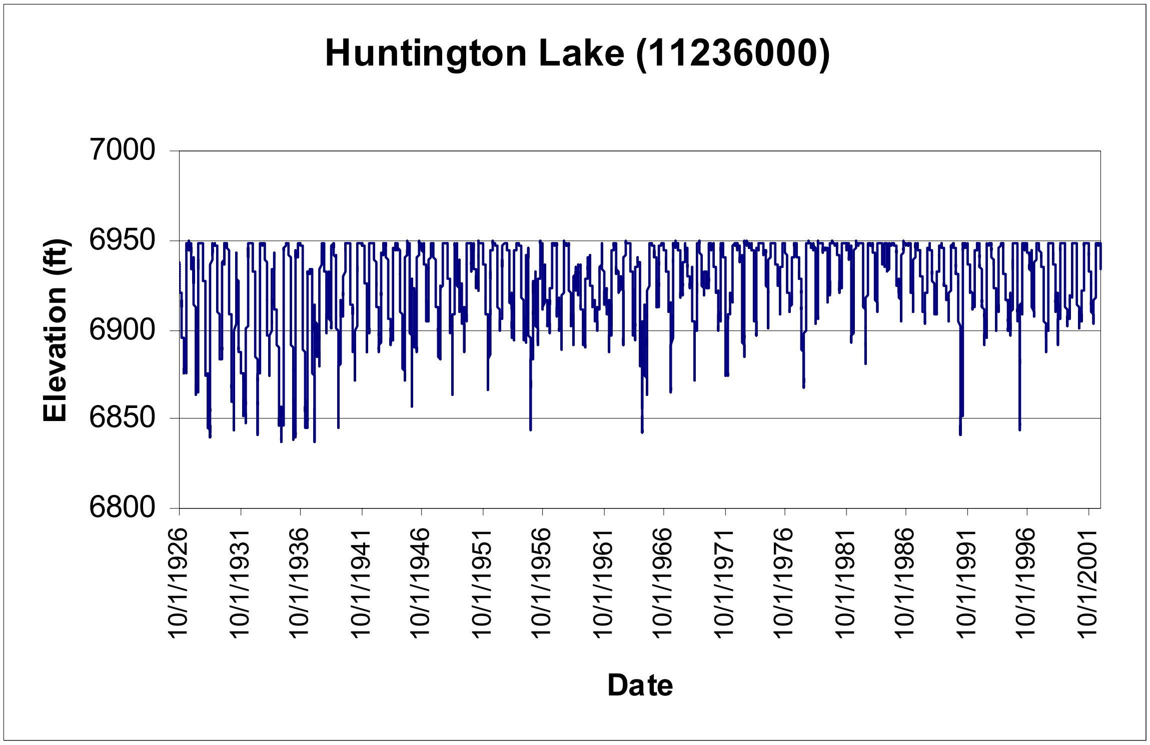

Mammoth Pool (11234700)
Elevation (ft)
3350
3300
3250
3200
3150
3100
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

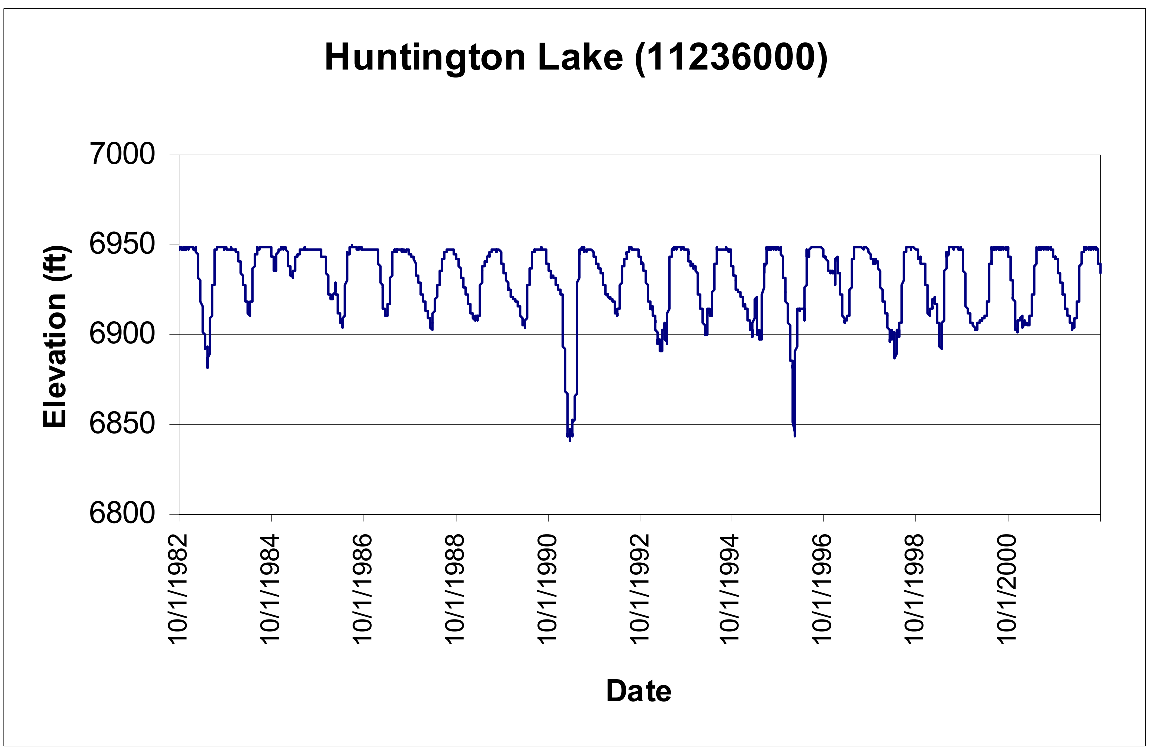

Huntington Lake (11236000)
Storage (af)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
10/1/1926
10/1/1931
10/1/1936
10/1/1941
10/1/1946
10/1/1951
10/1/1956
10/1/1961
10/1/1966
10/1/1971
10/1/1976
10/1/1981
10/1/1986
10/1/1991
10/1/1996
Date

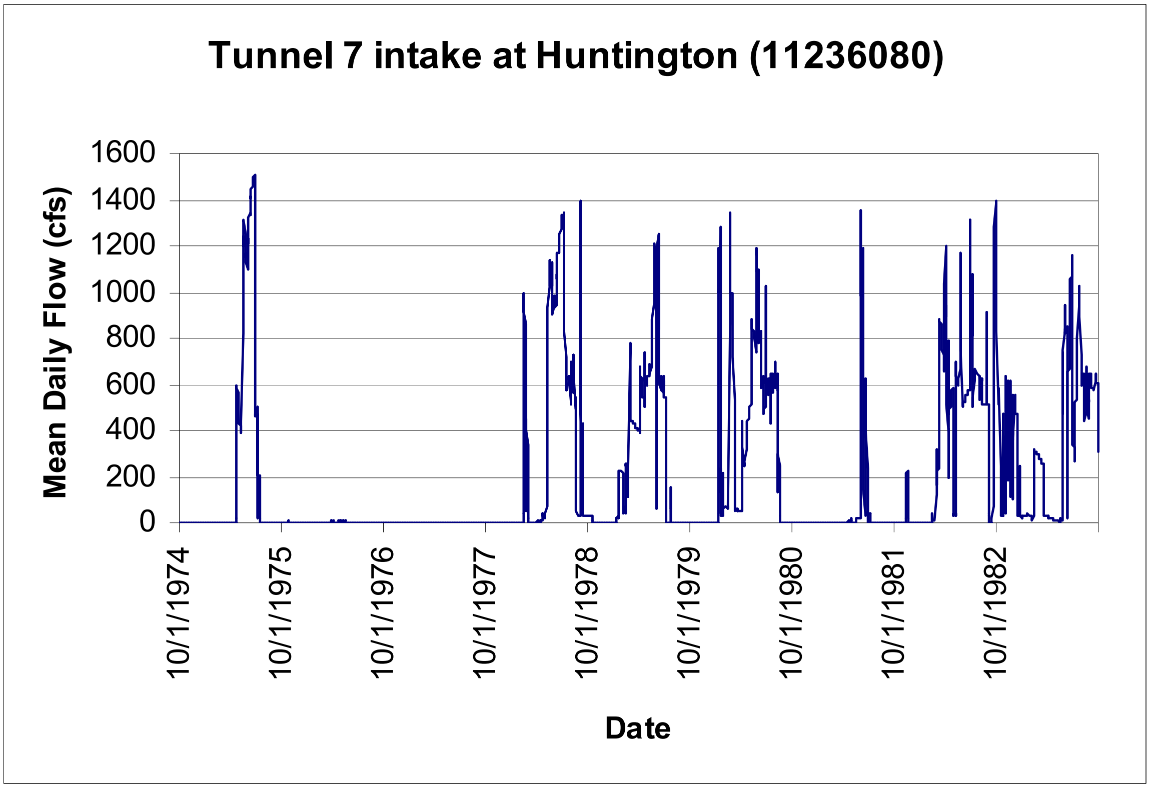

Huntington Lake (11236000)
Storage (af)
(log scale)
100000
10000
1000
10/1/1926
10/1/1931
10/1/1936
10/1/1941
10/1/1946
10/1/1951
10/1/1956
10/1/1961
10/1/1966
10/1/1971
10/1/1976
10/1/1981
10/1/1986
10/1/1991
10/1/1996
Date

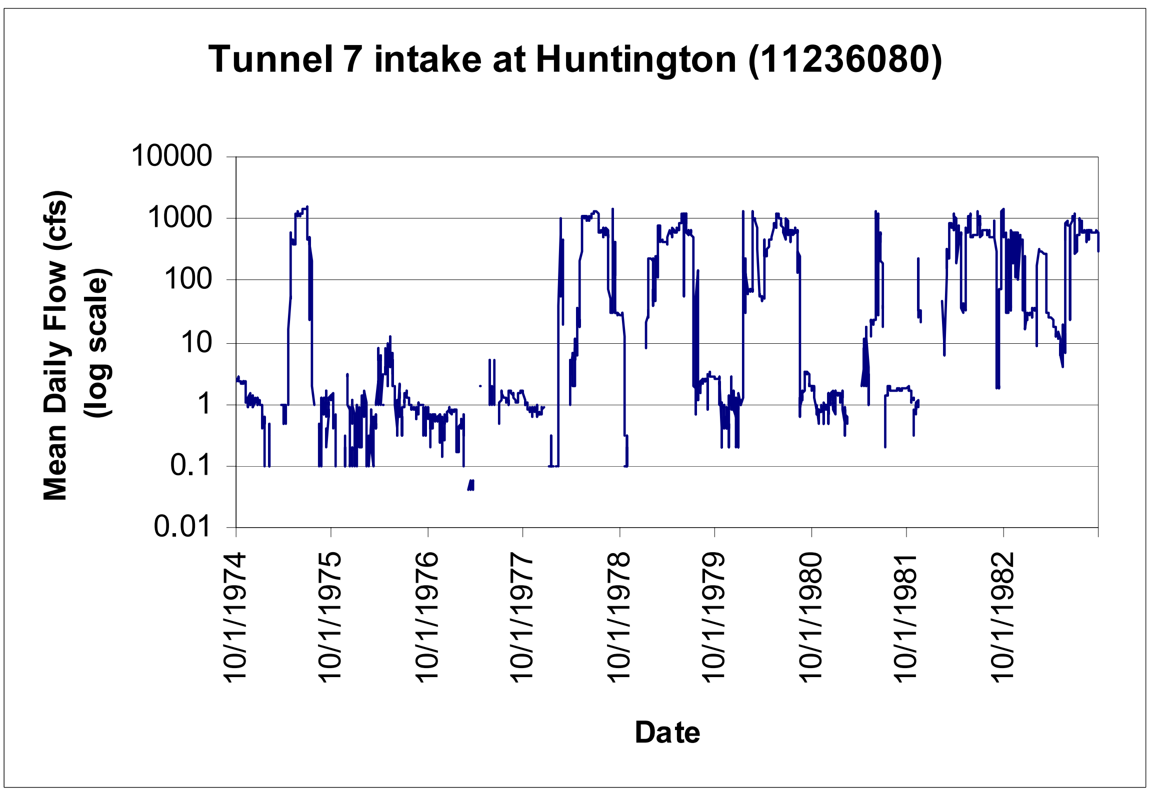

Huntington Lake (11236000)
Storage (af)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
Date

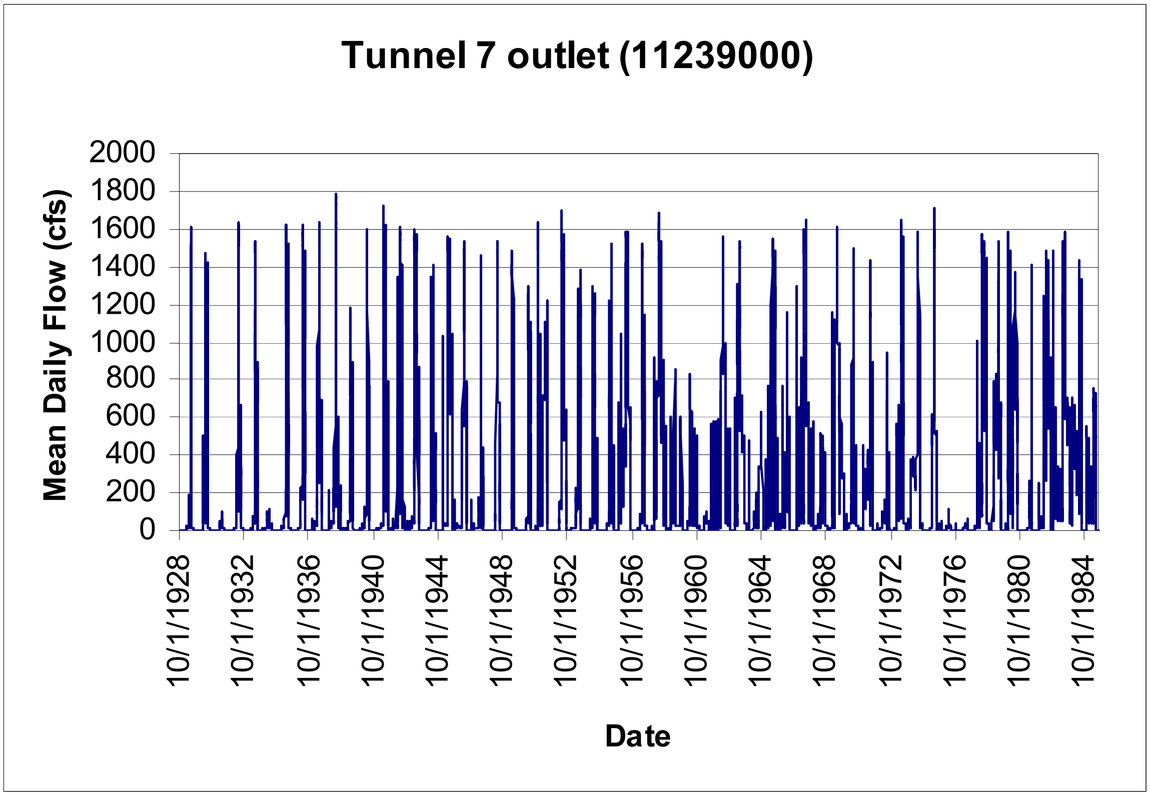

Huntington Lake (11236000)
Storage (af) (log scale)
100000
10000
1000
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
Date

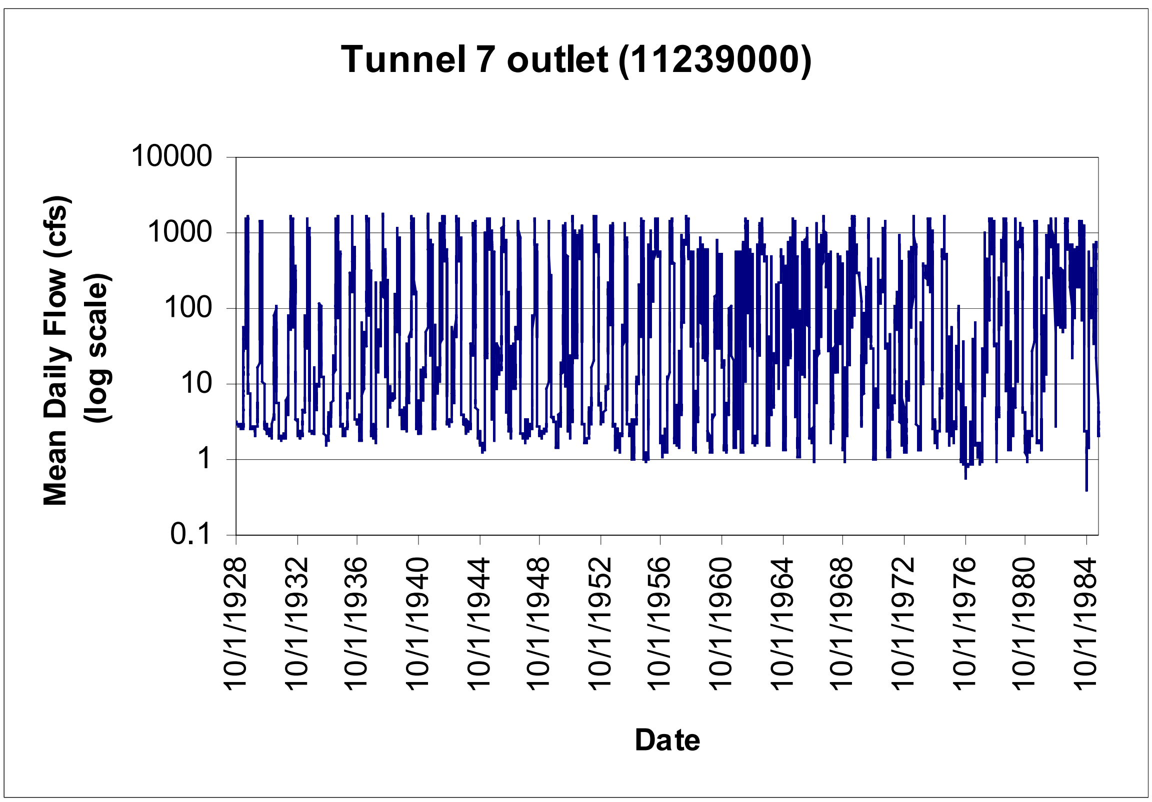

Huntington Lake (11236000)
Elevation (ft)
7000
6950
6900
6850
6800
10/1/1926
10/1/1931
10/1/1936
10/1/1941
10/1/1946
10/1/1951
10/1/1956
10/1/1961
10/1/1966
10/1/1971
10/1/1976
10/1/1981
10/1/1986
10/1/1991
10/1/1996
10/1/2001
Date

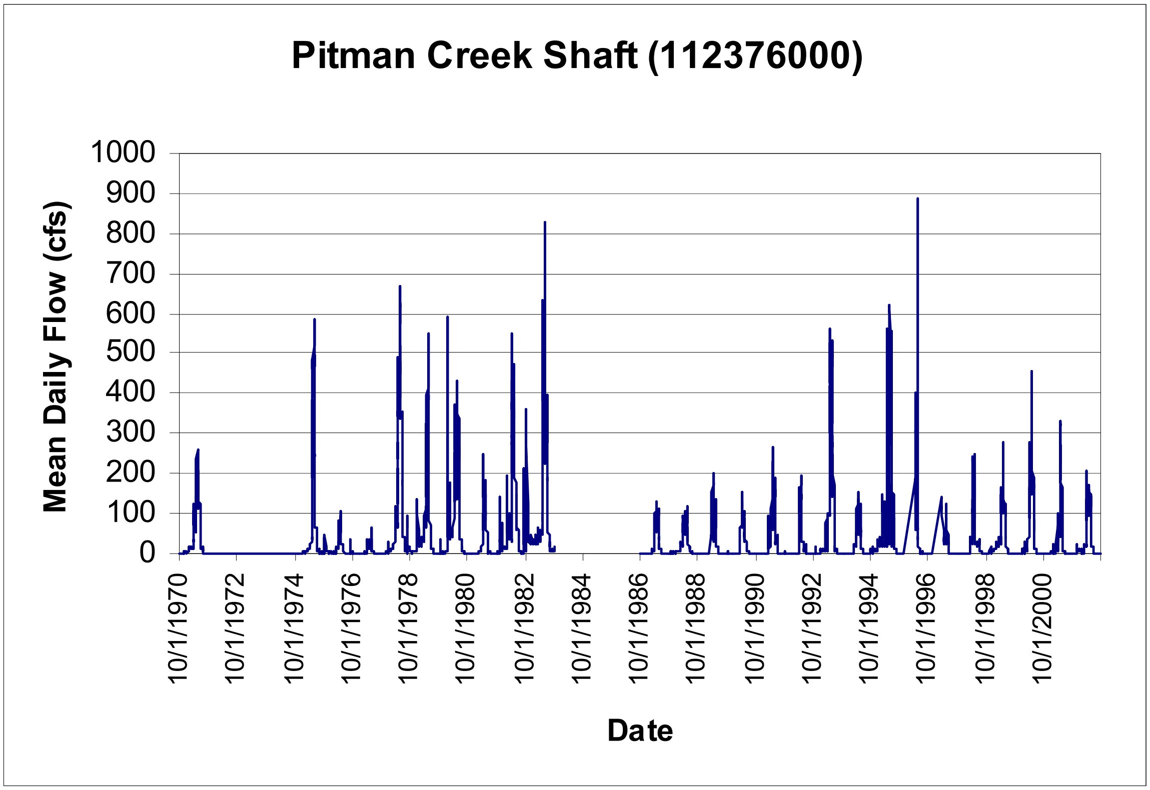

Huntington Lake (11236000)
Elevation (ft)
7000
6950
6900
6850
6800
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

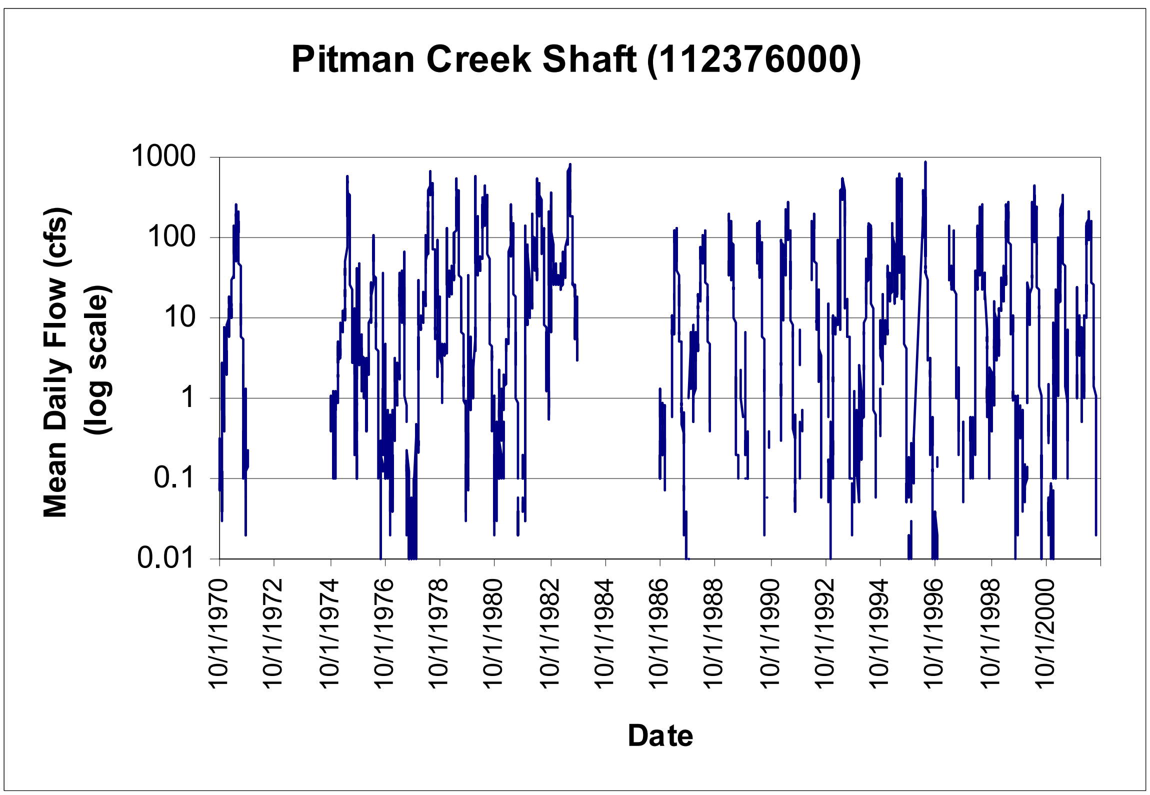

Tunnel 7 intake at Huntington (11236080)
Mean Daily Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
10/1/1974
10/1/1975
10/1/1976
10/1/1977
10/1/1978
10/1/1979
10/1/1980
10/1/1981
10/1/1982
Date

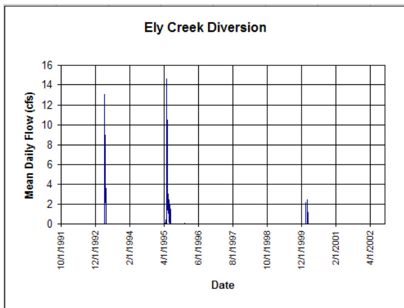

Tunnel 7 intake at Huntington (11236080)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
0.1
0.01
10/1/1974
10/1/1975
10/1/1976
10/1/1977
10/1/1978
10/1/1979
10/1/1980
10/1/1981
10/1/1982
Date

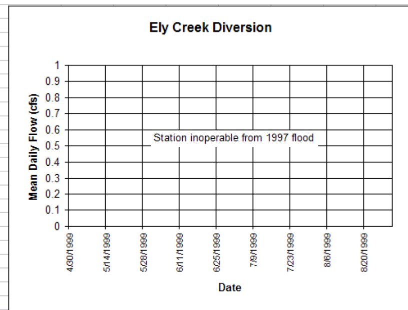

Tunnel 7 outlet (11239000)
Mean Daily Flow (cfs)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
10/1/1928
10/1/1932
10/1/1936
10/1/1940
10/1/1944
10/1/1948
10/1/1952
10/1/1956
10/1/1960
10/1/1964
10/1/1968
10/1/1972
10/1/1976
10/1/1980
10/1/1984
Date

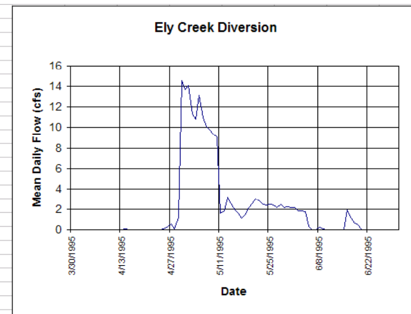

Tunnel 7 outlet (11239000)
Mean Daily Flow (cfs) (log scale)
10000
1000
100
10
1
0.1
10/1/1928
10/1/1932
10/1/1936
10/1/1940
10/1/1944
10/1/1948
10/1/1952
10/1/1956
10/1/1960
10/1/1964
10/1/1968
10/1/1972
10/1/1976
10/1/1980
10/1/1984
Date

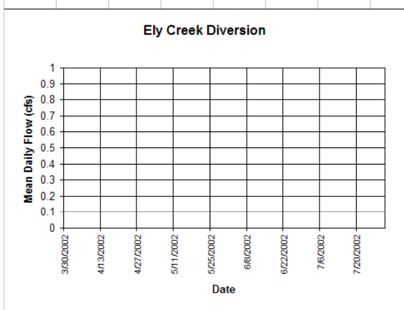

Pitman Creek Shaft (112376000)
Mean Daily Flow (cfs)
1000
900
800
700
600
500
400
300
200
100
0
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

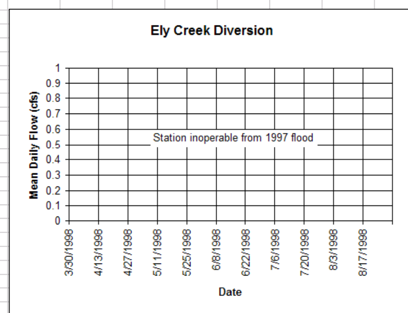

Pitman Creek Shaft (112376000)
Mean Daily Flow (cfs)
(log scale)
1000
100
10
1
0.1
0.01
10/1/1970
10/1/1972
10/1/1974
10/1/1976
10/1/1978
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

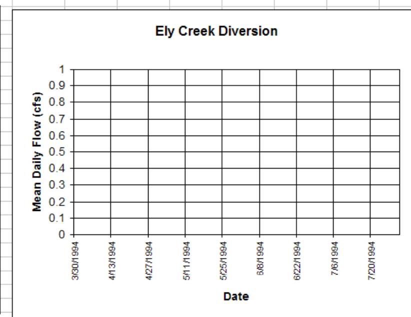


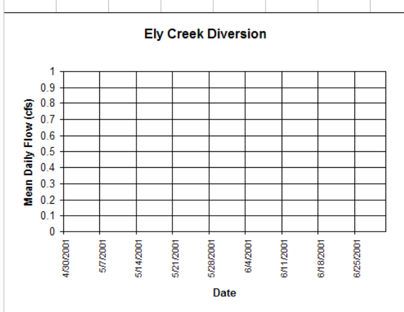


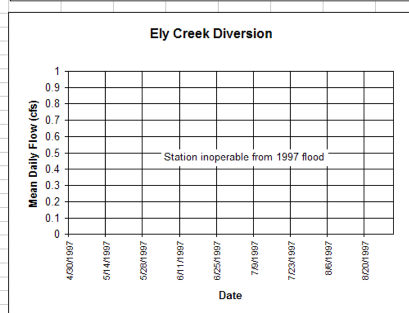


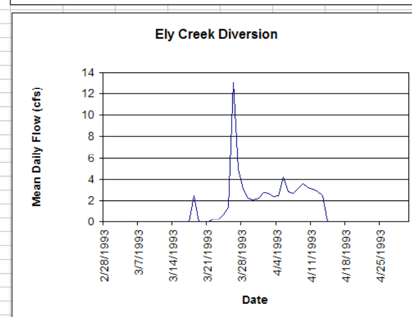


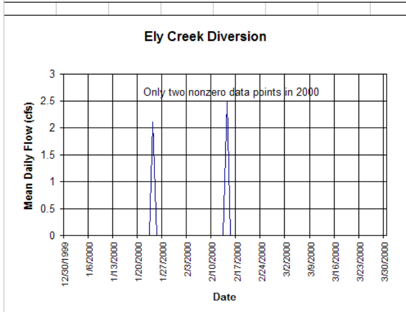


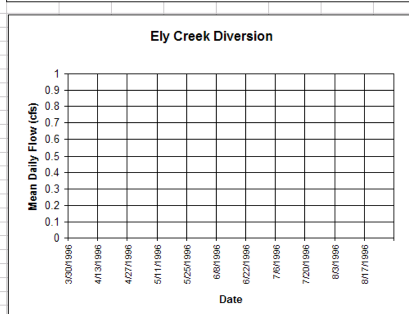


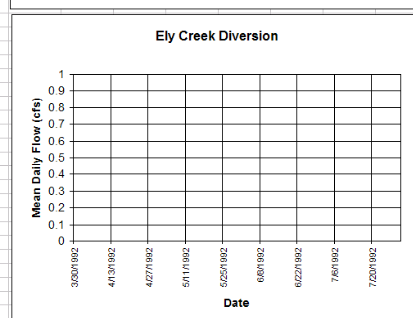




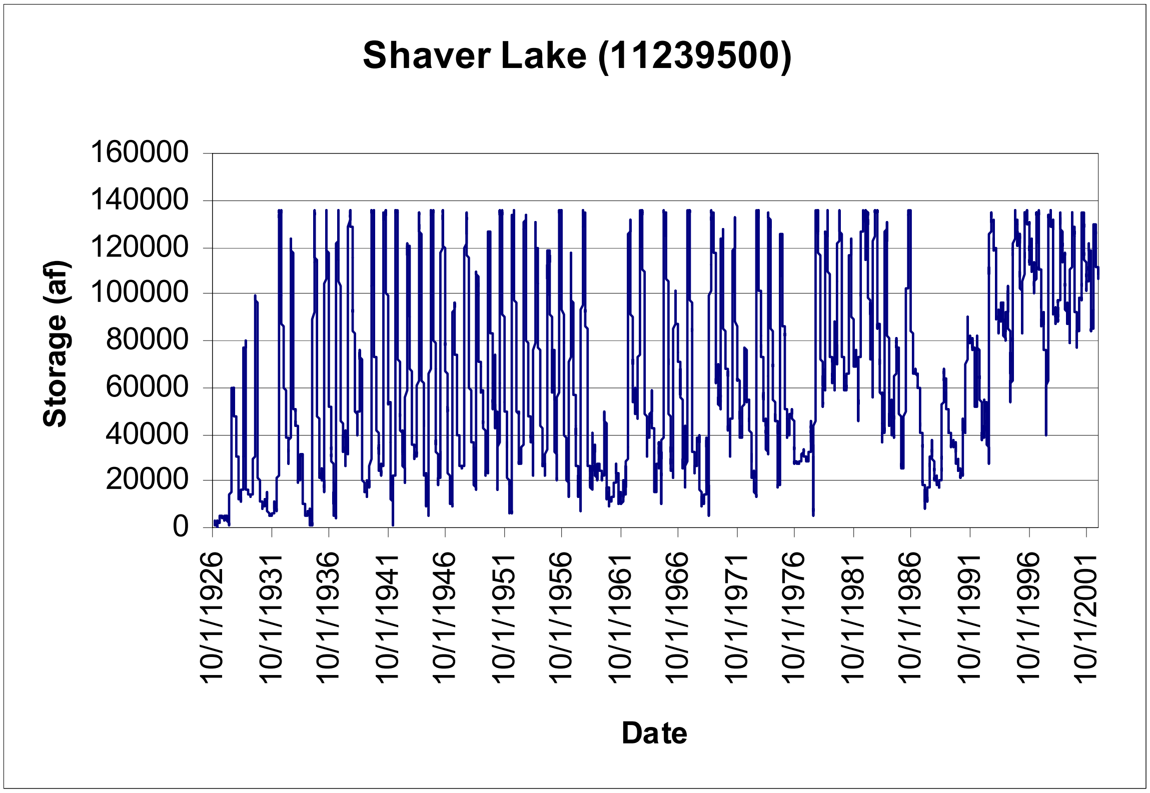


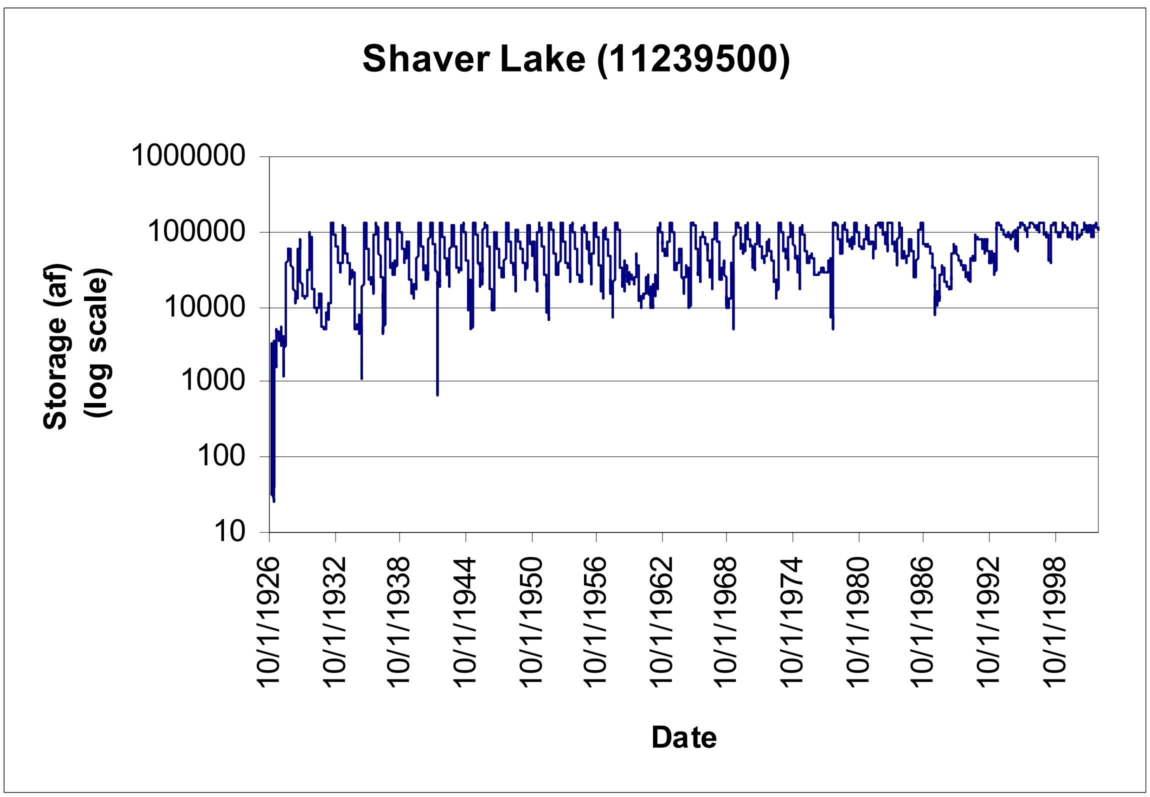


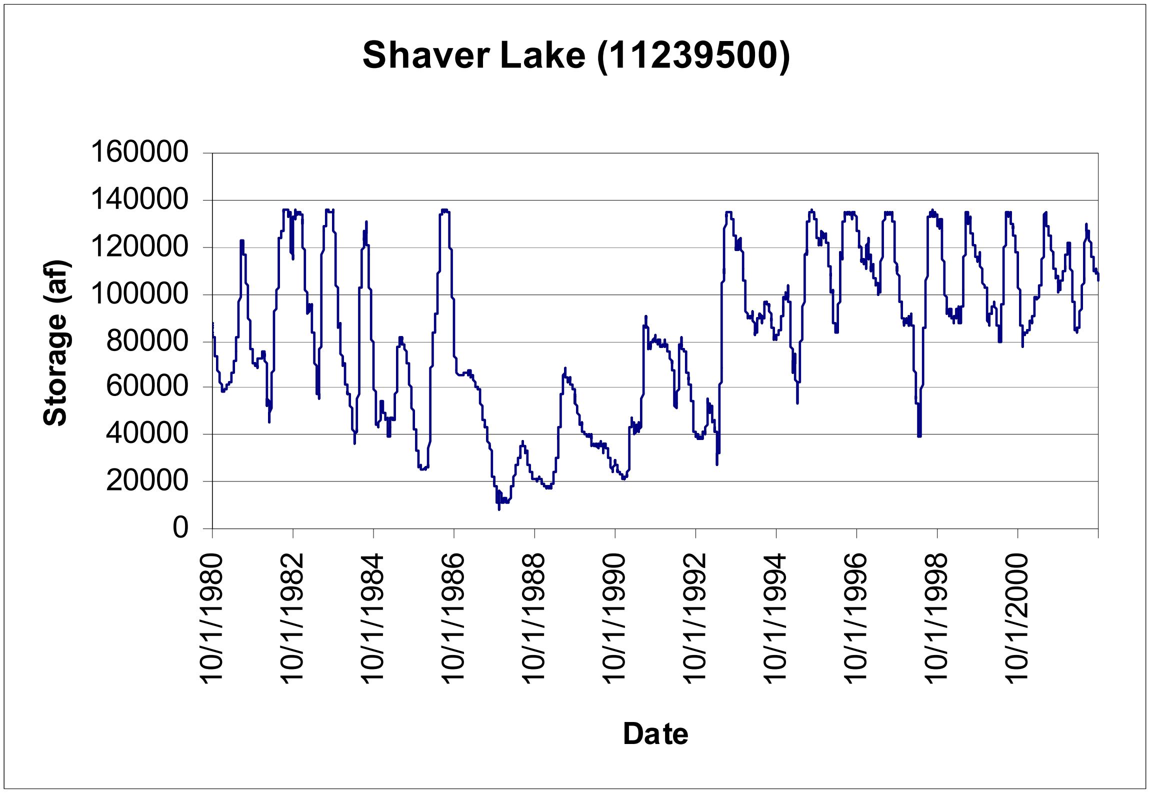


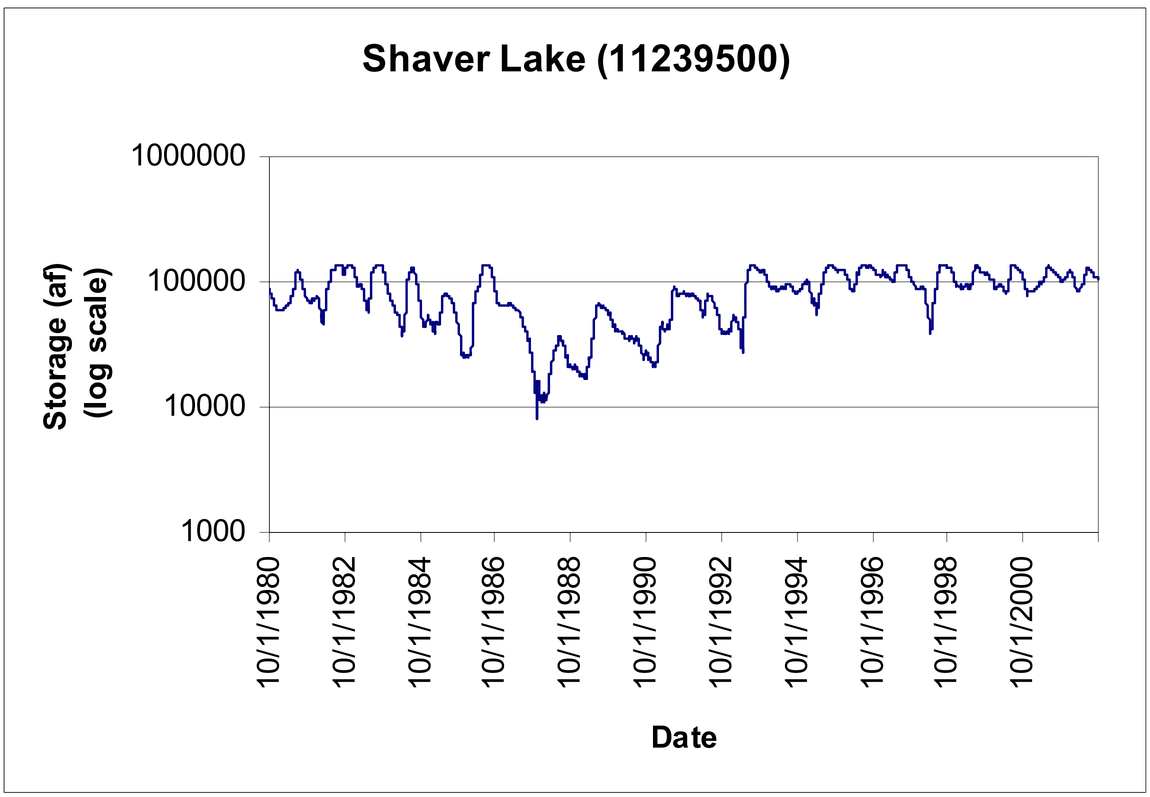


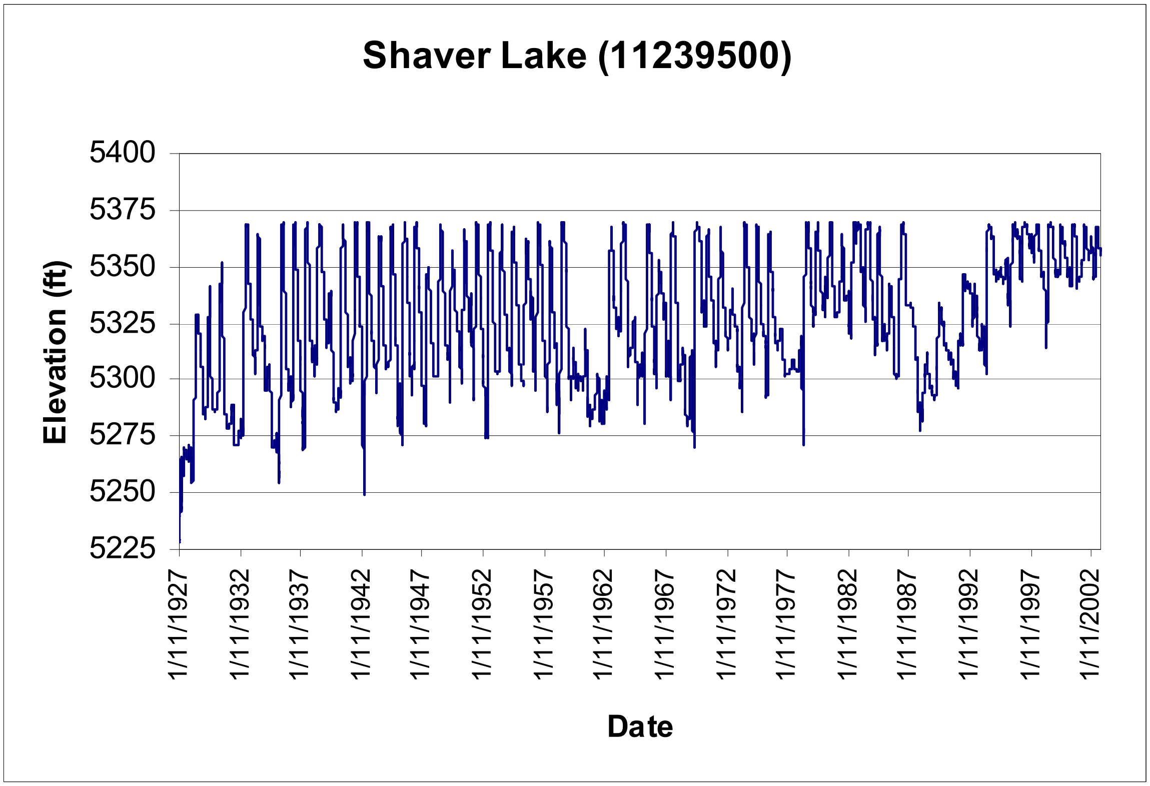
DISCLAIMER: All flows estimated and not verified by USGS

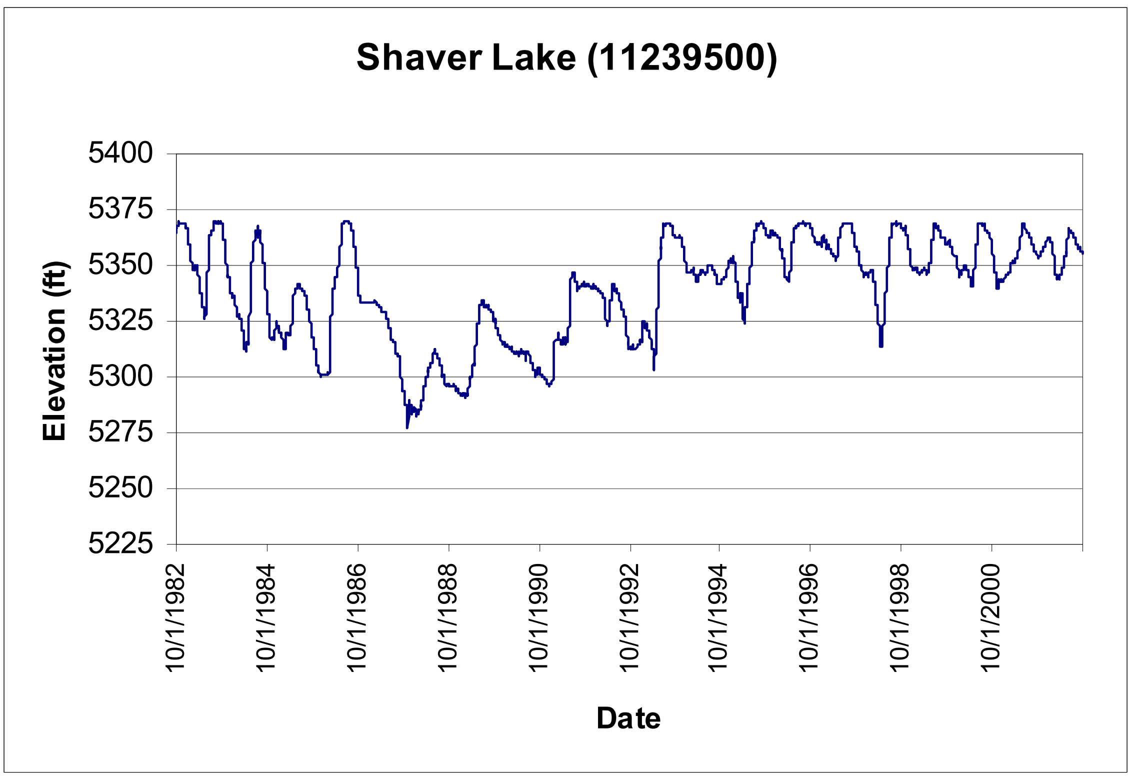

Shaver Lake (11239500)
160000
140000
120000
100000
80000
60000
40000
20000
0
Storage (af)
10/1/1926
10/1/1931
10/1/1936
10/1/1941
10/1/1946
10/1/1951
10/1/1956
10/1/1961
10/1/1966
10/1/1971
10/1/1976
10/1/1981
10/1/1986
10/1/1991
10/1/1996
10/1/2001
Date


Shaver Lake (11239500)
1000000
100000
10000
1000
100
10
Storage (af) (log scale)
10/1/1926
10/1/1932
10/1/1938
10/1/1944
10/1/1950
10/1/1956
10/1/1962
10/1/1968
10/1/1974
10/1/1980
10/1/1986
10/1/1992
10/1/1998
Date


Shaver Lake (11239500)
Storage (af)
160000
140000
120000
100000
80000
60000
40000
20000
0
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date


Shaver Lake (11239500)
Storage (af) (log scale)
1000000
100000
10000
1000
10/1/1980
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date


Shaver Lake (11239500)
Elevation (ft)
5400
5375
5350
5325
5300
5275
5250
5225
1/11/1927
1/11/1932
1/11/1937
1/11/1942
1/11/1947
1/11/1952
1/11/1957
1/11/1962
1/11/1967
1/11/1972
1/11/1977
1/11/1982
1/11/1987
1/11/1992
1/11/1997
1/11/2002
Date


Shaver Lake (11239500)
Elevation (ft)
5400
5375
5350
5325
5300
5275
5250
5225
10/1/1982
10/1/1984
10/1/1986
10/1/1988
10/1/1990
10/1/1992
10/1/1994
10/1/1996
10/1/1998
10/1/2000
Date

APPENDIX E

RIVER AND STREAM GAGING STATION EXISTING HYDROLOGY-EXCEEDANCE TABLES

APPENDIX E

BIG CREEK

CAWG 6 HYDROLOGY

RIVER AND STREAM GAGING STATION EXISTING HYDROLOGY PERCENTILE/EXCEEDANCE TABLES

List of locations and periods of record (by water year) in order of appearance. Two periods of record are presented for each location – historical and operations (post-1983). For a period of record that does not contain a water year type, the table for that water year type is not presented.

Hooper Creek below Diversion (1987-2002)
South Fork San Joaquin River below Hooper Creek (1976-2002)
South Fork San Joaquin River below Hooper Creek (1983-2002)
Bear Creek near Lake Thomas A. Edison (above Diversion) (1922-2002)
Bear Creek near Lake Thomas A. Edison (above Diversion) (1984-2002)
Bear Creek below Diversion (1971-2002)
Bear Creek below Diversion (1984-2002)
Chinquapin Creek below Diversion (1986-2002)
Camp 62 Creek below Diversion (1984-2002)
Bolsillo Creek above Diversion (1986-1995)
Bolsillo Creek below Diversion (1986-2002)
Mono Creek below Diversion (1971-2002)
Mono Creek below Diversion (1984-2002)
San Joaquin River above Shakeflat Creek (1960-2002)
San Joaquin River above Shakeflat Creek (1983-2002)
San Joaquin River above Stevenson Creek (1974-2002)
San Joaquin River above Stevenson Creek (1983-2002)
Rock Creek (1992-1996)
Ross Creek (1992-1996)
North Fork Stevenson Creek near Perimeter Road (above Shaver Lake) (1989-2002)
Stevenson Creek below Shaver Lake (1987-2002)
Big Creek below Huntington Lake (1987-2002)
Pitman Creek below Tamarack Creek (above Diversion) (1928-2002)
Pitman Creek below Tamarack Creek (above Diversion) (1983-2002)
Pitman Creek near Tamarack Mountain (below Diversion) (1975-2002)
Pitman Creek near Tamarack Mountain (below Diversion) (1983-2002)
Balsam Creek below Balsam Meadow Forebay (1989-2002)
Big Creek near Mouth (1923-2002)
Big Creek near Mouth (1983-2002)

Small streams with use of some estimated unimpaired flow data for winter months:

Chinquapin Creek below Diversion (1986-2002)
Camp 62 Creek below Diversion (1984-2002)
Bolsillo Creek below Diversion (1986-2002)

Table CAWG 6 Appdx E-1A. Hooper Creek Below Diversion (Gage 11230200)
Historical Daily Exceedance Flow
(10/1/1986 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	43.0	7.7	15.0	52.0	86.0	110.0	112.0	57.0	11.0	6.2	5.0	8.4
1	14.0	5.6	13.0	31.0	76.0	102.0	95.0	51.0	7.9	5.7	4.8	4.8
5	6.2	5.0	7.5	17.0	50.0	57.0	70.0	6.6	4.4	5.0	4.4	3.6
10	3.3	4.2	6.5	12.0	27.0	42.0	46.0	5.3	4.0	4.5	3.7	3.3
15	3.1	3.4	5.6	10.0	21.0	32.0	14.0	5.0	3.8	3.8	3.2	3.1
20	3.0	3.1	4.8	8.8	17.0	18.0	5.5	4.3	3.3	3.3	3.0	3.0
25	2.7	3.0	4.3	8.0	11.0	7.7	4.9	3.9	3.1	3.1	2.9	2.8
30	2.5	2.9	3.9	7.4	6.4	5.1	4.5	3.7	2.9	2.9	2.8	2.6
35	2.4	2.7	3.6	6.8	4.7	4.8	4.3	3.6	2.8	2.8	2.7	2.5
40	2.3	2.5	3.4	5.9	4.1	4.3	4.1	3.5	2.7	2.6	2.6	2.4
45	2.2	2.4	3.1	5.1	3.9	4.1	4.1	3.3	2.6	2.5	2.6	2.3
50	2.2	2.3	3.0	4.6	3.6	4.0	4.0	3.2	2.4	2.5	2.5	2.1
55	2.2	2.2	2.9	4.0	3.5	3.9	3.9	3.1	2.4	2.4	2.4	2.0
60	2.0	2.2	2.8	3.7	3.2	3.7	3.7	2.9	2.3	2.3	2.3	2.0
65	2.0	2.1	2.7	3.6	3.1	3.6	3.5	2.8	2.2	2.2	2.3	2.0
70	1.9	2.0	2.5	3.3	3.0	3.1	3.2	2.7	2.2	2.0	2.2	1.9
75	1.9	1.9	2.4	3.2	2.8	3.0	3.0	2.7	2.1	1.9	2.0	1.9
80	1.8	1.9	2.3	3.1	2.6	2.7	2.8	2.5	2.0	1.8	1.9	1.8
85	1.7	1.8	2.2	3.0	2.6	2.6	2.7	2.5	1.9	1.8	1.8	1.7
90	1.6	1.6	2.1	2.7	2.5	2.5	2.6	2.4	1.9	1.7	1.8	1.7
95	1.5	1.6	1.9	2.5	2.3	2.4	2.5	2.2	1.8	1.7	1.7	1.6
99	1.5	1.5	1.7	2.2	2.2	2.2	2.3	2.0	1.7	1.3	1.5	1.4
Minimum	1.4	1.4	1.5	1.2	2.1	1.6	2.2	1.9	1.7	1.3	1.4	1.4
Average	2.8	2.6	3.7	6.6	10.7	13.0	12.3	4.7	2.8	2.7	2.6	2.4
# Days	496	452	496	480	496	480	496	496	480	496	480	496
# Years	16	16	16	16	16	16	16	16	16	16	16	16

Table CAWG 6 Appdx E-1B. Hooper Creek Below Diversion (Gage 11230200)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	43.0	7.7	15.0	52.0	86.0	110.0	112.0	57.0	11.0	6.2	4.8	8.4
1	34.0	6.4	15.0	44.0	85.0	108.0	106.0	54.0	8.3	5.9	4.5	4.8
5	9.5	5.4	11.0	24.0	73.0	93.0	86.0	40.0	4.9	5.4	4.0	3.9
10	7.1	5.1	8.8	17.0	61.0	69.0	77.0	28.0	4.4	4.8	3.8	3.5
15	6.2	5.0	7.5	14.0	48.0	58.0	70.0	6.6	4.1	4.6	3.7	3.2
20	5.6	4.9	7.0	13.0	33.0	53.0	63.0	6.3	4.0	4.6	3.4	3.2
25	3.6	4.5	6.8	11.0	26.0	50.0	56.0	5.5	4.0	4.0	3.3	3.1
30	3.4	4.3	6.5	10.0	22.0	43.0	47.0	5.3	3.9	3.3	3.2	3.0
35	3.3	4.2	6.3	8.4	21.0	40.0	45.0	5.2	3.8	3.0	3.1	3.0
40	3.2	4.0	5.9	7.6	20.0	38.0	41.0	5.1	3.5	2.9	2.9	2.9
45	3.1	3.7	5.4	7.2	17.0	35.0	37.0	5.0	3.3	2.8	2.9	2.8
50	3.0	3.3	5.3	7.1	16.0	31.0	8.0	4.9	3.1	2.7	2.8	2.7
55	2.9	3.2	4.8	6.3	15.0	29.0	5.5	4.7	3.1	2.6	2.7	2.7
60	2.7	3.1	4.6	5.7	4.7	24.0	5.3	3.9	3.0	2.5	2.6	2.6
65	2.6	3.0	4.3	5.1	4.5	8.6	4.5	3.7	3.0	2.5	2.6	2.5
70	2.5	3.0	4.0	4.9	4.0	5.0	4.3	3.6	2.9	2.5	2.5	2.4
75	2.5	2.9	3.8	3.2	3.9	4.9	4.3	3.6	2.9	2.4	2.5	2.4
80	2.4	2.4	3.6	3.1	3.6	4.8	4.2	3.6	2.8	2.3	2.3	2.0
85	2.2	2.2	3.2	3.1	3.2	4.7	3.0	3.5	2.8	1.9	2.2	1.9
90	1.9	1.9	3.0	2.9	3.0	4.6	2.7	3.3	2.7	1.8	1.8	1.8
95	1.8	1.8	2.5	2.6	2.8	4.3	2.5	2.9	2.4	1.8	1.7	1.7
99	1.7	1.7	2.0	2.0	2.3	3.7	2.5	2.6	2.3	1.7	1.4	1.4
Minimum	1.7	1.7	2.0	2.0	2.3	3.7	2.5	2.6	2.3	1.7	1.4	1.4
Average	4.3	3.6	5.6	9.1	21.6	33.4	31.3	8.6	3.5	3.1	2.9	2.8
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-1C. Hooper Creek Below Diversion (Gage 11230200)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.3	3.4	4.6	20.0	55.0	8.0	7.4	5.8	9.1	5.3	5.0	4.4
5	3.2	3.2	4.5	15.0	40.0	7.9	7.3	4.9	5.9	5.1	4.8	4.1
10	3.2	3.1	4.3	10.0	34.0	7.9	7.3	4.4	4.4	5.1	4.8	3.8
15	3.1	3.0	4.0	8.9	30.0	7.8	7.3	4.1	4.0	5.0	4.7	3.6
20	3.1	3.0	4.0	8.7	29.0	7.8	7.2	4.0	3.6	4.9	4.6	3.6
25	3.1	2.9	3.9	8.5	27.0	7.7	5.0	3.9	3.1	4.3	4.5	3.5
30	3.1	2.9	3.9	8.3	24.0	7.7	4.9	3.8	3.0	4.2	4.4	3.3
35	3.0	2.9	3.7	8.1	22.0	7.6	4.8	3.7	2.9	4.1	4.4	3.3
40	3.0	2.8	3.5	7.7	11.0	7.5	4.8	3.7	2.8	4.0	4.3	3.3
45	2.9	2.8	3.4	7.6	11.0	7.4	4.7	3.7	2.7	4.0	4.2	3.2
50	2.9	2.7	3.4	7.4	9.9	5.2	4.7	3.6	2.6	3.5	2.7	2.4
55	2.3	2.7	3.3	7.3	9.7	5.2	4.4	3.6	2.6	3.2	2.6	2.3
60	2.2	2.5	3.2	7.3	8.9	5.1	4.3	3.5	2.5	3.0	2.6	2.2
65	2.2	2.4	3.1	6.3	8.6	5.1	4.3	3.5	2.4	2.8	2.5	2.2
70	2.2	2.4	3.0	5.4	7.5	5.1	4.1	3.5	2.4	2.6	2.5	2.2
75	1.9	2.3	2.9	4.7	7.2	4.1	3.8	3.4	2.4	2.5	2.4	2.1
80	1.9	2.3	2.8	4.0	7.0	3.7	3.8	3.4	2.3	2.5	2.4	2.1
85	1.8	2.2	2.6	3.6	6.5	3.7	3.7	3.2	2.3	2.4	2.4	2.0
90	1.8	2.2	2.5	3.4	4.7	3.6	3.7	3.1	2.3	2.4	2.3	1.9
95	1.7	2.1	2.4	3.3	3.3	3.3	3.7	2.5	2.3	2.4	2.3	1.9
Minimum	1.7	2.1	2.4	3.2	2.6	2.9	3.7	2.5	2.3	2.3	2.3	1.9
Average	2.6	2.7	3.4	7.5	16.9	6.0	4.9	3.7	3.2	3.6	3.5	2.8
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-1D. Hooper Creek Below Diversion (Gage 11230200)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.8	3.1	9.5	15.0	14.0	4.1	4.2	3.3	2.3	3.7	3.3	2.9
5	2.6	2.9	5.9	9.5	5.3	4.1	4.2	3.1	2.2	2.7	3.0	2.6
10	2.3	2.6	4.1	8.3	5.1	4.0	4.1	3.0	2.2	2.6	2.8	2.4
15	2.3	2.5	3.7	6.2	5.1	4.0	4.1	2.9	2.1	2.6	2.6	2.1
20	2.2	2.2	3.4	5.1	5.0	3.9	4.0	2.9	2.0	2.5	2.5	2.1
25	2.2	2.1	3.1	5.0	4.8	3.9	4.0	2.8	2.0	2.5	2.4	2.0
30	2.1	2.1	3.0	4.9	4.0	3.9	3.9	2.8	2.0	2.5	2.3	2.0
35	2.1	2.1	2.9	4.6	3.5	3.8	3.6	2.8	1.9	2.4	2.3	2.0
40	2.0	2.0	2.9	4.2	3.5	3.8	3.5	2.7	1.9	2.4	2.3	2.0
45	2.0	2.0	2.9	4.1	3.2	3.6	3.4	2.6	1.9	2.4	2.2	1.9
50	2.0	2.0	2.9	3.9	3.2	2.7	3.1	2.5	1.9	2.3	2.2	1.9
55	2.0	2.0	2.9	3.7	2.6	2.6	2.9	2.5	1.8	1.8	2.2	1.9
60	2.0	2.0	2.8	2.6	2.6	2.6	2.8	2.4	1.8	1.8	2.1	1.9
65	2.0	2.0	2.8	2.6	2.5	2.4	2.8	2.4	1.8	1.7	2.1	1.9
70	2.0	1.9	2.7	2.6	2.5	2.4	2.8	2.3	1.8	1.7	2.0	1.9
75	1.9	1.9	2.3	2.6	2.4	2.4	2.4	2.3	1.8	1.7	1.9	1.8
80	1.9	1.9	2.2	2.4	2.3	2.4	2.4	2.3	1.8	1.7	1.8	1.8
85	1.9	1.9	2.2	2.4	2.2	2.3	2.3	2.2	1.8	1.7	1.8	1.8
90	1.9	1.9	2.1	2.2	2.2	2.3	2.3	2.1	1.8	1.7	1.8	1.8
95	1.9	1.9	2.0	2.2	2.2	2.3	2.3	2.0	1.7	1.7	1.7	1.7
Minimum	1.6	1.8	1.9	2.2	2.2	2.3	2.2	2.0	1.7	1.7	1.7	1.6
Average	2.1	2.1	3.1	4.4	3.5	3.2	3.2	2.6	1.9	2.2	2.2	2.0
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-1E. Hooper Creek Below Diversion (Gage 11230200)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.6	3.0	5.8	20.0	7.0	7.0	5.2	5.4	5.5	3.9	3.1	6.1
1	2.5	3.0	5.5	18.0	5.5	4.4	5.0	4.7	4.6	3.9	3.1	5.9
5	2.3	2.7	4.4	14.0	4.3	4.2	4.6	4.1	3.7	3.5	2.9	3.1
10	2.3	2.6	3.4	9.7	4.1	4.1	4.2	3.6	2.7	3.3	2.8	2.8
15	2.2	2.5	3.1	8.5	3.9	4.0	4.1	3.4	2.7	3.2	2.8	2.6
20	2.2	2.4	3.0	6.9	3.7	3.9	4.0	3.2	2.6	3.0	2.7	2.5
25	2.2	2.3	2.9	5.9	3.5	3.8	4.0	3.2	2.5	2.9	2.7	2.4
30	2.2	2.3	2.8	4.8	3.3	3.7	3.9	3.1	2.4	2.5	2.6	2.2
35	2.2	2.2	2.7	4.0	3.1	3.6	3.9	3.0	2.3	2.3	2.5	2.1
40	2.1	2.2	2.6	4.0	3.1	3.2	3.8	2.9	2.3	2.2	2.5	2.0
45	1.9	2.1	2.5	3.8	3.1	3.1	3.5	2.7	2.2	2.2	2.4	2.0
50	1.9	2.0	2.4	3.7	3.0	3.1	3.4	2.7	2.2	2.1	2.3	2.0
55	1.9	2.0	2.3	3.6	2.9	3.1	3.3	2.7	2.2	2.0	2.2	2.0
60	1.8	1.9	2.3	3.4	2.8	3.0	3.2	2.7	2.1	2.0	2.0	1.9
65	1.7	1.8	2.3	3.2	2.7	2.9	3.0	2.6	2.1	1.9	1.9	1.8
70	1.7	1.7	2.2	3.1	2.6	2.7	2.8	2.6	2.0	1.9	1.9	1.7
75	1.7	1.7	2.2	3.1	2.6	2.7	2.7	2.5	2.0	1.8	1.8	1.7
80	1.6	1.6	2.1	3.0	2.6	2.6	2.7	2.5	1.9	1.8	1.8	1.6
85	1.6	1.6	2.0	3.0	2.5	2.5	2.7	2.4	1.9	1.7	1.7	1.6
90	1.5	1.5	1.9	2.8	2.5	2.4	2.5	2.3	1.9	1.7	1.7	1.6
95	1.5	1.5	1.9	2.6	2.3	2.3	2.5	2.1	1.8	1.6	1.6	1.5
99	1.5	1.4	1.7	2.1	2.1	2.2	2.3	2.0	1.7	1.3	1.4	1.4
Minimum	1.4	1.4	1.5	1.2	2.1	1.6	2.2	1.9	1.7	1.3	1.4	1.4
Average	1.9	2.1	2.6	5.1	3.1	3.2	3.4	2.9	2.3	2.3	2.3	2.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-2A. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
(10/1/1975 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	366.0	153.0	202.0	264.0	2190.0	4010.0	5020.0	1650.0	5200.0	123.0	79.0	141.0
1	40.0	57.0	66.0	68.0	146.0	2950.0	3300.0	1110.0	97.0	45.0	40.0	31.0
5	24.0	33.0	46.0	53.0	79.0	2120.0	1280.0	194.0	34.0	30.0	30.0	22.0
10	21.0	27.0	37.0	48.0	59.0	1080.0	867.0	43.0	31.0	26.0	24.0	19.0
15	19.0	24.0	34.0	41.0	53.0	751.0	667.0	34.0	30.0	22.0	20.0	18.0
20	19.0	23.0	30.0	38.0	48.0	394.0	447.0	31.0	30.0	21.0	18.0	18.0
25	18.0	22.0	28.0	35.0	41.0	110.0	64.0	30.0	29.0	21.0	18.0	17.0
30	17.0	21.0	26.0	32.0	36.0	48.0	33.0	29.0	29.0	20.0	17.0	16.0
35	17.0	20.0	25.0	30.0	34.0	39.0	31.0	28.0	28.0	19.0	16.0	16.0
40	17.0	19.0	24.0	28.0	31.0	33.0	29.0	28.0	28.0	18.0	16.0	16.0
45	16.0	18.0	23.0	26.0	30.0	29.0	28.0	27.0	27.0	18.0	16.0	16.0
50	16.0	17.0	22.0	25.0	29.0	27.0	26.0	26.0	26.0	17.0	15.0	15.0
55	16.0	16.0	21.0	24.0	28.0	27.0	25.0	24.0	24.0	17.0	14.0	15.0
60	15.0	16.0	21.0	23.0	26.0	26.0	24.0	24.0	24.0	16.0	14.0	14.0
65	15.0	16.0	20.0	22.0	25.0	25.0	24.0	24.0	24.0	16.0	14.0	14.0
70	14.0	15.0	19.0	21.0	24.0	24.0	23.0	23.0	23.0	15.0	13.0	14.0
75	14.0	14.0	18.0	20.0	24.0	23.0	23.0	23.0	23.0	14.0	13.0	13.0
80	13.0	13.0	17.0	18.0	23.0	22.0	22.0	22.0	22.0	14.0	13.0	13.0
85	12.0	12.0	16.0	16.0	22.0	22.0	22.0	21.0	21.0	8.4	11.0	12.0
90	8.0	8.7	12.0	13.0	20.0	20.0	21.0	12.0	6.9	5.0	4.3	5.2
95	4.3	4.1	4.3	4.3	5.5	5.2	5.5	5.4	4.6	3.2	3.7	3.7
99	3.9	3.8	3.8	3.3	4.6	4.5	4.2	4.8	3.0	2.8	3.0	3.5
Minimum	3.5	3.7	3.0	2.6	3.4	4.3	1.2	4.0	2.6	1.9	2.0	3.0
Average	16.6	18.8	24.2	27.9	41.0	313.3	264.3	60.8	34.6	17.5	15.7	14.9
# Days	806	735	806	780	806	757	775	775	750	806	780	806
# Years	26	26	26	26	26	26	25	25	25	26	26	26

Table CAWG 6 Appdx E-2B. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Wet Water Years (1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	366.0	153.0	202.0	264.0	2190.0	4010.0	5020.0	1650.0	5200.0	86.0	79.0	41.0
1	154.0	92.0	124.0	93.0	670.0	3370.0	4300.0	1350.0	404.0	56.0	42.0	33.0
5	34.0	52.0	55.0	62.0	97.0	2680.0	2700.0	911.0	42.0	33.0	31.0	23.0
10	29.0	37.0	49.0	56.0	85.0	2510.0	1600.0	500.0	33.0	24.0	28.0	20.0
15	23.0	31.0	44.0	53.0	74.0	2120.0	1290.0	201.0	31.0	22.0	22.0	19.0
20	20.0	29.0	39.0	50.0	65.0	1760.0	1060.0	61.0	31.0	21.0	19.0	18.0
25	19.0	28.0	37.0	49.0	56.0	1280.0	955.0	45.0	30.0	19.0	17.0	17.0
30	19.0	26.0	35.0	46.0	53.0	1090.0	895.0	38.0	30.0	17.0	16.0	16.0
35	18.0	25.0	33.0	43.0	51.0	982.0	793.0	36.0	30.0	16.0	16.0	16.0
40	18.0	23.0	31.0	40.0	48.0	876.0	726.0	34.0	30.0	16.0	16.0	16.0
45	18.0	21.0	30.0	39.0	46.0	784.0	674.0	32.0	29.0	15.0	15.0	16.0
50	17.0	21.0	28.0	37.0	43.0	638.0	614.0	31.0	29.0	15.0	14.0	16.0
55	17.0	20.0	28.0	34.0	40.0	550.0	550.0	30.0	29.0	15.0	14.0	15.0
60	17.0	19.0	26.0	32.0	38.0	424.0	500.0	29.0	29.0	14.0	14.0	15.0
65	16.0	19.0	26.0	31.0	36.0	261.0	309.0	29.0	28.0	14.0	13.0	14.0
70	16.0	18.0	25.0	30.0	34.0	148.0	179.0	28.0	28.0	14.0	13.0	14.0
75	16.0	17.0	24.0	28.0	33.0	105.0	96.0	28.0	28.0	12.0	13.0	14.0
80	15.0	16.0	22.0	26.0	31.0	59.0	43.0	28.0	27.0	7.2	12.0	14.0
85	15.0	15.0	21.0	24.0	31.0	50.0	34.0	27.0	27.0	5.0	10.0	14.0
90	12.0	12.0	20.0	21.0	29.0	42.0	29.0	27.0	26.0	3.2	4.4	12.0
95	7.7	9.2	17.0	20.0	18.0	35.0	28.0	26.0	26.0	3.0	3.6	4.1
99	6.0	7.6	14.0	16.0	12.0	14.0	27.0	23.0	25.0	2.7	3.3	3.6
Minimum	5.8	7.6	13.0	16.0	12.0	14.0	27.0	22.0	24.0	2.7	3.2	3.5
Average	20.7	24.7	32.6	39.4	67.0	906.1	775.6	141.5	59.5	15.5	15.9	15.6
# Days	279	254	279	270	279	247	248	248	240	279	270	279
# Years	9	9	9	9	9	9	8	8	8	9	9	9

Table CAWG 6 Appdx E-2C. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Above Normal Water Years (1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	33.0	52.0	47.0	49.0	112.0	371.0	64.0	64.0	38.0	30.0	57.0	141.0
1	32.0	47.0	47.0	48.0	109.0	169.0	64.0	64.0	37.0	30.0	41.0	59.0
5	24.0	26.0	40.0	42.0	75.0	85.0	64.0	64.0	34.0	30.0	27.0	27.0
10	23.0	25.0	36.0	39.0	68.0	49.0	52.0	35.0	33.0	28.0	25.0	20.0
15	21.0	24.0	33.0	38.0	61.0	48.0	33.0	34.0	32.0	26.0	22.0	20.0
20	21.0	24.0	29.0	36.0	56.0	45.0	32.0	34.0	31.0	24.0	22.0	19.0
25	20.0	24.0	28.0	35.0	55.0	39.0	32.0	32.0	30.0	23.0	21.0	19.0
30	20.0	23.0	27.0	33.0	53.0	38.0	31.0	31.0	30.0	22.0	20.0	19.0
35	19.0	23.0	27.0	32.0	49.0	38.0	31.0	30.0	30.0	22.0	19.0	18.0
40	19.0	23.0	26.0	31.0	45.0	36.0	31.0	30.0	29.0	22.0	19.0	18.0
45	19.0	22.0	26.0	29.0	38.0	35.0	30.0	29.0	29.0	21.0	19.0	18.0
50	18.0	22.0	25.0	28.0	35.0	34.0	30.0	29.0	28.0	21.0	18.0	18.0
55	18.0	21.0	25.0	26.0	33.0	32.0	30.0	29.0	28.0	21.0	18.0	18.0
60	18.0	21.0	25.0	25.0	31.0	30.0	28.0	28.0	28.0	21.0	17.0	18.0
65	17.0	20.0	24.0	25.0	30.0	29.0	27.0	28.0	28.0	21.0	17.0	17.0
70	13.0	20.0	23.0	23.0	29.0	29.0	25.0	28.0	28.0	20.0	17.0	15.0
75	12.0	19.0	23.0	22.0	29.0	28.0	25.0	17.0	9.9	19.0	16.0	10.0
80	11.0	12.0	22.0	22.0	28.0	28.0	23.0	14.0	8.6	18.0	13.0	9.5
85	9.9	11.0	21.0	20.0	28.0	27.0	23.0	13.0	7.3	16.0	12.0	8.6
90	9.2	8.9	18.0	18.0	28.0	26.0	21.0	12.0	6.4	14.0	11.0	8.6
95	8.9	8.6	14.0	16.0	26.0	23.0	20.0	11.0	5.7	13.0	10.0	8.5
99	8.8	8.5	11.0	15.0	16.0	20.0	17.0	7.3	5.5	12.0	10.0	8.5
Minimum	8.8	8.5	11.0	15.0	16.0	20.0	17.0	7.3	5.5	12.0	10.0	8.5
Average	17.1	20.4	26.2	28.6	43.1	41.7	31.6	28.7	24.4	21.3	18.6	17.7
# Days	124	114	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-2D. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Dry Water Years (1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	22.0	24.0	37.0	38.0	41.0	37.0	33.0	31.0	29.0	32.0	38.0	27.0
1	22.0	23.0	37.0	37.0	39.0	37.0	33.0	31.0	29.0	31.0	30.0	27.0
5	20.0	23.0	33.0	33.0	37.0	30.0	30.0	30.0	28.0	30.0	30.0	25.0
10	19.0	21.0	31.0	31.0	36.0	29.0	29.0	29.0	28.0	30.0	29.0	20.0
15	19.0	21.0	25.0	30.0	31.0	29.0	29.0	28.0	28.0	30.0	28.0	19.0
20	18.0	20.0	24.0	29.0	30.0	29.0	28.0	28.0	28.0	29.0	28.0	19.0
25	17.0	19.0	23.0	28.0	30.0	26.0	26.0	25.0	25.0	25.0	27.0	17.0
30	17.0	19.0	22.0	27.0	28.0	26.0	25.0	24.0	23.0	21.0	18.0	17.0
35	17.0	18.0	21.0	27.0	27.0	26.0	24.0	23.0	23.0	21.0	17.0	16.0
40	17.0	18.0	20.0	26.0	26.0	26.0	24.0	23.0	22.0	20.0	16.0	16.0
45	16.0	17.0	20.0	25.0	25.0	25.0	24.0	23.0	22.0	20.0	16.0	16.0
50	16.0	17.0	19.0	25.0	25.0	25.0	24.0	23.0	22.0	19.0	16.0	16.0
55	16.0	17.0	19.0	24.0	24.0	24.0	24.0	22.0	22.0	18.0	16.0	16.0
60	16.0	17.0	18.0	23.0	24.0	23.0	23.0	22.0	22.0	18.0	15.0	16.0
65	16.0	16.0	17.0	22.0	23.0	23.0	23.0	22.0	21.0	18.0	15.0	16.0
70	15.0	16.0	17.0	20.0	23.0	22.0	22.0	21.0	21.0	17.0	15.0	16.0
75	15.0	16.0	17.0	19.0	22.0	21.0	22.0	21.0	21.0	16.0	14.0	15.0
80	15.0	16.0	17.0	15.0	21.0	21.0	21.0	21.0	21.0	15.0	14.0	15.0
85	15.0	16.0	15.0	13.0	21.0	21.0	21.0	21.0	21.0	14.0	14.0	15.0
90	14.0	16.0	12.0	12.0	21.0	20.0	21.0	20.0	20.0	14.0	14.0	15.0
95	13.0	15.0	12.0	12.0	20.0	20.0	21.0	20.0	20.0	14.0	13.0	13.0
99	7.5	14.0	11.0	12.0	19.0	19.0	19.0	19.0	20.0	13.0	13.0	12.0
Minimum	7.5	14.0	11.0	12.0	19.0	19.0	19.0	19.0	20.0	13.0	13.0	12.0
Average	16.4	17.9	20.3	23.4	26.2	24.8	24.5	23.6	23.2	20.7	18.8	17.0
# Days	124	112	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-2E. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Critical Water Years (1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	21.0	23.0	57.0	49.0	39.0	28.0	59.0	28.0	118.0	123.0	21.0	18.0
1	17.0	22.0	36.0	49.0	34.0	28.0	30.0	27.0	103.0	111.0	20.0	18.0
5	17.0	19.0	25.0	35.0	29.0	27.0	26.0	26.0	32.0	23.0	18.0	17.0
10	17.0	17.0	23.0	26.0	28.0	27.0	26.0	25.0	26.0	21.0	18.0	17.0
15	16.0	17.0	22.0	24.0	27.0	27.0	25.0	25.0	25.0	20.0	17.0	16.0
20	16.0	16.0	22.0	23.0	26.0	26.0	24.0	24.0	24.0	19.0	16.0	16.0
25	16.0	16.0	21.0	23.0	26.0	25.0	24.0	24.0	24.0	19.0	16.0	15.0
30	15.0	16.0	21.0	22.0	26.0	25.0	24.0	24.0	24.0	18.0	16.0	15.0
35	15.0	15.0	20.0	22.0	25.0	24.0	24.0	24.0	24.0	18.0	16.0	14.0
40	15.0	15.0	20.0	22.0	25.0	24.0	23.0	24.0	24.0	17.0	15.0	14.0
45	14.0	15.0	19.0	21.0	24.0	24.0	23.0	24.0	24.0	17.0	15.0	14.0
50	14.0	14.0	19.0	20.0	24.0	23.0	23.0	23.0	23.0	17.0	14.0	14.0
55	14.0	13.0	18.0	19.0	24.0	23.0	23.0	23.0	23.0	17.0	14.0	13.0
60	13.0	13.0	17.0	18.0	23.0	23.0	23.0	23.0	23.0	16.0	13.0	13.0
65	13.0	13.0	17.0	17.0	23.0	22.0	22.0	23.0	23.0	16.0	13.0	13.0
70	13.0	12.0	16.0	17.0	22.0	22.0	22.0	22.0	23.0	16.0	13.0	13.0
75	13.0	12.0	15.0	16.0	21.0	20.0	22.0	22.0	22.0	16.0	12.0	12.0
80	5.1	4.4	4.5	4.6	5.8	5.8	7.1	6.7	5.5	5.6	4.6	4.3
85	4.3	4.1	4.3	4.3	5.5	5.3	5.6	5.5	4.8	5.0	3.9	3.9
90	4.1	4.0	4.1	4.1	5.3	4.9	5.1	5.2	3.8	3.6	3.7	3.7
95	4.0	3.8	3.9	3.4	4.8	4.7	4.6	4.9	3.4	3.0	3.4	3.5
99	3.6	3.8	3.0	3.0	4.3	4.3	2.3	4.4	2.7	1.9	2.1	3.2
Minimum	3.5	3.7	3.0	2.6	3.4	4.3	1.2	4.0	2.6	1.9	2.0	3.0
Average	12.5	12.7	16.7	18.2	20.7	20.0	19.9	19.9	22.1	16.5	12.8	12.2
# Days	279	255	279	270	279	270	279	279	270	279	270	279
# Years	9	9	9	9	9	9	9	9	9	9	9	9

Table CAWG 6 Appdx E-3A. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
(10/1/1982 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	366.0	153.0	202.0	116.0	2190.0	4010.0	5020.0	1650.0	118.0	123.0	79.0	141.0
1	49.0	57.0	70.0	65.0	112.0	2990.0	3580.0	1230.0	88.0	67.0	40.0	33.0
5	26.0	30.0	48.0	50.0	85.0	2290.0	1100.0	286.0	35.0	30.0	30.0	23.0
10	22.0	27.0	39.0	44.0	68.0	1180.0	717.0	46.0	32.0	29.0	28.0	20.0
15	20.0	24.0	36.0	39.0	56.0	612.0	538.0	35.0	31.0	23.0	22.0	19.0
20	19.0	23.0	33.0	37.0	53.0	261.0	130.0	33.0	30.0	22.0	20.0	18.0
25	19.0	22.0	30.0	35.0	44.0	101.0	49.0	31.0	30.0	21.0	19.0	18.0
30	18.0	21.0	27.0	32.0	38.0	47.0	33.0	29.0	29.0	21.0	18.0	18.0
35	18.0	20.0	26.0	30.0	36.0	39.0	31.0	29.0	29.0	21.0	18.0	17.0
40	17.0	20.0	25.0	28.0	33.0	33.0	30.0	28.0	28.0	20.0	17.0	16.0
45	17.0	19.0	24.0	26.0	31.0	29.0	29.0	28.0	28.0	19.0	16.0	16.0
50	17.0	18.0	23.0	25.0	29.0	28.0	28.0	27.0	27.0	18.0	16.0	16.0
55	16.0	17.0	22.0	24.0	28.0	27.0	26.0	26.0	26.0	18.0	16.0	15.0
60	16.0	17.0	21.0	23.0	27.0	26.0	25.0	25.0	25.0	17.0	15.0	15.0
65	15.0	16.0	21.0	22.0	26.0	26.0	24.0	24.0	24.0	17.0	14.0	15.0
70	15.0	16.0	20.0	22.0	26.0	25.0	24.0	24.0	24.0	16.0	14.0	14.0
75	15.0	16.0	19.0	20.0	25.0	24.0	24.0	24.0	24.0	16.0	14.0	14.0
80	14.0	15.0	18.0	19.0	24.0	24.0	23.0	23.0	23.0	16.0	13.0	14.0
85	14.0	15.0	17.0	18.0	24.0	23.0	23.0	23.0	23.0	15.0	13.0	13.0
90	13.0	13.0	17.0	17.0	23.0	23.0	23.0	23.0	22.0	14.0	13.0	13.0
95	13.0	13.0	15.0	15.0	22.0	22.0	22.0	22.0	22.0	14.0	12.0	13.0
99	11.0	12.0	12.0	12.0	20.0	20.0	21.0	21.0	21.0	8.4	8.0	12.0
Minimum	7.5	11.0	11.0	12.0	20.0	19.0	19.0	7.3	21.0	8.1	7.4	11.0
Average	18.6	20.3	26.5	28.3	45.0	322.4	244.4	69.3	28.1	20.3	17.7	16.7
# Days	589	537	589	570	589	570	589	589	570	589	570	589
# Years	19	19	19	19	19	19	19	19	19	19	19	19

Table CAWG 6 Appdx E-3B. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	366.0	153.0	202.0	116.0	2190.0	4010.0	5020.0	1650.0	60.0	86.0	79.0	41.0
1	178.0	92.0	125.0	88.0	1210.0	3700.0	4700.0	1530.0	56.0	67.0	47.0	34.0
5	37.0	53.0	64.0	58.0	96.0	2750.0	3040.0	991.0	35.0	33.0	31.0	25.0
10	31.0	41.0	52.0	55.0	87.0	2580.0	1820.0	593.0	32.0	27.0	31.0	22.0
15	26.0	30.0	48.0	50.0	80.0	2340.0	1150.0	317.0	31.0	24.0	28.0	19.0
20	24.0	29.0	46.0	47.0	73.0	2070.0	899.0	95.0	31.0	22.0	23.0	19.0
25	22.0	28.0	40.0	45.0	68.0	1470.0	823.0	46.0	30.0	21.0	20.0	18.0
30	19.0	26.0	38.0	43.0	58.0	1260.0	737.0	40.0	30.0	21.0	18.0	18.0
35	19.0	26.0	37.0	40.0	56.0	1070.0	673.0	37.0	30.0	19.0	17.0	17.0
40	19.0	23.0	35.0	39.0	54.0	870.0	618.0	36.0	30.0	18.0	16.0	17.0
45	18.0	22.0	33.0	38.0	51.0	675.0	559.0	34.0	30.0	16.0	15.0	16.0
50	18.0	21.0	31.0	35.0	46.0	580.0	518.0	32.0	29.0	16.0	14.0	16.0
55	18.0	20.0	30.0	34.0	42.0	490.0	424.0	31.0	29.0	16.0	14.0	16.0
60	17.0	19.0	28.0	32.0	40.0	339.0	200.0	30.0	29.0	15.0	14.0	15.0
65	17.0	19.0	27.0	31.0	36.0	211.0	105.0	29.0	29.0	15.0	14.0	15.0
70	17.0	19.0	26.0	30.0	35.0	138.0	55.0	29.0	29.0	15.0	13.0	14.0
75	17.0	18.0	25.0	28.0	34.0	110.0	41.0	28.0	28.0	15.0	13.0	14.0
80	16.0	18.0	23.0	26.0	33.0	66.0	34.0	28.0	28.0	14.0	13.0	14.0
85	16.0	17.0	22.0	24.0	32.0	53.0	30.0	28.0	27.0	14.0	13.0	14.0
90	15.0	17.0	21.0	21.0	31.0	44.0	29.0	27.0	27.0	14.0	12.0	14.0
95	14.0	16.0	20.0	19.0	30.0	40.0	28.0	27.0	26.0	12.0	10.0	13.0
99	14.0	15.0	17.0	16.0	29.0	33.0	27.0	25.0	24.0	8.1	7.4	12.0
Minimum	14.0	15.0	17.0	16.0	29.0	33.0	27.0	25.0	24.0	8.1	7.4	12.0
Average	23.9	26.1	36.0	37.5	75.2	958.5	716.0	162.5	30.1	19.1	18.0	17.1
# Days	186	169	186	180	186	180	186	186	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx E-3C. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32.0	47.0	47.0	49.0	112.0	371.0	64.0	64.0	38.0	30.0	57.0	141.0
5	24.0	26.0	41.0	46.0	85.0	56.0	64.0	64.0	35.0	30.0	30.0	28.0
10	23.0	25.0	39.0	39.0	69.0	48.0	64.0	53.0	34.0	28.0	26.0	22.0
15	22.0	24.0	36.0	38.0	67.0	48.0	38.0	35.0	33.0	26.0	23.0	20.0
20	21.0	24.0	33.0	38.0	61.0	45.0	33.0	34.0	32.0	23.0	22.0	20.0
25	20.0	24.0	29.0	36.0	56.0	39.0	32.0	34.0	31.0	22.0	22.0	19.0
30	20.0	24.0	28.0	35.0	55.0	39.0	32.0	34.0	31.0	22.0	22.0	19.0
35	20.0	23.0	27.0	33.0	55.0	38.0	32.0	32.0	30.0	22.0	21.0	19.0
40	20.0	23.0	27.0	31.0	53.0	37.0	31.0	31.0	30.0	22.0	20.0	19.0
45	19.0	23.0	26.0	30.0	49.0	36.0	31.0	30.0	30.0	22.0	19.0	18.0
50	19.0	23.0	26.0	29.0	48.0	35.0	31.0	30.0	30.0	21.0	19.0	18.0
55	19.0	22.0	26.0	26.0	43.0	32.0	31.0	29.0	29.0	21.0	19.0	18.0
60	18.0	22.0	25.0	25.0	38.0	32.0	30.0	29.0	29.0	21.0	19.0	18.0
65	18.0	22.0	25.0	25.0	36.0	30.0	30.0	29.0	28.0	21.0	18.0	18.0
70	18.0	21.0	24.0	25.0	33.0	29.0	30.0	29.0	28.0	21.0	18.0	18.0
75	18.0	21.0	24.0	23.0	32.0	28.0	30.0	29.0	28.0	21.0	18.0	18.0
80	17.0	21.0	23.0	23.0	29.0	28.0	28.0	28.0	28.0	21.0	17.0	18.0
85	16.0	20.0	23.0	22.0	28.0	28.0	28.0	28.0	28.0	20.0	17.0	17.0
90	13.0	20.0	22.0	16.0	28.0	27.0	27.0	28.0	28.0	19.0	17.0	16.0
95	11.0	19.0	21.0	16.0	28.0	27.0	23.0	28.0	27.0	17.0	17.0	14.0
Minimum	11.0	18.0	21.0	15.0	20.0	26.0	19.0	7.3	27.0	17.0	16.0	14.0
Average	18.8	22.9	28.1	29.6	48.0	41.8	34.6	33.9	30.1	22.3	20.9	20.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-3D. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	22.0	24.0	37.0	38.0	41.0	37.0	33.0	31.0	29.0	32.0	30.0	27.0
5	21.0	23.0	34.0	36.0	37.0	31.0	32.0	30.0	29.0	30.0	30.0	26.0
10	19.0	22.0	32.0	31.0	36.0	30.0	30.0	29.0	28.0	30.0	30.0	24.0
15	19.0	21.0	25.0	30.0	35.0	29.0	29.0	29.0	28.0	30.0	29.0	19.0
20	19.0	21.0	24.0	29.0	31.0	29.0	29.0	28.0	28.0	30.0	28.0	19.0
25	18.0	20.0	23.0	28.0	30.0	29.0	28.0	28.0	28.0	29.0	28.0	19.0
30	18.0	19.0	22.0	27.0	30.0	28.0	28.0	28.0	27.0	29.0	28.0	18.0
35	17.0	18.0	21.0	26.0	29.0	26.0	26.0	24.0	24.0	22.0	19.0	17.0
40	17.0	18.0	20.0	26.0	28.0	26.0	25.0	24.0	23.0	21.0	16.0	17.0
45	17.0	18.0	20.0	25.0	27.0	26.0	24.0	23.0	23.0	20.0	16.0	16.0
50	17.0	17.0	20.0	24.0	27.0	26.0	24.0	23.0	23.0	20.0	16.0	16.0
55	17.0	17.0	18.0	23.0	26.0	26.0	24.0	23.0	22.0	20.0	16.0	16.0
60	16.0	17.0	17.0	22.0	25.0	25.0	24.0	23.0	22.0	18.0	15.0	16.0
65	16.0	17.0	17.0	21.0	25.0	25.0	24.0	23.0	22.0	18.0	15.0	16.0
70	16.0	16.0	17.0	20.0	25.0	24.0	24.0	22.0	22.0	15.0	15.0	15.0
75	15.0	16.0	17.0	14.0	24.0	24.0	23.0	22.0	22.0	15.0	14.0	15.0
80	15.0	16.0	15.0	13.0	24.0	23.0	23.0	22.0	22.0	14.0	14.0	15.0
85	15.0	16.0	12.0	12.0	24.0	23.0	23.0	22.0	21.0	14.0	14.0	15.0
90	14.0	16.0	12.0	12.0	23.0	22.0	22.0	21.0	21.0	14.0	14.0	14.0
95	13.0	15.0	11.0	12.0	22.0	22.0	21.0	21.0	21.0	14.0	13.0	13.0
Minimum	7.5	14.0	11.0	12.0	22.0	21.0	21.0	21.0	21.0	13.0	13.0	12.0
Average	16.7	18.1	20.3	22.9	28.0	26.3	25.5	24.6	24.0	21.5	19.6	17.2
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-3E. South Fork San Joaquin River Below Hooper Creek (Gage 11230215)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	18.0	23.0	57.0	49.0	39.0	28.0	59.0	28.0	118.0	123.0	21.0	18.0
1	17.0	22.0	36.0	49.0	34.0	28.0	30.0	27.0	103.0	111.0	20.0	18.0
5	17.0	20.0	27.0	35.0	29.0	27.0	26.0	26.0	54.0	23.0	19.0	17.0
10	17.0	18.0	24.0	29.0	28.0	27.0	26.0	26.0	27.0	22.0	18.0	17.0
15	16.0	17.0	23.0	26.0	27.0	27.0	25.0	25.0	25.0	21.0	18.0	16.0
20	16.0	17.0	22.0	24.0	27.0	27.0	25.0	25.0	25.0	20.0	17.0	16.0
25	16.0	16.0	22.0	24.0	26.0	26.0	24.0	24.0	24.0	19.0	16.0	16.0
30	16.0	16.0	21.0	23.0	26.0	25.0	24.0	24.0	24.0	19.0	16.0	15.0
35	15.0	16.0	21.0	23.0	26.0	25.0	24.0	24.0	24.0	19.0	16.0	15.0
40	15.0	16.0	20.0	22.0	25.0	25.0	24.0	24.0	24.0	18.0	16.0	15.0
45	15.0	15.0	20.0	22.0	25.0	24.0	24.0	24.0	24.0	18.0	16.0	14.0
50	15.0	15.0	20.0	22.0	25.0	24.0	24.0	24.0	24.0	17.0	15.0	14.0
55	14.0	15.0	19.0	21.0	24.0	24.0	23.0	24.0	24.0	17.0	15.0	14.0
60	14.0	15.0	19.0	20.0	24.0	24.0	23.0	23.0	24.0	17.0	14.0	14.0
65	14.0	14.0	19.0	19.0	24.0	23.0	23.0	23.0	23.0	17.0	14.0	14.0
70	14.0	13.0	18.0	19.0	24.0	23.0	23.0	23.0	23.0	17.0	14.0	13.0
75	14.0	13.0	18.0	18.0	23.0	23.0	23.0	23.0	23.0	17.0	14.0	13.0
80	13.0	13.0	17.0	18.0	23.0	22.0	23.0	23.0	23.0	16.0	13.0	13.0
85	13.0	13.0	17.0	17.0	23.0	22.0	22.0	23.0	23.0	16.0	13.0	13.0
90	13.0	12.0	16.0	17.0	22.0	22.0	22.0	22.0	23.0	16.0	13.0	13.0
95	13.0	12.0	15.0	16.0	21.0	21.0	22.0	22.0	22.0	16.0	12.0	13.0
99	13.0	11.0	13.0	15.0	20.0	20.0	21.0	22.0	21.0	15.0	11.0	12.0
Minimum	12.0	11.0	13.0	14.0	20.0	19.0	21.0	22.0	21.0	14.0	11.0	11.0
Average	14.7	15.1	20.2	22.2	25.1	24.3	24.0	23.9	27.2	20.0	15.3	14.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-4A. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
(10/1/1921 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1060.0	210.0	155.0	352.0	948.0	1180.0	1420.0	714.0	2610.0	143.0	355.0	517.0
1	130.0	81.0	95.0	270.0	683.0	900.0	821.0	396.0	162.0	71.0	61.0	100.0
5	50.0	46.0	64.0	208.0	541.0	690.0	572.0	226.0	73.0	39.0	39.0	45.0
10	38.0	37.0	54.0	172.0	463.0	610.0	475.0	150.0	51.0	30.0	30.0	36.0
15	33.0	33.0	48.0	149.0	413.0	562.0	415.0	119.0	42.0	26.0	25.0	30.0
20	30.0	31.0	44.0	129.0	374.0	512.0	346.0	93.0	36.0	22.0	21.0	27.0
25	26.0	29.0	40.0	114.0	341.0	475.0	290.0	76.0	29.0	19.0	19.0	24.0
30	24.0	26.0	38.0	102.0	312.0	440.0	246.0	64.0	25.0	17.0	17.0	22.0
35	22.0	26.0	36.0	93.0	291.0	411.0	208.0	54.0	22.0	15.0	15.0	20.0
40	20.0	25.0	34.0	84.0	269.0	381.0	181.0	46.0	19.0	14.0	14.0	18.0
45	20.0	24.0	32.0	76.0	247.0	350.0	158.0	40.0	17.0	12.0	12.0	16.0
50	18.0	22.0	30.0	70.0	227.0	319.0	138.0	36.0	15.0	11.0	12.0	14.0
55	16.0	21.0	28.0	64.0	208.0	294.0	118.0	32.0	13.0	9.5	11.0	13.0
60	15.0	20.0	26.0	58.0	187.0	266.0	95.0	28.0	12.0	8.5	9.7	12.0
65	13.0	18.0	25.0	53.0	170.0	238.0	80.0	25.0	10.0	7.4	9.0	11.0
70	12.0	17.0	24.0	48.0	153.0	215.0	68.0	22.0	9.0	6.4	8.3	10.0
75	10.0	15.0	22.0	44.0	138.0	187.0	58.0	20.0	7.7	5.8	7.5	8.3
80	9.0	13.0	20.0	40.0	124.0	162.0	50.0	17.0	6.5	5.0	6.5	7.0
85	8.0	11.0	19.0	36.0	105.0	141.0	42.0	15.0	5.5	4.6	5.9	6.0
90	6.5	10.0	16.0	33.0	88.0	118.0	33.0	12.0	4.9	4.0	5.0	5.5
95	5.2	7.2	13.0	28.0	70.0	82.0	23.0	9.0	4.1	3.6	4.1	5.0
99	4.0	5.4	9.0	20.0	41.0	38.0	10.0	3.8	1.9	2.9	3.0	4.1
Minimum	1.8	3.7	6.7	11.0	30.0	19.0	5.0	1.9	1.2	1.2	2.2	2.8
Average	22.7	23.9	33.5	87.6	255.0	346.3	201.6	65.5	28.1	14.9	15.4	19.7
# Days	2511	2288	2511	2430	2511	2430	2511	2511	2430	2511	2430	2511
# Years	81	81	81	81	81	81	81	81	81	81	81	81

Table CAWG 6 Appdx E-4B. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Wet Water Years (1922, 1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1060.0	179.0	155.0	352.0	948.0	1180.0	1420.0	714.0	2610.0	138.0	90.0	517.0
1	164.0	118.0	116.0	277.0	816.0	1000.0	1040.0	490.0	321.0	88.0	66.0	177.0
5	65.0	61.0	83.0	220.0	635.0	835.0	752.0	362.0	122.0	39.0	43.0	73.0
10	52.0	51.0	66.0	173.0	559.0	761.0	647.0	305.0	87.0	25.0	34.0	49.0
15	47.0	44.0	57.0	147.0	510.0	688.0	590.0	246.0	69.0	21.0	30.0	42.0
20	41.0	41.0	52.0	131.0	465.0	650.0	550.0	206.0	60.0	19.0	26.0	36.0
25	38.0	37.0	48.0	115.0	428.0	617.0	510.0	183.0	54.0	16.0	21.0	31.0
30	35.0	34.0	45.0	105.0	395.0	595.0	480.0	157.0	48.0	14.0	18.0	30.0
35	33.0	33.0	42.0	96.0	363.0	575.0	454.0	143.0	44.0	13.0	16.0	28.0
40	31.0	30.0	40.0	88.0	337.0	545.0	435.0	131.0	40.0	12.0	15.0	26.0
45	30.0	29.0	39.0	79.0	308.0	515.0	418.0	119.0	37.0	11.0	14.0	23.0
50	28.0	27.0	36.0	72.0	288.0	490.0	395.0	110.0	35.0	10.0	12.0	21.0
55	26.0	26.0	35.0	67.0	265.0	467.0	358.0	98.0	32.0	9.3	12.0	20.0
60	25.0	26.0	33.0	60.0	241.0	440.0	318.0	87.0	29.0	8.2	11.0	19.0
65	23.0	25.0	32.0	53.0	215.0	418.0	294.0	79.0	27.0	7.1	10.0	17.0
70	20.0	25.0	30.0	46.0	186.0	390.0	262.0	72.0	25.0	6.1	9.0	15.0
75	20.0	24.0	29.0	41.0	168.0	363.0	228.0	64.0	23.0	5.5	8.1	14.0
80	20.0	22.0	27.0	38.0	143.0	332.0	198.0	56.0	22.0	5.2	7.5	11.0
85	17.0	22.0	25.0	35.0	128.0	303.0	170.0	48.0	19.0	5.0	6.5	11.0
90	15.0	21.0	22.0	33.0	100.0	266.0	148.0	40.0	17.0	4.6	6.3	8.0
95	13.0	19.0	20.0	30.0	78.0	226.0	134.0	30.0	13.0	3.9	4.4	6.1
99	11.0	13.0	14.0	26.0	40.0	179.0	81.0	25.0	10.0	3.2	3.3	5.0
Minimum	10.0	12.0	12.0	23.0	31.0	134.0	50.0	18.0	7.5	2.6	2.6	4.0
Average	35.5	33.0	41.6	89.1	311.4	503.8	396.2	140.2	57.1	14.4	16.9	29.7
# Days	744	676	744	720	744	720	744	744	720	744	720	744
# Years	24	24	24	24	24	24	24	24	24	24	24	24

Table CAWG 6 Appdx E-4C. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Above Normal Water Years (1923, 1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	337.0	99.0	80.0	291.0	710.0	908.0	595.0	345.0	90.0	143.0	355.0	147.0
1	180.0	47.0	76.0	272.0	658.0	782.0	548.0	214.0	69.0	78.0	115.0	102.0
5	60.0	38.0	61.0	212.0	593.0	630.0	464.0	125.0	47.0	51.0	49.0	49.0
10	36.0	35.0	53.0	172.0	517.0	592.0	380.0	99.0	41.0	37.0	33.0	40.0
15	31.0	34.0	46.0	150.0	469.0	546.0	326.0	84.0	36.0	30.0	26.0	37.0
20	30.0	32.0	45.0	130.0	433.0	525.0	288.0	76.0	31.0	27.0	25.0	32.0
25	26.0	31.0	42.0	118.0	410.0	495.0	257.0	67.0	27.0	24.0	21.0	25.0
30	24.0	30.0	40.0	105.0	386.0	476.0	235.0	61.0	24.0	21.0	19.0	25.0
35	23.0	29.0	38.0	93.0	358.0	455.0	218.0	56.0	23.0	19.0	18.0	22.0
40	23.0	27.0	37.0	81.0	341.0	435.0	203.0	51.0	20.0	17.0	17.0	22.0
45	22.0	26.0	36.0	76.0	320.0	411.0	192.0	48.0	18.0	15.0	16.0	18.0
50	21.0	26.0	34.0	68.0	302.0	390.0	177.0	44.0	17.0	13.0	14.0	16.0
55	20.0	26.0	33.0	62.0	279.0	375.0	167.0	41.0	16.0	12.0	13.0	15.0
60	20.0	25.0	30.0	57.0	244.0	358.0	158.0	38.0	15.0	10.0	12.0	13.0
65	20.0	25.0	28.0	53.0	221.0	338.0	150.0	36.0	14.0	9.5	11.0	12.0
70	18.0	24.0	28.0	47.0	197.0	306.0	138.0	34.0	14.0	8.0	10.0	11.0
75	16.0	22.0	27.0	43.0	168.0	291.0	125.0	33.0	12.0	7.0	9.0	10.0
80	15.0	22.0	25.0	40.0	146.0	272.0	113.0	31.0	12.0	6.4	8.0	10.0
85	13.0	21.0	22.0	35.0	130.0	243.0	94.0	27.0	11.0	5.3	6.7	7.0
90	6.4	20.0	20.0	33.0	108.0	216.0	80.0	25.0	9.5	4.6	6.0	6.0
95	4.0	18.0	19.0	30.0	85.0	174.0	66.0	22.0	8.1	4.0	5.0	5.0
99	2.0	14.0	17.0	25.0	57.0	136.0	47.0	17.0	5.9	3.5	5.0	3.2
Minimum	1.8	13.0	16.0	23.0	37.0	118.0	46.0	16.0	5.5	3.3	5.0	3.2
Average	26.4	27.3	35.4	87.9	303.3	399.3	206.4	55.6	21.7	18.2	19.2	21.4
# Days	496	453	496	480	496	480	496	496	480	496	480	496
# Years	16	16	16	16	16	16	16	16	16	16	16	16

Table CAWG 6 Appdx E-4D. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Below Normal Water Years (1925, 1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	50.0	68.0	117.0	291.0	530.0	824.0	440.0	184.0	68.0	47.0	52.0	32.0
1	43.0	48.0	83.0	268.0	504.0	734.0	395.0	135.0	40.0	40.0	46.0	30.0
5	25.0	30.0	55.0	202.0	440.0	555.0	334.0	93.0	24.0	31.0	37.0	26.0
10	22.0	26.0	45.0	182.0	381.0	500.0	289.0	69.0	19.0	24.0	30.0	22.0
15	19.0	24.0	39.0	166.0	342.0	468.0	262.0	57.0	17.0	20.0	21.0	21.0
20	18.0	22.0	36.0	149.0	324.0	445.0	232.0	49.0	16.0	15.0	20.0	18.0
25	16.0	20.0	32.0	123.0	298.0	425.0	206.0	43.0	15.0	13.0	20.0	18.0
30	15.0	18.0	30.0	105.0	286.0	410.0	189.0	40.0	14.0	12.0	17.0	17.0
35	15.0	18.0	26.0	93.0	268.0	390.0	166.0	37.0	13.0	11.0	15.0	16.0
40	13.0	18.0	25.0	81.0	250.0	376.0	147.0	35.0	12.0	10.0	13.0	14.0
45	13.0	17.0	24.0	72.0	233.0	345.0	130.0	31.0	11.0	9.0	12.0	14.0
50	12.0	16.0	24.0	66.0	217.0	323.0	118.0	28.0	10.0	8.3	10.0	13.0
55	11.0	15.0	23.0	60.0	199.0	296.0	108.0	26.0	9.5	7.5	9.4	12.0
60	10.0	15.0	20.0	56.0	184.0	262.0	94.0	23.0	8.2	7.0	8.6	10.0
65	10.0	15.0	19.0	52.0	170.0	230.0	84.0	21.0	7.5	6.4	8.0	10.0
70	10.0	15.0	18.0	50.0	148.0	206.0	78.0	20.0	6.9	6.0	7.5	9.3
75	10.0	14.0	17.0	47.0	130.0	183.0	73.0	18.0	6.2	5.2	7.0	8.0
80	8.0	12.0	17.0	44.0	119.0	172.0	60.0	16.0	5.7	4.6	6.5	7.0
85	8.0	10.0	16.0	40.0	105.0	162.0	52.0	14.0	5.0	4.2	5.8	7.0
90	7.0	10.0	16.0	36.0	92.0	150.0	45.0	12.0	4.5	3.5	5.2	6.0
95	5.5	10.0	15.0	25.0	79.0	133.0	35.0	10.0	4.1	2.7	3.5	5.0
99	4.5	10.0	12.0	25.0	64.0	119.0	29.0	8.0	3.8	1.2	3.0	5.0
Minimum	4.5	10.0	12.0	24.0	41.0	97.0	26.0	7.5	3.8	1.2	3.0	5.0
Average	13.6	17.8	27.3	90.0	227.3	322.6	146.5	35.8	11.7	11.1	14.1	13.5
# Days	372	339	372	360	372	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx E-4E. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Dry Water Years (1926, 1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	190.0	210.0	114.0	345.0	527.0	738.0	252.0	80.0	810.0	56.0	45.0	83.0
1	69.0	91.0	78.0	324.0	495.0	645.0	224.0	61.0	152.0	48.0	43.0	45.0
5	38.0	41.0	57.0	224.0	440.0	467.0	156.0	45.0	54.0	40.0	37.0	36.0
10	33.0	36.0	50.0	171.0	390.0	381.0	125.0	38.0	24.0	34.0	30.0	32.0
15	30.0	31.0	45.0	153.0	359.0	338.0	108.0	32.0	20.0	31.0	25.0	28.0
20	27.0	27.0	40.0	137.0	327.0	307.0	94.0	28.0	17.0	28.0	22.0	27.0
25	23.0	25.0	35.0	116.0	299.0	291.0	86.0	26.0	15.0	26.0	22.0	27.0
30	23.0	25.0	35.0	100.0	270.0	272.0	78.0	25.0	13.0	23.0	19.0	24.0
35	20.0	23.0	35.0	92.0	253.0	250.0	74.0	23.0	11.0	22.0	17.0	22.0
40	18.0	22.0	33.0	84.0	237.0	238.0	68.0	22.0	9.5	21.0	15.0	18.0
45	17.0	20.0	31.0	78.0	223.0	223.0	64.0	21.0	8.5	18.0	14.0	16.0
50	15.0	19.0	28.0	73.0	205.0	205.0	60.0	20.0	7.5	16.0	13.0	15.0
55	13.0	18.0	26.0	64.0	184.0	188.0	56.0	19.0	6.8	14.0	12.0	14.0
60	12.0	18.0	25.0	58.0	166.0	172.0	52.0	17.0	6.4	13.0	11.0	13.0
65	12.0	18.0	24.0	53.0	154.0	162.0	48.0	16.0	5.8	12.0	10.0	13.0
70	12.0	16.0	24.0	49.0	138.0	148.0	45.0	15.0	5.3	9.9	9.3	13.0
75	12.0	16.0	23.0	44.0	128.0	138.0	42.0	14.0	4.9	8.1	8.6	12.0
80	10.0	14.0	20.0	40.0	109.0	130.0	39.0	12.0	4.6	7.0	7.6	10.0
85	10.0	13.0	19.0	37.0	92.0	116.0	34.0	11.0	4.4	4.1	6.5	8.2
90	9.0	11.0	16.0	33.0	72.0	99.0	30.0	9.8	4.0	3.7	5.5	7.2
95	8.0	11.0	13.0	27.0	44.0	87.0	25.0	8.1	3.8	3.5	4.1	5.5
99	7.6	9.7	11.0	20.0	36.0	53.0	19.0	6.5	3.5	3.0	3.0	5.5
Minimum	7.2	9.5	10.0	18.0	30.0	46.0	18.0	4.9	3.5	3.0	2.5	5.5
Average	19.6	23.2	31.3	90.2	217.9	229.8	70.8	21.9	17.0	18.1	15.6	18.4
# Days	403	367	403	390	403	390	403	403	390	403	390	403
# Years	13	13	13	13	13	13	13	13	13	13	13	13

Table CAWG 6 Appdx E-4F. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Critical Water Years (1924, 1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	23.0	33.0	86.0	270.0	419.0	618.0	324.0	155.0	285.0	66.0	38.0	22.0
1	23.0	31.0	70.0	233.0	378.0	495.0	281.0	111.0	107.0	52.0	30.0	21.0
5	20.0	25.0	55.0	182.0	319.0	360.0	137.0	47.0	32.0	36.0	23.0	17.0
10	17.0	22.0	47.0	153.0	284.0	312.0	99.0	37.0	24.0	27.0	20.0	14.0
15	17.0	19.0	41.0	126.0	264.0	276.0	81.0	32.0	18.0	24.0	16.0	12.0
20	12.0	16.0	37.0	114.0	245.0	253.0	70.0	28.0	14.0	19.0	13.0	12.0
25	11.0	14.0	32.0	105.0	229.0	232.0	63.0	25.0	12.0	17.0	12.0	11.0
30	10.0	14.0	28.0	97.0	213.0	217.0	58.0	23.0	10.0	15.0	11.0	11.0
35	8.9	13.0	26.0	88.0	204.0	193.0	53.0	21.0	9.3	14.0	10.0	10.0
40	8.0	13.0	24.0	82.0	188.0	172.0	50.0	20.0	8.5	12.0	9.7	8.5
45	8.0	11.0	23.0	74.0	173.0	157.0	45.0	19.0	7.7	10.0	9.2	7.0
50	7.8	10.0	22.0	70.0	159.0	146.0	41.0	18.0	6.8	7.9	8.8	6.4
55	7.4	9.2	21.0	65.0	151.0	134.0	37.0	16.0	6.5	6.5	8.1	6.0
60	6.9	9.0	20.0	60.0	142.0	124.0	34.0	15.0	6.0	6.0	7.5	6.0
65	6.5	8.0	20.0	54.0	134.0	115.0	31.0	13.0	5.6	5.7	6.1	6.0
70	6.4	7.8	18.0	49.0	123.0	103.0	27.0	12.0	5.2	5.0	5.5	5.5
75	6.1	7.2	15.0	45.0	110.0	94.0	24.0	11.0	5.0	4.8	5.2	5.5
80	5.8	7.0	13.0	41.0	97.0	76.0	22.0	9.6	4.7	4.3	5.0	5.0
85	5.3	6.8	11.0	36.0	82.0	66.0	19.0	8.4	4.3	4.0	4.9	5.0
90	4.9	6.1	10.0	32.0	70.0	51.0	15.0	6.7	3.6	3.8	4.0	5.0
95	4.5	5.4	9.0	22.0	58.0	38.0	10.0	3.8	1.9	3.5	3.0	4.6
99	4.5	4.2	8.4	12.0	42.0	19.0	6.0	1.9	1.3	3.2	3.0	3.0
Minimum	4.5	3.7	6.7	11.0	39.0	19.0	5.0	1.9	1.2	2.8	2.2	2.8
Average	9.4	12.0	25.6	81.1	173.0	169.5	52.7	21.0	12.3	12.7	10.0	8.5
# Days	496	453	496	480	496	480	496	496	480	496	480	496
# Years	16	16	16	16	16	16	16	16	16	16	16	16

Table CAWG 6 Appdx E-5A. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1060.0	179.0	155.0	323.0	841.0	1180.0	1420.0	514.0	214.0	89.0	71.0	77.0
1	105.0	91.0	118.0	283.0	710.0	932.0	1010.0	451.0	147.0	82.0	52.0	57.0
5	47.0	48.0	80.0	228.0	557.0	706.0	711.0	250.0	75.0	37.0	39.0	43.0
10	39.0	42.0	68.0	190.0	469.0	588.0	536.0	131.0	51.0	30.0	30.0	37.0
15	35.0	36.0	59.0	168.0	401.0	511.0	324.0	99.0	42.0	27.0	27.0	34.0
20	32.0	33.0	55.0	146.0	359.0	454.0	281.0	85.0	37.0	24.0	25.0	30.0
25	31.0	32.0	50.0	127.0	328.0	418.0	222.0	73.0	32.0	22.0	22.0	27.0
30	29.0	30.0	46.0	116.0	310.0	369.0	180.0	62.0	28.0	21.0	20.0	24.0
35	28.0	28.0	43.0	106.0	291.0	339.0	156.0	50.0	26.0	19.0	18.0	22.0
40	26.0	27.0	40.0	98.0	272.0	310.0	139.0	42.0	23.0	18.0	17.0	20.0
45	24.0	25.0	38.0	90.0	256.0	291.0	113.0	35.0	20.0	16.0	16.0	18.0
50	22.0	24.0	35.0	83.0	242.0	274.0	89.0	31.0	18.0	15.0	15.0	15.0
55	20.0	23.0	33.0	77.0	221.0	259.0	77.0	27.0	16.0	13.0	13.0	14.0
60	18.0	21.0	31.0	72.0	206.0	237.0	69.0	24.0	12.0	12.0	12.0	12.0
65	14.0	20.0	29.0	69.0	179.0	222.0	63.0	21.0	10.0	11.0	11.0	11.0
70	12.0	19.0	27.0	63.0	163.0	193.0	57.0	19.0	9.0	8.4	10.0	10.0
75	11.0	15.0	25.0	57.0	150.0	168.0	50.0	17.0	7.6	6.4	9.6	8.2
80	8.6	14.0	24.0	53.0	138.0	153.0	46.0	16.0	6.4	5.9	9.0	7.2
85	6.6	9.7	23.0	48.0	121.0	131.0	39.0	14.0	5.4	5.5	8.1	6.6
90	5.6	7.0	21.0	40.0	105.0	108.0	33.0	11.0	5.0	5.0	6.9	5.8
95	5.0	6.0	19.0	34.0	81.0	84.0	26.0	9.2	4.6	3.5	5.2	5.0
99	4.6	4.6	12.0	26.0	56.0	49.0	20.0	6.7	4.0	3.0	4.8	4.4
Minimum	4.5	4.3	6.7	25.0	42.0	46.0	18.0	5.7	3.7	3.0	4.0	3.7
Average	25.6	25.8	40.8	100.9	261.7	314.5	187.1	61.6	25.2	17.1	17.1	19.1
# Days	589	537	589	570	589	570	589	589	570	589	570	589
# Years	19	19	19	19	19	19	19	19	19	19	19	19

Table CAWG 6 Appdx E-5B. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1060.0	179.0	155.0	323.0	841.0	1180.0	1420.0	514.0	214.0	89.0	71.0	70.0
1	559.0	141.0	143.0	293.0	790.0	963.0	1110.0	490.0	191.0	88.0	66.0	63.0
5	67.0	77.0	108.0	260.0	593.0	837.0	867.0	337.0	114.0	56.0	40.0	49.0
10	47.0	54.0	86.0	221.0	523.0	763.0	795.0	296.0	93.0	35.0	34.0	43.0
15	44.0	47.0	78.0	182.0	486.0	707.0	720.0	251.0	73.0	29.0	30.0	40.0
20	39.0	43.0	74.0	159.0	410.0	658.0	672.0	222.0	60.0	26.0	28.0	36.0
25	35.0	42.0	68.0	139.0	365.0	637.0	617.0	183.0	53.0	24.0	27.0	32.0
30	33.0	37.0	61.0	113.0	340.0	576.0	557.0	131.0	47.0	23.0	25.0	29.0
35	32.0	36.0	59.0	103.0	319.0	539.0	493.0	117.0	41.0	22.0	22.0	27.0
40	31.0	34.0	57.0	94.0	299.0	510.0	417.0	107.0	38.0	21.0	19.0	26.0
45	30.0	33.0	54.0	89.0	277.0	480.0	338.0	95.0	37.0	20.0	17.0	25.0
50	29.0	33.0	51.0	82.0	267.0	449.0	312.0	89.0	33.0	19.0	16.0	24.0
55	28.0	32.0	48.0	75.0	242.0	422.0	285.0	85.0	32.0	18.0	16.0	23.0
60	27.0	31.0	46.0	72.0	209.0	394.0	248.0	81.0	31.0	16.0	15.0	22.0
65	25.0	29.0	43.0	67.0	188.0	361.0	228.0	74.0	29.0	15.0	15.0	22.0
70	25.0	24.0	41.0	63.0	171.0	337.0	196.0	69.0	27.0	14.0	14.0	21.0
75	24.0	22.0	38.0	59.0	153.0	312.0	182.0	62.0	26.0	13.0	13.0	20.0
80	23.0	22.0	36.0	56.0	138.0	302.0	164.0	56.0	24.0	11.0	11.0	17.0
85	21.0	21.0	33.0	53.0	127.0	281.0	156.0	52.0	23.0	7.7	11.0	15.0
90	20.0	19.0	28.0	41.0	109.0	250.0	143.0	46.0	20.0	5.8	9.8	11.0
95	18.0	18.0	25.0	35.0	93.0	217.0	136.0	39.0	18.0	5.4	8.9	8.1
99	17.0	16.0	18.0	33.0	77.0	134.0	111.0	29.0	16.0	5.0	6.6	5.9
Minimum	17.0	16.0	18.0	33.0	77.0	134.0	111.0	29.0	16.0	5.0	6.6	5.9
Average	41.9	36.8	55.9	107.4	289.9	483.0	410.6	134.7	46.3	21.6	20.2	26.4
# Days	186	169	186	180	186	180	186	186	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx E-5C. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	41.0	47.0	78.0	214.0	710.0	597.0	463.0	150.0	90.0	82.0	60.0	77.0
5	39.0	37.0	66.0	171.0	627.0	533.0	311.0	99.0	51.0	62.0	48.0	48.0
10	36.0	33.0	61.0	130.0	604.0	511.0	279.0	85.0	47.0	45.0	43.0	43.0
15	32.0	32.0	55.0	126.0	573.0	485.0	240.0	77.0	44.0	34.0	40.0	40.0
20	30.0	31.0	50.0	118.0	537.0	462.0	215.0	75.0	41.0	30.0	33.0	38.0
25	29.0	30.0	49.0	110.0	517.0	440.0	195.0	71.0	40.0	29.0	27.0	36.0
30	27.0	29.0	45.0	104.0	469.0	417.0	172.0	60.0	37.0	27.0	25.0	34.0
35	26.0	28.0	43.0	99.0	435.0	382.0	158.0	54.0	36.0	25.0	22.0	23.0
40	25.0	28.0	41.0	89.0	423.0	368.0	155.0	48.0	31.0	24.0	21.0	20.0
45	23.0	27.0	38.0	84.0	354.0	349.0	147.0	44.0	26.0	21.0	19.0	18.0
50	19.0	27.0	37.0	78.0	341.0	327.0	133.0	42.0	24.0	21.0	17.0	18.0
55	15.0	27.0	35.0	73.0	318.0	300.0	122.0	38.0	21.0	20.0	17.0	14.0
60	13.0	26.0	33.0	70.0	304.0	293.0	114.0	35.0	19.0	19.0	16.0	14.0
65	13.0	26.0	31.0	63.0	282.0	289.0	106.0	33.0	18.0	18.0	14.0	13.0
70	12.0	26.0	29.0	61.0	242.0	276.0	94.0	31.0	17.0	17.0	13.0	9.2
75	11.0	25.0	28.0	51.0	211.0	266.0	73.0	31.0	16.0	15.0	12.0	7.7
80	8.6	24.0	27.0	45.0	171.0	254.0	66.0	27.0	16.0	12.0	11.0	7.1
85	6.2	23.0	26.0	33.0	149.0	230.0	58.0	26.0	12.0	11.0	10.0	6.7
90	5.8	21.0	24.0	27.0	135.0	225.0	52.0	25.0	12.0	10.0	9.5	6.2
95	4.8	20.0	22.0	26.0	64.0	215.0	47.0	21.0	10.0	9.5	9.0	5.9
Minimum	4.5	18.0	21.0	25.0	54.0	174.0	46.0	20.0	9.7	8.6	8.2	5.6
Average	20.0	27.7	39.5	84.7	359.5	351.0	149.6	50.3	28.4	24.8	22.2	22.2
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-5D. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88.0	91.0	114.0	256.0	469.0	467.0	161.0	45.0	29.0	37.0	45.0	44.0
5	49.0	49.0	72.0	236.0	432.0	376.0	139.0	38.0	24.0	28.0	38.0	40.0
10	41.0	42.0	57.0	180.0	397.0	343.0	95.0	31.0	20.0	27.0	33.0	36.0
15	39.0	38.0	43.0	171.0	381.0	320.0	87.0	26.0	20.0	26.0	29.0	35.0
20	37.0	37.0	42.0	158.0	370.0	288.0	84.0	25.0	19.0	25.0	26.0	34.0
25	36.0	35.0	40.0	149.0	328.0	274.0	78.0	22.0	18.0	23.0	24.0	33.0
30	36.0	33.0	39.0	137.0	314.0	265.0	77.0	20.0	17.0	22.0	21.0	31.0
35	35.0	32.0	36.0	125.0	299.0	245.0	75.0	18.0	9.4	20.0	19.0	31.0
40	33.0	30.0	34.0	119.0	289.0	225.0	69.0	17.0	8.4	14.0	19.0	29.0
45	32.0	28.0	33.0	114.0	270.0	190.0	63.0	17.0	7.6	13.0	18.0	27.0
50	32.0	26.0	33.0	100.0	263.0	173.0	61.0	16.0	6.8	13.0	16.0	26.0
55	31.0	25.0	32.0	92.0	247.0	166.0	58.0	15.0	6.4	12.0	16.0	26.0
60	30.0	24.0	30.0	87.0	243.0	162.0	53.0	14.0	5.6	8.4	15.0	23.0
65	30.0	24.0	28.0	78.0	225.0	154.0	46.0	13.0	5.3	7.4	13.0	21.0
70	29.0	23.0	28.0	74.0	196.0	135.0	44.0	12.0	5.0	3.5	11.0	14.0
75	28.0	21.0	26.0	73.0	185.0	103.0	36.0	11.0	4.7	3.5	9.9	12.0
80	27.0	20.0	25.0	66.0	173.0	96.0	32.0	10.0	4.6	3.5	8.8	11.0
85	27.0	20.0	24.0	52.0	162.0	89.0	29.0	9.8	4.4	3.5	7.2	9.9
90	24.0	19.0	23.0	44.0	145.0	85.0	25.0	9.3	4.2	3.4	6.9	8.8
95	14.0	17.0	22.0	38.0	87.0	59.0	19.0	7.7	4.0	3.0	6.2	8.2
Minimum	8.8	14.0	19.0	33.0	66.0	46.0	18.0	6.8	3.7	3.0	5.0	7.5
Average	33.1	29.5	36.6	111.9	265.3	202.7	63.7	18.0	10.6	14.1	18.1	24.1
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-5E. Bear Creek near Lake Thomas A Edison (Gage 11230500)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	23.0	33.0	86.0	270.0	419.0	618.0	324.0	137.0	175.0	38.0	30.0	22.0
1	23.0	33.0	72.0	252.0	397.0	588.0	300.0	114.0	63.0	33.0	29.0	20.0
5	22.0	29.0	57.0	218.0	334.0	430.0	164.0	47.0	27.0	27.0	25.0	18.0
10	21.0	25.0	49.0	189.0	312.0	331.0	101.0	37.0	25.0	20.0	22.0	15.0
15	19.0	24.0	43.0	162.0	294.0	290.0	87.0	32.0	20.0	18.0	20.0	14.0
20	17.0	22.0	39.0	146.0	268.0	274.0	75.0	28.0	14.0	17.0	18.0	12.0
25	14.0	20.0	36.0	121.0	257.0	263.0	70.0	26.0	12.0	16.0	15.0	12.0
30	12.0	18.0	33.0	115.0	246.0	241.0	65.0	23.0	11.0	14.0	12.0	11.0
35	11.0	15.0	31.0	105.0	232.0	229.0	63.0	22.0	10.0	13.0	11.0	11.0
40	11.0	14.0	30.0	95.0	219.0	220.0	57.0	20.0	9.4	12.0	11.0	10.0
45	11.0	14.0	27.0	87.0	206.0	193.0	54.0	19.0	9.0	10.0	10.0	9.8
50	10.0	13.0	26.0	79.0	181.0	175.0	51.0	19.0	8.6	8.2	9.8	8.6
55	7.9	10.0	25.0	72.0	168.0	161.0	49.0	18.0	7.7	6.5	9.6	7.3
60	7.1	9.5	24.0	70.0	155.0	154.0	46.0	17.0	7.0	6.1	9.1	6.9
65	6.8	8.0	24.0	63.0	145.0	143.0	42.0	16.0	6.4	6.0	8.8	6.6
70	6.2	7.3	22.0	58.0	138.0	134.0	40.0	15.0	5.8	5.9	8.0	6.1
75	5.7	6.8	22.0	53.0	130.0	123.0	36.0	13.0	5.4	5.7	7.1	5.7
80	5.4	6.4	21.0	49.0	114.0	116.0	34.0	12.0	5.2	5.4	5.8	5.4
85	5.2	6.1	20.0	42.0	99.0	103.0	31.0	11.0	5.1	5.0	5.2	5.1
90	5.0	5.5	19.0	39.0	82.0	84.0	27.0	9.2	4.8	4.9	5.0	4.9
95	4.8	5.1	15.0	35.0	66.0	60.0	23.0	8.3	4.6	4.8	4.9	4.8
99	4.6	4.3	7.0	31.0	45.0	48.0	21.0	5.7	4.1	4.6	4.2	3.8
Minimum	4.5	4.3	6.7	31.0	42.0	46.0	20.0	5.7	4.1	4.6	4.0	3.7
Average	10.8	13.9	30.3	97.6	194.0	202.4	64.4	22.5	12.1	11.3	11.7	9.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-6A. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
(10/1/1970 to 9/30/2002)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	603.0	24.0	122.0	228.0	923.0	1250.0	1420.0	490.0	893.0	88.0	19.0	36.0
1	52.0	22.0	90.0	145.0	575.0	940.0	997.0	267.0	30.0	18.0	10.0	28.0
5	4.5	4.7	5.1	86.0	218.0	747.0	720.0	71.0	5.4	7.4	4.2	4.1
10	3.9	3.6	3.7	40.0	138.0	635.0	521.0	4.9	4.5	5.0	3.1	3.2
15	3.3	3.2	3.1	4.7	56.0	510.0	256.0	3.7	3.7	3.0	3.0	3.0
20	2.7	2.9	2.9	3.2	18.0	358.0	85.0	3.4	3.6	2.6	2.4	2.5
25	2.5	2.6	2.7	2.9	6.4	156.0	4.9	3.4	3.5	2.5	2.3	2.4
30	2.4	2.5	2.5	2.8	4.6	74.0	4.2	3.3	3.3	2.4	2.3	2.4
35	2.3	2.3	2.4	2.6	3.6	37.0	3.5	3.2	3.2	2.3	2.2	2.3
40	2.3	2.3	2.4	2.4	3.4	14.0	3.4	3.1	3.1	2.2	2.2	2.2
45	2.2	2.3	2.3	2.4	3.3	5.4	3.3	3.1	3.1	2.2	2.1	2.2
50	2.2	2.2	2.2	2.4	3.2	3.5	3.1	3.0	3.0	2.1	1.8	1.8
55	1.8	2.2	2.1	2.3	3.0	3.3	2.8	2.9	2.9	1.8	1.7	1.8
60	1.8	1.7	1.8	2.2	2.7	3.0	2.8	2.8	2.8	1.7	1.6	1.7
65	1.6	1.7	1.8	2.0	2.6	2.9	2.7	2.7	2.7	1.6	1.5	1.5
70	1.5	1.6	1.6	1.7	2.6	2.7	2.7	2.6	2.6	1.6	1.5	1.5
75	1.5	1.5	1.5	1.5	2.5	2.6	2.6	2.5	2.5	1.5	1.4	1.5
80	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	1.5	1.4	1.4
85	1.4	1.4	1.5	1.5	2.4	2.5	2.4	2.3	2.4	1.4	1.3	1.3
90	1.3	1.3	1.3	1.4	2.2	2.4	2.2	2.2	2.2	1.2	1.2	1.1
95	0.0	0.0	0.0	1.2	1.5	2.2	2.1	1.1	2.1	1.0	0.0	0.0
99	0.0	0.0	0.0	0.0	1.0	1.2	1.0	1.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.6	1.0	1.0	0.0	0.0	0.0	0.0
Average	4.8	3.0	5.0	11.5	37.1	154.3	105.8	12.9	6.3	2.7	2.3	2.5
# Days	620	565	620	619	658	645	654	636	603	620	600	620
# Years	20	20	20	21	23	23	22	22	21	20	20	20

Table CAWG 6 Appdx E-6B. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Wet Water Years (1978, 1980, 1982, 1986, 1993, 1995, 1996, 1997, 1998)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	603.0	24.0	122.0	228.0	923.0	1250.0	1420.0	490.0	893.0	88.0	12.0	36.0
1	178.0	24.0	119.0	208.0	846.0	1090.0	1090.0	451.0	712.0	26.0	11.0	32.0
5	43.0	22.0	80.0	132.0	401.0	908.0	863.0	210.0	25.0	8.2	9.4	12.0
10	33.0	20.0	44.0	105.0	251.0	788.0	778.0	108.0	3.7	3.4	2.4	7.1
15	2.6	18.0	18.0	91.0	186.0	751.0	712.0	73.0	3.7	2.5	2.4	2.5
20	2.5	2.6	3.3	67.0	142.0	704.0	669.0	36.0	3.6	2.5	2.3	2.5
25	2.5	2.5	2.9	54.0	79.0	669.0	581.0	17.0	3.6	2.4	2.2	2.4
30	2.4	2.5	2.8	47.0	56.0	635.0	519.0	3.7	3.5	2.4	2.2	2.4
35	2.4	2.5	2.6	3.7	28.0	613.0	426.0	3.6	3.5	2.3	2.1	2.2
40	2.3	2.3	2.4	3.2	8.3	564.0	282.0	3.5	3.5	2.2	2.1	2.2
45	2.3	2.3	2.4	3.2	3.7	502.0	244.0	3.4	3.4	2.2	2.1	2.1
50	2.3	2.2	2.3	3.0	3.6	434.0	174.0	3.4	3.4	2.2	1.6	1.7
55	2.2	2.2	2.2	2.8	3.5	382.0	99.0	3.3	3.3	1.8	1.6	1.6
60	1.8	2.2	2.2	2.8	3.4	346.0	59.0	3.3	3.2	1.6	1.6	1.5
65	1.5	2.2	2.2	2.5	3.3	295.0	28.0	3.2	3.2	1.6	1.5	1.5
70	1.5	1.5	1.6	2.4	3.3	151.0	4.6	3.2	3.1	1.5	1.5	1.4
75	1.4	1.4	1.5	2.4	3.3	68.0	3.4	3.1	3.1	1.5	1.4	1.3
80	1.4	1.3	1.5	2.4	3.2	26.0	3.4	3.1	3.1	1.4	1.2	1.2
85	1.3	1.3	1.3	2.3	3.2	9.7	3.2	3.1	3.1	1.2	1.2	1.0
90	1.3	1.3	1.2	1.6	3.1	3.8	3.2	3.1	3.0	1.2	1.1	1.0
95	1.3	1.3	1.2	1.2	3.1	3.4	3.1	3.0	3.0	1.2	1.0	1.0
99	1.1	1.1	1.2	1.2	0.4	3.1	3.0	3.0	3.0	1.1	1.0	1.0
Minimum	1.1	1.1	1.2	1.2	0.0	3.1	3.0	3.0	3.0	1.1	1.0	1.0
Average	10.9	5.0	11.7	31.1	81.1	421.9	302.9	34.7	13.4	3.1	2.4	3.5
# Days	186	169	186	199	207	212	220	202	183	186	180	186
# Years	6	6	6	7	8	8	8	8	7	6	6	6

Table CAWG 6 Appdx E-6C. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Above Normal Water Years (1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.6	3.6	3.5	4.9	257.0	599.0	456.0	5.2	6.4	5.9	7.0	4.6
5	4.5	3.6	3.3	4.6	220.0	365.0	60.0	5.1	5.5	5.5	4.0	4.0
10	3.6	3.5	3.2	3.1	189.0	125.0	4.9	4.8	5.5	5.0	3.1	3.2
15	3.5	3.5	3.1	3.1	179.0	103.0	4.9	4.5	5.4	5.0	3.1	3.2
20	3.4	3.5	3.1	2.9	140.0	88.0	4.8	4.5	5.4	5.0	3.1	3.1
25	3.3	3.5	3.1	2.9	114.0	72.0	4.7	4.5	5.3	4.0	3.1	3.1
30	3.3	3.4	3.1	2.8	78.0	55.0	4.7	4.4	5.3	3.1	3.1	3.1
35	3.3	3.2	3.0	2.8	49.0	38.0	4.6	4.4	5.2	3.0	3.0	3.0
40	3.2	3.1	3.0	2.7	22.0	27.0	4.5	3.4	4.6	2.5	3.0	3.0
45	3.1	3.1	2.9	2.7	12.0	20.0	4.1	3.4	4.5	2.5	3.0	3.0
50	3.1	3.1	2.9	2.6	7.9	6.6	3.9	3.4	4.4	2.5	3.0	3.0
55	3.1	3.0	2.9	2.6	5.8	5.6	3.7	3.4	4.4	2.5	2.6	2.9
60	3.0	3.0	2.9	2.6	5.6	5.3	3.6	3.4	4.4	2.4	2.5	2.8
65	3.0	2.9	2.8	2.6	4.7	4.7	3.5	3.3	4.4	2.4	2.3	2.3
70	2.3	2.3	2.3	2.4	4.7	4.5	3.5	3.1	3.2	2.3	2.3	2.3
75	2.3	2.3	2.3	2.4	4.6	3.1	3.5	3.0	3.2	2.3	2.3	2.3
80	2.3	2.3	2.3	2.3	4.5	3.1	3.4	3.0	3.1	2.3	2.3	2.3
85	2.3	2.3	2.3	2.3	3.2	3.1	3.4	3.0	3.1	2.3	2.3	2.3
90	2.3	2.3	2.3	2.2	3.1	3.1	3.3	3.0	3.1	2.2	2.3	2.3
95	2.3	2.3	2.3	2.2	3.0	3.1	3.1	2.9	3.1	2.2	2.3	2.3
Minimum	2.3	2.3	2.3	2.1	0.1	0.6	3.1	2.9	3.1	2.0	2.0	2.2
Average	3.0	3.0	2.8	2.8	59.0	63.5	18.0	3.7	4.4	3.2	2.9	2.8
# Days	93	86	93	90	110	103	93	93	90	93	90	93
# Years	3	3	3	3	4	4	3	3	3	3	3	3

Table CAWG 6 Appdx E-6D. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.4	4.7	5.1	5.0	36.0	39.0	3.4	3.3	3.4	22.0	19.0	4.1
5	4.4	4.7	5.1	4.8	19.0	9.7	3.3	3.3	3.3	9.8	10.0	4.1
10	4.3	4.6	5.0	4.8	7.2	3.4	3.3	3.3	3.3	8.7	4.2	4.1
15	4.1	4.6	5.0	4.8	5.7	3.4	3.3	3.3	3.3	7.9	4.1	4.1
20	4.1	4.5	5.0	4.7	4.0	3.3	3.3	3.3	3.3	7.5	4.1	4.1
25	4.0	4.5	4.9	4.7	3.4	3.3	3.3	3.3	3.3	5.8	4.1	4.1
30	4.0	4.4	4.8	4.7	3.3	3.3	3.3	3.3	3.3	5.0	4.0	4.0
35	2.2	2.6	2.6	3.4	3.3	3.3	2.6	2.6	2.5	2.6	2.2	2.2
40	2.2	2.6	2.5	2.4	3.3	2.6	2.6	2.5	2.5	2.1	2.2	2.2
45	2.2	2.6	2.5	2.3	3.2	2.6	2.5	2.5	2.5	2.1	2.2	2.2
50	2.2	2.2	2.4	2.2	3.2	2.5	2.5	2.5	2.5	2.1	2.1	2.2
55	2.2	2.2	2.4	2.2	2.6	2.5	2.4	2.4	2.5	2.1	2.1	2.2
60	2.2	2.2	2.3	2.2	2.6	2.5	2.4	2.4	2.5	2.1	2.1	2.2
65	2.2	2.2	2.3	2.2	2.5	2.5	2.4	2.4	2.5	2.1	2.1	2.2
70	1.5	2.2	2.1	2.2	2.2	2.5	2.2	2.2	2.2	1.6	1.4	1.4
75	1.5	2.1	1.5	1.5	2.2	2.3	2.2	2.2	2.2	1.6	1.4	1.4
80	1.5	2.1	1.5	1.5	2.2	2.3	2.2	2.2	2.2	1.6	1.4	1.4
85	1.4	1.9	1.5	1.5	2.2	2.3	2.1	2.2	2.1	1.6	1.4	1.4
90	1.4	1.5	1.5	1.5	2.2	2.2	2.1	2.1	2.1	1.5	1.3	1.4
95	1.4	1.5	1.5	1.5	2.2	2.2	2.1	2.1	2.1	1.4	1.3	1.3
Minimum	1.3	1.3	1.5	1.4	2.2	2.2	2.1	2.1	2.1	1.4	1.3	1.3
Average	2.6	2.9	3.0	2.9	4.5	3.9	2.6	2.6	2.7	4.1	3.3	2.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-6E. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.8	2.9	2.6	37.0	26.0	156.0	2.9	5.9	25.0	19.0	2.5	2.6
1	2.7	2.9	2.6	2.5	18.0	129.0	2.9	2.9	20.0	4.0	2.5	2.6
5	2.7	2.6	2.6	2.5	3.7	24.0	2.8	2.9	3.0	2.7	2.4	2.5
10	2.5	2.5	2.5	2.4	2.9	3.0	2.8	2.9	2.9	2.6	2.4	2.5
15	2.2	2.3	2.4	2.4	2.7	2.9	2.8	2.9	2.9	2.6	2.2	2.4
20	2.2	2.3	2.4	2.4	2.7	2.9	2.8	2.8	2.9	2.4	2.2	2.3
25	2.1	2.2	2.2	2.3	2.7	2.9	2.7	2.8	2.9	2.3	2.2	2.2
30	1.8	1.8	2.0	2.2	2.6	2.9	2.7	2.7	2.8	2.2	1.8	1.8
35	1.8	1.7	1.8	1.9	2.6	2.8	2.7	2.7	2.8	1.8	1.8	1.8
40	1.8	1.7	1.8	1.8	2.6	2.7	2.7	2.7	2.8	1.8	1.7	1.8
45	1.8	1.7	1.8	1.7	2.6	2.7	2.7	2.7	2.7	1.7	1.7	1.8
50	1.8	1.7	1.8	1.6	2.6	2.7	2.7	2.7	2.6	1.7	1.7	1.7
55	1.8	1.7	1.8	1.6	2.6	2.6	2.7	2.6	2.6	1.7	1.5	1.7
60	1.7	1.6	1.6	1.6	2.5	2.6	2.7	2.6	2.6	1.7	1.5	1.6
65	1.6	1.6	1.6	1.5	2.5	2.6	2.6	2.6	2.5	1.5	1.5	1.5
70	1.6	1.5	1.5	1.5	2.5	2.5	2.6	2.5	2.5	1.5	1.5	1.5
75	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	1.5	1.4	1.5
80	1.5	1.5	1.5	1.5	2.5	2.4	2.5	2.4	2.4	1.5	1.4	1.5
85	1.5	1.5	1.5	1.5	2.4	2.4	2.4	2.3	2.4	1.4	1.4	1.4
90	1.5	1.5	1.5	1.5	2.4	2.3	2.2	2.2	2.3	1.3	1.4	1.4
95	1.5	1.4	1.5	1.3	2.2	2.2	2.2	2.2	2.3	1.2	1.3	1.4
99	1.4	1.3	1.3	1.3	2.2	2.2	2.2	2.1	2.2	1.0	1.3	1.3
Minimum	1.4	1.3	1.3	1.3	2.2	2.2	2.2	2.1	2.2	0.9	1.3	1.3
Average	1.9	1.8	1.9	2.0	3.0	6.5	2.6	2.6	3.2	2.0	1.8	1.8
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-7A. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	603.0	24.0	122.0	228.0	923.0	1250.0	1420.0	490.0	37.0	88.0	19.0	36.0
1	53.0	22.0	109.0	120.0	575.0	940.0	1010.0	282.0	28.0	19.0	11.0	29.0
5	4.6	17.0	18.0	67.0	186.0	686.0	721.0	30.0	5.4	7.7	4.3	4.1
10	4.0	4.4	4.8	4.8	86.0	537.0	493.0	4.5	4.5	5.0	3.1	3.3
15	3.3	3.4	3.1	4.3	23.0	365.0	81.0	3.6	3.7	3.0	3.0	3.0
20	3.0	3.0	2.9	3.2	7.0	174.0	4.8	3.4	3.6	2.6	2.4	2.5
25	2.5	2.6	2.8	2.9	4.7	71.0	3.9	3.4	3.5	2.5	2.4	2.5
30	2.4	2.5	2.6	2.8	3.7	26.0	3.5	3.3	3.3	2.4	2.3	2.4
35	2.3	2.4	2.5	2.6	3.4	8.7	3.4	3.2	3.3	2.3	2.2	2.3
40	2.3	2.3	2.4	2.4	3.3	4.6	3.3	3.1	3.2	2.3	2.2	2.3
45	2.2	2.3	2.3	2.4	3.3	3.4	3.2	3.1	3.1	2.2	2.1	2.2
50	2.2	2.2	2.3	2.4	3.2	3.2	3.0	3.0	3.0	2.1	2.1	2.1
55	2.1	2.2	2.2	2.3	3.0	3.1	2.8	2.9	2.9	2.0	1.8	1.8
60	1.8	2.1	2.0	2.2	2.7	2.9	2.7	2.8	2.9	1.7	1.7	1.7
65	1.8	1.7	1.8	2.2	2.6	2.8	2.7	2.7	2.8	1.7	1.6	1.6
70	1.6	1.7	1.7	1.7	2.6	2.7	2.7	2.7	2.7	1.6	1.5	1.5
75	1.5	1.6	1.6	1.6	2.6	2.6	2.6	2.6	2.6	1.5	1.5	1.5
80	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	1.5	1.4	1.4
85	1.5	1.5	1.5	1.5	2.5	2.5	2.4	2.4	2.5	1.5	1.4	1.4
90	1.4	1.4	1.5	1.5	2.4	2.4	2.3	2.3	2.3	1.4	1.3	1.3
95	1.3	1.3	1.3	1.3	2.2	2.2	2.2	2.2	2.2	1.2	1.2	1.1
99	1.2	1.2	1.2	1.2	2.2	2.2	2.1	2.1	2.1	1.1	1.0	1.0
Minimum	1.1	1.1	1.2	1.2	2.2	2.2	2.1	2.1	2.1	0.9	1.0	1.0
Average	5.0	3.2	5.3	9.3	31.4	119.8	91.4	11.0	3.7	2.8	2.4	2.6
# Days	589	537	589	570	576	549	563	587	570	589	570	589
# Years	19	19	19	19	19	19	19	19	19	19	19	19

Table CAWG 6 Appdx E-7B. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	603.0	24.0	122.0	228.0	923.0	1250.0	1420.0	490.0	37.0	88.0	12.0	36.0
1	178.0	24.0	119.0	208.0	875.0	1100.0	1110.0	481.0	36.0	26.0	11.0	32.0
5	43.0	22.0	80.0	108.0	401.0	913.0	867.0	165.0	3.9	8.2	9.4	12.0
10	33.0	20.0	44.0	91.0	218.0	753.0	793.0	80.0	3.7	3.4	2.4	7.1
15	2.6	18.0	18.0	67.0	149.0	707.0	741.0	32.0	3.7	2.5	2.4	2.5
20	2.5	2.6	3.3	53.0	95.0	668.0	703.0	8.3	3.6	2.5	2.3	2.5
25	2.5	2.5	2.9	41.0	65.0	623.0	647.0	3.6	3.6	2.4	2.2	2.4
30	2.4	2.5	2.8	3.6	28.0	592.0	560.0	3.5	3.5	2.4	2.2	2.4
35	2.4	2.5	2.6	3.2	3.8	510.0	493.0	3.5	3.5	2.3	2.1	2.2
40	2.3	2.3	2.4	3.2	3.7	433.0	323.0	3.4	3.5	2.2	2.1	2.2
45	2.3	2.3	2.4	3.0	3.6	394.0	130.0	3.4	3.4	2.2	2.1	2.1
50	2.3	2.2	2.3	2.8	3.4	358.0	81.0	3.3	3.3	2.2	1.6	1.7
55	2.2	2.2	2.2	2.8	3.4	308.0	39.0	3.3	3.3	1.8	1.6	1.6
60	1.8	2.2	2.2	2.5	3.3	262.0	3.8	3.2	3.2	1.6	1.6	1.5
65	1.5	2.2	2.2	2.4	3.3	148.0	3.4	3.2	3.2	1.6	1.5	1.5
70	1.5	1.5	1.6	2.4	3.3	68.0	3.4	3.1	3.1	1.5	1.5	1.4
75	1.4	1.4	1.5	2.4	3.3	26.0	3.3	3.1	3.1	1.5	1.4	1.3
80	1.4	1.3	1.5	2.4	3.2	12.0	3.2	3.1	3.1	1.4	1.2	1.2
85	1.3	1.3	1.3	2.3	3.2	3.9	3.2	3.1	3.1	1.2	1.2	1.0
90	1.3	1.3	1.2	1.4	3.1	3.5	3.2	3.1	3.0	1.2	1.1	1.0
95	1.3	1.3	1.2	1.2	3.1	3.4	3.1	3.0	3.0	1.2	1.0	1.0
99	1.1	1.1	1.2	1.2	3.0	3.1	3.0	3.0	3.0	1.1	1.0	1.0
Minimum	1.1	1.1	1.2	1.2	3.0	3.1	3.0	3.0	3.0	1.1	1.0	1.0
Average	10.9	5.0	11.7	24.2	73.4	365.7	306.2	28.7	4.6	3.1	2.4	3.5
# Days	186	169	186	180	173	159	160	184	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx E-7C. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.6	3.6	3.5	4.9	240.0	599.0	456.0	5.2	6.4	5.9	7.0	4.6
5	4.5	3.6	3.3	4.6	193.0	412.0	60.0	5.1	5.5	5.5	4.0	4.0
10	3.6	3.5	3.2	3.1	183.0	125.0	4.9	4.8	5.5	5.0	3.1	3.2
15	3.5	3.5	3.1	3.1	140.0	103.0	4.9	4.5	5.4	5.0	3.1	3.2
20	3.4	3.5	3.1	2.9	114.0	86.0	4.8	4.5	5.4	5.0	3.1	3.1
25	3.3	3.5	3.1	2.9	61.0	72.0	4.7	4.5	5.3	4.0	3.1	3.1
30	3.3	3.4	3.1	2.8	33.0	52.0	4.7	4.4	5.3	3.1	3.1	3.1
35	3.3	3.2	3.0	2.8	18.0	35.0	4.6	4.4	5.2	3.0	3.0	3.0
40	3.2	3.1	3.0	2.7	10.0	22.0	4.5	3.4	4.6	2.5	3.0	3.0
45	3.1	3.1	2.9	2.7	5.9	8.6	4.1	3.4	4.5	2.5	3.0	3.0
50	3.1	3.1	2.9	2.6	5.8	5.8	3.9	3.4	4.4	2.5	3.0	3.0
55	3.1	3.0	2.9	2.6	5.6	5.4	3.7	3.4	4.4	2.5	2.6	2.9
60	3.0	3.0	2.9	2.6	4.7	5.2	3.6	3.4	4.4	2.4	2.5	2.8
65	3.0	2.9	2.8	2.6	4.7	4.6	3.5	3.3	4.4	2.4	2.3	2.3
70	2.3	2.3	2.3	2.4	4.7	3.7	3.5	3.1	3.2	2.3	2.3	2.3
75	2.3	2.3	2.3	2.4	4.5	3.1	3.5	3.0	3.2	2.3	2.3	2.3
80	2.3	2.3	2.3	2.3	4.5	3.1	3.4	3.0	3.1	2.3	2.3	2.3
85	2.3	2.3	2.3	2.3	3.2	3.1	3.4	3.0	3.1	2.3	2.3	2.3
90	2.3	2.3	2.3	2.2	3.1	3.1	3.3	3.0	3.1	2.2	2.3	2.3
95	2.3	2.3	2.3	2.2	3.0	3.1	3.1	2.9	3.1	2.2	2.3	2.3
Minimum	2.3	2.3	2.3	2.1	2.4	3.1	3.1	2.9	3.1	2.0	2.0	2.2
Average	3.0	3.0	2.8	2.8	46.7	65.6	18.0	3.7	4.4	3.2	2.9	2.8
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-7D. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.4	4.7	5.1	5.0	36.0	39.0	3.4	3.3	3.4	22.0	19.0	4.1
5	4.4	4.7	5.1	4.8	19.0	9.7	3.3	3.3	3.3	9.8	10.0	4.1
10	4.3	4.6	5.0	4.8	7.2	3.4	3.3	3.3	3.3	8.7	4.2	4.1
15	4.1	4.6	5.0	4.8	5.7	3.4	3.3	3.3	3.3	7.9	4.1	4.1
20	4.1	4.5	5.0	4.7	4.0	3.3	3.3	3.3	3.3	7.5	4.1	4.1
25	4.0	4.5	4.9	4.7	3.4	3.3	3.3	3.3	3.3	5.8	4.1	4.1
30	4.0	4.4	4.8	4.7	3.3	3.3	3.3	3.3	3.3	5.0	4.0	4.0
35	2.2	2.6	2.6	3.4	3.3	3.3	2.6	2.6	2.5	2.6	2.2	2.2
40	2.2	2.6	2.5	2.4	3.3	2.6	2.6	2.5	2.5	2.1	2.2	2.2
45	2.2	2.6	2.5	2.3	3.2	2.6	2.5	2.5	2.5	2.1	2.2	2.2
50	2.2	2.2	2.4	2.2	3.2	2.5	2.5	2.5	2.5	2.1	2.1	2.2
55	2.2	2.2	2.4	2.2	2.6	2.5	2.4	2.4	2.5	2.1	2.1	2.2
60	2.2	2.2	2.3	2.2	2.6	2.5	2.4	2.4	2.5	2.1	2.1	2.2
65	2.2	2.2	2.3	2.2	2.5	2.5	2.4	2.4	2.5	2.1	2.1	2.2
70	1.5	2.2	2.1	2.2	2.2	2.5	2.2	2.2	2.2	1.6	1.4	1.4
75	1.5	2.1	1.5	1.5	2.2	2.3	2.2	2.2	2.2	1.6	1.4	1.4
80	1.5	2.1	1.5	1.5	2.2	2.3	2.2	2.2	2.2	1.6	1.4	1.4
85	1.4	1.9	1.5	1.5	2.2	2.3	2.1	2.2	2.1	1.6	1.4	1.4
90	1.4	1.5	1.5	1.5	2.2	2.2	2.1	2.1	2.1	1.5	1.3	1.4
95	1.4	1.5	1.5	1.5	2.2	2.2	2.1	2.1	2.1	1.4	1.3	1.3
Minimum	1.3	1.3	1.5	1.4	2.2	2.2	2.1	2.1	2.1	1.4	1.3	1.3
Average	2.6	2.9	3.0	2.9	4.5	3.9	2.6	2.6	2.7	4.1	3.3	2.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-7E. Bear Creek Below Diversion (Gage 11230530)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.8	2.9	2.6	37.0	26.0	156.0	2.9	5.9	25.0	19.0	2.5	2.6
1	2.7	2.9	2.6	2.5	18.0	129.0	2.9	2.9	20.0	4.0	2.5	2.6
5	2.7	2.6	2.6	2.5	3.7	24.0	2.8	2.9	3.0	2.7	2.4	2.5
10	2.5	2.5	2.5	2.4	2.9	3.0	2.8	2.9	2.9	2.6	2.4	2.5
15	2.2	2.3	2.4	2.4	2.7	2.9	2.8	2.9	2.9	2.6	2.2	2.4
20	2.2	2.3	2.4	2.4	2.7	2.9	2.8	2.8	2.9	2.4	2.2	2.3
25	2.1	2.2	2.2	2.3	2.7	2.9	2.7	2.8	2.9	2.3	2.2	2.2
30	1.8	1.8	2.0	2.2	2.6	2.9	2.7	2.7	2.8	2.2	1.8	1.8
35	1.8	1.7	1.8	1.9	2.6	2.8	2.7	2.7	2.8	1.8	1.8	1.8
40	1.8	1.7	1.8	1.8	2.6	2.7	2.7	2.7	2.8	1.8	1.7	1.8
45	1.8	1.7	1.8	1.7	2.6	2.7	2.7	2.7	2.7	1.7	1.7	1.8
50	1.8	1.7	1.8	1.6	2.6	2.7	2.7	2.7	2.6	1.7	1.7	1.7
55	1.8	1.7	1.8	1.6	2.6	2.6	2.7	2.6	2.6	1.7	1.5	1.7
60	1.7	1.6	1.6	1.6	2.5	2.6	2.7	2.6	2.6	1.7	1.5	1.6
65	1.6	1.6	1.6	1.5	2.5	2.6	2.6	2.6	2.5	1.5	1.5	1.5
70	1.6	1.5	1.5	1.5	2.5	2.5	2.6	2.5	2.5	1.5	1.5	1.5
75	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	1.5	1.4	1.5
80	1.5	1.5	1.5	1.5	2.5	2.4	2.5	2.4	2.4	1.5	1.4	1.5
85	1.5	1.5	1.5	1.5	2.4	2.4	2.4	2.3	2.4	1.4	1.4	1.4
90	1.5	1.5	1.5	1.5	2.4	2.3	2.2	2.2	2.3	1.3	1.4	1.4
95	1.5	1.4	1.5	1.3	2.2	2.2	2.2	2.2	2.3	1.2	1.3	1.4
99	1.4	1.3	1.3	1.3	2.2	2.2	2.2	2.1	2.2	1.0	1.3	1.3
Minimum	1.4	1.3	1.3	1.3	2.2	2.2	2.2	2.1	2.2	0.9	1.3	1.3
Average	1.9	1.8	1.9	2.0	3.0	6.5	2.6	2.6	3.2	2.0	1.8	1.8
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-8A. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
(5/12/1986 to 6/26/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.8	13.0	40.0	34.0	8.0	1.5	1.0	0.0	0.0	0.0
5	0.0	0.0	0.0	1.8	17.0	26.0	5.0	1.3	0.9	0.0	0.0	0.0
10	0.0	0.0	0.0	1.4	4.3	12.0	3.0	1.2	0.6	0.0	0.0	0.0
15	0.0	0.0	0.0	1.1	1.6	1.5	2.5	1.2	0.5	0.0	0.0	0.0
20	0.0	0.0	0.0	0.9	1.4	1.5	2.5	1.2	0.5	0.0	0.0	0.0
25	0.0	0.0	0.0	0.8	1.4	1.4	2.0	1.2	0.4	0.0	0.0	0.0
30	0.0	0.0	0.0	0.8	1.4	1.4	1.8	1.2	0.4	0.0	0.0	0.0
35	0.0	0.0	0.0	0.8	1.4	1.4	1.3	1.1	0.4	0.0	0.0	0.0
40	0.0	0.0	0.0	0.8	1.3	1.4	1.3	1.1	0.4	0.0	0.0	0.0
45	0.0	0.0	0.0	0.8	1.3	1.3	1.3	1.1	0.4	0.0	0.0	0.0
50	0.0	0.0	0.0	0.7	1.3	1.3	1.2	1.1	0.4	0.0	0.0	0.0
55	0.0	0.0	0.0	0.7	1.3	1.3	1.2	1.1	0.4	0.0	0.0	0.0
60	0.0	0.0	0.0	0.7	1.3	1.3	1.2	1.0	0.4	0.0	0.0	0.0
65	0.0	0.0	0.0	0.7	1.2	1.3	1.2	0.9	0.4	0.0	0.0	0.0
70	0.0	0.0	0.0	0.7	1.2	1.3	1.2	0.5	0.3	0.0	0.0	0.0
75	0.0	0.0	0.0	0.7	1.2	1.3	1.2	0.5	0.3	0.0	0.0	0.0
80	0.0	0.0	0.0	0.6	1.2	1.2	1.1	0.5	0.1	0.0	0.0	0.0
85	0.0	0.0	0.0	0.6	1.1	1.2	1.1	0.5	0.1	0.0	0.0	0.0
90	0.0	0.0	0.0	0.6	1.1	1.2	1.0	0.5	0.1	0.0	0.0	0.0
95	0.0	0.0	0.0	0.5	1.0	1.1	0.7	0.5	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.6	0.2	0.9	0.7	0.3	0.5	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.7	1.2	3.3	3.7	1.9	0.9	0.4	0.0	0.0	0.0
# Days	0	0	6	118	329	232	91	62	79	0	0	0
# Years	0	0	1	10	12	11	6	3	3	0	0	0

Table CAWG 6 Appdx E-8B. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.8	13.0	40.0	34.0	8.0	1.5	1.0	0.0	0.0	0.0
5	0.0	0.0	0.0	11.0	38.0	31.0	7.0	1.3	0.9	0.0	0.0	0.0
10	0.0	0.0	0.0	11.0	34.0	30.0	4.0	1.2	0.7	0.0	0.0	0.0
15	0.0	0.0	0.0	5.0	33.0	28.0	3.0	1.2	0.6	0.0	0.0	0.0
20	0.0	0.0	0.0	1.2	32.0	28.0	2.5	1.2	0.5	0.0	0.0	0.0
25	0.0	0.0	0.0	1.0	21.0	27.0	2.5	1.2	0.5	0.0	0.0	0.0
30	0.0	0.0	0.0	0.8	16.0	26.0	2.5	1.2	0.5	0.0	0.0	0.0
35	0.0	0.0	0.0	0.8	14.0	24.0	2.0	1.1	0.4	0.0	0.0	0.0
40	0.0	0.0	0.0	0.8	9.0	22.0	1.8	1.1	0.4	0.0	0.0	0.0
45	0.0	0.0	0.0	0.8	2.4	18.0	1.3	1.1	0.4	0.0	0.0	0.0
50	0.0	0.0	0.0	0.8	1.4	15.0	1.2	1.1	0.4	0.0	0.0	0.0
55	0.0	0.0	0.0	0.8	1.3	13.0	1.2	1.1	0.4	0.0	0.0	0.0
60	0.0	0.0	0.0	0.8	1.3	13.0	1.2	1.0	0.4	0.0	0.0	0.0
65	0.0	0.0	0.0	0.8	1.2	12.0	1.2	0.9	0.4	0.0	0.0	0.0
70	0.0	0.0	0.0	0.8	1.2	12.0	1.2	0.5	0.4	0.0	0.0	0.0
75	0.0	0.0	0.0	0.8	1.1	11.0	1.2	0.5	0.4	0.0	0.0	0.0
80	0.0	0.0	0.0	0.8	1.1	9.0	1.2	0.5	0.4	0.0	0.0	0.0
85	0.0	0.0	0.0	0.8	1.1	8.0	1.2	0.5	0.4	0.0	0.0	0.0
90	0.0	0.0	0.0	0.7	1.1	1.2	1.1	0.5	0.4	0.0	0.0	0.0
95	0.0	0.0	0.0	0.7	1.0	1.2	1.1	0.5	0.3	0.0	0.0	0.0
Minimum	0.0	0.0	0.6	0.7	1.0	1.2	0.8	0.5	0.3	0.0	0.0	0.0
Average	0.0	0.0	0.7	2.6	11.6	17.7	2.1	0.9	0.5	0.0	0.0	0.0
# Days	0	0	6	26	58	34	68	62	60	0	0	0
# Years	0	0	1	2	3	2	3	3	2	0	0	0

Table CAWG 6 Appdx E-8C. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	1.8	14.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	1.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	1.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	1.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	1.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	1.3	1.5	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	1.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	1.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	1.2	1.5	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	1.2	1.4	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	1.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	1.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	1.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	1.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	1.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	1.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.2	1.0	1.2	0.3	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.7	1.6	1.4	0.6	0.0	0.0	0.0	0.0	0.0
# Days	0	0	0	20	54	40	5	0	0	0	0	0
# Years	0	0	0	1	2	2	1	0	0	0	0	0

Table CAWG 6 Appdx E-8D. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	1.7	9.6	1.6	1.3	0.0	0.1	0.0	0.0	0.0
5	0.0	0.0	0.0	1.6	2.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	1.3	1.6	1.4	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	1.1	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.9	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.8	1.4	1.4	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.8	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.8	1.4	1.3	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.8	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.8	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.7	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.7	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.7	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.7	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.7	1.3	1.3	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.7	1.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.6	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.6	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.6	1.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.5	1.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.3	0.9	0.7	0.8	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.8	1.5	1.3	1.2	0.0	0.0	0.0	0.0	0.0
# Days	0	0	0	72	217	158	18	0	19	0	0	0
# Years	0	0	0	7	7	7	2	0	1	0	0	0

Table CAWG 6 Appdx E-9A. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
(10/1/1983 to 7/15/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.0	0.8	1.0	8.1	27.0	18.0	1.0	0.6	0.5	2.7	2.0	1.0
5	1.0	0.8	1.0	3.8	13.0	3.0	0.7	0.6	0.5	2.0	2.0	1.0
10	1.0	0.8	1.0	2.0	3.7	0.9	0.6	0.6	0.5	1.5	1.5	1.0
15	1.0	0.8	1.0	1.5	0.9	0.8	0.5	0.5	0.5	1.3	1.3	1.0
20	1.0	0.8	1.0	0.7	0.7	0.6	0.5	0.5	0.5	1.2	1.0	1.0
25	1.0	0.8	1.0	0.6	0.6	0.6	0.5	0.5	0.4	0.4	0.4	1.0
30	1.0	0.8	1.0	0.5	0.6	0.6	0.5	0.4	0.4	0.4	0.4	1.0
35	1.0	0.8	1.0	0.5	0.6	0.6	0.4	0.4	0.4	0.4	0.4	1.0
40	1.0	0.8	1.0	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	1.0
45	1.0	0.8	0.8	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.3	1.0
50	0.8	0.8	0.8	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.3	1.0
55	0.8	0.8	0.8	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.3	1.0
60	0.8	0.8	0.8	0.5	0.5	0.5	0.4	0.4	0.3	0.4	0.3	1.0
65	0.8	0.8	0.8	0.4	0.5	0.5	0.4	0.3	0.3	0.4	0.3	1.0
70	0.8	0.8	0.8	0.4	0.5	0.4	0.4	0.3	0.3	0.4	0.3	1.0
75	0.8	0.8	0.8	0.4	0.5	0.4	0.4	0.3	0.2	0.4	0.3	1.0
80	0.8	0.8	0.8	0.4	0.4	0.4	0.3	0.3	0.2	0.4	0.2	1.0
85	0.8	0.8	0.5	0.3	0.4	0.4	0.3	0.1	0.1	0.3	0.2	1.0
90	0.8	0.8	0.5	0.2	0.3	0.4	0.2	0.1	0.0	0.3	0.2	1.0
95	0.8	0.8	0.5	0.1	0.1	0.3	0.2	0.1	0.0	0.2	0.2	1.0
Minimum	0.8	0.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	1.0
Average	0.9	0.8	0.8	0.9	1.8	0.9	0.4	0.4	0.3	0.6	0.6	1.0
# Days	31	29	37	170	370	326	270	182	156	79	62	31
# Years	1	1	2	12	13	12	14	8	6	4	3	1

Table CAWG 6 Appdx E-9B. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	1.0	8.1	27.0	3.4	1.0	0.5	0.5	0.4	0.4	0.0
5	0.0	0.0	0.0	6.8	17.0	0.0	0.5	0.5	0.5	0.4	0.4	0.0
10	0.0	0.0	0.0	6.6	14.0	0.0	0.5	0.5	0.5	0.4	0.4	0.0
15	0.0	0.0	0.0	6.4	7.0	0.0	0.5	0.5	0.4	0.4	0.4	0.0
20	0.0	0.0	0.0	3.3	4.5	0.0	0.5	0.5	0.4	0.4	0.4	0.0
25	0.0	0.0	0.0	0.5	3.3	0.0	0.5	0.5	0.4	0.4	0.4	0.0
30	0.0	0.0	0.0	0.5	1.1	0.0	0.5	0.5	0.4	0.4	0.3	0.0
35	0.0	0.0	0.0	0.5	0.6	0.0	0.5	0.4	0.4	0.4	0.3	0.0
40	0.0	0.0	0.0	0.5	0.6	0.0	0.5	0.4	0.4	0.4	0.3	0.0
45	0.0	0.0	0.0	0.5	0.6	0.0	0.5	0.4	0.4	0.4	0.3	0.0
50	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.4	0.4	0.3	0.0
55	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.4	0.4	0.3	0.0
60	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.4	0.4	0.3	0.0
65	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.3	0.4	0.3	0.0
70	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.3	0.4	0.3	0.0
75	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.3	0.4	0.3	0.0
80	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.3	0.4	0.3	0.0
85	0.0	0.0	0.0	0.5	0.5	0.0	0.4	0.4	0.3	0.4	0.3	0.0
90	0.0	0.0	0.0	0.5	0.4	0.0	0.4	0.4	0.3	0.4	0.3	0.0
95	0.0	0.0	0.0	0.3	0.4	0.0	0.3	0.3	0.3	0.4	0.3	0.0
Minimum	0.0	0.0	0.5	0.3	0.4	0.5	0.2	0.2	0.3	0.4	0.3	0.0
Average	0.0	0.0	0.6	1.7	3.5	1.2	0.5	0.4	0.4	0.4	0.3	0.0
# Days	0	0	6	24	40	4	77	84	66	46	30	0
# Years	0	0	1	2	2	1	3	4	3	2	1	0

Table CAWG 6 Appdx E-9C. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Above Normal Water Years (1984)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.0	0.8	1.0	2.5	22.0	18.0	0.3	0.3	0.3	2.7	2.0	1.0
5	1.0	0.8	1.0	2.0	22.0	9.2	0.3	0.3	0.3	2.7	2.0	1.0
10	1.0	0.8	1.0	1.5	21.0	0.4	0.3	0.3	0.3	2.0	2.0	1.0
15	1.0	0.8	1.0	1.5	21.0	0.4	0.3	0.3	0.3	1.8	2.0	1.0
20	1.0	0.8	1.0	1.4	19.0	0.4	0.3	0.3	0.3	1.5	1.5	1.0
25	1.0	0.8	1.0	0.4	14.0	0.4	0.3	0.3	0.3	1.5	1.4	1.0
30	1.0	0.8	1.0	0.4	0.3	0.4	0.3	0.3	0.3	1.5	1.3	1.0
35	1.0	0.8	1.0	0.3	0.3	0.4	0.3	0.3	0.3	1.3	1.2	1.0
40	1.0	0.8	1.0	0.3	0.3	0.4	0.3	0.3	0.3	1.2	1.0	1.0
45	1.0	0.8	1.0	0.3	0.3	0.4	0.3	0.3	0.3	1.2	0.3	1.0
50	0.8	0.8	1.0	0.2	0.2	0.3	0.3	0.3	0.3	1.2	0.3	1.0
55	0.8	0.8	0.8	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.2	1.0
60	0.8	0.8	0.8	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.2	1.0
65	0.8	0.8	0.8	0.1	0.2	0.3	0.3	0.3	0.2	0.3	0.2	1.0
70	0.8	0.8	0.8	0.1	0.1	0.3	0.2	0.3	0.2	0.3	0.2	1.0
75	0.8	0.8	0.8	0.1	0.1	0.3	0.2	0.3	0.2	0.3	0.2	1.0
80	0.8	0.8	0.8	0.0	0.0	0.3	0.0	0.3	0.2	0.2	0.2	1.0
85	0.8	0.8	0.8	0.0	0.0	0.3	0.0	0.3	0.2	0.2	0.2	1.0
90	0.8	0.8	0.8	0.0	0.0	0.3	0.0	0.3	0.2	0.2	0.2	1.0
95	0.8	0.8	0.8	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.2	1.0
Minimum	0.8	0.8	0.8	0.0	0.0	0.1	0.0	0.2	0.2	0.1	0.2	1.0
Average	0.9	0.8	0.9	0.5	5.4	1.3	0.2	0.3	0.3	1.0	0.8	1.0
# Days	31	29	31	30	31	30	31	31	30	31	30	31
# Years	1	1	1	1	1	1	1	1	1	1	1	1

Table CAWG 6 Appdx E-9D. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	4.8	15.0	13.0	0.6	0.6	0.5	0.4	0.4	0.0
5	0.0	0.0	0.0	0.6	3.3	10.0	0.5	0.6	0.5	0.0	0.0	0.0
10	0.0	0.0	0.0	0.5	0.7	4.9	0.5	0.6	0.5	0.0	0.0	0.0
15	0.0	0.0	0.0	0.5	0.6	3.0	0.5	0.6	0.5	0.0	0.0	0.0
20	0.0	0.0	0.0	0.5	0.6	2.0	0.4	0.6	0.5	0.0	0.0	0.0
25	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
30	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
35	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
40	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
45	0.0	0.0	0.0	0.4	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
50	0.0	0.0	0.0	0.4	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
55	0.0	0.0	0.0	0.4	0.5	0.5	0.4	0.6	0.5	0.0	0.0	0.0
60	0.0	0.0	0.0	0.4	0.5	0.4	0.4	0.6	0.5	0.0	0.0	0.0
65	0.0	0.0	0.0	0.4	0.5	0.4	0.4	0.6	0.5	0.0	0.0	0.0
70	0.0	0.0	0.0	0.4	0.5	0.4	0.4	0.6	0.5	0.0	0.0	0.0
75	0.0	0.0	0.0	0.4	0.5	0.4	0.4	0.6	0.5	0.0	0.0	0.0
80	0.0	0.0	0.0	0.4	0.4	0.4	0.3	0.4	0.5	0.0	0.0	0.0
85	0.0	0.0	0.0	0.4	0.2	0.4	0.3	0.3	0.5	0.0	0.0	0.0
90	0.0	0.0	0.0	0.4	0.0	0.3	0.3	0.3	0.5	0.0	0.0	0.0
95	0.0	0.0	0.0	0.3	0.0	0.2	0.2	0.2	0.5	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.5	0.3	0.4	0.0
Average	0.0	0.0	0.0	0.5	1.0	1.7	0.4	0.5	0.5	0.4	0.4	0.0
# Days	0	0	0	41	82	89	61	31	30	2	2	0
# Years	0	0	0	2	3	3	3	1	1	1	1	0

Table CAWG 6 Appdx E-9E. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	6.2	20.0	1.2	0.8	0.4	0.1	0.0	0.0	0.0
5	0.0	0.0	0.0	3.8	6.4	0.8	0.7	0.4	0.1	0.0	0.0	0.0
10	0.0	0.0	0.0	2.9	2.1	0.8	0.7	0.4	0.1	0.0	0.0	0.0
15	0.0	0.0	0.0	1.6	0.8	0.7	0.6	0.2	0.1	0.0	0.0	0.0
20	0.0	0.0	0.0	1.2	0.7	0.6	0.6	0.1	0.1	0.0	0.0	0.0
25	0.0	0.0	0.0	0.8	0.6	0.6	0.6	0.1	0.1	0.0	0.0	0.0
30	0.0	0.0	0.0	0.7	0.6	0.6	0.5	0.1	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.6	0.6	0.6	0.5	0.1	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.5	0.6	0.6	0.4	0.1	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.5	0.5	0.6	0.4	0.1	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.4	0.5	0.4	0.4	0.1	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.4	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.3	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.3	0.4	0.4	0.2	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	1.0	1.2	0.6	0.5	0.1	0.0	0.0	0.0	0.0
# Days	0	0	0	75	217	203	101	36	30	0	0	0
# Years	0	0	0	7	7	7	7	2	1	0	0	0

Table CAWG 6 Appdx E-10A. Bolsillo Creek Above Diversion (Gage 11230650)
Historical Daily Exceedance Flow
(10/1/1985 to 9/30/1995)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.2	4.9	4.8	9.9	29.0	31.0	22.0	5.7	0.9	0.6	2.8	0.5
5	0.9	1.4	2.3	6.6	25.0	24.0	21.0	4.8	0.8	0.4	0.6	0.5
10	0.8	1.2	1.7	5.8	21.0	23.0	17.0	2.9	0.7	0.3	0.4	0.4
15	0.7	1.1	1.5	4.3	19.0	21.0	13.0	2.2	0.7	0.3	0.4	0.4
20	0.7	0.7	1.5	3.3	18.0	21.0	12.0	1.7	0.6	0.3	0.4	0.4
25	0.6	0.6	1.4	2.8	18.0	20.0	11.0	1.6	0.5	0.3	0.4	0.4
30	0.6	0.6	1.4	2.5	16.0	20.0	9.7	1.2	0.5	0.2	0.3	0.4
35	0.6	0.6	1.3	2.4	14.0	19.0	7.9	1.1	0.5	0.2	0.3	0.4
40	0.5	0.6	1.2	2.2	13.0	18.0	7.3	0.9	0.5	0.2	0.2	0.3
45	0.4	0.6	1.2	2.1	12.0	18.0	6.0	0.8	0.4	0.2	0.2	0.3
50	0.3	0.6	1.1	2.0	11.0	17.0	5.1	0.7	0.4	0.2	0.2	0.3
55	0.3	0.6	1.0	1.8	10.0	16.0	3.9	0.6	0.3	0.2	0.2	0.3
60	0.3	0.5	1.0	1.7	8.7	16.0	3.1	0.6	0.3	0.2	0.2	0.2
65	0.3	0.5	0.9	1.5	8.0	15.0	2.9	0.5	0.3	0.2	0.2	0.2
70	0.3	0.4	0.8	1.4	7.4	14.0	2.6	0.5	0.3	0.1	0.2	0.2
75	0.3	0.4	0.7	1.3	6.8	13.0	2.3	0.5	0.3	0.1	0.2	0.2
80	0.2	0.3	0.6	1.2	6.3	12.0	1.8	0.4	0.3	0.1	0.1	0.2
85	0.2	0.2	0.4	1.2	5.8	9.8	1.6	0.4	0.3	0.1	0.1	0.2
90	0.2	0.2	0.3	1.1	4.8	9.5	1.5	0.3	0.2	0.1	0.1	0.1
95	0.1	0.2	0.3	1.0	4.4	7.6	1.2	0.3	0.2	0.1	0.1	0.1
Minimum	0.1	0.2	0.3	0.9	4.0	6.2	1.0	0.3	0.2	0.1	0.1	0.1
Average	0.5	0.7	1.1	2.6	12.4	16.8	7.2	1.2	0.4	0.2	0.3	0.3
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-10B. Bolsillo Creek Above Diversion (Gage 11230650)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.2	4.9	4.8	9.9	29.0	31.0	22.0	5.7	0.9	0.6	2.8	0.5
5	0.9	1.4	2.3	6.6	25.0	24.0	21.0	4.8	0.8	0.4	0.6	0.5
10	0.8	1.2	1.7	5.8	21.0	23.0	17.0	2.9	0.7	0.3	0.4	0.4
15	0.7	1.1	1.5	4.3	19.0	21.0	13.0	2.2	0.7	0.3	0.4	0.4
20	0.7	0.7	1.5	3.3	18.0	21.0	12.0	1.7	0.6	0.3	0.4	0.4
25	0.6	0.6	1.4	2.8	18.0	20.0	11.0	1.6	0.5	0.3	0.4	0.4
30	0.6	0.6	1.4	2.5	16.0	20.0	9.7	1.2	0.5	0.2	0.3	0.4
35	0.6	0.6	1.3	2.4	14.0	19.0	7.9	1.1	0.5	0.2	0.3	0.4
40	0.5	0.6	1.2	2.2	13.0	18.0	7.3	0.9	0.5	0.2	0.2	0.3
45	0.4	0.6	1.2	2.1	12.0	18.0	6.0	0.8	0.4	0.2	0.2	0.3
50	0.3	0.6	1.1	2.0	11.0	17.0	5.1	0.7	0.4	0.2	0.2	0.3
55	0.3	0.6	1.0	1.8	10.0	16.0	3.9	0.6	0.3	0.2	0.2	0.3
60	0.3	0.5	1.0	1.7	8.7	16.0	3.1	0.6	0.3	0.2	0.2	0.2
65	0.3	0.5	0.9	1.5	8.0	15.0	2.9	0.5	0.3	0.2	0.2	0.2
70	0.3	0.4	0.8	1.4	7.4	14.0	2.6	0.5	0.3	0.1	0.2	0.2
75	0.3	0.4	0.7	1.3	6.8	13.0	2.3	0.5	0.3	0.1	0.2	0.2
80	0.2	0.3	0.6	1.2	6.3	12.0	1.8	0.4	0.3	0.1	0.1	0.2
85	0.2	0.2	0.4	1.2	5.8	9.8	1.6	0.4	0.3	0.1	0.1	0.2
90	0.2	0.2	0.3	1.1	4.8	9.5	1.5	0.3	0.2	0.1	0.1	0.1
95	0.1	0.2	0.3	1.0	4.4	7.6	1.2	0.3	0.2	0.1	0.1	0.1
Minimum	0.1	0.2	0.3	0.9	4.0	6.2	1.0	0.3	0.2	0.1	0.1	0.1
Average	0.5	0.7	1.1	2.6	12.4	16.8	7.2	1.2	0.4	0.2	0.3	0.3
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-11A. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
(10/1/1985 to 6/29/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27.0	4.9	4.8	8.4	16.0	15.0	14.0	0.6	0.6	0.3	0.5	0.4
5	8.6	2.6	2.7	5.2	13.0	12.0	11.0	0.6	0.6	0.2	0.2	0.4
10	4.3	1.3	2.2	2.8	9.6	10.0	8.7	0.6	0.6	0.2	0.2	0.3
15	2.9	1.2	2.0	1.3	6.6	8.0	7.0	0.6	0.6	0.2	0.2	0.2
20	2.3	1.2	1.8	0.9	2.2	4.7	0.6	0.6	0.6	0.2	0.2	0.2
25	1.9	1.1	1.4	0.6	0.8	2.6	0.6	0.6	0.5	0.2	0.2	0.2
30	1.6	0.8	1.4	0.6	0.6	1.6	0.6	0.5	0.3	0.2	0.2	0.2
35	1.5	0.8	1.3	0.6	0.6	0.7	0.6	0.5	0.3	0.2	0.2	0.2
40	1.4	0.7	1.2	0.6	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.2
45	1.0	0.7	1.2	0.6	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.2
50	0.9	0.7	1.1	0.6	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.2
55	0.4	0.7	1.0	0.5	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.2
60	0.3	0.6	0.8	0.5	0.6	0.6	0.5	0.5	0.3	0.2	0.2	0.2
65	0.2	0.6	0.7	0.5	0.6	0.5	0.5	0.5	0.3	0.2	0.2	0.2
70	0.1	0.6	0.6	0.5	0.6	0.5	0.5	0.5	0.2	0.2	0.2	0.2
75	0.1	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.2	0.2	0.2	0.2
80	0.1	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.2	0.1	0.2	0.2
85	0.1	0.2	0.5	0.5	0.5	0.5	0.4	0.3	0.2	0.1	0.2	0.2
90	0.1	0.1	0.4	0.5	0.5	0.5	0.4	0.3	0.1	0.1	0.2	0.2
95	0.1	0.1	0.4	0.4	0.4	0.4	0.4	0.3	0.1	0.1	0.2	0.2
Minimum	0.1	0.1	0.3	0.2	0.4	0.3	0.4	0.3	0.1	0.1	0.2	0.2
Average	2.2	0.9	1.2	1.1	2.4	2.7	2.1	0.5	0.3	0.2	0.2	0.2
# Days	62	56	73	193	385	380	205	106	55	32	30	31
# Years	2	2	3	13	14	14	9	6	3	2	1	1

Table CAWG 6 Appdx E-11B. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27.0	4.9	4.8	8.4	16.0	15.0	14.0	0.6	0.6	0.2	0.5	0.4
5	8.6	2.6	2.7	7.0	16.0	14.0	12.0	0.6	0.6	0.2	0.2	0.4
10	4.3	1.3	2.2	5.2	14.0	13.0	9.2	0.6	0.6	0.2	0.2	0.3
15	2.9	1.2	2.0	3.8	12.0	11.0	7.0	0.6	0.6	0.2	0.2	0.2
20	2.3	1.2	1.8	2.5	11.0	10.0	4.0	0.6	0.6	0.2	0.2	0.2
25	1.9	1.1	1.4	1.6	10.0	9.6	0.6	0.6	0.5	0.2	0.2	0.2
30	1.6	0.8	1.4	1.3	9.2	9.0	0.6	0.5	0.3	0.2	0.2	0.2
35	1.5	0.8	1.3	1.2	8.6	7.0	0.6	0.5	0.3	0.2	0.2	0.2
40	1.4	0.7	1.2	0.6	7.1	5.3	0.6	0.5	0.3	0.2	0.2	0.2
45	1.0	0.7	1.2	0.6	5.5	4.3	0.5	0.5	0.3	0.2	0.2	0.2
50	0.9	0.7	1.1	0.6	4.4	3.1	0.5	0.5	0.3	0.2	0.2	0.2
55	0.4	0.7	1.0	0.6	2.2	2.6	0.5	0.5	0.3	0.2	0.2	0.2
60	0.3	0.6	0.8	0.6	1.4	1.8	0.5	0.5	0.3	0.2	0.2	0.2
65	0.2	0.6	0.7	0.6	0.9	1.2	0.5	0.5	0.3	0.2	0.2	0.2
70	0.1	0.6	0.6	0.5	0.6	0.8	0.5	0.5	0.2	0.2	0.2	0.2
75	0.1	0.6	0.6	0.5	0.6	0.6	0.5	0.4	0.2	0.2	0.2	0.2
80	0.1	0.6	0.6	0.5	0.5	0.6	0.5	0.4	0.2	0.1	0.2	0.2
85	0.1	0.2	0.5	0.5	0.5	0.6	0.4	0.3	0.2	0.1	0.2	0.2
90	0.1	0.1	0.4	0.5	0.5	0.6	0.4	0.3	0.1	0.1	0.2	0.2
95	0.1	0.1	0.4	0.5	0.5	0.5	0.4	0.3	0.1	0.1	0.2	0.2
Minimum	0.1	0.1	0.3	0.5	0.4	0.4	0.4	0.3	0.1	0.1	0.2	0.2
Average	2.2	0.9	1.2	1.7	5.7	5.2	2.3	0.5	0.3	0.2	0.2	0.2
# Days	62	56	73	95	137	179	178	104	55	31	30	31
# Years	2	2	3	5	6	6	6	5	3	1	1	1

Table CAWG 6 Appdx E-11C. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Dry Water Years (2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.5	2.1	2.5	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.2	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.4	0.6	0.6	0.0	0.0	0.0	0.0	0.0	0.0
# Days	0	0	0	6	31	29	0	0	0	0	0	0
# Years	0	0	0	1	1	1	0	0	0	0	0	0

Table CAWG 6 Appdx E-11D. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	3.7	4.6	1.7	0.6	0.4	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.6	0.6	0.6	0.6	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.6	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.6	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.6	0.6	0.6	0.5	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.5	0.6	0.5	0.5	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.5	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.4	0.4	0.4	0.5	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.2	0.4	0.3	0.4	0.4	0.0	0.3	0.0	0.0
Average	0.0	0.0	0.0	0.6	0.6	0.5	0.5	0.4	0.0	0.0	0.0	0.0
# Days	0	0	0	92	217	172	27	2	0	1	0	0
# Years	0	0	0	7	7	7	3	1	0	1	0	0

Table CAWG 6 Appdx E-12A. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
(10/1/1970 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26.0	26.0	25.0	115.0	62.0	604.0	1300.0	1070.0	884.0	68.0	56.0	45.0
1	25.0	26.0	18.0	17.0	17.0	501.0	1190.0	196.0	35.0	27.0	34.0	40.0
5	15.0	15.0	16.0	16.0	17.0	241.0	552.0	60.0	17.0	21.0	21.0	20.0
10	12.0	12.0	12.0	13.0	15.0	23.0	266.0	16.0	17.0	13.0	13.0	12.0
15	10.0	9.7	12.0	12.0	15.0	17.0	94.0	15.0	15.0	12.0	11.0	11.0
20	9.8	9.4	10.0	12.0	14.0	15.0	27.0	15.0	15.0	11.0	11.0	9.9
25	9.4	8.6	8.9	10.0	14.0	15.0	17.0	14.0	14.0	11.0	10.0	9.2
30	8.6	8.4	8.7	9.2	14.0	14.0	15.0	14.0	14.0	11.0	9.5	8.8
35	8.1	8.2	8.5	8.6	14.0	14.0	14.0	14.0	14.0	10.0	8.6	8.5
40	8.0	8.0	8.0	8.4	14.0	14.0	14.0	14.0	14.0	10.0	7.9	8.3
45	7.7	7.7	7.8	8.2	13.0	14.0	14.0	14.0	14.0	9.6	7.8	7.8
50	7.4	7.7	7.2	8.0	13.0	13.0	14.0	13.0	13.0	9.2	7.7	7.6
55	6.6	7.1	6.6	7.8	13.0	13.0	13.0	12.0	11.0	9.0	6.9	6.5
60	6.5	6.9	6.2	6.6	11.0	12.0	11.0	11.0	11.0	7.4	6.5	6.2
65	6.2	6.4	6.0	6.4	11.0	11.0	11.0	10.0	11.0	7.2	6.2	5.9
70	6.1	6.3	5.9	6.3	10.0	11.0	10.0	10.0	10.0	7.2	6.1	5.9
75	6.0	6.1	5.9	6.0	10.0	11.0	10.0	10.0	10.0	7.0	5.8	5.8
80	5.8	6.0	5.8	5.9	9.9	10.0	10.0	10.0	10.0	6.8	5.8	5.8
85	5.8	5.8	5.7	5.8	9.5	9.9	9.9	9.9	9.6	6.7	5.7	5.6
90	5.7	5.7	5.4	5.5	9.4	9.2	9.5	9.3	9.2	6.5	5.6	5.5
95	0.0	0.0	0.0	1.7	1.3	1.2	8.8	1.5	1.3	1.1	1.0	0.0
99	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.1	0.9	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	1.2	1.2	1.1	1.2	1.1	0.8	0.0	0.0
Average	8.1	8.2	7.9	8.8	12.3	35.1	84.3	22.1	15.1	9.8	8.9	8.7
# Days	620	566	620	600	622	600	656	639	604	620	600	620
# Years	20	21	20	20	21	20	22	22	21	20	20	20

Table CAWG 6 Appdx E-12B. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Wet Water Years (1978, 1980, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26.0	26.0	25.0	115.0	62.0	604.0	1300.0	1070.0	884.0	17.0	56.0	45.0
1	26.0	26.0	25.0	110.0	50.0	601.0	1250.0	605.0	643.0	17.0	36.0	43.0
5	25.0	26.0	18.0	17.0	16.0	494.0	869.0	179.0	17.0	14.0	32.0	39.0
10	25.0	25.0	17.0	16.0	15.0	399.0	683.0	94.0	17.0	13.0	13.0	29.0
15	15.0	25.0	17.0	15.0	15.0	287.0	545.0	62.0	17.0	13.0	13.0	11.0
20	8.4	12.0	14.0	14.0	15.0	66.0	389.0	35.0	17.0	12.0	11.0	9.4
25	7.9	8.0	12.0	14.0	15.0	26.0	320.0	18.0	16.0	11.0	11.0	8.2
30	7.8	7.9	12.0	14.0	15.0	24.0	263.0	16.0	15.0	10.0	8.4	7.9
35	7.7	7.7	8.1	12.0	14.0	16.0	205.0	15.0	15.0	10.0	8.1	7.8
40	7.7	7.7	8.0	12.0	14.0	16.0	114.0	15.0	15.0	9.6	7.8	7.7
45	7.7	7.7	7.9	10.0	14.0	16.0	83.0	15.0	14.0	9.6	7.8	7.6
50	7.0	7.3	7.6	8.2	14.0	15.0	60.0	15.0	14.0	9.6	7.7	6.6
55	6.6	7.2	7.4	8.1	14.0	15.0	33.0	15.0	14.0	7.0	6.7	5.9
60	6.6	7.0	7.2	8.0	14.0	14.0	23.0	14.0	14.0	7.0	6.6	5.9
65	6.3	7.0	7.0	7.8	14.0	14.0	18.0	14.0	14.0	6.9	6.4	5.9
70	5.9	6.5	6.9	7.2	14.0	14.0	17.0	14.0	14.0	6.8	5.9	5.8
75	5.7	6.4	6.6	7.1	14.0	14.0	15.0	14.0	14.0	6.8	5.8	5.7
80	5.7	6.2	6.1	6.6	14.0	14.0	14.0	14.0	14.0	6.7	5.7	5.6
85	5.7	5.8	6.0	6.4	14.0	14.0	14.0	13.0	14.0	6.5	5.6	5.6
90	5.6	5.7	5.9	6.3	13.0	13.0	13.0	13.0	14.0	6.4	5.6	5.6
95	5.6	5.6	5.7	6.0	13.0	13.0	13.0	13.0	13.0	6.3	5.5	5.4
99	5.4	5.5	5.6	5.8	4.8	13.0	13.0	13.0	13.0	6.0	5.2	5.1
Minimum	5.4	5.5	5.6	5.8	4.8	13.0	13.0	1.5	13.0	6.0	5.2	5.1
Average	9.4	10.3	9.7	11.9	14.9	90.3	224.8	45.9	23.9	9.2	10.2	10.2
# Days	186	170	186	180	188	180	222	205	184	186	180	186
# Years	6	7	6	6	7	6	8	8	7	6	6	6

Table CAWG 6 Appdx E-12C. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	14.0	10.0	12.0	17.0	17.0	17.0	443.0	22.0	46.0	17.0	12.0	15.0
5	11.0	10.0	12.0	14.0	17.0	17.0	36.0	16.0	23.0	13.0	12.0	12.0
10	11.0	10.0	12.0	12.0	17.0	17.0	17.0	16.0	23.0	12.0	11.0	12.0
15	10.0	9.7	12.0	12.0	17.0	17.0	16.0	16.0	16.0	12.0	11.0	12.0
20	10.0	9.7	12.0	11.0	17.0	17.0	15.0	16.0	16.0	12.0	11.0	12.0
25	10.0	9.7	12.0	11.0	17.0	17.0	15.0	15.0	15.0	11.0	11.0	12.0
30	10.0	9.7	9.9	11.0	17.0	17.0	15.0	15.0	15.0	11.0	10.0	11.0
35	10.0	9.7	9.7	11.0	17.0	15.0	15.0	14.0	15.0	11.0	10.0	11.0
40	10.0	9.7	8.7	9.3	17.0	15.0	15.0	14.0	15.0	11.0	10.0	11.0
45	9.8	8.7	8.7	9.2	17.0	15.0	14.0	14.0	15.0	11.0	10.0	10.0
50	9.8	8.6	8.7	9.2	17.0	15.0	14.0	14.0	14.0	10.0	10.0	10.0
55	9.8	8.6	8.7	8.7	15.0	15.0	14.0	14.0	14.0	10.0	10.0	9.8
60	9.8	8.6	8.6	8.6	15.0	15.0	14.0	14.0	14.0	10.0	10.0	9.2
65	9.7	8.6	8.6	8.6	15.0	15.0	14.0	14.0	14.0	10.0	9.5	8.8
70	9.7	8.2	8.6	8.6	14.0	14.0	14.0	14.0	14.0	10.0	7.9	8.8
75	8.7	8.1	6.6	8.6	14.0	14.0	14.0	14.0	13.0	10.0	7.8	8.8
80	8.1	8.1	5.7	8.5	13.0	14.0	14.0	14.0	13.0	9.9	7.8	8.8
85	8.1	8.1	4.9	8.4	13.0	13.0	14.0	14.0	13.0	9.7	7.7	8.8
90	8.1	8.1	4.0	8.3	13.0	13.0	13.0	14.0	13.0	9.2	7.7	8.8
95	8.0	8.1	3.1	7.6	13.0	13.0	13.0	13.0	13.0	9.2	7.6	7.6
Minimum	8.0	8.1	2.6	7.1	13.0	13.0	13.0	13.0	12.0	8.5	7.6	7.5
Average	9.6	9.0	8.6	9.9	15.5	15.2	21.4	14.6	16.1	10.7	9.6	10.2
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-12D. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Below Normal Water Years (1971)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	1.7	1.3	1.2	1.4	1.4	1.3	1.1	1.0	0.0
5	0.0	0.0	0.0	0.8	1.3	1.2	1.4	1.3	1.2	1.1	0.5	0.0
10	0.0	0.0	0.0	0.0	1.3	1.2	1.4	1.3	1.2	1.0	0.0	0.0
15	0.0	0.0	0.0	0.0	1.3	1.2	1.4	1.3	1.2	1.0	0.0	0.0
20	0.0	0.0	0.0	0.0	1.3	1.2	1.4	1.3	1.2	1.0	0.0	0.0
25	0.0	0.0	0.0	0.0	1.3	1.2	1.4	1.3	1.2	1.0	0.0	0.0
30	0.0	0.0	0.0	0.0	1.3	1.2	1.4	1.3	1.2	1.0	0.0	0.0
35	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.2	1.0	0.0	0.0
40	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.2	1.0	0.0	0.0
45	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.2	1.0	0.0	0.0
50	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.2	1.0	0.0	0.0
55	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.2	1.0	0.0	0.0
60	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.2	0.9	0.0	0.0
65	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.3	1.1	0.9	0.0	0.0
70	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.2	1.1	0.9	0.0	0.0
75	0.0	0.0	0.0	0.0	1.2	1.2	1.3	1.2	1.1	0.9	0.0	0.0
80	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.1	0.9	0.0	0.0
85	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.1	0.8	0.0	0.0
90	0.0	0.0	0.0	0.0	1.2	1.2	1.2	1.2	1.1	0.8	0.0	0.0
95	0.0	0.0	0.0	0.0	1.2	1.2	1.1	1.2	1.1	0.8	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	1.2	1.2	1.1	1.2	1.1	0.8	0.0	0.0
Average	0.0	0.0	0.0	0.1	1.2	1.2	1.3	1.3	1.2	0.9	0.1	0.0
# Days	31	28	31	30	31	30	31	31	30	31	30	31
# Years	1	1	1	1	1	1	1	1	1	1	1	1

Table CAWG 6 Appdx E-12E. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	14.0	15.0	12.0	13.0	14.0	14.0	15.0	15.0	14.0	68.0	31.0	23.0
5	14.0	13.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	32.0	26.0	22.0
10	14.0	13.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	24.0	21.0	20.0
15	13.0	13.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	23.0	21.0	14.0
20	13.0	12.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	22.0	21.0	14.0
25	13.0	12.0	12.0	12.0	14.0	14.0	13.0	14.0	14.0	21.0	21.0	14.0
30	12.0	12.0	11.0	12.0	14.0	14.0	13.0	13.0	14.0	21.0	21.0	14.0
35	9.8	12.0	9.0	8.8	13.0	13.0	12.0	11.0	14.0	21.0	7.8	9.6
40	9.6	8.2	8.9	8.4	13.0	13.0	11.0	10.0	11.0	11.0	7.8	9.2
45	9.2	8.2	8.9	8.2	13.0	13.0	11.0	10.0	11.0	9.5	7.7	8.9
50	8.9	8.1	8.8	7.9	13.0	13.0	11.0	10.0	10.0	9.4	7.7	8.6
55	8.6	7.9	8.8	7.9	13.0	13.0	11.0	10.0	9.3	9.4	7.7	8.2
60	8.2	7.8	8.5	7.9	13.0	13.0	9.9	10.0	9.2	9.2	7.6	7.9
65	7.9	7.8	8.3	7.8	13.0	13.0	9.8	9.7	9.2	9.1	7.6	7.8
70	6.9	7.7	5.5	5.5	9.4	9.2	9.3	9.3	9.2	9.1	7.2	5.8
75	6.9	7.7	5.4	5.4	9.3	9.2	9.3	9.3	9.0	9.0	5.8	5.8
80	6.0	7.6	5.4	5.4	9.3	9.1	9.2	9.3	8.9	9.0	5.8	5.8
85	5.8	6.9	5.4	5.4	9.3	9.1	9.2	9.3	8.7	9.0	5.8	5.8
90	5.8	5.5	5.4	5.4	9.2	9.1	9.2	9.3	8.5	7.4	5.8	5.8
95	5.8	5.5	5.4	5.4	9.2	9.1	9.1	9.2	8.2	7.2	5.8	5.8
Minimum	5.8	5.4	5.4	5.4	8.9	9.1	9.1	9.2	8.1	7.2	5.8	5.8
Average	9.4	9.3	8.7	8.6	12.1	12.0	11.3	11.1	11.2	15.9	11.9	10.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-12F. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	9.5	9.4	10.0	11.0	13.0	38.0	15.0	14.0	19.0	16.0	21.0	17.0
1	9.5	9.4	10.0	10.0	13.0	23.0	15.0	14.0	19.0	16.0	12.0	17.0
5	9.4	9.4	10.0	10.0	12.0	13.0	14.0	14.0	12.0	12.0	11.0	9.5
10	8.6	8.5	9.0	9.4	11.0	12.0	14.0	12.0	11.0	12.0	11.0	9.3
15	8.5	8.5	8.5	8.6	11.0	12.0	12.0	11.0	11.0	11.0	9.6	8.8
20	8.3	8.4	8.4	8.4	11.0	11.0	11.0	11.0	11.0	11.0	9.5	8.5
25	7.9	8.3	7.9	8.2	11.0	11.0	11.0	11.0	11.0	11.0	9.1	8.5
30	6.6	7.1	7.0	7.8	11.0	11.0	11.0	11.0	11.0	10.0	8.6	8.3
35	6.5	6.9	6.3	6.6	10.0	11.0	10.0	10.0	11.0	8.9	8.2	6.6
40	6.5	6.4	6.2	6.4	10.0	11.0	10.0	10.0	11.0	7.5	6.5	6.6
45	6.4	6.3	6.1	6.4	10.0	11.0	10.0	10.0	10.0	7.4	6.4	6.4
50	6.3	6.3	6.1	6.3	10.0	11.0	10.0	10.0	10.0	7.3	6.3	6.4
55	6.2	6.2	6.0	6.2	10.0	11.0	10.0	10.0	10.0	7.3	6.2	6.3
60	6.2	6.1	5.9	6.1	10.0	10.0	10.0	10.0	10.0	7.2	6.2	6.2
65	6.1	6.1	5.9	6.0	10.0	10.0	10.0	10.0	10.0	7.2	6.1	6.0
70	6.1	6.0	5.9	5.9	10.0	10.0	10.0	10.0	10.0	7.1	6.0	5.9
75	6.0	6.0	5.8	5.9	9.8	10.0	10.0	10.0	10.0	7.0	5.8	5.9
80	6.0	5.9	5.8	5.8	9.7	10.0	10.0	9.9	9.9	6.9	5.7	5.8
85	5.9	5.9	5.8	5.8	9.5	9.9	9.9	9.9	9.8	6.7	5.7	5.8
90	5.8	5.8	5.7	5.7	9.4	9.9	9.9	9.8	9.6	6.7	5.6	5.5
95	5.7	5.8	5.7	5.7	9.4	9.4	9.8	9.7	9.6	6.6	5.6	4.4
99	4.4	5.7	5.6	5.6	8.9	9.3	9.1	9.1	9.5	6.6	5.5	4.1
Minimum	4.4	5.7	5.6	5.5	7.9	9.3	8.8	8.9	9.5	6.5	5.5	4.1
Average	6.8	6.9	6.8	7.0	10.3	11.1	10.8	10.6	10.6	8.6	7.4	7.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-13A. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26.0	26.0	25.0	115.0	62.0	604.0	1300.0	1070.0	46.0	68.0	56.0	45.0
1	26.0	26.0	18.0	17.0	30.0	504.0	1210.0	190.0	24.0	30.0	34.0	40.0
5	15.0	25.0	17.0	16.0	17.0	253.0	320.0	22.0	17.0	21.0	21.0	20.0
10	13.0	12.0	12.0	14.0	15.0	24.0	113.0	16.0	16.0	14.0	13.0	13.0
15	10.0	9.7	12.0	12.0	15.0	17.0	38.0	15.0	15.0	12.0	11.0	11.0
20	9.8	9.4	10.0	12.0	15.0	16.0	18.0	15.0	15.0	12.0	11.0	10.0
25	9.4	8.6	9.0	11.0	14.0	15.0	15.0	14.0	14.0	11.0	10.0	9.4
30	8.6	8.4	8.7	9.3	14.0	14.0	15.0	14.0	14.0	11.0	9.6	8.8
35	8.4	8.2	8.6	8.7	14.0	14.0	14.0	14.0	14.0	10.0	9.0	8.6
40	8.1	8.1	8.3	8.5	14.0	14.0	14.0	14.0	14.0	10.0	8.2	8.4
45	7.8	7.9	8.0	8.3	14.0	14.0	14.0	14.0	14.0	9.7	7.8	7.9
50	7.7	7.7	7.4	8.1	13.0	13.0	14.0	13.0	13.0	9.5	7.7	7.7
55	6.9	7.6	7.0	7.9	13.0	13.0	13.0	13.0	12.0	9.1	7.6	6.6
60	6.5	7.0	6.3	7.2	11.0	13.0	11.0	11.0	11.0	8.7	6.7	6.4
65	6.4	6.7	6.1	6.6	11.0	11.0	11.0	11.0	11.0	7.3	6.4	6.1
70	6.2	6.4	6.0	6.4	10.0	11.0	10.0	10.0	11.0	7.2	6.2	5.9
75	6.1	6.2	5.9	6.3	10.0	11.0	10.0	10.0	10.0	7.0	6.0	5.8
80	5.9	6.1	5.8	6.0	10.0	10.0	10.0	10.0	10.0	7.0	5.8	5.8
85	5.8	6.0	5.8	5.9	9.9	10.0	10.0	10.0	9.9	6.8	5.7	5.8
90	5.7	5.8	5.7	5.8	9.5	9.9	9.9	9.8	9.6	6.7	5.7	5.6
95	5.7	5.7	5.4	5.5	9.4	9.2	9.3	9.3	9.2	6.5	5.6	5.4
99	4.4	5.5	3.3	5.4	9.1	9.1	9.1	9.2	8.3	6.2	5.4	4.1
Minimum	4.4	5.4	2.6	5.4	7.9	9.1	8.8	8.9	8.1	6.0	5.2	4.1
Average	8.5	8.7	8.3	9.2	12.9	36.9	65.8	20.6	12.9	10.3	9.4	9.1
# Days	589	537	589	570	589	570	589	589	570	589	570	589
# Years	19	19	19	19	19	19	19	19	19	19	19	19

Table CAWG 6 Appdx E-13B. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26.0	26.0	25.0	115.0	62.0	604.0	1300.0	1070.0	24.0	17.0	56.0	45.0
1	26.0	26.0	25.0	110.0	50.0	601.0	1300.0	1050.0	24.0	17.0	36.0	43.0
5	25.0	26.0	18.0	17.0	16.0	494.0	971.0	124.0	17.0	14.0	32.0	39.0
10	25.0	25.0	17.0	16.0	15.0	399.0	690.0	65.0	17.0	13.0	13.0	29.0
15	15.0	25.0	17.0	15.0	15.0	287.0	320.0	22.0	17.0	13.0	13.0	11.0
20	8.4	13.0	14.0	14.0	15.0	66.0	262.0	17.0	17.0	12.0	11.0	9.4
25	7.9	8.0	12.0	14.0	15.0	26.0	203.0	16.0	16.0	11.0	11.0	8.2
30	7.8	7.9	12.0	14.0	15.0	24.0	113.0	15.0	15.0	10.0	8.4	7.9
35	7.7	7.7	8.1	12.0	14.0	16.0	83.0	15.0	15.0	10.0	8.1	7.8
40	7.7	7.7	8.0	12.0	14.0	16.0	69.0	15.0	15.0	9.6	7.8	7.7
45	7.7	7.7	7.9	10.0	14.0	16.0	38.0	15.0	14.0	9.6	7.8	7.6
50	7.0	7.6	7.6	8.2	14.0	15.0	24.0	15.0	14.0	9.6	7.7	6.6
55	6.6	7.2	7.4	8.1	14.0	15.0	22.0	14.0	14.0	7.0	6.7	5.9
60	6.6	7.0	7.2	8.0	14.0	14.0	17.0	14.0	14.0	7.0	6.6	5.9
65	6.3	7.0	7.0	7.8	14.0	14.0	17.0	14.0	14.0	6.9	6.4	5.9
70	5.9	6.5	6.9	7.2	14.0	14.0	15.0	14.0	14.0	6.8	5.9	5.8
75	5.7	6.4	6.6	7.1	14.0	14.0	14.0	14.0	14.0	6.8	5.8	5.7
80	5.7	6.2	6.1	6.6	14.0	14.0	14.0	14.0	14.0	6.7	5.7	5.6
85	5.7	5.8	6.0	6.4	14.0	14.0	14.0	13.0	14.0	6.5	5.6	5.6
90	5.6	5.7	5.9	6.3	13.0	13.0	13.0	13.0	14.0	6.4	5.6	5.6
95	5.6	5.6	5.7	6.0	13.0	13.0	13.0	13.0	13.0	6.3	5.5	5.4
99	5.4	5.5	5.6	5.8	12.0	13.0	13.0	13.0	13.0	6.0	5.2	5.1
Minimum	5.4	5.5	5.6	5.8	12.0	13.0	13.0	13.0	13.0	6.0	5.2	5.1
Average	9.4	10.3	9.7	11.9	15.1	90.3	179.5	40.0	14.9	9.2	10.2	10.2
# Days	186	169	186	180	186	180	186	186	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx E-13C. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	14.0	10.0	12.0	17.0	17.0	17.0	443.0	22.0	46.0	17.0	12.0	15.0
5	11.0	10.0	12.0	14.0	17.0	17.0	36.0	16.0	23.0	13.0	12.0	12.0
10	11.0	10.0	12.0	12.0	17.0	17.0	17.0	16.0	23.0	12.0	11.0	12.0
15	10.0	9.7	12.0	12.0	17.0	17.0	16.0	16.0	16.0	12.0	11.0	12.0
20	10.0	9.7	12.0	11.0	17.0	17.0	15.0	16.0	16.0	12.0	11.0	12.0
25	10.0	9.7	12.0	11.0	17.0	17.0	15.0	15.0	15.0	11.0	11.0	12.0
30	10.0	9.7	9.9	11.0	17.0	17.0	15.0	15.0	15.0	11.0	10.0	11.0
35	10.0	9.7	9.7	11.0	17.0	15.0	15.0	14.0	15.0	11.0	10.0	11.0
40	10.0	9.7	8.7	9.3	17.0	15.0	15.0	14.0	15.0	11.0	10.0	11.0
45	9.8	8.7	8.7	9.2	17.0	15.0	14.0	14.0	15.0	11.0	10.0	10.0
50	9.8	8.6	8.7	9.2	17.0	15.0	14.0	14.0	14.0	10.0	10.0	10.0
55	9.8	8.6	8.7	8.7	15.0	15.0	14.0	14.0	14.0	10.0	10.0	9.8
60	9.8	8.6	8.6	8.6	15.0	15.0	14.0	14.0	14.0	10.0	10.0	9.2
65	9.7	8.6	8.6	8.6	15.0	15.0	14.0	14.0	14.0	10.0	9.5	8.8
70	9.7	8.2	8.6	8.6	14.0	14.0	14.0	14.0	14.0	10.0	7.9	8.8
75	8.7	8.1	6.6	8.6	14.0	14.0	14.0	14.0	13.0	10.0	7.8	8.8
80	8.1	8.1	5.7	8.5	13.0	14.0	14.0	14.0	13.0	9.9	7.8	8.8
85	8.1	8.1	4.9	8.4	13.0	13.0	14.0	14.0	13.0	9.7	7.7	8.8
90	8.1	8.1	4.0	8.3	13.0	13.0	13.0	14.0	13.0	9.2	7.7	8.8
95	8.0	8.1	3.1	7.6	13.0	13.0	13.0	13.0	13.0	9.2	7.6	7.6
Minimum	8.0	8.1	2.6	7.1	13.0	13.0	13.0	13.0	12.0	8.5	7.6	7.5
Average	9.6	9.0	8.6	9.9	15.5	15.2	21.4	14.6	16.1	10.7	9.6	10.2
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-13D. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	14.0	15.0	12.0	13.0	14.0	14.0	15.0	15.0	14.0	68.0	31.0	23.0
5	14.0	13.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	32.0	26.0	22.0
10	14.0	13.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	24.0	21.0	20.0
15	13.0	13.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	23.0	21.0	14.0
20	13.0	12.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	22.0	21.0	14.0
25	13.0	12.0	12.0	12.0	14.0	14.0	13.0	14.0	14.0	21.0	21.0	14.0
30	12.0	12.0	11.0	12.0	14.0	14.0	13.0	13.0	14.0	21.0	21.0	14.0
35	9.8	12.0	9.0	8.8	13.0	13.0	12.0	11.0	14.0	21.0	7.8	9.6
40	9.6	8.2	8.9	8.4	13.0	13.0	11.0	10.0	11.0	11.0	7.8	9.2
45	9.2	8.2	8.9	8.2	13.0	13.0	11.0	10.0	11.0	9.5	7.7	8.9
50	8.9	8.1	8.8	7.9	13.0	13.0	11.0	10.0	10.0	9.4	7.7	8.6
55	8.6	7.9	8.8	7.9	13.0	13.0	11.0	10.0	9.3	9.4	7.7	8.2
60	8.2	7.8	8.5	7.9	13.0	13.0	9.9	10.0	9.2	9.2	7.6	7.9
65	7.9	7.8	8.3	7.8	13.0	13.0	9.8	9.7	9.2	9.1	7.6	7.8
70	6.9	7.7	5.5	5.5	9.4	9.2	9.3	9.3	9.2	9.1	7.2	5.8
75	6.9	7.7	5.4	5.4	9.3	9.2	9.3	9.3	9.0	9.0	5.8	5.8
80	6.0	7.6	5.4	5.4	9.3	9.1	9.2	9.3	8.9	9.0	5.8	5.8
85	5.8	6.9	5.4	5.4	9.3	9.1	9.2	9.3	8.7	9.0	5.8	5.8
90	5.8	5.5	5.4	5.4	9.2	9.1	9.2	9.3	8.5	7.4	5.8	5.8
95	5.8	5.5	5.4	5.4	9.2	9.1	9.1	9.2	8.2	7.2	5.8	5.8
Minimum	5.8	5.4	5.4	5.4	8.9	9.1	9.1	9.2	8.1	7.2	5.8	5.8
Average	9.4	9.3	8.7	8.6	12.1	12.0	11.3	11.1	11.2	15.9	11.9	10.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-13E. Mono Creek below Diversion (Gage 11231600)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	9.5	9.4	10.0	11.0	13.0	38.0	15.0	14.0	19.0	16.0	21.0	17.0
1	9.5	9.4	10.0	10.0	13.0	23.0	15.0	14.0	19.0	16.0	12.0	17.0
5	9.4	9.4	10.0	10.0	12.0	13.0	14.0	14.0	12.0	12.0	11.0	9.5
10	8.6	8.5	9.0	9.4	11.0	12.0	14.0	12.0	11.0	12.0	11.0	9.3
15	8.5	8.5	8.5	8.6	11.0	12.0	12.0	11.0	11.0	11.0	9.6	8.8
20	8.3	8.4	8.4	8.4	11.0	11.0	11.0	11.0	11.0	11.0	9.5	8.5
25	7.9	8.3	7.9	8.2	11.0	11.0	11.0	11.0	11.0	11.0	9.1	8.5
30	6.6	7.1	7.0	7.8	11.0	11.0	11.0	11.0	11.0	10.0	8.6	8.3
35	6.5	6.9	6.3	6.6	10.0	11.0	10.0	10.0	11.0	8.9	8.2	6.6
40	6.5	6.4	6.2	6.4	10.0	11.0	10.0	10.0	11.0	7.5	6.5	6.6
45	6.4	6.3	6.1	6.4	10.0	11.0	10.0	10.0	10.0	7.4	6.4	6.4
50	6.3	6.3	6.1	6.3	10.0	11.0	10.0	10.0	10.0	7.3	6.3	6.4
55	6.2	6.2	6.0	6.2	10.0	11.0	10.0	10.0	10.0	7.3	6.2	6.3
60	6.2	6.1	5.9	6.1	10.0	10.0	10.0	10.0	10.0	7.2	6.2	6.2
65	6.1	6.1	5.9	6.0	10.0	10.0	10.0	10.0	10.0	7.2	6.1	6.0
70	6.1	6.0	5.9	5.9	10.0	10.0	10.0	10.0	10.0	7.1	6.0	5.9
75	6.0	6.0	5.8	5.9	9.8	10.0	10.0	10.0	10.0	7.0	5.8	5.9
80	6.0	5.9	5.8	5.8	9.7	10.0	10.0	9.9	9.9	6.9	5.7	5.8
85	5.9	5.9	5.8	5.8	9.5	9.9	9.9	9.9	9.8	6.7	5.7	5.8
90	5.8	5.8	5.7	5.7	9.4	9.9	9.9	9.8	9.6	6.7	5.6	5.5
95	5.7	5.8	5.7	5.7	9.4	9.4	9.8	9.7	9.6	6.6	5.6	4.4
99	4.4	5.7	5.6	5.6	8.9	9.3	9.1	9.1	9.5	6.6	5.5	4.1
Minimum	4.4	5.7	5.6	5.5	7.9	9.3	8.8	8.9	9.5	6.5	5.5	4.1
Average	6.8	6.9	6.8	7.0	10.3	11.1	10.8	10.6	10.6	8.6	7.4	7.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-14A. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
(10/1/1959 to 9/30/2002)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26000.0	3530.0	10100.0	12900.0	18100.0	16400.0	13500.0	3830.0	396.0	300.0	53.0	316.0
1	1630.0	1510.0	1260.0	3850.0	13000.0	13200.0	11000.0	1640.0	42.0	62.0	30.0	59.0
5	75.0	242.0	737.0	1410.0	6680.0	9310.0	5650.0	73.0	35.0	32.0	20.0	26.0
10	39.0	59.0	56.0	58.0	5140.0	6840.0	3340.0	37.0	33.0	31.0	16.0	18.0
15	18.0	46.0	48.0	52.0	4060.0	4980.0	2220.0	34.0	31.0	30.0	15.0	15.0
20	15.0	31.0	31.0	47.0	2920.0	4190.0	1200.0	33.0	30.0	29.0	14.0	14.0
25	14.0	19.0	18.0	36.0	1510.0	3340.0	66.0	30.0	29.0	28.0	14.0	14.0
30	14.0	15.0	16.0	33.0	177.0	2480.0	37.0	29.0	28.0	28.0	13.0	13.0
35	14.0	14.0	15.0	29.0	59.0	1730.0	35.0	28.0	27.0	28.0	13.0	13.0
40	14.0	14.0	14.0	27.0	51.0	958.0	31.0	27.0	27.0	27.0	13.0	13.0
45	13.0	14.0	14.0	25.0	45.0	261.0	29.0	27.0	26.0	26.0	12.0	13.0
50	13.0	13.0	14.0	19.0	33.0	35.0	28.0	26.0	26.0	26.0	12.0	12.0
55	13.0	13.0	13.0	16.0	29.0	28.0	26.0	26.0	25.0	25.0	12.0	12.0
60	13.0	13.0	13.0	15.0	28.0	26.0	26.0	25.0	24.0	23.0	12.0	12.0
65	12.0	13.0	13.0	14.0	25.0	16.0	22.0	19.0	19.0	16.0	12.0	12.0
70	12.0	13.0	13.0	14.0	16.0	15.0	16.0	15.0	15.0	15.0	12.0	12.0
75	12.0	12.0	12.0	14.0	15.0	15.0	15.0	15.0	14.0	15.0	11.0	12.0
80	12.0	12.0	12.0	13.0	15.0	15.0	14.0	14.0	14.0	14.0	11.0	11.0
85	11.0	12.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	11.0	11.0
90	11.0	12.0	12.0	12.0	14.0	14.0	13.0	14.0	13.0	13.0	11.0	11.0
95	11.0	11.0	11.0	11.0	13.0	12.0	13.0	13.0	13.0	13.0	9.8	10.0
99	8.4	9.0	9.4	10.0	12.0	11.0	11.0	13.0	12.0	0.7	0.6	3.7
Minimum	3.9	4.4	4.2	9.4	9.1	2.8	9.7	12.0	12.0	0.3	0.5	0.3
Average	92.6	64.9	93.0	198.1	1361.1	2059.7	914.3	74.5	23.9	24.2	13.0	15.0
# Days	1333	1215	1333	1290	1333	1290	1333	1333	1290	1333	1290	1333
# Years	43	43	43	43	43	43	43	43	43	43	43	43

Table CAWG 6 Appdx E-14B. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Wet Water Years (1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26000.0	3530.0	10100.0	12900.0	18100.0	16400.0	13500.0	3830.0	396.0	62.0	53.0	316.0
1	1880.0	2100.0	2420.0	4620.0	13800.0	15500.0	13100.0	2860.0	49.0	62.0	31.0	90.0
5	990.0	881.0	926.0	3270.0	9850.0	12200.0	9560.0	1120.0	41.0	56.0	21.0	59.0
10	318.0	278.0	843.0	2080.0	7660.0	10400.0	6750.0	340.0	35.0	31.0	19.0	45.0
15	65.0	242.0	702.0	1190.0	6380.0	9050.0	5260.0	68.0	33.0	30.0	17.0	24.0
20	59.0	193.0	376.0	807.0	5770.0	8090.0	4100.0	40.0	31.0	30.0	16.0	20.0
25	50.0	62.0	57.0	60.0	5210.0	7300.0	3570.0	37.0	30.0	29.0	15.0	19.0
30	33.0	58.0	56.0	57.0	4760.0	6560.0	3260.0	35.0	29.0	28.0	15.0	17.0
35	23.0	48.0	51.0	55.0	4370.0	5830.0	2890.0	30.0	29.0	27.0	13.0	15.0
40	18.0	44.0	49.0	52.0	3680.0	5260.0	2480.0	29.0	29.0	27.0	13.0	14.0
45	16.0	35.0	40.0	51.0	3230.0	4850.0	2110.0	29.0	28.0	27.0	13.0	14.0
50	15.0	32.0	33.0	49.0	2670.0	4460.0	1760.0	28.0	28.0	26.0	12.0	13.0
55	14.0	22.0	31.0	41.0	2140.0	4200.0	1220.0	28.0	27.0	24.0	12.0	13.0
60	14.0	15.0	24.0	38.0	1470.0	3760.0	458.0	27.0	27.0	18.0	12.0	12.0
65	13.0	14.0	21.0	33.0	641.0	3360.0	71.0	27.0	27.0	15.0	12.0	12.0
70	13.0	13.0	18.0	33.0	64.0	3060.0	37.0	27.0	26.0	15.0	12.0	12.0
75	12.0	12.0	16.0	31.0	59.0	2590.0	36.0	26.0	26.0	14.0	11.0	12.0
80	12.0	12.0	14.0	28.0	54.0	2190.0	29.0	26.0	26.0	14.0	11.0	12.0
85	11.0	11.0	13.0	25.0	50.0	1620.0	28.0	26.0	25.0	14.0	11.0	12.0
90	11.0	11.0	12.0	19.0	48.0	816.0	27.0	25.0	25.0	13.0	11.0	11.0
95	9.2	11.0	11.0	13.0	45.0	247.0	26.0	22.0	23.0	13.0	10.0	11.0
99	9.1	9.1	11.0	10.0	28.0	37.0	26.0	21.0	19.0	12.0	9.5	10.0
Minimum	8.1	9.1	11.0	9.6	28.0	28.0	26.0	21.0	18.0	7.0	4.8	10.0
Average	241.3	159.1	241.8	533.0	3308.8	5205.5	2520.0	173.4	29.7	24.4	13.9	20.1
# Days	465	422	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx E-14C. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Above Normal Water Years (1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	105.0	75.0	23.0	55.0	7980.0	5400.0	1990.0	73.0	37.0	32.0	32.0	20.0
1	44.0	62.0	20.0	50.0	7510.0	4810.0	1830.0	73.0	37.0	32.0	32.0	16.0
5	21.0	22.0	17.0	46.0	5300.0	3970.0	1140.0	38.0	37.0	32.0	19.0	15.0
10	16.0	17.0	16.0	38.0	4110.0	2930.0	60.0	37.0	35.0	32.0	14.0	14.0
15	15.0	15.0	16.0	33.0	3290.0	2370.0	59.0	35.0	34.0	31.0	13.0	14.0
20	14.0	14.0	15.0	30.0	2380.0	2010.0	48.0	34.0	33.0	30.0	13.0	14.0
25	14.0	14.0	14.0	29.0	784.0	1680.0	36.0	34.0	30.0	30.0	13.0	13.0
30	14.0	14.0	14.0	28.0	58.0	1480.0	34.0	33.0	29.0	29.0	12.0	13.0
35	13.0	14.0	14.0	27.0	50.0	1190.0	34.0	29.0	29.0	29.0	12.0	13.0
40	13.0	14.0	14.0	27.0	46.0	976.0	33.0	29.0	28.0	29.0	12.0	13.0
45	13.0	13.0	13.0	26.0	42.0	793.0	30.0	29.0	28.0	28.0	12.0	13.0
50	13.0	13.0	13.0	25.0	38.0	569.0	30.0	29.0	28.0	28.0	12.0	13.0
55	13.0	13.0	13.0	24.0	36.0	420.0	29.0	28.0	27.0	28.0	11.0	13.0
60	12.0	13.0	13.0	19.0	33.0	220.0	29.0	26.0	27.0	28.0	11.0	12.0
65	12.0	13.0	13.0	14.0	31.0	68.0	29.0	26.0	26.0	27.0	11.0	12.0
70	12.0	12.0	12.0	14.0	30.0	47.0	27.0	26.0	26.0	27.0	11.0	11.0
75	11.0	12.0	12.0	13.0	30.0	31.0	26.0	25.0	26.0	27.0	11.0	11.0
80	11.0	12.0	12.0	12.0	29.0	28.0	26.0	25.0	26.0	26.0	11.0	11.0
85	11.0	12.0	12.0	12.0	29.0	28.0	26.0	25.0	25.0	26.0	11.0	11.0
90	11.0	12.0	11.0	12.0	28.0	28.0	26.0	25.0	25.0	13.0	11.0	11.0
95	11.0	11.0	11.0	11.0	27.0	28.0	26.0	24.0	25.0	13.0	11.0	11.0
99	10.0	4.9	9.4	11.0	26.0	27.0	25.0	23.0	23.0	12.0	11.0	4.9
Minimum	9.6	4.9	8.4	11.0	26.0	27.0	25.0	22.0	23.0	12.0	11.0	4.9
Average	14.1	14.9	13.5	23.6	998.4	1084.3	140.6	30.2	28.7	26.6	12.7	12.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-14D. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Below Normal Water Years (1962, 1966, 1971)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	25.0	71.0	32.0	89.0	4800.0	3850.0	692.0	32.0	30.0	28.0	46.0	30.0
5	15.0	35.0	18.0	88.0	3830.0	3510.0	554.0	29.0	28.0	28.0	22.0	18.0
10	14.0	26.0	16.0	59.0	1940.0	3100.0	60.0	28.0	28.0	27.0	16.0	15.0
15	14.0	20.0	15.0	47.0	748.0	2820.0	30.0	28.0	28.0	27.0	15.0	13.0
20	14.0	15.0	15.0	41.0	482.0	2330.0	29.0	27.0	27.0	27.0	14.0	13.0
25	14.0	14.0	14.0	34.0	382.0	1950.0	29.0	27.0	27.0	27.0	13.0	13.0
30	13.0	13.0	14.0	32.0	177.0	1250.0	26.0	27.0	27.0	26.0	13.0	13.0
35	13.0	13.0	14.0	26.0	60.0	26.0	26.0	27.0	27.0	26.0	12.0	13.0
40	13.0	13.0	14.0	26.0	59.0	26.0	26.0	27.0	27.0	26.0	12.0	12.0
45	12.0	13.0	13.0	25.0	39.0	26.0	26.0	26.0	27.0	25.0	12.0	12.0
50	12.0	13.0	13.0	25.0	27.0	26.0	26.0	26.0	26.0	24.0	11.0	12.0
55	12.0	13.0	13.0	16.0	26.0	26.0	26.0	26.0	25.0	24.0	11.0	12.0
60	12.0	13.0	13.0	15.0	26.0	26.0	25.0	26.0	25.0	24.0	11.0	12.0
65	12.0	12.0	12.0	14.0	25.0	25.0	24.0	25.0	24.0	24.0	11.0	12.0
70	12.0	12.0	12.0	13.0	25.0	14.0	13.0	16.0	13.0	14.0	11.0	12.0
75	11.0	12.0	12.0	13.0	25.0	14.0	13.0	13.0	13.0	14.0	11.0	12.0
80	11.0	12.0	12.0	13.0	14.0	13.0	13.0	13.0	13.0	14.0	11.0	11.0
85	11.0	12.0	12.0	13.0	13.0	13.0	13.0	13.0	12.0	14.0	11.0	11.0
90	11.0	11.0	12.0	13.0	13.0	13.0	13.0	13.0	12.0	14.0	11.0	11.0
95	11.0	11.0	11.0	12.0	13.0	8.3	13.0	13.0	12.0	14.0	9.7	11.0
Minimum	11.0	5.4	11.0	12.0	13.0	2.8	13.0	13.0	12.0	13.0	9.5	10.0
Average	12.7	16.2	13.7	29.5	513.1	860.8	67.6	22.5	22.1	21.9	13.1	12.8
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-14E. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Dry Water Years (1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	18.0	51.0	52.0	30.0	416.0	59.0	42.0	36.0	35.0	34.0	28.0	34.0
1	15.0	50.0	18.0	29.0	148.0	59.0	40.0	35.0	35.0	30.0	24.0	21.0
5	14.0	47.0	16.0	29.0	61.0	34.0	37.0	34.0	35.0	29.0	18.0	14.0
10	14.0	23.0	15.0	29.0	54.0	29.0	36.0	34.0	34.0	29.0	15.0	14.0
15	14.0	16.0	14.0	27.0	38.0	29.0	36.0	33.0	33.0	28.0	15.0	14.0
20	13.0	15.0	14.0	26.0	32.0	29.0	34.0	33.0	32.0	28.0	14.0	13.0
25	13.0	14.0	14.0	18.0	31.0	28.0	33.0	32.0	32.0	28.0	14.0	13.0
30	13.0	14.0	14.0	16.0	30.0	27.0	32.0	32.0	31.0	28.0	14.0	12.0
35	12.0	14.0	13.0	14.0	29.0	25.0	31.0	31.0	28.0	27.0	14.0	12.0
40	12.0	14.0	13.0	14.0	29.0	24.0	29.0	31.0	26.0	26.0	14.0	12.0
45	12.0	14.0	13.0	14.0	28.0	23.0	29.0	31.0	26.0	26.0	13.0	12.0
50	12.0	13.0	13.0	14.0	27.0	16.0	29.0	29.0	24.0	26.0	13.0	12.0
55	12.0	13.0	13.0	14.0	24.0	16.0	22.0	21.0	21.0	26.0	12.0	11.0
60	12.0	13.0	13.0	14.0	17.0	16.0	18.0	17.0	15.0	25.0	12.0	11.0
65	11.0	13.0	12.0	13.0	16.0	15.0	15.0	16.0	14.0	25.0	12.0	11.0
70	11.0	12.0	12.0	13.0	15.0	15.0	14.0	15.0	14.0	25.0	12.0	11.0
75	11.0	12.0	12.0	12.0	15.0	15.0	13.0	13.0	14.0	23.0	11.0	11.0
80	11.0	12.0	11.0	12.0	14.0	13.0	13.0	13.0	13.0	23.0	11.0	11.0
85	11.0	12.0	11.0	11.0	13.0	13.0	13.0	13.0	13.0	22.0	11.0	11.0
90	11.0	12.0	11.0	11.0	13.0	13.0	13.0	13.0	13.0	15.0	11.0	9.5
95	10.0	11.0	9.9	11.0	13.0	13.0	12.0	13.0	13.0	13.0	8.4	9.1
99	7.8	4.4	7.7	10.0	13.0	12.0	12.0	12.0	12.0	13.0	8.4	8.4
Minimum	7.5	4.4	4.2	9.8	13.0	12.0	12.0	12.0	12.0	13.0	8.4	8.4
Average	12.1	16.0	13.2	16.6	29.8	21.1	24.2	23.9	22.9	24.6	13.1	12.0
# Days	217	199	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-14F. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Critical Water Years (1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	20.0	25.0	43.0	40.0	21.0	48.0	20.0	17.0	21.0	300.0	28.0	60.0
1	18.0	24.0	19.0	22.0	19.0	48.0	20.0	15.0	20.0	263.0	28.0	17.0
5	14.0	18.0	14.0	16.0	16.0	16.0	17.0	15.0	15.0	33.0	15.0	14.0
10	14.0	15.0	14.0	16.0	16.0	16.0	16.0	15.0	15.0	31.0	14.0	14.0
15	14.0	14.0	14.0	15.0	16.0	15.0	16.0	15.0	15.0	29.0	14.0	13.0
20	14.0	14.0	14.0	15.0	16.0	15.0	15.0	15.0	15.0	28.0	14.0	13.0
25	14.0	14.0	14.0	15.0	15.0	15.0	15.0	15.0	15.0	28.0	13.0	13.0
30	13.0	14.0	13.0	15.0	15.0	15.0	15.0	15.0	15.0	17.0	13.0	13.0
35	13.0	13.0	13.0	15.0	15.0	15.0	15.0	15.0	14.0	16.0	13.0	13.0
40	13.0	13.0	13.0	15.0	15.0	15.0	15.0	14.0	14.0	16.0	13.0	13.0
45	13.0	13.0	13.0	14.0	15.0	15.0	14.0	14.0	14.0	15.0	13.0	12.0
50	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
55	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
60	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
65	13.0	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
70	12.0	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	12.0	12.0
75	12.0	12.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	12.0	12.0
80	12.0	12.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	11.0	12.0
85	12.0	12.0	12.0	12.0	14.0	12.0	13.0	14.0	13.0	14.0	11.0	12.0
90	12.0	12.0	12.0	12.0	13.0	12.0	13.0	13.0	13.0	12.0	9.7	11.0
95	11.0	12.0	11.0	11.0	13.0	12.0	11.0	13.0	12.0	1.3	0.7	3.7
99	3.9	10.0	9.1	9.7	11.0	11.0	10.0	13.0	12.0	0.4	0.6	0.4
Minimum	3.9	10.0	9.1	9.4	9.1	10.0	9.7	13.0	12.0	0.3	0.5	0.3
Average	12.9	13.5	13.1	14.1	14.6	15.0	14.5	14.3	14.2	23.0	11.9	11.9
# Days	341	312	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx E-15A. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
(10/1/1982 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26000.0	2350.0	10100.0	12900.0	18100.0	15500.0	13500.0	3830.0	50.0	62.0	53.0	106.0
1	1700.0	1520.0	1830.0	3280.0	13000.0	13200.0	11800.0	2680.0	42.0	62.0	29.0	59.0
5	62.0	244.0	858.0	1660.0	5790.0	10600.0	7660.0	465.0	37.0	35.0	19.0	25.0
10	56.0	64.0	57.0	59.0	4500.0	8020.0	4510.0	52.0	35.0	32.0	16.0	19.0
15	21.0	50.0	50.0	56.0	3530.0	4950.0	2240.0	38.0	34.0	30.0	15.0	14.0
20	16.0	34.0	34.0	49.0	2540.0	3920.0	206.0	36.0	33.0	29.0	15.0	14.0
25	14.0	21.0	31.0	33.0	1290.0	2800.0	53.0	35.0	32.0	28.0	14.0	14.0
30	14.0	15.0	18.0	32.0	148.0	2090.0	37.0	34.0	30.0	28.0	14.0	13.0
35	14.0	14.0	16.0	29.0	62.0	1300.0	36.0	33.0	29.0	28.0	13.0	13.0
40	13.0	14.0	14.0	28.0	58.0	501.0	34.0	31.0	29.0	28.0	13.0	13.0
45	13.0	14.0	14.0	27.0	46.0	59.0	33.0	30.0	28.0	27.0	13.0	13.0
50	13.0	14.0	14.0	17.0	32.0	31.0	29.0	29.0	28.0	27.0	13.0	12.0
55	13.0	13.0	13.0	16.0	30.0	29.0	29.0	29.0	28.0	26.0	12.0	12.0
60	12.0	13.0	13.0	15.0	28.0	28.0	29.0	28.0	27.0	22.0	12.0	12.0
65	12.0	13.0	13.0	15.0	21.0	16.0	20.0	17.0	19.0	16.0	12.0	12.0
70	12.0	13.0	13.0	14.0	16.0	15.0	16.0	15.0	15.0	15.0	12.0	12.0
75	12.0	13.0	13.0	14.0	16.0	15.0	15.0	15.0	15.0	15.0	11.0	12.0
80	11.0	12.0	13.0	14.0	15.0	15.0	15.0	15.0	14.0	15.0	11.0	12.0
85	11.0	12.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	15.0	11.0	11.0
90	11.0	12.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	14.0	11.0	11.0
95	10.0	11.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	14.0	11.0	11.0
99	9.2	4.4	11.0	11.0	14.0	14.0	13.0	14.0	13.0	13.0	11.0	10.0
Minimum	9.2	4.4	4.2	10.0	14.0	14.0	13.0	14.0	13.0	7.0	10.0	4.9
Average	159.6	66.5	126.0	223.0	1210.5	2066.5	1074.9	119.5	25.2	24.3	13.5	15.0
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx E-15B. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26000.0	2350.0	10100.0	12900.0	18100.0	15500.0	13500.0	3830.0	50.0	62.0	53.0	106.0
1	10000.0	1560.0	2770.0	4800.0	13800.0	15300.0	13100.0	3310.0	49.0	62.0	36.0	60.0
5	1660.0	929.0	1380.0	2860.0	9850.0	12700.0	11000.0	2370.0	42.0	61.0	22.0	59.0
10	1020.0	393.0	922.0	2160.0	6610.0	11800.0	9170.0	1120.0	36.0	57.0	19.0	58.0
15	60.0	244.0	853.0	1640.0	5650.0	10500.0	7080.0	461.0	36.0	35.0	17.0	25.0
20	59.0	242.0	820.0	1040.0	5100.0	9570.0	6440.0	71.0	35.0	31.0	16.0	21.0
25	59.0	115.0	59.0	520.0	4750.0	8810.0	5650.0	66.0	30.0	30.0	16.0	20.0
30	53.0	59.0	57.0	58.0	4390.0	7770.0	4360.0	41.0	30.0	30.0	16.0	17.0
35	43.0	58.0	56.0	57.0	4060.0	6290.0	3340.0	38.0	30.0	28.0	15.0	16.0
40	27.0	57.0	51.0	57.0	3530.0	5050.0	2710.0	37.0	29.0	28.0	15.0	15.0
45	19.0	46.0	50.0	56.0	3110.0	4680.0	2060.0	36.0	29.0	28.0	15.0	13.0
50	17.0	44.0	49.0	51.0	2690.0	4320.0	1360.0	35.0	29.0	27.0	13.0	13.0
55	14.0	35.0	37.0	49.0	2180.0	4190.0	335.0	30.0	29.0	27.0	13.0	12.0
60	12.0	33.0	33.0	41.0	1810.0	3620.0	87.0	30.0	29.0	27.0	12.0	12.0
65	12.0	30.0	32.0	33.0	1290.0	3340.0	37.0	29.0	28.0	27.0	12.0	12.0
70	12.0	20.0	31.0	33.0	641.0	2870.0	36.0	29.0	28.0	26.0	12.0	12.0
75	11.0	12.0	25.0	32.0	65.0	2480.0	36.0	29.0	28.0	15.0	12.0	12.0
80	11.0	12.0	18.0	30.0	64.0	2200.0	30.0	29.0	28.0	15.0	11.0	12.0
85	11.0	11.0	18.0	28.0	61.0	1700.0	29.0	28.0	27.0	15.0	11.0	12.0
90	11.0	11.0	12.0	20.0	58.0	1140.0	28.0	27.0	27.0	14.0	11.0	11.0
95	9.2	11.0	11.0	18.0	54.0	209.0	28.0	26.0	26.0	14.0	11.0	11.0
99	9.2	9.6	11.0	10.0	47.0	28.0	27.0	25.0	26.0	10.0	11.0	11.0
Minimum	9.2	9.6	11.0	10.0	43.0	28.0	26.0	25.0	25.0	7.0	11.0	11.0
Average	432.3	165.6	335.2	604.6	3152.7	5585.2	3025.6	297.9	30.7	28.8	14.7	19.9
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-15C. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	15.0	14.0	15.0	35.0	4730.0	2500.0	60.0	73.0	37.0	30.0	29.0	14.0
5	15.0	14.0	14.0	34.0	3760.0	2150.0	60.0	52.0	37.0	30.0	19.0	14.0
10	14.0	14.0	14.0	33.0	2660.0	1870.0	59.0	39.0	37.0	29.0	12.0	14.0
15	14.0	14.0	14.0	33.0	823.0	1670.0	59.0	37.0	37.0	29.0	12.0	13.0
20	14.0	14.0	14.0	30.0	785.0	1480.0	59.0	37.0	35.0	29.0	11.0	13.0
25	14.0	14.0	14.0	30.0	781.0	1190.0	37.0	36.0	35.0	29.0	11.0	13.0
30	13.0	14.0	13.0	29.0	295.0	958.0	37.0	35.0	34.0	28.0	11.0	13.0
35	13.0	14.0	13.0	29.0	57.0	768.0	36.0	35.0	34.0	28.0	11.0	13.0
40	13.0	14.0	13.0	28.0	46.0	567.0	36.0	34.0	34.0	28.0	11.0	13.0
45	13.0	13.0	13.0	27.0	44.0	529.0	34.0	34.0	33.0	28.0	11.0	13.0
50	13.0	13.0	13.0	27.0	38.0	286.0	34.0	34.0	32.0	28.0	11.0	12.0
55	13.0	13.0	12.0	27.0	35.0	221.0	34.0	34.0	29.0	28.0	11.0	12.0
60	12.0	13.0	12.0	19.0	32.0	154.0	34.0	34.0	29.0	28.0	11.0	11.0
65	12.0	13.0	12.0	14.0	31.0	79.0	33.0	33.0	29.0	28.0	11.0	11.0
70	12.0	13.0	12.0	14.0	31.0	59.0	29.0	33.0	29.0	27.0	11.0	11.0
75	11.0	13.0	12.0	12.0	30.0	35.0	29.0	29.0	28.0	27.0	11.0	11.0
80	11.0	13.0	12.0	12.0	29.0	29.0	29.0	29.0	28.0	27.0	11.0	11.0
85	11.0	12.0	12.0	12.0	29.0	28.0	29.0	29.0	28.0	27.0	11.0	11.0
90	11.0	12.0	12.0	12.0	29.0	28.0	29.0	29.0	28.0	26.0	11.0	11.0
95	11.0	12.0	12.0	11.0	28.0	27.0	29.0	28.0	28.0	26.0	11.0	4.9
Minimum	9.6	11.0	12.0	11.0	28.0	27.0	29.0	22.0	26.0	26.0	11.0	4.9
Average	12.6	13.2	12.8	22.8	634.1	680.7	38.4	35.3	31.8	27.9	11.9	11.9
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-15D. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	18.0	23.0	18.0	29.0	416.0	59.0	42.0	36.0	35.0	34.0	28.0	14.0
5	14.0	16.0	16.0	29.0	63.0	37.0	39.0	35.0	35.0	28.0	15.0	14.0
10	14.0	15.0	16.0	29.0	61.0	34.0	37.0	34.0	35.0	28.0	15.0	14.0
15	14.0	15.0	16.0	29.0	57.0	32.0	37.0	34.0	34.0	28.0	15.0	14.0
20	14.0	15.0	15.0	28.0	56.0	30.0	37.0	34.0	34.0	28.0	15.0	14.0
25	14.0	14.0	15.0	27.0	54.0	29.0	36.0	34.0	34.0	28.0	14.0	14.0
30	14.0	14.0	14.0	27.0	34.0	29.0	36.0	33.0	34.0	28.0	14.0	14.0
35	13.0	14.0	14.0	27.0	32.0	29.0	36.0	33.0	33.0	27.0	14.0	12.0
40	13.0	14.0	14.0	19.0	31.0	29.0	34.0	33.0	33.0	23.0	14.0	12.0
45	12.0	14.0	13.0	14.0	31.0	29.0	34.0	33.0	32.0	23.0	14.0	12.0
50	12.0	13.0	13.0	14.0	31.0	28.0	33.0	33.0	32.0	23.0	14.0	12.0
55	11.0	13.0	13.0	14.0	30.0	28.0	33.0	33.0	32.0	23.0	13.0	12.0
60	11.0	13.0	13.0	14.0	29.0	28.0	33.0	32.0	32.0	23.0	12.0	12.0
65	11.0	13.0	13.0	14.0	29.0	28.0	32.0	32.0	31.0	22.0	11.0	11.0
70	11.0	13.0	13.0	13.0	29.0	27.0	29.0	31.0	31.0	15.0	11.0	11.0
75	11.0	13.0	13.0	12.0	28.0	16.0	29.0	31.0	31.0	15.0	11.0	11.0
80	11.0	13.0	12.0	12.0	28.0	16.0	29.0	31.0	29.0	15.0	11.0	11.0
85	11.0	12.0	12.0	12.0	28.0	16.0	29.0	31.0	28.0	13.0	11.0	11.0
90	10.0	12.0	12.0	11.0	28.0	16.0	29.0	29.0	27.0	13.0	11.0	11.0
95	10.0	4.4	11.0	11.0	27.0	16.0	29.0	29.0	13.0	13.0	11.0	11.0
Minimum	10.0	4.4	4.2	11.0	21.0	16.0	29.0	26.0	13.0	13.0	10.0	10.0
Average	12.2	13.3	13.5	19.0	44.7	27.2	33.4	32.4	30.9	21.8	13.2	12.3
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-15E. San Joaquin River Above Shakeflat Creek (Gage 11234760)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	18.0	23.0	43.0	27.0	21.0	48.0	20.0	17.0	21.0	34.0	26.0	15.0
1	18.0	22.0	20.0	22.0	19.0	48.0	20.0	15.0	21.0	34.0	26.0	15.0
5	14.0	18.0	15.0	16.0	18.0	17.0	16.0	15.0	15.0	33.0	15.0	14.0
10	14.0	16.0	14.0	16.0	16.0	16.0	16.0	15.0	15.0	31.0	14.0	14.0
15	14.0	15.0	14.0	16.0	16.0	15.0	16.0	15.0	15.0	29.0	14.0	13.0
20	14.0	14.0	14.0	15.0	16.0	15.0	15.0	15.0	15.0	28.0	14.0	13.0
25	13.0	14.0	14.0	15.0	16.0	15.0	15.0	15.0	15.0	27.0	14.0	13.0
30	13.0	14.0	14.0	15.0	15.0	15.0	15.0	15.0	15.0	16.0	13.0	13.0
35	13.0	13.0	13.0	15.0	15.0	15.0	15.0	15.0	15.0	16.0	13.0	13.0
40	13.0	13.0	13.0	15.0	15.0	15.0	15.0	15.0	14.0	16.0	13.0	13.0
45	13.0	13.0	13.0	15.0	15.0	15.0	15.0	15.0	14.0	16.0	13.0	12.0
50	13.0	13.0	13.0	15.0	15.0	15.0	15.0	14.0	14.0	15.0	13.0	12.0
55	13.0	13.0	13.0	14.0	15.0	14.0	15.0	14.0	14.0	15.0	13.0	12.0
60	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	13.0	12.0
65	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	13.0	12.0
70	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
75	12.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
80	12.0	13.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	15.0	12.0	12.0
85	12.0	12.0	13.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	12.0	12.0
90	12.0	12.0	12.0	13.0	14.0	14.0	14.0	14.0	14.0	14.0	12.0	12.0
95	12.0	12.0	12.0	12.0	14.0	14.0	14.0	14.0	14.0	14.0	11.0	11.0
99	12.0	12.0	12.0	12.0	14.0	14.0	13.0	14.0	13.0	13.0	11.0	11.0
Minimum	11.0	12.0	12.0	12.0	14.0	14.0	13.0	14.0	13.0	13.0	11.0	11.0
Average	13.1	13.7	13.5	14.6	15.0	15.8	14.9	14.5	14.5	19.3	13.2	12.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-16A. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
(10/01/1973 to 09/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32000.0	5570.0	12000.0	8110.0	20500.0	16000.0	13300.0	4320.0	925.0	60.0	598.0	4400.0
1	5910.0	4340.0	2400.0	3940.0	12400.0	14000.0	8730.0	2580.0	34.0	60.0	7.3	673.0
5	2170.0	1820.0	1570.0	2060.0	6560.0	10600.0	4810.0	768.0	4.4	5.1	4.3	7.3
10	11.0	1210.0	1160.0	1070.0	5450.0	7750.0	3320.0	48.0	4.1	4.3	4.0	4.2
15	4.4	325.0	870.0	899.0	4560.0	5980.0	2720.0	4.0	4.0	3.9	4.0	4.1
20	4.3	6.7	719.0	826.0	3560.0	5020.0	1950.0	4.0	3.9	3.9	3.9	4.1
25	4.2	4.5	568.0	768.0	2710.0	4510.0	811.0	3.9	3.8	3.8	3.8	4.0
30	4.0	4.4	345.0	645.0	1900.0	3770.0	125.0	3.8	3.7	3.8	3.7	3.8
35	4.0	4.2	111.0	500.0	1200.0	2950.0	4.1	3.7	3.7	3.7	3.6	3.6
40	3.8	4.2	4.9	279.0	1080.0	2190.0	4.0	3.7	3.6	3.6	3.6	3.6
45	3.7	4.1	4.4	126.0	936.0	1710.0	3.8	3.6	3.6	3.6	3.5	3.6
50	3.6	4.0	4.2	15.0	761.0	1060.0	3.6	3.5	3.5	3.5	3.5	3.5
55	3.6	3.6	4.2	4.4	267.0	556.0	3.5	3.5	3.5	3.5	3.5	3.5
60	3.5	3.6	4.1	4.1	44.0	241.0	3.5	3.5	3.5	3.5	3.5	3.5
65	3.5	3.5	4.0	3.9	4.1	4.0	3.5	3.5	3.5	3.4	3.4	3.5
70	3.5	3.5	3.6	3.9	4.0	3.8	3.4	3.4	3.4	3.4	3.4	3.4
75	3.4	3.4	3.5	3.6	3.8	3.7	3.4	3.4	3.4	3.4	3.4	3.4
80	3.4	3.4	3.4	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.4	3.4
85	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.4	3.3	3.3	3.3	3.3
90	3.3	3.3	3.3	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3
95	3.3	3.3	3.2	3.3	3.4	3.3	3.2	3.3	3.3	3.2	3.2	3.2
99	3.1	3.2	3.2	3.2	3.2	3.2	3.1	3.1	3.2	3.1	3.2	3.2
Minimum	3.1	3.0	3.1	3.1	3.2	3.1	3.1	3.1	3.1	3.0	3.1	3.0
Average	353.4	289.7	353.2	462.8	1756.9	2675.1	933.7	109.2	6.0	5.0	5.0	25.4
# Days	713	649	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx E-16B. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Wet Water Years (1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32000.0	5570.0	12000.0	8110.0	20500.0	16000.0	13300.0	4320.0	925.0	6.0	598.0	4400.0
1	6290.0	5490.0	3060.0	4650.0	15000.0	14500.0	12000.0	3310.0	8.7	5.8	7.3	1040.0
5	5070.0	3240.0	1850.0	3180.0	7630.0	12700.0	6640.0	1520.0	4.4	4.9	6.9	27.0
10	2390.0	1820.0	1570.0	2070.0	6650.0	10600.0	4840.0	773.0	4.3	3.9	4.0	7.3
15	1000.0	1510.0	1430.0	1220.0	6070.0	9310.0	3940.0	277.0	4.1	3.8	3.9	4.1
20	6.7	1220.0	1190.0	1070.0	5440.0	7840.0	3420.0	7.1	3.9	3.8	3.7	4.1
25	4.3	888.0	1050.0	1020.0	4970.0	6840.0	3140.0	4.0	3.9	3.7	3.6	4.0
30	4.1	361.0	899.0	929.0	4470.0	6260.0	2770.0	4.0	3.7	3.6	3.6	3.8
35	4.0	115.0	796.0	868.0	3840.0	5570.0	2480.0	3.9	3.6	3.6	3.6	3.6
40	4.0	6.7	722.0	826.0	3360.0	5070.0	2130.0	3.8	3.6	3.5	3.5	3.6
45	3.6	4.4	660.0	777.0	3020.0	4910.0	1680.0	3.7	3.5	3.5	3.5	3.6
50	3.6	4.0	584.0	729.0	2500.0	4650.0	1260.0	3.5	3.5	3.5	3.5	3.5
55	3.6	3.6	472.0	653.0	1930.0	4170.0	645.0	3.5	3.5	3.4	3.5	3.5
60	3.6	3.6	347.0	586.0	1460.0	3970.0	318.0	3.5	3.4	3.4	3.5	3.5
65	3.5	3.6	215.0	503.0	1210.0	3580.0	3.9	3.4	3.4	3.4	3.3	3.4
70	3.5	3.6	76.0	386.0	1140.0	3080.0	3.9	3.4	3.3	3.4	3.3	3.4
75	3.4	3.5	5.8	271.0	1080.0	2650.0	3.5	3.3	3.3	3.3	3.3	3.3
80	3.4	3.4	3.6	155.0	1010.0	2190.0	3.5	3.3	3.3	3.3	3.3	3.3
85	3.3	3.4	3.6	57.0	899.0	1710.0	3.3	3.3	3.3	3.3	3.3	3.3
90	3.3	3.3	3.4	15.0	768.0	1190.0	3.3	3.3	3.3	3.2	3.2	3.2
95	3.2	3.3	3.3	3.4	267.0	768.0	3.3	3.3	3.3	3.1	3.2	3.2
99	3.2	3.2	3.3	3.2	24.0	262.0	3.2	3.3	3.2	3.1	3.2	3.2
Minimum	3.1	3.0	3.1	3.2	3.2	3.3	3.2	3.3	3.1	3.0	3.1	3.2
Average	725.8	602.1	714.2	891.4	3280.9	5250.4	1945.7	221.5	7.5	3.6	5.7	40.6
# Days	341	310	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx E-16C. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Above Normal Water Years (1973, 1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	612.0	33.0	1060.0	867.0	6200.0	3520.0	234.0	162.0	109.0	60.0	227.0	1330.0
1	597.0	15.0	921.0	860.0	5820.0	3390.0	146.0	131.0	88.0	60.0	7.7	1210.0
5	175.0	4.2	438.0	813.0	4790.0	2730.0	35.0	70.0	5.2	60.0	4.3	4.2
10	4.2	4.2	66.0	791.0	3690.0	2160.0	4.6	18.0	3.9	60.0	4.3	4.2
15	4.2	4.1	4.2	732.0	2670.0	2020.0	4.0	3.9	3.9	10.0	4.3	4.2
20	4.2	4.1	4.1	530.0	1670.0	1830.0	4.0	3.9	3.9	4.3	4.3	4.2
25	3.5	4.1	4.1	219.0	980.0	1620.0	4.0	3.9	3.9	4.3	3.6	3.5
30	3.4	3.5	4.1	179.0	798.0	1340.0	4.0	3.9	3.9	4.3	3.5	3.5
35	3.4	3.5	4.1	126.0	776.0	1090.0	3.5	3.9	3.7	4.3	3.5	3.5
40	3.4	3.4	3.4	64.0	760.0	854.0	3.5	3.9	3.7	4.3	3.5	3.4
45	3.4	3.4	3.4	6.2	620.0	707.0	3.4	3.7	3.6	3.6	3.4	3.4
50	3.4	3.4	3.4	4.1	255.0	556.0	3.4	3.7	3.5	3.6	3.4	3.4
55	3.4	3.4	3.4	4.1	110.0	461.0	3.4	3.5	3.5	3.6	3.4	3.4
60	3.4	3.4	3.4	4.1	4.0	330.0	3.4	3.4	3.4	3.6	3.4	3.4
65	3.3	3.4	3.4	4.1	4.0	246.0	3.4	3.4	3.4	3.5	3.4	3.4
70	3.3	3.4	3.4	4.0	4.0	190.0	3.4	3.4	3.4	3.5	3.4	3.4
75	3.3	3.3	3.4	3.4	4.0	69.0	3.1	3.4	3.4	3.4	3.4	3.3
80	3.3	3.3	3.4	3.4	4.0	4.0	3.1	3.4	3.4	3.4	3.4	3.3
85	3.3	3.3	3.3	3.4	3.4	4.0	3.1	3.4	3.4	3.4	3.4	3.3
90	3.3	3.3	3.3	3.4	3.4	4.0	3.1	3.1	3.4	3.4	3.4	3.3
95	3.2	3.3	3.3	3.4	3.4	4.0	3.1	3.1	3.4	3.4	3.4	3.3
99	3.1	3.3	3.3	3.4	3.3	3.1	3.1	3.1	3.4	3.3	3.2	3.3
Minimum	3.1	3.3	3.3	3.4	3.3	3.1	3.1	3.1	3.4	3.3	3.2	3.3
Average	28.6	4.1	55.0	202.4	1030.7	909.7	10.6	11.8	6.3	11.5	5.5	26.9
# Days	124	114	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-16D. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Dry Water Years (1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.4	8.8	4.4	4.1	616.0	389.0	8.3	3.7	18.0	4.6	4.0	21.0
1	4.4	4.5	4.4	4.1	423.0	328.0	5.9	3.7	18.0	4.1	4.0	5.7
5	4.3	4.5	4.3	4.1	254.0	254.0	3.5	3.7	3.8	4.1	4.0	4.2
10	4.3	4.5	4.2	4.0	213.0	136.0	3.5	3.7	3.7	4.0	4.0	4.1
15	4.3	4.4	4.2	3.9	149.0	3.5	3.5	3.7	3.7	4.0	3.9	4.1
20	4.2	4.4	4.2	3.9	3.7	3.4	3.5	3.6	3.7	3.9	3.9	4.1
25	4.0	4.4	4.2	3.8	3.6	3.4	3.5	3.6	3.7	3.9	3.9	4.0
30	3.9	4.2	4.1	3.8	3.5	3.4	3.5	3.6	3.7	3.9	3.9	3.7
35	3.8	4.2	4.1	3.7	3.5	3.4	3.5	3.5	3.7	3.9	3.9	3.6
40	3.7	4.1	4.1	3.6	3.5	3.4	3.5	3.5	3.6	3.9	3.8	3.6
45	3.6	4.0	4.0	3.6	3.4	3.4	3.5	3.5	3.6	3.9	3.8	3.5
50	3.5	4.0	3.9	3.5	3.4	3.3	3.4	3.5	3.6	3.7	3.7	3.5
55	3.5	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	3.5	3.5	3.5
60	3.5	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	3.5	3.5	3.5
65	3.5	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	3.5	3.5	3.5
70	3.5	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	3.5	3.5	3.5
75	3.5	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	3.5	3.5	3.5
80	3.5	3.5	3.5	3.5	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.5
85	3.5	3.5	3.5	3.4	3.3	3.3	3.3	3.5	3.5	3.5	3.5	3.5
90	3.5	3.5	3.4	3.4	3.3	3.2	3.3	3.5	3.5	3.5	3.5	3.4
95	3.5	3.5	3.4	3.4	3.2	3.2	3.3	3.4	3.5	3.4	3.5	3.4
99	3.5	3.4	3.2	3.4	3.2	3.2	3.3	3.4	3.5	3.2	3.4	3.2
Minimum	3.5	3.4	3.2	3.4	3.2	3.2	3.3	3.4	3.5	3.2	3.4	3.2
Average	3.8	3.9	3.8	3.7	45.0	29.8	3.5	3.5	3.9	3.7	3.7	3.8
# Days	124	112	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-16E. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Critical Water Years (1976, 1977, 1987, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.5	4.8	148.0	4.7	4.3	9.5	4.1	4.0	4.1	3.9	4.0	4.2
1	4.5	4.8	132.0	4.7	4.3	3.9	4.1	4.0	4.1	3.9	4.0	4.2
5	4.4	4.7	4.9	4.6	4.2	3.8	4.1	4.0	4.1	3.9	4.0	4.1
10	4.3	4.7	4.9	4.5	4.2	3.8	4.1	4.0	4.1	3.9	4.0	4.1
15	4.3	4.6	4.8	4.4	4.1	3.8	4.0	4.0	4.0	3.9	3.9	4.0
20	4.2	4.6	4.8	4.3	4.1	3.7	4.0	4.0	4.0	3.9	3.9	4.0
25	4.1	4.2	4.8	4.0	4.1	3.7	3.8	3.7	3.7	3.8	3.8	3.8
30	4.1	4.2	4.2	3.9	4.0	3.7	3.8	3.7	3.6	3.8	3.7	3.8
35	4.0	4.2	4.2	3.9	4.0	3.7	3.8	3.7	3.6	3.8	3.7	3.8
40	4.0	4.2	4.2	3.9	3.9	3.7	3.7	3.7	3.6	3.7	3.6	3.8
45	3.9	4.2	4.2	3.9	3.9	3.7	3.7	3.6	3.5	3.7	3.6	3.7
50	3.9	4.1	4.2	3.9	3.9	3.6	3.6	3.5	3.5	3.4	3.6	3.7
55	3.8	4.1	4.2	3.8	3.9	3.6	3.6	3.5	3.5	3.4	3.5	3.7
60	3.8	4.1	4.2	3.7	3.8	3.6	3.6	3.5	3.4	3.4	3.5	3.6
65	3.8	4.1	4.1	3.6	3.8	3.5	3.5	3.4	3.4	3.4	3.4	3.6
70	3.8	4.0	4.0	3.5	3.7	3.5	3.5	3.4	3.4	3.4	3.4	3.5
75	3.4	3.4	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
80	3.4	3.4	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
85	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
90	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.3	3.4	3.4
95	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.4
99	3.4	3.3	3.1	3.1	3.3	3.3	3.4	3.4	3.4	3.3	3.3	3.0
Minimum	3.4	3.3	3.1	3.1	3.3	3.3	3.4	3.4	3.4	3.3	3.3	3.0
Average	3.9	4.1	7.8	3.8	3.8	3.7	3.7	3.6	3.6	3.6	3.6	3.7
# Days	124	113	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-17A. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
(10/01/1982 to 09/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32000.0	5570.0	12000.0	3620.0	20500.0	16000.0	13300.0	4320.0	109.0	60.0	598.0	4400.0
1	6050.0	5490.0	2630.0	2590.0	14800.0	14400.0	11800.0	3180.0	33.0	60.0	7.3	1210.0
5	4430.0	2570.0	1750.0	1110.0	6310.0	12100.0	5450.0	891.0	4.4	5.9	6.7	21.0
10	402.0	1510.0	1470.0	870.0	4330.0	9310.0	3350.0	89.0	4.1	4.6	4.3	7.3
15	6.4	1130.0	1130.0	764.0	3480.0	5890.0	2350.0	4.3	4.0	4.3	4.0	4.2
20	4.4	114.0	770.0	647.0	2750.0	4730.0	738.0	4.0	3.9	3.9	4.0	4.1
25	4.3	4.8	563.0	529.0	2010.0	3770.0	170.0	3.9	3.9	3.9	4.0	4.1
30	4.2	4.6	280.0	279.0	1200.0	2930.0	4.1	3.9	3.8	3.9	3.9	4.1
35	4.2	4.5	4.9	176.0	1030.0	2220.0	4.0	3.7	3.7	3.8	3.9	4.0
40	4.0	4.2	4.8	57.0	877.0	1820.0	4.0	3.6	3.5	3.7	3.5	3.5
45	3.5	4.1	4.2	4.6	488.0	1060.0	3.6	3.5	3.5	3.5	3.5	3.5
50	3.5	3.5	4.1	4.3	211.0	531.0	3.5	3.5	3.5	3.5	3.5	3.5
55	3.5	3.5	3.9	4.1	60.0	271.0	3.5	3.5	3.5	3.4	3.4	3.4
60	3.4	3.5	3.5	3.8	4.1	116.0	3.5	3.4	3.4	3.4	3.4	3.4
65	3.4	3.5	3.5	3.5	4.0	4.0	3.4	3.4	3.4	3.4	3.4	3.4
70	3.4	3.4	3.4	3.5	3.9	3.8	3.4	3.4	3.4	3.4	3.4	3.4
75	3.4	3.4	3.4	3.4	3.4	3.5	3.4	3.4	3.4	3.4	3.3	3.4
80	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.3
85	3.3	3.4	3.4	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.3	3.3
90	3.3	3.3	3.3	3.4	3.4	3.4	3.3	3.3	3.3	3.3	3.2	3.2
95	3.2	3.3	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.1	3.2	3.2
99	3.1	3.2	3.2	3.2	3.2	3.3	3.2	3.3	3.2	3.1	3.2	3.2
Minimum	3.1	3.0	3.1	3.1	3.2	3.3	3.2	3.3	3.1	3.0	3.1	3.0
Average	509.5	379.4	398.8	299.7	1503.2	2593.7	884.0	136.2	4.5	5.9	5.9	39.4
# Days	434	395	434	420	434	420	434	434	420	434	420	434
# Years	14	14	14	14	14	14	14	14	14	14	14	14

Table CAWG 6 Appdx E-17B. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32000.0	5570.0	12000.0	3620.0	20500.0	16000.0	13300.0	4320.0	8.7	6.0	598.0	4400.0
1	22500.0	5540.0	7600.0	3180.0	15600.0	15900.0	13000.0	3800.0	4.7	5.9	51.0	1470.0
5	5830.0	3650.0	2060.0	2230.0	10100.0	13600.0	7240.0	2100.0	4.4	5.4	7.3	317.0
10	4730.0	2660.0	1770.0	1210.0	6400.0	12400.0	6340.0	1280.0	4.4	4.8	6.8	18.0
15	2750.0	1870.0	1630.0	1020.0	5440.0	11200.0	4650.0	616.0	4.3	4.4	6.2	7.3
20	1180.0	1610.0	1550.0	946.0	4570.0	9970.0	3690.0	133.0	3.9	3.8	4.0	7.3
25	7.0	1440.0	1440.0	863.0	4130.0	8920.0	3310.0	4.3	3.9	3.8	4.0	4.1
30	6.4	1230.0	1320.0	813.0	3710.0	6470.0	2750.0	3.8	3.9	3.7	3.9	4.1
35	4.0	1130.0	1130.0	764.0	3300.0	5890.0	2350.0	3.7	3.4	3.4	3.3	4.1
40	4.0	611.0	888.0	707.0	3050.0	5160.0	1530.0	3.7	3.4	3.4	3.3	3.4
45	4.0	116.0	775.0	676.0	2610.0	4780.0	917.0	3.6	3.4	3.4	3.3	3.4
50	4.0	95.0	714.0	620.0	2170.0	4570.0	594.0	3.4	3.4	3.3	3.3	3.3
55	3.4	4.0	648.0	576.0	1800.0	4040.0	328.0	3.4	3.3	3.3	3.3	3.3
60	3.4	4.0	540.0	463.0	1270.0	3640.0	3.6	3.3	3.3	3.3	3.3	3.3
65	3.4	3.4	453.0	312.0	1140.0	3120.0	3.6	3.3	3.3	3.3	3.3	3.3
70	3.3	3.4	280.0	258.0	1060.0	2930.0	3.3	3.3	3.3	3.3	3.3	3.3
75	3.3	3.3	69.0	201.0	1010.0	2490.0	3.3	3.3	3.3	3.3	3.3	3.3
80	3.3	3.3	3.4	81.0	887.0	2200.0	3.3	3.3	3.3	3.3	3.2	3.2
85	3.3	3.3	3.4	15.0	753.0	1880.0	3.3	3.3	3.3	3.2	3.2	3.2
90	3.2	3.3	3.3	3.4	277.0	1060.0	3.3	3.3	3.3	3.1	3.2	3.2
95	3.2	3.2	3.3	3.3	104.0	422.0	3.2	3.3	3.3	3.1	3.2	3.2
99	3.1	3.0	3.1	3.2	3.2	3.3	3.2	3.3	3.1	3.0	3.1	3.2
Minimum	3.1	3.0	3.1	3.2	3.2	3.3	3.2	3.3	3.1	3.0	3.1	3.2
Average	1167	881	925	673	3158	5671	2053	308	4	4	8	71
# Days	186	169	186	180	186	180	186	186	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx E-17C. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	612.0	33.0	87.0	423.0	4770.0	2570.0	234.0	162.0	109.0	60.0	227.0	1330.0
5	291.0	4.2	4.2	219.0	3680.0	2120.0	106.0	120.0	33.0	60.0	4.3	4.2
10	53.0	4.2	4.1	179.0	2610.0	2010.0	5.2	40.0	3.9	60.0	4.3	4.2
15	4.2	4.2	4.1	132.0	1200.0	1820.0	4.0	11.0	3.9	60.0	4.3	4.2
20	4.2	4.1	4.1	68.0	1020.0	1560.0	4.0	3.9	3.9	10.0	4.3	4.2
25	4.2	4.1	4.1	39.0	843.0	1300.0	4.0	3.9	3.9	4.3	4.3	4.2
30	4.2	4.1	4.1	4.6	502.0	1090.0	4.0	3.9	3.9	4.3	4.3	4.2
35	3.5	4.1	3.4	4.1	251.0	851.0	4.0	3.9	3.9	4.3	3.5	3.5
40	3.4	3.5	3.4	4.1	110.0	642.0	4.0	3.9	3.9	4.3	3.5	3.5
45	3.4	3.5	3.4	4.1	4.0	531.0	3.9	3.9	3.5	4.3	3.4	3.5
50	3.4	3.5	3.4	4.1	4.0	451.0	3.5	3.9	3.5	4.3	3.4	3.4
55	3.4	3.4	3.4	4.1	4.0	324.0	3.4	3.5	3.4	3.5	3.4	3.4
60	3.4	3.4	3.4	4.0	4.0	228.0	3.4	3.4	3.4	3.5	3.4	3.4
65	3.4	3.4	3.4	3.4	4.0	152.0	3.4	3.4	3.4	3.4	3.4	3.4
70	3.4	3.4	3.4	3.4	4.0	46.0	3.4	3.4	3.4	3.4	3.4	3.4
75	3.4	3.4	3.4	3.4	3.4	4.0	3.4	3.4	3.4	3.4	3.4	3.4
80	3.4	3.4	3.4	3.4	3.4	4.0	3.4	3.4	3.4	3.4	3.4	3.4
85	3.3	3.4	3.4	3.4	3.4	4.0	3.4	3.4	3.4	3.4	3.4	3.4
90	3.2	3.4	3.4	3.4	3.4	4.0	3.4	3.4	3.4	3.4	3.4	3.4
95	3.1	3.4	3.4	3.4	3.4	4.0	3.4	3.4	3.4	3.4	3.3	3.4
Minimum	3.1	3.4	3.3	3.4	3.3	3.8	3.4	3.4	3.4	3.3	3.2	3.4
Average	37.1	4.3	5.0	46.2	637.3	721.7	13.1	14.6	7.3	14.1	6.2	34.8
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-17D. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.4	8.8	4.4	3.9	616.0	389.0	8.3	3.6	18.0	4.6	4.0	21.0
5	4.4	4.5	4.3	3.9	333.0	259.0	3.5	3.6	3.8	3.9	4.0	4.2
10	4.3	4.5	4.3	3.8	237.0	199.0	3.5	3.6	3.7	3.9	4.0	4.2
15	4.3	4.5	4.2	3.7	211.0	31.0	3.5	3.5	3.7	3.9	4.0	4.1
20	4.3	4.4	4.1	3.6	149.0	3.5	3.5	3.5	3.7	3.9	3.9	4.1
25	4.3	4.4	4.0	3.6	4.2	3.4	3.5	3.5	3.7	3.9	3.9	4.1
30	4.2	4.4	4.0	3.5	3.5	3.4	3.5	3.5	3.7	3.9	3.9	4.1
35	3.5	3.5	3.5	3.5	3.5	3.4	3.5	3.5	3.6	3.6	3.5	3.5
40	3.5	3.5	3.5	3.5	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5
45	3.5	3.5	3.5	3.5	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5
50	3.5	3.5	3.5	3.5	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5
55	3.5	3.5	3.5	3.5	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5
60	3.5	3.5	3.5	3.5	3.4	3.4	3.5	3.5	3.5	3.5	3.5	3.5
65	3.5	3.5	3.5	3.5	3.4	3.4	3.4	3.5	3.5	3.5	3.5	3.5
70	3.5	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	3.5	3.5	3.5
75	3.5	3.5	3.5	3.4	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.5
80	3.5	3.5	3.5	3.4	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.5
85	3.5	3.5	3.4	3.4	3.3	3.3	3.4	3.5	3.5	3.5	3.5	3.5
90	3.5	3.5	3.4	3.4	3.3	3.3	3.3	3.5	3.5	3.4	3.5	3.4
95	3.5	3.5	3.2	3.4	3.2	3.3	3.3	3.4	3.5	3.4	3.5	3.4
Minimum	3.5	3.4	3.2	3.4	3.2	3.3	3.3	3.4	3.5	3.2	3.4	3.2
Average	3.8	3.9	3.7	3.5	58.8	38.6	3.5	3.5	3.9	3.6	3.6	3.9
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-17E. San Joaquin River above Stevenson Creek (Gage 11238600)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.5	4.8	4.9	4.7	4.2	9.5	4.1	4.0	4.1	3.9	4.0	4.2
5	4.5	4.8	4.9	4.7	4.2	3.8	4.1	4.0	4.1	3.9	4.0	4.1
10	4.4	4.7	4.9	4.6	4.1	3.8	4.1	4.0	4.1	3.9	4.0	4.1
15	4.4	4.7	4.9	4.5	4.1	3.8	4.1	4.0	4.1	3.9	4.0	4.1
20	4.3	4.7	4.8	4.5	4.0	3.8	4.1	4.0	4.1	3.9	4.0	4.1
25	4.3	4.7	4.8	4.4	4.0	3.7	4.1	4.0	4.0	3.9	3.9	4.1
30	4.3	4.6	4.8	4.4	4.0	3.7	4.0	4.0	4.0	3.9	3.9	4.0
35	4.2	4.6	4.8	4.3	3.9	3.7	4.0	4.0	4.0	3.9	3.9	4.0
40	4.2	4.6	4.8	4.3	3.9	3.7	4.0	4.0	4.0	3.9	3.9	4.0
45	4.2	4.5	4.8	4.2	3.9	3.6	3.9	4.0	4.0	3.9	3.9	4.0
50	3.4	3.4	3.2	3.4	3.4	3.6	3.4	3.4	3.5	3.4	3.4	3.4
55	3.4	3.4	3.2	3.4	3.4	3.4	3.4	3.4	3.5	3.4	3.4	3.4
60	3.4	3.4	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
65	3.4	3.4	3.2	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
70	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
75	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
80	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
85	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
90	3.4	3.4	3.2	3.2	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
95	3.4	3.3	3.2	3.2	3.3	3.4	3.4	3.4	3.4	3.3	3.4	3.3
Minimum	3.4	3.3	3.1	3.1	3.3	3.3	3.4	3.4	3.4	3.3	3.4	3.0
Average	3.9	4.0	4.0	3.8	3.7	3.7	3.7	3.7	3.7	3.6	3.7	3.7
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-18A. Rock Creek (SCE Gage 144)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/1996)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	416.0	878.7	845.6	1469.2	326.5	52.7	18.6	5.5	2.8	49.5	8.6	97.6
5	113.8	62.1	126.7	100.7	101.5	29.2	14.3	4.5	2.6	2.9	3.8	8.6
10	68.5	46.3	98.5	92.3	94.4	21.0	11.3	4.2	2.4	2.1	3.2	6.1
15	45.7	41.6	75.3	85.2	84.3	15.4	9.2	3.9	2.3	2.0	2.9	5.3
20	32.5	39.9	70.1	79.8	80.7	11.7	8.2	3.3	2.1	2.0	2.7	4.7
25	27.1	37.7	60.5	72.4	73.6	9.1	7.1	3.2	1.8	2.0	2.6	4.3
30	19.7	36.1	51.4	66.6	70.8	3.9	6.1	3.0	1.6	1.9	2.5	4.1
35	15.7	33.0	48.2	62.1	56.7	2.9	5.6	2.8	1.5	1.8	2.3	3.9
40	10.4	29.2	45.1	56.2	46.9	2.6	5.3	2.5	1.4	1.6	2.2	3.7
45	5.6	27.9	37.7	52.7	38.7	2.3	4.7	2.0	1.3	1.4	2.1	3.4
50	4.7	24.2	28.8	49.5	30.6	2.2	3.9	0.7	1.2	1.2	2.1	3.3
55	4.3	22.0	22.4	43.9	13.7	2.0	1.6	0.5	0.5	1.1	2.0	3.1
60	4.1	14.0	20.3	34.0	9.2	1.9	1.4	0.5	0.4	1.1	1.8	2.9
65	3.9	11.1	18.6	25.8	7.5	1.7	1.3	0.5	0.4	0.7	1.7	2.8
70	3.3	8.6	17.1	20.6	6.8	1.6	1.2	0.4	0.4	0.5	1.4	2.6
75	3.1	7.4	16.2	14.0	5.9	1.4	1.1	0.4	0.4	0.4	1.3	2.2
80	3.0	5.9	15.1	12.0	5.1	0.0	1.0	0.4	0.3	0.4	1.3	1.9
85	2.9	4.7	13.7	10.8	4.7	0.0	0.9	0.4	0.3	0.4	1.2	1.7
90	2.9	3.9	11.5	10.4	4.3	0.0	0.8	0.3	0.3	0.3	1.2	1.6
95	2.8	3.0	10.8	9.6	3.2	0.0	0.6	0.3	0.2	0.3	1.2	1.6
Minimum	2.6	2.6	9.4	7.5	2.7	0.0	0.6	0.3	0.2	0.2	1.1	1.2
Average	27.3	35.3	53.9	57.6	43.1	6.7	4.8	1.9	1.2	1.9	2.2	4.9
# Days	155	115	124	144	129	120	124	124	120	155	150	155
# Years	5	5	4	5	5	4	4	4	4	5	5	5

Table CAWG 6 Appdx E-18B. Rock Creek (SCE Gage 144)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	416.0	878.7	845.6	1469.2	326.5	52.7	18.6	5.5	2.8	49.5	6.5	97.6
5	201.5	121.9	199.8	105.0	129.1	34.5	16.5	4.9	2.7	3.1	3.9	11.3
10	100.8	62.1	126.7	98.5	101.5	29.2	14.3	4.5	2.6	2.1	3.3	7.3
15	70.1	51.4	103.9	93.3	96.2	26.2	12.5	4.3	2.6	2.0	3.1	6.1
20	57.7	46.3	98.5	90.3	91.3	21.0	11.3	4.2	2.4	2.0	2.9	5.9
25	45.7	43.3	90.3	85.2	87.4	18.0	10.2	4.0	2.3	2.0	2.7	5.3
30	34.5	41.0	75.3	82.3	82.6	15.4	9.2	3.9	2.3	2.0	2.3	4.7
35	31.2	41.0	71.0	78.0	80.7	13.5	8.4	3.4	2.2	2.0	2.2	4.6
40	27.5	39.3	70.1	72.7	78.0	11.7	8.0	3.3	2.1	1.6	2.2	4.3
45	22.9	37.7	66.0	69.0	75.1	9.7	7.6	3.2	2.1	1.2	2.2	4.2
50	19.7	37.2	60.5	66.6	72.7	9.1	7.1	3.2	1.8	1.2	2.1	4.1
55	17.2	36.1	54.1	63.6	71.7	0.0	6.7	3.0	1.7	1.1	2.1	3.9
60	13.5	35.0	51.4	62.1	66.8	0.0	6.1	3.0	1.6	1.1	2.0	3.8
65	10.4	33.0	50.1	57.3	58.9	0.0	6.0	2.8	1.6	0.9	1.5	3.2
70	8.6	31.6	46.9	55.5	55.4	0.0	5.5	2.7	1.5	0.6	1.4	2.9
75	5.6	29.2	45.7	54.1	51.3	0.0	5.4	2.7	1.4	0.5	1.3	2.8
80	4.7	27.9	44.5	51.4	42.7	0.0	5.2	2.4	1.4	0.4	1.3	2.8
85	4.6	24.6	41.6	49.5	39.8	0.0	4.8	2.3	1.3	0.4	1.2	2.4
90	4.2	22.0	37.7	46.3	33.0	0.0	4.5	2.0	1.3	0.3	1.2	2.2
95	4.1	15.7	34.0	43.9	30.6	0.0	3.9	1.9	1.3	0.3	1.2	1.3
Minimum	4.1	14.0	28.8	43.3	26.6	0.0	3.9	1.8	1.2	0.2	1.2	1.2
Average	43.4	59.3	91.4	86.8	76.5	11.0	8.3	3.3	1.9	2.2	2.2	6.4
# Days	93	58	62	84	67	60	62	62	60	93	90	93
# Years	3	3	2	3	3	2	2	2	2	3	3	3

Table CAWG 6 Appdx E-18C. Rock Creek (SCE Gage 144)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	10.6	43.3	29.2	42.7	23.1	5.6	5.3	0.7	1.4	12.0	8.6	5.2
5	4.2	28.8	23.9	31.6	15.7	4.0	2.7	0.6	0.6	2.8	3.2	3.7
10	3.9	26.2	22.4	28.4	12.7	3.9	1.6	0.5	0.5	2.2	2.7	3.6
15	3.8	23.1	21.7	26.6	10.0	3.2	1.5	0.5	0.5	2.0	2.7	3.4
20	3.6	18.6	20.3	24.2	8.6	2.7	1.4	0.5	0.4	1.9	2.6	3.4
25	3.4	11.8	19.6	21.3	8.0	2.7	1.3	0.5	0.4	1.8	2.5	3.3
30	3.2	11.1	19.0	19.6	7.3	2.5	1.3	0.5	0.4	1.7	2.5	3.3
35	3.1	10.0	17.4	17.4	6.8	2.4	1.2	0.5	0.4	1.6	2.5	3.1
40	3.1	8.6	17.1	14.0	6.7	2.3	1.2	0.4	0.4	1.6	2.2	3.0
45	3.1	7.9	16.8	13.2	6.4	2.2	1.1	0.4	0.4	1.5	1.9	2.8
50	3.0	7.4	16.2	12.5	5.8	2.2	1.1	0.4	0.4	1.4	1.8	2.7
55	3.0	6.6	15.7	11.7	5.3	2.1	1.0	0.4	0.3	1.2	1.8	2.2
60	3.0	5.9	15.1	11.3	5.1	2.0	1.0	0.4	0.3	0.6	1.8	1.9
65	2.9	4.8	14.3	10.8	4.8	2.0	1.0	0.4	0.3	0.5	1.8	1.7
70	2.9	4.7	13.7	10.6	4.5	1.9	0.9	0.4	0.3	0.4	1.7	1.7
75	2.9	4.0	12.2	10.4	4.3	1.8	0.8	0.4	0.3	0.4	1.3	1.7
80	2.8	3.9	11.5	10.0	4.1	1.7	0.8	0.3	0.3	0.4	1.3	1.7
85	2.8	3.5	11.1	9.8	3.5	1.6	0.7	0.3	0.3	0.4	1.2	1.6
90	2.7	3.0	10.8	9.4	3.2	1.5	0.6	0.3	0.2	0.4	1.2	1.6
95	2.7	2.7	10.2	8.2	2.8	1.5	0.6	0.3	0.2	0.3	1.2	1.6
Minimum	2.6	2.6	9.4	7.5	2.7	1.4	0.6	0.3	0.2	0.3	1.1	1.6
Average	3.3	10.8	16.5	16.6	7.0	2.4	1.3	0.4	0.4	1.4	2.2	2.6
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-19A. Ross Creek (SCE gage 143)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/1996)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	178.2	176.3	142.9	152.5	59.4	13.3	4.1	1.8	1.0	0.7	5.9	16.7
5	49.8	28.3	57.8	18.0	20.7	8.1	3.2	0.3	0.6	0.1	0.9	4.2
10	24.0	18.7	24.7	15.1	15.4	6.5	2.7	0.3	0.6	0.0	0.7	2.0
15	19.7	13.3	21.8	14.2	11.9	5.7	2.2	0.2	0.5	0.0	0.7	1.5
20	14.8	11.6	17.3	12.7	7.8	4.6	1.8	0.1	0.1	0.0	0.6	1.4
25	11.9	9.7	16.4	12.1	5.9	3.7	1.4	0.1	0.1	0.0	0.5	1.3
30	9.0	8.7	14.8	11.0	4.2	3.2	1.1	0.0	0.0	0.0	0.3	1.1
35	7.4	7.6	13.3	10.2	3.7	2.7	0.9	0.0	0.0	0.0	0.1	1.0
40	5.5	6.9	12.7	9.0	3.5	2.5	0.8	0.0	0.0	0.0	0.0	0.9
45	2.6	6.3	11.0	7.8	1.6	2.3	0.7	0.0	0.0	0.0	0.0	0.9
50	1.4	5.9	10.2	2.6	1.3	2.0	0.5	0.0	0.0	0.0	0.0	0.8
55	1.2	5.3	9.2	2.0	1.1	1.6	0.4	0.0	0.0	0.0	0.0	0.7
60	1.1	5.1	5.7	1.6	0.8	1.0	0.0	0.0	0.0	0.0	0.0	0.6
65	1.0	4.7	4.6	1.3	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.6
70	0.8	4.6	3.4	1.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.5
75	0.7	3.7	2.7	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4
80	0.2	2.7	2.2	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	1.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.8	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.2	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	10.7	10.1	14.2	7.4	5.0	2.5	0.9	0.1	0.1	0.0	0.3	1.2
# Days	155	142	155	150	155	150	149	124	120	155	150	155
# Years	5	5	5	5	5	5	5	4	4	5	5	5

Table CAWG 6 Appdx E-19B. Ross Creek (SCE gage 143)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	178.2	176.3	142.9	152.5	59.4	13.3	4.1	1.8	1.0	0.1	2.0	16.7
5	75.5	39.5	66.4	19.0	25.5	8.3	3.5	0.3	0.8	0.0	0.9	6.3
10	42.3	25.1	35.9	17.3	18.7	7.8	3.0	0.3	0.6	0.0	0.6	3.7
15	25.5	20.4	25.1	15.4	17.0	6.7	2.7	0.3	0.6	0.0	0.6	2.2
20	21.4	14.2	23.2	14.8	13.3	6.3	2.5	0.3	0.6	0.0	0.5	1.9
25	19.7	12.1	21.8	14.2	11.9	5.7	2.3	0.2	0.5	0.0	0.4	1.5
30	15.1	11.3	18.3	13.3	9.7	4.7	2.0	0.2	0.5	0.0	0.3	1.4
35	13.6	9.7	17.0	12.7	7.2	4.4	1.8	0.2	0.4	0.0	0.0	1.4
40	11.9	8.7	16.4	12.1	6.1	3.9	1.4	0.1	0.1	0.0	0.0	1.3
45	10.2	7.8	15.4	11.9	4.7	3.5	1.2	0.1	0.1	0.0	0.0	1.0
50	9.0	7.4	14.8	11.0	4.2	3.2	1.1	0.1	0.1	0.0	0.0	0.9
55	7.8	6.3	13.6	10.5	3.9	2.9	1.0	0.0	0.0	0.0	0.0	0.9
60	6.9	6.1	13.0	10.2	3.7	2.7	0.9	0.0	0.0	0.0	0.0	0.8
65	5.5	5.9	12.7	9.2	3.5	2.5	0.8	0.0	0.0	0.0	0.0	0.7
70	4.4	5.3	12.1	8.5	0.0	2.3	0.8	0.0	0.0	0.0	0.0	0.7
75	2.6	5.1	11.0	0.0	0.0	2.3	0.7	0.0	0.0	0.0	0.0	0.6
80	1.5	4.9	10.2	0.0	0.0	2.0	0.6	0.0	0.0	0.0	0.0	0.5
85	1.3	4.7	10.0	0.0	0.0	1.9	0.5	0.0	0.0	0.0	0.0	0.4
90	1.1	4.6	9.2	0.0	0.0	1.6	0.5	0.0	0.0	0.0	0.0	0.4
95	1.1	4.4	8.5	0.0	0.0	1.2	0.4	0.0	0.0	0.0	0.0	0.0
Minimum	1.0	4.1	4.7	0.0	0.0	1.1	0.3	0.0	0.0	0.0	0.0	0.0
Average	17.5	13.9	21.7	11.3	7.8	4.0	1.5	0.2	0.2	0.0	0.2	1.7
# Days	93	85	93	90	93	90	87	62	60	93	90	93
# Years	3	3	3	3	3	3	3	2	2	3	3	3

Table CAWG 6 Appdx E-19C. Ross Creek (SCE gage 143)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.6	30.3	9.2	5.1	2.2	1.0	0.0	0.0	0.0	0.7	5.9	1.4
5	1.2	14.2	5.7	3.4	1.8	0.9	0.0	0.0	0.0	0.3	0.9	1.2
10	1.1	9.0	4.7	2.7	1.6	0.8	0.0	0.0	0.0	0.1	0.9	1.1
15	1.0	7.8	4.1	2.5	1.4	0.4	0.0	0.0	0.0	0.1	0.7	1.0
20	0.9	7.4	3.5	2.2	1.3	0.3	0.0	0.0	0.0	0.0	0.7	1.0
25	0.8	6.9	3.4	2.0	1.2	0.3	0.0	0.0	0.0	0.0	0.7	0.9
30	0.7	5.9	3.0	1.8	1.1	0.2	0.0	0.0	0.0	0.0	0.4	0.9
35	0.7	4.6	2.7	1.6	1.1	0.1	0.0	0.0	0.0	0.0	0.1	0.7
40	0.6	3.4	2.6	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.6
45	0.5	2.9	2.5	1.3	0.8	0.0	0.0	0.0	0.0	0.0	0.1	0.5
50	0.2	2.7	2.2	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
55	0.0	2.6	2.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	1.9	2.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	1.3	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	1.1	1.9	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.8	1.9	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.7	1.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.6	1.8	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.1	1.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	1.4	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	1.3	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.5	4.4	2.9	1.6	0.6	0.2	0.0	0.0	0.0	0.0	0.3	0.5
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-20A. North Fork Stevenson Creek near Perimeter Road (Gage 11239300)
Historical Daily Exceedance Flow
(1/25/1989 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	836.0	107.0	151.0	209.0	1750.0	1300.0	603.0	79.0	57.0	167.0	87.0	45.0
1	84.0	85.0	83.0	174.0	87.0	349.0	36.0	12.0	11.0	15.0	70.0	31.0
5	21.0	46.0	41.0	93.0	61.0	70.0	19.0	8.6	7.5	7.5	17.0	14.0
10	15.0	14.0	28.0	45.0	51.0	54.0	12.0	7.7	7.3	7.2	8.9	10.0
15	11.0	11.0	22.0	38.0	47.0	37.0	9.7	7.2	6.9	6.9	7.0	8.7
20	9.7	10.0	18.0	33.0	42.0	17.0	8.5	6.9	6.7	6.6	6.7	7.6
25	8.1	9.9	16.0	28.0	33.0	12.0	7.8	6.6	6.3	5.9	5.8	6.4
30	7.6	9.1	14.0	24.0	27.0	10.0	7.3	6.2	6.1	5.5	5.5	5.9
35	7.0	8.3	13.0	22.0	23.0	8.6	6.8	6.0	5.9	5.3	5.3	5.8
40	6.4	7.7	11.0	20.0	21.0	8.2	6.4	5.7	5.6	5.0	5.0	5.6
45	6.0	7.4	10.0	18.0	18.0	7.8	6.1	5.6	5.4	4.8	4.9	5.4
50	5.9	7.2	9.6	16.0	16.0	7.3	5.9	5.4	5.3	4.8	4.7	5.2
55	5.7	6.9	9.1	14.0	13.0	6.9	5.7	5.3	5.1	4.7	4.7	5.0
60	5.6	6.6	8.7	13.0	11.0	6.4	5.4	5.2	4.9	4.6	4.6	4.8
65	5.2	6.2	8.4	13.0	10.0	6.1	5.2	5.0	4.8	4.5	4.5	4.8
70	5.0	6.0	8.1	12.0	9.1	5.9	5.0	4.8	4.6	4.3	4.4	4.7
75	4.8	5.6	7.8	11.0	8.3	5.6	4.8	4.6	4.4	4.1	4.2	4.5
80	4.7	5.3	7.1	10.0	7.7	5.4	4.7	4.4	4.3	3.9	4.1	4.4
85	4.5	5.1	6.5	9.7	6.6	5.2	4.4	4.3	4.2	3.8	4.0	4.3
90	4.5	4.8	6.1	9.3	6.0	4.9	4.2	4.1	4.1	3.8	3.8	4.2
95	4.2	4.3	5.1	8.6	5.1	4.5	4.0	4.0	4.0	3.5	3.7	4.0
99	3.6	1.9	3.8	6.5	4.6	4.2	3.8	3.9	3.8	2.0	2.7	3.5
Minimum	3.5	1.6	2.6	6.0	4.3	4.0	3.7	3.8	3.8	1.9	2.1	3.5
Average	11.7	10.8	15.1	26.7	28.7	24.9	9.0	6.1	5.8	5.7	7.4	6.8
# Days	410	395	434	420	434	420	434	434	420	403	390	403
# Years	14	14	14	14	14	14	14	14	14	13	13	13

Table CAWG 6 Appdx E-20B. North Fork Stevenson Creek near Perimeter Road (Gage 11239300)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	836.0	107.0	151.0	122.0	1750.0	1300.0	603.0	79.0	7.7	8.6	87.0	31.0
1	342.0	95.0	120.0	115.0	862.0	999.0	47.0	78.0	7.7	6.8	70.0	29.0
5	43.0	57.0	74.0	93.0	74.0	84.0	30.0	9.1	7.4	6.0	66.0	13.0
10	25.0	50.0	45.0	51.0	66.0	78.0	22.0	8.6	7.3	5.5	14.0	9.8
15	19.0	43.0	40.0	46.0	58.0	68.0	19.0	8.0	7.1	5.4	5.7	9.1
20	17.0	16.0	36.0	42.0	55.0	60.0	16.0	7.7	6.8	5.2	5.5	7.6
25	14.0	14.0	31.0	39.0	53.0	56.0	13.0	7.4	6.8	5.0	5.3	6.0
30	12.0	13.0	27.0	38.0	51.0	49.0	12.0	6.5	6.5	4.9	4.9	5.6
35	11.0	11.0	24.0	37.0	49.0	44.0	11.0	6.0	6.3	4.9	4.8	5.5
40	10.0	11.0	22.0	34.0	47.0	42.0	9.7	5.8	6.2	4.8	4.7	5.4
45	9.9	11.0	21.0	33.0	46.0	33.0	9.0	5.7	6.0	4.8	4.7	5.3
50	9.3	10.0	19.0	31.0	45.0	26.0	8.1	5.4	5.6	4.8	4.7	5.1
55	7.6	10.0	18.0	29.0	43.0	17.0	7.4	5.3	5.5	4.7	4.6	4.9
60	6.7	9.9	17.0	27.0	40.0	12.0	6.1	5.2	5.4	4.7	4.5	4.8
65	6.4	9.0	16.0	26.0	36.0	9.2	5.4	5.2	5.0	4.7	4.5	4.8
70	6.1	8.4	14.0	24.0	33.0	7.9	5.2	5.1	4.9	4.6	4.4	4.7
75	5.8	7.7	13.0	22.0	31.0	7.4	5.1	5.0	4.9	4.6	4.2	4.5
80	5.5	7.4	11.0	19.0	26.0	7.0	5.0	5.0	4.8	4.3	3.9	4.3
85	4.9	7.3	9.5	18.0	21.0	6.6	4.9	4.9	4.7	3.7	3.8	4.2
90	4.5	7.0	8.5	14.0	17.0	6.4	4.8	4.8	4.7	3.5	3.8	3.9
95	3.8	6.7	7.7	13.0	15.0	6.0	4.8	4.7	4.6	3.5	3.7	3.5
99	3.5	5.5	7.2	12.0	12.0	5.6	4.7	4.5	4.4	3.4	2.5	3.5
Minimum	3.5	5.5	7.2	12.0	12.0	5.6	4.7	4.5	4.4	3.4	2.5	3.5
Average	21.1	18.5	26.2	35.5	59.0	57.1	14.7	7.2	5.8	4.8	9.2	6.4
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-20C. North Fork Stevenson Creek near Perimeter Road (Gage 11239300)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	26.0	40.0	17.0	190.0	28.0	13.0	8.4	7.3	57.0	7.6	8.2	7.6
5	11.0	14.0	16.0	174.0	22.0	12.0	8.1	7.2	37.0	7.5	7.2	6.1
10	7.8	12.0	14.0	147.0	22.0	11.0	7.8	7.1	7.6	7.4	7.0	5.9
15	7.5	10.0	13.0	24.0	19.0	10.0	7.5	7.0	7.5	7.4	7.0	5.9
20	7.4	10.0	13.0	22.0	16.0	9.2	7.3	7.0	7.4	7.4	7.0	5.9
25	7.1	9.6	13.0	21.0	16.0	9.0	7.0	7.0	7.3	7.4	6.9	5.9
30	6.8	9.0	11.0	20.0	15.0	8.5	7.0	7.0	7.1	7.4	6.8	5.9
35	6.2	8.7	9.9	19.0	13.0	8.4	6.8	6.9	6.8	7.1	6.7	5.8
40	6.0	8.3	9.7	17.0	12.0	8.3	6.6	6.9	6.7	7.0	6.0	5.8
45	5.9	8.2	9.6	17.0	12.0	8.2	6.6	6.9	6.5	6.8	5.9	5.8
50	5.8	7.8	9.4	10.0	12.0	8.0	6.4	6.7	6.3	6.5	5.8	5.7
55	5.7	7.6	9.4	10.0	11.0	7.9	6.3	6.6	6.1	5.6	5.4	5.6
60	5.6	7.5	9.1	9.8	11.0	7.7	6.1	6.6	6.1	5.5	5.2	5.4
65	5.6	7.4	9.0	9.7	10.0	7.4	5.8	6.4	6.1	5.4	5.0	5.1
70	4.8	7.3	8.8	9.2	10.0	7.0	5.7	6.4	6.0	5.4	5.0	5.0
75	4.6	7.1	8.7	9.0	10.0	6.6	5.4	6.3	6.0	5.2	4.9	4.9
80	4.4	7.0	8.5	8.9	9.8	6.4	5.3	6.3	5.9	5.0	4.8	4.9
85	4.3	6.7	8.4	8.7	9.4	6.2	5.3	6.2	5.7	4.5	4.7	4.8
90	4.2	5.3	7.9	8.6	9.1	6.0	5.2	6.1	4.7	4.5	4.6	4.7
95	4.1	4.8	7.8	8.2	9.0	5.8	4.9	6.0	4.6	4.4	4.5	4.7
Minimum	4.0	4.8	7.8	8.0	8.4	5.4	4.8	4.8	4.4	4.3	4.3	4.6
Average	6.7	9.0	10.5	34.4	13.4	8.2	6.4	6.6	9.0	6.2	5.9	5.5
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-20D. North Fork Stevenson Creek near Perimeter Road (Gage 11239300)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	16.0	15.0	19.0	30.0	31.0	12.0	10.0	12.0	11.0	167.0	17.0	13.0
5	11.0	10.0	16.0	27.0	28.0	10.0	9.5	8.8	8.4	17.0	16.0	12.0
10	8.6	9.3	14.0	19.0	27.0	9.4	8.7	8.4	7.4	11.0	12.0	9.3
15	8.4	9.2	13.0	16.0	26.0	8.6	8.5	8.2	7.0	9.1	10.0	8.8
20	8.0	8.4	11.0	16.0	24.0	8.6	8.3	8.2	7.0	7.7	8.9	8.3
25	7.8	8.1	9.0	15.0	22.0	8.4	8.3	8.0	6.8	7.5	8.3	8.0
30	7.7	7.6	8.6	15.0	20.0	8.1	8.0	7.4	6.6	7.2	7.7	7.9
35	7.7	7.6	8.4	14.0	17.0	7.9	7.7	7.2	6.4	7.0	7.1	7.7
40	7.6	7.6	8.2	13.0	14.0	7.5	7.2	7.0	5.8	7.0	6.3	7.6
45	7.3	7.4	7.9	12.0	12.0	7.4	7.2	6.5	5.8	6.9	4.5	7.6
50	7.2	6.7	7.7	12.0	11.0	7.1	7.1	5.9	5.6	5.5	4.4	7.4
55	6.0	6.2	6.4	12.0	11.0	6.7	6.5	5.8	5.6	4.4	4.2	5.1
60	5.5	6.0	6.1	11.0	10.0	6.5	6.3	5.7	5.5	4.0	4.1	4.7
65	5.2	5.6	5.9	11.0	9.1	6.2	6.1	5.7	5.4	3.9	4.0	4.5
70	5.1	5.2	4.6	11.0	9.0	6.1	6.1	5.6	5.4	3.9	4.0	4.4
75	4.9	5.1	4.5	11.0	8.9	5.9	6.0	5.6	5.4	3.8	3.9	4.4
80	4.7	4.8	4.3	11.0	8.6	5.8	5.9	5.6	5.4	3.8	3.8	4.3
85	4.6	4.6	4.2	10.0	8.2	5.6	5.9	5.5	5.2	3.8	3.7	4.3
90	4.5	4.4	4.0	9.9	7.3	5.4	5.9	5.5	5.2	3.7	3.3	4.1
95	4.4	4.3	3.9	9.7	6.1	5.3	5.9	5.3	4.8	3.7	3.0	4.0
Minimum	4.4	4.3	3.8	8.6	5.4	5.0	4.7	4.8	4.7	3.6	2.9	3.9
Average	6.8	6.9	8.0	13.9	15.0	7.3	7.2	6.8	6.2	9.4	6.6	6.7
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-20E. North Fork Stevenson Creek near Perimeter Road (Gage 11239300)
Historical Daily Exceedance Flow
Critical Water Years (1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	9.8	8.8	27.0	209.0	27.0	17.0	11.0	6.3	7.1	9.3	37.0	45.0
1	9.6	8.5	16.0	148.0	26.0	17.0	7.8	6.3	6.1	7.1	36.0	41.0
5	6.6	7.2	13.0	117.0	24.0	14.0	6.9	5.7	5.4	6.9	11.0	21.0
10	6.2	6.9	12.0	22.0	21.0	10.0	6.4	5.5	5.4	6.6	6.6	20.0
15	6.0	6.7	11.0	21.0	19.0	8.4	6.1	5.4	5.2	6.1	5.9	12.0
20	6.0	6.4	11.0	17.0	18.0	7.1	5.9	5.2	5.0	6.0	5.8	6.7
25	5.8	6.3	10.0	16.0	10.0	6.1	5.7	4.8	4.6	5.9	5.7	6.0
30	5.7	6.1	9.5	14.0	9.7	5.9	5.7	4.6	4.5	4.9	5.5	5.9
35	5.5	6.1	8.8	13.0	8.4	5.7	5.2	4.5	4.4	4.6	5.1	5.8
40	5.2	6.0	8.6	13.0	8.2	5.5	4.9	4.4	4.3	4.5	4.9	5.5
45	5.0	5.8	8.4	13.0	7.8	5.4	4.6	4.4	4.3	4.3	4.9	5.1
50	5.0	5.7	8.1	12.0	7.4	5.3	4.5	4.4	4.2	4.3	4.7	4.9
55	4.9	5.5	7.9	12.0	6.9	5.2	4.5	4.3	4.2	4.2	4.7	4.8
60	4.8	5.3	7.5	12.0	6.6	5.1	4.4	4.3	4.2	4.1	4.5	4.7
65	4.7	5.2	7.1	11.0	6.4	5.0	4.3	4.2	4.1	4.0	4.4	4.5
70	4.7	5.1	6.7	10.0	6.1	5.0	4.3	4.1	4.1	4.0	4.3	4.5
75	4.6	5.0	6.5	9.8	5.9	4.7	4.1	4.1	4.1	3.9	4.1	4.4
80	4.5	4.9	6.3	9.6	5.6	4.7	4.1	4.1	4.0	3.9	4.1	4.3
85	4.5	4.5	6.2	9.2	5.1	4.5	4.0	4.0	4.0	3.8	4.1	4.3
90	4.5	2.7	6.1	8.5	4.9	4.4	3.9	4.0	3.9	3.8	4.0	4.2
95	4.4	2.1	6.0	7.0	4.7	4.3	3.9	3.9	3.9	3.8	4.0	4.2
99	4.2	1.6	2.6	6.0	4.3	4.0	3.7	3.8	3.8	1.9	2.1	4.1
Minimum	4.2	1.6	2.6	6.0	4.3	4.0	3.7	3.8	3.8	1.9	2.1	4.1
Average	5.3	5.5	8.6	20.0	10.0	6.3	5.0	4.6	4.4	4.7	6.3	7.9
# Days	131	141	155	150	155	150	155	155	150	124	120	124
# Years	5	5	5	5	5	5	5	5	5	4	4	4

Table CAWG 6 Appdx E-21A. Stevenson Creek below Shaver Lake (Gage 11241500)
Historical Daily Exceedance Flow
(10/1/1986 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	340.0	305.0	317.0	307.0	650.0	688.0	672.0	434.0	37.0	278.0	11.0	10.0
1	322.0	293.0	310.0	305.0	650.0	682.0	650.0	330.0	4.4	278.0	4.6	4.6
5	287.0	273.0	300.0	281.0	346.0	600.0	471.0	6.4	4.3	5.8	4.3	3.8
10	4.1	51.0	203.0	256.0	317.0	350.0	441.0	4.7	4.0	4.5	3.8	3.8
15	3.8	4.1	196.0	191.0	294.0	321.0	257.0	4.2	3.8	4.3	3.8	3.7
20	3.3	3.7	4.5	4.6	204.0	269.0	5.8	3.9	3.6	3.8	3.7	3.2
25	3.0	3.4	4.0	4.6	8.1	231.0	4.1	3.6	3.6	3.7	3.7	3.0
30	3.0	3.1	3.6	4.5	4.5	214.0	3.7	3.6	3.5	3.6	3.6	2.9
35	2.9	2.9	3.4	4.3	3.9	4.6	3.7	3.5	3.5	3.6	3.6	2.7
40	2.8	2.9	3.2	4.0	3.8	3.7	3.6	3.5	3.5	3.6	3.5	2.6
45	2.6	2.8	3.1	3.9	3.7	3.7	3.5	3.5	3.5	3.6	3.5	2.6
50	2.6	2.8	3.0	3.8	3.6	3.6	3.5	3.4	3.5	3.5	3.5	2.6
55	2.6	2.7	3.0	3.7	3.6	3.6	3.4	3.4	3.4	3.5	3.4	2.5
60	2.6	2.7	2.9	3.6	3.5	3.6	3.4	3.3	3.4	3.5	3.4	2.5
65	2.5	2.6	2.8	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.3	2.4
70	2.4	2.6	2.7	3.5	3.5	3.4	3.3	3.3	3.3	3.4	3.0	2.4
75	2.4	2.5	2.7	3.5	3.4	3.4	3.3	3.2	3.3	3.4	2.7	2.3
80	2.4	2.5	2.6	3.4	3.4	3.4	3.2	3.2	3.3	3.4	2.6	2.3
85	2.3	2.4	2.5	3.4	3.4	3.3	3.2	3.2	3.2	3.4	2.5	2.2
90	2.2	2.4	2.5	3.3	3.3	3.2	3.1	3.1	3.1	3.3	2.5	2.2
95	2.1	2.3	2.3	3.2	3.2	3.2	3.0	3.0	3.1	3.2	2.3	2.2
99	1.9	2.1	2.1	3.0	3.2	3.1	3.0	3.0	3.0	3.1	2.2	1.8
Minimum	1.9	2.1	2.1	3.0	3.1	3.0	3.0	3.0	3.0	3.1	1.6	1.2
Average	18.4	27.1	42.1	44.4	75.8	120.1	78.3	14.1	3.6	12.6	3.3	2.8
# Days	496	452	496	480	496	480	496	496	480	496	480	496
# Years	16	16	16	16	16	16	16	16	16	16	16	16

Table CAWG 6 Appdx E-21B. Stevenson Creek below Shaver Lake (Gage 11241500)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	340.0	305.0	317.0	307.0	650.0	688.0	672.0	434.0	37.0	7.4	4.7	10.0
1	339.0	303.0	314.0	307.0	650.0	687.0	670.0	333.0	8.9	4.3	4.3	8.5
5	316.0	287.0	308.0	294.0	650.0	680.0	650.0	313.0	4.4	4.3	4.2	3.8
10	304.0	274.0	305.0	287.0	350.0	600.0	529.0	179.0	4.0	4.3	3.6	3.4
15	289.0	273.0	300.0	282.0	348.0	600.0	491.0	6.7	3.9	4.3	3.6	3.3
20	5.7	206.0	262.0	261.0	329.0	491.0	459.0	6.4	3.9	4.1	3.6	3.0
25	4.4	203.0	231.0	258.0	322.0	355.0	459.0	6.1	3.8	3.6	3.5	2.9
30	3.8	157.0	207.0	257.0	318.0	350.0	455.0	5.2	3.6	3.5	3.5	2.8
35	3.5	4.6	201.0	254.0	315.0	350.0	394.0	4.4	3.6	3.5	3.5	2.7
40	3.2	3.7	199.0	206.0	309.0	338.0	339.0	4.0	3.4	3.5	3.4	2.6
45	3.0	3.1	197.0	193.0	301.0	321.0	276.0	3.9	3.3	3.4	3.4	2.5
50	2.9	3.0	194.0	190.0	288.0	317.0	221.0	3.8	3.3	3.4	3.4	2.5
55	2.7	2.9	4.6	5.5	272.0	289.0	190.0	3.6	3.3	3.4	3.3	2.5
60	2.6	2.8	3.5	4.6	212.0	269.0	14.0	3.4	3.2	3.4	3.2	2.5
65	2.5	2.8	3.3	4.5	203.0	265.0	5.1	3.2	3.2	3.3	3.0	2.4
70	2.4	2.7	3.1	4.3	149.0	261.0	3.1	3.1	3.1	3.3	2.5	2.4
75	2.4	2.7	3.0	3.9	8.6	219.0	3.1	3.1	3.1	3.3	2.5	2.3
80	2.3	2.6	2.8	3.7	8.1	217.0	3.1	3.0	3.1	3.2	2.5	2.3
85	2.2	2.5	2.6	3.6	4.8	214.0	3.0	3.0	3.1	3.2	2.5	2.3
90	2.1	2.3	2.4	3.2	4.6	212.0	3.0	3.0	3.0	3.2	2.4	2.2
95	2.0	2.2	2.2	3.0	4.5	6.8	3.0	3.0	3.0	3.1	2.3	2.2
99	1.9	2.1	2.1	3.0	4.5	3.0	3.0	3.0	3.0	3.1	2.2	1.7
Minimum	1.9	2.1	2.1	3.0	4.5	3.0	3.0	3.0	3.0	3.1	2.2	1.7
Average	53.0	80.5	127.9	133.7	234.7	341.1	242.9	37.6	3.7	3.6	3.2	2.8
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-21C. Stevenson Creek below Shaver Lake (Gage 11241500)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.7	5.8	3.7	4.7	4.5	362.0	4.3	4.2	4.3	278.0	4.7	2.9
5	3.2	3.8	3.3	4.6	4.1	356.0	4.2	4.2	4.3	278.0	4.6	2.7
10	2.9	3.5	3.2	4.5	3.9	255.0	4.2	4.2	4.3	274.0	4.6	2.6
15	2.8	3.4	3.2	4.5	3.9	231.0	4.1	4.2	4.3	273.0	4.5	2.6
20	2.7	3.2	3.2	4.5	3.9	231.0	4.1	4.2	4.3	273.0	4.5	2.6
25	2.6	3.0	3.1	4.5	3.9	228.0	4.1	4.2	4.3	235.0	4.4	2.6
30	2.5	3.0	3.1	4.5	3.9	189.0	4.1	4.2	4.3	3.8	3.5	2.3
35	2.5	2.9	3.1	4.5	3.8	77.0	4.1	4.1	4.2	3.8	3.4	2.3
40	2.5	2.8	3.0	4.5	3.8	3.9	4.1	4.1	4.2	3.8	3.3	2.2
45	2.4	2.7	2.9	4.5	3.8	3.8	4.1	4.1	4.2	3.7	3.3	2.2
50	2.4	2.7	2.9	4.4	3.7	3.7	3.7	3.5	3.8	3.7	3.3	2.2
55	2.3	2.7	2.6	4.2	3.6	3.7	3.7	3.5	3.8	3.6	3.3	2.2
60	2.2	2.6	2.5	4.1	3.6	3.6	3.7	3.3	3.8	3.6	3.2	2.2
65	2.2	2.5	2.5	3.9	3.6	3.6	3.7	3.2	3.8	3.5	3.1	2.2
70	2.2	2.5	2.5	3.9	3.5	3.6	3.7	3.2	3.7	3.5	2.6	2.2
75	2.2	2.5	2.5	3.9	3.5	3.6	3.6	3.2	3.7	3.5	2.6	2.2
80	2.2	2.5	2.5	3.6	3.4	3.6	3.6	3.2	3.2	3.5	2.6	2.2
85	2.1	2.4	2.5	3.5	3.4	3.6	3.6	3.2	3.2	3.5	2.6	2.2
90	2.1	2.4	2.4	3.4	3.4	3.6	3.5	3.2	3.1	3.4	2.2	2.1
95	2.1	2.4	2.4	3.4	3.4	3.6	3.5	3.2	3.1	3.4	2.2	2.1
Minimum	2.1	2.3	2.4	3.4	3.4	3.4	3.5	3.1	3.1	3.1	2.2	2.1
Average	2.5	2.9	2.8	4.2	3.7	92.0	3.9	3.7	3.9	75.2	3.4	2.3
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-21D. Stevenson Creek below Shaver Lake (Gage 11241500)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.1	4.3	4.7	4.7	4.6	5.7	5.2	3.6	3.9	7.2	4.8	4.0
5	4.0	4.3	4.5	4.7	3.4	4.5	4.3	3.6	3.6	5.0	4.1	3.9
10	4.0	4.2	4.5	4.6	3.4	3.7	3.5	3.5	3.5	4.7	3.9	3.9
15	4.0	4.2	4.5	4.6	3.3	3.4	3.5	3.5	3.5	4.7	3.9	3.9
20	4.0	4.1	4.5	4.6	3.3	3.3	3.4	3.5	3.5	4.6	3.8	3.8
25	3.9	4.1	4.5	4.6	3.3	3.3	3.3	3.5	3.5	4.6	3.8	3.8
30	3.9	4.1	4.5	4.6	3.3	3.3	3.3	3.5	3.5	4.6	3.8	3.8
35	3.9	4.0	4.5	4.5	3.2	3.3	3.3	3.5	3.5	4.6	3.8	3.8
40	3.8	4.0	4.4	4.5	3.2	3.3	3.3	3.5	3.5	4.6	3.8	3.8
45	3.8	4.0	4.3	4.4	3.2	3.3	3.3	3.5	3.4	4.5	3.8	3.8
50	3.3	2.6	3.2	3.4	3.2	3.2	3.3	3.5	3.4	3.7	3.8	3.8
55	2.8	2.5	2.7	3.3	3.2	3.2	3.2	3.5	3.4	3.5	3.6	3.0
60	2.7	2.5	2.5	3.2	3.2	3.2	3.2	3.5	3.4	3.4	3.6	2.6
65	2.6	2.5	2.5	3.2	3.2	3.2	3.2	3.4	3.4	3.4	3.5	2.5
70	2.6	2.5	2.4	3.2	3.2	3.2	3.2	3.4	3.4	3.4	3.5	2.5
75	2.6	2.5	2.3	3.2	3.2	3.2	3.2	3.4	3.4	3.4	3.5	2.5
80	2.5	2.5	2.2	3.2	3.2	3.2	3.2	3.1	3.3	3.4	3.5	2.5
85	2.5	2.5	2.1	3.2	3.2	3.1	3.2	3.1	3.3	3.4	3.5	2.5
90	2.5	2.5	2.1	3.1	3.2	3.1	3.1	3.1	3.3	3.4	2.6	2.5
95	2.5	2.4	2.1	3.1	3.1	3.1	3.1	3.1	3.3	3.4	2.5	2.4
Minimum	2.5	2.4	2.1	3.1	3.1	3.1	3.1	3.1	3.3	3.4	2.4	2.4
Average	3.3	3.3	3.4	3.9	3.3	3.4	3.4	3.4	3.4	4.1	3.6	3.2
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-21E. Stevenson Creek below Shaver Lake (Gage 11241500)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.0	4.9	5.0	4.2	3.9	3.9	4.3	3.9	3.7	6.8	11.0	5.0
1	3.7	3.7	4.2	4.1	3.9	3.8	3.9	3.9	3.6	6.0	4.0	4.0
5	3.1	3.4	3.8	4.0	3.8	3.7	3.7	3.6	3.6	3.9	3.8	3.8
10	3.0	3.4	3.6	3.9	3.8	3.7	3.6	3.6	3.5	3.7	3.7	3.7
15	3.0	3.2	3.5	3.8	3.7	3.6	3.6	3.6	3.5	3.7	3.7	3.7
20	3.0	2.9	3.5	3.8	3.7	3.6	3.6	3.5	3.5	3.7	3.7	3.0
25	2.9	2.9	3.2	3.7	3.6	3.6	3.5	3.5	3.5	3.6	3.7	3.0
30	2.8	2.9	3.1	3.7	3.6	3.6	3.5	3.5	3.5	3.6	3.6	3.0
35	2.7	2.8	3.0	3.7	3.6	3.6	3.5	3.5	3.5	3.6	3.6	2.8
40	2.6	2.8	3.0	3.6	3.6	3.5	3.4	3.4	3.5	3.6	3.6	2.7
45	2.6	2.7	2.9	3.5	3.5	3.5	3.4	3.4	3.5	3.6	3.5	2.6
50	2.6	2.7	2.9	3.5	3.5	3.5	3.4	3.3	3.5	3.6	3.5	2.6
55	2.6	2.7	2.9	3.5	3.5	3.5	3.4	3.3	3.4	3.5	3.5	2.6
60	2.6	2.7	2.8	3.5	3.5	3.4	3.4	3.3	3.4	3.5	3.4	2.6
65	2.5	2.6	2.7	3.5	3.5	3.4	3.4	3.3	3.4	3.5	3.4	2.6
70	2.4	2.6	2.7	3.5	3.5	3.4	3.3	3.3	3.4	3.5	3.0	2.4
75	2.4	2.5	2.7	3.5	3.5	3.4	3.3	3.3	3.3	3.5	2.7	2.3
80	2.4	2.4	2.7	3.4	3.4	3.4	3.3	3.3	3.3	3.5	2.7	2.3
85	2.4	2.4	2.6	3.4	3.4	3.3	3.2	3.2	3.3	3.5	2.6	2.3
90	2.3	2.4	2.6	3.4	3.4	3.2	3.2	3.2	3.3	3.4	2.5	2.2
95	2.2	2.3	2.5	3.4	3.4	3.2	3.1	3.2	3.2	3.3	2.3	2.2
99	2.1	2.3	2.5	3.3	3.3	3.2	3.1	3.2	3.1	3.2	2.1	1.2
Minimum	2.1	2.3	2.4	3.3	3.3	3.1	3.1	3.2	3.1	3.2	1.6	1.2
Average	2.6	2.8	3.0	3.6	3.6	3.5	3.4	3.4	3.4	3.6	3.3	2.8
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-22A. Big Creek Below Huntington Lake (Gage 11237000)
Historical Daily Exceedance Flow
(10/01/1986 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	29.0	5.4	13.0	19.0	51.0	115.0	8.6	13.0	8.5	5.7	6.6	5.9
1	9.0	4.0	7.6	9.2	49.0	98.0	7.4	7.2	6.7	4.9	4.7	4.7
5	4.6	3.6	5.3	7.3	12.0	33.0	5.5	6.4	5.3	4.8	4.5	4.6
10	4.1	3.5	4.0	6.1	11.0	12.0	5.2	5.2	4.8	4.6	4.2	4.1
15	3.9	3.4	3.8	5.2	10.0	9.4	5.1	4.9	4.7	4.2	3.9	3.9
20	3.7	3.2	3.6	4.8	9.1	6.9	5.0	4.8	4.6	4.0	3.9	3.8
25	3.4	2.9	3.5	4.6	8.5	6.1	4.9	4.8	4.5	3.9	3.8	3.7
30	3.2	2.7	3.4	4.3	7.6	5.5	4.8	4.6	4.3	3.6	3.7	3.5
35	2.9	2.6	3.2	4.2	6.1	5.4	4.6	4.2	4.1	3.4	3.2	3.3
40	2.8	2.5	3.0	4.1	5.4	5.0	4.4	4.1	3.9	3.2	3.1	3.3
45	2.7	2.5	2.7	4.0	4.6	4.8	4.1	3.9	3.8	3.0	3.0	2.9
50	2.6	2.4	2.6	4.0	4.5	4.2	3.8	3.6	3.4	2.9	2.9	2.9
55	2.6	2.4	2.5	3.9	4.2	4.0	3.6	3.4	3.3	2.8	2.8	2.8
60	2.5	2.3	2.5	3.7	3.9	3.8	3.5	3.3	3.2	2.8	2.8	2.8
65	2.4	2.2	2.4	3.5	3.8	3.1	3.2	3.1	3.1	2.8	2.7	2.7
70	2.3	2.1	2.4	3.3	3.3	3.0	3.0	3.0	3.1	2.8	2.6	2.7
75	2.3	2.1	2.3	3.1	3.0	2.9	2.9	2.9	3.0	2.7	2.6	2.6
80	2.2	2.0	2.2	2.9	2.9	2.9	2.9	2.9	2.9	2.6	2.6	2.5
85	2.1	1.9	2.1	2.8	2.8	2.8	2.8	2.8	2.9	2.6	2.5	2.5
90	2.0	1.8	2.0	2.6	2.7	2.8	2.5	2.4	2.7	2.4	2.4	2.4
95	1.8	1.5	1.9	2.4	2.6	2.6	2.4	2.2	2.4	2.3	2.3	2.3
99	1.6	1.1	1.2	1.8	2.5	2.5	2.3	2.1	2.1	2.3	2.1	2.1
Minimum	1.2	0.8	1.2	1.6	2.5	2.5	2.2	2.1	2.1	2.1	2.1	2.0
Average	3.0	2.5	3.0	4.1	6.3	8.7	4.0	3.9	3.7	3.3	3.2	3.1
# Days	496	452	496	480	496	480	496	496	480	496	480	496
# Years	16	16	16	16	16	16	16	16	16	16	16	16

Table CAWG 6 Appdx E-22B. Big Creek Below Huntington Lake (Gage 11237000)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	29.0	5.4	13.0	19.0	51.0	115.0	8.6	13.0	5.3	5.7	6.6	5.9
1	20.0	5.2	9.5	11.0	50.0	110.0	8.1	8.2	4.9	5.4	6.0	5.4
5	6.8	3.7	6.5	8.5	19.0	75.0	7.0	5.4	4.9	4.6	4.4	4.1
10	5.2	3.6	5.6	7.5	13.0	70.0	6.0	5.1	4.9	4.6	4.2	3.9
15	4.6	3.5	5.0	7.1	12.0	59.0	5.5	5.0	4.8	4.6	4.0	3.9
20	4.2	3.4	3.9	6.5	11.0	15.0	5.4	4.8	4.8	4.5	4.0	3.9
25	4.0	3.3	3.8	5.9	11.0	13.0	5.2	4.7	4.7	4.4	4.0	3.9
30	3.8	2.9	3.7	5.7	11.0	12.0	5.0	4.6	4.6	4.1	3.9	3.8
35	3.8	2.8	3.6	5.2	10.0	12.0	4.9	4.6	4.6	4.1	3.9	3.7
40	3.7	2.8	3.3	5.0	9.9	10.0	4.8	4.6	3.6	4.1	3.9	3.6
45	3.7	2.7	3.1	4.8	9.5	9.7	4.7	3.4	3.2	4.0	3.8	3.6
50	3.6	2.6	3.0	4.7	9.1	9.0	4.3	3.3	3.1	4.0	3.8	3.5
55	3.4	2.6	2.7	4.6	8.9	6.5	3.8	3.2	3.0	3.9	3.8	3.5
60	3.2	2.4	2.5	4.5	7.8	3.6	3.5	3.1	2.9	3.8	3.7	3.4
65	2.9	2.3	2.5	4.2	4.3	3.2	2.8	3.0	2.8	2.5	3.3	3.4
70	2.6	2.3	2.4	4.1	3.9	3.1	2.8	2.9	2.7	2.4	2.6	3.3
75	2.4	2.0	2.4	3.7	3.7	3.0	2.8	2.8	2.7	2.4	2.5	2.8
80	2.2	1.9	2.2	3.5	3.3	2.9	2.7	2.6	2.6	2.4	2.5	2.7
85	2.0	1.6	2.1	3.4	3.1	2.8	2.6	2.2	2.4	2.3	2.4	2.3
90	2.0	1.5	1.5	3.2	2.8	2.7	2.4	2.2	2.2	2.3	2.3	2.2
95	1.9	1.4	1.2	2.3	2.7	2.6	2.3	2.1	2.2	2.3	2.3	2.1
99	1.2	0.8	1.2	1.6	2.6	2.5	2.2	2.1	2.1	2.1	2.3	2.0
Minimum	1.2	0.8	1.2	1.6	2.6	2.5	2.2	2.1	2.1	2.1	2.3	2.0
Average	3.8	2.6	3.4	5.1	9.5	18.6	4.2	3.7	3.5	3.5	3.5	3.4
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-22C. Big Creek Below Huntington Lake (Gage 11237000)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.5	4.5	3.5	5.5	9.1	8.3	7.4	7.8	4.3	3.1	3.3	3.1
5	2.8	3.3	3.5	5.4	7.2	7.8	4.8	4.5	4.2	3.1	3.2	2.9
10	2.6	3.2	3.3	5.3	6.8	7.3	4.7	4.4	4.2	3.0	3.1	2.8
15	2.4	2.9	3.2	5.2	6.3	6.9	4.5	4.3	4.1	3.0	3.1	2.8
20	2.3	2.7	3.1	5.0	5.8	6.5	4.5	4.2	4.1	2.9	3.1	2.8
25	2.2	2.6	2.8	4.7	5.6	5.9	4.5	4.2	4.1	2.8	3.1	2.8
30	2.2	2.6	2.6	4.4	5.6	5.8	4.5	4.1	4.1	2.8	3.1	2.8
35	2.2	2.5	2.5	4.4	5.5	5.5	4.5	4.1	4.1	2.8	3.1	2.8
40	2.2	2.5	2.5	4.3	5.5	5.2	4.4	4.1	4.0	2.7	2.6	2.7
45	2.1	2.5	2.5	4.3	5.4	4.9	4.4	4.1	3.9	2.7	2.6	2.7
50	2.0	2.5	2.5	4.2	5.3	4.5	3.9	3.4	3.4	2.6	2.6	2.7
55	1.9	2.5	2.5	4.2	4.8	4.4	3.8	3.4	3.4	2.6	2.6	2.6
60	1.9	2.4	2.4	4.2	4.7	4.3	3.8	3.4	3.4	2.6	2.6	2.6
65	1.8	2.4	2.4	4.1	4.5	4.3	3.7	3.4	3.3	2.6	2.6	2.5
70	1.8	2.4	2.4	4.1	4.3	4.3	3.7	3.4	3.3	2.6	2.6	2.4
75	1.8	2.3	2.3	4.0	4.2	4.1	3.6	3.3	3.3	2.6	2.6	2.4
80	1.8	2.3	2.3	4.0	4.2	4.1	3.5	3.3	3.3	2.6	2.6	2.4
85	1.8	2.2	2.2	3.6	4.1	4.1	3.4	3.3	3.3	2.5	2.5	2.4
90	1.7	2.2	2.2	2.4	4.1	3.9	3.4	3.3	3.2	2.4	2.2	2.2
95	1.7	2.1	2.2	1.9	3.9	3.9	3.4	3.3	3.2	2.3	2.1	2.2
Minimum	1.7	2.1	2.2	1.8	3.9	3.8	3.4	3.3	3.2	2.3	2.1	2.0
Average	2.1	2.6	2.6	4.2	5.2	5.2	4.2	3.9	3.7	2.7	2.7	2.6
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-22D. Big Creek Below Huntington Lake (Gage 11237000)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.2	2.5	3.8	4.9	8.7	6.7	5.3	7.5	6.7	3.9	4.2	4.2
5	3.0	2.5	3.4	4.7	8.6	6.3	5.3	6.9	6.1	3.8	3.4	4.2
10	2.9	2.5	3.3	4.3	8.3	6.1	5.3	6.7	6.0	3.4	3.2	4.2
15	2.8	2.4	3.2	4.3	8.2	6.1	5.2	6.4	5.9	3.4	3.2	4.1
20	2.8	2.4	3.0	4.3	8.0	6.0	5.2	6.4	5.6	3.4	3.1	4.1
25	2.8	2.4	2.8	4.2	8.0	5.9	5.2	6.4	5.4	3.4	3.1	4.1
30	2.7	2.4	2.6	4.1	7.9	5.9	5.2	6.4	4.9	3.3	3.1	4.0
35	2.6	2.4	2.5	4.1	7.6	5.5	5.1	6.3	4.7	3.3	3.1	3.8
40	2.6	2.4	2.5	4.0	7.6	5.5	5.1	6.1	4.7	3.3	3.1	3.8
45	2.6	2.4	2.4	4.0	7.2	5.5	5.1	5.2	4.6	3.3	3.0	3.7
50	2.5	2.4	2.4	3.9	7.0	5.4	5.1	5.2	4.5	3.3	3.0	3.7
55	2.3	2.4	2.4	3.9	7.0	5.4	5.1	5.2	4.2	3.3	2.7	3.0
60	2.3	2.3	2.3	3.8	6.2	5.4	5.1	5.1	3.7	3.2	2.7	3.0
65	2.3	2.3	2.3	3.6	5.5	5.4	5.1	4.9	3.6	3.1	2.6	3.0
70	2.3	2.3	2.3	3.6	5.3	5.4	5.1	4.9	3.5	3.1	2.6	2.9
75	2.3	2.3	2.2	3.5	4.9	5.3	5.1	4.8	3.5	3.0	2.5	2.8
80	2.2	2.3	2.2	3.3	4.7	5.3	5.1	4.8	3.4	2.9	2.5	2.8
85	2.2	2.2	2.1	3.1	4.6	5.3	5.0	4.8	3.4	2.8	2.4	2.8
90	2.2	2.2	2.1	3.0	4.2	5.2	5.0	4.8	3.4	2.8	2.2	2.8
95	2.2	2.2	2.1	3.0	4.2	5.1	5.0	4.8	3.4	2.8	2.1	2.7
Minimum	2.2	2.1	2.0	3.0	4.2	5.1	4.9	4.8	3.4	2.8	2.1	2.7
Average	2.6	2.4	2.6	3.9	6.6	5.6	5.1	5.6	4.5	3.2	2.8	3.5
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-22E. Big Creek Below Huntington Lake (Gage 11237000)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.6	4.0	9.3	8.0	13.0	7.0	4.9	4.9	8.5	5.0	4.7	4.7
1	4.4	3.8	5.3	7.6	12.0	7.0	4.9	4.9	7.6	4.9	4.7	4.6
5	4.2	3.6	5.2	6.4	10.0	6.1	4.8	4.8	4.8	4.9	4.6	4.6
10	4.0	3.6	3.9	4.3	9.0	4.9	4.8	4.8	4.7	4.8	4.5	4.6
15	3.3	3.5	3.8	4.1	4.9	4.8	4.6	4.1	4.5	3.9	3.9	3.6
20	3.3	3.3	3.7	4.0	4.6	4.3	4.2	4.1	4.3	3.7	3.8	3.3
25	3.2	3.2	3.5	4.0	4.5	4.1	4.0	4.0	4.3	3.6	3.7	3.3
30	2.8	2.8	3.4	3.9	3.9	3.9	3.7	3.9	4.2	3.4	3.0	2.9
35	2.8	2.6	3.4	3.9	3.8	3.9	3.6	3.9	3.9	3.0	2.9	2.9
40	2.7	2.5	3.2	3.8	3.8	3.7	3.5	3.6	3.8	3.0	2.9	2.8
45	2.7	2.2	2.8	3.6	3.5	3.1	3.2	3.2	3.8	2.9	2.8	2.8
50	2.6	2.1	2.7	3.1	3.0	2.9	3.1	3.1	3.2	2.8	2.8	2.7
55	2.6	2.1	2.6	3.0	2.9	2.9	3.0	3.0	3.1	2.8	2.8	2.7
60	2.6	2.1	2.5	2.9	2.9	2.9	3.0	3.0	3.1	2.8	2.8	2.7
65	2.5	2.1	2.5	2.9	2.8	2.9	3.0	2.9	3.1	2.8	2.8	2.6
70	2.4	2.0	2.4	2.8	2.8	2.8	2.9	2.9	3.0	2.8	2.7	2.6
75	2.4	2.0	2.1	2.7	2.8	2.8	2.9	2.9	3.0	2.8	2.7	2.6
80	2.3	1.9	2.1	2.7	2.7	2.8	2.9	2.9	3.0	2.7	2.6	2.5
85	2.3	1.8	2.0	2.6	2.7	2.8	2.7	2.8	2.9	2.7	2.6	2.5
90	2.2	1.7	1.9	2.6	2.6	2.7	2.4	2.4	2.9	2.7	2.6	2.5
95	2.1	1.5	1.9	2.2	2.5	2.6	2.4	2.3	2.8	2.6	2.5	2.4
99	2.0	1.1	1.3	2.1	2.5	2.5	2.4	2.3	2.8	2.6	2.4	2.4
Minimum	2.0	1.1	1.3	2.1	2.5	2.5	2.4	2.3	2.7	2.6	2.4	2.4
Average	2.8	2.5	3.0	3.5	4.2	3.6	3.4	3.4	3.7	3.2	3.1	3.0
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-23A. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
(12/1/1927 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2200.0	925.0	518.0	1210.0	1650.0	847.0	406.0	41.0	212.0	362.0	1420.0	1590.0
1	77.0	105.0	144.0	312.0	638.0	685.0	286.0	22.0	16.0	16.0	60.0	139.0
5	40.0	40.0	82.0	222.0	488.0	467.0	95.0	9.7	4.2	5.7	20.0	30.0
10	25.0	30.0	58.0	182.0	401.0	320.0	45.0	6.2	2.3	3.0	8.0	18.0
15	17.0	25.0	47.0	157.0	351.0	249.0	27.0	4.4	1.6	1.9	5.1	9.8
20	14.0	20.0	40.0	140.0	318.0	196.0	20.0	3.2	1.3	1.6	4.1	7.8
25	9.0	18.0	36.0	125.0	278.0	153.0	15.0	2.4	1.0	1.3	3.0	6.0
30	7.0	14.0	32.0	115.0	246.0	124.0	12.0	1.8	0.7	1.1	2.2	5.2
35	6.0	11.0	28.0	104.0	222.0	102.0	10.0	1.4	0.6	0.9	1.7	4.2
40	5.9	10.0	24.0	95.0	198.0	78.0	8.4	1.2	0.5	0.8	1.5	3.5
45	5.0	8.6	22.0	85.0	178.0	63.0	7.0	0.9	0.4	0.6	1.2	2.8
50	4.0	7.5	20.0	76.0	158.0	50.0	5.9	0.8	0.4	0.5	1.1	2.2
55	3.5	6.8	17.0	68.0	144.0	40.0	4.8	0.6	0.3	0.4	0.9	1.5
60	2.5	5.5	15.0	60.0	130.0	33.0	3.9	0.5	0.3	0.4	0.8	1.3
65	2.0	4.0	13.0	54.0	115.0	26.0	3.2	0.5	0.2	0.3	0.7	1.0
70	1.6	3.4	11.0	49.0	101.0	22.0	2.7	0.4	0.2	0.3	0.6	0.9
75	1.1	2.8	9.2	45.0	87.0	17.0	2.2	0.3	0.2	0.2	0.5	0.8
80	1.0	2.0	8.0	39.0	75.0	14.0	1.8	0.3	0.2	0.2	0.4	0.6
85	0.6	1.5	6.0	32.0	61.0	11.0	1.4	0.2	0.2	0.2	0.4	0.5
90	0.5	1.0	5.0	26.0	48.0	8.5	1.0	0.2	0.1	0.2	0.3	0.4
95	0.2	0.7	2.2	19.0	37.0	6.2	0.6	0.2	0.1	0.2	0.2	0.2
99	0.2	0.2	0.3	5.0	18.0	3.7	0.4	0.1	0.1	0.1	0.2	0.1
Minimum	0.2	0.2	0.3	1.0	14.0	2.3	0.2	0.1	0.1	0.0	0.1	0.1
Average	11.7	14.1	27.8	93.9	199.4	116.9	20.3	2.3	1.4	1.9	5.4	10.5
# Days	2325	2119	2325	2250	2325	2250	2325	2325	2250	2294	2220	2325
# Years	75	75	75	75	75	75	75	75	75	74	74	75

Table CAWG 6 Appdx E-23B. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2200.0	472.0	518.0	1210.0	1650.0	847.0	406.0	41.0	212.0	362.0	230.0	1590.0
1	220.0	181.0	176.0	398.0	750.0	776.0	382.0	29.0	31.0	36.0	62.0	196.0
5	57.0	72.0	121.0	294.0	600.0	649.0	203.0	19.0	8.9	7.3	31.0	47.0
10	45.0	44.0	89.0	233.0	537.0	562.0	138.0	13.0	5.8	3.1	15.0	30.0
15	32.0	35.0	70.0	191.0	489.0	480.0	100.0	10.0	4.2	2.0	7.0	24.0
20	27.0	30.0	58.0	157.0	450.0	431.0	80.0	8.6	2.9	1.4	5.0	17.0
25	20.0	26.0	50.0	142.0	417.0	382.0	64.0	7.4	2.5	1.1	3.3	13.0
30	18.0	24.0	44.0	125.0	388.0	334.0	49.0	6.5	2.2	1.0	2.5	9.5
35	17.0	23.0	41.0	115.0	364.0	302.0	40.0	5.8	1.9	0.8	2.1	8.1
40	15.0	20.0	37.0	104.0	345.0	273.0	33.0	5.1	1.7	0.8	1.8	6.0
45	14.0	19.0	34.0	93.0	331.0	249.0	27.0	4.6	1.5	0.6	1.6	5.5
50	11.0	17.0	31.0	80.0	312.0	224.0	23.0	4.0	1.4	0.5	1.3	5.0
55	8.7	16.0	28.0	78.0	282.0	193.0	20.0	3.5	1.2	0.4	1.1	4.0
60	7.4	14.0	24.0	68.0	260.0	162.0	17.0	3.0	1.1	0.4	0.9	3.4
65	6.5	13.0	24.0	57.0	238.0	139.0	15.0	2.6	0.9	0.3	0.9	2.9
70	5.8	10.0	20.0	51.0	225.0	120.0	13.0	2.2	0.8	0.3	0.8	2.4
75	4.5	8.9	17.0	44.0	195.0	104.0	11.0	1.9	0.7	0.3	0.7	2.0
80	4.0	8.0	14.0	39.0	169.0	87.0	9.5	1.5	0.6	0.2	0.6	1.7
85	3.5	5.9	11.0	32.0	150.0	64.0	7.5	1.2	0.4	0.2	0.5	1.3
90	3.0	4.0	8.0	26.0	123.0	45.0	5.7	0.9	0.4	0.2	0.4	0.8
95	2.2	2.5	5.0	20.0	85.0	28.0	4.1	0.6	0.3	0.2	0.3	0.5
99	1.5	1.7	2.0	11.0	40.0	11.0	2.4	0.4	0.2	0.1	0.2	0.4
Minimum	1.5	1.5	1.6	6.0	29.0	7.8	1.8	0.4	0.2	0.1	0.2	0.4
Average	25.3	24.8	41.6	110.7	319.7	260.9	53.2	5.9	3.3	2.8	5.7	19.3
# Days	713	648	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx E-23C. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Above Normal Water Years (1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	450.0	925.0	109.0	314.0	696.0	400.0	66.0	8.6	2.9	170.0	1420.0	876.0
1	108.0	110.0	97.0	286.0	532.0	326.0	46.0	6.4	1.6	16.0	144.0	312.0
5	42.0	42.0	56.0	234.0	435.0	242.0	26.0	4.0	1.1	7.0	42.0	74.0
10	32.0	34.0	45.0	194.0	390.0	206.0	20.0	2.9	0.9	5.3	10.0	31.0
15	28.0	32.0	42.0	171.0	352.0	162.0	16.0	2.5	0.8	4.0	8.0	25.0
20	25.0	31.0	37.0	159.0	336.0	131.0	13.0	2.0	0.6	3.4	5.7	10.0
25	17.0	28.0	37.0	141.0	318.0	109.0	12.0	1.8	0.6	2.7	5.0	8.0
30	14.0	25.0	34.0	127.0	296.0	101.0	10.0	1.6	0.5	2.0	4.9	7.0
35	9.6	23.0	32.0	117.0	270.0	86.0	9.0	1.5	0.5	1.7	4.6	5.7
40	8.0	20.0	28.0	103.0	251.0	75.0	8.5	1.3	0.4	1.5	4.0	5.0
45	6.0	18.0	25.0	94.0	228.0	65.0	7.7	1.1	0.4	1.1	3.3	5.0
50	6.0	16.0	22.0	82.0	215.0	56.0	7.0	1.0	0.4	0.7	2.8	4.6
55	5.2	12.0	22.0	70.0	204.0	49.0	6.2	0.8	0.4	0.6	1.8	3.0
60	5.0	11.0	21.0	64.0	189.0	43.0	5.7	0.7	0.3	0.4	1.0	1.0
65	4.4	9.0	21.0	57.0	173.0	37.0	5.1	0.6	0.3	0.4	0.7	1.0
70	2.0	9.0	19.0	52.0	158.0	32.0	4.5	0.5	0.2	0.3	0.6	0.8
75	1.0	7.0	19.0	51.0	144.0	27.0	3.9	0.5	0.2	0.2	0.5	0.6
80	1.0	7.0	17.0	46.0	135.0	23.0	3.3	0.4	0.2	0.2	0.4	0.5
85	0.5	4.7	13.0	39.0	119.0	18.0	2.7	0.4	0.1	0.2	0.4	0.5
90	0.3	3.5	13.0	30.0	106.0	16.0	2.0	0.2	0.1	0.2	0.3	0.5
95	0.3	2.0	9.2	28.0	85.0	13.0	1.3	0.2	0.1	0.1	0.2	0.2
99	0.3	2.0	8.3	13.0	57.0	8.9	0.7	0.1	0.1	0.0	0.2	0.2
Minimum	0.3	2.0	8.2	12.0	41.0	6.5	0.5	0.1	0.1	0.0	0.2	0.2
Average	13.9	21.6	28.3	101.0	235.8	83.8	9.4	1.4	0.5	2.4	13.0	17.3
# Days	434	397	434	420	434	420	434	434	420	434	420	434
# Years	14	14	14	14	14	14	14	14	14	14	14	14

Table CAWG 6 Appdx E-23D. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	15.0	19.0	335.0	258.0	413.0	296.0	46.0	3.7	3.2	2.5	80.0	22.0
1	14.0	17.0	119.0	238.0	390.0	227.0	37.0	3.4	1.4	2.0	52.0	20.0
5	12.0	12.0	61.0	206.0	278.0	187.0	22.0	2.5	0.7	1.4	20.0	15.0
10	10.0	11.0	39.0	186.0	254.0	162.0	16.0	1.9	0.5	1.0	2.1	7.0
15	6.0	10.0	25.0	171.0	243.0	139.0	13.0	1.5	0.5	0.8	1.7	7.0
20	6.0	8.4	19.0	152.0	223.0	126.0	11.0	1.3	0.4	0.7	1.3	4.0
25	4.3	7.0	16.0	133.0	209.0	117.0	9.5	1.1	0.4	0.6	1.0	3.0
30	3.2	7.0	15.0	120.0	198.0	102.0	8.3	1.0	0.4	0.6	0.9	1.5
35	2.2	6.0	14.0	107.0	189.0	84.0	7.5	0.9	0.3	0.5	0.8	1.4
40	2.0	5.6	12.0	97.0	179.0	67.0	6.7	0.8	0.3	0.4	0.7	1.2
45	1.2	4.6	12.0	81.0	166.0	60.0	5.9	0.7	0.2	0.4	0.6	1.0
50	1.1	2.8	11.0	73.0	156.0	52.0	5.1	0.6	0.2	0.4	0.5	1.0
55	1.1	2.1	10.0	62.0	143.0	44.0	4.6	0.6	0.2	0.4	0.5	0.9
60	0.8	1.5	8.0	56.0	133.0	40.0	3.8	0.5	0.2	0.3	0.5	0.7
65	0.8	1.5	5.6	48.0	126.0	34.0	3.4	0.5	0.2	0.2	0.4	0.6
70	0.7	1.4	5.6	39.0	120.0	30.0	2.9	0.4	0.2	0.2	0.4	0.6
75	0.6	1.1	1.2	33.0	110.0	25.0	2.5	0.4	0.2	0.2	0.4	0.6
80	0.5	1.0	1.2	27.0	95.0	21.0	2.1	0.4	0.2	0.2	0.4	0.5
85	0.2	1.0	1.0	23.0	87.0	17.0	1.8	0.3	0.1	0.2	0.3	0.3
90	0.2	0.2	1.0	15.0	79.0	13.0	1.4	0.2	0.1	0.2	0.2	0.2
95	0.2	0.2	0.3	3.0	65.0	9.0	1.0	0.2	0.1	0.1	0.2	0.2
99	0.2	0.2	0.3	1.0	43.0	5.0	0.5	0.1	0.1	0.1	0.2	0.2
Minimum	0.2	0.2	0.3	1.0	36.0	4.4	0.5	0.1	0.1	0.1	0.2	0.2
Average	3.0	4.7	16.7	87.9	163.8	73.0	7.4	0.9	0.3	0.5	2.9	3.0
# Days	341	311	341	330	341	330	341	341	330	310	300	341
# Years	11	11	11	11	11	11	11	11	11	10	10	11

Table CAWG 6 Appdx E-23E. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Dry Water Years (1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	12.0	34.0	118.0	251.0	333.0	291.0	31.0	4.1	52.0	20.0	37.0	30.0
1	9.0	28.0	101.0	207.0	322.0	242.0	24.0	2.1	9.3	6.5	21.0	20.0
5	8.0	22.0	72.0	171.0	255.0	164.0	12.0	1.2	1.9	2.4	8.6	10.0
10	7.0	13.0	52.0	149.0	198.0	79.0	8.1	0.9	1.4	1.9	7.0	8.0
15	6.5	11.0	45.0	140.0	178.0	63.0	6.0	0.7	0.9	1.7	4.7	6.0
20	6.0	9.7	37.0	131.0	162.0	49.0	4.9	0.6	0.5	1.6	4.0	6.0
25	6.0	8.5	29.0	121.0	150.0	40.0	4.1	0.6	0.5	1.4	4.0	4.7
30	5.0	7.3	25.0	115.0	138.0	34.0	3.4	0.5	0.4	1.3	3.0	4.3
35	4.1	6.6	22.0	106.0	124.0	30.0	3.1	0.5	0.3	1.2	1.9	4.0
40	4.0	6.5	20.0	98.0	115.0	25.0	2.9	0.4	0.3	1.1	1.6	4.0
45	4.0	6.0	18.0	88.0	109.0	22.0	2.6	0.4	0.2	1.0	1.4	3.3
50	4.0	5.0	15.0	78.0	100.0	20.0	2.3	0.4	0.2	0.9	1.3	2.7
55	3.0	5.0	14.0	70.0	94.0	17.0	2.1	0.3	0.2	0.8	1.2	2.2
60	2.9	4.0	12.0	63.0	85.0	15.0	1.9	0.3	0.2	0.8	1.1	1.5
65	2.0	4.0	9.4	56.0	78.0	13.0	1.7	0.3	0.2	0.6	1.0	1.3
70	2.0	3.3	8.0	49.0	65.0	12.0	1.5	0.2	0.2	0.5	0.9	1.2
75	1.8	3.0	8.0	45.0	59.0	10.0	1.3	0.2	0.2	0.5	0.8	1.1
80	1.4	3.0	6.7	45.0	54.0	8.6	1.1	0.2	0.2	0.3	0.7	0.9
85	1.0	2.5	5.0	42.0	48.0	7.5	0.9	0.2	0.2	0.2	0.4	0.9
90	1.0	2.0	3.0	36.0	42.0	6.2	0.8	0.2	0.1	0.2	0.3	0.7
95	0.9	1.3	3.0	27.0	41.0	5.1	0.6	0.1	0.1	0.2	0.3	0.7
99	0.5	1.3	2.0	14.0	31.0	3.6	0.3	0.1	0.1	0.1	0.2	0.6
Minimum	0.5	1.0	2.0	13.0	28.0	3.2	0.3	0.1	0.1	0.1	0.2	0.6
Average	3.8	6.8	22.8	87.4	113.9	37.4	3.6	0.5	0.8	1.1	2.9	3.7
# Days	372	339	372	360	372	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx E-23F. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	8.5	22.0	95.0	201.0	271.0	231.0	25.0	2.4	39.0	52.0	19.0	9.7
1	8.2	16.0	85.0	189.0	231.0	163.0	17.0	1.8	3.9	17.0	11.0	8.7
5	6.1	11.0	59.0	151.0	166.0	71.0	9.0	1.2	1.7	6.6	5.8	6.6
10	4.8	7.5	43.0	128.0	145.0	50.0	6.5	0.9	0.5	2.7	2.9	3.1
15	4.0	7.5	36.0	115.0	129.0	40.0	4.6	0.7	0.4	1.6	2.1	2.4
20	3.7	6.4	28.0	105.0	114.0	28.0	3.6	0.6	0.3	1.4	1.7	2.4
25	2.0	4.2	23.0	99.0	100.0	25.0	3.1	0.5	0.3	1.2	1.4	1.5
30	1.7	3.3	20.0	92.0	91.0	21.0	2.7	0.4	0.2	0.9	1.3	1.3
35	1.6	3.0	15.0	84.0	83.0	19.0	2.4	0.4	0.2	0.6	1.2	1.2
40	1.4	2.8	13.0	75.0	75.0	16.0	2.1	0.3	0.2	0.5	1.1	1.1
45	1.1	2.2	12.0	69.0	70.0	14.0	1.9	0.3	0.2	0.3	0.9	0.9
50	1.0	1.9	10.0	63.0	65.0	13.0	1.6	0.3	0.2	0.2	0.7	0.8
55	0.8	1.6	8.5	58.0	59.0	11.0	1.4	0.3	0.2	0.2	0.6	0.8
60	0.8	1.1	8.2	54.0	56.0	10.0	1.3	0.2	0.2	0.2	0.6	0.6
65	0.6	1.0	8.0	48.0	51.0	9.5	1.1	0.2	0.1	0.2	0.5	0.5
70	0.5	1.0	8.0	44.0	45.0	8.3	1.0	0.2	0.1	0.2	0.5	0.5
75	0.5	0.8	7.9	38.0	40.0	7.6	0.9	0.2	0.1	0.2	0.3	0.4
80	0.5	0.8	6.2	33.0	34.0	6.9	0.7	0.2	0.1	0.2	0.3	0.3
85	0.3	0.6	5.5	26.0	28.0	6.2	0.6	0.2	0.1	0.2	0.3	0.3
90	0.2	0.5	4.7	22.0	23.0	5.2	0.5	0.1	0.1	0.2	0.2	0.3
95	0.2	0.4	2.5	19.0	18.0	4.0	0.4	0.1	0.1	0.1	0.2	0.1
99	0.2	0.4	0.5	7.7	14.0	2.7	0.2	0.1	0.1	0.1	0.1	0.1
Minimum	0.2	0.4	0.5	4.4	14.0	2.3	0.2	0.1	0.1	0.1	0.1	0.1
Average	1.8	3.3	18.1	71.4	75.6	22.6	2.7	0.4	0.5	1.5	1.4	1.5
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx E-24A. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
(12/1/1982 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2200.0	472.0	518.0	787.0	1650.0	847.0	406.0	41.0	20.0	362.0	230.0	450.0
1	150.0	150.0	170.0	363.0	725.0	758.0	388.0	32.0	8.4	53.0	71.0	82.0
5	49.0	47.0	121.0	257.0	469.0	642.0	188.0	19.0	5.1	8.5	35.0	33.0
10	34.0	34.0	92.0	190.0	363.0	490.0	89.0	8.9	3.2	5.7	20.0	27.0
15	29.0	30.0	75.0	173.0	320.0	305.0	46.0	5.1	1.7	3.5	6.0	17.0
20	18.0	27.0	62.0	155.0	271.0	163.0	16.0	2.5	1.2	2.5	4.7	8.7
25	13.0	25.0	52.0	144.0	236.0	109.0	11.0	1.7	0.8	2.0	3.1	7.1
30	9.4	23.0	44.0	135.0	208.0	75.0	8.4	1.5	0.6	1.6	2.6	5.2
35	8.2	19.0	36.0	126.0	188.0	52.0	7.0	1.2	0.6	1.3	2.1	4.2
40	7.0	13.0	33.0	119.0	172.0	40.0	6.1	0.9	0.5	1.0	1.7	3.3
45	5.9	11.0	29.0	110.0	156.0	32.0	5.1	0.8	0.4	0.8	1.6	2.8
50	4.7	9.0	25.0	104.0	142.0	27.0	4.4	0.7	0.4	0.7	1.4	1.6
55	3.4	7.3	23.0	98.0	131.0	24.0	3.7	0.5	0.3	0.5	1.2	1.4
60	2.5	6.3	21.0	90.0	116.0	20.0	3.2	0.5	0.3	0.4	1.1	1.3
65	1.9	3.7	19.0	79.0	106.0	17.0	2.8	0.4	0.2	0.3	1.0	1.2
70	1.7	3.0	16.0	70.0	93.0	15.0	2.4	0.3	0.2	0.3	0.9	1.1
75	1.5	2.4	13.0	62.0	82.0	13.0	2.0	0.3	0.2	0.2	0.9	0.9
80	1.3	2.0	12.0	51.0	71.0	11.0	1.7	0.3	0.2	0.2	0.8	0.9
85	1.0	1.8	10.0	45.0	61.0	9.1	1.3	0.2	0.1	0.2	0.7	0.8
90	0.9	1.5	8.2	35.0	50.0	7.7	1.1	0.2	0.1	0.2	0.5	0.6
95	0.5	1.0	4.0	27.0	39.0	6.4	0.7	0.2	0.1	0.1	0.3	0.5
99	0.5	0.6	1.7	19.0	25.0	4.9	0.5	0.1	0.1	0.1	0.2	0.3
Minimum	0.5	0.5	1.6	15.0	20.0	3.7	0.4	0.1	0.1	0.1	0.1	0.3
Average	18.2	17.5	39.9	113.9	184.0	123.7	30.8	3.1	1.1	3.4	6.5	8.7
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx E-24B. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2200.0	472.0	518.0	787.0	1650.0	847.0	406.0	41.0	20.0	362.0	230.0	174.0
1	500.0	264.0	202.0	398.0	817.0	809.0	397.0	37.0	10.0	123.0	71.0	82.0
5	70.0	111.0	167.0	344.0	624.0	727.0	358.0	27.0	7.3	16.0	39.0	38.0
10	51.0	55.0	132.0	277.0	533.0	656.0	282.0	23.0	6.1	9.4	34.0	32.0
15	44.0	47.0	117.0	247.0	446.0	631.0	186.0	19.0	5.0	7.3	30.0	28.0
20	34.0	39.0	104.0	194.0	413.0	568.0	150.0	14.0	4.4	4.8	17.0	27.0
25	31.0	35.0	88.0	175.0	374.0	532.0	108.0	11.0	3.6	2.6	7.9	23.0
30	29.0	29.0	77.0	153.0	347.0	480.0	86.0	8.5	2.9	2.1	5.8	13.0
35	27.0	27.0	70.0	144.0	334.0	443.0	67.0	6.5	2.3	1.3	3.0	9.3
40	19.0	27.0	63.0	131.0	317.0	355.0	55.0	5.7	1.7	1.1	2.1	8.2
45	17.0	26.0	55.0	119.0	290.0	295.0	37.0	4.7	1.5	1.0	1.7	8.0
50	15.0	25.0	44.0	112.0	262.0	249.0	23.0	3.8	1.2	0.9	1.6	6.8
55	12.0	24.0	37.0	105.0	242.0	167.0	15.0	2.7	0.9	0.8	1.3	4.9
60	9.7	24.0	36.0	100.0	228.0	140.0	12.0	1.9	0.8	0.7	1.2	4.0
65	8.9	21.0	34.0	88.0	208.0	111.0	9.5	1.6	0.7	0.5	1.1	2.6
70	8.5	11.0	31.0	75.0	185.0	76.0	7.6	1.4	0.6	0.4	1.0	1.5
75	7.5	9.3	29.0	63.0	163.0	55.0	6.5	1.1	0.5	0.4	0.9	1.4
80	5.8	8.9	25.0	47.0	148.0	40.0	5.2	0.9	0.5	0.3	0.9	1.4
85	2.6	7.3	19.0	40.0	131.0	30.0	4.6	0.7	0.4	0.3	0.9	1.2
90	2.0	1.9	11.0	33.0	96.0	25.0	3.7	0.6	0.4	0.3	0.8	1.1
95	1.5	1.8	2.6	26.0	80.0	15.0	2.8	0.5	0.4	0.2	0.5	0.9
99	1.5	1.5	1.6	24.0	47.0	8.1	2.0	0.4	0.3	0.2	0.4	0.6
Minimum	1.5	1.5	1.6	24.0	46.0	7.8	1.8	0.4	0.3	0.2	0.4	0.6
Average	41.0	33.2	63.8	135.8	297.9	301.7	80.8	7.6	2.4	7.2	10.2	12.9
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-24C. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	60.0	35.0	109.0	287.0	469.0	125.0	13.0	4.7	1.6	18.0	144.0	450.0
5	51.0	33.0	97.0	252.0	328.0	101.0	11.0	2.2	0.8	8.4	70.0	75.0
10	41.0	33.0	79.0	178.0	281.0	86.0	9.5	1.9	0.7	6.9	42.0	33.0
15	35.0	32.0	58.0	171.0	245.0	82.0	8.9	1.7	0.6	5.9	35.0	30.0
20	32.0	32.0	52.0	160.0	233.0	69.0	8.5	1.7	0.6	5.7	17.0	28.0
25	29.0	32.0	49.0	150.0	207.0	63.0	8.0	1.6	0.6	4.4	6.7	26.0
30	28.0	31.0	45.0	144.0	203.0	51.0	7.4	1.4	0.6	4.2	5.7	24.0
35	14.0	29.0	42.0	140.0	202.0	48.0	7.0	1.3	0.6	3.7	5.3	13.0
40	14.0	29.0	37.0	127.0	193.0	40.0	6.4	1.1	0.5	3.3	4.9	9.1
45	12.0	26.0	34.0	121.0	182.0	37.0	6.0	1.0	0.5	2.9	4.7	8.0
50	11.0	23.0	32.0	111.0	175.0	30.0	5.6	1.0	0.5	2.1	4.0	7.0
55	7.3	22.0	28.0	105.0	170.0	27.0	5.1	0.8	0.4	2.1	3.6	5.9
60	6.0	20.0	25.0	101.0	158.0	24.0	4.4	0.7	0.4	2.0	2.9	5.1
65	5.5	18.0	21.0	95.0	153.0	23.0	4.2	0.7	0.4	1.8	2.4	3.5
70	5.0	14.0	20.0	88.0	137.0	20.0	3.9	0.6	0.3	0.4	1.2	0.7
75	4.4	13.0	19.0	77.0	131.0	17.0	3.3	0.6	0.3	0.3	0.8	0.6
80	1.0	12.0	17.0	70.0	119.0	16.0	2.8	0.5	0.3	0.3	0.7	0.5
85	0.5	7.5	16.0	39.0	114.0	15.0	2.5	0.4	0.3	0.3	0.7	0.5
90	0.5	6.2	13.0	30.0	102.0	13.0	2.0	0.3	0.2	0.3	0.6	0.5
95	0.5	5.6	12.0	26.0	79.0	11.0	1.4	0.3	0.2	0.3	0.3	0.5
Minimum	0.5	4.7	11.0	26.0	57.0	9.1	1.2	0.3	0.2	0.3	0.3	0.5
Average	16.5	22.2	37.8	118.4	183.9	42.4	5.8	1.1	0.5	3.2	13.9	21.6
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-24D. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	12.0	26.0	118.0	229.0	333.0	104.0	9.4	0.9	1.5	2.9	27.0	10.0
5	9.0	20.0	79.0	194.0	320.0	72.0	6.1	0.7	0.9	2.2	5.1	5.5
10	8.0	18.0	59.0	185.0	259.0	45.0	4.9	0.5	0.6	2.0	3.9	5.4
15	7.0	12.0	27.0	163.0	228.0	37.0	4.2	0.4	0.6	1.8	3.1	4.8
20	6.8	11.0	26.0	154.0	196.0	33.0	3.6	0.4	0.5	1.6	3.0	4.5
25	6.6	10.0	24.0	142.0	179.0	29.0	3.2	0.4	0.4	1.2	2.9	4.2
30	6.4	9.5	23.0	137.0	168.0	25.0	2.9	0.4	0.2	0.9	2.5	4.0
35	5.0	7.8	22.0	129.0	159.0	23.0	2.7	0.3	0.2	0.8	2.2	3.7
40	4.4	7.0	22.0	123.0	152.0	19.0	2.5	0.3	0.2	0.7	1.6	3.4
45	4.1	6.6	21.0	120.0	145.0	17.0	2.3	0.3	0.2	0.6	1.3	3.3
50	4.0	6.6	20.0	116.0	138.0	16.0	2.1	0.3	0.2	0.6	1.2	3.2
55	3.8	6.6	19.0	106.0	132.0	14.0	1.9	0.2	0.2	0.5	1.1	3.1
60	3.0	6.6	18.0	103.0	122.0	12.0	1.8	0.2	0.2	0.2	1.0	2.8
65	2.9	6.0	16.0	90.0	116.0	11.0	1.6	0.2	0.2	0.2	0.9	2.5
70	2.8	4.5	16.0	82.0	112.0	9.7	1.5	0.2	0.2	0.2	0.9	0.9
75	2.0	4.0	14.0	65.0	106.0	8.5	1.3	0.2	0.2	0.2	0.8	0.9
80	1.2	3.0	10.0	54.0	95.0	7.7	1.1	0.2	0.2	0.2	0.8	0.9
85	1.0	2.0	4.0	45.0	85.0	6.9	0.9	0.2	0.1	0.2	0.7	0.8
90	0.9	2.0	3.0	41.0	65.0	6.0	0.8	0.2	0.1	0.2	0.6	0.8
95	0.7	1.8	2.0	32.0	51.0	5.3	0.7	0.2	0.1	0.2	0.4	0.6
Minimum	0.6	1.0	2.0	28.0	39.0	4.4	0.5	0.2	0.1	0.1	0.4	0.6
Average	4.2	8.0	24.7	110.4	150.8	22.5	2.6	0.3	0.3	0.8	2.3	3.0
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-24E. Pitman Creek below Tamarack Creek (Gage 11237500)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	8.5	22.0	95.0	201.0	271.0	193.0	25.0	2.4	4.8	10.0	7.1	8.7
1	8.2	22.0	82.0	197.0	233.0	180.0	22.0	2.0	3.5	9.4	5.3	6.2
5	7.3	13.0	67.0	173.0	185.0	109.0	13.0	1.5	0.9	3.4	3.4	3.2
10	6.0	11.0	57.0	152.0	144.0	40.0	7.7	1.2	0.5	1.9	2.5	2.8
15	3.4	9.1	46.0	140.0	133.0	30.0	6.6	0.9	0.4	1.6	2.3	1.7
20	2.5	6.3	35.0	130.0	121.0	27.0	5.5	0.7	0.3	1.5	1.9	1.5
25	2.0	3.6	29.0	125.0	110.0	24.0	4.3	0.6	0.3	1.4	1.7	1.4
30	1.9	3.2	26.0	114.0	98.0	22.0	3.5	0.5	0.2	0.9	1.6	1.4
35	1.7	3.1	23.0	108.0	91.0	19.0	3.1	0.4	0.2	0.7	1.4	1.3
40	1.7	2.8	20.0	101.0	83.0	17.0	2.8	0.4	0.2	0.6	1.4	1.3
45	1.6	2.6	18.0	93.0	77.0	15.0	2.5	0.3	0.2	0.4	1.3	1.2
50	1.5	2.2	15.0	90.0	72.0	14.0	2.3	0.3	0.2	0.3	1.2	1.2
55	1.4	2.1	13.0	78.0	68.0	12.0	1.9	0.3	0.2	0.2	1.2	1.1
60	1.3	2.0	12.0	74.0	62.0	11.0	1.7	0.3	0.2	0.2	1.0	1.0
65	1.2	1.8	12.0	67.0	59.0	10.0	1.5	0.3	0.1	0.2	0.9	0.9
70	1.1	1.6	11.0	61.0	54.0	9.1	1.3	0.2	0.1	0.2	0.8	0.9
75	1.0	1.4	9.6	55.0	49.0	8.2	1.3	0.2	0.1	0.2	0.7	0.8
80	1.0	1.2	8.6	49.0	43.0	7.6	1.0	0.2	0.1	0.2	0.5	0.8
85	0.8	1.0	8.3	45.0	39.0	7.1	0.9	0.2	0.1	0.1	0.3	0.7
90	0.6	0.9	8.0	38.0	33.0	6.4	0.7	0.1	0.1	0.1	0.2	0.4
95	0.5	0.7	6.0	25.0	28.0	5.9	0.6	0.1	0.1	0.1	0.2	0.4
99	0.5	0.5	1.8	17.0	22.0	4.0	0.4	0.1	0.1	0.1	0.1	0.3
Minimum	0.5	0.5	1.6	15.0	20.0	3.7	0.4	0.1	0.1	0.1	0.1	0.3
Average	2.2	4.0	23.4	91.8	84.5	24.0	3.6	0.5	0.3	0.9	1.4	1.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-25A. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
(10/1/1974 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	241.0	418.0	100.0	807.0	762.0	746.0	384.0	18.0	5.1	12.0	56.0	205.0
1	16.0	19.0	63.0	224.0	399.0	594.0	283.0	5.9	3.3	4.0	7.9	5.5
5	3.8	4.6	19.0	92.0	202.0	296.0	44.0	2.6	2.1	2.1	2.3	2.9
10	3.2	3.8	8.4	47.0	95.0	29.0	4.2	1.7	1.7	1.7	1.9	2.1
15	2.1	3.2	4.6	4.5	10.0	4.4	2.4	1.6	1.5	1.4	1.6	1.7
20	1.9	2.8	3.4	3.5	5.0	2.9	2.0	1.4	1.2	1.2	1.5	1.5
25	1.8	2.2	2.7	2.6	3.1	2.4	1.7	1.2	0.9	1.1	1.4	1.4
30	1.6	1.9	2.1	2.4	2.6	2.3	1.7	0.9	0.9	0.9	1.3	1.2
35	1.5	1.8	2.0	2.2	2.4	1.9	1.5	0.9	0.7	0.9	1.2	1.2
40	1.3	1.7	2.0	2.1	2.2	1.7	1.3	0.8	0.6	0.8	1.0	1.1
45	1.2	1.5	1.8	2.0	2.0	1.4	1.2	0.7	0.6	0.7	1.0	1.0
50	1.1	1.2	1.6	1.7	1.8	1.3	1.1	0.6	0.5	0.7	0.9	1.0
55	1.1	1.1	1.3	1.6	1.6	1.2	1.0	0.5	0.4	0.6	0.9	0.9
60	1.0	1.0	1.2	1.5	1.5	1.2	0.9	0.5	0.3	0.6	0.8	0.8
65	0.9	0.9	1.0	1.2	1.3	1.0	0.9	0.4	0.3	0.5	0.7	0.7
70	0.6	0.8	0.9	0.9	1.2	0.9	0.8	0.4	0.2	0.3	0.6	0.6
75	0.5	0.4	0.5	0.7	1.1	0.8	0.8	0.3	0.2	0.3	0.6	0.5
80	0.4	0.2	0.1	0.4	1.0	0.7	0.7	0.3	0.2	0.2	0.5	0.4
85	0.3	0.1	0.1	0.2	0.6	0.6	0.6	0.2	0.2	0.2	0.4	0.3
90	0.1	0.1	0.1	0.1	0.3	0.3	0.6	0.2	0.1	0.2	0.3	0.1
95	0.1	0.1	0.1	0.1	0.2	0.1	0.4	0.2	0.1	0.2	0.1	0.1
99	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
Minimum	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0
Average	2.0	2.9	4.1	14.7	25.7	31.9	10.4	0.9	0.7	0.8	1.2	1.4
# Days	806	724	789	825	868	840	868	868	840	868	826	811
# Years	26	26	27	28	28	28	28	28	28	28	28	27

Table CAWG 6 Appdx E-25B. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Wet Water Years (1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	241.0	418.0	63.0	807.0	762.0	746.0	384.0	18.0	5.1	4.5	5.3	3.7
1	18.0	136.0	56.0	296.0	463.0	625.0	325.0	12.0	4.1	1.9	2.4	2.6
5	2.0	2.4	3.0	190.0	290.0	486.0	221.0	4.6	2.9	1.4	1.9	1.8
10	1.8	2.0	2.5	104.0	214.0	390.0	60.0	3.2	2.2	1.1	1.7	1.6
15	1.5	1.9	2.1	82.0	186.0	185.0	29.0	2.0	1.9	0.9	1.5	1.5
20	1.5	1.7	2.0	64.0	134.0	98.0	11.0	1.7	1.7	0.9	1.5	1.5
25	1.4	1.5	2.0	28.0	95.0	34.0	4.2	1.7	1.5	0.8	1.5	1.5
30	1.2	1.2	1.9	3.5	30.0	17.0	2.6	1.7	1.5	0.7	1.3	1.3
35	1.2	1.2	1.6	2.6	9.6	6.1	2.4	1.7	1.4	0.7	1.2	1.2
40	1.2	1.1	1.2	2.4	5.2	3.4	2.1	1.5	1.2	0.7	1.0	1.2
45	1.2	1.0	1.0	2.0	4.6	2.9	1.9	1.5	1.2	0.6	0.9	1.1
50	1.1	0.8	0.8	2.0	3.5	2.4	1.7	1.4	1.0	0.6	0.9	1.0
55	1.0	0.2	0.4	1.7	2.6	2.1	1.7	1.3	0.9	0.6	0.8	1.0
60	0.9	0.1	0.1	1.2	2.4	1.7	1.7	1.3	0.9	0.6	0.8	0.9
65	0.1	0.1	0.1	0.4	1.9	1.5	1.5	1.0	0.8	0.5	0.7	0.7
70	0.1	0.1	0.1	0.2	1.6	1.2	1.4	0.8	0.7	0.4	0.6	0.2
75	0.1	0.1	0.1	0.2	1.0	0.9	1.3	0.7	0.7	0.4	0.6	0.1
80	0.1	0.1	0.1	0.2	0.4	0.6	0.8	0.6	0.6	0.3	0.4	0.1
85	0.1	0.1	0.1	0.1	0.3	0.3	0.7	0.5	0.5	0.3	0.2	0.1
90	0.1	0.1	0.1	0.1	0.2	0.2	0.5	0.4	0.4	0.2	0.1	0.1
95	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.4	0.4	0.2	0.1	0.1
99	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.2	0.3	0.1	0.1	0.0
Minimum	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.0
Average	2.1	3.8	2.3	33.3	61.3	79.2	24.9	1.7	1.2	0.7	1.0	0.9
# Days	279	253	286	315	341	330	341	341	330	341	316	284
# Years	9	9	10	11	11	11	11	11	11	11	11	10

Table CAWG 6 Appdx E-25C. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Above Normal Water Years (1979, 1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	40.0	16.0	3.1	6.6	120.0	2.3	1.3	1.2	1.0	3.6	56.0	205.0
1	37.0	3.2	2.9	3.7	63.0	2.1	1.3	1.2	0.9	2.9	48.0	37.0
5	16.0	3.1	2.5	1.8	24.0	1.6	1.2	1.0	0.9	1.8	6.1	3.7
10	9.0	2.9	2.2	1.7	3.1	1.5	1.1	0.9	0.9	1.7	2.3	1.2
15	3.7	2.6	2.0	1.6	2.0	1.3	1.1	0.9	0.9	1.5	1.8	1.2
20	2.3	1.7	1.8	1.6	1.9	1.2	1.1	0.9	0.8	1.5	1.5	1.2
25	2.1	1.7	1.5	1.4	1.7	1.2	1.0	0.9	0.8	1.4	1.3	1.2
30	1.9	1.6	1.3	1.1	1.6	1.1	0.9	0.9	0.8	1.3	1.0	1.2
35	1.7	1.5	1.3	1.1	1.6	1.0	0.9	0.8	0.7	1.2	0.9	0.7
40	1.2	1.5	1.0	1.0	1.5	1.0	0.9	0.8	0.6	0.9	0.9	0.7
45	1.2	1.5	0.9	0.9	1.2	1.0	0.9	0.8	0.6	0.9	0.9	0.7
50	0.8	1.5	0.9	0.9	1.2	0.9	0.9	0.7	0.5	0.9	0.8	0.6
55	0.8	0.9	0.9	0.4	1.1	0.4	0.9	0.7	0.5	0.7	0.8	0.6
60	0.8	0.9	0.8	0.4	0.8	0.4	0.8	0.6	0.5	0.7	0.7	0.6
65	0.6	0.8	0.8	0.3	0.6	0.3	0.8	0.6	0.4	0.6	0.6	0.5
70	0.6	0.8	0.8	0.3	0.4	0.2	0.8	0.6	0.4	0.5	0.6	0.4
75	0.6	0.3	0.4	0.3	0.3	0.2	0.8	0.6	0.3	0.4	0.6	0.3
80	0.4	0.2	0.2	0.2	0.3	0.1	0.7	0.6	0.3	0.3	0.4	0.3
85	0.3	0.1	0.1	0.2	0.2	0.1	0.7	0.5	0.3	0.3	0.4	0.2
90	0.3	0.1	0.1	0.1	0.2	0.1	0.3	0.3	0.2	0.3	0.3	0.1
95	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.3	0.3	0.1
99	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.1
Minimum	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.1	0.1
Average	3.2	1.4	1.0	0.9	4.0	0.7	0.8	0.7	0.6	0.9	2.2	3.0
# Days	124	114	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-25D. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Dry Water Years (1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.4	26.0	100.0	106.0	9.4	6.3	9.1	1.0	1.0	2.6	7.9	3.2
1	3.4	24.0	90.0	95.0	5.7	2.9	2.5	1.0	0.9	2.6	7.0	3.2
5	3.4	18.0	23.0	6.9	3.4	2.6	2.4	0.8	0.6	1.8	2.7	2.9
10	3.4	10.0	20.0	5.1	2.4	2.5	2.1	0.6	0.4	1.6	2.3	2.6
15	3.4	5.3	4.8	4.5	2.2	2.4	1.9	0.5	0.4	1.3	2.1	2.6
20	3.2	4.1	4.3	4.0	2.1	2.4	1.7	0.5	0.4	1.2	1.8	2.3
25	2.3	3.4	3.7	3.5	2.1	1.9	1.5	0.4	0.3	1.2	1.6	2.1
30	2.0	3.4	3.4	3.0	2.0	1.9	1.3	0.4	0.2	1.0	1.3	2.0
35	1.9	3.4	3.4	2.6	1.9	1.8	1.3	0.4	0.2	0.9	1.3	1.7
40	1.9	3.4	3.4	2.4	1.5	1.7	1.3	0.3	0.2	0.9	1.2	1.5
45	1.6	3.4	3.4	2.1	1.3	1.7	1.3	0.3	0.2	0.8	1.2	1.0
50	1.2	2.9	3.1	1.9	1.2	1.7	1.2	0.3	0.2	0.8	1.0	1.0
55	1.0	1.9	2.9	1.8	1.1	1.7	1.2	0.2	0.2	0.7	1.0	0.9
60	0.9	1.7	2.7	1.5	1.1	1.5	1.2	0.2	0.2	0.7	1.0	0.8
65	0.9	1.4	1.8	1.4	1.0	1.4	1.2	0.2	0.2	0.5	0.9	0.8
70	0.8	1.1	1.6	1.3	1.0	1.3	1.2	0.2	0.2	0.2	0.9	0.8
75	0.6	1.0	1.4	1.2	1.0	1.3	1.1	0.2	0.2	0.2	0.8	0.6
80	0.4	0.9	1.3	1.2	1.0	1.2	1.0	0.2	0.2	0.2	0.8	0.4
85	0.4	0.9	1.1	1.0	1.0	1.2	0.9	0.2	0.2	0.2	0.7	0.3
90	0.3	0.6	1.0	0.9	1.0	0.9	0.9	0.2	0.1	0.2	0.6	0.3
95	0.3	0.3	0.9	0.7	0.9	0.4	0.8	0.1	0.1	0.2	0.5	0.3
99	0.3	0.3	0.6	0.3	0.4	0.4	0.5	0.1	0.1	0.1	0.4	0.3
Minimum	0.3	0.3	0.6	0.3	0.4	0.4	0.5	0.1	0.1	0.1	0.4	0.3
Average	1.6	3.9	7.2	5.2	1.7	1.7	1.4	0.3	0.3	0.8	1.4	1.4
# Days	124	112	124	120	124	120	124	124	120	124	120	124
# Years	4	4	4	4	4	4	4	4	4	4	4	4

Table CAWG 6 Appdx E-25E. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Critical Water Years (1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.1	12.0	76.0	76.0	56.0	7.0	2.9	1.7	3.0	12.0	15.0	7.6
1	4.1	11.0	67.0	62.0	7.0	7.0	2.5	1.3	2.7	6.5	6.6	5.5
5	3.8	4.5	23.0	5.3	5.0	3.7	2.1	0.9	1.7	3.2	2.1	4.1
10	3.8	4.1	13.0	4.0	2.9	2.4	1.7	0.9	1.1	2.4	1.9	3.2
15	2.5	3.8	12.0	2.9	2.6	2.4	1.6	0.8	0.5	2.0	1.7	1.8
20	1.9	3.2	8.5	2.6	2.4	2.1	1.3	0.7	0.4	1.7	1.5	1.7
25	1.8	3.0	7.0	2.5	2.4	1.4	1.1	0.6	0.3	1.4	1.3	1.4
30	1.8	2.6	4.9	2.3	2.4	1.3	1.1	0.5	0.3	1.2	1.2	1.3
35	1.7	2.2	4.9	2.3	2.2	1.2	0.9	0.5	0.2	1.2	1.2	1.2
40	1.6	2.0	2.2	2.1	2.1	1.2	0.9	0.4	0.2	0.9	1.1	1.1
45	1.4	1.8	2.1	2.1	1.8	1.2	0.9	0.4	0.2	0.8	1.0	1.0
50	1.2	1.7	2.1	2.0	1.7	1.1	0.9	0.3	0.2	0.7	0.9	1.0
55	1.1	1.7	2.0	1.9	1.6	1.1	0.8	0.3	0.2	0.5	0.8	0.9
60	1.1	1.4	2.0	1.7	1.5	1.0	0.7	0.3	0.2	0.3	0.7	0.9
65	1.1	1.1	1.7	1.6	1.5	0.9	0.7	0.3	0.2	0.2	0.6	0.8
70	1.0	1.1	1.5	1.6	1.4	0.8	0.7	0.2	0.1	0.2	0.6	0.8
75	0.9	1.1	1.4	1.5	1.3	0.8	0.6	0.2	0.1	0.2	0.5	0.6
80	0.6	0.9	1.3	1.4	1.2	0.7	0.6	0.2	0.1	0.2	0.4	0.6
85	0.5	0.7	1.2	0.9	1.2	0.7	0.6	0.2	0.1	0.2	0.3	0.4
90	0.4	0.4	0.0	0.7	1.1	0.7	0.5	0.1	0.1	0.1	0.3	0.4
95	0.4	0.0	0.0	0.6	0.9	0.6	0.4	0.1	0.1	0.1	0.2	0.3
99	0.4	0.0	0.0	0.0	0.7	0.5	0.4	0.1	0.1	0.1	0.1	0.2
Minimum	0.4	0.0	0.0	0.0	0.7	0.5	0.1	0.1	0.1	0.1	0.1	0.2
Average	1.5	2.2	6.2	3.3	2.4	1.5	1.0	0.4	0.4	1.0	1.1	1.3
# Days	279	245	255	270	279	270	279	279	270	279	270	279
# Years	9	9	9	9	9	9	9	9	9	9	9	9

Table CAWG 6 Appdx E-26A. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
(10/1/1982 to 9/30/2002)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	40.0	418.0	100.0	297.0	762.0	746.0	384.0	18.0	5.1	4.5	56.0	205.0
1	16.0	19.0	69.0	225.0	417.0	621.0	300.0	7.9	3.6	2.7	9.5	6.1
5	3.4	9.7	23.0	105.0	221.0	410.0	71.0	3.2	2.5	1.8	2.3	2.6
10	2.5	3.4	13.0	75.0	143.0	137.0	17.0	1.7	1.5	1.5	2.0	1.8
15	2.0	3.1	8.2	23.0	50.0	22.0	2.7	1.5	1.2	1.3	1.7	1.6
20	1.8	2.7	3.4	3.3	5.6	3.8	2.2	1.3	0.9	1.1	1.5	1.4
25	1.8	2.2	2.3	2.5	3.8	2.8	1.8	0.9	0.8	0.9	1.3	1.3
30	1.5	1.8	2.1	2.3	2.5	2.4	1.7	0.9	0.7	0.9	1.2	1.2
35	1.3	1.8	2.0	2.1	2.4	2.1	1.4	0.8	0.6	0.8	1.1	1.1
40	1.2	1.7	2.0	2.0	2.1	1.7	1.3	0.7	0.5	0.7	1.0	1.0
45	1.2	1.2	1.9	1.9	1.9	1.4	1.2	0.6	0.4	0.7	0.9	1.0
50	1.1	1.2	1.6	1.7	1.7	1.3	1.1	0.5	0.4	0.6	0.9	0.9
55	1.1	1.1	1.4	1.6	1.6	1.2	1.0	0.5	0.3	0.5	0.8	0.9
60	1.0	1.0	1.2	1.5	1.5	1.2	0.9	0.4	0.3	0.4	0.8	0.8
65	1.0	1.0	1.0	1.4	1.4	1.1	0.9	0.4	0.2	0.3	0.7	0.7
70	0.9	0.9	0.9	1.2	1.2	1.0	0.9	0.3	0.2	0.3	0.6	0.6
75	0.7	0.8	0.8	1.0	1.2	0.9	0.8	0.3	0.2	0.2	0.6	0.5
80	0.6	0.6	0.2	0.9	1.1	0.8	0.7	0.2	0.2	0.2	0.5	0.4
85	0.4	0.2	0.1	0.6	1.0	0.7	0.6	0.2	0.2	0.2	0.4	0.3
90	0.3	0.1	0.1	0.2	0.8	0.6	0.6	0.2	0.1	0.2	0.3	0.3
95	0.1	0.1	0.0	0.1	0.4	0.4	0.4	0.1	0.1	0.1	0.2	0.1
99	0.1	0.0	0.0	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Minimum	0.1	0.0	0.0	0.0	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Average	1.6	2.9	5.1	17.6	33.7	44.1	14.1	1.0	0.7	0.7	1.3	1.5
# Days	558	498	541	585	620	600	620	620	600	620	586	563
# Years	18	18	19	20	20	20	20	20	20	20	20	19

Table CAWG 6 AppdxE-26B. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.0	418.0	63.0	297.0	762.0	746.0	384.0	18.0	5.1	4.5	2.4	2.9
1	2.0	4.2	59.0	296.0	494.0	628.0	327.0	14.0	4.2	2.9	2.2	2.6
5	2.0	2.0	2.9	217.0	368.0	525.0	275.0	5.1	3.2	1.4	2.0	1.8
10	1.8	1.8	2.1	143.0	253.0	451.0	143.0	4.2	2.6	1.1	1.8	1.7
15	1.5	1.8	2.1	104.0	220.0	403.0	70.0	3.2	2.3	0.9	1.5	1.5
20	1.5	1.7	2.0	86.0	202.0	296.0	44.0	1.9	1.9	0.9	1.5	1.5
25	1.3	1.2	2.0	79.0	167.0	167.0	25.0	1.7	1.5	0.8	1.3	1.3
30	1.2	1.2	2.0	67.0	140.0	106.0	13.0	1.7	1.4	0.8	1.2	1.2
35	1.2	1.2	2.0	52.0	103.0	60.0	6.5	1.7	1.3	0.7	1.1	1.2
40	1.2	1.2	1.6	22.0	52.0	29.0	3.7	1.5	1.1	0.7	1.0	1.2
45	1.2	1.1	1.2	2.8	20.0	19.0	2.6	1.5	1.0	0.6	0.9	1.1
50	1.2	1.1	1.1	2.4	10.0	15.0	2.4	1.4	0.9	0.6	0.9	1.0
55	1.2	1.0	0.9	2.4	5.5	4.6	2.2	1.4	0.9	0.6	0.9	1.0
60	1.1	1.0	0.8	2.0	5.0	3.4	1.8	1.3	0.8	0.6	0.8	1.0
65	1.1	1.0	0.4	2.0	3.9	3.3	1.7	1.0	0.7	0.5	0.8	1.0
70	1.0	0.6	0.1	2.0	2.8	2.8	1.5	0.8	0.6	0.4	0.7	0.9
75	1.0	0.1	0.1	1.2	2.6	2.4	1.5	0.6	0.6	0.4	0.6	0.8
80	0.1	0.1	0.1	0.5	2.4	2.3	1.5	0.5	0.5	0.3	0.6	0.6
85	0.1	0.1	0.1	0.2	1.9	2.1	1.2	0.4	0.4	0.3	0.6	0.1
90	0.1	0.1	0.1	0.1	1.5	1.7	0.6	0.4	0.4	0.3	0.5	0.1
95	0.1	0.1	0.1	0.1	0.2	1.0	0.2	0.3	0.3	0.2	0.1	0.1
99	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.2	0.3	0.2	0.1	0.1
Minimum	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.2	0.1	0.1
Average	1.1	4.0	3.4	46.2	92.2	124.0	38.4	1.9	1.2	0.7	1.0	1.0
# Days	155	140	162	195	217	210	217	217	210	217	196	160
# Years	5	5	6	7	7	7	7	7	7	7	7	6

Table CAWG 6 Appdx E-26C. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	40.0	16.0	3.1	6.6	120.0	2.3	1.3	1.0	1.0	2.2	56.0	205.0
5	16.0	3.1	2.5	1.9	2.3	1.7	1.2	1.0	0.9	1.8	12.0	11.0
10	7.9	3.0	2.4	1.8	2.0	1.6	1.2	0.9	0.9	1.7	3.6	0.7
15	2.6	2.8	2.2	1.7	1.9	1.5	1.1	0.9	0.8	1.6	2.2	0.7
20	2.3	2.6	2.0	1.6	1.8	1.3	1.1	0.9	0.8	1.5	1.8	0.7
25	1.9	1.8	1.8	1.6	1.7	1.2	1.1	0.9	0.8	1.5	1.5	0.7
30	1.7	1.6	1.6	1.5	1.6	1.2	1.1	0.8	0.7	1.4	1.3	0.6
35	0.8	0.9	0.9	1.4	1.6	1.2	1.0	0.8	0.6	1.3	0.9	0.6
40	0.8	0.9	0.9	1.1	1.5	1.1	0.9	0.7	0.5	1.2	0.9	0.6
45	0.8	0.9	0.9	1.1	1.3	1.1	0.9	0.6	0.5	0.9	0.9	0.6
50	0.6	0.9	0.9	1.0	1.2	1.0	0.9	0.6	0.5	0.9	0.9	0.6
55	0.6	0.8	0.8	0.9	1.2	1.0	0.9	0.6	0.4	0.9	0.8	0.4
60	0.6	0.8	0.8	0.9	1.1	1.0	0.9	0.6	0.4	0.9	0.7	0.4
65	0.6	0.8	0.8	0.9	0.8	0.9	0.9	0.6	0.3	0.9	0.6	0.3
70	0.4	0.2	0.2	0.4	0.6	0.6	0.9	0.6	0.3	0.3	0.6	0.3
75	0.3	0.2	0.1	0.2	0.5	0.4	0.9	0.5	0.3	0.3	0.6	0.3
80	0.3	0.1	0.1	0.2	0.4	0.4	0.8	0.5	0.3	0.3	0.6	0.2
85	0.3	0.1	0.1	0.1	0.2	0.3	0.8	0.3	0.2	0.3	0.4	0.2
90	0.3	0.1	0.1	0.1	0.2	0.2	0.8	0.3	0.2	0.3	0.3	0.1
95	0.1	0.1	0.1	0.1	0.1	0.2	0.7	0.3	0.2	0.3	0.1	0.1
Minimum	0.1	0.1	0.1	0.1	0.1	0.2	0.6	0.2	0.2	0.3	0.1	0.1
Average	3.1	1.4	1.0	1.1	3.2	1.0	1.0	0.7	0.5	1.0	2.7	3.6
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-26D. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.4	26.0	100.0	106.0	5.7	2.9	2.5	1.0	1.0	2.6	7.9	3.2
5	3.4	19.0	26.0	20.0	2.7	2.7	2.4	0.8	0.8	1.9	3.2	2.9
10	3.4	11.0	22.0	4.5	2.2	2.5	2.2	0.6	0.5	1.8	2.4	2.6
15	3.4	10.0	19.0	4.0	2.0	2.5	2.0	0.5	0.4	1.6	2.3	2.6
20	3.4	3.7	3.7	3.5	1.5	2.4	1.9	0.4	0.4	1.3	2.1	2.6
25	3.4	3.4	3.4	3.5	1.3	2.4	1.5	0.4	0.4	0.9	2.1	2.3
30	2.6	3.4	3.4	2.9	1.3	2.1	1.3	0.4	0.2	0.9	1.6	2.1
35	1.1	3.4	3.4	2.3	1.2	1.9	1.3	0.3	0.2	0.8	1.5	1.0
40	1.0	3.4	3.4	1.8	1.1	1.7	1.3	0.3	0.2	0.8	1.2	0.9
45	0.9	3.4	3.4	1.6	1.1	1.5	1.2	0.2	0.2	0.7	1.1	0.8
50	0.9	3.4	2.9	1.4	1.1	1.4	1.2	0.2	0.2	0.6	1.0	0.8
55	0.9	1.2	1.7	1.4	1.0	1.4	1.2	0.2	0.2	0.5	0.9	0.8
60	0.8	1.1	1.6	1.3	1.0	1.3	1.2	0.2	0.2	0.2	0.9	0.8
65	0.6	1.0	1.4	1.2	1.0	1.3	1.2	0.2	0.2	0.2	0.8	0.6
70	0.4	0.9	1.3	1.2	1.0	1.2	1.2	0.2	0.2	0.2	0.8	0.5
75	0.4	0.9	1.2	1.2	1.0	1.2	1.0	0.2	0.2	0.2	0.7	0.4
80	0.4	0.9	1.1	1.0	1.0	1.2	1.0	0.2	0.2	0.2	0.7	0.3
85	0.3	0.6	1.1	0.9	1.0	1.2	0.9	0.2	0.1	0.2	0.7	0.3
90	0.3	0.4	1.0	0.8	1.0	0.5	0.9	0.2	0.1	0.2	0.6	0.3
95	0.3	0.3	0.9	0.7	0.9	0.4	0.7	0.1	0.1	0.2	0.4	0.3
Minimum	0.3	0.3	0.6	0.3	0.4	0.4	0.5	0.1	0.1	0.1	0.4	0.3
Average	1.5	4.3	8.4	5.8	1.4	1.6	1.4	0.3	0.3	0.7	1.5	1.2
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx-26E. Pitman Creek near Tamarack Mountain (Gage 11237700)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.8	12.0	76.0	76.0	56.0	2.0	2.9	1.7	2.9	3.6	2.3	2.2
1	3.4	12.0	75.0	62.0	2.9	1.5	1.9	1.1	2.6	3.1	2.2	2.0
5	2.5	7.1	29.0	2.7	2.5	1.4	1.7	0.9	0.7	2.1	1.9	1.8
10	1.9	3.2	16.0	2.3	2.4	1.3	1.3	0.9	0.5	1.5	1.6	1.7
15	1.9	3.1	13.0	2.3	2.3	1.2	1.1	0.8	0.4	1.3	1.4	1.5
20	1.8	2.8	12.0	2.2	2.2	1.2	1.1	0.6	0.3	1.1	1.3	1.4
25	1.8	2.4	9.3	2.1	2.0	1.2	0.9	0.6	0.3	0.8	1.2	1.3
30	1.8	2.2	8.0	2.1	1.8	1.2	0.9	0.5	0.3	0.8	1.0	1.2
35	1.7	2.1	2.1	2.1	1.7	1.2	0.9	0.4	0.2	0.7	1.0	1.1
40	1.5	1.8	2.1	2.0	1.6	1.1	0.9	0.4	0.2	0.5	0.9	1.0
45	1.3	1.8	2.1	1.8	1.5	1.1	0.8	0.4	0.2	0.5	0.8	1.0
50	1.2	1.7	2.0	1.7	1.5	0.9	0.7	0.3	0.2	0.3	0.7	1.0
55	1.1	1.7	2.0	1.6	1.5	0.9	0.7	0.3	0.2	0.2	0.6	1.0
60	1.1	1.1	1.9	1.6	1.4	0.8	0.7	0.3	0.2	0.2	0.6	0.9
65	1.1	1.1	1.6	1.6	1.4	0.8	0.7	0.3	0.2	0.2	0.5	0.9
70	1.1	1.1	1.4	1.5	1.3	0.7	0.6	0.2	0.1	0.2	0.5	0.8
75	1.0	1.1	1.3	1.3	1.2	0.7	0.6	0.2	0.1	0.2	0.4	0.8
80	1.0	0.9	1.2	1.0	1.2	0.7	0.6	0.2	0.1	0.2	0.3	0.7
85	0.8	0.8	0.0	0.8	1.2	0.7	0.6	0.2	0.1	0.1	0.3	0.4
90	0.6	0.6	0.0	0.6	1.0	0.7	0.4	0.1	0.1	0.1	0.3	0.4
95	0.5	0.0	0.0	0.2	0.7	0.6	0.4	0.1	0.1	0.1	0.2	0.3
99	0.5	0.0	0.0	0.0	0.7	0.5	0.4	0.1	0.1	0.1	0.1	0.3
Minimum	0.4	0.0	0.0	0.0	0.7	0.5	0.1	0.1	0.1	0.1	0.1	0.3
Average	1.4	2.1	7.0	3.3	2.1	1.0	0.8	0.4	0.3	0.6	0.8	1.0
# Days	217	188	193	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-27A. Balsam Creek below Balsam Meadow Forebay (Gage 11238270)
Historical Daily Exceedance Flow
(1/24/1989 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.3	1.5	3.2	3.4	1.4	2.1	1.5	1.6	1.7	1.6	2.1	2.2
1	1.3	1.3	3.1	3.3	1.3	1.6	1.5	1.5	1.5	1.4	2.1	2.1
5	1.2	1.3	1.5	3.1	1.3	1.5	1.4	1.5	1.5	1.3	1.2	1.3
10	1.1	1.1	1.3	1.3	1.2	1.4	1.4	1.5	1.4	1.2	1.0	1.2
15	1.1	0.9	1.2	1.2	1.1	1.4	1.4	1.4	1.4	1.2	0.9	0.8
20	0.8	0.9	1.1	1.2	1.0	1.4	1.4	1.4	1.4	1.0	0.8	0.8
25	0.8	0.8	0.9	1.1	0.9	1.3	1.4	1.4	1.4	0.9	0.8	0.8
30	0.8	0.8	0.8	0.9	0.9	1.3	1.3	1.4	1.4	0.9	0.7	0.8
35	0.8	0.8	0.8	0.9	0.8	1.3	1.3	1.3	1.3	0.9	0.7	0.7
40	0.8	0.8	0.8	0.8	0.8	1.3	1.3	1.3	1.3	0.8	0.7	0.7
45	0.7	0.8	0.8	0.8	0.8	1.3	1.3	1.3	1.3	0.8	0.7	0.7
50	0.7	0.7	0.7	0.8	0.8	1.2	1.3	1.3	1.3	0.7	0.7	0.7
55	0.7	0.7	0.7	0.8	0.8	1.2	1.3	1.3	1.3	0.7	0.6	0.7
60	0.7	0.7	0.7	0.7	0.7	1.2	1.3	1.2	1.2	0.7	0.6	0.7
65	0.7	0.7	0.7	0.7	0.7	1.2	1.2	1.2	1.2	0.7	0.6	0.6
70	0.7	0.7	0.7	0.7	0.7	1.2	1.2	1.2	1.2	0.7	0.6	0.6
75	0.6	0.6	0.6	0.7	0.7	1.1	1.2	1.2	1.2	0.6	0.6	0.6
80	0.6	0.6	0.6	0.7	0.7	1.1	1.2	1.2	1.2	0.6	0.6	0.6
85	0.6	0.6	0.6	0.7	0.7	1.1	1.2	1.2	1.2	0.6	0.6	0.6
90	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.2	0.6	0.6	0.6
95	0.6	0.6	0.6	0.6	0.6	1.0	1.1	1.1	1.1	0.6	0.6	0.6
99	0.5	0.5	0.5	0.5	0.5	0.8	1.1	1.1	1.1	0.5	0.5	0.6
Minimum	0.5	0.3	0.5	0.5	0.5	0.8	1.1	1.0	1.0	0.5	0.5	0.6
Average	0.8	0.8	0.9	1.0	0.8	1.2	1.3	1.3	1.3	0.8	0.7	0.8
# Days	411	395	434	419	434	420	434	434	420	403	390	403
# Years	14	14	14	14	14	14	14	14	14	13	13	13

Table CAWG 6 Appdx E-27B. Balsam Creek below Balsam Meadow Forebay (Gage 11238270)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.2	1.1	1.3	1.6	1.4	1.6	1.5	1.6	1.7	1.6	0.8	1.1
1	1.1	1.1	1.3	1.4	1.4	1.6	1.5	1.5	1.6	1.5	0.8	1.1
5	1.1	1.1	1.2	1.2	1.3	1.5	1.5	1.5	1.5	1.4	0.7	1.0
10	1.1	1.1	1.2	1.2	1.3	1.5	1.4	1.5	1.4	1.2	0.7	0.7
15	1.1	1.1	1.2	1.2	1.3	1.5	1.4	1.4	1.4	0.9	0.7	0.7
20	0.8	0.8	1.1	1.2	1.2	1.4	1.4	1.4	1.4	0.7	0.7	0.7
25	0.7	0.7	1.1	1.2	1.2	1.4	1.4	1.4	1.4	0.7	0.6	0.7
30	0.7	0.7	1.1	1.1	1.2	1.4	1.3	1.3	1.4	0.7	0.6	0.7
35	0.7	0.7	0.7	1.1	1.1	1.3	1.3	1.3	1.3	0.7	0.6	0.6
40	0.7	0.7	0.7	0.8	1.1	1.3	1.3	1.3	1.3	0.7	0.6	0.6
45	0.7	0.7	0.7	0.8	1.0	1.3	1.3	1.3	1.3	0.7	0.6	0.6
50	0.7	0.7	0.7	0.7	1.0	1.3	1.3	1.3	1.3	0.7	0.6	0.6
55	0.7	0.6	0.7	0.7	0.9	1.2	1.3	1.3	1.3	0.6	0.6	0.6
60	0.7	0.6	0.6	0.7	0.9	1.2	1.3	1.3	1.3	0.6	0.6	0.6
65	0.6	0.6	0.6	0.7	0.8	1.2	1.2	1.2	1.2	0.6	0.6	0.6
70	0.6	0.6	0.6	0.7	0.8	1.2	1.2	1.2	1.2	0.6	0.6	0.6
75	0.6	0.6	0.6	0.7	0.7	1.1	1.2	1.2	1.2	0.6	0.6	0.6
80	0.6	0.6	0.6	0.6	0.7	1.1	1.2	1.2	1.2	0.6	0.6	0.6
85	0.6	0.6	0.6	0.6	0.6	1.1	1.2	1.2	1.2	0.6	0.6	0.6
90	0.6	0.6	0.6	0.6	0.6	1.0	1.1	1.2	1.2	0.5	0.5	0.6
95	0.5	0.5	0.5	0.5	0.5	1.0	1.1	1.2	1.2	0.5	0.5	0.6
99	0.5	0.5	0.5	0.5	0.5	1.0	1.1	1.0	1.2	0.5	0.5	0.6
Minimum	0.5	0.5	0.5	0.5	0.5	1.0	1.1	1.0	1.2	0.5	0.5	0.6
Average	0.7	0.7	0.8	0.9	0.9	1.3	1.3	1.3	1.3	0.7	0.6	0.7
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-27C. Balsam Creek below Balsam Meadow Forebay (Gage 11238270)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.9	0.8	0.8	0.8	1.2	1.2	1.4	1.4	1.4	1.5	0.9	0.7
5	0.8	0.7	0.8	0.8	1.2	1.2	1.3	1.3	1.4	1.3	0.8	0.7
10	0.8	0.7	0.8	0.7	1.1	1.2	1.3	1.3	1.3	1.2	0.8	0.7
15	0.8	0.7	0.8	0.7	0.9	1.2	1.3	1.3	1.3	1.2	0.7	0.7
20	0.7	0.7	0.8	0.7	0.9	1.2	1.3	1.3	1.3	1.1	0.7	0.7
25	0.7	0.7	0.8	0.7	0.8	1.2	1.3	1.2	1.3	1.1	0.7	0.7
30	0.7	0.7	0.7	0.7	0.8	1.2	1.3	1.2	1.3	1.1	0.7	0.7
35	0.7	0.7	0.7	0.7	0.8	1.2	1.2	1.2	1.3	0.9	0.7	0.7
40	0.7	0.7	0.7	0.7	0.8	1.2	1.2	1.2	1.2	0.9	0.7	0.7
45	0.7	0.7	0.7	0.7	0.8	1.2	1.2	1.2	1.2	0.9	0.7	0.7
50	0.7	0.7	0.7	0.7	0.7	1.2	1.2	1.2	1.2	0.9	0.6	0.7
55	0.6	0.7	0.7	0.7	0.7	1.2	1.2	1.2	1.2	0.9	0.6	0.7
60	0.6	0.7	0.7	0.7	0.7	1.2	1.2	1.2	1.2	0.8	0.6	0.7
65	0.6	0.7	0.7	0.7	0.7	1.1	1.2	1.2	1.2	0.7	0.6	0.6
70	0.6	0.7	0.7	0.6	0.6	1.1	1.2	1.2	1.2	0.7	0.6	0.6
75	0.6	0.7	0.6	0.6	0.6	1.1	1.2	1.2	1.2	0.7	0.6	0.6
80	0.6	0.7	0.6	0.6	0.6	1.1	1.2	1.1	1.2	0.7	0.6	0.6
85	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.2	0.6	0.6	0.6
90	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.2	0.6	0.6	0.6
95	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.2	0.6	0.6	0.6
Minimum	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.2	0.6	0.6	0.6
Average	0.7	0.7	0.7	0.7	0.8	1.2	1.2	1.2	1.2	0.9	0.7	0.7
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-27D. Balsam Creek below Balsam Meadow Forebay (Gage 11238270)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.3	1.5	1.4	1.4	1.2	1.3	1.5	1.3	1.3	1.3	1.3	1.3
5	1.3	1.3	1.3	1.4	0.8	1.2	1.4	1.2	1.2	1.3	1.3	1.3
10	1.3	1.3	1.3	1.4	0.8	1.2	1.4	1.2	1.2	1.2	1.2	1.3
15	1.3	1.3	1.3	1.3	0.8	1.2	1.3	1.2	1.2	1.2	1.2	1.3
20	1.3	1.3	1.3	1.3	0.7	1.2	1.3	1.2	1.2	1.2	1.2	1.2
25	1.3	1.3	1.3	1.3	0.7	1.1	1.2	1.2	1.2	1.2	1.2	1.2
30	1.3	1.3	1.3	1.3	0.7	1.1	1.2	1.2	1.2	1.2	1.2	1.2
35	1.2	1.3	1.2	1.3	0.7	1.1	1.2	1.2	1.2	1.2	1.2	1.2
40	1.2	1.2	1.2	1.3	0.7	1.1	1.2	1.2	1.2	1.2	1.2	1.2
45	1.2	1.2	1.2	1.3	0.7	1.1	1.1	1.2	1.2	1.2	1.2	1.2
50	0.7	0.7	0.7	0.7	0.7	1.1	1.1	1.2	1.2	0.9	0.7	0.8
55	0.7	0.6	0.6	0.7	0.7	1.1	1.1	1.1	1.1	0.7	0.7	0.7
60	0.7	0.6	0.6	0.7	0.7	1.1	1.1	1.1	1.1	0.6	0.7	0.7
65	0.7	0.6	0.6	0.7	0.7	1.1	1.1	1.1	1.1	0.6	0.7	0.7
70	0.6	0.6	0.6	0.7	0.7	1.1	1.1	1.1	1.1	0.6	0.6	0.6
75	0.6	0.6	0.6	0.7	0.6	1.1	1.1	1.1	1.1	0.6	0.6	0.6
80	0.6	0.6	0.6	0.7	0.6	1.1	1.1	1.1	1.1	0.6	0.6	0.6
85	0.6	0.6	0.6	0.7	0.6	1.1	1.1	1.1	1.1	0.6	0.6	0.6
90	0.6	0.6	0.6	0.7	0.6	1.1	1.1	1.1	1.1	0.6	0.6	0.6
95	0.6	0.6	0.6	0.6	0.6	1.1	1.1	1.1	1.1	0.6	0.6	0.6
Minimum	0.6	0.6	0.6	0.6	0.6	1.0	1.1	1.1	1.0	0.6	0.6	0.6
Average	1.0	1.0	1.0	1.0	0.7	1.1	1.2	1.2	1.2	0.9	0.9	0.9
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-27E. Balsam Creek below Balsam Meadow Forebay (Gage 11238270)
Historical Daily Exceedance Flow
Critical Water Years (1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.9	1.2	3.2	3.4	1.3	2.1	1.5	1.5	1.5	1.4	2.1	2.2
1	0.9	0.9	3.2	3.4	1.3	1.7	1.4	1.5	1.5	1.2	2.1	2.2
5	0.8	0.9	3.0	3.3	1.0	1.5	1.4	1.5	1.5	0.9	1.0	2.1
10	0.8	0.9	2.5	3.2	0.9	1.5	1.4	1.5	1.5	0.9	0.9	2.0
15	0.8	0.9	0.9	2.9	0.9	1.4	1.4	1.5	1.5	0.9	0.9	0.8
20	0.8	0.9	0.8	0.9	0.8	1.4	1.4	1.4	1.5	0.9	0.9	0.8
25	0.8	0.8	0.8	0.9	0.8	1.4	1.4	1.4	1.4	0.9	0.9	0.8
30	0.8	0.8	0.8	0.9	0.8	1.4	1.4	1.4	1.4	0.9	0.8	0.8
35	0.8	0.8	0.8	0.9	0.8	1.4	1.4	1.4	1.4	0.9	0.8	0.8
40	0.8	0.8	0.8	0.9	0.8	1.3	1.4	1.4	1.4	0.9	0.8	0.8
45	0.8	0.8	0.8	0.9	0.8	1.3	1.3	1.4	1.4	0.9	0.8	0.8
50	0.8	0.8	0.8	0.8	0.8	1.3	1.3	1.4	1.4	0.8	0.8	0.8
55	0.8	0.8	0.8	0.8	0.8	1.3	1.3	1.4	1.4	0.8	0.8	0.8
60	0.8	0.8	0.8	0.8	0.8	1.3	1.3	1.3	1.3	0.8	0.8	0.8
65	0.8	0.8	0.8	0.8	0.8	1.3	1.3	1.3	1.3	0.8	0.7	0.8
70	0.8	0.8	0.7	0.8	0.7	1.3	1.3	1.3	1.3	0.8	0.7	0.8
75	0.7	0.8	0.7	0.8	0.7	1.2	1.3	1.3	1.3	0.8	0.7	0.7
80	0.7	0.8	0.7	0.8	0.7	1.2	1.3	1.3	1.3	0.7	0.7	0.7
85	0.7	0.7	0.7	0.8	0.7	1.2	1.3	1.3	1.2	0.7	0.7	0.7
90	0.7	0.7	0.7	0.7	0.7	1.2	1.3	1.3	1.2	0.7	0.7	0.7
95	0.7	0.7	0.7	0.7	0.7	1.2	1.3	1.2	1.2	0.7	0.6	0.6
99	0.7	0.3	0.6	0.6	0.7	0.8	1.2	1.1	1.1	0.7	0.6	0.6
Minimum	0.7	0.3	0.6	0.6	0.7	0.8	1.2	1.1	1.1	0.7	0.6	0.6
Average	0.8	0.8	1.1	1.2	0.8	1.3	1.3	1.4	1.4	0.8	0.8	0.9
# Days	132	141	155	149	155	150	155	155	150	124	120	124
# Years	5	5	5	5	5	5	5	5	5	4	4	4

Table CAWG 6 Appdx E-28A. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
(5/10/1923 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3540.0	972.0	1430.0	578.0	1180.0	1080.0	1040.0	495.0	848.0	516.0	800.0	871.0
1	934.0	693.0	1080.0	389.0	1030.0	940.0	638.0	272.0	760.0	279.0	700.0	781.0
5	236.0	226.0	279.0	192.0	377.0	656.0	295.0	91.0	32.0	8.2	317.0	479.0
10	54.0	31.0	60.0	88.0	217.0	308.0	128.0	6.7	6.1	5.5	13.0	50.0
15	8.3	10.0	23.0	38.0	126.0	135.0	79.0	6.1	5.5	4.7	5.4	5.7
20	6.0	7.7	8.7	11.0	74.0	82.0	29.0	5.7	4.3	4.2	4.4	4.4
25	5.7	6.3	6.2	7.9	32.0	39.0	6.7	5.5	4.2	4.1	4.1	3.9
30	5.3	5.7	5.7	6.5	13.0	23.0	6.3	4.5	4.1	3.9	3.9	3.7
35	4.2	4.9	4.9	6.1	7.0	12.0	5.9	4.2	3.9	3.6	3.5	3.4
40	3.9	4.1	4.7	5.6	6.0	6.4	5.4	3.9	3.7	3.5	3.3	2.7
45	3.6	3.0	4.2	5.1	5.6	5.4	4.2	3.8	3.5	3.4	3.2	2.6
50	2.6	2.5	3.8	4.3	5.0	4.4	3.9	3.3	3.0	3.2	3.1	2.2
55	2.4	2.2	3.0	3.9	4.5	3.9	3.5	2.9	2.9	3.0	2.7	1.9
60	2.0	2.1	2.6	3.3	3.3	3.7	3.0	2.6	2.6	2.7	2.5	1.7
65	1.8	1.9	2.2	3.1	3.1	3.3	2.9	2.5	2.5	2.6	2.3	1.7
70	1.7	1.7	2.0	2.8	2.9	3.0	2.5	2.4	2.4	2.5	2.0	1.6
75	1.7	1.7	1.8	2.7	2.8	2.8	2.5	2.3	2.3	2.4	1.6	1.5
80	1.5	1.6	1.6	2.5	2.7	2.7	2.4	1.4	1.0	1.0	1.3	1.1
85	0.8	1.4	1.2	2.3	2.6	2.5	2.2	0.9	0.3	0.4	0.4	0.8
90	0.4	0.7	0.6	2.2	2.3	2.2	0.7	0.4	0.2	0.2	0.2	0.3
95	0.2	0.5	0.4	0.6	0.6	0.4	0.3	0.2	0.2	0.1	0.2	0.2
99	0.1	0.2	0.3	0.3	0.2	0.3	0.2	0.1	0.1	0.1	0.1	0.1
Minimum	0.1	0.2	0.2	0.3	0.2	0.2	0.1	0.1	0.0	0.1	0.1	0.1
Average	48.6	30.6	45.1	28.9	66.7	89.8	45.3	17.0	20.8	8.9	33.8	46.7
# Days	651	594	651	630	673	660	682	682	660	651	630	651
# Years	21	21	21	21	22	22	22	22	22	21	21	21

Table CAWG 6 Appdx E-28B. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3540.0	972.0	1430.0	578.0	1030.0	999.0	886.0	222.0	298.0	9.1	683.0	871.0
1	1560.0	803.0	1350.0	275.0	699.0	991.0	597.0	181.0	268.0	8.2	658.0	782.0
5	870.0	679.0	904.0	95.0	451.0	764.0	340.0	9.6	6.3	5.6	448.0	678.0
10	690.0	93.0	342.0	56.0	329.0	632.0	255.0	6.9	6.1	5.4	330.0	608.0
15	656.0	73.0	220.0	48.0	236.0	523.0	121.0	6.8	6.1	5.3	16.0	393.0
20	170.0	40.0	82.0	32.0	158.0	473.0	65.0	6.4	5.7	5.2	10.0	7.8
25	19.0	26.0	35.0	17.0	113.0	214.0	52.0	6.0	5.5	4.4	5.2	4.2
30	8.3	13.0	35.0	13.0	74.0	150.0	17.0	6.0	4.6	4.2	4.5	4.0
35	6.6	11.0	22.0	11.0	49.0	88.0	16.0	5.9	4.4	4.2	4.3	3.7
40	6.0	8.7	16.0	9.5	33.0	54.0	7.5	5.8	4.3	4.1	4.1	3.6
45	6.0	8.0	10.0	8.2	23.0	36.0	6.7	5.7	4.3	3.9	3.9	3.6
50	5.6	7.0	8.9	7.9	16.0	26.0	6.6	5.7	4.2	3.8	3.6	3.5
55	5.0	6.8	8.5	7.8	11.0	24.0	6.5	5.5	4.2	3.8	3.5	3.3
60	4.4	6.1	7.4	7.4	7.8	23.0	6.4	5.5	4.1	3.6	3.4	3.1
65	4.1	4.6	6.3	7.0	7.4	16.0	6.4	5.4	4.1	3.6	3.2	2.6
70	3.8	3.7	5.3	5.9	7.0	15.0	5.8	5.3	4.0	3.6	3.1	2.5
75	3.6	3.1	4.9	5.5	6.8	12.0	5.7	4.5	3.9	3.5	3.1	2.3
80	3.1	2.7	4.6	5.0	5.7	6.8	5.5	4.3	3.8	3.5	3.0	2.1
85	2.7	2.4	4.1	4.2	5.1	6.6	5.5	4.2	3.6	3.5	2.5	1.3
90	2.5	2.2	3.4	3.3	4.8	6.5	4.2	4.1	3.6	3.5	2.4	1.1
95	2.3	2.1	2.6	3.1	4.5	6.4	4.2	3.7	3.6	3.4	2.1	1.1
99	1.2	2.0	2.1	2.8	4.2	5.4	3.8	3.0	2.8	2.9	2.0	1.0
Minimum	1.2	2.0	2.1	2.8	4.2	5.4	3.8	3.0	2.8	2.9	2.0	1.0
Average	168.8	74.5	124.3	26.5	94.7	180.1	63.4	9.7	9.2	4.2	56.0	113.1
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-28C. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Above Normal Water Years (1923, 1927, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	18.0	348.0	585.0	574.0	506.0	736.0	632.0	120.0	17.0	516.0	800.0	807.0
5	7.5	266.0	392.0	370.0	439.0	402.0	317.0	4.7	4.3	284.0	777.0	778.0
10	6.2	223.0	188.0	264.0	376.0	257.0	250.0	4.6	4.2	23.0	643.0	675.0
15	6.0	18.0	90.0	226.0	324.0	168.0	172.0	4.4	4.2	15.0	391.0	340.0
20	5.9	10.0	62.0	166.0	256.0	79.0	102.0	4.4	4.2	13.0	189.0	6.6
25	5.8	8.5	30.0	134.0	188.0	32.0	62.0	4.2	4.2	4.7	7.2	6.2
30	5.6	8.0	26.0	88.0	133.0	5.4	6.8	4.1	4.1	4.1	6.7	6.1
35	5.4	6.9	6.4	6.5	101.0	5.3	5.7	4.1	4.1	4.1	6.3	4.3
40	4.6	6.1	5.9	6.3	72.0	5.3	5.1	3.9	4.1	4.1	4.2	4.1
45	4.2	5.6	5.3	5.9	37.0	4.2	4.1	3.9	4.1	3.9	4.1	4.0
50	4.1	5.4	5.0	5.4	13.0	3.9	4.1	3.8	1.6	3.9	4.0	3.8
55	3.9	5.2	4.9	5.2	6.0	3.9	3.9	1.6	1.2	3.9	3.9	3.5
60	3.7	5.2	4.9	5.2	5.1	3.8	3.9	1.3	1.0	3.9	3.9	3.3
65	3.7	5.1	4.8	5.1	5.0	3.8	3.9	1.1	1.0	3.8	3.5	3.3
70	0.9	5.0	4.8	4.8	5.0	3.8	3.8	1.0	1.0	0.2	0.8	0.4
75	0.5	4.2	4.7	4.5	4.8	0.8	1.3	1.0	0.5	0.2	0.3	0.2
80	0.4	4.0	4.6	4.3	4.7	0.4	1.2	0.5	0.3	0.1	0.2	0.2
85	0.4	3.9	4.5	4.1	4.1	0.3	1.1	0.3	0.3	0.1	0.1	0.2
90	0.4	1.2	4.4	4.1	3.8	0.3	0.8	0.2	0.2	0.1	0.1	0.2
95	0.2	0.8	4.2	4.1	0.6	0.3	0.5	0.2	0.2	0.1	0.1	0.2
Minimum	0.2	0.3	4.1	4.1	0.4	0.2	0.2	0.2	0.2	0.1	0.1	0.2
Average	3.8	36.5	58.8	80.0	111.9	68.3	63.1	4.2	2.5	31.0	122.2	112.7
# Days	93	85	93	90	115	120	124	124	120	93	90	93
# Years	3	3	3	3	4	4	4	4	4	3	3	3

Table CAWG 6 Appdx E-28D. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Below Normal Water Years (1925, 1928)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	86.0	77.0	246.0	364.0	152.0	1080.0	1040.0	495.0	848.0	1.0	60.0	88.0
5	79.0	69.0	14.0	140.0	132.0	956.0	713.0	306.0	828.0	0.6	27.0	75.0
10	78.0	19.0	6.5	51.0	104.0	885.0	592.0	272.0	760.0	0.6	6.5	72.0
15	68.0	13.0	3.3	22.0	88.0	784.0	360.0	262.0	282.0	0.5	1.4	65.0
20	55.0	2.5	1.0	12.0	76.0	490.0	320.0	260.0	265.0	0.5	0.6	58.0
25	54.0	1.7	0.8	7.0	66.0	149.0	274.0	258.0	255.0	0.4	0.5	56.0
30	50.0	1.4	0.6	4.3	56.0	130.0	223.0	252.0	198.0	0.4	0.4	55.0
35	46.0	1.0	0.5	3.5	38.0	120.0	181.0	248.0	171.0	0.4	0.3	48.0
40	29.0	1.0	0.5	3.3	26.0	90.0	104.0	244.0	168.0	0.4	0.3	28.0
45	12.0	0.8	0.4	3.2	14.0	84.0	82.0	186.0	116.0	0.3	0.3	1.3
50	0.7	0.7	0.4	3.2	2.9	82.0	81.0	91.0	0.5	0.3	0.2	1.0
55	0.4	0.6	0.4	3.2	2.8	80.0	81.0	82.0	0.3	0.3	0.2	0.6
60	0.4	0.6	0.4	3.0	2.7	73.0	81.0	76.0	0.2	0.3	0.2	0.4
65	0.3	0.5	0.4	2.8	2.7	65.0	81.0	1.8	0.2	0.3	0.2	0.3
70	0.3	0.5	0.4	2.7	2.7	46.0	79.0	1.0	0.2	0.2	0.2	0.3
75	0.2	0.5	0.4	2.4	2.7	15.0	75.0	0.9	0.2	0.2	0.2	0.2
80	0.2	0.5	0.4	1.4	2.7	7.5	72.0	0.7	0.2	0.2	0.2	0.2
85	0.2	0.4	0.3	0.9	2.7	4.5	58.0	0.6	0.1	0.2	0.1	0.2
90	0.2	0.4	0.3	0.8	2.6	0.6	1.3	0.5	0.1	0.2	0.1	0.2
95	0.2	0.2	0.3	0.6	2.6	0.6	0.2	0.5	0.1	0.2	0.1	0.1
Minimum	0.1	0.2	0.2	0.5	2.0	0.5	0.1	0.4	0.0	0.2	0.1	0.1
Average	26.1	7.7	8.2	22.9	35.8	239.8	195.7	139.6	186.4	0.4	4.0	26.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-28E. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Dry Water Years (1926, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.3	418.0	396.0	456.0	1180.0	880.0	51.0	4.4	3.7	279.0	132.0	6.3
5	4.4	376.0	298.0	220.0	1090.0	647.0	29.0	3.4	3.3	96.0	4.2	4.0
10	4.1	226.0	224.0	150.0	834.0	363.0	3.5	3.4	3.3	5.1	4.2	3.9
15	4.0	9.5	6.6	136.0	268.0	126.0	3.5	3.4	3.3	4.3	4.1	3.9
20	3.9	4.8	4.9	109.0	160.0	84.0	3.4	3.3	3.3	4.2	4.1	3.9
25	3.9	4.5	4.4	90.0	141.0	45.0	3.4	3.3	3.3	4.2	3.9	3.9
30	3.9	4.2	4.2	31.0	45.0	23.0	3.4	3.3	3.3	4.2	3.9	3.9
35	3.0	4.1	4.1	20.0	4.1	3.5	3.4	3.3	2.8	4.2	3.9	3.8
40	2.4	4.0	3.9	4.8	3.9	3.5	3.2	2.6	2.5	4.1	3.4	2.5
45	2.1	3.9	3.9	4.4	3.4	3.4	3.0	2.6	2.5	2.7	2.7	2.4
50	2.0	2.7	2.1	4.1	3.1	3.3	2.9	2.6	2.5	2.5	2.6	2.2
55	1.9	2.2	1.8	4.1	3.1	3.3	2.9	2.5	2.5	2.5	2.5	2.2
60	1.7	2.2	1.6	3.9	3.1	3.3	2.9	2.5	2.5	2.5	2.5	2.1
65	1.7	2.0	1.5	3.9	3.1	3.0	2.6	2.5	2.4	2.5	2.2	1.9
70	0.3	1.9	1.4	3.8	3.1	3.0	2.5	0.3	0.2	2.4	0.4	0.8
75	0.2	1.7	1.4	2.8	3.0	2.9	0.4	0.2	0.2	2.3	0.3	0.2
80	0.1	1.7	1.0	2.7	2.9	2.9	0.3	0.2	0.2	0.4	0.3	0.2
85	0.1	1.2	0.9	2.2	2.9	2.9	0.2	0.1	0.2	0.2	0.2	0.2
90	0.1	0.6	0.6	2.1	2.9	2.8	0.2	0.1	0.2	0.1	0.2	0.2
95	0.1	0.3	0.5	1.2	2.8	2.8	0.2	0.1	0.1	0.1	0.1	0.1
Minimum	0.1	0.2	0.5	0.5	2.8	0.4	0.1	0.1	0.1	0.1	0.1	0.1
Average	2.2	42.8	37.2	51.6	153.8	88.8	4.3	2.1	2.0	15.9	4.2	2.2
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-28F. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Critical Water Years (1924, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	244	10	8	193	32	166	11	7	8	6	238	6
1	226	8	7	20	7	135	6	7	7	6	123	6
5	124	6	6	6	6	15	6	6	6	6	6	6
10	6	6	6	6	6	6	6	6	6	5	5	5
15	6	3	5	6	6	5	4	4	4	4	4	3
20	5	3	4	6	6	4	4	4	4	3	3	3
25	3	2	3	3	4	4	4	3	3	3	3	3
30	3	2	3	3	3	4	3	3	3	3	3	2
35	2	2	3	3	3	3	3	3	3	3	3	2
40	2	2	3	3	3	3	3	3	3	3	3	2
45	2	2	2	3	3	3	3	3	3	3	3	2
50	2	2	2	3	3	3	3	3	3	3	3	2
55	2	2	2	3	3	3	3	3	3	3	3	2
60	2	2	2	3	3	3	2	3	2	3	2	2
65	2	2	2	2	3	3	2	2	2	3	2	2
70	2	2	2	2	3	3	2	2	2	3	2	2
75	2	2	2	2	2	3	2	2	2	3	2	2
80	2	2	2	2	2	2	2	2	2	2	2	2
85	2	1	2	2	2	2	2	2	2	2	2	2
90	2	1	1	1	0	2	0	1	0	1	1	1
95	1	1	1	0	0	1	0	0	0	1	1	1
99	1	1	0	0	0	0	0	0	0	1	1	1
Minimum	1	1	0	0	0	0	0	0	0	1	1	1
Average	13	2	3	4	3	7	3	3	3	3	5	2
# Days	248	227	248	240	248	240	248	248	240	248	240	248
# Years	8	8	8	8	8	8	8	8	8	8	8	8

Table CAWG 6 Appdx E-29A. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
(10/1/1982 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3540.0	972.0	1430.0	578.0	1030.0	999.0	886.0	222.0	298.0	516.0	800.0	871.0
1	1050.0	697.0	1260.0	193.0	542.0	828.0	495.0	59.0	29.0	284.0	777.0	782.0
5	403.0	69.0	212.0	46.0	224.0	516.0	162.0	6.8	6.3	7.3	411.0	654.0
10	8.5	12.0	35.0	15.0	78.0	106.0	26.0	6.3	6.1	5.7	13.0	6.6
15	6.0	8.4	9.5	9.2	32.0	32.0	6.8	6.0	5.5	5.2	5.6	5.7
20	5.9	7.0	7.2	7.8	12.0	18.0	6.4	5.7	4.3	4.4	5.1	4.7
25	5.6	6.1	5.9	6.4	7.2	7.3	6.1	5.5	4.2	4.2	4.3	4.0
30	5.2	5.9	5.7	6.1	6.2	6.4	5.9	4.7	4.2	4.1	4.1	3.9
35	4.4	5.2	5.0	5.8	5.9	5.5	5.5	4.4	4.1	3.9	3.9	3.6
40	4.0	4.5	4.8	5.4	5.6	5.3	4.6	4.2	4.1	3.9	3.7	3.4
45	3.9	4.0	4.5	4.9	5.0	4.1	4.1	3.9	3.8	3.6	3.4	3.0
50	3.6	3.0	4.2	4.3	4.8	3.9	3.9	3.9	3.6	3.5	3.3	2.6
55	2.6	2.5	3.8	4.1	4.0	3.8	3.8	3.7	3.5	3.5	3.2	2.5
60	2.5	2.3	3.0	3.5	3.2	3.4	3.4	3.3	3.3	3.3	3.1	2.2
65	2.2	2.2	2.8	3.1	3.1	3.3	2.9	2.9	3.0	3.1	3.1	1.9
70	2.0	2.0	2.4	2.9	2.9	3.0	2.9	2.7	2.9	3.0	2.7	1.8
75	1.8	1.9	2.1	2.7	2.8	2.9	2.6	2.6	2.6	2.7	2.5	1.7
80	1.8	1.7	2.0	2.6	2.7	2.7	2.5	2.5	2.5	2.7	2.4	1.7
85	1.7	1.7	1.8	2.5	2.6	2.6	2.5	2.5	2.5	2.6	2.1	1.6
90	1.6	1.7	1.7	2.3	2.5	2.5	2.4	2.4	2.4	2.5	1.9	1.5
95	1.5	1.6	1.6	2.2	2.2	2.3	2.2	2.3	2.3	2.4	1.6	1.4
99	1.4	1.4	1.3	2.0	2.2	2.2	2.1	2.1	2.2	2.3	1.5	1.1
Minimum	1.2	1.4	1.3	2.0	2.1	2.1	2.1	2.1	2.2	2.3	1.3	1.0
Average	54.9	25.6	41.2	11.7	34.0	58.7	26.0	5.4	5.2	9.0	41.8	57.9
# Days	496	452	496	480	496	480	496	496	480	496	480	496
# Years	16	16	16	16	16	16	16	16	16	16	16	16

Table CAWG 6 Appdx E-29B. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3540.0	972.0	1430.0	578.0	1030.0	999.0	886.0	222.0	298.0	9.1	683.0	871.0
1	1560.0	803.0	1350.0	275.0	699.0	991.0	597.0	181.0	268.0	8.2	658.0	782.0
5	870.0	679.0	904.0	95.0	451.0	764.0	340.0	9.6	6.3	5.6	448.0	678.0
10	690.0	93.0	342.0	56.0	329.0	632.0	255.0	6.9	6.1	5.4	330.0	608.0
15	656.0	73.0	220.0	48.0	236.0	523.0	121.0	6.8	6.1	5.3	16.0	393.0
20	170.0	40.0	82.0	32.0	158.0	473.0	65.0	6.4	5.7	5.2	10.0	7.8
25	19.0	26.0	35.0	17.0	113.0	214.0	52.0	6.0	5.5	4.4	5.2	4.2
30	8.3	13.0	35.0	13.0	74.0	150.0	17.0	6.0	4.6	4.2	4.5	4.0
35	6.6	11.0	22.0	11.0	49.0	88.0	16.0	5.9	4.4	4.2	4.3	3.7
40	6.0	8.7	16.0	9.5	33.0	54.0	7.5	5.8	4.3	4.1	4.1	3.6
45	6.0	8.0	10.0	8.2	23.0	36.0	6.7	5.7	4.3	3.9	3.9	3.6
50	5.6	7.0	8.9	7.9	16.0	26.0	6.6	5.7	4.2	3.8	3.6	3.5
55	5.0	6.8	8.5	7.8	11.0	24.0	6.5	5.5	4.2	3.8	3.5	3.3
60	4.4	6.1	7.4	7.4	7.8	23.0	6.4	5.5	4.1	3.6	3.4	3.1
65	4.1	4.6	6.3	7.0	7.4	16.0	6.4	5.4	4.1	3.6	3.2	2.6
70	3.8	3.7	5.3	5.9	7.0	15.0	5.8	5.3	4.0	3.6	3.1	2.5
75	3.6	3.1	4.9	5.5	6.8	12.0	5.7	4.5	3.9	3.5	3.1	2.3
80	3.1	2.7	4.6	5.0	5.7	6.8	5.5	4.3	3.8	3.5	3.0	2.1
85	2.7	2.4	4.1	4.2	5.1	6.6	5.5	4.2	3.6	3.5	2.5	1.3
90	2.5	2.2	3.4	3.3	4.8	6.5	4.2	4.1	3.6	3.5	2.4	1.1
95	2.3	2.1	2.6	3.1	4.5	6.4	4.2	3.7	3.6	3.4	2.1	1.1
99	1.2	2.0	2.1	2.8	4.2	5.4	3.8	3.0	2.8	2.9	2.0	1.0
Minimum	1.2	2.0	2.1	2.8	4.2	5.4	3.8	3.0	2.8	2.9	2.0	1.0
Average	168.8	74.5	124.3	26.5	94.7	180.1	63.4	9.7	9.2	4.2	56.0	113.1
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx E-29C. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	18.0	19.0	8.0	7.9	133.0	32.0	632.0	7.2	17.0	516.0	800.0	807.0
5	7.8	11.0	6.2	6.4	101.0	5.6	125.0	4.8	4.4	284.0	784.0	782.0
10	6.4	8.7	5.9	6.3	72.0	5.4	14.0	4.7	4.3	252.0	700.0	758.0
15	6.2	8.1	5.4	6.0	41.0	5.3	6.4	4.7	4.2	23.0	643.0	675.0
20	6.0	7.4	5.3	5.7	22.0	5.3	6.0	4.5	4.2	16.0	439.0	499.0
25	5.9	6.9	5.0	5.4	11.0	5.3	5.6	4.5	4.2	13.0	317.0	49.0
30	5.9	6.5	5.0	5.3	7.1	5.3	5.3	4.4	4.2	13.0	189.0	6.6
35	5.9	5.9	4.9	5.2	5.3	5.1	5.0	4.4	4.2	4.7	7.2	6.3
40	5.7	5.5	4.9	5.2	5.1	4.2	4.9	4.3	4.2	4.7	6.9	6.2
45	5.6	5.4	4.8	5.2	5.0	3.9	4.1	4.2	4.2	4.1	6.5	6.1
50	5.4	5.3	4.8	4.9	5.0	3.9	4.1	4.2	4.2	4.1	4.4	4.9
55	5.2	5.2	4.8	4.8	5.0	3.9	4.0	4.1	4.1	4.1	4.3	4.2
60	4.6	5.2	4.7	4.8	5.0	3.9	3.9	4.1	4.1	4.1	4.1	4.1
65	4.4	5.1	4.7	4.5	4.8	3.8	3.9	4.1	4.1	4.1	4.1	4.1
70	4.1	5.0	4.6	4.3	4.8	3.8	3.9	3.9	4.1	3.9	4.1	4.0
75	4.1	5.0	4.5	4.2	4.8	3.8	3.9	3.9	4.1	3.9	3.9	3.7
80	3.9	4.5	4.5	4.1	4.7	3.8	3.9	3.9	4.1	3.9	3.9	3.5
85	3.9	4.1	4.4	4.1	4.7	3.8	3.8	3.9	4.1	3.9	3.9	3.4
90	3.7	4.0	4.2	4.1	3.9	3.8	3.8	3.9	4.1	3.9	3.9	3.3
95	3.7	4.0	4.2	4.1	3.8	3.7	3.8	3.9	4.1	3.9	3.5	3.3
Minimum	3.7	3.9	4.1	4.1	3.8	3.6	3.8	3.8	4.1	3.8	3.5	3.3
Average	5.5	6.3	5.0	5.0	19.6	5.0	35.3	4.3	4.4	46.5	180.3	168.9
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-29D. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.3	5.1	15.0	38.0	6.7	4.4	4.2	3.9	3.7	5.1	13.0	6.3
5	4.4	4.9	6.4	26.0	4.0	3.5	3.5	3.4	3.3	4.3	4.2	4.0
10	4.2	4.7	4.9	10.0	3.9	3.5	3.5	3.4	3.3	4.2	4.2	4.0
15	4.1	4.5	4.5	5.0	3.6	3.5	3.4	3.4	3.3	4.2	4.2	3.9
20	4.1	4.3	4.4	4.6	3.3	3.4	3.4	3.4	3.3	4.2	4.1	3.9
25	3.9	4.2	4.2	4.3	3.1	3.4	3.4	3.3	3.3	4.2	4.1	3.9
30	3.9	4.1	4.2	4.1	3.1	3.3	3.4	3.3	3.3	4.2	3.9	3.9
35	3.9	4.0	4.0	4.1	3.1	3.3	3.4	3.3	3.3	4.2	3.9	3.9
40	3.9	4.0	3.9	4.1	3.1	3.3	3.4	3.3	3.3	4.1	3.9	3.9
45	3.9	3.9	3.9	3.9	3.1	3.3	3.4	3.3	3.3	4.1	3.9	3.9
50	3.8	2.7	3.9	3.9	3.1	3.0	3.2	3.3	3.3	3.0	3.9	3.8
55	2.6	2.2	2.1	3.9	3.1	3.0	3.0	2.8	2.6	2.6	3.5	2.9
60	2.3	2.2	1.9	3.8	3.0	3.0	3.0	2.6	2.5	2.5	2.9	2.5
65	2.1	2.1	1.7	3.0	3.0	2.9	2.9	2.6	2.5	2.5	2.7	2.4
70	2.0	2.0	1.6	2.8	2.9	2.9	2.9	2.6	2.5	2.5	2.6	2.3
75	2.0	2.0	1.6	2.7	2.9	2.9	2.9	2.5	2.5	2.5	2.6	2.2
80	1.9	1.8	1.5	2.7	2.9	2.9	2.9	2.5	2.5	2.5	2.5	2.2
85	1.8	1.7	1.4	2.2	2.9	2.9	2.9	2.5	2.5	2.4	2.5	2.1
90	1.7	1.7	1.4	2.1	2.9	2.8	2.5	2.5	2.5	2.4	2.5	2.1
95	1.7	1.7	1.3	2.0	2.8	2.8	2.5	2.5	2.5	2.4	2.2	1.9
Minimum	1.6	1.7	1.3	2.0	2.8	2.8	2.4	2.5	2.4	2.3	2.1	1.9
Average	3.1	3.1	3.3	6.1	3.2	3.2	3.1	3.0	2.9	3.4	3.6	3.2
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-29E. Big Creek near mouth near Big Creek (Gage 11238500)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	21.0	9.7	8.3	193.0	25.0	6.3	11.0	6.8	7.8	6.3	7.3	5.9
1	6.0	8.2	7.3	20.0	6.6	6.2	6.3	6.5	6.6	6.3	5.8	5.8
5	5.7	6.3	5.9	6.3	6.2	5.5	6.1	6.3	6.5	5.9	5.5	5.7
10	5.5	5.9	5.7	6.1	5.9	5.4	6.0	6.1	6.1	5.5	5.3	5.2
15	5.5	5.7	5.7	6.1	5.9	4.2	4.8	4.0	3.9	4.3	3.7	2.8
20	2.7	2.6	3.8	5.9	5.7	4.0	3.9	3.9	3.7	3.4	3.4	2.7
25	2.5	2.5	3.2	5.6	5.5	3.9	3.8	3.8	3.6	3.3	3.3	2.6
30	2.4	2.4	3.0	3.2	3.3	3.4	3.0	3.1	3.0	3.2	3.2	2.3
35	2.1	2.1	2.8	3.1	3.1	3.2	2.9	2.9	3.0	3.1	3.2	1.9
40	1.9	2.1	2.7	3.0	2.9	3.1	2.9	2.9	2.9	3.1	3.2	1.8
45	1.8	2.0	2.5	2.8	2.8	2.9	2.6	2.6	2.9	3.0	3.1	1.8
50	1.8	1.8	2.4	2.7	2.8	2.8	2.5	2.6	2.7	2.9	2.7	1.7
55	1.8	1.8	2.2	2.7	2.7	2.7	2.5	2.5	2.6	2.8	2.6	1.7
60	1.8	1.7	2.1	2.6	2.7	2.7	2.5	2.5	2.5	2.7	2.5	1.7
65	1.7	1.7	2.0	2.5	2.7	2.6	2.5	2.5	2.5	2.7	2.3	1.7
70	1.7	1.7	2.0	2.5	2.6	2.6	2.4	2.5	2.4	2.6	2.1	1.6
75	1.7	1.7	1.9	2.4	2.6	2.5	2.4	2.4	2.4	2.6	1.9	1.6
80	1.6	1.6	1.8	2.3	2.5	2.5	2.4	2.4	2.4	2.5	1.9	1.6
85	1.5	1.6	1.8	2.3	2.4	2.4	2.3	2.3	2.3	2.5	1.6	1.5
90	1.5	1.6	1.7	2.3	2.2	2.2	2.2	2.3	2.3	2.4	1.6	1.5
95	1.5	1.4	1.6	2.2	2.2	2.2	2.2	2.1	2.3	2.4	1.5	1.5
99	1.4	1.4	1.4	2.1	2.1	2.2	2.1	2.1	2.2	2.3	1.3	1.5
Minimum	1.4	1.4	1.4	2.1	2.1	2.1	2.1	2.1	2.2	2.3	1.3	1.4
Average	2.6	2.6	3.0	4.7	3.6	3.3	3.2	3.3	3.3	3.3	3.0	2.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx E-30A. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
(5/12/1986 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	173.1	11.8	13.9	61.9	57.0	61.1	32.0	3.2	1.0	1.3	18.1	13.7
1	27.7	5.1	13.4	23.2	40.0	53.1	30.1	2.5	0.9	0.6	3.8	4.3
5	4.2	3.4	8.9	19.5	30.0	45.0	21.6	1.3	0.5	0.3	1.3	2.1
10	2.9	2.7	6.8	13.9	21.0	37.1	10.5	1.2	0.4	0.2	0.5	1.3
15	1.4	2.4	5.5	11.9	18.6	28.0	7.0	1.1	0.4	0.2	0.4	0.8
20	0.9	2.1	4.6	10.3	16.1	13.0	4.0	0.7	0.3	0.2	0.3	0.7
25	0.8	1.9	3.5	9.4	14.0	6.8	2.5	0.5	0.2	0.1	0.2	0.6
30	0.7	1.7	2.9	8.6	12.0	4.4	1.3	0.4	0.1	0.1	0.1	0.5
35	0.6	1.6	2.7	8.0	8.6	2.5	1.2	0.3	0.1	0.1	0.1	0.4
40	0.6	1.1	2.4	7.3	3.3	1.6	1.2	0.1	0.1	0.1	0.1	0.3
45	0.5	0.9	2.0	6.0	1.5	1.5	1.1	0.1	0.1	0.1	0.1	0.2
50	0.4	0.8	1.9	5.0	1.4	1.4	0.7	0.1	0.0	0.0	0.1	0.1
55	0.3	0.7	1.7	3.7	1.4	1.4	0.6	0.1	0.0	0.0	0.1	0.1
60	0.2	0.6	1.6	2.7	1.3	1.3	0.4	0.1	0.0	0.0	0.1	0.1
65	0.2	0.5	1.3	2.0	1.3	1.3	0.4	0.0	0.0	0.0	0.1	0.1
70	0.1	0.3	1.1	1.7	1.3	1.3	0.3	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.9	0.8	1.3	1.3	0.2	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.9	0.8	1.2	1.2	0.2	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.7	0.7	1.2	1.2	0.2	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.6	0.7	1.1	1.1	0.1	0.0	0.0	0.0	0.1	0.1
95	0.0	0.1	0.2	0.6	1.1	0.8	0.1	0.0	0.0	0.0	0.0	0.0
99	0.0	0.1	0.1	0.5	0.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.1	0.2	0.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Average	1.9	1.2	2.9	6.4	8.0	9.2	3.4	0.4	0.1	0.1	0.3	0.5
# Days	341	311	341	372	492	396	312	310	337	295	300	310
# Years	11	11	11	16	17	16	12	10	12	10	10	10

Table CAWG 6 Appdx E-30B. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	173.1	11.8	13.9	61.9	57.0	61.1	32.0	3.2	1.0	1.3	18.1	13.7
1	70.8	7.9	13.7	27.1	50.0	59.3	31.9	3.0	1.0	0.8	5.6	8.2
5	7.9	4.2	11.9	20.9	38.0	51.6	26.8	1.8	0.6	0.5	2.0	3.0
10	4.3	3.5	9.5	19.4	33.0	50.6	21.3	1.3	0.5	0.3	0.9	2.1
15	3.9	3.1	7.9	15.3	30.0	46.0	12.9	1.2	0.4	0.2	0.6	1.8
20	3.2	2.8	6.8	13.5	24.1	42.4	10.4	1.2	0.4	0.2	0.5	1.2
25	2.7	2.6	6.1	11.2	20.4	39.1	8.0	1.1	0.4	0.1	0.4	0.8
30	1.7	2.2	5.1	9.8	19.1	37.5	6.5	1.1	0.4	0.1	0.2	0.7
35	1.2	2.1	4.7	9.1	18.4	35.6	5.0	0.9	0.4	0.1	0.1	0.6
40	0.9	2.0	4.2	8.5	17.5	33.4	3.6	0.7	0.3	0.1	0.1	0.6
45	0.7	2.0	3.2	8.3	15.5	30.0	2.5	0.5	0.2	0.1	0.1	0.5
50	0.7	1.9	2.8	7.9	14.0	27.0	2.5	0.5	0.2	0.0	0.1	0.2
55	0.7	1.6	2.7	7.2	13.0	25.8	1.8	0.5	0.1	0.0	0.1	0.1
60	0.6	0.8	2.6	6.3	12.0	20.0	1.2	0.4	0.1	0.0	0.1	0.1
65	0.6	0.7	2.4	5.3	10.3	13.0	1.2	0.3	0.1	0.0	0.1	0.1
70	0.5	0.7	2.0	5.0	7.6	9.0	1.2	0.3	0.1	0.0	0.1	0.1
75	0.4	0.6	1.6	2.1	6.8	4.6	1.2	0.2	0.0	0.0	0.1	0.1
80	0.2	0.2	1.0	2.0	1.7	2.7	0.8	0.1	0.0	0.0	0.1	0.1
85	0.2	0.2	0.8	1.2	1.2	2.0	0.4	0.1	0.0	0.0	0.1	0.1
90	0.1	0.1	0.6	0.8	1.1	1.2	0.3	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	0.8	1.1	0.9	0.2	0.0	0.0	0.0	0.0	0.1
99	0.1	0.1	0.1	0.7	1.0	0.6	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.1	0.7	1.0	0.6	0.1	0.0	0.0	0.0	0.0	0.1
Average	3.7	1.8	4.2	8.7	15.6	25.2	6.2	0.7	0.2	0.1	0.5	0.8
# Days	155	141	155	145	151	124	161	155	168	140	150	155
# Years	5	5	5	5	6	5	6	5	6	5	5	5

Table CAWG 6 Appdx E-30C. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.3	2.6	4.9	22.6	36.9	9.8	1.0	0.2	0.1	0.3	1.3	1.3
5	1.1	2.5	4.2	20.5	26.4	8.1	0.9	0.1	0.1	0.3	0.4	0.9
10	1.1	2.5	3.5	15.9	24.9	7.8	0.8	0.1	0.1	0.3	0.4	0.7
15	0.9	2.3	3.3	13.1	22.1	6.8	0.7	0.1	0.1	0.2	0.4	0.7
20	0.9	2.0	2.9	12.6	19.8	6.4	0.7	0.1	0.0	0.2	0.4	0.6
25	0.9	1.8	2.7	11.6	19.1	6.1	0.6	0.1	0.0	0.2	0.3	0.6
30	0.7	1.7	2.5	11.3	18.3	5.4	0.6	0.1	0.0	0.2	0.3	0.5
35	0.6	1.6	2.0	10.8	16.4	5.0	0.6	0.1	0.0	0.2	0.3	0.4
40	0.5	1.6	2.0	10.0	16.1	4.4	0.5	0.1	0.0	0.2	0.2	0.4
45	0.4	1.5	1.7	9.5	16.0	3.9	0.4	0.1	0.0	0.2	0.2	0.4
50	0.4	1.3	1.6	8.7	15.8	3.5	0.4	0.1	0.0	0.0	0.1	0.1
55	0.4	1.1	1.6	8.3	15.2	2.9	0.4	0.1	0.0	0.0	0.1	0.1
60	0.3	1.1	1.5	7.9	14.2	2.5	0.3	0.0	0.0	0.0	0.1	0.1
65	0.3	1.0	1.5	7.5	13.8	2.2	0.3	0.0	0.0	0.0	0.1	0.0
70	0.1	0.9	1.3	6.7	13.4	1.9	0.2	0.0	0.0	0.0	0.1	0.0
75	0.0	0.9	1.3	5.0	12.4	1.6	0.2	0.0	0.0	0.0	0.1	0.0
80	0.0	0.6	1.0	2.7	11.8	1.4	0.2	0.0	0.0	0.0	0.1	0.0
85	0.0	0.5	1.0	2.4	10.8	1.3	0.2	0.0	0.0	0.0	0.1	0.0
90	0.0	0.4	0.9	2.2	9.5	1.2	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.4	0.9	2.0	8.6	1.1	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.4	0.9	2.0	7.8	0.9	0.1	0.0	0.0	0.0	0.0	0.0
Average	0.5	1.4	2.0	9.2	16.4	4.0	0.4	0.1	0.0	0.1	0.2	0.3
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-30D. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.9	2.0	9.3	18.0	26.2	1.5	1.0	0.1	0.0	0.2	2.1	0.8
5	0.7	1.9	7.9	14.7	21.5	1.5	0.7	0.1	0.0	0.1	0.5	0.5
10	0.6	1.6	5.7	11.2	16.1	1.5	0.6	0.0	0.0	0.1	0.3	0.4
15	0.6	1.4	4.6	9.9	9.6	1.5	0.4	0.0	0.0	0.1	0.1	0.4
20	0.6	0.9	2.1	9.5	1.4	1.5	0.3	0.0	0.0	0.1	0.1	0.4
25	0.6	0.9	2.0	8.7	1.4	1.5	0.3	0.0	0.0	0.1	0.1	0.4
30	0.4	0.9	1.9	6.8	1.4	1.5	0.2	0.0	0.0	0.0	0.1	0.3
35	0.3	0.8	1.8	5.1	1.3	1.5	0.2	0.0	0.0	0.0	0.1	0.3
40	0.3	0.7	1.7	4.4	1.3	1.5	0.2	0.0	0.0	0.0	0.1	0.3
45	0.2	0.6	1.7	3.8	1.2	1.5	0.2	0.0	0.0	0.0	0.1	0.3
50	0.2	0.4	1.7	3.5	1.2	1.4	0.2	0.0	0.0	0.0	0.1	0.1
55	0.2	0.3	1.6	3.2	1.2	1.3	0.1	0.0	0.0	0.0	0.1	0.1
60	0.2	0.3	1.5	2.7	1.2	1.3	0.1	0.0	0.0	0.0	0.1	0.1
65	0.1	0.2	1.4	2.5	1.2	1.3	0.1	0.0	0.0	0.0	0.1	0.1
70	0.1	0.2	0.8	0.7	1.2	1.3	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.3	0.7	1.1	1.2	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.3	0.7	1.1	1.2	0.1	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.2	0.6	1.1	1.2	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.2	0.2	0.6	1.1	1.2	0.1	0.0	0.0	0.0	0.0	0.1
95	0.1	0.1	0.2	0.6	1.0	1.2	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.0	0.1	0.2	0.2	1.0	1.2	0.1	0.0	0.0	0.0	0.0	0.0
Average	0.3	0.7	2.2	5.0	4.1	1.4	0.2	0.0	0.0	0.0	0.2	0.2
# Days	62	56	62	60	62	40	26	31	30	62	60	62
# Years	2	2	2	2	2	2	1	1	1	2	2	2

Table CAWG 6 Appdx E-30E. Chinquapin Creek Below Diversion (Gage 11230560)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.3	0.9	3.5	12.4	9.6	1.6	1.3	0.1	0.2	0.2	0.1	0.1
5	0.2	0.9	2.7	8.9	2.0	1.4	1.3	0.1	0.1	0.2	0.1	0.1
10	0.2	0.8	2.2	8.0	1.6	1.4	1.3	0.1	0.1	0.1	0.1	0.1
15	0.2	0.8	2.0	6.0	1.4	1.4	1.2	0.1	0.1	0.1	0.1	0.1
20	0.2	0.3	1.8	4.3	1.4	1.4	1.1	0.1	0.1	0.1	0.1	0.1
25	0.2	0.3	1.6	3.5	1.4	1.4	1.1	0.0	0.0	0.1	0.1	0.1
30	0.1	0.2	1.3	2.5	1.4	1.3	0.5	0.0	0.0	0.1	0.1	0.1
35	0.1	0.2	1.3	1.7	1.4	1.3	0.3	0.0	0.0	0.1	0.1	0.1
40	0.1	0.2	1.0	1.3	1.3	1.3	0.3	0.0	0.0	0.1	0.1	0.1
45	0.1	0.2	1.0	0.9	1.3	1.3	0.2	0.0	0.0	0.1	0.1	0.1
50	0.1	0.2	0.9	0.8	1.3	1.3	0.2	0.0	0.0	0.1	0.1	0.1
55	0.1	0.2	0.9	0.8	1.3	1.3	0.2	0.0	0.0	0.1	0.1	0.1
60	0.1	0.2	0.9	0.8	1.3	1.3	0.1	0.0	0.0	0.1	0.1	0.1
65	0.1	0.2	0.8	0.7	1.3	1.3	0.1	0.0	0.0	0.1	0.1	0.1
70	0.1	0.2	0.7	0.7	1.3	1.2	0.1	0.0	0.0	0.1	0.1	0.1
75	0.1	0.2	0.7	0.7	1.2	1.2	0.1	0.0	0.0	0.1	0.1	0.1
80	0.1	0.2	0.6	0.7	1.2	1.1	0.1	0.0	0.0	0.1	0.1	0.1
85	0.1	0.1	0.6	0.7	1.2	1.1	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.6	0.6	1.1	0.8	0.1	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.6	0.6	1.1	0.6	0.0	0.0	0.0	0.0	0.1	0.1
Minimum	0.1	0.1	0.3	0.3	0.9	0.4	0.0	0.0	0.0	0.0	0.1	0.1
Average	0.1	0.3	1.2	2.5	1.5	1.2	0.5	0.0	0.0	0.1	0.1	0.1
# Days	62	57	62	107	217	172	63	62	79	31	30	31
# Years	2	2	2	7	7	7	3	2	3	1	1	1

Table CAWG 6 Appdx E-31A. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	203.6	13.9	16.3	72.8	67.1	71.8	37.6	3.8	0.6	2.7	21.3	16.1
1	32.6	6.0	15.7	25.8	43.4	62.5	33.8	2.7	0.5	2.0	4.4	5.1
5	4.8	3.8	10.2	20.7	29.8	49.9	16.3	1.0	0.5	0.7	1.6	2.4
10	3.3	3.2	7.8	15.4	22.6	39.3	6.7	0.6	0.5	0.4	0.8	1.2
15	1.4	2.6	6.0	13.1	20.2	9.2	0.9	0.5	0.4	0.4	0.5	1.0
20	1.0	2.4	5.1	11.2	17.9	5.6	0.7	0.5	0.3	0.4	0.4	1.0
25	1.0	2.2	3.8	10.0	15.0	3.1	0.6	0.4	0.3	0.3	0.3	0.8
30	0.9	1.9	3.3	9.3	11.6	1.9	0.5	0.4	0.3	0.2	0.3	0.7
35	0.8	1.5	3.0	8.3	7.9	1.1	0.5	0.3	0.2	0.2	0.2	0.6
40	0.8	1.1	2.5	6.8	2.1	0.8	0.5	0.3	0.1	0.1	0.2	0.5
45	0.6	0.9	2.2	5.7	0.7	0.6	0.4	0.2	0.1	0.1	0.1	0.4
50	0.5	0.9	2.0	4.2	0.6	0.6	0.4	0.1	0.1	0.1	0.1	0.3
55	0.5	0.8	1.9	3.0	0.6	0.6	0.4	0.1	0.0	0.1	0.1	0.1
60	0.3	0.8	1.6	2.4	0.5	0.5	0.4	0.1	0.0	0.1	0.1	0.1
65	0.2	0.6	1.3	1.5	0.5	0.5	0.4	0.1	0.0	0.0	0.1	0.1
70	0.2	0.5	1.1	0.5	0.5	0.5	0.3	0.0	0.0	0.0	0.1	0.1
75	0.2	0.3	1.0	0.5	0.5	0.5	0.3	0.0	0.0	0.0	0.1	0.1
80	0.2	0.2	0.9	0.5	0.5	0.4	0.3	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.8	0.4	0.4	0.4	0.2	0.0	0.0	0.0	0.1	0.1
90	0.1	0.2	0.6	0.4	0.4	0.4	0.2	0.0	0.0	0.0	0.1	0.1
95	0.1	0.2	0.3	0.3	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0
99	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	2.1	1.4	3.2	6.5	7.7	7.4	2.4	0.3	0.2	0.2	0.4	0.7
# Days	372	340	372	421	536	483	471	438	438	372	360	341
# Years	12	12	12	18	18	17	19	15	15	12	12	11

Table CAWG 6 Appdx E-31B. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	203.6	13.9	16.3	72.8	67.1	71.8	37.6	3.8	0.6	1.5	21.3	16.1
1	83.3	9.2	16.1	27.3	58.7	69.8	37.5	3.5	0.6	0.9	6.6	9.6
5	9.2	4.9	14.0	24.0	41.3	62.2	31.5	2.1	0.5	0.5	1.9	3.5
10	5.1	4.1	11.2	20.7	31.9	60.0	23.5	1.5	0.5	0.4	0.9	2.5
15	4.5	3.6	9.2	17.6	25.9	56.8	14.6	0.9	0.4	0.4	0.6	2.1
20	3.7	3.3	8.0	15.7	23.5	52.5	11.2	0.6	0.4	0.4	0.5	1.4
25	3.2	3.0	7.1	13.1	22.4	49.8	8.2	0.5	0.4	0.4	0.4	0.9
30	2.0	2.6	6.0	10.8	21.2	46.0	5.6	0.5	0.4	0.4	0.3	0.8
35	1.4	2.5	5.6	10.4	19.8	44.4	3.0	0.5	0.3	0.3	0.3	0.7
40	1.0	2.4	4.9	9.8	17.6	43.6	0.5	0.5	0.3	0.2	0.2	0.7
45	0.9	2.3	3.7	9.4	16.2	40.2	0.5	0.4	0.3	0.1	0.2	0.6
50	0.8	2.2	3.3	9.1	15.2	37.1	0.5	0.4	0.3	0.1	0.1	0.3
55	0.8	1.9	3.2	8.1	14.0	30.8	0.5	0.4	0.2	0.1	0.1	0.2
60	0.8	0.9	3.0	6.9	12.1	6.4	0.5	0.4	0.1	0.1	0.1	0.1
65	0.7	0.9	2.9	6.3	8.9	4.8	0.4	0.4	0.1	0.0	0.1	0.1
70	0.5	0.8	2.3	5.8	8.1	3.2	0.4	0.4	0.1	0.0	0.1	0.1
75	0.5	0.7	1.9	2.5	5.1	2.6	0.4	0.4	0.1	0.0	0.1	0.1
80	0.2	0.2	1.2	2.3	0.6	1.6	0.4	0.2	0.1	0.0	0.1	0.1
85	0.2	0.2	0.9	2.2	0.5	1.0	0.4	0.1	0.0	0.0	0.1	0.1
90	0.2	0.2	0.5	0.5	0.5	0.7	0.3	0.1	0.0	0.0	0.1	0.1
95	0.1	0.2	0.2	0.5	0.5	-9.9	0.2	0.0	0.0	0.0	0.1	0.1
99	0.1	0.1	0.2	0.3	0.4	-9.9	0.2	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.2	0.3	0.4	0.5	0.2	0.0	0.0	0.0	0.0	0.1
Average	4.4	2.1	4.9	9.8	16.0	31.5	6.1	0.6	0.2	0.2	0.6	1.0
# Days	155	141	155	141	133	94	170	159	168	186	180	155
# Years	5	5	5	5	5	4	6	6	6	6	6	5

Table CAWG 6 Appdx E-31C. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.6	3.0	5.7	26.5	43.4	18.0	1.2	0.3	0.3	2.7	2.0	1.6
5	1.3	3.0	4.7	23.3	30.4	9.5	1.0	0.3	0.3	1.8	2.0	1.0
10	1.1	2.7	3.9	15.4	26.0	9.2	0.8	0.3	0.3	1.5	1.4	1.0
15	1.0	2.1	3.3	14.7	22.7	7.7	0.8	0.3	0.3	1.2	1.0	1.0
20	1.0	2.0	3.0	13.3	22.0	6.8	0.7	0.3	0.2	0.4	0.5	1.0
25	1.0	1.9	2.3	12.1	21.0	6.3	0.6	0.3	0.2	0.3	0.4	1.0
30	1.0	1.8	2.0	11.2	19.1	5.2	0.5	0.3	0.2	0.3	0.4	1.0
35	0.9	1.3	1.9	9.8	19.0	4.3	0.4	0.2	0.1	0.3	0.3	1.0
40	0.8	1.3	1.8	9.3	18.7	3.4	0.4	0.2	0.1	0.2	0.3	0.8
45	0.8	1.1	1.7	8.6	17.9	2.6	0.3	0.1	0.1	0.2	0.3	0.7
50	0.8	1.0	1.6	5.8	16.3	2.1	0.3	0.1	0.1	0.2	0.2	0.6
55	0.7	0.8	1.2	2.8	15.7	1.9	0.3	0.1	0.0	0.2	0.2	0.6
60	0.6	0.8	1.1	2.6	14.2	1.5	0.3	0.1	0.0	0.2	0.2	0.5
65	0.5	0.8	1.0	2.4	12.7	1.3	0.3	0.1	0.0	0.1	0.2	0.3
70	0.5	0.8	1.0	1.5	11.0	0.4	0.3	0.1	0.0	0.0	0.1	0.1
75	0.4	0.8	1.0	0.4	3.7	0.4	0.2	0.1	0.0	0.0	0.1	0.1
80	0.1	0.8	1.0	0.3	0.3	0.4	0.2	0.0	0.0	0.0	0.1	0.0
85	0.0	0.7	0.8	0.1	0.2	0.3	0.2	0.0	0.0	0.0	0.1	0.0
90	0.0	0.6	0.8	0.1	0.1	0.3	0.1	0.0	0.0	0.0	0.1	0.0
95	0.0	0.5	0.8	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.4	0.8	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.7	1.3	1.9	7.4	14.7	3.6	0.4	0.2	0.1	0.4	0.4	0.6
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx E-31D. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.1	2.4	10.9	21.2	30.8	13.0	0.6	0.6	0.5	0.2	2.5	0.9
5	0.8	2.2	9.3	15.1	29.6	10.0	0.5	0.6	0.5	0.1	0.6	0.5
10	0.7	1.9	6.7	11.7	19.0	4.9	0.5	0.6	0.5	0.1	0.4	0.5
15	0.7	1.7	5.5	11.2	4.2	3.0	0.5	0.6	0.5	0.1	0.1	0.5
20	0.6	1.1	2.5	9.5	0.8	2.0	0.4	0.6	0.5	0.1	0.1	0.5
25	0.6	1.0	2.4	6.3	0.6	0.5	0.4	0.6	0.5	0.1	0.1	0.4
30	0.5	1.0	2.2	5.2	0.6	0.5	0.4	0.3	0.5	0.1	0.1	0.4
35	0.4	0.9	2.1	4.4	0.5	0.5	0.4	0.1	0.0	0.1	0.1	0.4
40	0.4	0.9	2.0	4.0	0.5	0.5	0.4	0.0	0.0	0.0	0.1	0.4
45	0.3	0.6	2.0	3.2	0.5	0.5	0.4	0.0	0.0	0.0	0.1	0.4
50	0.3	0.5	2.0	3.0	0.5	0.5	0.4	0.0	0.0	0.0	0.1	0.1
55	0.3	0.4	1.9	0.5	0.5	0.5	0.4	0.0	0.0	0.0	0.1	0.1
60	0.2	0.4	1.8	0.5	0.5	0.4	0.4	0.0	0.0	0.0	0.1	0.1
65	0.2	0.3	1.7	0.5	0.5	0.4	0.3	0.0	0.0	0.0	0.1	0.1
70	0.1	0.3	0.9	0.4	0.5	0.4	0.3	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.4	0.4	0.5	0.4	0.3	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.3	0.4	0.5	0.4	0.2	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.3	0.4	0.3	0.4	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.2	0.2	0.4	0.0	0.3	0.1	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	0.4	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average	0.4	0.8	2.6	4.5	3.9	1.7	0.3	0.2	0.2	0.0	0.2	0.3
# Days	62	56	62	81	93	89	74	93	90	62	60	62
# Years	2	2	2	3	3	3	3	3	3	2	2	2

Table CAWG 6 Appdx E-31E. Camp 62 Creek Below Diversion (Gage 11230600)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.3	1.1	4.1	14.6	20.0	1.2	0.8	0.4	0.2	0.2	0.2	0.2
5	0.2	1.0	3.2	10.3	6.4	0.9	0.7	0.4	0.1	0.2	0.1	0.1
10	0.2	0.9	2.6	9.1	2.1	0.8	0.7	0.1	0.1	0.1	0.1	0.1
15	0.2	0.9	2.3	7.0	0.8	0.8	0.6	0.1	0.0	0.1	0.1	0.1
20	0.2	0.4	2.1	5.1	0.7	0.6	0.5	0.1	0.0	0.1	0.1	0.1
25	0.2	0.3	1.9	4.2	0.6	0.6	0.5	0.1	0.0	0.1	0.1	0.1
30	0.2	0.3	1.6	3.5	0.6	0.6	0.4	0.1	0.0	0.1	0.1	0.1
35	0.2	0.3	1.5	2.9	0.6	0.6	0.4	0.1	0.0	0.1	0.1	0.1
40	0.2	0.3	1.2	2.2	0.6	0.6	0.4	0.1	0.0	0.1	0.1	0.1
45	0.2	0.2	1.2	1.2	0.5	0.6	0.4	0.1	0.0	0.1	0.1	0.1
50	0.2	0.2	1.1	0.7	0.5	0.6	0.4	0.0	0.0	0.1	0.1	0.1
55	0.2	0.2	1.1	0.6	0.5	0.5	0.4	0.0	0.0	0.1	0.1	0.1
60	0.2	0.2	1.0	0.5	0.5	0.5	0.4	0.0	0.0	0.1	0.1	0.1
65	0.2	0.2	0.9	0.5	0.5	0.5	0.3	0.0	0.0	0.1	0.1	0.1
70	0.2	0.2	0.8	0.5	0.5	0.5	0.2	0.0	0.0	0.1	0.1	0.1
75	0.2	0.2	0.8	0.5	0.5	0.5	0.2	0.0	0.0	0.1	0.1	0.1
80	0.1	0.2	0.8	0.5	0.5	0.4	0.2	0.0	0.0	0.1	0.1	0.1
85	0.1	0.2	0.7	0.4	0.4	0.4	0.1	0.0	0.0	0.1	0.1	0.1
90	0.1	0.2	0.7	0.4	0.4	0.4	0.1	0.0	0.0	0.1	0.1	0.1
95	0.1	0.2	0.7	0.3	0.4	0.4	0.1	0.0	0.0	0.1	0.1	0.1
Minimum	0.1	0.2	0.4	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.1
Average	0.2	0.4	1.4	2.9	1.2	0.6	0.4	0.1	0.0	0.1	0.1	0.1
# Days	62	57	62	109	217	210	134	93	90	31	30	31
# Years	2	2	2	7	7	7	7	3	3	1	1	1

Table CAWG 6 Appdx E-32A. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
(10/1/1985 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27.0	9.1	8.9	17.4	28.4	15.0	14.0	0.7	0.6	0.6	13.9	10.5
1	8.6	4.5	8.0	16.5	19.9	15.0	13.0	0.6	0.6	0.4	3.9	5.0
5	2.2	2.7	5.3	11.0	14.7	12.0	9.2	0.6	0.5	0.3	1.3	1.8
10	1.5	2.0	3.9	8.7	12.0	9.6	5.0	0.6	0.3	0.2	0.5	1.4
15	1.0	1.6	3.3	7.6	10.0	6.6	0.6	0.5	0.3	0.2	0.4	0.7
20	0.7	1.5	2.5	7.0	8.8	4.5	0.6	0.5	0.2	0.2	0.3	0.6
25	0.6	1.3	2.2	6.4	6.1	3.0	0.6	0.5	0.2	0.2	0.2	0.5
30	0.5	1.2	2.1	5.6	2.2	2.2	0.5	0.5	0.1	0.2	0.2	0.5
35	0.5	0.9	1.9	4.6	0.8	1.3	0.5	0.4	0.1	0.1	0.2	0.4
40	0.4	0.8	1.6	3.7	0.6	0.9	0.5	0.3	0.1	0.1	0.2	0.3
45	0.4	0.7	1.4	2.3	0.6	0.6	0.5	0.3	0.1	0.1	0.2	0.2
50	0.3	0.6	1.3	1.6	0.6	0.6	0.5	0.1	0.0	0.1	0.1	0.2
55	0.3	0.6	1.2	1.5	0.6	0.6	0.5	0.1	0.0	0.1	0.1	0.2
60	0.2	0.5	1.1	0.6	0.6	0.6	0.4	0.1	0.0	0.1	0.1	0.1
65	0.1	0.4	1.0	0.6	0.6	0.6	0.4	0.0	0.0	0.1	0.1	0.1
70	0.1	0.3	0.9	0.6	0.6	0.5	0.4	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.7	0.5	0.6	0.5	0.3	0.0	0.0	0.0	0.1	0.1
80	0.1	0.1	0.6	0.5	0.5	0.5	0.2	0.0	0.0	0.0	0.1	0.1
85	0.1	0.1	0.5	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.4	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.1	0.2	0.5	0.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0
99	0.0	0.1	0.1	0.4	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.1	0.2	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.7	0.9	1.8	3.6	3.6	2.7	1.4	0.2	0.1	0.1	0.3	0.5
# Days	341	310	341	375	439	445	329	263	270	218	217	248
# Years	11	11	11	17	15	16	13	11	10	8	8	8

Table CAWG 6 Appdx E-32B. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27.0	9.1	8.9	16.5	16.0	15.0	14.0	0.7	0.6	0.6	13.9	10.5
1	22.0	6.1	8.7	15.0	16.0	15.0	14.0	0.7	0.6	0.4	4.3	6.3
5	2.9	3.2	6.5	10.5	15.0	14.0	12.0	0.6	0.6	0.3	1.8	2.3
10	2.2	2.7	4.8	8.4	14.0	13.0	9.2	0.6	0.4	0.2	1.0	1.6
15	1.8	2.4	3.7	7.0	12.0	11.0	7.0	0.6	0.3	0.2	0.5	1.4
20	1.5	1.8	3.3	6.6	11.3	10.0	4.0	0.6	0.3	0.2	0.4	0.9
25	1.1	1.5	2.5	6.3	10.2	9.6	0.6	0.6	0.3	0.2	0.4	0.6
30	0.8	1.4	2.2	5.3	9.6	9.0	0.6	0.5	0.3	0.2	0.3	0.5
35	0.6	1.3	2.1	4.6	9.0	7.0	0.6	0.5	0.2	0.2	0.2	0.5
40	0.6	1.1	2.0	4.0	8.4	5.3	0.6	0.5	0.2	0.2	0.2	0.5
45	0.5	0.7	1.9	3.3	7.1	4.3	0.5	0.5	0.2	0.1	0.2	0.4
50	0.5	0.7	1.6	1.8	5.6	3.1	0.5	0.5	0.1	0.1	0.2	0.2
55	0.5	0.6	1.4	1.6	4.5	2.6	0.5	0.5	0.1	0.1	0.2	0.2
60	0.4	0.6	1.2	1.5	3.0	1.8	0.5	0.4	0.1	0.1	0.1	0.2
65	0.3	0.6	1.1	1.2	1.5	1.2	0.5	0.4	0.1	0.1	0.1	0.2
70	0.2	0.5	0.9	0.6	0.9	0.8	0.5	0.4	0.1	0.1	0.1	0.2
75	0.1	0.5	0.7	0.6	0.6	0.6	0.5	0.3	0.1	0.1	0.1	0.1
80	0.1	0.1	0.6	0.6	0.6	0.6	0.5	0.3	0.1	0.0	0.1	0.1
85	0.1	0.1	0.6	0.5	0.5	0.6	0.4	0.3	0.0	0.0	0.1	0.1
90	0.1	0.1	0.4	0.5	0.5	0.6	0.4	0.2	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	0.5	0.5	0.5	0.4	0.1	0.0	0.0	0.1	0.1
99	0.1	0.1	0.1	0.5	0.4	0.4	0.4	0.1	0.0	0.0	0.1	0.1
Minimum	0.1	0.1	0.1	0.5	0.4	0.4	0.4	0.1	0.0	0.0	0.1	0.1
Average	1.2	1.2	2.1	3.7	6.2	5.2	2.3	0.4	0.2	0.1	0.5	0.7
# Days	186	169	186	180	160	179	178	137	150	124	127	155
# Years	6	6	6	6	6	6	6	6	6	4	5	5

Table CAWG 6 Appdx E-32C. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.0	2.0	3.7	17.4	28.4	6.1	0.8	0.1	0.1	0.3	1.0	1.0
5	0.9	1.9	3.2	16.6	23.5	5.6	0.7	0.1	0.1	0.2	0.3	0.7
10	0.9	1.9	2.7	14.2	20.3	5.0	0.6	0.1	0.0	0.2	0.3	0.6
15	0.7	1.8	2.5	10.4	19.9	4.8	0.6	0.1	0.0	0.2	0.3	0.5
20	0.7	1.6	2.2	9.8	19.2	4.5	0.5	0.1	0.0	0.2	0.3	0.5
25	0.7	1.4	2.1	9.6	17.9	4.2	0.5	0.1	0.0	0.1	0.2	0.4
30	0.6	1.3	1.9	8.7	17.0	3.8	0.5	0.1	0.0	0.1	0.2	0.4
35	0.4	1.3	1.6	8.5	14.8	3.4	0.4	0.1	0.0	0.1	0.2	0.3
40	0.4	1.2	1.5	7.7	14.3	3.0	0.4	0.1	0.0	0.1	0.2	0.3
45	0.3	1.1	1.3	7.3	12.8	2.7	0.3	0.0	0.0	0.1	0.2	0.3
50	0.3	1.0	1.3	7.2	12.5	2.2	0.3	0.0	0.0	0.0	0.1	0.1
55	0.3	0.9	1.2	6.4	11.4	1.9	0.3	0.0	0.0	0.0	0.1	0.0
60	0.3	0.9	1.1	5.7	10.6	1.7	0.2	0.0	0.0	0.0	0.1	0.0
65	0.3	0.8	1.1	5.1	10.6	1.5	0.2	0.0	0.0	0.0	0.1	0.0
70	0.1	0.7	1.0	4.1	10.3	1.3	0.2	0.0	0.0	0.0	0.0	0.0
75	0.0	0.7	1.0	2.4	10.2	1.2	0.2	0.0	0.0	0.0	0.0	0.0
80	0.0	0.4	0.8	1.8	9.3	1.1	0.1	0.0	0.0	0.0	0.0	0.0
85	0.0	0.4	0.8	1.8	8.9	1.0	0.1	0.0	0.0	0.0	0.0	0.0
90	0.0	0.3	0.7	1.6	8.3	0.9	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.3	0.7	1.6	6.6	0.7	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.3	0.7	1.6	6.6	0.7	0.1	0.0	0.0	0.0	0.0	0.0
Average	0.4	1.1	1.6	7.1	14.0	2.7	0.3	0.1	0.0	0.1	0.2	0.2
# Days	62	57	62	53	31	54	62	62	60	62	60	62
# Years	2	2	2	2	1	2	2	2	2	2	2	2

Table CAWG 6 Appdx E-32D. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.7	1.6	7.1	12.5	2.1	2.5	0.4	0.0	0.0	0.0	0.0	0.0
5	0.5	1.5	6.1	12.0	0.8	0.6	0.4	0.0	0.0	0.0	0.0	0.0
10	0.5	1.2	4.4	11.2	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0
15	0.5	1.1	3.6	9.3	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0
20	0.4	0.7	1.6	9.0	0.6	0.6	0.3	0.0	0.0	0.0	0.0	0.0
25	0.4	0.7	1.6	8.6	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0
30	0.3	0.7	1.5	7.9	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0
35	0.2	0.6	1.4	7.9	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0
40	0.2	0.6	1.3	7.6	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0
45	0.2	0.4	1.3	7.3	0.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0
50	0.2	0.3	1.3	7.0	0.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0
55	0.2	0.3	1.3	6.7	0.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0
60	0.1	0.2	1.1	6.4	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
65	0.1	0.2	1.1	6.1	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
70	0.1	0.2	0.6	5.7	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
75	0.1	0.2	0.3	5.4	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
80	0.1	0.1	0.2	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0
85	0.1	0.1	0.2	0.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
90	0.1	0.1	0.2	0.4	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.1	0.1	0.2	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.1	0.2	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.2	0.5	1.7	6.6	0.6	0.6	0.2	0.0	0.0	0.0	0.0	0.0
# Days	62	56	62	33	31	30	31	31	30	0	0	0
# Years	2	2	2	2	1	1	1	1	1	0	0	0

Table CAWG 6 Appdx E-32E. Bolsillo Creek Below Diversion (Gage 11230670)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.2	0.3	2.7	6.8	4.6	1.7	0.6	0.4	0.1	0.3	0.1	0.1
5	0.2	0.2	2.5	3.5	0.6	0.6	0.6	0.4	0.1	0.1	0.1	0.1
10	0.1	0.2	2.1	2.8	0.6	0.6	0.5	0.0	0.0	0.1	0.1	0.1
15	0.1	0.2	1.8	1.9	0.6	0.6	0.5	0.0	0.0	0.1	0.1	0.1
20	0.1	0.2	1.6	0.6	0.6	0.6	0.5	0.0	0.0	0.1	0.1	0.1
25	0.1	0.2	1.5	0.6	0.6	0.6	0.5	0.0	0.0	0.1	0.1	0.1
30	0.1	0.2	1.4	0.6	0.6	0.6	0.5	0.0	0.0	0.1	0.1	0.1
35	0.1	0.2	1.3	0.6	0.6	0.5	0.5	0.0	0.0	0.1	0.1	0.1
40	0.1	0.2	1.2	0.6	0.6	0.5	0.5	0.0	0.0	0.1	0.1	0.1
45	0.1	0.1	1.0	0.5	0.6	0.5	0.4	0.0	0.0	0.1	0.1	0.1
50	0.1	0.1	1.0	0.5	0.6	0.5	0.2	0.0	0.0	0.1	0.1	0.1
55	0.1	0.1	0.9	0.5	0.6	0.5	0.2	0.0	0.0	0.1	0.1	0.1
60	0.1	0.1	0.7	0.5	0.6	0.5	0.1	0.0	0.0	0.1	0.1	0.1
65	0.1	0.1	0.7	0.5	0.6	0.5	0.1	0.0	0.0	0.0	0.1	0.1
70	0.1	0.1	0.5	0.5	0.6	0.5	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.1	0.5	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.1
80	0.1	0.1	0.5	0.5	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.1
85	0.1	0.1	0.4	0.5	0.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1
90	0.1	0.1	0.4	0.5	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.1
95	0.1	0.1	0.3	0.4	0.4	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.3	0.2	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.1
Average	0.1	0.2	1.1	1.0	0.6	0.5	0.3	0.0	0.0	0.1	0.1	0.1
# Days	31	28	31	109	217	182	58	33	30	32	30	31
# Years	1	1	1	7	7	7	4	2	1	2	1	1

APPENDIX F

RIVER AND STREAM GAGING STATION EXISTING HYDROLOGY-EXCEEDANCE GRAPHS

APPENDIX F

BIG CREEK

CAWG 6 HYDROLOGY

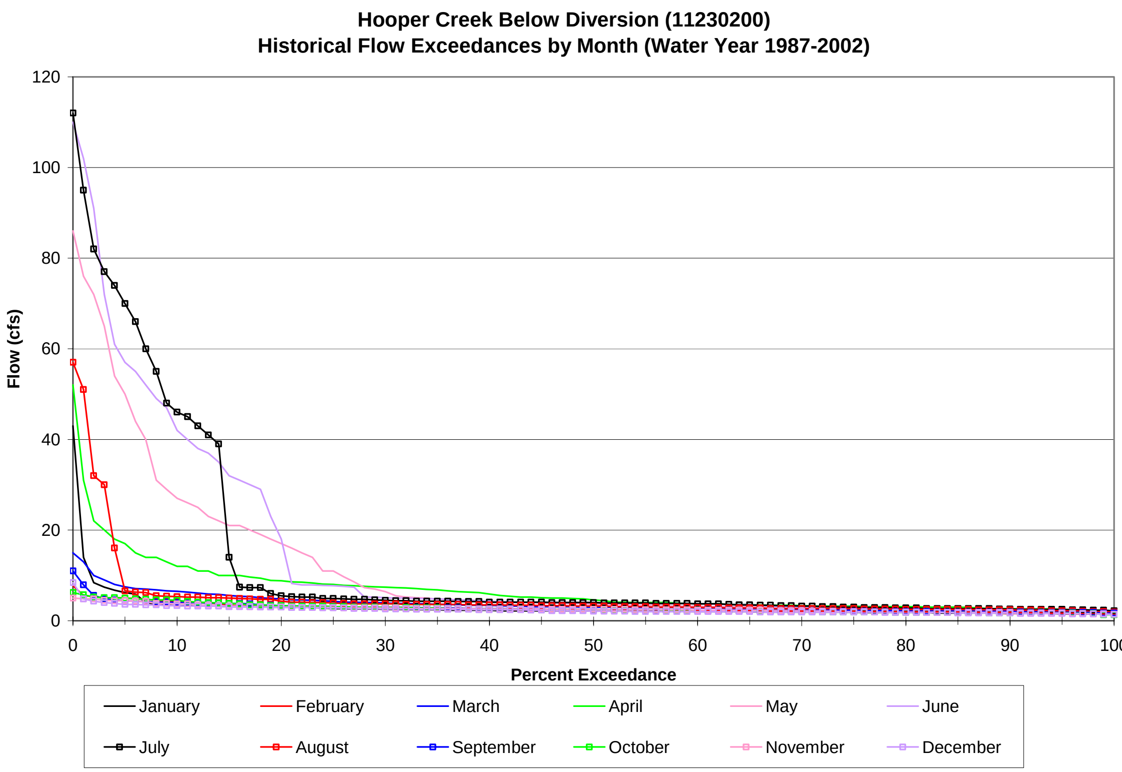
RIVER AND STREAM GAGING STATION EXISTING HYDROLOGYPERCENTILE/EXCEEDANCE GRAPHS

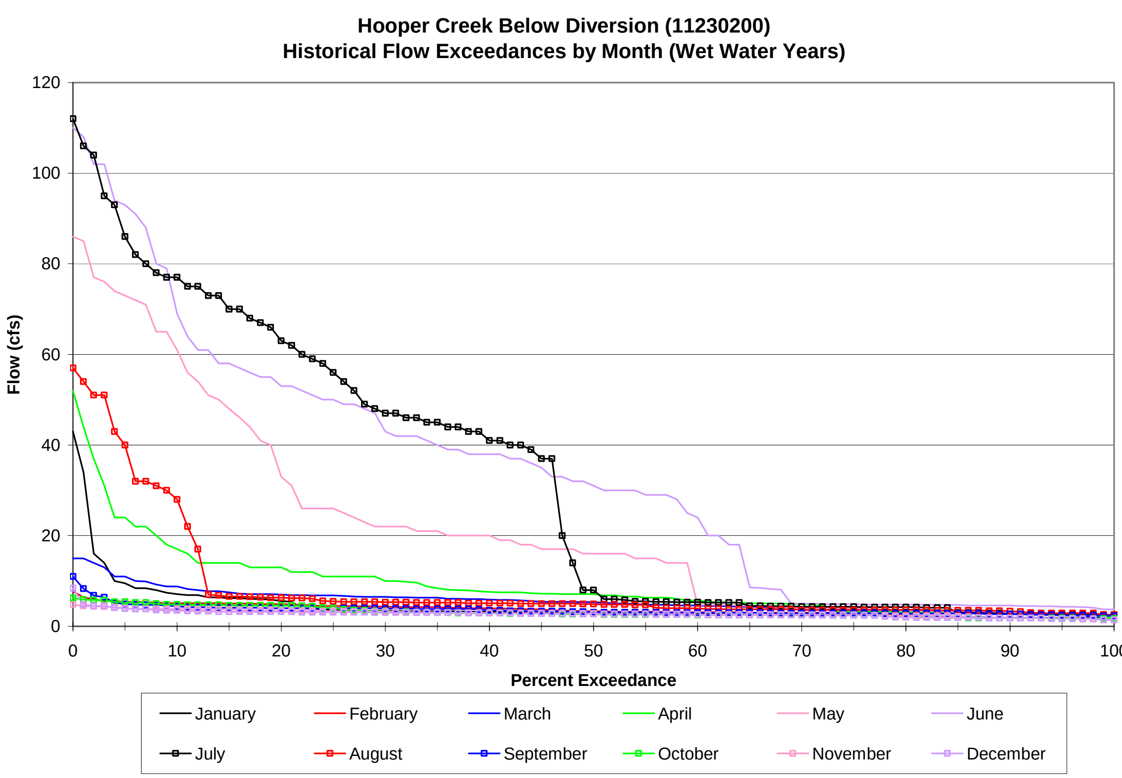
List of locations and periods of record (by water year) in order of appearance. Two periods of record are presented for each location – historical and operations (post-1983). The water years analyzed for each location and water year type correspond to those presented in the relative table in Appendix E. For a period of record that does not contain a water year type, the graph for that water year type is not presented.

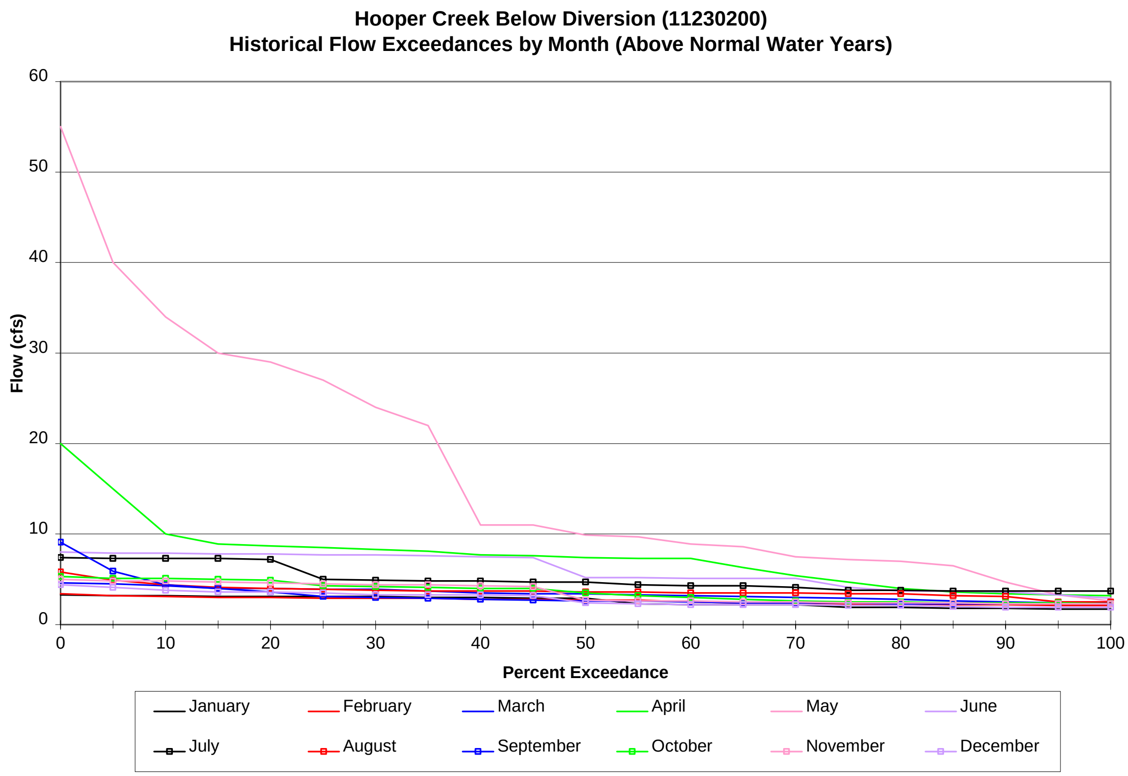
Hooper Creek below Diversion (1987-2002)
South Fork San Joaquin River downstream (below) Hooper Creek (1976-2002)
South Fork San Joaquin River downstream (below) Hooper Creek (1983-2002)
Bear Creek above Diversion (1922-2002)
Bear Creek above Diversion (1984-2002)
Bear Creek below Diversion (1984-2002)
Chinquapin Creek below Diversion (1986-2002)
Camp 62 Creek below Diversion (1984-2002)
Bolsillo Creek above Diversion (1986-1995)
Bolsillo Creek below Diversion (1986-2002)
Mono Creek below Diversion (1971-2002)
Mono Creek below Diversion (1984-2002)
San Joaquin River above Shakeflat Creek (1960-2002)
San Joaquin River above Shakeflat Creek (1983-2002)
San Joaquin River above Stevenson Creek (below Dam 6) (1974-2002)
San Joaquin River above Stevenson Creek (below Dam 6) (1983-2002)
Rock Creek (1992-1996)
Ross Creek (1992-1996)
North Fork Stevenson Creek above Shaver Lake (1989-2002)
Stevenson Creek below Shaver Lake (1987-2002)
Big Creek below Huntington Lake (1987-2002)
Pitman Creek above Diversion (1928-2002)
Pitman Creek above Diversion (1983-2002)
Pitman Creek below Diversion (1975-2002)
Pitman Creek below Diversion (1983-2002)
Balsam Creek below Balsam Meadow Forebay (1989-2002)
Big Creek near Mouth (1923-2002)
Big Creek near Mouth (1983-2002)

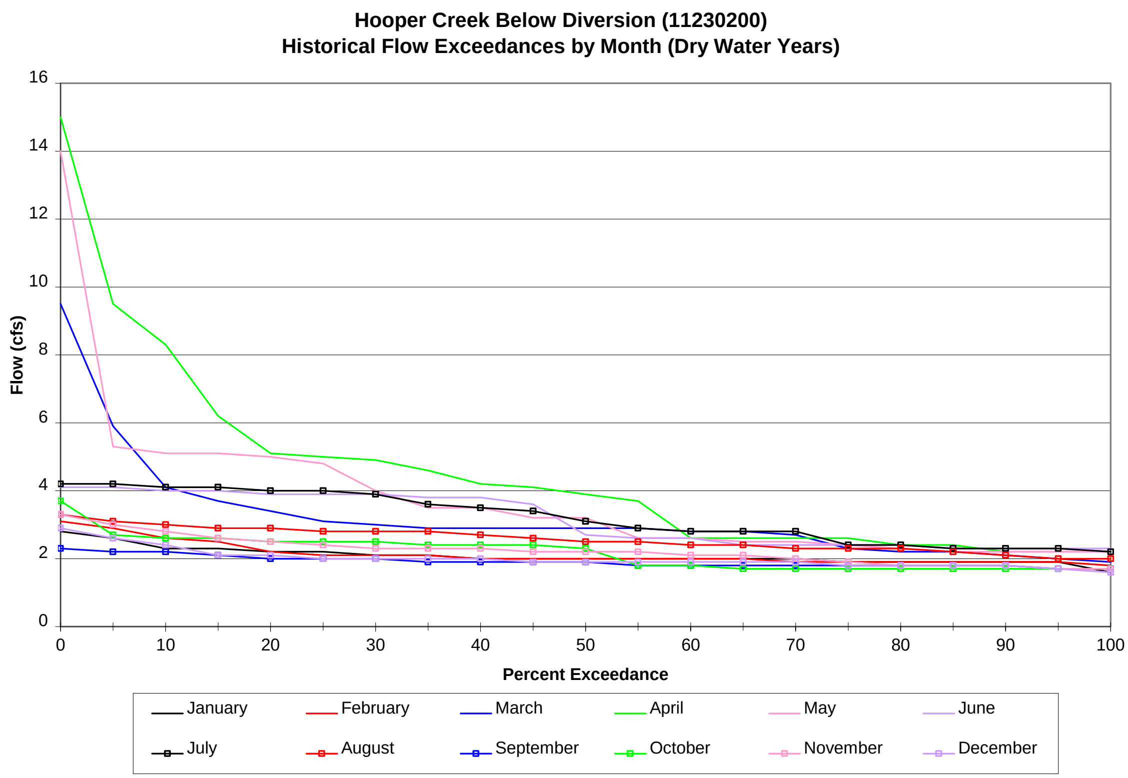
Small streams with use of some estimated unimpaired flow data for winter months:

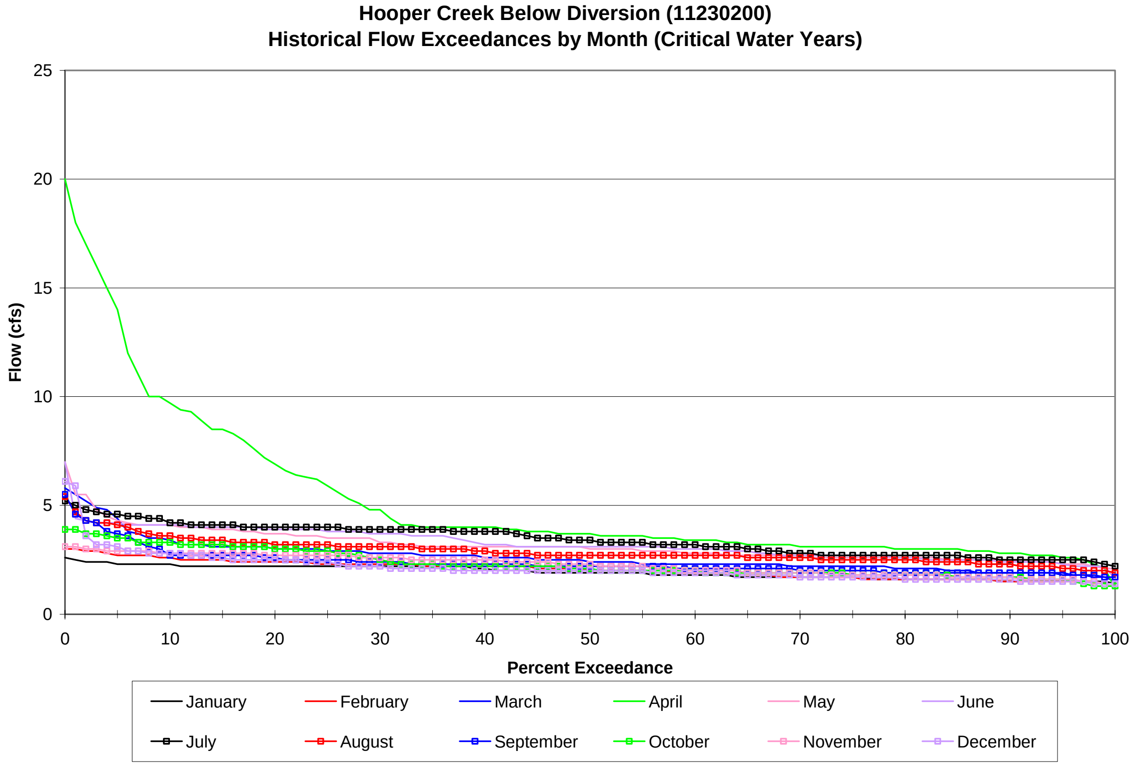
Chinquapin Creek below Diversion (1986-2002)
Camp 62 Creek below Diversion (1984-2002)
Bolsillo Creek below Diversion (1986-2002)


Hooper Creek Below Diversion (11230200)
Historical Flow Exceedances by Month (Water Year 1987-2002)
Flow (cfs)
0
20
40
60
80
100
120
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

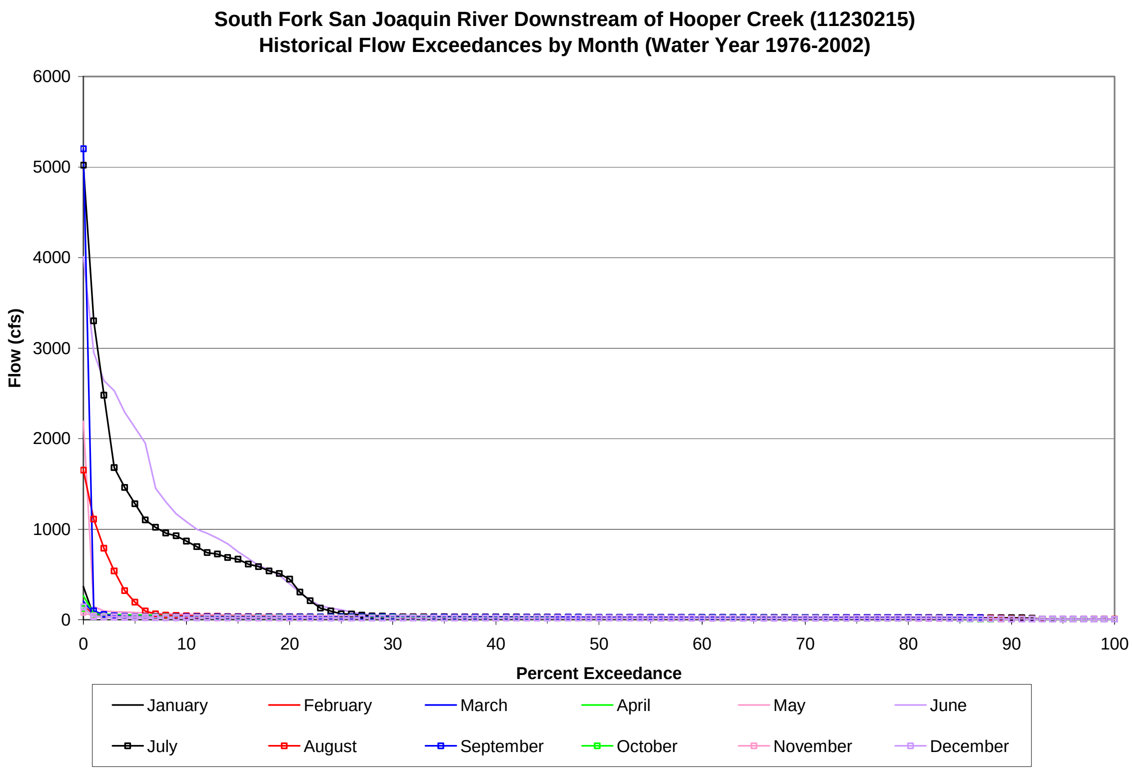

Hooper Creek Below Diversion (11230200)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
20
40
60
80
100
120
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

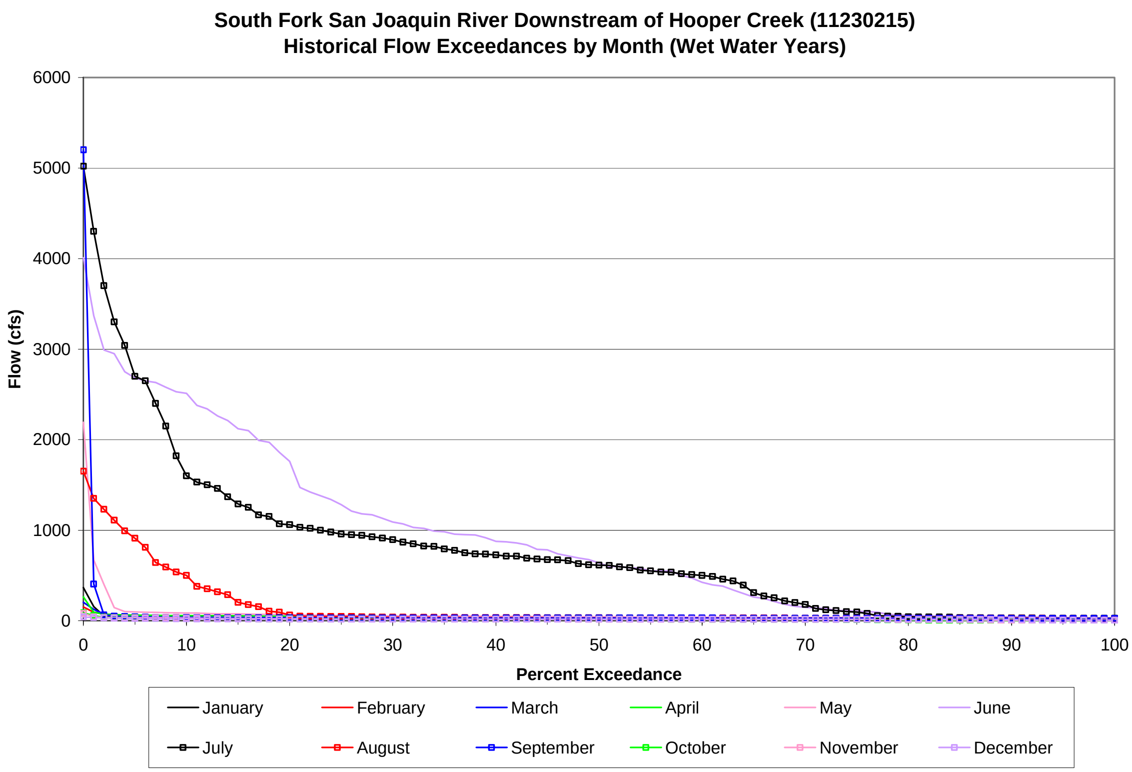

Hooper Creek Below Diversion (11230200)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

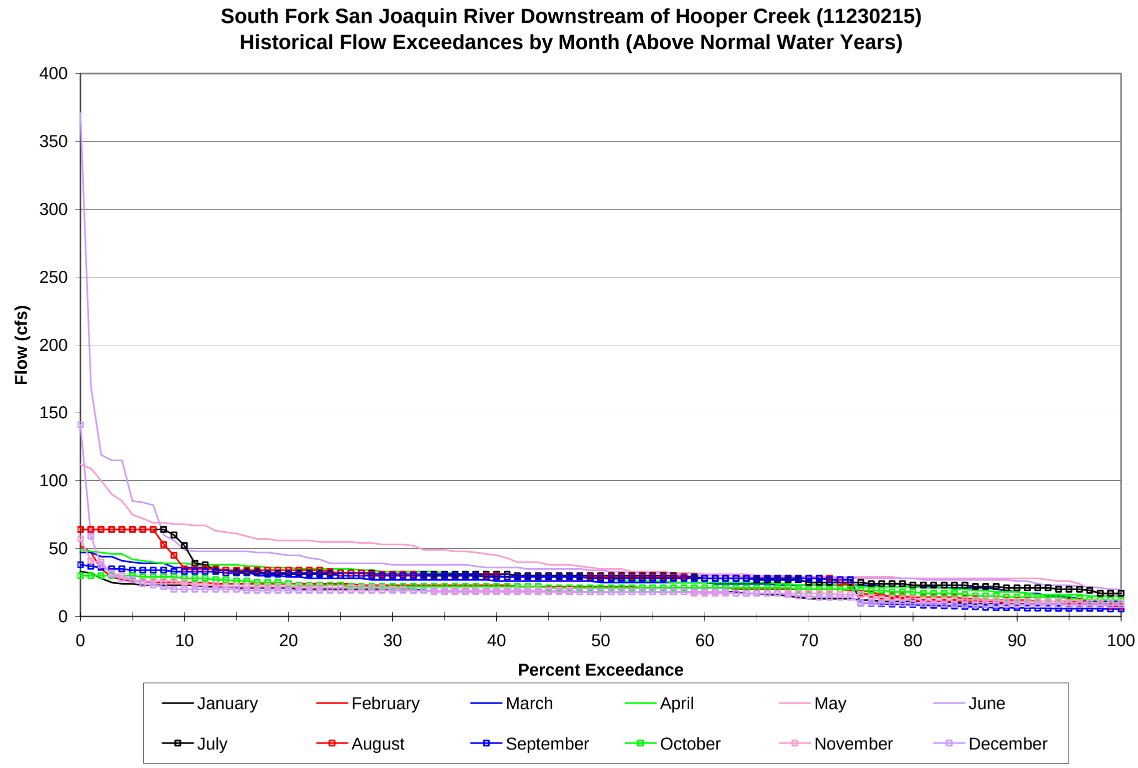

Hooper Creek Below Diversion (11230200)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

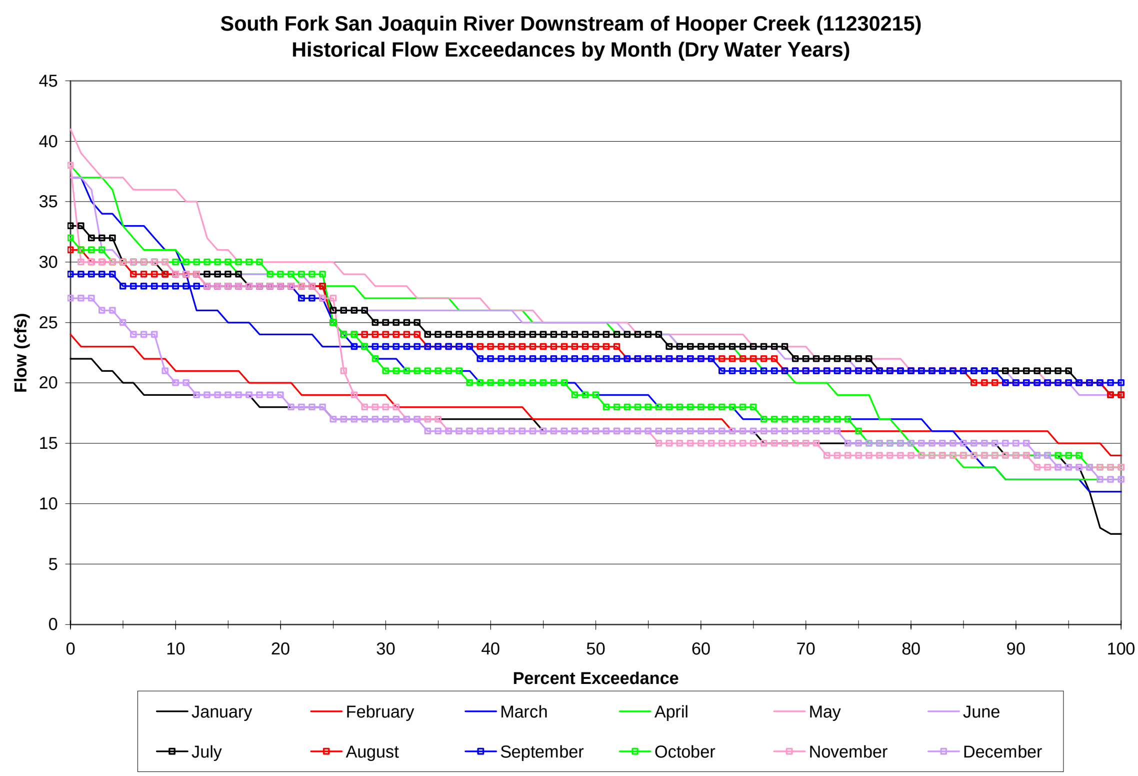


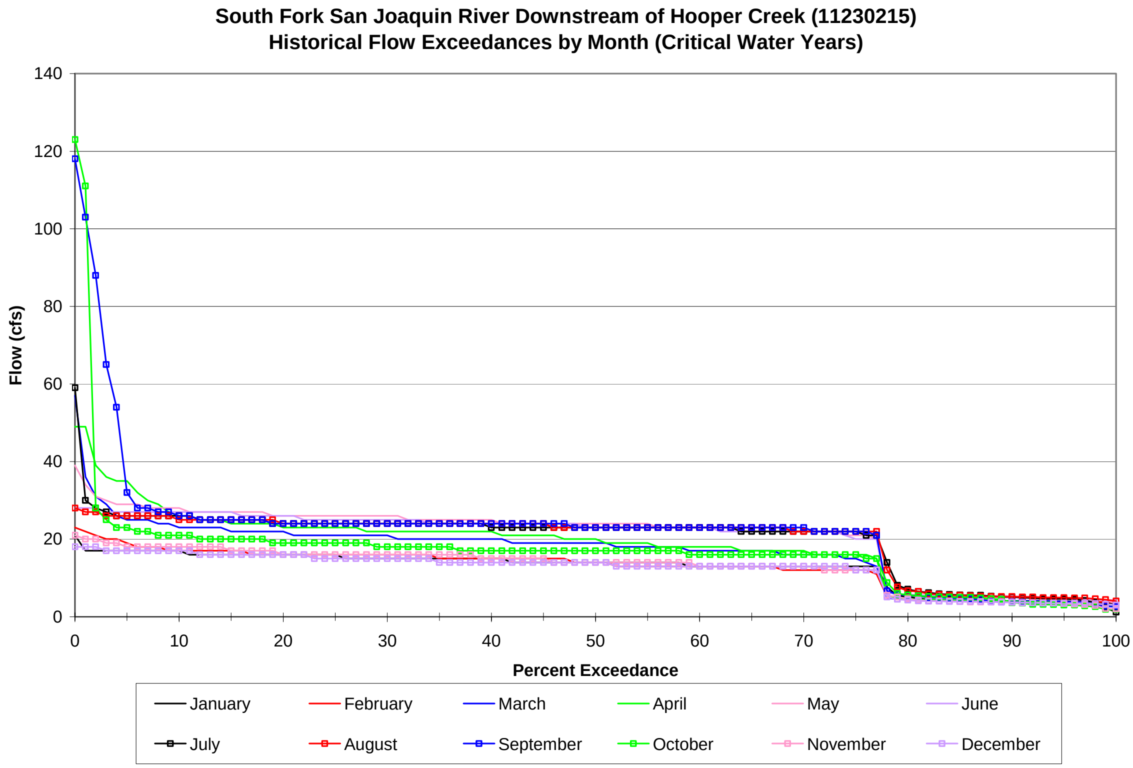
Hooper Creek Below Diversion (11230200)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

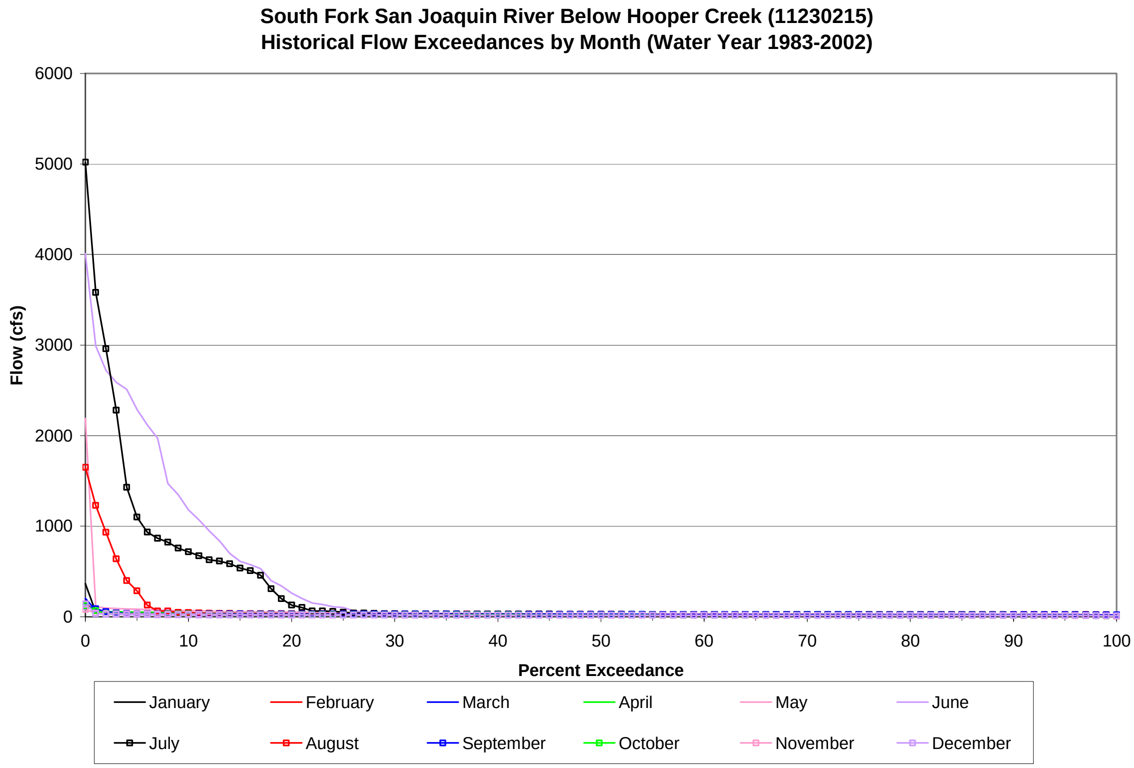

South Fork San Joaquin River Downstream of Hooper Creek (11230215)
Historical Flow Exceedances by Month (Water Year 1976-2002)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

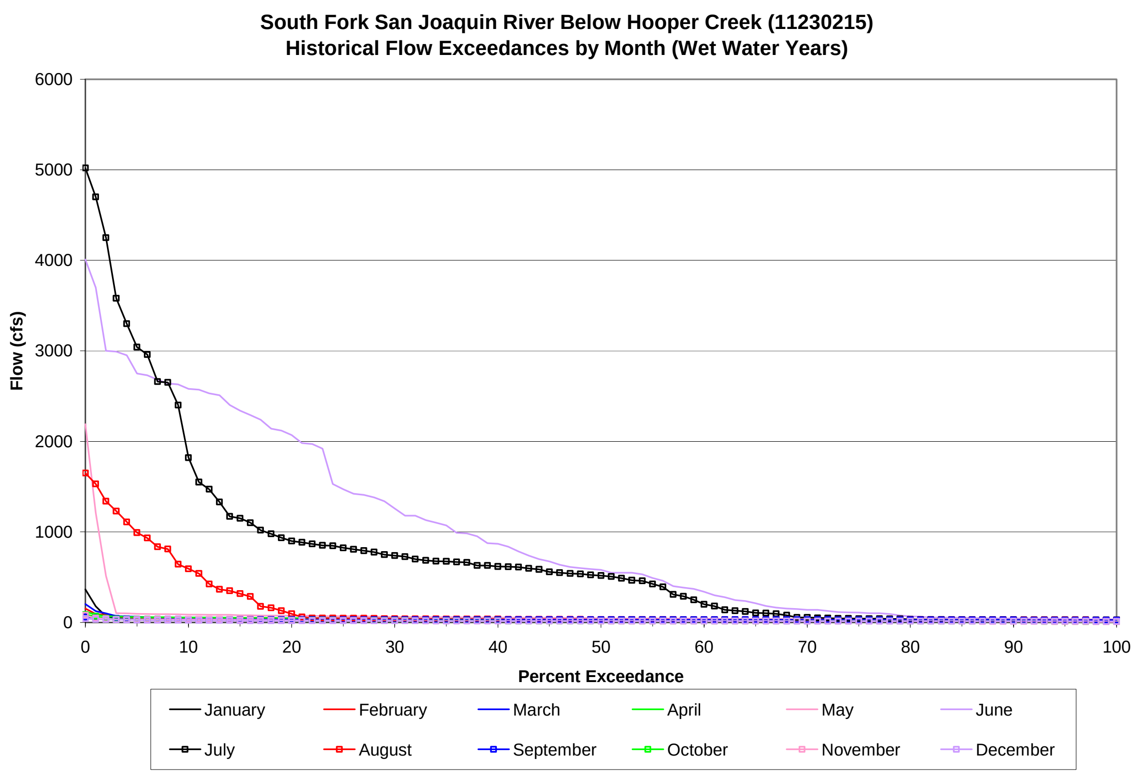

South Fork San Joaquin River Downstream of Hooper Creek (11230215)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

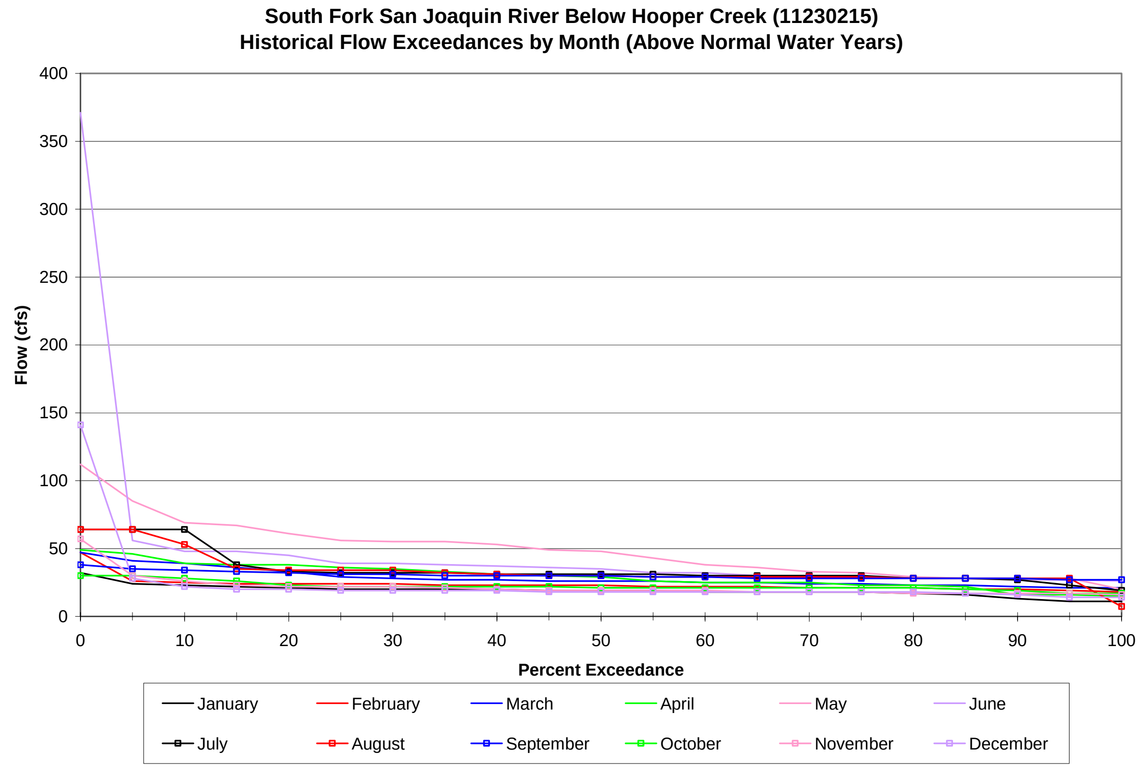

South Fork San Joaquin River Downstream of Hooper Creek (11230215)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

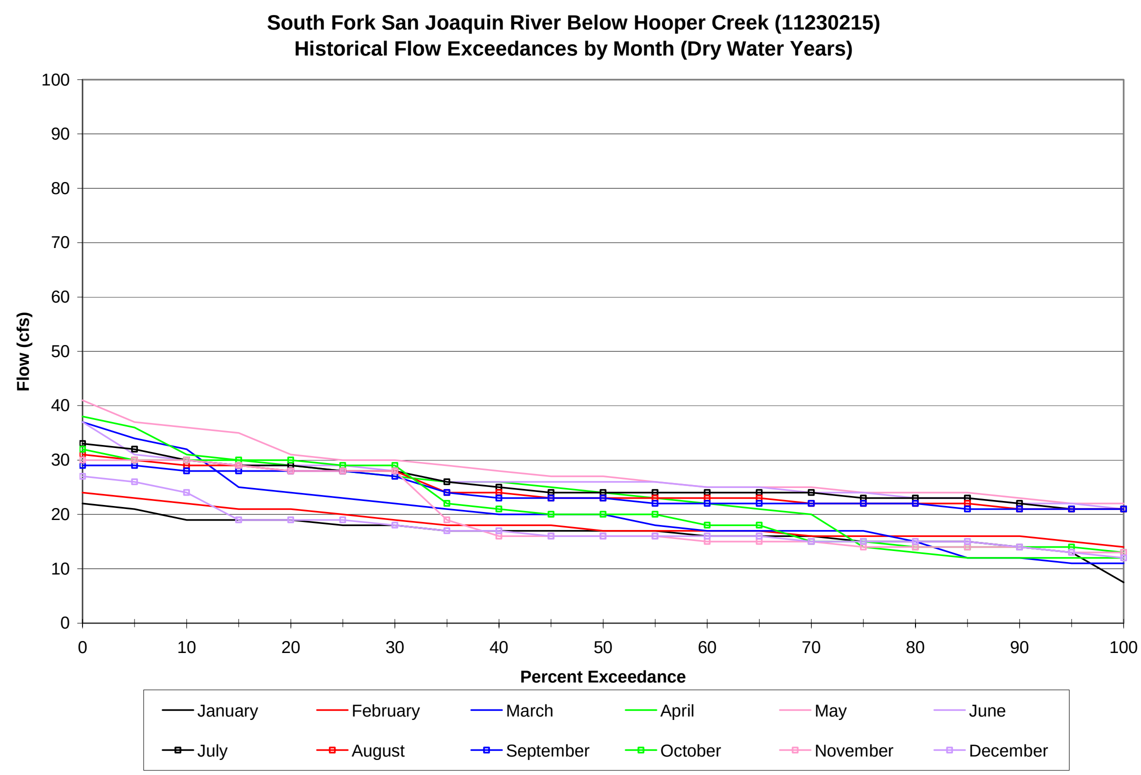

South Fork San Joaquin River Downstream of Hooper Creek (11230215)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

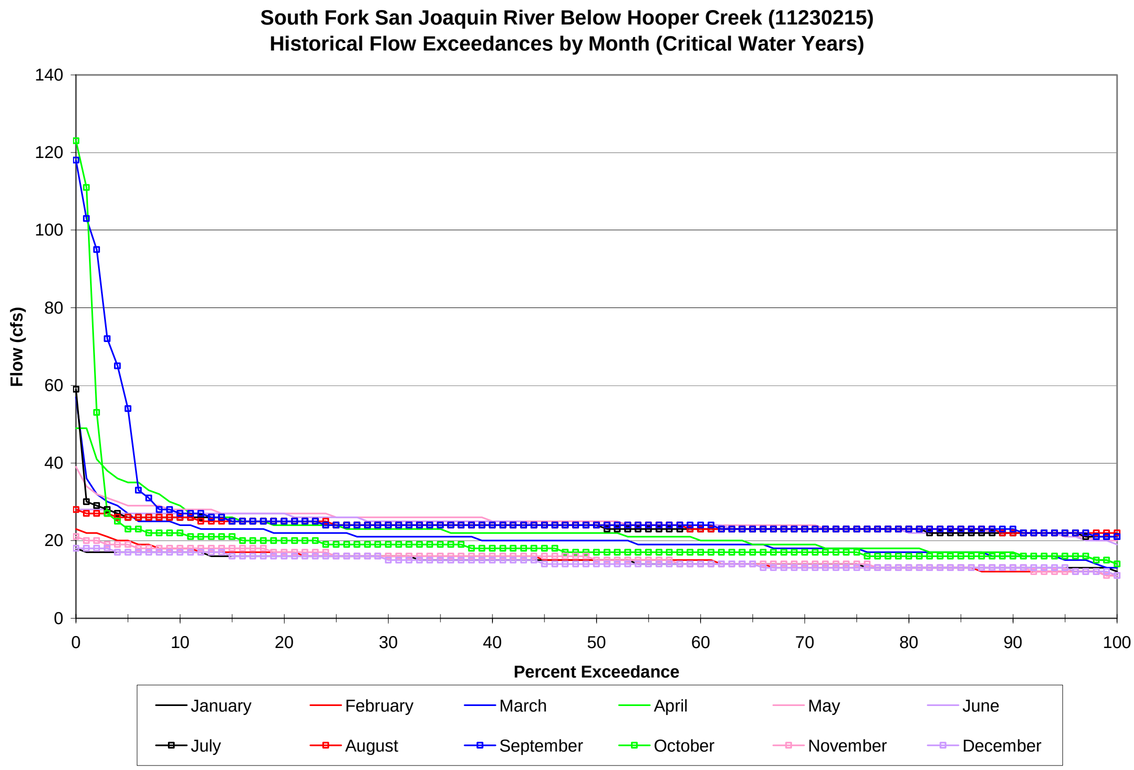

South Fork San Joaquin River Downstream of Hooper Creek (11230215)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
20
40
60
80
100
120
140
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

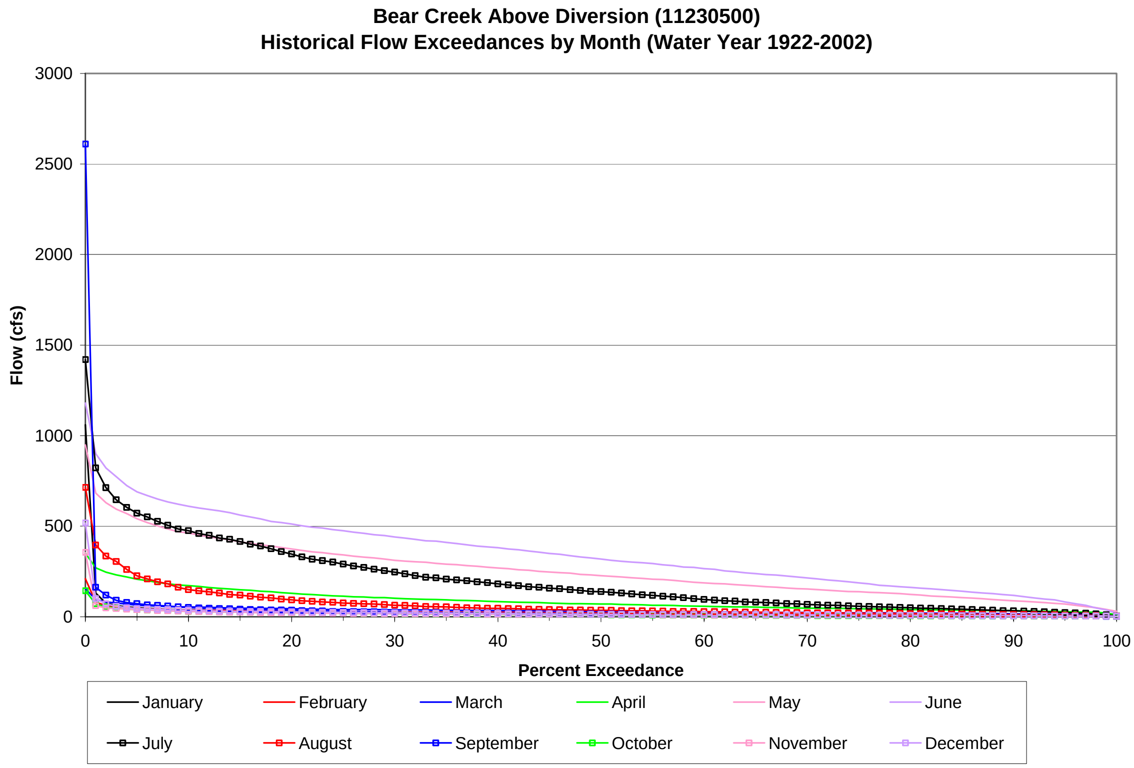

South Fork San Joaquin River Below Hooper Creek (11230215)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
Percent Exceedance
0
1000
2000
3000
4000
5000
6000
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

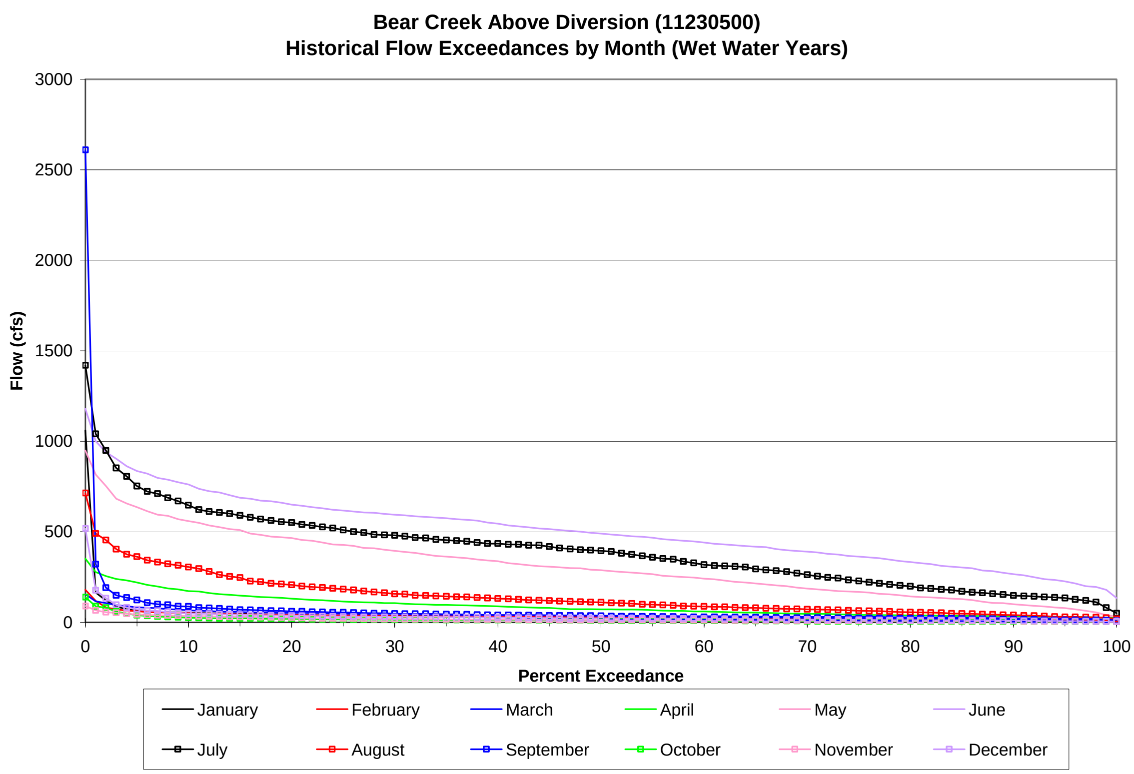

South Fork San Joaquin River Below Hooper Creek (11230215)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
1000
2000
3000
4000
5000
6000
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

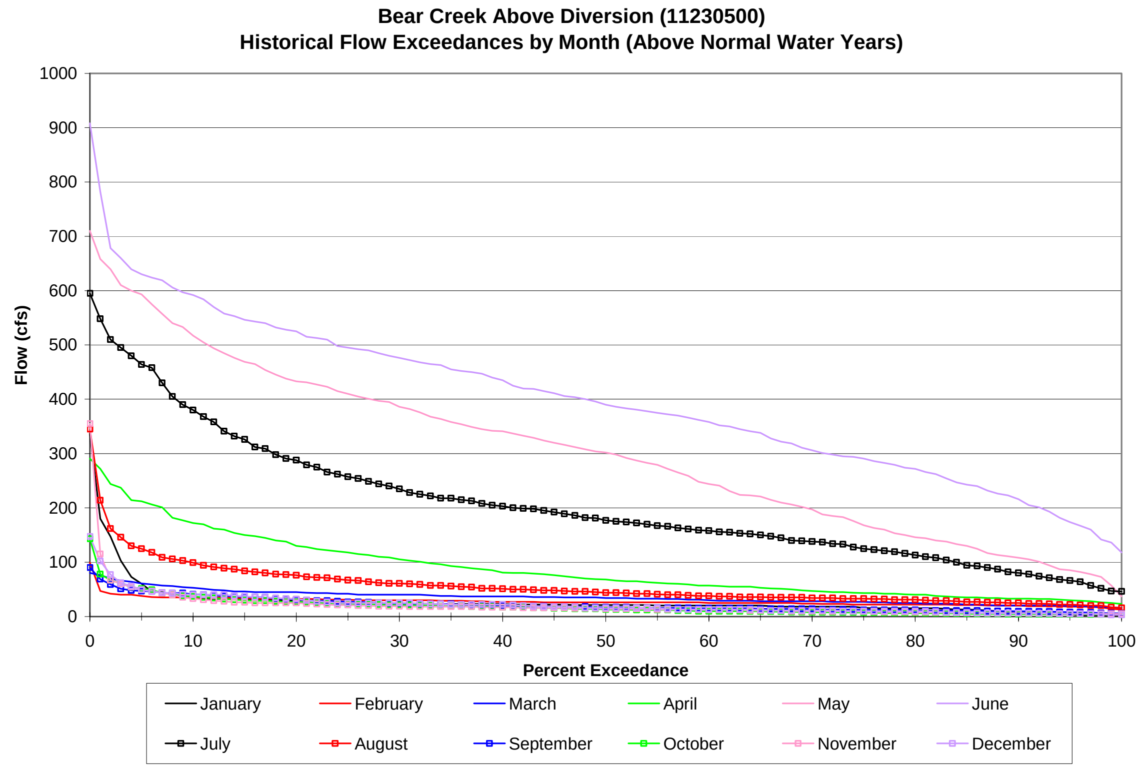

South Fork San Joaquin River Below Hooper Creek (11230215)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
50
100
150
200
250
300
350
400
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

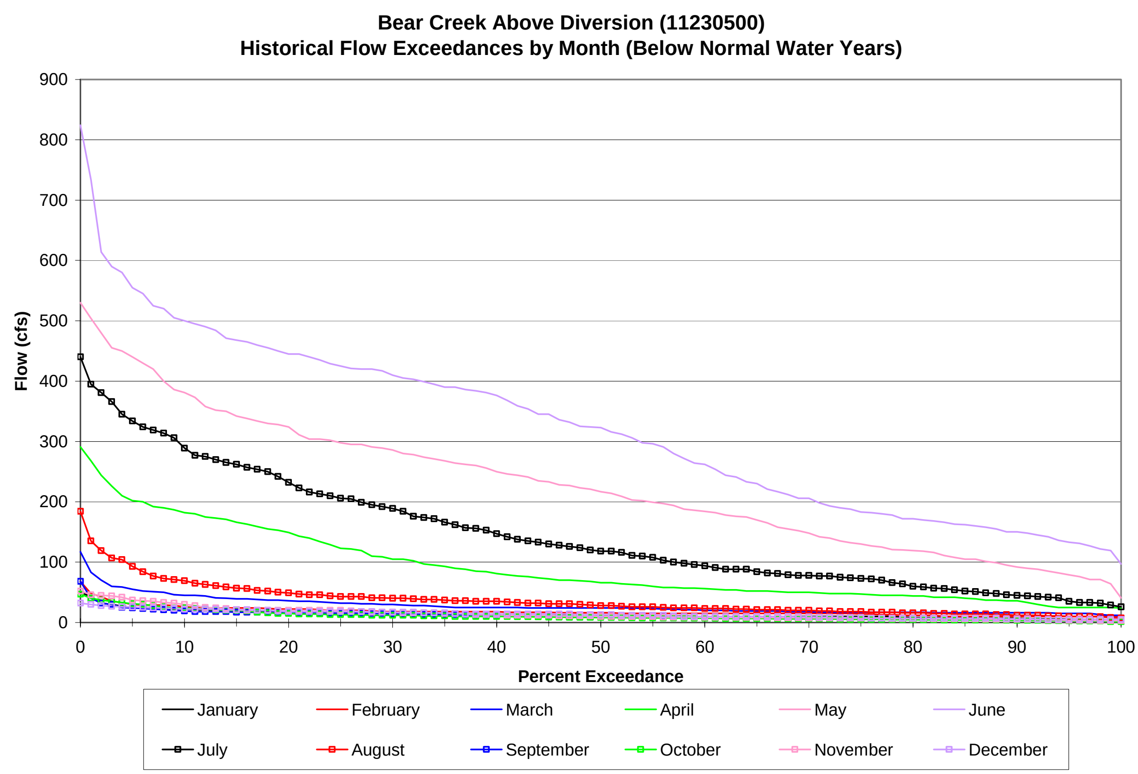

South Fork San Joaquin River Below Hooper Creek (11230215)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


South Fork San Joaquin River Below Hooper Creek (11230215)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

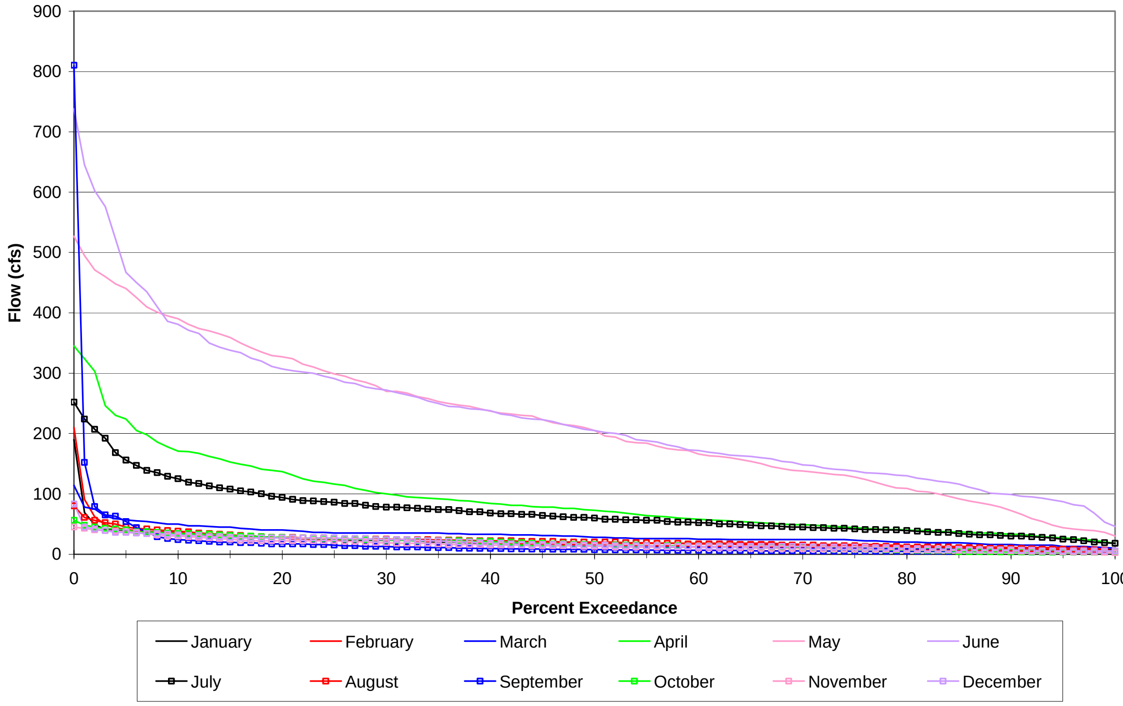

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Water Year 1922-2002)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

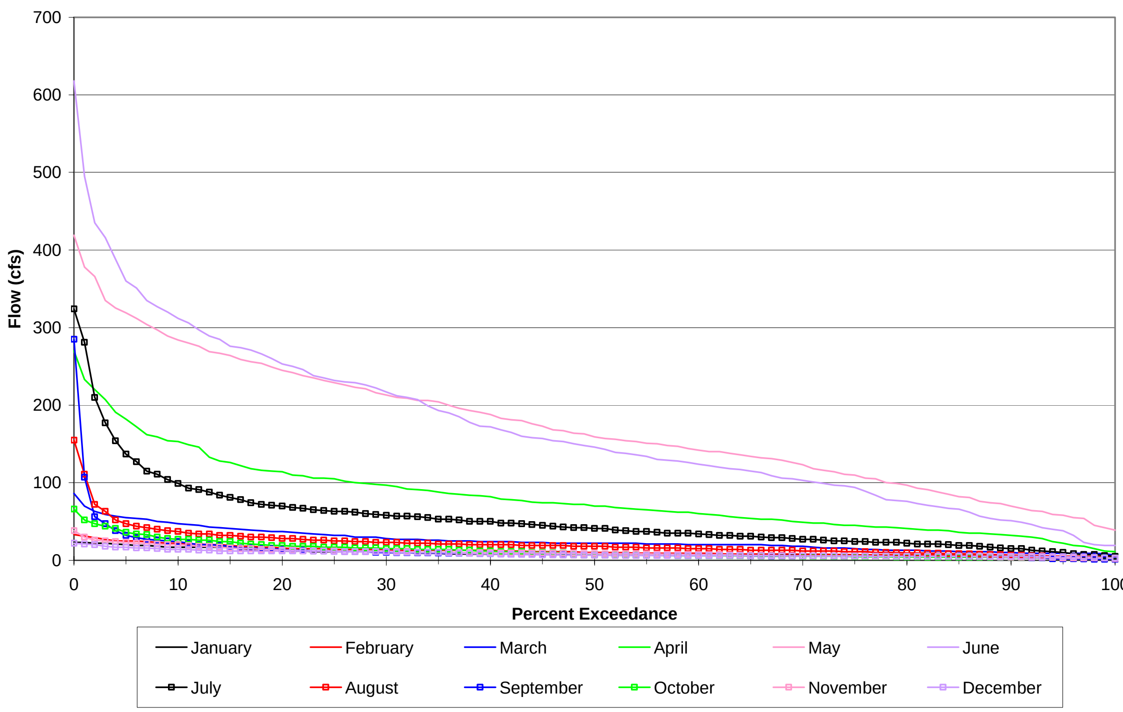

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
1000
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

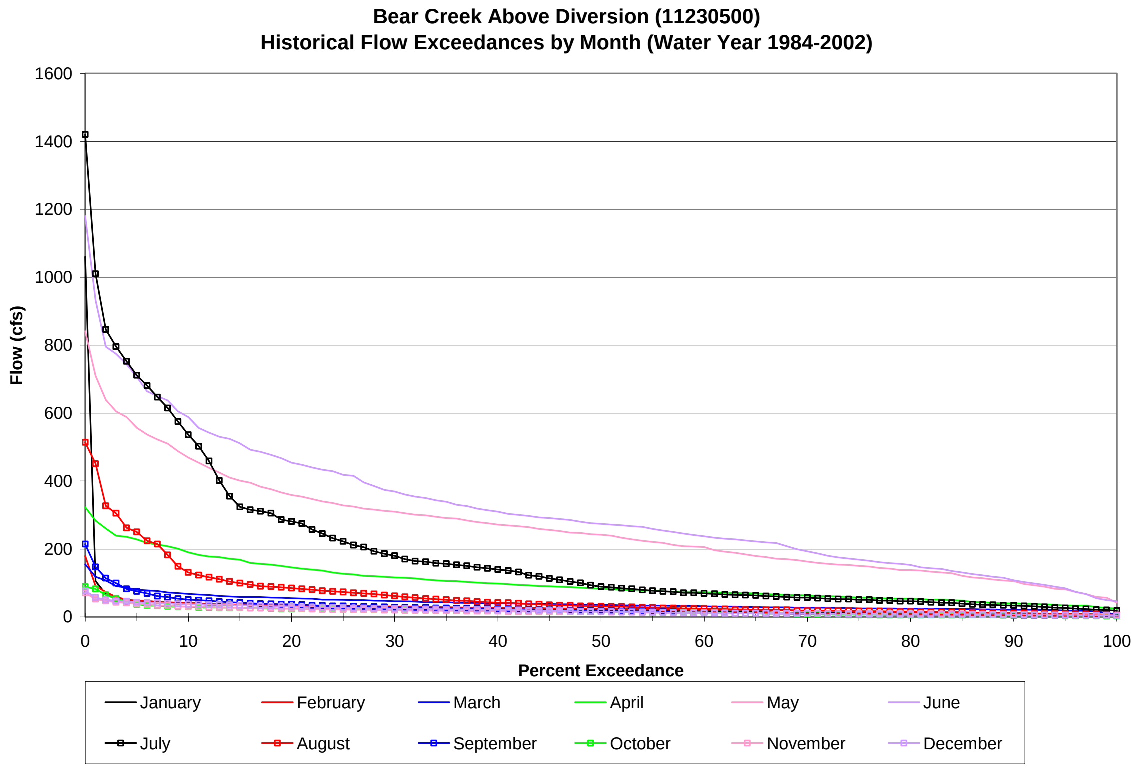

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

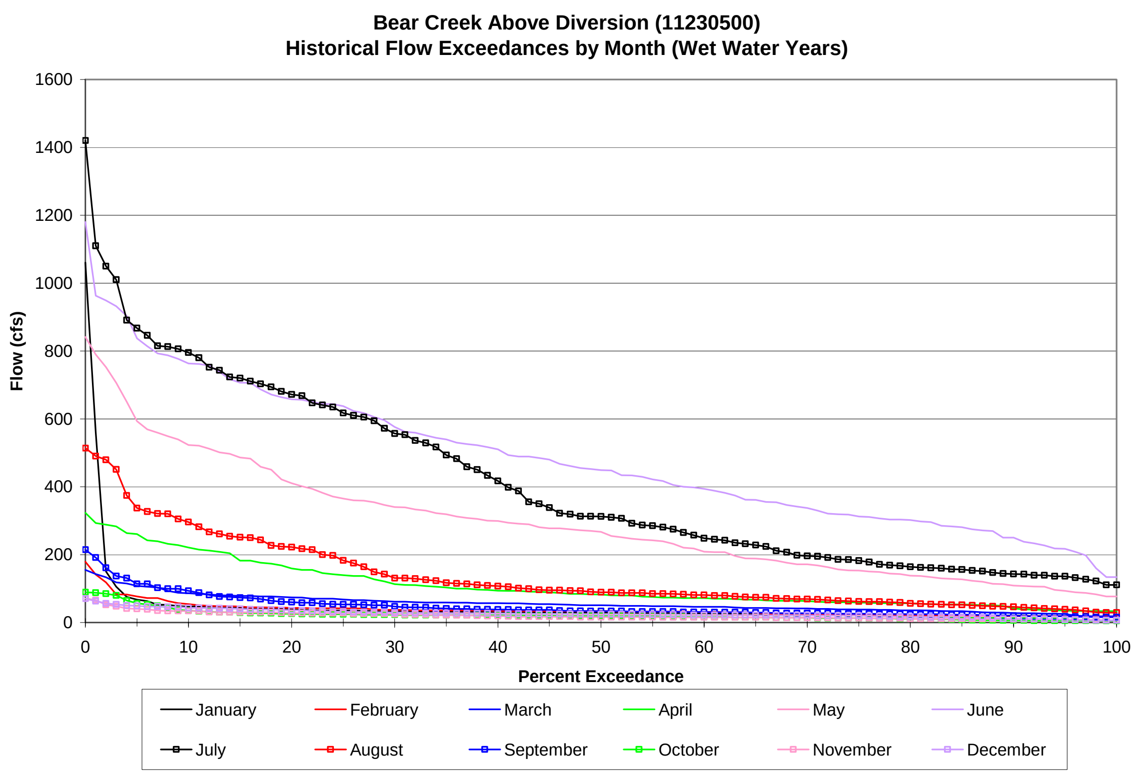
Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Dry Water Years)

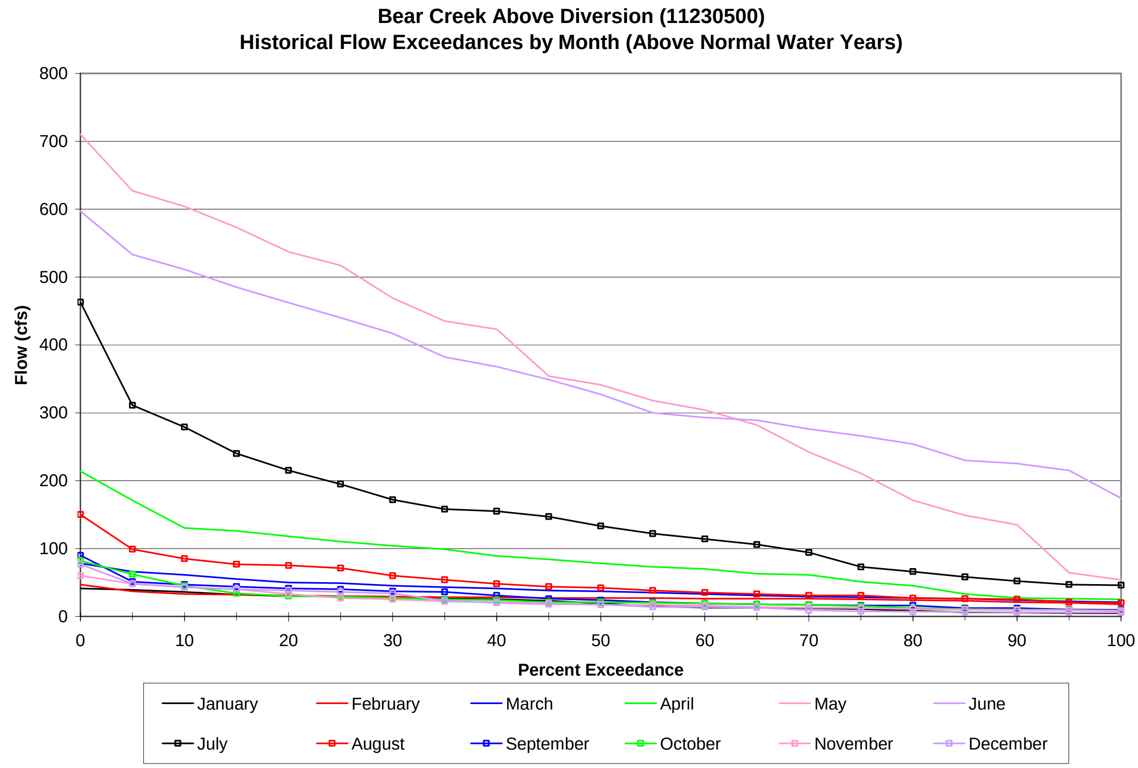


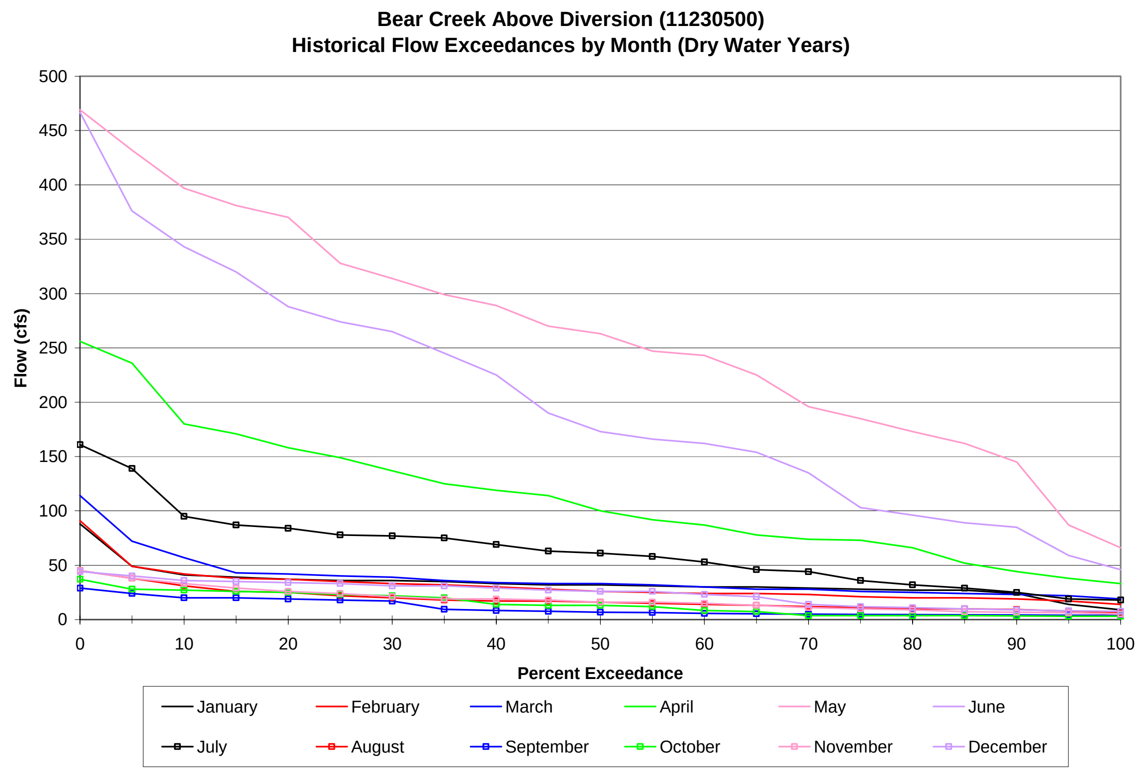
Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Critical Water Years)

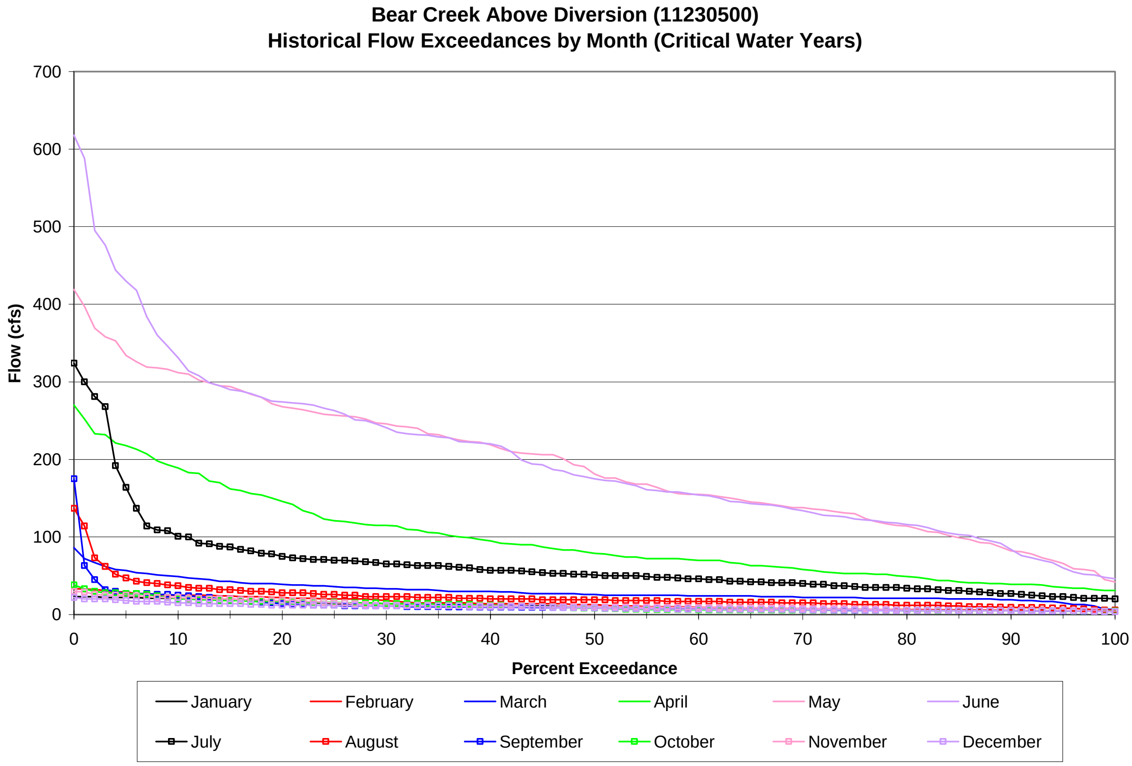


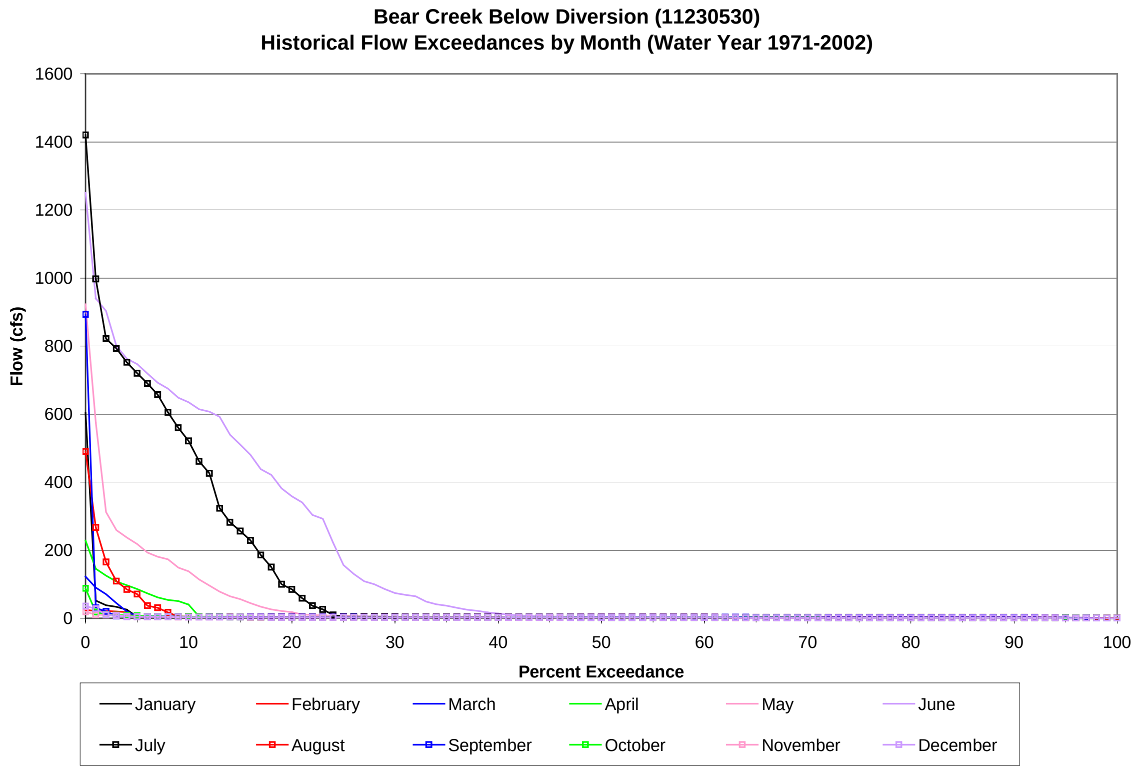

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
1600
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

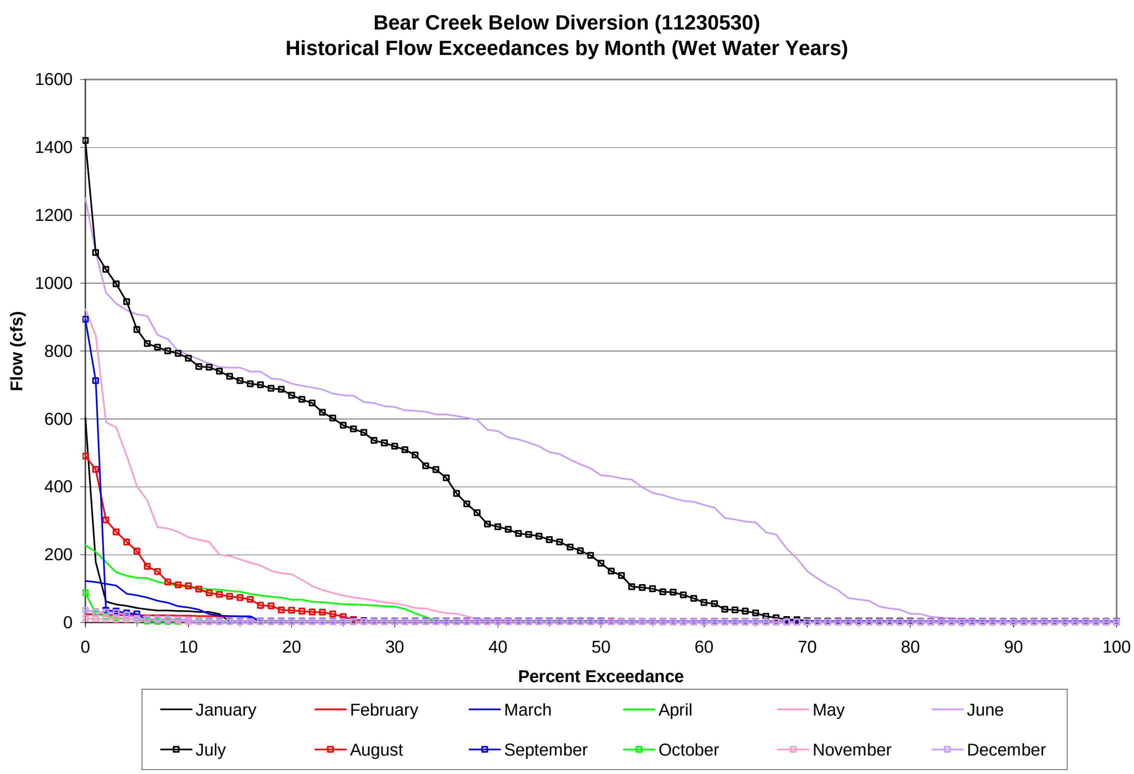

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
1600
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

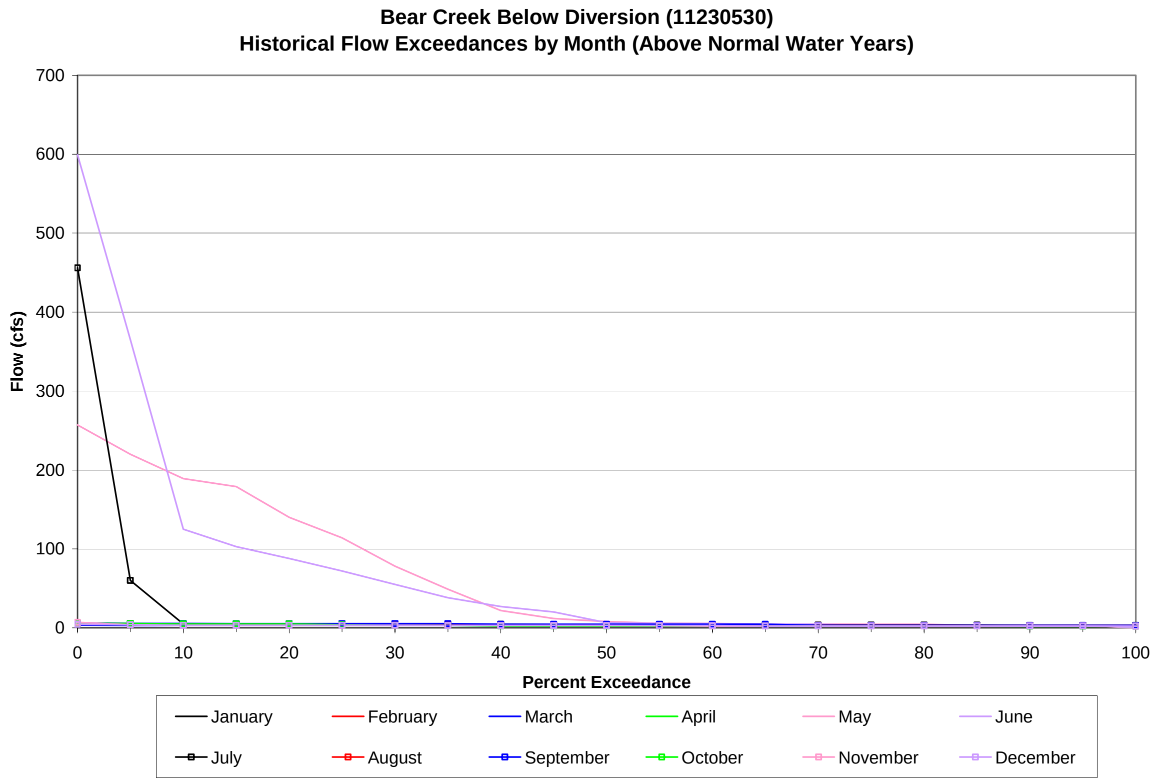

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
100
200
300
400
500
600
700
800
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

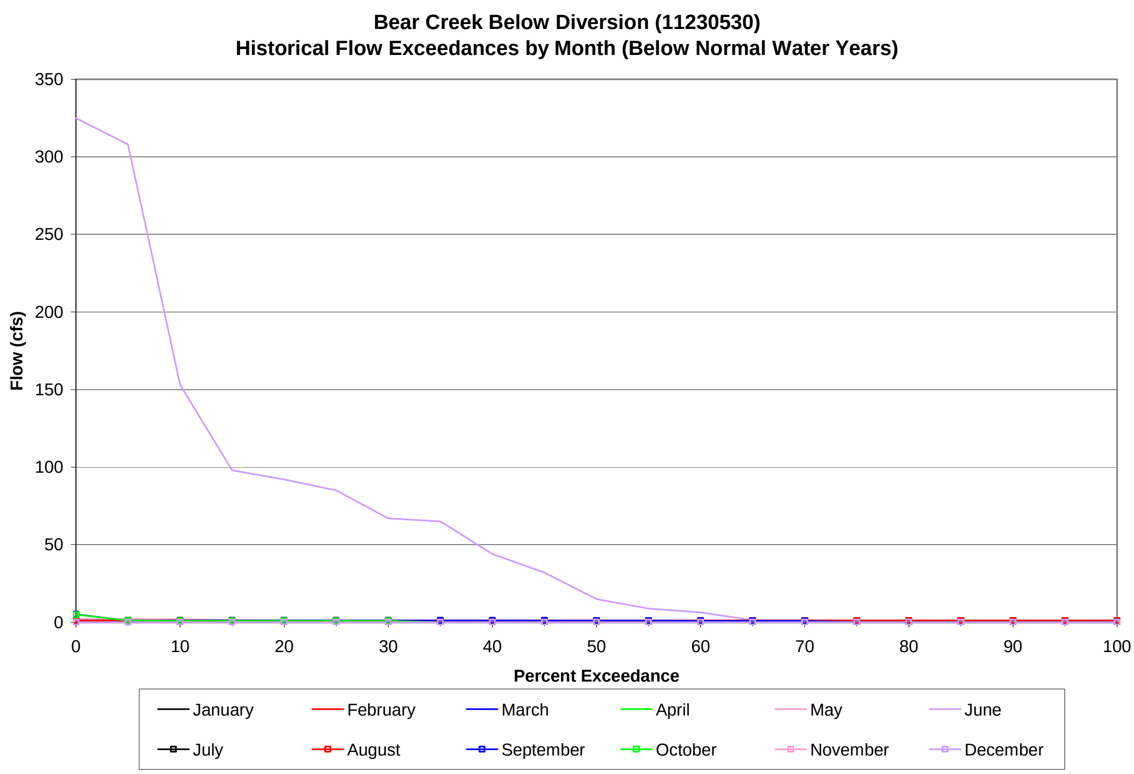

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
50
100
150
200
250
300
350
400
450
500
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

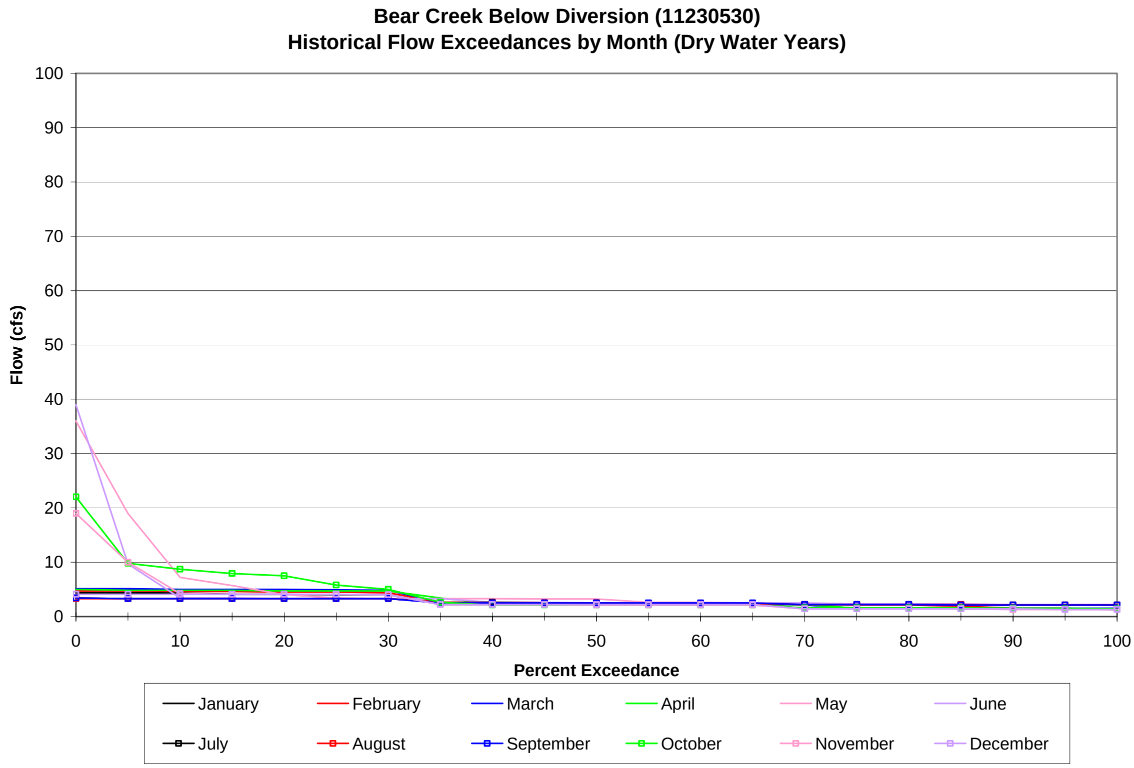

Bear Creek Above Diversion (11230500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

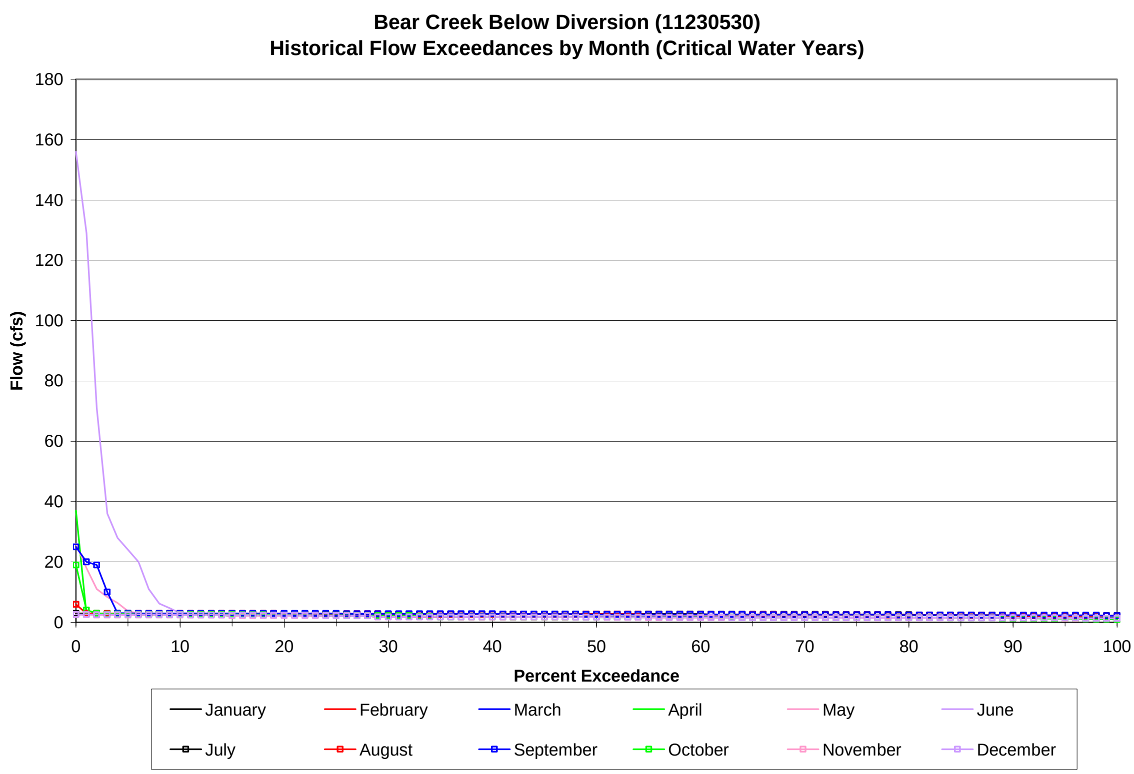

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Water Year 1971-2002)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

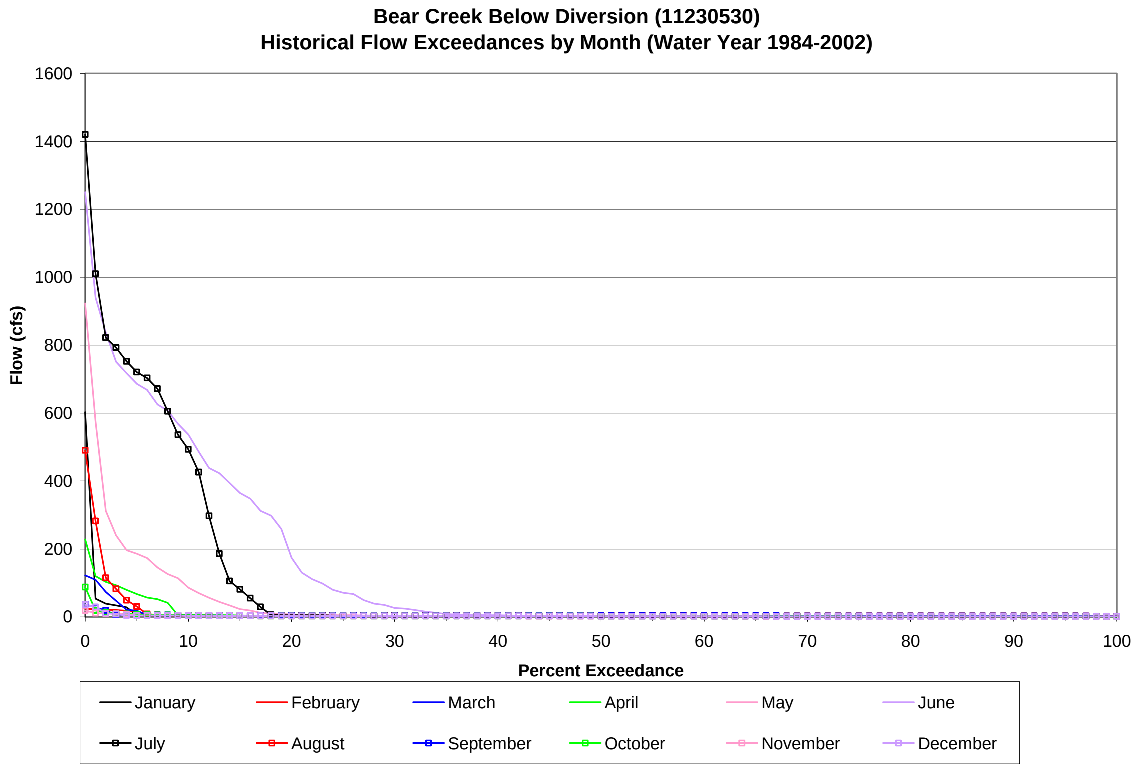

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

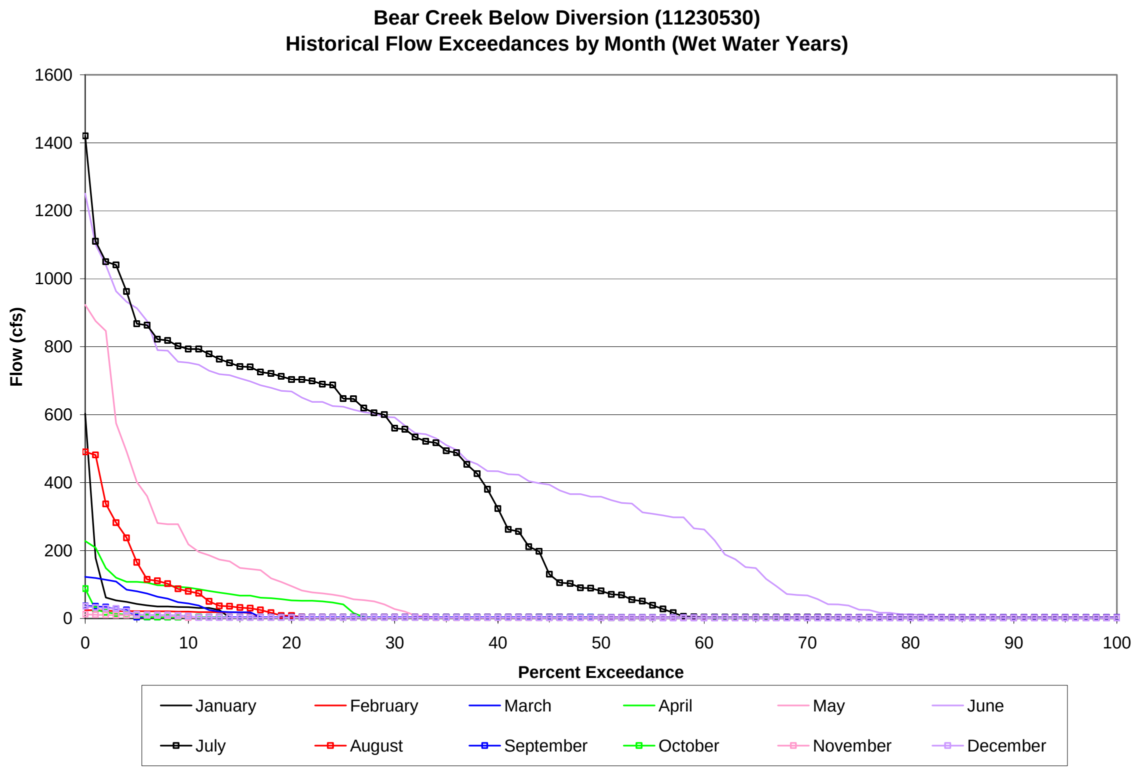

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

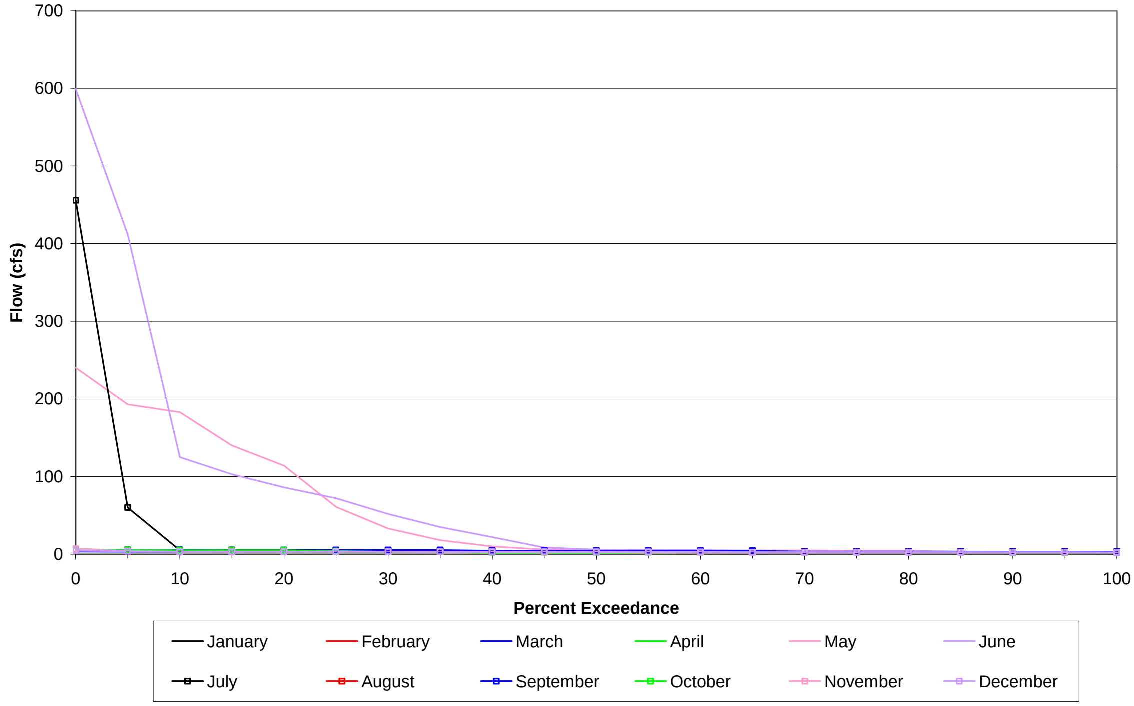

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
20
40
60
80
100
120
140
160
180
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

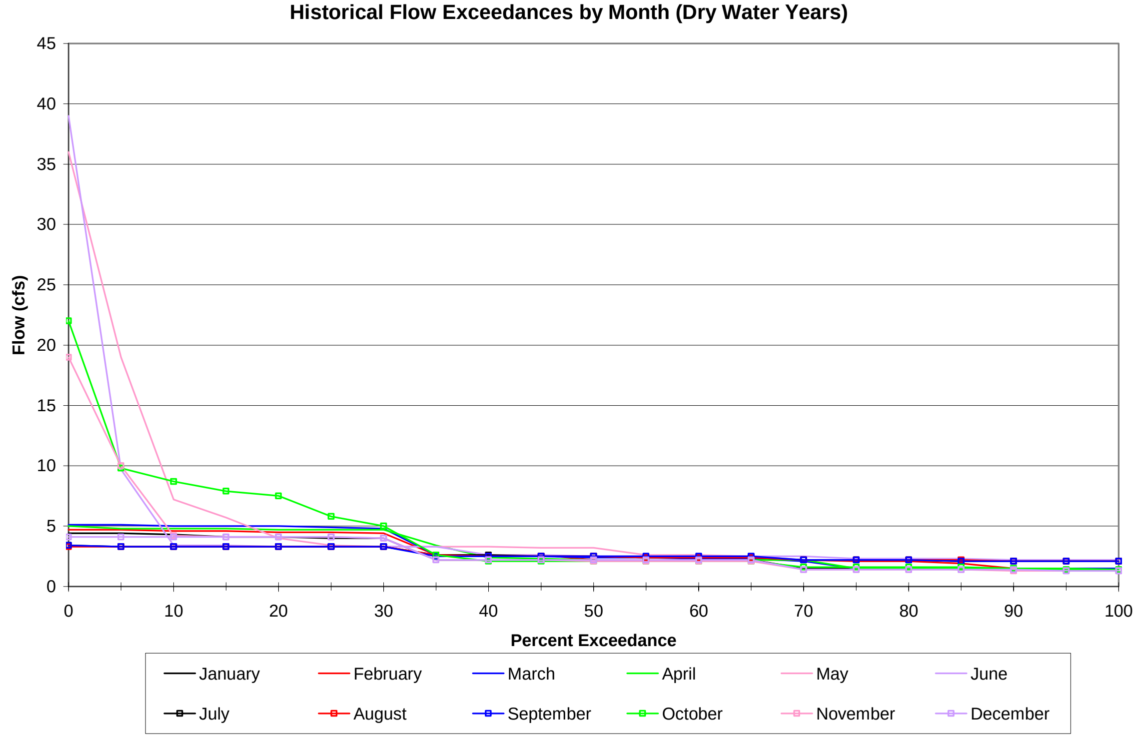

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

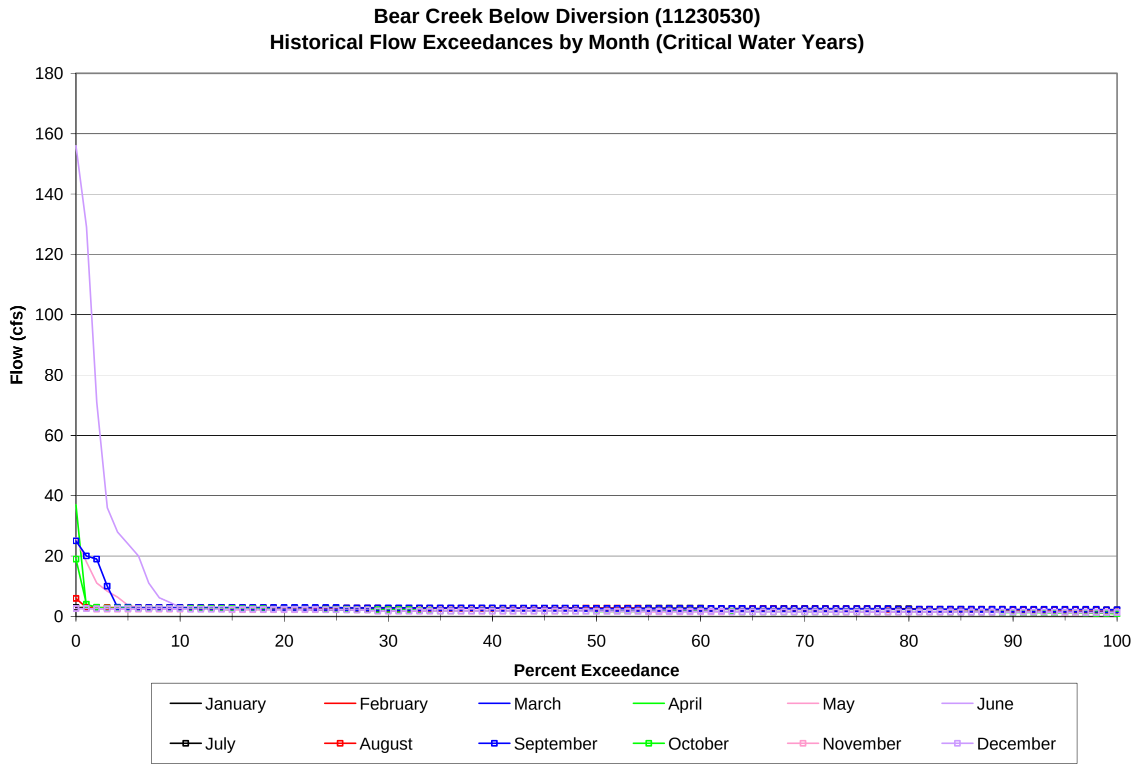

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

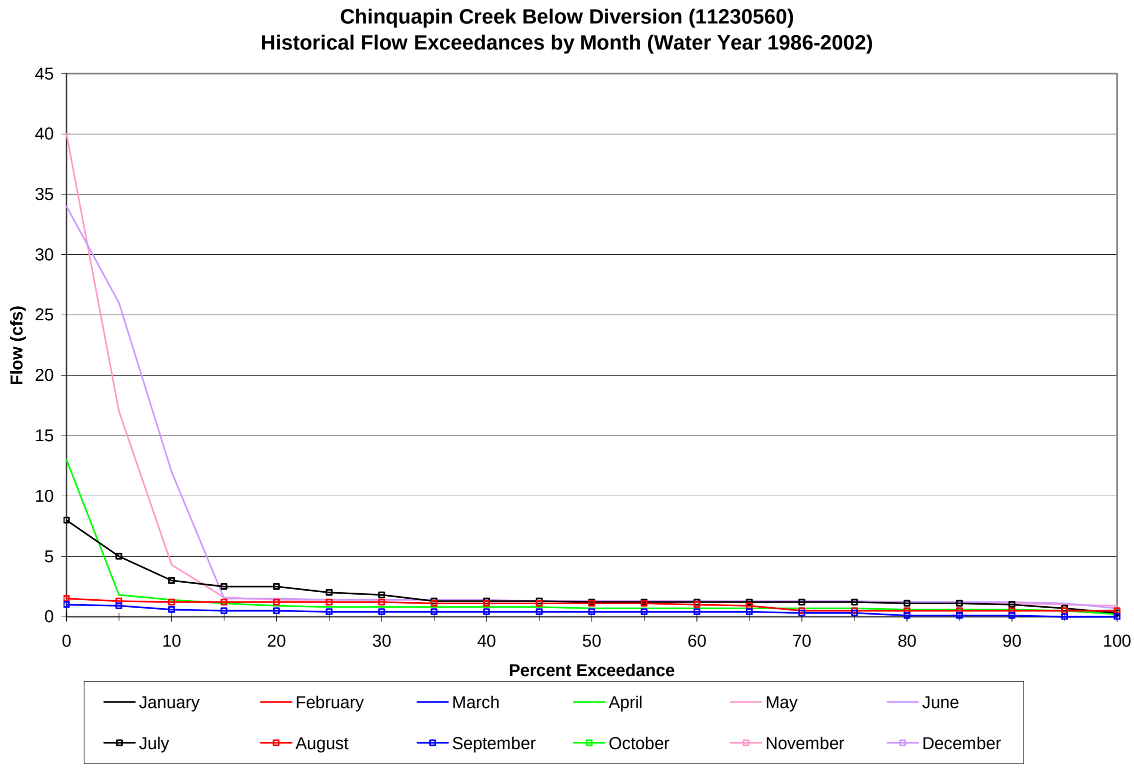
Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Above Normal Water Years)

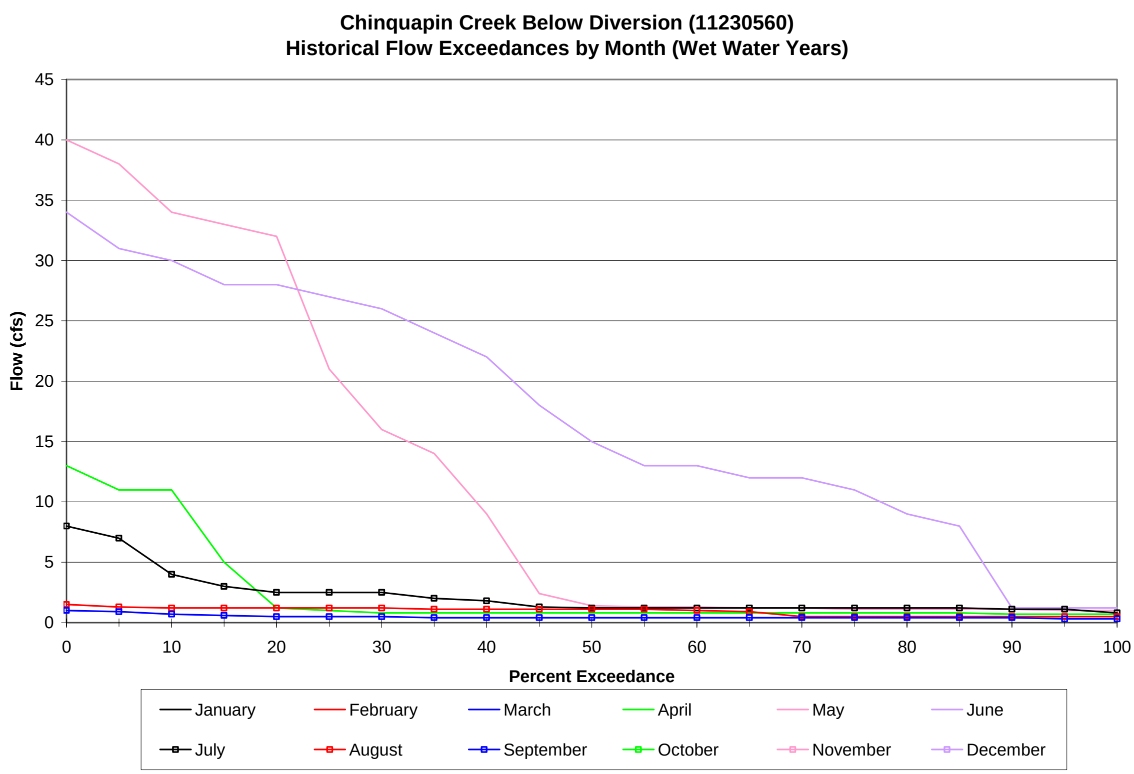


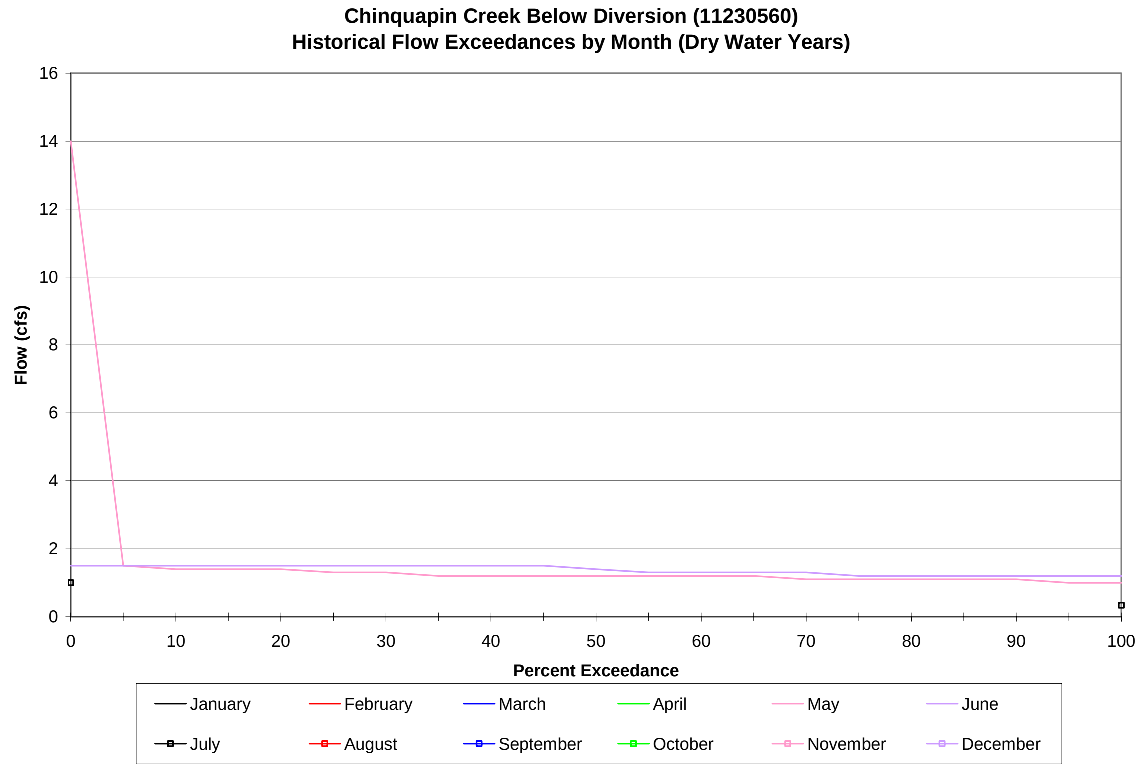
Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Dry Water Years)

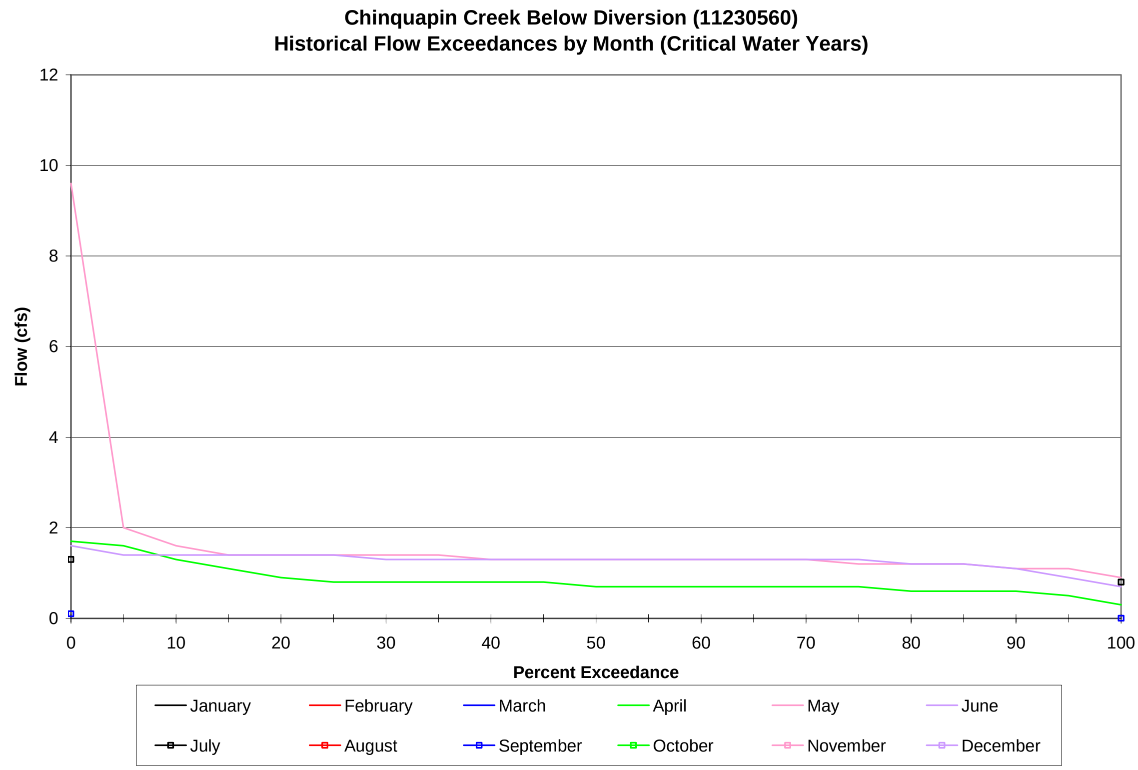


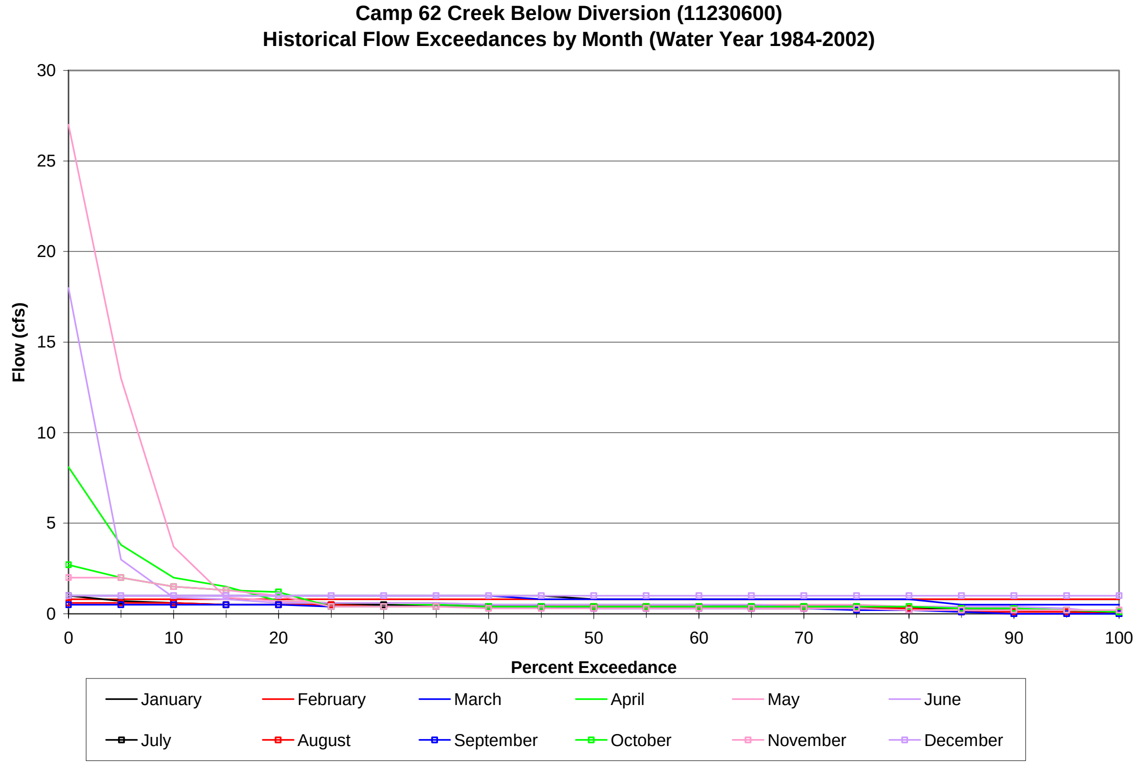

Bear Creek Below Diversion (11230530)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

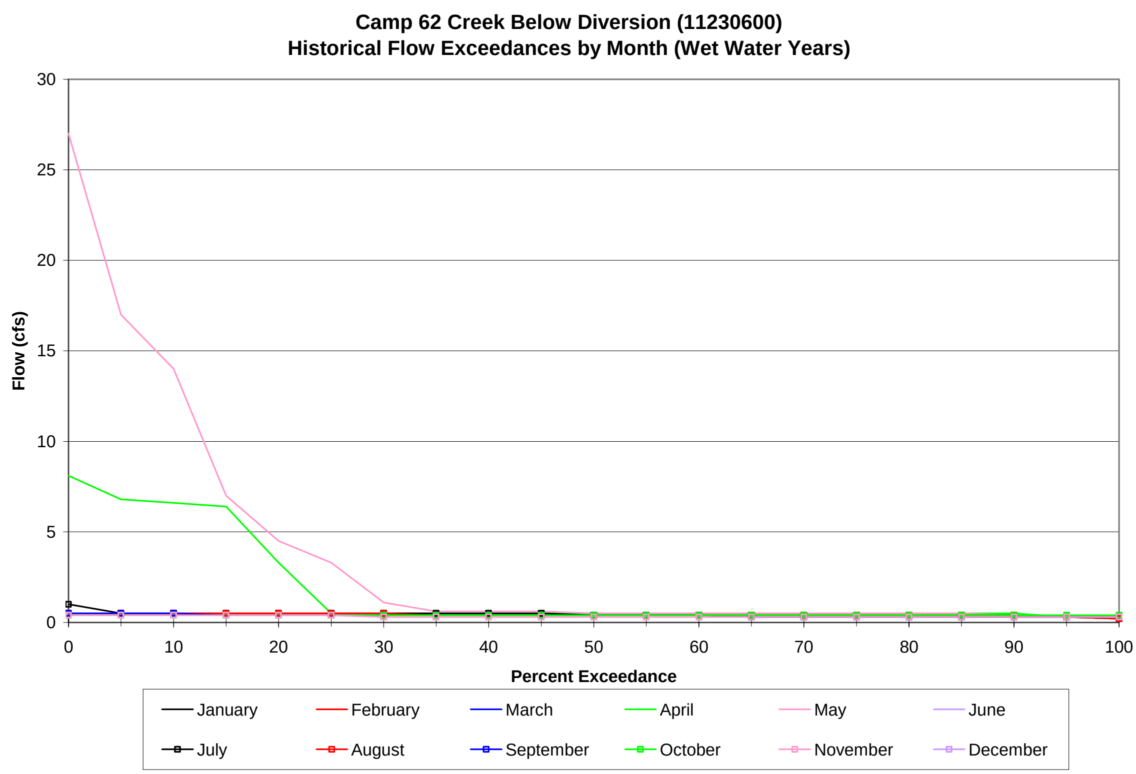

Chinquapin Creek Below Diversion (11230560)
Historical Flow Exceedances by Month (Water Year 1986-2002)
Flow (cfs)
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

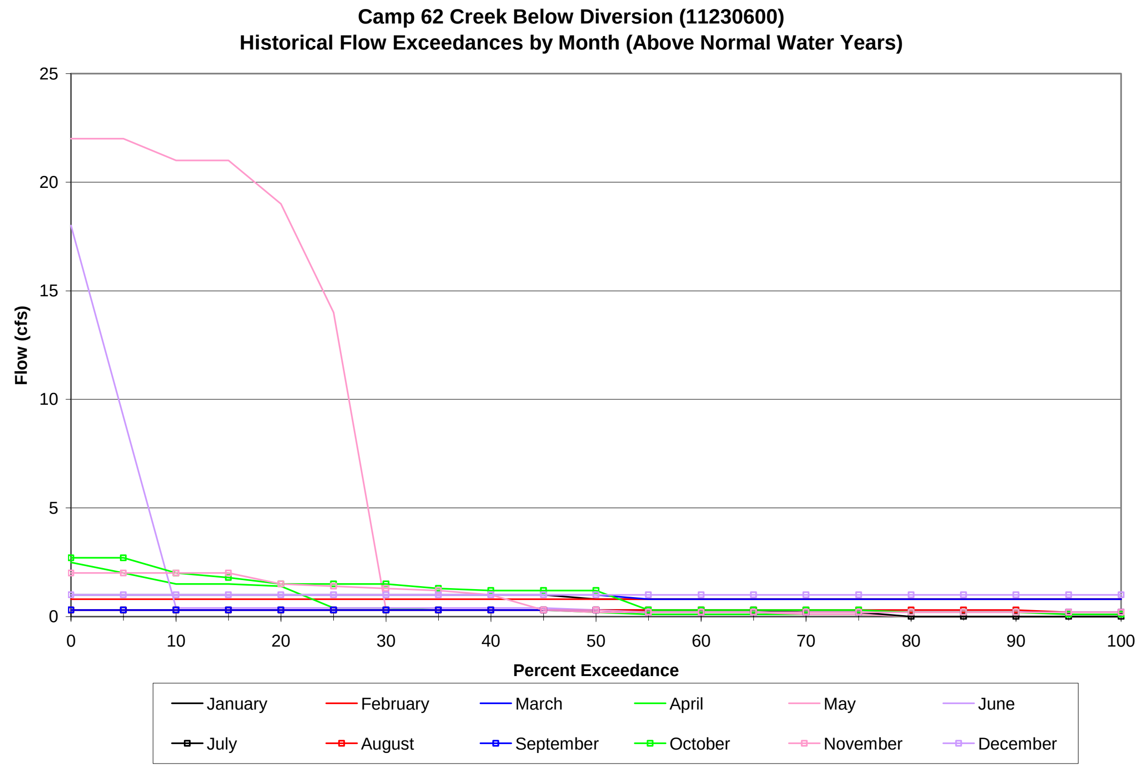

Chinquapin Creek Below Diversion (11230560)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

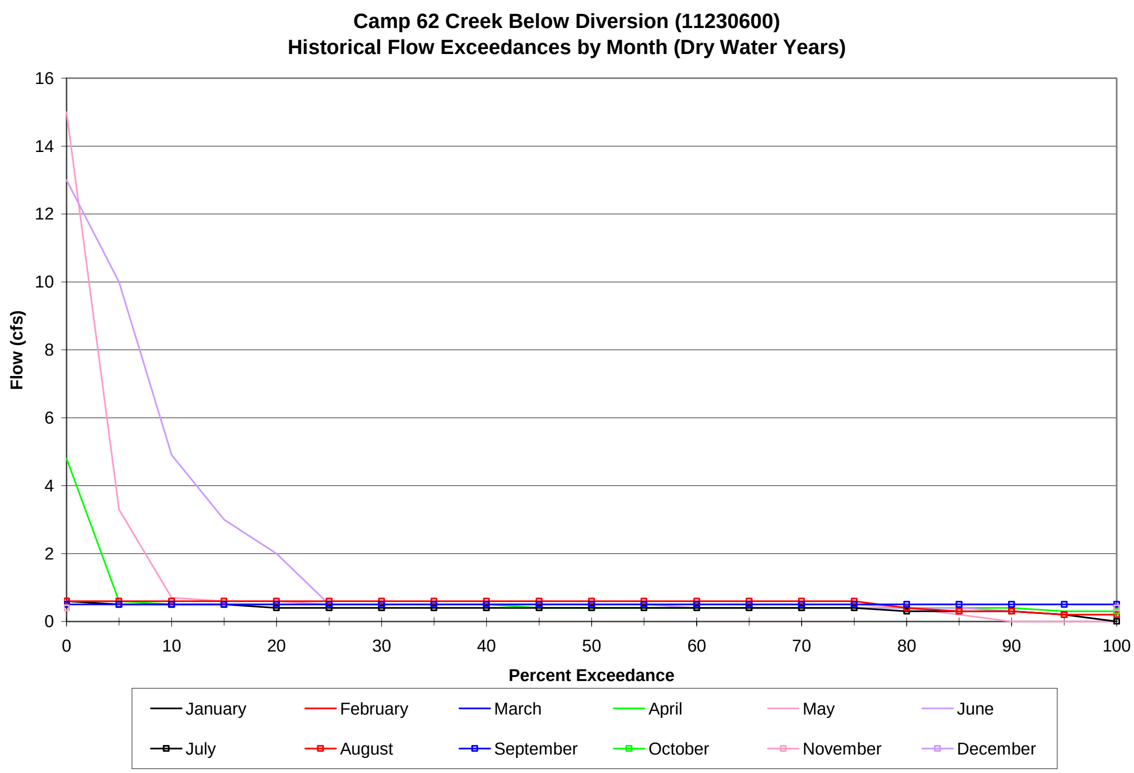

Chinquapin Creek Below Diversion (11230560)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

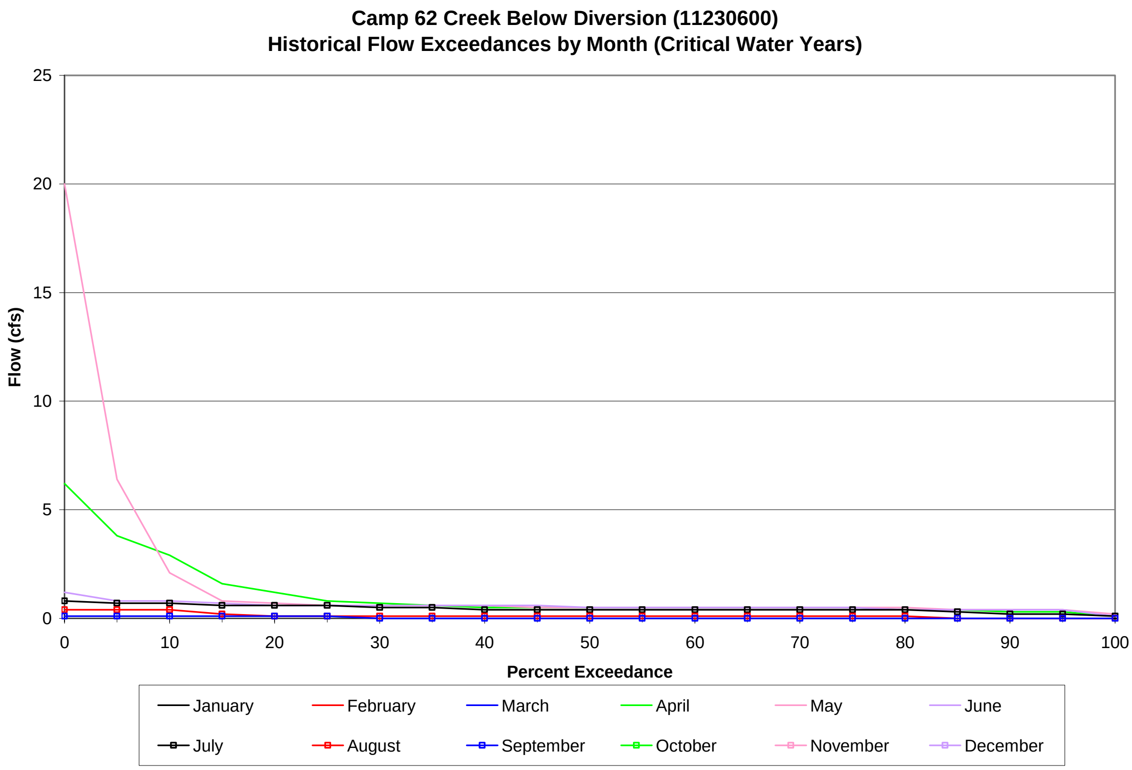

Chinquapin Creek Below Diversion (11230560)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

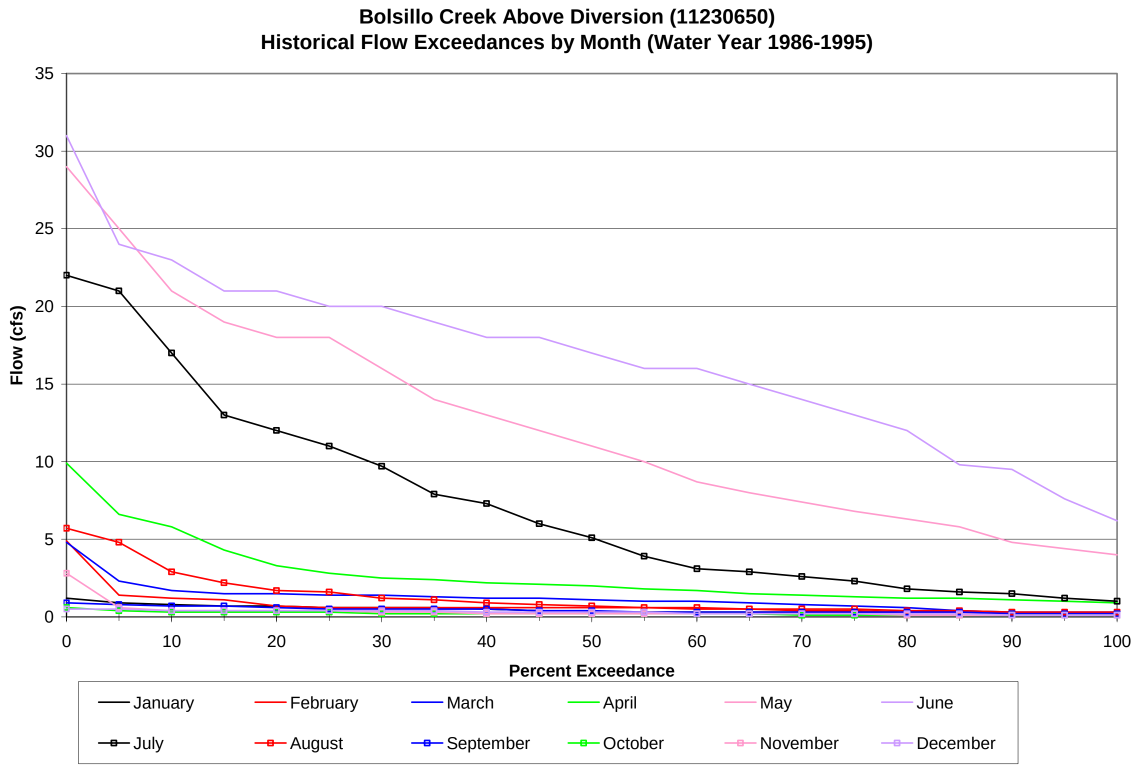

Camp 62 Creek Below Diversion (11230600)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Camp 62 Creek Below Diversion (11230600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

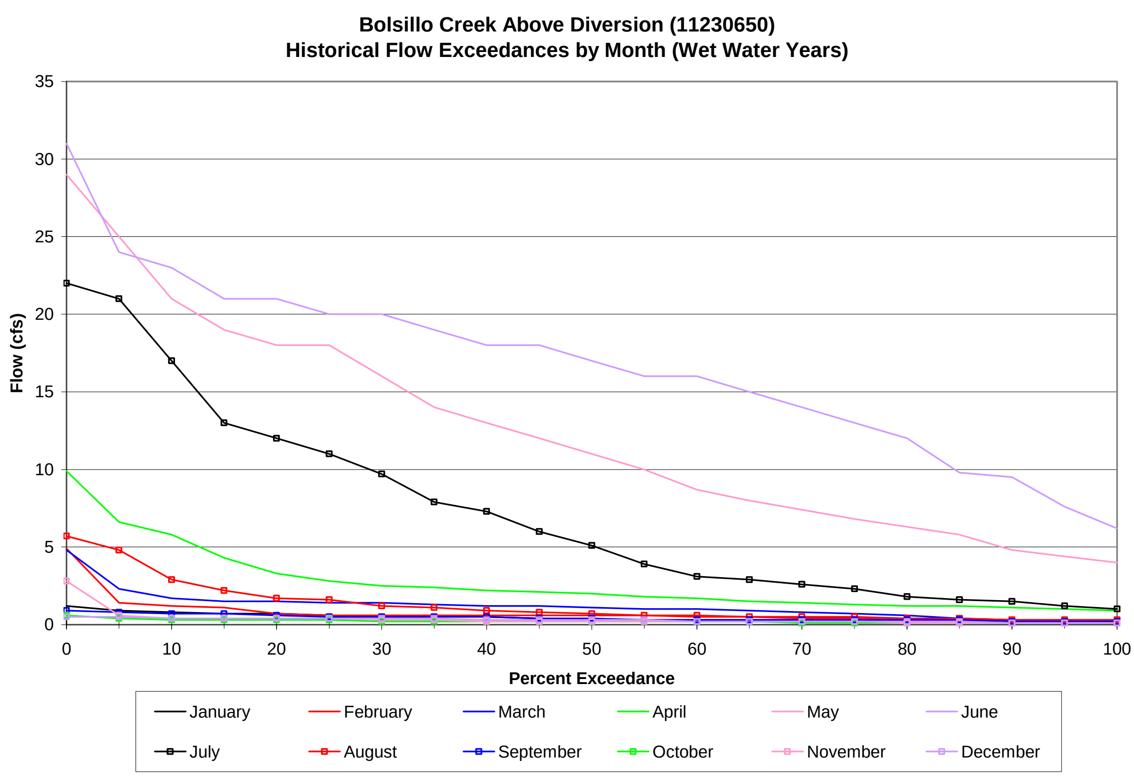

Camp 62 Creek Below Diversion (11230600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
5
10
15
20
25
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Camp 62 Creek Below Diversion (11230600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
2
4
6
8
10
12
14
16
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

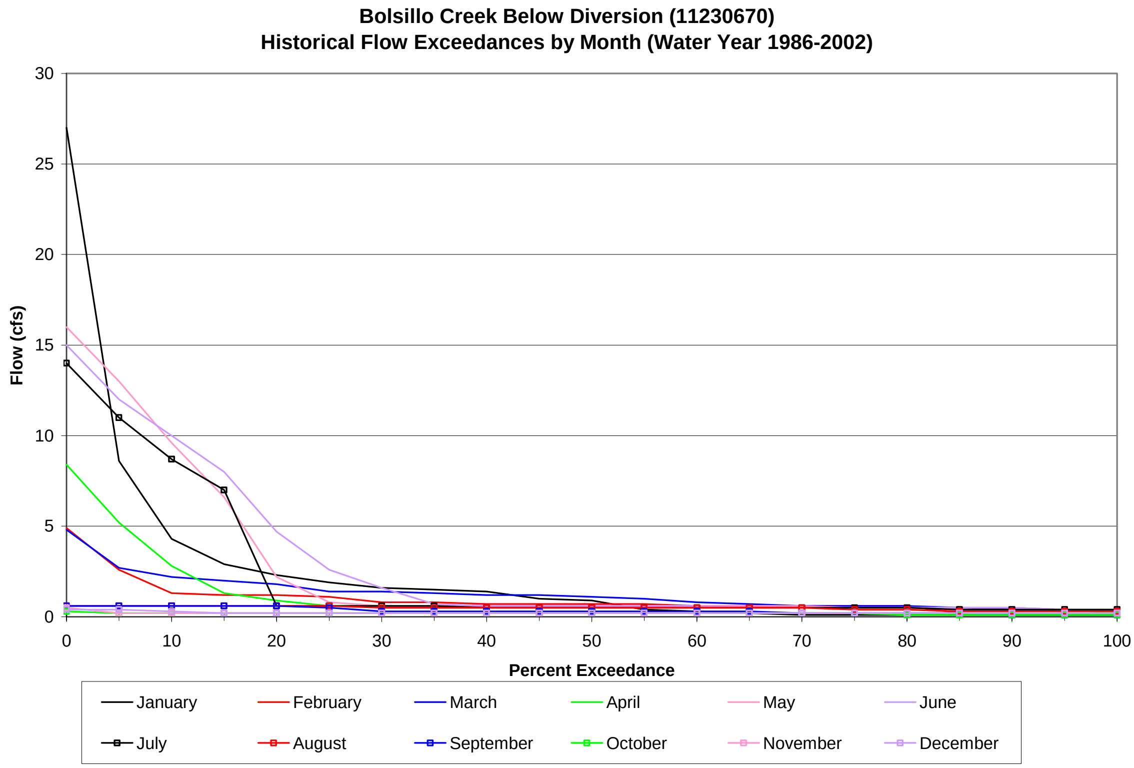

Camp 62 Creek Below Diversion (11230600)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

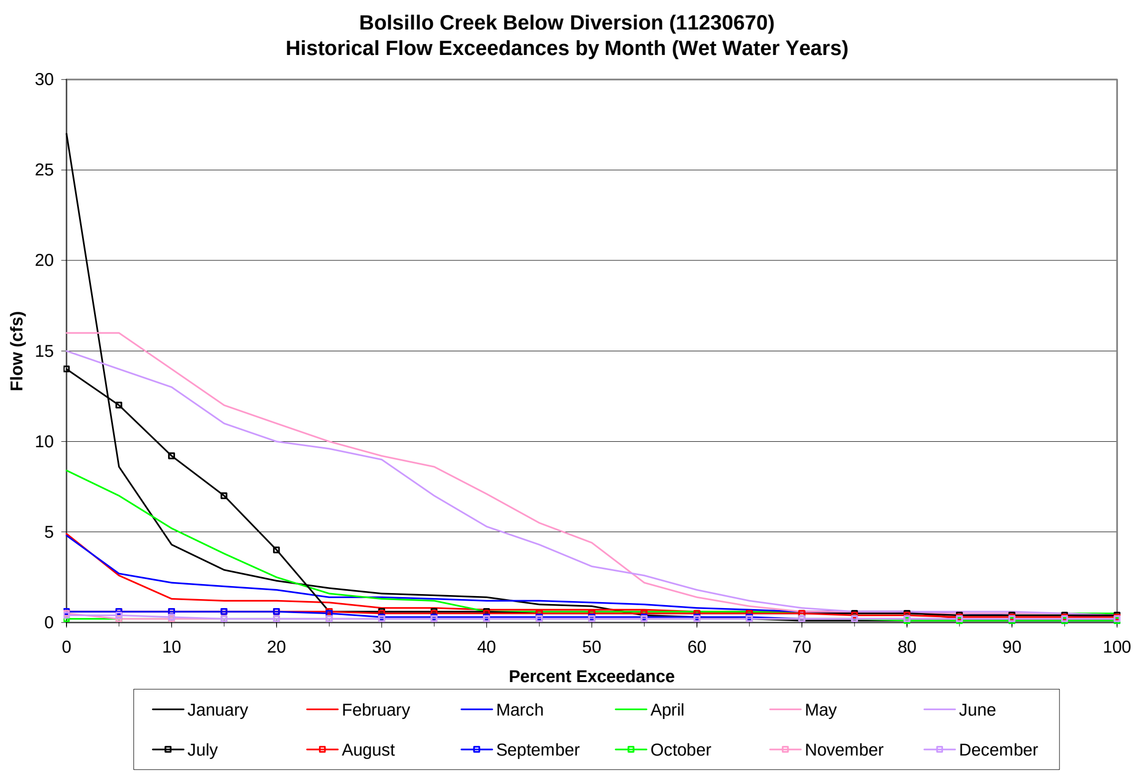


Bolsillo Creek Above Diversion (11230650)
Historical Flow Exceedances by Month (Water Year 1986-1995)
Flow (cfs)
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

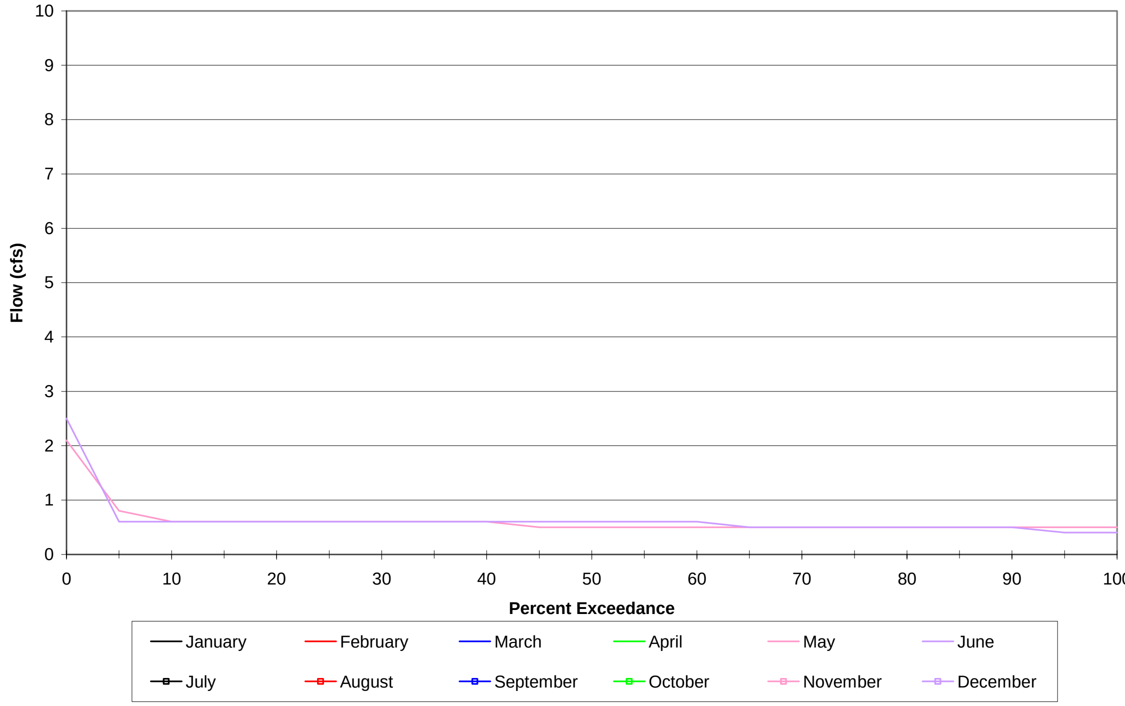


Bolsillo Creek Above Diversion (11230650)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

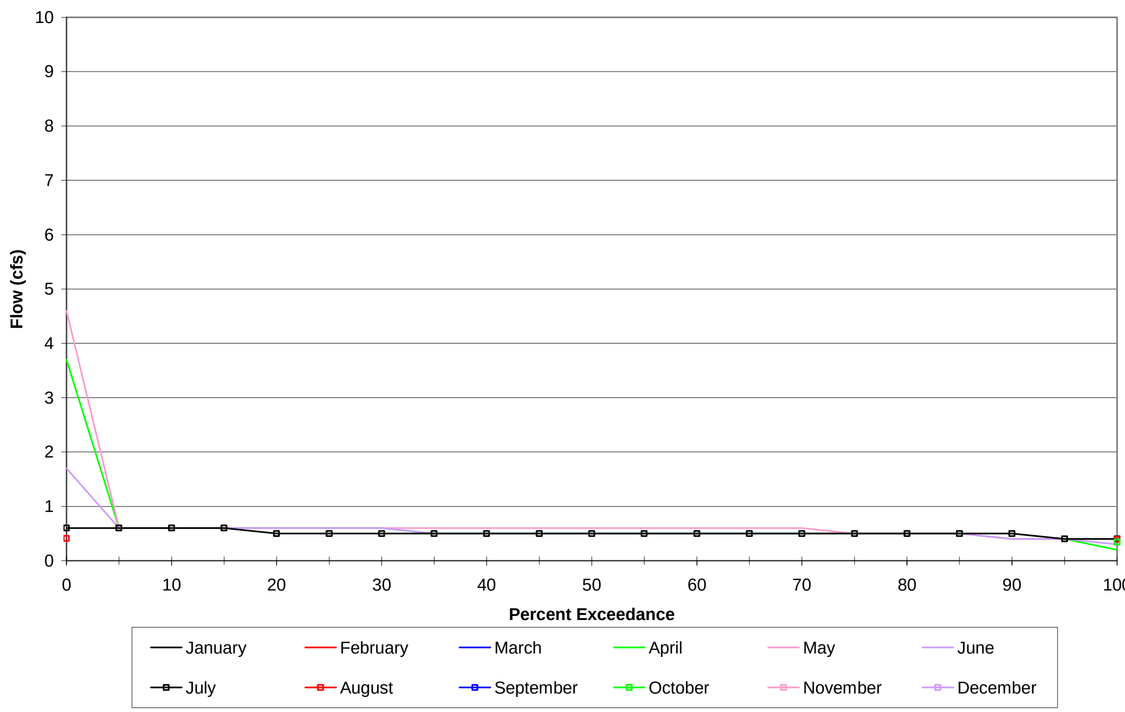

Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Water Year 1986-2002)
Flow (cfs)
Percent Exceedance
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

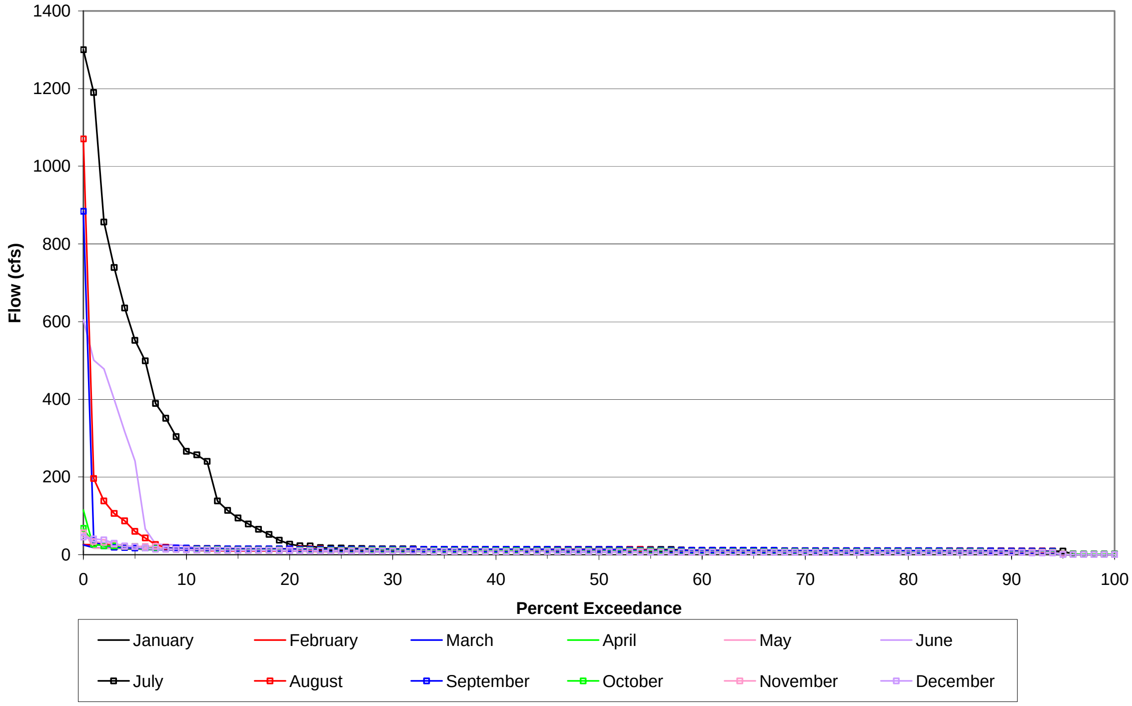
Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Dry Water Years)



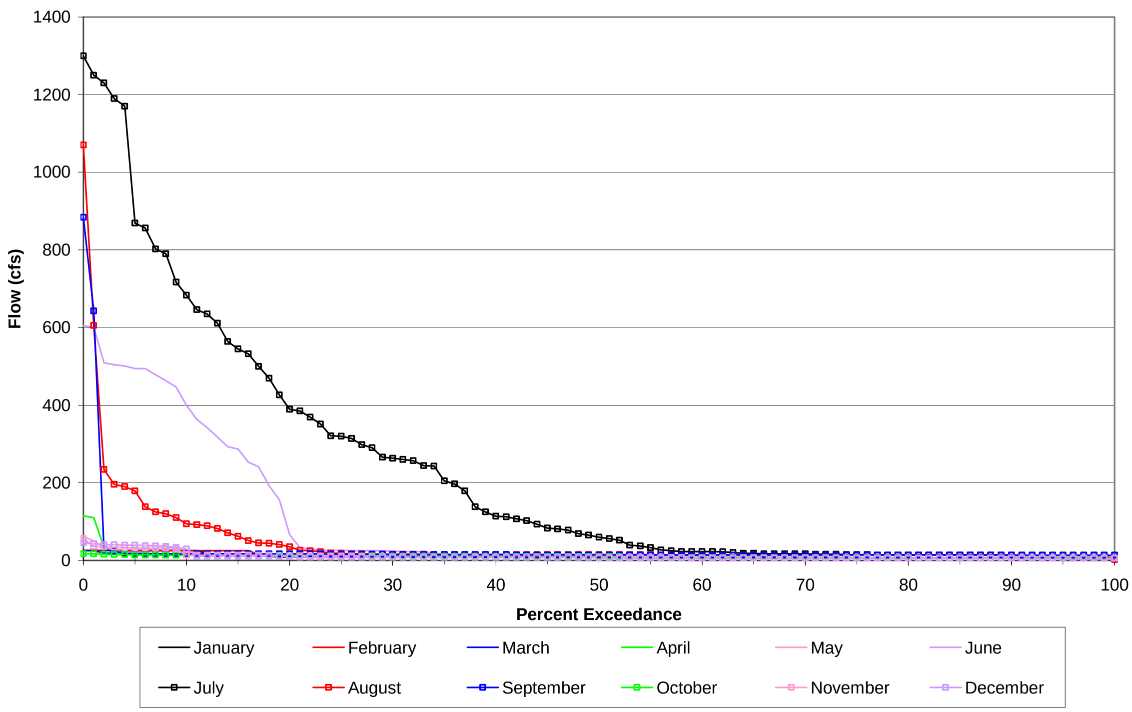
Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Critical Water Years)

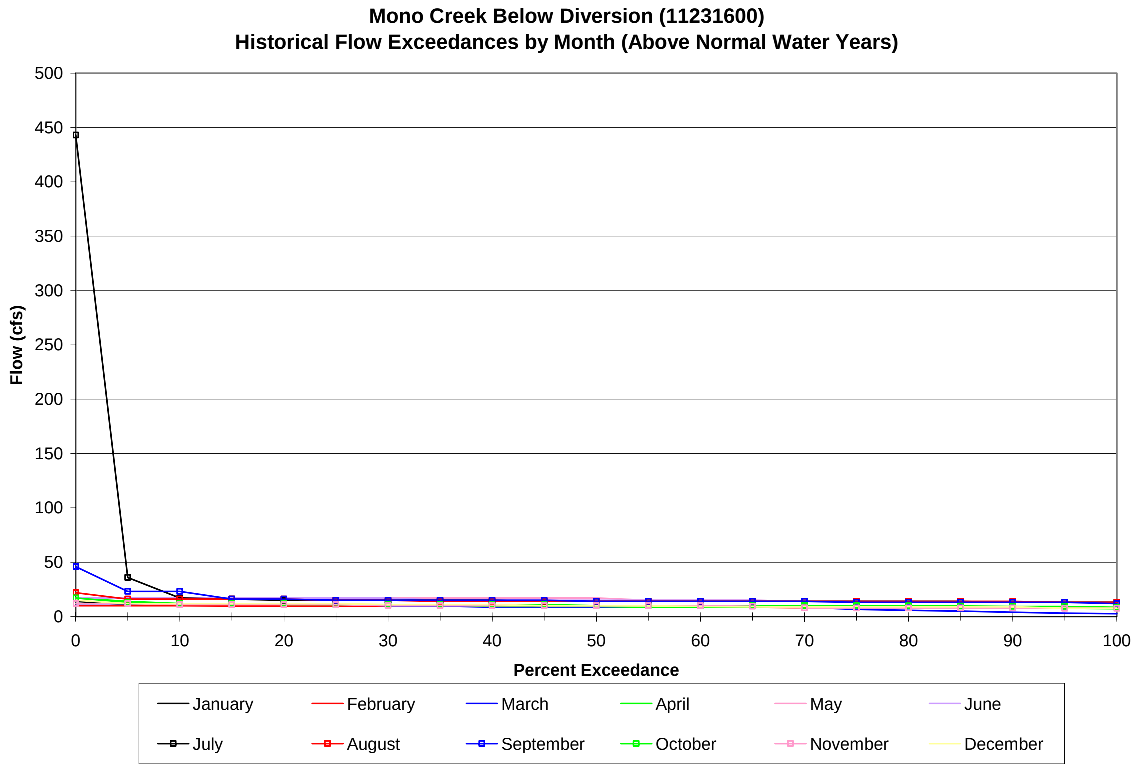


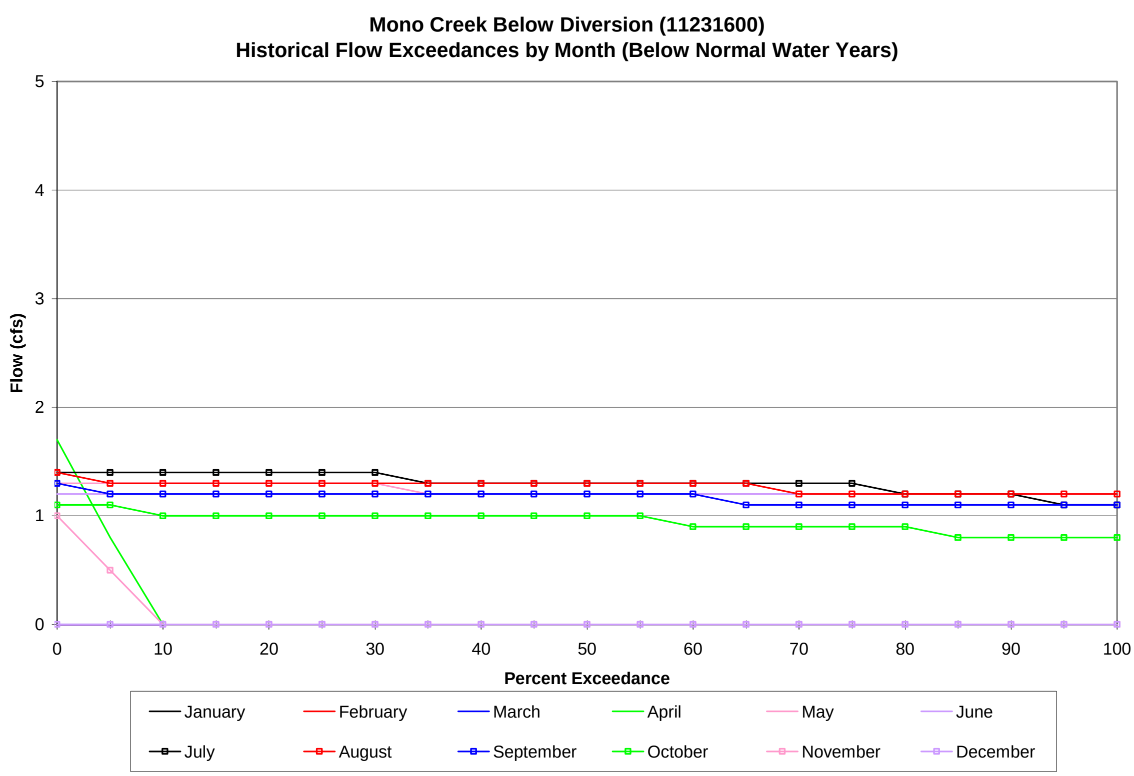
Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Water Year 1971-2002)

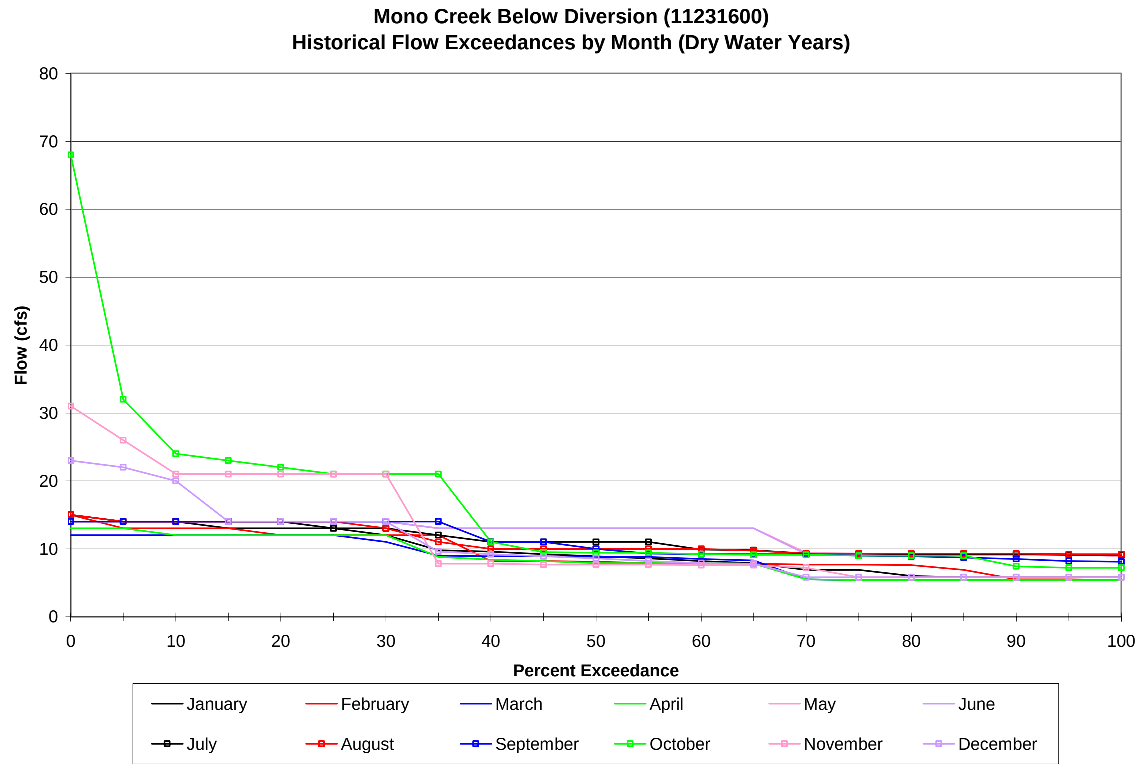


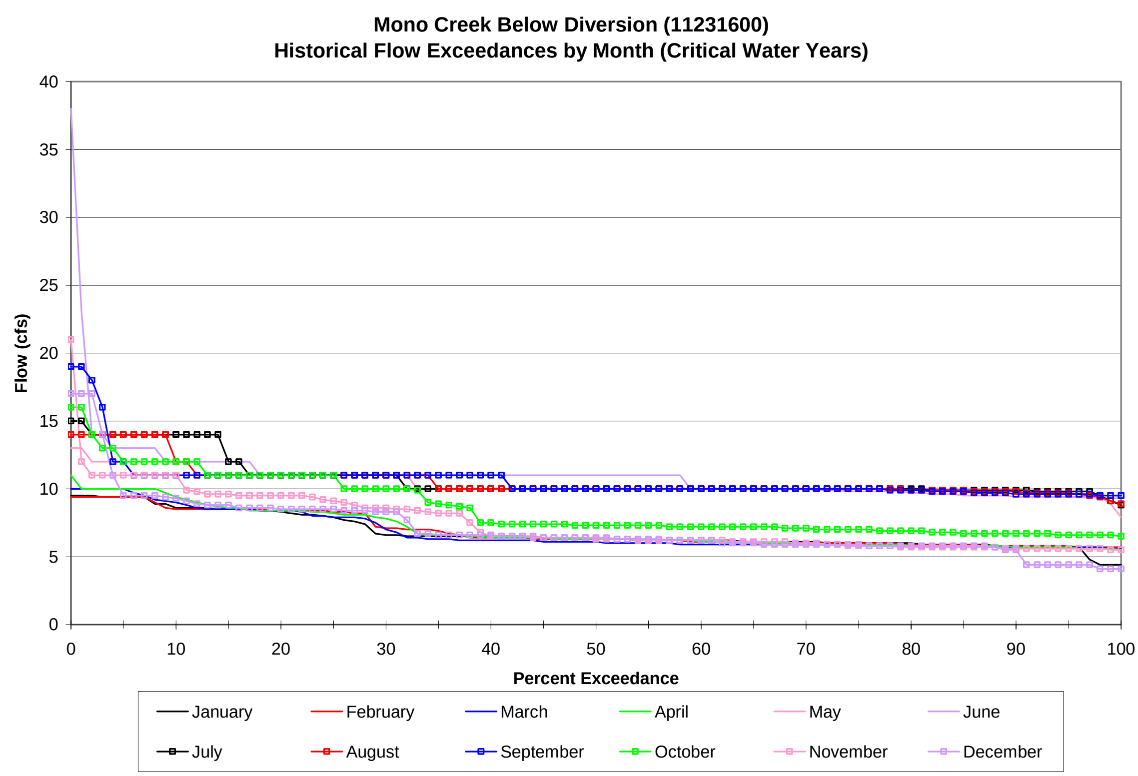
Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Wet Water Years)

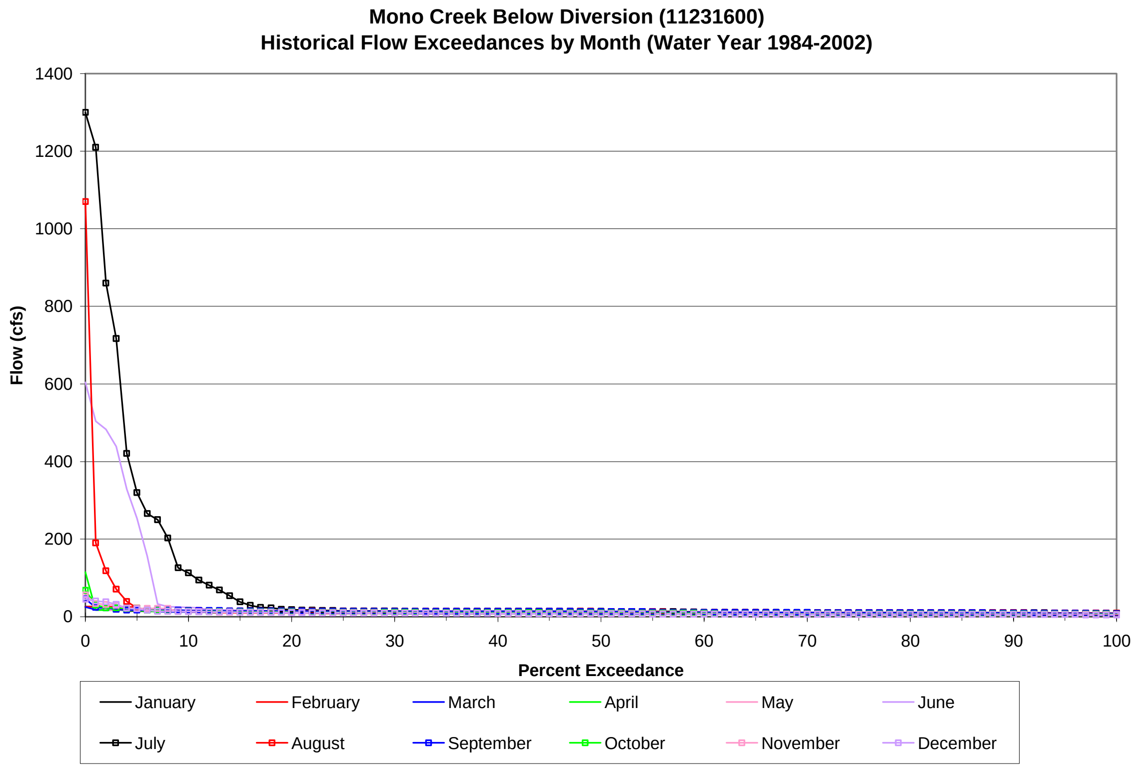


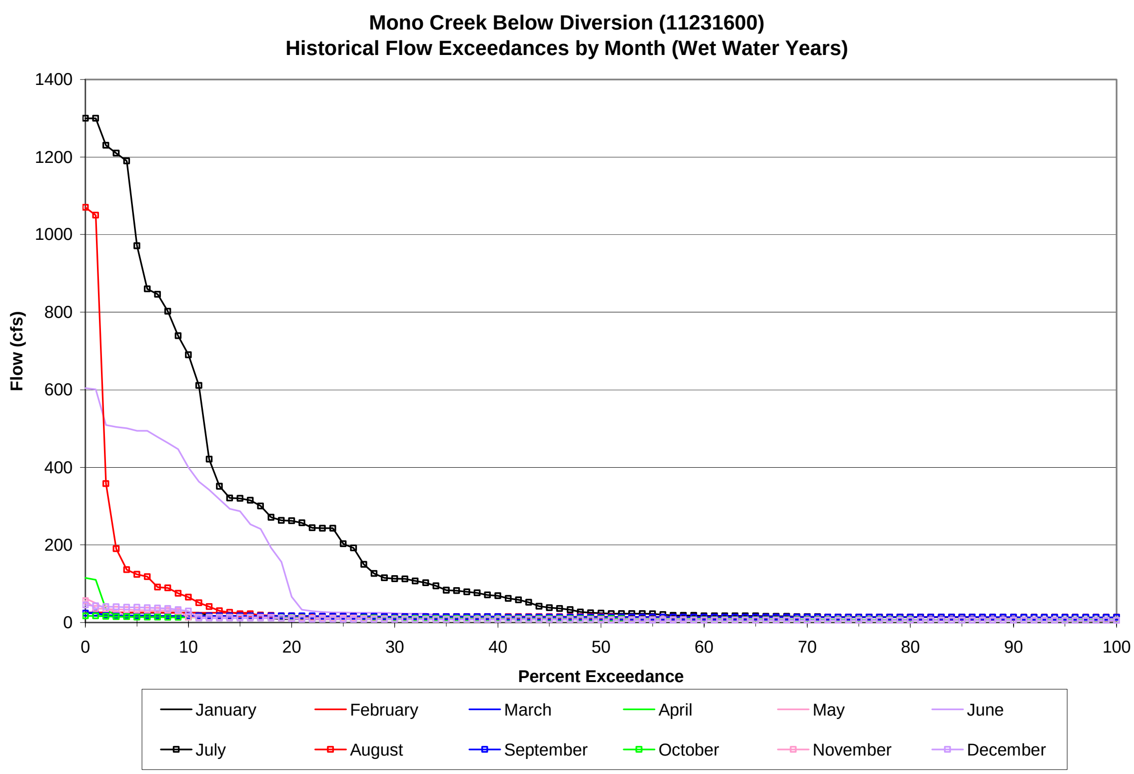

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

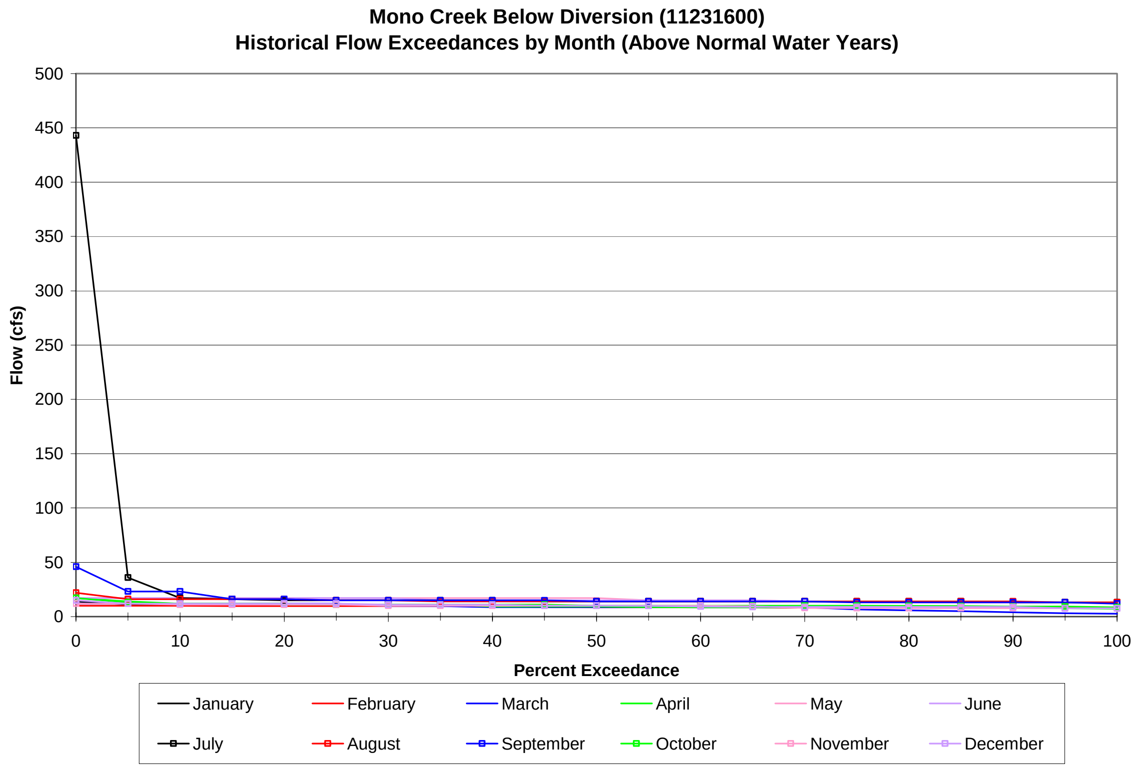

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
5
4
3
2
1
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

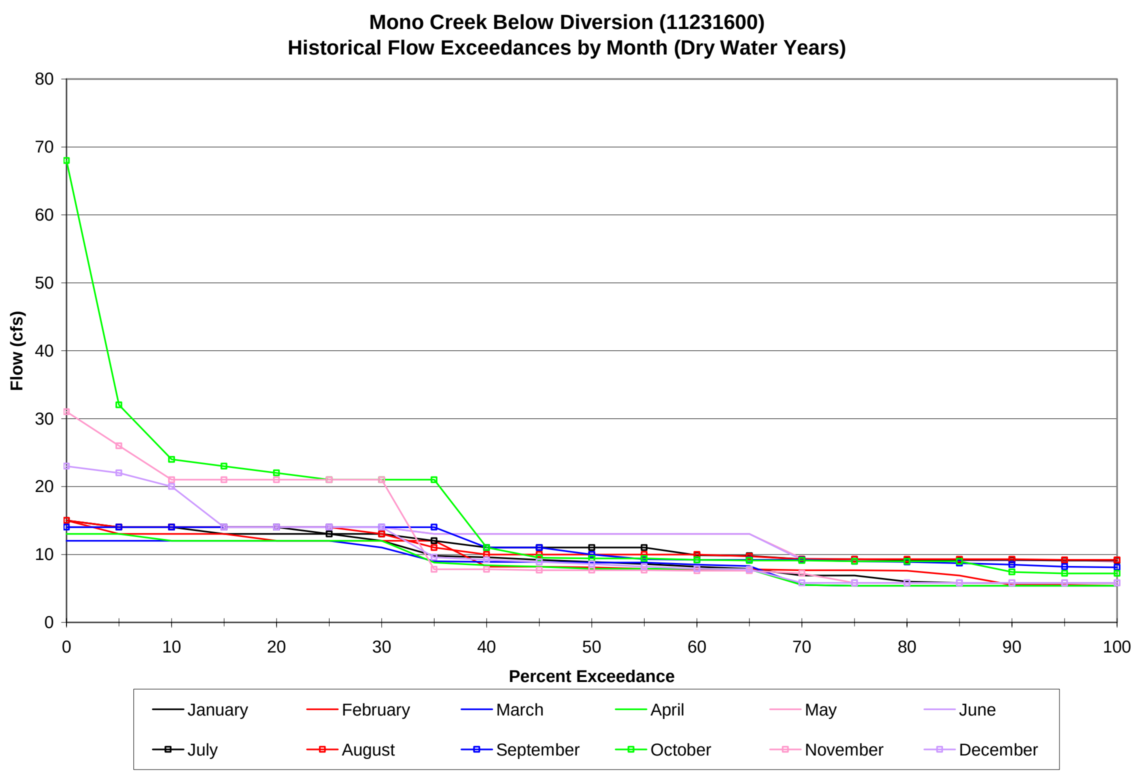

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
10
20
30
40
50
60
70
80
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

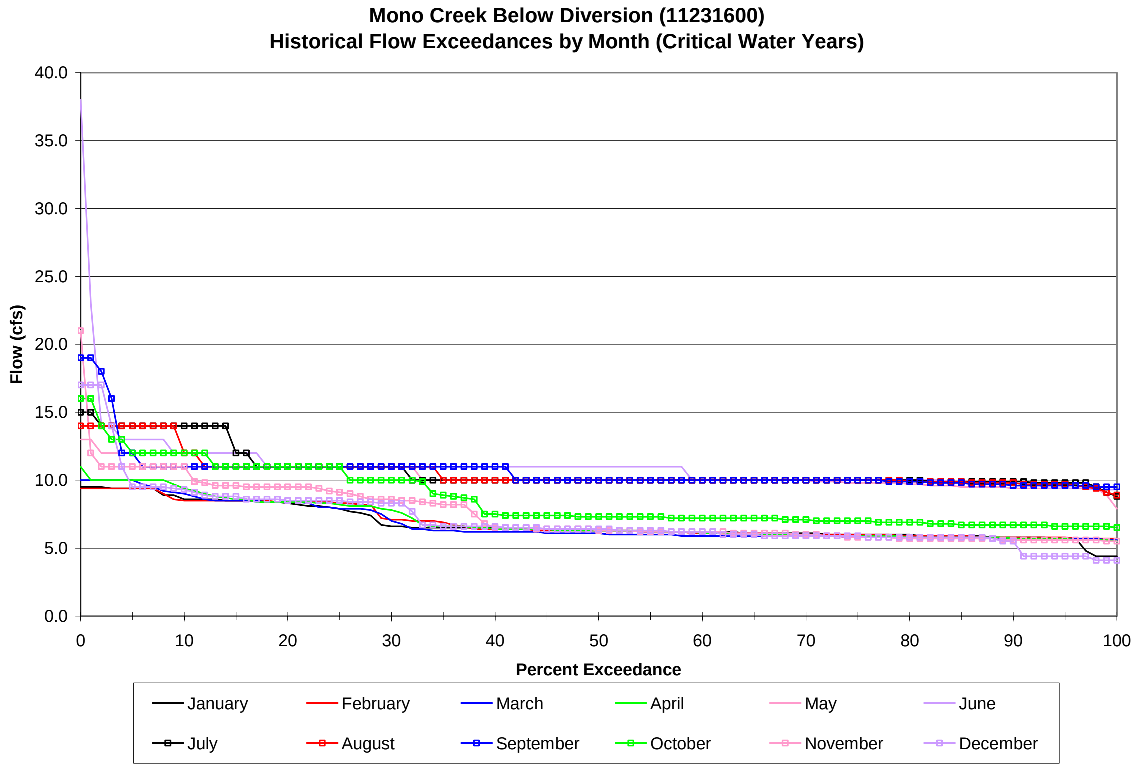

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
5
10
15
20
25
30
35
40
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

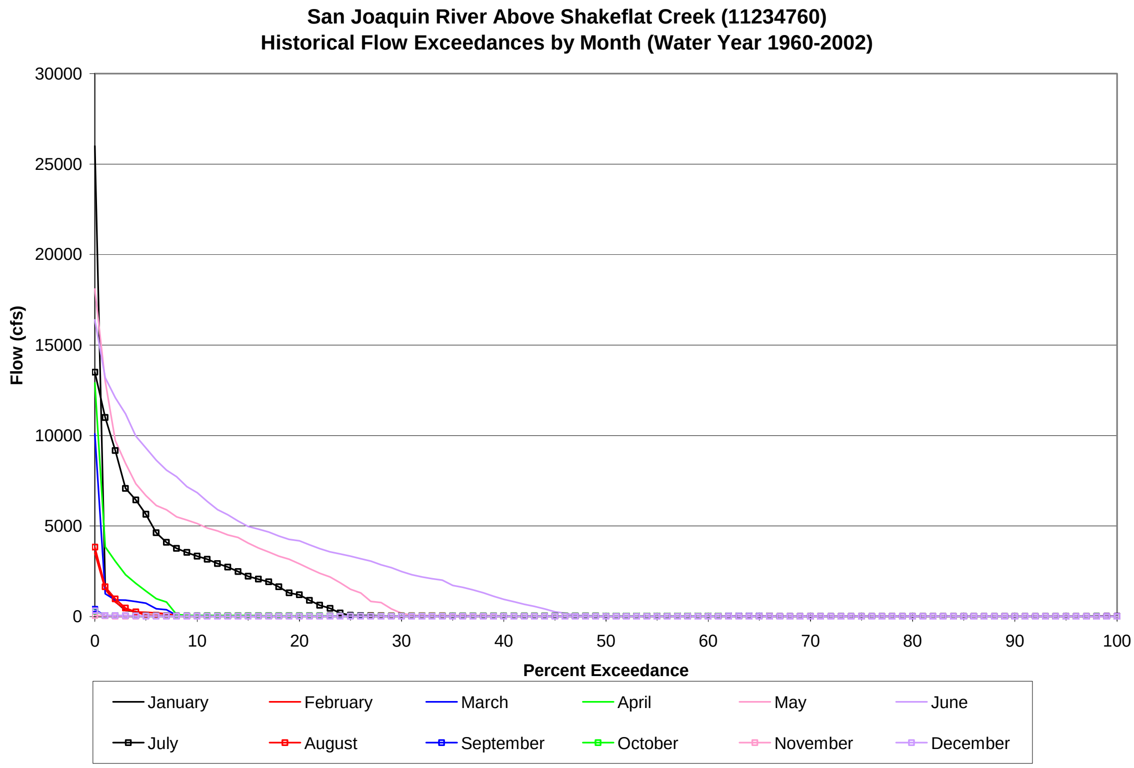

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

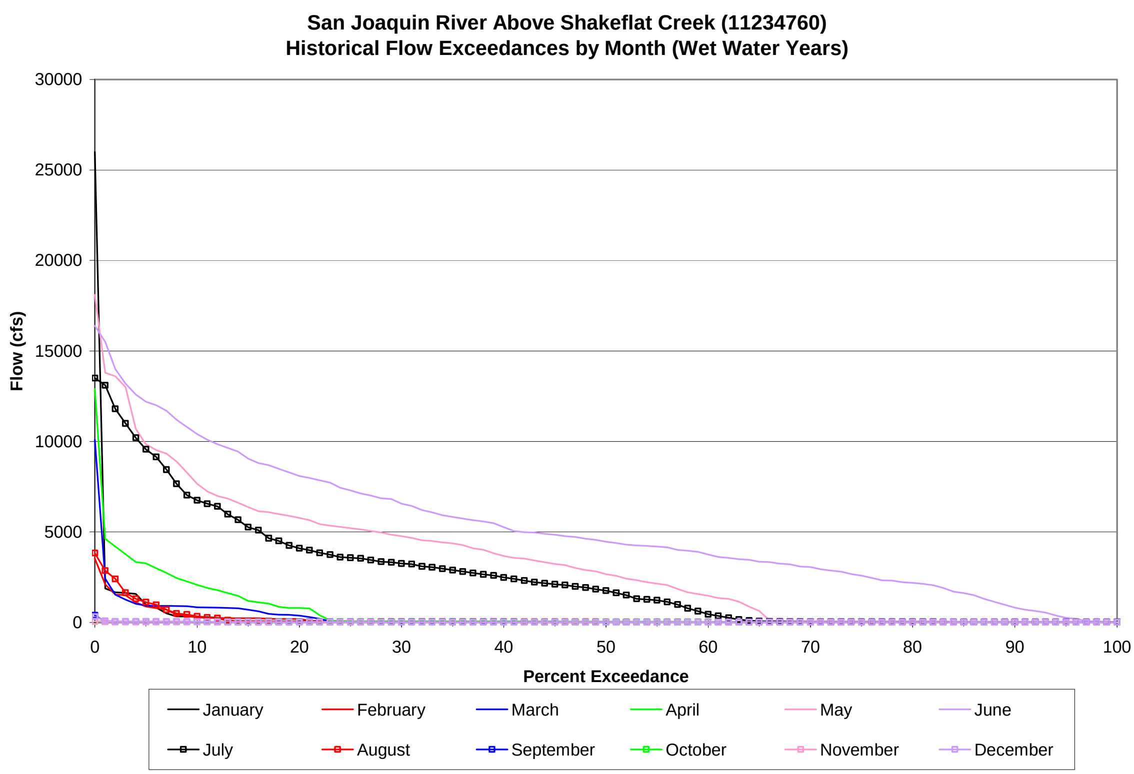

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

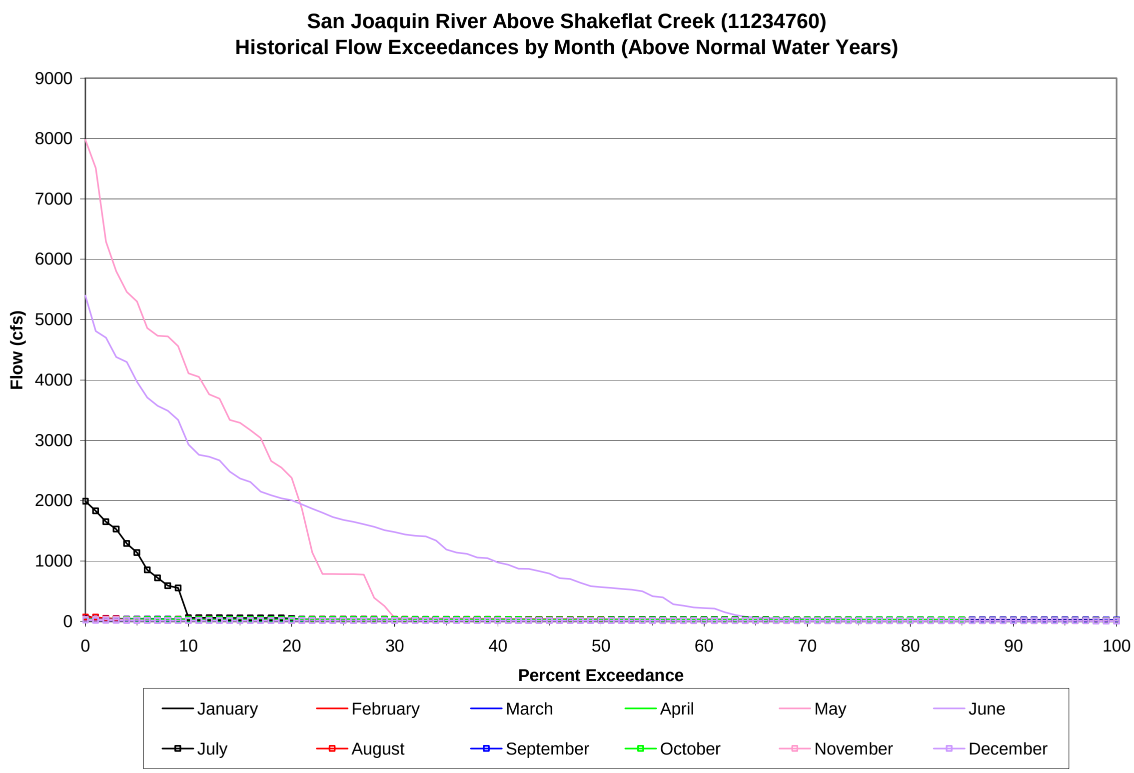

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

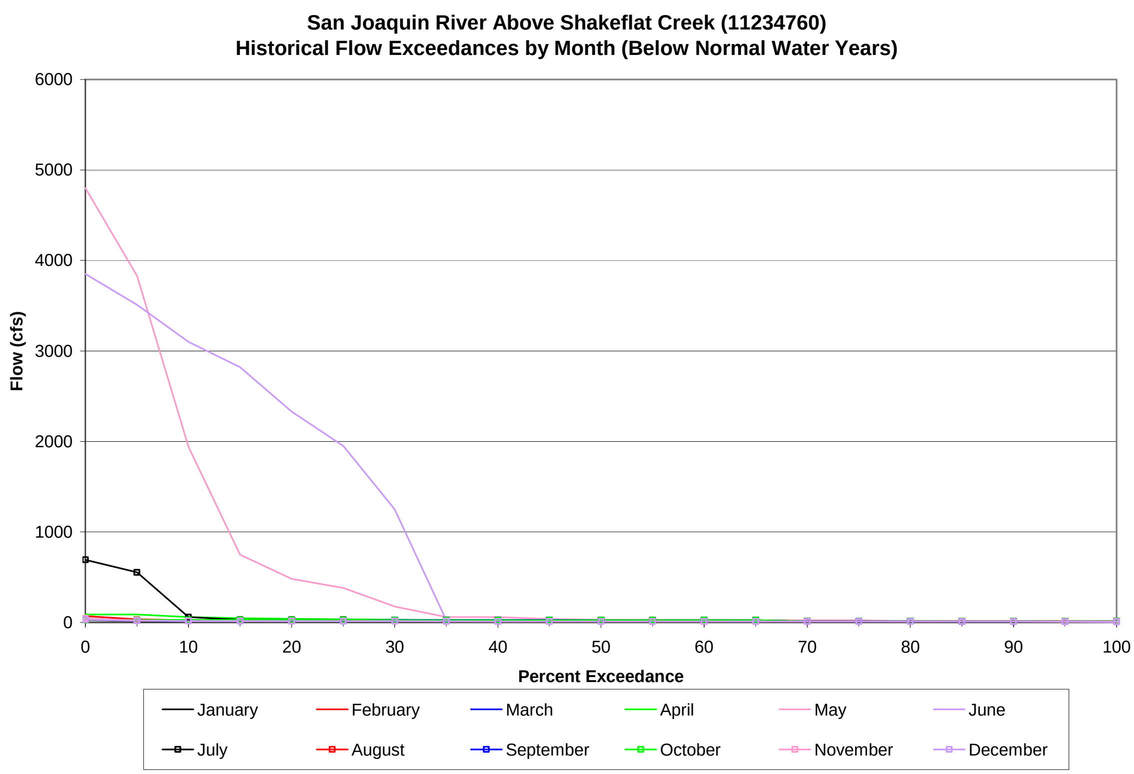

Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mono Creek Below Diversion (11231600)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

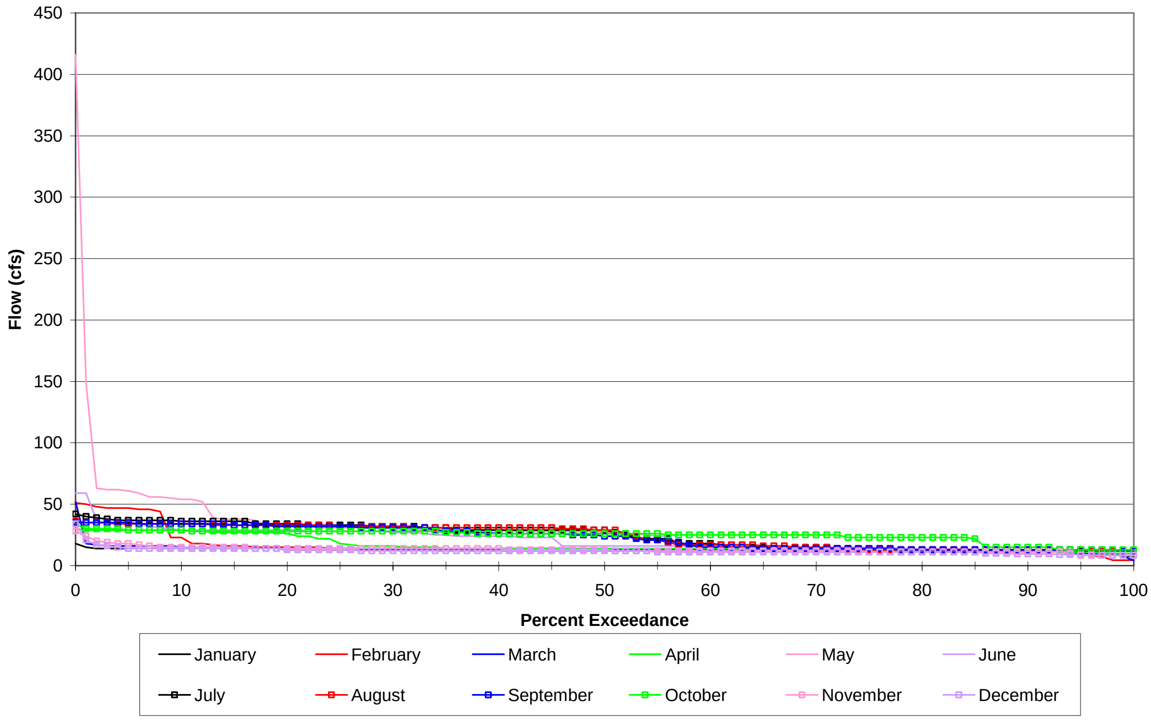

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Water Year 1960-2002)
Flow (cfs)
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

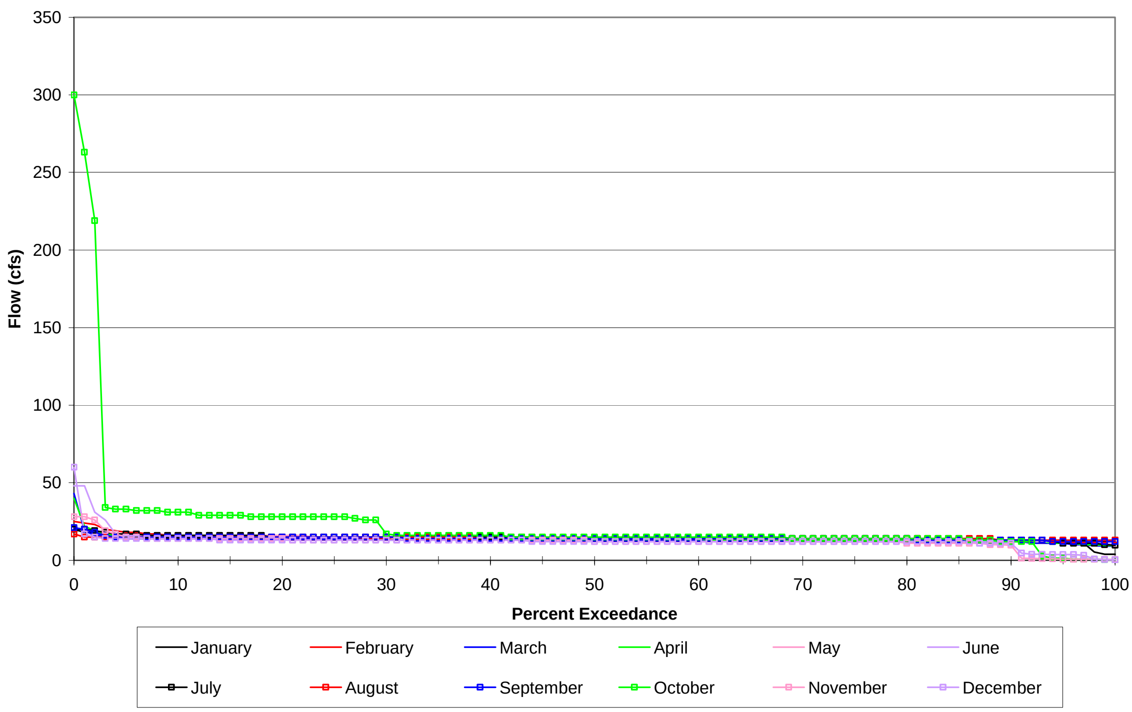

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

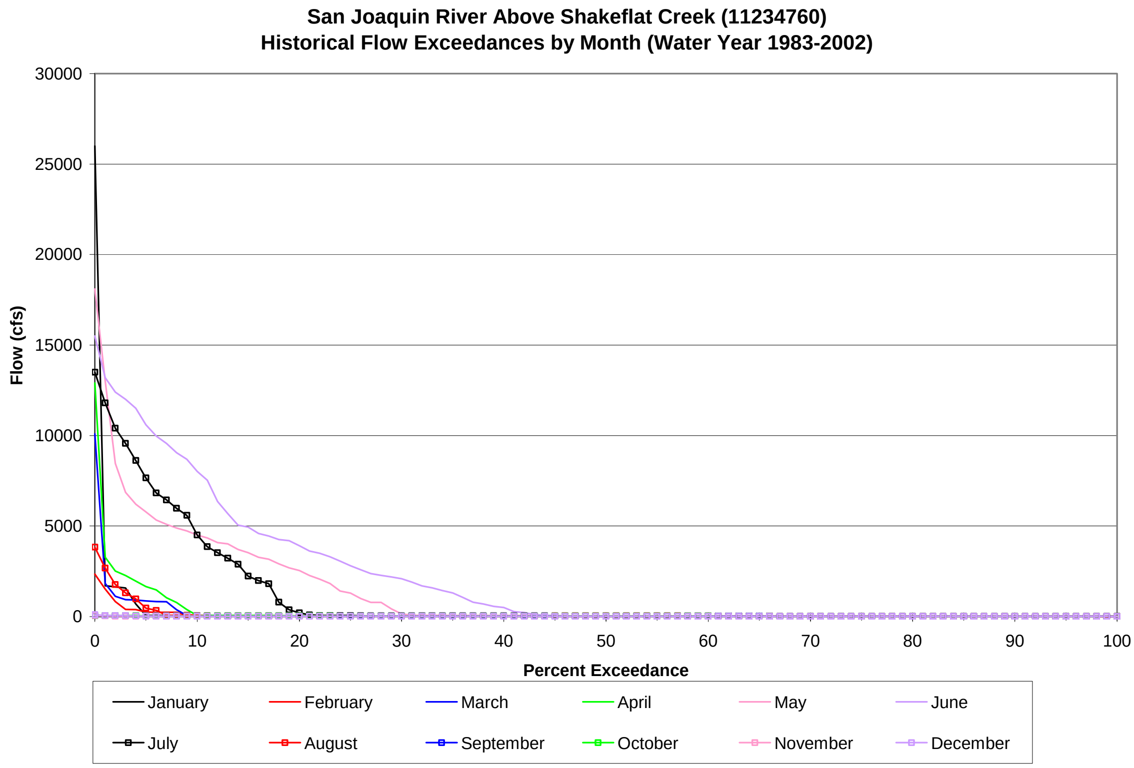

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

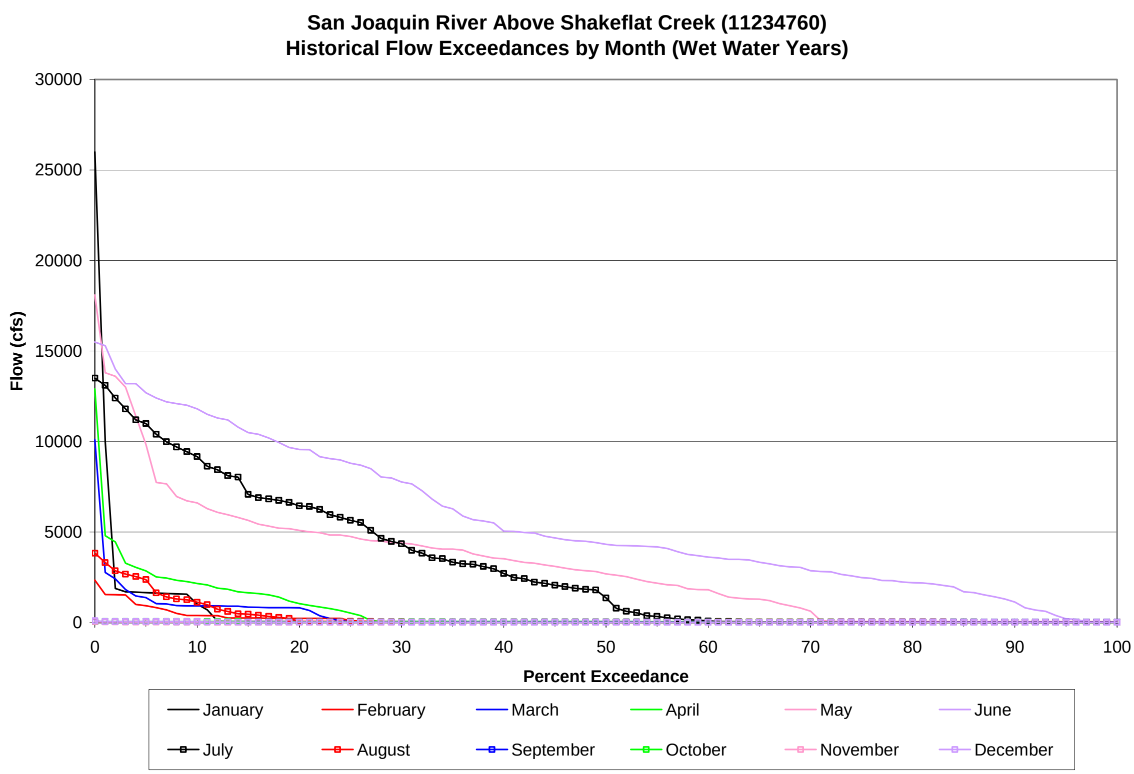
San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Dry Water Years)

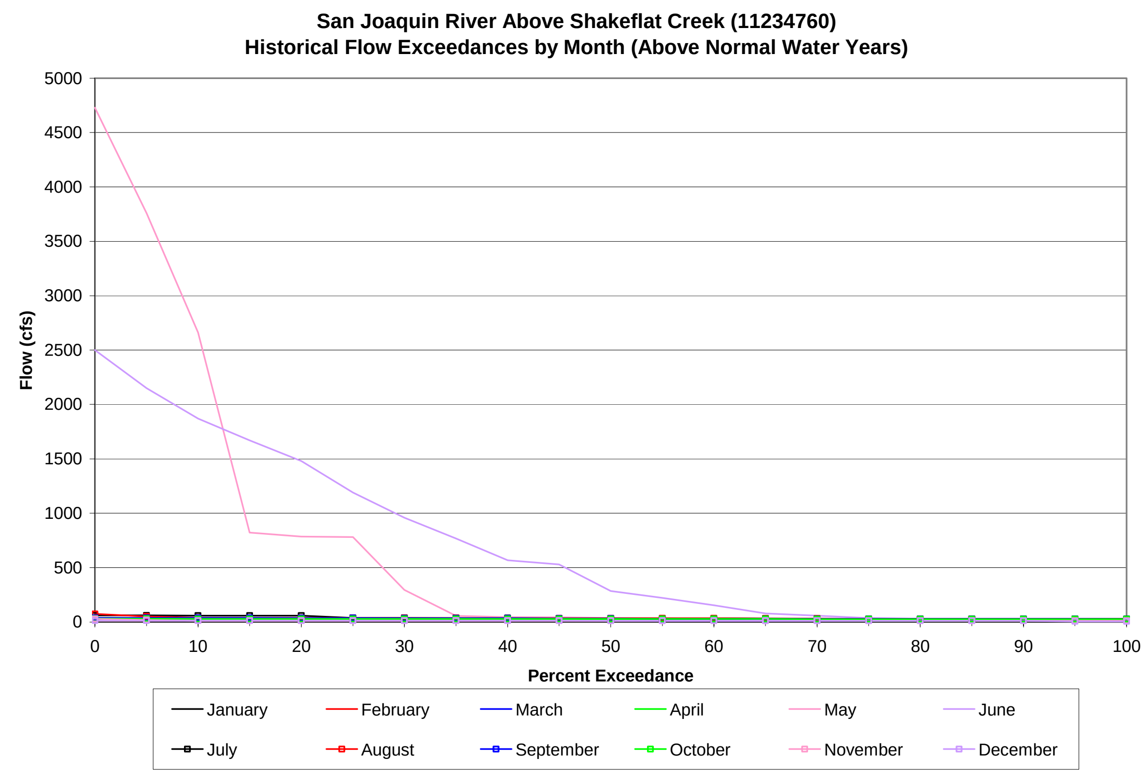


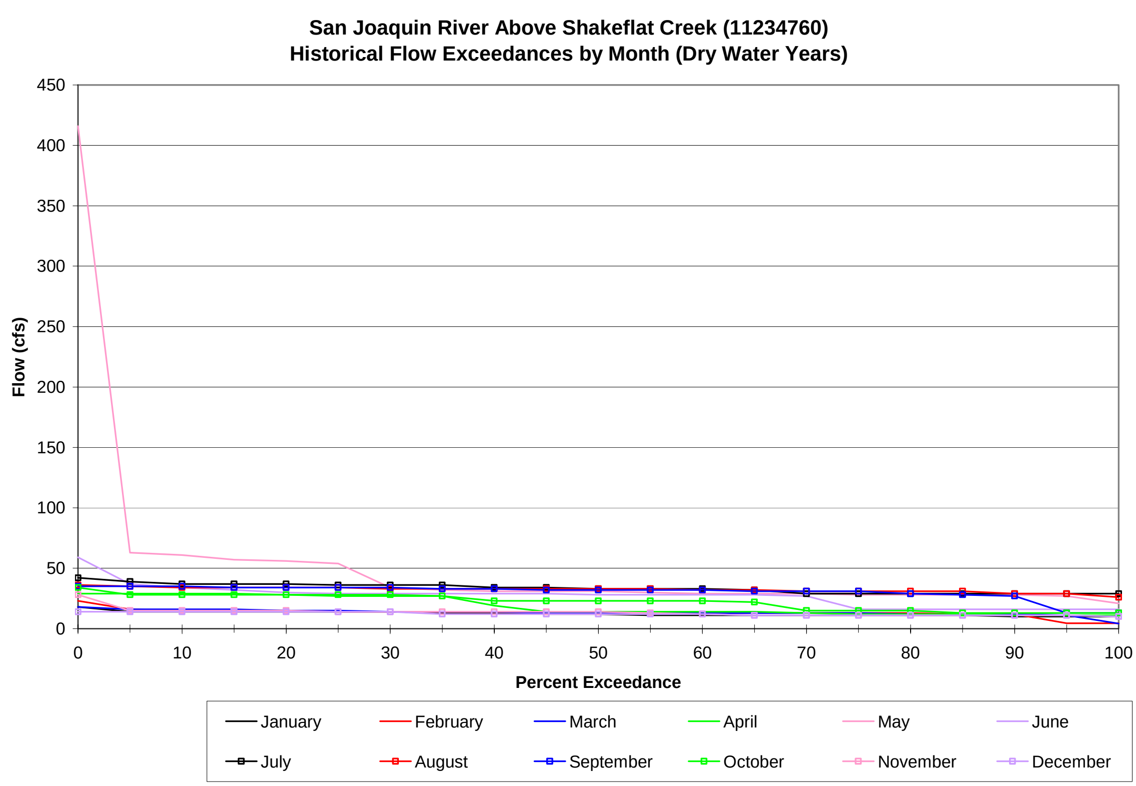
San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Critical Water Years)

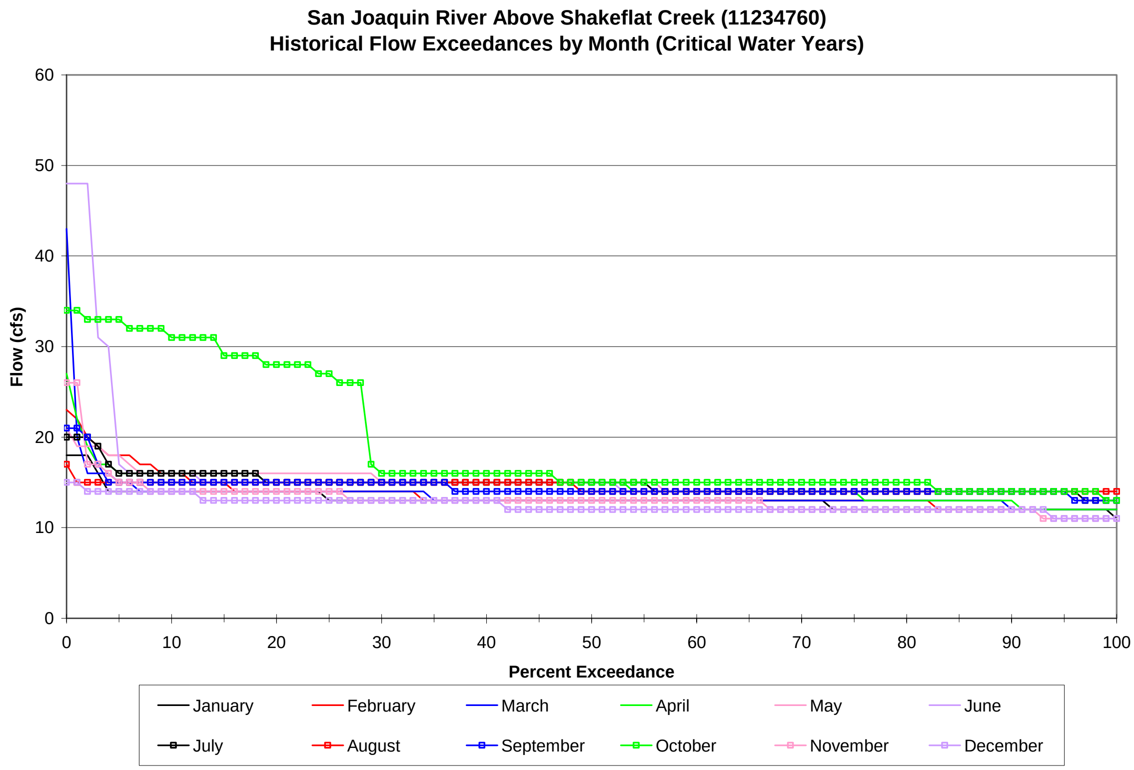


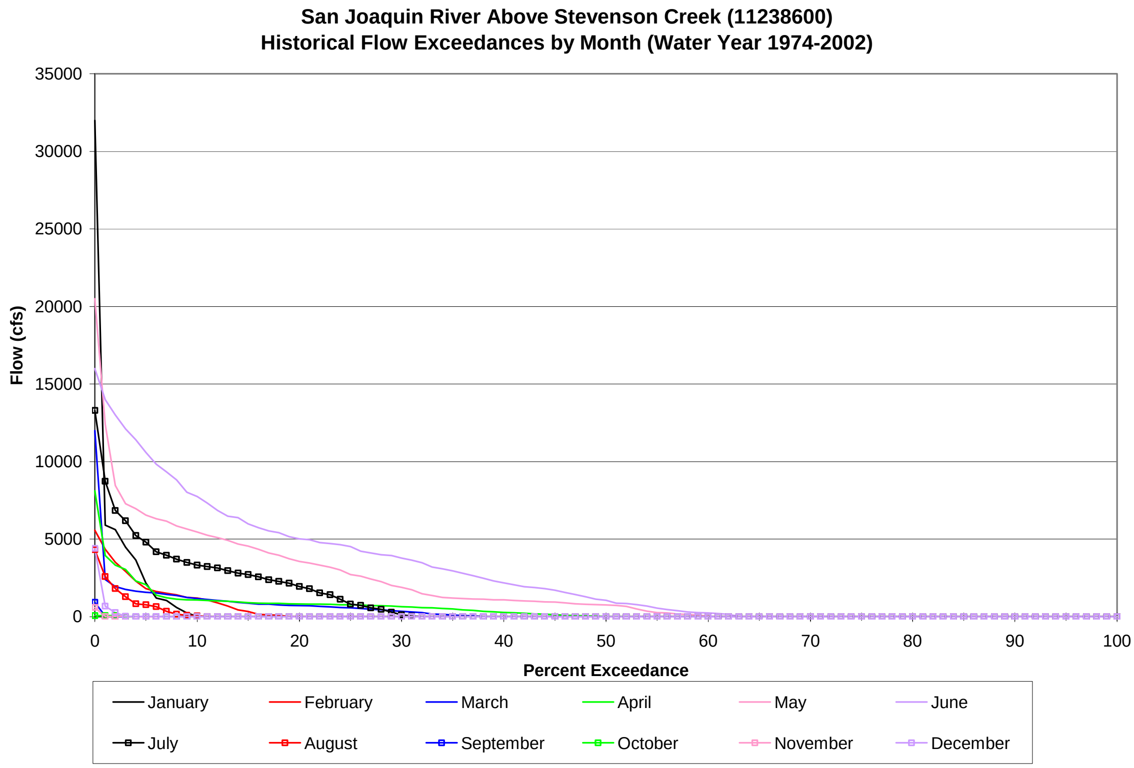

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

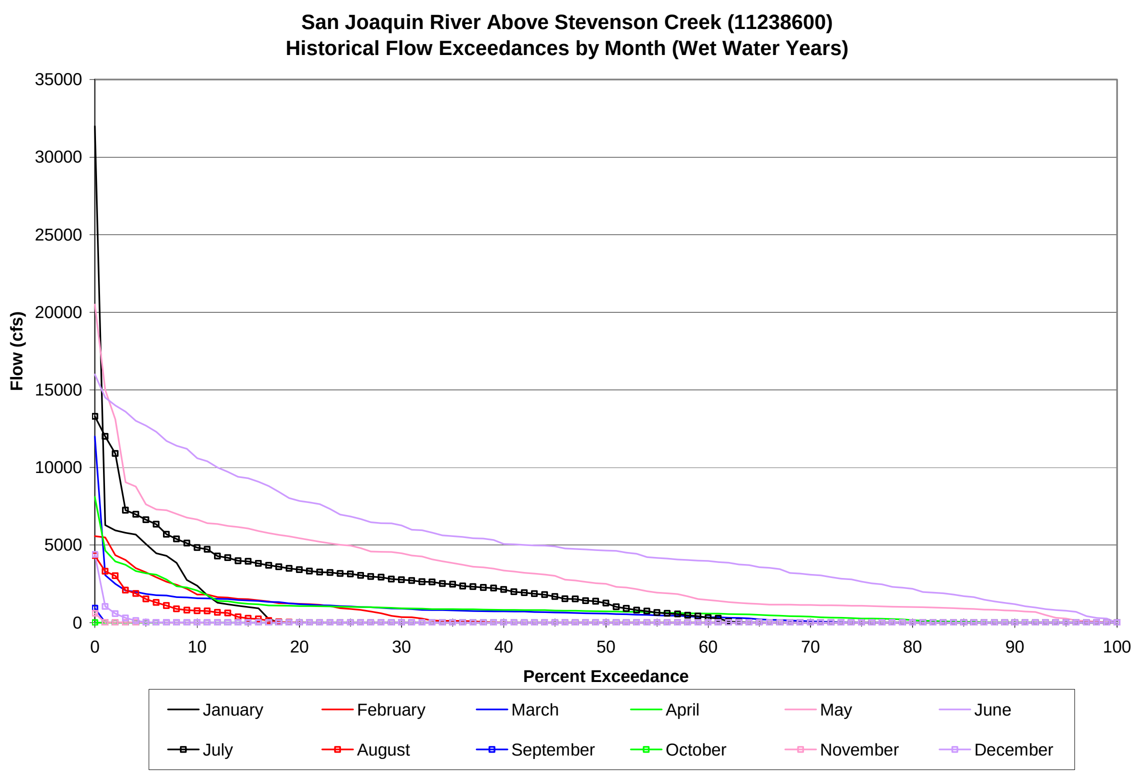

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

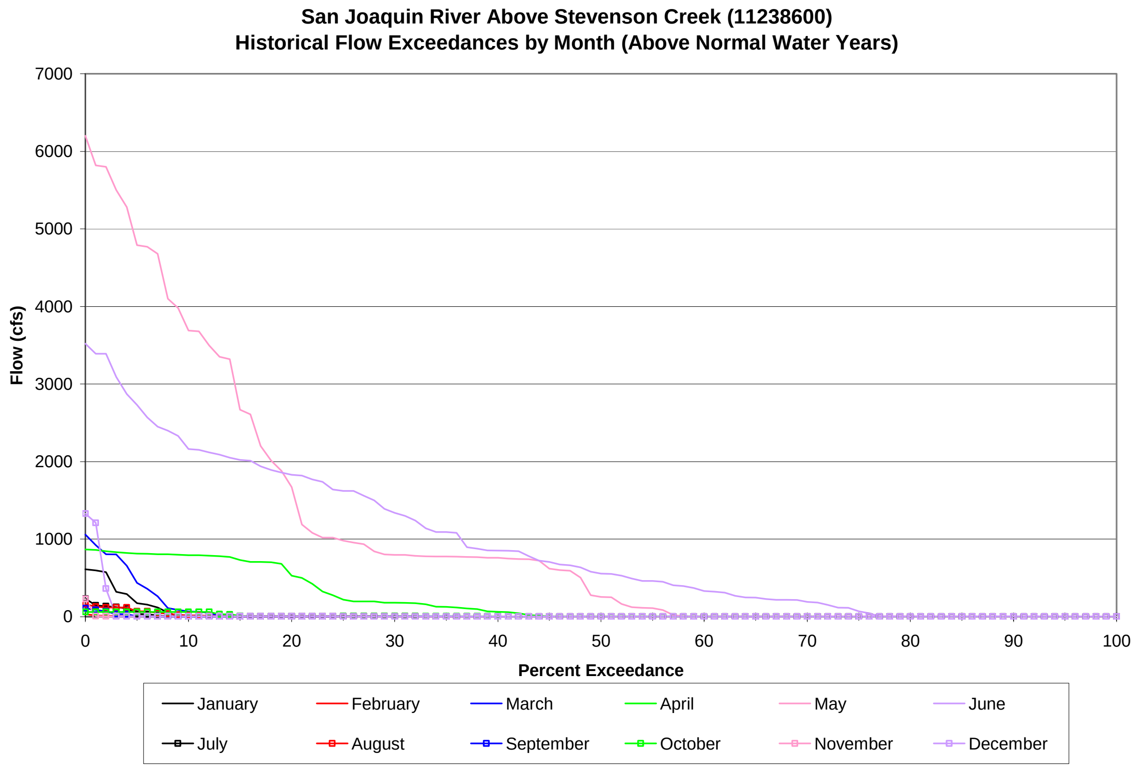

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

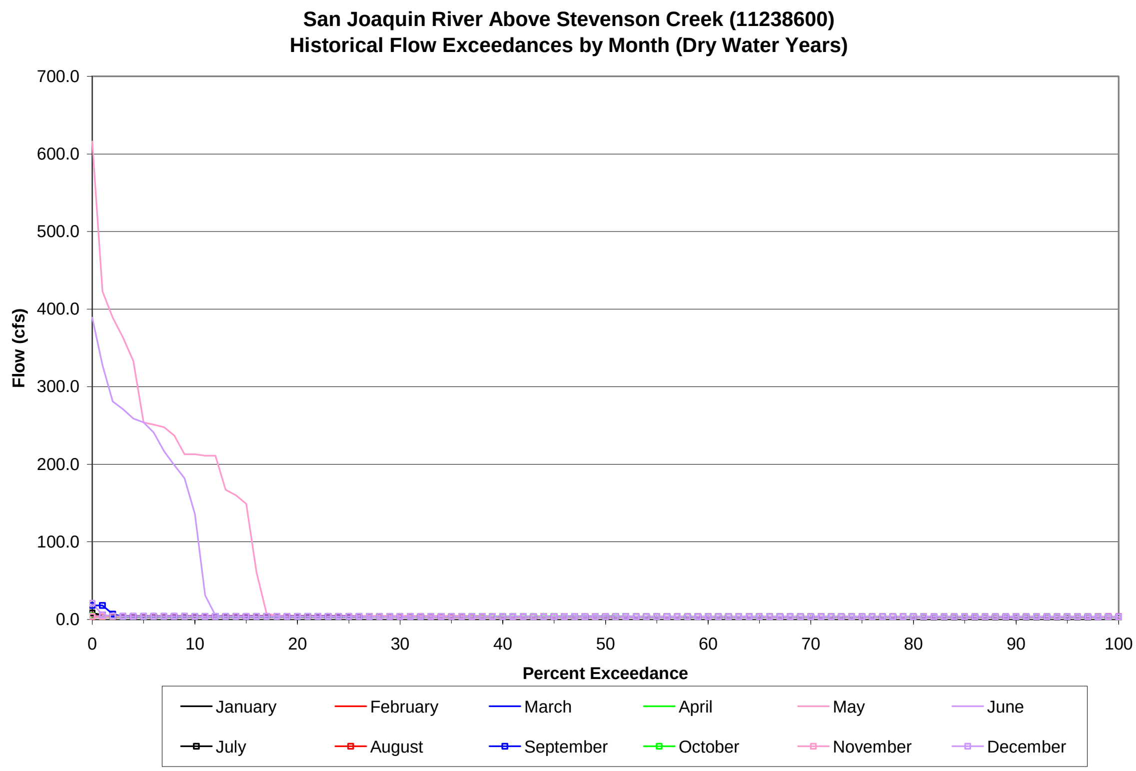

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

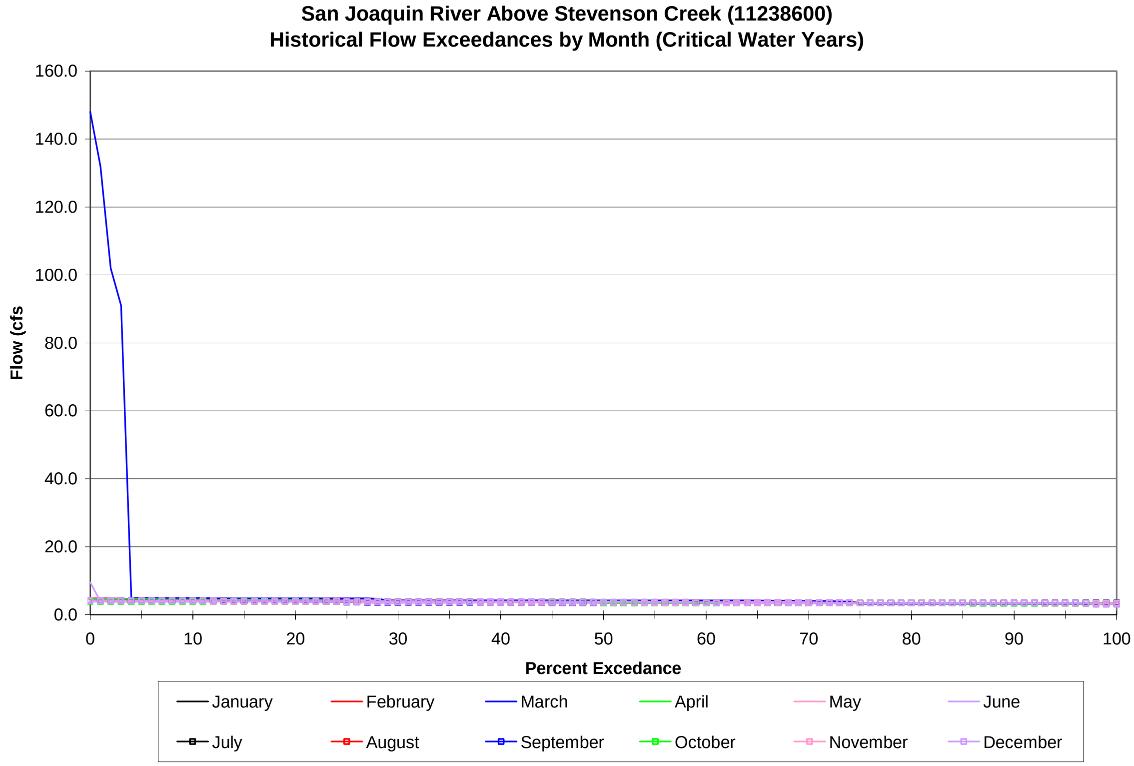

San Joaquin River Above Shakeflat Creek (11234760)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
10
20
30
40
50
60
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

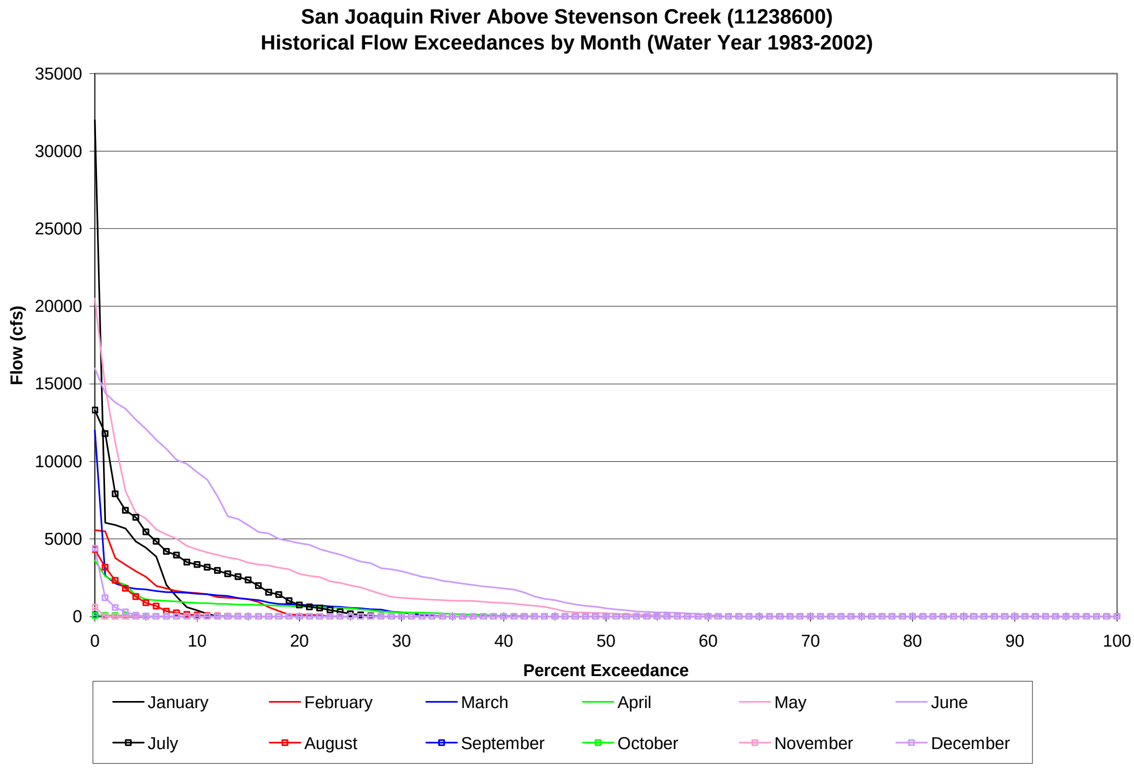

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Water Year 1974-2002)
Flow (cfs)
35000
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

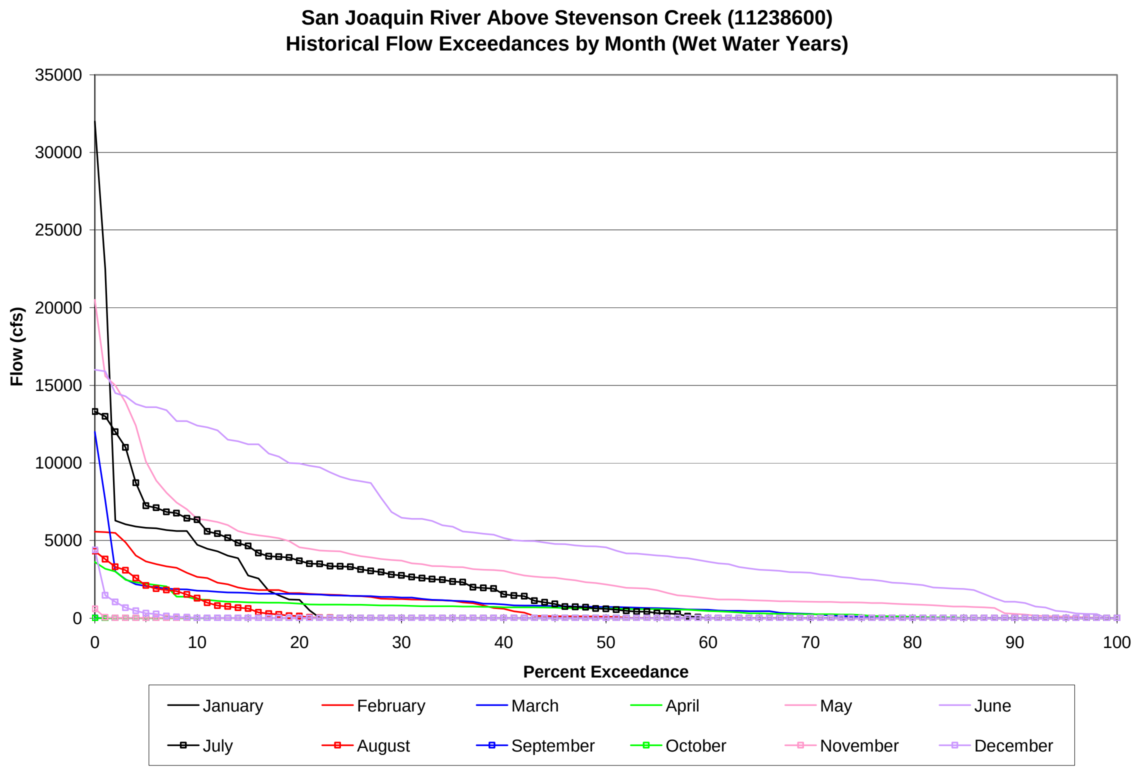

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
35000
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

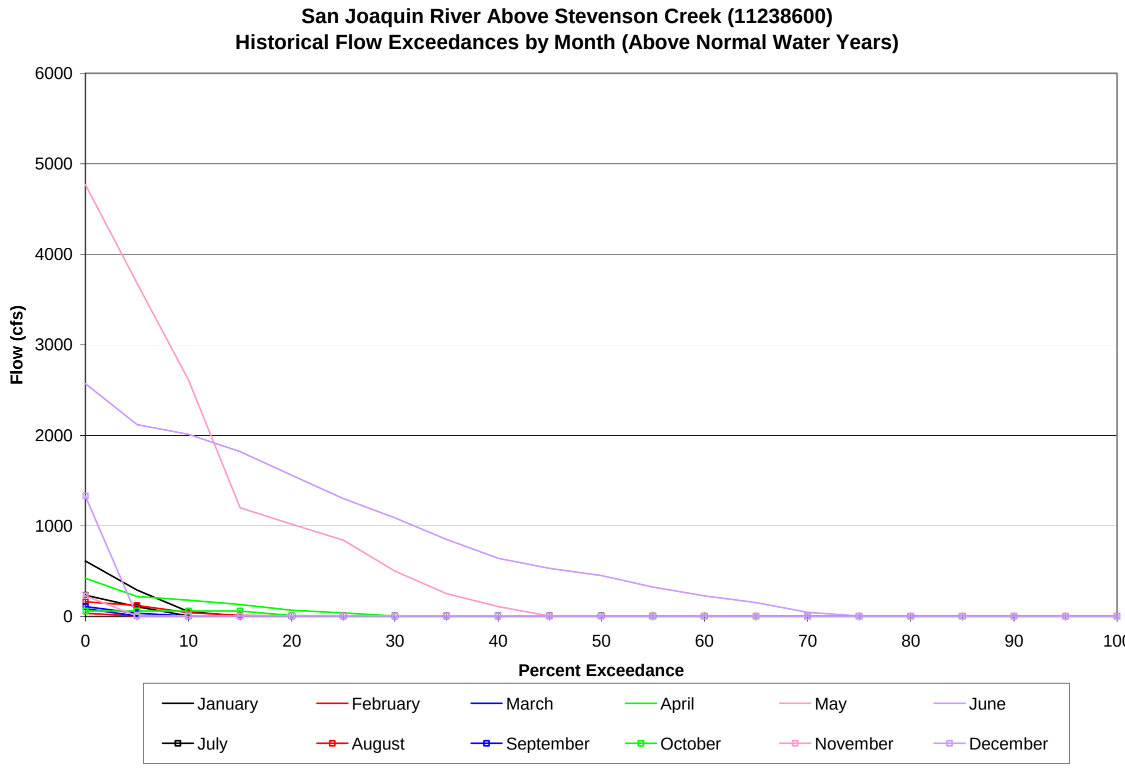

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

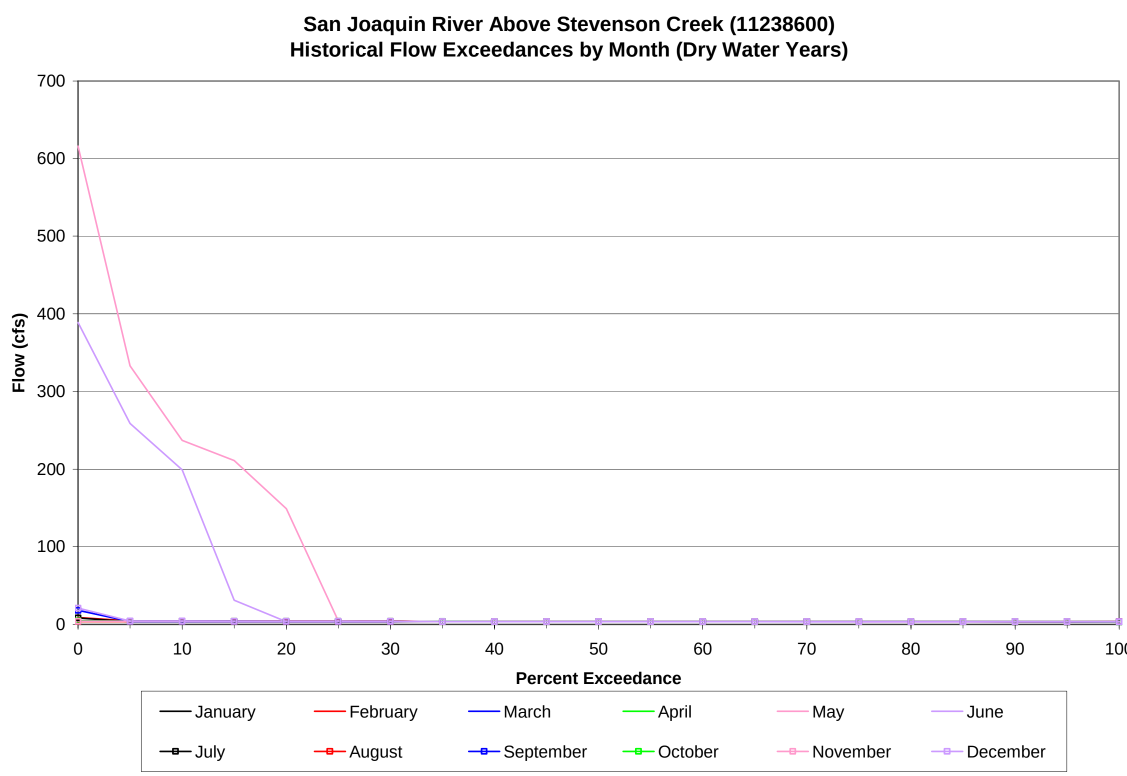

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

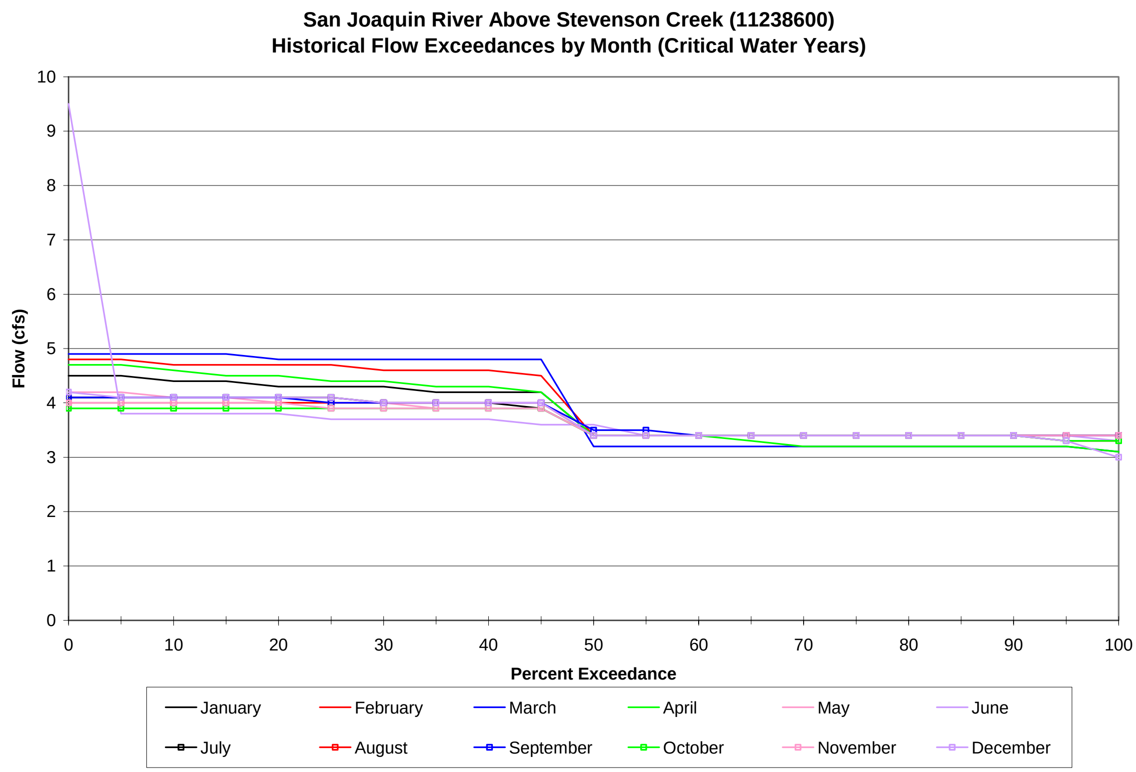

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs
160.0
140.0
120.0
100.0
80.0
60.0
40.0
20.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Excedance
January
February
March
April
May
June
July
August
September
October
November
December

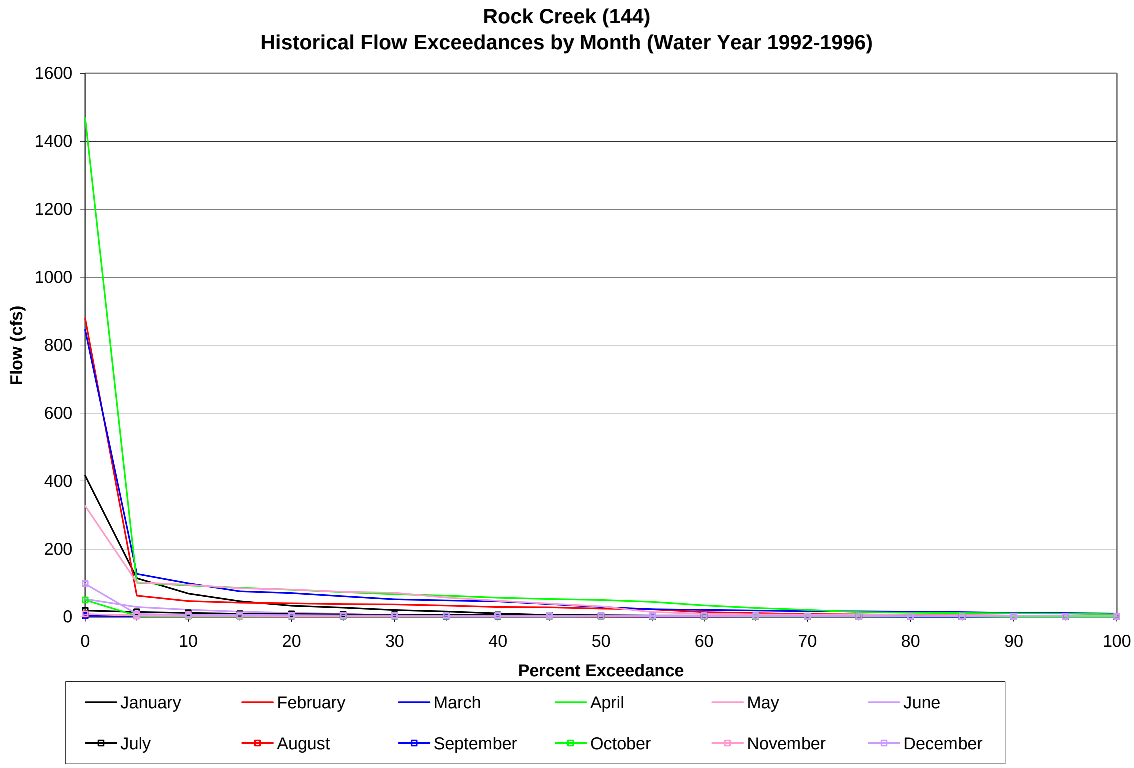

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
35000
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

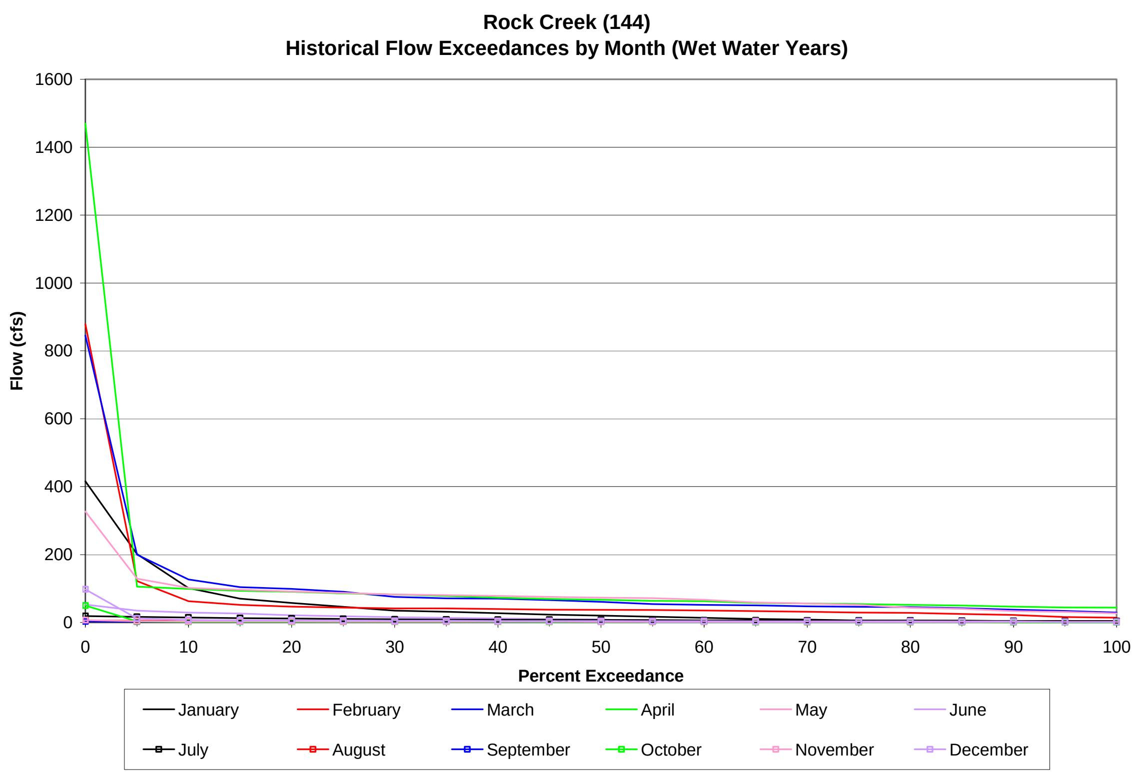

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
35000
30000
25000
20000
15000
10000
5000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

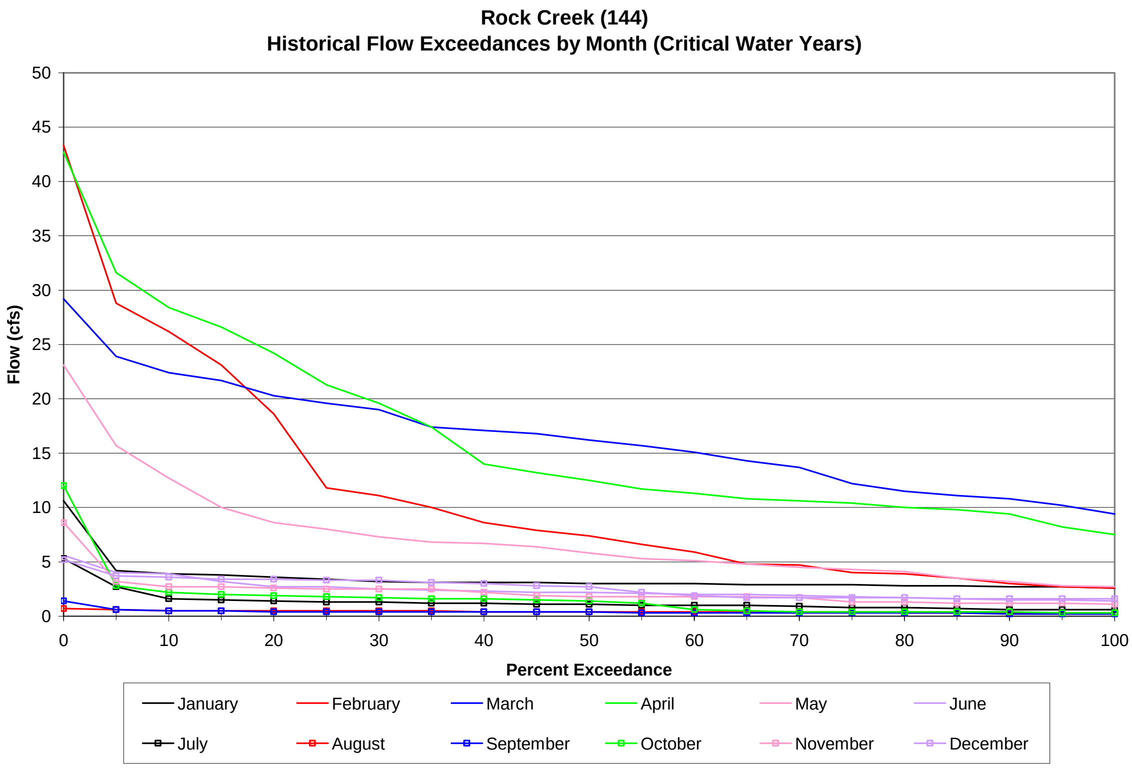

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

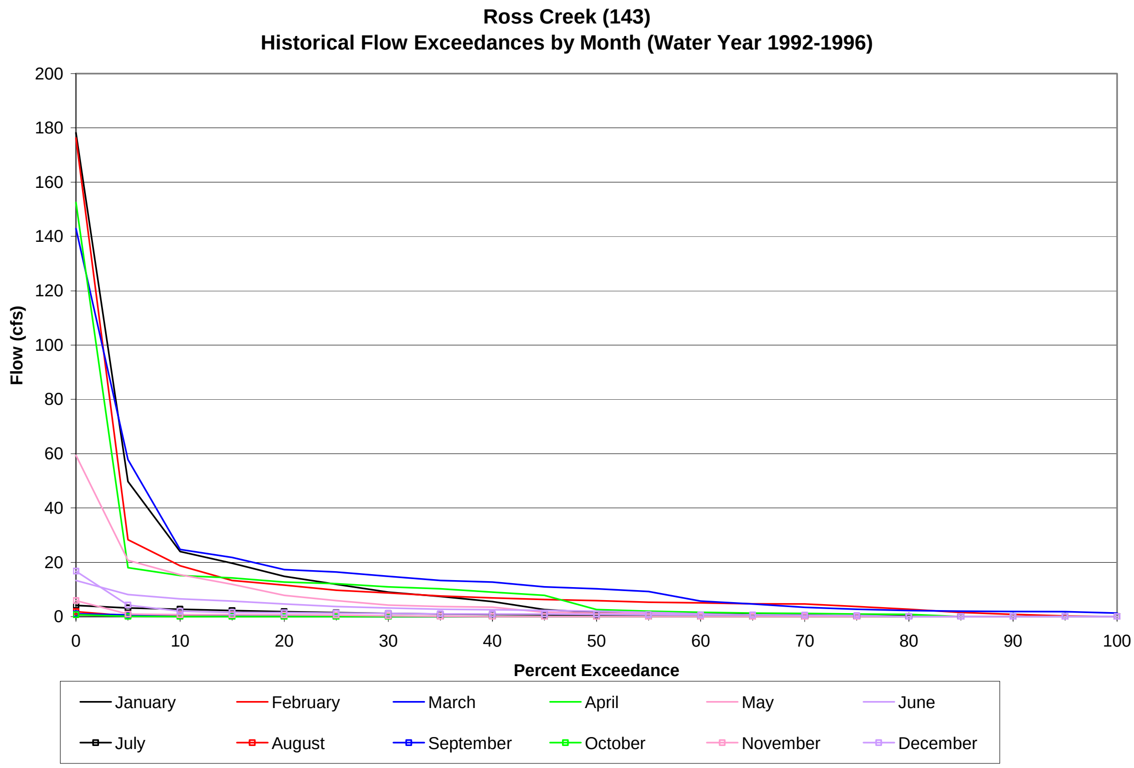

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

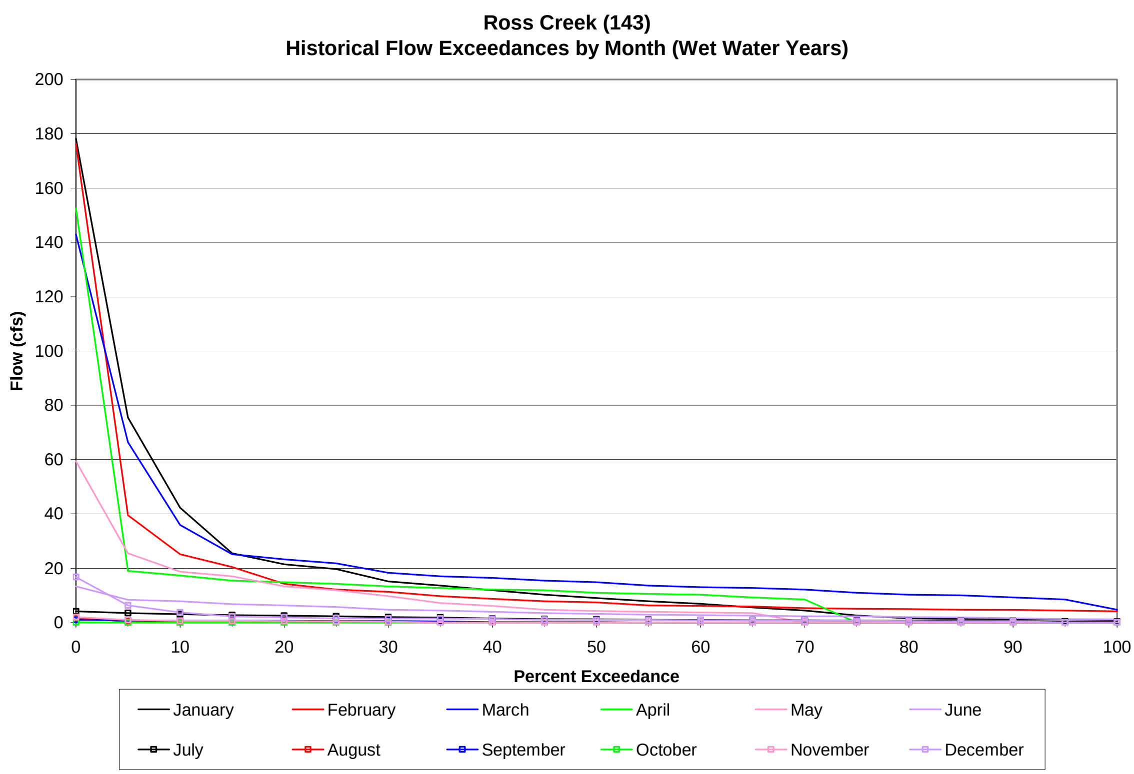

San Joaquin River Above Stevenson Creek (11238600)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
10
9
8
7
6
5
4
3
2
1
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

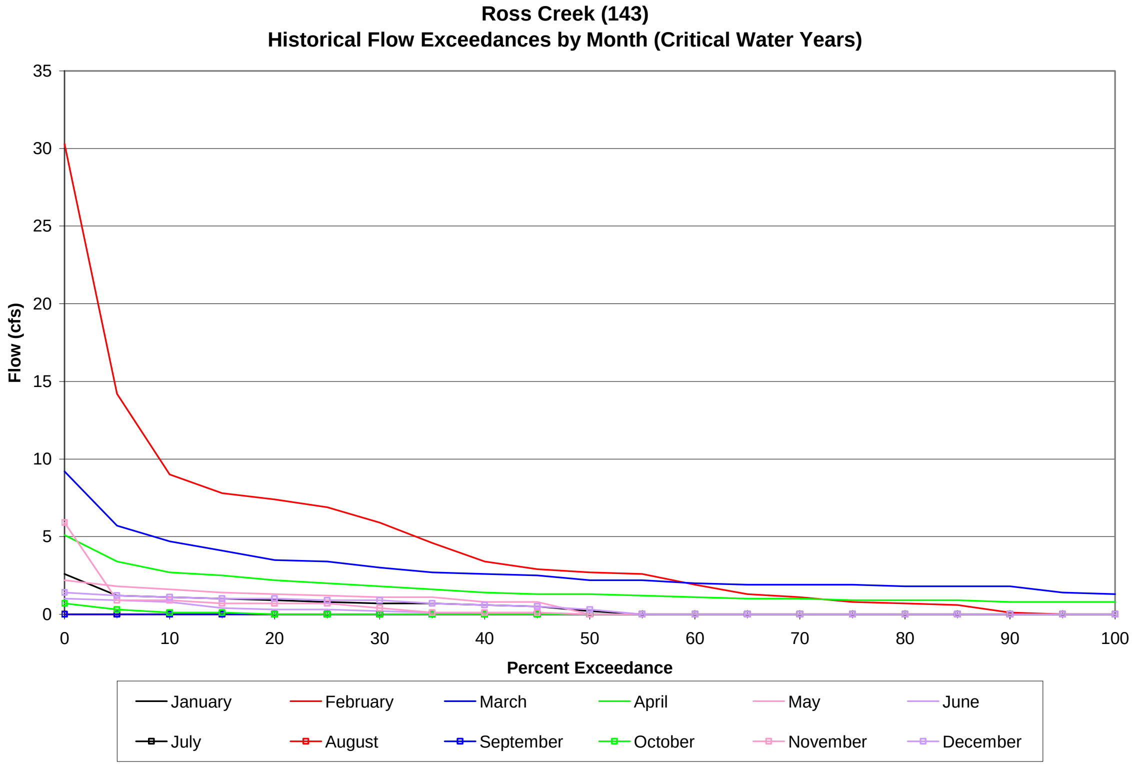

Rock Creek (144)
Historical Flow Exceedances by Month (Water Year 1992-1996)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

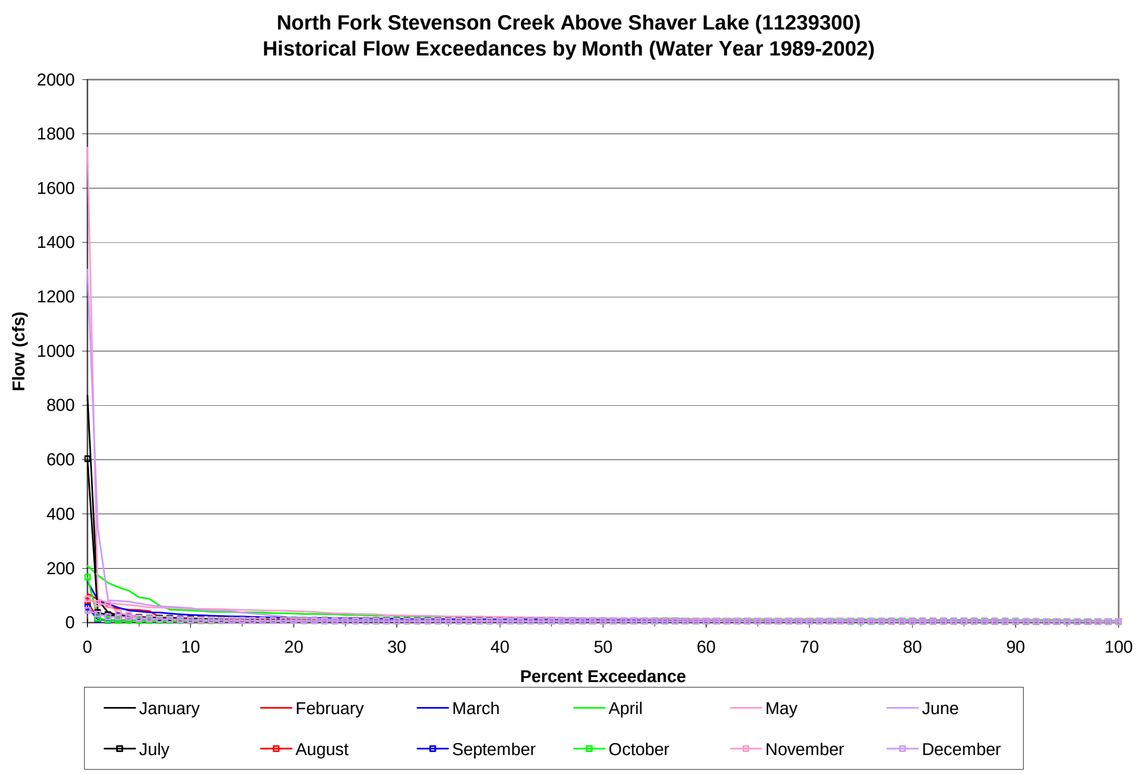

Rock Creek (144)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

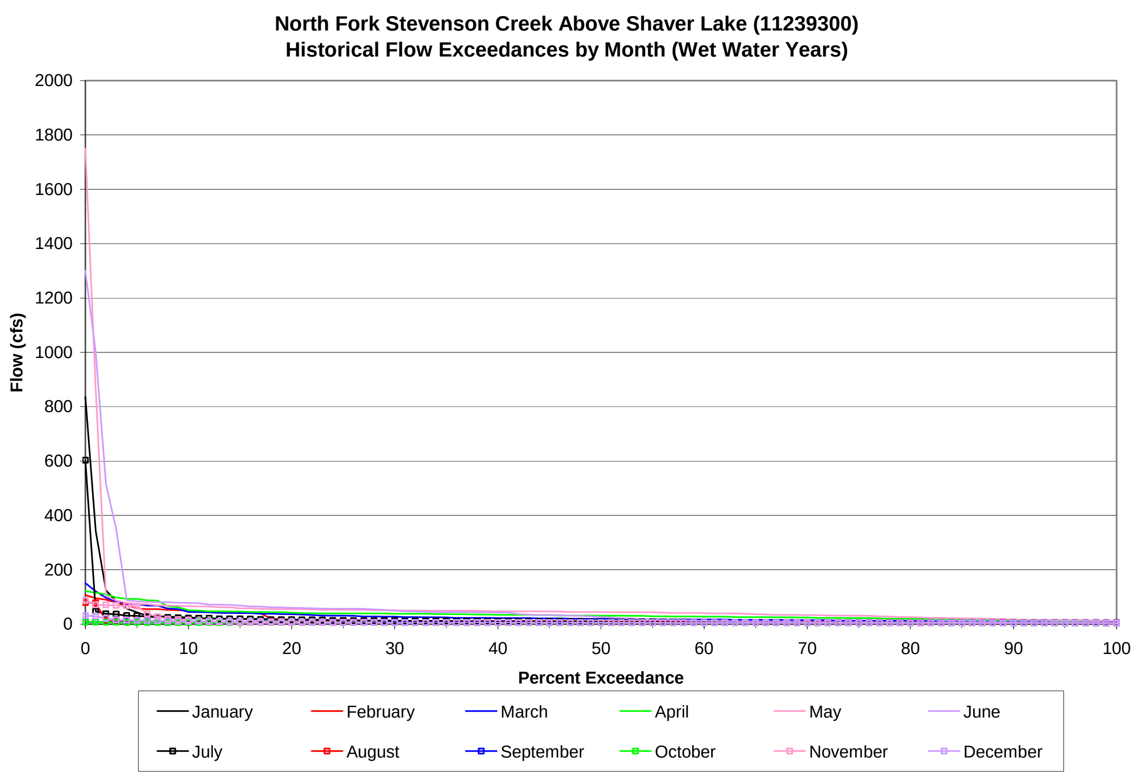

Rock Creek (144)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
50
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

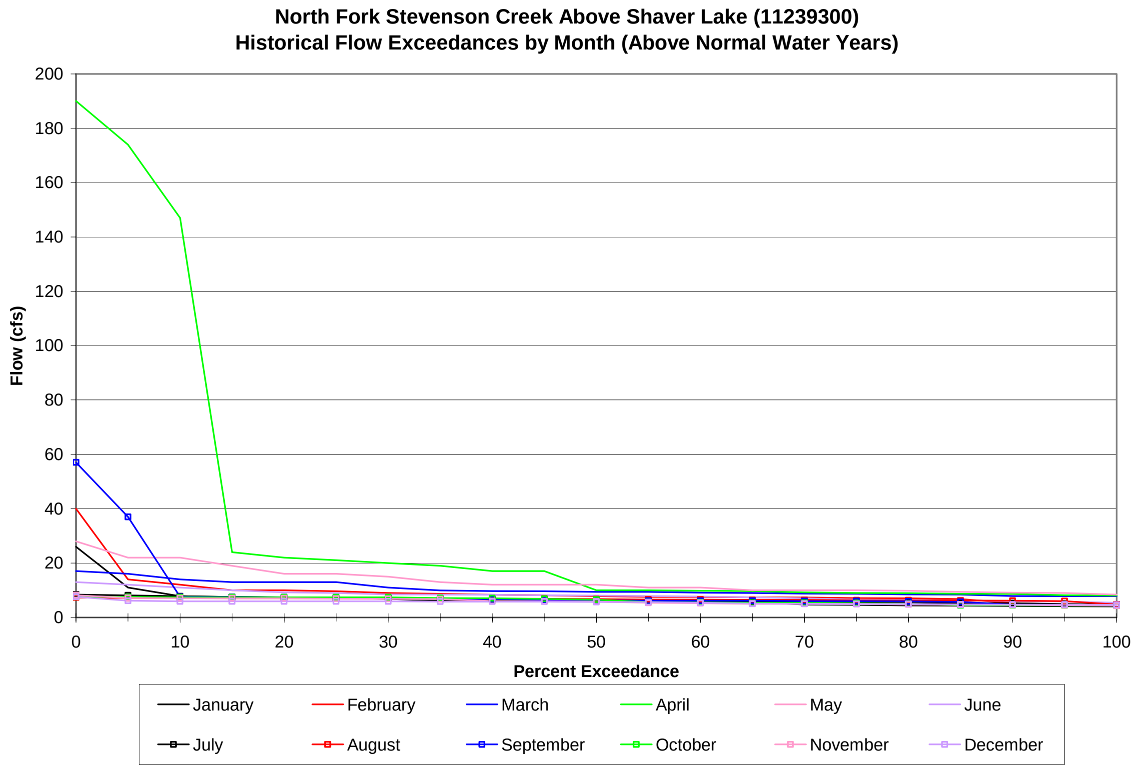

Ross Creek (143)
Historical Flow Exceedances by Month (Water Year 1992-1996)
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

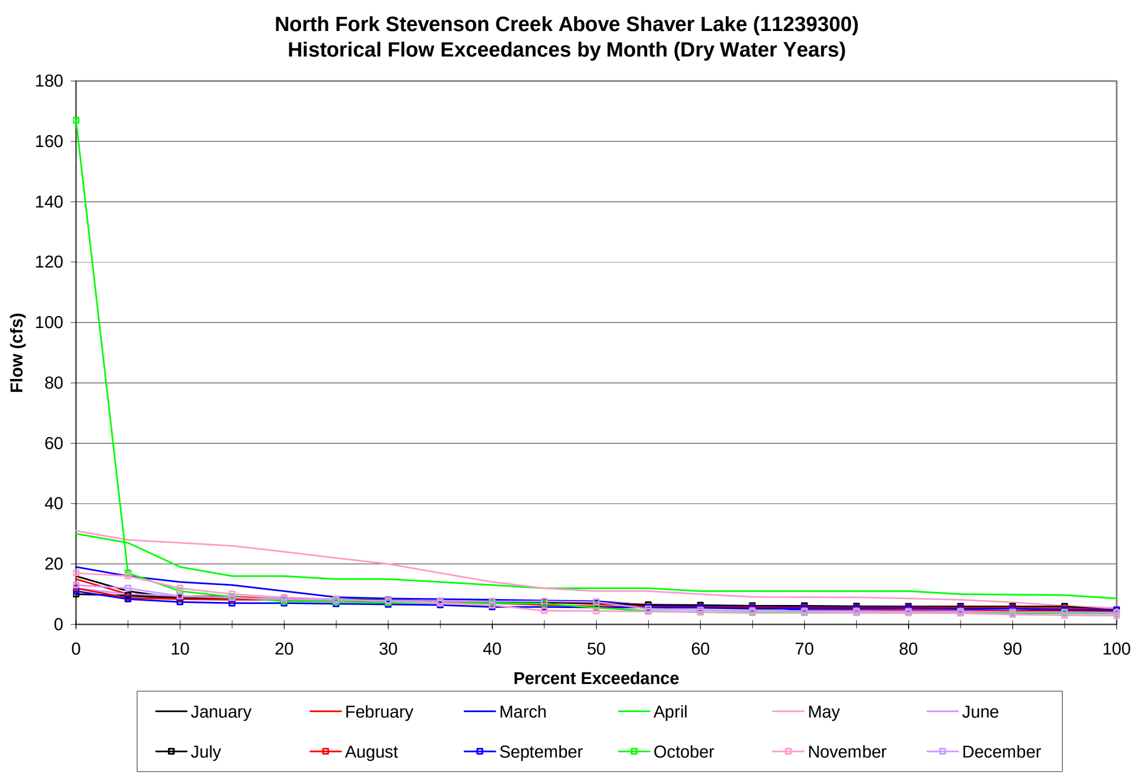

Ross Creek (143)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

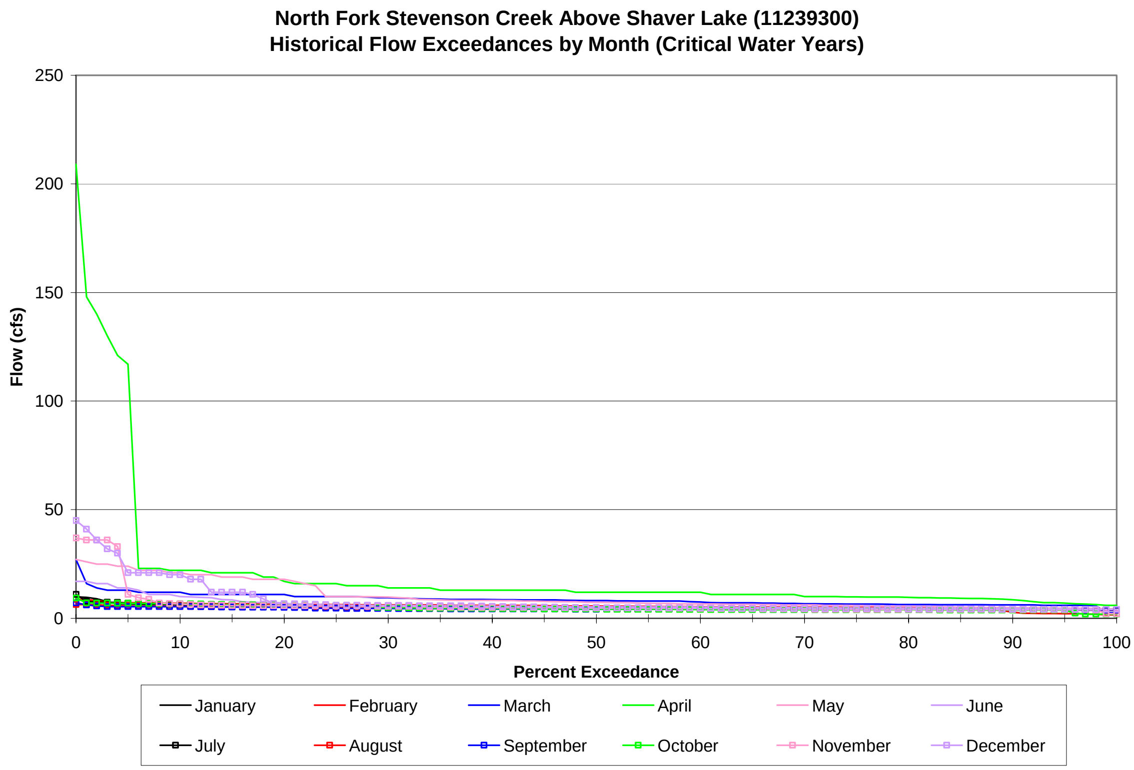

Ross Creek (143)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

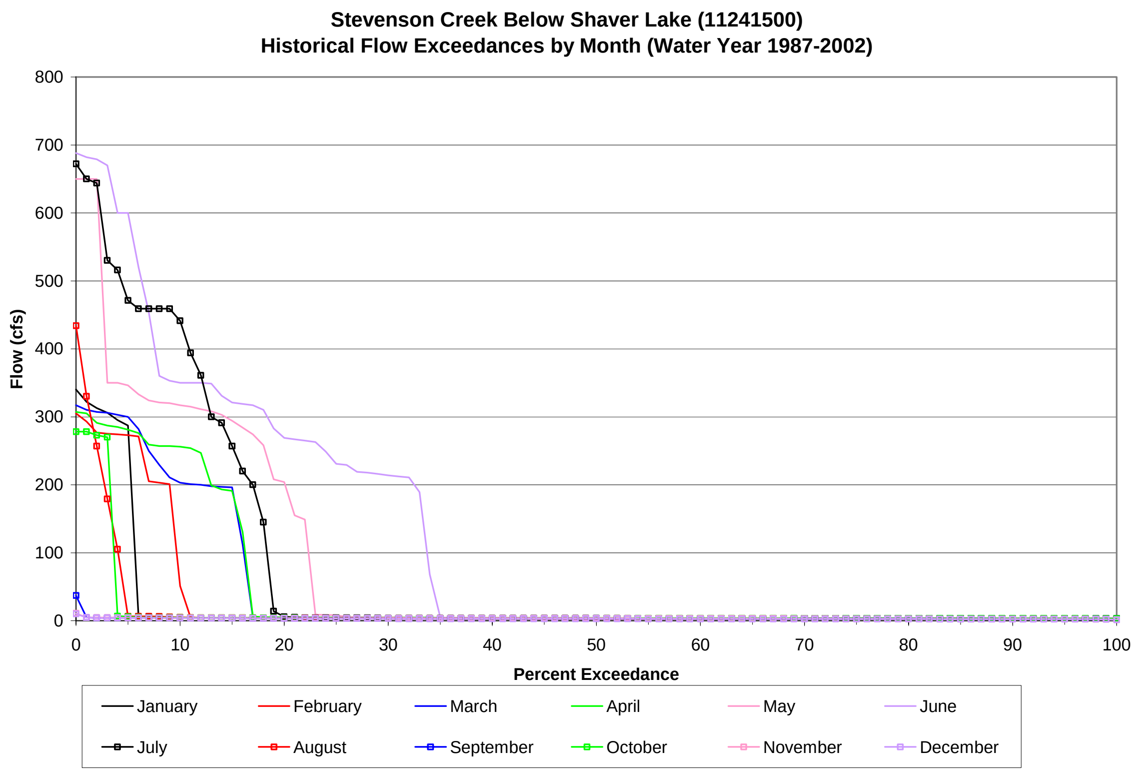

North Fork Stevenson Creek Above Shaver Lake (11239300)
Historical Flow Exceedances by Month (Water Year 1989-2002)
Flow (cfs)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

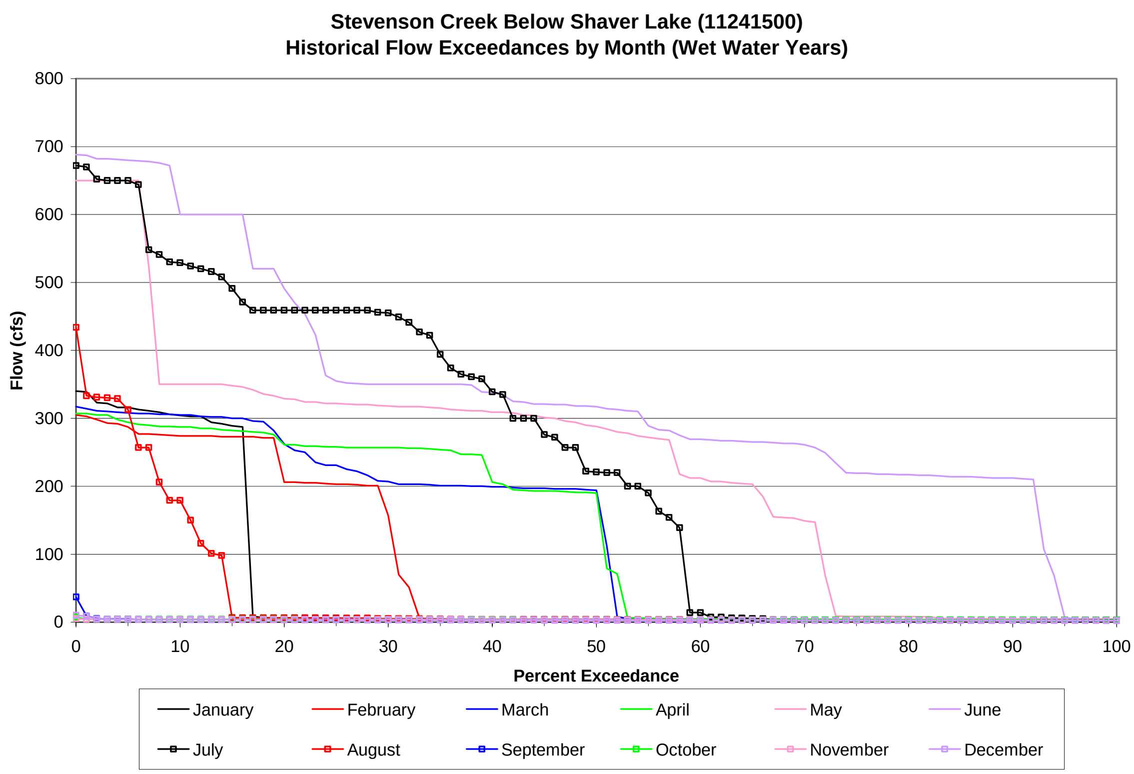

North Fork Stevenson Creek Above Shaver Lake (11239300)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

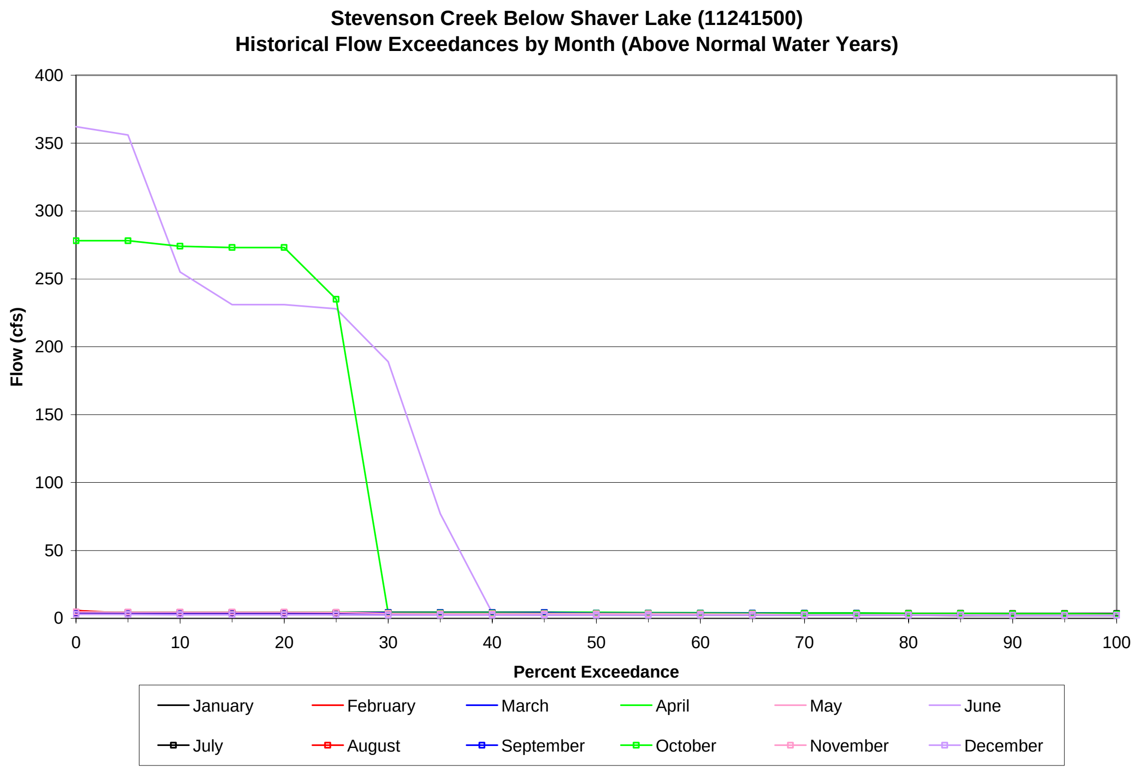

North Fork Stevenson Creek Above Shaver Lake (11239300)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
20
40
60
80
100
120
140
160
180
200
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

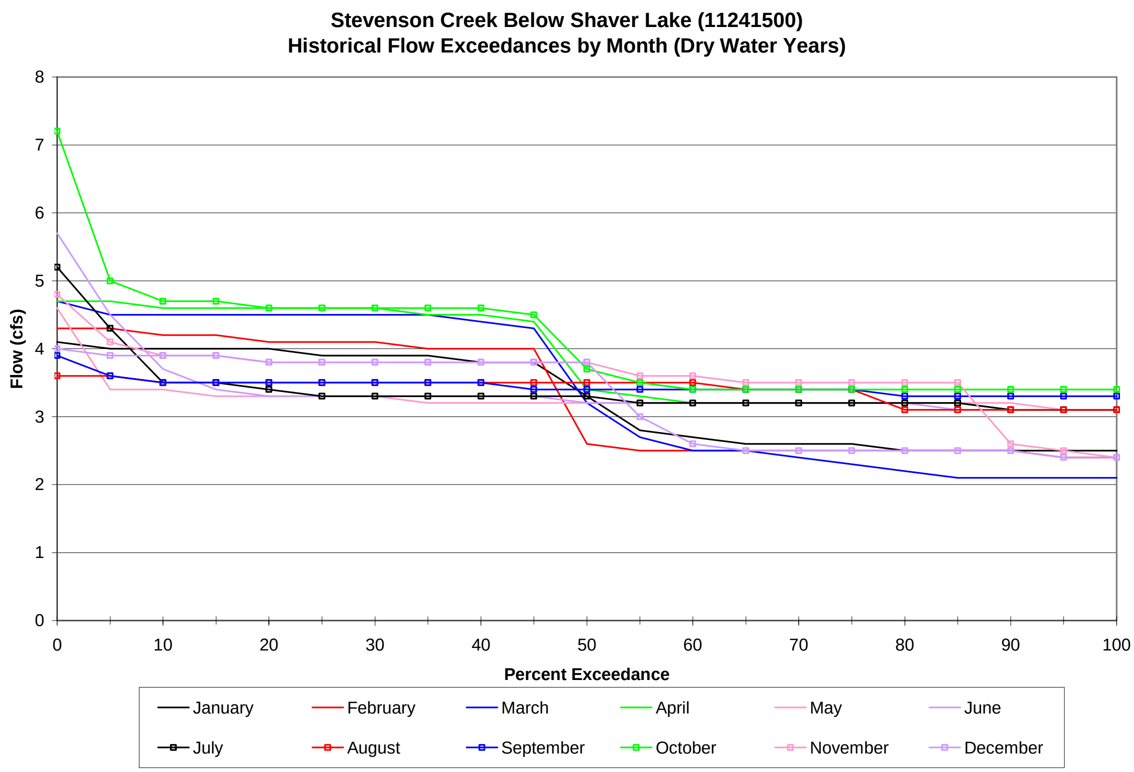

North Fork Stevenson Creek Above Shaver Lake (11239300)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
20
40
60
80
100
120
140
160
180
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

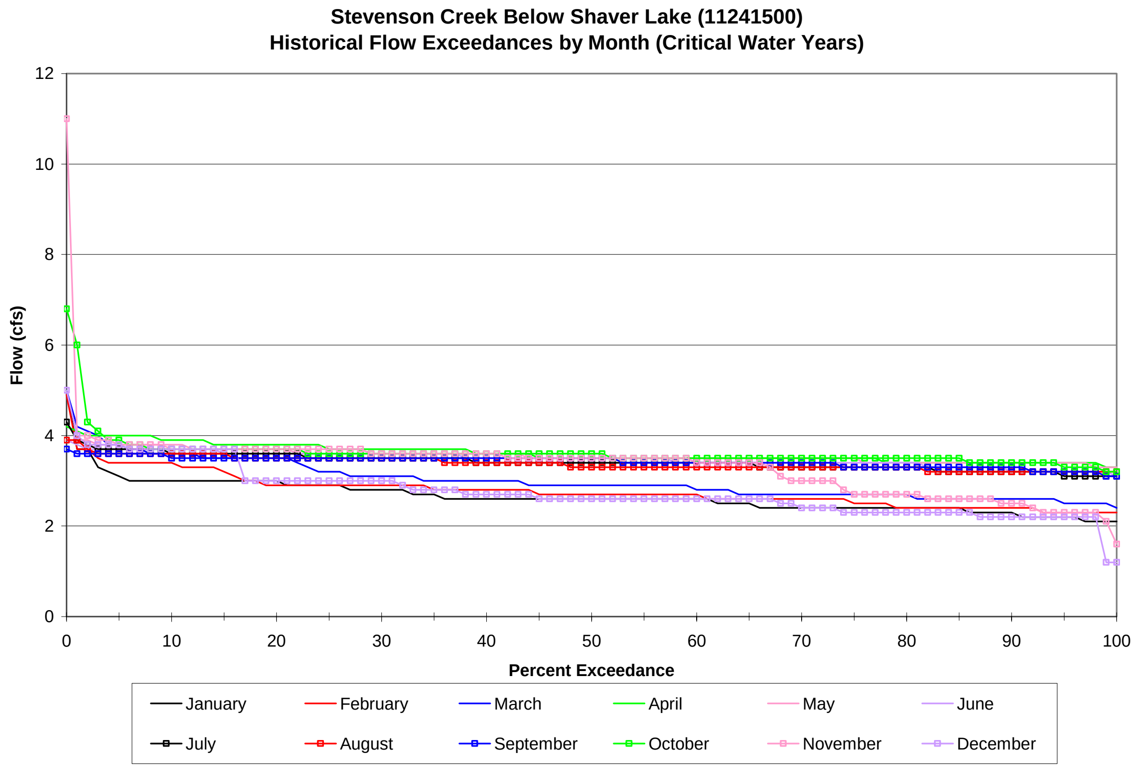

North Fork Stevenson Creek Above Shaver Lake (11239300)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

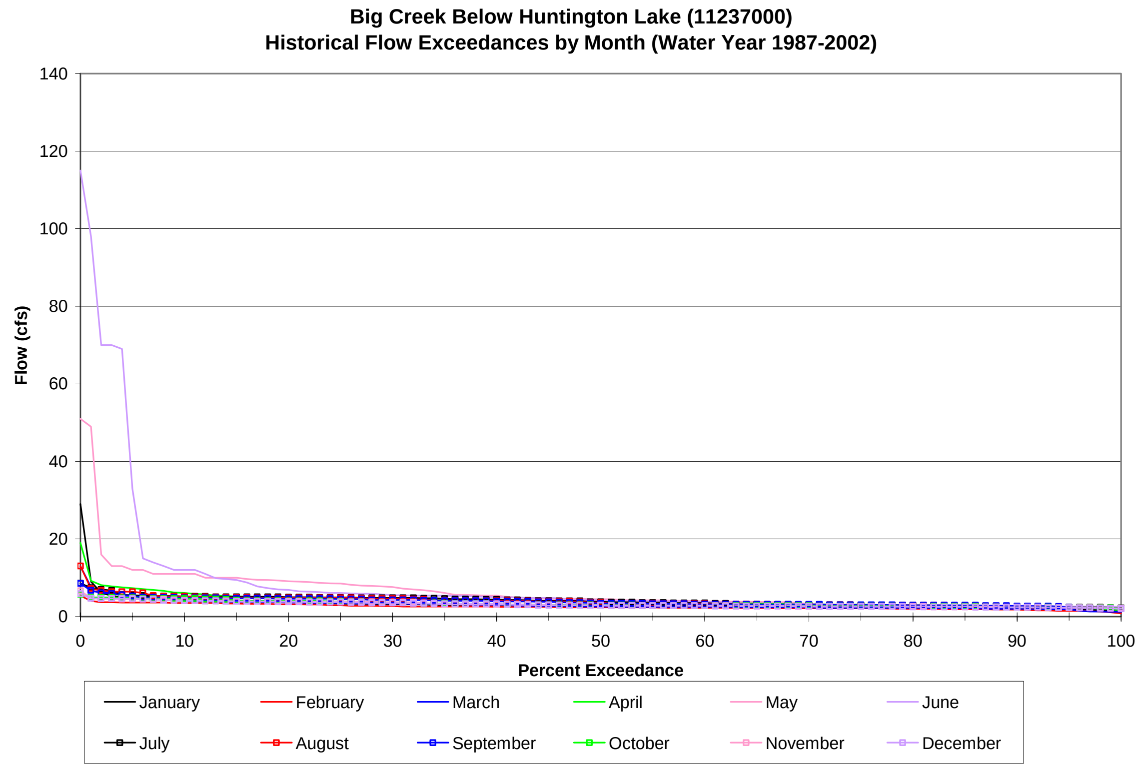

Stevenson Creek Below Shaver Lake (11241500)
Historical Flow Exceedances by Month (Water Year 1987-2002)
Flow (cfs)
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

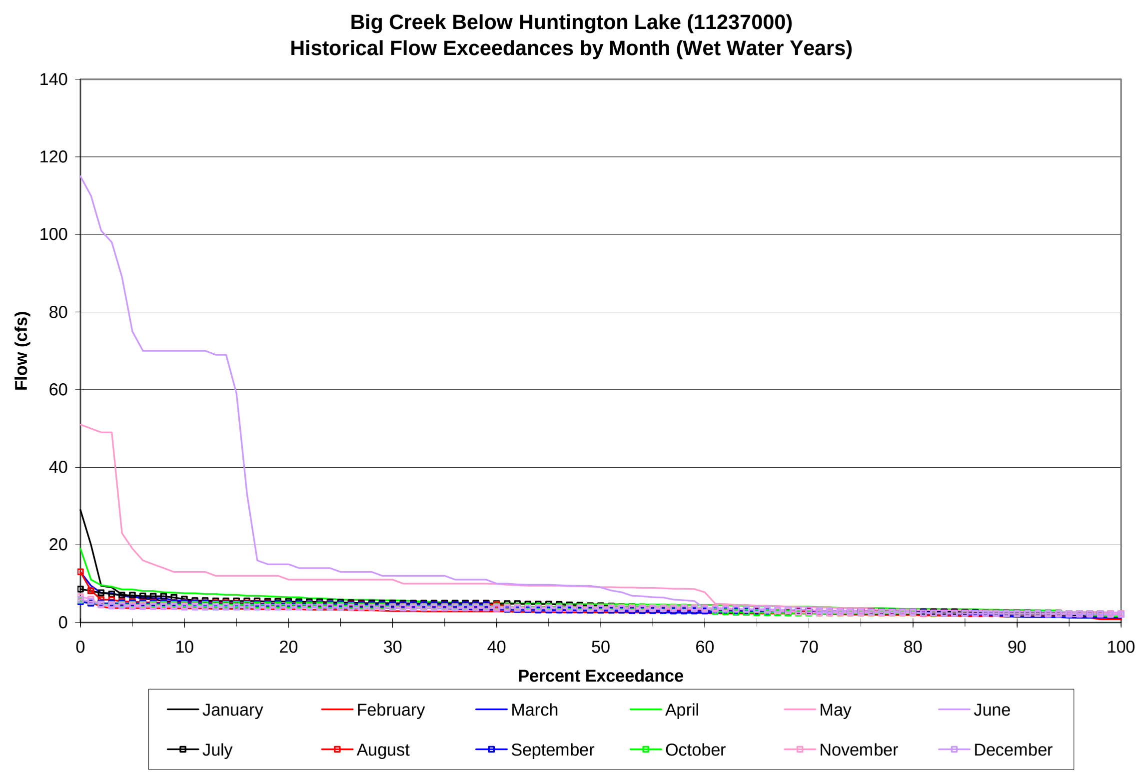

Stevenson Creek Below Shaver Lake (11241500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

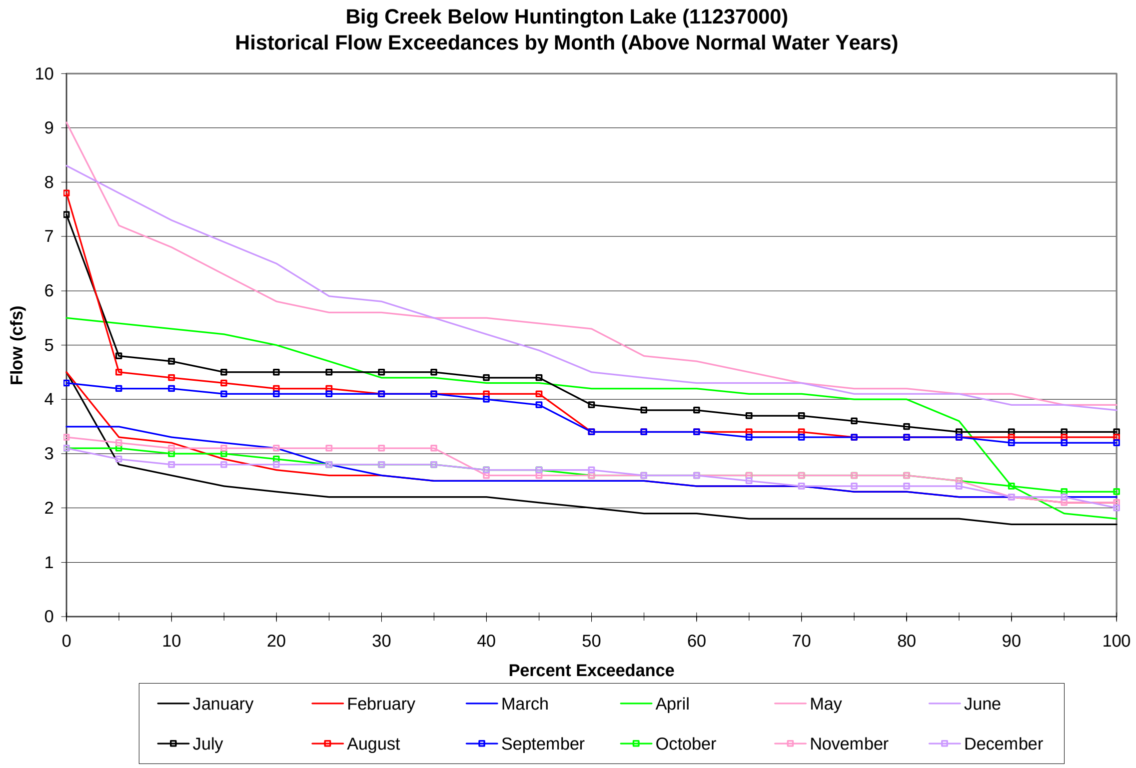

Stevenson Creek Below Shaver Lake (11241500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
50
100
150
200
250
300
350
400
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

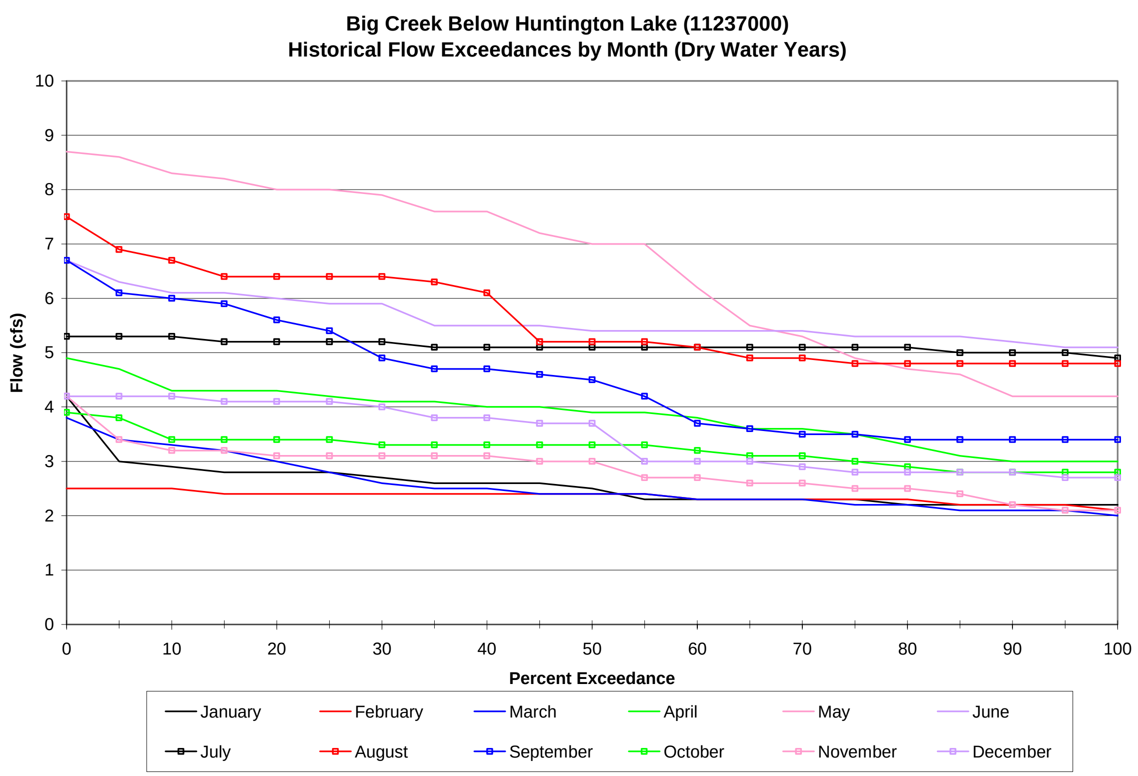

Stevenson Creek Below Shaver Lake (11241500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
1
2
3
4
5
6
7
8
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

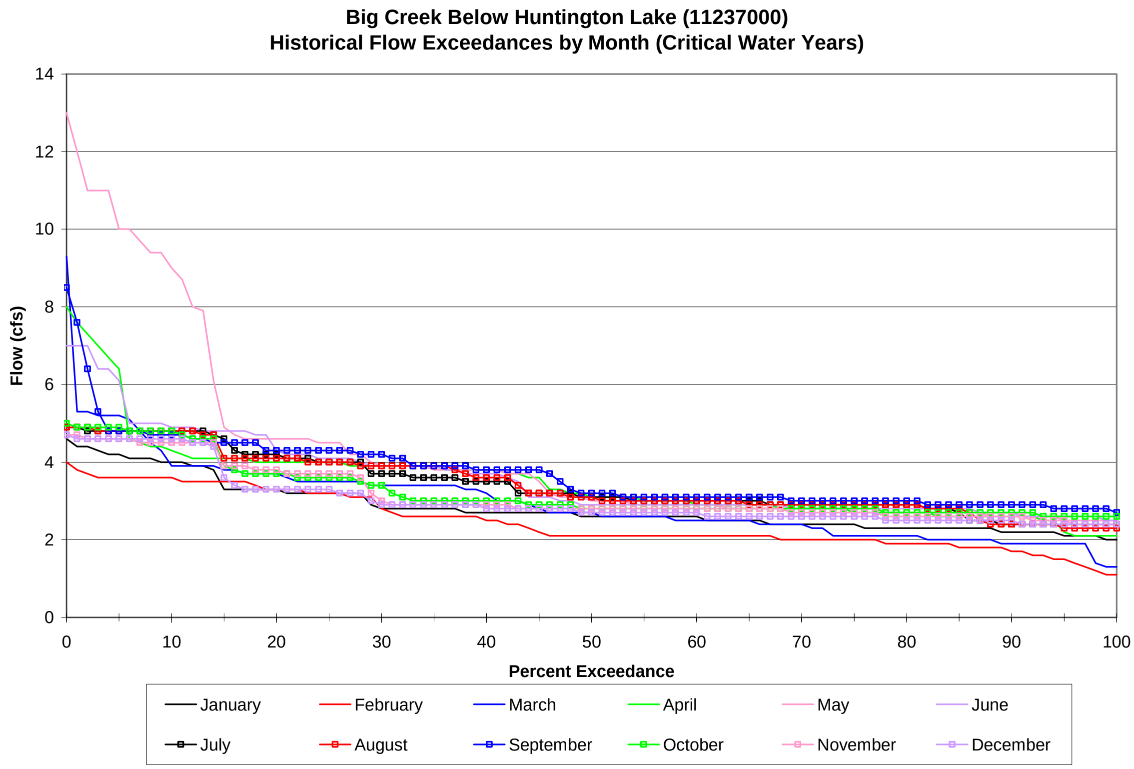

Stevenson Creek Below Shaver Lake (11241500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
Percent Exceedance
0
2
4
6
8
10
12
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

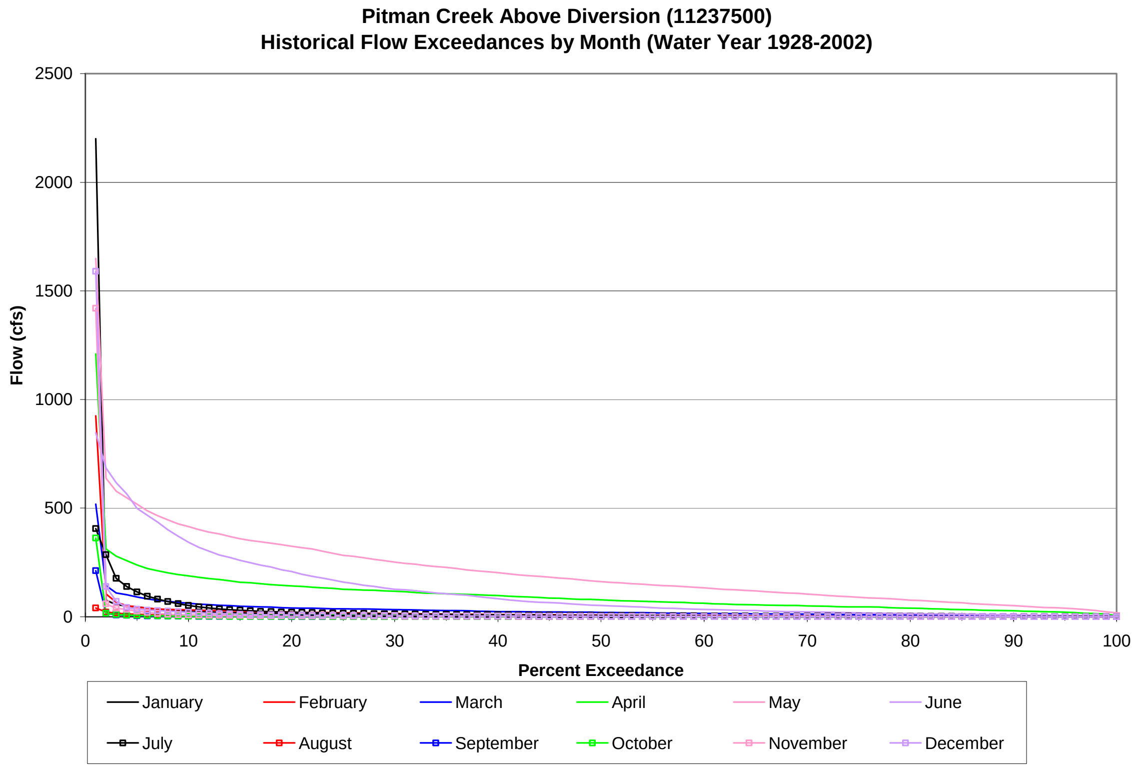

Big Creek Below Huntington Lake (11237000)
Historical Flow Exceedances by Month (Water Year 1987-2002)
Flow (cfs)
0
20
40
60
80
100
120
140
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

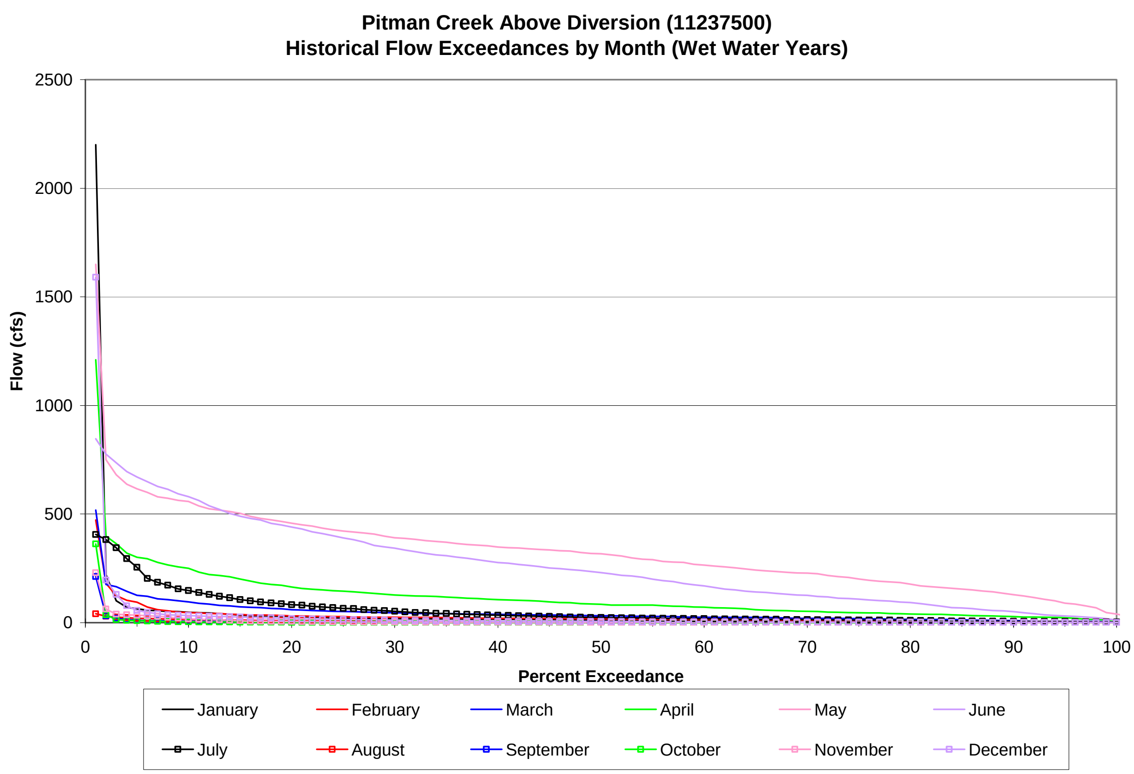

Big Creek Below Huntington Lake (11237000)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
20
40
60
80
100
120
140
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Below Huntington Lake (11237000)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

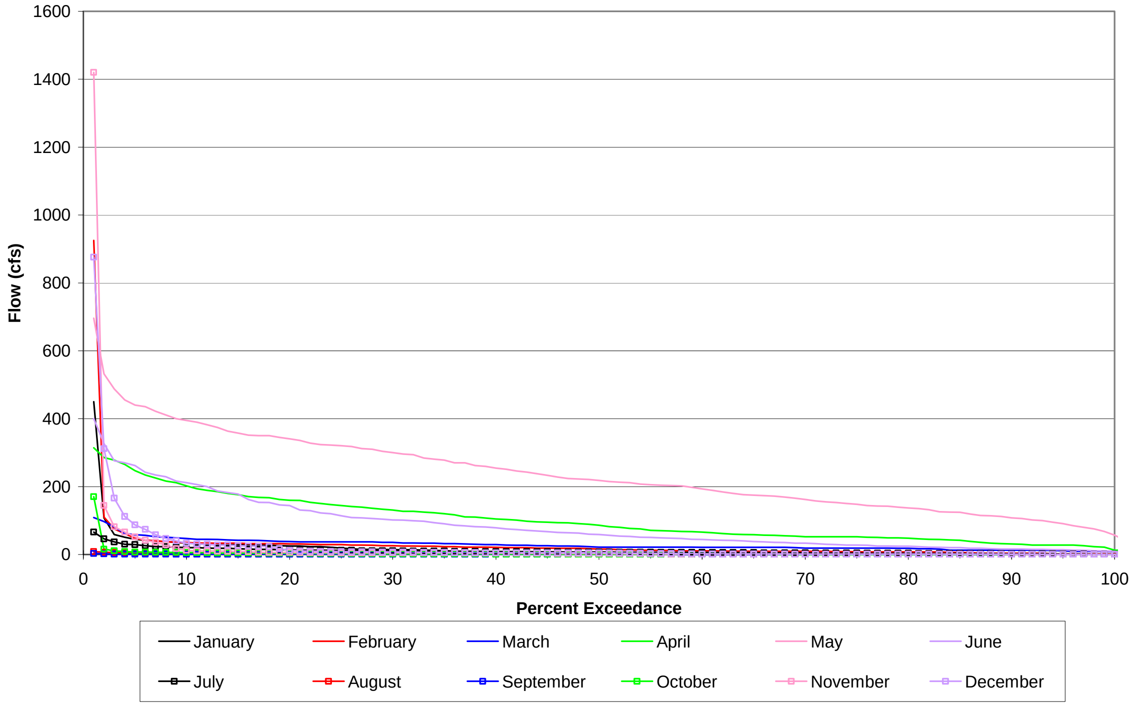

Big Creek Below Huntington Lake (11237000)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Below Huntington Lake (11237000)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

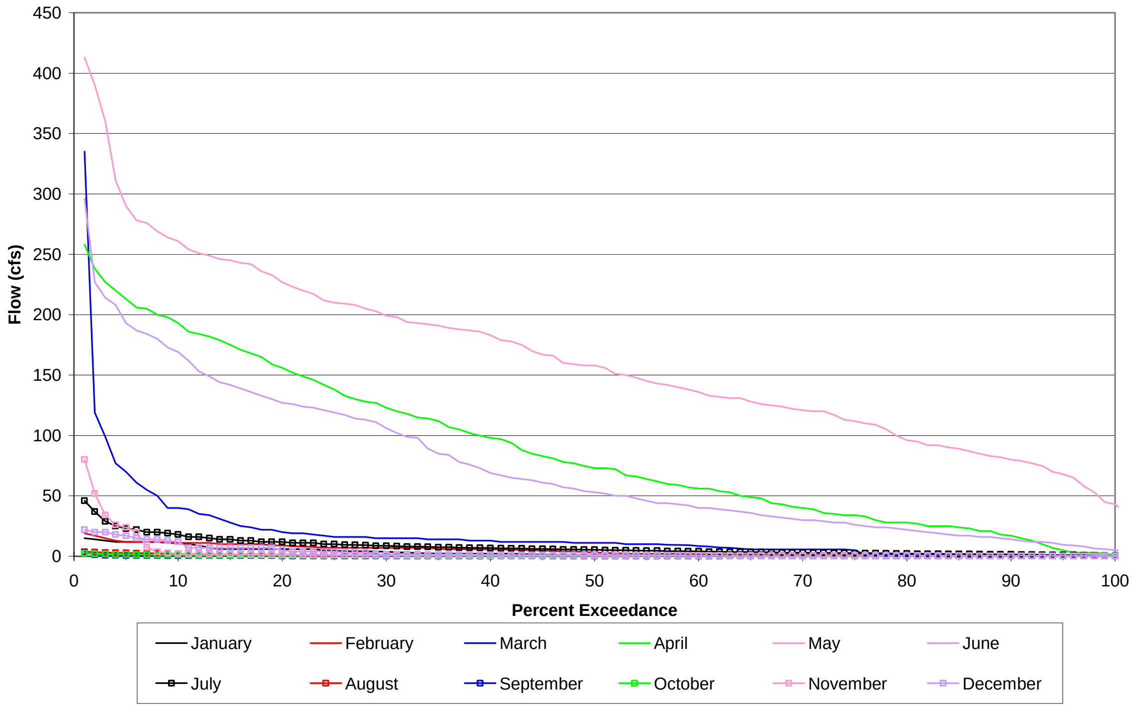

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Water Year 1928-2002)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

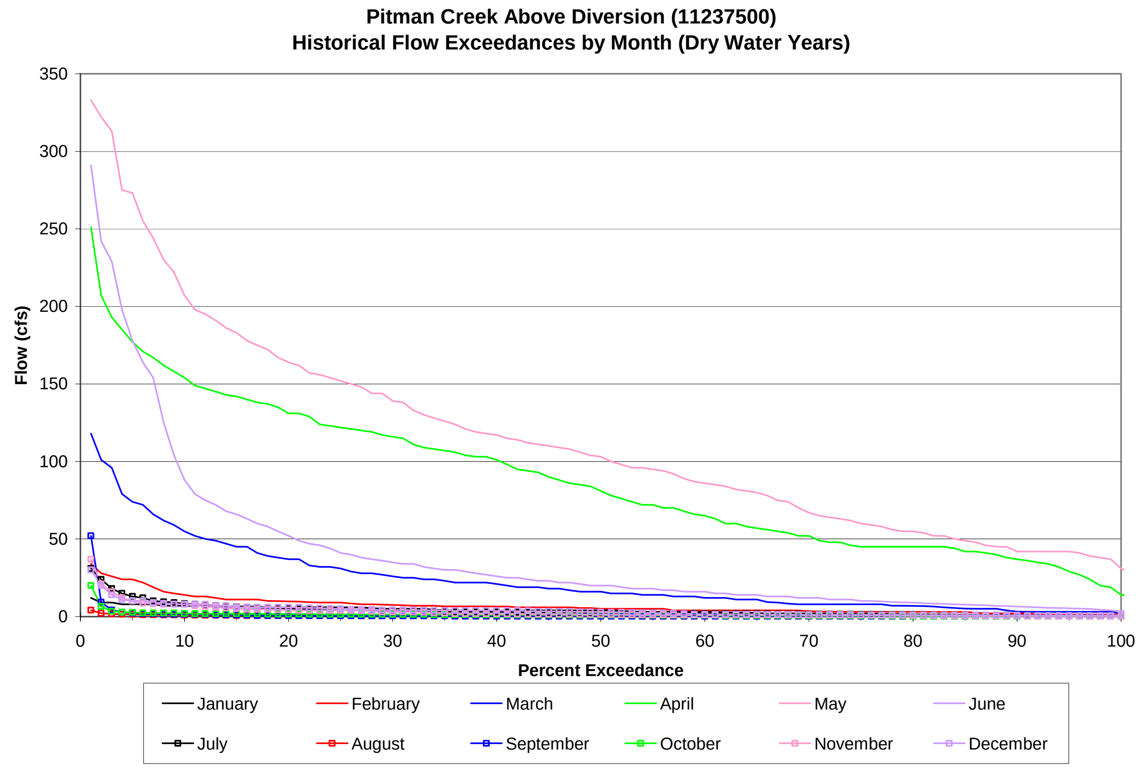

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

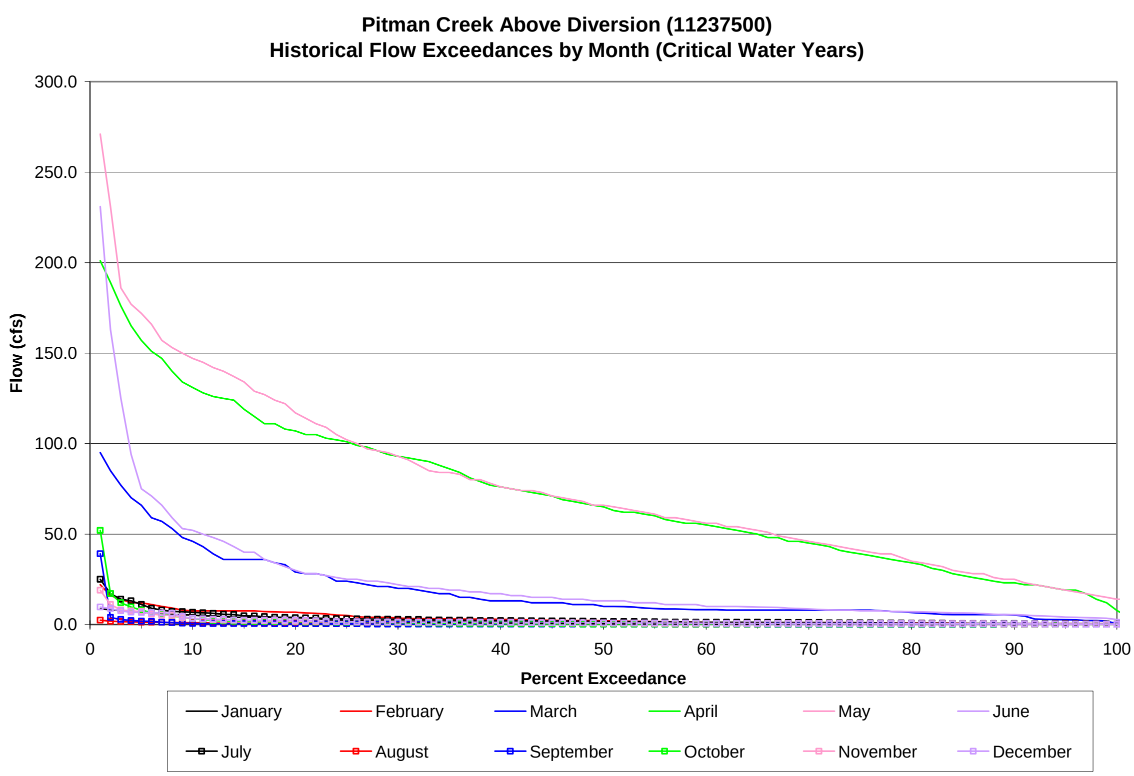
Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Above Normal Water Years)

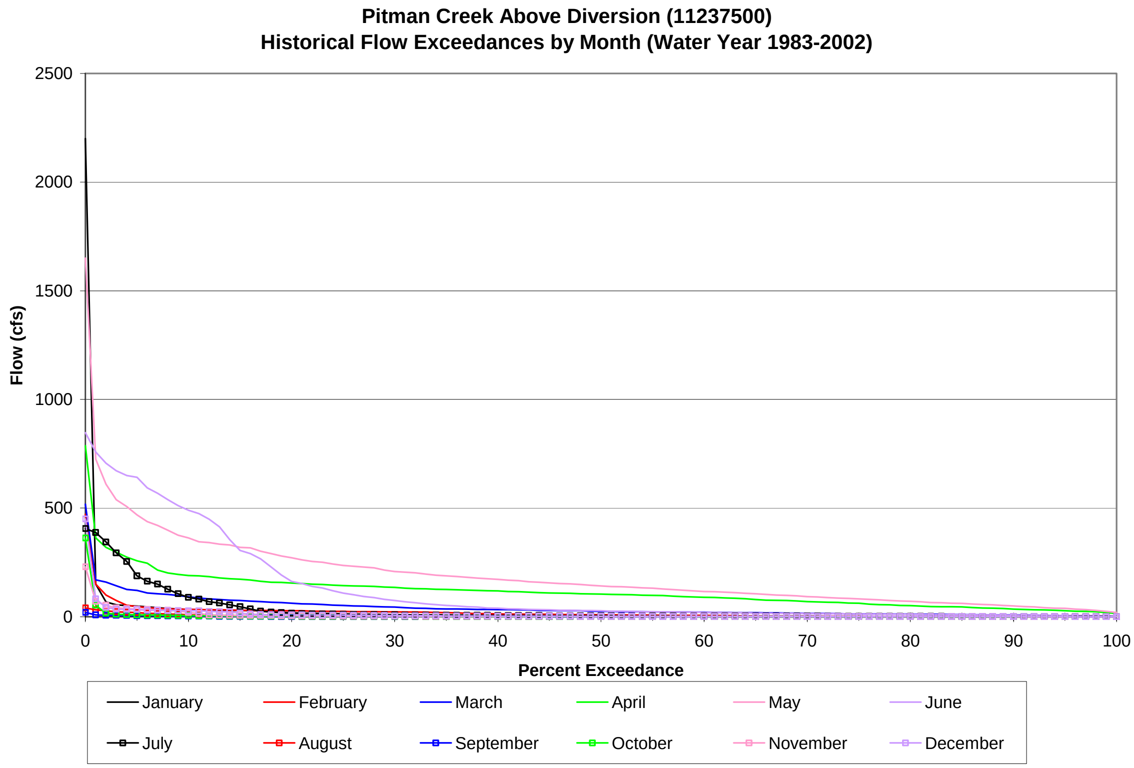


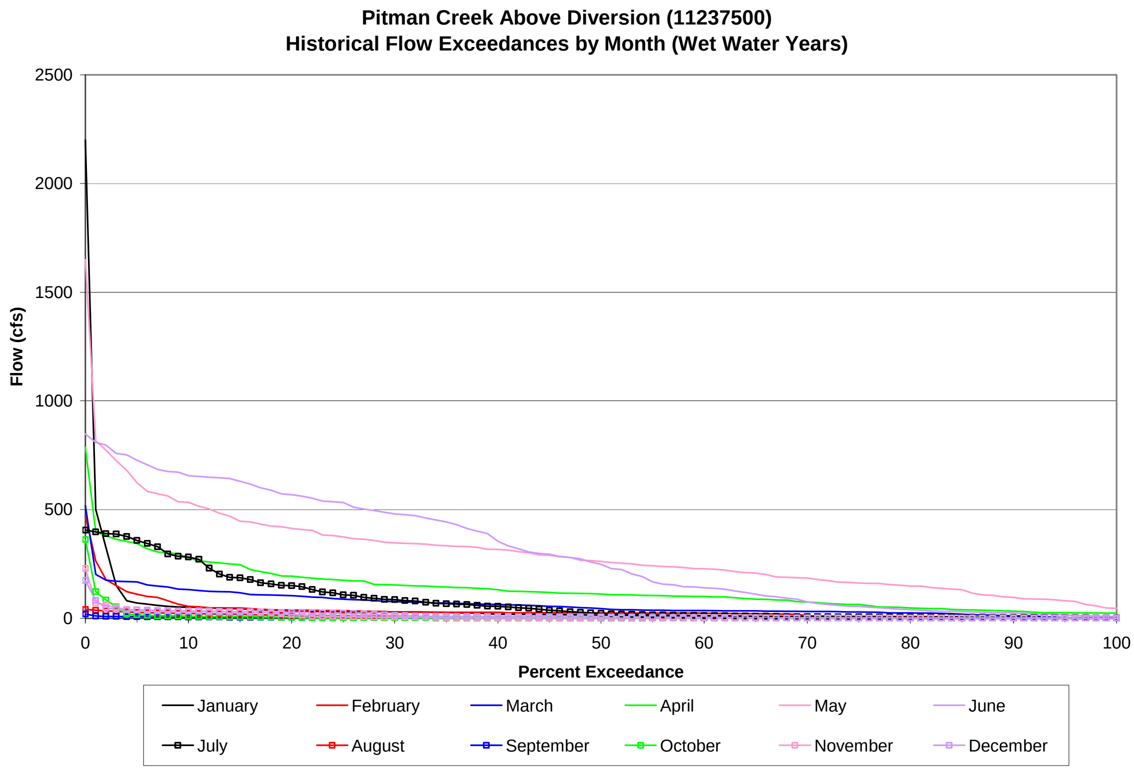
Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Below Normal Water Years)

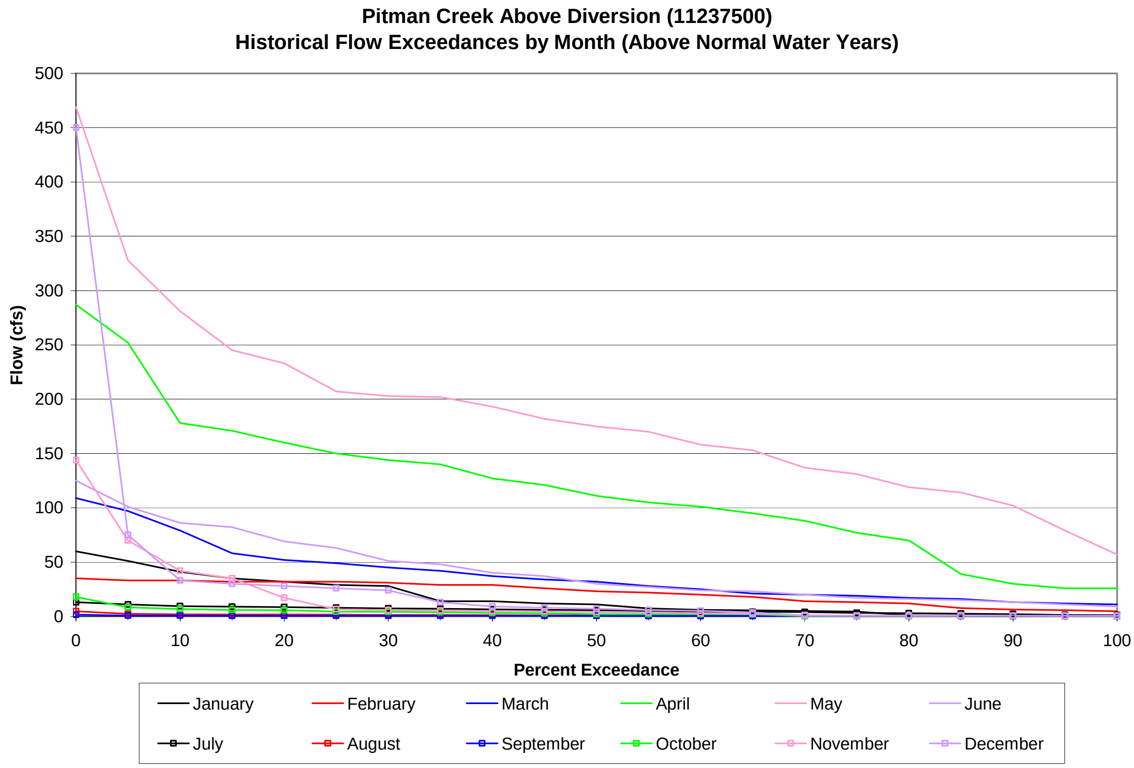


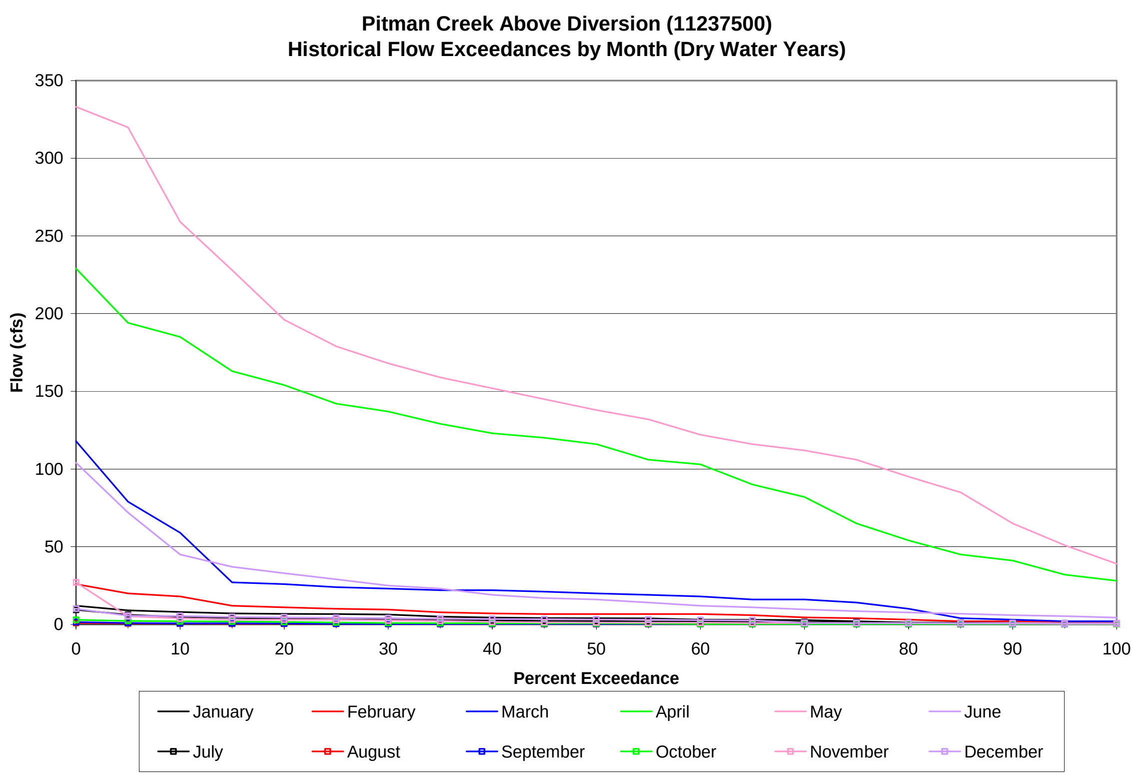

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

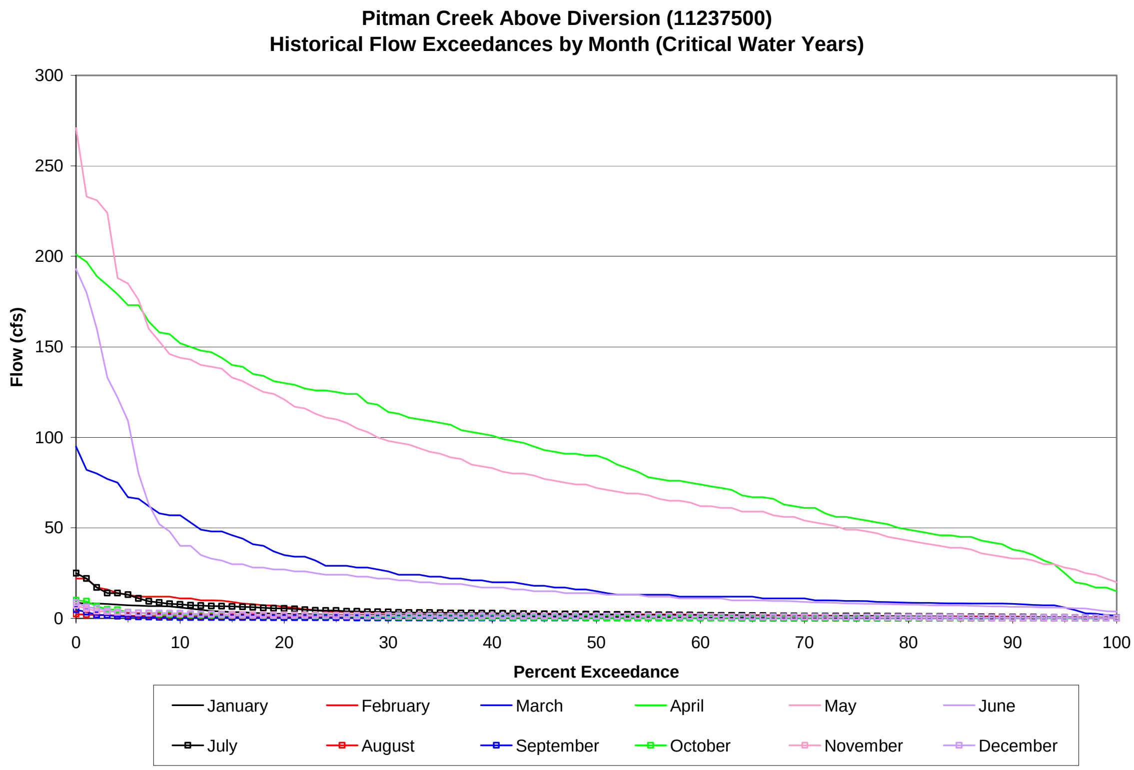

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
300.0
250.0
200.0
150.0
100.0
50.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

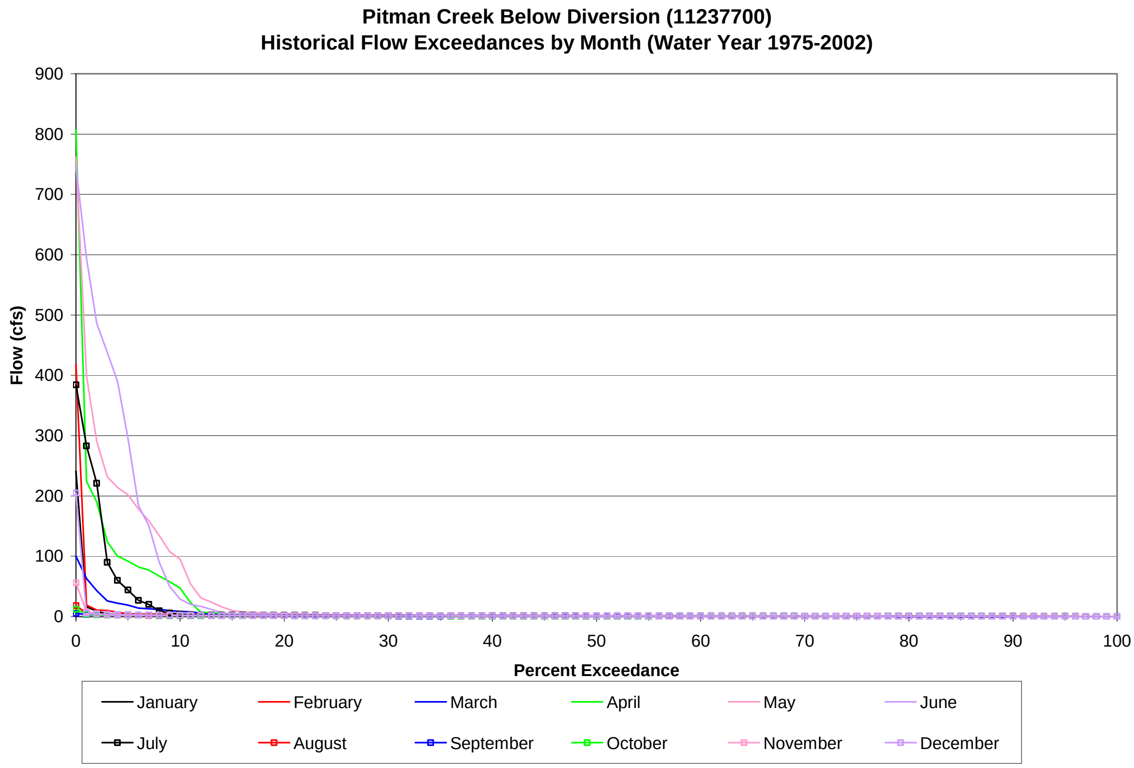

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

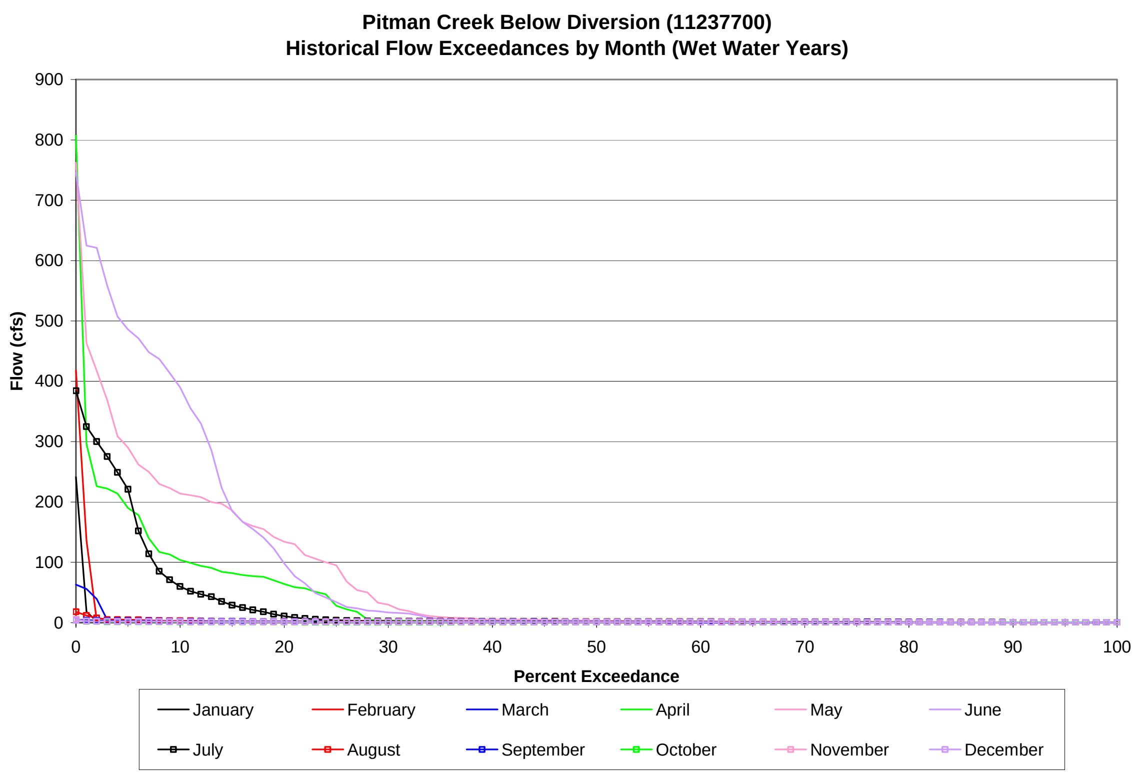

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

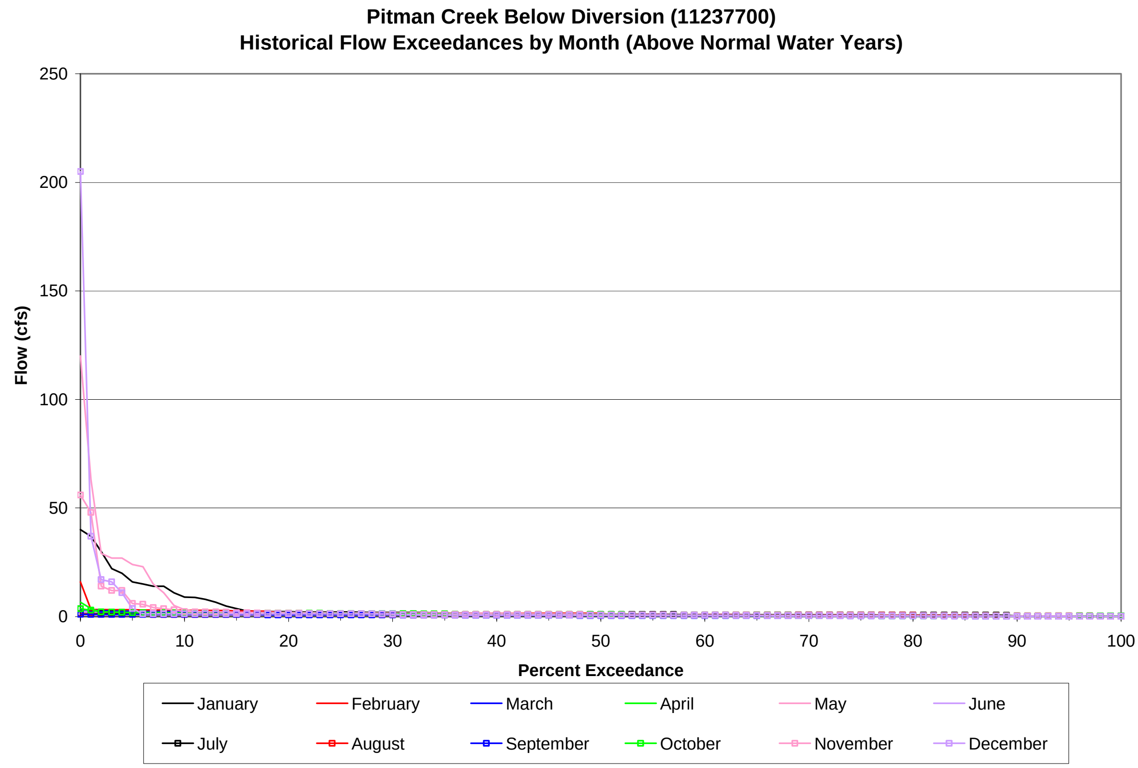

Pitman Creek Above Diversion (11237500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

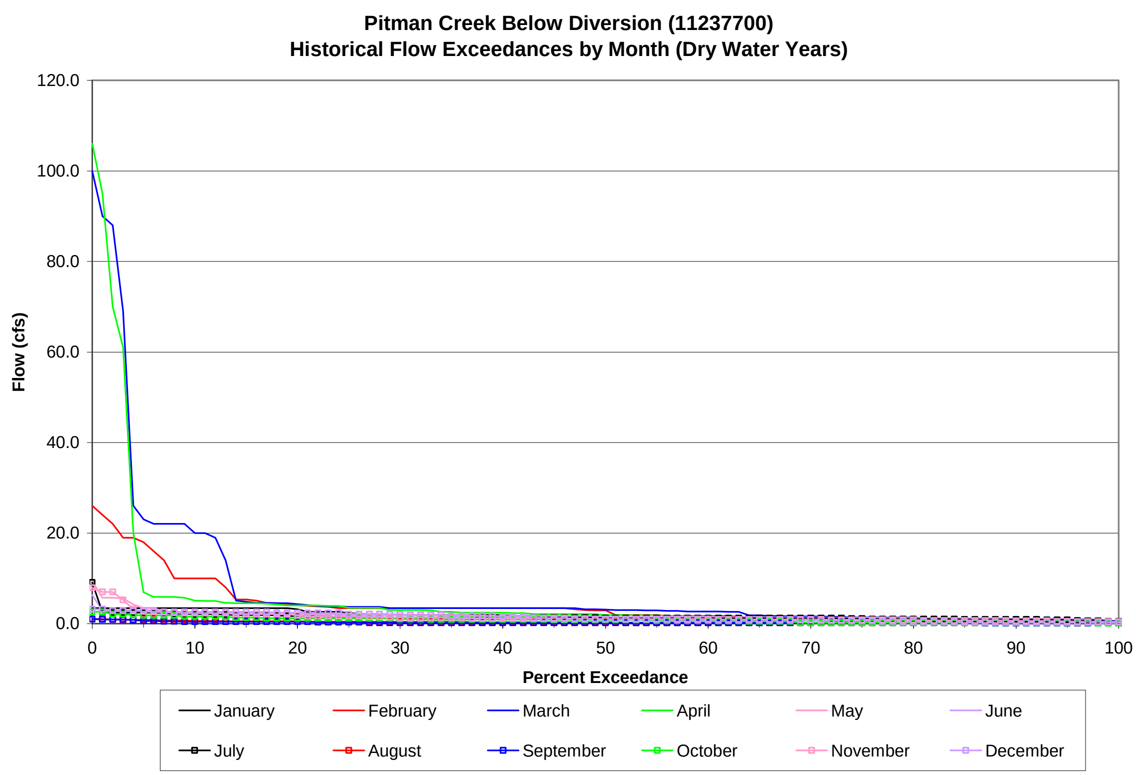


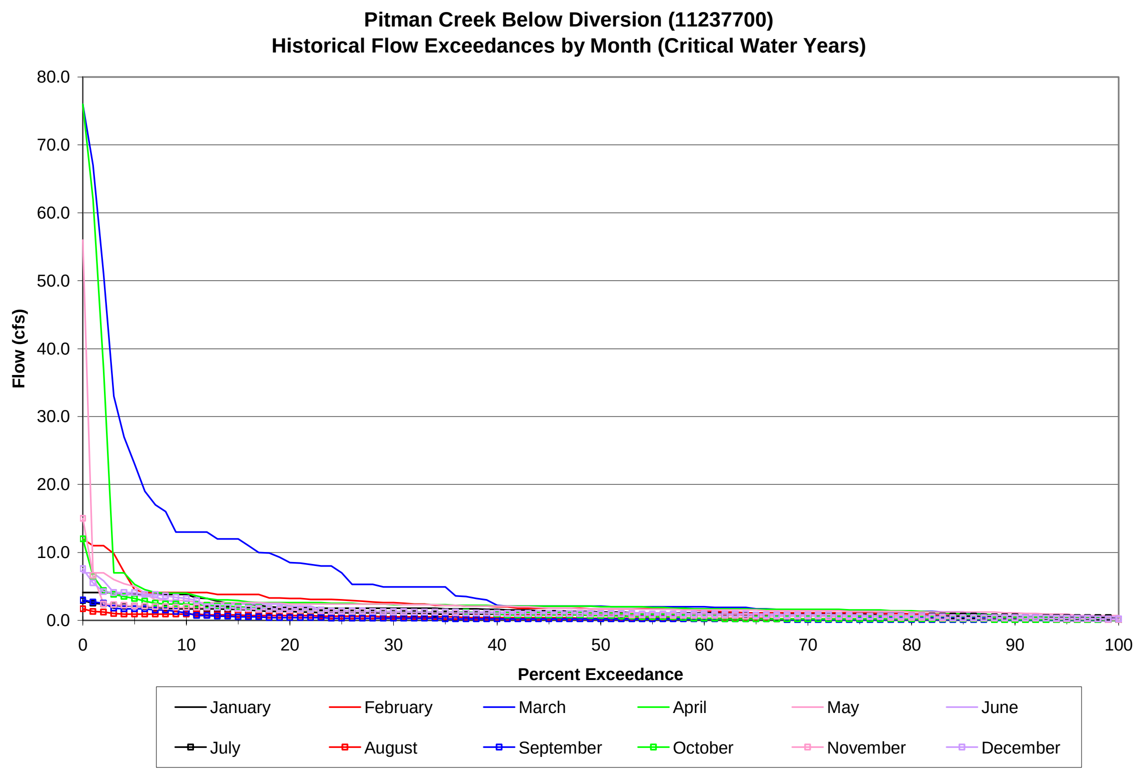
Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Water Year 1975-2002)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

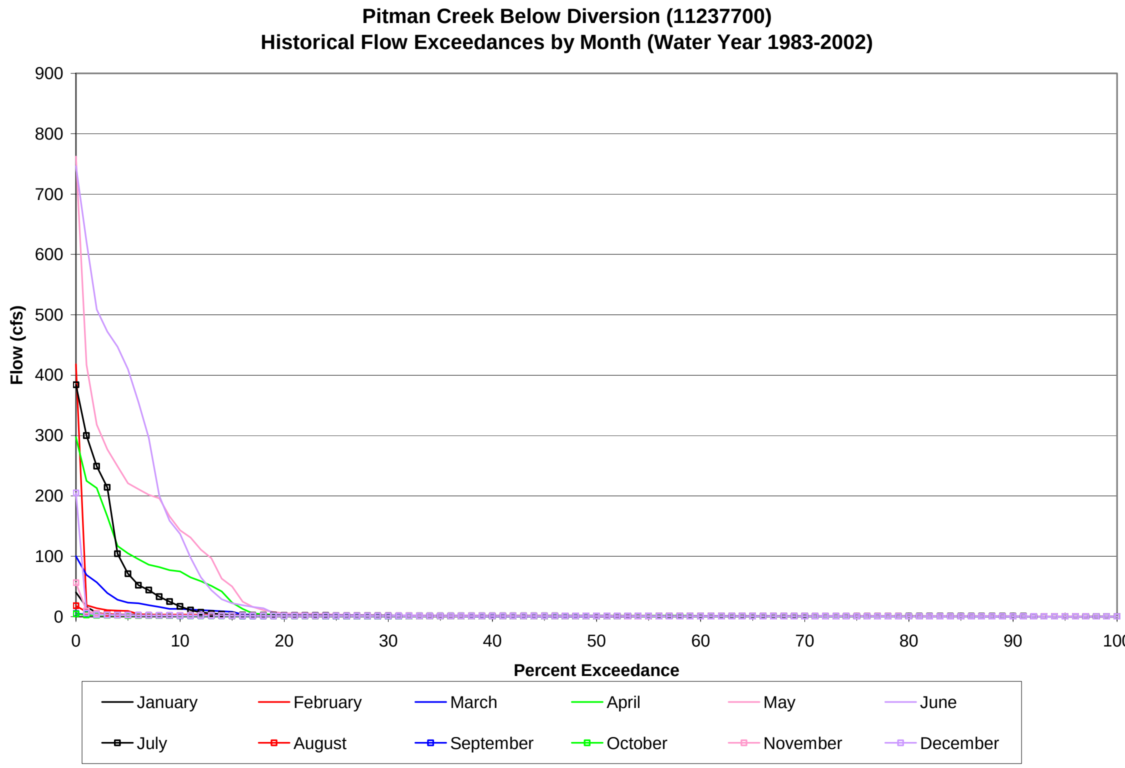


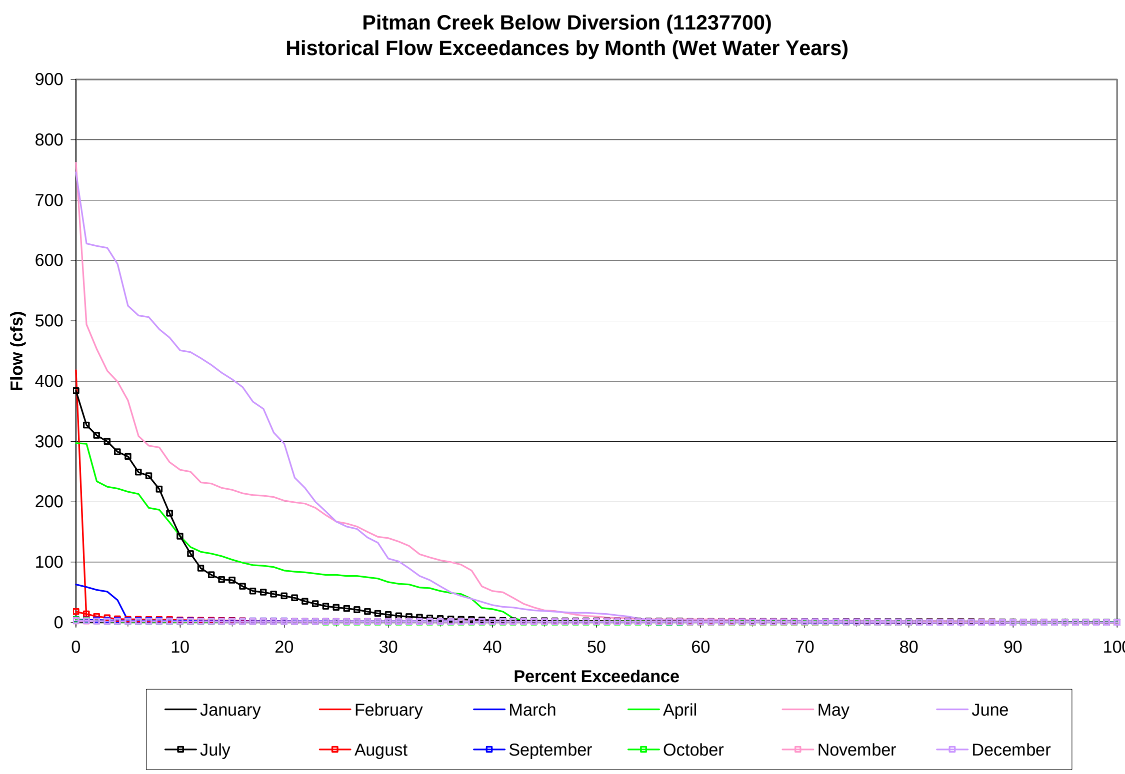
Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

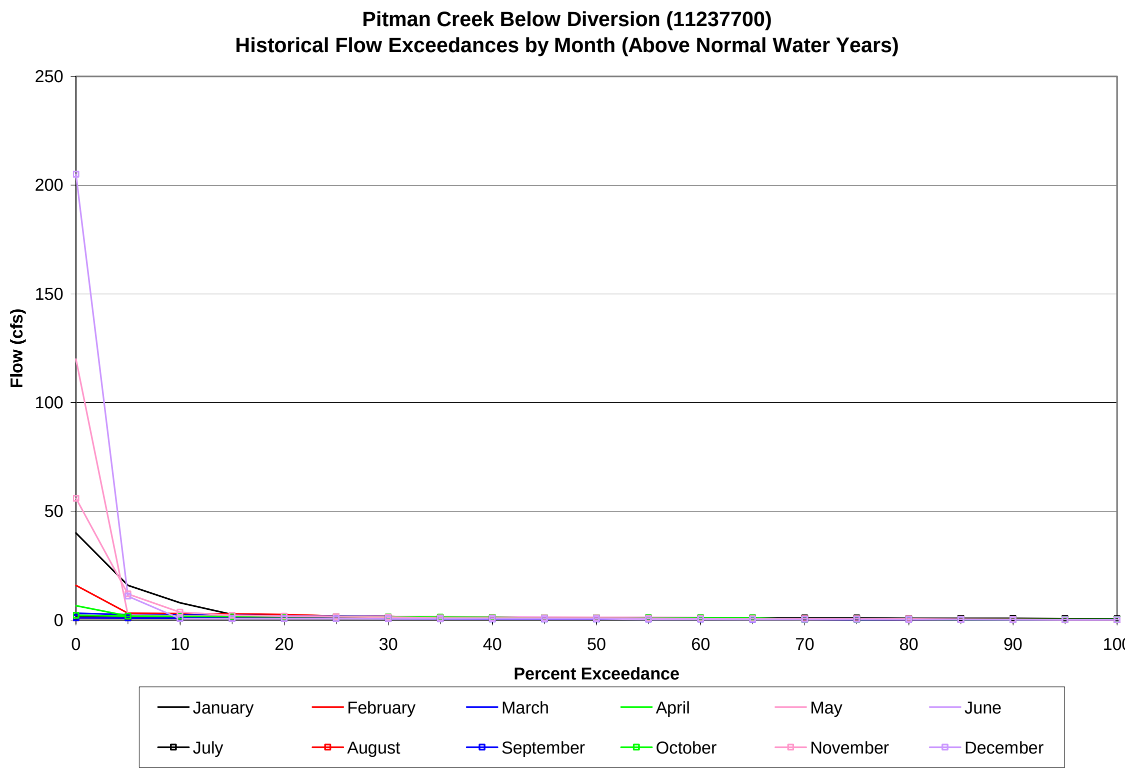

Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Above Normal Water Years)
250
200
150
100
50
0
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

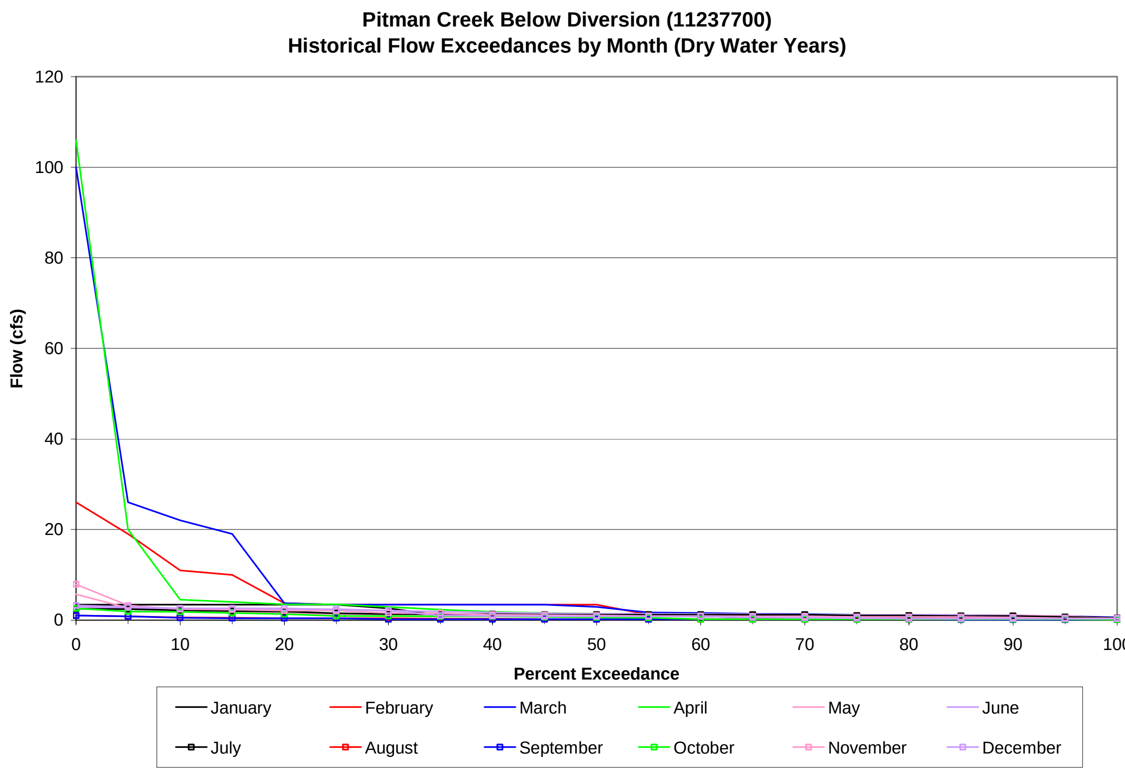

Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Dry Water Years)
120.0
100.0
80.0
60.0
40.0
20.0
0.0
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

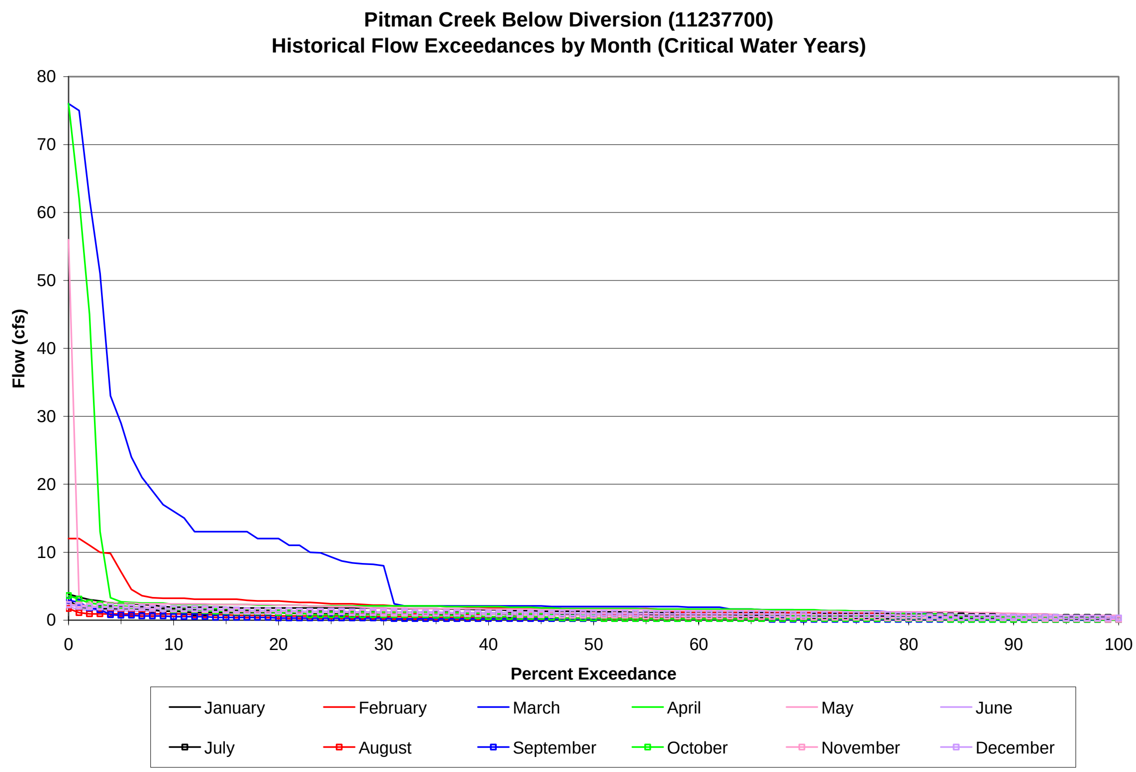

Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

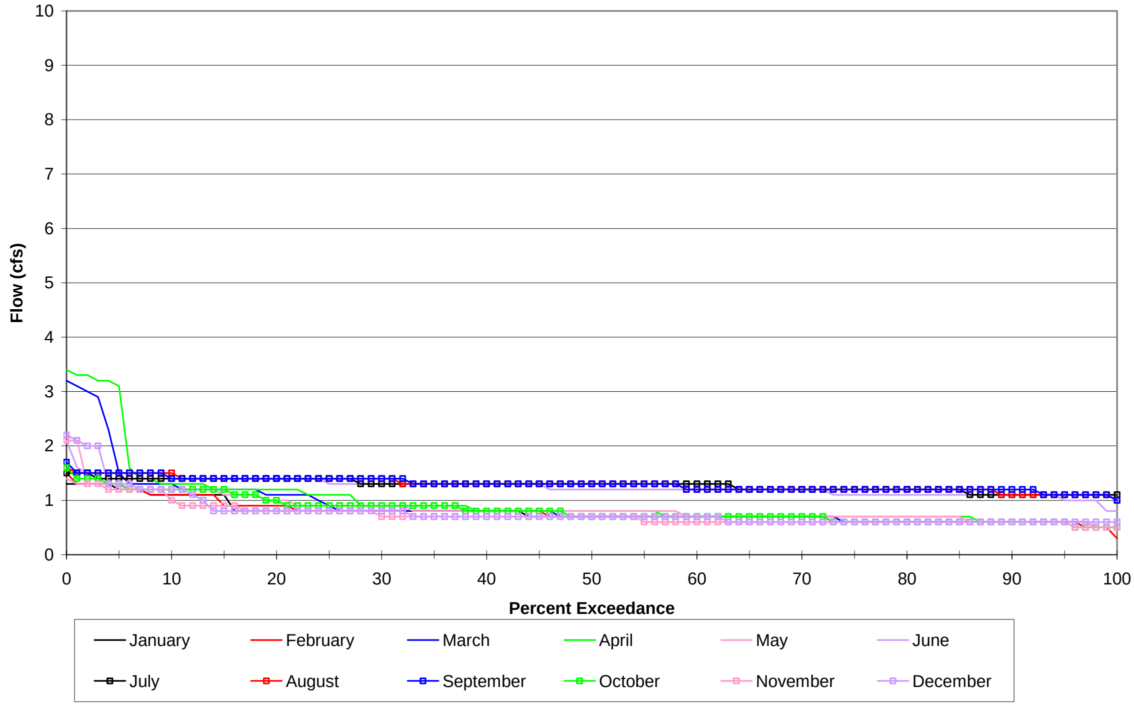

Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

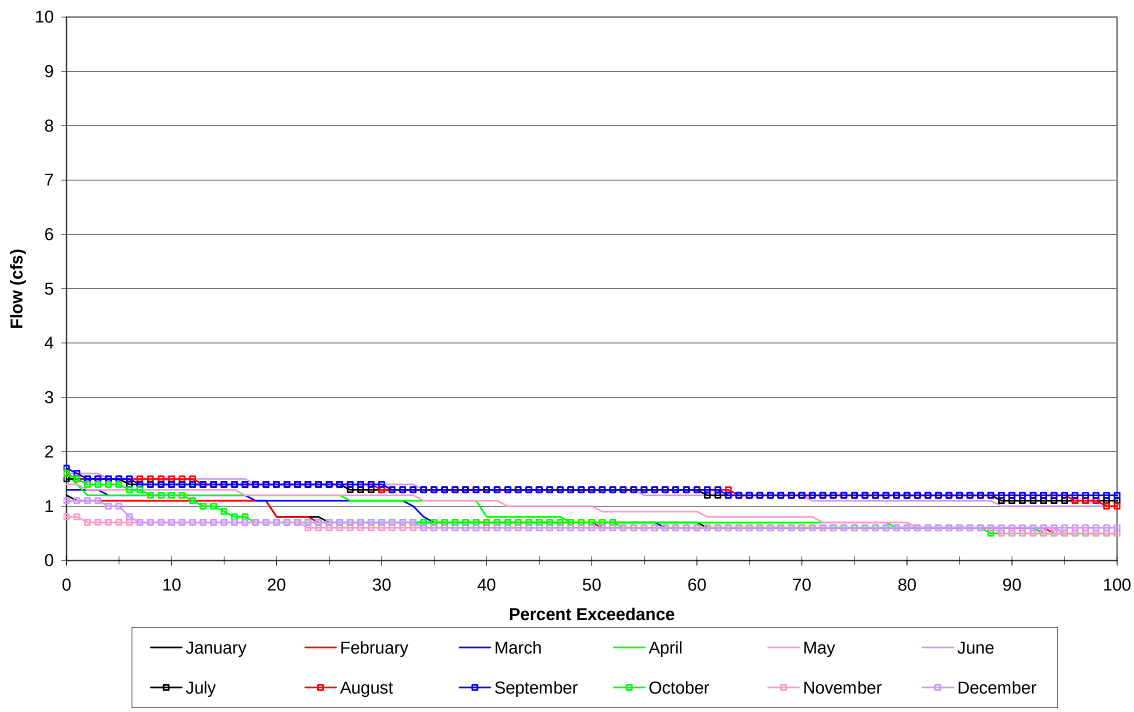

Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Pitman Creek Below Diversion (11237700)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

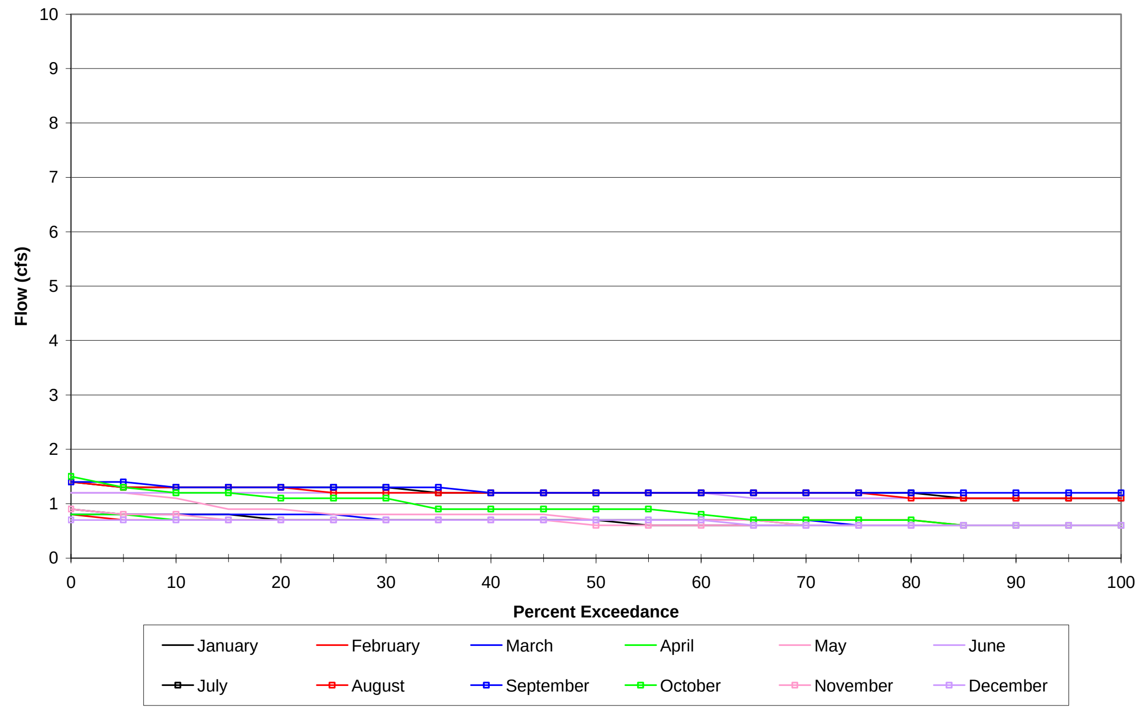
Balsam Creek Below Balsam Meadow Forebay (11238270)
Historical Flow Exceedances by Month (Water Year 1989-2002)



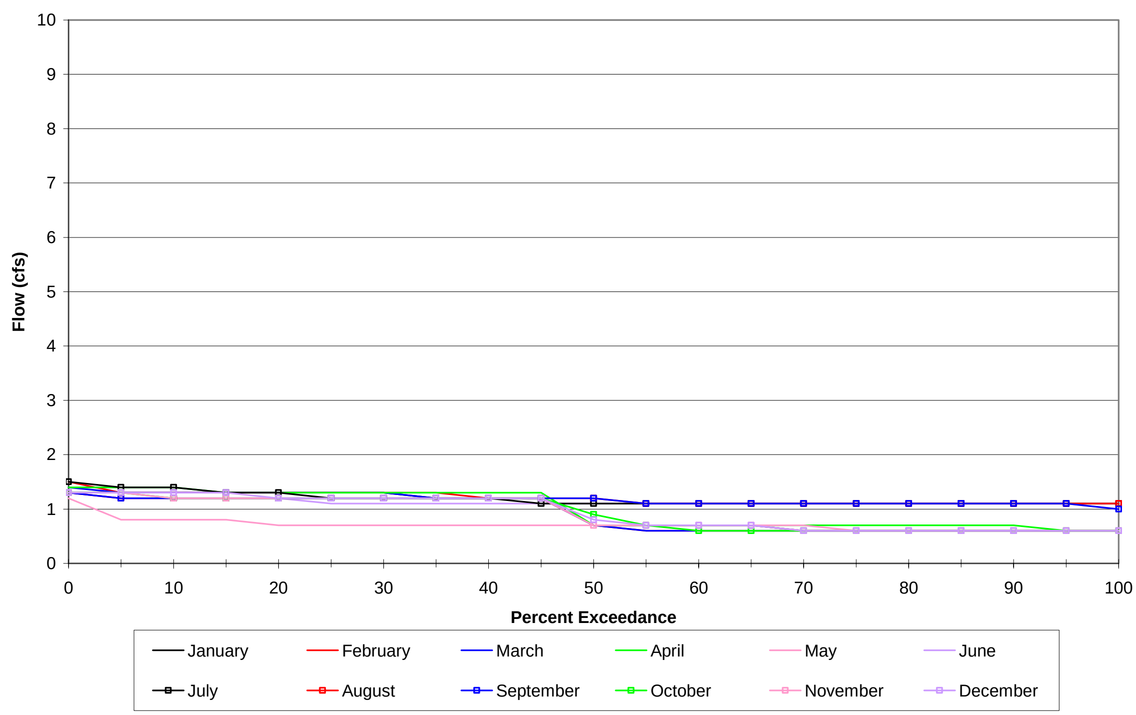
Balsam Creek Below Balsam Meadow Forebay (11238270)
Historical Flow Exceedances by Month (Wet Water Years)

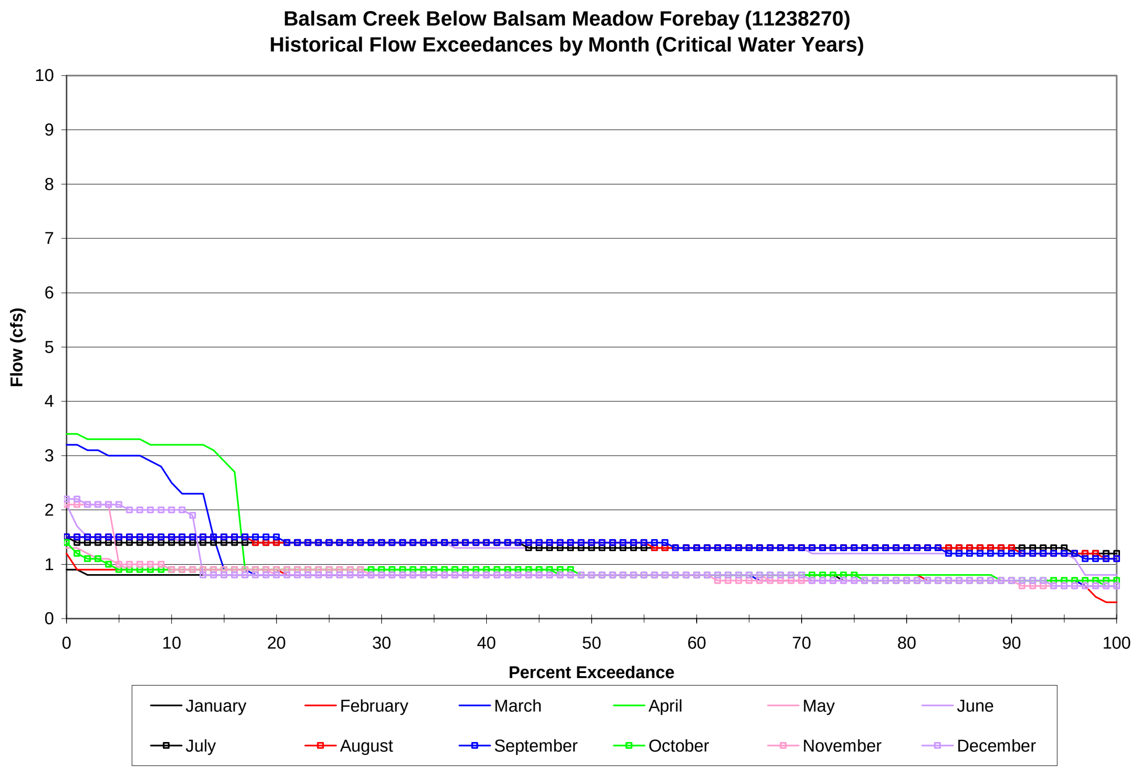


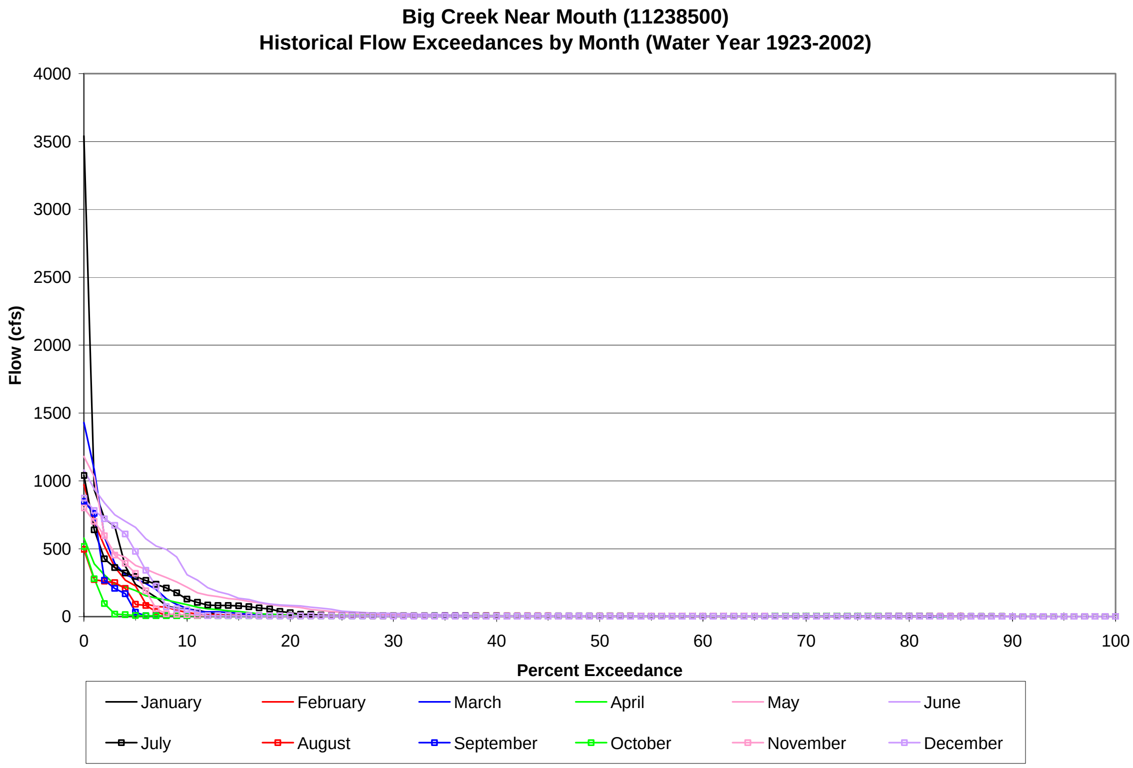
Balsam Creek Below Balsam Meadow Forebay (11238270)
Historical Flow Exceedances by Month (Above Normal Water Years)

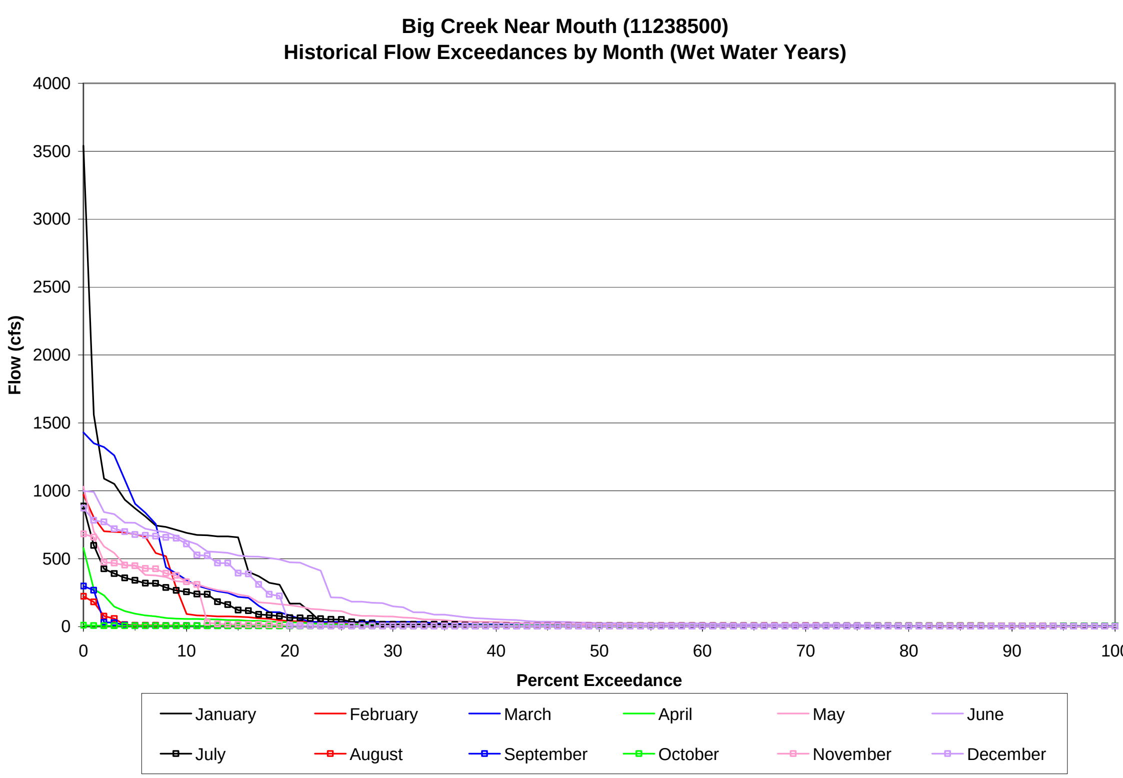


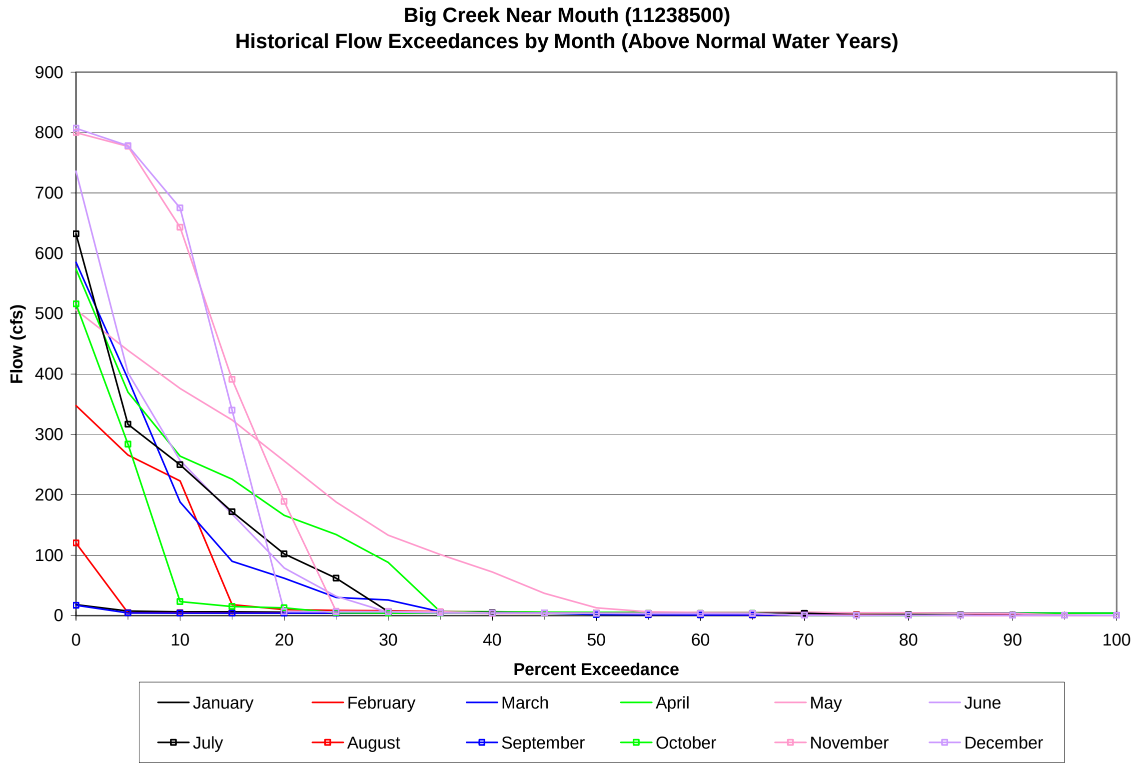
Balsam Creek Below Balsam Meadow Forebay (11238270)
Historical Flow Exceedances by Month (Dry Water Years)

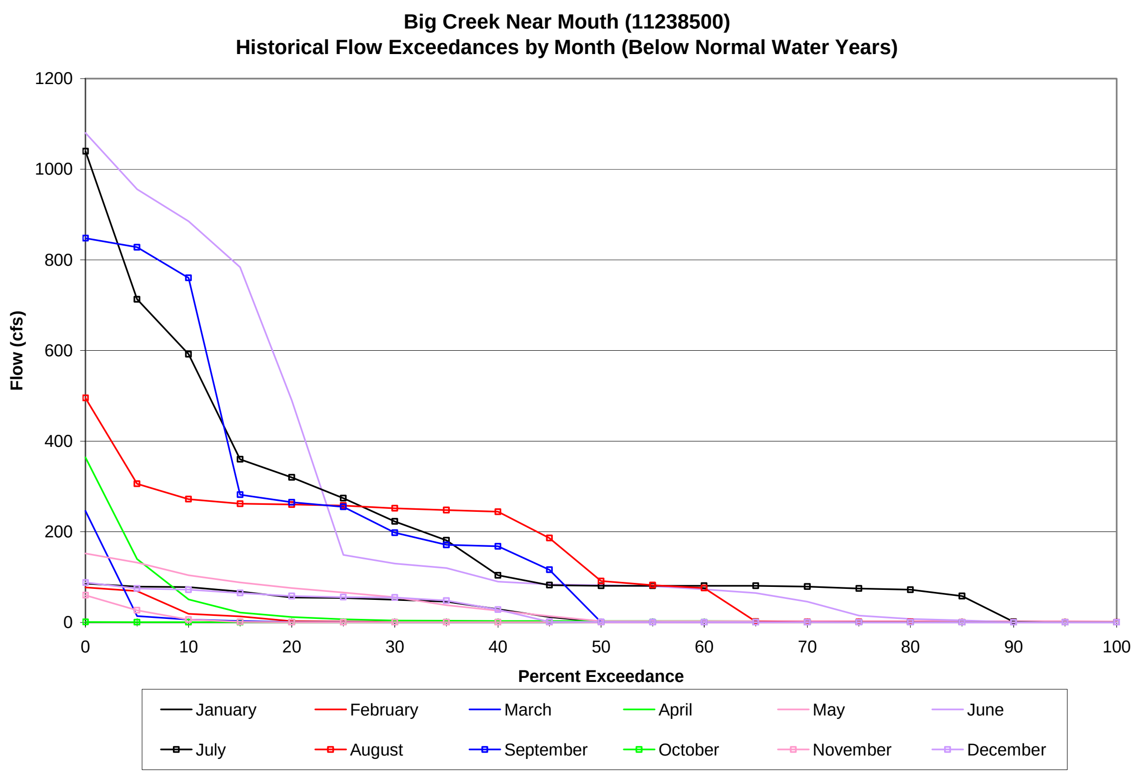


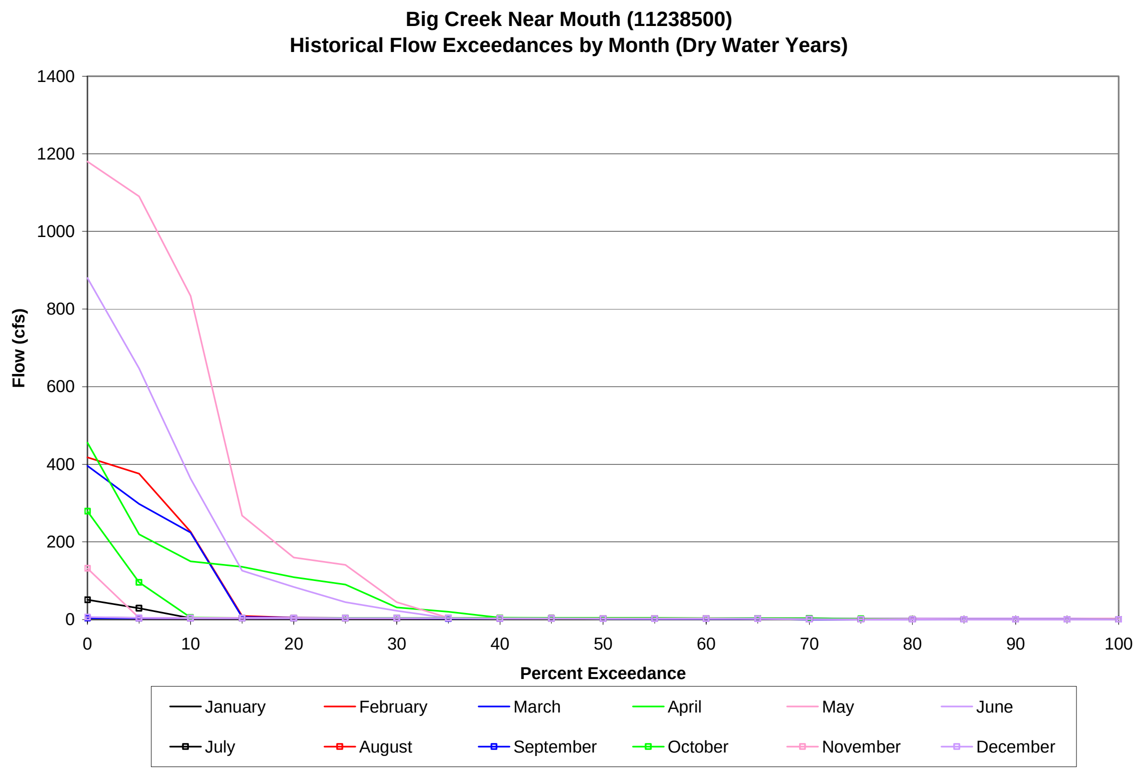

Balsam Creek Below Balsam Meadow Forebay (11238270)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

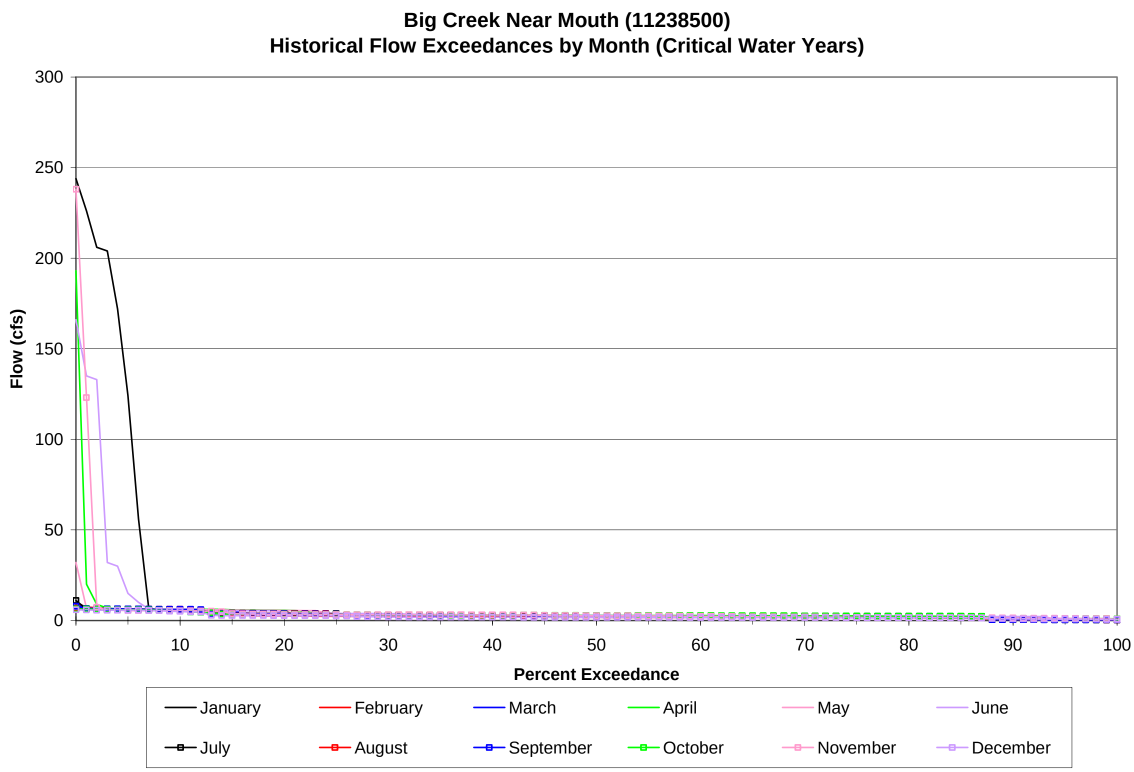

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Water Year 1923-2002)
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

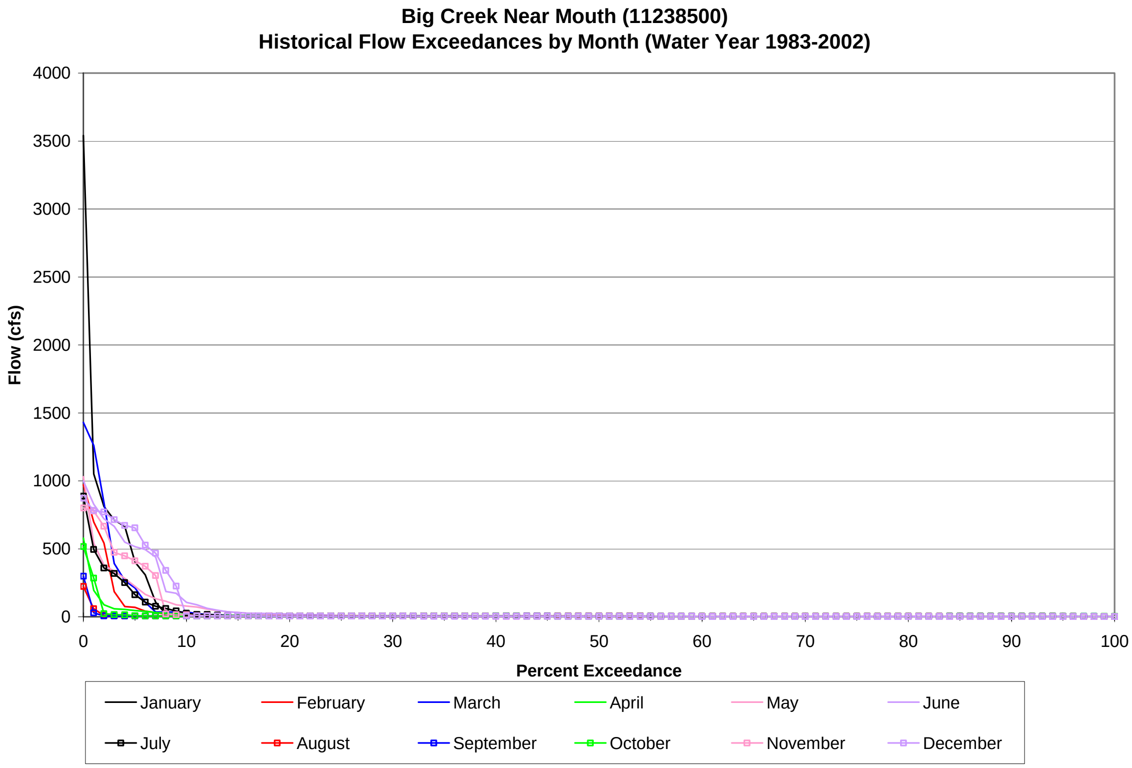

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

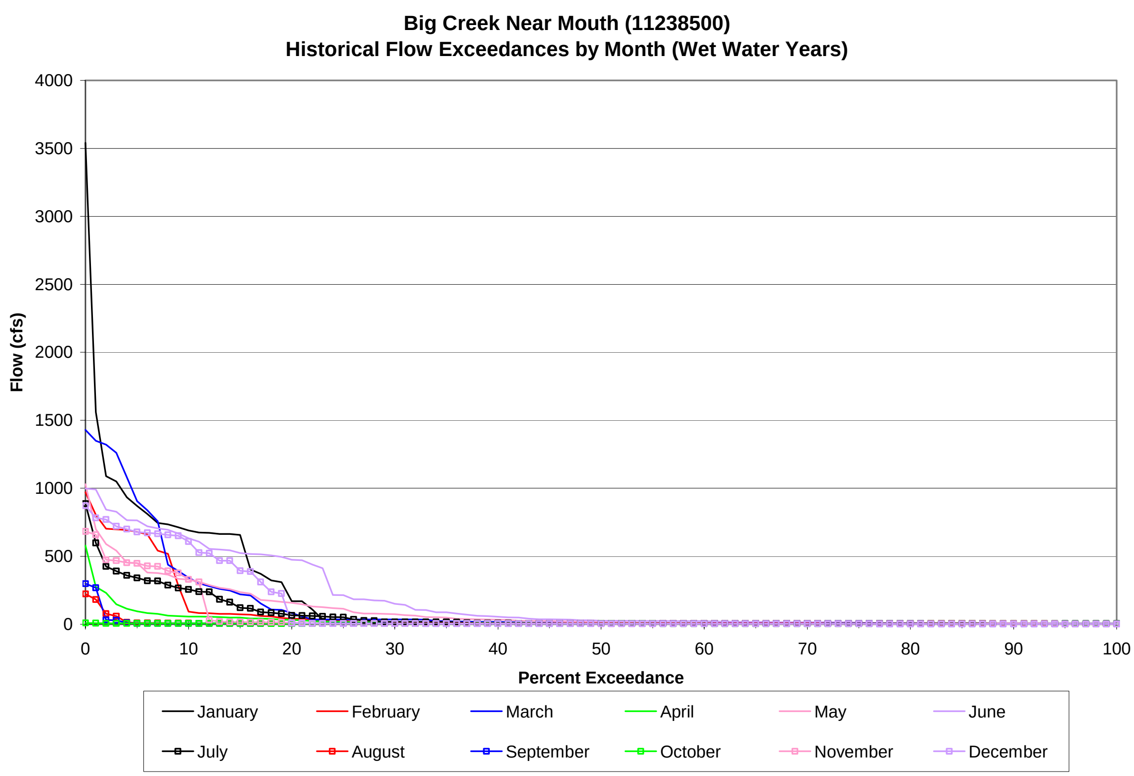

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

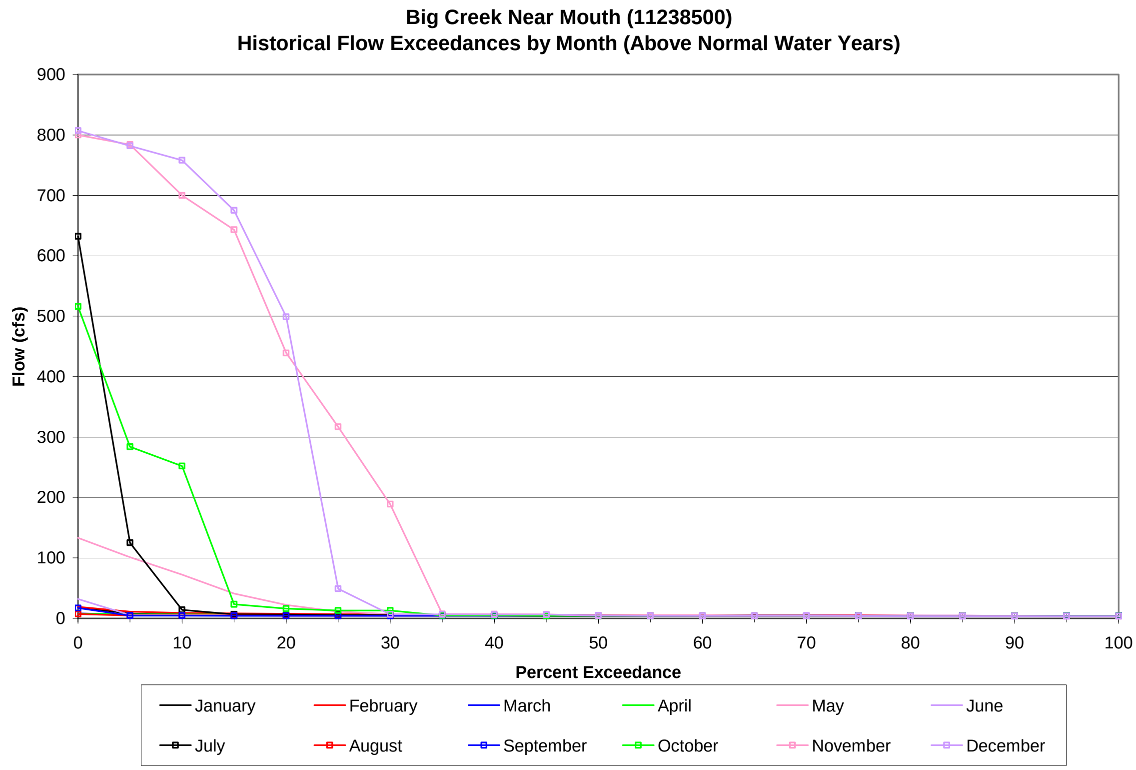

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

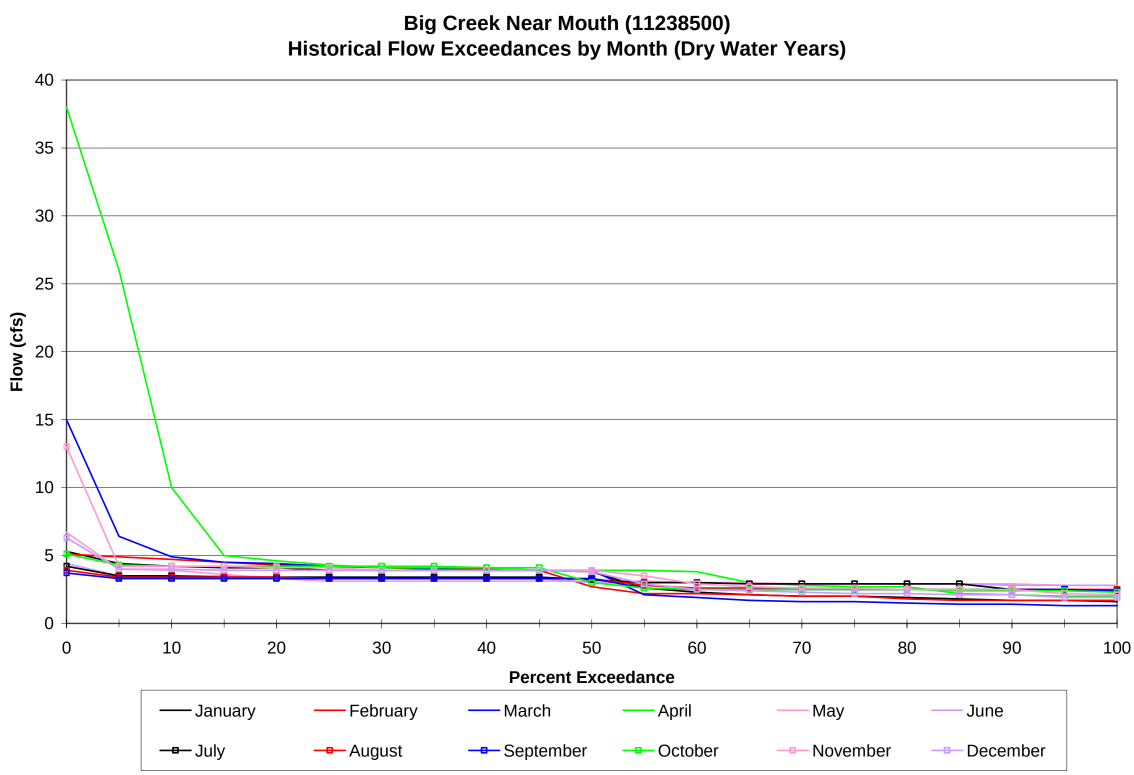

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

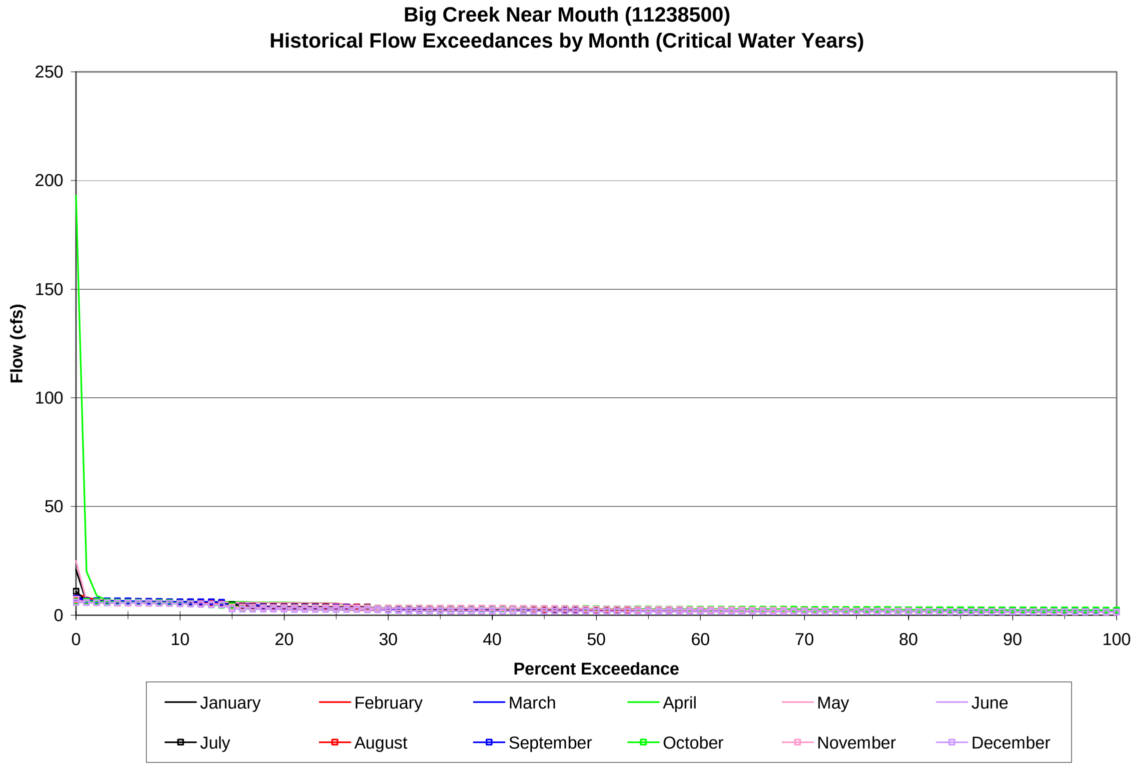

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
50
100
150
200
250
300
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

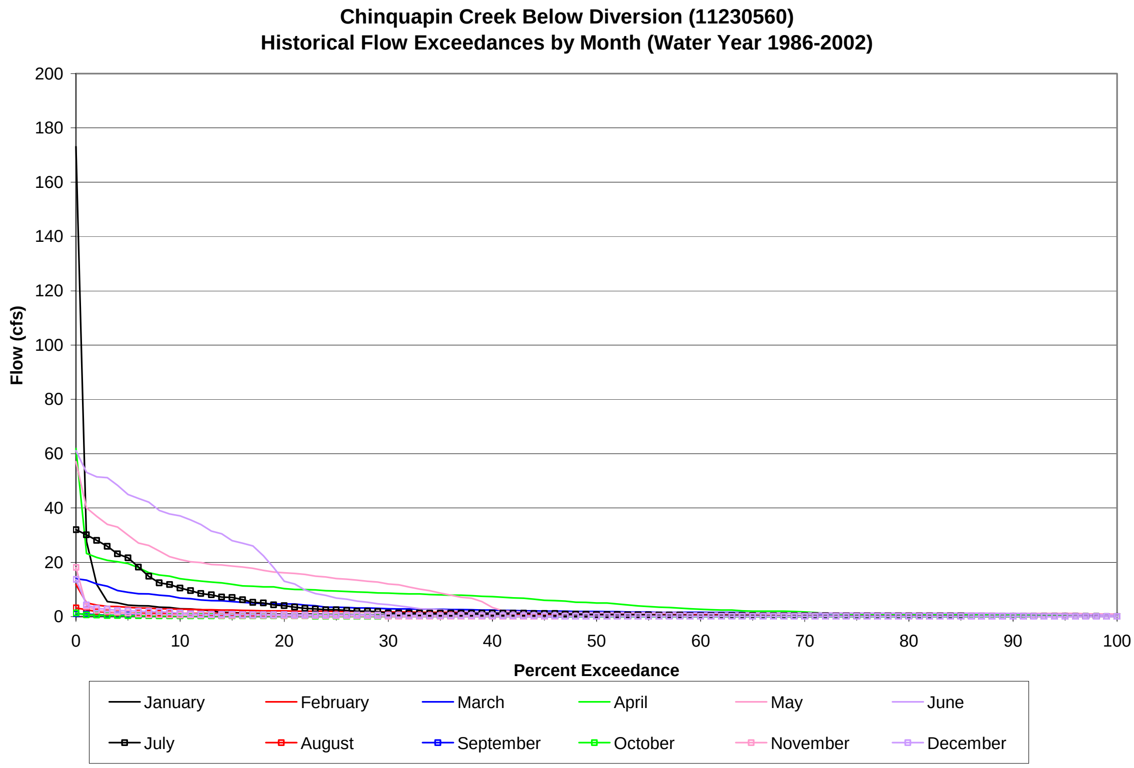

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

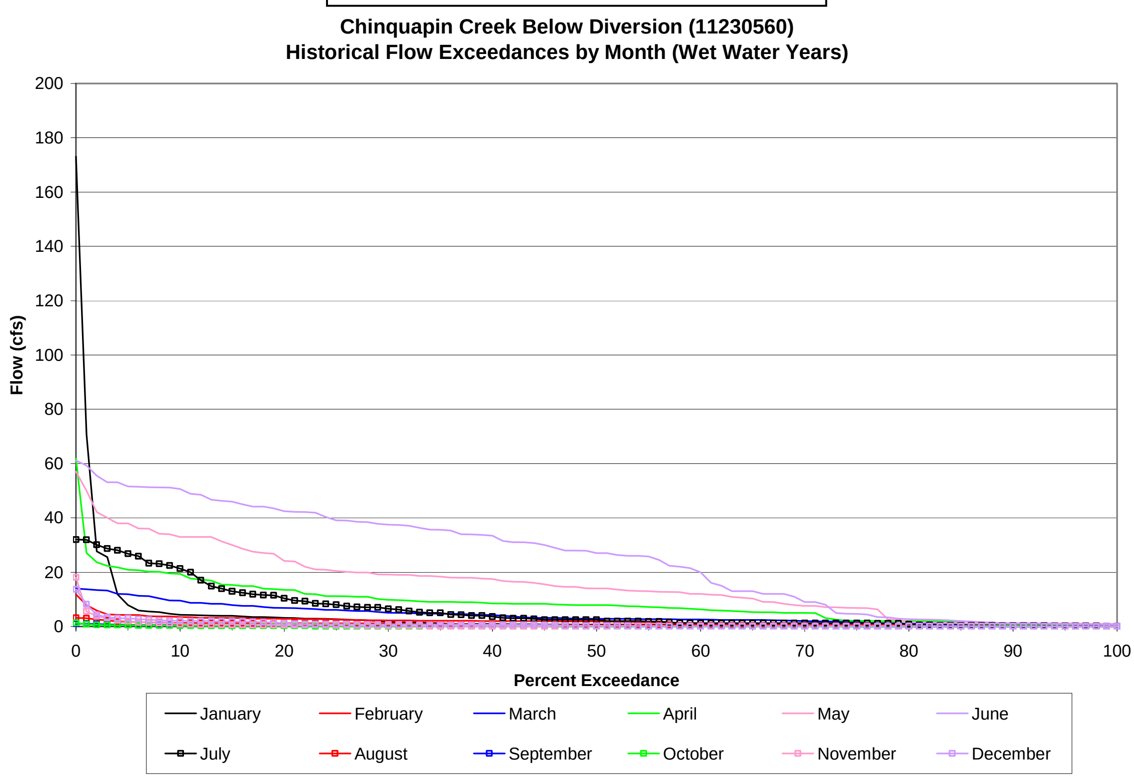

Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Near Mouth (11238500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

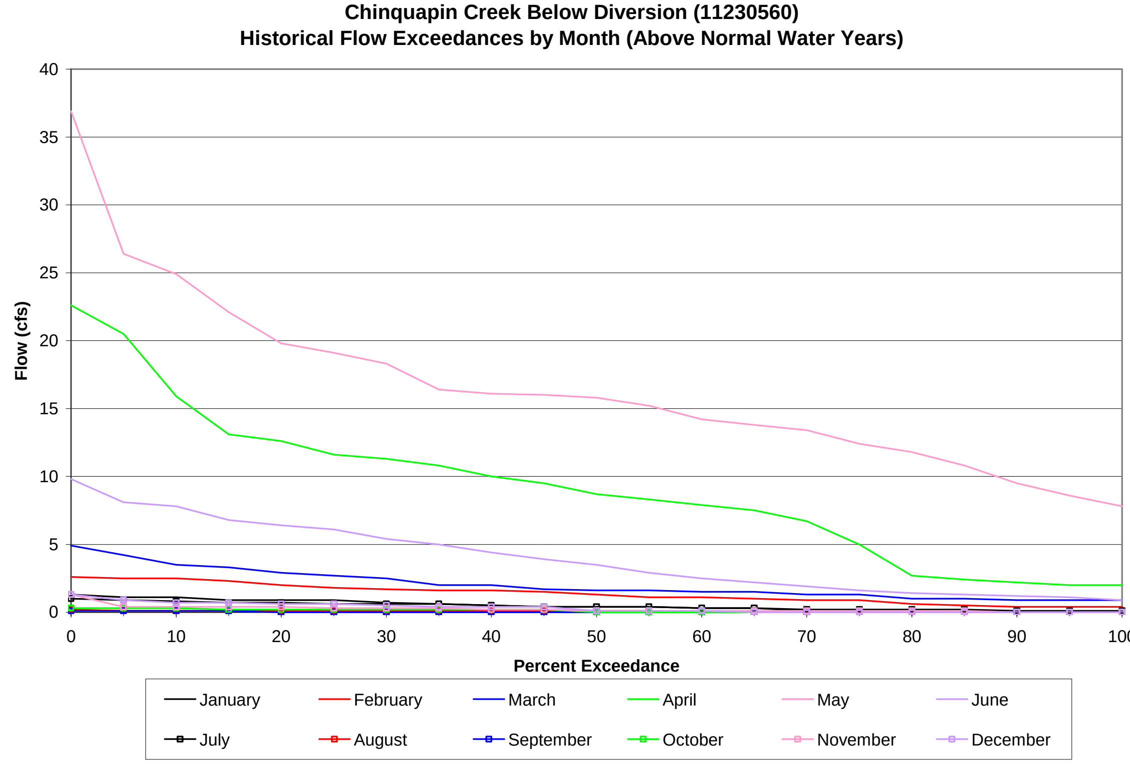
With some estimated unimpaired data during winter



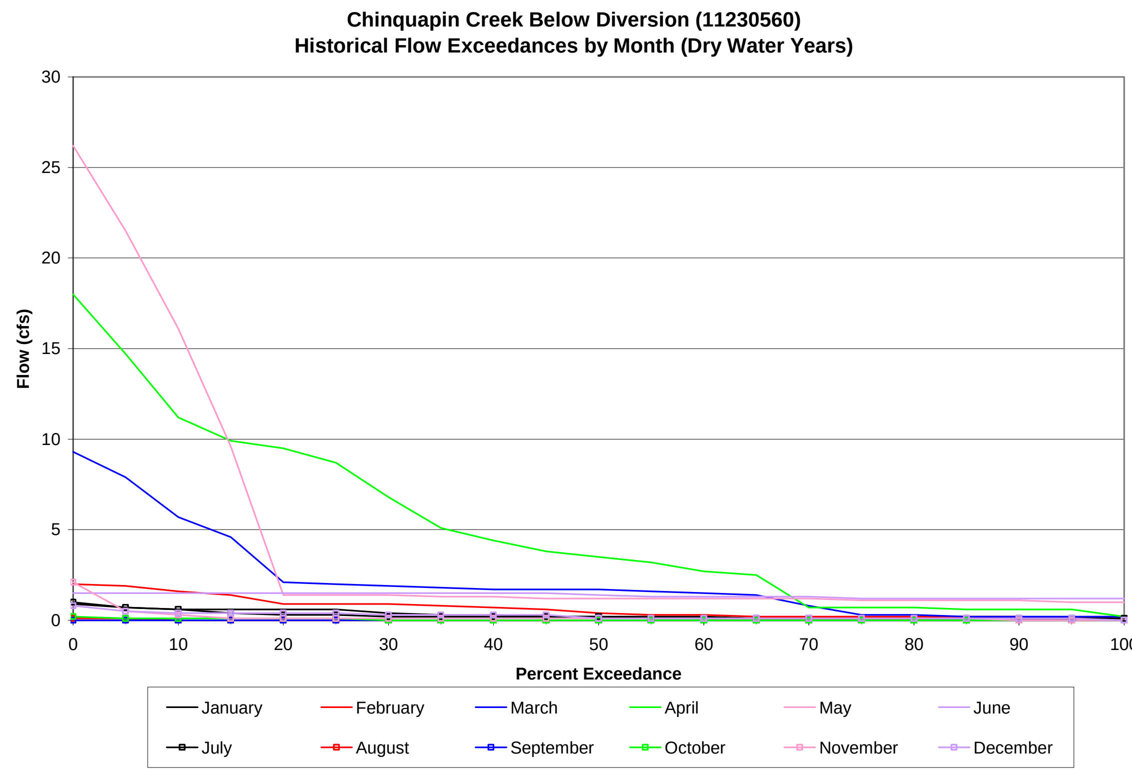
With some estimated unimpaired data during winter



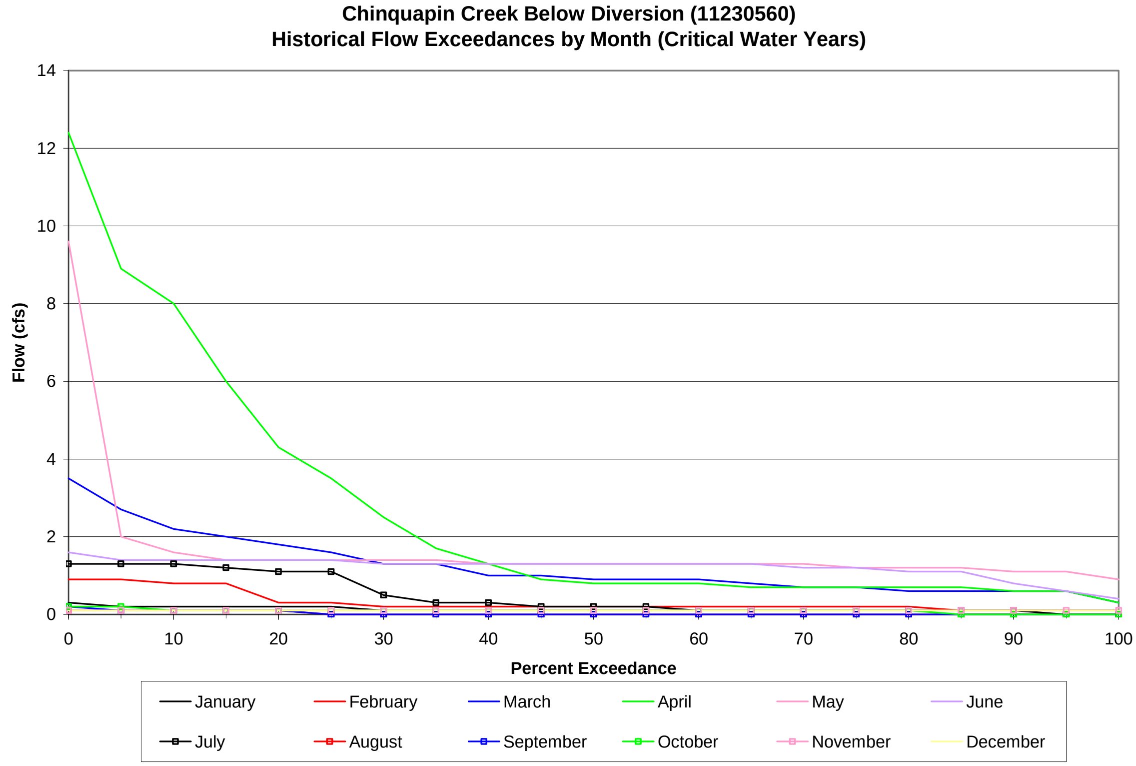
With some estimated unimpaired data during winter

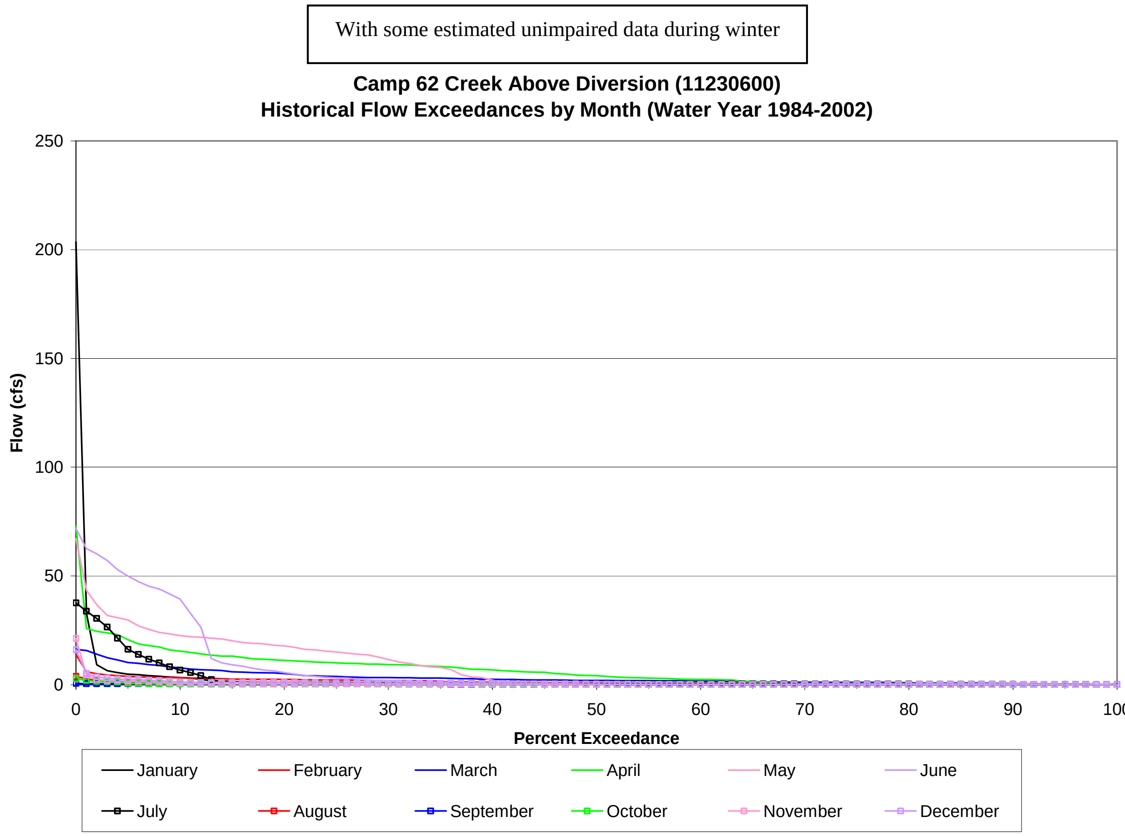


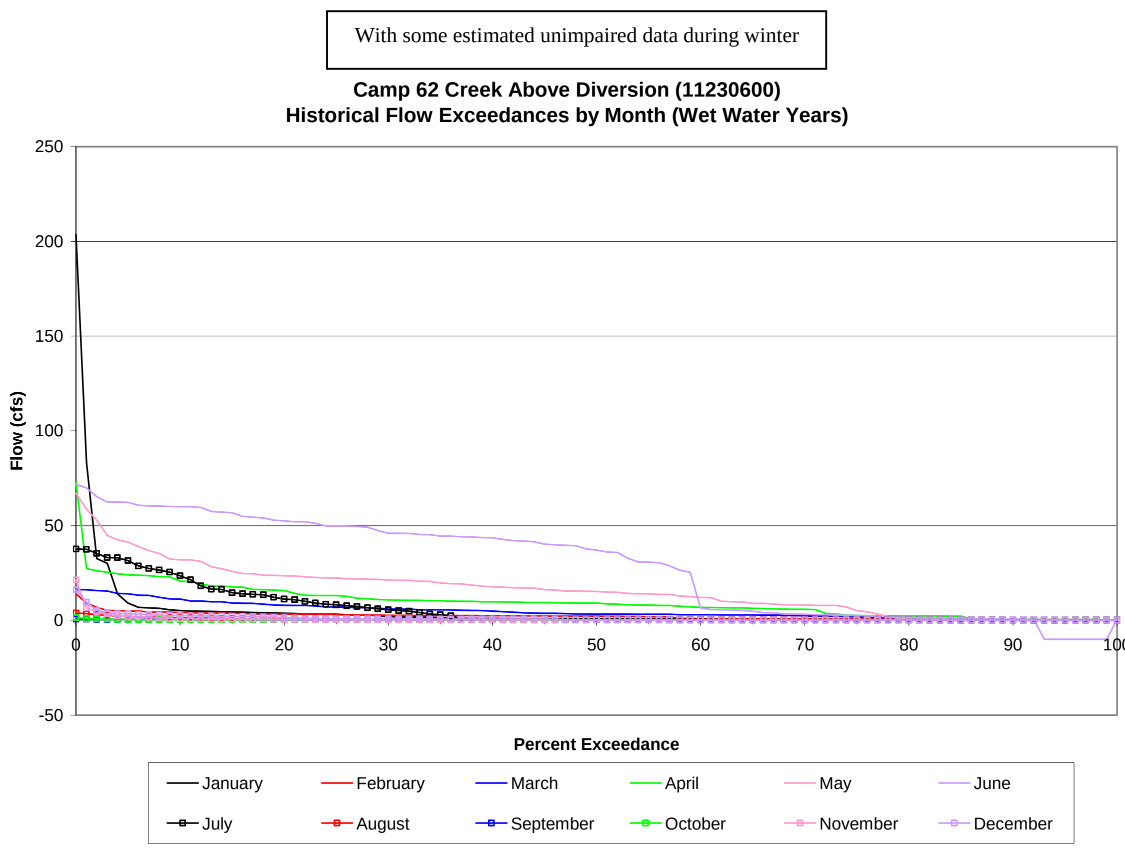
With some estimated unimpaired data during winter

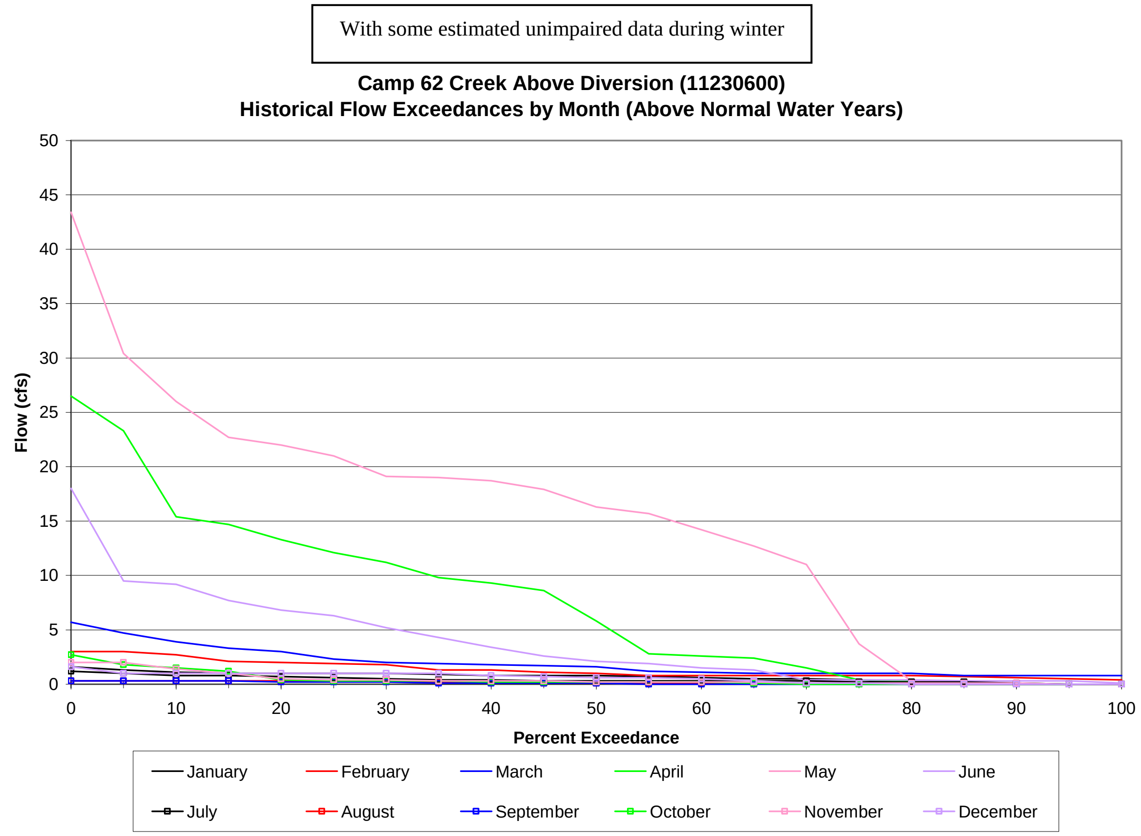


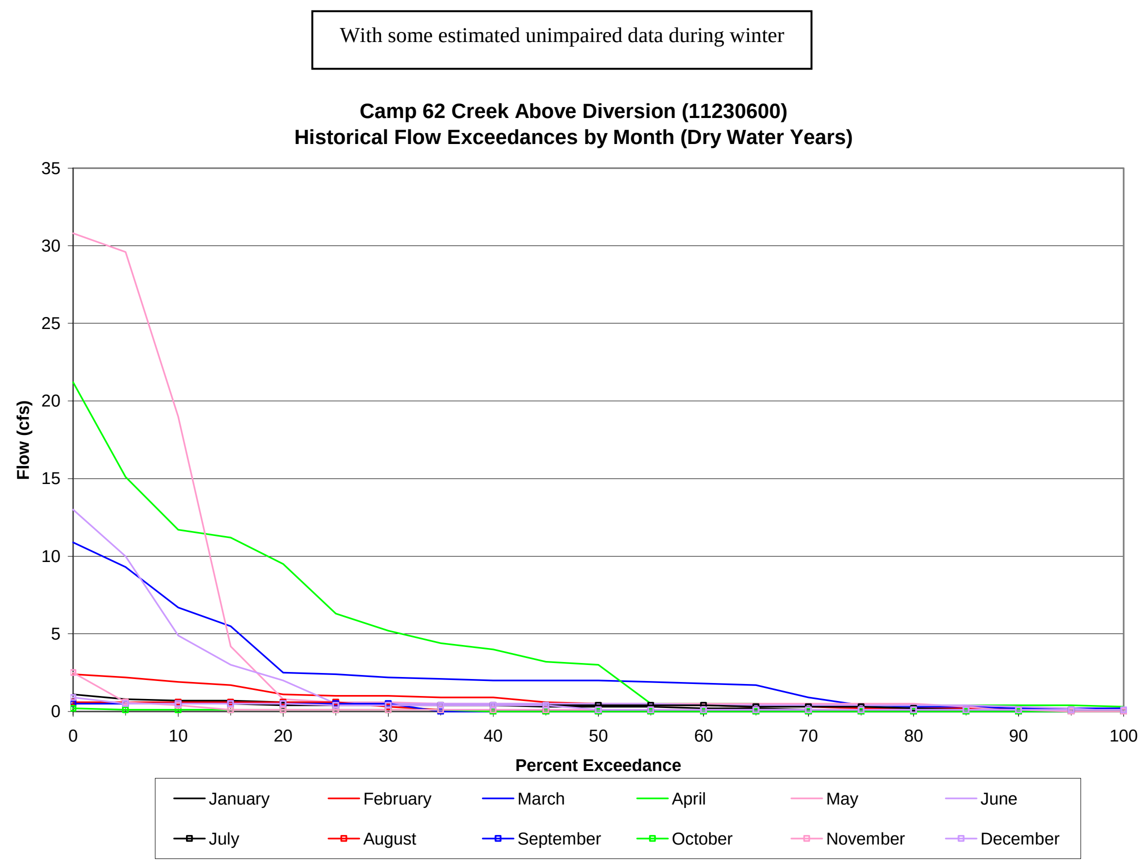
With some estimated unimpaired data during winter



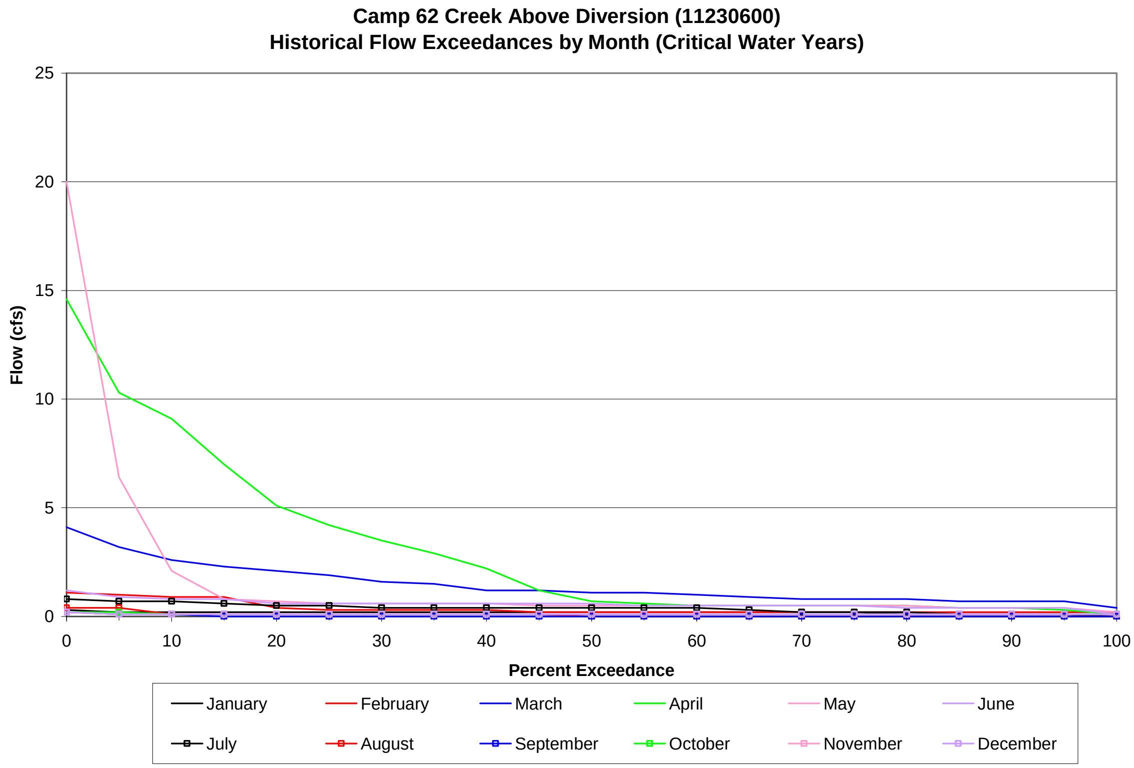

With some estimated unimpaired data during winter
Camp 62 Creek Above Diversion (11230600)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


With some estimated unimpaired data during winter
Camp 62 Creek Above Diversion (11230600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
250
200
150
100
50
0
-50
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


With some estimated unimpaired data during winter
Camp 62 Creek Above Diversion (11230600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

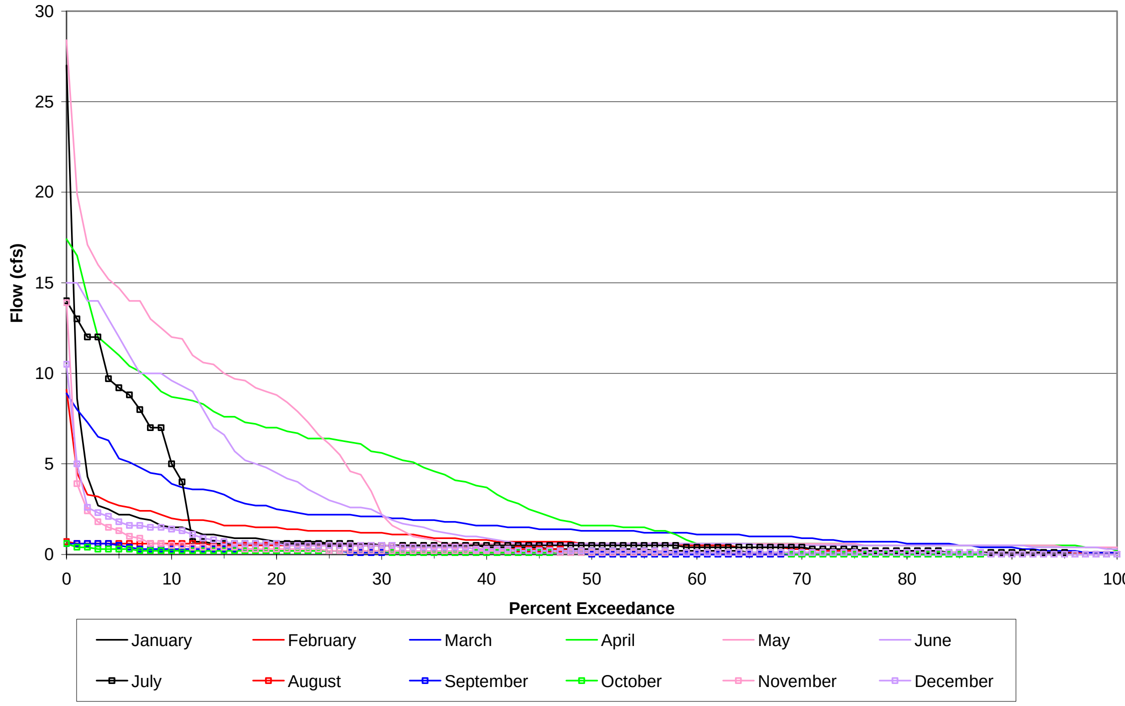

With some estimated unimpaired data during winter
Camp 62 Creek Above Diversion (11230600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

With some estimated unimpaired data during winter



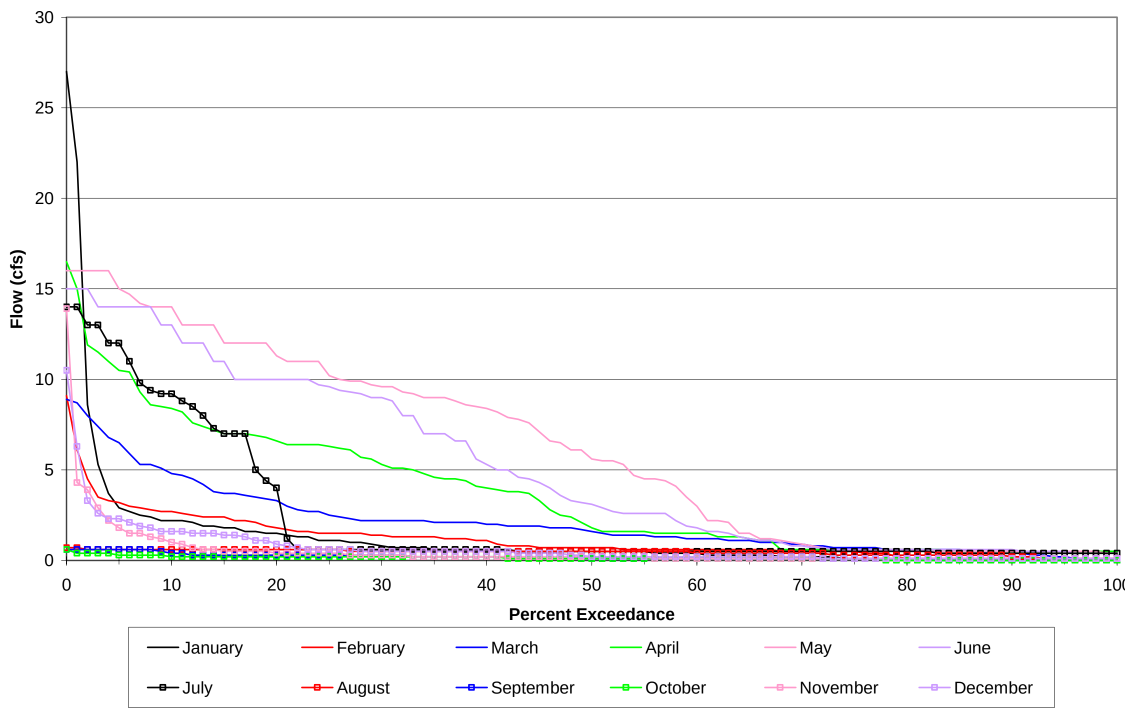
With some estimated unimpaired data during winter

Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Water Year 1986-2002)



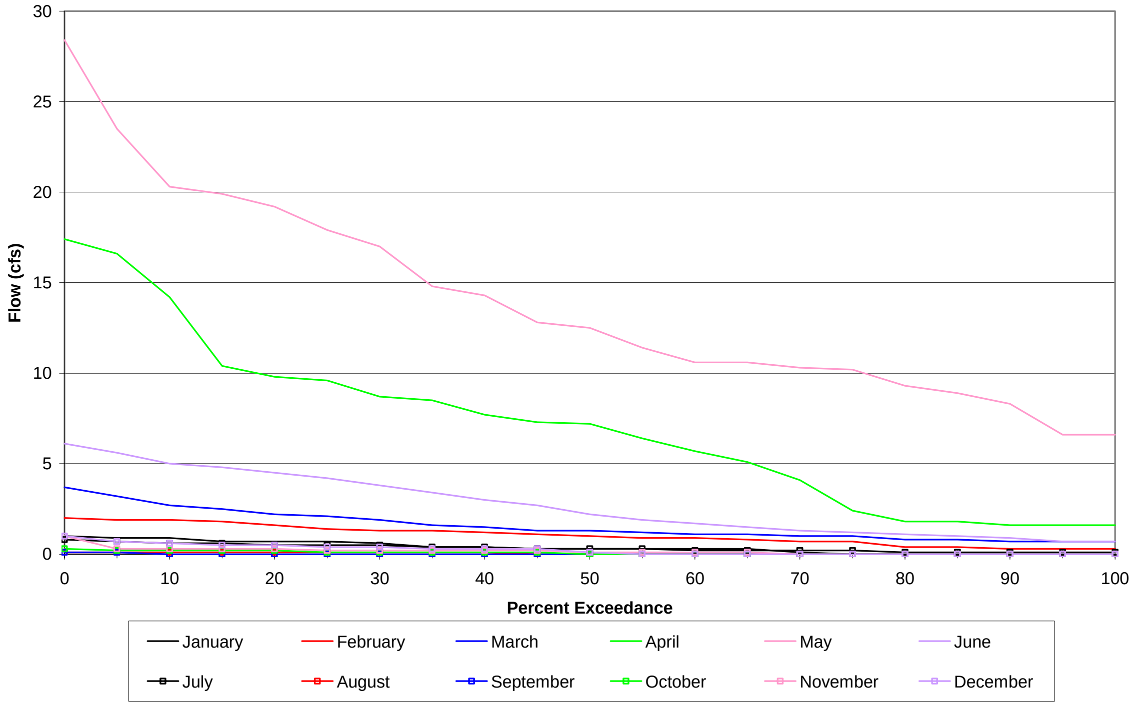
With some estimated unimpaired data during winter

Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Wet Water Years)



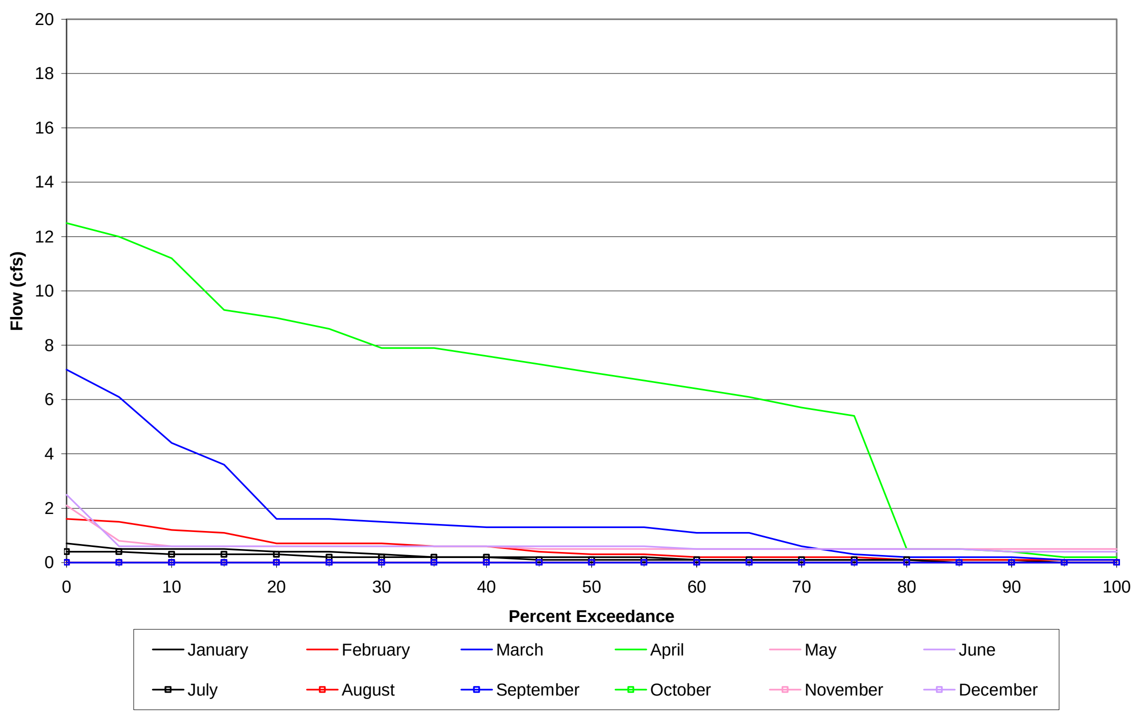
With some estimated unimpaired data during winter

Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Above Normal Water Years)

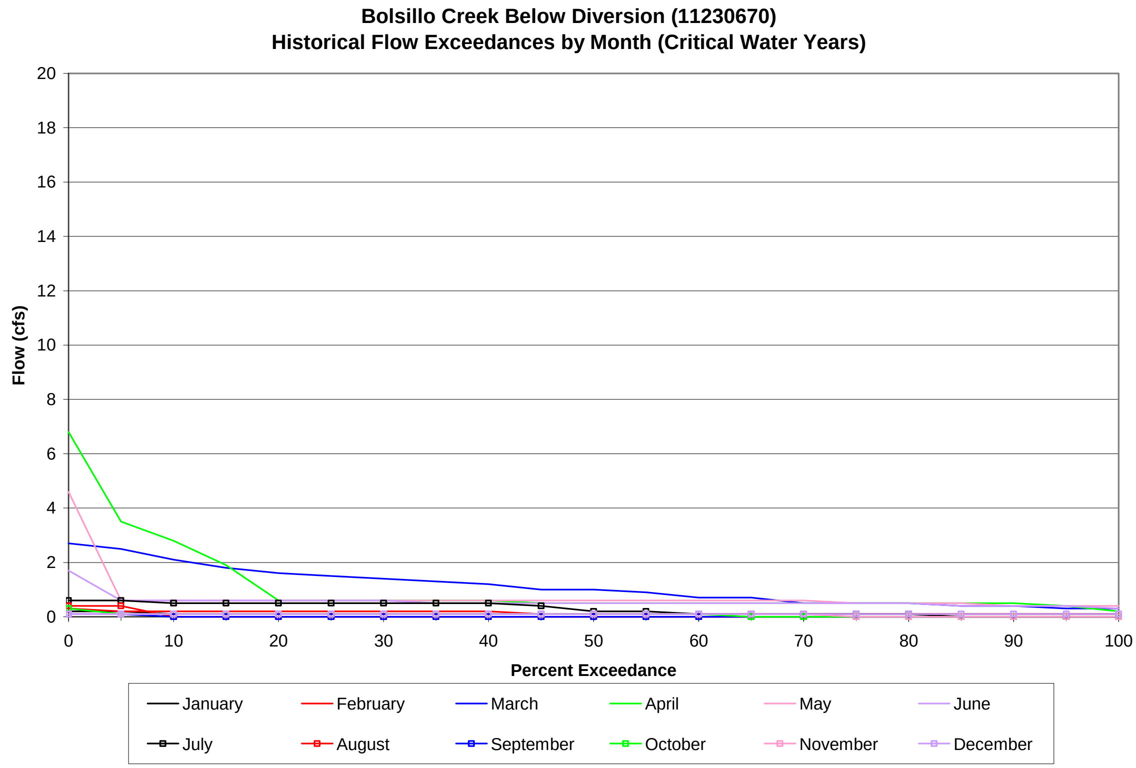


With some estimated unimpaired data during winter

Bolsillo Creek Below Diversion (11230670)
Historical Flow Exceedances by Month (Dry Water Years)



With some estimated unimpaired data during winter



APPENDIX G

DIVERSION, LAKE, AND OTHER LOCATIONS EXISTING HYDROLOGY-EXCEEDANCE TABLES

APPENDIX G

BIG CREEK

CAWG 6 HYDROLOGY

DIVERSION, LAKE AND OTHER LOCATION EXISTING HYDROLOGY PERCENTILE/EXCEEDANCE TABLES

List of locations and periods of record (by water year) in order of appearance. Two periods of record are presented for locations when available – historical and operations (post-1983). For a period of record that does not contain a water year type, the graph for that water year type is not presented.

Florence Lake Elevation (1926-2002)
Florence Lake Elevation (1983-2002)
Florence Lake Storage (1926-2002)
Florence Lake Storage (1983-2002)
Mammoth Pool Reservoir Elevation (1960-2002)
Mammoth Pool Reservoir Elevation (1983-2002)
Mammoth Pool Reservoir Storage (1960-2002)
Mammoth Pool Reservoir Storage (1983-2002)
Huntington Lake Elevation (1927-2002)
Huntington Lake Elevation (1983-2002)
Huntington Lake Storage (1927-2002)
Huntington Lake Storage (1983-2002)
Shaver Lake Elevation (1927-2002)
Shaver Lake Elevation (1983-2002)
Shaver Lake Storage (1927-2002)
Shaver Lake Storage (1983-2002)
Ward Tunnel at Intake at Florence Lake (1925-2002)
Ward Tunnel at Intake at Florence Lake (1983-2002)
Bear Creek Conduit (1984-2002)
Mono Creek Conduit (1984-2002)
Huntington-Shaver Conduit (Tunnel 7) Intake (1975-1983)
Pitman Creek Shaft (1971-2002)
Pitman Creek Shaft (1983-2002)
Huntington-Shaver Conduit (Tunnel 7) Outlet (1928-1985)
Camp 62 Creek Diversion (1992-2002)
Chinquapin Creek Diversion (1992-2002)
Crater Creek Diversion (1992-2002)
Ely Creek Diversion (1992-2002)
Hooper Creek Diversion (1992-2002)
Bolsillo Creek Diversion (1992-2002)

Table CAWG 6 Appdx G-1A. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
(11/2/1925 to 9/30/2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7285.9	7292.8	7293.4	7287.8	7327.5	7328.6	7328.8	7328.3	7327.9	7326.2	7327.1	7327.8
1	7273.0	7286.8	7286.9	7276.8	7320.0	7328.0	7328.2	7327.8	7326.7	7325.1	7325.9	7324.5
5	7233.0	7232.4	7233.2	7249.5	7302.5	7327.4	7327.8	7327.4	7322.9	7314.3	7308.8	7268.2
10	7232.0	7232.0	7232.4	7241.7	7294.8	7326.8	7327.6	7327.2	7317.6	7303.2	7275.4	7244.0
15	7231.7	7231.8	7232.1	7236.4	7288.7	7326.1	7327.4	7326.8	7312.8	7296.3	7264.9	7232.8
20	7231.5	7231.7	7231.9	7233.9	7281.8	7324.0	7327.3	7325.7	7309.0	7285.0	7251.3	7231.7
25	7231.2	7231.3	7231.7	7233.0	7276.1	7322.2	7327.1	7324.8	7306.0	7278.4	7238.2	7231.5
30	7230.9	7230.7	7230.7	7232.7	7271.1	7320.2	7327.0	7323.1	7303.3	7274.3	7232.0	7231.2
35	7228.9	7228.0	7228.5	7232.3	7265.8	7318.9	7326.8	7321.5	7299.9	7269.5	7231.5	7231.1
40	7227.6	7227.5	7227.5	7231.7	7262.0	7317.6	7326.4	7319.3	7296.0	7264.4	7231.3	7230.5
45	7227.3	7226.9	7227.2	7230.6	7259.1	7315.4	7325.9	7316.8	7293.0	7259.8	7231.1	7228.3
50	7226.1	7226.1	7226.6	7229.4	7254.7	7312.2	7325.3	7313.8	7288.5	7254.6	7230.8	7227.3
55	7225.7	7225.8	7226.2	7228.7	7250.4	7309.0	7324.2	7310.8	7284.1	7249.1	7228.1	7226.0
60	7225.5	7225.7	7226.0	7228.1	7247.1	7305.8	7322.8	7307.5	7280.2	7242.1	7227.2	7225.6
65	7225.4	7225.5	7225.8	7227.7	7242.4	7302.1	7320.9	7304.3	7276.0	7233.0	7226.1	7225.4
70	7225.1	7225.2	7225.7	7227.4	7239.0	7298.4	7318.6	7299.6	7270.9	7231.4	7225.6	7225.2
75	7224.8	7225.1	7225.5	7227.0	7236.0	7294.0	7314.3	7294.5	7265.2	7231.1	7225.1	7224.9
80	7224.6	7224.8	7225.2	7226.6	7233.4	7289.0	7308.5	7289.1	7258.5	7228.8	7224.9	7224.7
85	7224.2	7224.6	7225.0	7226.3	7231.1	7281.6	7300.7	7281.4	7243.7	7227.3	7224.6	7224.2
90	7223.9	7224.1	7224.7	7225.9	7229.6	7272.6	7290.5	7267.6	7231.0	7225.6	7224.2	7223.7
95	7223.2	7223.7	7224.3	7225.5	7227.9	7259.6	7263.2	7228.7	7225.9	7224.7	7223.0	7222.8
99	7222.7	7223.0	7223.4	7224.9	7226.2	7231.8	7228.4	7225.9	7223.1	7222.6	7222.2	7222.2
Minimum	7222.5	7222.3	7221.0	7224.2	7225.8	7227.1	7226.3	7225.6	7221.6	7221.1	7221.2	7221.2
Average	7228.6	7228.5	7228.8	7232.2	7258.4	7305.2	7315.6	7304.7	7282.8	7258.3	7240.0	7232.8
# Days	2352	2165	2387	2302	2387	2310	2387	2387	2310	2353	2308	2387
# Years	77	77	77	77	77	77	77	77	77	76	77	77

Table CAWG 6 Appdx G-1B. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7283.9	7292.8	7293.4	7287.8	7327.5	7328.0	7328.3	7328.3	7327.9	7324.1	7315.3	7269.0
1	7279.3	7291.3	7290.9	7286.1	7323.0	7327.9	7328.1	7328.1	7327.5	7315.2	7312.5	7268.5
5	7263.7	7247.5	7235.1	7253.1	7316.4	7327.5	7327.9	7327.7	7325.5	7314.4	7291.9	7256.9
10	7236.2	7233.5	7233.2	7242.7	7301.6	7326.9	7327.8	7327.5	7323.1	7300.6	7271.0	7244.4
15	7232.4	7232.3	7232.7	7237.7	7292.5	7326.7	7327.7	7327.4	7322.2	7292.8	7265.7	7238.1
20	7232.0	7232.0	7232.4	7234.9	7284.1	7326.1	7327.6	7327.4	7319.7	7283.5	7248.7	7233.0
25	7231.8	7231.9	7232.2	7233.7	7275.4	7324.4	7327.5	7327.3	7317.3	7275.7	7234.8	7231.9
30	7231.6	7231.8	7231.9	7233.0	7266.3	7323.5	7327.4	7327.2	7314.4	7270.4	7232.0	7231.7
35	7231.4	7230.8	7230.7	7232.7	7261.1	7321.8	7327.3	7327.1	7313.2	7265.4	7231.7	7231.6
40	7230.7	7230.4	7229.1	7232.3	7256.4	7320.1	7327.2	7326.8	7311.3	7262.2	7231.7	7231.5
45	7228.2	7226.5	7227.1	7231.3	7251.5	7319.7	7327.0	7326.5	7309.0	7258.3	7231.5	7231.3
50	7226.2	7226.2	7226.8	7230.3	7248.5	7319.0	7326.8	7326.0	7307.1	7254.2	7231.3	7230.5
55	7225.9	7225.9	7226.4	7229.0	7243.9	7318.4	7326.5	7325.3	7305.4	7249.8	7231.2	7226.5
60	7225.7	7225.7	7226.1	7228.6	7240.9	7317.7	7326.2	7324.6	7303.3	7244.5	7230.3	7225.9
65	7225.5	7225.6	7225.9	7228.0	7238.7	7316.2	7325.7	7323.6	7301.5	7237.4	7226.7	7225.8
70	7225.3	7225.4	7225.7	7227.3	7236.3	7310.1	7325.2	7322.2	7298.7	7232.4	7225.9	7225.6
75	7225.1	7225.2	7225.7	7226.8	7234.7	7299.9	7324.5	7320.2	7295.0	7231.6	7225.7	7225.4
80	7224.8	7225.0	7225.4	7226.4	7233.4	7291.8	7323.4	7318.2	7290.5	7231.2	7225.0	7225.0
85	7224.0	7224.6	7225.2	7226.2	7231.6	7285.2	7320.8	7315.5	7283.8	7230.3	7224.7	7224.2
90	7223.5	7224.2	7224.8	7225.9	7229.8	7281.1	7319.2	7311.7	7277.5	7225.9	7223.5	7223.3
95	7223.2	7223.9	7224.4	7225.5	7228.5	7264.8	7317.9	7306.1	7266.2	7224.6	7223.0	7222.8
99	7222.8	7223.5	7223.9	7224.7	7226.4	7248.2	7308.7	7288.6	7231.3	7224.4	7222.2	7222.1
Minimum	7222.8	7223.4	7221.0	7224.2	7225.9	7234.0	7295.7	7282.3	7231.2	7224.4	7221.8	7222.0
Average	7230.8	7231.0	7230.9	7233.3	7257.4	7310.6	7325.1	7322.4	7303.2	7257.7	7238.7	7231.6
# Days	713	648	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-1C. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7261.0	7246.6	7247.2	7260.0	7312.9	7328.6	7328.8	7327.8	7321.9	7326.2	7327.1	7327.8
1	7246.6	7244.7	7245.9	7249.7	7308.5	7328.2	7328.5	7327.5	7319.7	7325.8	7327.0	7327.6
5	7232.2	7232.0	7232.5	7243.1	7298.4	7327.9	7328.2	7327.3	7314.5	7324.8	7325.9	7313.4
10	7231.8	7231.9	7232.3	7235.2	7293.1	7327.5	7328.0	7326.9	7311.4	7315.4	7325.1	7284.2
15	7231.6	7231.8	7232.1	7233.4	7287.5	7327.2	7327.8	7326.5	7308.5	7307.5	7280.1	7252.9
20	7231.5	7231.7	7232.0	7232.9	7279.1	7326.8	7327.7	7325.7	7306.3	7293.1	7255.1	7232.6
25	7231.1	7231.7	7231.7	7232.6	7271.3	7326.5	7327.6	7325.1	7305.0	7282.3	7246.7	7232.0
30	7228.6	7231.5	7229.8	7232.3	7265.0	7325.7	7327.5	7324.5	7304.0	7275.8	7232.5	7231.6
35	7228.5	7228.4	7228.5	7232.0	7260.9	7323.8	7327.4	7323.2	7303.1	7270.4	7231.4	7231.4
40	7227.6	7227.4	7227.5	7231.1	7256.0	7321.7	7327.3	7321.9	7301.0	7265.4	7231.1	7230.9
45	7226.2	7225.9	7227.1	7229.9	7250.9	7319.7	7327.3	7320.6	7298.7	7261.3	7231.0	7230.3
50	7225.8	7225.9	7226.2	7229.2	7248.1	7316.6	7327.2	7319.2	7296.3	7255.5	7228.6	7228.4
55	7225.5	7225.8	7226.0	7228.6	7244.6	7314.1	7327.0	7317.6	7295.1	7248.6	7227.8	7227.6
60	7225.3	7225.7	7225.8	7228.4	7240.8	7311.0	7326.9	7316.3	7293.3	7239.3	7227.4	7227.3
65	7225.0	7225.4	7225.8	7227.6	7237.5	7308.4	7326.7	7314.2	7290.7	7231.7	7225.8	7225.6
70	7224.5	7225.0	7225.5	7227.3	7234.6	7303.8	7326.3	7312.7	7288.4	7231.4	7225.3	7225.5
75	7224.1	7224.5	7225.3	7226.9	7233.3	7299.2	7325.9	7310.4	7285.4	7229.8	7224.5	7224.4
80	7224.0	7224.4	7225.1	7226.5	7231.3	7294.9	7325.3	7308.2	7282.4	7227.9	7224.3	7224.2
85	7223.8	7223.9	7225.0	7226.3	7230.4	7277.2	7323.5	7306.3	7278.3	7226.5	7224.2	7223.9
90	7223.1	7223.7	7224.5	7225.9	7229.7	7266.1	7321.3	7304.0	7274.7	7224.6	7222.8	7222.5
95	7222.8	7223.4	7224.0	7225.5	7228.2	7246.9	7318.1	7298.8	7266.1	7222.6	7222.4	7222.4
99	7222.5	7223.1	7223.0	7225.0	7227.4	7231.1	7312.0	7286.5	7259.1	7222.1	7221.7	7222.3
Minimum	7222.5	7222.3	7222.7	7225.0	7226.8	7230.2	7304.4	7281.3	7258.5	7221.1	7221.7	7222.2
Average	7227.4	7227.7	7228.1	7230.6	7254.5	7307.2	7325.8	7316.9	7294.7	7260.3	7244.6	7238.2
# Days	460	425	465	450	465	450	465	465	450	462	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-1D. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7229.0	7230.1	7234.2	7247.0	7313.0	7328.2	7327.8	7326.9	7313.2	7308.5	7284.8	7246.9
1	7228.9	7230.0	7232.1	7241.5	7309.1	7327.9	7327.4	7326.5	7311.7	7308.2	7279.7	7241.7
5	7227.7	7229.1	7229.3	7237.3	7298.1	7327.6	7327.2	7325.0	7309.5	7306.0	7273.7	7229.4
10	7227.5	7227.5	7228.3	7233.8	7290.1	7324.0	7327.1	7322.8	7307.5	7299.6	7267.0	7228.5
15	7227.4	7227.5	7227.5	7232.9	7278.7	7322.0	7327.0	7321.6	7303.7	7297.1	7255.2	7226.3
20	7226.8	7227.1	7227.5	7232.3	7272.6	7320.4	7326.9	7320.5	7300.5	7295.4	7248.0	7225.9
25	7226.0	7226.7	7227.2	7231.6	7269.1	7318.9	7326.8	7318.9	7298.0	7285.5	7243.3	7225.7
30	7225.9	7226.1	7226.9	7231.0	7264.0	7317.4	7326.7	7317.7	7296.2	7279.3	7232.9	7225.5
35	7225.7	7225.9	7226.4	7230.4	7259.1	7315.6	7326.5	7316.5	7295.4	7271.7	7228.3	7225.4
40	7225.6	7225.8	7226.1	7229.4	7255.4	7313.3	7326.2	7315.3	7293.9	7269.7	7226.7	7225.2
45	7225.6	7225.7	7225.9	7228.5	7253.3	7310.9	7326.0	7313.8	7290.6	7268.8	7226.2	7225.1
50	7225.5	7225.5	7225.8	7228.0	7250.7	7309.4	7325.7	7312.7	7288.2	7263.2	7225.5	7224.9
55	7225.3	7225.5	7225.7	7227.7	7248.4	7306.3	7325.3	7311.4	7285.9	7258.0	7225.1	7224.8
60	7225.2	7225.4	7225.6	7227.4	7246.6	7304.9	7324.8	7309.8	7283.9	7253.1	7225.0	7224.8
65	7224.9	7225.2	7225.5	7227.1	7244.6	7302.2	7324.5	7308.4	7281.1	7247.9	7224.9	7224.4
70	7224.8	7225.1	7225.2	7226.9	7241.8	7298.6	7323.7	7307.1	7278.9	7242.3	7224.9	7224.1
75	7224.6	7225.0	7225.1	7226.7	7239.3	7293.5	7323.0	7306.1	7276.6	7233.0	7224.8	7224.0
80	7224.6	7224.8	7224.8	7226.4	7237.3	7287.4	7322.6	7304.0	7273.9	7227.7	7224.6	7224.0
85	7224.2	7224.1	7224.6	7226.2	7235.4	7281.0	7322.2	7301.4	7270.2	7225.4	7224.4	7223.7
90	7224.0	7223.9	7224.3	7225.9	7231.4	7276.7	7321.4	7297.7	7262.9	7224.8	7224.1	7223.7
95	7223.8	7223.8	7224.1	7225.1	7229.8	7268.8	7319.0	7294.2	7254.1	7224.6	7223.1	7222.9
99	7223.6	7223.6	7223.8	7224.7	7227.8	7250.1	7315.0	7283.9	7228.8	7224.3	7222.5	7222.4
Minimum	7223.6	7223.6	7223.8	7224.5	7226.2	7240.2	7314.4	7281.1	7227.2	7224.2	7221.2	7221.2
Average	7225.6	7225.8	7226.2	7229.5	7255.8	7304.5	7324.7	7311.6	7286.2	7262.1	7235.2	7225.6
# Days	311	301	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-1E. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Dry Water Years (1926, 1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7285.9	7232.5	7233.6	7259.5	7323.2	7327.4	7327.5	7327.2	7325.8	7326.1	7325.9	7324.7
1	7272.9	7232.5	7233.2	7258.6	7322.8	7327.3	7327.2	7327.1	7325.5	7326.0	7325.8	7324.7
5	7239.4	7232.2	7232.7	7253.5	7305.6	7326.9	7327.1	7325.0	7324.5	7323.2	7324.9	7316.4
10	7232.5	7232.0	7232.1	7247.5	7298.8	7326.1	7326.9	7323.2	7323.1	7310.9	7311.1	7287.2
15	7231.8	7231.8	7231.9	7241.1	7294.0	7325.7	7326.2	7322.2	7314.0	7310.4	7299.6	7262.9
20	7231.7	7231.6	7231.8	7234.5	7289.5	7323.4	7325.2	7319.9	7296.1	7301.0	7284.8	7245.2
25	7231.6	7230.4	7231.6	7233.0	7286.8	7322.9	7324.1	7310.8	7290.6	7298.3	7275.0	7236.6
30	7229.9	7230.1	7230.2	7232.5	7281.2	7321.1	7322.5	7306.0	7286.1	7290.8	7265.8	7232.0
35	7229.8	7227.6	7227.6	7231.8	7276.5	7318.2	7321.1	7304.2	7282.8	7283.9	7260.8	7231.5
40	7227.5	7227.3	7227.4	7231.2	7272.0	7315.8	7319.2	7302.1	7280.4	7280.3	7248.2	7230.1
45	7227.4	7226.7	7227.2	7230.4	7269.4	7313.6	7316.9	7299.5	7279.6	7278.7	7241.8	7229.9
50	7227.0	7226.1	7226.5	7229.0	7265.8	7311.5	7314.8	7296.9	7276.0	7277.9	7235.6	7227.5
55	7225.6	7225.7	7226.4	7228.1	7263.2	7310.0	7313.2	7293.9	7270.8	7277.7	7232.0	7226.9
60	7225.5	7225.6	7226.2	7227.8	7261.5	7307.9	7311.4	7291.9	7267.7	7274.9	7230.1	7225.7
65	7225.4	7225.5	7226.0	7227.6	7259.1	7304.9	7309.1	7290.8	7263.5	7272.9	7229.9	7225.5
70	7225.4	7225.2	7225.8	7227.3	7254.1	7301.8	7305.5	7289.5	7260.9	7267.6	7227.3	7225.4
75	7225.3	7225.2	7225.8	7226.9	7249.7	7297.2	7300.9	7287.3	7254.0	7263.3	7227.0	7225.3
80	7225.0	7224.9	7225.6	7226.6	7241.5	7294.0	7295.3	7284.2	7246.2	7258.0	7225.8	7225.2
85	7224.9	7224.8	7225.2	7226.2	7234.6	7293.9	7292.1	7281.0	7237.0	7252.5	7225.4	7225.1
90	7224.7	7224.4	7224.9	7226.0	7228.5	7287.3	7291.2	7276.7	7226.1	7243.7	7225.2	7225.0
95	7224.2	7223.8	7224.6	7225.6	7227.8	7270.7	7288.9	7270.8	7223.7	7231.7	7225.1	7224.9
99	7223.6	7223.6	7223.4	7225.1	7226.2	7247.7	7284.6	7256.6	7221.6	7225.4	7221.7	7222.1
Minimum	7223.5	7223.5	7223.4	7225.1	7226.1	7245.5	7283.7	7251.8	7221.6	7225.2	7221.2	7222.1
Average	7229.2	7227.4	7227.9	7232.4	7266.7	7308.2	7312.0	7298.4	7274.0	7278.9	7253.4	7239.9
# Days	403	367	403	382	403	390	403	403	390	372	388	403
# Years	13	13	13	13	13	13	13	13	13	12	13	13

Table CAWG 6 Appdx G-1F. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7231.8	7232.0	7241.5	7262.1	7304.9	7327.1	7327.2	7322.4	7294.4	7290.7	7265.2	7231.5
1	7231.8	7232.0	7240.9	7260.9	7303.7	7327.0	7327.2	7320.1	7289.1	7288.0	7261.5	7231.4
5	7231.7	7231.7	7238.0	7255.1	7292.6	7321.9	7327.0	7310.3	7278.3	7277.0	7233.9	7231.3
10	7231.3	7231.7	7232.3	7248.9	7288.9	7317.7	7325.5	7304.1	7273.3	7267.7	7231.5	7231.3
15	7231.3	7231.5	7232.1	7243.7	7283.6	7315.1	7319.3	7298.2	7270.5	7257.9	7231.4	7231.2
20	7231.3	7231.4	7232.0	7237.4	7278.3	7311.4	7313.1	7294.8	7266.5	7249.6	7231.3	7231.2
25	7231.2	7231.3	7231.9	7234.5	7276.0	7308.5	7311.1	7290.5	7264.3	7243.3	7231.2	7231.2
30	7231.2	7231.3	7231.8	7233.2	7273.5	7306.1	7307.5	7286.6	7260.5	7235.1	7231.2	7231.1
35	7231.1	7231.3	7231.7	7232.8	7269.8	7304.2	7303.9	7283.6	7255.6	7231.4	7231.1	7231.1
40	7231.0	7231.2	7231.7	7232.5	7265.8	7302.0	7301.9	7279.4	7250.7	7231.3	7231.0	7231.0
45	7230.9	7230.9	7231.5	7232.2	7263.1	7299.3	7300.5	7277.3	7244.0	7231.2	7230.9	7230.9
50	7228.0	7227.8	7227.6	7231.9	7260.9	7298.4	7295.4	7272.4	7231.7	7231.1	7227.8	7227.6
55	7227.5	7227.6	7227.5	7229.4	7259.1	7295.8	7290.2	7262.1	7231.0	7231.0	7227.4	7227.4
60	7227.4	7227.4	7227.3	7228.6	7254.8	7292.5	7285.9	7256.9	7231.0	7230.2	7227.2	7227.3
65	7227.2	7227.1	7227.2	7228.1	7249.0	7289.1	7280.1	7250.8	7230.6	7228.2	7227.1	7227.2
70	7224.7	7225.1	7225.7	7227.8	7239.2	7286.1	7271.4	7231.4	7227.8	7227.9	7225.1	7224.9
75	7224.6	7224.8	7225.2	7227.6	7233.1	7278.6	7261.8	7228.5	7226.7	7227.4	7224.9	7224.7
80	7224.6	7224.7	7225.1	7227.3	7231.6	7273.5	7257.1	7227.9	7225.9	7227.1	7224.8	7224.6
85	7224.5	7224.7	7225.0	7226.8	7229.6	7263.0	7253.2	7227.3	7225.4	7226.0	7224.7	7224.5
90	7224.4	7224.6	7224.8	7226.0	7227.9	7260.3	7229.3	7226.4	7224.9	7225.4	7224.5	7224.5
95	7223.0	7223.0	7224.8	7225.3	7227.0	7248.1	7228.4	7225.9	7223.9	7225.1	7223.0	7223.0
99	7222.8	7222.8	7223.8	7225.0	7225.8	7229.2	7227.2	7225.8	7223.0	7224.4	7222.3	7222.3
Minimum	7222.7	7222.7	7223.1	7224.9	7225.8	7227.1	7226.3	7225.6	7222.9	7224.4	7222.1	7222.2
Average	7228.2	7228.3	7229.2	7233.6	7258.6	7292.5	7287.2	7265.6	7245.0	7238.0	7229.2	7228.1
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-2A. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
(10/1/1982 to 9/30/2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7283.9	7292.8	7293.4	7287.8	7327.3	7328.0	7328.3	7327.9	7325.5	7324.1	7309.6	7270.1
1	7280.1	7291.6	7291.5	7286.1	7322.9	7327.7	7328.0	7327.7	7323.4	7313.7	7302.9	7263.5
5	7238.3	7247.8	7241.5	7262.1	7310.7	7327.1	7327.7	7327.3	7317.3	7301.4	7287.0	7243.0
10	7232.5	7234.7	7235.1	7254.7	7300.7	7326.8	7327.2	7326.5	7311.2	7298.2	7275.4	7234.8
15	7232.2	7232.4	7233.3	7249.5	7294.2	7326.5	7326.9	7325.5	7306.2	7282.3	7262.7	7232.9
20	7232.0	7232.1	7233.0	7245.3	7289.8	7325.8	7326.5	7324.5	7297.6	7277.8	7233.9	7232.2
25	7231.9	7232.0	7232.7	7241.5	7285.6	7323.8	7326.1	7320.4	7292.7	7270.7	7232.3	7232.0
30	7231.8	7232.0	7232.5	7238.4	7280.6	7322.0	7325.4	7316.4	7285.6	7263.4	7232.0	7231.8
35	7231.7	7231.9	7232.4	7236.0	7277.2	7320.3	7324.6	7310.6	7280.5	7258.8	7231.7	7231.7
40	7231.7	7231.9	7232.3	7234.4	7274.4	7319.7	7323.6	7306.6	7277.9	7254.1	7231.6	7231.6
45	7231.6	7231.8	7232.1	7233.9	7270.8	7318.6	7322.0	7304.1	7275.2	7249.1	7231.5	7231.5
50	7231.6	7231.8	7232.1	7233.5	7265.8	7316.0	7320.4	7301.4	7272.7	7241.6	7231.4	7231.4
55	7231.5	7231.7	7232.0	7233.2	7263.2	7314.7	7318.8	7298.9	7270.5	7233.4	7231.4	7231.3
60	7231.3	7231.7	7231.9	7233.0	7260.9	7312.6	7316.0	7296.5	7267.9	7231.9	7231.3	7231.3
65	7231.3	7231.6	7231.9	7232.9	7257.1	7309.9	7313.0	7293.9	7265.3	7231.5	7231.3	7231.2
70	7231.2	7231.5	7231.9	7232.7	7252.2	7307.2	7311.5	7290.5	7262.3	7231.4	7231.2	7231.2
75	7231.2	7231.4	7231.8	7232.6	7248.5	7303.7	7308.8	7286.5	7260.0	7231.3	7231.2	7231.2
80	7231.1	7231.3	7231.7	7232.4	7243.4	7299.7	7305.2	7282.3	7253.8	7231.3	7231.1	7231.1
85	7231.0	7231.3	7231.7	7232.3	7240.1	7297.3	7301.8	7278.5	7232.6	7231.2	7231.1	7231.0
90	7231.0	7231.2	7231.6	7232.2	7236.4	7291.7	7297.0	7270.6	7231.0	7231.1	7231.0	7231.0
95	7230.7	7230.8	7231.4	7232.0	7234.4	7282.6	7285.1	7250.2	7231.0	7231.0	7230.9	7230.9
99	7230.1	7230.7	7230.7	7231.2	7232.4	7255.2	7270.0	7231.0	7230.6	7230.6	7230.3	7230.5
Minimum	7230.1	7230.6	7230.6	7230.7	7230.9	7248.2	7260.6	7231.0	7230.4	7229.9	7230.3	7230.3
Average	7233.7	7235.1	7235.3	7239.4	7268.2	7311.9	7315.5	7299.4	7273.6	7252.8	7239.8	7233.1
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-2B. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7283.9	7292.8	7293.4	7287.8	7327.3	7328.0	7328.3	7327.9	7325.5	7324.1	7309.6	7266.2
1	7282.8	7292.6	7293.2	7287.3	7323.4	7327.9	7328.2	7327.8	7324.7	7320.6	7307.1	7263.5
5	7277.6	7290.5	7289.5	7282.8	7319.3	7327.4	7327.9	7327.6	7319.8	7308.5	7297.8	7244.8
10	7271.7	7287.4	7287.2	7277.2	7308.0	7327.0	7327.8	7327.4	7317.5	7302.1	7280.8	7235.3
15	7237.6	7247.8	7235.8	7247.4	7301.1	7326.9	7327.7	7327.3	7313.5	7299.7	7246.7	7233.4
20	7232.7	7246.1	7234.1	7242.7	7293.1	7326.7	7327.5	7327.0	7310.6	7288.3	7232.3	7233.1
25	7232.4	7241.0	7233.6	7239.5	7284.2	7326.6	7327.3	7326.7	7308.2	7268.7	7232.1	7232.7
30	7232.1	7233.4	7233.3	7237.4	7277.8	7326.4	7327.1	7326.4	7305.5	7264.4	7232.0	7232.2
35	7232.0	7232.4	7233.2	7235.2	7269.0	7326.0	7326.9	7326.0	7303.4	7262.1	7231.9	7232.0
40	7231.9	7232.3	7233.0	7234.4	7261.1	7324.3	7326.7	7325.2	7299.6	7259.3	7231.7	7231.7
45	7231.9	7232.1	7232.8	7234.1	7255.2	7323.1	7326.5	7324.6	7296.1	7255.7	7231.7	7231.7
50	7231.8	7232.0	7232.7	7233.7	7251.6	7320.5	7326.3	7323.2	7292.9	7251.2	7231.6	7231.7
55	7231.7	7232.0	7232.5	7233.3	7247.7	7320.0	7326.0	7320.9	7287.7	7245.7	7231.6	7231.6
60	7231.7	7232.0	7232.4	7233.1	7245.0	7319.8	7325.4	7320.0	7282.1	7232.7	7231.5	7231.6
65	7231.7	7232.0	7232.3	7233.0	7242.2	7319.3	7324.9	7318.9	7279.3	7232.2	7231.4	7231.6
70	7231.6	7231.9	7232.1	7232.9	7240.7	7316.4	7324.5	7316.7	7276.5	7231.6	7231.4	7231.5
75	7231.5	7231.9	7232.1	7232.8	7240.0	7306.0	7324.1	7314.2	7273.5	7231.5	7231.3	7231.5
80	7231.5	7231.8	7232.0	7232.7	7238.0	7294.4	7322.5	7309.9	7270.7	7231.3	7231.3	7231.4
85	7231.4	7231.7	7231.8	7232.4	7236.1	7289.0	7320.4	7304.4	7263.8	7231.2	7231.2	7231.4
90	7230.7	7230.8	7230.9	7232.1	7234.7	7272.6	7319.7	7299.1	7253.5	7231.2	7231.2	7231.1
95	7230.7	7230.7	7230.7	7231.9	7233.4	7261.5	7318.7	7291.0	7231.5	7231.0	7231.1	7230.9
99	7230.7	7230.6	7230.6	7230.7	7230.9	7249.6	7318.5	7284.3	7231.2	7231.0	7231.0	7230.6
Minimum	7230.7	7230.6	7230.6	7230.7	7230.9	7248.2	7318.3	7282.3	7231.2	7231.0	7231.0	7230.6
Average	7237.8	7241.7	7240.6	7241.4	7262.8	7312.4	7325.1	7318.3	7288.2	7256.8	7240.1	7233.5
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-2C. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Above Normal Water Years (1984, 1999, 2000)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7232.6	7232.0	7232.8	7240.1	7312.9	7327.5	7327.4	7326.6	7321.9	7286.1	7244.9	7235.1
1	7232.5	7232.0	7232.7	7238.8	7311.2	7327.5	7327.4	7326.6	7321.5	7284.8	7241.5	7233.9
5	7232.3	7232.0	7232.6	7234.7	7305.0	7327.4	7327.2	7326.4	7319.1	7280.6	7232.7	7232.7
10	7232.1	7231.9	7232.5	7233.9	7297.4	7327.2	7327.1	7325.6	7316.1	7276.6	7232.5	7232.3
15	7231.9	7231.9	7232.3	7233.5	7290.2	7327.1	7326.9	7325.4	7313.5	7272.0	7232.2	7232.2
20	7231.8	7231.9	7232.3	7233.2	7280.8	7327.0	7326.7	7325.1	7310.8	7265.4	7231.5	7232.2
25	7231.7	7231.9	7232.2	7232.9	7275.0	7326.8	7326.6	7324.5	7308.1	7259.5	7231.5	7232.1
30	7231.7	7231.9	7232.2	7232.8	7268.0	7326.5	7326.4	7322.4	7296.3	7257.9	7231.4	7232.0
35	7231.7	7231.8	7232.1	7232.7	7263.5	7326.1	7326.2	7313.9	7295.8	7255.5	7231.4	7231.5
40	7231.6	7231.8	7232.1	7232.5	7262.4	7324.6	7326.0	7310.7	7291.5	7250.5	7231.3	7231.5
45	7231.6	7231.8	7232.0	7232.5	7261.8	7322.0	7325.7	7308.5	7286.3	7246.9	7231.2	7231.5
50	7231.6	7231.8	7232.0	7232.5	7260.0	7321.6	7325.4	7305.5	7280.0	7238.0	7231.1	7231.4
55	7231.5	7231.7	7231.9	7232.4	7256.8	7320.6	7324.1	7303.9	7277.9	7232.4	7231.1	7231.2
60	7231.3	7231.7	7231.9	7232.3	7252.7	7319.8	7323.2	7302.2	7277.9	7232.0	7231.1	7231.2
65	7231.1	7231.7	7231.8	7232.2	7248.6	7318.5	7322.1	7300.3	7274.0	7231.6	7231.1	7231.0
70	7231.1	7231.6	7231.8	7232.2	7247.1	7315.9	7321.1	7298.8	7267.6	7231.6	7231.1	7230.9
75	7231.1	7231.5	7231.7	7232.2	7242.6	7314.1	7320.8	7297.5	7262.8	7231.5	7231.0	7230.8
80	7230.3	7231.5	7231.7	7231.8	7236.9	7311.9	7319.5	7295.6	7260.4	7231.4	7230.3	7230.6
85	7230.2	0.0	7231.6	7231.7	7234.3	7309.9	7317.5	7292.6	7259.2	7231.4	7230.3	7230.5
90	7230.1	0.0	7231.6	0.0	7232.5	0.0	7313.6	7284.8	0.0	7231.3	0.0	7230.4
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	7230.1	7231.5	7231.6	7231.7	7232.4	7305.1	7312.0	7281.3	7258.5	7231.3	7230.3	7230.3
Average	7231.4	7231.8	7232.0	7232.9	7263.5	7321.5	7323.8	7309.5	7288.8	7248.8	7231.7	7231.5
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-2D. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Dry Water Years (1985, 2001, 2002)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7232.9	7232.5	7233.6	7259.5	7323.2	7326.6	7326.2	7312.7	7295.5	7305.2	7298.8	7270.1
1	7232.9	7232.5	7233.2	7259.3	7323.1	7326.6	7326.1	7311.7	7295.2	7304.2	7298.3	7268.4
5	7232.8	7232.4	7233.1	7256.7	7322.8	7326.1	7325.5	7309.8	7292.7	7302.1	7293.5	7260.8
10	7232.7	7232.4	7233.0	7254.7	7310.1	7325.7	7325.0	7307.6	7287.7	7299.8	7289.5	7254.3
15	7232.5	7232.3	7232.8	7254.2	7303.3	7324.0	7324.4	7306.4	7285.4	7299.0	7286.1	7248.9
20	7232.4	7232.2	7232.6	7252.4	7300.1	7323.3	7324.0	7305.4	7283.2	7298.6	7282.1	7243.0
25	7232.2	7232.0	7232.5	7249.5	7297.6	7322.9	7322.9	7305.0	7281.2	7298.2	7278.4	7241.3
30	7232.1	7232.0	7232.2	7246.9	7296.4	7322.1	7321.4	7304.5	7279.5	7298.0	7278.3	7239.7
35	7231.8	7232.0	7232.0	7244.5	7292.5	7321.4	7320.2	7303.2	7277.4	7277.9	7275.4	7237.8
40	7231.8	7231.9	7232.0	7240.7	7285.2	7319.5	7318.6	7303.0	7275.8	7277.9	7273.5	7233.7
45	7231.8	7231.9	7232.0	7237.6	7281.3	7318.6	7317.0	7301.7	7274.0	7277.8	7268.3	7232.4
50	7231.7	7231.9	7231.9	7234.9	7275.6	7317.1	7315.7	7300.2	7272.5	7277.8	7263.3	7232.0
55	7231.7	7231.8	7231.9	7233.7	7271.2	7315.8	7314.5	7299.0	7270.8	7277.7	7263.2	7232.0
60	7231.7	7231.8	7231.9	7233.5	7267.9	7314.8	7313.2	7298.0	7269.0	7277.6	7237.3	7231.9
65	7231.7	7231.7	7231.9	7233.0	7264.2	7313.9	7312.6	7296.5	7267.6	7258.8	7235.1	7231.9
70	7231.6	7231.6	7231.8	7232.8	7263.4	7313.1	7311.9	7295.2	7266.2	7250.8	7232.7	7231.8
75	7231.6	7231.6	7231.8	7232.7	7260.4	7311.5	7311.3	7293.2	7264.0	7241.3	7232.4	7231.7
80	7231.6	7231.6	7231.8	7232.5	7259.5	7309.5	7310.1	7290.8	7261.3	7231.9	7232.0	7231.2
85	7231.1	0.0	7231.8	7232.4	7253.0	7301.5	7309.1	7288.4	7261.1	7231.6	7232.0	7231.1
90	7231.0	0.0	7231.6	0.0	7247.9	0.0	7308.5	7281.4	0.0	7231.2	0.0	7231.1
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	7231.0	7231.6	7231.6	7232.2	7243.9	7300.8	7307.9	7278.7	7260.9	7231.1	7231.7	7231.0
Average	7231.9	7232.0	7232.2	7241.8	7282.0	7317.6	7317.3	7299.7	7275.0	7273.1	7262.9	7238.7
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-2E. Florence Lake Elevation (Gage 11229600)
Historical Daily Exceedance Elevation
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7231.8	7232.0	7241.5	7262.1	7302.5	7322.0	7322.5	7310.5	7281.5	7290.7	7265.2	7231.5
1	7231.8	7232.0	7241.2	7261.5	7300.5	7321.9	7322.5	7308.5	7279.3	7289.1	7263.5	7231.4
5	7231.8	7231.9	7240.1	7259.0	7291.6	7319.1	7319.9	7299.7	7275.5	7285.0	7252.3	7231.4
10	7231.7	7231.7	7239.3	7254.4	7290.1	7317.7	7315.2	7297.9	7272.9	7275.5	7231.6	7231.3
15	7231.3	7231.7	7232.7	7250.6	7288.4	7315.8	7313.1	7295.8	7270.8	7260.5	7231.5	7231.3
20	7231.3	7231.7	7232.3	7248.0	7286.1	7315.0	7312.2	7293.7	7270.5	7252.9	7231.4	7231.3
25	7231.3	7231.6	7232.2	7245.3	7282.0	7313.6	7311.1	7290.9	7267.8	7246.7	7231.4	7231.3
30	7231.3	7231.5	7232.1	7241.7	7279.5	7311.1	7309.0	7288.4	7266.0	7241.1	7231.4	7231.2
35	7231.3	7231.5	7232.0	7239.2	7277.5	7309.5	7307.6	7286.6	7264.4	7236.2	7231.3	7231.2
40	7231.3	7231.4	7232.0	7236.3	7276.1	7308.0	7306.2	7285.0	7262.3	7231.5	7231.3	7231.2
45	7231.2	7231.4	7231.9	7234.9	7274.6	7307.0	7304.4	7282.3	7260.5	7231.4	7231.2	7231.2
50	7231.2	7231.4	7231.9	7233.9	7273.4	7304.9	7303.1	7279.6	7256.5	7231.4	7231.2	7231.2
55	7231.2	7231.3	7231.9	7233.3	7270.6	7303.7	7302.1	7278.8	7252.1	7231.3	7231.2	7231.2
60	7231.2	7231.3	7231.8	7233.1	7267.2	7302.0	7301.5	7277.8	7244.9	7231.3	7231.2	7231.1
65	7231.2	7231.3	7231.8	7233.0	7263.8	7299.6	7300.9	7276.7	7231.8	7231.2	7231.2	7231.1
70	7231.1	7231.3	7231.7	7232.7	7262.4	7299.0	7297.8	7273.1	7231.1	7231.2	7231.1	7231.1
75	7231.1	7231.3	7231.7	7232.6	7259.6	7298.4	7294.5	7266.3	7231.0	7231.2	7231.1	7231.1
80	7231.1	7231.3	7231.7	7232.4	7256.5	7297.1	7290.9	7257.7	7231.0	7231.1	7231.0	7231.0
85	7231.0	7231.2	7231.7	7232.3	7249.5	7294.1	7286.1	7250.3	7231.0	7231.0	7231.0	7231.0
90	7231.0	7231.2	7231.6	7232.2	7238.1	7291.1	7281.7	7231.7	7230.9	7230.9	7231.0	7230.9
95	7231.0	7230.9	7231.5	7232.0	7232.9	7287.1	7276.1	7231.1	7230.8	7230.8	7230.9	7230.9
99	7230.9	7230.7	7231.5	7231.9	7232.4	7272.9	7262.6	7231.0	7230.4	7230.0	7230.8	7230.9
Minimum	7230.8	7230.7	7231.5	7231.8	7232.3	7272.2	7260.6	7231.0	7230.4	7229.9	7230.8	7230.9
Average	7231.2	7231.4	7232.9	7239.2	7269.7	7304.8	7301.5	7275.9	7251.9	7241.7	7233.0	7231.2
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-3A. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
(11/2/1925 to 9/30/2002)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	28900.0	34124.0	34584.0	30277.0	64464.0	65429.0	65700.0	65178.0	64772.0	63200.0	64000.0	64700.0
1	19763.0	29543.0	29639.0	22352.0	57266.0	64859.0	65100.0	64705.0	63666.0	62100.0	62900.0	61500.0
5	1393.0	1282.0	1430.0	6442.0	41940.0	64320.0	64705.0	64310.0	60000.0	52104.0	47250.0	16600.0
10	1204.0	1205.0	1285.0	3535.0	35700.0	63714.0	64512.0	64100.0	55100.0	42500.0	21358.0	4300.0
15	1170.0	1180.0	1232.0	2070.0	30957.0	63100.0	64329.0	63700.0	50789.0	36898.0	14500.0	1361.0
20	1127.0	1156.0	1197.0	1556.0	25900.0	61100.0	64200.0	62729.0	47414.0	28200.0	7230.0	1163.0
25	1078.0	1093.0	1166.0	1398.0	21826.0	59389.0	64060.0	61800.0	44833.0	23443.0	2490.0	1125.0
30	1031.0	1000.0	1003.0	1336.0	18500.0	57470.0	63900.0	60200.0	42588.0	20600.0	1216.0	1085.0
35	732.0	614.0	681.0	1262.0	15076.0	56266.0	63700.0	58700.0	39800.0	17405.0	1134.0	1056.0
40	566.0	551.0	556.0	1166.0	12802.0	55078.0	63331.0	56700.0	36644.0	14200.0	1095.0	960.0
45	530.0	486.0	525.0	977.0	11100.0	53133.0	62900.0	54354.0	34295.0	11513.0	1068.0	656.0
50	392.0	390.0	452.0	806.0	8818.0	50264.0	62262.0	51673.0	30866.0	8768.0	1017.0	537.0
55	353.0	363.0	409.0	709.0	6817.0	47423.0	61236.0	49020.0	27529.0	6290.0	636.0	380.0
60	331.0	347.0	379.0	634.0	5471.0	44700.0	59900.0	46139.0	24738.0	3672.0	525.0	345.0
65	317.0	328.0	363.0	586.0	3773.0	41600.0	58169.0	43424.0	21800.0	1386.0	394.0	325.0
70	296.0	305.0	348.0	539.0	2700.0	38571.0	56000.0	39502.0	18377.0	1112.0	338.0	302.0
75	263.0	287.0	326.0	493.0	1978.0	35029.0	52100.0	35476.0	14685.0	1066.0	292.0	275.0
80	249.0	263.0	298.0	447.0	1466.0	31200.0	47033.0	31327.0	10807.0	726.0	270.0	255.0
85	218.0	248.0	280.0	412.0	1057.0	25763.0	40423.0	25591.0	4213.0	535.0	253.0	216.0
90	191.0	208.0	261.0	375.0	836.0	19482.0	32319.0	16223.0	1039.0	342.0	220.0	180.0
95	143.0	182.0	224.0	328.0	609.0	11380.0	13512.0	715.0	375.0	254.0	126.0	114.0
99	113.0	130.0	161.0	271.0	407.0	1179.0	670.0	375.0	137.0	105.0	77.0	80.0
Minimum	93.0	82.0	4.0	215.0	360.0	510.0	412.0	343.0	37.0	11.0	18.0	18.0
Average	1080.6	1058.7	1083.4	1750.5	13858.2	45591.9	54602.9	46017.3	29851.3	15062.5	6714.4	3180.0
# Days	2352	2165	2387	2302	2387	2310	2387	2387	2310	2353	2308	2387
# Years	77	77	77	77	77	77	77	77	77	76	77	77

Table CAWG 6 Appdx G-3B. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27405.0	34124.0	34584.0	30277.0	64464.0	64936.0	65187.0	65178.0	64772.0	61150.0	52970.0	17100.0
1	24092.0	32994.0	32648.0	29021.0	60139.0	64821.0	64985.0	65014.0	64407.0	52879.0	50504.0	16800.0
5	13800.0	5618.0	1791.0	8060.0	54016.0	64416.0	64782.0	64600.0	62519.0	52193.0	33410.0	9940.0
10	2039.0	1485.0	1430.0	3858.0	41200.0	63877.0	64686.0	64400.0	60233.0	40325.0	18400.0	4450.0
15	1275.0	1259.0	1339.0	2384.0	33860.0	63609.0	64600.0	64310.0	59339.0	34100.0	15000.0	2480.0
20	1205.0	1217.0	1278.0	1754.0	27566.0	63120.0	64500.0	64300.0	57000.0	27100.0	6090.0	1400.0
25	1178.0	1200.0	1257.0	1529.0	21400.0	61483.0	64400.0	64200.0	54840.0	21600.0	1730.0	1195.0
30	1144.0	1185.0	1188.0	1400.0	15400.0	60600.0	64300.0	64089.0	52166.0	17991.0	1219.0	1161.0
35	1117.0	1006.0	1003.0	1348.0	12265.0	58964.0	64200.0	63992.0	51154.0	14800.0	1171.0	1151.0
40	1000.0	947.0	763.0	1260.0	9683.0	57386.0	64100.0	63781.0	49400.0	12879.0	1156.0	1134.0
45	646.0	434.0	506.0	1090.0	7310.0	57006.0	63906.0	63400.0	47400.0	10688.0	1125.0	1096.0
50	409.0	402.0	469.0	929.0	6036.0	56349.0	63705.0	62948.0	45762.0	8570.0	1093.0	966.0
55	375.0	373.0	421.0	750.0	4280.0	55851.0	63446.0	62300.0	44300.0	6570.0	1071.0	432.0
60	352.0	354.0	396.0	692.0	3248.0	55179.0	63200.0	61672.0	42600.0	4504.0	938.0	375.0
65	331.0	345.0	374.0	612.0	2624.0	53800.0	62700.0	60659.0	41039.0	2300.0	461.0	361.0
70	313.0	320.0	355.0	529.0	2060.0	48369.0	62200.0	59400.0	38800.0	1284.0	375.0	340.0
75	295.0	306.0	347.0	472.0	1725.0	39778.0	61502.0	57517.0	35892.0	1139.0	353.0	318.0
80	265.0	286.0	325.0	430.0	1466.0	33333.0	60479.0	55700.0	32341.0	1078.0	286.0	286.0
85	200.0	249.0	300.0	399.0	1153.0	28400.0	58100.0	53169.0	27354.0	930.0	258.0	214.0
90	162.0	215.0	268.0	369.0	866.0	25400.0	56599.0	49830.0	22800.0	375.0	167.0	151.0
95	141.0	193.0	230.0	326.0	678.0	14446.0	55400.0	44901.0	15332.0	249.0	128.0	119.0
99	119.0	166.0	196.0	254.0	424.0	5902.0	47200.0	30926.0	1090.0	235.0	77.0	69.0
Minimum	114.0	157.0	4.0	215.0	368.0	1580.0	36377.0	26248.0	1074.0	233.0	49.0	65.0
Average	1857.6	2115.0	2027.1	2326.2	13867.4	49982.1	62183.8	59674.5	43673.0	14264.7	5474.3	1838.6
# Days	713	648	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-3C. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	12200.0	5270.0	5491.0	11600.0	50860.0	65429.0	65700.0	64714.0	59104.0	63200.0	64000.0	64700.0
1	5260.0	4570.0	4986.0	6521.0	47008.0	65110.0	65410.0	64400.0	57034.0	62800.0	63900.0	64500.0
5	1251.0	1210.0	1307.0	3980.0	38595.0	64800.0	65071.0	64200.0	52238.0	61800.0	62900.0	51300.0
10	1180.0	1188.0	1260.0	1820.0	34365.0	64407.0	64849.0	63858.0	49469.0	53052.0	62100.0	27600.0
15	1154.0	1178.0	1235.0	1470.0	30037.0	64156.0	64700.0	63400.0	46999.0	46139.0	24702.0	7920.0
20	1130.0	1170.0	1204.0	1373.0	23936.0	63772.0	64600.0	62700.0	45080.0	34396.0	9026.0	1328.0
25	1061.0	1163.0	1170.0	1321.0	18609.0	63427.0	64500.0	62128.0	44029.0	26212.0	5310.0	1204.0
30	692.0	1127.0	856.0	1267.0	14617.0	62738.0	64400.0	61568.0	43200.0	21640.0	1312.0	1147.0
35	677.0	674.0	680.0	1210.0	12114.0	60900.0	64300.0	60300.0	42400.0	18024.0	1112.0	1108.0
40	566.0	540.0	557.0	1060.0	9475.0	58889.0	64262.0	59100.0	40700.0	14803.0	1059.0	1023.0
45	403.0	371.0	513.0	872.0	7051.0	57043.0	64200.0	57871.0	38805.0	12371.0	1052.0	935.0
50	362.0	368.0	404.0	782.0	5850.0	54200.0	64098.0	56600.0	36867.0	9182.0	694.0	675.0
55	335.0	360.0	379.0	700.0	4540.0	51888.0	63964.0	55100.0	35940.0	6060.0	589.0	571.0
60	314.0	349.0	364.0	672.0	3242.0	49186.0	63800.0	53915.0	34500.0	2770.0	548.0	530.0
65	280.0	319.0	361.0	572.0	2340.0	46878.0	63600.0	52000.0	32510.0	1161.0	359.0	343.0
70	240.0	278.0	331.0	529.0	1700.0	43000.0	63274.0	50709.0	30790.0	1102.0	312.0	326.0
75	208.0	244.0	310.0	478.0	1452.0	39233.0	62881.0	48600.0	28546.0	863.0	242.0	229.0
80	199.0	230.0	289.0	444.0	1100.0	35800.0	62281.0	46706.0	26300.0	600.0	227.0	216.0
85	185.0	197.0	278.0	412.0	945.0	22600.0	60574.0	45139.0	23401.0	443.0	216.0	194.0
90	137.0	181.0	237.0	375.0	842.0	15300.0	58543.0	43172.0	20893.0	251.0	115.0	96.0
95	114.0	155.0	198.0	328.0	651.0	5370.0	55602.0	38902.0	15300.0	105.0	89.0	87.0
99	96.0	136.0	132.0	283.0	541.0	1065.0	50051.0	29327.0	11096.0	72.0	46.0	83.0
Minimum	93.0	82.0	111.0	278.0	471.0	915.0	43491.0	25518.0	10807.0	11.0	43.0	80.0
Average	662.0	678.9	719.9	1170.0	11773.9	47901.9	62851.5	54731.9	36165.3	17109.6	10446.2	6442.0
# Days	460	425	465	450	465	450	465	465	450	462	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-3D. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	748.0	898.0	1620.0	5410.0	50904.0	65081.0	64705.0	63800.0	51100.0	47000.0	28100.0	5370.0
1	732.0	884.0	1230.0	3450.0	47492.0	64782.0	64300.0	63400.0	49800.0	46700.0	24400.0	3520.0
5	583.0	765.0	787.0	2280.0	38300.0	64473.0	64100.0	62000.0	47840.0	44800.0	20228.0	801.0
10	551.0	555.0	652.0	1540.0	32028.0	61100.0	64000.0	59900.0	46087.0	39500.0	15800.0	689.0
15	547.0	551.0	563.0	1369.0	23700.0	59200.0	63900.0	58795.0	42900.0	37500.0	9070.0	413.0
20	471.0	512.0	553.0	1270.0	19500.0	57700.0	63820.0	57800.0	40300.0	36200.0	5840.0	366.0
25	383.0	462.0	518.0	1150.0	17200.0	56300.0	63700.0	56300.0	38200.0	28600.0	4050.0	347.0
30	369.0	395.0	481.0	1050.0	14000.0	54900.0	63600.0	55200.0	36800.0	24100.0	1380.0	328.0
35	353.0	372.0	427.0	955.0	11100.0	53300.0	63400.0	54100.0	36200.0	18900.0	654.0	316.0
40	341.0	361.0	391.0	806.0	9140.0	51200.0	63200.0	53000.0	35000.0	17573.0	464.0	305.0
45	337.0	350.0	374.0	687.0	8126.0	49037.0	62967.0	51628.0	32400.0	17000.0	402.0	292.0
50	328.0	336.0	361.0	619.0	6950.0	47800.0	62700.0	50700.0	30600.0	13500.0	333.0	273.0
55	314.0	335.0	349.0	584.0	5970.0	45100.0	62300.0	49500.0	28900.0	10500.0	296.0	268.0
60	298.0	325.0	343.0	544.0	5260.0	43900.0	61853.0	48119.0	27400.0	8030.0	280.0	263.0
65	270.0	300.0	333.0	511.0	4510.0	41700.0	61500.0	46913.0	25400.0	5790.0	273.0	235.0
70	263.0	291.0	303.0	486.0	3550.0	38700.0	60800.0	45800.0	23800.0	3720.0	270.0	208.0
75	252.0	286.0	292.0	457.0	2780.0	34700.0	60130.0	44900.0	22200.0	1390.0	263.0	202.0
80	248.0	268.0	262.0	430.0	2290.0	30000.0	59800.0	43200.0	20349.0	581.0	252.0	198.0
85	217.0	208.0	246.0	405.0	1860.0	25300.0	59400.0	41000.0	17900.0	320.0	235.0	183.0
90	202.0	191.0	226.0	368.0	1110.0	22300.0	58600.0	38000.0	13300.0	265.0	208.0	178.0
95	187.0	189.0	211.0	293.0	856.0	17000.0	56400.0	35200.0	8540.0	253.0	138.0	120.0
99	176.0	173.0	188.0	258.0	596.0	6690.0	52700.0	27369.0	722.0	225.0	95.0	87.0
Minimum	173.0	173.0	185.0	245.0	406.0	3050.0	52200.0	25382.0	521.0	217.0	18.0	18.0
Average	349.4	379.7	420.0	899.8	11674.4	44558.0	61756.7	49948.9	30035.7	16656.4	3728.5	397.3
# Days	311	301	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-3E. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Dry Water Years (1926, 1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	28900.0	1308.0	1507.0	11332.0	60290.0	64301.0	64368.0	64098.0	62800.0	63100.0	62900.0	61700.0
1	19700.0	1301.0	1430.0	10828.0	59969.0	64262.0	64146.0	64031.0	62500.0	63000.0	62800.0	61700.0
5	2813.0	1251.0	1348.0	8249.0	44494.0	63800.0	64000.0	62000.0	61500.0	60300.0	61900.0	54000.0
10	1304.0	1210.0	1225.0	5621.0	38853.0	63101.0	63829.0	60300.0	60200.0	49107.0	49248.0	29857.0
15	1184.0	1185.0	1198.0	3340.0	35091.0	62643.0	63200.0	59400.0	51800.0	48634.0	39526.0	13314.0
20	1166.0	1149.0	1185.0	1680.0	31571.0	60479.0	62195.0	57210.0	36723.0	40700.0	28066.0	4740.0
25	1147.0	946.0	1141.0	1397.0	29573.0	60026.0	61188.0	49000.0	32441.0	38442.0	21083.0	2122.0
30	877.0	910.0	913.0	1309.0	25439.0	58300.0	59700.0	44807.0	29051.0	32563.0	15100.0	1214.0
35	856.0	564.0	572.0	1185.0	22100.0	55700.0	58300.0	43300.0	26581.0	27400.0	12085.0	1132.0
40	554.0	528.0	540.0	1078.0	19100.0	53460.0	56553.0	41575.0	24866.0	24800.0	5920.0	904.0
45	548.0	466.0	521.0	947.0	17366.0	51500.0	54409.0	39493.0	24319.0	23675.0	3550.0	879.0
50	501.0	398.0	442.0	752.0	15088.0	49558.0	52563.0	37375.0	21784.0	23100.0	1908.0	562.0
55	342.0	353.0	424.0	635.0	13500.0	48300.0	51110.0	34974.0	18300.0	22960.0	1221.0	488.0
60	327.0	338.0	406.0	598.0	12466.0	46500.0	49548.0	33400.0	16300.0	21000.0	898.0	348.0
65	324.0	328.0	377.0	569.0	11100.0	43928.0	47553.0	32600.0	13700.0	19696.0	868.0	332.0
70	321.0	304.0	365.0	532.0	8540.0	41302.0	44400.0	31600.0	12126.0	16200.0	527.0	324.0
75	307.0	298.0	360.0	478.0	6510.0	37600.0	40600.0	29900.0	8450.0	13531.0	499.0	313.0
80	285.0	271.0	342.0	447.0	3476.0	35036.0	36100.0	27610.0	5100.0	10502.0	360.0	303.0
85	269.0	264.0	297.0	405.0	1707.0	34982.0	33612.0	25309.0	2210.0	7754.0	320.0	289.0
90	255.0	236.0	270.0	386.0	689.0	29900.0	32879.0	22300.0	387.0	4220.0	300.0	281.0
95	220.0	185.0	248.0	343.0	594.0	18200.0	31100.0	18300.0	182.0	1167.0	287.0	272.0
99	172.0	172.0	161.0	296.0	409.0	5693.0	27900.0	9746.0	40.0	322.0	45.0	68.0
Minimum	169.0	164.0	158.0	293.0	394.0	4867.0	27300.0	7448.0	37.0	304.0	18.0	67.0
Average	1194.7	592.0	647.9	1762.2	18360.3	47609.8	50514.0	39393.6	23995.1	25995.5	13723.8	7023.3
# Days	403	367	403	382	403	390	403	403	390	372	388	403
# Years	13	13	13	13	13	13	13	13	13	12	13	13

Table CAWG 6 Appdx G-3F. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1175.0	1217.0	3463.0	12849.0	43894.0	64031.0	64146.0	59537.0	35350.0	32548.0	14710.0	1119.0
1	1173.0	1204.0	3257.0	12149.0	42888.0	63964.0	64108.0	57396.0	31297.0	30488.0	12507.0	1110.0
5	1171.0	1170.0	2440.0	9020.0	33969.0	59067.0	63935.0	48590.0	23373.0	22512.0	1556.0	1098.0
10	1096.0	1164.0	1262.0	6195.0	31123.0	55152.0	62443.0	43247.0	19972.0	16274.0	1122.0	1090.0
15	1091.0	1129.0	1226.0	4196.0	27201.0	52798.0	56682.0	38410.0	18063.0	10439.0	1103.0	1085.0
20	1088.0	1108.0	1205.0	2304.0	23359.0	49539.0	51047.0	35688.0	15515.0	6480.0	1091.0	1079.0
25	1083.0	1095.0	1190.0	1674.0	21800.0	46965.0	49275.0	32364.0	14147.0	4067.0	1083.0	1073.0
30	1073.0	1091.0	1173.0	1436.0	20067.0	44977.0	46147.0	29416.0	11901.0	1802.0	1073.0	1062.0
35	1056.0	1090.0	1164.0	1361.0	17645.0	43300.0	43100.0	27179.0	9268.0	1112.0	1064.0	1056.0
40	1047.0	1085.0	1156.0	1312.0	15076.0	41533.0	41426.0	24156.0	6969.0	1095.0	1049.0	1037.0
45	1031.0	1020.0	1136.0	1255.0	13410.0	39323.0	40300.0	22687.0	4293.0	1085.0	1031.0	1027.0
50	613.0	590.0	576.0	1200.0	12097.0	38524.0	36130.0	19355.0	1168.0	1069.0	591.0	570.0
55	562.0	570.0	551.0	799.0	11113.0	36478.0	32158.0	12832.0	1045.0	1037.0	540.0	548.0
60	545.0	541.0	531.0	696.0	8843.0	33891.0	28900.0	9940.0	1039.0	924.0	522.0	535.0
65	521.0	510.0	517.0	630.0	6245.0	31300.0	24702.0	7012.0	977.0	650.0	510.0	519.0
70	259.0	292.0	351.0	599.0	2753.0	29000.0	18689.0	1103.0	598.0	600.0	288.0	272.0
75	253.0	267.0	302.0	572.0	1413.0	23619.0	12648.0	684.0	456.0	543.0	274.0	260.0
80	251.0	261.0	287.0	534.0	1144.0	20107.0	10012.0	610.0	375.0	513.0	266.0	253.0
85	242.0	257.0	279.0	475.0	836.0	13404.0	8093.0	528.0	322.0	380.0	257.0	243.0
90	236.0	251.0	268.0	384.0	609.0	11798.0	793.0	429.0	271.0	324.0	244.0	237.0
95	130.0	131.0	262.0	307.0	492.0	5877.0	670.0	375.0	192.0	296.0	130.0	132.0
99	114.0	117.0	189.0	280.0	365.0	779.0	516.0	359.0	131.0	235.0	82.0	83.0
Minimum	112.0	111.0	136.0	270.0	360.0	510.0	412.0	343.0	120.0	233.0	67.0	80.0
Average	693.6	710.9	863.6	2062.1	13628.3	35559.4	33027.9	19218.6	7284.1	4336.4	1030.1	684.4
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-4A. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
(10/1/1982 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27405.0	34124.0	34584.0	30277.0	64214.0	64907.0	65187.0	64772.0	62519.0	61150.0	47988.0	17834.0
1	24667.0	33202.0	33094.0	29021.0	60007.0	64599.0	64888.0	64618.0	60536.0	51548.0	42197.0	13669.0
5	2530.0	5749.0	3463.0	12849.0	48941.0	64050.0	64618.0	64195.0	54849.0	40965.0	29699.0	3945.0
10	1307.0	1713.0	1791.0	8828.0	40439.0	63772.0	64130.0	63503.0	49310.0	38369.0	21358.0	1741.0
15	1257.0	1276.0	1451.0	6442.0	35201.0	63475.0	63820.0	62471.0	44986.0	26270.0	13207.0	1378.0
20	1216.0	1232.0	1398.0	4778.0	31814.0	62805.0	63465.0	61587.0	37904.0	23043.0	1556.0	1257.0
25	1187.0	1217.0	1343.0	3453.0	28658.0	60857.0	63120.0	57712.0	34077.0	18240.0	1264.0	1214.0
30	1175.0	1206.0	1307.0	2534.0	25052.0	59151.0	62405.0	53988.0	28687.0	13597.0	1212.0	1173.0
35	1171.0	1198.0	1276.0	1987.0	22610.0	57637.0	61615.0	48853.0	24931.0	10927.0	1161.0	1157.0
40	1164.0	1190.0	1259.0	1662.0	20696.0	57062.0	60687.0	45327.0	23092.0	8530.0	1144.0	1141.0
45	1154.0	1185.0	1237.0	1556.0	18279.0	56045.0	59179.0	43264.0	21213.0	6260.0	1127.0	1124.0
50	1142.0	1178.0	1223.0	1481.0	15076.0	53614.0	57656.0	40981.0	19522.0	3489.0	1117.0	1115.0
55	1125.0	1170.0	1214.0	1428.0	13506.0	52446.0	56192.0	38966.0	18076.0	1471.0	1105.0	1098.0
60	1098.0	1163.0	1202.0	1393.0	12114.0	50558.0	53659.0	37081.0	16433.0	1200.0	1096.0	1090.0
65	1090.0	1145.0	1193.0	1370.0	10023.0	48214.0	50940.0	34958.0	14766.0	1134.0	1090.0	1083.0
70	1086.0	1129.0	1187.0	1344.0	7625.0	45882.0	49557.0	32364.0	12951.0	1113.0	1083.0	1078.0
75	1073.0	1107.0	1181.0	1319.0	6004.0	42921.0	47268.0	29327.0	11631.0	1100.0	1073.0	1071.0
80	1059.0	1095.0	1170.0	1287.0	4081.0	39575.0	44198.0	26270.0	8391.0	1088.0	1066.0	1061.0
85	1052.0	1090.0	1161.0	1264.0	3001.0	37711.0	41311.0	23513.0	1330.0	1076.0	1059.0	1049.0
90	1040.0	1085.0	1148.0	1248.0	2084.0	33295.0	37407.0	18181.0	1052.0	1061.0	1052.0	1036.0
95	1000.0	1011.0	1103.0	1205.0	1651.0	26429.0	28272.0	6730.0	1040.0	1042.0	1033.0	1022.0
99	909.0	991.0	992.0	1073.0	1278.0	9081.0	17781.0	1049.0	983.0	985.0	935.0	958.0
Minimum	899.0	977.0	975.0	991.0	1019.0	5902.0	11942.0	1036.0	952.0	870.0	935.0	935.0
Average	2103.5	2812.4	2816.5	3840.8	18924.5	50620.0	53654.1	41092.6	22820.2	11332.8	5161.8	1657.9
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-4B. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27405.0	34124.0	34584.0	30277.0	64214.0	64907.0	65187.0	64772.0	62519.0	61150.0	47988.0	15338.0
1	26625.0	33953.0	34459.0	29924.0	60451.0	64821.0	65043.0	64695.0	61777.0	57917.0	45813.0	13669.0
5	22938.0	32311.0	31601.0	26639.0	56692.0	64301.0	64801.0	64532.0	57108.0	46999.0	38072.0	4601.0
10	18855.0	30007.0	29842.0	22617.0	46576.0	63973.0	64705.0	64349.0	55005.0	41616.0	25138.0	1842.0
15	2360.0	5729.0	1953.0	5590.0	40783.0	63820.0	64599.0	64195.0	51396.0	39648.0	5304.0	1464.0
20	1343.0	5069.0	1600.0	3858.0	34396.0	63686.0	64464.0	63973.0	48836.0	30654.0	1262.0	1408.0
25	1285.0	3295.0	1499.0	2822.0	27610.0	63590.0	64262.0	63686.0	46731.0	16895.0	1233.0	1339.0
30	1239.0	1473.0	1451.0	2313.0	23064.0	63341.0	63983.0	63321.0	44410.0	14202.0	1205.0	1255.0
35	1221.0	1276.0	1423.0	1829.0	17107.0	62957.0	63829.0	62948.0	42630.0	12808.0	1190.0	1205.0
40	1202.0	1260.0	1389.0	1656.0	12265.0	61312.0	63628.0	62176.0	39510.0	11197.0	1164.0	1166.0
45	1197.0	1233.0	1357.0	1605.0	9041.0	60224.0	63436.0	61634.0	36763.0	9293.0	1156.0	1163.0
50	1183.0	1221.0	1337.0	1529.0	7349.0	57778.0	63274.0	60318.0	34240.0	7197.0	1147.0	1159.0
55	1171.0	1217.0	1305.0	1451.0	5713.0	57359.0	62957.0	58178.0	30217.0	4926.0	1142.0	1154.0
60	1166.0	1210.0	1289.0	1410.0	4666.0	57118.0	62405.0	57312.0	26081.0	1339.0	1125.0	1144.0
65	1156.0	1204.0	1269.0	1393.0	3706.0	56701.0	61919.0	56331.0	24092.0	1241.0	1117.0	1141.0
70	1142.0	1195.0	1235.0	1380.0	3200.0	53961.0	61521.0	54318.0	22110.0	1147.0	1108.0	1136.0
75	1132.0	1190.0	1223.0	1350.0	2962.0	44850.0	61189.0	51978.0	20100.0	1124.0	1095.0	1119.0
80	1127.0	1183.0	1210.0	1334.0	2452.0	35390.0	59612.0	48171.0	18220.0	1093.0	1090.0	1117.0
85	1113.0	1163.0	1185.0	1280.0	2007.0	31206.0	57694.0	43457.0	13850.0	1083.0	1085.0	1112.0
90	1000.0	1006.0	1030.0	1228.0	1719.0	19495.0	57071.0	39136.0	8249.0	1071.0	1076.0	1069.0
95	1000.0	997.0	999.0	1202.0	1466.0	12478.0	56156.0	32755.0	1119.0	1044.0	1066.0	1025.0
99	1000.0	977.0	982.0	1000.0	1020.0	6501.0	55971.0	27691.0	1074.0	1042.0	1042.0	986.0
Minimum	1000.0	977.0	975.0	991.0	1019.0	5902.0	55768.0	26248.0	1074.0	1042.0	1042.0	985.0
Average	3932.4	5918.8	5579.2	5180.8	16682.5	51674.3	62128.4	56074.1	32716.8	13743.8	5654.5	1720.2
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-3E. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Dry Water Years (1926, 1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	28900.0	1308.0	1507.0	11332.0	60290.0	64301.0	64368.0	64098.0	62800.0	63100.0	62900.0	61700.0
1	19700.0	1301.0	1430.0	10828.0	59969.0	64262.0	64146.0	64031.0	62500.0	63000.0	62800.0	61700.0
5	2813.0	1251.0	1348.0	8249.0	44494.0	63800.0	64000.0	62000.0	61500.0	60300.0	61900.0	54000.0
10	1304.0	1210.0	1225.0	5621.0	38853.0	63101.0	63829.0	60300.0	60200.0	49107.0	49248.0	29857.0
15	1184.0	1185.0	1198.0	3340.0	35091.0	62643.0	63200.0	59400.0	51800.0	48634.0	39526.0	13314.0
20	1166.0	1149.0	1185.0	1680.0	31571.0	60479.0	62195.0	57210.0	36723.0	40700.0	28066.0	4740.0
25	1147.0	946.0	1141.0	1397.0	29573.0	60026.0	61188.0	49000.0	32441.0	38442.0	21083.0	2122.0
30	877.0	910.0	913.0	1309.0	25439.0	58300.0	59700.0	44807.0	29051.0	32563.0	15100.0	1214.0
35	856.0	564.0	572.0	1185.0	22100.0	55700.0	58300.0	43300.0	26581.0	27400.0	12085.0	1132.0
40	554.0	528.0	540.0	1078.0	19100.0	53460.0	56553.0	41575.0	24866.0	24800.0	5920.0	904.0
45	548.0	466.0	521.0	947.0	17366.0	51500.0	54409.0	39493.0	24319.0	23675.0	3550.0	879.0
50	501.0	398.0	442.0	752.0	15088.0	49558.0	52563.0	37375.0	21784.0	23100.0	1908.0	562.0
55	342.0	353.0	424.0	635.0	13500.0	48300.0	51110.0	34974.0	18300.0	22960.0	1221.0	488.0
60	327.0	338.0	406.0	598.0	12466.0	46500.0	49548.0	33400.0	16300.0	21000.0	898.0	348.0
65	324.0	328.0	377.0	569.0	11100.0	43928.0	47553.0	32600.0	13700.0	19696.0	868.0	332.0
70	321.0	304.0	365.0	532.0	8540.0	41302.0	44400.0	31600.0	12126.0	16200.0	527.0	324.0
75	307.0	298.0	360.0	478.0	6510.0	37600.0	40600.0	29900.0	8450.0	13531.0	499.0	313.0
80	285.0	271.0	342.0	447.0	3476.0	35036.0	36100.0	27610.0	5100.0	10502.0	360.0	303.0
85	269.0	264.0	297.0	405.0	1707.0	34982.0	33612.0	25309.0	2210.0	7754.0	320.0	289.0
90	255.0	236.0	270.0	386.0	689.0	29900.0	32879.0	22300.0	387.0	4220.0	300.0	281.0
95	220.0	185.0	248.0	343.0	594.0	18200.0	31100.0	18300.0	182.0	1167.0	287.0	272.0
99	172.0	172.0	161.0	296.0	409.0	5693.0	27900.0	9746.0	40.0	322.0	45.0	68.0
Minimum	169.0	164.0	158.0	293.0	394.0	4867.0	27300.0	7448.0	37.0	304.0	18.0	67.0
Average	1194.7	592.0	647.9	1762.2	18360.3	47609.8	50514.0	39393.6	23995.1	25995.5	13723.8	7023.3
# Days	403	367	403	382	403	390	403	403	390	372	388	403
# Years	13	13	13	13	13	13	13	13	13	12	13	13

Table CAWG 6 Appdx G-3F. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1175.0	1217.0	3463.0	12849.0	43894.0	64031.0	64146.0	59537.0	35350.0	32548.0	14710.0	1119.0
1	1173.0	1204.0	3257.0	12149.0	42888.0	63964.0	64108.0	57396.0	31297.0	30488.0	12507.0	1110.0
5	1171.0	1170.0	2440.0	9020.0	33969.0	59067.0	63935.0	48590.0	23373.0	22512.0	1556.0	1098.0
10	1096.0	1164.0	1262.0	6195.0	31123.0	55152.0	62443.0	43247.0	19972.0	16274.0	1122.0	1090.0
15	1091.0	1129.0	1226.0	4196.0	27201.0	52798.0	56682.0	38410.0	18063.0	10439.0	1103.0	1085.0
20	1088.0	1108.0	1205.0	2304.0	23359.0	49539.0	51047.0	35688.0	15515.0	6480.0	1091.0	1079.0
25	1083.0	1095.0	1190.0	1674.0	21800.0	46965.0	49275.0	32364.0	14147.0	4067.0	1083.0	1073.0
30	1073.0	1091.0	1173.0	1436.0	20067.0	44977.0	46147.0	29416.0	11901.0	1802.0	1073.0	1062.0
35	1056.0	1090.0	1164.0	1361.0	17645.0	43300.0	43100.0	27179.0	9268.0	1112.0	1064.0	1056.0
40	1047.0	1085.0	1156.0	1312.0	15076.0	41533.0	41426.0	24156.0	6969.0	1095.0	1049.0	1037.0
45	1031.0	1020.0	1136.0	1255.0	13410.0	39323.0	40300.0	22687.0	4293.0	1085.0	1031.0	1027.0
50	613.0	590.0	576.0	1200.0	12097.0	38524.0	36130.0	19355.0	1168.0	1069.0	591.0	570.0
55	562.0	570.0	551.0	799.0	11113.0	36478.0	32158.0	12832.0	1045.0	1037.0	540.0	548.0
60	545.0	541.0	531.0	696.0	8843.0	33891.0	28900.0	9940.0	1039.0	924.0	522.0	535.0
65	521.0	510.0	517.0	630.0	6245.0	31300.0	24702.0	7012.0	977.0	650.0	510.0	519.0
70	259.0	292.0	351.0	599.0	2753.0	29000.0	18689.0	1103.0	598.0	600.0	288.0	272.0
75	253.0	267.0	302.0	572.0	1413.0	23619.0	12648.0	684.0	456.0	543.0	274.0	260.0
80	251.0	261.0	287.0	534.0	1144.0	20107.0	10012.0	610.0	375.0	513.0	266.0	253.0
85	242.0	257.0	279.0	475.0	836.0	13404.0	8093.0	528.0	322.0	380.0	257.0	243.0
90	236.0	251.0	268.0	384.0	609.0	11798.0	793.0	429.0	271.0	324.0	244.0	237.0
95	130.0	131.0	262.0	307.0	492.0	5877.0	670.0	375.0	192.0	296.0	130.0	132.0
99	114.0	117.0	189.0	280.0	365.0	779.0	516.0	359.0	131.0	235.0	82.0	83.0
Minimum	112.0	111.0	136.0	270.0	360.0	510.0	412.0	343.0	120.0	233.0	67.0	80.0
Average	693.6	710.9	863.6	2062.1	13628.3	35559.4	33027.9	19218.6	7284.1	4336.4	1030.1	684.4
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-4E. Florence Lake Storage (Gage 11229600)
Historical Daily Exceedance Storage
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1175.0	1217.0	3463.0	12849.0	41940.0	59198.0	59697.0	48740.0	25684.0	32548.0	14710.0	1119.0
1	1173.0	1209.0	3364.0	12472.0	40227.0	59048.0	59640.0	47025.0	24127.0	31320.0	13699.0	1115.0
5	1173.0	1190.0	3008.0	11036.0	33233.0	56497.0	57182.0	39648.0	21461.0	28191.0	7680.0	1103.0
10	1171.0	1170.0	2784.0	8667.0	32035.0	55152.0	52888.0	38168.0	19703.0	21420.0	1146.0	1098.0
15	1100.0	1168.0	1332.0	6912.0	30752.0	53469.0	50994.0	36486.0	18253.0	11919.0	1127.0	1093.0
20	1098.0	1166.0	1269.0	5820.0	29029.0	52761.0	50202.0	34849.0	18056.0	7961.0	1117.0	1090.0
25	1095.0	1144.0	1248.0	4778.0	26016.0	51450.0	49275.0	32648.0	16338.0	5308.0	1108.0	1090.0
30	1091.0	1136.0	1230.0	3529.0	24241.0	49222.0	47440.0	30790.0	15231.0	3328.0	1102.0	1086.0
35	1090.0	1125.0	1216.0	2741.0	22854.0	47832.0	46199.0	29416.0	14190.0	2030.0	1096.0	1083.0
40	1090.0	1115.0	1207.0	2061.0	21826.0	46541.0	45054.0	28184.0	12951.0	1136.0	1091.0	1081.0
45	1086.0	1103.0	1198.0	1756.0	20832.0	45676.0	43516.0	26270.0	11890.0	1113.0	1086.0	1079.0
50	1086.0	1102.0	1193.0	1556.0	19979.0	43886.0	42388.0	24283.0	9725.0	1103.0	1083.0	1076.0
55	1079.0	1095.0	1188.0	1443.0	18187.0	42921.0	41575.0	23738.0	7556.0	1096.0	1074.0	1073.0
60	1074.0	1093.0	1178.0	1417.0	15943.0	41459.0	41088.0	23050.0	4623.0	1093.0	1073.0	1069.0
65	1071.0	1091.0	1173.0	1384.0	13856.0	39518.0	40578.0	22297.0	1180.0	1085.0	1071.0	1062.0
70	1057.0	1091.0	1168.0	1346.0	13028.0	39047.0	38104.0	19797.0	1061.0	1079.0	1066.0	1056.0
75	1056.0	1090.0	1164.0	1325.0	11408.0	38595.0	35476.0	15376.0	1047.0	1073.0	1061.0	1056.0
80	1054.0	1088.0	1161.0	1287.0	9730.0	37552.0	32625.0	10337.0	1044.0	1059.0	1052.0	1049.0
85	1049.0	1085.0	1156.0	1266.0	6417.0	35178.0	29073.0	6782.0	1040.0	1042.0	1044.0	1039.0
90	1042.0	1071.0	1146.0	1246.0	2469.0	32794.0	25807.0	1156.0	1033.0	1033.0	1037.0	1033.0
95	1036.0	1033.0	1136.0	1210.0	1370.0	29774.0	21853.0	1064.0	1016.0	1017.0	1028.0	1028.0
99	1019.0	1002.0	1119.0	1193.0	1278.0	19656.0	13118.0	1040.0	952.0	883.0	1011.0	1023.0
Minimum	1011.0	1002.0	1119.0	1183.0	1271.0	19235.0	11942.0	1036.0	952.0	870.0	1009.0	1022.0
Average	1085.0	1113.9	1410.5	3397.3	18834.2	44088.4	41540.6	23554.7	9518.6	5496.3	1714.0	1070.7
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-5A. Mammoth Pool Reservoir Elevation (Gage 11234700)
Historical Daily Exceedance Elevation
(10/17/1959 to 9/30/2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3338.0	3332.4	3334.0	3334.3	3335.6	3335.9	3335.0	3332.2	3330.6	3321.5	3324.7	3330.7
1	3330.9	3331.0	3331.2	3332.0	3334.9	3334.8	3334.3	3331.3	3324.1	3294.4	3322.2	3325.4
5	3320.9	3307.3	3317.5	3331.0	3333.2	3333.8	3332.6	3329.6	3308.5	3267.0	3262.7	3292.1
10	3290.4	3288.5	3270.2	3304.2	3332.6	3333.1	3331.9	3323.8	3293.8	3257.3	3249.9	3256.6
15	3257.6	3268.8	3252.6	3270.6	3332.2	3332.6	3331.4	3319.9	3282.1	3246.5	3236.0	3243.0
20	3239.9	3254.2	3227.8	3251.7	3331.7	3332.2	3330.9	3315.8	3272.9	3238.9	3229.9	3233.4
25	3229.2	3233.0	3217.0	3241.0	3331.3	3331.9	3329.9	3310.0	3265.8	3234.9	3226.0	3226.6
30	3222.8	3224.4	3209.0	3232.2	3329.3	3331.6	3327.9	3304.4	3259.6	3230.5	3222.3	3223.5
35	3220.5	3217.3	3204.1	3225.2	3315.2	3331.2	3325.2	3299.9	3254.9	3227.1	3216.3	3219.4
40	3214.2	3210.3	3200.0	3217.4	3302.4	3330.8	3322.7	3295.0	3250.4	3223.5	3211.2	3212.7
45	3210.9	3204.6	3195.4	3211.1	3295.9	3330.3	3320.0	3291.1	3246.8	3220.7	3208.1	3209.0
50	3207.3	3200.9	3190.5	3203.6	3288.3	3326.3	3317.2	3286.1	3243.2	3216.8	3206.6	3206.0
55	3204.5	3198.2	3185.6	3195.1	3281.6	3321.6	3313.7	3281.2	3240.2	3214.0	3205.0	3204.4
60	3201.6	3195.7	3181.4	3188.6	3273.9	3319.6	3310.8	3275.8	3236.8	3207.6	3202.4	3202.2
65	3197.7	3193.1	3177.7	3181.8	3266.7	3316.2	3306.5	3269.4	3232.7	3202.1	3199.7	3199.2
70	3194.4	3190.5	3173.9	3175.8	3261.0	3311.0	3302.9	3264.3	3226.8	3199.1	3197.1	3196.7
75	3191.6	3187.5	3167.8	3167.2	3253.5	3307.7	3297.4	3258.9	3219.2	3196.4	3193.4	3195.1
80	3188.2	3184.2	3161.9	3155.1	3243.1	3304.7	3292.0	3252.9	3214.1	3194.1	3187.4	3189.0
85	3184.8	3179.6	3156.3	3147.7	3229.8	3301.5	3286.0	3246.3	3207.4	3188.4	3182.1	3179.8
90	3181.4	3174.4	3150.3	3144.4	3213.4	3296.5	3277.2	3233.8	3202.0	3183.6	3175.3	3175.1
95	3172.4	3164.2	3144.6	3142.0	3190.5	3287.6	3265.8	3220.9	3193.0	3158.9	3164.1	3169.0
99	3158.8	3130.9	3141.2	3140.1	3143.9	3226.3	3226.1	3196.9	3146.8	3124.5	3140.6	3163.8
Minimum	3129.0	3128.8	3140.0	3140.0	3140.0	3220.0	3225.2	3174.4	3112.8	3102.6	3132.2	3160.7
Average	3218.9	3215.6	3200.8	3211.2	3282.5	3317.9	3310.2	3282.2	3244.0	3216.0	3210.3	3213.6
# Days	1333	1215	1333	1290	1333	1290	1333	1333	1290	1317	1290	1333
# Years	43	43	43	43	43	43	43	43	43	43	43	43

Table CAWG 6 Appdx G-5B. Mammoth Pool Reservoir Elevation (Gage 11234700)
Historical Daily Exceedance Elevation
Wet Water Years (1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3338.0	3332.4	3334.0	3334.3	3335.6	3335.9	3335.0	3332.2	3330.6	3321.5	3324.7	3330.7
1	3331.5	3331.4	3331.4	3332.5	3335.1	3335.3	3334.7	3331.8	3329.1	3302.1	3324.2	3328.6
5	3330.8	3330.6	3330.9	3331.8	3334.2	3334.5	3333.8	3330.9	3319.6	3285.3	3320.6	3322.9
10	3329.6	3310.1	3328.4	3331.4	3333.6	3334.1	3333.0	3330.4	3314.0	3271.2	3267.3	3314.1
15	3320.5	3304.9	3314.7	3331.0	3333.1	3333.8	3332.6	3329.4	3308.1	3257.3	3258.7	3257.9
20	3313.6	3296.0	3288.0	3328.0	3332.8	3333.6	3332.1	3326.7	3303.5	3241.2	3246.2	3253.3
25	3294.5	3288.1	3276.4	3309.2	3332.5	3333.3	3331.9	3324.9	3298.7	3230.4	3237.2	3246.4
30	3280.9	3280.5	3268.4	3293.8	3332.4	3333.1	3331.8	3323.5	3291.8	3227.6	3232.2	3242.1
35	3271.3	3271.4	3260.4	3274.6	3332.3	3332.8	3331.6	3321.8	3286.2	3225.2	3227.5	3237.3
40	3249.5	3265.9	3253.5	3268.1	3332.1	3332.6	3331.5	3320.1	3281.6	3222.1	3219.7	3234.0
45	3239.0	3258.1	3237.6	3254.6	3331.8	3332.5	3331.3	3318.8	3277.6	3220.1	3213.7	3229.9
50	3233.8	3250.7	3224.9	3244.8	3331.7	3332.3	3331.2	3316.9	3274.1	3216.8	3207.7	3227.0
55	3230.5	3240.5	3215.4	3232.2	3331.5	3332.1	3330.9	3314.7	3270.7	3214.6	3206.2	3225.1
60	3227.6	3229.6	3207.7	3227.5	3331.2	3332.0	3330.5	3311.7	3267.3	3209.5	3203.0	3214.1
65	3223.9	3221.0	3201.2	3215.6	3330.8	3331.9	3329.9	3308.4	3263.2	3198.7	3201.0	3209.2
70	3217.9	3207.6	3194.3	3208.3	3321.1	3331.8	3328.6	3305.0	3256.7	3197.0	3199.4	3205.7
75	3206.9	3201.2	3186.4	3202.3	3308.6	3331.6	3327.5	3301.1	3251.6	3195.1	3198.1	3203.6
80	3202.5	3195.1	3181.4	3188.5	3296.8	3331.4	3325.8	3296.4	3246.1	3193.9	3193.1	3201.6
85	3197.4	3189.4	3176.6	3178.4	3280.2	3331.0	3324.1	3293.3	3240.2	3183.1	3186.2	3192.3
90	3180.1	3178.6	3167.3	3156.7	3259.5	3330.8	3321.9	3289.6	3231.4	3177.8	3179.5	3175.5
95	3164.4	3154.6	3158.4	3143.9	3219.9	3330.3	3315.0	3280.7	3220.4	3143.4	3174.9	3170.1
99	3139.8	3129.1	3142.4	3140.1	3140.4	3328.0	3309.6	3260.7	3197.2	3125.8	3165.6	3166.4
Minimum	3129.0	3128.8	3141.0	3140.0	3140.0	3326.7	3304.6	3251.8	3180.9	3121.8	3160.7	3164.9
Average	3247.5	3245.2	3235.6	3248.0	3312.6	3332.4	3328.9	3312.0	3273.4	3216.5	3220.7	3231.0
# Days	465	422	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-5C. Mammoth Pool Reservoir Elevation (Gage 11234700)
Historical Daily Exceedance Elevation
Above Normal Water Years (1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3301.2	3309.6	3257.9	3253.5	3333.6	3332.8	3331.5	3321.9	3273.2	3288.5	3264.2	3300.9
1	3300.3	3309.1	3257.3	3244.6	3333.4	3332.6	3331.5	3321.1	3269.3	3283.5	3263.2	3297.4
5	3289.6	3301.2	3253.9	3222.7	3332.7	3332.3	3331.0	3319.4	3263.9	3266.8	3262.8	3271.8
10	3260.1	3280.8	3239.2	3219.6	3332.4	3332.0	3329.7	3313.1	3259.3	3263.0	3259.6	3262.9
15	3256.1	3259.6	3229.8	3217.1	3332.0	3331.5	3328.9	3310.2	3257.3	3259.4	3257.2	3260.7
20	3250.6	3253.7	3214.4	3207.5	3331.5	3331.4	3327.3	3307.1	3255.0	3256.1	3245.5	3257.7
25	3247.9	3232.0	3202.8	3203.1	3326.9	3331.3	3325.7	3304.2	3253.2	3252.1	3236.6	3247.9
30	3230.2	3228.6	3199.8	3195.7	3318.1	3331.1	3323.9	3300.9	3251.7	3236.5	3228.7	3233.3
35	3221.4	3224.4	3193.9	3184.8	3313.9	3331.0	3322.8	3296.7	3249.9	3231.9	3226.3	3225.8
40	3219.7	3222.0	3189.7	3175.8	3298.4	3330.9	3322.4	3292.0	3248.6	3229.4	3224.7	3224.3
45	3214.0	3217.7	3187.8	3171.9	3288.3	3330.7	3321.9	3288.3	3247.4	3227.2	3223.2	3209.7
50	3210.8	3210.6	3185.0	3166.0	3279.5	3330.6	3320.7	3286.2	3246.1	3225.7	3220.6	3208.0
55	3206.5	3203.6	3181.8	3161.6	3271.6	3330.4	3319.6	3283.6	3243.9	3223.8	3216.2	3206.3
60	3200.9	3197.2	3178.8	3151.4	3262.6	3330.3	3318.2	3280.9	3241.2	3222.4	3213.2	3204.4
65	3196.4	3187.0	3170.1	3149.0	3254.0	3329.6	3316.7	3278.1	3240.7	3220.5	3207.2	3202.5
70	3194.1	3179.2	3164.3	3147.3	3250.4	3328.6	3315.0	3274.5	3238.1	3217.0	3203.0	3195.4
75	3192.8	3176.8	3159.0	3145.6	3241.1	3326.6	3313.6	3271.3	3233.0	3214.0	3191.1	3183.5
80	3189.6	3171.5	3151.0	3143.4	3221.8	3322.8	3311.9	3268.1	3228.5	3209.2	3181.2	3177.5
85	3186.2	3166.5	3147.1	3141.3	3204.9	3321.6	3308.8	3264.8	3221.6	3201.8	3172.3	3175.0
90	3182.7	3163.4	3142.8	3140.5	3190.1	3320.4	3300.5	3261.5	3217.1	3196.2	3162.2	3172.9
95	3172.4	3160.8	3141.7	3140.1	3174.7	3318.6	3294.3	3254.4	3210.0	3181.1	3141.5	3165.4
99	3167.2	3158.6	3140.0	3140.0	3140.2	3305.3	3288.5	3246.0	3193.1	3150.5	3140.3	3163.8
Minimum	3166.4	3158.6	3140.0	3140.0	3140.1	3301.7	3287.8	3245.0	3190.2	3141.6	3140.3	3162.8
Average	3218.1	3213.5	3186.7	3174.0	3273.9	3328.1	3318.2	3287.1	3241.9	3228.0	3214.0	3216.0
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-5D. Mammoth Pool Reservoir Elevation (Gage 11234700)
Historical Daily Exceedance Elevation
Below Normal Water Years (1962, 1966, 1971)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3213.4	3250.1	3197.1	3321.9	3332.7	3332.5	3330.7	3321.2	3275.5	3237.6	3254.4	3253.1
1	3212.8	3249.8	3196.9	3320.2	3332.6	3332.4	3330.7	3320.1	3274.1	3237.3	3254.3	3252.4
5	3211.5	3247.6	3194.9	3306.3	3332.2	3332.1	3330.5	3314.1	3268.6	3236.5	3253.9	3249.4
10	3210.6	3237.3	3188.9	3282.7	3331.5	3332.0	3328.9	3306.5	3263.8	3235.9	3235.3	3237.6
15	3208.2	3220.5	3186.2	3257.0	3330.9	3331.8	3328.6	3301.2	3261.3	3235.2	3224.2	3223.4
20	3206.2	3214.9	3181.1	3245.9	3330.6	3331.6	3328.2	3298.3	3259.8	3234.4	3219.8	3219.3
25	3205.0	3211.3	3177.8	3240.6	3330.5	3331.2	3326.6	3294.5	3257.4	3232.7	3216.4	3217.3
30	3204.3	3203.4	3176.5	3238.1	3330.1	3328.3	3323.7	3290.9	3254.2	3230.7	3211.9	3216.4
35	3203.2	3202.3	3176.1	3230.7	3327.7	3322.5	3323.1	3287.3	3250.2	3227.9	3206.9	3213.9
40	3202.8	3200.3	3171.2	3226.5	3321.4	3321.7	3321.0	3284.0	3246.8	3226.3	3206.2	3212.4
45	3202.1	3197.0	3168.3	3211.5	3309.9	3319.3	3317.4	3280.5	3244.1	3222.0	3205.5	3211.1
50	3200.9	3193.7	3164.3	3193.1	3298.7	3318.0	3313.3	3276.9	3242.2	3217.4	3205.0	3204.5
55	3199.6	3191.4	3163.8	3183.4	3285.4	3316.0	3309.9	3270.6	3241.0	3212.8	3204.1	3200.2
60	3198.9	3184.8	3163.3	3181.1	3264.6	3313.4	3304.3	3268.0	3239.9	3205.9	3198.6	3197.4
65	3198.1	3182.9	3159.2	3178.8	3238.3	3309.5	3300.1	3265.4	3239.1	3203.4	3197.1	3197.1
70	3196.9	3177.5	3156.5	3176.6	3221.3	3305.6	3295.8	3262.3	3237.6	3201.4	3196.9	3196.9
75	3195.6	3169.7	3154.8	3172.3	3207.6	3296.0	3290.9	3257.4	3236.3	3197.1	3195.9	3196.4
80	3192.0	3166.4	3149.4	3153.0	3167.7	3268.9	3284.6	3252.6	3235.4	3194.6	3195.1	3195.4
85	3185.4	0.0	3142.3	3143.1	3146.6	3244.1	3279.1	3248.3	3233.9	3194.1	3194.9	3195.1
90	3184.8	0.0	3141.4	0.0	3141.8	0.0	3273.2	3244.7	0.0	3193.6	0.0	3193.4
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	3184.8	3165.2	3140.8	3142.0	3140.3	3237.1	3270.4	3243.6	3230.8	3192.8	3194.4	3192.6
Average	3200.8	3201.4	3168.3	3214.7	3274.9	3312.1	3310.7	3279.3	3248.2	3217.4	3211.1	3211.3
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-5E. Mammoth Pool Reservoir Elevation (Gage 11234700)
Historical Daily Exceedance Elevation
Dry Water Years (1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3229.5	3216.4	3222.3	3243.1	3330.3	3329.6	3320.1	3305.5	3292.3	3249.2	3242.7	3228.7
1	3227.6	3215.6	3219.0	3241.7	3329.9	3328.0	3320.0	3304.7	3291.7	3246.7	3241.1	3227.1
5	3223.3	3213.7	3201.8	3237.9	3319.9	3324.1	3319.2	3303.5	3289.7	3245.0	3234.4	3226.6
10	3222.4	3209.9	3196.3	3222.0	3298.6	3323.5	3318.5	3301.8	3271.4	3243.1	3228.6	3225.0
15	3221.0	3201.8	3194.2	3211.1	3291.2	3321.6	3317.6	3298.5	3264.4	3241.3	3226.2	3223.8
20	3218.0	3198.3	3191.3	3201.1	3287.6	3321.1	3316.4	3295.8	3259.6	3238.9	3225.6	3221.7
25	3213.2	3195.9	3187.3	3194.4	3283.1	3320.6	3314.3	3293.8	3255.5	3236.3	3225.0	3220.7
30	3210.5	3195.0	3182.9	3190.5	3276.0	3319.4	3312.7	3290.8	3250.2	3234.3	3215.6	3220.0
35	3209.5	3194.4	3179.5	3188.6	3270.7	3317.8	3310.8	3287.1	3246.3	3232.5	3213.1	3212.7
40	3207.8	3193.5	3177.5	3185.6	3265.1	3316.8	3308.6	3284.3	3243.2	3229.2	3210.5	3207.2
45	3205.9	3192.8	3173.7	3180.5	3262.1	3316.1	3307.1	3281.4	3240.9	3223.8	3208.6	3205.3
50	3195.4	3192.3	3167.0	3170.6	3258.6	3314.5	3306.5	3279.1	3239.2	3215.2	3207.6	3204.5
55	3194.8	3190.1	3160.1	3155.2	3254.9	3310.8	3305.8	3275.9	3236.9	3207.5	3206.5	3203.8
60	3192.9	3189.4	3157.6	3150.4	3250.4	3308.0	3304.9	3272.2	3234.2	3202.0	3205.9	3201.6
65	3192.3	3187.0	3152.5	3148.9	3245.0	3303.9	3302.9	3269.1	3230.8	3198.6	3205.0	3197.8
70	3191.6	3185.8	3151.2	3146.2	3241.4	3301.5	3299.5	3262.5	3226.8	3196.4	3202.9	3196.6
75	3190.6	3184.8	3150.5	3144.8	3234.4	3299.1	3297.2	3256.6	3222.7	3196.0	3199.1	3195.9
80	3189.9	3183.7	3147.5	3144.1	3228.2	3296.5	3292.6	3251.4	3218.7	3194.1	3196.6	3193.4
85	3189.0	3182.7	3145.7	3143.0	3220.5	3295.9	3287.4	3247.7	3214.4	3191.6	3193.9	3190.6
90	3188.2	3181.0	3144.6	3142.5	3210.0	3294.9	3280.5	3239.4	3209.5	3189.0	3186.2	3187.3
95	3184.5	3170.1	3142.8	3142.0	3199.8	3291.7	3268.2	3225.1	3201.6	3186.4	3184.4	3182.1
99	3183.0	3157.0	3141.7	3140.6	3184.8	3289.3	3259.6	3220.7	3197.1	3185.1	3182.3	3179.1
Minimum	3182.9	3156.7	3141.4	3140.3	3176.9	3286.5	3258.5	3220.0	3195.9	3184.6	3181.6	3178.1
Average	3202.4	3191.5	3169.5	3174.8	3258.0	3310.4	3303.2	3274.2	3240.3	3216.0	3209.6	3206.1
# Days	217	199	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-5F. Mammoth Pool Reservoir Elevation (Gage 11234700)
Historical Daily Exceedance Elevation
Critical Water Years (1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3221.8	3230.6	3230.1	3271.6	3316.1	3324.4	3323.8	3294.2	3256.0	3274.0	3238.6	3220.8
1	3221.6	3229.8	3229.6	3270.7	3314.4	3323.5	3323.7	3290.9	3251.7	3269.9	3236.0	3220.5
5	3221.4	3222.5	3219.8	3263.9	3302.7	3320.0	3313.3	3282.0	3244.6	3261.8	3230.9	3219.3
10	3215.1	3217.9	3217.0	3251.0	3298.2	3316.7	3309.5	3274.3	3238.4	3251.2	3223.8	3214.2
15	3213.2	3210.7	3212.8	3245.7	3296.8	3314.6	3306.2	3269.0	3234.5	3240.8	3216.0	3209.9
20	3211.9	3207.1	3209.9	3239.0	3292.6	3311.4	3303.2	3264.5	3229.8	3238.1	3210.8	3208.5
25	3208.4	3204.9	3208.1	3233.5	3288.2	3309.7	3300.4	3261.6	3223.6	3228.0	3208.3	3205.8
30	3206.0	3203.2	3206.0	3227.4	3284.9	3308.6	3298.0	3259.5	3219.2	3221.0	3207.8	3203.6
35	3204.4	3200.0	3203.8	3221.5	3281.8	3307.7	3295.2	3256.6	3217.4	3216.6	3205.7	3201.8
40	3201.7	3198.5	3201.8	3217.7	3278.3	3306.9	3292.9	3254.3	3214.4	3214.1	3203.6	3199.4
45	3198.3	3198.1	3199.5	3212.7	3275.0	3305.7	3290.9	3251.8	3211.6	3208.7	3200.5	3198.1
50	3196.3	3197.1	3197.1	3208.9	3270.5	3304.9	3287.6	3248.2	3208.8	3205.6	3199.5	3196.7
55	3193.3	3194.3	3190.1	3199.1	3267.3	3303.6	3284.8	3244.6	3206.6	3202.1	3193.3	3195.8
60	3185.9	3192.3	3184.6	3193.1	3263.9	3302.6	3281.7	3240.3	3205.1	3200.7	3189.6	3193.8
65	3184.9	3190.5	3179.5	3189.1	3261.1	3301.6	3278.2	3235.1	3203.5	3199.2	3187.8	3188.9
70	3183.8	3188.3	3175.8	3184.2	3256.7	3300.3	3275.4	3228.7	3201.5	3194.9	3183.8	3182.0
75	3182.6	3186.8	3174.1	3176.5	3250.2	3297.3	3272.7	3224.2	3200.1	3189.8	3178.6	3178.3
80	3181.4	3183.9	3171.9	3173.9	3239.9	3294.7	3269.5	3221.1	3198.3	3187.6	3173.6	3176.8
85	3179.8	3179.7	3164.8	3171.3	3226.1	3287.6	3263.6	3219.8	3168.0	3183.7	3164.7	3173.8
90	3175.4	3176.8	3158.6	3163.5	3215.2	3276.0	3250.2	3212.5	3162.1	3156.6	3160.1	3170.5
95	3172.3	3174.1	3151.7	3148.7	3190.5	3226.7	3227.2	3200.4	3158.6	3136.1	3149.4	3164.3
99	3170.5	3165.4	3140.7	3144.3	3177.2	3220.0	3225.6	3177.9	3114.5	3108.0	3135.0	3161.4
Minimum	3169.4	3163.5	3140.0	3143.6	3175.4	3220.0	3225.2	3174.4	3112.8	3102.6	3132.2	3160.7
Average	3195.8	3196.3	3190.9	3206.7	3264.6	3297.9	3283.8	3244.3	3206.6	3206.8	3193.9	3193.8
# Days	341	312	341	330	341	330	341	341	330	325	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-6A. Mammoth Pool Reservoir Elevation(Gage 11234700)
Historical Daily Exceedance Elevation
(10/01/1982 to 9/30/2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3338.0	3331.7	3334.0	3334.3	3335.1	3335.4	3335.0	3332.2	3326.2	3321.5	3324.7	3326.4
1	3331.0	3331.2	3331.4	3331.9	3334.7	3334.7	3334.5	3331.7	3320.9	3299.4	3323.9	3324.9
5	3319.6	3302.3	3329.2	3331.3	3332.7	3334.0	3333.1	3330.5	3314.0	3279.3	3273.4	3300.9
10	3298.2	3283.9	3288.0	3329.0	3332.3	3333.4	3332.1	3324.9	3305.7	3265.9	3260.8	3260.9
15	3271.9	3270.1	3273.1	3285.6	3331.9	3332.4	3331.4	3320.6	3291.4	3260.2	3248.3	3247.0
20	3241.4	3258.2	3255.9	3270.4	3331.5	3332.0	3330.3	3317.4	3281.2	3256.2	3238.1	3238.4
25	3231.0	3244.9	3240.2	3255.6	3331.1	3331.5	3326.7	3310.2	3272.0	3249.4	3232.3	3232.4
30	3226.8	3227.8	3219.1	3245.7	3327.4	3331.2	3323.6	3303.8	3266.3	3238.3	3228.0	3225.5
35	3223.3	3222.5	3216.2	3238.7	3315.2	3330.8	3322.3	3300.1	3258.8	3233.0	3224.1	3220.9
40	3221.4	3217.5	3209.0	3232.2	3307.5	3330.4	3320.0	3295.1	3252.4	3225.7	3212.5	3219.5
45	3219.0	3207.1	3205.5	3225.2	3299.1	3328.9	3317.4	3292.0	3247.4	3217.1	3208.6	3214.4
50	3214.2	3204.2	3202.0	3219.8	3296.8	3323.2	3314.5	3286.9	3243.1	3209.3	3207.7	3210.3
55	3211.9	3200.7	3198.4	3214.1	3289.7	3321.2	3312.2	3279.0	3237.8	3205.3	3203.2	3208.6
60	3209.2	3198.4	3195.4	3207.2	3284.3	3318.4	3307.2	3273.0	3232.6	3201.0	3198.6	3205.4
65	3205.7	3197.1	3191.8	3201.4	3280.0	3314.8	3305.6	3266.2	3225.4	3199.2	3194.1	3202.6
70	3202.4	3195.0	3186.8	3193.6	3271.6	3310.0	3302.2	3260.6	3219.2	3193.6	3189.8	3198.5
75	3197.2	3192.4	3182.2	3189.4	3264.7	3307.7	3297.7	3255.3	3213.2	3188.2	3187.4	3194.8
80	3189.1	3189.7	3177.7	3181.0	3259.1	3305.6	3292.4	3249.6	3207.2	3186.0	3184.4	3189.0
85	3185.2	3186.6	3167.3	3170.6	3251.2	3303.7	3286.8	3242.7	3202.4	3182.3	3180.0	3182.2
90	3182.8	3182.9	3159.1	3162.1	3240.1	3301.6	3280.7	3228.6	3193.0	3174.2	3174.9	3177.1
95	3175.3	3174.2	3151.0	3148.9	3221.2	3298.2	3271.5	3209.6	3161.5	3144.3	3166.6	3172.5
99	3168.5	3162.4	3147.5	3145.6	3186.7	3284.1	3255.6	3182.8	3118.7	3128.2	3162.4	3163.8
Minimum	3167.9	3150.4	3145.5	3144.3	3158.3	3272.4	3246.8	3174.4	3112.8	3121.8	3157.3	3161.2
Average	3223.6	3219.8	3214.7	3226.8	3291.4	3319.9	3310.2	3280.4	3242.4	3216.3	3214.0	3217.4
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-6B. Mammoth Pool Reservoir Elevation(Gage 11234700)
Historical Daily Exceedance Elevation
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3338.0	3331.7	3334.0	3334.3	3335.1	3335.4	3335.0	3332.2	3326.2	3321.5	3324.7	3326.4
1	3332.4	3331.4	3331.6	3332.5	3335.1	3335.3	3334.7	3332.0	3323.6	3308.5	3324.5	3325.9
5	3330.1	3324.2	3331.2	3331.7	3334.1	3334.6	3334.3	3331.3	3319.6	3297.0	3322.4	3323.1
10	3321.7	3308.0	3330.9	3331.5	3333.0	3334.3	3333.5	3330.9	3316.0	3286.9	3320.8	3320.0
15	3319.1	3301.6	3329.2	3331.2	3332.6	3334.0	3333.1	3330.5	3313.7	3278.6	3271.7	3251.9
20	3316.6	3293.4	3324.0	3331.0	3332.4	3333.8	3332.8	3328.8	3309.5	3273.0	3260.0	3246.4
25	3300.8	3286.8	3296.9	3330.3	3332.3	3333.6	3332.5	3326.7	3307.5	3263.9	3249.6	3242.3
30	3273.8	3282.3	3285.2	3327.6	3332.2	3333.4	3331.9	3324.6	3305.3	3257.8	3241.7	3239.4
35	3271.9	3277.7	3278.3	3295.9	3332.0	3332.8	3331.7	3323.2	3302.5	3256.2	3237.2	3237.3
40	3249.5	3271.4	3276.0	3288.9	3331.9	3332.6	3331.6	3321.5	3294.1	3250.5	3232.6	3234.9
45	3239.0	3268.6	3271.2	3276.2	3331.7	3332.3	3331.2	3319.6	3286.3	3235.7	3227.8	3232.6
50	3235.8	3264.5	3268.4	3273.0	3331.6	3332.1	3330.8	3318.3	3280.0	3224.4	3219.8	3230.2
55	3232.3	3258.5	3257.6	3269.2	3331.5	3332.1	3330.4	3315.9	3275.1	3215.2	3208.1	3228.6
60	3229.8	3256.9	3254.8	3260.5	3331.3	3331.9	3329.9	3313.6	3272.9	3188.1	3203.2	3224.4
65	3227.8	3230.2	3251.5	3247.9	3331.1	3331.7	3327.8	3308.0	3269.2	3183.9	3197.8	3215.1
70	3225.0	3224.3	3237.6	3235.9	3330.8	3331.6	3326.2	3303.1	3267.0	3182.3	3191.6	3211.0
75	3223.7	3205.5	3198.4	3227.9	3323.3	3331.4	3325.0	3298.4	3260.4	3180.7	3186.9	3207.6
80	3221.7	3199.4	3185.0	3215.7	3311.9	3331.2	3323.3	3293.9	3252.1	3176.8	3182.4	3199.7
85	3216.0	3191.5	3177.1	3204.4	3305.5	3331.0	3322.1	3292.4	3245.0	3160.6	3178.3	3189.0
90	3193.3	3187.8	3168.1	3189.8	3294.0	3330.8	3318.6	3289.4	3239.6	3141.5	3175.9	3179.1
95	3169.8	3164.4	3159.5	3162.5	3282.0	3330.2	3313.7	3278.9	3213.4	3130.2	3173.9	3170.7
99	3168.1	3150.4	3147.6	3155.1	3264.7	3327.1	3305.8	3263.1	3198.2	3123.2	3162.4	3168.1
Minimum	3167.9	3150.4	3147.2	3153.0	3256.2	3326.7	3304.6	3260.7	3197.2	3121.8	3160.7	3168.1
Average	3252.5	3252.6	3256.2	3269.1	3323.7	3332.3	3328.2	3312.5	3279.8	3220.3	3227.4	3232.9
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-6C. Mammoth Pool Reservoir Elevation(Gage 11234700)
Historical Daily Exceedance Elevation
Above Normal Water Years (1984, 1999, 2000)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3301.2	3260.5	3251.1	3253.5	3332.5	3331.6	3327.6	3321.9	3273.2	3264.9	3264.2	3300.9
5	3299.4	3257.2	3239.4	3229.7	3332.0	3331.4	3326.9	3320.2	3267.7	3263.4	3263.1	3293.9
10	3292.6	3254.5	3217.7	3220.0	3331.6	3331.3	3323.9	3319.4	3262.9	3262.0	3262.9	3271.8
15	3278.3	3248.9	3213.0	3218.5	3331.4	3331.2	3322.7	3313.0	3260.2	3260.0	3262.3	3266.6
20	3266.1	3232.2	3207.6	3208.7	3326.9	3331.1	3322.6	3310.2	3257.6	3258.3	3260.8	3263.4
25	3254.2	3231.4	3202.8	3204.7	3319.2	3331.0	3322.3	3305.7	3255.0	3256.1	3259.3	3262.4
30	3244.7	3228.7	3201.6	3201.7	3317.3	3330.8	3322.0	3302.4	3253.1	3254.3	3257.8	3261.3
35	3230.3	3227.6	3198.9	3197.6	3315.2	3330.7	3321.9	3298.7	3251.6	3237.1	3257.2	3260.7
40	3225.3	3225.4	3194.6	3190.4	3309.9	3330.6	3320.7	3294.4	3249.2	3233.8	3255.8	3259.7
45	3222.2	3223.3	3190.8	3180.0	3298.4	3330.5	3319.9	3290.5	3248.6	3231.6	3244.9	3258.0
50	3220.1	3222.5	3188.4	3173.8	3292.4	3330.4	3319.2	3287.6	3247.1	3229.9	3233.7	3256.7
55	3217.0	3221.5	3185.4	3167.2	3281.1	3330.3	3317.9	3284.5	3245.1	3227.1	3228.6	3247.8
60	3213.7	3219.1	3183.6	3166.0	3273.2	3330.1	3316.7	3281.3	3240.6	3225.3	3227.7	3228.8
65	3211.1	3217.5	3182.2	3162.8	3266.9	3329.7	3315.4	3277.0	3232.7	3224.0	3225.8	3219.8
70	3210.7	3215.0	3180.6	3161.6	3258.2	3328.9	3314.9	3274.9	3226.7	3209.2	3195.0	3193.1
75	3207.4	3205.6	3176.3	3150.7	3241.3	3327.2	3313.9	3270.6	3224.2	3204.2	3191.1	3183.5
80	3203.9	3204.2	3164.3	3148.1	3218.3	3324.4	3313.5	3263.0	3221.3	3201.6	3186.7	3179.4
85	3188.9	3202.3	3153.4	3146.5	3204.9	3322.3	3312.2	3256.8	3217.9	3200.3	3182.0	3177.3
90	3185.2	3198.3	3150.2	3145.9	3201.0	3321.6	3309.2	3252.0	3215.6	3193.1	3178.5	3175.3
95	3182.1	3197.1	3147.8	3145.6	3182.5	3321.2	3297.9	3246.4	3210.6	3182.5	3173.7	3174.8
Minimum	3180.1	3195.8	3145.5	3145.2	3158.3	3320.4	3293.4	3245.0	3210.0	3177.1	3172.3	3173.2
Average	3230.2	3223.5	3189.3	3181.5	3278.4	3328.6	3317.5	3287.0	3241.8	3229.1	3228.2	3233.6
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-6D. Mammoth Pool Reservoir Elevation(Gage 11234700)
Historical Daily Exceedance Elevation
Dry Water Years (1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	100.0	107.0	331.0	592.0	1220.0	1360.0	805.0	520.0	518.0	489.0	698.0	708.0
5	82.0	88.0	198.0	572.0	1210.0	1210.0	515.0	503.0	447.0	406.0	685.0	683.0
10	73.0	85.0	171.0	531.0	551.0	1010.0	491.0	497.0	431.0	376.0	548.0	672.0
15	69.0	80.0	140.0	471.0	502.0	790.0	457.0	495.0	424.0	325.0	428.0	483.0
20	65.0	71.0	105.0	411.0	488.0	740.0	453.0	481.0	401.0	265.0	413.0	389.0
25	64.0	67.0	100.0	369.0	422.0	707.0	450.0	468.0	366.0	249.0	391.0	325.0
30	63.0	61.0	91.0	347.0	366.0	616.0	442.0	454.0	333.0	199.0	343.0	259.0
35	58.0	54.0	88.0	298.0	345.0	598.0	415.0	436.0	320.0	132.0	310.0	204.0
40	55.0	50.0	84.0	272.0	308.0	591.0	390.0	429.0	308.0	98.0	302.0	117.0
45	49.0	44.0	83.0	266.0	277.0	559.0	386.0	385.0	303.0	9.2	246.0	98.0
50	46.0	41.0	80.0	236.0	263.0	539.0	366.0	342.0	289.0	9.1	18.0	86.0
55	42.0	40.0	75.0	229.0	239.0	519.0	325.0	335.0	286.0	8.6	7.2	73.0
60	36.0	36.0	73.0	223.0	210.0	490.0	287.0	320.0	279.0	7.8	6.3	53.0
65	32.0	33.0	70.0	208.0	164.0	470.0	251.0	298.0	261.0	3.4	5.8	51.0
70	11.0	29.0	69.0	198.0	118.0	418.0	227.0	247.0	231.0	2.9	5.6	47.0
75	9.8	27.0	67.0	193.0	114.0	398.0	212.0	233.0	220.0	2.9	5.6	9.6
80	9.3	26.0	64.0	168.0	80.0	359.0	183.0	210.0	212.0	2.9	4.9	7.8
85	4.8	22.0	59.0	158.0	51.0	330.0	148.0	190.0	138.0	2.9	3.6	7.2
90	1.9	14.0	52.0	124.0	51.0	320.0	112.0	85.0	2.5	2.8	3.5	5.2
95	0.8	13.0	29.0	115.0	26.0	253.0	86.0	82.0	2.3	2.5	2.4	2.8
Minimum	0.4	11.0	24.0	107.0	7.8	141.0	86.0	7.7	2.3	2.4	2.4	1.1
Average	41.3	47.2	94.5	288.9	319.8	588.3	331.7	338.5	277.5	118.5	209.1	200.8
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-6E. Mammoth Pool Reservoir Elevation(Gage 11234700)
Historical Daily Exceedance Elevation
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3221.8	3230.6	3230.1	3271.6	3316.1	3324.4	3323.8	3287.6	3251.1	3274.0	3238.6	3220.8
1	3221.7	3230.0	3229.7	3271.0	3314.9	3324.1	3323.7	3284.9	3248.5	3271.6	3234.6	3220.6
5	3221.4	3226.4	3226.8	3269.3	3310.2	3320.6	3320.2	3276.9	3243.6	3265.9	3228.7	3219.8
10	3221.0	3221.8	3218.8	3256.9	3300.6	3316.6	3308.7	3271.7	3238.4	3259.0	3222.3	3219.1
15	3215.2	3211.3	3217.1	3248.3	3298.1	3315.3	3304.1	3267.7	3236.1	3251.2	3214.1	3214.4
20	3214.6	3207.9	3216.3	3243.5	3297.1	3311.3	3301.9	3262.5	3231.8	3242.4	3211.0	3212.0
25	3212.4	3205.3	3211.9	3239.0	3293.8	3309.7	3299.7	3260.8	3226.4	3225.9	3208.5	3209.9
30	3212.0	3204.6	3209.1	3235.3	3289.3	3308.1	3297.7	3257.7	3219.3	3220.4	3208.1	3209.1
35	3211.7	3203.2	3208.2	3231.0	3286.1	3307.7	3294.6	3255.7	3214.1	3214.9	3207.8	3206.1
40	3207.9	3201.0	3206.6	3225.2	3283.3	3307.1	3293.6	3253.4	3210.2	3209.1	3207.1	3205.4
45	3206.2	3198.9	3205.1	3220.6	3280.0	3306.6	3291.7	3250.9	3207.5	3207.4	3200.4	3204.1
50	3205.5	3197.9	3202.8	3218.8	3275.4	3305.4	3289.9	3247.2	3205.4	3205.0	3199.5	3203.0
55	3204.4	3197.2	3201.2	3214.1	3270.5	3305.0	3287.6	3244.8	3204.4	3201.9	3197.1	3201.7
60	3203.1	3195.9	3198.5	3208.1	3267.4	3304.6	3286.0	3241.1	3202.2	3200.8	3191.4	3199.9
65	3201.3	3192.0	3196.7	3202.2	3264.2	3303.0	3283.9	3235.4	3200.1	3199.6	3189.6	3197.8
70	3198.0	3189.7	3192.1	3195.4	3262.8	3302.5	3281.4	3229.8	3198.2	3199.2	3188.7	3195.7
75	3184.3	3187.8	3187.1	3192.1	3259.1	3301.8	3278.8	3223.4	3172.0	3193.4	3187.0	3193.8
80	3182.8	3185.2	3180.9	3187.5	3256.5	3301.0	3275.4	3218.2	3164.2	3188.2	3177.9	3187.1
85	3181.6	3180.0	3172.5	3180.2	3251.2	3299.9	3271.5	3210.4	3161.5	3187.5	3169.8	3180.6
90	3177.7	3176.4	3164.6	3167.8	3242.1	3297.8	3267.5	3204.7	3160.0	3166.6	3165.1	3172.9
95	3172.3	3170.2	3158.3	3149.0	3228.9	3292.5	3260.9	3194.3	3133.6	3149.5	3164.1	3164.1
99	3171.2	3163.5	3150.0	3145.1	3218.3	3273.9	3248.5	3175.9	3113.0	3136.7	3158.5	3161.7
Minimum	3171.2	3163.5	3149.7	3144.3	3212.6	3272.4	3246.8	3174.4	3112.8	3136.1	3157.3	3161.2
Average	3201.6	3197.8	3198.5	3215.1	3274.5	3305.9	3289.3	3242.0	3201.1	3210.0	3197.0	3199.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-7A. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
(10/17/1959 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	128944.0	122562.0	124435.0	124695.0	126200.0	126500.0	125500.0	122406.0	120593.0	110915.0	114310.0	120700.0
1	121000.0	121092.0	121281.0	122171.0	125400.0	125349.0	124751.0	121370.0	113654.0	84666.0	111605.0	114955.0
5	110290.0	96700.0	106806.0	121069.0	123500.0	124200.0	122853.0	119470.0	97833.0	61656.0	58421.0	82600.0
10	81100.0	79400.0	64136.0	93769.0	122797.0	123402.0	122000.0	113300.0	84131.0	54449.0	49242.0	53920.0
15	54649.0	63046.0	51146.0	64407.0	122417.0	122820.0	121514.0	109200.0	73900.0	46960.0	40315.0	44700.0
20	42712.0	52210.0	35446.0	50514.0	121882.0	122417.0	120936.0	105100.0	66314.0	42100.0	36611.0	38749.0
25	36227.0	38500.0	29505.0	43414.0	121370.0	122100.0	119800.0	99290.0	60743.0	39639.0	34393.0	34768.0
30	32648.0	33495.0	25450.0	38017.0	119200.0	121700.0	117671.0	93959.0	56133.0	36988.0	32340.0	33038.0
35	31380.0	29689.0	23205.0	33969.0	104500.0	121300.0	114849.0	89679.0	52724.0	35015.0	29165.0	30771.0
40	28073.0	26100.0	21400.0	29731.0	92044.0	120848.0	112192.0	85209.0	49632.0	33018.0	26573.0	27313.0
45	26400.0	23441.0	19497.0	26498.0	85964.0	120283.0	109295.0	81700.0	47200.0	31478.0	25032.0	25455.0
50	24648.0	21798.0	17600.0	23000.0	79200.0	116005.0	106521.0	77315.0	44866.0	29400.0	24326.0	24057.0
55	23391.0	20642.0	15894.0	19374.0	73432.0	111044.0	102949.0	73100.0	42914.0	27940.0	23600.0	23328.0
60	22082.0	19621.0	14499.0	16900.0	67122.0	108883.0	100029.0	68661.0	40800.0	24793.0	22456.0	22345.0
65	20423.0	18600.0	13372.0	14630.0	61412.0	105459.0	95878.0	63515.0	38340.0	22300.0	21264.0	21082.0
70	19100.0	17595.0	12263.0	12800.0	57156.0	100285.0	92533.0	59563.0	34885.0	21000.0	20200.0	20043.0
75	18031.0	16523.0	10582.0	10433.0	51740.0	97063.0	87400.0	55587.0	30707.0	19900.0	18700.0	19400.0
80	16786.0	15400.0	9093.0	7481.0	44775.0	94243.0	82500.0	51300.0	28032.0	19001.0	16509.0	17051.0
85	15600.0	13952.0	7750.0	5960.0	36588.0	91200.0	77178.0	46830.0	24723.0	16856.0	14730.0	14000.0
90	14500.0	12400.0	6460.0	5350.0	27654.0	86584.0	69800.0	38978.0	22257.0	15212.0	12645.0	12600.0
95	11832.0	9660.0	5398.0	4940.0	17600.0	78602.0	60751.0	31600.0	18555.0	8358.0	9617.0	10890.0
99	8344.0	3240.0	4807.0	4630.0	5272.0	34600.0	34500.0	20104.0	5792.0	2420.0	4699.0	9562.0
Minimum	2984.0	2956.0	4600.0	4603.0	4608.0	31100.0	34000.0	12406.0	1134.0	214.0	3420.0	8790.0
Average	34896.5	33571.2	27454.6	34308.5	79866.0	108275.6	100845.1	76722.0	48715.9	31603.6	28674.4	30728.5
# Days	1333	1215	1333	1290	1333	1290	1333	1333	1290	1317	1290	1333
# Years	43	43	43	43	43	43	43	43	43	43	43	43

Table CAWG 6 Appdx G-7B. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Wet Water Years (1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	128944.0	122562.0	124435.0	124695.0	126200.0	126500.0	125500.0	122406.0	120593.0	110915.0	114310.0	120700.0
1	121570.0	121537.0	121459.0	122753.0	125600.0	125915.0	125248.0	121971.0	118968.0	91771.0	113718.0	118400.0
5	120800.0	120600.0	120981.0	121893.0	124600.0	125000.0	124143.0	120892.0	108914.0	76646.0	110000.0	112412.0
10	119460.0	99398.0	118210.0	121548.0	123896.0	124514.0	123289.0	120361.0	103219.0	64886.0	61864.0	103400.0
15	109855.0	94414.0	103971.0	121003.0	123345.0	124176.0	122800.0	119285.0	97418.0	54420.0	55421.0	54857.0
20	102829.0	86100.0	78959.0	117789.0	123021.0	123985.0	122300.0	116357.0	93098.0	43550.0	46771.0	51600.0
25	84711.0	79020.0	69120.0	98500.0	122753.0	123626.0	122100.0	114521.0	88600.0	36958.0	41040.0	46882.0
30	72900.0	72500.0	62705.0	84077.0	122596.0	123379.0	121915.0	112997.0	82300.0	35333.0	38029.0	44106.0
35	65000.0	65094.0	56676.0	67699.0	122473.0	123100.0	121759.0	111176.0	77400.0	33969.0	35248.0	41114.0
40	49005.0	60774.0	51726.0	62449.0	122294.0	122887.0	121570.0	109481.0	73482.0	32263.0	30970.0	39069.0
45	42172.0	55000.0	41294.0	52500.0	121993.0	122753.0	121403.0	108100.0	70100.0	31142.0	27800.0	36617.0
50	38948.0	49800.0	33800.0	45900.0	121793.0	122540.0	121270.0	106176.0	67244.0	29400.0	24835.0	34969.0
55	37012.0	43100.0	28692.0	38017.0	121570.0	122328.0	120903.0	103951.0	64511.0	28294.0	24157.0	33902.0
60	35316.0	36500.0	24840.0	35265.0	121292.0	122200.0	120494.0	101008.0	61841.0	25700.0	22700.0	27996.0
65	33261.0	31667.0	21938.0	28785.0	120815.0	122071.0	119800.0	97737.0	58788.0	20851.0	21846.0	25542.0
70	29989.0	24788.0	19069.0	25117.0	110500.0	121900.0	118448.0	94527.0	54000.0	20160.0	21146.0	23953.0
75	24467.0	21942.0	16144.0	22398.0	97891.0	121681.0	117200.0	90788.0	50438.0	19400.0	20600.0	23000.0
80	22505.0	19390.0	14499.0	16867.0	86831.0	121492.0	115474.0	86511.0	46700.0	18900.0	18600.0	22108.0
85	20308.0	17193.0	13031.0	13582.0	72302.0	121100.0	113633.0	83617.0	42914.0	15051.0	16079.0	18300.0
90	14100.0	13616.0	10438.0	7847.0	56000.0	120803.0	111301.0	80327.0	37534.0	13380.0	13900.0	12708.0
95	9710.0	7391.0	8250.0	5260.0	31029.0	120250.0	104302.0	72706.0	31310.0	5186.0	12547.0	11200.0
99	4569.0	2989.0	5000.0	4628.0	4668.0	117756.0	98890.0	56883.0	20247.0	2580.0	10012.0	10200.0
Minimum	2984.0	2956.0	4770.0	4613.0	4608.0	116410.0	94110.0	50535.0	14350.0	2107.0	8783.0	9820.0
Average	54636.5	53043.8	48030.1	57741.7	105803.9	122596.7	118821.6	101979.8	69023.1	32798.7	35008.6	41715.3
# Days	465	422	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-7C. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Above Normal Water Years (1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	90956.0	98900.0	54900.0	51719.0	123997.0	123100.0	121600.0	111312.0	66500.0	79396.0	59510.0	90648.0
1	90079.0	98400.0	54400.0	45767.0	123694.0	122820.0	121600.0	110436.0	63382.0	75088.0	58796.0	87381.0
5	80371.0	90900.0	52000.0	32600.0	122931.0	122540.0	121100.0	108719.0	59261.0	61496.0	58429.0	65366.0
10	56440.0	72800.0	42300.0	30900.0	122562.0	122200.0	119645.0	102390.0	55842.0	58623.0	56068.0	58526.0
15	53536.0	56068.0	36600.0	29547.0	122160.0	121648.0	118800.0	99457.0	54456.0	55951.0	54384.0	56920.0
20	49694.0	51866.0	28176.0	24737.0	121581.0	121492.0	117000.0	96479.0	52815.0	53571.0	46327.0	54714.0
25	47943.0	37897.0	22629.0	22740.0	116633.0	121359.0	115336.0	93741.0	51544.0	50778.0	40665.0	47930.0
30	36822.0	35859.0	21315.0	19613.0	107400.0	121203.0	113443.0	90600.0	50473.0	40628.0	35945.0	38665.0
35	31891.0	33545.0	18903.0	15600.0	103159.0	121058.0	112296.0	86758.0	49242.0	37849.0	34583.0	34303.0
40	30975.0	32214.0	17316.0	12812.0	88292.0	120892.0	111856.0	82519.0	48399.0	36349.0	33679.0	33462.0
45	27960.0	29894.0	16636.0	11700.0	79200.0	120759.0	111291.0	79177.0	47546.0	35100.0	32858.0	25800.0
50	26354.0	26259.0	15676.0	10112.0	71700.0	120593.0	110062.0	77384.0	46751.0	34253.0	31450.0	25000.0
55	24312.0	22972.0	14637.0	9019.0	65278.0	120427.0	108904.0	75164.0	45260.0	33200.0	29100.0	24200.0
60	21800.0	20226.0	13682.0	6700.0	58302.0	120228.0	107478.0	72900.0	43588.0	32390.0	27537.0	23346.0
65	19900.0	16351.0	11198.0	6202.0	52100.0	119558.0	105924.0	70495.0	43225.0	31402.0	24600.0	22478.0
70	19000.0	13814.0	9683.0	5874.0	49577.0	118383.0	104262.0	67618.0	41591.0	29499.0	22700.0	19505.0
75	18500.0	13087.0	8386.0	5569.0	43473.0	116325.0	102899.0	65006.0	38484.0	27960.0	17837.0	15195.0
80	17262.0	11567.0	6612.0	5172.0	32100.0	112233.0	101136.0	62480.0	35824.0	25546.0	14436.0	13309.0
85	16083.0	10233.0	5853.0	4820.0	23563.0	110999.0	98094.0	59979.0	31984.0	22183.0	11801.0	12564.0
90	14940.0	9462.0	5068.0	4683.0	17474.0	109803.0	90269.0	57475.0	29557.0	19821.0	9149.0	11973.0
95	11832.0	8814.0	4891.0	4631.0	12478.0	107877.0	84521.0	52350.0	25941.0	14426.0	4852.0	9967.0
99	10414.0	8287.0	4602.0	4605.0	4646.0	94736.0	79370.0	46673.0	18600.0	6501.0	4655.0	9562.0
Minimum	10217.0	8287.0	4600.0	4603.0	4618.0	91387.0	78767.0	46001.0	17500.0	4876.0	4651.0	9303.0
Average	32957.7	32268.7	19063.3	14456.9	74098.1	117986.9	107823.0	79057.8	44692.2	37284.3	31025.3	32130.3
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-7D. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Below Normal Water Years (1962, 1966, 1971)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	27649.0	49400.0	20200.0	111300.0	123000.0	122700.0	120700.0	110600.0	68400.0	41300.0	52400.0	51500.0
1	27364.0	49200.0	20112.0	109600.0	122800.0	122600.0	120700.0	109400.0	67300.0	41100.0	52300.0	51000.0
5	26694.0	47700.0	19326.0	95700.0	122400.0	122300.0	120500.0	103300.0	62900.0	40600.0	52000.0	48900.0
10	26224.0	41100.0	17016.0	74400.0	121600.0	122200.0	118700.0	95900.0	59239.0	40254.0	39900.0	41300.0
15	25100.0	31400.0	16090.0	54200.0	120900.0	121900.0	118400.0	90900.0	57334.0	39800.0	33400.0	33000.0
20	24157.0	28400.0	14400.0	46600.0	120600.0	121700.0	118000.0	88200.0	56264.0	39318.0	31000.0	30718.0
25	23600.0	26600.0	13395.0	43200.0	120500.0	121300.0	116300.0	84702.0	54470.0	38322.0	29200.0	29668.0
30	23300.0	22914.0	12996.0	41600.0	120000.0	118100.0	113201.0	81500.0	52245.0	37100.0	26884.0	29222.0
35	22800.0	22416.0	12890.0	37100.0	117500.0	111919.0	112569.0	78333.0	49488.0	35500.0	24486.0	27899.0
40	22633.0	21530.0	11500.0	34700.0	110800.0	111100.0	110425.0	75500.0	47163.0	34600.0	24139.0	27126.0
45	22300.0	20144.0	10700.0	26700.0	99200.0	108600.0	106643.0	72504.0	45435.0	32192.0	23858.0	26493.0
50	21800.0	18841.0	9670.0	18600.0	88600.0	107300.0	102580.0	69500.0	44200.0	29731.0	23627.0	23400.0
55	21243.0	17947.0	9560.0	15133.0	76700.0	105300.0	99241.0	64479.0	43400.0	27364.0	23187.0	21500.0
60	20934.0	15600.0	9420.0	14423.0	59800.0	102600.0	93854.0	62394.0	42700.0	24039.0	20800.0	20300.0
65	20600.0	15000.0	8440.0	13688.0	41722.0	98800.0	89900.0	60403.0	42200.0	22900.0	20200.0	20200.0
70	20100.0	13300.0	7810.0	13043.0	31837.0	95100.0	85900.0	58100.0	41300.0	22000.0	20100.0	20100.0
75	19600.0	11100.0	7420.0	11800.0	24807.0	86091.0	81500.0	54500.0	40500.0	20200.0	19700.0	19900.0
80	18172.0	10200.0	6280.0	7040.0	10550.0	63100.0	76000.0	51100.0	39956.0	19200.0	19400.0	19500.0
85	15800.0	0.0	4990.0	5134.0	5757.0	45435.0	71400.0	48200.0	39000.0	19000.0	19300.0	19400.0
90	15600.0	0.0	4830.0	0.0	4904.0	0.0	66500.0	45800.0	0.0	18800.0	0.0	18700.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	15600.0	9910.0	4740.0	4940.0	4653.0	40953.0	64300.0	45100.0	37200.0	18500.0	19100.0	18400.0
Average	21904.1	23521.5	11184.3	34371.6	79023.0	103005.0	100804.4	72644.5	48447.0	30375.2	27248.5	27343.9
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-7E. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Dry Water Years (1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	36402.0	29200.0	32384.0	44791.0	120228.0	119547.0	109471.0	94993.0	82717.0	48755.0	44498.0	35928.0
1	35300.0	28800.0	30568.0	43888.0	119842.0	117799.0	109295.0	94168.0	82268.0	47091.0	43524.0	35037.0
5	32900.0	27800.0	22186.0	41509.0	109233.0	113623.0	108521.0	93042.0	80442.0	46000.0	39354.0	34768.0
10	32412.0	25900.0	19857.0	32181.0	88500.0	112980.0	107816.0	91499.0	65094.0	44749.0	35905.0	33868.0
15	31678.0	22200.0	19015.0	26498.0	81803.0	111046.0	106857.0	88375.0	59692.0	43633.0	34544.0	33178.0
20	30058.0	20698.0	17895.0	21899.0	78600.0	110477.0	105701.0	85927.0	56061.0	42100.0	34186.0	32017.0
25	27569.0	19712.0	16471.0	19089.0	74700.0	110010.0	103560.0	84132.0	53147.0	40493.0	33857.0	31516.0
30	26200.0	19354.0	15005.0	17600.0	68833.0	108770.0	101941.0	81436.0	49460.0	39245.0	28800.0	31111.0
35	25700.0	19116.0	13900.0	16900.0	64500.0	107081.0	100035.0	78195.0	46862.0	38214.0	27500.0	27298.0
40	24900.0	18766.0	13300.0	15900.0	60236.0	106105.0	97949.0	75720.0	44859.0	36268.0	26200.0	24600.0
45	24000.0	18500.0	12200.0	14233.0	57928.0	105378.0	96507.0	73288.0	43373.0	33200.0	25298.0	23753.0
50	19500.0	18300.0	10357.0	11316.0	55392.0	103741.0	95899.0	71375.0	42272.0	28557.0	24800.0	23400.0
55	19251.0	17473.0	8640.0	7510.0	52700.0	100088.0	95268.0	68718.0	40877.0	24753.0	24300.0	23066.0
60	18524.0	17200.0	8064.0	6484.0	49600.0	97389.0	94385.0	65700.0	39208.0	22283.0	24000.0	22100.0
65	18300.0	16361.0	6925.0	6185.0	46000.0	93400.0	92533.0	63256.0	37200.0	20815.0	23600.0	20497.0
70	18004.0	15962.0	6642.0	5677.0	43684.0	91200.0	89318.0	58257.0	34885.0	19900.0	22647.0	20000.0
75	17659.0	15600.0	6510.0	5430.0	39304.0	88993.0	87200.0	53934.0	32600.0	19744.0	21038.0	19700.0
80	17399.0	15267.0	5917.0	5293.0	35669.0	86600.0	83000.0	50300.0	30400.0	19000.0	20000.0	18700.0
85	17058.0	14931.0	5590.0	5110.0	31396.0	86000.0	78400.0	47800.0	28191.0	18027.0	18893.0	17652.0
90	16772.0	14381.0	5390.0	5022.0	25932.0	85100.0	72500.0	42404.0	25700.0	17051.0	16093.0	16474.0
95	15506.0	11203.0	5080.0	4938.0	21336.0	82200.0	62600.0	33900.0	22100.0	16134.0	15469.0	14736.0
99	15018.0	7922.0	4888.0	4702.0	15619.0	80116.0	56100.0	31500.0	20200.0	15716.0	14805.0	13777.0
Minimum	14992.0	7861.0	4836.0	4658.0	13136.0	77643.0	55300.0	31100.0	19700.0	15552.0	14566.0	13470.0
Average	22971.1	18367.7	11930.9	14737.7	57759.4	99990.6	93315.1	68654.8	44369.2	30130.6	26391.4	24691.4
# Days	217	199	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-7F. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Critical Water Years (1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32077.0	37077.0	36734.0	65206.0	105348.0	113887.0	113285.0	84500.0	53500.0	67179.0	41922.0	31553.0
1	31979.0	36570.0	36500.0	64543.0	103650.0	112959.0	113254.0	81500.0	50500.0	63891.0	40315.0	31402.0
5	31864.0	32478.0	31002.0	59269.0	92345.0	109377.0	102540.0	73778.0	45747.0	57690.0	37260.0	30745.0
10	28510.0	30000.0	29526.0	49989.0	88126.0	105954.0	98800.0	67399.0	41800.0	50176.0	33212.0	28066.0
15	27532.0	26300.0	27364.0	46438.0	86822.0	103871.0	95677.0	63170.0	39403.0	43301.0	29013.0	25903.0
20	26914.0	24564.0	25874.0	42172.0	83058.0	100612.0	92759.0	59752.0	36600.0	41629.0	26359.0	25222.0
25	25203.0	23563.0	25037.0	38779.0	79134.0	99000.0	90172.0	57586.0	33101.0	35560.0	25122.0	23966.0
30	24048.0	22816.0	24080.0	35185.0	76311.0	97891.0	87923.0	56000.0	30700.0	31635.0	24905.0	22959.0
35	23368.0	21400.0	23075.0	31935.0	73643.0	97063.0	85400.0	53934.0	29710.0	29311.0	23957.0	22196.0
40	22156.0	20768.0	22169.0	29889.0	70719.0	96259.0	83292.0	52308.0	28176.0	28001.0	23000.0	21137.0
45	20701.0	20622.0	21184.0	27293.0	67984.0	95116.0	81463.0	50556.0	26759.0	25341.0	21638.0	20584.0
50	19853.0	20210.0	20177.0	25400.0	64383.0	94423.0	78576.0	48084.0	25350.0	23900.0	21209.0	20047.0
55	18672.0	19069.0	17437.0	21040.0	61871.0	93200.0	76191.0	45741.0	24317.0	22305.0	18665.0	19660.0
60	15988.0	18300.0	15549.0	18614.0	59276.0	92175.0	73567.0	42958.0	23676.0	21686.0	17280.0	18868.0
65	15662.0	17595.0	13906.0	17100.0	57178.0	91256.0	70644.0	39767.0	22932.0	21074.0	16643.0	17000.0
70	15277.0	16814.0	12800.0	15423.0	54027.0	90033.0	68359.0	35979.0	22073.0	19326.0	15287.0	14688.0
75	14901.0	16279.0	12300.0	13000.0	49488.0	87271.0	66113.0	33400.0	21430.0	17349.0	13634.0	13534.0
80	14500.0	15326.0	11700.0	12252.0	42724.0	84883.0	63546.0	31700.0	20680.0	16550.0	12178.0	13101.0
85	14000.0	13977.0	9800.0	11525.0	34449.0	78600.0	59089.0	30986.0	10632.0	15241.0	9782.0	12220.0
90	12700.0	13095.0	8278.0	9475.0	28600.0	68776.0	49488.0	27202.0	9135.0	7831.0	8640.0	11300.0
95	11793.0	12300.0	6759.0	6140.0	17600.0	34800.0	35100.0	21552.0	8301.0	3993.0	6280.0	9673.0
99	11300.0	9954.0	4730.0	5339.0	13200.0	31100.0	34200.0	13413.0	1304.0	675.0	3830.0	8950.0
Minimum	11000.0	9477.0	4600.0	5223.0	12700.0	31100.0	34000.0	12406.0	1134.0	214.0	3420.0	8790.0
Average	20344.6	20462.9	19053.3	27423.9	62464.5	89276.6	76694.5	47038.5	26424.0	27435.4	20382.5	19619.4
# Days	341	312	341	330	341	330	341	341	330	325	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-8A. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
(10/01/1982 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	128944.0	121848.0	124435.0	124695.0	125609.0	125926.0	125496.0	122406.0	115814.0	110915.0	114310.0	116027.0
1	121003.0	121270.0	121437.0	122026.0	125180.0	125214.0	124999.0	121848.0	110249.0	89216.0	113380.0	114521.0
5	108873.0	91940.0	119110.0	121370.0	122920.0	124401.0	123435.0	120494.0	103219.0	71509.0	66686.0	90648.0
10	88080.0	75386.0	78959.0	118892.0	122529.0	123783.0	122328.0	114521.0	95192.0	60796.0	56971.0	57060.0
15	65438.0	64057.0	66467.0	76826.0	122038.0	122618.0	121503.0	110000.0	81964.0	56543.0	48198.0	47314.0
20	43684.0	55052.0	53422.0	64272.0	121615.0	122171.0	120250.0	106694.0	73111.0	53685.0	41610.0	41785.0
25	37302.0	45923.0	42914.0	53239.0	121136.0	121659.0	116399.0	99447.0	65550.0	48944.0	38041.0	38101.0
30	34863.0	35424.0	30627.0	46438.0	117072.0	121314.0	113127.0	93334.0	61138.0	41710.0	35560.0	34153.0
35	32900.0	32478.0	29123.0	41984.0	104453.0	120870.0	111772.0	89846.0	55529.0	38490.0	33361.0	31602.0
40	31875.0	29768.0	25450.0	38017.0	96881.0	120427.0	109295.0	85282.0	50938.0	34253.0	27207.0	30836.0
45	30557.0	24564.0	23835.0	33969.0	88984.0	118783.0	106694.0	82519.0	47546.0	29578.0	25298.0	28181.0
50	28053.0	23269.0	22253.0	31002.0	86828.0	112654.0	103736.0	77961.0	44799.0	25626.0	24835.0	26110.0
55	26914.0	21716.0	20730.0	27991.0	80459.0	110644.0	101424.0	71308.0	41399.0	23759.0	22793.0	25260.0
60	25586.0	20730.0	19499.0	24625.0	75746.0	107663.0	96623.0	66379.0	38232.0	21829.0	20818.0	23790.0
65	23917.0	20210.0	18088.0	22021.0	72109.0	104051.0	95059.0	60994.0	34091.0	21044.0	18986.0	22531.0
70	22443.0	19354.0	16273.0	18786.0	65206.0	99251.0	91884.0	56787.0	30707.0	18778.0	17331.0	20759.0
75	20226.0	18331.0	14765.0	17207.0	59866.0	97044.0	87629.0	53020.0	27542.0	16758.0	16509.0	19275.0
80	17098.0	17309.0	13372.0	14387.0	55718.0	95021.0	82807.0	49025.0	24606.0	16008.0	15479.0	17051.0
85	15750.0	16225.0	10446.0	11316.0	50148.0	93296.0	77927.0	44505.0	22465.0	14807.0	14057.0	14778.0
90	14947.0	15005.0	8402.0	9142.0	42882.0	91293.0	72698.0	35859.0	18555.0	12340.0	12547.0	13166.0
95	12654.0	12346.0	6608.0	6185.0	31749.0	88116.0	65142.0	25772.0	8975.0	5337.0	10277.0	11852.0
99	10759.0	9204.0	5917.0	5563.0	16266.0	75626.0	53253.0	14969.0	1751.0	2874.0	9194.0	9562.0
Minimum	10590.0	6495.0	5549.0	5339.0	8224.0	65888.0	47170.0	12406.0	1134.0	2107.0	7995.0	8921.0
Average	37189.3	34994.3	34450.3	41783.4	85481.8	109764.1	100484.0	75758.5	49202.3	33063.3	31449.6	32901.6
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-8B. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	128944.0	121848.0	124435.0	124695.0	125609.0	125926.0	125496.0	122406.0	115814.0	110915.0	114310.0	116027.0
1	122641.0	121537.0	121715.0	122753.0	125598.0	125835.0	125248.0	122205.0	113085.0	97795.0	114046.0	115580.0
5	120084.0	113697.0	121314.0	121804.0	124525.0	125067.0	124751.0	121425.0	108914.0	87023.0	111877.0	112622.0
10	111145.0	97303.0	120936.0	121659.0	123244.0	124751.0	123873.0	120892.0	105217.0	77944.0	110176.0	109326.0
15	108441.0	91303.0	119023.0	121303.0	122876.0	124367.0	123435.0	120494.0	102949.0	70968.0	65318.0	50618.0
20	105833.0	83743.0	113528.0	121069.0	122641.0	124176.0	123099.0	118621.0	98783.0	66370.0	56388.0	46888.0
25	90573.0	77892.0	86950.0	120327.0	122551.0	123997.0	122753.0	116357.0	96862.0	59314.0	49073.0	44241.0
30	67001.0	74058.0	76543.0	117286.0	122406.0	123727.0	122093.0	114109.0	94736.0	54793.0	43895.0	42410.0
35	65438.0	70214.0	70686.0	85973.0	122205.0	123021.0	121848.0	112706.0	92138.0	53685.0	41040.0	41114.0
40	49005.0	65094.0	68833.0	79755.0	122026.0	122820.0	121693.0	110926.0	84357.0	49666.0	38256.0	39664.0
45	42172.0	62906.0	64958.0	68980.0	121848.0	122529.0	121325.0	108914.0	77488.0	40102.0	35424.0	38244.0
50	40206.0	59745.0	62705.0	66402.0	121704.0	122328.0	120815.0	107581.0	72134.0	33512.0	30996.0	36816.0
55	38077.0	55262.0	54657.0	63366.0	121570.0	122227.0	120427.0	105116.0	68106.0	28578.0	25051.0	35870.0
60	36599.0	54141.0	52660.0	56765.0	121370.0	122093.0	119885.0	102819.0	66314.0	16747.0	22793.0	33551.0
65	35418.0	36810.0	50355.0	47924.0	121125.0	121804.0	117553.0	97360.0	63366.0	15323.0	20485.0	28500.0
70	33846.0	33473.0	41294.0	40242.0	120815.0	121693.0	115846.0	92646.0	61625.0	14807.0	18012.0	26433.0
75	33123.0	23858.0	20730.0	35475.0	112748.0	121537.0	114595.0	88292.0	56661.0	14271.0	16317.0	24788.0
80	32033.0	21171.0	15679.0	28831.0	101196.0	121314.0	112780.0	84150.0	50729.0	13092.0	14824.0	21264.0
85	29002.0	17985.0	13190.0	23346.0	94983.0	121069.0	111521.0	82798.0	46027.0	8763.0	13537.0	17051.0
90	18665.0	16633.0	10661.0	17352.0	84294.0	120815.0	107939.0	80160.0	42523.0	4849.0	12815.0	13792.0
95	11108.0	9703.0	8504.0	9219.0	73820.0	120195.0	102969.0	71234.0	27680.0	3148.0	12255.0	11362.0
99	10648.0	6495.0	5943.0	7481.0	59896.0	116815.0	95239.0	58668.0	20647.0	2265.0	9194.0	10656.0
Minimum	10590.0	6495.0	5862.0	7025.0	53678.0	116410.0	94110.0	56883.0	20247.0	2107.0	8783.0	10653.0
Average	56723.1	56680.3	61873.8	70896.8	113920.0	122559.7	118097.5	102528.4	74372.3	38265.0	40910.7	42923.7
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-8C. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Above Normal Water Years (1984, 1999, 2000)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	90956.0	56780.0	50086.0	51719.0	122764.0	121759.0	117360.0	111312.0	66500.0	60017.0	59510.0	90648.0
5	89271.0	54384.0	42391.0	36518.0	122171.0	121514.0	116601.0	109595.0	62141.0	58931.0	58661.0	84222.0
10	83013.0	52463.0	29873.0	31098.0	121715.0	121414.0	113443.0	108719.0	58503.0	57876.0	58556.0	65406.0
15	70677.0	48600.0	27435.0	30329.0	121437.0	121270.0	112202.0	102280.0	56521.0	56388.0	58070.0	61344.0
20	60925.0	37987.0	24802.0	25322.0	116633.0	121203.0	112076.0	99447.0	54671.0	55175.0	56971.0	58953.0
25	52210.0	37504.0	22629.0	23477.0	108503.0	121058.0	111772.0	95201.0	52822.0	53571.0	55885.0	58130.0
30	45793.0	35928.0	22095.0	22152.0	106592.0	120870.0	111437.0	92034.0	51425.0	52294.0	54814.0	57334.0
35	36899.0	35316.0	20922.0	20415.0	104453.0	120682.0	111291.0	88614.0	50397.0	40966.0	54384.0	56920.0
40	34052.0	34080.0	19203.0	17580.0	99192.0	120549.0	110062.0	84611.0	48775.0	38972.0	53387.0	56162.0
45	32329.0	32891.0	17731.0	14054.0	88292.0	120471.0	109182.0	81107.0	48372.0	37623.0	45916.0	54907.0
50	31190.0	32472.0	16832.0	12237.0	82879.0	120383.0	108472.0	78585.0	47393.0	36646.0	38924.0	53998.0
55	29515.0	31946.0	15813.0	10417.0	73035.0	120250.0	107243.0	75968.0	46060.0	35015.0	35876.0	47831.0
60	27827.0	30627.0	15225.0	10112.0	66524.0	120040.0	105994.0	73237.0	43155.0	34041.0	35367.0	36014.0
65	26493.0	29768.0	14765.0	9300.0	61587.0	119656.0	104674.0	69589.0	38334.0	33317.0	34320.0	30986.0
70	26279.0	28490.0	14249.0	9019.0	55052.0	118783.0	104192.0	67951.0	34785.0	25570.0	19358.0	18598.0
75	24713.0	23871.0	12946.0	6548.0	43639.0	116965.0	103149.0	64479.0	33395.0	23273.0	17837.0	15195.0
80	23093.0	23269.0	9683.0	6040.0	30191.0	113961.0	102720.0	58601.0	31804.0	22104.0	16242.0	13875.0
85	17002.0	22394.0	7126.0	5732.0	23563.0	111709.0	101464.0	54070.0	30005.0	21539.0	14704.0	13237.0
90	15760.0	20701.0	6454.0	5615.0	21816.0	110999.0	98462.0	50708.0	28774.0	18590.0	13610.0	12659.0
95	14717.0	20185.0	5973.0	5563.0	14869.0	110644.0	87886.0	46934.0	26249.0	14846.0	12189.0	12515.0
Minimum	14088.0	19664.0	5549.0	5507.0	8224.0	109699.0	83779.0	46001.0	25941.0	13175.0	11801.0	12046.0
Average	39993.6	33805.8	18849.5	16694.9	77043.3	118498.5	106877.1	79356.0	44657.3	37841.6	38434.0	42931.3
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-8D. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Dry Water Years (1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	36402.0	21661.0	32384.0	44791.0	120228.0	119547.0	109374.0	94993.0	82717.0	45747.0	44498.0	34153.0
5	34700.0	21057.0	29826.0	43414.0	119601.0	115082.0	109135.0	93807.0	81713.0	44254.0	42297.0	33868.0
10	33429.0	20687.0	22644.0	41853.0	112076.0	113127.0	108136.0	93079.0	80777.0	43130.0	40047.0	33339.0
15	31498.0	20246.0	20353.0	40732.0	99689.0	111598.0	106097.0	92664.0	77927.0	41647.0	37030.0	33140.0
20	30415.0	19656.0	19962.0	34432.0	91800.0	111044.0	105158.0	92373.0	70280.0	40493.0	36466.0	32262.0
25	27569.0	19469.0	19816.0	31559.0	87225.0	110760.0	102813.0	90891.0	63593.0	39324.0	35560.0	31602.0
30	26237.0	19346.0	19398.0	27237.0	84318.0	110495.0	102071.0	89132.0	60192.0	38262.0	34359.0	31461.0
35	25586.0	19182.0	19015.0	25966.0	76215.0	110142.0	101623.0	88292.0	58031.0	26348.0	28345.0	31366.0
40	24170.0	19092.0	18584.0	23948.0	74977.0	109202.0	99359.0	86795.0	55182.0	24753.0	26844.0	30774.0
45	19251.0	18766.0	17592.0	21899.0	65206.0	107846.0	97949.0	85055.0	52945.0	22545.0	25734.0	28391.0
50	18447.0	18700.0	16949.0	19716.0	59919.0	106648.0	96967.0	84132.0	50086.0	21129.0	24545.0	26469.0
55	17787.0	18222.0	15251.0	18497.0	54527.0	105792.0	96507.0	83085.0	45880.0	20007.0	23278.0	24974.0
60	17463.0	17569.0	14467.0	17761.0	50166.0	105056.0	96192.0	80373.0	43575.0	19302.0	22365.0	23066.0
65	17138.0	16920.0	12794.0	16857.0	48192.0	102796.0	95868.0	76955.0	41596.0	18696.0	20632.0	19700.0
70	17058.0	16382.0	8909.0	16243.0	45584.0	100602.0	95629.0	74500.0	39846.0	18027.0	18332.0	18931.0
75	16903.0	16110.0	6925.0	15730.0	42882.0	99290.0	95220.0	70537.0	38555.0	17207.0	16143.0	16684.0
80	16772.0	15847.0	6650.0	14233.0	39287.0	98793.0	94784.0	66823.0	35807.0	16623.0	15783.0	15854.0
85	16049.0	15556.0	6587.0	13373.0	37441.0	94955.0	94395.0	64203.0	34102.0	16421.0	15641.0	15416.0
90	15389.0	15005.0	6505.0	11316.0	31478.0	88891.0	93883.0	57030.0	31050.0	16046.0	15385.0	14707.0
95	15169.0	14381.0	6443.0	6402.0	25932.0	80362.0	90517.0	50625.0	28686.0	15901.0	15075.0	14107.0
Minimum	14992.0	11992.0	5786.0	6069.0	19148.0	77643.0	88808.0	47170.0	27106.0	15552.0	14566.0	13470.0
Average	22426.6	17979.1	15466.5	23483.0	66376.6	104320.2	99174.0	79897.2	52527.3	26711.6	26316.2	25121.0
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-8E. Mammoth Pool Reservoir Storage (Gage 11234700)
Historical Daily Exceedance Storage
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	32077.0	37077.0	36734.0	65206.0	105348.0	113887.0	113285.0	78576.0	50079.0	67179.0	41922.0	31553.0
1	32039.0	36698.0	36535.0	64734.0	104112.0	113686.0	113264.0	76243.0	48318.0	65262.0	39433.0	31450.0
5	31902.0	34622.0	34852.0	63382.0	99467.0	109989.0	109502.0	69587.0	45124.0	60819.0	35951.0	30991.0
10	31656.0	32066.0	30483.0	54134.0	90303.0	105883.0	98065.0	65318.0	41785.0	55652.0	32340.0	30632.0
15	28562.0	26588.0	29552.0	48151.0	88070.0	104543.0	93646.0	62171.0	40370.0	50176.0	28027.0	28181.0
20	28268.0	24970.0	29154.0	45046.0	87106.0	100562.0	91574.0	58227.0	37760.0	44318.0	26463.0	26954.0
25	27126.0	23735.0	26914.0	42172.0	84131.0	98949.0	89466.0	56979.0	34622.0	34359.0	25222.0	25893.0
30	26964.0	23414.0	25503.0	39901.0	80098.0	97428.0	87629.0	54721.0	30739.0	31347.0	25041.0	25503.0
35	26809.0	22816.0	25070.0	37284.0	77289.0	97054.0	84810.0	53267.0	28032.0	28402.0	24914.0	24112.0
40	24961.0	21829.0	24358.0	33957.0	74925.0	96460.0	83942.0	51649.0	26050.0	25541.0	24564.0	23790.0
45	24139.0	20938.0	23672.0	31429.0	72109.0	96030.0	82215.0	49927.0	24751.0	24690.0	21578.0	23205.0
50	23844.0	20506.0	22607.0	30472.0	68278.0	94869.0	80618.0	47479.0	23785.0	23608.0	21209.0	22700.0
55	23368.0	20222.0	21925.0	27991.0	64383.0	94499.0	78611.0	45877.0	23332.0	22235.0	20201.0	22130.0
60	22776.0	19700.0	20788.0	25056.0	61979.0	94072.0	77255.0	43505.0	22372.0	21764.0	17959.0	21366.0
65	21977.0	18187.0	20043.0	22376.0	59488.0	92627.0	75378.0	39950.0	21456.0	21235.0	17283.0	20497.0
70	20563.0	17309.0	18226.0	19493.0	58481.0	92138.0	73263.0	36588.0	20638.0	21044.0	16931.0	19641.0
75	15459.0	16626.0	16392.0	18226.0	55754.0	91452.0	71076.0	32941.0	11731.0	18719.0	16357.0	18868.0
80	14966.0	15756.0	14328.0	16543.0	53828.0	90722.0	68359.0	30180.0	9648.0	16758.0	13437.0	16409.0
85	14554.0	14073.0	11855.0	14123.0	50148.0	89716.0	65158.0	26120.0	8975.0	16519.0	11106.0	14258.0
90	13351.0	12966.0	9746.0	10577.0	44157.0	87721.0	62041.0	23464.0	8609.0	10274.0	9891.0	11976.0
95	11793.0	11217.0	8217.0	6204.0	36037.0	82950.0	57089.0	19069.0	3627.0	6311.0	9617.0	9617.0
99	11492.0	9477.0	6400.0	5473.0	30212.0	67050.0	48318.0	12841.0	1152.0	4087.0	8266.0	9027.0
Minimum	11492.0	9477.0	6347.0	5339.0	27243.0	65888.0	47170.0	12406.0	1134.0	3993.0	7995.0	8921.0
Average	22780.6	21152.6	21848.9	31265.3	68848.2	95557.9	80691.8	45673.0	24555.0	28536.0	21195.3	21915.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-9A. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
(10/1/1926 to 9/30/2002)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6949.5	6949.0	6947.2	6944.3	6949.7	6950.1	6950.4	6950.1	6950.0	6949.9	6949.7	6949.6
1	6949.2	6947.3	6939.4	6941.9	6948.8	6950.0	6950.1	6950.0	6949.9	6949.6	6949.3	6949.2
5	6947.2	6941.9	6931.8	6927.6	6946.4	6949.6	6950.0	6949.9	6949.6	6949.4	6948.9	6948.3
10	6944.5	6936.7	6925.5	6925.0	6944.2	6949.4	6949.9	6949.7	6949.4	6949.2	6948.4	6946.6
15	6941.0	6932.8	6920.7	6921.7	6941.3	6949.1	6949.7	6949.6	6949.3	6949.0	6947.6	6945.5
20	6936.6	6927.9	6916.9	6919.5	6939.0	6948.8	6949.7	6949.5	6949.2	6948.9	6946.4	6942.4
25	6931.9	6923.5	6914.2	6916.6	6936.8	6948.2	6949.6	6949.4	6949.1	6948.7	6945.4	6939.4
30	6928.1	6920.8	6912.2	6914.3	6934.9	6947.7	6949.5	6949.3	6949.0	6948.4	6943.8	6935.9
35	6924.6	6918.1	6910.0	6911.6	6932.7	6946.9	6949.4	6949.2	6949.0	6948.1	6942.3	6933.7
40	6922.4	6914.3	6908.3	6908.4	6930.3	6946.0	6949.3	6949.2	6948.9	6947.7	6940.1	6930.9
45	6920.9	6912.3	6906.1	6905.7	6928.0	6945.4	6949.2	6949.0	6948.7	6946.9	6938.5	6928.6
50	6919.0	6910.6	6903.6	6902.4	6925.5	6944.3	6949.0	6949.0	6948.6	6945.3	6936.9	6926.8
55	6917.3	6909.0	6901.5	6900.0	6923.0	6943.3	6948.9	6948.9	6948.4	6943.5	6935.4	6925.6
60	6915.7	6907.3	6899.6	6897.7	6919.9	6942.3	6948.7	6948.7	6948.2	6942.4	6933.9	6923.6
65	6914.0	6905.5	6896.5	6895.5	6916.6	6941.3	6948.5	6948.6	6947.9	6940.7	6932.3	6921.5
70	6911.7	6903.7	6892.7	6893.6	6912.9	6939.6	6948.3	6948.5	6947.4	6938.6	6929.7	6918.1
75	6909.3	6900.5	6889.0	6890.3	6909.6	6937.3	6947.9	6948.2	6946.3	6936.0	6925.9	6915.0
80	6906.5	6895.0	6884.1	6886.4	6906.2	6934.9	6947.3	6947.9	6944.3	6930.4	6921.3	6911.8
85	6902.4	6887.4	6876.7	6878.8	6903.0	6932.3	6946.2	6947.4	6937.8	6923.4	6915.9	6908.3
90	6895.8	6878.6	6861.8	6872.2	6898.9	6929.5	6941.7	6939.6	6932.9	6913.8	6901.4	6902.2
95	6877.1	6862.4	6848.8	6855.9	6892.9	6922.9	6936.2	6928.4	6915.5	6894.0	6880.1	6876.6
99	6850.5	6848.8	6839.7	6843.9	6867.4	6910.6	6925.2	6901.3	6866.0	6869.3	6849.2	6851.6
Minimum	6847.7	6839.6	6837.0	6840.0	6857.0	6901.8	6919.4	6885.7	6844.9	6845.0	6837.4	6842.6
Average	6918.5	6909.4	6899.6	6900.8	6922.6	6941.5	6947.4	6946.4	6943.5	6937.7	6930.9	6924.2
# Days	2356	2144	2348	2280	2356	2280	2356	2356	2280	2356	2272	2356
# Years	76	76	76	76	76	76	76	76	76	76	76	76

Table CAWG 6 Appdx G-9B. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6949.4	6949.0	6947.2	6928.0	6948.1	6950.0	6950.4	6950.1	6950.0	6949.7	6949.5	6949.4
1	6949.3	6948.8	6946.6	6922.4	6946.8	6949.9	6950.2	6950.1	6950.0	6949.5	6949.4	6949.2
5	6947.9	6946.3	6932.5	6919.9	6943.6	6949.5	6950.1	6950.0	6949.8	6949.3	6949.0	6947.8
10	6944.6	6941.2	6924.0	6916.4	6935.5	6949.2	6950.0	6950.0	6949.7	6949.2	6948.2	6946.3
15	6943.5	6938.1	6921.2	6914.5	6931.3	6948.3	6949.9	6949.9	6949.5	6949.0	6947.1	6944.7
20	6941.0	6932.1	6917.4	6910.7	6928.1	6946.6	6949.8	6949.8	6949.5	6948.9	6946.1	6943.2
25	6938.8	6927.2	6914.4	6906.7	6926.0	6945.6	6949.8	6949.7	6949.4	6948.6	6945.3	6941.1
30	6932.9	6924.4	6912.9	6904.1	6923.2	6944.1	6949.7	6949.7	6949.3	6948.5	6944.5	6938.1
35	6930.4	6922.6	6910.8	6901.3	6920.6	6943.2	6949.6	6949.6	6949.2	6948.3	6943.5	6935.9
40	6928.3	6919.2	6908.0	6899.3	6918.3	6941.6	6949.5	6949.6	6949.1	6948.0	6941.9	6934.2
45	6924.0	6915.0	6905.6	6897.7	6914.6	6940.4	6949.4	6949.5	6949.0	6947.5	6940.6	6931.2
50	6922.2	6913.2	6901.2	6895.7	6911.1	6938.7	6949.4	6949.5	6949.0	6947.1	6938.5	6929.2
55	6921.0	6911.7	6898.5	6894.1	6908.9	6937.1	6949.2	6949.5	6948.9	6946.3	6936.7	6926.8
60	6918.5	6909.4	6897.2	6892.8	6906.6	6935.9	6949.2	6949.4	6948.8	6943.8	6935.5	6925.7
65	6917.3	6906.9	6894.7	6890.2	6903.7	6934.1	6949.0	6949.3	6948.7	6942.5	6934.4	6923.2
70	6916.0	6904.1	6891.5	6888.9	6902.3	6932.6	6948.8	6949.2	6948.5	6941.6	6932.6	6919.3
75	6913.5	6900.8	6888.2	6883.5	6900.7	6931.7	6948.3	6949.2	6948.3	6939.2	6928.7	6916.1
80	6908.4	6898.0	6885.7	6878.8	6899.1	6929.8	6947.4	6949.0	6948.0	6935.9	6925.5	6912.8
85	6902.5	6891.8	6880.4	6873.7	6897.4	6926.1	6946.4	6948.9	6947.5	6926.8	6924.8	6911.2
90	6896.5	6886.8	6875.2	6872.2	6894.4	6922.3	6943.0	6948.7	6945.5	6897.7	6896.2	6909.0
95	6885.7	6860.1	6870.9	6867.9	6885.8	6916.7	6934.7	6947.9	6934.4	6876.3	6869.8	6900.8
99	6865.2	6851.3	6846.5	6849.7	6866.8	6903.0	6932.9	6934.2	6914.4	6857.0	6843.4	6843.6
Minimum	6855.2	6844.9	6845.3	6849.0	6865.6	6901.8	6928.9	6934.1	6909.0	6845.0	6837.4	6842.6
Average	6922.1	6912.8	6901.1	6894.8	6913.0	6937.1	6947.9	6948.8	6947.4	6936.9	6931.5	6926.2
# Days	713	648	713	690	713	690	713	713	690	713	682	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-9C. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6948.2	6947.4	6943.4	6930.5	6949.2	6950.1	6950.2	6949.9	6949.8	6949.8	6949.7	6948.8
1	6948.0	6947.3	6940.9	6929.9	6948.8	6950.1	6950.1	6949.8	6949.7	6949.7	6949.5	6948.7
5	6947.4	6946.3	6933.9	6927.6	6945.8	6950.0	6950.0	6949.7	6949.4	6949.3	6948.8	6948.1
10	6946.2	6937.8	6931.7	6926.0	6944.3	6949.8	6950.0	6949.6	6949.3	6949.1	6948.0	6947.1
15	6945.3	6934.9	6929.8	6924.8	6942.0	6949.5	6949.9	6949.5	6949.3	6948.9	6947.2	6946.0
20	6941.2	6933.0	6926.8	6921.7	6940.4	6949.4	6949.9	6949.5	6949.2	6948.7	6945.9	6943.2
25	6938.7	6932.1	6925.5	6920.1	6937.6	6949.2	6949.8	6949.4	6949.2	6948.2	6944.9	6941.6
30	6927.8	6930.0	6923.1	6917.5	6935.0	6949.0	6949.7	6949.4	6949.1	6947.9	6941.7	6934.9
35	6923.4	6928.7	6917.4	6915.0	6933.0	6948.9	6949.7	6949.3	6949.1	6947.6	6940.2	6928.9
40	6921.4	6921.5	6914.0	6912.2	6930.6	6948.6	6949.7	6949.3	6949.0	6946.2	6937.2	6926.5
45	6919.8	6919.0	6910.8	6907.5	6929.0	6948.2	6949.6	6949.2	6949.0	6943.5	6935.5	6924.3
50	6917.5	6913.4	6909.0	6902.5	6927.6	6947.4	6949.6	6949.2	6948.9	6941.8	6933.8	6921.9
55	6915.5	6908.6	6908.2	6899.0	6925.6	6946.1	6949.6	6949.1	6948.9	6939.8	6932.5	6918.6
60	6912.4	6907.3	6902.3	6895.7	6923.5	6945.5	6949.5	6949.0	6948.7	6938.1	6923.6	6914.3
65	6907.7	6903.3	6893.9	6893.1	6921.8	6944.7	6949.5	6948.9	6948.6	6934.9	6916.3	6908.5
70	6903.1	6899.9	6885.4	6890.2	6917.2	6943.7	6949.4	6948.8	6948.5	6928.2	6912.4	6906.5
75	6899.8	6885.0	6877.9	6887.6	6914.4	6942.9	6949.3	6948.7	6948.4	6923.1	6893.6	6903.0
80	6894.3	6878.6	6866.3	6881.7	6910.3	6941.9	6949.2	6948.6	6948.3	6904.5	6890.4	6882.9
85	6886.3	6873.6	6860.4	6878.5	6907.1	6940.7	6949.0	6948.4	6947.6	6898.3	6883.4	6875.6
90	6868.6	6855.8	6854.5	6874.3	6903.9	6938.1	6948.8	6948.2	6946.3	6893.5	6879.1	6872.0
95	6850.5	6850.6	6839.7	6852.3	6896.6	6931.2	6948.2	6947.8	6944.7	6886.6	6873.7	6863.4
99	6848.0	6841.3	6838.2	6842.1	6892.6	6923.0	6944.7	6947.2	6936.0	6883.2	6845.6	6849.2
Minimum	6847.7	6839.6	6837.0	6840.3	6892.3	6919.4	6944.1	6947.1	6933.2	6882.7	6845.4	6845.4
Average	6913.1	6907.9	6900.3	6901.0	6925.4	6945.1	6949.4	6949.0	6948.3	6931.9	6921.9	6915.4
# Days	465	422	457	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-9D. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6944.6	6928.6	6917.7	6932.1	6949.7	6949.9	6949.8	6949.8	6949.6	6949.9	6949.0	6945.0
1	6944.1	6927.1	6916.0	6927.1	6946.7	6949.6	6949.7	6949.7	6949.6	6949.6	6949.0	6943.7
5	6936.1	6923.1	6913.6	6926.0	6941.3	6949.5	6949.6	6949.5	6949.4	6949.5	6948.5	6942.6
10	6930.2	6921.8	6912.2	6917.5	6939.2	6949.3	6949.5	6949.4	6949.2	6949.4	6947.6	6941.2
15	6927.5	6919.4	6908.2	6909.9	6938.0	6949.0	6949.5	6949.3	6949.2	6949.3	6946.6	6938.6
20	6925.9	6914.9	6904.5	6907.5	6936.8	6948.4	6949.4	6949.2	6949.2	6949.0	6945.6	6936.2
25	6924.4	6912.4	6903.5	6906.2	6935.6	6947.7	6949.4	6949.2	6949.1	6948.8	6944.5	6935.1
30	6921.6	6911.3	6903.2	6904.4	6933.6	6947.3	6949.3	6949.2	6949.0	6948.8	6943.4	6934.2
35	6919.4	6910.3	6902.5	6902.2	6930.9	6946.6	6949.2	6949.1	6949.0	6948.6	6943.0	6933.7
40	6917.8	6909.5	6901.7	6901.6	6926.9	6945.8	6949.2	6949.0	6949.0	6948.4	6941.6	6932.5
45	6916.5	6908.6	6901.0	6900.5	6924.7	6945.4	6949.1	6949.0	6948.9	6948.0	6940.0	6931.0
50	6915.7	6907.6	6900.6	6899.6	6923.1	6945.0	6949.0	6948.9	6948.8	6947.7	6938.9	6929.7
55	6914.8	6906.6	6898.9	6898.1	6921.0	6944.0	6948.9	6948.8	6948.8	6946.6	6937.8	6928.3
60	6914.2	6905.5	6896.0	6896.7	6917.7	6943.0	6948.8	6948.8	6948.6	6944.9	6936.7	6927.0
65	6913.7	6905.0	6893.7	6895.7	6915.6	6942.2	6948.7	6948.7	6948.4	6941.0	6935.2	6925.6
70	6912.5	6903.8	6891.9	6894.7	6913.3	6941.1	6948.7	6948.6	6948.2	6936.5	6933.8	6923.8
75	6911.9	6903.2	6890.4	6893.5	6911.9	6939.5	6948.5	6948.5	6947.8	6926.0	6931.4	6922.8
80	6911.0	6901.0	6888.0	6892.6	6909.9	6936.6	6948.5	6948.4	6947.1	6923.2	6929.4	6921.0
85	6910.5	6898.3	6884.0	6889.3	6908.2	6933.2	6948.3	6948.2	6944.2	6920.1	6927.4	6918.4
90	6909.2	6894.6	6882.2	6885.2	6905.9	6930.2	6948.0	6947.9	6939.5	6917.1	6923.7	6916.3
95	6905.9	6885.5	6866.8	6873.7	6904.2	6925.1	6947.7	6947.6	6932.9	6914.5	6920.5	6914.6
99	6898.7	6869.8	6865.6	6865.0	6900.3	6910.6	6946.0	6944.8	6927.7	6911.2	6915.2	6913.5
Minimum	6897.6	6868.4	6864.7	6864.6	6898.8	6907.3	6944.8	6944.0	6926.3	6910.7	6914.5	6912.6
Average	6918.1	6907.1	6896.7	6899.8	6923.1	6942.1	6948.9	6948.7	6946.8	6939.5	6937.5	6929.1
# Days	341	311	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-9E. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Dry Water Years (1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6949.5	6946.8	6936.4	6944.3	6949.5	6949.9	6950.0	6949.7	6949.8	6949.7	6949.5	6949.6
1	6949.3	6945.3	6935.7	6944.0	6949.3	6949.9	6949.9	6949.7	6949.7	6949.6	6949.4	6949.5
5	6948.6	6942.1	6933.1	6942.8	6948.7	6949.5	6949.7	6949.6	6949.4	6949.5	6949.1	6948.7
10	6946.7	6938.1	6926.7	6938.0	6948.2	6949.4	6949.6	6949.4	6949.1	6949.4	6948.8	6948.4
15	6944.6	6933.6	6922.2	6932.8	6947.8	6949.2	6949.5	6949.2	6949.0	6949.3	6948.6	6947.9
20	6939.8	6926.6	6920.1	6927.6	6947.0	6949.0	6949.3	6949.0	6948.8	6949.2	6948.3	6947.3
25	6936.6	6924.4	6919.8	6926.2	6945.7	6948.9	6949.2	6949.0	6948.6	6949.1	6947.7	6946.6
30	6935.0	6922.4	6915.9	6924.9	6944.9	6948.8	6949.1	6948.9	6948.4	6949.0	6947.1	6945.9
35	6932.9	6920.4	6912.3	6923.4	6943.7	6948.5	6948.9	6948.8	6948.2	6948.8	6946.6	6945.2
40	6931.0	6919.3	6910.7	6922.5	6941.6	6948.0	6948.8	6948.6	6948.1	6948.6	6946.2	6941.0
45	6928.6	6917.1	6909.4	6921.3	6939.1	6947.6	6948.7	6948.4	6947.3	6948.3	6944.8	6936.4
50	6924.6	6913.1	6908.0	6918.4	6937.4	6947.2	6948.4	6948.2	6945.5	6947.8	6942.3	6931.4
55	6918.0	6910.6	6906.4	6917.2	6936.1	6946.3	6948.3	6948.0	6941.3	6946.9	6939.4	6927.6
60	6915.3	6909.2	6905.5	6914.0	6934.7	6945.4	6948.2	6942.8	6936.6	6945.1	6936.2	6924.7
65	6914.2	6907.9	6904.8	6906.4	6931.8	6944.0	6947.7	6939.4	6935.9	6943.1	6933.6	6922.3
70	6911.7	6907.2	6903.0	6904.2	6929.8	6942.4	6946.9	6938.5	6934.9	6942.4	6931.4	6919.7
75	6909.7	6906.5	6901.7	6899.8	6926.3	6941.0	6944.6	6937.7	6932.3	6940.3	6927.2	6915.3
80	6909.0	6905.7	6900.5	6896.6	6920.0	6938.2	6940.4	6934.5	6929.5	6937.5	6921.0	6908.1
85	6907.7	6904.4	6897.9	6895.0	6909.1	6934.7	6939.0	6923.7	6920.2	6933.4	6915.9	6903.5
90	6906.4	6903.5	6894.6	6893.9	6902.9	6932.2	6928.6	6919.3	6906.1	6927.6	6906.7	6899.8
95	6904.5	6883.6	6857.5	6872.8	6888.4	6924.9	6925.5	6910.5	6853.8	6912.2	6875.1	6890.1
99	6895.8	6864.4	6842.6	6852.6	6883.6	6916.7	6922.2	6888.6	6845.1	6894.0	6874.7	6875.6
Minimum	6894.2	6860.6	6841.6	6846.2	6882.4	6914.2	6920.1	6885.7	6844.9	6891.1	6874.7	6874.8
Average	6924.5	6915.0	6906.9	6913.7	6932.1	6943.5	6944.9	6940.2	6933.6	6942.1	6933.4	6928.2
# Days	372	339	372	360	372	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx G-9F. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6948.6	6940.2	6932.7	6932.3	6948.0	6949.6	6949.6	6949.7	6949.5	6949.5	6949.3	6948.8
1	6948.5	6938.3	6930.8	6931.9	6947.5	6949.5	6949.5	6949.5	6949.5	6949.3	6949.1	6948.8
5	6944.3	6936.7	6922.1	6926.3	6944.2	6948.9	6949.2	6949.0	6949.3	6949.1	6948.6	6948.3
10	6936.7	6933.5	6918.2	6923.1	6942.3	6948.6	6949.0	6948.9	6948.7	6948.9	6948.1	6946.3
15	6925.6	6920.9	6915.5	6920.7	6940.8	6948.0	6948.9	6948.8	6948.6	6948.7	6946.1	6938.3
20	6923.9	6920.1	6913.7	6919.3	6939.8	6947.7	6948.8	6948.7	6948.4	6948.4	6941.8	6934.0
25	6923.0	6916.1	6912.2	6917.6	6938.1	6947.4	6948.7	6948.6	6948.2	6947.7	6939.0	6932.3
30	6922.1	6913.8	6910.4	6915.8	6936.6	6947.0	6948.5	6948.5	6948.0	6946.0	6938.1	6929.2
35	6920.8	6912.8	6909.4	6914.5	6935.4	6946.5	6948.4	6948.5	6947.9	6944.5	6937.6	6927.9
40	6919.9	6911.6	6908.3	6913.1	6934.5	6946.0	6948.2	6948.3	6947.7	6943.7	6936.4	6927.0
45	6919.5	6910.6	6905.6	6912.0	6933.4	6945.4	6948.1	6948.1	6947.3	6943.3	6935.0	6926.0
50	6918.0	6909.2	6903.9	6911.3	6931.9	6944.5	6947.9	6948.0	6946.8	6942.5	6933.6	6925.3
55	6916.2	6904.8	6900.5	6910.3	6930.1	6943.5	6947.6	6947.9	6946.0	6941.4	6932.4	6923.9
60	6914.2	6902.5	6896.4	6908.0	6928.6	6942.5	6947.3	6947.7	6945.1	6940.1	6931.4	6922.1
65	6909.9	6895.2	6891.2	6906.3	6926.6	6942.2	6947.0	6947.6	6943.8	6939.1	6930.2	6921.0
70	6907.4	6891.1	6884.1	6902.9	6922.6	6941.5	6946.3	6947.4	6942.0	6937.6	6928.3	6916.6
75	6904.2	6887.7	6876.8	6894.3	6920.1	6940.9	6943.4	6947.0	6937.2	6935.9	6925.9	6914.7
80	6900.7	6884.5	6859.5	6869.7	6917.0	6938.5	6941.7	6942.4	6933.3	6935.0	6918.7	6912.5
85	6897.5	6876.2	6849.6	6853.2	6914.6	6935.5	6940.9	6939.1	6925.7	6931.8	6916.5	6910.0
90	6887.4	6870.6	6846.7	6846.5	6908.7	6932.4	6938.3	6924.5	6906.7	6923.5	6915.7	6906.8
95	6874.7	6864.3	6844.7	6844.4	6880.2	6929.9	6934.2	6911.5	6889.8	6920.7	6913.4	6887.2
99	6873.2	6857.0	6842.0	6841.0	6858.3	6917.3	6921.8	6893.4	6888.7	6912.7	6899.2	6875.0
Minimum	6872.5	6851.2	6841.0	6840.0	6857.0	6915.8	6919.4	6891.2	6888.4	6912.3	6896.1	6874.7
Average	6914.0	6903.0	6893.2	6900.1	6926.4	6942.4	6945.4	6943.2	6938.5	6940.0	6932.0	6923.1
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-10A. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
(10/1/1982 to 9/30/2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6949.5	6949.0	6937.5	6944.3	6949.5	6950.0	6950.0	6950.0	6950.0	6949.8	6949.5	6949.6
1	6949.4	6948.8	6935.7	6943.8	6949.2	6949.9	6950.0	6949.9	6949.8	6949.6	6949.3	6949.4
5	6949.1	6943.5	6933.1	6939.1	6948.5	6949.5	6949.8	6949.8	6949.6	6949.1	6948.9	6949.0
10	6948.4	6937.6	6923.1	6929.7	6947.5	6949.4	6949.7	6949.7	6949.4	6948.6	6948.2	6948.6
15	6945.5	6932.6	6919.4	6924.9	6946.1	6949.3	6949.7	6949.6	6949.3	6948.3	6947.1	6948.3
20	6941.5	6927.9	6916.8	6921.7	6945.2	6949.1	6949.5	6949.5	6949.2	6947.9	6944.1	6943.5
25	6929.9	6923.2	6915.0	6920.3	6943.8	6949.0	6949.4	6949.4	6949.1	6947.5	6942.9	6938.0
30	6924.0	6921.0	6914.2	6919.1	6942.2	6948.9	6949.3	6949.4	6948.9	6946.2	6941.6	6935.4
35	6923.0	6920.2	6912.7	6917.4	6940.7	6948.8	6949.2	6949.3	6948.7	6944.4	6940.2	6934.0
40	6922.0	6918.1	6911.3	6915.5	6939.6	6948.6	6949.1	6949.2	6948.5	6943.8	6939.1	6932.0
45	6921.0	6914.7	6910.5	6914.6	6937.6	6948.1	6949.0	6949.1	6948.4	6943.3	6938.0	6929.7
50	6920.2	6912.9	6909.7	6913.5	6935.5	6947.9	6948.9	6949.0	6948.2	6943.0	6937.0	6928.2
55	6919.2	6911.3	6909.2	6912.1	6933.4	6947.4	6948.8	6948.9	6948.2	6942.7	6935.9	6927.0
60	6917.3	6909.4	6908.7	6911.4	6931.0	6946.9	6948.6	6948.8	6948.0	6942.1	6934.8	6925.9
65	6916.0	6908.1	6907.8	6910.5	6928.4	6946.1	6948.5	6948.6	6947.7	6941.6	6933.5	6924.6
70	6914.9	6907.2	6906.2	6907.4	6923.3	6945.6	6948.3	6948.5	6947.5	6940.6	6931.8	6923.2
75	6913.6	6906.4	6905.3	6905.6	6920.2	6944.5	6948.1	6948.4	6947.1	6939.2	6930.7	6921.5
80	6911.3	6905.0	6903.7	6902.8	6909.4	6942.6	6947.8	6948.2	6946.5	6938.4	6928.9	6919.0
85	6909.1	6903.3	6900.7	6899.3	6903.3	6939.0	6947.5	6948.1	6945.5	6936.5	6926.0	6916.2
90	6904.8	6897.2	6897.3	6893.6	6899.8	6934.8	6947.0	6947.9	6944.5	6935.5	6924.7	6908.8
95	6902.5	6882.0	6859.5	6856.7	6887.0	6923.5	6946.3	6947.4	6942.1	6932.7	6912.6	6906.6
99	6870.1	6848.2	6842.1	6844.6	6861.0	6903.0	6936.2	6947.0	6937.2	6924.3	6906.7	6903.4
Minimum	6855.2	6844.9	6841.0	6843.1	6857.0	6901.8	6928.9	6946.7	6934.6	6919.6	6903.9	6902.0
Average	6922.1	6914.2	6908.2	6911.3	6928.5	6944.3	6948.4	6948.9	6947.5	6942.5	6935.8	6929.4
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-10B. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6949.4	6949.0	6937.5	6928.0	6948.1	6950.0	6950.0	6950.0	6950.0	6949.7	6949.5	6949.4
1	6949.4	6949.0	6935.8	6926.0	6947.6	6949.9	6950.0	6950.0	6949.9	6949.6	6949.4	6949.4
5	6949.3	6948.3	6929.2	6921.1	6946.5	6949.7	6950.0	6949.9	6949.7	6949.4	6949.3	6949.2
10	6949.1	6944.4	6923.0	6917.4	6945.2	6949.5	6949.9	6949.9	6949.6	6949.2	6949.0	6949.0
15	6943.9	6929.0	6920.5	6915.2	6943.9	6949.5	6949.8	6949.8	6949.5	6949.0	6945.7	6943.5
20	6940.9	6926.7	6916.6	6914.7	6942.4	6949.4	6949.8	6949.8	6949.4	6948.6	6944.1	6938.7
25	6934.4	6924.3	6915.0	6914.1	6939.8	6949.3	6949.7	6949.7	6949.3	6948.0	6943.7	6936.7
30	6923.8	6923.1	6914.2	6912.1	6935.7	6949.1	6949.7	6949.6	6949.2	6947.9	6943.4	6935.1
35	6921.6	6922.3	6914.0	6911.5	6930.6	6948.8	6949.6	6949.5	6949.2	6947.5	6942.7	6934.4
40	6921.0	6919.3	6912.4	6909.9	6925.1	6948.3	6949.5	6949.5	6949.1	6947.0	6941.6	6933.1
45	6920.8	6912.4	6910.4	6908.7	6920.6	6948.0	6949.4	6949.5	6949.1	6944.1	6940.8	6930.5
50	6918.2	6910.9	6909.2	6906.9	6916.3	6946.5	6949.4	6949.4	6949.0	6943.5	6937.6	6929.2
55	6917.0	6908.8	6908.2	6906.0	6909.5	6945.6	6949.3	6949.4	6948.9	6943.0	6936.3	6926.5
60	6916.3	6907.1	6907.7	6905.1	6906.6	6943.4	6949.3	6949.4	6948.9	6942.5	6935.6	6924.6
65	6915.7	6905.9	6902.3	6904.0	6903.6	6940.3	6949.2	6949.3	6948.8	6942.2	6935.2	6923.5
70	6914.4	6903.9	6901.5	6901.8	6903.1	6936.1	6949.1	6949.3	6948.6	6941.9	6934.3	6921.5
75	6913.5	6901.9	6899.9	6900.4	6902.0	6930.7	6948.9	6949.2	6948.5	6941.2	6931.4	6920.0
80	6911.5	6898.7	6898.3	6898.3	6900.0	6927.3	6948.8	6949.2	6948.2	6939.2	6928.9	6918.4
85	6907.6	6896.7	6897.4	6896.0	6898.9	6923.8	6948.0	6949.1	6948.1	6938.1	6926.5	6916.5
90	6890.1	6887.1	6896.0	6893.5	6892.9	6918.1	6946.7	6949.0	6947.7	6936.0	6925.6	6915.9
95	6878.4	6857.8	6892.1	6890.6	6885.0	6907.1	6940.6	6948.9	6946.6	6933.0	6925.1	6910.2
99	6858.4	6844.9	6891.3	6887.3	6881.7	6901.8	6930.3	6948.8	6944.4	6928.7	6924.7	6904.4
Minimum	6855.2	6844.9	6891.2	6887.1	6881.4	6901.8	6928.9	6948.7	6944.2	6928.2	6924.7	6903.7
Average	6919.9	6911.8	6909.1	6906.8	6918.3	6939.5	6948.5	6949.4	6948.8	6943.6	6937.8	6929.3
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-10C. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Above Normal Water Years (1984, 1999, 2000)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6947.2	6938.2	6926.9	6926.1	6949.2	6949.7	6949.8	6949.8	6949.8	6949.8	6949.5	6948.8
5	6946.7	6936.8	6925.6	6921.2	6948.8	6949.6	6949.8	6949.6	6949.6	6949.5	6948.6	6948.7
10	6945.5	6935.4	6923.3	6920.3	6946.2	6949.5	6949.7	6949.6	6949.5	6949.1	6948.2	6948.3
15	6943.9	6932.2	6920.7	6919.3	6945.9	6949.5	6949.7	6949.6	6949.4	6948.5	6948.0	6948.1
20	6943.1	6931.5	6919.3	6919.0	6945.5	6949.4	6949.7	6949.6	6949.3	6948.2	6947.7	6947.9
25	6941.2	6930.2	6917.8	6918.4	6944.4	6949.3	6949.6	6949.5	6949.3	6947.9	6947.6	6947.8
30	6939.3	6928.1	6916.9	6916.6	6943.6	6949.2	6949.6	6949.5	6949.3	6947.8	6947.4	6947.0
35	6916.0	6921.2	6916.3	6915.8	6942.0	6949.1	6949.6	6949.4	6949.2	6947.7	6941.7	6939.1
40	6915.3	6920.7	6915.6	6914.4	6941.1	6949.0	6949.5	6949.4	6949.2	6947.5	6941.0	6935.6
45	6914.0	6920.4	6914.7	6913.5	6940.5	6949.0	6949.4	6949.3	6949.1	6945.4	6940.6	6931.6
50	6913.3	6920.0	6913.0	6912.6	6939.8	6949.0	6949.4	6949.3	6949.1	6944.0	6940.3	6929.7
55	6912.3	6919.7	6911.1	6911.8	6938.0	6948.9	6949.4	6949.2	6949.0	6943.1	6939.9	6927.4
60	6911.0	6918.1	6910.9	6911.2	6935.3	6948.9	6949.3	6949.2	6948.9	6942.8	6939.7	6920.4
65	6910.1	6916.8	6910.6	6910.8	6932.1	6948.8	6949.2	6949.2	6948.7	6942.6	6939.5	6916.1
70	6904.8	6908.2	6910.0	6906.1	6930.0	6948.7	6949.1	6949.1	6948.6	6942.4	6916.2	6908.3
75	6904.2	6907.8	6909.4	6902.5	6927.7	6948.4	6949.0	6949.1	6948.5	6940.5	6912.8	6907.2
80	6903.5	6907.4	6909.0	6900.6	6924.9	6947.9	6949.0	6949.0	6948.5	6937.7	6912.6	6906.9
85	6903.2	6906.7	6908.9	6897.1	6922.2	6946.1	6948.8	6948.7	6948.2	6933.9	6912.3	6906.6
90	6903.0	6906.4	6908.2	6895.0	6915.9	6945.7	6948.6	6948.7	6947.7	6927.2	6912.2	6906.4
95	6902.5	6906.3	6906.2	6893.4	6909.9	6944.8	6948.4	6948.4	6947.3	6923.1	6912.1	6905.6
Minimum	6902.5	6906.2	6904.3	6892.6	6908.3	6944.6	6948.0	6948.3	6946.3	6919.6	6911.7	6904.8
Average	6920.1	6919.9	6914.2	6910.6	6935.4	6948.4	6949.3	6949.2	6948.9	6942.4	6933.9	6928.0
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-10D. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Dry Water Years (1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6949.5	6946.8	6936.4	6944.3	6949.5	6949.6	6949.7	6949.7	6949.7	6947.1	6947.1	6949.6
5	6949.3	6944.8	6935.6	6944.0	6949.2	6949.5	6949.6	6949.5	6949.2	6946.6	6946.4	6949.4
10	6949.0	6943.0	6934.8	6943.6	6949.1	6949.5	6949.5	6949.4	6948.8	6945.5	6946.2	6949.1
15	6948.8	6941.2	6933.8	6943.4	6948.9	6949.4	6949.4	6949.3	6948.4	6944.2	6945.9	6948.8
20	6948.6	6939.4	6933.1	6942.8	6948.7	6949.3	6949.3	6949.2	6948.3	6943.4	6943.3	6948.6
25	6948.3	6937.1	6933.1	6941.9	6948.6	6949.2	6949.2	6949.2	6948.3	6943.2	6940.9	6948.5
30	6947.8	6935.9	6933.0	6940.2	6948.4	6949.2	6949.2	6949.2	6948.2	6943.0	6937.2	6948.4
35	6915.2	6908.8	6915.1	6938.5	6948.2	6949.1	6949.1	6949.1	6948.2	6942.9	6936.0	6927.5
40	6914.9	6908.2	6911.5	6937.5	6948.0	6949.1	6949.1	6949.0	6948.1	6942.7	6934.3	6924.5
45	6913.9	6907.7	6910.6	6936.1	6947.8	6949.1	6949.1	6949.0	6948.1	6942.1	6933.2	6922.7
50	6912.5	6907.5	6909.8	6933.0	6947.7	6949.0	6949.0	6948.9	6948.1	6941.7	6931.4	6922.2
55	6911.2	6907.2	6909.4	6929.7	6947.5	6949.0	6948.9	6948.8	6947.3	6941.1	6929.2	6919.3
60	6909.7	6907.0	6909.2	6926.7	6946.7	6948.9	6948.9	6948.8	6946.5	6940.3	6929.0	6917.0
65	6909.5	6906.6	6908.1	6925.4	6946.3	6948.9	6948.7	6948.6	6945.6	6939.2	6928.1	6915.5
70	6909.4	6906.3	6907.2	6924.4	6946.0	6948.8	6948.7	6948.4	6945.4	6938.5	6923.7	6909.0
75	6909.1	6905.9	6906.4	6923.0	6945.7	6948.7	6948.4	6948.3	6943.8	6937.6	6921.0	6908.4
80	6908.3	6905.4	6906.0	6922.2	6944.8	6948.6	6948.3	6948.2	6943.3	6936.8	6920.5	6908.2
85	6907.2	6904.6	6905.7	6921.3	6944.2	6948.3	6948.3	6948.2	6941.6	6935.4	6915.6	6907.6
90	6905.4	6904.3	6905.3	6919.6	6943.4	6947.9	6948.2	6948.1	6939.6	6932.7	6909.7	6904.0
95	6904.8	6904.1	6904.8	6916.8	6940.1	6947.5	6948.1	6948.0	6935.4	6929.6	6905.5	6902.7
Minimum	6904.4	6903.8	6904.2	6913.0	6936.6	6947.4	6947.8	6948.0	6934.6	6928.2	6903.9	6902.0
Average	6922.8	6917.8	6916.8	6932.1	6946.7	6948.9	6948.9	6948.8	6945.8	6940.4	6930.4	6925.5
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-10E. Huntington Lake Elevation (Gage 11236000)
Historical Daily Exceedance Elevation
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6948.6	6940.2	6923.6	6932.3	6947.9	6949.1	6949.2	6949.5	6948.6	6948.8	6948.8	6948.8
1	6948.5	6939.9	6921.8	6932.1	6947.2	6949.0	6949.2	6949.3	6948.6	6948.6	6948.7	6948.8
5	6948.4	6936.2	6919.4	6928.8	6944.8	6948.8	6949.0	6948.9	6948.5	6948.5	6948.6	6948.7
10	6945.6	6929.9	6916.8	6925.5	6942.2	6948.7	6948.8	6948.9	6948.3	6948.4	6948.1	6948.4
15	6929.4	6921.1	6914.5	6922.5	6941.1	6948.2	6948.7	6948.8	6948.2	6948.2	6943.3	6938.7
20	6925.4	6920.7	6913.6	6920.7	6940.5	6947.9	6948.6	6948.6	6948.2	6946.5	6940.9	6937.5
25	6924.9	6920.2	6912.4	6920.0	6939.8	6947.7	6948.6	6948.6	6948.0	6945.5	6939.2	6935.7
30	6923.8	6919.5	6911.4	6919.3	6938.6	6947.5	6948.5	6948.5	6947.9	6944.2	6938.7	6933.5
35	6923.3	6917.4	6910.5	6918.0	6937.4	6947.3	6948.4	6948.5	6947.8	6943.8	6938.3	6933.0
40	6922.9	6916.1	6909.8	6916.5	6936.1	6947.0	6948.3	6948.4	6947.7	6943.6	6937.9	6931.6
45	6922.3	6914.4	6909.5	6915.1	6935.3	6946.8	6948.1	6948.3	6947.4	6943.4	6937.6	6929.7
50	6922.1	6913.6	6909.0	6914.3	6934.2	6946.6	6948.0	6948.2	6947.2	6943.0	6937.0	6928.6
55	6921.6	6912.9	6908.6	6913.3	6933.4	6946.0	6947.9	6948.2	6947.0	6942.5	6935.9	6928.0
60	6920.8	6912.0	6907.2	6912.5	6932.5	6945.6	6947.7	6948.1	6946.7	6941.6	6934.3	6927.5
65	6920.3	6911.4	6906.0	6911.4	6931.0	6945.3	6947.6	6948.0	6946.4	6940.6	6933.6	6926.8
70	6919.8	6910.5	6905.4	6911.1	6929.4	6944.6	6947.4	6948.0	6945.7	6939.5	6933.0	6926.2
75	6919.7	6909.3	6904.9	6910.2	6927.4	6943.8	6947.2	6947.8	6945.4	6938.9	6932.0	6925.8
80	6919.3	6908.7	6902.1	6907.3	6923.3	6942.7	6947.0	6947.6	6944.7	6937.9	6931.5	6925.1
85	6918.4	6902.8	6900.5	6905.0	6921.6	6942.3	6946.9	6947.5	6944.4	6936.1	6930.8	6924.3
90	6916.9	6890.0	6846.0	6852.2	6894.0	6940.0	6946.6	6947.2	6943.1	6935.9	6929.7	6923.1
95	6915.0	6878.2	6843.3	6845.7	6866.1	6936.5	6946.0	6947.0	6940.9	6934.7	6926.8	6921.5
99	6913.5	6862.4	6841.0	6843.6	6857.0	6934.8	6944.6	6946.8	6939.1	6933.2	6926.0	6921.0
Minimum	6913.4	6862.4	6841.0	6843.1	6857.0	6934.5	6944.3	6946.7	6938.8	6932.8	6926.0	6920.9
Average	6924.7	6912.7	6901.0	6907.1	6928.0	6945.3	6947.8	6948.2	6946.4	6942.2	6936.9	6931.7
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-11A. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
(10/1/1926 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88437.0	87765.0	85205.0	81215.0	88705.0	89381.0	89800.0	89324.0	89123.0	89066.0	88708.0	88580.0
1	87993.0	85303.0	74615.0	77890.0	87409.0	89152.0	89382.0	89209.0	89000.0	88600.0	88222.0	87965.0
5	85162.0	77917.0	64770.0	59662.0	84098.0	88548.0	89109.0	89000.0	88594.0	88300.0	87537.0	86700.0
10	81408.0	71037.0	57089.0	56500.0	81036.0	88237.0	88952.0	88708.0	88308.0	88079.0	86828.0	84300.0
15	76639.0	66000.0	51621.0	52700.0	77100.0	87830.0	88800.0	88594.0	88162.0	87800.0	85700.0	82800.0
20	70900.0	60000.0	47370.0	50212.0	74019.0	87500.0	88700.0	88437.0	88000.0	87600.0	84140.0	78600.0
25	64900.0	54833.0	44533.0	47111.0	71200.0	86601.0	88562.0	88337.0	87900.0	87300.0	82623.0	74523.0
30	60252.0	51700.0	42446.0	44660.0	68745.0	85895.0	88408.0	88208.0	87800.0	86941.0	80500.0	70000.0
35	56078.0	48676.0	40186.0	41833.0	65952.0	84797.0	88300.0	88100.0	87700.0	86500.0	78400.0	67143.0
40	53500.0	44600.0	38575.0	38600.0	62900.0	83553.0	88151.0	87979.0	87552.0	85900.0	75518.0	63714.0
45	51800.0	42600.0	36400.0	36000.0	60095.0	82665.0	87990.0	87800.0	87333.0	84839.0	73300.0	60895.0
50	49667.0	40850.0	34100.0	32995.0	57200.0	81201.0	87779.0	87693.0	87140.0	82485.0	71218.0	58738.0
55	47848.0	39212.0	32200.0	30900.0	54200.0	79791.0	87580.0	87537.0	86900.0	80037.0	69300.0	57219.0
60	46091.0	37547.0	30525.0	28900.0	50701.0	78400.0	87381.0	87381.0	86615.0	78500.0	67383.0	54900.0
65	44300.0	35900.0	27900.0	27100.0	47092.0	77096.0	87100.0	87197.0	86200.0	76252.0	65413.0	52561.0
70	41966.0	34200.0	24900.0	25600.0	43200.0	74800.0	86729.0	86956.0	85430.0	73506.0	62249.0	48698.0
75	39500.0	31300.0	22200.0	23100.0	39814.0	71800.0	86218.0	86600.0	83916.0	70079.0	57632.0	45400.0
80	36800.0	26700.0	18844.0	20338.0	36500.0	68694.0	85303.0	86127.0	81119.0	63100.0	52300.0	42083.0
85	32968.0	21058.0	14541.0	15690.0	33510.0	65400.0	83833.0	85529.0	72400.0	54700.0	46300.0	38506.0
90	27372.0	15611.0	8045.0	12320.0	29900.0	61900.0	77600.0	74800.0	66100.0	44100.0	32100.0	32808.0
95	14763.0	8263.0	4189.0	6115.0	25073.0	54100.0	70351.0	60636.0	45865.0	25935.0	16429.0	14476.0
99	4605.0	4179.0	2309.0	3096.0	10200.0	40800.0	56800.0	32000.0	9630.0	11000.0	4280.0	4910.0
Minimum	3928.0	2282.0	1863.0	2359.0	6452.0	32474.0	50102.0	19900.0	3310.0	3320.0	1915.0	2830.0
Average	51513.7	42717.2	34034.1	34521.5	55598.7	77717.9	85547.3	84421.2	81300.4	74118.3	66172.8	58083.3
# Days	2356	2144	2348	2280	2356	2280	2356	2356	2280	2356	2272	2356
# Years	76	76	76	76	76	76	76	76	76	76	76	76

Table CAWG 6 Appdx G-11B. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88322.0	87765.0	85205.0	60168.0	86473.0	89109.0	89800.0	89324.0	89123.0	88780.0	88523.0	88365.0
1	88165.0	87466.0	84322.0	53485.0	84685.0	88966.0	89500.0	89310.0	89100.0	88508.0	88279.0	88094.0
5	86148.0	83888.0	65695.0	50745.0	80214.0	88480.0	89300.0	89166.0	88900.0	88233.0	87708.0	86100.0
10	81628.0	76908.0	55435.0	46842.0	69400.0	88079.0	89095.0	89095.0	88708.0	88051.0	86600.0	83888.0
15	80064.0	72849.0	52175.0	44797.0	64136.0	86771.0	89000.0	89000.0	88523.0	87800.0	85092.0	81656.0
20	76706.0	65131.0	47967.0	40880.0	60200.0	84400.0	88923.0	88923.0	88400.0	87594.0	83609.0	79600.0
25	73800.0	59145.0	44776.0	36996.0	57774.0	82956.0	88837.0	88800.0	88294.0	87239.0	82568.0	76800.0
30	66184.0	55903.0	43200.0	34509.0	54497.0	80967.0	88737.0	88708.0	88165.0	87000.0	81400.0	72800.0
35	63085.0	53749.0	41061.0	32003.0	51537.0	79700.0	88637.0	88637.0	88008.0	86700.0	80064.0	70000.0
40	60459.0	49900.0	38202.0	30224.0	48962.0	77433.0	88465.0	88580.0	87908.0	86300.0	77900.0	67800.0
45	55435.0	45400.0	35930.0	28940.0	44997.0	75840.0	88351.0	88500.0	87800.0	85697.0	76185.0	64000.0
50	53256.0	43500.0	31900.0	27300.0	41300.0	73700.0	88265.0	88437.0	87700.0	85008.0	73400.0	61552.0
55	51970.0	41900.0	29600.0	25998.0	39100.0	71543.0	88100.0	88380.0	87600.0	83888.0	71011.0	58655.0
60	49200.0	39580.0	28500.0	25000.0	36929.0	70000.0	87965.0	88294.0	87500.0	80446.0	69452.0	57372.0
65	47800.0	37197.0	26500.0	23000.0	34160.0	67662.0	87700.0	88200.0	87300.0	78689.0	68100.0	54509.0
70	46400.0	34509.0	24000.0	22100.0	32941.0	65800.0	87466.0	88100.0	87027.0	77567.0	65845.0	50078.0
75	43749.0	31600.0	21613.0	18483.0	31482.0	64700.0	86799.0	87979.0	86771.0	74258.0	60968.0	46507.0
80	38600.0	29128.0	19928.0	15690.0	30086.0	62300.0	85444.0	87800.0	86289.0	70002.0	57183.0	43100.0
85	33106.0	24200.0	16600.0	13012.0	28669.0	57821.0	84084.0	87600.0	85600.0	58738.0	56312.0	41400.0
90	27900.0	20659.0	13767.0	12300.0	26243.0	53416.0	79400.0	87324.0	82763.0	28900.0	27700.0	39200.0
95	19894.0	7472.0	11700.0	10400.0	19999.0	47200.0	68464.0	86200.0	68018.0	14331.0	11200.0	31564.0
99	9298.0	4815.0	3657.0	4401.0	9940.0	33483.0	66141.0	67776.0	44770.0	6450.0	2998.0	3040.0
Minimum	5906.0	3303.0	3389.0	4238.0	9460.0	32474.0	61186.0	67712.0	39198.0	3320.0	1915.0	2830.0
Average	55259.6	46132.8	34491.8	28469.6	45066.8	72087.4	86216.8	87487.7	85629.5	74230.3	67620.5	60330.7
# Days	713	648	713	690	713	690	713	713	690	713	682	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-11C. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	86572.0	85430.0	79927.0	63200.0	88065.0	89381.0	89468.0	89021.0	88923.0	88837.0	88708.0	87452.0
1	86400.0	85317.0	76479.0	62400.0	87509.0	89296.0	89339.0	88863.0	88700.0	88680.0	88422.0	87282.0
5	85416.0	83916.0	67383.0	59710.0	83300.0	89152.0	89200.0	88700.0	88365.0	88165.0	87523.0	86500.0
10	83800.0	72482.0	64700.0	57750.0	81200.0	88894.0	89194.0	88577.0	88222.0	87862.0	86247.0	85134.0
15	82554.0	68700.0	62300.0	56301.0	78025.0	88508.0	89079.0	88494.0	88165.0	87590.0	85219.0	83581.0
20	77016.0	66297.0	58700.0	52700.0	75865.0	88294.0	89000.0	88400.0	88090.0	87300.0	83400.0	79627.0
25	73638.0	65119.0	57089.0	50900.0	72143.0	88000.0	88900.0	88322.0	88000.0	86558.0	82014.0	77554.0
30	59915.0	62555.0	54393.0	48100.0	68810.0	87800.0	88820.0	88300.0	87922.0	86200.0	77608.0	68643.0
35	54700.0	61000.0	47935.0	45366.0	66300.0	87622.0	88777.0	88200.0	87879.0	85712.0	75691.0	61200.0
40	52400.0	52515.0	44300.0	42425.0	63333.0	87225.0	88700.0	88108.0	87804.0	83791.0	71608.0	58333.0
45	50590.0	49645.0	41061.0	37776.0	61296.0	86558.0	88677.0	88048.0	87719.0	80078.0	69540.0	55700.0
50	48100.0	43700.0	39200.0	33067.0	59700.0	85529.0	88608.0	87976.0	87647.0	77756.0	67332.0	53004.0
55	45920.0	38859.0	38400.0	30000.0	57300.0	83682.0	88577.0	87847.0	87533.0	75053.0	65708.0	49324.0
60	42673.0	37600.0	32941.0	27282.0	54800.0	82800.0	88500.0	87776.0	87300.0	72800.0	54964.0	44676.0
65	38000.0	33800.0	25800.0	25200.0	52868.0	81697.0	88400.0	87661.0	87225.0	68694.0	46725.0	38694.0
70	33665.0	30800.0	19700.0	23000.0	47700.0	80400.0	88305.0	87518.0	87100.0	60381.0	42601.0	36785.0
75	30686.0	19444.0	15203.0	21191.0	44700.0	79213.0	88200.0	87381.0	86927.0	54300.0	25600.0	33553.0
80	26156.0	15611.0	9733.0	17356.0	40488.0	77900.0	88008.0	87200.0	86700.0	34900.0	23211.0	18100.0
85	20298.0	12966.0	7549.0	15500.0	37399.0	76254.0	87779.0	86900.0	85824.0	29405.0	18400.0	13962.0
90	10691.0	6086.0	5717.0	13300.0	34391.0	72875.0	87481.0	86572.0	83900.0	25532.0	15884.0	12200.0
95	4605.0	4634.0	2305.0	5093.0	28000.0	64000.0	86558.0	85993.0	81700.0	20542.0	13000.0	8640.0
99	3990.0	2583.0	2053.0	2746.0	24800.0	54200.0	81668.0	85233.0	70100.0	18294.0	3460.0	4290.0
Minimum	3928.0	2282.0	1863.0	2405.0	24600.0	50200.0	80883.0	85106.0	66600.0	18011.0	3400.0	3420.0
Average	48144.8	43681.0	36855.1	34909.1	58260.3	82502.9	88315.9	87759.0	86759.2	67423.8	57388.8	50557.0
# Days	465	422	457	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-11D. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	81600.0	60900.0	48229.0	65200.0	88705.0	89050.0	88900.0	88900.0	88600.0	89066.0	87700.0	82200.0
1	80900.0	59000.0	46486.0	59000.0	84500.0	88634.0	88800.0	88700.0	88600.0	88623.0	87700.0	80400.0
5	70300.0	54404.0	43900.0	57700.0	77100.0	88505.0	88600.0	88400.0	88300.0	88400.0	87000.0	78800.0
10	62802.0	52822.0	42500.0	48100.0	74300.0	88200.0	88500.0	88300.0	88100.0	88300.0	85700.0	76900.0
15	59500.0	50100.0	38400.0	40100.0	72753.0	87800.0	88434.0	88200.0	88000.0	88108.0	84400.0	73500.0
20	57600.0	45300.0	34900.0	37709.0	71200.0	86900.0	88300.0	88100.0	88000.0	87800.0	82956.0	70368.0
25	55856.0	42700.0	34000.0	36500.0	69600.0	85900.0	88300.0	88000.0	87900.0	87500.0	81400.0	68900.0
30	52600.0	41500.0	33700.0	34779.0	67100.0	85400.0	88200.0	88000.0	87800.0	87400.0	79900.0	67827.0
35	50100.0	40500.0	33100.0	32800.0	63652.0	84294.0	88100.0	87900.0	87700.0	87200.0	79400.0	67200.0
40	48400.0	39700.0	32400.0	32300.0	58800.0	83220.0	88000.0	87800.0	87700.0	86900.0	77500.0	65700.0
45	47000.0	38800.0	31700.0	31300.0	56200.0	82700.0	87900.0	87700.0	87600.0	86300.0	75359.0	63800.0
50	46085.0	37900.0	31400.0	30500.0	54400.0	82200.0	87700.0	87600.0	87500.0	85900.0	73952.0	62200.0
55	45200.0	36900.0	29900.0	29219.0	51900.0	80700.0	87600.0	87500.0	87400.0	84300.0	72500.0	60500.0
60	44500.0	35900.0	27500.0	28100.0	48300.0	79400.0	87500.0	87400.0	87200.0	82000.0	71000.0	58874.0
65	44000.0	35400.0	25700.0	27300.0	46000.0	78300.0	87361.0	87268.0	86900.0	76700.0	69100.0	57300.0
70	42800.0	34300.0	24300.0	26500.0	43600.0	76800.0	87300.0	87200.0	86600.0	70808.0	67300.0	55200.0
75	42100.0	33700.0	23200.0	25500.0	42100.0	74700.0	87100.0	87012.0	86042.0	57700.0	64300.0	54000.0
80	41200.0	31700.0	21500.0	24800.0	40100.0	70900.0	87000.0	86900.0	85028.0	54500.0	61800.0	52000.0
85	40700.0	29400.0	18800.0	22400.0	38400.0	66600.0	86700.0	86680.0	81090.0	50900.0	59366.0	49000.0
90	39400.0	26354.0	17682.0	19600.0	36200.0	62800.0	86331.0	86106.0	74700.0	47600.0	55000.0	46800.0
95	36200.0	19759.0	9940.0	13000.0	34600.0	56700.0	85900.0	85754.0	66109.0	44800.0	51400.0	45000.0
99	29771.0	11221.0	9467.0	9240.0	31100.0	40800.0	83500.0	81900.0	59800.0	41400.0	45600.0	43800.0
Minimum	28821.0	10617.0	9098.0	9090.0	29800.0	37600.0	81800.0	80800.0	58131.0	40900.0	44800.0	42900.0
Average	49164.1	38154.1	29117.3	31776.1	55276.8	78478.9	87567.7	87373.3	84751.5	75497.4	72389.8	61847.3
# Days	341	311	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-11E. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Dry Water Years (1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88437.0	84657.0	70584.0	81215.0	88479.0	89080.0	89095.0	88780.0	88823.0	88800.0	88500.0	88580.0
1	88222.0	82609.0	69758.0	80788.0	88137.0	89052.0	89052.0	88723.0	88694.0	88580.0	88300.0	88408.0
5	87225.0	78161.0	66473.0	79069.0	87353.0	88536.0	88708.0	88565.0	88251.0	88448.0	87936.0	87254.0
10	84573.0	72809.0	58631.0	72743.0	86658.0	88300.0	88562.0	88351.0	87836.0	88348.0	87500.0	86900.0
15	81600.0	67029.0	53324.0	66000.0	86092.0	87977.0	88391.0	88093.0	87700.0	88233.0	87200.0	86233.0
20	75100.0	58400.0	50900.0	59600.0	84867.0	87800.0	88200.0	87804.0	87500.0	88100.0	86785.0	85400.0
25	70900.0	55800.0	50600.0	58000.0	83151.0	87622.0	87973.0	87679.0	87163.0	87900.0	85900.0	84420.0
30	68800.0	53500.0	46347.0	56430.0	81959.0	87500.0	87837.0	87600.0	86842.0	87700.0	85120.0	83400.0
35	66200.0	51300.0	42600.0	54740.0	80377.0	87000.0	87600.0	87438.0	86629.0	87500.0	84308.0	82400.0
40	63800.0	50000.0	40980.0	53611.0	77514.0	86300.0	87438.0	87225.0	86473.0	87200.0	83800.0	76700.0
45	60900.0	47600.0	39609.0	52265.0	74100.0	85740.0	87268.0	86927.0	85345.0	86800.0	81849.0	70600.0
50	56100.0	43400.0	38200.0	49083.0	71973.0	85261.0	86900.0	86601.0	82873.0	86100.0	78400.0	64301.0
55	48600.0	40810.0	36700.0	47700.0	70200.0	83900.0	86700.0	86331.0	77069.0	84783.0	74575.0	59600.0
60	45700.0	39400.0	35855.0	44375.0	68500.0	82748.0	86558.0	79100.0	70900.0	82221.0	70420.0	56238.0
65	44500.0	38100.0	35200.0	36700.0	64800.0	80761.0	85900.0	74500.0	70000.0	79504.0	67100.0	53427.0
70	41966.0	37500.0	33500.0	34600.0	62300.0	78527.0	84700.0	73400.0	68700.0	78500.0	64236.0	50468.0
75	39958.0	36800.0	32400.0	30700.0	58100.0	76700.0	81600.0	72300.0	65400.0	75772.0	59146.0	45700.0
80	39202.0	36000.0	31300.0	28000.0	50800.0	73000.0	75900.0	68200.0	61900.0	72104.0	52004.0	38339.0
85	38000.0	34800.0	29100.0	26700.0	39300.0	68500.0	74000.0	55000.0	51100.0	66776.0	46300.0	33949.0
90	36661.0	34000.0	26400.0	25800.0	33400.0	65300.0	60800.0	50000.0	36400.0	59600.0	37034.0	30700.0
95	34875.0	18528.0	6618.0	12578.0	21725.0	56400.0	57100.0	40700.0	5500.0	42425.0	13741.0	22992.0
99	27339.0	8993.0	2840.0	5178.0	18561.0	47243.0	53300.0	21900.0	3340.0	25935.0	13519.0	13988.0
Minimum	26101.0	7647.0	2649.0	3581.0	17786.0	44570.0	50900.0	19900.0	3310.0	23728.0	13509.0	13554.0
Average	57255.6	46934.1	39527.7	46551.6	66947.7	80396.2	82263.5	76670.2	70983.5	78914.8	69244.0	62551.7
# Days	372	339	372	360	372	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx G-11F. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	87154.0	75678.0	65946.0	65432.0	86388.0	88562.0	88620.0	88705.0	88534.0	88394.0	88208.0	87523.0
1	87027.0	73112.0	63578.0	64845.0	85661.0	88448.0	88405.0	88448.0	88419.0	88205.0	87908.0	87452.0
5	81133.0	70972.0	53152.0	58059.0	81105.0	87537.0	87993.0	87779.0	88133.0	87836.0	87239.0	86700.0
10	71011.0	66865.0	48819.0	54292.0	78385.0	87225.0	87690.0	87580.0	87333.0	87651.0	86459.0	83916.0
15	57230.0	51846.0	45846.0	51655.0	76439.0	86317.0	87594.0	87424.0	87140.0	87268.0	83640.0	73138.0
20	55250.0	50913.0	43989.0	50067.0	75092.0	85965.0	87424.0	87268.0	86836.0	86814.0	77734.0	67534.0
25	54219.0	46604.0	42425.0	48120.0	72809.0	85500.0	87254.0	87183.0	86601.0	85979.0	74045.0	65369.0
30	53175.0	44114.0	40639.0	46240.0	70843.0	84867.0	87097.0	87055.0	86317.0	83456.0	72809.0	61552.0
35	51711.0	43033.0	39669.0	44818.0	69360.0	84280.0	86941.0	86970.0	86148.0	81406.0	72156.0	60023.0
40	50734.0	41812.0	38575.0	43395.0	68146.0	83456.0	86658.0	86714.0	85852.0	80406.0	70640.0	58917.0
45	50223.0	40840.0	35949.0	42240.0	66764.0	82623.0	86416.0	86544.0	85331.0	79763.0	68759.0	57775.0
50	48610.0	39411.0	34398.0	41507.0	64912.0	81422.0	86108.0	86360.0	84643.0	78784.0	67067.0	56900.0
55	46712.0	35200.0	31290.0	40488.0	62740.0	80046.0	85810.0	86127.0	83483.0	77208.0	65582.0	55296.0
60	44523.0	33100.0	27800.0	38193.0	60842.0	78744.0	85374.0	85971.0	82263.0	75493.0	64285.0	53245.0
65	40146.0	26853.0	23800.0	36600.0	58442.0	78242.0	84895.0	85726.0	80501.0	74112.0	62777.0	51970.0
70	37700.0	23710.0	18889.0	33480.0	53800.0	77400.0	83944.0	85430.0	77998.0	72208.0	60531.0	47100.0
75	34600.0	21226.0	14595.0	26141.0	50941.0	76612.0	79923.0	84853.0	71700.0	70015.0	57585.0	45034.0
80	31502.0	19108.0	7257.0	11158.0	47505.0	73335.0	77600.0	78500.0	66700.0	68800.0	49400.0	42784.0
85	28771.0	14310.0	4376.0	5329.0	44939.0	69437.0	76600.0	74100.0	57400.0	64837.0	47000.0	40200.0
90	21079.0	11566.0	3689.0	3656.0	38950.0	65500.0	73100.0	56027.0	36999.0	54848.0	46100.0	37106.0
95	13543.0	8969.0	3268.0	3202.0	16482.0	62396.0	67800.0	41776.0	22748.0	51627.0	43700.0	20914.0
99	12763.0	6442.0	2721.0	2538.0	6859.0	47799.0	52843.0	25416.0	21932.0	43000.0	30193.0	13651.0
Minimum	12417.0	4804.0	2534.0	2359.0	6452.0	46197.0	50102.0	23740.0	21711.0	42600.0	27561.0	13502.0
Average	46268.5	36513.2	29770.4	35802.6	60242.5	78865.8	82897.4	80417.0	74926.0	75792.9	65746.9	55828.5
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-12A. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
(10/1/1982 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88437.0	87765.0	72078.0	81215.0	88479.0	89109.0	89166.0	89152.0	89123.0	88837.0	88523.0	88580.0
1	88237.0	87481.0	69758.0	80501.0	88065.0	88966.0	89109.0	89080.0	88909.0	88651.0	88208.0	88351.0
5	87908.0	80023.0	66398.0	74138.0	87069.0	88523.0	88937.0	88909.0	88565.0	87951.0	87537.0	87793.0
10	86941.0	72182.0	54404.0	62237.0	85656.0	88365.0	88794.0	88680.0	88294.0	87168.0	86587.0	87211.0
15	82790.0	65795.0	50156.0	56429.0	83665.0	88194.0	88680.0	88537.0	88122.0	86729.0	85120.0	86729.0
20	77285.0	60023.0	47338.0	52766.0	82415.0	87951.0	88523.0	88437.0	87965.0	86176.0	80855.0	80091.0
25	62372.0	54485.0	45398.0	51160.0	80446.0	87793.0	88351.0	88337.0	87822.0	85613.0	79232.0	72717.0
30	55389.0	51880.0	44502.0	49767.0	78337.0	87622.0	88222.0	88237.0	87608.0	83763.0	77446.0	69360.0
35	54219.0	51037.0	42951.0	47978.0	76345.0	87452.0	88036.0	88136.0	87381.0	81353.0	75691.0	67496.0
40	53083.0	48676.0	41558.0	45910.0	74761.0	87168.0	87951.0	88065.0	87083.0	80446.0	74218.0	65031.0
45	51970.0	45071.0	40769.0	44913.0	72143.0	86516.0	87779.0	87922.0	86842.0	79804.0	72691.0	62188.0
50	51003.0	43116.0	39908.0	43749.0	69399.0	86106.0	87608.0	87736.0	86658.0	79340.0	71451.0	60362.0
55	49900.0	41527.0	39451.0	42364.0	66777.0	85514.0	87424.0	87622.0	86558.0	78934.0	70015.0	58929.0
60	47848.0	39580.0	38918.0	41588.0	63850.0	84797.0	87211.0	87452.0	86374.0	78228.0	68528.0	57549.0
65	46454.0	38329.0	38028.0	40669.0	60592.0	83665.0	87026.0	87240.0	85979.0	77487.0	66928.0	56067.0
70	45261.0	37476.0	36508.0	37660.0	54555.0	82928.0	86771.0	87012.0	85613.0	76185.0	64832.0	54439.0
75	43854.0	36680.0	35704.0	35940.0	51003.0	81422.0	86530.0	86842.0	85022.0	74311.0	63430.0	52504.0
80	41548.0	35346.0	34178.0	33329.0	39610.0	78839.0	86078.0	86629.0	84210.0	73177.0	61271.0	49700.0
85	39381.0	33794.0	31517.0	30250.0	33784.0	74085.0	85543.0	86459.0	82859.0	70726.0	57774.0	46637.0
90	35207.0	28486.0	28578.0	25623.0	30689.0	68566.0	84909.0	86233.0	81422.0	69502.0	56219.0	39016.0
95	33058.0	17578.0	7257.0	6360.0	20799.0	54821.0	83944.0	85529.0	78215.0	65921.0	42910.0	36900.0
99	11338.0	4042.0	2740.0	3251.0	7769.0	33483.0	70351.0	84853.0	71621.0	55704.0	37034.0	33904.0
Minimum	5906.0	3303.0	2534.0	2935.0	6452.0	32474.0	61186.0	84532.0	68362.0	50412.0	34316.0	32581.0
Average	54695.1	46511.8	40299.3	43678.3	63063.4	81583.6	86971.6	87553.3	85661.7	78791.0	70348.3	62690.3
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-12B. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88322.0	87765.0	72078.0	60168.0	86473.0	89109.0	89166.0	89152.0	89123.0	88780.0	88523.0	88365.0
1	88237.0	87736.0	69887.0	57667.0	85768.0	89052.0	89123.0	89109.0	88952.0	88651.0	88279.0	88279.0
5	88108.0	86743.0	61638.0	52095.0	84266.0	88766.0	89095.0	89052.0	88809.0	88351.0	88122.0	88036.0
10	87936.0	81312.0	54173.0	47935.0	82415.0	88508.0	89009.0	88966.0	88565.0	87993.0	87693.0	87793.0
15	80624.0	61405.0	51374.0	45643.0	80665.0	88451.0	88937.0	88909.0	88422.0	87765.0	83178.0	79996.0
20	76505.0	58595.0	47111.0	45092.0	78567.0	88308.0	88851.0	88823.0	88294.0	87239.0	80855.0	73703.0
25	67993.0	55786.0	45377.0	44396.0	75053.0	88151.0	88794.0	88723.0	88222.0	86374.0	80351.0	71024.0
30	55157.0	54335.0	44544.0	42364.0	69784.0	87908.0	88723.0	88623.0	88094.0	86120.0	79955.0	69014.0
35	52629.0	53416.0	44291.0	41762.0	63344.0	87509.0	88623.0	88494.0	88008.0	85571.0	78920.0	68120.0
40	51981.0	50000.0	42631.0	40117.0	56711.0	86700.0	88422.0	88451.0	87908.0	84937.0	77446.0	66461.0
45	51745.0	42662.0	40628.0	38947.0	51486.0	86360.0	88351.0	88408.0	87850.0	80926.0	76399.0	63184.0
50	48819.0	41101.0	39401.0	37130.0	46788.0	84154.0	88279.0	88365.0	87750.0	79996.0	72221.0	61540.0
55	47523.0	39036.0	38408.0	36308.0	39759.0	83012.0	88165.0	88308.0	87665.0	79327.0	70480.0	58369.0
60	46809.0	37370.0	37941.0	35449.0	36929.0	79886.0	88108.0	88251.0	87552.0	78689.0	69656.0	56102.0
65	46080.0	36204.0	32941.0	34417.0	34041.0	75785.0	87993.0	88179.0	87424.0	78256.0	69065.0	54752.0
70	44744.0	34343.0	32154.0	32456.0	33620.0	70196.0	87865.0	88136.0	87225.0	77863.0	67929.0	52504.0
75	43749.0	32509.0	30801.0	31194.0	32581.0	63430.0	87651.0	88051.0	86984.0	76948.0	64310.0	50812.0
80	41751.0	29788.0	29382.0	29449.0	30852.0	59290.0	87466.0	87979.0	86658.0	74258.0	61271.0	49072.0
85	37834.0	28106.0	28611.0	27491.0	29898.0	55169.0	86345.0	87865.0	86431.0	72836.0	58357.0	46939.0
90	22985.0	20867.0	27475.0	25483.0	25050.0	48753.0	84434.0	87722.0	85937.0	70079.0	57207.0	46336.0
95	15446.0	6711.0	24471.0	23315.0	19460.0	37409.0	76105.0	87537.0	84392.0	66297.0	56688.0	40407.0
99	6898.0	3303.0	23863.0	20950.0	17397.0	32474.0	62913.0	87410.0	81325.0	60992.0	56207.0	34779.0
Minimum	5906.0	3303.0	23758.0	20826.0	17194.0	32474.0	61186.0	87310.0	81050.0	60362.0	56172.0	34160.0
Average	53074.8	45174.5	40075.9	37594.3	51260.9	75657.2	87067.8	88356.8	87407.5	80345.1	72763.0	62477.1
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-12C. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Above Normal Water Years (1984, 1999, 2000)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	85162.0	72954.0	58846.0	57845.0	88065.0	88780.0	88909.0	88837.0	88923.0	88837.0	88422.0	87452.0
5	84546.0	71192.0	57254.0	52186.0	87509.0	88580.0	88823.0	88637.0	88608.0	88494.0	87168.0	87282.0
10	82790.0	69322.0	54590.0	51138.0	83791.0	88465.0	88766.0	88608.0	88508.0	87865.0	86587.0	86729.0
15	80556.0	65332.0	51621.0	50078.0	83414.0	88408.0	88737.0	88580.0	88322.0	86970.0	86303.0	86431.0
20	79572.0	64372.0	50067.0	49678.0	82859.0	88279.0	88680.0	88537.0	88208.0	86643.0	85923.0	86190.0
25	77016.0	62839.0	48370.0	49050.0	81284.0	88194.0	88666.0	88494.0	88194.0	86233.0	85712.0	86007.0
30	74403.0	60252.0	47370.0	47068.0	80242.0	88036.0	88608.0	88422.0	88108.0	86064.0	85458.0	84923.0
35	46464.0	52175.0	46745.0	46272.0	78025.0	87922.0	88565.0	88337.0	88079.0	85979.0	77608.0	74165.0
40	45718.0	51644.0	45963.0	44713.0	76800.0	87808.0	88465.0	88279.0	87993.0	85641.0	76652.0	69630.0
45	44354.0	51217.0	45081.0	43812.0	75985.0	87779.0	88365.0	88222.0	87908.0	82679.0	76118.0	64559.0
50	43541.0	50812.0	43239.0	42858.0	75119.0	87722.0	88351.0	88165.0	87850.0	80733.0	75785.0	62188.0
55	42590.0	50467.0	41324.0	42036.0	72639.0	87622.0	88279.0	88094.0	87722.0	79586.0	75265.0	59422.0
60	41192.0	48676.0	41142.0	41415.0	69219.0	87594.0	88136.0	88036.0	87580.0	79123.0	74986.0	51262.0
65	40337.0	47327.0	40820.0	41061.0	65181.0	87438.0	88008.0	87979.0	87367.0	78811.0	74642.0	46551.0
70	35207.0	38437.0	40186.0	36403.0	62543.0	87310.0	87922.0	87951.0	87239.0	78500.0	46702.0	38506.0
75	34593.0	38047.0	39630.0	33067.0	59782.0	86941.0	87779.0	87836.0	87097.0	75958.0	43043.0	37496.0
80	34013.0	37612.0	39202.0	31421.0	56394.0	86120.0	87679.0	87708.0	87027.0	72326.0	42868.0	37187.0
85	33720.0	37024.0	39124.0	28436.0	53278.0	83637.0	87424.0	87395.0	86587.0	67471.0	42580.0	36900.0
90	33574.0	36709.0	38427.0	26694.0	46368.0	83095.0	87183.0	87339.0	85923.0	59193.0	42498.0	36719.0
95	33086.0	36585.0	36518.0	25421.0	40146.0	81890.0	86941.0	86913.0	85374.0	54404.0	42364.0	35968.0
Minimum	33058.0	36527.0	34686.0	24859.0	38516.0	81559.0	86388.0	86742.0	83888.0	50412.0	41904.0	35225.0
Average	52600.4	51327.9	44727.4	41303.8	69977.2	86967.6	88169.5	88077.2	87544.0	78836.8	68618.0	61691.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-12D. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Dry Water Years (1985, 2001, 2002)

Storage (acre-feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88437.0	84657.0	70584.0	81215.0	88479.0	88620.0	88737.0	88723.0	88694.0	85022.0	85120.0	88580.0
5	88165.0	81849.0	69656.0	80720.0	88079.0	88494.0	88551.0	88423.0	88050.0	84336.0	84140.0	88351.0
10	87779.0	79354.0	68528.0	80173.0	87878.0	88380.0	88479.0	88366.0	87438.0	82776.0	83805.0	87951.0
15	87452.0	76908.0	67257.0	79886.0	87566.0	88350.0	88279.0	88208.0	86899.0	81077.0	83303.0	87466.0
20	87225.0	74509.0	66473.0	79069.0	87353.0	88214.0	88121.0	88107.0	86771.0	79955.0	79818.0	87112.0
25	86771.0	71582.0	66410.0	77890.0	87126.0	88054.0	88036.0	88093.0	86743.0	79641.0	76572.0	87041.0
30	86007.0	70002.0	66284.0	75558.0	86913.0	87965.0	87993.0	88008.0	86629.0	79395.0	71621.0	86913.0
35	45557.0	39065.0	45472.0	73401.0	86658.0	87936.0	87951.0	87908.0	86572.0	79300.0	70131.0	59541.0
40	45303.0	38437.0	41792.0	72104.0	86402.0	87894.0	87878.0	87736.0	86544.0	79001.0	67980.0	55973.0
45	44208.0	37931.0	40809.0	70209.0	86105.0	87830.0	87851.0	87693.0	86473.0	78214.0	66499.0	53840.0
50	42755.0	37728.0	40066.0	66347.0	85937.0	87750.0	87723.0	87622.0	86416.0	77581.0	64236.0	53256.0
55	41476.0	37476.0	39620.0	62237.0	85585.0	87666.0	87622.0	87523.0	85317.0	76813.0	61577.0	50067.0
60	39958.0	37226.0	39431.0	58596.0	84461.0	87609.0	87537.0	87438.0	84210.0	75772.0	61405.0	47500.0
65	39700.0	36871.0	38378.0	57066.0	83944.0	87538.0	87395.0	87154.0	82929.0	74324.0	60277.0	45878.0
70	39649.0	36651.0	37476.0	55832.0	83469.0	87475.0	87268.0	86927.0	82664.0	73336.0	54995.0	39213.0
75	39321.0	36223.0	36700.0	54242.0	83150.0	87254.0	86927.0	86743.0	80542.0	72247.0	52004.0	38614.0
80	38555.0	35761.0	36336.0	53267.0	81903.0	87154.0	86785.0	86629.0	79804.0	71192.0	51329.0	38417.0
85	37496.0	35039.0	36043.0	52265.0	81105.0	86743.0	86743.0	86587.0	77473.0	69360.0	46017.0	37844.0
90	35741.0	34751.0	35638.0	50389.0	79928.0	86134.0	86672.0	86516.0	74866.0	65870.0	39937.0	34408.0
95	35225.0	34547.0	35207.0	47284.0	75451.0	85585.0	86501.0	86402.0	69348.0	62114.0	35836.0	33285.0
Minimum	34779.0	34297.0	34648.0	43219.0	70881.0	85402.0	86105.0	86331.0	68362.0	60385.0	34316.0	32581.0
Average	55888.4	49847.0	48227.2	65691.7	84576.9	87566.1	87596.9	87493.4	83370.9	75928.5	63874.7	58892.0
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-12E. Huntington Lake Storage (Gage 11236000)
Historical Daily Exceedance Storage
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	87154.0	75678.0	54925.0	65432.0	86218.0	87822.0	88036.0	88494.0	87225.0	87410.0	87438.0	87523.0
1	87083.0	75159.0	52856.0	65156.0	85275.0	87750.0	87993.0	88222.0	87112.0	87168.0	87310.0	87509.0
5	86870.0	70364.0	50100.0	61065.0	81807.0	87481.0	87679.0	87651.0	86984.0	86998.0	87126.0	87296.0
10	82970.0	62420.0	47338.0	57077.0	78337.0	87353.0	87466.0	87552.0	86743.0	86828.0	86544.0	86856.0
15	61882.0	52084.0	44818.0	53646.0	76787.0	86601.0	87339.0	87410.0	86643.0	86587.0	79832.0	73625.0
20	57030.0	51655.0	43854.0	51666.0	76065.0	86162.0	87211.0	87197.0	86558.0	84252.0	76479.0	72104.0
25	56382.0	51048.0	42642.0	50857.0	75092.0	85965.0	87112.0	87112.0	86388.0	82818.0	74244.0	69771.0
30	55169.0	50267.0	41619.0	50022.0	73546.0	85655.0	87027.0	87027.0	86204.0	81009.0	73651.0	66890.0
35	54578.0	47935.0	40739.0	48577.0	71869.0	85317.0	86927.0	86984.0	86064.0	80487.0	73059.0	66322.0
40	54127.0	46594.0	40017.0	46993.0	70234.0	84965.0	86700.0	86870.0	85852.0	80242.0	72574.0	64559.0
45	53405.0	44681.0	39739.0	45526.0	69258.0	84629.0	86544.0	86757.0	85529.0	79927.0	72260.0	62261.0
50	53175.0	43864.0	39212.0	44660.0	67802.0	84378.0	86402.0	86643.0	85261.0	79422.0	71360.0	60895.0
55	52606.0	43116.0	38859.0	43614.0	66777.0	83539.0	86162.0	86572.0	84881.0	78730.0	70015.0	60119.0
60	51711.0	42240.0	37428.0	42755.0	65708.0	83039.0	85937.0	86459.0	84504.0	77567.0	67967.0	59542.0
65	51127.0	41660.0	36308.0	41639.0	63788.0	82609.0	85782.0	86360.0	84098.0	76185.0	67054.0	58738.0
70	50612.0	40699.0	35723.0	41344.0	61809.0	81615.0	85472.0	86275.0	83123.0	74668.0	66335.0	57917.0
75	50467.0	39560.0	35235.0	40387.0	59374.0	80501.0	85177.0	86092.0	82679.0	73927.0	65006.0	57443.0
80	50034.0	38918.0	32704.0	37525.0	54555.0	78961.0	84937.0	85782.0	81766.0	72587.0	64372.0	56711.0
85	49028.0	33320.0	31290.0	35346.0	52640.0	78391.0	84825.0	85613.0	81243.0	70273.0	63566.0	55763.0
90	47359.0	22889.0	3540.0	5055.0	25911.0	75397.0	84378.0	85162.0	79504.0	69938.0	62249.0	54393.0
95	45355.0	15379.0	2975.0	3475.0	9658.0	70778.0	83539.0	84965.0	76479.0	68439.0	58703.0	52549.0
99	43760.0	8263.0	2534.0	3036.0	6452.0	68566.0	81532.0	84587.0	74191.0	66549.0	57691.0	51925.0
Minimum	43697.0	8263.0	2534.0	2935.0	6452.0	68235.0	81215.0	84532.0	73782.0	66084.0	57667.0	51857.0
Average	56701.7	44335.6	35227.2	41345.8	62682.8	82638.6	86093.9	86551.0	84091.1	78443.9	71449.5	64959.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-13A. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
(1/11/1927 to 9/30/2002)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5364.5	5359.9	5358.1	5356.4	5369.3	5370.2	5370.2	5370.3	5370.1	5370.0	5370.0	5369.9
1	5363.5	5358.2	5355.1	5354.2	5367.0	5370.1	5370.2	5370.2	5369.9	5368.7	5369.4	5367.5
5	5354.5	5349.4	5347.9	5348.6	5359.3	5369.7	5370.1	5370.0	5368.9	5364.5	5361.5	5359.0
10	5347.4	5347.2	5344.5	5344.1	5353.9	5369.2	5370.0	5369.8	5367.0	5361.4	5356.5	5350.1
15	5339.4	5335.8	5333.5	5335.8	5350.1	5368.2	5369.9	5369.5	5363.8	5355.2	5346.7	5342.8
20	5333.3	5329.6	5328.0	5329.4	5346.7	5367.0	5369.8	5368.9	5360.6	5351.2	5341.5	5337.3
25	5328.5	5323.9	5320.8	5324.2	5343.2	5365.6	5369.6	5367.3	5357.6	5346.0	5337.7	5333.0
30	5322.7	5318.9	5318.0	5319.8	5340.7	5364.0	5369.3	5365.3	5354.8	5343.5	5336.2	5330.4
35	5319.8	5316.0	5315.4	5316.3	5338.0	5362.0	5368.9	5363.1	5351.8	5341.2	5334.0	5326.1
40	5316.8	5314.3	5313.1	5312.6	5334.4	5360.1	5368.2	5361.2	5349.1	5338.9	5332.1	5323.7
45	5313.4	5313.2	5308.7	5309.5	5331.0	5357.6	5366.8	5359.5	5346.9	5336.8	5329.7	5321.5
50	5311.6	5309.2	5305.2	5306.8	5328.3	5355.6	5365.4	5357.7	5344.5	5335.2	5327.6	5318.9
55	5309.1	5305.4	5302.9	5304.8	5325.5	5353.0	5363.5	5355.2	5342.5	5332.7	5325.0	5316.1
60	5307.1	5303.5	5301.1	5302.9	5322.0	5350.5	5361.5	5352.1	5340.1	5330.2	5322.4	5314.3
65	5304.8	5301.6	5299.2	5300.1	5318.5	5347.2	5357.7	5347.1	5337.5	5327.1	5319.6	5311.7
70	5302.8	5299.6	5297.5	5297.6	5314.4	5342.2	5348.4	5341.0	5333.0	5323.5	5315.8	5308.3
75	5301.1	5297.8	5295.6	5294.9	5311.5	5338.0	5338.9	5330.5	5325.6	5315.7	5309.4	5304.6
80	5297.1	5294.6	5293.2	5292.0	5308.2	5329.1	5330.5	5320.7	5307.6	5304.5	5303.7	5301.9
85	5292.4	5288.7	5290.7	5288.1	5305.9	5322.5	5317.8	5307.5	5299.3	5296.8	5299.3	5297.0
90	5286.7	5285.4	5283.9	5283.4	5300.3	5311.7	5308.3	5301.3	5291.8	5288.5	5285.6	5286.6
95	5278.3	5279.0	5275.9	5276.6	5293.5	5306.4	5298.7	5286.5	5283.6	5281.3	5281.5	5282.9
99	5262.5	5254.9	5254.4	5257.8	5270.6	5270.5	5269.9	5268.0	5266.3	5265.5	5271.0	5268.3
Minimum	5228.2	5228.8	5242.7	5255.8	5259.5	5270.2	5268.6	5266.7	5265.8	5264.1	5265.8	5264.5
Average	5313.9	5310.8	5309.0	5309.7	5327.3	5348.2	5351.6	5345.6	5337.2	5329.6	5324.2	5319.1
# Days	2346	2139	2356	2280	2348	2280	2356	2356	2280	2325	2242	2325
# Years	76	76	76	76	76	76	76	76	76	75	75	75

Table CAWG 6 Appdx G-13B. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

Elevation (feet)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5364.5	5359.9	5358.1	5355.4	5367.9	5370.1	5370.2	5370.3	5370.1	5370.0	5370.0	5369.9
1	5364.0	5359.1	5356.5	5354.8	5367.4	5370.0	5370.2	5370.2	5370.0	5368.9	5369.8	5369.7
5	5362.2	5357.0	5350.5	5352.6	5363.5	5369.6	5370.2	5370.2	5369.8	5367.0	5365.9	5365.3
10	5358.6	5349.6	5346.2	5347.1	5358.6	5369.2	5370.1	5370.1	5369.5	5364.1	5361.0	5359.4
15	5352.0	5347.6	5344.2	5344.4	5354.2	5368.8	5370.1	5370.0	5369.2	5356.1	5350.0	5352.2
20	5346.2	5341.1	5338.5	5337.2	5350.2	5368.2	5370.0	5369.9	5368.6	5349.3	5346.1	5346.7
25	5338.9	5331.8	5334.6	5335.1	5344.7	5367.6	5370.0	5369.9	5368.1	5345.4	5339.6	5337.5
30	5333.3	5325.5	5328.4	5325.1	5341.7	5366.1	5370.0	5369.8	5367.4	5344.0	5337.3	5334.4
35	5327.1	5322.9	5319.8	5315.9	5339.0	5365.1	5369.9	5369.7	5366.4	5341.7	5336.6	5332.1
40	5323.8	5320.6	5317.3	5313.9	5335.6	5363.9	5369.8	5369.6	5365.6	5338.8	5333.6	5327.9
45	5319.6	5318.9	5315.9	5311.0	5332.4	5362.4	5369.7	5369.5	5364.2	5336.8	5330.8	5324.9
50	5315.6	5317.5	5314.9	5309.2	5329.7	5360.9	5369.6	5369.4	5362.9	5335.9	5328.6	5321.4
55	5312.6	5312.5	5311.5	5303.6	5326.8	5359.4	5369.5	5369.2	5361.0	5334.6	5326.2	5317.6
60	5310.8	5309.5	5306.9	5301.9	5323.2	5357.9	5369.4	5368.9	5359.5	5332.1	5323.4	5315.5
65	5309.4	5305.6	5303.9	5296.7	5319.7	5356.2	5369.1	5368.2	5357.5	5329.6	5321.4	5314.0
70	5308.5	5303.2	5301.1	5295.2	5316.1	5354.3	5368.9	5367.3	5354.0	5327.4	5319.3	5312.7
75	5307.2	5302.3	5299.1	5293.2	5312.5	5352.4	5368.6	5365.9	5351.4	5325.1	5314.7	5310.3
80	5304.7	5300.0	5296.0	5287.2	5308.3	5350.0	5367.5	5364.2	5349.5	5315.6	5313.2	5308.3
85	5302.6	5297.6	5293.4	5282.8	5304.3	5347.3	5366.1	5361.9	5347.7	5313.2	5304.5	5305.9
90	5301.6	5294.7	5290.0	5278.2	5298.1	5344.6	5364.2	5359.5	5345.6	5304.5	5302.5	5303.0
95	5297.1	5288.2	5282.1	5275.0	5293.5	5338.6	5362.8	5355.9	5341.5	5292.6	5301.1	5301.1
99	5287.6	5273.7	5261.7	5269.9	5273.2	5324.9	5360.9	5351.6	5336.6	5281.2	5282.5	5284.0
Minimum	5287.2	5264.7	5249.4	5269.0	5271.3	5317.0	5356.4	5348.9	5335.9	5280.7	5281.8	5283.8
Average	5322.9	5318.3	5315.4	5310.8	5328.8	5358.6	5368.5	5367.0	5359.7	5333.9	5328.9	5325.7
# Days	713	648	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-13C. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5349.6	5350.6	5350.9	5350.0	5366.7	5370.2	5370.2	5370.0	5368.3	5369.6	5368.5	5357.4
1	5349.5	5350.1	5350.7	5349.7	5364.4	5370.2	5370.2	5369.9	5367.0	5368.7	5367.0	5355.9
5	5348.5	5349.2	5348.3	5346.7	5358.6	5370.1	5370.1	5369.5	5363.6	5367.5	5361.5	5354.2
10	5347.1	5347.4	5347.3	5342.6	5355.4	5369.9	5370.1	5368.9	5361.8	5366.0	5359.8	5351.4
15	5336.6	5335.3	5329.0	5336.7	5352.4	5369.8	5370.0	5368.0	5360.6	5363.2	5358.2	5348.7
20	5334.0	5332.0	5325.9	5331.0	5350.7	5369.7	5370.0	5367.0	5359.3	5362.2	5356.5	5344.0
25	5332.6	5328.1	5324.7	5326.3	5349.2	5369.5	5369.9	5366.0	5356.7	5361.4	5354.6	5341.7
30	5331.4	5327.3	5322.6	5324.1	5347.5	5369.3	5369.9	5365.4	5354.0	5360.3	5350.6	5339.4
35	5330.0	5324.8	5320.6	5321.2	5345.7	5368.9	5369.9	5364.5	5352.4	5357.0	5345.7	5337.0
40	5322.9	5320.1	5306.4	5315.1	5344.0	5368.2	5369.9	5363.4	5351.5	5341.4	5333.3	5335.0
45	5321.5	5305.7	5299.7	5312.3	5342.0	5367.4	5369.7	5362.8	5350.3	5337.2	5328.5	5324.3
50	5306.3	5299.2	5298.7	5306.5	5339.9	5366.0	5369.4	5361.5	5349.0	5334.9	5325.5	5323.5
55	5304.7	5298.3	5297.3	5298.3	5337.2	5365.0	5369.2	5360.3	5347.8	5331.4	5324.3	5312.2
60	5300.4	5297.9	5295.5	5295.1	5334.0	5364.1	5368.9	5359.4	5346.5	5328.7	5321.0	5309.1
65	5295.9	5297.5	5294.6	5292.1	5330.3	5362.9	5368.4	5358.1	5344.4	5325.8	5317.9	5304.7
70	5293.9	5295.3	5292.7	5290.0	5327.2	5361.7	5368.0	5356.6	5342.7	5323.9	5315.0	5302.5
75	5290.4	5294.0	5291.6	5288.3	5322.7	5360.1	5367.0	5355.4	5340.8	5322.6	5310.9	5299.0
80	5283.3	5283.1	5278.1	5283.4	5316.9	5358.1	5365.9	5354.0	5340.0	5292.1	5289.5	5288.5
85	5277.9	5277.2	5275.4	5278.7	5305.1	5355.6	5365.0	5351.5	5337.6	5289.6	5288.2	5286.9
90	5276.5	5267.7	5257.9	5272.2	5296.1	5352.5	5363.0	5347.3	5335.2	5271.2	5272.0	5275.5
95	5270.6	5261.1	5255.3	5257.8	5270.6	5270.5	5269.9	5268.0	5266.3	5270.9	5271.4	5273.0
99	5228.8	5229.8	5244.0	5257.2	5263.1	5270.3	5268.9	5266.9	5265.8	5270.5	5271.3	5272.3
Minimum	5228.2	5228.8	5242.7	5255.8	5259.5	5270.2	5268.6	5266.7	5265.8	5270.5	5271.2	5272.2
Average	5309.6	5306.8	5303.5	5306.2	5332.2	5358.6	5361.9	5355.0	5344.4	5331.2	5325.3	5318.1
# Days	455	417	465	450	465	450	465	465	450	434	412	434
# Years	15	15	15	15	15	15	15	15	15	14	14	14

Table CAWG 6 Appdx G-13D. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5320.9	5316.3	5316.0	5328.8	5362.1	5368.8	5369.8	5366.9	5358.9	5359.3	5341.9	5334.5
1	5320.2	5315.5	5314.6	5327.7	5360.1	5368.2	5369.7	5366.0	5357.3	5358.3	5340.6	5334.1
5	5318.9	5314.3	5311.3	5324.3	5353.9	5367.1	5369.4	5364.2	5353.0	5354.6	5337.4	5332.7
10	5317.7	5313.8	5310.3	5319.9	5350.7	5366.7	5368.9	5363.1	5350.0	5350.1	5336.2	5329.8
15	5316.7	5312.6	5309.0	5316.7	5349.2	5365.8	5368.4	5361.9	5348.2	5345.5	5335.8	5326.4
20	5314.3	5311.5	5307.9	5311.1	5346.5	5364.7	5368.3	5360.6	5347.3	5343.0	5334.9	5323.7
25	5313.5	5310.6	5307.2	5309.4	5343.9	5363.4	5368.1	5359.3	5346.4	5340.6	5332.8	5322.4
30	5313.2	5309.7	5306.4	5308.4	5341.7	5361.8	5367.5	5358.2	5345.6	5339.1	5330.7	5321.4
35	5312.0	5307.6	5303.6	5307.5	5339.4	5361.1	5366.7	5357.0	5344.7	5337.7	5329.1	5320.7
40	5311.5	5307.1	5303.3	5305.7	5337.4	5359.8	5365.7	5356.1	5343.8	5336.9	5328.5	5319.8
45	5309.8	5306.4	5303.2	5304.7	5335.1	5358.6	5364.8	5355.0	5342.9	5336.2	5328.0	5317.9
50	5309.1	5305.9	5302.4	5303.9	5333.2	5357.3	5363.4	5353.7	5341.7	5334.5	5327.1	5316.4
55	5308.3	5305.2	5301.9	5303.0	5331.1	5356.8	5362.0	5352.4	5340.3	5332.6	5325.5	5315.3
60	5307.1	5304.0	5301.5	5300.8	5329.4	5355.9	5361.0	5351.0	5339.3	5331.0	5324.1	5314.3
65	5305.8	5303.9	5300.2	5299.8	5326.8	5354.7	5360.5	5349.5	5338.9	5329.8	5322.3	5312.5
70	5305.0	5303.5	5299.5	5298.0	5323.8	5353.4	5359.2	5347.2	5338.0	5328.0	5318.2	5310.5
75	5302.5	5301.6	5298.9	5295.4	5321.7	5352.5	5352.6	5345.2	5336.1	5321.5	5312.5	5307.5
80	5301.8	5301.5	5297.8	5293.2	5317.5	5351.4	5350.7	5343.2	5334.9	5316.1	5309.7	5304.1
85	5292.7	5293.4	5295.8	5291.4	5313.2	5347.8	5348.7	5341.1	5333.7	5282.8	5281.8	5295.5
90	5287.2	5287.3	5290.4	5289.5	5310.0	5341.4	5346.4	5337.6	5332.5	5281.6	5281.4	5284.8
95	5264.8	5259.3	5270.7	5287.2	5300.7	5329.1	5329.0	5326.6	5318.3	5264.7	5270.3	5266.8
99	5260.5	5254.8	5265.5	5285.0	5289.5	5324.5	5328.8	5323.3	5315.7	5264.1	5266.0	5265.0
Minimum	5257.7	5254.3	5264.4	5284.0	5288.3	5323.9	5322.0	5322.6	5315.5	5264.1	5265.8	5264.5
Average	5304.9	5301.8	5300.5	5303.9	5331.5	5355.7	5359.3	5351.3	5340.5	5325.5	5318.2	5312.0
# Days	341	311	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-13E. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Dry Water Years (1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5363.6	5357.1	5352.0	5356.4	5369.3	5369.6	5366.7	5363.5	5358.2	5359.5	5358.6	5363.4
1	5363.5	5356.5	5352.0	5355.8	5368.6	5369.5	5366.5	5362.8	5358.0	5358.7	5358.4	5362.8
5	5360.7	5350.9	5351.6	5353.5	5361.0	5367.6	5365.6	5361.5	5357.5	5356.6	5356.9	5361.0
10	5346.4	5348.0	5345.1	5349.6	5357.1	5367.0	5364.6	5360.6	5356.9	5355.2	5346.3	5344.1
15	5344.6	5346.7	5344.4	5346.2	5352.7	5365.0	5363.8	5360.0	5356.3	5354.4	5344.5	5343.8
20	5329.0	5330.1	5331.9	5335.9	5343.9	5361.2	5362.8	5359.1	5354.8	5353.8	5343.5	5335.2
25	5328.5	5320.1	5321.5	5333.0	5341.5	5357.3	5361.8	5358.0	5346.2	5353.1	5342.4	5332.4
30	5325.6	5317.1	5320.2	5325.5	5340.3	5351.1	5360.9	5354.8	5339.9	5351.9	5340.9	5331.5
35	5322.3	5315.9	5319.5	5324.1	5337.0	5350.3	5360.0	5350.1	5336.0	5350.2	5339.3	5329.8
40	5321.1	5315.2	5317.4	5322.5	5334.5	5349.6	5356.1	5344.8	5331.8	5348.8	5337.3	5328.4
45	5320.0	5314.7	5315.7	5320.5	5331.1	5344.3	5348.0	5340.0	5328.6	5346.8	5335.6	5326.4
50	5318.5	5314.3	5315.1	5319.8	5329.1	5341.9	5340.5	5336.4	5326.6	5344.9	5334.5	5324.9
55	5313.5	5314.0	5314.2	5317.5	5327.2	5340.2	5339.3	5332.8	5325.7	5342.8	5334.2	5323.7
60	5312.9	5313.6	5309.4	5309.2	5325.3	5338.5	5335.2	5329.1	5325.2	5341.1	5333.3	5322.6
65	5312.2	5313.3	5306.1	5307.4	5321.9	5337.5	5331.0	5324.9	5321.0	5339.8	5331.8	5321.4
70	5308.2	5303.0	5302.9	5305.6	5314.8	5335.6	5330.3	5312.7	5300.6	5338.5	5331.2	5320.4
75	5305.5	5302.5	5302.0	5301.5	5313.3	5328.8	5321.7	5306.4	5296.6	5336.8	5330.0	5318.4
80	5303.6	5300.5	5300.4	5298.5	5312.4	5326.0	5315.9	5302.4	5292.6	5334.9	5328.5	5316.1
85	5302.4	5300.0	5296.2	5297.9	5311.3	5313.7	5309.6	5299.6	5290.0	5332.9	5326.2	5313.9
90	5301.4	5297.9	5293.2	5293.5	5310.0	5312.4	5306.9	5297.3	5289.5	5332.4	5322.3	5311.3
95	5295.9	5285.2	5282.8	5282.5	5300.5	5310.0	5303.6	5289.9	5284.1	5327.2	5318.3	5308.4
99	5288.3	5283.2	5280.5	5279.7	5291.2	5307.5	5296.2	5285.9	5282.0	5318.9	5317.7	5306.6
Minimum	5287.5	5282.8	5280.4	5279.6	5286.2	5307.4	5294.9	5285.4	5281.8	5317.9	5317.4	5305.1
Average	5320.0	5316.0	5315.5	5318.1	5329.8	5342.0	5340.6	5332.3	5324.1	5344.1	5335.8	5327.6
# Days	372	339	372	360	364	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx G-13F. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5349.9	5349.0	5348.3	5347.8	5348.3	5351.4	5352.3	5349.5	5344.4	5363.6	5364.6	5359.3
1	5348.8	5348.8	5347.5	5347.6	5348.2	5350.9	5352.1	5348.8	5343.6	5363.0	5364.5	5358.4
5	5347.4	5347.4	5343.9	5344.7	5347.0	5348.9	5350.6	5346.6	5342.6	5362.4	5362.0	5352.2
10	5340.1	5337.8	5332.9	5330.3	5340.8	5345.8	5347.8	5341.0	5342.0	5343.2	5341.1	5341.0
15	5333.4	5334.2	5332.3	5328.6	5329.5	5342.0	5344.9	5332.0	5329.7	5341.7	5336.7	5333.0
20	5321.6	5333.0	5320.0	5319.1	5326.1	5339.7	5340.7	5330.6	5324.3	5340.2	5333.0	5328.6
25	5319.9	5317.4	5316.0	5317.7	5322.3	5336.4	5336.6	5329.0	5314.9	5334.3	5331.6	5321.6
30	5314.9	5314.5	5314.9	5316.1	5321.2	5332.0	5333.5	5324.6	5309.3	5323.9	5322.4	5318.2
35	5313.0	5314.0	5311.3	5310.8	5319.4	5326.9	5331.9	5317.1	5305.4	5322.5	5320.0	5315.9
40	5303.9	5306.3	5304.9	5309.8	5316.9	5322.7	5322.5	5314.4	5304.7	5315.3	5308.7	5306.5
45	5303.5	5303.7	5304.3	5306.1	5313.0	5322.5	5319.9	5311.5	5303.7	5310.0	5306.2	5303.1
50	5300.6	5299.5	5298.7	5305.2	5311.4	5321.7	5317.5	5309.6	5301.5	5303.9	5303.7	5303.1
55	5299.6	5298.4	5297.2	5304.4	5309.5	5318.6	5311.4	5306.0	5298.6	5303.4	5303.1	5301.6
60	5297.3	5295.0	5296.4	5303.3	5307.9	5312.0	5309.2	5305.5	5297.1	5301.5	5300.6	5298.2
65	5292.9	5292.6	5295.8	5302.1	5307.1	5311.2	5308.5	5303.4	5295.1	5297.1	5299.2	5297.2
70	5287.2	5288.3	5292.8	5300.9	5306.6	5310.0	5307.4	5301.3	5291.6	5296.4	5296.8	5294.2
75	5286.9	5287.6	5291.1	5299.5	5306.2	5309.1	5306.2	5293.1	5289.2	5293.6	5289.0	5286.7
80	5286.6	5287.2	5290.3	5297.1	5305.2	5306.5	5300.1	5288.8	5287.0	5290.0	5287.7	5286.3
85	5285.6	5285.4	5288.9	5293.4	5301.9	5304.6	5297.1	5284.6	5283.6	5288.4	5285.0	5286.2
90	5284.0	5285.0	5284.7	5289.7	5299.0	5303.0	5292.0	5274.2	5271.2	5286.9	5283.6	5284.8
95	5278.9	5280.3	5281.7	5284.1	5288.4	5289.2	5283.1	5271.6	5270.6	5283.3	5282.6	5282.9
99	5278.3	5279.2	5280.2	5282.8	5285.8	5288.8	5271.8	5270.6	5270.5	5281.1	5279.6	5281.2
Minimum	5278.3	5279.1	5280.1	5282.5	5284.5	5288.6	5271.8	5270.6	5270.5	5280.8	5277.7	5280.4
Average	5305.9	5305.8	5305.8	5309.0	5314.9	5321.3	5318.8	5309.8	5303.6	5313.1	5310.9	5308.5
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-14A. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
(10/1/1982 to 9/30/2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5364.5	5359.9	5358.1	5356.4	5369.3	5370.1	5370.2	5370.2	5370.0	5370.0	5370.0	5369.9
1	5364.0	5359.2	5356.6	5355.2	5367.8	5370.0	5370.1	5370.2	5370.0	5369.4	5369.8	5369.7
5	5363.1	5357.4	5352.0	5353.8	5365.7	5369.7	5370.0	5369.9	5369.7	5368.5	5368.5	5365.5
10	5361.2	5353.5	5350.8	5352.1	5361.3	5369.5	5369.8	5369.8	5369.4	5367.0	5364.8	5363.4
15	5359.0	5350.1	5349.3	5349.5	5358.7	5369.2	5369.6	5369.6	5368.6	5365.3	5363.1	5359.8
20	5353.7	5349.2	5347.8	5347.6	5356.7	5368.2	5369.4	5369.5	5367.6	5363.6	5360.6	5358.5
25	5349.6	5348.7	5346.9	5346.6	5353.9	5367.2	5369.1	5369.1	5365.0	5362.6	5358.6	5354.5
30	5348.4	5348.1	5345.2	5345.4	5351.0	5365.9	5368.8	5368.5	5362.6	5360.9	5357.1	5352.9
35	5347.6	5347.5	5344.5	5344.1	5348.1	5362.9	5367.9	5366.6	5360.6	5358.0	5354.6	5350.9
40	5347.0	5346.8	5343.5	5341.7	5346.7	5361.2	5366.7	5365.3	5358.7	5354.9	5349.2	5347.2
45	5346.0	5344.5	5337.0	5333.5	5342.4	5358.0	5365.9	5363.2	5357.3	5353.4	5346.7	5344.3
50	5341.2	5338.3	5334.8	5330.4	5340.7	5354.6	5365.3	5361.0	5356.2	5345.2	5344.4	5343.7
55	5336.9	5334.4	5332.6	5329.1	5339.3	5350.6	5364.0	5358.9	5349.6	5342.9	5341.8	5340.6
60	5333.4	5329.1	5329.9	5324.9	5335.4	5347.3	5350.8	5349.5	5343.0	5341.2	5333.5	5333.0
65	5325.9	5326.6	5325.4	5320.1	5330.5	5344.9	5347.8	5341.7	5342.2	5333.7	5321.6	5325.4
70	5320.7	5322.2	5320.3	5317.2	5328.3	5341.4	5340.5	5337.6	5330.0	5323.9	5318.3	5317.3
75	5315.2	5317.5	5319.2	5315.4	5325.4	5339.6	5337.8	5331.6	5328.0	5318.6	5314.2	5315.6
80	5303.9	5314.5	5317.1	5313.0	5320.5	5332.8	5332.7	5330.2	5321.4	5314.3	5309.2	5301.7
85	5301.2	5313.7	5313.2	5310.7	5317.3	5324.7	5318.5	5314.5	5308.0	5304.9	5300.6	5298.2
90	5293.3	5293.7	5300.4	5306.5	5312.1	5312.2	5311.5	5306.8	5302.0	5297.1	5297.8	5295.6
95	5286.1	5288.4	5295.3	5302.1	5309.5	5310.9	5308.8	5303.3	5297.2	5295.6	5290.5	5287.1
99	5283.5	5285.1	5291.6	5299.5	5305.4	5308.9	5307.0	5300.9	5295.4	5286.9	5280.9	5283.6
Minimum	5282.8	5284.5	5289.5	5298.5	5304.9	5307.7	5305.8	5299.7	5294.3	5284.8	5277.7	5283.2
Average	5333.7	5332.6	5331.7	5330.6	5339.1	5349.8	5352.5	5349.7	5344.9	5340.3	5336.7	5335.1
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-14B. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5364.5	5359.9	5358.1	5355.4	5367.9	5370.1	5370.2	5370.2	5370.0	5370.0	5370.0	5369.9
1	5364.4	5359.6	5357.6	5355.0	5367.7	5370.1	5370.2	5370.2	5370.0	5369.7	5369.9	5369.8
5	5363.8	5359.0	5356.1	5354.2	5367.2	5369.9	5370.1	5370.2	5369.9	5368.7	5369.7	5369.6
10	5363.4	5358.3	5355.1	5353.3	5366.0	5369.7	5370.1	5370.1	5369.8	5368.6	5369.5	5367.9
15	5362.5	5357.2	5350.7	5353.0	5364.0	5369.6	5370.0	5369.9	5369.7	5367.2	5366.1	5365.4
20	5361.4	5355.5	5350.2	5350.1	5361.6	5369.4	5369.9	5369.9	5369.5	5366.1	5365.4	5364.9
25	5360.6	5353.1	5348.4	5347.8	5360.4	5369.2	5369.8	5369.9	5369.5	5365.0	5364.4	5364.5
30	5359.6	5350.1	5346.2	5346.5	5358.1	5369.0	5369.7	5369.8	5369.4	5364.4	5362.4	5360.0
35	5357.7	5349.1	5344.9	5345.3	5355.4	5368.6	5369.7	5369.7	5369.2	5363.8	5360.2	5359.2
40	5354.4	5348.6	5344.4	5344.5	5353.8	5368.0	5369.6	5369.6	5369.0	5363.1	5359.5	5358.7
45	5353.2	5348.3	5341.8	5342.5	5347.3	5367.2	5369.5	5369.6	5368.5	5358.0	5350.5	5353.0
50	5352.0	5347.4	5339.1	5337.4	5344.0	5362.3	5369.5	5369.6	5368.1	5355.9	5349.8	5352.2
55	5351.0	5345.5	5337.5	5334.3	5341.8	5360.6	5369.3	5369.5	5367.7	5351.9	5348.1	5349.7
60	5347.6	5343.1	5336.6	5331.1	5339.8	5359.1	5369.2	5369.5	5367.3	5344.5	5347.1	5347.1
65	5346.3	5340.5	5335.2	5329.1	5337.1	5357.7	5369.0	5369.4	5366.4	5344.1	5346.1	5346.7
70	5345.9	5336.4	5334.0	5325.1	5334.6	5356.4	5368.8	5369.2	5364.8	5342.6	5344.3	5345.9
75	5325.1	5324.1	5331.5	5320.4	5332.0	5354.1	5367.9	5369.0	5363.2	5317.0	5313.7	5315.7
80	5320.5	5323.1	5327.8	5316.9	5329.7	5351.8	5366.8	5368.9	5360.6	5314.9	5313.4	5315.3
85	5316.9	5322.3	5324.5	5314.4	5327.8	5349.2	5366.3	5368.5	5358.8	5314.3	5313.0	5314.1
90	5301.9	5315.0	5318.8	5312.2	5326.5	5346.7	5365.6	5368.0	5356.9	5313.7	5305.2	5301.2
95	5301.6	5302.3	5316.9	5307.8	5320.6	5344.5	5362.9	5365.4	5351.5	5313.0	5302.5	5301.1
99	5301.2	5302.0	5316.0	5303.9	5316.5	5337.0	5361.0	5362.3	5346.4	5310.4	5301.9	5301.0
Minimum	5301.2	5302.0	5316.0	5303.7	5315.4	5336.1	5360.3	5361.7	5345.8	5310.0	5301.5	5301.0
Average	5343.5	5340.6	5339.0	5335.0	5345.6	5360.9	5368.5	5369.2	5365.5	5346.6	5344.1	5343.9
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-14C. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Above Normal Water Years (1984, 1999, 2000)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5349.6	5350.6	5350.9	5350.0	5360.3	5369.8	5369.8	5367.9	5365.1	5369.6	5368.5	5357.4
5	5349.5	5350.1	5350.7	5349.7	5358.2	5369.7	5369.6	5367.8	5364.8	5368.7	5367.0	5355.9
10	5349.3	5350.1	5349.6	5349.3	5356.6	5369.6	5369.4	5366.9	5363.9	5368.2	5365.3	5354.6
15	5349.0	5350.0	5349.2	5348.0	5354.9	5369.5	5369.3	5366.5	5363.4	5367.8	5363.7	5354.5
20	5348.6	5349.4	5348.9	5347.2	5353.2	5369.4	5369.2	5366.2	5362.6	5367.6	5361.8	5354.3
25	5348.5	5349.1	5348.3	5346.7	5351.8	5369.3	5369.0	5365.9	5362.5	5367.4	5360.2	5354.0
30	5348.2	5348.7	5347.9	5346.3	5351.1	5368.9	5369.0	5365.7	5362.0	5367.0	5358.7	5353.7
35	5348.1	5348.7	5347.8	5345.4	5350.7	5367.3	5368.9	5365.7	5361.7	5366.9	5358.3	5353.1
40	5348.1	5348.2	5347.6	5343.6	5349.8	5365.3	5368.7	5365.4	5361.2	5366.7	5358.2	5352.0
45	5347.6	5347.8	5347.4	5343.2	5349.4	5364.1	5368.5	5365.1	5360.8	5365.5	5357.6	5350.9
50	5347.0	5347.4	5347.3	5342.6	5348.7	5363.2	5368.3	5364.9	5360.4	5363.6	5357.0	5350.1
55	5346.2	5346.8	5347.1	5341.8	5347.9	5362.8	5368.0	5363.9	5360.0	5361.5	5355.6	5349.1
60	5346.0	5346.4	5346.6	5341.7	5347.3	5362.3	5367.8	5363.5	5359.6	5361.4	5355.0	5348.7
65	5345.7	5346.1	5345.8	5341.6	5345.7	5361.9	5367.4	5363.3	5358.5	5361.0	5354.7	5348.4
70	5336.4	5328.5	5326.2	5316.0	5344.1	5361.5	5367.0	5363.2	5351.5	5360.7	5353.8	5342.7
75	5335.4	5327.9	5324.4	5315.3	5340.2	5360.1	5366.5	5362.5	5348.6	5360.5	5351.0	5340.7
80	5334.0	5327.7	5322.9	5314.9	5333.6	5358.8	5366.0	5360.5	5346.1	5360.2	5349.4	5338.9
85	5333.0	5327.5	5321.6	5314.2	5327.9	5356.4	5365.7	5358.9	5343.0	5359.9	5347.0	5337.2
90	5331.8	5326.9	5319.5	5313.2	5321.4	5355.9	5365.1	5356.8	5340.4	5359.6	5346.0	5337.0
95	5330.3	5326.7	5317.5	5312.4	5318.4	5354.2	5364.1	5354.6	5336.9	5357.5	5345.4	5335.7
Minimum	5329.4	5326.5	5316.2	5311.9	5316.9	5351.1	5364.0	5353.2	5334.8	5355.9	5344.4	5335.5
Average	5343.1	5341.5	5339.4	5335.1	5344.8	5363.7	5367.8	5363.5	5356.0	5363.8	5356.3	5348.0
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-14D. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Dry Water Years (1985, 2001, 2002)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5363.6	5357.1	5352.0	5356.4	5369.3	5369.6	5366.7	5363.5	5358.0	5357.6	5358.6	5363.4
5	5363.4	5356.2	5352.0	5355.5	5368.1	5369.5	5366.5	5362.5	5358.0	5355.8	5358.4	5362.6
10	5362.5	5354.6	5351.9	5354.7	5365.4	5369.3	5365.9	5361.7	5357.8	5355.2	5357.9	5362.1
15	5362.0	5352.7	5351.8	5353.8	5361.6	5368.6	5365.7	5361.4	5357.5	5354.8	5357.3	5361.2
20	5360.7	5350.9	5351.6	5353.5	5361.0	5367.6	5365.6	5361.0	5357.4	5354.7	5356.9	5361.0
25	5359.1	5349.6	5351.4	5352.9	5359.5	5367.4	5365.5	5360.5	5357.2	5354.3	5356.5	5360.2
30	5357.5	5349.0	5350.3	5352.0	5358.6	5367.1	5365.2	5360.1	5357.0	5354.0	5355.8	5359.5
35	5346.6	5348.6	5345.5	5351.0	5357.9	5367.0	5364.9	5359.7	5356.9	5353.8	5345.4	5344.2
40	5346.4	5348.0	5345.1	5349.6	5357.1	5367.0	5364.6	5359.5	5356.8	5353.5	5344.0	5344.1
45	5346.1	5347.7	5345.0	5348.9	5356.7	5366.6	5364.2	5359.1	5356.5	5353.3	5343.7	5344.1
50	5346.0	5347.2	5344.8	5348.5	5355.7	5366.1	5363.8	5358.7	5356.4	5352.1	5343.3	5343.9
55	5345.4	5347.1	5344.6	5347.0	5353.6	5365.7	5363.4	5358.5	5355.9	5349.6	5342.5	5343.9
60	5344.5	5346.7	5344.4	5346.2	5352.4	5365.0	5362.5	5358.1	5355.5	5347.6	5341.1	5343.8
65	5344.2	5346.1	5344.1	5345.0	5351.6	5362.3	5361.8	5357.8	5354.8	5345.9	5340.4	5343.7
70	5321.9	5317.1	5320.4	5330.8	5341.5	5342.6	5340.2	5337.3	5328.3	5332.5	5321.0	5325.0
75	5321.5	5316.0	5320.3	5327.2	5340.4	5342.4	5340.0	5335.7	5327.2	5330.0	5318.4	5324.4
80	5320.5	5315.4	5320.1	5324.0	5340.3	5342.1	5340.0	5334.7	5325.9	5327.2	5318.3	5323.6
85	5320.2	5314.9	5319.7	5320.5	5340.2	5341.6	5339.5	5333.5	5323.7	5324.8	5318.1	5323.0
90	5319.9	5314.4	5319.5	5320.0	5339.3	5341.4	5338.9	5331.6	5322.2	5321.4	5317.8	5322.3
95	5319.7	5314.0	5319.5	5319.8	5336.0	5340.8	5338.2	5330.2	5320.4	5319.3	5317.8	5321.0
Minimum	5318.1	5313.6	5318.1	5319.6	5333.8	5340.7	5337.8	5329.5	5319.9	5317.9	5317.4	5320.4
Average	5342.4	5338.4	5338.7	5342.0	5352.4	5358.7	5356.3	5351.3	5346.1	5344.0	5339.6	5342.8
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-14E. Shaver Lake Elevation (Gage 11239500)
Historical Daily Exceedance Elevation
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Elevation (feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5349.9	5349.0	5348.3	5347.8	5348.3	5351.0	5350.8	5349.5	5344.4	5363.6	5364.6	5359.3
1	5349.3	5348.9	5347.9	5347.7	5348.2	5350.9	5350.8	5349.2	5344.0	5363.3	5364.5	5358.5
5	5347.8	5348.3	5346.2	5347.0	5348.1	5350.6	5350.7	5347.9	5343.2	5362.7	5363.9	5356.5
10	5347.4	5347.5	5343.9	5344.9	5347.3	5347.4	5350.4	5346.7	5342.6	5362.4	5362.3	5352.9
15	5341.1	5338.8	5335.5	5332.4	5342.6	5345.8	5347.8	5341.7	5342.5	5344.5	5342.2	5342.0
20	5340.4	5338.1	5333.1	5330.6	5341.2	5344.5	5347.1	5341.2	5342.2	5342.2	5341.3	5341.2
25	5339.5	5336.5	5332.7	5329.6	5338.1	5339.9	5344.4	5340.4	5341.8	5341.7	5340.3	5340.6
30	5333.5	5334.3	5332.4	5329.4	5329.6	5339.7	5337.6	5332.0	5330.0	5341.1	5333.1	5333.0
35	5333.4	5333.6	5331.6	5326.8	5328.9	5339.1	5334.6	5331.5	5329.5	5335.3	5333.0	5333.0
40	5333.3	5333.4	5326.4	5323.7	5326.4	5333.5	5333.5	5330.6	5328.3	5334.3	5333.0	5333.0
45	5315.0	5317.5	5319.2	5318.2	5324.4	5332.5	5332.5	5330.1	5322.3	5326.0	5320.6	5316.4
50	5314.8	5317.5	5317.1	5317.2	5321.1	5330.1	5332.1	5329.0	5317.3	5323.5	5318.6	5315.8
55	5314.5	5314.5	5315.7	5315.6	5318.5	5326.0	5331.2	5326.6	5314.4	5322.4	5318.1	5315.5
60	5300.1	5314.3	5311.3	5310.8	5317.1	5323.9	5317.8	5312.5	5305.7	5303.8	5300.2	5297.7
65	5298.8	5314.0	5310.6	5310.7	5316.0	5322.0	5317.2	5310.2	5303.5	5301.5	5299.3	5297.4
70	5297.3	5308.5	5310.4	5310.1	5312.5	5319.3	5315.1	5309.5	5302.4	5300.6	5298.6	5297.0
75	5293.1	5293.3	5298.2	5306.1	5311.5	5311.8	5310.8	5306.0	5300.9	5296.8	5297.2	5295.1
80	5292.8	5292.8	5297.0	5303.9	5311.3	5311.3	5309.6	5303.9	5299.3	5296.4	5296.6	5294.0
85	5292.4	5288.9	5295.5	5302.4	5310.5	5311.0	5308.8	5303.4	5297.2	5296.1	5295.5	5293.0
90	5284.7	5286.2	5293.4	5300.9	5306.8	5310.5	5308.4	5301.6	5297.1	5293.1	5288.9	5285.3
95	5283.7	5285.2	5292.2	5300.1	5305.8	5309.4	5307.2	5301.2	5296.9	5288.7	5282.6	5283.7
99	5283.0	5284.5	5289.8	5298.7	5305.0	5307.9	5306.1	5300.1	5294.4	5285.2	5278.3	5283.3
Minimum	5282.8	5284.5	5289.5	5298.5	5304.9	5307.7	5305.8	5299.7	5294.3	5284.8	5277.7	5283.2
Average	5316.1	5318.3	5318.2	5319.5	5324.4	5328.9	5328.3	5323.6	5319.0	5322.2	5319.7	5317.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-15A. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
(1/11/1927 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	123631.0	113936.0	110415.0	106935.0	133717.0	135744.0	135831.0	135875.0	135480.0	135393.0	135196.0	135066.0
1	121414.0	110536.0	104344.0	102681.0	128792.0	135480.0	135700.0	135700.0	135087.0	132375.0	134043.0	129925.0
5	103150.0	93491.0	90633.0	91916.0	112880.0	134652.0	135500.0	135200.0	133000.0	123422.0	117292.0	112109.0
10	89714.0	89455.0	84450.0	83778.0	102100.0	133521.0	135371.0	134804.0	128834.0	117045.0	107134.0	94739.0
15	75690.0	69802.0	66285.0	69913.0	94800.0	131300.0	135131.0	134200.0	122000.0	104660.0	88398.0	81527.0
20	65946.0	60301.0	58048.0	60033.0	88416.0	128800.0	134900.0	132892.0	115507.0	96800.0	79244.0	72299.0
25	58728.0	52123.0	47861.0	52457.0	82200.0	125780.0	134478.0	129412.0	109431.0	87200.0	73000.0	65544.0
30	50400.0	45300.0	44123.0	46521.0	77900.0	122600.0	133800.0	125167.0	103800.0	82798.0	70473.0	61512.0
35	46534.0	41658.0	40900.0	42049.0	73400.0	118321.0	132800.0	120600.0	98023.0	78716.0	67100.0	55246.0
40	42629.0	39509.0	38100.0	37481.0	67600.0	114400.0	131400.0	116695.0	92800.0	74974.0	64171.0	51800.0
45	38500.0	38200.0	32967.0	33900.0	62400.0	109471.0	128303.0	113306.0	88800.0	71500.0	60500.0	48767.0
50	36300.0	33600.0	29200.0	30900.0	58491.0	105500.0	125400.0	109500.0	84400.0	69000.0	57400.0	45300.0
55	33500.0	29400.0	26800.0	28734.0	54300.0	100312.0	121559.0	104621.0	80976.0	65086.0	53700.0	41800.0
60	31200.0	27500.0	25100.0	26800.0	49472.0	95559.0	117400.0	98560.0	77010.0	61200.0	50098.0	39600.0
65	28765.0	25600.0	23300.0	24071.0	44900.0	89400.0	109511.0	89163.0	72600.0	56600.0	46272.0	36400.0
70	26700.0	23600.0	21700.0	21800.0	39729.0	80441.0	91600.0	78494.0	65500.0	51547.0	41400.0	32588.0
75	25100.0	22007.0	20100.0	19500.0	36215.0	73408.0	74875.0	61632.0	54531.0	41300.0	33800.0	28599.0
80	21400.0	19200.0	18100.0	17093.0	32465.0	59616.0	61753.0	47700.0	31748.0	28434.0	27700.0	25800.0
85	17432.0	14628.0	16100.0	14243.0	29878.0	50261.0	43880.0	31700.0	23389.0	21056.0	23389.0	21283.0
90	13300.0	12421.0	11446.0	11147.0	24309.0	36391.0	32499.0	25260.0	17000.0	14556.0	12518.0	13200.0
95	8324.0	8682.0	7150.0	7460.0	18303.0	30488.0	22800.0	13100.0	11300.0	9920.0	10000.0	10843.0
99	2587.0	1246.0	1180.0	1676.0	4967.0	4948.0	4721.0	4097.0	3558.0	3339.0	5096.0	4181.0
Minimum	26.0	31.0	282.0	1364.0	1970.0	4823.0	4287.0	3689.0	3417.0	2970.0	3423.0	3076.0
Average	43778.5	40086.3	37859.8	38497.8	60839.1	95606.4	103567.4	93585.5	79011.5	66309.1	57586.0	50173.8
# Days	2346	2139	2356	2280	2348	2280	2356	2356	2280	2325	2242	2325
# Years	76	76	76	76	76	76	76	76	76	75	75	75

Table CAWG 6 Appdx G-15B. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage

Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	123631.0	113936.0	110415.0	105074.0	130802.0	135502.0	135831.0	135875.0	135480.0	135393.0	135196.0	135066.0
1	122373.0	112434.0	107233.0	103893.0	129754.0	135371.0	135809.0	135809.0	135261.0	132957.0	134805.0	134652.0
5	118756.0	108248.0	95559.0	99638.0	121497.0	134500.0	135656.0	135656.0	134848.0	128728.0	126582.0	125210.0
10	111484.0	93813.0	87544.0	89144.0	111323.0	133652.0	135502.0	135502.0	134174.0	122687.0	116243.0	113063.0
15	98445.0	90192.0	84026.0	84344.0	102759.0	132700.0	135500.0	135200.0	133565.0	106457.0	94492.0	98830.0
20	87617.0	78682.0	74281.0	72152.0	94949.0	131300.0	135400.0	135109.0	132200.0	93322.0	87308.0	88489.0
25	74925.0	63624.0	68014.0	68737.0	84900.0	130139.0	135300.0	135044.0	131124.0	86051.0	76074.0	72576.0
30	65946.0	54360.0	58506.0	53818.0	79603.0	126900.0	135200.0	134900.0	129647.0	83700.0	72233.0	67607.0
35	56600.0	50683.0	46482.0	41500.0	75007.0	124808.0	135044.0	134674.0	127559.0	79602.0	71197.0	64110.0
40	51986.0	47578.0	43329.0	39000.0	69600.0	122200.0	134892.0	134500.0	125900.0	74800.0	66424.0	57800.0
45	46337.0	45341.0	41533.0	35629.0	64552.0	119200.0	134700.0	134300.0	123000.0	71500.0	62100.0	53500.0
50	41100.0	43521.0	40293.0	33584.0	60465.0	116100.0	134500.0	133978.0	120100.0	70000.0	58846.0	48700.0
55	37541.0	37350.0	36262.0	27600.0	56200.0	113000.0	134152.0	133500.0	116366.0	68000.0	55400.0	43700.0
60	35400.0	33900.0	31000.0	25800.0	51200.0	109900.0	133900.0	132800.0	113104.0	64094.0	51400.0	41086.0
65	33822.0	29600.0	27800.0	21000.0	46390.0	106637.0	133413.0	131340.0	109090.0	60400.0	48700.0	39166.0
70	32800.0	27100.0	25100.0	19700.0	41822.0	102900.0	132979.0	129497.0	102212.0	57100.0	45900.0	37600.0
75	31300.0	26263.0	23128.0	18085.0	37400.0	99176.0	132332.0	126400.0	97334.0	53800.0	40011.0	34800.0
80	28641.0	24000.0	20400.0	13600.0	32510.0	94625.0	129797.0	122939.0	93681.0	41173.0	38175.0	32588.0
85	26500.0	21800.0	18200.0	10800.0	28300.0	89622.0	126858.0	118218.0	90266.0	38200.0	28506.0	29983.0
90	25533.0	19300.0	15600.0	8260.0	22300.0	84733.0	122897.0	113246.0	86500.0	28455.0	26442.0	26900.0
95	21400.0	14336.0	10362.0	6750.0	18300.0	74413.0	119895.0	105903.0	79364.0	17600.0	25100.0	25025.0
99	13900.0	6180.0	2420.0	4701.0	5976.0	53500.0	116120.0	97698.0	71117.0	9840.0	10600.0	11500.0
Minimum	13600.0	3120.0	652.0	4412.0	5237.0	42900.0	107000.0	92500.0	70000.0	9580.0	10200.0	11400.0
Average	54713.5	48571.4	45372.6	41020.5	63447.0	112136.3	132174.7	129003.4	114201.7	70870.5	63194.0	58630.4
# Days	713	648	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-15C. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	93907.0	95814.0	96359.0	94474.0	128300.0	135744.0	135744.0	135300.0	131600.0	134435.0	132030.0	108910.0
1	93605.0	94816.0	95996.0	93983.0	123317.0	135722.0	135678.0	135100.0	128800.0	132526.0	128899.0	106041.0
5	91693.0	93114.0	91357.0	88471.0	111400.0	135480.0	135568.0	134300.0	121685.0	129861.0	117292.0	102564.0
10	89163.0	89788.0	89604.0	81114.0	105000.0	135100.0	135500.0	133000.0	118000.0	126752.0	113855.0	97181.0
15	71085.0	69102.0	59452.0	71374.0	99080.0	134870.0	135327.0	130900.0	115507.0	120913.0	110697.0	92084.0
20	67058.0	63988.0	54873.0	62413.0	95921.0	134600.0	135200.0	128900.0	112800.0	118673.0	107134.0	83636.0
25	64948.0	58210.0	53171.0	55500.0	93133.0	134109.0	135152.0	126646.0	107492.0	117045.0	103385.0	79671.0
30	62988.0	56947.0	50288.0	52359.0	89900.0	133717.0	135100.0	125484.0	102251.0	114853.0	95673.0	75757.0
35	60972.0	53300.0	47600.0	48400.0	86625.0	132979.0	135065.0	123610.0	99138.0	108069.0	86589.0	71826.0
40	50700.0	46900.0	30500.0	40478.0	83700.0	131500.0	134978.0	121268.0	97468.0	79100.0	65900.0	68600.0
45	48800.0	29700.0	23734.0	37124.0	80100.0	129711.0	134600.0	119936.0	95178.0	72200.0	58700.0	52600.0
50	30400.0	23300.0	22789.0	30600.0	76600.0	126600.0	134043.0	117400.0	92600.0	68400.0	54400.0	51500.0
55	28692.0	22400.0	21500.0	22400.0	72168.0	124597.0	133500.0	114935.0	90413.0	63000.0	52600.0	37052.0
60	24400.0	22079.0	20000.0	19600.0	67027.0	122800.0	132936.0	113022.0	88100.0	59000.0	48077.0	33400.0
65	20317.0	21700.0	19200.0	17211.0	61377.0	120226.0	131900.0	110415.0	84397.0	54830.0	44000.0	28703.0
70	18600.0	19800.0	17700.0	15606.0	56800.0	117800.0	130866.0	107300.0	81300.0	52109.0	40378.0	26403.0
75	15900.0	18700.0	16800.0	14357.0	50411.0	114465.0	128834.0	104936.0	78072.0	50315.0	35500.0	23100.0
80	11100.0	10969.0	8232.0	11165.0	42743.0	110375.0	126519.0	102193.0	76708.0	17200.0	15200.0	14500.0
85	8111.0	7781.0	6898.0	8490.0	29100.0	105489.0	124660.0	97430.0	72788.0	15300.0	14300.0	13400.0
90	7432.0	4009.0	1694.0	5580.0	20489.0	99369.0	120517.0	89622.0	68864.0	5179.0	5472.0	6948.0
95	4963.0	2295.0	1292.0	1676.0	4967.0	4948.0	4721.0	4097.0	3558.0	5075.0	5248.0	5897.0
99	31.0	40.0	336.0	1574.0	2745.0	4852.0	4363.0	3745.0	3431.0	4931.0	5217.0	5608.0
Minimum	26.0	31.0	282.0	1364.0	1970.0	4823.0	4287.0	3689.0	3417.0	4924.0	5202.0	5576.0
Average	41231.8	38499.8	34848.8	36687.8	69614.5	116662.3	123575.3	109482.2	89134.5	72244.1	62287.7	50906.1
# Days	455	417	465	450	465	450	465	465	450	434	412	434
# Years	15	15	15	15	15	15	15	15	15	14	14	14

Table CAWG 6 Appdx G-15D. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Below Normal Water Years (1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	47969.0	42024.0	41633.0	59100.0	118600.0	132600.0	134800.0	128500.0	111900.0	112900.0	79900.0	67900.0
1	47100.0	40987.0	39950.0	57500.0	114400.0	131300.0	134700.0	126800.0	108700.0	110800.0	77800.0	67200.0
5	45300.0	39500.0	36000.0	52700.0	102100.0	129100.0	134000.0	122918.0	100400.0	103400.0	72400.0	65100.0
10	43790.0	38900.0	34800.0	46613.0	95900.0	128100.0	132800.0	120600.0	94600.0	94800.0	70600.0	60600.0
15	42566.0	37500.0	33335.0	42500.0	93000.0	126200.0	131800.0	118100.0	91200.0	86300.0	69900.0	55580.0
20	39500.0	36200.0	32077.0	35700.0	88000.0	123900.0	131577.0	115385.0	89500.0	81900.0	68400.0	51900.0
25	38600.0	35100.0	31300.0	33800.0	83500.0	121200.0	131200.0	112800.0	87800.0	77700.0	65116.0	50000.0
30	38200.0	34100.0	30500.0	32700.0	79700.0	118000.0	129800.0	110500.0	86400.0	75200.0	62000.0	48700.0
35	36800.0	31800.0	27600.0	31700.0	75774.0	116448.0	128239.0	108100.0	84800.0	73016.0	59600.0	47700.0
40	36200.0	31200.0	27200.0	29700.0	72400.0	113794.0	125991.0	106300.0	83252.0	71568.0	58800.0	46500.0
45	34200.0	30500.0	27100.0	28700.0	68800.0	111400.0	124200.0	104200.0	81600.0	70600.0	58000.0	44100.0
50	33500.0	29900.0	26300.0	27800.0	65800.0	108700.0	121300.0	101600.0	79600.0	67900.0	56600.0	42200.0
55	32500.0	29200.0	25800.0	26900.0	62600.0	107800.0	118400.0	99100.0	77200.0	64900.0	54300.0	40800.0
60	31200.0	28000.0	25400.0	24800.0	60018.0	105900.0	116300.0	96400.0	75600.0	62400.0	52400.0	39600.0
65	29800.0	27800.0	24200.0	23800.0	56200.0	103700.0	115300.0	93600.0	74900.0	60700.0	49900.0	37400.0
70	29000.0	27500.0	23500.0	22200.0	51972.0	101100.0	112700.0	89400.0	73400.0	58000.0	44500.0	35000.0
75	26400.0	25600.0	23000.0	19900.0	49147.0	99400.0	99500.0	85700.0	70300.0	48800.0	37400.0	31700.0
80	25700.0	25500.0	22000.0	18100.0	43600.0	97300.0	96000.0	82200.0	68500.0	41800.0	34100.0	28100.0
85	17700.0	18200.0	20200.0	16692.0	38200.0	90400.0	92200.0	78600.0	66600.0	10800.0	10200.0	20000.0
90	13600.0	13700.0	15900.0	15200.0	34400.0	79100.0	87900.0	72800.0	64800.0	10100.0	9970.0	12000.0
95	3153.0	1945.0	4992.0	13600.0	24718.0	59571.0	59423.0	55898.0	44602.0	3140.0	4866.0	3729.0
99	2162.0	1227.0	3337.0	12148.0	15200.0	53003.0	59230.0	51217.0	41310.0	2978.0	3486.0	3196.0
Minimum	1666.0	1170.0	3061.0	11526.0	14400.0	52137.0	49482.0	50370.0	40974.0	2970.0	3423.0	3076.0
Average	31018.2	27966.9	25585.0	28960.3	65525.5	106595.4	113836.7	98147.2	78338.4	60757.5	48865.2	39773.7
# Days	341	311	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-15E. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Dry Water Years (1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	121665.0	108428.0	98445.0	106935.0	133717.0	134542.0	128109.0	121434.0	110600.0	113300.0	111404.0	121227.0
1	121414.0	107154.0	98368.0	105765.0	132226.0	134261.0	127728.0	119957.0	110173.0	111600.0	110939.0	119977.0
5	115630.0	96263.0	97621.0	101281.0	116201.0	130096.0	125950.0	117272.0	109290.0	107300.0	108009.0	116161.0
10	87878.0	90781.0	85585.0	93757.0	108448.0	128749.0	123715.0	115500.0	108028.0	104639.0	87700.0	83813.0
15	84628.0	88454.0	84380.0	87454.0	99716.0	124617.0	122019.0	114200.0	106874.0	103000.0	84500.0	83251.0
20	59408.0	61152.0	63836.0	69992.0	83357.0	116757.0	120061.0	112333.0	103834.0	101800.0	82800.0	68900.0
25	58713.0	47000.0	48767.0	65497.0	79227.0	108800.0	117900.0	110232.0	87544.0	100600.0	80900.0	64613.0
30	54545.0	43009.0	47120.0	54300.0	77230.0	96588.0	116120.0	103854.0	76591.0	98200.0	78300.0	63245.0
35	49893.0	41533.0	46141.0	52373.0	71800.0	95200.0	114200.0	94854.0	70135.0	94900.0	75600.0	60700.0
40	48300.0	40627.0	43406.0	50166.0	67800.0	93851.0	106400.0	84981.0	63684.0	92307.0	72233.0	58580.0
45	46758.0	40000.0	41300.0	47500.0	62600.0	84200.0	90900.0	76800.0	58876.0	88600.0	69563.0	55700.0
50	44810.0	39600.0	40600.0	46500.0	59646.0	80012.0	77617.0	70843.0	56000.0	85200.0	67811.0	53437.0
55	38610.0	39178.0	39400.0	43500.0	56844.0	77179.0	75507.0	65147.0	54659.0	81579.0	67293.0	51780.0
60	37900.0	38700.0	33799.0	33573.0	54100.0	74300.0	68900.0	59586.0	53875.0	78600.0	65899.0	50343.0
65	37000.0	38300.0	30101.0	31573.0	49300.0	72600.0	62473.0	53549.0	48171.0	76474.0	63715.0	48700.0
70	32400.0	26900.0	26800.0	29573.0	40200.0	69595.0	61467.0	37600.0	24600.0	74200.0	62800.0	47390.0
75	29500.0	26400.0	25900.0	25400.0	38300.0	59100.0	49100.0	30500.0	20900.0	71471.0	60900.0	44700.0
80	27600.0	24500.0	24400.0	22600.0	37300.0	55000.0	41500.0	26300.0	17600.0	68400.0	58800.0	41800.0
85	26300.0	24000.0	20600.0	22100.0	35922.0	38800.0	34000.0	23600.0	15600.0	65299.0	55300.0	39100.0
90	25300.0	22100.0	18100.0	18300.0	34400.0	37200.0	31000.0	21500.0	15200.0	64582.0	49900.0	36000.0
95	20300.0	12300.0	10800.0	10600.0	24500.0	34500.0	27600.0	15500.0	11600.0	56786.0	44550.0	32700.0
99	14400.0	11000.0	9490.0	9010.0	16500.0	31700.0	20600.0	12700.0	10300.0	45315.0	43867.0	30700.0
Minimum	13800.0	10800.0	9420.0	8960.0	12900.0	31500.0	19500.0	12400.0	10200.0	44072.0	43406.0	29100.0
Average	49771.0	44831.7	44396.5	48212.7	63630.6	83212.2	82149.3	70089.4	58371.2	84692.4	70839.0	59034.0
# Days	372	339	372	360	364	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx G-15F. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	94398.0	92680.0	91450.0	90394.0	91320.0	97315.0	98907.0	93700.0	84344.0	121643.0	123799.0	112758.0
1	92289.0	92345.0	89898.0	90119.0	91227.0	96225.0	98522.0	92252.0	82920.0	120455.0	123464.0	111040.0
5	89733.0	89806.0	83444.0	84875.0	89071.0	92550.0	95749.0	88343.0	81183.0	119087.0	118445.0	98753.0
10	76893.0	73114.0	65345.0	61467.0	78140.0	86751.0	90413.0	78494.0	80097.0	82187.0	78579.0	78477.0
15	66085.0	67325.0	64445.0	58935.0	60272.0	80148.0	85175.0	63942.0	60495.0	79671.0	71278.0	65544.0
20	48930.0	65544.0	46797.0	45655.0	55246.0	76174.0	77921.0	61873.0	52597.0	77078.0	65544.0	58816.0
25	46666.0	43457.0	41695.0	43765.0	49921.0	70794.0	71229.0	59437.0	40305.0	67466.0	63336.0	48903.0
30	40256.0	39803.0	40256.0	41834.0	48483.0	63896.0	66254.0	53017.0	33697.0	52151.0	50098.0	44447.0
35	37970.0	39118.0	35922.0	35399.0	46022.0	56391.0	63881.0	43035.0	29456.0	50125.0	46851.0	41546.0
40	27897.0	30348.0	28899.0	34274.0	42793.0	50411.0	50248.0	39607.0	28682.0	40776.0	32967.0	30521.0
45	27420.0	27684.0	28300.0	30101.0	38006.0	50261.0	46718.0	36145.0	27694.0	34410.0	30295.0	27074.0
50	24600.0	23500.0	22807.0	29214.0	36063.0	49147.0	43560.0	34003.0	25435.0	27867.0	27700.0	27023.0
55	23600.0	22500.0	21417.0	28352.0	33912.0	44965.0	36040.0	30090.0	22707.0	27379.0	27003.0	25600.0
60	21542.0	19544.0	20700.0	27227.0	32100.0	36814.0	33550.0	29509.0	21363.0	25445.0	24576.0	22323.0
65	17804.0	17559.0	20190.0	26073.0	31222.0	35805.0	32755.0	27349.0	19672.0	21408.0	23249.0	21453.0
70	13600.0	14400.0	17764.0	24899.0	30703.0	34478.0	31584.0	25260.0	16800.0	20716.0	21082.0	18915.0
75	13400.0	13866.0	16400.0	23585.0	30219.0	33437.0	30230.0	18000.0	15023.0	18409.0	14856.0	13275.0
80	13200.0	13600.0	15793.0	21400.0	29256.0	30628.0	24100.0	14700.0	13500.0	15584.0	13949.0	13013.0
85	12557.0	12421.0	14800.0	18247.0	25800.0	28621.0	21400.0	11900.0	11300.0	14435.0	12136.0	12900.0
90	11526.0	12123.0	11941.0	15372.0	23063.0	26900.0	17100.0	6395.0	5168.0	13403.0	11300.0	12022.0
95	8625.0	9358.0	10154.0	11551.0	14471.0	15008.0	10982.0	5331.0	4981.0	11100.0	10682.0	10843.0
99	8324.0	8756.0	9315.0	10783.0	12661.0	14763.0	5415.0	4978.0	4920.0	9800.0	9009.0	9851.0
Minimum	8299.0	8719.0	9238.0	10617.0	11859.0	14613.0	5408.0	4971.0	4913.0	9620.0	7993.0	9419.0
Average	34066.8	33774.2	33123.0	35661.9	42442.8	51061.5	49298.2	38832.8	31936.1	43140.0	40475.1	37062.2
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-16A. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
(10/1/1982 to 9/30/2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	123631.0	113936.0	110415.0	106935.0	133717.0	135502.0	135765.0	135853.0	135349.0	135393.0	135196.0	135066.0
1	122394.0	112515.0	107432.0	104620.0	130546.0	135371.0	135590.0	135765.0	135240.0	134022.0	134805.0	134696.0
5	120559.0	108990.0	98445.0	101844.0	126054.0	134565.0	135305.0	135174.0	134609.0	132138.0	132030.0	125548.0
10	116633.0	101340.0	96016.0	98541.0	116922.0	134109.0	134761.0	134848.0	134043.0	128941.0	124240.0	121227.0
15	112150.0	94739.0	93284.0	93662.0	111546.0	133543.0	134370.0	134500.0	132332.0	125294.0	120663.0	113855.0
20	101611.0	93114.0	90486.0	90081.0	107532.0	131383.0	133956.0	134174.0	130118.0	121726.0	115425.0	111182.0
25	93888.0	92084.0	88761.0	88325.0	101980.0	129369.0	133369.0	133391.0	124618.0	119646.0	111343.0	103268.0
30	91562.0	90985.0	85657.0	86051.0	96416.0	126582.0	132742.0	132138.0	119605.0	116100.0	108472.0	100043.0
35	90192.0	89843.0	84451.0	83778.0	91078.0	120226.0	130845.0	127963.0	115507.0	110234.0	103385.0	96225.0
40	88997.0	88688.0	82658.0	79654.0	88452.0	116695.0	128109.0	125188.0	111585.0	104068.0	93133.0	89365.0
45	87233.0	84503.0	71858.0	66255.0	80786.0	110093.0	126456.0	120851.0	108708.0	101107.0	88398.0	84219.0
50	78733.0	73919.0	68281.0	61527.0	78005.0	103365.0	125230.0	116243.0	106558.0	85657.0	84344.0	83077.0
55	71616.0	67607.0	64933.0	59586.0	75540.0	95806.0	122414.0	111948.0	93869.0	81665.0	79875.0	77718.0
60	66069.0	59601.0	60853.0	53437.0	69214.0	89604.0	96130.0	93700.0	81942.0	78716.0	66255.0	65544.0
65	54930.0	55927.0	54203.0	46945.0	61693.0	85158.0	90449.0	79688.0	80562.0	66502.0	48984.0	54246.0
70	47807.0	49771.0	47161.0	43201.0	58388.0	79091.0	77617.0	72772.0	61032.0	52151.0	44576.0	43304.0
75	40714.0	43483.0	45720.0	40912.0	54260.0	76090.0	73033.0	63442.0	58018.0	44978.0	39484.0	41185.0
80	27897.0	39803.0	43099.0	38042.0	47551.0	65253.0	65040.0	61272.0	48632.0	39497.0	33595.0	25660.0
85	25162.0	38791.0	38272.0	35261.0	43329.0	53255.0	44771.0	39791.0	32187.0	28930.0	24576.0	22323.0
90	18190.0	18465.0	24376.0	30585.0	36861.0	37004.0	36215.0	30929.0	25953.0	21408.0	21953.0	20045.0
95	12892.0	14421.0	19799.0	26073.0	33867.0	35548.0	33112.0	27206.0	21435.0	20053.0	15972.0	13512.0
99	11201.0	12200.0	16839.0	23585.0	29404.0	33190.0	31069.0	24871.0	19875.0	13403.0	9688.0	11287.0
Minimum	10801.0	11846.0	15212.0	22661.0	28868.0	31935.0	29836.0	23743.0	18998.0	12016.0	7993.0	11000.0
Average	71711.1	68719.5	66383.6	64469.4	78079.1	97373.1	103220.9	98694.9	90493.2	82929.0	77341.9	74444.4
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-16B. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	123631.0	113936.0	110415.0	105074.0	130802.0	135502.0	135765.0	135853.0	135349.0	135393.0	135196.0	135066.0
1	123359.0	113408.0	109451.0	104265.0	130289.0	135502.0	135656.0	135809.0	135283.0	134609.0	135044.0	134848.0
5	122164.0	112150.0	106318.0	102681.0	129305.0	135087.0	135502.0	135722.0	135174.0	132526.0	134544.0	134413.0
10	121289.0	110839.0	104482.0	100836.0	126604.0	134696.0	135415.0	135524.0	134848.0	132332.0	134130.0	130824.0
15	119398.0	108669.0	95978.0	100254.0	122435.0	134326.0	135196.0	135174.0	134609.0	129326.0	126816.0	125442.0
20	117045.0	105133.0	94873.0	94720.0	117457.0	134022.0	134979.0	135044.0	134304.0	126858.0	125336.0	124282.0
25	115548.0	100583.0	91581.0	90431.0	115037.0	133608.0	134870.0	134957.0	134174.0	124682.0	123254.0	123547.0
30	113408.0	94847.0	87490.0	88035.0	110455.0	133108.0	134718.0	134783.0	133891.0	123317.0	119046.0	114200.0
35	109511.0	92831.0	85105.0	85890.0	104916.0	132181.0	134565.0	134609.0	133608.0	121997.0	114690.0	112616.0
40	102955.0	91972.0	84256.0	84539.0	101786.0	130952.0	134391.0	134522.0	133108.0	120559.0	113246.0	111625.0
45	100797.0	91450.0	79756.0	80976.0	89512.0	129369.0	134217.0	134500.0	132073.0	110234.0	95616.0	100370.0
50	98445.0	89806.0	75206.0	72364.0	83689.0	118922.0	134087.0	134435.0	131211.0	105903.0	94209.0	98811.0
55	96492.0	86374.0	72625.0	67575.0	79824.0	115568.0	133717.0	134304.0	130289.0	98138.0	91059.0	94096.0
60	90174.0	82030.0	71230.0	62655.0	76407.0	112332.0	133500.0	134087.0	129433.0	84539.0	89218.0	89163.0
65	87708.0	77617.0	68864.0	59586.0	71972.0	109652.0	133108.0	133913.0	127432.0	83725.0	87399.0	88525.0
70	86966.0	70875.0	67027.0	53818.0	67905.0	107014.0	132634.0	133500.0	124114.0	81131.0	84220.0	86966.0
75	53776.0	52415.0	63155.0	47309.0	63942.0	102427.0	130781.0	133152.0	120809.0	42857.0	38816.0	41297.0
80	47457.0	51025.0	57681.0	42756.0	60465.0	98004.0	128494.0	132871.0	115385.0	40244.0	38429.0	40788.0
85	42806.0	49866.0	52877.0	39644.0	57651.0	93058.0	127411.0	132159.0	111787.0	39533.0	37970.0	39264.0
90	25855.0	40440.0	45186.0	36969.0	55797.0	88489.0	125949.0	130995.0	107870.0	38840.0	29151.0	25181.0
95	25562.0	26263.0	42756.0	32023.0	47565.0	84574.0	120288.0	125484.0	97468.0	37982.0	26442.0	25064.0
99	25123.0	25923.0	41645.0	27806.0	42326.0	71858.0	116202.0	118901.0	87980.0	34892.0	25884.0	24957.0
Minimum	25123.0	25923.0	41595.0	27653.0	40937.0	70328.0	114915.0	117724.0	86804.0	34513.0	25416.0	24919.0
Average	87050.9	80379.7	76369.0	70745.2	88680.8	116656.9	132121.1	133459.4	125840.0	92675.3	88960.5	88745.3
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-16C. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Above Normal Water Years (1984, 1999, 2000)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	93907.0	95814.0	96359.0	94474.0	114935.0	134761.0	134783.0	130653.0	124872.0	134435.0	132030.0	108910.0
5	93605.0	94816.0	95996.0	93983.0	110617.0	134565.0	134370.0	130481.0	124261.0	132526.0	128899.0	106041.0
10	93303.0	94720.0	93907.0	93228.0	107392.0	134391.0	134022.0	128516.0	122352.0	131297.0	125252.0	103463.0
15	92643.0	94568.0	93020.0	90817.0	104030.0	134109.0	133869.0	127836.0	121122.0	130588.0	121893.0	103248.0
20	92028.0	93511.0	92475.0	89291.0	100719.0	133956.0	133608.0	127198.0	119605.0	130096.0	118012.0	102869.0
25	91674.0	92853.0	91357.0	88471.0	97985.0	133695.0	133217.0	126540.0	119274.0	129626.0	114588.0	102360.0
30	91283.0	92177.0	90615.0	87708.0	96703.0	132806.0	133195.0	126097.0	118404.0	128920.0	111524.0	101689.0
35	91115.0	92084.0	90486.0	86051.0	95921.0	129519.0	133000.0	125970.0	117704.0	128537.0	110778.0	100545.0
40	90985.0	91245.0	90100.0	82972.0	94266.0	125167.0	132547.0	125463.0	116633.0	128154.0	110568.0	98406.0
45	90192.0	90413.0	89769.0	82274.0	93397.0	122687.0	132095.0	124829.0	115916.0	125653.0	109371.0	96225.0
50	88997.0	89696.0	89604.0	81114.0	92158.0	120892.0	131577.0	124282.0	115119.0	121601.0	108228.0	94854.0
55	87617.0	88688.0	89181.0	79756.0	90707.0	120060.0	130952.0	122331.0	114139.0	117313.0	105449.0	92831.0
60	87109.0	87817.0	88198.0	79654.0	89567.0	118984.0	130460.0	121414.0	113469.0	117045.0	104128.0	92084.0
65	86589.0	87363.0	86840.0	79398.0	86625.0	118177.0	129754.0	120997.0	111121.0	116202.0	103639.0	91488.0
70	70827.0	58683.0	55377.0	41620.0	83796.0	117210.0	128941.0	120809.0	97411.0	115691.0	101786.0	81303.0
75	69182.0	57769.0	52793.0	40763.0	77129.0	114526.0	127857.0	119439.0	92009.0	115282.0	96416.0	77870.0
80	67121.0	57563.0	50683.0	40256.0	66363.0	111827.0	126667.0	115262.0	87417.0	114690.0	93360.0	74974.0
85	65559.0	57211.0	48957.0	39472.0	57783.0	106955.0	126076.0	111908.0	81942.0	114103.0	89053.0	72119.0
90	63639.0	56348.0	46206.0	38284.0	48713.0	106080.0	124872.0	107691.0	77348.0	113433.0	87254.0	71761.0
95	61407.0	56101.0	43573.0	37255.0	44706.0	102701.0	122645.0	103365.0	71664.0	109150.0	86105.0	69690.0
Minimum	60063.0	55855.0	41948.0	36626.0	42743.0	96626.0	122414.0	100719.0	68312.0	105903.0	84344.0	69373.0
Average	82589.1	80203.1	77298.3	70687.6	86309.1	121966.8	130519.9	121537.9	106936.3	122174.0	107015.2	91234.8
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-16D. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Dry Water Years (1985, 2001, 2002)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	121665.0	108428.0	98445.0	106935.0	133717.0	134542.0	128109.0	121434.0	110293.0	109411.0	111404.0	121227.0
5	121267.0	106637.0	98292.0	105173.0	131255.0	134240.0	127728.0	119356.0	110173.0	105844.0	110919.0	119543.0
10	119480.0	103482.0	98176.0	103736.0	125448.0	133868.0	126539.0	117684.0	109852.0	104639.0	109912.0	118487.0
15	118239.0	99716.0	97966.0	101903.0	117601.0	132373.0	126055.0	117005.0	109290.0	103874.0	108751.0	116715.0
20	115630.0	96263.0	97621.0	101281.0	116201.0	130096.0	125950.0	116325.0	108949.0	103542.0	108009.0	116161.0
25	112454.0	93757.0	97181.0	100043.0	113247.0	129709.0	125591.0	115241.0	108689.0	102818.0	107094.0	114609.0
30	109290.0	92774.0	95102.0	98387.0	111323.0	129091.0	124935.0	114545.0	108188.0	102270.0	105784.0	113104.0
35	88347.0	91990.0	86231.0	96550.0	109893.0	128917.0	124451.0	113631.0	107989.0	101921.0	86140.0	84060.0
40	87878.0	90781.0	85585.0	93757.0	108389.0	128749.0	123715.0	113165.0	107787.0	101244.0	83654.0	83813.0
45	87274.0	90228.0	85370.0	92456.0	107591.0	128006.0	122897.0	112333.0	107253.0	100893.0	83025.0	83724.0
50	87121.0	89425.0	85104.0	91767.0	105626.0	126837.0	122102.0	111664.0	107008.0	98522.0	82361.0	83478.0
55	86151.0	89096.0	84732.0	89015.0	101514.0	126075.0	121310.0	111260.0	105961.0	93832.0	80976.0	83374.0
60	84534.0	88454.0	84327.0	87454.0	99158.0	124617.0	119480.0	110455.0	105094.0	90101.0	78614.0	83251.0
65	83934.0	87363.0	83813.0	85459.0	97632.0	119004.0	118011.0	109811.0	103834.0	87056.0	77348.0	83077.0
70	49404.0	42984.0	47403.0	62098.0	79313.0	81165.0	77044.0	72315.0	58447.0	64689.0	48104.0	53676.0
75	48862.0	41658.0	47161.0	56859.0	77466.0	80821.0	76808.0	69706.0	56874.0	60868.0	44641.0	52807.0
80	47471.0	40887.0	46878.0	52289.0	77297.0	80303.0	76724.0	68171.0	54916.0	56786.0	44550.0	51739.0
85	47066.0	40305.0	46364.0	47430.0	77129.0	79534.0	75840.0	66193.0	51849.0	53297.0	44265.0	50901.0
90	46653.0	39668.0	46180.0	46851.0	75540.0	79074.0	74875.0	63442.0	49730.0	48740.0	43982.0	49880.0
95	46364.0	39130.0	46088.0	46534.0	70119.0	78156.0	73754.0	61332.0	47390.0	45904.0	43944.0	48117.0
Minimum	44382.0	38755.0	44304.0	46259.0	66795.0	77937.0	73033.0	60197.0	46613.0	44072.0	43406.0	47390.0
Average	83473.4	76590.2	76381.8	81880.3	100126.6	112650.6	107967.1	98568.5	89677.5	85305.1	78489.0	83824.9
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-16E. Shaver Lake Storage (Gage 11239500)
Historical Daily Exceedance Storage
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Storage (acre-feet)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	94398.0	92680.0	91450.0	90394.0	91320.0	96378.0	96130.0	93700.0	84344.0	121643.0	123799.0	112758.0
1	93303.0	92438.0	90633.0	90284.0	91264.0	96225.0	96073.0	93020.0	83619.0	121018.0	123631.0	111182.0
5	90449.0	91320.0	87563.0	89053.0	91078.0	95749.0	95844.0	90560.0	82187.0	119750.0	122331.0	107174.0
10	89769.0	89861.0	83496.0	85211.0	89457.0	89659.0	95387.0	88452.0	81217.0	119149.0	118922.0	100043.0
15	78631.0	74809.0	69452.0	64552.0	81131.0	86894.0	90413.0	79671.0	80924.0	84486.0	80493.0	80046.0
20	77482.0	73671.0	65652.0	61843.0	78767.0	84415.0	89236.0	78699.0	80407.0	80424.0	78989.0	78767.0
25	75957.0	71004.0	65009.0	60361.0	73622.0	76641.0	84397.0	77398.0	79841.0	79602.0	77314.0	77685.0
30	66224.0	67560.0	64582.0	60003.0	60301.0	76174.0	72772.0	63912.0	60868.0	78682.0	65667.0	65544.0
35	66069.0	66424.0	63336.0	56232.0	59334.0	75273.0	67952.0	63215.0	60227.0	69039.0	65528.0	65544.0
40	65976.0	66177.0	55652.0	51807.0	55638.0	66255.0	66254.0	61843.0	58432.0	67466.0	65497.0	65513.0
45	40379.0	43598.0	45747.0	44498.0	52779.0	64720.0	64720.0	61152.0	49921.0	54987.0	47646.0	42137.0
50	40158.0	43509.0	43099.0	43201.0	48307.0	61137.0	64094.0	59437.0	43342.0	51547.0	45017.0	41359.0
55	39742.0	39827.0	41223.0	41099.0	44874.0	55015.0	62822.0	55898.0	39644.0	50084.0	44343.0	40999.0
60	24071.0	39582.0	36016.0	35410.0	42984.0	52151.0	43918.0	37434.0	29730.0	27724.0	24204.0	21900.0
65	22917.0	39118.0	35100.0	35238.0	41695.0	49513.0	43112.0	34651.0	27481.0	25445.0	23380.0	21640.0
70	21542.0	32778.0	34892.0	34570.0	37326.0	45852.0	40490.0	33912.0	26283.0	24595.0	22752.0	21283.0
75	18004.0	18182.0	22360.0	30144.0	36239.0	36532.0	35410.0	30036.0	24871.0	21056.0	21471.0	19654.0
80	17733.0	17733.0	21301.0	27897.0	35969.0	35981.0	34059.0	27816.0	23380.0	20733.0	20951.0	18676.0
85	17432.0	14792.0	20019.0	26293.0	35031.0	35618.0	33146.0	27289.0	21435.0	20454.0	20011.0	17947.0
90	11934.0	12932.0	18247.0	24881.0	30875.0	35042.0	32644.0	25543.0	21363.0	18028.0	14799.0	12369.0
95	11336.0	12272.0	17258.0	24071.0	29825.0	33788.0	31386.0	25162.0	21221.0	14656.0	10664.0	11360.0
99	10902.0	11846.0	15445.0	22825.0	29003.0	32099.0	30208.0	24080.0	19022.0	12278.0	8299.0	11079.0
Minimum	10801.0	11846.0	15212.0	22661.0	28868.0	31935.0	29836.0	23743.0	18998.0	12016.0	7993.0	11000.0
Average	46668.2	48791.3	47435.6	48066.8	54501.4	61001.7	60586.9	54194.7	48449.3	55345.0	52514.5	48927.3
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-17A. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
(5/1/1925 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1260.0	668.0	527.0	1990.0	1730.0	1640.0	1670.0	1710.0	1180.0	1460.0	1790.0	1890.0
1	777.0	345.0	348.0	767.0	1280.0	1510.0	1480.0	1080.0	1010.0	887.0	1060.0	1200.0
5	178.0	162.0	245.0	611.0	1080.0	1230.0	1100.0	795.0	675.0	607.0	564.0	564.0
10	126.0	127.0	197.0	516.0	962.0	1120.0	918.0	689.0	586.0	552.0	417.0	257.0
15	105.0	111.0	171.0	457.0	845.0	1010.0	814.0	641.0	557.0	512.0	307.0	119.0
20	91.0	100.0	154.0	402.0	756.0	912.0	740.0	595.0	536.0	480.0	173.0	92.0
25	79.0	92.0	140.0	364.0	675.0	844.0	675.0	553.0	515.0	423.0	104.0	75.0
30	70.0	87.0	127.0	332.0	606.0	779.0	636.0	522.0	491.0	383.0	71.0	64.0
35	64.0	82.0	119.0	300.0	564.0	712.0	606.0	500.0	470.0	342.0	50.0	57.0
40	57.0	77.0	111.0	274.0	512.0	633.0	569.0	482.0	443.0	285.0	41.0	51.0
45	52.0	73.0	105.0	252.0	471.0	557.0	534.0	462.0	413.0	239.0	36.0	45.0
50	47.0	68.0	99.0	231.0	413.0	516.0	506.0	430.0	383.0	163.0	32.0	37.0
55	43.0	63.0	93.0	214.0	378.0	484.0	477.0	397.0	351.0	90.0	27.0	32.0
60	38.0	57.0	87.0	200.0	340.0	428.0	446.0	372.0	308.0	45.0	24.0	28.0
65	32.0	51.0	81.0	182.0	294.0	392.0	415.0	340.0	250.0	26.0	21.0	25.0
70	26.0	45.0	75.0	164.0	253.0	330.0	382.0	312.0	196.0	20.0	17.0	21.0
75	21.0	39.0	68.0	146.0	212.0	278.0	337.0	288.0	109.0	14.0	13.0	17.0
80	18.0	31.0	61.0	129.0	166.0	221.0	299.0	240.0	53.0	8.3	9.8	14.0
85	15.0	26.0	54.0	115.0	93.0	119.0	245.0	187.0	28.0	2.9	4.8	11.0
90	11.0	21.0	45.0	98.0	6.5	10.0	201.0	99.0	5.7	1.4	1.4	6.0
95	3.0	14.0	31.0	62.0	0.8	1.5	90.0	52.0	1.6	0.4	0.4	1.4
99	0.8	0.7	0.7	0.4	0.4	0.7	1.7	1.4	0.4	0.0	0.0	0.2
Minimum	0.1	0.0	0.1	0.1	0.2	0.0	0.8	1.2	0.0	0.0	0.0	0.0
Average	75.9	75.7	112.3	273.0	463.4	566.8	535.8	426.0	345.0	232.6	127.0	106.4
# Days	2356	2146	2356	2310	2418	2340	2418	2418	2340	2387	2310	2387
# Years	76	76	76	77	78	78	78	78	78	77	77	77

Table CAWG 6 Appdx G-17B. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983, 1986, 1993, 1995,

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1260.0	668.0	527.0	878.0	1470.0	1640.0	1670.0	1710.0	1180.0	1230.0	1700.0	1530.0
1	740.0	520.0	416.0	777.0	1290.0	1610.0	1650.0	1320.0	1110.0	1010.0	1560.0	760.0
5	421.0	255.0	308.0	720.0	1150.0	1420.0	1280.0	1020.0	971.0	672.0	814.0	550.0
10	177.0	176.0	274.0	548.0	1070.0	1240.0	1150.0	838.0	808.0	564.0	407.0	225.0
15	148.0	149.0	226.0	500.0	1000.0	1150.0	1050.0	774.0	678.0	537.0	320.0	140.0
20	128.0	134.0	206.0	448.0	932.0	1100.0	1000.0	730.0	618.0	493.0	149.0	117.0
25	118.0	126.0	188.0	399.0	863.0	1040.0	897.0	698.0	582.0	443.0	100.0	99.0
30	112.0	117.0	168.0	363.0	814.0	984.0	829.0	676.0	558.0	386.0	77.0	82.0
35	102.0	111.0	158.0	342.0	754.0	899.0	769.0	660.0	538.0	361.0	63.0	74.0
40	95.0	106.0	146.0	299.0	693.0	843.0	729.0	628.0	526.0	334.0	52.0	68.0
45	89.0	100.0	136.0	274.0	649.0	790.0	703.0	613.0	508.0	289.0	42.0	62.0
50	83.0	96.0	127.0	255.0	598.0	693.0	663.0	588.0	480.0	268.0	35.0	57.0
55	76.0	92.0	121.0	235.0	554.0	638.0	626.0	555.0	452.0	221.0	30.0	53.0
60	70.0	88.0	115.0	216.0	502.0	542.0	595.0	523.0	431.0	163.0	26.0	48.0
65	64.0	84.0	111.0	193.0	448.0	510.0	566.0	480.0	407.0	74.0	24.0	44.0
70	56.0	79.0	107.0	172.0	364.0	413.0	530.0	446.0	373.0	25.0	21.0	34.0
75	50.0	74.0	103.0	150.0	294.0	257.0	498.0	394.0	323.0	16.0	17.0	29.0
80	44.0	71.0	99.0	127.0	186.0	89.0	458.0	370.0	238.0	13.0	13.0	24.0
85	41.0	67.0	93.0	115.0	12.0	11.0	406.0	324.0	169.0	9.6	1.8	17.0
90	33.0	60.0	87.0	105.0	5.3	4.2	363.0	302.0	109.0	1.4	1.6	7.8
95	2.4	2.6	78.0	5.0	0.9	1.6	165.0	262.0	2.0	0.9	0.7	1.3
99	1.1	1.7	63.0	0.3	0.4	1.4	1.8	170.0	1.2	0.4	0.3	0.6
Minimum	0.7	0.7	0.1	0.2	0.3	1.0	1.6	1.8	1.2	0.3	0.0	0.2
Average	113.3	112.6	154.9	293.7	576.5	674.8	708.1	582.6	465.6	269.6	143.7	105.7
# Days	713	648	713	690	713	690	713	713	690	713	690	713
# Years	23	23	23	23	23	23	23	23	23	23	23	23

Table CAWG 6 Appdx G-17C. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Above Normal Water Years (1927, 1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	976.0	489.0	344.0	819.0	1370.0	1620.0	1450.0	1210.0	1120.0	741.0	585.0	1890.0
1	888.0	347.0	272.0	702.0	1320.0	1470.0	1340.0	775.0	664.0	703.0	564.0	1840.0
5	158.0	174.0	203.0	597.0	1130.0	1230.0	972.0	661.0	632.0	568.0	488.0	1000.0
10	131.0	120.0	180.0	528.0	1070.0	1150.0	852.0	621.0	579.0	542.0	437.0	576.0
15	109.0	108.0	163.0	478.0	982.0	1070.0	817.0	558.0	562.0	506.0	237.0	358.0
20	98.0	99.0	153.0	425.0	905.0	1010.0	763.0	540.0	547.0	491.0	136.0	144.0
25	90.0	93.0	142.0	387.0	834.0	972.0	734.0	526.0	538.0	480.0	88.0	115.0
30	80.0	90.0	129.0	356.0	802.0	913.0	676.0	509.0	515.0	448.0	65.0	95.0
35	71.0	88.0	123.0	317.0	760.0	868.0	638.0	493.0	504.0	404.0	49.0	73.0
40	68.0	85.0	116.0	287.0	699.0	812.0	614.0	470.0	492.0	361.0	43.0	63.0
45	65.0	82.0	109.0	270.0	658.0	770.0	586.0	449.0	482.0	262.0	36.0	54.0
50	60.0	80.0	104.0	250.0	625.0	742.0	558.0	432.0	466.0	147.0	32.0	46.0
55	54.0	77.0	100.0	230.0	568.0	692.0	538.0	409.0	433.0	62.0	28.0	41.0
60	51.0	75.0	97.0	216.0	520.0	615.0	502.0	392.0	396.0	34.0	26.0	35.0
65	47.0	73.0	92.0	198.0	486.0	546.0	475.0	376.0	384.0	28.0	21.0	30.0
70	43.0	72.0	88.0	181.0	443.0	450.0	445.0	345.0	375.0	24.0	16.0	26.0
75	40.0	69.0	81.0	161.0	400.0	421.0	412.0	340.0	310.0	21.0	11.0	24.0
80	36.0	66.0	73.0	143.0	355.0	281.0	364.0	305.0	215.0	13.0	7.1	19.0
85	18.0	64.0	66.0	133.0	307.0	218.0	312.0	278.0	108.0	1.5	3.2	13.0
90	8.4	56.0	60.0	123.0	250.0	1.9	265.0	234.0	64.0	0.0	1.4	3.2
95	3.0	43.0	50.0	105.0	176.0	0.9	188.0	156.0	1.9	0.0	0.2	0.4
99	0.2	0.0	0.5	62.0	0.4	0.3	1.0	109.0	0.0	0.0	0.0	0.2
Minimum	0.1	0.0	0.3	60.0	0.2	0.3	0.8	2.2	0.0	0.0	0.0	0.2
Average	84.7	91.3	113.2	288.7	631.6	677.4	569.4	427.2	396.3	237.0	102.0	191.8
# Days	434	396	434	450	465	450	465	465	450	465	450	465
# Years	14	14	14	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-17D. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Below Normal Water Years (1925, 1928, 1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	187.0	257.0	396.0	852.0	1540.0	1420.0	1330.0	985.0	558.0	1460.0	1790.0	628.0
1	143.0	232.0	315.0	813.0	1020.0	1380.0	1230.0	859.0	550.0	1090.0	1710.0	313.0
5	104.0	128.0	194.0	714.0	864.0	1180.0	1070.0	613.0	526.0	635.0	1010.0	109.0
10	83.0	107.0	164.0	604.0	693.0	1010.0	878.0	580.0	518.0	602.0	564.0	81.0
15	76.0	94.0	138.0	548.0	616.0	895.0	751.0	542.0	497.0	524.0	484.0	66.0
20	65.0	87.0	125.0	491.0	595.0	831.0	680.0	522.0	484.0	504.0	239.0	61.0
25	59.0	82.0	112.0	464.0	584.0	788.0	628.0	506.0	470.0	452.0	184.0	56.0
30	56.0	75.0	102.0	401.0	572.0	747.0	577.0	495.0	456.0	413.0	136.0	52.0
35	50.0	66.0	98.0	309.0	537.0	720.0	530.0	484.0	438.0	385.0	86.0	45.0
40	45.0	62.0	95.0	271.0	510.0	650.0	495.0	478.0	421.0	341.0	46.0	38.0
45	40.0	57.0	88.0	242.0	482.0	606.0	466.0	471.0	408.0	291.0	40.0	36.0
50	37.0	55.0	82.0	226.0	441.0	547.0	435.0	460.0	381.0	243.0	36.0	33.0
55	33.0	52.0	76.0	210.0	401.0	516.0	402.0	438.0	339.0	169.0	34.0	30.0
60	30.0	49.0	69.0	203.0	386.0	504.0	381.0	416.0	312.0	53.0	30.0	28.0
65	28.0	46.0	66.0	191.0	356.0	462.0	368.0	384.0	276.0	41.0	26.0	27.0
70	25.0	43.0	62.0	182.0	312.0	419.0	339.0	370.0	250.0	26.0	24.0	26.0
75	24.0	40.0	57.0	171.0	254.0	351.0	320.0	321.0	84.0	19.0	19.0	23.0
80	23.0	31.0	53.0	152.0	219.0	309.0	317.0	265.0	57.0	2.1	11.0	19.0
85	21.0	28.0	48.0	124.0	166.0	245.0	291.0	241.0	33.0	1.6	1.4	16.0
90	20.0	27.0	38.0	112.0	1.3	65.0	263.0	193.0	5.7	1.3	0.7	0.8
95	19.0	22.0	26.0	86.0	0.8	1.6	220.0	87.0	1.6	1.1	0.3	0.2
99	16.0	20.0	0.5	0.9	0.5	1.0	116.0	2.5	1.3	1.0	0.0	0.0
Minimum	16.0	19.0	0.4	0.7	0.4	0.0	1.7	1.6	1.1	0.4	0.0	0.0
Average	45.9	63.8	92.8	306.7	428.0	581.7	504.8	415.6	313.4	265.4	192.3	47.5
# Days	341	311	341	330	372	360	372	372	360	341	330	341
# Years	11	11	11	11	12	12	12	12	12	11	11	11

Table CAWG 6 Appdx G-17E. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Dry Water Years (1926, 1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1210.0	161.0	331.0	1990.0	1730.0	1360.0	1490.0	1040.0	697.0	1080.0	767.0	1200.0
1	1190.0	143.0	253.0	972.0	1220.0	1340.0	814.0	1020.0	616.0	703.0	692.0	1200.0
5	430.0	102.0	193.0	572.0	974.0	1180.0	618.0	580.0	580.0	626.0	593.0	672.0
10	75.0	88.0	170.0	468.0	645.0	899.0	555.0	531.0	540.0	582.0	486.0	564.0
15	70.0	82.0	148.0	401.0	537.0	777.0	525.0	502.0	518.0	561.0	397.0	428.0
20	63.0	78.0	138.0	364.0	471.0	730.0	508.0	484.0	465.0	528.0	331.0	273.0
25	59.0	72.0	125.0	328.0	430.0	645.0	495.0	464.0	429.0	497.0	306.0	110.0
30	54.0	67.0	112.0	301.0	385.0	600.0	482.0	429.0	392.0	419.0	295.0	86.0
35	52.0	61.0	102.0	272.0	354.0	550.0	455.0	398.0	361.0	364.0	202.0	76.0
40	49.0	59.0	92.0	250.0	294.0	520.0	448.0	361.0	339.0	334.0	119.0	68.0
45	48.0	56.0	88.0	230.0	263.0	479.0	439.0	342.0	323.0	278.0	105.0	60.0
50	45.0	53.0	83.0	217.0	234.0	446.0	400.0	332.0	307.0	249.0	51.0	53.0
55	41.0	50.0	78.0	202.0	204.0	421.0	386.0	323.0	279.0	178.0	38.0	50.0
60	38.0	48.0	75.0	192.0	178.0	416.0	364.0	315.0	243.0	107.0	32.0	45.0
65	34.0	45.0	72.0	177.0	162.0	392.0	310.0	299.0	209.0	21.0	29.0	36.0
70	28.0	41.0	69.0	163.0	129.0	359.0	299.0	233.0	80.0	7.7	21.0	31.0
75	17.0	36.0	64.0	150.0	101.0	329.0	248.0	175.0	51.0	5.0	13.0	25.0
80	16.0	33.0	55.0	136.0	51.0	283.0	212.0	104.0	33.0	2.9	7.0	21.0
85	14.0	29.0	50.0	125.0	28.0	204.0	137.0	55.0	20.0	2.8	5.6	16.0
90	12.0	27.0	43.0	115.0	8.6	1.9	86.0	2.3	2.4	1.6	3.6	11.0
95	9.3	17.0	38.0	97.0	0.9	1.0	1.7	1.3	1.4	1.3	0.0	6.3
99	0.8	11.0	14.0	0.5	0.7	0.7	1.2	1.2	1.3	0.0	0.0	1.5
Minimum	0.4	9.0	0.4	0.5	0.6	0.5	1.1	1.2	1.2	0.0	0.0	1.1
Average	89.4	56.4	97.1	263.9	308.7	494.9	371.6	321.8	274.1	259.0	166.9	161.4
# Days	403	367	403	390	403	390	403	403	390	403	390	403
# Years	13	13	13	13	13	13	13	13	13	13	13	13

Table CAWG 6 Appdx G-17F. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	91.0	95.0	253.0	548.0	1320.0	1280.0	950.0	1350.0	715.0	703.0	534.0	68.0
1	74.0	83.0	222.0	484.0	1230.0	983.0	903.0	864.0	694.0	639.0	510.0	62.0
5	57.0	64.0	170.0	423.0	617.0	863.0	690.0	654.0	582.0	486.0	258.0	43.0
10	38.0	56.0	138.0	382.0	516.0	560.0	661.0	569.0	540.0	414.0	57.0	35.0
15	30.0	50.0	118.0	355.0	456.0	522.0	644.0	505.0	480.0	368.0	42.0	30.0
20	26.0	44.0	105.0	333.0	407.0	504.0	624.0	495.0	414.0	237.0	38.0	27.0
25	24.0	41.0	91.0	309.0	382.0	474.0	593.0	438.0	376.0	191.0	35.0	24.0
30	21.0	37.0	83.0	289.0	357.0	430.0	548.0	425.0	288.0	158.0	31.0	21.0
35	20.0	35.0	79.0	262.0	340.0	407.0	528.0	373.0	246.0	93.0	27.0	18.0
40	19.0	31.0	73.0	242.0	322.0	379.0	485.0	295.0	196.0	61.0	24.0	16.0
45	18.0	28.0	68.0	216.0	293.0	335.0	446.0	271.0	143.0	43.0	21.0	15.0
50	17.0	26.0	62.0	203.0	277.0	313.0	425.0	236.0	91.0	32.0	19.0	14.0
55	17.0	25.0	58.0	182.0	261.0	298.0	363.0	230.0	56.0	26.0	16.0	14.0
60	16.0	24.0	55.0	158.0	245.0	275.0	302.0	186.0	43.0	22.0	14.0	13.0
65	15.0	22.0	51.0	144.0	210.0	241.0	259.0	137.0	34.0	18.0	13.0	11.0
70	13.0	20.0	48.0	121.0	182.0	230.0	240.0	102.0	30.0	14.0	11.0	11.0
75	12.0	18.0	44.0	102.0	154.0	200.0	227.0	90.0	24.0	12.0	10.0	10.0
80	11.0	16.0	40.0	88.0	112.0	159.0	201.0	70.0	17.0	8.2	8.0	8.1
85	7.5	14.0	32.0	73.0	6.8	103.0	150.0	56.0	7.7	3.6	5.5	6.5
90	4.4	12.0	24.0	50.0	0.9	11.0	103.0	46.0	2.9	0.8	2.9	5.0
95	1.8	0.7	20.0	2.1	0.5	2.0	82.0	28.0	0.7	0.4	0.4	2.7
99	1.0	0.6	0.7	0.2	0.3	0.9	68.0	3.4	0.0	0.0	0.2	2.0
Minimum	0.9	0.5	0.7	0.1	0.3	0.5	11.0	1.2	0.0	0.0	0.0	2.0
Average	20.4	30.4	73.6	208.9	284.0	341.1	405.2	283.5	195.7	124.4	43.9	17.8
# Days	465	424	465	450	465	450	465	465	450	465	450	465
# Years	15	15	15	15	15	15	15	15	15	15	15	15

Table CAWG 6 Appdx G-18A. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
(10/1/1982 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1260.0	668.0	491.0	850.0	1320.0	1570.0	1650.0	1710.0	1120.0	1230.0	1010.0	813.0
1	187.0	482.0	416.0	745.0	1230.0	1390.0	1450.0	1320.0	1030.0	1040.0	880.0	714.0
5	148.0	189.0	300.0	599.0	1080.0	1220.0	1150.0	992.0	954.0	703.0	666.0	442.0
10	115.0	134.0	267.0	505.0	931.0	1140.0	965.0	822.0	808.0	570.0	413.0	194.0
15	93.0	112.0	215.0	433.0	811.0	1030.0	869.0	742.0	670.0	443.0	290.0	127.0
20	78.0	100.0	188.0	400.0	753.0	925.0	763.0	696.0	562.0	387.0	107.0	103.0
25	70.0	90.0	167.0	368.0	687.0	859.0	718.0	666.0	484.0	334.0	72.0	73.0
30	64.0	82.0	150.0	346.0	621.0	775.0	676.0	615.0	435.0	262.0	56.0	61.0
35	58.0	73.0	133.0	318.0	564.0	677.0	660.0	585.0	402.0	229.0	41.0	53.0
40	52.0	67.0	120.0	299.0	502.0	564.0	635.0	518.0	385.0	172.0	34.0	46.0
45	45.0	60.0	110.0	275.0	446.0	527.0	617.0	473.0	364.0	155.0	27.0	34.0
50	36.0	55.0	102.0	260.0	389.0	478.0	573.0	441.0	308.0	86.0	23.0	28.0
55	26.0	47.0	91.0	240.0	356.0	416.0	544.0	427.0	281.0	48.0	20.0	23.0
60	20.0	41.0	86.0	225.0	330.0	388.0	485.0	383.0	245.0	28.0	18.0	18.0
65	15.0	34.0	81.0	204.0	282.0	344.0	448.0	343.0	227.0	19.0	14.0	15.0
70	12.0	29.0	76.0	189.0	248.0	297.0	410.0	302.0	175.0	13.0	12.0	13.0
75	11.0	25.0	70.0	159.0	201.0	250.0	366.0	279.0	141.0	9.5	9.9	10.0
80	7.1	20.0	64.0	138.0	154.0	208.0	307.0	234.0	64.0	8.2	7.3	7.0
85	2.8	13.0	57.0	114.0	82.0	141.0	243.0	223.0	10.0	5.2	5.6	5.0
90	2.4	2.6	52.0	89.0	9.1	11.0	224.0	105.0	3.2	3.0	3.6	2.8
95	1.3	0.7	42.0	5.0	4.8	9.6	168.0	54.0	2.4	2.4	2.3	1.3
99	0.2	0.6	0.8	2.0	2.3	2.2	11.0	9.5	0.0	0.5	1.0	0.2
Minimum	0.1	0.5	0.7	1.7	2.1	1.5	11.0	3.4	0.0	0.0	0.7	0.2
Average	50.5	70.6	128.9	280.5	454.4	549.5	578.7	477.6	351.3	200.0	112.7	83.5
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx G-18B. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1260.0	668.0	491.0	850.0	1270.0	1550.0	1650.0	1710.0	1120.0	1230.0	1010.0	813.0
1	411.0	528.0	485.0	777.0	1210.0	1400.0	1540.0	1420.0	1070.0	1200.0	907.0	760.0
5	178.0	395.0	380.0	734.0	1120.0	1260.0	1290.0	1110.0	1020.0	887.0	839.0	592.0
10	155.0	197.0	318.0	721.0	1060.0	1200.0	1200.0	1040.0	995.0	774.0	701.0	222.0
15	128.0	185.0	297.0	584.0	987.0	1100.0	1110.0	992.0	940.0	663.0	406.0	157.0
20	118.0	154.0	291.0	522.0	931.0	1030.0	1020.0	903.0	887.0	561.0	100.0	124.0
25	114.0	139.0	274.0	471.0	871.0	927.0	949.0	831.0	825.0	400.0	83.0	111.0
30	108.0	131.0	252.0	400.0	810.0	881.0	869.0	794.0	802.0	366.0	72.0	80.0
35	97.0	126.0	227.0	364.0	768.0	841.0	799.0	745.0	749.0	287.0	63.0	71.0
40	86.0	116.0	213.0	328.0	744.0	789.0	760.0	729.0	640.0	270.0	57.0	69.0
45	79.0	111.0	197.0	302.0	687.0	747.0	726.0	702.0	593.0	241.0	48.0	62.0
50	75.0	107.0	181.0	282.0	658.0	687.0	720.0	694.0	555.0	171.0	41.0	58.0
55	68.0	100.0	170.0	272.0	608.0	514.0	709.0	679.0	509.0	163.0	35.0	55.0
60	61.0	95.0	160.0	260.0	591.0	375.0	673.0	670.0	449.0	160.0	25.0	53.0
65	54.0	89.0	150.0	239.0	523.0	238.0	663.0	637.0	417.0	76.0	22.0	50.0
70	47.0	71.0	143.0	222.0	414.0	45.0	627.0	616.0	413.0	55.0	20.0	44.0
75	39.0	62.0	129.0	193.0	351.0	11.0	573.0	595.0	349.0	30.0	17.0	36.0
80	34.0	54.0	120.0	167.0	201.0	11.0	563.0	538.0	236.0	16.0	15.0	29.0
85	2.4	2.6	110.0	114.0	9.8	10.0	485.0	476.0	169.0	10.0	13.0	26.0
90	2.4	2.6	103.0	91.0	6.7	3.6	443.0	464.0	166.0	9.3	1.4	7.7
95	1.6	2.4	85.0	5.0	4.8	2.6	173.0	397.0	30.0	1.2	1.2	1.3
99	1.1	1.6	2.4	4.0	2.9	1.7	11.0	299.0	16.0	0.9	1.0	1.3
Minimum	1.1	1.6	2.4	4.0	2.7	1.5	11.0	299.0	16.0	0.9	0.9	1.3
Average	86.6	121.9	202.6	337.2	599.5	575.3	763.0	728.4	567.9	289.3	150.1	110.6
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-18C. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	181.0	104.0	230.0	551.0	1150.0	1570.0	1400.0	798.0	576.0	741.0	564.0	475.0
1	158.0	103.0	218.0	541.0	1020.0	1460.0	1310.0	755.0	571.0	730.0	554.0	466.0
5	145.0	95.0	195.0	469.0	911.0	1300.0	1100.0	676.0	507.0	689.0	245.0	217.0
10	102.0	90.0	186.0	417.0	828.0	1220.0	1010.0	621.0	486.0	629.0	184.0	143.0
15	80.0	85.0	158.0	374.0	803.0	1170.0	934.0	583.0	440.0	580.0	139.0	127.0
20	69.0	80.0	150.0	349.0	771.0	1150.0	822.0	560.0	398.0	544.0	103.0	120.0
25	64.0	79.0	135.0	323.0	756.0	1130.0	763.0	543.0	391.0	490.0	83.0	108.0
30	62.0	77.0	124.0	310.0	734.0	1100.0	743.0	451.0	387.0	481.0	43.0	88.0
35	52.0	74.0	118.0	291.0	697.0	1030.0	634.0	444.0	384.0	419.0	36.0	35.0
40	48.0	73.0	110.0	266.0	655.0	977.0	625.0	408.0	381.0	401.0	29.0	34.0
45	46.0	72.0	104.0	242.0	653.0	969.0	586.0	353.0	379.0	388.0	26.0	33.0
50	41.0	69.0	92.0	231.0	594.0	932.0	547.0	345.0	377.0	153.0	25.0	28.0
55	28.0	62.0	86.0	225.0	564.0	906.0	516.0	343.0	308.0	65.0	20.0	18.0
60	13.0	57.0	77.0	198.0	514.0	850.0	486.0	343.0	218.0	38.0	12.0	15.0
65	12.0	52.0	72.0	162.0	487.0	775.0	455.0	342.0	103.0	29.0	11.0	4.2
70	10.0	46.0	67.0	141.0	455.0	536.0	446.0	305.0	65.0	25.0	9.9	1.7
75	0.3	43.0	65.0	124.0	225.0	433.0	400.0	290.0	64.0	22.0	7.5	1.3
80	0.2	36.0	57.0	67.0	190.0	252.0	346.0	231.0	4.8	9.2	6.9	0.9
85	0.2	0.0	54.0	62.0	3.9	96.0	312.0	230.0	2.8	6.7	6.3	0.2
90	0.2	0.0	48.0	0.0	2.5	0.0	227.0	135.0	0.0	4.0	0.0	0.2
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.1	31.0	44.0	60.0	2.3	2.9	188.0	5.0	2.8	3.6	4.7	0.2
Average	46.6	68.0	109.1	255.5	567.8	878.1	629.1	411.4	292.0	293.9	75.1	65.1
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-18D. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	100.0	107.0	331.0	592.0	1220.0	1360.0	805.0	520.0	518.0	489.0	698.0	708.0
1	92.0	105.0	291.0	590.0	1220.0	1280.0	556.0	520.0	498.0	486.0	696.0	705.0
5	78.0	85.0	188.0	566.0	943.0	1200.0	508.0	502.0	444.0	399.0	676.0	682.0
10	73.0	84.0	162.0	505.0	546.0	902.0	477.0	496.0	431.0	367.0	468.0	670.0
15	69.0	73.0	130.0	457.0	501.0	752.0	456.0	488.0	405.0	311.0	424.0	417.0
20	64.0	68.0	102.0	376.0	461.0	731.0	451.0	471.0	370.0	251.0	403.0	366.0
25	64.0	61.0	93.0	361.0	402.0	639.0	447.0	465.0	361.0	243.0	348.0	290.0
30	61.0	54.0	89.0	311.0	353.0	599.0	441.0	443.0	322.0	154.0	321.0	244.0
35	57.0	46.0	87.0	274.0	336.0	593.0	393.0	433.0	310.0	124.0	306.0	130.0
40	53.0	41.0	83.0	266.0	287.0	559.0	387.0	391.0	303.0	28.0	246.0	101.0
45	48.0	41.0	80.0	236.0	264.0	539.0	368.0	343.0	289.0	9.2	18.0	89.0
50	43.0	36.0	78.0	229.0	247.0	519.0	331.0	336.0	286.0	8.9	7.2	77.0
55	37.0	33.0	73.0	220.0	210.0	489.0	307.0	322.0	278.0	7.8	6.3	60.0
60	33.0	28.0	70.0	207.0	168.0	467.0	260.0	302.0	243.0	5.2	5.8	51.0
65	11.0	27.0	69.0	196.0	118.0	409.0	227.0	247.0	227.0	2.9	5.6	47.0
70	9.8	24.0	67.0	183.0	114.0	388.0	212.0	233.0	216.0	2.9	5.2	9.6
75	9.3	17.0	64.0	164.0	80.0	349.0	183.0	210.0	208.0	2.9	4.8	7.8
80	3.7	13.0	57.0	129.0	51.0	325.0	143.0	187.0	2.6	2.9	3.5	6.6
85	1.5	0.0	50.0	116.0	49.0	259.0	109.0	85.0	2.3	2.8	2.4	5.1
90	0.5	0.0	25.0	0.0	8.1	0.0	86.0	53.0	0.0	2.4	0.0	2.8
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.4	11.0	24.0	107.0	7.8	141.0	86.0	7.7	2.3	2.4	2.4	1.1
Average	41.3	47.2	94.5	288.9	319.8	588.3	331.7	338.5	277.5	118.5	209.1	200.8
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-18E. Ward Tunnel at Intake at Florence Lake (Gage 11229500)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	91.0	95.0	253.0	548.0	1320.0	1280.0	950.0	1350.0	715.0	703.0	534.0	44.0
1	79.0	93.0	245.0	501.0	1240.0	1020.0	946.0	872.0	699.0	639.0	516.0	41.0
5	63.0	69.0	161.0	430.0	621.0	823.0	897.0	752.0	639.0	426.0	386.0	31.0
10	55.0	63.0	123.0	416.0	536.0	554.0	677.0	618.0	403.0	314.0	50.0	26.0
15	32.0	57.0	115.0	386.0	473.0	528.0	665.0	594.0	386.0	236.0	39.0	24.0
20	26.0	52.0	102.0	351.0	406.0	509.0	655.0	438.0	341.0	211.0	33.0	21.0
25	24.0	42.0	94.0	337.0	389.0	465.0	645.0	430.0	296.0	187.0	30.0	19.0
30	22.0	39.0	89.0	320.0	373.0	419.0	635.0	414.0	279.0	159.0	26.0	17.0
35	20.0	36.0	84.0	307.0	356.0	403.0	625.0	378.0	251.0	93.0	23.0	16.0
40	17.0	31.0	81.0	283.0	341.0	392.0	604.0	304.0	234.0	36.0	20.0	15.0
45	16.0	30.0	79.0	255.0	324.0	375.0	581.0	294.0	203.0	28.0	19.0	14.0
50	14.0	27.0	76.0	226.0	296.0	344.0	539.0	287.0	172.0	22.0	16.0	13.0
55	13.0	25.0	68.0	208.0	279.0	323.0	431.0	242.0	143.0	18.0	14.0	12.0
60	12.0	23.0	62.0	187.0	272.0	297.0	400.0	234.0	90.0	15.0	13.0	11.0
65	11.0	20.0	58.0	154.0	246.0	262.0	333.0	230.0	17.0	12.0	11.0	9.8
70	10.0	18.0	57.0	145.0	203.0	244.0	262.0	200.0	8.3	10.0	10.0	7.5
75	7.3	14.0	55.0	126.0	178.0	233.0	245.0	128.0	5.4	7.9	8.6	6.5
80	5.9	12.0	51.0	108.0	154.0	212.0	238.0	93.0	3.2	4.8	5.8	5.9
85	3.4	10.0	45.0	89.0	132.0	200.0	227.0	69.0	2.9	3.3	4.0	4.6
90	2.6	0.7	42.0	2.3	6.8	178.0	208.0	38.0	2.0	3.1	2.9	3.2
95	1.6	0.6	1.1	2.1	2.6	102.0	197.0	14.0	0.4	0.6	2.3	2.4
99	1.5	0.5	0.7	1.8	2.2	9.2	131.0	9.5	0.0	0.0	0.7	2.2
Minimum	0.9	0.5	0.7	1.7	2.1	9.2	102.0	3.4	0.0	0.0	0.7	2.1
Average	19.9	30.7	78.3	230.9	318.4	366.2	478.8	314.6	191.6	105.3	50.1	14.0
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-19A. Bear Creek Conduit (Gage 11230520)
Historical Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	457.0	178.0	154.0	290.0	647.0	465.0	321.0	252.0	210.0	194.0	69.0	75.0
1	103.0	89.0	116.0	266.0	488.0	446.0	308.0	238.0	144.0	81.0	50.0	59.0
5	42.0	47.0	75.0	219.0	428.0	413.0	221.0	213.0	72.0	36.0	37.0	41.0
10	35.0	40.0	61.0	184.0	408.0	375.0	201.0	119.0	48.0	27.0	29.0	36.0
15	31.0	34.0	56.0	161.0	371.0	325.0	167.0	91.0	38.0	24.0	26.0	32.0
20	29.0	31.0	50.0	141.0	329.0	297.0	151.0	78.0	33.0	22.0	23.0	27.0
25	28.0	30.0	46.0	123.0	308.0	283.0	134.0	68.0	28.0	20.0	20.0	24.0
30	26.0	28.0	42.0	113.0	288.0	269.0	109.0	54.0	24.0	18.0	17.0	22.0
35	24.0	26.0	38.0	103.0	269.0	247.0	89.0	44.0	22.0	17.0	16.0	20.0
40	22.0	24.0	36.0	92.0	254.0	230.0	76.0	37.0	18.0	15.0	14.0	18.0
45	20.0	23.0	34.0	85.0	238.0	216.0	68.0	31.0	16.0	13.0	13.0	15.0
50	19.0	22.0	31.0	76.0	220.0	186.0	61.0	27.0	14.0	12.0	12.0	13.0
55	16.0	20.0	29.0	70.0	203.0	166.0	56.0	23.0	11.0	10.0	10.0	10.0
60	13.0	18.0	27.0	67.0	180.0	151.0	49.0	20.0	8.1	7.8	8.8	9.0
65	9.7	17.0	25.0	60.0	162.0	131.0	45.0	17.0	6.4	5.5	8.1	7.9
70	8.2	13.0	24.0	55.0	150.0	113.0	40.0	16.0	5.2	4.7	7.6	6.5
75	7.0	11.0	22.0	49.0	135.0	87.0	33.0	14.0	4.1	4.4	7.0	5.2
80	4.8	7.8	21.0	41.0	125.0	51.0	28.0	12.0	3.4	4.0	6.4	4.4
85	3.7	4.9	19.0	35.0	105.0	20.0	20.0	10.0	2.7	3.4	5.3	3.7
90	3.2	4.2	17.0	30.0	80.0	0.0	5.0	7.6	2.1	2.5	3.8	3.2
95	1.5	0.0	0.0	0.0	53.0	0.0	0.0	5.6	1.5	1.6	3.1	2.5
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	20.6	22.6	35.7	92.3	227.5	189.2	85.8	50.0	21.5	14.7	14.6	16.5
# Days	589	537	589	570	576	549	563	587	570	589	570	589
# Years	19	19	19	19	19	19	19	19	19	19	19	19

Table CAWG 6 Appdx G-19B. Bear Creek Conduit (Gage 11230520)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	457.0	178.0	154.0	290.0	647.0	465.0	320.0	252.0	210.0	194.0	69.0	69.0
1	381.0	140.0	143.0	285.0	546.0	429.0	262.0	248.0	188.0	88.0	65.0	64.0
5	47.0	76.0	91.0	230.0	437.0	404.0	222.0	228.0	111.0	61.0	39.0	48.0
10	45.0	54.0	76.0	210.0	387.0	311.0	218.0	220.0	89.0	34.0	32.0	44.0
15	35.0	45.0	72.0	173.0	349.0	296.0	211.0	214.0	70.0	27.0	29.0	38.0
20	32.0	43.0	63.0	149.0	317.0	280.0	196.0	189.0	56.0	24.0	27.0	34.0
25	30.0	41.0	57.0	126.0	292.0	267.0	187.0	139.0	49.0	22.0	25.0	29.0
30	29.0	36.0	56.0	105.0	271.0	235.0	175.0	120.0	44.0	20.0	24.0	26.0
35	28.0	34.0	53.0	91.0	249.0	205.0	159.0	106.0	38.0	20.0	20.0	25.0
40	27.0	33.0	50.0	80.0	230.0	110.0	153.0	95.0	35.0	18.0	17.0	23.0
45	26.0	31.0	48.0	70.0	219.0	20.0	141.0	87.0	31.0	17.0	15.0	22.0
50	24.0	31.0	45.0	64.0	186.0	20.0	134.0	84.0	29.0	17.0	15.0	22.0
55	23.0	30.0	42.0	60.0	167.0	20.0	122.0	80.0	28.0	15.0	14.0	21.0
60	22.0	29.0	38.0	56.0	150.0	5.0	5.0	74.0	27.0	14.0	13.0	20.0
65	21.0	26.0	36.0	51.0	135.0	0.0	5.0	67.0	24.0	13.0	13.0	19.0
70	21.0	22.0	32.0	35.0	125.0	0.0	5.0	61.0	23.0	11.0	12.0	18.0
75	19.0	20.0	27.0	31.0	111.0	0.0	5.0	56.0	21.0	8.8	11.0	15.0
80	18.0	17.0	24.0	0.0	101.0	0.0	0.0	50.0	20.0	4.9	8.8	14.0
85	15.0	0.0	0.0	0.0	80.0	0.0	0.0	45.0	16.0	4.0	7.8	9.4
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.0	14.0	3.9	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.0	11.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	31.1	32.1	44.7	84.7	205.9	118.9	105.7	105.1	41.6	19.8	17.7	23.1
# Days	186	169	186	180	173	159	160	184	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx G-19C. Bear Creek Conduit (Gage 11230520)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	39.0	45.0	76.0	214.0	504.0	445.0	314.0	147.0	85.0	79.0	58.0	75.0
5	37.0	34.0	64.0	170.0	470.0	433.0	276.0	96.0	48.0	60.0	46.0	46.0
10	34.0	30.0	59.0	127.0	436.0	420.0	215.0	78.0	44.0	43.0	41.0	41.0
15	30.0	29.0	52.0	124.0	428.0	405.0	208.0	73.0	41.0	32.0	38.0	38.0
20	28.0	28.0	47.0	115.0	422.0	393.0	200.0	72.0	37.0	28.0	31.0	36.0
25	26.0	28.0	46.0	107.0	417.0	382.0	175.0	68.0	35.0	27.0	25.0	34.0
30	24.0	26.0	42.0	101.0	412.0	367.0	155.0	54.0	34.0	24.0	23.0	32.0
35	23.0	25.0	40.0	96.0	408.0	345.0	152.0	48.0	31.0	22.0	19.0	20.0
40	22.0	25.0	39.0	86.0	395.0	321.0	147.0	44.0	26.0	21.0	18.0	17.0
45	20.0	25.0	36.0	81.0	374.0	297.0	132.0	39.0	23.0	19.0	16.0	15.0
50	16.0	24.0	34.0	76.0	345.0	289.0	120.0	38.0	20.0	18.0	14.0	15.0
55	12.0	24.0	32.0	70.0	329.0	282.0	114.0	33.0	16.0	17.0	14.0	11.0
60	9.7	24.0	30.0	68.0	300.0	269.0	105.0	31.0	14.0	16.0	13.0	11.0
65	9.7	23.0	28.0	61.0	277.0	259.0	98.0	29.0	14.0	15.0	11.0	9.7
70	8.7	23.0	26.0	58.0	236.0	235.0	80.0	28.0	13.0	15.0	9.1	6.5
75	7.7	22.0	25.0	49.0	207.0	221.0	65.0	26.0	12.0	9.9	8.3	4.9
80	5.5	21.0	24.0	43.0	167.0	216.0	57.0	24.0	11.0	7.8	8.0	4.1
85	2.1	20.0	23.0	30.0	146.0	169.0	50.0	23.0	8.4	6.7	7.4	3.7
90	1.7	18.0	21.0	24.0	135.0	113.0	46.0	22.0	7.4	5.4	6.9	2.8
95	1.5	17.0	19.0	23.0	61.0	9.0	43.0	18.0	5.3	4.0	5.9	2.0
Minimum	1.3	15.0	18.0	22.0	49.0	3.0	0.0	16.0	3.6	3.7	5.1	1.6
Average	17.1	24.9	36.8	82.4	314.9	283.9	132.1	46.3	24.3	21.8	19.4	19.5
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-19D. Bear Creek Conduit (Gage 11230520)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	84.0	89.0	109.0	254.0	433.0	427.0	157.0	43.0	27.0	35.0	43.0	43.0
5	45.0	47.0	70.0	231.0	412.0	368.0	136.0	36.0	22.0	26.0	36.0	38.0
10	38.0	41.0	51.0	175.0	389.0	334.0	93.0	29.0	18.0	25.0	31.0	35.0
15	37.0	37.0	41.0	170.0	374.0	318.0	85.0	24.0	18.0	24.0	27.0	34.0
20	36.0	35.0	38.0	156.0	365.0	286.0	82.0	22.0	17.0	23.0	24.0	33.0
25	33.0	33.0	37.0	144.0	325.0	272.0	76.0	19.0	16.0	21.0	22.0	32.0
30	32.0	30.0	35.0	136.0	310.0	262.0	75.0	17.0	15.0	20.0	19.0	30.0
35	31.0	29.0	33.0	123.0	297.0	242.0	73.0	16.0	6.2	7.4	17.0	29.0
40	31.0	28.0	32.0	117.0	286.0	222.0	67.0	15.0	5.1	6.6	15.0	27.0
45	30.0	26.0	31.0	112.0	268.0	188.0	61.0	14.0	4.7	5.1	14.0	25.0
50	30.0	23.0	31.0	99.0	261.0	169.0	58.0	14.0	4.1	4.8	12.0	24.0
55	29.0	23.0	30.0	90.0	245.0	163.0	56.0	12.0	3.5	2.9	9.4	24.0
60	29.0	22.0	27.0	85.0	241.0	159.0	50.0	11.0	2.9	2.5	8.5	21.0
65	28.0	20.0	26.0	76.0	221.0	150.0	43.0	10.0	2.3	2.1	7.1	19.0
70	27.0	19.0	26.0	72.0	194.0	132.0	41.0	9.4	2.0	2.0	6.5	9.7
75	26.0	18.0	23.0	69.0	182.0	101.0	33.0	8.0	1.8	1.9	6.0	7.5
80	25.0	17.0	22.0	61.0	170.0	93.0	29.0	7.4	1.7	1.9	5.7	6.5
85	25.0	15.0	22.0	48.0	160.0	87.0	26.0	6.8	1.5	1.8	5.5	5.9
90	22.0	15.0	21.0	40.0	143.0	82.0	22.0	6.2	1.5	1.5	4.8	4.7
95	10.0	13.0	19.0	34.0	83.0	57.0	17.0	5.2	1.3	0.9	4.0	4.1
Minimum	4.8	9.9	15.0	28.0	63.0	44.0	15.0	4.3	1.2	0.0	0.7	3.4
Average	30.6	26.7	33.6	109.1	260.9	198.9	61.0	15.4	8.0	10.1	14.9	21.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-19E. Bear Creek Conduit (Gage 11230520)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	21.0	31.0	85.0	269.0	433.0	462.0	321.0	135.0	151.0	36.0	28.0	20.0
1	21.0	31.0	71.0	251.0	396.0	456.0	297.0	111.0	75.0	31.0	27.0	19.0
5	20.0	27.0	55.0	218.0	338.0	408.0	161.0	44.0	24.0	25.0	23.0	17.0
10	19.0	23.0	47.0	187.0	310.0	341.0	98.0	34.0	19.0	18.0	20.0	14.0
15	17.0	22.0	41.0	163.0	291.0	291.0	85.0	29.0	14.0	16.0	18.0	12.0
20	15.0	20.0	37.0	144.0	268.0	273.0	75.0	25.0	10.0	14.0	16.0	11.0
25	12.0	18.0	34.0	121.0	256.0	260.0	68.0	23.0	8.2	13.0	13.0	9.7
30	10.0	17.0	31.0	113.0	245.0	241.0	63.0	20.0	7.4	12.0	11.0	9.0
35	9.4	13.0	29.0	104.0	230.0	228.0	60.0	19.0	7.0	11.0	9.6	8.5
40	8.4	12.0	28.0	94.0	216.0	218.0	55.0	17.0	6.6	10.0	8.5	8.4
45	8.0	11.0	25.0	86.0	203.0	190.0	52.0	17.0	6.0	8.3	8.0	7.6
50	7.8	11.0	24.0	77.0	180.0	172.0	49.0	16.0	5.2	6.1	7.8	7.1
55	5.9	8.2	23.0	71.0	165.0	163.0	46.0	15.0	4.5	5.2	7.4	5.6
60	5.2	7.8	22.0	68.0	152.0	155.0	43.0	14.0	3.9	4.6	7.0	5.1
65	4.7	6.1	22.0	61.0	147.0	141.0	40.0	13.0	3.6	4.5	6.7	4.6
70	4.3	5.2	20.0	55.0	135.0	133.0	37.0	12.0	3.2	4.4	6.0	4.3
75	3.8	4.9	20.0	51.0	128.0	123.0	34.0	11.0	2.8	4.2	4.9	3.7
80	3.6	4.6	19.0	46.0	111.0	116.0	31.0	9.5	2.6	3.8	4.1	3.4
85	3.4	4.3	18.0	40.0	96.0	100.0	28.0	7.8	2.4	3.4	3.7	3.2
90	3.2	3.8	16.0	37.0	80.0	81.0	24.0	6.3	2.0	3.3	3.4	3.1
95	3.0	3.3	13.0	33.0	63.0	57.0	20.0	5.0	1.3	3.1	3.2	3.0
99	2.8	2.1	5.2	30.0	42.0	46.0	18.0	2.9	0.0	0.0	2.5	2.0
Minimum	2.7	2.1	4.9	29.0	39.0	44.0	17.0	2.8	0.0	0.0	1.7	1.9
Average	8.8	11.9	28.3	95.9	192.9	197.6	61.9	19.7	8.9	9.3	9.8	7.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-20A. Mono Creek Conduit (Gage 11231550)
Historical Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	420.0	498.0	489.0	499.0	476.0	442.0	488.0	489.0	496.0	459.0	476.0	428.0
1	416.0	488.0	481.0	477.0	470.0	411.0	437.0	446.0	487.0	442.0	476.0	424.0
5	380.0	396.0	467.0	448.0	245.0	279.0	426.0	426.0	462.0	420.0	437.0	420.0
10	366.0	282.0	435.0	364.0	189.0	225.0	410.0	417.0	437.0	397.0	432.0	381.0
15	283.0	195.0	401.0	308.0	139.0	166.0	381.0	414.0	416.0	243.0	417.0	338.0
20	256.0	167.0	361.0	218.0	72.0	125.0	350.0	410.0	404.0	206.0	381.0	283.0
25	183.0	158.0	301.0	165.0	35.0	85.0	298.0	407.0	378.0	156.0	263.0	222.0
30	150.0	152.0	244.0	146.0	25.0	31.0	269.0	403.0	305.0	128.0	228.0	158.0
35	141.0	133.0	190.0	122.0	19.0	16.0	253.0	398.0	258.0	104.0	196.0	134.0
40	75.0	75.0	125.0	97.0	15.0	16.0	242.0	384.0	213.0	83.0	127.0	124.0
45	63.0	75.0	109.0	80.0	15.0	15.0	225.0	324.0	193.0	49.0	115.0	110.0
50	26.0	36.0	78.0	65.0	14.0	14.0	193.0	290.0	113.0	20.0	69.0	39.0
55	17.0	26.0	76.0	55.0	13.0	12.0	175.0	264.0	101.0	18.0	18.0	18.0
60	13.0	16.0	70.0	42.0	13.0	11.0	132.0	247.0	86.0	15.0	17.0	15.0
65	11.0	11.0	59.0	22.0	11.0	9.0	61.0	222.0	57.0	14.0	15.0	13.0
70	9.7	8.3	26.0	16.0	10.0	8.0	20.0	183.0	42.0	12.0	12.0	12.0
75	8.3	8.0	15.0	15.0	7.0	6.5	17.0	169.0	29.0	10.0	11.0	11.0
80	8.0	7.5	11.0	15.0	6.4	6.0	14.0	116.0	20.0	8.0	11.0	10.0
85	6.3	7.3	8.5	13.0	6.0	6.0	9.1	104.0	13.0	6.0	9.9	8.1
90	4.8	4.0	8.0	6.0	6.0	5.5	9.0	93.0	10.0	4.0	7.0	1.0
95	0.0	0.0	5.8	5.1	3.0	1.0	0.0	44.0	7.0	0.7	0.0	0.0
99	0.0	0.0	3.5	5.0	1.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	110.9	102.8	161.8	121.7	55.0	62.7	186.2	276.8	191.3	105.9	150.5	125.6
# Days	527	480	527	510	527	509	527	527	510	527	510	527
# Years	17	17	17	17	17	17	17	17	17	17	17	17

Table CAWG 6 Appdx G-20B. Mono Creek Conduit (Gage 11231550)
Historical Daily Exceedance Flow
Wet Water Years (1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	396.0	498.0	489.0	499.0	476.0	442.0	488.0	489.0	462.0	459.0	437.0	381.0
1	396.0	493.0	486.0	494.0	475.0	438.0	475.0	484.0	462.0	459.0	437.0	381.0
5	379.0	486.0	479.0	472.0	380.0	327.0	375.0	412.0	456.0	432.0	432.0	377.0
10	366.0	468.0	471.0	458.0	291.0	253.0	318.0	407.0	437.0	417.0	419.0	368.0
15	263.0	396.0	466.0	448.0	244.0	233.0	296.0	398.0	434.0	411.0	408.0	158.0
20	260.0	383.0	463.0	405.0	237.0	206.0	277.0	311.0	407.0	328.0	386.0	158.0
25	256.0	280.0	458.0	377.0	218.0	195.0	268.0	296.0	399.0	295.0	380.0	139.0
30	155.0	269.0	425.0	349.0	72.0	141.0	260.0	273.0	378.0	241.0	263.0	134.0
35	144.0	205.0	413.0	330.0	68.0	82.0	249.0	267.0	308.0	229.0	151.0	129.0
40	95.0	186.0	392.0	282.0	25.0	35.0	244.0	256.0	280.0	157.0	147.0	67.0
45	64.0	168.0	368.0	191.0	22.0	30.0	234.0	248.0	252.0	155.0	112.0	39.0
50	19.0	158.0	334.0	156.0	20.0	22.0	227.0	224.0	234.0	97.0	69.0	13.0
55	13.0	158.0	286.0	110.0	18.0	15.0	211.0	204.0	144.0	49.0	49.0	13.0
60	13.0	153.0	251.0	83.0	16.0	13.0	175.0	178.0	111.0	48.0	31.0	12.0
65	13.0	144.0	220.0	70.0	15.0	7.0	115.0	176.0	110.0	19.0	18.0	11.0
70	9.1	141.0	184.0	58.0	15.0	6.0	76.0	122.0	107.0	18.0	18.0	9.9
75	8.1	133.0	134.0	29.0	14.0	6.0	29.0	109.0	100.0	17.0	17.0	8.2
80	7.6	7.8	111.0	24.0	14.0	4.0	6.0	104.0	82.0	10.0	11.0	8.1
85	2.0	0.0	110.0	22.0	8.0	4.0	0.0	96.0	82.0	10.0	11.0	7.6
90	0.0	0.0	109.0	16.0	4.0	0.0	0.0	92.0	17.0	4.4	4.4	0.0
95	0.0	0.0	16.0	15.0	3.0	0.0	0.0	44.0	10.0	0.7	0.0	0.0
99	0.0	0.0	0.0	6.0	2.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	6.0	2.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0
Average	116.5	200.7	296.6	208.1	99.1	89.6	180.3	222.8	231.3	159.5	156.3	93.5
# Days	186	169	186	180	186	179	186	186	180	186	180	186
# Years	6	6	6	6	6	6	6	6	6	6	6	6

Table CAWG 6 Appdx G-20C. Mono Creek Conduit (Gage 11231550)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

						Flow (cfs)						
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	376.0	355.0	247.0	233.0	25.0	42.0	426.0	426.0	496.0	442.0	442.0	381.0
5	376.0	350.0	247.0	206.0	14.0	14.0	426.0	426.0	465.0	442.0	442.0	310.0
10	372.0	346.0	247.0	106.0	14.0	14.0	377.0	426.0	437.0	442.0	442.0	283.0
15	365.0	195.0	243.0	97.0	13.0	12.0	367.0	421.0	417.0	435.0	437.0	283.0
20	363.0	75.0	240.0	82.0	13.0	12.0	336.0	420.0	413.0	230.0	437.0	281.0
25	363.0	75.0	236.0	82.0	12.0	12.0	326.0	417.0	413.0	111.0	437.0	280.0
30	360.0	75.0	236.0	81.0	11.0	12.0	286.0	417.0	413.0	93.0	437.0	233.0
35	359.0	75.0	236.0	81.0	11.0	12.0	273.0	416.0	405.0	93.0	432.0	137.0
40	359.0	75.0	77.0	71.0	11.0	12.0	266.0	416.0	369.0	93.0	432.0	137.0
45	357.0	75.0	77.0	65.0	10.0	12.0	255.0	414.0	312.0	93.0	398.0	124.0
50	135.0	58.0	77.0	64.0	10.0	11.0	252.0	414.0	264.0	93.0	258.0	124.0
55	117.0	7.3	77.0	64.0	10.0	11.0	238.0	409.0	263.0	29.0	258.0	124.0
60	7.2	7.3	75.0	64.0	10.0	11.0	214.0	409.0	260.0	28.0	255.0	124.0
65	6.3	7.3	75.0	17.0	10.0	11.0	191.0	408.0	244.0	22.0	253.0	124.0
70	6.2	7.3	75.0	17.0	10.0	11.0	161.0	404.0	166.0	15.0	250.0	124.0
75	6.2	7.3	75.0	16.0	10.0	10.0	104.0	370.0	85.0	7.0	250.0	124.0
80	6.2	7.3	66.0	16.0	10.0	9.0	20.0	333.0	82.0	7.0	202.0	124.0
85	6.2	7.3	66.0	15.0	10.0	9.0	14.0	325.0	5.0	7.0	132.0	122.0
90	6.2	7.3	52.0	15.0	9.0	9.0	14.0	324.0	0.0	7.0	7.0	28.0
95	6.2	7.2	7.3	11.0	8.0	9.0	9.0	266.0	0.0	7.0	7.0	9.0
Minimum	6.2	7.2	7.3	9.0	8.0	9.0	9.0	159.0	0.0	6.0	7.0	6.2
Average	196	82.2	135.5	66.8	11.2	12.3	221.6	388.5	265.0	122.5	301.2	166.2
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-20D. Mono Creek Conduit (Gage 11231550)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

						Flow (cfs)						
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	384.0	167.0	80.0	83.0	48.0	145.0	413.0	416.0	397.0	27.0	12.0	398.0
5	380.0	167.0	80.0	80.0	48.0	6.5	376.0	416.0	393.0	19.0	12.0	397.0
10	375.0	167.0	80.0	80.0	12.0	6.4	375.0	416.0	320.0	19.0	12.0	393.0
15	375.0	167.0	80.0	57.0	6.8	6.1	375.0	413.0	213.0	19.0	12.0	389.0
20	185.0	136.0	78.0	55.0	6.7	6.0	371.0	411.0	212.0	19.0	12.0	389.0
25	170.0	78.0	78.0	55.0	6.7	6.0	269.0	407.0	212.0	18.0	12.0	384.0
30	170.0	78.0	78.0	55.0	6.6	6.0	269.0	407.0	212.0	10.0	11.0	376.0
35	168.0	78.0	78.0	55.0	6.6	6.0	237.0	406.0	212.0	10.0	11.0	274.0
40	97.0	76.0	78.0	55.0	6.5	6.0	219.0	403.0	212.0	8.9	11.0	81.0
45	96.0	76.0	78.0	54.0	6.4	6.0	190.0	403.0	212.0	7.9	10.0	12.0
50	76.0	75.0	70.0	7.0	6.0	6.0	190.0	403.0	203.0	4.0	2.0	12.0
55	76.0	75.0	70.0	6.0	6.0	6.0	190.0	402.0	132.0	1.0	1.0	12.0
60	75.0	75.0	70.0	6.0	6.0	6.0	190.0	402.0	90.0	1.0	0.0	12.0
65	75.0	74.0	70.0	6.0	6.0	6.0	190.0	402.0	88.0	1.0	0.0	12.0
70	75.0	70.0	70.0	6.0	6.0	5.9	155.0	397.0	88.0	1.0	0.0	12.0
75	74.0	70.0	70.0	5.0	6.0	5.9	155.0	393.0	86.0	1.0	0.0	12.0
80	73.0	70.0	70.0	5.0	6.0	5.7	151.0	393.0	20.0	0.0	0.0	11.0
85	64.0	70.0	70.0	5.0	6.0	5.6	115.0	389.0	20.0	0.0	0.0	11.0
90	12.0	70.0	70.0	5.0	6.0	5.6	99.0	368.0	17.0	0.0	0.0	11.0
95	12.0	70.0	6.0	5.0	6.0	5.5	31.0	190.0	17.0	0.0	0.0	1.0
Minimum	12.0	68.0	6.0	5.0	6.0	5.5	9.0	114.0	17.0	0.0	0.0	1.0
Average	141.2	93.3	69.9	33.3	10.2	8.3	221.3	386.5	160.7	7.6	5.8	155.9
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-20E. Mono Creek Conduit (Gage 11231550)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	420.0	179.0	406.0	316.0	229.0	412.0	437.0	487.0	490.0	406.0	476.0	428.0
1	419.0	179.0	405.0	312.0	209.0	391.0	437.0	466.0	490.0	406.0	476.0	427.0
5	412.0	155.0	397.0	308.0	165.0	289.0	427.0	437.0	478.0	394.0	472.0	424.0
10	186.0	146.0	324.0	233.0	141.0	207.0	422.0	426.0	456.0	222.0	424.0	423.0
15	183.0	27.0	316.0	176.0	112.0	164.0	414.0	418.0	418.0	164.0	342.0	338.0
20	148.0	26.0	160.0	164.0	109.0	133.0	406.0	414.0	382.0	140.0	264.0	330.0
25	145.0	26.0	67.0	146.0	38.0	120.0	385.0	407.0	300.0	128.0	228.0	222.0
30	27.0	16.0	27.0	125.0	30.0	98.0	374.0	395.0	166.0	126.0	225.0	220.0
35	26.0	16.0	26.0	125.0	23.0	17.0	253.0	381.0	121.0	104.0	127.0	212.0
40	26.0	12.0	16.0	116.0	15.0	16.0	194.0	338.0	45.0	52.0	124.0	108.0
45	17.0	11.0	15.0	79.0	14.0	16.0	136.0	292.0	43.0	49.0	120.0	37.0
50	15.0	9.7	14.0	42.0	14.0	16.0	25.0	252.0	42.0	15.0	102.0	26.0
55	11.0	9.6	11.0	16.0	13.0	15.0	17.0	225.0	40.0	14.0	17.0	18.0
60	10.0	8.3	9.9	16.0	13.0	15.0	17.0	213.0	27.0	14.0	15.0	17.0
65	9.8	8.2	9.8	15.0	13.0	14.0	15.0	184.0	24.0	14.0	15.0	17.0
70	9.6	8.0	8.3	15.0	12.0	14.0	14.0	157.0	21.0	12.0	14.0	15.0
75	8.3	7.7	8.3	14.0	11.0	9.1	13.0	120.0	13.0	11.0	12.0	11.0
80	8.1	7.5	8.0	14.0	6.0	9.0	10.0	109.0	13.0	11.0	11.0	10.0
85	7.4	7.5	7.5	6.7	6.0	8.0	9.1	93.0	9.0	8.6	11.0	9.7
90	4.8	4.1	5.2	6.1	4.0	7.0	9.0	48.0	8.0	6.8	10.0	0.0
95	3.7	3.0	4.1	5.1	1.0	4.0	9.0	36.0	7.0	5.0	8.5	0.0
99	0.0	2.8	3.5	4.4	0.0	0.0	8.0	10.0	1.0	2.0	7.2	0.0
Minimum	0.0	2.8	3.5	3.6	0.0	0.0	8.0	10.0	1.0	2.0	7.0	0.0
Average	73.1	27.9	80.2	88.5	42.4	69.7	171.0	259.8	144.8	83.3	143.7	133.0
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-21A. Huntington-Shaver Conduit (Tunnel 7) Intake at Huntington Lake (Gage 11236080)
Historical Daily Exceedance Flow
(10/1/1974 to 9/30/1983)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1280.0	1340.0	1040.0	1200.0	1310.0	1510.0	1340.0	917.0	1400.0	1380.0	635.0	551.0
1	998.0	1300.0	932.0	1060.0	1270.0	1500.0	1340.0	732.0	1380.0	1190.0	613.0	545.0
5	226.0	915.0	810.0	664.0	1190.0	1420.0	965.0	668.0	649.0	469.0	503.0	274.0
10	64.0	313.0	528.0	596.0	1130.0	1300.0	810.0	645.0	582.0	30.0	216.0	29.0
15	32.0	291.0	441.0	547.0	1090.0	1210.0	647.0	628.0	515.0	28.0	2.8	1.3
20	29.0	251.0	412.0	477.0	949.0	1110.0	645.0	584.0	74.0	2.6	1.3	1.2
25	21.0	159.0	277.0	420.0	828.0	1060.0	621.0	517.0	30.0	2.5	1.1	1.1
30	1.5	69.0	232.0	281.0	759.0	984.0	612.0	509.0	3.3	2.3	1.0	1.0
35	1.4	41.0	58.0	53.0	672.0	941.0	573.0	73.0	3.1	2.0	1.0	0.9
40	1.1	28.0	47.0	24.0	608.0	821.0	539.0	2.8	2.9	1.7	0.9	0.8
45	1.0	1.1	26.0	17.0	489.0	714.0	470.0	2.3	2.8	1.5	0.9	0.8
50	0.8	0.7	2.0	13.0	393.0	607.0	283.0	1.8	2.0	1.2	0.8	0.8
55	0.7	0.5	0.6	8.0	36.0	574.0	37.0	1.7	1.8	1.1	0.7	0.7
60	0.5	0.3	0.2	6.0	22.0	561.0	1.9	1.7	1.8	1.0	0.6	0.5
65	0.3	0.1	0.0	3.0	15.0	520.0	1.5	1.5	1.7	0.8	0.5	0.2
70	0.1	0.1	0.0	2.0	11.0	463.0	1.5	1.3	1.6	0.7	0.4	0.0
75	0.1	0.0	0.0	1.0	7.0	104.0	1.3	1.2	1.4	0.6	0.1	0.0
80	0.0	0.0	0.0	1.0	5.0	1.0	1.2	1.0	1.2	0.5	0.0	0.0
85	0.0	0.0	0.0	0.0	2.0	0.5	1.1	0.8	0.9	0.3	0.0	0.0
90	0.0	0.0	0.0	0.0	1.0	0.0	1.0	0.7	0.8	0.1	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.6	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	36.6	130.6	166.1	185.9	440.0	657.6	344.2	201.9	132.5	45.1	52.2	26.8
# Days	279	254	279	270	279	270	279	279	270	279	270	279
# Years	9	9	9	9	9	9	9	9	9	9	9	9

Table CAWG 6 Appdx G-21B. Huntington-Shaver Conduit (Tunnel 7) Intake at Huntington Lake (Gage 11236080)
Historical Daily Exceedance Flow
Wet Water Years (1975, 1978, 1980, 1982, 1983)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1280.0	1340.0	1040.0	1200.0	1310.0	1510.0	1340.0	917.0	1400.0	1380.0	635.0	551.0
1	1190.0	1320.0	946.0	1140.0	1310.0	1500.0	1340.0	786.0	1390.0	1380.0	620.0	551.0
5	218.0	1000.0	864.0	791.0	1220.0	1480.0	1310.0	675.0	1280.0	581.0	557.0	470.0
10	64.0	858.0	771.0	565.0	1160.0	1390.0	961.0	656.0	649.0	267.0	503.0	228.0
15	34.0	322.0	653.0	516.0	1130.0	1300.0	834.0	647.0	609.0	31.0	359.0	33.0
20	31.0	307.0	350.0	470.0	1100.0	1250.0	727.0	643.0	580.0	2.8	117.0	1.6
25	29.0	294.0	277.0	435.0	1080.0	1190.0	648.0	634.0	577.0	2.6	31.0	1.3
30	26.0	182.0	257.0	366.0	949.0	1110.0	647.0	611.0	306.0	2.6	2.0	1.2
35	1.2	72.0	232.0	266.0	857.0	1080.0	645.0	585.0	74.0	2.4	1.3	1.1
40	1.0	69.0	86.0	248.0	818.0	1030.0	628.0	544.0	32.0	2.4	1.2	1.0
45	0.6	46.0	56.0	36.0	747.0	984.0	619.0	517.0	30.0	2.2	1.1	0.9
50	0.4	33.0	53.0	26.0	659.0	943.0	617.0	514.0	29.0	2.1	1.1	0.8
55	0.1	8.0	28.0	23.0	593.0	882.0	597.0	494.0	3.3	1.8	1.0	0.8
60	0.1	0.5	26.0	18.0	499.0	803.0	578.0	245.0	3.1	1.6	0.9	0.7
65	0.0	0.1	1.0	14.0	439.0	758.0	549.0	36.0	2.6	1.2	0.9	0.2
70	0.0	0.0	0.5	13.0	391.0	614.0	530.0	30.0	2.0	1.1	0.9	0.2
75	0.0	0.0	0.0	8.0	44.0	573.0	502.0	1.3	1.9	1.1	0.8	0.0
80	0.0	0.0	0.0	6.0	35.0	561.0	432.0	1.0	1.5	1.1	0.7	0.0
85	0.0	0.0	0.0	2.0	15.0	544.0	283.0	0.6	1.3	0.9	0.6	0.0
90	0.0	0.0	0.0	1.0	11.0	518.0	23.0	0.0	1.1	0.8	0.5	0.0
95	0.0	0.0	0.0	1.0	8.0	480.0	0.0	0.0	0.6	0.6	0.0	0.0
99	0.0	0.0	0.0	0.0	4.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	4.0	23.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	47.3	190.5	210.2	217.5	623.6	921.0	590.2	362.1	237.1	77.9	93.8	47.8
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx G-21C. Huntington-Shaver Conduit (Tunnel 7) Intake at Huntington Lake (Gage 11236080)
Historical Daily Exceedance Flow
Above Normal Water Years (1979)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	227.0	775.0	758.0	735.0	1210.0	1250.0	612.0	2.8	3.3	29.0	0.0	0.0
5	227.0	768.0	575.0	709.0	1190.0	1250.0	574.0	2.6	3.2	29.0	0.0	0.0
10	226.0	257.0	448.0	677.0	1160.0	1050.0	539.0	2.5	3.1	28.0	0.0	0.0
15	226.0	257.0	447.0	664.0	1140.0	981.0	522.0	2.5	3.1	28.0	0.0	0.0
20	226.0	257.0	444.0	650.0	1020.0	952.0	326.0	2.5	3.0	28.0	0.0	0.0
25	224.0	255.0	444.0	636.0	1000.0	862.0	153.0	2.5	2.9	28.0	0.0	0.0
30	222.0	254.0	441.0	625.0	887.0	760.0	153.0	2.4	2.9	28.0	0.0	0.0
35	129.0	251.0	440.0	611.0	818.0	639.0	59.0	2.4	2.9	28.0	0.0	0.0
40	32.0	251.0	438.0	605.0	818.0	628.0	56.0	2.4	2.9	28.0	0.0	0.0
45	30.0	249.0	434.0	599.0	759.0	611.0	3.0	2.3	2.8	27.0	0.0	0.0
50	27.0	239.0	429.0	598.0	738.0	598.0	2.0	2.3	2.8	13.0	0.0	0.0
55	22.0	218.0	420.0	588.0	692.0	574.0	1.8	2.3	2.8	0.3	0.0	0.0
60	8.0	216.0	417.0	575.0	684.0	574.0	1.4	2.3	2.8	0.2	0.0	0.0
65	0.0	195.0	414.0	551.0	678.0	574.0	1.3	2.3	2.8	0.2	0.0	0.0
70	0.0	113.0	413.0	547.0	664.0	573.0	1.2	2.1	2.8	0.1	0.0	0.0
75	0.0	73.0	412.0	540.0	660.0	570.0	1.2	2.1	2.8	0.1	0.0	0.0
80	0.0	45.0	410.0	502.0	649.0	569.0	1.0	2.0	2.8	0.0	0.0	0.0
85	0.0	41.0	407.0	399.0	636.0	285.0	0.9	1.7	2.8	0.0	0.0	0.0
90	0.0	40.0	406.0	398.0	613.0	269.0	0.9	1.5	2.8	0.0	0.0	0.0
95	0.0	39.0	401.0	393.0	603.0	58.0	0.7	0.8	2.7	0.0	0.0	0.0
Minimum	0.0	39.0	401.0	393.0	603.0	58.0	0.7	0.8	2.7	0.0	0.0	0.0
Average	90.3	224.1	441.6	579.6	822.1	670.8	139.2	2.2	2.9	14.1	0.0	0.0
# Days	31	28	31	30	31	30	31	31	30	31	30	31
# Years	1	1	1	1	1	1	1	1	1	1	1	1

Table CAWG 6 Appdx G-21D. Huntington-Shaver Conduit (Tunnel 7) Intake at Huntington Lake (Gage 11236080)
Historical Daily Exceedance Flow
Dry Water Years (1981)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.7	0.9	0.0	13.0	24.0	1350.0	39.0	1.8	1.8	2.0	1.1	1.6
5	1.7	0.8	0.0	11.0	23.0	1340.0	37.0	1.8	1.8	1.9	1.0	1.5
10	1.7	0.8	0.0	9.0	23.0	1330.0	2.0	1.8	1.8	1.8	1.0	1.5
15	1.7	0.7	0.0	8.0	23.0	1190.0	2.0	1.8	1.8	1.8	1.0	1.5
20	1.6	0.7	0.0	6.0	22.0	1080.0	1.9	1.8	1.8	1.7	1.0	1.3
25	1.5	0.6	0.0	5.0	22.0	996.0	1.9	1.8	1.8	1.7	1.0	1.3
30	1.5	0.5	0.0	4.0	22.0	988.0	1.8	1.8	1.8	1.7	0.9	1.2
35	1.5	0.5	0.0	4.0	21.0	981.0	1.7	1.7	1.8	1.7	0.9	1.2
40	1.5	0.4	0.0	2.0	20.0	714.0	1.7	1.7	1.8	1.7	0.9	1.2
45	1.5	0.0	0.0	2.0	20.0	623.0	1.7	1.7	1.8	1.3	0.9	1.1
50	1.5	0.0	0.0	0.0	19.0	584.0	1.6	1.7	1.8	1.3	0.8	1.1
55	1.5	0.0	0.0	0.0	17.0	463.0	1.5	1.7	1.8	0.9	0.8	1.0
60	1.5	0.0	0.0	0.0	13.0	419.0	1.4	1.7	1.8	0.9	0.8	0.9
65	1.5	0.0	0.0	0.0	12.0	359.0	1.4	1.7	1.7	0.8	0.7	0.9
70	1.4	0.0	0.0	0.0	3.0	231.0	1.1	1.7	1.7	0.8	0.7	0.8
75	1.4	0.0	0.0	0.0	3.0	183.0	1.1	1.7	1.7	0.8	0.7	0.8
80	1.3	0.0	0.0	0.0	1.0	172.0	0.7	1.7	1.7	0.7	0.7	0.8
85	1.3	0.0	0.0	0.0	0.0	104.0	0.2	1.7	1.7	0.7	0.5	0.7
90	1.1	0.0	0.0	0.0	0.0	28.0	0.2	1.7	1.7	0.7	0.5	0.7
95	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.7	0.5	0.0	0.5
Minimum	1.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	1.7	0.5	0.0	0.5
Average	1.5	0.3	0.0	3.1	14.0	641.1	4.8	1.7	1.8	1.3	0.8	1.1
# Days	31	28	31	30	31	30	31	31	30	31	30	31
# Years	1	1	1	1	1	1	1	1	1	1	1	1

Table CAWG 6 Appdx G-21E. Huntington-Shaver Conduit (Tunnel 7) Intake at Huntington Lake (Gage 11236080)
Historical Daily Exceedance Flow
Critical Water Years (1976, 1977)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.4	1.7	8.0	8.0	12.0	5.0	1.6	1.6	1.6	7.0	2.8	3.0
5	1.2	1.1	5.0	7.0	8.0	1.3	1.5	1.6	1.6	1.5	0.7	1.2
10	1.1	0.8	3.0	5.0	7.0	1.0	1.5	1.5	1.6	1.1	0.6	1.0
15	0.9	0.7	1.1	4.0	5.0	0.9	1.5	1.5	1.6	0.7	0.6	0.9
20	0.9	0.6	1.0	3.0	5.0	0.8	1.5	1.5	1.5	0.7	0.6	0.8
25	0.9	0.5	0.5	2.0	5.0	0.7	1.5	1.4	1.5	0.6	0.6	0.8
30	0.8	0.5	0.5	2.0	4.0	0.6	1.3	1.3	1.5	0.6	0.5	0.8
35	0.8	0.5	0.2	1.0	3.0	0.5	1.3	1.2	1.3	0.6	0.4	0.7
40	0.8	0.4	0.1	1.0	3.0	0.5	1.3	1.2	1.1	0.5	0.3	0.7
45	0.7	0.3	0.1	1.0	2.0	0.4	1.3	1.1	1.1	0.5	0.2	0.7
50	0.7	0.2	0.0	0.0	1.0	0.3	1.3	1.1	0.9	0.4	0.2	0.6
55	0.7	0.1	0.0	0.0	1.0	0.0	1.2	1.0	0.9	0.4	0.1	0.6
60	0.6	0.1	0.0	0.0	1.0	0.0	1.2	0.9	0.9	0.2	0.1	0.5
65	0.5	0.1	0.0	0.0	0.0	0.0	1.2	0.9	0.9	0.1	0.1	0.5
70	0.4	0.0	0.0	0.0	0.0	0.0	1.1	0.9	0.9	0.0	0.0	0.4
75	0.3	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.8	0.0	0.0	0.1
80	0.3	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.7	0.0	0.0	0.1
85	0.2	0.0	0.0	0.0	0.0	0.0	1.0	0.8	0.7	0.0	0.0	0.0
90	0.2	0.0	0.0	0.0	0.0	0.0	0.9	0.7	0.3	0.0	0.0	0.0
95	0.2	0.0	0.0	0.0	0.0	0.0	0.9	0.6	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.6	0.0	0.0	0.0	0.0
Average	0.7	0.3	0.9	1.5	2.7	0.5	1.2	1.1	1.1	0.5	0.3	0.6
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-22A. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
(10/1/1970 to 9/30/2002)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	592.0	197.0	146.0	551.0	888.0	829.0	397.0	40.0	212.0	358.0	142.0	79.0
1	99.0	105.0	119.0	367.0	561.0	713.0	203.0	27.0	30.0	41.0	39.0	35.0
5	33.0	45.0	77.0	249.0	464.0	475.0	87.0	12.0	6.7	7.2	20.0	22.0
10	25.0	29.0	57.0	178.0	385.0	309.0	47.0	5.8	2.1	3.8	6.0	8.4
15	14.0	24.0	47.0	148.0	334.0	237.0	33.0	4.3	1.0	2.4	4.2	6.6
20	10.0	21.0	42.0	131.0	280.0	163.0	22.0	3.1	0.6	1.3	3.5	4.7
25	7.7	16.0	38.0	121.0	238.0	128.0	15.0	2.4	0.3	0.5	2.1	4.0
30	6.9	13.0	33.0	106.0	203.0	101.0	11.0	1.5	0.1	0.3	1.4	3.6
35	5.4	10.0	27.0	98.0	182.0	70.0	8.4	1.0	0.1	0.2	0.8	2.7
40	4.4	7.9	23.0	90.0	159.0	52.0	6.9	0.5	0.0	0.1	0.6	1.9
45	3.0	6.0	19.0	76.0	143.0	36.0	5.5	0.2	0.0	0.0	0.4	0.9
50	2.0	4.1	16.0	66.0	126.0	28.0	3.8	0.1	0.0	0.0	0.3	0.4
55	1.2	3.1	14.0	58.0	111.0	25.0	2.8	0.0	0.0	0.0	0.2	0.3
60	0.6	2.2	11.0	51.0	95.0	21.0	2.2	0.0	0.0	0.0	0.1	0.2
65	0.3	1.5	9.2	44.0	84.0	16.0	1.7	0.0	0.0	0.0	0.0	0.1
70	0.1	1.1	7.3	37.0	72.0	13.0	1.1	0.0	0.0	0.0	0.0	0.0
75	0.0	0.5	6.0	31.0	60.0	11.0	0.7	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	3.2	25.0	49.0	8.7	0.4	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	1.1	22.0	38.0	7.3	0.1	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	18.0	32.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	13.0	25.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	1.7	12.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	9.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	9.1	12.1	24.8	87.5	170.3	103.4	18.9	2.3	1.8	2.4	3.2	3.7
# Days	744	667	727	765	806	780	806	806	780	806	766	749
# Years	24	24	25	26	26	26	26	26	26	26	26	25

Table CAWG 6 Appdx G-22B. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Wet Water Years (1975, 1978, 1980, 1982, 1983, 1993, 1995, 1996, 1997, 1998)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	592.0	197.0	146.0	551.0	888.0	829.0	397.0	40.0	212.0	358.0	142.0	79.0
1	216.0	179.0	142.0	403.0	631.0	791.0	376.0	34.0	66.0	87.0	62.0	47.0
5	58.0	82.0	113.0	311.0	531.0	621.0	162.0	25.0	19.0	12.0	35.0	32.0
10	36.0	58.0	86.0	255.0	483.0	517.0	114.0	17.0	7.8	6.7	29.0	28.0
15	31.0	45.0	64.0	203.0	430.0	439.0	79.0	9.5	5.8	3.8	14.0	22.0
20	29.0	35.0	56.0	134.0	391.0	355.0	65.0	7.1	3.9	2.1	6.9	9.5
25	25.0	27.0	52.0	108.0	372.0	316.0	50.0	6.0	2.0	1.1	4.9	8.6
30	16.0	25.0	47.0	98.0	343.0	281.0	41.0	5.2	1.4	0.3	2.1	7.7
35	15.0	24.0	44.0	74.0	316.0	254.0	35.0	4.7	1.0	0.2	1.5	7.0
40	14.0	23.0	41.0	62.0	287.0	230.0	33.0	4.2	0.9	0.1	0.9	4.8
45	9.7	14.0	39.0	54.0	251.0	188.0	28.0	3.6	0.7	0.0	0.6	2.6
50	7.9	14.0	37.0	46.0	219.0	155.0	22.0	3.2	0.4	0.0	0.4	2.2
55	7.6	12.0	34.0	40.0	183.0	140.0	16.0	2.8	0.3	0.0	0.3	1.1
60	7.2	9.1	31.0	36.0	158.0	118.0	14.0	2.5	0.2	0.0	0.2	0.9
65	6.9	8.1	25.0	32.0	125.0	93.0	12.0	2.2	0.1	0.0	0.1	0.7
70	5.3	7.5	18.0	27.0	91.0	59.0	9.3	1.4	0.1	0.0	0.0	0.3
75	3.8	6.0	14.0	24.0	75.0	30.0	7.0	1.0	0.0	0.0	0.0	0.2
80	1.9	3.5	10.0	22.0	57.0	26.0	5.1	0.4	0.0	0.0	0.0	0.2
85	1.0	3.2	8.5	19.0	42.0	24.0	2.4	0.1	0.0	0.0	0.0	0.0
90	0.1	0.0	7.7	15.0	36.0	13.0	2.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	2.0	10.0	29.0	7.0	1.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	8.0	24.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	7.0	23.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	20.4	24.3	40.1	90.3	239.2	215.0	43.8	5.7	4.4	4.8	6.6	7.8
# Days	248	225	255	285	310	300	310	310	300	310	286	253
# Years	8	8	9	10	10	10	10	10	10	10	10	9

Table CAWG 6 Appdx G-22C. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Above Normal Water Years (1979, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	135.0	39.0	60.0	285.0	552.0	231.0	21.0	4.0	1.1	6.6	16.0	16.0
5	33.0	31.0	49.0	250.0	463.0	192.0	18.0	2.7	0.5	5.7	4.7	9.3
10	25.0	31.0	43.0	200.0	410.0	119.0	12.0	1.8	0.2	4.5	4.4	8.3
15	23.0	29.0	42.0	166.0	384.0	102.0	11.0	1.6	0.1	3.1	4.2	6.6
20	19.0	27.0	40.0	157.0	339.0	97.0	10.0	1.4	0.1	2.7	4.1	5.9
25	13.0	25.0	37.0	142.0	323.0	85.0	9.1	1.2	0.1	2.5	4.0	4.8
30	12.0	24.0	35.0	130.0	282.0	80.0	8.1	1.1	0.1	2.1	3.8	4.6
35	11.0	22.0	33.0	125.0	272.0	70.0	7.5	1.0	0.1	1.8	3.6	4.6
40	9.3	21.0	32.0	119.0	249.0	63.0	7.1	0.9	0.0	1.4	3.5	4.5
45	5.4	20.0	30.0	113.0	231.0	56.0	6.6	0.7	0.0	0.9	3.3	4.3
50	5.4	19.0	26.0	102.0	209.0	49.0	6.2	0.4	0.0	0.6	1.8	4.2
55	4.8	19.0	24.0	94.0	203.0	43.0	5.2	0.1	0.0	0.6	1.3	3.9
60	4.8	18.0	22.0	91.0	200.0	38.0	4.8	0.0	0.0	0.5	1.1	3.9
65	4.6	15.0	20.0	73.0	187.0	32.0	4.2	0.0	0.0	0.0	0.8	2.9
70	4.4	13.0	19.0	65.0	174.0	29.0	3.8	0.0	0.0	0.0	0.3	0.2
75	3.5	11.0	18.0	54.0	171.0	24.0	2.8	0.0	0.0	0.0	0.0	0.2
80	0.2	8.9	16.0	45.0	154.0	22.0	2.1	0.0	0.0	0.0	0.0	0.1
85	0.2	5.3	14.0	31.0	145.0	18.0	1.6	0.0	0.0	0.0	0.0	0.1
90	0.2	4.4	9.9	29.0	124.0	14.0	0.9	0.0	0.0	0.0	0.0	0.0
95	0.1	3.8	9.5	25.0	112.0	13.0	0.3	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	1.8	8.6	25.0	98.0	10.0	0.1	0.0	0.0	0.0	0.0	0.0
Average	12.1	18.6	27.6	109.0	250.5	63.2	6.6	0.8	0.1	1.5	2.3	3.8
# Days	93	85	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-22D. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Below Normal Water Years (1971)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	13.0	19.0	77.0	140.0	263.0	163.0	26.0	2.5	1.3	0.3	7.7	5.0
5	12.0	18.0	76.0	129.0	243.0	155.0	24.0	2.5	0.8	0.2	5.8	5.0
10	10.0	17.0	63.0	121.0	208.0	142.0	21.0	1.9	0.2	0.1	3.6	4.0
15	10.0	16.0	60.0	114.0	203.0	139.0	19.0	1.8	0.2	0.1	3.2	4.0
20	9.0	16.0	38.0	106.0	200.0	134.0	17.0	1.6	0.2	0.1	2.7	4.0
25	8.5	14.0	35.0	100.0	199.0	130.0	15.0	1.5	0.1	0.1	1.6	4.0
30	8.0	13.0	30.0	98.0	192.0	129.0	14.0	1.3	0.1	0.1	1.3	4.0
35	7.0	12.0	21.0	98.0	190.0	122.0	12.0	1.1	0.1	0.1	1.2	4.0
40	6.9	12.0	18.0	94.0	167.0	118.0	11.0	0.9	0.1	0.1	1.1	4.0
45	6.0	11.0	15.0	90.0	156.0	117.0	11.0	0.5	0.1	0.1	1.0	4.0
50	6.0	11.0	15.0	79.0	154.0	109.0	10.0	0.4	0.1	0.1	0.9	4.0
55	3.0	11.0	14.0	78.0	136.0	84.0	8.4	0.3	0.1	0.1	0.7	4.0
60	3.0	10.0	14.0	76.0	133.0	72.0	7.9	0.3	0.1	0.1	0.6	3.8
65	2.5	8.0	13.0	73.0	126.0	63.0	7.6	0.3	0.1	0.1	0.4	3.6
70	2.0	6.0	13.0	73.0	120.0	60.0	6.8	0.2	0.1	0.1	0.4	3.0
75	2.0	6.0	12.0	62.0	117.0	47.0	6.3	0.2	0.1	0.1	0.4	3.0
80	2.0	6.0	12.0	60.0	90.0	43.0	5.4	0.2	0.1	0.1	0.4	3.0
85	2.0	6.0	11.0	58.0	89.0	39.0	4.2	0.2	0.1	0.1	0.2	3.0
90	2.0	6.0	11.0	56.0	87.0	35.0	3.4	0.1	0.1	0.1	0.1	3.0
95	2.0	6.0	10.0	52.0	80.0	29.0	2.8	0.1	0.0	0.0	0.0	3.0
Minimum	2.0	6.0	10.0	52.0	80.0	29.0	2.8	0.1	0.0	0.0	0.0	3.0
Average	5.6	11.0	26.8	86.9	155.4	95.4	11.3	0.8	0.2	0.1	1.5	3.8
# Days	31	28	31	30	31	30	31	31	30	31	30	31
# Years	1	1	1	1	1	1	1	1	1	1	1	1

Table CAWG 6 Appdx G-22E. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Dry Water Years (1981, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	11.0	22.0	99.0	249.0	329.0	102.0	6.9	0.1	0.0	1.5	24.0	9.3
5	8.5	9.4	64.0	196.0	316.0	75.0	5.3	0.0	0.0	0.5	4.3	5.2
10	7.6	8.4	25.0	183.0	258.0	63.0	4.3	0.0	0.0	0.4	1.3	5.0
15	5.9	5.4	23.0	167.0	232.0	52.0	3.3	0.0	0.0	0.3	0.6	4.4
20	4.2	4.9	21.0	153.0	205.0	38.0	2.9	0.0	0.0	0.1	0.4	4.2
25	3.4	4.5	18.0	144.0	181.0	32.0	2.2	0.0	0.0	0.1	0.3	3.8
30	2.9	4.1	16.0	124.0	173.0	28.0	1.7	0.0	0.0	0.0	0.2	3.6
35	2.1	3.7	9.5	119.0	166.0	24.0	1.4	0.0	0.0	0.0	0.2	1.2
40	1.7	3.1	7.9	108.0	156.0	20.0	1.0	0.0	0.0	0.0	0.1	0.8
45	0.9	2.1	5.8	101.0	150.0	18.0	0.7	0.0	0.0	0.0	0.1	0.4
50	0.5	2.0	5.0	91.0	147.0	16.0	0.5	0.0	0.0	0.0	0.0	0.3
55	0.3	1.7	4.8	76.0	143.0	14.0	0.4	0.0	0.0	0.0	0.0	0.1
60	0.1	1.6	4.1	62.0	137.0	12.0	0.2	0.0	0.0	0.0	0.0	0.1
65	0.1	1.5	4.0	51.0	126.0	10.0	0.1	0.0	0.0	0.0	0.0	0.1
70	0.0	1.3	3.9	47.0	118.0	9.3	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	1.2	2.4	42.0	112.0	8.2	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	1.1	2.0	36.0	104.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	1.0	1.1	28.0	96.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	20.0	92.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	9.9	68.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	8.6	49.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	2.2	3.5	13.1	94.9	159.1	24.7	1.4	0.0	0.0	0.1	0.9	1.7
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx G-22F. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Critical Water Years (1976, 1977, 1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6.7	20.0	95.0	199.0	269.0	191.0	23.0	1.5	37.0	49.0	9.9	8.4
1	6.4	17.0	80.0	195.0	231.0	178.0	20.0	1.2	3.4	18.0	9.8	5.2
5	5.2	10.0	57.0	163.0	175.0	65.0	9.3	0.6	0.5	6.8	5.7	3.6
10	2.9	5.5	34.0	145.0	137.0	34.0	6.0	0.2	0.0	3.1	3.4	2.8
15	1.5	2.9	24.0	130.0	124.0	27.0	4.8	0.1	0.0	1.3	2.5	1.8
20	1.0	2.4	20.0	122.0	107.0	23.0	3.4	0.1	0.0	0.6	1.7	1.1
25	0.6	1.9	18.0	110.0	95.0	21.0	2.6	0.0	0.0	0.3	0.8	0.4
30	0.5	1.5	13.0	101.0	89.0	18.0	2.1	0.0	0.0	0.3	0.5	0.3
35	0.4	1.3	11.0	92.0	79.0	15.0	1.8	0.0	0.0	0.1	0.4	0.2
40	0.1	1.0	10.0	86.0	74.0	13.0	1.5	0.0	0.0	0.0	0.3	0.1
45	0.0	0.5	7.1	74.0	68.0	12.0	1.1	0.0	0.0	0.0	0.2	0.0
50	0.0	0.4	6.4	66.0	63.0	10.0	0.8	0.0	0.0	0.0	0.1	0.0
55	0.0	0.0	5.5	60.0	57.0	9.3	0.6	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	3.0	54.0	52.0	8.6	0.4	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	2.0	46.0	46.0	7.6	0.2	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.9	41.0	40.0	7.1	0.1	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.8	31.0	35.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	25.0	31.0	5.7	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	20.0	26.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	17.0	21.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	14.0	14.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	9.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	9.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.8	1.8	12.6	75.0	72.4	19.8	2.2	0.1	0.2	1.2	1.0	0.6
# Days	279	245	255	270	279	270	279	279	270	279	270	279
# Years	9	9	9	9	9	9	9	9	9	9	9	9

Table CAWG 6 Appdx G-23A. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
(10/1/1982 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	43.0	48.0	146.0	489.0	888.0	829.0	397.0	40.0	19.0	358.0	80.0	47.0
1	36.0	38.0	130.0	356.0	560.0	745.0	324.0	32.0	6.5	61.0	40.0	35.0
5	30.0	28.0	87.0	195.0	427.0	474.0	91.0	19.0	3.9	7.2	29.0	27.0
10	20.0	24.0	64.0	162.0	326.0	287.0	45.0	6.8	1.2	3.1	5.4	8.3
15	10.0	22.0	51.0	145.0	258.0	164.0	32.0	4.0	0.3	1.5	4.0	7.0
20	7.7	19.0	40.0	130.0	217.0	101.0	14.0	1.3	0.1	0.6	2.1	5.0
25	6.5	12.0	34.0	122.0	186.0	68.0	9.0	0.8	0.0	0.4	1.1	4.1
30	5.4	8.8	31.0	109.0	165.0	45.0	6.8	0.4	0.0	0.1	0.6	1.4
35	4.2	7.7	25.0	101.0	146.0	32.0	5.5	0.2	0.0	0.0	0.3	0.4
40	2.5	5.3	22.0	95.0	135.0	28.0	4.0	0.0	0.0	0.0	0.2	0.3
45	1.1	3.1	20.0	86.0	120.0	26.0	3.1	0.0	0.0	0.0	0.1	0.2
50	0.5	1.8	18.0	73.0	106.0	23.0	2.6	0.0	0.0	0.0	0.0	0.1
55	0.2	1.2	16.0	62.0	93.0	19.0	2.2	0.0	0.0	0.0	0.0	0.0
60	0.0	0.7	11.0	52.0	81.0	16.0	1.8	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	9.7	46.0	72.0	14.0	1.5	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	6.7	41.0	63.0	12.0	1.1	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	5.0	36.0	57.0	10.0	0.7	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	1.1	31.0	48.0	8.7	0.5	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	25.0	41.0	7.0	0.2	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	22.0	34.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	17.0	29.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	23.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	19.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	5.4	7.6	25.5	86.9	146.5	85.9	18.8	2.4	0.5	2.9	3.2	3.5
# Days	465	413	448	495	527	510	527	527	510	527	496	470
# Years	15	15	16	17	17	17	17	17	17	17	17	16

Table CAWG 6 Appdx G-23B. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	43.0	48.0	146.0	489.0	888.0	829.0	397.0	40.0	19.0	358.0	80.0	47.0
1	41.0	47.0	142.0	396.0	631.0	796.0	390.0	37.0	7.8	266.0	62.0	41.0
5	35.0	35.0	119.0	300.0	545.0	678.0	187.0	27.0	5.9	16.0	37.0	35.0
10	32.0	28.0	112.0	146.0	495.0	525.0	149.0	23.0	5.1	9.4	34.0	32.0
15	31.0	26.0	94.0	105.0	418.0	420.0	87.0	19.0	3.3	6.9	29.0	28.0
20	30.0	25.0	75.0	98.0	373.0	356.0	69.0	12.0	2.0	5.2	8.6	27.0
25	29.0	25.0	60.0	82.0	325.0	311.0	55.0	8.0	1.4	2.7	5.8	8.9
30	27.0	24.0	55.0	62.0	261.0	280.0	41.0	6.0	0.9	2.0	4.9	7.7
35	25.0	24.0	48.0	51.0	205.0	229.0	35.0	5.1	0.4	0.2	1.9	7.0
40	18.0	23.0	39.0	44.0	168.0	171.0	33.0	4.5	0.2	0.0	0.3	7.0
45	9.8	21.0	36.0	40.0	140.0	143.0	29.0	3.5	0.1	0.0	0.1	6.3
50	8.4	9.8	35.0	37.0	106.0	65.0	16.0	2.4	0.1	0.0	0.0	0.4
55	7.7	8.5	33.0	33.0	91.0	40.0	13.0	1.3	0.0	0.0	0.0	0.2
60	7.7	7.9	31.0	31.0	81.0	29.0	7.6	0.8	0.0	0.0	0.0	0.2
65	6.6	7.7	28.0	30.0	68.0	28.0	6.0	0.5	0.0	0.0	0.0	0.1
70	1.9	6.4	24.0	24.0	58.0	26.0	3.2	0.3	0.0	0.0	0.0	0.0
75	0.6	0.6	18.0	23.0	46.0	24.0	2.4	0.1	0.0	0.0	0.0	0.0
80	0.3	0.0	13.0	22.0	41.0	17.0	2.2	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	8.8	20.0	36.0	12.0	2.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	3.0	19.0	32.0	8.1	1.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	15.0	27.0	6.0	0.6	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	7.0	23.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	7.0	23.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	14.7	15.1	45.5	69.8	194.3	192.2	48.0	6.7	1.3	7.5	7.8	9.3
# Days	124	112	131	165	186	180	186	186	180	186	166	129
# Years	4	4	5	6	6	6	6	6	6	6	6	5

Table CAWG 6 Appdx G-23C. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	15.0	32.0	60.0	285.0	458.0	123.0	12.0	1.4	1.1	2.1	16.0	16.0
5	13.0	31.0	51.0	258.0	334.0	102.0	10.0	1.2	0.1	1.8	4.9	10.0
10	13.0	31.0	44.0	200.0	315.0	97.0	9.1	1.1	0.0	1.6	4.3	8.4
15	11.0	28.0	41.0	166.0	280.0	85.0	8.1	1.0	0.0	1.4	3.6	8.3
20	10.0	25.0	35.0	158.0	251.0	81.0	7.5	0.8	0.0	1.1	3.1	7.3
25	10.0	22.0	33.0	146.0	242.0	76.0	7.1	0.5	0.0	0.6	1.8	6.3
30	7.0	21.0	31.0	142.0	222.0	68.0	6.6	0.3	0.0	0.6	1.4	5.9
35	5.4	20.0	24.0	136.0	204.0	63.0	6.1	0.1	0.0	0.5	1.2	4.6
40	5.4	18.0	24.0	126.0	202.0	55.0	4.8	0.0	0.0	0.5	1.1	4.5
45	4.9	16.0	20.0	119.0	200.0	49.0	4.5	0.0	0.0	0.5	0.8	4.2
50	4.6	13.0	20.0	109.0	193.0	43.0	4.2	0.0	0.0	0.0	0.7	0.2
55	4.4	13.0	19.0	103.0	187.0	36.0	3.8	0.0	0.0	0.0	0.3	0.2
60	3.9	12.0	18.0	100.0	174.0	31.0	3.1	0.0	0.0	0.0	0.0	0.2
65	3.4	11.0	18.0	93.0	173.0	27.0	2.7	0.0	0.0	0.0	0.0	0.2
70	0.2	8.9	16.0	84.0	163.0	23.0	2.1	0.0	0.0	0.0	0.0	0.1
75	0.2	7.9	16.0	62.0	151.0	19.0	1.7	0.0	0.0	0.0	0.0	0.1
80	0.2	4.9	11.0	34.0	145.0	17.0	1.5	0.0	0.0	0.0	0.0	0.0
85	0.2	4.4	9.9	29.0	124.0	14.0	0.9	0.0	0.0	0.0	0.0	0.0
90	0.1	4.1	9.5	27.0	120.0	13.0	0.5	0.0	0.0	0.0	0.0	0.0
95	0.1	2.5	9.3	25.0	108.0	12.0	0.2	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	1.8	8.6	25.0	98.0	10.0	0.1	0.0	0.0	0.0	0.0	0.0
Average	5.3	15.6	24.3	115.8	204.1	50.1	4.6	0.3	0.0	0.5	1.5	3.5
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-23D. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	11.0	22.0	99.0	227.0	329.0	102.0	6.9	0.0	0.0	1.5	24.0	9.3
5	8.5	19.0	68.0	193.0	318.0	73.0	5.3	0.0	0.0	0.6	5.2	5.3
10	7.6	8.9	40.0	186.0	271.0	59.0	4.0	0.0	0.0	0.0	3.6	5.1
15	7.6	8.4	25.0	162.0	258.0	43.0	3.2	0.0	0.0	0.0	0.6	5.0
20	6.6	5.0	24.0	153.0	232.0	32.0	2.5	0.0	0.0	0.0	0.4	4.7
25	5.9	4.1	22.0	139.0	214.0	28.0	1.8	0.0	0.0	0.0	0.1	4.4
30	4.2	3.7	21.0	128.0	190.0	23.0	1.4	0.0	0.0	0.0	0.1	4.2
35	3.7	3.1	20.0	121.0	170.0	20.0	0.9	0.0	0.0	0.0	0.0	4.0
40	3.1	2.5	17.0	115.0	163.0	18.0	0.7	0.0	0.0	0.0	0.0	3.8
45	2.9	2.1	16.0	108.0	155.0	16.0	0.5	0.0	0.0	0.0	0.0	3.6
50	2.5	1.9	9.8	101.0	150.0	14.0	0.4	0.0	0.0	0.0	0.0	0.1
55	2.0	1.6	3.9	93.0	145.0	13.0	0.3	0.0	0.0	0.0	0.0	0.1
60	1.7	1.2	2.9	78.0	141.0	11.0	0.1	0.0	0.0	0.0	0.0	0.1
65	1.1	1.1	2.2	54.0	137.0	9.5	0.0	0.0	0.0	0.0	0.0	0.1
70	0.5	1.1	2.0	51.0	128.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0
75	0.1	1.0	1.1	42.0	118.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
80	0.1	0.6	1.1	38.0	113.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	34.0	104.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	28.0	95.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	20.0	60.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	16.0	49.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	3.2	3.7	16.8	99.6	169.4	22.8	1.2	0.0	0.0	0.1	1.2	2.4
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-23E. Pitman Creek Shaft (Gage 11237600)
Historical Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	6.7	20.0	95.0	199.0	269.0	191.0	23.0	1.5	2.2	7.2	6.8	8.4
1	6.4	19.0	85.0	195.0	231.0	178.0	20.0	1.2	1.0	6.8	5.0	5.2
5	5.5	11.0	64.0	171.0	183.0	108.0	11.0	0.7	0.0	1.8	3.0	2.0
10	4.2	8.3	43.0	150.0	143.0	39.0	6.8	0.3	0.0	0.6	2.0	1.3
15	1.7	4.0	28.0	139.0	131.0	29.0	5.7	0.1	0.0	0.4	0.8	0.5
20	0.5	1.8	24.0	128.0	118.0	26.0	4.4	0.0	0.0	0.3	0.7	0.4
25	0.4	1.3	20.0	123.0	108.0	23.0	3.4	0.0	0.0	0.1	0.5	0.3
30	0.0	1.1	18.0	112.0	97.0	21.0	2.7	0.0	0.0	0.0	0.3	0.1
35	0.0	0.5	16.0	106.0	89.0	18.0	2.3	0.0	0.0	0.0	0.2	0.0
40	0.0	0.0	12.0	100.0	79.0	16.0	2.1	0.0	0.0	0.0	0.1	0.0
45	0.0	0.0	10.0	92.0	74.0	14.0	1.8	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	9.0	89.0	69.0	13.0	1.5	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	6.5	76.0	65.0	11.0	1.2	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	6.1	71.0	60.0	10.0	0.9	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	2.8	66.0	57.0	9.1	0.7	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	56.0	52.0	8.3	0.5	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	50.0	46.0	7.3	0.4	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	45.0	41.0	6.8	0.2	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	40.0	38.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	33.0	32.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	17.0	27.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	21.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	19.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.8	1.8	15.1	88.5	82.5	23.1	2.8	0.1	0.0	0.3	0.5	0.4
# Days	217	188	193	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx G-24A. Huntington-Shaver Conduit (Tunnel 7) Outlet (Gage 11239000)
Historical Daily Exceedance Flow
(10/19/1928 to 7/24/1985)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1590.0	1480.0	1340.0	1600.0	1720.0	1780.0	1620.0	1480.0	1490.0	1400.0	706.0	1640.0
1	668.0	956.0	882.0	1260.0	1660.0	1690.0	1470.0	738.0	652.0	549.0	542.0	665.0
5	358.0	534.0	516.0	959.0	1600.0	1600.0	966.0	634.0	488.0	280.0	71.0	229.0
10	109.0	384.0	411.0	730.0	1570.0	1560.0	721.0	558.0	289.0	34.0	29.0	35.0
15	45.0	325.0	268.0	633.0	1540.0	1520.0	674.0	501.0	34.0	27.0	12.0	19.0
20	22.0	166.0	137.0	372.0	1510.0	1490.0	657.0	412.0	31.0	5.0	7.0	11.0
25	17.0	63.0	74.0	241.0	1480.0	1430.0	624.0	245.0	6.8	3.5	4.1	8.3
30	11.0	35.0	53.0	192.0	1400.0	1170.0	560.0	34.0	3.9	3.1	3.5	6.0
35	8.0	20.0	42.0	153.0	1260.0	1080.0	508.0	31.0	3.4	2.8	3.0	4.4
40	6.6	16.0	35.0	128.0	1130.0	945.0	471.0	23.0	3.2	2.7	2.8	3.8
45	6.0	13.0	29.0	109.0	988.0	789.0	400.0	7.9	3.0	2.5	2.6	3.3
50	5.2	10.0	24.0	92.0	889.0	684.0	308.0	4.8	2.9	2.4	2.4	2.8
55	4.4	8.5	21.0	77.0	807.0	641.0	218.0	3.9	2.7	2.3	2.3	2.6
60	3.3	6.9	18.0	69.0	637.0	567.0	51.0	3.6	2.6	2.1	2.1	2.4
65	2.8	5.5	15.0	60.0	466.0	447.0	31.0	3.3	2.4	2.0	2.0	2.2
70	2.5	4.5	12.0	55.0	239.0	266.0	17.0	3.0	2.3	1.9	1.9	2.2
75	2.3	3.8	10.0	47.0	152.0	91.0	9.5	2.8	2.1	1.7	1.7	2.0
80	2.1	3.0	8.0	40.0	111.0	56.0	5.1	2.4	2.0	1.6	1.6	1.9
85	1.7	2.8	6.0	32.0	80.0	39.0	3.6	2.0	1.8	1.4	1.4	1.6
90	1.3	2.5	4.3	27.0	62.0	18.0	2.4	1.9	1.6	1.2	1.1	1.4
95	1.2	2.1	2.9	17.0	39.0	9.0	1.8	1.5	1.4	1.0	1.0	1.2
99	0.9	1.1	1.0	5.3	15.0	3.4	1.3	0.9	0.9	0.7	0.7	0.9
Minimum	0.9	0.9	0.9	1.7	9.0	2.0	0.0	0.9	0.9	0.0	0.6	0.8
Average	49.6	104.0	106.1	236.5	841.2	762.4	349.1	144.6	63.8	32.5	23.2	38.3
# Days	1737	1610	1767	1710	1767	1710	1760	1736	1680	1749	1710	1767
# Years	57	57	57	57	57	57	57	56	56	57	57	57

Table CAWG 6 Appdx G-24B. Huntington-Shaver Conduit (Tunnel 7) Outlet (Gage 11239000)
Historical Daily Exceedance Flow
Wet Water Years (1937, 1938, 1941, 1942, 1943, 1952, 1956, 1958, 1965, 1967, 1969, 1974, 1975, 1978, 1980, 1982, 1983)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1590.0	1480.0	1340.0	1600.0	1720.0	1780.0	1620.0	1480.0	1490.0	1400.0	681.0	1300.0
1	1020.0	1160.0	1030.0	1180.0	1700.0	1740.0	1560.0	1070.0	1410.0	592.0	610.0	585.0
5	375.0	667.0	759.0	920.0	1650.0	1680.0	1280.0	692.0	589.0	350.0	342.0	230.0
10	89.0	514.0	503.0	718.0	1620.0	1630.0	943.0	660.0	528.0	27.0	17.0	66.0
15	59.0	421.0	390.0	633.0	1590.0	1600.0	782.0	637.0	421.0	3.8	9.2	32.0
20	47.0	365.0	304.0	544.0	1580.0	1580.0	718.0	607.0	302.0	3.2	4.4	20.0
25	25.0	335.0	286.0	402.0	1570.0	1560.0	688.0	576.0	191.0	3.1	3.5	15.0
30	22.0	276.0	260.0	318.0	1550.0	1550.0	667.0	564.0	40.0	2.9	2.7	10.0
35	19.0	151.0	150.0	243.0	1530.0	1540.0	661.0	535.0	33.0	2.8	2.7	9.2
40	17.0	113.0	102.0	208.0	1500.0	1520.0	656.0	511.0	31.0	2.6	2.6	8.0
45	15.0	60.0	65.0	150.0	1460.0	1500.0	642.0	474.0	5.6	2.5	2.3	6.1
50	14.0	49.0	56.0	120.0	1380.0	1480.0	630.0	420.0	5.1	2.4	2.2	4.3
55	10.0	21.0	44.0	100.0	1260.0	1440.0	602.0	302.0	3.9	2.2	2.0	3.9
60	8.3	18.0	37.0	78.0	1130.0	1300.0	580.0	182.0	3.5	1.9	1.9	3.3
65	7.5	17.0	31.0	68.0	987.0	1150.0	540.0	39.0	3.2	1.8	1.8	2.7
70	7.0	14.0	26.0	60.0	880.0	1040.0	501.0	34.0	3.1	1.6	1.7	2.5
75	6.5	13.0	23.0	54.0	730.0	966.0	461.0	6.6	2.9	1.5	1.5	2.2
80	5.5	11.0	20.0	45.0	528.0	758.0	397.0	4.7	2.5	1.3	1.3	2.0
85	4.6	8.0	16.0	35.0	429.0	676.0	335.0	4.0	2.3	1.3	1.1	1.9
90	3.6	4.5	11.0	31.0	230.0	607.0	212.0	3.8	2.1	1.1	1.1	1.8
95	2.6	3.5	7.0	24.0	107.0	407.0	45.0	3.0	1.7	1.0	1.0	1.4
99	2.0	3.1	5.1	11.0	48.0	79.0	7.3	2.4	1.5	0.8	0.9	1.1
Minimum	1.9	2.9	5.1	10.0	42.0	61.0	6.3	2.3	1.5	0.8	0.9	1.0
Average	61.7	185.6	183.3	267.5	1132.4	1244.1	608.2	340.0	140.2	38.4	33.5	39.8
# Days	497	479	527	510	527	510	527	527	510	527	510	527
# Years	17	17	17	17	17	17	17	17	17	17	17	17

Table CAWG 6 Appdx G-24C. Huntington-Shaver Conduit (Tunnel 7) Outlet (Gage 11239000)
Historical Daily Exceedance Flow
Above Normal Water Years (1932, 1935, 1936, 1940, 1945, 1946, 1951, 1963, 1970, 1973, 1979, 1984)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1040.0	1000.0	782.0	1480.0	1650.0	1620.0	1330.0	1050.0	579.0	540.0	706.0	1640.0
1	773.0	956.0	635.0	1430.0	1640.0	1610.0	1170.0	754.0	503.0	528.0	276.0	1530.0
5	363.0	548.0	504.0	1210.0	1600.0	1570.0	730.0	501.0	34.0	284.0	270.0	604.0
10	299.0	521.0	470.0	960.0	1580.0	1540.0	682.0	498.0	29.0	276.0	60.0	94.0
15	69.0	345.0	444.0	843.0	1570.0	1510.0	673.0	40.0	3.8	35.0	35.0	51.0
20	33.0	281.0	266.0	724.0	1560.0	1480.0	660.0	31.0	3.5	34.0	11.0	21.0
25	27.0	108.0	197.0	679.0	1550.0	1450.0	619.0	29.0	3.3	31.0	5.9	9.2
30	20.0	55.0	70.0	620.0	1530.0	1180.0	558.0	14.0	3.2	5.3	4.2	8.1
35	17.0	38.0	48.0	325.0	1510.0	1100.0	538.0	6.0	3.1	3.6	3.8	4.8
40	9.0	33.0	41.0	262.0	1500.0	1000.0	508.0	5.0	3.0	2.9	3.4	4.2
45	7.3	27.0	36.0	232.0	1490.0	899.0	501.0	4.4	3.0	2.7	3.0	3.9
50	6.0	22.0	31.0	196.0	1440.0	763.0	476.0	4.1	2.9	2.5	2.8	3.2
55	5.5	20.0	28.0	171.0	1310.0	697.0	422.0	3.8	2.9	2.4	2.8	3.0
60	4.8	16.0	26.0	143.0	1150.0	656.0	338.0	3.7	2.8	2.3	2.4	2.8
65	4.5	14.0	24.0	112.0	1060.0	632.0	308.0	3.5	2.6	2.2	2.3	2.5
70	3.0	12.0	23.0	88.0	941.0	574.0	215.0	3.2	2.6	2.1	2.2	2.2
75	2.8	9.0	22.0	71.0	907.0	506.0	104.0	3.2	2.6	2.0	2.0	2.1
80	2.4	8.5	20.0	61.0	865.0	448.0	37.0	3.0	2.4	1.9	1.9	2.0
85	2.0	7.0	17.0	55.0	778.0	373.0	31.0	2.9	2.4	1.9	1.7	1.7
90	1.7	5.0	14.0	44.0	548.0	255.0	11.0	2.8	2.1	1.7	1.7	1.6
95	1.5	3.8	12.0	32.0	198.0	104.0	6.1	2.5	1.9	1.6	1.6	1.6
99	1.3	2.6	8.0	24.0	111.0	48.0	3.3	2.1	1.3	1.2	1.5	1.2
Minimum	1.2	2.6	6.5	23.0	84.0	37.0	3.3	1.3	1.3	0.0	1.2	1.2
Average	63.2	128.7	133.9	379.8	1202.9	880.1	403.7	75.9	12.2	46.7	26.9	73.4
# Days	372	340	372	360	372	360	372	372	360	372	360	372
# Years	12	12	12	12	12	12	12	12	12	12	12	12

Table CAWG 6 Appdx G-24D. Huntington-Shaver Conduit (Tunnel 7) Outlet (Gage 11239000)
Historical Daily Exceedance Flow
Below Normal Water Years (1944, 1948, 1949, 1950, 1953, 1954, 1957, 1962, 1966, 1971)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	764.0	586.0	745.0	1260.0	1560.0	1520.0	1380.0	543.0	32.0	576.0	92.0	576.0
1	742.0	572.0	685.0	1260.0	1550.0	1500.0	1260.0	232.0	31.0	34.0	82.0	535.0
5	462.0	418.0	563.0	1220.0	1500.0	1430.0	990.0	33.0	31.0	4.8	40.0	40.0
10	358.0	374.0	152.0	964.0	1470.0	1200.0	732.0	32.0	22.0	3.6	6.8	18.0
15	343.0	323.0	127.0	790.0	1440.0	1130.0	649.0	31.0	3.1	3.1	3.6	14.0
20	6.9	165.0	85.0	615.0	1340.0	1120.0	548.0	31.0	3.1	2.9	3.3	5.0
25	6.3	59.0	35.0	225.0	1260.0	975.0	495.0	26.0	2.7	2.9	3.1	3.8
30	4.0	12.0	22.0	189.0	1210.0	875.0	441.0	4.5	2.6	2.8	3.1	3.8
35	2.7	7.9	18.0	172.0	1180.0	826.0	384.0	3.8	2.4	2.5	2.7	2.7
40	2.6	7.2	15.0	147.0	1140.0	768.0	298.0	3.3	2.4	2.2	2.5	2.5
45	2.5	5.7	13.0	88.0	1080.0	714.0	230.0	3.3	2.4	2.1	2.4	2.3
50	2.4	4.5	13.0	72.0	1010.0	681.0	150.0	3.1	2.3	2.1	2.2	2.2
55	2.3	3.6	12.0	63.0	953.0	654.0	36.0	2.9	2.2	1.9	2.1	2.2
60	2.2	2.7	10.0	54.0	880.0	603.0	33.0	2.7	2.2	1.9	2.1	2.2
65	2.1	2.7	8.6	45.0	832.0	560.0	13.0	2.5	2.1	1.7	2.1	2.1
70	2.1	2.6	7.5	37.0	760.0	447.0	7.5	2.4	2.1	1.6	1.9	2.1
75	1.4	2.5	5.0	31.0	579.0	250.0	6.3	2.4	2.0	1.4	1.4	1.9
80	1.3	2.4	3.8	28.0	398.0	91.0	5.1	2.2	2.0	1.4	1.4	1.6
85	1.2	2.4	2.9	24.0	308.0	66.0	4.0	2.1	1.7	1.4	1.4	1.4
90	1.2	2.3	2.7	15.0	207.0	57.0	3.6	1.9	1.6	1.1	1.2	1.3
95	1.2	1.9	2.6	5.6	116.0	18.0	2.7	1.6	1.3	1.0	1.1	1.2
99	1.2	1.2	2.6	4.0	54.0	10.0	2.1	1.6	1.1	1.0	1.0	1.2
Minimum	1.2	1.2	2.6	3.8	45.0	9.1	2.1	1.6	1.1	1.0	1.0	1.2
Average	80.5	82.5	71.7	269.2	925.7	663.9	284.7	15.4	5.2	6.7	6.4	22.1
# Days	310	282	310	300	310	300	310	310	300	310	300	310
# Years	10	10	10	10	10	10	10	10	10	10	10	10

Table CAWG 6 Appdx G-24E. Huntington-Shaver Conduit (Tunnel 7) Outlet (Gage 11239000)
Historical Daily Exceedance Flow
Dry Water Years (1933, 1939, 1947, 1955, 1959, 1964, 1968, 1972, 1981, 1985)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	452.0	334.0	604.0	718.0	1540.0	1540.0	1460.0	444.0	624.0	548.0	576.0	495.0
1	442.0	334.0	545.0	684.0	1500.0	1530.0	1170.0	439.0	617.0	440.0	542.0	495.0
5	109.0	318.0	214.0	453.0	1390.0	1480.0	860.0	416.0	496.0	34.0	203.0	461.0
10	74.0	35.0	68.0	166.0	1120.0	1160.0	445.0	400.0	377.0	33.0	33.0	33.0
15	11.0	18.0	55.0	146.0	831.0	890.0	343.0	338.0	303.0	32.0	30.0	18.0
20	9.3	14.0	50.0	141.0	731.0	653.0	286.0	337.0	152.0	31.0	23.0	10.0
25	6.5	11.0	44.0	128.0	657.0	574.0	220.0	174.0	34.0	6.0	8.8	7.7
30	6.2	10.0	37.0	118.0	504.0	498.0	93.0	23.0	26.0	5.0	7.7	6.7
35	6.0	8.4	34.0	109.0	348.0	426.0	33.0	22.0	4.2	3.2	6.5	6.4
40	5.3	6.8	30.0	98.0	184.0	256.0	24.0	14.0	3.4	2.6	6.0	4.5
45	4.9	6.2	22.0	86.0	162.0	173.0	23.0	5.4	3.2	2.4	4.0	3.5
50	4.5	6.0	16.0	78.0	142.0	158.0	14.0	3.8	2.3	2.4	2.2	3.3
55	4.3	5.6	15.0	74.0	125.0	67.0	12.0	3.6	2.2	2.1	2.1	2.6
60	4.0	5.2	13.0	67.0	114.0	56.0	5.3	3.0	2.2	2.1	2.0	2.5
65	3.2	4.9	10.0	58.0	105.0	50.0	4.2	2.8	1.9	1.9	1.9	2.3
70	2.8	4.4	8.5	55.0	91.0	46.0	4.0	1.9	1.9	1.7	1.8	2.2
75	2.6	4.1	7.4	49.0	73.0	38.0	3.1	1.9	1.9	1.6	1.5	2.0
80	2.2	3.7	6.1	44.0	67.0	28.0	2.5	1.8	1.8	1.4	1.3	1.6
85	2.0	3.0	5.5	40.0	59.0	22.0	2.2	1.7	1.7	1.3	1.2	1.4
90	1.6	2.8	4.8	32.0	50.0	17.0	2.0	1.7	1.0	1.1	1.1	1.3
95	1.5	2.4	4.1	20.0	39.0	14.0	1.9	1.5	1.0	1.1	1.0	1.2
99	1.2	2.1	3.2	9.6	31.0	4.3	1.5	1.5	0.9	0.9	0.9	1.1
Minimum	1.2	2.0	3.0	8.6	29.0	2.5	0.0	1.4	0.9	0.4	0.9	1.1
Average	20.8	38.0	47.5	115.8	373.1	371.2	150.2	97.4	92.5	25.4	32.7	38.2
# Days	310	283	310	300	310	300	303	279	270	310	300	310
# Years	10	10	10	10	10	10	10	9	9	10	10	10

Table CAWG 6 Appdx G-24F. Huntington-Shaver Conduit (Tunnel 7) Outlet (Gage 11239000)
Historical Daily Exceedance Flow
Critical Water Years (1929, 1930, 1931, 1934, 1960, 1961, 1976, 1977)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	7.5	10.0	318.0	506.0	1470.0	1610.0	812.0	563.0	508.0	585.0	19.0	20.0
1	7.5	10.0	97.0	366.0	1470.0	1520.0	718.0	554.0	495.0	567.0	19.0	14.0
5	6.5	9.5	58.0	116.0	805.0	1420.0	382.0	528.0	25.0	479.0	19.0	4.8
10	5.5	9.5	41.0	109.0	189.0	647.0	30.0	30.0	22.0	28.0	19.0	4.5
15	2.8	5.5	29.0	101.0	160.0	314.0	29.0	29.0	5.5	24.0	6.3	3.2
20	2.8	4.3	21.0	93.0	139.0	65.0	13.0	8.0	3.9	22.0	4.0	3.0
25	2.8	3.7	16.0	83.0	100.0	52.0	11.0	7.0	3.9	17.0	3.0	2.8
30	2.5	3.4	14.0	78.0	88.0	44.0	9.5	6.5	2.8	5.7	2.8	2.8
35	2.4	3.0	11.0	71.0	80.0	36.0	8.0	3.2	2.8	3.2	2.8	2.5
40	2.3	2.8	10.0	65.0	77.0	31.0	4.0	2.8	2.6	3.0	2.8	2.3
45	2.1	2.8	8.1	61.0	70.0	20.0	3.0	2.2	2.6	2.8	2.6	2.3
50	2.0	2.8	7.4	54.0	64.0	16.0	2.6	2.0	2.3	2.6	2.5	2.2
55	1.9	2.6	6.5	47.0	60.0	13.0	2.4	2.0	1.9	2.6	2.4	2.2
60	1.8	2.6	5.0	40.0	51.0	11.0	2.0	1.9	1.9	2.4	2.4	2.2
65	1.3	2.4	4.4	34.0	44.0	9.0	2.0	1.9	1.8	2.4	2.3	1.8
70	1.2	2.3	3.9	31.0	39.0	8.5	1.8	1.6	1.8	2.4	2.2	1.5
75	1.2	1.9	3.6	27.0	30.0	7.5	1.5	1.5	1.6	2.4	2.2	1.4
80	1.2	1.2	3.5	23.0	26.0	6.0	1.5	1.4	1.6	2.2	2.0	1.3
85	1.2	1.2	2.6	20.0	21.0	5.2	1.5	1.2	1.5	1.7	1.5	1.3
90	0.9	1.2	1.3	18.0	17.0	4.0	1.3	1.0	1.1	0.9	0.8	0.9
95	0.9	1.0	0.9	15.0	13.0	3.0	1.0	0.9	0.9	0.7	0.7	0.9
99	0.9	0.9	0.9	1.7	9.3	2.1	0.9	0.9	0.9	0.6	0.6	0.8
Minimum	0.9	0.9	0.9	1.7	9.0	2.0	0.9	0.9	0.9	0.6	0.6	0.8
Average	2.4	3.5	16.6	65.5	159.2	174.7	39.7	47.0	19.5	40.7	4.6	2.5
# Days	248	226	248	240	248	240	248	248	240	230	240	248
# Years	8	8	8	8	8	8	8	8	8	8	8	8

Table CAWG 6 Appdx G-25A. Camp 62 Creek Diversion (SCE Gage 109)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.3	27.4	42.8	15.9	2.2	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	11.6	27.5	3.2	0.5	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	4.6	16.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	2.3	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	1.5	3.9	0.5	0.1	0.0	0.0	0.0	0.0	0.0
# Days	341	311	341	330	335	310	331	310	300	340	330	341
# Years	11	11	11	11	11	11	11	10	10	11	11	11

Table CAWG 6 Appdx G-25B. Camp 62 Creek Diversion (SCE Gage 109)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.3	23.5	28.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	3.6	10.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx G-25C. Camp 62 Creek Diversion (SCE Gage 109)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-25D. Camp 62 Creek Diversion (SCE Gage 109)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	22.2	42.8	15.9	2.2	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	15.4	36.6	10.6	1.5	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	9.9	36.2	9.0	1.2	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	7.2	34.5	6.2	1.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	5.7	29.4	5.3	0.7	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	5.3	26.7	4.8	0.5	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	4.4	23.7	4.0	0.5	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	21.5	3.6	0.5	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	18.0	2.8	0.3	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	16.0	2.4	0.2	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	15.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	14.3	1.9	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	11.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	10.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	9.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	5.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	3.1	16.9	3.7	0.4	0.0	0.0	0.0	0.0	0.0
# Days	62	56	62	60	56	40	52	31	30	61	60	62
# Years	2	2	2	2	2	2	2	1	1	2	2	2

Table CAWG 6 Appdx G-25E. Camp 62 Creek Diversion (SCE Gage 109)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	27.4	28.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	19.0	12.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	11.9	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	8.0	5.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	3.9	4.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	3.1	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-26A. Chinquapin Creek Diversion (SCE Gage 110)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	1.2	27.6	38.4	32.5	10.5	18.1	45.1	46.0	0.0	0.0
5	0.0	0.0	0.0	12.0	28.5	21.5	2.4	0.9	31.4	0.0	0.0	0.0
10	0.0	0.0	0.0	5.3	26.0	6.7	0.7	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	1.7	22.2	3.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	17.3	1.2	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	14.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	1.7	7.3	2.4	0.3	0.3	3.0	0.1	0.0	0.0
# Days	341	311	341	330	341	330	341	341	329	321	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-26B. Chinquapin Creek Diversion (SCE Gage 110)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	1.2	26.5	31.0	30.3	4.6	1.4	0.0	46.0	0.0	0.0
5	0.0	0.0	0.0	6.5	28.3	29.9	3.2	0.9	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	2.1	27.3	2.9	2.6	0.2	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.9	21.8	0.0	1.4	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	18.1	0.0	0.5	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	14.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	1.4	7.1	2.5	0.5	0.1	0.0	0.3	0.0	0.0
# Days	155	141	155	150	155	150	155	155	150	135	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx G-26C. Chinquapin Creek Diversion (SCE Gage 110)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-26D. Chinquapin Creek Diversion (SCE Gage 110)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	27.6	38.4	32.5	10.5	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	19.4	35.0	23.7	0.7	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	11.6	32.5	20.8	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	9.9	30.8	10.5	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	8.3	29.2	9.3	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	5.3	26.0	8.8	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	4.8	25.2	6.7	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	23.7	4.8	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	22.2	3.6	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	18.7	2.7	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	17.3	1.7	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	16.6	1.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	14.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	12.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	3.8	17.7	5.6	0.3	0.0	0.0	0.0	0.0	0.0
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-26E. Chinquapin Creek Diversion (SCE Gage 110)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	23.8	24.3	19.9	0.0	18.1	45.1	0.0	0.0	0.0
5	0.0	0.0	0.0	12.0	16.0	8.5	0.0	11.4	43.3	0.0	0.0	0.0
10	0.0	0.0	0.0	8.1	13.9	4.6	0.0	5.7	40.6	0.0	0.0	0.0
15	0.0	0.0	0.0	5.6	9.7	3.0	0.0	1.4	38.0	0.0	0.0	0.0
20	0.0	0.0	0.0	2.3	8.6	2.1	0.0	0.0	35.5	0.0	0.0	0.0
25	0.0	0.0	0.0	1.3	7.7	0.2	0.0	0.0	33.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.3	6.9	0.0	0.0	0.0	30.7	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	28.8	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	26.8	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	24.9	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	20.5	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	2.3	4.8	1.4	0.0	1.5	16.8	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	59	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-27A. Crater Creek Diversion (SCE Gage 111)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.1	2.5	0.0	32.1	88.1	65.8	27.0	64.4	0.6	0.8	0.0	0.0
1	0.0	0.0	0.0	30.7	81.6	52.4	21.5	53.7	0.6	0.7	0.0	0.0
5	0.0	0.0	0.0	20.7	61.7	41.0	11.7	22.3	0.6	0.6	0.0	0.0
10	0.0	0.0	0.0	13.8	42.5	22.3	4.4	2.0	0.4	0.4	0.0	0.0
15	0.0	0.0	0.0	10.4	33.2	3.5	2.2	0.6	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	7.7	26.2	1.4	0.8	0.2	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	5.8	18.0	0.2	0.2	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	4.6	12.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	3.8	12.4	4.8	1.5	2.6	0.1	0.1	0.0	0.0
# Days	279	250	248	240	260	235	248	248	222	268	270	279
# Years	9	9	8	8	9	8	8	8	8	9	9	9

Table CAWG 6 Appdx G-27B. Crater Creek Diversion (SCE Gage 111)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	26.6	88.1	65.8	27.0	64.4	0.6	0.8	0.0	0.0
1	0.0	0.0	0.0	26.2	82.4	57.6	26.2	58.9	0.6	0.8	0.0	0.0
5	0.0	0.0	0.0	20.3	69.4	50.5	15.9	38.4	0.6	0.6	0.0	0.0
10	0.0	0.0	0.0	10.6	58.3	41.0	11.7	22.3	0.6	0.6	0.0	0.0
15	0.0	0.0	0.0	8.6	48.1	36.0	7.3	6.2	0.4	0.4	0.0	0.0
20	0.0	0.0	0.0	7.3	38.9	22.3	4.4	2.0	0.3	0.3	0.0	0.0
25	0.0	0.0	0.0	6.2	34.1	0.0	3.1	0.8	0.0	0.2	0.0	0.0
30	0.0	0.0	0.0	4.7	21.1	0.0	2.2	0.5	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.2	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	3.5	16.1	8.9	3.0	5.2	0.1	0.1	0.0	0.0
# Days	155	141	155	150	140	115	124	124	120	146	150	155
# Years	5	5	5	5	5	4	4	4	4	5	5	5

Table CAWG 6 Appdx G-27C. Crater Creek Diversion (SCE Gage 111)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.1	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	52	31	30	31	30	31	31	30	62	60	62
# Years	2	2	1	1	1	1	1	1	1	2	2	2

Table CAWG 6 Appdx G-27D. Crater Creek Diversion (SCE Gage 111)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	0	0	0	0	27	30	31	31	12	0	0	0
# Years	0	0	0	0	1	1	1	1	1	0	0	0

Table CAWG 6 Appdx G-27E. Crater Creek Diversion (SCE Gage 111)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	32.1	44.6	13.6	0.5	1.6	0.3	0.0	0.0	0.0
1	0.0	0.0	0.0	31.2	38.6	10.1	0.4	0.9	0.2	0.0	0.0	0.0
5	0.0	0.0	0.0	25.6	32.0	4.7	0.3	0.1	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	14.9	27.1	3.5	0.2	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	12.2	25.3	2.6	0.2	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	5.8	18.0	1.8	0.2	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	4.6	15.2	1.1	0.2	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	12.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	6.6	15.8	1.7	0.1	0.1	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	60	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-28A. Ely Creek Diversion (SCE Gage 112)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.1	2.5	13.1	14.6	14.1	2.1	0.0	0.0	0.0	0.0	0.0	0.1
5	0.0	0.0	0.0	0.3	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.1	0.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	341	311	341	330	341	330	341	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-28B. Ely Creek Diversion (SCE Gage 112)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	13.1	14.6	14.1	2.1	0.0	0.0	0.0	0.0	0.0	0.1
5	0.0	0.0	1.4	2.8	9.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.6	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.2	0.4	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
# Days	155	141	155	150	155	150	155	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx G-28C. Ely Creek Diversion (SCE Gage 112)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.1	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-28D. Ely Creek Diversion (SCE Gage 112)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	56	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-28E. Ely Creek Diversion (SCE Gage 112)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-29A. Hooper Creek Diversion (SCE Gage 113)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	3.3	34.8	79.9	84.9	35.4	32.8	18.7	5.7	4.2	0.0
5	0.0	0.0	0.0	13.6	54.5	59.4	19.3	16.8	8.6	3.3	2.7	0.0
10	0.0	0.0	0.0	10.0	47.8	52.0	14.2	10.0	4.5	3.0	2.6	0.0
15	0.0	0.0	0.0	8.4	42.8	45.0	10.0	5.8	3.7	2.9	2.5	0.0
20	0.0	0.0	0.0	6.8	39.6	39.0	8.3	4.3	3.0	2.6	0.0	0.0
25	0.0	0.0	0.0	4.5	36.6	33.8	6.8	3.5	2.7	2.3	0.0	0.0
30	0.0	0.0	0.0	0.0	31.4	26.7	5.8	3.1	2.4	0.7	0.0	0.0
35	0.0	0.0	0.0	0.0	27.2	20.5	4.9	2.9	2.2	0.2	0.0	0.0
40	0.0	0.0	0.0	0.0	25.0	17.3	4.0	2.7	2.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	21.6	13.9	3.2	2.5	1.9	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	16.3	11.5	2.2	2.3	1.6	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	7.3	7.6	1.8	1.9	0.9	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	4.7	1.5	1.4	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	3.6	1.1	0.7	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.1	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	2.9	19.5	18.6	4.9	3.6	2.1	0.9	0.5	0.0
# Days	341	311	341	329	341	315	310	331	330	341	330	341
# Years	11	11	11	11	11	11	10	11	11	11	11	11

Table CAWG 6 Appdx G-29B. Hooper Creek Diversion (SCE Gage 113)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	3.3	34.8	79.9	84.9	35.4	32.8	15.2	5.7	4.2	0.0
5	0.0	0.0	0.0	13.6	64.9	72.9	25.2	24.3	10.8	4.8	2.8	0.0
10	0.0	0.0	0.0	9.6	54.0	59.4	22.3	18.7	8.6	3.3	2.6	0.0
15	0.0	0.0	0.0	8.1	46.5	55.1	17.3	15.1	7.5	3.0	2.6	0.0
20	0.0	0.0	0.0	6.4	41.6	46.5	16.0	10.9	5.5	2.8	2.5	0.0
25	0.0	0.0	0.0	3.3	39.6	40.4	13.1	8.7	4.3	2.4	2.2	0.0
30	0.0	0.0	0.0	0.0	30.0	33.8	10.4	7.2	3.8	2.3	0.0	0.0
35	0.0	0.0	0.0	0.0	26.1	22.0	9.1	5.3	3.5	2.3	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	8.3	4.9	3.1	2.2	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	7.1	3.8	2.9	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	6.2	3.2	2.8	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	5.5	2.7	2.5	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	4.8	2.3	2.4	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	1.2	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	1.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.5	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.1	2.9	17.8	18.7	8.0	6.5	3.4	1.3	0.7	0.0
# Days	155	141	155	150	155	135	124	145	150	155	150	155
# Years	5	5	5	5	5	5	4	5	5	5	5	5

Table CAWG 6 Appdx G-29C. Hooper Creek Diversion (SCE Gage 113)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	0.0	74.5	60.1	15.2	5.3	3.5	0.9	0.0	0.0
5	0.0	0.0	0.0	0.0	44.0	56.5	11.4	3.8	2.7	0.6	0.0	0.0
10	0.0	0.0	0.0	0.0	38.2	52.7	9.3	3.5	2.2	0.4	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	50.0	8.3	3.2	2.0	0.3	0.0	0.0
20	0.0	0.0	0.0	0.0	0.0	46.3	7.5	2.9	1.9	0.2	0.0	0.0
25	0.0	0.0	0.0	0.0	0.0	40.0	6.4	2.8	1.7	0.2	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	36.2	5.2	2.5	1.7	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	31.0	4.2	2.4	1.7	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	25.0	4.0	2.3	1.6	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	20.5	3.5	2.1	1.6	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	18.0	3.3	0.5	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	17.3	1.6	0.2	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	15.9	1.0	0.1	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.0	6.4	22.5	3.8	1.5	1.0	0.1	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-29D. Hooper Creek Diversion (SCE Gage 113)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	22.5	54.2	45.9	10.9	1.0	0.4	0.0	0.0	0.0
5	0.0	0.0	0.0	14.2	52.0	39.6	7.7	0.7	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	12.1	48.5	34.9	6.0	0.4	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	10.4	46.7	27.9	5.3	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	9.3	43.1	24.9	3.7	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	8.6	41.2	23.2	3.2	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	8.3	38.8	19.5	2.7	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	7.9	36.3	17.9	2.2	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	6.6	34.4	16.2	1.8	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	5.5	32.1	13.3	1.6	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	3.9	30.5	12.5	1.5	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	28.1	11.5	1.4	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	27.2	10.3	1.2	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	25.7	9.6	1.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	23.4	7.6	0.8	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	17.7	5.3	0.6	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	16.3	4.7	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	14.4	4.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	9.7	3.3	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	7.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	5.6	1.7	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	4.9	30.6	15.9	2.4	0.1	0.0	0.0	0.0	0.0
# Days	62	56	62	59	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-29E. Hooper Creek Diversion (SCE Gage 113)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	29.2	53.3	54.0	8.6	10.0	18.7	3.4	2.9	0.0
5	0.0	0.0	0.0	17.2	43.6	44.2	6.2	4.2	2.5	3.2	2.8	0.0
10	0.0	0.0	0.0	12.5	40.2	39.0	4.6	3.2	2.4	3.0	2.8	0.0
15	0.0	0.0	0.0	8.9	38.6	36.2	4.0	3.2	2.3	3.0	2.7	0.0
20	0.0	0.0	0.0	7.7	37.8	29.4	3.3	3.2	2.2	3.0	2.7	0.0
25	0.0	0.0	0.0	6.0	35.6	21.4	3.0	3.1	2.2	2.9	2.4	0.0
30	0.0	0.0	0.0	4.9	31.4	18.7	2.7	3.1	2.1	2.9	0.0	0.0
35	0.0	0.0	0.0	3.7	29.0	16.7	2.4	3.0	2.0	2.9	0.0	0.0
40	0.0	0.0	0.0	0.0	26.7	15.2	2.2	2.9	2.0	2.8	0.0	0.0
45	0.0	0.0	0.0	0.0	25.6	14.2	2.0	2.9	2.0	2.7	0.0	0.0
50	0.0	0.0	0.0	0.0	23.4	11.8	1.9	2.8	2.0	2.3	0.0	0.0
55	0.0	0.0	0.0	0.0	22.3	10.5	1.7	2.7	1.9	2.1	0.0	0.0
60	0.0	0.0	0.0	0.0	21.6	9.1	1.7	2.7	1.9	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	21.2	7.6	1.5	2.6	1.9	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	18.9	7.2	1.3	2.5	0.8	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	18.2	5.4	1.2	2.4	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	16.3	5.0	1.0	2.3	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	11.4	4.5	0.8	2.1	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	9.7	4.2	0.7	0.7	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	6.1	3.8	0.5	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	3.4	3.6	0.4	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	4.1	25.6	17.1	2.4	2.7	1.8	1.7	0.7	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-30A. Bolsillo Creek Diversion (SCE Gage 117)
Historical Daily Exceedance Flow
(10/1/1991 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	1.2	9.6	12.2	11.8	9.6	2.3	0.6	0.0	0.0	0.0
1	0.0	0.0	0.6	8.9	12.1	11.0	9.5	1.6	0.3	0.0	0.0	0.0
5	0.0	0.0	0.0	3.8	10.3	10.4	9.3	0.7	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	2.0	9.9	10.0	7.1	0.2	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	1.4	9.6	9.7	3.9	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	9.4	9.6	1.7	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	9.2	9.2	1.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	7.4	5.3	0.1	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	6.4	2.2	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	5.4	1.5	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	3.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.6	4.1	3.3	1.4	0.1	0.0	0.0	0.0	0.0
# Days	340	311	341	301	329	308	323	341	330	341	330	341
# Years	11	11	11	11	11	11	11	11	11	11	11	11

Table CAWG 6 Appdx G-30B. Bolsillo Creek Diversion (SCE Gage 117)
Historical Daily Exceedance Flow
Wet Water Years (1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	1.2	9.6	12.2	11.8	9.6	2.3	0.6	0.0	0.0	0.0
1	0.0	0.0	0.9	9.3	12.1	11.2	9.5	1.8	0.6	0.0	0.0	0.0
5	0.0	0.0	0.3	3.8	12.0	10.7	9.4	1.2	0.1	0.0	0.0	0.0
10	0.0	0.0	0.0	2.0	10.4	10.5	9.3	0.9	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	1.4	10.0	10.2	9.1	0.6	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.6	9.6	10.1	8.5	0.3	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	9.5	10.0	6.7	0.1	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	9.3	9.9	5.4	0.1	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	7.7	9.7	3.9	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	5.3	9.7	2.6	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	9.6	1.7	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	9.5	1.5	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	9.3	1.3	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	8.9	1.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	1.9	0.1	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.6	4.0	6.4	3.3	0.2	0.0	0.0	0.0	0.0
# Days	154	141	155	150	151	128	138	155	150	155	150	155
# Years	5	5	5	5	5	5	5	5	5	5	5	5

Table CAWG 6 Appdx G-30C. Bolsillo Creek Diversion (SCE Gage 117)
Historical Daily Exceedance Flow
Above Normal Water Years (1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	5.2	9.5	3.7	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	1.9	9.4	1.9	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	5.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.1	2.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	60	62	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-30D. Bolsillo Creek Diversion (SCE Gage 117)
Historical Daily Exceedance Flow
Dry Water Years (2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	4.8	10.1	9.9	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	4.1	10.1	9.7	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	9.9	8.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	9.8	5.3	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	9.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	9.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	9.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	8.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	6.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	6.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	5.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.6	7.8	2.7	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	56	62	35	55	60	61	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

Table CAWG 6 Appdx G-30E. Bolsillo Creek Diversion (SCE Gage 117)
Historical Daily Exceedance Flow
Critical Water Years (1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.0	0.0	0.0	6.3	9.7	6.6	0.0	0.0	0.0	0.0	0.0	0.0
1	0.0	0.0	0.0	5.2	9.7	5.8	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	3.7	7.1	1.3	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	1.9	5.7	0.9	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	1.3	4.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
20	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	0.0	0.0	0.0	0.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.0	0.0	0.9	2.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0
# Days	62	57	62	56	61	60	62	62	60	62	60	62
# Years	2	2	2	2	2	2	2	2	2	2	2	2

APPENDIX H

DIVERSION, LAKE, AND OTHER LOCATIONS EXISTING HYDROLOGY-EXCEEDANCE GRAPHS

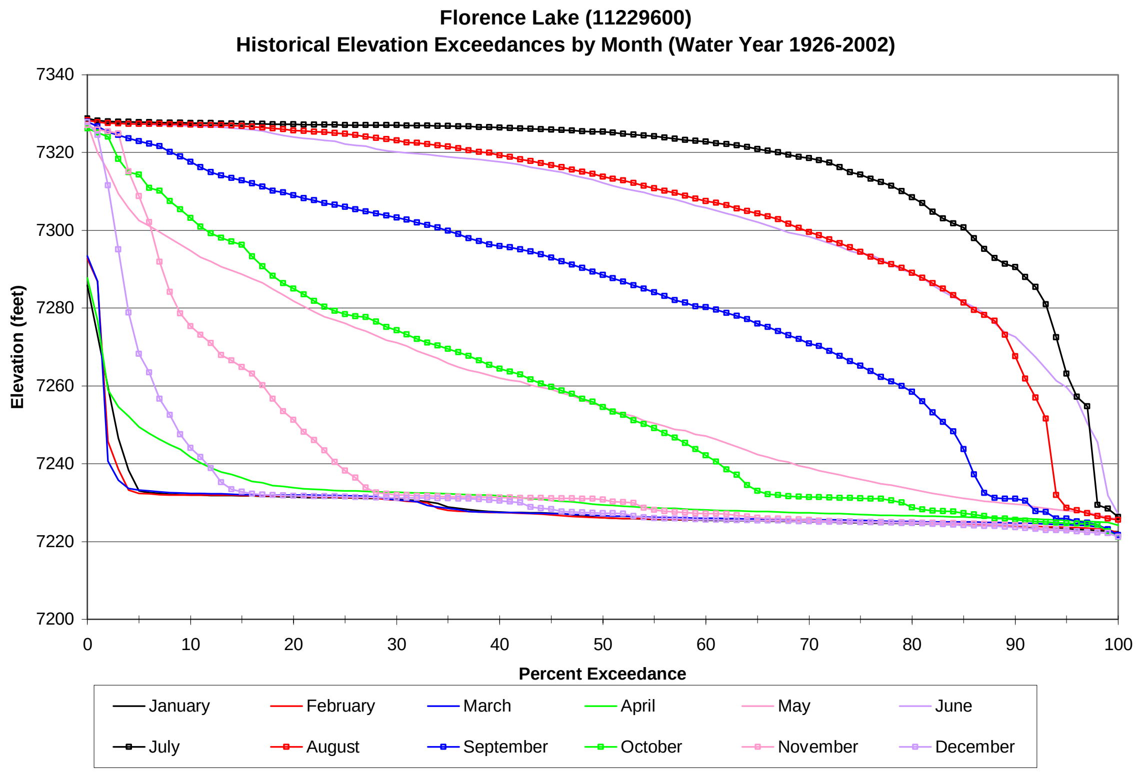
APPENDIX H

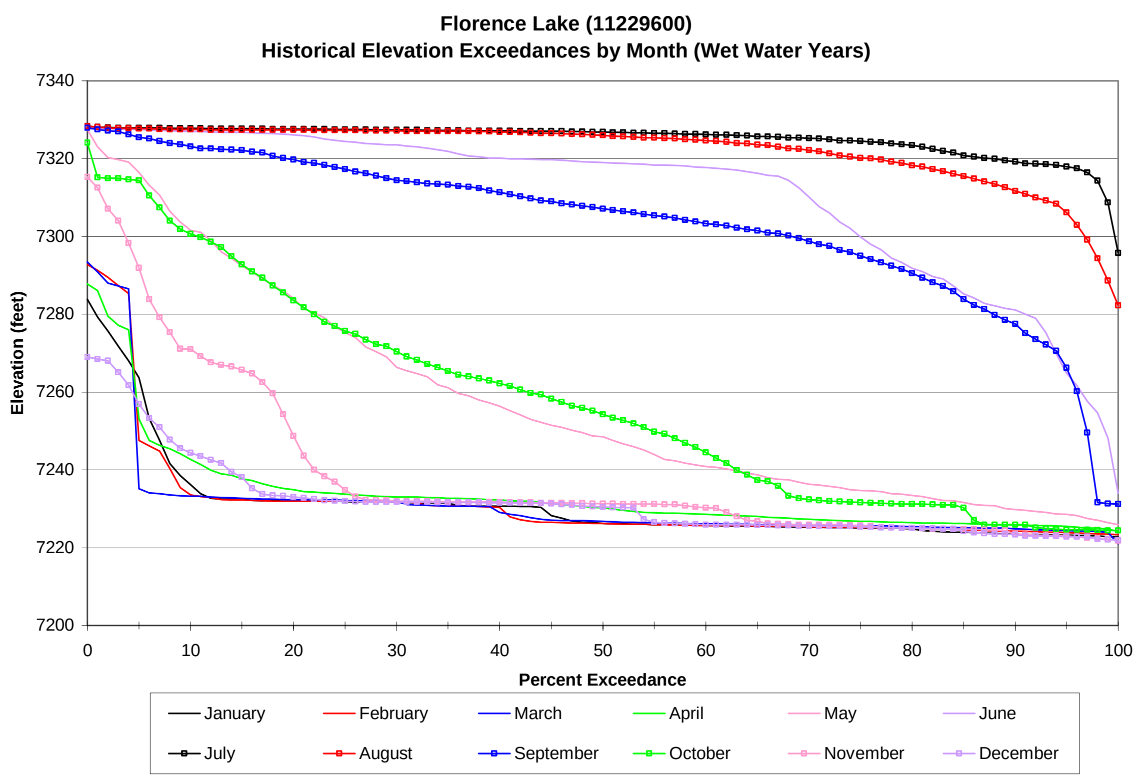
BIG CREEK

CAWG 6 HYDROLOGY

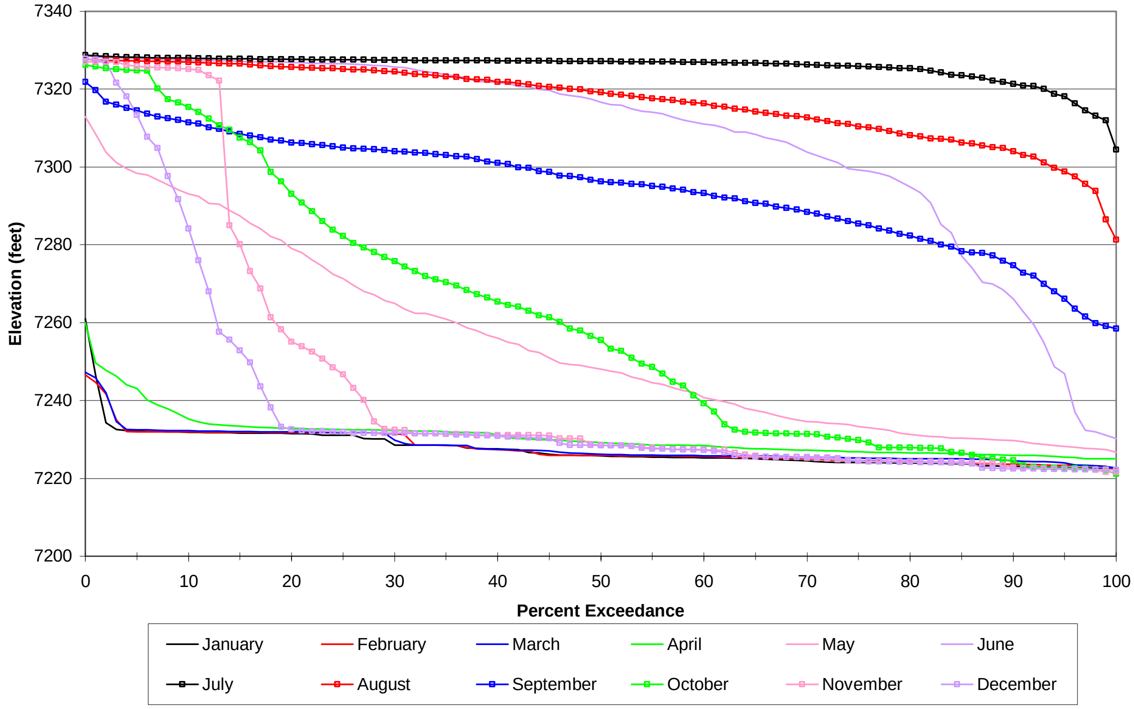
List of locations and periods of record (by water year) in order of appearance. Two periods of record are presented for each location when available – historical and operations (post-1983). The water years analyzed for each location and water year type correspond to those presented in the relative table in Appendix G. For a period of record that does not contain a water year type, the graph for that water year type is not presented.

Florence Lake Elevation (1926-2002)
Florence Lake Elevation (1983-2002)
Florence Lake Storage (1926-2002)
Florence Lake Storage (1983-2002)
Mammoth Pool Reservoir Elevation (1960-2002)
Mammoth Pool Reservoir Elevation (1983-2002)
Mammoth Pool Reservoir Storage (1960-2002)
Mammoth Pool Reservoir Storage (1983-2002)
Huntington Lake Elevation (1927-2002)
Huntington Lake Elevation (1983-2002)
Huntington Lake Storage (1927-2002)
Huntington Lake Storage (1983-2002)
Shaver Lake Elevation (1927-2002)
Shaver Lake Elevation (1983-2002)
Shaver Lake Storage (1927-2002)
Shaver Lake Storage (1983-2002)
Ward Tunnel Intake (1925-2002)
Ward Tunnel Intake (1983-2002)
Bear Creek Conduit (1984-2002)
Mono Creek Conduit (1984-2002)
Huntington-Shaver Conduit (Tunnel 7) Intake (1975-1983)
Pitman Creek Shaft (1971-2002)
Pitman Creek Shaft (1983-2002)
Camp 62 Creek Diversion (1992-2002)
Chinquapin Creek Diversion (1992-2002)
Crater Creek Diversion (1992-2002)
Ely Creek Diversion (1992-2002)
Hooper Creek Diversion (1992-2002)
Bolsillo Creek Diversion (1992-2002)

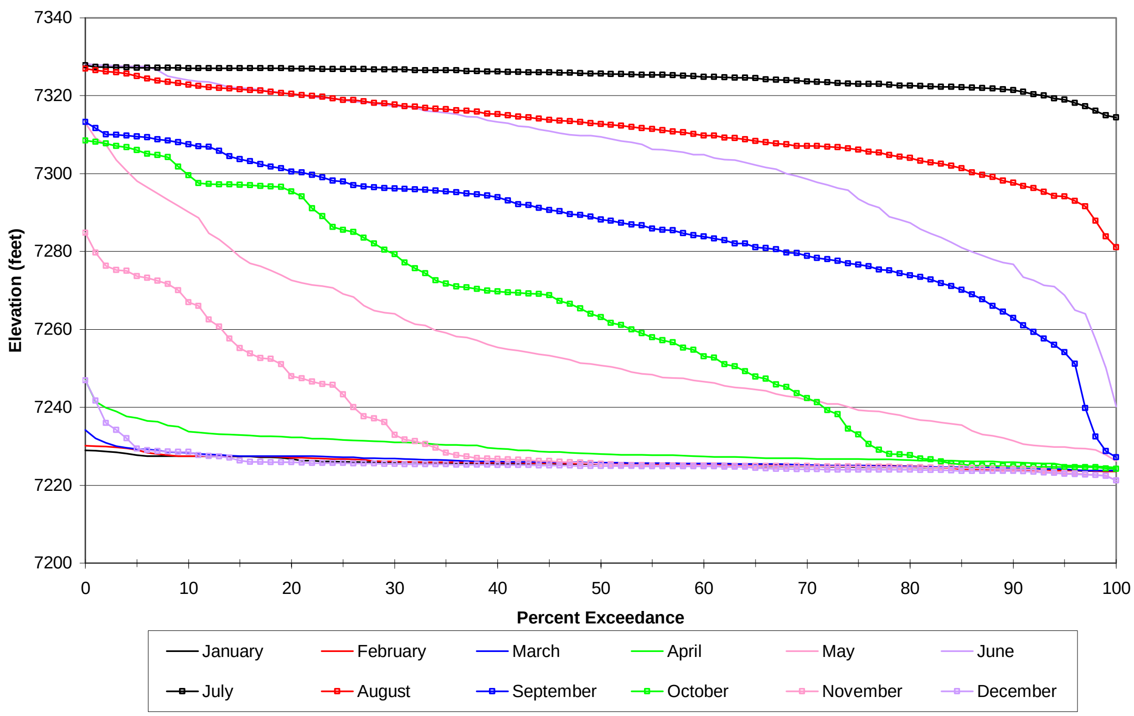

Florence Lake (11229600)
Historical Elevation Exceedances by Month (Water Year 1926-2002)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
7200
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

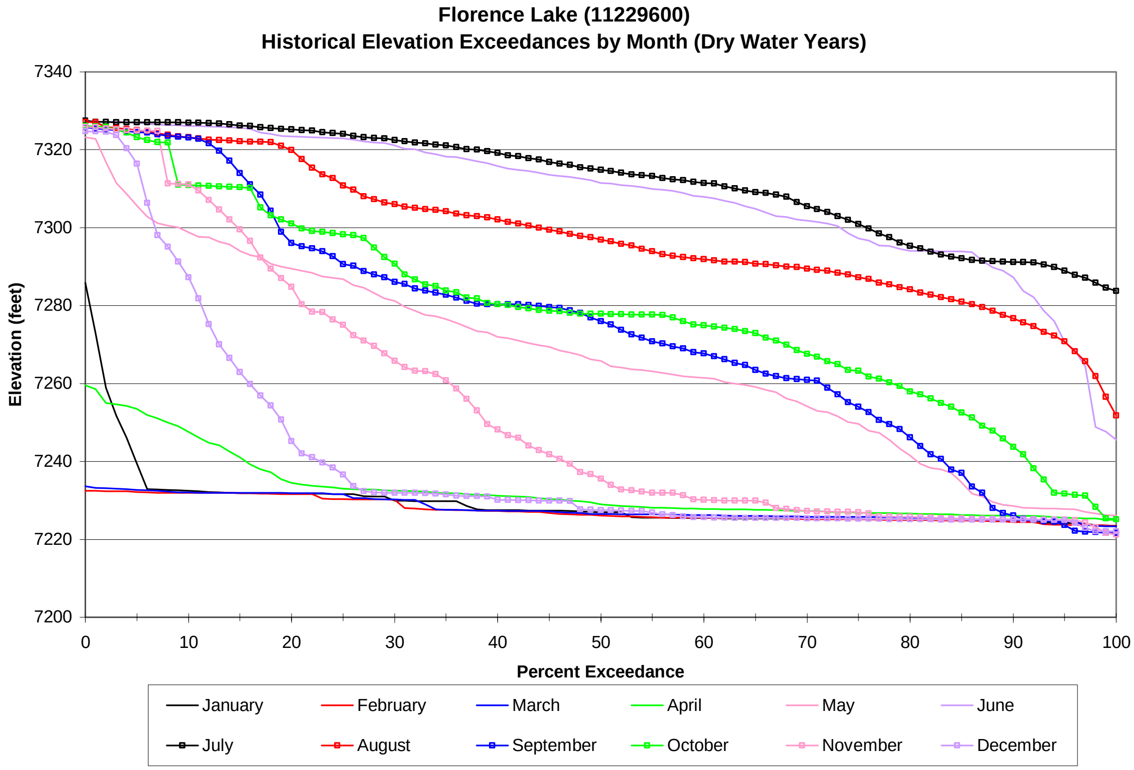

Florence Lake (11229600)
Historical Elevation Exceedances by Month (Wet Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
7200
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

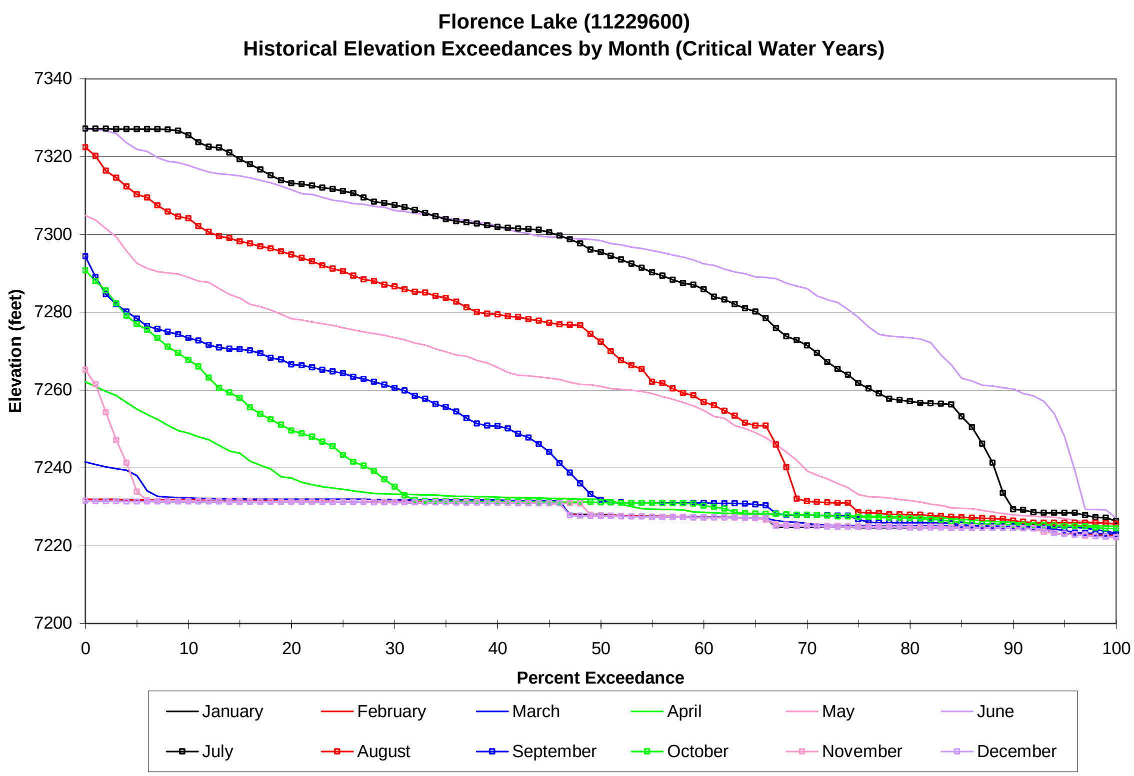
Florence Lake (11229600)
Historical Elevation Exceedances by Month (Above Normal Water Years)

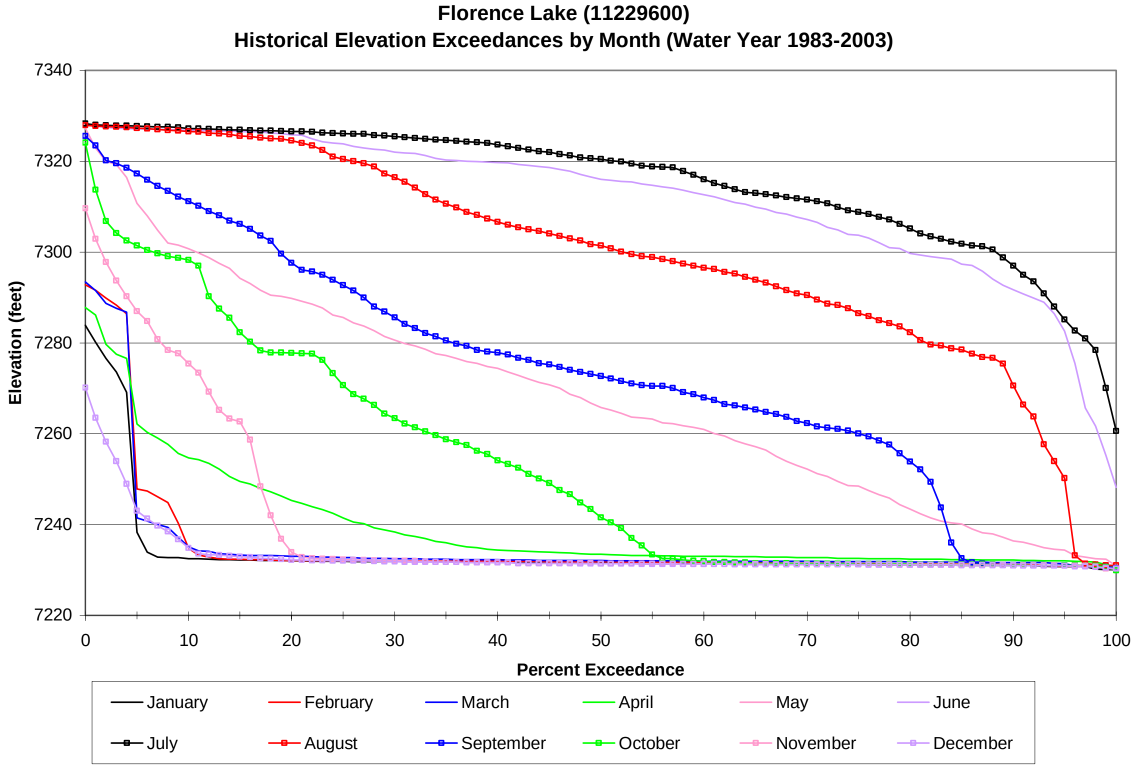


Florence Lake (11229600)
Historical Elevation Exceedances by Month (Below Normal Water Years)

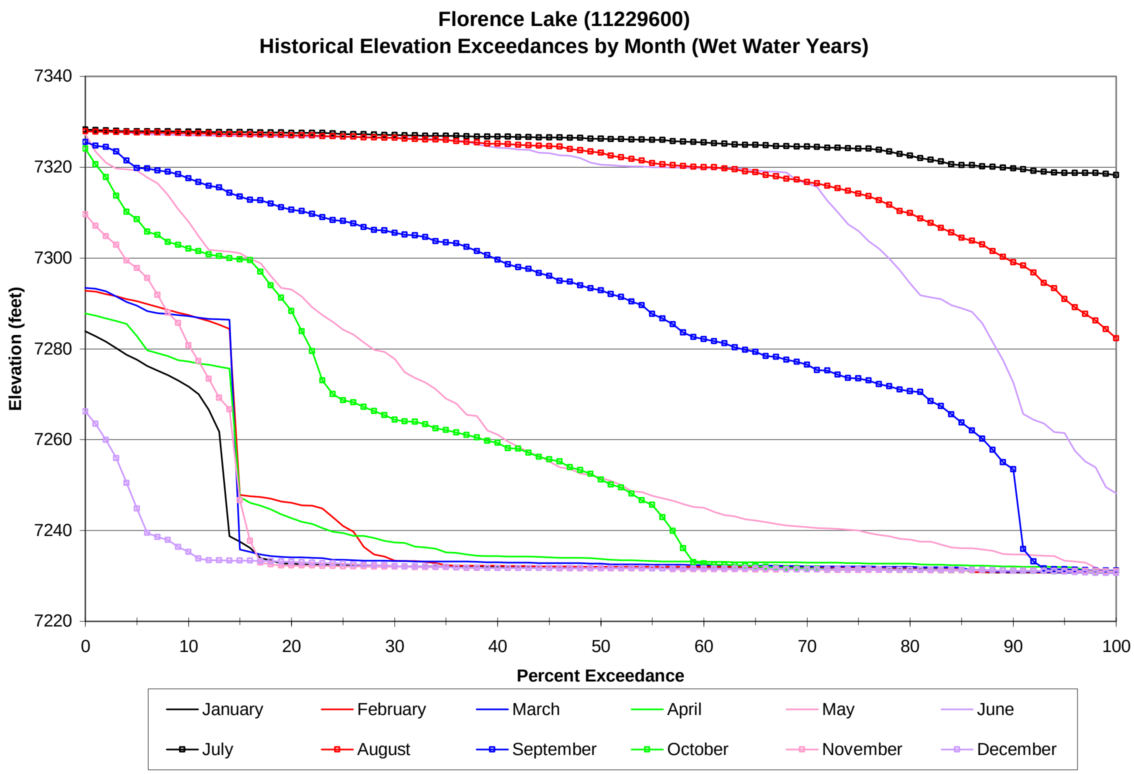



Florence Lake (11229600)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
7200
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

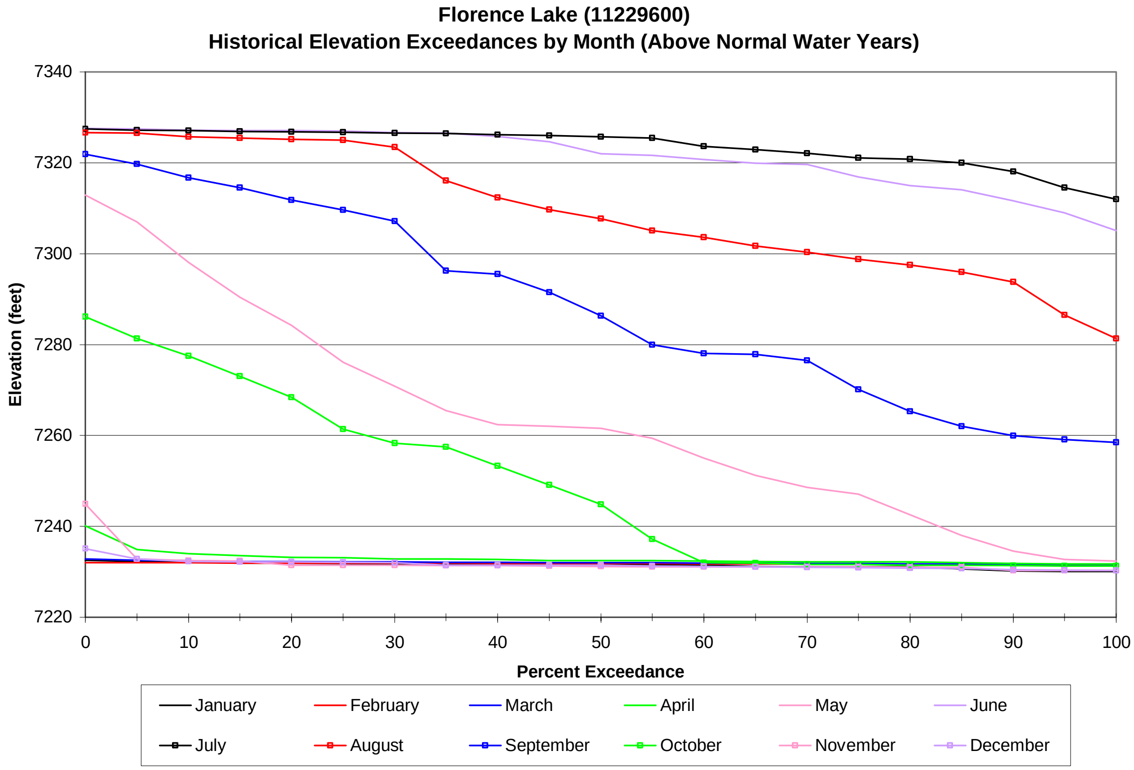

Florence Lake (11229600)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
7200
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

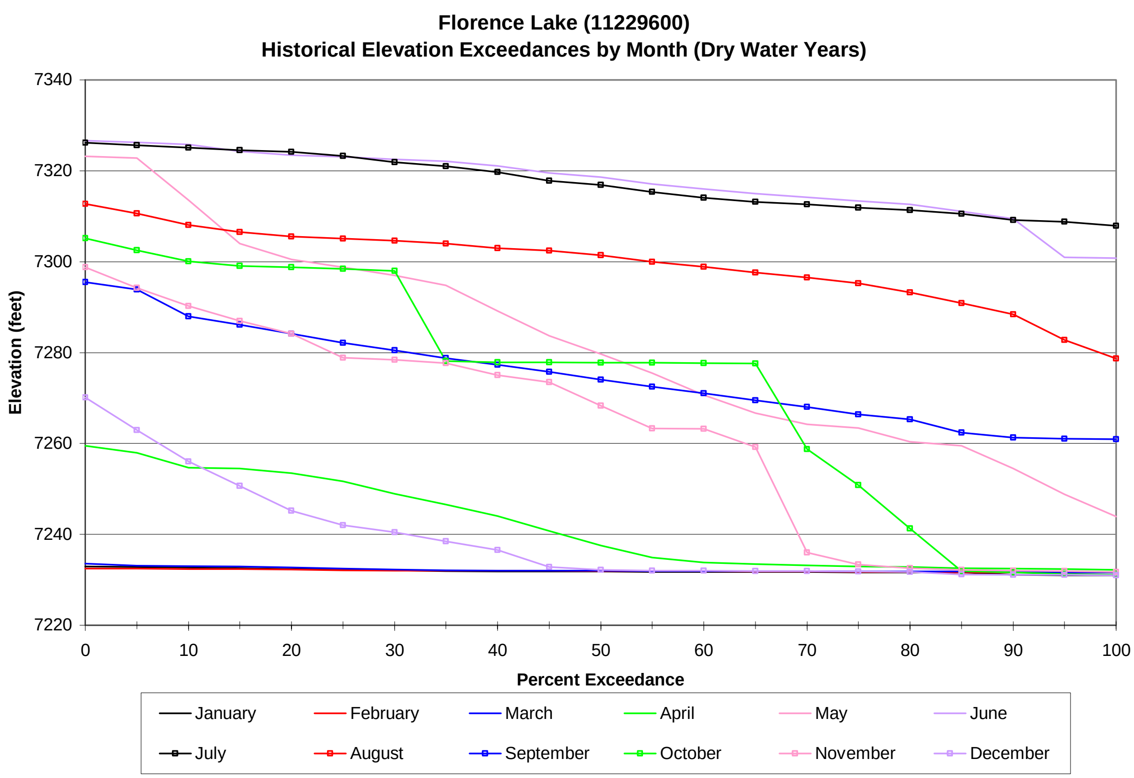


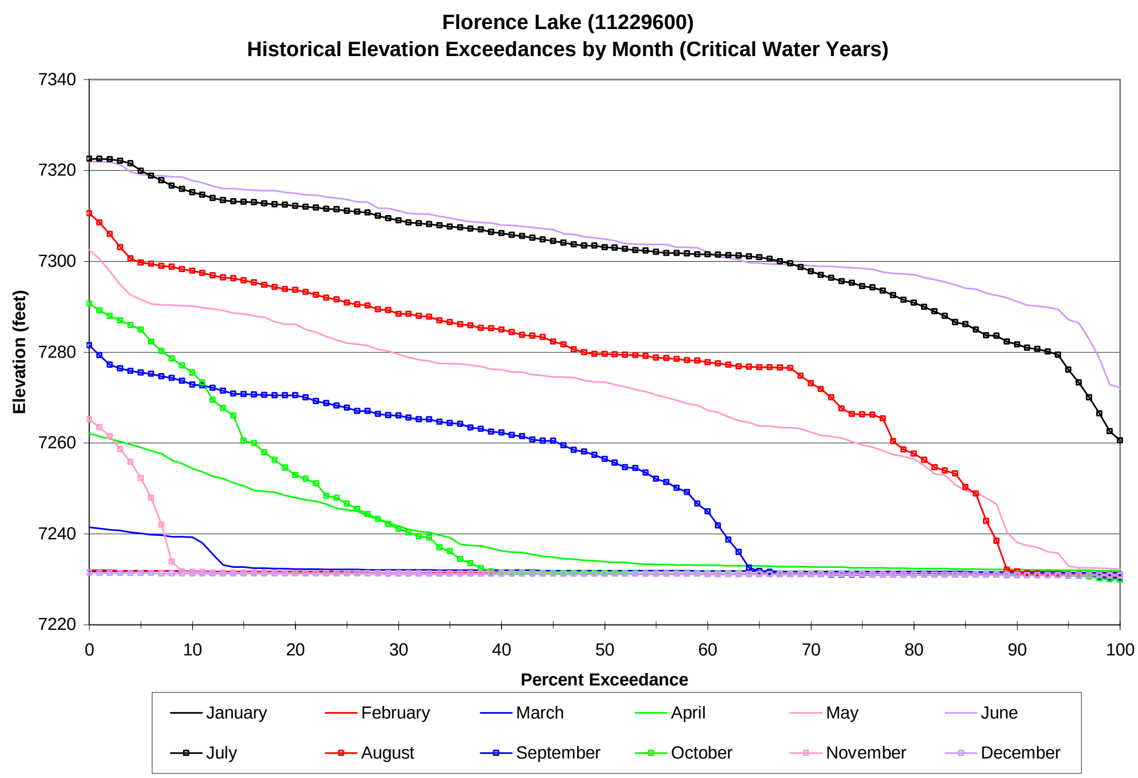
Florence Lake (11229600)
Historical Elevation Exceedances by Month (Water Year 1983-2003)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

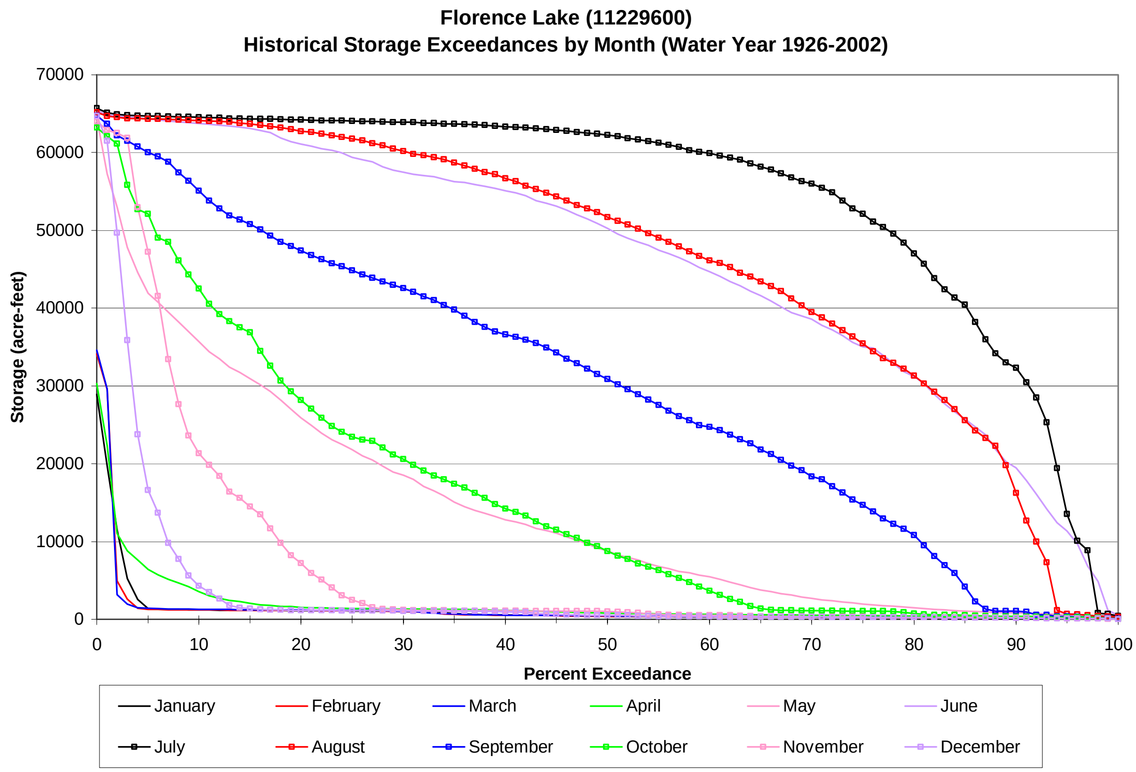


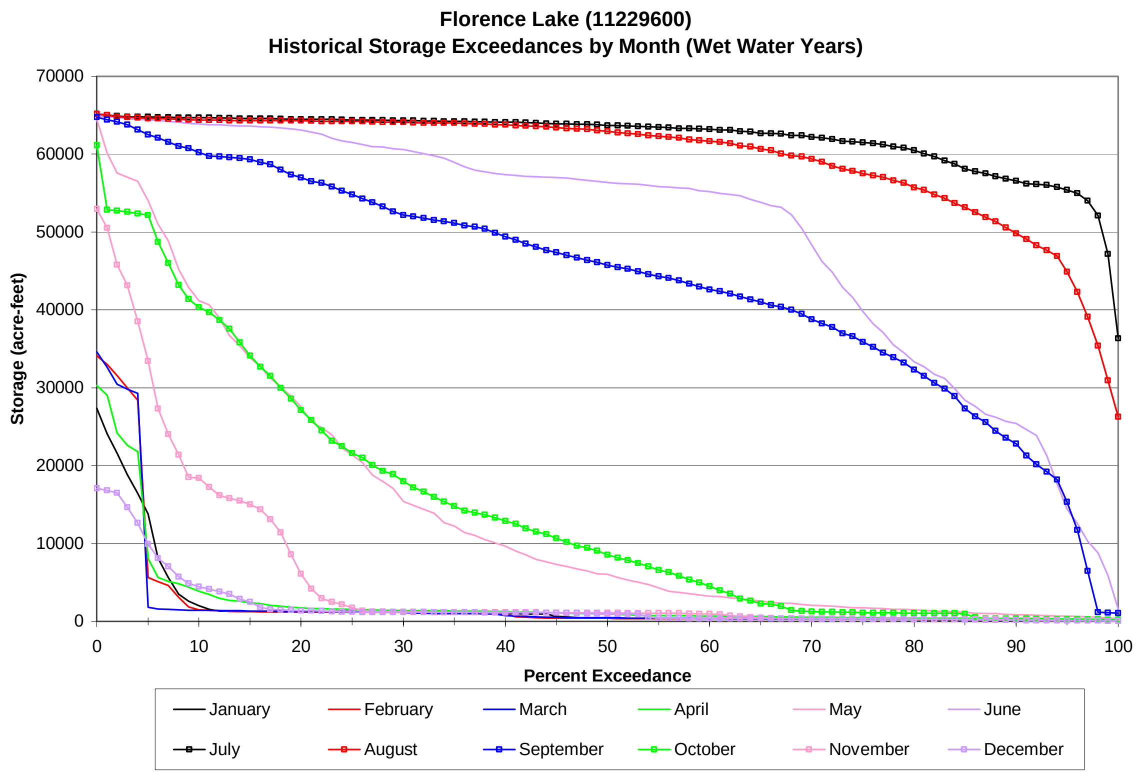
Florence Lake (11229600)
Historical Elevation Exceedances by Month (Wet Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

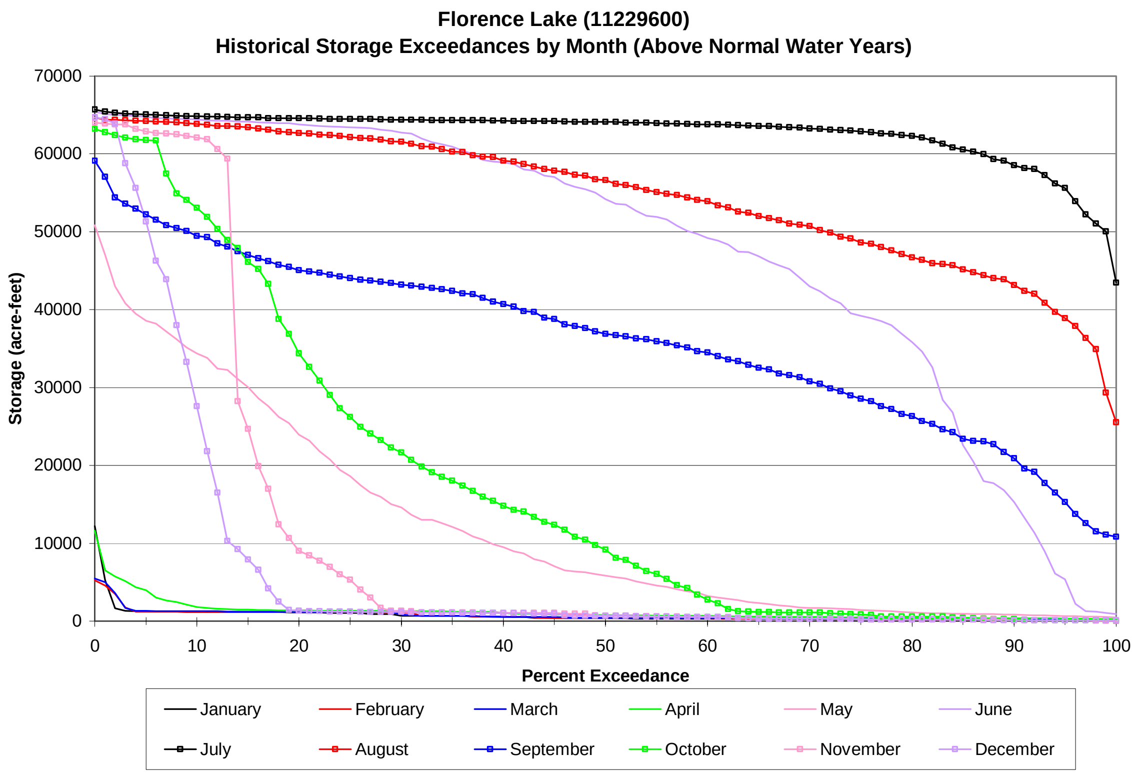

Florence Lake (11229600)
Historical Elevation Exceedances by Month (Above Normal Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Florence Lake (11229600)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Florence Lake (11229600)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
7340
7320
7300
7280
7260
7240
7220
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Florence Lake (11229600)
Historical Storage Exceedances by Month (Water Year 1926-2002)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Florence Lake (11229600)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Florence Lake (11229600)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
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80
90
100
Percent Exceedance
January
February
March
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October
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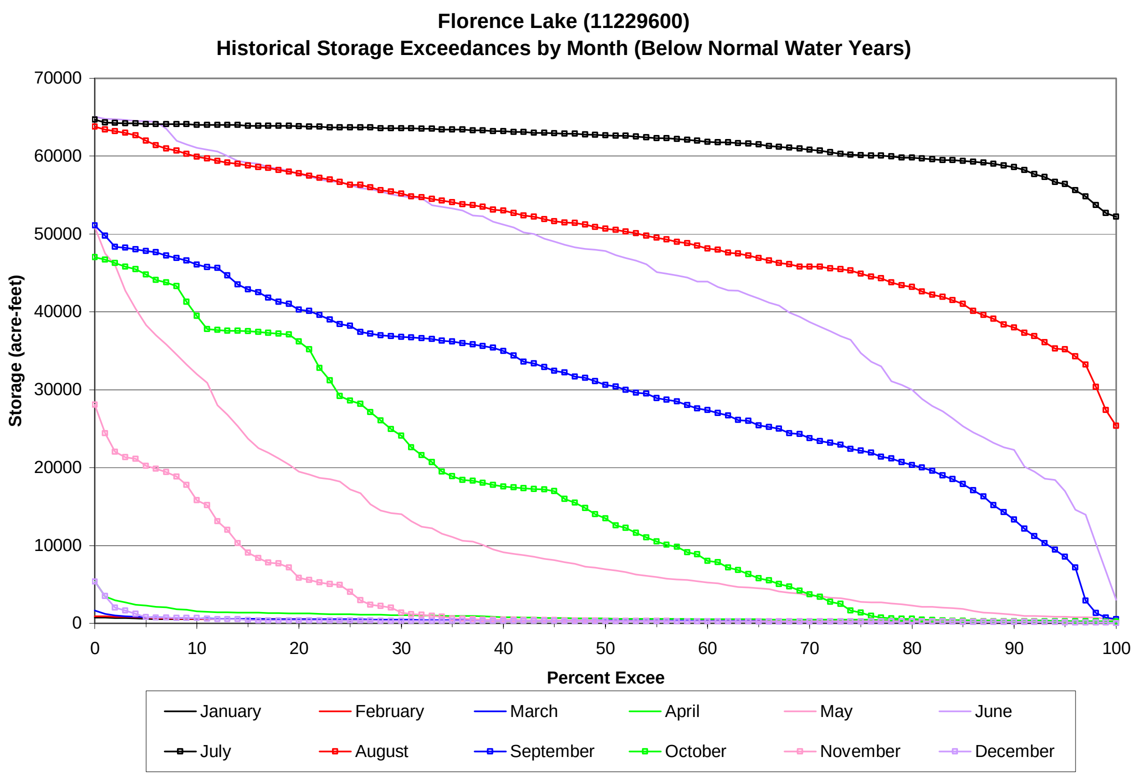
December


Florence Lake (11229600)
Historical Storage Exceedances by Month (Below Normal Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Excee
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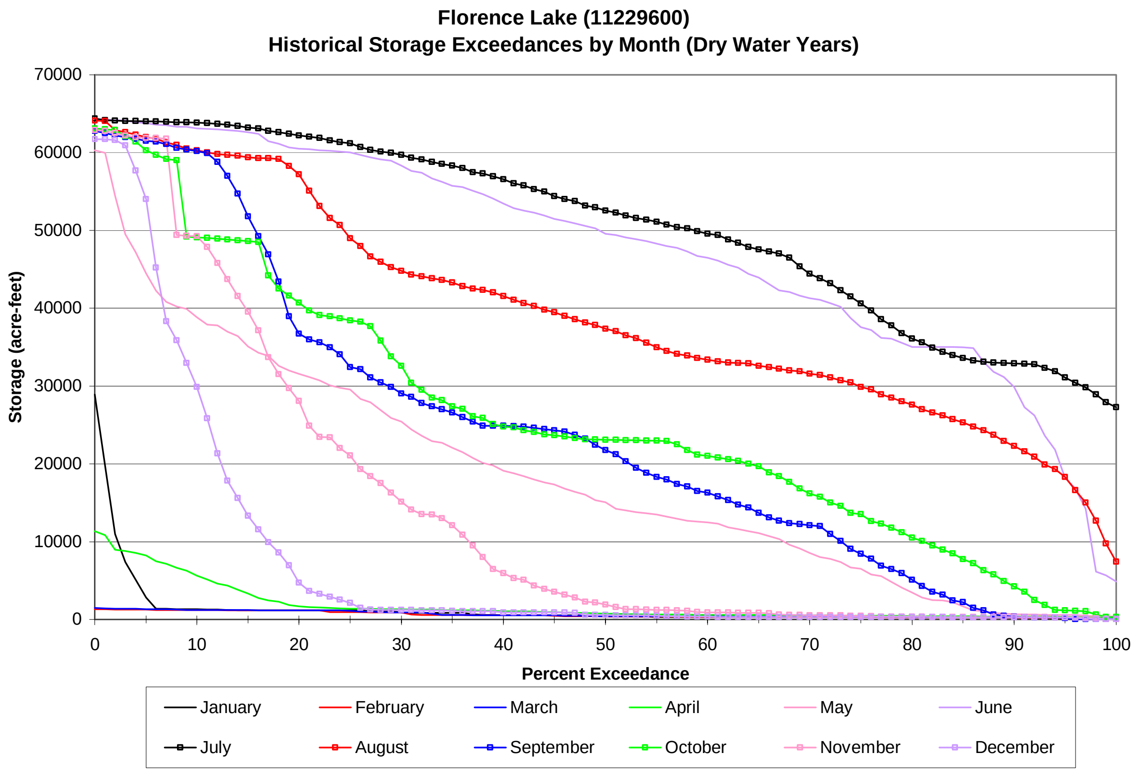
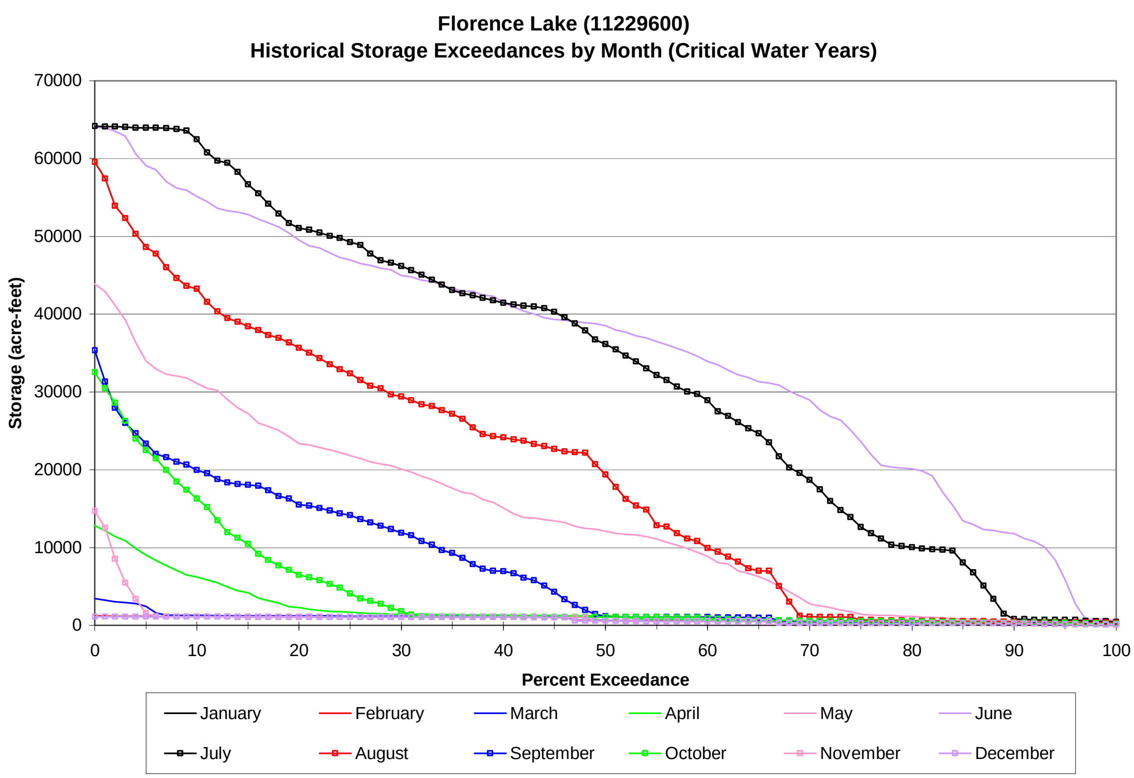
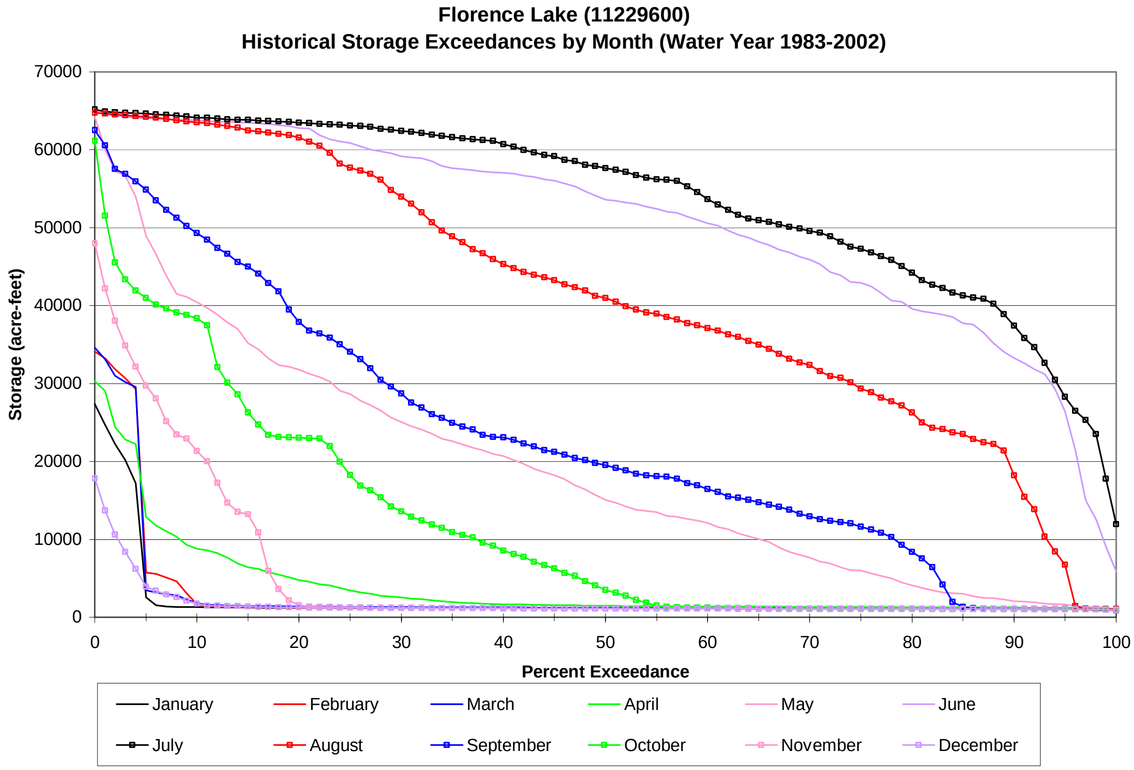
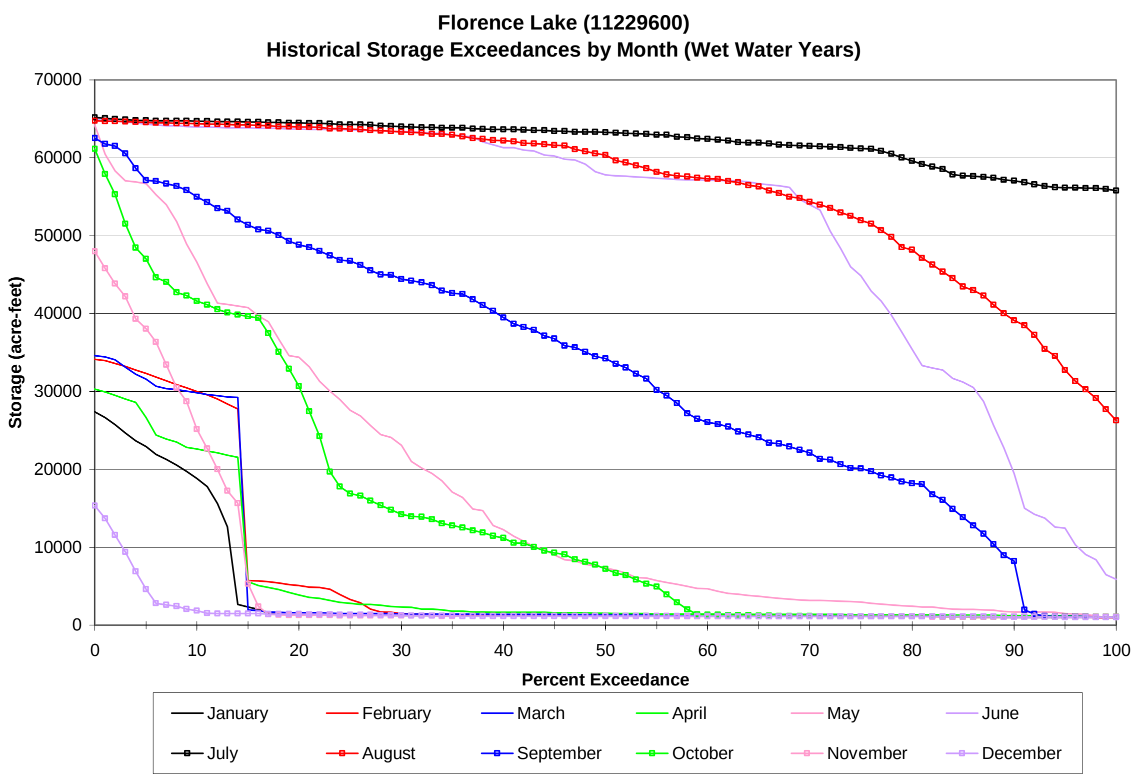
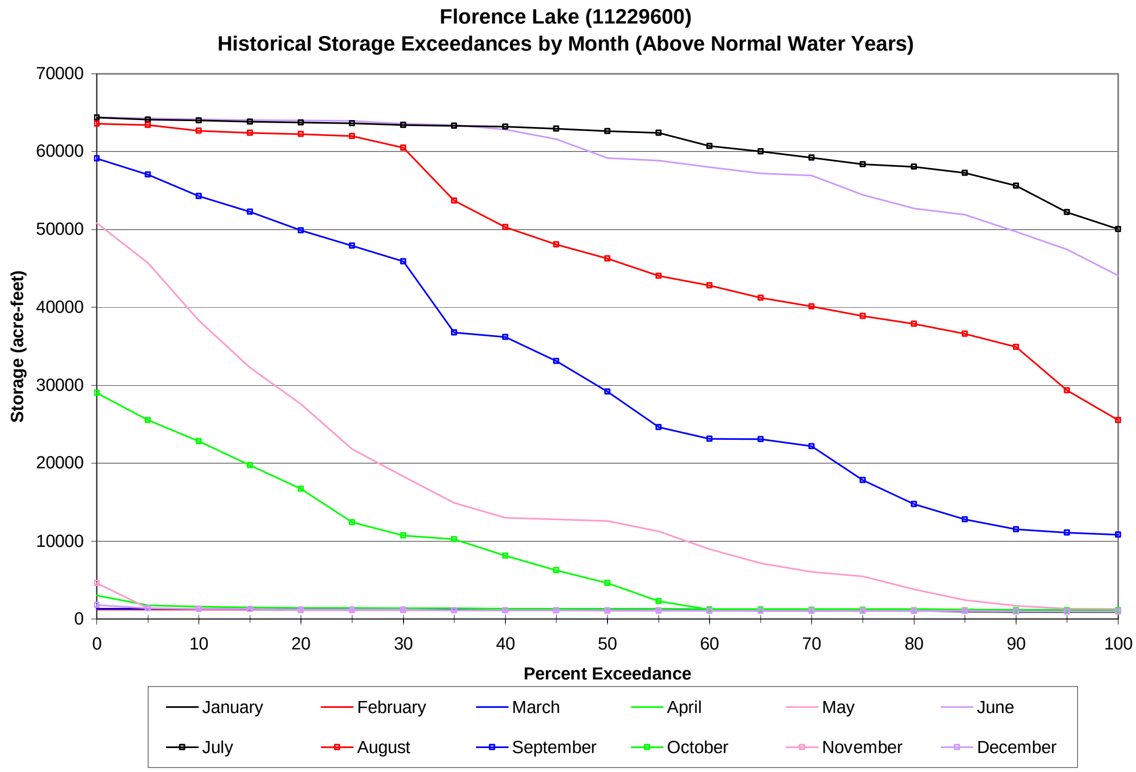
October
November
December

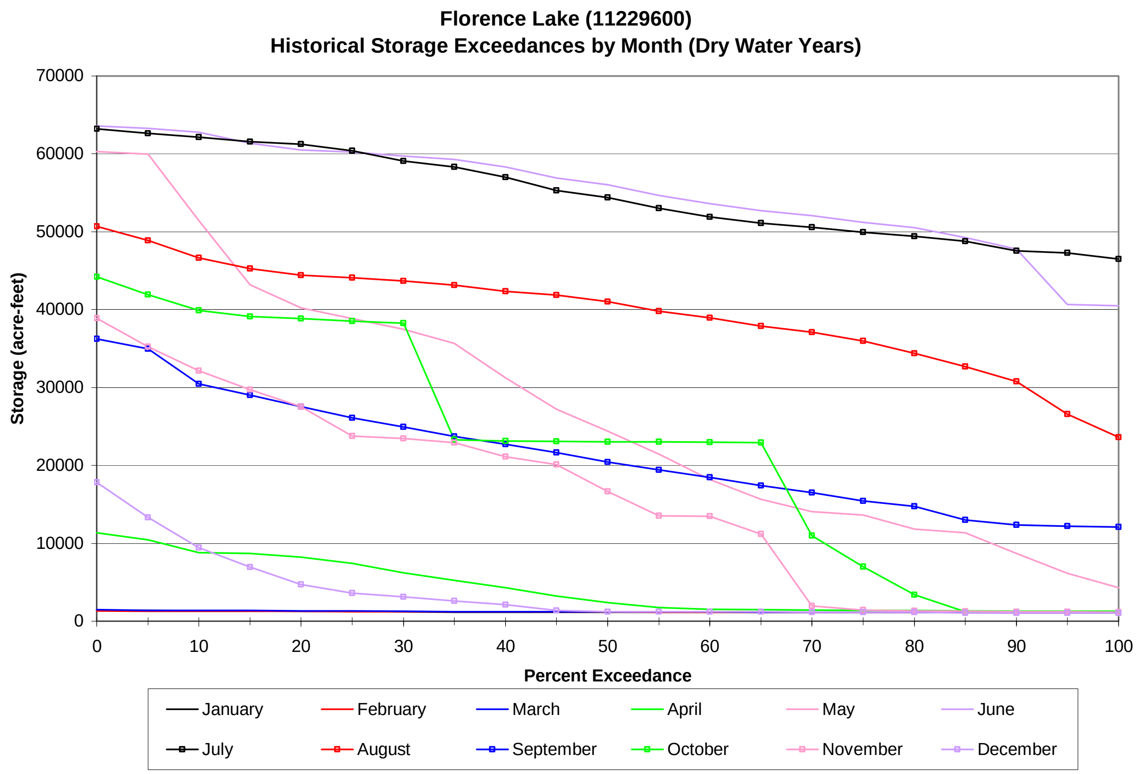

Florence Lake (11229600)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

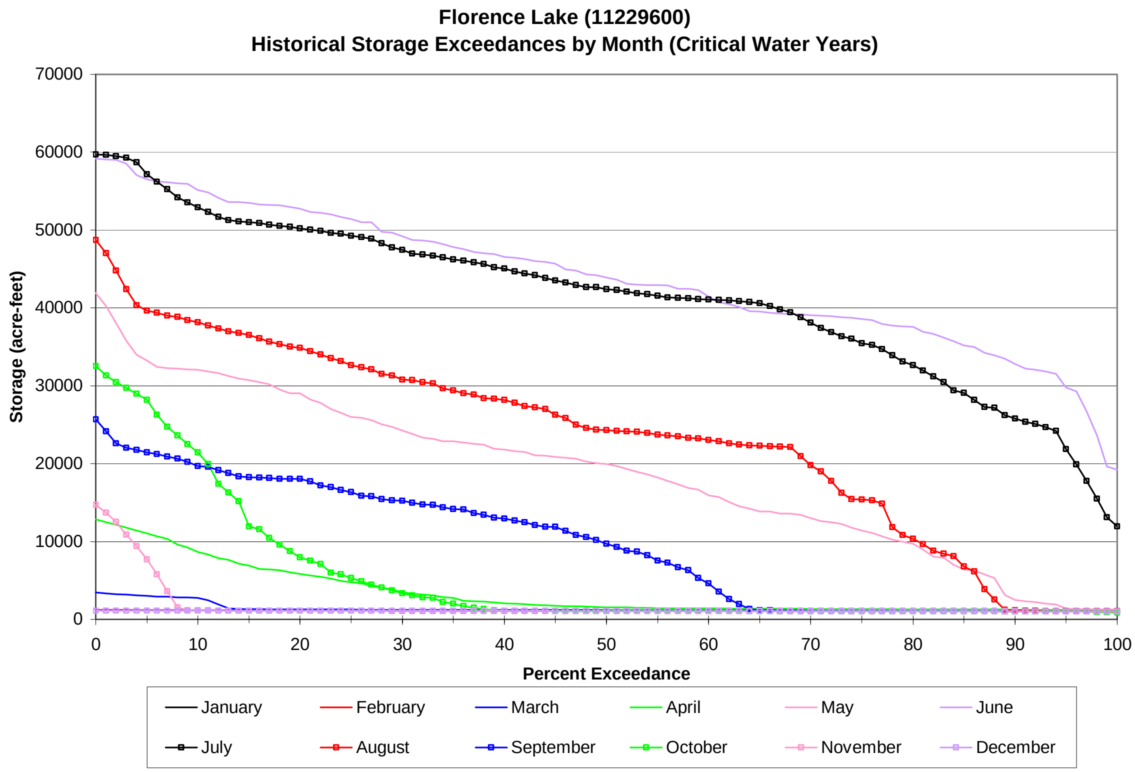

Florence Lake (11229600)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

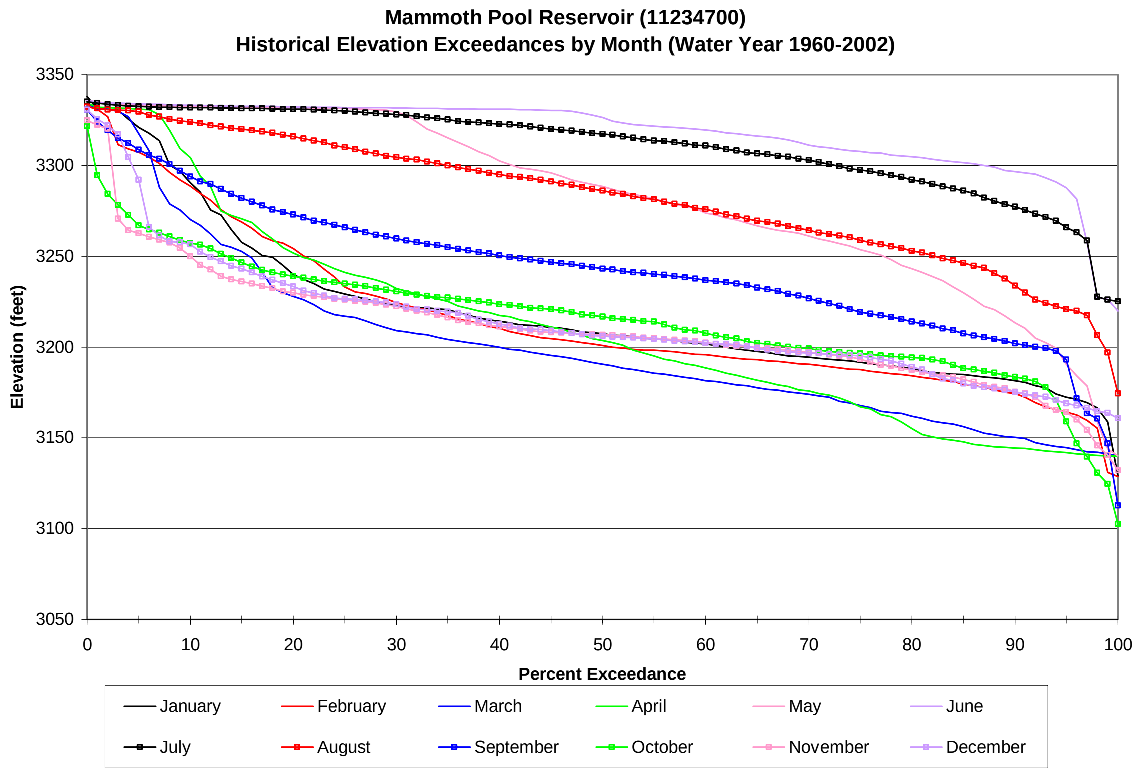

Florence Lake (11229600)
Historical Storage Exceedances by Month (Water Year 1983-2002)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

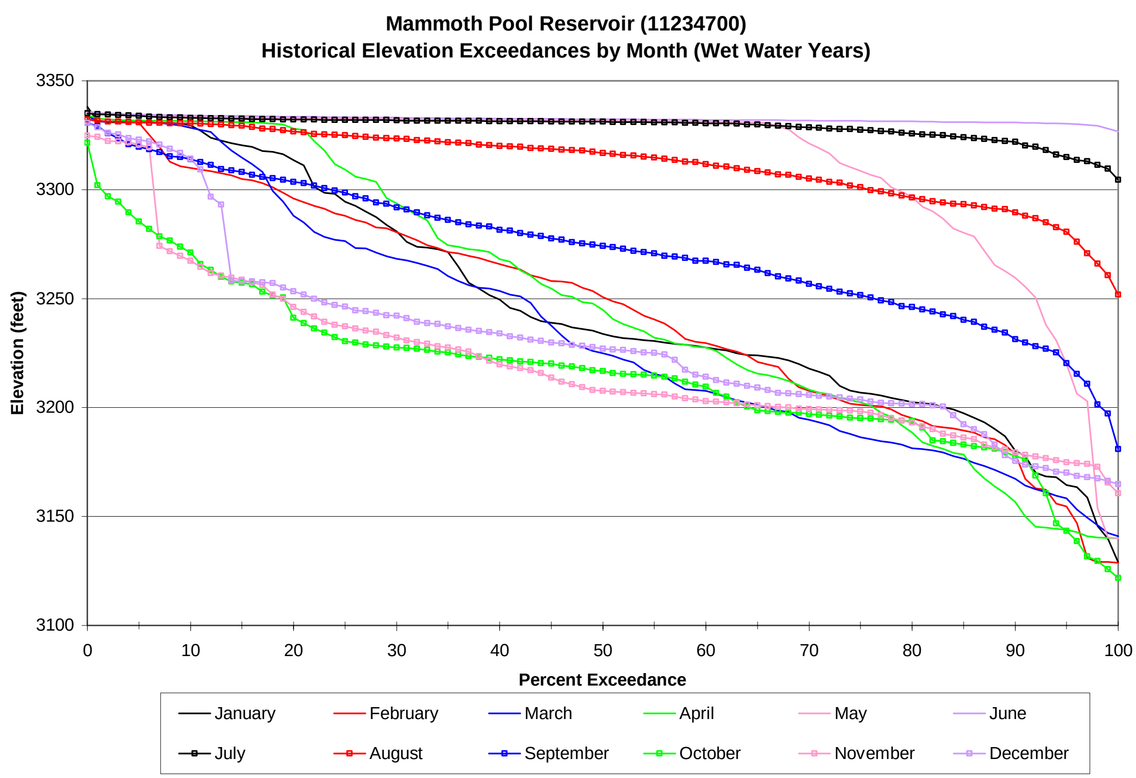

Florence Lake (11229600)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

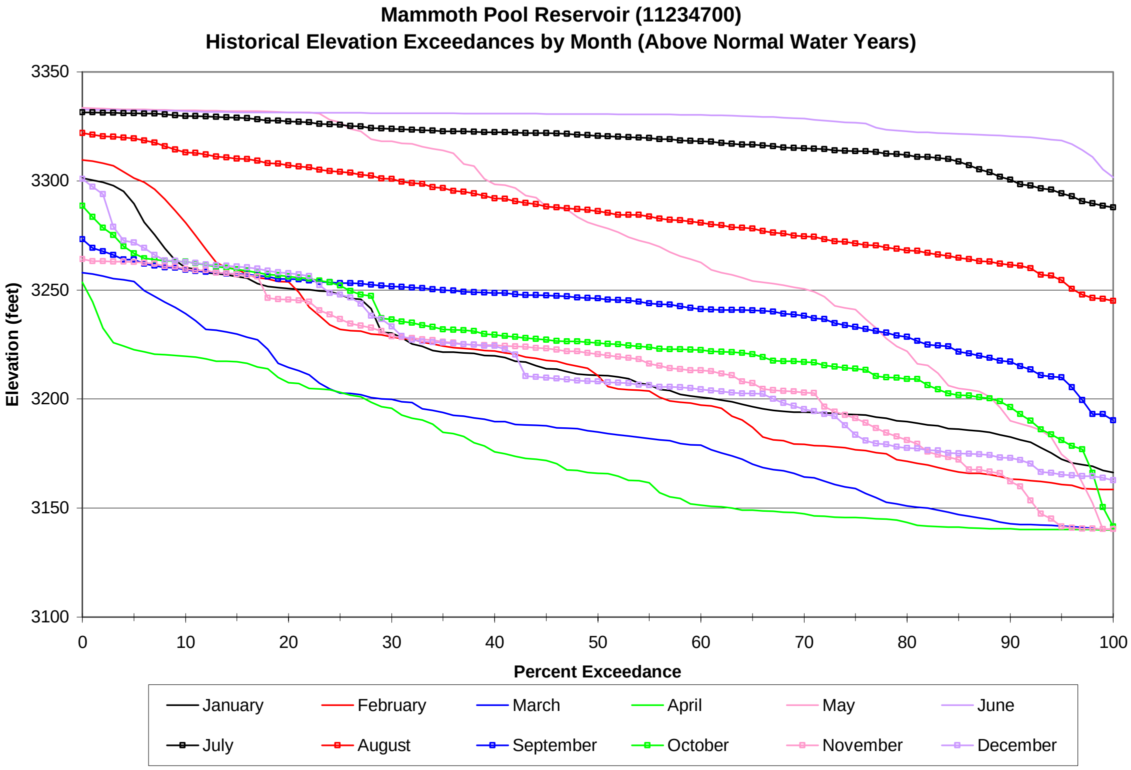

Florence Lake (11229600)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

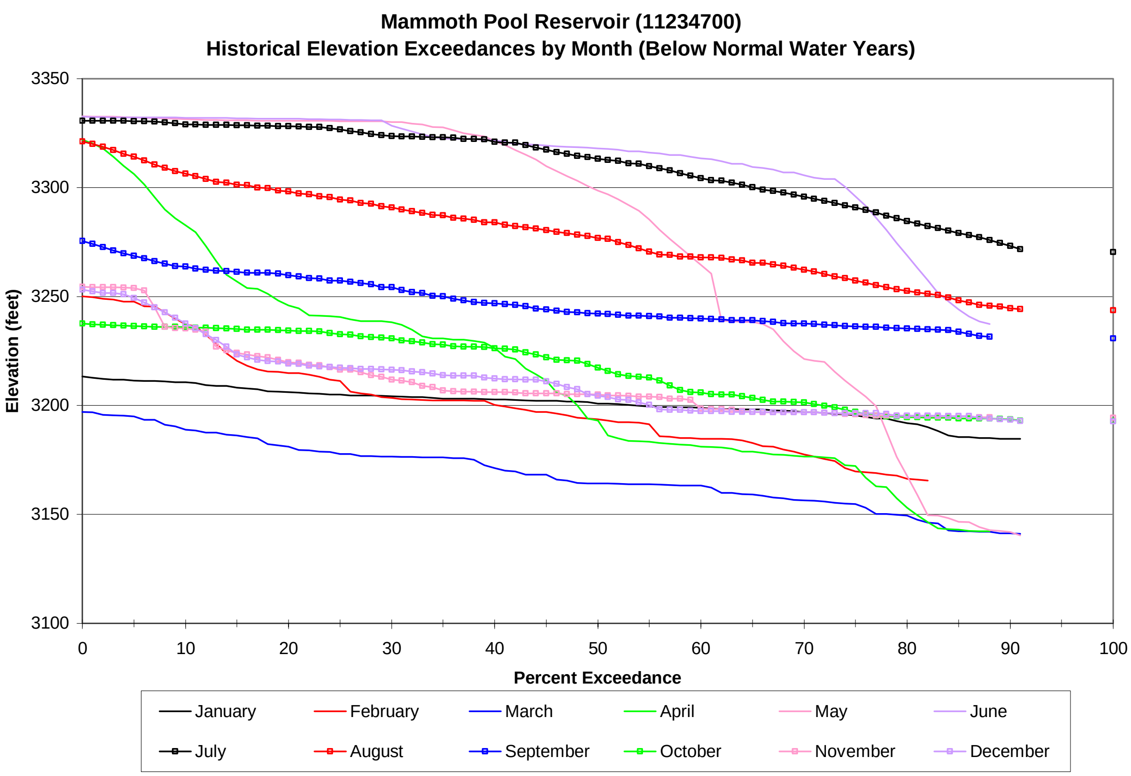

Florence Lake (11229600)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

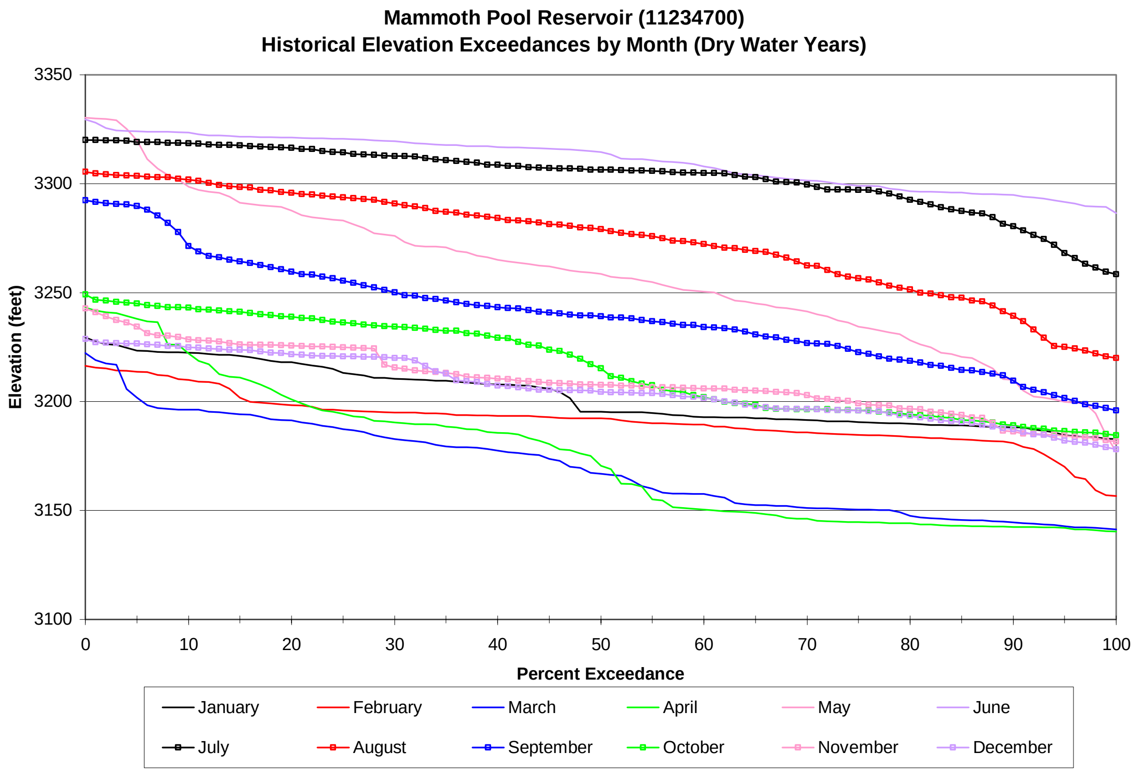

Florence Lake (11229600)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

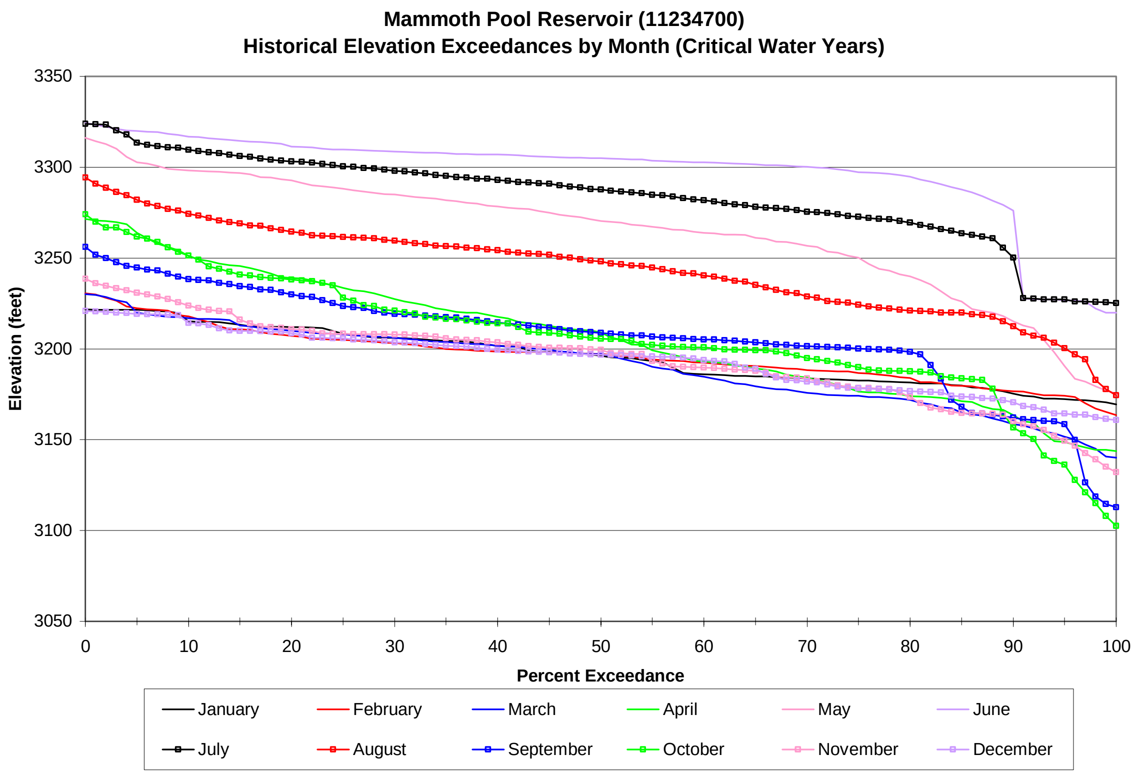

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Water Year 1960-2002)
Elevation (feet)
3350
3300
3250
3200
3150
3100
3050
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

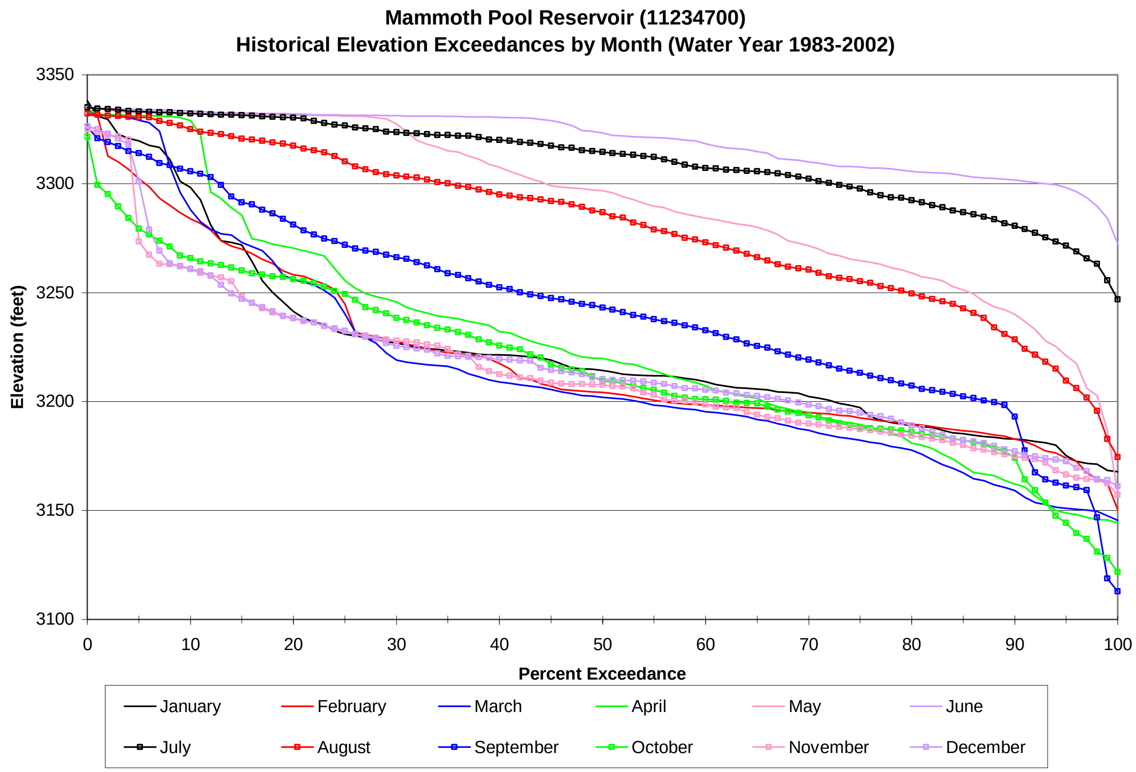

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Wet Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

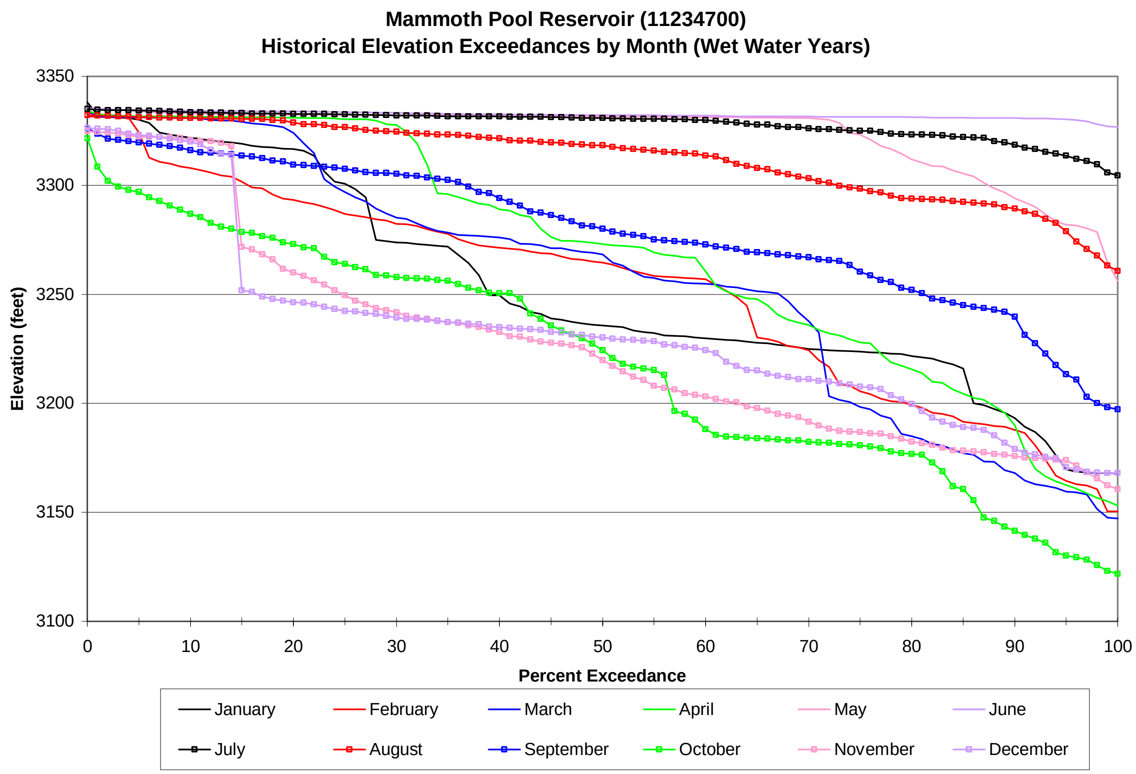

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Above Normal Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

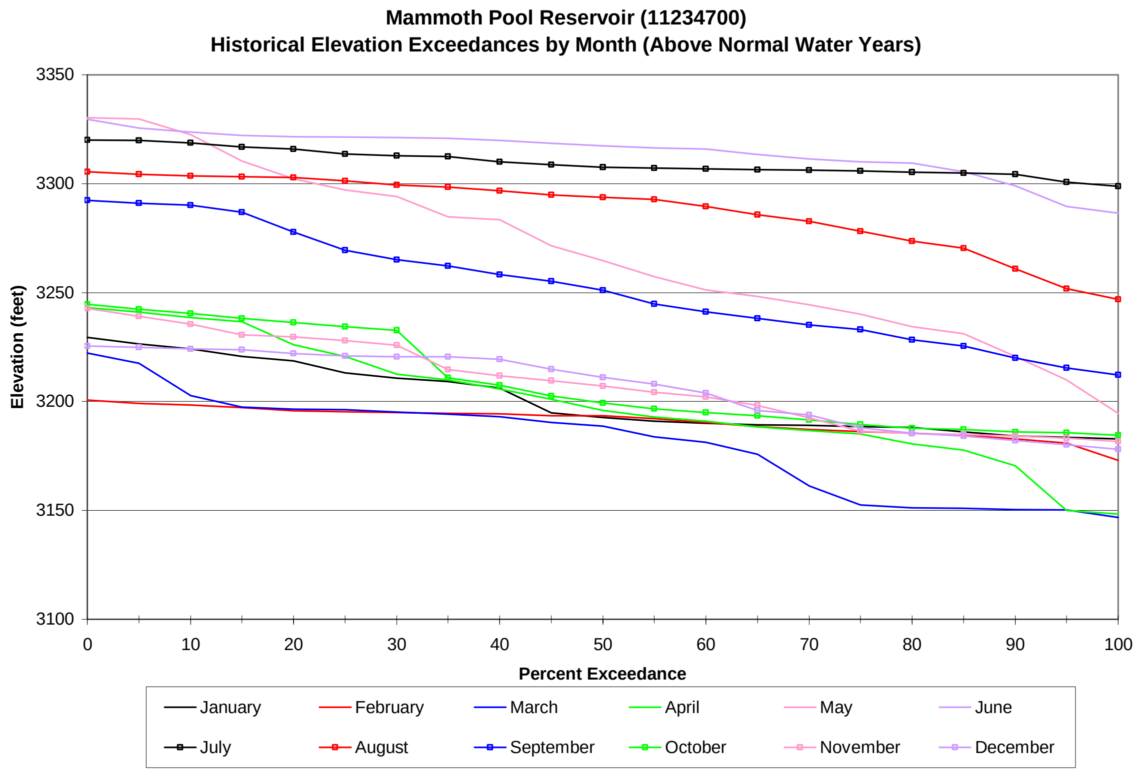

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Below Normal Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

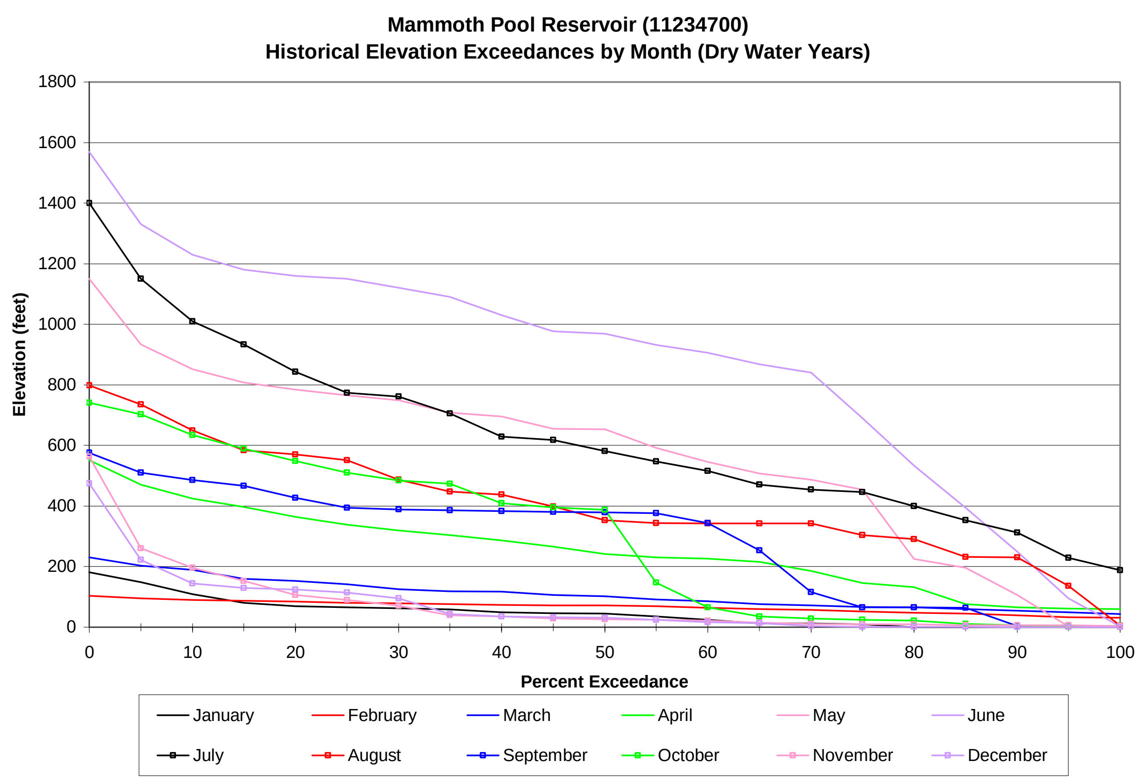

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

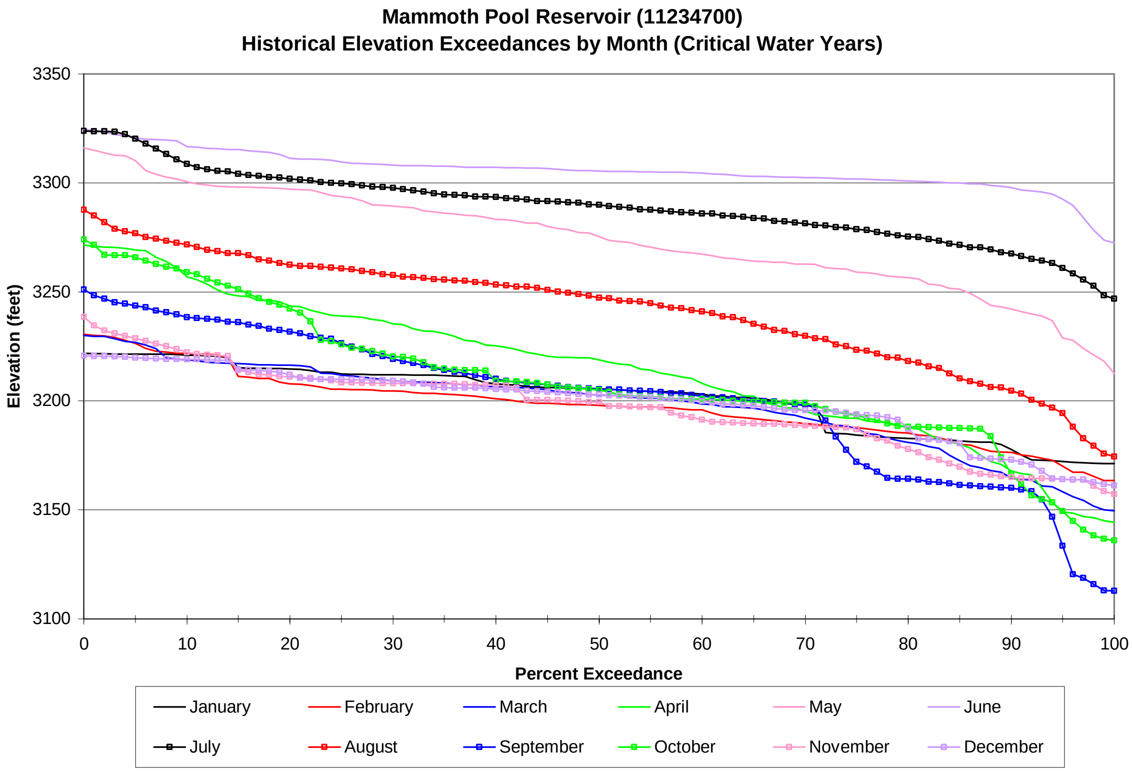

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
3050
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Water Year 1983-2002)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

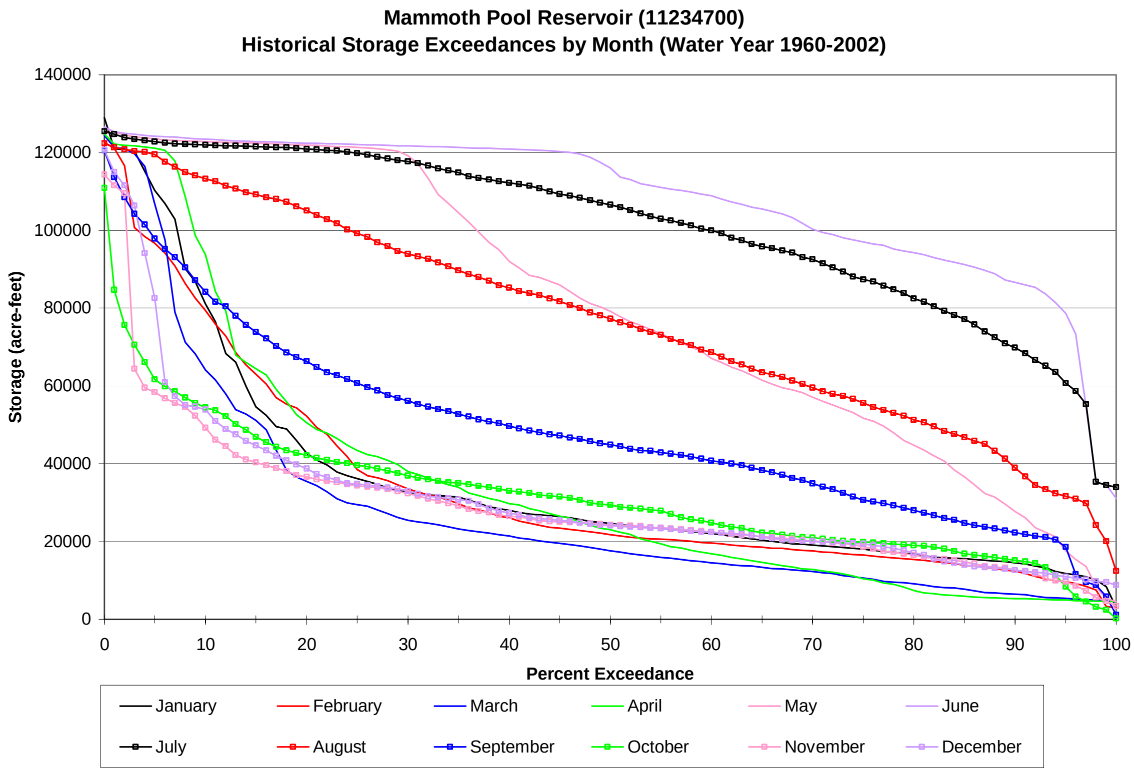

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Wet Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

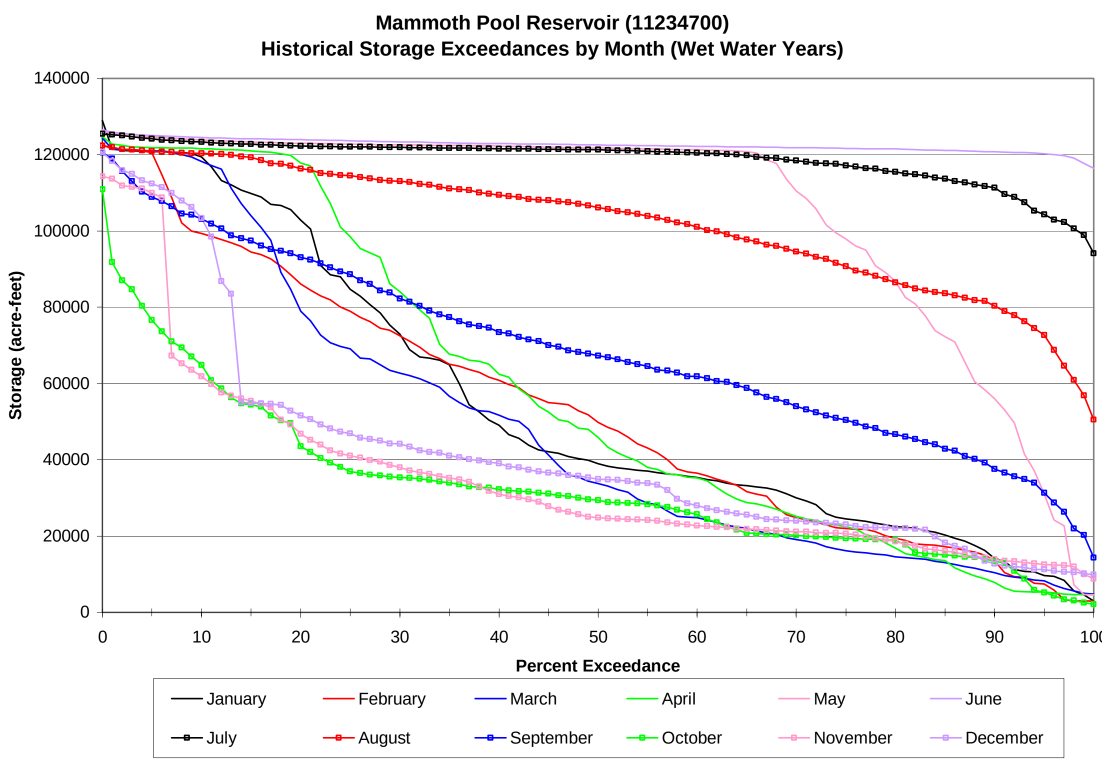

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Above Normal Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

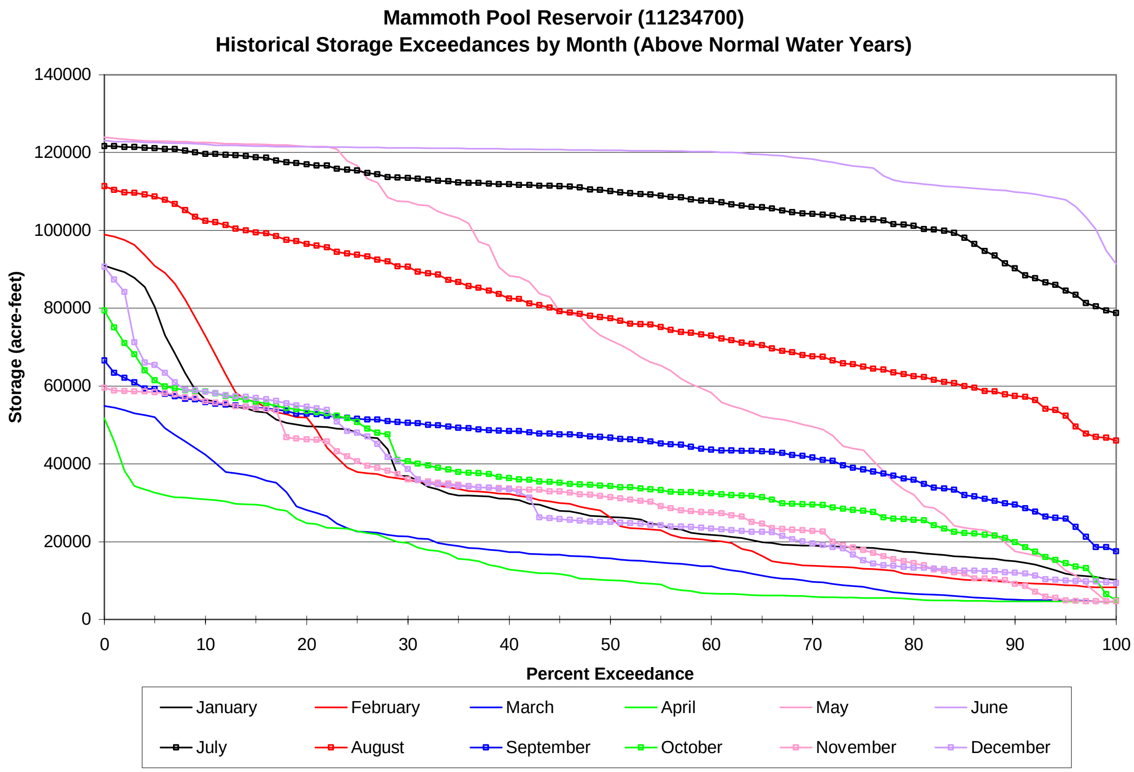

Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

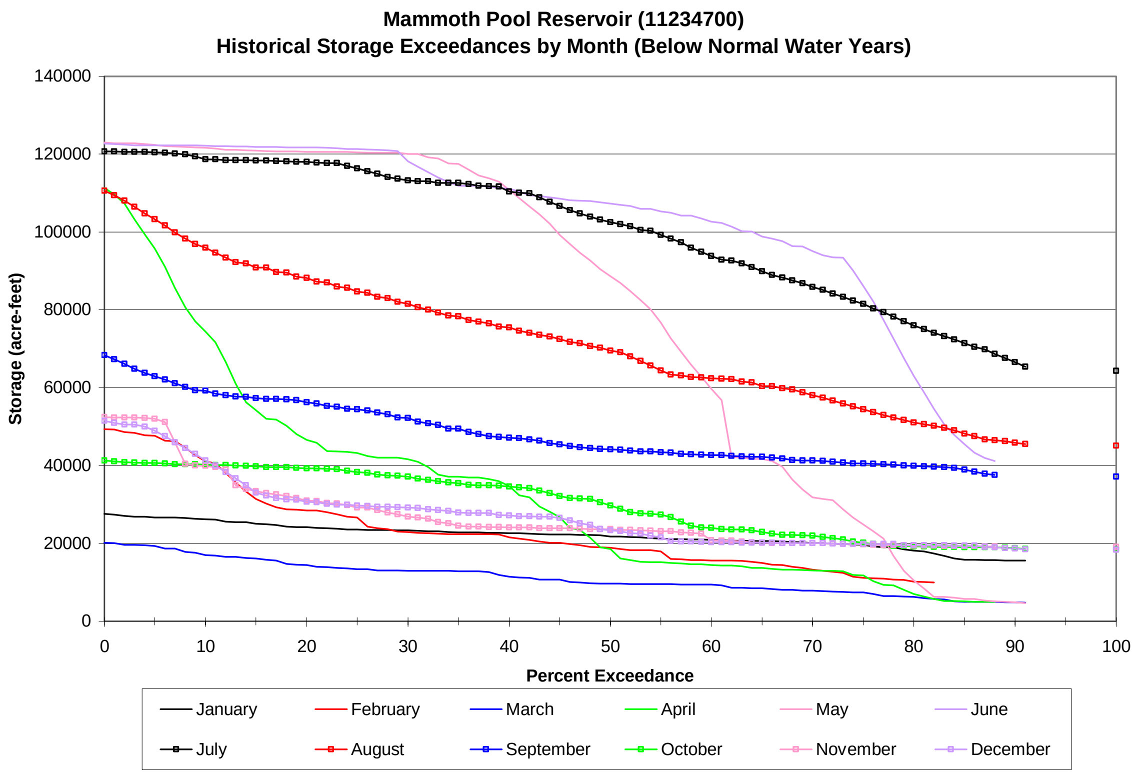


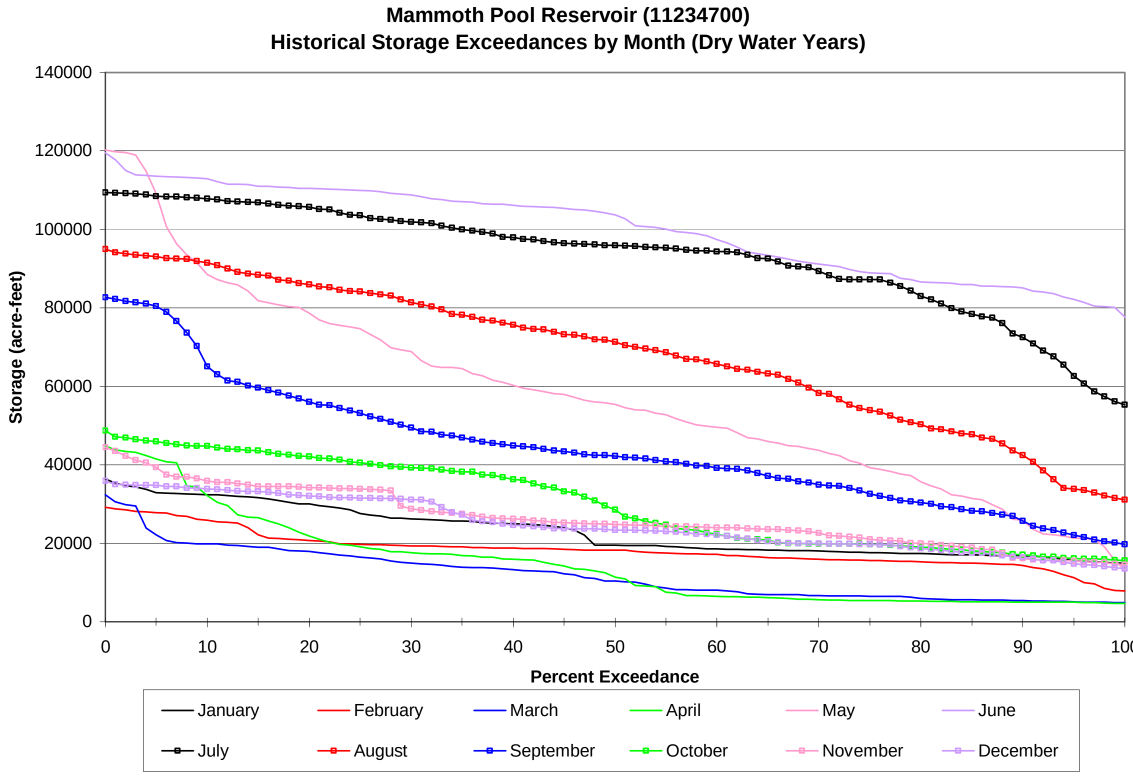
Mammoth Pool Reservoir (11234700)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
3350
3300
3250
3200
3150
3100
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

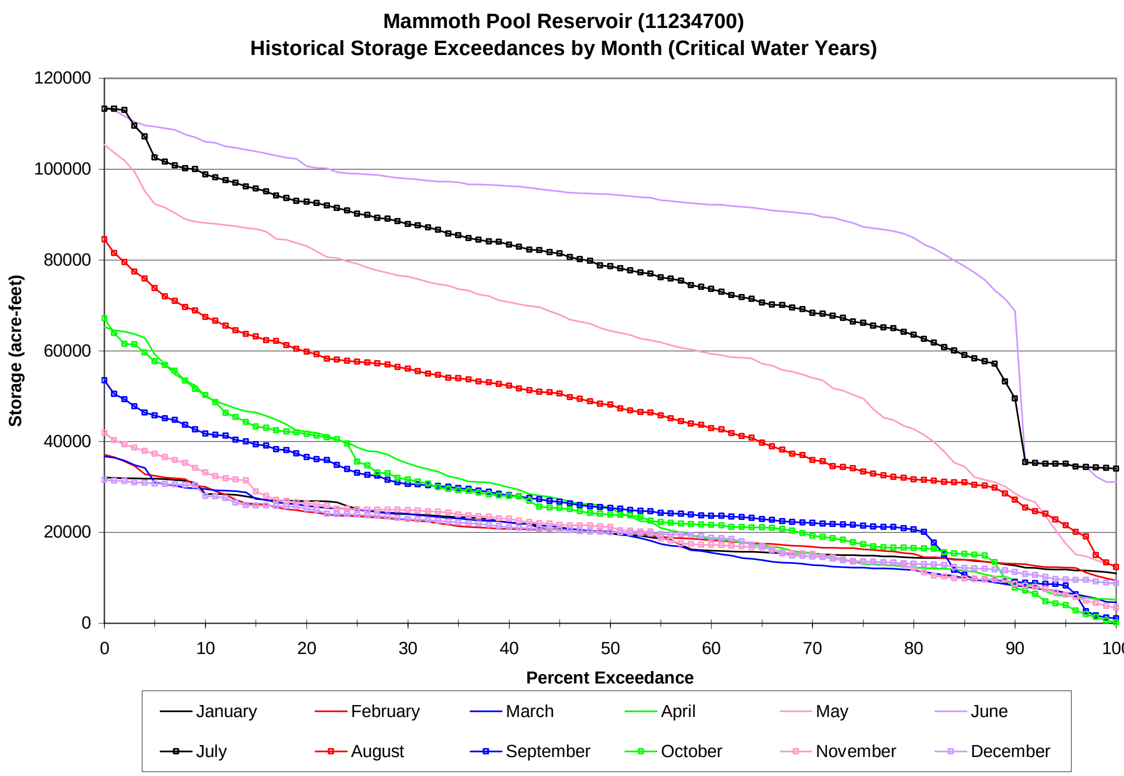

Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Water Year 1960-2002)
Storage (acre-feet)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

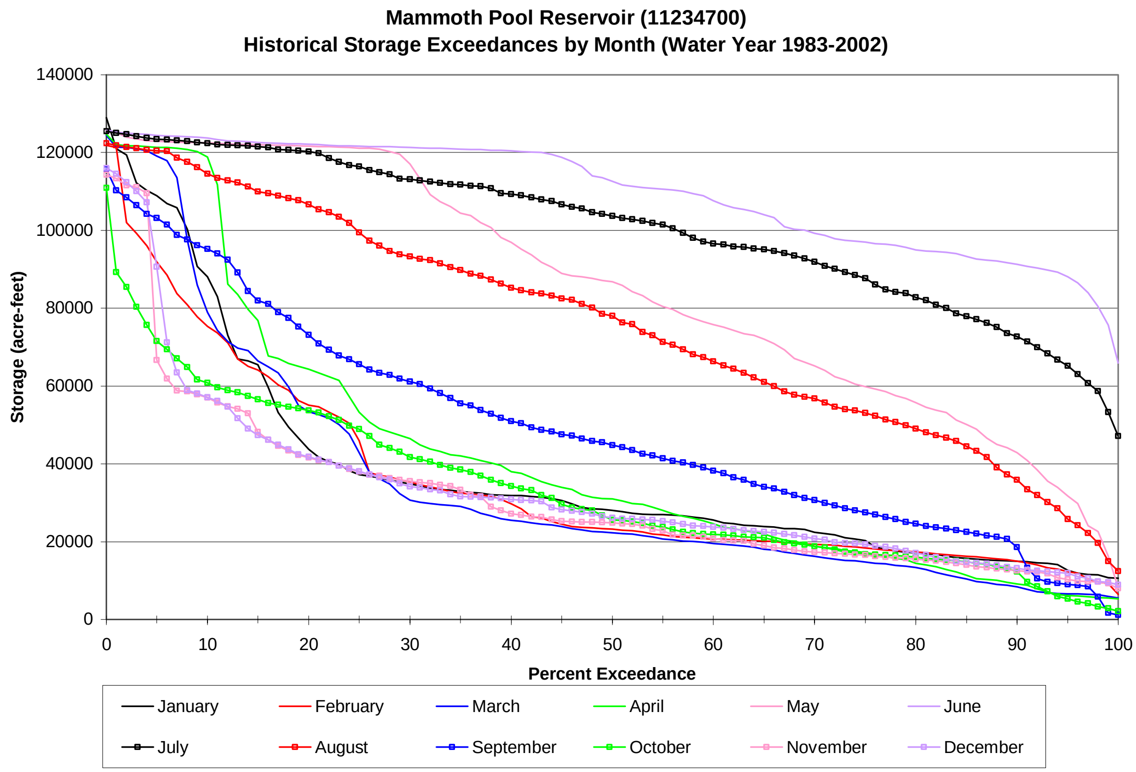

Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

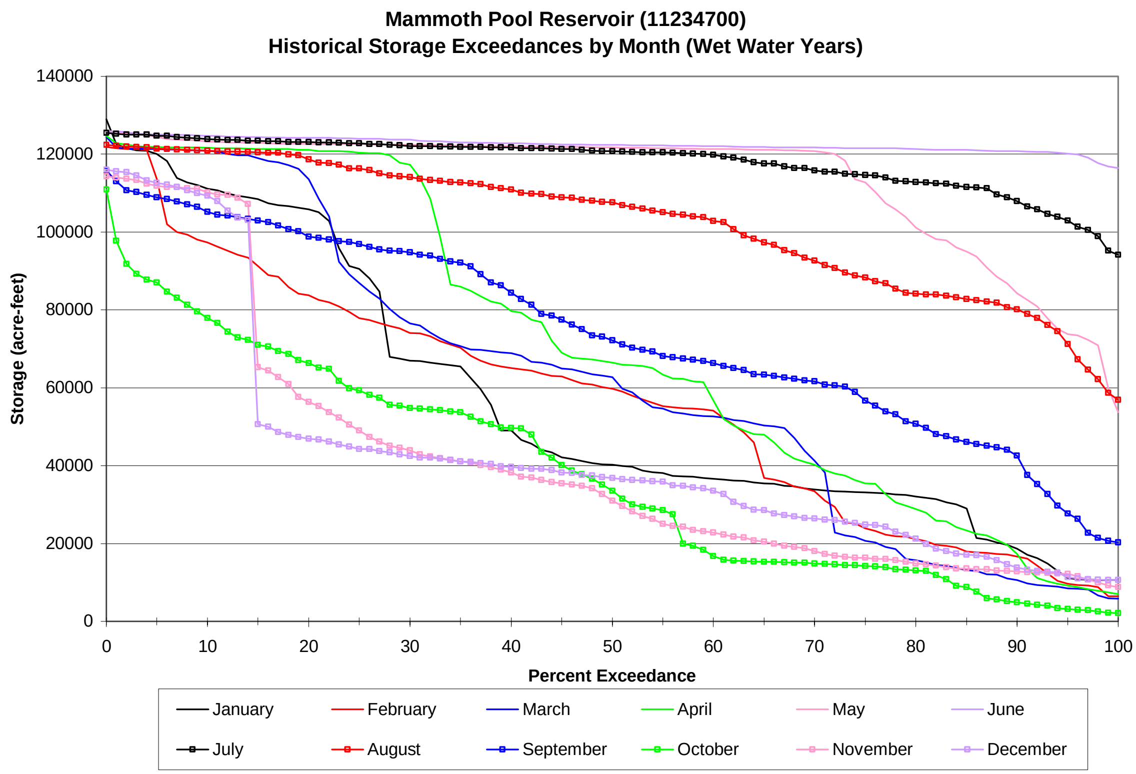

Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

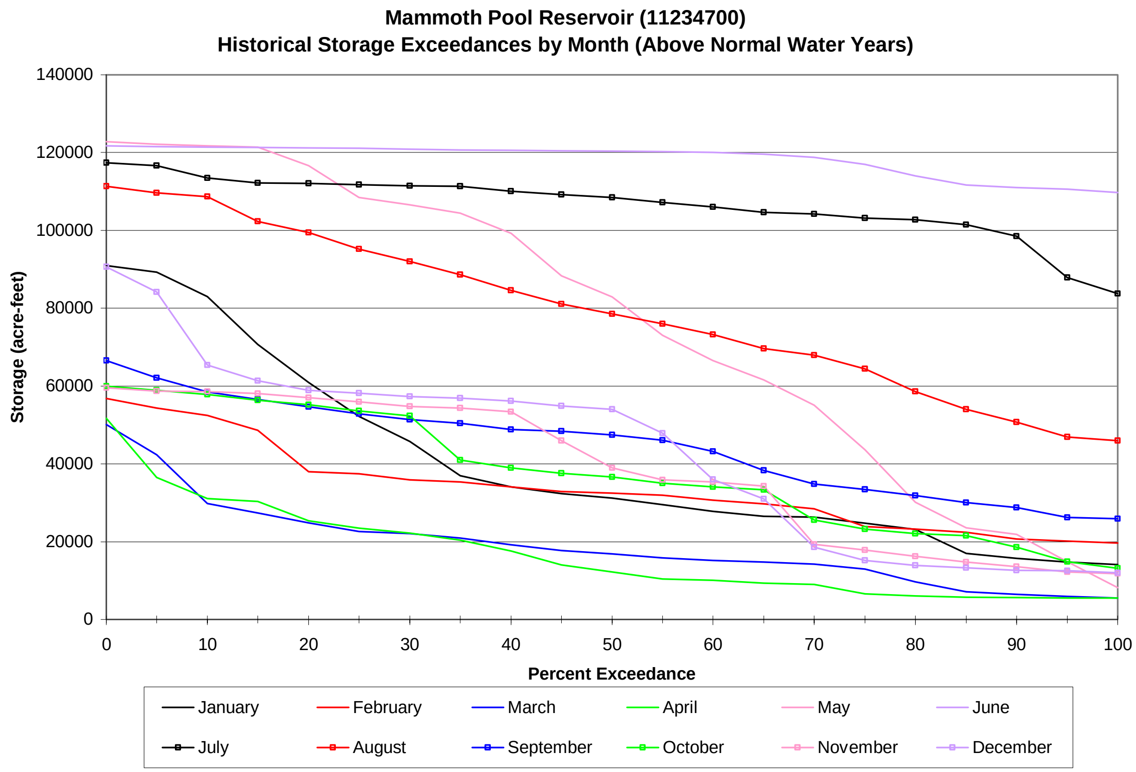

Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Below Normal Water Years)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Water Year 1983-2002)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
Percent Exceedance
0
20000
40000
60000
80000
100000
120000
140000
0
10
20
30
40
50
60
70
80
90
100
January
February
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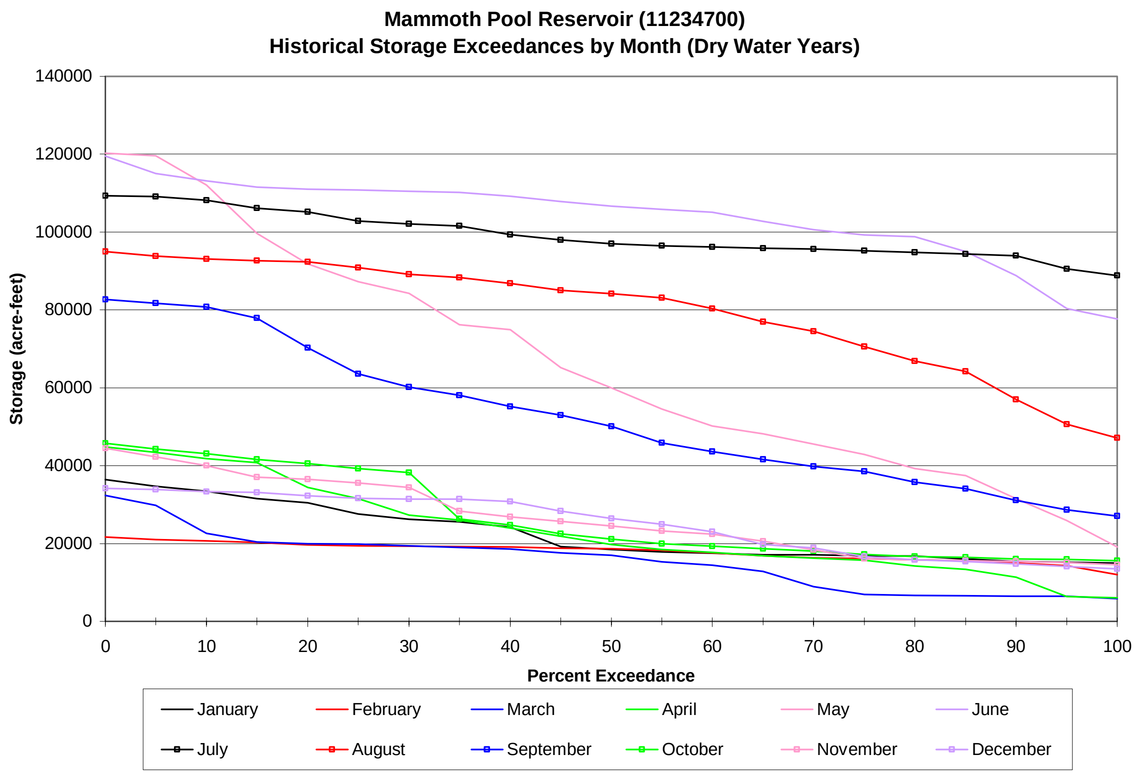
September
October
November
December


Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
Percent Exceedance
0
20000
40000
60000
80000
100000
120000
140000
0
10
20
30
40
50
60
70
80
90
100
January
February
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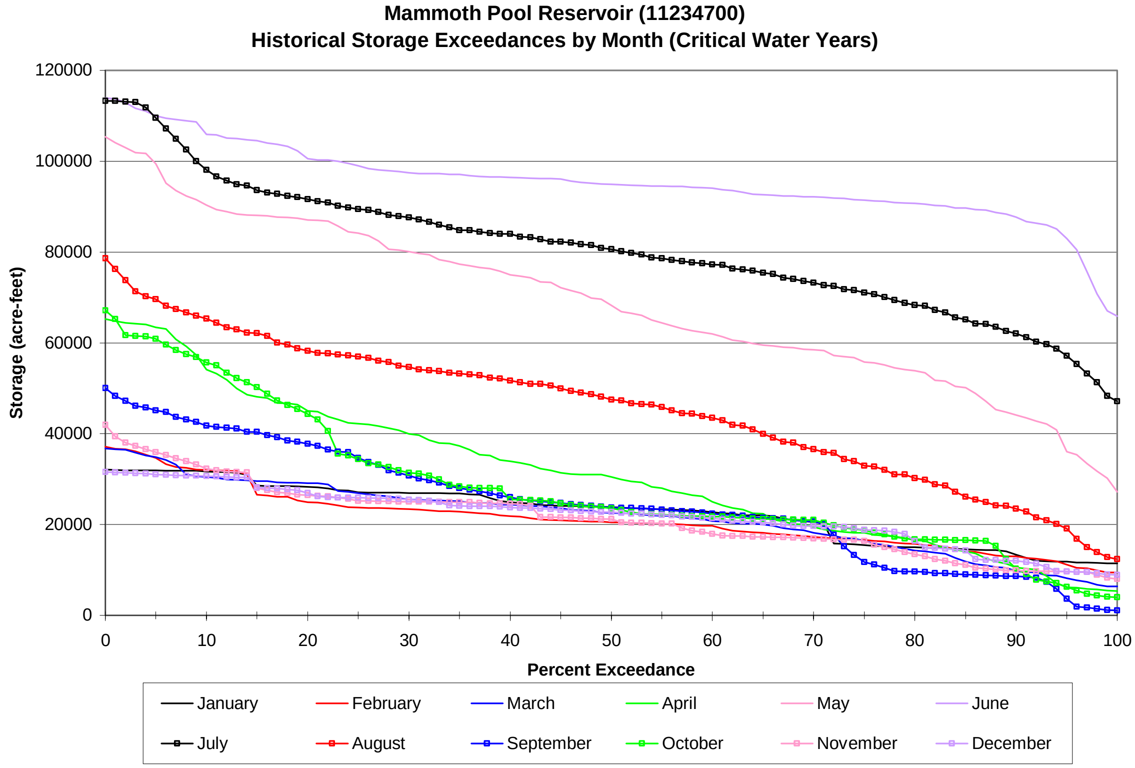
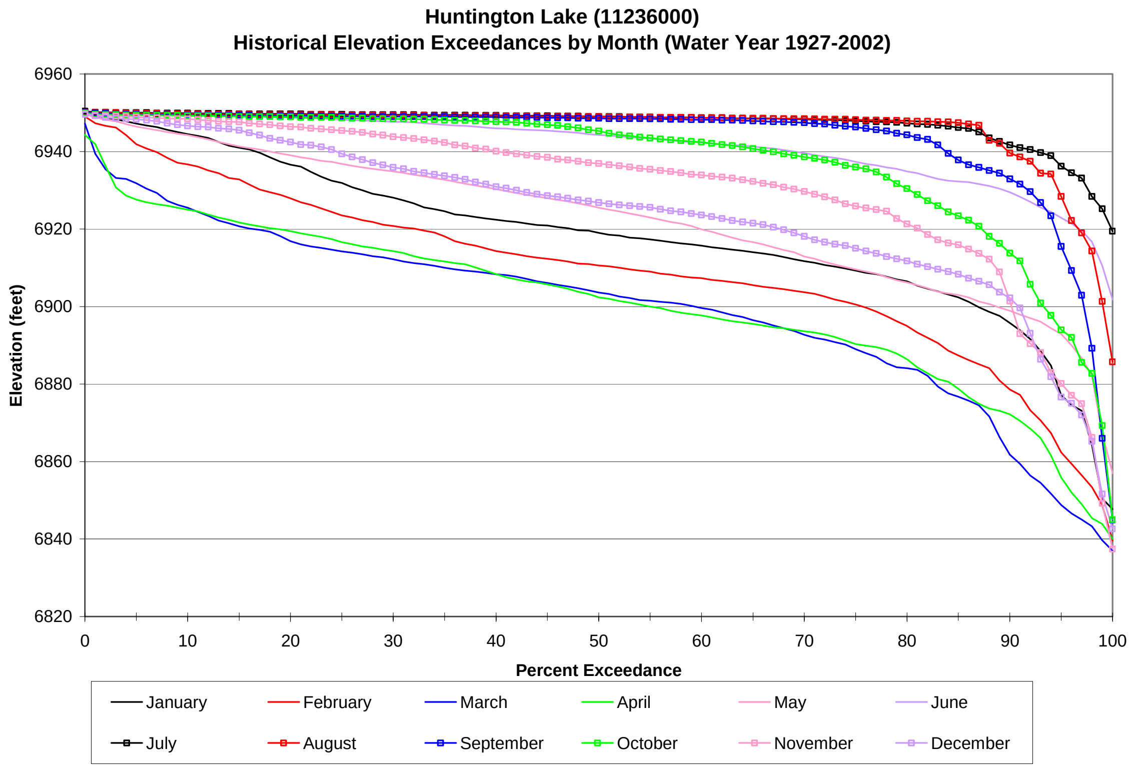
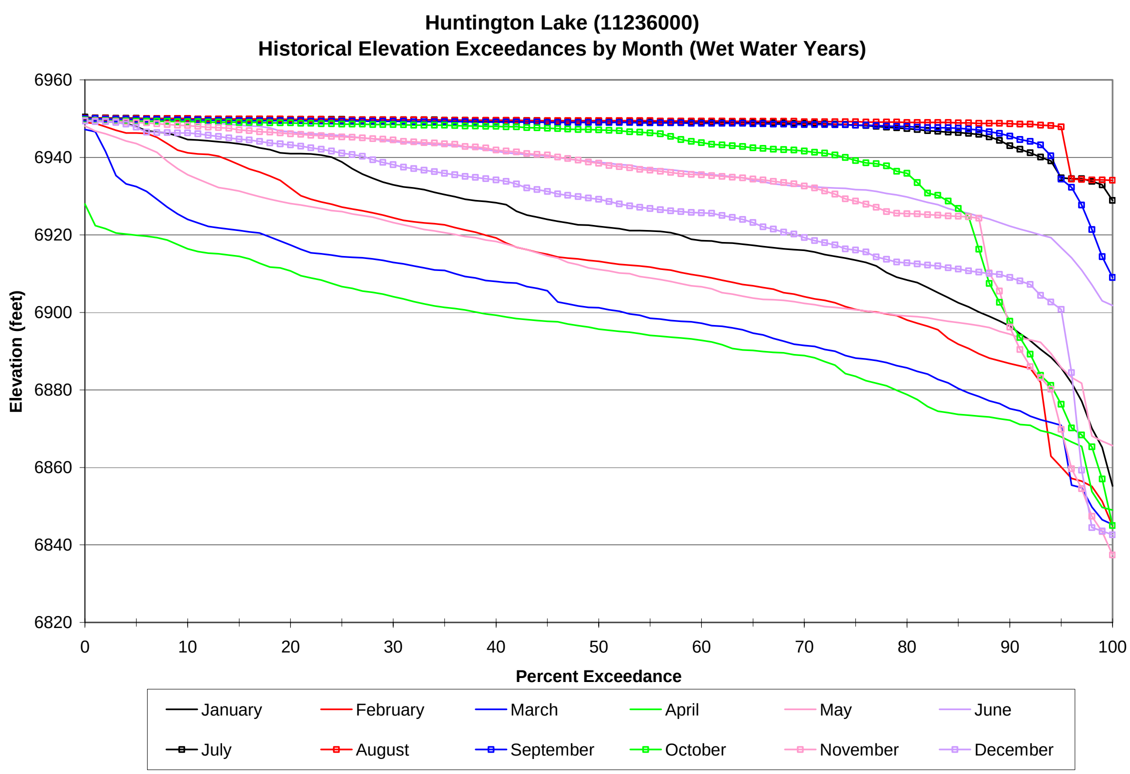
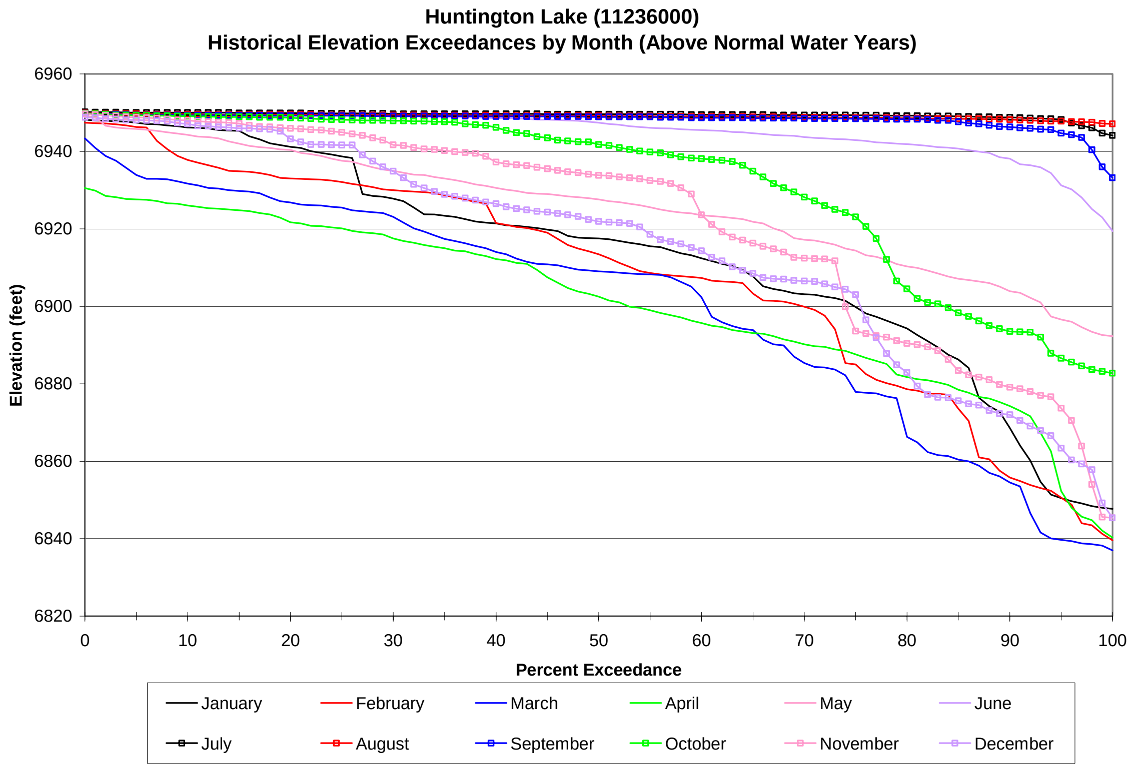
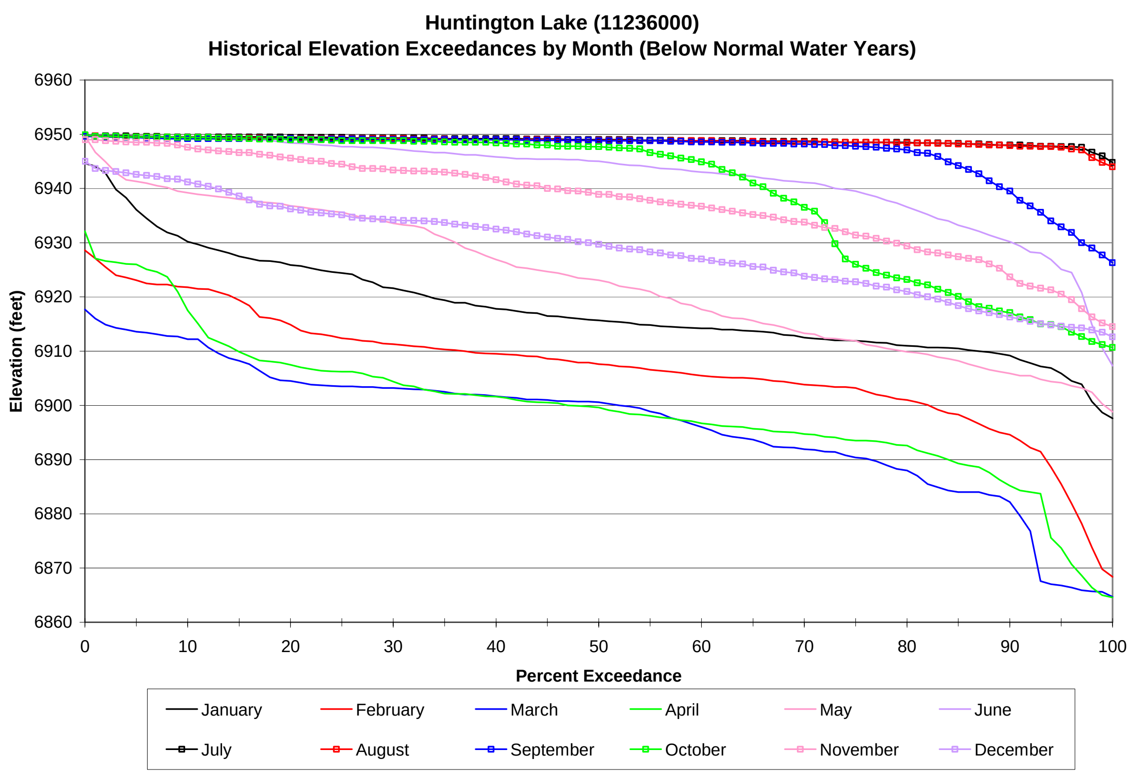
November
December

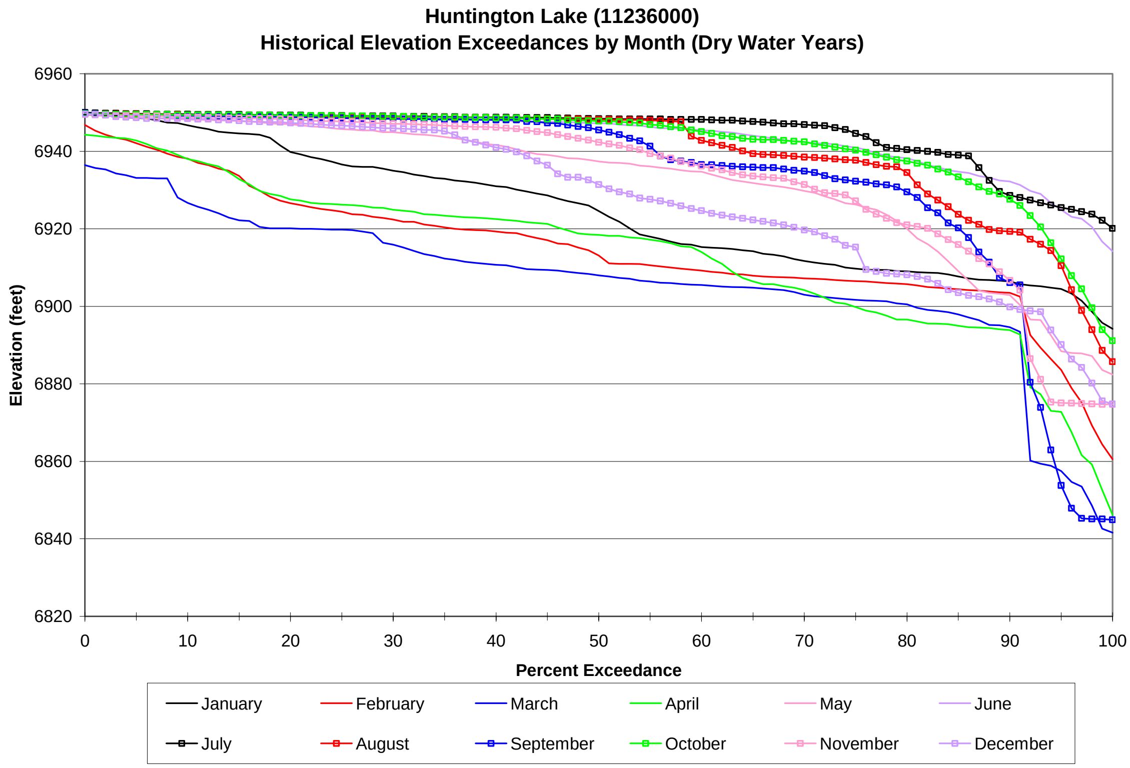

Mammoth Pool Reservoir (11234700)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

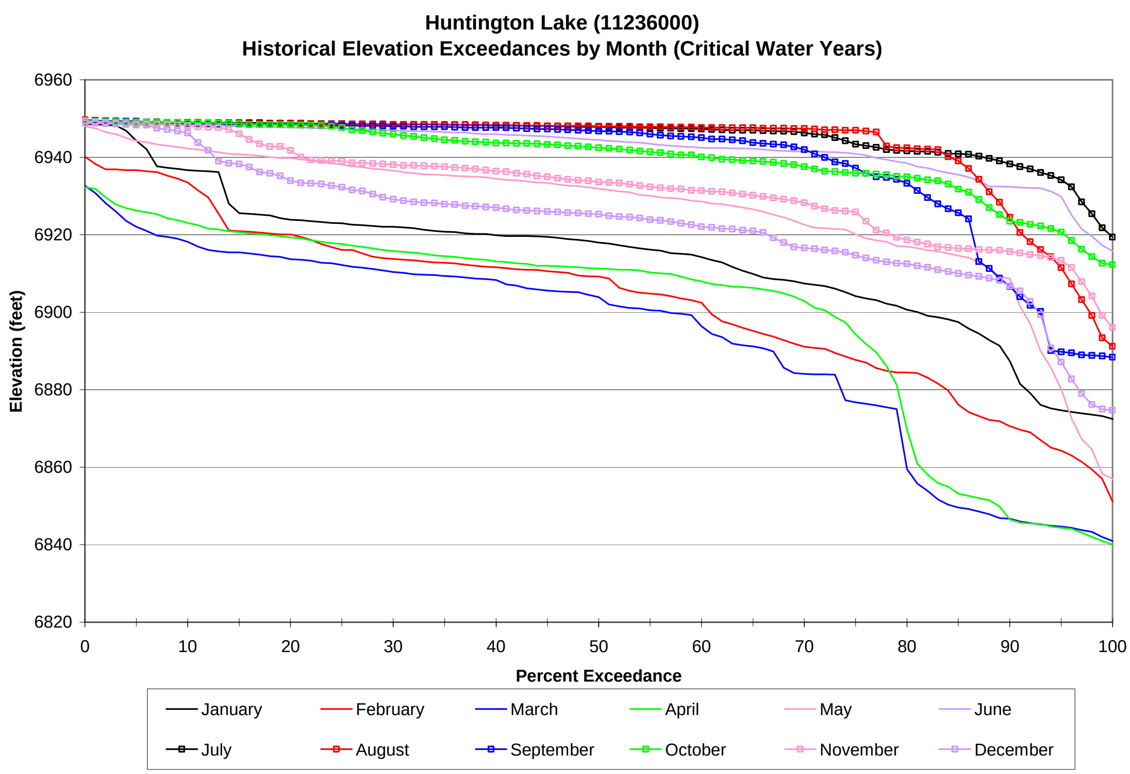

Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Water Year 1927-2002)
Elevation (feet)
6960
6940
6920
6900
6880
6860
6840
6820
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Wet Water Years)
Elevation (feet)
6960
6940
6920
6900
6880
6860
6840
6820
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

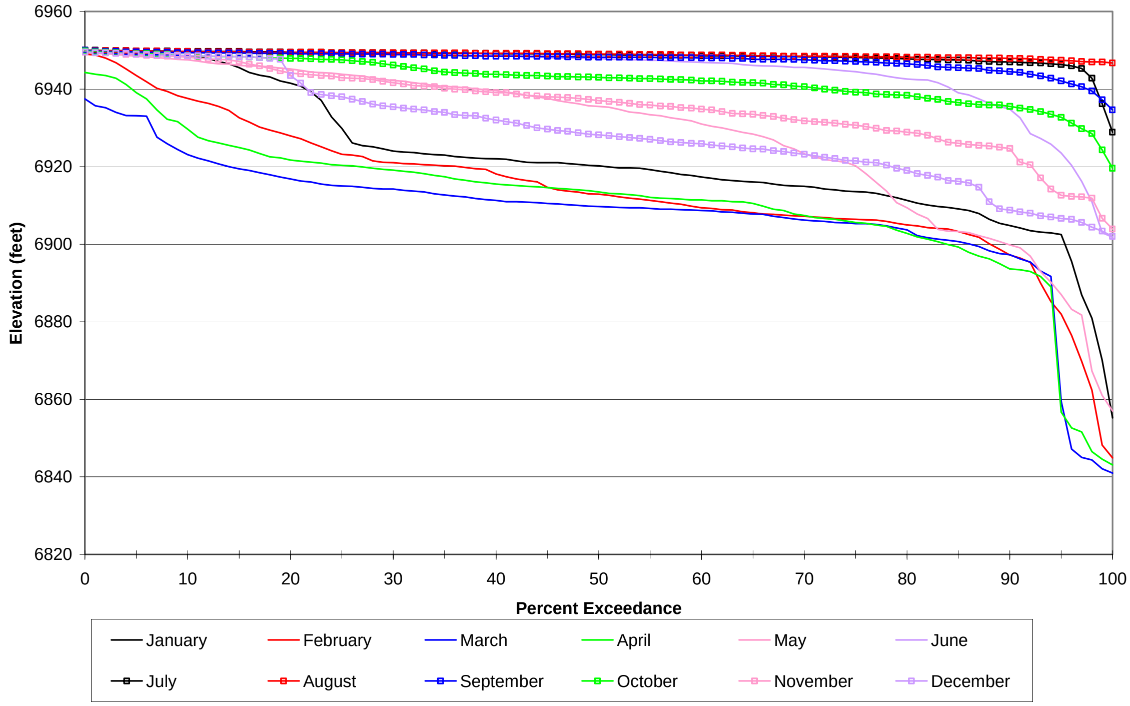

Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Above Normal Water Years)
Elevation (feet)
6960
6940
6920
6900
6880
6860
6840
6820
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Below Normal Water Years)
Elevation (feet)
6960
6950
6940
6930
6920
6910
6900
6890
6880
6870
6860
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

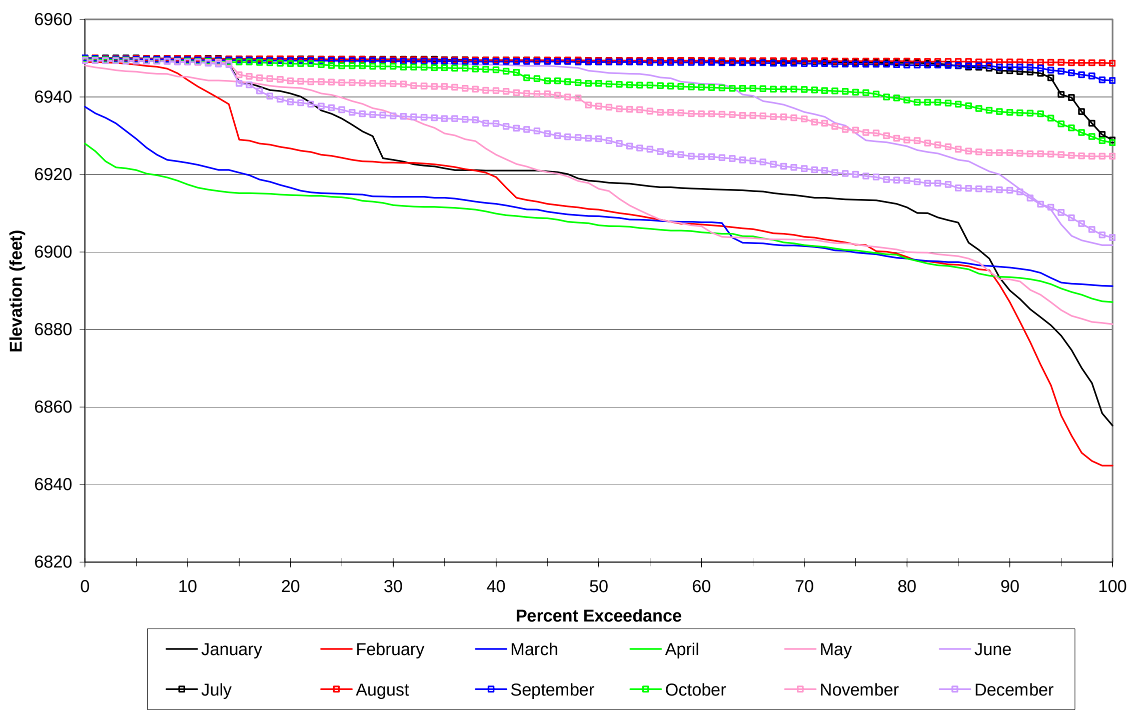

Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
6960
6940
6920
6900
6880
6860
6840
6820
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

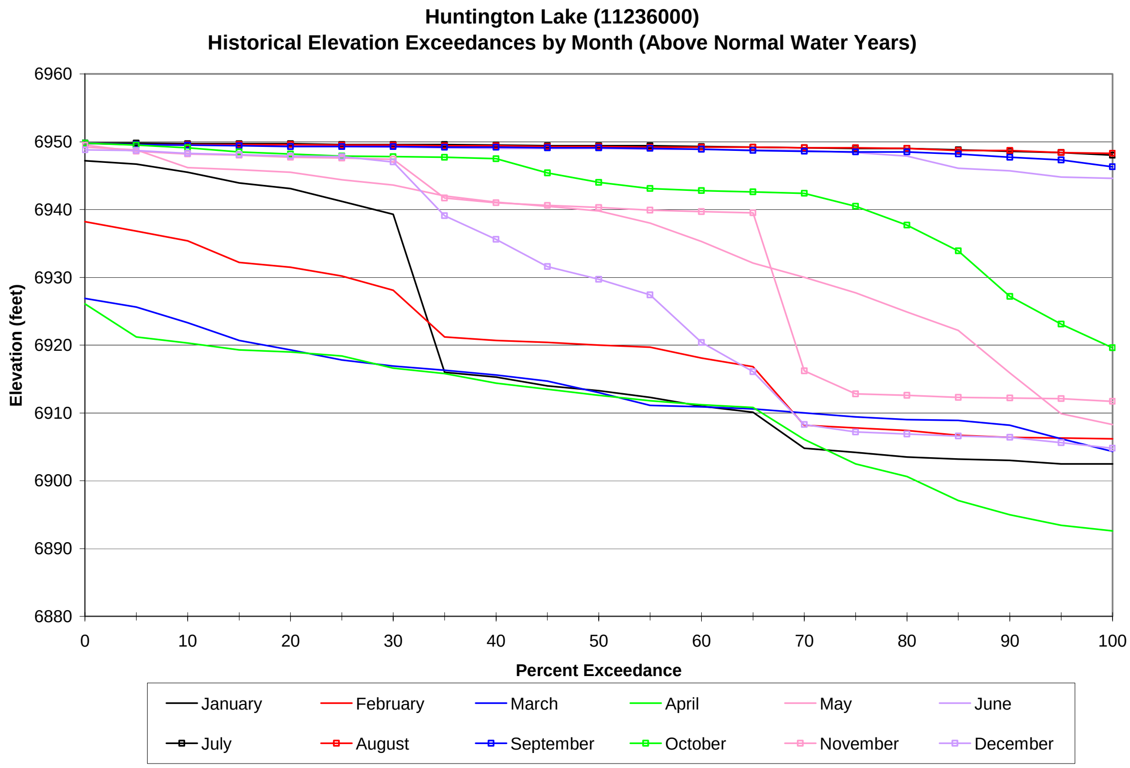

Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
6960
6940
6920
6900
6880
6860
6840
6820
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

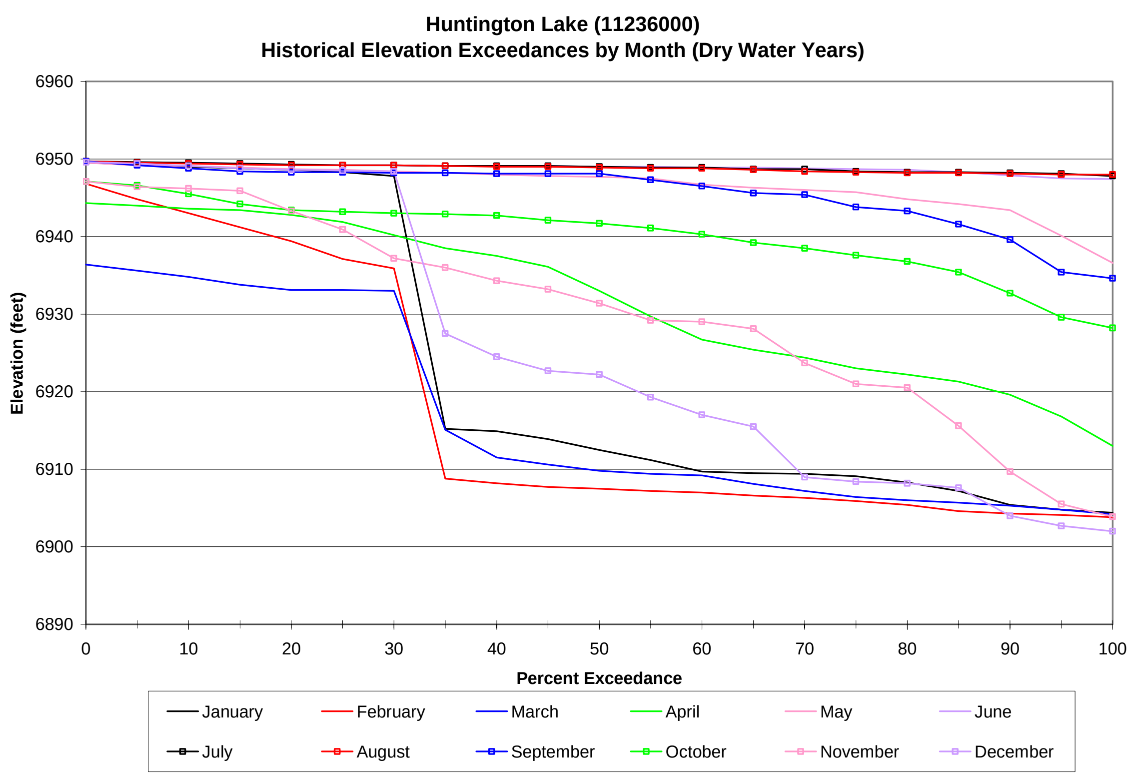
Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Water Year 1983-2002)

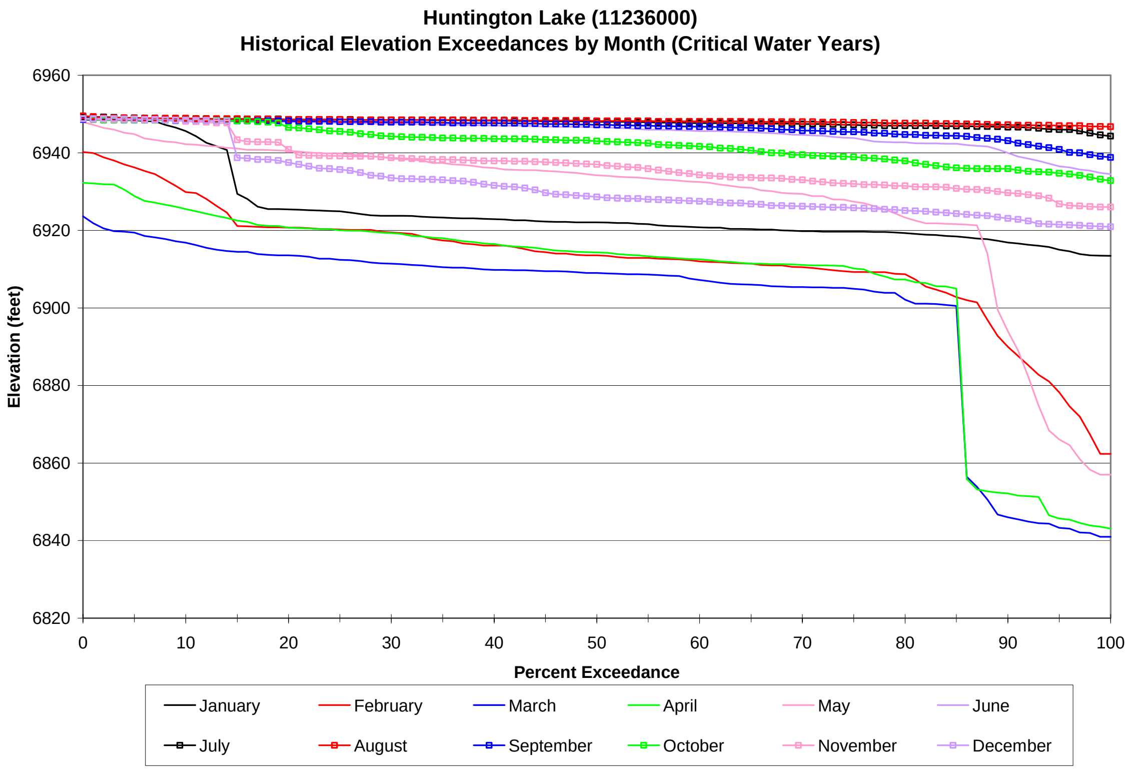


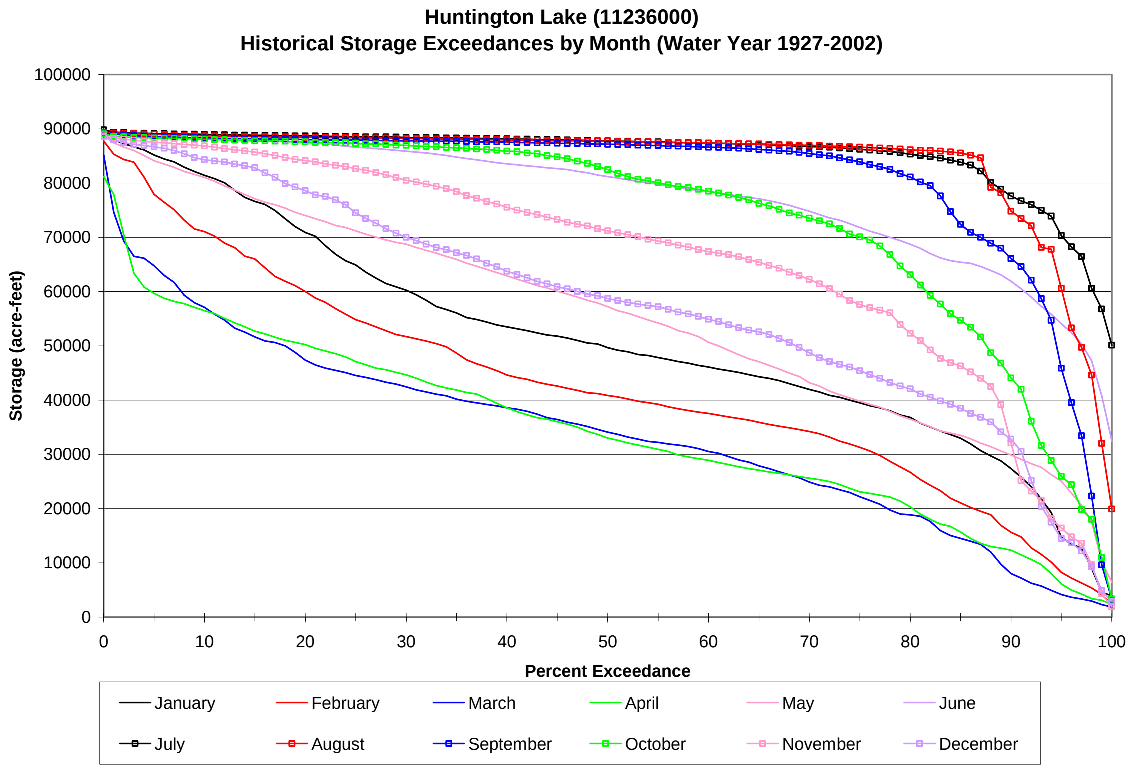
Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Wet Water Years)

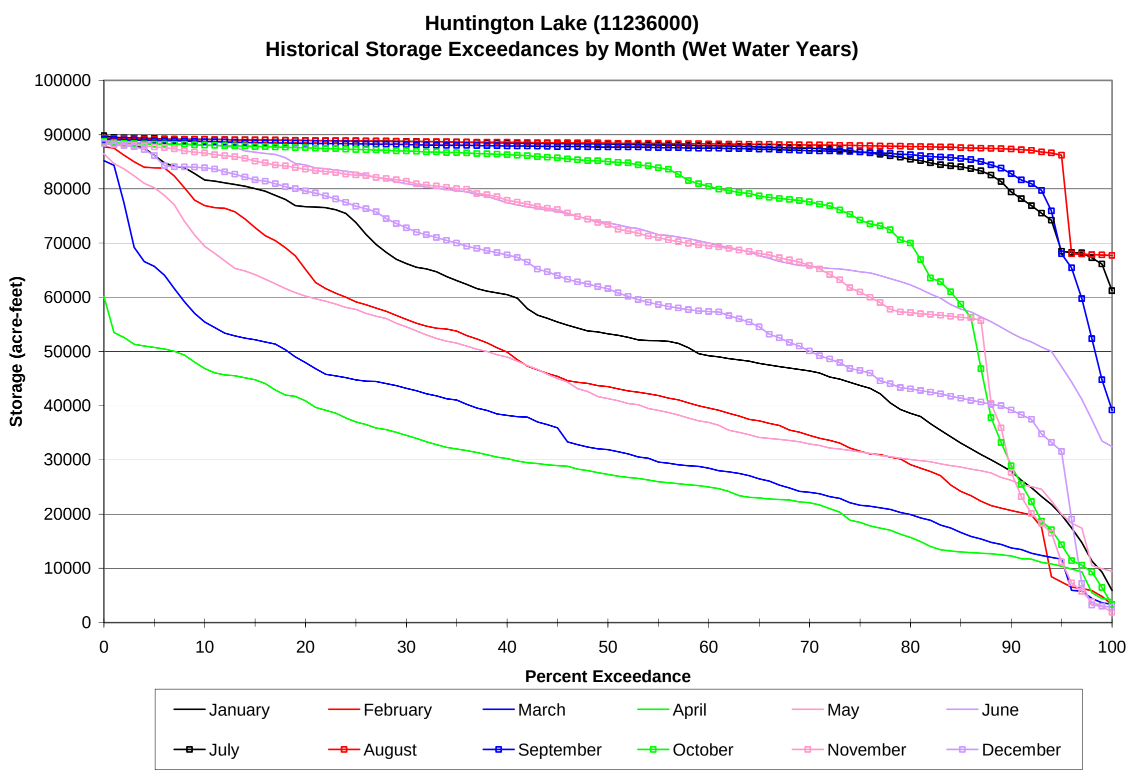


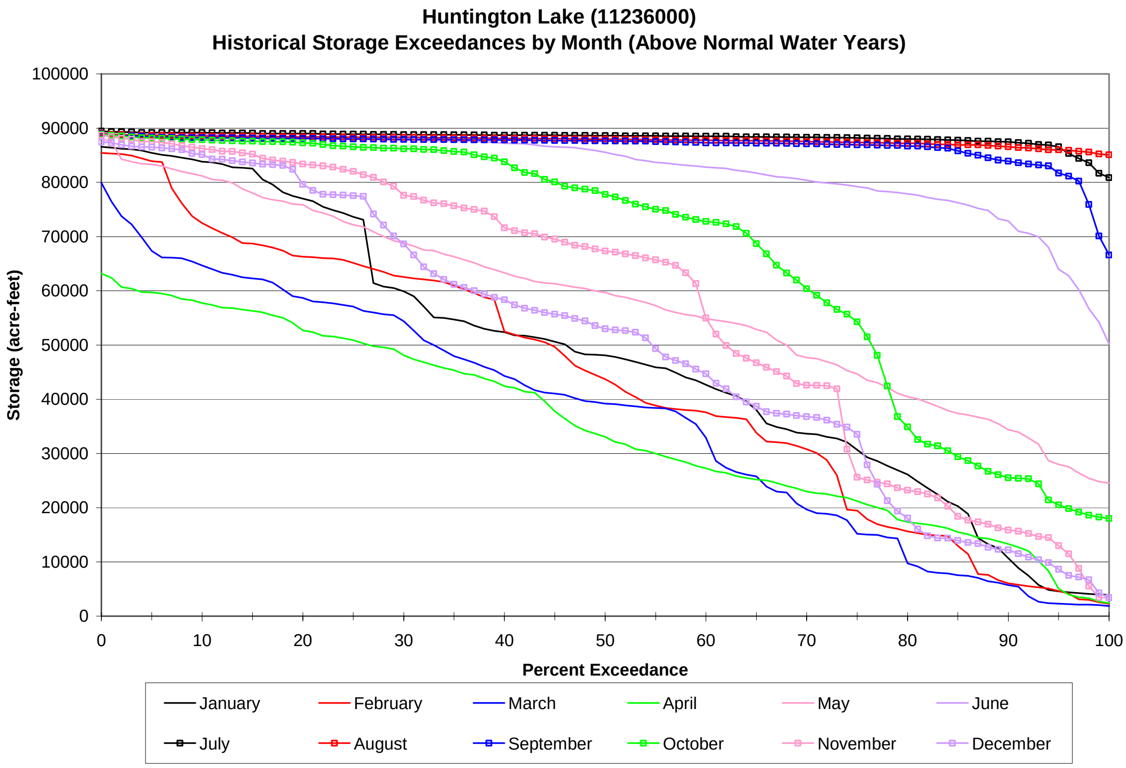

Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Above Normal Water Years)
Elevation (feet)
6960
6950
6940
6930
6920
6910
6900
6890
6880
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
6960
6950
6940
6930
6920
6910
6900
6890
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

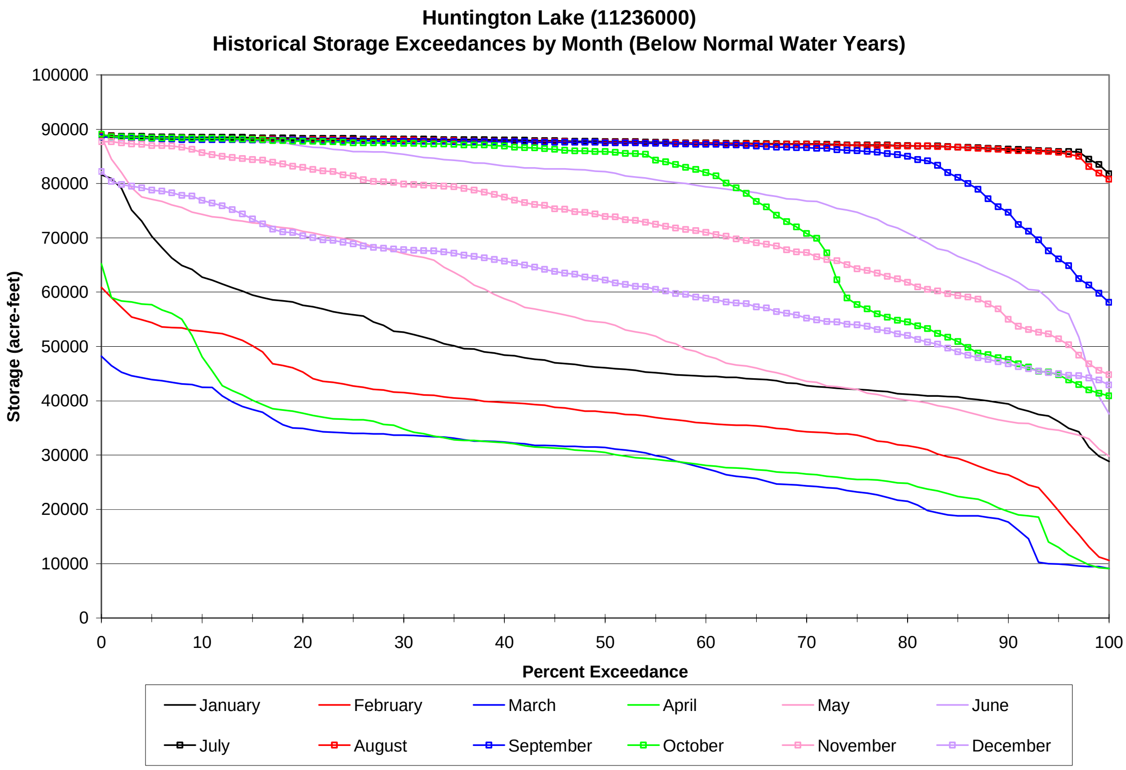

Huntington Lake (11236000)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
6960
6940
6920
6900
6880
6860
6840
6820
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington Lake (11236000)
Historical Storage Exceedances by Month (Water Year 1927-2002)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

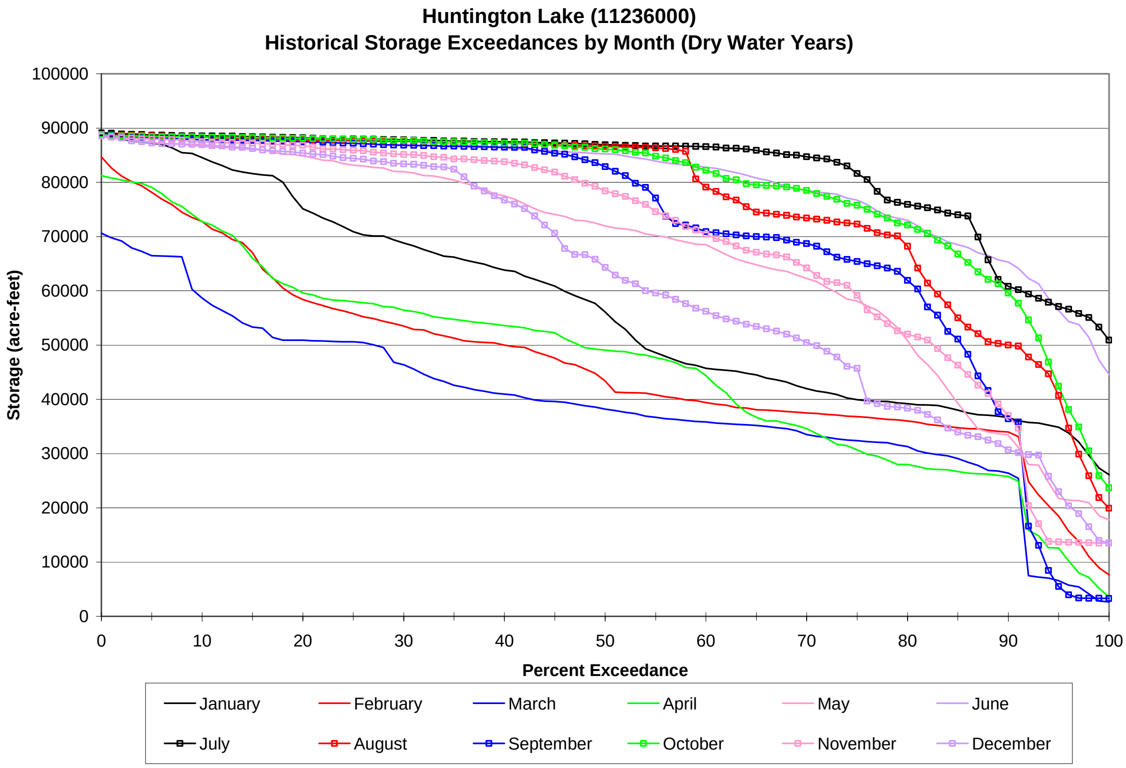

Huntington Lake (11236000)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

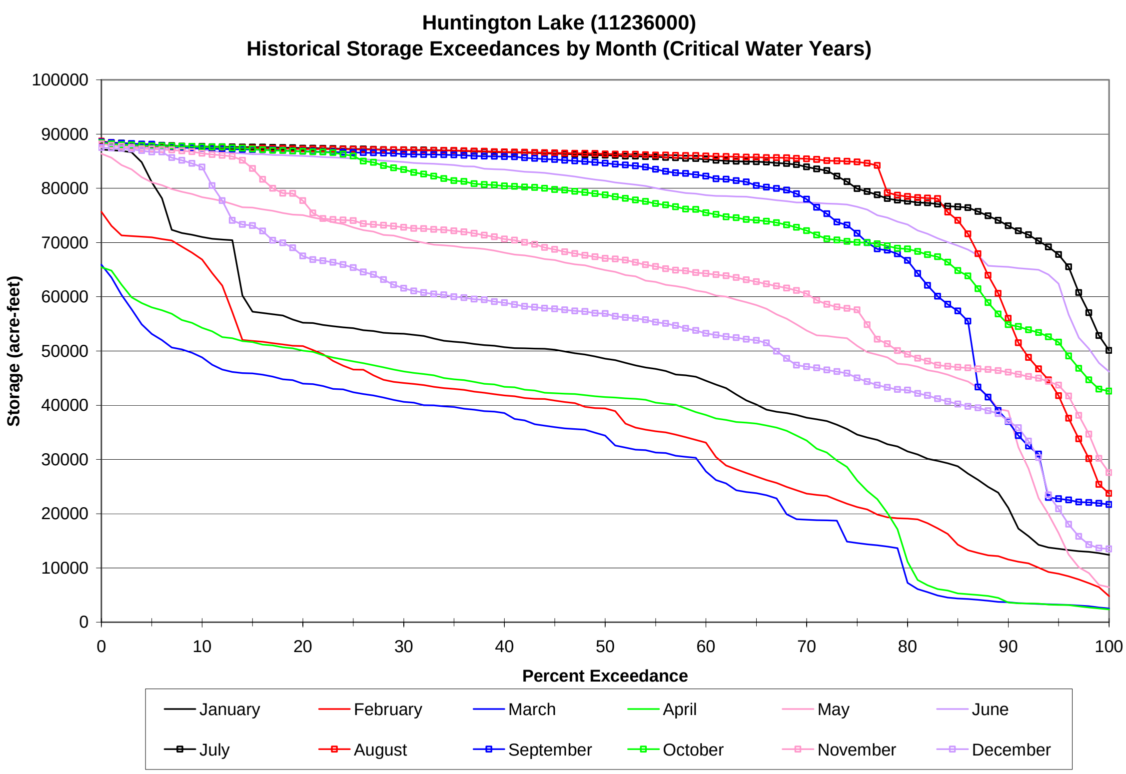


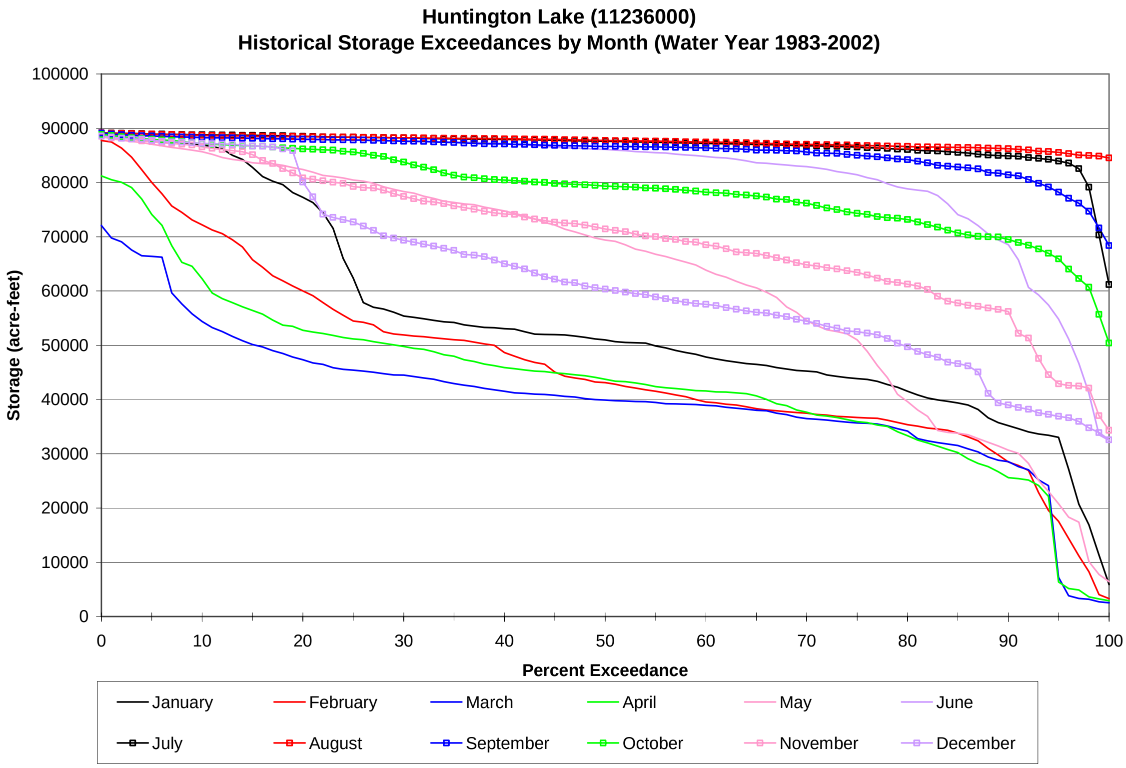
Huntington Lake (11236000)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

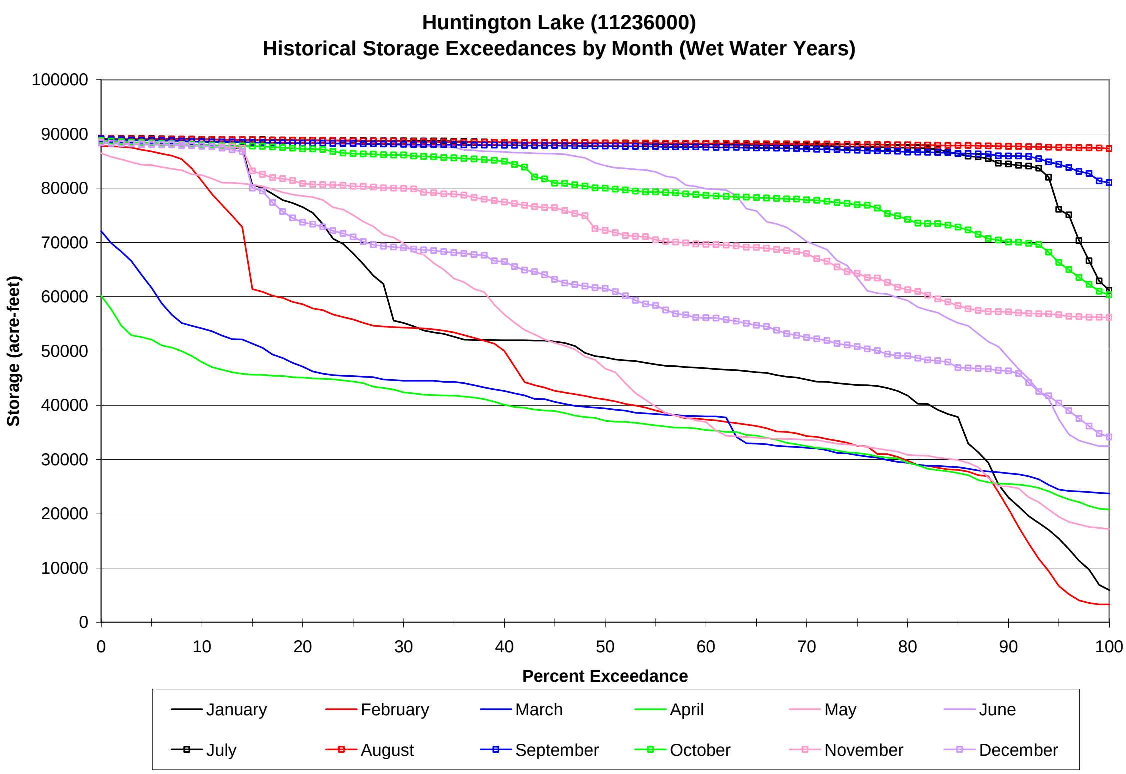


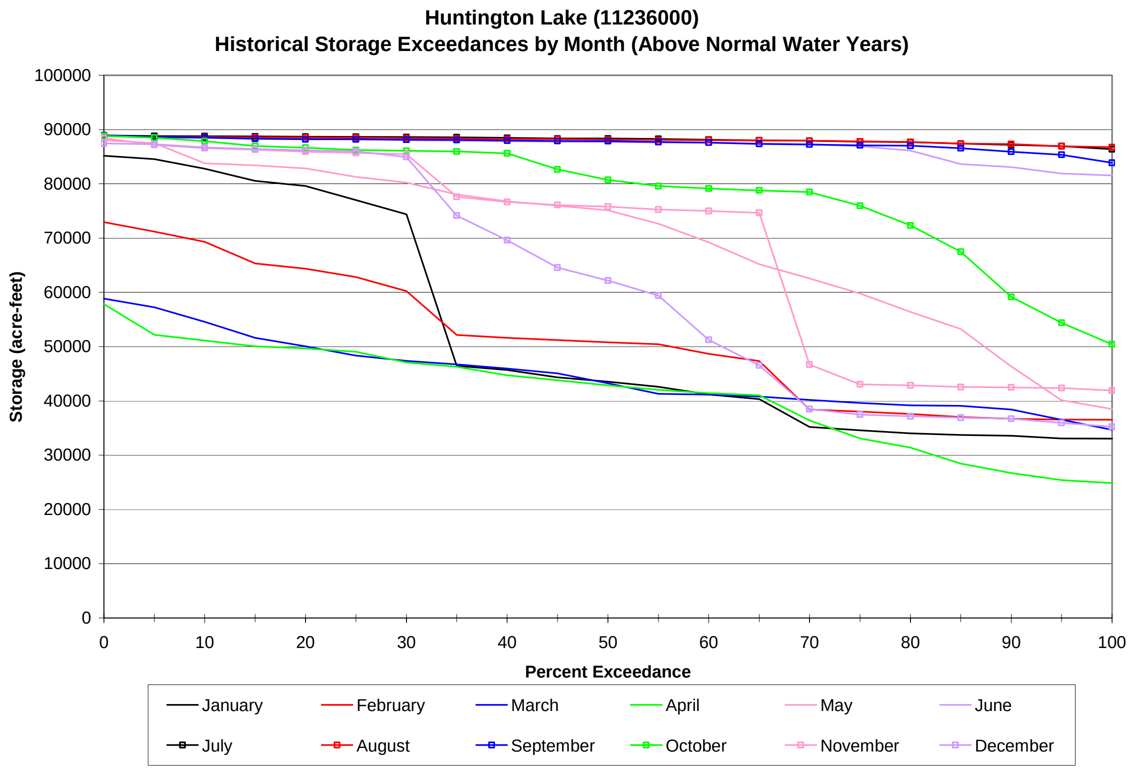
Huntington Lake (11236000)
Historical Storage Exceedances by Month (Below Normal Water Years)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

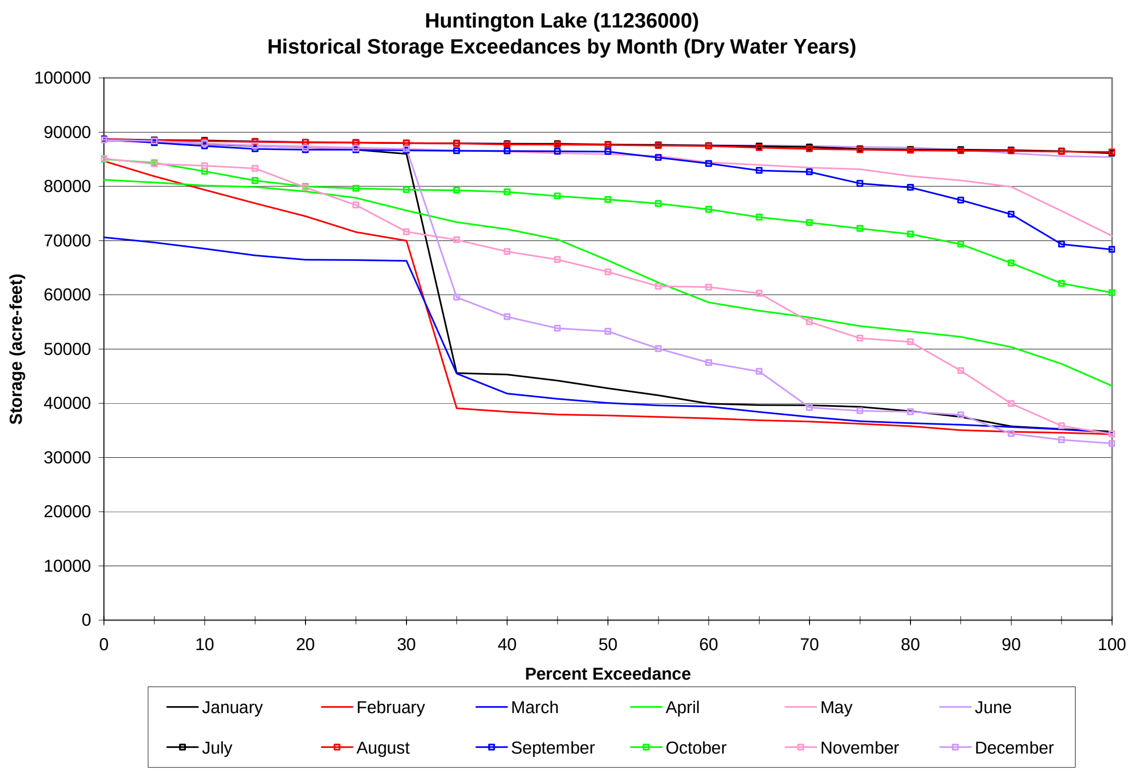

Huntington Lake (11236000)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
Percent Exceedance
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
100000
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

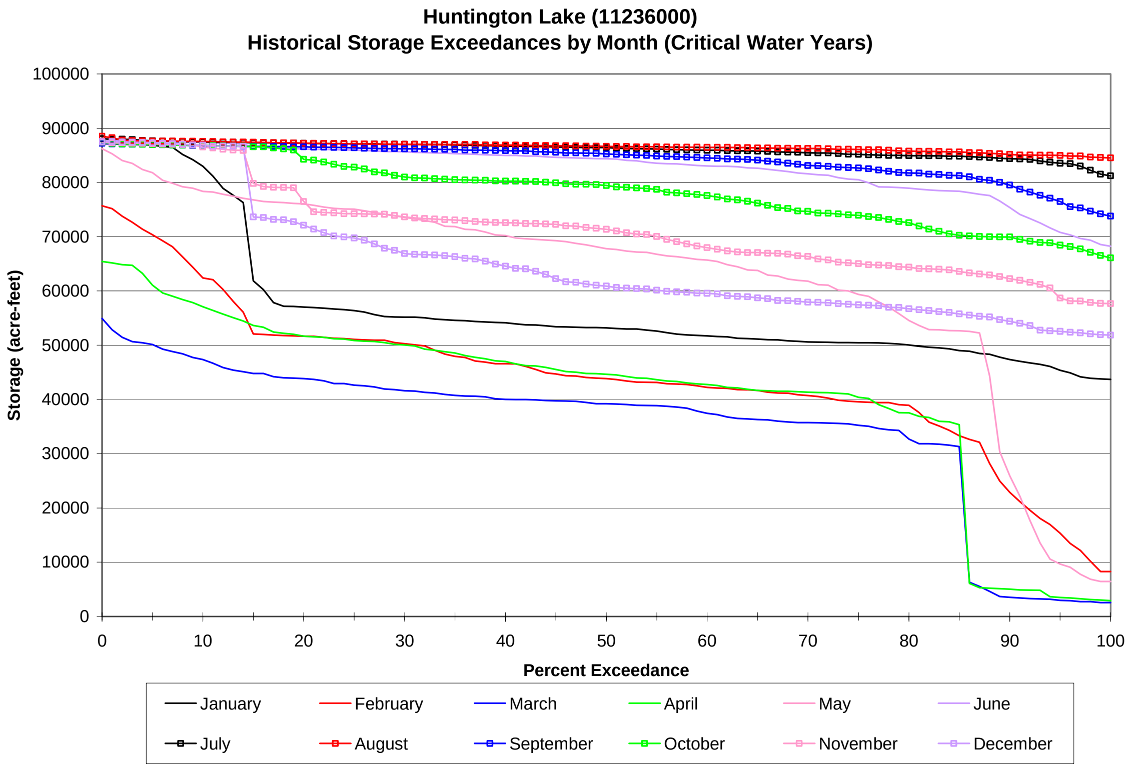

Huntington Lake (11236000)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
Percent Exceedance
0
10000
20000
30000
40000
50000
60000
70000
80000
90000
100000
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


Huntington Lake (11236000)
Historical Storage Exceedances by Month (Water Year 1983-2002)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

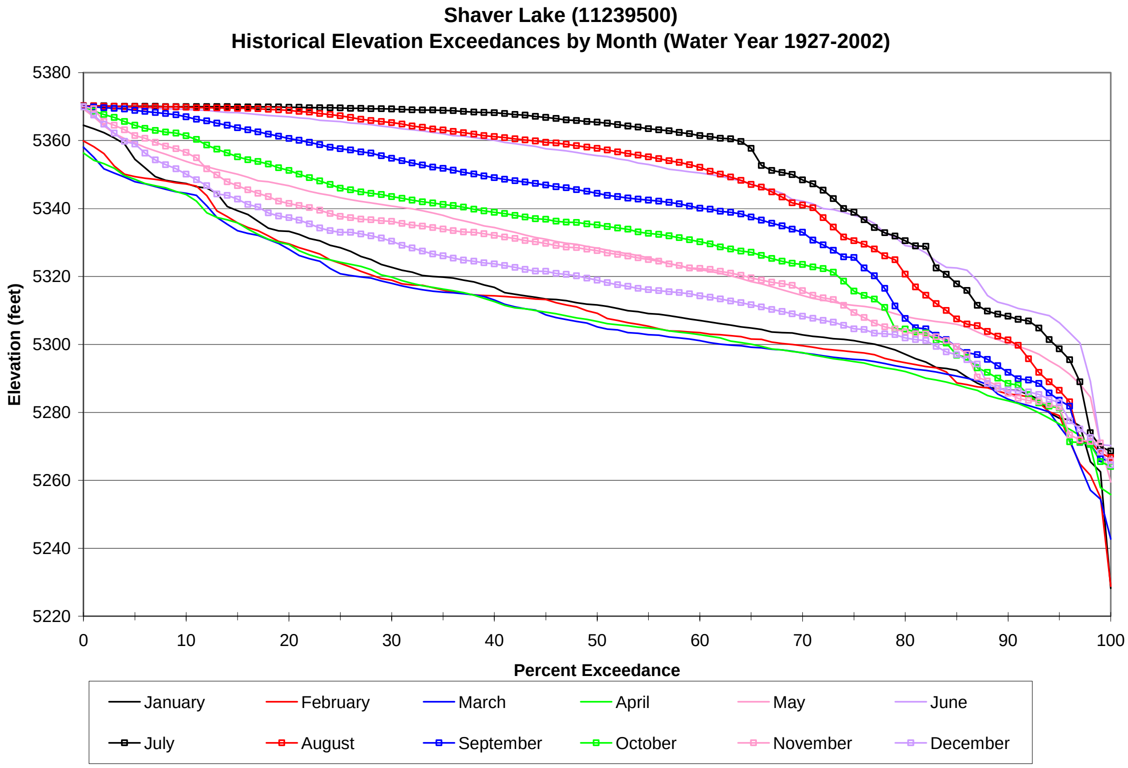

Huntington Lake (11236000)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

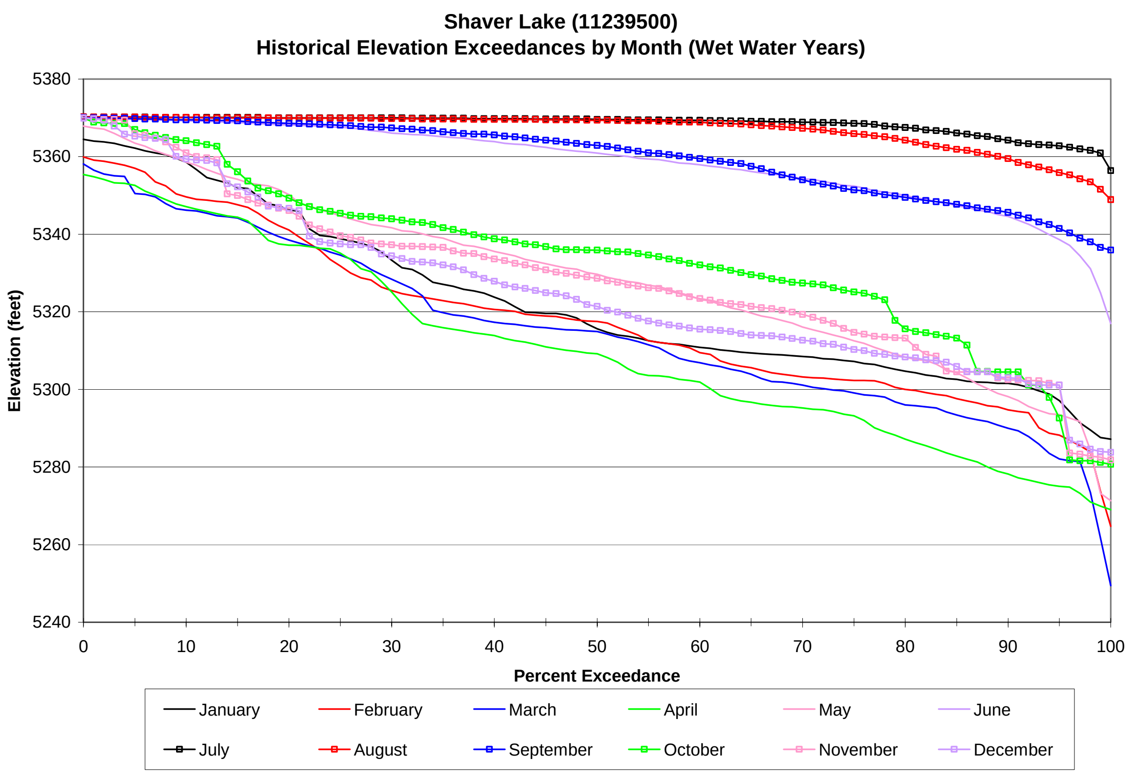

Huntington Lake (11236000)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington Lake (11236000)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

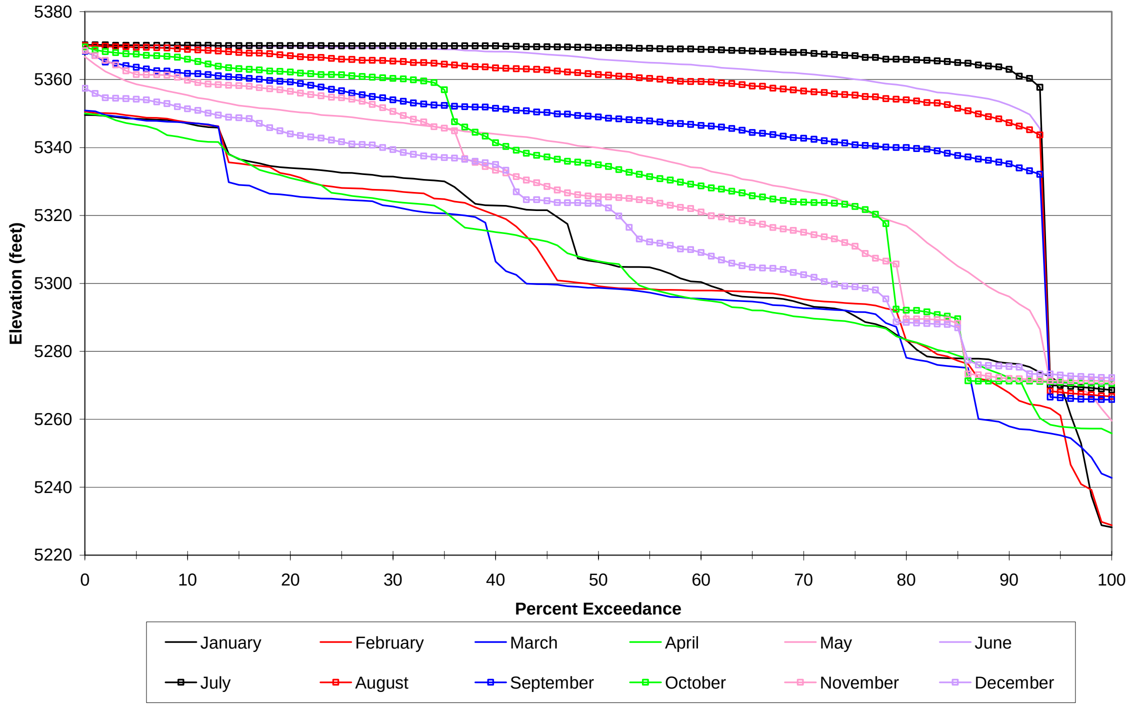


Huntington Lake (11236000)
Historical Storage Exceedances by Month (Critical Water Years)
100000
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
Storage (acre-feet)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

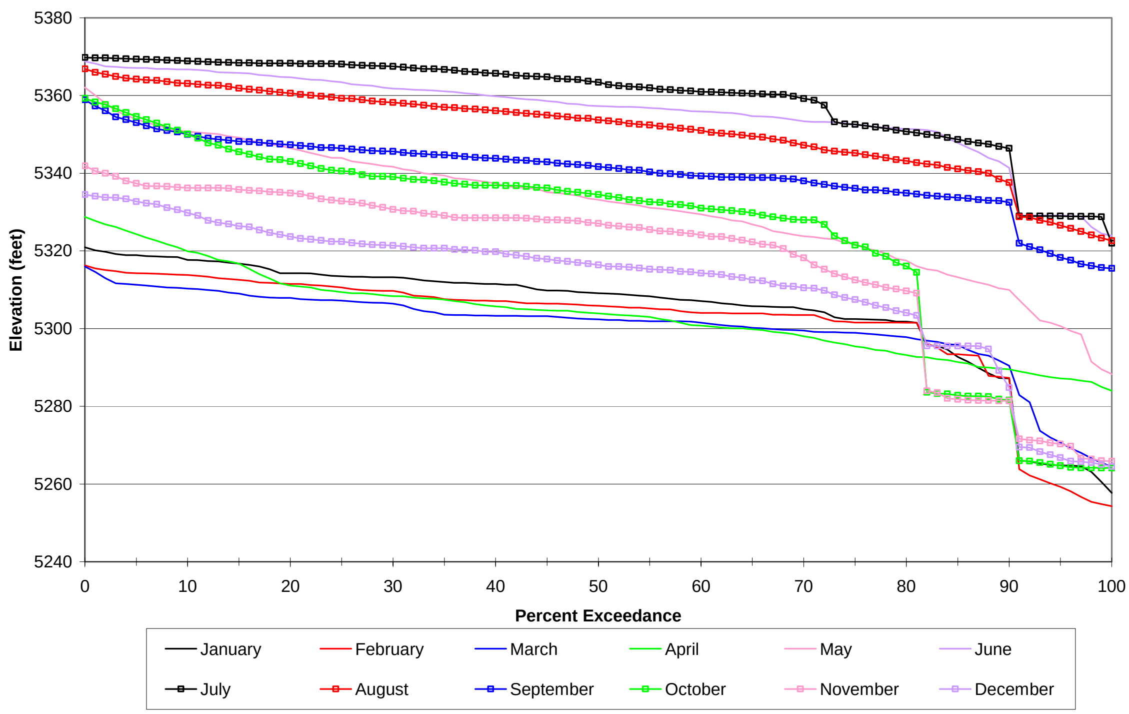

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Water Year 1927-2002)
Elevation (feet)
5380
5360
5340
5320
5300
5280
5260
5240
5220
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

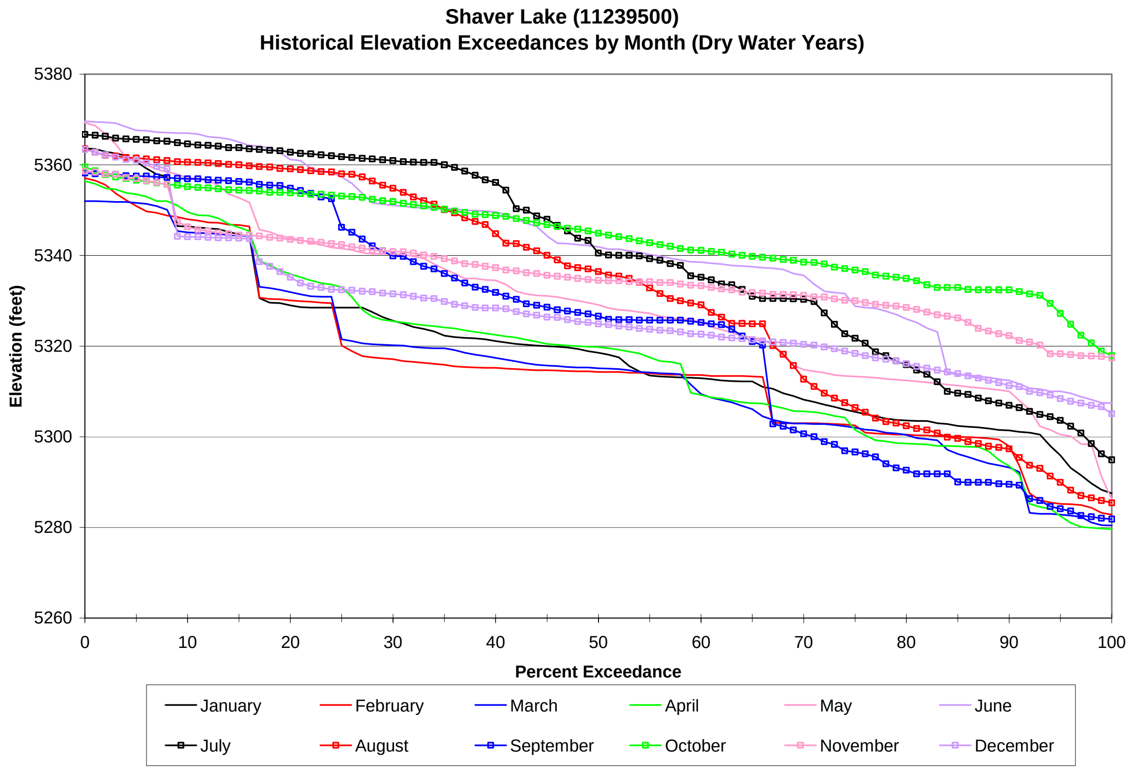

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Wet Water Years)
Elevation (feet)
5380
5360
5340
5320
5300
5280
5260
5240
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

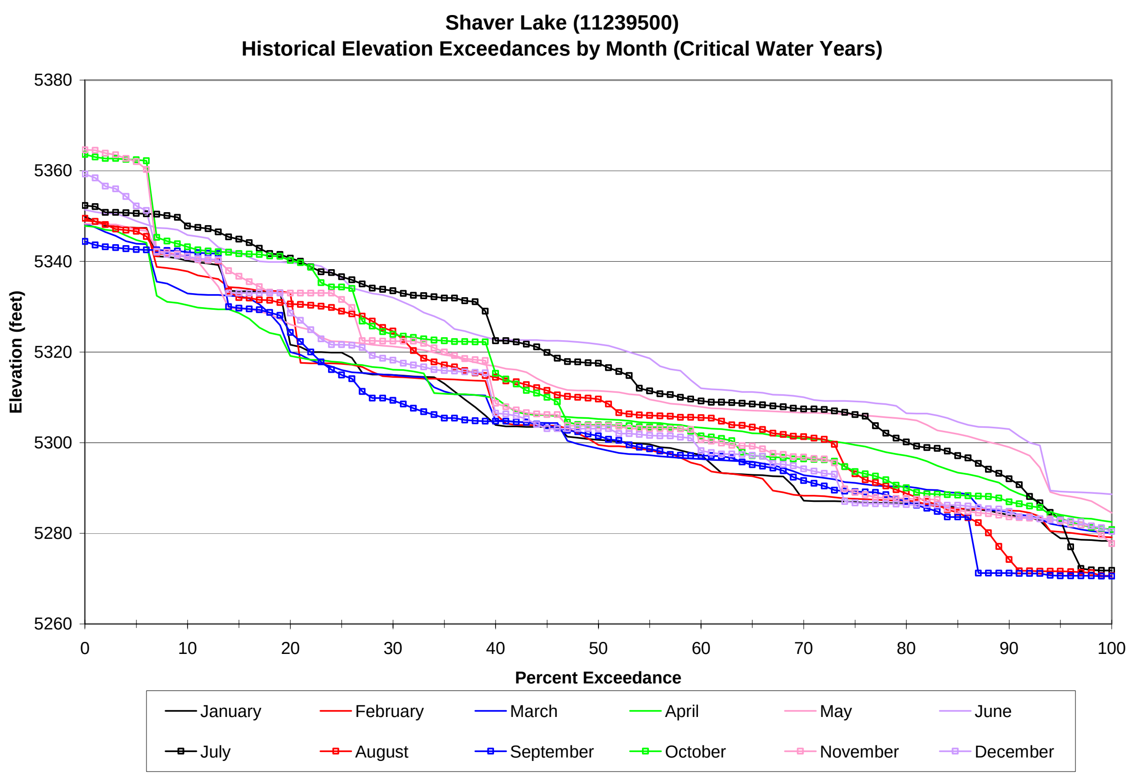
Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Above Normal Water Years)



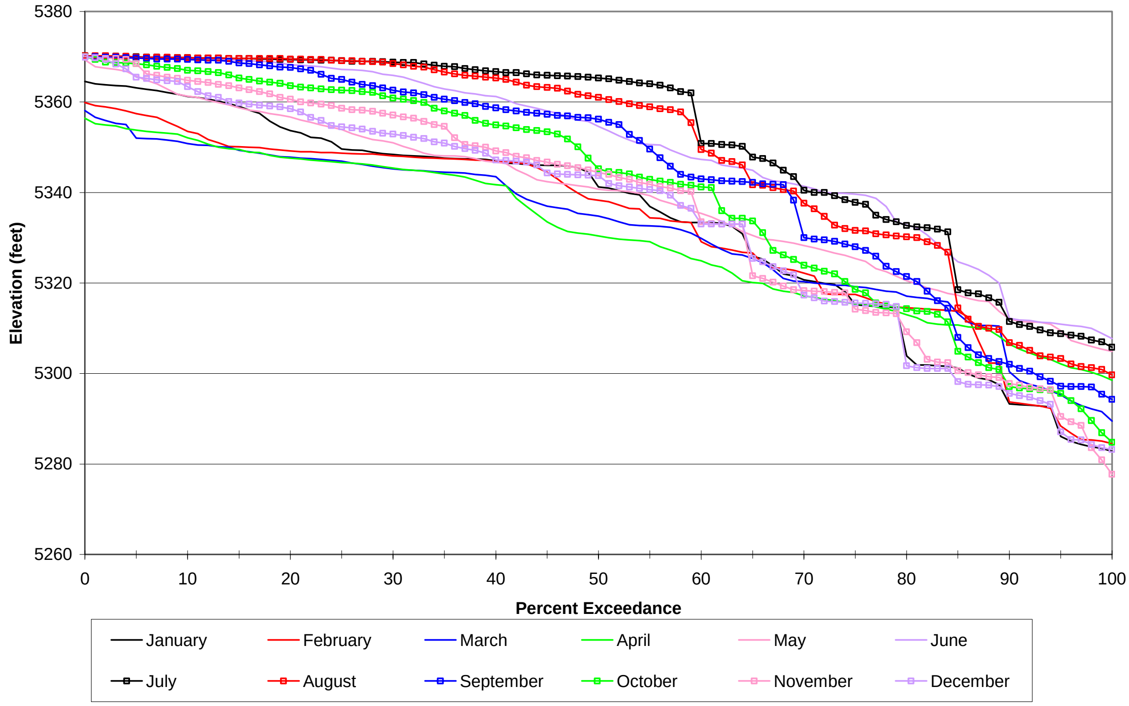
Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Below Normal Water Years)



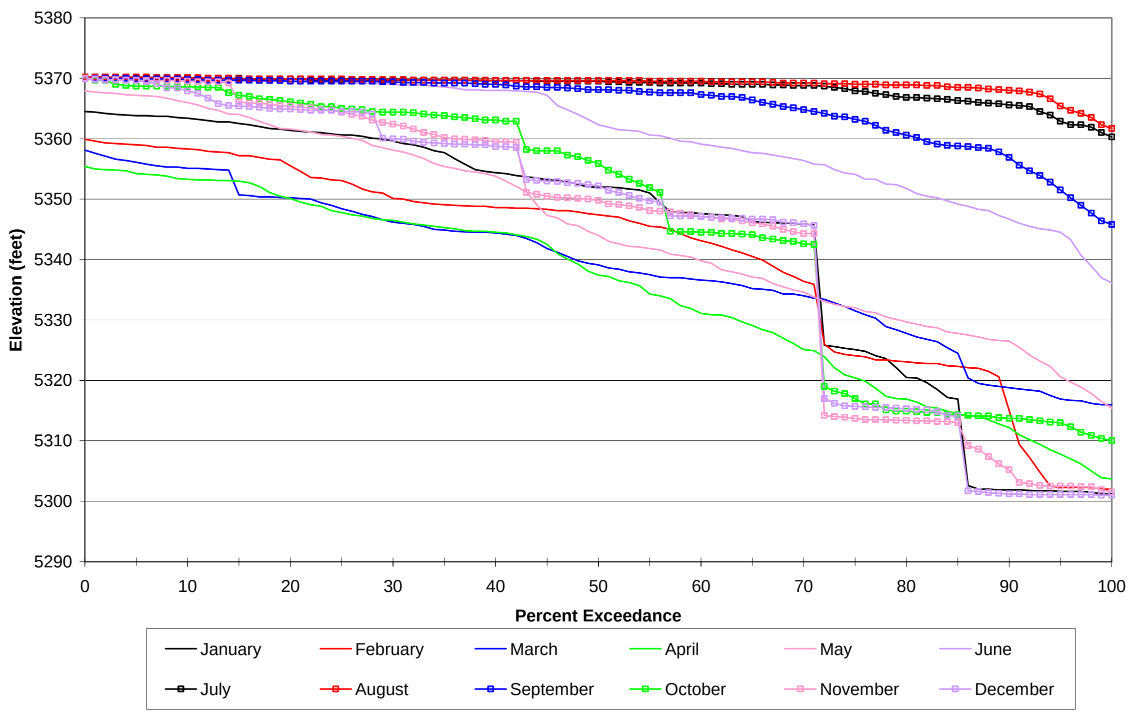

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
5380
5360
5340
5320
5300
5280
5260
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

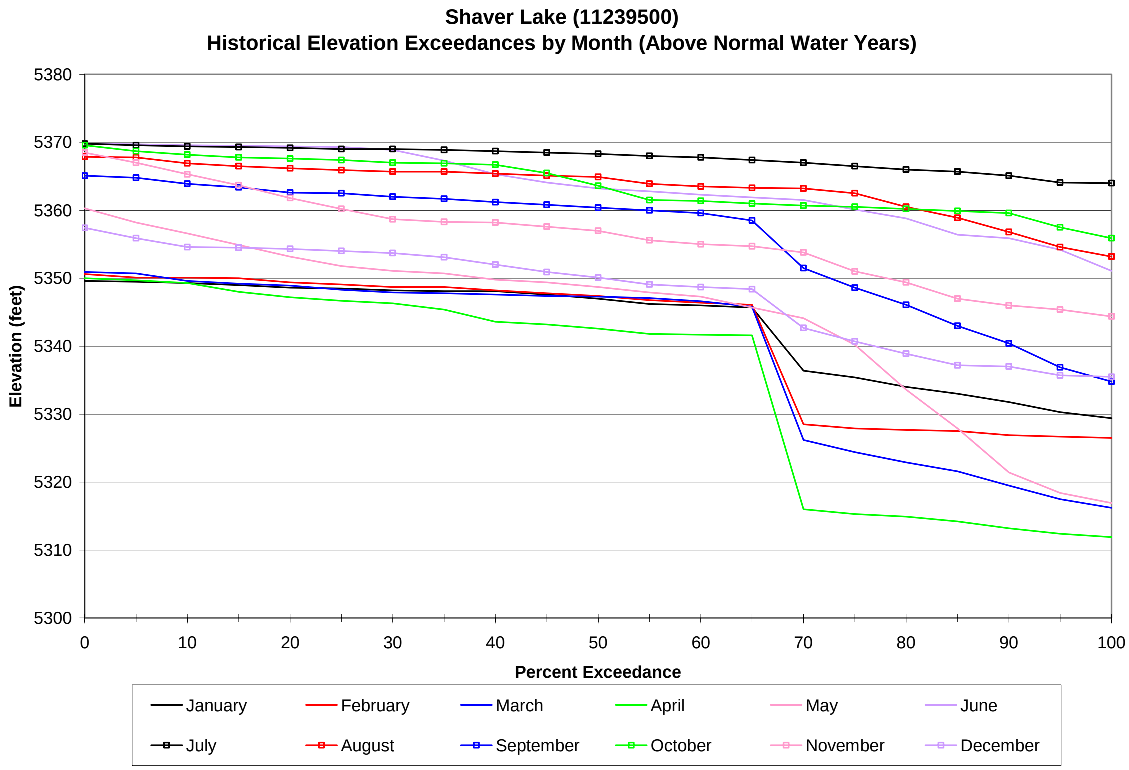

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
5380
5360
5340
5320
5300
5280
5260
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

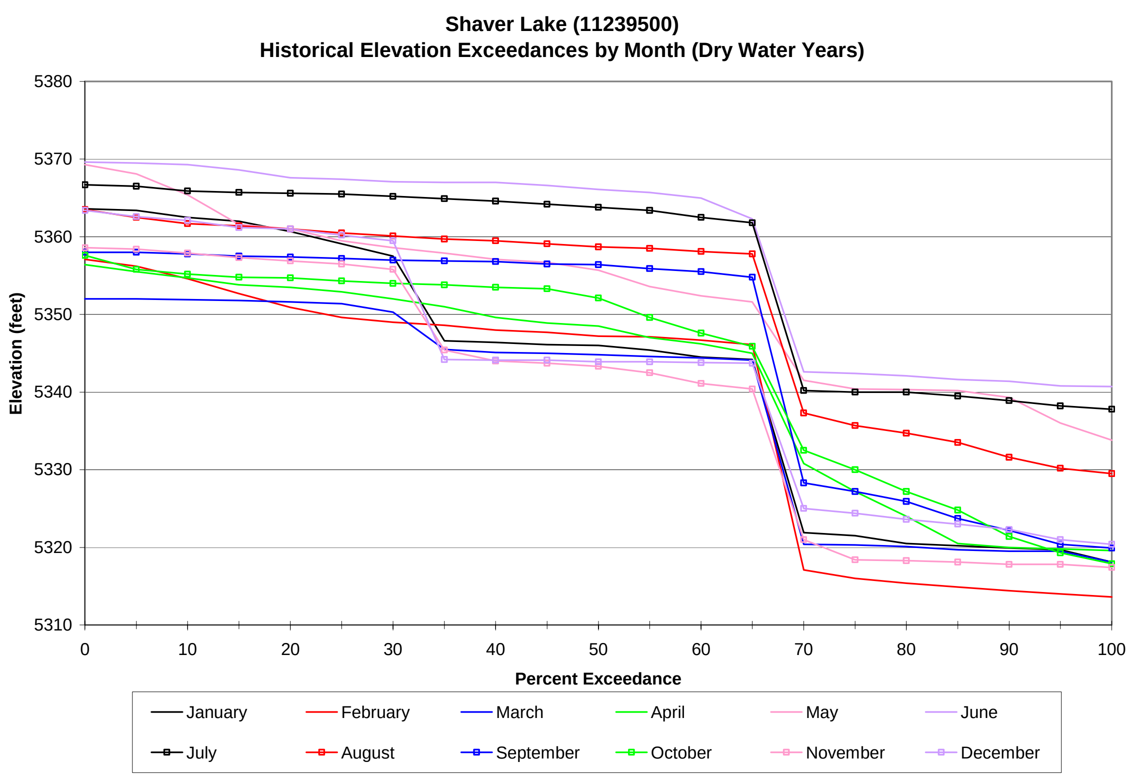
Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Water Year 1983-2002)

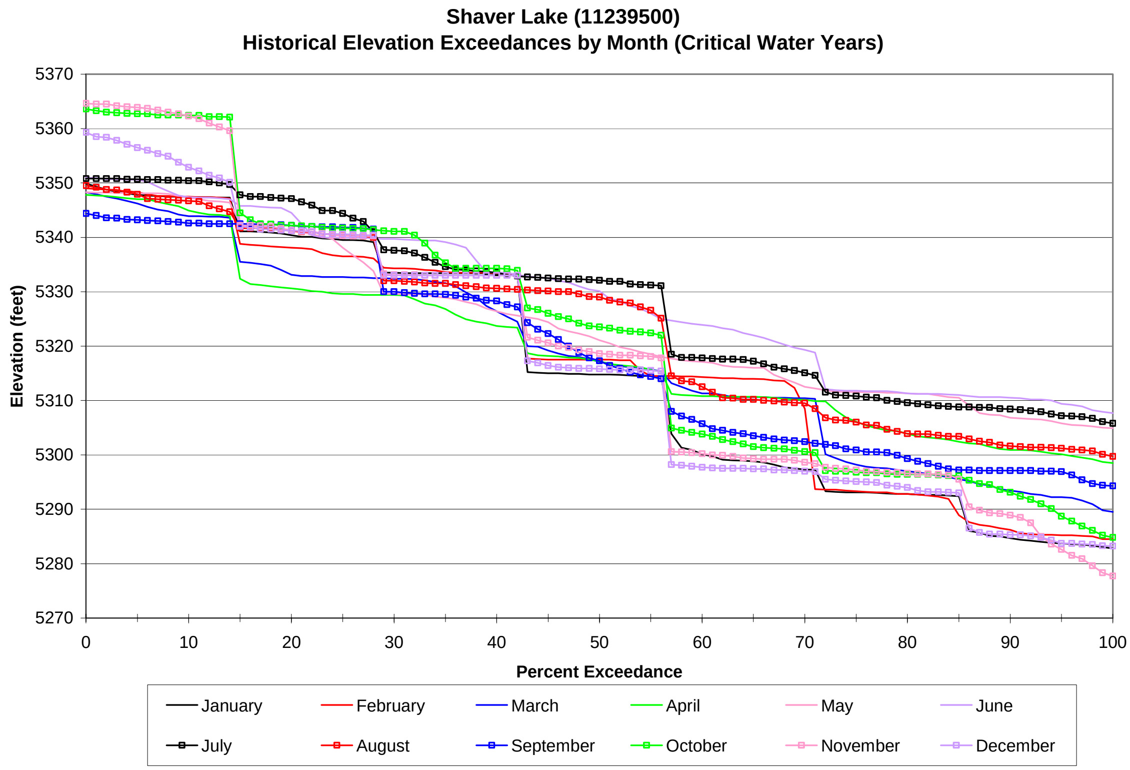


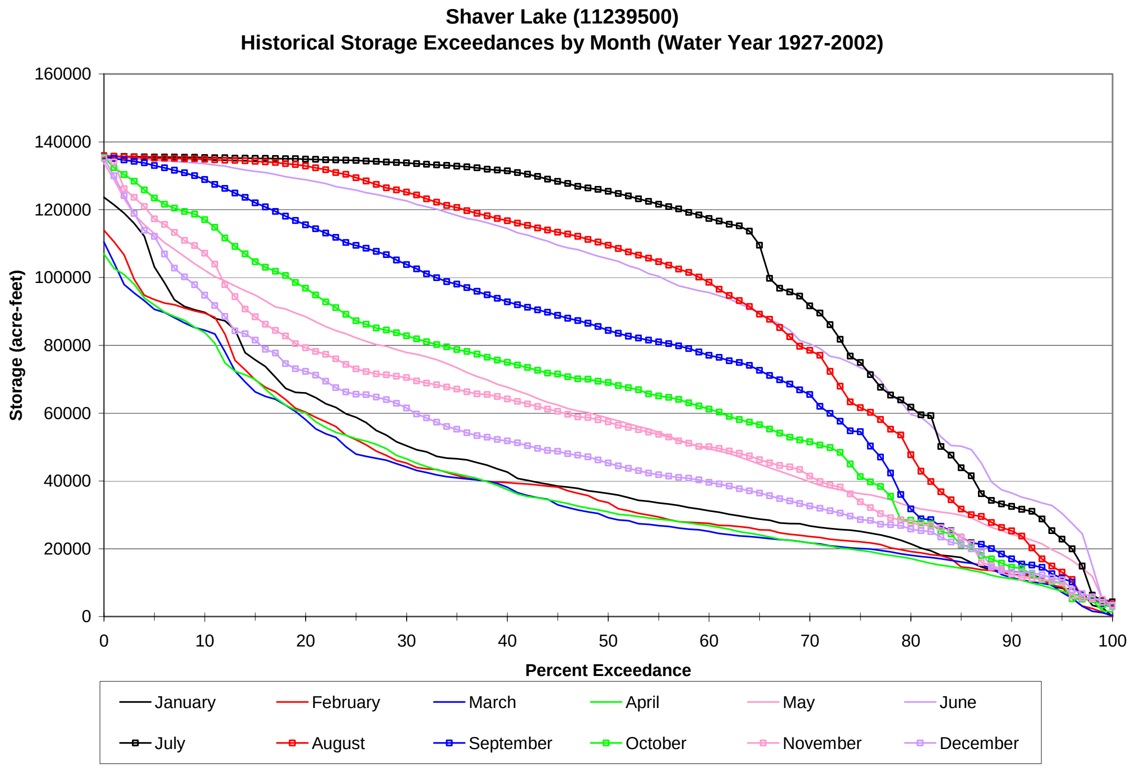
Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Wet Water Years)

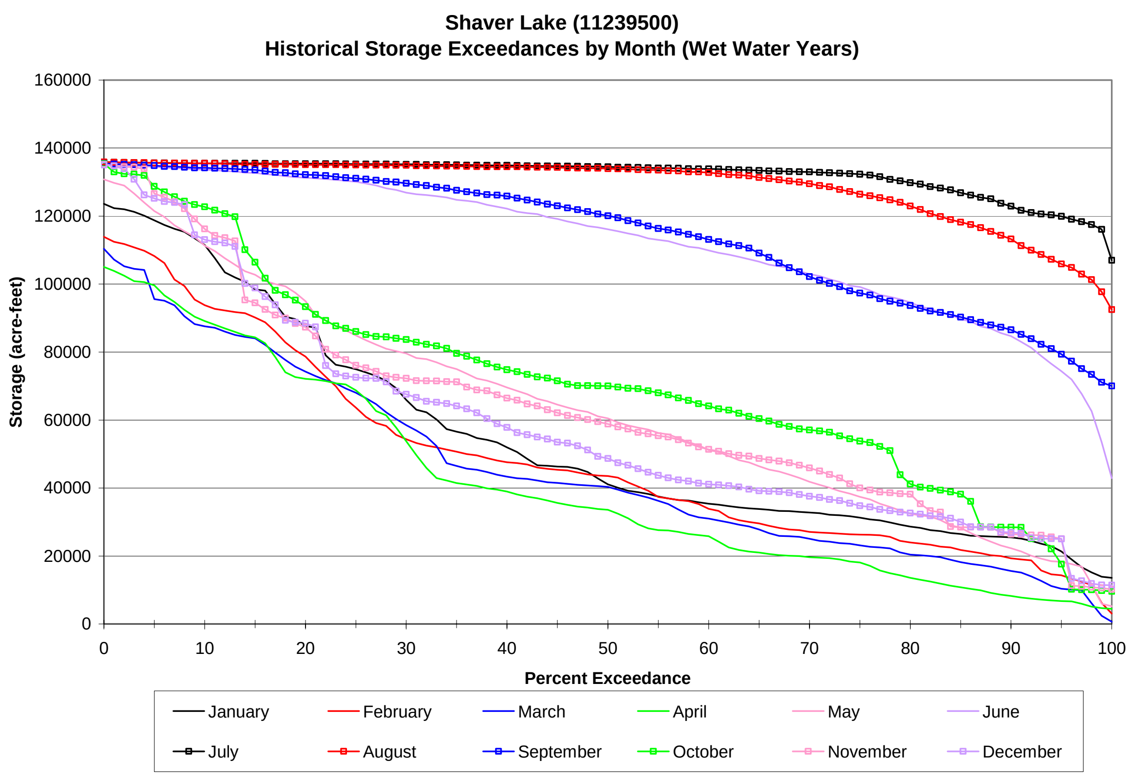


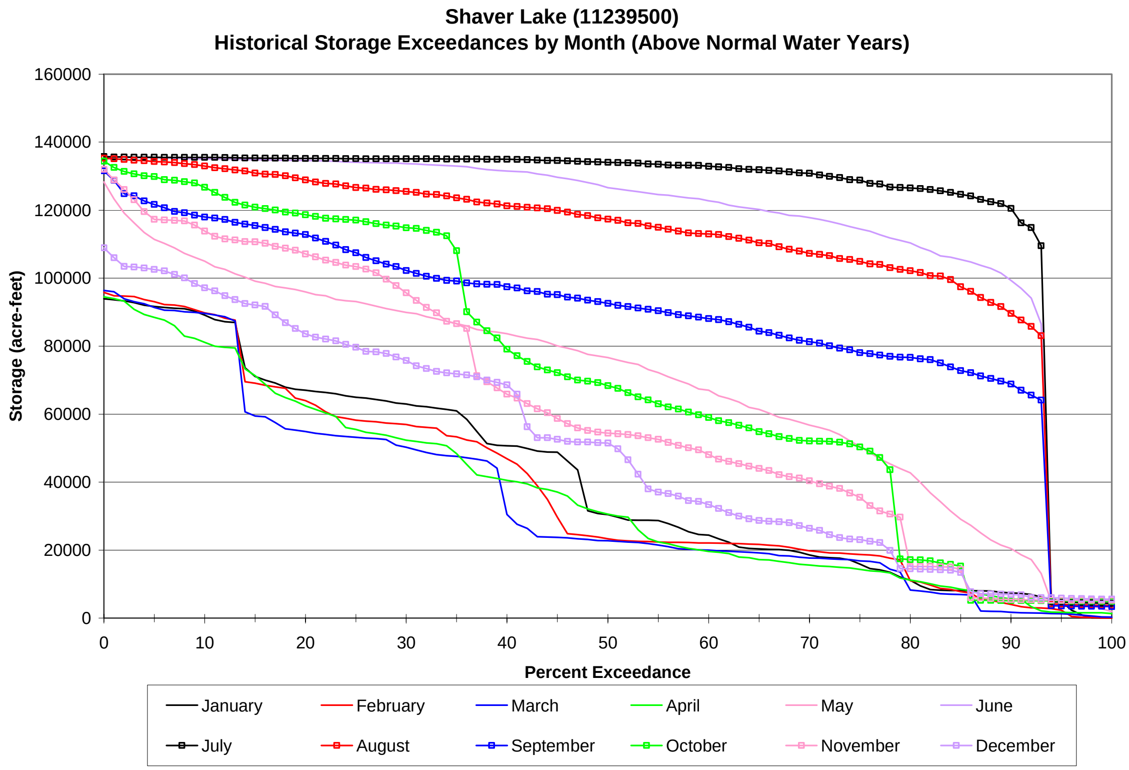

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Above Normal Water Years)
Elevation (feet)
5380
5370
5360
5350
5340
5330
5320
5310
5300
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

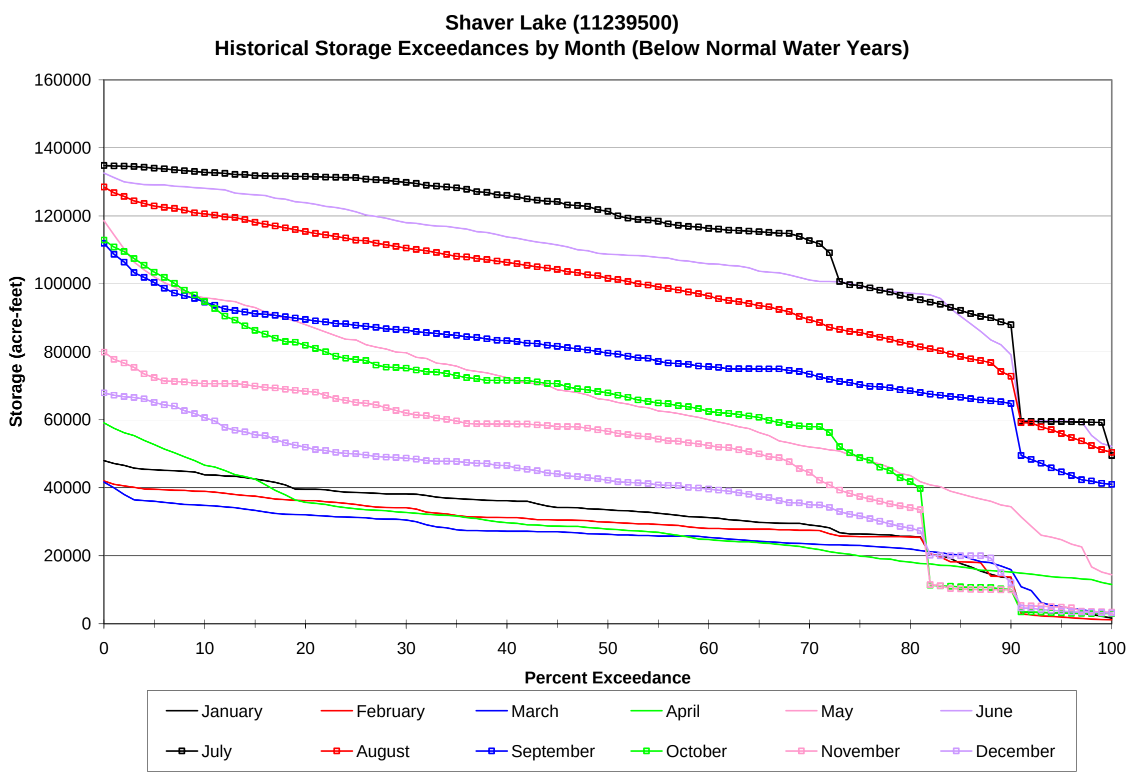

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Dry Water Years)
Elevation (feet)
5380
5370
5360
5350
5340
5330
5320
5310
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

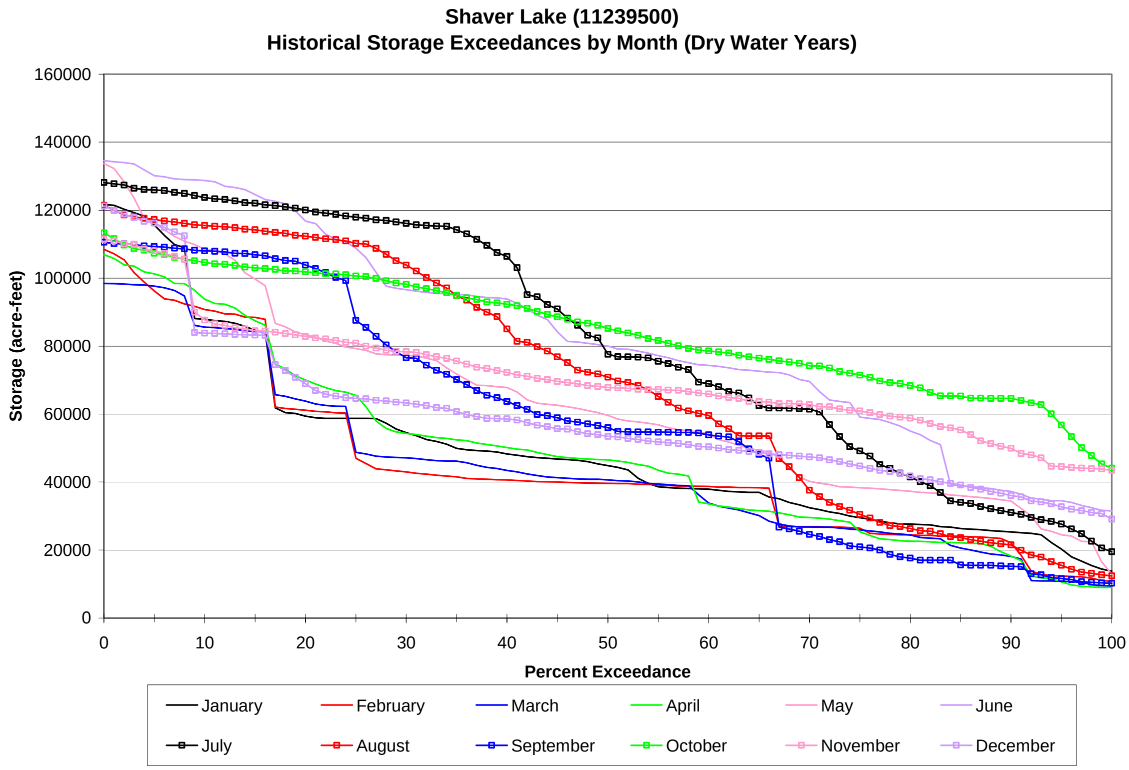

Shaver Lake (11239500)
Historical Elevation Exceedances by Month (Critical Water Years)
Elevation (feet)
5370
5360
5350
5340
5330
5320
5310
5300
5290
5280
5270
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

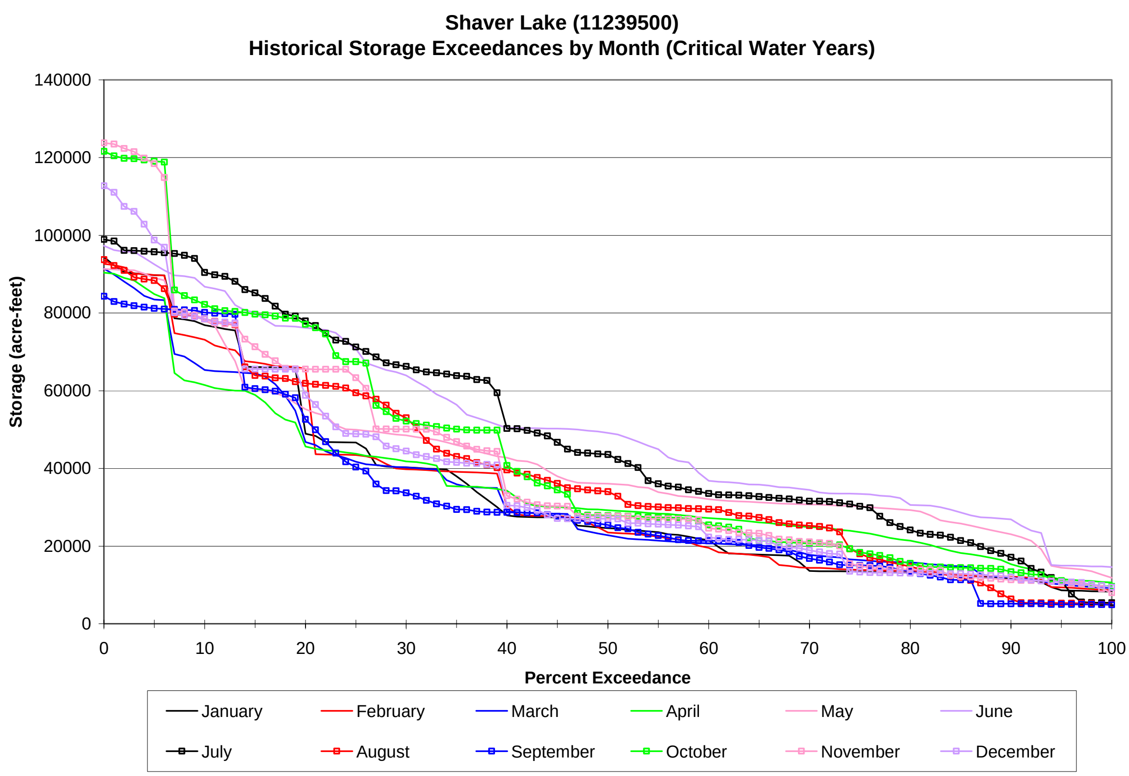

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Water Year 1927-2002)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

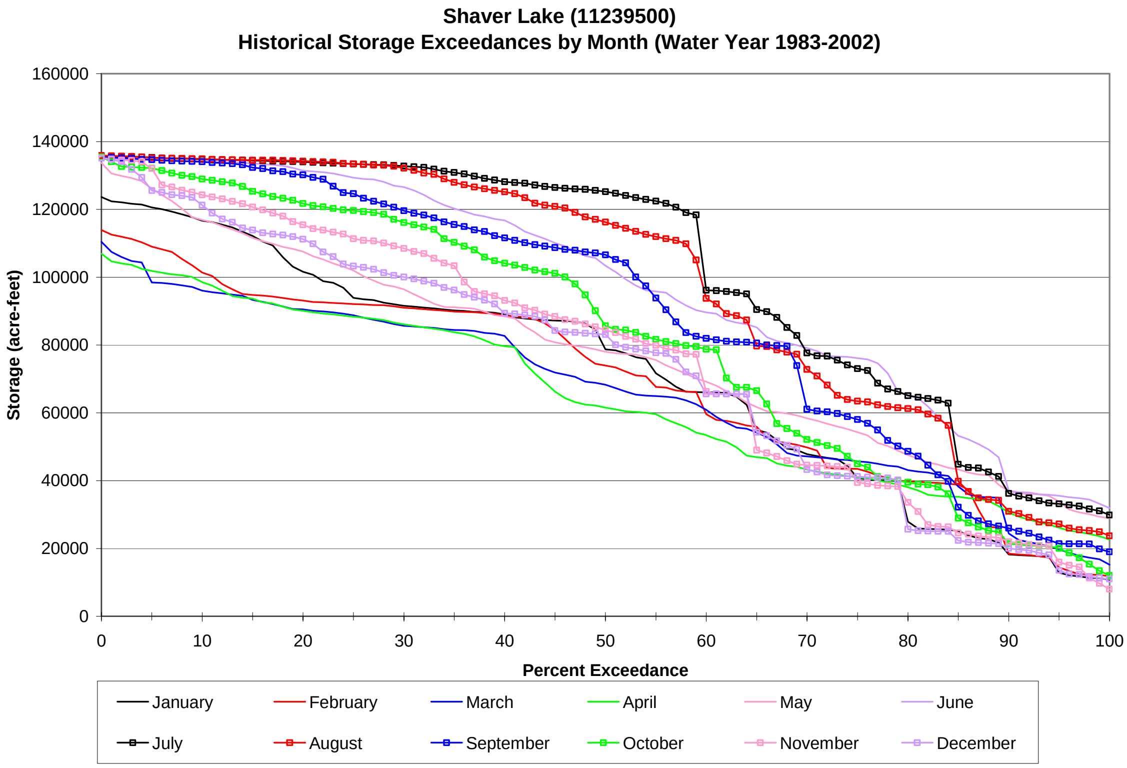

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

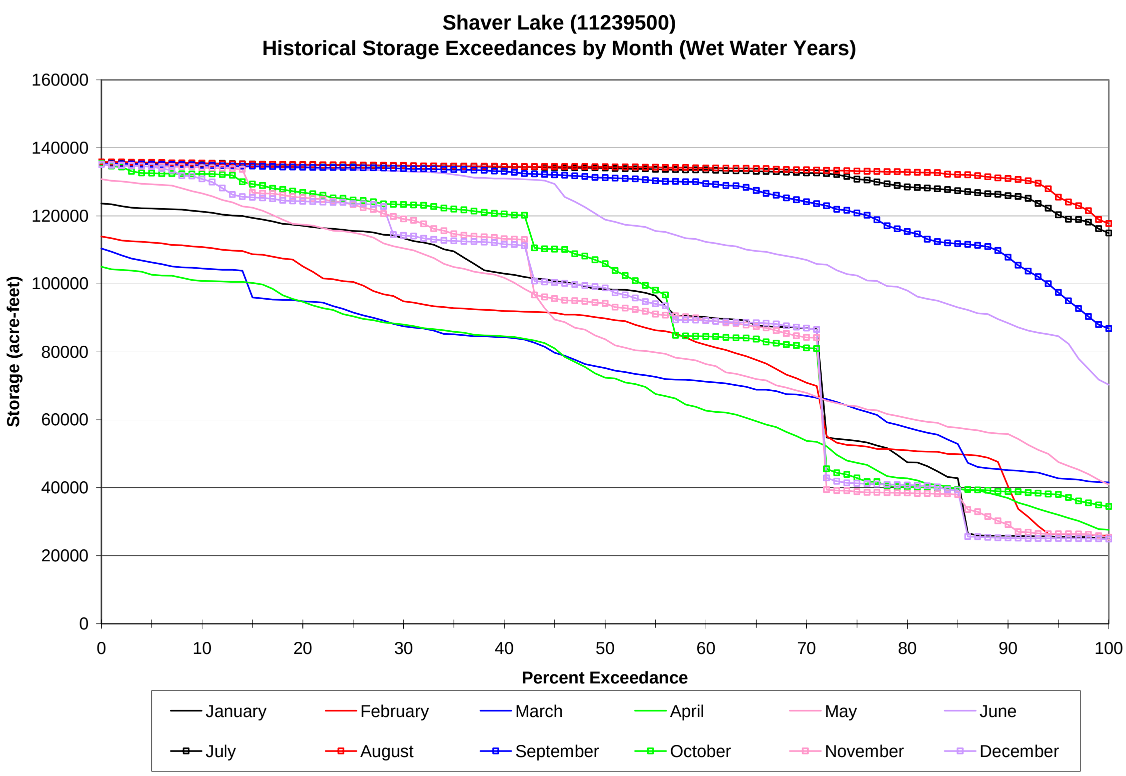

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

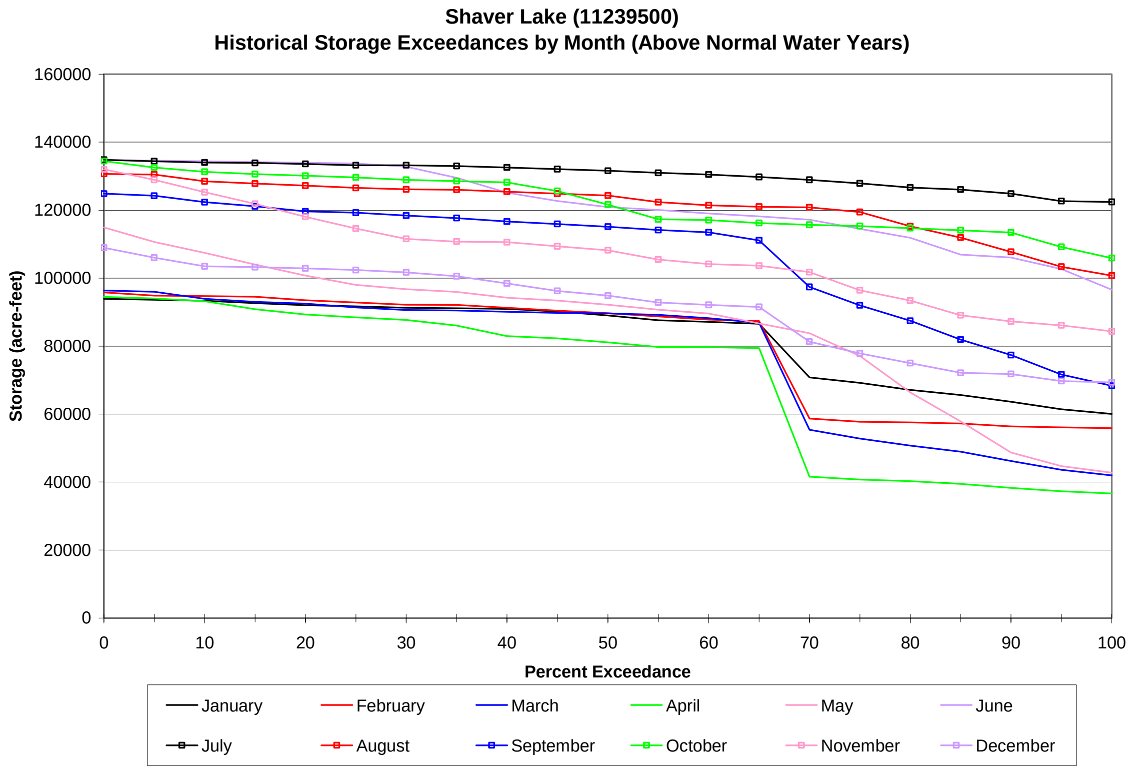

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Below Normal Water Years)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

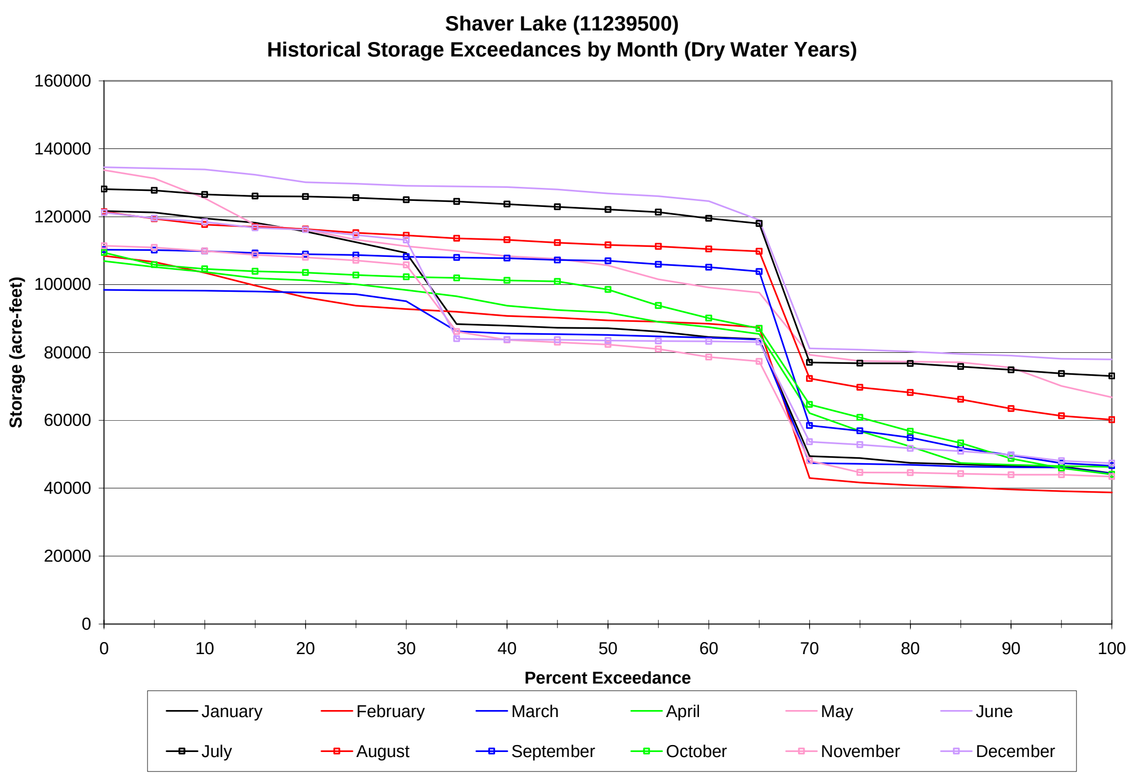

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

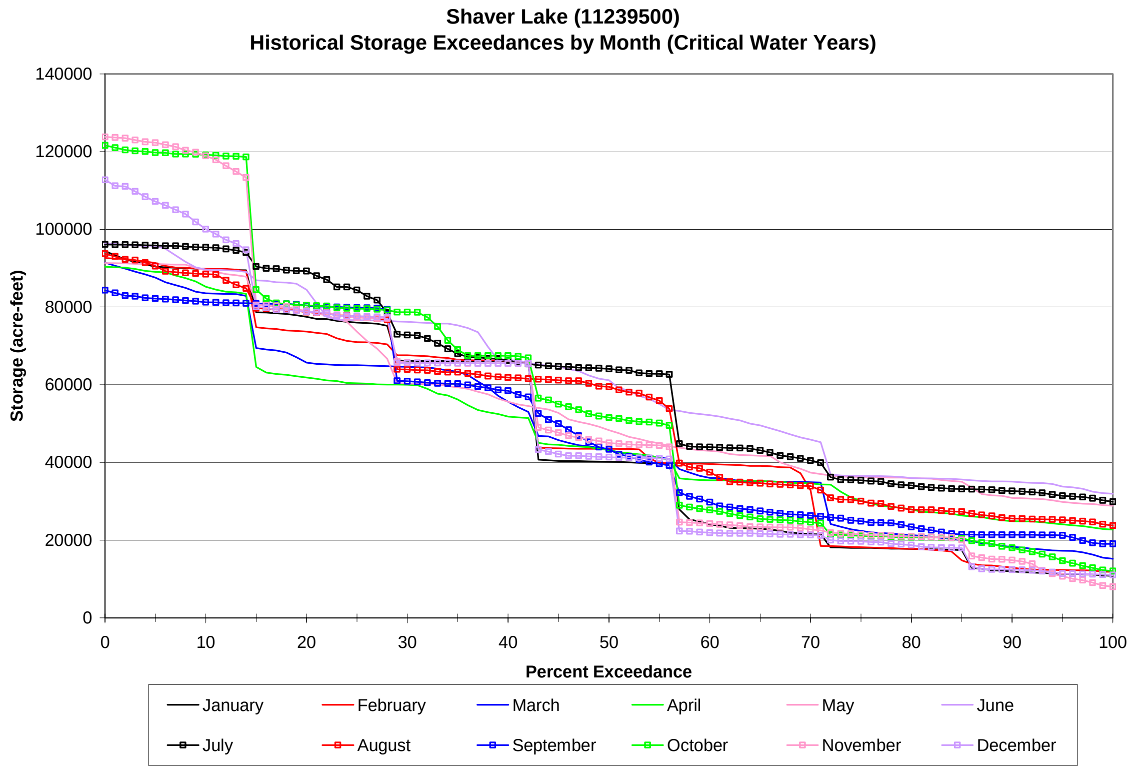

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

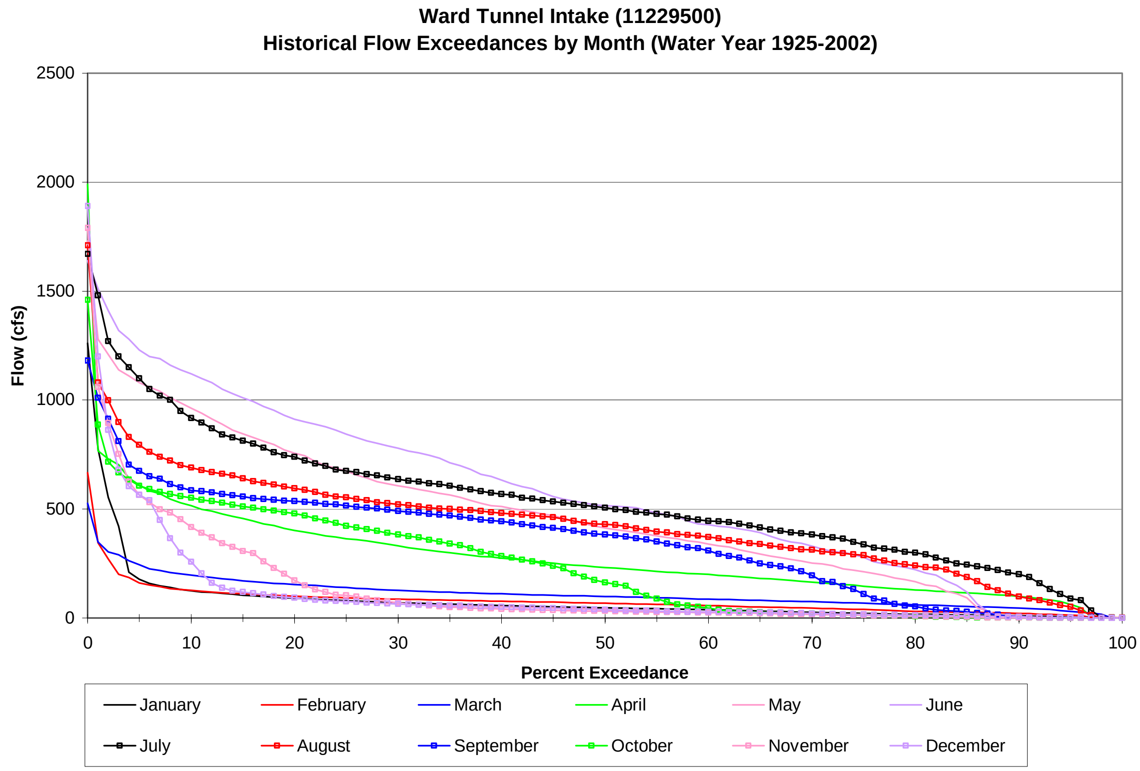

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Water Year 1983-2002)
Storage (acre-feet)
0
20000
40000
60000
80000
100000
120000
140000
160000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

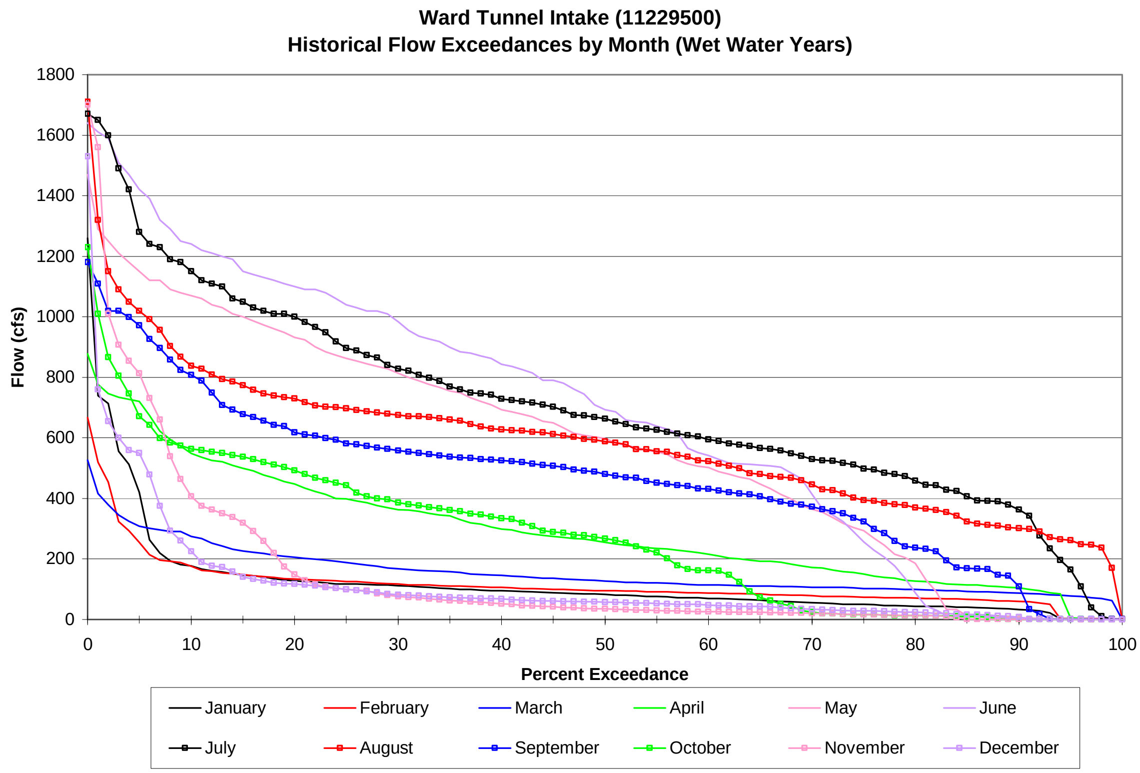

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Wet Water Years)
Storage (acre-feet)
0
20000
40000
60000
80000
100000
120000
140000
160000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

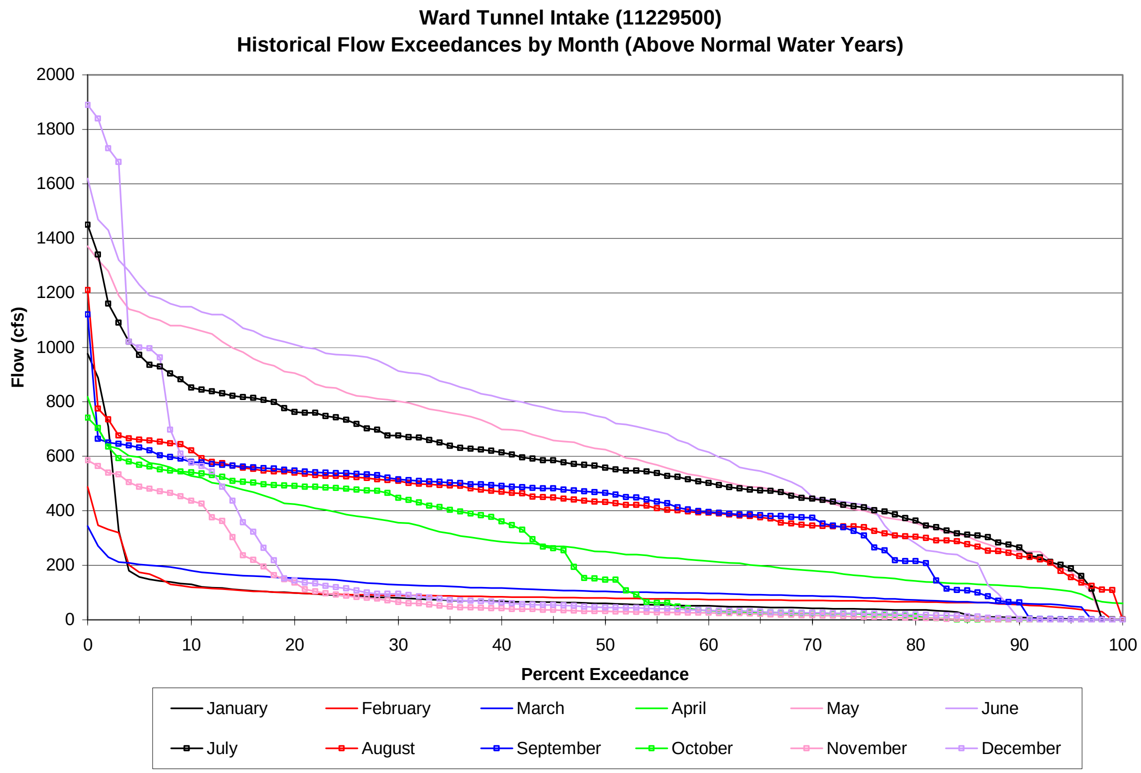

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Above Normal Water Years)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0 10 20 30 40 50 60 70 80 90 100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Shaver Lake (11239500)
Historical Storage Exceedances by Month (Dry Water Years)
Storage (acre-feet)
160000
140000
120000
100000
80000
60000
40000
20000
0
0 10 20 30 40 50 60 70 80 90 100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

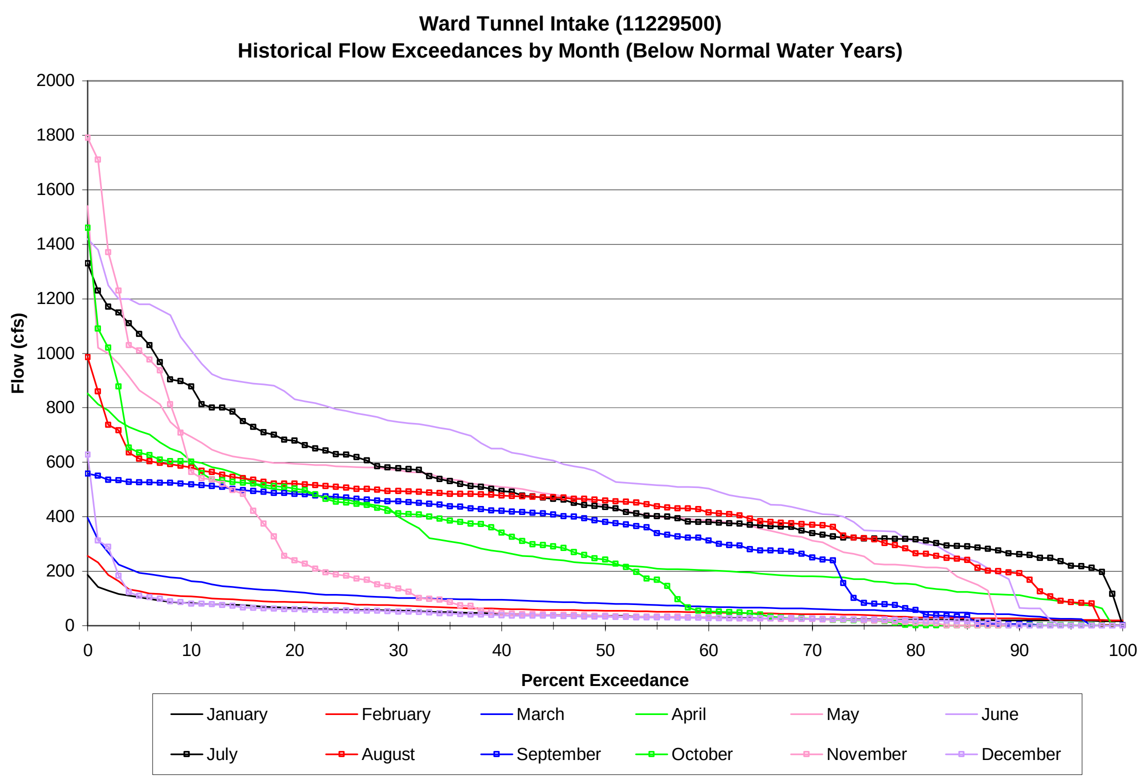

Shaver Lake (11239500)
Historical Storage Exceedances by Month (Critical Water Years)
Storage (acre-feet)
140000
120000
100000
80000
60000
40000
20000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Water Year 1925-2002)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

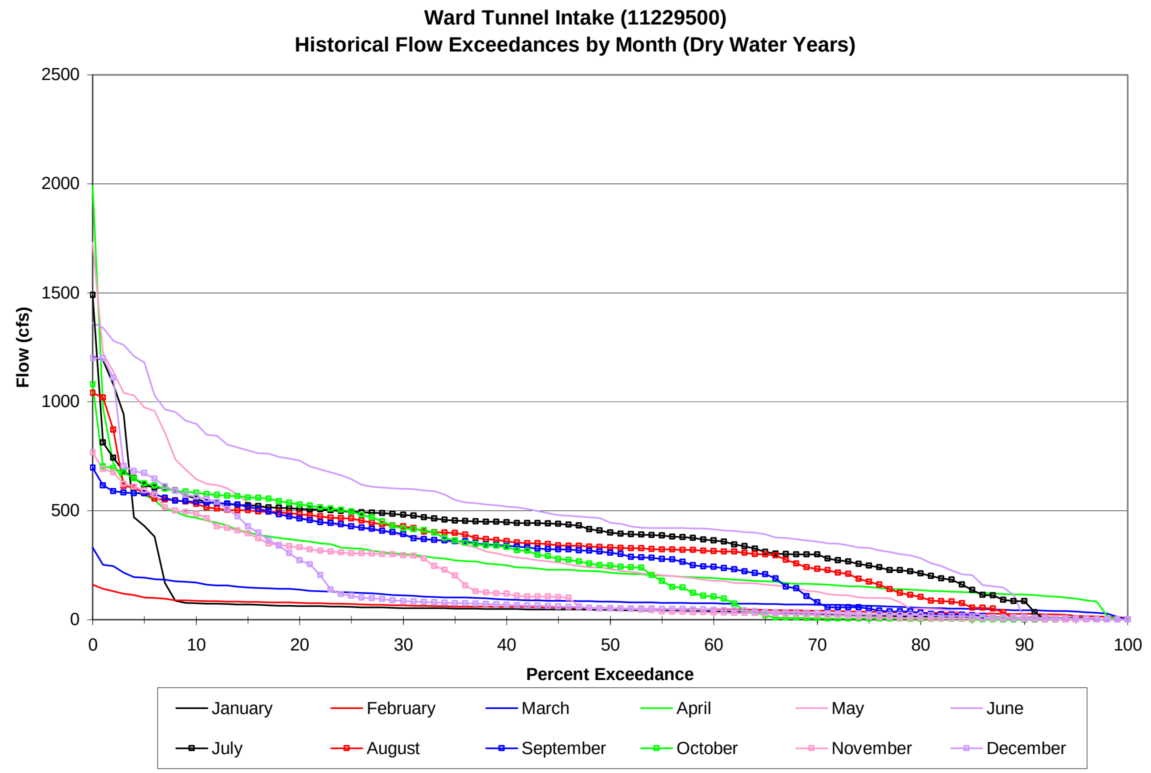

Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

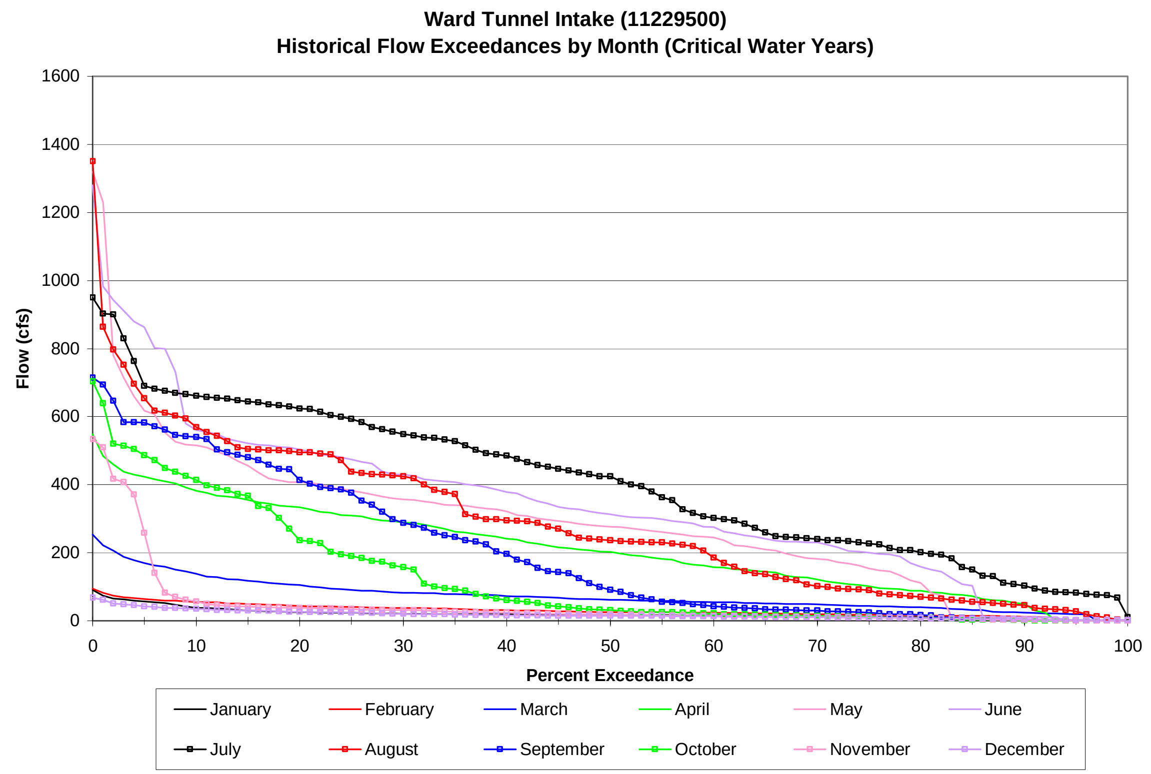


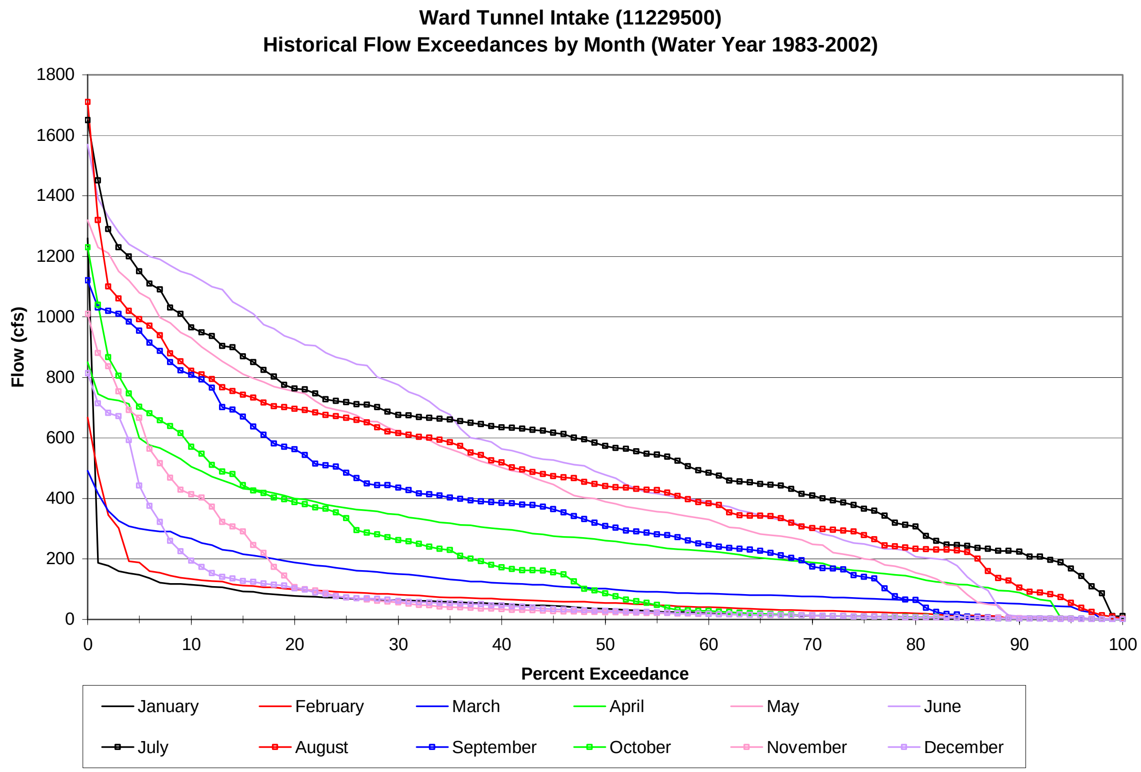
Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
1600
1800
2000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December



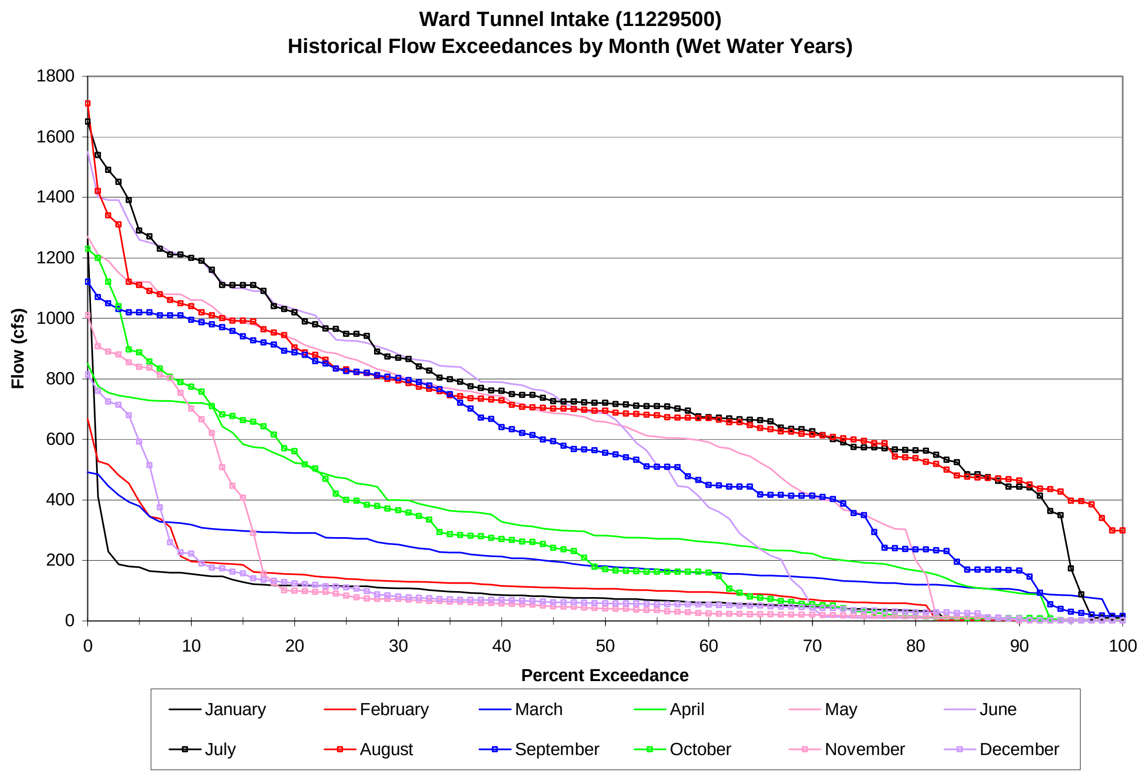
Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
1600
1800
2000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

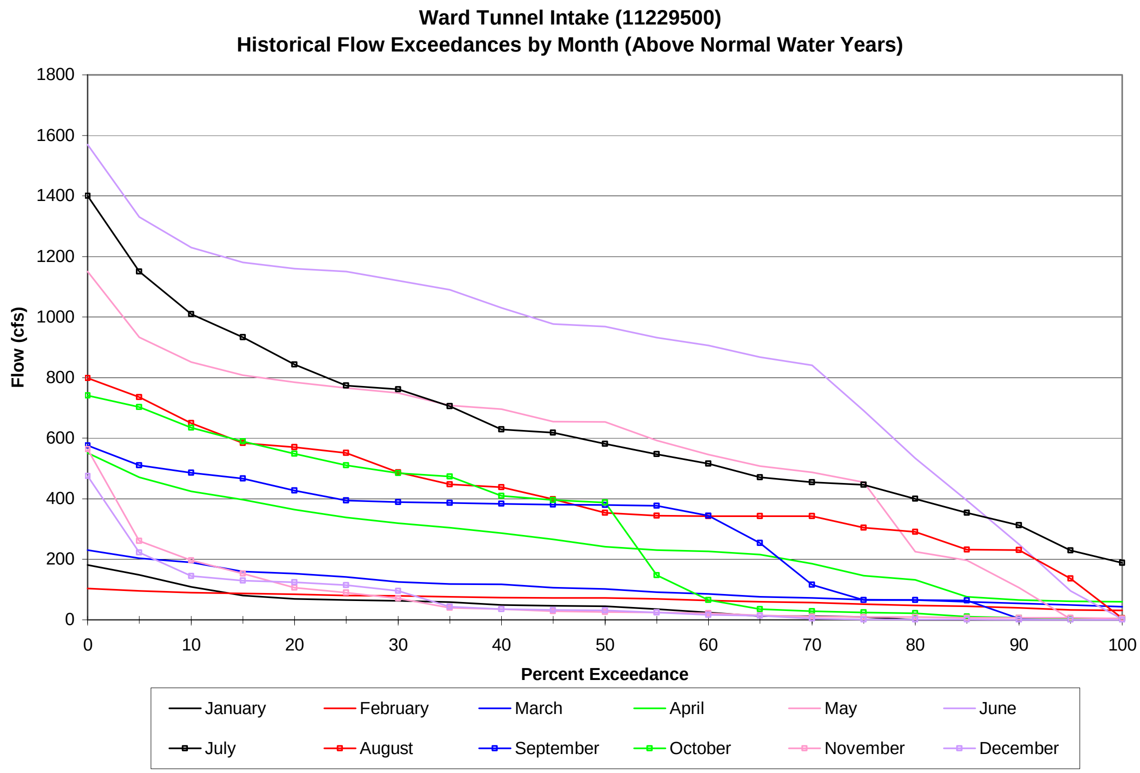

Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December



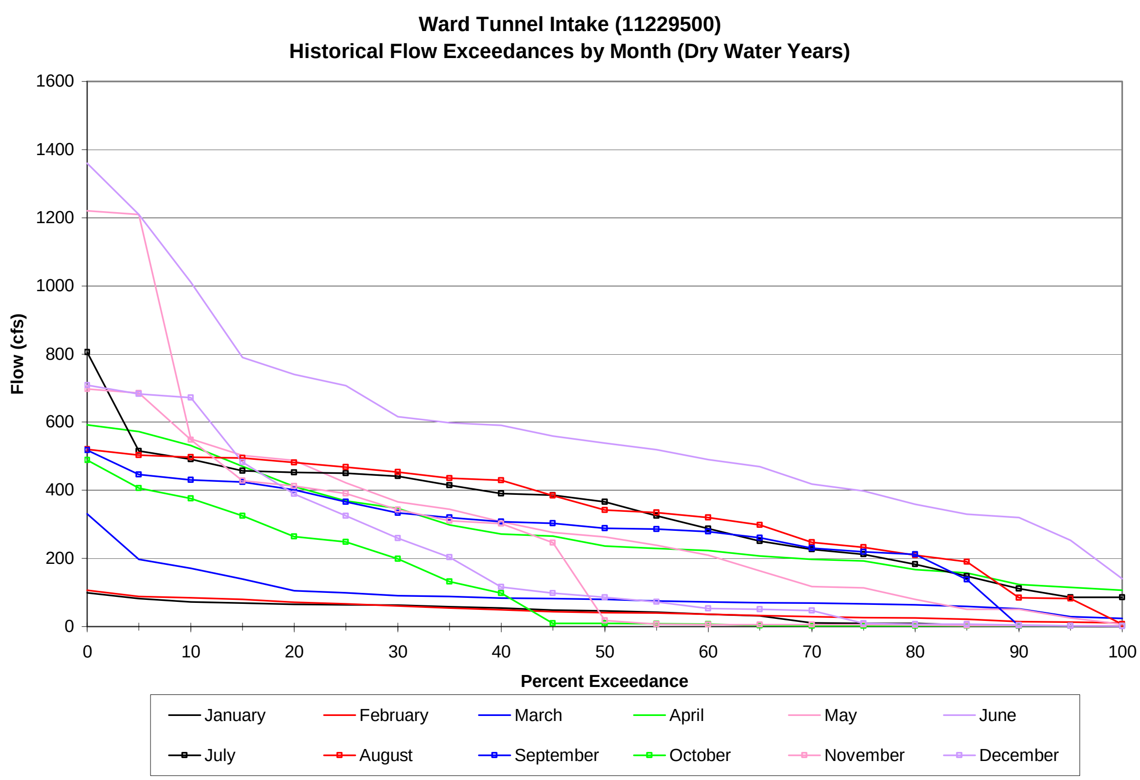
Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December



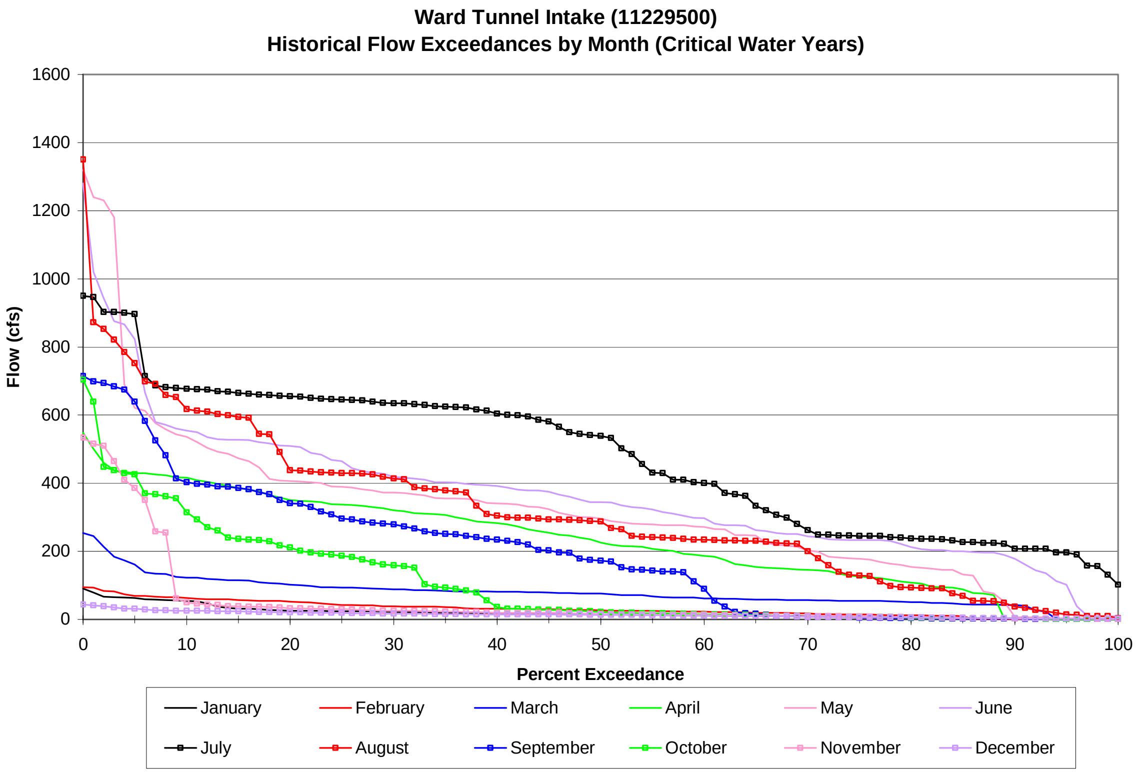
Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

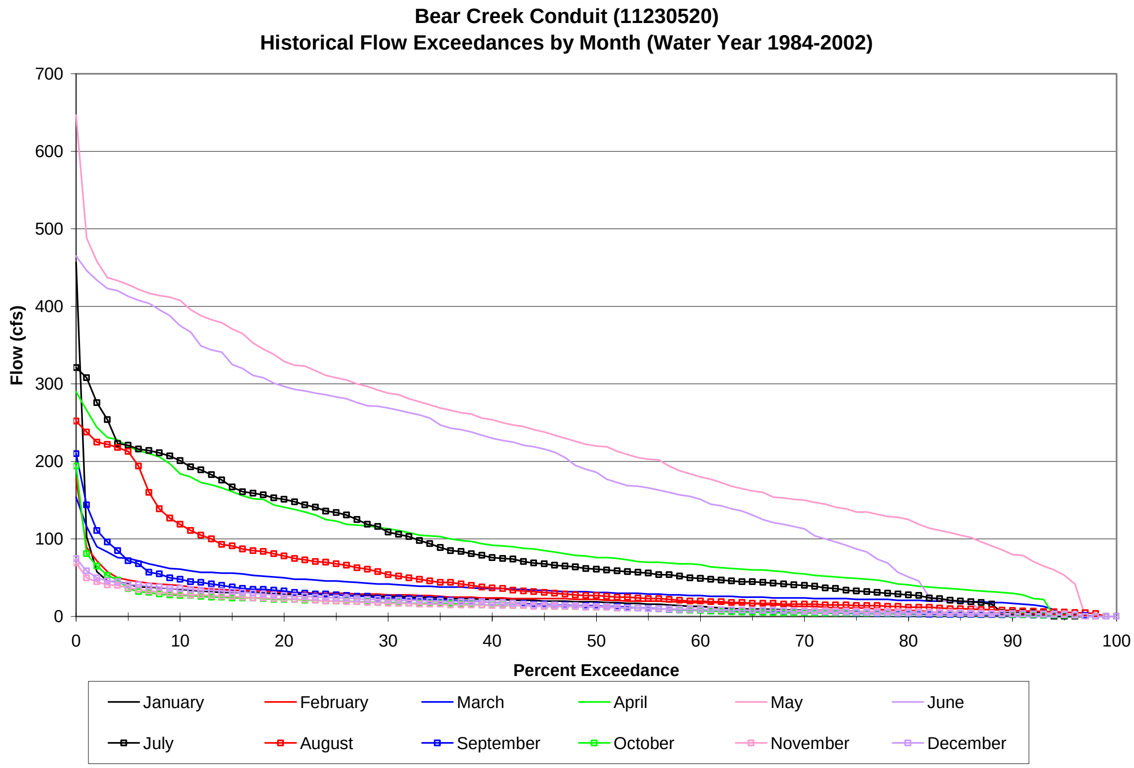


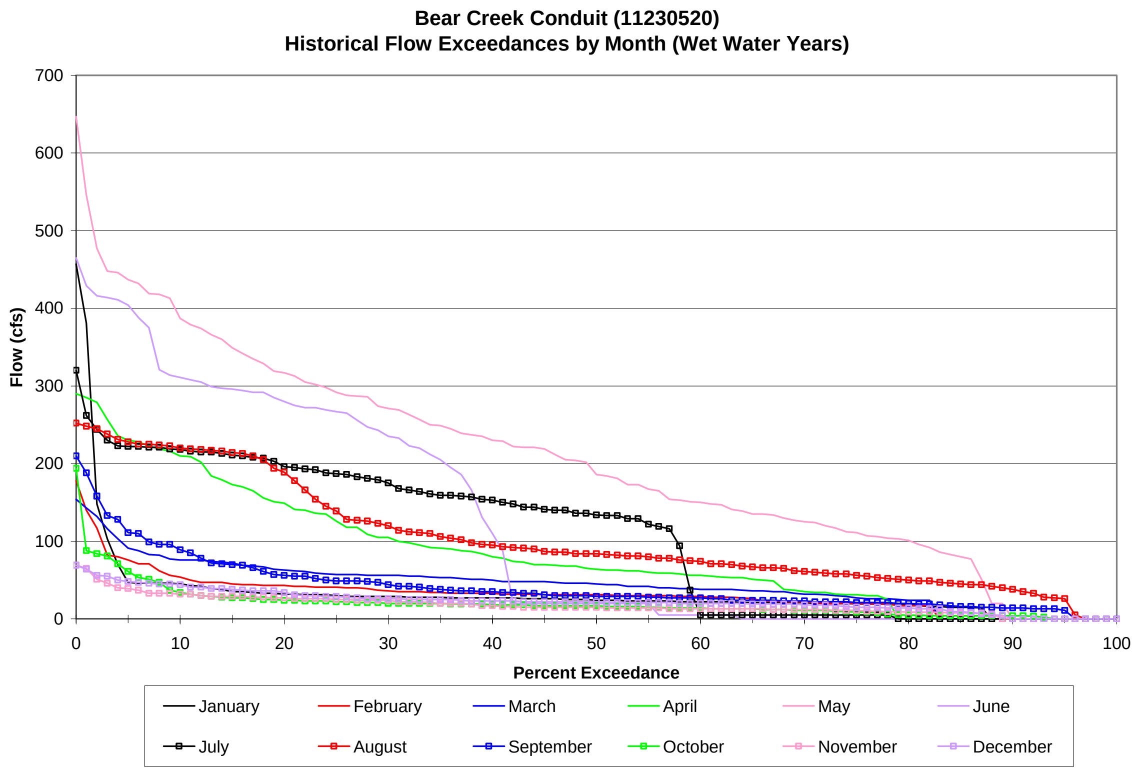
Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

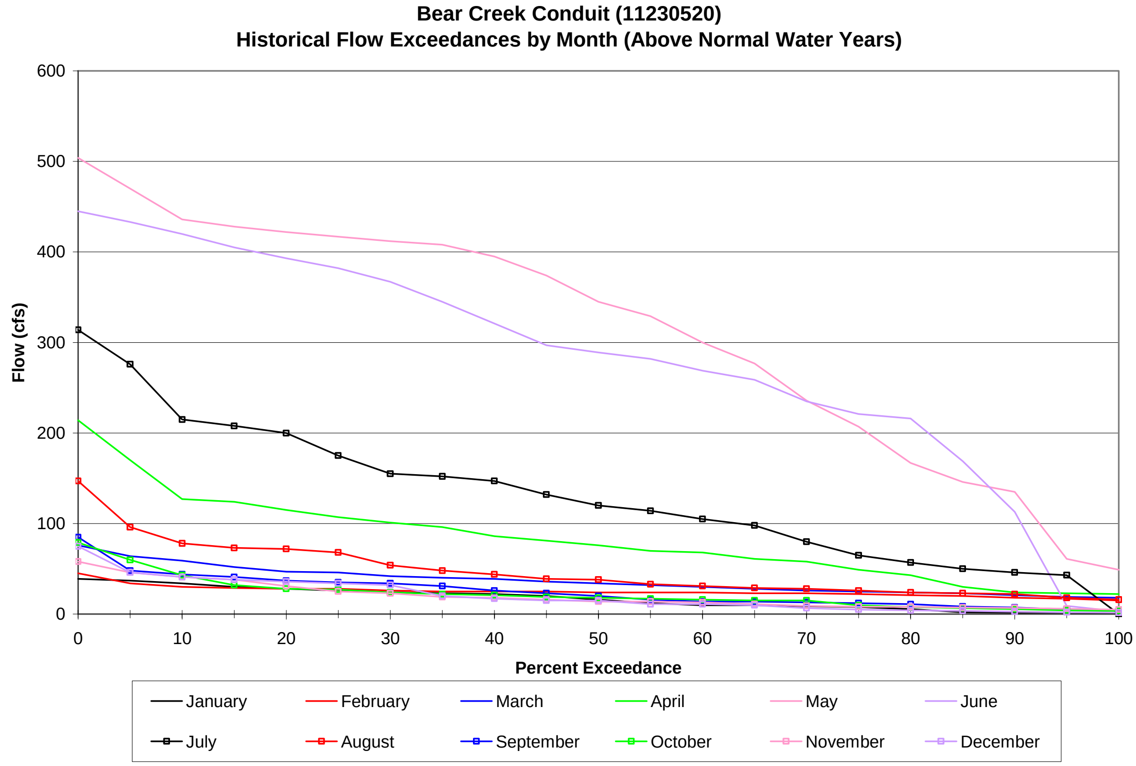


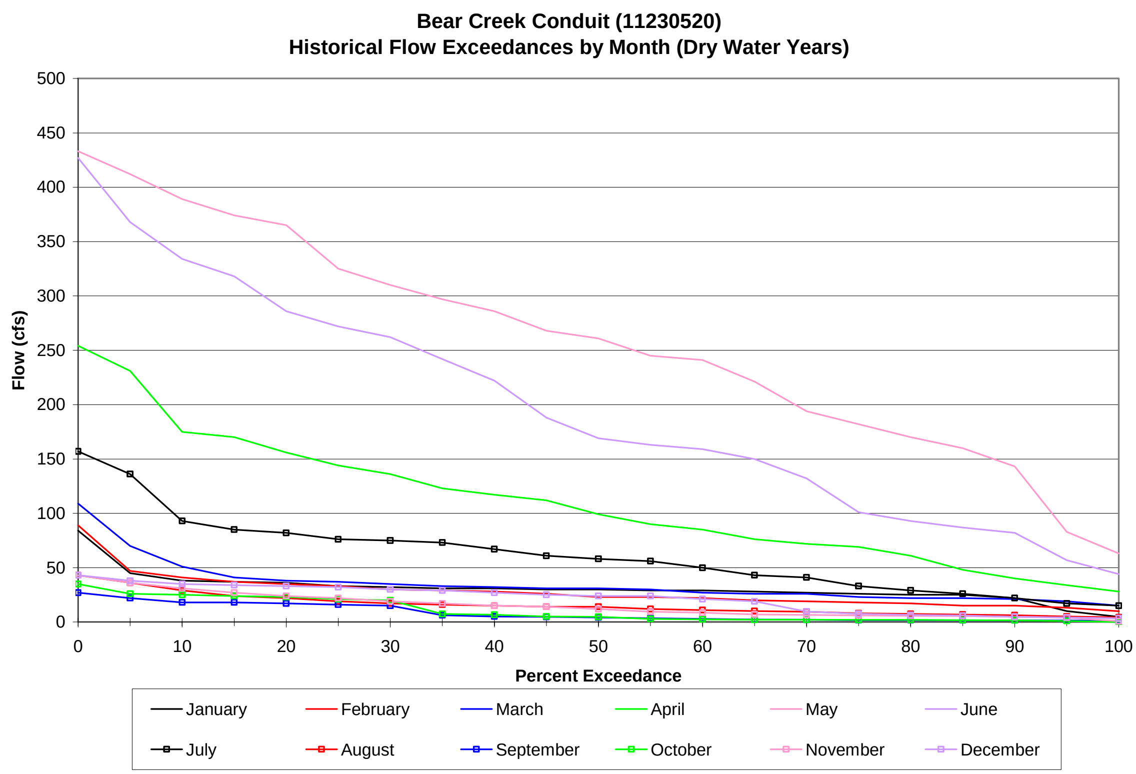
Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

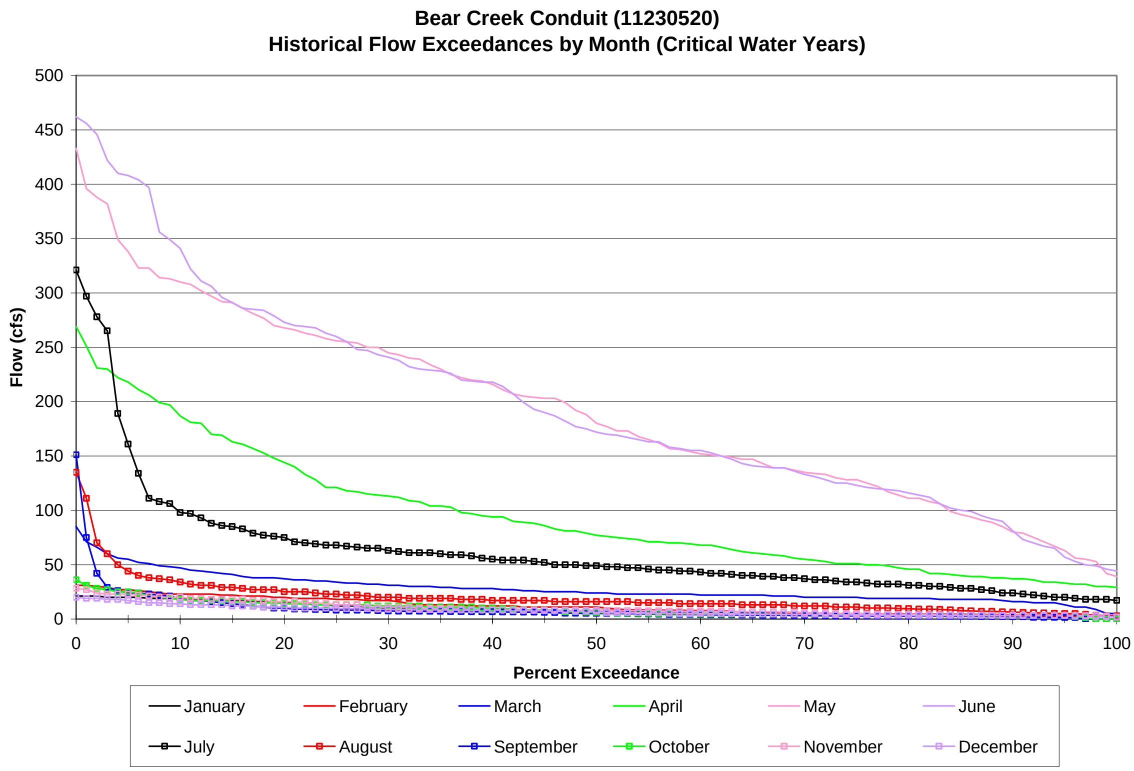

Ward Tunnel Intake (11229500)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
Percent Exceedance
0
200
400
600
800
1000
1200
1400
1600
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

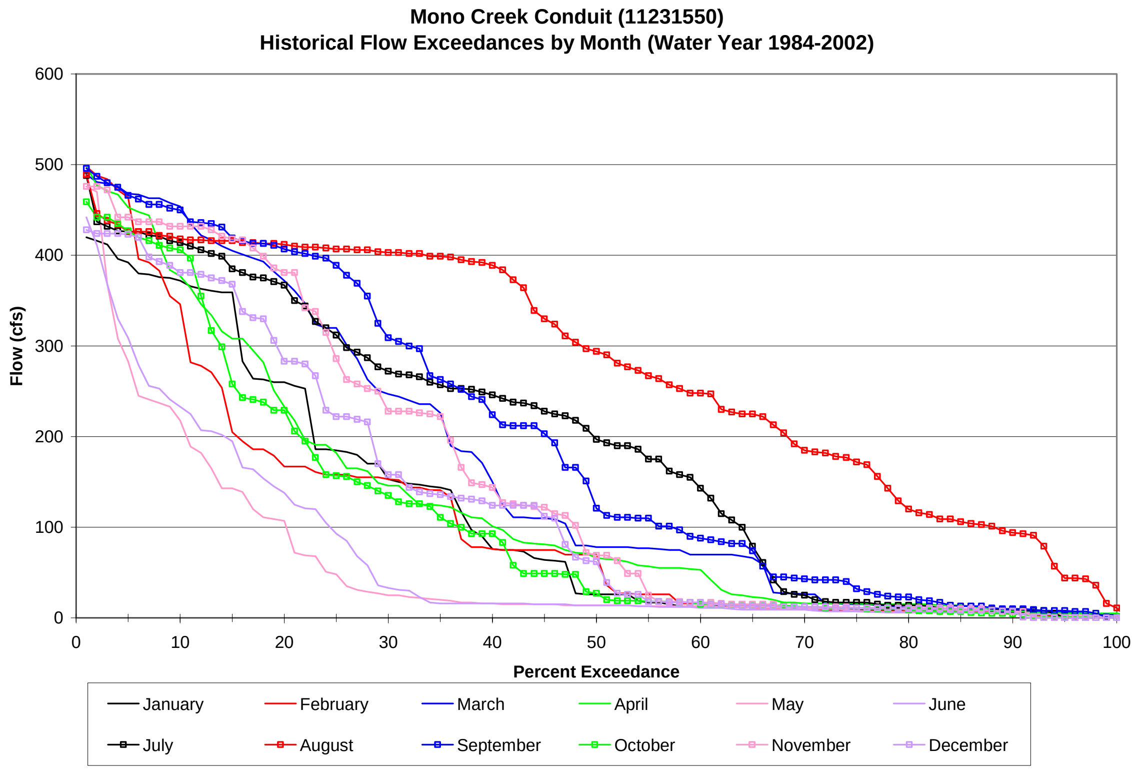

Bear Creek Conduit (11230520)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

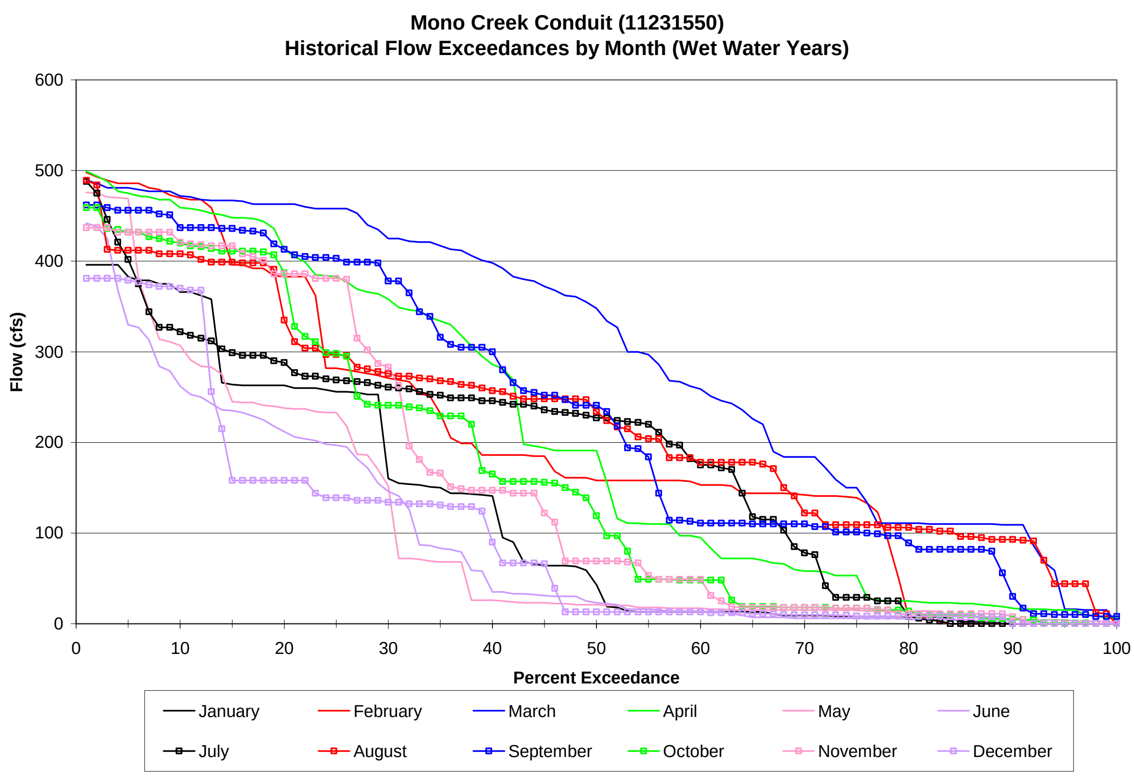

Bear Creek Conduit (11230520)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

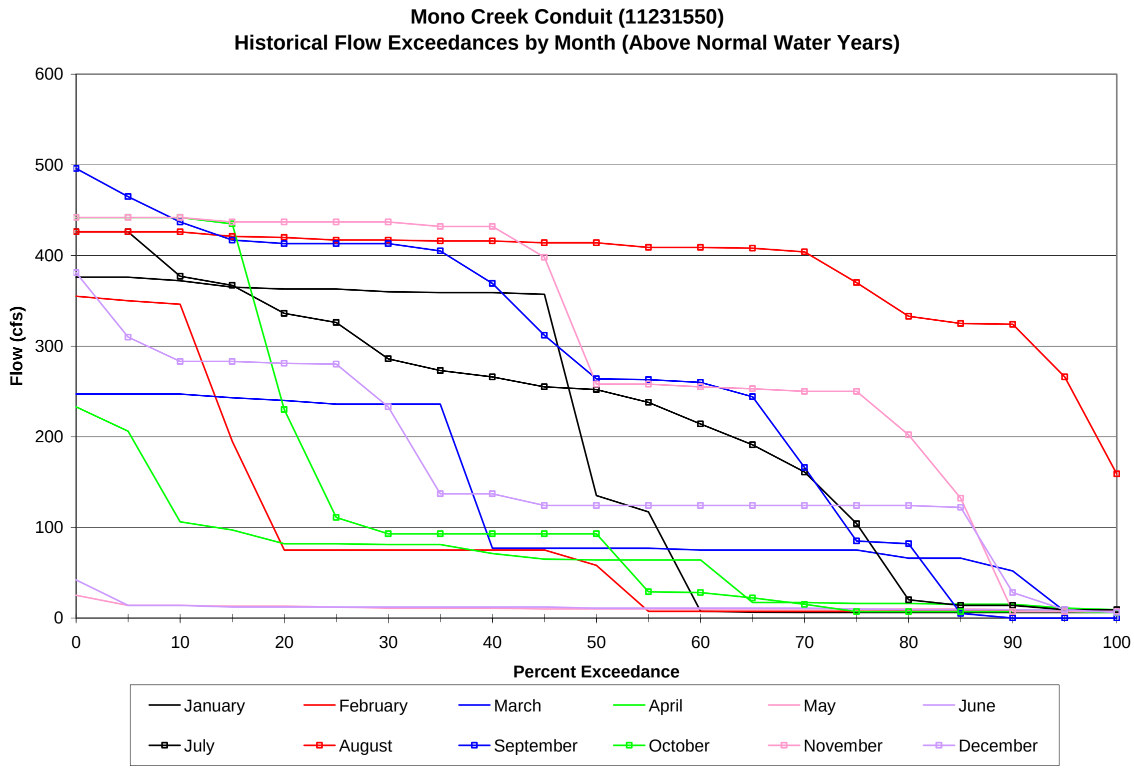

Bear Creek Conduit (11230520)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
0
100
200
300
400
500
600
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

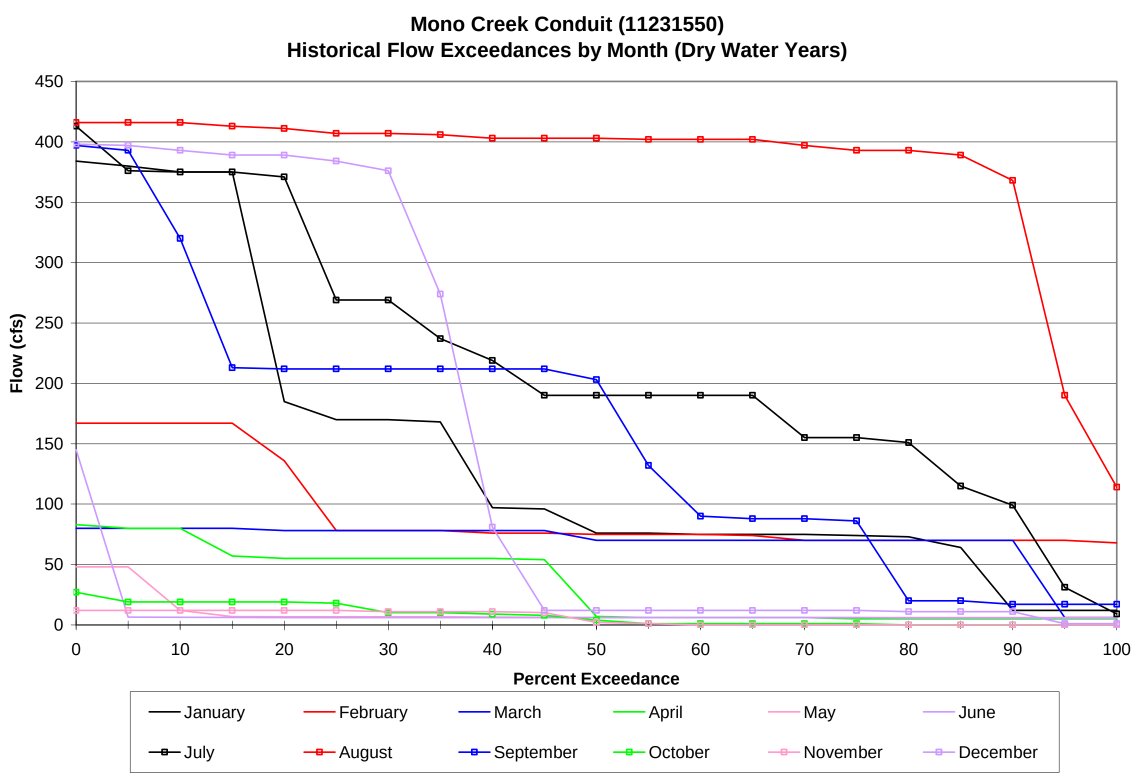

Bear Creek Conduit (11230520)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
0
50
100
150
200
250
300
350
400
450
500
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

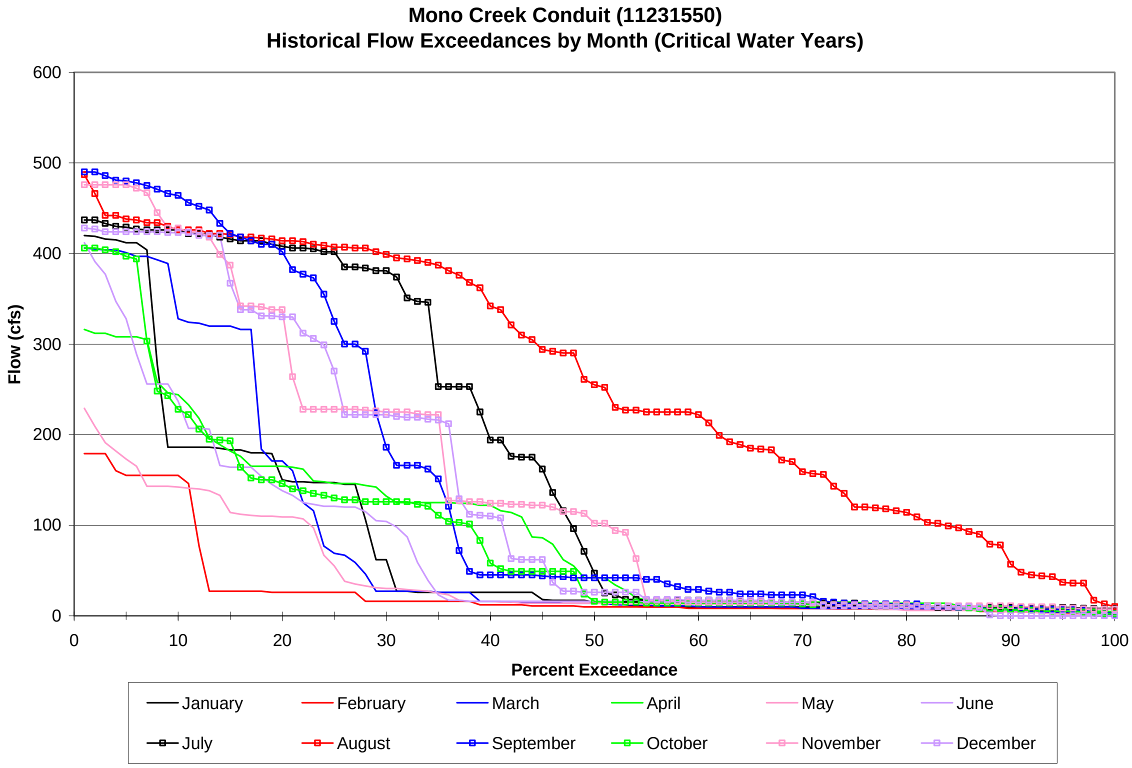

Bear Creek Conduit (11230520)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Mono Creek Conduit (11231550)
Historical Flow Exceedances by Month (Water Year 1984-2002)
Flow (cfs)
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

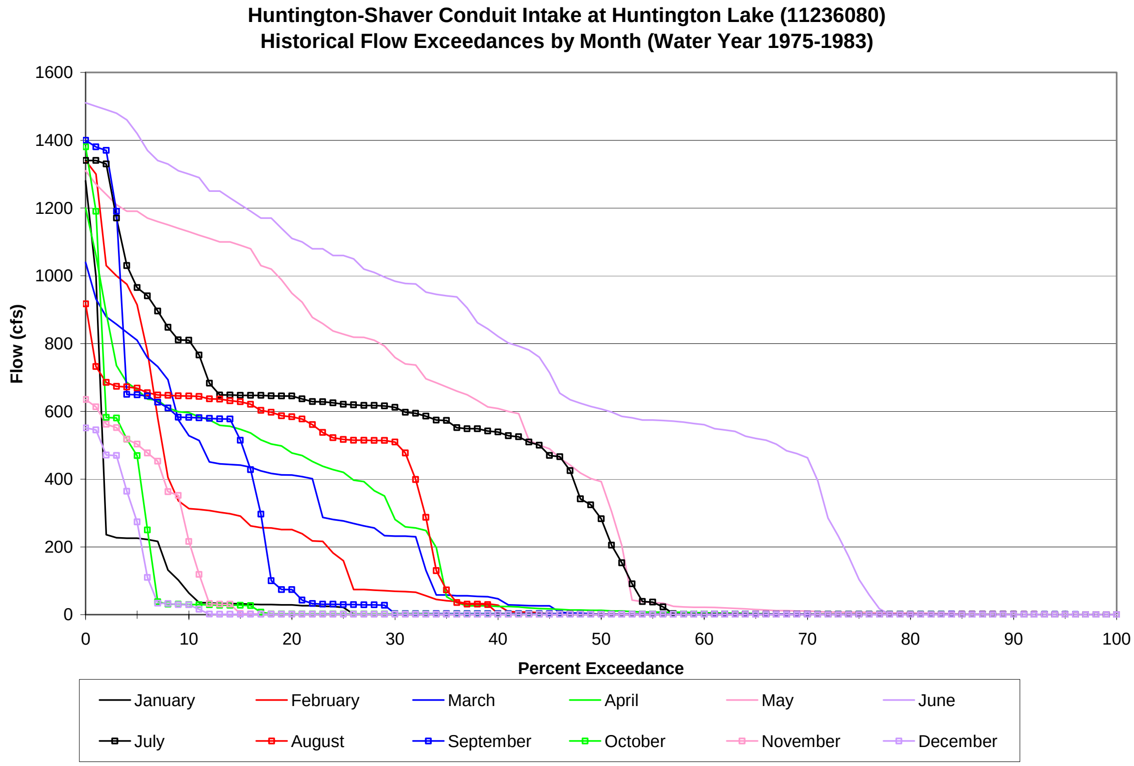

Mono Creek Conduit (11231550)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

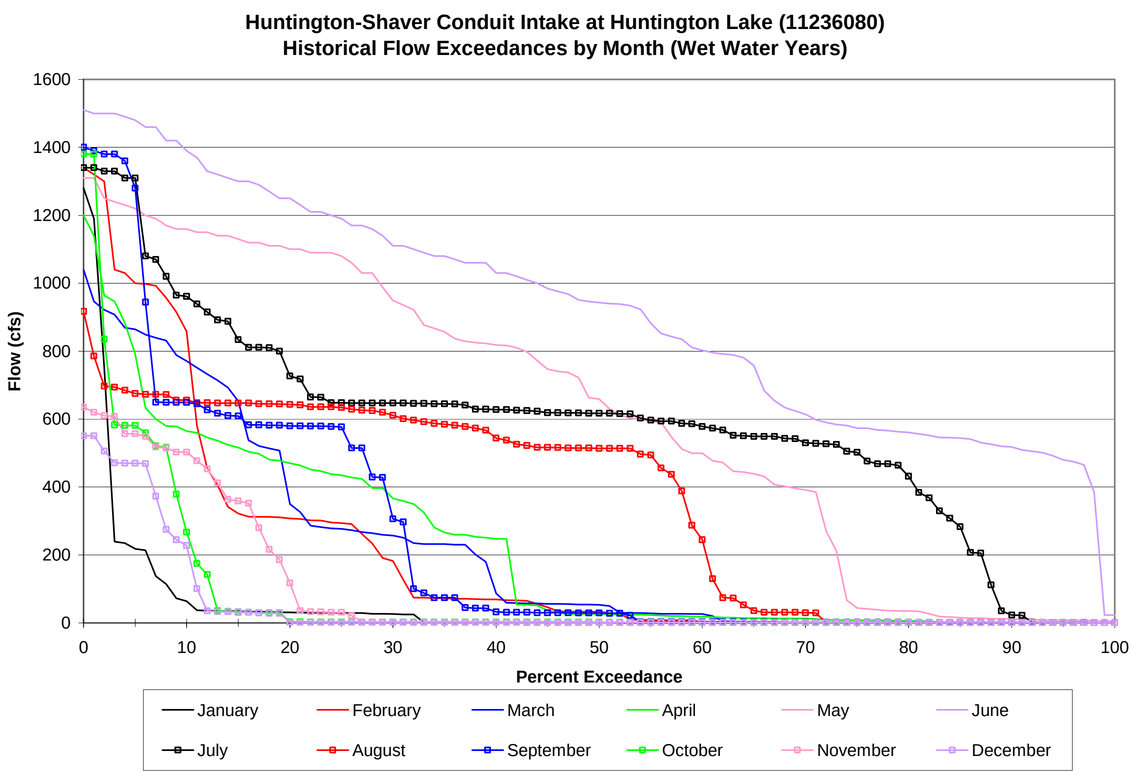

Mono Creek Conduit (11231550)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
0
100
200
300
400
500
600
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

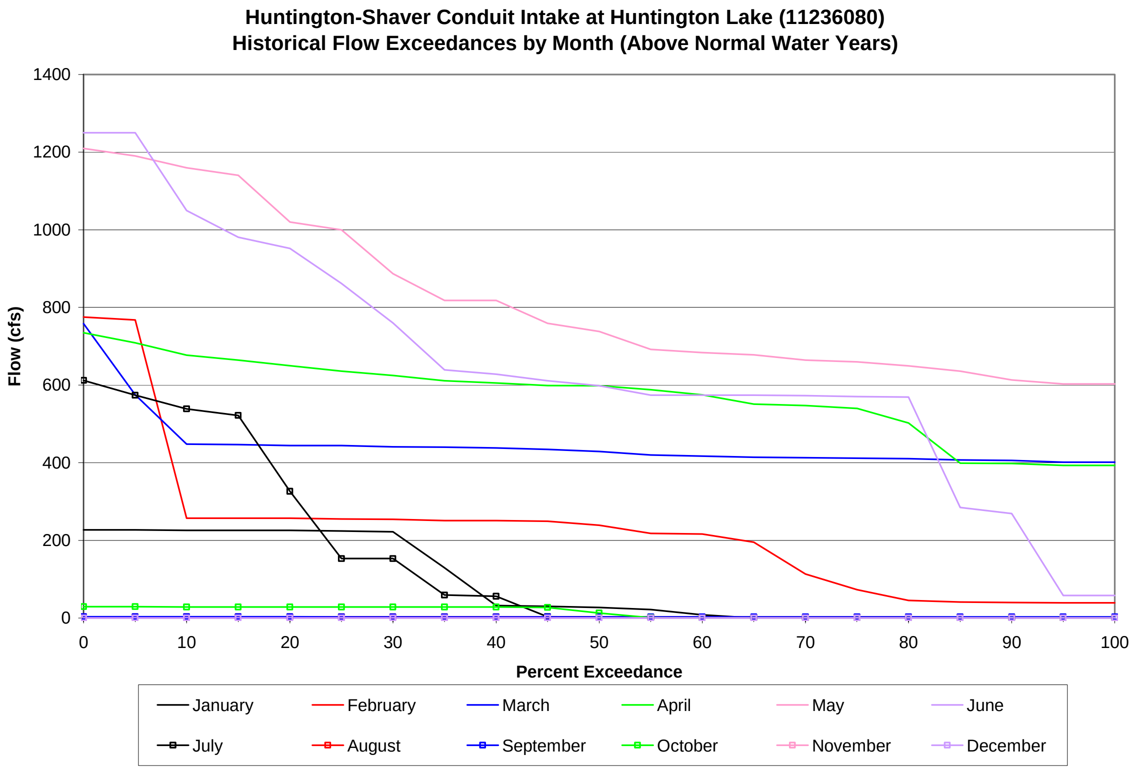

Mono Creek Conduit (11231550)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
0
50
100
150
200
250
300
350
400
450
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December



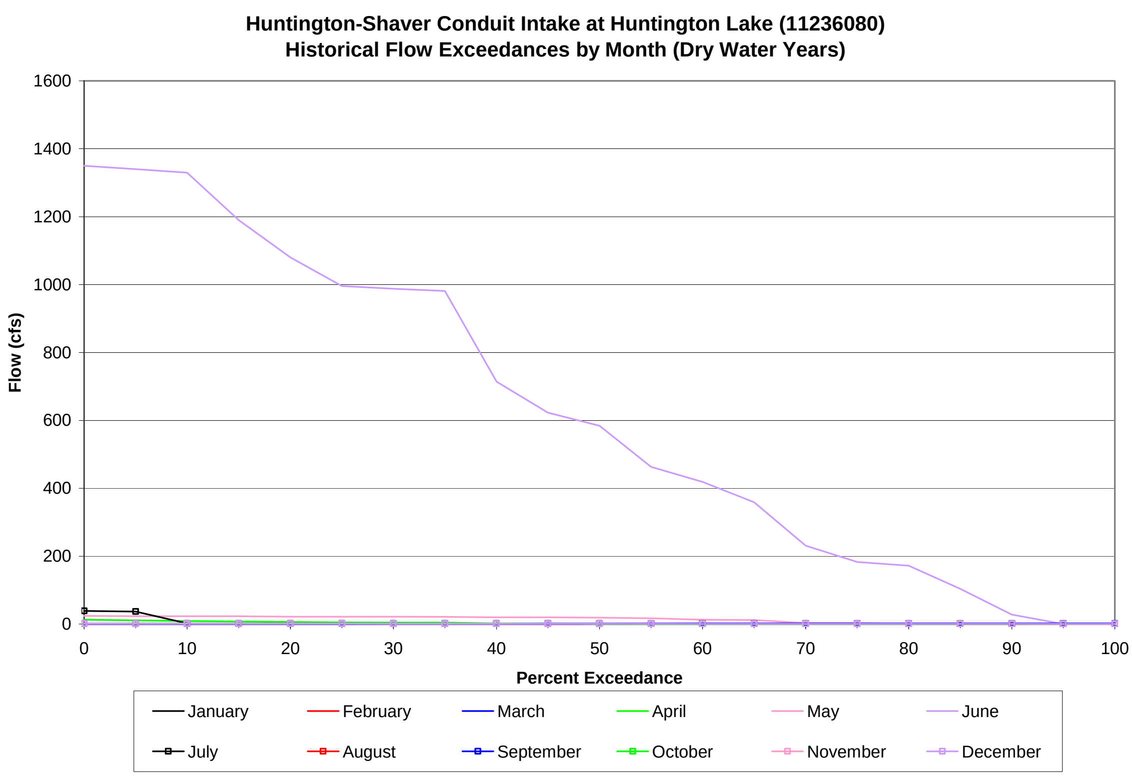
Mono Creek Conduit (11231550)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington-Shaver Conduit Intake at Huntington Lake (11236080)
Historical Flow Exceedances by Month (Water Year 1975-1983)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Huntington-Shaver Conduit Intake at Huntington Lake (11236080)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

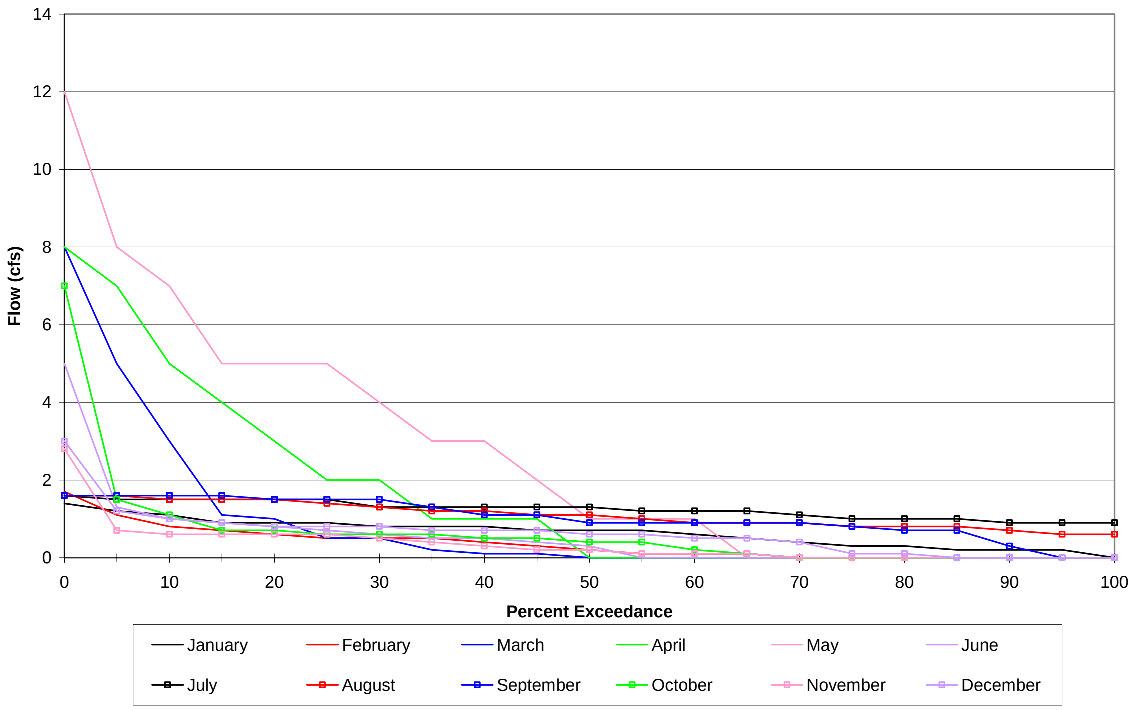


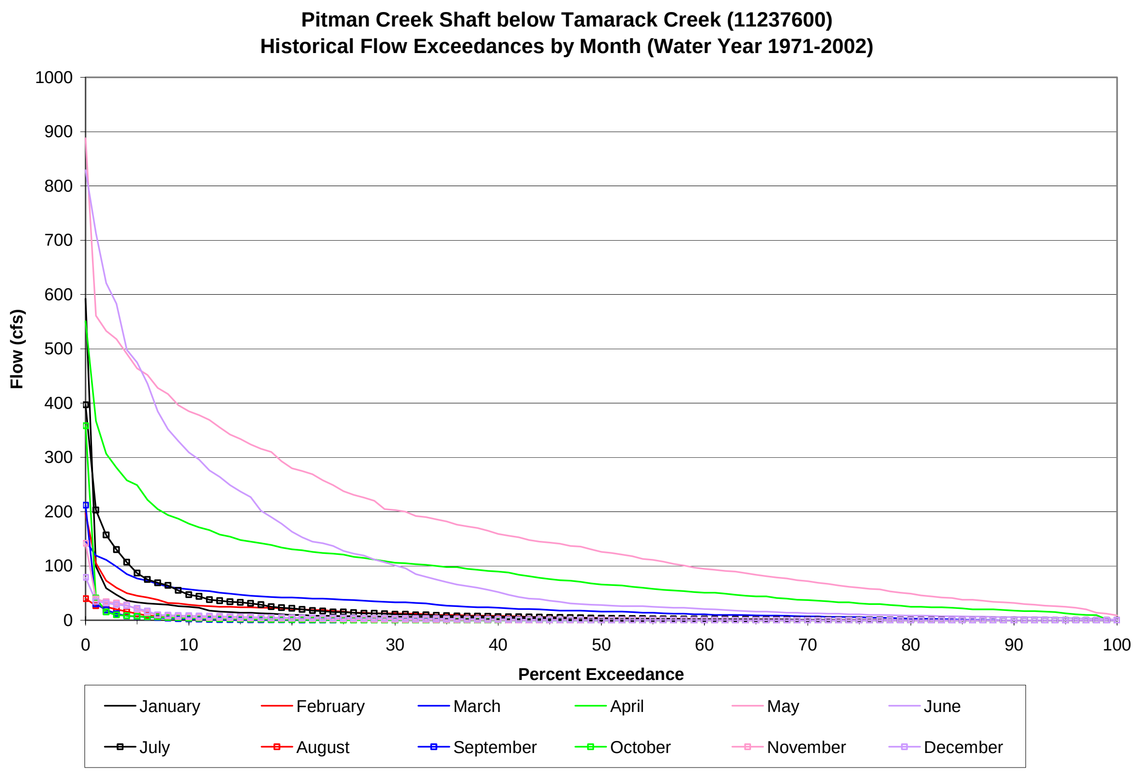
Huntington-Shaver Conduit Intake at Huntington Lake (11236080)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

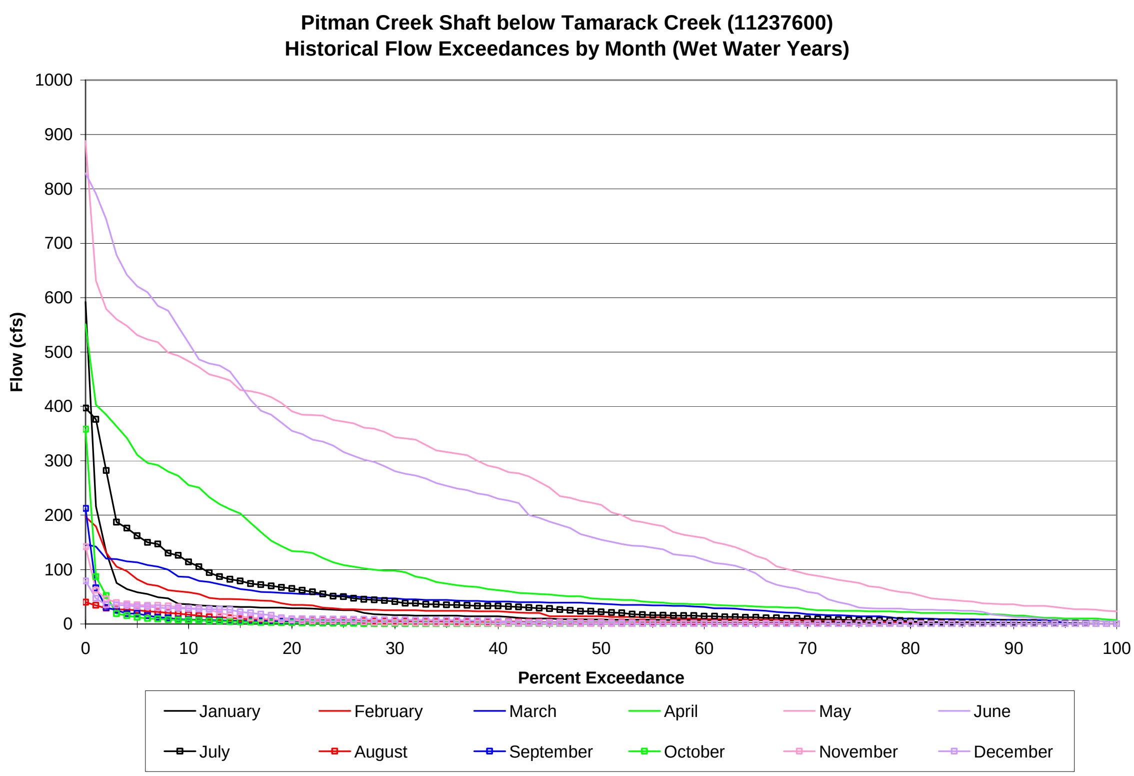


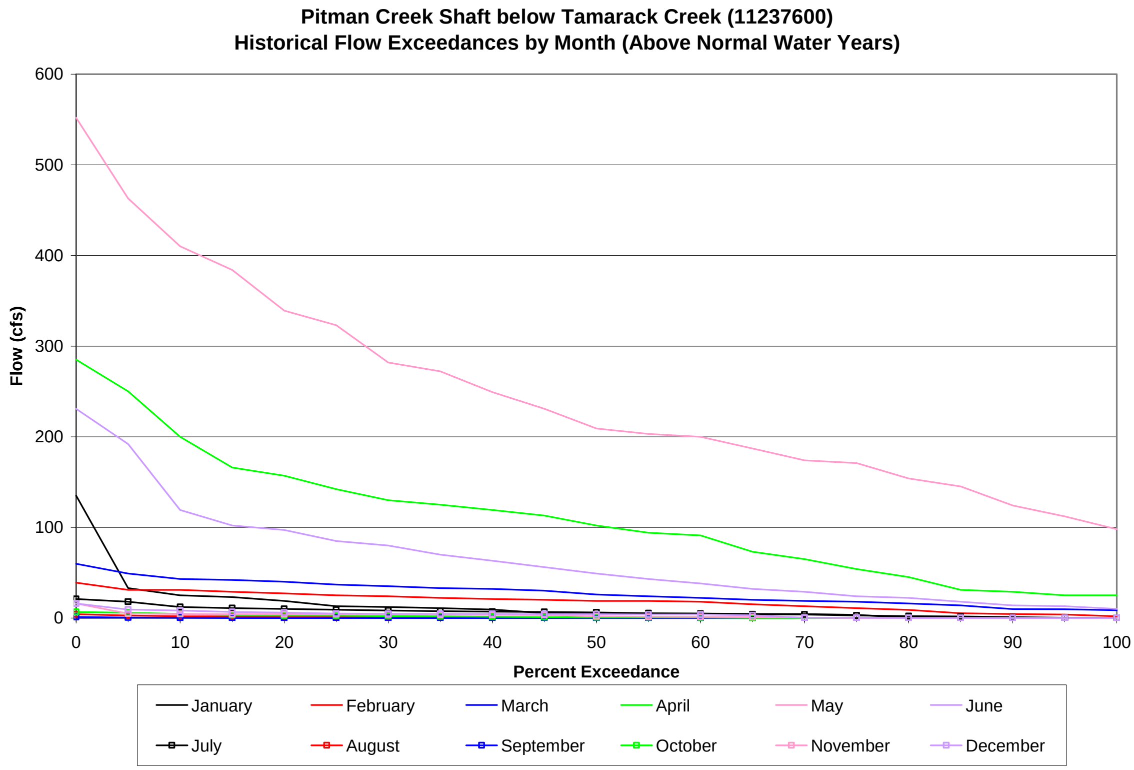
Huntington-Shaver Conduit Intake at Huntington Lake (11236080)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

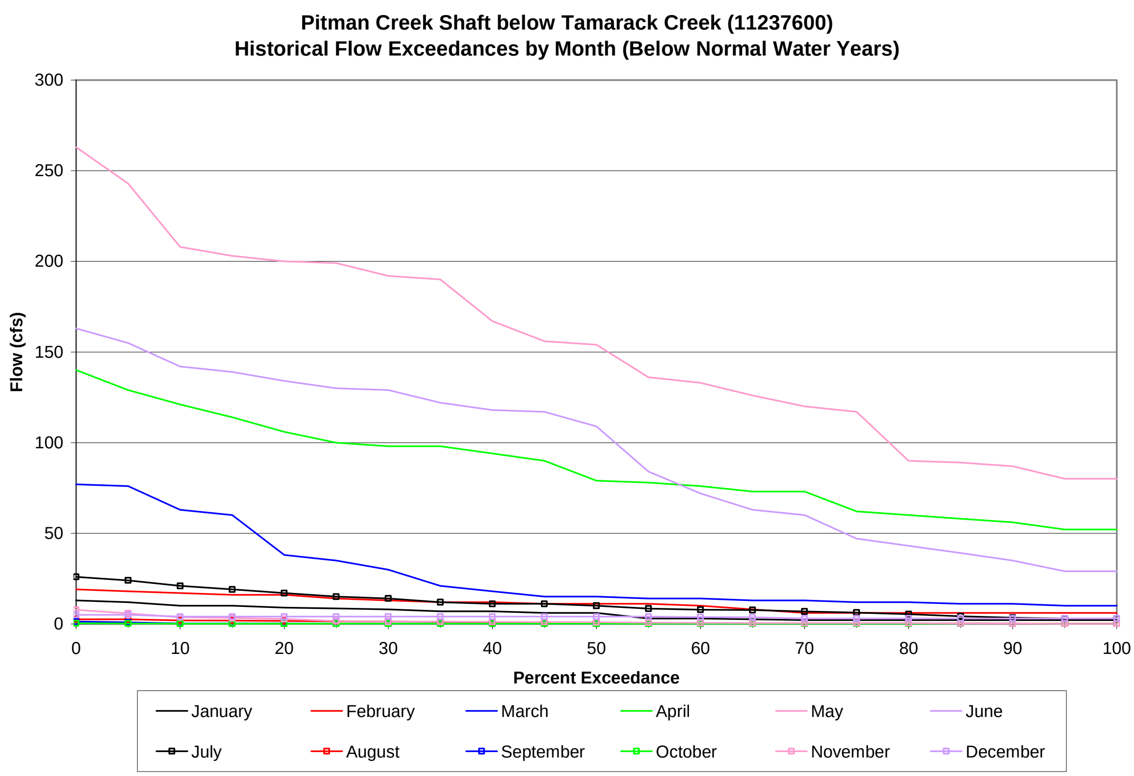
Huntington-Shaver Conduit Intake at Huntington Lake (11236080)
Historical Flow Exceedances by Month (Critical Water Years)



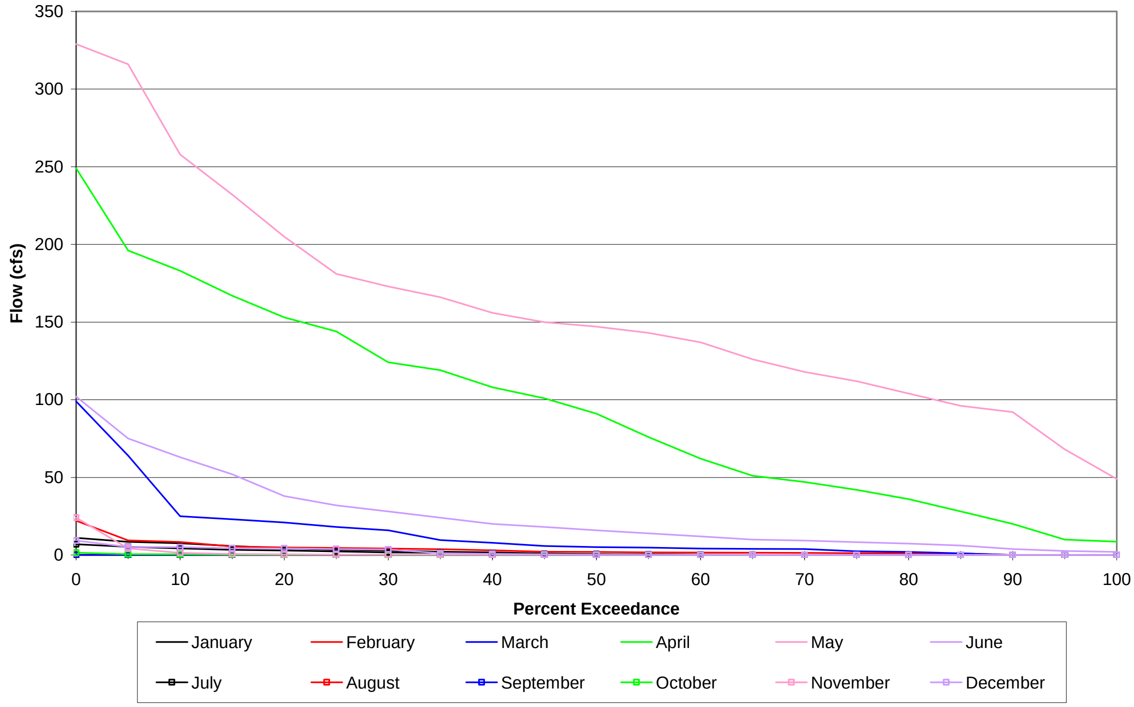

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Water Year 1971-2002)
Flow (cfs)
0
100
200
300
400
500
600
700
800
900
1000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
100
200
300
400
500
600
700
800
900
1000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

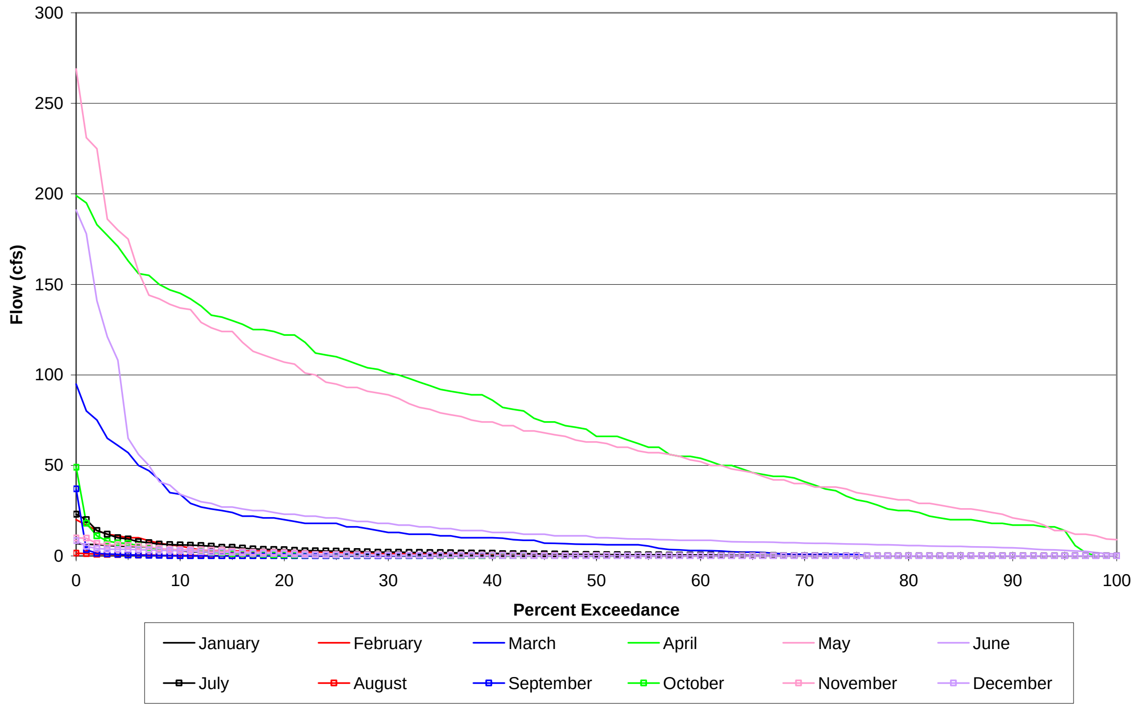

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

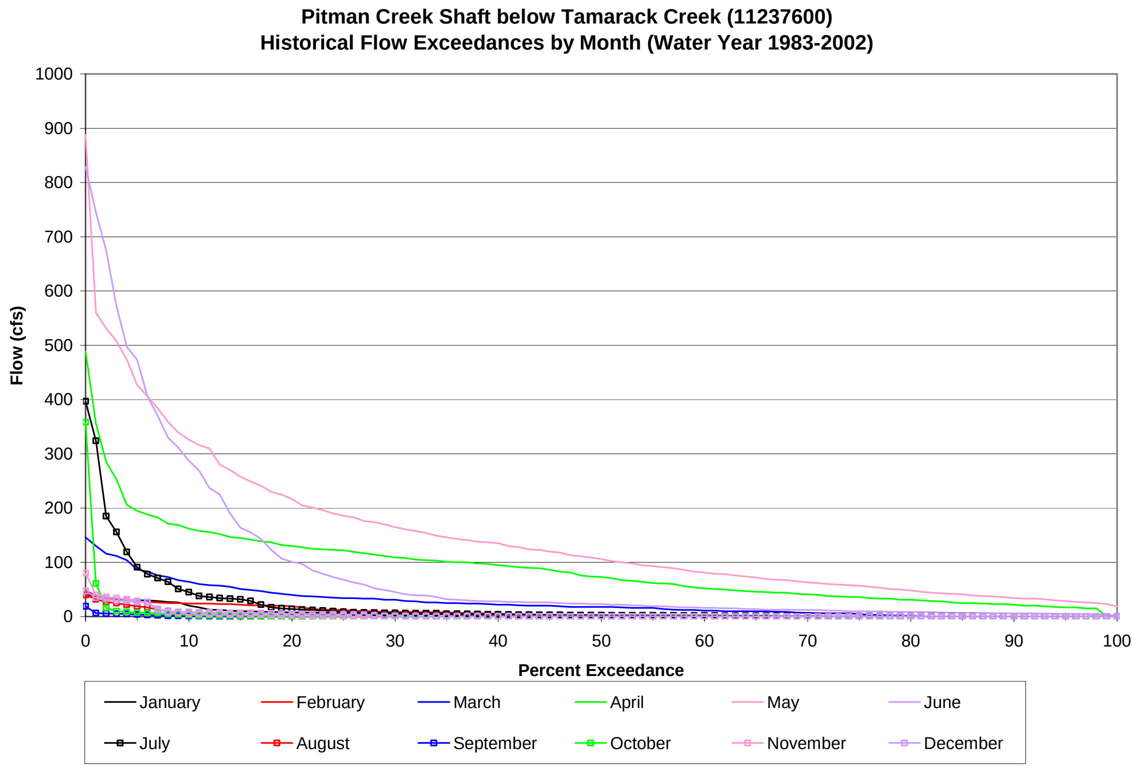

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Below Normal Water Years)
Flow (cfs)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

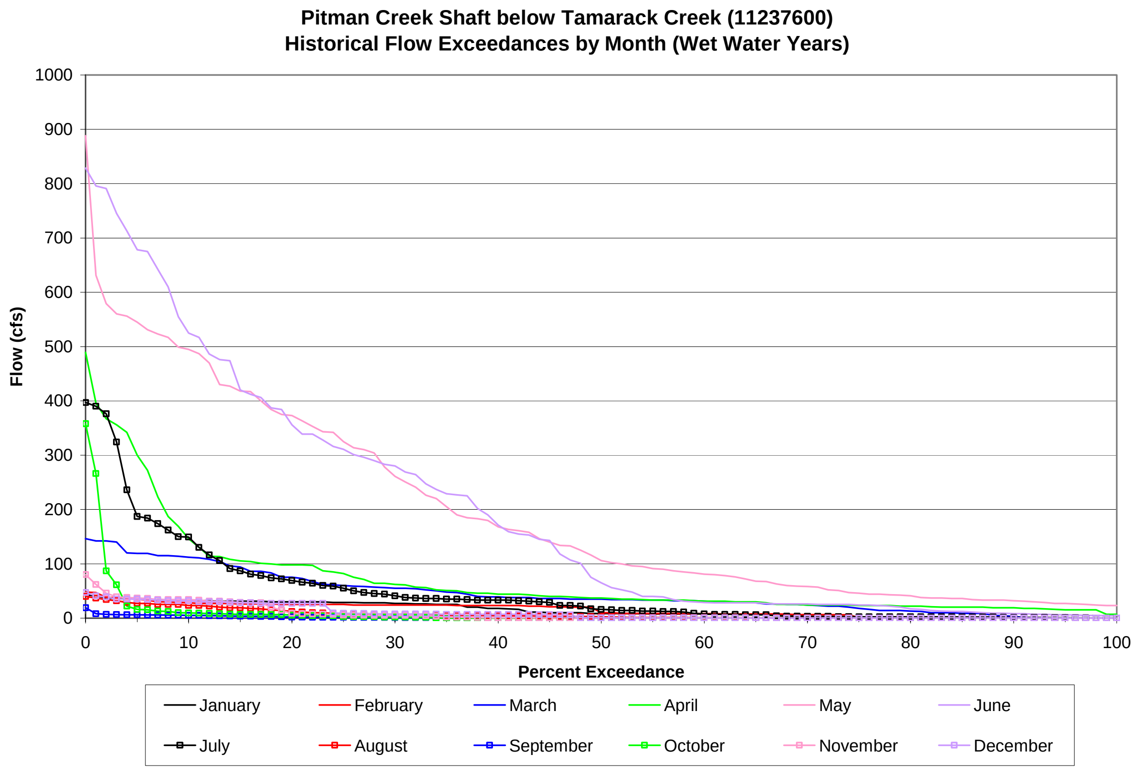
Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Dry Water Years)

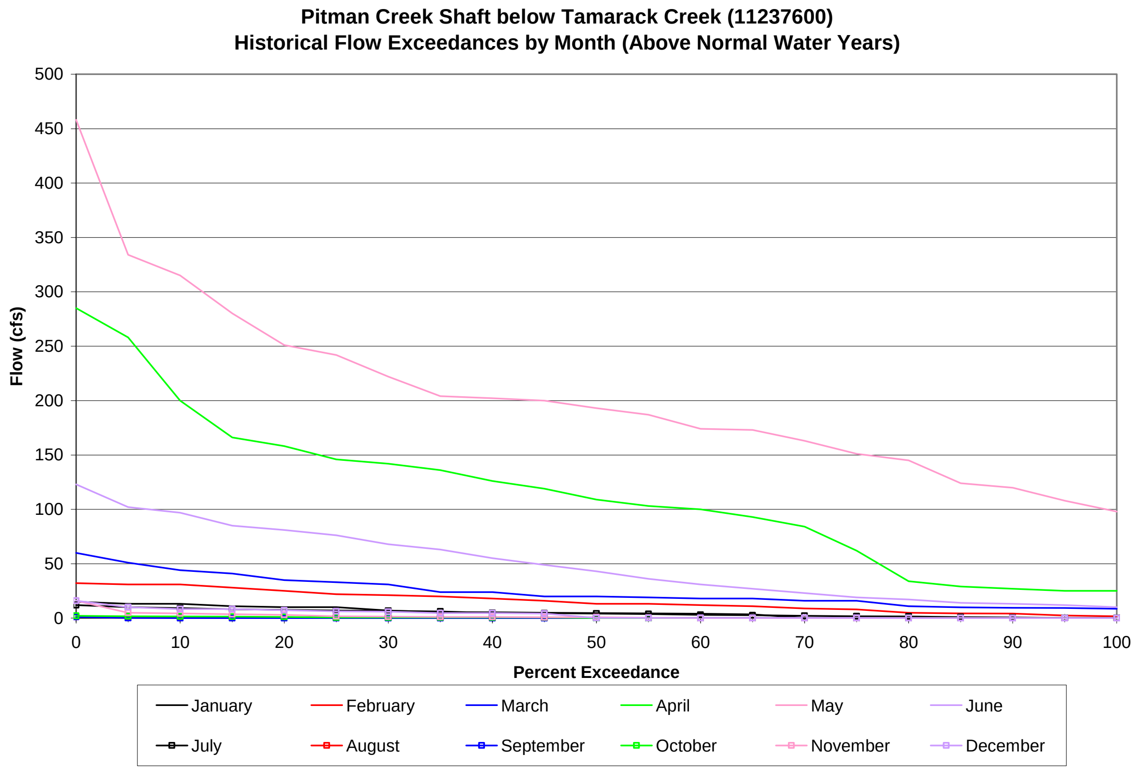


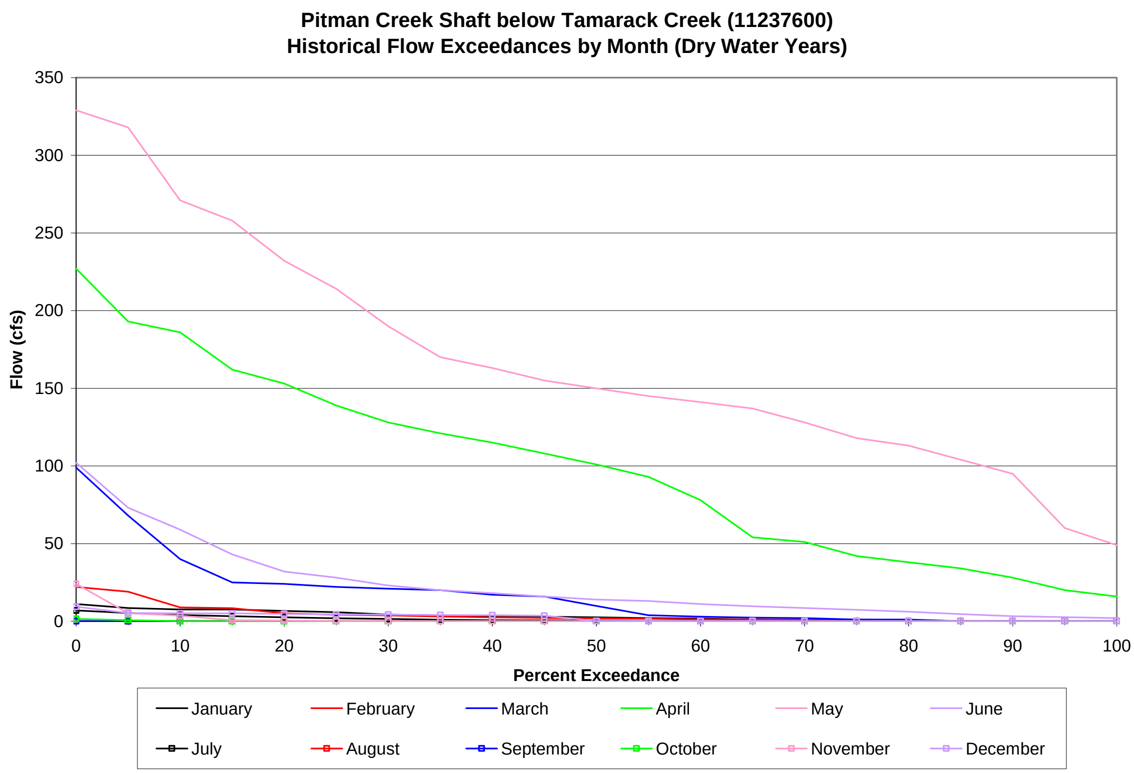
Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Critical Water Years)

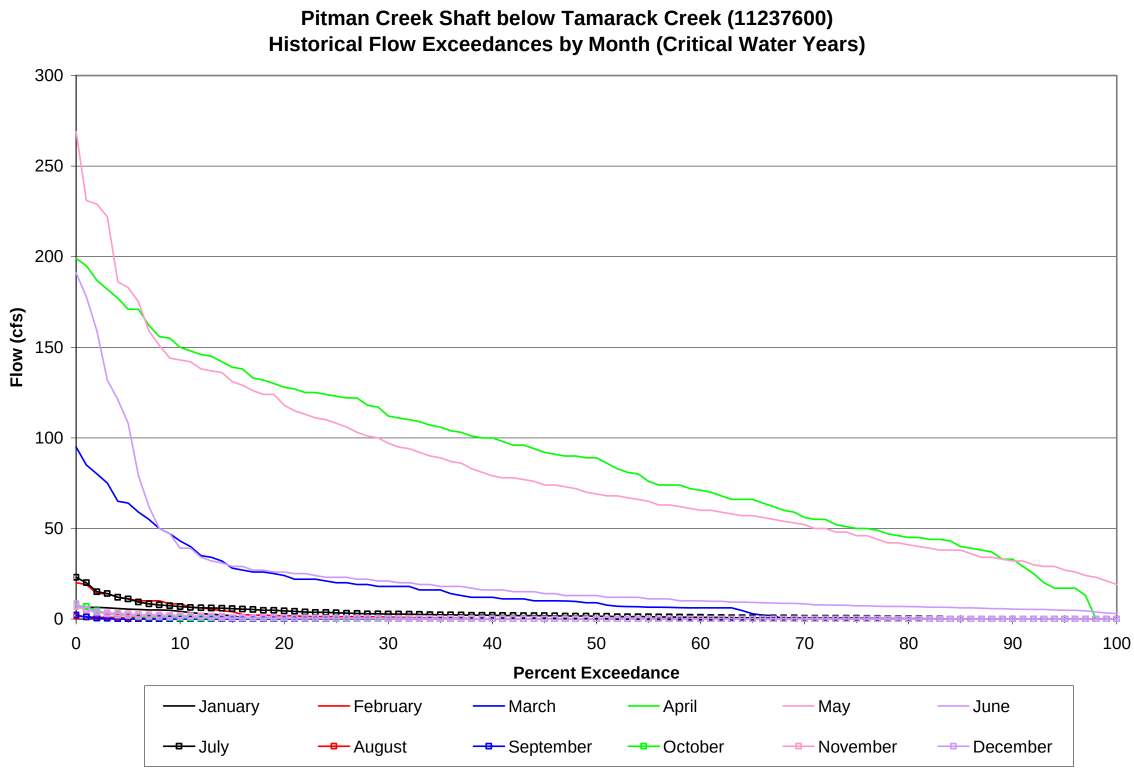


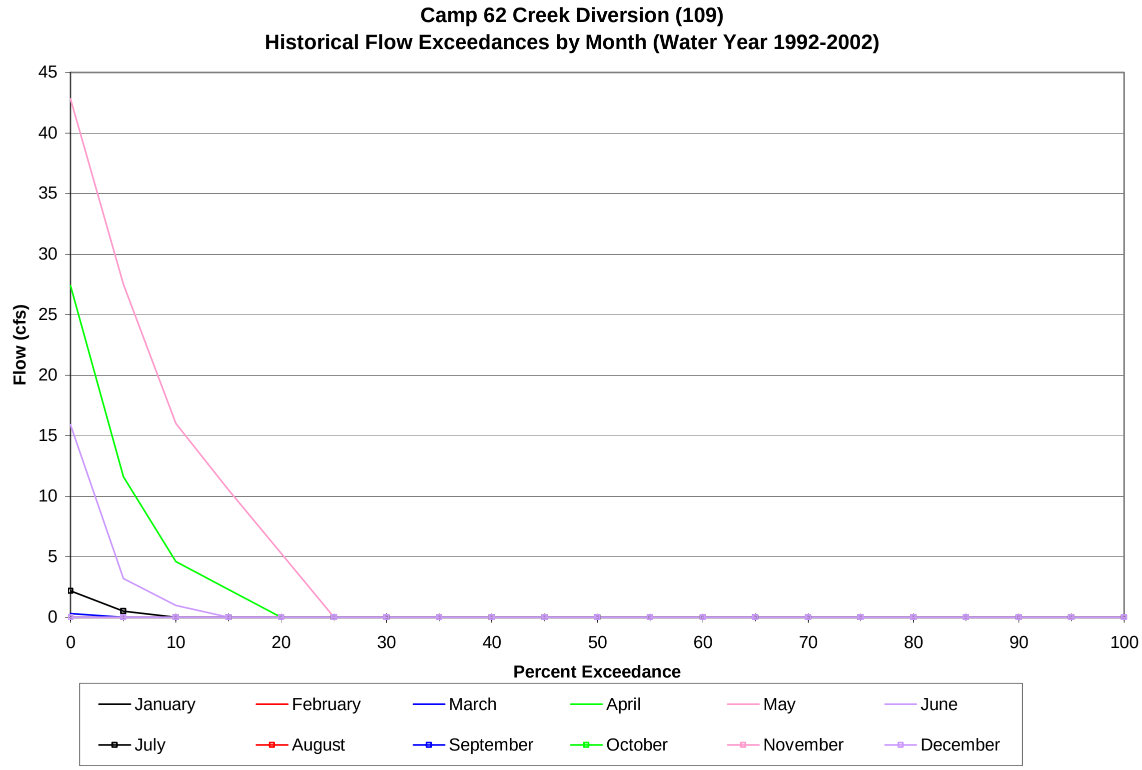

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

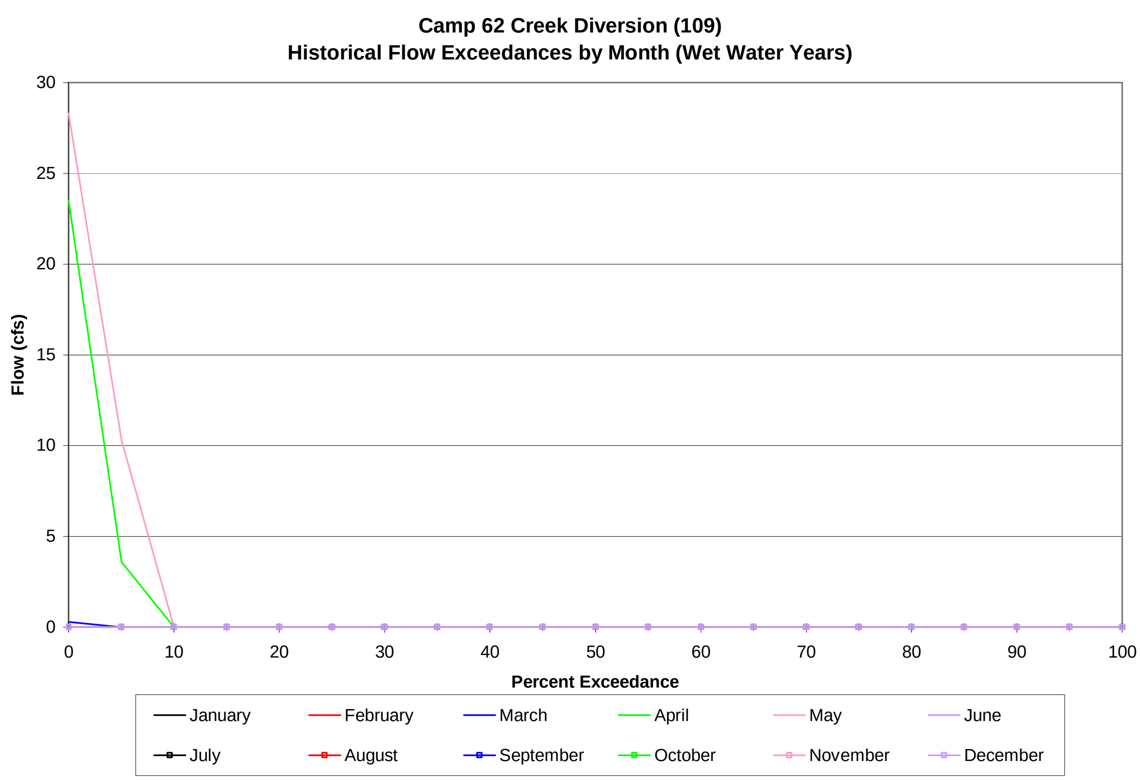

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

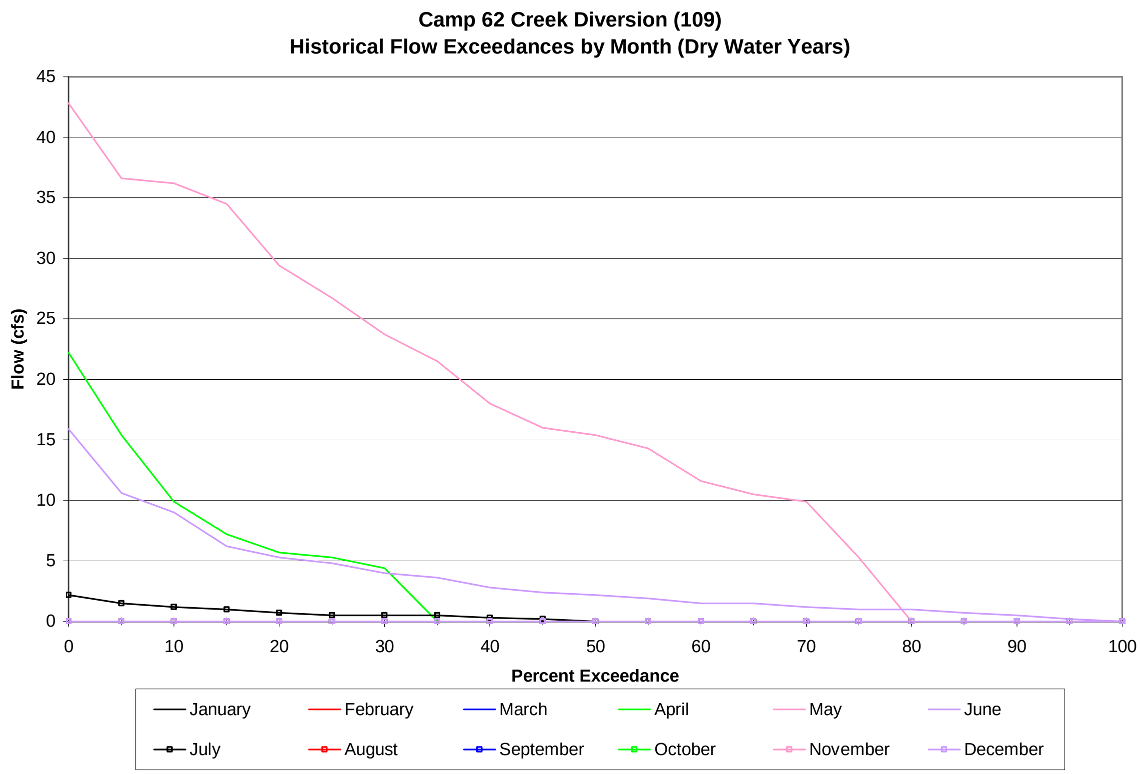

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

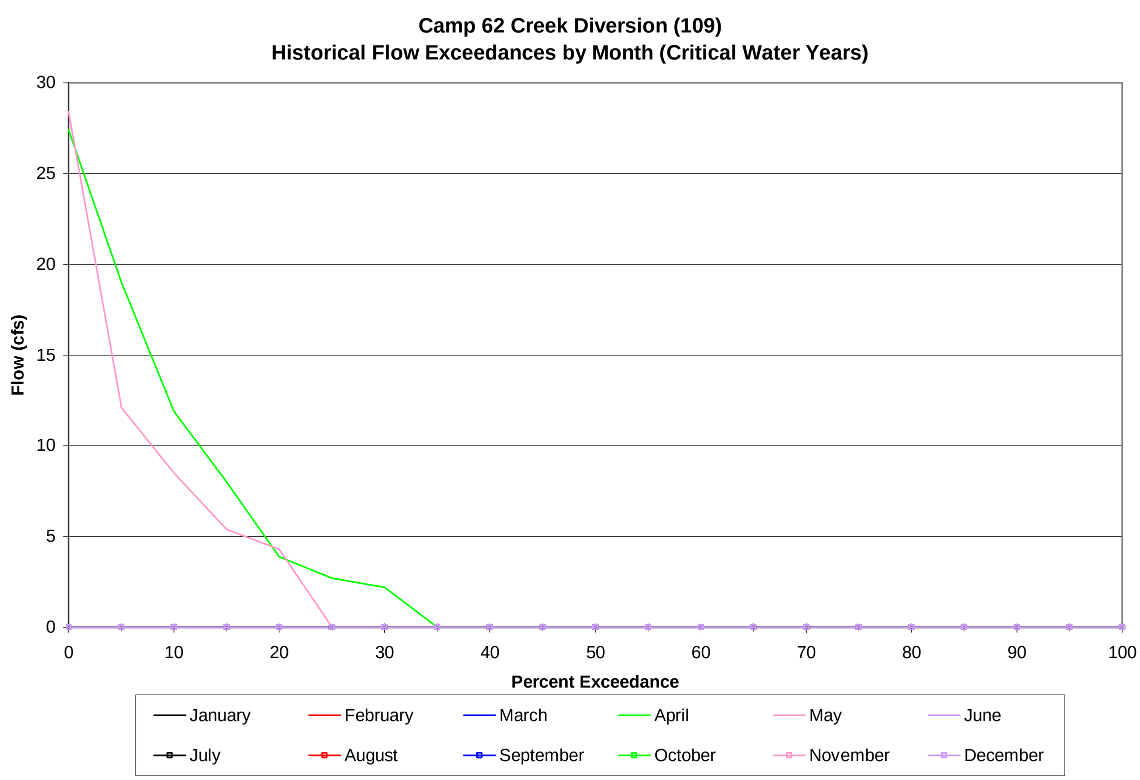

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

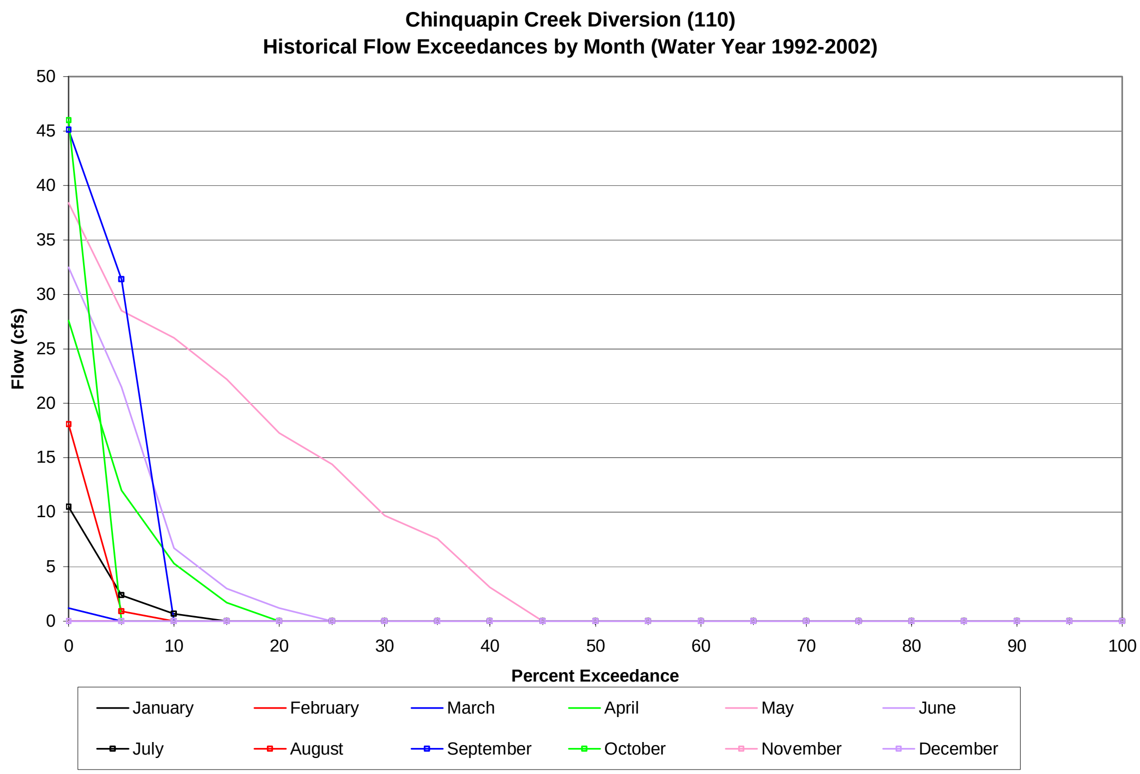

Pitman Creek Shaft below Tamarack Creek (11237600)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

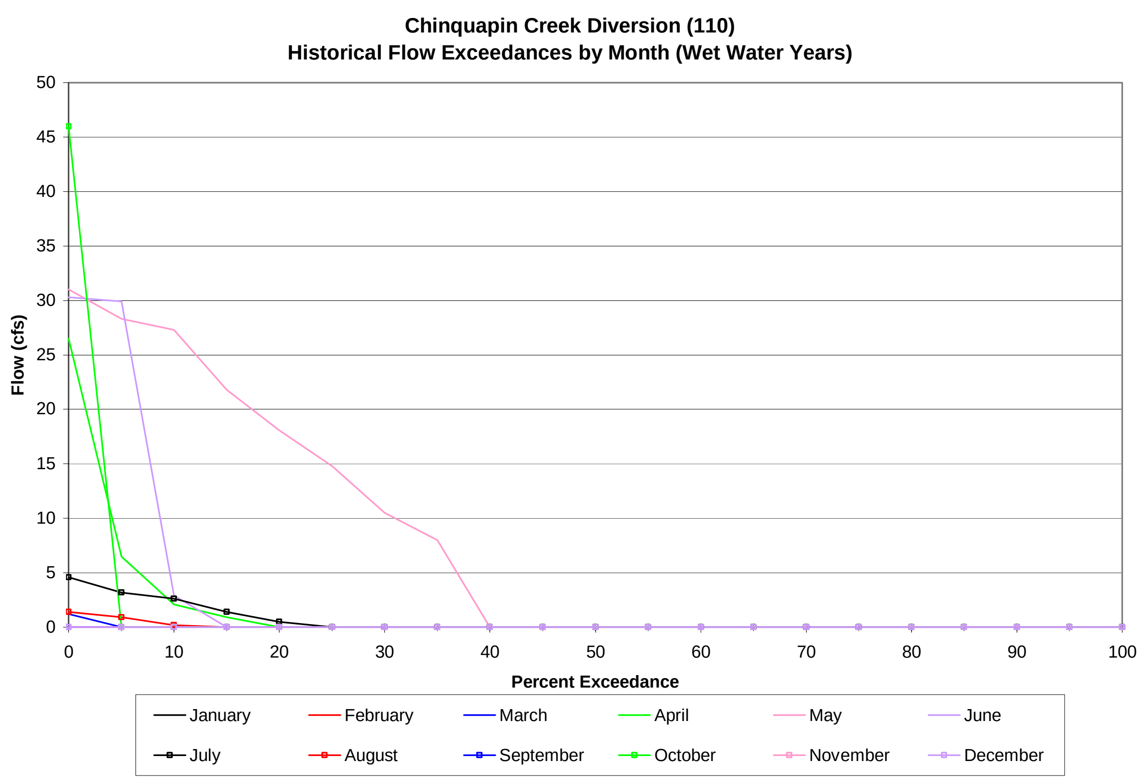

Camp 62 Creek Diversion (109)
Historical Flow Exceedances by Month (Water Year 1992-2002)
Flow (cfs)
Percent Exceedance
0
5
10
15
20
25
30
35
40
45
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

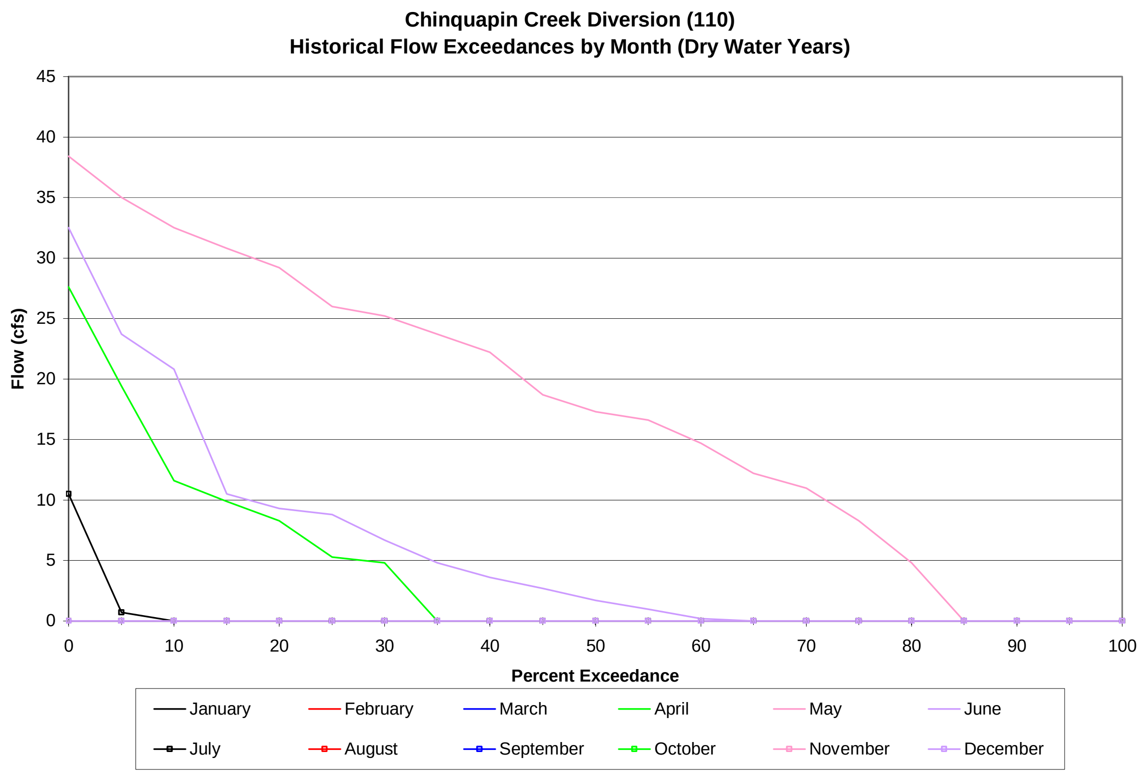

Camp 62 Creek Diversion (109)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
5
10
15
20
25
30
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

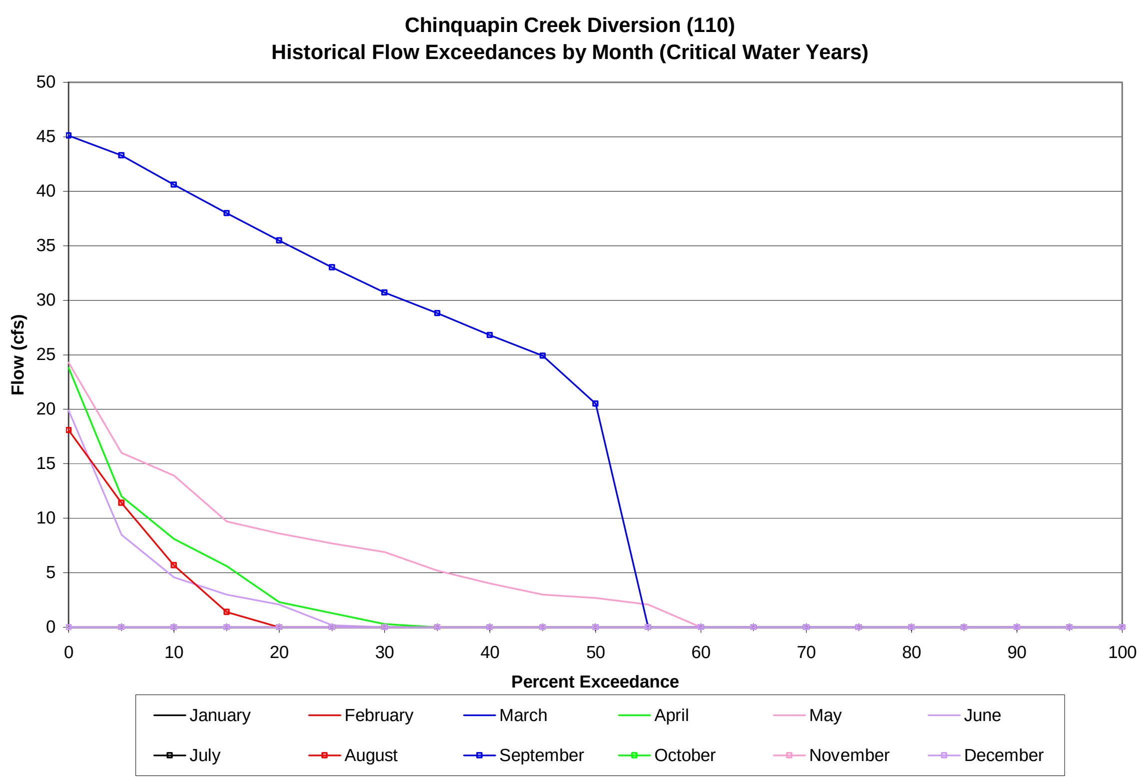

Camp 62 Creek Diversion (109)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

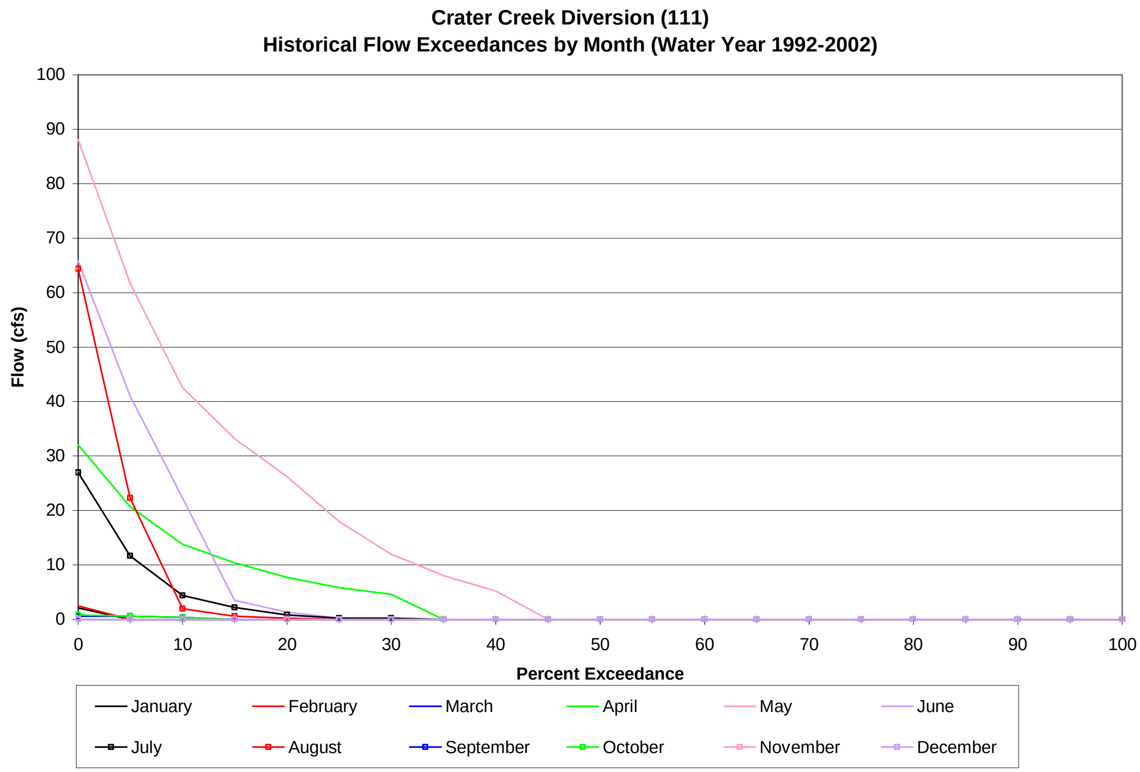

Camp 62 Creek Diversion (109)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

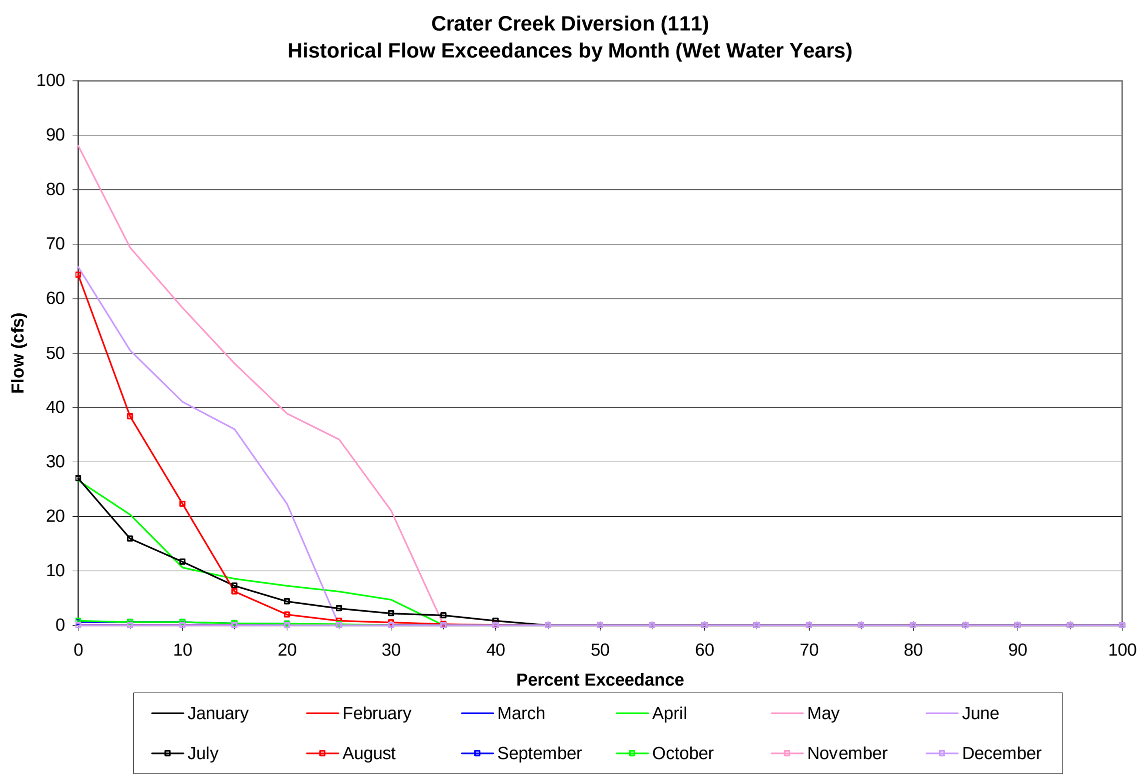

Chinquapin Creek Diversion (110)
Historical Flow Exceedances by Month (Water Year 1992-2002)
Flow (cfs)
Percent Exceedance
0
5
10
15
20
25
30
35
40
45
50
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

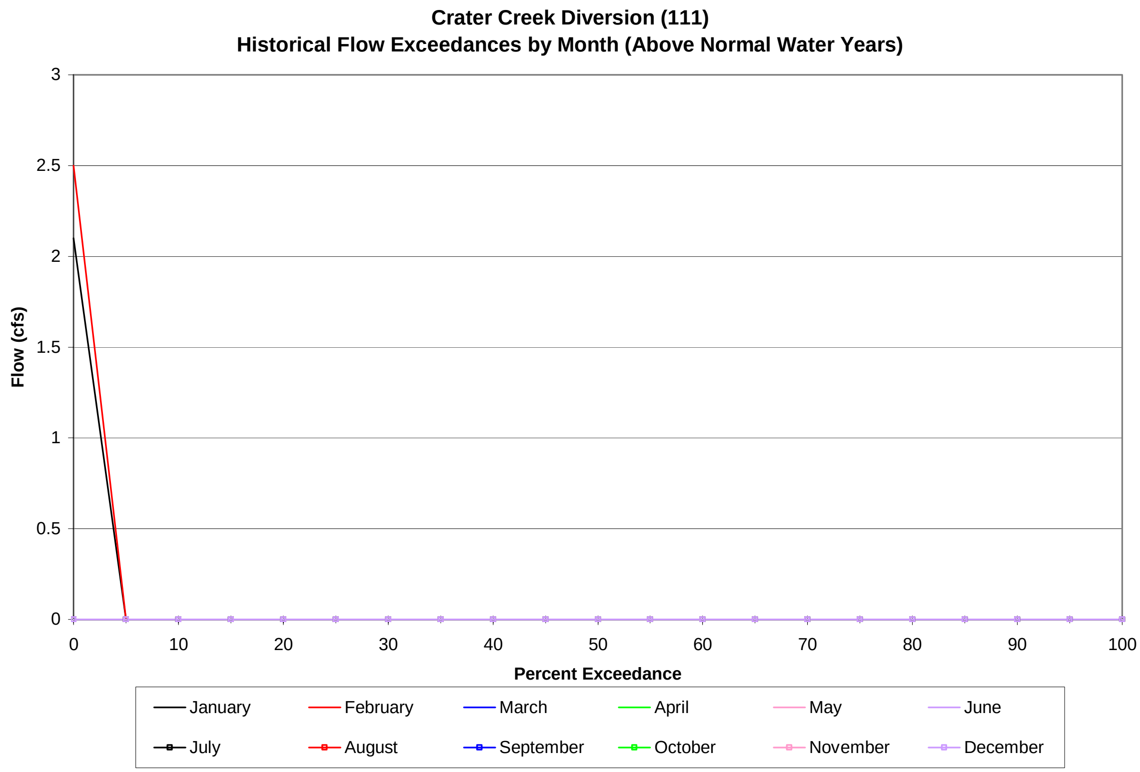

Chinquapin Creek Diversion (110)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
5
10
15
20
25
30
35
40
45
50
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

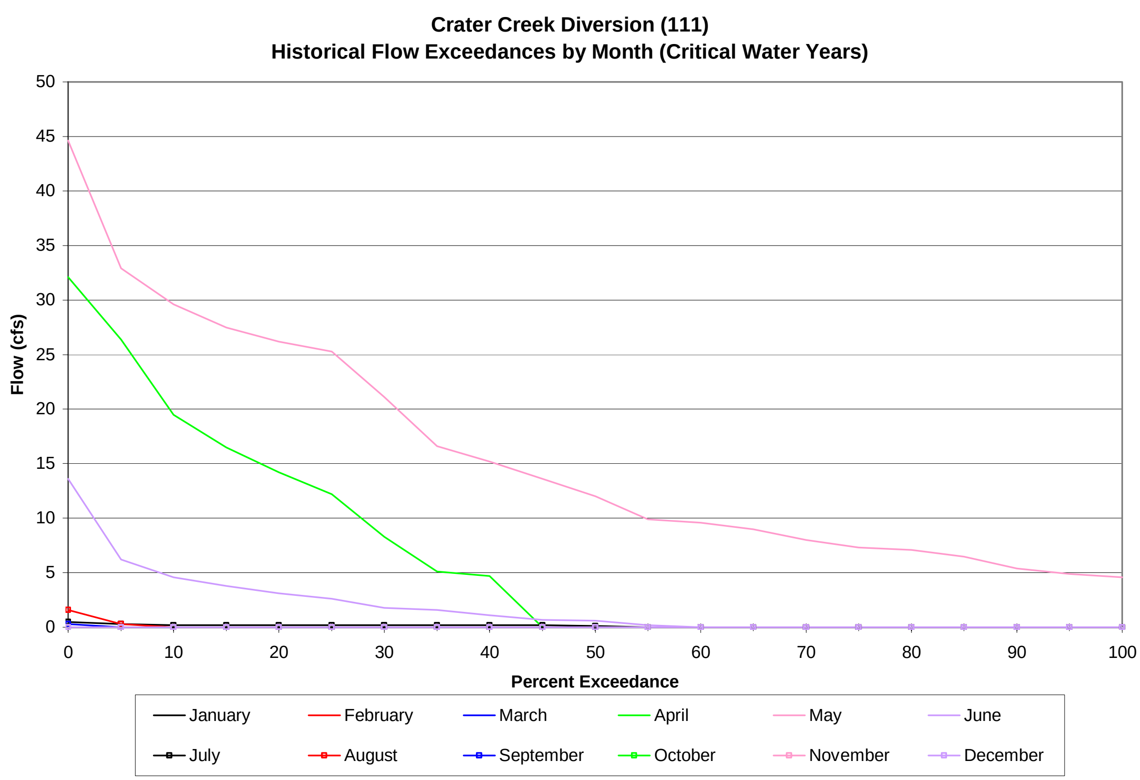

Chinquapin Creek Diversion (110)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

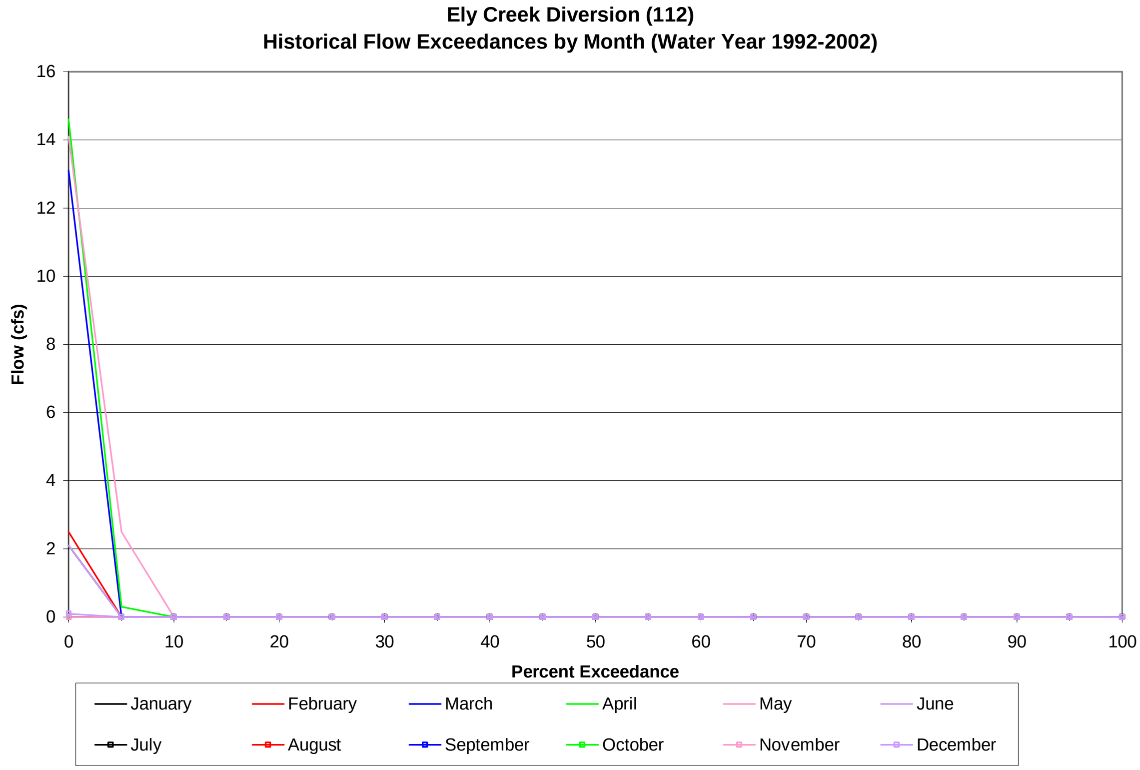

Chinquapin Creek Diversion (110)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
50
45
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

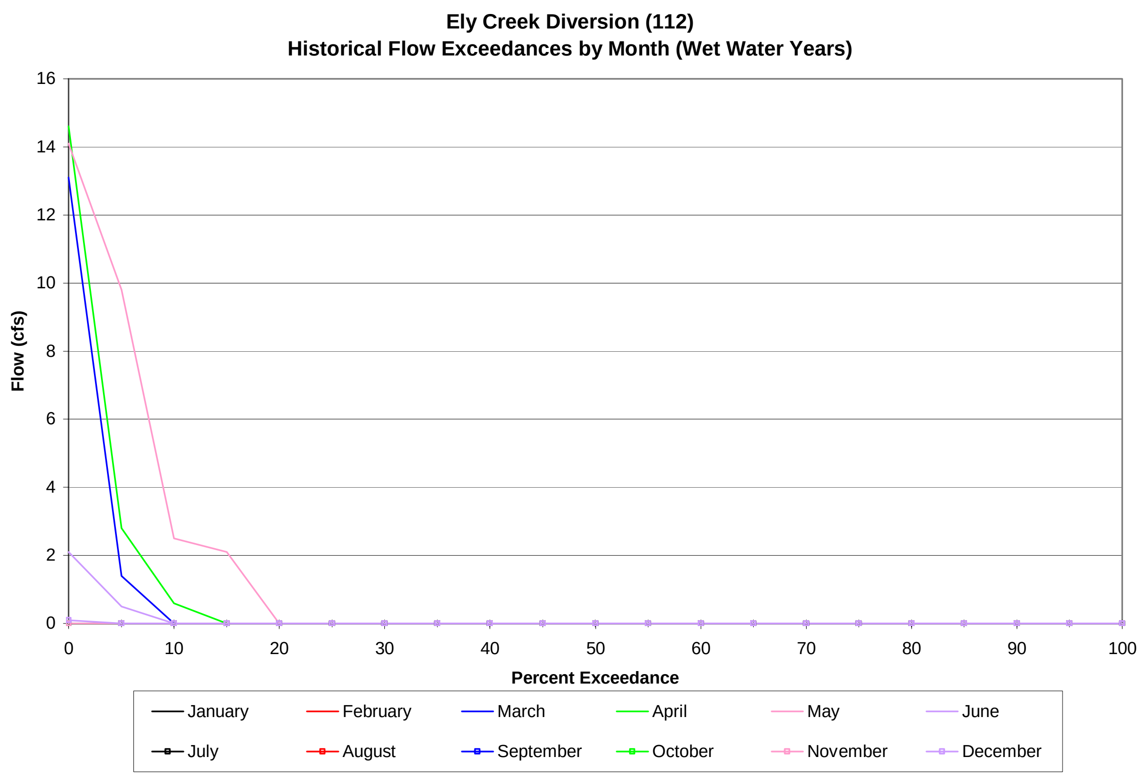

Crater Creek Diversion (111)
Historical Flow Exceedances by Month (Water Year 1992-2002)
Flow (cfs)
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

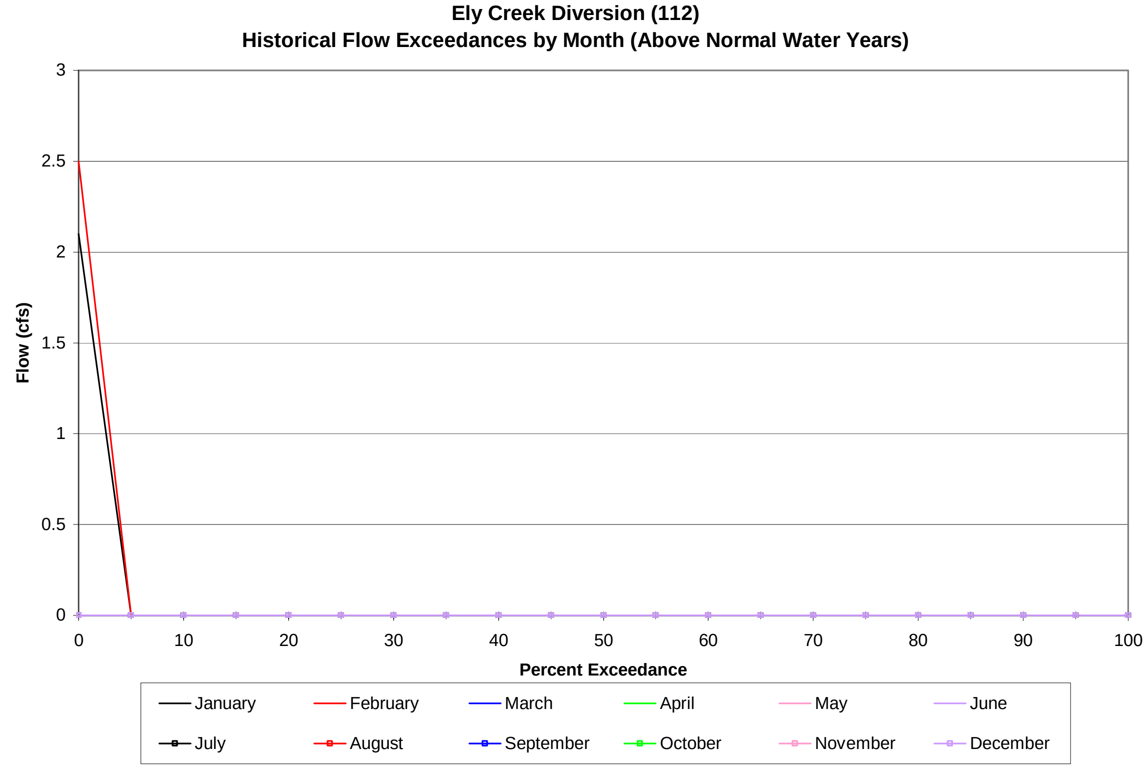

Crater Creek Diversion (111)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

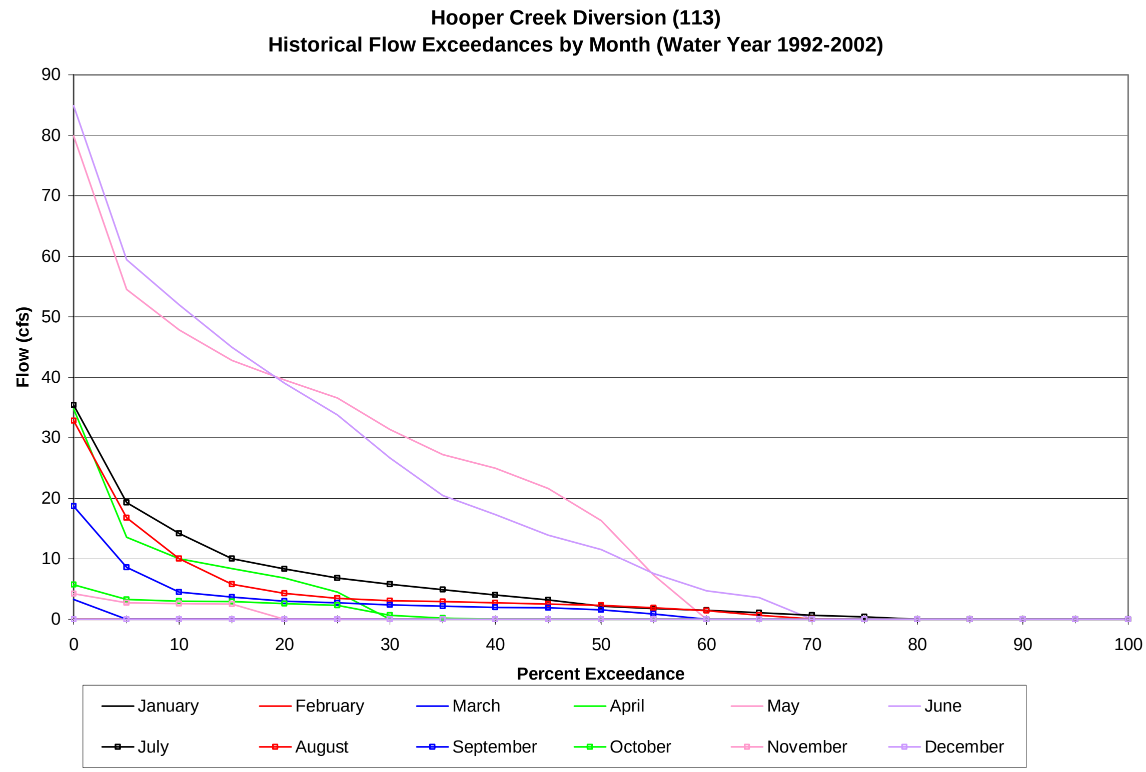

Crater Creek Diversion (111)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
0.5
1
1.5
2
2.5
3
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

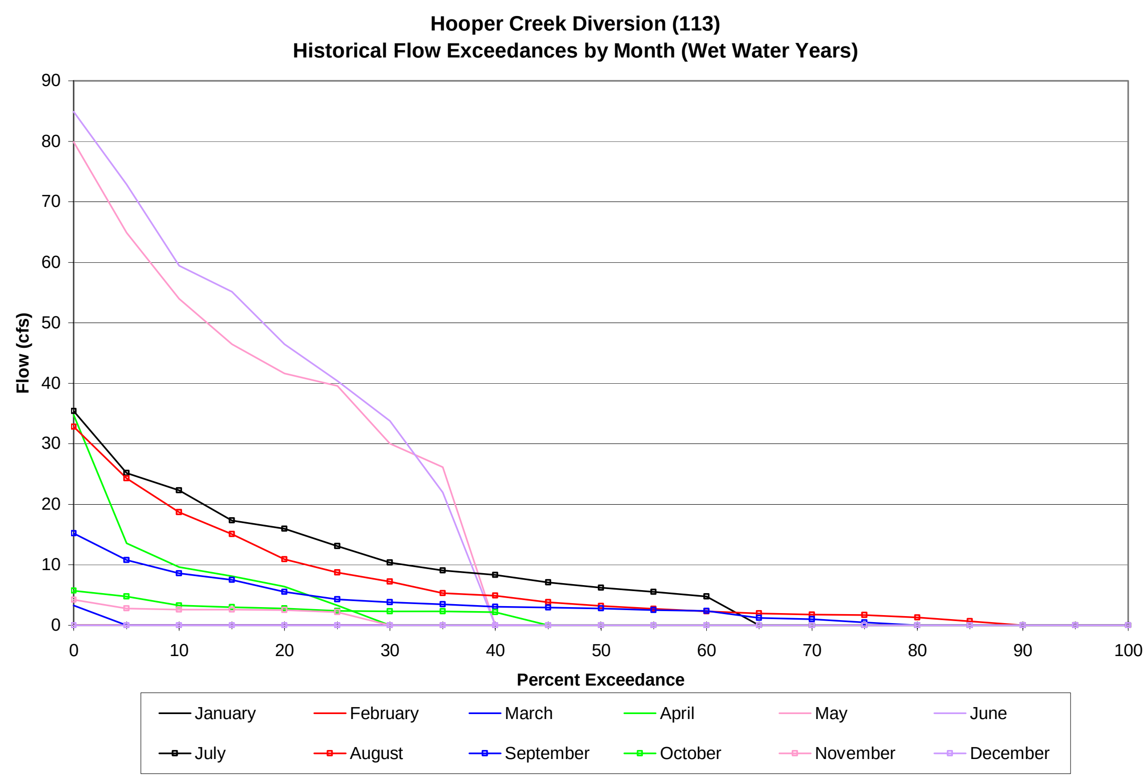

Crater Creek Diversion (111)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
5
10
15
20
25
30
35
40
45
50
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

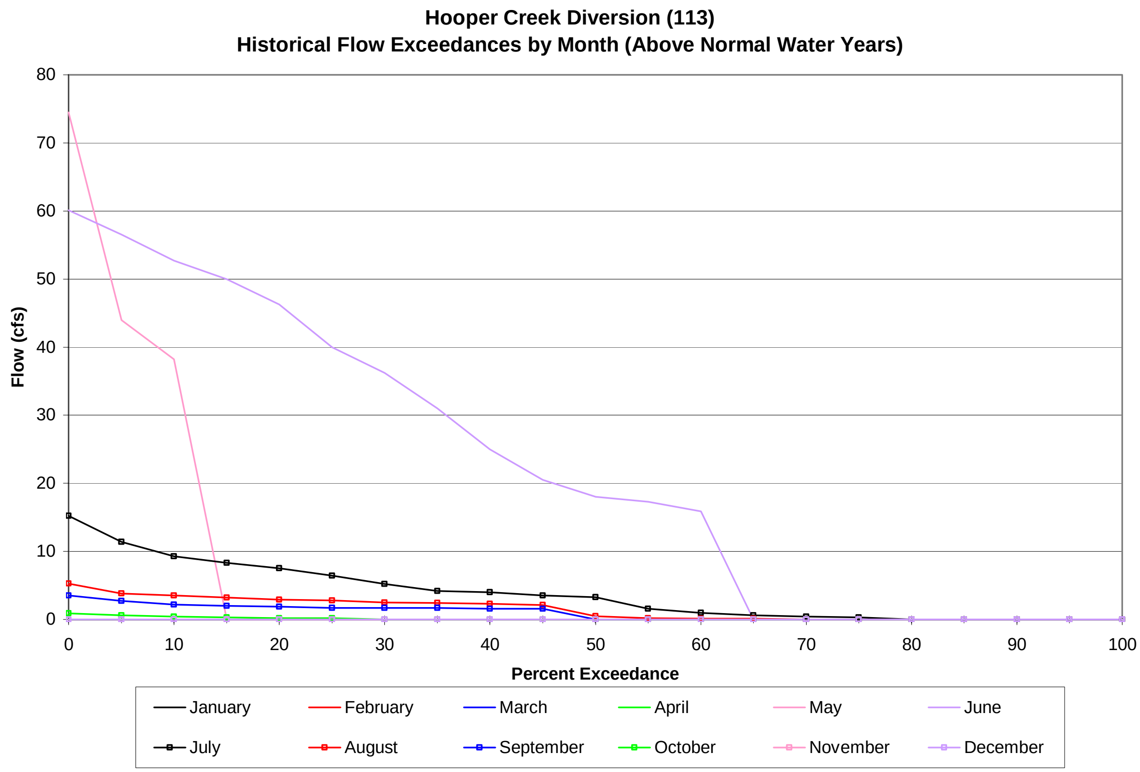

Ely Creek Diversion (112)
Historical Flow Exceedances by Month (Water Year 1992-2002)
Flow (cfs)
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

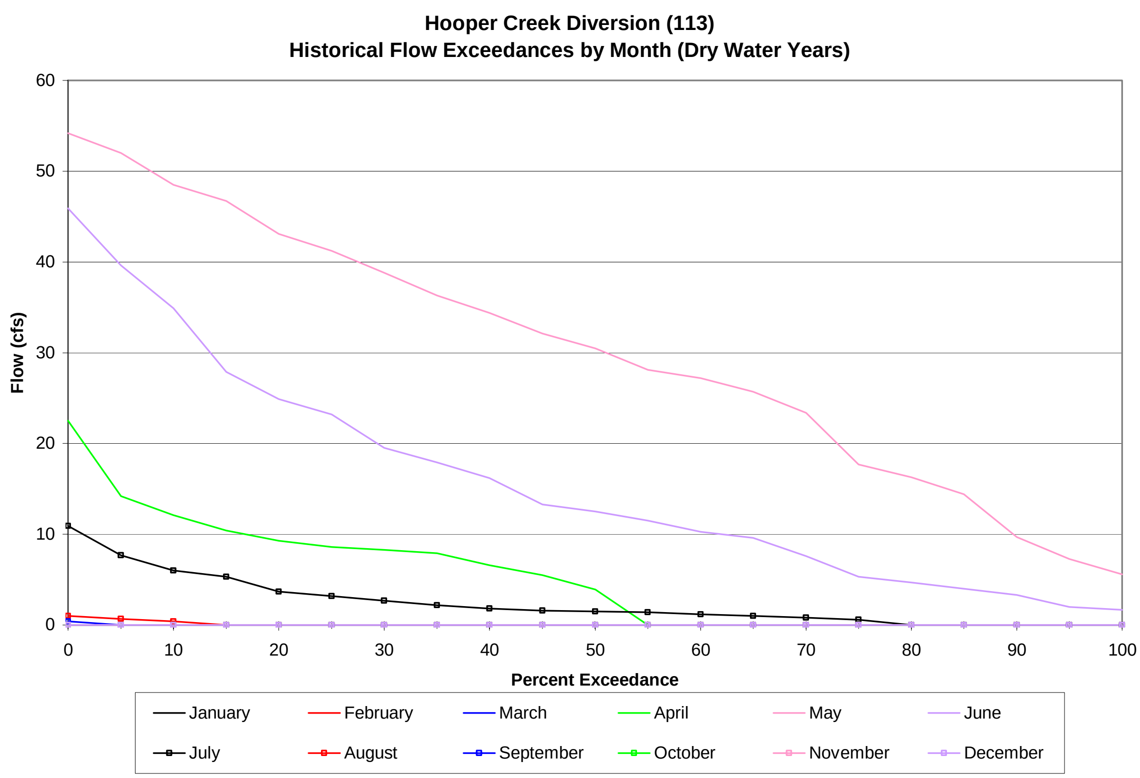

Ely Creek Diversion (112)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

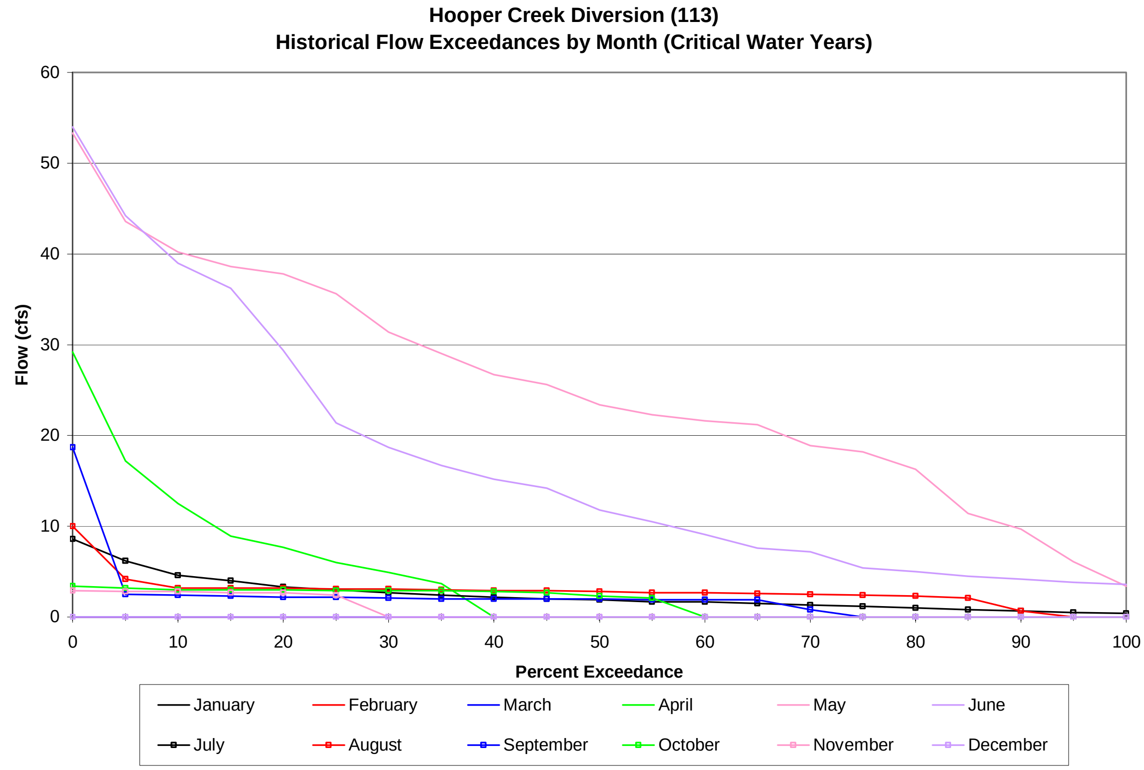

Ely Creek Diversion (112)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
3
2.5
2
1.5
1
0.5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

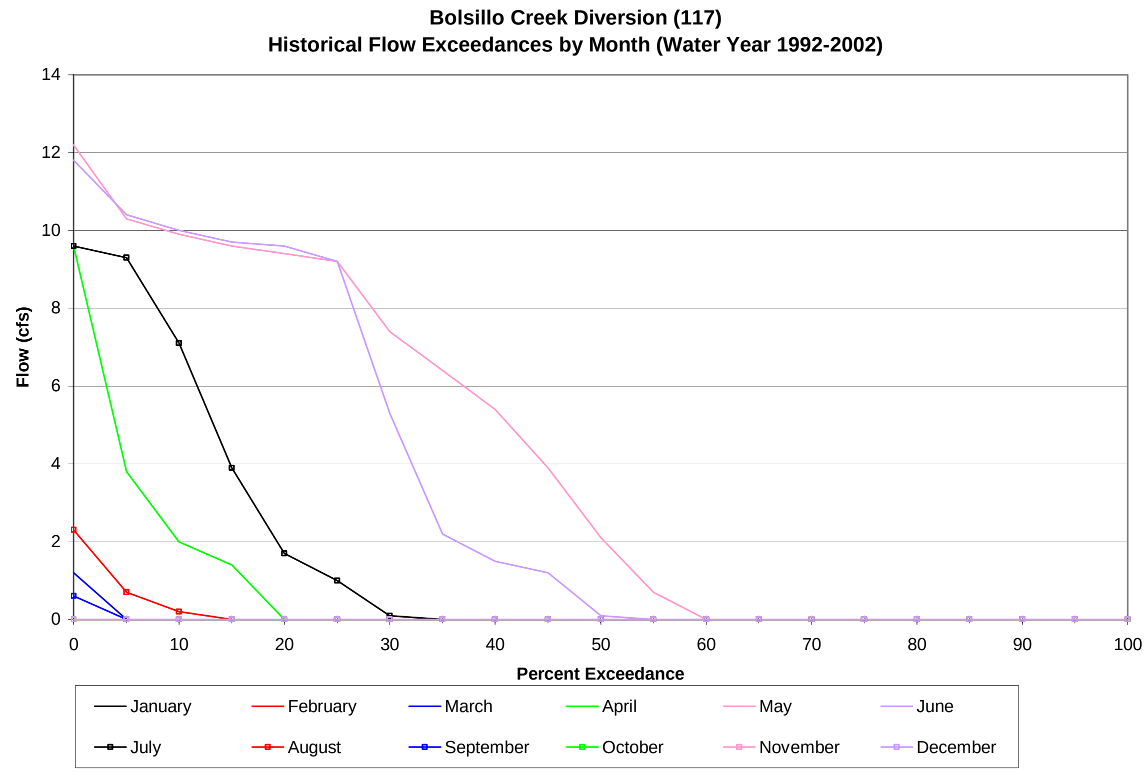

Hooper Creek Diversion (113)
Historical Flow Exceedances by Month (Water Year 1992-2002)
Flow (cfs)
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Hooper Creek Diversion (113)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
90
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

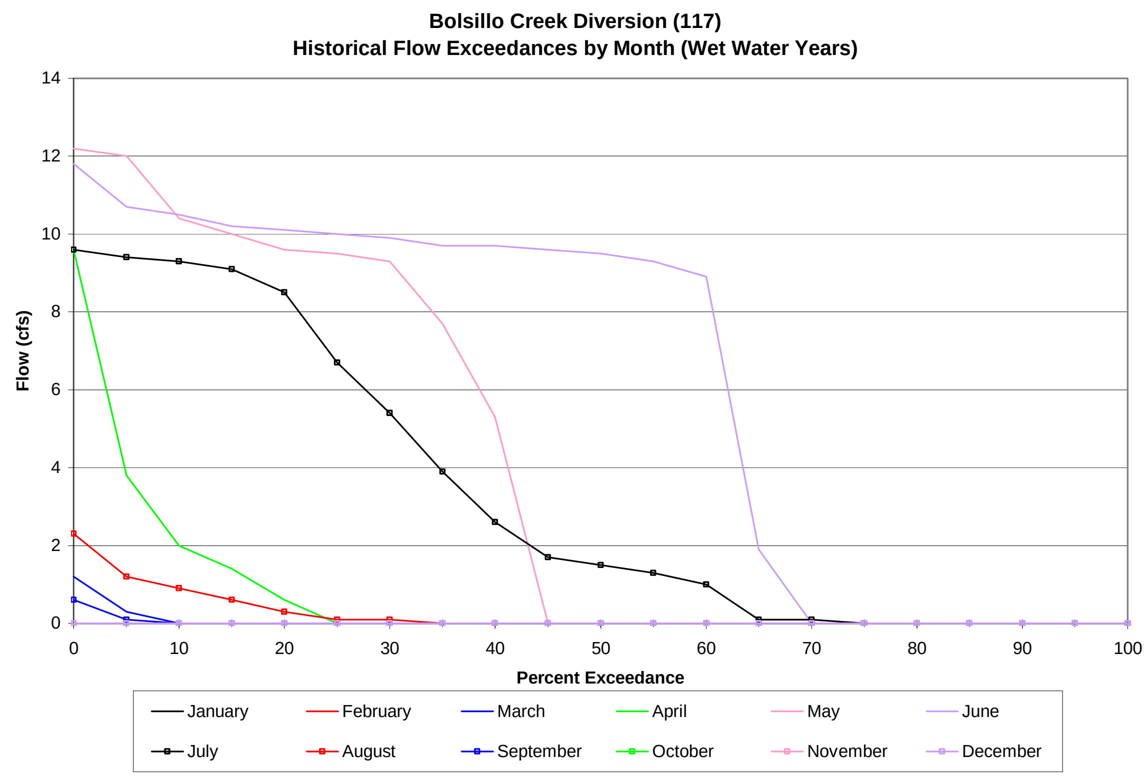

Hooper Creek Diversion (113)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
10
20
30
40
50
60
70
80
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Hooper Creek Diversion (113)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
10
20
30
40
50
60
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

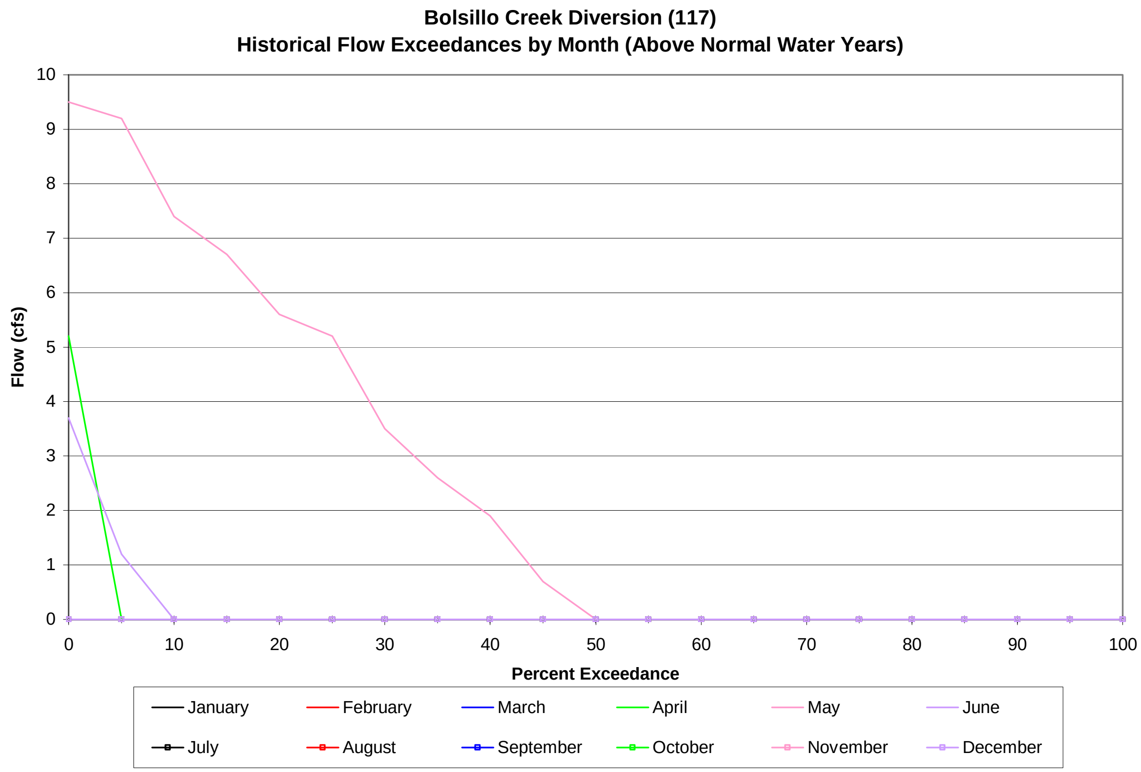

Hooper Creek Diversion (113)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

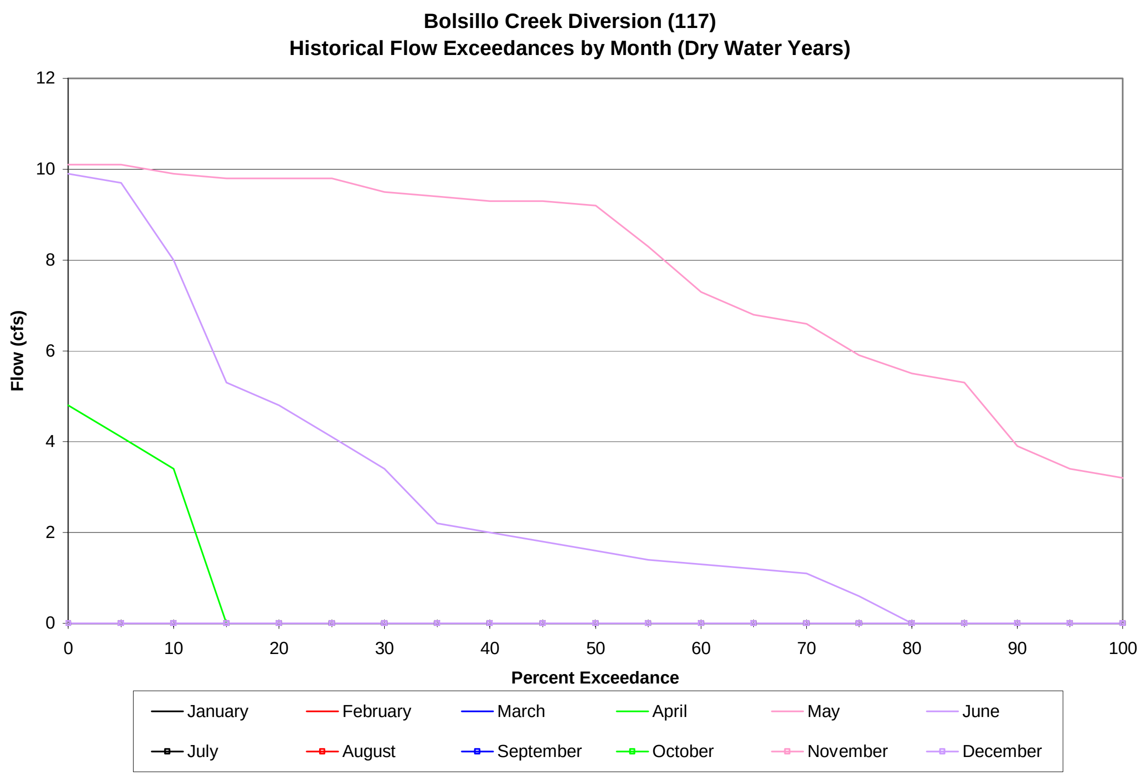


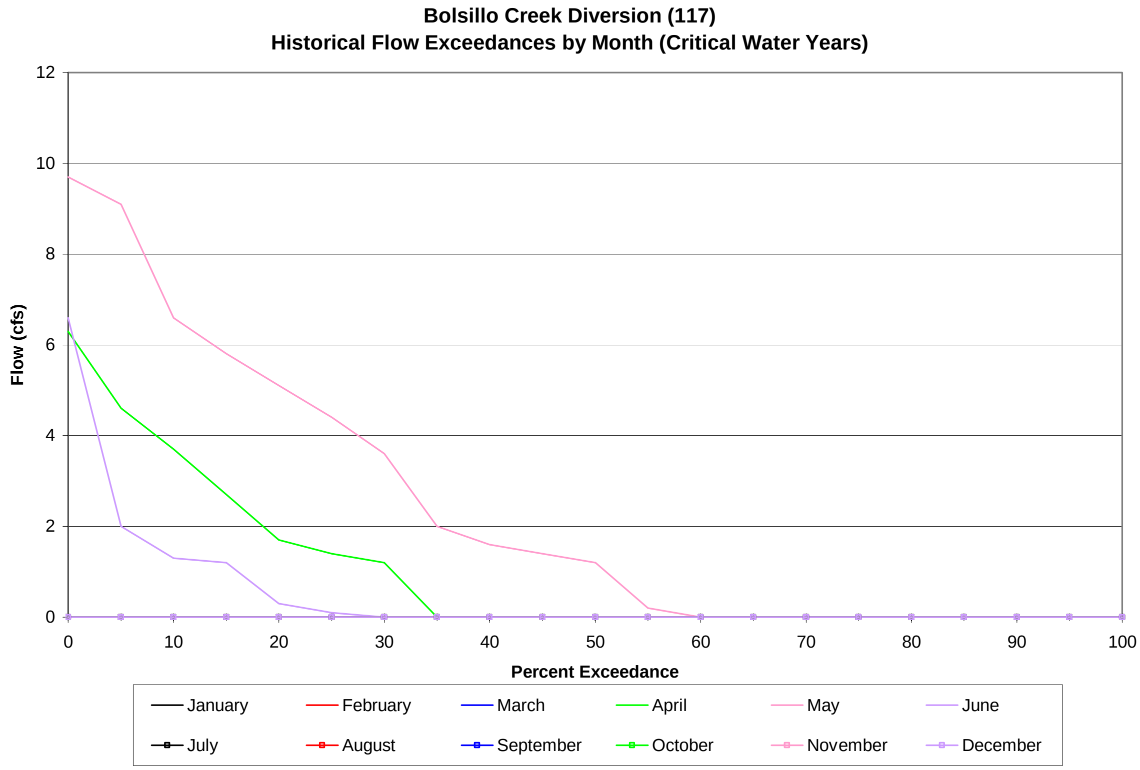
Bolsillo Creek Diversion (117)
Historical Flow Exceedances by Month (Water Year 1992-2002)
Flow (cfs)
Percent Exceedance
0
2
4
6
8
10
12
14
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December



Bolsillo Creek Diversion (117)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
2
4
6
8
10
12
14
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


Bolsillo Creek Diversion (117)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
10
9
8
7
6
5
4
3
2
1
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Bolsillo Creek Diversion (117)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Bolsillo Creek Diversion (117)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
2
4
6
8
10
12
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

APPENDIX I

RIVER AND STREAM GAGING STATION UNIMPAIRED HYDROLOGY-EXCEEDANCE TABLES

APPENDIX I

BIG CREEK

CAWG 6 HYDROLOGY

RIVER AND STREAM GAGING STATION UNIMPAIRED HYDROLOGY PERCENTILE/EXCEEDANCE TABLES

List of locations and periods of record (by water year) in order of appearance. The operations period of record (post-1983) is presented. There is no below normal (BN) water year in this period of record, so BN tables are not presented.

Hooper Creek below Diversion (1983-2002)
South Fork San Joaquin River below Hooper Creek (1983-2002)
Bear Creek below Diversion (1983-2002)
Chinquapin Creek below Diversion (1983-2002)
Camp 62 Creek below Diversion (1983-2002)
Bolsillo Creek above Diversion (1983-2002)
Bolsillo Creek below Diversion (1983-2002)
Mono Creek below Diversion - Area Based (1983-2002)
San Joaquin River above Shakeflat Creek (1983-2002)
San Joaquin River above Stevenson Creek (1983-2002)
Rock Creek (1983-2002)
Ross Creek (1983-2002)
North Fork Stevenson Creek near Perimeter Road (1983-2002)
Stevenson Creek below Shaver Lake (1983-2002)
Pitman Creek near Tamarack Mountain (below Diversion) (1983-2002)
Balsam Creek below Balsam Meadow Forebay (1983-2002)
Big Creek near Mouth (1983-2002)
Redinger Lake Inflows (1983-2002)

Table CAWG 6 Appdx I-1A. Hooper Creek Below Diversion - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	43.0	24.6	21.3	52.0	115.7	162.3	145.8	98.2	28.9	19.0	11.4	13.3
1	10.0	12.5	15.0	38.5	103.4	123.4	112.0	65.5	18.1	11.6	8.4	8.7
5	7.0	7.0	9.9	27.6	77.0	98.0	75.0	36.3	12.0	7.9	6.2	6.3
10	5.6	5.5	8.0	22.0	62.3	74.3	58.0	21.2	9.1	6.2	5.6	5.2
15	4.5	4.8	7.1	18.1	53.2	62.6	45.0	15.4	7.4	5.6	5.3	4.4
20	3.8	4.3	6.7	15.8	47.3	57.7	38.6	11.1	6.2	5.1	4.8	3.6
25	3.4	4.0	6.3	13.9	43.8	51.5	28.5	9.8	5.5	4.8	4.3	3.3
30	3.2	3.4	5.6	12.6	41.1	47.2	21.3	7.6	5.0	4.6	3.7	3.2
35	3.1	3.2	5.2	11.5	37.1	42.0	16.2	6.7	4.6	4.1	3.3	2.9
40	2.9	3.0	4.6	10.8	34.4	39.2	13.1	6.1	4.2	3.6	3.0	2.7
45	2.7	2.9	4.2	10.0	31.7	37.0	11.3	5.6	4.0	3.2	2.7	2.6
50	2.5	2.7	3.9	9.1	29.8	33.1	9.9	5.2	3.6	2.7	2.6	2.4
55	2.3	2.5	3.6	8.5	27.1	30.9	9.1	4.6	3.2	2.5	2.5	2.2
60	2.2	2.3	3.4	7.8	24.7	28.0	8.4	4.0	2.8	2.4	2.3	2.1
65	2.0	2.2	3.3	7.3	22.0	24.6	7.7	3.7	2.5	2.3	2.2	2.0
70	1.9	2.1	3.1	6.7	20.5	21.7	7.1	3.3	2.2	1.9	2.0	1.9
75	1.9	2.0	2.9	6.2	18.7	19.4	6.3	3.0	1.9	1.8	1.8	1.8
80	1.8	1.9	2.8	5.6	16.5	16.9	5.7	2.6	1.8	1.7	1.6	1.7
85	1.0	1.8	2.7	5.0	14.0	14.1	5.0	2.5	1.4	1.4	1.4	1.0
90	0.8	1.0	2.4	4.4	11.0	11.3	4.5	2.2	1.2	0.8	1.2	0.8
95	0.7	0.8	2.2	3.9	8.6	7.9	3.8	1.6	0.7	0.7	0.7	0.7
99	0.6	0.6	1.8	3.3	5.8	7.3	2.9	1.0	0.6	0.6	0.7	0.6
Minimum	0.6	0.6	0.9	2.8	2.6	5.7	2.7	0.8	0.6	0.6	0.6	0.5
Average	3.1	3.2	4.8	11.4	33.8	39.3	21.6	9.5	4.5	3.5	3.1	2.8
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-1B. Hooper Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	43.0	24.6	21.3	52.0	115.7	162.3	145.8	98.2	28.9	19.0	11.4	13.3
1	19.0	19.4	19.2	44.0	109.5	137.5	133.5	83.6	24.1	15.3	9.6	9.6
5	8.4	9.9	14.0	31.0	91.3	118.6	104.0	61.1	17.3	10.9	7.3	7.7
10	7.8	7.3	10.3	23.8	76.9	108.4	82.0	49.5	12.4	8.7	6.3	6.5
15	7.0	7.0	9.2	18.0	71.4	97.9	75.0	33.1	11.7	6.7	5.9	5.9
20	6.6	6.2	7.8	14.0	62.7	83.9	68.0	30.9	10.7	6.1	5.6	5.4
25	6.1	5.6	7.2	13.3	56.9	77.3	61.7	25.3	9.5	5.6	5.4	4.8
30	4.9	5.1	7.1	12.2	52.6	69.0	55.7	20.3	8.8	5.2	5.2	3.8
35	4.0	5.0	6.9	11.6	47.6	64.5	49.2	17.4	8.1	5.1	4.8	3.3
40	3.6	4.6	6.7	11.0	44.6	61.1	46.0	15.6	7.2	4.8	3.8	3.2
45	3.4	4.3	6.5	10.3	41.8	58.0	43.0	13.8	6.7	4.7	3.7	3.1
50	3.3	4.1	6.3	9.6	34.7	55.7	40.0	12.2	6.0	4.6	3.3	3.0
55	3.2	3.9	6.1	8.2	30.9	52.0	34.9	10.2	5.6	4.5	3.2	2.9
60	3.1	3.3	5.7	7.5	26.1	49.8	28.5	9.4	5.3	3.0	2.9	2.8
65	3.0	3.2	5.3	7.1	24.0	45.3	22.5	7.6	5.0	2.9	2.7	2.7
70	2.7	3.1	4.8	6.6	21.2	41.4	20.2	7.1	4.8	2.6	2.6	2.6
75	2.6	3.0	4.4	6.2	20.0	38.0	18.1	6.6	4.5	2.5	2.5	2.5
80	2.5	2.9	4.1	5.7	18.0	36.0	14.0	5.7	4.1	2.4	2.3	2.4
85	2.4	2.4	3.7	5.2	16.0	31.5	11.9	5.2	3.5	1.9	2.1	2.0
90	2.1	2.1	3.4	5.0	15.0	29.0	9.7	4.6	3.2	1.8	1.8	1.9
95	1.9	1.8	2.9	4.4	10.0	20.2	8.9	3.9	2.9	1.8	1.7	1.8
99	1.8	1.7	2.0	3.8	5.5	16.5	8.0	3.3	2.7	1.7	1.2	1.6
Minimum	1.7	1.7	2.0	3.8	5.5	15.6	8.0	3.3	2.6	1.6	1.0	1.4
Average	4.6	4.8	6.6	11.9	41.3	61.2	43.1	19.0	7.5	4.7	4.0	3.7
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-1C. Hooper Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.6	6.5	10.7	21.2	89.2	65.6	63.7	20.6	9.1	11.3	8.2	10.6
5	5.4	4.5	8.8	17.7	83.6	60.2	42.8	13.1	7.8	8.5	6.6	6.6
10	4.9	4.3	8.0	15.0	79.2	56.4	36.6	11.1	6.6	6.2	5.9	5.9
15	4.4	4.1	5.9	12.0	71.1	54.2	29.6	10.4	6.3	5.1	5.5	5.5
20	4.1	4.0	5.5	10.0	59.8	50.0	25.7	9.9	5.9	5.1	5.0	5.2
25	3.8	3.7	4.9	9.6	48.4	46.6	21.5	9.3	5.5	5.0	4.8	4.9
30	3.4	3.6	4.5	8.9	45.2	41.5	19.2	8.3	5.2	4.8	4.7	4.7
35	3.2	3.3	4.4	8.7	40.0	40.7	16.8	7.7	5.1	4.6	4.5	4.3
40	3.2	3.1	4.1	8.4	34.0	39.3	14.2	7.1	4.9	4.5	4.4	3.8
45	3.1	3.0	4.0	8.1	30.0	36.6	12.8	6.8	4.6	4.4	4.4	3.6
50	3.1	2.9	3.9	7.8	28.0	31.6	11.1	6.5	4.2	4.4	4.3	3.5
55	3.0	2.9	3.8	7.6	24.0	30.8	9.1	6.0	4.0	4.1	3.8	3.3
60	3.0	2.8	3.5	7.3	22.0	30.1	8.2	5.7	4.0	3.7	3.6	3.3
65	2.9	2.7	3.4	7.0	18.0	25.5	7.5	5.2	3.9	3.3	3.3	3.2
70	2.3	2.7	3.3	6.5	11.0	23.0	7.3	3.8	3.9	3.2	2.6	2.3
75	2.2	2.4	3.1	5.9	9.8	8.0	7.3	3.7	3.2	2.8	2.5	2.2
80	2.2	2.4	3.0	5.4	8.9	7.9	7.1	3.6	2.9	2.6	2.5	2.2
85	1.9	2.3	2.9	4.4	8.6	7.8	5.4	3.5	2.6	2.5	2.4	2.1
90	1.8	2.2	2.6	3.6	7.2	7.7	4.4	3.5	2.5	2.4	2.4	2.0
95	1.7	2.1	2.4	3.4	6.4	7.4	4.1	2.6	2.4	2.4	2.3	1.9
Minimum	1.7	2.1	2.4	3.2	2.6	7.3	4.0	2.5	2.4	2.3	2.3	1.9
Average	3.2	3.2	4.4	8.6	34.3	32.6	16.1	6.9	4.6	4.3	4.0	3.8
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-1D. Hooper Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.5	12.5	9.5	33.8	59.4	48.7	13.1	6.2	4.0	5.1	6.2	4.9
5	4.9	5.5	5.6	25.0	53.9	46.6	12.0	5.2	3.3	3.8	5.2	4.3
10	4.5	4.4	4.4	21.7	50.6	43.5	10.7	4.3	2.7	3.7	4.5	3.8
15	4.4	4.0	3.8	20.1	47.9	39.9	10.4	3.7	2.7	3.6	4.0	3.7
20	4.3	3.7	3.8	16.3	43.7	36.7	10.2	3.5	2.6	3.6	3.6	3.6
25	3.8	3.3	3.6	14.9	41.8	32.9	9.4	3.3	2.5	3.3	3.3	3.3
30	3.7	3.0	3.4	14.1	40.0	27.3	8.6	3.2	2.3	3.2	2.8	3.2
35	2.7	2.7	3.4	12.9	38.1	25.6	8.2	3.0	2.3	2.8	2.6	2.7
40	2.3	2.6	3.3	12.0	35.8	21.9	8.0	2.9	2.2	2.6	2.5	2.4
45	2.2	2.2	3.2	10.8	34.4	20.8	7.1	2.8	2.1	2.6	2.4	2.1
50	2.2	2.1	3.1	10.3	34.0	19.4	6.2	2.7	2.0	2.5	2.3	2.0
55	2.1	2.1	3.0	10.0	32.2	17.2	5.6	2.6	2.0	2.5	2.3	2.0
60	2.0	2.0	2.9	9.4	30.7	15.7	5.5	2.5	1.9	2.4	2.2	2.0
65	2.0	2.0	2.9	8.7	29.3	14.2	4.9	2.5	1.9	2.3	2.2	1.9
70	2.0	2.0	2.9	7.8	27.4	13.4	4.8	2.4	1.8	1.8	2.1	1.9
75	2.0	2.0	2.8	6.2	23.8	12.3	4.4	2.4	1.8	1.8	2.1	1.9
80	2.0	1.9	2.7	5.0	21.4	10.4	3.9	2.3	1.8	1.7	2.0	1.9
85	1.9	1.9	2.3	4.6	19.1	9.0	3.8	2.3	1.8	1.7	1.8	1.8
90	1.9	1.9	2.2	4.2	16.7	7.6	3.5	2.2	1.8	1.7	1.8	1.8
95	1.9	1.9	2.1	3.9	10.3	6.5	3.4	2.0	1.7	1.7	1.8	1.7
Minimum	1.6	1.8	1.9	3.7	7.8	5.7	3.4	2.0	1.7	1.7	1.7	1.6
Average	2.8	2.9	3.3	11.8	33.4	22.6	7.0	3.0	2.2	2.6	2.8	2.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-1E. Hooper Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.2	4.5	11.8	34.1	57.6	85.0	44.6	18.8	24.2	6.7	5.7	3.6
1	3.2	4.3	9.9	31.9	56.1	80.9	41.3	15.4	6.7	6.5	5.7	3.2
5	3.0	3.4	7.8	28.6	44.8	59.1	22.5	7.3	4.8	6.2	5.5	2.9
10	2.9	3.2	6.7	24.2	42.6	46.8	13.7	6.3	4.4	6.0	3.4	2.7
15	2.6	2.7	5.6	21.0	40.4	40.4	11.6	6.1	4.2	4.7	2.9	2.5
20	2.4	2.6	5.2	16.9	36.7	37.5	10.0	5.5	4.0	3.8	2.8	2.3
25	2.3	2.5	4.7	15.8	35.2	35.8	9.5	5.2	3.7	3.2	2.6	2.1
30	2.2	2.3	4.1	14.4	33.7	32.8	8.8	4.8	3.3	2.5	2.4	2.0
35	1.9	2.2	3.6	12.6	31.4	31.5	8.4	4.4	2.7	2.2	2.1	2.0
40	1.9	2.1	3.4	11.4	28.9	28.9	7.7	4.1	2.2	2.0	1.7	1.9
45	1.8	2.1	3.3	10.4	27.3	25.4	7.2	3.8	2.1	1.9	1.6	1.6
50	1.5	1.9	3.2	9.6	24.9	23.4	6.9	3.4	1.6	1.8	1.5	1.2
55	1.1	1.8	3.0	8.7	23.1	22.0	6.5	3.0	1.5	1.6	1.5	1.0
60	1.0	1.7	2.9	8.0	21.5	20.4	6.2	2.9	1.4	1.1	1.4	0.9
65	0.9	1.1	2.7	7.3	20.5	19.1	5.9	2.6	1.3	0.9	1.3	0.9
70	0.9	1.0	2.7	6.7	19.0	17.6	5.7	2.5	1.2	0.8	1.2	0.8
75	0.8	0.9	2.6	6.1	17.6	16.5	5.4	2.3	1.1	0.8	1.1	0.8
80	0.7	0.9	2.5	5.5	15.0	14.4	4.8	2.1	0.8	0.8	0.8	0.7
85	0.7	0.8	2.3	4.8	13.1	13.1	4.5	1.6	0.7	0.7	0.7	0.7
90	0.7	0.8	2.2	4.3	11.3	11.5	4.3	1.4	0.7	0.7	0.7	0.7
95	0.7	0.7	2.0	3.6	8.1	8.5	3.2	1.1	0.6	0.7	0.7	0.7
99	0.6	0.6	1.0	3.1	6.2	7.9	2.9	0.8	0.6	0.6	0.6	0.5
Minimum	0.6	0.6	0.9	2.8	5.8	7.6	2.7	0.8	0.6	0.6	0.6	0.5
Average	1.6	1.9	3.8	12.0	26.4	27.5	8.8	3.9	2.4	2.3	2.0	1.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-2A. South Fork San Joaquin River Below Hooper Creek - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5427.2	627.3	543.2	1196.6	3337.3	5739.5	4976.8	2502.4	842.9	483.7	320.8	697.7
1	414.2	378.5	421.3	1026.9	2768.8	3326.0	3644.9	1717.3	613.3	364.5	241.9	280.8
5	213.8	210.8	306.4	813.2	2251.9	2856.4	2356.7	1261.7	356.2	208.7	161.2	171.7
10	171.7	173.6	252.1	678.1	1913.2	2278.1	1952.2	876.2	241.8	129.7	133.2	147.2
15	150.7	154.2	220.2	573.5	1661.6	1984.3	1550.6	459.1	182.1	98.1	105.1	127.6
20	122.7	135.9	197.9	511.7	1468.2	1812.0	1241.0	366.0	146.4	88.5	91.1	106.7
25	108.7	122.7	182.2	443.7	1332.0	1634.9	1002.4	319.1	123.6	77.1	73.6	91.7
30	99.0	115.7	175.2	385.8	1231.0	1503.5	809.6	259.6	107.9	66.6	63.1	80.6
35	88.9	107.6	162.9	358.1	1153.7	1344.8	665.9	221.2	94.6	59.6	56.1	73.6
40	82.2	98.8	151.9	332.4	1068.9	1226.7	580.4	182.2	83.2	53.5	49.4	58.8
45	76.5	92.8	140.1	310.4	999.0	1121.5	493.2	146.3	71.6	49.1	45.5	50.8
50	69.6	84.1	126.2	292.6	911.2	1045.5	396.0	122.2	64.3	46.5	42.2	44.9
55	57.3	79.2	118.5	273.2	827.3	975.5	309.7	104.2	57.2	42.5	38.9	41.1
60	49.4	73.2	110.9	256.3	757.0	903.4	266.4	91.2	48.4	39.2	37.5	38.2
65	42.1	63.4	103.8	242.5	705.4	833.7	236.3	82.4	41.0	36.3	35.0	34.5
70	38.5	54.9	98.1	216.1	645.3	733.2	220.9	73.6	35.4	33.3	33.2	31.2
75	35.0	49.1	89.2	194.8	566.9	650.5	203.3	66.6	31.9	29.3	31.1	28.8
80	30.5	45.9	84.1	175.6	515.2	562.9	175.2	62.3	27.3	27.1	28.5	25.9
85	27.4	40.1	80.6	155.6	448.6	503.0	148.4	52.6	23.1	24.8	25.9	23.3
90	22.0	35.0	77.1	140.2	368.0	406.6	127.6	42.1	19.9	20.7	22.2	20.9
95	18.1	23.5	69.9	119.2	269.9	330.5	98.1	32.2	16.5	17.5	18.5	18.4
99	15.8	16.8	48.2	90.5	194.9	180.1	74.6	23.9	14.0	12.3	7.6	16.2
Minimum	11.9	13.4	26.9	85.9	140.2	166.4	65.6	12.1	13.0	11.7	4.5	14.0
Average	99.0	97.7	149.6	353.8	1029.1	1223.8	738.2	287.8	105.2	68.0	61.3	69.1
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-2B. South Fork San Joaquin River Below Hooper Creek - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5427.2	627.3	543.2	1196.6	3337.3	4135.6	4976.8	2502.4	842.9	483.7	313.5	340.0
1	1125.3	617.4	490.7	1110.8	2800.3	3504.8	3820.2	2130.9	736.0	418.8	273.4	282.6
5	318.1	283.9	399.5	964.1	2540.9	3164.8	3322.5	1668.3	515.2	303.5	188.9	213.8
10	224.3	220.8	331.0	736.0	2120.5	2926.5	2635.6	1387.9	399.5	254.2	157.7	171.7
15	207.1	192.5	283.2	607.6	1964.0	2761.7	2355.2	1234.4	325.9	196.3	140.2	161.2
20	192.8	182.1	265.9	530.1	1711.0	2477.9	2267.6	1038.8	297.9	154.2	123.8	150.7
25	172.9	177.7	245.3	480.1	1528.2	2335.0	2078.7	935.8	252.3	119.2	108.7	140.2
30	164.7	168.2	221.1	378.8	1380.9	2166.0	1878.6	823.6	214.4	98.1	98.1	129.7
35	154.2	160.5	206.6	347.0	1261.7	2057.3	1751.0	574.8	198.9	87.6	91.1	113.3
40	138.4	154.2	197.9	316.8	1192.3	1938.8	1601.7	459.1	155.2	77.1	80.6	99.7
45	126.2	147.2	187.8	297.9	1087.7	1829.5	1419.4	402.8	142.2	70.1	73.6	94.6
50	114.1	141.3	182.2	280.4	1001.3	1714.2	1345.4	370.6	129.7	66.6	63.1	84.1
55	106.3	135.9	178.7	255.9	922.9	1615.3	1254.6	348.5	119.2	56.1	52.6	80.6
60	101.6	127.4	175.2	238.0	796.2	1534.5	1121.5	333.5	110.1	49.1	45.6	77.1
65	94.6	122.7	169.9	222.3	726.1	1454.3	984.8	311.9	98.5	45.6	42.2	73.6
70	86.2	119.1	161.2	203.3	670.4	1380.9	911.6	266.1	91.7	40.0	40.4	66.7
75	81.5	114.8	155.0	185.9	571.3	1312.9	766.5	238.2	85.7	38.3	38.5	58.8
80	78.1	111.6	142.8	148.6	480.5	1211.5	671.8	224.1	80.6	35.7	37.6	51.5
85	72.8	86.7	129.7	138.7	425.1	1140.6	606.6	198.8	70.1	32.7	35.2	46.1
90	60.2	80.2	113.2	122.4	325.9	1044.4	564.6	180.5	62.0	26.8	33.6	41.1
95	55.3	73.6	101.2	112.2	255.9	780.1	515.5	152.3	54.0	20.3	29.5	27.2
99	48.9	59.6	83.3	98.1	140.2	520.7	417.1	96.7	45.6	18.9	21.9	20.9
Minimum	35.8	59.6	72.7	98.1	140.2	414.0	377.7	81.1	31.7	18.9	20.4	18.6
Average	180.2	155.5	206.8	361.8	1130.7	1853.4	1513.7	612.7	191.3	100.0	82.0	101.8
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-2C. South Fork San Joaquin River Below Hooper Creek - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	185.4	134.9	280.1	819.6	2906.9	2240.9	1605.8	701.7	396.1	383.8	320.8	697.7
5	163.2	121.4	240.9	675.5	2396.9	2088.1	1129.9	489.2	209.7	228.2	224.7	259.0
10	130.6	119.9	221.5	489.2	2325.7	1829.5	1029.5	378.5	182.1	146.3	177.0	168.2
15	102.2	113.7	202.0	451.6	2251.9	1748.2	912.8	359.9	175.4	115.7	154.3	156.9
20	94.5	108.3	188.3	402.7	2194.6	1691.4	845.9	318.7	161.2	95.4	132.1	144.1
25	86.9	103.0	176.7	382.3	2085.5	1586.8	761.3	306.3	154.8	88.7	95.6	132.9
30	83.6	101.4	163.7	347.3	1844.0	1517.3	688.5	247.9	145.2	81.9	76.9	113.9
35	77.8	99.5	153.0	335.6	1667.6	1391.3	654.2	235.8	130.6	74.0	66.0	65.0
40	71.8	98.7	145.1	318.1	1610.6	1320.2	605.6	210.7	123.4	59.7	60.7	54.3
45	65.3	98.1	134.7	303.1	1395.5	1268.6	590.5	167.6	111.1	56.1	57.7	53.7
50	57.0	95.8	129.9	280.3	1356.6	1214.9	544.6	148.0	97.8	52.4	48.7	52.3
55	50.1	94.3	120.6	267.4	1272.1	1112.3	484.8	132.1	75.8	50.4	44.9	41.9
60	33.6	90.3	112.3	258.5	1228.9	1063.1	442.8	121.1	73.6	49.1	42.3	36.0
65	31.3	84.7	107.1	248.6	1098.4	1028.9	399.4	111.2	63.5	46.2	35.0	27.2
70	30.8	82.5	100.5	237.9	956.6	999.5	369.9	107.8	56.1	45.1	33.2	25.6
75	29.8	75.5	95.0	189.6	765.7	970.1	294.2	96.2	47.8	42.1	31.0	24.5
80	22.0	68.2	87.2	172.1	716.8	935.1	242.0	91.0	42.1	38.4	30.2	23.1
85	21.0	63.3	84.5	121.7	618.1	856.0	223.6	78.8	36.3	34.7	28.5	21.7
90	18.2	51.3	78.5	94.2	574.3	840.1	205.7	70.4	35.0	28.7	26.9	20.7
95	15.8	42.6	70.0	88.4	254.5	673.9	179.7	59.4	33.6	24.2	25.5	19.4
Minimum	11.9	40.1	68.4	85.9	221.9	564.9	127.3	32.8	27.6	18.2	23.0	18.8
Average	64.7	90.5	140.1	307.5	1414.5	1282.9	572.4	203.3	106.8	76.5	78.0	86.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-2D. South Fork San Joaquin River Below Hooper Creek - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	308.4	318.9	415.3	862.2	1817.6	1711.8	615.9	157.7	101.6	129.7	157.7	129.7
5	143.7	140.2	242.2	790.4	1727.1	1397.7	503.0	133.2	84.1	98.1	133.2	123.8
10	129.7	122.7	209.9	634.2	1660.6	1239.0	367.1	112.2	70.1	94.6	115.7	108.7
15	119.2	106.2	148.6	588.8	1579.4	1171.0	330.2	94.6	70.1	91.1	105.1	101.6
20	115.7	101.6	126.4	557.3	1510.0	1082.8	301.4	87.6	66.6	87.6	91.1	97.0
25	112.2	98.1	115.7	513.7	1332.0	1028.4	287.4	82.3	63.1	84.1	84.1	91.1
30	103.9	94.6	108.2	443.7	1252.9	960.3	273.4	77.1	59.6	80.6	66.6	91.1
35	101.6	87.6	103.8	429.4	1149.6	940.8	269.9	74.7	44.0	60.1	63.1	84.5
40	94.6	81.1	101.2	403.0	1058.4	860.0	262.9	68.6	30.5	47.5	59.6	80.6
45	91.1	77.1	98.6	379.0	1019.9	733.2	231.3	66.5	29.1	46.5	56.1	73.6
50	82.0	73.6	98.1	343.5	970.8	681.0	219.3	63.7	25.2	46.2	49.5	63.5
55	73.6	70.0	93.6	322.4	911.2	630.6	210.0	63.1	23.8	42.3	45.6	42.1
60	63.1	58.7	89.1	304.9	865.7	597.2	203.3	59.3	22.3	35.7	42.1	38.5
65	61.9	54.9	85.9	273.4	814.8	550.2	175.2	46.2	21.8	27.4	35.0	36.0
70	56.8	53.2	84.1	261.6	766.6	494.2	165.5	41.3	19.6	22.3	33.0	34.7
75	53.9	50.9	82.7	248.6	687.7	385.1	135.7	39.5	17.9	18.6	24.6	32.1
80	49.1	46.8	80.6	214.7	653.5	361.0	122.3	33.3	16.1	12.3	18.8	30.9
85	30.8	43.8	80.3	191.0	574.8	347.0	107.5	30.1	15.4	12.3	13.5	29.8
90	29.8	38.0	78.0	163.4	508.2	325.9	88.8	25.0	14.7	12.3	11.5	27.3
95	26.6	32.2	66.9	140.5	304.9	241.7	70.6	22.3	14.0	11.8	6.1	23.9
Minimum	21.3	23.5	48.2	129.7	231.3	170.8	65.6	12.1	13.0	11.7	4.5	18.0
Average	84.9	79.6	117.7	388.8	1024.9	758.3	235.2	65.7	38.3	50.6	57.0	64.7
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-2E. South Fork San Joaquin River Below Hooper Creek - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	111.0	129.5	384.2	1105.8	1961.1	5739.5	2217.6	2306.1	538.4	141.1	86.1	61.7
1	108.5	119.6	276.3	901.3	1802.8	2231.1	1023.6	319.1	356.2	119.6	79.9	60.3
5	83.3	97.0	201.2	792.1	1380.9	1859.3	622.5	198.1	101.0	71.1	60.4	49.2
10	74.5	86.6	170.5	690.4	1220.0	1160.1	412.4	146.3	84.4	63.1	54.6	44.0
15	49.1	80.1	150.9	560.8	1156.0	1049.8	347.9	124.7	70.9	59.6	50.8	42.1
20	44.0	73.6	140.2	510.5	1100.3	982.7	288.8	107.2	55.8	52.9	45.3	38.5
25	42.1	63.6	126.2	442.7	1027.2	943.2	257.6	98.3	49.2	51.2	42.7	38.5
30	41.0	57.3	121.5	382.5	984.9	855.7	242.1	92.5	45.2	46.8	39.3	35.0
35	39.4	53.4	116.8	356.3	894.7	821.4	229.4	87.6	41.7	42.5	37.6	34.7
40	38.5	49.9	110.6	334.4	827.9	774.7	223.4	80.6	38.9	38.6	35.9	33.0
45	38.5	49.1	105.1	306.4	768.3	724.3	213.7	75.3	36.2	36.9	34.3	31.1
50	35.9	48.0	97.1	286.0	707.7	670.5	203.2	70.8	34.7	34.1	32.9	30.0
55	34.9	43.9	90.1	265.1	659.3	606.5	185.9	66.6	32.4	31.4	31.9	28.5
60	31.0	41.0	85.1	252.5	596.6	559.2	171.5	64.5	30.6	29.5	30.8	26.3
65	29.0	38.9	82.8	236.9	561.7	525.9	159.1	60.6	27.9	28.0	28.1	24.8
70	27.3	36.7	81.0	210.7	534.7	503.8	147.6	57.3	25.9	27.1	26.1	23.1
75	23.7	35.0	78.9	185.7	490.5	459.1	139.0	52.6	23.4	25.9	24.5	21.6
80	21.9	31.4	75.2	175.6	449.7	417.1	129.2	46.0	21.7	24.3	22.9	20.0
85	19.7	26.6	73.6	165.0	394.9	394.6	118.2	42.1	19.6	22.4	21.4	18.6
90	18.0	19.1	68.6	152.1	343.7	330.5	101.6	38.5	17.9	20.7	19.4	17.3
95	16.6	17.7	65.2	136.7	252.0	218.9	82.4	28.0	16.5	17.5	17.4	16.5
99	15.3	13.4	37.2	119.2	195.6	168.1	74.6	24.8	14.7	16.0	13.1	14.8
Minimum	14.5	13.4	26.9	109.5	194.9	166.4	70.9	23.9	14.7	15.6	12.9	14.0
Average	38.6	50.9	110.0	350.8	764.2	768.3	249.3	94.2	47.1	39.8	35.3	30.6
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-3A. Bear Creek Below Diversion - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1066.1	180.0	155.9	324.9	845.8	1186.7	1428.1	718.1	215.2	138.8	83.5	97.6
1	88.5	91.5	116.7	271.5	756.3	945.4	1045.9	491.8	176.0	89.5	61.3	63.4
5	53.3	52.3	79.4	228.3	578.3	792.5	747.2	327.9	93.5	55.3	45.3	47.3
10	44.2	46.3	66.4	188.1	490.8	653.7	607.5	216.2	64.4	34.2	38.2	41.2
15	38.2	41.2	59.3	160.9	412.3	552.1	435.5	122.7	51.3	29.2	30.2	36.2
20	35.2	36.2	54.3	142.8	365.1	491.8	316.8	95.5	40.2	26.1	26.1	34.2
25	32.2	33.2	51.3	123.7	333.9	449.5	269.5	81.5	36.2	24.1	24.1	29.2
30	30.2	32.2	48.3	114.7	311.8	402.3	211.2	71.4	31.2	22.1	21.1	26.1
35	29.2	30.2	45.3	103.6	292.7	357.0	169.0	57.3	27.1	20.1	19.1	24.1
40	27.1	27.1	42.2	94.5	272.5	328.9	151.9	47.3	25.1	19.1	17.1	22.1
45	25.1	26.1	39.2	87.5	256.5	300.7	132.7	39.2	22.1	17.1	16.1	20.1
50	23.1	25.1	36.2	79.4	241.4	285.6	102.6	34.2	19.1	15.1	15.1	17.1
55	21.1	23.1	34.2	73.4	219.2	270.5	82.5	29.2	17.1	14.1	14.1	14.1
60	19.1	22.1	32.2	70.4	197.1	246.4	72.4	25.1	13.1	13.1	12.1	12.1
65	16.1	21.1	30.2	64.4	177.0	229.3	65.4	22.1	11.1	11.1	11.1	11.1
70	12.1	19.1	27.1	59.3	157.9	204.2	58.3	20.1	9.4	9.2	10.1	10.1
75	11.1	17.1	26.1	53.3	145.8	174.0	52.3	18.1	8.2	6.9	9.9	8.7
80	9.1	14.1	24.1	49.3	134.8	156.9	46.3	16.1	6.5	6.0	9.1	7.3
85	6.8	10.1	23.1	41.2	114.7	134.8	41.2	14.1	5.6	5.6	8.4	6.6
90	5.7	7.2	21.1	38.2	93.5	113.7	34.2	12.1	5.1	5.0	7.0	5.9
95	5.1	6.1	19.1	33.2	73.4	85.5	26.1	9.4	4.6	4.6	5.2	5.1
99	4.7	4.6	13.1	26.1	51.3	51.3	20.1	6.8	4.0	3.1	4.8	4.4
Minimum	4.5	4.3	6.7	25.1	40.2	46.3	18.1	5.7	3.7	3.0	4.0	3.7
Average	27.1	27.1	41.5	98.2	264.3	337.7	207.9	76.4	29.2	19.5	18.8	20.7
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-3B. Bear Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1066.1	180.0	155.9	324.9	845.8	1186.7	1428.1	718.1	215.2	138.8	83.5	97.6
1	241.4	141.8	140.8	289.6	800.5	1005.7	1096.2	611.5	204.2	111.6	71.4	70.4
5	64.4	73.4	107.6	243.4	710.0	908.2	953.4	478.7	136.8	84.5	53.3	54.3
10	56.3	57.3	84.5	213.2	552.1	832.7	814.6	376.1	102.6	62.3	45.3	48.3
15	50.3	51.3	77.4	177.0	503.9	791.5	737.2	322.8	90.5	44.2	41.2	44.2
20	47.3	49.3	70.4	144.8	445.5	742.2	683.9	268.5	78.4	35.2	35.2	42.2
25	44.2	46.3	63.4	121.7	373.1	675.8	644.7	231.3	70.4	31.2	31.2	39.2
30	40.2	43.2	59.3	103.6	348.0	646.7	590.3	201.1	61.3	27.1	29.2	36.2
35	35.2	42.2	56.3	93.5	320.8	602.4	532.0	157.9	54.3	24.1	27.1	32.2
40	33.2	37.2	53.3	85.5	295.7	554.2	461.6	128.7	47.3	23.1	25.1	29.2
45	32.2	36.2	52.3	79.4	276.6	525.0	407.3	114.7	41.2	22.1	21.1	27.1
50	30.2	34.2	51.3	72.4	254.4	487.8	357.0	103.6	38.2	20.1	18.1	26.1
55	29.2	33.2	49.3	67.4	233.3	452.6	316.8	94.5	34.2	19.1	16.1	25.1
60	28.2	32.2	47.3	63.4	197.1	431.5	293.7	87.5	32.2	18.1	16.1	24.1
65	27.1	31.2	46.3	58.3	174.0	396.2	258.5	81.5	31.2	16.1	15.1	22.1
70	25.1	29.2	43.2	54.3	154.9	363.1	229.3	74.4	29.2	15.1	15.1	22.1
75	24.1	24.1	40.2	51.3	140.8	331.9	196.1	68.4	27.1	13.1	14.1	20.1
80	23.1	22.1	37.2	42.2	127.7	311.8	172.0	61.3	25.1	12.1	13.1	19.1
85	22.1	21.1	34.2	38.2	109.6	293.7	161.9	53.3	24.1	11.1	11.1	16.1
90	20.1	20.1	29.2	35.2	91.5	270.5	146.8	47.3	21.1	5.8	10.1	12.1
95	19.1	18.1	26.1	32.2	73.4	219.2	136.8	39.2	18.1	5.4	9.1	9.4
99	17.1	16.1	18.1	28.2	40.2	147.8	119.7	30.2	16.1	5.4	7.5	5.9
Minimum	17.1	16.1	18.1	28.2	40.2	134.8	111.6	29.2	16.1	5.0	6.6	5.9
Average	43.6	39.0	55.3	97.8	290.7	522.7	437.3	166.2	54.4	27.6	24.5	29.6
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-3C. Bear Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	41.2	47.3	78.4	215.2	714.1	600.4	465.6	150.9	90.5	82.5	60.3	77.4
5	39.2	37.2	66.4	172.0	630.6	536.0	312.8	99.6	51.3	62.3	48.3	48.3
10	36.2	33.2	61.3	130.7	607.5	513.9	280.6	85.5	47.3	45.3	43.2	43.2
15	32.2	32.2	55.3	126.7	576.3	487.8	241.4	77.4	44.2	34.2	40.2	40.2
20	30.2	31.2	50.3	118.7	540.1	464.6	216.2	75.4	41.2	30.2	33.2	38.2
25	29.2	30.2	49.3	110.6	520.0	442.5	196.1	71.4	40.2	29.2	27.1	36.2
30	27.1	29.2	45.3	104.6	471.7	419.4	173.0	60.3	37.2	27.1	25.1	34.2
35	26.1	28.2	43.2	99.6	437.5	384.2	158.9	54.3	36.2	25.1	22.1	23.1
40	25.1	28.2	41.2	89.5	425.4	370.1	155.9	48.3	31.2	24.1	21.1	20.1
45	23.1	27.1	38.2	84.5	356.0	351.0	147.8	44.2	26.1	21.1	19.1	18.1
50	19.1	27.1	37.2	78.4	343.0	328.9	133.8	42.2	24.1	21.1	17.1	18.1
55	15.1	27.1	35.2	73.4	319.8	301.7	122.7	38.2	21.1	20.1	17.1	14.1
60	13.1	26.1	33.2	70.4	305.7	294.7	114.7	35.2	19.1	19.1	16.1	14.1
65	13.1	26.1	31.2	63.4	283.6	290.6	106.6	33.2	18.1	18.1	14.1	13.1
70	12.1	26.1	29.2	61.3	243.4	277.6	94.5	31.2	17.1	17.1	13.1	9.2
75	11.1	25.1	28.2	51.3	212.2	267.5	73.4	31.2	16.1	15.1	12.1	7.7
80	8.6	24.1	27.1	45.3	172.0	255.4	66.4	27.1	16.1	12.1	11.1	7.1
85	6.2	23.1	26.1	33.2	149.9	231.3	58.3	26.1	12.1	11.1	10.1	6.7
90	5.8	21.1	24.1	27.1	135.8	226.3	52.3	25.1	12.1	10.1	9.6	6.2
95	4.8	20.1	22.1	26.1	64.4	216.2	47.3	21.1	10.1	9.6	9.1	5.9
Minimum	4.5	18.1	21.1	25.1	54.3	175.0	46.3	20.1	9.8	8.6	8.2	5.6
Average	20.1	27.8	39.7	85.2	361.6	353.0	150.5	50.5	28.6	25.0	22.3	22.3
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-3D. Bear Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	88.5	91.5	114.7	257.5	471.7	469.7	161.9	45.3	29.2	37.2	45.3	44.2
5	49.3	49.3	72.4	237.4	434.5	378.1	139.8	38.2	24.1	28.2	38.2	40.2
10	41.2	42.2	57.3	181.0	399.3	345.0	95.5	31.2	20.1	27.1	33.2	36.2
15	39.2	38.2	43.2	172.0	383.2	321.8	87.5	26.1	20.1	26.1	29.2	35.2
20	37.2	37.2	42.2	158.9	372.1	289.6	84.5	25.1	19.1	25.1	26.1	34.2
25	36.2	35.2	40.2	149.9	329.9	275.6	78.4	22.1	18.1	23.1	24.1	33.2
30	36.2	33.2	39.2	137.8	315.8	266.5	77.4	20.1	17.1	22.1	21.1	31.2
35	35.2	32.2	36.2	125.7	300.7	246.4	75.4	18.1	9.4	20.1	19.1	31.2
40	33.2	30.2	34.2	119.7	290.6	226.3	69.4	17.1	8.4	14.1	19.1	29.2
45	32.2	28.2	33.2	114.7	271.5	191.1	63.4	17.1	7.6	13.1	18.1	27.1
50	32.2	26.1	33.2	100.6	264.5	174.0	61.3	16.1	6.8	13.1	16.1	26.1
55	31.2	25.1	32.2	92.5	248.4	166.9	58.3	15.1	6.4	12.1	16.1	26.1
60	30.2	24.1	30.2	87.5	244.4	162.9	53.3	14.1	5.6	8.4	15.1	23.1
65	30.2	24.1	28.2	78.4	226.3	154.9	46.3	13.1	5.3	7.4	13.1	21.1
70	29.2	23.1	28.2	74.4	197.1	135.8	44.2	12.1	5.0	3.5	11.1	14.1
75	28.2	21.1	26.1	73.4	186.1	103.6	36.2	11.1	4.7	3.5	10.0	12.1
80	27.1	20.1	25.1	66.4	174.0	96.6	32.2	10.1	4.6	3.5	8.9	11.1
85	27.1	20.1	24.1	52.3	162.9	89.5	29.2	9.9	4.4	3.5	7.2	10.0
90	24.1	19.1	23.1	44.2	145.8	85.5	25.1	9.4	4.2	3.4	6.9	8.9
95	14.1	17.1	22.1	38.2	87.5	59.3	19.1	7.7	4.0	3.0	6.2	8.2
Minimum	8.9	14.1	19.1	33.2	66.4	46.3	18.1	6.8	3.7	3.0	5.0	7.5
Average	33.3	29.7	36.8	112.6	266.9	203.9	64.0	18.1	10.6	14.1	18.2	24.3
# Days	93.0	84.0	93.0	90.0	93.0	90.0	93.0	93.0	90.0	93.0	90.0	93.0
# Years	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0

Table CAWG 6 Appdx I-3E. Bear Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	23.1	33.2	86.5	271.5	421.4	621.5	325.9	137.8	176.0	38.2	30.2	22.1
1	23.1	33.2	72.4	253.4	399.3	591.4	301.7	114.7	63.4	33.2	29.2	20.1
5	22.1	29.2	57.3	219.2	335.9	432.5	164.9	47.3	27.1	27.1	25.1	18.1
10	21.1	25.1	49.3	190.1	313.8	332.9	101.6	37.2	25.1	20.1	22.1	15.1
15	19.1	24.1	43.2	162.9	295.7	291.7	87.5	32.2	20.1	18.1	20.1	14.1
20	17.1	22.1	39.2	146.8	269.5	275.6	75.4	28.2	14.1	17.1	18.1	12.1
25	14.1	20.1	36.2	121.7	258.5	264.5	70.4	26.1	12.1	16.1	15.1	12.1
30	12.1	18.1	33.2	115.7	247.4	242.4	65.4	23.1	11.1	14.1	12.1	11.1
35	11.1	15.1	31.2	105.6	233.3	230.3	63.4	22.1	10.1	13.1	11.1	11.1
40	11.1	14.1	30.2	95.5	220.2	221.3	57.3	20.1	9.4	12.1	11.1	10.1
45	11.1	14.1	27.1	87.5	207.2	194.1	54.3	19.1	9.1	10.1	10.1	9.9
50	10.1	13.1	26.1	79.4	182.0	176.0	51.3	19.1	8.6	8.2	9.9	8.6
55	7.9	10.1	25.1	72.4	169.0	161.9	49.3	18.1	7.7	6.5	9.6	7.3
60	7.1	9.6	24.1	70.4	155.9	154.9	46.3	17.1	7.0	6.1	9.1	6.9
65	6.8	8.1	24.1	63.4	145.8	143.8	42.2	16.1	6.4	6.0	8.9	6.6
70	6.2	7.3	22.1	58.3	138.8	134.8	40.2	15.1	5.8	5.9	8.1	6.1
75	5.7	6.8	22.1	53.3	130.7	123.7	36.2	13.1	5.4	5.7	7.1	5.7
80	5.4	6.4	21.1	49.3	114.7	116.7	34.2	12.1	5.2	5.4	5.8	5.4
85	5.2	6.1	20.1	42.2	99.6	103.6	31.2	11.1	5.1	5.0	5.2	5.1
90	5.0	5.5	19.1	39.2	82.5	84.5	27.1	9.2	4.8	4.9	5.0	4.9
95	4.8	5.1	15.1	35.2	66.4	60.3	23.1	8.4	4.6	4.8	4.9	4.8
99	4.6	4.3	7.0	31.2	45.3	48.3	21.1	5.7	4.1	4.6	4.2	3.8
Minimum	4.5	4.3	6.7	31.2	42.2	46.3	20.1	5.7	4.1	4.6	4.0	3.7
Average	10.9	14.0	30.4	98.1	195.1	203.6	64.8	22.7	12.2	11.4	11.8	9.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-4A. Chinquapin Creek Below Diversion - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	173.1	37.1	40.8	61.9	129.8	66.7	32.0	3.2	1.6	28.5	18.1	35.4
1	11.8	11.8	13.4	28.6	57.0	59.6	30.5	2.5	0.7	4.2	5.6	6.4
5	3.9	3.7	9.5	20.2	36.9	50.5	14.8	1.5	0.4	0.7	2.7	2.6
10	2.7	2.7	7.2	14.9	28.6	38.6	7.0	0.7	0.2	0.4	1.6	2.1
15	2.3	2.4	5.9	13.6	25.2	24.0	3.6	0.4	0.1	0.3	0.5	1.3
20	1.4	2.1	4.9	12.2	21.3	12.8	1.3	0.2	0.1	0.2	0.4	0.7
25	1.0	2.0	4.1	11.3	18.6	8.6	0.9	0.1	0.1	0.2	0.2	0.6
30	0.7	1.8	3.5	10.6	16.4	5.9	0.7	0.1	0.1	0.1	0.2	0.4
35	0.6	1.5	2.8	9.9	14.8	4.1	0.6	0.1	0.1	0.1	0.2	0.3
40	0.6	1.0	2.6	9.4	13.5	3.2	0.5	0.1	0.0	0.1	0.1	0.3
45	0.5	0.9	2.3	8.7	12.3	2.5	0.4	0.1	0.0	0.1	0.1	0.2
50	0.4	0.7	2.0	8.2	11.2	2.1	0.3	0.1	0.0	0.1	0.1	0.1
55	0.3	0.6	1.8	7.7	10.3	1.9	0.3	0.0	0.0	0.0	0.1	0.1
60	0.2	0.5	1.6	7.1	9.1	1.6	0.2	0.0	0.0	0.0	0.1	0.1
65	0.2	0.3	1.5	6.2	8.3	1.3	0.2	0.0	0.0	0.0	0.1	0.1
70	0.1	0.2	1.3	5.5	7.3	1.2	0.2	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	1.0	4.9	6.4	1.0	0.2	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.9	4.0	5.6	0.9	0.1	0.0	0.0	0.0	0.1	0.1
85	0.1	0.1	0.8	3.5	4.8	0.7	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.6	2.7	3.9	0.6	0.1	0.0	0.0	0.0	0.0	0.1
95	0.0	0.1	0.3	2.1	3.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0
99	0.0	0.1	0.1	1.5	2.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.1	1.2	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	1.4	1.4	3.1	9.0	14.5	9.7	2.4	0.2	0.1	0.3	0.5	0.7
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-4B. Chinquapin Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	173.1	37.1	40.8	61.9	129.8	66.7	32.0	3.2	1.6	28.5	18.1	13.7
1	39.3	20.8	15.9	31.3	64.3	63.7	31.2	2.9	0.8	9.7	5.6	6.4
5	5.5	8.7	13.1	27.1	49.1	57.2	28.2	2.1	0.6	1.3	3.1	3.0
10	4.0	4.3	10.4	21.8	41.9	51.6	22.2	1.8	0.5	0.7	2.7	2.5
15	3.5	3.7	9.2	19.4	35.1	49.7	14.6	1.5	0.4	0.6	2.4	2.2
20	2.7	3.1	8.2	15.3	32.5	44.7	11.8	1.1	0.3	0.4	1.3	2.1
25	2.4	2.7	6.9	13.8	29.4	41.9	8.5	0.9	0.3	0.2	0.6	1.8
30	2.3	2.3	6.1	12.0	27.3	37.8	6.8	0.7	0.2	0.2	0.5	1.0
35	2.1	2.1	5.5	11.3	26.3	34.9	5.3	0.5	0.2	0.1	0.2	0.7
40	1.5	2.1	5.0	10.3	24.9	27.9	4.3	0.4	0.1	0.1	0.2	0.6
45	1.3	2.0	4.3	9.4	22.8	23.2	2.9	0.4	0.1	0.1	0.1	0.6
50	1.2	2.0	3.5	8.8	20.6	19.6	1.8	0.3	0.1	0.1	0.1	0.5
55	0.9	1.9	2.9	8.3	19.0	13.1	1.2	0.2	0.1	0.1	0.1	0.4
60	0.8	1.9	2.8	7.9	17.9	11.0	0.9	0.2	0.1	0.1	0.1	0.3
65	0.7	1.6	2.7	6.9	16.4	8.7	0.7	0.1	0.1	0.0	0.1	0.2
70	0.7	0.9	2.4	5.9	14.6	6.0	0.6	0.1	0.1	0.0	0.1	0.1
75	0.6	0.7	2.3	5.0	12.8	4.3	0.5	0.1	0.0	0.0	0.1	0.1
80	0.5	0.7	2.0	3.7	11.6	3.2	0.4	0.1	0.0	0.0	0.1	0.1
85	0.2	0.6	1.5	3.2	10.3	2.4	0.4	0.1	0.0	0.0	0.1	0.1
90	0.2	0.2	0.9	2.6	7.6	2.0	0.3	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	2.0	6.3	1.2	0.2	0.0	0.0	0.0	0.0	0.1
99	0.1	0.1	0.1	1.9	3.7	0.6	0.2	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.1	1.9	3.6	0.6	0.1	0.0	0.0	0.0	0.0	0.1
Average	3.2	2.6	5.0	10.7	23.4	23.7	6.4	0.6	0.2	0.6	0.8	1.0
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-4C. Chinquapin Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	4.7	2.7	8.6	22.6	36.9	9.8	1.0	0.4	0.1	1.4	11.3	35.4
5	4.0	2.6	7.6	19.8	25.8	7.9	0.9	0.2	0.1	0.7	5.5	5.9
10	3.2	2.6	6.2	14.0	22.1	6.8	0.7	0.2	0.1	0.5	3.3	2.6
15	2.7	2.5	4.6	13.5	19.3	6.4	0.7	0.1	0.1	0.5	2.7	2.4
20	2.5	2.5	4.1	12.6	18.3	5.4	0.7	0.1	0.1	0.4	1.3	2.2
25	2.3	2.5	3.9	11.8	16.3	5.0	0.6	0.1	0.1	0.3	0.5	2.0
30	2.2	2.4	3.5	11.3	16.0	4.0	0.6	0.1	0.0	0.3	0.4	1.9
35	1.1	2.3	3.3	11.0	15.9	3.8	0.6	0.1	0.0	0.3	0.4	1.0
40	1.1	2.3	2.9	10.0	15.2	3.2	0.5	0.1	0.0	0.3	0.4	0.7
45	0.9	2.0	2.7	9.5	14.3	2.9	0.5	0.1	0.0	0.2	0.4	0.6
50	0.9	1.8	2.5	8.7	13.8	2.4	0.4	0.1	0.0	0.2	0.3	0.6
55	0.6	1.7	2.2	8.3	13.4	2.1	0.4	0.1	0.0	0.2	0.3	0.5
60	0.5	1.6	2.0	7.9	12.4	1.9	0.3	0.1	0.0	0.2	0.2	0.4
65	0.4	1.4	1.6	7.5	12.0	1.8	0.3	0.1	0.0	0.1	0.2	0.3
70	0.4	1.1	1.6	6.9	10.8	1.6	0.3	0.1	0.0	0.0	0.1	0.1
75	0.3	1.0	1.5	6.1	10.3	1.3	0.3	0.0	0.0	0.0	0.1	0.1
80	0.1	0.9	1.3	5.5	9.4	1.3	0.2	0.0	0.0	0.0	0.1	0.0
85	0.0	0.6	1.3	3.1	9.0	1.2	0.2	0.0	0.0	0.0	0.1	0.0
90	0.0	0.5	1.0	2.4	8.0	1.0	0.2	0.0	0.0	0.0	0.1	0.0
95	0.0	0.4	0.9	2.0	6.2	0.9	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.4	0.9	2.0	4.5	0.7	0.1	0.0	0.0	0.0	0.0	0.0
Average	1.3	1.7	3.0	9.3	14.5	3.3	0.5	0.1	0.0	0.2	1.1	1.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-4D. Chinquapin Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.9	2.0	9.3	18.0	26.2	8.2	0.7	0.1	0.1	0.2	2.1	0.8
5	0.7	1.6	6.2	15.3	25.2	5.7	0.5	0.1	0.1	0.2	0.4	0.4
10	0.6	1.4	4.6	14.6	20.4	3.5	0.4	0.0	0.1	0.2	0.3	0.4
15	0.6	0.9	2.1	12.8	17.9	2.9	0.3	0.0	0.0	0.1	0.2	0.4
20	0.5	0.9	2.0	12.1	15.4	2.6	0.3	0.0	0.0	0.1	0.2	0.3
25	0.5	0.8	1.9	11.2	14.1	2.3	0.2	0.0	0.0	0.1	0.2	0.3
30	0.5	0.7	1.8	10.8	13.2	2.0	0.2	0.0	0.0	0.1	0.2	0.3
35	0.4	0.6	1.7	10.1	12.5	1.8	0.2	0.0	0.0	0.1	0.2	0.3
40	0.3	0.6	1.7	9.7	12.0	1.5	0.2	0.0	0.0	0.1	0.1	0.3
45	0.3	0.5	1.6	9.4	11.4	1.3	0.2	0.0	0.0	0.1	0.1	0.3
50	0.3	0.5	1.6	9.1	10.9	1.3	0.2	0.0	0.0	0.0	0.1	0.2
55	0.3	0.5	1.5	8.3	10.4	1.1	0.2	0.0	0.0	0.0	0.1	0.2
60	0.2	0.5	1.4	8.1	9.6	0.9	0.1	0.0	0.0	0.0	0.1	0.2
65	0.2	0.5	1.3	7.1	9.1	0.9	0.1	0.0	0.0	0.0	0.1	0.2
70	0.2	0.3	1.3	6.4	8.8	0.8	0.1	0.0	0.0	0.0	0.1	0.1
75	0.2	0.3	1.1	5.1	8.3	0.7	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.8	4.2	7.5	0.6	0.1	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.3	3.5	6.7	0.5	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.2	0.2	3.2	5.1	0.5	0.1	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	2.5	4.0	0.4	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.0	0.1	0.2	2.2	3.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.3	0.6	1.9	8.7	11.9	1.8	0.2	0.0	0.0	0.1	0.2	0.2
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-4E. Chinquapin Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.7	1.7	7.5	15.8	21.3	15.2	2.0	0.2	0.4	0.8	0.6	0.7
1	0.6	1.7	6.4	15.5	18.3	14.2	1.7	0.2	0.3	0.7	0.4	0.5
5	0.6	1.0	5.3	13.6	14.6	8.6	1.0	0.1	0.1	0.3	0.3	0.2
10	0.5	0.9	4.5	12.0	11.3	3.2	0.6	0.1	0.0	0.2	0.2	0.2
15	0.3	0.7	3.6	11.0	10.5	2.4	0.5	0.1	0.0	0.1	0.2	0.1
20	0.2	0.5	2.7	10.2	9.5	2.1	0.4	0.1	0.0	0.1	0.2	0.1
25	0.2	0.3	2.3	9.8	8.7	1.9	0.3	0.1	0.0	0.1	0.1	0.1
30	0.2	0.2	2.0	9.0	7.7	1.7	0.3	0.0	0.0	0.1	0.1	0.1
35	0.1	0.2	1.8	8.5	7.2	1.5	0.2	0.0	0.0	0.1	0.1	0.1
40	0.1	0.2	1.6	7.9	6.5	1.3	0.2	0.0	0.0	0.0	0.1	0.1
45	0.1	0.2	1.4	7.3	6.1	1.2	0.2	0.0	0.0	0.0	0.1	0.1
50	0.1	0.2	1.2	7.1	5.7	1.1	0.2	0.0	0.0	0.0	0.1	0.1
55	0.1	0.2	1.0	6.1	5.3	0.9	0.2	0.0	0.0	0.0	0.1	0.1
60	0.1	0.2	0.9	5.8	4.9	0.9	0.1	0.0	0.0	0.0	0.1	0.1
65	0.1	0.1	0.9	5.3	4.6	0.8	0.1	0.0	0.0	0.0	0.1	0.1
70	0.1	0.1	0.9	4.8	4.2	0.7	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.1	0.8	4.3	3.9	0.6	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.1	0.7	3.9	3.4	0.6	0.1	0.0	0.0	0.0	0.0	0.1
85	0.1	0.1	0.6	3.5	3.1	0.6	0.1	0.0	0.0	0.0	0.0	0.1
90	0.0	0.1	0.6	3.0	2.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.1	0.5	2.0	2.2	0.5	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.1	1.3	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.1	1.2	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.2	0.3	1.8	7.2	6.6	1.9	0.3	0.0	0.0	0.1	0.1	0.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-5A. Camp 62 Creek Below Diversion - Unimpaired
Daily Exceedance Flow
(9/30/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	203.6	43.7	47.9	72.8	152.7	78.4	37.6	3.8	1.9	33.5	21.3	41.6
1	13.9	13.9	15.7	33.6	67.1	70.1	35.9	3.0	0.8	4.9	6.6	7.6
5	4.5	4.3	11.2	23.8	43.4	59.4	17.4	1.8	0.5	0.8	3.2	3.0
10	3.2	3.2	8.5	17.6	33.6	45.3	8.2	0.8	0.3	0.5	1.9	2.5
15	2.7	2.8	6.9	16.0	29.6	28.2	4.3	0.5	0.2	0.3	0.6	1.6
20	1.7	2.5	5.7	14.3	25.1	15.1	1.5	0.2	0.1	0.2	0.4	0.8
25	1.2	2.3	4.8	13.3	21.8	10.1	1.0	0.2	0.1	0.2	0.3	0.7
30	0.9	2.1	4.1	12.5	19.2	6.9	0.8	0.1	0.1	0.2	0.2	0.5
35	0.8	1.8	3.3	11.7	17.4	4.8	0.6	0.1	0.1	0.1	0.2	0.4
40	0.6	1.2	3.0	11.0	15.9	3.7	0.6	0.1	0.1	0.1	0.2	0.3
45	0.6	1.0	2.7	10.2	14.4	3.0	0.5	0.1	0.0	0.1	0.2	0.3
50	0.4	0.8	2.3	9.6	13.1	2.5	0.4	0.1	0.0	0.1	0.1	0.2
55	0.3	0.7	2.1	9.1	12.1	2.2	0.3	0.1	0.0	0.1	0.1	0.1
60	0.2	0.6	1.9	8.3	10.7	1.9	0.3	0.0	0.0	0.0	0.1	0.1
65	0.2	0.3	1.8	7.3	9.8	1.6	0.3	0.0	0.0	0.0	0.1	0.1
70	0.2	0.3	1.5	6.5	8.6	1.4	0.2	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	1.2	5.7	7.6	1.2	0.2	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	1.1	4.7	6.6	1.0	0.2	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.9	4.2	5.6	0.8	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.8	3.2	4.6	0.7	0.1	0.0	0.0	0.0	0.0	0.1
95	0.1	0.1	0.4	2.5	3.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0
99	0.0	0.1	0.2	1.8	2.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.2	1.4	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	1.7	1.6	3.7	10.5	17.0	11.4	2.8	0.3	0.1	0.3	0.6	0.8
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-5B. Camp 62 Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	203.6	43.7	47.9	72.8	152.7	78.4	37.6	3.8	1.9	33.5	21.3	16.1
1	46.3	24.4	18.7	36.8	75.6	74.8	36.7	3.4	0.9	11.4	6.6	7.6
5	6.5	10.3	15.4	31.8	57.7	67.3	33.1	2.5	0.7	1.5	3.6	3.5
10	4.7	5.1	12.2	25.6	49.3	60.7	26.1	2.1	0.6	0.9	3.2	3.0
15	4.1	4.3	10.8	22.9	41.3	58.4	17.2	1.8	0.5	0.7	2.8	2.6
20	3.2	3.6	9.6	18.0	38.2	52.5	13.9	1.3	0.4	0.4	1.6	2.5
25	2.9	3.2	8.1	16.2	34.6	49.2	10.0	1.0	0.3	0.2	0.7	2.1
30	2.7	2.7	7.1	14.2	32.1	44.4	8.0	0.8	0.3	0.2	0.5	1.2
35	2.5	2.5	6.5	13.3	30.9	41.0	6.2	0.6	0.2	0.1	0.3	0.9
40	1.8	2.5	5.8	12.1	29.3	32.8	5.1	0.5	0.2	0.1	0.2	0.8
45	1.6	2.4	5.1	11.0	26.8	27.3	3.4	0.4	0.1	0.1	0.2	0.7
50	1.4	2.3	4.1	10.4	24.2	23.0	2.1	0.3	0.1	0.1	0.2	0.6
55	1.1	2.2	3.4	9.7	22.4	15.4	1.4	0.2	0.1	0.1	0.1	0.4
60	0.9	2.2	3.3	9.2	21.1	12.9	1.1	0.2	0.1	0.1	0.1	0.4
65	0.8	1.9	3.2	8.1	19.2	10.3	0.9	0.2	0.1	0.1	0.1	0.2
70	0.8	1.0	2.9	6.9	17.1	7.0	0.7	0.1	0.1	0.0	0.1	0.1
75	0.7	0.9	2.7	5.8	15.1	5.1	0.6	0.1	0.1	0.0	0.1	0.1
80	0.5	0.8	2.3	4.3	13.7	3.7	0.5	0.1	0.0	0.0	0.1	0.1
85	0.2	0.7	1.8	3.7	12.1	2.8	0.4	0.1	0.0	0.0	0.1	0.1
90	0.2	0.2	1.0	3.0	8.9	2.3	0.3	0.1	0.0	0.0	0.1	0.1
95	0.1	0.2	0.2	2.4	7.4	1.4	0.3	0.0	0.0	0.0	0.1	0.1
99	0.1	0.1	0.2	2.2	4.3	0.7	0.2	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.2	2.2	4.3	0.7	0.2	0.0	0.0	0.0	0.0	0.1
Average	3.8	3.1	5.9	12.6	27.6	27.9	7.5	0.7	0.2	0.7	0.9	1.2
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-5C. Camp 62 Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	5.6	3.2	10.1	26.5	43.4	11.6	1.2	0.4	0.2	1.7	13.3	41.6
5	4.7	3.0	9.0	23.3	30.4	9.3	1.0	0.2	0.1	0.8	6.5	6.9
10	3.8	3.0	7.3	16.5	26.0	8.0	0.9	0.2	0.1	0.6	3.9	3.0
15	3.2	3.0	5.4	15.8	22.7	7.6	0.8	0.2	0.1	0.6	3.2	2.8
20	3.0	3.0	4.8	14.8	21.6	6.4	0.8	0.2	0.1	0.5	1.6	2.6
25	2.7	3.0	4.5	13.9	19.1	5.8	0.7	0.2	0.1	0.4	0.6	2.4
30	2.6	2.9	4.2	13.3	18.8	4.7	0.7	0.1	0.1	0.4	0.5	2.2
35	1.3	2.7	3.9	12.9	18.7	4.4	0.6	0.1	0.1	0.3	0.5	1.2
40	1.3	2.7	3.4	11.7	17.9	3.7	0.6	0.1	0.1	0.3	0.4	0.8
45	1.1	2.4	3.2	11.2	16.8	3.4	0.6	0.1	0.1	0.3	0.4	0.7
50	1.0	2.1	3.0	10.3	16.2	2.8	0.5	0.1	0.1	0.2	0.4	0.6
55	0.7	2.0	2.6	9.7	15.7	2.5	0.5	0.1	0.0	0.2	0.3	0.6
60	0.6	1.9	2.3	9.3	14.6	2.2	0.4	0.1	0.0	0.2	0.3	0.5
65	0.5	1.7	1.9	8.8	14.2	2.1	0.4	0.1	0.0	0.2	0.2	0.3
70	0.5	1.3	1.9	8.1	12.7	1.9	0.4	0.1	0.0	0.0	0.1	0.1
75	0.4	1.2	1.8	7.1	12.1	1.6	0.3	0.1	0.0	0.0	0.1	0.1
80	0.1	1.1	1.6	6.5	11.0	1.5	0.3	0.0	0.0	0.0	0.1	0.0
85	0.0	0.7	1.5	3.6	10.6	1.4	0.2	0.0	0.0	0.0	0.1	0.0
90	0.0	0.6	1.2	2.8	9.4	1.2	0.2	0.0	0.0	0.0	0.1	0.0
95	0.0	0.5	1.1	2.4	7.3	1.0	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.4	1.0	2.4	5.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0
Average	1.5	2.0	3.5	11.0	17.0	3.9	0.5	0.1	0.0	0.3	1.3	2.0
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-5D. Camp 62 Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.1	2.4	10.9	21.2	30.8	9.6	0.9	0.1	0.1	0.3	2.5	0.9
5	0.8	1.9	7.3	18.0	29.6	6.7	0.6	0.1	0.1	0.2	0.5	0.5
10	0.7	1.7	5.5	17.1	24.0	4.2	0.4	0.1	0.1	0.2	0.4	0.5
15	0.6	1.1	2.5	15.1	21.1	3.4	0.4	0.0	0.1	0.2	0.3	0.4
20	0.6	1.0	2.4	14.2	18.1	3.0	0.3	0.0	0.0	0.2	0.3	0.4
25	0.6	0.9	2.2	13.1	16.6	2.7	0.3	0.0	0.0	0.1	0.3	0.4
30	0.6	0.9	2.1	12.7	15.5	2.3	0.3	0.0	0.0	0.1	0.2	0.4
35	0.5	0.7	2.0	11.9	14.7	2.1	0.2	0.0	0.0	0.1	0.2	0.3
40	0.4	0.6	2.0	11.4	14.1	1.8	0.2	0.0	0.0	0.1	0.2	0.3
45	0.4	0.6	1.9	11.1	13.4	1.6	0.2	0.0	0.0	0.1	0.1	0.3
50	0.4	0.6	1.9	10.7	12.8	1.5	0.2	0.0	0.0	0.1	0.1	0.3
55	0.3	0.6	1.8	9.8	12.2	1.3	0.2	0.0	0.0	0.1	0.1	0.3
60	0.3	0.6	1.7	9.5	11.3	1.1	0.2	0.0	0.0	0.0	0.1	0.3
65	0.3	0.6	1.5	8.3	10.7	1.0	0.2	0.0	0.0	0.0	0.1	0.2
70	0.3	0.4	1.5	7.6	10.4	0.9	0.1	0.0	0.0	0.0	0.1	0.1
75	0.2	0.4	1.3	6.0	9.8	0.8	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.3	0.9	5.0	8.8	0.7	0.1	0.0	0.0	0.0	0.1	0.1
85	0.1	0.2	0.4	4.2	7.9	0.6	0.1	0.0	0.0	0.0	0.1	0.1
90	0.1	0.2	0.3	3.8	6.0	0.6	0.1	0.0	0.0	0.0	0.1	0.1
95	0.1	0.2	0.2	3.0	4.7	0.5	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.2	2.6	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.1
Average	0.4	0.7	2.3	10.2	14.0	2.1	0.2	0.0	0.0	0.1	0.2	0.3
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-5E. Camp 62 Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.8	2.0	8.8	18.6	25.1	17.9	2.3	0.2	0.4	0.9	0.7	0.8
1	0.8	2.0	7.6	18.2	21.6	16.6	2.0	0.2	0.3	0.9	0.5	0.6
5	0.7	1.2	6.2	16.0	17.1	10.1	1.2	0.1	0.1	0.3	0.3	0.3
10	0.6	1.0	5.3	14.1	13.3	3.7	0.7	0.1	0.1	0.2	0.2	0.3
15	0.3	0.8	4.3	12.9	12.3	2.8	0.6	0.1	0.0	0.2	0.2	0.2
20	0.2	0.6	3.2	12.0	11.2	2.5	0.5	0.1	0.0	0.1	0.2	0.1
25	0.2	0.3	2.7	11.6	10.2	2.2	0.4	0.1	0.0	0.1	0.2	0.1
30	0.2	0.3	2.4	10.6	9.1	2.0	0.3	0.1	0.0	0.1	0.2	0.1
35	0.2	0.3	2.1	10.0	8.4	1.8	0.3	0.0	0.0	0.1	0.1	0.1
40	0.2	0.3	1.9	9.3	7.7	1.6	0.3	0.0	0.0	0.1	0.1	0.1
45	0.2	0.2	1.7	8.6	7.1	1.4	0.2	0.0	0.0	0.0	0.1	0.1
50	0.1	0.2	1.4	8.3	6.7	1.3	0.2	0.0	0.0	0.0	0.1	0.1
55	0.1	0.2	1.2	7.2	6.3	1.1	0.2	0.0	0.0	0.0	0.1	0.1
60	0.1	0.2	1.1	6.8	5.7	1.0	0.2	0.0	0.0	0.0	0.1	0.1
65	0.1	0.2	1.1	6.2	5.5	0.9	0.1	0.0	0.0	0.0	0.1	0.1
70	0.1	0.2	1.0	5.6	5.0	0.8	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.1	0.9	5.1	4.5	0.8	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.1	0.8	4.5	4.0	0.7	0.1	0.0	0.0	0.0	0.0	0.1
85	0.1	0.1	0.8	4.2	3.6	0.7	0.1	0.0	0.0	0.0	0.0	0.1
90	0.1	0.1	0.7	3.5	3.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0
95	0.1	0.1	0.6	2.3	2.6	0.6	0.1	0.0	0.0	0.0	0.0	0.0
99	0.0	0.1	0.2	1.6	2.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.2	1.4	1.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.2	0.4	2.2	8.5	7.8	2.2	0.3	0.0	0.0	0.1	0.1	0.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-6A. Bolsillo Creek Above Diversion - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	123.7	26.5	29.1	22.5	92.7	43.6	22.8	5.7	0.9	1.0	12.9	25.3
1	8.4	8.4	9.6	19.9	25.0	36.5	21.0	3.7	0.8	0.5	3.9	4.6
5	2.7	2.6	6.0	13.8	19.2	24.2	12.0	1.2	0.5	0.3	1.2	1.6
10	1.6	1.9	4.6	10.4	17.9	19.0	5.6	0.6	0.3	0.2	0.4	1.0
15	0.8	1.6	3.7	9.2	15.0	15.0	2.3	0.4	0.3	0.2	0.3	0.5
20	0.7	1.5	2.9	8.4	13.4	9.5	1.2	0.2	0.2	0.2	0.2	0.4
25	0.5	1.2	2.3	7.9	12.0	6.2	0.6	0.1	0.1	0.1	0.2	0.3
30	0.4	0.9	1.9	7.3	11.0	4.2	0.5	0.1	0.0	0.1	0.2	0.3
35	0.4	0.7	1.6	6.9	9.9	2.9	0.4	0.1	0.0	0.1	0.1	0.2
40	0.3	0.6	1.5	6.3	9.0	2.2	0.3	0.1	0.0	0.1	0.1	0.2
45	0.3	0.6	1.4	5.9	8.3	1.8	0.3	0.0	0.0	0.1	0.1	0.2
50	0.2	0.4	1.2	5.6	7.8	1.5	0.2	0.0	0.0	0.1	0.1	0.1
55	0.2	0.4	1.1	5.1	7.0	1.4	0.2	0.0	0.0	0.0	0.1	0.1
60	0.1	0.3	1.1	4.4	6.5	1.1	0.2	0.0	0.0	0.0	0.1	0.1
65	0.1	0.2	1.0	3.8	5.9	1.0	0.2	0.0	0.0	0.0	0.1	0.1
70	0.1	0.2	0.8	3.2	5.2	0.8	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.1	0.7	2.6	4.7	0.7	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.1	0.6	2.3	4.1	0.6	0.1	0.0	0.0	0.0	0.0	0.1
85	0.1	0.1	0.5	1.9	3.5	0.5	0.1	0.0	0.0	0.0	0.0	0.1
90	0.1	0.1	0.4	1.5	2.9	0.4	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.1	0.2	1.3	2.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.1	1.0	1.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.1	0.8	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.9	0.9	2.0	5.9	9.1	5.6	1.7	0.2	0.1	0.1	0.3	0.4
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-6B. Bolsillo Creek Above Diversion - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	123.7	26.5	29.1	22.5	92.7	43.6	22.8	5.7	0.9	0.6	12.9	9.8
1	28.1	14.8	11.4	21.4	29.0	36.9	22.0	5.2	0.9	0.4	3.7	4.6
5	3.9	6.2	9.4	18.0	22.9	31.1	20.0	2.7	0.7	0.3	1.2	1.8
10	2.9	3.2	7.0	14.3	20.6	26.8	14.0	1.6	0.6	0.3	0.5	1.4
15	2.4	2.6	5.8	11.3	19.0	24.0	11.0	1.2	0.5	0.2	0.4	0.8
20	1.1	2.1	4.7	9.7	18.0	21.0	8.6	0.9	0.4	0.2	0.3	0.5
25	0.9	1.9	3.9	8.6	17.8	20.0	6.9	0.7	0.3	0.2	0.2	0.4
30	0.8	1.6	3.4	8.0	16.2	18.8	5.2	0.6	0.3	0.2	0.2	0.4
35	0.7	1.5	2.2	6.9	14.7	17.0	3.7	0.5	0.3	0.1	0.2	0.4
40	0.6	1.3	1.9	6.3	13.9	16.0	2.9	0.4	0.3	0.1	0.2	0.3
45	0.6	1.1	1.7	5.8	13.0	14.0	2.2	0.3	0.2	0.1	0.1	0.3
50	0.5	0.7	1.6	5.3	12.4	12.0	1.6	0.3	0.2	0.1	0.1	0.3
55	0.4	0.6	1.4	3.5	11.1	9.5	1.3	0.2	0.2	0.1	0.1	0.2
60	0.3	0.6	1.4	2.5	10.4	7.9	0.8	0.1	0.1	0.1	0.1	0.2
65	0.3	0.6	1.2	2.2	9.3	6.2	0.6	0.1	0.0	0.1	0.1	0.2
70	0.3	0.5	1.1	2.0	8.6	4.3	0.4	0.1	0.0	0.1	0.1	0.2
75	0.3	0.4	1.0	1.7	7.9	3.1	0.4	0.1	0.0	0.0	0.1	0.1
80	0.2	0.2	0.8	1.5	7.2	2.2	0.3	0.1	0.0	0.0	0.1	0.1
85	0.1	0.2	0.4	1.4	6.1	1.7	0.3	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.3	1.3	5.2	1.4	0.2	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	1.1	4.8	0.8	0.2	0.0	0.0	0.0	0.0	0.1
99	0.1	0.1	0.1	1.0	4.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.1	0.1	0.1	0.9	4.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0
Average	2.0	1.7	2.8	6.2	13.1	13.1	4.6	0.6	0.2	0.1	0.3	0.5
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-6C. Bolsillo Creek Above Diversion - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.4	2.0	6.1	16.1	26.4	7.0	0.7	0.3	0.1	1.0	8.1	25.3
5	2.9	1.9	5.4	14.2	18.4	5.7	0.6	0.1	0.0	0.5	3.9	4.2
10	2.3	1.9	4.4	10.0	15.8	4.8	0.5	0.1	0.0	0.4	2.4	1.9
15	2.0	1.8	3.3	9.6	13.8	4.6	0.5	0.1	0.0	0.3	2.0	1.7
20	1.8	1.8	2.9	9.0	13.1	3.9	0.5	0.1	0.0	0.3	1.0	1.6
25	1.6	1.8	2.7	8.4	11.6	3.5	0.4	0.1	0.0	0.2	0.4	1.5
30	1.6	1.7	2.5	8.1	11.4	2.9	0.4	0.1	0.0	0.2	0.3	1.4
35	0.8	1.6	2.4	7.9	11.4	2.7	0.4	0.1	0.0	0.2	0.3	0.7
40	0.8	1.6	2.1	7.1	10.9	2.2	0.4	0.1	0.0	0.2	0.3	0.5
45	0.7	1.5	1.9	6.8	10.2	2.1	0.3	0.1	0.0	0.2	0.3	0.4
50	0.6	1.3	1.8	6.2	9.8	1.7	0.3	0.1	0.0	0.1	0.2	0.4
55	0.4	1.2	1.6	5.9	9.6	1.5	0.3	0.1	0.0	0.1	0.2	0.3
60	0.3	1.1	1.4	5.7	8.9	1.4	0.2	0.0	0.0	0.1	0.2	0.3
65	0.3	1.0	1.2	5.3	8.6	1.3	0.2	0.0	0.0	0.1	0.1	0.2
70	0.3	0.8	1.1	4.9	7.7	1.1	0.2	0.0	0.0	0.0	0.1	0.0
75	0.2	0.7	1.1	4.3	7.4	1.0	0.2	0.0	0.0	0.0	0.1	0.0
80	0.1	0.7	1.0	3.9	6.7	0.9	0.2	0.0	0.0	0.0	0.0	0.0
85	0.0	0.4	0.9	2.2	6.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0
90	0.0	0.3	0.7	1.7	5.7	0.7	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.3	0.7	1.5	4.4	0.6	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.3	0.6	1.5	3.2	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Average	0.9	1.2	2.1	6.7	10.3	2.4	0.3	0.1	0.0	0.2	0.8	1.2
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-6D. Bolsillo Creek Above Diversion - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.7	1.5	6.6	12.9	18.7	5.8	0.5	0.1	0.1	0.2	1.5	0.6
5	0.5	1.1	4.4	10.9	18.0	4.1	0.3	0.0	0.1	0.1	0.3	0.3
10	0.4	1.0	3.3	10.4	14.6	2.5	0.3	0.0	0.0	0.1	0.2	0.3
15	0.4	0.7	1.5	9.2	12.8	2.1	0.2	0.0	0.0	0.1	0.2	0.3
20	0.4	0.6	1.5	8.7	11.0	1.9	0.2	0.0	0.0	0.1	0.2	0.2
25	0.4	0.6	1.4	8.0	10.1	1.6	0.2	0.0	0.0	0.1	0.2	0.2
30	0.4	0.5	1.3	7.7	9.4	1.4	0.2	0.0	0.0	0.1	0.1	0.2
35	0.3	0.4	1.2	7.2	8.9	1.3	0.2	0.0	0.0	0.0	0.1	0.2
40	0.2	0.4	1.2	6.9	8.5	1.1	0.1	0.0	0.0	0.0	0.1	0.2
45	0.2	0.4	1.2	6.7	8.1	1.0	0.1	0.0	0.0	0.0	0.1	0.2
50	0.2	0.4	1.1	6.5	7.8	0.9	0.1	0.0	0.0	0.0	0.1	0.2
55	0.2	0.4	1.1	6.0	7.4	0.8	0.1	0.0	0.0	0.0	0.1	0.2
60	0.2	0.4	1.0	5.8	6.9	0.7	0.1	0.0	0.0	0.0	0.1	0.2
65	0.2	0.3	0.9	5.1	6.5	0.6	0.1	0.0	0.0	0.0	0.1	0.1
70	0.2	0.2	0.9	4.6	6.3	0.6	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.8	3.7	6.0	0.5	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.6	3.0	5.3	0.4	0.1	0.0	0.0	0.0	0.0	0.1
85	0.1	0.1	0.2	2.5	4.8	0.4	0.1	0.0	0.0	0.0	0.0	0.1
90	0.1	0.1	0.2	2.3	3.7	0.3	0.0	0.0	0.0	0.0	0.0	0.1
95	0.0	0.1	0.1	1.8	2.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.1	1.6	2.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.2	0.4	1.4	6.2	8.5	1.3	0.1	0.0	0.0	0.0	0.1	0.2
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-6E. Bolsillo Creek Above Diversion - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.5	1.2	5.3	11.3	15.2	10.9	1.4	0.1	0.3	0.6	0.4	0.5
1	0.5	1.2	4.6	11.1	13.1	10.1	1.2	0.1	0.2	0.5	0.3	0.3
5	0.4	0.7	3.8	9.7	10.4	6.1	0.7	0.1	0.1	0.2	0.2	0.2
10	0.3	0.6	3.2	8.5	8.1	2.2	0.4	0.1	0.0	0.1	0.1	0.2
15	0.2	0.5	2.6	7.9	7.5	1.7	0.4	0.1	0.0	0.1	0.1	0.1
20	0.1	0.3	2.0	7.3	6.8	1.5	0.3	0.0	0.0	0.1	0.1	0.1
25	0.1	0.2	1.6	7.0	6.2	1.4	0.2	0.0	0.0	0.1	0.1	0.1
30	0.1	0.2	1.5	6.4	5.5	1.2	0.2	0.0	0.0	0.1	0.1	0.1
35	0.1	0.2	1.3	6.1	5.1	1.1	0.2	0.0	0.0	0.0	0.1	0.1
40	0.1	0.2	1.1	5.7	4.7	1.0	0.2	0.0	0.0	0.0	0.1	0.1
45	0.1	0.2	1.0	5.2	4.3	0.8	0.1	0.0	0.0	0.0	0.1	0.1
50	0.1	0.1	0.8	5.1	4.1	0.8	0.1	0.0	0.0	0.0	0.1	0.1
55	0.1	0.1	0.7	4.4	3.8	0.7	0.1	0.0	0.0	0.0	0.1	0.1
60	0.1	0.1	0.7	4.2	3.5	0.6	0.1	0.0	0.0	0.0	0.1	0.1
65	0.1	0.1	0.7	3.8	3.3	0.6	0.1	0.0	0.0	0.0	0.1	0.1
70	0.1	0.1	0.6	3.4	3.0	0.5	0.1	0.0	0.0	0.0	0.0	0.1
75	0.1	0.1	0.5	3.1	2.7	0.5	0.1	0.0	0.0	0.0	0.0	0.1
80	0.1	0.1	0.5	2.7	2.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0
85	0.0	0.1	0.5	2.5	2.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0
90	0.0	0.1	0.4	2.1	1.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.3	1.4	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.1	1.0	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.1	0.8	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.1	0.2	1.3	5.2	4.7	1.4	0.2	0.0	0.0	0.1	0.1	0.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-7A. Bolsillo Creek Below Diversion - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	133.2	28.6	31.4	24.2	99.9	47.0	24.6	5.9	1.0	1.9	13.9	27.2
1	9.1	9.1	10.3	21.4	28.3	39.3	22.5	3.8	0.8	0.7	4.2	5.0
5	3.0	2.8	6.5	14.9	21.2	26.4	12.3	1.2	0.5	0.4	1.2	1.7
10	1.8	2.0	4.9	11.2	19.2	21.6	6.4	0.7	0.3	0.3	0.4	1.0
15	1.0	1.8	4.0	9.9	16.4	16.4	2.6	0.4	0.3	0.2	0.4	0.5
20	0.8	1.6	3.1	9.0	14.6	10.9	1.3	0.2	0.2	0.2	0.3	0.4
25	0.6	1.3	2.5	8.5	13.2	7.1	0.7	0.1	0.1	0.1	0.2	0.4
30	0.5	1.0	2.1	7.9	11.9	4.5	0.5	0.1	0.0	0.1	0.2	0.3
35	0.4	0.7	1.9	7.4	10.7	3.2	0.4	0.1	0.0	0.1	0.2	0.2
40	0.4	0.7	1.7	6.8	9.9	2.4	0.4	0.1	0.0	0.1	0.1	0.2
45	0.3	0.6	1.5	6.4	9.0	1.9	0.3	0.1	0.0	0.1	0.1	0.2
50	0.3	0.5	1.4	6.0	8.4	1.6	0.3	0.0	0.0	0.1	0.1	0.2
55	0.2	0.4	1.3	5.5	7.7	1.5	0.2	0.0	0.0	0.0	0.1	0.1
60	0.2	0.3	1.1	4.8	7.0	1.2	0.2	0.0	0.0	0.0	0.1	0.1
65	0.1	0.2	1.0	4.1	6.4	1.0	0.2	0.0	0.0	0.0	0.1	0.1
70	0.1	0.2	0.9	3.5	5.6	0.9	0.2	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.8	2.9	5.1	0.8	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.1	0.7	2.5	4.5	0.7	0.1	0.0	0.0	0.0	0.1	0.1
85	0.1	0.1	0.5	2.1	3.7	0.6	0.1	0.0	0.0	0.0	0.0	0.1
90	0.1	0.1	0.4	1.8	3.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.1	0.2	1.5	2.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.1	1.1	1.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.1	0.9	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Average	1.0	1.0	2.2	6.4	9.9	6.1	1.9	0.3	0.1	0.1	0.3	0.5
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-7B. Bolsillo Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	133.2	28.6	31.4	24.2	99.9	47.0	24.6	5.9	1.0	1.9	13.9	10.5
1	30.3	16.0	12.2	23.0	32.5	39.7	23.6	5.3	0.9	0.7	3.9	5.0
5	4.2	6.7	10.1	19.4	24.9	33.5	21.2	2.8	0.7	0.4	1.3	1.9
10	3.1	3.5	7.6	15.4	22.0	28.9	14.6	1.6	0.6	0.3	0.6	1.5
15	2.5	2.8	6.3	12.5	20.9	26.4	11.5	1.2	0.5	0.3	0.4	0.9
20	1.1	2.2	5.0	10.5	20.2	24.1	8.8	0.9	0.4	0.2	0.4	0.5
25	1.0	2.0	4.2	9.1	19.2	22.9	7.6	0.8	0.3	0.2	0.4	0.5
30	0.9	1.7	3.7	8.6	17.5	20.2	5.7	0.6	0.3	0.2	0.4	0.5
35	0.8	1.6	2.4	7.5	15.9	18.3	4.2	0.6	0.3	0.1	0.2	0.4
40	0.7	1.4	2.1	6.7	15.3	17.6	3.1	0.5	0.3	0.1	0.2	0.4
45	0.6	1.2	2.0	6.2	14.4	15.5	2.4	0.4	0.3	0.1	0.2	0.4
50	0.5	0.9	1.9	5.9	13.8	13.3	1.9	0.3	0.2	0.1	0.1	0.4
55	0.5	0.7	1.7	4.5	12.6	11.2	1.4	0.3	0.2	0.1	0.1	0.3
60	0.4	0.7	1.5	3.0	11.3	8.8	0.9	0.2	0.1	0.1	0.1	0.2
65	0.4	0.7	1.4	2.5	10.1	7.2	0.6	0.1	0.0	0.1	0.1	0.2
70	0.4	0.6	1.4	2.3	9.4	4.6	0.5	0.1	0.0	0.1	0.1	0.2
75	0.3	0.5	1.2	2.0	8.8	3.3	0.4	0.1	0.0	0.0	0.1	0.2
80	0.3	0.3	1.0	1.8	8.2	2.4	0.3	0.1	0.0	0.0	0.1	0.1
85	0.1	0.2	0.5	1.6	6.8	1.8	0.3	0.0	0.0	0.0	0.1	0.1
90	0.1	0.1	0.4	1.5	5.6	1.5	0.2	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	0.2	1.5	5.1	0.9	0.2	0.0	0.0	0.0	0.0	0.1
99	0.1	0.1	0.1	1.2	4.8	0.5	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.1	1.2	4.7	0.5	0.1	0.0	0.0	0.0	0.0	0.1
Average	2.2	1.8	3.1	6.8	14.4	14.4	4.9	0.7	0.3	0.1	0.4	0.6
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-7C. Bolsillo Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.6	2.1	6.6	17.4	28.4	7.6	0.8	0.3	0.1	1.1	8.7	27.2
5	3.1	2.0	5.9	15.2	19.9	6.1	0.7	0.1	0.1	0.5	4.2	4.5
10	2.5	2.0	4.8	10.8	17.0	5.2	0.6	0.1	0.0	0.4	2.5	2.0
15	2.1	1.9	3.5	10.4	14.8	5.0	0.5	0.1	0.0	0.4	2.1	1.8
20	1.9	1.9	3.2	9.7	14.1	4.2	0.5	0.1	0.0	0.3	1.0	1.7
25	1.8	1.9	3.0	9.1	12.5	3.8	0.5	0.1	0.0	0.3	0.4	1.6
30	1.7	1.9	2.7	8.7	12.3	3.1	0.4	0.1	0.0	0.2	0.3	1.5
35	0.9	1.8	2.5	8.5	12.2	2.9	0.4	0.1	0.0	0.2	0.3	0.8
40	0.9	1.8	2.2	7.7	11.7	2.4	0.4	0.1	0.0	0.2	0.3	0.6
45	0.7	1.6	2.1	7.3	11.0	2.2	0.4	0.1	0.0	0.2	0.3	0.5
50	0.7	1.4	1.9	6.7	10.6	1.8	0.3	0.1	0.0	0.1	0.2	0.4
55	0.4	1.3	1.7	6.4	10.3	1.6	0.3	0.1	0.0	0.1	0.2	0.4
60	0.4	1.2	1.5	6.1	9.6	1.5	0.3	0.0	0.0	0.1	0.2	0.3
65	0.3	1.1	1.3	5.7	9.3	1.4	0.2	0.0	0.0	0.1	0.2	0.2
70	0.3	0.9	1.2	5.3	8.3	1.2	0.2	0.0	0.0	0.0	0.1	0.0
75	0.3	0.8	1.1	4.7	7.9	1.0	0.2	0.0	0.0	0.0	0.1	0.0
80	0.1	0.7	1.0	4.2	7.2	1.0	0.2	0.0	0.0	0.0	0.0	0.0
85	0.0	0.4	1.0	2.4	6.9	0.9	0.2	0.0	0.0	0.0	0.0	0.0
90	0.0	0.4	0.8	1.8	6.2	0.8	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.3	0.7	1.6	4.8	0.7	0.1	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.3	0.7	1.6	3.5	0.6	0.1	0.0	0.0	0.0	0.0	0.0
Average	1.0	1.3	2.3	7.2	11.1	2.6	0.4	0.1	0.0	0.2	0.8	1.3
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-7D. Bolsillo Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.7	1.6	7.1	13.9	20.2	6.3	0.6	0.1	0.1	0.2	1.6	0.6
5	0.5	1.2	4.8	11.7	19.4	4.4	0.4	0.0	0.1	0.1	0.3	0.3
10	0.5	1.1	3.6	11.2	15.7	2.7	0.3	0.0	0.0	0.1	0.2	0.3
15	0.4	0.7	1.6	9.9	13.8	2.2	0.2	0.0	0.0	0.1	0.2	0.3
20	0.4	0.7	1.6	9.3	11.9	2.0	0.2	0.0	0.0	0.1	0.2	0.3
25	0.4	0.6	1.5	8.6	10.8	1.8	0.2	0.0	0.0	0.1	0.2	0.2
30	0.4	0.6	1.4	8.3	10.2	1.5	0.2	0.0	0.0	0.1	0.2	0.2
35	0.3	0.5	1.3	7.8	9.6	1.4	0.2	0.0	0.0	0.1	0.1	0.2
40	0.3	0.4	1.3	7.4	9.2	1.1	0.2	0.0	0.0	0.1	0.1	0.2
45	0.2	0.4	1.3	7.3	8.8	1.0	0.1	0.0	0.0	0.0	0.1	0.2
50	0.2	0.4	1.2	7.0	8.4	1.0	0.1	0.0	0.0	0.0	0.1	0.2
55	0.2	0.4	1.1	6.4	8.0	0.9	0.1	0.0	0.0	0.0	0.1	0.2
60	0.2	0.4	1.1	6.2	7.4	0.7	0.1	0.0	0.0	0.0	0.1	0.2
65	0.2	0.4	1.0	5.4	7.0	0.7	0.1	0.0	0.0	0.0	0.1	0.2
70	0.2	0.3	1.0	5.0	6.8	0.6	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.2	0.9	3.9	6.4	0.5	0.1	0.0	0.0	0.0	0.1	0.1
80	0.1	0.2	0.6	3.3	5.7	0.5	0.1	0.0	0.0	0.0	0.1	0.1
85	0.1	0.1	0.2	2.7	5.1	0.4	0.1	0.0	0.0	0.0	0.0	0.1
90	0.1	0.1	0.2	2.5	3.9	0.4	0.1	0.0	0.0	0.0	0.0	0.1
95	0.0	0.1	0.1	1.9	3.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.1	1.7	2.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.3	0.5	1.5	6.7	9.1	1.4	0.2	0.0	0.0	0.0	0.1	0.2
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-7E. Bolsillo Creek Below Diversion - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.5	1.3	5.7	12.2	16.4	11.7	1.5	0.2	0.3	0.6	0.4	0.5
1	0.5	1.3	5.0	11.9	14.1	10.9	1.3	0.1	0.2	0.6	0.3	0.4
5	0.4	0.8	4.1	10.5	11.2	6.6	0.8	0.1	0.1	0.2	0.2	0.2
10	0.4	0.7	3.5	9.2	8.7	2.4	0.5	0.1	0.0	0.1	0.2	0.2
15	0.2	0.6	2.8	8.5	8.1	1.8	0.4	0.1	0.0	0.1	0.1	0.1
20	0.2	0.4	2.1	7.9	7.3	1.6	0.3	0.0	0.0	0.1	0.1	0.1
25	0.1	0.2	1.8	7.6	6.7	1.5	0.3	0.0	0.0	0.1	0.1	0.1
30	0.1	0.2	1.6	6.9	5.9	1.3	0.2	0.0	0.0	0.1	0.1	0.1
35	0.1	0.2	1.4	6.5	5.5	1.1	0.2	0.0	0.0	0.0	0.1	0.1
40	0.1	0.2	1.2	6.1	5.0	1.0	0.2	0.0	0.0	0.0	0.1	0.1
45	0.1	0.2	1.1	5.6	4.7	0.9	0.2	0.0	0.0	0.0	0.1	0.1
50	0.1	0.1	0.9	5.4	4.4	0.9	0.1	0.0	0.0	0.0	0.1	0.1
55	0.1	0.1	0.8	4.7	4.1	0.7	0.1	0.0	0.0	0.0	0.1	0.1
60	0.1	0.1	0.7	4.5	3.7	0.7	0.1	0.0	0.0	0.0	0.1	0.1
65	0.1	0.1	0.7	4.1	3.6	0.6	0.1	0.0	0.0	0.0	0.1	0.1
70	0.1	0.1	0.7	3.7	3.3	0.6	0.1	0.0	0.0	0.0	0.1	0.1
75	0.1	0.1	0.6	3.3	3.0	0.5	0.1	0.0	0.0	0.0	0.0	0.1
80	0.1	0.1	0.5	3.0	2.6	0.5	0.1	0.0	0.0	0.0	0.0	0.1
85	0.1	0.1	0.5	2.7	2.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0
90	0.0	0.1	0.5	2.3	2.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.4	1.5	1.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.1	1.0	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.1	0.9	1.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.1	0.2	1.4	5.6	5.1	1.5	0.2	0.0	0.0	0.1	0.1	0.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-8A. Mono Creek below Diversion - Area Based Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1879.7	317.4	274.9	572.8	1491.4	2092.5	2518.1	1266.2	379.5	244.7	147.2	172.0
1	156.1	161.4	205.7	478.8	1333.6	1666.9	1844.3	867.2	310.3	157.8	108.2	111.7
5	94.0	92.2	140.1	402.5	1019.7	1397.4	1317.6	578.1	164.9	97.5	79.8	83.3
10	78.0	81.6	117.0	331.6	865.4	1152.7	1071.1	381.3	113.5	60.3	67.4	72.7
15	67.4	72.7	104.6	283.7	727.1	973.6	767.8	216.4	90.4	51.4	53.2	63.8
20	62.1	63.8	95.8	251.8	643.7	867.2	558.6	168.5	70.9	46.1	46.1	60.3
25	56.7	58.5	90.4	218.1	588.7	792.7	475.2	143.6	63.8	42.6	42.6	51.4
30	53.2	56.7	85.1	202.2	549.7	709.3	372.4	125.9	55.0	39.0	37.2	46.1
35	51.4	53.2	79.8	182.6	516.0	629.5	297.9	101.1	47.9	35.5	33.7	42.6
40	47.9	47.9	74.5	166.7	480.6	579.9	267.8	83.3	44.3	33.7	30.1	39.0
45	44.3	46.1	69.2	154.3	452.2	530.2	234.1	69.2	39.0	30.1	28.4	35.5
50	40.8	44.3	63.8	140.1	425.6	503.6	180.9	60.3	33.7	26.6	26.6	30.1
55	37.2	40.8	60.3	129.4	386.6	477.0	145.4	51.4	30.1	24.8	24.8	24.8
60	33.7	39.0	56.7	124.1	347.6	434.5	127.7	44.3	23.0	23.0	21.3	21.3
65	28.4	37.2	53.2	113.5	312.1	404.3	115.3	39.0	19.5	19.5	19.5	19.5
70	21.3	33.7	47.9	104.6	278.4	360.0	102.8	35.5	16.7	16.3	17.7	17.7
75	19.5	30.1	46.1	94.0	257.1	306.8	92.2	31.9	14.5	12.2	17.4	15.4
80	16.1	24.8	42.6	86.9	237.6	276.6	81.6	28.4	11.5	10.6	16.1	12.9
85	12.1	17.7	40.8	72.7	202.2	237.6	72.7	24.8	9.9	9.9	14.9	11.7
90	10.1	12.8	37.2	67.4	164.9	200.4	60.3	21.3	9.0	8.9	12.4	10.5
95	9.0	10.8	33.7	58.5	129.4	150.7	46.1	16.5	8.2	8.2	9.2	9.0
99	8.3	8.2	23.0	46.1	90.4	90.4	35.5	12.1	7.1	5.5	8.5	7.8
Minimum	8.0	7.6	11.9	44.3	70.9	81.6	31.9	10.1	6.6	5.3	7.1	6.6
Average	47.7	47.9	73.1	173.2	466.1	595.5	366.6	134.7	51.4	34.4	33.1	36.4
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-8B. Mono Creek below Diversion - Area Based Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1879.7	317.4	274.9	572.8	1491.4	2092.5	2518.1	1266.2	379.5	244.7	147.2	172.0
1	425.6	250.0	248.3	510.7	1411.6	1773.3	1932.9	1078.2	360.0	196.8	125.9	124.1
5	113.5	129.4	189.7	429.1	1252.0	1601.3	1681.1	844.1	241.2	149.0	94.0	95.8
10	99.3	101.1	149.0	376.0	973.6	1468.3	1436.4	663.2	180.9	109.9	79.8	85.1
15	88.7	90.4	136.6	312.1	888.4	1395.6	1299.8	569.2	159.6	78.0	72.7	78.0
20	83.3	86.9	124.1	255.4	785.6	1308.7	1205.9	473.5	138.3	62.1	62.1	74.5
25	78.0	81.6	111.7	214.6	657.9	1191.7	1136.7	407.9	124.1	55.0	55.0	69.2
30	70.9	76.2	104.6	182.6	613.6	1140.2	1040.9	354.7	108.2	47.9	51.4	63.8
35	62.1	74.5	99.3	164.9	565.7	1062.2	938.1	278.4	95.8	42.6	47.9	56.7
40	58.5	65.6	94.0	150.7	521.4	977.1	814.0	227.0	83.3	40.8	44.3	51.4
45	56.7	63.8	92.2	140.1	487.7	925.7	718.2	202.2	72.7	39.0	37.2	47.9
50	53.2	60.3	90.4	127.7	448.6	860.1	629.5	182.6	67.4	35.5	31.9	46.1
55	51.4	58.5	86.9	118.8	411.4	798.0	558.6	166.7	60.3	33.7	28.4	44.3
60	49.7	56.7	83.3	111.7	347.6	760.8	517.8	154.3	56.7	31.9	28.4	42.6
65	47.9	55.0	81.6	102.8	306.8	698.7	455.7	143.6	55.0	28.4	26.6	39.0
70	44.3	51.4	76.2	95.8	273.1	640.2	404.3	131.2	51.4	26.6	26.6	39.0
75	42.6	42.6	70.9	90.4	248.3	585.2	345.8	120.6	47.9	23.0	24.8	35.5
80	40.8	39.0	65.6	74.5	225.2	549.7	303.2	108.2	44.3	21.3	23.0	33.7
85	39.0	37.2	60.3	67.4	193.3	517.8	285.5	94.0	42.6	19.5	19.5	28.4
90	35.5	35.5	51.4	62.1	161.4	477.0	258.9	83.3	37.2	10.3	17.7	21.3
95	33.7	31.9	46.1	56.7	129.4	386.6	241.2	69.2	31.9	9.6	16.0	16.5
99	30.1	28.4	31.9	49.7	70.9	260.7	211.0	53.2	28.4	9.6	13.3	10.5
Minimum	30.1	28.4	31.9	49.7	70.9	237.6	196.8	51.4	28.4	8.9	11.7	10.5
Average	76.9	68.8	97.5	172.5	512.6	921.7	771.1	293.1	95.9	48.6	43.2	52.3
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-8C. Mono Creek below Diversion - Area Based Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	72.7	83.3	138.3	379.5	1259.1	1058.7	821.0	266.0	159.6	145.4	106.4	136.6
5	69.2	65.6	117.0	303.2	1111.9	945.2	551.5	175.6	90.4	109.9	85.1	85.1
10	63.8	58.5	108.2	230.5	1071.1	906.2	494.8	150.7	83.3	79.8	76.2	76.2
15	56.7	56.7	97.5	223.4	1016.1	860.1	425.6	136.6	78.0	60.3	70.9	70.9
20	53.2	55.0	88.7	209.2	952.3	819.3	381.3	133.0	72.7	53.2	58.5	67.4
25	51.4	53.2	86.9	195.1	916.8	780.3	345.8	125.9	70.9	51.4	47.9	63.8
30	47.9	51.4	79.8	184.4	831.7	739.5	305.0	106.4	65.6	47.9	44.3	60.3
35	46.1	49.7	76.2	175.6	771.4	677.4	280.2	95.8	63.8	44.3	39.0	40.8
40	44.3	49.7	72.7	157.8	750.1	652.6	274.9	85.1	55.0	42.6	37.2	35.5
45	40.8	47.9	67.4	149.0	627.8	618.9	260.7	78.0	46.1	37.2	33.7	31.9
50	33.7	47.9	65.6	138.3	604.7	579.9	235.9	74.5	42.6	37.2	30.1	31.9
55	26.6	47.9	62.1	129.4	563.9	532.0	216.4	67.4	37.2	35.5	30.1	24.8
60	23.0	46.1	58.5	124.1	539.1	519.6	202.2	62.1	33.7	33.7	28.4	24.8
65	23.0	46.1	55.0	111.7	500.1	512.5	188.0	58.5	31.9	31.9	24.8	23.0
70	21.3	46.1	51.4	108.2	429.1	489.4	166.7	55.0	30.1	30.1	23.0	16.3
75	19.5	44.3	49.7	90.4	374.2	471.7	129.4	55.0	28.4	26.6	21.3	13.6
80	15.2	42.6	47.9	79.8	303.2	450.4	117.0	47.9	28.4	21.3	19.5	12.6
85	11.0	40.8	46.1	58.5	264.2	407.9	102.8	46.1	21.3	19.5	17.7	11.9
90	10.3	37.2	42.6	47.9	239.4	399.0	92.2	44.3	21.3	17.7	16.9	11.0
95	8.5	35.5	39.0	46.1	113.5	381.3	83.3	37.2	17.7	16.9	16.0	10.5
Minimum	8.0	31.9	37.2	44.3	95.8	308.6	81.6	35.5	17.2	15.2	14.5	9.9
Average	35.4	49.0	70.0	150.3	637.5	622.4	265.3	89.1	50.4	44.0	39.4	39.4
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-8D. Mono Creek below Diversion - Area Based Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	156.1	161.4	202.2	454.0	831.7	828.2	285.5	79.8	51.4	65.6	79.8	78.0
5	86.9	86.9	127.7	418.5	766.1	666.8	246.5	67.4	42.6	49.7	67.4	70.9
10	72.7	74.5	101.1	319.2	704.0	608.2	168.5	55.0	35.5	47.9	58.5	63.8
15	69.2	67.4	76.2	303.2	675.6	567.5	154.3	46.1	35.5	46.1	51.4	62.1
20	65.6	65.6	74.5	280.2	656.1	510.7	149.0	44.3	33.7	44.3	46.1	60.3
25	63.8	62.1	70.9	264.2	581.7	485.9	138.3	39.0	31.9	40.8	42.6	58.5
30	63.8	58.5	69.2	242.9	556.8	469.9	136.6	35.5	30.1	39.0	37.2	55.0
35	62.1	56.7	63.8	221.7	530.2	434.5	133.0	31.9	16.7	35.5	33.7	55.0
40	58.5	53.2	60.3	211.0	512.5	399.0	122.4	30.1	14.9	24.8	33.7	51.4
45	56.7	49.7	58.5	202.2	478.8	336.9	111.7	30.1	13.5	23.0	31.9	47.9
50	56.7	46.1	58.5	177.3	466.4	306.8	108.2	28.4	12.1	23.0	28.4	46.1
55	55.0	44.3	56.7	163.1	438.0	294.4	102.8	26.6	11.4	21.3	28.4	46.1
60	53.2	42.6	53.2	154.3	430.9	287.3	94.0	24.8	9.9	14.9	26.6	40.8
65	53.2	42.6	49.7	138.3	399.0	273.1	81.6	23.0	9.4	13.1	23.0	37.2
70	51.4	40.8	49.7	131.2	347.6	239.4	78.0	21.3	8.9	6.2	19.5	24.8
75	49.7	37.2	46.1	129.4	328.1	182.6	63.8	19.5	8.3	6.2	17.6	21.3
80	47.9	35.5	44.3	117.0	306.8	170.2	56.7	17.7	8.2	6.2	15.6	19.5
85	47.9	35.5	42.6	92.2	287.3	157.8	51.4	17.4	7.8	6.2	12.8	17.6
90	42.6	33.7	40.8	78.0	257.1	150.7	44.3	16.5	7.4	6.0	12.2	15.6
95	24.8	30.1	39.0	67.4	154.3	104.6	33.7	13.6	7.1	5.3	11.0	14.5
Minimum	15.6	24.8	33.7	58.5	117.0	81.6	31.9	12.1	6.6	5.3	8.9	13.3
Average	58.7	52.4	64.9	198.5	470.5	359.5	112.9	31.9	18.8	24.9	32.1	42.8
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-8E. Mono Creek below Diversion - Area Based Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	40.8	58.5	152.5	478.8	743.0	1095.9	574.6	242.9	310.3	67.4	53.2	39.0
1	40.8	58.5	127.7	446.9	704.0	1042.7	532.0	202.2	111.7	58.5	51.4	35.5
5	39.0	51.4	101.1	386.6	592.3	762.5	290.8	83.3	47.9	47.9	44.3	31.9
10	37.2	44.3	86.9	335.2	553.3	587.0	179.1	65.6	44.3	35.5	39.0	26.6
15	33.7	42.6	76.2	287.3	521.4	514.3	154.3	56.7	35.5	31.9	35.5	24.8
20	30.1	39.0	69.2	258.9	475.2	485.9	133.0	49.7	24.8	30.1	31.9	21.3
25	24.8	35.5	63.8	214.6	455.7	466.4	124.1	46.1	21.3	28.4	26.6	21.3
30	21.3	31.9	58.5	203.9	436.2	427.4	115.3	40.8	19.5	24.8	21.3	19.5
35	19.5	26.6	55.0	186.2	411.4	406.1	111.7	39.0	17.7	23.0	19.5	19.5
40	19.5	24.8	53.2	168.5	388.4	390.1	101.1	35.5	16.7	21.3	19.5	17.7
45	19.5	24.8	47.9	154.3	365.3	342.2	95.8	33.7	16.0	17.7	17.7	17.4
50	17.7	23.0	46.1	140.1	321.0	310.3	90.4	33.7	15.2	14.5	17.4	15.2
55	14.0	17.7	44.3	127.7	297.9	285.5	86.9	31.9	13.6	11.5	17.0	12.9
60	12.6	16.9	42.6	124.1	274.9	273.1	81.6	30.1	12.4	10.8	16.1	12.2
65	12.1	14.2	42.6	111.7	257.1	253.6	74.5	28.4	11.4	10.6	15.6	11.7
70	11.0	12.9	39.0	102.8	244.7	237.6	70.9	26.6	10.3	10.5	14.2	10.8
75	10.1	12.1	39.0	94.0	230.5	218.1	63.8	23.0	9.6	10.1	12.6	10.1
80	9.6	11.4	37.2	86.9	202.2	205.7	60.3	21.3	9.2	9.6	10.3	9.6
85	9.2	10.8	35.5	74.5	175.6	182.6	55.0	19.5	9.0	8.9	9.2	9.0
90	8.9	9.7	33.7	69.2	145.4	149.0	47.9	16.3	8.5	8.7	8.9	8.7
95	8.5	9.0	26.6	62.1	117.0	106.4	40.8	14.7	8.2	8.5	8.7	8.5
99	8.2	7.6	12.4	55.0	79.8	85.1	37.2	10.1	7.3	8.2	7.4	6.7
Minimum	8.0	7.6	11.9	55.0	74.5	81.6	35.5	10.1	7.3	8.2	7.1	6.6
Average	19.2	24.6	53.7	173.0	344.1	359.0	114.3	39.9	21.4	20.0	20.8	16.6
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-9A. San Joaquin River Above Shakeflat Creek - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	64670.0	15689.0	16628.3	21076.8	45816.9	30732.8	19146.7	5168.5	2092.5	12484.5	6318.2	12987.2
1	4523.3	4702.8	5443.0	11570.2	25633.6	25475.4	16980.9	4746.3	1440.4	2277.5	2504.3	2584.6
5	1646.7	1545.8	3667.1	8127.7	15551.0	21848.7	10601.5	3046.3	916.2	688.5	1454.2	1267.3
10	1283.8	1200.9	2941.0	6673.0	12136.5	17585.5	7454.9	2106.3	654.7	475.0	809.7	1104.1
15	1143.2	1132.6	2482.6	5834.0	10591.6	11552.7	5050.3	1150.8	462.6	341.3	421.4	757.5
20	779.7	1036.9	2074.4	5163.4	9789.0	8479.9	2991.5	853.1	379.7	285.2	367.2	456.6
25	559.9	917.5	1887.8	4790.2	8917.1	7066.0	2500.6	739.7	343.4	259.2	279.5	386.8
30	479.9	830.7	1607.4	4538.0	8045.4	5628.5	1907.4	647.2	287.9	233.6	247.8	343.3
35	442.4	721.3	1392.4	4185.4	7538.5	5007.2	1575.3	517.6	248.1	201.3	225.1	315.6
40	387.6	570.7	1246.1	3917.6	7004.0	4136.9	1437.0	432.7	226.2	183.0	201.7	289.2
45	356.7	519.5	1142.7	3629.4	6419.4	3522.7	1250.7	349.8	199.6	168.6	177.5	235.1
50	315.1	475.7	1005.2	3403.2	5878.2	3023.7	994.9	288.0	175.3	148.8	160.5	210.0
55	278.0	403.8	894.4	3164.8	5432.3	2836.0	797.0	247.7	151.0	138.1	147.9	171.8
60	241.8	358.3	809.5	2959.9	5058.4	2645.1	695.1	229.5	123.1	123.9	137.3	143.2
65	211.2	324.5	745.2	2715.2	4709.5	2447.2	604.5	205.0	103.6	109.7	129.8	125.4
70	175.1	276.8	678.2	2443.6	4327.1	2197.3	550.5	186.1	92.2	92.7	118.2	120.0
75	147.5	235.9	611.6	2160.6	3945.2	1916.5	498.0	173.8	85.6	77.0	107.0	113.6
80	132.6	211.4	523.2	1951.2	3556.7	1594.9	455.5	159.0	78.3	72.1	100.7	104.2
85	126.1	186.9	480.1	1643.2	3019.2	1406.9	389.3	142.5	67.7	67.5	92.9	93.3
90	103.3	149.1	436.0	1332.0	2641.1	1107.5	333.7	120.1	52.9	55.7	75.7	78.0
95	66.1	121.5	351.5	955.7	2262.9	871.1	249.5	98.0	43.3	46.7	63.7	62.5
99	52.6	77.9	211.4	865.8	1796.8	599.8	200.0	68.7	36.9	32.3	53.9	57.7
Minimum	48.5	65.2	172.0	740.1	1673.2	497.4	169.0	48.7	34.5	30.4	37.8	54.4
Average	703.9	709.2	1427.7	3802.1	7036.7	5942.2	2489.4	707.8	276.5	270.3	345.9	408.0
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-9B. San Joaquin River Above Shakeflat Creek - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	64670.0	15689.0	16628.3	21076.8	45816.9	30732.8	19146.7	5168.5	2092.5	12484.5	6318.2	4717.4
1	14448.2	8309.0	6839.1	12433.8	28893.9	29157.6	18596.5	4953.9	1871.0	4659.1	2504.3	2458.4
5	2238.3	4034.9	5107.5	10655.9	19584.9	24827.0	16071.7	4550.1	1280.6	1179.2	1648.9	1506.0
10	1691.8	1799.8	4375.8	8633.2	17185.3	23062.8	13079.6	3602.1	1029.0	793.8	1367.3	1255.9
15	1444.5	1530.4	3604.7	7824.5	15409.1	21814.0	10454.2	3029.5	905.8	595.9	1261.5	1152.6
20	1307.7	1356.2	3186.0	5879.1	13595.9	19977.0	9054.9	2707.7	806.2	486.5	701.2	1032.9
25	1263.1	1200.9	2811.2	5335.0	12808.2	18495.8	8287.3	2349.2	686.2	375.0	448.7	865.1
30	1229.5	1152.2	2531.4	4732.9	11992.7	17097.5	6861.3	2026.4	571.5	303.1	397.7	679.8
35	1143.2	1121.2	2239.5	4482.2	10871.6	14891.8	5973.2	1521.7	490.6	278.5	365.6	506.2
40	839.4	1104.4	1997.8	4027.7	10204.8	12754.7	5405.5	1213.5	431.2	249.8	265.1	458.4
45	742.6	968.0	1833.2	3729.2	9789.0	11179.6	4826.1	1052.0	382.9	213.4	229.0	405.3
50	690.2	917.5	1642.7	3408.8	9366.3	9993.6	3857.8	912.2	354.4	190.6	200.2	387.6
55	569.9	880.0	1483.6	3154.3	8557.7	8810.3	3066.9	847.0	333.2	176.6	163.4	370.4
60	516.3	846.1	1334.7	2951.8	7767.8	7974.7	2802.0	802.8	299.6	161.0	153.3	345.2
65	478.2	789.7	1265.3	2760.7	7128.0	7183.9	2534.6	744.8	271.2	148.8	143.7	267.3
70	424.6	570.7	1192.3	2356.7	6534.1	6475.0	2388.6	676.8	245.7	138.7	138.4	226.8
75	371.3	488.2	1142.2	2055.3	5793.5	5417.6	1800.5	608.6	234.1	125.3	130.4	209.8
80	309.4	412.0	993.8	1899.1	5199.3	4613.2	1623.0	547.1	217.4	116.5	120.4	175.5
85	282.3	373.1	774.2	1551.9	4840.6	3839.2	1525.9	470.7	197.4	94.2	110.3	155.4
90	246.6	346.8	557.2	1237.9	4227.0	3330.2	1371.9	434.0	177.7	64.3	101.1	140.4
95	192.7	311.0	308.6	919.4	3000.5	2882.9	1256.4	350.9	156.0	52.0	93.8	97.1
99	170.7	234.6	273.4	869.7	1809.4	1847.5	1134.7	256.3	134.4	48.2	81.9	68.8
Minimum	170.7	234.6	273.4	868.2	1796.8	1710.8	948.5	243.8	134.3	48.2	74.7	68.4
Average	1429.5	1238.0	2150.7	4285.6	10119.3	12029.3	5657.1	1543.9	509.7	456.5	487.6	583.5
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-9C. San Joaquin River Above Shakeflat Creek - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2139.0	1287.5	3649.4	8800.7	14380.7	6662.4	3086.9	1253.5	641.5	1164.9	5189.4	12987.2
5	1809.0	1224.3	3261.9	7770.7	11110.8	6177.5	2526.4	861.3	450.6	756.0	2462.7	2584.6
10	1485.0	1190.0	2709.8	6115.7	10491.8	5650.4	2417.8	782.6	395.3	549.8	1620.0	1277.3
15	1216.0	1168.4	1931.9	5254.1	9991.0	5501.8	2093.8	712.9	382.8	475.0	1438.4	1263.3
20	1123.4	1133.8	1854.9	4970.5	9758.8	5163.6	1987.6	703.3	367.1	410.4	932.5	1192.4
25	1015.1	1085.2	1746.8	4736.0	9243.3	5092.6	1762.2	664.0	355.5	363.6	521.8	1116.0
30	979.7	1043.5	1606.7	4538.0	8806.3	4714.6	1609.5	550.0	343.4	313.2	426.1	967.3
35	544.8	1028.1	1425.6	4312.5	8687.2	4583.5	1521.9	507.5	304.3	274.4	294.5	495.1
40	518.7	996.6	1329.0	4072.6	8358.7	4401.4	1507.7	459.1	275.5	259.2	274.4	372.8
45	445.7	892.2	1242.2	3942.4	8000.4	4235.1	1370.0	415.5	260.9	238.1	253.8	311.7
50	399.5	802.5	1161.1	3629.4	7929.7	3913.0	1348.8	385.5	235.0	231.8	234.4	293.4
55	309.9	752.8	995.9	3276.8	7683.5	3608.9	1147.5	343.8	212.6	193.0	223.8	269.1
60	247.9	716.3	892.5	3214.1	7182.7	3249.0	1083.4	307.5	187.2	176.6	207.7	257.4
65	230.8	669.2	779.7	3014.2	7004.0	3012.9	998.3	291.2	168.1	170.6	159.5	194.5
70	221.4	548.4	733.2	2929.6	6856.9	2972.1	903.4	272.2	151.6	154.3	113.2	85.7
75	206.3	525.7	693.6	2573.1	6274.5	2917.7	754.6	250.6	135.3	124.1	106.8	71.8
80	107.7	502.0	612.8	2335.6	5816.6	2867.3	603.9	237.4	124.3	109.7	104.4	69.3
85	62.5	368.7	591.7	1207.6	5734.3	2782.4	575.7	228.0	104.9	99.3	97.8	67.7
90	59.2	318.0	533.4	955.7	4957.6	2738.1	506.7	214.1	99.1	90.5	90.1	62.5
95	50.1	273.0	494.3	859.3	3556.7	2524.1	468.0	173.8	90.4	77.2	76.2	60.0
Minimum	48.5	260.9	474.2	845.2	2953.3	2432.4	431.4	162.4	85.6	74.3	70.6	57.7
Average	611.7	806.5	1340.3	3768.9	7848.2	4050.0	1347.7	453.1	250.1	286.1	615.6	795.1
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-9D. San Joaquin River Above Shakeflat Creek - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	750.4	972.5	3863.9	7660.8	11871.2	6323.6	1535.2	374.7	300.8	376.1	891.2	519.0
5	508.9	744.0	2519.9	6703.3	10808.8	5168.1	1305.2	328.5	279.7	311.8	405.6	443.4
10	443.4	680.5	1999.7	6160.7	9053.6	3563.4	947.9	280.2	242.6	284.1	380.6	367.4
15	436.4	619.9	1084.8	5843.9	7868.6	3302.7	797.0	236.7	221.5	257.4	373.8	347.5
20	421.8	572.8	1039.5	5163.4	7523.4	2910.4	770.6	225.7	196.4	242.8	364.9	337.0
25	405.3	528.0	956.2	4940.7	7245.1	2819.3	734.5	204.3	177.8	227.1	351.9	329.4
30	389.9	494.8	894.0	4662.6	6806.8	2710.7	680.8	185.1	170.3	203.9	283.8	322.9
35	375.4	484.3	846.4	4316.6	6580.7	2580.5	664.7	179.5	87.7	194.0	257.9	319.4
40	365.5	473.3	809.5	4175.3	6190.2	2304.5	604.5	169.9	74.5	139.0	210.1	311.0
45	354.7	440.8	797.4	4015.6	5844.8	2247.1	576.9	163.1	71.9	131.6	174.7	305.4
50	345.1	399.3	752.8	3819.2	5506.3	2104.7	549.2	159.3	61.9	121.9	158.9	301.0
55	342.1	377.8	740.4	3553.8	5396.7	1952.0	524.7	146.5	56.7	113.7	149.9	296.3
60	331.1	357.7	721.7	3367.0	5285.9	1722.2	488.2	123.8	52.9	78.3	130.1	293.0
65	310.1	340.4	702.4	2950.4	5039.7	1579.2	459.8	113.6	49.8	69.2	123.6	278.7
70	296.2	298.5	662.9	2870.4	4959.1	1513.8	411.9	110.9	48.3	41.0	113.4	130.5
75	276.5	256.0	633.8	2139.4	4730.4	1133.8	340.3	100.8	46.2	39.7	105.9	118.4
80	268.7	234.1	528.0	1962.1	4466.5	1080.1	308.6	86.1	42.1	33.5	86.3	104.3
85	251.9	215.6	360.5	1636.7	4113.0	934.2	267.4	79.1	40.2	33.1	68.2	102.3
90	233.2	202.9	340.2	1411.0	3835.6	889.5	234.5	72.3	38.6	32.6	63.1	94.1
95	131.0	182.3	236.8	1182.9	3008.7	652.1	181.9	68.2	36.9	31.4	50.6	90.1
Minimum	94.5	170.5	189.2	1104.6	2383.3	497.4	169.0	48.7	34.5	30.4	37.8	82.8
Average	346.1	426.3	937.7	3807.8	6128.8	2248.5	590.3	163.3	109.3	140.6	212.4	259.5
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-9E. San Joaquin River Above Shakeflat Creek - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	496.8	980.7	3099.3	7165.5	9564.8	9284.9	2597.4	2401.8	1415.2	660.3	418.8	361.0
1	468.6	940.7	2899.0	6991.9	8724.2	8411.2	2525.1	667.2	716.0	420.7	347.0	331.5
5	443.8	590.3	2428.8	6578.2	7538.5	7095.8	1538.5	414.9	374.2	333.1	268.9	231.8
10	370.1	519.5	2074.4	5737.5	6393.2	3534.8	1012.9	327.4	207.9	252.5	239.4	214.1
15	245.5	475.1	1786.3	5090.7	5878.2	2858.1	861.1	271.8	153.6	209.1	225.1	188.7
20	213.9	380.3	1431.5	4736.5	5347.7	2710.4	779.3	243.6	131.7	189.2	210.7	158.7
25	182.8	319.6	1155.1	4349.7	4820.5	2547.0	716.2	232.8	118.4	171.2	189.8	139.5
30	165.5	276.8	998.5	3942.6	4493.6	2443.2	649.6	221.1	108.2	159.1	173.8	131.6
35	154.2	245.6	913.2	3772.5	4295.0	2311.6	594.7	206.9	102.6	140.3	160.1	126.1
40	146.3	230.3	821.4	3486.6	4035.7	2117.0	556.7	197.0	97.8	131.2	151.2	123.3
45	144.2	217.8	773.2	3371.3	3892.3	1987.1	525.2	189.8	92.3	109.4	140.9	121.8
50	138.4	207.6	671.5	3110.4	3715.6	1871.9	499.9	182.7	90.4	89.2	132.4	119.2
55	132.6	195.3	617.0	2803.1	3541.2	1737.2	473.6	176.1	86.0	80.7	128.1	115.9
60	130.1	186.9	556.5	2674.5	3243.8	1552.4	445.4	167.6	84.2	76.2	114.9	113.1
65	127.8	173.3	513.3	2458.5	2999.2	1461.5	407.3	157.8	80.7	73.8	103.8	110.2
70	123.0	160.6	489.5	2254.4	2789.0	1384.7	388.0	151.0	77.7	72.1	98.4	106.9
75	117.0	133.6	471.1	2015.0	2641.1	1194.6	361.8	143.9	73.1	70.0	93.5	100.4
80	102.6	127.8	461.9	1842.5	2460.0	1127.2	340.8	132.4	67.6	68.1	74.6	92.5
85	89.5	121.9	437.7	1646.2	2335.3	987.8	296.2	122.9	57.5	65.1	71.3	83.5
90	69.5	99.7	409.9	1438.8	2211.8	848.6	249.5	111.0	49.9	57.7	64.3	60.2
95	64.6	81.4	371.5	1044.4	2020.6	720.6	225.6	99.2	43.0	50.3	59.9	58.5
99	57.9	65.2	174.9	865.8	1684.3	584.0	206.2	68.9	40.9	46.7	53.9	55.3
Minimum	55.8	65.2	172.0	740.1	1673.2	581.7	200.0	62.9	40.4	46.4	48.4	54.4
Average	171.0	260.8	952.2	3330.3	3995.5	2249.0	625.0	214.2	126.3	132.9	145.9	130.1
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx 1-10A San Joaquin River above Stevenson Creek - Unimpaired
Daily Exceedance Flow
(10/01/1983 to 09/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	83122.2	19647.8	20972.9	27677.7	59656.0	37836.9	22401.0	5395.6	2184.8	15520.8	8247.3	16761.5
1	5781.4	5960.9	6860.5	14665.1	31714.4	31704.6	20238.2	5007.6	1491.6	2722.0	3049.8	3213.6
5	2056.2	1924.2	4607.0	10309.1	19182.2	26879.4	12031.1	3200.8	969.8	753.9	1761.3	1536.6
10	1549.7	1478.2	3687.5	8140.0	15430.8	21524.2	8051.9	2168.0	691.3	526.1	954.8	1308.5
15	1400.2	1364.5	3067.4	7196.1	13193.6	14588.4	5487.5	1173.0	482.9	377.3	472.0	889.8
20	930.7	1280.1	2613.0	6480.2	11987.3	9883.4	3061.1	867.7	395.8	305.9	399.4	527.1
25	661.3	1136.5	2324.6	6022.7	10862.0	8047.8	2606.1	757.4	352.6	278.4	315.5	445.7
30	558.0	1023.6	1965.2	5708.7	9826.8	6101.6	1946.8	656.7	293.3	247.5	273.0	392.8
35	510.8	884.1	1678.8	5213.5	9065.0	5418.3	1626.0	523.0	255.7	213.9	244.0	354.6
40	453.0	669.6	1527.4	4892.3	8353.0	4451.0	1478.9	437.6	231.2	193.7	220.3	323.2
45	394.8	606.7	1398.4	4594.5	7638.2	3789.4	1275.8	354.6	203.6	177.9	190.1	259.2
50	354.7	552.7	1219.2	4248.2	7110.4	3211.1	1029.3	294.7	179.3	156.4	171.3	224.4
55	305.2	461.6	1081.3	4026.6	6603.0	3042.3	837.2	255.4	152.1	142.8	157.5	182.7
60	268.0	410.6	986.5	3756.7	6233.8	2845.5	723.9	232.7	126.1	129.1	147.1	151.8
65	239.0	350.3	905.3	3372.8	5667.4	2612.5	633.1	208.5	105.2	114.5	138.1	135.6
70	188.5	307.2	812.4	3031.4	5086.5	2356.7	570.8	189.5	93.8	95.2	126.0	128.7
75	158.5	256.0	737.5	2689.2	4561.0	2065.6	515.2	177.4	86.7	78.8	114.3	122.5
80	148.2	230.2	619.0	2386.8	4249.4	1702.9	473.2	163.6	79.6	73.5	106.9	111.5
85	137.9	202.5	563.5	2021.5	3685.8	1509.1	399.7	145.1	69.3	68.8	98.6	100.8
90	111.7	161.5	496.8	1597.1	3040.3	1183.0	344.6	121.9	54.1	57.3	80.8	84.4
95	71.3	133.9	376.6	1201.4	2688.5	918.9	259.5	99.4	44.5	48.5	67.5	66.3
99	56.4	83.2	232.6	1069.5	2060.4	660.0	209.2	69.9	38.3	33.5	56.0	61.0
Minimum	52.3	69.9	188.0	865.9	1933.2	534.3	175.1	50.2	35.8	31.9	41.1	57.9
Average	856.7	856.2	1762.4	4757.8	8580.4	6979.9	2747.8	733.4	285.4	299.1	400.2	481.0
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx 1-10B San Joaquin River above Stevenson Creek - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	83122.2	19647.8	20972.9	27677.7	59656.0	37836.9	22401.0	5395.6	2184.8	15520.8	8247.3	6176.8
1	18641.9	10523.2	8533.4	15643.5	35746.4	35997.5	21158.4	5197.2	1907.0	5433.7	3024.3	3146.2
5	2825.4	4890.5	6522.2	13541.2	24818.6	31220.7	19214.1	4768.2	1341.1	1313.4	1969.2	1794.0
10	2119.6	2277.9	5429.7	10890.5	21437.7	28565.0	15478.3	3778.2	1073.7	876.1	1638.7	1535.7
15	1813.5	1917.6	4574.1	9921.3	18962.8	26646.3	12026.9	3197.3	955.1	650.8	1513.1	1402.1
20	1594.9	1684.1	4066.7	7469.5	17356.4	24477.8	10375.8	2785.2	858.2	548.6	869.0	1259.1
25	1532.2	1479.0	3515.8	6834.9	16020.6	23014.7	9205.7	2433.5	719.3	398.2	512.5	1067.8
30	1481.2	1390.5	3174.4	5976.6	14972.1	20964.0	7632.9	2095.9	580.7	317.7	448.9	839.2
35	1393.5	1340.5	2851.7	5736.6	13639.7	19001.6	6525.3	1639.1	503.2	288.7	414.3	563.2
40	998.7	1308.0	2533.1	5143.1	12746.2	15603.6	6080.3	1263.8	451.0	262.6	277.6	529.9
45	885.2	1211.2	2301.0	4707.8	12124.7	13637.1	5212.3	1078.0	400.0	231.2	242.5	462.2
50	807.6	1143.6	2040.8	4351.7	11521.8	11704.6	4060.0	948.4	370.0	197.4	216.2	453.9
55	664.0	1090.5	1754.4	4037.3	10755.2	10286.2	3167.8	862.3	345.5	184.8	176.3	422.7
60	588.4	1056.7	1624.5	3799.0	9709.6	9144.7	2896.9	816.1	313.4	168.9	168.4	396.1
65	556.3	965.8	1533.7	3533.6	8891.3	8320.7	2683.7	760.7	277.3	155.4	154.9	283.9
70	493.4	663.0	1444.7	2980.4	7821.4	7451.6	2481.3	684.9	250.6	142.9	147.7	238.2
75	440.9	565.3	1402.5	2608.9	7141.8	5873.3	1841.6	615.4	237.4	130.6	138.3	224.1
80	349.2	470.2	1219.2	2297.6	6530.7	4881.5	1677.1	559.7	220.3	119.1	128.1	187.2
85	313.9	427.0	967.6	1887.4	6068.6	4065.7	1580.7	475.6	201.5	97.5	118.0	167.1
90	260.9	363.0	624.3	1514.7	5178.2	3615.4	1412.3	439.7	181.0	66.2	108.0	150.5
95	207.8	326.1	330.4	1137.5	3729.3	2969.0	1280.7	354.6	160.0	53.5	97.6	104.6
99	183.8	248.0	288.5	1071.0	2203.6	2024.3	1175.2	259.7	137.4	49.5	89.1	73.6
Minimum	183.2	248.0	286.8	1069.5	2182.6	1878.6	963.6	247.1	137.4	49.5	80.9	73.4
Average	1773.5	1516.2	2685.9	5424.3	12617.8	14559.7	6334.9	1607.8	529.5	516.6	573.2	691.9
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx 1-10C San Joaquin River above Stevenson Creek - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2642.3	1555.9	4561.9	11207.9	18314.3	7358.5	3179.2	1292.9	654.9	1315.8	6397.2	16761.5
5	2236.8	1497.7	4075.5	9884.3	13785.2	6934.1	2606.1	882.3	457.0	826.5	3049.8	3213.6
10	1828.9	1458.4	3389.2	7627.5	12600.6	6153.6	2518.5	797.7	400.9	607.6	1972.3	1542.1
15	1506.0	1439.4	2425.7	6624.8	12050.7	6046.4	2156.1	723.2	388.2	526.1	1690.0	1506.6
20	1394.7	1402.2	2323.9	6371.2	11527.6	5631.9	2035.4	719.6	371.8	459.1	1075.1	1447.6
25	1258.3	1336.9	2156.7	6086.8	11047.5	5520.3	1838.5	674.9	359.6	400.5	583.4	1339.0
30	1213.0	1286.7	1975.7	5745.7	10447.9	5315.4	1693.4	558.4	348.7	351.0	472.7	1168.6
35	674.5	1271.3	1782.5	5523.6	10025.0	5214.2	1590.7	512.9	311.1	305.4	342.3	604.2
40	634.5	1247.0	1631.0	5143.0	9868.4	5005.7	1548.2	467.2	280.6	280.2	318.7	449.1
45	546.4	1118.7	1527.4	5041.1	9676.2	4615.6	1440.4	431.4	266.6	264.7	293.4	378.5
50	479.0	987.3	1437.5	4644.3	9347.3	4309.0	1402.3	393.2	239.6	247.5	265.5	352.7
55	374.7	937.3	1230.8	4187.7	8927.2	3915.1	1194.1	353.0	217.7	210.5	255.0	319.8
60	298.2	884.1	1081.3	4080.7	8726.5	3465.5	1123.0	320.5	191.2	193.4	230.3	307.6
65	276.9	820.2	972.6	3842.8	8154.8	3193.4	1031.8	295.5	171.0	184.3	179.7	223.8
70	258.7	665.8	904.5	3659.3	7771.1	3131.0	950.3	278.2	154.6	157.4	121.6	91.9
75	246.5	633.1	853.0	3218.9	7548.0	3077.0	778.9	256.6	138.9	127.0	112.8	76.4
80	116.1	597.0	763.8	2922.7	7110.4	3018.2	626.2	247.8	127.4	112.2	110.0	73.3
85	66.3	427.5	731.0	1534.7	6943.1	2897.2	589.1	231.9	106.9	101.7	104.9	71.6
90	63.0	370.0	634.0	1207.3	6215.7	2863.9	516.7	218.1	101.5	92.9	96.7	66.3
95	54.0	319.9	594.9	1077.3	4583.4	2624.7	488.1	176.7	92.4	79.6	78.6	63.9
Minimum	52.3	301.5	566.5	1063.3	3783.6	2549.9	457.4	165.1	87.6	76.8	73.1	61.9
Average	750.4	992.3	1657.0	4761.6	9390.8	4405.4	1396.3	462.4	254.2	312.6	732.4	976.2
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx 1-10D San Joaquin River above Stevenson Creek - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	758.8	1190.6	4853.6	9509.4	14605.5	7195.9	1614.1	381.8	308.6	400.5	1117.6	593.0
5	592.8	912.9	3182.5	8354.9	13509.5	5679.7	1353.8	333.7	284.1	327.9	429.9	481.2
10	518.8	809.4	2494.6	7754.3	11333.7	3949.2	993.2	283.9	249.8	299.7	406.6	406.3
15	495.3	726.5	1302.4	7135.5	9770.0	3512.4	836.4	239.5	224.4	273.1	400.7	384.9
20	480.7	656.7	1252.9	6480.2	9125.4	3180.4	799.5	229.4	201.9	249.6	390.9	374.4
25	469.6	602.4	1174.3	6180.2	8630.6	3062.5	756.5	207.7	179.5	236.0	373.3	363.8
30	448.6	583.2	1104.3	5844.4	8234.9	2868.9	706.0	188.1	171.7	209.4	322.3	354.9
35	425.4	556.3	1047.7	5367.9	7797.0	2739.9	688.9	181.0	89.4	200.6	273.8	351.4
40	393.1	550.2	986.5	5151.6	7409.7	2562.2	623.0	172.8	76.1	144.5	223.4	346.5
45	386.5	496.1	962.7	5083.6	7063.3	2431.9	595.9	167.7	73.1	137.9	182.6	337.8
50	379.4	470.7	917.1	4821.9	6609.2	2343.1	565.7	161.9	63.3	126.7	165.6	332.2
55	368.9	433.1	898.7	4441.4	6447.2	2069.5	539.8	149.0	58.2	118.1	156.1	327.1
60	355.4	410.6	863.5	4230.9	6361.7	1812.4	500.8	125.7	54.1	80.4	140.1	318.2
65	337.4	378.1	836.6	3738.8	6230.4	1670.3	474.8	115.5	51.0	71.1	132.0	299.7
70	329.8	329.8	808.1	3516.2	5867.3	1583.5	419.3	112.7	49.5	42.5	121.1	135.6
75	299.3	272.8	758.0	2709.7	5615.5	1208.2	354.6	102.3	47.7	41.3	113.9	125.1
80	283.1	255.5	611.9	2401.2	5373.8	1162.3	315.4	87.8	43.5	35.1	95.4	111.5
85	266.5	236.5	388.1	1984.2	4886.3	997.9	280.0	80.8	41.6	34.5	75.7	108.9
90	239.5	221.0	368.3	1766.3	4466.7	938.9	239.1	73.9	39.9	33.8	67.9	101.2
95	136.3	199.1	261.9	1476.4	3698.7	696.6	189.3	69.5	38.3	32.9	56.0	97.5
Minimum	102.0	178.9	206.0	1373.0	2710.4	534.3	175.1	50.2	35.8	31.9	41.1	89.9
Average	381.7	493.3	1145.2	4733.5	7393.5	2436.9	611.9	166.0	111.9	147.4	231.4	285.1
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx 1-10E San Joaquin River above Stevenson Creek - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	546.7	1165.2	3896.1	8851.4	11837.8	10828.2	2756.8	2403.4	1431.1	744.2	478.4	433.9
1	537.0	1125.2	3586.8	8669.3	10678.5	9753.2	2709.6	687.3	722.9	478.6	390.6	383.5
5	508.0	707.7	3001.4	7955.3	9065.0	7976.2	1630.8	422.5	383.4	349.2	296.6	258.8
10	427.1	616.9	2552.5	7054.5	7586.0	3820.0	1107.6	330.3	210.3	268.5	259.5	237.0
15	274.1	546.7	2180.6	6209.0	6976.8	3104.3	921.5	275.2	154.9	222.8	244.0	205.4
20	234.0	428.2	1733.5	5927.5	6423.1	2869.7	826.3	254.1	133.8	201.3	225.9	171.2
25	197.3	357.3	1386.7	5389.8	5679.3	2773.4	757.5	241.3	119.7	183.8	203.5	149.2
30	178.4	303.6	1208.5	5003.7	5323.2	2615.6	680.0	224.6	110.8	167.9	188.0	142.5
35	165.9	272.4	1097.7	4672.4	4974.3	2479.3	622.2	210.2	104.4	146.2	173.9	136.7
40	158.1	253.1	989.1	4330.5	4676.1	2282.3	576.9	203.1	99.3	136.6	159.9	133.7
45	153.6	233.7	916.2	4156.0	4509.7	2158.4	553.0	193.4	94.5	115.5	151.8	131.1
50	151.0	225.7	795.6	3917.1	4323.1	1964.2	516.1	186.5	91.6	91.2	143.9	128.7
55	146.9	211.3	746.8	3494.0	4131.3	1847.4	491.5	178.4	87.5	81.7	137.4	125.4
60	143.6	202.5	657.2	3277.1	3777.8	1661.4	458.6	170.9	85.4	77.1	123.1	122.6
65	140.3	183.2	617.0	3001.9	3451.6	1554.2	419.2	163.0	81.6	75.5	111.4	118.2
70	135.3	169.5	573.3	2766.0	3287.7	1462.4	397.9	155.1	79.2	73.4	105.2	114.8
75	128.7	143.6	553.3	2459.5	3040.3	1271.6	374.0	145.2	74.7	71.2	99.8	108.2
80	111.0	141.1	531.6	2245.6	2889.0	1183.0	354.3	133.6	69.0	69.4	78.5	99.2
85	96.2	135.3	498.2	2047.4	2721.2	1044.9	301.6	126.7	58.6	66.2	72.9	90.3
90	73.7	110.6	478.7	1816.3	2543.3	896.1	259.5	112.1	51.3	59.2	66.7	64.1
95	69.3	87.7	439.2	1289.7	2293.0	770.9	238.2	100.6	44.2	52.0	61.9	61.8
99	61.8	69.9	198.4	1008.4	1935.9	648.8	213.3	69.9	41.9	48.5	55.8	59.1
Minimum	59.8	69.9	188.0	865.9	1933.2	641.0	209.2	63.8	41.2	48.2	50.3	57.9
Average	189.1	294.5	1148.5	4100.1	4704.2	2450.4	655.2	218.4	129.0	140.8	157.3	141.8
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-11A. Rock Creek - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1533.2	878.7	845.6	1469.2	1149.9	590.3	283.0	25.8	13.9	252.3	160.3	313.6
1	245.3	124.1	143.1	223.0	505.3	528.3	262.0	18.8	5.8	43.2	49.5	61.3
5	48.8	43.3	92.0	149.8	237.6	404.2	88.5	9.8	3.5	6.3	24.4	23.0
10	34.0	33.0	71.0	120.6	197.2	211.2	18.3	4.1	2.5	3.4	11.9	18.8
15	23.7	24.2	56.5	106.9	169.4	82.2	9.8	3.0	1.9	2.2	3.7	13.2
20	20.2	22.0	48.8	99.0	149.8	52.7	7.5	2.0	1.4	2.0	2.9	6.1
25	14.6	18.8	41.1	91.3	132.4	37.6	6.0	1.2	0.7	1.6	2.6	4.7
30	10.0	17.4	34.2	86.4	122.0	28.3	5.3	1.0	0.5	1.4	2.2	4.0
35	5.9	15.3	28.6	80.8	108.7	23.0	4.7	0.8	0.4	1.2	2.1	3.5
40	4.9	11.8	24.4	74.6	97.6	19.5	4.0	0.6	0.4	1.0	1.8	3.1
45	4.5	9.1	20.9	69.7	90.3	17.4	3.4	0.5	0.4	0.8	1.6	2.9
50	3.8	7.4	18.8	64.8	80.8	15.3	2.9	0.5	0.3	0.6	1.3	2.4
55	3.1	6.2	16.8	59.2	74.6	13.2	2.4	0.4	0.3	0.5	1.2	2.2
60	2.9	4.9	15.7	52.3	67.6	11.1	2.0	0.4	0.3	0.4	1.1	1.7
65	2.6	4.6	14.3	46.7	59.2	9.7	1.7	0.3	0.2	0.3	1.0	1.2
70	1.7	3.5	12.5	39.7	53.7	7.7	1.5	0.3	0.2	0.3	0.8	1.0
75	1.1	2.2	11.1	32.1	44.6	5.9	1.2	0.3	0.1	0.2	0.7	0.8
80	0.9	1.6	9.1	27.9	37.2	4.8	1.1	0.2	0.1	0.2	0.6	0.6
85	0.7	1.2	8.4	22.3	28.6	3.7	0.9	0.2	0.1	0.1	0.5	0.6
90	0.6	1.0	6.1	17.7	18.1	2.2	0.8	0.2	0.1	0.1	0.3	0.5
95	0.4	0.7	2.8	11.9	5.8	1.4	0.6	0.1	0.1	0.1	0.2	0.3
99	0.3	0.4	1.2	9.4	3.2	0.0	0.4	0.1	0.1	0.1	0.1	0.2
Minimum	0.3	0.4	1.1	7.5	2.7	0.0	0.3	0.1	0.1	0.1	0.1	0.2
Average	18.0	16.5	32.9	71.1	101.7	61.3	14.8	1.8	0.8	2.6	4.6	6.7
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-11B. Rock Creek - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1533.2	878.7	845.6	1469.2	1149.9	590.3	283.0	25.8	13.9	252.3	160.3	121.3
1	416.0	329.0	361.0	264.8	569.4	563.8	276.7	22.3	7.0	85.7	49.5	72.5
5	153.3	102.8	126.7	207.0	361.7	501.8	216.1	17.4	5.1	15.3	27.2	28.6
10	70.1	59.7	111.5	156.1	253.0	452.3	129.6	13.2	4.2	7.0	23.7	23.7
15	48.2	42.7	91.3	122.7	230.7	397.2	82.2	9.1	3.5	5.2	20.9	20.2
20	38.3	37.7	78.0	103.9	203.5	346.4	56.5	6.0	2.9	2.1	9.8	18.8
25	34.2	35.0	71.0	98.3	182.6	312.9	32.1	4.5	2.6	2.0	3.4	17.4
30	30.2	30.2	66.0	89.9	168.7	152.6	16.7	4.0	2.4	1.9	2.9	11.9
35	24.0	25.1	57.2	84.5	157.5	93.4	12.0	3.5	2.2	1.2	2.3	7.0
40	21.6	21.8	51.4	78.7	137.3	62.0	9.8	3.2	2.0	1.2	2.2	5.8
45	20.2	19.5	48.2	72.4	120.6	43.2	8.4	2.8	1.7	1.1	2.1	4.7
50	19.0	18.8	44.5	68.3	110.1	34.5	7.1	2.7	1.5	0.8	2.0	4.3
55	17.2	18.1	37.7	62.8	99.6	27.9	6.5	2.2	1.4	0.7	1.4	4.1
60	13.2	17.4	31.1	58.5	92.0	23.0	5.6	1.7	1.2	0.6	1.3	3.8
65	11.1	16.7	25.8	52.7	82.6	19.5	5.2	1.2	0.5	0.5	1.2	3.3
70	10.2	13.9	23.7	48.8	75.3	16.8	4.8	1.0	0.4	0.4	1.2	2.9
75	5.6	6.8	20.2	43.3	70.8	13.5	4.2	0.8	0.4	0.3	1.1	2.8
80	4.5	6.2	17.4	32.8	64.8	9.8	3.6	0.6	0.3	0.3	0.9	2.2
85	4.1	5.1	13.2	27.9	56.7	5.7	3.2	0.5	0.3	0.3	0.7	1.2
90	1.4	1.3	7.7	23.0	44.4	0.0	2.6	0.4	0.3	0.2	0.6	1.0
95	1.0	1.2	1.8	18.1	37.2	0.0	2.0	0.3	0.3	0.2	0.4	0.8
99	1.0	1.0	1.1	16.7	28.3	0.0	1.4	0.3	0.2	0.2	0.3	0.7
Minimum	1.0	1.0	1.1	16.7	26.6	0.0	1.2	0.3	0.2	0.2	0.3	0.7
Average	43.2	33.1	57.5	85.4	146.7	141.0	37.6	4.3	1.9	5.3	7.1	10.3
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-11C. Rock Creek - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	41.8	24.4	76.0	200.0	326.9	87.1	9.1	3.3	1.1	12.5	100.4	313.6
5	35.5	23.0	67.6	175.6	228.6	70.4	7.7	1.5	0.5	5.8	48.8	52.3
10	28.6	23.0	55.1	124.1	195.8	59.9	6.6	1.3	0.5	4.8	29.3	23.0
15	24.4	22.3	40.4	119.2	170.7	57.2	6.2	1.2	0.4	4.1	24.4	20.9
20	22.3	22.3	36.2	111.5	162.4	48.1	5.9	1.2	0.4	4.0	11.9	19.5
25	20.2	22.3	34.2	104.5	144.3	43.9	5.6	1.1	0.4	3.1	4.7	18.1
30	19.5	21.6	31.4	100.4	141.5	35.5	5.2	1.0	0.4	2.9	4.0	16.7
35	9.8	20.2	29.3	97.6	140.8	33.5	4.9	0.9	0.4	2.6	3.7	9.1
40	9.8	20.2	25.8	88.5	134.5	27.9	4.5	0.8	0.4	2.3	3.4	6.3
45	8.4	18.1	23.7	84.3	126.8	25.8	4.2	0.7	0.4	2.0	3.3	5.6
50	7.7	16.0	22.3	77.4	122.0	20.9	3.9	0.7	0.3	1.5	2.8	4.9
55	5.1	15.3	19.5	73.2	118.5	18.8	3.5	0.6	0.3	1.5	2.5	4.1
60	4.2	13.9	17.4	70.4	110.1	16.7	3.1	0.5	0.3	1.4	2.0	3.5
65	3.8	12.5	14.6	66.2	106.6	16.0	2.9	0.5	0.2	1.2	1.7	2.4
70	3.5	9.8	13.9	61.3	95.5	13.9	2.7	0.4	0.2	0.3	0.8	0.5
75	3.1	9.1	13.2	53.7	91.3	11.9	2.3	0.4	0.2	0.2	0.6	0.4
80	0.7	8.4	11.9	48.8	82.9	11.1	2.0	0.3	0.2	0.2	0.5	0.3
85	0.3	5.2	11.1	27.2	79.4	10.4	1.7	0.3	0.2	0.2	0.5	0.3
90	0.3	4.3	9.1	20.9	71.1	9.1	1.4	0.2	0.2	0.2	0.4	0.3
95	0.3	3.9	8.4	18.1	55.1	7.7	1.0	0.2	0.2	0.2	0.2	0.3
Minimum	0.3	3.3	7.7	18.1	39.7	6.3	0.8	0.2	0.2	0.2	0.2	0.3
Average	11.5	15.4	26.3	82.5	128.2	29.5	4.0	0.8	0.3	2.2	9.7	15.0
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-11D. Rock Creek - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	8.4	18.1	82.2	159.6	232.1	72.5	6.6	0.6	1.0	2.0	18.8	7.0
5	6.3	13.9	55.1	135.2	223.0	50.2	4.2	0.5	0.6	1.5	3.5	3.8
10	5.6	12.5	41.1	128.9	180.5	31.4	3.4	0.4	0.4	1.4	2.7	3.8
15	4.9	8.4	18.8	113.6	158.9	25.8	2.9	0.3	0.4	1.2	2.2	3.3
20	4.7	7.7	18.1	107.3	136.6	23.0	2.5	0.3	0.3	1.1	2.1	3.1
25	4.6	7.0	16.7	99.0	124.7	20.2	2.2	0.3	0.3	0.8	2.0	2.9
30	4.5	6.6	16.0	95.5	117.1	17.4	2.0	0.2	0.2	0.6	1.7	2.8
35	3.5	5.4	15.3	89.9	110.8	16.0	1.9	0.2	0.1	0.6	1.5	2.6
40	3.1	4.9	15.3	85.7	105.9	13.2	1.7	0.2	0.1	0.5	1.1	2.4
45	2.9	4.6	14.6	83.6	101.1	11.9	1.6	0.2	0.1	0.4	0.9	2.3
50	2.8	4.6	13.9	80.8	96.2	11.1	1.5	0.2	0.1	0.4	0.8	2.2
55	2.7	4.6	13.2	73.9	92.0	9.8	1.3	0.2	0.1	0.4	0.8	2.2
60	2.1	4.6	12.5	71.8	85.0	8.4	1.2	0.2	0.1	0.2	0.7	2.0
65	2.0	4.2	11.1	62.7	80.8	7.7	1.1	0.1	0.1	0.2	0.6	1.7
70	2.0	3.1	11.1	57.2	78.1	6.8	1.0	0.1	0.1	0.1	0.6	0.7
75	1.4	2.8	9.8	45.3	73.9	5.9	0.9	0.1	0.1	0.1	0.6	0.6
80	0.8	2.1	7.0	37.6	66.2	5.4	0.8	0.1	0.1	0.1	0.6	0.6
85	0.7	1.4	2.8	31.4	59.2	4.8	0.7	0.1	0.1	0.1	0.5	0.6
90	0.6	1.4	2.1	28.6	45.3	4.2	0.6	0.1	0.1	0.1	0.4	0.6
95	0.5	1.2	1.4	22.3	35.5	3.7	0.5	0.1	0.1	0.1	0.3	0.4
Minimum	0.4	0.7	1.4	19.5	27.2	3.1	0.3	0.1	0.1	0.1	0.3	0.4
Average	3.0	5.6	17.2	76.9	105.1	15.7	1.8	0.2	0.2	0.6	1.6	2.1
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-11E. Rock Creek - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	10.6	43.3	66.2	140.1	188.9	134.5	17.4	1.7	3.3	12.0	8.6	6.1
1	5.7	37.7	57.2	131.7	162.4	125.4	13.2	1.4	2.4	6.6	4.9	5.2
5	5.3	22.0	46.7	108.7	128.9	76.0	7.0	1.0	0.7	2.8	2.7	3.6
10	4.6	11.5	39.7	93.4	91.3	25.1	4.9	0.8	0.5	2.0	2.6	3.3
15	3.8	9.8	32.1	87.1	77.4	19.5	4.0	0.6	0.4	1.8	2.5	3.0
20	3.3	8.4	24.4	79.4	66.9	17.4	2.8	0.5	0.4	1.5	2.0	2.3
25	3.1	7.0	22.3	73.2	59.2	15.3	2.2	0.5	0.3	1.2	1.8	2.1
30	3.0	5.4	20.0	66.2	55.1	13.9	2.0	0.4	0.3	1.1	1.7	1.7
35	2.9	4.6	18.3	62.7	49.5	11.9	1.7	0.4	0.3	1.0	1.6	1.7
40	2.7	3.9	16.7	54.4	46.0	9.8	1.5	0.4	0.2	0.5	1.3	1.6
45	2.0	2.7	15.7	49.5	41.1	8.4	1.3	0.4	0.2	0.4	1.2	1.1
50	1.6	2.2	14.6	43.9	36.9	7.0	1.3	0.3	0.2	0.4	1.2	1.0
55	1.0	2.1	13.7	36.9	31.4	5.9	1.2	0.3	0.2	0.3	1.0	0.8
60	0.9	1.8	11.9	32.8	27.9	5.3	1.1	0.3	0.1	0.2	1.0	0.7
65	0.8	1.5	10.6	29.3	23.7	4.5	1.0	0.2	0.1	0.2	0.9	0.6
70	0.8	1.2	9.1	25.8	19.5	4.0	0.9	0.2	0.1	0.1	0.8	0.6
75	0.7	1.0	8.4	18.1	11.5	3.0	0.9	0.2	0.1	0.1	0.5	0.6
80	0.7	0.8	7.7	13.9	7.3	2.5	0.8	0.2	0.1	0.1	0.3	0.6
85	0.6	0.7	6.3	11.9	5.9	2.2	0.7	0.2	0.1	0.1	0.2	0.5
90	0.4	0.6	5.8	10.6	4.8	2.0	0.6	0.1	0.1	0.1	0.2	0.3
95	0.4	0.5	5.1	10.0	3.9	1.7	0.5	0.1	0.1	0.1	0.1	0.3
99	0.3	0.4	1.2	7.9	2.8	1.5	0.3	0.1	0.1	0.1	0.1	0.2
Minimum	0.3	0.4	1.1	7.5	2.7	1.4	0.3	0.1	0.1	0.1	0.1	0.2
Average	2.1	5.2	17.9	49.3	43.9	14.7	2.2	0.4	0.3	0.9	1.3	1.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-12A. Ross Creek - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	582.1	176.3	142.9	152.5	221.5	224.1	107.4	9.8	5.3	95.8	60.9	119.1
1	86.0	47.9	66.4	84.7	180.2	200.6	99.5	7.1	2.2	14.0	18.8	21.7
5	16.0	12.7	32.8	56.9	88.1	153.5	33.6	3.7	1.4	2.2	9.3	8.7
10	11.6	8.7	24.3	47.1	68.0	80.2	6.6	1.1	0.8	1.3	5.3	7.1
15	8.3	7.8	20.4	41.5	60.6	27.2	3.2	0.5	0.5	0.7	1.3	5.0
20	7.4	7.1	16.4	38.1	53.2	17.7	2.5	0.4	0.2	0.5	0.9	2.1
25	4.2	6.3	13.8	34.7	47.1	11.9	2.0	0.3	0.2	0.4	0.8	1.5
30	2.9	5.9	11.9	32.5	42.3	9.0	1.8	0.3	0.2	0.3	0.7	1.3
35	2.1	5.1	10.0	29.4	38.1	7.7	1.5	0.2	0.1	0.2	0.6	1.1
40	1.8	3.7	8.7	27.2	34.7	6.6	1.3	0.2	0.1	0.2	0.5	0.9
45	1.4	2.9	7.7	25.1	30.4	5.9	1.1	0.2	0.1	0.1	0.4	0.9
50	1.2	2.6	6.6	22.5	27.0	5.0	0.9	0.1	0.1	0.1	0.4	0.7
55	1.0	2.1	5.8	19.6	23.8	4.4	0.8	0.1	0.1	0.1	0.3	0.4
60	0.8	1.7	5.3	16.9	20.9	3.9	0.7	0.1	0.1	0.1	0.3	0.4
65	0.6	1.5	4.8	13.8	18.0	3.4	0.7	0.1	0.1	0.1	0.3	0.3
70	0.5	0.8	4.0	12.4	15.4	2.9	0.6	0.1	0.0	0.1	0.2	0.3
75	0.4	0.7	3.4	11.1	12.4	2.6	0.5	0.1	0.0	0.0	0.2	0.3
80	0.3	0.6	2.9	9.5	9.7	2.2	0.4	0.1	0.0	0.0	0.2	0.2
85	0.3	0.5	2.4	7.8	6.5	2.0	0.3	0.1	0.0	0.0	0.1	0.2
90	0.2	0.4	2.1	5.3	3.5	1.6	0.2	0.0	0.0	0.0	0.1	0.2
95	0.1	0.3	1.1	0.9	0.8	1.0	0.0	0.0	0.0	0.0	0.0	0.1
99	0.1	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average	6.1	5.3	11.2	25.0	34.1	22.7	5.5	0.6	0.3	0.8	1.7	2.3
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-12B. Ross Creek - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	582.1	176.3	142.9	152.5	221.5	224.1	107.4	9.8	5.3	95.8	60.9	46.0
1	178.2	124.9	133.7	100.5	211.9	214.1	105.0	8.5	2.7	32.5	18.8	21.7
5	47.3	39.5	48.7	78.6	111.7	190.5	82.0	6.6	1.9	4.2	10.3	10.3
10	20.7	23.2	40.0	59.3	91.3	171.7	49.2	5.0	1.6	2.4	9.0	8.7
15	15.9	12.4	32.8	46.6	76.2	150.8	31.2	3.4	1.3	1.5	7.9	7.7
20	13.5	9.5	27.5	37.8	66.4	131.5	21.4	2.3	1.1	0.4	3.7	7.1
25	11.6	8.2	23.5	32.0	61.9	118.8	12.2	1.4	0.9	0.3	0.8	6.3
30	9.0	7.6	21.7	26.5	55.6	58.0	5.0	0.9	0.7	0.2	0.6	4.2
35	8.2	7.1	19.0	22.2	45.8	31.5	3.4	0.5	0.6	0.2	0.5	2.2
40	7.7	6.9	16.4	16.9	39.4	15.9	2.7	0.4	0.5	0.1	0.5	1.6
45	7.1	6.6	14.3	14.5	30.4	10.9	2.2	0.3	0.3	0.1	0.4	1.4
50	5.5	6.3	12.7	13.2	25.4	8.1	2.0	0.3	0.2	0.1	0.4	1.3
55	4.4	6.3	11.1	12.2	22.2	7.2	1.7	0.3	0.2	0.1	0.3	1.1
60	4.0	5.8	10.0	11.6	17.0	5.9	1.4	0.2	0.1	0.1	0.3	0.9
65	2.7	5.1	9.3	10.6	13.0	4.6	1.2	0.2	0.1	0.1	0.3	0.8
70	2.1	4.7	8.5	10.2	9.7	3.9	1.1	0.2	0.1	0.0	0.3	0.5
75	1.4	2.6	7.7	9.0	5.9	3.2	0.9	0.1	0.1	0.0	0.2	0.4
80	1.1	2.3	6.3	7.9	3.9	2.7	0.8	0.1	0.1	0.0	0.2	0.4
85	0.7	1.9	4.7	6.6	3.5	2.4	0.7	0.1	0.1	0.0	0.1	0.3
90	0.5	0.5	2.9	0.0	0.0	2.1	0.6	0.0	0.0	0.0	0.0	0.3
95	0.4	0.5	0.7	0.0	0.0	1.8	0.5	0.0	0.0	0.0	0.0	0.3
99	0.4	0.4	0.4	0.0	0.0	1.1	0.4	0.0	0.0	0.0	0.0	0.2
Minimum	0.4	0.4	0.4	0.0	0.0	1.1	0.3	0.0	0.0	0.0	0.0	0.2
Average	14.3	10.4	18.9	23.7	40.3	51.8	13.7	1.3	0.6	1.7	2.5	3.4
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-12C. Ross Creek - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	15.9	9.3	28.8	75.9	124.1	33.1	3.4	1.2	0.4	4.8	38.1	119.1
5	13.5	8.7	25.7	66.7	86.8	26.7	2.9	0.6	0.2	2.2	18.5	19.8
10	10.9	8.7	20.9	47.1	74.3	22.7	2.5	0.5	0.2	1.8	11.1	8.7
15	9.3	8.5	15.4	45.2	64.8	21.7	2.3	0.4	0.2	1.6	9.3	7.9
20	8.5	8.5	13.8	42.3	61.7	18.3	2.2	0.4	0.2	1.5	4.5	7.4
25	7.7	8.5	13.0	39.7	54.8	16.7	2.1	0.4	0.2	1.2	1.8	6.9
30	7.4	8.2	11.9	38.1	53.7	13.5	2.0	0.4	0.2	1.1	1.5	6.3
35	3.7	7.7	11.1	37.0	53.5	12.7	1.9	0.3	0.2	1.0	1.4	3.4
40	3.7	7.7	9.8	33.6	51.1	10.6	1.7	0.3	0.1	0.9	1.3	2.4
45	3.2	6.9	9.0	32.0	48.2	9.8	1.6	0.3	0.1	0.8	1.2	2.1
50	2.9	6.1	8.5	29.4	46.3	7.9	1.5	0.3	0.1	0.6	1.1	1.9
55	1.9	5.8	7.4	27.8	45.0	7.1	1.4	0.2	0.1	0.6	0.9	1.6
60	1.6	5.3	6.6	26.7	41.8	6.3	1.2	0.2	0.1	0.5	0.8	1.4
65	1.5	4.8	5.6	25.1	40.5	6.1	1.1	0.2	0.1	0.5	0.6	0.9
70	1.3	3.7	5.3	23.3	36.2	5.3	1.0	0.2	0.1	0.1	0.3	0.2
75	1.2	3.4	5.0	20.4	34.7	4.5	0.9	0.2	0.1	0.1	0.2	0.2
80	0.3	3.2	4.5	18.5	31.5	4.2	0.7	0.1	0.1	0.1	0.2	0.1
85	0.1	2.0	4.2	10.3	30.2	4.0	0.7	0.1	0.1	0.1	0.2	0.1
90	0.1	1.6	3.4	7.9	27.0	3.4	0.5	0.1	0.1	0.1	0.2	0.1
95	0.1	1.5	3.2	6.9	20.9	2.9	0.4	0.1	0.1	0.1	0.1	0.1
Minimum	0.1	1.2	2.9	6.9	15.1	2.4	0.3	0.1	0.1	0.1	0.1	0.1
Average	4.4	5.9	10.0	31.3	48.7	11.2	1.5	0.3	0.1	0.8	3.7	5.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-12D. Ross Creek - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	3.2	6.9	31.2	60.6	88.1	27.5	2.5	0.2	0.4	0.8	7.1	2.7
5	2.4	5.3	20.9	51.3	84.7	19.0	1.6	0.2	0.2	0.6	1.4	1.5
10	2.1	4.8	15.6	49.0	68.5	11.9	1.3	0.1	0.2	0.5	1.0	1.4
15	1.9	3.2	7.1	43.1	60.3	9.8	1.1	0.1	0.2	0.5	0.8	1.3
20	1.8	2.9	6.9	40.7	51.9	8.7	0.9	0.1	0.1	0.4	0.8	1.2
25	1.7	2.7	6.3	37.6	47.4	7.7	0.9	0.1	0.1	0.3	0.8	1.1
30	1.7	2.5	6.1	36.2	44.5	6.6	0.8	0.1	0.1	0.2	0.7	1.1
35	1.3	2.1	5.8	34.1	42.1	6.1	0.7	0.1	0.1	0.2	0.6	1.0
40	1.2	1.9	5.8	32.5	40.2	5.0	0.7	0.1	0.1	0.2	0.4	0.9
45	1.1	1.7	5.6	31.7	38.4	4.5	0.6	0.1	0.0	0.2	0.3	0.9
50	1.1	1.7	5.3	30.7	36.5	4.2	0.6	0.1	0.0	0.2	0.3	0.9
55	1.0	1.7	5.0	28.0	34.9	3.7	0.5	0.1	0.0	0.1	0.3	0.8
60	0.8	1.7	4.8	27.2	32.3	3.2	0.5	0.1	0.0	0.1	0.3	0.7
65	0.8	1.6	4.2	23.8	30.7	2.9	0.4	0.1	0.0	0.1	0.2	0.7
70	0.7	1.2	4.2	21.7	29.6	2.6	0.4	0.1	0.0	0.1	0.2	0.2
75	0.5	1.1	3.7	17.2	28.0	2.2	0.3	0.1	0.0	0.1	0.2	0.2
80	0.3	0.8	2.7	14.3	25.1	2.0	0.3	0.1	0.0	0.1	0.2	0.2
85	0.3	0.5	1.1	11.9	22.5	1.8	0.2	0.1	0.0	0.1	0.2	0.2
90	0.2	0.5	0.8	10.9	17.2	1.6	0.2	0.0	0.0	0.0	0.2	0.2
95	0.2	0.5	0.5	8.5	13.5	1.4	0.2	0.0	0.0	0.0	0.1	0.2
Minimum	0.2	0.3	0.5	7.4	10.3	1.2	0.1	0.0	0.0	0.0	0.1	0.2
Average	1.1	2.1	6.5	29.2	39.9	5.9	0.7	0.1	0.1	0.2	0.6	0.8
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-12E. Ross Creek - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.6	7.8	25.1	53.2	71.7	51.1	6.6	0.6	1.3	2.7	5.9	2.3
1	2.2	7.6	21.7	52.1	61.7	47.6	5.8	0.5	0.9	2.5	1.5	1.6
5	2.0	4.6	17.7	45.8	49.0	28.8	3.4	0.4	0.2	0.9	1.0	1.2
10	1.7	3.2	15.1	40.2	37.8	9.5	2.0	0.3	0.1	0.5	0.8	1.0
15	1.2	2.9	12.2	37.0	33.9	7.4	1.7	0.2	0.1	0.4	0.7	0.9
20	0.9	2.6	9.0	34.1	29.4	6.6	1.5	0.2	0.1	0.4	0.6	0.7
25	0.7	2.0	7.4	32.8	25.7	5.8	1.1	0.2	0.1	0.3	0.6	0.6
30	0.7	1.5	6.3	29.1	23.0	5.3	0.9	0.1	0.1	0.2	0.5	0.4
35	0.6	0.9	5.3	27.2	21.2	4.5	0.8	0.1	0.1	0.1	0.4	0.4
40	0.5	0.8	4.6	25.4	19.8	4.0	0.7	0.1	0.1	0.1	0.4	0.4
45	0.5	0.8	3.7	23.8	18.3	3.4	0.6	0.1	0.0	0.1	0.4	0.3
50	0.4	0.7	3.4	20.9	16.9	3.2	0.6	0.1	0.0	0.1	0.3	0.3
55	0.4	0.7	3.2	19.6	15.4	2.7	0.5	0.1	0.0	0.1	0.3	0.3
60	0.3	0.6	3.0	17.7	13.5	2.5	0.4	0.1	0.0	0.1	0.3	0.3
65	0.3	0.5	2.9	16.1	11.6	2.2	0.3	0.1	0.0	0.0	0.2	0.2
70	0.3	0.4	2.5	13.0	10.3	2.0	0.3	0.1	0.0	0.0	0.2	0.2
75	0.3	0.4	2.3	11.9	9.0	1.8	0.2	0.1	0.0	0.0	0.1	0.2
80	0.3	0.3	2.2	9.0	7.7	1.6	0.2	0.0	0.0	0.0	0.1	0.2
85	0.2	0.3	2.2	4.0	5.3	1.0	0.1	0.0	0.0	0.0	0.1	0.2
90	0.2	0.2	1.9	1.3	1.3	0.4	0.0	0.0	0.0	0.0	0.1	0.1
95	0.1	0.2	1.4	0.9	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1
99	0.1	0.1	0.5	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.4	0.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Average	0.6	1.4	5.9	21.8	19.2	5.7	0.9	0.1	0.1	0.2	0.4	0.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-13A. North Fork Stevenson Creek near Perimeter Road - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	420.4	90.2	99.0	150.4	315.3	161.9	77.6	7.8	3.8	69.2	44.0	86.0
1	28.7	28.7	32.5	69.4	138.5	144.9	74.1	6.1	1.6	10.1	13.6	15.7
5	9.4	9.0	23.1	49.1	89.6	122.7	35.9	3.6	1.0	1.6	6.7	6.3
10	6.5	6.5	17.6	36.3	69.4	93.6	17.0	1.7	0.6	1.1	3.8	5.2
15	5.5	5.7	14.3	33.1	61.2	58.3	8.8	1.0	0.3	0.7	1.1	3.2
20	3.4	5.2	11.9	29.6	51.8	31.1	3.1	0.5	0.2	0.5	0.9	1.7
25	2.5	4.8	9.9	27.5	45.1	20.8	2.1	0.3	0.2	0.4	0.6	1.4
30	1.8	4.4	8.4	25.8	39.7	14.3	1.6	0.3	0.1	0.3	0.5	1.0
35	1.6	3.6	6.9	24.1	35.9	9.9	1.3	0.2	0.1	0.2	0.4	0.8
40	1.3	2.5	6.3	22.7	32.9	7.6	1.2	0.2	0.1	0.2	0.3	0.6
45	1.1	2.1	5.5	21.0	29.8	6.1	1.0	0.2	0.1	0.2	0.3	0.5
50	0.9	1.7	4.8	19.9	27.1	5.2	0.8	0.1	0.1	0.1	0.3	0.3
55	0.6	1.4	4.4	18.7	25.0	4.6	0.7	0.1	0.1	0.1	0.2	0.3
60	0.5	1.2	4.0	17.2	22.2	3.8	0.6	0.1	0.1	0.1	0.2	0.2
65	0.4	0.7	3.6	15.1	20.3	3.2	0.5	0.1	0.0	0.1	0.2	0.2
70	0.3	0.6	3.1	13.4	17.8	2.9	0.5	0.1	0.0	0.1	0.2	0.2
75	0.3	0.5	2.5	11.9	15.7	2.5	0.4	0.1	0.0	0.0	0.2	0.2
80	0.2	0.4	2.3	9.7	13.6	2.1	0.3	0.1	0.0	0.0	0.2	0.2
85	0.2	0.3	1.9	8.6	11.7	1.7	0.2	0.0	0.0	0.0	0.1	0.2
90	0.2	0.3	1.6	6.7	9.6	1.5	0.2	0.0	0.0	0.0	0.1	0.1
95	0.1	0.2	0.8	5.2	7.4	1.2	0.1	0.0	0.0	0.0	0.1	0.1
99	0.1	0.1	0.3	3.6	4.8	0.9	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.3	2.9	3.8	0.7	0.1	0.0	0.0	0.0	0.0	0.1
Average	3.5	3.4	7.6	21.8	35.2	23.6	5.9	0.6	0.2	0.7	1.2	1.7
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-13B. North Fork Stevenson Creek near Perimeter Road - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	420.4	90.2	99.0	150.4	315.3	161.9	77.6	7.8	3.8	69.2	44.0	33.2
1	95.6	50.5	38.6	76.1	156.1	154.6	75.9	7.1	1.9	23.5	13.6	15.7
5	13.4	21.2	31.9	65.7	119.2	138.9	68.4	5.2	1.4	3.1	7.4	7.3
10	9.7	10.5	25.2	52.9	101.8	125.4	53.9	4.4	1.2	1.8	6.5	6.1
15	8.4	9.0	22.4	47.2	85.2	120.6	35.5	3.6	1.0	1.4	5.7	5.3
20	6.5	7.4	19.9	37.1	78.9	108.5	28.7	2.7	0.8	0.9	3.2	5.2
25	5.9	6.7	16.8	33.4	71.5	101.7	20.6	2.1	0.7	0.5	1.5	4.4
30	5.5	5.5	14.7	29.2	66.3	91.7	16.4	1.6	0.6	0.4	1.1	2.5
35	5.2	5.2	13.4	27.5	63.8	84.7	12.8	1.2	0.4	0.2	0.6	1.8
40	3.6	5.2	12.0	25.0	60.6	67.8	10.5	1.1	0.3	0.2	0.4	1.6
45	3.2	5.0	10.5	22.7	55.4	56.4	7.1	0.9	0.3	0.2	0.3	1.5
50	2.9	4.8	8.4	21.4	50.1	47.6	4.4	0.7	0.2	0.2	0.3	1.3
55	2.3	4.6	7.1	20.1	46.2	31.9	2.9	0.5	0.2	0.2	0.2	0.9
60	1.9	4.6	6.9	19.1	43.6	26.7	2.3	0.4	0.2	0.1	0.2	0.8
65	1.7	4.0	6.5	16.8	39.7	21.2	1.8	0.3	0.1	0.1	0.2	0.5
70	1.6	2.1	5.9	14.3	35.3	14.5	1.5	0.3	0.1	0.1	0.2	0.3
75	1.4	1.8	5.5	12.0	31.1	10.5	1.2	0.2	0.1	0.1	0.2	0.3
80	1.1	1.7	4.8	9.0	28.3	7.6	1.0	0.2	0.1	0.1	0.2	0.3
85	0.5	1.4	3.6	7.6	25.0	5.7	0.9	0.1	0.1	0.1	0.2	0.2
90	0.4	0.4	2.1	6.3	18.4	4.8	0.7	0.1	0.1	0.1	0.2	0.2
95	0.3	0.3	0.5	5.0	15.3	2.9	0.5	0.1	0.1	0.0	0.1	0.2
99	0.3	0.3	0.3	4.6	9.0	1.5	0.4	0.1	0.1	0.0	0.1	0.1
Minimum	0.3	0.3	0.3	4.6	8.8	1.5	0.3	0.1	0.1	0.0	0.1	0.1
Average	7.8	6.3	12.2	25.9	56.9	57.7	15.4	1.5	0.5	1.4	1.9	2.5
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-13C. North Fork Stevenson Creek near Perimeter Road - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	11.5	6.7	20.8	54.8	89.6	23.9	2.5	0.9	0.3	3.4	27.5	86.0
5	9.7	6.3	18.5	48.2	62.7	19.3	2.1	0.4	0.2	1.6	13.4	14.3
10	7.8	6.3	15.1	34.0	53.7	16.4	1.8	0.4	0.1	1.3	8.0	6.3
15	6.7	6.1	11.1	32.7	46.8	15.7	1.7	0.3	0.1	1.1	6.7	5.7
20	6.1	6.1	9.9	30.6	44.5	13.2	1.6	0.3	0.1	1.1	3.2	5.3
25	5.5	6.1	9.4	28.7	39.6	12.0	1.5	0.3	0.1	0.8	1.3	5.0
30	5.3	5.9	8.6	27.5	38.8	9.7	1.4	0.3	0.1	0.8	1.1	4.6
35	2.7	5.5	8.0	26.7	38.6	9.2	1.3	0.2	0.1	0.7	1.0	2.5
40	2.7	5.5	7.1	24.3	36.9	7.6	1.2	0.2	0.1	0.6	0.9	1.7
45	2.3	5.0	6.5	23.1	34.8	7.1	1.1	0.2	0.1	0.6	0.9	1.5
50	2.1	4.4	6.1	21.2	33.4	5.7	1.1	0.2	0.1	0.4	0.8	1.3
55	1.4	4.2	5.3	20.1	32.5	5.2	1.0	0.2	0.1	0.4	0.7	1.1
60	1.1	3.8	4.8	19.3	30.2	4.6	0.8	0.1	0.1	0.4	0.6	1.0
65	1.0	3.4	4.0	18.1	29.2	4.4	0.8	0.1	0.1	0.3	0.5	0.7
70	1.0	2.7	3.8	16.8	26.2	3.8	0.7	0.1	0.1	0.1	0.2	0.1
75	0.8	2.5	3.6	14.7	25.0	3.2	0.6	0.1	0.1	0.1	0.2	0.1
80	0.2	2.3	3.2	13.4	22.7	3.1	0.5	0.1	0.1	0.1	0.1	0.1
85	0.1	1.4	3.1	7.4	21.8	2.9	0.5	0.1	0.1	0.1	0.1	0.1
90	0.1	1.2	2.5	5.7	19.5	2.5	0.4	0.1	0.1	0.1	0.1	0.1
95	0.1	1.1	2.3	5.0	15.1	2.1	0.3	0.1	0.1	0.1	0.1	0.1
Minimum	0.1	0.9	2.1	5.0	10.9	1.7	0.2	0.1	0.1	0.1	0.1	0.1
Average	3.2	4.2	7.2	22.6	35.1	8.1	1.1	0.2	0.1	0.6	2.7	4.1
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-13D. North Fork Stevenson Creek near Perimeter Road - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2.3	5.0	22.5	43.8	63.6	19.9	1.8	0.2	0.3	0.6	5.2	1.9
5	1.7	3.8	15.1	37.1	61.2	13.8	1.2	0.1	0.2	0.4	1.0	1.0
10	1.5	3.4	11.3	35.3	49.5	8.6	0.9	0.1	0.1	0.4	0.7	1.0
15	1.3	2.3	5.2	31.1	43.6	7.1	0.8	0.1	0.1	0.3	0.6	0.9
20	1.3	2.1	5.0	29.4	37.5	6.3	0.7	0.1	0.1	0.3	0.6	0.9
25	1.3	1.9	4.6	27.1	34.2	5.5	0.6	0.1	0.1	0.2	0.6	0.8
30	1.2	1.8	4.4	26.2	32.1	4.8	0.6	0.1	0.0	0.2	0.5	0.8
35	1.0	1.5	4.2	24.6	30.4	4.4	0.5	0.1	0.0	0.2	0.4	0.7
40	0.8	1.3	4.2	23.5	29.0	3.6	0.5	0.1	0.0	0.1	0.3	0.6
45	0.8	1.3	4.0	22.9	27.7	3.2	0.4	0.1	0.0	0.1	0.2	0.6
50	0.8	1.3	3.8	22.2	26.4	3.1	0.4	0.1	0.0	0.1	0.2	0.6
55	0.7	1.3	3.6	20.3	25.2	2.7	0.4	0.0	0.0	0.1	0.2	0.6
60	0.6	1.3	3.4	19.7	23.3	2.3	0.3	0.0	0.0	0.1	0.2	0.5
65	0.6	1.1	3.1	17.2	22.2	2.1	0.3	0.0	0.0	0.0	0.2	0.5
70	0.5	0.9	3.1	15.7	21.4	1.9	0.3	0.0	0.0	0.0	0.2	0.2
75	0.4	0.8	2.7	12.4	20.3	1.6	0.2	0.0	0.0	0.0	0.2	0.2
80	0.2	0.6	1.9	10.3	18.1	1.5	0.2	0.0	0.0	0.0	0.2	0.2
85	0.2	0.4	0.8	8.6	16.2	1.3	0.2	0.0	0.0	0.0	0.1	0.2
90	0.2	0.4	0.6	7.8	12.4	1.1	0.2	0.0	0.0	0.0	0.1	0.2
95	0.1	0.3	0.4	6.1	9.7	1.0	0.1	0.0	0.0	0.0	0.1	0.1
Minimum	0.1	0.2	0.4	5.3	7.4	0.8	0.1	0.0	0.0	0.0	0.1	0.1
Average	0.8	1.5	4.7	21.1	28.8	4.3	0.5	0.1	0.1	0.2	0.4	0.6
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-13E. North Fork Stevenson Creek near Perimeter Road - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	1.6	4.2	18.1	38.4	51.8	36.9	4.8	0.5	0.9	1.9	1.4	1.7
1	1.6	4.2	15.7	37.7	44.5	34.4	4.2	0.4	0.7	1.8	1.0	1.2
5	1.4	2.5	12.8	33.1	35.3	20.8	2.5	0.3	0.2	0.6	0.6	0.6
10	1.1	2.1	10.9	29.0	27.5	7.6	1.5	0.2	0.1	0.4	0.5	0.5
15	0.6	1.7	8.8	26.7	25.4	5.7	1.3	0.2	0.1	0.3	0.4	0.3
20	0.5	1.2	6.7	24.8	23.1	5.2	1.0	0.1	0.1	0.3	0.4	0.3
25	0.4	0.7	5.5	23.9	21.0	4.6	0.8	0.1	0.1	0.3	0.3	0.3
30	0.4	0.6	5.0	21.8	18.7	4.2	0.7	0.1	0.0	0.2	0.3	0.3
35	0.3	0.6	4.4	20.6	17.4	3.6	0.6	0.1	0.0	0.1	0.3	0.2
40	0.3	0.5	3.8	19.3	15.9	3.2	0.5	0.1	0.0	0.1	0.3	0.2
45	0.3	0.5	3.4	17.8	14.7	2.9	0.5	0.1	0.0	0.1	0.2	0.2
50	0.3	0.4	2.9	17.2	13.8	2.7	0.4	0.1	0.0	0.1	0.2	0.2
55	0.3	0.4	2.5	14.9	13.0	2.3	0.4	0.1	0.0	0.0	0.2	0.2
60	0.2	0.4	2.3	14.1	11.9	2.1	0.3	0.1	0.0	0.0	0.2	0.2
65	0.2	0.3	2.3	12.8	11.3	1.9	0.3	0.1	0.0	0.0	0.2	0.2
70	0.2	0.3	2.1	11.7	10.3	1.7	0.2	0.1	0.0	0.0	0.2	0.2
75	0.2	0.3	1.8	10.5	9.4	1.6	0.2	0.0	0.0	0.0	0.1	0.2
80	0.2	0.2	1.6	9.4	8.2	1.5	0.2	0.0	0.0	0.0	0.1	0.2
85	0.2	0.2	1.6	8.6	7.4	1.4	0.2	0.0	0.0	0.0	0.1	0.1
90	0.1	0.2	1.5	7.3	6.3	1.2	0.1	0.0	0.0	0.0	0.1	0.1
95	0.1	0.1	1.1	4.8	5.3	1.1	0.1	0.0	0.0	0.0	0.0	0.1
99	0.1	0.1	0.3	3.2	4.2	0.8	0.1	0.0	0.0	0.0	0.0	0.1
Minimum	0.1	0.1	0.3	2.9	3.8	0.7	0.1	0.0	0.0	0.0	0.0	0.1
Average	0.4	0.8	4.5	17.5	16.1	4.6	0.7	0.1	0.1	0.2	0.3	0.3
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-14A. Stevenson Creek Below Shaver Lake - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2796.4	600.0	658.4	1000.3	2097.3	1076.6	516.1	52.1	25.4	460.1	292.4	572.0
1	190.7	190.7	216.1	461.4	921.5	963.5	493.2	40.7	10.7	67.4	90.2	104.2
5	62.3	59.7	153.8	326.7	596.1	816.0	239.0	24.1	6.5	10.8	44.5	42.0
10	43.2	43.2	116.9	241.5	461.4	622.8	113.1	11.3	4.1	7.2	25.4	34.3
15	36.9	38.1	95.3	219.9	406.7	387.7	58.5	6.5	2.2	4.4	7.6	21.6
20	22.9	34.3	78.8	197.0	344.5	207.2	20.3	3.2	1.5	3.2	6.0	11.1
25	16.5	31.8	66.1	183.0	300.0	138.6	14.0	2.2	1.0	2.5	3.9	9.0
30	11.9	29.2	55.9	171.6	264.4	95.3	10.7	1.9	0.8	2.0	3.3	6.6
35	10.4	24.1	45.8	160.2	239.0	66.1	8.9	1.5	0.7	1.6	2.7	5.3
40	8.9	16.5	42.0	151.3	218.6	50.8	7.7	1.2	0.6	1.3	2.2	4.2
45	7.5	14.0	36.9	139.8	198.3	40.7	6.5	1.0	0.6	1.1	2.0	3.6
50	6.0	11.4	31.8	132.2	180.5	34.3	5.6	0.8	0.5	0.9	1.8	2.0
55	4.3	9.3	29.2	124.6	166.5	30.5	4.7	0.7	0.4	0.7	1.5	1.8
60	3.2	8.0	26.7	114.4	147.4	25.4	4.1	0.6	0.4	0.5	1.4	1.6
65	2.4	4.7	24.1	100.4	134.7	21.6	3.6	0.5	0.3	0.4	1.3	1.5
70	2.2	3.8	20.3	89.0	118.2	19.1	3.0	0.4	0.2	0.4	1.2	1.4
75	1.9	3.0	16.5	78.8	104.2	16.5	2.5	0.4	0.2	0.3	1.1	1.2
80	1.6	2.5	15.2	64.8	90.2	14.0	2.2	0.3	0.2	0.2	1.0	1.1
85	1.3	2.3	12.7	57.2	77.5	11.6	1.6	0.3	0.2	0.2	0.9	1.0
90	1.1	1.9	10.4	44.5	63.5	9.8	1.4	0.2	0.2	0.2	0.6	0.8
95	0.7	1.3	5.1	34.3	49.6	8.1	0.9	0.2	0.2	0.2	0.3	0.6
99	0.6	0.8	2.2	24.1	31.8	6.2	0.6	0.2	0.1	0.1	0.2	0.4
Minimum	0.6	0.7	2.0	19.1	25.4	4.7	0.5	0.1	0.1	0.1	0.2	0.4
Average	23.2	22.3	50.7	144.8	233.9	157.3	39.1	3.9	1.3	4.4	8.2	11.1
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-14B. Stevenson Creek Below Shaver Lake - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2796.4	600.0	658.4	1000.3	2097.3	1076.6	516.1	52.1	25.4	460.1	292.4	221.2
1	635.5	335.6	256.8	505.9	1038.5	1028.3	504.6	47.0	12.7	156.3	90.2	104.2
5	89.0	141.1	212.3	437.2	793.2	924.1	455.0	34.3	9.3	20.3	49.6	48.3
10	64.8	69.9	167.8	352.1	677.5	833.8	358.4	29.2	7.7	11.9	43.2	40.7
15	55.9	59.7	148.7	314.0	566.9	802.0	236.4	24.1	6.4	9.3	38.1	35.6
20	43.2	49.6	132.2	246.6	525.0	722.0	190.7	17.8	5.6	6.1	21.6	34.3
25	39.4	44.5	111.8	222.4	475.4	676.2	137.3	14.0	4.6	3.3	10.0	29.2
30	36.9	36.9	97.9	194.5	441.1	610.1	109.3	10.8	3.7	2.7	7.4	16.5
35	34.3	34.3	89.0	183.0	424.5	563.1	85.2	8.3	2.9	1.6	3.8	11.8
40	24.1	34.3	80.1	166.5	402.9	451.2	69.9	7.2	2.2	1.4	2.7	10.4
45	21.6	33.0	69.9	151.3	368.6	375.0	47.0	6.0	1.9	1.3	2.2	10.2
50	19.1	31.8	55.9	142.4	333.0	316.5	29.2	4.8	1.5	1.2	2.0	8.6
55	15.2	30.5	47.0	133.5	307.6	212.3	19.1	3.4	1.1	1.1	1.6	6.2
60	12.3	30.5	45.8	127.1	289.8	177.9	15.2	2.4	1.0	0.9	1.5	5.1
65	11.3	26.7	43.2	111.8	264.4	141.1	12.1	2.0	0.9	0.6	1.4	3.3
70	10.8	14.0	39.4	95.3	235.1	96.6	9.7	1.8	0.8	0.5	1.3	1.9
75	9.5	11.8	36.9	80.1	207.2	69.9	8.3	1.4	0.7	0.5	1.2	1.8
80	7.4	11.3	31.8	59.7	188.1	50.8	6.6	1.1	0.6	0.4	1.1	1.8
85	3.3	9.3	24.1	50.8	166.5	38.1	5.8	0.9	0.5	0.4	1.1	1.5
90	2.5	2.4	14.0	42.0	122.0	31.8	4.7	0.7	0.5	0.4	1.0	1.4
95	1.9	2.3	3.3	33.0	101.7	19.1	3.6	0.6	0.5	0.2	0.7	1.1
99	1.9	1.9	2.0	30.5	59.7	10.3	2.5	0.5	0.4	0.2	0.6	0.7
Minimum	1.9	1.9	2.0	30.5	58.5	9.9	2.3	0.5	0.4	0.2	0.5	0.7
Average	52.1	42.2	81.1	172.6	378.6	383.5	102.7	9.7	3.0	9.1	13.0	16.4
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-14C. Stevenson Creek Below Shaver Lake - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	76.3	44.5	138.6	364.8	596.1	158.9	16.5	6.0	2.0	22.9	183.0	572.0
5	64.8	42.0	123.3	320.3	416.9	128.4	14.0	2.8	1.0	10.7	89.0	95.3
10	52.1	42.0	100.4	226.2	357.2	109.3	12.1	2.4	0.9	8.8	53.4	42.0
15	44.5	40.7	73.7	217.4	311.4	104.2	11.3	2.2	0.8	7.5	44.5	38.1
20	40.7	40.7	66.1	203.4	296.2	87.7	10.8	2.2	0.8	7.2	21.6	35.6
25	36.9	40.7	62.3	190.7	263.1	80.1	10.2	2.0	0.7	5.6	8.5	33.0
30	35.6	39.4	57.2	183.0	258.0	64.8	9.4	1.8	0.7	5.3	7.2	30.5
35	17.8	36.9	53.4	177.9	256.8	61.0	8.9	1.6	0.7	4.7	6.7	16.5
40	17.8	36.9	47.0	161.4	245.3	50.8	8.1	1.4	0.7	4.2	6.2	11.6
45	15.2	33.0	43.2	153.8	231.3	47.0	7.6	1.3	0.6	3.7	6.0	10.2
50	14.0	29.2	40.7	141.1	222.4	38.1	7.1	1.3	0.6	2.7	5.1	8.9
55	9.3	28.0	35.6	133.5	216.1	34.3	6.5	1.0	0.6	2.7	4.6	7.5
60	7.6	25.4	31.8	128.4	200.8	30.5	5.6	0.9	0.5	2.5	3.7	6.5
65	7.0	22.9	26.7	120.7	194.5	29.2	5.3	0.9	0.5	2.3	3.0	4.4
70	6.4	17.8	25.4	111.8	174.1	25.4	5.0	0.8	0.4	0.5	1.5	0.9
75	5.6	16.5	24.1	97.9	166.5	21.6	4.2	0.7	0.4	0.4	1.0	0.7
80	1.3	15.2	21.6	89.0	151.3	20.3	3.6	0.6	0.4	0.4	0.9	0.6
85	0.6	9.5	20.3	49.6	144.9	19.1	3.2	0.5	0.3	0.4	0.9	0.6
90	0.6	7.9	16.5	38.1	129.6	16.5	2.5	0.4	0.3	0.4	0.8	0.6
95	0.6	7.1	15.2	33.0	100.4	14.0	1.8	0.4	0.3	0.4	0.4	0.6
Minimum	0.6	6.0	14.0	33.0	72.4	11.6	1.5	0.4	0.3	0.4	0.4	0.6
Average	21.0	28.2	48.0	150.4	233.8	53.9	7.4	1.4	0.6	4.0	17.7	27.4
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-14D. Stevenson Creek Below Shaver Lake - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	15.2	33.0	150.0	291.1	423.3	132.2	11.9	1.1	1.9	3.7	34.3	12.7
5	11.4	25.4	100.4	246.6	406.7	91.5	7.7	0.9	1.1	2.8	6.5	7.0
10	10.2	22.9	75.0	235.1	329.2	57.2	6.2	0.7	0.7	2.5	5.0	6.9
15	8.9	15.2	34.3	207.2	289.8	47.0	5.3	0.6	0.7	2.3	3.9	6.1
20	8.6	14.0	33.0	195.7	249.1	42.0	4.6	0.6	0.6	2.0	3.8	5.7
25	8.4	12.7	30.5	180.5	227.5	36.9	4.1	0.5	0.5	1.5	3.7	5.3
30	8.1	12.1	29.2	174.1	213.5	31.8	3.7	0.5	0.3	1.1	3.2	5.1
35	6.4	9.9	28.0	164.0	202.1	29.2	3.4	0.4	0.2	1.0	2.8	4.7
40	5.6	8.9	28.0	156.3	193.2	24.1	3.2	0.4	0.2	0.9	2.0	4.3
45	5.2	8.4	26.7	152.5	184.3	21.6	2.9	0.4	0.2	0.8	1.6	4.2
50	5.1	8.4	25.4	147.4	175.4	20.3	2.7	0.3	0.2	0.7	1.5	4.1
55	4.8	8.4	24.1	134.7	167.8	17.8	2.4	0.3	0.2	0.7	1.4	3.9
60	3.8	8.4	22.9	130.9	155.1	15.2	2.3	0.3	0.2	0.3	1.3	3.6
65	3.7	7.6	20.3	114.4	147.4	14.0	2.0	0.2	0.2	0.3	1.2	3.2
70	3.6	5.7	20.3	104.2	142.4	12.3	1.9	0.2	0.2	0.2	1.1	1.2
75	2.5	5.1	17.8	82.6	134.7	10.8	1.6	0.2	0.2	0.2	1.0	1.1
80	1.5	3.8	12.7	68.6	120.7	9.8	1.4	0.2	0.2	0.2	1.0	1.1
85	1.3	2.5	5.1	57.2	108.0	8.8	1.2	0.2	0.2	0.2	0.9	1.1
90	1.1	2.5	3.8	52.1	82.6	7.6	1.0	0.2	0.2	0.2	0.8	1.0
95	0.9	2.3	2.5	40.7	64.8	6.7	0.9	0.2	0.2	0.2	0.5	0.8
Minimum	0.7	1.3	2.5	35.6	49.6	5.6	0.6	0.2	0.2	0.2	0.5	0.7
Average	5.4	10.2	31.4	140.3	191.7	28.5	3.3	0.4	0.4	1.0	2.9	3.9
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-14E. Stevenson Creek Below Shaver Lake - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	10.8	28.0	120.7	255.5	344.5	245.3	31.8	3.0	6.1	12.7	9.0	11.1
1	10.4	28.0	104.2	250.4	296.2	228.8	28.0	2.5	4.4	11.9	6.7	7.9
5	9.3	16.5	85.2	219.9	235.1	138.6	16.5	1.9	1.2	4.3	4.3	4.1
10	7.6	14.0	72.4	193.2	183.0	50.8	9.8	1.5	0.7	2.4	3.2	3.6
15	4.3	11.6	58.5	177.9	169.1	38.1	8.4	1.1	0.5	2.0	2.9	2.2
20	3.2	8.0	44.5	165.2	153.8	34.3	7.0	0.9	0.4	1.9	2.4	1.9
25	2.5	4.6	36.9	158.9	139.8	30.5	5.5	0.8	0.4	1.8	2.2	1.8
30	2.4	4.1	33.0	144.9	124.6	28.0	4.4	0.6	0.3	1.1	2.0	1.8
35	2.2	3.9	29.2	137.3	115.7	24.1	3.9	0.6	0.3	0.9	1.8	1.6
40	2.2	3.6	25.4	128.4	105.5	21.6	3.6	0.5	0.2	0.7	1.8	1.6
45	2.0	3.3	22.9	118.2	97.9	19.1	3.2	0.4	0.2	0.6	1.6	1.5
50	1.9	2.8	19.1	114.4	91.5	17.8	2.9	0.4	0.2	0.4	1.5	1.5
55	1.8	2.7	16.5	99.1	86.4	15.2	2.4	0.4	0.2	0.3	1.5	1.4
60	1.6	2.5	15.2	94.1	78.8	14.0	2.2	0.3	0.2	0.3	1.2	1.2
65	1.5	2.3	15.2	85.2	75.0	12.7	1.9	0.3	0.2	0.2	1.1	1.2
70	1.4	2.0	14.0	77.5	68.6	11.6	1.6	0.3	0.2	0.2	1.0	1.1
75	1.3	1.8	12.2	69.9	62.3	10.4	1.6	0.3	0.2	0.2	0.9	1.0
80	1.2	1.5	10.9	62.3	54.7	9.7	1.3	0.2	0.2	0.2	0.6	1.0
85	1.0	1.3	10.6	57.2	49.6	9.0	1.1	0.2	0.2	0.2	0.3	0.9
90	0.7	1.1	10.2	48.3	42.0	8.1	0.9	0.2	0.1	0.2	0.3	0.5
95	0.6	0.8	7.6	31.8	35.6	7.5	0.7	0.2	0.1	0.2	0.2	0.5
99	0.6	0.7	2.3	21.6	28.0	5.1	0.5	0.2	0.1	0.1	0.2	0.4
Minimum	0.6	0.7	2.0	19.1	25.4	4.7	0.5	0.1	0.1	0.1	0.2	0.4
Average	2.7	5.1	29.8	116.7	107.4	30.5	4.6	0.6	0.4	1.2	1.7	1.8
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-15A. Pitman Creek near Tamarack Mountain - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2208.6	473.8	520.0	790.1	1656.4	850.3	407.6	41.2	20.1	363.4	230.9	451.7
1	150.6	150.6	170.7	364.4	727.8	761.0	389.5	32.1	8.4	53.2	71.3	82.3
5	49.2	47.2	121.5	258.0	470.8	644.5	188.7	19.1	5.1	8.5	35.1	33.1
10	34.1	34.1	92.4	190.7	364.4	491.9	89.3	8.9	3.2	5.7	20.1	27.1
15	29.1	30.1	75.3	173.7	321.2	306.2	46.2	5.1	1.7	3.5	6.0	17.1
20	18.1	27.1	62.2	155.6	272.0	163.6	16.1	2.5	1.2	2.5	4.7	8.7
25	13.1	25.1	52.2	144.6	236.9	109.4	11.0	1.7	0.8	2.0	3.1	7.1
30	9.4	23.1	44.2	135.5	208.8	75.3	8.4	1.5	0.6	1.6	2.6	5.2
35	8.2	19.1	36.1	126.5	188.7	52.2	7.0	1.2	0.6	1.3	2.1	4.2
40	7.0	13.1	33.1	119.5	172.7	40.2	6.1	0.9	0.5	1.0	1.7	3.3
45	5.9	11.0	29.1	110.4	156.6	32.1	5.1	0.8	0.4	0.8	1.6	2.8
50	4.7	9.0	25.1	104.4	142.6	27.1	4.4	0.7	0.4	0.7	1.4	1.6
55	3.4	7.3	23.1	98.4	131.5	24.1	3.7	0.5	0.3	0.5	1.2	1.4
60	2.5	6.3	21.1	90.3	116.4	20.1	3.2	0.5	0.3	0.4	1.1	1.3
65	1.9	3.7	19.1	79.3	106.4	17.1	2.8	0.4	0.2	0.3	1.0	1.2
70	1.7	3.0	16.1	70.3	93.4	15.1	2.4	0.3	0.2	0.3	0.9	1.1
75	1.5	2.4	13.1	62.2	82.3	13.1	2.0	0.3	0.2	0.2	0.9	0.9
80	1.3	2.0	12.1	51.2	71.3	11.0	1.7	0.3	0.2	0.2	0.8	0.9
85	1.0	1.8	10.0	45.2	61.2	9.1	1.3	0.2	0.1	0.2	0.7	0.8
90	0.9	1.5	8.2	35.1	50.2	7.7	1.1	0.2	0.1	0.2	0.5	0.6
95	0.5	1.0	4.0	27.1	39.2	6.4	0.7	0.2	0.1	0.1	0.3	0.5
99	0.5	0.6	1.7	19.1	25.1	4.9	0.5	0.1	0.1	0.1	0.2	0.3
Minimum	0.5	0.5	1.6	15.1	20.1	3.7	0.4	0.1	0.1	0.1	0.1	0.3
Average	18.3	17.6	40.1	114.4	184.8	124.2	30.9	3.1	1.1	3.4	6.5	8.7
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-15B. Pitman Creek near Tamarack Mountain - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2208.6	473.8	520.0	790.1	1656.4	850.3	407.6	41.2	20.1	363.4	230.9	174.7
1	502.0	265.0	202.8	399.5	820.2	812.2	398.5	37.1	10.0	123.5	71.3	82.3
5	70.3	111.4	167.6	345.3	626.4	729.8	359.4	27.1	7.3	16.1	39.2	38.2
10	51.2	55.2	132.5	278.1	535.1	658.5	283.1	23.1	6.1	9.4	34.1	32.1
15	44.2	47.2	117.5	248.0	447.7	633.5	186.7	19.1	5.0	7.3	30.1	28.1
20	34.1	39.2	104.4	194.7	414.6	570.2	150.6	14.1	4.4	4.8	17.1	27.1
25	31.1	35.1	88.3	175.7	375.5	534.1	108.4	11.0	3.6	2.6	7.9	23.1
30	29.1	29.1	77.3	153.6	348.4	481.9	86.3	8.5	2.9	2.1	5.8	13.1
35	27.1	27.1	70.3	144.6	335.3	444.7	67.3	6.5	2.3	1.3	3.0	9.3
40	19.1	27.1	63.2	131.5	318.2	356.4	55.2	5.7	1.7	1.1	2.1	8.2
45	17.1	26.1	55.2	119.5	291.1	296.1	37.1	4.7	1.5	1.0	1.7	8.0
50	15.1	25.1	44.2	112.4	263.0	250.0	23.1	3.8	1.2	0.9	1.6	6.8
55	12.1	24.1	37.1	105.4	242.9	167.6	15.1	2.7	0.9	0.8	1.3	4.9
60	9.7	24.1	36.1	100.4	228.9	140.5	12.1	1.9	0.8	0.7	1.2	4.0
65	8.9	21.1	34.1	88.3	208.8	111.4	9.5	1.6	0.7	0.5	1.1	2.6
70	8.5	11.0	31.1	75.3	185.7	76.3	7.6	1.4	0.6	0.4	1.0	1.5
75	7.5	9.3	29.1	63.2	163.6	55.2	6.5	1.1	0.5	0.4	0.9	1.4
80	5.8	8.9	25.1	47.2	148.6	40.2	5.2	0.9	0.5	0.3	0.9	1.4
85	2.6	7.3	19.1	40.2	131.5	30.1	4.6	0.7	0.4	0.3	0.9	1.2
90	2.0	1.9	11.0	33.1	96.4	25.1	3.7	0.6	0.4	0.3	0.8	1.1
95	1.5	1.8	2.6	26.1	80.3	15.1	2.8	0.5	0.4	0.2	0.5	0.9
99	1.5	1.5	1.6	24.1	47.2	8.1	2.0	0.4	0.3	0.2	0.4	0.6
Minimum	1.5	1.5	1.6	24.1	46.2	7.8	1.8	0.4	0.3	0.2	0.4	0.6
Average	41.2	33.3	64.1	136.3	299.1	302.9	81.1	7.6	2.4	7.2	10.2	13.0
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-15C. Pitman Creek near Tamarack Mountain - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	60.2	35.1	109.4	288.1	470.8	125.5	13.1	4.7	1.6	18.1	144.6	451.7
5	51.2	33.1	97.4	253.0	329.3	101.4	11.0	2.2	0.8	8.4	70.3	75.3
10	41.2	33.1	79.3	178.7	282.1	86.3	9.5	1.9	0.7	6.9	42.2	33.1
15	35.1	32.1	58.2	171.7	245.9	82.3	8.9	1.7	0.6	5.9	35.1	30.1
20	32.1	32.1	52.2	160.6	233.9	69.3	8.5	1.7	0.6	5.7	17.1	28.1
25	29.1	32.1	49.2	150.6	207.8	63.2	8.0	1.6	0.6	4.4	6.7	26.1
30	28.1	31.1	45.2	144.6	203.8	51.2	7.4	1.4	0.6	4.2	5.7	24.1
35	14.1	29.1	42.2	140.5	202.8	48.2	7.0	1.3	0.6	3.7	5.3	13.1
40	14.1	29.1	37.1	127.5	193.7	40.2	6.4	1.1	0.5	3.3	4.9	9.1
45	12.1	26.1	34.1	121.5	182.7	37.1	6.0	1.0	0.5	2.9	4.7	8.0
50	11.0	23.1	32.1	111.4	175.7	30.1	5.6	1.0	0.5	2.1	4.0	7.0
55	7.3	22.1	28.1	105.4	170.7	27.1	5.1	0.8	0.4	2.1	3.6	5.9
60	6.0	20.1	25.1	101.4	158.6	24.1	4.4	0.7	0.4	2.0	2.9	5.1
65	5.5	18.1	21.1	95.4	153.6	23.1	4.2	0.7	0.4	1.8	2.4	3.5
70	5.0	14.1	20.1	88.3	137.5	20.1	3.9	0.6	0.3	0.4	1.2	0.7
75	4.4	13.1	19.1	77.3	131.5	17.1	3.3	0.6	0.3	0.3	0.8	0.6
80	1.0	12.1	17.1	70.3	119.5	16.1	2.8	0.5	0.3	0.3	0.7	0.5
85	0.5	7.5	16.1	39.2	114.4	15.1	2.5	0.4	0.3	0.3	0.7	0.5
90	0.5	6.2	13.1	30.1	102.4	13.1	2.0	0.3	0.2	0.3	0.6	0.5
95	0.5	5.6	12.1	26.1	79.3	11.0	1.4	0.3	0.2	0.3	0.3	0.5
Minimum	0.5	4.7	11.0	26.1	57.2	9.1	1.2	0.3	0.2	0.3	0.3	0.5
Average	16.6	22.2	37.9	118.8	184.6	42.5	5.8	1.1	0.5	3.2	14.0	21.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-15D. Pitman Creek near Tamarack Mountain - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	12.1	26.1	118.5	229.9	334.3	104.4	9.4	0.9	1.5	2.9	27.1	10.0
5	9.0	20.1	79.3	194.7	321.2	72.3	6.1	0.7	0.9	2.2	5.1	5.5
10	8.0	18.1	59.2	185.7	260.0	45.2	4.9	0.5	0.6	2.0	3.9	5.4
15	7.0	12.1	27.1	163.6	228.9	37.1	4.2	0.4	0.6	1.8	3.1	4.8
20	6.8	11.0	26.1	154.6	196.8	33.1	3.6	0.4	0.5	1.6	3.0	4.5
25	6.6	10.0	24.1	142.6	179.7	29.1	3.2	0.4	0.4	1.2	2.9	4.2
30	6.4	9.5	23.1	137.5	168.6	25.1	2.9	0.4	0.2	0.9	2.5	4.0
35	5.0	7.8	22.1	129.5	159.6	23.1	2.7	0.3	0.2	0.8	2.2	3.7
40	4.4	7.0	22.1	123.5	152.6	19.1	2.5	0.3	0.2	0.7	1.6	3.4
45	4.1	6.6	21.1	120.5	145.6	17.1	2.3	0.3	0.2	0.6	1.3	3.3
50	4.0	6.6	20.1	116.4	138.5	16.1	2.1	0.3	0.2	0.6	1.2	3.2
55	3.8	6.6	19.1	106.4	132.5	14.1	1.9	0.2	0.2	0.5	1.1	3.1
60	3.0	6.6	18.1	103.4	122.5	12.1	1.8	0.2	0.2	0.2	1.0	2.8
65	2.9	6.0	16.1	90.3	116.4	11.0	1.6	0.2	0.2	0.2	0.9	2.5
70	2.8	4.5	16.1	82.3	112.4	9.7	1.5	0.2	0.2	0.2	0.9	0.9
75	2.0	4.0	14.1	65.2	106.4	8.5	1.3	0.2	0.2	0.2	0.8	0.9
80	1.2	3.0	10.0	54.2	95.4	7.7	1.1	0.2	0.2	0.2	0.8	0.9
85	1.0	2.0	4.0	45.2	85.3	6.9	0.9	0.2	0.1	0.2	0.7	0.8
90	0.9	2.0	3.0	41.2	65.2	6.0	0.8	0.2	0.1	0.2	0.6	0.8
95	0.7	1.8	2.0	32.1	51.2	5.3	0.7	0.2	0.1	0.2	0.4	0.6
Minimum	0.6	1.0	2.0	28.1	39.2	4.4	0.5	0.2	0.1	0.1	0.4	0.6
Average	4.3	8.0	24.8	110.8	151.4	22.5	2.6	0.3	0.3	0.8	2.3	3.1
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-15E. Pitman Creek near Tamarack Mountain - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	8.5	22.1	95.4	201.8	272.0	193.7	25.1	2.4	4.8	10.0	7.1	8.7
1	8.2	22.1	82.3	197.8	233.9	180.7	22.1	2.0	3.5	9.4	5.3	6.2
5	7.3	13.1	67.3	173.7	185.7	109.4	13.1	1.5	0.9	3.4	3.4	3.2
10	6.0	11.0	57.2	152.6	144.6	40.2	7.7	1.2	0.5	1.9	2.5	2.8
15	3.4	9.1	46.2	140.5	133.5	30.1	6.6	0.9	0.4	1.6	2.3	1.7
20	2.5	6.3	35.1	130.5	121.5	27.1	5.5	0.7	0.3	1.5	1.9	1.5
25	2.0	3.6	29.1	125.5	110.4	24.1	4.3	0.6	0.3	1.4	1.7	1.4
30	1.9	3.2	26.1	114.4	98.4	22.1	3.5	0.5	0.2	0.9	1.6	1.4
35	1.7	3.1	23.1	108.4	91.3	19.1	3.1	0.4	0.2	0.7	1.4	1.3
40	1.7	2.8	20.1	101.4	83.3	17.1	2.8	0.4	0.2	0.6	1.4	1.3
45	1.6	2.6	18.1	93.4	77.3	15.1	2.5	0.3	0.2	0.4	1.3	1.2
50	1.5	2.2	15.1	90.3	72.3	14.1	2.3	0.3	0.2	0.3	1.2	1.2
55	1.4	2.1	13.1	78.3	68.3	12.1	1.9	0.3	0.2	0.2	1.2	1.1
60	1.3	2.0	12.1	74.3	62.2	11.0	1.7	0.3	0.2	0.2	1.0	1.0
65	1.2	1.8	12.1	67.3	59.2	10.0	1.5	0.3	0.1	0.2	0.9	0.9
70	1.1	1.6	11.0	61.2	54.2	9.1	1.3	0.2	0.1	0.2	0.8	0.9
75	1.0	1.4	9.6	55.2	49.2	8.2	1.3	0.2	0.1	0.2	0.7	0.8
80	1.0	1.2	8.6	49.2	43.2	7.6	1.0	0.2	0.1	0.2	0.5	0.8
85	0.8	1.0	8.3	45.2	39.2	7.1	0.9	0.2	0.1	0.1	0.3	0.7
90	0.6	0.9	8.0	38.2	33.1	6.4	0.7	0.1	0.1	0.1	0.2	0.4
95	0.5	0.7	6.0	25.1	28.1	5.9	0.6	0.1	0.1	0.1	0.2	0.4
99	0.5	0.5	1.8	17.1	22.1	4.0	0.4	0.1	0.1	0.1	0.1	0.3
Minimum	0.5	0.5	1.6	15.1	20.1	3.7	0.4	0.1	0.1	0.1	0.1	0.3
Average	2.2	4.0	23.5	92.1	84.8	24.1	3.6	0.5	0.3	1.0	1.4	1.4
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-16A. Balsam Creek below Balsam Meadow Forebay - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	30.4	6.5	7.2	10.9	22.8	11.7	5.6	0.6	0.3	5.0	3.2	6.2
1	2.1	2.1	2.3	5.0	10.0	10.5	5.4	0.4	0.1	0.7	1.0	1.1
5	0.7	0.6	1.7	3.6	6.5	8.9	2.6	0.3	0.1	0.1	0.5	0.5
10	0.5	0.5	1.3	2.6	5.0	6.8	1.2	0.1	0.0	0.1	0.3	0.4
15	0.4	0.4	1.0	2.4	4.4	4.2	0.6	0.1	0.0	0.1	0.1	0.2
20	0.2	0.4	0.9	2.1	3.7	2.3	0.2	0.0	0.0	0.0	0.1	0.1
25	0.2	0.3	0.7	2.0	3.3	1.5	0.2	0.0	0.0	0.0	0.0	0.1
30	0.1	0.3	0.6	1.9	2.9	1.0	0.1	0.0	0.0	0.0	0.0	0.1
35	0.1	0.3	0.5	1.7	2.6	0.7	0.1	0.0	0.0	0.0	0.0	0.1
40	0.1	0.2	0.5	1.6	2.4	0.6	0.1	0.0	0.0	0.0	0.0	0.1
45	0.1	0.2	0.4	1.5	2.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0
50	0.1	0.1	0.3	1.4	2.0	0.4	0.1	0.0	0.0	0.0	0.0	0.0
55	0.1	0.1	0.3	1.4	1.8	0.3	0.1	0.0	0.0	0.0	0.0	0.0
60	0.0	0.1	0.3	1.2	1.6	0.3	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.1	0.3	1.1	1.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.2	1.0	1.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.2	0.9	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.2	0.7	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.1	0.6	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.1	0.5	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.1	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.3	0.2	0.6	1.6	2.5	1.7	0.4	0.0	0.0	0.0	0.1	0.1
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-16B. Balsam Creek below Balsam Meadow Forebay - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	30.4	6.5	7.2	10.9	22.8	11.7	5.6	0.6	0.3	5.0	3.2	2.4
1	6.9	3.7	2.8	5.5	11.3	11.2	5.5	0.5	0.1	1.7	1.0	1.1
5	1.0	1.5	2.3	4.8	8.6	10.1	4.9	0.4	0.1	0.2	0.5	0.5
10	0.7	0.8	1.8	3.8	7.4	9.1	3.9	0.3	0.1	0.1	0.5	0.4
15	0.6	0.6	1.6	3.4	6.2	8.7	2.6	0.3	0.1	0.1	0.4	0.4
20	0.5	0.5	1.4	2.7	5.7	7.9	2.1	0.2	0.1	0.1	0.2	0.4
25	0.4	0.5	1.2	2.4	5.2	7.4	1.5	0.2	0.1	0.0	0.1	0.3
30	0.4	0.4	1.1	2.1	4.8	6.6	1.2	0.1	0.0	0.0	0.1	0.2
35	0.4	0.4	1.0	2.0	4.6	6.1	0.9	0.1	0.0	0.0	0.0	0.1
40	0.3	0.4	0.9	1.8	4.4	4.9	0.8	0.1	0.0	0.0	0.0	0.1
45	0.2	0.4	0.8	1.6	4.0	4.1	0.5	0.1	0.0	0.0	0.0	0.1
50	0.2	0.3	0.6	1.5	3.6	3.4	0.3	0.1	0.0	0.0	0.0	0.1
55	0.2	0.3	0.5	1.5	3.3	2.3	0.2	0.0	0.0	0.0	0.0	0.1
60	0.1	0.3	0.5	1.4	3.2	1.9	0.2	0.0	0.0	0.0	0.0	0.1
65	0.1	0.3	0.5	1.2	2.9	1.5	0.1	0.0	0.0	0.0	0.0	0.0
70	0.1	0.2	0.4	1.0	2.6	1.0	0.1	0.0	0.0	0.0	0.0	0.0
75	0.1	0.1	0.4	0.9	2.3	0.8	0.1	0.0	0.0	0.0	0.0	0.0
80	0.1	0.1	0.3	0.6	2.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0
85	0.0	0.1	0.3	0.6	1.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.2	0.5	1.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.4	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.3	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.3	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.6	0.5	0.9	1.9	4.1	4.2	1.1	0.1	0.0	0.1	0.1	0.2
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-16C. Balsam Creek below Balsam Meadow Forebay - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.8	0.5	1.5	4.0	6.5	1.7	0.2	0.1	0.0	0.2	2.0	6.2
5	0.7	0.5	1.3	3.5	4.5	1.4	0.2	0.0	0.0	0.1	1.0	1.0
10	0.6	0.5	1.1	2.5	3.9	1.2	0.1	0.0	0.0	0.1	0.6	0.5
15	0.5	0.4	0.8	2.4	3.4	1.1	0.1	0.0	0.0	0.1	0.5	0.4
20	0.4	0.4	0.7	2.2	3.2	0.9	0.1	0.0	0.0	0.1	0.2	0.4
25	0.4	0.4	0.7	2.1	2.9	0.9	0.1	0.0	0.0	0.1	0.1	0.4
30	0.4	0.4	0.6	2.0	2.8	0.7	0.1	0.0	0.0	0.1	0.1	0.3
35	0.2	0.4	0.6	1.9	2.8	0.7	0.1	0.0	0.0	0.1	0.1	0.2
40	0.2	0.4	0.5	1.8	2.7	0.6	0.1	0.0	0.0	0.1	0.1	0.1
45	0.2	0.4	0.5	1.7	2.5	0.5	0.1	0.0	0.0	0.0	0.1	0.1
50	0.2	0.3	0.4	1.5	2.4	0.4	0.1	0.0	0.0	0.0	0.1	0.1
55	0.1	0.3	0.4	1.5	2.3	0.4	0.1	0.0	0.0	0.0	0.1	0.1
60	0.1	0.3	0.3	1.4	2.2	0.3	0.1	0.0	0.0	0.0	0.0	0.1
65	0.1	0.2	0.3	1.3	2.1	0.3	0.1	0.0	0.0	0.0	0.0	0.1
70	0.1	0.2	0.3	1.2	1.9	0.3	0.1	0.0	0.0	0.0	0.0	0.0
75	0.1	0.2	0.3	1.1	1.8	0.2	0.1	0.0	0.0	0.0	0.0	0.0
80	0.0	0.2	0.2	1.0	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.1	0.2	0.5	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.1	0.2	0.4	1.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.1	0.2	0.4	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.1	0.2	0.4	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.2	0.3	0.5	1.6	2.5	0.6	0.1	0.0	0.0	0.0	0.2	0.3
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-16D. Balsam Creek below Balsam Meadow Forebay - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.2	0.4	1.6	3.2	4.6	1.4	0.1	0.0	0.0	0.0	0.4	0.1
5	0.1	0.3	1.1	2.7	4.4	1.0	0.1	0.0	0.0	0.0	0.1	0.1
10	0.1	0.2	0.8	2.6	3.6	0.6	0.1	0.0	0.0	0.0	0.1	0.1
15	0.1	0.2	0.4	2.3	3.2	0.5	0.1	0.0	0.0	0.0	0.0	0.1
20	0.1	0.2	0.4	2.1	2.7	0.5	0.1	0.0	0.0	0.0	0.0	0.1
25	0.1	0.1	0.3	2.0	2.5	0.4	0.0	0.0	0.0	0.0	0.0	0.1
30	0.1	0.1	0.3	1.9	2.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1
35	0.1	0.1	0.3	1.8	2.2	0.3	0.0	0.0	0.0	0.0	0.0	0.1
40	0.1	0.1	0.3	1.7	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1
45	0.1	0.1	0.3	1.7	2.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1
50	0.1	0.1	0.3	1.6	1.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0
55	0.1	0.1	0.3	1.5	1.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.1	0.2	1.4	1.7	0.2	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.1	0.2	1.2	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.1	0.2	1.1	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.1	0.2	0.9	1.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.1	0.7	1.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.1	0.6	1.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.0	0.6	0.9	0.1	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.4	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.1	0.1	0.3	1.5	2.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-16E. Balsam Creek below Balsam Meadow Forebay - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	0.1	0.3	1.3	2.8	3.7	2.7	0.3	0.0	0.1	0.1	0.1	0.1
1	0.1	0.3	1.1	2.7	3.2	2.5	0.3	0.0	0.1	0.1	0.1	0.1
5	0.1	0.2	0.9	2.4	2.6	1.5	0.2	0.0	0.0	0.1	0.1	0.0
10	0.1	0.2	0.8	2.1	2.0	0.6	0.1	0.0	0.0	0.0	0.0	0.0
15	0.1	0.1	0.6	1.9	1.8	0.4	0.1	0.0	0.0	0.0	0.0	0.0
20	0.0	0.1	0.5	1.8	1.7	0.4	0.1	0.0	0.0	0.0	0.0	0.0
25	0.0	0.1	0.4	1.7	1.5	0.3	0.1	0.0	0.0	0.0	0.0	0.0
30	0.0	0.0	0.4	1.6	1.4	0.3	0.1	0.0	0.0	0.0	0.0	0.0
35	0.0	0.0	0.3	1.5	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
40	0.0	0.0	0.3	1.4	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
45	0.0	0.0	0.2	1.3	1.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0
50	0.0	0.0	0.2	1.2	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
55	0.0	0.0	0.2	1.1	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0
60	0.0	0.0	0.2	1.0	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0
65	0.0	0.0	0.2	0.9	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0
70	0.0	0.0	0.2	0.8	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0
75	0.0	0.0	0.1	0.8	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.1	0.7	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
85	0.0	0.0	0.1	0.6	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
90	0.0	0.0	0.1	0.5	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.1	0.3	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0
99	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Minimum	0.0	0.0	0.0	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Average	0.0	0.1	0.3	1.3	1.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-17A. Big Creek near Mouth - Unimpaired
Daily Exceedance Flow
(10/1/1983 to 9/30/2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	12460.0	2673.2	2933.8	4457.3	9345.0	4797.1	2299.4	232.2	113.3	2050.2	1302.6	2548.6
1	849.5	849.5	962.8	2055.9	4106.1	4293.0	2197.5	181.2	47.6	300.2	402.1	464.4
5	277.5	266.2	685.3	1455.6	2656.2	3636.1	1064.8	107.6	28.9	48.1	198.2	186.9
10	192.6	192.6	521.0	1076.1	2055.9	2775.2	504.1	50.4	18.1	32.3	113.3	152.9
15	164.2	169.9	424.8	979.8	1812.4	1727.4	260.5	28.9	9.6	19.8	34.0	96.3
20	101.9	152.9	351.1	877.9	1534.8	923.2	90.6	14.2	6.8	14.2	26.6	49.3
25	73.6	141.6	294.5	815.6	1336.6	617.3	62.3	9.6	4.3	11.3	17.6	40.2
30	53.2	130.3	249.2	764.6	1178.0	424.8	47.6	8.5	3.6	9.1	14.7	29.5
35	46.4	107.6	203.9	713.6	1064.8	294.5	39.7	6.8	3.3	7.4	11.9	23.8
40	39.7	73.6	186.9	674.0	974.2	226.6	34.5	5.2	2.9	5.7	9.6	18.7
45	33.4	62.3	164.2	623.0	883.5	181.2	28.9	4.3	2.5	4.8	9.1	15.9
50	26.6	51.0	141.6	589.0	804.2	152.9	24.9	3.7	2.2	3.9	7.9	9.1
55	19.3	41.3	130.3	555.0	741.9	135.9	21.0	3.1	2.0	3.0	6.8	7.9
60	14.2	35.7	118.9	509.7	657.0	113.3	18.1	2.6	1.6	2.4	6.2	7.4
65	10.8	21.0	107.6	447.4	600.3	96.3	15.9	2.3	1.2	1.9	5.7	6.8
70	9.6	17.0	90.6	396.5	526.7	84.9	13.6	1.9	1.1	1.7	5.2	6.2
75	8.5	13.6	73.6	351.1	464.4	73.6	11.3	1.7	1.0	1.2	4.9	5.3
80	7.4	11.3	68.0	288.9	402.1	62.3	9.6	1.5	0.9	1.1	4.4	5.0
85	5.7	10.2	56.6	254.9	345.5	51.5	7.4	1.2	0.8	1.0	3.9	4.6
90	4.9	8.5	46.4	198.2	283.2	43.6	6.2	1.1	0.8	0.9	2.6	3.7
95	3.0	5.7	22.6	152.9	220.9	36.2	4.2	0.9	0.7	0.8	1.5	2.6
99	2.6	3.5	9.6	107.6	141.6	27.7	2.7	0.7	0.6	0.6	0.9	1.9
Minimum	2.6	3.0	9.1	84.9	113.3	21.0	2.0	0.6	0.6	0.6	0.8	1.7
Average	103.2	99.3	226.0	645.4	1042.4	700.7	174.4	17.3	6.0	19.4	36.7	49.3
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-17B. Big Creek near Mouth - Unimpaired
Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995, 1996, 1997, 1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	12460.0	2673.2	2933.8	4457.3	9345.0	4797.1	2299.4	232.2	113.3	2050.2	1302.6	985.5
1	2831.8	1495.2	1144.1	2254.1	4627.2	4581.9	2248.5	209.6	56.6	696.6	402.1	464.4
5	396.5	628.7	945.8	1948.3	3534.1	4117.5	2027.6	152.9	41.3	90.6	220.9	215.2
10	288.9	311.5	747.6	1568.8	3018.7	3715.4	1597.2	130.3	34.5	53.2	192.6	181.2
15	249.2	266.2	662.7	1398.9	2526.0	3573.8	1053.4	107.6	28.3	41.3	169.9	158.6
20	192.6	220.9	589.0	1098.7	2339.1	3216.9	849.5	79.3	24.9	27.2	96.3	152.9
25	175.6	198.2	498.4	991.1	2118.2	3013.1	611.7	62.3	20.4	14.7	44.7	130.3
30	164.2	164.2	436.1	866.5	1965.3	2718.6	487.1	48.1	16.4	11.9	32.8	73.6
35	152.9	152.9	396.5	815.6	1891.7	2509.0	379.5	36.8	13.0	7.4	17.0	52.7
40	107.6	152.9	356.8	741.9	1795.4	2010.6	311.5	32.3	9.6	6.2	11.9	46.4
45	96.3	147.2	311.5	674.0	1642.5	1670.8	209.6	26.6	8.5	5.6	9.6	45.3
50	84.9	141.6	249.2	634.3	1483.9	1410.2	130.3	21.5	6.8	5.2	9.1	38.5
55	68.0	135.9	209.6	594.7	1370.6	945.8	84.9	15.3	4.9	4.8	7.4	27.7
60	54.9	135.9	203.9	566.4	1291.3	792.9	68.0	10.8	4.3	3.9	6.8	22.6
65	50.4	118.9	192.6	498.4	1178.0	628.7	53.8	9.1	4.0	2.8	6.2	14.7
70	48.1	62.3	175.6	424.8	1047.8	430.4	43.0	7.9	3.5	2.4	5.6	8.5
75	42.5	52.7	164.2	356.8	923.2	311.5	36.8	6.2	3.1	2.1	5.3	7.9
80	32.8	50.4	141.6	266.2	838.2	226.6	29.5	4.9	2.7	1.9	5.1	7.9
85	14.7	41.3	107.6	226.6	741.9	169.9	26.0	4.2	2.4	1.8	4.8	6.8
90	11.3	10.8	62.3	186.9	543.7	141.6	21.0	3.2	2.2	1.6	4.7	6.2
95	8.5	10.2	14.7	147.2	453.1	84.9	15.9	2.6	2.1	1.0	3.0	5.0
99	8.5	8.5	9.1	135.9	266.2	45.9	11.3	2.2	1.8	0.9	2.4	3.3
Minimum	8.5	8.5	9.1	135.9	260.5	44.2	10.2	2.2	1.8	0.9	2.4	3.3
Average	232.3	187.9	361.4	768.9	1687.2	1708.7	457.6	43.2	13.4	40.5	57.8	73.2
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-17C. Big Creek near Mouth - Unimpaired
Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	339.8	198.2	617.3	1625.5	2656.2	708.0	73.6	26.6	9.1	101.9	815.6	2548.6
5	288.9	186.9	549.4	1427.2	1857.7	572.0	62.3	12.5	4.4	47.6	396.5	424.8
10	232.2	186.9	447.4	1008.1	1591.5	487.1	53.8	10.8	3.8	39.1	237.9	186.9
15	198.2	181.2	328.5	968.5	1387.6	464.4	50.4	9.6	3.6	33.4	198.2	169.9
20	181.2	181.2	294.5	906.2	1319.6	390.8	48.1	9.6	3.5	32.3	96.3	158.6
25	164.2	181.2	277.5	849.5	1172.4	356.8	45.3	9.1	3.3	24.9	38.0	147.2
30	158.6	175.6	254.9	815.6	1149.7	288.9	41.9	7.9	3.2	23.8	32.3	135.9
35	79.3	164.2	237.9	792.9	1144.1	271.9	39.7	7.4	3.1	21.0	30.0	73.6
40	79.3	164.2	209.6	719.3	1093.1	226.6	36.2	6.2	3.0	18.7	27.7	51.5
45	68.0	147.2	192.6	685.3	1030.8	209.6	34.0	5.7	2.9	16.4	26.6	45.3
50	62.3	130.3	181.2	628.7	991.1	169.9	31.7	5.7	2.8	11.9	22.6	39.7
55	41.3	124.6	158.6	594.7	962.8	152.9	28.9	4.6	2.4	11.9	20.4	33.4
60	34.0	113.3	141.6	572.0	894.9	135.9	24.9	4.2	2.2	11.3	16.4	28.9
65	31.1	101.9	118.9	538.0	866.5	130.3	23.8	3.8	2.0	10.2	13.6	19.8
70	28.3	79.3	113.3	498.4	775.9	113.3	22.1	3.6	1.9	2.1	6.8	3.8
75	24.9	73.6	107.6	436.1	741.9	96.3	18.7	3.2	1.9	1.9	4.6	3.3
80	5.7	68.0	96.3	396.5	674.0	90.6	15.9	2.7	1.7	1.9	4.2	2.7
85	2.6	42.5	90.6	220.9	645.7	84.9	14.2	2.3	1.5	1.6	3.8	2.7
90	2.6	35.1	73.6	169.9	577.7	73.6	11.3	2.0	1.4	1.6	3.6	2.6
95	2.6	31.7	68.0	147.2	447.4	62.3	7.9	1.8	1.4	1.6	1.6	2.6
Minimum	2.6	26.6	62.3	147.2	322.8	51.5	6.8	1.6	1.4	1.6	1.6	2.6
Average	93.6	125.5	213.9	670.3	1041.7	240.0	32.8	6.3	2.7	17.9	78.9	122.3
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-17D. Big Creek near Mouth - Unimpaired
Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	68.0	147.2	668.3	1297.0	1886.0	589.0	53.2	4.9	8.5	16.4	152.9	56.6
5	51.0	113.3	447.4	1098.7	1812.4	407.8	34.5	4.0	4.9	12.5	28.9	31.1
10	45.3	101.9	334.1	1047.8	1466.9	254.9	27.7	3.0	3.3	11.3	22.1	30.6
15	39.7	68.0	152.9	923.2	1291.3	209.6	23.8	2.5	3.2	10.2	17.6	27.2
20	38.5	62.3	147.2	872.2	1110.1	186.9	20.4	2.4	2.6	9.1	17.0	25.5
25	37.4	56.6	135.9	804.2	1013.8	164.2	18.1	2.3	2.3	6.8	16.4	23.8
30	36.2	53.8	130.3	775.9	951.5	141.6	16.4	2.0	1.2	5.1	14.2	22.6
35	28.3	44.2	124.6	730.6	900.5	130.3	15.3	1.9	1.0	4.5	12.5	21.0
40	24.9	39.7	124.6	696.6	860.9	107.6	14.2	1.8	1.0	4.2	9.1	19.3
45	23.2	37.4	118.9	679.6	821.2	96.3	13.0	1.6	1.0	3.6	7.4	18.7
50	22.6	37.4	113.3	657.0	781.6	90.6	11.9	1.5	1.0	3.2	6.8	18.1
55	21.5	37.4	107.6	600.3	747.6	79.3	10.8	1.3	1.0	3.0	6.2	17.6
60	17.0	37.4	101.9	583.3	691.0	68.0	10.2	1.2	1.0	1.4	5.7	15.9
65	16.4	34.0	90.6	509.7	657.0	62.3	9.1	1.1	0.9	1.2	5.3	14.2
70	15.9	25.5	90.6	464.4	634.3	54.9	8.5	1.1	0.9	1.1	5.0	5.3
75	11.3	22.6	79.3	368.1	600.3	48.1	7.4	1.0	0.9	1.0	4.7	5.0
80	6.8	17.0	56.6	305.8	538.0	43.6	6.2	1.0	0.9	1.0	4.5	4.9
85	5.7	11.3	22.6	254.9	481.4	39.1	5.3	1.0	0.8	1.0	4.1	4.8
90	4.8	11.3	17.0	232.2	368.1	34.0	4.5	1.0	0.8	1.0	3.6	4.6
95	4.2	10.2	11.3	181.2	288.9	30.0	3.8	0.9	0.8	0.9	2.4	3.7
Minimum	3.2	5.7	11.3	158.6	220.9	24.9	2.7	0.9	0.7	0.8	2.2	3.1
Average	24.0	45.3	140.1	625.1	854.1	127.2	14.6	1.8	1.8	4.6	12.8	17.3
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-17E. Big Creek near Mouth - Unimpaired
Daily Exceedance Flow
Critical Water Years (1987, 1988, 1989, 1990, 1991, 1992, 1994)

					Flow (cfs)							
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	48.1	124.6	538.0	1138.4	1534.8	1093.1	141.6	13.6	27.2	56.6	40.2	49.3
1	46.4	124.6	464.4	1115.7	1319.6	1019.5	124.6	11.3	19.8	53.2	30.0	35.1
5	41.3	73.6	379.5	979.8	1047.8	617.3	73.6	8.5	5.3	19.3	19.3	18.1
10	34.0	62.3	322.8	860.9	815.6	226.6	43.6	6.8	3.0	10.8	14.2	15.9
15	19.3	51.5	260.5	792.9	753.3	169.9	37.4	5.1	2.2	9.1	13.0	9.6
20	14.2	35.7	198.2	736.3	685.3	152.9	31.1	3.9	1.8	8.5	10.8	8.5
25	11.3	20.4	164.2	708.0	623.0	135.9	24.4	3.5	1.6	7.9	9.6	7.9
30	10.8	18.1	147.2	645.7	555.0	124.6	19.8	2.9	1.2	5.0	9.1	7.9
35	9.6	17.6	130.3	611.7	515.4	107.6	17.6	2.5	1.2	4.2	7.9	7.4
40	9.6	15.9	113.3	572.0	470.1	96.3	15.9	2.3	1.1	3.2	7.9	7.4
45	9.1	14.7	101.9	526.7	436.1	84.9	14.2	2.0	1.1	2.5	7.4	6.8
50	8.5	12.5	84.9	509.7	407.8	79.3	13.0	1.8	1.0	1.7	6.8	6.8
55	7.9	11.9	73.6	441.8	385.1	68.0	10.8	1.6	0.9	1.2	6.8	6.2
60	7.4	11.3	68.0	419.1	351.1	62.3	9.6	1.5	0.9	1.2	5.6	5.5
65	6.8	10.2	68.0	379.5	334.1	56.6	8.5	1.5	0.8	1.1	5.0	5.2
70	6.2	9.1	62.3	345.5	305.8	51.5	7.4	1.4	0.8	1.1	4.3	5.0
75	5.7	7.9	54.4	311.5	277.5	46.4	7.4	1.2	0.7	1.0	4.0	4.7
80	5.5	6.8	48.7	277.5	243.5	43.0	5.7	1.1	0.7	0.9	2.7	4.5
85	4.5	5.7	47.0	254.9	220.9	40.2	4.9	1.0	0.7	0.8	1.5	4.0
90	3.2	5.1	45.3	215.2	186.9	36.2	4.1	0.8	0.6	0.7	1.4	2.4
95	2.9	3.7	34.0	141.6	158.6	33.4	3.2	0.7	0.6	0.7	1.0	2.2
99	2.7	3.0	10.2	96.3	124.6	22.6	2.2	0.7	0.6	0.6	0.8	1.8
Minimum	2.7	3.0	9.1	84.9	113.3	21.0	2.0	0.6	0.6	0.6	0.8	1.7
Average	12.2	22.8	132.6	519.8	478.6	136.0	20.4	2.8	1.8	5.4	7.7	7.9
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-18A. Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Daily Exceedance Flow
Water Years 1983-2002

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	85918.6	20247.8	21631.4	28678.0	61753.3	38913.5	22894.1	5447.7	2198.8	15980.9	8539.6	17333.5
5	2119.8	1980.1	4760.8	10643.4	19615.7	27603.9	12284.9	3222.7	978.0	763.8	1804.5	1576.4
10	1591.5	1520.2	3800.6	8343.3	15912.9	22122.9	8123.1	2177.1	695.4	533.9	973.9	1342.8
15	1436.1	1399.8	3162.7	7430.0	13632.1	14968.5	5539.6	1178.5	483.3	383.3	476.5	916.3
20	953.6	1317.0	2695.7	6679.7	12278.7	10103.3	3071.9	872.5	396.6	310.1	404.2	534.6
25	679.1	1170.8	2395.8	6186.6	11149.5	8178.7	2618.1	759.3	353.4	281.4	321.7	455.9
30	570.2	1051.6	2022.2	5889.2	10078.8	6186.1	1953.1	659.2	294.1	250.0	276.3	399.0
35	520.3	909.5	1723.1	5374.5	9293.8	5485.1	1636.8	523.9	256.4	216.4	246.6	359.2
40	463.4	683.7	1564.3	5054.4	8557.5	4500.2	1485.3	438.2	232.3	195.1	223.9	328.7
45	401.5	617.6	1437.8	4719.1	7822.5	3819.9	1284.4	355.2	204.2	179.8	191.9	262.1
50	359.6	565.6	1254.8	4389.3	7282.5	3241.6	1037.4	295.3	179.8	157.7	173.3	227.4
55	308.8	473.0	1106.7	4158.7	6776.2	3067.2	842.6	256.7	152.3	143.3	159.1	184.4
60	273.7	419.0	1014.4	3877.4	6410.3	2865.8	727.6	233.3	126.5	129.8	148.5	153.6
65	240.5	355.4	930.6	3465.6	5795.8	2631.6	636.6	208.8	105.5	115.1	139.3	136.8
70	190.5	311.2	836.6	3116.6	5188.8	2377.6	573.7	189.8	94.0	95.6	127.4	130.5
75	160.6	259.4	755.9	2762.3	4692.1	2087.3	517.9	178.2	86.9	78.9	115.3	123.6
80	149.7	233.3	634.4	2449.1	4332.6	1732.9	475.3	163.9	79.8	73.7	107.9	112.9
85	139.9	204.5	576.2	2077.4	3778.9	1518.4	403.7	145.3	69.5	69.1	99.3	101.9
90	112.9	164.3	506.3	1645.4	3130.5	1191.4	346.3	122.1	54.3	57.5	81.2	85.4
95	72.0	135.1	380.4	1239.5	2728.2	926.2	261.1	99.7	44.7	48.8	67.9	66.9
Minimum	52.9	70.6	190.4	885.0	1972.6	539.9	176.0	50.5	36.0	32.2	41.6	58.4
Average	879.9	878.5	1813.1	4902.6	8814.3	7137.2	2786.9	737.3	286.7	303.5	408.5	492.1
# Days	620	565	620	600	620	600	620	620	600	620	600	620
# Years	20	20	20	20	20	20	20	20	20	20	20	20

Table CAWG 6 Appdx I-18B. Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Daily Exceedance Flow
Wet Water Years (1983, 1986, 1993, 1995-1998)

	Flow (cfs)											
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	85918.6	20247.8	21631.4	28678.0	61753.3	38913.5	22894.1	5447.7	2198.8	15980.9	8539.6	6397.9
5	2914.4	5020.1	6738.3	13978.4	25611.8	32091.4	19730.2	4801.2	1355.4	1333.7	2020.7	1848.6
10	2184.4	2350.4	5588.6	11265.4	22082.1	29376.4	15872.4	3804.9	1082.6	882.7	1682.0	1574.8
15	1869.4	1977.3	4729.2	10239.1	19519.5	27373.4	12270.0	3222.4	962.1	659.1	1554.7	1437.6
20	1643.2	1733.7	4200.2	7717.4	17864.5	25115.9	10561.3	2796.1	863.1	557.6	894.4	1293.4
25	1574.1	1520.2	3622.6	7065.0	16543.0	23712.7	9311.2	2448.4	722.2	402.7	521.8	1099.5
30	1519.0	1423.6	3269.8	6172.4	15409.9	21548.4	7749.9	2117.6	582.7	320.2	454.1	863.3
35	1425.3	1371.0	2944.5	5928.5	14077.1	19624.4	6619.3	1656.9	509.1	290.3	421.6	574.0
40	1022.9	1338.5	2615.8	5316.0	13085.5	16096.8	6137.5	1276.5	457.9	264.0	279.6	541.7
45	905.7	1248.1	2369.6	4852.7	12484.4	14009.5	5255.5	1081.9	404.0	232.7	244.5	472.4
50	827.4	1177.9	2093.0	4496.6	11848.5	11963.9	4091.8	953.3	374.9	198.6	218.7	464.1
55	680.5	1124.8	1801.4	4170.8	11088.2	10489.5	3184.3	863.7	346.8	185.9	178.7	431.9
60	600.0	1087.2	1670.2	3927.4	10009.6	9365.5	2914.7	817.6	315.7	170.0	169.8	401.3
65	567.8	992.5	1574.4	3649.3	9140.1	8547.2	2698.2	762.6	278.2	156.4	156.1	286.2
70	505.3	677.0	1487.9	3077.1	8063.2	7548.2	2491.9	686.0	251.1	143.3	149.4	240.5
75	451.5	577.0	1441.0	2692.8	7282.5	5944.4	1847.8	616.5	237.9	131.6	139.5	225.9
80	356.6	478.1	1254.8	2354.8	6711.2	4922.2	1681.4	561.6	220.7	119.5	129.5	189.0
85	317.7	434.5	998.1	1938.2	6257.1	4100.0	1589.4	476.4	202.2	98.0	119.4	168.9
90	263.0	365.3	634.5	1556.6	5291.4	3658.6	1418.4	440.6	181.5	66.5	109.1	152.0
95	210.1	328.4	333.7	1170.5	3841.2	3013.5	1284.4	355.2	160.8	53.7	98.2	105.6
Minimum	185.1	250.0	288.8	1100.0	2241.1	1904.0	965.9	247.6	137.9	49.7	81.9	74.2
Average	1825.6	1558.4	2767.0	5596.9	12996.5	14943.2	6437.6	1617.5	532.5	525.7	586.2	708.4
# Days	217	197	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

Table CAWG 6 Appdx I-18C. Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Daily Exceedance Flow
Above Normal Water Years (1984, 1999, 2000)

						Flow (cfs)						
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	2718.6	1600.0	4700.4	11572.7	18910.5	7464.0	3193.1	1298.9	657.0	1338.7	6580.2	17333.5
5	2301.6	1538.4	4198.8	10204.6	14202.1	7051.1	2618.1	885.3	458.0	837.2	3138.8	3308.9
10	1881.0	1499.1	3492.1	7851.2	12863.7	6229.9	2533.7	800.0	401.8	616.4	2025.7	1584.1
15	1550.5	1480.7	2502.0	6842.1	12318.9	6097.2	2168.0	724.5	389.0	533.9	1728.1	1543.4
20	1435.3	1442.9	2390.0	6583.5	11751.3	5790.8	2042.7	721.6	372.5	466.4	1096.7	1485.1
25	1295.2	1375.0	2216.4	6271.7	11315.2	5585.1	1850.1	676.6	360.3	406.1	590.2	1372.1
30	1248.6	1323.6	2031.6	5928.8	10744.1	5390.5	1706.1	559.7	349.5	356.7	479.4	1199.1
35	692.5	1308.2	1839.7	5706.7	10281.8	5297.3	1600.8	513.7	312.1	310.1	349.6	620.7
40	652.3	1282.6	1676.7	5308.0	10078.8	5115.0	1553.6	468.4	281.3	282.9	324.8	460.7
45	561.6	1153.0	1570.6	5202.6	9851.8	4658.3	1451.1	433.8	267.5	268.9	298.4	389.3
50	490.7	1012.8	1479.4	4798.1	9557.1	4373.9	1407.2	394.1	240.3	251.2	270.8	360.6
55	383.7	965.3	1266.4	4327.5	9100.7	3941.8	1201.4	353.5	218.5	212.9	259.7	326.8
60	305.8	909.5	1106.7	4211.6	8935.1	3484.6	1131.2	321.9	191.6	195.9	233.7	314.1
65	283.9	843.1	1001.9	3965.4	8260.6	3220.5	1037.4	296.1	171.5	186.8	182.7	228.3
70	265.4	683.6	931.2	3769.9	7964.7	3152.2	957.5	279.2	155.0	157.9	122.9	92.8
75	252.6	650.8	873.4	3316.8	7631.8	3108.7	782.6	257.7	139.4	127.5	113.7	77.2
80	117.3	613.5	786.7	3011.7	7273.5	3032.2	628.4	248.9	127.9	112.6	110.9	73.9
85	66.9	436.3	752.7	1584.3	7061.9	2915.0	591.4	232.5	107.2	102.1	105.9	72.2
90	63.6	377.9	649.3	1245.5	6406.4	2883.0	518.2	218.7	101.9	93.3	97.8	66.9
95	54.5	327.1	610.2	1110.4	4741.0	2640.0	491.2	177.2	92.7	80.0	78.9	64.4
Minimum	52.9	307.5	580.4	1096.3	3909.5	2567.6	461.3	165.6	87.9	77.2	73.5	62.5
Average	771.4	1020.5	1705.0	4912.0	9624.6	4459.3	1403.6	463.8	254.8	316.7	750.1	1003.7
# Days	93	86	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-18D. Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Daily Exceedance Flow
Dry Water Years (1985, 2001, 2002)

						Flow (cfs)						
Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	760.1	1223.6	5003.6	9800.5	15019.9	7328.1	1626.0	382.9	310.5	404.1	1152.0	605.7
5	596.5	937.1	3282.9	8606.6	13918.8	5757.2	1361.2	334.5	284.8	330.3	438.5	486.9
10	530.3	829.7	2569.6	7995.8	11683.2	4007.7	1000.1	284.4	250.3	302.2	410.5	413.2
15	503.9	740.5	1332.9	7331.3	10059.8	3544.2	840.5	239.9	225.1	275.4	404.2	388.9
20	489.0	669.4	1287.3	6679.7	9368.2	3227.4	803.9	229.9	202.7	250.6	394.3	380.6
25	479.8	614.4	1205.6	6372.7	8821.3	3099.4	759.7	208.1	179.8	238.9	376.7	368.8
30	457.5	591.6	1134.8	5995.7	8495.5	2912.2	709.8	188.5	171.9	210.3	328.7	361.3
35	431.4	567.7	1075.5	5536.9	7964.8	2764.0	692.1	181.3	89.7	201.4	276.3	355.7
40	397.9	558.6	1014.5	5311.7	7603.0	2601.6	625.8	173.2	76.3	145.4	225.5	351.8
45	392.8	504.5	986.0	5236.1	7208.2	2468.8	598.4	167.9	73.3	138.9	184.0	342.0
50	383.5	479.6	943.7	4977.0	6776.2	2372.3	567.0	162.3	63.6	127.4	167.2	337.4
55	372.6	441.5	922.8	4581.2	6635.3	2087.3	542.1	149.4	58.4	118.7	157.0	331.3
60	359.1	419.0	887.7	4361.9	6560.8	1826.4	503.7	125.9	54.3	80.7	141.7	322.0
65	342.5	383.9	856.9	3858.3	6383.5	1681.8	476.0	115.8	51.2	71.3	133.3	302.9
70	334.9	333.6	828.5	3614.1	5994.1	1594.0	421.2	113.0	49.7	42.7	122.3	136.4
75	303.1	275.3	775.8	2796.2	5723.6	1223.4	357.2	102.5	47.9	41.5	115.1	126.1
80	285.4	259.4	624.6	2454.5	5467.9	1174.7	316.5	88.1	43.8	35.4	96.8	112.7
85	268.3	240.3	392.4	2042.7	5018.5	1007.6	281.9	81.1	41.8	34.7	76.8	109.6
90	240.5	223.6	372.1	1819.7	4536.6	946.4	239.8	74.2	40.1	34.0	68.9	102.2
95	137.1	202.2	265.7	1520.9	3819.5	703.3	190.4	69.7	38.5	33.1	56.8	98.6
Minimum	103.1	180.1	208.5	1413.6	2760.0	539.9	176.0	50.5	36.0	32.2	41.6	91.0
Average	387.1	503.4	1176.6	4873.8	7585.2	2465.4	615.1	166.4	112.3	148.4	234.2	288.9
# Days	93	84	93	90	93	90	93	93	90	93	90	93
# Years	3	3	3	3	3	3	3	3	3	3	3	3

Table CAWG 6 Appdx I-18E. Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Daily Exceedance Flow
Critical Water Years (1987-1992, 1994)

Flow (cfs)

Percent	January	February	March	April	May	June	July	August	September	October	November	December
Maximum	557.5	1193.2	4016.8	9106.9	12182.3	11062.1	2780.9	2403.7	1433.5	756.9	487.4	445.0
5	517.7	725.5	3103.1	8176.2	9296.3	8146.7	1644.8	423.6	384.8	353.1	300.8	262.1
10	435.7	632.1	2625.0	7256.7	7820.0	3863.2	1111.5	330.9	210.7	270.9	262.5	240.9
15	278.4	555.9	2240.3	6366.6	7159.9	3145.0	930.6	275.7	155.1	225.3	246.7	208.4
20	237.1	436.2	1779.2	6108.0	6602.3	2904.7	833.4	256.0	134.4	202.4	227.6	173.1
25	199.0	363.0	1422.3	5547.4	5795.8	2799.0	761.6	243.1	119.9	185.7	205.6	150.4
30	180.5	307.6	1237.1	5161.2	5475.7	2632.1	683.4	225.8	111.1	169.0	189.8	144.2
35	167.4	276.0	1125.6	4804.6	5061.2	2499.4	630.0	210.6	104.7	147.0	175.9	138.4
40	159.9	256.5	1017.0	4466.5	4774.0	2309.1	580.3	203.3	99.6	137.4	161.4	135.3
45	155.1	236.5	937.3	4274.2	4580.9	2175.0	556.1	193.7	94.7	116.4	153.4	132.1
50	152.7	226.9	813.4	4030.2	4424.1	1978.2	519.8	187.0	91.7	91.6	145.1	130.5
55	149.0	214.9	762.0	3594.4	4203.8	1863.9	495.2	178.8	87.7	81.8	138.7	127.1
60	145.6	204.5	672.4	3362.3	3848.9	1677.7	460.7	171.2	85.6	77.3	124.3	123.7
65	142.2	185.5	632.2	3098.5	3539.5	1566.2	421.0	163.9	81.7	75.8	112.2	119.4
70	137.4	170.4	586.0	2843.6	3360.1	1471.2	399.5	155.3	79.5	73.6	105.8	116.4
75	130.5	145.6	565.7	2526.9	3130.5	1283.7	375.6	145.4	74.9	71.4	100.8	109.5
80	112.2	143.2	543.9	2308.9	2956.1	1191.4	358.4	133.8	69.2	69.6	79.1	100.2
85	97.2	137.4	506.7	2111.0	2764.9	1053.5	302.4	127.0	58.7	66.4	73.2	91.3
90	74.3	112.2	489.1	1870.7	2602.7	908.8	261.1	112.2	51.5	59.5	67.1	64.7
95	70.0	88.5	449.6	1326.0	2318.4	778.6	240.2	100.8	44.4	52.3	62.2	62.2
Minimum	60.4	70.6	190.4	885.0	1972.6	649.7	210.6	64.0	41.4	48.4	50.6	58.4
Average	191.8	299.6	1178.3	4216.8	4811.7	2480.9	659.8	219.1	129.4	142.0	159.0	143.5
# Days	217	198	217	210	217	210	217	217	210	217	210	217
# Years	7	7	7	7	7	7	7	7	7	7	7	7

APPENDIX J

RIVER AND STREAM GAGING STATION UNIMPAIRED HYDROLOGY- EXCEEDANCE GRAPHS

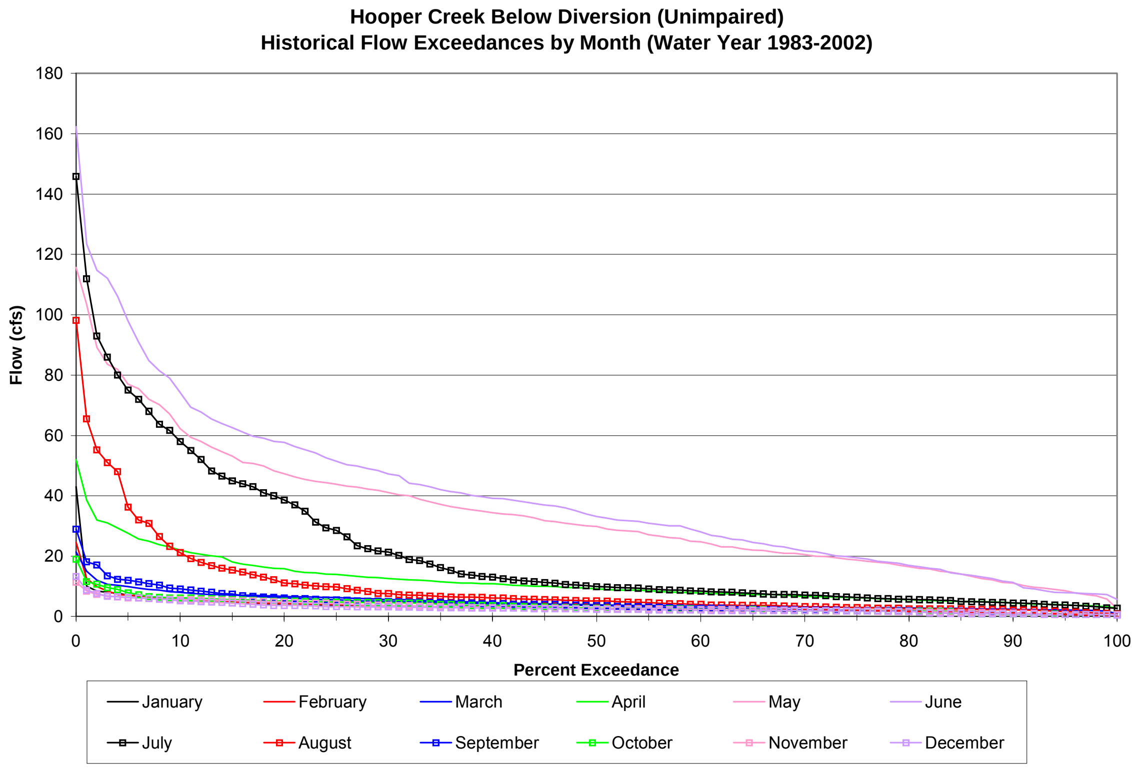
APPENDIX J

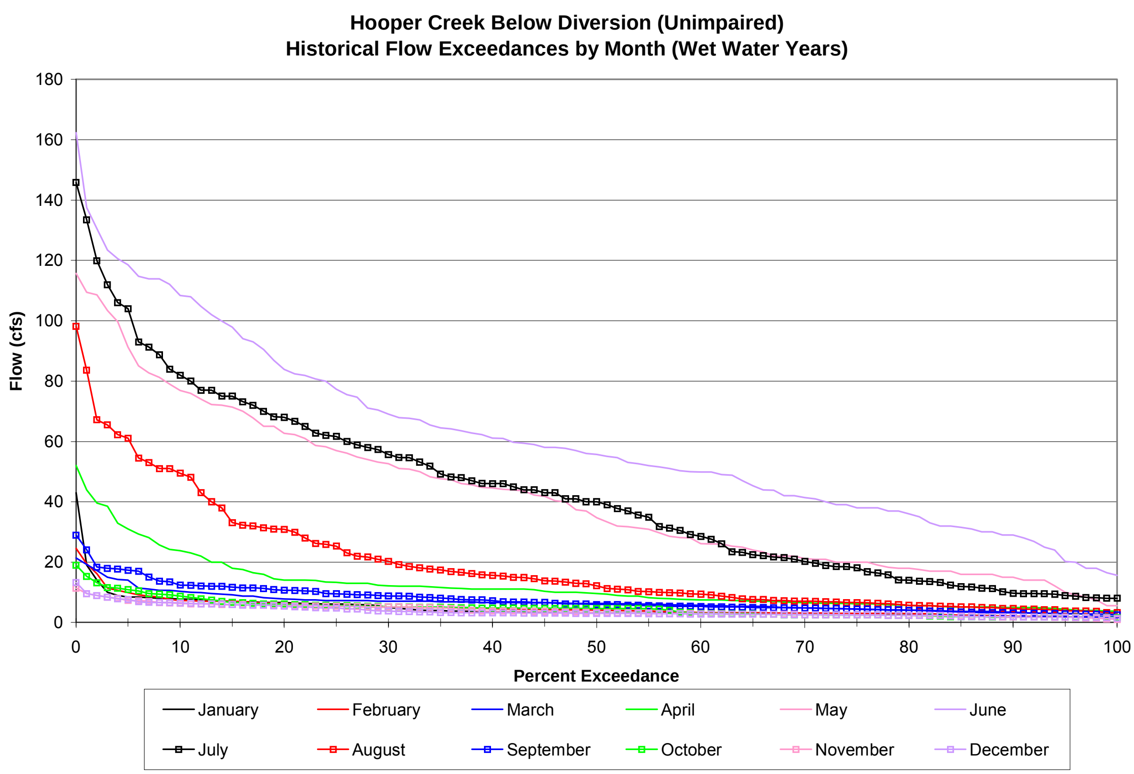
BIG CREEK

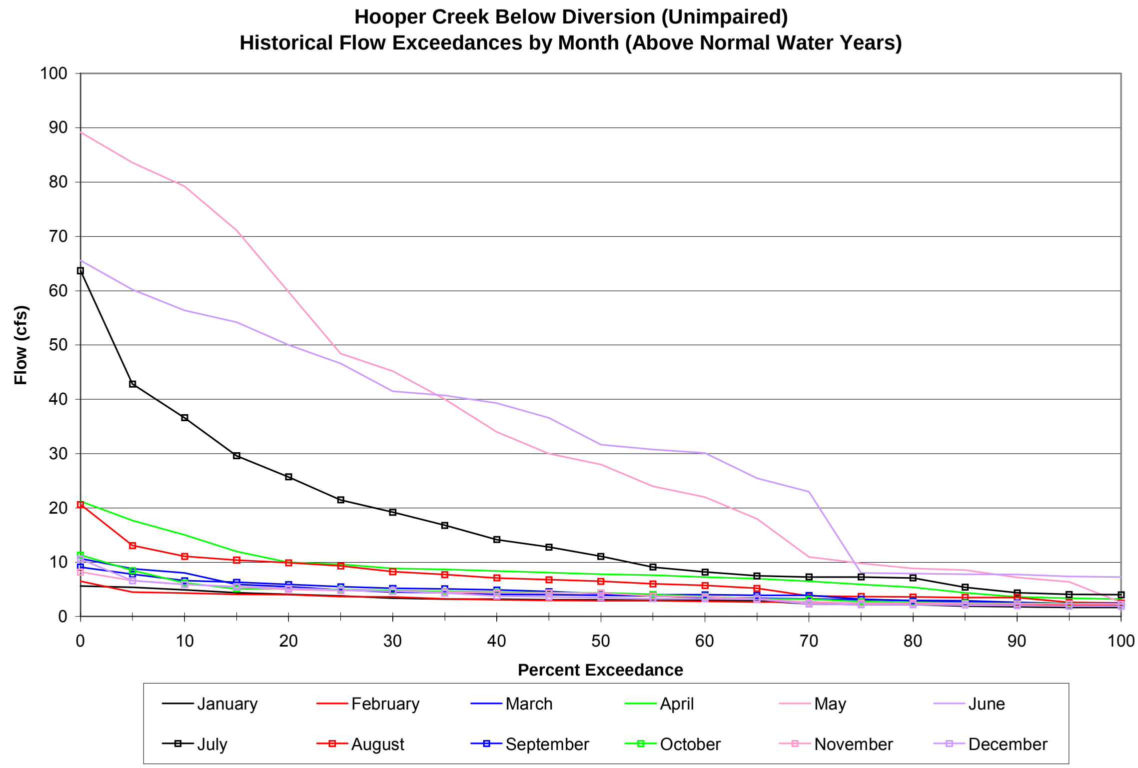
CAWG 6 HYDROLOGY

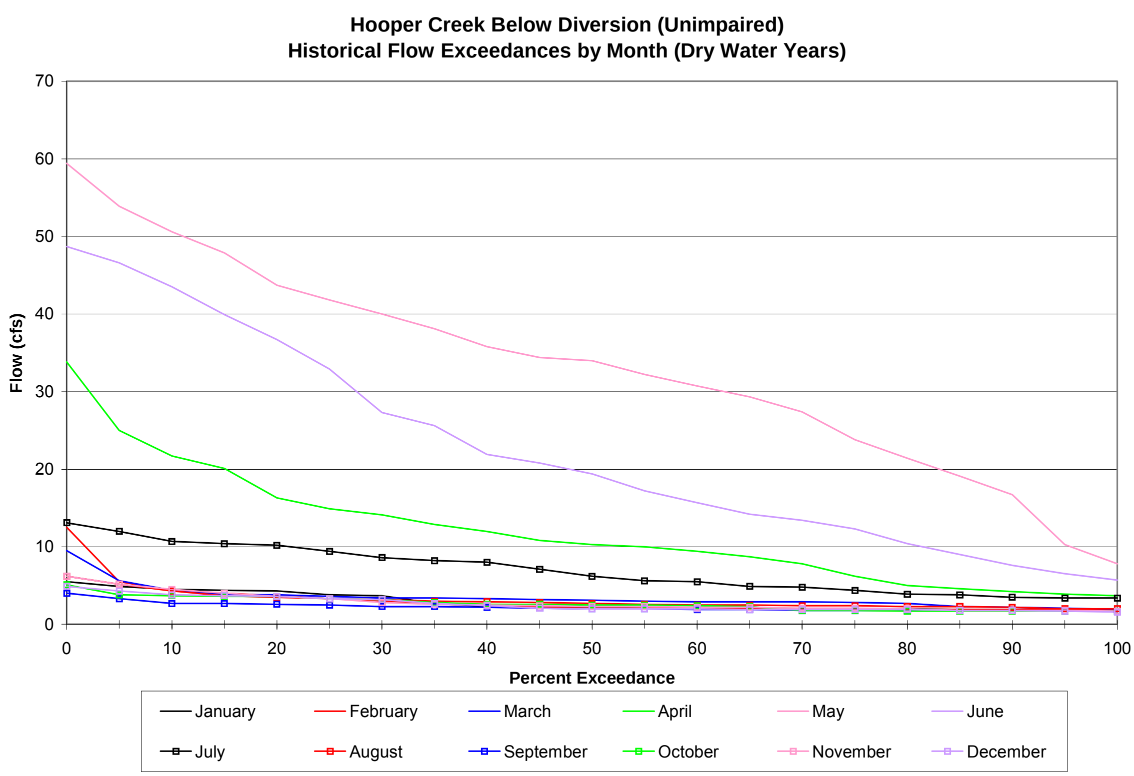
RIVER AND STREAM GAGING STATION UNIMPAIRED HYDROLOGY PERCENTILE/EXCEEDANCE GRAPHS

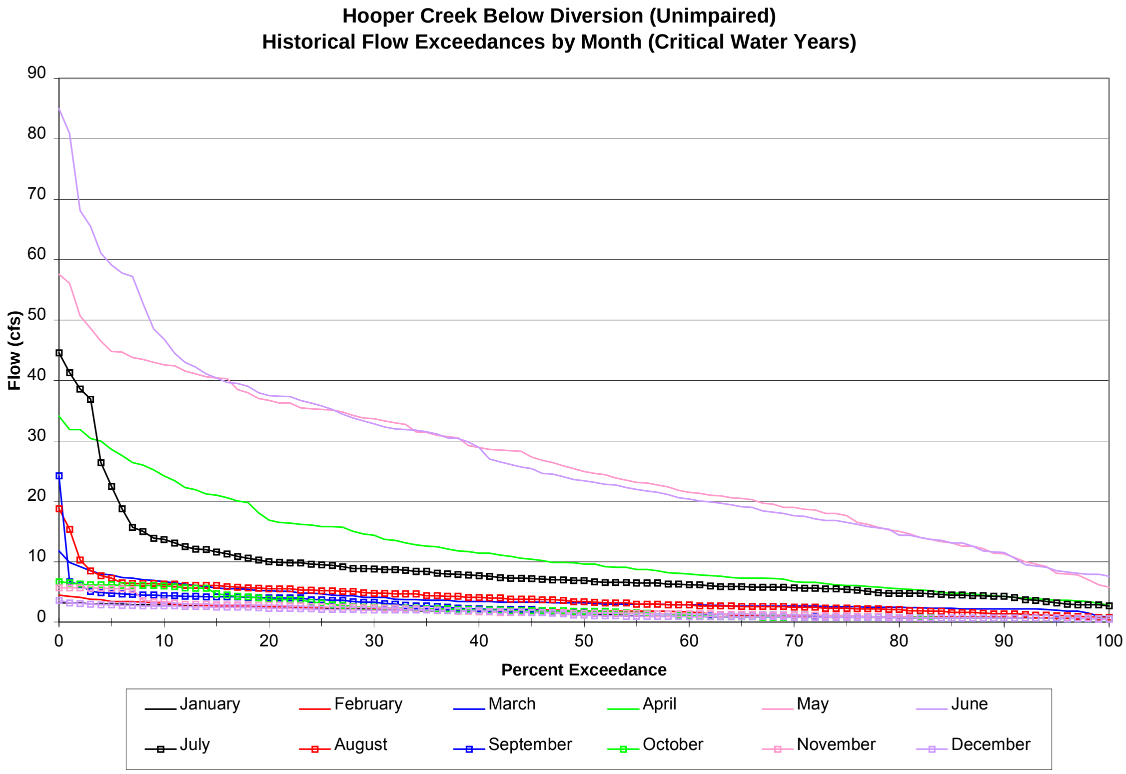
List of locations and periods of record (by water year) in order of appearance. The operations period of record (post-1983) is presented. There is no below normal (BN) water year in this period of record, so BN tables are not presented. The water years analyzed for each location and water year type correspond to those presented in the relative table in Appendix I.


Hooper Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
Percent Exceedance
0
20
40
60
80
100
120
140
160
180
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


Hooper Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
20
40
60
80
100
120
140
160
180
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

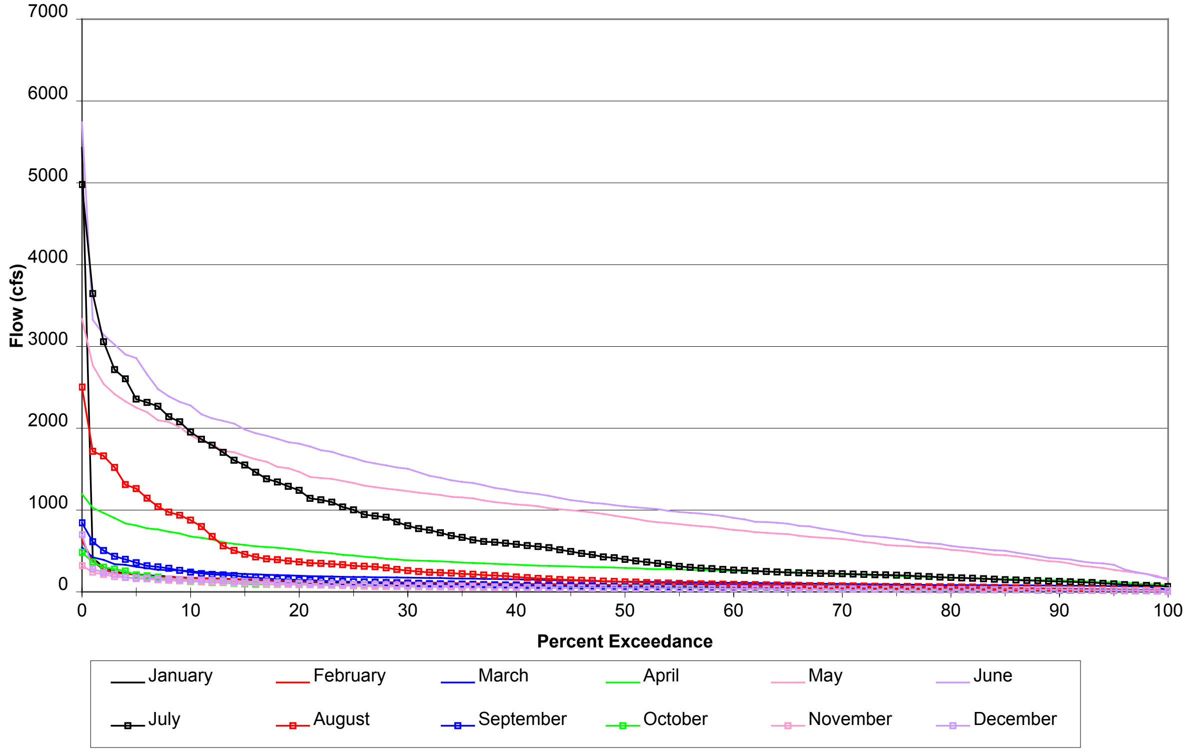

Hooper Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Hooper Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

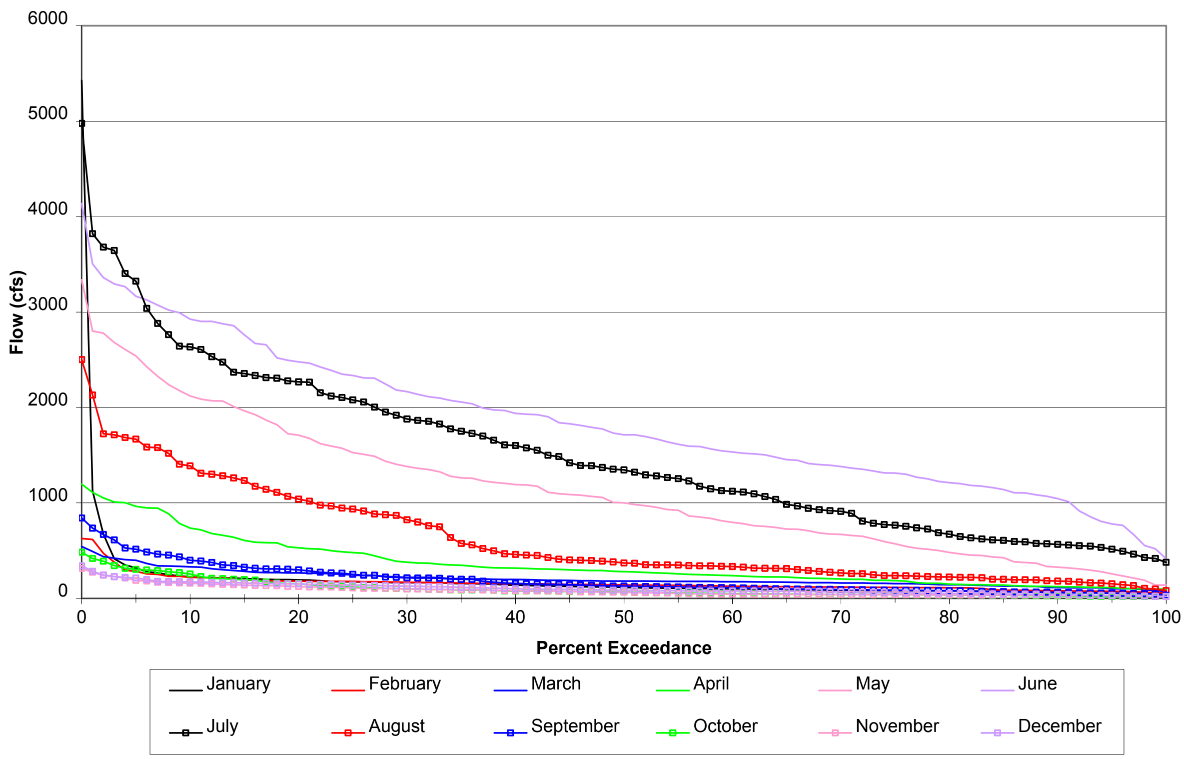


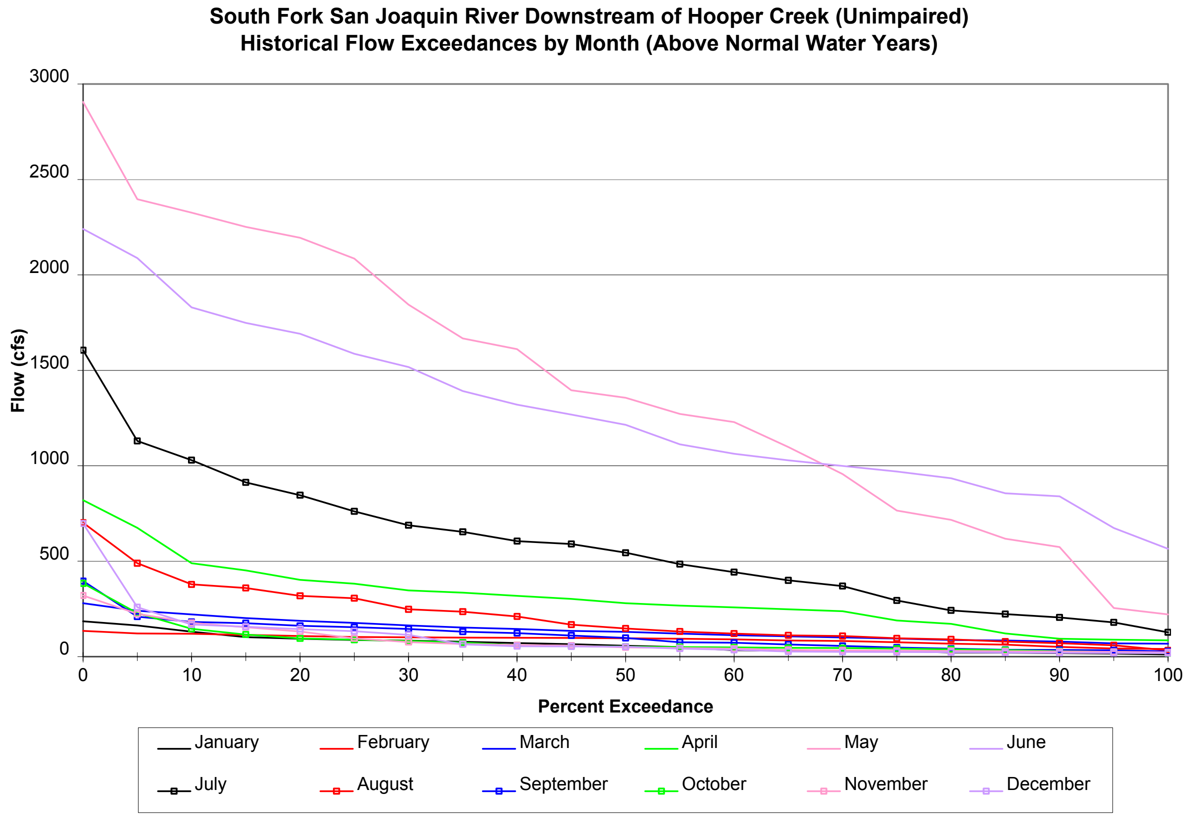
Hooper Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

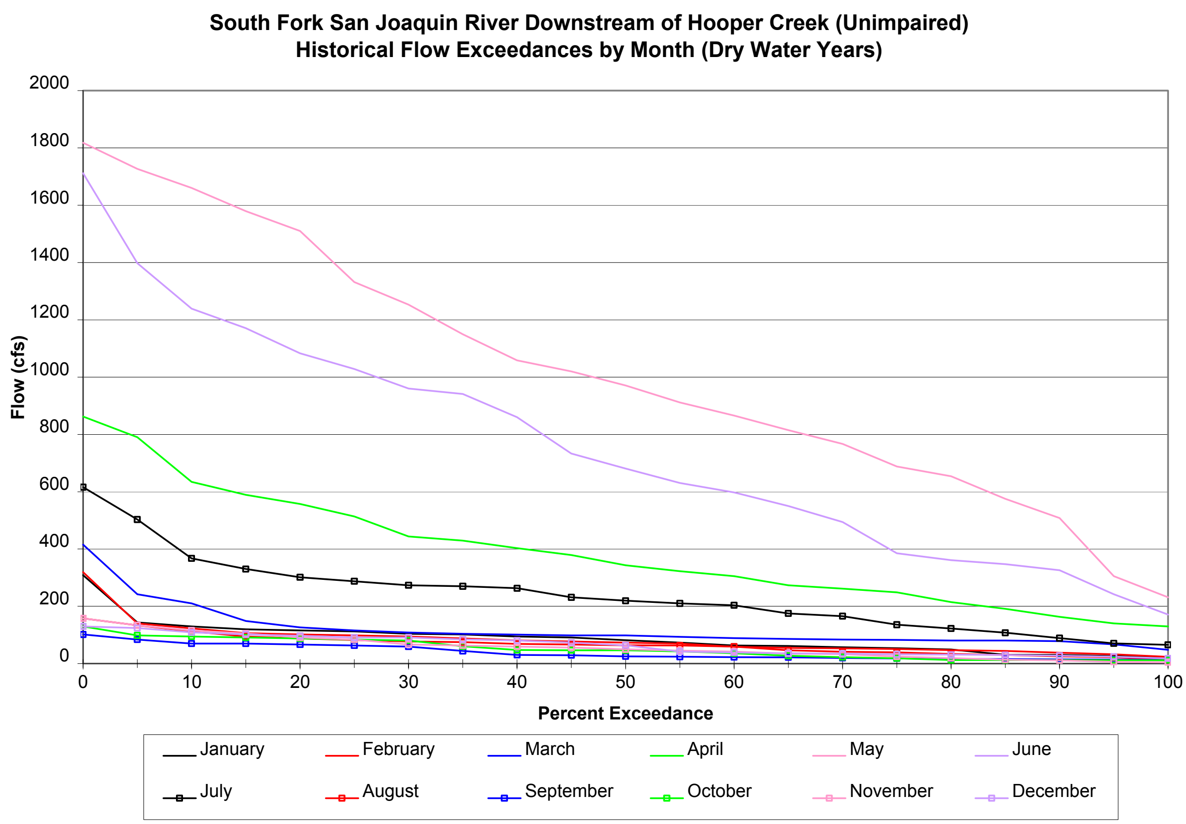
South Fork San Joaquin River Downstream of Hooper Creek (Unimpaired)
Historical Flow Exceedances by Month (Water Years 1983-2002)

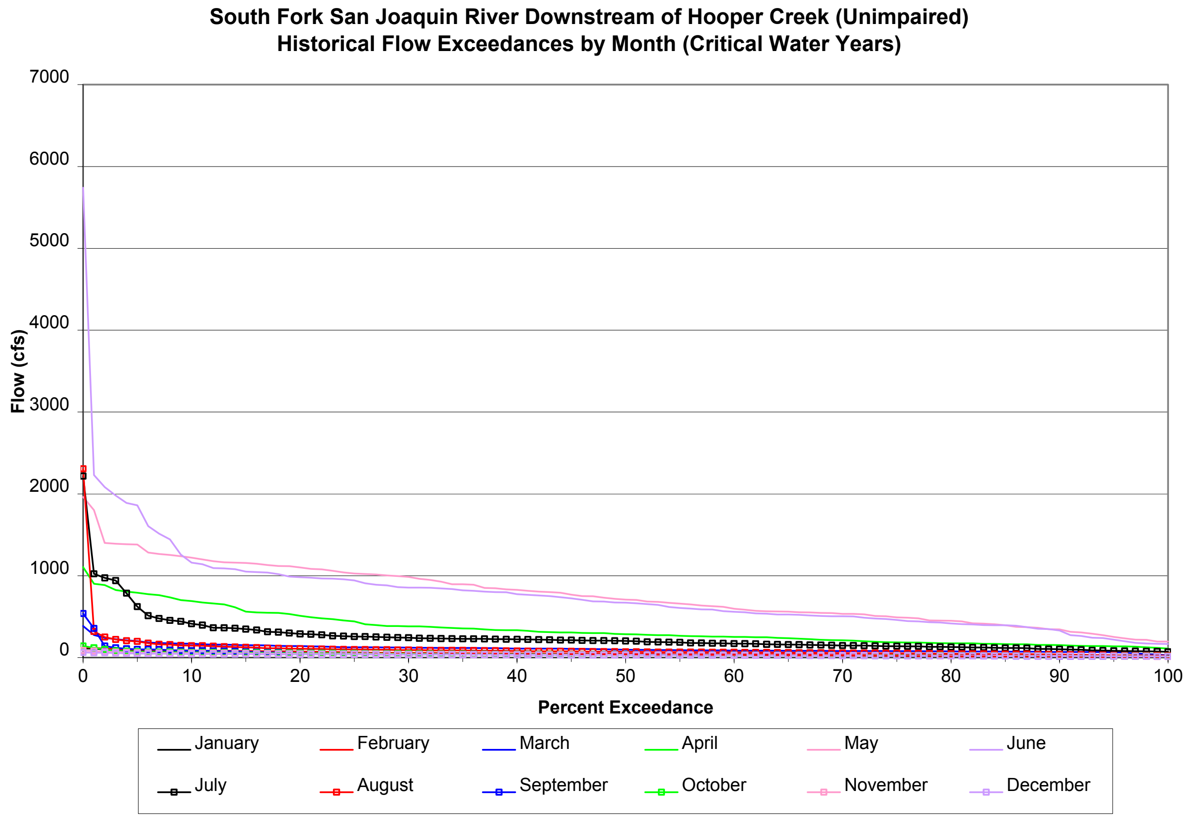


South Fork San Joaquin River Downstream of Hooper Creek (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)

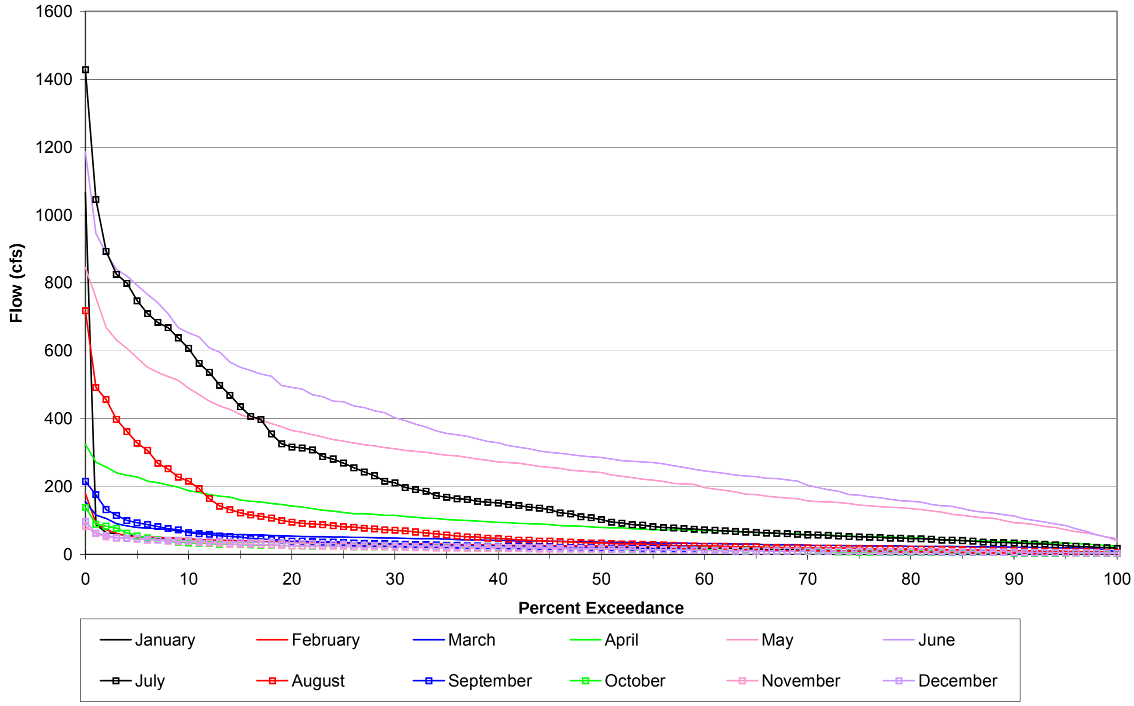



South Fork San Joaquin River Downstream of Hooper Creek (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

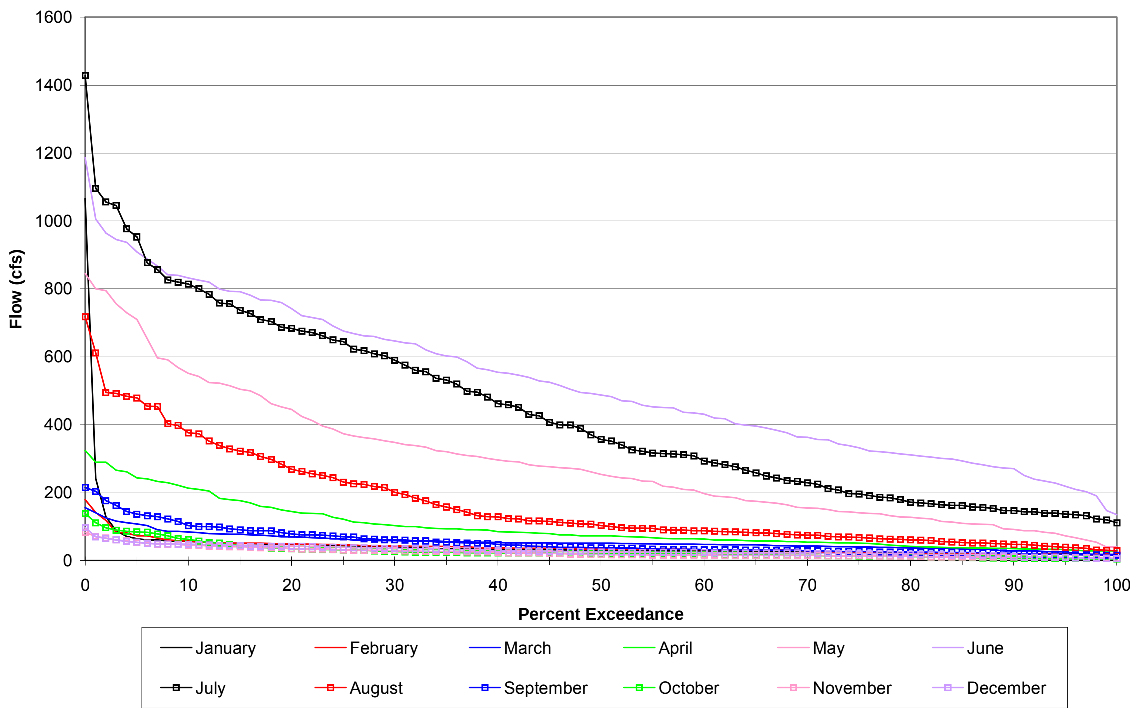

South Fork San Joaquin River Downstream of Hooper Creek (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

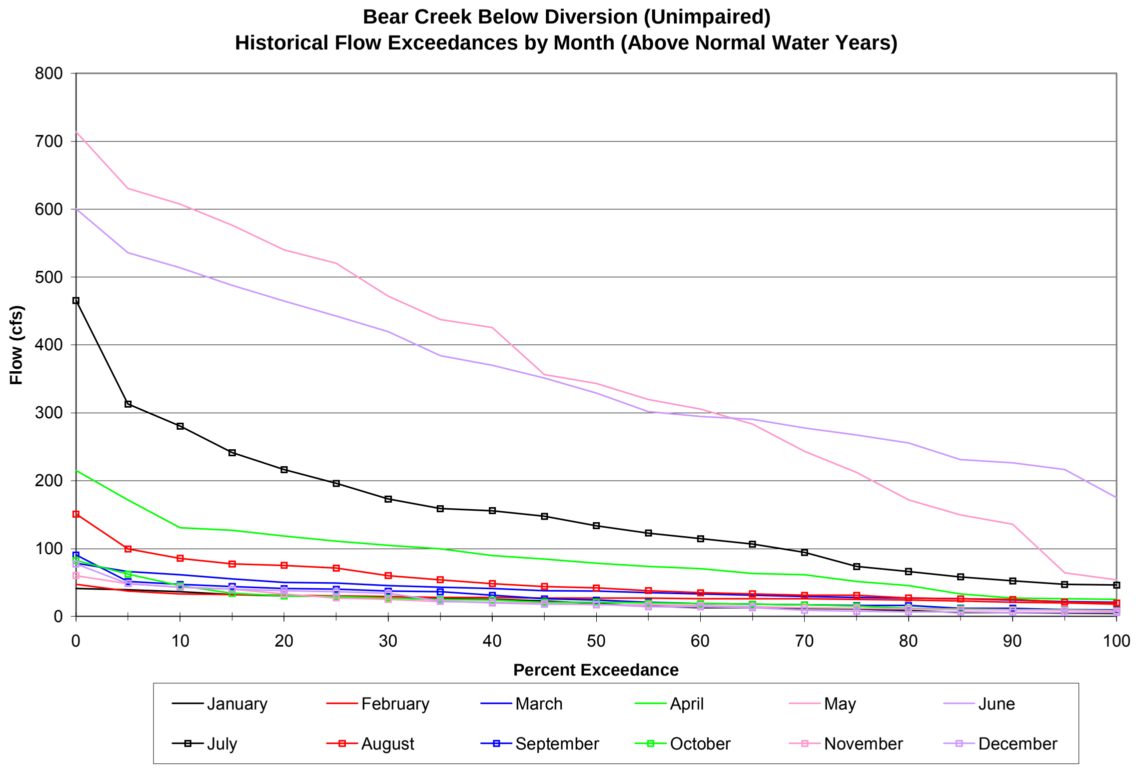

South Fork San Joaquin River Downstream of Hooper Creek (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

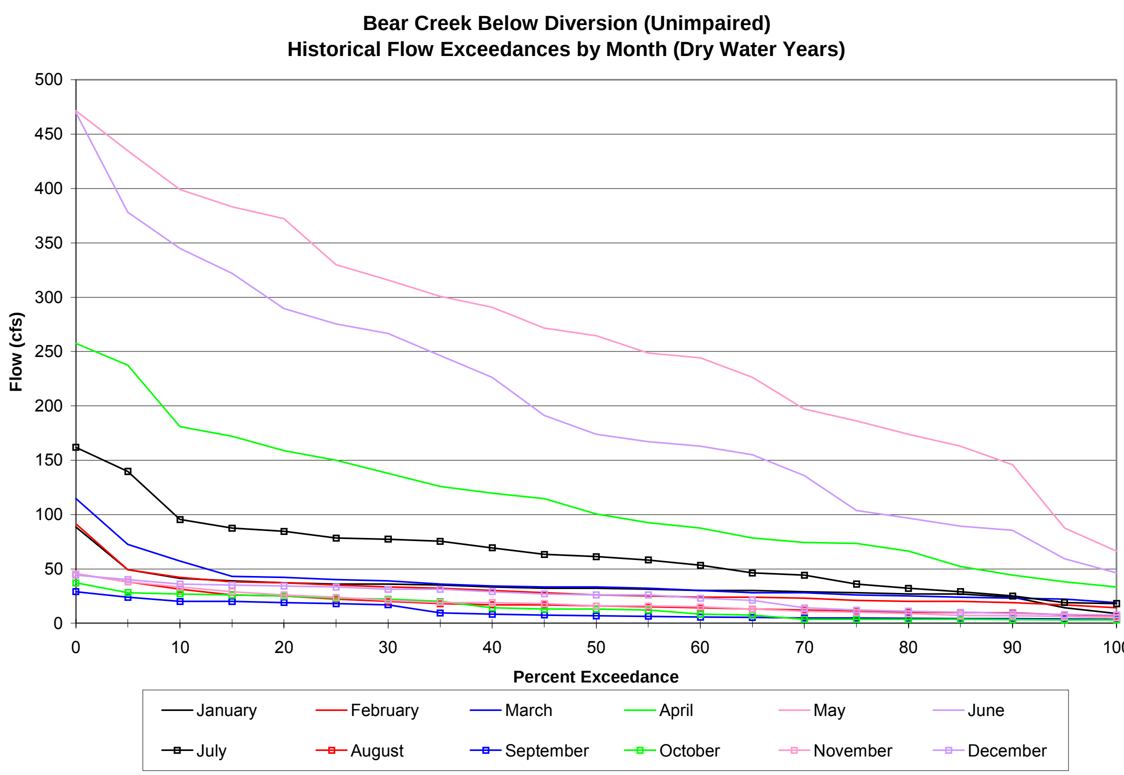
Bear Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)

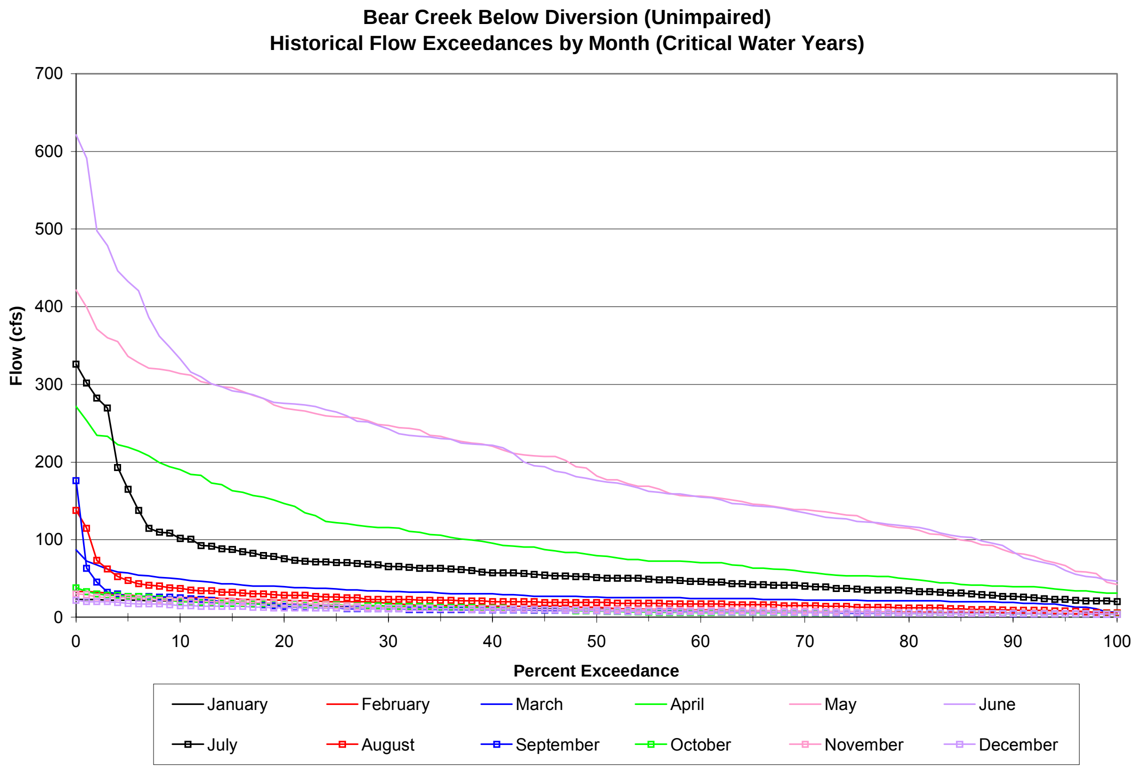


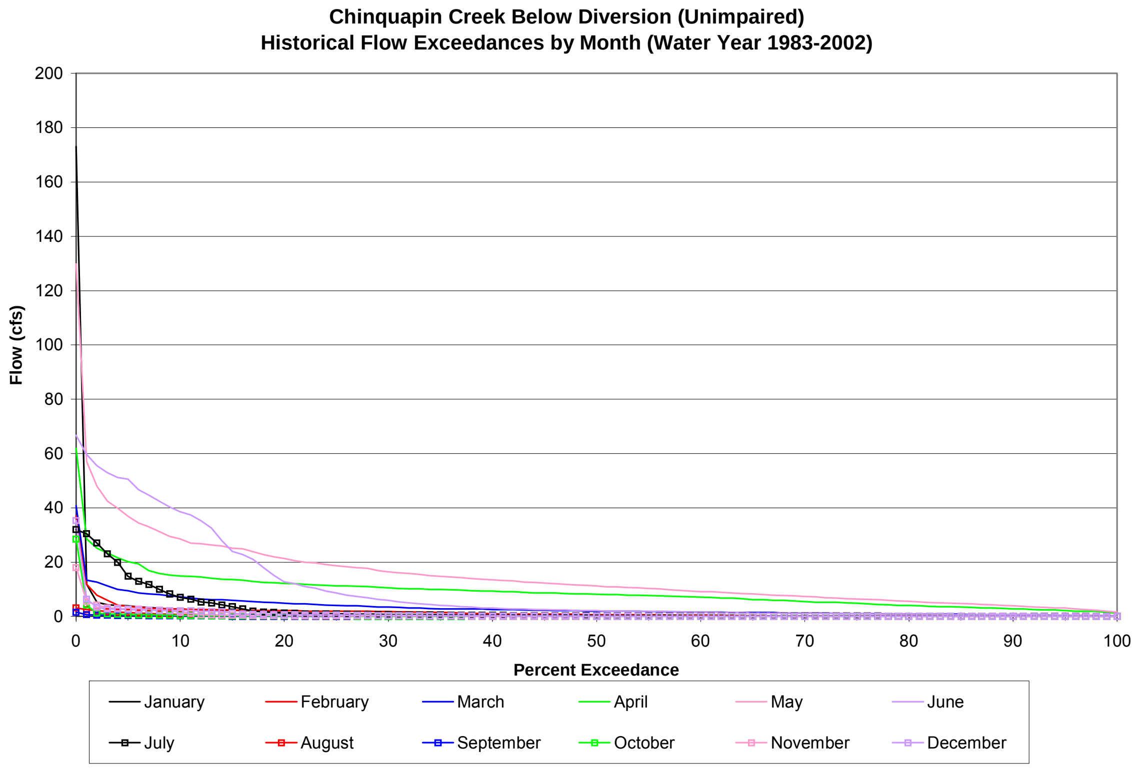
Bear Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)

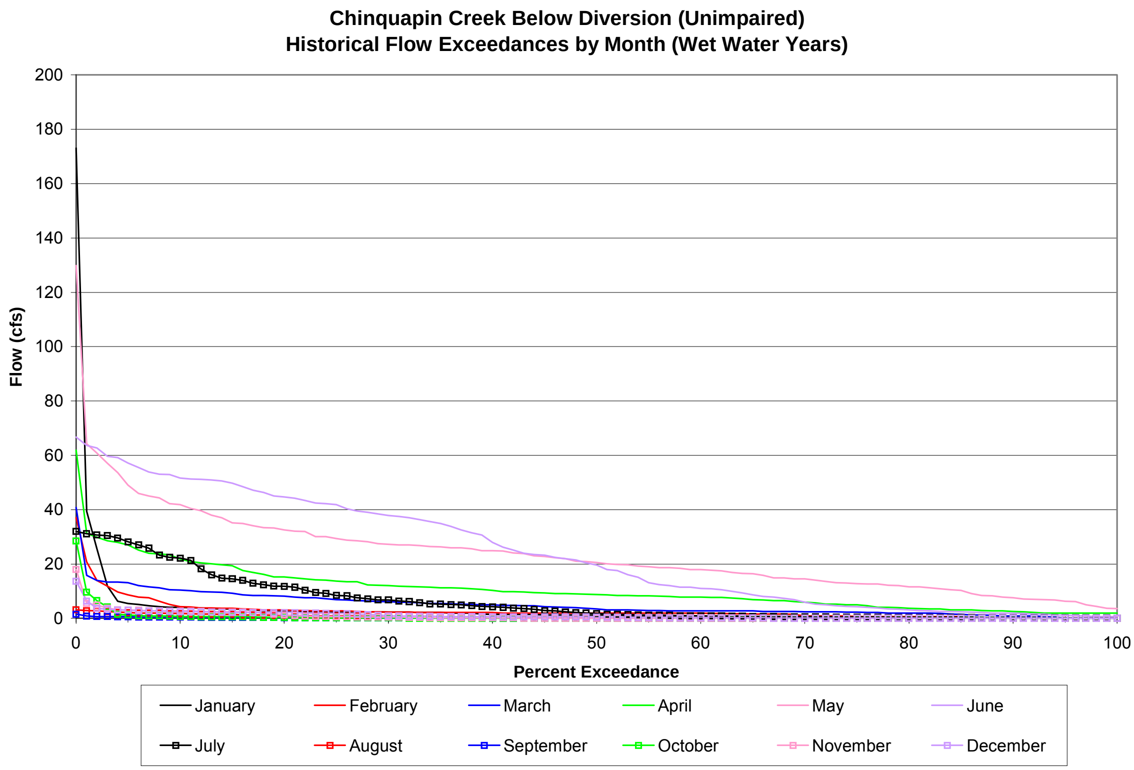


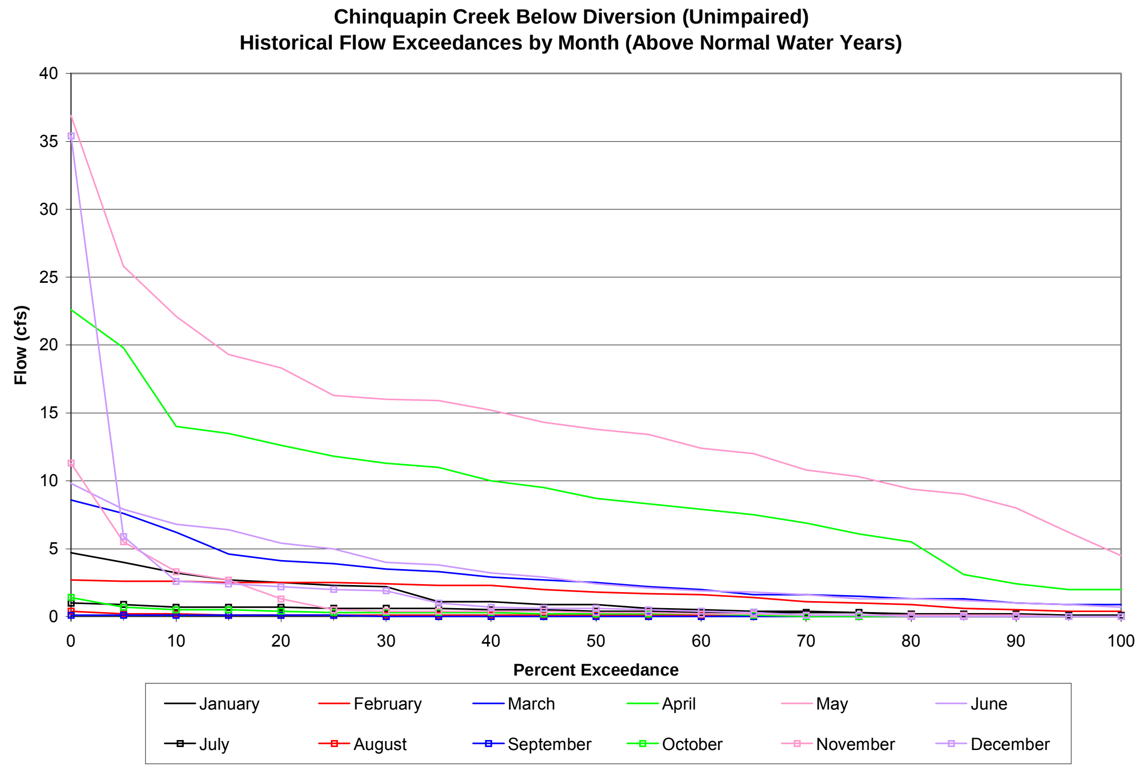

Bear Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

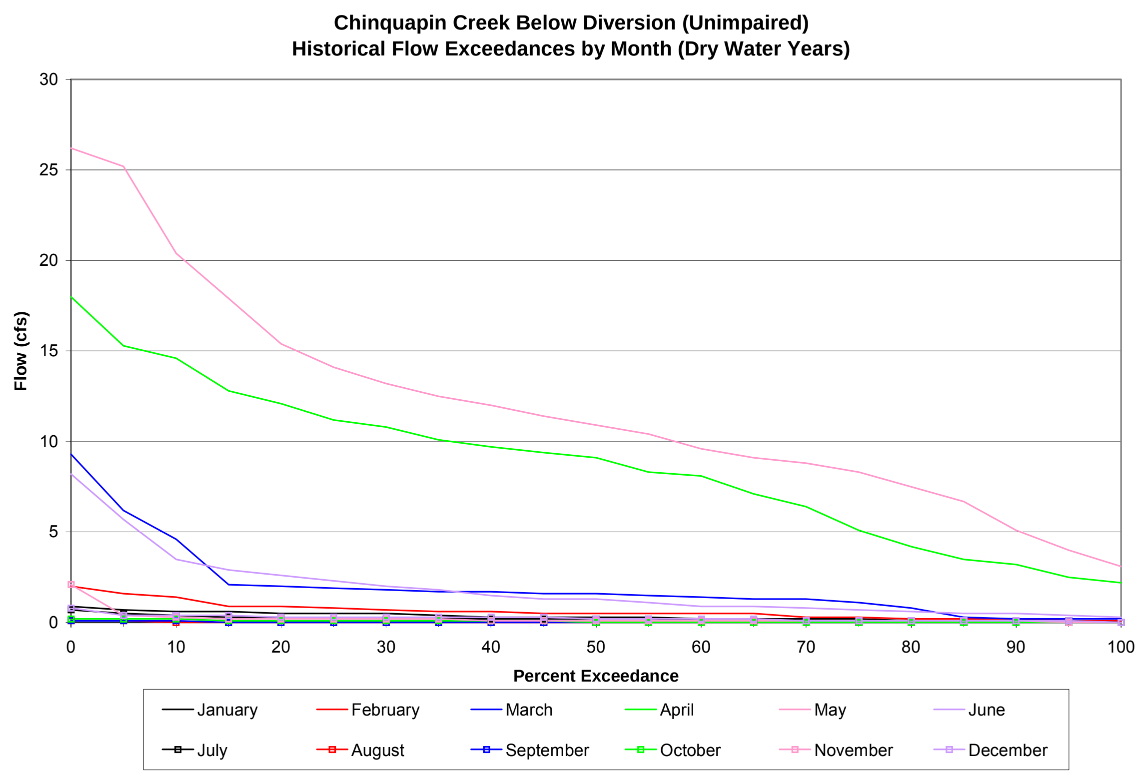

Bear Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

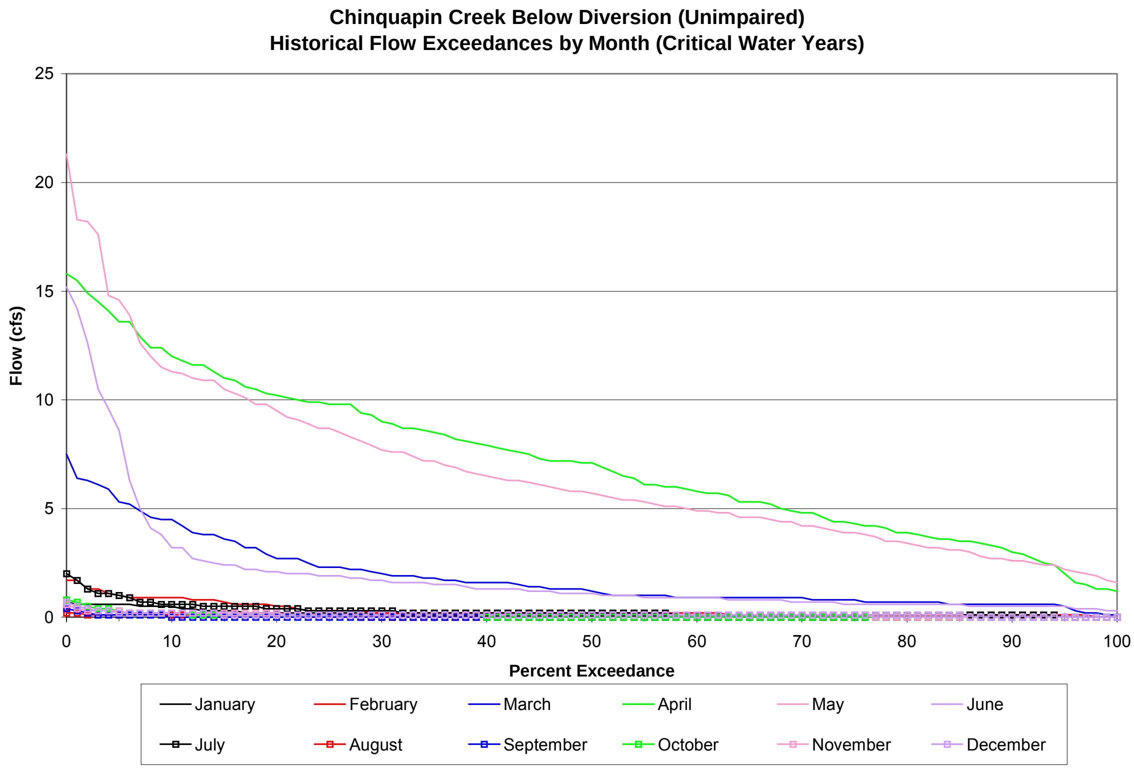

Bear Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Chinquapin Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

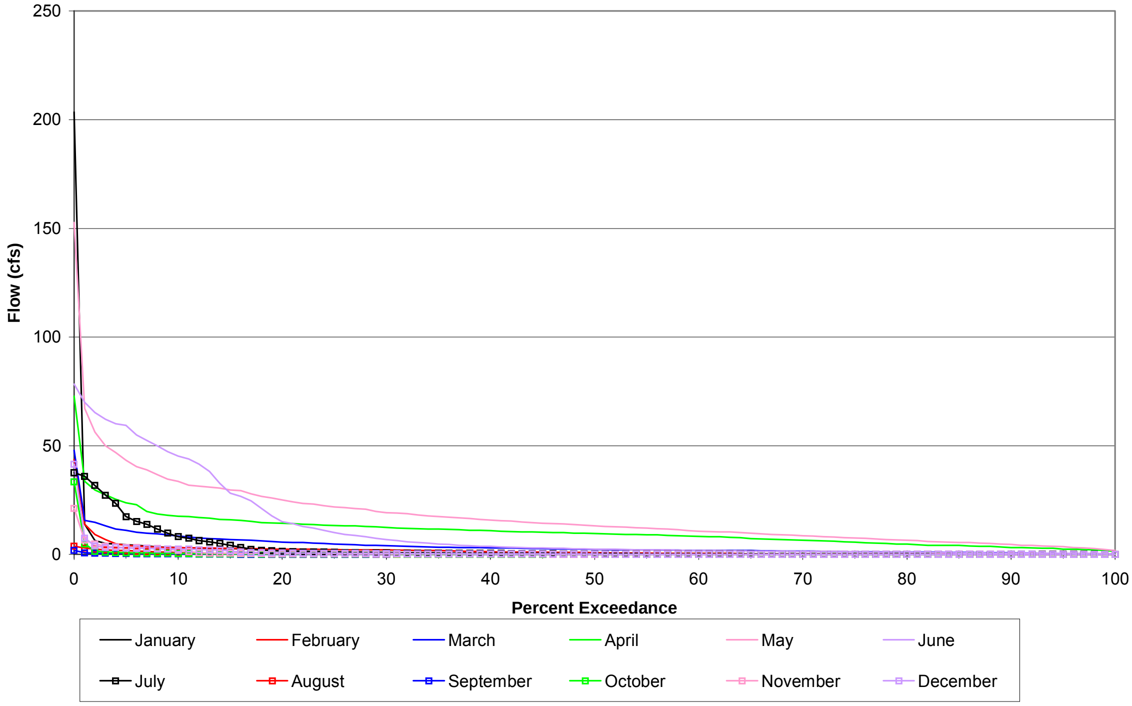

Chinquapin Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Chinquapin Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
40
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

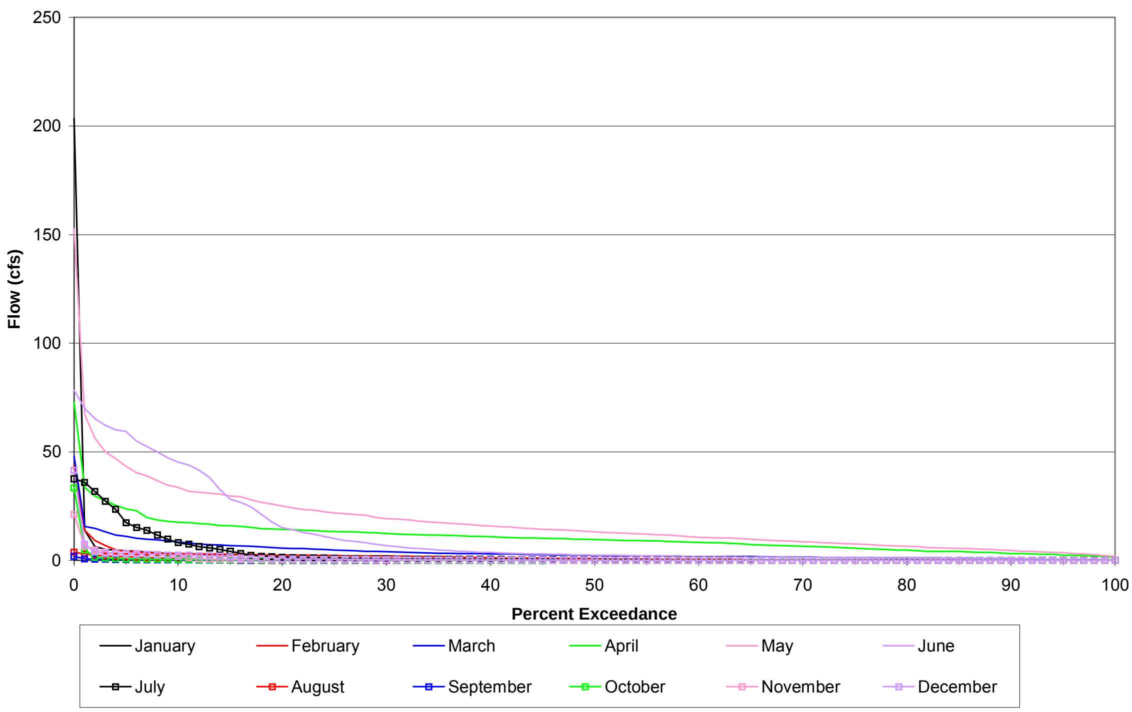

Chinquapin Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

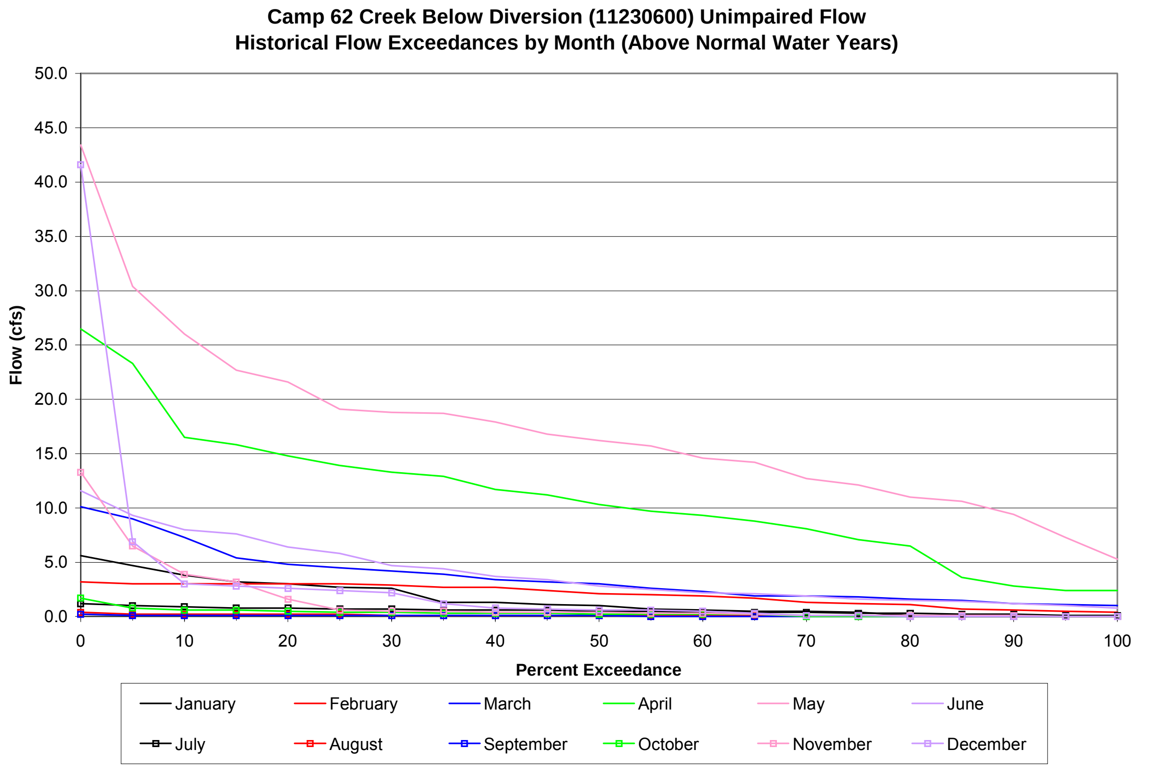

Chinquapin Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

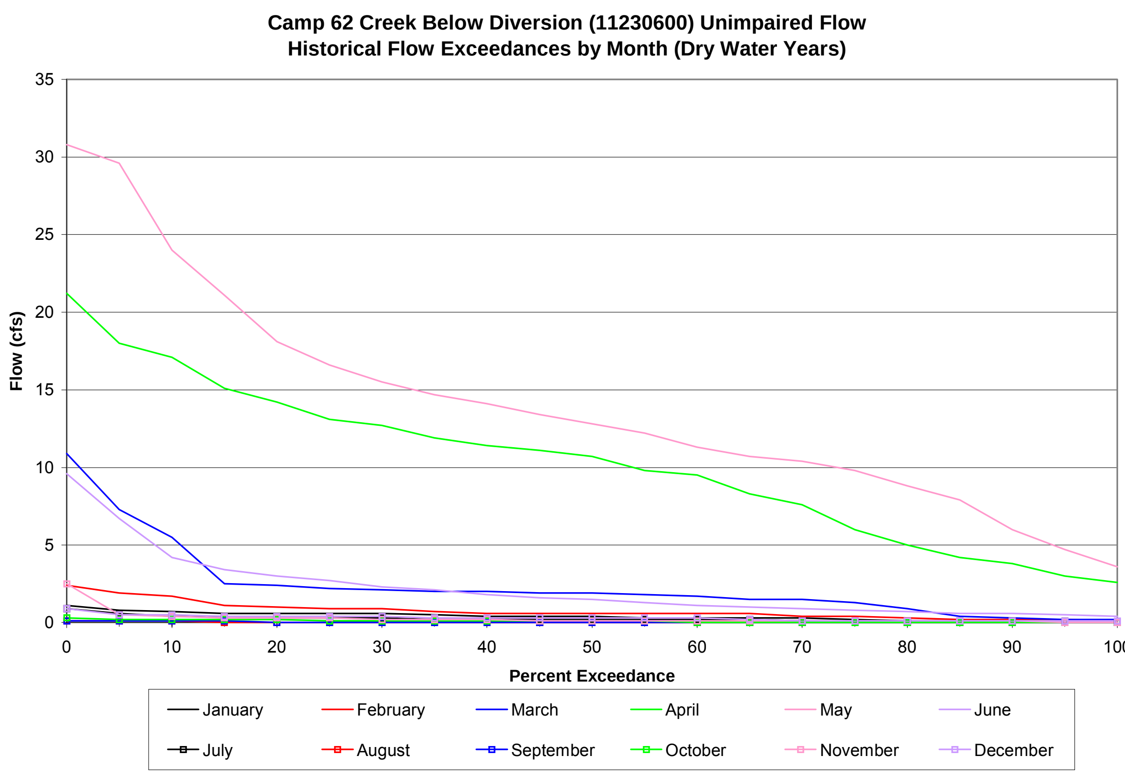
Camp 62 Creek Below Diversion (11230600) Unimpaired Flow
Historical Flow Exceedances by Month (Water Year 1983-2002)

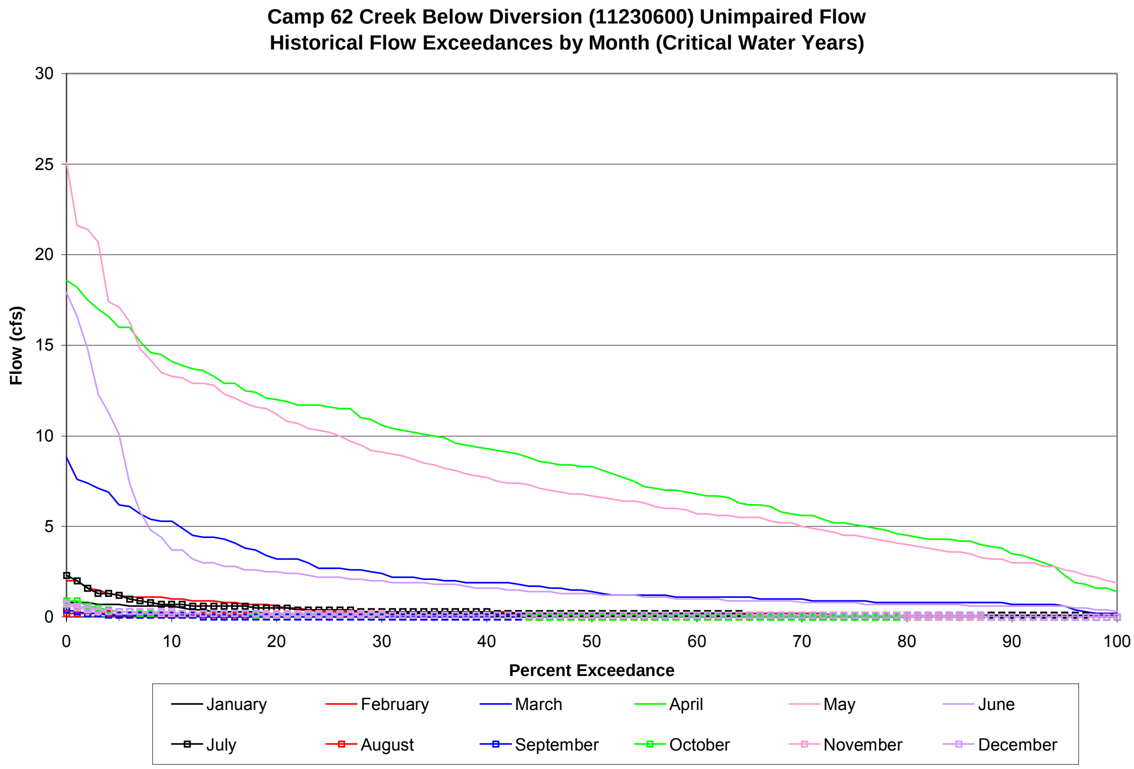


Camp 62 Creek Below Diversion (11230600) Unimpaired Flow
Historical Flow Exceedances by Month (Water Year 1983-2002)

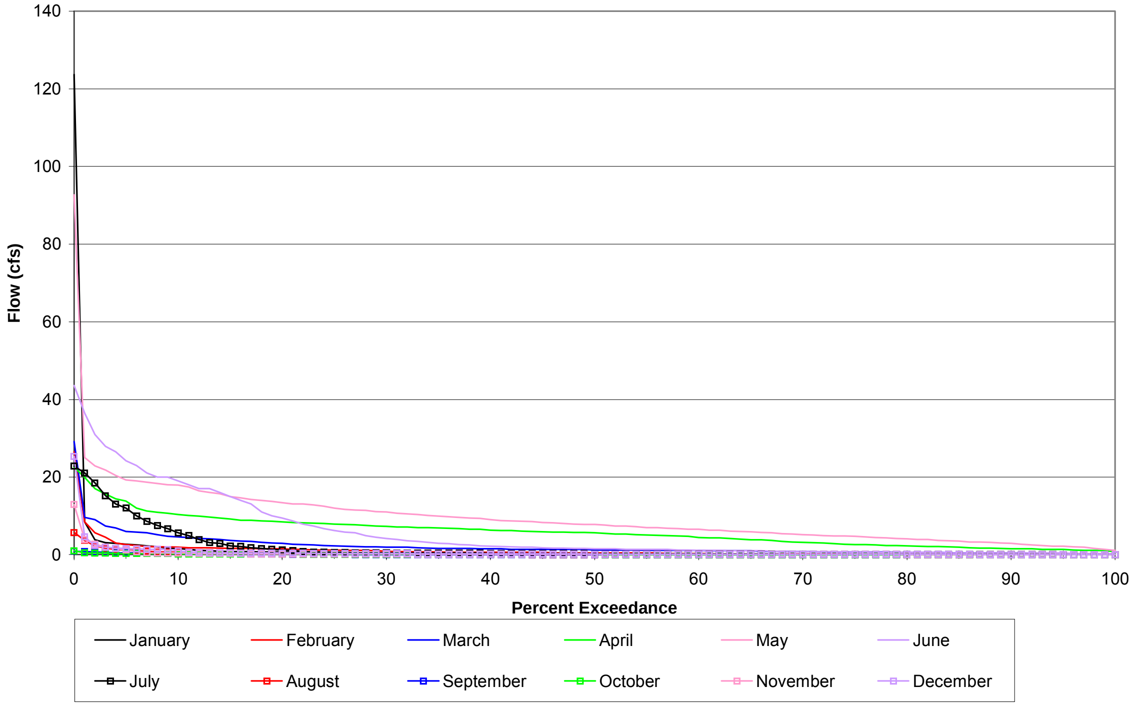



Camp 62 Creek Below Diversion (11230600) Unimpaired Flow
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
50.0
45.0
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

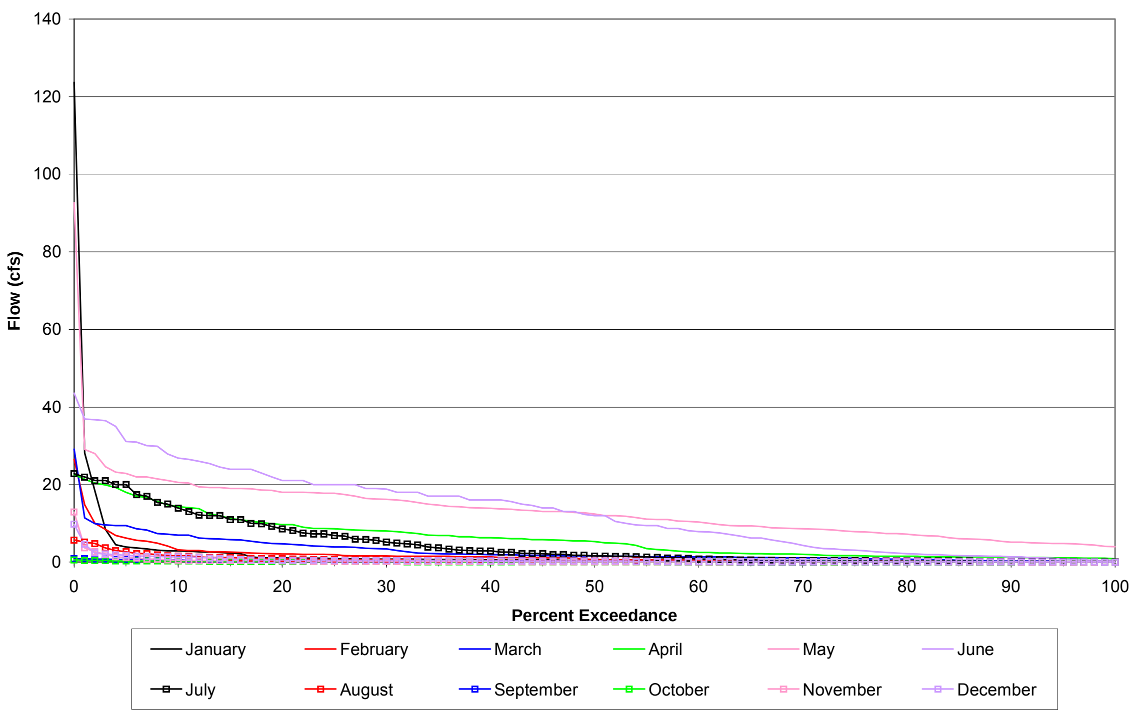

Camp 62 Creek Below Diversion (11230600) Unimpaired Flow
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
35
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

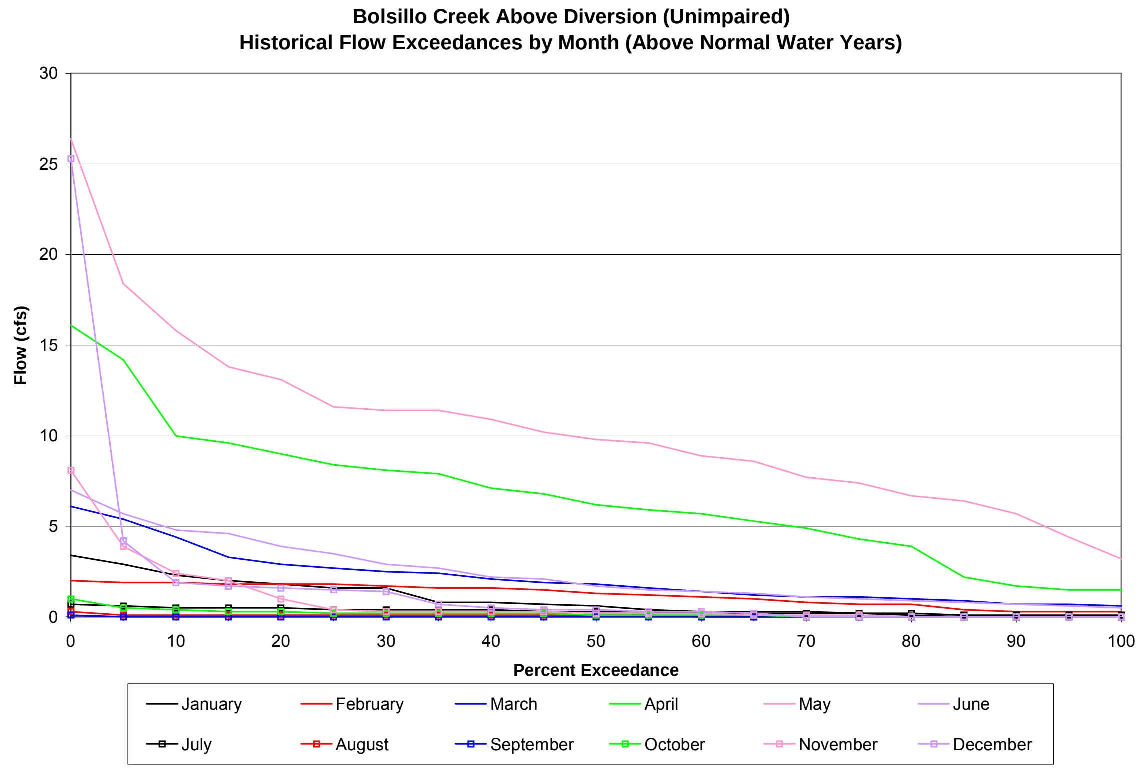

Camp 62 Creek Below Diversion (11230600) Unimpaired Flow
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

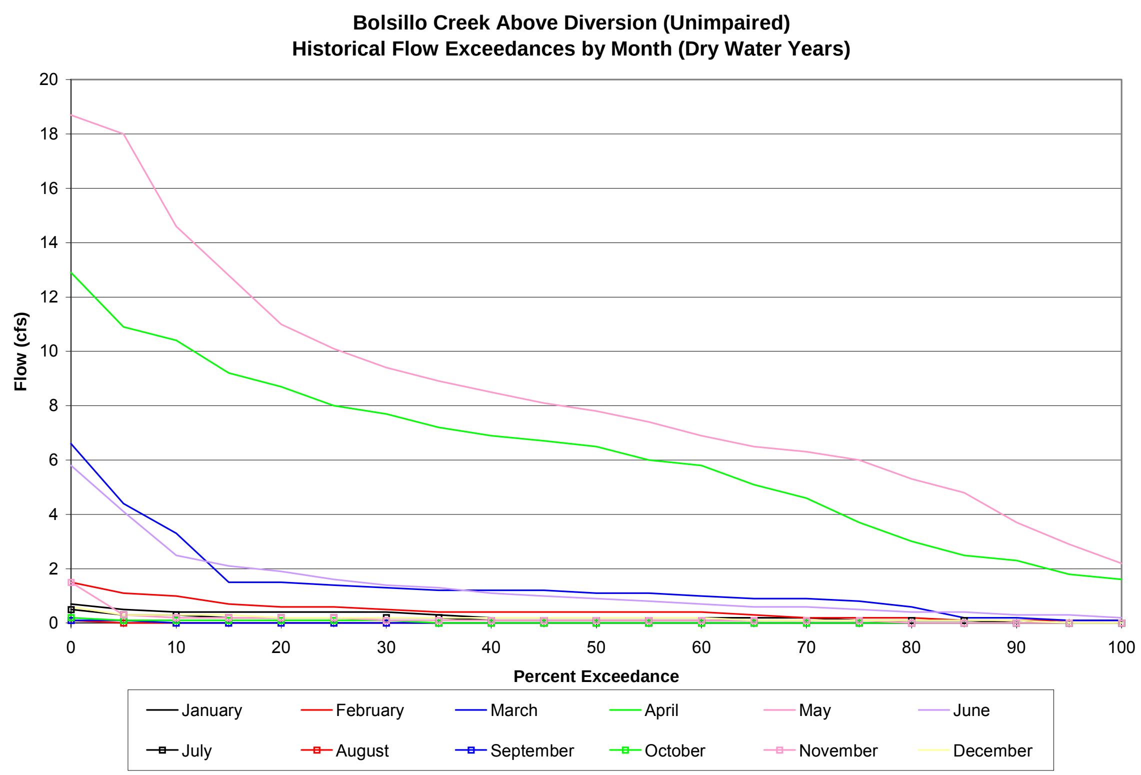
Bolsillo Creek Above Diversion (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)

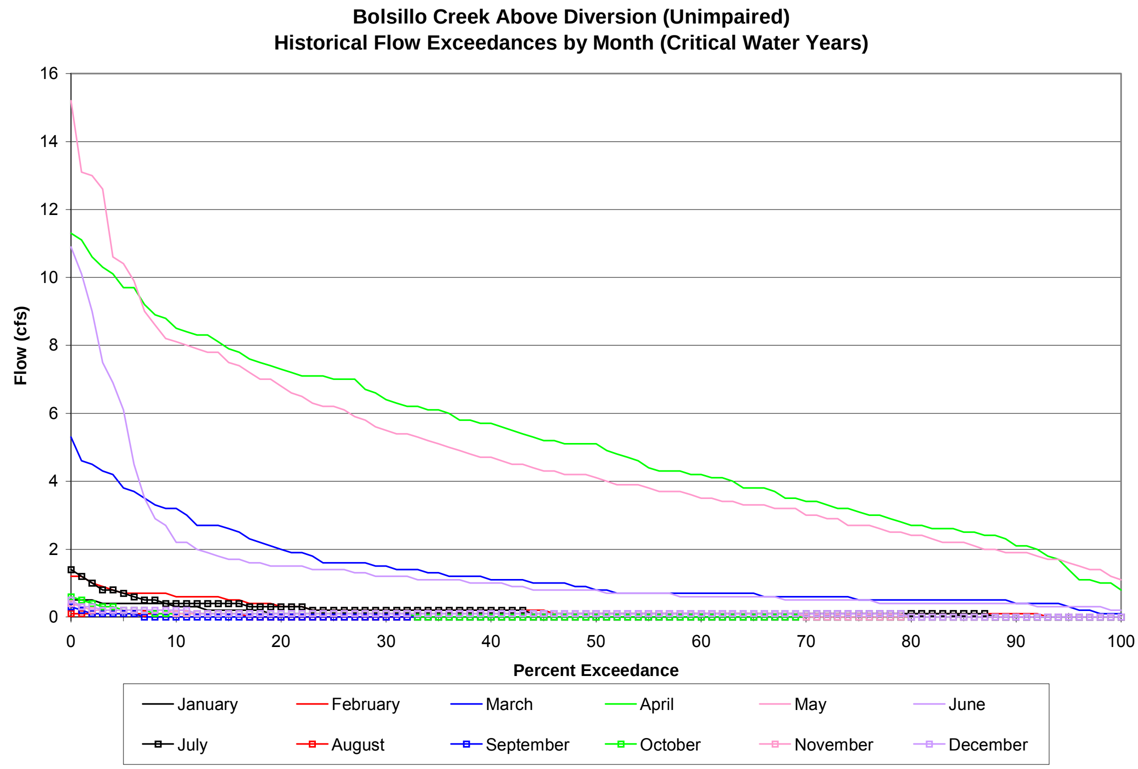


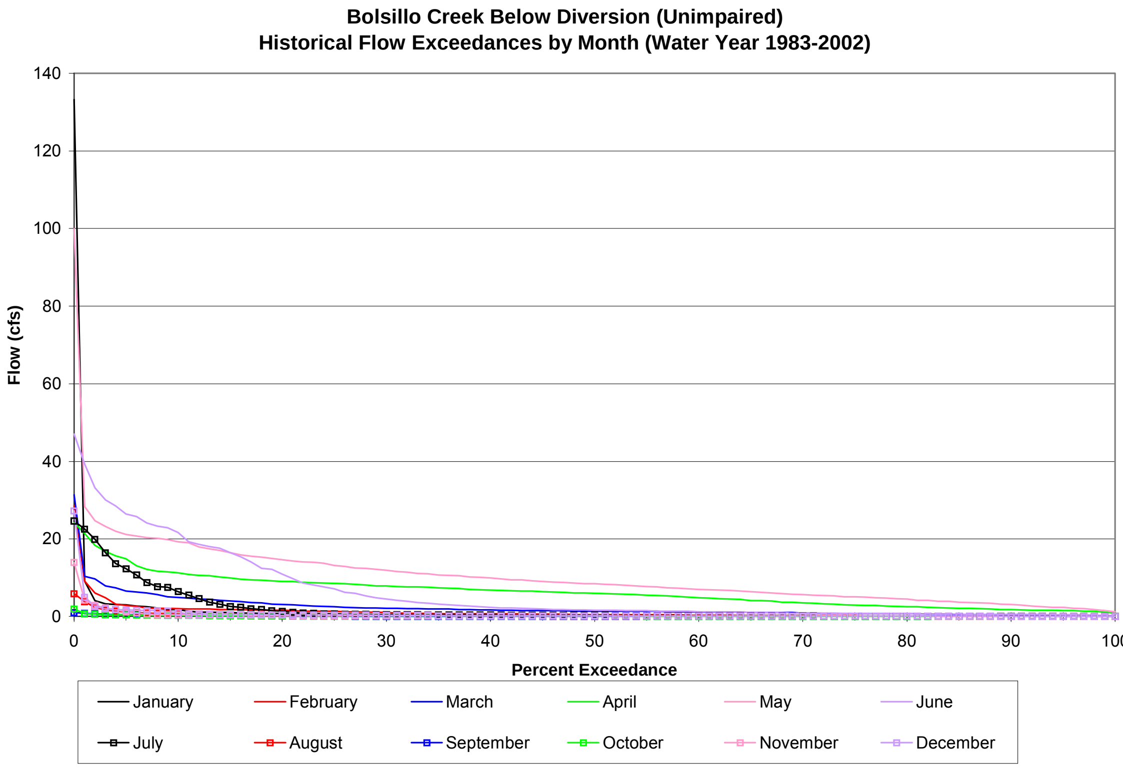
Bolsillo Creek Above Diversion (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)

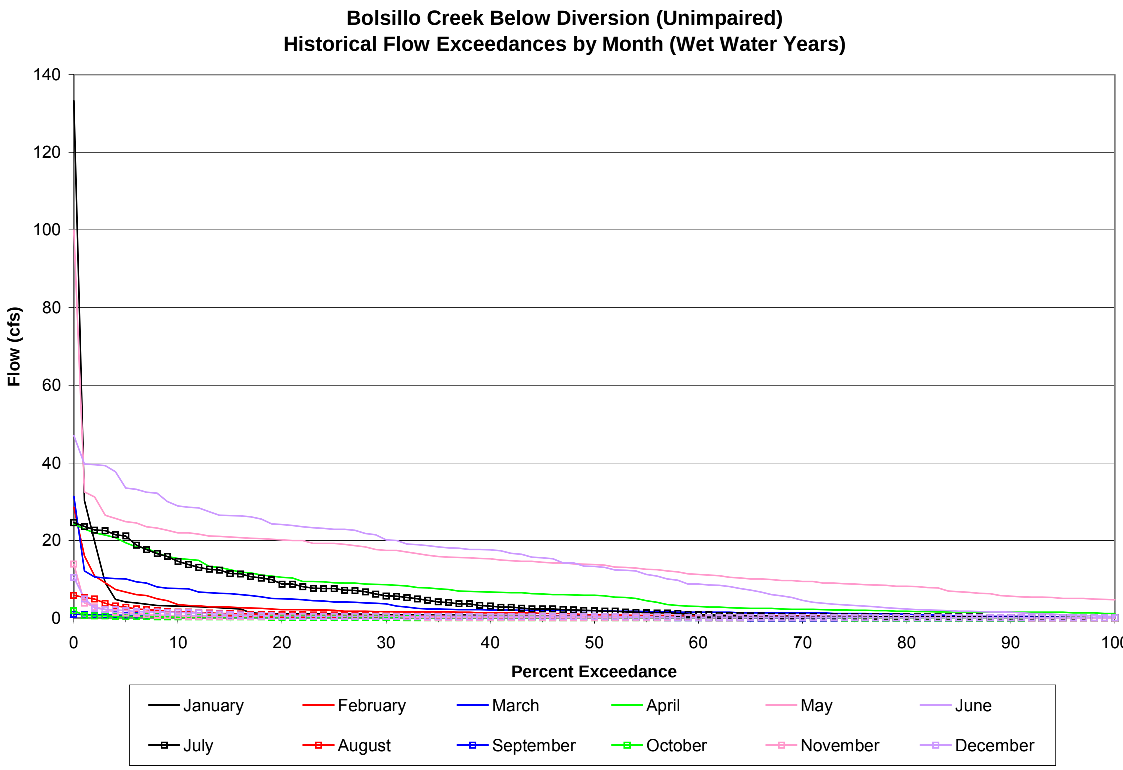


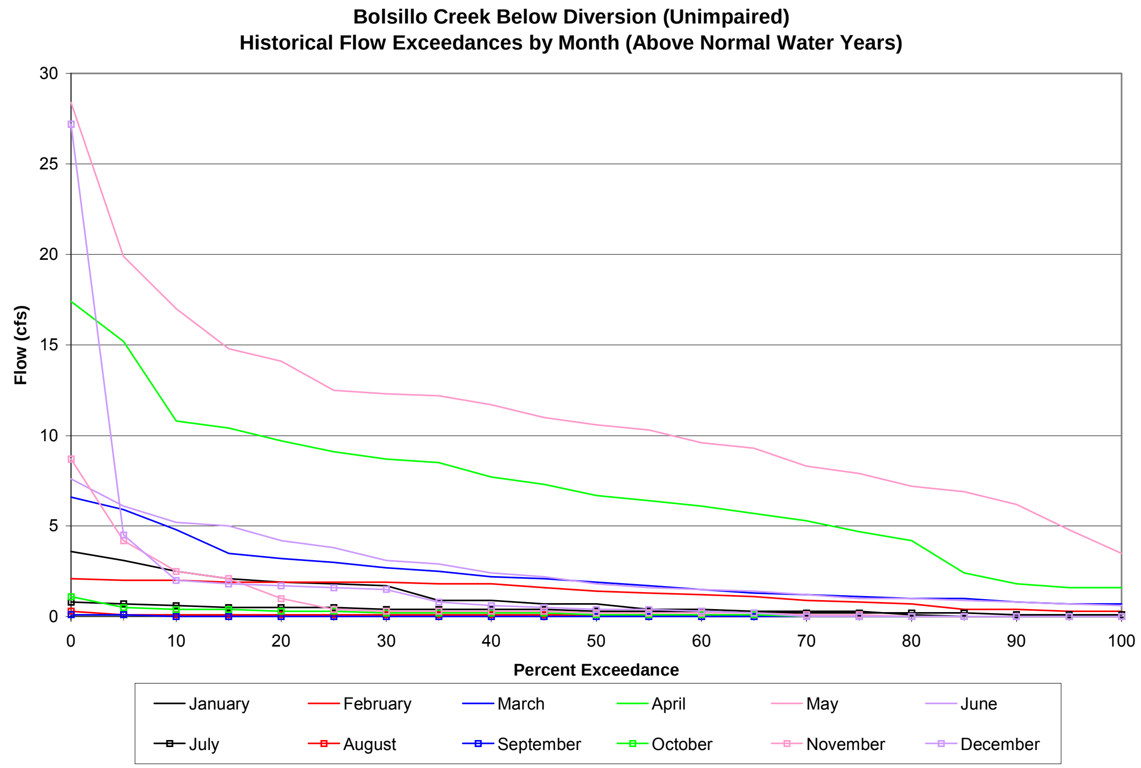

Bolsillo Creek Above Diversion (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
30
25
20
15
10
5
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

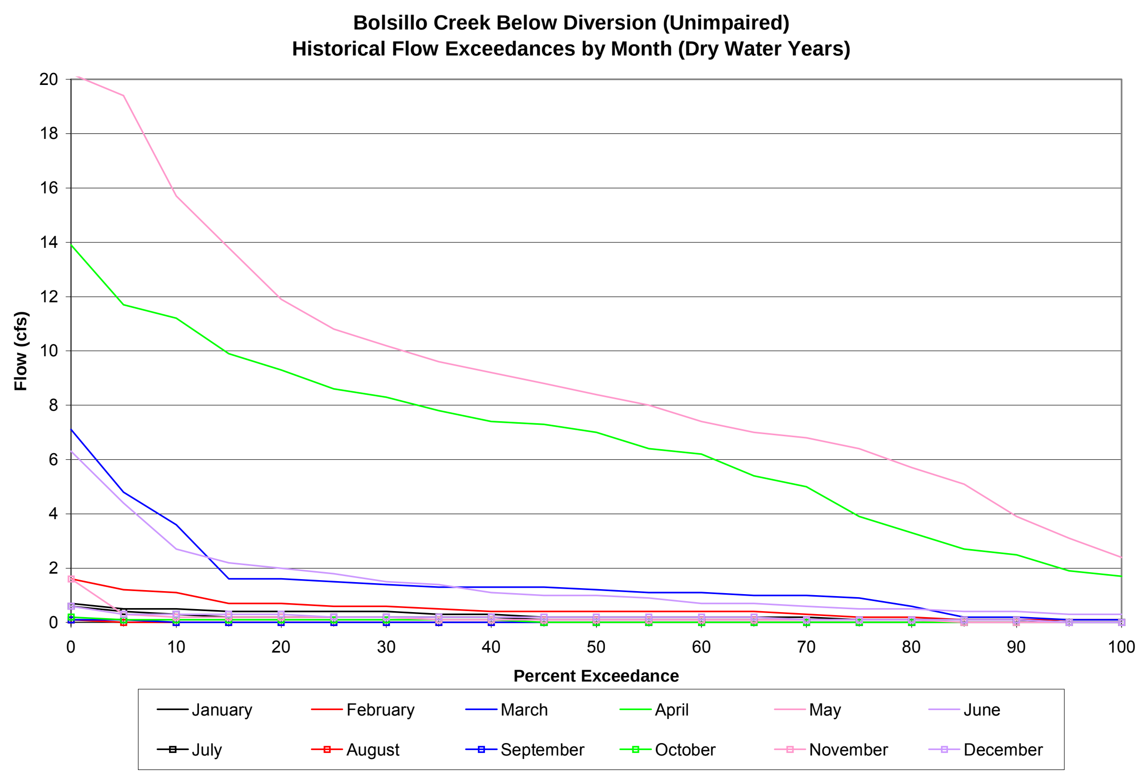

Bolsillo Creek Above Diversion (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
20
18
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

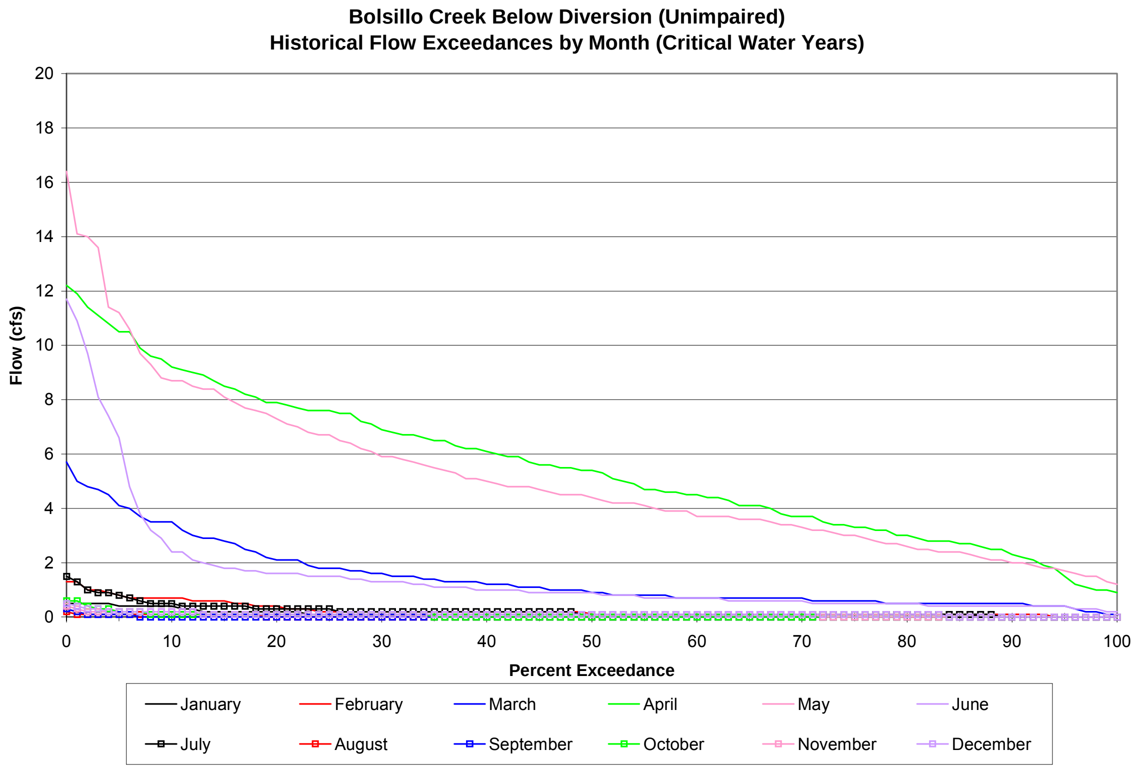

Bolsillo Creek Above Diversion (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
16
14
12
10
8
6
4
2
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

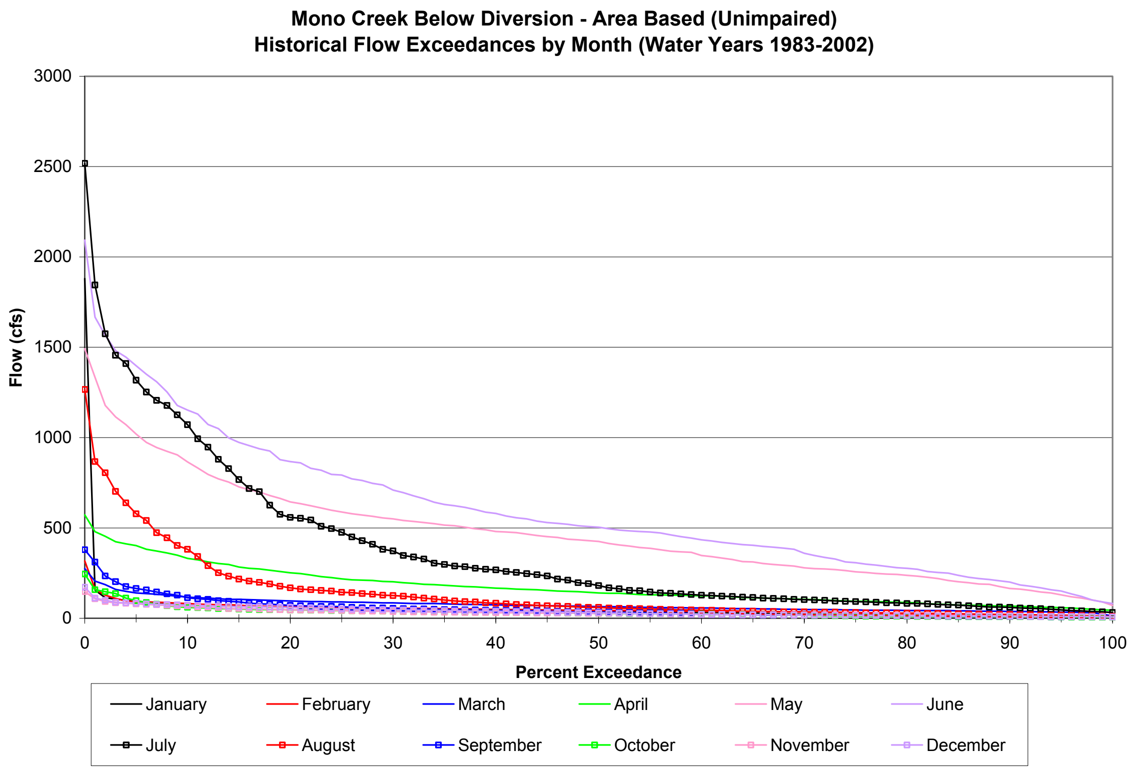

Bolsillo Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
Percent Exceedance
0
20
40
60
80
100
120
140
10
30
50
70
90
January
February
March
April
May
June
July
August
September
October
November
December

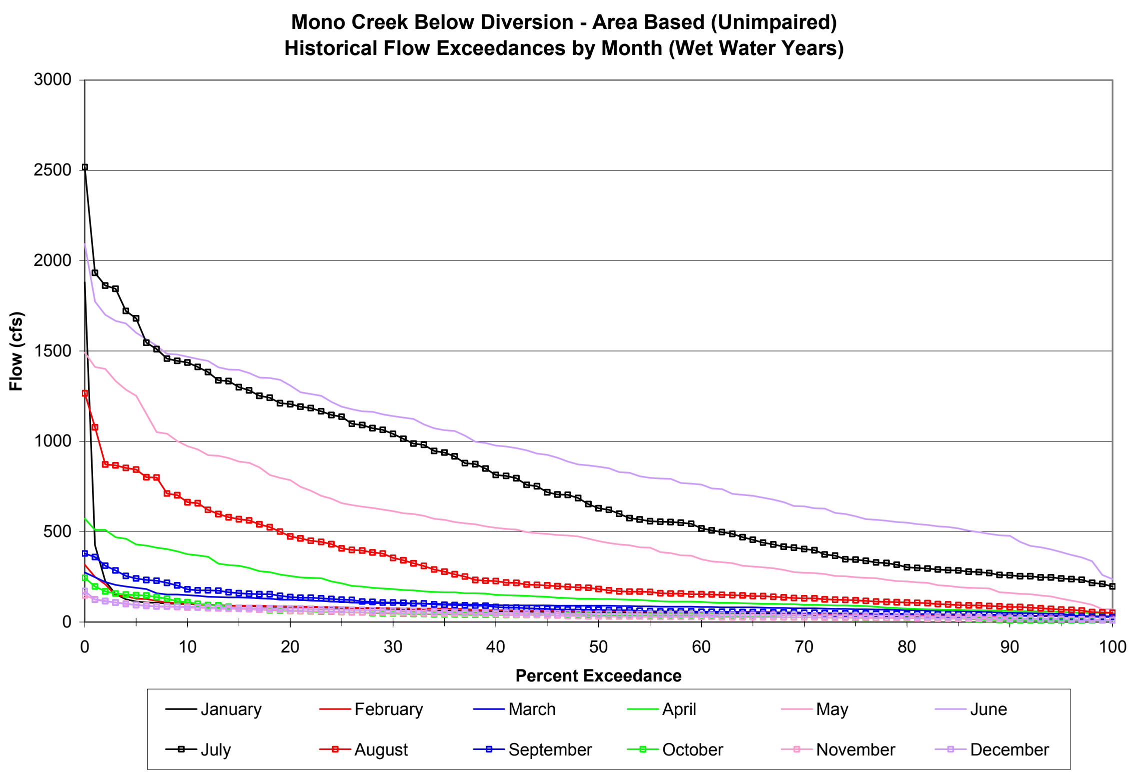

Bolsillo Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
0
20
40
60
80
100
120
140
10
30
50
70
90
January
February
March
April
May
June
July
August
September
October
November
December

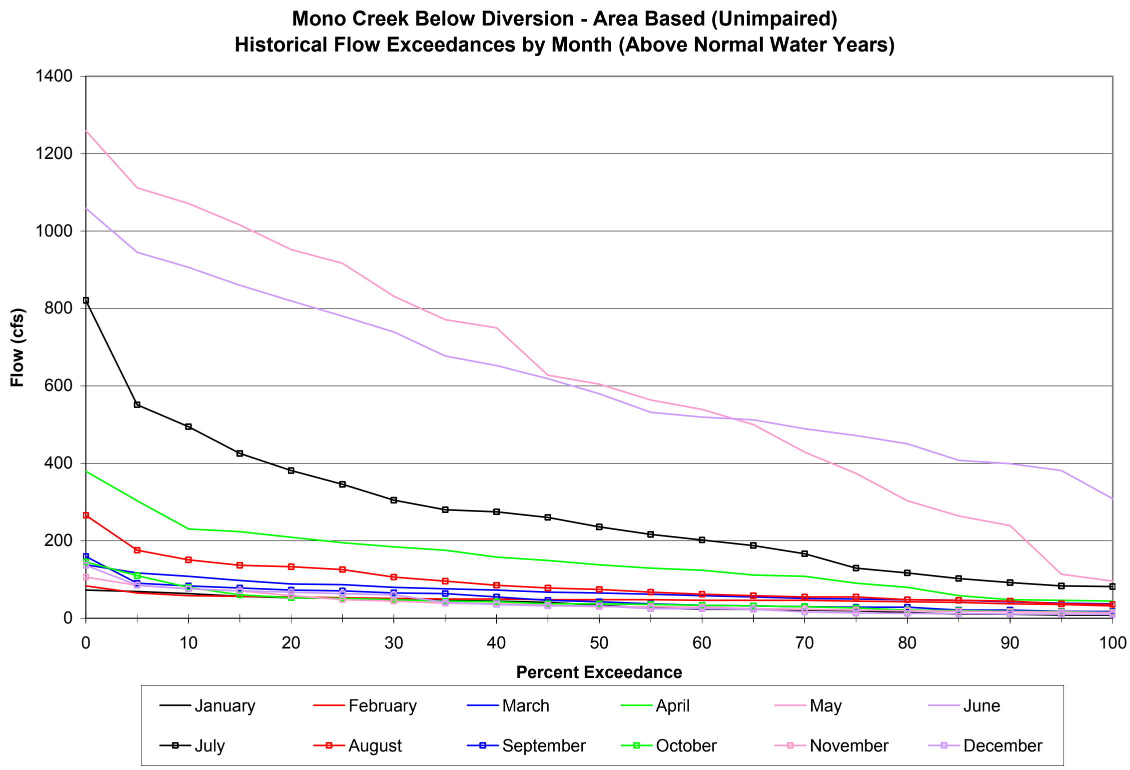

Bolsillo Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

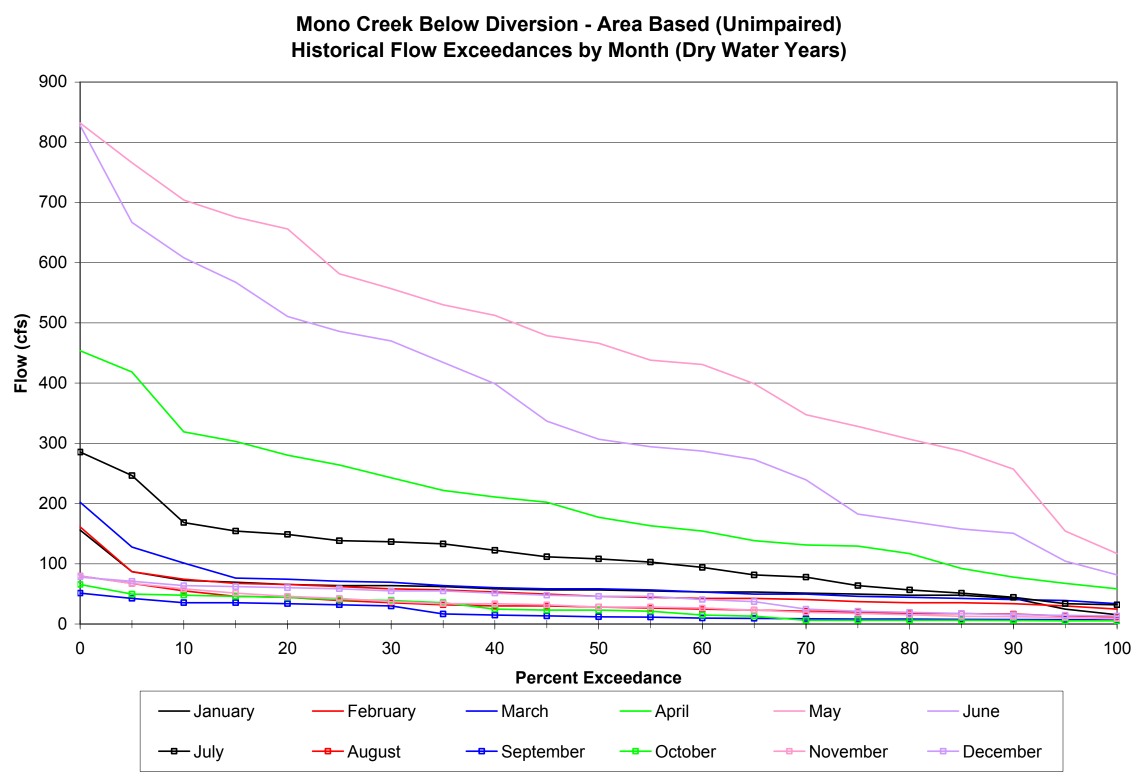

Bolsillo Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

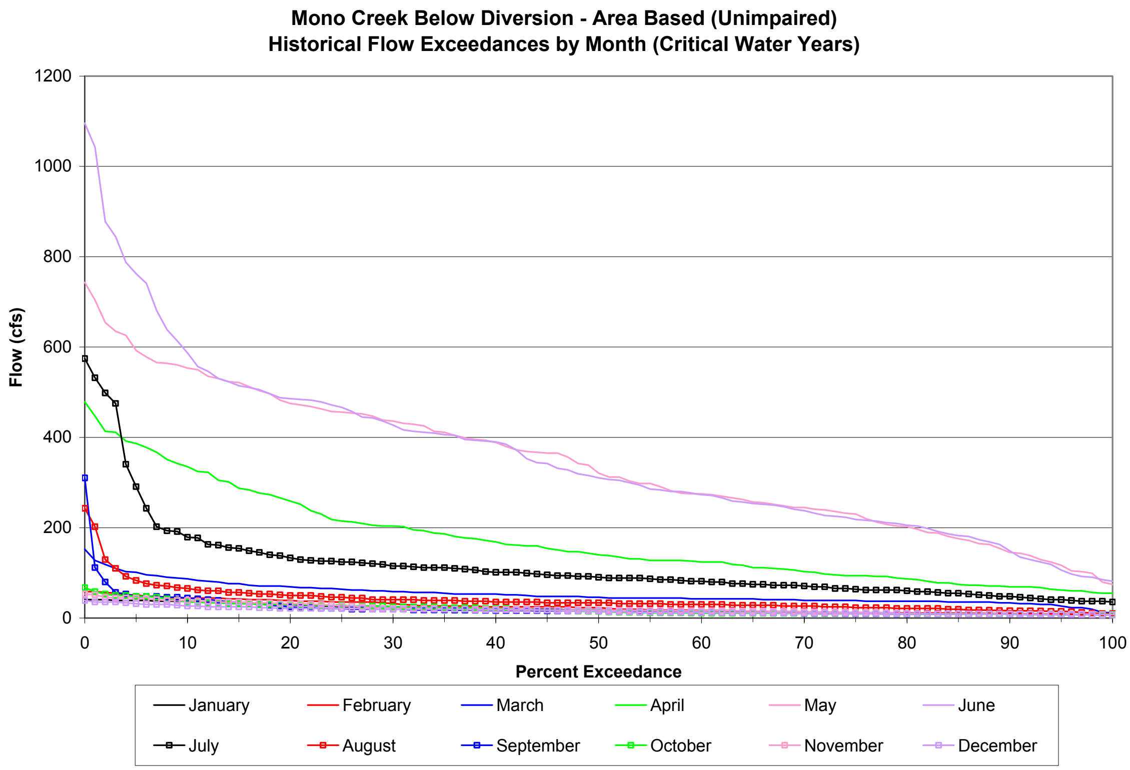

Bolsillo Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
2
4
6
8
10
12
14
16
18
20
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

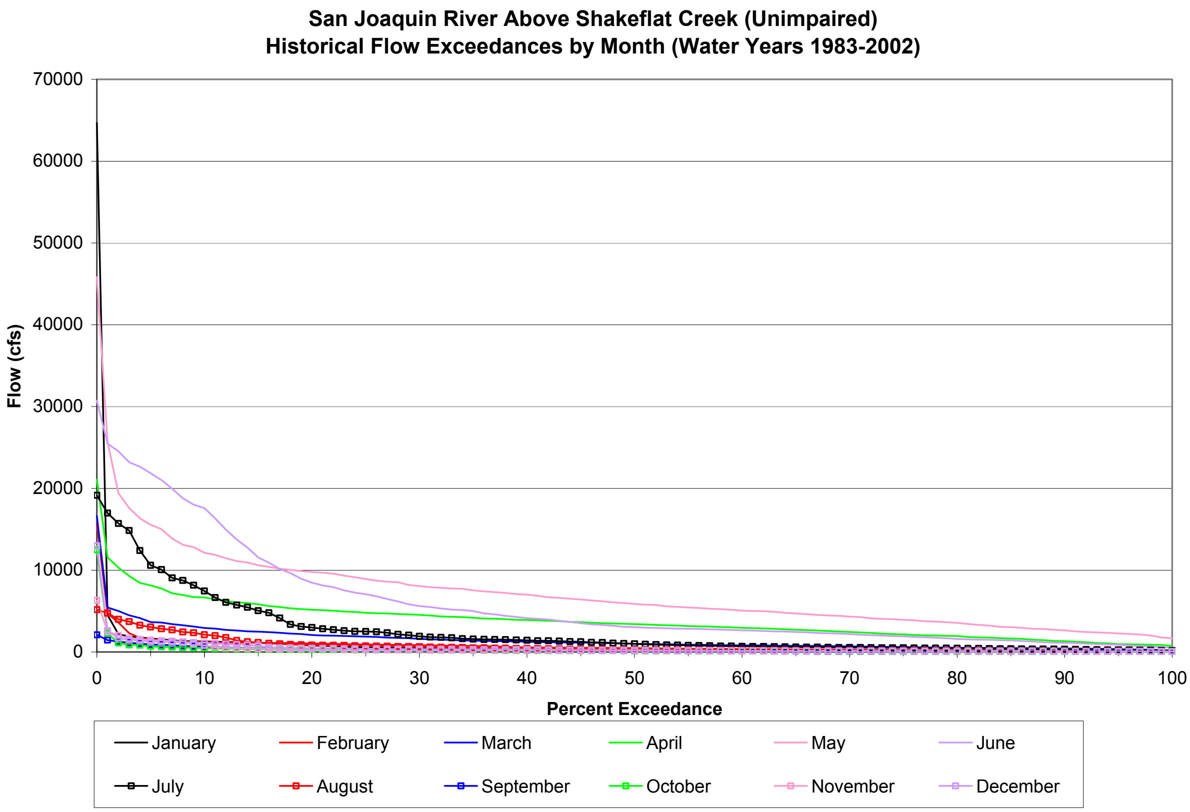

Mono Creek Below Diversion - Area Based (Unimpaired)
Historical Flow Exceedances by Month (Water Years 1983-2002)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

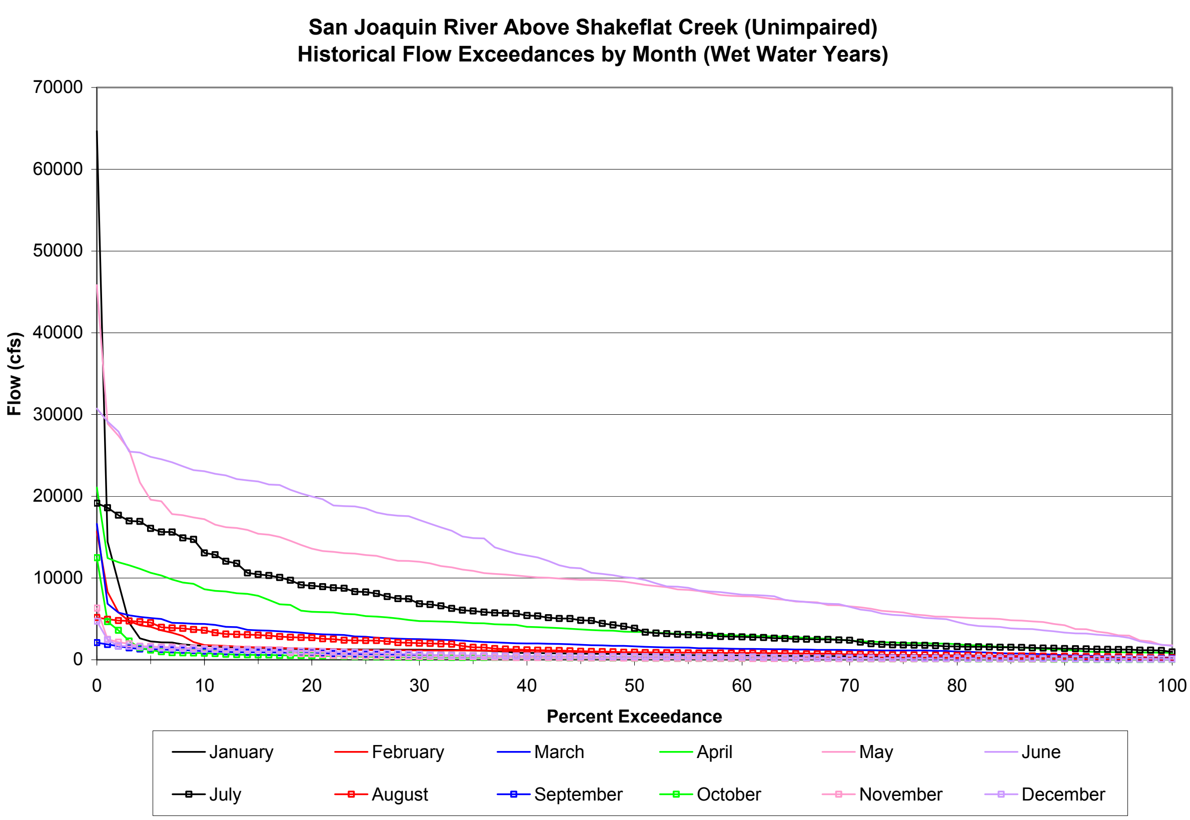

Mono Creek Below Diversion - Area Based (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

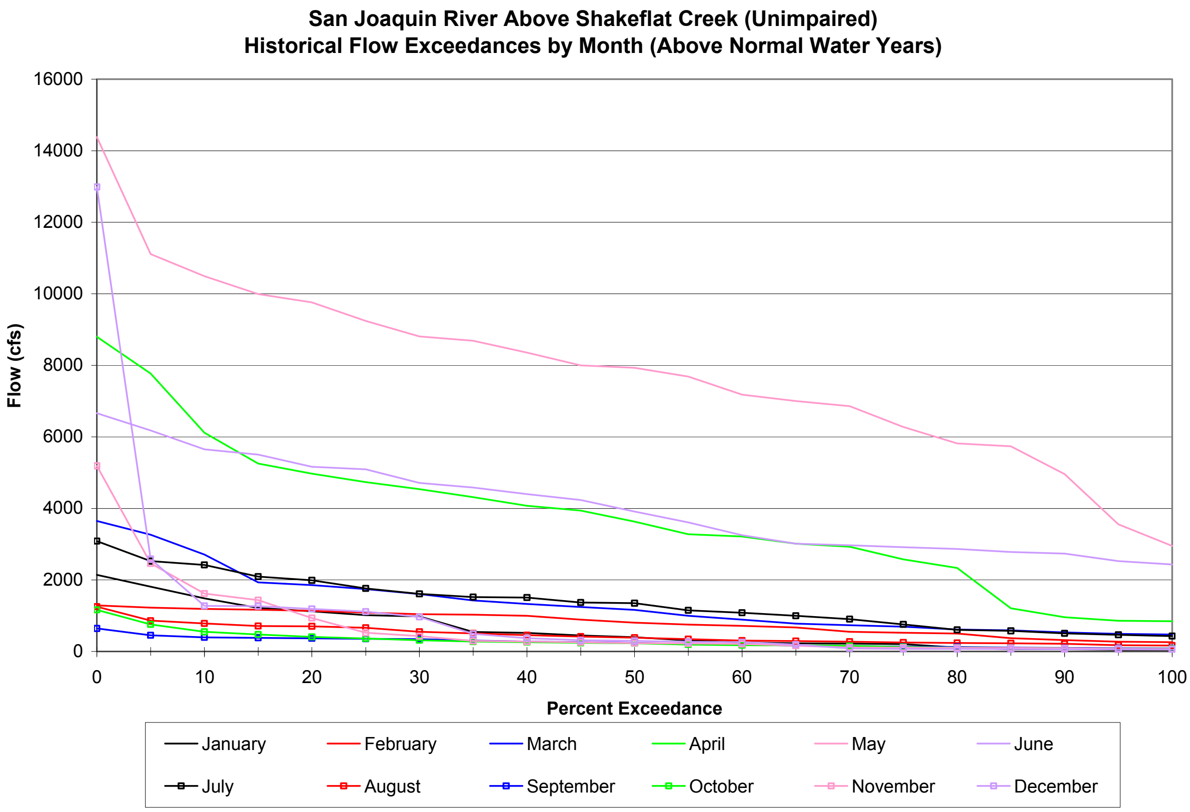

Mono Creek Below Diversion - Area Based (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

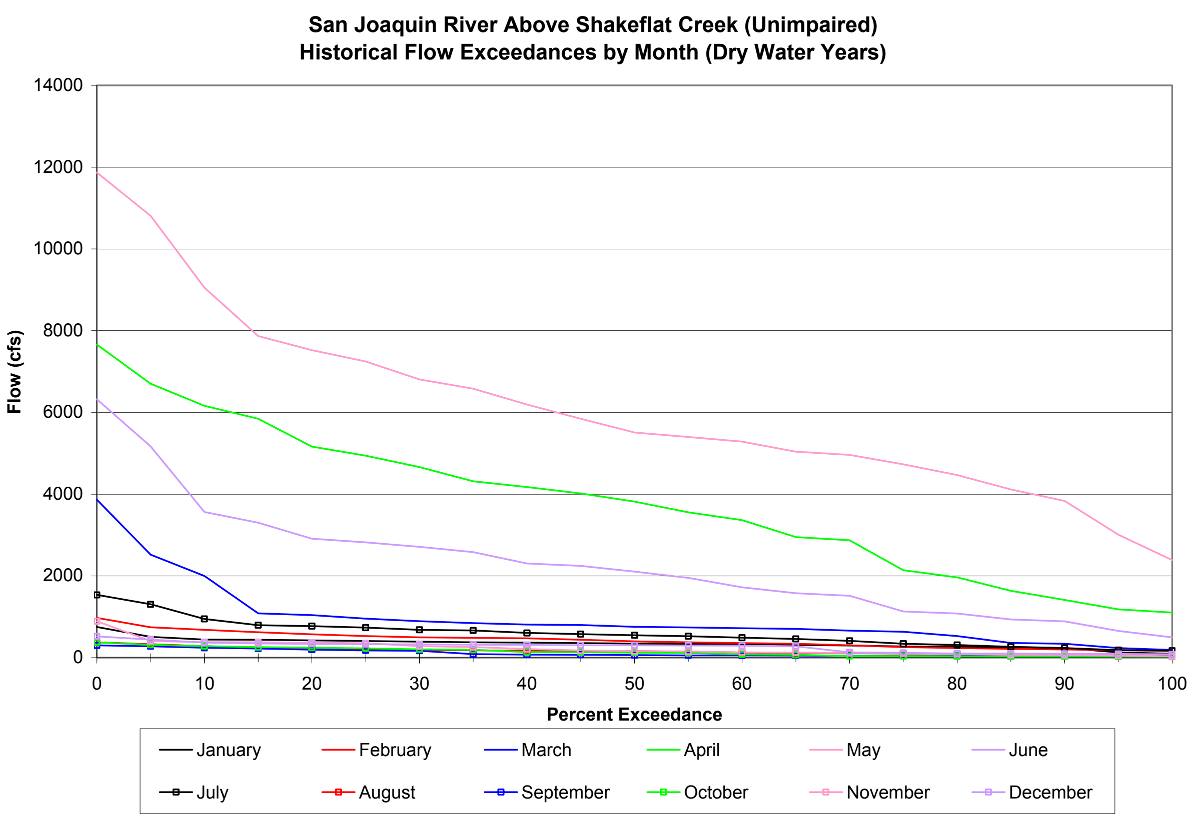

Mono Creek Below Diversion - Area Based (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
100
200
300
400
500
600
700
800
900
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

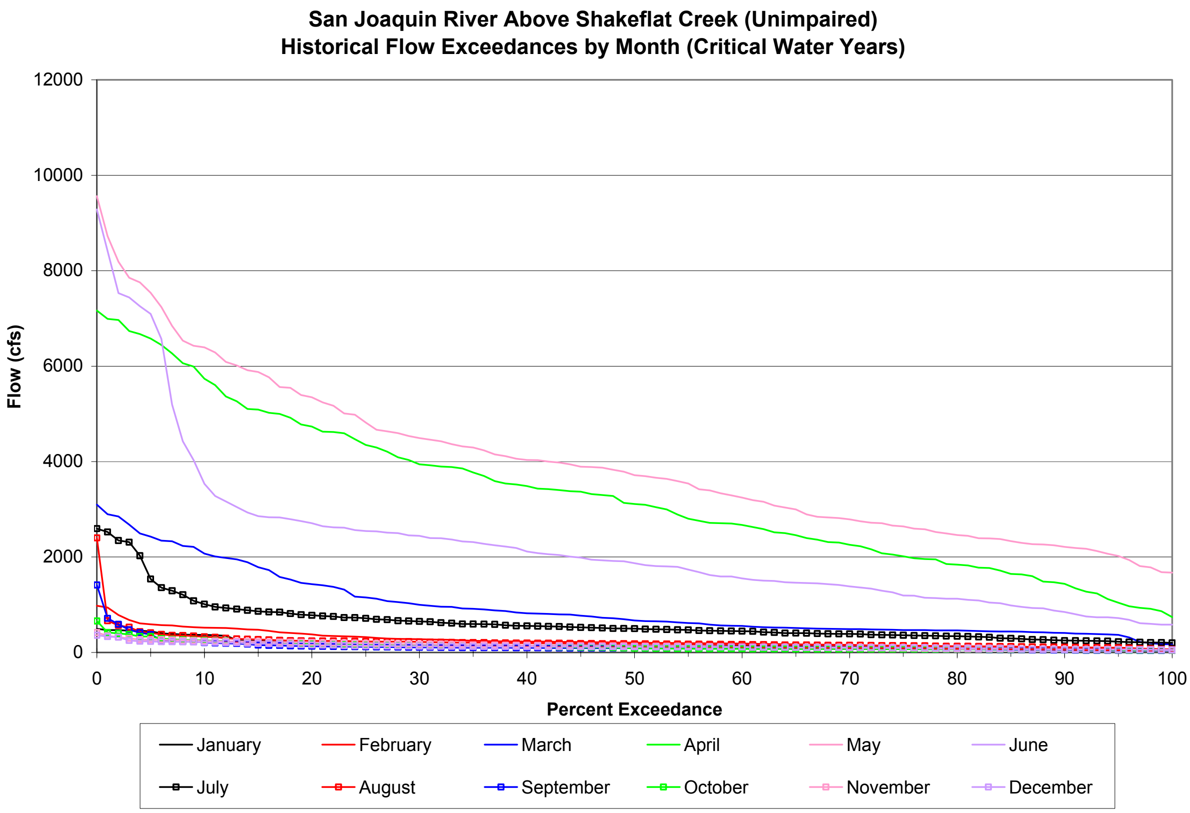

Mono Creek Below Diversion - Area Based (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

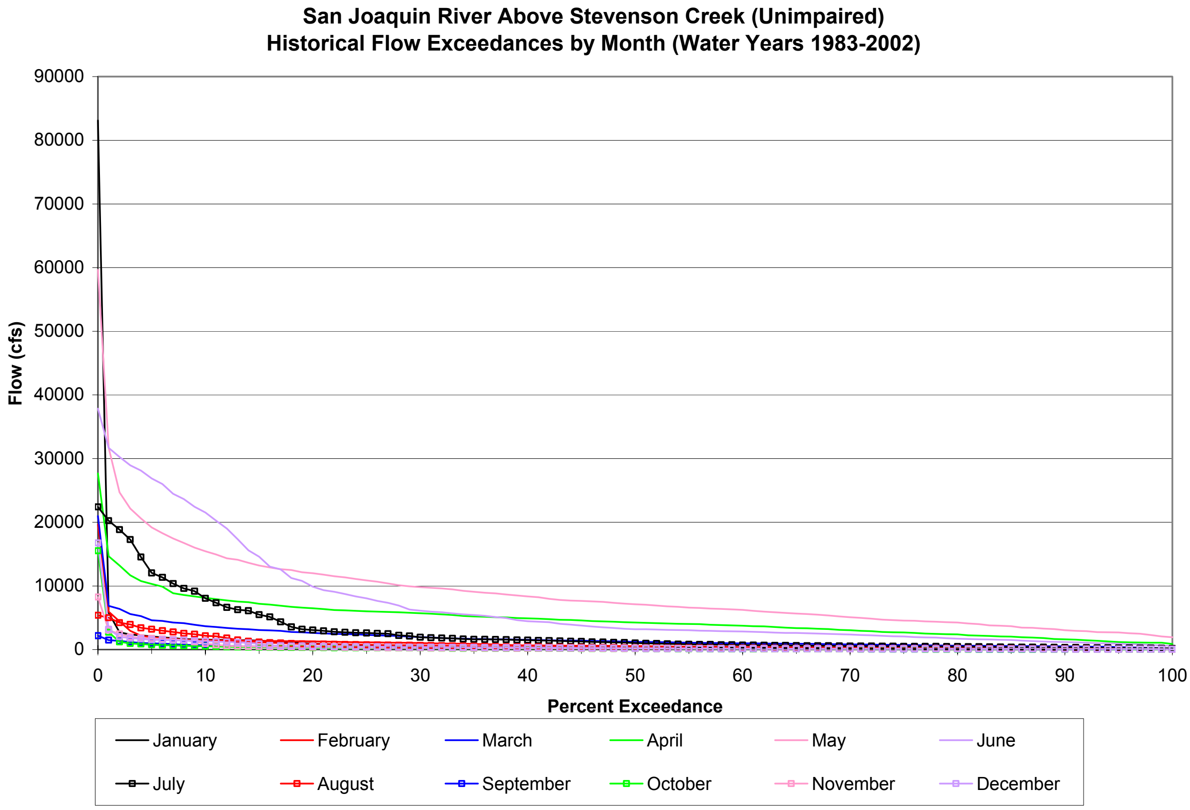

San Joaquin River Above Shakeflat Creek (Unimpaired)
Historical Flow Exceedances by Month (Water Years 1983-2002)
70000
60000
50000
40000
30000
20000
10000
0
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

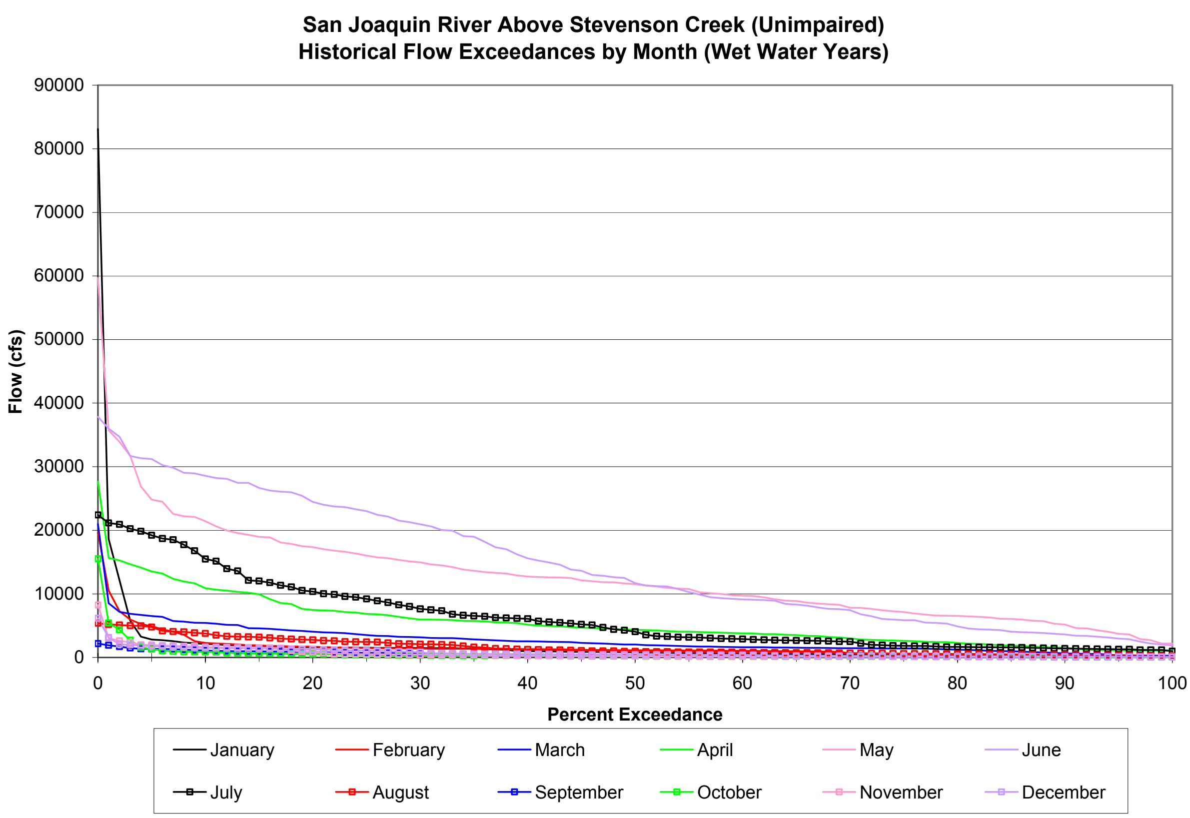

San Joaquin River Above Shakeflat Creek (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
70000
60000
50000
40000
30000
20000
10000
0
Flow (cfs)
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

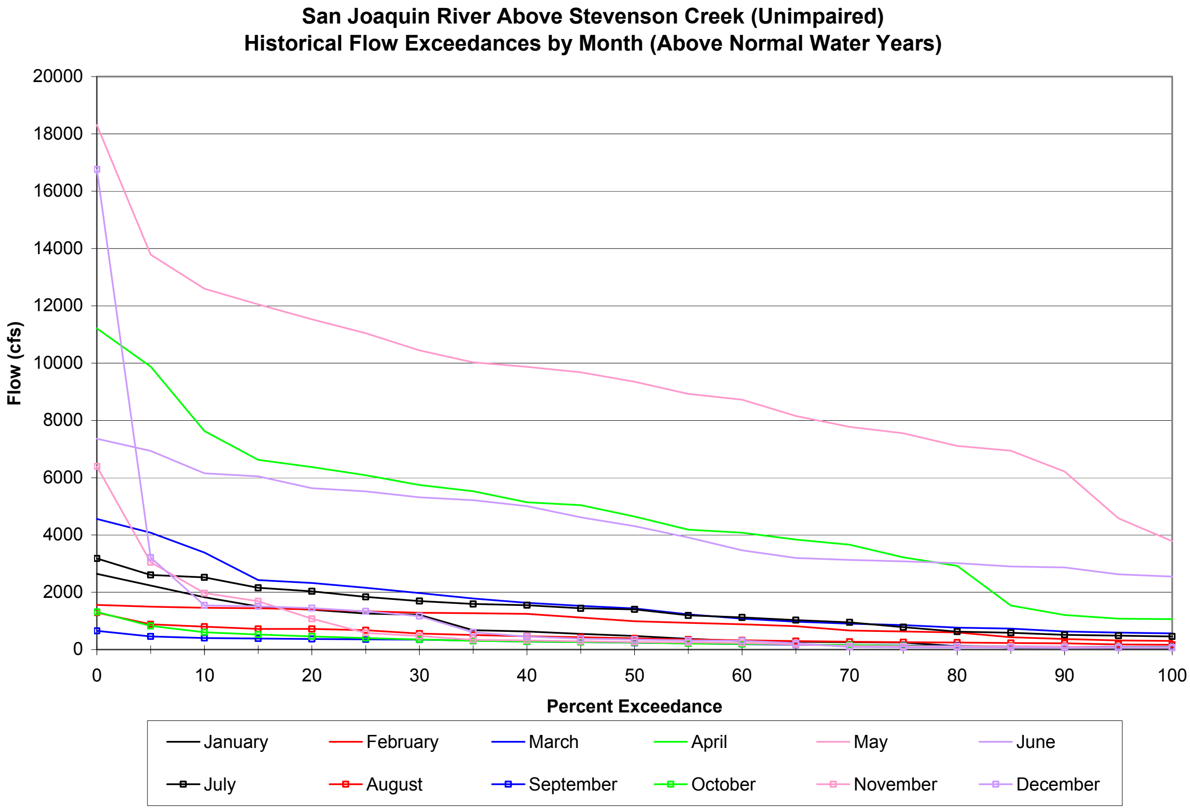

San Joaquin River Above Shakeflat Creek (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

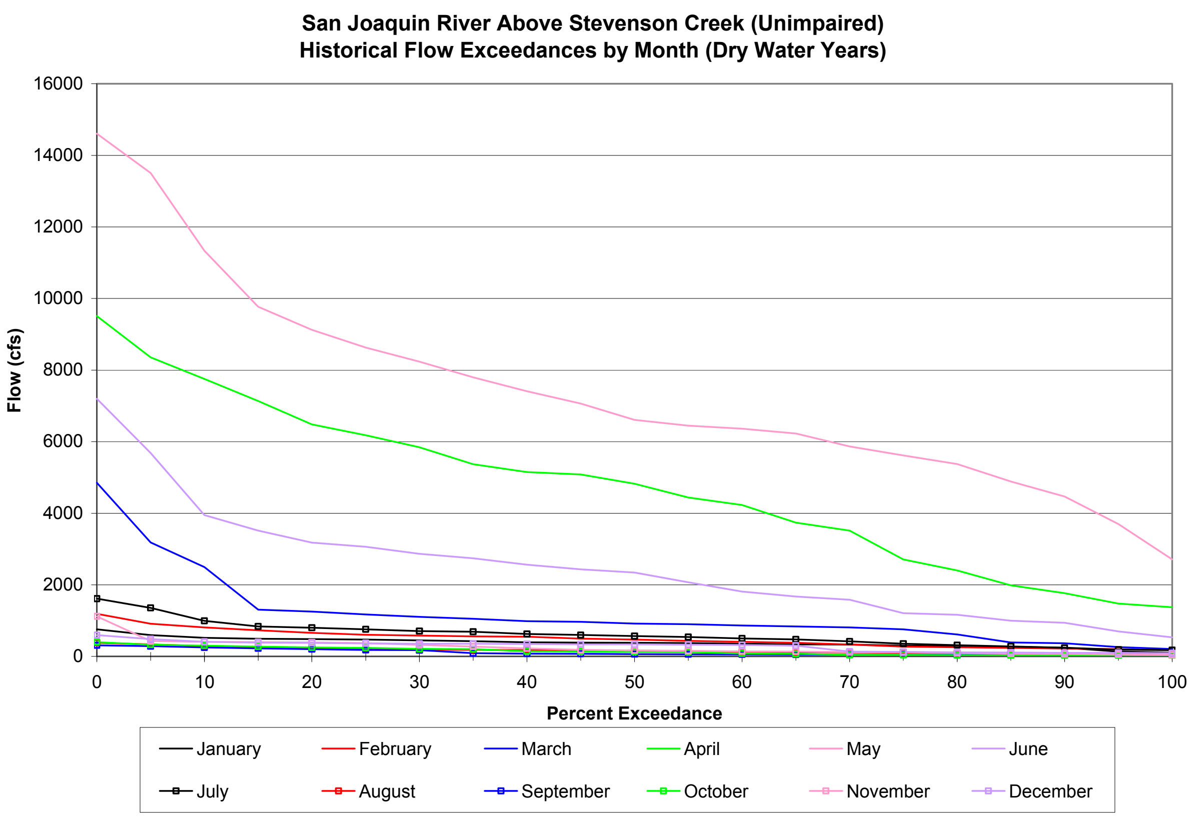

San Joaquin River Above Shakeflat Creek (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

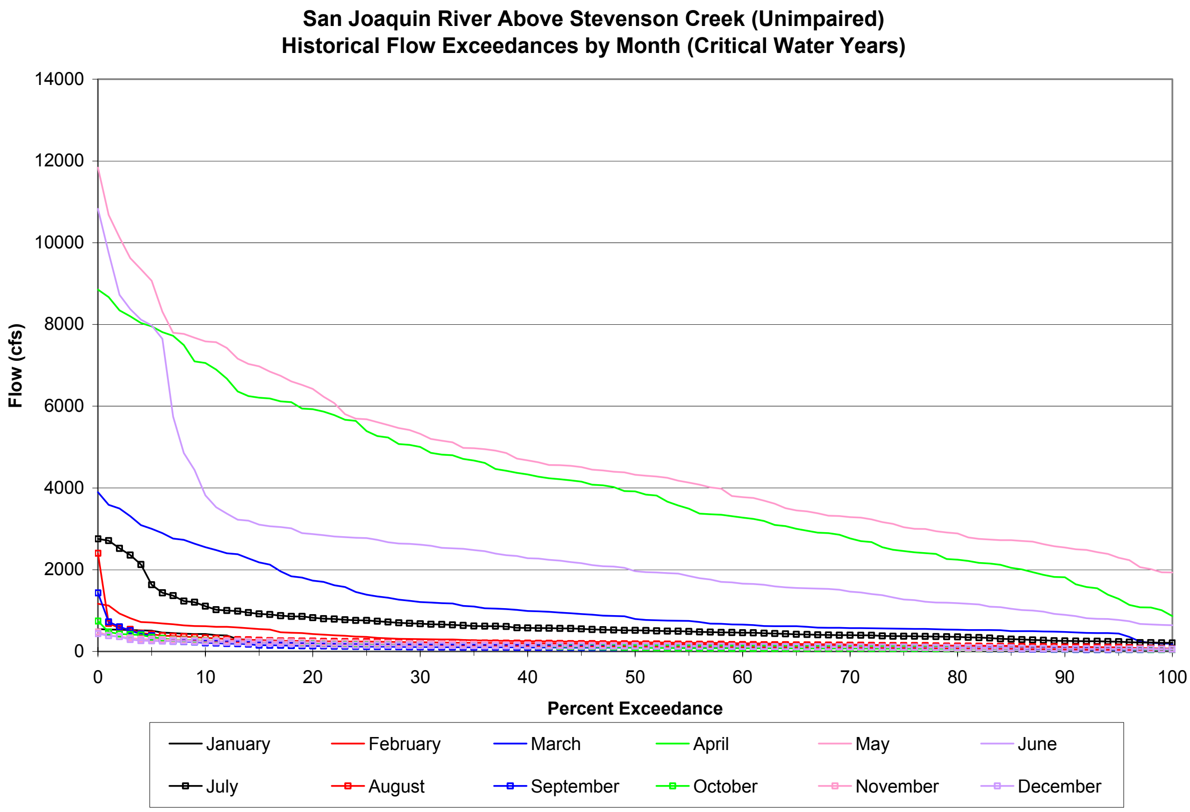

San Joaquin River Above Shakeflat Creek (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
Percent Exceedance
0
2000
4000
6000
8000
10000
12000
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

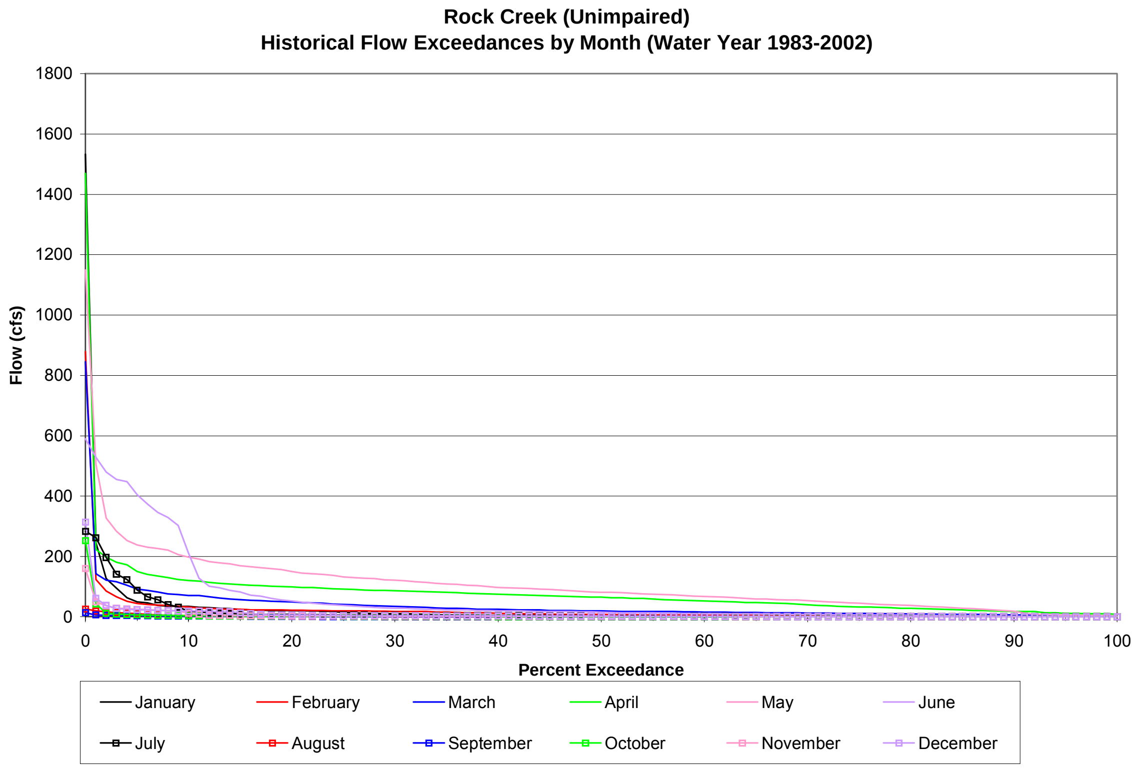

San Joaquin River Above Stevenson Creek (Unimpaired)
Historical Flow Exceedances by Month (Water Years 1983-2002)
Flow (cfs)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

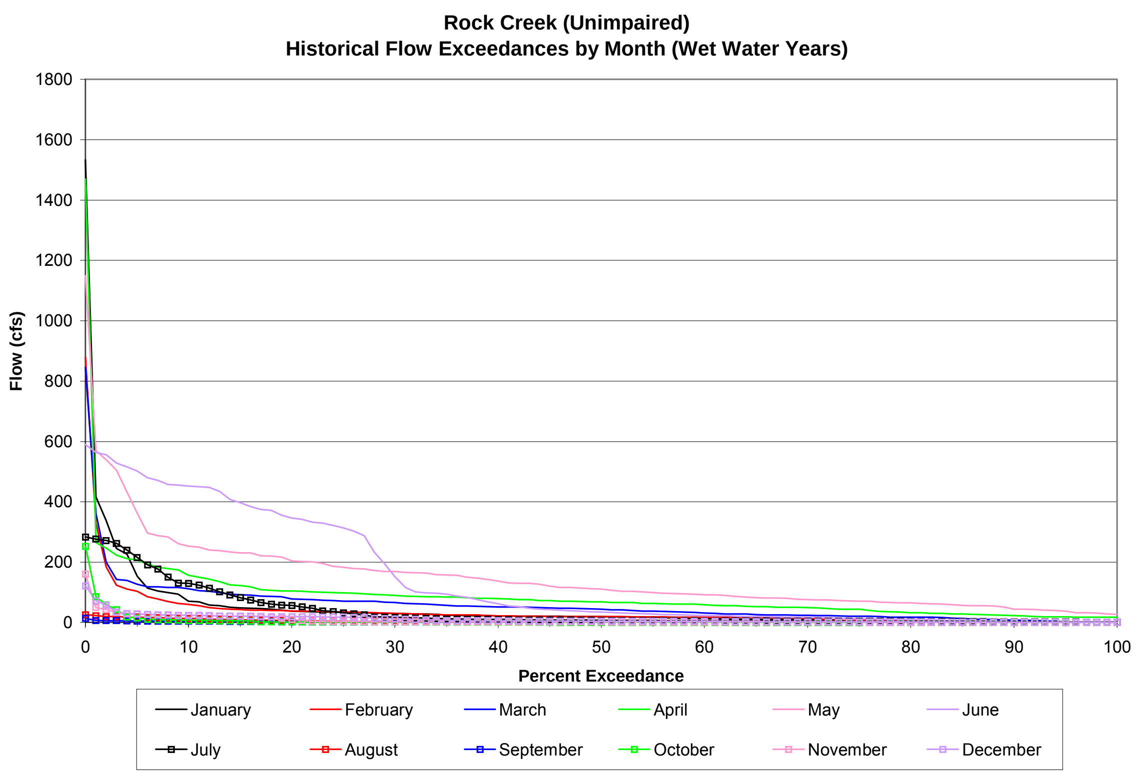

San Joaquin River Above Stevenson Creek (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
90000
80000
70000
60000
50000
40000
30000
20000
10000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

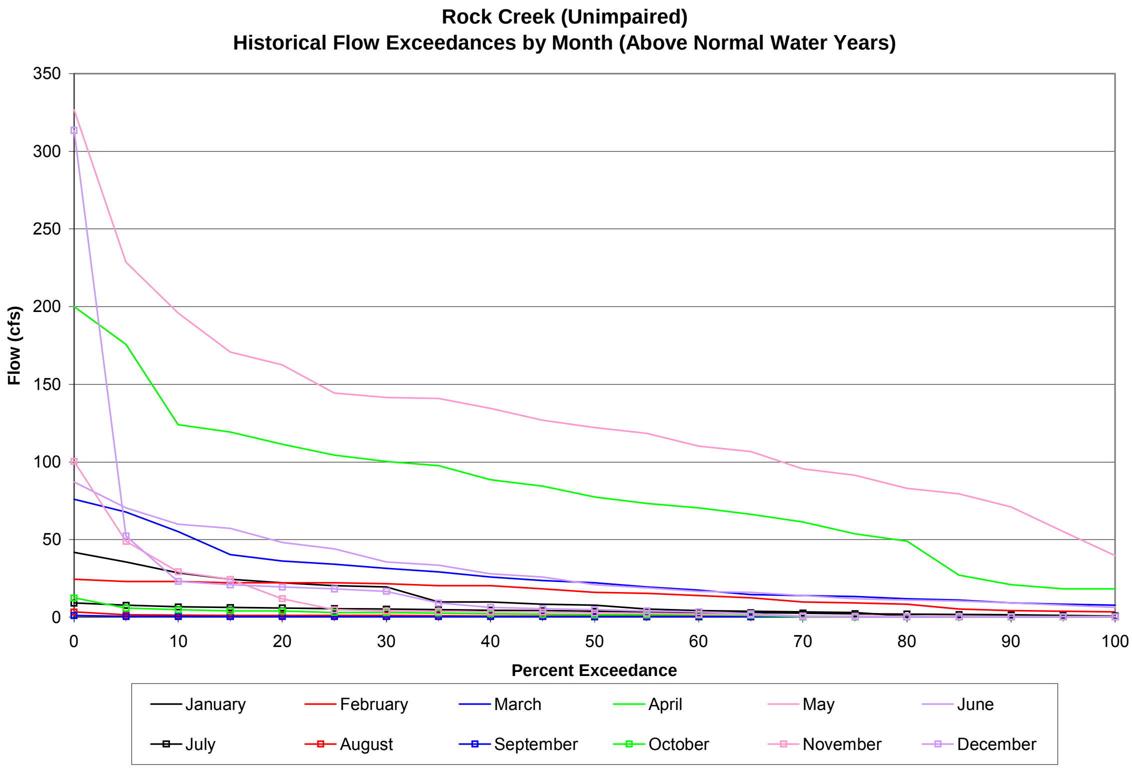

San Joaquin River Above Stevenson Creek (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
14000
16000
18000
20000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

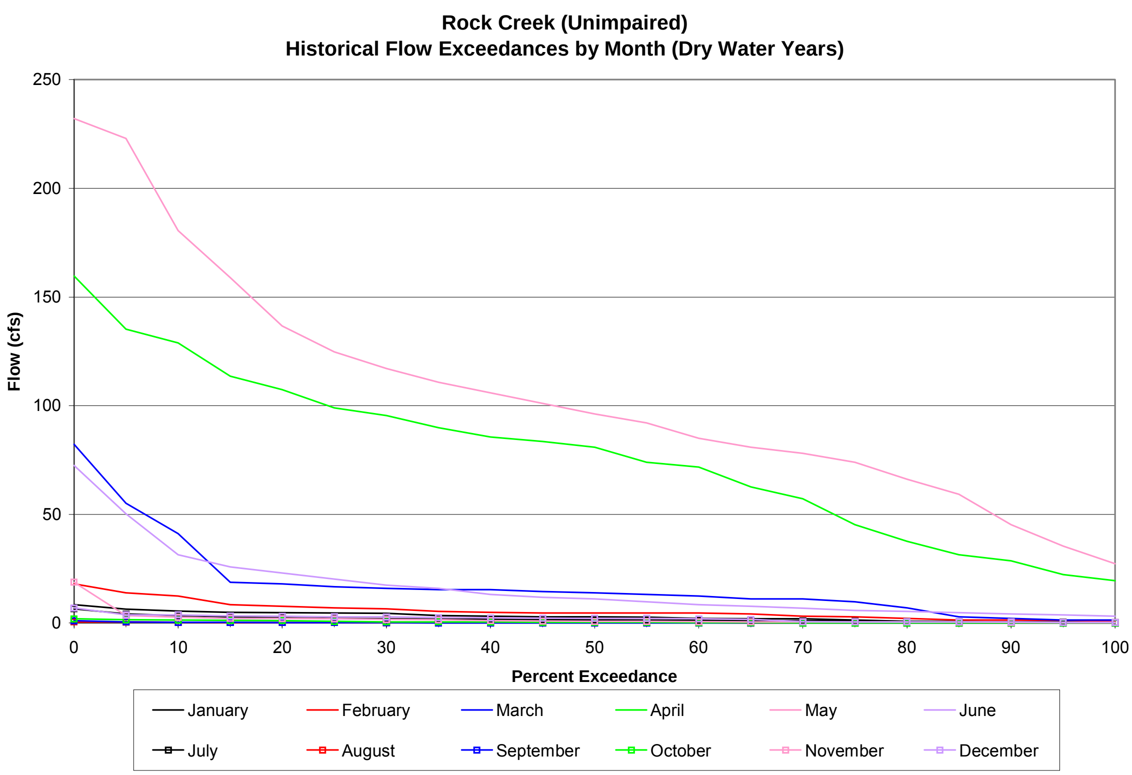

San Joaquin River Above Stevenson Creek (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
14000
16000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

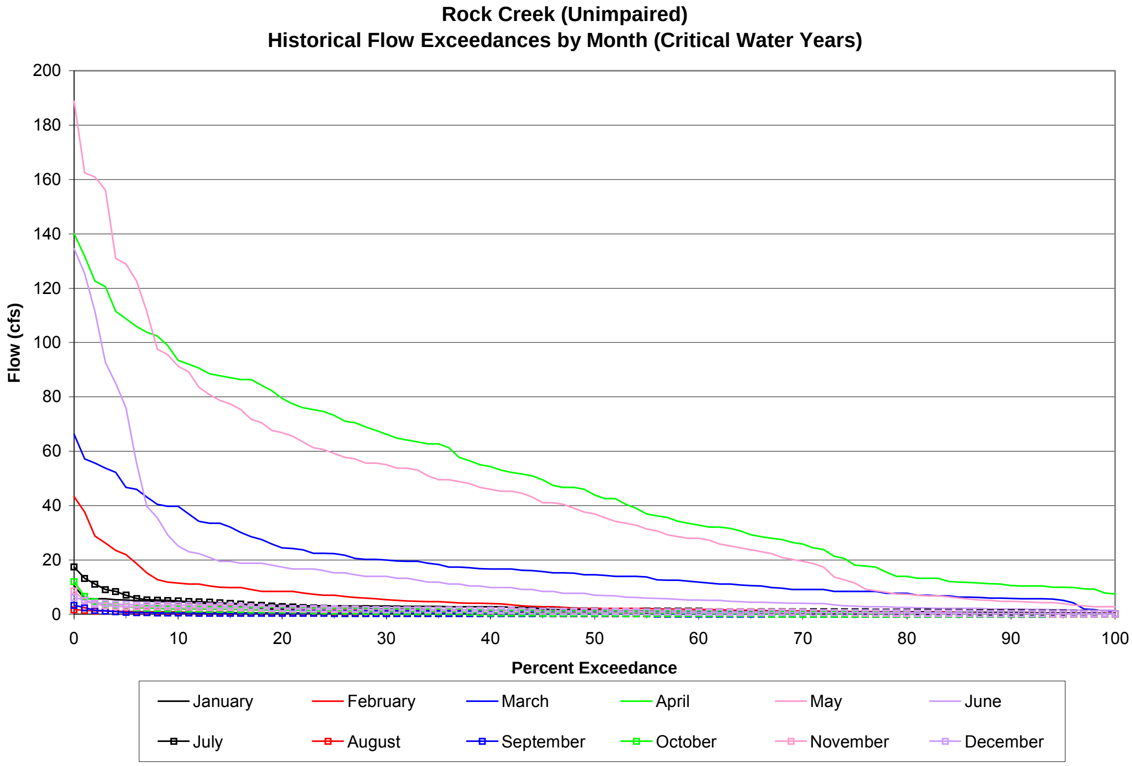

San Joaquin River Above Stevenson Creek (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
14000
12000
10000
8000
6000
4000
2000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

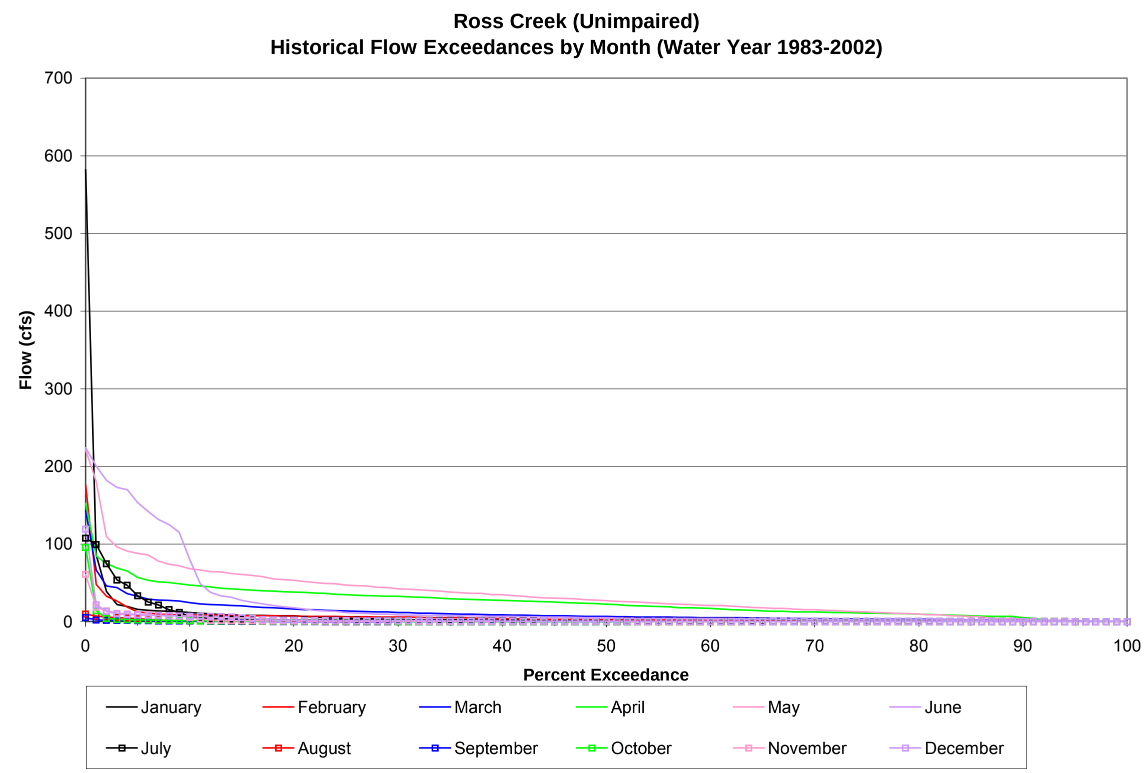

Rock Creek (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Rock Creek (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

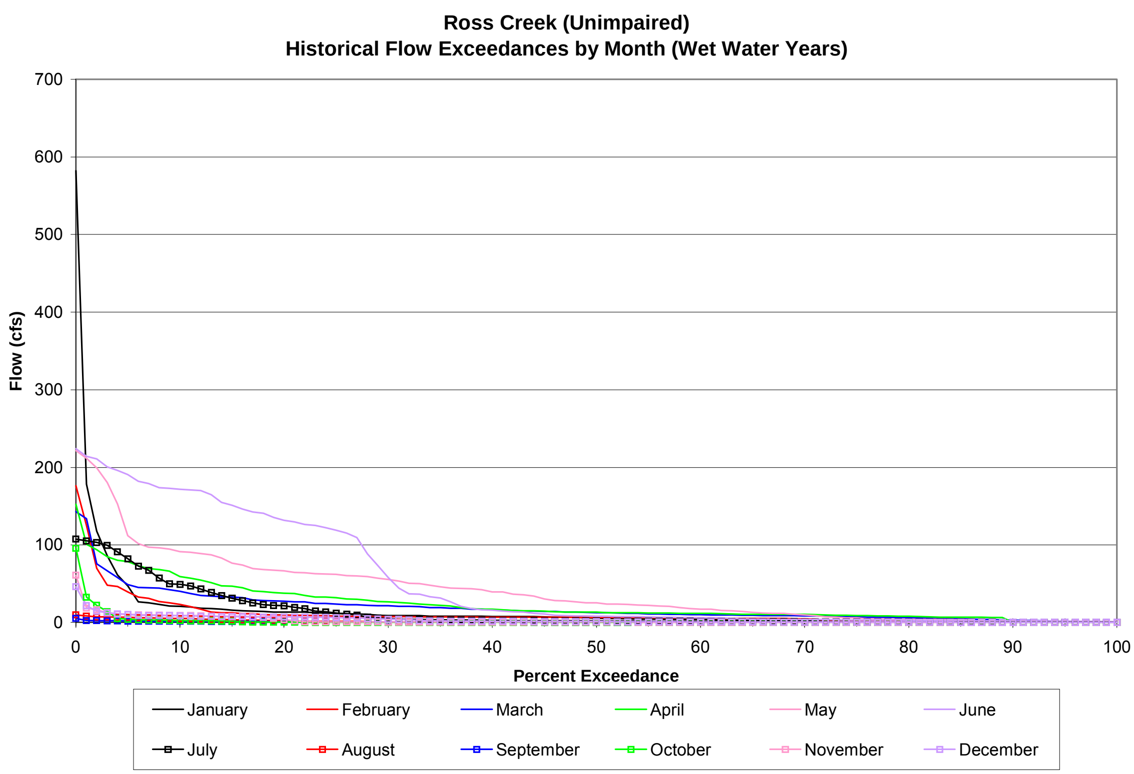

Rock Creek (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
0
50
100
150
200
250
300
350
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


Rock Creek (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
0
50
100
150
200
250
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December

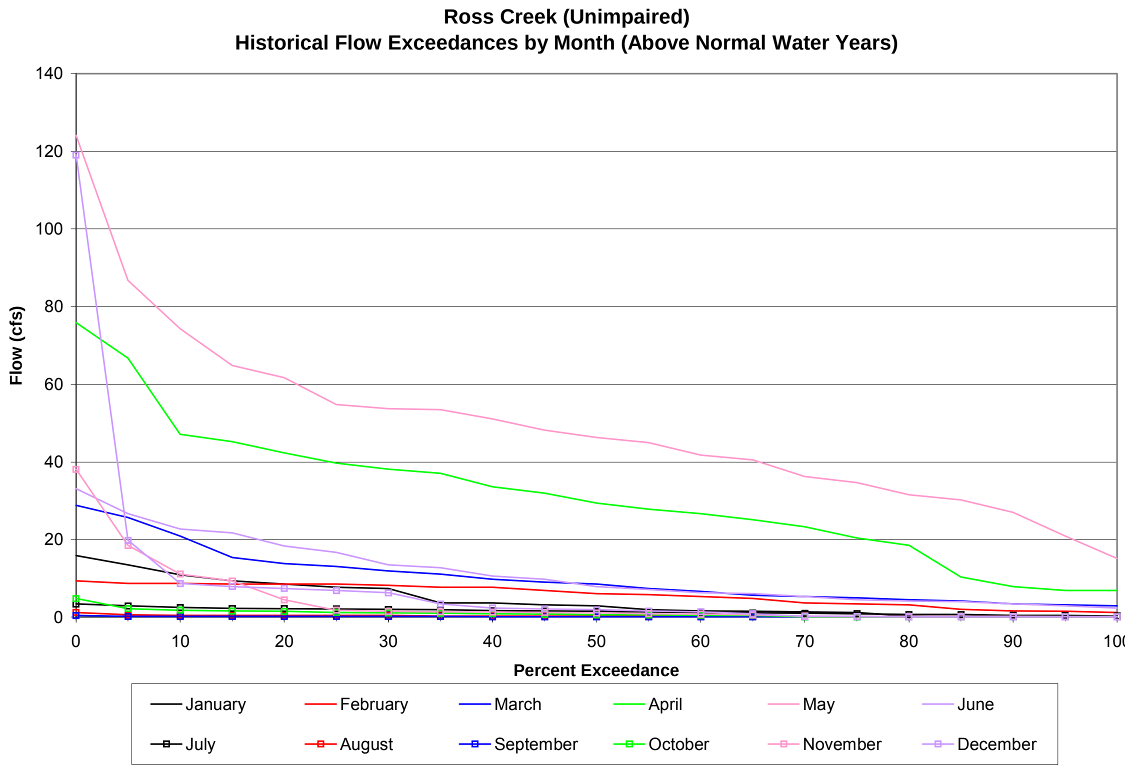

Rock Creek (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
200
180
160
140
120
100
80
60
40
20
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

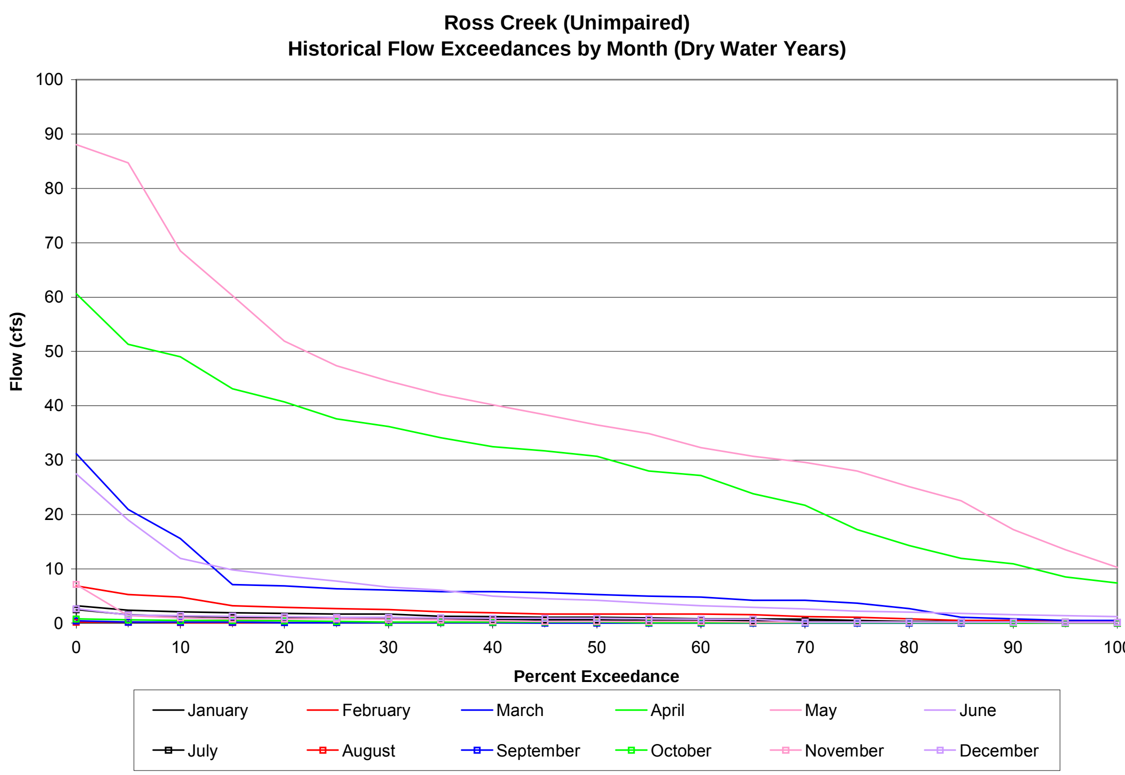


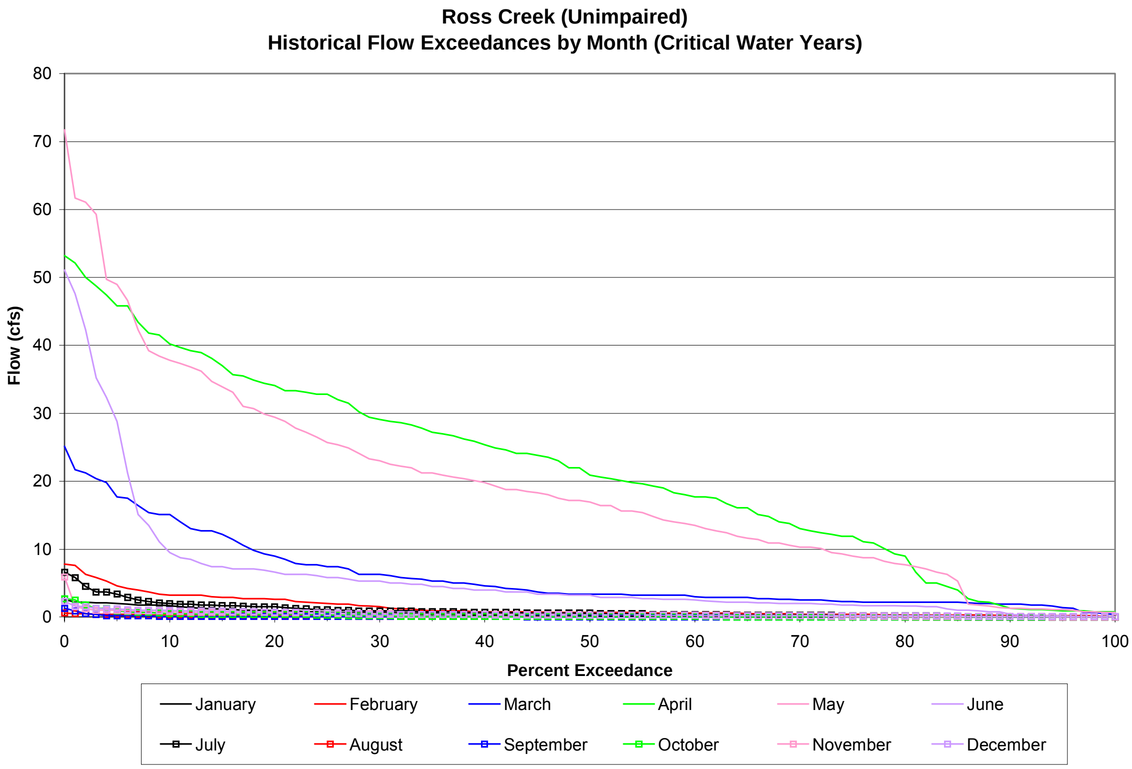
Ross Creek (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

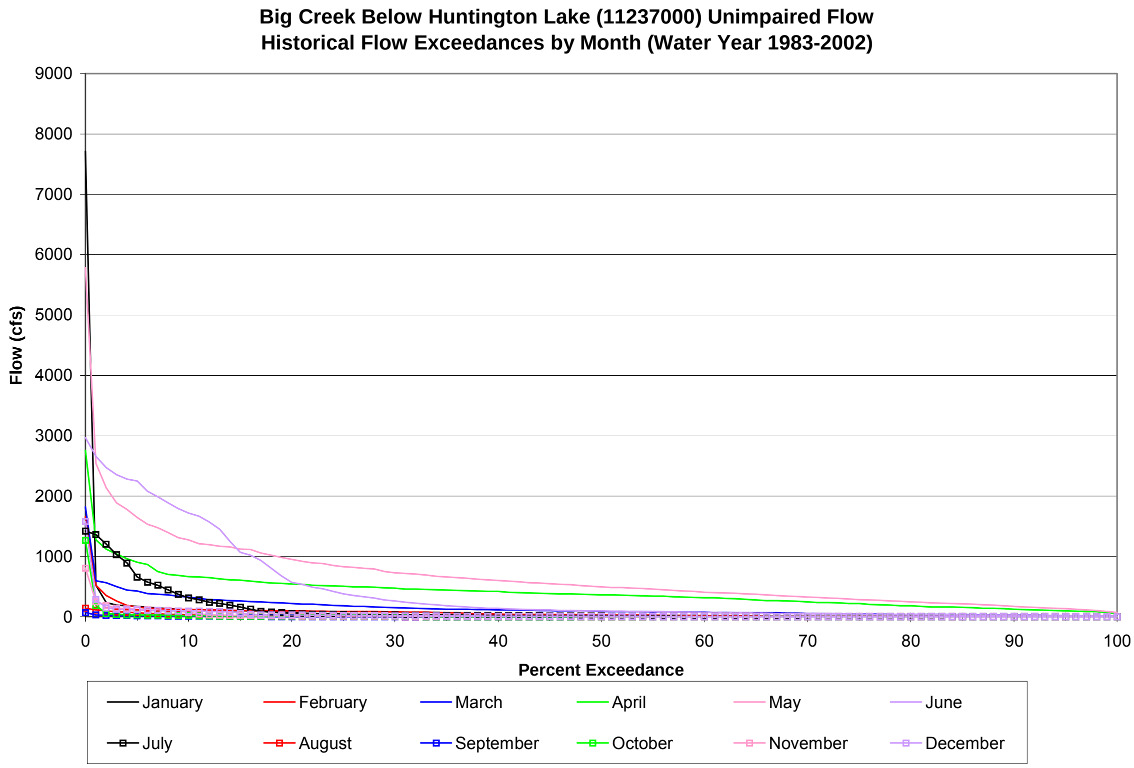


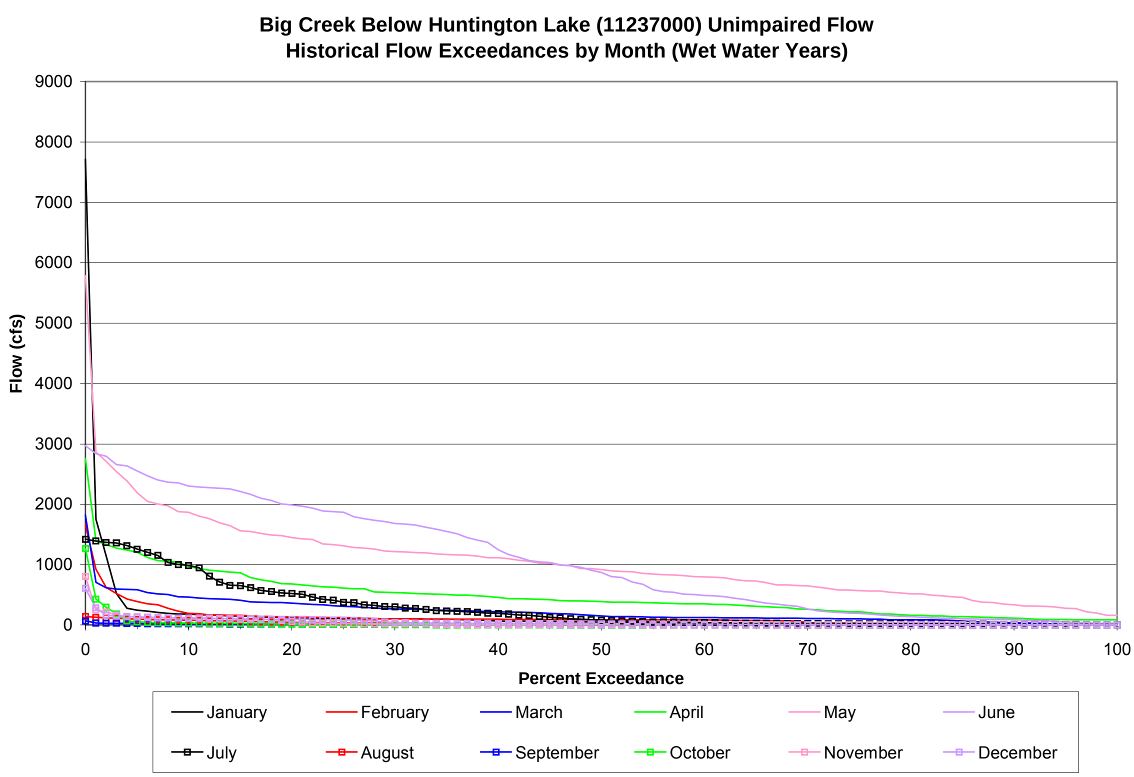
Ross Creek (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

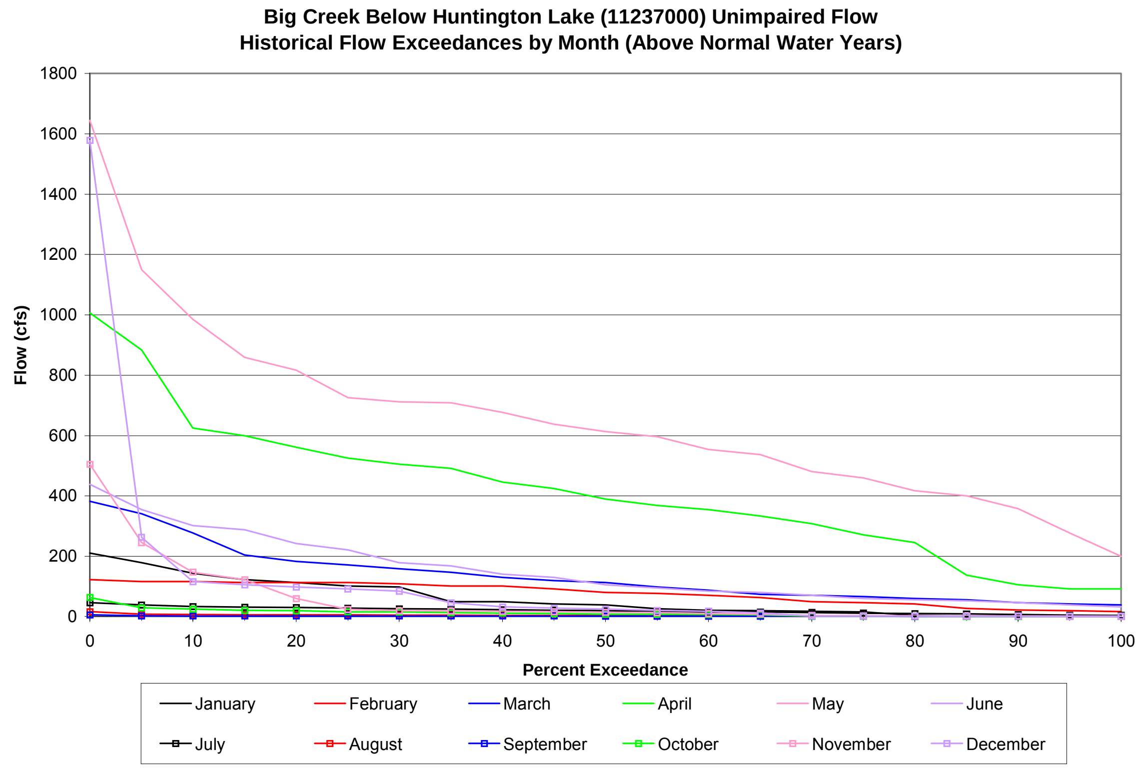

Ross Creek (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

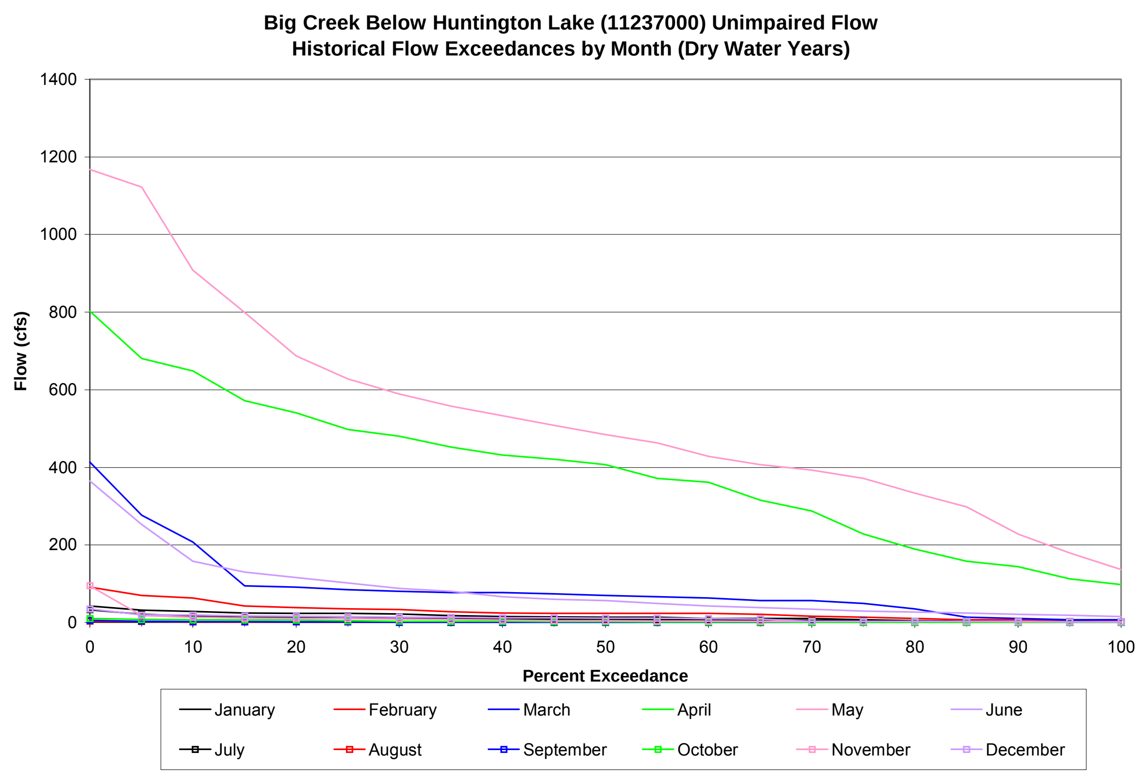

Ross Creek (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

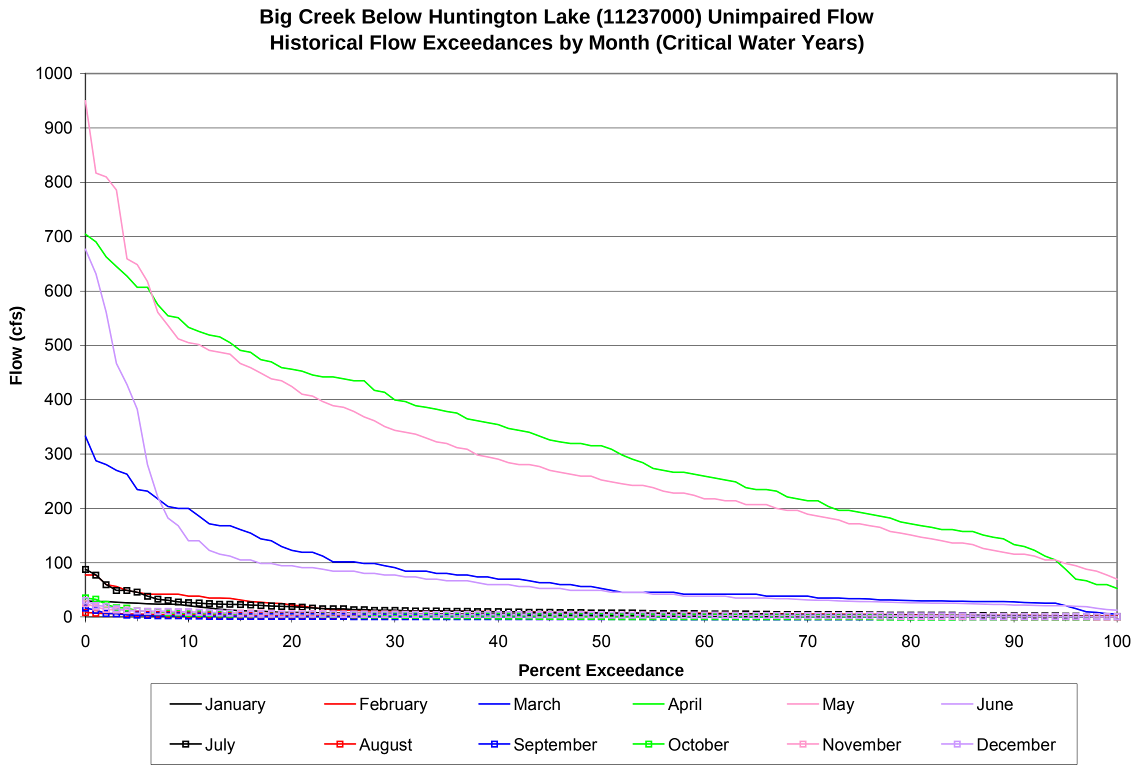

Ross Creek (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
80
70
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

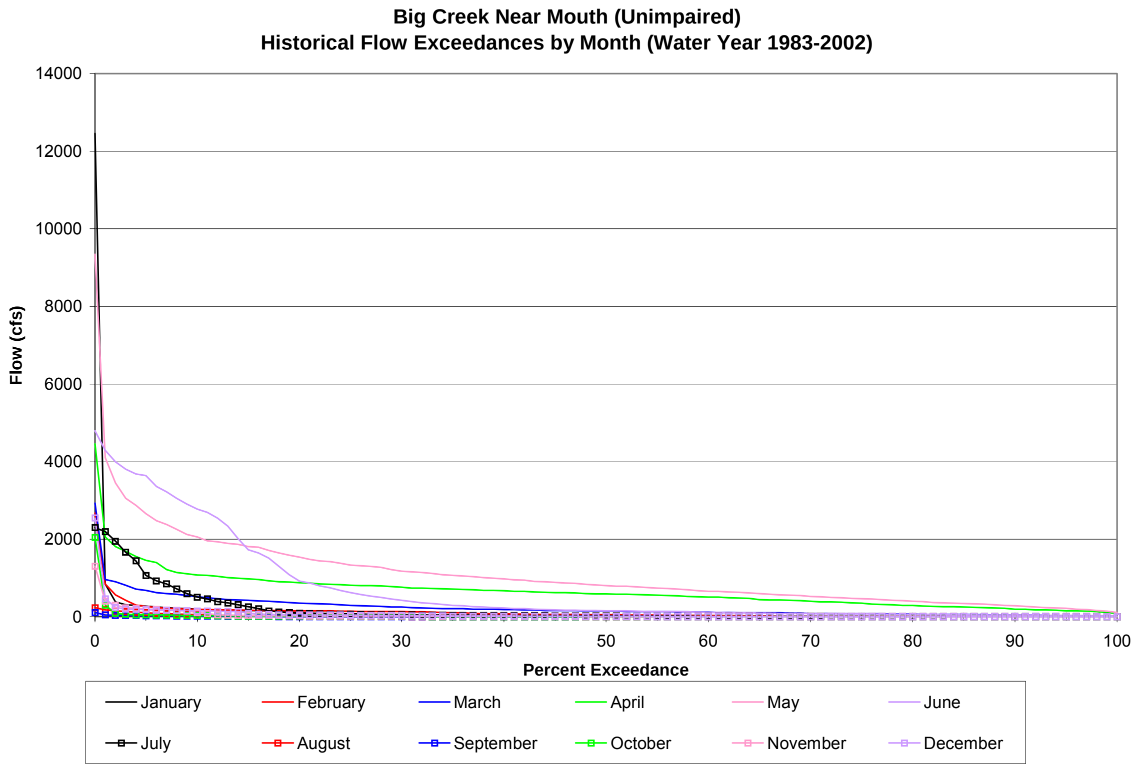

Big Creek Below Huntington Lake (11237000) Unimpaired Flow
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Below Huntington Lake (11237000) Unimpaired Flow
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

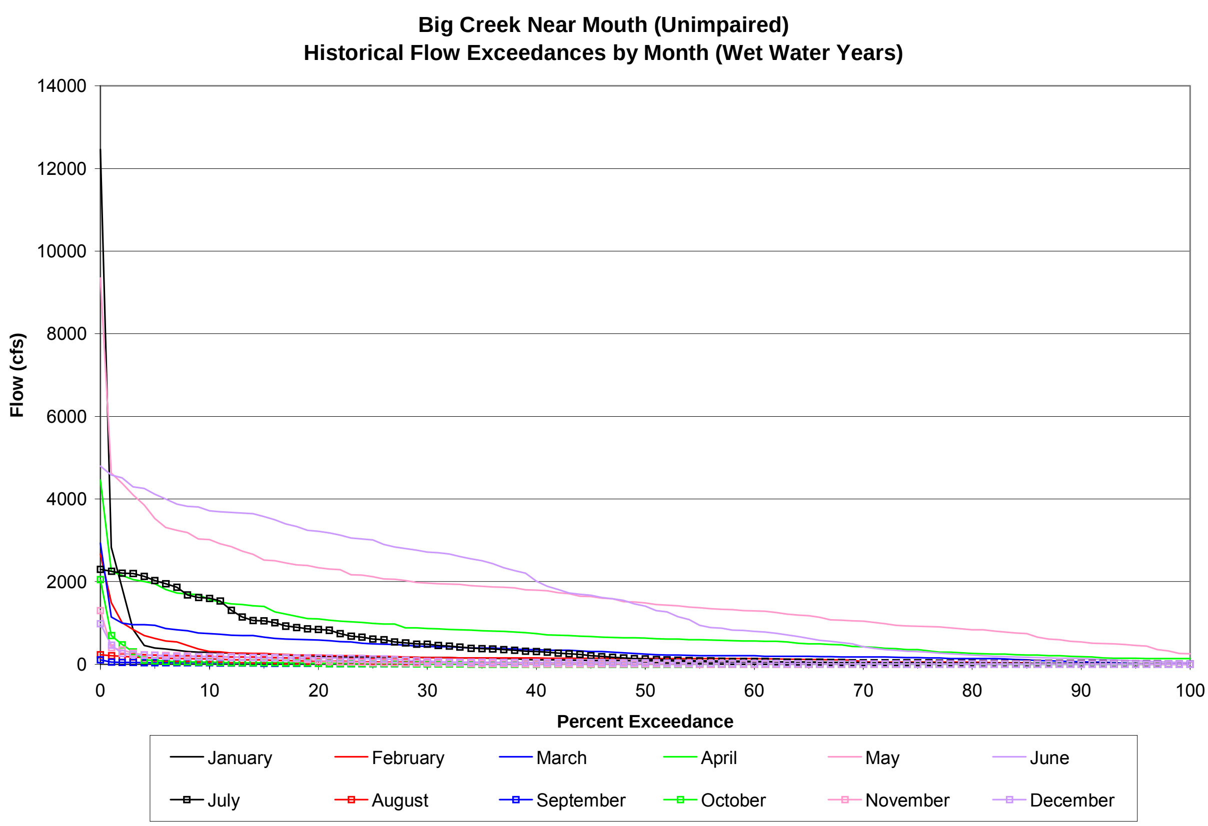

Big Creek Below Huntington Lake (11237000) Unimpaired Flow
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
1600
1800
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Big Creek Below Huntington Lake (11237000) Unimpaired Flow
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
0
200
400
600
800
1000
1200
1400
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

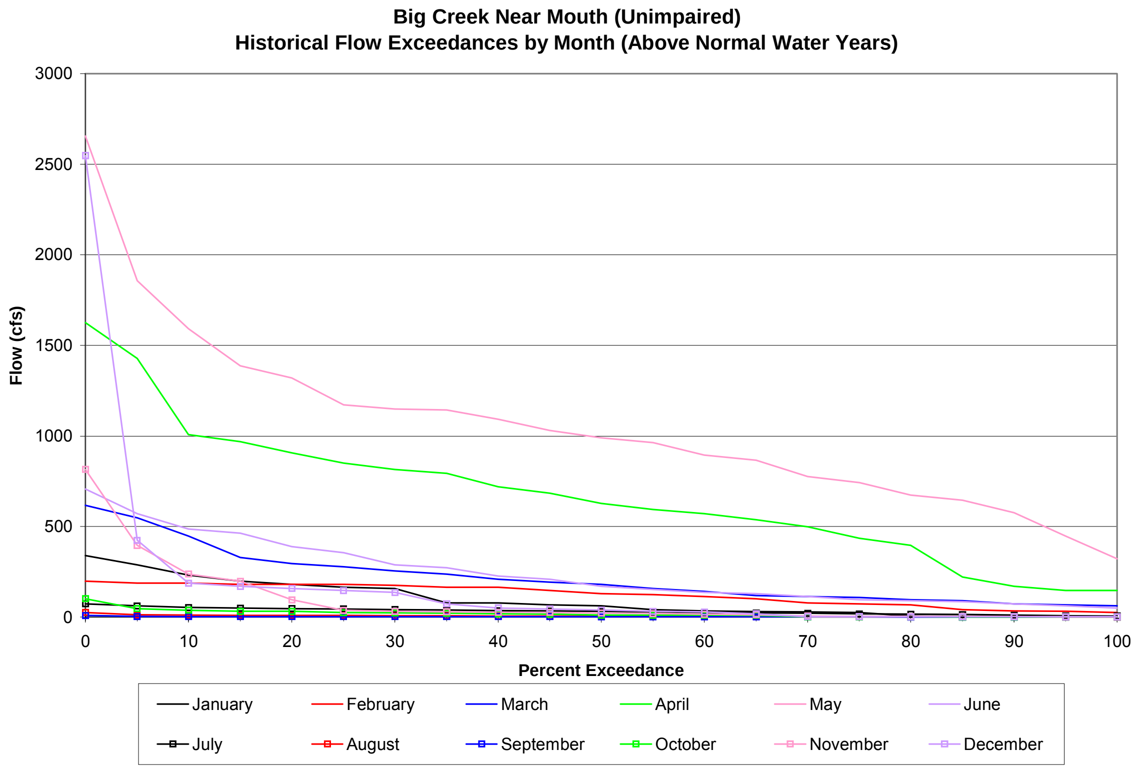

Big Creek Below Huntington Lake (11237000) Unimpaired Flow
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
1000
900
800
700
600
500
400
300
200
100
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

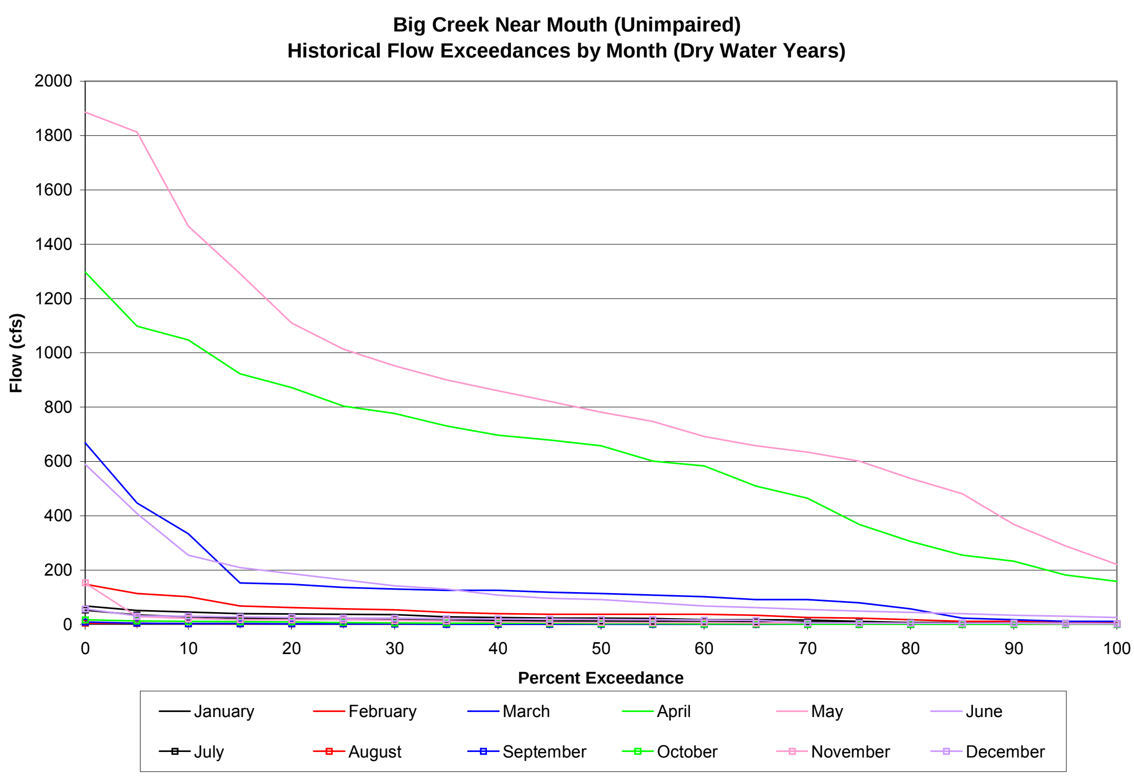


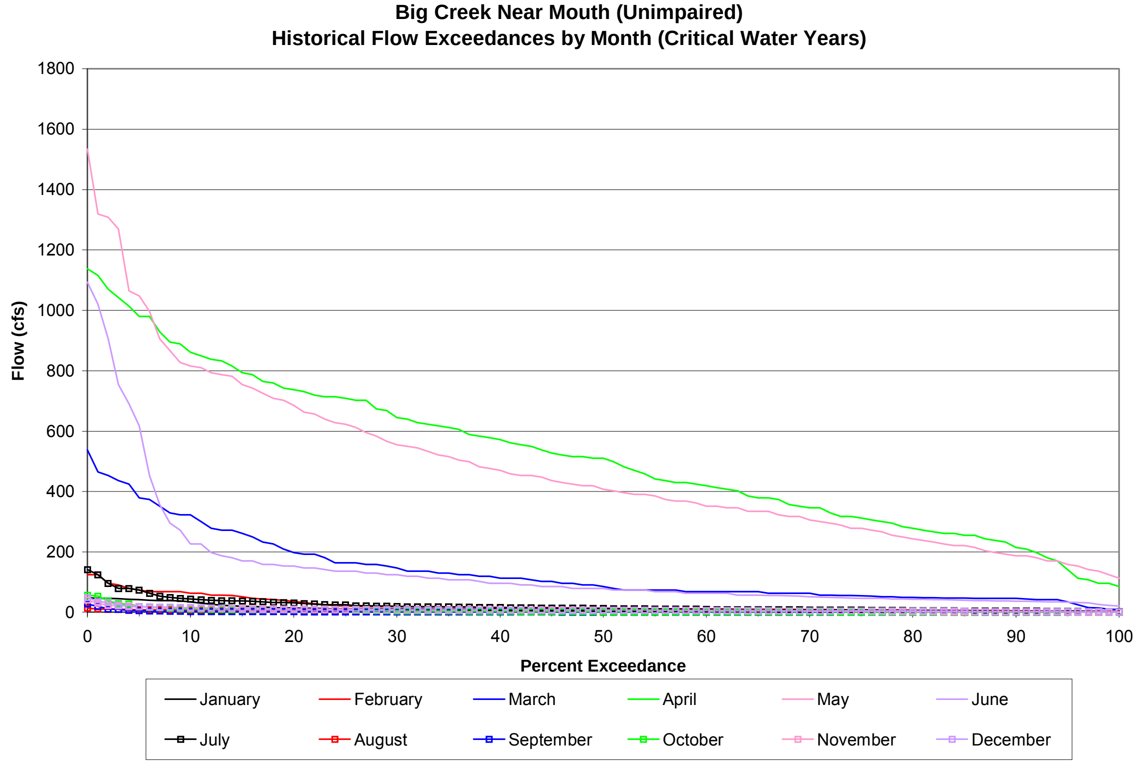
Big Creek Near Mouth (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
14000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

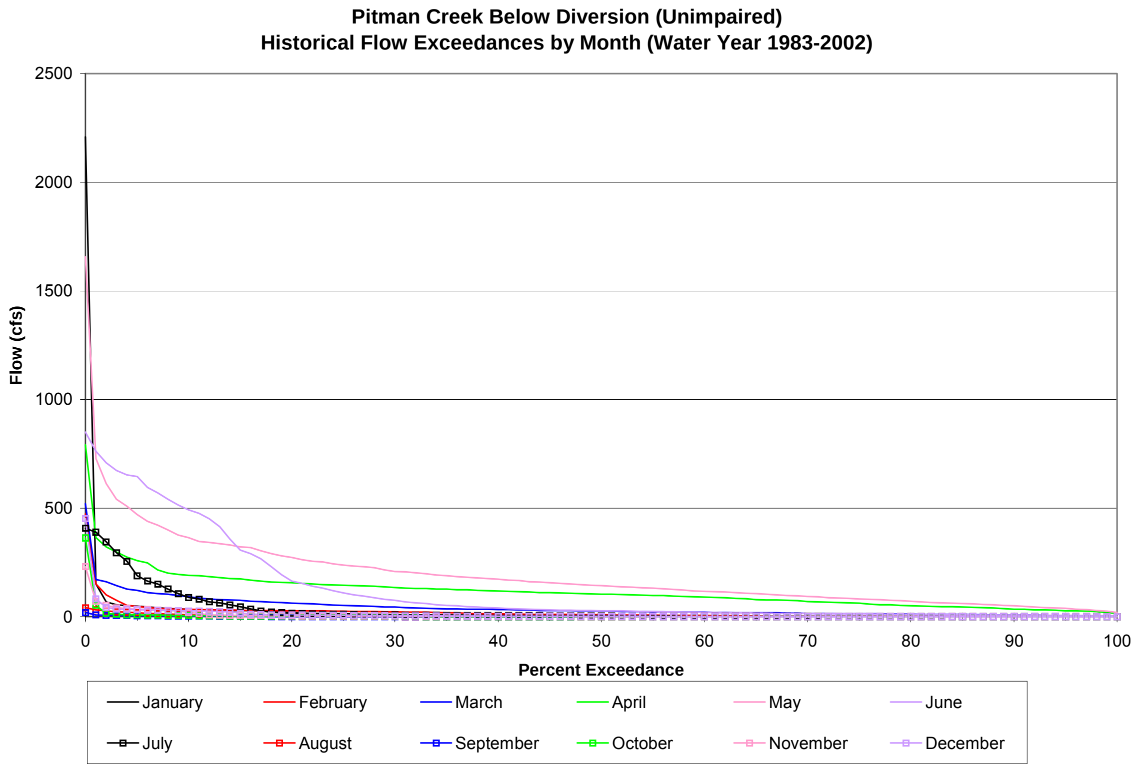


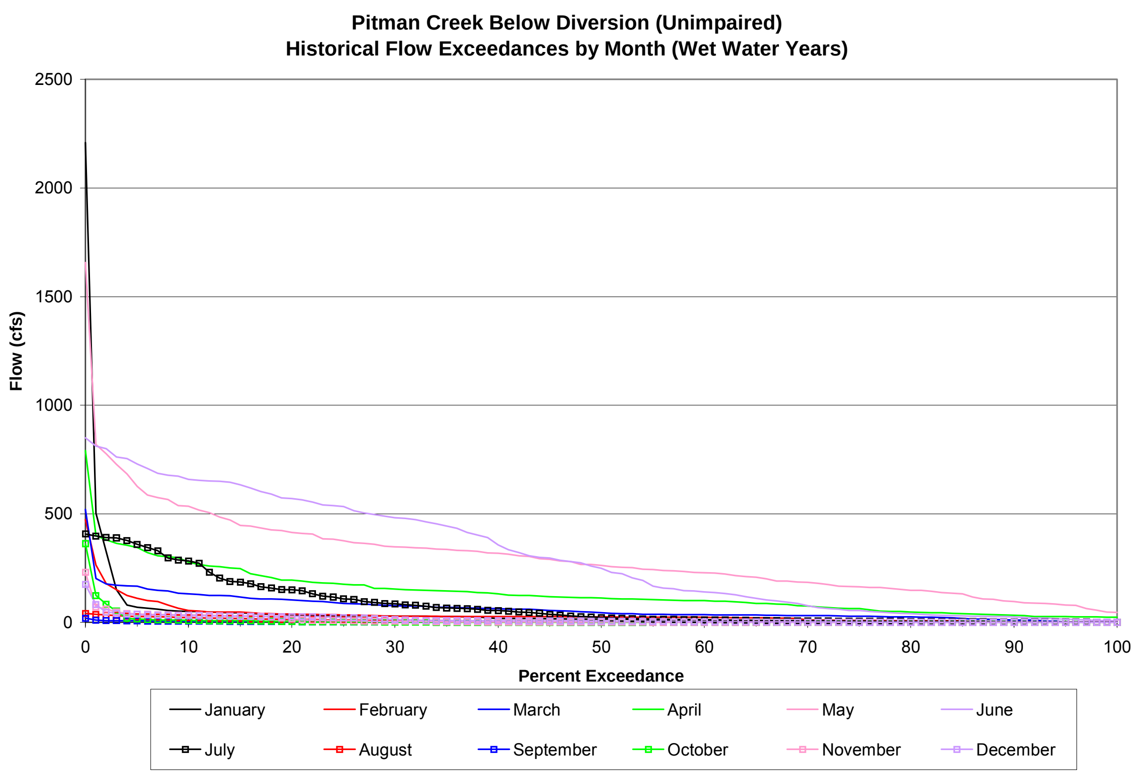
Big Creek Near Mouth (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
2000
4000
6000
8000
10000
12000
14000
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

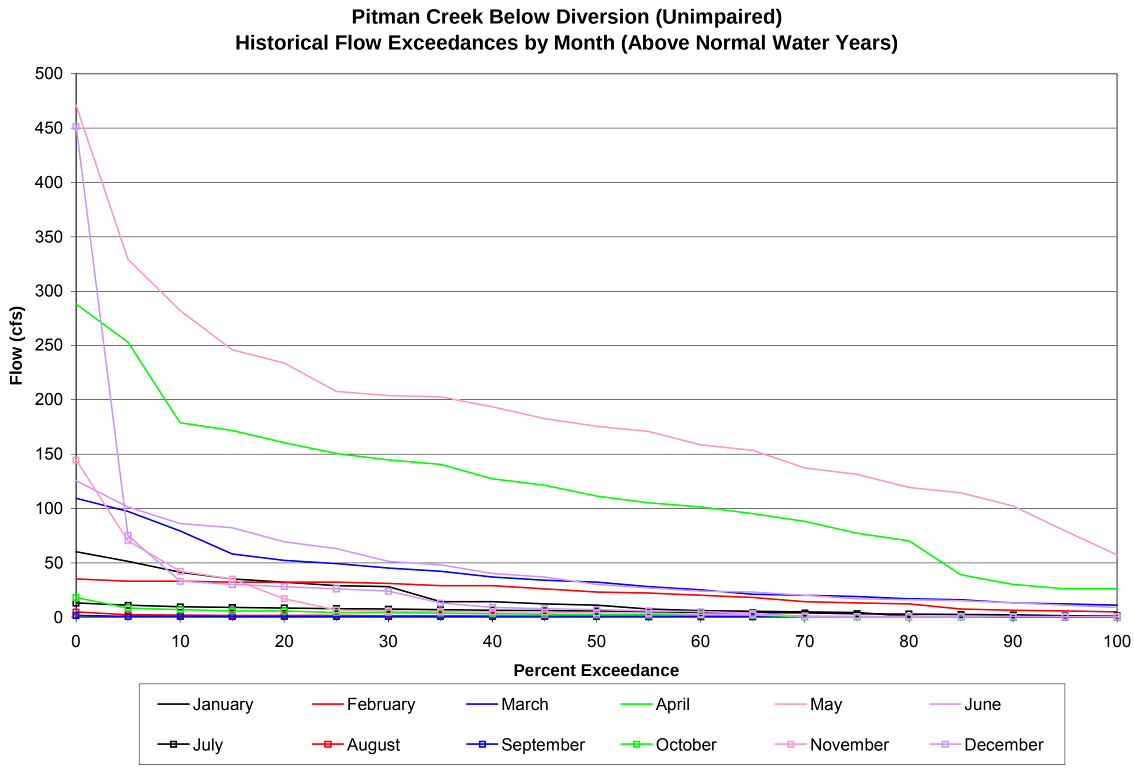

Big Creek Near Mouth (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

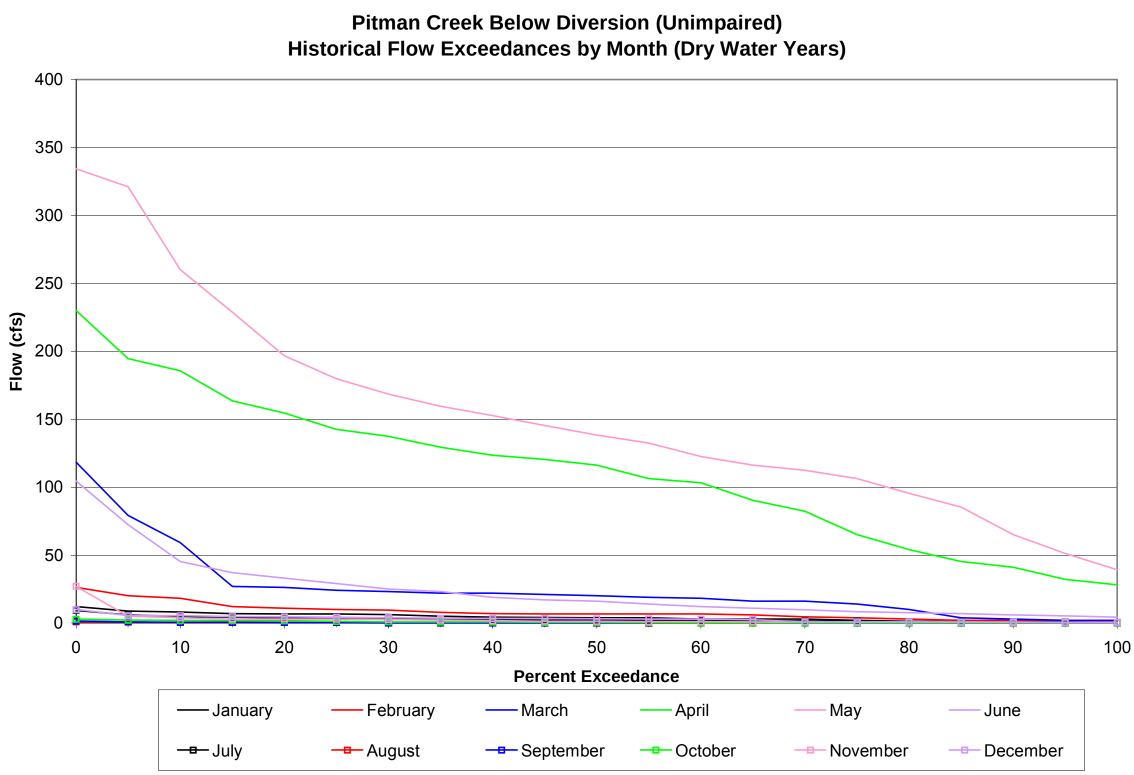

Big Creek Near Mouth (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

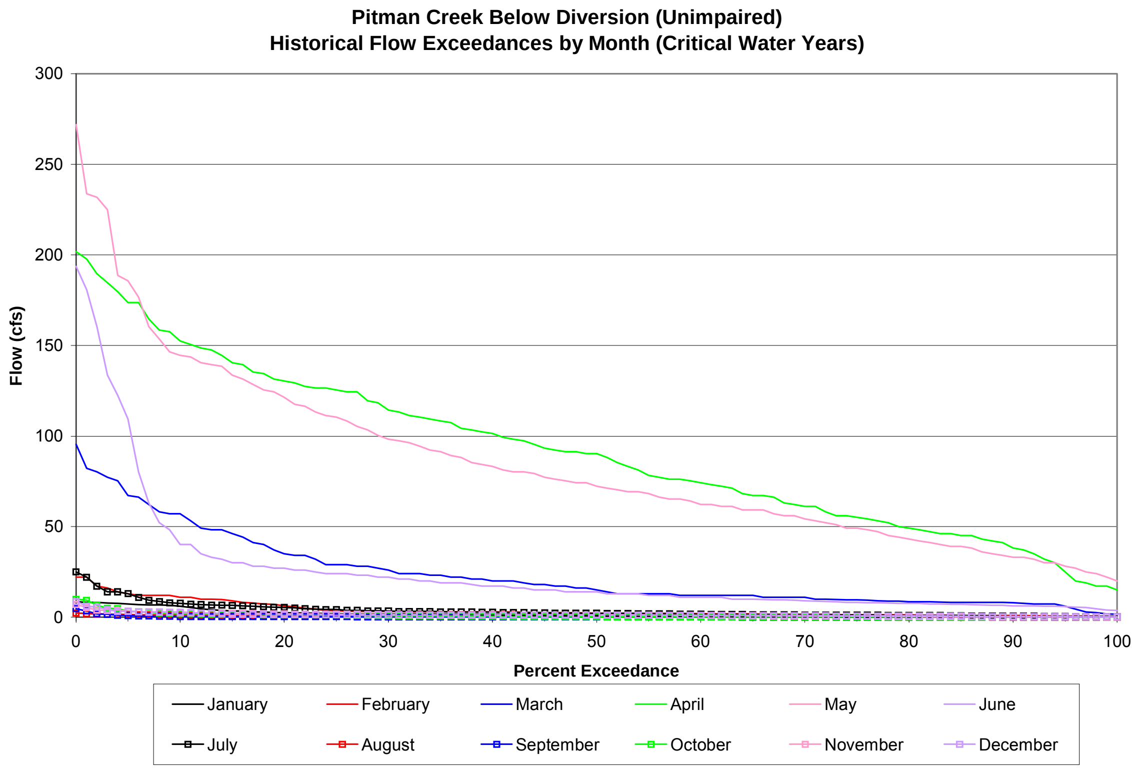

Big Creek Near Mouth (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

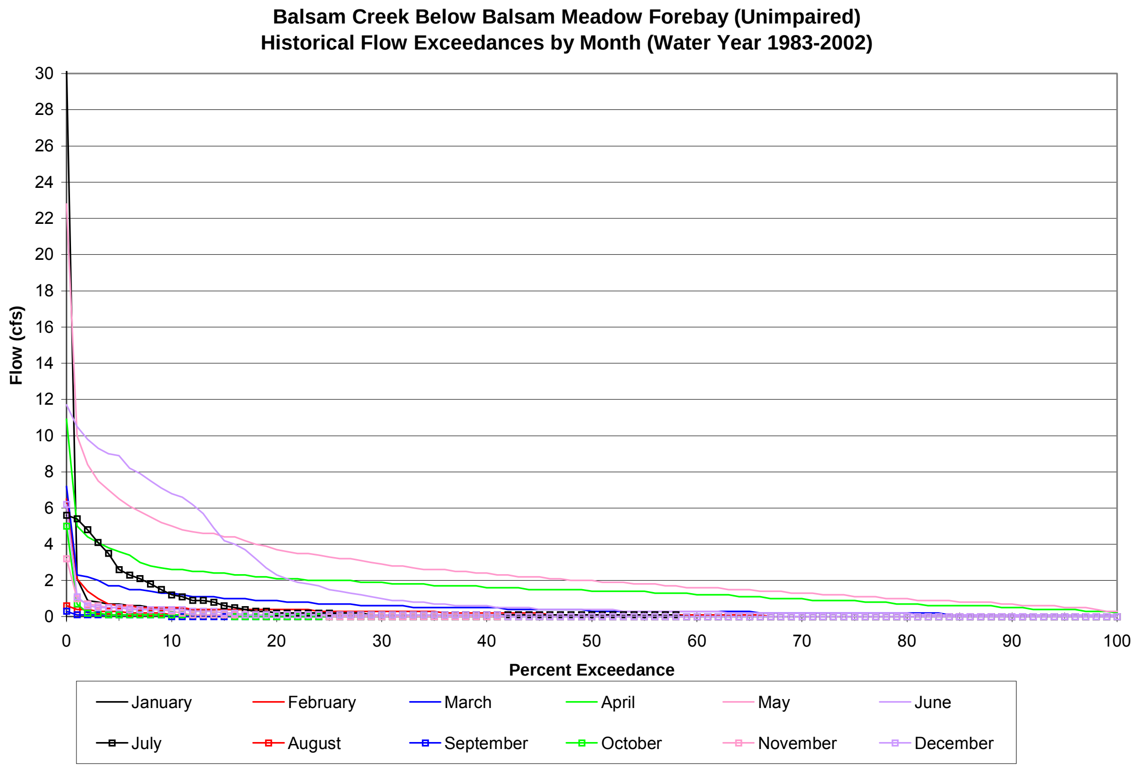

Pitman Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

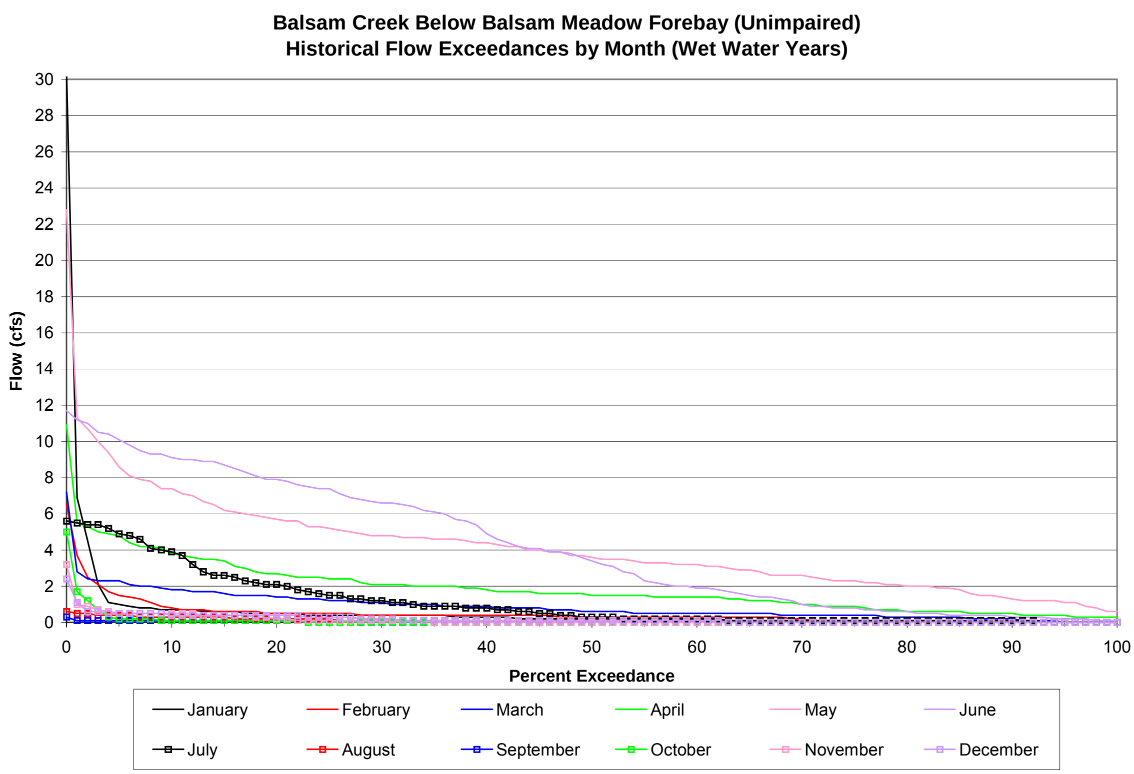

Pitman Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

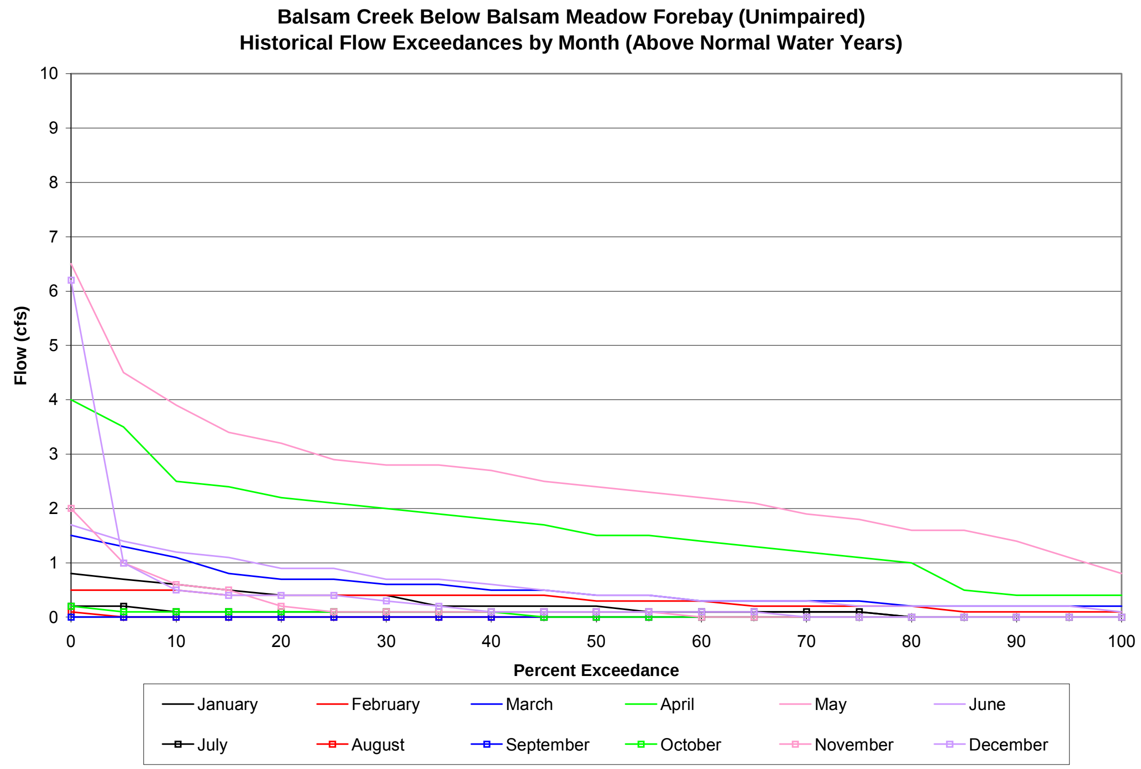

Pitman Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
500
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

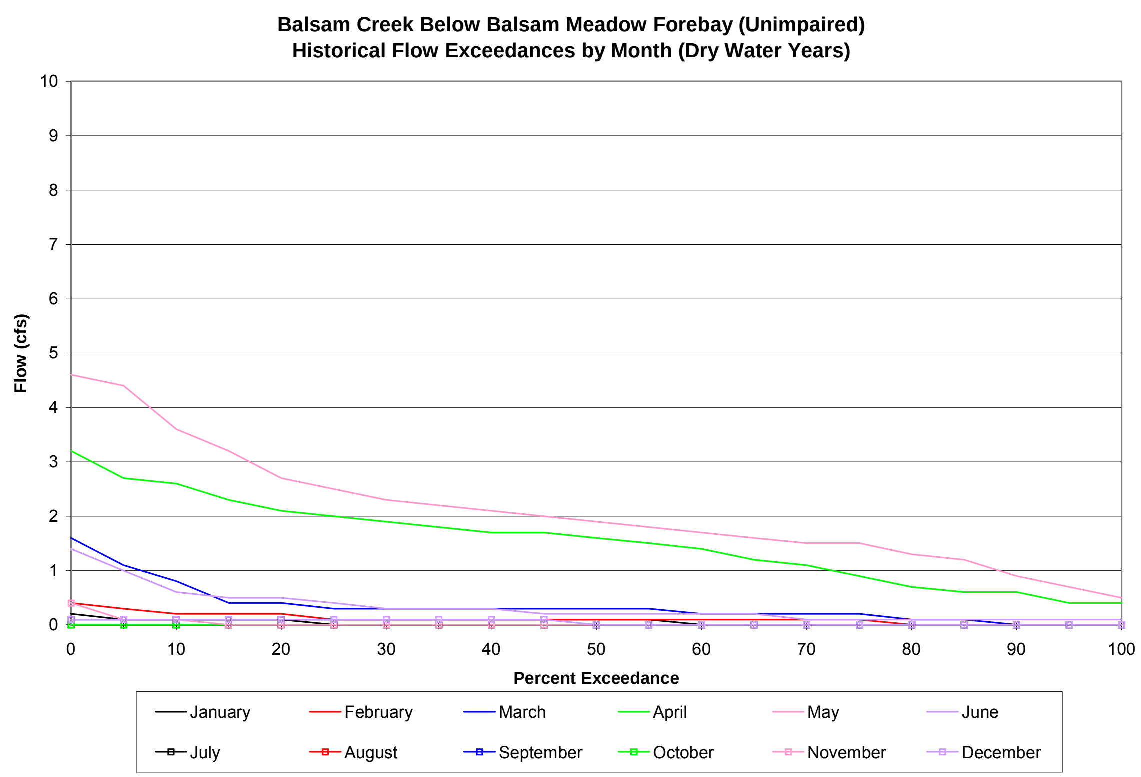

Pitman Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

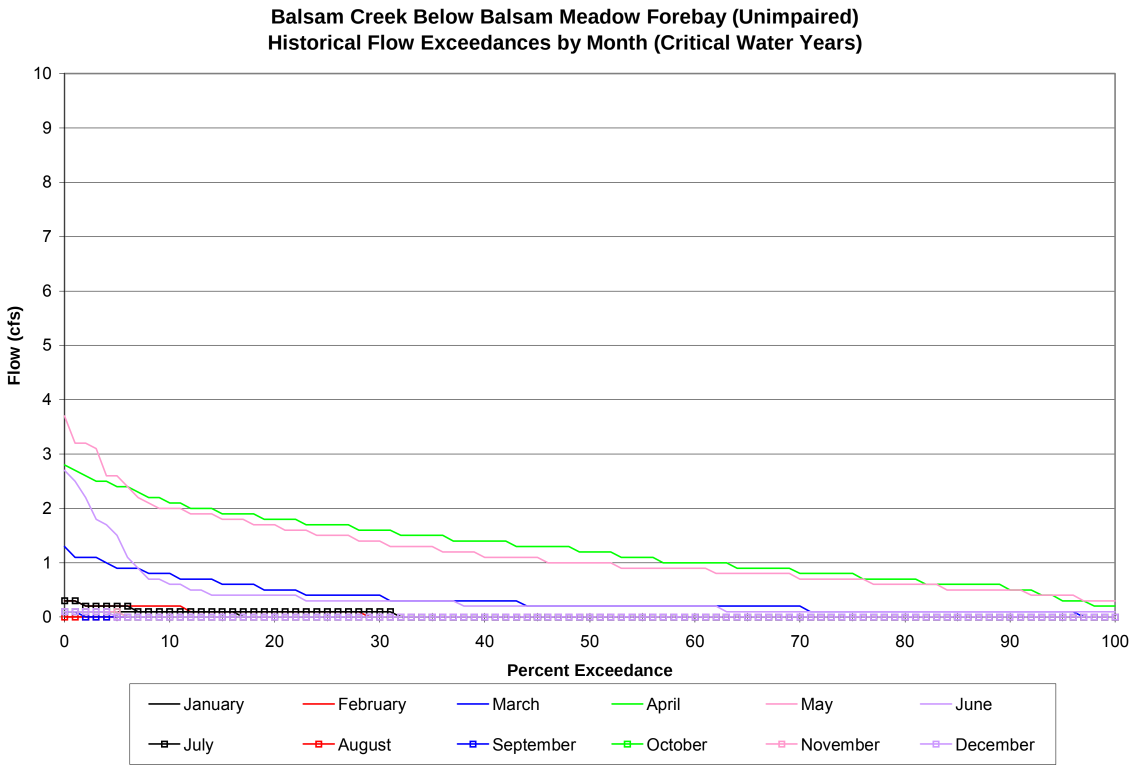

Pitman Creek Below Diversion (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Balsam Creek Below Balsam Meadow Forebay (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

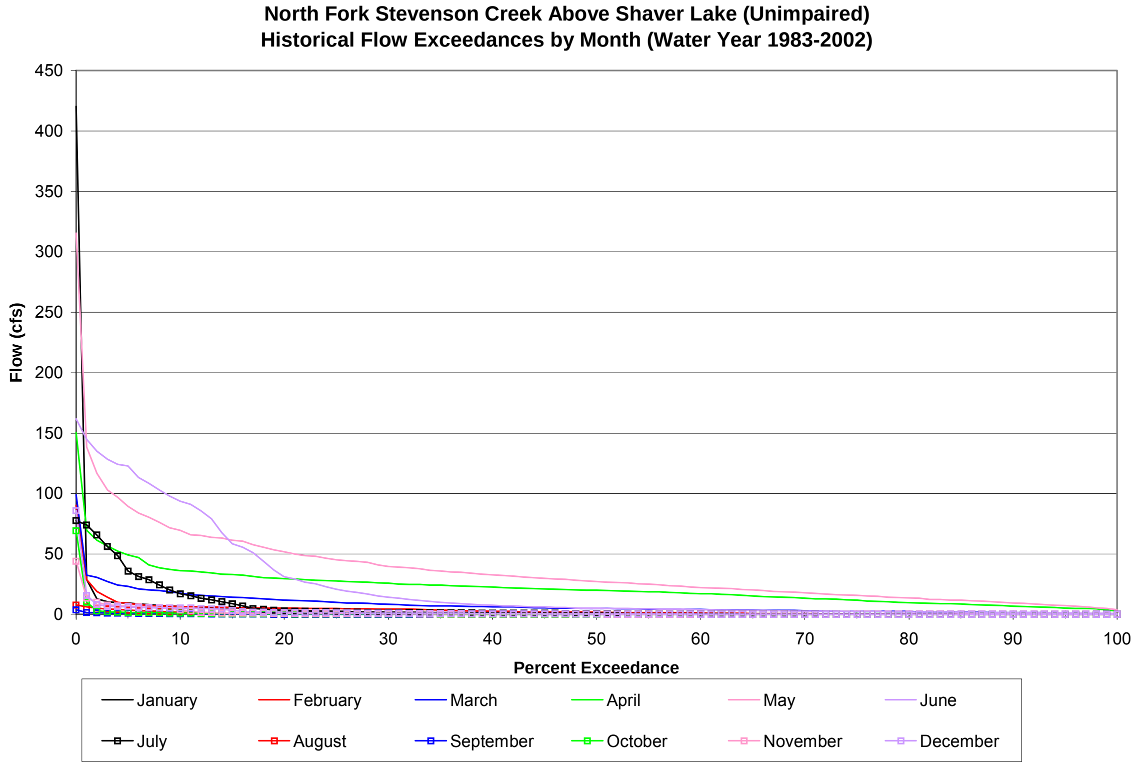

Balsam Creek Below Balsam Meadow Forebay (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
0
2
4
6
8
10
12
14
16
18
20
22
24
26
28
30
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December


Balsam Creek Below Balsam Meadow Forebay (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

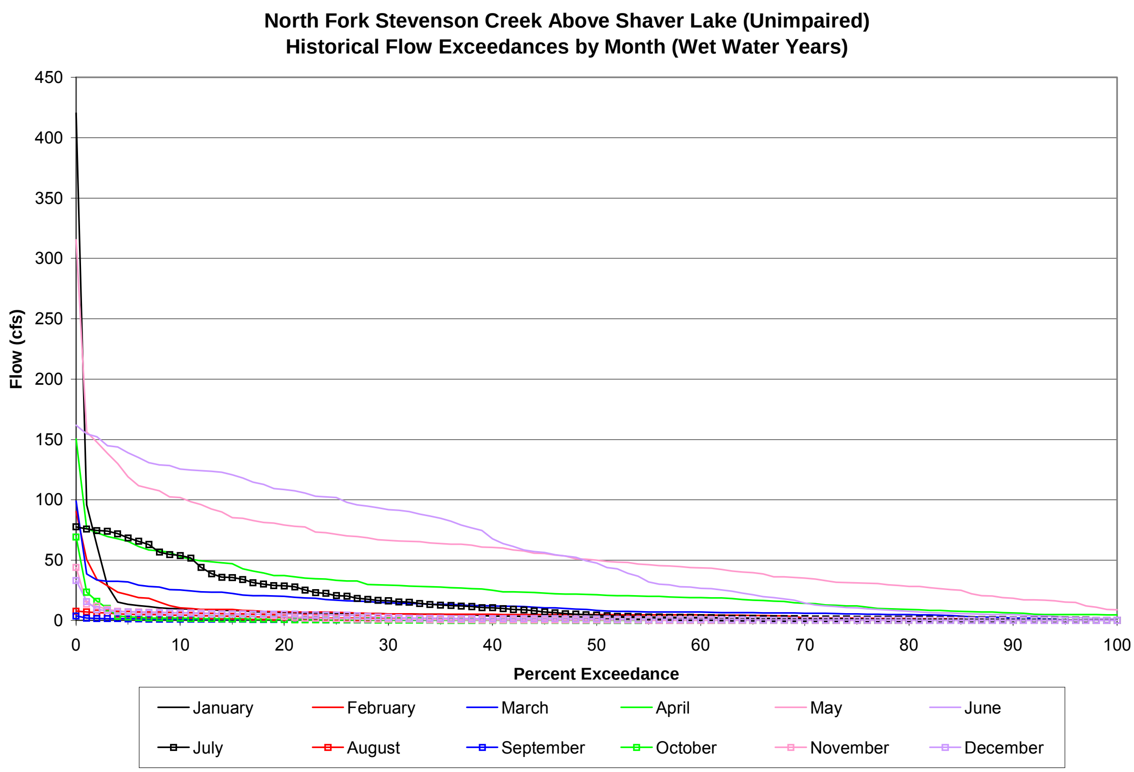

Balsam Creek Below Balsam Meadow Forebay (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December



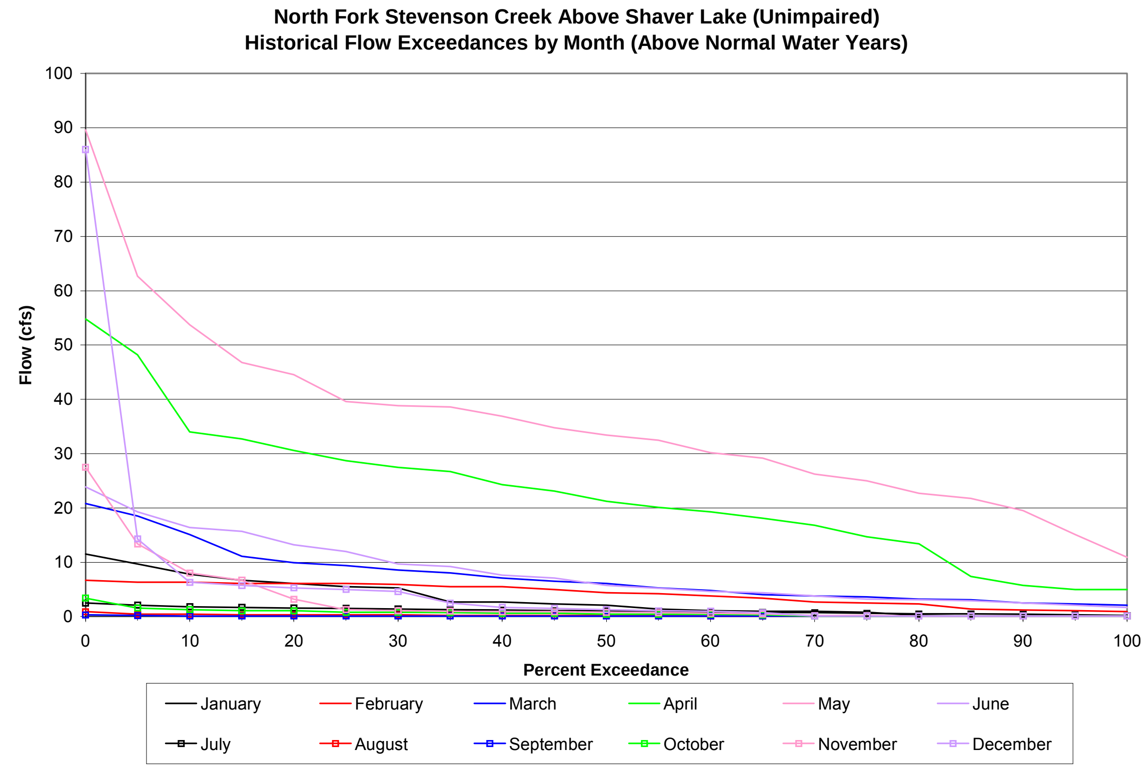
Balsam Creek Below Balsam Meadow Forebay (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
0
1
2
3
4
5
6
7
8
9
10
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

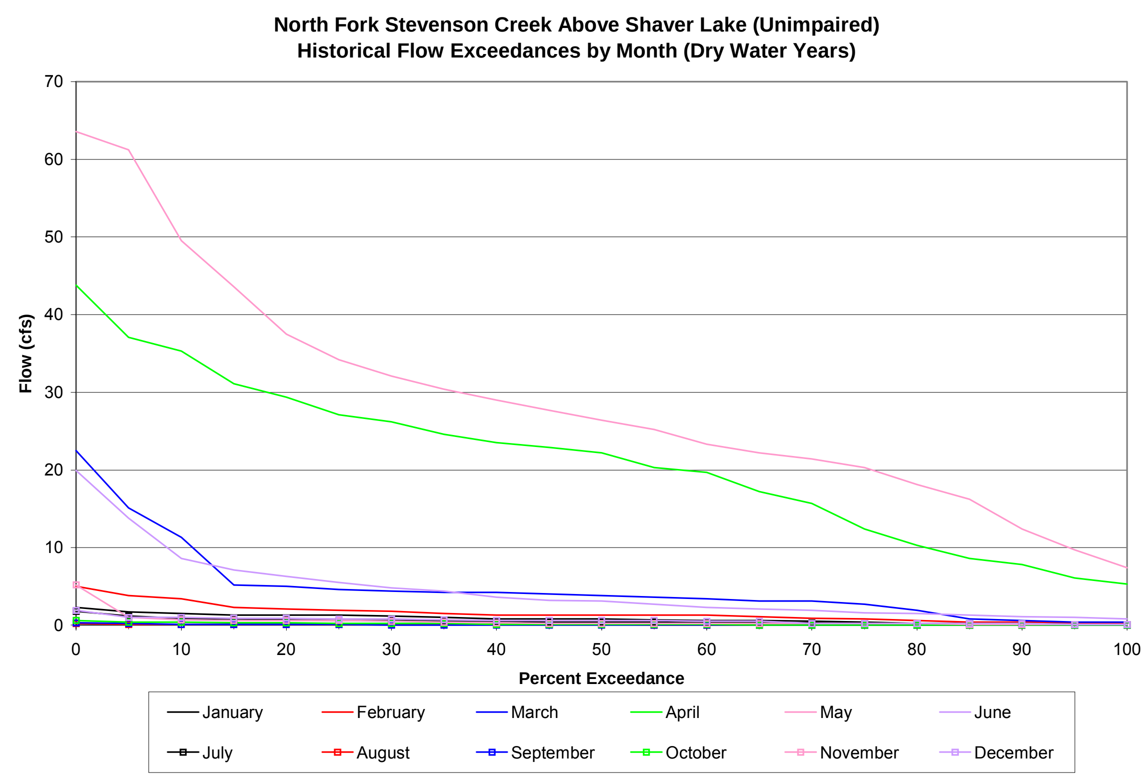


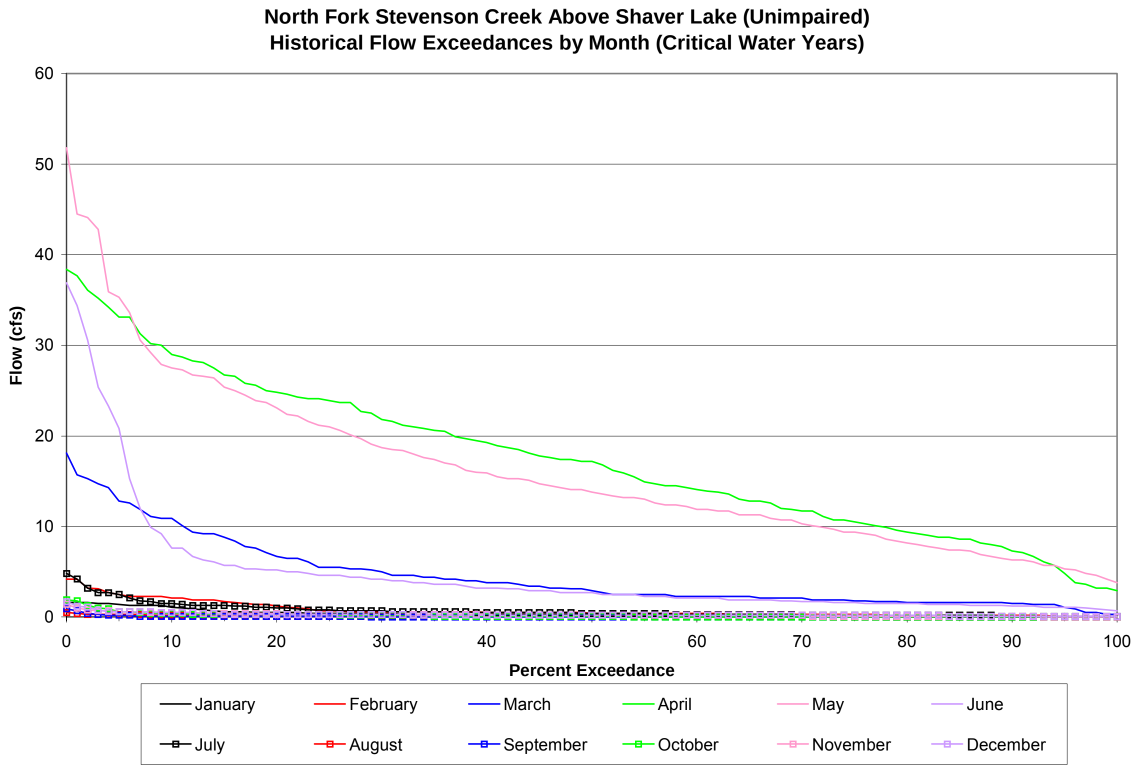
North Fork Stevenson Creek Above Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

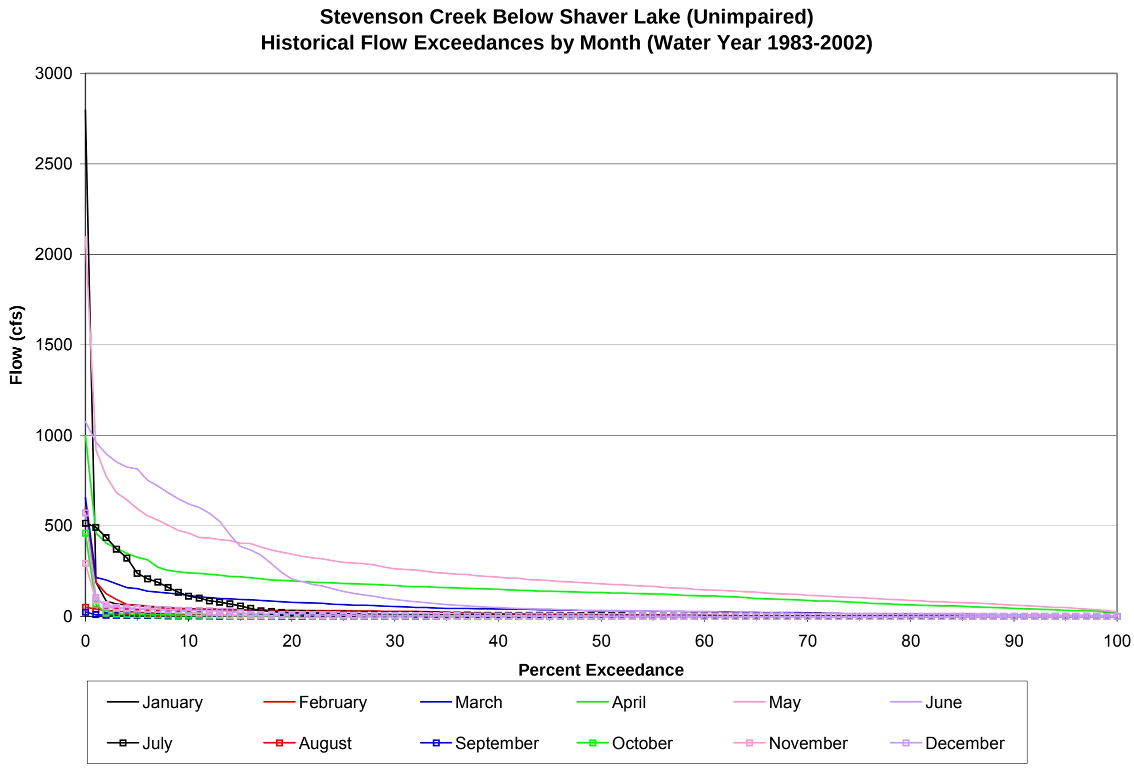


North Fork Stevenson Creek Above Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
450
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

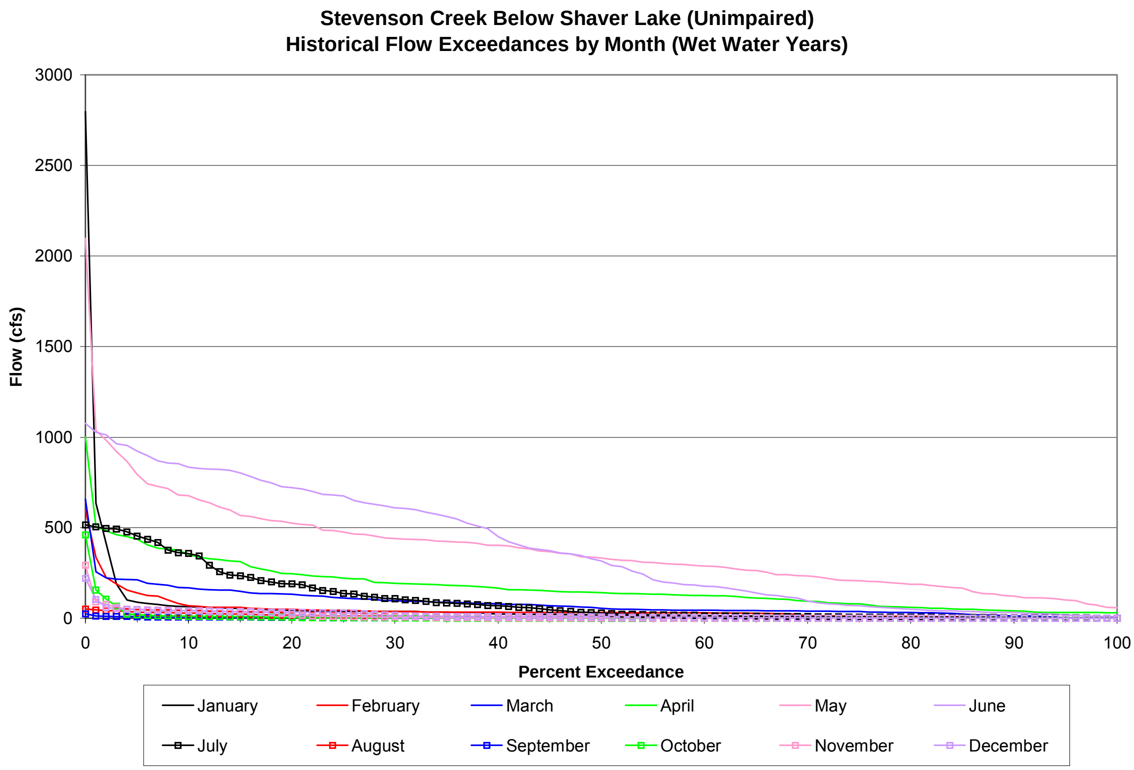

North Fork Stevenson Creek Above Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)
Flow (cfs)
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


North Fork Stevenson Creek Above Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)
Flow (cfs)
Percent Exceedance
0
10
20
30
40
50
60
70
80
90
100
January
February
March
April
May
June
July
August
September
October
November
December


North Fork Stevenson Creek Above Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
60
50
40
30
20
10
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

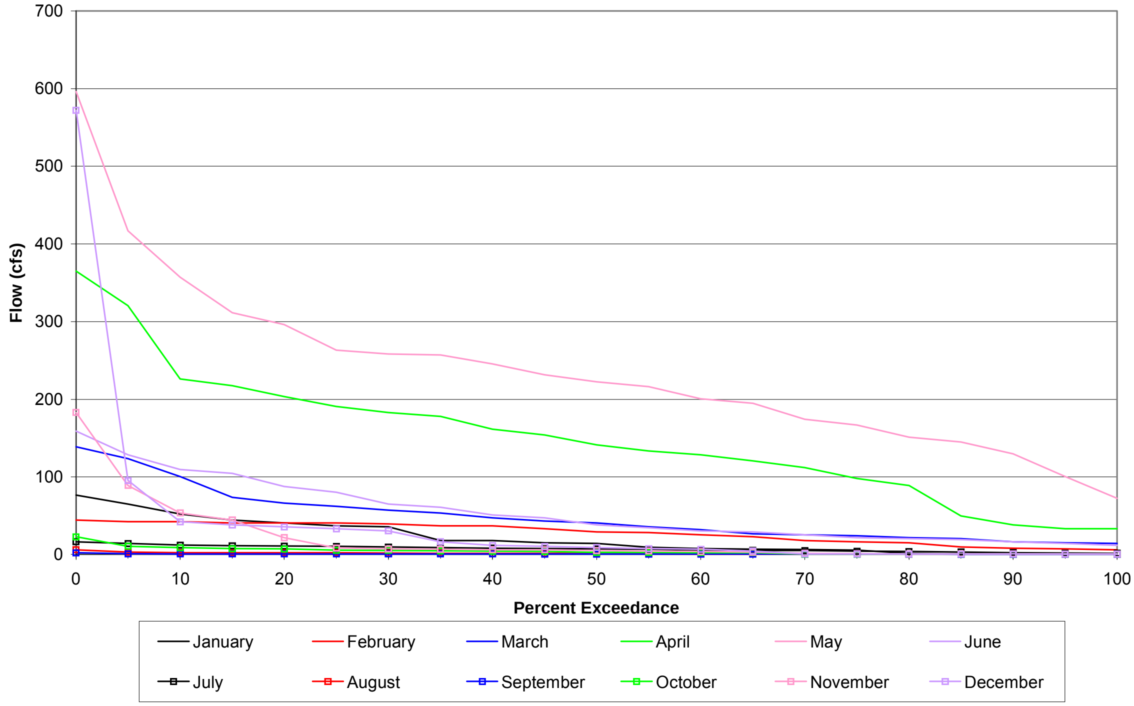


Stevenson Creek Below Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Water Year 1983-2002)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

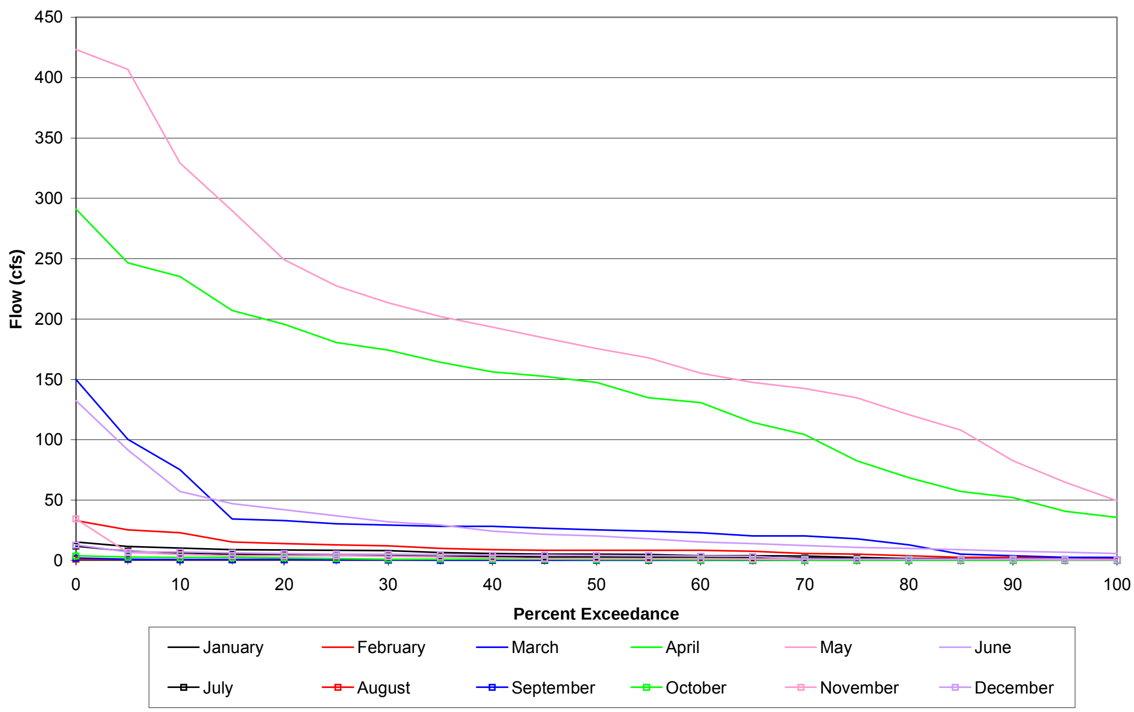


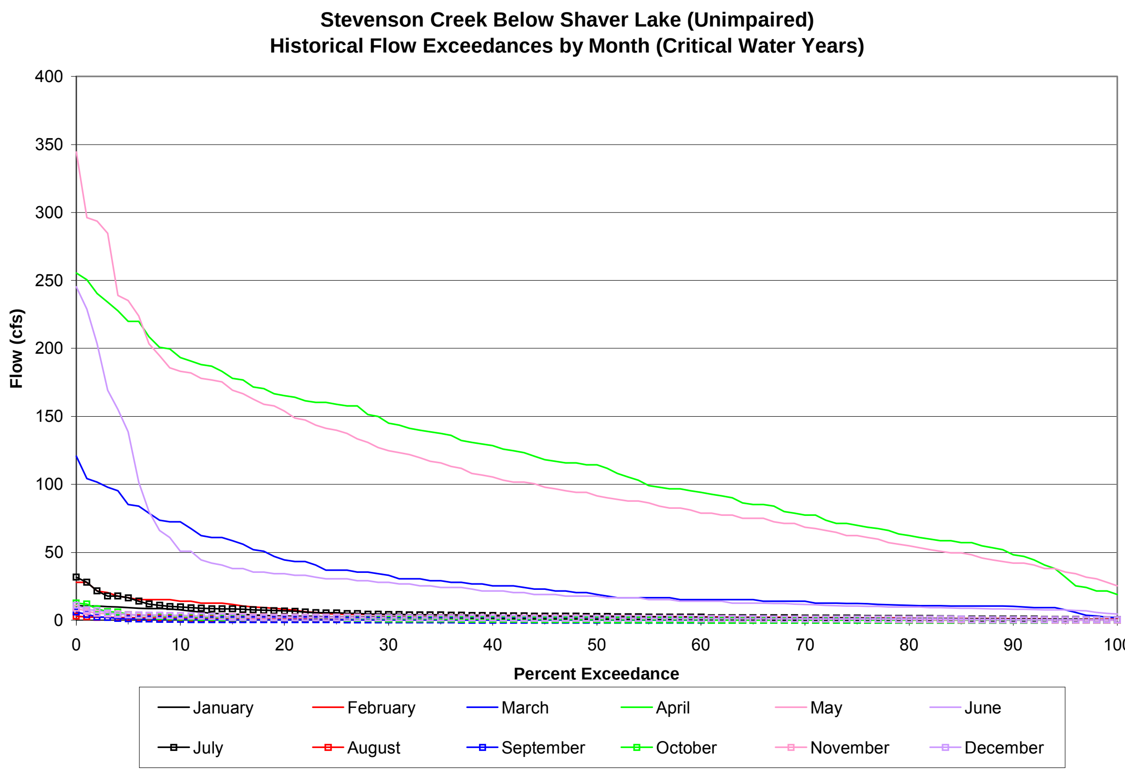
Stevenson Creek Below Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Wet Water Years)
Flow (cfs)
3000
2500
2000
1500
1000
500
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

Stevenson Creek Below Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Above Normal Water Years)

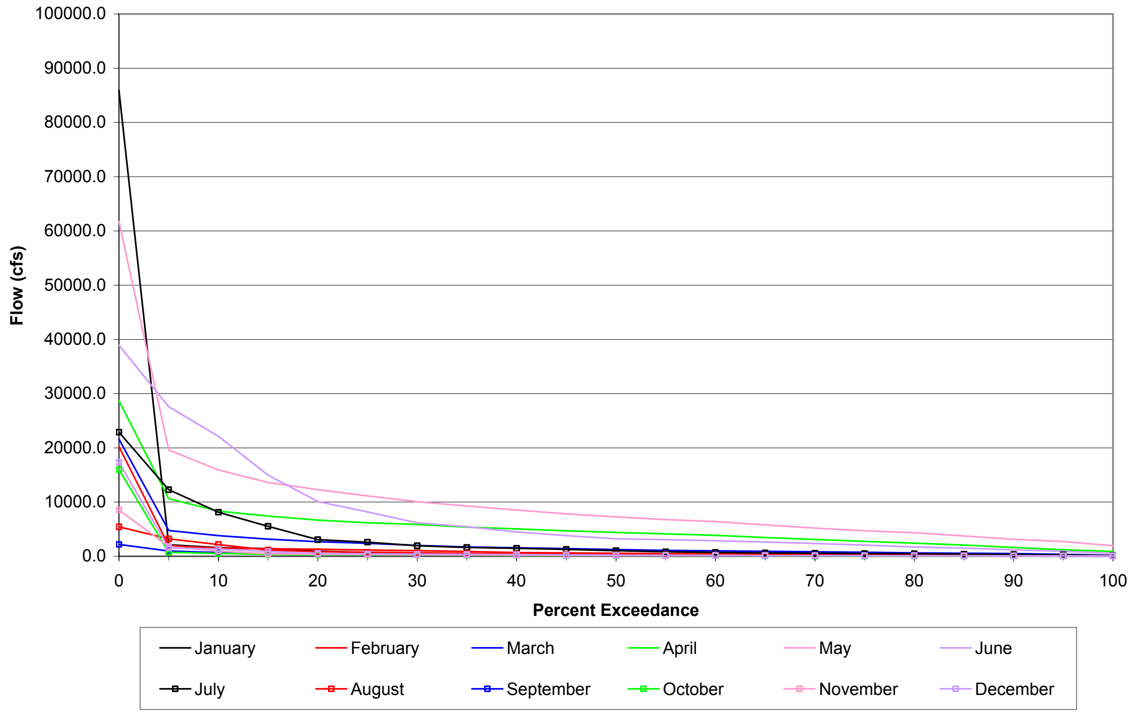


Stevenson Creek Below Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Dry Water Years)

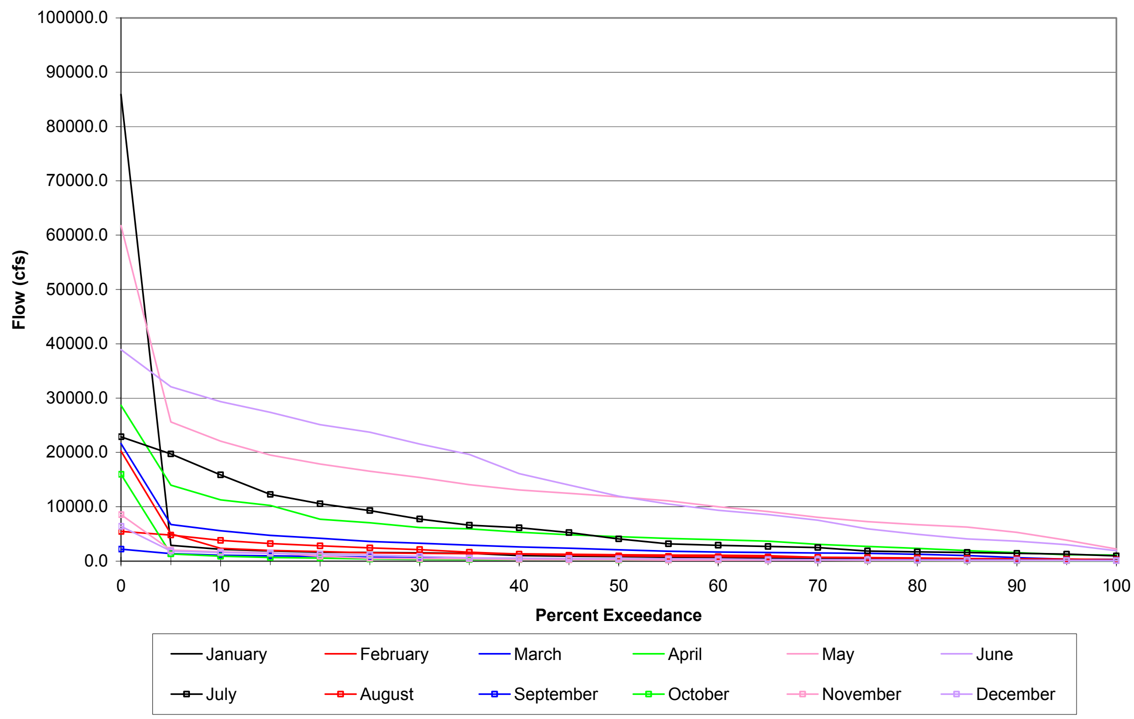



Stevenson Creek Below Shaver Lake (Unimpaired)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
400
350
300
250
200
150
100
50
0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

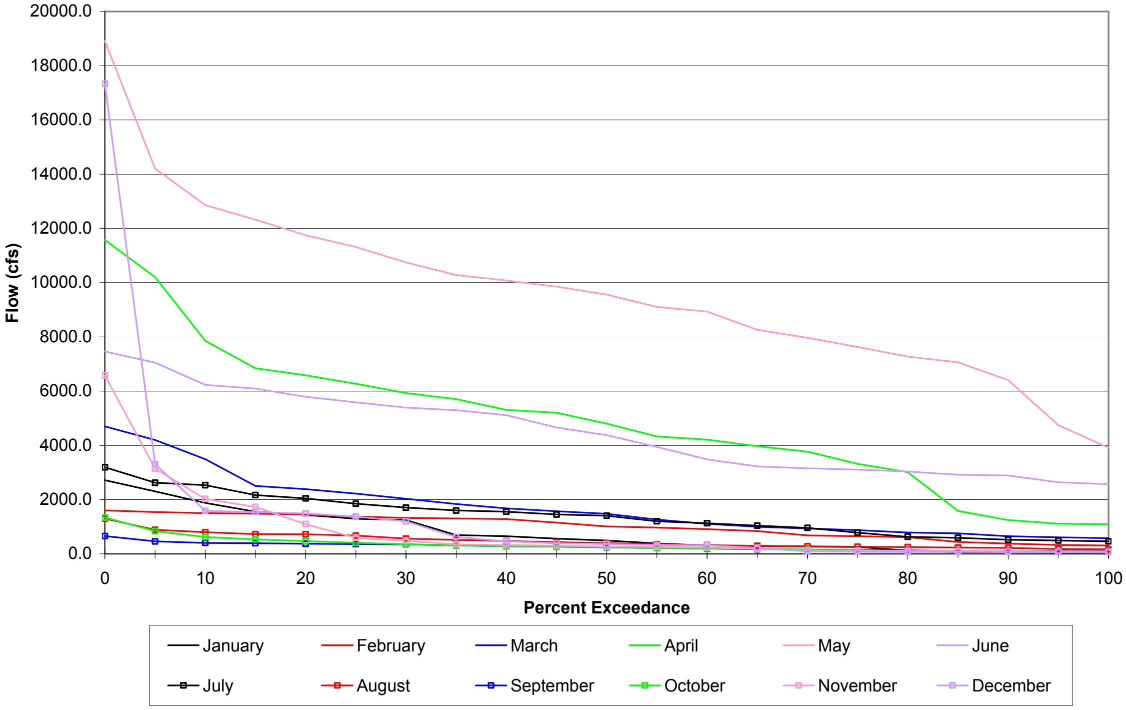
Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Flow Exceedances by Month (Water Years 1983-2002)



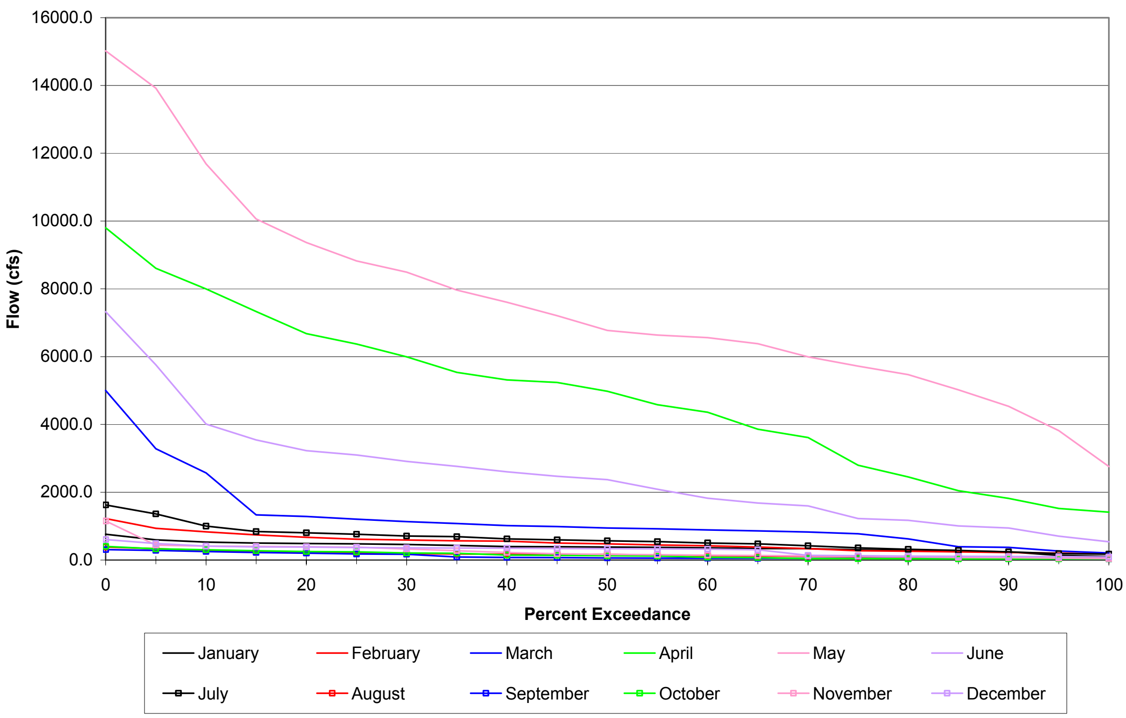
Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Flow Exceedances by Month (Wet Water Years)

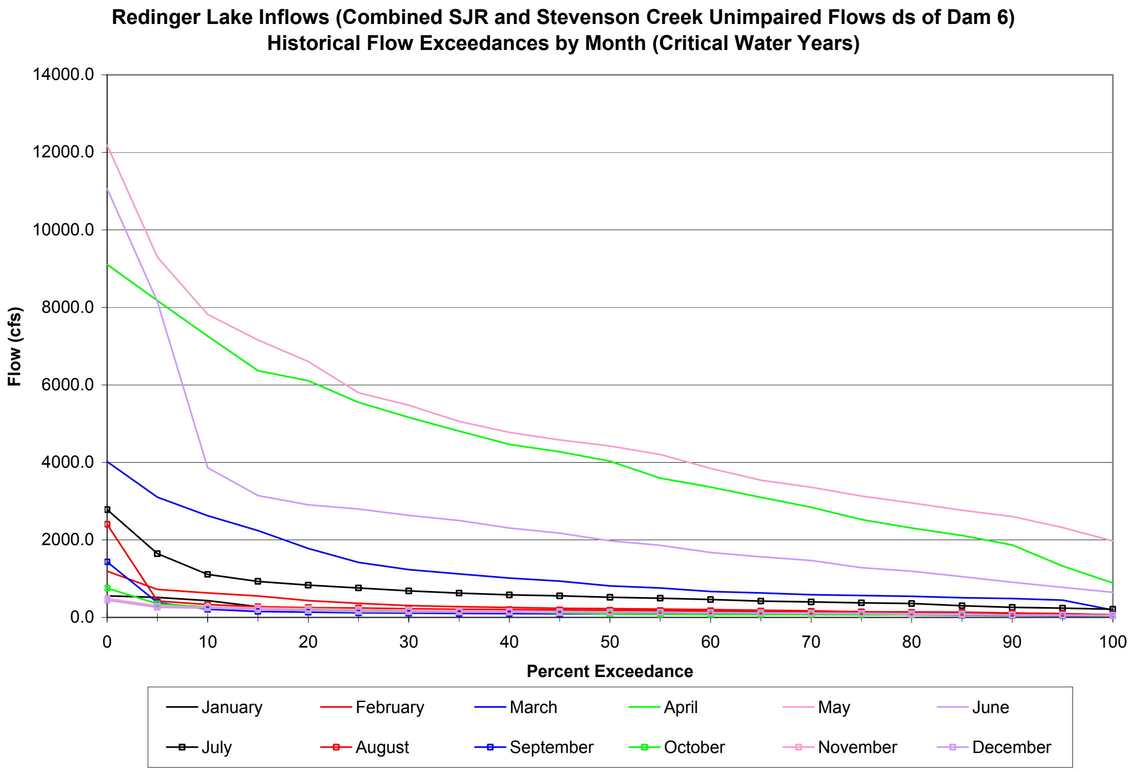


Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Flow Exceedances by Month (Above Normal Water Years)



Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Flow Exceedances by Month (Dry Water Years)




Redinger Lake Inflows (Combined SJR and Stevenson Creek Unimpaired Flows ds of Dam 6)
Historical Flow Exceedances by Month (Critical Water Years)
Flow (cfs)
14000.0
12000.0
10000.0
8000.0
6000.0
4000.0
2000.0
0.0
0
10
20
30
40
50
60
70
80
90
100
Percent Exceedance
January
February
March
April
May
June
July
August
September
October
November
December

APPENDIX K

INFORMATION FROM INDICATORS OF HYDROLOGIC ALTERATION USER'S MANUAL

APPENDIX K

Information from Indicators of Hydrologic Alteration User's Manual (The Nature Conservancy and Smythe Scientific Software, July, 2001)

Table CAWG 6 Appendix K-1. Summary of 33 Hydrologic Parameters Used in the Indicators of Hydrologic Alteration Software, and their Characteristics.

IHA Statistics Group	***Hydrologic Parameters***
Magnitude of monthly water conditions	Mean value for each calendar month Subtotal 12 parameters
Magnitude and duration of annual extreme water conditions	Annual 1-day minima Annual minima, 3-day means Annual minima, 7-day means Annual minima, 30-day means Annual minima, 90-day means Annual 1-day maxima Annual maxima, 3-day means Annual maxima, 7-day means Annual maxima, 30-day means Annual maxima, 90-day means Number of zero-flow days (zero flow) 7-day minimum flow/mean for year (base flow) Subtotal 12 parameters
Timing of annual extreme water conditions	Julian date of each annual 1-day maximum Julian date of each annual 1-day minimum Subtotal 2 parameters
Frequency and duration of high and low pulses	Number of low pulses within each year Mean duration of low pulses within each year Number of high pulses within each year Mean duration of high pulses within each year Subtotal 4 parameters
Rate and frequency of water condition changes	Means of all positive differences between consecutive daily values Means of all positive differences between consecutive daily values Number of hydrological reversals Subtotal 3 parameters
	Grand total 33 parameters

Types of Analysis

There are three basic types of analysis available in the IHA software. They are:

- **IHA analysis**. This is the “pre-impact (unimpaired or expected) vs. post-impact (existing or observed)” comparison. A "scorecard" table and graphs of each IHA parameter are produced, quantifying changes in the IHA parameters between the pre-impact and post-impact water regimes.

- **RVA (Range of Variability Approach) analysis**. In an RVA analysis, the user defines three different categories that divide the full range of pre-impact (unimpaired) data values. For example, the default in non-parametric RVA analysis is an automatic delineation of three categories of equal size: the lowest category contains all values less than or equal to the 33^{rd} percentile; the middle category contains all values falling in the range of the 34^{th} to 67^{th} percentiles; and the highest category contains all values greater than the 67^{th} percentile. During the pre-impact period, 33% of the annual IHA parameter values fell into each of these three categories.

  In an RVA analysis, the program computes the expected frequency with which the observed (post-impact) values of the IHA parameters should fall within each category (in the non-parametric default, this would be 33% for each of the three categories). It then computes the frequency with which the post-impact annual values of IHA parameters actually fell within each of the three categories. The output of the RVA analysis will tell you how well the observed (post-impact) values of the IHA parameters “fit” the expected (pre-impact) distribution, assessed for each of the three categories. This fit is described by a “Hydrologic Alteration Factor” (HAF) that is computed for each of the three categories as:

  (observed frequency – expected frequency) / expected frequency

  Therefore, if all of the observed values are outside the expected range, the HAF will be equal to –1. For example, if high flows do not occur anymore because these flows are diverted as part of the project, the observed frequency in the high RVA category (flows > the 67^{th} percentile of the unimpaired data) may be zero and the HAF will be –1. Alternatively, if flows have not changed due to the project and the observed frequency is equal to the expected frequency, the HAF will be zero.

There are also two types of statistics available for the IHA and RVA analyses. They are:

- **Non-parametric (percentile) statistics**. Due to the highly skewed nature of most hydrologic datasets, we strongly recommend that IHA users employ non-parametric statistics. The median (50th percentile) is used as the measure of central tendency for the IHA parameters; the spread between the 25th and 75th percentiles, divided by the median, is the measure of dispersion (called the “coefficient of dispersion”). The default "high pulse" level is the 75th percentile of all pre-impact daily data, and the “low pulse” level is the 25th percentile. You may reset these to other percentile values if you wish. The default RVA categories are defined by the 33^{rd} and 67^{th} percentiles.

- **Parametric statistics**. The mean is used as a measure of central tendency for the IHA parameters; and the coefficient of variation (standard deviation/mean) as the measure of dispersion. The default "high pulse" level is the mean plus one standard deviation; the "low pulse" level is the mean minus one standard deviation. The default RVA target for each IHA parameter is +/- one standard deviation from the mean; you may reset them to any number of standard deviations. If one of the RVA category limits falls outside the total range of variation of the pre-impact data, it will be replaced with the 25th (or 75th) percentile value.

Understanding the Output

The IHA Parameters

The principal result of an analysis using the IHA software is a set of 33 IHA parameters that are calculated for each year. The IHA software computes values of these parameters for both annual and multi-year (e.g., pre- and post-impact) periods. The results of these computations are organized for display purposes into five parameter groups.

Group 1: monthly average values (either means or medians) (mean daily flow in cfs).

Group 2: maximum and minimum values for one- to 90-day averages. There are 10 of these parameters: one-day minimum and one-day maximum are the one-day extreme values; three-day minimum and three-day maximum are the extreme three-day averages; seven, 30, and 90 day minimum/maximum, similarly, are the extrema of the data when smoothed with seven day, 30 day, and 90 day averaging windows (mean daily flow in cfs). This group also includes Zero Days, the number of days during the year with zero flow, and Base Flow, the seven-day annual minimum divided by the annual mean.

Group 3: Julian Dates (day of year) of the one-day minimum and maximum values.

Group 4: “pulses” in the water conditions. These are defined as periods when the water conditions are greater than the default (33% and 67%) or user-defined high pulse (flood) threshold, or less than the low pulse threshold (also default or user-defined). There are four parameters: the number of high and low pulses during the year, and their average duration (days).

Group 5: rises, falls, and reversals in water conditions. There are three of these parameters: the average rate at which water levels or flow rises, the average rate of fall (both in cfs/day), and the number of times that the hydrograph switched from a rising to a falling condition or vice versa. This latter parameter is called the “number of reversals”.

The Parametric IHA Scorecard

This output table summarizes a comparison between user-defined pre-impact and post-impact periods. The header panel contains a number of parameters that apply only to the period of analysis as a whole. These are:

- Watershed Area
- Mean Annual Flow or Water Level
- (Mean Flow or Water Level) / (Watershed area)
- Annual Coefficient of Variation

- Flow Predictability

  A measure of the variation among successive periods in the pattern of a periodic phenomenon (flow) – when the variation is low, predictability is high.

  Varies from zero (unpredictable) to one (very predictable). Can be due to constancy and/or contingency.

  Constancy – For complete constancy, flow is the same for all seasons (months) for all years. Varies inversely with the magnitude of variation.

  Contingency – For complete contingency, flow is different each season (month), but the pattern is the same for all years. An inverse measure of "persistence", or the degree to which flow at one time (month) tends to resemble flow at the previous time (month).

- (Flow Constancy) / (Flow Predictability) – varies from zero (all of the predictability is due to contingency) to one (all of the predictability is due to constancy).
- Percentage of floods that occur during a given 60 day period in all years
- Length of flood-free season

These, and the Zero Days and Base Flow parameters in group 2, are modeled after the suite of flow parameters described by Poff and Ward.

For each IHA parameter, and for both the pre- and post-impact periods, the mean and standard deviation of annual values is calculated. The rest of the table is then organized as follows:

Columns 1 and 2 are the means for each period

Columns 3 and 4 are the coefficients of variation, defined as (standard deviation) / mean.

Column 5 gives the magnitude of the change in mean values from the pre-impact to the post-impact period.

Column 6 expresses this change as a percentage.

Columns 7 and 8 give the magnitude and percentage change in the coefficients of variation.

For each IHA parameter group, the absolute values of the percentage deviation in mean and coefficient of variation are averaged. These means are shown at the bottoms of the respective column, and offer an at-a-glance summary of the impact on each parameter group.

The Non-Parametric IHA Scorecard

This is an alternative calculation of the IHA scorecard, using non-parametric statistics based on percentile distributions of the data. The IHA parameters are first calculated for each year. Then, for the ensemble of years in the pre- and post-impact periods, the 10th, 25th, 50th, 75th, and 90th percentiles are calculated for each IHA parameter.

The header panel, containing the period of record parameters, is identical to that in the Parametric IHA Scorecard described above. Then

Columns 1 and 2 display the median (i.e. the 50th percentile) for each of the two periods.

Columns 3 and 4 display the coefficient of dispersion (C.D.) for each period. This is defined as

(75 %ile - 25 %ile) / 50 %ile

Columns 5 and 6 show the deviation of the post-impact period from the pre-impact. This is defined as

Deviation Factor = [(Post-impact value) - (Pre-impact value)] / (Pre-impact value)

This deviation is shown both for the median and for the coefficient of dispersion.

Columns 7 and 8 calculate a "significance count" for the deviation values. To calculate this, the software program randomly shuffled all years of input data and recalculated (fictitious) pre- and post-impact medians and CDs 1000 times. The significance count reported in this table is the fraction of trials for which the deviations between the medians or CDs were less than that for the real case, i.e., if the real case produces the largest deviation of all the trials, the significance count = 1.0. If the real case deviation is greater than only 30% of the randomized trials, the significance count = 0.30.

The RVA Scorecard

This scorecard can be calculated using either Parametric or Non-Parametric statistics. It omits the header displayed in the standard IHA analysis, and gives the following information on each of the IHA parameters:

Columns 1-4 give the mean, standard deviation, and low and high extreme values for each parameter during the pre-impact period.

Columns 5-8 give the same information for the post-impact period.

Columns 9-10 give the low and high RVA category boundaries. They are typically the mean or median of the pre-impact period plus or minus a variance such as one standard deviation or 17 percentiles (these are defaults). If one of these default category boundaries falls outside the range of the pre-impact data, it is replaced by the extreme low (or high) value from the pre-impact period. If the low RVA limit is less than zero, it will be replaced by the pre-impact 25th percentile value.

Column 11 gives the Hydrologic Alteration factor for the middle RVA category. This is defined as

$$\frac{\text{Observed - Expected}}{\text{Expected}}$$

Where:

Expected = the frequency with which annual values of the IHA parameter fell within the middle RVA category in the pre-impact period,

Observed = the frequency with which annual values fell within the middle RVA category in the post-impact period.

The second page of this table compares the distributions of data in each of the three RVA categories. Expected and observed frequencies, and the hydrologic alteration factor are shown separately for each of the three RVA categories.

Percentile Statistics

This table shows the details of the percentile statistics.

The first five columns show the 10th, 25th, 50th, 75th, and 90th percentile values for the pre-impact period. The sixth column portrays the value of the coefficient of dispersion, calculated as

(75th% - 25th%) / 50th%

The last six columns give the analogous values for the post-impact period.

The Annual Summaries

This table displays the IHA parameter values for each individual year. Each column is one IHA parameter, each row is one year. This table is useful for understanding annual variation in the IHA parameter values, and can be used for correlations with biological data (e.g., annual plant or animal population estimates).

Box-And-Whisker Table

This table summarizes the mean (median), variance, and extreme values for each time period, for each IHA parameter, to help in producing box-and-whisker plots.

Graphs

Standard IHA Graphs

The annual mean value of each IHA variable is plotted versus time. When produced following standard pre- vs. post-impact analysis, the pre-impact and post-impact periods are shown, and lines are given showing the mean and +/- one standard deviation levels (for parametric statistics) or the 25^{th} and 75th percentile levels (for non-parametric statistics) for each period.

RVA Graphs

These are similar to the Standard IHA graphs. The variance levels are replaced with the RVA category limits. The post-impact period will show these limits together with the actual mean value for this period.

Regression Plots

These graphs show the annual means for a single period, with a linear least squares fit line superimposed. The equation of the least squares fitting and the r-squared value are also shown.

Monthly Alteration Plot

This chart compares the pre-impact and post-impact mean monthly values. The RVA categories are shown as horizontal bars on the pre-impact curve.

Hydrologic Alteration Plot

This is a bar chart showing the computed hydrologic alteration factor for each IHA parameter from the RVA table. Separate bars show the hydrologic alteration factors for the lowest, middle, and highest RVA categories.

Input Data

This plots all of the input data versus time. It is convenient for spotting trends, outliers, and data misentries.

APPENDIX L

IHA TABLES

APPENDIX L

BIG CREEK

CAWG 6 HYDROLOGY

IHA TABLES

Hooper Creek below Diversion
South Fork San Joaquin River below Hooper Creek
Bear Creek below Diversion
Chinquapin Creek below Diversion
Camp 62 Creek below Diversion
Bolsillo Creek below Diversion
Mono Creek below Diversion
Mono Creek below Diversion - Area Based
San Joaquin River above Shakeflat Creek
San Joaquin River downstream of Dam 6
North Fork Stevenson Creek near Perimeter Road (above Shaver Lake)
Stevenson Creek below Shaver Lake
Big Creek below Huntington Lake
Pitman Creek near Tamarack Mountain (below Diversion)
Balsam Creek below Balsam Meadow Forebay
Big Creek near Mouth
Redinger Lake Inflows (Complete Period of Record)
Redinger Lake Inflows (Equal Period of Record)

Table CAWG 6 Appendix L-1a. Hooper Creek below Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Hooper Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min
U	1983	8.55	6.77	6.58	7.17	6.97	6.82	5.02	39.09	101.81	79.80	47.96	13.83	3.85	3.94	4.13	5.00	5.51
	1984	5.56	5.16	5.80	4.44	4.17	6.45	10.75	56.03	40.65	30.88	10.49	5.40	3.16	3.30	3.48	3.62	3.71
	1985	3.59	3.88	3.70	4.37	4.48	3.69	17.08	31.89	29.69	9.69	3.68	2.77	2.06	2.11	1.91	2.38	2.56
	1986	2.61	3.11	5.73	3.83	8.38	10.98	18.29	53.15	75.29	33.51	11.68	4.33	1.05	1.16	1.50	2.35	1.79
	1987	2.94	1.35	.88	1.04	1.02	2.70	15.11	28.47	26.10	6.24	2.13	1.02	.59	.62	.66	.69	.97
	1988	.84	2.86	2.33	2.93	3.30	5.76	12.56	28.27	26.26	7.94	3.91	1.90	.63	.63	.63	.76	.85
	1989	.75	1.00	.80	.75	1.13	5.27	19.23	27.59	26.42	6.39	1.87	2.13	.51	.53	.57	.66	.82
	1990	2.32	1.47	1.29	1.59	2.35	4.74	13.80	21.02	22.66	9.22	3.30	1.00	.72	.72	.72	.89	.77
	1991	.87	.71	.69	.72	.80	3.18	6.40	21.02	48.95	19.21	4.63	2.30	.55	.63	.65	.68	.70
	1992	2.45	2.00	1.97	1.87	2.04	2.28	9.95	32.37	12.90	6.42	6.37	3.22	1.60	1.60	1.61	1.83	1.87
	1993	1.90	1.96	1.81	2.04	1.98	4.29	8.97	50.59	76.14	46.23	13.96	7.54	1.40	1.53	1.67	1.80	1.89
	1994	6.09	4.31	2.75	2.29	2.42	2.85	6.83	26.26	29.32	6.28	5.25	5.16	2.10	2.17	2.19	2.23	2.45
	1995	7.23	4.76	2.59	3.01	3.49	6.02	9.24	21.77	56.23	68.29	33.19	12.28	2.30	2.30	2.39	2.51	2.87
	1996	5.29	3.58	3.56	3.36	4.32	5.18	13.70	45.44	42.40	15.02	5.18	5.15	2.80	2.90	3.04	3.24	3.47
	1997	5.00	5.00	3.05	10.19	5.14	8.03	18.83	60.90	30.77	11.95	5.52	3.27	2.40	2.60	2.54	2.60	2.67
	1998	2.58	2.65	2.75	2.69	3.13	5.00	9.00	17.97	45.67	47.00	15.53	6.43	1.80	1.97	2.26	2.46	2.65
	1999	4.77	4.54	3.57	3.07	2.93	3.34	5.65	14.96	13.88	5.87	3.47	3.57	2.40	2.40	2.43	2.74	2.45
	2000	2.68	2.45	2.12	2.05	2.40	3.48	9.26	31.82	43.19	11.61	6.88	4.73	1.70	1.70	1.74	1.89	2.17
	2001	2.51	2.37	1.98	2.12	1.99	3.30	6.76	39.95	12.20	5.08	2.71	1.98	1.80	1.77	1.74	1.73	1.92
	2002	1.81	2.09	2.01	2.03	2.25	2.99	11.65	28.29	25.91	6.18	2.60	1.88	1.60	1.63	1.70	1.79	1.96
E	1987	3.28	2.69	2.87	2.22	2.30	2.34	3.47	3.67	2.57	2.69	2.59	2.09	1.80	1.87	1.89	1.92	2.19
	1988	2.04	2.50	2.07	2.15	2.50	3.73	7.68	2.68	3.04	3.67	2.95	2.51	1.60	1.80	1.81	1.82	1.76
	1989	1.81	1.87	1.59	1.70	1.80	3.00	9.50	2.61	2.46	2.66	2.32	2.24	1.20	1.43	1.47	1.56	1.65
	1990	2.09	2.04	1.87	1.68	1.73	2.10	3.60	3.10	3.12	3.70	2.96	1.91	1.50	1.60	1.60	1.66	1.73
	1991	1.68	1.82	1.64	1.55	1.55	2.19	3.23	2.50	3.38	3.28	3.19	2.95	1.30	1.30	1.33	1.53	1.57
	1992	2.11	2.00	1.97	1.87	2.04	2.28	4.23	3.74	4.01	3.96	3.28	2.28	1.60	1.60	1.61	1.83	1.87
	1993	1.90	1.96	1.81	2.04	1.98	4.29	5.18	3.35	42.49	33.02	5.15	3.82	1.40	1.53	1.67	1.80	1.89
	1994	3.13	2.85	2.75	2.29	2.42	2.85	4.30	3.73	4.02	3.98	2.88	2.45	2.10	2.10	2.11	2.22	2.45
	1995	3.65	2.86	2.59	3.01	3.49	6.02	9.24	21.77	43.23	68.29	18.78	3.10	2.20	2.30	2.39	2.51	2.78
	1996	4.75	3.58	3.56	3.36	4.32	4.80	3.07	3.85	4.71	4.27	3.59	2.74	2.00	2.33	2.37	2.48	2.86
	1997	2.66	3.22	3.05	10.19	5.14	8.03	18.83	60.90	30.77	3.84	3.31	3.27	2.30	2.30	2.37	2.60	2.67
	1998	2.58	2.65	2.75	2.69	3.13	5.00	9.00	17.97	45.67	47.00	12.22	4.76	1.80	1.97	2.26	2.46	2.65
	1999	4.55	4.54	3.57	3.07	2.93	3.34	5.65	8.57	7.71	5.29	3.42	3.57	2.40	2.40	2.43	2.72	2.45
	2000	2.68	2.45	2.12	2.05	2.40	3.48	9.26	25.32	4.36	4.61	3.96	2.76	1.70	1.70	1.74	1.89	2.17
	2001	2.51	2.37	1.98	2.12	1.99	3.30	5.43	4.30	3.90	3.86	2.71	1.98	1.80	1.77	1.74	1.73	1.92
	2002	1.81	2.09	2.01	2.03	2.25	2.99	3.38	2.78	2.42	2.59	2.44	1.85	1.60	1.63	1.70	1.79	1.96

	Year	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
U	1983	145.78	140.78	127.45	115.99	84.58	.00	.15	98.00	187.00	.00	.00	7.00	20.57	3.79	-2.95	117.00
	1984	89.25	87.01	84.87	64.52	43.29	.00	.22	274.00	144.00	.00	.00	5.00	22.00	2.22	-1.47	105.00
	1985	48.68	47.99	46.01	35.99	26.52	.00	.19	313.00	160.00	5.00	4.40	7.00	12.71	1.43	-.97	91.00
	1986	162.28	141.56	124.72	85.16	55.71	.00	.08	315.00	153.00	4.00	5.75	7.00	20.71	2.77	-1.97	93.00
	1987	57.62	54.83	45.87	31.96	23.78	.00	.09	57.00	137.00	5.00	38.80	2.00	40.00	1.20	-.83	112.00
	1988	49.23	45.24	42.87	33.81	22.73	.00	.08	278.00	136.00	12.00	5.17	4.00	18.50	1.41	-.93	87.00
	1989	43.18	41.12	38.15	29.93	24.74	.00	.07	362.00	161.00	4.00	10.75	2.00	40.00	1.44	-.78	100.00
	1990	40.57	38.46	36.50	23.42	19.55	.00	.10	258.00	160.00	5.00	32.60	2.00	45.50	1.22	-.88	89.00
	1991	84.99	82.38	74.67	51.96	30.23	.00	.07	312.00	164.00	5.00	6.80	4.00	19.75	1.63	-1.14	96.00
	1992	47.20	44.87	42.63	33.15	19.11	.00	.23	320.00	133.00	7.00	26.14	4.00	13.50	.94	-.85	125.00
	1993	110.00	108.00	101.29	84.40	58.25	.00	.09	325.00	177.00	7.00	16.43	1.00	116.00	1.93	-1.37	108.00
	1994	57.82	53.02	51.66	38.18	21.62	.00	.26	357.00	155.00	6.00	7.50	3.00	21.33	1.39	-.82	113.00
	1995	112.00	107.67	98.57	70.13	53.66	.00	.12	2.00	199.00	4.00	4.00	3.00	48.67	3.52	-2.50	106.00
	1996	76.30	68.92	65.43	50.21	36.01	.00	.24	344.00	137.00	.00	.00	4.00	24.75	1.77	-1.05	118.00
	1997	86.00	83.33	78.00	61.27	37.61	.00	.18	356.00	127.00	1.00	1.00	6.00	18.67	1.91	-1.21	103.00
	1998	68.00	65.00	59.86	53.47	38.14	.00	.17	361.00	191.00	7.00	3.29	2.00	59.50	1.24	-.96	108.00
	1999	51.00	48.87	46.63	21.28	12.18	.00	.42	245.00	150.00	2.00	3.00	1.00	13.00	.88	-.57	100.00
	2000	79.19	71.57	65.30	48.18	29.70	.00	.17	6.00	150.00	14.00	8.07	3.00	27.00	1.88	-1.22	104.00
	2001	59.41	55.81	51.35	40.71	20.28	.00	.25	265.00	138.00	10.00	17.30	1.00	48.00	1.43	-.93	99.00
	2002	54.74	48.98	44.61	37.58	22.47	.00	.23	346.00	152.00	8.00	18.25	3.00	23.67	1.52	-1.08	89.00
E	1987	6.10	5.97	5.26	4.17	3.25	.00	.69	351.00	343.00	5.00	27.00	.00	.00	.25	-.21	27.00
	1988	12.00	11.00	10.40	8.08	4.73	.00	.58	168.00	105.00	7.00	13.14	1.00	1.00	.30	-.35	53.00
	1989	20.00	19.00	17.86	9.64	5.07	.00	.53	116.00	109.00	10.00	16.00	1.00	12.00	.35	-.39	97.00
	1990	8.00	6.67	5.33	3.81	3.36	.00	.64	323.00	107.00	3.00	69.67	.00	.00	.25	-.26	48.00
	1991	5.00	4.27	4.17	3.84	3.32	.00	.55	285.00	64.00	14.00	4.29	.00	.00	.30	-.24	119.00
	1992	7.00	6.50	6.07	4.25	4.03	.00	.57	320.00	147.00	11.00	17.73	.00	.00	.28	-.24	109.00
	1993	110.00	108.00	101.29	71.58	27.23	.00	.19	325.00	177.00	10.00	11.90	1.00	27.00	1.52	-1.06	106.00
	1994	9.10	8.03	6.64	4.30	4.06	.00	.67	357.00	109.00	8.00	9.88	.00	.00	.33	-.22	99.00
	1995	112.00	107.67	98.57	70.13	48.06	.00	.15	308.00	199.00	6.00	3.33	3.00	33.67	2.95	-2.42	104.00
	1996	8.40	7.70	7.20	4.97	4.32	.00	.61	92.00	347.00	2.00	4.50	.00	.00	.49	-.30	104.00
	1997	86.00	83.33	78.00	61.27	37.38	.00	.19	279.00	127.00	2.00	3.00	3.00	30.67	1.77	-1.22	92.00
	1998	68.00	65.00	59.86	53.47	38.13	.00	.17	361.00	191.00	7.00	3.29	1.00	112.00	1.25	-1.05	107.00
	1999	11.00	11.00	10.83	8.73	7.90	.00	.52	245.00	140.00	2.00	3.00	.00	.00	.37	-.27	92.00
	2000	55.00	50.33	39.71	28.17	13.21	.00	.32	6.00	145.00	14.00	9.14	1.00	31.00	.90	-.73	96.00
	2001	10.00	9.20	7.81	5.75	4.70	.00	.57	265.00	116.00	10.00	17.30	.00	.00	.32	-.25	99.00
	2002	15.00	11.27	6.11	3.61	3.08	.00	.71	346.00	117.00	13.00	16.15	2.00	1.00	.62	-.47	75.00

Table CAWG 6 Appendix L-1b. Hooper Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Hooper Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1987-2002 (16 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.84	2.01	2.65	5.22	7.12	1.21	1.77	1.94	2.55	3.24	4.61	.51
November	1.03	1.97	2.76	4.48	5.15	.91	1.86	2.01	2.47	2.86	3.86	.34
December	.81	1.85	2.46	3.57	5.79	.70	1.63	1.90	2.09	2.84	3.57	.45
January	.78	1.91	2.49	3.71	6.90	.72	1.64	1.91	2.14	2.93	5.41	.48
February	1.03	2.00	2.68	4.28	6.79	.85	1.68	1.98	2.35	3.08	4.57	.47
March	2.71	3.21	4.52	5.96	7.91	.61	2.16	2.47	3.32	4.67	6.62	.66
April	5.72	7.37	10.35	14.78	18.78	.72	3.18	3.50	5.31	9.18	12.30	1.07
May	18.27	22.90	30.14	44.07	55.74	.70	2.58	2.86	3.74	15.62	35.99	3.42
June	13.00	25.96	30.23	48.13	76.06	.73	2.45	3.06	4.02	25.00	43.96	5.46
July	5.90	6.31	10.65	32.85	66.16	2.49	2.64	3.38	3.91	5.12	53.39	.45
August	2.17	3.35	5.21	11.39	31.43	1.54	2.40	2.75	3.24	3.87	14.19	.35
September	1.10	2.02	3.42	5.34	11.81	.97	1.89	2.13	2.62	3.23	4.11	.42
Parameter Group #2												
1-day minimum	.55	.80	1.75	2.38	3.12	.90	1.27	1.52	1.75	2.07	2.33	.31
3-day minimum	.62	.83	1.73	2.38	3.26	.89	1.39	1.60	1.78	2.25	2.35	.36
7-day minimum	.63	.92	1.74	2.42	3.43	.86	1.43	1.63	1.78	2.34	2.40	.40
30-day minimum	.68	1.10	2.06	2.57	3.58	.72	1.55	1.74	1.86	2.48	2.63	.39
90-day minimum	.77	1.18	2.06	2.66	3.69	.72	1.63	1.79	2.06	2.60	2.81	.39
1-day maximum	43.58	49.67	63.71	88.44	142.40	.61	5.77	8.10	11.50	64.75	110.60	4.93
3-day maximum	41.49	48.21	60.40	86.09	137.50	.63	5.46	6.92	11.00	61.33	107.77	4.95
7-day maximum	38.60	44.92	55.76	83.15	122.37	.69	4.93	6.08	9.11	54.82	99.39	5.35
30-day maximum	24.07	33.32	44.45	63.70	85.09	.68	3.75	4.19	6.91	47.14	70.57	6.21
90-day maximum	19.15	21.83	28.11	42.01	57.99	.72	3.20	3.53	4.72	23.72	41.11	4.28
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.07	.09	.17	.23	.26	.82	.17	.22	.56	.63	.70	.74
Parameter Group #3												
Date of minimum	246.30	275.00	322.50	360.00	5.60	.23	108.80	250.00	314.00	349.75	364.30	.27
Date of maximum	133.30	137.25	152.50	163.25	190.60	.07	92.70	109.00	133.50	187.50	344.20	.21
Parameter Group #4												
Low pulse count	.00	2.50	5.00	7.00	11.80	.90	2.00	3.50	7.50	10.75	14.00	.97
Low pulse duration	.00	3.07	6.28	17.08	31.95	2.23	3.00	3.57	10.89	17.01	39.80	1.23
High pulse count	1.00	2.00	3.00	4.75	7.00	.92	.00	.00	.50	1.00	3.00	2.00
High pulse duration	13.05	18.94	22.83	44.13	58.42	1.10	.00	.00	.50	29.75	57.17	59.50
Parameter Group #5												
Rise rate	.96	1.27	1.48	1.93	3.44	.44	.25	.30	.36	1.16	2.12	2.41
Fall rate	-2.45	-1.33	-1.01	-.86	-.78	-.47	-1.58	-.97	-.33	-.25	-.22	-2.23
Number of reversals	89.00	93.75	103.50	111.00	117.90	.17	41.70	79.25	98.00	105.50	112.00	.27

Table CAWG 6 Appendix L-1c. Hooper Ck below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Hooper Ck below Diversion Data

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1987-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	2.6	1.21	.7	8.5	2.5	.51	1.7	4.8	2.44	4.79	.41
November	2.8	.91	.7	6.8	2.5	.34	1.8	4.5	2.08	3.91	.56
December	2.5	.70	.7	6.6	2.1	.45	1.6	3.6	1.98	3.09	.41
January	2.5	.72	.7	10.2	2.1	.48	1.5	10.2	2.04	3.09	.41
February	2.7	.85	.8	8.4	2.3	.47	1.6	5.1	2.23	3.53	.25
March	4.5	.61	2.3	11.0	3.3	.66	2.1	8.0	3.33	5.30	-.06
April	10.3	.72	5.0	19.2	5.3	1.07	3.1	18.8	9.00	13.71	-.38
May	30.1	.70	15.0	60.9	3.7	3.42	2.5	60.9	27.50	39.15	-1.00
June	30.2	.73	12.2	101.8	4.0	5.46	2.4	45.7	26.25	43.36	-.53
July	10.6	2.49	5.1	79.8	3.9	.45	2.6	68.3	6.42	20.03	-1.00
August	5.2	1.54	1.9	48.0	3.2	.35	2.3	18.8	3.66	7.13	-.69
September	3.4	.97	1.0	13.8	2.6	.42	1.8	4.8	2.29	5.15	.56
Parameter Group #2											
1-day minimum	1.8	.90	.5	3.8	1.8	.31	1.2	2.4	1.38	2.11	.72
3-day minimum	1.7	.89	.5	3.9	1.8	.36	1.3	2.4	1.51	2.18	.56
7-day minimum	1.7	.86	.6	4.1	1.8	.40	1.3	2.4	1.61	2.27	.41
30-day minimum	2.1	.72	.7	5.0	1.9	.39	1.5	2.7	1.79	2.47	.25
90-day minimum	2.1	.72	.7	5.5	2.1	.39	1.6	2.9	1.87	2.57	.25
1-day maximum	63.7	.61	40.6	162.3	11.5	4.93	5.0	112.0	54.48	85.06	-.69
3-day maximum	60.4	.63	38.5	141.6	11.0	4.95	4.3	108.0	48.97	82.44	-.69
7-day maximum	55.8	.69	36.5	127.4	9.1	5.35	4.2	101.3	46.00	74.91	-.84
30-day maximum	44.4	.68	21.3	116.0	6.9	6.21	3.6	71.6	35.84	54.01	-.84
90-day maximum	28.1	.72	12.2	84.6	4.7	4.28	3.1	48.1	22.71	37.65	-.69
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.17	.82	.07	.42	.56	.74	.15	.71	.10	.22	-.38
Parameter Group #3											
Date of minimum	322.5	.23	2.0	362.0	314.0	.27	6.0	361.0	264.51	326.33	.09
Date of maximum	152.5	.07	127.0	199.0	133.5	.21	64.0	347.0	143.58	160.07	-.69
Parameter Group #4											
Low Pulse Count	5.0	.90	.0	14.0	7.5	.97	2.0	14.0	4.00	7.00	-.55
Low Pulse Duration	6.3	2.23	.0	38.8	10.9	1.23	3.0	69.7	3.95	11.15	-.38
High Pulse Count	3.0	.92	1.0	7.0	.5	2.00	.0	3.0	2.00	4.00	-.69
High Pulse Duration	22.8	1.10	12.7	116.0	.5	59.50	.0	112.0	20.51	40.00	-.44

The low pulse threshold is 2.50
The high pulse level is 11.00

	Unimpaired Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	1.5	.44	.9	3.8	.4	2.41	.2	2.9	1.41	1.88	-.69
Fall rate	-1.0	-.47	-3.0	-.6	-.3	-2.23	-2.4	-.2	-1.21	-.93	-.69
Number of reversals	103.5	.17	87.0	125.0	98.0	.27	27.0	119.0	98.79	108.00	-.17

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	6.40	9.00	.41	4.80	.00	-1.00	4.80	7.00	.46
November	6.40	10.00	.56	4.80	1.00	-.79	4.80	5.00	.04
December	6.40	9.00	.41	4.80	2.00	-.58	4.80	5.00	.04
January	6.40	9.00	.41	4.80	2.00	-.58	4.80	5.00	.04
February	6.40	8.00	.25	4.80	2.00	-.58	4.80	6.00	.25
March	6.40	6.00	-.06	4.80	2.00	-.58	4.80	8.00	.67
April	6.40	4.00	-.38	4.80	1.00	-.79	4.80	11.00	1.29
May	6.40	.00	-1.00	4.80	1.00	-.79	4.80	15.00	2.12
June	6.40	3.00	-.53	4.80	1.00	-.79	4.80	12.00	1.50
July	6.40	.00	-1.00	4.80	3.00	-.38	4.80	13.00	1.71
August	6.40	2.00	-.69	4.80	2.00	-.58	4.80	12.00	1.50
September	6.40	10.00	.56	4.80	.00	-1.00	4.80	6.00	.25
Parameter Group #2									
1-day minimum	6.40	11.00	.72	4.80	3.00	-.38	4.80	2.00	-.58
3-day minimum	6.40	10.00	.56	4.80	4.00	-.17	4.80	2.00	-.58
7-day minimum	6.40	9.00	.41	4.80	4.00	-.17	4.80	3.00	-.38
30-day minimum	6.40	8.00	.25	4.80	4.00	-.17	4.80	4.00	-.17
90-day minimum	6.40	8.00	.25	4.80	4.00	-.17	4.80	4.00	-.17
1-day maximum	6.40	2.00	-.69	4.80	3.00	-.38	4.80	11.00	1.29
3-day maximum	6.40	2.00	-.69	4.80	3.00	-.38	4.80	11.00	1.29
7-day maximum	6.40	1.00	-.84	4.80	3.00	-.38	4.80	12.00	1.50
30-day maximum	6.40	1.00	-.84	4.80	3.00	-.38	4.80	12.00	1.50
90-day maximum	6.40	2.00	-.69	4.80	2.00	-.58	4.80	12.00	1.50
Number of zero days	16.00	16.00	.00	.00	.00	.00	.00	.00	.00
Base flow	6.40	4.00	-.38	4.80	12.00	1.50	4.80	.00	-1.00
Parameter Group #3									
Date of minimum	6.40	7.00	.09	4.80	4.00	-.17	4.80	5.00	.04
Date of maximum	6.40	2.00	-.69	4.80	5.00	.04	4.80	9.00	.87
Parameter Group #4									
Low Pulse Count	8.80	4.00	-.55	3.20	8.00	1.50	4.00	4.00	.00
Low Pulse Duration	6.40	4.00	-.38	4.80	8.00	.67	4.80	4.00	-.17
High Pulse Count	9.60	3.00	-.69	4.00	.00	-1.00	2.40	13.00	4.42
High Pulse Duration	7.20	4.00	-.44	4.00	1.00	-.75	4.80	11.00	1.29
Parameter Group #5									
Rise rate	6.40	2.00	-.69	4.80	1.00	-.79	4.80	13.00	1.71
Fall rate	6.40	2.00	-.69	4.80	12.00	1.50	4.80	2.00	-.58
Number of reversals	7.20	6.00	-.17	4.00	2.00	-.50	4.80	8.00	.67

6 Messages:

Parameter Low pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse duration : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-1d. Hooper Ck below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Hooper Ck below Diversion Data

	Unimpaired period: 1983-2002 (20 years)	Existing period: 1987-2002 (16 years)
Watershed area	1.00	
Mean annual flow	11.20	5.70
Mean flow/area	11.20	5.70
Annual C. V.	.54	.21
Flow predictability	.47	.64
Constancy/predictability	.52	.83

WARNING: Some of the Colwell Parameters are based on < 20 years of data

% of floods in 60d period	.52	.50
flood-free season	53.00	143.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	2.6	2.5	1.21	.51	.04	.58	.61	.25
November	2.8	2.5	.91	.34	.10	.62	.46	.15
December	2.5	2.1	.70	.45	.15	.36	.68	.41
January	2.5	2.1	.72	.48	.14	.34	.35	.41
February	2.7	2.3	.85	.47	.12	.45	.35	.36
March	4.5	3.3	.61	.66	.27	.09	.20	.77
April	10.3	5.3	.72	1.07	.49	.49	.01	.29
May	30.1	3.7	.70	3.42	.88	3.86	.01	.01
June	30.2	4.0	.73	5.46	.87	6.45	.10	.00
July	10.6	3.9	2.49	.45	.63	.82	.06	.24
August	5.2	3.2	1.54	.35	.38	.78	.09	.31
September	3.4	2.6	.97	.42	.23	.57	.21	.12
Parameter Group #2								
1-day minimum	1.8	1.8	.90	.31	.00	.65	.95	.15
3-day minimum	1.7	1.8	.89	.36	.03	.59	.82	.16
7-day minimum	1.7	1.8	.86	.40	.02	.53	.74	.14
30-day minimum	2.1	1.9	.72	.39	.10	.45	.53	.18
90-day minimum	2.1	2.1	.72	.39	.00	.46	1.00	.18
1-day maximum	63.7	11.5	.61	4.93	.82	7.10	.00	.00
3-day maximum	60.4	11.0	.63	4.95	.82	6.89	.00	.00
7-day maximum	55.8	9.1	.69	5.35	.84	6.81	.00	.00
30-day maximum	44.4	6.9	.68	6.21	.84	8.09	.02	.00
90-day maximum	28.1	4.7	.72	4.28	.83	4.96	.02	.00
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.2	.6	.82	.74	2.31	.11	.00	.76
Parameter Group #3								
Date of minimum	322.5	314.0	.23	.27	.05	.17	.60	.56
Date of maximum	152.5	133.5	.07	.21	.10	2.02	.04	.01
Parameter Group #4								
Low pulse count	5.0	7.5	.90	.97	.50	.07	.01	.89
Low pulse duration	6.3	10.9	2.23	1.23	.74	.45	.20	.31
High pulse count	3.0	.5	.92	2.00	.83	1.18	.19	.13
High pulse duration	22.8	.5	1.10	59.50	.98	52.94	.01	.00

The low pulse threshold is 2.50
The high pulse level is 11.00

Parameter Group #5								
Rise rate	1.5	.4	.44	2.41	.76	4.47	.00	.00
Fall rate	-1.0	-.3	-.47	-2.23	.68	3.76	.01	.00
Number of reversals	103.5	98.0	.17	.27	.05	.61	.27	.11

Table CAWG 6 Appendix L-1e. Hooper Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1987-2002).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
16.92	10.59	3.58	2.06	4.54	0.67	0.89	5.23	1.16	4.30	1.80	6.12	7.00	8.30	5.12	2.60	4.87	3.50	2.20	1.80	3.00	1.90	1.90	2.60	1.60	2.20	1.80	3.20	3.60	3.00	2.80	2.60	4.00	3.50	2.20	1.80
14.30	11.28	3.58	1.93	4.26	0.67	0.89	4.54	1.13	4.30	1.90	6.18	6.52	8.10	5.62	2.60	4.59	3.40	2.50	1.70	3.00	1.90	2.00	2.50	1.70	2.20	1.90	3.20	3.30	2.90	2.70	2.60	3.90	3.40	2.50	1.70
12.24	10.18	3.71	1.79	3.99	0.66	0.83	4.13	1.13	4.25	1.90	6.12	6.18	9.19	5.11	2.60	4.66	3.20	2.50	1.70	3.10	1.90	2.00	2.30	1.60	2.20	1.90	3.20	3.20	4.10	2.50	2.60	4.00	3.20	2.50	1.70
10.59	9.21	3.85	1.79	3.85	0.63	0.83	3.71	0.96	4.46	1.90	6.06	6.62	5.90	4.83	2.50	4.60	3.20	2.40	1.70	3.10	1.90	2.00	2.20	1.60	2.20	1.90	3.20	3.70	5.90	2.40	2.50	4.00	3.20	2.40	1.70
9.35	8.53	3.58	1.65	3.85	0.65	0.83	3.30	0.96	4.70	1.80	6.32	8.95	6.20	4.67	2.50	4.54	3.10	2.40	1.70	3.10	1.90	2.10	2.20	1.60	2.50	1.80	3.40	5.00	6.20	2.30	2.50	4.00	3.10	2.40	1.70
8.53	7.70	3.58	1.79	3.71	0.63	0.89	3.03	0.88	2.30	1.80	6.22	9.29	5.90	4.62	2.40	4.47	3.20	2.40	1.80	3.30	1.80	2.00	2.30	1.80	2.30	1.80	3.30	4.90	5.90	2.30	2.40	4.00	3.20	2.40	1.80
7.84	7.43	3.44	2.89	3.71	0.63	0.83	2.75	0.84	2.30	1.90	6.13	9.59	5.80	4.62	2.50	4.52	3.00	2.30	1.80	3.50	1.80	1.80	2.20	1.90	2.30	1.90	3.10	5.00	5.80	2.30	2.50	4.10	3.00	2.30	1.80
7.15	7.29	3.30	3.03	3.71	0.63	0.80	2.48	0.84	2.20	1.80	6.08	10.40	5.70	4.56	2.50	4.46	2.90	2.30	1.80	3.70	1.80	1.90	2.20	1.70	2.20	1.80	3.10	5.20	5.70	2.30	2.50	4.10	2.90	2.30	1.80
6.60	6.74	3.16	3.03	3.85	0.63	0.80	2.34	0.84	2.00	1.80	6.08	11.14	5.50	4.76	2.50	4.43	2.80	2.60	1.80	3.90	1.80	1.90	2.00	1.50	2.00	1.80	3.10	5.40	5.50	2.50	2.50	4.10	2.80	2.60	1.80
6.05	6.19	3.03	2.75	3.71	0.63	0.77	2.20	0.84	2.00	1.80	6.02	10.92	5.20	4.86	2.90	4.40	2.80	2.50	1.80	3.90	1.80	1.90	2.00	1.40	2.00	1.80	3.10	5.40	5.20	2.60	2.90	4.10	2.80	2.50	1.80
5.64	5.64	3.16	3.03	3.71	0.63	0.77	2.06	0.81	2.00	1.80	6.70	10.50	4.60	4.86	3.00	4.38	2.70	2.50	1.80	3.90	1.80	1.90	2.00	1.30	2.00	1.80	3.30	5.20	4.60	2.60	3.00	4.10	2.70	2.50	1.80
5.36	5.36	3.58	3.03	3.58	0.63	0.77	1.93	0.81	2.00	1.80	6.52	9.59	4.60	4.80	3.00	4.36	2.60	2.70	1.70	3.80	1.90	1.90	1.90	1.30	2.00	1.80	3.30	4.80	4.60	2.60	3.00	4.10	2.60	2.70	1.70
5.23	5.09	3.71	2.75	3.30	0.87	0.77	1.79	0.81	1.90	1.80	6.18	8.69	4.60	4.70	2.90	4.42	2.60	2.70	1.70	3.70	2.00	1.90	1.80	1.30	1.90	1.80	3.20	4.40	4.60	2.50	2.90	4.20	2.60	2.70	1.70
4.95	4.81	3.58	2.48	3.16	0.87	0.77	1.65	0.81	1.90	1.80	6.02	7.87	4.60	4.70	2.90	4.42	2.60	2.60	1.70	3.50	2.00	1.90	1.60	1.30	1.90	1.80	3.10	4.00	4.60	2.50	2.90	4.20	2.60	2.60	1.70
4.95	4.68	3.30	2.34	2.89	0.76	0.77	1.65	0.78	2.00	1.80	6.22	7.43	4.80	4.70	2.80	4.44	2.60	2.60	1.70	3.50	2.00	1.80	1.80	1.30	2.00	1.80	3.30	3.80	4.80	2.50	2.80	4.20	2.60	2.60	1.70
4.81	4.54	3.16	2.34	2.75	0.72	0.74	1.65	0.78	2.00	1.70	6.52	6.72	4.70	4.80	2.70	4.54	2.50	2.60	1.70	3.50	2.00	1.60	1.80	1.40	2.00	1.70	3.30	3.50	4.70	2.60	2.70	4.30	2.50	2.60	1.70
4.68	4.40	3.85	2.20	2.61	0.69	0.72	1.51	0.78	1.80	1.70	6.58	6.68	4.70	4.70	2.60	5.12	2.50	2.50	1.70	3.60	2.10	1.60	1.90	1.60	1.80	1.70	3.30	3.40	4.70	2.50	2.60	4.90	2.50	2.50	1.70
4.40	4.26	4.54	2.20	2.48	0.67	0.72	1.38	0.78	1.70	1.80	6.35	6.42	4.70	4.70	2.60	5.30	2.50	2.50	1.70	3.70	2.10	1.70	1.90	1.90	1.70	1.80	3.20	3.20	4.70	2.50	2.60	5.30	2.50	2.50	1.70
4.40	4.13	5.09	2.06	2.34	0.67	0.67	1.38	0.88	1.70	1.70	6.23	6.35	4.60	5.07	2.50	5.10	2.40	2.50	1.70	3.70	2.10	1.60	2.00	2.00	1.70	1.70	3.20	3.20	4.60	2.70	2.50	5.10	2.40	2.50	1.70
4.40	4.13	4.68	1.93	2.34	0.66	0.67	1.38	1.05	1.80	1.70	6.18	6.20	4.70	5.07	2.50	5.10	2.40	2.40	1.70	3.50	2.20	1.70	1.80	2.00	1.80	1.70	3.20	3.10	4.70	2.70	2.50	5.10	2.40	2.40	1.70
4.26	3.99	4.13	1.93	2.34	0.66	0.67	1.38	0.88	1.80	2.10	6.18	6.03	4.60	5.02	2.60	5.10	2.40	2.50	1.70	3.30	2.20	1.70	2.00	1.90	1.80	2.10	3.20	3.00	4.60	2.70	2.60	5.10	2.40	2.50	1.70
5.64	3.85	3.71	2.61	2.34	0.83	0.67	1.93	0.88	1.90	1.80	6.13	5.88	4.70	5.12	2.50	5.10	2.40	2.40	1.70	3.20	2.20	1.70	2.10	1.90	1.90	1.80	3.10	2.90	4.70	2.80	2.50	5.10	2.40	2.40	1.70
6.05	3.71	3.71	3.44	2.20	1.09	0.67	1.79	0.84	1.90	1.80	5.92	5.82	4.80	5.17	2.50	5.00	2.40	2.40	1.70	3.10	2.20	1.70	2.10	1.80	1.90	1.80	3.00	2.90	4.80	2.80	2.50	5.00	2.40	2.40	1.70
8.11	3.71	3.58	4.13	2.20	1.05	0.67	2.20	0.84	1.90	1.80	5.86	5.82	4.60	5.17	2.50	5.10	2.40	2.40	1.70	3.00	2.20	1.80	2.20	1.80	1.90	1.80	3.00	2.90	4.60	2.80	2.50	5.10	2.40	2.40	1.70
15.27	3.58	3.44	3.85	2.06	0.89	0.67	2.61	0.84	2.10	1.80	5.86	5.66	4.60	5.44	2.50	5.10	2.30	2.40	1.70	2.90	2.20	1.80	2.20	1.90	2.10	1.80	3.00	2.80	4.60	2.70	2.50	5.10	2.30	2.40	1.70
18.98	3.44	3.71	3.44	2.06	0.83	0.67	2.20	0.84	2.80	1.70	5.70	5.66	4.60	4.86	2.40	5.10	2.40	2.60	1.70	2.80	2.20	1.70	2.30	1.80	2.80	1.70	2.90	2.80	4.60	2.60	2.40	5.10	2.40	2.60	1.70
13.20	3.30	3.30	3.30	1.93	0.83	0.67	2.48	0.81	2.80	1.80	5.70	5.46	4.50	4.85	2.40	5.00	2.40	2.70	1.70	2.70	2.20	1.70	2.20	1.80	2.80	1.80	2.90	2.60	4.50	2.80	2.40	5.00	2.40	2.70	1.70
11.55	3.30	3.16	3.03	1.93	1.31	0.67	1.93	0.81	2.40	2.00	5.64	5.40	4.58	5.33	2.40	4.90	2.70	2.60	1.70	2.70	2.20	1.70	2.20	1.80	2.40	2.00	2.90	2.60	4.50	2.90	2.40	4.90	2.70	2.60	1.70
10.73	3.30	3.16	2.89	1.93	1.79	0.67	1.79	0.78	2.40	2.50	5.64	5.24	4.80	5.37	2.40	5.10	2.50	2.80	1.70	2.70	2.30	1.70	2.20	1.90	2.40	2.50	2.90	2.50	4.60	3.00	2.40	5.10	2.50	2.80	1.70
11.41	3.99	3.03	2.75	1.93	1.65	0.67	1.79	0.81	2.10	3.10	5.70	5.01	5.09	5.50	2.40	5.00	2.40	2.80	3.70	2.70	2.30	1.70	2.20	1.90	2.10	3.10	2.90	2.40	4.70	3.30	2.40	5.00	2.40	2.80	3.70
11.41	4.13	2.75	2.48	1.79	1.51	0.67	1.79	0.78	2.30	2.60	5.64	5.07	4.66	6.27	2.30	4.80	2.30	2.50	2.40	2.60	2.30	1.70	2.20	1.90	2.30	2.60	2.90	2.40	4.30	3.60	2.30	4.80	2.30	2.50	2.40
11.41	3.85	2.61	2.34	1.51	2.06	0.72	1.65	0.76	2.30	2.60	5.70	5.01	4.40	6.05	2.30	4.80	2.30	2.50	1.90	2.60	2.30	1.80	2.20	1.90	2.30	2.60	2.90	2.40	4.40	3.50	2.30	4.80	2.30	2.50	1.90
10.73	3.71	2.61	2.20	1.51	2.89	0.72	1.65	0.67	2.30	2.50	5.54	5.24	4.40	5.91	2.30	4.80	2.30	2.40	1.80	2.60	2.30	1.70	2.20	1.70	2.30	2.50	2.80	2.50	4.40	3.30	2.30	4.80	2.30	2.40	1.80
9.63	3.58	2.61	2.06	1.65	2.06	0.72	1.65	0.67	2.30	2.40	5.54	4.57	4.00	5.95	2.30	4.80	2.30	2.30	1.80	2.50	2.30	1.80	2.00	1.90	2.30	2.40	2.80	2.20	4.00	3.40	2.30	4.80	2.30	2.30	1.80
8.94	3.58	2.34	2.06	1.51	1.93	0.72	1.65	0.77	2.40	2.30	5.66	4.90	3.70	5.45	2.30	4.70	2.30	2.30	1.80	2.50	2.40	1.60	2.00	1.90	2.40	2.30	2.80	3.00	3.70	2.90	2.30	4.70	2.30	2.30	1.80
8.39	3.44	2.48	2.06	1.65	3.03	0.67	1.65	0.85	2.50	2.30	5.60	5.80	3.80	5.29	2.30	4.60	2.30	2.30	1.80	2.50	2.40	1.70	2.00	1.80	2.50	2.30	2.80	3.00	3.80	2.80	2.30	4.60	2.30	2.30	1.80
7.98	3.30	2.34	1.93	1.51	3.58	0.67	1.65	0.70	2.40	2.50	5.70	6.50	3.80	5.30	2.30	4.50	2.30	2.30	1.80	2.40	2.40	1.60	2.00	1.70	2.40	2.50	2.90	3.10	3.80	3.10	2.30	4.50	2.30	2.30	1.80
7.29	3.85	2.48	1.79	1.06	3.44	0.67	1.38	0.55	2.40	2.30	5.60	5.83	3.80	5.29	2.50	4.80	2.30	2.30	1.80	2.70	2.40	1.70	2.00	1.90	2.40	2.30	2.80	2.80	3.80	2.80	2.50	4.80	2.30	2.30	1.80
6.33	3.58	2.06	1.79	1.51	3.44	0.67	1.36	0.73	2.40	2.20	5.60	5.90	3.70	5.71	2.40	4.80	2.70	2.30	1.70	3.10	2.50	1.80	2.20	2.00	2.40	2.20	2.80	2.80	3.70	3.10	2.40	4.80	2.70	2.30	1.70

Table CAWG 6 Appendix L-2a. SFSJR below Hooper Creek IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
SFSJR below Hooper Ck

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	217.87	172.55	167.78	182.81	177.73	173.74	127.80	996.26	2594.69	2033.66	1222.26	352.34	98.10	100.43	105.11	127.45	143.83	3715.00	3587.70	3247.91	2956.03	2155.55	.00	.15	98.00	187.00	.00	.00	3.00	40.33	96.65	-75.23	117.00
	1984	120.52	153.34	189.47	115.14	107.18	176.39	298.91	1578.25	1107.04	860.93	355.01	158.10	44.34	53.17	65.25	65.83	83.97	2455.39	2392.67	2337.80	1806.12	1205.31	.00	.15	295.00	145.00	3.00	1.00	7.00	15.43	56.69	-46.88	164.00
	1985	65.92	101.08	85.72	70.70	74.18	92.00	494.36	981.02	838.04	272.40	80.29	42.40	6.19	10.08	15.37	24.90	41.02	1519.19	1435.66	1293.58	1064.41	780.50	.00	.06	348.00	145.00	15.00	2.13	3.00	26.00	30.65	-27.15	159.00
	1986	36.39	59.16	99.12	100.53	261.47	323.18	493.76	1510.89	772.56	734.96	396.49	100.87	3.47	13.13	15.81	36.11	36.64	3512.76	3190.50	2864.82	1545.29	1035.91	.00	.04	276.00	151.00	6.00	5.67	9.00	14.44	77.26	-54.26	136.00
	1987	56.46	27.76	22.67	26.08	43.23	82.17	394.51	946.59	694.50	253.01	151.19	34.21	2.33	2.69	17.91	22.23	25.12	2306.15	1883.22	1560.60	1021.85	699.56	.00	.08	320.00	232.00	12.00	13.17	4.00	18.25	54.29	-54.25	178.00
	1988	30.00	48.82	44.27	79.99	79.08	138.20	325.04	800.55	724.48	245.39	123.90	57.32	15.99	20.44	23.64	26.45	29.59	1396.10	1305.24	1233.12	958.49	630.52	.00	.11	292.00	142.00	11.00	5.36	3.00	21.00	30.71	-26.72	151.00
	1989	25.57	31.56	36.28	42.36	55.18	151.75	508.74	778.24	647.46	163.07	66.28	56.85	14.72	14.95	19.82	25.07	30.54	1192.44	1150.84	1062.50	796.81	653.00	.00	.09	258.00	129.00	12.00	11.00	3.00	25.33	28.46	-23.77	168.00
	1990	53.97	31.17	24.83	30.20	44.02	105.32	337.37	597.12	794.54	273.36	88.35	40.87	15.96	17.38	17.69	20.38	22.81	5739.46	2517.03	1674.36	828.82	592.72	.00	.09	3.00	155.00	5.00	32.00	6.00	12.00	58.50	-47.13	151.00
	1991	30.03	19.14	17.43	17.78	18.72	101.57	224.72	625.43	1378.09	490.06	95.24	50.46	11.37	14.74	15.96	17.15	17.75	2301.33	2211.79	2048.36	1499.56	843.78	.00	.06	312.00	164.00	5.00	5.80	5.00	13.20	39.02	-31.64	169.00
	1992	25.31	52.25	30.19	34.88	61.50	83.33	366.65	864.35	372.97	140.22	64.51	29.90	16.31	17.52	17.67	22.74	32.81	1199.05	1163.03	1146.61	882.83	543.34	.00	.10	303.00	129.00	9.00	15.22	2.00	25.50	22.31	-14.41	135.00
	1993	29.10	44.11	43.70	113.23	95.14	201.96	366.67	1340.09	1783.36	1443.97	448.86	100.52	18.57	18.93	19.53	27.52	26.08	2515.70	2439.68	2277.61	2073.12	1542.32	.00	.04	343.00	167.00	6.00	8.00	2.00	56.00	77.45	-57.95	148.00
	1994	34.92	19.03	22.13	17.45	40.68	102.77	303.35	820.87	865.86	195.88	44.53	58.62	11.11	11.61	15.07	16.93	19.17	1480.64	1403.37	1357.28	1059.29	690.13	.00	.07	306.00	135.00	6.00	30.83	3.00	23.67	38.14	-24.96	154.00
	1995	158.15	75.15	64.06	133.21	130.42	250.56	349.14	775.07	1906.74	1297.81	915.31	303.76	43.22	47.30	52.73	59.82	73.00	6627.99	3632.98	3108.81	2016.78	1444.54	.00	.10	308.00	173.00	1.00	2.00	9.00	15.33	153.96	-127.83	148.00
	1996	102.28	44.50	70.34	89.87	179.42	195.72	441.38	1260.76	1610.73	938.96	284.70	112.89	23.32	28.16	31.37	35.80	57.79	3337.27	2527.04	2219.86	1659.45	1303.97	.00	.07	338.00	138.00	7.00	6.71	10.00	11.10	98.99	-77.51	186.00
	1997	45.69	89.62	132.45	544.50	146.36	227.80	526.83	1688.15	1430.66	650.06	235.34	89.33	21.41	29.09	32.13	41.18	61.36	5179.52	2843.10	2194.47	1851.39	1317.05	.00	.07	293.00	2.00	4.00	8.75	3.00	40.00	96.87	-71.29	156.00
	1998	66.72	46.06	69.96	78.85	131.05	169.48	281.71	624.67	1779.95	2187.59	793.76	252.99	23.69	30.34	33.51	39.52	56.64	3126.26	3056.66	2768.34	2312.85	1661.32	.00	.06	338.00	172.00	8.00	6.63	5.00	25.40	80.59	-66.19	154.00
	1999	66.99	51.43	48.12	47.57	84.52	98.55	213.86	1176.64	1209.38	442.09	122.91	108.97	18.20	29.72	30.27	34.43	30.95	2341.79	2152.22	1958.19	1462.29	968.38	.00	.10	287.00	145.00	15.00	4.27	5.00	16.00	49.94	-47.37	166.00
	2000	41.91	29.17	20.07	42.14	88.32	145.47	409.69	1488.65	1532.28	415.89	131.96	53.30	15.77	16.00	16.67	18.14	25.39	2906.86	2639.20	2434.88	1934.80	1196.34	.00	.05	9.00	149.00	11.00	10.91	5.00	18.00	49.94	-46.26	168.00
	2001	43.00	44.94	26.51	32.70	46.01	148.15	291.19	1361.42	505.36	202.53	52.67	19.60	3.22	12.50	12.37	12.86	21.38	1817.62	1708.53	1658.63	1417.33	752.98	.00	.05	228.00	137.00	13.00	12.08	3.00	18.67	34.61	-26.69	159.00
	2002	17.66	42.38	85.72	76.95	80.58	110.86	439.92	900.48	1013.12	256.10	49.85	24.62	10.51	10.63	11.37	16.63	20.95	1768.82	1728.65	1530.37	1222.26	798.48	.00	.04	291.00	152.00	5.00	15.40	3.00	27.33	35.12	-27.49	126.00
E	1983	25.42	19.20	18.90	17.48	18.11	26.06	34.70	164.32	2428.67	1292.26	661.03	34.90	10.00	10.00	10.43	16.60	18.03	3310.00	3200.00	2907.14	2625.33	1521.06	.00	.03	319.00	187.00	9.00	24.56	2.00	41.00	70.91	-66.09	117.00
	1984	21.10	24.90	25.26	20.55	23.76	27.48	21.90	30.58	27.83	41.42	40.36	28.10	7.30	14.00	14.57	19.80	17.20	141.00	79.33	64.00	55.77	37.17	.00	.52	227.00	360.00	5.00	57.20	.00	.00	5.65	-4.32	90.00
	1985	19.84	15.60	15.52	15.85	18.96	22.19	26.73	24.84	25.10	23.90	22.87	22.23	7.50	8.83	11.50	13.32	15.53	38.00	37.33	35.71	27.73	25.60	.00	.54	9.00	94.00	2.00	107.00	.00	.00	1.42	-1.38	72.00
	1986	15.29	14.13	17.32	20.10	42.57	43.84	31.53	54.81	1520.30	425.97	30.32	26.50	11.00	11.00	12.00	13.83	15.51	3000.00	2956.67	2534.29	1520.30	672.07	.00	.06	317.00	155.00	9.00	18.11	1.00	46.00	62.23	-48.39	84.00
	1987	18.03	16.13	15.06	15.03	15.39	19.19	19.23	24.10	22.00	22.90	23.29	23.07	15.00	15.00	15.00	15.00	15.16	39.00	36.33	31.14	24.23	23.24	.00	.77	312.00	138.00	2.00	107.00	.00	.00	1.62	-1.45	60.00
	1988	18.32	15.83	13.81	15.00	16.34	18.23	22.57	26.94	25.00	24.77	24.00	23.00	13.00	13.00	13.00	13.63	14.49	32.00	31.67	30.71	27.57	25.62	.00	.64	330.00	150.00	2.00	.50	.00	.00	1.28	-1.34	75.00
	1989	16.48	16.10	16.00	15.94	17.18	24.71	26.53	24.03	23.50	23.55	23.35	47.20	15.00	15.00	15.57	15.93	15.99	118.00	120.33	110.43	59.83	35.59	.00	.68	294.00	274.00	3.00	67.00	.00	.00	3.59	-2.53	71.00
	1990	30.55	12.77	12.97	12.97	12.89	17.77	18.40	26.84	27.10	27.55	25.26	24.07	11.00	11.67	11.86	12.63	12.86	123.00	118.00	76.71	31.00	27.21	.00	.57	312.00	276.00	2.00	179.50	.00	.00	2.08	-3.09	57.00
	1991	19.26	14.20	13.42	13.87	12.18	19.65	26.70	25.45	26.20	23.48	24.10	25.30	11.00	11.50	11.83	12.21	13.16	49.00	49.00	42.29	27.37	26.16	.00	.58	58.00	96.00	3.00	70.33	.00	.00	2.18	-1.73	81.00
	1992	16.97	13.87	13.23	13.48	14.76	19.87	20.37	24.90	23.90	22.94	23.45	23.23	11.00	11.33	12.00	12.97	13.34	27.00	26.67	26.29	24.90	23.96	.00	.62	335.00	135.00	2.00	.50	.00	.00	1.48	-1.37	70.00
	1993	16.03	13.67	13.48	16.03	17.89	39.52	45.30	36.16	476.77	481.39	40.97	30.33	12.00	12.00	12.29	13.03	14.17	2240.00	1963.33	1368.29	830.77	339.29	.00	.12	334.00	179.00	9.00	17.22	2.00	15.00	42.84	-38.52	76.00
	1994	20.06	18.07	17.23	16.90	17.00	22.31	21.90	23.19	22.30	22.68	23.71	24.80	16.00	16.00	16.00	16.73	14.87	31.00	30.00	26.57	24.80	23.73	.00	.77	6.00	272.00	2.00	107.00	.00	.00	1.39	-1.33	68.00
	1995	16.42	13.37	14.26	18.87	23.54	49.00	53.10	63.16	575.60	1798.61	179.65	29.57	12.00	12.33	12.86	13.37	14.13	5020.00	4656.67	4110.00	2198.67	874.62	.00	.05	308.00	191.00	9.00	9.00	2.00	20.50	103.30	-91.34	82.00
	1996	13.55	24.94	17.77	18.06	26.79	24.52	21.77	31.97	403.47	263.81	28.97	30.63	7.40	7.60	7.86	11.11	18.48	800.00	750.00	621.29	480.40	235.74	.00	.10	310.00	183.00	5.00	38.80	3.00	9.67	34.52	-21.44	80.00
	1997	27.84	22.60	20.77	52.97	27.61	32.90	38.73	101.06	345.97	34.10	33.94	28.47	15.00	15.67	16.14	19.47	20.02	1100.00	806.67	591.71	366.90	163.94	.00	.25	354.00	153.00	6.00	44.67	2.00	5.50	33.25	-25.37	90.00
	1999	20.81	20.27	18.65	18.74	21.29	24.16	27.57	46.74	34.93	31.35	29.00	30.67	15.00	16.33	16.57	18.40	18.99	57.00	56.33	55.71	48.17	37.92	.00	.61	343.00	145.00	3.00	65.67	.00	.00	1.86	-1.48	82.00
	2000	24.94	17.53	18.06	17.23	23.68	32.52	39.23	66.77	62.67	31.10	32.42	31.60	11.00	11.00	12.00	15.63	17.56	371.00	207.33	126.71	73.40	56.63	.00	.36	7.00	169.00	7.00	25.57	.00	.00	7.90	-6.27	75.00
	2001	29.90	28.73	19.42	16.74	16.39	24.35	27.53	25.61	23.67	23.10	22.00	21.83	15.00	15.00	15.00	14.77	15.07	37.00	36.00	34.86	30.17	27.26	.00	.64	3.00	88.00	2.00	107.00	.00	.00	1.72	-1.35	56.00
	2002	14.65	14.53	16.77	17.42	19.04	14.45	14.30	33.52	30.07	29.42	28.81	28.03	11.00	11.33	11.83	13.83	15.10	41.00	38.00	37.14	34.43	31.08	.00	.54	65.00	137.00	2.00	107.00	.00	.00	2.01	-1.59	75.00

Table CAWG 6 Appendix L-2b. SFSJR below Hooper Creek IHA Percentile Data.

IHA Percentile Data
SFSJR below Hooper Ck

Unimpaired period: 1983-2002 (20 years) — Existing period: 1983-2002 (19 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	25.34	30.01	44.35	66.92	154.39	.83	14.65	16.42	19.26	24.94	29.90	.44
November	20.00	31.27	45.50	71.15	148.12	.88	13.37	14.13	16.10	20.27	24.94	.38
December	20.28	25.25	46.19	85.72	164.24	1.31	13.23	13.81	16.77	18.65	20.77	.29
January	18.61	33.25	73.82	110.06	177.85	1.04	13.48	15.03	16.90	18.74	20.55	.22
February	40.94	48.30	82.55	130.89	179.25	1.00	12.89	16.34	18.11	23.68	27.61	.41
March	84.19	101.87	146.81	190.89	248.29	.61	17.77	19.65	24.35	32.52	43.84	.53
April	214.94	293.12	357.90	441.01	507.30	.41	18.40	21.77	26.70	34.70	45.30	.48
May	624.75	783.82	963.81	1356.09	1571.52	.59	24.03	24.90	30.58	54.81	101.06	.98
June	519.57	736.50	1060.08	1591.12	1894.41	.81	22.30	23.90	27.83	403.47	1520.30	13.64
July	166.35	247.29	428.99	919.45	1974.69	1.57	22.90	23.48	29.42	263.81	1292.26	8.17
August	50.13	69.78	127.93	386.12	903.16	2.47	22.87	23.45	28.81	33.94	179.65	.36
September	25.15	41.25	57.97	111.91	298.68	1.22	22.23	23.23	28.03	30.63	34.90	.26
Parameter Group #2												
1-day minimum	3.25	10.66	15.98	22.84	44.23	.76	7.40	11.00	11.00	15.00	15.00	.36
3-day minimum	10.13	12.66	17.45	29.57	52.59	.97	8.83	11.00	12.00	15.00	16.00	.33
7-day minimum	12.64	15.84	18.72	31.94	64.00	.86	10.43	11.83	12.29	15.00	16.14	.26
30-day minimum	16.66	18.70	25.76	38.67	65.23	.78	12.21	13.03	13.83	16.60	19.47	.26
90-day minimum	19.35	23.39	30.74	57.51	82.88	1.11	13.16	14.17	15.16	17.56	18.99	.22
1-day maximum	1218.76	1581.60	2398.59	3468.89	5683.47	.79	31.00	38.00	118.00	1100.00	3310.00	9.00
3-day maximum	1177.25	1503.88	2302.23	2792.12	3547.98	.56	30.00	36.33	79.33	806.67	3200.00	9.71
7-day maximum	1155.26	1400.55	2003.28	2410.61	3084.41	.50	26.57	34.86	64.00	621.29	2907.14	9.16
30-day maximum	834.22	1031.21	1480.92	1913.95	2288.87	.60	24.80	27.57	48.17	480.40	2198.67	9.40
90-day maximum	596.50	692.49	906.08	1313.78	1649.42	.69	23.73	25.62	35.59	235.74	874.62	5.90
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.04	.05	.07	.10	.14	.63	.05	.12	.54	.64	.77	.96
Parameter Group #3												
Date of minimum	231.00	288.00	304.50	338.00	.90	.14	294.00	312.00	334.00	6.00	58.00	.16
Date of maximum	129.00	137.25	147.00	166.25	185.60	.08	94.00	137.00	155.00	191.00	276.00	.15
Parameter Group #4												
Low pulse count	1.20	5.00	6.50	11.75	14.80	1.04	2.00	2.00	3.00	7.00	9.00	1.67
Low pulse duration	1.10	4.54	7.36	12.89	29.29	1.14	.50	18.11	57.20	107.00	107.00	1.55
High pulse count	2.10	3.00	3.50	5.75	9.00	.79	.00	.00	.00	2.00	2.00	.00
High pulse duration	12.12	15.36	19.83	25.88	40.30	.53	.00	.00	.00	9.67	41.00	.00
Parameter Group #5												
Rise rate	28.68	34.74	52.12	79.81	98.78	.86	1.39	1.62	2.18	34.52	70.91	15.10
Fall rate	-77.28	-64.13	-47.01	-26.82	-23.89	-.79	-66.09	-25.37	-2.53	-1.38	-1.34	-9.48
Number of reversals	126.90	148.00	155.00	167.50	177.10	.13	57.00	70.00	75.00	82.00	90.00	.16

Table CAWG 6 Appendix L-2c. SFSJR below Hooper Creek IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

SFSJR below Hooper Ck

	Unimpaired period: 1983-2002				Existing period: 1983-2002				RVA Categories		Hydrologic Alteration
			Range Limits				Range Limits				
	Medians	Coeff. of Variance	Low	High	Medians	Coeff. of Variance	Low	High	Low	High	(Middle Category)
Parameter Group #1											
October	44.3	.83	17.7	217.9	19.3	.44	13.6	30.5	34.58	65.97	-1.00
November	45.5	.88	19.0	172.6	16.1	.38	12.8	28.7	41.63	52.74	-1.00
December	46.2	1.31	17.4	189.5	16.8	.29	13.0	25.3	29.93	71.42	-1.00
January	73.8	1.04	17.5	544.5	16.9	.22	13.0	53.0	41.63	90.62	-.87
February	82.6	1.00	18.7	261.5	18.1	.41	12.2	42.6	61.06	108.80	-1.00
March	146.8	.61	82.2	323.2	24.4	.53	14.5	49.0	105.14	173.92	-1.00
April	357.9	.41	127.8	526.8	26.7	.48	14.3	53.1	303.04	411.81	-1.00
May	963.8	.59	597.1	1688.1	30.6	.98	23.2	164.3	819.45	1266.31	-1.00
June	1060.1	.81	373.0	2594.7	27.8	13.64	22.0	2428.7	793.00	1437.77	-1.00
July	429.0	1.57	140.2	2187.6	29.4	8.17	22.7	1798.6	255.89	743.77	-.61
August	127.9	2.47	44.5	1222.3	28.8	.36	22.0	661.0	87.78	289.63	-.87
September	58.0	1.22	19.6	352.3	28.0	.26	21.8	47.2	49.89	101.43	-1.00
Parameter Group #2											
1-day minimum	16.0	.76	2.3	98.1	11.0	.36	7.3	16.0	11.35	18.77	.18
3-day minimum	17.4	.97	2.7	100.4	12.0	.33	7.6	16.3	14.62	28.23	-.21
7-day minimum	18.7	.86	11.4	105.1	12.3	.26	7.9	16.6	16.62	30.35	-1.00
30-day minimum	25.8	.78	12.9	127.5	13.8	.26	11.1	19.8	22.10	35.83	-1.00
90-day minimum	30.7	1.11	17.7	143.8	15.2	.22	12.9	20.0	25.37	42.12	-1.00
1-day maximum	2398.6	.79	1192.4	6628.0	118.0	9.00	27.0	5020.0	1814.20	3141.03	-.74
3-day maximum	2302.2	.56	1150.8	3633.0	79.3	9.71	26.7	4656.7	1727.24	2534.89	-.87
7-day maximum	2003.3	.50	1062.5	3247.9	64.0	9.16	26.3	4110.0	1558.48	2281.82	-1.00
30-day maximum	1480.9	.60	796.8	2956.0	48.2	9.40	24.2	2625.3	1064.05	1809.29	-.87
90-day maximum	906.1	.69	543.3	2155.5	35.6	5.90	23.2	1521.1	749.24	1212.21	-.87
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.07	.63	.04	.15	.54	.96	.03	.77	.06	.09	-.87
Parameter Group #3											
Date of minimum	304.5	.14	3.0	348.0	334.0	.16	3.0	354.0	286.23	308.28	-.74
Date of maximum	147.0	.08	2.0	232.0	155.0	.15	88.0	360.0	141.72	155.63	-.47
Parameter Group #4											
Low Pulse Count	6.5	1.04	.0	15.0	3.0	1.67	2.0	9.0	5.00	11.00	-.23
Low Pulse Duration	7.4	1.14	.0	32.0	57.2	1.55	.5	179.5	5.65	11.08	-.87
High Pulse Count	3.5	.79	2.0	10.0	.0	.00	.0	3.0	3.00	5.00	-.92
High Pulse Duration	19.8	.53	11.1	56.0	.0	.00	.0	46.0	15.96	25.41	-.87

The low pulse threshold is 48.60
The high pulse level is 376.41

	Unimpaired Medians	Coeff. of Variance	Low	High	Existing Medians	Coeff. of Variance	Low	High	RVA Low	RVA High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	52.1	.86	22.3	154.0	2.2	15.10	1.3	103.3	37.93	77.27	-.61
Fall rate	-47.0	-.79	-127.8	-14.4	-2.5	-9.48	-91.3	-1.3	-54.52	-27.47	-.74
Number of reversals	155.0	.13	117.0	186.0	75.0	.16	56.0	117.0	150.79	164.14	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
November	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
December	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
January	7.60	1.00	-.87	5.70	.00	-1.00	5.70	18.00	2.16
February	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
March	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
April	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
May	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
June	7.60	.00	-1.00	5.70	2.00	-.65	5.70	17.00	1.98
July	7.60	3.00	-.61	5.70	2.00	-.65	5.70	14.00	1.46
August	7.60	1.00	-.87	5.70	1.00	-.82	5.70	17.00	1.98
September	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
Parameter Group #2									
1-day minimum	7.60	9.00	.18	5.70	.00	-1.00	5.70	10.00	.75
3-day minimum	7.60	6.00	-.21	5.70	.00	-1.00	5.70	13.00	1.28
7-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
30-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
90-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
1-day maximum	7.60	2.00	-.74	5.70	2.00	-.65	5.70	15.00	1.63
3-day maximum	7.60	1.00	-.87	5.70	3.00	-.47	5.70	15.00	1.63
7-day maximum	7.60	.00	-1.00	5.70	3.00	-.47	5.70	16.00	1.81
30-day maximum	7.60	1.00	-.87	5.70	2.00	-.65	5.70	16.00	1.81
90-day maximum	7.60	1.00	-.87	5.70	1.00	-.82	5.70	17.00	1.98
Number of zero days	19.00	19.00	.00	.00	.00	.00	.00	.00	.00
Base flow	7.60	1.00	-.87	5.70	16.00	1.81	5.70	2.00	-.65
Parameter Group #3									
Date of minimum	7.60	2.00	-.74	5.70	10.00	.75	5.70	7.00	.23
Date of maximum	7.60	4.00	-.47	5.70	9.00	.58	5.70	6.00	.05
Parameter Group #4									
Low Pulse Count	10.45	8.00	-.23	4.75	.00	-1.00	3.80	11.00	1.89
Low Pulse Duration	7.60	1.00	-.87	5.70	16.00	1.81	5.70	2.00	-.65
High Pulse Count	12.35	1.00	-.92	4.75	.00	-1.00	1.90	18.00	8.47
High Pulse Duration	7.60	1.00	-.87	5.70	2.00	-.65	5.70	16.00	1.81
Parameter Group #5									
Rise rate	7.60	3.00	-.61	5.70	1.00	-.82	5.70	15.00	1.63
Fall rate	7.60	2.00	-.74	5.70	15.00	1.63	5.70	2.00	-.65
Number of reversals	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33

5 Messages:

Parameter Low pulse count : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 9 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of falls : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-2d. SFSJR below Hooper Creek Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

SFSJR below Hooper Ck

Unimpaired period: 1983-2002 (20 years) Existing period: 1983-2002 (19 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	333.51	80.89
Mean flow/area	333.51	80.89
Annual C. V.	.72	.09
Flow predictability	.45	.70
Constancy/predictability	.40	.77

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Unimpaired	Existing
% of floods in 60d period	.54	.53
flood-free season	59.00	283.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	44.3	19.3	.83	.44	.57	.47	.01	.44
November	45.5	16.1	.88	.38	.65	.57	.03	.07
December	46.2	16.8	1.31	.29	.64	.78	.01	.20
January	73.8	16.9	1.04	.22	.77	.79	.11	.08
February	82.6	18.1	1.00	.41	.78	.60	.16	.18
March	146.8	24.4	.61	.53	.83	.13	.30	.90
April	357.9	26.7	.41	.48	.93	.17	.38	1.00
May	963.8	30.6	.59	.98	.97	.65	.36	.86
June	1060.1	27.8	.81	13.64	.97	15.92	.05	.01
July	429.0	29.4	1.57	8.17	.93	4.21	.06	.01
August	127.9	28.8	2.47	.36	.77	.85	.14	.12
September	58.0	28.0	1.22	.26	.52	.78	.03	.22
Parameter Group #2								
1-day minimum	16.0	11.0	.76	.36	.31	.52	.14	.23
3-day minimum	17.4	12.0	.97	.33	.31	.66	.00	.22
7-day minimum	18.7	12.3	.86	.26	.34	.70	.00	.23
30-day minimum	25.8	13.8	.78	.26	.46	.67	.00	.16
90-day minimum	30.7	15.2	1.11	.22	.51	.80	.00	.07
1-day maximum	2398.6	118.0	.79	9.00	.95	10.44	.05	.01
3-day maximum	2302.2	79.3	.56	9.71	.97	16.35	.05	.01
7-day maximum	2003.3	64.0	.50	9.16	.97	17.17	.05	.01
30-day maximum	1480.9	48.2	.60	9.40	.97	14.77	.05	.02
90-day maximum	906.1	35.6	.69	5.90	.96	7.61	.09	.02
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.1	.5	.63	.96	6.66	.51	.00	.24
Parameter Group #3								
Date of minimum	304.5	334.0	.14	.16	.16	.20	.03	.69
Date of maximum	147.0	155.0	.08	.15	.04	.86	.31	.05
Parameter Group #4								
Low pulse count	6.5	3.0	1.04	1.67	.54	.60	.08	.08
Low pulse duration	7.4	57.2	1.14	1.55	6.77	.37	.00	.54
High pulse count	3.5	.0	.79	.00	1.00	1.00	.01	.16
High pulse duration	19.8	.0	.53	.00	1.00	1.00	.02	.04

The low pulse threshold is 48.60
The high pulse level is 376.41

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	52.1	2.2	.86	15.10	.96	16.46	.01	.00
Fall rate	-47.0	-2.5	-.79	-9.48	.95	10.95	.02	.00
Number of reversals	155.0	75.0	.13	.16	.52	.27	.15	.59

Table CAWG 6 Appendix L-2e. SFSJR below Hooper Creek IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1983-2002).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1999	2000	2001	2002
431.1	277.30	68.15	18.39	141.09	39.25	22.78	122.75	43.97	31.54	20.33	59.58	301.48	418.83	59.58	206.40	105.14	94.63	28.00	12.27	26.00	27.00	24.00	19.00	23.00	22.00	21.00	120.00	24.00	23.00	22.00	28.00	24.00	29.00	26.00	27.00	30.00	30.00	21.00
364.5	272.93	76.26	3.47	58.84	34.78	22.78	119.56	39.32	40.70	20.33	56.08	200.28	102.57	77.10	80.61	45.48	49.44	31.41	12.27	24.00	18.00	16.00	14.00	16.00	20.00	17.00	123.00	18.00	16.00	17.00	23.00	19.00	27.00	18.00	25.00	30.00	29.00	18.00
311.9	246.53	60.38	19.46	110.77	33.29	29.31	99.95	36.94	39.53	20.33	56.08	213.44	96.59	77.10	41.92	48.32	35.54	30.98	12.27	22.00	22.00	20.00	14.00	18.00	18.00	17.00	111.00	16.00	16.00	16.00	22.00	17.00	16.00	17.00	22.00	30.00	29.00	14.00
269.9	228.18	74.06	16.46	60.49	32.24	21.03	90.45	36.69	26.99	20.33	52.57	208.75	97.15	70.10	41.92	43.19	49.94	27.39	12.27	20.00	21.00	20.00	15.00	18.00	18.00	17.00	88.00	17.00	16.00	16.00	22.00	18.00	16.00	19.00	22.00	30.00	29.00	13.00
238.3	185.02	69.54	20.79	80.02	31.78	21.03	78.44	31.77	18.02	20.33	52.57	343.20	254.19	63.09	38.97	50.62	41.83	27.85	12.27	20.00	22.00	20.00	15.00	18.00	18.00	17.00	53.00	17.00	22.00	16.00	21.00	24.00	16.00	18.00	21.00	30.00	29.00	14.00
217.3	174.26	59.96	41.27	68.48	27.55	22.78	71.13	34.31	16.72	18.93	52.57	315.38	205.64	59.58	35.69	83.54	24.18	26.79	12.27	21.00	22.00	20.00	15.00	18.00	17.00	17.00	22.00	22.00	19.00	16.00	20.00	21.00	15.00	18.00	21.00	30.00	29.00	15.00
199.8	179.84	56.68	48.82	66.28	29.78	15.57	63.08	31.44	24.18	18.93	36.62	303.49	89.93	59.58	39.99	22.34	59.81	27.24	12.27	21.00	22.00	20.00	16.00	18.00	17.00	17.00	20.00	19.00	17.00	15.00	19.00	19.00	15.00	18.00	21.00	30.00	29.00	14.00
182.2	165.96	51.39	42.50	78.71	25.44	22.05	52.87	30.53	22.43	18.93	35.46	296.45	88.69	56.08	38.22	19.82	49.54	27.19	12.27	22.00	22.00	20.00	15.00	18.00	17.00	17.00	19.00	19.00	16.00	15.00	19.00	19.00	15.00	18.00	20.00	29.00	29.00	14.00
168.2	146.31	43.08	44.55	51.49	26.69	23.58	46.80	31.45	22.43	18.93	29.41	296.67	84.92	52.57	38.23	82.24	40.42	37.75	12.27	21.00	21.00	20.00	15.00	18.00	17.00	17.00	18.00	18.00	15.00	15.00	19.00	19.00	15.00	18.00	19.00	28.00	29.00	14.00
154.2	133.73	39.62	38.53	81.56	28.51	26.60	42.50	29.84	21.38	25.60	29.04	278.39	94.63	38.47	39.48	116.03	49.07	56.98	12.27	22.00	21.00	20.00	15.00	17.00	17.00	16.00	17.00	17.00	14.00	16.00	19.00	19.00	14.00	18.00	19.00	28.00	31.00	14.00
143.7	121.15	56.41	44.07	47.72	27.91	24.60	40.23	28.89	20.68	19.95	40.65	241.87	94.63	37.70	38.21	383.84	49.07	46.84	12.27	22.00	21.00	20.00	15.00	17.00	17.00	16.00	17.00	16.00	15.00	16.00	20.00	19.00	14.00	17.00	18.00	27.00	30.00	14.00
136.7	115.65	50.32	41.64	59.88	26.29	26.13	38.57	27.07	19.98	21.61	42.27	211.00	400.32	33.32	39.34	122.68	45.56	50.52	12.27	22.00	21.00	20.00	15.00	17.00	17.00	16.00	17.00	16.00	16.00	16.00	19.00	17.00	14.00	22.00	18.00	26.00	30.00	14.00
133.2	109.10	56.44	32.59	62.98	28.83	21.10	38.43	27.38	21.03	18.93	33.47	173.24	155.30	36.21	40.04	18.20	42.06	46.74	12.27	21.00	21.00	20.00	15.00	17.00	17.00	16.00	16.00	16.00	16.00	16.00	19.00	16.00	14.00	21.00	17.00	24.00	30.00	15.00
126.2	89.93	52.64	15.98	65.60	24.29	19.61	37.88	27.58	21.03	18.93	31.30	146.02	60.08	35.33	73.60	57.64	28.70	46.74	11.92	22.00	21.00	19.00	15.00	17.00	17.00	16.00	17.00	16.00	16.00	15.00	19.00	15.00	14.00	21.00	17.00	23.00	30.00	15.00
126.2	93.25	48.61	42.03	62.36	26.33	22.76	37.18	26.22	19.98	18.93	30.81	129.06	53.53	34.67	42.07	57.62	75.30	46.74	11.22	24.00	21.00	19.00	15.00	17.00	17.00	16.00	17.00	16.00	16.00	15.00	20.00	14.00	13.00	21.00	17.00	23.00	31.00	15.00
122.7	88.49	57.95	30.44	65.64	25.20	25.47	36.69	25.01	19.28	25.18	40.56	108.42	54.03	35.00	39.70	55.38	50.43	46.49	10.86	26.00	21.00	21.00	14.00	17.00	17.00	16.00	16.00	16.00	16.00	15.00	20.00	14.00	13.00	21.00	17.00	22.00	30.00	14.00
119.2	95.43	70.52	27.22	61.79	30.67	24.94	35.84	27.95	18.58	35.03	35.43	103.64	43.97	32.94	35.29	44.61	39.94	46.49	10.51	23.00	21.00	21.00	14.00	17.00	17.00	16.00	16.00	17.00	17.00	14.00	20.00	14.00	13.00	21.00	19.00	22.00	30.00	14.00
112.2	81.88	85.43	24.23	39.83	15.99	68.31	34.10	28.17	17.87	30.09	30.54	96.21	46.83	33.45	30.30	46.31	38.44	46.49	10.51	23.00	21.00	21.00	15.00	17.00	17.00	16.00	16.00	17.00	17.00	15.00	20.00	14.00	13.00	21.00	21.00	22.00	30.00	14.00
112.2	78.65	104.78	5.85	36.34	21.41	17.17	34.00	30.26	17.52	26.85	29.43	91.29	36.20	21.41	25.42	46.72	35.90	46.49	45.54	22.00	21.00	22.00	16.00	17.00	17.00	16.00	16.00	17.00	17.00	15.00	20.00	15.00	12.00	26.00	21.00	22.00	30.00	14.00
112.2	84.69	97.83	11.22	40.45	23.92	25.87	37.69	30.89	18.22	27.29	30.52	84.35	40.83	32.42	195.67	42.34	34.70	42.71	22.32	22.00	21.00	21.00	16.00	19.00	17.00	15.00	21.00	17.00	17.00	15.00	19.00	15.00	12.00	30.00	21.00	22.00	30.00	14.00
108.6	44.34	73.59	25.87	37.13	21.95	29.50	38.54	27.09	17.52	31.56	27.26	80.51	35.80	35.05	191.46	47.14	34.70	46.24	21.41	22.00	21.00	21.00	17.00	19.00	21.00	15.00	18.00	17.00	16.00	16.00	19.00	15.00	12.00	33.00	21.00	22.00	30.00	14.00
143.7	99.14	67.38	28.56	43.33	27.74	28.83	43.45	27.76	17.52	32.69	24.43	78.33	36.85	43.42	56.08	45.11	24.78	35.67	20.50	22.00	21.00	21.00	16.00	19.00	19.00	16.00	17.00	23.00	16.00	16.00	19.00	14.00	12.00	56.00	21.00	22.00	30.00	14.00
154.2	80.35	73.45	6.19	47.25	36.06	21.59	43.68	30.40	17.52	30.45	22.81	75.14	23.48	68.76	192.08	45.63	24.99	42.96	19.37	22.00	21.00	21.00	16.00	19.00	21.00	16.00	17.00	27.00	16.00	15.00	19.00	14.00	12.00	45.00	21.00	22.00	30.00	14.00
206.8	73.97	77.24	8.72	56.32	30.56	26.26	51.85	30.34	17.52	27.26	21.62	73.65	70.10	50.32	146.75	54.95	40.96	39.22	17.55	23.00	21.00	21.00	16.00	20.00	18.00	16.00	17.00	27.00	16.00	15.00	19.00	14.00	12.00	33.00	21.00	22.00	30.00	14.00
389.0	91.12	68.61	119.83	47.64	31.69	27.27	56.56	31.27	17.87	26.81	21.13	71.96	70.10	36.27	45.56	50.79	50.64	38.84	18.56	25.00	20.00	20.00	16.00	19.00	19.00	16.00	17.00	25.00	17.00	15.00	19.00	15.00	12.00	33.00	21.00	22.00	30.00	15.00
483.7	59.75	81.23	73.86	3.71	28.54	27.37	49.65	28.43	55.93	26.10	17.93	52.48	160.77	37.27	49.07	62.19	26.36	42.37	15.03	37.00	20.00	18.00	15.00	19.00	19.00	16.00	17.00	22.00	22.00	15.00	19.00	15.00	9.10	33.00	21.00	22.00	30.00	15.00
336.5	53.59	68.66	70.76	51.25	28.54	25.25	55.80	27.32	25.21	28.03	15.17	88.60	48.70	39.29	45.56	56.11	26.41	46.16	15.81	29.00	22.00	18.00	15.00	18.00	19.00	16.00	17.00	21.00	19.00	15.00	20.00	14.00	8.40	33.00	21.00	22.00	30.00	14.00
294.4	46.18	67.91	65.91	56.07	37.98	31.72	45.74	26.93	52.29	27.70	14.99	64.37	39.13	38.90	42.06	52.08	34.23	42.75	18.41	27.00	20.00	18.00	15.00	18.00	20.00	16.00	17.00	21.00	17.00	16.00	20.00	14.00	8.20	33.00	22.00	23.00	30.00	14.00
273.4	64.04	68.32	59.67	36.31	50.45	28.98	46.54	25.93	16.31	47.46	38.55	60.91	33.64	38.71	52.03	59.36	34.88	85.15	18.65	26.00	20.00	18.00	15.00	18.00	21.00	20.00	17.00	21.00	18.00	17.00	20.00	14.00	8.20	34.00	28.00	23.00	32.00	14.00
290.9	88.71	59.79	54.43	27.73	43.56	22.43	40.01	25.47	40.80	101.84	38.55	55.78	66.59	39.97	48.37	58.90	32.42	61.96	51.16	67.00	20.00	18.00	15.00	18.00	20.00	16.00	16.00	21.00	16.00	22.00	20.00	14.00	8.10	35.00	23.00	23.00	31.00	17.00

Table CAWG 6 Appendix L-3a. Bear Creek below Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Bear Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
U	1983	62.16	49.23	47.87	52.16	50.71	49.58	36.47	284.26	740.33	580.26	348.74	100.53	28.00	28.67	30.00	36.37	40.08	1060.00	1023.67	926.71	843.43	615.03	.00	.15	98.00	187.00	.00	.00	3.00	40.67	27.58	-21.46	117.00
	1984	40.45	37.53	42.16	32.26	30.34	46.90	78.13	407.42	295.60	224.58	76.26	39.23	23.00	24.00	25.29	26.30	26.98	649.00	632.67	617.14	469.13	314.81	.00	.22	274.00	144.00	.00	.00	3.00	33.33	16.16	-10.69	105.00
	1985	26.06	28.20	26.90	31.81	32.54	26.81	124.17	231.90	215.87	70.45	26.74	20.17	15.00	15.33	13.86	17.27	18.60	354.00	349.00	334.57	261.73	192.81	.00	.19	313.00	160.00	2.00	2.00	3.00	24.67	10.36	-7.02	91.00
	1986	18.97	22.64	41.65	27.84	60.96	79.84	133.00	386.48	547.50	243.68	84.97	31.50	7.60	8.40	10.89	17.11	12.99	1180.00	1029.33	906.86	619.27	405.08	.00	.08	315.00	153.00	3.00	5.33	5.00	25.80	20.13	-14.33	93.00
	1987	21.35	9.78	6.37	7.59	7.44	19.61	109.87	207.00	189.77	45.35	15.45	7.38	4.30	4.47	4.81	5.04	7.06	419.00	398.67	333.57	232.37	172.91	.00	.09	57.00	137.00	2.00	89.50	3.00	23.33	8.69	-6.03	112.00
	1988	6.11	20.80	16.97	21.26	23.97	41.90	91.30	205.55	190.97	57.74	28.45	13.82	4.60	4.60	4.60	5.52	6.21	358.00	329.00	311.71	245.83	165.29	.00	.08	278.00	136.00	8.00	4.88	3.00	20.33	10.26	-6.79	87.00
	1989	5.43	7.24	5.80	5.43	8.23	38.29	139.87	200.61	192.13	46.48	13.60	15.50	3.70	3.87	4.11	4.78	6.00	314.00	299.00	277.43	217.63	179.90	.00	.07	362.00	161.00	4.00	10.00	2.00	37.50	10.47	-5.64	100.00
	1990	16.87	10.70	9.35	11.58	17.11	34.48	100.33	152.84	164.80	67.06	24.03	7.27	5.20	5.20	5.23	6.48	5.58	295.00	279.67	265.43	170.30	142.17	.00	.10	258.00	160.00	6.00	25.67	6.00	12.50	8.86	-6.39	89.00
	1991	6.33	5.18	5.00	5.23	5.80	23.09	46.50	152.81	355.93	139.71	33.65	16.72	4.00	4.57	4.70	4.97	5.10	618.00	599.00	543.00	377.83	219.84	.00	.07	312.00	164.00	4.00	7.25	4.00	16.50	11.87	-8.28	96.00
	1992	7.56	19.17	11.15	13.48	18.98	23.71	110.07	229.06	104.97	44.58	26.90	8.67	5.00	5.00	5.04	5.83	10.30	312.00	299.33	295.00	235.23	150.40	.00	.10	293.00	129.00	8.00	15.88	4.00	14.25	8.24	-5.14	72.00
	1993	6.80	16.52	16.01	27.97	24.93	47.35	92.17	342.68	489.57	391.39	108.58	33.83	5.00	5.27	5.34	6.26	11.94	793.00	770.67	690.86	605.87	411.29	.00	.04	294.00	178.00	3.00	13.00	2.00	55.50	19.73	-14.02	95.00
	1994	15.45	9.10	10.90	11.03	15.11	30.77	85.10	210.29	218.50	50.19	15.60	15.23	4.60	4.60	4.69	5.49	10.31	397.00	371.33	346.57	268.53	176.60	.00	.08	255.00	152.00	3.00	58.67	3.00	23.33	13.51	-8.04	88.00
	1995	46.90	28.00	23.06	39.16	37.71	53.97	90.00	180.55	554.77	747.39	290.06	87.60	17.00	18.00	18.71	21.83	19.92	1420.00	1206.67	1071.29	826.43	549.68	.00	.10	308.00	191.00	.00	.00	6.00	22.50	36.56	-24.10	96.00
	1996	24.94	12.44	22.22	25.81	42.21	50.71	119.67	289.52	410.07	230.26	71.35	24.27	5.90	6.90	7.49	9.80	18.55	658.00	652.33	628.29	412.83	318.66	.00	.07	338.00	161.00	2.00	18.50	3.00	35.67	17.36	-10.53	102.00
	1997	14.25	26.70	34.52	107.45	20.36	58.94	129.07	399.13	360.73	166.65	59.03	32.63	9.10	9.93	10.54	13.69	18.14	1060.00	667.33	594.57	444.50	322.24	.00	.09	298.00	2.00	4.00	9.00	3.00	39.67	24.73	-15.87	103.00
	1998	17.90	15.09	21.03	23.13	34.54	44.32	80.37	140.97	535.30	684.13	194.10	68.03	9.80	9.93	10.40	12.93	17.58	888.00	836.33	786.86	756.10	485.53	.00	.07	311.00	191.00	4.00	11.00	5.00	25.20	20.14	-15.08	110.00
	1999	20.52	18.20	17.26	17.10	26.32	30.87	61.80	312.29	368.60	120.55	33.19	28.60	11.00	11.33	11.71	12.93	10.85	544.00	526.33	510.14	409.20	275.57	.00	.13	13.00	146.00	6.00	7.33	3.00	26.00	13.37	-10.71	86.00
	2000	13.51	10.85	7.18	10.52	26.24	40.68	114.30	358.84	388.70	103.68	41.32	17.36	4.50	4.57	4.83	5.91	8.46	710.00	660.67	593.00	482.63	296.69	.00	.05	9.00	149.00	3.00	43.00	3.00	32.33	15.50	-10.51	100.00
	2001	12.27	14.89	10.72	35.74	21.07	47.26	82.77	334.10	126.40	50.81	12.54	5.09	3.70	3.57	3.53	3.39	5.41	448.00	420.67	388.14	341.70	188.77	.00	.06	273.00	137.00	9.00	12.78	4.00	14.50	12.23	-7.48	82.00
	2002	3.82	11.23	34.81	31.77	35.00	35.68	128.83	230.03	265.93	69.74	14.68	6.50	3.00	3.00	2.80	2.40	2.33	469.00	449.00	400.86	316.10	210.90	.00	.04	291.00	152.00	4.00	13.50	3.00	28.00	11.47	-8.08	88.00
E	1984	2.31	2.30	2.30	2.30	2.30	2.31	2.31	85.36	8.83	45.76	3.00	3.13	2.10	2.17	2.19	2.15	2.16	456.00	341.67	199.29	93.81	48.04	.00	.16	120.00	201.00	6.00	19.17	3.00	5.67	25.00	-24.34	22.00
	1985	2.12	2.14	2.20	2.20	2.16	2.44	2.26	2.27	3.10	2.15	2.16	2.16	2.10	1.63	1.33	1.87	2.06	9.70	9.30	5.90	5.40	3.23	.00	.58	276.00	160.00	2.00	107.00	.00	.00	.81	-.64	13.00
	1986	4.69	1.15	1.01	1.33	1.34	1.22	44.88	132.62	544.17	78.76	3.11	3.02	1.00	1.00	1.00	1.00	1.13	1250.00	1146.67	1017.71	598.57	254.43	.00	.01	331.00	153.00	7.00	41.43	5.00	8.40	56.38	-42.98	38.00
	1987	2.34	2.18	2.27	2.15	2.27	2.32	2.39	4.00	2.85	2.74	2.70	2.46	2.10	2.10	1.77	1.35	1.42	26.00	17.57	9.11	4.26	3.24	.00	.69	331.00	136.00	3.00	70.67	.00	.00	1.14	-1.00	26.00
	1988	1.33	1.47	1.43	1.56	1.46	1.48	1.64	3.47	2.87	2.75	2.75	2.87	.94	.97	1.03	1.27	1.39	18.00	11.57	6.37	3.66	3.08	.00	.49	289.00	136.00	2.00	69.00	.00	.00	.44	-.45	55.00
	1989	2.28	1.72	1.76	1.80	1.70	1.85	1.75	2.62	2.86	2.75	2.85	6.43	1.30	1.50	1.50	1.70	1.61	25.00	22.00	18.43	6.55	4.05	.00	.59	38.00	270.00	3.00	114.33	.00	.00	1.16	-1.10	48.00
	1990	1.94	1.38	1.44	1.49	1.50	1.50	1.42	2.61	2.54	2.59	2.64	2.63	1.30	1.30	1.30	1.38	1.44	11.00	4.70	2.90	2.69	2.63	.00	.66	329.00	279.00	2.00	107.00	.00	.00	.48	-.47	32.00
	1991	1.51	1.50	1.77	1.77	1.68	1.79	2.98	2.57	29.66	2.74	2.75	2.88	1.30	1.33	1.37	1.42	1.58	156.00	142.00	95.14	29.66	11.78	.00	.31	304.00	164.00	5.00	40.00	1.00	3.00	4.81	-4.58	50.00
	1992	1.80	1.61	1.54	1.61	1.63	1.58	1.50	2.58	2.47	2.50	2.52	2.49	1.30	1.37	1.43	1.49	1.43	2.80	2.80	2.73	2.59	2.52	.00	.72	118.00	230.00	2.00	.50	.00	.00	.13	-.12	55.00
	1993	1.44	1.38	1.41	1.90	2.22	2.32	2.42	3.69	3.80	3.78	3.51	3.66	1.00	1.00	1.00	1.27	1.38	4.60	4.17	3.96	3.84	3.77	.00	.38	308.00	200.00	2.00	107.00	.00	.00	.14	-.11	44.00
	1994	2.60	2.41	2.47	2.59	2.60	2.54	2.35	3.44	2.43	2.25	2.25	2.44	2.20	2.00	1.83	1.71	1.55	14.00	9.67	6.09	3.62	2.83	.00	.72	115.00	135.00	2.00	107.00	.00	.00	.70	-.65	50.00
	1995	1.67	1.49	1.45	1.48	1.35	1.52	16.58	121.43	554.77	747.39	108.89	3.54	1.10	1.17	1.20	1.32	1.43	1420.00	1206.67	1071.29	826.43	516.69	.00	.01	48.00	191.00	5.00	22.20	1.00	85.00	44.58	-39.22	78.00
	1996	4.11	6.16	12.53	2.35	2.34	2.32	11.14	95.60	305.73	61.29	6.23	11.10	2.10	2.20	2.20	2.28	2.33	621.00	612.67	565.71	321.62	158.75	.00	.05	296.00	161.00	9.00	29.44	6.00	6.50	26.88	-23.66	78.00
	1997	4.05	2.10	2.16	55.80	20.36	59.84	67.11	54.42	168.18	3.34	3.14	3.11	2.00	2.10	2.10	2.10	2.40	625.00	579.00	502.86	199.78	104.44	.00	.06	7.00	153.00	7.00	19.29	6.00	5.67	24.07	-22.27	70.00
	1998	2.45	2.29	2.44	2.48	2.53	3.05	2.92	3.35	363.97	689.13	45.92	3.42	2.20	2.20	2.20	2.28	2.38	863.00	822.33	777.57	751.27	374.49	.00	.02	304.00	191.00	6.00	25.00	1.00	52.00	23.65	-23.99	67.00
	1999	2.57	3.07	3.08	3.38	3.51	3.07	2.94	10.95	25.80	3.47	3.68	5.37	2.40	2.40	2.40	2.54	2.90	105.00	91.67	78.71	29.69	13.51	.00	.41	296.00	171.00	6.00	32.67	1.00	1.00	3.76	-3.73	57.00
	2000	4.63	3.19	3.16	3.43	3.07	3.03	3.00	43.75	162.03	4.73	4.55	4.66	2.00	2.40	2.56	2.69	2.94	599.00	540.00	454.71	171.97	70.62	.00	.13	305.00	168.00	5.00	36.00	6.00	3.67	17.38	-16.51	81.00
	2001	8.62	6.29	4.09	4.15	4.56	4.97	4.78	5.75	2.52	2.49	2.47	2.50	2.40	2.40	1.96	1.64	1.46	26.00	19.33	15.86	10.56	6.38	.00	.44	202.00	137.00	5.00	66.80	.00	.00	1.61	-1.47	60.00
	2002	1.61	1.36	1.38	1.44	2.10	1.64	1.71	5.38	6.16	3.31	3.30	3.30	1.30	1.30	1.30	1.34	1.39	39.00	26.00	16.57	8.29	4.97	.00	.48	318.00	158.00	4.00	52.50	.00	.00	1.94	-1.92	46.00

Table CAWG 6 Appendix L-3b. Bear Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Bear Ck below Diversion Data

Unimpaired: 1983-2002 (20 years) — Existing period: 1984-2002 (19 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	5.49	6.99	16.16	24.04	46.26	1.06	1.44	1.67	2.31	4.05	4.69	1.03
November	7.43	10.74	15.81	25.69	36.60	.95	1.36	1.47	2.10	2.41	6.16	.45
December	5.86	9.69	17.11	32.61	42.11	1.34	1.38	1.44	2.16	2.47	4.09	.48
January	5.65	11.17	24.47	32.15	50.86	.86	1.44	1.56	2.15	2.59	4.15	.48
February	7.52	17.57	25.58	34.88	49.86	.68	1.35	1.63	2.22	2.60	4.56	.44
March	23.15	30.80	41.29	49.02	58.44	.44	1.48	1.58	2.32	3.03	4.97	.63
April	48.03	80.97	96.25	123.04	132.61	.44	1.50	1.75	2.42	4.78	44.88	1.25
May	152.81	201.85	230.97	340.53	397.86	.60	2.57	2.62	4.00	54.42	121.43	12.96
June	130.24	191.26	325.77	469.69	554.04	.85	2.47	2.85	6.16	168.18	544.17	26.84
July	45.47	52.54	112.11	240.32	673.74	1.67	2.25	2.59	3.31	45.76	689.13	13.06
August	13.71	17.71	33.42	82.79	280.47	1.95	2.25	2.64	3.00	3.68	45.92	.35
September	6.58	9.96	18.76	33.53	85.64	1.26	2.44	2.50	3.11	3.66	6.43	.37
Parameter Group #2												
1-day minimum	3.70	4.35	5.10	10.70	22.40	1.25	1.00	1.30	2.00	2.10	2.40	.40
3-day minimum	3.60	4.57	5.23	10.98	23.40	1.23	1.00	1.30	1.63	2.20	2.40	.55
7-day minimum	3.59	4.69	5.29	11.51	24.63	1.29	1.00	1.30	1.50	2.19	2.40	.59
30-day minimum	3.53	5.15	6.37	16.25	25.85	1.74	1.27	1.34	1.64	2.15	2.54	.49
90-day minimum	5.13	6.05	10.58	18.44	26.27	1.17	1.38	1.42	1.55	2.33	2.90	.59
1-day maximum	312.20	367.75	581.00	864.25	1168.00	.85	4.60	14.00	39.00	621.00	1250.00	15.56
3-day maximum	299.03	354.58	562.67	744.83	1028.77	.69	4.17	9.67	26.00	579.00	1146.67	21.90
7-day maximum	279.19	333.82	526.57	675.21	924.73	.65	2.90	6.09	18.43	502.86	1017.71	26.96
30-day maximum	219.11	249.81	393.52	575.06	819.40	.83	2.69	3.84	10.56	199.78	751.27	18.56
90-day maximum	151.89	177.43	247.71	384.37	543.26	.84	2.63	3.23	6.38	104.44	374.49	15.86
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.04	.07	.08	.10	.19	.44	.01	.06	.41	.59	.72	1.31
Parameter Group #3												
Date of minimum	255.30	275.00	303.00	332.25	12.60	.16	118.00	276.00	304.00	331.00	38.00	.15
Date of maximum	129.70	138.75	152.50	163.25	190.60	.07	136.00	153.00	164.00	200.00	270.00	.13
Parameter Group #4												
Low pulse count	.00	2.00	3.50	5.50	8.00	1.00	2.00	2.00	5.00	6.00	7.00	.80
Low pulse duration	.00	4.99	10.50	17.84	57.10	1.22	19.17	25.00	41.43	107.00	107.00	1.98
High pulse count	2.10	3.00	3.00	4.00	5.90	.33	.00	.00	.00	3.00	6.00	.00
High pulse duration	14.27	20.88	25.50	35.08	40.57	.56	.00	.00	.00	5.67	52.00	.00
Parameter Group #5												
Rise rate	8.71	10.39	13.44	20.03	27.29	.72	.14	.70	1.94	24.07	44.58	12.04
Fall rate	-20.90	-14.25	-9.40	-6.85	-5.68	-.79	-39.22	-23.66	-1.92	-.64	-.12	-11.96
Number of reversals	82.40	88.00	95.50	102.75	111.80	.15	22.00	38.00	50.00	67.00	78.00	.58

Table CAWG 6 Appendix L-3c. Bear Creek below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Bear Ck below Diversion Data

	Unimpaired period: 1963-1982 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1984-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	16.2	1.06	3.8	62.2	2.3	1.03	1.3	8.6	11.94	20.57	-1.00
November	15.8	.95	5.2	49.2	2.1	.45	1.2	6.3	11.21	20.93	-1.00
December	17.1	1.34	5.0	47.9	2.2	.48	1.0	12.5	10.89	23.33	-.87
January	24.5	.86	5.2	107.5	2.2	.48	1.3	55.8	13.35	31.78	-1.00
February	25.6	.68	5.8	61.0	2.2	.44	1.3	20.4	20.26	32.68	-.87
March	41.3	.44	19.6	79.8	2.3	.63	1.2	59.8	34.23	47.26	-1.00
April	96.3	.44	36.5	139.9	2.4	1.25	1.4	67.1	84.94	114.68	-1.00
May	231.0	.60	141.0	407.4	4.0	12.96	2.3	132.6	206.90	313.82	-1.00
June	325.8	.85	105.0	740.3	6.2	26.84	2.4	554.8	214.21	390.20	-.74
July	112.1	1.67	44.6	747.4	3.3	13.06	2.1	747.4	66.41	224.98	-.87
August	33.4	1.95	12.5	348.7	3.0	.35	2.2	108.9	26.55	71.70	-.87
September	18.8	1.26	5.1	100.5	3.1	.37	2.2	11.1	15.13	31.58	-1.00
Parameter Group #2											
1-day minimum	5.1	1.25	3.0	28.0	2.0	.40	.9	2.4	4.59	9.15	-1.00
3-day minimum	5.2	1.23	3.0	28.7	1.6	.55	1.0	2.4	4.60	9.93	-1.00
7-day minimum	5.3	1.29	2.8	30.0	1.5	.59	1.0	2.6	4.81	10.57	-1.00
30-day minimum	6.4	1.74	2.4	36.4	1.6	.49	1.0	2.7	5.51	12.99	-1.00
90-day minimum	10.6	1.17	2.3	40.1	1.5	.59	1.1	2.9	7.00	17.62	-1.00
1-day maximum	581.0	.85	295.0	1420.0	39.0	15.56	2.8	1420.0	417.46	715.81	-.47
3-day maximum	562.7	.69	279.7	1206.7	26.0	21.90	2.8	1206.7	396.75	661.13	-.61
7-day maximum	526.6	.65	265.4	1071.3	18.4	26.96	2.7	1071.3	345.73	617.92	-.61
30-day maximum	393.5	.83	170.3	843.4	10.6	18.56	2.6	826.4	268.06	470.08	-.87
90-day maximum	247.7	.84	142.2	615.0	6.4	15.86	2.5	516.7	188.15	318.91	-.87
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.08	.44	.04	.22	.41	1.31	.01	.72	.07	.10	-1.00
Parameter Group #3											
Date of minimum	303.0	.16	9.0	362.0	304.0	.15	7.0	331.0	271.95	308.21	.05
Date of maximum	152.5	.07	2.0	191.0	164.0	.13	135.0	279.0	145.86	161.00	-.42
Parameter Group #4											
Low Pulse Count	3.5	1.00	.0	9.0	5.0	.80	2.0	9.0	2.93	4.00	-.65
Low Pulse Duration	10.5	1.22	.0	89.5	41.4	1.98	.5	114.3	7.12	13.67	-1.00
High Pulse Count	3.0	.33	2.0	6.0	.0	.00	.0	6.0	3.00	4.00	-.92
High Pulse Duration	25.5	.56	12.5	55.5	.0	.00	.0	85.0	23.27	32.40	-1.00

The low pulse threshold is 17.00
The high pulse level is 99.00

Parameter Group #5											
Rise rate	13.4	.72	8.2	36.6	1.9	12.04	.1	56.4	11.40	17.53	-.87
Fall rate	-9.4	-.79	-24.1	-5.1	-1.9	-11.96	-43.0	-.1	-10.94	-7.45	-1.00
Number of reversals	95.5	.15	72.0	117.0	50.0	.58	13.0	81.0	88.93	100.14	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
November	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
December	7.60	1.00	-.87	5.70	.00	-1.00	5.70	18.00	2.16
January	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
February	7.60	1.00	-.87	5.70	.00	-1.00	5.70	18.00	2.16
March	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
April	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
May	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
June	7.60	2.00	-.74	5.70	2.00	-.65	5.70	15.00	1.63
July	7.60	1.00	-.87	5.70	2.00	-.65	5.70	16.00	1.81
August	7.60	1.00	-.87	5.70	1.00	-.82	5.70	17.00	1.98
September	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
Parameter Group #2									
1-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
3-day minimum	8.55	.00	-1.00	4.75	.00	-1.00	5.70	19.00	2.33
7-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
30-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
90-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
1-day maximum	7.60	4.00	-.47	5.70	3.00	-.47	5.70	12.00	1.11
3-day maximum	7.60	3.00	-.61	5.70	3.00	-.47	5.70	13.00	1.28
7-day maximum	7.60	3.00	-.61	5.70	3.00	-.47	5.70	13.00	1.28
30-day maximum	7.60	1.00	-.87	5.70	3.00	-.47	5.70	15.00	1.63
90-day maximum	7.60	1.00	-.87	5.70	2.00	-.65	5.70	16.00	1.81
Number of zero days	19.00	19.00	.00	.00	.00	.00	.00	.00	.00
Base flow	7.60	.00	-1.00	5.70	14.00	1.46	5.70	5.00	-.12
Parameter Group #3									
Date of minimum	7.60	8.00	.05	5.70	4.00	-.30	5.70	7.00	.23
Date of maximum	8.55	5.00	-.42	4.75	10.00	1.11	5.70	4.00	-.30
Parameter Group #4									
Low Pulse Count	8.55	3.00	-.65	4.75	10.00	1.11	5.70	6.00	.05
Low Pulse Duration	7.60	.00	-1.00	5.70	18.00	2.16	5.70	1.00	-.82
High Pulse Count	13.30	1.00	-.92	3.80	4.00	.05	1.90	14.00	6.37
High Pulse Duration	7.60	.00	-1.00	5.70	2.00	-.65	5.70	17.00	1.98
Parameter Group #5									
Rise rate	7.60	1.00	-.87	5.70	6.00	.05	5.70	12.00	1.11
Fall rate	7.60	.00	-1.00	5.70	12.00	1.11	5.70	7.00	.23
Number of reversals	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33

10 Messages:

The longest period of missing data is 35 days.
Interpolating across this gap may cause anomalies in
the statistics. Please use them with caution.
Parameter Low pulse count : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 12 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of falls : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of falls : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of maximum : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-3d. Bear Creek below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Bear Ck below Diversion Data

Unimpaired period: 1963-1982 (20 years) Existing period: 1984-2002 (19 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	92.45	25.77
Mean flow/area	92.45	25.77
Annual C. V.	.63	.03
Flow predictability	.46	.59
Constancy/predictability	.42	.80

WARNING: Some of the Colwell Parameters are based on < 20 years of data

% of floods in 60d period	.61	.60
flood-free season	93.00	144.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	16.2	2.3	1.06	1.03	.86	.03	.09	.95
November	15.8	2.1	.95	.45	.87	.52	.24	.41
December	17.1	2.2	1.34	.48	.87	.64	.25	.25
January	24.5	2.2	.86	.48	.91	.44	.35	.67
February	25.6	2.2	.68	.44	.91	.35	.35	.84
March	41.3	2.3	.44	.63	.94	.42	.31	.65
April	96.3	2.4	.44	1.25	.97	1.86	.26	.20
May	231.0	4.0	.60	12.96	.98	20.58	.13	.01
June	325.8	6.2	.85	26.84	.98	30.40	.05	.00
July	112.1	3.3	1.67	13.06	.97	6.79	.04	.02
August	33.4	3.0	1.95	.35	.91	.82	.24	.24
September	18.8	3.1	1.26	.37	.83	.70	.16	.14
Parameter Group #2								
1-day minimum	5.1	2.0	1.25	.40	.61	.68	.25	.19
3-day minimum	5.2	1.6	1.23	.55	.69	.55	.21	.33
7-day minimum	5.3	1.5	1.29	.59	.72	.54	.23	.35
30-day minimum	6.4	1.6	1.74	.49	.74	.72	.31	.24
90-day minimum	10.6	1.5	1.17	.59	.85	.50	.34	.43
1-day maximum	581.0	39.0	.85	15.56	.93	17.21	.02	.00
3-day maximum	562.7	26.0	.69	21.90	.95	30.57	.02	.00
7-day maximum	526.6	18.4	.65	26.96	.97	40.58	.01	.00
30-day maximum	393.5	10.6	.83	18.56	.97	21.46	.02	.00
90-day maximum	247.7	6.4	.84	15.86	.97	17.98	.04	.00
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.1	.4	.44	1.31	4.11	1.98	.00	.01
Parameter Group #3								
Date of minimum	303.0	304.0	.16	.15	.01	.04	.79	.93
Date of maximum	152.5	164.0	.07	.13	.06	.92	.03	.06
Parameter Group #4								
Low pulse count	3.5	5.0	1.00	.80	.43	.20	.07	.53
Low pulse duration	10.5	41.4	1.22	1.98	2.95	.62	.00	.14
High pulse count	3.0	.0	.33	.00	1.00	1.00	.03	.06
High pulse duration	25.5	.0	.56	.00	1.00	1.00	.16	.19

The low pulse threshold is 17.00
The high pulse level is 99.00

	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #5								
Rise rate	13.4	1.9	.72	12.04	.86	15.78	.02	.00
Fall rate	-9.4	-1.9	-.79	-11.96	.80	14.18	.03	.00
Number of reversals	95.5	50.0	.15	.58	.48	2.76	.01	.00

Table CAWG 6 Appendix L-3e. Bear Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1984-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
123	77	26	15	33	4.9	6.5	38	8.4	9	5.8	17	63	37	17	23	30	27	9.1	3.5	3.1	2.6	1.6	3	2.6	2.5	1.9	2.2	2.7	1.9	3	2	3.5	2.8	3.1	3.4	5.4	6.1	2.6
104	82	26	14	31	4.9	6.5	33	8.2	8.2	5.8	16	55	35	22	23	28	24	8.8	3.5	2.7	2.1	1.1	3	2	1.9	1.4	1.5	2.7	1.5	2.6	1.6	3.4	2.3	2.9	3	5.5	6	2.2
89	74	27	13	29	4.8	6	30	8.2	8.2	5.8	16	53	33	22	23	26	22	8.4	3.5	2.2	2.1	1.1	2.7	1.4	1.5	1.5	1.5	2.3	1.5	2.6	1.6	3.4	2.2	2.5	2.5	5.5	5.8	1.6
77	67	28	13	28	4.6	6	27	7	7.7	5.8	15	53	32	20	22	25	21	8.2	3.5	2.2	2.1	1.1	2.4	1.3	1.5	1.6	1.5	1.7	1.5	2.6	1.7	3.4	2.2	2.5	2.5	5.4	5.6	1.6
68	62	26	12	28	4.7	6	24	7	7.3	5.8	15	83	31	18	21	24	19	8	3.5	2.2	2.1	1.1	2.4	1.3	1.5	11	1.5	1.7	1.3	2.6	1.8	3.4	2.2	2.5	2.5	4	5.5	1.6
62	56	26	13	27	4.6	6.5	22	6.4	7.2	5.4	15	89	30	17	20	23	18	7.8	3.5	2.2	2.1	1.1	2.4	1.2	1.5	1.5	1.5	1.6	1.5	2.6	1.7	3.4	2.2	2.5	2.5	4	5.3	1.6
57	54	25	21	27	4.6	6	20	6.1	6.9	5.4	15	88	30	17	19	23	18	7.6	3.5	2.2	2.1	1.2	2.4	1.2	1.5	1.4	1.5	1.6	1.5	2.6	1.7	3.4	2.2	2.4	2.5	4	5.2	1.6
52	53	24	22	27	4.6	5.8	18	6.1	6.4	5.4	15	86	29	16	18	21	16	7.4	3.5	2.2	2.1	1.2	2.4	1.2	1.6	1.4	1.5	1.7	1.5	2.6	1.9	3.4	2.2	2.4	2.5	5	5	1.6
48	49	23	22	28	4.6	5.8	17	6.1	6.4	5.4	14	85	28	15	18	21	15	7.2	3.5	2.2	2.1	1.2	2.4	1.2	1.5	1.4	1.5	1.7	1.4	2.7	2.1	3.4	2.2	2.4	2.5	5	4.9	1.6
44	45	22	20	27	4.6	5.6	16	6.1	6.1	5.4	14	80	27	15	19	20	14	11	3.5	2.2	2.1	88	2.4	1.1	1.5	1.4	1.5	1.7	1.3	2.7	1.7	3	2.2	2.4	2.5	4	7.5	1.6
41	41	23	22	27	4.6	5.6	15	5.9	5.9	5.4	18	73	27	15	22	20	14	16	3.5	2.3	2.1	20	2.4	1.1	1.5	1.4	1.5	1.7	1.4	2.6	1.9	2.5	2.2	2.4	2.5	5	9.6	1.6
39	39	26	22	26	4.6	5.6	14	5.9	5.7	5.4	20	65	26	14	21	19	13	15	3.5	2.3	2.1	4	2.3	1.1	1.5	1.5	1.5	1.7	1.4	2.5	1.8	2.5	2.2	2.4	2.5	5	9.5	1.6
38	37	27	20	24	6.3	5.6	13	5.9	6	5.4	18	56	25	14	22	19	12	14	3.5	2.3	2.1	1.2	2.3	1	1.5	1.7	1.5	1.7	1.4	2.6	1.8	2.5	2.2	2.4	2.5	5	8.7	1.6
36	35	26	18	23	6.3	5.6	12	5.9	6	5.4	17	49	24	13	21	19	12	14	3.4	2.3	2.1	1.2	2.3	0.98	1.5	1.7	1.5	1.8	1.4	2.6	1.6	2.5	2.2	2.4	2.5	5	8.8	1.6
36	34	24	17	21	5.5	5.6	12	5.7	5.7	5.4	17	44	24	13	21	19	12	14	3.2	2.3	2.1	1.2	2.3	0.94	1.5	1.7	1.5	1.8	1.4	2.6	1.6	2.5	2.2	2.4	2.5	5	8.6	1.6
35	33	23	17	20	5.2	5.4	12	5.7	5.5	5.4	19	39	24	12	20	18	11	13	3.1	2.3	2.1	1.2	2.3	0.99	1.5	1.7	1.5	1.8	1.4	2.6	1.6	26	2.2	2.4	2.5	5	8.5	1.6
34	32	28	16	19	5	5.2	11	5.7	5.3	5.4	19	36	24	11	19	17	11	13	3	2.3	2.1	1.2	2.3	1.2	19	1.7	1.5	1.8	1.5	2.6	1.6	18	2.2	2.4	2.5	5	8.2	1.6
32	31	33	16	18	4.9	5.2	10	5.7	5.1	5.4	19	34	23	11	18	17	11	13	3	2.3	2.1	1.2	2.3	1.2	4	1.7	1.5	1.7	1.5	2.6	1.6	5	2.2	2.4	2.5	5	8.1	1.6
32	30	37	15	17	4.9	4.9	10	6.4	5	5.4	18	32	23	11	17	17	10	13	3	2.3	2.1	1.2	2.2	1.2	1.7	1.7	1.5	1.8	1.5	2.5	1.6	4.5	2.2	2.4	2.5	5	7.9	1.6
32	30	34	14	17	4.8	4.9	10	7.6	5.2	5	18	30	23	11	16	16	10	12	3	2.3	2.1	1.2	2.2	1.2	1.7	1.7	1.5	1.8	1.5	2.5	1.6	2.3	2.2	2.4	2.5	5	7.7	1.6
31	29	30	14	17	4.8	4.9	10	6.4	5	5.8	17	28	23	11	16	17	9.9	12	3	2.3	2.1	1.2	2.2	1.3	1.6	1.7	1.5	1.8	1.5	2.6	1.6	2.2	2.3	2.4	2.5	5.9	7.7	1.6
41	28	27	19	17	6	4.9	14	6.4	5	7.5	16	27	21	11	16	17	9.5	12	3.2	2.3	2.1	1.2	2.2	1.3	1.7	1.7	1.5	1.7	1.5	2.6	1.6	2.1	2.3	2.4	2.4	5.5	7.4	1.5
44	27	27	25	16	7.9	4.9	13	6.1	5	7.7	15	26	20	9.7	15	17	9.5	13	3.5	2.3	2.1	1.2	2.2	1.3	1.7	1.7	1.5	1.7	1.5	2.6	1.6	2.3	2.3	2.4	2.4	5.5	15	1.4
59	27	26	30	16	7.6	4.9	16	6.1	5	7	14	26	20	9.1	15	18	9.5	13	3.5	2.3	2.1	1.2	2.2	1.3	1.8	1.7	1.5	1.7	1.5	2.6	1.6	2.6	2.3	2.4	2.4	5.5	22	1.4
111	26	25	28	15	6.5	4.9	19	6.1	5.1	6.4	14	25	20	11	13	19	9	12	3.5	2.3	2.1	1.2	2.2	1.3	1.8	1.7	1.5	1.7	1.5	2.6	1.6	2.2	9.3	2.5	2.4	5	9.8	1.4
138	25	27	25	15	6	4.9	16	6.1	9.6	6.4	13	25	19	11	14	21	8.8	12	3.5	2.3	2.1	1.2	2.2	1.3	1.8	1.8	1.5	1.7	1.5	2.6	1.6	2.3	11	2.5	2.4	4.8	4.7	1.4
96	24	24	24	14	6	4.9	18	5.9	10	6.4	12	24	19	13	13	21	8.6	13	3.5	2.3	2.1	1.2	2.2	1.6	1.7	1.8	1.5	1.7	1.5	2.6	1.6	2.4	13	2.5	2.4	2.6	6.4	1.5
84	24	23	22	14	9.5	4.9	14	5.9	19	6.7	11	22	19	13	12	21	10	15	3.5	2.3	2.1	1.2	2.2	1.6	1.7	1.8	1.5	1.7	1.5	2.6	1.6	2.3	14	2.5	2.4	3	7.9	1.5
78	24	23	21	14	13	4.9	13	5.7	16	9.2	11	20	19	12	13	21	13	16	3.5	2.3	2.1	1.2	2.2	1.4	1.7	1.9	1.4	1.7	1.2	2.5	1.6	2.3	14	2.4	2.7	3	8.7	1.5
83	29	22	20	14	12	4.9	13	5.9	13	15	11	19	19	15	13	21	11	20	6.6	2.3	2.1	1.2	2.2	1.6	1.7	1.8	1.3	1.7	1.1	2.5	1.5	2.3	8.2	2.2	3.1	3	13	1.5
83	30	20	18	13	11	4.9	13	5.7	13	23	10	19	19	22	12	21	10	22	14	2.3	2.1	1.2	2.2	1.8	1.7	1.4	1.3	1.8	1.1	2.5	1.5	2.3	2.1	2.2	3.1	2	22	1.5

Table CAWG 6 Appendix L-4a. Chinquapin Creek below Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Chinquapin Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
U	1983	3.30	2.92	2.46	2.33	2.14	2.74	3.34	25.29	50.99	13.36	1.68	.56	.31	.32	.36	.54	.70	66.65	64.52	60.54	55.79	30.23	.00	.04	265.00	169.00	.00	.00	9.00	15.67	1.51	-.88	87.00
	1984	.52	2.88	4.46	2.93	2.48	4.83	9.49	10.56	1.93	.49	.13	.05	.04	.04	.04	.05	.09	35.41	20.17	15.02	11.90	8.46	.00	.01	250.00	360.00	2.00	19.00	8.00	15.38	.95	-.51	90.00
	1985	.12	.21	.25	.40	.58	1.48	9.11	8.70	1.39	.18	.03	.05	.01	.01	.01	.02	.05	15.74	14.90	14.03	11.30	6.66	.00	.01	240.00	105.00	5.00	12.40	2.00	30.50	.32	-.23	72.00
	1986	.10	.14	.49	1.75	7.17	10.72	16.69	23.78	9.08	.83	.14	.12	.02	.03	.05	.07	.10	40.76	31.32	29.14	24.49	17.77	.00	.01	279.00	68.00	4.00	10.25	3.00	46.00	1.52	-.88	77.00
	1987	.14	.09	.07	.09	.08	.69	6.76	4.65	.94	.13	.02	.01	.01	.01	.01	.01	.02	10.23	10.10	9.91	8.09	4.20	.00	.01	232.00	116.00	10.00	13.40	1.00	47.00	.30	-.17	61.00
	1988	.04	.25	.28	.52	.94	2.84	6.29	5.59	1.43	.26	.04	.01	.01	.01	.01	.01	.01	9.68	9.31	8.43	6.52	5.01	.00	.01	275.00	134.00	2.00	31.00	2.00	34.50	.28	-.19	77.00
	1989	.01	.05	.07	.09	.24	2.97	9.94	5.15	1.01	.14	.03	.07	.01	.01	.01	.01	.04	15.82	15.21	14.41	9.98	6.16	.00	.01	275.00	100.00	6.00	19.83	3.00	23.33	.48	-.26	41.00
	1990	.18	.14	.11	.17	.24	2.22	8.35	5.01	1.33	.16	.03	.02	.01	.01	.01	.01	.02	12.43	11.78	10.57	8.87	5.41	.00	.01	242.00	118.00	2.00	45.50	2.00	33.50	.41	-.22	52.00
	1991	.02	.02	.03	.04	.08	1.74	3.87	12.72	6.36	.74	.10	.03	.01	.01	.01	.02	.02	21.32	20.11	17.30	13.78	7.79	.00	.00	299.00	145.00	2.00	21.00	4.00	19.50	.82	-.51	66.00
	1992	.07	.11	.10	.14	.41	1.01	9.85	6.40	.78	.44	.05	.02	.01	.01	.01	.01	.03	15.74	15.27	14.35	11.68	5.86	.00	.01	280.00	121.00	6.00	10.67	1.00	51.00	.28	-.19	71.00
	1993	.08	.11	.10	.63	.70	3.06	11.38	35.80	17.63	2.52	.32	.07	.01	.01	.01	.06	.07	49.10	47.68	43.61	35.88	21.98	.00	.00	275.00	139.00	4.00	9.00	1.00	114.00	1.10	-.70	69.00
	1994	.07	.08	.11	.14	.20	1.43	5.48	7.02	1.37	.12	.01	.02	.01	.01	.01	.01	.04	12.04	11.38	10.34	8.06	4.95	.00	.01	224.00	133.00	8.00	13.25	3.00	21.00	.39	-.29	55.00
	1995	.30	.55	.65	1.86	2.10	6.32	10.56	26.56	39.62	14.17	1.21	.19	.03	.03	.10	.08	.09	61.93	54.45	50.47	40.39	28.37	.00	.01	276.00	121.00	1.00	.00	4.00	38.50	2.03	-1.14	66.00
	1996	.08	.07	.42	.65	3.69	4.02	13.97	24.82	4.60	.51	.08	.03	.02	.03	.03	.03	.05	129.83	65.91	43.38	28.45	15.29	.00	.01	256.00	137.00	3.00	35.67	3.00	37.33	2.14	-1.06	75.00
	1997	.04	1.77	2.89	15.23	2.29	7.02	13.67	13.80	2.30	.32	.06	.04	.02	.02	.02	.03	.04	173.11	94.42	52.51	18.82	11.87	.00	.00	283.00	2.00	3.00	19.33	7.00	19.43	2.47	-1.35	77.00
	1998	.04	.06	.11	.15	.15	1.26	5.17	14.03	41.95	12.79	.71	.30	.02	.03	.03	.04	.07	61.06	56.00	52.89	41.96	23.86	.00	.00	279.00	167.00	4.00	11.00	2.00	52.00	1.06	-.75	89.00
	1999	.21	.35	.60	.67	1.80	1.96	5.98	14.70	4.55	.53	.09	.04	.02	.02	.03	.02	.04	22.11	20.41	19.10	14.90	8.68	.00	.01	260.00	133.00	2.00	22.00	2.00	36.00	.50	-.28	92.00
	2000	.03	.06	.04	.31	.96	2.12	12.46	18.15	3.53	.36	.04	.03	.02	.02	.02	.02	.04	36.90	31.42	27.75	19.93	11.85	.00	.01	287.00	129.00	5.00	25.40	1.00	83.00	.91	-.56	65.00
	2001	.05	.07	.07	.20	.44	2.33	6.36	16.06	1.23	.22	.02	.01	.01	.01	.01	.01	.02	26.20	25.84	24.49	18.04	8.72	.00	.00	239.00	129.00	6.00	22.50	2.00	33.50	.64	-.37	67.00
	2002	.02	.25	.40	.40	.86	2.04	10.58	10.83	2.68	.20	.02	.01	.01	.01	.01	.01	.02	16.29	15.69	14.08	11.16	8.36	.00	.00	275.00	105.00	5.00	17.40	1.00	73.00	.40	-.25	55.00
E	1993	.08	.11	.10	.63	.70	3.06	10.38	1.11	1.13	1.22	.48	.07	.01	.01	.01	.06	.07	27.07	24.08	18.96	10.48	4.92	.00	.01	275.00	120.00	4.00	9.00	1.00	43.00	.30	-.41	63.00
	1994	.07	.08	.11	.14	.20	1.43	3.13	1.45	.87	.12	.01	.02	.01	.01	.01	.01	.04	9.91	8.97	6.86	3.70	2.08	.00	.02	224.00	109.00	8.00	13.25	4.00	4.75	.26	-.23	59.00
	1995	.30	.55	.65	1.86	2.10	6.32	10.56	26.56	39.62	14.17	1.45	.52	.03	.03	.07	.05	.36	61.93	54.45	50.47	40.39	28.37	.00	.01	276.00	121.00	1.00	.00	4.00	38.50	1.99	-1.22	68.00
	1997	.04	1.77	2.89	15.23	2.29	7.02	13.67	13.80	2.30	.32	.06	.04	.02	.02	.02	.03	.04	173.11	94.42	52.51	18.82	11.87	.00	.00	283.00	2.00	3.00	19.33	7.00	19.43	2.47	-1.35	77.00
	1998	.04	.06	.11	.15	.15	1.26	5.17	14.03	41.95	12.79	.71	.30	.02	.03	.03	.04	.07	61.06	56.00	52.89	41.96	23.86	.00	.00	279.00	167.00	4.00	11.00	2.00	52.00	1.06	-.75	89.00
	1999	.21	.35	.60	.67	1.80	1.96	5.98	14.70	4.55	.53	.09	.04	.02	.02	.03	.02	.04	22.11	20.41	19.10	14.90	8.68	.00	.01	260.00	133.00	2.00	22.00	2.00	36.00	.50	-.28	92.00
	2000	.03	.06	.04	.31	.96	2.12	12.46	18.15	3.53	.36	.04	.03	.02	.02	.02	.02	.04	36.90	31.42	27.75	19.93	11.85	.00	.01	287.00	129.00	5.00	25.40	1.00	83.00	.92	-.56	63.00
	2001	.05	.07	.07	.20	.44	2.33	6.36	6.20	1.03	.27	.02	.01	.01	.01	.01	.01	.06	26.20	24.39	20.49	10.35	5.22	.00	.01	239.00	129.00	6.00	22.50	2.00	21.00	.63	-.42	63.00

Table CAWG 6 Appendix L-4b. Chinquapin Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Chinquapin Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1993-2001 (8 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.02	.04	.07	.17	.50	1.74	.03	.04	.06	.17	.30	2.03
November	.05	.07	.12	.33	2.76	2.07	.06	.07	.09	.50	1.77	4.62
December	.05	.08	.18	.57	2.85	2.74	.04	.07	.11	.64	2.89	5.38
January	.09	.14	.40	1.48	2.87	3.36	.14	.16	.47	1.56	15.23	3.00
February	.09	.24	.78	2.13	3.57	2.40	.15	.26	.83	2.02	2.29	2.12
March	1.03	1.54	2.27	3.78	6.95	.99	1.26	1.56	2.22	5.50	7.02	1.77
April	4.00	6.06	9.30	11.18	13.94	.55	3.13	5.37	8.37	11.99	13.67	.79
May	5.02	6.56	13.26	22.37	26.44	1.19	1.11	2.64	13.92	17.29	26.56	1.05
June	.95	1.34	2.49	8.40	41.71	2.84	.87	1.06	2.92	30.85	41.95	10.22
July	.13	.19	.40	.81	13.30	1.56	.12	.28	.44	9.90	14.17	21.83
August	.02	.03	.05	.14	1.16	2.11	.01	.03	.07	.65	1.45	8.39
September	.01	.02	.04	.07	.29	1.50	.01	.02	.04	.24	.52	5.76
Parameter Group #2												
1-day minimum	.01	.01	.01	.02	.04	1.00	.01	.01	.02	.02	.03	.50
3-day minimum	.01	.01	.01	.03	.04	1.67	.01	.01	.02	.03	.03	.79
7-day minimum	.01	.01	.01	.03	.09	1.86	.01	.01	.02	.03	.07	.85
30-day minimum	.01	.01	.02	.05	.08	1.59	.01	.01	.03	.05	.06	1.22
90-day minimum	.02	.02	.04	.07	.10	1.33	.04	.04	.05	.07	.36	.65
1-day maximum	10.41	15.74	24.16	58.07	123.51	1.75	9.91	23.13	31.99	61.71	173.11	1.21
3-day maximum	10.23	14.98	20.29	52.76	65.77	1.86	8.97	21.32	27.91	55.61	94.42	1.23
7-day maximum	9.96	14.04	18.20	43.55	52.85	1.62	6.86	19.00	24.12	52.00	52.89	1.37
30-day maximum	8.07	10.27	14.34	27.46	41.80	1.20	3.70	10.38	16.86	35.27	41.96	1.48
90-day maximum	4.96	5.94	8.57	17.15	27.92	1.31	2.08	4.99	10.27	20.86	28.37	1.55
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.00	.00	.01	.01	.01	.64	.00	.01	.01	.01	.02	.72
Parameter Group #3												
Date of minimum	232.70	244.00	275.00	279.00	286.60	.10	224.00	244.25	275.50	282.00	287.00	.10
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	2.00	111.75	125.00	132.00	167.00	.06
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	1.00	2.25	4.00	5.75	8.00	.88
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	.00	9.50	16.29	22.38	25.40	.79
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	1.00	1.25	2.00	4.00	7.00	1.38
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	4.75	19.82	37.25	49.75	83.00	.80
Parameter Group #5												
Rise rate	.29	.39	.73	1.41	2.13	1.40	.26	.35	.78	1.76	2.47	1.82
Fall rate	-1.13	-.85	-.44	-.24	-.19	-1.38	-1.35	-1.11	-.49	-.31	-.23	-1.63
Number of reversals	52.30	62.00	70.00	77.00	89.90	.21	59.00	63.00	65.50	86.00	92.00	.35

Table CAWG 6 Appendix L-4c. Chinquapin Creek below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Chinquapin Ck below Diversion Data

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1993-2001 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	.1	1.74	.0	3.3	.1	2.03	.0	.3	.04	.12	.25
November	.1	2.07	.0	2.9	.1	4.62	.1	1.8	.08	.25	-.38
December	.2	2.74	.0	4.5	.1	5.38	.0	2.9	.10	.43	-.06
January	.4	3.36	.0	15.2	.5	3.00	.1	15.2	.17	.65	-.06
February	.8	2.40	.1	7.2	.8	2.12	.1	2.3	.40	1.82	.25
March	2.3	.99	.7	10.7	2.2	1.77	1.3	7.0	1.95	2.98	-.06
April	9.3	.55	3.3	16.7	8.4	.79	3.1	13.7	6.36	10.56	-.06
May	13.3	1.19	4.7	35.8	13.9	1.05	1.1	26.6	8.58	16.21	-.06
June	2.5	2.84	.8	51.0	2.9	10.22	.9	41.9	1.39	4.73	-.06
July	.4	1.56	.1	14.2	.4	21.83	.1	14.2	.22	.54	.25
August	.1	2.11	.0	1.7	.1	8.39	.0	1.5	.03	.10	-.06
September	.0	1.50	.0	.6	.0	5.76	.0	.5	.02	.05	.25
Parameter Group #2											
1-day minimum	.0	1.00	.0	.3	.0	.50	.0	.0	.01	.02	.03
3-day minimum	.0	1.67	.0	.3	.0	.79	.0	.0	.01	.02	.07
7-day minimum	.0	1.86	.0	.4	.0	.85	.0	.1	.01	.03	.07
30-day minimum	.0	1.59	.0	.5	.0	1.22	.0	.1	.01	.03	-.06
90-day minimum	.0	1.33	.0	.7	.1	.65	.0	.4	.03	.05	.25
1-day maximum	24.2	1.75	9.7	173.1	32.0	1.21	9.9	173.1	15.81	41.34	.25
3-day maximum	20.3	1.86	9.3	94.4	27.9	1.23	9.0	94.4	15.26	32.56	.25
7-day maximum	18.2	1.62	8.4	60.5	24.1	1.37	6.9	52.9	14.33	30.13	.25
30-day maximum	14.3	1.20	6.5	55.8	16.9	1.48	3.7	42.0	11.29	20.25	-.06
90-day maximum	8.6	1.31	4.2	30.2	10.3	1.55	2.1	28.4	6.62	12.11	-.06
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.64	.00	.04	.01	.72	.00	.02	.01	.01	-.06
Parameter Group #3											
Date of minimum	275.0	.10	224.0	299.0	275.5	.10	224.0	287.0	255.58	276.21	-.06
Date of maximum	129.0	.08	2.0	360.0	125.0	.06	2.0	167.0	117.86	134.21	.56
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	4.0	.88	1.0	8.0	2.00	5.00	-.04
Low Pulse Duration	18.2	.64	.0	45.5	16.3	.79	.0	25.4	12.30	21.07	-.38
High Pulse Count	2.0	1.25	1.0	9.0	2.0	1.38	1.0	7.0	2.00	3.00	-.25
High Pulse Duration	35.3	.81	15.4	114.0	37.3	.80	4.8	83.0	30.00	46.07	-.06

The low pulse threshold is .09
The high pulse level is 2.91

	Unimpaired Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	.7	1.40	.3	2.5	.8	1.82	.3	2.5	.41	1.07	.25
Fall rate	-.4	-1.38	-1.4	-.2	-.5	-1.63	-1.4	-.2	-.70	-.26	.25
Number of reversals	70.0	.21	41.0	92.0	65.5	.35	59.0	92.0	65.93	77.00	-.50

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	3.20	4.00	.25	2.40	2.00	-.17	2.40	2.00	-.17
November	3.20	2.00	-.38	2.40	3.00	.25	2.40	3.00	.25
December	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
January	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
February	3.20	4.00	.25	2.40	2.00	-.17	2.40	2.00	-.17
March	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
April	3.20	3.00	-.06	2.40	2.00	-.17	2.40	3.00	.25
May	3.20	3.00	-.06	2.40	2.00	-.17	2.40	3.00	.25
June	3.20	3.00	-.06	2.40	2.00	-.17	2.40	3.00	.25
July	3.20	4.00	.25	2.40	3.00	.25	2.40	1.00	-.58
August	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
September	3.20	4.00	.25	2.40	3.00	.25	2.40	1.00	-.58
Parameter Group #2									
1-day minimum	6.80	7.00	.03	1.20	1.00	-.17	.00	.00	.00
3-day minimum	5.60	6.00	.07	2.40	2.00	-.17	.00	.00	.00
7-day minimum	5.60	6.00	.07	2.40	2.00	-.17	.00	.00	.00
30-day minimum	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
90-day minimum	3.20	4.00	.25	2.40	4.00	.67	2.40	.00	-1.00
1-day maximum	3.20	4.00	.25	2.40	3.00	.25	2.40	1.00	-.58
3-day maximum	3.20	4.00	.25	2.40	3.00	.25	2.40	1.00	-.58
7-day maximum	3.20	4.00	.25	2.40	3.00	.25	2.40	1.00	-.58
30-day maximum	3.20	3.00	-.06	2.40	2.00	-.17	2.40	3.00	.25
90-day maximum	3.20	3.00	-.06	2.40	2.00	-.17	2.40	3.00	.25
Number of zero days	8.00	8.00	.00	.00	.00	.00	.00	.00	.00
Base flow	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
Parameter Group #3									
Date of minimum	3.20	3.00	-.06	2.40	3.00	.25	2.40	2.00	-.17
Date of maximum	3.20	5.00	.56	2.40	1.00	-.58	2.40	2.00	-.17
Parameter Group #4									
Low Pulse Count	5.20	5.00	-.04	2.00	2.00	.00	.80	1.00	.25
Low Pulse Duration	3.20	2.00	-.38	2.40	3.00	.25	2.40	3.00	.25
High Pulse Count	4.00	3.00	-.25	2.00	3.00	.50	2.00	2.00	.00
High Pulse Duration	3.20	3.00	-.06	2.40	2.00	-.17	2.40	3.00	.25
Parameter Group #5									
Rise rate	3.20	4.00	.25	2.40	2.00	-.17	2.40	2.00	-.17
Fall rate	3.20	4.00	.25	2.40	1.00	-.58	2.40	3.00	.25
Number of reversals	4.00	2.00	-.50	1.60	2.00	.25	2.40	4.00	.67

12 Messages:

The longest period of missing data is 52 days.
Interpolating across this gap may cause anomalies in
the statistics. Please use them with caution.
Parameter Low pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 9 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 10 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 14 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 14 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 14 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-4d. Chinquapin Creek below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Chinquapin Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1993-2001 (8 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	3.44	3.55
Mean flow/area	3.44	3.55
Annual C. V.	.68	.56
Flow predictability	.46	.52
Constancy/predictability	.34	.29

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Unimpaired	Existing
% of floods in 60d period	.61	.48
flood-free season	100.00	107.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	.1	.1	1.74	2.03	.15	.17	.66	.81
November	.1	.1	2.07	4.62	.23	1.23	.68	.26
December	.2	.1	2.74	5.38	.42	.96	.83	.15
January	.4	.5	3.36	3.00	.17	.11	.80	.92
February	.8	.8	2.40	2.12	.06	.12	.93	.86
March	2.3	2.2	.99	1.77	.02	.79	.96	.35
April	9.3	8.4	.55	.79	.10	.43	.75	.29
May	13.3	13.9	1.19	1.05	.05	.12	.81	.84
June	2.5	2.9	2.84	10.22	.17	2.60	.82	.22
July	.4	.4	1.56	21.83	.10	12.97	.88	.11
August	.1	.1	2.11	8.39	.42	2.97	.56	.13
September	.0	.0	1.50	5.76	.09	2.84	.79	.14
Parameter Group #2								
1-day minimum	.0	.0	1.00	.50	1.00	.50	.00	.44
3-day minimum	.0	.0	1.67	.79	1.00	.53	.22	.33
7-day minimum	.0	.0	1.86	.85	1.14	.54	.24	.42
30-day minimum	.0	.0	1.59	1.22	.33	.23	.47	.57
90-day minimum	.0	.1	1.33	.65	.32	.51	.25	.24
1-day maximum	24.2	32.0	1.75	1.21	.32	.31	.52	.55
3-day maximum	20.3	27.9	1.86	1.23	.38	.34	.33	.41
7-day maximum	18.2	24.1	1.62	1.37	.33	.16	.45	.73
30-day maximum	14.3	16.9	1.20	1.48	.18	.23	.65	.79
90-day maximum	8.6	10.3	1.31	1.55	.20	.18	.46	.81
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.0	.64	.72	.04	.13	.62	.87
Parameter Group #3								
Date of minimum	275.0	275.5	.10	.10	.00	.08	.68	.87
Date of maximum	129.0	125.0	.08	.06	.02	.34	.58	.64
Parameter Group #4								
Low pulse count	4.0	4.0	.94	.88	.00	.07	.80	.88
Low pulse duration	18.2	16.3	.64	.79	.10	.24	.79	.60
High pulse count	2.0	2.0	1.25	1.38	.00	.10	.63	.83
High pulse duration	35.3	37.3	.81	.80	.06	.00	.68	1.00

The low pulse threshold is .09
The high pulse level is 2.91

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Rise rate	.7	.8	1.40	1.82	.07	.30	.91	.60
Fall rate	-.4	-.5	-1.38	-1.63	.10	.17	.85	.71
Number of reversals	70.0	65.5	.21	.35	.06	.64	.51	.28

Table CAWG 6 Appendix L-4e. Chinquapin Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1993-2001).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1993	1994	1995	1997	1998	1999	2000	2001
1.73	1.42	0.06	0.03	0.21	0.01	0.01	0.09	0.02	0.02	0.01	0.04	0.04	0.11	0.03	0.03	0.33	0.03	0.02	0.01	0.01	0.04	0.04	0.03	0.03	0.33	0.03	0.02
1.50	1.10	0.06	0.03	0.27	0.01	0.01	0.07	0.02	0.02	0.01	0.04	0.03	0.11	0.03	0.03	0.28	0.03	0.02	0.01	0.01	0.04	0.03	0.03	0.03	0.28	0.03	0.02
1.26	0.87	0.06	0.03	0.24	0.01	0.01	0.06	0.02	0.02	0.01	0.04	0.03	0.09	0.03	0.03	0.25	0.03	0.02	0.01	0.01	0.04	0.03	0.03	0.03	0.25	0.03	0.02
1.10	0.72	0.06	0.03	0.20	0.01	0.01	0.06	0.02	0.02	0.02	0.04	0.46	0.09	0.03	0.03	0.24	0.03	0.02	0.01	0.02	0.04	0.46	0.03	0.03	0.24	0.03	0.02
1.02	0.66	0.06	0.02	0.18	0.01	0.01	0.06	0.02	0.02	0.02	0.04	0.79	0.09	0.03	0.02	0.23	0.03	0.02	0.01	0.02	0.04	0.79	0.03	0.02	0.23	0.03	0.02
0.94	0.61	0.06	0.10	0.17	0.01	0.01	0.05	0.02	0.01	0.01	0.05	0.43	0.09	0.03	0.03	0.21	0.03	0.02	0.01	0.01	0.05	0.43	0.03	0.03	0.21	0.03	0.02
0.87	0.58	0.05	0.28	0.15	0.01	0.01	0.05	0.02	0.02	0.01	0.05	0.38	0.09	0.03	0.03	0.20	0.03	0.02	0.01	0.01	0.05	0.38	0.03	0.03	0.20	0.03	0.02
0.87	0.57	0.05	0.13	0.15	0.01	0.01	0.05	0.02	0.01	0.01	0.05	0.41	0.09	0.03	0.03	0.17	0.03	0.02	0.01	0.01	0.05	0.41	0.03	0.03	0.17	0.03	0.02
0.79	0.55	0.04	0.14	0.14	0.01	0.01	0.05	0.02	0.01	0.01	0.05	0.56	0.09	0.02	0.03	0.17	0.03	0.02	0.01	0.01	0.05	0.56	0.02	0.03	0.17	0.03	0.02
0.76	0.54	0.04	0.12	0.13	0.01	0.01	0.04	0.02	0.01	0.01	0.05	0.57	0.09	0.02	0.06	0.17	0.03	0.07	0.01	0.01	0.05	0.57	0.02	0.06	0.17	0.03	0.07
0.74	0.51	0.14	0.09	0.13	0.01	0.01	0.04	0.02	0.01	0.01	0.09	0.54	0.08	0.02	0.10	0.17	0.03	0.05	0.01	0.01	0.09	0.54	0.02	0.10	0.17	0.03	0.05
0.72	0.48	0.12	0.09	0.13	0.01	0.01	0.04	0.02	0.02	0.01	0.08	0.46	0.08	0.02	0.09	0.16	0.03	0.05	0.01	0.01	0.08	0.46	0.02	0.09	0.16	0.03	0.05
0.69	0.45	0.09	0.08	0.13	0.01	0.01	0.04	0.02	0.02	0.01	0.07	0.42	0.08	0.02	0.09	0.15	0.02	0.06	0.01	0.01	0.07	0.42	0.02	0.09	0.15	0.02	0.06
0.67	0.46	0.07	0.07	0.13	0.01	0.01	0.04	0.02	0.02	0.01	0.07	0.39	0.07	0.03	0.07	0.15	0.02	0.06	0.01	0.01	0.07	0.39	0.03	0.07	0.15	0.02	0.06
0.65	0.46	0.06	0.06	0.12	0.01	0.01	0.04	0.02	0.02	0.01	0.08	0.37	0.07	0.03	0.06	0.16	0.02	0.06	0.01	0.01	0.08	0.37	0.03	0.06	0.16	0.02	0.06
0.62	0.46	0.09	0.06	0.12	0.01	0.01	0.04	0.02	0.02	0.01	0.11	0.31	0.07	0.03	0.05	0.17	0.02	0.06	0.01	0.01	0.11	0.31	0.03	0.05	0.17	0.02	0.06
0.62	0.45	0.15	0.06	0.11	0.01	0.01	0.04	0.02	0.02	0.01	0.16	0.26	0.07	0.03	0.05	0.17	0.02	0.05	0.01	0.01	0.16	0.26	0.03	0.05	0.17	0.02	0.05
0.60	0.45	0.13	0.06	0.12	0.01	0.01	0.04	0.02	0.02	0.01	0.15	0.24	0.07	0.03	0.04	0.17	0.02	0.04	0.01	0.01	0.15	0.24	0.03	0.04	0.17	0.02	0.04
0.58	0.42	0.23	0.05	0.12	0.01	0.01	0.04	0.02	0.02	0.01	0.13	0.22	0.07	0.03	0.04	0.16	0.02	0.04	0.01	0.01	0.13	0.22	0.03	0.04	0.16	0.02	0.04
0.57	0.38	0.21	0.05	0.12	0.01	0.01	0.03	0.02	0.02	0.01	0.11	0.20	0.06	0.03	0.04	0.16	0.02	0.04	0.01	0.01	0.11	0.20	0.03	0.04	0.16	0.02	0.04
0.57	0.35	0.18	0.09	0.13	0.01	0.01	0.07	0.02	0.02	0.05	0.09	0.20	0.06	0.03	0.04	0.15	0.02	0.04	0.01	0.05	0.09	0.20	0.03	0.04	0.15	0.02	0.04
0.60	0.35	0.17	0.11	0.13	0.03	0.01	0.53	0.02	0.02	0.04	0.09	0.20	0.07	0.03	0.04	0.15	0.02	0.04	0.01	0.04	0.09	0.20	0.03	0.04	0.15	0.02	0.04
0.87	0.34	0.16	0.16	0.13	0.03	0.01	0.21	0.02	0.02	0.03	0.08	0.20	0.07	0.03	0.04	0.14	0.02	0.04	0.01	0.03	0.08	0.20	0.03	0.04	0.14	0.02	0.04
1.34	0.34	0.16	0.20	0.12	0.03	0.01	0.79	0.02	0.02	0.02	0.07	0.20	0.07	0.05	0.04	0.17	0.02	0.04	0.01	0.02	0.07	0.20	0.05	0.04	0.17	0.02	0.04
6.61	0.33	0.17	0.20	0.12	0.03	0.01	0.75	0.01	0.02	0.02	0.07	0.22	0.07	0.20	0.04	0.24	0.02	0.04	0.01	0.02	0.07	0.22	0.20	0.04	0.24	0.02	0.04
28.48	0.31	0.17	0.16	0.12	0.03	0.01	0.54	0.01	0.74	0.02	0.07	0.23	0.07	0.09	0.04	0.29	0.02	0.09	0.01	0.02	0.07	0.23	0.09	0.04	0.29	0.02	0.09
6.85	0.30	0.17	0.13	0.12	0.02	0.01	0.48	0.01	0.39	0.02	0.06	0.22	0.07	0.07	0.04	0.26	0.02	0.11	0.01	0.02	0.06	0.22	0.07	0.04	0.26	0.02	0.11
4.88	0.29	0.15	0.12	0.12	0.10	0.01	0.38	0.01	0.15	0.03	0.06	0.20	0.07	0.07	0.04	0.23	0.03	0.11	0.01	0.03	0.06	0.20	0.07	0.04	0.23	0.03	0.11
4.17	0.28	0.14	0.10	0.12	0.39	0.01	0.30	0.01	0.14	0.18	0.06	0.20	0.07	0.08	0.04	0.28	0.03	0.18	0.02	0.18	0.06	0.20	0.08	0.04	0.28	0.03	0.18
21.01	0.47	0.14	0.09	0.11	0.17	0.01	0.26	0.01	0.13	1.26	0.06	0.18	0.07	0.09	0.04	0.34	0.03	0.13	0.10	1.26	0.06	0.18	0.09	0.04	0.34	0.03	0.13
9.68	0.52	0.14	0.09	0.11	0.13	0.01	0.23	0.01	0.11	0.46	0.06	0.17	0.07	0.09	0.04	0.28	0.03	0.09	0.15	0.46	0.06	0.17	0.09	0.04	0.28	0.03	0.09
6.29	0.53	0.13	0.09	0.11	0.42	0.01	0.20	0.02	0.10	0.29	0.06	0.17	0.07	0.09	0.04	0.24	0.02	0.09	0.09	0.29	0.06	0.17	0.09	0.04	0.24	0.02	0.09
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table CAWG 6 Appendix L-5a. Camp 62 Creek below Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Camp 62 Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	3.88	3.43	2.90	2.73	2.51	3.22	3.93	29.73	59.95	15.71	1.98	.65	.36	.38	.43	.64	.83	78.36	75.87	71.19	65.60	35.55	.00	.04	265.00	169.00	.00	.00	9.00	15.67	1.78	-1.04	87.00
	1984	.61	3.38	5.24	3.44	2.91	5.68	11.16	12.42	2.27	.57	.15	.06	.05	.05	.05	.06	.10	41.63	23.72	17.66	13.99	9.95	.00	.01	249.00	360.00	2.00	19.00	8.00	15.38	1.09	-.58	92.00
	1985	.14	.25	.29	.47	.68	1.73	10.71	10.23	1.64	.22	.04	.06	.01	.02	.02	.03	.06	18.50	17.51	16.49	13.29	7.83	.00	.01	243.00	105.00	5.00	12.40	2.00	30.50	.37	-.26	73.00
	1986	.11	.16	.58	2.06	8.43	12.61	19.62	27.96	10.68	.98	.16	.14	.03	.03	.06	.08	.12	47.93	36.82	34.26	28.80	20.89	.00	.01	276.00	68.00	4.00	10.25	3.00	46.00	1.70	-.99	80.00
	1987	.17	.11	.08	.10	.10	.81	7.95	5.47	1.11	.16	.02	.01	.01	.01	.01	.01	.02	12.03	11.88	11.66	9.51	4.93	.00	.01	236.00	116.00	10.00	13.40	1.00	47.00	.31	-.18	75.00
	1988	.04	.30	.33	.61	1.10	3.34	7.40	6.58	1.69	.30	.04	.02	.01	.01	.01	.01	.02	11.38	10.95	9.91	7.67	5.89	.00	.01	275.00	134.00	2.00	31.00	2.00	34.50	.32	-.21	79.00
	1989	.01	.06	.08	.11	.28	3.49	11.69	6.06	1.19	.16	.04	.08	.01	.01	.01	.01	.05	18.60	17.89	16.95	11.73	7.24	.00	.01	275.00	100.00	6.00	19.83	3.00	23.33	.51	-.29	49.00
	1990	.21	.17	.13	.20	.29	2.61	9.82	5.89	1.57	.19	.03	.02	.01	.01	.01	.01	.02	14.62	13.85	12.42	10.43	6.36	.00	.01	246.00	118.00	2.00	45.50	2.00	33.50	.44	-.25	58.00
	1991	.02	.02	.04	.05	.09	2.05	4.55	14.96	7.48	.87	.11	.03	.02	.02	.02	.02	.03	25.07	23.65	20.34	16.20	9.16	.00	.01	275.00	145.00	2.00	21.00	4.00	19.50	1.01	-.62	55.00
	1992	.08	.13	.11	.17	.48	1.18	11.59	7.53	.92	.52	.06	.02	.02	.02	.02	.02	.04	18.50	17.95	16.88	13.74	6.90	.00	.01	275.00	121.00	6.00	10.67	1.00	51.00	.33	-.22	67.00
	1993	.09	.13	.11	.73	.83	3.60	13.38	42.09	20.73	2.97	.38	.08	.01	.01	.01	.06	.09	57.73	56.07	51.28	42.19	25.85	.00	.00	286.00	139.00	4.00	9.00	1.00	114.00	1.28	-.78	71.00
	1994	.09	.09	.12	.16	.23	1.68	6.45	8.25	1.61	.13	.02	.02	.01	.01	.01	.01	.04	14.16	13.39	12.16	9.48	5.82	.00	.01	227.00	133.00	8.00	13.25	3.00	21.00	.42	-.32	61.00
	1995	.35	.65	.77	2.18	2.47	7.43	12.41	31.23	46.59	16.66	1.42	.22	.03	.04	.12	.09	.10	72.81	64.02	59.34	47.49	33.36	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	2.36	-1.32	68.00
	1996	.09	.08	.49	.77	4.34	4.73	16.42	29.19	5.41	.60	.10	.04	.03	.03	.03	.03	.06	152.66	77.50	51.00	33.45	17.97	.00	.01	253.00	137.00	3.00	35.67	3.00	37.33	2.43	-1.19	81.00
	1997	.05	2.08	3.40	17.91	2.69	8.26	16.07	16.23	2.71	.38	.07	.04	.03	.03	.03	.04	.05	203.55	111.03	61.74	22.12	13.95	.00	.01	275.00	2.00	3.00	19.33	7.00	19.43	2.79	-1.55	79.00
	1998	.05	.07	.12	.17	.17	1.48	6.08	16.50	49.32	15.04	.83	.35	.03	.03	.03	.05	.08	71.80	65.85	62.19	49.34	28.06	.00	.00	275.00	167.00	4.00	11.00	2.00	52.00	1.23	-.88	89.00
	1999	.24	.41	.70	.79	2.11	2.31	7.04	17.29	5.34	.62	.11	.04	.03	.03	.03	.03	.04	26.00	23.99	22.46	17.51	10.21	.00	.01	254.00	133.00	2.00	22.00	2.00	36.00	.60	-.32	94.00
	2000	.03	.07	.05	.36	1.13	2.50	14.66	21.34	4.15	.42	.05	.03	.02	.02	.02	.02	.05	43.39	36.95	32.63	23.44	13.94	.00	.01	259.00	129.00	5.00	25.40	1.00	83.00	1.09	-.64	61.00
	2001	.06	.09	.08	.24	.52	2.74	7.48	18.89	1.45	.26	.03	.02	.01	.01	.01	.01	.02	30.81	30.38	28.80	21.21	10.26	.00	.00	242.00	129.00	6.00	22.50	2.00	33.50	.70	-.41	75.00
	2002	.03	.30	.47	.47	1.02	2.40	12.44	12.74	3.15	.23	.02	.01	.01	.01	.01	.01	.08	19.15	18.44	16.55	13.12	9.83	.00	.00	275.00	105.00	5.00	17.40	1.00	73.00	.47	-.29	55.00
E	1984	.99	.80	1.00	.90	.80	.90	.52	5.39	1.27	.23	.30	.25	.00	.00	.00	.03	.11	22.00	22.00	20.86	6.56	2.61	18.00	.00	116.00	148.00	4.00	4.50	2.00	5.50	1.08	-.73	29.00
	1993	.09	.13	.11	.73	.83	3.60	10.21	.49	.37	.37	.45	.14	.01	.01	.01	.06	.09	25.26	22.11	18.41	10.63	4.97	.00	.01	286.00	118.00	4.00	9.00	1.00	41.00	.43	-.28	67.00
	1994	.09	.09	.12	.16	.23	1.68	3.14	.50	.54	.18	.02	.02	.01	.01	.01	.01	.05	10.45	9.53	6.81	4.04	1.80	.00	.02	227.00	108.00	9.00	11.67	3.00	5.33	.20	-.19	79.00
	1995	.35	.65	.77	2.18	2.47	7.43	12.41	31.23	46.59	16.66	1.24	.44	.03	.04	.09	.06	.26	72.81	64.02	59.34	47.49	33.36	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	2.30	-1.51	74.00
	1997	.05	2.08	3.40	17.91	2.69	8.26	16.07	16.23	2.71	.38	.07	.04	.03	.03	.03	.04	.05	203.55	111.03	61.74	22.12	13.95	.00	.01	275.00	2.00	3.00	19.33	7.00	19.43	2.79	-1.55	79.00
	1998	.05	.07	.12	.17	.17	1.48	6.08	16.50	49.32	15.04	.83	.35	.03	.03	.03	.05	.08	71.80	65.85	62.19	49.34	28.06	.00	.00	275.00	167.00	4.00	11.00	2.00	52.00	1.23	-.88	89.00
	1999	.24	.41	.70	.79	2.11	2.31	7.04	17.29	5.34	.62	.11	.04	.03	.03	.03	.03	.04	26.00	23.99	22.46	17.51	10.21	.00	.01	254.00	133.00	2.00	22.00	2.00	36.00	.60	-.32	94.00
	2000	.03	.07	.05	.36	1.13	2.50	14.66	21.34	4.15	.42	.05	.03	.02	.02	.02	.02	.05	43.39	36.95	32.63	23.44	13.94	.00	.01	259.00	129.00	5.00	25.40	1.00	83.00	1.10	-.64	59.00
	2001	.06	.09	.08	.24	.52	2.74	7.48	9.51	.45	.26	.03	.02	.01	.01	.01	.01	.02	30.81	30.38	28.24	14.82	6.77	.00	.01	242.00	129.00	6.00	22.50	2.00	22.50	.68	-.58	71.00
	2002	.03	.30	.47	.47	1.02	2.40	4.12	2.03	4.03	.37	.02	.01	.01	.01	.01	.01	.13	15.00	14.00	12.20	5.55	3.74	.00	.01	275.00	152.00	5.00	16.00	3.00	9.33	.41	-.36	61.00

Table CAWG 6 Appendix L-5b. Camp 62 Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Camp 62 Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1984-2002 (10 years)

	Pre-Impact 10%	25%	50%	75%	90%	(75-25)/50	Post-Impact 10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.02	.04	.09	.20	.58	1.73	.03	.04	.07	.27	.93	3.02
November	.06	.08	.15	.39	3.25	2.07	.07	.08	.21	.69	1.95	2.82
December	.05	.09	.21	.67	3.35	2.74	.05	.10	.30	.83	3.16	2.41
January	.10	.17	.47	1.74	3.37	3.35	.16	.22	.60	1.22	16.34	1.65
February	.11	.28	.92	2.50	4.19	2.40	.18	.45	.92	2.20	2.67	1.90
March	1.21	1.81	2.67	4.45	8.17	.99	.96	1.63	2.45	4.56	8.17	1.19
April	4.70	7.13	10.93	13.15	16.39	.55	.78	3.87	7.26	12.97	15.93	1.25
May	5.90	7.71	15.59	26.30	31.08	1.19	.49	1.65	12.87	18.30	30.24	1.29
June	1.12	1.58	2.93	9.88	49.05	2.84	.38	.51	3.37	15.66	49.05	4.50
July	.16	.22	.47	.95	15.64	1.56	.18	.25	.38	4.22	16.50	10.58
August	.02	.03	.06	.16	1.36	2.10	.02	.03	.09	.54	1.20	5.88
September	.01	.02	.04	.08	.34	1.48	.01	.02	.04	.28	.43	5.81
Parameter Group #2												
1-day minimum	.01	.01	.02	.03	.05	1.00	.00	.01	.01	.03	.03	1.33
3-day minimum	.01	.01	.02	.03	.05	1.00	.00	.01	.01	.03	.04	1.33
7-day minimum	.01	.01	.02	.03	.11	1.00	.00	.01	.02	.03	.08	1.17
30-day minimum	.01	.01	.03	.05	.09	1.60	.01	.01	.03	.05	.06	1.15
90-day minimum	.02	.03	.05	.08	.12	1.17	.02	.04	.07	.12	.25	1.07
1-day maximum	12.24	18.50	28.40	68.28	145.23	1.75	10.90	20.25	28.40	72.05	190.48	1.82
3-day maximum	12.03	17.61	23.85	62.03	77.34	1.86	9.97	20.00	27.18	64.48	106.51	1.64
7-day maximum	11.71	16.51	21.40	51.21	62.14	1.62	7.34	16.86	25.35	59.94	62.14	1.70
30-day maximum	9.48	12.08	16.86	32.29	49.15	1.20	4.19	6.31	16.17	29.45	49.15	1.43
90-day maximum	5.83	6.98	10.08	20.16	32.83	1.31	1.88	3.46	8.49	17.48	32.83	1.65
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	16.20	.00
Base flow	.00	.01	.01	.01	.01	.70	.00	.00	.01	.01	.02	.73
Parameter Group #3												
Date of minimum	236.60	246.75	270.00	275.00	276.90	.08	127.10	238.25	267.00	275.50	285.10	.10
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	12.60	115.50	129.00	149.00	165.50	.09
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	1.10	2.75	4.00	5.25	8.70	.63
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	.45	7.88	13.83	22.13	25.11	1.03
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	1.00	1.75	2.00	3.25	6.70	.75
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	5.35	8.38	29.25	43.75	79.90	1.21
Parameter Group #5												
Rise rate	.32	.42	.86	1.60	2.42	1.38	.22	.43	.88	1.50	2.74	1.21
Fall rate	-1.30	-.96	-.50	-.27	-.21	-1.39	-1.54	-1.03	-.61	-.31	-.20	-1.19
Number of reversals	55.00	61.00	74.00	80.75	91.70	.27	32.00	60.50	72.50	81.50	93.50	.29

Table CAWG 6 Appendix L-5c. Camp 62 Creek below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Camp 62 Ck below Diversion Data

	Unimpaired period: 1983-2002				Existing period: 1984-2002				RVA Categories		Hydrologic Alteration
	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Low	High	(Middle Category)
Parameter Group #1											
October	.1	1.73	.0	3.9	.1	3.02	.0	1.0	.05	.14	.00
November	.1	2.07	.0	3.4	.2	2.82	.1	2.1	.09	.30	-.25
December	.2	2.74	.0	5.2	.3	2.41	.0	3.4	.11	.50	.00
January	.5	3.35	.1	17.9	.6	1.65	.2	17.9	.20	.77	.00
February	.9	2.40	.1	8.4	.9	1.90	.2	2.7	.47	2.14	.50
March	2.7	.99	.8	12.6	2.4	1.19	.9	8.3	2.29	3.50	.00
April	10.9	.55	3.9	19.6	7.3	1.25	.5	16.1	7.48	12.41	-.25
May	15.6	1.19	5.5	42.1	12.9	1.29	.5	31.2	10.09	19.06	-.25
June	2.9	2.84	.9	60.0	3.4	4.50	.4	49.3	1.64	5.56	.00
July	.5	1.56	.1	16.7	.4	10.58	.2	16.7	.26	.64	.25
August	.1	2.10	.0	2.0	.1	5.88	.0	1.2	.04	.12	-.25
September	.0	1.48	.0	.7	.0	5.81	.0	.4	.02	.06	-.25
Parameter Group #2											
1-day minimum	.0	1.00	.0	.4	.0	1.33	.0	.0	.01	.03	.00
3-day minimum	.0	1.00	.0	.4	.0	1.33	.0	.0	.01	.03	-.06
7-day minimum	.0	1.00	.0	.4	.0	1.17	.0	.1	.01	.03	.00
30-day minimum	.0	1.60	.0	.6	.0	1.15	.0	.1	.01	.04	.11
90-day minimum	.0	1.17	.0	.8	.1	1.07	.0	.3	.04	.08	.00
1-day maximum	28.4	1.75	11.4	203.6	28.4	1.82	10.4	203.6	18.59	48.62	.25
3-day maximum	23.9	1.86	10.9	111.0	27.2	1.64	9.5	111.0	17.95	38.29	.25
7-day maximum	21.4	1.62	9.9	71.2	25.4	1.70	6.8	62.2	16.86	35.43	.25
30-day maximum	16.9	1.20	7.7	65.6	16.2	1.43	4.0	49.3	13.27	23.81	.00
90-day maximum	10.1	1.31	4.9	35.5	8.5	1.65	1.8	33.4	7.79	14.23	-.25
Number of zero days	.00	.00	.00	.00	.00	.00	.00	18.00	.00	.00	-.10
Base flow	.01	.70	.00	.04	.01	.73	.00	.02	.01	.01	.00
Parameter Group #3											
Date of minimum	270.0	.08	227.0	286.0	267.0	.10	116.0	286.0	252.72	275.00	-.09
Date of maximum	129.0	.08	2.0	360.0	129.0	.09	2.0	167.0	117.86	134.21	.25
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	4.0	.63	1.0	9.0	2.00	5.00	.08
Low Pulse Duration	18.2	.64	.0	45.5	13.8	1.03	.0	25.4	12.30	21.07	-.50
High Pulse Count	2.0	1.25	1.0	9.0	2.0	.75	1.0	7.0	2.00	3.00	.20
High Pulse Duration	35.3	.81	15.4	114.0	29.3	1.21	5.3	83.0	30.00	46.07	-.25

The low pulse threshold is .10
The high pulse level is 3.42

	Unimpaired Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Low	RVA High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	.9	1.38	.3	2.8	.9	1.21	.2	2.8	.47	1.23	.25
Fall rate	-.5	-1.39	-1.5	-.2	-.6	-1.19	-1.5	-.2	-.79	-.29	.25
Number of reversals	74.0	.27	49.0	94.0	72.5	.29	29.0	94.0	66.58	79.07	.25

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	4.00	4.00	.00	3.00	3.00	.00	3.00	3.00	.00
November	4.00	3.00	-.25	3.00	4.00	.33	3.00	3.00	.00
December	4.00	4.00	.00	3.00	4.00	.33	3.00	2.00	-.33
January	4.00	4.00	.00	3.00	4.00	.33	3.00	2.00	-.33
February	4.00	6.00	.50	3.00	2.00	-.33	3.00	2.00	-.33
March	4.00	4.00	.00	3.00	3.00	.00	3.00	3.00	.00
April	4.00	3.00	-.25	3.00	2.00	-.33	3.00	5.00	.67
May	4.00	3.00	-.25	3.00	2.00	-.33	3.00	5.00	.67
June	4.00	4.00	.00	3.00	2.00	-.33	3.00	4.00	.33
July	4.00	5.00	.25	3.00	2.00	-.33	3.00	3.00	.00
August	4.00	3.00	-.25	3.00	4.00	.33	3.00	3.00	.00
September	4.00	3.00	-.25	3.00	4.00	.33	3.00	3.00	.00
Parameter Group #2									
1-day minimum	9.00	9.00	.00	1.00	.00	-1.00	.00	1.00	.00
3-day minimum	8.50	8.00	-.06	1.50	1.00	-.33	.00	1.00	.00
7-day minimum	8.00	8.00	.00	2.00	1.00	-.50	.00	1.00	.00
30-day minimum	4.50	5.00	.11	3.00	3.00	.00	2.50	2.00	-.20
90-day minimum	4.00	4.00	.00	3.00	5.00	.67	3.00	1.00	-.67
1-day maximum	4.00	5.00	.25	3.00	3.00	.00	3.00	2.00	-.33
3-day maximum	4.00	5.00	.25	3.00	3.00	.00	3.00	2.00	-.33
7-day maximum	4.00	5.00	.25	3.00	3.00	.00	3.00	2.00	-.33
30-day maximum	4.00	4.00	.00	3.00	2.00	-.33	3.00	4.00	.33
90-day maximum	4.00	3.00	-.25	3.00	2.00	-.33	3.00	5.00	.67
Number of zero days	10.00	9.00	-.10	.00	1.00	.00	.00	.00	.00
Base flow	4.00	4.00	.00	3.00	3.00	.00	3.00	3.00	.00
Parameter Group #3									
Date of minimum	5.50	5.00	-.09	1.50	2.00	.33	3.00	3.00	.00
Date of maximum	4.00	5.00	.25	3.00	3.00	.00	3.00	2.00	-.33
Parameter Group #4									
Low Pulse Count	6.50	7.00	.08	2.50	2.00	-.20	1.00	1.00	.00
Low Pulse Duration	4.00	2.00	-.50	3.00	3.00	.00	3.00	5.00	.67
High Pulse Count	5.00	6.00	.20	2.50	2.00	-.20	2.50	2.00	-.20
High Pulse Duration	4.00	3.00	-.25	3.00	2.00	-.33	3.00	5.00	.67
Parameter Group #5									
Rise rate	4.00	5.00	.25	3.00	2.00	-.33	3.00	3.00	.00
Fall rate	4.00	5.00	.25	3.00	2.00	-.33	3.00	3.00	.00
Number of reversals	4.00	5.00	.25	3.00	2.00	-.33	3.00	3.00	.00

15 Messages:

The longest period of missing data is 51 days.
Interpolating across this gap may cause anomalies in
the statistics. Please use them with caution.
Parameter Low pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 10 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 10 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 13 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of minimum : 10 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 8 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 12 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 7 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 10 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 30-day minimum : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-5d. Camp 62 Creek below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Camp 62 Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1984-2002 (10 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	4.05	3.58
Mean flow/area	4.05	3.58
Annual C. V.	.68	.52
Flow predictability	.46	.46
Constancy/predictability	.34	.31

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Unimpaired	Existing
% of floods in 60d period	.61	.53
flood-free season	100.00	107.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	.1	.1	1.73	3.02	.16	.75	.62	.21
November	.1	.2	2.07	2.82	.48	.36	.45	.61
December	.2	.3	2.74	2.41	.41	.12	.85	.94
January	.5	.6	3.35	1.65	.28	.51	.66	.58
February	.9	.9	2.40	1.90	.00	.21	1.00	.62
March	2.7	2.4	.99	1.19	.08	.21	.66	.85
April	10.9	7.3	.55	1.25	.34	1.28	.34	.02
May	15.6	12.9	1.19	1.29	.17	.09	.61	.86
June	2.9	3.4	2.84	4.50	.15	.59	.81	.75
July	.5	.4	1.56	10.58	.20	5.77	.55	.33
August	.1	.1	2.10	5.88	.42	1.81	.57	.13
September	.0	.0	1.48	5.81	.06	2.92	.82	.03
Parameter Group #2								
1-day minimum	.0	.0	1.00	1.33	.25	.33	.56	.49
3-day minimum	.0	.0	1.00	1.33	.25	.33	.51	.41
7-day minimum	.0	.0	1.00	1.17	.14	.17	.64	.73
30-day minimum	.0	.0	1.60	1.15	.29	.28	.55	.52
90-day minimum	.0	.1	1.17	1.07	.43	.08	.27	.85
1-day maximum	28.4	28.4	1.75	1.82	.00	.04	1.00	.93
3-day maximum	23.9	27.2	1.86	1.64	.14	.12	.71	.78
7-day maximum	21.4	25.4	1.62	1.70	.18	.05	.69	.91
30-day maximum	16.9	16.2	1.20	1.43	.04	.19	.90	.78
90-day maximum	10.1	8.5	1.31	1.65	.16	.26	.53	.70
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.0	.70	.73	.11	.03	.82	.92
Parameter Group #3								
Date of minimum	270.0	267.0	.08	.10	.02	.32	.87	.39
Date of maximum	129.0	129.0	.08	.09	.00	.09	.86	.88
Parameter Group #4								
Low pulse count	4.0	4.0	.94	.63	.00	.33	.61	.33
Low pulse duration	18.2	13.8	.64	1.03	.24	.61	.59	.17
High pulse count	2.0	2.0	1.25	.75	.00	.40	.58	.48
High pulse duration	35.3	29.3	.81	1.21	.17	.50	.32	.24

The low pulse threshold is .10

The high pulse level is 3.42

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	.9	.9	1.38	1.21	.03	.12	.99	.83
Fall rate	-.5	-.6	-1.39	-1.19	.22	.15	.66	.76
Number of reversals	74.0	72.5	.27	.29	.02	.09	.84	.84

Table CAWG 6 Appendix L-5e. Camp 62 Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1984-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1984	1993	1994	1995	1997	1998	1999	2000	2001	2002
2.04	1.67	0.07	0.04	0.25	0.01	0.01	0.10	0.02	0.02	0.02	0.05	0.05	0.13	0.03	0.03	0.39	0.03	0.02	0.01	2.7	0.02	0.05	0.05	0.03	0.03	0.39	0.03	0.02	0.01
1.76	1.30	0.07	0.03	0.31	0.01	0.01	0.08	0.02	0.02	0.02	0.05	0.04	0.13	0.03	0.03	0.32	0.03	0.02	0.01	2.7	0.02	0.05	0.04	0.03	0.03	0.32	0.03	0.02	0.01
1.48	1.02	0.07	0.03	0.29	0.01	0.01	0.07	0.02	0.02	0.02	0.05	0.03	0.11	0.03	0.03	0.30	0.03	0.02	0.01	2.3	0.02	0.05	0.03	0.03	0.03	0.30	0.03	0.02	0.01
1.30	0.85	0.07	0.03	0.24	0.01	0.01	0.07	0.02	0.02	0.02	0.05	0.54	0.11	0.03	0.03	0.29	0.03	0.02	0.01	2	0.02	0.05	0.54	0.03	0.03	0.29	0.03	0.02	0.01
1.20	0.78	0.07	0.03	0.21	0.01	0.01	0.07	0.02	0.02	0.02	0.05	0.93	0.10	0.03	0.03	0.27	0.03	0.02	0.01	1.8	0.02	0.05	0.93	0.03	0.03	0.27	0.03	0.02	0.01
1.11	0.72	0.07	0.12	0.19	0.01	0.01	0.06	0.02	0.02	0.02	0.05	0.51	0.10	0.03	0.03	0.25	0.03	0.02	0.01	1.6	0.02	0.05	0.51	0.03	0.03	0.25	0.03	0.02	0.01
1.02	0.68	0.06	0.32	0.18	0.01	0.01	0.06	0.02	0.02	0.02	0.06	0.44	0.10	0.03	0.03	0.23	0.03	0.02	0.01	1.5	0.02	0.06	0.44	0.03	0.03	0.23	0.03	0.02	0.01
1.02	0.68	0.05	0.16	0.18	0.01	0.01	0.06	0.02	0.02	0.02	0.06	0.48	0.10	0.03	0.03	0.20	0.03	0.02	0.02	1.5	0.02	0.06	0.48	0.03	0.03	0.20	0.03	0.02	0.02
0.93	0.65	0.05	0.17	0.17	0.01	0.01	0.05	0.02	0.02	0.02	0.06	0.66	0.10	0.03	0.03	0.19	0.03	0.02	0.02	1.5	0.02	0.06	0.66	0.03	0.03	0.19	0.03	0.02	0.02
0.90	0.64	0.05	0.14	0.16	0.01	0.01	0.05	0.02	0.02	0.02	0.06	0.68	0.10	0.03	0.07	0.19	0.03	0.09	0.02	1.5	0.02	0.06	0.68	0.03	0.07	0.19	0.03	0.09	0.02
0.87	0.60	0.17	0.11	0.15	0.01	0.01	0.05	0.02	0.02	0.02	0.10	0.64	0.09	0.03	0.12	0.19	0.03	0.06	0.02	1.4	0.02	0.10	0.64	0.03	0.12	0.19	0.03	0.06	0.02
0.84	0.56	0.14	0.10	0.16	0.01	0.01	0.04	0.02	0.02	0.01	0.09	0.55	0.09	0.03	0.10	0.19	0.03	0.06	0.02	1.3	0.01	0.09	0.55	0.03	0.10	0.19	0.03	0.06	0.02
0.81	0.53	0.10	0.09	0.15	0.01	0.01	0.04	0.02	0.02	0.01	0.09	0.50	0.09	0.03	0.10	0.18	0.03	0.07	0.02	1.2	0.01	0.09	0.50	0.03	0.10	0.18	0.03	0.07	0.02
0.79	0.54	0.08	0.08	0.15	0.01	0.01	0.04	0.02	0.02	0.01	0.08	0.45	0.09	0.03	0.09	0.18	0.03	0.07	0.02	1.2	0.01	0.08	0.45	0.03	0.09	0.18	0.03	0.07	0.02
0.76	0.55	0.07	0.07	0.14	0.01	0.01	0.04	0.02	0.02	0.01	0.09	0.43	0.08	0.03	0.07	0.19	0.03	0.07	0.02	1.2	0.01	0.09	0.43	0.03	0.07	0.19	0.03	0.07	0.02
0.73	0.54	0.10	0.07	0.14	0.01	0.01	0.04	0.02	0.02	0.02	0.13	0.36	0.08	0.03	0.06	0.19	0.03	0.07	0.02	1.2	0.02	0.13	0.36	0.03	0.06	0.19	0.03	0.07	0.02
0.73	0.53	0.18	0.07	0.13	0.01	0.01	0.04	0.02	0.02	0.02	0.19	0.31	0.08	0.03	0.05	0.19	0.03	0.06	0.02	0.7	0.02	0.19	0.31	0.03	0.05	0.19	0.03	0.06	0.02
0.70	0.53	0.15	0.07	0.14	0.01	0.01	0.04	0.02	0.02	0.02	0.18	0.28	0.08	0.03	0.05	0.19	0.03	0.05	0.02	0.3	0.02	0.18	0.28	0.03	0.05	0.19	0.03	0.05	0.02
0.68	0.50	0.27	0.06	0.14	0.01	0.01	0.04	0.02	0.02	0.02	0.15	0.26	0.08	0.03	0.05	0.19	0.03	0.05	0.02	0.3	0.02	0.15	0.26	0.03	0.05	0.19	0.03	0.05	0.02
0.68	0.44	0.25	0.06	0.14	0.01	0.01	0.04	0.02	0.02	0.02	0.13	0.24	0.07	0.04	0.04	0.19	0.03	0.05	0.02	0.3	0.02	0.13	0.24	0.04	0.04	0.19	0.03	0.05	0.02
0.68	0.42	0.21	0.10	0.15	0.01	0.01	0.08	0.02	0.02	0.06	0.11	0.24	0.08	0.04	0.04	0.18	0.03	0.04	0.02	0.3	0.06	0.11	0.24	0.04	0.04	0.18	0.03	0.04	0.02
0.70	0.41	0.19	0.13	0.15	0.03	0.01	0.62	0.02	0.02	0.05	0.10	0.24	0.08	0.04	0.04	0.18	0.03	0.05	0.02	0.3	0.05	0.10	0.24	0.04	0.04	0.18	0.03	0.05	0.02
1.02	0.40	0.19	0.19	0.15	0.04	0.01	0.25	0.02	0.02	0.03	0.09	0.24	0.08	0.04	0.04	0.17	0.03	0.05	0.02	0.3	0.03	0.09	0.24	0.04	0.04	0.17	0.03	0.05	0.02
1.57	0.40	0.19	0.24	0.14	0.03	0.01	0.93	0.02	0.02	0.03	0.09	0.24	0.08	0.05	0.04	0.19	0.03	0.05	0.02	0.2	0.03	0.09	0.24	0.05	0.04	0.19	0.03	0.05	0.02
7.77	0.39	0.20	0.23	0.14	0.03	0.01	0.88	0.02	0.03	0.03	0.08	0.26	0.08	0.24	0.04	0.29	0.03	0.05	0.02	0.2	0.03	0.08	0.26	0.24	0.04	0.29	0.03	0.05	0.02
33.49	0.37	0.20	0.19	0.14	0.03	0.01	0.64	0.02	0.87	0.03	0.08	0.27	0.09	0.11	0.04	0.34	0.03	0.10	0.02	0.2	0.03	0.08	0.27	0.11	0.04	0.34	0.03	0.10	0.02
8.05	0.35	0.20	0.16	0.14	0.03	0.01	0.56	0.02	0.46	0.03	0.07	0.26	0.08	0.09	0.04	0.31	0.03	0.13	0.02	0.2	0.03	0.07	0.26	0.09	0.04	0.31	0.03	0.13	0.02
5.74	0.34	0.18	0.14	0.14	0.12	0.01	0.44	0.02	0.18	0.03	0.07	0.24	0.08	0.08	0.04	0.27	0.03	0.13	0.02	0.1	0.03	0.07	0.24	0.08	0.04	0.27	0.03	0.13	0.02
4.90	0.33	0.17	0.12	0.14	0.45	0.01	0.35	0.02	0.17	0.21	0.07	0.23	0.08	0.09	0.04	0.33	0.03	0.21	0.02	0.1	0.21	0.07	0.23	0.09	0.04	0.33	0.03	0.21	0.02
24.70	0.56	0.17	0.11	0.13	0.19	0.01	0.31	0.02	0.15	1.48	0.07	0.21	0.08	0.10	0.05	0.40	0.03	0.15	0.12	0.3	1.48	0.07	0.21	0.10	0.05	0.40	0.03	0.15	0.12
11.38	0.61	0.17	0.10	0.13	0.15	0.01	0.27	0.02	0.13	0.54	0.07	0.19	0.08	0.11	0.05	0.32	0.03	0.11	0.18	0.3	0.54	0.07	0.19	0.11	0.05	0.32	0.03	0.11	0.18
7.40	0.62	0.15	0.10	0.13	0.49	0.01	0.24	0.02	0.12	0.34	0.07	0.19	0.08	0.10	0.05	0.29	0.03	0.10	0.11	0.2	0.34	0.07	0.19	0.10	0.05	0.29	0.03	0.10	0.11
5.74	0.74	0.15	0.09	0.12	0.66	0.01	0.22	0.02	0.12	0.26	0.07	0.23	0.09	0.11	0.04	0.27	0.03	0.12	0.07	0.2	0.26	0.07	0.23	0.11	0.04	0.27	0.03	0.12	0.07
4.90	0.61	0.16	0.09	0.13	0.35	0.02	0.22	0.02	0.12	0.23	0.07	0.21	0.08	0.11	0.04	0.25	0.03	0.12	0.06	0.2	0.23	0.07	0.21	0.11	0.04	0.25	0.03	0.12	0.06
4.35	0.55	0.15	0.09	0.12	0.23	0.02	0.21	0.02	0.13	0.22	0.07	0.19	0.08	0.12	0.04	0.24	0.03	0.11	0.05	0.2	0.22	0.07	0.19	0.12	0.04	0.24	0.03	0.11	0.05
3.79	0.43	0.14	0.09	0.12	0.22	0.01	0.20	0.02	0.13	0.19	0.07	0.52	0.09	0.11	0.04	0.23	0.03	0.10	0.05	0.2	0.19	0.07	0.52	0.11	0.04	0.23	0.03	0.10	0.05
3.52	0.40	0.16	0.09	0.10	0.35	0.02	0.19	0.02	0.13	0.17	0.07	1.94	0.09	0.10	0.04	0.22	0.03	0.11	0.04	0.2	0.17	0.07	1.94	0.10	0.04	0.22	0.03	0.11	0.04
3.24	0.49	0.18	0.09	0.10	0.37	0.02	0.19	0.02	0.13	0.15	0.07	0.91	0.09	0.11	0.04	0.26	0.03	0.10	0.04	0.3	0.15	0.07	0.91	0.11	0.04	0.26	0.03	0.10	0.04
3.05	0.56	0.20	0.08	0.11	0.31	0.01	0.18	0.02	0.12	0.14	0.07	0.68	0.09	0.13	0.04	0.37	0.11	0.09	0.04	0.2	0.14	0.07	0.68	0.13	0.04	0.37	0.11	0.09	0.04
2.78	0.49	0.23	0.08	0.11	0.28	0.01	0.18	0.02	0.17	0.14	0.07	0.56	0.09	0.15	0.04	0.31	0.08	0.10	0.04	0.2	0.14	0.07	0.56	0.15	0.04	0.31	0.08	0.10	0.04
2.78	0.51	0.21	0.09	0.12	0.27	0.01	0.17	0.02	0.15	0.12	0.07	0.85	0.09	0.17	0.05	0.30	0.06	0.09	0.04	0.2	0.12	0.07	0.85	0.17	0.05	0.30	0.06	0.09	0.04
3.52	6.85	0.23	0.19	0.12	0.25	0.02	0.17	0.02	0.12	0.11	0.09	1.39	0.09	0.17	0.07	0.33	0.06	0.09	0.06	0.3	0.11	0.09	1.39	0.17	0.07	0.33	0.06	0.09	0.06
3.61	2.78	0.25	0.18	0.09	0.24	0.02	0.17	0.02	0.10	0.11	0.11	0.73	0.09	0.18	0.07	0.36	0.06	0.07	0.08	0.3	0.11	0.11	0.73	0.18	0.07	0.36	0.06	0.07	0.08
3.33	2.68	0.24	0.14	0.11	0.26	0.06	0.16	0.02	0.09	0.11	0.11	0.56	0.09	0.17	0.07	0.43	0.06	0.07	0.13	0.2	0.11	0.11	0.56	0.17	0.07	0.43	0.06	0.07	0.13
3.15	1.94	0.26	0.14	0.14	0.28	0.11	0.16	0.02	0.09	0.11	0.10	0.54	0.08	0.16	0.07	0.46	0.06	0.08	0.11	0.2	0.11	0.10	0.54	0.16	0.07	0.46	0.06	0.08	0.11
3.15	1.57	0.29	0.15	0.13	0.23	0.06	0.15	0.02	0.08	0.11	0.09	0.54	0.08	0.15	0.06	0.45	0.06	0.07	0.11	0.2	0.11	0.09	0.54	0.15	0.06	0.45	0.06	0.07	0.11
3.15	1.39	0.29	0.15	0.13	0.21	0.04	0.16	0.02	0.08	0.10	0.09	0.55	0.08	0.15	0.05	0.44	0.06	0.06	0.11	0.2	0.10	0.09	0.55	0.15	0.05	0.44	0.06	0.06	0.11
3.05	4.26	0.27	0.15	0.13	0.43	0.05	0.16	0.02	0.16	0.10	0.10	0.54	0.08	1.11	0.06	0.45	0.17	0.06	0.10	0.2	0.10	0.10	0.54	1.11	0.06	0.45	0.17	0.06	0.10
2.87	3.33	0.28	0.14	0.13	0.51	0.05	0.15	0.02	0.16	0.10	0.11	0.59	0.08	3.61	0.06	0.36	0.10	0.06	0.09	1	0.10	0.11	0.59	3.61	0.06	0.36	0.10	0.06	0.09
3.33	5.37	0.28	0.14	0.12	0.35	0.05	0.14	0.02	0.16	0.10	0.10	0.63	0.08	1.57	0.09	0.38	0.09	0.07	0.08	1.4	0.10	0.10	0.63	1.57	0.09	0.38	0.09	0.07	0.08
3.42	9.44	0.27	0.15	0.12	0.36	0.05	0.14	0.02	0.16	0.09	0.09	0.56	0.08	1.30	0.10	0.33	0.15	0.07	0.07	1.5	0.09	0.09	0.56	1.30	0.10	0.33	0.15	0.07	0.07
3.15	4.81	0.28	0.16	0.12	0.34	0.05	0.13	0.03	0.15	0.09	0.10	0.56	0.08	6.57	0.08	0.34	0.11	0.08	0.08	2	0.09	0.10	0.56	6.57	0.08	0.34	0.11	0.08	0.08
3.15	3.52	0.29	0.15	0.12	0.31	0.21	0.13	0.03	0.15	0.11	0.11	0.53	0.08	21.28	0.08	0.39	0.08	0.08	0.42	2	0.12	0.11	0.53	21.28	0.08	0.39	0.08	0.08	0.42
3.15	3.15	0.29	0.16	0.12	0.27	0.21	0.13	0.03	0.14	0.11	0.10	0.52	0.08	6.01	0.09	0.44	0.07	0.08	0.31	2	0.11	0.10	0.52	6.01	0.09	0.44	0.07	0.08	0.31
2.96	13.32	0.25	0.19	0.12	0.25	0.21	0.15	0.03	0.14	0.10	0.08	0.53	0.08	4.44	0.08	0.56	0.06	0.08	2.50	2	0.10	0.08	0.53	4.44	0.08	0.56	0.06	0.08	2.50
2.87	9.62	0.20	0.27	0.11	0.23	0.11	0.15	0.02	0.13	0.10	0.07	0.57	0.07	3.33	0.08	0.51	0.06	0.09	1.48	2	0.10	0.07	0.57	3.33	0.08	0.51	0.06	0.09	1.48
2.78	6.48	0.27	0.34	0.09	0.20	0.08	0.11	0.03	0.13	0.10	0.07	0.71	0.08	2.68	0.12	0.43	0.07	0.09	0.77	1.5	0.10	0.07	0.71	2.68	0.12	0.43	0.07	0.09	0.77
2.78	4.90	0.32	0.27	0.08	0.19	0.08	0.17	0.04	0.12	0.10	0.09	0.87	0.08	2.31	0.14	0.46	0.07	0.09	0.56	1.4	0.10	0.09	0.87	2.31	0.14	0.46	0.07	0.09	0.56
2.68	3.89	0.32	0.28	0.08	0.18	0.08	0.19	0.04	0.12	0.09	0.11	0.81	0.08	1.94	0.17	0.45	0.07	0.09	0.47	1.3	0.09	0.11	0.81	1.94	0.17	0.45	0.07	0.09	0.47
2.78	3.52	0.38	0.25	0.07	0.18	0.08	0.21	0.04	0.11	0.08	0.13	0.78	0.08	1.85	0.14	0.53	0.07	0.09	0.45	1.2	0.08	0.13	0.78	1.85	0.14	0.53	0.07	0.09	0.45
2.50	3.24	0.36	0.28	0.07	0.18	0.08	0.17	0.04	0.10	0.07	0.16	0.79	0.08	2.22	0.13	1.57	0.08	0.09	0.41	1	0.07	0.16	0.79	2.22	0.13	1.57	0.08	0.09	0.41
3.05	3.05	0.32	0.27	0.09	0.22	0.08	0.16	0.04	0.09	0.08	0.15	0.86	0.07	1.57	0.11	1.57	0.08	0.09	0.38	1	0.08	0.15	0.86	1.57	0.11	1.57	0.08	0.09	0.38
3.79	2.87	0.30	0.53	0.10	0.22	0.08	0.16	0.04	0.10	0.08	0.14	0.91	0.07	2.04	0.10	1.20	0.07	0.08	0.45	1	0.08	0.14	0.91	2.04	0.10	1.20	0.07	0.08	0.45
3.61	2.31	0.31	0.82	0.11	0.21	0.08	0.15	0.03	0.11	0.08	0.13	0.92	0.07	1.76	0.09	0.93	0.06	0.08	0.50	1	0.08	0.13	0.92	1.76	0.09	0.93	0.06	0.08	0.50
3.15	3.05	0.30	1.11	0.11	0.22	0.07	0.16	0.03	0.11	0.07	0.13	0.93	0.10	1.39	0.09	1.02	0.06	0.08	0.51	1	0.07	0.13	0.93	1.39	0.09	1.02	0.06	0.08	0.51
2.96	3.05	0.31	0.76	0.09	0.23	0.07	0.16	0.03	0.12	0.06	0.11	0.89	0.10	2.31	0.10	1.02	0.06	0.08	0.42	1	0.06	0.11	0.89	2.31	0.10	1.02	0.06	0.08	0.42
2.78	2.78	0.31	0.63	0.08	0.41	0.10	0.15	0.03	0.11	0.05	0.10	0.83	0.09	3.52	0.17	0.84	0.06	0.08	0.39	1	0.05	0.10	0.83	3.52	0.17	0.84	0.06	0.08	0.39
2.78	2.59	0.31	0.65	0.07	0.80	0.08	0.15	0.03	0.12	0.05	0.10	0.80	0.09	2.13	0.17	0.84	0.06	0.09	0.37	1	0.05	0.10	0.80	2.13	0.17	0.84	0.06	0.09	0.37
2.78	2.50	0.31	0.62	0.07	0.74	0.08	0.14	0.03	0.13	0.08	0.11	0.75	0.09	1.94	0.15	0.68	0.05	0.09	0.39	1	0.08	0.11	0.75	1.94	0.15	0.68	0.05	0.09	0.39
2.68	2.59	0.31	0.56	0.08	0.55	0.07	0.14	0.03	0.13	0.09	0.12	0.74	0.09	2.13	0.15	0.57	0.05	0.09	0.38	1	0.09	0.12	0.74	2.13	0.15	0.57	0.05	0.09	0.38
2.68	2.68	0.31	0.52	0.08	0.57	0.07	0.14	0.03	0.12	0.12	0.12	0.65	0.08	1.67	0.13	0.55	0.05	0.09	0.43	1	0.12	0.12	0.65	1.67	0.13	0.55	0.05	0.09	0.43
2.59	2.59	0.33	0.45	0.09	0.52	0.07	0.14	0.04	0.12	0.11	0.11	0.63	0.19	3.52	0.12	0.47	0.04	0.08	0.38	1	0.11	0.11	0.63	3.52	0.12	0.47	0.04	0.08	0.38
2.59	2.78	0.32	0.39	0.09	0.40	0.08	0.15	0.05	0.11	0.11	0.12	0.66	3.15	7.59	0.10	0.47	0.05	0.08	0.35	1	0.11	0.12	0.66	7.59	0.10	0.47	0.05	0.08	0.35
2.50	2.78	0.31	0.37	0.09	0.30	0.08	0.14	0.05	0.10	0.12	0.13	0.68	1.20	5.09	0.10	0.48	0.06	0.08	0.37	1	0.12	0.13	0.68	5.09	0.10	0.48	0.06	0.08	0.37
2.50	2.68	0.29	0.38	0.09	0.21	0.08	0.14	0.04	0.10	0.13	0.13	0.74	0.93	3.98	0.11	0.47	0.05	0.08	0.42	1	0.13	0.13	0.74	3.98	0.11	0.47	0.05	0.08	0.42
2.50	2.59	0.28	0.39	0.08	0.19	0.08	0.14	0.04	0.10	0.14	0.13	0.74	0.76	3.15	0.11	0.65	0.04	0.09	0.44	1	0.14	0.13	0.74	3.15	0.11	0.65	0.04	0.09	0.44
2.50	2.50	0.30	0.38	0.08	0.25	0.08	0.13	0.04	0.09	0.15	0.12	0.74	0.88	2.78	0.11	0.51	0.04	0.09	0.40	1	0.15	0.12	0.74	2.78	0.11	0.51	0.04	0.09	0.40
2.41	2.41	0.26	0.37	0.09	0.31	0.08	0.13	0.04	0.11	0.16	0.12	0.74	1.02	2.68	0.12	0.44	0.04	0.09	0.41	1	0.16	0.12	0.74	2.68	0.12	0.44	0.04	0.09	0.41
2.50	2.41	0.25	0.37	0.10	0.31	0.08	0.13	0.04	0.11	0.14	0.12	0.74	0.75	2.41	0.12	0.45	0.04	0.08	0.42	1	0.14	0.12	0.74	2.41	0.12	0.45	0.04	0.08	0.42
2.50	2.31	0.34	0.37	0.07	0.30	0.08	0.12	0.04	0.13	0.13	0.12	0.74	1.62	2.31	0.12	0.44	0.04	0.08	0.42	1	0.13	0.12	0.74	2.31	0.12	0.44	0.04	0.08	0.42
2.50	2.22	0.36	0.38	0.06	0.29	0.08	0.11	0.04	0.11	0.13	0.12	0.74	0.45	2.31	0.14	0.32	0.04	0.08	0.43	1	0.13	0.12	0.74	2.31	0.14	0.32	0.04	0.08	0.43
2.50	2.31	0.33	0.38	0.07	0.28	0.08	0.10	0.04	0.09	0.13	0.12	0.74	0.31	2.22	0.14	0.46	0.04	0.09	0.48	1	0.13	0.12	0.74	2.22	0.14	0.46	0.04	0.09	0.48
2.59	2.22	0.28	0.40	0.07	0.26	0.08	0.10	0.04	0.10	0.13	0.12	0.74	0.29	2.59	0.13	0.65	0.04	0.08	0.51	1	0.13	0.12	0.74	2.59	0.13	0.65	0.04	0.08	0.51
3.05	2.13	0.23	0.43	0.07	0.24	0.09	0.10	0.04	0.13	0.13	0.12	0.74	0.36	3.98	0.13	0.63	0.04	0.07	0.51	1	0.13	0.12	0.74	3.98	0.13	0.63	0.04	0.07	0.51
3.15	3.24	0.23	0.44	0.06	0.26	0.08	0.10	0.04	0.12	0.13	0.12	0.71	0.29	2.96	0.12	0.74	0.04	0.07	0.50	1	0.13	0.12	0.71	2.96	0.12	0.74	0.04	0.07	0.50
3.24	41.63	0.23	0.48	0.07	0.28	0.09	0.11	0.04	0.11	0.13	0.13	0.68	0.24	2.50	0.11	0.83	0.04	0.07	0.47	1	0.13	0.13	0.68	2.50	0.11	0.83	0.04	0.07	0.47
3.24	17.21	0.25	0.52	0.08	0.29	0.08	0.13	0.04	0.12	0.13	0.13	0.78	0.22	2.41	0.12	0.93	0.04	0.06	0.48	1	0.13	0.13	0.78	2.41	0.12	0.93	0.04	0.06	0.48
3.24	12.31	0.29	0.55	0.08	0.28	0.08	0.12	0.05	0.10	0.13	0.13	0.80	0.21	2.50	0.13	0.83	0.04	0.05	0.51	1	0.13	0.13	0.80	2.50	0.13	0.83	0.04	0.05	0.51
3.24	8.05	0.30	0.55	0.07	0.27	0.08	0.12	0.05	0.11	0.14	0.14	0.80	0.24	2.22	0.14	0.79	0.04	0.06	0.54	1	0.14	0.14	0.80	2.22	0.14	0.79	0.04	0.06	0.54
4.35	6.85	0.31	0.64	0.08	0.31	0.08	0.11	0.05	0.13	0.11	0.14	0.80	0.31	2.13	0.14	0.74	0.04	0.07	0.74	1	0.11	0.14	0.80	2.13	0.14	0.74	0.04	0.07	0.74
2.96	6.94	0.28	1.39	0.07	0.26	0.08	0.11	0.04	0.14	0.12	0.14	0.80	1.11	9.62	0.14	0.68	0.04	0.06	0.79	1	0.12	0.14	0.80	9.62	0.14	0.68	0.04	0.06	0.79
2.96	6.85	0.28	1.76	0.07	0.28	0.08	0.11	0.04	0.13	0.17	0.13	0.80	0.90	16.10	0.14	0.60	0.04	0.06	0.93	1	0.17	0.13	0.80	16.10	0.14	0.60	0.04	0.06	0.93
3.05	5.55	0.27	1.39	0.07	0.31	0.08	0.11	0.04	0.14	0.20	0.14	0.80	0.61	32.57	0.14	0.56	0.04	0.05	1.11	1	0.20	0.14	0.80	32.57	0.14	0.56	0.04	0.05	1.11
3.15	5.00	0.27	1.30	0.08	0.31	0.08	0.10	0.04	0.15	0.26	0.13	0.80	0.54	203.55	0.15	0.51	0.04	0.06	0.83	1	0.26	0.13	0.80	203.55	0.15	0.51	0.04	0.06	0.83
3.15	4.72	0.27	1.02	0.08	0.38	0.08	0.11	0.05	0.14	0.29	0.14	0.80	0.59	83.27	0.17	0.46	0.04	0.07	0.83	1	0.29	0.14	0.80	83.27	0.17	0.46	0.04	0.07	0.83
3.05	4.72	0.28	1.20	0.08	0.48	0.08	0.11	0.07	0.14	0.28	0.15	0.80	0.55	46.26	0.15	0.56	0.04	0.07	0.83	1	0.28	0.15	0.80	46.26	0.15	0.56	0.04	0.07	0.83
2.87	4.81	0.31	4.63	0.07	0.44	0.09	0.12	0.08	0.13	0.26	0.31	0.80	0.51	30.07	0.14	0.56	0.04	0.07	0.74	1	0.26	0.31	0.80	30.07	0.14	0.56	0.04	0.07	0.74
2.68	4.63	0.35	6.01	0.09	0.43	0.09	0.12	0.06	0.16	0.27	0.34	0.80	0.49	20.35	0.14	0.51	0.04	0.08	0.74	1	0.27	0.34	0.80	20.35	0.14	0.51	0.04	0.08	0.74
2.78	4.53	0.37	3.79	0.10	0.60	0.09	0.12	0.06	0.16	1.02	0.21	0.81	0.54	13.88	0.14	0.49	0.04	0.07	0.74	1	1.02	0.21	0.81	13.88	0.14	0.49	0.04	0.07	0.74
2.96	4.16	0.39	2.59	0.10	0.79	0.09	0.13	0.05	0.16	1.02	0.18	0.84	0.55	9.25	0.15	0.51	0.04	0.07	0.74	1	1.02	0.18	0.84	9.25	0.15	0.51	0.04	0.07	0.74
2.96	3.89	0.38	2.13	0.11	0.75	0.09	0.13	0.05	0.17	0.87	0.17	1.11	0.54	7.40	0.17	0.48	0.04	0.08	0.74	1	0.87	0.17	1.11	7.40	0.17	0.48	0.04	0.08	0.74
2.78	3.79	0.38	1.85	0.13	0.72	0.09	0.14	0.05	0.18	1.02	0.15	2.68	0.52	6.94	0.19	0.46	0.04	0.08	0.65	1	1.02	0.15	2.68	6.94	0.19	0.46	0.04	0.08	0.65
2.68	3.33	0.38	1.76	0.14	0.70	0.09	0.15	0.05	0.17	1.11	0.13	2.96	0.52	6.48	0.21	0.44	0.04	0.08	0.65	1	1.11	0.13	2.96	6.48	0.21	0.44	0.04	0.08	0.65
2.78	3.52	0.38	1.67	0.14	0.67	0.09	0.16	0.05	0.16	0.89	0.12	3.15	0.54	6.01	0.23	0.42	0.04	0.09	0.65	1	0.89	0.12	3.15	6.01	0.23	0.42	0.04	0.09	0.65
2.87	3.15	0.38	1.57	0.15	0.63	0.09	0.18	0.05	0.16	0.71	0.13	3.61	0.56	5.55	0.21	0.40	0.04	0.14	0.65	1	0.71	0.13	3.61	5.55	0.21	0.40	0.04	0.14	0.65
2.78	3.52	0.38	1.48	0.15	0.63	0.10	0.20	0.05	0.16	0.69	0.14	2.96	0.56	5.09	0.19	0.38	0.04	0.14	0.56	1	0.69	0.14	2.96	5.09	0.19	0.38	0.04	0.14	0.56
2.78	3.33	0.38	1.39	0.11	0.63	0.10	0.23	0.05	0.17	0.69	0.15	4.07	0.51	4.63	0.17	0.42	0.04	0.09	0.46	1	0.69	0.15	4.07	4.63	0.17	0.42	0.04	0.09	0.46
2.87	3.24	0.41	1.39	0.10	0.63	0.11	0.26	0.05	0.17	0.82	0.15	3.89	0.78	4.81	0.19	0.46	0.04	0.07	0.42	0.8	0.82	0.15	3.89	4.81	0.19	0.46	0.04	0.07	0.42
2.87	2.78	0.43	1.39	0.09	0.68	0.11	0.28	0.05	0.15	0.87	0.14	3.42	1.67	4.72	0.21	0.56	0.04	0.09	0.37	0.8	0.87	0.14	3.42	4.72	0.21	0.56	0.04	0.09	0.37
2.68	3.05	0.50	1.48	0.09	0.49	0.12	0.31	0.05	0.17	0.81	0.15	3.42	1.39	4.53	0.23	0.65	0.09	0.28	0.34	0.8	0.81	0.15	3.42	4.53	0.23	0.65	0.09	0.28	0.34
2.78	2.50	0.59	1.76	0.09	0.47	0.11	0.35	0.05	0.18	0.76	0.16	3.42	1.20	4.16	0.24	1.02	0.68	0.23	0.32	0.8	0.76	0.16	3.42	4.16	0.24	1.02	0.68	0.23	0.32
3.05	2.50	0.63	1.76	0.09	0.56	0.12	0.35	0.05	0.18	0.71	0.16	3.33	1.11	3.70	0.21	1.11	1.11	0.65	0.26	0.8	0.71	0.16	3.33	3.70	0.21	1.11	1.11	0.65	0.26
2.78	2.78	0.65	1.67	0.09	0.61	0.12	0.31	0.05	0.18	0.72	0.15	3.15	0.93	4.07	0.19	1.11	0.93	0.93	0.30	0.8	0.72	0.15	3.15	4.07	0.19	1.11	0.93	0.93	0.30
2.31	2.59	0.65	1.57	0.09	0.63	0.12	0.26	0.05	0.18	1.02	0.15	2.87	0.93	4.26	0.19	1.02	1.02	0.65	0.26	0.8	1.02	0.15	2.87	4.26	0.19	1.02	1.02	0.65	0.26
2.59	2.68	0.63	1.48	0.09	0.66	0.12	0.23	0.05	0.19	1.02	0.16	2.50	0.87	4.63	0.17	1.11	0.53	0.46	0.19	0.8	1.02	0.16	2.50	4.63	0.17	1.11	0.53	0.46	0.19
2.50	2.68	0.61	1.39	0.09	0.70	0.12	0.23	0.05	0.18	0.93	0.15	2.31	0.79	4.90	0.16	1.30	0.31	0.37	0.19	0.8	0.93	0.15	2.31	4.90	0.16	1.30	0.31	0.37	0.19
2.59	2.68	0.61	1.39	0.09	0.73	0.13	0.24	0.05	0.18	0.90	0.16	2.04	0.83	5.09	0.15	1.20	0.78	0.46	0.26	0.8	0.90	0.16	2.04	5.09	0.15	1.20	0.78	0.46	0.26
2.41	2.68	0.61	1.39	0.10	0.76	0.13	0.22	0.06	0.18	0.88	0.16	1.76	0.86	6.29	0.14	1.20	1.57	0.28	0.19	0.8	0.88	0.16	1.76	6.29	0.14	1.20	1.57	0.28	0.19
2.31	2.59	0.61	1.48	0.10	0.76	0.13	0.21	0.07	0.18	0.79	0.16	1.67	0.81	6.38	0.14	1.30	0.66	0.46	0.17	0.8	0.79	0.16	1.67	6.38	0.14	1.30	0.66	0.46	0.17
2.59	2.68	0.61	1.57	0.11	0.76	0.13	0.20	0.05	0.18	0.77	0.15	1.57	0.93	4.72	0.14	1.30	0.41	0.37	0.11	0.8	0.77	0.15	1.57	4.72	0.14	1.30	0.41	0.37	0.11
2.50	2.68	0.61	1.76	0.10	0.76	0.14	0.22	0.05	0.18	0.75	0.15	1.67	0.87	4.35	0.14	1.30	0.39	0.19	0.09	0.8	0.75	0.15	1.67	4.35	0.14	1.30	0.39	0.19	0.09
2.41	2.96	0.61	4.44	0.09	0.65	0.16	0.23	0.05	0.19	0.75	0.15	1.76	0.82	3.89	0.14	1.30	0.85	0.28	0.07	0.8	0.75	0.15	1.76	3.89	0.14	1.30	0.85	0.28	0.07
2.31	3.05	0.61	4.07	0.09	0.52	0.19	0.23	0.05	0.17	0.70	0.15	1.94	0.83	3.52	0.14	1.30	1.11	0.37	0.11	0.8	0.70	0.15	1.94	3.52	0.14	1.30	1.11	0.37	0.11
2.41	3.05	0.61	2.68	0.10	0.56	0.20	0.24	0.05	0.19	0.70	0.15	2.04	0.93	3.52	0.15	1.30	0.69	0.65	0.14	0.8	0.70	0.15	2.04	3.52	0.15	1.30	0.69	0.65	0.14
2.50	3.05	0.61	2.50	0.10	0.58	0.20	0.24	0.05	0.19	0.70	0.15	2.13	0.85	3.42	0.19	1.30	0.61	0.93	0.17	0.8	0.70	0.15	2.13	3.42	0.19	1.30	0.61	0.93	0.17
2.50	2.96	0.61	2.31	0.09	0.53	0.19	0.23	0.05	0.19	0.69	0.15	2.22	0.75	3.33	0.20	1.30	0.65	1.85	0.19	0.8	0.69	0.15	2.22	3.33	0.20	1.30	0.65	1.85	0.19
2.41	2.96	0.61	2.31	0.09	0.60	0.19	0.24	0.05	0.19	0.68	0.15	2.31	1.30	3.15	0.19	1.30	0.56	2.22	0.28	0.8	0.68	0.15	2.31	3.15	0.19	1.30	0.56	2.22	0.28
2.50	2.96	0.61	2.22	0.09	0.66	0.17	0.26	0.06	0.19	0.68	0.15	2.31	13.88	3.24	0.24	1.20	0.57	1.85	0.37	0.8	0.68	0.15	2.31	3.24	0.24	1.20	0.57	1.85	0.37
2.68	3.15	0.61	1.85	0.10	0.69	0.16	0.25	0.06	0.19	0.69	0.15	2.41	9.25	3.33	0.21	1.20	0.57	0.93	0.37	0.8	0.69	0.15	2.41	3.33	0.21	1.20	0.57	0.93	0.37
4.35	3.05	0.61	2.04	0.10	0.72	0.15	0.27	0.06	0.19	0.70	0.16	2.41	6.94	3.24	0.19	1.30	0.55	0.56	0.42	0.8	0.70	0.16	2.41	3.24	0.19	1.30	0.55	0.56	0.42
4.44	3.05	0.61	1.85	0.09	0.75	0.17	0.26	0.06	0.22	0.79	0.16	2.41	6.01	2.78	0.19	1.85	0.53	0.56	0.46	0.8	0.79	0.16	2.41	2.78	0.19	1.85	0.53	0.56	0.46
2.78	3.24	0.61	1.94	0.11	0.76	0.18	0.25	0.06	0.24	0.86	0.17	2.31	5.09	2.87	0.17	2.50	0.52	0.37	0.65	0.8	0.86	0.17	2.31	2.87	0.17	2.50	0.52	0.37	0.65
2.31	2.41	0.61	1.76	0.16	0.81	0.17	0.26	0.07	0.22	0.85	0.18	2.22	4.90	2.68	0.18	2.87	0.51	0.28	0.83	0.8	0.85	0.18	2.22	2.68	0.18	2.87	0.51	0.28	0.83
2.31	3.24	0.61	1.67	0.17	0.93	0.16	0.29	0.08	0.20	0.82	0.18	2.22	4.44	2.59	0.17	2.96	0.48	0.23	0.88	0.8	0.82	0.18	2.22	2.59	0.17	2.96	0.48	0.23	0.88
2.41	3.05	0.61	1.85	0.14	0.93	0.16	0.31	0.08	0.20	0.82	0.19	2.22	4.35	2.50	0.17	2.96	0.43	0.19	0.93	0.8	0.82	0.19	2.22	2.50	0.17	2.96	0.43	0.19	0.93
2.78	2.96	0.61	3.33	0.13	1.11	0.16	0.31	0.09	0.22	0.82	0.19	2.22	3.79	2.50	0.17	2.96	0.65	0.28	1.02	0.8	0.82	0.19	2.13	2.50	0.17	2.96	0.65	0.28	1.02
2.50	2.96	0.61	9.44	0.11	1.11	0.18	0.30	0.10	0.23	0.82	0.19	2.22	3.89	2.50	0.16	3.05	2.59	0.19	0.93	0.8	0.82	0.19	2.22	2.50	0.16	3.05	2.59	0.19	0.93
2.41	2.96	0.61	16.47	0.09	1.11	0.19	0.29	0.12	0.22	0.82	0.20	2.04	3.98	2.59	0.17	2.96	2.87	0.28	1.02	0.8	0.82	0.20	2.04	2.59	0.17	2.96	2.87	0.28	1.02
2.31	2.96	0.61	7.40	0.09	1.20	0.19	0.29	0.12	0.26	0.82	0.20	1.94	4.35	2.50	0.16	2.96	2.13	0.46	1.02	0.8	0.82	0.20	1.94	2.50	0.16	2.96	2.13	0.46	1.02
2.22	3.24	0.61	4.44	0.09	1.20	0.19	0.29	0.12	0.27	0.82	0.46	1.94	4.90	2.59	0.18	2.68	1.85	0.46	1.11	0.8	0.82	0.46	1.94	2.59	0.18	2.68	1.85	0.46	1.11
2.22	3.05	0.61	16.75	0.09	1.11	0.20	0.29	0.10	0.30	0.83	0.26	1.94	4.16	2.59	0.17	2.41	1.94	0.37	1.02	0.8	0.83	0.26	1.94	2.59	0.17	2.41	1.94	0.37	1.02
2.31	2.96	0.64	43.67	0.08	1.11	0.22	0.29	0.10	0.42	0.92	0.31	2.04	4.44	2.41	0.16	2.22	1.76	0.23	1.02	0.8	0.92	0.31	2.04	2.41	0.16	2.22	1.76	0.23	1.02
2.22	2.96	0.68	24.43	0.08	1.11	0.23	0.29	0.11	0.66	1.02	0.27	2.22	5.27	2.50	0.17	2.13	1.67	0.19	1.02	0.8	1.02	0.27	2.22	2.50	0.17	2.13	1.67	0.19	1.02
2.22	2.78	0.70	14.71	0.08	1.30	0.23	0.29	0.12	0.93	0.93	0.27	2.50	5.00	2.50	0.18	2.13	1.48	0.28	1.30	0.8	0.93	0.27	2.50	2.50	0.18	2.13	1.48	0.28	1.30
2.22	2.78	0.71	11.47	0.09	1.30	0.26	0.29	0.12	1.11	0.90	0.28	2.68	3.70	2.41	0.17	2.04	1.30	0.19	1.48	0.8	0.90	0.28	2.68	2.41	0.17	2.04	1.30	0.19	1.48
2.22	2.68	0.72	8.88	0.07	1.48	0.30	0.30	0.13	1.11	0.91	0.29	2.87	4.07	2.41	0.17	2.04	1.30	0.14	1.76	0.8	0.91	0.29	2.87	2.41	0.17	2.04	1.30	0.14	1.76
2.31	2.59	0.73	8.33	0.06	1.39	0.39	0.30	0.13	1.02	1.02	0.30	3.15	3.70	2.50	0.16	2.04	1.11	0.09	1.67	0.8	1.02	0.30	3.15	2.50	0.16	2.04	1.11	0.09	1.67
2.22	2.59	0.80	9.25	0.06	1.48	0.54	0.31	0.13	0.91	0.93	0.32	3.33	3.24	2.41	0.17	1.94	1.02	0.19	1.76	0.8	0.93	0.32	3.33	2.41	0.17	1.94	1.02	0.19	1.76
2.22	2.68	0.90	10.27	0.07	1.57	0.68	0.33	0.14	0.90	0.89	0.34	3.61	3.42	2.22	0.16	1.94	1.02	0.19	2.04	0.8	0.89	0.34	3.61	2.22	0.16	1.94	1.02	0.19	2.04
2.22	2.68	1.02	10.92	0.10	1.85	0.84	0.35	0.13	0.93	0.90	0.31	3.61	3.42	2.04	0.15	1.85	1.20	0.28	2.22	0.8	0.90	0.31	3.61	2.04	0.15	1.85	1.20	0.28	2.22
2.13	2.68	1.20	11.38	0.13	1.94	1.02	0.46	0.13	1.02	0.84	0.32	3.61	3.05	2.13	0.14	1.76	1.11	0.19	2.41	0.8	0.84	0.32	3.61	2.13	0.14	1.76	1.11	0.19	2.41
999999	2.68	999999	999999	999999	2.04	999999	999999	999999	1.02	999999	999999	999999	2.68	999999	999999	999999	1.11	999999	999999	0.8	999999	999999	999999	999999	999999	999999	1.11	999999	999999
2.31	2.68	1.39	11.57	0.15	1.85	0.83	0.56	0.18	0.88	0.93	0.42	3.61	2.59	2.22	0.15	1.85	1.20	0.19	2.41	0.8	0.93	0.42	3.61	2.22	0.15	1.85	1.20	0.19	2.41
2.31	2.87	1.48	11.47	0.17	1.85	0.68	0.74	0.26	0.83	0.93	0.55	3.42	2.59	2.13	0.15	1.94	1.20	0.19	2.04	0.8	0.93	0.55	3.42	2.13	0.15	1.94	1.20	0.19	2.04
2.41	2.96	1.57	10.82	0.23	1.94	0.62	1.20	0.24	0.74	0.93	0.71	3.33	3.05	2.22	0.16	2.22	1.11	0.28	2.04	0.8	0.93	0.71	3.33	2.22	0.16	2.22	1.11	0.28	2.04
2.13	3.05	1.57	11.66	0.37	2.04	0.68	1.76	3.70	0.76	1.02	0.68	3.15	2.87	2.31	0.15	1.85	1.20	0.19	2.04	0.8	1.02	0.68	3.15	2.31	0.15	1.85	1.20	0.19	2.04
2.13	3.15	1.48	12.12	1.11	2.13	0.68	1.57	8.79	0.78	1.02	0.68	3.15	2.87	2.31	0.15	1.76	1.11	0.19	2.04	0.8	1.02	0.68	3.15	2.31	0.15	1.76	1.11	0.19	2.04
2.22	3.33	1.48	12.21	1.20	2.22	0.89	1.48	7.86	0.80	1.11	0.68	3.15	3.05	2.50	0.17	2.13	1.11	0.28	2.13	0.8	1.11	0.68	3.15	2.50	0.17	2.13	1.11	0.28	2.13
2.31	3.61	1.67	11.47	1.11	2.22	1.39	1.39	7.40	0.79	1.20	0.71	3.33	2.96	2.68	0.19	1.57	1.11	0.37	2.04	0.8	1.20	0.71	3.33	2.68	0.19	1.57	1.11	0.37	2.04
2.41	3.89	1.76	47.93	1.20	2.50	2.78	1.20	4.53	0.77	1.30	0.75	3.15	2.87	3.05	0.20	1.57	1.20	0.37	1.76	0.8	1.30	0.75	3.15	3.05	0.20	1.57	1.20	0.37	1.76
2.68	4.16	1.76	26.46	1.02	2.68	7.49	1.11	2.59	0.76	1.39	0.78	5.83	3.24	3.42	0.22	1.76	1.11	0.23	1.76	0.8	1.39	0.78	5.83	3.42	0.22	1.76	1.11	0.23	1.76
2.96	4.63	1.67	15.64	1.02	2.59	4.26	1.20	1.67	0.77	1.39	0.93	13.23	3.52	3.89	0.24	1.76	1.02	0.24	1.85	0.8	1.39	0.93	13.23	3.89	0.24	1.76	1.02	0.24	1.85
3.24	4.81	1.48	11.38	0.84	2.41	4.44	1.20	1.67	0.86	1.39	1.11	13.60	3.42	4.90	0.28	1.67	1.02	0.28	1.85	0.8	1.39	1.11	13.60	4.90	0.28	1.67	1.02	0.28	1.85
3.33	4.26	1.39	10.18	0.79	2.04	4.53	1.02	1.11	0.93	1.57	1.02	11.29	3.33	5.92	0.37	1.57	1.11	0.30	2.22	0.8	1.57	1.02	11.29	5.92	0.37	1.57	1.11	0.30	2.22
5.09	4.81	1.30	9.34	0.81	1.67	4.35	0.93	1.02	1.02	1.76	1.11	10.18	3.05	6.48	0.46	1.76	1.30	0.31	2.41	0.8	1.76	1.11	10.18	6.48	0.46	1.76	1.30	0.31	2.41
6.20	4.53	1.30	8.23	0.80	1.85	3.61	0.92	1.20	1.20	1.94	1.30	13.32	2.87	6.66	0.56	1.94	1.48	0.32	2.04	0.8	1.94	1.30	13.32	6.66	0.56	1.94	1.48	0.32	2.04
4.81	4.35	1.20	7.59	0.78	1.94	3.24	0.93	1.11	1.20	2.13	1.57	11.19	2.87	7.22	0.65	1.85	1.67	0.40	1.94	0.8	2.13	1.57	11.19	7.22	0.65	1.85	1.67	0.40	1.94
4.44	4.72	1.20	7.22	0.76	1.85	2.96	1.11	1.02	1.20	2.68	1.85	10.45	3.33	7.59	0.74	1.57	1.85	0.47	1.76	1	2.68	1.85	10.45	7.59	0.74	1.57	1.85	0.47	1.76
4.07	4.35	1.30	6.75	0.76	1.94	2.59	1.20	0.90	1.11	3.15	1.94	8.97	4.16	7.77	1.02	1.67	2.04	0.65	1.67	1	3.15	1.94	8.97	7.77	1.02	1.67	2.04	0.65	1.67
3.70	4.63	1.48	6.38	0.84	2.22	2.22	1.76	1.02	1.11	5.55	2.13	8.14	5.64	8.51	1.11	1.76	2.41	0.93	1.67	1	5.55	2.13	8.14	8.51	1.11	1.76	2.41	0.93	1.67
3.52	5.37	1.39	6.48	0.79	2.59	2.22	1.94	1.02	1.02	5.37	2.31	9.90	6.94	9.25	1.48	2.59	3.05	1.57	1.57	1	5.37	2.31	9.90	9.25	1.48	2.59	3.05	1.57	1.57
3.42	6.66	1.48	7.22	0.77	3.15	2.96	2.13	0.93	1.02	5.64	2.13	11.29	7.77	10.18	1.85	2.31	3.33	2.04	2.04	1	5.64	2.13	11.29	10.18	1.85	2.31	3.33	2.04	2.04
3.33	7.31	1.67	8.42	0.76	3.33	3.89	2.68	0.91	1.11	6.75	2.59	12.21	8.88	9.81	2.22	1.94	3.05	2.22	2.22	1	6.75	2.59	12.21	9.81	2.22	1.94	3.05	2.22	2.22
3.24	7.68	2.68	9.62	0.79	3.42	4.90	3.05	0.88	1.11	6.94	2.68	9.81	8.88	9.71	2.78	2.31	3.24	2.31	2.50	1	6.94	2.68	9.81	9.71	2.78	2.31	3.24	2.31	2.50
3.24	8.05	1.94	9.90	0.76	4.16	5.37	3.98	0.93	1.20	8.05	3.79	7.86	6.94	12.40	3.05	2.41	3.33	6.85	2.41	1	8.05	3.79	7.86	12.40	3.05	2.41	3.33	6.85	2.41
3.15	8.51	2.31	9.34	0.76	4.90	5.27	5.27	1.11	1.20	8.88	1.85	7.12	6.01	14.16	3.79	2.31	3.42	9.34	2.22	1	8.88	1.85	7.12	14.16	3.79	2.31	3.42	9.34	2.22
2.96	8.97	2.31	9.99	0.76	6.20	4.72	6.20	2.04	1.30	7.96	1.57	6.38	5.92	15.54	3.70	2.59	3.52	6.48	2.04	1	7.96	1.57	6.38	15.54	3.70	2.59	3.52	6.48	2.04
2.87	9.53	1.94	11.84	0.76	7.22	3.79	6.94	2.68	1.48	7.12	1.48	5.92	5.74	16.28	3.79	2.96	4.07	5.46	1.94	1	7.12	1.48	5.92	16.28	3.79	2.96	4.07	5.46	1.94
2.78	9.71	2.13	13.69	0.79	7.12	3.24	7.03	1.67	1.57	5.09	3.15	5.64	6.20	16.10	3.70	3.61	4.72	5.46	2.04	1	5.09	3.15	5.64	16.10	3.70	3.61	4.72	5.46	2.04
2.68	10.08	2.59	14.80	0.81	6.38	4.44	5.74	1.11	1.76	4.63	2.04	5.55	6.48	15.73	3.33	4.07	4.90	6.66	2.50	1	4.63	2.04	5.55	15.73	3.33	4.07	4.90	6.66	2.50
2.68	9.44	2.50	15.45	0.90	6.11	5.55	4.72	1.11	2.22	4.35	2.50	5.37	5.83	15.73	3.33	4.16	5.18	9.71	3.79	1	4.35	2.50	5.37	15.73	3.33	4.16	5.18	9.71	3.79
3.15	7.49	2.13	17.02	1.11	5.83	6.11	4.44	1.30	2.50	4.53	3.15	5.18	6.01	15.36	3.15	4.16	5.55	9.62	6.11	1	4.53	3.15	5.18	15.36	3.15	4.16	5.55	9.62	6.11
3.98	6.48	2.22	18.69	1.30	5.27	7.59	5.37	1.48	2.68	5.00	4.07	5.46	6.75	13.97	2.87	3.89	5.74	10.92	7.31	1	5.00	4.07	5.46	13.97	2.87	3.89	5.74	10.92	7.31
4.26	6.85	2.59	18.60	1.39	5.27	8.51	6.11	1.57	3.42	5.74	4.63	5.83	8.79	11.38	2.96	3.61	5.83	11.66	8.33	1.5	5.74	4.63	5.83	11.38	2.96	3.61	5.83	11.66	8.33
4.81	6.11	3.15	16.56	1.76	5.64	8.70	6.29	1.57	4.16	5.92	5.09	5.83	10.27	9.99	2.78	2.78	6.85	10.27	9.53	1.5	5.92	5.09	5.83	9.99	2.78	2.78	6.85	10.27	9.53
4.81	6.48	3.89	14.34	2.04	6.01	9.90	6.57	1.57	5.74	6.94	5.00	6.20	8.05	9.25	2.50	2.78	8.79	7.96	10.73	1.5	6.94	5.00	6.20	9.25	2.50	2.78	8.79	7.96	10.73
4.07	7.03	4.81	13.79	1.76	7.31	11.47	6.75	2.31	7.03	8.05	4.26	7.68	7.77	9.25	2.41	2.41	11.10	6.29	11.66	1.5	8.05	4.26	7.68	9.25	2.41	2.41	11.10	6.29	11.66
3.70	7.12	6.20	12.77	1.76	8.33	13.14	6.38	3.15	7.03	7.86	4.35	9.71	9.16	9.34	2.41	2.78	12.68	5.18	11.47	2	7.86	4.35	9.71	9.34	2.41	2.78	12.68	5.18	11.47
3.33	7.12	8.23	12.12	1.85	8.79	14.43	7.12	3.89	6.94	6.66	4.16	10.45	11.47	9.07	2.41	2.59	12.95	4.35	10.73	2.5	6.66	4.16	10.45	9.07	2.41	2.59	12.95	4.35	10.73
3.15	8.05	9.62	11.19	2.41	8.88	16.01	7.31	4.35	7.68	5.83	3.52	10.64	13.51	9.53	2.41	2.50	13.60	3.79	11.19	1.4	5.83	3.52	10.64	9.53	2.41	2.50	13.60	3.79	11.19
3.24	8.14	11.01	10.55	3.52	8.42	17.58	6.66	4.26	8.33	6.66	3.52	10.36	15.91	9.99	2.31	2.41	14.80	3.89	12.95	0.4	6.66	3.52	10.36	9.99	2.31	2.41	14.80	3.89	12.95
3.61	7.31	11.94	11.29	5.18	8.42	18.60	7.22	4.53	9.07	8.51	2.96	9.81	17.02	9.07	2.22	3.24	14.71	3.98	13.14	0.4	8.51	2.96	9.81	9.07	2.22	3.24	14.71	3.98	13.14
3.70	13.32	12.77	13.23	6.75	9.07	17.49	9.16	4.90	9.53	9.34	2.78	9.25	15.91	8.23	2.22	2.59	14.99	3.52	14.25	0.4	9.34	2.78	9.25	8.23	2.22	2.59	14.99	3.52	14.25
3.42	12.58	13.42	15.64	7.86	8.97	16.28	10.27	3.98	9.99	10.08	2.87	10.82	14.43	8.14	2.31	2.41	14.71	3.24	15.64	0.3	10.08	2.87	10.82	8.14	2.31	2.41	14.71	3.24	0.33
3.15	13.14	14.25	16.56	8.05	8.33	16.65	11.47	3.24	9.44	9.71	3.79	12.58	13.69	8.70	2.41	2.41	15.82	2.96	17.12	0.3	9.71	3.79	12.58	8.70	2.41	2.41	15.82	2.96	0.36
3.05	14.62	16.01	13.42	8.60	7.68	16.01	12.95	3.24	14.62	8.79	5.37	13.14	12.58	9.99	2.31	2.87	25.81	2.96	18.32	0.3	8.79	5.37	13.14	9.99	2.31	2.87	25.81	2.96	0.34
2.87	16.47	18.50	13.69	9.62	8.33	15.17	13.88	4.16	11.94	9.44	7.03	11.19	14.34	11.94	2.31	4.53	16.01	2.96	19.15	0.3	9.44	7.03	11.19	11.94	2.31	4.53	16.01	2.96	0.38
2.96	17.95	17.12	14.16	10.08	6.85	14.80	14.25	4.81	10.27	11.01	8.60	9.71	16.75	13.97	2.31	6.29	12.12	3.24	17.86	0.3	11.01	8.60	9.71	13.97	2.31	6.29	12.12	3.24	0.42
3.33	17.58	14.71	13.14	10.92	6.20	13.69	12.21	4.53	11.29	11.57	9.53	8.42	17.39	16.28	2.31	7.86	11.19	4.16	13.51	0.2	11.57	9.53	8.42	16.28	2.31	7.86	11.19	4.16	0.50
4.07	16.28	11.94	11.47	11.57	6.94	13.79	8.14	4.26	12.49	10.55	10.45	7.40	14.25	17.95	2.22	8.60	9.71	5.37	12.03	0.2	10.55	10.45	7.40	17.95	2.22	8.60	9.71	5.37	0.58
3.79	12.95	9.71	11.38	10.18	6.94	13.60	7.22	4.26	13.32	9.62	11.66	7.03	12.12	19.06	2.50	9.81	8.79	6.01	10.18	0.1	9.62	0.12	7.03	19.06	2.50	9.81	8.79	6.01	0.56
3.70	11.10	10.08	13.88	8.23	6.11	12.40	8.42	4.44	13.97	10.73	12.86	6.48	10.45	24.33	3.61	11.66	8.33	6.01	9.34	0.1	10.73	0.51	6.48	24.33	3.61	11.66	8.33	6.01	0.52
4.35	10.27	8.97	19.71	9.16	5.18	11.66	9.99	3.89	15.27	13.14	12.95	6.29	9.62	24.61	5.37	13.05	9.71	5.00	8.70	0.1	13.14	0.45	6.29	24.61	5.37	13.05	9.71	5.00	0.52
4.07	10.18	7.12	28.22	11.01	5.83	11.01	10.08	3.70	14.53	15.73	11.84	6.11	9.07	26.18	7.77	13.60	11.01	4.44	8.70	0.1	15.73	0.54	6.11	26.18	7.77	13.60	11.01	4.44	0.51
4.16	11.75	7.96	32.75	11.75	4.90	9.34	9.71	3.79	12.40	16.75	10.27	6.11	10.08	23.96	10.73	11.75	11.75	4.26	9.81	0.1	16.75	0.54	6.11	23.96	10.73	11.75	11.75	4.26	0.51
5.27	14.80	11.10	29.61	11.47	4.44	7.49	12.31	4.16	12.03	15.91	8.42	7.12	13.60	22.85	13.05	9.53	13.32	5.09	12.12	0.1	15.91	0.54	7.12	22.85	13.05	9.53	13.32	5.09	0.51
4.72	16.47	12.68	27.48	11.57	5.00	6.85	10.55	5.37	13.69	14.16	6.57	9.81	18.04	19.89	10.64	9.16	15.45	7.59	13.79	0.1	14.16	0.54	9.81	19.89	10.64	9.16	15.45	7.59	0.51
4.26	13.88	11.38	28.03	12.03	7.03	6.20	10.45	4.81	16.01	18.13	5.64	13.05	23.50	20.35	9.44	10.18	18.69	11.19	14.71	0	18.13	0.54	13.05	20.35	9.44	10.18	18.69	11.19	0.51
4.26	10.82	10.08	27.66	12.03	8.60	5.64	12.86	4.35	16.56	22.95	5.18	16.19	29.61	23.78	10.45	13.42	23.32	15.08	14.53	0	22.95	0.51	16.19	23.78	10.45	13.42	23.32	15.08	0.51
4.07	9.16	10.82	31.64	11.47	9.34	5.64	14.62	5.64	17.02	25.26	4.63	17.58	31.83	25.63	13.32	15.45	26.55	17.95	12.31	0	25.26	0.50	17.58	25.63	13.32	15.45	26.55	17.95	0.51
4.44	8.97	12.68	33.58	11.19	9.81	6.20	14.06	7.68	17.12	27.85	4.63	17.49	33.12	23.59	16.01	12.12	24.06	17.58	11.29	0	0.28	0.50	17.49	23.59	16.01	12.12	24.06	17.58	0.51
4.72	8.79	13.05	37.01	11.66	9.90	6.20	12.12	10.64	18.23	31.83	5.18	27.29	34.14	22.76	17.95	9.34	21.65	17.30	10.73	0	0.50	0.49	27.29	22.76	17.95	9.34	21.65	17.30	0.51
4.63	9.53	15.45	35.16	11.66	9.44	6.29	9.44	13.42	18.50	36.82	5.74	72.81	36.18	23.13	20.72	9.34	25.35	21.19	9.53	0	0.50	0.49	72.81	23.13	20.72	9.34	25.35	21.19	0.51
4.35	9.81	18.13	33.86	8.79	7.40	6.38	8.14	12.12	14.71	39.14	6.85	67.08	37.47	22.39	22.48	11.47	27.29	25.26	8.79	0	0.51	0.49	67.08	22.39	22.48	11.47	27.29	25.26	0.51
4.26	12.49	17.39	35.44	7.12	6.85	6.75	8.14	7.22	13.42	38.03	8.23	44.69	35.90	21.09	21.83	11.57	29.33	23.96	9.25	0	0.38	0.49	44.69	21.09	21.83	11.57	29.33	23.96	0.51
5.27	14.43	17.02	32.10	7.68	7.40	7.59	8.88	5.74	13.05	34.70	9.25	35.25	31.92	21.74	21.65	9.44	31.09	18.97	11.29	0	0.41	0.50	35.25	21.74	21.65	9.44	31.09	18.97	0.51
6.75	14.80	16.10	24.24	8.42	7.31	8.70	9.53	7.03	12.86	32.29	10.55	32.38	29.42	22.58	19.43	9.16	30.35	18.32	13.42	0.2	0.50	0.51	32.38	22.58	19.43	9.16	30.35	18.32	0.51
5.83	14.34	15.82	19.89	8.42	6.57	8.51	10.08	12.12	13.14	30.90	11.47	24.61	28.31	22.85	17.21	14.34	29.98	21.37	15.17	0.3	0.49	0.52	24.61	22.85	17.21	14.34	29.98	21.37	0.51
5.27	14.16	15.54	16.75	7.68	6.01	7.86	9.99	17.12	13.32	30.16	10.27	19.43	28.87	22.02	13.79	20.63	26.18	25.44	16.19	0.3	0.50	0.52	19.43	22.02	13.79	20.63	26.18	25.44	0.53
5.74	15.36	14.06	14.62	7.03	5.46	7.40	8.97	21.00	13.51	29.42	8.60	16.56	27.94	23.50	12.77	23.32	35.90	29.79	15.91	0.2	0.51	0.50	16.56	23.50	12.77	23.32	35.90	29.79	0.54
7.22	16.84	12.77	15.08	6.94	5.46	7.12	7.77	21.37	13.69	35.34	8.51	15.27	26.83	23.78	12.49	22.48	43.39	30.81	15.36	0	0.52	0.49	15.27	23.78	12.49	22.48	43.39	30.81	0.54
9.16	17.02	11.84	17.49	6.48	6.01	10.45	7.12	15.91	12.86	40.99	9.90	17.58	26.00	23.41	14.80	20.17	31.55	30.53	14.71	0	0.54	0.49	17.58	23.41	14.80	20.17	31.55	30.53	0.54
9.34	17.02	9.90	20.35	6.01	7.31	12.95	6.57	11.10	11.57	47.65	11.57	23.41	26.83	22.39	14.80	19.24	25.91	29.61	13.69	0.2	0.55	0.51	23.41	22.39	14.80	19.24	25.91	29.61	0.52
7.40	18.60	8.79	23.22	5.92	9.53	9.34	5.74	8.97	10.55	49.31	13.23	28.31	29.33	21.93	13.69	22.48	19.06	30.16	12.77	3.7	0.54	0.53	28.31	21.93	13.69	22.48	19.06	30.16	0.51
8.33	18.78	9.62	27.02	5.74	10.73	7.40	5.46	9.71	10.18	46.54	14.16	27.20	30.53	21.19	12.12	26.00	16.01	25.26	12.77	0.3	0.50	0.50	27.20	21.19	12.12	26.00	16.01	0.54	0.52
9.81	19.15	10.64	30.53	5.18	11.38	6.38	5.18	11.84	9.07	41.26	12.77	21.19	29.33	20.91	9.99	23.50	16.19	21.56	13.51	0.2	0.56	0.50	21.19	20.91	9.99	23.50	16.19	0.54	0.54
10.73	16.19	11.47	31.09	5.00	10.73	6.20	5.00	12.68	7.77	40.71	12.31	17.12	26.92	19.80	8.60	18.78	15.54	21.09	14.43	0.2	0.55	0.56	17.12	19.80	8.60	18.78	15.54	0.54	0.55
13.05	12.58	11.29	31.64	9.62	10.27	8.05	4.63	17.21	6.94	43.48	11.19	15.08	40.52	18.60	8.14	16.38	13.88	22.95	14.53	0.1	0.49	0.54	15.08	18.60	8.14	16.38	13.88	0.53	0.55
15.36	10.55	10.82	33.03	10.82	9.25	7.86	4.35	21.46	6.29	52.09	8.97	14.06	152.66	17.49	9.34	16.19	13.60	25.07	14.25	0.1	0.50	0.52	14.06	17.49	9.34	16.19	13.60	0.53	0.57
17.67	10.64	10.36	33.58	6.11	7.49	6.48	4.07	17.58	5.74	54.03	6.85	14.90	39.32	16.19	8.23	18.60	14.16	23.32	14.43	0	0.47	0.51	14.90	16.19	8.23	18.60	14.16	0.53	0.64
20.82	10.73	10.27	37.66	4.81	6.66	6.01	3.79	11.75	5.18	57.73	6.38	20.54	37.75	15.45	8.88	18.78	16.19	19.89	13.97	0.2	0.51	0.48	20.54	15.45	8.88	18.78	16.19	0.53	2.10
26.18	12.12	9.90	38.21	4.07	6.57	5.37	3.52	10.45	4.81	56.44	5.64	31.92	29.33	15.36	12.58	17.95	19.15	17.67	12.86	0.3	0.45	0.46	31.92	15.36	12.58	17.95	19.15	0.53	0.78
33.12	12.49	9.07	34.60	3.70	6.38	4.90	3.24	11.84	4.53	49.87	5.18	40.06	24.24	13.69	16.01	18.69	21.56	17.02	11.94	0.1	0.40	0.46	40.06	13.69	16.01	18.69	21.56	0.53	0.57
39.04	12.21	7.96	30.62	3.79	5.92	4.53	3.15	12.77	3.98	44.78	5.27	41.26	21.46	11.94	15.17	17.86	22.67	16.56	11.01	0.2	0.52	0.46	41.26	11.94	15.17	17.86	22.67	0.53	0.56
48.02	11.66	7.96	25.35	3.61	5.46	4.16	3.05	16.47	3.61	44.04	5.46	36.82	18.87	10.64	15.54	18.23	23.22	15.45	11.01	0.3	0.54	0.47	36.82	10.64	15.54	18.23	23.22	0.53	0.56
53.38	11.01	7.86	22.39	3.79	4.81	3.89	3.42	21.56	3.24	46.91	5.64	33.68	17.30	9.81	18.23	17.86	21.83	13.88	12.31	0.3	0.54	0.49	33.68	9.81	18.23	17.86	21.83	0.53	0.56
57.27	10.36	7.49	24.70	3.61	4.44	3.61	5.00	25.07	3.05	46.72	5.92	31.55	14.34	8.88	23.69	18.87	19.52	12.21	13.32	14	0.46	0.49	31.55	8.88	23.69	18.87	19.52	0.52	0.56
63.01	9.16	6.85	29.05	3.33	4.07	3.33	4.44	24.33	2.78	49.59	5.64	24.70	13.69	8.23	25.91	18.97	17.49	10.73	13.14	21	999999	0.51	24.70	8.23	25.91	18.97	17.49	0.52	0.73
67.08	8.79	6.01	31.09	3.05	3.70	3.15	3.70	20.72	2.68	39.97	5.64	31.09	14.06	7.77	21.09	18.69	15.73	9.07	12.21	21	999999	0.53	31.09	7.77	21.09	18.69	15.73	0.52	2.30
71.52	8.51	5.37	31.73	2.87	3.24	2.96	4.72	17.39	2.50	34.60	5.27	38.86	14.43	7.86	17.21	16.65	16.28	7.59	11.19	22	999999	0.52	38.86	7.86	17.21	16.65	16.28	0.52	3.30
75.59	7.31	4.81	33.58	2.78	3.05	2.78	8.42	16.84	2.31	30.53	4.72	42.47	13.42	8.33	19.24	15.27	14.62	6.48	10.64	22	999999	0.53	42.47	8.33	19.24	15.27	14.62	0.52	4.20
77.44	6.66	4.53	31.55	2.59	6.11	2.68	6.38	16.28	2.22	30.90	4.26	49.50	13.14	8.05	20.72	12.86	12.68	5.74	10.55	22	999999	0.52	49.50	8.05	20.72	12.86	12.68	0.52	8.60
74.11	6.01	3.89	29.51	2.31	4.35	2.59	5.46	14.80	2.04	33.68	4.26	52.92	12.40	7.86	23.96	11.01	11.19	5.09	10.36	19	999999	0.48	52.92	7.86	23.96	11.01	11.19	0.52	14.00
69.58	5.27	3.61	26.65	2.22	3.98	2.41	4.53	13.23	1.85	53.01	11.84	58.75	12.21	7.40	31.92	10.45	10.08	4.72	9.81	19	999999	0.45	58.75	7.40	31.92	10.45	10.08	0.52	15.00
53.66	4.63	3.33	28.03	2.04	3.70	2.22	3.89	15.08	1.67	36.27	5.83	56.81	13.05	6.38	37.10	9.99	9.34	4.16	9.62	18	999999	0.42	56.81	6.38	37.10	9.99	9.34	0.52	13.00
47.28	3.89	3.52	25.72	1.85	3.05	2.22	3.24	16.65	1.57	29.61	4.44	54.86	13.42	5.55	40.25	9.53	8.51	3.70	8.23	9.2	999999	0.4	54.86	5.55	40.25	9.53	8.51	0.51	10.00
48.67	3.52	3.52	23.96	1.76	2.78	2.31	2.96	17.86	1.39	25.91	3.70	60.14	13.42	5.18	41.82	9.16	7.96	3.15	7.31	0.4	999999	0.33	60.14	5.18	41.82	9.16	7.96	0.51	8.90
51.07	4.44	3.15	20.26	1.57	2.59	2.04	2.59	17.02	1.30	24.70	3.15	69.76	12.40	5.46	30.90	9.16	7.68	2.87	6.94	0.3	999999	0.38	69.76	5.46	30.90	9.16	7.68	0.51	9.80
60.69	4.90	3.15	17.30	1.39	2.50	1.94	2.59	14.80	1.20	26.18	2.78	62.17	11.01	5.74	36.08	11.57	7.12	2.68	6.66	0.1	999999	0.49	62.17	5.74	36.08	11.57	7.12	0.51	12.00
68.47	3.70	2.96	15.45	2.13	2.50	1.85	2.41	13.14	1.20	17.76	2.59	45.80	10.27	4.81	45.98	11.10	6.38	2.41	6.20	0.2	999999	0.49	45.80	4.81	45.98	11.10	6.38	0.51	12.00
66.61	3.33	2.78	14.25	2.50	2.50	1.85	2.22	12.31	1.20	17.95	2.41	32.84	9.16	4.07	49.59	9.16	5.83	2.13	5.64	0.3	999999	0.47	32.84	4.07	49.59	9.16	5.83	0.51	11.00
63.65	2.96	2.59	12.95	2.22	2.22	1.85	2.13	11.66	1.11	20.72	2.13	26.37	8.23	3.89	45.34	7.96	7.59	1.94	5.00	1.9	999999	0.49	26.37	3.89	45.34	7.96	7.59	0.51	8.00
70.13	2.78	2.31	12.86	1.76	2.04	1.67	2.04	11.29	1.02	23.04	1.94	30.81	7.03	3.42	45.98	7.40	7.59	1.85	4.26	0.4	999999	0.5	30.81	3.42	45.98	7.40	7.59	0.51	4.90
74.76	2.59	2.13	12.77	1.39	1.94	1.57	1.94	10.92	0.93	27.29	1.76	44.41	5.83	3.05	41.54	6.85	6.38	1.67	3.42	0.4	999999	0.49	44.41	3.05	41.54	6.85	6.38	0.51	3.80
74.85	2.50	1.85	12.21	1.30	1.85	1.39	1.76	10.08	0.88	28.22	1.57	57.09	5.09	2.78	60.05	6.66	5.18	1.57	3.05	0.4	999999	0.48	57.09	2.78	60.05	6.66	5.18	0.51	3.10
62.54	2.31	1.67	11.66	1.11	1.76	1.30	1.57	8.70	0.90	27.11	1.39	62.45	4.63	2.59	44.13	6.29	4.63	1.48	2.68	0.4	999999	0.45	62.45	2.59	44.13	6.29	4.63	0.51	3.30
62.08	2.22	1.57	11.38	1.02	1.67	1.20	1.57	7.40	0.90	27.66	1.30	62.45	4.44	2.59	51.16	5.92	4.44	1.39	2.50	0.4	999999	0.46	62.45	2.59	51.16	5.92	4.44	0.51	3.60
67.26	2.22	1.48	11.01	1.02	1.48	1.11	1.48	6.11	0.93	27.48	1.20	52.55	4.16	3.15	60.42	5.55	4.07	1.30	2.31	0.4	999999	0.45	52.55	3.15	60.42	5.55	4.07	0.51	3.00
69.58	2.22	1.30	9.99	0.93	1.39	1.02	1.48	5.27	0.93	26.83	1.20	42.00	3.70	2.96	71.80	5.18	3.70	1.20	2.13	0.4	999999	0.32	42.00	2.96	71.80	5.18	3.70	0.51	2.80
75.50	2.13	1.20	9.34	0.87	1.30	1.02	1.39	4.72	0.93	23.69	1.11	30.35	3.33	2.31	65.32	4.72	3.42	1.11	1.94	0.4	999999	1.11	30.35	2.31	65.32	4.72	3.42	0.51	1.70
78.36	1.85	1.11	8.70	0.84	1.30	0.92	1.30	4.16	0.87	21.37	1.02	25.26	3.05	2.13	57.55	4.26	2.96	1.02	1.76	0.4	999999	1.02	25.26	2.13	57.55	4.26	2.96	0.51	2.00
73.74	1.67	1.02	8.14	0.79	1.20	0.82	1.20	3.70	0.74	21.19	0.93	28.77	2.78	1.85	59.49	3.79	2.59	0.91	1.67	0.4	999999	0.93	28.77	1.85	59.49	3.79	2.59	0.46	1.50
63.38	1.57	0.93	7.22	0.76	1.20	0.77	1.11	3.33	0.74	21.19	0.89	35.90	2.50	1.67	60.05	3.42	2.31	0.85	1.57	0.3	999999	0.89	35.90	1.67	60.05	3.42	2.31	0.38	0.75
59.40	1.48	0.90	6.29	0.70	1.76	0.72	1.02	2.96	0.70	18.87	0.83	37.66	2.41	1.57	60.69	3.05	2.13	0.79	1.48	0.3	999999	0.83	37.66	1.57	60.69	3.05	2.13	0.38	0.54
58.38	1.39	0.83	5.92	0.70	1.48	0.70	0.92	2.78	0.68	16.01	0.80	39.32	2.22	1.39	60.32	2.78	1.94	0.70	1.39	0.3	999999	0.80	39.32	1.39	60.32	2.78	1.94	0.38	0.51
59.77	1.39	0.77	5.55	0.68	1.11	0.68	0.82	2.50	0.63	14.53	0.75	44.41	2.13	1.30	54.03	2.59	1.85	0.64	1.30	0.3	999999	0.75	44.41	1.30	54.03	2.59	1.85	0.38	0.51
59.86	1.30	0.73	5.18	0.63	1.02	0.64	0.77	2.41	0.64	14.34	0.71	49.87	1.94	1.20	49.22	2.31	1.67	0.57	1.20	0.3	999999	0.11	49.87	1.20	49.22	2.31	1.67	0.38	0.51
55.51	1.20	0.71	4.72	0.59	0.93	0.61	0.75	2.31	0.77	14.80	0.68	54.49	1.85	1.11	49.78	2.22	1.48	0.55	1.02	0.3	999999	0.44	54.49	1.11	49.78	2.22	1.48	0.38	0.51
52.74	1.11	0.71	4.16	0.55	1.02	0.59	0.70	2.22	0.71	14.16	0.64	52.92	2.31	1.02	47.37	2.04	1.39	0.52	1.02	0.3	999999	0.44	52.92	1.02	47.37	2.04	1.39	0.37	0.51
49.96	1.02	0.68	3.79	0.51	1.11	0.59	0.68	2.13	0.67	13.51	0.61	52.00	3.24	0.90	43.95	1.85	1.39	0.51	0.92	0.3	999999	0.44	52.00	0.90	43.95	1.85	1.39	0.36	0.51
46.45	1.02	0.63	3.42	0.47	0.90	0.57	0.66	2.41	0.59	12.31	0.57	52.00	2.96	0.84	42.65	1.67	1.48	0.49	0.89	0.3	999999	0.42	52.00	0.84	42.65	1.67	1.48	0.36	0.51
45.06	0.93	0.59	2.96	0.42	0.79	0.56	0.61	2.59	0.56	11.10	0.55	49.50	2.41	0.78	43.67	1.48	1.30	0.46	0.83	0.3	999999	0.42	49.50	0.78	43.67	1.48	1.30	0.36	0.51
40.99	0.88	0.56	2.68	0.37	0.79	0.53	0.59	4.81	0.57	9.53	0.51	45.15	1.85	0.75	43.58	1.39	1.11	0.45	0.76	0.3	999999	0.42	45.15	0.75	43.58	1.39	1.11	0.36	0.51
38.21	0.84	0.53	2.41	0.34	0.73	0.52	0.56	2.96	0.66	8.60	0.43	39.60	1.57	0.72	39.88	1.30	1.11	0.41	0.69	0.3	999999	0.42	39.60	0.72	39.88	1.30	1.11	999999	0.51
36.08	0.79	0.47	2.22	0.31	0.68	0.52	0.50	2.31	0.62	8.51	0.36	36.73	1.39	0.72	37.56	1.20	1.02	0.35	0.61	0.3	999999	0.42	36.73	0.72	37.56	1.20	1.02	999999	0.51
36.08	0.74	0.43	2.04	0.30	0.63	0.44	0.45	2.04	0.57	7.96	0.32	35.34	1.20	0.62	37.47	1.11	0.87	0.31	0.56	0.3	999999	0.42	35.34	0.62	37.47	1.11	0.87	999999	0.53
34.79	0.71	0.39	1.94	0.28	0.61	0.37	0.40	1.76	0.51	6.85	0.30	33.03	1.11	0.55	33.12	1.02	0.84	0.27	0.54	0.3	999999	0.4	33.03	0.55	33.12	1.02	0.84	999999	0.55
36.73	0.68	0.35	1.76	0.27	0.59	0.33	0.35	1.57	0.41	6.29	0.27	31.83	1.02	0.52	30.44	1.02	0.80	0.25	0.50	0.3	999999	0.4	31.83	0.52	30.44	1.02	0.80	0.36	0.55
35.90	0.63	0.31	1.57	0.25	0.56	0.30	0.32	1.48	0.33	6.01	0.25	33.77	0.93	0.48	28.68	0.93	0.77	0.26	0.45	0.3	999999	0.4	33.77	0.48	28.68	0.93	0.77	0.36	0.54
31.83	0.59	0.30	1.48	0.23	0.53	0.25	0.31	1.30	0.29	5.55	0.23	31.55	0.89	0.46	26.46	0.84	0.77	0.31	0.42	0.3	999999	0.4	31.55	0.46	26.46	0.84	0.77	0.36	0.53
26.09	0.56	0.28	1.39	0.22	0.44	0.22	0.29	1.20	0.26	5.09	0.21	27.39	0.80	0.45	25.07	0.78	0.70	0.87	0.40	0.3	999999	0.4	27.39	0.45	25.07	0.78	0.70	0.36	0.52
21.83	0.53	0.25	1.30	0.20	0.40	0.20	0.25	1.11	0.23	4.44	0.19	27.20	0.74	0.44	25.35	0.73	0.59	0.73	0.36	0.3	999999	0.4	27.20	0.44	25.35	0.73	0.59	0.36	0.52
18.78	0.47	0.23	1.20	0.19	0.36	0.19	0.22	1.11	0.22	3.89	0.17	26.46	0.68	0.44	23.50	0.68	0.56	0.78	0.31	0.3	999999	0.17	26.46	0.44	23.50	0.68	0.56	0.36	0.5
17.12	0.43	0.24	1.11	0.18	0.33	0.18	0.20	1.02	0.21	3.42	0.15	21.37	0.60	0.43	19.98	0.65	0.54	0.50	0.28	0.3	999999	0.15	21.37	0.43	19.98	0.65	0.54	0.36	0.49
17.39	0.40	0.23	1.11	0.18	0.30	0.18	0.19	0.93	0.41	3.15	0.14	18.23	0.65	0.43	17.39	0.69	0.52	0.43	0.27	0.3	999999	0.14	18.23	0.43	17.39	0.69	0.52	0.37	0.49
17.21	0.36	0.21	1.02	0.17	0.28	0.17	0.29	0.86	2.13	2.78	0.13	16.28	0.93	0.43	16.38	0.78	0.49	0.33	0.29	0.3	999999	0.13	16.28	0.43	16.38	0.78	0.49	0.38	0.47
16.47	0.36	0.20	0.93	0.15	0.26	0.16	0.28	0.80	1.20	2.50	0.13	14.62	0.77	0.42	15.17	0.83	0.45	0.28	0.24	0.3	999999	0.13	14.62	0.42	15.17	0.83	0.45	0.38	0.45
15.08	0.40	0.19	0.87	0.14	0.24	0.15	0.19	0.78	1.30	2.31	0.12	13.97	0.70	0.39	13.51	1.11	0.41	0.24	0.22	0.3	999999	0.12	13.97	0.39	13.51	1.11	0.41	0.38	0.44
13.88	0.56	0.17	0.78	0.14	0.23	0.14	0.17	0.74	1.30	2.13	0.11	13.88	0.56	0.35	12.40	0.79	0.39	0.22	0.19	0.3	0.25	0.11	13.88	0.35	12.40	0.79	0.39	0.37	0.44
12.12	0.82	0.18	0.71	0.13	0.22	0.13	0.15	0.69	0.87	2.04	0.10	13.69	0.52	0.31	11.75	0.65	0.36	0.20	0.18	0.3	0.46	0.10	13.69	0.31	11.75	0.65	0.36	0.37	999999
10.82	0.89	0.19	0.69	0.12	0.20	0.12	0.14	0.67	0.71	1.85	0.09	14.06	0.48	0.31	10.92	0.56	0.34	0.19	0.17	0.1	0.46	0.09	14.06	0.31	10.92	0.56	0.34	0.37	999999
9.81	1.02	0.17	0.67	0.12	0.17	0.12	0.13	0.64	0.63	1.76	0.09	12.21	0.47	0.31	9.81	0.52	0.30	0.19	0.16	0	0.46	0.31	12.21	0.31	9.81	0.52	0.30	0.37	999999
8.88	0.68	0.15	0.64	0.13	0.15	0.11	0.12	0.65	0.56	1.67	0.09	11.19	0.46	0.27	8.79	0.49	0.27	0.18	0.15	0	0.46	0.09	11.19	0.27	8.79	0.49	0.27	0.18	999999
8.05	0.88	0.23	0.61	0.12	0.15	0.09	0.11	0.72	0.52	1.57	0.09	10.36	0.44	0.24	8.05	0.47	0.25	0.17	0.14	0	0.46	0.09	10.36	0.24	8.05	0.47	0.25	0.17	999999
7.49	0.65	0.24	0.60	0.12	0.12	0.08	0.10	0.68	0.43	1.39	0.09	9.99	0.43	0.25	7.49	0.45	0.23	0.15	0.12	0	0.46	0.09	9.99	0.25	7.49	0.45	0.23	0.15	999999
7.31	0.62	0.19	0.64	0.12	0.12	0.08	0.09	0.62	0.36	1.39	0.09	9.25	0.38	0.43	8.51	0.43	0.20	0.14	0.10	0	0.46	0.09	9.25	0.43	8.51	0.43	0.20	0.14	999999
6.85	0.82	0.17	0.73	0.12	0.25	0.08	0.09	0.58	0.33	1.30	0.08	8.23	0.34	0.41	7.68	0.37	0.19	0.13	0.09	0	0.46	0.08	8.23	0.41	7.68	0.37	0.19	0.13	999999
6.38	0.65	0.14	0.67	0.11	0.61	0.07	0.08	0.54	0.30	1.20	0.07	7.31	0.32	0.39	6.20	0.34	0.18	0.12	0.08	0.2	0.46	0.07	7.31	0.39	6.20	0.34	0.18	0.12	999999
5.92	0.53	0.14	0.64	0.10	0.27	0.07	0.07	0.48	0.27	1.20	0.06	6.75	0.30	0.37	5.09	0.32	0.17	0.11	0.08	0.3	0.46	0.06	6.75	0.37	5.09	0.32	0.17	0.11	999999
5.46	0.40	0.16	0.59	0.09	0.18	0.06	0.07	0.40	0.23	1.20	0.05	6.11	0.27	0.27	4.26	0.29	0.15	0.10	0.07	0.3	0.46	0.05	6.11	0.27	4.26	0.29	0.15	0.10	999999
5.18	0.33	0.12	0.58	0.08	0.15	0.06	0.07	0.33	0.21	1.11	0.05	5.83	0.26	0.22	3.79	0.26	0.15	0.09	0.07	0.3	0.46	0.05	5.83	0.22	3.79	0.26	0.15	0.09	999999
4.81	0.31	0.11	0.53	0.07	0.12	0.05	0.06	0.30	0.19	0.93	0.04	5.64	0.31	0.20	3.33	0.24	0.13	0.08	0.06	0.3	0.47	0.04	5.64	0.20	3.33	0.24	0.13	0.08	999999
4.53	0.28	0.10	0.52	0.06	0.11	0.05	0.06	0.26	0.18	0.88	0.04	5.18	0.27	0.20	2.96	0.22	0.12	0.07	0.06	0.3	0.49	0.04	5.18	0.20	2.96	0.22	0.12	0.07	999999
4.26	0.26	0.09	0.47	0.06	0.10	0.05	0.05	0.23	0.16	0.83	0.04	4.81	0.22	0.19	2.68	0.20	0.11	0.07	0.05	0.2	0.48	0.04	4.81	0.19	2.68	0.20	0.11	0.07	999999
3.79	0.40	0.08	0.42	0.05	0.09	0.04	0.05	0.22	0.15	0.78	0.03	4.16	0.20	0.17	2.41	0.19	0.11	0.07	0.04	0.2	0.46	0.03	4.16	0.17	2.41	0.19	0.11	0.07	999999
3.42	0.43	0.08	0.37	0.05	0.08	0.04	0.05	0.22	0.15	0.73	0.03	3.79	0.19	0.15	2.13	0.19	0.10	0.07	0.04	0.2	0.46	0.03	3.79	0.15	2.13	0.19	0.10	0.07	0.04
3.15	0.32	0.08	0.33	0.05	0.08	0.04	0.04	0.20	0.12	0.68	0.03	3.52	0.18	0.14	1.94	0.19	0.09	0.06	0.04	0.3	0.46	0.03	3.52	0.14	1.94	0.19	0.09	0.06	0.04
2.96	0.27	0.07	0.31	0.05	0.07	0.04	0.04	0.19	0.11	0.68	0.03	3.15	0.16	0.13	1.76	0.18	0.09	0.05	0.04	0.3	0.46	0.03	3.15	0.13	1.76	0.18	0.09	0.05	0.04
2.68	0.23	0.06	0.29	0.04	0.07	0.04	0.04	0.17	0.10	0.67	0.02	2.96	0.16	0.12	1.57	0.16	0.09	0.05	0.04	0.3	0.46	0.02	2.96	0.12	1.57	0.16	0.09	0.05	0.04
2.50	0.20	0.06	0.26	0.04	0.06	0.04	0.04	0.17	0.09	0.64	0.02	2.68	0.16	0.11	1.48	0.15	0.08	0.05	0.04	0.3	0.46	0.02	2.68	0.11	1.48	0.15	0.08	0.05	0.04
2.31	0.19	0.05	0.25	0.04	0.06	0.03	0.04	0.16	0.09	0.60	0.02	2.41	0.15	0.10	1.30	0.15	0.07	0.04	0.03	0.3	0.46	0.02	2.41	0.10	1.30	0.15	0.07	0.04	0.03
2.31	0.19	0.05	0.23	0.03	0.07	0.03	0.06	0.16	0.09	0.58	0.02	2.13	0.14	0.09	1.20	0.17	0.07	0.04	0.03	0.3	0.46	0.02	2.13	0.09	1.20	0.17	0.07	0.04	0.03
2.31	0.18	0.04	0.22	0.03	0.06	0.11	0.06	0.15	0.08	0.56	0.02	1.94	0.13	0.08	1.11	0.17	0.07	0.04	0.03	0.3	0.46	0.02	1.94	0.08	1.11	0.17	0.07	0.04	0.03
2.50	0.16	0.04	0.20	0.03	0.05	0.16	0.04	0.13	0.08	0.55	0.02	1.76	0.12	0.07	1.02	0.15	0.06	0.03	0.03	0.3	0.46	0.02	1.76	0.07	1.02	0.15	0.06	0.03	0.03
2.50	0.15	0.04	0.19	0.02	0.04	0.10	0.04	0.12	0.07	0.53	0.02	1.57	0.11	0.07	0.91	0.14	0.06	0.03	0.03	0.3	0.45	0.02	1.57	0.07	0.91	0.14	0.06	0.03	0.03
2.13	0.15	0.04	0.19	0.02	0.04	0.07	0.03	0.11	0.06	0.47	0.02	1.48	0.10	0.07	0.87	0.16	0.05	0.03	0.02	0.3	0.44	0.02	1.48	0.07	0.87	0.16	0.05	0.03	0.02
1.85	0.14	0.04	0.17	0.02	0.04	0.06	0.03	0.11	0.06	0.42	0.02	1.39	0.11	0.07	0.84	0.16	0.05	0.03	0.02	0.3	0.44	0.02	1.39	0.07	0.84	0.16	0.05	0.03	0.02
1.67	0.13	0.04	0.16	0.02	0.04	0.05	0.02	0.14	0.06	0.43	0.02	1.30	0.10	0.06	0.80	0.13	0.05	0.03	0.02	0.3	0.44	0.02	1.30	0.06	0.80	0.13	0.05	0.03	0.02
1.85	0.12	0.03	0.15	0.02	0.04	0.04	0.02	0.13	0.06	0.38	0.01	1.20	0.09	0.06	0.76	0.12	0.04	0.02	0.02	0.3	0.44	0.01	0.20	0.06	0.76	0.12	0.04	0.02	0.02
2.04	0.13	0.03	0.14	0.02	0.04	0.03	0.02	0.13	0.06	0.37	0.01	1.11	0.08	0.06	0.66	0.11	0.04	0.02	0.02	0.3	0.44	0.01	0.49	0.06	0.66	0.11	0.04	0.02	0.02
1.76	0.17	0.03	0.14	0.02	0.03	0.03	0.02	0.14	0.05	0.38	0.01	1.11	0.08	0.05	0.59	0.10	0.04	0.02	0.02	0.3	0.44	0.01	0.51	0.05	0.59	0.10	0.04	0.02	0.02
1.85	0.16	0.03	0.13	0.02	0.03	0.03	0.02	0.13	0.05	0.35	0.01	1.02	0.08	0.05	0.55	0.09	0.04	0.02	0.02	0.3	0.44	0.01	0.50	0.05	0.55	0.09	0.04	0.02	0.02
2.50	0.13	0.03	0.12	0.02	0.03	0.02	0.02	0.11	0.04	0.30	0.01	1.02	0.07	0.05	0.53	0.09	0.04	0.02	0.02	0.3	0.44	0.01	0.49	0.05	0.53	0.09	0.04	0.02	0.02
2.31	0.11	0.03	0.12	0.02	0.02	0.02	0.02	0.10	0.04	0.26	0.01	0.90	0.07	0.04	0.55	0.08	0.03	0.02	0.02	0.3	0.44	0.01	0.49	0.04	0.55	0.08	0.03	0.02	0.02
2.13	0.10	0.03	0.12	0.02	0.02	0.02	0.03	0.09	0.03	0.26	0.01	0.82	0.07	0.04	0.56	0.07	0.03	0.02	0.02	0.3	0.43	0.01	0.49	0.04	0.56	0.07	0.03	0.02	0.02
2.13	0.09	0.03	0.13	0.02	0.02	0.02	0.03	0.09	0.03	0.25	0.01	0.82	0.07	0.04	0.52	0.07	0.03	0.02	0.02	0.3	0.42	0.01	0.45	0.04	0.52	0.07	0.03	0.02	0.02
1.76	0.14	0.02	0.11	0.02	0.02	0.02	0.03	0.08	0.03	0.23	0.01	0.79	0.07	0.04	0.50	0.07	0.03	0.02	0.02	0.3	0.44	0.01	0.49	0.04	0.50	0.07	0.03	0.02	0.02
1.57	0.13	0.02	0.10	0.01	0.02	0.02	0.02	0.07	0.03	0.20	0.01	0.75	0.06	0.04	0.47	0.06	0.03	0.02	0.02	0.3	0.44	0.01	0.46	0.04	0.47	0.06	0.03	0.02	0.02
1.39	0.11	0.02	0.10	0.01	0.02	0.03	0.02	0.06	0.03	0.19	0.01	0.71	0.06	0.04	0.46	0.06	0.03	0.02	0.02	0.3	0.44	0.01	0.49	0.04	0.46	0.06	0.03	0.02	0.02
1.30	0.09	0.02	0.09	0.01	0.02	0.03	0.02	0.06	0.03	0.19	0.01	0.65	0.06	0.04	0.45	0.05	0.03	0.02	0.02	0.3	0.44	0.01	0.49	0.04	0.45	0.05	0.03	0.02	0.02
1.20	0.09	0.02	0.08	0.01	0.03	0.02	0.02	0.06	0.03	0.18	0.01	0.58	0.05	0.04	0.43	0.05	0.03	0.02	0.02	0.3	0.45	0.01	0.49	0.04	0.43	0.05	0.03	0.02	0.02
1.11	0.08	0.02	0.08	0.01	0.08	0.02	0.02	0.06	0.02	0.17	0.01	0.54	0.05	0.04	0.42	0.06	0.03	0.02	0.02	0.3	0.46	0.01	0.46	0.04	0.42	0.06	0.03	0.02	0.02
1.02	0.07	0.02	0.08	0.01	0.05	0.02	0.02	0.06	0.02	0.16	0.01	0.52	0.05	0.04	0.38	0.06	0.03	0.02	0.01	0.3	0.46	0.01	0.46	0.04	0.38	0.06	0.03	0.02	0.01
0.93	0.07	0.02	0.08	0.01	0.04	0.02	0.02	0.05	0.02	0.15	0.01	0.50	0.05	0.04	0.35	0.05	0.03	0.01	0.01	0.3	0.46	0.01	0.46	0.04	0.35	0.05	0.03	0.01	0.01
0.93	0.07	0.01	0.07	0.01	0.04	0.02	0.02	0.05	0.02	0.14	0.01	0.47	0.05	0.04	0.31	0.05	0.03	0.02	0.01	0.3	0.46	0.01	0.46	0.04	0.31	0.05	0.03	0.02	0.01
1.30	0.07	0.02	0.08	0.02	0.03	0.02	0.02	0.04	0.03	0.14	0.01	0.44	0.05	0.04	0.31	0.05	0.03	0.02	0.01	0.3	0.45	0.01	0.46	0.04	0.31	0.05	0.03	0.02	0.01
1.02	0.07	0.02	0.07	0.02	0.04	0.02	0.02	0.04	0.03	0.13	0.01	0.43	0.04	0.04	0.30	0.05	0.07	0.02	0.01	0.3	0.44	0.01	0.46	0.04	0.30	0.05	0.07	0.02	0.01
0.93	0.07	0.02	0.07	0.01	0.03	0.02	0.01	0.03	0.03	0.12	0.01	0.43	0.04	0.04	0.27	0.05	0.09	0.02	0.01	0.3	0.44	0.01	0.46	0.04	0.27	0.05	0.09	0.02	0.01
0.86	0.06	0.02	0.06	0.02	0.03	0.02	0.01	0.03	0.03	0.12	0.01	0.43	0.04	0.07	0.28	0.06	0.07	0.02	0.01	0.3	0.42	0.01	0.46	0.07	0.28	0.06	0.07	0.02	0.01
0.81	0.06	0.03	0.06	0.01	0.03	0.01	0.01	0.03	0.03	0.11	0.01	0.40	0.04	0.07	0.41	0.05	0.06	0.02	0.01	0.3	0.42	0.01	0.46	0.07	0.41	0.05	0.06	0.02	0.01
0.79	0.05	0.04	0.06	0.01	0.02	0.01	0.01	0.03	0.03	0.11	0.01	0.35	0.04	0.06	0.46	0.05	0.06	0.02	0.02	0.3	0.41	0.01	0.46	0.06	0.46	0.05	0.06	0.02	0.02
0.73	0.05	0.04	0.06	0.01	0.02	0.01	0.01	0.06	0.02	0.11	0.01	0.31	0.04	0.05	0.56	0.05	0.05	0.02	0.02	0.2	0.40	0.01	0.44	0.05	0.56	0.05	0.05	0.02	0.02
0.70	0.05	0.05	0.05	0.01	0.02	0.01	0.01	0.06	0.02	0.11	0.01	0.29	0.04	0.04	0.58	0.04	0.04	0.02	0.02	0.2	0.11	0.01	0.44	0.04	0.58	0.04	0.04	0.02	0.02
0.68	0.05	0.05	0.06	0.01	0.01	0.01	0.01	0.05	0.02	0.10	0.01	0.27	0.04	0.04	0.46	0.04	0.04	0.02	0.02	0.2	0.10	0.01	0.44	0.04	0.46	0.04	0.04	0.02	0.02
0.68	0.05	0.05	0.06	0.01	0.01	0.01	0.01	0.05	0.02	0.09	0.01	0.26	0.03	0.04	0.52	0.04	0.04	0.02	0.02	0.2	0.09	0.01	0.44	0.04	0.52	0.04	0.04	0.02	0.02
0.65	0.05	0.05	0.06	0.01	0.01	0.01	0.01	0.05	0.02	0.08	0.01	0.25	0.03	0.03	0.50	0.03	0.03	0.02	0.02	0.2	0.08	0.01	0.44	0.03	0.50	0.03	0.03	0.02	0.02
0.61	0.05	0.13	0.06	0.01	0.01	0.01	0.01	0.05	0.02	0.07	0.01	0.23	0.03	0.04	0.44	0.03	0.03	0.02	0.02	0.2	0.07	0.01	0.44	0.04	0.44	0.03	0.03	0.02	0.02
0.58	0.05	0.14	0.06	0.01	0.01	0.01	0.01	0.05	0.02	0.07	0.01	0.21	0.03	0.04	0.37	0.03	0.03	0.02	0.02	0.2	0.07	0.01	0.44	0.04	0.37	0.03	0.03	0.02	0.02
0.56	0.06	0.09	0.06	0.01	0.01	0.01	0.01	0.04	0.02	0.07	0.01	0.20	0.03	0.03	0.31	0.03	0.03	0.02	0.02	0.2	0.07	0.01	0.44	0.03	0.31	0.03	0.03	0.02	0.02
0.54	0.06	0.06	0.07	0.02	0.01	0.01	0.01	0.04	0.02	0.07	0.01	0.19	0.05	0.03	0.29	0.03	0.03	0.02	0.01	0.3	0.07	0.01	0.44	0.03	0.29	0.03	0.03	0.02	0.01
0.51	0.05	0.05	0.07	0.01	0.01	0.01	0.01	0.03	0.02	0.07	0.01	0.18	0.05	0.03	0.31	0.03	0.02	0.02	0.01	0.2	0.07	0.01	0.44	0.03	0.31	0.03	0.02	0.02	0.01
0.47	0.05	0.05	0.07	0.01	0.01	0.01	0.01	0.03	0.02	0.07	0.01	0.17	0.05	0.03	0.27	0.03	0.02	0.02	0.01	0.2	0.07	0.01	0.44	0.03	0.27	0.03	0.02	0.02	0.01
0.44	0.05	0.05	0.09	0.01	0.01	0.44	0.01	0.02	0.02	0.08	0.01	0.16	0.05	0.03	0.24	0.03	0.02	0.01	0.01	0.2	0.08	0.01	0.44	0.03	0.24	0.03	0.02	0.01	0.01
0.42	0.07	0.08	0.19	0.01	0.01	0.33	0.01	0.02	0.05	0.09	0.01	0.16	0.05	0.05	0.22	0.03	0.02	0.01	0.01	0.3	0.09	0.01	0.44	0.05	0.22	0.03	0.02	0.01	0.01
0.39	0.06	0.13	0.13	0.01	0.01	0.32	0.01	0.02	0.03	0.09	0.01	0.15	0.05	0.07	0.21	0.03	0.02	0.01	0.01	0.3	0.09	0.01	0.45	0.07	0.21	0.03	0.02	0.01	0.01
0.39	0.06	0.08	0.12	0.01	0.01	0.23	0.01	0.02	0.03	0.08	0.01	0.14	0.04	0.06	0.20	0.03	0.02	0.01	0.01	0.3	0.08	0.01	0.44	0.06	0.20	0.03	0.02	0.01	0.01
0.36	0.06	0.07	0.12	0.01	0.02	0.14	0.01	0.02	0.02	0.07	0.01	0.14	0.04	0.05	0.20	0.03	0.02	0.01	0.01	0.3	0.07	0.01	0.44	0.05	0.20	0.03	0.02	0.01	0.01
0.56	0.06	0.06	0.11	0.01	0.02	0.10	0.01	0.02	0.02	0.07	0.01	0.14	0.04	0.05	0.21	0.04	0.02	0.01	0.01	0.3	0.07	0.01	0.44	0.05	0.21	0.04	0.02	0.01	0.01
0.59	0.05	0.05	0.11	0.01	0.02	0.08	0.07	0.02	0.02	0.07	0.01	0.13	0.04	0.04	0.20	0.15	0.02	0.01	0.01	0.3	0.07	0.01	0.46	0.04	0.20	0.15	0.02	0.01	0.01
0.57	0.06	0.05	0.26	0.01	0.02	0.06	0.09	0.02	0.02	0.07	0.02	0.13	0.04	0.04	0.19	0.09	0.03	0.01	0.01	0.3	0.07	0.02	0.46	0.04	0.19	0.09	0.03	0.01	0.01
0.52	0.06	0.04	0.50	0.01	0.02	0.06	0.04	0.02	0.02	0.07	0.02	0.14	0.04	0.04	0.19	0.06	0.03	0.01	0.01	0.3	0.07	0.02	0.46	0.04	0.19	0.06	0.03	0.01	0.01
0.46	0.05	0.04	0.37	0.01	0.02	0.05	0.03	0.02	0.02	0.06	0.01	0.14	0.04	0.05	0.33	0.05	0.02	0.01	0.01	0.3	0.06	0.01	0.46	0.05	0.33	0.05	0.02	0.01	0.01
0.59	0.05	0.04	0.39	0.01	0.01	0.05	0.03	0.02	0.02	0.06	0.01	0.13	0.04	0.05	0.62	0.04	0.02	0.01	0.01	0.3	0.06	0.01	0.43	0.05	0.62	0.04	0.02	0.01	0.01
0.56	0.05	0.04	0.36	0.01	0.01	0.04	0.03	0.02	0.02	0.06	0.08	0.14	0.04	0.04	0.48	0.04	0.02	0.01	0.01	0.2	0.06	0.08	0.42	0.04	0.48	0.04	0.02	0.01	0.01
0.78	0.05	0.04	0.31	0.01	0.01	0.17	0.03	0.02	0.02	0.06	0.18	0.15	0.03	0.04	0.46	0.04	0.02	0.01	0.01	0.2	0.06	0.18	0.42	0.04	0.46	0.04	0.02	0.01	0.01
1.85	0.05	0.04	0.25	0.01	0.01	0.16	0.03	0.02	0.02	0.05	0.09	0.14	0.03	0.04	0.43	0.03	0.02	0.01	0.01	0.2	0.05	0.09	0.42	0.04	0.43	0.03	0.02	0.01	0.01

Table CAWG 6 Appendix L-6a. Bolsillo Creek below Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Bolsillo Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
U	1983	.24	.25	.30	.35	1.17	1.64	3.80	15.52	16.29	2.65	.49	.40	.16	.16	.19	.23	.26	31.00	30.67	29.57	22.97	12.27	.00	.05	275.00	153.00	.00	.00	5.00	23.20	.60	-.40	54.00
	1984	.37	2.05	3.18	2.09	1.77	3.45	6.78	7.55	1.38	.35	.09	.03	.03	.03	.03	.03	.06	25.29	14.41	10.73	8.50	6.05	.00	.01	248.00	360.00	1.00	35.00	8.00	17.25	.67	-.38	92.00
	1985	.08	.15	.18	.28	.41	1.05	6.51	6.21	1.00	.13	.02	.03	.01	.01	.01	.02	.04	11.24	10.64	10.02	8.07	4.75	.00	.01	236.00	105.00	5.00	12.40	1.00	65.00	.24	-.17	72.00
	1986	.07	.10	.35	1.25	5.12	7.66	11.92	16.98	6.49	.60	.10	.09	.02	.02	.03	.05	.07	29.11	22.37	20.81	17.49	12.69	.00	.01	275.00	68.00	4.00	9.25	3.00	46.67	1.05	-.64	79.00
	1987	.10	.07	.05	.06	.06	.49	4.83	3.32	.67	.09	.01	.01	.01	.01	.01	.01	.01	7.31	7.22	7.08	5.78	3.00	.00	.01	224.00	116.00	10.00	11.30	1.00	48.00	.22	-.13	63.00
	1988	.03	.18	.20	.37	.67	2.03	4.49	4.00	1.02	.18	.03	.01	.01	.01	.01	.01	.01	6.91	6.65	6.02	4.66	3.58	.00	.01	275.00	134.00	2.00	30.50	2.00	36.50	.21	-.14	69.00
	1989	.01	.04	.05	.07	.17	2.12	7.10	3.68	.72	.10	.02	.05	.01	.01	.01	.01	.03	11.30	10.87	10.29	7.13	4.40	.00	.01	275.00	100.00	6.00	18.83	2.00	37.00	.36	-.20	38.00
	1990	.13	.10	.08	.12	.17	1.58	5.96	3.58	.95	.11	.02	.01	.01	.01	.01	.01	.01	8.88	8.41	7.55	6.34	3.86	.00	.01	227.00	118.00	2.00	45.00	2.00	35.50	.27	-.17	58.00
	1991	.01	.02	.02	.03	.06	1.24	2.76	9.09	4.54	.53	.07	.02	.01	.01	.01	.01	.02	15.23	14.37	12.36	9.84	5.56	.00	.01	275.00	145.00	2.00	21.00	3.00	27.33	.66	-.39	57.00
	1992	.05	.08	.07	.10	.29	.72	7.04	4.57	.56	.32	.04	.01	.01	.01	.01	.01	.04	11.24	10.90	10.25	8.34	4.19	.00	.01	275.00	121.00	4.00	15.00	1.00	53.00	.22	-.15	59.00
	1993	.09	.15	.16	.30	.32	.63	1.96	12.98	15.10	5.31	.67	.33	.05	.05	.05	.06	.06	19.00	18.67	18.14	15.37	11.45	.00	.02	283.00	145.00	2.00	5.50	1.00	98.00	.55	-.41	73.00
	1994	.05	.05	.07	.10	.14	1.02	3.92	5.01	.98	.08	.01	.02	.01	.01	.01	.01	.03	8.60	8.13	7.39	5.76	3.54	.00	.01	218.00	133.00	8.00	12.13	4.00	16.50	.28	-.21	57.00
	1995	.27	.52	.43	.71	.60	1.17	2.11	8.73	18.90	13.69	2.55	.61	.16	.16	.13	.07	.13	24.00	24.00	23.43	19.97	13.91	.00	.03	275.00	177.00	.00	.00	3.00	39.33	.76	-.51	83.00
	1996	.06	.05	.30	.46	2.63	2.87	9.98	17.73	3.29	.37	.06	.02	.02	.02	.02	.02	.03	92.74	47.08	30.99	20.32	10.92	.00	.01	246.00	137.00	3.00	34.00	5.00	24.40	1.57	-.80	75.00
	1997	.03	1.26	2.07	10.88	1.64	5.02	9.76	9.86	1.64	.23	.04	.03	.02	.02	.02	.02	.03	123.65	67.44	37.50	13.44	8.48	.00	.01	275.00	2.00	3.00	19.33	8.00	18.38	1.78	-1.01	77.00
	1998	.03	.04	.07	.10	.10	.90	3.69	10.02	29.96	9.14	.50	.21	.02	.02	.02	.03	.05	43.61	40.00	37.78	29.97	17.05	.00	.00	275.00	167.00	4.00	10.00	2.00	54.00	.81	-.58	85.00
	1999	.15	.25	.43	.48	1.28	1.40	4.27	10.50	3.25	.37	.07	.03	.02	.02	.02	.02	.03	15.79	14.58	13.64	10.64	6.20	.00	.01	252.00	133.00	2.00	21.50	3.00	24.67	.37	-.21	88.00
	2000	.02	.04	.03	.22	.69	1.51	8.90	12.97	2.52	.25	.03	.02	.01	.01	.01	.01	.03	26.36	22.45	19.82	14.24	8.47	.00	.00	260.00	129.00	5.00	24.20	2.00	44.00	.68	-.43	61.00
	2001	.04	.05	.05	.14	.31	1.66	4.55	11.47	.88	.16	.02	.01	.01	.01	.01	.01	.01	18.72	18.46	17.50	12.89	6.23	.00	.01	275.00	129.00	6.00	20.67	2.00	35.00	.48	-.29	65.00
	2002	.02	.18	.29	.29	.62	1.46	7.56	7.74	1.91	.14	.01	.01	.01	.01	.01	.01	.04	11.63	11.20	10.05	7.97	5.97	.00	.01	275.00	105.00	5.00	17.00	1.00	74.00	.30	-.19	53.00
E	1986	.18	.21	.22	.20	1.07	1.64	.82	2.92	3.08	.57	.43	.27	.10	.10	.07	.07	.07	14.00	13.67	12.57	5.53	2.45	.00	.07	275.00	153.00	.00	.00	5.00	7.80	.80	-.67	22.00
	1994	.06	.06	.08	.11	.15	1.10	2.15	.56	.50	.09	.01	.02	.01	.01	.01	.01	.03	6.84	6.23	4.45	2.64	1.29	.00	.02	219.00	108.00	5.00	17.80	4.00	4.75	.17	-.16	47.00
	1995	.23	.43	.50	1.43	1.61	4.86	6.28	11.25	11.12	5.79	.59	.31	.02	.03	.08	.06	.07	15.00	15.00	14.64	13.51	10.51	.00	.02	277.00	150.00	1.00	.00	3.00	50.00	.56	-.55	75.00
	1996	.06	.05	.33	.50	2.84	1.74	.58	4.50	1.98	.76	.04	.02	.00	.00	.00	.01	.02	12.00	10.60	9.89	5.64	2.52	6.00	.00	197.00	137.00	6.00	16.33	8.00	8.50	.35	-.39	75.00
	1997	.03	1.36	2.22	4.20	.68	1.04	3.59	12.45	5.88	.41	.32	.16	.02	.02	.02	.03	.19	27.00	20.33	15.86	12.92	7.61	.00	.01	275.00	2.00	1.00	.00	8.00	12.63	1.04	-.57	64.00
	1999	.16	.27	.46	.51	1.38	1.51	4.33	6.11	3.38	.40	.07	.03	.02	.02	.02	.02	.03	8.90	8.37	7.37	6.44	4.75	.00	.01	252.00	112.00	2.00	20.50	4.00	20.50	.19	-.08	72.00
	2000	.02	.05	.03	.24	.74	1.63	9.59	13.96	2.72	.27	.03	.02	.01	.01	.01	.02	.03	28.39	24.17	21.35	15.33	9.12	.00	.00	261.00	129.00	5.00	24.20	1.00	91.00	.72	-.45	63.00

Table CAWG 6 Appendix L-6b. Bolsillo Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Bolsillo Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) — Existing period: 1986-2000 (7 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.01	.03	.05	.12	.27	1.67	.02	.03	.06	.18	.23	2.47
November	.04	.05	.10	.23	1.19	1.82	.05	.05	.21	.43	1.36	1.78
December	.03	.05	.17	.34	1.90	1.67	.03	.08	.33	.50	2.22	1.29
January	.06	.10	.28	.47	2.01	1.31	.11	.20	.50	1.43	4.20	2.45
February	.06	.17	.51	1.25	2.55	2.13	.15	.68	1.07	1.61	2.84	.87
March	.64	1.03	1.49	2.10	4.86	.72	1.04	1.10	1.63	1.74	4.86	.39
April	2.18	3.83	5.40	7.45	9.96	.67	.58	.82	3.59	6.28	9.59	1.52
May	3.59	4.68	8.91	12.59	16.84	.89	.56	2.92	6.11	12.45	13.96	1.56
June	.68	.96	1.78	6.00	18.64	2.84	.50	1.98	3.08	5.88	11.12	1.27
July	.09	.13	.29	.58	8.75	1.56	.09	.27	.41	.76	5.79	1.19
August	.01	.02	.04	.10	.66	2.08	.01	.03	.07	.43	.59	5.59
September	.01	.01	.02	.08	.39	2.62	.02	.02	.03	.27	.31	8.54
Parameter Group #2												
1-day minimum	.01	.01	.01	.02	.15	1.00	.00	.01	.02	.02	.10	.50
3-day minimum	.01	.01	.01	.02	.15	1.00	.00	.01	.02	.03	.10	.83
7-day minimum	.01	.01	.01	.03	.12	1.75	.00	.01	.02	.07	.08	3.00
30-day minimum	.01	.01	.02	.03	.07	1.45	.01	.01	.02	.06	.07	2.55
90-day minimum	.01	.02	.03	.06	.12	1.19	.02	.03	.03	.07	.19	1.43
1-day maximum	7.44	11.24	17.25	28.42	87.83	1.00	6.84	8.90	14.00	27.00	28.39	1.29
3-day maximum	7.31	10.70	14.49	23.61	46.37	.89	6.23	8.37	13.67	20.33	24.17	.88
7-day maximum	7.11	10.03	13.00	22.77	36.85	.98	4.45	7.37	12.57	15.86	21.35	.67
30-day maximum	5.76	7.34	10.24	16.96	22.70	.94	2.64	5.53	6.44	13.51	15.33	1.24
90-day maximum	3.54	4.24	6.12	11.32	13.79	1.16	1.29	2.45	4.75	9.12	10.51	1.40
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	6.00	.00
Base flow	.00	.01	.01	.01	.03	.66	.00	.00	.01	.02	.07	1.54
Parameter Group #3												
Date of minimum	224.30	246.50	275.00	275.00	275.00	.08	197.00	219.00	261.00	275.00	277.00	.15
Date of maximum	71.20	107.75	131.00	145.00	176.00	.10	2.00	108.00	129.00	150.00	153.00	.11
Parameter Group #4												
Low pulse count	.10	2.00	3.50	5.00	7.80	.86	.00	1.00	2.00	5.00	6.00	2.00
Low pulse duration	.55	10.32	17.92	23.53	34.90	.74	.00	.00	16.33	20.50	24.20	1.26
High pulse count	1.00	1.25	2.00	3.75	7.70	1.25	1.00	3.00	4.00	8.00	8.00	1.25
High pulse duration	17.36	24.47	36.75	51.75	73.10	.74	4.75	7.80	12.63	50.00	91.00	3.34
Parameter Group #5												
Rise rate	.22	.27	.51	.74	1.51	.91	.17	.19	.56	.80	1.04	1.10
Fall rate	-.79	-.49	-.33	-.18	-.14	-.95	-.67	-.57	-.45	-.16	-.08	-.93
Number of reversals	53.10	57.25	67.00	78.50	87.70	.32	22.00	47.00	64.00	75.00	75.00	.44

Table CAWG 6 Appendix L-6c. Bolsillo Creek below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Bolsillo Ck below Diversion Data

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1986-2000 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	.1	1.67	.0	.4	.1	2.47	.0	.2	.03	.09	-.05
November	.1	1.82	.0	2.1	.2	1.78	.0	1.4	.05	.18	-.64
December	.2	1.67	.0	3.2	.3	1.29	.0	2.2	.07	.30	-.29
January	.3	1.31	.0	10.9	.5	2.45	.1	4.2	.12	.38	-.29
February	.5	2.13	.1	5.1	1.1	.87	.2	2.8	.28	.72	-.64
March	1.5	.72	.5	7.7	1.6	.39	1.0	4.9	1.16	1.69	.07
April	5.4	.67	2.0	11.9	3.6	1.52	.6	9.6	4.25	7.04	-.29
May	8.9	.89	3.3	17.7	6.1	1.56	.6	14.0	6.13	10.57	-1.00
June	1.8	2.84	.6	30.0	3.1	1.27	.5	11.1	.99	3.38	.07
July	.3	1.56	.1	13.7	.4	1.19	.1	5.8	.16	.39	-.64
August	.0	2.08	.0	2.5	.1	5.59	.0	.6	.02	.07	-.29
September	.0	2.62	.0	.6	.0	8.54	.0	.3	.02	.04	.43
Parameter Group #2											
1-day minimum	.0	1.00	.0	.2	.0	.50	.0	.1	.01	.02	-.11
3-day minimum	.0	1.00	.0	.2	.0	.83	.0	.1	.01	.02	-.29
7-day minimum	.0	1.75	.0	.2	.0	3.00	.0	.1	.01	.02	-.24
30-day minimum	.0	1.45	.0	.2	.0	2.55	.0	.1	.01	.02	-.39
90-day minimum	.0	1.19	.0	.3	.0	1.43	.0	.2	.03	.04	.07
1-day maximum	17.3	1.00	6.9	123.7	14.0	1.29	6.8	28.4	11.30	25.36	.07
3-day maximum	14.5	.89	6.7	67.4	13.7	.88	6.2	24.2	10.90	22.38	.07
7-day maximum	13.0	.98	6.0	37.8	12.6	.67	4.5	21.3	10.24	19.89	.07
30-day maximum	10.2	.94	4.7	30.0	6.4	1.24	2.6	15.3	8.06	14.32	-.29
90-day maximum	6.1	1.16	3.0	17.0	4.8	1.40	1.3	10.5	4.73	8.65	-.29
Number of zero days	.00	.00	.00	.00	.00	.00	.00	6.00	.00	.00	-.14
Base flow	.01	.66	.00	.05	.01	1.54	.00	.07	.01	.01	-.64
Parameter Group #3											
Date of minimum	275.0	.08	218.0	283.0	261.0	.15	197.0	277.0	251.72	275.00	-.12
Date of maximum	131.0	.10	2.0	360.0	129.0	.11	2.0	153.0	117.86	137.56	-.29
Parameter Group #4											
Low Pulse Count	3.5	.86	.0	10.0	2.0	2.00	.0	6.0	2.00	5.00	-.34
Low Pulse Duration	17.9	.74	.0	45.0	16.3	1.26	.0	24.2	12.07	21.03	.07
High Pulse Count	2.0	1.25	1.0	8.0	4.0	1.25	1.0	8.0	2.00	3.00	-.71
High Pulse Duration	36.8	.74	16.5	98.0	12.6	3.34	4.8	91.0	27.15	46.76	-1.00

The low pulse threshold is .06
The high pulse level is 1.90

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1986-2000 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	.5	.91	.2	1.8	.6	1.10	.2	1.0	.30	.67	-.29
Fall rate	-.3	-.95	-1.0	-.1	-.4	-.93	-.7	-.1	-.41	-.20	-.64
Number of reversals	67.0	.32	38.0	92.0	64.0	.44	22.0	75.0	58.93	75.14	.79

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	3.15	3.00	-.05	2.10	3.00	.43	1.75	1.00	-.43
November	2.80	1.00	-.64	2.10	4.00	.90	2.10	2.00	-.05
December	2.80	2.00	-.29	2.10	4.00	.90	2.10	1.00	-.52
January	2.80	2.00	-.29	2.10	4.00	.90	2.10	1.00	-.52
February	2.80	1.00	-.64	2.10	5.00	1.38	2.10	1.00	-.52
March	2.80	3.00	.07	2.10	2.00	-.05	2.10	2.00	-.05
April	2.80	2.00	-.29	2.10	1.00	-.52	2.10	4.00	.90
May	2.80	.00	-1.00	2.10	3.00	.43	2.10	4.00	.90
June	2.80	3.00	.07	2.10	3.00	.43	2.10	1.00	-.52
July	2.80	1.00	-.64	2.10	5.00	1.38	2.10	1.00	-.52
August	2.80	2.00	-.29	2.10	4.00	.90	2.10	1.00	-.52
September	2.80	4.00	.43	2.10	3.00	.43	2.10	.00	-1.00
Parameter Group #2									
1-day minimum	5.60	5.00	-.11	1.40	1.00	-.29	.00	1.00	.00
3-day minimum	5.60	4.00	-.29	1.40	2.00	.43	.00	1.00	.00
7-day minimum	5.25	4.00	-.24	1.75	2.00	.14	.00	1.00	.00
30-day minimum	4.90	3.00	-.39	2.10	3.00	.43	.00	1.00	.00
90-day minimum	2.80	3.00	.07	2.10	3.00	.43	2.10	1.00	-.52
1-day maximum	2.80	3.00	.07	2.10	2.00	-.05	2.10	2.00	-.05
3-day maximum	2.80	3.00	.07	2.10	1.00	-.52	2.10	3.00	.43
7-day maximum	2.80	3.00	.07	2.10	1.00	-.52	2.10	3.00	.43
30-day maximum	2.80	2.00	-.29	2.10	1.00	-.52	2.10	4.00	.90
90-day maximum	2.80	2.00	-.29	2.10	2.00	-.05	2.10	3.00	.43
Number of zero days	7.00	6.00	-.14	.00	1.00	.00	.00	.00	.00
Base flow	2.80	1.00	-.64	2.10	4.00	.90	2.10	2.00	-.05
Parameter Group #3									
Date of minimum	4.55	4.00	-.12	.35	1.00	1.86	2.10	2.00	-.05
Date of maximum	2.80	2.00	-.29	2.10	2.00	-.05	2.10	3.00	.43
Parameter Group #4									
Low Pulse Count	4.55	3.00	-.34	1.40	1.00	-.29	1.05	3.00	1.86
Low Pulse Duration	2.80	3.00	.07	2.10	1.00	-.52	2.10	3.00	.43
High Pulse Count	3.50	1.00	-.71	1.75	5.00	1.86	1.75	1.00	-.43
High Pulse Duration	2.80	.00	-1.00	2.10	2.00	-.05	2.10	5.00	1.38
Parameter Group #5									
Rise rate	2.80	2.00	-.29	2.10	3.00	.43	2.10	2.00	-.05
Fall rate	2.80	1.00	-.64	2.10	2.00	-.05	2.10	4.00	.90
Number of reversals	2.80	5.00	.79	2.10	.00	-1.00	2.10	2.00	-.05

15 Messages:

The longest period of missing data is 44 days.
Interpolating across this gap may cause anomalies in
the statistics. Please use them with caution.
Parameter Low pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 8 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 13 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of minimum : 13 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 7 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 13 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 12 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 30-day minimum : 9 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-6d. Bolsillo Creek below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Bolsillo Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1986-2000 (7 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	2.17	1.82
Mean flow/area	2.17	1.82
Annual C. V.	.71	.52
Flow predictability	.44	.48
Constancy/predictability	.32	.27

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Unimpaired	Existing
% of floods in 60d period	.63	.68
flood-free season	80.00	126.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	.1	.1	1.67	2.47	.10	.48	.73	.38
November	.1	.2	1.82	1.78	1.12	.02	.12	.98
December	.2	.3	1.67	1.29	.93	.23	.10	.78
January	.3	.5	1.31	2.45	.76	.87	.11	.37
February	.5	1.1	2.13	.87	1.11	.59	.08	.28
March	1.5	1.6	.72	.39	.10	.46	.50	.60
April	5.4	3.6	.67	1.52	.33	1.27	.45	.08
May	8.9	6.1	.89	1.56	.31	.76	.43	.13
June	1.8	3.1	2.84	1.27	.73	.55	.08	.52
July	.3	.4	1.56	1.19	.44	.24	.28	.85
August	.0	.1	2.08	5.59	.88	1.69	.15	.18
September	.0	.0	2.62	8.54	.18	2.25	.57	.06
Parameter Group #2								
1-day minimum	.0	.0	1.00	.50	1.00	.50	.00	.50
3-day minimum	.0	.0	1.00	.83	1.00	.17	.02	.77
7-day minimum	.0	.0	1.75	3.00	1.00	.71	.03	.44
30-day minimum	.0	.0	1.45	2.55	.32	.76	.59	.24
90-day minimum	.0	.0	1.19	1.43	.03	.20	.90	.75
1-day maximum	17.3	14.0	1.00	1.29	.19	.30	.63	.51
3-day maximum	14.5	13.7	.89	.88	.06	.02	.60	.97
7-day maximum	13.0	12.6	.98	.67	.03	.31	.90	.54
30-day maximum	10.2	6.4	.94	1.24	.37	.32	.37	.47
90-day maximum	6.1	4.8	1.16	1.40	.22	.21	.51	.63
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.0	.66	1.54	.50	1.34	.08	.17
Parameter Group #3								
Date of minimum	275.0	261.0	.08	.15	.08	.96	.33	.24
Date of maximum	131.0	129.0	.10	.11	.01	.13	.87	.83
Parameter Group #4								
Low pulse count	3.5	2.0	.86	2.00	.43	1.33	.55	.10
Low pulse duration	17.9	16.3	.74	1.26	.09	.70	.75	.29
High pulse count	2.0	4.0	1.25	1.25	1.00	.00	.01	.79
High pulse duration	36.8	12.6	.74	3.34	.66	3.50	.08	.00

The low pulse threshold is .06
The high pulse level is 1.90

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	.5	.6	.91	1.10	.09	.20	.89	.73
Fall rate	-.3	-.4	-.95	-.93	.34	.03	.44	.95
Number of reversals	67.0	64.0	.32	.44	.04	.38	.85	.40

Table CAWG 6 Appendix L-6e. Bolsillo Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1986-2000).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1986	1994	1995	1996	1997	1999	2000
0.16	1.01	0.04	0.02	0.15	0.01	0.01	0.06	0.01	0.01	0.06	0.03	0.16	0.08	0.02	0.02	0.24	0.02	0.01	0.01	0.10	0.03	0.03	0.08	0.02	0.25	0.02
0.16	0.79	0.04	0.02	0.19	0.01	0.01	0.05	0.01	0.01	0.07	0.03	0.16	0.08	0.02	0.02	0.20	0.02	0.01	0.01	0.10	0.03	0.03	0.08	0.02	0.21	0.02
0.16	0.62	0.04	0.02	0.17	0.01	0.01	0.04	0.01	0.01	0.08	0.03	0.16	0.07	0.02	0.02	0.18	0.02	0.01	0.01	0.10	0.03	0.02	0.07	0.02	0.19	0.02
0.16	0.52	0.04	0.02	0.15	0.01	0.01	0.04	0.01	0.01	0.08	0.03	0.29	0.07	0.02	0.02	0.17	0.02	0.01	0.01	0.10	0.03	0.35	0.07	0.02	0.19	0.02
0.16	0.47	0.04	0.02	0.13	0.01	0.01	0.04	0.01	0.01	0.07	0.03	0.41	0.06	0.02	0.02	0.16	0.02	0.01	0.01	0.10	0.03	0.61	0.07	0.02	0.18	0.02
0.25	0.44	0.04	0.07	0.12	0.01	0.01	0.04	0.01	0.01	0.06	0.03	0.33	0.06	0.02	0.02	0.15	0.02	0.01	0.01	0.10	0.04	0.33	0.07	0.02	0.16	0.02
0.53	0.42	0.04	0.20	0.11	0.01	0.01	0.04	0.01	0.01	0.06	0.04	0.35	0.06	0.02	0.02	0.14	0.02	0.01	0.01	0.20	0.04	0.29	0.07	0.02	0.15	0.02
0.27	0.41	0.03	0.10	0.11	0.01	0.01	0.03	0.01	0.01	0.06	0.04	0.37	0.06	0.02	0.02	0.12	0.02	0.01	0.01	0.20	0.04	0.31	0.07	0.02	0.13	0.02
0.27	0.39	0.03	0.10	0.10	0.01	0.01	0.03	0.01	0.01	0.05	0.04	0.39	0.06	0.02	0.02	0.12	0.02	0.01	0.01	0.20	0.04	0.43	0.07	0.02	0.13	0.02
0.25	0.39	0.03	0.08	0.10	0.01	0.01	0.03	0.01	0.01	0.06	0.04	0.40	0.06	0.02	0.04	0.12	0.02	0.05	0.01	0.20	0.04	0.44	0.07	0.02	0.13	0.02
0.25	0.37	0.10	0.07	0.09	0.01	0.01	0.03	0.01	0.01	0.05	0.06	0.37	0.06	0.02	0.07	0.12	0.02	0.04	0.01	0.20	0.07	0.42	0.06	0.02	0.13	0.02
0.22	0.34	0.08	0.06	0.10	0.01	0.01	0.03	0.01	0.01	0.05	0.06	0.32	0.06	0.02	0.06	0.11	0.02	0.04	0.01	0.20	0.06	0.36	0.06	0.02	0.12	0.02
0.22	0.32	0.06	0.05	0.09	0.01	0.01	0.03	0.01	0.01	0.05	0.05	0.26	0.05	0.02	0.06	0.11	0.02	0.04	0.01	0.20	0.06	0.33	0.06	0.02	0.12	0.02
0.19	0.33	0.05	0.05	0.09	0.01	0.01	0.03	0.01	0.01	0.05	0.05	0.32	0.05	0.02	0.05	0.11	0.02	0.04	0.01	0.20	0.05	0.30	0.06	0.02	0.12	0.02
0.19	0.33	0.04	0.05	0.08	0.01	0.01	0.03	0.01	0.01	0.05	0.06	0.31	0.05	0.02	0.04	0.11	0.02	0.04	0.01	0.20	0.06	0.28	0.06	0.02	0.12	0.02
0.19	0.33	0.06	0.04	0.08	0.01	0.01	0.03	0.01	0.01	0.05	0.08	0.27	0.05	0.02	0.04	0.12	0.02	0.04	0.01	0.20	0.08	0.24	0.05	0.02	0.13	0.02
0.19	0.32	0.11	0.04	0.08	0.01	0.01	0.03	0.01	0.01	0.05	0.11	0.23	0.05	0.02	0.03	0.12	0.02	0.04	0.01	0.20	0.12	0.20	0.05	0.02	0.13	0.02
0.19	0.32	0.09	0.04	0.08	0.01	0.01	0.03	0.01	0.01	0.05	0.11	0.24	0.05	0.02	0.03	0.12	0.02	0.03	0.01	0.20	0.12	0.18	0.05	0.02	0.13	0.02
0.19	0.30	0.16	0.04	0.08	0.01	0.01	0.03	0.01	0.01	0.05	0.09	0.21	0.05	0.02	0.03	0.11	0.02	0.03	0.01	0.20	0.10	0.17	0.05	0.02	0.12	0.02
0.19	0.27	0.15	0.04	0.08	0.01	0.01	0.02	0.01	0.01	0.05	0.08	0.21	0.04	0.02	0.03	0.11	0.02	0.03	0.01	0.20	0.08	0.16	0.05	0.02	0.12	0.02
0.22	0.25	0.13	0.06	0.09	0.01	0.01	0.05	0.01	0.01	0.09	0.07	0.21	0.05	0.02	0.03	0.11	0.02	0.03	0.01	0.20	0.07	0.16	0.05	0.02	0.12	0.02
0.25	0.25	0.12	0.08	0.09	0.02	0.01	0.38	0.01	0.01	0.08	0.06	0.21	0.05	0.02	0.03	0.11	0.02	0.03	0.01	0.20	0.07	0.16	0.05	0.02	0.12	0.02
0.27	0.24	0.11	0.11	0.09	0.02	0.01	0.15	0.01	0.01	0.07	0.06	0.21	0.05	0.02	0.03	0.10	0.02	0.03	0.01	0.20	0.06	0.16	0.05	0.02	0.11	0.02
0.35	0.24	0.11	0.15	0.08	0.02	0.01	0.56	0.01	0.01	0.07	0.05	0.27	0.05	0.03	0.03	0.12	0.02	0.03	0.01	0.20	0.06	0.16	0.05	0.04	0.13	0.02
0.32	0.24	0.12	0.14	0.08	0.02	0.01	0.53	0.01	0.02	0.07	0.05	0.27	0.05	0.15	0.03	0.17	0.02	0.03	0.01	0.20	0.05	0.17	0.06	0.16	0.19	0.02
0.30	0.22	0.12	0.11	0.08	0.02	0.01	0.39	0.01	0.53	0.07	0.05	0.27	0.05	0.07	0.03	0.21	0.02	0.06	0.01	0.20	0.05	0.18	0.06	0.07	0.22	0.02
0.27	0.21	0.12	0.10	0.08	0.02	0.01	0.34	0.01	0.28	0.10	0.04	0.27	0.05	0.05	0.03	0.19	0.02	0.08	0.01	0.20	0.05	0.17	0.05	0.06	0.20	0.02
0.25	0.21	0.11	0.08	0.08	0.07	0.01	0.27	0.01	0.11	0.14	0.04	0.27	0.05	0.05	0.03	0.16	0.02	0.08	0.01	0.20	0.05	0.16	0.05	0.06	0.18	0.02
0.25	0.20	0.10	0.07	0.08	0.28	0.01	0.21	0.01	0.10	0.21	0.04	0.27	0.05	0.05	0.03	0.20	0.02	0.13	0.01	0.20	0.05	0.15	0.05	0.06	0.22	0.02
0.22	0.34	0.10	0.07	0.08	0.12	0.01	0.19	0.01	0.09	0.57	0.04	0.24	0.05	0.06	0.03	0.24	0.02	0.09	0.07	0.20	0.05	0.14	0.05	0.07	0.26	0.02
0.22	0.37	0.10	0.06	0.08	0.09	0.01	0.16	0.01	0.08	0.24	0.04	0.24	0.05	0.07	0.03	0.20	0.02	0.07	0.11	0.20	0.04	0.13	0.05	0.07	0.21	0.02
0.22	0.38	0.09	0.06	0.08	0.30	0.01	0.15	0.01	0.07	0.20	0.04	0.21	0.05	0.06	0.03	0.17	0.02	0.06	0.07	0.20	0.04	0.13	0.05	0.07	0.19	0.02
0.22	0.45	0.09	0.06	0.07	0.40	0.01	0.13	0.01	0.07	0.21	0.04	0.18	0.05	0.07	0.03	0.16	0.02	0.07	0.04	0.20	0.04	0.15	0.06	0.07	0.18	0.02
0.22	0.37	0.10	0.06	0.08	0.21	0.01	0.13	0.01	0.07	0.22	0.04	0.16	0.05	0.07	0.03	0.15	0.02	0.07	0.03	0.20	0.04	0.14	0.05	0.07	0.16	0.02
0.22	0.33	0.09	0.06	0.07	0.14	0.01	0.13	0.01	0.08	0.20	0.04	0.16	0.05	0.07	0.02	0.15	0.02	0.07	0.03	0.20	0.05	0.13	0.05	0.08	0.16	0.02
0.22	0.26	0.08	0.05	0.07	0.13	0.01	0.12	0.01	0.08	0.20	0.04	0.83	0.05	0.07	0.02	0.14	0.02	0.06	0.03	0.20	0.05	0.34	0.06	0.07	0.15	0.02
0.22	0.24	0.10	0.05	0.06	0.21	0.01	0.12	0.01	0.08	0.20	0.04	2.80	0.05	0.06	0.02	0.13	0.02	0.07	0.03	0.20	0.04	1.27	0.06	0.07	0.15	0.02
0.22	0.30	0.11	0.05	0.06	0.22	0.01	0.11	0.01	0.08	0.18	0.04	1.20	0.05	0.07	0.03	0.16	0.02	0.06	0.02	0.20	0.04	0.59	0.06	0.07	0.17	0.02
0.22	0.34	0.12	0.05	0.07	0.19	0.01	0.11	0.01	0.07	0.18	0.04	0.80	0.05	0.08	0.02	0.22	0.07	0.06	0.02	0.20	0.04	0.45	0.06	0.08	0.24	0.07
0.19	0.30	0.14	0.05	0.07	0.17	0.01	0.11	0.02	0.10	0.15	0.04	0.60	0.05	0.09	0.02	0.19	0.05	0.06	0.02	0.20	0.04	0.36	0.06	0.10	0.20	0.05
0.22	0.31	0.13	0.05	0.07	0.16	0.01	0.10	0.01	0.09	0.14	0.04	0.47	0.05	0.10	0.03	0.18	0.04	0.06	0.02	0.20	0.05	0.56	0.06	0.11	0.19	0.04
0.53	4.16	0.14	0.11	0.07	0.15	0.01	0.10	0.01	0.07	0.14	0.05	0.54	0.05	0.10	0.04	0.20	0.04	0.05	0.04	0.50	0.06	0.91	0.06	0.11	0.22	0.04
0.25	1.69	0.15	0.11	0.05	0.15	0.01	0.10	0.01	0.06	0.14	0.07	0.47	0.05	0.11	0.04	0.22	0.04	0.04	0.05	0.20	0.07	0.48	0.06	0.12	0.24	0.04
0.25	1.63	0.15	0.08	0.07	0.16	0.04	0.10	0.01	0.05	0.14	0.07	0.43	0.05	0.10	0.04	0.26	0.04	0.04	0.08	0.20	0.07	0.37	0.06	0.11	0.28	0.04
0.22	1.18	0.16	0.08	0.08	0.17	0.07	0.10	0.01	0.05	0.14	0.06	0.43	0.05	0.10	0.04	0.28	0.04	0.05	0.07	0.20	0.07	0.35	0.05	0.10	0.30	0.04
0.22	0.96	0.17	0.09	0.08	0.14	0.04	0.09	0.02	0.05	0.14	0.05	0.43	0.05	0.09	0.03	0.28	0.04	0.04	0.07	0.20	0.06	0.35	0.05	0.10	0.30	0.04
0.22	0.84	0.17	0.09	0.08	0.13	0.03	0.10	0.01	0.05	0.14	0.06	0.40	0.05	0.09	0.03	0.27	0.04	0.04	0.07	0.20	0.06	0.36	0.05	0.10	0.29	0.04
0.22	2.59	0.16	0.09	0.08	0.26	0.03	0.10	0.02	0.10	0.14	0.06	0.40	0.05	0.67	0.03	0.28	0.10	0.04	0.06	0.20	0.07	0.35	0.05	0.73	0.30	0.11
0.22	2.02	0.17	0.08	0.08	0.31	0.03	0.09	0.02	0.10	0.14	0.07	0.43	0.05	2.19	0.03	0.22	0.06	0.04	0.05	0.20	0.07	0.39	0.05	2.36	0.24	0.07
0.22	3.26	0.17	0.08	0.07	0.21	0.03	0.08	0.02	0.10	0.12	0.06	0.43	0.05	0.96	0.06	0.23	0.06	0.04	0.05	0.20	0.07	0.41	0.05	1.03	0.25	0.06
0.25	5.73	0.16	0.09	0.07	0.22	0.03	0.08	0.02	0.10	0.12	0.05	0.43	0.05	0.79	0.06	0.20	0.09	0.04	0.04	0.20	0.06	0.36	0.05	0.85	0.22	0.10
0.25	2.92	0.17	0.10	0.07	0.21	0.03	0.08	0.02	0.09	0.12	0.06	0.40	0.05	3.99	0.05	0.21	0.07	0.05	0.05	0.20	0.07	0.36	0.05	4.30	0.22	0.07
0.25	2.14	0.17	0.09	0.07	0.19	0.03	0.08	0.02	0.09	0.14	0.07	0.40	0.05	12.93	0.05	0.24	0.05	0.05	0.25	0.20	0.07	0.35	0.05	13.92	0.25	0.05
0.25	1.91	0.17	0.10	0.07	0.16	0.13	0.08	0.02	0.08	0.12	0.06	0.37	0.05	3.65	0.06	0.27	0.04	0.05	0.19	0.20	0.07	0.34	0.05	3.93	0.29	0.04
0.27	8.09	0.15	0.11	0.07	0.15	0.13	0.09	0.02	0.08	0.13	0.05	0.37	0.05	2.70	0.05	0.34	0.04	0.05	1.52	0.20	0.05	0.35	0.05	2.91	0.37	0.04
0.27	5.85	0.12	0.16	0.07	0.14	0.07	0.09	0.01	0.08	0.14	0.04	0.37	0.05	2.02	0.05	0.31	0.04	0.05	0.90	0.20	0.05	0.38	0.05	2.18	0.33	0.04
0.27	3.93	0.16	0.21	0.06	0.12	0.05	0.07	0.02	0.08	0.14	0.04	0.40	0.05	1.63	0.07	0.26	0.04	0.05	0.47	0.20	0.04	0.47	0.05	1.76	0.28	0.05
0.27	2.98	0.20	0.16	0.05	0.12	0.05	0.10	0.02	0.07	0.15	0.05	0.40	0.05	1.41	0.08	0.28	0.04	0.05	0.34	0.20	0.06	0.57	0.05	1.51	0.30	0.05
0.27	2.36	0.20	0.17	0.05	0.11	0.05	0.12	0.02	0.07	0.14	0.07	0.40	0.05	1.18	0.10	0.28	0.04	0.06	0.29	0.20	0.07	0.53	0.05	1.27	0.30	0.04
0.27	2.14	0.23	0.15	0.05	0.11	0.05	0.13	0.03	0.07	0.12	0.08	0.40	0.05	1.12	0.08	0.32	0.04	0.06	0.28	0.20	0.08	0.51	0.05	1.21	0.35	0.05
0.27	1.97	0.22	0.17	0.04	0.11	0.05	0.10	0.03	0.06	0.11	0.10	0.37	0.05	1.35	0.08	0.96	0.05	0.05	0.25	0.20	0.10	0.51	0.05	1.45	1.03	0.05
0.27	1.85	0.20	0.16	0.06	0.13	0.05	0.10	0.02	0.06	0.14	0.09	0.37	0.04	0.96	0.07	0.96	0.04	0.05	0.23	0.20	0.10	0.56	0.05	1.03	1.03	0.05
0.32	1.74	0.18	0.32	0.06	0.13	0.05	0.10	0.02	0.06	0.14	0.08	0.40	0.04	1.24	0.06	0.73	0.04	0.05	0.28	0.20	0.09	0.59	0.05	1.33	0.79	0.04
0.32	1.41	0.19	0.50	0.07	0.13	0.05	0.09	0.02	0.07	0.14	0.08	0.40	0.04	1.07	0.06	0.56	0.04	0.05	0.30	0.20	0.08	0.60	0.05	1.15	0.61	0.04
0.35	1.85	0.18	0.67	0.07	0.13	0.04	0.10	0.02	0.07	0.14	0.08	0.40	0.06	0.84	0.06	0.62	0.04	0.05	0.31	0.20	0.08	0.61	0.07	0.91	0.67	0.04
0.32	1.85	0.19	0.46	0.05	0.14	0.05	0.10	0.02	0.07	0.12	0.07	0.40	0.06	1.41	0.06	0.62	0.04	0.05	0.25	0.20	0.07	0.58	0.07	1.51	0.67	0.04
0.30	1.69	0.19	0.38	0.05	0.25	0.05	0.09	0.02	0.07	0.12	0.06	0.40	0.06	2.14	0.10	0.51	0.03	0.05	0.24	0.20	0.07	0.54	0.06	2.30	0.55	0.04
0.30	1.57	0.19	0.39	0.04	0.49	0.05	0.09	0.02	0.07	0.15	0.06	0.40	0.06	1.29	0.10	0.51	0.04	0.05	0.22	0.20	0.07	0.52	0.06	1.39	0.55	0.04
0.30	1.52	0.19	0.38	0.04	0.45	0.05	0.08	0.02	0.08	0.21	0.07	0.40	0.06	1.18	0.09	0.41	0.03	0.06	0.24	0.20	0.07	0.49	0.06	1.27	0.44	0.03
0.30	1.57	0.19	0.34	0.05	0.33	0.05	0.08	0.02	0.08	0.27	0.07	0.40	0.05	1.29	0.09	0.35	0.03	0.06	0.23	0.20	0.08	0.48	0.06	1.39	0.38	0.04
0.30	1.63	0.19	0.31	0.05	0.35	0.05	0.08	0.02	0.07	0.20	0.07	0.40	0.05	1.01	0.08	0.33	0.03	0.05	0.26	0.20	0.08	0.42	0.06	1.09	0.36	0.03
0.32	1.57	0.20	0.28	0.06	0.31	0.05	0.08	0.02	0.07	0.18	0.07	0.40	0.12	2.14	0.07	0.29	0.03	0.05	0.23	0.20	0.07	0.41	0.13	2.30	0.31	0.03
0.45	1.69	0.20	0.24	0.06	0.24	0.05	0.09	0.03	0.07	0.18	0.07	0.40	1.91	4.61	0.06	0.29	0.03	0.05	0.21	0.40	0.08	0.43	2.06	4.96	0.31	0.03
0.45	1.69	0.19	0.22	0.05	0.18	0.05	0.08	0.03	0.06	0.18	0.08	0.40	0.73	3.09	0.06	0.29	0.03	0.05	0.22	0.40	0.08	0.44	0.79	3.33	0.31	0.04
0.35	1.63	0.17	0.23	0.05	0.13	0.05	0.08	0.02	0.06	0.18	0.08	0.40	0.56	2.42	0.07	0.29	0.03	0.05	0.25	0.30	0.08	0.48	0.61	2.60	0.31	0.03
0.30	1.57	0.17	0.24	0.05	0.11	0.05	0.08	0.03	0.06	0.16	0.08	0.40	0.46	1.91	0.07	0.39	0.03	0.05	0.27	0.30	0.08	0.48	0.50	2.06	0.42	0.03
0.27	1.52	0.18	0.23	0.05	0.15	0.05	0.08	0.02	0.06	0.16	0.07	0.42	0.53	1.69	0.07	0.31	0.03	0.05	0.24	0.20	0.08	0.48	0.58	1.82	0.33	0.03
0.27	1.46	0.16	0.22	0.05	0.19	0.05	0.08	0.02	0.07	0.16	0.07	0.46	0.62	1.63	0.07	0.27	0.03	0.05	0.25	0.20	0.08	0.48	0.67	1.76	0.29	0.03
0.27	1.46	0.15	0.22	0.06	0.19	0.05	0.07	0.02	0.08	0.16	0.07	0.43	0.46	1.46	0.07	0.28	0.03	0.05	0.25	0.20	0.08	0.48	0.49	1.57	0.30	0.03
0.27	1.41	0.21	0.22	0.04	0.18	0.05	0.07	0.02	0.08	0.16	0.07	0.43	0.38	1.41	0.07	0.27	0.03	0.05	0.25	0.20	0.08	0.48	0.41	1.51	0.29	0.03
0.27	1.35	0.22	0.23	0.04	0.17	0.05	0.07	0.02	0.07	0.16	0.07	0.45	0.28	1.41	0.08	0.20	0.03	0.05	0.26	0.20	0.08	0.48	0.30	1.51	0.21	0.03
0.27	1.41	0.20	0.23	0.04	0.17	0.05	0.06	0.02	0.05	0.16	0.07	0.45	0.19	1.35	0.08	0.28	0.03	0.05	0.29	0.20	0.08	0.48	0.20	1.45	0.30	0.03
0.27	1.35	0.17	0.24	0.04	0.16	0.05	0.06	0.02	0.06	0.16	0.07	0.43	0.17	1.57	0.08	0.39	0.03	0.05	0.31	0.20	0.08	0.48	0.19	1.69	0.42	0.03
0.25	1.29	0.14	0.26	0.04	0.15	0.05	0.06	0.02	0.08	0.15	0.07	0.43	0.22	2.42	0.08	0.38	0.03	0.04	0.31	0.20	0.08	0.48	0.24	2.60	0.41	0.03
0.25	1.97	0.14	0.27	0.04	0.16	0.05	0.06	0.02	0.07	0.15	0.07	0.43	0.17	1.80	0.07	0.45	0.03	0.05	0.30	0.20	0.08	0.47	0.19	1.94	0.48	0.03
0.25	25.29	0.14	0.29	0.04	0.17	0.05	0.07	0.03	0.07	0.15	0.08	0.49	0.15	1.52	0.07	0.51	0.03	0.04	0.29	0.20	0.08	0.45	0.16	1.63	0.54	0.03
0.25	10.45	0.15	0.31	0.05	0.17	0.05	0.08	0.03	0.07	0.14	0.08	0.48	0.13	1.46	0.07	0.56	0.03	0.04	0.29	0.20	0.08	0.51	0.15	1.57	0.61	0.03
0.25	7.48	0.17	0.33	0.05	0.17	0.05	0.07	0.03	0.06	0.14	0.08	0.47	0.13	1.52	0.08	0.51	0.03	0.03	0.31	0.20	0.09	0.53	0.14	1.63	0.54	0.03
0.25	4.89	0.18	0.33	0.04	0.16	0.05	0.07	0.03	0.07	0.12	0.08	0.47	0.15	1.35	0.08	0.48	0.03	0.04	0.33	0.20	0.09	0.53	0.16	1.45	0.51	0.03
0.25	4.16	0.19	0.39	0.05	0.19	0.05	0.07	0.03	0.08	0.14	0.08	0.47	0.19	1.29	0.08	0.45	0.03	0.04	0.45	0.20	0.09	0.53	0.21	1.39	0.48	0.03
0.32	4.22	0.17	0.84	0.05	0.16	0.05	0.07	0.02	0.08	0.14	0.08	0.47	0.67	5.85	0.08	0.41	0.03	0.03	0.48	0.20	0.09	0.53	0.73	6.29	0.44	0.03
0.30	4.16	0.17	1.07	0.04	0.17	0.05	0.07	0.03	0.08	0.12	0.08	0.47	0.55	9.78	0.08	0.37	0.03	0.03	0.56	0.20	0.08	0.53	0.59	10.53	0.39	0.03
0.27	3.37	0.16	0.84	0.04	0.19	0.05	0.07	0.03	0.08	0.12	0.08	0.47	0.37	19.78	0.08	0.34	0.03	0.03	0.67	0.20	0.08	0.53	0.40	8.60	0.36	0.03
0.27	3.04	0.16	0.79	0.05	0.19	0.05	0.06	0.03	0.09	0.12	0.08	0.47	0.33	123.65	0.09	0.31	0.03	0.04	0.51	0.20	0.08	0.53	0.35	27.00	0.33	0.03
0.27	2.87	0.16	0.62	0.05	0.23	0.05	0.07	0.03	0.08	0.12	0.08	0.47	0.36	50.58	0.10	0.28	0.03	0.04	0.51	0.20	0.09	0.53	0.39	22.00	0.30	0.03
0.35	2.87	0.17	0.73	0.05	0.29	0.05	0.07	0.04	0.08	0.12	0.09	0.50	0.33	28.10	0.09	0.34	0.03	0.04	0.51	0.30	0.10	0.53	0.36	12.00	0.36	0.03
0.94	2.92	0.19	2.81	0.04	0.27	0.05	0.07	0.05	0.08	0.12	0.19	1.20	0.31	18.27	0.08	0.34	0.03	0.04	0.45	0.90	0.21	0.53	0.33	6.90	0.36	0.03
0.65	2.81	0.21	3.65	0.06	0.26	0.05	0.07	0.04	0.10	0.15	0.21	0.71	0.30	12.36	0.08	0.31	0.03	0.05	0.45	0.60	0.22	0.53	0.32	5.30	0.33	0.03
0.49	2.75	0.22	2.30	0.06	0.37	0.05	0.07	0.04	0.10	0.21	0.13	0.80	0.33	8.43	0.08	0.30	0.03	0.05	0.45	0.50	0.14	0.53	0.35	4.30	0.32	0.03
0.38	2.53	0.24	1.57	0.06	0.48	0.05	0.08	0.03	0.10	0.20	0.11	0.74	0.33	5.62	0.09	0.31	0.03	0.05	0.45	0.40	0.12	0.55	0.36	3.70	0.33	0.03
0.35	2.36	0.23	1.29	0.07	0.46	0.06	0.08	0.03	0.10	0.21	0.10	0.72	0.33	4.50	0.10	0.29	0.03	0.05	0.45	0.30	0.11	0.73	0.35	3.20	0.31	0.03
0.35	2.30	0.23	1.12	0.08	0.44	0.06	0.08	0.03	0.11	0.21	0.09	0.93	0.31	4.22	0.11	0.28	0.03	0.05	0.39	0.30	0.10	1.76	0.34	2.90	0.30	0.03
0.32	2.02	0.23	1.07	0.08	0.43	0.06	0.09	0.03	0.10	0.21	0.08	1.10	0.31	3.93	0.13	0.27	0.03	0.05	0.39	0.30	0.08	1.94	0.34	2.70	0.29	0.03
0.32	2.14	0.23	1.01	0.08	0.40	0.06	0.10	0.03	0.10	0.21	0.07	1.00	0.33	3.65	0.14	0.25	0.03	0.06	0.39	0.20	0.08	2.06	0.35	2.50	0.27	0.03
0.32	1.91	0.23	0.96	0.09	0.38	0.06	0.11	0.03	0.10	0.24	0.08	1.00	0.34	3.37	0.13	0.24	0.03	0.08	0.39	0.10	0.08	2.36	0.37	2.30	0.26	0.03
0.32	2.14	0.23	0.90	0.09	0.38	0.06	0.12	0.03	0.10	0.47	0.08	0.90	0.34	3.09	0.11	0.23	0.03	0.08	0.34	0.10	0.09	1.94	0.36	2.20	0.25	0.03
0.32	2.02	0.23	0.84	0.07	0.38	0.06	0.14	0.03	0.10	0.74	0.09	0.94	0.31	2.81	0.10	0.25	0.03	0.06	0.28	0.10	0.10	2.66	0.33	2.00	0.27	0.03
0.35	1.97	0.25	0.84	0.06	0.38	0.07	0.16	0.03	0.10	0.79	0.09	0.80	0.47	2.92	0.11	0.28	0.03	0.04	0.25	0.10	0.10	2.54	0.51	1.90	0.30	0.03
0.32	1.69	0.26	0.84	0.06	0.41	0.07	0.17	0.03	0.09	0.65	0.08	0.68	1.01	2.87	0.13	0.34	0.03	0.06	0.22	0.10	0.09	2.24	1.09	1.60	0.36	0.03
0.32	1.85	0.30	0.90	0.05	0.30	0.07	0.19	0.03	0.10	0.57	0.09	0.66	0.84	2.75	0.14	0.39	0.06	0.17	0.21	0.10	0.10	2.24	0.91	1.60	0.42	0.06
0.32	1.52	0.36	1.07	0.06	0.29	0.07	0.21	0.03	0.11	0.47	0.10	0.61	0.73	2.53	0.15	0.62	0.41	0.14	0.20	0.10	0.10	2.24	0.79	1.50	0.67	0.44
0.32	1.52	0.38	1.07	0.06	0.34	0.07	0.21	0.03	0.11	0.37	0.10	0.59	0.67	2.25	0.13	0.67	0.67	0.39	0.16	0.10	0.10	2.18	0.73	1.40	0.73	0.73
0.30	1.69	0.39	1.01	0.06	0.37	0.07	0.19	0.03	0.11	0.34	0.09	0.57	0.56	2.47	0.12	0.67	0.56	0.56	0.18	0.10	0.10	2.06	0.61	1.50	0.73	0.61
0.30	1.57	0.39	0.96	0.06	0.38	0.07	0.16	0.03	0.11	0.34	0.09	0.56	0.56	2.59	0.11	0.62	0.62	0.39	0.16	0.10	0.10	1.88	0.61	1.60	0.67	0.67
0.30	1.63	0.38	0.90	0.06	0.40	0.07	0.14	0.03	0.11	0.34	0.10	0.60	0.53	2.81	0.10	0.67	0.32	0.28	0.11	0.10	0.10	1.63	0.57	1.80	0.73	0.35
0.30	1.63	0.37	0.84	0.06	0.43	0.07	0.14	0.03	0.11	0.27	0.09	0.70	0.48	2.98	0.10	0.79	0.19	0.22	0.11	0.10	0.10	1.51	0.51	1.40	0.85	0.21
0.30	1.63	0.37	0.84	0.06	0.44	0.08	0.13	0.03	0.11	0.27	0.10	0.74	0.51	3.09	0.09	0.73	0.47	0.28	0.16	0.10	0.10	1.33	0.54	1.50	0.79	0.51
0.27	1.63	0.37	0.84	0.06	0.46	0.08	0.13	0.03	0.11	0.24	0.10	0.70	0.52	3.82	0.08	0.73	0.96	0.17	0.11	0.10	0.10	1.15	0.56	1.50	0.79	1.03
0.27	1.57	0.37	0.90	0.06	0.46	0.08	0.13	0.04	0.11	0.24	0.10	0.63	0.49	3.88	0.08	0.79	0.40	0.28	0.10	0.10	0.10	1.09	0.53	1.30	0.85	0.43
0.27	1.63	0.37	0.96	0.07	0.46	0.08	0.12	0.03	0.11	0.24	0.09	0.59	0.56	2.87	0.08	0.79	0.25	0.22	0.07	0.10	0.10	1.03	0.61	1.10	0.85	0.27
0.30	1.63	0.37	1.07	0.06	0.46	0.08	0.13	0.03	0.11	0.24	0.09	0.57	0.53	2.64	0.08	0.79	0.24	0.11	0.06	0.10	0.10	1.09	0.57	1.00	0.85	0.25
0.38	1.80	0.37	2.70	0.06	0.39	0.10	0.14	0.03	0.11	0.24	0.09	0.57	0.50	2.36	0.08	0.79	0.52	0.17	0.04	0.10	0.10	1.15	0.54	0.90	0.85	0.56
0.45	1.85	0.37	2.47	0.06	0.31	0.11	0.14	0.03	0.10	0.24	0.09	0.57	0.51	2.14	0.08	0.79	0.67	0.22	0.07	0.10	0.10	1.27	0.54	1.00	0.85	0.73
0.49	1.85	0.37	1.63	0.06	0.34	0.12	0.15	0.03	0.11	0.24	0.09	0.59	0.56	2.14	0.09	0.79	0.42	0.39	0.08	0.10	0.10	1.33	0.61	0.90	0.85	0.45
0.49	1.85	0.37	1.52	0.06	0.35	0.12	0.15	0.03	0.12	0.24	0.09	0.61	0.52	2.08	0.11	0.79	0.37	0.56	0.10	0.10	0.10	1.39	0.56	0.80	0.85	0.40
0.49	1.80	0.37	1.41	0.05	0.32	0.12	0.14	0.03	0.12	0.24	0.09	0.61	0.46	2.02	0.12	0.79	0.39	1.12	0.11	0.10	0.10	1.45	0.49	0.80	0.85	0.42
0.45	1.80	0.37	1.41	0.05	0.37	0.11	0.15	0.03	0.11	0.24	0.09	0.61	0.79	1.91	0.11	0.79	0.34	1.35	0.17	0.10	0.10	1.51	0.85	0.80	0.85	0.37
0.42	1.80	0.37	1.35	0.06	0.40	0.10	0.16	0.03	0.12	0.24	0.09	0.61	8.43	1.97	0.15	0.73	0.35	1.12	0.22	0.10	0.10	1.51	9.08	0.80	0.79	0.38
0.42	1.91	0.37	1.12	0.06	0.42	0.10	0.15	0.04	0.12	0.24	0.09	0.61	5.62	2.02	0.13	0.73	0.35	0.56	0.22	0.10	0.10	1.57	6.05	0.70	0.79	0.38
0.42	1.85	0.37	1.24	0.06	0.44	0.09	0.16	0.04	0.12	0.21	0.10	0.61	4.22	1.97	0.12	0.79	0.33	0.34	0.25	0.10	0.10	1.57	4.54	0.70	0.85	0.36
0.49	1.85	0.37	1.12	0.06	0.44	0.10	0.16	0.04	0.13	0.21	0.10	0.57	3.65	1.69	0.11	1.12	0.32	0.34	0.28	0.15	0.10	1.57	3.93	0.70	1.21	0.35
0.65	1.97	0.37	1.18	0.07	0.46	0.11	0.15	0.04	0.15	0.24	0.10	0.57	3.09	1.74	0.10	1.52	0.31	0.22	0.39	0.65	0.11	1.51	3.33	0.70	1.63	0.34
0.57	1.46	0.37	1.07	0.10	0.49	0.10	0.16	0.04	0.13	0.27	0.11	0.57	2.98	1.63	0.11	1.74	0.31	0.17	0.51	0.57	0.12	1.45	3.21	0.70	1.88	0.33
0.49	1.97	0.37	1.01	0.10	0.56	0.10	0.17	0.05	0.12	0.27	0.11	0.57	2.70	1.57	0.10	1.80	0.29	0.14	0.53	0.49	0.12	1.45	2.91	0.70	1.94	0.31
0.74	1.85	0.37	1.12	0.08	0.56	0.10	0.19	0.05	0.12	0.27	0.11	0.57	2.64	1.52	0.10	1.80	0.26	0.11	0.56	0.74	0.12	1.45	2.84	0.70	1.94	0.28
1.00	1.80	0.37	2.02	0.08	0.67	0.10	0.19	0.06	0.13	0.27	0.11	0.57	2.30	1.52	0.10	1.80	0.39	0.17	0.62	1.00	0.12	1.39	2.48	0.70	1.94	0.42
1.20	1.80	0.37	5.73	0.07	0.67	0.11	0.18	0.06	0.14	0.27	0.12	0.57	2.36	1.52	0.10	1.85	1.57	0.11	0.56	1.20	0.13	1.45	2.54	0.70	2.00	1.69
1.20	1.80	0.37	10.00	0.06	0.67	0.12	0.17	0.07	0.13	0.27	0.12	0.57	2.42	1.57	0.10	1.80	1.74	0.17	0.62	1.20	0.13	1.33	2.60	0.70	1.94	1.88
1.20	1.80	0.37	4.50	0.05	0.73	0.12	0.17	0.08	0.16	0.24	0.12	0.57	2.64	1.52	0.10	1.80	1.29	0.28	0.62	1.20	0.13	1.27	2.84	0.70	1.94	1.39
1.30	1.97	0.37	2.70	0.06	0.73	0.12	0.17	0.07	0.16	0.24	0.28	0.57	2.98	1.57	0.11	1.63	1.12	0.28	0.67	1.30	0.30	1.27	3.21	0.70	1.76	1.21
3.00	1.85	0.37	10.17	0.06	0.67	0.12	0.17	0.06	0.18	0.24	0.16	0.60	2.53	1.57	0.10	1.46	1.18	0.22	0.62	3.00	0.17	1.27	2.72	0.60	1.57	1.27
4.90	1.80	0.39	26.53	0.05	0.67	0.13	0.17	0.06	0.25	0.43	0.19	0.61	2.70	1.46	0.10	1.35	1.07	0.14	0.62	4.90	0.21	1.33	2.91	0.60	1.45	1.15
2.60	1.80	0.42	14.84	0.05	0.67	0.14	0.17	0.07	0.40	0.50	0.16	0.61	3.20	1.52	0.10	1.29	1.01	0.11	0.62	2.60	0.18	1.45	3.45	0.60	1.39	1.09
1.70	1.69	0.43	8.94	0.05	0.79	0.14	0.17	0.07	0.56	0.50	0.16	0.61	3.04	1.52	0.11	1.29	0.90	0.17	0.79	1.70	0.18	1.63	3.27	0.60	1.39	0.97
1.30	1.69	0.43	6.97	0.05	0.79	0.16	0.17	0.07	0.67	0.43	0.17	0.61	2.25	1.46	0.10	1.24	0.79	0.11	0.90	1.30	0.18	1.76	2.42	0.60	1.33	0.85
1.10	1.63	0.44	5.40	0.04	0.90	0.17	0.18	0.08	0.67	0.47	0.17	0.61	2.47	1.46	0.10	1.24	0.79	0.08	1.07	1.10	0.19	1.88	2.66	0.60	1.33	0.85
1.10	1.57	0.44	5.06	0.04	0.84	0.24	0.18	0.08	0.62	0.50	0.18	0.61	2.25	1.52	0.10	1.24	0.67	0.06	1.01	1.10	0.19	2.06	2.42	0.60	1.33	0.73
1.10	1.57	0.48	5.62	0.04	0.90	0.33	0.19	0.08	0.55	0.47	0.20	0.64	1.97	1.46	0.10	1.18	0.62	0.11	1.07	1.10	0.21	2.18	2.12	0.60	1.27	0.67
1.20	1.63	0.55	6.24	0.04	0.96	0.41	0.20	0.08	0.55	0.43	0.21	0.65	2.08	1.35	0.10	1.18	0.62	0.11	1.24	1.20	0.22	2.36	2.24	0.60	1.27	0.67
1.30	1.63	0.62	6.63	0.06	1.12	0.51	0.21	0.08	0.56	0.40	0.19	0.65	2.08	1.24	0.09	1.12	0.73	0.17	1.35	1.30	0.20	2.36	2.24	0.60	1.21	0.79
1.40	1.63	0.73	6.91	0.08	1.24	0.62	0.28	0.08	0.62	0.37	0.20	0.65	1.85	1.29	0.08	1.07	0.67	0.11	1.46	1.40	0.21	2.36	2.00	0.50	1.15	0.73
999999	1.63	999999	999999	999999	1.24	999999	999999	999999	0.62	999999	999999	999999	1.63	999999	999999	999999	0.67	999999	999999	999999	999999	999999	1.76	999999	999999	0.73
1.40	1.63	0.84	7.03	0.09	1.12	0.51	0.34	0.11	0.53	0.34	0.25	0.65	1.57	1.35	0.09	1.12	0.73	0.11	1.46	1.40	0.27	2.36	1.69	0.50	1.21	0.79
1.40	1.74	0.90	6.97	0.10	1.12	0.41	0.45	0.16	0.51	0.31	0.33	0.65	1.57	1.29	0.09	1.18	0.73	0.11	1.24	1.40	0.36	2.24	1.69	0.48	1.27	0.79
1.30	1.80	0.96	6.58	0.14	1.18	0.38	0.73	0.15	0.45	0.31	0.43	0.65	1.85	1.35	0.10	1.35	0.67	0.17	1.24	1.30	0.47	2.18	2.00	0.43	1.45	0.73
1.30	1.85	0.96	7.08	0.22	1.24	0.41	1.07	2.25	0.46	0.31	0.42	0.70	1.74	1.41	0.09	1.12	0.73	0.11	1.24	1.30	0.45	2.06	1.88	0.43	1.21	0.79
1.30	1.91	0.90	7.36	0.67	1.29	0.42	0.96	5.34	0.47	0.31	0.41	0.70	1.74	1.41	0.09	1.07	0.67	0.11	1.24	1.30	0.44	2.06	1.88	0.47	1.15	0.73
1.40	2.02	0.90	7.42	0.73	1.35	0.54	0.90	4.78	0.49	0.31	0.41	0.70	1.85	1.52	0.10	1.29	0.67	0.17	1.29	1.40	0.44	2.06	2.00	0.43	1.39	0.73
1.40	2.19	1.01	6.97	0.67	1.35	0.84	0.84	4.50	0.48	0.31	0.43	0.70	1.80	1.63	0.11	0.96	0.67	0.22	1.24	1.40	0.47	2.18	1.94	0.43	1.03	0.73
4.80	2.36	1.07	29.11	0.73	1.52	1.69	0.73	2.75	0.47	0.34	0.46	0.70	1.74	1.85	0.12	0.96	0.73	0.22	1.07	4.80	0.49	2.06	1.88	0.43	1.03	0.79
3.00	2.53	1.07	16.07	0.62	1.63	4.55	0.67	1.57	0.46	0.34	0.47	1.20	1.97	2.08	0.13	1.07	0.67	0.14	1.07	3.00	0.51	3.81	2.12	0.43	1.15	0.73
2.20	2.81	1.01	9.50	0.62	1.57	2.59	0.73	1.01	0.47	0.34	0.56	1.50	2.14	2.36	0.15	1.07	0.62	0.15	1.12	2.20	0.61	8.66	2.30	0.49	1.15	0.67
1.80	2.92	0.90	6.91	0.51	1.46	2.70	0.73	1.01	0.52	0.34	0.67	1.50	2.08	2.98	0.17	1.01	0.62	0.17	1.12	1.80	0.73	8.90	2.24	0.60	1.09	0.67
1.60	2.59	0.84	6.18	0.48	1.24	2.75	0.62	0.67	0.56	0.34	0.62	1.40	2.02	3.60	0.22	0.96	0.67	0.18	1.35	1.60	0.67	7.38	2.18	0.60	1.03	0.73
1.40	2.92	0.79	5.68	0.49	1.01	2.64	0.56	0.62	0.62	0.34	0.67	1.30	1.85	3.93	0.28	1.07	0.79	0.19	1.46	1.40	0.73	6.66	2.00	0.70	1.15	0.85
1.30	2.75	0.79	5.00	0.48	1.12	2.19	0.56	0.73	0.73	0.37	0.79	1.60	1.74	4.05	0.34	1.18	0.90	0.20	1.24	1.30	0.85	8.72	1.88	0.70	1.27	0.97
1.20	2.64	0.73	4.61	0.47	1.18	1.97	0.56	0.67	0.73	0.40	0.96	1.70	1.74	4.38	0.39	1.12	1.01	0.24	1.18	1.20	1.03	7.32	1.88	0.70	1.21	1.09
1.20	2.87	0.73	4.38	0.46	1.12	1.80	0.67	0.62	0.73	0.40	1.12	0.93	2.02	4.61	0.45	0.96	1.12	0.29	1.07	1.20	1.21	6.84	2.18	0.80	1.03	1.21
1.10	2.64	0.79	4.10	0.46	1.18	1.57	0.73	0.55	0.67	0.98	1.18	1.60	2.53	4.72	0.62	1.01	1.24	0.39	1.01	1.10	1.27	5.87	2.72	0.80	1.09	1.33
1.00	2.81	0.90	3.88	0.51	1.35	1.35	1.07	0.62	0.67	1.20	1.29	1.40	3.43	5.17	0.67	1.07	1.46	0.56	1.01	1.00	1.39	5.33	3.69	0.80	1.15	1.57
1.00	3.26	0.84	3.93	0.48	1.57	1.35	1.18	0.62	0.62	0.88	1.41	1.50	4.22	5.62	0.90	1.57	1.85	0.96	0.96	1.00	1.51	6.48	4.54	1.00	1.69	2.00
1.00	4.05	0.90	4.38	0.47	1.91	1.80	1.29	0.56	0.62	0.79	1.29	1.50	4.72	6.18	1.12	1.41	2.02	1.24	1.24	1.00	1.39	7.38	5.08	1.10	1.51	2.18
1.10	4.44	1.01	5.11	0.46	2.02	2.36	1.63	0.55	0.67	0.83	1.57	1.50	5.40	5.96	1.35	1.18	1.85	1.35	1.35	1.10	1.69	7.99	0.32	1.10	1.27	2.00
1.10	4.66	1.63	5.85	0.48	2.08	2.98	1.85	0.53	0.67	0.99	1.63	1.50	5.40	5.90	1.69	1.41	1.97	1.41	1.52	1.10	1.76	6.42	0.59	1.20	1.51	2.12
1.20	4.89	1.18	6.01	0.46	2.53	3.26	2.42	0.56	0.73	1.00	2.30	1.50	4.22	7.53	1.85	1.46	2.02	4.16	1.46	1.20	2.48	5.14	0.59	1.40	1.57	2.18
1.20	5.17	1.41	5.68	0.46	2.98	3.20	3.20	0.67	0.73	1.10	1.12	1.40	3.65	8.60	2.30	1.41	2.08	5.68	1.35	1.20	1.21	4.66	0.59	1.60	1.51	2.24
1.20	5.45	1.41	6.07	0.46	3.77	2.87	3.77	1.24	0.79	1.00	0.96	1.30	3.60	9.44	2.25	1.57	2.14	3.93	1.24	1.20	1.03	4.18	0.59	1.80	1.69	2.30
1.40	5.79	1.18	7.19	0.46	4.38	2.30	4.22	1.63	0.90	1.00	0.90	1.20	3.48	9.89	2.30	1.80	2.47	3.32	1.18	1.40	0.97	3.87	0.59	2.10	1.94	2.66
1.80	5.90	1.29	8.32	0.48	4.33	1.97	4.27	1.01	0.96	0.93	1.91	1.10	3.77	9.78	2.25	2.19	2.87	3.32	1.24	1.80	2.06	3.69	0.59	2.20	2.36	3.09
2.00	6.13	1.57	8.99	0.49	3.88	2.70	3.48	0.67	1.07	0.88	1.24	1.10	3.93	9.55	2.02	2.47	2.98	4.05	1.52	2.00	1.33	3.63	0.59	2.20	2.66	3.21
2.30	5.73	1.52	9.39	0.55	3.71	3.37	2.87	0.67	1.35	0.79	1.52	1.10	3.54	9.55	2.02	2.53	3.15	5.90	2.30	2.30	1.63	3.51	0.59	2.20	2.72	3.39
2.70	4.55	1.29	10.34	0.67	3.54	3.71	2.70	0.79	1.52	0.79	1.91	1.00	3.65	9.33	1.91	2.53	3.37	5.85	3.71	2.70	2.06	3.39	0.59	2.10	2.72	3.63
2.80	3.93	1.35	11.35	0.79	3.20	4.61	3.26	0.90	1.63	0.83	2.47	1.00	4.10	8.49	1.74	2.36	3.48	6.63	4.44	2.80	2.66	3.57	0.59	1.90	2.54	3.75
2.80	4.16	1.57	11.30	0.84	3.20	5.17	3.71	0.96	2.08	0.99	2.81	1.00	5.34	6.91	1.80	2.19	3.54	7.08	5.06	2.80	3.03	3.81	0.58	1.60	2.36	3.81
2.80	3.71	1.91	10.06	1.07	3.43	5.28	3.82	0.96	2.53	0.96	3.09	1.00	6.24	6.07	1.69	1.69	4.16	6.24	5.79	2.80	3.33	3.81	0.56	1.50	1.82	4.48
2.50	3.93	2.36	8.71	1.24	3.65	6.01	3.99	0.96	3.48	1.10	3.04	1.10	4.89	5.62	1.52	1.69	5.34	4.83	6.52	2.50	3.27	4.06	0.56	1.40	1.82	5.75
2.40	4.27	2.92	8.37	1.07	4.44	6.97	4.10	1.41	4.27	1.20	2.59	1.20	4.72	5.62	1.46	1.46	6.74	3.82	7.08	2.40	2.78	5.02	0.56	1.30	1.57	7.26
2.20	4.33	3.77	7.76	1.07	5.06	7.98	3.88	1.91	4.27	1.20	2.64	1.40	5.56	5.68	1.46	1.69	7.70	3.15	6.97	1.50	2.84	6.36	0.56	1.30	1.82	8.29
2.20	4.33	5.00	7.36	1.12	5.34	8.77	4.33	2.36	4.22	1.00	2.53	1.50	6.97	5.51	1.46	1.57	7.87	2.64	6.52	0.50	2.72	6.84	0.56	1.20	1.69	8.47
2.10	4.89	5.85	6.80	1.46	5.40	9.72	4.44	2.64	4.66	0.93	2.14	1.60	8.21	5.79	1.46	1.52	8.26	2.30	6.80	0.50	2.30	6.96	0.56	1.30	1.63	8.90
1.90	4.95	6.69	6.41	2.14	5.11	10.68	4.05	2.59	5.06	0.96	2.14	1.80	9.67	6.07	1.41	1.46	8.99	2.36	7.87	0.50	2.30	6.78	0.56	1.30	1.57	9.68
1.90	4.44	7.25	6.86	3.15	5.11	11.30	4.38	2.75	5.51	1.10	1.80	1.70	10.34	5.51	1.35	1.97	8.94	2.42	7.98	0.50	1.94	6.42	0.56	1.20	2.12	9.62
2.10	8.09	7.76	8.04	4.10	5.51	10.62	5.56	2.98	5.79	1.20	1.69	1.60	9.67	5.00	1.35	1.57	9.11	2.14	8.66	0.50	1.82	6.05	0.56	1.10	1.69	9.81
2.50	7.64	8.15	9.50	4.78	5.45	9.89	6.24	2.42	6.07	1.20	1.74	1.60	8.77	4.95	1.41	1.46	8.94	1.97	9.50	0.50	1.88	7.08	0.56	1.10	1.57	9.62
2.70	7.98	8.66	10.06	4.89	5.06	10.12	6.97	1.97	5.73	1.20	2.30	1.90	8.32	5.28	1.46	1.46	9.61	1.80	10.40	0.50	2.48	8.23	0.57	1.10	1.57	10.35
2.50	8.88	9.72	8.15	5.23	4.66	9.72	7.87	1.97	8.88	1.10	3.26	2.10	7.64	6.07	1.41	1.74	15.68	1.80	11.13	0.50	3.51	8.59	0.56	1.30	1.88	16.89
2.40	10.00	11.24	8.32	5.85	5.06	9.22	8.43	2.53	7.25	1.10	4.27	2.00	8.71	7.25	1.41	2.75	9.72	1.80	11.63	0.50	4.60	7.32	0.57	1.60	2.97	10.47
2.40	10.90	10.40	8.60	6.13	4.16	8.99	8.66	2.92	6.24	1.30	5.23	1.80	10.17	8.49	1.41	3.82	7.36	1.97	10.85	0.50	5.63	6.36	0.58	2.10	4.12	7.93
2.30	10.68	8.94	7.98	6.63	3.77	8.32	7.42	2.75	6.86	1.50	5.79	1.70	10.57	9.89	1.41	4.78	6.80	2.53	8.21	0.50	6.23	5.51	0.58	2.90	5.14	7.32
2.10	9.89	7.25	6.97	7.03	4.22	8.37	4.95	2.59	7.59	1.40	6.35	1.50	8.66	10.90	1.35	5.23	5.90	3.26	7.31	0.50	6.84	4.84	0.58	3.30	5.63	6.36
2.10	7.87	5.90	6.91	6.18	4.22	8.26	4.38	2.59	8.09	1.30	7.08	1.50	7.36	11.58	1.52	5.96	5.34	3.65	6.18	0.50	0.19	4.60	0.57	3.80	6.42	5.75
2.40	6.74	6.13	8.43	5.00	3.71	7.53	5.11	2.70	8.49	1.30	7.81	1.40	6.35	14.78	2.19	7.08	5.06	3.65	5.68	0.50	0.56	4.24	0.57	4.50	7.63	5.45
3.10	6.24	5.45	11.97	5.56	3.15	7.08	6.07	2.36	9.27	1.70	7.87	1.40	5.85	14.95	3.26	7.92	5.90	3.04	5.28	0.50	0.56	4.12	0.59	5.00	8.53	6.36
4.30	6.18	4.33	17.14	6.69	3.54	6.69	6.13	2.25	8.82	2.10	7.19	1.30	5.51	15.91	4.72	8.26	6.69	2.70	5.28	0.50	0.56	3.99	0.58	6.30	8.90	7.20
5.70	7.14	4.83	19.90	7.14	2.98	5.68	5.90	2.30	7.53	2.40	6.24	1.30	6.13	14.56	6.52	7.14	7.14	2.59	5.96	0.50	0.56	3.99	0.59	6.60	7.69	7.69
6.50	8.99	6.74	17.99	6.97	2.70	4.55	7.48	2.53	7.31	2.40	5.11	1.30	8.26	13.88	7.92	5.79	8.09	3.09	7.36	0.50	0.56	4.66	0.59	6.40	6.23	8.72
6.20	10.00	7.70	16.69	7.03	3.04	4.16	6.41	3.26	8.32	2.10	3.99	1.70	10.96	12.08	6.46	5.56	9.39	4.61	8.37	0.50	0.56	6.42	0.59	5.10	999999	10.11
5.90	8.43	6.91	17.03	7.31	4.27	3.77	6.35	2.92	9.72	2.60	3.43	2.30	14.28	12.36	5.73	6.18	11.35	6.80	8.94	0.50	0.56	8.53	0.59	5.20	999999	12.23
5.80	6.58	6.13	16.81	7.31	5.23	3.43	7.81	2.64	10.06	3.40	3.15	2.90	17.99	14.44	6.35	8.15	14.16	9.16	8.82	0.50	0.56	10.59	0.59	7.00	999999	15.25
6.30	5.56	6.58	19.22	6.97	5.68	3.43	8.88	3.43	10.34	3.80	2.81	3.30	19.33	15.57	8.09	9.39	16.13	10.90	7.48	0.50	0.56	11.50	0.59	8.40	999999	17.37
8.10	5.45	7.70	20.40	6.80	5.96	3.77	8.54	4.66	10.40	4.30	2.81	3.50	20.12	14.33	9.72	7.36	14.61	10.68	6.86	0.50	0.56	11.44	0.59	7.60	999999	15.74
8.70	5.34	7.92	22.48	7.08	6.01	3.77	7.36	6.46	11.07	5.30	3.15	5.00	20.74	13.83	10.90	5.68	13.15	10.51	6.52	0.50	0.56	4.60	0.60	7.40	999999	14.16
9.00	5.79	9.39	21.36	7.08	5.73	3.82	5.73	8.15	11.24	6.60	3.48	9.90	21.98	14.05	12.59	5.68	15.40	12.87	5.79	0.50	0.56	5.70	0.77	7.90	999999	16.58
8.80	5.96	11.02	20.57	5.34	4.50	3.88	4.95	7.36	8.94	7.90	4.16	11.00	22.76	13.60	13.66	6.97	16.58	15.34	5.34	0.50	0.56	5.60	1.10	7.90	999999	17.86
8.60	7.59	10.57	21.53	4.33	4.16	4.10	4.95	4.38	8.15	9.30	5.00	8.00	21.81	12.81	13.26	7.03	17.82	14.56	5.62	0.50	0.56	6.10	1.00	7.60	999999	19.19
8.70	8.77	10.34	19.50	4.66	4.50	4.61	5.40	3.48	7.92	9.30	5.62	6.80	19.39	13.21	13.15	5.73	18.88	11.52	6.86	0.50	0.56	6.80	0.59	9.00	999999	20.34
7.10	8.99	9.78	14.73	5.11	4.44	5.28	5.79	4.27	7.81	7.90	6.41	6.30	17.87	13.71	11.80	5.56	18.43	11.13	8.15	0.50	0.56	999999	0.60	10.00	999999	19.85
6.00	8.71	9.61	12.08	5.11	3.99	5.17	6.13	7.36	7.98	6.80	6.97	5.40	17.20	13.88	10.45	8.71	18.21	12.98	9.22	0.50	0.56	999999	0.61	11.00	999999	19.61
5.20	8.60	9.44	10.17	4.66	3.65	4.78	6.07	10.40	8.09	7.00	6.24	4.60	17.54	13.38	8.37	12.53	15.91	15.46	9.84	0.50	0.56	999999	0.61	11.00	999999	17.13
4.80	9.33	8.54	8.88	4.27	3.32	4.50	5.45	12.76	8.21	6.70	5.23	4.10	16.97	14.28	7.76	14.16	21.81	18.10	9.67	0.50	0.56	999999	0.61	11.00	999999	23.48
4.80	10.23	7.76	9.16	4.22	3.32	4.33	4.72	12.98	8.32	7.00	5.17	4.00	16.30	14.44	7.59	13.66	26.36	18.72	9.33	0.50	0.56	999999	0.61	12.00	999999	28.39
5.20	10.34	7.19	10.62	3.93	3.65	6.35	4.33	9.67	7.81	8.50	6.01	4.70	15.79	14.22	8.99	12.25	19.17	18.55	8.94	0.50	0.56	999999	0.61	11.00	999999	20.64
5.90	10.34	6.01	12.36	3.65	4.44	7.87	3.99	6.74	7.03	11.00	7.03	5.90	16.30	13.60	8.99	11.69	15.74	17.99	8.32	0.50	0.56	999999	0.67	12.00	999999	16.95
6.30	11.30	5.34	14.11	3.60	5.79	5.68	3.48	5.45	6.41	13.00	8.04	7.20	17.82	13.32	8.32	13.66	11.58	18.32	7.76	0.50	0.56	999999	1.10	14.00	999999	12.47
7.80	11.41	5.85	16.41	3.48	6.52	4.50	3.32	5.90	6.18	12.00	8.60	7.40	18.55	12.87	7.36	15.79	9.72	15.34	7.76	0.50	0.59	999999	2.20	16.00	999999	10.47
10.00	11.63	6.46	18.55	3.15	6.91	3.88	3.15	7.19	5.51	11.00	7.76	6.40	17.82	12.70	6.07	14.28	9.84	13.10	8.21	0.50	0.59	999999	2.70	16.00	999999	10.59
12.00	9.84	6.97	18.88	3.04	6.52	3.77	3.04	7.70	4.72	10.00	7.48	5.30	16.36	12.03	5.23	11.41	9.44	12.81	8.77	0.50	0.59	999999	3.00	16.00	999999	10.17
16.00	7.64	6.86	19.22	5.85	6.24	4.89	2.81	10.45	4.22	11.00	6.80	4.60	24.62	11.30	4.95	9.95	8.43	13.94	8.82	0.50	0.59	999999	4.20	16.00	999999	9.08
18.00	6.41	6.58	20.06	6.58	5.62	4.78	2.64	13.04	3.82	13.00	5.45	4.20	92.74	10.62	5.68	9.84	8.26	15.23	8.66	0.58	0.56	999999	12.00	16.00	999999	8.90
19.00	6.46	6.29	20.40	3.71	4.55	3.93	2.47	10.68	3.48	16.00	4.16	4.40	23.89	9.84	5.00	11.30	8.60	14.16	8.77	0.88	0.56	999999	9.90	15.00	999999	9.26
21.00	6.52	6.24	22.88	2.92	4.05	3.65	2.30	7.14	3.15	18.00	3.88	5.80	22.93	9.39	5.40	11.41	9.84	12.08	8.49	2.20	0.56	999999	9.90	16.00	999999	10.59
22.00	7.36	6.01	23.21	2.47	3.99	3.26	2.14	6.35	2.92	18.00	3.43	8.50	17.82	9.33	7.64	10.90	11.63	10.73	7.81	3.50	0.56	999999	9.60	16.00	999999	12.53
22.00	7.59	5.51	21.02	2.25	3.88	2.98	1.97	7.19	2.75	18.00	3.15	12.00	14.73	8.32	9.72	11.35	13.10	10.34	7.25	4.50	0.56	999999	9.30	14.00	999999	14.10
21.00	7.42	4.83	18.60	2.30	3.60	2.75	1.91	7.76	2.42	18.00	3.20	14.00	13.04	7.25	9.22	10.85	13.77	10.06	6.69	3.50	0.56	14.00	9.30	13.00	999999	14.83
19.00	7.08	4.83	15.40	2.19	3.32	2.53	1.85	10.00	2.19	17.00	3.32	14.00	11.47	6.46	9.44	11.07	14.11	9.39	6.69	1.50	0.56	14.00	9.20	13.00	999999	15.19
18.00	6.69	4.78	13.60	2.30	2.92	2.36	2.08	13.10	1.97	18.00	3.43	11.00	10.51	5.96	11.07	10.85	13.26	8.43	7.48	0.50	0.56	999999	8.90	12.00	999999	14.28
19.00	6.29	4.55	15.01	2.19	2.70	2.19	3.04	15.23	1.85	19.00	3.60	11.00	8.71	5.40	14.39	11.47	11.86	7.42	8.09	1.50	0.56	999999	8.50	11.00	999999	12.77
22.00	5.56	4.16	17.65	2.02	2.47	2.02	2.70	14.78	1.69	19.00	3.43	8.60	8.32	5.00	15.74	11.52	10.62	6.52	7.98	4.50	0.56	999999	8.40	9.00	999999	11.44
23.00	5.34	3.65	18.88	1.85	2.25	1.91	2.25	12.59	1.63	16.00	3.43	9.40	8.54	4.72	12.81	11.35	9.55	5.51	7.42	5.50	0.56	999999	8.60	8.60	999999	10.29
25.00	5.17	3.26	19.28	1.74	1.97	1.80	2.87	10.57	1.52	14.00	3.20	12.00	8.77	4.78	10.45	10.12	9.89	4.61	6.80	7.50	0.56	999999	9.20	10.00	999999	10.65
29.00	4.44	2.92	20.40	1.69	1.85	1.69	5.11	10.23	1.41	13.00	2.87	13.00	8.15	5.06	11.69	9.27	8.88	3.93	6.46	12.00	0.56	999999	4.70	13.00	999999	9.56
29.00	4.05	2.75	19.17	1.57	3.71	1.63	3.88	9.89	1.35	14.00	2.59	15.00	7.98	4.89	12.59	7.81	7.70	3.48	6.41	12.00	0.56	15.00	0.52	13.00	999999	8.29
29.00	3.65	2.36	17.93	1.41	2.64	1.57	3.32	8.99	1.24	15.00	2.59	17.00	7.53	4.78	14.56	6.69	6.80	3.09	6.29	12.00	0.56	14.00	0.53	13.00	999999	7.32
28.00	3.20	2.19	16.19	1.35	2.42	1.46	2.75	8.04	1.12	18.00	7.19	19.00	7.42	4.50	19.39	6.35	6.13	2.87	5.96	11.00	0.56	9.60	0.77	13.00	999999	6.60
31.00	2.81	2.02	17.03	1.24	2.25	1.35	2.36	9.16	1.01	16.00	3.54	20.00	7.92	3.88	22.54	6.07	5.68	2.53	5.85	14.00	0.56	10.00	1.30	12.00	999999	6.11
31.00	2.36	2.14	15.62	1.12	1.85	1.35	1.97	10.12	0.96	14.00	2.70	19.00	8.15	3.37	24.45	5.79	5.17	2.25	5.00	14.00	0.56	9.20	2.20	12.00	999999	5.57
30.00	2.14	2.14	14.56	1.07	1.69	1.41	1.80	10.85	0.84	13.00	2.25	19.00	8.15	3.15	25.40	5.56	4.83	1.91	4.44	13.00	0.56	9.30	3.20	11.00	999999	5.21
26.00	2.70	1.91	12.31	0.96	1.57	1.24	1.57	10.34	0.79	13.00	1.91	21.00	7.53	3.32	18.77	5.56	4.66	1.74	4.22	8.80	0.56	11.00	4.30	12.00	999999	5.02
23.00	2.98	1.91	10.51	0.84	1.52	1.18	1.57	8.99	0.73	13.00	1.69	21.00	6.69	3.48	21.92	7.03	4.33	1.63	4.05	5.60	0.56	10.00	4.00	10.00	999999	4.66
22.00	2.25	1.80	9.39	1.29	1.52	1.12	1.46	7.98	0.73	10.00	1.57	17.00	6.24	2.92	27.93	6.74	3.88	1.46	3.77	4.60	0.56	7.00	4.50	10.00	999999	4.18
21.00	2.02	1.69	8.66	1.52	1.52	1.12	1.35	7.48	0.73	9.20	1.46	14.00	5.56	2.47	30.13	5.56	3.54	1.29	3.43	3.60	0.56	4.20	5.30	10.00	5.99	3.81
20.00	1.80	1.57	7.87	1.35	1.35	1.12	1.29	7.08	0.67	9.80	1.29	12.00	5.00	2.36	27.54	4.83	4.61	1.18	3.04	2.60	0.56	2.90	5.20	10.00	5.21	4.96
20.00	1.69	1.41	7.81	1.07	1.24	1.01	1.24	6.86	0.62	11.00	1.18	12.00	4.27	2.08	27.93	4.50	4.61	1.12	2.59	2.60	0.56	0.56	3.30	10.00	4.84	4.96
20.00	1.57	1.29	7.76	0.84	1.18	0.96	1.18	6.63	0.56	14.00	1.07	16.00	3.54	1.85	25.24	4.16	3.88	1.01	2.08	2.60	0.56	1.10	2.90	9.70	4.48	4.18
20.00	1.52	1.12	7.42	0.79	1.12	0.84	1.07	6.13	0.53	16.00	0.96	20.00	3.09	1.69	36.48	4.05	3.15	0.96	1.85	2.60	0.56	4.70	2.70	9.70	4.36	3.39
20.00	1.41	1.01	7.08	0.67	1.07	0.79	0.96	5.28	0.55	16.00	0.84	21.00	2.81	1.57	26.81	3.82	2.81	0.90	1.63	2.60	0.56	10.00	3.30	9.60	4.12	3.03
20.00	1.35	0.96	6.91	0.62	1.01	0.73	0.96	4.50	0.55	17.00	0.79	22.00	2.70	1.57	31.08	3.60	2.70	0.84	1.52	2.60	0.56	13.00	3.60	9.30	3.87	2.91
20.00	1.35	0.90	6.69	0.62	0.90	0.67	0.90	3.71	0.56	18.00	0.73	20.00	2.53	1.91	36.70	3.37	2.47	0.79	1.41	2.60	0.54	13.00	2.20	9.40	3.63	2.66
19.00	1.35	0.79	6.07	0.56	0.84	0.62	0.90	3.20	0.56	19.00	0.73	18.00	2.25	1.80	43.61	3.15	2.25	0.73	1.29	1.60	0.54	14.00	1.70	9.50	3.39	2.42
18.00	1.29	0.73	5.68	0.53	0.79	0.62	0.84	2.87	0.56	17.00	0.67	15.00	2.02	1.41	39.68	2.87	2.08	0.67	1.18	0.60	0.54	15.00	1.20	9.40	3.09	2.24
14.00	1.12	0.67	5.28	0.51	0.79	0.56	0.79	2.53	0.53	17.00	0.62	13.00	1.85	1.29	34.96	2.59	1.80	0.62	1.07	0.60	0.54	999999	0.86	5.00	2.78	1.94
12.00	1.01	0.62	4.95	0.48	0.73	0.50	0.73	2.25	0.45	17.00	0.56	14.00	1.69	1.12	36.14	2.30	1.57	0.55	1.01	0.60	0.54	14.00	0.74	2.60	2.48	1.69
10.00	0.96	0.56	4.38	0.46	0.73	0.47	0.67	2.02	0.45	18.00	0.54	16.00	1.52	1.01	36.48	2.08	1.41	0.52	0.96	0.60	0.54	15.00	0.68	0.40	2.24	1.51
9.50	0.90	0.55	3.82	0.43	1.07	0.44	0.62	1.80	0.43	18.00	0.51	16.00	1.46	0.96	36.87	1.85	1.29	0.48	0.90	0.60	0.53	15.00	0.63	0.49	2.00	1.39
9.50	0.84	0.51	3.60	0.43	0.90	0.43	0.56	1.69	0.42	16.00	0.49	17.00	1.35	0.84	36.65	1.69	1.18	0.43	0.84	0.60	0.53	15.00	0.56	0.49	1.82	1.27
9.50	0.84	0.47	3.37	0.41	0.67	0.41	0.50	1.52	0.38	16.00	0.46	19.00	1.29	0.79	32.82	1.57	1.12	0.39	0.79	0.60	0.49	14.00	0.56	0.49	1.69	1.21
9.60	0.79	0.44	3.15	0.38	0.62	0.39	0.47	1.46	0.39	15.00	0.43	21.00	1.18	0.73	29.90	1.41	1.01	0.35	0.73	0.60	0.47	14.00	0.56	0.48	1.51	1.09
9.50	0.73	0.43	2.87	0.36	0.56	0.37	0.46	1.41	0.47	17.00	0.41	23.00	1.12	0.67	30.24	1.35	0.90	0.33	0.62	0.60	0.44	14.00	0.56	0.44	1.45	0.97
8.70	0.67	0.43	2.53	0.33	0.62	0.36	0.43	1.35	0.43	18.00	0.39	24.00	1.41	0.62	28.78	1.24	0.84	0.31	0.62	0.60	0.42	14.00	0.56	0.44	1.33	0.91
8.70	0.62	0.41	2.30	0.31	0.67	0.36	0.41	1.29	0.40	18.00	0.37	24.00	1.97	0.55	26.70	1.12	0.84	0.31	0.56	0.60	0.40	14.00	0.56	0.44	1.21	0.91
7.60	0.62	0.38	2.08	0.29	0.55	0.35	0.40	1.46	0.36	17.00	0.35	24.00	1.80	0.51	25.91	1.01	0.90	0.30	0.54	0.60	0.38	15.00	0.55	0.42	1.09	0.97
6.70	0.56	0.36	1.80	0.25	0.48	0.34	0.37	1.57	0.34	15.00	0.33	24.00	1.46	0.47	26.53	0.90	0.79	0.28	0.51	0.60	0.36	14.00	0.52	0.42	0.97	0.85
6.20	0.53	0.34	1.63	0.22	0.48	0.32	0.36	2.92	0.35	13.00	0.31	24.00	1.12	0.46	26.47	0.84	0.67	0.28	0.46	0.60	0.33	14.00	0.52	0.42	0.91	0.73
6.20	0.51	0.32	1.46	0.21	0.44	0.31	0.34	1.80	0.40	12.00	0.26	21.00	0.96	0.44	24.22	0.79	0.67	0.25	0.42	0.60	0.28	12.00	0.52	0.41	0.85	0.73
6.00	0.48	0.29	1.35	0.19	0.41	0.31	0.30	1.41	0.38	13.00	0.22	21.00	0.84	0.44	22.82	0.73	0.62	0.21	0.37	0.60	0.24	13.00	0.51	0.42	0.79	0.67
5.90	0.45	0.26	1.24	0.18	0.38	0.27	0.28	1.24	0.35	12.00	0.20	22.00	0.73	0.38	22.76	0.67	0.53	0.19	0.34	0.60	0.21	14.00	0.51	0.42	0.73	0.57
5.60	0.43	0.24	1.18	0.17	0.37	0.22	0.24	1.07	0.31	11.00	0.18	21.00	0.67	0.33	20.12	0.62	0.51	0.16	0.33	0.60	0.19	13.00	0.51	0.42	0.67	0.55
5.10	0.41	0.21	1.07	0.16	0.36	0.20	0.21	0.96	0.25	10.00	0.16	20.00	0.62	0.31	18.49	0.62	0.49	0.15	0.30	0.60	0.18	12.00	0.51	0.42	0.67	0.53
4.40	0.38	0.19	0.96	0.15	0.34	0.18	0.20	0.90	0.20	12.00	0.15	22.00	0.56	0.29	17.42	0.56	0.47	0.16	0.28	0.60	0.16	14.00	0.51	0.42	0.61	0.50
4.00	0.36	0.18	0.90	0.14	0.32	0.15	0.19	0.79	0.17	11.00	0.14	21.00	0.54	0.28	16.07	0.51	0.47	0.19	0.25	0.60	0.15	13.00	0.51	0.42	0.55	0.50
3.70	0.34	0.17	0.84	0.13	0.27	0.13	0.17	0.73	0.16	9.70	0.13	19.00	0.49	0.28	15.23	0.47	0.43	0.53	0.24	0.60	0.14	12.00	0.51	0.42	0.51	0.46
3.40	0.32	0.15	0.79	0.12	0.24	0.12	0.15	0.67	0.14	8.60	0.11	20.00	0.45	0.27	15.40	0.44	0.36	0.44	0.22	0.60	0.12	12.00	0.51	0.42	0.48	0.39
3.30	0.29	0.14	0.73	0.12	0.22	0.12	0.13	0.67	0.13	7.50	0.10	20.00	0.42	0.27	14.28	0.41	0.34	0.47	0.19	0.60	0.11	11.00	0.51	0.42	0.44	0.36
2.90	0.26	0.15	0.67	0.11	0.20	0.11	0.12	0.62	0.13	6.70	0.09	17.00	0.37	0.26	12.14	0.39	0.33	0.30	0.17	0.60	0.10	12.00	0.51	0.42	0.42	0.35
2.90	0.24	0.14	0.67	0.11	0.18	0.11	0.12	0.56	0.25	6.70	0.08	15.00	0.39	0.26	10.57	0.42	0.31	0.26	0.16	0.60	0.09	14.00	0.51	0.42	0.45	0.34
2.90	0.22	0.13	0.62	0.10	0.17	0.10	0.17	0.52	1.29	5.60	0.08	13.00	0.56	0.26	9.95	0.47	0.30	0.20	0.17	0.60	0.08	999999	0.51	0.42	0.51	0.32
2.90	0.22	0.12	0.56	0.09	0.16	0.10	0.17	0.49	0.73	4.90	0.08	12.00	0.47	0.25	9.22	0.51	0.28	0.17	0.15	0.60	0.08	999999	0.51	0.42	0.54	0.30
2.60	0.24	0.11	0.53	0.08	0.15	0.09	0.11	0.47	0.79	4.50	0.07	12.00	0.43	0.24	8.21	0.67	0.25	0.15	0.13	0.60	0.08	7.30	1	0.42	0.73	0.27
2.20	0.34	0.10	0.47	0.08	0.14	0.08	0.10	0.45	0.79	3.90	0.07	13.00	0.34	0.21	7.53	0.48	0.24	0.13	0.12	0.60	0.07	0.59	0	0.42	0.51	0.25
2.00	0.50	0.11	0.43	0.08	0.13	0.08	0.09	0.42	0.53	3.50	0.06	14.00	0.31	0.19	7.14	0.39	0.22	0.12	0.11	0.60	0.07	0.59	1	0.42	0.42	0.24
1.80	0.54	0.12	0.42	0.07	0.12	0.07	0.08	0.40	0.43	3.10	0.06	17.00	0.29	0.19	6.63	0.34	0.21	0.12	0.10	0.60	0.06	1.20	1	0.40	0.36	0.22
1.70	0.62	0.10	0.40	0.07	0.10	0.07	0.08	0.39	0.38	3.00	0.05	14.00	0.29	0.19	5.96	0.31	0.18	0.11	0.10	0.60	0.06	0.59	1	0.40	0.34	0.19
1.60	0.42	0.09	0.39	0.08	0.09	0.07	0.07	0.39	0.34	2.90	0.06	12.00	0.28	0.16	5.34	0.30	0.16	0.11	0.09	0.60	0.06	0.59	1	0.40	0.32	0.18
1.50	0.53	0.14	0.37	0.07	0.09	0.06	0.07	0.44	0.31	2.70	0.06	11.00	0.27	0.15	4.89	0.29	0.15	0.10	0.08	0.60	0.06	0.59	1	0.40	0.31	0.16
1.60	0.39	0.15	0.37	0.07	0.07	0.05	0.06	0.41	0.26	2.60	0.06	11.00	0.26	0.15	4.55	0.28	0.14	0.09	0.07	0.60	0.06	0.59	1	0.40	0.30	0.15
1.60	0.38	0.12	0.39	0.07	0.07	0.05	0.06	0.38	0.22	2.30	0.05	10.00	0.23	0.26	5.17	0.26	0.12	0.08	0.06	0.50	0.06	0.59	1	0.40	0.28	0.13
2.10	0.50	0.10	0.44	0.07	0.15	0.05	0.05	0.35	0.20	2.30	0.05	8.70	0.21	0.25	4.66	0.22	0.11	0.08	0.06	0.50	0.05	0.59	1	0.40	0.24	0.12
1.80	0.39	0.08	0.40	0.07	0.37	0.04	0.05	0.33	0.18	2.30	0.04	8.50	0.20	0.24	3.77	0.21	0.11	0.07	0.05	0.50	0.04	0.61	1	0.40	0.22	0.12
1.50	0.32	0.08	0.39	0.06	0.16	0.04	0.04	0.29	0.16	2.30	0.04	7.90	0.18	0.22	3.09	0.20	0.10	0.07	0.05	0.50	0.04	0.61	1	0.40	0.21	0.11
1.40	0.24	0.10	0.36	0.05	0.11	0.04	0.04	0.24	0.14	2.30	0.03	7.30	0.16	0.16	2.59	0.17	0.09	0.06	0.04	0.50	0.04	0.61	1	0.40	0.19	0.10
1.30	0.20	0.07	0.35	0.05	0.09	0.04	0.04	0.20	0.13	2.00	0.03	7.50	0.16	0.13	2.30	0.16	0.09	0.06	0.04	0.50	0.03	0.61	1	0.40	0.17	0.10
1.20	0.19	0.07	0.32	0.04	0.07	0.03	0.04	0.18	0.12	1.80	0.03	7.30	0.19	0.12	2.02	0.15	0.08	0.05	0.04	0.50	0.03	0.61	1	0.40	0.16	0.08
1.10	0.17	0.06	0.31	0.04	0.07	0.03	0.04	0.16	0.11	1.60	0.02	7.30	0.16	0.12	1.80	0.13	0.07	0.04	0.03	0.50	0.03	0.61	1	0.40	0.15	0.08
1.10	0.16	0.05	0.29	0.04	0.06	0.03	0.03	0.14	0.10	1.40	0.02	6.90	0.13	0.11	1.63	0.12	0.07	0.04	0.03	0.50	0.02	0.61	1	0.40	0.13	0.07
1.00	0.24	0.05	0.25	0.03	0.06	0.03	0.03	0.13	0.09	1.30	0.02	6.00	0.12	0.10	1.46	0.12	0.07	0.04	0.03	0.50	0.02	0.61	1	0.40	0.13	0.07
0.89	0.26	0.05	0.22	0.03	0.05	0.03	0.03	0.13	0.09	1.30	0.02	5.70	0.11	0.09	1.29	0.11	0.06	0.04	0.02	0.50	0.02	0.59	1	0.40	0.12	0.07
0.84	0.20	0.05	0.20	0.03	0.05	0.02	0.03	0.12	0.07	1.20	0.02	5.40	0.11	0.08	1.18	0.11	0.06	0.04	0.02	0.50	0.02	0.59	0	0.40	0.12	0.06
0.79	0.16	0.04	0.19	0.03	0.04	0.02	0.03	0.11	0.07	1.20	0.02	5.20	0.10	0.08	1.07	0.11	0.06	0.03	0.02	0.50	0.02	0.59	0	0.40	0.12	0.06
0.74	0.14	0.04	0.17	0.03	0.04	0.02	0.02	0.10	0.06	1.10	0.02	4.90	0.10	0.07	0.96	0.10	0.06	0.03	0.02	0.50	0.02	0.59	0	0.40	0.10	0.06
0.69	0.12	0.03	0.16	0.02	0.04	0.02	0.02	0.10	0.06	1.10	0.01	4.80	0.10	0.07	0.90	0.09	0.05	0.03	0.02	0.50	0.02	0.59	0	0.39	0.10	0.05
0.69	0.11	0.03	0.15	0.02	0.04	0.02	0.02	0.10	0.06	0.93	0.01	4.30	0.09	0.06	0.79	0.09	0.05	0.03	0.02	0.50	0.01	0.59	0	0.36	0.10	0.05
0.69	0.11	0.03	0.14	0.02	0.04	0.02	0.03	0.10	0.05	0.89	0.01	3.70	0.08	0.05	0.73	0.10	0.04	0.02	0.02	0.50	0.01	0.59	999999	0.36	0.11	0.04
0.65	0.11	0.03	0.13	0.02	0.04	0.07	0.04	0.09	0.05	0.82	0.01	3.30	0.08	0.05	0.67	0.10	0.04	0.02	0.02	0.50	0.01	0.59	999999	0.34	0.11	0.04
0.61	0.10	0.03	0.12	0.02	0.03	0.10	0.03	0.08	0.05	0.80	0.01	3.00	0.07	0.05	0.62	0.09	0.04	0.02	0.02	0.50	0.01	0.59	999999	0.32	0.10	0.04
0.61	0.09	0.02	0.12	0.02	0.03	0.06	0.02	0.07	0.04	0.75	0.01	2.90	0.07	0.04	0.55	0.08	0.04	0.02	0.02	0.50	0.01	0.59	999999	0.32	0.09	0.04
0.61	0.09	0.02	0.11	0.01	0.03	0.04	0.02	0.07	0.04	0.65	0.01	2.70	0.06	0.04	0.53	0.10	0.03	0.02	0.02	0.50	0.01	0.59	999999	0.32	0.10	0.04
0.61	0.08	0.02	0.10	0.01	0.02	0.03	0.02	0.07	0.04	0.61	0.01	2.30	0.07	0.04	0.51	0.10	0.03	0.02	0.01	0.50	0.01	0.59	999999	0.30	0.10	0.03
0.57	0.08	0.02	0.10	0.01	0.02	0.03	0.02	0.08	0.04	0.61	0.01	2.30	0.06	0.04	0.48	0.08	0.03	0.02	0.01	0.50	0.01	0.59	999999	0.30	0.08	0.03
0.49	0.07	0.02	0.09	0.01	0.02	0.02	0.01	0.08	0.03	0.65	0.01	2.30	0.05	0.04	0.46	0.07	0.03	0.02	0.01	0.50	0.01	0.59	999999	0.30	0.08	0.03
0.49	0.08	0.02	0.08	0.01	0.02	0.02	0.01	0.08	0.03	0.65	0.01	2.20	0.05	0.04	0.40	0.07	0.03	0.01	0.01	0.50	0.01	0.59	999999	999999	0.07	0.03
0.45	0.10	0.02	0.08	0.01	0.02	0.02	0.01	0.08	0.03	0.61	0.01	2.20	0.05	0.03	0.36	0.06	0.03	0.01	0.01	0.50	0.01	0.59	999999	999999	0.07	0.03
0.38	0.10	0.02	0.08	0.01	0.02	0.02	0.01	0.08	0.03	0.57	0.01	2.10	0.05	0.03	0.33	0.06	0.03	0.01	0.01	0.50	0.01	0.59	999999	999999	0.06	0.03
0.35	0.08	0.02	0.07	0.01	0.02	0.02	0.01	0.07	0.03	0.54	0.01	1.90	0.05	0.03	0.32	0.05	0.02	0.01	0.01	0.40	0.01	0.59	999999	999999	0.06	0.02
0.32	0.07	0.02	0.07	0.01	0.02	0.02	0.02	0.06	0.02	0.54	0.01	1.70	0.04	0.03	0.33	0.05	0.02	0.01	0.01	0.40	0.01	0.59	999999	999999	0.05	0.02
0.38	0.06	0.02	0.07	0.01	0.01	0.01	0.02	0.05	0.02	0.54	0.01	1.60	0.04	0.03	0.34	0.04	0.02	0.01	0.01	0.40	0.01	0.59	999999	999999	0.05	0.02
0.42	0.06	0.02	0.08	0.01	0.01	0.02	0.02	0.05	0.02	0.50	0.01	1.60	0.04	0.03	0.31	0.04	0.02	0.01	0.01	0.40	0.01	0.59	999999	999999	0.04	0.02
0.35	0.08	0.02	0.07	0.01	0.01	0.01	0.02	0.05	0.02	0.50	0.01	1.70	0.04	0.03	0.30	0.04	0.02	0.01	0.01	0.40	0.01	0.59	999999	999999	0.04	0.02
0.32	0.08	0.01	0.06	0.01	0.01	0.02	0.02	0.04	0.02	0.50	0.01	1.70	0.04	0.02	0.29	0.04	0.02	0.01	0.01	0.30	0.01	0.59	999999	999999	0.04	0.02
0.32	0.07	0.01	0.06	0.01	0.01	0.02	0.01	0.04	0.02	0.47	0.01	1.60	0.04	0.02	0.28	0.03	0.02	0.01	0.01	0.30	0.01	0.59	999999	999999	0.04	0.02
0.27	0.06	0.01	0.05	0.01	0.01	0.02	0.01	0.04	0.02	0.47	0.01	1.40	0.03	0.02	0.28	0.03	0.02	0.01	0.01	0.30	0.01	0.59	999999	999999	0.03	0.02
0.27	0.06	0.01	0.05	0.01	0.02	0.02	0.01	0.03	0.02	0.47	0.01	1.30	0.03	0.02	0.26	0.03	0.02	0.01	0.01	0.30	0.01	0.59	999999	999999	0.03	0.02
0.30	0.05	0.01	0.05	0.01	0.05	0.01	0.01	0.03	0.01	0.44	0.01	1.20	0.03	0.02	0.25	0.04	0.02	0.01	0.01	0.30	0.01	0.56	999999	999999	0.04	0.02
0.30	0.04	0.01	0.05	0.01	0.03	0.01	0.01	0.03	0.01	0.40	0.01	1.20	0.03	0.02	0.23	0.04	0.02	0.01	0.01	0.30	0.01	0.56	999999	999999	0.04	0.02
0.27	0.04	0.01	0.05	0.01	0.03	0.01	0.01	0.03	0.01	0.37	0.01	1.00	0.03	0.02	0.21	0.03	0.02	0.01	0.01	0.30	0.01	0.56	999999	999999	0.03	0.02
0.27	0.04	0.01	0.04	0.01	0.02	0.01	0.01	0.03	0.01	0.37	0.01	0.94	0.03	0.02	0.19	0.03	0.02	0.01	0.01	0.30	0.01	0.56	999999	999999	0.03	0.02
0.27	0.04	0.01	0.05	0.01	0.02	0.01	0.01	0.02	0.02	0.37	0.01	0.91	0.03	0.02	0.19	0.03	0.02	0.01	0.01	0.30	0.01	0.56	999999	999999	0.03	0.02
0.27	0.04	0.01	0.05	0.01	0.02	0.01	0.01	0.02	0.02	0.37	0.01	0.94	0.03	0.02	0.18	0.03	0.04	0.01	0.01	0.30	0.01	0.56	999999	999999	0.03	0.05
0.25	0.04	0.01	0.04	0.01	0.02	0.01	0.01	0.02	0.02	0.37	0.01	0.92	0.02	0.02	0.16	0.03	0.06	0.01	0.01	0.30	0.01	0.56	999999	0.27	0.04	0.06
0.25	0.04	0.01	0.04	0.01	0.02	0.01	0.01	0.02	0.02	0.37	0.01	0.93	0.02	0.04	0.17	0.03	0.05	0.01	0.01	0.30	0.01	0.56	999999	0.28	0.04	0.05
0.25	0.03	0.02	0.04	0.01	0.02	0.01	0.01	0.02	0.02	0.34	0.01	0.93	0.02	0.04	0.25	0.03	0.04	0.01	0.01	0.30	0.01	0.56	999999	0.24	0.03	0.04
0.22	0.03	0.02	0.04	0.01	0.01	0.01	0.01	0.02	0.02	0.34	0.01	0.84	0.02	0.03	0.28	0.03	0.03	0.01	0.01	0.20	0.01	0.56	999999	0.23	0.03	0.04
0.22	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.04	0.02	0.34	0.01	0.74	0.02	0.03	0.34	0.03	0.03	0.01	0.01	0.20	0.01	0.56	999999	0.22	0.03	0.03
0.22	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.04	0.01	0.34	0.01	0.70	0.02	0.03	0.35	0.03	0.03	0.01	0.01	0.20	0.01	0.56	999999	999999	0.03	0.03
0.22	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.03	0.01	0.31	0.01	0.67	0.02	0.02	0.28	0.02	0.02	0.01	0.01	0.20	0.01	0.56	999999	999999	0.02	0.03
0.19	0.03	0.03	0.03	0.01	0.01	0.01	0.01	0.03	0.01	0.31	0.01	0.66	0.02	0.02	0.31	0.02	0.02	0.01	0.01	0.20	0.01	0.56	999999	999999	0.02	0.02
0.19	0.03	0.03	0.04	0.01	0.01	0.01	0.01	0.03	0.01	0.31	0.01	0.65	0.02	0.02	0.30	0.02	0.02	0.01	0.01	0.20	0.01	0.56	999999	999999	0.02	0.02
0.25	0.03	0.08	0.04	0.01	0.01	0.01	0.01	0.03	0.01	0.31	0.01	0.62	0.02	0.02	0.27	0.02	0.02	0.01	0.01	0.20	0.01	0.56	999999	999999	0.02	0.02
0.25	0.03	0.08	0.03	0.01	0.01	0.01	0.01	0.03	0.01	0.31	0.01	0.59	0.02	0.02	0.22	0.02	0.02	0.01	0.01	0.20	0.01	0.56	0.02	0.18	0.02	0.02
0.27	0.04	0.05	0.04	0.01	0.01	0.01	0.01	0.03	0.01	0.34	0.01	0.57	0.02	0.02	0.19	0.02	0.02	0.01	0.01	0.20	0.01	0.55	0.02	0.08	0.02	0.02
0.30	0.03	0.04	0.04	0.01	0.01	0.01	0.01	0.02	0.01	0.34	0.01	0.55	0.03	0.02	0.17	0.02	0.02	0.01	0.01	0.30	0.01	0.53	0.03	0.06	0.02	0.02
0.30	0.03	0.03	0.04	0.01	0.01	0.01	0.01	0.02	0.01	0.34	0.01	0.53	0.03	0.02	0.19	0.02	0.02	0.01	0.01	0.30	0.01	0.12	0.03	0.06	0.02	0.02
0.32	0.03	0.03	0.04	0.01	0.01	0.01	0.01	0.02	0.01	0.34	0.01	0.52	0.03	0.02	0.16	0.02	0.01	0.01	0.01	0.30	0.01	0.11	0.03	0.06	0.02	0.02
0.42	0.03	0.03	0.06	0.01	0.01	0.27	0.01	0.01	0.01	0.34	0.01	0.52	0.03	0.02	0.15	0.02	0.01	0.01	0.01	0.30	0.01	0.10	0.03	0.14	0.02	0.01
0.61	0.04	0.05	0.11	0.01	0.01	0.20	0.01	0.01	0.03	0.37	0.01	0.51	0.03	0.03	0.13	0.02	0.01	0.01	0.01	0.30	0.01	0.10	0.03	999999	0.02	0.01
0.45	0.04	0.08	0.08	0.01	0.01	0.20	0.01	0.01	0.02	0.34	0.01	0.50	0.03	0.04	0.13	0.02	0.01	0.01	0.01	0.30	0.01	0.10	0.03	999999	0.02	0.01
0.38	0.03	0.05	0.07	0.01	0.01	0.14	0.01	0.01	0.02	0.37	0.01	0.49	0.03	0.04	0.12	0.02	0.01	0.01	0.01	0.30	0.01	0.09	0.03	999999	0.02	0.01
0.35	0.04	0.04	0.07	0.01	0.01	0.08	0.01	0.01	0.01	0.34	0.01	0.49	0.03	0.03	0.12	0.02	0.01	0.01	0.01	0.30	0.01	0.09	0.03	999999	0.02	0.01
0.35	0.04	0.04	0.07	0.01	0.01	0.06	0.01	0.01	0.01	0.34	0.01	0.50	0.03	0.03	0.13	0.03	0.01	0.01	0.01	0.30	0.01	0.09	0.03	999999	0.03	0.01
0.35	0.03	0.03	0.07	0.01	0.01	0.05	0.04	0.01	0.01	0.34	0.01	0.49	0.02	0.02	0.12	0.09	0.02	0.01	0.01	0.30	0.01	0.08	0.03	999999	0.10	0.02
0.57	0.03	0.03	0.16	0.01	0.01	0.04	0.05	0.01	0.01	0.34	0.01	0.50	0.02	0.02	0.12	0.05	0.02	0.01	0.01	0.30	0.01	0.08	0.03	999999	0.06	0.02
0.74	0.03	0.03	0.30	0.01	0.01	0.03	0.03	0.01	0.01	0.31	0.01	0.50	0.02	0.02	0.12	0.04	0.02	0.01	0.01	0.30	0.01	0.09	0.02	999999	0.04	0.02
0.69	0.03	0.02	0.22	0.01	0.01	0.03	0.02	0.01	0.01	0.31	0.01	0.49	0.02	0.03	0.20	0.03	0.01	0.01	0.01	0.30	0.01	0.09	0.02	999999	0.03	0.02
0.74	0.03	0.02	0.24	0.01	0.01	0.03	0.02	0.01	0.01	0.30	0.01	0.48	0.02	0.03	0.38	0.03	0.01	0.01	0.01	0.30	0.01	0.08	0.02	999999	0.03	0.02
0.74	0.03	0.02	0.22	0.01	0.01	0.03	0.02	0.01	0.01	0.31	0.05	0.50	0.02	0.03	0.29	0.02	0.01	0.01	0.01	0.30	0.05	0.09	0.02	999999	0.03	0.01
0.79	0.03	0.02	0.19	0.01	0.01	0.10	0.02	0.01	0.01	0.27	0.11	0.50	0.02	0.02	0.28	0.02	0.01	0.01	0.01	0.30	0.12	0.10	0.02	999999	0.02	0.01
0.84	0.03	0.03	0.15	0.01	0.01	0.10	0.02	0.01	0.01	0.27	0.06	0.49	0.02	0.02	0.26	0.02	0.01	0.01	0.01	0.30	0.06	0.09	0.02	999999	0.02	0.01

Table CAWG 6 Appendix L-7a. Mono Creek below Diversion IHA Annual Summary Statistics for Unimpaired (1933-1952)and Existing (1984-2002) Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Mono Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1933	21.48	17.93	18.19	25.00	32.00	46.00	119.20	197.42	648.03	258.19	55.35	20.53	16.00	16.00	16.00	15.30	17.71	1110.00	1070.00	983.29	667.27	370.33	.00	.13	324.00	166.00	2.00	74.50	2.00	29.50	25.11	-13.92	51.00
	1934	15.45	18.60	25.16	35.00	38.69	94.77	181.63	223.03	130.67	63.97	34.65	21.87	14.00	14.67	15.00	15.30	19.61	348.00	337.33	320.57	241.50	181.14	.00	.20	335.00	133.00	6.00	10.33	3.00	13.67	8.37	-5.87	73.00
	1935	17.97	23.27	23.00	32.00	42.00	51.39	162.17	391.29	756.50	243.61	77.71	33.67	15.00	15.00	15.00	17.93	20.63	990.00	970.00	955.71	763.43	479.13	.00	.10	278.00	164.00	5.00	9.60	1.00	93.00	26.49	-17.19	52.00
	1936	22.68	19.00	20.00	35.00	55.00	80.00	276.13	591.71	599.17	293.55	91.94	28.80	15.00	16.33	17.86	18.73	20.46	882.00	845.33	819.43	617.07	525.70	.00	.10	304.00	175.00	3.00	30.67	2.00	55.50	32.86	-22.18	45.00
	1937	24.16	21.47	25.00	30.00	50.00	59.03	152.97	677.23	722.13	309.23	74.23	26.03	16.00	17.00	18.29	19.13	20.37	1030.00	1020.00	924.00	801.50	577.51	.00	.10	335.00	135.00	4.00	27.50	1.00	100.00	39.77	-21.55	57.00
	1938	19.00	19.40	56.55	36.29	56.03	67.58	208.63	620.23	1134.93	672.06	233.29	86.63	16.00	16.67	17.00	18.00	31.57	1550.00	1530.00	1452.86	1155.43	828.14	.00	.06	313.00	155.00	1.00	.00	3.00	41.00	39.50	-27.75	80.00
	1939	49.71	43.47	32.68	32.00	42.00	61.23	214.67	281.06	204.83	92.58	52.77	29.23	16.00	16.33	17.86	23.57	27.61	433.00	411.33	364.29	281.87	236.19	.00	.19	261.00	151.00	1.00	24.00	5.00	13.00	15.62	-10.48	64.00
	1940	46.55	21.53	12.94	38.29	35.39	79.19	204.93	686.58	728.27	207.94	56.87	23.97	12.00	12.00	12.00	12.67	21.48	964.00	917.33	892.71	833.77	573.23	.00	.07	344.00	146.00	2.00	45.00	1.00	93.00	21.22	-13.60	59.00
	1941	20.16	22.10	25.00	45.00	48.00	59.45	113.77	677.48	887.43	548.48	160.48	46.03	16.00	16.00	16.00	20.03	22.37	1160.00	1106.67	1086.29	911.20	713.89	.00	.07	292.00	172.00	4.00	16.00	3.00	36.00	33.12	-25.31	59.00
	1942	30.58	48.93	65.00	65.00	55.09	59.00	155.13	363.77	794.50	478.26	126.74	37.23	26.00	26.00	25.14	22.93	27.51	1000.00	962.00	951.14	819.10	551.82	.00	.13	291.00	167.00	3.00	6.67	2.00	47.50	30.66	-18.78	56.00
	1943	22.71	29.40	32.00	43.00	56.00	71.10	247.90	607.94	564.93	382.55	107.23	36.87	19.00	20.00	20.43	22.00	21.39	1190.00	1153.33	1056.14	716.57	536.78	.00	.11	303.00	149.00	3.00	5.33	1.00	110.00	34.66	-21.44	67.00
	1944	22.87	20.80	20.00	27.00	35.00	56.00	82.97	353.94	391.10	238.19	57.19	23.23	15.00	15.00	15.71	15.27	21.01	660.00	598.33	514.14	425.20	331.76	.00	.14	271.00	160.00	2.00	73.00	1.00	79.00	25.58	-14.63	58.00
	1945	15.48	28.87	28.00	27.00	49.00	45.00	164.70	447.35	738.80	486.61	154.03	56.50	14.00	14.00	14.00	15.27	23.98	1130.00	1116.67	1059.14	835.13	567.59	.00	.07	286.00	172.00	3.00	22.67	1.00	114.00	36.12	-22.72	51.00
	1946	60.84	61.20	50.65	49.84	45.26	73.55	260.00	564.35	498.97	227.26	80.71	33.53	24.00	24.33	24.71	33.53	37.79	772.00	761.33	715.57	602.50	472.60	.00	.15	273.00	128.00	2.00	5.50	3.00	31.67	28.08	-17.19	55.00
	1947	42.61	38.00	46.00	39.00	43.00	69.42	169.17	526.90	315.27	105.29	40.87	28.40	21.00	21.00	22.14	27.47	33.62	756.00	728.67	683.00	531.77	349.64	.00	.18	258.00	144.00	3.00	10.00	2.00	36.00	26.38	-14.53	52.00
	1948	39.61	37.63	23.00	23.00	21.00	31.00	77.80	362.58	531.00	190.58	45.55	19.43	16.00	16.00	15.57	15.10	15.06	675.00	663.33	642.14	534.00	367.78	.00	.13	265.00	148.00	3.00	41.67	1.00	75.00	28.97	-16.57	36.00
	1949	15.16	16.83	13.00	14.00	17.00	28.00	160.50	388.68	441.50	118.13	46.45	20.07	13.00	13.00	13.00	13.00	14.43	762.00	746.33	706.29	526.70	348.63	.00	.12	303.00	162.00	4.00	15.75	1.00	76.00	25.39	-15.73	48.00
	1950	15.16	23.70	19.23	27.19	42.91	57.00	234.57	446.55	487.20	182.42	41.42	31.73	13.00	13.00	13.00	15.13	19.28	888.00	853.33	834.00	607.80	415.17	.00	.10	275.00	152.00	5.00	13.80	2.00	42.00	19.30	-13.42	63.00
	1951	19.32	123.70	127.13	76.77	74.43	82.00	216.33	459.90	625.23	267.74	67.39	26.43	16.00	16.00	16.00	18.87	23.88	1080.00	1046.67	918.43	717.20	462.31	.00	.09	284.00	148.00	3.00	10.67	5.00	22.80	32.74	-19.21	71.00
	1952	20.68	25.00	41.00	53.87	45.00	60.71	220.70	713.87	808.33	541.94	182.87	57.40	17.00	17.33	14.26	10.72	9.48	1190.00	1156.67	1078.14	927.93	692.50	.00	.06	286.00	157.00	2.00	15.00	1.00	118.00	31.71	-22.68	61.00
E	1984	9.79	7.86	10.02	8.95	8.13	5.72	8.40	13.42	13.67	34.10	13.84	16.73	2.60	2.80	3.14	5.21	7.28	443.00	205.33	104.00	35.07	23.84	.00	.25	67.00	200.00	3.00	22.67	1.00	1.00	5.86	-12.09	46.00
	1985	15.75	7.72	8.60	8.92	7.79	8.76	8.08	9.28	9.14	9.22	9.29	8.75	7.60	7.30	6.64	6.51	6.24	68.00	63.00	38.66	15.97	10.75	.00	.71	322.00	277.00	1.00	361.00	.00	.00	.24	-1.22	13.00
	1986	6.48	6.49	5.66	6.51	6.68	6.98	8.61	14.26	16.80	91.55	15.03	14.03	5.10	5.10	5.11	5.62	6.16	421.00	289.00	225.29	95.33	41.98	.00	.31	336.00	189.00	8.00	24.38	2.00	3.00	17.58	-18.49	34.00
	1987	10.53	8.61	8.47	8.15	8.43	9.20	9.55	11.13	12.93	14.13	12.66	10.39	7.40	7.47	7.60	7.25	6.74	27.00	17.67	15.00	14.17	13.53	.00	.73	27.00	154.00	2.00	107.00	.00	.00	.78	-.75	28.00
	1988	7.13	6.42	6.49	6.06	6.04	6.03	6.68	10.68	10.93	10.03	10.09	10.60	5.90	5.90	5.90	5.95	6.04	12.00	11.67	11.00	10.97	10.58	.00	.73	60.00	182.00	2.00	.50	.00	.00	.41	-.36	37.00
	1989	7.61	6.20	6.34	6.27	6.30	6.09	6.28	10.48	12.43	10.77	10.26	12.50	5.80	5.87	5.89	6.09	6.21	38.00	24.33	18.00	12.60	11.23	.00	.69	114.00	173.00	3.00	71.00	.00	.00	1.02	-1.01	68.00
	1990	6.96	5.77	5.88	5.81	5.86	5.84	6.09	10.21	9.98	9.95	11.10	10.57	5.60	5.63	5.67	5.76	5.81	12.00	11.67	11.43	11.17	10.55	.00	.72	90.00	144.00	2.00	107.00	.00	.00	.54	-.44	51.00
	1991	9.16	9.32	7.65	5.88	6.73	6.12	6.03	9.94	10.80	9.91	10.17	10.49	4.10	4.10	4.19	4.63	5.84	17.00	17.00	16.43	11.68	10.34	.00	.49	347.00	341.00	2.00	107.00	.00	.00	.86	-.86	73.00
	1992	7.54	5.62	5.83	6.47	5.96	5.90	5.88	10.00	10.09	10.44	10.02	10.05	5.50	5.50	5.51	5.59	5.90	13.00	12.33	11.14	10.56	10.27	.00	.70	334.00	275.00	2.00	.50	.00	.00	.40	-.48	43.00
	1993	7.69	5.73	5.69	5.66	5.69	5.84	6.26	13.90	15.27	108.29	14.97	14.77	5.40	5.43	5.49	5.58	5.66	300.00	262.67	221.00	112.33	47.30	.00	.31	349.00	201.00	5.00	38.00	2.00	3.50	12.35	-11.23	49.00
	1994	11.35	10.08	8.99	9.05	8.97	8.36	8.30	9.45	10.20	10.06	9.85	9.67	7.50	7.70	7.36	6.81	6.17	21.00	13.33	11.71	11.40	10.17	.00	.77	88.00	325.00	2.00	107.00	.00	.00	.72	-.48	52.00
	1995	6.72	5.85	5.76	5.81	6.83	6.87	18.54	18.58	21.53	683.68	141.26	16.43	5.30	5.30	5.40	5.65	5.79	1300.00	1283.33	1230.00	797.60	290.99	.00	.07	317.00	193.00	9.00	18.56	2.00	13.00	30.69	-28.90	69.00
	1996	11.27	23.15	27.02	9.95	9.55	8.04	9.52	14.90	138.70	89.19	13.65	13.93	7.80	7.87	7.89	8.04	8.86	525.00	510.33	494.86	216.67	81.93	.00	.26	9.00	172.00	7.00	38.86	4.00	4.00	18.56	-16.36	103.00
	1997	10.51	7.98	7.82	20.86	25.46	17.74	15.73	14.00	335.67	24.87	14.71	13.53	7.60	7.67	7.69	7.75	8.63	604.00	569.67	499.14	337.77	125.36	.00	.18	328.00	173.00	7.00	25.71	2.00	12.50	28.98	-27.43	65.00
	1998	12.61	12.03	9.53	7.70	7.69	12.69	12.57	14.68	13.87	79.58	40.52	16.87	7.50	7.50	7.58	7.67	8.18	326.00	320.67	286.57	107.67	46.80	.00	.38	61.00	211.00	6.00	32.83	2.00	4.00	19.64	-17.96	28.00
	1999	11.29	9.97	8.97	10.00	9.03	8.65	9.29	16.06	15.00	16.03	15.58	15.60	8.50	8.53	8.57	8.62	8.90	35.00	26.00	19.71	16.20	15.82	.00	.71	94.00	271.00	4.00	52.75	.00	.00	2.37	-2.19	35.00
	2000	11.16	11.00	11.54	9.98	9.72	11.56	12.00	17.00	16.97	14.16	14.26	15.97	9.70	9.70	9.70	9.71	10.27	23.00	23.00	23.00	22.50	21.60	.00	.75	10.00	268.00	2.00	107.00	.00	.00	1.69	-1.21	28.00
	2001	22.87	22.03	17.26	13.13	12.43	11.87	12.17	13.00	13.00	10.87	10.11	10.80	9.10	9.17	9.19	9.36	7.11	32.00	29.33	27.71	23.80	20.86	.00	.65	266.00	297.00	3.00	113.33	.00	.00	1.52	-1.61	32.00
	2002	9.07	6.06	5.80	6.20	7.72	5.42	5.61	14.00	14.00	13.71	13.97	14.00	5.40	5.40	5.40	5.41	5.98	15.00	14.67	14.29	14.07	13.92	.00	.56	56.00	293.00	2.00	107.00	.00	.00	1.19	-1.08	32.00

Table CAWG 6 Appendix L-7b. Mono Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Mono Ck below Diversion Data

Unimpaired period: 1933-1952 (20 years) Existing period: 1984-2002 (19 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	15.19	18.23	22.08	37.35	49.39	.87	6.72	7.54	9.79	11.29	15.75	.38
November	18.00	19.75	23.48	37.91	59.97	.77	5.73	6.06	7.86	10.08	22.03	.51
December	13.52	20.00	25.08	44.75	64.15	.99	5.69	5.83	7.82	9.53	17.26	.47
January	23.20	27.05	35.00	44.50	63.89	.50	5.81	6.06	7.70	9.95	13.13	.51
February	22.10	36.22	44.00	53.75	56.03	.40	5.86	6.30	7.72	9.03	12.43	.35
March	32.40	52.54	60.08	72.94	81.80	.34	5.72	5.90	6.98	9.20	12.69	.47
April	86.05	153.51	175.40	219.61	258.79	.38	5.88	6.26	8.40	12.00	15.73	.68
May	228.84	362.88	453.63	617.15	685.67	.56	9.45	10.21	13.42	14.68	17.00	.33
June	215.88	452.92	612.20	752.08	879.52	.49	9.98	10.80	13.67	16.80	138.70	.44
July	93.85	184.46	250.90	454.33	547.83	1.08	9.91	10.06	14.13	79.58	108.29	4.92
August	40.93	48.03	70.81	121.86	180.63	1.04	9.85	10.11	13.65	14.97	40.52	.36
September	20.11	23.42	29.02	37.14	57.31	.47	9.67	10.49	13.53	15.60	16.73	.38
Parameter Group #2												
1-day minimum	13.00	14.25	16.00	16.75	23.70	.16	4.10	5.40	5.90	7.60	9.10	.37
3-day minimum	13.00	14.75	16.00	17.25	24.00	.16	4.10	5.40	5.90	7.70	9.17	.39
7-day minimum	13.00	14.44	16.00	18.18	24.46	.23	4.19	5.40	5.90	7.69	9.19	.39
30-day minimum	12.70	15.17	17.97	21.51	27.08	.35	5.21	5.59	6.09	7.75	9.36	.35
90-day minimum	14.50	19.36	21.20	26.63	33.42	.34	5.79	5.90	6.21	8.18	8.90	.37
1-day maximum	455.70	757.50	977.00	1125.00	1190.00	.38	12.00	17.00	35.00	421.00	604.00	11.54
3-day maximum	430.03	733.08	939.67	1097.50	1156.33	.39	11.67	14.67	26.00	289.00	569.67	10.55
7-day maximum	379.27	688.82	905.57	1037.93	1085.47	.39	11.14	14.29	23.00	225.29	499.14	9.17
30-day maximum	296.20	532.33	691.92	830.10	926.26	.43	10.97	11.68	16.20	107.67	337.77	5.93
90-day maximum	245.75	354.18	475.87	571.82	711.75	.46	10.27	10.58	15.82	46.80	125.36	2.29
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.06	.08	.11	.14	.19	.58	.18	.31	.65	.72	.75	.64
Parameter Group #3												
Date of minimum	261.40	273.50	288.50	310.75	335.00	.10	322.00	336.00	27.00	88.00	114.00	.32
Date of maximum	133.20	146.50	153.50	165.50	172.00	.05	154.00	173.00	201.00	277.00	325.00	.28
Parameter Group #4												
Low pulse count	1.10	2.00	3.00	4.00	5.00	.67	2.00	2.00	3.00	6.00	8.00	1.33
Low pulse duration	5.35	9.70	15.38	29.88	70.20	1.31	.50	24.38	52.75	107.00	113.33	1.57
High pulse count	1.00	1.00	2.00	3.00	4.80	1.00	.00	.00	.00	2.00	2.00	.00
High pulse duration	14.58	32.75	51.50	93.00	113.60	1.17	.00	.00	.00	3.50	12.50	.00
Parameter Group #5												
Rise rate	15.99	25.18	28.52	33.06	39.17	.28	.40	.72	1.52	17.58	28.98	11.08
Fall rate	-25.05	-22.02	-17.19	-14.07	-10.77	-.46	-27.43	-16.36	-1.22	-.75	-.44	-12.83
Number of reversals	45.30	51.25	57.50	63.75	72.80	.22	28.00	32.00	43.00	65.00	73.00	.77

Table CAWG 6 Appendix L-7c. Mono Ck below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Mono Ck below Diversion Data

	Unimpaired period: 1933-1952 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1984-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	22.1	.87	15.2	60.8	9.8	.38	6.5	22.9	19.30	24.61	-.87
November	23.5	.77	16.8	123.7	7.9	.51	5.6	23.1	21.42	29.98	-.74
December	25.1	.99	12.9	127.1	7.8	.47	5.7	27.0	22.79	33.26	-.87
January	35.0	.50	14.0	76.8	7.7	.51	5.7	20.9	29.80	39.28	-1.00
February	44.0	.40	17.0	74.4	7.7	.35	5.7	25.5	41.77	49.07	-1.00
March	60.1	.34	28.0	94.8	7.0	.47	5.4	17.7	56.93	69.54	-1.00
April	175.4	.38	77.8	276.1	8.4	.68	5.6	18.5	160.12	214.78	-1.00
May	453.6	.56	197.4	713.9	13.4	.33	9.3	18.6	386.93	592.85	-1.00
June	612.2	.49	130.7	1134.9	13.7	.44	9.1	335.7	498.14	729.00	-1.00
July	250.9	1.08	64.0	672.1	14.1	4.92	9.2	683.7	206.72	314.36	-1.00
August	70.8	1.04	34.6	233.3	13.6	.36	9.3	141.3	55.17	93.01	-1.00
September	29.0	.47	19.4	86.6	13.5	.38	8.8	16.9	25.89	33.89	-1.00
Parameter Group #2											
1-day minimum	16.0	.16	12.0	26.0	5.9	.37	2.6	9.7	15.00	16.00	-1.00
3-day minimum	16.0	.16	12.0	26.0	5.9	.39	2.8	9.7	15.00	16.69	-1.00
7-day minimum	16.0	.23	12.0	25.1	5.9	.39	3.1	9.7	15.00	17.86	-1.00
30-day minimum	18.0	.35	10.7	33.5	6.1	.35	4.6	9.7	15.27	19.20	-1.00
90-day minimum	21.2	.34	9.5	37.8	6.2	.37	5.7	10.3	20.31	23.88	-1.00
1-day maximum	977.0	.38	348.0	1550.0	35.0	11.54	12.0	1300.0	771.30	1082.10	-1.00
3-day maximum	939.7	.39	337.3	1530.0	26.0	10.55	11.7	1283.3	760.28	1048.30	-1.00
7-day maximum	905.6	.39	320.6	1452.9	23.0	9.17	11.0	1230.0	714.92	957.64	-1.00
30-day maximum	691.9	.43	241.5	1155.4	16.2	5.93	10.6	797.6	597.71	802.73	-.87
90-day maximum	475.9	.46	181.1	828.1	15.8	2.29	10.2	291.0	370.15	552.93	-1.00
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.11	.58	.06	.20	.65	.64	.07	.77	.10	.13	-1.00
Parameter Group #3											
Date of minimum	288.5	.10	258.0	344.0	27.0	.32	9.0	349.0	277.79	303.07	-1.00
Date of maximum	153.5	.05	128.0	175.0	201.0	.28	144.0	341.0	148.00	162.14	-.88
Parameter Group #4											
Low Pulse Count	3.0	.67	1.0	6.0	3.0	1.33	1.0	9.0	2.00	3.07	-.04
Low Pulse Duration	15.4	1.31	.0	74.5	52.8	1.57	.5	361.0	10.31	24.25	-.74
High Pulse Count	2.0	1.00	1.0	5.0	.0	.00	.0	4.0	1.00	2.07	-.55
High Pulse Duration	51.5	1.17	13.0	118.0	.0	.00	.0	13.0	36.00	79.98	-1.00

The low pulse threshold is 29.00
The high pulse level is 185.00

	Unimpaired Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	28.5	.28	8.4	39.8	1.5	11.08	.2	30.7	25.57	32.75	-.74
Fall rate	-17.2	-.46	-27.7	-5.9	-1.2	-12.83	-28.9	-.4	-21.44	-14.63	-.61
Number of reversals	57.5	.22	36.0	80.0	43.0	.77	13.0	103.0	52.00	61.14	-.88

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	7.60	1.00	-.87	5.70	.00	-1.00	5.70	18.00	2.16
November	7.60	2.00	-.74	5.70	.00	-1.00	5.70	17.00	1.98
December	7.60	1.00	-.87	5.70	.00	-1.00	5.70	18.00	2.16
January	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
February	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
March	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
April	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
May	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
June	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
July	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
August	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
September	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
Parameter Group #2									
1-day minimum	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
3-day minimum	8.55	.00	-1.00	5.70	.00	-1.00	4.75	19.00	3.00
7-day minimum	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
30-day minimum	8.55	.00	-1.00	5.70	.00	-1.00	4.75	19.00	3.00
90-day minimum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
1-day maximum	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
3-day maximum	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
7-day maximum	7.60	.00	-1.00	5.70	1.00	-.82	5.70	18.00	2.16
30-day maximum	7.60	1.00	-.87	5.70	.00	-1.00	5.70	18.00	2.16
90-day maximum	7.60	.00	-1.00	5.70	.00	-1.00	5.70	19.00	2.33
Number of zero days	19.00	19.00	.00	.00	.00	.00	.00	.00	.00
Base flow	7.60	.00	-1.00	5.70	18.00	2.16	5.70	1.00	-.82
Parameter Group #3									
Date of minimum	7.60	.00	-1.00	5.70	7.00	.23	5.70	12.00	1.11
Date of maximum	8.55	1.00	-.88	5.70	17.00	1.98	4.75	1.00	-.79
Parameter Group #4									
Low Pulse Count	11.40	11.00	-.04	5.70	7.00	.23	1.90	1.00	-.47
Low Pulse Duration	7.60	2.00	-.74	5.70	15.00	1.63	5.70	2.00	-.65
High Pulse Count	13.30	6.00	-.55	5.70	1.00	-.82	.00	12.00	.00
High Pulse Duration	8.55	.00	-1.00	5.70	.00	-1.00	4.75	19.00	3.00
Parameter Group #5									
Rise rate	7.60	2.00	-.74	5.70	.00	-1.00	5.70	17.00	1.98
Fall rate	7.60	3.00	-.61	5.70	14.00	1.46	5.70	2.00	-.65
Number of reversals	8.55	1.00	-.88	5.70	5.00	-.12	4.75	13.00	1.74

11 Messages:

Parameter Low pulse count : 13 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 10 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse duration : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 7 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of maximum : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 2 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 30-day minimum : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-7d. Mono Creek below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Mono Ck below Diversion Data

	Unimpaired period: 1933-1952 (20 years)	Existing period: 1984-2002 (19 years)
Watershed area	1.00	
Mean annual flow	152.55	28.50
Mean flow/area	152.55	28.50
Annual C. V.	.73	.14
Flow predictability	.59	.77
Constancy/predictability	.45	.79

WARNING: Some of the Colwell Parameters are based on < 20 years of data

% of floods in 60d period	.58	.57
flood-free season	118.00	297.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	22.1	9.8	.87	.38	.56	.56	.08	.13
November	23.5	7.9	.77	.51	.67	.34	.15	.46
December	25.1	7.8	.99	.47	.69	.52	.20	.28
January	35.0	7.7	.50	.51	.78	.01	.32	.99
February	44.0	7.7	.40	.35	.82	.11	.33	.95
March	60.1	7.0	.34	.47	.88	.39	.34	.88
April	175.4	8.4	.38	.68	.95	.81	.41	.79
May	453.6	13.4	.56	.33	.97	.41	.41	.91
June	612.2	13.7	.49	.44	.98	.10	.35	.99
July	250.9	14.1	1.08	4.92	.94	3.57	.16	.01
August	70.8	13.6	1.04	.36	.81	.66	.16	.32
September	29.0	13.5	.47	.38	.53	.20	.08	.54
Parameter Group #2								
1-day minimum	16.0	5.9	.16	.37	.63	1.39	.17	.01
3-day minimum	16.0	5.9	.16	.39	.63	1.49	.17	.01
7-day minimum	16.0	5.9	.23	.39	.63	.66	.17	.19
30-day minimum	18.0	6.1	.35	.35	.66	.00	.13	.99
90-day minimum	21.2	6.2	.34	.37	.71	.07	.23	.96
1-day maximum	977.0	35.0	.38	11.54	.96	29.69	.05	.00
3-day maximum	939.7	26.0	.39	10.55	.97	26.21	.14	.00
7-day maximum	905.6	23.0	.39	9.17	.97	22.80	.15	.00
30-day maximum	691.9	16.2	.43	5.93	.98	12.77	.22	.01
90-day maximum	475.9	15.8	.46	2.29	.97	4.01	.27	.14
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.1	.6	.58	.64	5.13	.11	.00	.82
Parameter Group #3								
Date of minimum	288.5	27.0	.10	.32	.57	2.17	.00	.00
Date of maximum	153.5	201.0	.05	.28	.26	4.47	.00	.00
Parameter Group #4								
Low pulse count	3.0	3.0	.67	1.33	.00	1.00	.23	.06
Low pulse duration	15.4	52.8	1.31	1.57	2.43	.19	.00	.75
High pulse count	2.0	.0	1.00	.00	1.00	1.00	.00	.07
High pulse duration	51.5	.0	1.17	.00	1.00	1.00	.24	.29

The low pulse threshold is 29.00
The high pulse level is 185.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	28.5	1.5	.28	11.08	.95	39.12	.04	.00
Fall rate	-17.2	-1.2	-.46	-12.83	.93	26.74	.01	.00
Number of reversals	57.5	43.0	.22	.77	.25	2.53	.01	.00

Table CAWG 6 Appendix L-7e. Mono Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1933-1952, existing = 1984-2002).

1933	1934	1935	1936	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
29	16	16	24	21	20	57	35	18	29	26	30	17	28	72	24	16	13	19	20	13	60	7.6	12	8.9	11	8.8	9	13	11	12	8	17	11	14	17	12	23	11
29	16	16	28	25	19	52	49	18	28	26	30	17	28	59	23	16	13	20	20	11	61	6.2	12	6.7	9	7	7.2	13	12	11	6.8	17	9.2	14	17	12	23	7.4
28	17	16	24	30	20	52	54	18	28	25	29	16	26	59	23	16	13	19	20	9.2	68	6.2	13	6.7	7.2	7.1	7.2	11	12	10	6.7	17	9.5	13	14	12	22	9.7
27	16	15	23	26	20	51	55	18	28	25	26	16	26	51	22	15	13	18	20	9.2	54	6.2	11	6.7	7.3	8.9	7.2	7.2	12	10	6.7	16	9.6	13	11	12	22	9.5
25	16	15	21	24	21	48	60	18	28	24	25	16	30	50	22	15	13	17	20	9.2	9.2	6.1	11	6.7	7.2	11	7.2	7.2	11	11	6.8	13	9.6	13	11	12	22	9.4
25	15	15	21	22	21	46	62	18	30	24	25	15	54	45	21	15	13	17	20	9.2	9.2	6.1	10	6.7	7.1	6.8	7.1	7	6.8	11	6.8	11	9.6	13	11	12	21	9.4
25	15	16	21	21	21	51	62	17	34	23	24	16	94	45	21	14	13	17	19	9.2	9.2	6.2	10	6.7	7.2	6.8	7	7	6.8	11	6.8	11	9.6	13	11	12	21	9.3
25	15	16	21	21	20	52	59	19	30	23	24	17	83	48	21	14	13	17	18	9.2	9.1	6.3	10	6.8	7.4	6.8	7	6.9	6.8	12	6.7	11	9.6	13	11	12	21	9.3
24	15	15	21	21	21	51	55	23	29	23	23	16	83	42	22	14	14	17	18	8.8	9.1	6.3	10	6.9	7.4	6.7	7	6.9	6.8	12	6.8	11	9.6	13	11	12	21	9.4
23	16	15	21	20	20	46	54	21	29	23	22	15	70	42	36	14	18	16	18	8.5	9.1	6.3	10	7	7.4	6.7	7.4	6.8	6.8	12	6.8	10	9.6	13	11	12	21	9.4
22	16	15	21	19	19	44	57	19	28	23	22	15	64	45	45	14	17	16	18	8.7	9.1	6	10	7.1	7.3	6.7	7.5	6.8	6.8	11	6.8	10	9.6	13	11	12	21	9.4
21	15	15	24	19	19	44	59	19	28	24	21	14	66	48	41	15	16	16	17	9.5	9.1	6.3	10	7.2	7.3	6.7	7.3	6.9	6.8	11	6.8	10	9.6	13	11	12	21	9.4
20	15	15	22	19	20	41	59	19	28	23	20	14	61	45	41	16	16	16	18	9.6	9	6.3	10	7.2	7.4	6.7	7.1	6.9	6.9	11	6.8	10	9.6	13	11	12	22	9.4
20	15	15	21	18	21	44	59	18	27	24	19	14	58	43	42	17	15	16	18	9.7	9	6.3	10	7.2	7.3	6.7	7.1	6.9	7	11	6.8	10	9.6	12	11	10	22	9.4
20	15	15	26	18	21	70	57	17	27	25	19	14	68	42	44	17	16	16	17	9.9	9	6.4	12	7.2	7.4	6.7	7.3	6.9	7	12	6.8	10	9.6	13	11	10	21	9.4
20	15	19	27	19	20	59	54	17	27	24	19	14	77	45	49	16	16	16	17	10	9	6.4	9.9	7.3	7.3	6.7	7.3	6.9	7	12	6.8	11	9.6	15	11	10	21	10
19	15	21	28	25	19	54	49	17	26	23	19	14	70	45	60	16	15	16	21	10	9	6.5	9.5	7.1	7.4	6.7	7.2	6.9	7	12	6.7	13	9.6	16	11	12	21	11
19	15	23	29	31	19	57	45	16	26	23	20	14	70	40	57	16	14	16	20	10	9	6.5	9.2	6.9	7.3	6.7	7	7	7	11	6.5	12	9.6	14	11	10	21	11
19	15	23	28	34	18	55	42	16	27	23	22	14	63	42	56	16	13	16	20	10	9	6.5	8.8	6.7	7.4	6.6	6.7	7	7	11	6.5	11	9.6	12	16	10	21	15
18	15	25	27	32	18	54	40	16	29	22	23	14	58	41	53	16	17	16	19	10	9	6.6	10	6.7	7.4	6.6	6.7	7	7	11	6.5	10	9.6	12	11	10	23	10
20	15	23	25	30	18	51	39	16	35	22	24	17	53	40	53	15	17	16	19	10	9	6.6	10	7.3	7.4	6.6	8.7	7	7	11	6.5	10	9.6	12	10	10	25	8.4
20	15	23	23	28	18	49	36	16	33	21	23	19	52	39	49	15	17	16	19	10	9	7.2	10	7.3	7.3	6.6	14	7	7	11	6.4	10	9.6	12	10	10	25	8.8
20	15	20	20	27	17	48	35	16	35	21	22	16	48	38	45	15	17	16	20	10	9	7.4	10	7.3	7.2	6.6	13	7.2	7	12	6.4	10	9.6	11	10	10	32	8.7
18	15	20	21	26	17	48	34	16	39	21	23	16	46	38	42	15	16	18	21	9.9	9.1	6.6	11	7.4	7.2	6.6	13	7.2	7	12	6.4	10	12	10	10	11	23	7.2
18	15	20	23	26	17	46	30	33	36	21	22	15	44	38	40	14	16	17	22	9.9	9.1	6.5	11	7.4	7.4	6.5	16	7.2	7	11	6.4	9.8	15	10	10	11	23	7.2
20	15	19	21	26	17	45	30	32	34	20	22	14	42	37	40	14	16	19	30	9.8	9.1	6.4	11	7.4	7.5	6.6	16	7.2	7	11	6.5	9.6	15	11	10	11	23	7.2
19	15	18	21	24	17	44	40	26	37	20	22	14	40	36	39	14	16	32	28	9.7	9.1	6.3	11	7.4	7.5	6.6	16	7.2	7	11	6.7	9.6	15	11	10	11	23	7.2
18	15	18	21	24	18	42	37	28	35	21	21	14	38	28	39	14	16	31	28	9.7	9.1	6.3	11	7.3	7.5	6.6	16	7.2	7	12	6.7	9.6	14	12	10	11	23	7.2
18	15	18	20	23	17	40	34	32	35	19	24	15	78	26	46	13	16	32	26	9.7	9.2	6.5	11	7.3	8.1	6.6	12	7.2	7	12	6.8	9.9	14	13	10	11	24	7.2
18	16	18	15	25	17	46	32	24	29	21	22	16	154	26	53	16	16	32	25	10	9.2	6.7	11	7.3	8.6	6.6	7.3	7.3	7	12	6.8	10	9.6	13	10	11	27	7.2
19	20	19	15	25	19	54	30	24	34	21	22	22	114	26	59	17	16	33	25	11	9.2	7	11	7.3	8.6	6.6	7.4	6.9	7	12	6.9	9.9	9.6	11	10	11	30	7.2
19	22	25	19	24	19	48	29	26	39	21	22	26	96	38	64	17	15	32	25	9.8	8.5	6.1	9.5	7.3	7.5	6.1	7.8	5.9	6.4	12	6.2	10	9.6	11	10	11	31	7.2
20	24	25	19	22	19	54	29	29	136	21	22	26	92	38	59	17	14	32	24	7.9	7.8	6.7	8.5	6.8	6.1	5.7	12	5.6	6	11	5.7	9.2	9.6	13	10	10	27	7.2
19	24	22	19	27	18	57	28	25	106	20	22	29	94	38	56	18	14	32	24	7.9	7.8	6.7	8.5	6.3	6.1	5.8	6.4	5.6	5.9	10	5.7	8.2	9.6	13	10	10	27	7.2
18	21	21	19	26	17	59	27	19	82	20	22	31	94	38	52	17	13	32	24	7.9	7.8	6.7	8.5	6.2	6	5.8	6.2	5.7	5.9	9.9	5.7	8.2	8.7	13	10	10	26	7.2
19	18	20	19	24	17	49	26	24	77	28	22	29	92	38	48	16	13	31	24	7.9	7.8	6.7	8.5	6.2	6.1	5.8	6.1	5.7	5.9	9.8	5.7	8.2	7.8	13	10	10	26	7.2
20	21	20	19	23	18	42	25	25	74	26	20	24	83	38	34	16	14	29	23	7.8	7.8	6.7	8.6	6.3	6	5.8	6.5	5.7	5.8	9.8	5.6	56	7.8	13	10	10	22	6.6
18	20	19	19	21	17	45	25	25	70	29	18	24	65	38	34	16	15	26	22	8	7.7	6.7	8.6	6.4	6.1	5.8	6.2	5.7	5.8	9.8	5.6	8.1	7.8	13	10	10	20	5.8
17	20	18	19	25	16	49	26	23	67	24	21	25	55	38	34	15	15	26	21	7.8	7.7	6.7	8.6	6.5	6.1	5.8	6	5.7	5.8	9.6	5.5	8.2	7.8	13	10	10	21	5.8
17	19	18	19	24	17	44	24	21	60	23	21	26	50	38	34	16	17	25	20	7.8	7.7	6.7	8.6	6.5	6.1	5.8	6	5.7	5.8	9.6	5.5	8.3	7.8	13	10	11	21	5.8
17	18	18	19	24	17	40	23	22	55	23	19	28	60	38	34	18	18	21	19	7.8	7.7	6.7	8.6	6.5	6.1	5.8	6	5.6	5.9	9.5	5.5	8.1	7.8	13	10	11	21	5.8
17	18	18	19	23	17	33	23	22	52	22	19	28	65	38	34	18	16	23	22	7.8	7.7	6.7	8.8	6.5	6.1	5.7	11	5.6	5.9	9.5	5.4	8.1	7.8	13	10	11	21	5.8
17	18	18	19	22	20	40	22	23	49	23	18	30	65	38	34	18	34	24	24	7.8	7.7	6.7	9	6.5	6.1	5.7	11	5.6	5.6	9.5	5.3	8.4	7.8	13	10	11	21	5.8
17	19	17	19	21	26	45	21	24	46	21	17	30	60	38	34	18	38	22	23	7.8	7.7	6.6	9.2	6.5	6.2	5.7	11	5.6	5.6	9.4	5.3	8.4	7.8	13	10	11	21	5.8
17	18	17	19	21	20	45	21	23	45	23	20	30	60	38	34	18	35	20	26	7.8	7.7	6.6	9.1	6.4	6.2	5.7	11	5.6	5.6	9.5	5.3	15	7.8	13	10	11	21	5.8
17	18	18	19	23	20	45	21	22	42	23	22	30	55	38	34	16	32	26	23	9.3	7.7	6.6	8.8	6.4	6.2	5.7	11	5.6	5.6	9.3	5.5	29	7.8	13	10	11	21	5.8
18	18	22	19	21	20	45	20	23	41	22	18	30	50	38	34	16	30	33	21	7.7	7.7	6.6	9	6.4	6.2	5.7	11	5.6	5.6	9.5	6.9	31	7.8	13	9.5	11	21	5.8
18	18	24	19	21	18	45	20	23	37	26	21	30	50	38	34	16	33	32	23	7.7	7.6	6.6	9.2	6.4	6.2	5.7	11	5.6	5.6	9.6	7.8	31	7.8	12	9.5	11	21	5.8
17	18	18	19	21	20	45	20	23	30	48	19	30	50	38	34	16	35	146	26	7.7	7.6	6.6	9	6.4	6.2	5.7	11	5.6	5.6	9.5	7.8	31	7.8	11	10	11	21	5.8
16	20	22	19	22	22	45	20	21	30	39	21	30	50	38	34	17	32	666	23	7.7	7.6	6.6	8.6	6.4	6.2	5.7	11	5.6	5.6	9.4	7	32	7.8	11	10	11	21	5.8
16	20	25	19	20	22	40	19	20	30	38	20	30	50	38	34	18	30	390	23	7.7	7.6	6.6	8.6	6.4	6.2	5.7	11	5.6	5.6	21	5.8	31	7.8	11	10	11	21	5.8
17	20	28	19	20	20	40	19	20	30	38	22	30	50	38	34	25	29	452	23	7.7	7.6	6.6	8.4	6.4	6.2	5.7	11	5.6	5.7	9.5	5.8	31	7.8	11	10	11	21	5.8
18	19	35	19	20	20	40	19	20	30	37	22	30	50	38	34	20	26	312	23	7.7	7.6	6.6	8.2	6.4	6.2	5.7	11	5.6	5.7	9.5	5.7	32	7.8	11	10	11	21	5.8
20	17	30	19	21	20	40	18	20	30	37	22	30	50	38	34	18	25	229	23	7.7	7.6	6.6	8.2	6.4	6.3	5.7	11	5.6	5.7	9.5	5.7	34	7.6	11	10	11	21	5.8
23	17	28	19	20	20	40	18	20	30	36	22	30	50	38	34	16	24	193	23	7.6	7.6	6.6	8.2	6.4	6.2	5.7	11	5.6	5.6	9.6	5.7	35	7.7	11	10	12	21	5.8
20	17	30	19	20	20	40	18	20	30	36	22	30	50	38	34	18	26	171	23	7.6	7.6	6.2	8.2	6.3	6.2	5.8	11	5.6	5.6	9.6	5.7	35	7.7	11	10	12	21	5.8
18	16	30	19	19	20	40	17	20	30	35	22	30	50	38	34	15	26	156	35	7.6	7.7	6.2	8.2	6.3	6.2	5.8	11	5.6	5.6	9.5	5.7	36	7.7	11	10	12	21	5.8
18	16	28	19	18	18	40	17	20	30	37	22	30	50	38	34	14	24	145	35	7.6	7.7	6.2	8.2	6.3	6.2	5.9	11	5.6	5.6	9.5	5.6	32	7.7	11	10	12	21	5.8
16	15	28	19	18	20	37	17	20	30	37	22	30	50	38	34	14	23	132	35	7.6	7.7	6.2	8.3	6.3	6.2	5.9	11	5.6	5.6	9.5	5.6	35	7.7	11	10	12	21	5.8
17	15	28	19	17	22	35	17	20	30	35	22	30	50	38	34	14	23	127	35	7.6	7.7	5.6	8.3	6.3	6.1	5.9	5.9	5.5	5.6	9.5	5.6	33	7.7	11	10	12	21	5.8
17	14	28	19	16	22	37	17	20	30	34	22	30	50	38	34	14	22	126	35	7.6	7.8	5.2	8.3	6.3	6.1	5.9	6.6	5.5	5.6	9.5	5.6	34	7.7	11	10	12	20	5.8
23	22	23	20	25	22	36	18	25	65	32	20	28	40	46	23	13	21	127	40	7.6	7.8	5.1	8.3	6.3	6	5.9	6	5.5	5.6	9.5	5.4	34	7.8	11	9.8	12	20	5.8
27	21	23	20	25	20	38	17	25	65	32	20	28	40	46	23	13	20	115	40	7.6	7.8	5.1	8.3	6.3	6	6	5.8	5.5	5.6	9.5	5.5	33	7.7	11	8.9	12	20	5.8
28	18	23	20	25	20	41	16	25	65	32	20	28	40	46	23	13	19	122	40	7.5	7.8	5.1	8.3	6.3	6	6	11	5.5	5.6	9.6	5.5	32	7.7	11	8.8	12	20	5.8
23	21	23	20	25	18	41	15	25	65	32	20	28	40	46	23	13	18	183	40	7.5	7.8	5.1	8.3	6.4	6.1	6	14	5.5	5.6	9.5	5.6	41	7.7	11	8.8	12	20	5.8
21	26	23	20	25	18	39	14	25	65	32	20	28	40	46	23	13	18	189	40	7.6	7.9	5.1	8.3	6.4	6.1	5.9	16	5.6	5.6	9.5	5.6	42	7.7	11	8.8	12	20	5.8
17	29	23	20	25	16	39	13	25	65	32	20	28	40	46	23	13	18	159	40	8.7	7.9	5.1	8.3	6.4	6.2	5.9	17	5.8	5.6	9.5	5.8	40	7.6	11	8.8	12	22	5.8
17	27	23	20	25	16	39	13	25	65	32	20	28	40	46	23	13	18	229	55	9.9	8	5.4	8.4	6.5	6.2	5.9	17	5.8	5.6	9.5	6.6	43	7.8	11	8.8	12	21	5.8
17	26	23	20	25	18	37	13	25	65	32	20	28	40	46	23	13	18	212	55	8.8	8	5.6	8.4	6.5	6.2	5.9	17	5.8	5.6	9.5	6.2	41	7.9	11	8.8	12	23	5.8
17	29	23	20	25	23	37	12	25	65	32	20	28	40	46	23	13	18	180	55	15	8.1	5.6	8.4	6.5	6.3	5.9	17	5.8	5.5	9.5	5.9	39	7.9	11	8.8	12	23	5.8
17	25	23	20	25	71	34	12	25	65	32	20	28	40	46	23	13	17	159	55	10	8.2	5.6	8.4	6.6	6.3	5.9	17	5.8	5.5	9.4	5.7	39	7.9	11	8.8	12	22	5.8
17	22	23	20	25	193	32	12	25	65	32	20	28	40	46	23	13	13	148	55	8.6	8.2	5.7	8.4	6.6	6.3	5.9	13	5.8	5.5	9.4	5.8	45	7.8	11	8.8	12	22	5.8
17	20	23	20	25	143	30	12	25	65	32	20	28	40	46	23	13	13	140	40	8.8	8.3	5.7	8.5	6.6	6.2	5.9	4.1	5.8	5.5	9.4	5.9	40	7.8	11	8.8	12	22	5.8
17	26	23	20	25	116	30	12	25	65	32	20	28	40	46	23	13	13	127	40	9	8.4	5.7	8.5	6.7	6.2	5.9	4.1	5.8	5.5	9.3	5.9	29	7.8	11	8.8	12	22	5.8

Table CAWG 6 Appendix L-8a. Mono Creek Below Diversion (Area Based) IHA Annual Summary Statistics for Unimpaired and Existing Flows.

IHA Annual Summary Statistics
Mono Creek

Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
1963	110.22	87.31	84.90	92.51	89.93	87.91	64.66	504.09	1312.85	1028.99	618.45	178.29	49.70	50.83	53.20	64.48	71.07	1879.70	1815.30	1643.36	1495.68	1090.66	.00	.15	98.00	187.00	.00	.00	3.00	40.67	48.90	-38.06	117.00
1964	71.74	66.56	74.75	57.20	53.81	83.17	138.56	722.48	524.20	398.26	135.24	69.57	40.80	42.60	44.86	46.65	47.84	1150.90	1121.93	1094.40	831.93	558.27	.00	.22	274.00	144.00	.00	.00	3.00	33.33	28.65	-18.96	105.00
1965	46.23	50.01	47.71	56.40	57.69	47.55	220.18	411.24	382.81	124.93	47.42	35.76	26.60	27.17	24.59	30.61	32.99	627.80	618.93	593.34	464.14	341.92	.00	.19	313.00	160.00	2.00	2.00	3.00	24.67	18.38	-12.45	91.00
1966	33.64	40.15	73.85	49.37	108.10	141.58	235.86	685.36	970.90	432.12	150.67	55.86	13.50	14.93	19.33	30.34	23.03	2092.50	1825.33	1608.14	1098.17	718.34	.00	.08	315.00	153.00	3.00	5.33	5.00	25.80	35.70	-25.42	93.00
1967	37.87	17.35	11.30	13.45	13.18	34.78	194.83	367.07	336.51	80.42	27.41	13.09	7.60	7.90	8.54	8.95	12.52	743.00	706.97	591.53	412.06	306.62	.00	.09	57.00	137.00	2.00	89.50	3.00	23.33	15.42	-10.70	112.00
1968	10.84	36.88	30.09	37.69	42.50	74.31	161.91	364.51	338.65	102.40	50.45	24.51	8.20	8.20	8.20	9.77	11.00	634.90	583.47	552.77	435.95	293.12	.00	.08	278.00	136.00	8.00	4.88	3.00	20.33	18.19	-12.04	87.00
1969	9.61	12.84	10.30	9.64	14.60	67.91	248.02	355.75	340.72	82.44	24.11	27.48	6.60	6.87	7.30	8.48	10.64	556.80	530.23	491.96	385.94	319.02	.00	.07	362.00	161.00	4.00	10.00	2.00	37.50	18.56	-10.00	100.00
1970	29.92	18.98	16.57	20.54	30.35	61.15	177.92	271.04	292.25	118.94	42.61	12.90	9.20	9.20	9.26	11.49	9.88	523.10	495.93	470.69	302.00	252.11	.00	.10	258.00	160.00	6.00	25.67	6.00	12.50	15.71	-11.33	89.00
1971	11.22	9.18	8.86	9.28	10.28	40.94	82.46	270.97	631.19	247.75	59.67	29.66	7.10	8.13	8.34	8.81	9.04	1095.90	1062.20	962.91	670.02	389.85	.00	.07	312.00	164.00	4.00	7.25	4.00	16.50	21.05	-14.69	96.00
1972	13.41	33.99	19.76	23.91	33.63	42.04	195.18	406.20	186.14	79.06	47.71	15.38	8.90	8.90	8.96	10.35	18.26	553.30	530.80	523.11	417.14	266.70	.00	.10	293.00	129.00	8.00	15.88	4.00	14.25	14.61	-9.12	72.00
1973	12.06	29.30	28.39	49.61	44.20	83.97	163.44	607.68	868.16	694.06	192.55	60.00	8.90	9.37	9.50	11.11	21.17	1406.30	1366.67	1225.13	1074.41	729.35	.00	.04	294.00	178.00	3.00	13.00	2.00	55.50	34.99	-24.86	95.00
1974	27.39	16.13	19.33	19.56	26.78	54.58	150.91	372.92	387.47	89.01	27.67	27.01	8.20	8.20	8.31	9.73	18.28	704.00	658.50	614.59	476.20	313.17	.00	.08	255.00	152.00	3.00	58.67	3.00	23.33	23.97	-14.26	88.00
1975	83.18	49.66	40.90	69.44	66.86	95.70	159.61	320.17	983.79	1325.36	514.38	155.35	30.10	31.90	33.19	38.72	35.33	2518.10	2139.80	1899.74	1465.54	974.76	.00	.10	308.00	191.00	.00	.00	6.00	22.50	64.83	-42.73	96.00
1976	44.23	22.05	39.41	45.75	74.84	89.92	212.20	513.41	727.18	408.32	126.53	43.03	10.50	12.27	13.29	17.38	32.89	1166.90	1156.83	1114.17	732.09	565.08	.00	.07	338.00	161.00	2.00	18.50	3.00	35.67	30.79	-18.67	102.00
1977	25.27	47.35	61.21	190.55	36.10	104.51	228.89	707.78	639.70	295.52	104.68	57.87	16.10	17.60	18.69	24.28	32.17	1879.70	1183.43	1054.39	788.25	571.45	.00	.09	298.00	2.00	4.00	9.00	3.00	39.67	43.86	-28.14	103.00
1978	31.75	26.76	37.30	41.00	61.24	78.60	142.51	249.98	949.27	1213.19	344.19	120.65	17.40	17.60	18.43	22.93	31.17	1574.70	1483.10	1395.36	1340.82	861.01	.00	.07	311.00	191.00	4.00	11.00	5.00	25.20	35.72	-26.75	110.00
1979	36.37	32.27	30.60	30.34	46.67	54.75	109.59	553.80	653.65	213.77	58.86	50.71	19.50	20.10	20.79	22.95	19.25	964.70	933.37	904.66	725.65	488.67	.00	.13	13.00	146.00	6.00	7.33	3.00	26.00	23.70	-19.00	86.00
1980	23.95	19.25	12.73	18.65	46.54	72.15	202.70	636.34	689.29	183.86	73.28	30.78	8.00	8.10	8.56	10.48	15.00	1259.10	1171.60	1051.60	855.87	526.13	.00	.05	9.00	149.00	3.00	43.00	3.00	32.33	27.50	-18.64	100.00
1981	21.78	26.41	19.02	63.36	37.37	83.81	146.77	592.47	224.14	90.10	22.24	9.03	6.60	6.33	6.26	6.00	9.59	794.50	746.00	688.31	605.95	334.74	.00	.06	273.00	137.00	9.00	12.78	4.00	14.50	21.69	-13.27	82.00
1982	6.77	19.93	61.72	56.34	62.07	63.26	228.46	407.93	471.59	123.68	26.02	11.53	5.30	5.30	5.39	6.17	8.84	831.70	796.23	710.86	560.55	374.00	.00	.04	291.00	152.00	4.00	13.50	3.00	28.00	20.34	-14.32	88.00
1984	9.79	7.86	10.02	8.95	8.13	5.72	8.40	13.42	13.67	34.10	13.84	16.73	2.60	2.80	3.14	5.21	7.28	443.00	205.33	104.00	35.07	23.84	.00	.25	67.00	200.00	3.00	22.67	1.00	1.00	5.86	-12.09	46.00
1985	15.75	7.72	8.60	8.92	7.79	8.76	8.08	9.28	9.14	9.22	9.29	8.75	7.60	7.30	6.64	6.51	6.24	68.00	63.00	38.66	15.97	10.75	.00	.71	322.00	277.00	1.00	361.00	.00	.00	.24	-1.22	13.00
1986	6.48	6.49	5.66	6.51	6.68	6.98	8.61	14.26	16.80	91.55	15.03	14.03	5.10	5.10	5.11	5.62	6.16	421.00	289.00	225.29	95.33	41.98	.00	.31	336.00	189.00	8.00	24.38	2.00	3.00	17.58	-18.49	34.00
1987	10.53	8.61	8.47	8.15	8.43	9.20	9.55	11.13	12.93	14.13	12.66	10.39	7.40	7.47	7.60	7.25	6.74	27.00	17.67	15.00	14.17	13.53	.00	.73	27.00	154.00	2.00	107.00	.00	.00	.78	-.75	28.00
1988	7.13	6.42	6.49	6.06	6.04	6.03	6.68	10.68	10.93	10.03	10.09	10.60	5.90	5.90	5.90	5.95	6.04	12.00	11.67	11.00	10.97	10.58	.00	.73	60.00	182.00	2.00	.50	.00	.00	.41	-.36	37.00
1989	7.61	6.20	6.34	6.27	6.30	6.09	6.28	10.48	12.43	10.77	10.26	12.50	5.80	5.87	5.89	6.09	6.21	38.00	24.33	18.00	12.60	11.23	.00	.69	114.00	173.00	3.00	71.00	.00	.00	1.02	-1.01	68.00
1990	6.96	5.77	5.88	5.81	5.86	5.84	6.09	10.21	9.98	9.95	11.10	10.57	5.60	5.63	5.67	5.76	5.81	12.00	11.67	11.43	11.17	10.55	.00	.72	90.00	144.00	2.00	107.00	.00	.00	.54	-.44	51.00
1991	9.16	9.32	7.65	5.88	6.73	6.12	6.03	9.94	10.80	9.91	10.17	10.49	4.10	4.10	4.19	4.63	5.84	17.00	17.00	16.43	11.68	10.34	.00	.49	347.00	341.00	2.00	107.00	.00	.00	.86	-.86	73.00
1992	7.54	5.62	5.83	6.47	5.96	5.90	5.88	10.00	10.09	10.44	10.02	10.05	5.50	5.50	5.51	5.59	5.90	13.00	12.33	11.14	10.56	10.27	.00	.70	334.00	275.00	2.00	.50	.00	.00	.40	-.48	43.00
1993	7.69	5.73	5.69	5.66	5.69	5.84	6.26	13.90	15.27	108.29	14.97	14.77	5.40	5.43	5.49	5.58	5.66	300.00	262.67	221.00	112.33	47.30	.00	.31	349.00	201.00	5.00	38.00	2.00	3.50	12.35	-11.23	49.00
1994	11.35	10.08	8.99	9.05	8.97	8.36	8.30	9.45	10.20	10.06	9.85	9.67	7.50	7.70	7.36	6.81	6.17	21.00	13.33	11.71	11.40	10.17	.00	.77	88.00	325.00	2.00	107.00	.00	.00	.72	-.48	52.00
1995	6.72	5.85	5.76	5.81	6.83	6.87	18.54	18.58	21.53	683.68	141.26	16.43	5.30	5.30	5.40	5.65	5.79	1300.00	1283.33	1230.00	797.60	290.99	.00	.07	317.00	193.00	8.00	21.13	2.00	13.00	30.69	-28.90	69.00
1996	11.27	23.15	27.02	9.95	9.55	8.04	9.52	14.90	138.70	89.19	13.65	13.93	7.80	7.87	7.89	8.04	8.86	525.00	510.33	494.86	216.67	81.93	.00	.26	9.00	172.00	8.00	34.25	4.00	4.00	18.56	-16.36	103.00
1997	10.51	7.98	7.82	20.86	25.46	17.74	15.73	14.00	335.67	24.87	14.71	13.53	7.60	7.67	7.69	7.75	8.63	604.00	569.67	499.14	337.77	125.36	.00	.18	328.00	173.00	7.00	25.71	2.00	12.50	28.98	-27.43	65.00
1998	12.61	12.03	9.53	7.70	7.69	12.69	12.57	14.68	13.87	79.58	40.52	16.87	7.50	7.50	7.58	7.67	8.18	326.00	320.67	286.57	107.67	46.80	.00	.38	61.00	211.00	6.00	33.00	2.00	4.50	19.64	-17.96	28.00
1999	11.29	9.97	8.97	10.00	9.03	8.65	9.29	16.06	15.00	16.03	15.58	15.60	8.50	8.53	8.57	8.62	8.90	35.00	26.00	19.71	16.20	15.82	.00	.71	94.00	271.00	4.00	53.00	.00	.00	2.37	-2.19	35.00
2000	11.16	11.00	11.54	9.98	9.72	11.56	12.00	17.00	16.97	14.16	14.26	15.97	9.70	9.70	9.70	9.71	10.27	23.00	23.00	23.00	22.50	21.60	.00	.75	10.00	268.00	2.00	107.00	.00	.00	1.69	-1.21	28.00
2001	22.87	22.03	17.26	13.13	12.43	11.87	12.17	13.00	13.00	10.87	10.11	10.80	9.10	9.17	9.19	9.36	7.11	32.00	29.33	27.71	23.80	20.86	.00	.65	266.00	297.00	3.00	113.67	.00	.00	1.52	-1.61	32.00
2002	9.07	6.06	5.80	6.20	7.72	5.42	5.61	14.00	14.00	13.71	13.97	14.00	5.40	5.40	5.40	5.41	5.98	15.00	14.67	14.29	14.07	13.92	.00	.56	56.00	293.00	2.00	107.00	.00	.00	1.19	-1.08	32.00

Table CAWG 6 Appendix L-8b. Mono Creek below Diversion (Area Based) IHA Percentile Data.

IHA Percentile Data
Mono Creek
Pre-impact period: 1963-1982 (20 years) Post-impact period: 1984-2002 (19 years)

	Pre-Impact 10%	25%	50%	75%	90%	(75-25)/50	Post-Impact 10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	9.74	12.40	28.66	42.64	82.03	1.06	6.72	7.54	9.79	11.29	15.75	.38
November	13.17	19.05	28.03	45.55	64.91	.95	5.73	6.06	7.86	10.08	22.03	.51
December	10.40	17.18	30.35	57.83	74.66	1.34	5.69	5.83	7.82	9.53	17.26	.47
January	10.02	19.80	43.38	57.00	90.20	.86	5.81	6.06	7.70	9.95	13.13	.51
February	13.32	31.17	45.37	61.86	88.42	.68	5.86	6.30	7.72	9.03	12.43	.35
March	41.05	54.62	73.23	86.92	103.63	.44	5.72	5.90	6.98	9.20	12.69	.47
April	85.17	143.57	170.68	218.19	235.16	.44	5.88	6.26	8.40	12.00	15.73	.68
May	270.98	357.94	409.58	603.88	705.54	.60	9.45	10.21	13.42	14.68	17.00	.33
June	230.95	339.16	577.69	832.92	982.50	.85	9.98	10.80	13.67	16.80	138.70	.44
July	80.62	93.17	198.81	426.17	1194.77	1.67	9.91	10.06	14.13	79.58	108.29	4.92
August	24.30	31.40	59.26	146.81	497.36	1.95	9.85	10.11	13.65	14.97	40.52	.36
September	11.67	17.66	33.27	59.46	151.88	1.26	9.67	10.49	13.53	15.60	16.73	.38
Parameter Group #2												
1-day minimum	6.60	7.70	9.05	18.98	39.73	1.25	4.10	5.40	5.90	7.60	9.10	.37
3-day minimum	6.39	8.11	9.28	19.48	41.53	1.22	4.10	5.40	5.90	7.70	9.17	.39
7-day minimum	6.36	8.32	9.38	20.42	43.69	1.29	4.19	5.40	5.90	7.69	9.19	.39
30-day minimum	6.40	9.15	11.30	28.82	45.85	1.74	5.21	5.59	6.09	7.75	9.36	.35
90-day minimum	9.10	10.73	18.76	32.71	46.59	1.17	5.79	5.90	6.21	8.18	8.90	.37
1-day maximum	553.65	652.18	1030.30	1532.60	2071.22	.85	12.00	17.00	35.00	421.00	604.00	11.54
3-day maximum	530.29	628.83	997.78	1320.86	1824.33	.69	11.67	14.67	26.00	289.00	569.67	10.55
7-day maximum	495.07	591.98	933.79	1197.39	1639.84	.65	11.14	14.29	23.00	225.29	499.14	9.17
30-day maximum	388.55	443.00	697.84	1019.77	1453.07	.83	10.97	11.68	16.20	107.67	337.77	5.93
90-day maximum	269.35	314.63	439.26	681.61	963.39	.84	10.27	10.58	15.82	46.80	125.36	2.29
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.04	.07	.08	.10	.19	.44	.18	.31	.65	.72	.75	.64
Parameter Group #3												
Date of minimum	255.30	275.00	303.00	332.25	12.60	.16	322.00	336.00	27.00	88.00	114.00	.32
Date of maximum	129.70	138.75	152.50	163.25	190.60	.07	154.00	173.00	201.00	277.00	325.00	.28
Parameter Group #4												
Low pulse count	.00	2.00	3.50	5.50	8.00	1.00	2.00	2.00	3.00	6.00	8.00	1.33
Low pulse duration	.00	4.99	10.50	17.84	57.10	1.22	.50	24.38	53.00	107.00	113.67	1.56
High pulse count	2.10	3.00	3.00	4.00	5.90	.33	.00	.00	.00	2.00	2.00	.00
High pulse duration	14.27	20.88	25.50	35.08	40.57	.56	.00	.00	.00	3.50	12.50	.00
Parameter Group #5												
Rise rate	15.45	18.42	23.84	35.52	48.39	.72	.40	.72	1.52	17.58	28.98	11.08
Fall rate	-37.07	-25.28	-16.66	-12.15	-10.07	-.79	-27.43	-16.36	-1.22	-.75	-.44	-12.83
Number of reversals	82.40	88.00	95.50	102.75	111.80	.15	28.00	32.00	43.00	65.00	73.00	.77

Table CAWG 6 Appendix L-8c. Mono Creek below Diversion (Area Based) IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Mono Creek

	Pre-impact period: 1963-1982 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Post-impact period: 1984-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	28.7	1.06	6.8	110.2	9.8	.38	6.5	22.9	12.40	42.64	-.68
November	28.0	.95	9.2	87.3	7.9	.51	5.6	23.1	19.05	45.55	-.79
December	30.3	1.34	8.9	84.9	7.8	.47	5.7	27.0	17.18	57.83	-.79
January	43.4	.86	9.3	190.6	7.7	.51	5.7	20.9	19.80	57.00	-.89
February	45.4	.68	10.3	108.1	7.7	.35	5.7	25.5	31.17	61.86	-1.00
March	73.2	.44	34.8	141.6	7.0	.47	5.4	17.7	54.62	86.92	-1.00
April	170.7	.44	64.7	248.0	8.4	.68	5.6	18.5	143.57	218.19	-1.00
May	409.6	.60	250.0	722.5	13.4	.33	9.3	18.6	357.94	603.88	-1.00
June	577.7	.85	186.1	1312.9	13.7	.44	9.1	335.7	339.16	832.92	-1.00
July	198.8	1.67	79.1	1325.4	14.1	4.92	9.2	683.7	93.17	426.17	-.89
August	59.3	1.95	22.2	618.4	13.6	.36	9.3	141.3	31.40	146.81	-.79
September	33.3	1.26	9.0	178.3	13.5	.38	8.8	16.9	17.66	59.46	-1.00
Parameter Group #2											
1-day minimum	9.0	1.25	5.3	49.7	5.9	.37	2.6	9.7	7.70	18.98	-.58
3-day minimum	9.3	1.22	5.3	50.8	5.9	.39	2.8	9.7	8.11	19.48	-.68
7-day minimum	9.4	1.29	5.4	53.2	5.9	.39	3.1	9.7	8.32	20.42	-.68
30-day minimum	11.3	1.74	6.0	64.5	6.1	.35	4.6	9.7	9.15	28.82	-.79
90-day minimum	18.8	1.17	8.8	71.1	6.2	.37	5.7	10.3	10.73	32.71	-1.00
1-day maximum	1030.3	.85	523.1	2518.1	35.0	11.54	12.0	1300.0	652.18	1532.60	-.89
3-day maximum	997.8	.69	495.9	2139.8	26.0	10.55	11.7	1283.3	628.83	1320.86	-.89
7-day maximum	933.8	.65	470.7	1899.7	23.0	9.17	11.0	1230.0	591.98	1197.39	-1.00
30-day maximum	697.8	.83	302.0	1495.7	16.2	5.93	10.6	797.6	443.00	1019.77	-.89
90-day maximum	439.3	.84	252.1	1090.7	15.8	2.29	10.2	291.0	314.63	681.61	-1.00
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.08	.44	.04	.22	.65	.64	.07	.77	.07	.10	-.89
Parameter Group #3											
Date of minimum	303.0	.16	9.0	362.0	27.0	.32	9.0	349.0	255.75	311.75	-.89
Date of maximum	152.5	.07	2.0	191.0	201.0	.28	144.0	341.0	138.75	163.25	-.79
Parameter Group #4											
Low pulse count	3.5	1.00	.0	9.0	3.0	1.33	1.0	8.0	2.00	5.50	.14
Low pulse duration	10.5	1.22	.0	89.5	53.0	1.56	.5	361.0	4.99	17.84	-1.00
High pulse count	3.0	.33	2.0	6.0	.0	.00	.0	4.0	3.00	4.00	-.92
High pulse duration	25.5	.56	12.5	55.5	.0	.00	.0	13.0	20.88	35.08	-1.00

The low pulse threshold is 30.10
The high pulse level is 175.60

	Pre-impact Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Post-impact Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	23.8	.72	14.6	64.8	1.5	11.08	.2	30.7	18.42	35.52	-.58
Fall rate	-16.7	-.79	-42.7	-9.1	-1.2	-12.83	-28.9	-.4	-25.28	-12.15	-.68
Number of reversals	95.5	.15	72.0	117.0	43.0	.77	13.0	103.0	88.00	102.75	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	9.50	3.00	-.68	4.75	.00	-1.00	4.75	16.00	2.37
November	9.50	2.00	-.79	4.75	.00	-1.00	4.75	17.00	2.58
December	9.50	2.00	-.79	4.75	.00	-1.00	4.75	17.00	2.58
January	9.50	1.00	-.89	4.75	.00	-1.00	4.75	18.00	2.79
February	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
March	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
April	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
May	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
June	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
July	9.50	1.00	-.89	4.75	1.00	-.79	4.75	17.00	2.58
August	9.50	2.00	-.79	4.75	.00	-1.00	4.75	17.00	2.58
September	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
Parameter Group #2									
1-day minimum	9.50	4.00	-.58	4.75	.00	-1.00	4.75	15.00	2.16
3-day minimum	9.50	3.00	-.68	4.75	.00	-1.00	4.75	16.00	2.37
7-day minimum	9.50	3.00	-.68	4.75	.00	-1.00	4.75	16.00	2.37
30-day minimum	9.50	2.00	-.79	4.75	.00	-1.00	4.75	17.00	2.58
90-day minimum	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
1-day maximum	9.50	1.00	-.89	4.75	.00	-1.00	4.75	18.00	2.79
3-day maximum	9.50	1.00	-.89	4.75	.00	-1.00	4.75	18.00	2.79
7-day maximum	9.50	.00	-1.00	4.75	1.00	-.79	4.75	18.00	2.79
30-day maximum	9.50	1.00	-.89	4.75	.00	-1.00	4.75	18.00	2.79
90-day maximum	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
Number of zero days	19.00	19.00	.00	.00	.00	.00	.00	.00	.00
Base flow	9.50	1.00	-.89	4.75	18.00	2.79	4.75	.00	-1.00
Parameter Group #3									
Date of minimum	9.50	1.00	-.89	4.75	7.00	.47	4.75	11.00	1.32
Date of maximum	9.50	2.00	-.79	4.75	17.00	2.58	4.75	.00	-1.00
Parameter Group #4									
Low pulse count	11.40	13.00	.14	4.75	5.00	.05	2.85	1.00	-.65
Low pulse duration	9.50	.00	-1.00	4.75	17.00	2.58	4.75	2.00	-.58
High pulse count	13.30	1.00	-.92	3.80	.00	-1.00	1.90	18.00	8.47
High pulse duration	9.50	.00	-1.00	4.75	.00	-1.00	4.75	19.00	3.00
Parameter Group #5									
Rise rate	9.50	4.00	-.58	4.75	.00	-1.00	4.75	15.00	2.16
Fall rate	9.50	3.00	-.68	4.75	14.00	1.95	4.75	2.00	-.58
Number of reversals	10.45	.00	-1.00	4.75	1.00	-.79	3.80	18.00	3.74

4 Messages:

Parameter Low pulse count : 11 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 11 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-8d. Mono Creek below Diversion (Area Based) Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Mono Creek

Pre-impact period: 1963-1982 (20 years) Post-impact period: 1984-2002 (19 years)

	Pre	Post
Watershed area	1.00	
Mean annual flow	163.95	23.31
Mean flow/area	163.95	23.31
Annual C. V.	.63	.17
Flow predictability	.46	.77
Constancy/predictability	.42	.79

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Pre	Post
% of floods in 60d period	.61	.60
flood-free season	93.00	297.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	28.7	9.8	1.06	.38	.66	.64	.06	.10
November	28.0	7.9	.95	.51	.72	.46	.15	.30
December	30.3	7.8	1.34	.47	.74	.65	.15	.17
January	43.4	7.7	.86	.51	.82	.41	.20	.39
February	45.4	7.7	.68	.35	.83	.48	.26	.58
March	73.2	7.0	.44	.47	.90	.07	.30	.98
April	170.7	8.4	.44	.68	.95	.56	.47	.87
May	409.6	13.4	.60	.33	.97	.45	.39	.90
June	577.7	13.7	.85	.44	.98	.49	.29	.68
July	198.8	14.1	1.67	4.92	.93	1.94	.02	.03
August	59.3	13.6	1.95	.36	.77	.82	.17	.20
September	33.3	13.5	1.26	.38	.59	.70	.06	.25
Parameter Group #2								
1-day minimum	9.0	5.9	1.25	.37	.35	.70	.00	.34
3-day minimum	9.3	5.9	1.22	.39	.36	.68	.00	.48
7-day minimum	9.4	5.9	1.29	.39	.37	.70	.00	.54
30-day minimum	11.3	6.1	1.74	.35	.46	.80	.01	.42
90-day minimum	18.8	6.2	1.17	.37	.67	.69	.01	.23
1-day maximum	1030.3	35.0	.85	11.54	.97	12.51	.02	.01
3-day maximum	997.8	26.0	.69	10.55	.97	14.21	.06	.00
7-day maximum	933.8	23.0	.65	9.17	.98	13.15	.07	.01
30-day maximum	697.8	16.2	.83	5.93	.98	6.17	.14	.02
90-day maximum	439.3	15.8	.84	2.29	.96	1.74	.19	.23
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.1	.6	.44	.64	7.14	.46	.00	.38
Parameter Group #3								
Date of minimum	303.0	27.0	.16	.32	.49	1.06	.04	.03
Date of maximum	152.5	201.0	.07	.28	.27	3.24	.00	.00
Parameter Group #4								
Low pulse count	3.5	3.0	1.00	1.33	.14	.33	.43	.58
Low pulse duration	10.5	53.0	1.22	1.56	4.05	.27	.00	.68
High pulse count	3.0	.0	.33	.00	1.00	1.00	.00	.12
High pulse duration	25.5	.0	.56	.00	1.00	1.00	.14	.24

The low pulse threshold is 30.10
The high pulse level is 175.60

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	23.8	1.5	.72	11.08	.94	14.45	.02	.00
Fall rate	-16.7	-1.2	-.79	-12.83	.93	15.28	.00	.00
Number of reversals	95.5	43.0	.15	.77	.55	3.97	.02	.00

Table CAWG 6 Appendix L-8e. Mono Creek below Diversion (Area Based) IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1984-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	11231600
218.1	136.5	46.1	26.6	58.5	8.7	11.5	67.4	14.9	16.0	10.3	30.1	111.7	65.6	30.1	40.8	53.2	47.9	16.1	6.2	13	60	7.6	12	8.9	11	8.8	9	13	11	12	8	17	11	14	17	12	23	11	
184.4	145.4	46.1	24.8	55.0	8.7	11.5	58.5	14.5	14.5	10.3	28.4	97.5	62.1	39.0	40.8	49.7	42.6	15.6	6.2	11	61	6.2	12	6.7	9	7	7.2	13	12	11	6.8	17	9.2	14	17	12	23	7.4	
157.8	131.2	47.9	23.1	51.4	8.5	10.6	53.2	14.5	14.5	10.3	28.4	94.0	58.5	39.0	40.8	46.1	39.0	14.9	6.2	9.2	68	6.2	13	6.7	7.2	7.1	7.2	11	12	10	6.7	17	9.5	13	14	12	22	9.7	
136.5	118.8	49.7	23.1	49.7	8.2	10.6	47.9	12.4	13.7	10.3	26.6	94.0	56.7	35.5	39.0	44.3	37.2	14.5	6.2	9.2	54	6.2	11	6.7	7.3	8.9	7.2	7.2	12	10	6.7	16	9.6	13	11	12	22	9.5	
120.6	109.9	46.1	21.3	49.7	8.3	10.6	42.6	12.4	12.9	10.3	26.6	147.2	55.0	31.9	37.2	42.6	33.7	14.2	6.2	9.2	9.2	6.1	11	6.7	7.2	11	7.2	7.2	11	11	6.8	13	9.6	13	11	12	22	9.4	
109.9	99.3	46.1	23.1	47.9	8.2	11.5	39.0	11.3	12.8	9.6	26.6	157.8	53.2	30.1	35.5	40.8	31.9	13.8	6.2	9.2	9.2	6.1	10	6.7	7.1	6.8	7.1	7	6.8	11	6.8	11	9.6	13	11	12	21	9.4	
101.1	95.8	44.3	37.2	47.9	8.2	10.6	35.5	10.8	12.2	9.6	26.6	156.1	53.2	30.1	33.7	40.8	31.9	13.5	6.2	9.2	9.2	6.2	10	6.7	7.2	6.8	7	7	6.8	11	6.8	11	9.6	13	11	12	21	9.3	
92.2	94.0	42.6	39.0	47.9	8.2	10.3	31.9	10.8	11.3	9.6	26.6	152.5	51.4	28.4	31.9	37.2	28.4	13.1	6.2	9.2	9.1	6.3	10	6.8	7.4	6.8	7	6.9	6.8	12	6.7	11	9.6	13	11	12	21	9.3	
85.1	86.9	40.8	39.0	49.7	8.2	10.3	30.1	10.8	11.3	9.6	24.8	150.7	49.7	26.6	31.9	37.2	26.6	12.8	6.2	8.8	9.1	6.3	10	6.9	7.4	6.7	7	6.9	6.8	12	6.8	11	9.6	13	11	12	21	9.4	
78.0	79.8	39.0	35.5	47.9	8.2	9.9	28.4	10.8	10.8	9.6	24.8	141.9	47.9	26.6	33.7	35.5	24.8	19.5	6.2	8.5	9.1	6.3	10	7	7.4	6.7	7.4	6.8	6.8	12	6.8	10	9.6	13	11	12	21	9.4	
72.7	72.7	40.8	39.0	47.9	8.2	9.9	26.6	10.5	10.5	9.6	31.9	129.5	47.9	26.6	39.0	35.5	24.8	28.4	6.2	8.7	9.1	6	10	7.1	7.3	6.7	7.5	6.8	6.8	11	6.8	10	9.6	13	11	12	21	9.4	
69.2	69.2	46.1	39.0	46.1	8.2	9.9	24.8	10.5	10.1	9.6	35.5	115.3	46.1	24.8	37.2	33.7	23.1	26.6	6.2	9.5	9.1	6.3	10	7.2	7.3	6.7	7.3	6.9	6.8	11	6.8	10	9.6	13	11	12	21	9.4	
67.4	65.6	47.9	35.5	42.6	11.2	9.9	23.1	10.5	10.6	9.6	31.9	99.3	44.3	24.8	39.0	33.7	21.3	24.8	6.2	9.6	9	6.3	10	7.2	7.4	6.7	7.1	6.9	6.9	11	6.8	10	9.6	13	11	12	22	9.4	
63.8	62.1	46.1	31.9	40.8	11.2	9.9	21.3	10.5	10.6	9.6	30.1	86.9	42.6	23.1	37.2	33.7	21.3	24.8	6.0	9.7	9	6.3	10	7.2	7.3	6.7	7.1	6.9	7	11	6.8	10	9.6	12	11	10	22	9.4	
63.8	60.3	42.6	30.1	37.2	9.8	9.9	21.3	10.1	10.1	9.6	30.1	78.0	42.6	23.1	37.2	33.7	21.3	24.8	5.7	9.9	9	6.4	12	7.2	7.4	6.7	7.3	6.9	7	12	6.8	10	9.6	13	11	10	21	9.4	
62.1	58.5	40.8	30.1	35.5	9.2	9.6	21.3	10.1	9.8	9.6	33.7	69.2	42.6	21.3	35.5	31.9	19.5	23.1	5.5	10	9	6.4	9.9	7.3	7.3	6.7	7.3	6.9	7	12	6.8	11	9.6	15	11	10	21	10	
60.3	56.7	49.7	28.4	33.7	8.9	9.2	19.5	10.1	9.4	9.6	33.7	63.8	42.6	19.5	33.7	30.1	19.5	23.1	5.3	10	9	6.5	9.5	7.1	7.4	6.7	7.2	6.9	7	12	6.7	13	9.6	16	11	12	21	11	
56.7	55.0	58.5	28.4	31.9	8.7	9.2	17.7	10.1	9.0	9.6	33.7	60.3	40.8	19.5	31.9	30.1	19.5	23.1	5.3	10	9	6.5	9.2	6.9	7.3	6.7	7	7	7	11	6.5	12	9.6	14	11	10	21	11	
56.7	53.2	65.6	26.6	30.1	8.7	8.7	17.7	11.3	8.9	9.6	31.9	56.7	40.8	19.5	30.1	30.1	17.7	23.1	5.3	10	9	6.5	8.8	6.7	7.4	6.6	6.7	7	7	11	6.5	11	9.6	12	16	10	21	15	
56.7	53.2	60.3	24.8	30.1	8.5	8.7	17.7	13.5	9.2	8.9	31.9	53.2	40.8	19.5	28.4	28.4	17.7	21.3	5.3	10	9	6.6	10	6.7	7.4	6.6	6.7	7	7	11	6.5	10	9.6	12	11	10	23	10	
55.0	51.4	53.2	24.8	30.1	8.5	8.7	17.7	11.3	8.9	10.3	30.1	49.7	40.8	19.5	28.4	30.1	17.6	21.3	5.3	10	9	6.6	10	7.3	7.4	6.6	8.7	7	7	11	6.5	10	9.6	12	10	10	25	8.4	
72.7	49.7	47.9	33.7	30.1	10.6	8.7	24.8	11.3	8.9	13.3	28.4	47.9	37.2	19.5	28.4	30.1	16.8	21.3	5.7	10	9	7.2	10	7.3	7.3	6.6	14	7	7	11	6.4	10	9.6	12	10	10	25	8.8	
78.0	47.9	47.9	44.3	28.4	14.0	8.7	23.1	10.8	8.9	13.7	26.6	46.1	35.5	17.2	26.6	30.1	16.8	23.1	6.2	10	9	7.4	10	7.3	7.2	6.6	13	7.2	7	12	6.4	10	9.6	11	10	10	32	8.7	
104.6	47.9	46.1	53.2	28.4	13.5	8.7	28.4	10.8	8.9	12.4	24.8	46.1	35.5	16.1	26.6	31.9	16.8	23.1	6.2	9.9	9.1	6.6	11	7.4	7.2	6.6	13	7.2	7	12	6.4	10	12	10	10	11	23	7.2	
196.8	46.1	44.3	49.7	26.6	11.5	8.7	33.7	10.8	9.0	11.3	24.8	44.3	35.5	19.5	23.1	33.7	16.0	21.3	6.2	9.9	9.1	6.5	11	7.4	7.4	6.5	16	7.2	7	11	6.4	9.8	15	10	10	11	23	7.2	
244.7	44.3	47.9	44.3	26.6	10.6	8.7	28.4	10.8	17.0	11.3	23.1	44.3	33.7	19.5	24.8	37.2	15.6	21.3	6.2	9.8	9.1	6.4	11	7.4	7.5	6.6	16	7.2	7	11	6.5	9.6	15	11	10	11	23	7.2	
170.2	42.6	42.6	42.6	24.8	10.6	8.7	31.9	10.5	17.7	11.3	21.3	42.6	33.7	23.1	23.1	37.2	15.3	23.1	6.2	9.7	9.1	6.3	11	7.4	7.5	6.6	16	7.2	7	11	6.7	9.6	15	11	10	11	23	7.2	
149.0	42.6	40.8	39.0	24.8	16.8	8.7	24.8	10.5	33.7	11.9	19.5	39.0	33.7	23.1	21.3	37.2	17.7	26.6	6.2	9.7	9.1	6.3	11	7.3	7.5	6.6	16	7.2	7	12	6.7	9.6	14	12	10	11	23	7.2	
138.3	42.6	40.8	37.2	24.8	23.1	8.7	23.1	10.1	28.4	16.3	19.5	35.5	33.7	21.3	23.1	37.2	23.1	28.4	6.2	9.7	9.2	6.5	11	7.3	8.1	6.6	12	7.2	7	12	6.8	9.9	14	13	10	11	24	7.2	
147.2	51.4	39.0	35.5	24.8	21.3	8.7	23.1	10.5	23.1	26.6	19.5	33.7	33.7	26.6	23.1	37.2	19.5	35.5	11.7	10	9.2	6.7	11	7.3	8.6	6.6	7.3	7.3	7	12	6.8	10	9.6	13	10	11	27	7.2	
147.2	53.2	35.5	31.9	23.1	19.5	8.7	23.1	10.1	23.1	40.8	17.7	33.7	33.7	39.0	21.3	37.2	17.7	39.0	24.8	11	9.2	7	11	7.3	8.6	6.6	7.4	6.9	7	12	6.9	9.9	9.6	11	10	11	30	7.2	
147.2	49.7	33.7	30.1	19.5	26.6	9.2	21.3	9.8	21.3	51.4	17.7	31.9	31.9	39.0	19.5	39.0	17.7	37.2	19.5	9.8	8.5	6.1	9.5	7.3	7.5	6.1	7.8	5.9	6.4	12	6.2	10	9.6	11	10	11	31	7.2	
138.3	47.9	33.7	28.4	19.5	37.2	9.2	21.3	8.7	23.1	49.7	17.2	33.7	31.9	33.7	19.5	31.9	16.8	35.5	15.3	7.9	7.8	6.7	8.5	6.8	6.1	5.7	12	5.6	6	11	5.7	9.2	9.6	13	10	10	27	7.2	
124.1	46.1	33.7	26.6	21.3	26.6	9.2	21.3	8.7	23.1	49.7	16.3	30.1	30.1	30.1	17.7	33.7	16.7	31.9	13.5	7.9	7.8	6.7	8.5	6.3	6.1	5.8	6.4	5.6	5.9	10	5.7	8.2	9.6	13	10	10	27	7.2	
115.3	46.1	30.1	26.6	19.5	24.8	9.2	21.3	9.9	24.8	47.9	16.1	33.7	30.1	28.4	17.7	31.9	16.0	28.4	12.2	7.9	7.8	6.7	8.5	6.2	6	5.8	6.2	5.7	5.9	9.9	5.7	8.2	8.7	13	10	10	26	7.2	
108.2	44.3	31.9	26.6	21.3	39.0	8.7	21.3	11.0	28.4	47.9	16.3	46.1	30.1	24.8	17.7	28.4	16.0	30.1	12.4	7.9	7.8	6.7	8.5	6.2	6.1	5.8	6.1	5.7	5.9	9.8	5.7	8.2	7.8	13	10	10	26	7.2	
102.9	42.6	30.1	24.8	19.5	46.1	8.7	21.3	9.0	33.7	40.8	15.6	72.7	30.1	26.6	17.4	24.8	15.3	28.4	12.4	7.8	7.8	6.7	8.6	6.3	6	5.8	6.5	5.7	5.8	9.8	5.6	56	7.8	13	10	10	22	6.6	
94.0	49.7	31.9	23.1	13.7	44.3	8.7	17.7	7.1	33.7	47.9	14.2	60.3	30.1	26.6	19.5	28.4	14.5	26.6	12.4	8	7.7	6.7	8.6	6.4	6.1	5.8	6.2	5.7	5.8	9.8	5.6	8.1	7.8	13	10	10	20	5.8	
81.6	46.1	26.6	23.1	19.5	44.3	8.7	17.6	9.4	33.7	44.3	13.8	60.3	28.4	28.4	19.5	30.1	16.0	26.6	11.7	7.8	7.7	6.7	8.6	6.5	6.1	5.8	6	5.7	5.8	9.6	5.5	8.2	7.8	13	10	10	21	5.8	
76.3	44.3	44.3	16.0	17.7	42.6	8.5	19.5	8.5	53.2	28.4	12.4	55.0	28.4	30.1	19.5	30.1	19.5	21.3	9.6	7.8	7.7	6.7	8.6	6.5	6.1	5.8	6	5.7	5.8	9.6	5.5	8.3	7.8	13	10	11	21	5.8	
83.3	46.1	53.2	13.5	19.5	40.8	8.7	19.5	8.5	53.2	28.4	12.6	44.3	26.6	28.4	23.1	33.7	23.1	21.3	8.9	7.8	7.7	6.7	8.6	6.5	6.1	5.8	6	5.6	5.9	9.5	5.5	8.1	7.8	13	10	11	21	5.8	
81.6	70.9	51.4	15.3	19.5	39.0	8.7	19.5	8.7	44.3	28.4	12.8	60.3	26.6	26.6	23.1	35.5	21.3	23.1	9.9	7.8	7.7	6.7	8.8	6.5	6.1	5.7	11	5.6	5.9	9.5	5.4	8.1	7.8	13	10	11	21	5.8	
83.3	76.3	46.1	19.5	17.7	35.5	8.7	19.5	9.4	39.0	28.4	12.2	60.3	24.8	28.4	24.8	39.0	21.3	28.4	11.0	7.8	7.7	6.7	9	6.5	6.1	5.7	11	5.6	5.6	9.5	5.3	8.4	7.8	13	10	11	21	5.8	
79.8	67.4	42.6	33.7	19.5	35.5	9.9	17.7	8.9	35.5	28.4	14.2	53.2	24.8	26.6	24.8	39.0	19.5	28.4	12.1	7.8	7.7	6.6	9.2	6.5	6.2	5.7	11	5.6	5.6	9.4	5.3	8.4	7.8	13	10	11	21	5.8	
76.3	60.3	67.4	39.0	17.4	33.7	9.2	16.5	9.2	26.6	26.6	13.8	53.2	23.1	24.8	26.6	39.0	21.3	28.4	15.6	7.8	7.7	6.6	9.1	6.4	6.2	5.7	11	5.6	5.6	9.5	5.3	15	7.8	13	10	11	21	5.8	
72.7	58.5	60.3	39.0	16.7	33.7	10.3	16.0	9.6	26.6	26.6	16.1	47.9	21.3	23.1	26.6	40.8	21.3	28.4	16.7	9.3	7.7	6.6	8.8	6.4	6.2	5.7	11	5.6	5.6	9.3	5.5	29	7.8	13	10	11	21	5.8	
67.4	56.7	53.2	40.8	17.7	35.5	17.4	17.2	9.2	30.1	26.6	19.5	46.1	19.5	19.5	23.1	37.2	19.5	31.9	15.8	7.7	7.7	6.6	9	6.4	6.2	5.7	11	5.6	5.6	9.5	6.9	31	7.8	13	9.5	11	21	5.8	
67.4	65.6	53.2	37.2	17.7	37.2	16.0	17.4	9.6	31.9	24.8	17.7	49.7	17.7	37.2	26.6	35.5	21.3	33.7	14.0	7.7	7.6	6.6	9.2	6.4	6.2	5.7	11	5.6	5.6	9.6	7.8	31	7.8	12	9.5	11	21	5.8	
65.6	76.3	51.4	35.5	19.5	44.3	17.2	15.1	9.0	31.9	19.5	17.7	46.1	17.7	58.5	24.8	31.9	19.5	39.0	11.9	7.7	7.6	6.6	9	6.4	6.2	5.7	11	5.6	5.6	9.5	7.8	31	7.8	11	10	11	21	5.8	
79.8	88.7	49.7	39.0	19.5	46.1	17.2	16.1	9.2	51.4	17.7	16.1	53.2	16.8	74.5	26.6	26.6	23.1	33.7	11.0	7.7	7.6	6.6	8.6	6.4	6.2	5.7	11	5.6	5.6	9.4	7	32	7.8	11	10	11	21	5.8	
108.2	88.7	49.7	37.2	19.5	39.0	17.0	16.7	8.9	44.3	17.7	15.6	55.0	16.7	67.4	30.1	30.1	21.3	30.1	12.8	7.7	7.6	6.6	8.6	6.4	6.2	5.7	11	5.6	5.6	21	5.8	31	7.8	11	10	11	21	5.8	
90.4	85.1	42.6	40.8	19.5	40.8	21.3	15.1	7.4	42.6	24.8	15.6	53.2	17.7	92.2	28.4	30.1	21.3	24.8	12.8	7.7	7.6	6.6	8.4	6.4	6.2	5.7	11	5.6	5.7	9.5	5.8	31	7.8	11	10	11	21	5.8	
85.1	79.8	46.1	40.8	14.7	44.3	17.6	14.9	8.3	39.0	24.8	19.5	53.2	16.0	125.9	26.6	30.1	16.5	23.1	37.2	7.7	7.6	6.6	8.2	6.4	6.2	5.7	11	5.6	5.7	9.5	5.7	32	7.8	11	10	11	21	5.8	
85.1	76.3	58.5	37.2	17.7	39.0	17.0	13.1	9.0	39.0	19.5	16.5	53.2	17.2	95.8	26.6	30.1	24.8	23.1	28.4	7.7	7.6	6.6	8.2	6.4	6.3	5.7	11	5.6	5.7	9.5	5.7	34	7.6	11	10	11	21	5.8	
79.8	83.3	62.1	44.3	17.4	37.2	16.3	17.0	9.0	37.2	21.3	16.1	53.2	16.8	85.1	26.6	28.4	23.1	19.5	40.8	7.6	7.6	6.6	8.2	6.4	6.2	5.7	11	5.6	5.6	9.6	5.7	35	7.7	11	10	12	21	5.8	
78.0	83.3	65.6	72.7	13.7	31.9	16.0	13.5	8.9	37.2	21.3	17.4	46.1	15.8	69.2	24.8	28.4	23.1	19.5	24.8	7.6	7.6	6.2	8.2	6.3	6.2	5.8	11	5.6	5.6	9.6	5.7	35	7.7	11	10	12	21	5.8	
74.5	106.4	72.7	117.0	12.6	35.5	15.4	13.8	8.9	35.5	19.5	17.0	47.9	15.1	60.3	26.6	28.4	19.5	19.5	35.5	7.6	7.7	6.2	8.2	6.3	6.2	5.8	11	5.6	5.6	9.5	5.7	36	7.7	11	10	12	21	5.8	
67.4	88.7	69.2	92.2	13.7	31.9	14.9	14.2	8.5	30.1	21.3	16.7	47.9	11.7	60.3	28.4	26.6	17.7	17.7	42.6	7.6	7.7	6.2	8.2	6.3	6.2	5.9	11	5.6	5.6	9.5	5.6	32	7.7	11	10	12	21	5.8	
67.4	79.8	58.5	70.9	12.6	31.9	16.1	33.7	10.5	26.6	15.6	16.3	49.7	16.8	53.2	53.2	28.4	15.6	17.7	37.2	7.6	7.7	6.2	8.3	6.3	6.2	5.9	11	5.6	5.6	9.5	5.6	35	7.7	11	10	12	21	5.8	
70.9	74.5	79.8	60.3	12.6	30.1	15.4	31.9	11.7	23.1	16.3	19.5	46.1	13.3	47.9	62.1	33.7	17.2	17.6	33.7	7.6	7.7	5.6	8.3	6.3	6.1	5.9	5.9	5.5	5.6	9.5	5.6	33	7.7	11	10	12	21	5.8	
67.4	67.4	70.9	53.2	10.3	31.9	14.7	28.4	11.0	19.5	13.5	21.3	46.1	14.4	47.9	51.4	37.2	17.6	17.4	46.1	7.6	7.8	5.2	8.3	6.3	6.1	5.9	6.6	5.5	5.6	9.5	5.6	34	7.7	11	10	12	20	5.8	
85.1	63.8	63.8	65.6	11.5	31.9	14.4	24.8	9.8	23.1	17.7	21.3	47.9	13.7	44.3	46.1	39.0	16.7	15.3	47.9	7.6	7.8	5.1	8.3	6.3	6	5.9	6	5.5	5.6	9.5	5.4	34	7.8	11	9.8	12	20	5.8	
108.2	60.3	60.3	81.6	11.3	31.9	13.7	26.6	8.5	26.6	19.5	19.5	47.9	12.6	37.2	40.8	40.8	16.3	14.7	47.9	7.6	7.8	5.1	8.3	6.3	6	6	5.8	5.5	5.6	9.5	5.5	33	7.7	11	8.9	12	20	5.8	
85.1	56.7	56.7	111.7	11.7	28.4	13.1	24.8	8.9	24.8	14.4	21.3	46.1	10.5	37.2	35.5	40.8	17.7	15.6	55.0	7.5	7.8	5.1	8.3	6.3	6	6	11	5.5	5.6	9.6	5.5	32	7.7	11	8.8	12	20	5.8	
79.8	76.3	55.0	124.1	11.9	24.8	12.1	24.8	9.2	24.8	14.0	21.3	49.7	19.5	37.2	31.9	35.5	16.7	13.3	70.9	7.5	7.8	5.1	8.3	6.4	6.1	6	14	5.5	5.6	9.5	5.6	41	7.7	11	8.8	12	20	5.8	
79.8	83.3	53.2	81.6	12.8	35.5	12.8	21.3	9.2	21.3	13.7	19.5	47.9	17.2	42.6	28.4	35.5	14.2	13.8	78.0	7.6	7.9	5.1	8.3	6.4	6.1	5.9	16	5.8	5.6	9.5	5.6	42	7.7	11	8.8	12	20	5.8	
76.3	72.7	51.4	65.6	11.2	24.8	12.4	24.8	9.2	21.3	10.6	21.3	46.1	16.5	49.7	39.0	35.5	13.7	13.7	70.9	8.7	7.9	5.1	8.3	6.4	6.2	5.9	17	5.8	5.6	9.5	5.8	40	7.6	11	8.8	12	22	5.8	
74.5	67.4	51.4	53.2	10.5	24.8	12.8	21.3	9.0	21.3	10.5	19.5	42.6	19.5	56.7	47.9	37.2	15.3	14.5	63.8	9.9	8	5.4	8.4	6.5	6.2	5.9	17	5.8	5.6	9.5	6.6	43	7.8	11	8.8	12	21	5.8	
76.3	63.8	47.9	47.9	9.9	31.9	12.4	21.3	8.9	21.3	12.2	19.5	39.0	17.6	53.2	42.6	39.0	10.8	14.5	62.1	8.8	8	5.6	8.4	6.5	6.2	5.9	17	5.8	5.6	9.5	6.2	41	7.9	11	8.8	12	23	5.8	
74.5	62.1	47.9	40.8	11.9	35.5	11.7	19.5	8.9	23.1	17.4	19.5	37.2	17.7	51.4	49.7	35.5	13.7	15.1	60.3	15	8.1	5.6	8.4	6.5	6.3	5.9	17	5.8	5.5	9.5	5.9	39	7.9	11	8.8	12	23	5.8	
70.9	70.9	46.1	40.8	11.7	35.5	11.2	19.5	8.9	21.3	19.5	19.5	37.2	17.7	56.7	55.0	33.7	9.9	16.0	60.3	10	8.2	5.6	8.4	6.6	6.3	5.9	17	5.8	5.5	9.4	5.7	39	7.9	11	8.8	12	22	5.8	
70.9	70.9	49.7	33.7	14.0	33.7	11.0	17.0	8.9	21.3	26.6	17.7	37.2	21.3	67.4	46.1	31.9	14.0	17.6	65.6	8.6	8.2	5.7	8.4	6.6	6.3	5.9	13	5.8	5.5	9.4	5.8	45	7.8	11	8.8	12	22	5.8	
76.3	76.3	46.1	39.0	14.0	30.1	10.8	17.4	9.0	19.5	39.0	17.7	35.5	55.0	83.3	44.3	31.9	14.5	15.8	63.8	8.8	8.3	5.7	8.5	6.6	6.2	5.9	4.1	5.8	5.5	9.4	5.9	40	7.8	11	8.8	12	22	5.8	
74.5	74.5	44.3	47.9	13.8	26.6	11.7	17.7	8.9	19.5	39.0	17.7	39.0	35.5	94.0	44.3	31.9	13.3	17.4	63.8	9	8.4	5.7	8.5	6.7	6.2	5.9	4.1	5.8	5.5	9.3	5.9	29	7.8	11	8.8	12	22	5.8	
78.0	70.9	40.8	55.0	14.2	26.6	12.1	16.1	8.7	19.5	47.9	17.7	40.8	74.5	76.3	40.8	31.9	11.7	17.7	60.3	9.2	8.4	5.7	8.5	6.7	6.2	5.9	4.1	5.8	5.4	9.3	5.9	38	7.8	11	8.8	12	21	5.8	
65.6	70.9	46.1	65.6	11.7	30.1	10.6	15.6	8.5	19.5	47.9	17.7	42.6	72.7	63.8	44.3	31.9	12.1	16.3	60.3	9.4	8.5	5.8	8.5	6.7	6.3	5.9	4.1	5.8	5.5	9.1	5.9	39	7.8	11	8.8	12	13	5.8	
62.1	67.4	42.6	69.2	12.1	37.2	10.8	15.3	8.5	17.7	42.6	17.7	42.6	60.3	62.1	44.3	31.9	12.4	19.5	63.8	9.6	8.6	5.8	8.5	6.7	6.4	5.9	4.1	5.8	5.9	8.9	5.8	38	7.8	11	8.8	12	14	5.8	
62.1	63.8	37.2	67.4	11.9	39.0	10.5	14.0	9.0	17.7	40.8	17.7	42.6	60.3	58.5	42.6	31.9	12.6	19.5	58.5	9.8	8.6	5.8	8.6	6.6	6.4	5.9	4.4	5.8	5.9	8.8	5.9	39	7.7	11	8.8	12	14	5.8	
62.1	63.8	37.2	70.9	12.6	28.4	9.9	12.6	8.5	19.5	35.5	17.7	42.6	62.1	56.7	39.0	31.9	12.4	21.3	60.3	9.9	8.7	5.8	8.6	6.6	6.4	5.9	4.4	5.8	5.9	8.8	5.9	37	7.7	9.4	8.8	12	14	5.8	
62.1	60.3	40.8	79.8	11.5	30.1	9.6	11.7	8.5	19.5	35.5	17.7	40.8	56.7	55.0	35.5	30.1	12.9	21.3	55.0	10	8.8	5.9	8.6	6.6	6.4	5.9	4.4	5.8	5.9	8.8	5.8	36	8	7.6	8.8	12	14	5.8	
63.8	56.7	40.8	83.3	9.8	35.5	9.9	11.9	8.5	21.3	37.2	19.5	40.8	49.7	53.2	35.5	23.1	13.3	24.8	51.4	10	8.9	5.9	8.6	6.6	6.4	5.9	4.4	5.9	5.8	8.8	5.8	21	7.9	7.6	8.8	12	14	5.8	
69.2	65.6	40.8	83.3	9.6	30.1	9.8	12.6	8.7	19.5	33.7	19.5	40.8	46.1	47.9	33.7	24.8	11.9	19.5	58.5	10	8.9	5.9	8.6	6.5	6.4	5.9	4.4	5.9	5.8	8.8	5.8	8	7.9	7.6	8.8	11	14	5.8	
74.5	65.6	42.6	85.1	10.6	26.6	8.7	12.9	8.5	17.7	31.9	19.5	39.0	46.1	53.2	31.9	26.6	11.0	17.7	60.3	11	9	5.9	8.6	6.5	6.5	5.9	4.4		5.7	8.7	5.7	8	8	7.6	8.8	11	14	5.8	
86.9	63.8	46.1	86.9	10.1	23.1	7.8	12.9	8.7	17.7	30.1	19.5	37.2	49.7	72.7	30.1	24.8	10.6	21.3	63.8	11	9.1	5.9	8.6	6.5	6.5	5.8	4.4	5.8	5.7	8.6	5.7	8.2	8	7.6	8.8	11	14	5.8	
115.3	67.4	51.4	99.3	9.4	21.3	6.9	12.9	8.9	16.5	28.4	19.5	35.5	51.4	88.7	28.4	24.8	10.3	21.3	65.6	11	9.1	5.9	8.6	6.5	6.6	5.8	4.4	5.7	5.8	8.5	5.6	8.4	8	7.6	8.8	11	14	5.8	
172.0	136.5	55.0	101.1	9.6	24.8	7.3	12.8	9.0	15.8	28.4	19.5	39.0	42.6	76.3	28.4	24.8	10.1	40.8	62.1	11	9.2	5.9	8.5	6.4	6.6	5.8	4.4	5.7	5.8	7.7	5.6	8.4	7.9	7.6	8.8	11	14	5.8	
157.8	108.2	49.7	99.3	11.2	28.4	6.7	12.4	9.2	15.4	28.4	21.3	39.0	42.6	67.4	26.6	24.8	10.5	24.8	58.5	11	9.3	5.9	8.5	6.4	6.6	5.8	4.4	5.9	5.8	7.7	5.6	8.5	7.8	7.6	8.8	11	14	5.8	
118.8	109.9	47.9	90.4	9.9	30.1	6.6	12.4	9.2	15.3	26.6	21.3	39.0	44.3	67.4	26.6	24.8	11.5	19.5	55.0	12	9.3	5.9	8.5	6.4	6.6	5.8	4.4	6.2	5.8	7.8	5.6	8.4	7.8	7.6	8.8	11	14	5.8	
95.8	99.3	47.9	81.6	9.6	31.9	8.0	11.7	9.0	15.6	24.8	21.3	39.0	44.3	70.9	26.6	23.1	11.0	17.7	55.0	13	9.4	5.9	8.5	6.4	6.6	5.8	4.4	6.2	5.8	8.4	5.6	8.4	7.8	7.6	9.5	11	14	5.8	
86.9	85.1	46.1	74.5	10.3	35.5	7.8	10.6	8.5	16.3	24.8	19.5	39.0	44.3	63.8	30.1	23.1	10.8	21.3	63.8	12	9.5	5.9	8.5	6.3	6.6	5.8	4.4	6.2	5.9	9	5.6	8.4	7.8	7.6	10	10	14	5.8	
86.9	83.3	46.1	88.7	10.1	35.5	8.0	10.5	8.5	17.7	35.5	19.5	37.2	51.4	76.3	30.1	23.1	11.0	23.1	76.3	12	9.6	5.9	8.5	6.3	6.5	5.8	4.4	6.2	5.9	9	5.6	8.4	7.8	7.8	10	9.8	14	5.8	
79.8	79.8	46.1	74.5	9.9	35.5	8.7	10.6	8.9	21.3	46.1	17.7	37.2	47.9	76.3	30.1	23.1	11.7	24.8	74.5	12	9.6	5.9	8.5	6.3	6.4	5.8	4.4	6.3	5.9	8.9	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
78.0	72.7	47.9	60.3	9.9	37.2	8.3	10.1	8.9	24.8	49.7	17.7	35.5	49.7	227.0	30.1	23.1	10.6	24.8	69.2	13	9.7	5.9	8.5	6.3	6.5	5.8	4.4	6.3	5.9	8.9	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
78.0	72.7	47.9	53.2	10.3	37.2	8.0	9.9	8.9	26.6	47.9	17.7	37.2	44.3	1879.7	31.9	23.1	10.3	24.8	56.7	14	9.8	5.9	8.5	6.2	6.4	5.8	4.4	6.3	5.9	8.9	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
76.3	67.4	49.7	46.1	11.0	37.2	8.3	10.3	8.5	28.4	49.7	19.5	37.2	42.6	991.3	33.7	23.1	11.0	31.9	55.0	13	9.9	5.9	8.5	6.2	6.4	5.9	4.4	6.2	5.8	8.9	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
78.0	63.8	47.9	47.9	10.5	39.0	8.7	10.8	9.0	24.8	47.9	19.5	35.5	39.0	425.6	30.1	23.1	11.0	47.9	58.5	11	9.8	5.9	8.6	6.2	6.4	5.8	5.7	6.2	5.7	8.6	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
86.9	67.4	49.7	70.9	9.4	40.8	9.0	11.3	9.4	26.6	40.8	21.3	35.5	35.5	266.0	31.9	23.1	10.6	46.1	55.0	8	9.7	5.9	8.6	6.2	6.4	5.8	4.8	6.2	5.8	8.4	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
97.5	70.9	53.2	63.8	12.9	40.8	8.9	11.2	8.9	28.4	39.0	21.3	40.8	33.7	186.2	31.9	23.1	10.6	51.4	51.4	8	9.6	5.9	8.6	6.1	6.4	5.8	4.4	6.5	5.8	8.4	5.7	8.4	7.8	7.7	10	9.8	14	5.8	
99.3	70.9	55.0	56.7	13.5	39.0	9.4	11.7	8.9	30.1	40.8	21.3	49.7	37.2	154.3	30.1	23.1	11.5	37.2	49.7	8	9.6	5.9	8.6	6.1	6.3	5.8	4.4	6.6	5.8	8.5	5.7	8.4	11	7.7	10	9.8	14	5.8	
106.4	69.2	53.2	53.2	13.8	39.0	10.1	11.9	8.9	31.9	62.1	21.3	55.0	39.0	133.0	30.1	21.3	9.2	15.6	47.9	13	9.5	6	8.6	6.1	6.4	5.8	6.5	6.6	5.7	8.4	5.7	8.1	15	7.7	10	9.8	14	5.8	
108.2	65.6	56.7	49.7	15.6	39.0	9.8	12.2	9.0	30.1	58.5	19.5	65.6	37.2	118.8	30.1	21.3	8.0	17.7	46.1	8	9.4	6.5	8.6	6.1	6.5	5.8	7.4	6.6	5.8	8.5	5.7	7.8	18	7.7	10	9.8	14	5.9	
94.0	63.8	62.1	51.4	17.6	39.0	9.6	12.4	9.2	30.1	62.1	19.5	78.0	33.7	111.7	30.1	21.3	8.0	28.4	46.1	8	9.3	6.6	8.5	6.1	6.5	5.9	5.9	6.6	5.5	8.5	5.7	8	15	7.7	10	9.7	14	6.1	
95.8	60.3	58.5	51.4	19.5	39.0	8.9	12.4	9.2	28.4	55.0	19.5	76.3	33.7	92.2	33.7	21.3	8.3	39.0	49.7	9	9.3	6.6	8.5	6.1	6.4	5.9	6.4	6.6	5.6	8.5	5.7	8	25	7.7	10	9.8	14	6	
102.9	62.1	58.5	49.7	19.5	37.2	8.7	12.6	9.2	26.6	49.7	19.5	83.3	37.2	95.8	35.5	23.1	8.5	74.5	51.4	9	9.2	6.6	8.4	6.1	6.4	5.9	6.7	6.5	5.7	8.6	5.7	7.9	25	7.7	10	9.8	13	6	
102.9	56.7	56.7	46.1	17.7	37.2	8.5	13.1	9.2	26.6	49.7	19.5	125.9	39.0	86.9	37.2	19.5	8.9	65.6	53.2	8	9.1	6.6	8.3	6.1	6.3	5.9	6	6.5	5.8	8.6	5.7	7.9	25	7.7	10	9.8	13	6	
99.3	58.5	56.7	44.3	16.1	35.5	8.3	14.4	9.2	24.8	51.4	19.5	113.5	37.2	79.8	44.3	21.3	9.0	63.8	53.2	8	9.1	6.6	8.3	6	6.3	5.9	5.9	6.5	5.8	8.6	5.7	7.9	25	7.7	10	9.8	13	6	
88.7	58.5	56.7	42.6	14.7	30.1	8.2	15.8	9.4	24.8	51.4	19.5	76.3	33.7	69.2	44.3	19.5	10.1	72.7	55.0	8	9	6.6	8.2	6	6.2	5.9	5.9	6.5	5.7	9.4	5.7	7.9	25	7.7	10	9.8	13	5.8	
86.9	51.4	60.3	40.8	13.1	31.9	8.2	16.7	9.6	24.8	58.5	19.5	70.9	35.5	62.1	56.7	19.5	10.8	122.4	51.4	8.1	8.9	6.6	8.1	6	6.2	5.9	6	6.5	5.6	9.4	5.7	7.9	25	7.7	10	9.8	12	5.8	
90.4	51.4	63.8	42.6	12.1	35.5	8.3	17.7	9.8	23.1	62.1	17.7	85.1	44.3	55.0	60.3	23.1	11.3	156.1	53.2	8.1	8.9	6.6	8.1	6	6.1	5.9	6.1	6.5	5.6	9.4	5.7	7.9	25	7.7	10	9.8	12	5.8	
88.7	56.7	70.9	44.3	12.1	37.2	8.9	21.3	9.9	23.1	58.5	19.5	83.3	51.4	55.0	53.2	24.8	21.3	109.9	53.2	9	8.8	6.6	8	6	6.1	5.9	6.2	6.5	5.6	9.4	5.7	7.9	25	7.7	10	9.8	12	5.8	
81.6	53.2	70.9	49.7	12.4	39.0	10.5	24.8	9.9	23.1	55.0	19.5	83.3	51.4	60.3	46.1	26.6	16.1	94.0	53.2	8.4	8.7	6.6	7.9	6	6.1	5.9	6.2	6.5	5.6	9.5	5.6	7.9	25	7.7	10	9.8	12	5.8	
83.3	53.2	69.2	49.7	12.2	39.0	11.2	28.4	10.3	21.3	53.2	19.5	83.3	56.7	62.1	55.0	33.7	15.3	86.9	53.2	8.1	8.6	6.6	7.9	6	6.1	5.8	6.2	6.5	5.6	9.5	5.6	7.9	25	7.7	10	9.8	12	5.8	
85.1	47.9	67.4	46.1	12.2	37.2	11.5	33.7	10.6	21.3	53.2	19.5	83.3	51.4	60.3	53.2	35.5	15.6	86.9	56.7	8.1	8.6	6.6	7.8	6	6.1	5.8	6.3	6.5	5.6	9.4	5.5	7.9	25	7.7	10	9.7	12	6.1	
76.3	49.7	62.1	42.6	12.2	37.2	11.7	33.7	10.3	19.5	62.1	19.5	83.3	51.4	67.4	49.7	40.8	19.5	83.3	53.2	8.1	8.5	6.6	7.7	6	6.1	5.8	6.3	6.5	5.6	9.5	5.5	7.9	25	7.7	10	9.7	12	6.9	
86.9	47.9	58.5	40.8	12.2	39.0	11.5	33.7	9.8	19.5	53.2	17.7	83.3	55.0	76.3	46.1	47.9	28.4	72.7	53.2	8.1	8.4	6.6	7.7	6	6.1	5.8	6.3	6.5	5.6	9.5	5.5	11	25	7.7	10	9.7	13	6.9	
101.1	42.6	56.7	40.8	12.2	40.8	10.6	33.7	9.8	19.5	46.1	17.7	83.3	56.7	92.2	44.3	42.6	30.1	65.6	63.8	8.1	8.4	6.8	7.6	6	6.1	5.8	6.3	6.5	5.6	9.5	5.8	15	25	7.7	10	9.7	13	6.9	
108.2	42.6	56.7	39.0	12.6	40.8	9.4	33.7	9.4	19.5	42.6	19.5	81.6	56.7	72.7	44.3	44.3	26.6	63.8	69.2	8.1	8.3	6.9	7.5	6	6.2	5.7	6.2	6.5	5.5	9.4	5.8	15	25	7.7	10	9.7	13	6.9	
101.1	44.3	58.5	42.6	13.5	40.8	9.6	33.7	9.4	19.5	42.6	19.5	79.8	60.3	58.5	42.6	46.1	24.8	63.8	63.8	8.1	8.2	7	7.5	6	6.2	5.7	6.2	6.5	5.5	9.4	6.3	15	26	7.7	10	10	13	6.9	
90.4	46.1	51.4	44.3	14.0	39.0	9.4	31.9	8.9	19.5	40.8	19.5	76.3	47.9	60.3	42.6	47.9	33.7	63.8	63.8	8.1	8.2	7	7.4	6	6.2	5.7	6.2	6.5	5.4	9.4	6.4	15	26	7.7	10	11	13	6.9	
108.2	44.3	51.4	47.9	16.3	37.2	9.8	31.9	8.7	17.7	40.8	19.5	69.2	56.7	58.5	42.6	51.4	46.1	63.8	67.4	8.1	8.1	7	8	6	6.2	5.7	6.2	6.5	5.4	9.4	6.4	15	26	7.7	10	11	13	6.9	
99.3	51.4	49.7	51.4	12.8	35.5	10.1	31.9	8.5	17.7	40.8	19.5	56.7	63.8	55.0	40.8	46.1	44.3	63.8	70.9	8.7	8	7	8.1	6	6.3	5.7	6.2	6.5	5.7	9.4	6.4	15	26	7.7	10	11	13	6.9	
99.3	53.2	47.9	58.5	12.9	35.5	11.7	26.6	8.3	19.5	37.2	21.3	53.2	55.0	49.7	44.3	40.8	46.1	63.8	63.8	8.1	8	7	8.1	6	6.3	5.7	6.2	6.5	5.7	9.4	6.5	15	26	7.7	10	11	13	6.9	
88.7	56.7	42.6	62.1	12.1	35.5	13.7	23.1	8.7	19.5	35.5	21.3	51.4	51.4	44.3	44.3	39.0	42.6	62.1	56.7	8.1	7.9	7	8.1	6	6.3	5.7	6.1	6.5	5.7	9.4	6.5	15	26	7.7	10	11	13	6.9	
83.3	56.7	35.5	63.8	13.1	35.5	16.0	23.1	8.2	17.7	35.5	19.5	53.2	58.5	42.6	42.6	39.0	40.8	58.5	53.2	8.1	7.9	7	8.2	6	6.4	5.7	6.1	6.5	5.7	9.4	6.5	15	26	7.7	10	10	13	6.9	
81.6	53.2	40.8	58.5	13.5	37.2	13.8	23.1	8.0	17.7	33.7	19.5	56.7	55.0	39.0	46.1	39.0	46.1	42.6	53.2	8.1	7.9	7	8.2	6	6.4	5.7	6.3	6.3	5.7	9.4	6.5	15	26	7.7	10	9.7	13	6.9	
79.8	51.4	39.0	55.0	12.4	37.2	13.7	23.1	8.2	17.4	33.7	19.5	58.5	47.9	37.2	58.5	40.8	47.9	35.5	56.7	8.1	7.8	7	8.2	6	6.4	5.7	6.2	6.3	5.7	9.4	6.5	15	26	7.7	10	9.7	13	6.7	
76.3	53.2	35.5	42.6	11.5	35.5	12.4	23.1	8.5	17.2	33.7	17.7	58.5	63.8	39.0	65.6	42.6	44.3	40.8	65.6	8.1	7.8	7	8.2	6	6.4	5.7	6.3	6.3	5.6	9.4	6.5	15	26	7.7	10	9.8	13	6	
72.7	55.0	37.2	42.6	12.9	31.9	10.8	24.8	8.7	16.5	39.0	17.7	60.3	145.4	37.2	74.5	39.0	42.6	46.1	62.1	8.1	7.8	7	8.3	6	6.3	5.7	6.3	6.3	5.6	9.4	6.4	15	26	7.7	10	9.8	13	7.2	
74.5	55.0	35.5	37.2	13.5	30.1	9.9	24.8	9.0	16.5	37.2	17.7	63.8	101.1	37.2	74.5	35.5	37.2	40.8	67.4	8.1	7.8	7	8.3	6	6.3	5.7	6.4	6	5.6	9.4	6.4	12	26	7.7	10	9.7	13	8.2	
86.9	55.0	44.3	37.2	13.1	31.9	9.8	24.8	9.2	16.3	39.0	17.7	62.1	85.1	35.5	67.4	40.8	37.2	31.9	63.8	8.1	7.8	7	8.3	6	6.3	5.7	6.4	5.8	5.6	9.4	6.4	7.8	26	7.7	10	9.7	13	8.2	
108.2	53.2	49.7	31.9	13.1	35.5	10.5	26.6	9.2	16.5	39.0	23.1	60.3	78.0	40.8	76.3	47.9	35.5	30.1	67.4	8.1	7.8	7	8.4	6	6.4	5.7	6.2	5.8	5.6	9.4	6.4	8	26	7.7	10	9.7	13	8.2	
117.0	53.2	53.2	30.1	15.1	35.5	11.0	26.6	9.4	16.3	40.8	26.6	56.7	78.0	40.8	85.1	51.4	35.5	26.6	65.6	8.1	7.8	7	8.4	6	6.4	5.8	6.4	5.9	5.5	9.4	6.4	7.8	26	7.7	9.3	9.7	13	8.2	
94.0	53.2	42.6	35.5	19.5	37.2	11.7	26.6	9.4	16.8	42.6	24.8	56.7	76.3	42.6	79.8	47.9	33.7	24.8	70.9	8.1	7.7	7	8.4	6	6.4	5.8	6.4	5.9	5.5	9.4	6.4	13	26	7.7	8.6	9.8	13	8.2	
83.3	60.3	44.3	40.8	21.3	39.0	10.6	26.6	9.6	19.5	42.6	24.8	56.7	72.7	40.8	65.6	58.5	31.9	28.4	86.9	8.1	7.7	7	8.5	6.1	6.3	5.8	6.6	5.9	5.6	9.4	6.4	7.9	26	7.7	8.6	9.8	13	8.2	
78.0	56.7	53.2	67.4	19.5	40.8	10.1	28.4	9.8	21.3	40.8	24.8	56.7	72.7	39.0	58.5	67.4	35.5	37.2	92.2	8.1	7.7	7	8.5	6.1	6.3	5.8	6.7	5.9	5.7	9.4	6.4	8.5	26	7.6	8.6	9.8	13	8.2	
108.2	56.7	62.1	74.5	16.8	42.6	9.9	26.6	10.1	26.6	39.0	24.8	56.7	70.9	39.0	55.0	60.3	37.2	44.3	60.3	8.1	7.7	7	8.5	6.1	6.3	5.8	6.7	5.9	5.7	9.4	6.4	7.9	26	7.7	8.6	9.7	12	8.4	
102.9	58.5	70.9	117.0	12.9	47.9	9.6	24.8	10.5	31.9	37.2	24.8	60.3	74.5	39.0	53.2	51.4	49.7	42.6	46.1	8.1	7.7	7	8.5	6.1	6.3	5.8	6.8	5.9	5.7	9.4	6.7	7.9	25	7.7	8.6	9.7	12	14	
90.4	63.8	81.6	83.3	12.8	51.4	9.4	26.6	10.8	37.2	37.2	26.6	60.3	76.3	35.5	60.3	46.1	51.4	37.2	46.1	8.1	7.7	6.9	8.5	6.1	6.3	5.8	6.9	5.9	5.7	9.4	7.1	7.9	25	7.7	8.6	9.7	12	15	
90.4	83.3	92.2	78.0	12.1	47.9	11.0	28.4	11.5	37.2	37.2	26.6	58.5	74.5	37.2	62.1	44.3	58.5	35.5	42.6	8.1	7.6	6.8	8.5	6.1	6.3	6	7	6.3	5.7	9	7.1	7.9	25	7.7	8.6	9.7	12	13	
88.7	65.6	161.4	111.7	12.4	44.3	11.3	28.4	11.0	40.8	33.7	24.8	53.2	78.0	35.5	60.3	46.1	74.5	33.7	40.8	8.1	7.6	6.6	8.5	6.1	6.3	5.9	7	5.8	5.8	8.7	7.1	7.9	25	7.7	8.6	9.7	12	8.2	
86.9	53.2	109.9	250.0	12.8	40.8	12.2	33.7	11.0	44.3	33.7	24.8	55.0	63.8	33.7	58.5	47.9	67.4	33.7	46.1	8.1	7.6	6.4	8.5	6.1	6.3	5.8	7.1	5.8	5.8	8.6	7.1	7.9	25	7.7	8.6	9.7	12	7.3	
95.8	51.4	65.6	317.4	10.8	39.0	13.3	35.5	11.7	46.1	42.6	24.8	63.8	62.1	31.9	55.0	46.1	55.0	35.5	46.1	8.1	7.6	6.2	8.5	6.1	6.3	6	7.1	5.8	5.8	8.4	7.1	7.9	25	7.7	8.7	9.7	12	7.7	
92.2	49.7	51.4	239.4	11.5	39.0	12.9	35.5	11.3	46.1	60.3	24.8	79.8	65.6	31.9	56.7	44.3	49.7	33.7	49.7	8.1	7.6	6.2	8.5	6.1	6.3	6	7.1	5.9	5.8	8.4	7.2	7.9	25	7.7	8.6	9.7	12	7.8	
94.0	49.7	51.4	191.5	10.6	44.3	14.2	35.5	11.5	44.3	58.5	24.8	86.9	74.5	33.7	55.0	44.3	47.9	35.5	58.5	8.1	7.7	6.2	8.5	6.1	6.3	6	7.2	5.9	5.8	8.4	7.3	7.9	25	7.7	8.7	9.7	12	5.5	
88.7	47.9	44.3	209.3	12.6	44.3	17.4	35.5	11.2	47.9	56.7	28.4	85.1	72.7	31.9	56.7	47.9	47.9	35.5	67.4	8.2	7.7	6.2	8.5	6.1	6.3	6.1	7.2	5.9	5.8	8.4	7.3	7.8	25	7.7	8.6	9.7	12	5.5	
90.4	47.9	44.3	143.6	9.6	47.9	24.8	33.7	11.2	44.3	56.7	35.5	86.9	95.8	28.4	58.5	47.9	46.1	37.2	69.2	8.2	7.8	6.2	8.5	6.1	6.2	6	7.1	5.9	5.7	8.4	7.3	10	25	7.7	8.6	9.7	12	5.5	
90.4	47.9	47.9	127.7	7.8	44.3	23.1	37.2	11.5	44.3	60.3	42.6	90.4	104.6	30.1	63.8	46.1	49.7	35.5	63.8	8.2	7.9	6.2	8.5	6	6.2	6	7.1	5.9	5.7	8.4	7.3	8	25	7.7	8.6	9.7	12	5.5	
90.4	46.1	51.4	127.7	8.3	49.7	23.1	40.8	11.2	51.4	58.5	42.6	90.4	63.8	33.7	63.8	46.1	49.7	42.6	67.4	8.2	8	6.2	8.5	6	6.2	6.1	7	5.9	5.7	8.4	7.2	8	25	7.7	8.6	9.7	12	5.4	
90.4	44.3	56.7	129.5	7.6	55.0	24.8	42.6	11.7	56.7	58.5	44.3	85.1	63.8	31.9	56.7	44.3	47.9	42.6	74.5	8.2	8.1	6.2	8.5	6	6.2	6	7	5.8	5.7	8.4	7.3	8.1	25	7.7	8.6	9.7	12	5.5	
90.4	44.3	56.7	136.5	14.2	58.5	26.6	40.8	11.9	58.5	56.7	39.0	83.3	65.6	31.9	53.2	46.1	47.9	39.0	78.0	8.2	8.2	6.3	8.5	6	6.2	5.9	7	5.8	5.7	8.4	7.3	8	25	7.7	8.6	9.7	12	5.4	
92.2	46.1	56.7	147.2	17.7	55.0	24.8	44.3	12.6	56.7	53.2	37.2	76.3	65.6	33.7	51.4	47.9	51.4	39.0	76.3	8.2	8.2	6.4	8.5	6	6.1		6.9	5.8	5.7	8.4	7.2	8	25	7.6	8.6	9.7	12	5.5	
999999.0	47.9	999999.0	999999.0	53.2	999999.0	999999.0	51.4	999999.0	999999.0	63.8	999999.0	999999.0	49.7	999999.0	8.4	999999	999999	999999	5.9	999999	999999	999999	5.8	999999	999999	999999	8	999999	999999	999999	9.7	999999							
999999																																							
90.4	49.7	53.2	147.2	19.5	51.4	23.1	42.6	11.9	44.3	49.7	44.3	70.9	60.3	35.5	51.4	51.4	51.4	44.3	70.9	8.7	8.3	6.4	8.5	5.9	6.1	6	6.8	5.8	5.7	8.4	7.2	8	25	7.5	8.7	9.7	12	5.4	
90.4	53.2	49.7	134.8	21.3	53.2	24.8	35.5	12.4	40.8	46.1	53.2	67.4	60.3	33.7	51.4	55.0	49.7	33.7	63.8	8.9	8.3	6.5	8.5	5.9	6.2	6	7	5.8	5.7	8.4	7.1	8.1	25	7.5	8.7	9.7	12	5.4	
95.8	56.7	40.8	127.7	23.1	53.2	23.1	39.0	17.7	37.2	46.1	58.5	65.6	63.8	31.9	53.2	58.5	47.9	42.6	60.3	10	8.3	6.5	8.5	5.9	6.2	6	7	5.8	5.6	8.4	6.8	8.1	19	7.5	8.7	9.7	12	5.5	
90.4	56.7	44.3	133.0	28.4	56.7	26.6	47.9	37.2	35.5	46.1	60.3	65.6	58.5	31.9	51.4	58.5	47.9	37.2	60.3	11	8.4	6.5	8.5	5.9	6.2	6.1	7	5.8	5.6	8.4	6.7	8.1	15	17	8.7	9.7	12	5.4	
88.7	58.5	47.9	133.0	39.0	60.3	46.1	42.6	42.6	35.5	51.4	55.0	65.6	56.7	31.9	49.7	53.2	47.9	55.0	58.5	9.7	8.5	6.6	8.5	5.9	6.2	6.1	6.2	5.9	5.6	8.4	6.7	8	16	21	8.7	9.7	12	5.4	
90.4	62.1	47.9	136.5	42.6	62.1	81.6	42.6	30.1	37.2	58.5	44.3	69.2	69.2	31.9	47.9	47.9	44.3	70.9	60.3	9.9	8.5	6.6	8.5	5.9	6.2	6.1	5.6	5.9	5.6	8.4	6.3	8	17	15	8.6	10	12	5.4	
90.4	67.4	49.7	124.1	40.8	56.7	94.0	44.3	35.5	39.0	65.6	42.6	67.4	63.8	33.7	47.9	40.8	42.6	74.5	58.5	2.6	8.6	6.6	8.5	5.9	6.2	6.1	5.7	5.9	5.6	8.4	6.2	8	18	15	8.6	12	12	5.4	
90.4	70.9	39.0	203.9	46.1	65.6	109.9	44.3	67.4	37.2	70.9	46.1	63.8	72.7	37.2	46.1	37.2	42.6	76.3	60.3	2.8	8.6	6.7	8.5	5.9	6.2	6	5.8	5.9	5.6	8.3	7.2	8	18	15	8.6	12	12	5.4	
90.4	76.3	40.8	138.3	42.6	70.9	92.2	44.3	56.7	37.2	70.9	53.2	99.3	92.2	44.3	47.9	39.0	44.3	76.3	63.8	3	8.7	6.8	8.5	5.9	6.2	6	5.8	5.9	5.7	8.3	7.2	8	18	14	8.6	12	12	5.4	
92.2	81.6	42.6	120.6	35.5	56.7	76.3	46.1	53.2	37.2	63.8	53.2	101.1	85.1	63.8	49.7	40.8	44.3	70.9	56.7	3.1	8.8	6.8	8.5	5.9	6.2	5.9	5.8	5.9	6	9.1	6.3	8	18	14	8.6	12	12	5.4	
92.2	79.8	42.6	111.7	33.7	49.7	72.7	40.8	47.9	39.0	69.2	47.9	88.7	85.1	76.3	56.7	37.2	46.1	70.9	56.7	3.3	8.8	7	8.5	5.9	6.2	5.9	5.8	5.8	6	10	5.9	8	18	14	8.6	12	12	5.4	

Table CAWG 6 Appendix L-9a. SJR above Shakeflat IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
SJR above Shakeflat

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	1847.45	1557.70	1314.16	1246.16	1193.54	1489.45	1642.83	11353.00	23486.50	9569.71	3117.81	1025.50	475.00	481.00	503.43	539.50	905.31	30733.00	29780.33	27222.57	25079.53	15165.47	.00	.10	295.00	169.00	.00	.00	4.00	30.00	615.99	-402.49	111.00
	1984	515.90	1499.90	1998.19	1320.13	1141.48	2158.42	4070.77	7407.03	3287.50	1845.65	708.61	348.80	175.00	217.33	220.14	256.80	301.71	12987.00	10246.67	9130.86	7573.60	5007.11	.00	.10	274.00	360.00	1.00	1.00	7.00	17.43	356.23	-232.32	130.00
	1985	261.68	338.87	316.06	386.29	479.07	793.84	4381.43	5025.52	2142.20	607.84	243.87	220.93	162.00	154.67	147.43	200.50	214.58	7661.00	7257.67	6926.29	5407.40	3901.80	.00	.12	274.00	105.00	2.00	10.50	3.00	24.00	134.35	-91.42	102.00
	1986	236.94	260.13	511.16	921.39	3212.32	4568.39	6847.20	11479.52	7879.73	2300.26	746.94	301.43	119.00	131.67	152.71	214.90	151.20	17693.00	16352.67	16120.71	12709.17	8885.47	.00	.05	315.00	153.00	3.00	4.33	2.00	75.50	574.97	-351.18	97.00
	1987	210.10	129.63	100.61	115.16	173.82	475.16	3333.87	3509.48	1606.00	473.52	252.71	96.37	68.00	68.33	71.00	73.23	114.47	6734.00	5885.67	5205.29	4564.97	2847.34	.00	.08	268.00	137.00	6.00	28.83	4.00	13.50	119.35	-103.88	146.00
	1988	102.58	250.03	235.35	393.74	555.66	1371.13	2928.50	3595.06	1895.30	575.13	248.23	129.50	58.00	61.67	65.29	72.73	93.88	5914.00	5753.67	5139.29	3676.20	2903.63	.00	.06	292.00	136.00	7.00	6.71	6.00	10.33	117.73	-89.74	131.00
	1989	72.16	107.53	123.13	161.71	266.39	1578.35	4902.47	3686.97	1931.47	474.23	221.68	223.30	60.00	63.67	65.43	72.23	99.70	7166.00	6950.67	6741.57	4926.17	3630.30	.00	.06	281.00	100.00	8.00	12.38	5.00	15.20	126.43	-100.98	138.00
	1990	239.10	196.17	154.55	183.19	261.14	1155.61	3835.53	3042.00	1969.00	653.23	174.42	91.47	75.00	76.00	78.71	75.50	66.37	7378.00	5548.33	4810.29	4285.17	3067.60	.00	.08	261.00	155.00	7.00	16.00	5.00	13.20	167.28	-116.75	107.00
	1991	73.81	62.07	60.84	66.81	91.75	871.61	1917.17	6245.90	4993.73	1254.81	246.87	128.80	48.00	56.33	57.43	60.17	62.96	9565.00	9207.00	8460.57	7591.47	4507.64	.00	.04	312.00	145.00	4.00	9.50	6.00	11.50	200.47	-154.69	125.00
	1992	82.13	176.70	113.39	142.55	279.48	510.84	3974.83	3956.39	1115.57	494.10	222.87	77.43	46.00	47.00	47.00	55.97	104.92	7118.00	6919.67	6324.29	5298.57	3058.11	.00	.05	293.00	120.00	7.00	21.14	3.00	18.33	102.43	-69.41	93.00
	1993	85.71	157.70	149.90	441.52	433.89	1386.10	4368.87	14176.45	9599.10	3967.87	1059.90	300.87	48.00	48.00	49.86	77.63	124.76	19585.00	18956.00	17720.29	14222.07	9944.70	.00	.02	287.00	139.00	4.00	13.50	3.00	41.00	356.52	-259.28	105.00
	1994	150.35	98.90	123.16	133.84	185.61	702.42	2419.43	3932.45	2231.87	449.84	132.87	137.77	40.00	40.67	41.71	48.50	117.17	6535.00	6449.00	5633.00	4045.63	2898.00	.00	.05	255.00	135.00	7.00	25.86	3.00	18.33	145.35	-112.37	100.00
	1995	487.16	404.63	394.94	905.06	967.75	2422.94	4048.57	9808.16	16984.93	10601.65	2770.61	783.87	197.00	205.00	210.14	252.17	221.97	23942.00	21911.00	20796.43	17063.43	12713.91	.00	.05	308.00	156.00	.00	.00	4.00	37.50	745.55	-485.29	94.00
	1996	244.77	125.20	307.19	416.06	1546.66	1706.00	5389.63	10407.68	4955.40	2184.19	648.39	231.13	71.00	80.33	87.43	104.67	210.40	45817.00	25471.67	17695.00	11676.00	7018.03	.00	.04	338.00	137.00	5.00	13.60	4.00	27.50	579.09	-318.01	132.00
	1997	128.58	770.33	1204.13	5842.65	960.18	2706.87	5420.33	7921.87	3843.10	1538.55	528.39	255.40	82.00	89.67	94.86	125.50	168.91	64670.00	35463.00	19615.43	8743.57	5974.19	.00	.04	293.00	2.00	6.00	8.17	4.00	30.00	761.67	-439.56	118.00
	1998	165.10	137.37	202.87	234.06	340.61	774.87	2281.93	5688.55	17456.20	9438.03	1935.16	669.30	89.00	91.33	93.71	116.37	166.73	24827.00	22999.00	22793.00	17915.73	11003.74	.00	.03	311.00	167.00	8.00	9.13	1.00	118.00	369.76	-284.13	128.00
	1999	228.61	248.20	317.35	337.94	771.79	859.52	2380.67	7262.03	4381.10	1178.35	309.19	256.70	133.00	144.33	165.29	117.77	96.14	9991.00	9558.67	9049.43	7596.40	4853.66	.00	.11	262.00	133.00	11.00	2.36	1.00	78.00	176.56	-139.80	128.00
	2000	113.81	98.73	69.84	177.03	505.10	1002.97	4855.33	8875.23	4481.47	1018.94	341.39	144.97	48.00	48.67	50.57	59.87	79.40	14381.00	12759.00	11622.71	8964.33	6148.30	.00	.03	9.00	129.00	3.00	46.33	1.00	91.00	245.81	-182.04	124.00
	2001	117.81	138.03	108.87	308.23	282.68	1100.90	2676.53	7977.26	1490.73	513.81	120.58	47.70	34.00	33.33	32.86	34.43	52.38	11871.00	11643.00	10915.43	8390.53	4324.67	.00	.03	273.00	132.00	11.00	12.45	3.00	16.67	195.03	-126.89	129.00
	2002	42.45	160.23	353.39	343.90	517.11	918.45	4365.43	5383.61	3112.47	649.23	125.61	59.30	30.00	30.33	31.57	29.30	31.94	7245.00	7024.33	6486.57	5645.00	4346.11	.00	.02	291.00	139.00	3.00	19.00	1.00	83.00	147.16	-104.40	112.00
E	1983	28.77	18.60	51.58	60.87	58.71	49.13	55.50	4284.29	12402.00	5992.26	1184.00	27.50	15.00	15.33	15.86	17.73	17.50	15500.00	15000.00	13814.29	12765.33	8016.52	.00	.01	309.00	163.00	3.00	40.00	4.00	19.00	390.22	-378.43	88.00
	1984	28.42	11.70	11.43	13.89	13.90	12.71	22.43	173.10	218.77	29.00	36.10	28.27	4.90	4.90	7.03	10.64	12.24	2300.00	1926.67	1317.14	367.03	143.18	.00	.14	345.00	151.00	2.00	58.00	1.00	1.00	72.16	-79.06	43.00
	1985	27.94	11.80	10.97	10.61	10.81	11.84	20.93	28.97	29.40	29.00	30.32	31.57	4.20	4.40	5.40	9.96	10.50	33.00	32.00	32.00	31.57	30.44	.00	.25	86.00	140.00	2.00	107.00	.00	.00	2.71	-2.97	22.00
	1986	29.39	12.47	12.06	10.21	344.80	1032.26	1226.80	3165.00	4612.00	380.03	27.52	29.00	9.20	9.20	9.20	9.77	11.40	10600.00	10350.00	9202.86	5741.33	3021.77	.00	.01	13.00	154.00	6.00	17.83	9.00	6.00	490.73	-424.33	54.00
	1987	32.19	14.53	13.26	13.45	13.68	14.00	14.20	14.10	14.13	14.48	14.81	14.93	12.00	12.67	12.71	13.00	12.90	34.00	34.00	33.57	32.23	20.21	.00	.81	344.00	302.00	2.00	107.00	.00	.00	1.11	-2.06	24.00
	1988	15.00	11.63	11.77	12.77	13.00	13.00	14.43	14.94	14.30	13.84	14.00	14.27	11.00	11.00	11.00	11.50	12.02	21.00	19.33	17.14	15.43	14.67	.00	.81	308.00	126.00	2.00	.50	.00	.00	1.42	-1.56	21.00
	1989	14.58	13.37	13.39	14.00	13.18	13.39	14.03	14.00	14.07	14.03	14.06	14.03	13.00	13.00	13.00	13.00	13.26	22.00	18.00	16.29	14.67	14.20	.00	.94	310.00	298.00	2.00	107.00	.00	.00	1.50	-1.50	17.00
	1990	14.45	13.07	12.10	12.00	12.14	12.45	13.80	15.06	15.00	15.68	14.77	14.40	12.00	12.00	12.00	12.00	12.04	17.00	16.00	16.00	15.70	15.27	.00	.87	314.00	219.00	2.00	107.00	.00	.00	1.05	-1.05	33.00
	1991	15.58	12.70	12.06	12.81	12.75	15.13	16.17	15.94	23.13	15.03	14.90	14.47	12.00	12.00	12.00	12.00	12.50	48.00	48.00	42.43	23.70	18.47	.00	.80	311.00	166.00	2.00	107.00	.00	.00	4.13	-4.00	41.00
	1992	15.65	12.77	12.52	14.13	15.86	13.58	15.43	15.29	14.53	16.03	14.48	15.00	12.00	12.00	12.00	12.00	12.97	23.00	21.67	19.71	16.23	15.41	.00	.82	311.00	43.00	2.00	.50	.00	.00	1.97	-1.77	45.00
	1993	13.61	14.37	14.58	24.87	37.57	18.94	37.30	3244.48	3531.57	1227.74	29.61	29.67	7.00	9.33	11.71	13.57	14.09	6330.00	6126.67	5808.57	3912.33	2719.66	.00	.02	295.00	140.00	3.00	49.33	2.00	26.50	269.37	-222.96	77.00
	1994	27.77	14.10	12.39	12.55	14.96	13.31	14.07	15.87	15.53	14.94	14.48	14.40	12.00	12.00	12.00	12.23	12.62	29.00	29.00	29.00	27.83	18.27	.00	.78	335.00	275.00	2.00	107.00	.00	.00	1.39	-1.47	28.00
	1995	15.16	16.10	14.52	34.94	257.82	1110.94	2489.47	4632.58	7170.00	7169.03	526.77	28.00	11.00	11.00	11.57	13.90	15.07	13500.00	12300.00	11428.57	8881.00	6513.89	.00	.01	355.00	191.00	2.00	25.00	6.00	17.00	543.60	-515.32	82.00
	1996	28.87	11.97	11.65	11.29	114.31	85.52	33.00	2604.77	2346.37	147.74	30.77	26.97	10.00	10.00	10.43	11.07	11.32	18100.00	10023.33	6834.29	3672.00	1732.11	.00	.02	94.00	137.00	5.00	30.40	3.00	8.33	474.05	-367.23	47.00
	1997	27.10	15.93	23.16	2872.42	336.54	32.29	357.27	3795.16	1949.63	36.19	37.19	37.87	11.00	11.67	11.86	15.83	21.96	26000.00	18166.67	8910.00	3998.00	2076.57	.00	.01	323.00	3.00	4.00	44.75	4.00	12.00	604.46	-428.94	56.00
	1998	58.81	13.53	11.81	11.61	11.18	17.58	32.97	342.48	7084.67	6226.45	249.35	35.80	11.00	11.00	11.00	11.00	11.49	10400.00	9800.00	9384.29	8606.67	4688.29	.00	.01	310.00	184.00	3.00	45.67	1.00	57.00	352.54	-286.53	62.00
	1999	28.45	12.60	13.23	12.74	13.39	13.52	22.93	306.90	706.57	35.00	33.84	31.43	11.00	11.00	11.00	11.10	12.39	3110.00	2716.67	1853.71	983.43	353.20	.00	.11	309.00	150.00	4.00	46.50	1.00	3.00	108.37	-108.39	43.00
	2000	26.94	11.27	11.00	11.19	12.36	12.26	23.10	1422.19	1116.70	51.06	36.10	35.70	11.00	11.00	11.00	11.00	11.06	4730.00	4130.00	3941.43	2168.97	878.90	.00	.05	307.00	149.00	5.00	33.40	3.00	4.00	203.32	-194.35	31.00
	2001	23.58	14.10	14.00	14.23	15.64	13.32	22.50	75.45	22.73	36.84	33.74	30.33	12.00	12.50	12.83	13.28	13.22	416.00	263.67	152.14	79.23	45.69	.00	.48	61.00	148.00	3.00	70.67	.00	.00	13.03	-13.97	22.00
	2002	13.97	13.77	11.84	11.74	13.43	15.39	13.60	29.71	29.40	34.23	33.19	30.93	10.00	10.67	11.00	11.50	12.10	41.00	40.00	37.43	34.53	33.46	.00	.52	330.00	197.00	2.00	107.00	.00	.00	1.81	-1.50	21.00

Table CAWG 6 Appendix L-9b. SJR above Shakeflat IHA Percentile Data.

IHA Percentile Data
SJR above Shakeflat

Unimpaired period: 1963-1982 (20 years) — Existing period: 1983-2002 (20 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	72.33	89.93	157.73	243.35	513.03	.97	14.02	15.04	27.02	28.69	31.91	.51
November	98.75	126.31	168.47	319.18	1426.94	1.14	11.64	12.09	13.22	14.30	16.08	.17
December	72.92	115.82	219.11	384.55	1303.16	1.23	11.04	11.78	12.24	13.85	22.30	.17
January	117.03	165.54	340.92	789.18	1312.73	1.83	10.67	11.65	12.79	14.20	58.28	.20
February	175.00	269.67	492.09	965.86	1511.34	1.41	11.28	12.81	13.79	53.43	328.66	2.95
March	530.00	810.26	1128.26	1674.09	2678.48	.77	12.28	13.08	13.79	28.95	937.58	1.15
April	1953.64	2483.71	4011.70	4736.86	5417.26	.56	13.82	14.26	22.47	36.22	1139.85	.98
May	3518.04	3938.44	6753.97	9574.93	11466.87	.83	14.18	15.44	124.27	3024.94	4235.38	24.22
June	1502.26	1940.85	3565.30	7158.23	17409.07	1.46	14.15	15.13	124.08	3235.27	7161.47	25.95
July	473.59	529.14	1098.65	2271.24	9556.54	1.59	14.08	15.19	34.61	321.96	6203.03	8.86
August	126.34	221.98	280.95	737.35	2687.07	1.83	14.11	14.78	30.55	36.10	499.03	.70
September	61.11	104.48	222.12	301.29	772.41	.89	14.28	14.58	28.13	31.31	35.79	.59
Parameter Group #2												
1-day minimum	34.60	48.00	69.50	129.50	194.80	1.17	5.11	10.00	11.00	12.00	12.90	.18
3-day minimum	34.07	48.17	72.17	141.17	216.10	1.29	5.33	10.17	11.00	12.00	12.97	.17
7-day minimum	33.74	50.04	74.86	151.39	219.14	1.35	7.25	11.00	11.64	12.00	12.98	.09
30-day minimum	35.84	59.94	76.57	181.75	256.34	1.59	10.03	11.02	12.00	13.21	15.64	.18
90-day minimum	53.44	83.02	115.82	200.03	293.74	1.01	11.08	11.63	12.44	13.25	17.26	.13
1-day maximum	6554.90	7185.75	10931.00	22852.75	44308.59	1.43	21.10	30.00	1358.00	10550.00	17840.00	7.75
3-day maximum	5766.87	6927.42	9902.67	21172.25	29349.46	1.44	18.13	29.75	1095.17	9967.50	14730.00	9.07
7-day maximum	5145.89	6364.86	9090.14	17713.96	22593.34	1.25	16.37	29.75	734.64	8391.07	11224.14	11.38
30-day maximum	4069.59	5019.27	7593.93	12450.88	17830.50	.98	15.46	24.73	223.13	3976.58	8853.57	17.71
90-day maximum	2898.56	3208.28	4680.65	8418.61	12542.89	1.11	14.73	18.32	94.43	2558.88	6331.33	26.90
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.02	.03	.05	.08	.11	1.04	.01	.02	.20	.81	.87	4.01
Parameter Group #3												
Date of minimum	261.10	273.25	291.50	310.25	335.70	.10	296.20	309.00	312.50	344.75	56.20	.10
Date of maximum	100.50	129.75	137.00	154.50	168.80	.07	51.30	140.00	152.50	195.50	295.70	.15
Parameter Group #4												
Low pulse count	.10	3.00	5.50	7.00	10.70	.73	2.00	2.00	2.00	3.75	5.00	.88
Low pulse duration	.10	4.93	11.44	18.25	28.54	1.16	2.23	31.15	47.92	107.00	107.00	1.58
High pulse count	1.00	2.25	3.50	4.75	6.00	.71	.00	.00	.50	3.00	5.80	6.00
High pulse duration	11.67	15.57	25.75	66.88	90.20	1.99	.00	.00	.50	11.08	25.75	22.17
Parameter Group #5												
Rise rate	117.89	137.10	197.75	523.67	732.60	1.95	1.13	1.58	42.60	380.80	538.31	8.90
Fall rate	-435.86	-309.54	-147.25	-104.01	-89.91	-1.40	-428.48	-347.05	-46.52	-1.61	-1.47	-7.43
Number of reversals	94.30	102.75	121.00	129.75	137.40	.22	21.00	22.50	42.00	55.50	81.50	.79

Table CAWG 6 Appendix L-9c. SJR above Shakeflat IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

SJR above Shakeflat

	Unimpaired period: 1963-1982				Existing period: 1983-2002				RVA Categories		Hydrologic Alteration (Middle Category)
	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Low	High	
Parameter Group #1											
October	157.7	.97	42.5	1847.5	27.0	.51	13.6	58.8	113.02	237.09	-1.00
November	168.5	1.14	62.1	1557.7	13.2	.17	11.3	18.6	136.83	250.74	-1.00
December	219.1	1.23	60.8	1998.2	12.2	.17	11.0	51.6	123.16	319.88	-1.00
January	340.9	1.83	66.8	5842.6	12.8	.20	10.2	2872.4	182.76	417.85	-1.00
February	492.1	1.41	91.8	3212.3	13.8	2.95	10.8	344.8	282.45	784.97	-.75
March	1128.3	.77	475.2	4568.4	13.8	1.15	11.8	1110.9	870.77	1495.67	-.75
April	4011.7	.56	1642.8	6847.2	22.5	.98	13.6	2489.5	2910.86	4369.75	-1.00
May	6754.0	.83	3042.0	14176.5	124.3	24.22	14.0	4632.6	4950.68	8040.12	-1.00
June	3565.3	1.46	1115.6	23486.5	124.1	25.95	14.1	12402.0	2130.08	4958.08	-.63
July	1098.6	1.59	449.8	10601.6	34.6	8.86	13.8	7169.0	605.55	1869.34	-.88
August	281.0	1.83	120.6	3117.8	30.5	.70	14.0	1184.0	242.40	652.60	-.75
September	222.1	.89	47.7	1025.5	28.1	.59	14.0	37.9	129.45	259.79	-1.00
Parameter Group #2											
1-day minimum	69.5	1.17	30.0	475.0	11.0	.18	4.2	15.0	48.00	91.10	-1.00
3-day minimum	72.2	1.29	30.3	481.0	11.0	.17	4.4	15.3	55.80	94.16	-1.00
7-day minimum	74.9	1.35	31.6	503.4	11.6	.09	5.4	15.9	56.95	98.54	-1.00
30-day minimum	76.6	1.59	29.3	539.5	12.0	.18	9.8	17.7	71.39	118.31	-1.00
90-day minimum	115.8	1.01	31.9	905.3	12.4	.13	10.5	22.0	95.99	166.89	-1.00
1-day maximum	10931.0	1.43	5914.0	64670.0	1358.0	7.75	17.0	26000.0	7368.69	17825.44	-.50
3-day maximum	9902.7	1.44	5548.3	35463.0	1095.2	9.07	16.0	18166.7	7019.18	16534.90	-.38
7-day maximum	9090.1	1.25	4810.3	27222.6	734.6	11.38	16.0	13814.3	6723.72	16230.92	-.25
30-day maximum	7593.9	.98	3676.2	25079.5	223.1	17.71	14.7	12765.3	5399.78	9154.15	-.63
90-day maximum	4680.7	1.11	2847.3	15165.5	94.4	26.90	14.2	8016.5	3882.79	6209.18	-.88
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.05	1.04	.02	.12	.20	4.01	.01	.94	.04	.06	-.88
Parameter Group #3											
Date of minimum	291.5	.10	9.0	338.0	312.5	.10	13.0	355.0	273.93	293.14	-1.00
Date of maximum	137.0	.07	2.0	360.0	152.5	.15	3.0	302.0	132.93	145.56	-.63
Parameter Group #4											
Low Pulse Count	5.5	.73	.0	11.0	2.0	.88	2.0	6.0	3.00	7.00	-.25
Low Pulse Duration	11.4	1.16	.0	46.3	47.9	1.58	.5	107.0	8.06	13.77	-1.00
High Pulse Count	3.5	.71	1.0	7.0	.5	6.00	.0	9.0	3.00	4.00	-.60
High Pulse Duration	25.8	1.99	10.3	118.0	.5	22.17	.0	57.0	17.38	37.75	-.75

The low pulse threshold is   190.00
The high pulse level is   2271.00

Parameter Group #5											
Rise rate	197.7	1.95	102.4	761.7	42.6	8.90	1.0	604.5	147.03	357.45	-.63
Fall rate	-147.2	-1.40	-485.3	-69.4	-46.5	-7.43	-515.3	-1.0	-261.02	-111.81	-.75
Number of reversals	121.0	.22	93.0	146.0	42.0	.79	17.0	88.0	106.86	128.07	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
November	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
December	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
January	8.00	.00	-1.00	6.00	1.00	-.83	6.00	19.00	2.17
February	8.00	2.00	-.75	6.00	.00	-1.00	6.00	18.00	2.00
March	8.00	2.00	-.75	6.00	.00	-1.00	6.00	18.00	2.00
April	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
May	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
June	8.00	3.00	-.63	6.00	3.00	-.50	6.00	14.00	1.33
July	8.00	1.00	-.88	6.00	3.00	-.50	6.00	16.00	1.67
August	8.00	2.00	-.75	6.00	1.00	-.83	6.00	17.00	1.83
September	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
Parameter Group #2									
1-day minimum	10.00	.00	-1.00	6.00	.00	-1.00	4.00	20.00	4.00
3-day minimum	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
7-day minimum	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
30-day minimum	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
90-day minimum	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33
1-day maximum	8.00	4.00	-.50	6.00	2.00	-.67	6.00	14.00	1.33
3-day maximum	8.00	5.00	-.38	6.00	1.00	-.83	6.00	14.00	1.33
7-day maximum	8.00	6.00	-.25	6.00	.00	-1.00	6.00	14.00	1.33
30-day maximum	8.00	3.00	-.63	6.00	1.00	-.83	6.00	16.00	1.67
90-day maximum	8.00	1.00	-.88	6.00	2.00	-.67	6.00	17.00	1.83
Number of zero days	20.00	20.00	.00	.00	.00	.00	.00	.00	.00
Base flow	8.00	1.00	-.88	6.00	12.00	1.00	6.00	7.00	.17
Parameter Group #3									
Date of minimum	8.00	.00	-1.00	6.00	16.00	1.67	6.00	4.00	-.33
Date of maximum	8.00	3.00	-.63	6.00	14.00	1.33	6.00	3.00	-.50
Parameter Group #4									
Low Pulse Count	12.00	9.00	-.25	4.00	.00	-1.00	4.00	11.00	1.75
Low Pulse Duration	8.00	.00	-1.00	6.00	18.00	2.00	6.00	2.00	-.67
High Pulse Count	10.00	4.00	-.60	5.00	2.00	-.60	5.00	14.00	1.80
High Pulse Duration	8.00	2.00	-.75	6.00	1.00	-.83	6.00	17.00	1.83
Parameter Group #5									
Rise rate	8.00	3.00	-.63	6.00	5.00	-.17	6.00	12.00	1.00
Fall rate	8.00	2.00	-.75	6.00	12.00	1.00	6.00	6.00	.00
Number of reversals	8.00	.00	-1.00	6.00	.00	-1.00	6.00	20.00	2.33

6 Messages:

Parameter Low pulse count   :   4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count   :   7 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count   :   7 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count   :   7 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of falls   :   4 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum   :   3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-9d. SJR above Shakeflat Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

SJR above Shakeflat

Unimpaired period: 1963-1982 (20 years) Existing period: 1983-2002 (20 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	1917.33	471.35
Mean flow/area	1917.33	471.35
Annual C. V.	.84	.04
Flow predictability	.41	.54
Constancy/predictability	.33	.62
% of floods in 60d period	.58	.58
flood-free season	78.00	143.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	157.7	27.0	.97	.51	.83	.48	.31	.44
November	168.5	13.2	1.14	.17	.92	.85	.46	.53
December	219.1	12.2	1.23	.17	.94	.86	.34	.40
January	340.9	12.8	1.83	.20	.96	.89	.33	.36
February	492.1	13.8	1.41	2.95	.97	1.08	.22	.16
March	1128.3	13.8	.77	1.15	.99	.50	.21	.62
April	4011.7	22.5	.56	.98	.99	.74	.24	.54
May	6754.0	124.3	.83	24.22	.98	28.02	.02	.00
June	3565.3	124.1	1.46	25.95	.97	16.73	.03	.00
July	1098.6	34.6	1.59	8.86	.97	4.59	.05	.01
August	281.0	30.5	1.83	.70	.89	.62	.18	.46
September	222.1	28.1	.89	.59	.87	.33	.24	.58
Parameter Group #2								
1-day minimum	69.5	11.0	1.17	.18	.84	.84	.38	.28
3-day minimum	72.2	11.0	1.29	.17	.85	.87	.37	.26
7-day minimum	74.9	11.6	1.35	.09	.84	.94	.38	.24
30-day minimum	76.6	12.0	1.59	.18	.84	.89	.34	.26
90-day minimum	115.8	12.4	1.01	.13	.89	.87	.36	.37
1-day maximum	10931.0	1358.0	1.43	7.75	.88	4.40	.01	.00
3-day maximum	9902.7	1095.2	1.44	9.07	.89	5.31	.00	.00
7-day maximum	9090.1	734.6	1.25	11.38	.92	8.12	.00	.00
30-day maximum	7593.9	223.1	.98	17.71	.97	17.10	.01	.00
90-day maximum	4680.7	94.4	1.11	26.90	.98	23.17	.02	.00
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.2	1.04	4.01	3.09	2.85	.00	.25
Parameter Group #3								
Date of minimum	291.5	312.5	.10	.10	.11	.03	.00	.97
Date of maximum	137.0	152.5	.07	.15	.08	1.24	.05	.07
Parameter Group #4								
Low pulse count	5.5	2.0	.73	.88	.64	.20	.08	.52
Low pulse duration	11.4	47.9	1.16	1.58	3.19	.36	.00	.49
High pulse count	3.5	.5	.71	6.00	.86	7.40	.15	.00
High pulse duration	25.8	.5	1.99	22.17	.98	10.12	.04	.00
The low pulse threshold is 190.00								
The high pulse level is 2271.00								
Parameter Group #5								
Rise rate	197.7	42.6	1.95	8.90	.78	3.55	.05	.00
Fall rate	-147.2	-46.5	-1.40	-7.43	.68	4.32	.09	.00
Number of reversals	121.0	42.0	.22	.79	.65	2.52	.08	.01

Table CAWG 6 Appendix L-9e. SJR above Shakeflat IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1983-2002).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
1573	1165	243	155	380	88	67	410	95	80	52	154	614	629	149	324	351	232	77	33	32.00	28.00	28.00	28.00	31.00	15.00	14.00	13.00	16.00	15.00	14.00	29.00	15.00	27.00	27.00	61.00	29.00	28.00	34.00	13.00
1360	1104	234	147	293	82	67	336	89	85	52	146	471	303	191	198	265	172	79	33	32.00	28.00	27.00	29.00	31.00	15.00	14.00	13.00	15.00	15.00	14.00	29.00	15.00	27.00	27.00	62.00	29.00	28.00	31.00	13.00
1179	952	232	138	323	80	73	276	85	83	53	145	473	283	191	159	250	149	76	33	28.00	28.00	27.00	29.00	31.00	15.00	14.00	14.00	15.00	16.00	14.00	29.00	15.00	27.00	27.00	62.00	29.00	28.00	23.00	13.00
1035	856	227	133	257	78	64	244	85	68	53	137	603	278	174	154	238	158	72	32	28.00	28.00	28.00	29.00	31.00	15.00	14.00	14.00	15.00	16.00	14.00	29.00	17.00	27.00	27.00	62.00	29.00	28.00	23.00	13.00
931	756	217	127	263	76	64	214	78	58	53	137	983	428	157	146	236	140	71	32	28.00	28.00	28.00	29.00	31.00	15.00	14.00	15.00	15.00	16.00	14.00	29.00	18.00	27.00	27.00	62.00	29.00	28.00	23.00	13.00
854	688	213	170	246	72	67	196	81	56	49	138	873	375	149	138	259	118	69	33	28.00	28.00	28.00	27.00	31.00	15.00	14.00	15.00	15.00	16.00	14.00	29.00	15.00	27.00	27.00	62.00	29.00	28.00	23.00	13.00
794	660	204	369	240	75	60	180	76	62	49	140	839	259	149	139	193	154	69	33	28.00	28.00	28.00	26.00	32.00	15.00	14.00	15.00	16.00	15.00	14.00	29.00	15.00	27.00	27.00	62.00	28.00	28.00	23.00	13.00
758	626	196	313	253	70	65	162	74	57	49	140	832	253	140	133	174	135	68	33	28.00	28.00	28.00	29.00	32.00	15.00	14.00	15.00	16.00	15.00	14.00	29.00	15.00	27.00	27.00	62.00	28.00	28.00	23.00	13.00
693	583	190	310	223	71	67	150	75	57	49	132	875	245	131	133	234	120	78	34	28.00	28.00	28.00	29.00	32.00	15.00	14.00	15.00	16.00	15.00	14.00	29.00	15.00	27.00	27.00	61.00	28.00	27.00	23.00	13.00
652	550	204	272	247	73	71	140	74	55	55	131	838	250	117	149	263	124	132	33	28.00	28.00	28.00	30.00	31.00	15.00	14.00	15.00	16.00	15.00	14.00	29.00	15.00	27.00	27.00	61.00	28.00	27.00	23.00	13.00
621	504	258	279	209	73	69	133	72	53	50	176	772	247	116	175	530	124	139	33	28.00	28.00	28.00	30.00	31.00	15.00	14.00	15.00	16.00	15.00	14.00	28.00	15.00	27.00	27.00	61.00	28.00	27.00	23.00	13.00
596	475	284	269	218	70	71	126	70	52	51	190	681	548	107	166	262	115	137	34	27.00	28.00	28.00	30.00	31.00	15.00	14.00	15.00	16.00	15.00	14.00	28.00	15.00	27.00	27.00	61.00	28.00	27.00	23.00	13.00
577	454	273	241	211	75	67	122	69	55	48	171	595	298	110	171	155	106	132	33	27.00	29.00	28.00	30.00	31.00	15.00	14.00	15.00	15.00	15.00	14.00	28.00	15.00	27.00	27.00	61.00	28.00	27.00	23.00	13.00
556	427	241	213	210	70	65	117	70	55	48	161	525	197	105	196	195	93	133	32	27.00	29.00	28.00	30.00	32.00	15.00	14.00	15.00	15.00	15.00	14.00	28.00	15.00	27.00	27.00	61.00	28.00	27.00	23.00	13.00
544	426	221	198	201	70	68	115	67	52	48	165	479	190	104	161	197	139	132	31	27.00	29.00	28.00	30.00	32.00	15.00	14.00	15.00	15.00	16.00	14.00	28.00	15.00	27.00	27.00	60.00	28.00	27.00	23.00	13.00
526	410	246	192	203	68	72	113	66	50	55	191	418	190	100	151	193	110	126	31	27.00	29.00	28.00	29.00	32.00	15.00	14.00	15.00	16.00	16.00	14.00	28.00	15.00	27.00	27.00	60.00	28.00	27.00	23.00	13.00
517	409	312	184	194	72	73	110	69	49	65	206	378	179	93	140	177	99	124	30	28.00	29.00	28.00	29.00	32.00	15.00	14.00	15.00	16.00	16.00	14.00	28.00	15.00	27.00	26.00	59.00	28.00	27.00	23.00	15.00
494	390	335	180	172	58	117	108	69	47	60	204	354	177	94	128	179	98	122	30	28.00	29.00	28.00	29.00	32.00	15.00	14.00	15.00	16.00	16.00	14.00	28.00	15.00	27.00	27.00	59.00	28.00	27.00	23.00	15.00
487	375	376	172	165	62	65	105	73	46	57	188	333	166	82	118	177	90	121	64	28.00	29.00	28.00	29.00	32.00	15.00	14.00	15.00	16.00	16.00	14.00	28.00	15.00	27.00	27.00	58.00	28.00	27.00	23.00	15.00
481	364	349	163	168	65	74	108	73	48	56	183	312	170	94	283	168	89	112	41	28.00	28.00	28.00	30.00	33.00	15.00	14.00	15.00	16.00	16.00	10.00	28.00	15.00	27.00	22.00	58.00	28.00	27.00	22.00	15.00
475	313	312	198	166	62	77	133	73	47	74	170	295	165	97	279	175	89	115	40	28.00	27.00	28.00	30.00	33.00	15.00	14.00	14.00	16.00	16.00	7.00	27.00	15.00	27.00	26.00	57.00	28.00	27.00	23.00	15.00
714	364	296	228	171	82	78	361	74	47	82	159	287	157	106	144	173	77	106	40	28.00	27.00	28.00	30.00	33.00	15.00	14.00	14.00	16.00	16.00	11.00	27.00	15.00	27.00	28.00	57.00	28.00	26.00	23.00	15.00
1007	341	283	301	173	111	71	255	75	47	76	148	279	140	125	275	171	77	118	40	28.00	27.00	28.00	30.00	33.00	15.00	17.00	14.00	16.00	15.00	13.00	27.00	15.00	27.00	28.00	56.00	28.00	26.00	23.00	15.00
1468	341	298	394	178	98	76	660	74	47	68	138	279	187	108	229	192	93	114	39	28.00	27.00	28.00	30.00	33.00	15.00	22.00	14.00	16.00	16.00	13.00	27.00	15.00	30.00	28.00	56.00	29.00	26.00	23.00	15.00
4659	342	302	385	169	94	77	564	75	49	64	137	275	187	153	118	217	100	109	40	31.00	27.00	28.00	30.00	33.00	15.00	15.00	14.00	16.00	16.00	14.00	27.00	15.00	34.00	28.00	56.00	29.00	26.00	23.00	15.00
12485	300	299	341	174	88	76	421	72	333	64	128	278	274	119	127	253	75	126	36	31.00	29.00	28.00	30.00	33.00	15.00	15.00	14.00	16.00	16.00	14.00	26.00	15.00	35.00	28.00	55.00	29.00	26.00	23.00	15.00
3610	285	274	306	171	88	75	397	69	196	66	118	267	161	124	119	237	74	142	37	30.00	30.00	28.00	30.00	33.00	15.00	15.00	14.00	15.00	16.00	12.00	26.00	15.00	35.00	28.00	55.00	29.00	26.00	23.00	15.00
2635	274	257	271	175	278	81	337	68	189	68	109	246	151	123	111	223	90	148	40	31.00	30.00	28.00	30.00	34.00	15.00	15.00	14.00	15.00	16.00	13.00	26.00	15.00	35.00	28.00	55.00	29.00	26.00	23.00	15.00
2277	289	256	250	155	386	78	295	67	137	148	109	227	145	119	125	248	105	217	40	31.00	30.00	28.00	30.00	34.00	15.00	15.00	14.00	15.00	16.00	16.00	26.00	15.00	35.00	28.00	54.00	29.00	26.00	23.00	15.00
8311	480	249	234	144	245	72	264	66	142	567	109	213	178	138	122	264	93	194	115	32.00	30.00	28.00	30.00	34.00	15.00	15.00	14.00	15.00	16.00	18.00	26.00	15.00	35.00	28.00	54.00	29.00	26.00	23.00	15.00
4402	490	231	212	161	200	70	260	65	144	328	101	208	178	221	107	238	90	194	161	31.00	30.00	28.00	30.00	34.00	15.00	15.00	14.00	15.00	16.00	15.00	26.00	15.00	35.00	28.00	53.00	29.00	26.00	23.00	15.00
3103	487	219	202	148	323	73	242	68	132	311	101	200	170	225	103	238	90	173	113	31.00	20.00	28.00	15.00	26.00	15.00	15.00	14.00	14.00	17.00	15.00	26.00	15.00	35.00	22.00	53.00	29.00	19.00	18.00	15.00

Table CAWG 6 Appendix L-10a. SJR below Dam 6 IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
SJR below Dam 6

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
U	1983	2199.45	1868.60	1576.94	1493.97	1421.18	1781.13	1999.33	14048.29	28921.60	10993.65	3297.10	1084.67	536.00	542.33	567.71	598.50	992.41	37837.00	36658.33	33639.57	31026.50	18342.34	.00	.10	295.00	169.00	.00	.00	5.00	24.40	753.98	-480.84	109.00
	1984	571.00	1806.37	2473.39	1632.45	1405.21	2673.29	5082.50	8533.26	3492.83	1897.39	722.29	353.80	179.00	223.00	226.43	266.20	320.67	16762.00	11882.67	10731.86	8683.97	5876.88	.00	.09	274.00	360.00	1.00	1.00	6.00	20.00	433.22	-277.08	130.00
	1985	274.10	360.93	342.84	428.81	540.89	951.06	5351.97	5952.87	2290.77	627.39	247.19	226.03	165.00	157.67	151.00	207.57	221.54	9338.00	8845.67	8416.57	6611.70	4600.76	.00	.10	274.00	105.00	3.00	7.67	3.00	23.33	160.70	-106.56	100.00
	1986	247.32	274.50	563.26	1107.81	3976.64	5711.55	8625.80	14013.71	8847.67	2389.13	761.90	314.33	127.00	135.67	162.14	225.37	162.32	20973.00	19212.33	18798.43	15158.50	10734.51	.00	.04	315.00	68.00	3.00	5.00	4.00	37.25	707.18	-425.07	98.00
	1987	225.06	139.80	108.00	124.45	182.71	548.23	4054.67	4005.16	1706.27	487.39	254.81	97.47	69.00	69.33	72.00	74.30	123.34	7716.00	6678.00	6262.29	5386.10	3291.42	.00	.07	268.00	137.00	6.00	28.83	3.00	16.33	137.26	-112.61	142.00
	1988	106.61	277.17	265.26	448.97	655.66	1674.32	3599.03	4191.42	2048.23	602.71	252.06	131.03	59.00	62.67	66.43	73.80	97.07	6845.00	6732.00	6033.00	4356.93	3424.49	.00	.06	292.00	136.00	5.00	9.00	5.00	13.40	137.83	-101.19	129.00
	1989	73.23	112.63	130.39	171.68	292.00	1895.06	5962.37	4236.13	2039.43	489.06	225.35	230.60	61.00	64.67	66.43	73.30	104.10	8851.00	8572.00	8253.43	5978.97	4253.62	.00	.05	281.00	100.00	6.00	16.50	5.00	14.00	148.06	-117.71	128.00
	1990	257.87	211.47	166.23	201.42	287.14	1391.81	4725.73	3575.42	2110.70	670.35	177.13	93.23	76.00	77.00	79.57	77.40	68.87	7646.00	6781.33	5936.57	5222.57	3641.90	.00	.07	261.00	155.00	6.00	19.17	5.00	13.80	192.43	-132.33	107.00
	1991	75.61	64.40	64.32	71.55	100.36	1057.03	2329.47	7601.97	5671.37	1333.74	257.03	131.57	50.00	60.00	61.57	63.50	66.17	11838.00	11351.67	10304.71	8971.43	5331.00	.00	.04	312.00	145.00	4.00	9.75	6.00	11.50	253.85	-185.40	123.00
	1992	89.32	188.20	123.77	157.35	323.03	618.16	5025.17	4639.03	1198.77	541.10	227.87	79.37	48.00	49.00	49.00	57.40	112.72	8770.00	8546.67	7854.14	6496.40	3677.04	.00	.04	293.00	120.00	7.00	21.14	2.00	25.50	124.83	-80.59	91.00
	1993	93.81	169.83	160.23	508.06	508.89	1712.61	5582.27	17992.29	11478.47	4236.74	1094.55	308.47	49.00	49.00	51.00	84.37	133.69	24819.00	23968.67	22302.43	18046.83	12243.37	.00	.01	287.00	139.00	5.00	10.80	4.00	30.75	459.03	-299.77	103.00
	1994	158.13	107.17	134.35	148.58	206.46	855.03	3004.10	4680.45	2377.93	462.03	134.26	139.83	41.00	41.67	43.00	49.63	128.13	7676.00	7634.67	6723.29	4776.07	3405.93	.00	.04	255.00	133.00	4.00	43.50	2.00	29.50	171.05	-126.76	102.00
	1995	519.26	463.80	464.58	1103.10	1191.18	3096.13	5173.90	12639.74	21208.63	12111.81	2899.26	803.70	216.00	224.33	229.43	260.70	240.47	30266.00	27715.00	25405.71	21345.00	15725.74	.00	.04	308.00	156.00	.00	.00	5.00	30.00	927.59	-589.08	90.00
	1996	253.10	132.67	351.81	485.35	1939.66	2134.81	6878.53	13053.45	5446.10	2238.74	657.00	234.73	77.00	86.33	94.00	112.00	216.44	59656.00	32497.67	22318.71	14708.37	8596.21	.00	.03	338.00	137.00	5.00	14.00	5.00	22.60	738.85	-393.68	130.00
	1997	133.32	958.83	1512.65	7466.55	1204.29	3455.61	6877.47	9393.23	4088.33	1572.65	534.26	259.40	84.00	92.33	97.71	130.07	176.18	83122.00	45527.67	25212.14	10733.07	7173.90	.00	.03	293.00	2.00	5.00	4.60	5.00	25.40	933.28	-555.87	116.00
	1998	169.65	144.03	214.06	249.61	356.39	909.32	2832.93	7184.42	21927.40	10801.45	2010.42	701.17	93.00	95.00	97.29	121.33	174.31	31336.00	28881.00	28429.14	22329.87	13518.81	.00	.02	311.00	167.00	8.00	9.00	3.00	38.33	444.37	-349.77	128.00
	1999	250.39	285.80	381.06	409.16	963.18	1068.68	3018.40	8829.19	4865.63	1234.42	318.94	260.77	136.00	147.00	168.29	120.57	100.62	12348.00	11342.67	10718.29	9176.63	5742.47	.00	.09	262.00	133.00	10.00	2.50	2.00	38.00	216.40	-160.09	136.00
	2000	116.55	105.13	74.19	209.65	607.52	1229.10	6183.83	10809.97	4857.83	1056.90	345.87	148.10	52.00	52.67	54.43	63.77	84.12	18314.00	16108.33	14581.00	10975.87	7376.29	.00	.03	9.00	129.00	3.00	46.67	1.00	89.00	291.00	-216.12	130.00
	2001	123.52	145.93	116.06	329.77	330.00	1348.87	3354.73	9689.68	1622.07	537.68	123.23	49.13	36.00	34.67	34.00	35.80	55.32	14606.00	14372.00	13526.43	10296.43	5253.29	.00	.02	273.00	132.00	10.00	13.40	4.00	13.50	239.66	-150.32	125.00
	2002	44.68	187.23	396.45	386.55	609.11	1135.65	5493.50	6538.00	3397.60	670.45	127.61	60.60	32.00	19.87	11.03	6.51	19.02	8827.00	8501.33	7739.29	6787.70	5226.92	.00	.01	290.00	105.00	2.00	28.50	1.00	83.00	173.15	-118.27	108.00
E	1983	5.04	28.04	214.18	383.15	1401.11	1545.77	889.33	5277.29	12825.67	6333.23	1534.69	4.39	4.30	4.30	4.30	4.36	4.42	16000.00	15400.00	14528.57	13556.67	8492.00	.00	.00	275.00	163.00	5.00	17.20	6.00	13.17	422.74	-420.34	99.00
	1984	4.38	11.91	97.47	104.46	4.14	7.94	4.11	141.45	147.10	4.01	3.90	3.90	3.90	3.90	3.90	3.90	3.90	2010.00	1673.33	1106.86	289.13	100.43	.00	.09	211.00	151.00	5.00	58.60	.00	.00	228.20	-143.45	35.00
	1985	3.90	3.95	4.12	4.30	4.45	4.17	3.69	3.33	3.30	3.36	3.53	3.71	3.20	3.20	3.23	3.28	3.32	4.50	4.50	4.50	4.45	4.33	.00	.85	142.00	44.00	2.00	107.00	.00	.00	.10	-.10	2.00
	1986	3.79	3.96	4.10	4.00	999.79	1859.13	1544.97	3678.94	5174.67	697.55	3.73	3.88	3.60	3.60	3.60	3.69	3.81	12000.00	11000.00	9860.00	6234.67	3550.47	.00	.00	201.00	68.00	4.00	18.75	9.00	6.78	593.16	-499.59	54.00
	1987	3.90	3.95	4.06	4.32	4.65	4.83	4.44	4.01	3.73	4.05	4.00	4.04	3.60	3.43	3.26	3.17	3.20	4.90	4.90	4.90	4.83	4.66	.00	.78	169.00	77.00	2.00	107.00	.00	.00	.10	-.10	6.00
	1993	3.14	3.20	3.25	3.26	3.30	196.13	583.60	3725.90	4047.67	1437.47	3.35	3.29	3.10	3.10	3.10	3.14	3.19	6700.00	6470.00	6114.29	4382.67	3250.07	.00	.00	275.00	140.00	5.00	19.00	2.00	28.50	310.27	-310.27	68.00
	1994	3.38	3.40	3.37	3.40	3.39	3.20	3.25	3.39	3.60	3.40	3.40	3.41	3.00	3.10	3.19	3.19	3.27	9.50	5.43	4.27	3.60	3.47	.00	.94	339.00	155.00	2.00	107.00	.00	.00	.51	-.58	19.00
	1996	3.30	3.30	3.28	3.30	1026.67	953.71	621.17	2810.16	2620.23	223.83	9.02	3.30	3.00	3.13	3.17	3.27	3.27	20500.00	11273.33	7391.43	3832.67	2057.13	.00	.00	39.00	137.00	5.00	19.00	5.00	5.60	535.55	-411.53	76.00
	1997	3.27	3.26	200.04	6605.48	1840.93	866.68	319.91	2805.06	1742.14	3.29	3.30	3.30	3.00	3.17	3.20	3.23	3.30	32000.00	22966.67	12590.00	6734.00	3205.25	.00	.00	302.00	3.00	7.00	21.00	6.00	10.83	689.46	-539.94	92.00
	1998	3.38	3.31	3.35	3.65	10.23	128.05	79.38	651.97	7613.67	3622.90	291.50	3.63	3.20	3.30	3.30	3.30	3.34	10600.00	10276.67	9908.57	7977.67	3995.27	.00	.00	138.00	175.00	11.00	10.27	2.00	25.00	362.40	-335.12	93.00
	1999	34.54	3.38	3.40	3.39	3.40	3.51	6.12	232.76	771.14	8.41	8.26	6.24	3.20	3.30	3.36	3.38	3.39	2670.00	2250.00	1593.57	992.77	340.75	.00	.04	325.00	150.00	4.00	46.75	1.00	1.00	118.17	-116.44	56.00
	2000	3.44	3.43	3.45	3.33	5.41	3.40	128.27	1537.74	1246.73	27.00	31.58	11.70	3.10	3.10	3.13	3.32	3.40	4770.00	4186.67	3892.86	2249.07	993.07	.00	.01	26.00	149.00	9.00	17.11	1.00	8.00	144.02	-137.54	105.00
	2001	3.51	3.49	4.04	3.50	3.69	3.43	3.47	158.91	35.41	3.56	3.49	3.98	3.20	3.27	3.31	3.42	3.50	616.00	467.33	352.29	178.38	67.69	.00	.17	65.00	148.00	8.00	24.75	.00	.00	24.28	-19.34	75.00
	2002	3.49	3.51	3.48	3.50	3.50	3.52	3.47	14.11	77.18	3.65	3.50	4.10	3.20	3.30	3.40	3.44	3.48	389.00	332.67	302.86	88.17	31.78	.00	.32	283.00	155.00	3.00	68.67	.00	.00	22.33	-17.12	34.00

Table CAWG 6 Appendix L-10b. SJR below Dam 6 IHA Percentile Data.

IHA Percentile Data
SJR below Dam6

Unimpaired period: 1963-1982 (20 years) | Existing period: 1983-2002 (14 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	73.46	97.01	163.89	256.68	565.83	.97	3.21	3.36	3.50	4.02	19.79	.19
November	105.34	134.45	187.72	342.15	1721.61	1.11	3.23	3.31	3.46	3.95	19.97	.19
December	77.57	125.43	239.66	447.55	1570.51	1.34	3.26	3.36	3.76	27.46	207.11	6.41
January	126.86	179.11	397.85	954.34	1618.60	1.95	3.28	3.38	3.57	29.35	3494.31	7.27
February	185.09	299.76	574.21	1201.01	1887.81	1.57	3.34	3.47	4.55	1006.51	1621.02	220.36
March	641.85	977.56	1370.34	2074.87	3419.66	.80	3.30	3.49	6.39	888.44	1702.45	138.59
April	2379.81	3102.48	5053.83	5867.34	6878.43	.55	3.36	3.64	42.75	592.99	1217.15	13.79
May	4023.79	4649.39	8067.61	12182.30	14044.83	.93	3.36	11.58	442.37	3027.35	4501.60	6.82
June	1630.49	2063.85	3790.58	8053.59	21855.52	1.58	3.45	27.49	1008.93	4329.42	10219.67	4.26
July	487.55	556.50	1145.66	2351.53	10974.43	1.57	3.33	3.52	6.23	882.53	4978.06	141.19
August	128.28	225.98	287.98	752.00	2810.37	1.83	3.32	3.47	3.82	14.66	913.09	2.93
September	62.48	105.86	228.32	312.87	793.45	.91	3.29	3.39	3.89	4.17	8.97	.20
Parameter Group #2												
1-day minimum	36.50	49.25	72.50	133.75	212.30	1.17	3.00	3.07	3.20	3.60	4.10	.16
3-day minimum	35.37	49.92	73.17	144.17	224.20	1.29	3.10	3.13	3.28	3.47	4.10	.11
7-day minimum	34.90	51.86	75.79	159.36	229.13	1.42	3.11	3.18	3.28	3.45	4.10	.08
30-day minimum	37.18	63.57	80.88	188.19	265.65	1.54	3.15	3.22	3.31	3.51	4.13	.09
90-day minimum	56.41	87.36	125.74	206.38	312.65	.95	3.20	3.27	3.37	3.58	4.16	.09
1-day maximum	7649.00	8784.25	13477.00	28904.25	57474.09	1.49	4.70	294.13	3720.00	13000.00	26250.00	3.42
3-day maximum	6736.93	8512.67	11617.17	26778.42	36242.27	1.57	4.70	250.86	3218.33	11068.33	19183.33	3.36
7-day maximum	6055.93	7768.00	10725.07	22314.64	28126.80	1.36	4.39	228.37	2743.21	9872.14	13559.29	3.52
30-day maximum	4820.72	6108.33	9074.03	15045.97	22231.38	.98	4.02	67.34	1620.92	6359.50	10767.17	3.88
90-day maximum	3407.79	3821.19	5536.73	10199.94	15505.05	1.15	3.90	25.00	666.91	3325.17	6243.63	4.95
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.03	.04	.07	.10	1.04	.00	.00	.02	.44	.89	17.48
Parameter Group #3												
Date of minimum	261.10	273.25	291.00	310.25	335.70	.10	140.00	193.00	279.00	352.25	52.00	.44
Date of maximum	71.20	108.75	134.50	152.50	168.80	.12	23.50	74.75	148.50	155.00	169.00	.22
Parameter Group #4												
Low pulse count	.10	3.00	5.00	6.00	9.80	.60	2.00	2.75	5.00	7.25	10.00	.90
Low pulse duration	.10	4.70	10.27	20.65	42.03	1.55	13.69	18.36	22.88	78.25	107.00	2.62
High pulse count	1.10	2.25	4.00	5.00	5.90	.69	.00	.00	1.00	5.25	7.50	5.25
High pulse duration	13.41	14.58	24.90	35.63	78.53	.85	.00	.00	3.30	11.42	26.75	3.46
Parameter Group #5												
Rise rate	137.32	163.28	246.75	645.14	910.22	1.95	.10	16.88	186.11	450.95	641.31	2.33
Fall rate	-548.36	-382.70	-172.74	-117.85	-101.73	-1.53	-519.76	-413.73	-140.50	-12.98	-.10	-2.85
Number of reversals	91.70	102.25	119.50	129.75	135.40	.23	4.00	30.25	62.00	92.25	102.00	1.00

Table CAWG 6 Appendix L-10c. SJR below Dam 6 IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

SJR below Dam6

	Unimpaired period: 1963-1982				Existing period: 1983-2002				RVA Categories		Hydrologic Alteration
	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Low	High	(Middle Category)
Parameter Group #1											
October	163.9	.97	44.7	2199.5	3.5	.19	3.1	34.5	115.85	250.58	-1.00
November	187.7	1.11	64.4	1868.6	3.5	.19	3.2	28.0	143.74	277.77	-1.00
December	239.7	1.34	64.3	2473.4	3.8	6.41	3.3	214.2	134.08	382.14	-.64
January	397.9	1.95	71.5	7466.5	3.6	7.27	3.3	6605.5	209.07	486.94	-.82
February	574.2	1.57	100.4	3976.6	4.6	220.36	3.3	1840.9	329.51	979.14	-1.00
March	1370.3	.80	548.2	5711.5	6.4	138.59	3.2	1859.1	1067.86	1789.10	-.82
April	5053.8	.55	1999.3	8625.8	42.8	13.79	3.3	1545.0	3581.93	5499.71	-1.00
May	8067.6	.93	3575.4	17992.3	442.4	6.82	3.3	5277.3	5863.80	9768.10	-1.00
June	3790.6	1.58	1198.8	28921.6	1008.9	4.26	3.3	12825.7	2278.16	5461.87	-.46
July	1145.7	1.57	462.0	12111.8	6.2	141.19	3.3	6333.2	625.66	1921.28	-.64
August	288.0	1.83	123.2	3297.1	3.8	2.93	3.3	1534.7	245.84	661.57	-.82
September	228.3	.91	49.1	1084.7	3.9	.20	3.3	11.7	131.53	264.11	-1.00
Parameter Group #2											
1-day minimum	72.5	1.17	32.0	536.0	3.2	.16	3.0	4.3	51.86	95.38	-1.00
3-day minimum	73.2	1.29	19.9	542.3	3.3	.11	3.1	4.3	59.49	97.85	-1.00
7-day minimum	75.8	1.42	11.0	567.7	3.3	.08	3.1	4.3	61.07	101.44	-1.00
30-day minimum	80.9	1.54	6.5	598.5	3.3	.09	3.1	4.4	72.63	121.94	-1.00
90-day minimum	125.7	.95	19.0	992.4	3.4	.09	3.2	4.4	100.37	174.44	-1.00
1-day maximum	13477.0	1.49	6845.0	83122.0	3720.0	3.42	4.5	32000.0	8849.32	21242.22	-.29
3-day maximum	11617.2	1.57	6678.0	45527.7	3218.3	3.36	4.5	22966.7	8570.23	19545.28	-.29
7-day maximum	10725.1	1.36	5936.6	33639.6	2743.2	3.52	4.3	14528.6	8225.48	19043.71	-.29
30-day maximum	9074.0	.98	4356.9	31026.5	1620.9	3.88	3.6	13556.7	6603.63	11237.14	-.64
90-day maximum	5536.7	1.15	3291.4	18342.3	666.9	4.95	3.5	8492.0	4576.46	7461.68	-1.00
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.04	1.04	.01	.10	.02	17.48	.00	.94	.03	.06	-.82
Parameter Group #3											
Date of minimum	291.0	.10	9.0	338.0	279.0	.44	26.0	339.0	273.93	293.14	-.46
Date of maximum	134.5	.12	2.0	360.0	148.5	.22	3.0	175.0	128.37	139.42	-.82
Parameter Group #4											
Low Pulse Count	5.0	.60	.0	10.0	5.0	.90	2.0	11.0	3.00	6.00	-.17
Low Pulse Duration	10.3	1.55	.0	46.7	22.9	2.62	10.3	107.0	7.48	16.69	-.82
High Pulse Count	4.0	.69	1.0	6.0	1.0	5.25	.0	9.0	3.00	5.00	-.89
High Pulse Duration	24.9	.85	11.5	89.0	3.3	3.46	.0	28.5	19.74	30.05	-.64

The low pulse threshold is 200.00
The high pulse level is 2613.00

Parameter Group #5											
Rise rate	246.8	1.95	124.8	933.3	186.1	2.33	.1	689.5	173.00	445.39	-.29
Fall rate	-172.7	-1.53	-589.1	-80.6	-140.5	-2.85	-539.9	-.1	-303.27	-126.17	-.64
Number of reversals	119.5	.23	90.0	142.0	62.0	1.00	2.0	105.0	106.72	128.07	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
November	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
December	5.60	2.00	-.64	4.20	.00	-1.00	4.20	12.00	1.86
January	5.60	1.00	-.82	4.20	1.00	-.76	4.20	12.00	1.86
February	5.60	.00	-1.00	4.20	4.00	-.05	4.20	10.00	1.38
March	5.60	1.00	-.82	4.20	1.00	-.76	4.20	12.00	1.86
April	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
May	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
June	5.60	3.00	-.46	4.20	2.00	-.52	4.20	9.00	1.14
July	5.60	2.00	-.64	4.20	2.00	-.52	4.20	10.00	1.38
August	5.60	1.00	-.82	4.20	1.00	-.76	4.20	12.00	1.86
September	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
Parameter Group #2									
1-day minimum	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
3-day minimum	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
7-day minimum	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
30-day minimum	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
90-day minimum	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33
1-day maximum	5.60	4.00	-.29	4.20	1.00	-.76	4.20	9.00	1.14
3-day maximum	5.60	4.00	-.29	4.20	1.00	-.76	4.20	9.00	1.14
7-day maximum	5.60	4.00	-.29	4.20	.00	-1.00	4.20	10.00	1.38
30-day maximum	5.60	2.00	-.64	4.20	1.00	-.76	4.20	11.00	1.62
90-day maximum	5.60	.00	-1.00	4.20	1.00	-.76	4.20	13.00	2.10
Number of zero days	14.00	14.00	.00	.00	.00	.00	.00	.00	.00
Base flow	5.60	1.00	-.82	4.20	6.00	.43	4.20	7.00	.67
Parameter Group #3									
Date of minimum	5.60	3.00	-.46	4.20	3.00	-.29	4.20	8.00	.90
Date of maximum	5.60	1.00	-.82	4.20	9.00	1.14	4.20	4.00	-.05
Parameter Group #4									
Low Pulse Count	8.40	7.00	-.17	2.80	4.00	.43	2.80	3.00	.07
Low Pulse Duration	5.60	1.00	-.82	4.20	13.00	2.10	4.20	.00	-1.00
High Pulse Count	9.10	1.00	-.89	1.40	3.00	1.14	3.50	10.00	1.86
High Pulse Duration	5.60	2.00	-.64	4.20	.00	-1.00	4.20	12.00	1.86
Parameter Group #5									
Rise rate	5.60	4.00	-.29	4.20	3.00	-.29	4.20	7.00	.67
Fall rate	5.60	2.00	-.64	4.20	6.00	.43	4.20	6.00	.43
Number of reversals	5.60	.00	-1.00	4.20	.00	-1.00	4.20	14.00	2.33

5 Messages:

Parameter Low pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 4 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 8 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of falls : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-10d. SJR below Dam 6 Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

SJR below Dam 6

Unimpaired period: 1963-1982 (20 years)   Existing period: 1983-2002 (14 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	2284.37	631.37
Mean flow/area	2284.37	631.37
Annual C. V.	.83	.28
Flow predictability	.40	.73
Constancy/predictability	.31	.80
WARNING: Some of the Colwell Parameters are based on < 20 years of data		
% of floods in 60d period	.57	.54
flood-free season	79.00	142.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	163.9	3.5	.97	.19	.98	.81	.14	.28
November	187.7	3.5	1.11	.19	.98	.83	.13	.31
December	239.7	3.8	1.34	6.41	.98	3.77	.04	.02
January	397.9	3.6	1.95	7.27	.99	2.73	.13	.06
February	574.2	4.6	1.57	220.36	.99	139.40	.11	.00
March	1370.3	6.4	.80	138.59	1.00	172.07	.01	.00
April	5053.8	42.8	.55	13.79	.99	24.20	.11	.00
May	8067.6	442.4	.93	6.82	.95	6.30	.02	.00
June	3790.6	1008.9	1.58	4.26	.73	1.70	.17	.04
July	1145.7	6.2	1.57	141.19	.99	89.11	.09	.00
August	288.0	3.8	1.83	2.93	.99	.61	.08	.36
September	228.3	3.9	.91	.20	.98	.78	.18	.40
Parameter Group #2								
1-day minimum	72.5	3.2	1.17	.16	.96	.86	.08	.34
3-day minimum	73.2	3.3	1.29	.11	.96	.92	.15	.34
7-day minimum	75.8	3.3	1.42	.08	.96	.94	.15	.34
30-day minimum	80.9	3.3	1.54	.09	.96	.94	.17	.37
90-day minimum	125.7	3.4	.95	.09	.97	.90	.15	.40
1-day maximum	13477.0	3720.0	1.49	3.42	.72	1.29	.05	.04
3-day maximum	11617.2	3218.3	1.57	3.36	.72	1.14	.01	.09
7-day maximum	10725.1	2743.2	1.36	3.52	.74	1.59	.01	.05
30-day maximum	9074.0	1620.9	.98	3.88	.82	2.94	.01	.00
90-day maximum	5536.7	666.9	1.15	4.95	.88	3.30	.01	.00
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.0	1.04	17.48	.42	15.86	.18	.00
Parameter Group #3								
Date of minimum	291.0	279.0	.10	.44	.07	3.30	.46	.01
Date of maximum	134.5	148.5	.12	.22	.08	.83	.08	.21
Parameter Group #4								
Low pulse count	5.0	5.0	.60	.90	.00	.50	.59	.30
Low pulse duration	10.3	22.9	1.55	2.62	1.23	.69	.01	.31
High pulse count	4.0	1.0	.69	5.25	.75	6.64	.13	.00
High pulse duration	24.9	3.3	.85	3.46	.87	3.09	.03	.01
The low pulse threshold is	200.00							
The high pulse level is	2613.00							
Parameter Group #5								
Rise rate	246.8	186.1	1.95	2.33	.25	.19	.58	.66
Fall rate	-172.7	-140.5	-1.53	-2.85	.19	.86	.75	.04
Number of reversals	119.5	62.0	.23	1.00	.48	3.35	.00	.00

Table CAWG 6 Appendix L-10e. SJR below Dam 6 IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1983-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1993	1994	1996	1997	1998	1999	2000	2001	2002
1758	1316	250	158	402	89	68	419	97	81	53	159	619	641	152	327	386	235	79	34	4.30	4.30	3.90	3.70	3.90	3.10	3.30	3.30	3.30	3.30	3.40	3.50	3.40	3.50
1519	1221	240	150	321	83	69	343	91	87	53	150	475	315	194	201	294	175	80	34	4.30	4.30	3.90	3.70	3.90	3.10	3.40	3.30	3.30	3.30	3.40	3.50	4.60	3.50
1313	1044	239	141	349	81	74	282	87	85	54	149	476	293	194	162	277	152	78	34	4.40	4.30	3.90	3.70	3.90	3.10	3.40	3.30	3.30	3.30	3.40	3.50	3.40	3.60
1152	933	234	136	278	79	65	251	87	70	54	141	652	289	177	157	264	161	74	33	4.40	4.30	3.90	3.70	3.90	3.10	3.40	3.30	3.30	3.30	3.40	3.50	3.40	3.50
1040	826	223	130	282	77	65	220	80	59	54	142	1067	438	160	149	260	143	73	33	4.40	4.30	3.90	3.70	3.90	3.20	3.40	3.30	3.30	3.30	3.40	3.50	3.40	3.50
955	754	220	181	264	73	68	202	83	57	51	143	919	384	152	141	282	121	71	34	4.40	4.30	3.90	3.70	3.90	3.10	3.40	3.30	3.30	3.30	3.40	3.50	3.50	3.50
886	722	209	398	256	76	61	186	78	64	51	145	879	269	152	142	214	157	71	34	4.40	4.30	3.90	3.70	3.90	3.10	3.40	3.30	3.30	3.30	3.40	3.50	3.50	3.50
851	687	201	327	268	71	66	167	76	59	51	146	876	263	143	136	192	138	70	34	4.50	4.30	3.90	3.70	3.90	3.10	3.40	3.30	3.30	3.40	3.30	3.40	3.50	3.40
777	642	195	326	238	72	68	155	77	58	50	137	934	254	134	136	251	123	80	35	4.50	4.30	3.90	3.80	3.90	3.10	3.30	3.30	3.30	3.40	3.40	3.40	3.50	3.20
734	608	209	285	262	74	72	145	75	57	57	137	899	259	120	155	280	127	140	34	4.60	6.10	3.90	3.80	3.90	3.10	3.30	3.30	3.30	3.40	3.40	3.50	3.40	3.50
700	559	273	289	223	74	70	137	73	55	51	185	830	256	119	185	548	126	145	35	4.70	5.10	3.90	3.80	3.90	3.10	3.30	3.30	3.30	3.40	3.40	3.50	3.50	3.50
672	526	297	278	232	71	72	130	72	54	52	198	731	556	110	175	279	118	143	35	4.70	4.30	3.90	3.80	3.90	3.10	3.40	3.30	3.30	3.40	3.40	3.50	3.50	3.50
651	501	282	249	225	76	68	125	71	57	49	179	640	306	113	181	171	109	138	35	4.80	4.30	3.90	3.80	3.90	3.10	3.40	3.30	3.30	3.40	32.00	3.50	3.50	3.50
627	476	249	220	223	72	66	121	71	57	49	168	566	205	108	204	211	95	139	34	4.90	4.30	3.90	3.80	3.90	3.10	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
613	475	227	204	214	71	69	119	69	54	49	173	518	197	107	167	214	142	138	33	4.90	4.30	3.90	3.80	3.90	3.10	3.40	3.30	3.10	3.40	60.00	3.40	3.50	3.50
593	459	255	198	215	69	73	117	68	52	56	203	450	197	103	156	210	112	132	32	5.00	4.30	3.90	3.80	3.90	3.10	3.40	3.30	3.10	3.40	60.00	3.40	3.50	3.50
583	457	328	190	206	74	74	114	71	50	66	223	406	187	96	145	195	102	129	32	5.10	4.30	3.90	3.80	3.90	3.10	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
558	438	349	186	184	59	118	112	71	49	61	219	380	184	97	133	196	100	127	32	5.10	4.30	3.90	3.80	3.90	3.10	3.30	3.30	3.30	3.40	60.00	3.40	3.50	3.50
549	420	400	177	178	63	66	109	76	48	58	201	356	173	84	122	193	93	125	66	5.20	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
542	404	371	169	181	66	75	111	75	50	57	195	333	176	97	287	184	92	116	43	5.30	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
536	351	331	207	179	63	78	140	75	49	79	180	317	172	100	283	191	91	119	42	5.30	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
778	400	314	240	184	85	79	417	76	49	87	168	309	164	109	147	188	79	110	42	5.40	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
1100	377	300	318	186	115	72	278	77	49	79	156	300	147	128	279	186	80	122	42	5.50	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
1610	377	315	416	191	101	77	744	76	49	70	146	300	194	113	233	210	96	118	40	5.50	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.40	3.50
5364	377	320	406	181	97	78	643	77	52	67	145	299	195	174	122	243	103	114	41	5.60	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.40	3.50
15521	334	317	358	186	91	77	479	73	412	66	135	302	281	129	131	284	78	136	38	5.70	4.30	3.90	3.80	3.90	3.20	3.40	3.30	3.20	3.40	60.00	3.40	3.50	3.50
4340	317	293	320	184	90	76	448	70	238	68	125	290	169	132	123	265	77	154	39	5.70	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
3155	305	273	284	188	289	82	377	70	205	71	116	267	159	131	114	247	93	160	41	5.80	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.00	3.40	60.00	3.40	3.50	3.50
2722	319	271	261	168	427	80	327	69	152	167	116	248	153	127	129	278	108	236	42	5.80	4.30	3.90	3.90	3.90	3.10	3.40	3.30	3.30	3.40	60.00	3.40	3.50	3.50
10550	530	265	244	156	263	73	292	67	155	701	115	233	185	147	126	301	95	208	125	5.90	4.30	3.90	3.90	3.90	3.10	3.40	3.30	3.30	3.40	10.00	3.40	3.50	3.50
5434	546	247	221	173	214	71	284	66	156	377	107	226	185	231	111	268	92	204	177	6.00	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.30	3.40	28.00	3.40	3.50	3.50
3774	543	232	211	159	367	74	264	70	143	342	107	218	178	235	107	264	93	183	123	6.00	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.30	3.40	3.40	3.40	3.40	3.50
3024	589	232	198	139	478	76	259	67	147	303	104	239	145	196	104	220	84	182	95	6.10	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.30	3.40	3.30	3.40	3.50	3.50
2603	527	238	192	139	300	75	251	56	148	290	100	216	170	157	98	230	81	166	81	6.20	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.30	3.30	3.40	3.40	3.50	3.50
2349	476	223	190	142	236	75	253	66	155	274	100	226	170	157	96	213	79	140	72	6.20	4.30	3.90	3.90	3.90	3.20	3.40	3.30	3.30	3.30	3.30	3.40	3.50	3.50

Table CAWG 6 Appendix L-11a. NF Stevenson Creek IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
NF Stevenson Creek Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	8.02	7.08	5.99	5.65	5.19	6.65	8.12	61.41	123.83	32.44	4.09	1.35	.75	.78	.88	1.31	1.71	161.86	156.70	147.03	135.49	73.42	.00	.04	265.00	169.00	.00	.00	9.00	15.67	3.68	-2.13	87.00
	1984	1.26	6.98	10.83	7.11	6.01	11.73	23.05	25.66	4.68	1.18	.31	.11	.09	.10	.10	.11	.22	85.99	48.98	36.47	28.90	20.56	.00	.01	255.00	360.00	2.00	19.00	8.00	15.38	2.18	-1.15	96.00
	1985	.28	.50	.61	.97	1.41	3.58	22.12	21.13	3.39	.45	.07	.12	.03	.03	.03	.06	.13	38.22	36.18	34.07	27.44	16.17	.00	.01	240.00	105.00	5.00	12.40	2.00	30.50	.72	-.50	77.00
	1986	.24	.33	1.19	4.25	17.42	26.04	40.52	57.74	22.05	2.03	.34	.30	.06	.06	.11	.16	.25	98.99	76.06	70.76	59.48	43.15	.00	.01	277.00	68.00	4.00	10.25	3.00	46.00	3.46	-1.97	83.00
	1987	.34	.23	.17	.21	.20	1.66	16.42	11.29	2.28	.32	.05	.02	.02	.02	.02	.02	.04	24.84	24.52	24.08	19.65	10.19	.00	.01	239.00	116.00	10.00	13.40	1.00	47.00	.60	-.36	75.00
	1988	.09	.62	.68	1.26	2.28	6.90	15.28	13.59	3.48	.63	.09	.04	.02	.02	.02	.03	.04	23.50	22.61	20.47	15.84	12.16	.00	.01	275.00	134.00	2.00	31.00	2.00	34.50	.64	-.41	81.00
	1989	.03	.12	.16	.23	.58	7.21	24.15	12.51	2.46	.34	.08	.17	.02	.02	.02	.03	.10	38.41	36.95	35.00	24.24	14.96	.00	.01	275.00	100.00	6.00	19.83	3.00	23.33	.93	-.52	63.00
	1990	.43	.35	.27	.42	.59	5.38	20.28	12.16	3.23	.39	.06	.04	.02	.02	.02	.03	.04	30.19	28.60	25.66	21.54	13.13	.00	.01	250.00	118.00	2.00	45.50	2.00	33.50	.88	-.46	62.00
	1991	.04	.06	.08	.11	.20	4.22	9.40	30.90	15.44	1.80	.23	.07	.03	.03	.03	.04	.06	51.79	48.86	42.01	33.47	18.91	.00	.01	300.00	145.00	2.00	21.00	4.00	19.50	1.71	-1.07	73.00
	1992	.16	.26	.24	.34	.99	2.44	23.93	15.55	1.90	1.07	.12	.05	.03	.03	.03	.03	.07	38.22	37.07	34.86	28.37	14.24	.00	.01	283.00	121.00	6.00	10.67	1.00	51.00	.65	-.42	71.00
	1993	.19	.27	.24	1.52	1.71	7.44	27.65	86.94	42.82	6.13	.79	.17	.03	.03	.03	.14	.18	119.24	115.80	105.92	87.14	53.38	.00	.00	275.00	139.00	4.00	9.00	1.00	114.00	2.52	-1.57	71.00
	1994	.18	.19	.26	.33	.47	3.48	13.32	17.05	3.33	.28	.03	.05	.02	.02	.02	.02	.09	29.24	27.65	25.12	19.58	12.02	.00	.01	229.00	133.00	8.00	13.25	3.00	21.00	.79	-.59	71.00
	1995	.73	1.35	1.59	4.51	5.09	15.34	25.64	64.51	96.23	34.41	2.93	.45	.07	.09	.24	.19	.21	150.39	132.24	122.57	98.08	68.91	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	4.87	-2.70	68.00
	1996	.19	.17	1.02	1.58	8.96	9.77	33.92	60.28	11.18	1.24	.20	.08	.06	.06	.07	.07	.12	315.30	160.07	105.35	69.09	37.13	.00	.01	255.00	137.00	3.00	35.67	3.00	37.33	4.70	-2.26	85.00
	1997	.11	4.30	7.03	37.00	5.56	17.06	33.20	33.52	5.59	.78	.14	.09	.06	.06	.06	.08	.09	420.41	229.31	127.52	45.70	28.82	.00	.00	282.00	2.00	3.00	19.33	7.00	19.43	5.66	-2.99	81.00
	1998	.10	.15	.26	.35	.35	3.06	12.56	34.08	101.87	31.06	1.71	.73	.06	.06	.06	.10	.17	148.29	135.99	128.44	101.90	57.95	.00	.00	276.00	167.00	4.00	11.00	2.00	52.00	2.52	-1.74	90.00
	1999	.50	.86	1.45	1.62	4.36	4.77	14.53	35.70	11.04	1.28	.22	.09	.06	.06	.06	.06	.09	53.70	49.56	46.38	36.17	21.08	.00	.01	256.00	133.00	2.00	22.00	2.00	36.00	1.21	-.62	96.00
	2000	.06	.14	.10	.74	2.33	5.15	30.27	44.08	8.57	.86	.10	.07	.05	.05	.04	.05	.10	89.62	76.31	67.40	48.41	28.78	.00	.01	259.00	129.00	5.00	25.40	1.00	83.00	2.04	-1.19	71.00
	2001	.13	.18	.16	.49	1.07	5.65	15.45	39.01	2.99	.55	.06	.03	.03	.03	.03	.03	.04	63.63	62.74	59.48	43.82	21.19	.00	.01	240.00	129.00	6.00	22.50	2.00	33.50	1.32	-.77	76.00
	2002	.05	.61	.98	.97	2.10	4.95	25.70	26.30	6.50	.48	.05	.03	.02	.02	.03	.03	.17	39.56	38.09	34.18	27.10	20.31	.00	.00	270.00	105.00	5.00	17.40	1.00	73.00	.94	-.57	60.00
E	1990	4.26	4.21	4.47	5.03	5.59	8.08	11.36	5.80	5.37	4.42	4.14	4.22	3.80	3.80	3.86	3.78	3.98	14.00	12.67	12.43	11.45	8.52	.00	.69	226.00	114.00	.00	.00	4.00	13.00	.46	-.37	117.00
	1991	3.65	5.33	5.95	5.51	3.89	7.15	12.73	20.97	11.07	5.74	4.60	4.14	1.60	1.90	2.01	3.49	4.33	27.00	25.67	23.43	21.17	15.08	.00	.27	45.00	64.00	.00	.00	6.00	18.50	1.02	-.84	102.00
	1992	4.53	9.75	14.14	4.59	5.89	8.56	53.90	8.42	5.36	6.15	5.60	5.29	3.80	3.90	3.90	3.72	3.89	209.00	165.67	145.14	54.23	23.86	.00	.36	280.00	104.00	.00	.00	7.00	13.57	2.45	-2.01	117.00
	1993	3.86	3.80	4.29	6.98	8.08	33.84	51.70	49.55	26.30	8.44	5.35	6.66	3.40	3.40	3.50	3.78	3.92	120.00	111.00	94.71	63.30	49.28	.00	.20	288.00	85.00	.00	.00	9.00	20.78	2.82	-1.82	83.00
	1994	6.39	5.85	6.98	5.99	6.14	8.17	8.99	7.75	5.20	4.66	4.34	4.20	3.80	3.83	3.90	4.14	4.31	18.00	16.00	11.53	9.59	8.42	.00	.63	207.00	357.00	.00	.00	6.00	12.50	.46	-.40	108.00
	1995	4.76	4.90	5.64	11.37	11.79	40.68	46.80	61.94	178.23	36.19	8.21	7.15	2.50	3.43	4.13	4.63	4.99	1300.00	1035.00	614.29	193.17	99.68	.00	.12	325.00	179.00	.00	.00	4.00	63.25	23.19	-15.65	82.00
	1996	5.31	4.57	5.07	8.14	52.24	22.35	26.17	108.32	7.35	5.18	11.26	4.76	3.60	3.73	3.86	4.42	4.74	1750.00	905.33	408.57	115.47	58.28	.00	.18	12.00	137.00	.00	.00	5.00	30.80	21.03	-12.81	100.00
	1997	4.95	10.85	12.10	71.84	11.03	19.48	31.60	31.65	7.56	4.98	5.10	5.42	4.30	4.40	4.44	4.92	5.06	836.00	456.00	244.43	74.40	34.97	.00	.24	275.00	2.00	.00	.00	5.00	41.20	9.31	-6.60	113.00
	1998	4.95	22.09	4.85	7.24	8.29	14.64	21.00	43.65	66.23	18.64	6.01	5.23	2.70	3.30	4.01	4.56	5.06	99.00	86.67	83.57	66.50	46.14	.00	.22	315.00	163.00	.00	.00	7.00	28.43	3.59	-2.13	92.00
	1999	5.12	4.98	5.17	5.11	7.29	8.74	9.12	10.29	8.81	6.73	6.81	6.61	4.00	4.07	4.21	4.59	4.96	13.00	12.67	11.86	10.83	9.76	.00	.60	7.00	157.00	.00	.00	15.00	11.67	.46	-.33	113.00
	2000	7.26	6.76	5.84	8.30	10.65	12.22	59.63	16.51	7.53	6.09	6.47	11.48	4.80	5.00	5.26	5.82	6.24	190.00	182.00	172.00	60.40	29.79	.00	.40	205.00	103.00	.00	.00	14.00	11.57	3.18	-2.25	120.00
	2001	14.75	8.77	8.58	8.56	8.64	10.92	16.33	21.32	7.85	8.22	7.94	6.97	2.90	2.93	3.16	3.97	4.26	167.00	71.67	38.71	24.37	16.44	.00	.29	317.00	276.00	.00	.00	18.00	16.72	2.41	-2.42	163.00
	2002	3.98	4.38	4.89	5.08	5.20	5.05	11.47	8.74	6.73	6.09	5.62	5.35	3.60	3.70	3.76	3.88	4.34	16.00	15.67	14.29	11.49	9.04	.00	.62	289.00	105.00	.00	.00	6.00	12.50	.52	-.42	132.00

Table CAWG 6 Appendix L-11b. NF Stevenson Creek IHA Percentile Data.

IHA Percentile Data
NF Stevenson Creek Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1990-2002 (13 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.04	.09	.18	.41	1.20	1.71	3.74	4.12	4.95	5.85	11.75	.35
November	.12	.17	.30	.80	6.72	2.09	3.96	4.47	5.33	9.26	17.59	.90
December	.11	.19	.44	1.39	6.92	2.73	4.36	4.87	5.64	7.78	13.32	.52
January	.21	.34	.97	3.59	6.97	3.36	4.76	5.10	6.98	8.43	47.65	.48
February	.22	.58	1.90	5.16	8.66	2.41	4.41	5.74	8.08	10.84	36.06	.63
March	2.51	3.74	5.51	9.19	16.89	.99	5.89	8.13	10.92	20.92	37.94	1.17
April	9.71	14.72	22.58	27.16	33.85	.55	9.04	11.42	21.00	49.25	57.34	1.80
May	12.19	15.93	32.21	54.33	64.20	1.19	6.58	8.58	20.97	46.60	89.77	1.81
June	2.30	3.26	6.04	20.40	101.31	2.84	5.26	6.05	7.56	18.69	133.43	1.67
July	.32	.46	.97	1.97	32.30	1.56	4.51	5.08	6.09	8.33	29.17	.53
August	.05	.06	.13	.33	2.81	2.10	4.22	4.85	5.62	7.38	10.04	.45
September	.03	.04	.08	.17	.70	1.54	4.17	4.49	5.35	6.81	9.75	.43
Parameter Group #2												
1-day minimum	.02	.02	.03	.06	.09	1.33	1.96	2.80	3.60	3.90	4.60	.31
3-day minimum	.02	.02	.03	.06	.10	1.31	2.31	3.35	3.73	3.98	4.76	.17
7-day minimum	.02	.02	.03	.07	.23	1.31	2.47	3.63	3.90	4.17	4.93	.14
30-day minimum	.02	.03	.05	.11	.19	1.53	3.59	3.78	4.14	4.61	5.46	.20
90-day minimum	.04	.06	.10	.18	.25	1.16	3.90	4.12	4.34	5.03	5.77	.21
1-day maximum	25.28	38.22	58.67	141.03	299.96	1.75	13.40	17.00	120.00	522.50	1570.00	4.21
3-day maximum	24.84	36.37	49.27	128.13	159.73	1.86	12.67	15.83	86.67	319.00	983.13	3.50
7-day maximum	24.18	34.10	44.20	105.78	128.35	1.62	11.66	13.36	83.57	208.21	532.00	2.33
30-day maximum	19.59	24.95	34.82	66.69	101.52	1.20	10.09	11.47	54.23	70.45	162.09	1.09
90-day maximum	12.03	14.42	20.82	41.64	67.81	1.31	8.46	9.40	23.86	47.71	83.12	1.61
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.00	.01	.01	.01	.01	.48	.14	.21	.29	.61	.67	1.37
Parameter Group #3												
Date of minimum	239.10	251.25	267.50	276.75	282.90	.07	205.80	250.50	289.00	349.00	31.80	.27
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	26.80	94.00	114.00	171.00	324.60	.21
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	.00	.00	.00	.00	.00	.00
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	.00	.00	.00	.00	.00	.00
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	4.00	5.00	6.00	11.50	16.80	1.08
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	11.61	12.50	16.72	29.61	54.43	1.02
Parameter Group #5												
Rise rate	.64	.81	1.51	3.23	4.86	1.60	.46	.49	2.45	6.45	22.33	2.43
Fall rate	-2.66	-1.92	-.92	-.50	-.41	-1.54	-14.52	-4.51	-2.01	-.41	-.35	-2.03
Number of reversals	62.10	71.00	75.50	84.50	95.40	.18	82.40	96.00	113.00	118.50	150.60	.20

Table CAWG 6 Appendix L-11c. NF Stevenson Creek IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

NF Stevenson Creek Data

	Unimpaired period: 1963-1982 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1990-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	.2	1.71	.0	8.0	4.9	.35	3.7	14.7	.11	.28	-1.00
November	.3	2.09	.1	7.1	5.3	.90	3.8	22.1	.19	.61	-1.00
December	.4	2.73	.1	10.8	5.6	.52	4.3	14.1	.24	1.03	-1.00
January	1.0	3.36	.1	37.0	7.0	.48	4.6	71.8	.41	1.58	-1.00
February	1.9	2.41	.2	17.4	8.1	.63	3.9	52.2	.96	4.41	-.81
March	5.5	.99	1.7	26.0	10.9	1.17	5.1	40.7	4.73	7.23	-.62
April	22.6	.55	8.1	40.5	21.0	1.80	9.0	59.6	15.44	25.64	-.62
May	32.2	1.19	11.3	86.9	21.0	1.81	5.8	108.3	20.84	39.37	-.42
June	6.0	2.84	1.9	123.8	7.6	1.67	5.2	178.2	3.38	11.48	.92
July	1.0	1.56	.3	34.4	6.1	.53	4.4	36.2	.54	1.31	-1.00
August	.1	2.10	.0	4.1	5.6	.45	4.1	11.3	.08	.24	-1.00
September	.1	1.54	.0	1.3	5.3	.43	4.1	11.5	.05	.12	-1.00
Parameter Group #2											
1-day minimum	.0	1.33	.0	.8	3.6	.31	1.6	4.8	.03	.06	-1.00
3-day minimum	.0	1.31	.0	.8	3.7	.17	1.9	5.0	.03	.06	-1.00
7-day minimum	.0	1.31	.0	.9	3.9	.14	2.0	5.3	.03	.06	-1.00
30-day minimum	.1	1.53	.0	1.3	4.1	.20	3.5	5.8	.03	.08	-1.00
90-day minimum	.1	1.16	.0	1.7	4.3	.21	3.9	6.2	.09	.17	-1.00
1-day maximum	58.7	1.75	23.5	420.4	120.0	4.21	13.0	1750.0	38.40	100.41	-.81
3-day maximum	49.3	1.86	22.6	229.3	86.7	3.50	12.7	1035.0	37.06	79.07	-.81
7-day maximum	44.2	1.62	20.5	147.0	83.6	2.33	11.5	614.3	34.81	73.18	-.81
30-day maximum	34.8	1.20	15.8	135.5	54.2	1.09	9.6	193.2	27.42	49.19	-1.00
90-day maximum	20.8	1.31	10.2	73.4	23.9	1.61	8.4	99.7	16.08	29.40	-.62
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.48	.00	.04	.29	1.37	.12	.69	.01	.01	-1.00
Parameter Group #3											
Date of minimum	267.5	.07	229.0	300.0	289.0	.27	7.0	325.0	255.00	275.07	-.83
Date of maximum	129.0	.08	2.0	360.0	114.0	.21	2.0	357.0	117.86	134.21	-1.00
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	.0	.00	.0	.0	2.00	5.00	-1.00
Low Pulse Duration	18.2	.64	.0	45.5	.0	.00	.0	.0	12.30	21.07	-1.00
High Pulse Count	2.0	1.25	1.0	9.0	6.0	1.08	4.0	18.0	2.00	3.00	-1.00
High Pulse Duration	35.3	.81	15.4	114.0	16.7	1.02	11.6	63.3	30.00	46.07	-.62

The low pulse threshold is .21
The high pulse level is 7.07

	Unimpaired period: 1963-1982 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1990-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	1.5	1.60	.6	5.7	2.5	2.43	.5	23.2	.92	2.52	-.42
Fall rate	-.9	-1.54	-3.0	-.4	-2.0	-2.03	-15.7	-.3	-1.58	-.56	-.81
Number of reversals	75.5	.18	60.0	96.0	113.0	.20	82.0	163.0	71.00	81.14	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
November	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
December	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
January	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
February	5.20	1.00	-.81	3.90	12.00	2.08	3.90	.00	-1.00
March	5.20	2.00	-.62	3.90	11.00	1.82	3.90	.00	-1.00
April	5.20	2.00	-.62	3.90	6.00	.54	3.90	5.00	.28
May	5.20	3.00	-.42	3.90	4.00	.03	3.90	6.00	.54
June	5.20	10.00	.92	3.90	3.00	-.23	3.90	.00	-1.00
July	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
August	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
September	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
Parameter Group #2									
1-day minimum	7.15	.00	-1.00	1.95	13.00	5.67	3.90	.00	-1.00
3-day minimum	6.50	.00	-1.00	2.60	13.00	4.00	3.90	.00	-1.00
7-day minimum	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
30-day minimum	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
90-day minimum	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
1-day maximum	5.20	1.00	-.81	3.90	7.00	.79	3.90	5.00	.28
3-day maximum	5.20	1.00	-.81	3.90	7.00	.79	3.90	5.00	.28
7-day maximum	5.20	1.00	-.81	3.90	7.00	.79	3.90	5.00	.28
30-day maximum	5.20	.00	-1.00	3.90	7.00	.79	3.90	6.00	.54
90-day maximum	5.20	2.00	-.62	3.90	6.00	.54	3.90	5.00	.28
Number of zero days	13.00	13.00	.00	.00	.00	.00	.00	.00	.00
Base flow	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
Parameter Group #3									
Date of minimum	5.85	1.00	-.83	3.90	6.00	.54	3.25	6.00	.85
Date of maximum	5.20	.00	-1.00	3.90	6.00	.54	3.90	7.00	.79
Parameter Group #4									
Low Pulse Count	8.45	.00	-1.00	3.25	.00	-1.00	1.30	13.00	9.00
Low Pulse Duration	5.20	.00	-1.00	3.90	.00	-1.00	3.90	13.00	2.33
High Pulse Count	6.50	.00	-1.00	3.25	13.00	3.00	3.25	.00	-1.00
High Pulse Duration	5.20	2.00	-.62	3.90	1.00	-.74	3.90	10.00	1.56
Parameter Group #5									
Rise rate	5.20	3.00	-.42	3.90	6.00	.54	3.90	4.00	.03
Fall rate	5.20	1.00	-.81	3.90	4.00	.03	3.90	8.00	1.05
Number of reversals	6.50	.00	-1.00	3.90	13.00	2.33	2.60	.00	-1.00

8 Messages:

Parameter Low pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter Low pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter High pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter High pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter Number of reversals : 4 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter 1-day minimum : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter Date of minimum : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Parameter 3-day minimum : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-11d. NF Stevenson Creek Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

NF Stevenson Creek Data

Unimpaired period: 1963-1982 (20 years) | Existing period: 1990-2002 (13 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	8.36	13.12
Mean flow/area	8.36	13.12
Annual C. V.	.68	.35
Flow predictability	.46	.64
Constancy/predictability	.34	.77
WARNING: Some of the Colwell Parameters are based on < 20 years of data		
% of floods in 60d period	.61	.58
flood-free season	100.00	3.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	.2	4.9	1.71	.35	26.01	.80	.00	.58
November	.3	5.3	2.09	.90	16.73	.57	.00	.90
December	.4	5.6	2.73	.52	11.84	.81	.00	.45
January	1.0	7.0	3.36	.48	6.21	.86	.00	.33
February	1.9	8.1	2.41	.63	3.25	.74	.00	.17
March	5.5	10.9	.99	1.17	.98	.19	.01	.73
April	22.6	21.0	.55	1.80	.07	2.27	.88	.00
May	32.2	21.0	1.19	1.81	.35	.52	.44	.20
June	6.0	7.6	2.84	1.67	.25	.41	.35	.79
July	1.0	6.1	1.56	.53	5.29	.66	.00	.53
August	.1	5.6	2.10	.45	43.05	.79	.00	.82
September	.1	5.3	1.54	.43	62.40	.72	.00	.73
Parameter Group #2								
1-day minimum	.0	3.6	1.33	.31	119.00	.77	.00	.33
3-day minimum	.0	3.7	1.31	.17	123.44	.87	.00	.34
7-day minimum	.0	3.9	1.31	.14	120.33	.89	.00	.52
30-day minimum	.1	4.1	1.53	.20	76.87	.87	.00	.44
90-day minimum	.1	4.3	1.16	.21	43.10	.82	.00	.36
1-day maximum	58.7	120.0	1.75	4.21	1.05	1.40	.12	.11
3-day maximum	49.3	86.7	1.86	3.50	.76	.88	.14	.10
7-day maximum	44.2	83.6	1.62	2.33	.89	.44	.16	.37
30-day maximum	34.8	54.2	1.20	1.09	.56	.09	.24	.84
90-day maximum	20.8	23.9	1.31	1.61	.15	.23	.57	.56
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.3	.48	1.37	47.35	1.83	.00	.08
Parameter Group #3								
Date of minimum	267.5	289.0	.07	.27	.12	2.86	.13	.03
Date of maximum	129.0	114.0	.08	.21	.08	1.50	.27	.06
Parameter Group #4								
Low pulse count	4.0	.0	.94	.00	1.00	1.00	.05	.03
Low pulse duration	18.2	.0	.64	.00	1.00	1.00	.00	.00
High pulse count	2.0	6.0	1.25	1.08	2.00	.13	.00	.72
High pulse duration	35.3	16.7	.81	1.02	.53	.27	.17	.54
The low pulse threshold is		.21						
The high pulse level is	7.07							
Parameter Group #5								
Rise rate	1.5	2.5	1.60	2.43	.62	.52	.31	.31
Fall rate	-.9	-2.0	-1.54	-2.03	1.19	.32	.12	.57
Number of reversals	75.5	113.0	.18	.20	.50	.11	.00	.80

Table CAWG 6 Appendix L-11e. NF Stevenson Creek IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1990-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
4.20	3.44	0.15	0.07	0.52	0.02	0.02	0.21	0.05	0.04	0.03	0.11	0.11	0.27	0.07	0.07	0.80	0.07	0.05	0.03	4.1	5.1	4.2	4.4	6.1	4.3	6.8	4.3	6	5.5	7.4	37	5.5
3.63	2.68	0.14	0.07	0.65	0.02	0.03	0.16	0.05	0.04	0.03	0.11	0.08	0.27	0.07	0.06	0.67	0.07	0.04	0.03	3.9	4.8	4.4	3.5	5.9	4.2	6.7	4.5	5.9	5.5	7.3	167	4.4
3.06	2.10	0.15	0.06	0.59	0.02	0.03	0.15	0.05	0.04	0.04	0.10	0.07	0.23	0.07	0.06	0.61	0.07	0.04	0.03	3.9	4.5	4.3	3.5	5.9	4.1	6.7	4.8	5.7	6.6	7.3	11	4
2.68	1.76	0.15	0.06	0.50	0.02	0.02	0.15	0.05	0.04	0.04	0.10	1.11	0.23	0.07	0.06	0.59	0.06	0.04	0.03	3.9	4.2	4.2	3.5	5.9	4.5	6.8	4.8	5.3	6	7.4	11	4.2
2.48	1.61	0.14	0.06	0.44	0.02	0.02	0.14	0.04	0.04	0.04	0.10	1.91	0.21	0.07	0.06	0.55	0.06	0.04	0.03	3.9	4.1	4	3.5	5.9	5.3	6.1	4.8	5.6	5.6	7.4	11	4
2.29	1.49	0.14	0.25	0.40	0.02	0.02	0.13	0.04	0.04	0.04	0.11	1.05	0.21	0.07	0.06	0.52	0.06	0.04	0.03	4	3.9	3.8	3.7	6	5.8	5.3	4.8	4.8	4.6	7.4	17	4.1
2.10	1.41	0.13	0.67	0.36	0.02	0.02	0.13	0.04	0.04	0.04	0.12	0.92	0.21	0.07	0.07	0.48	0.07	0.04	0.03	4	3.9	3.9	3.7	6.1	5.2	5.3	4.8	4.9	4.5	7.4	17	3.9
2.10	1.39	0.11	0.32	0.36	0.02	0.02	0.12	0.04	0.04	0.04	0.13	0.99	0.21	0.06	0.07	0.42	0.07	0.04	0.03	4	3.9	4.1	3.7	6.1	5.2	5.3	4.7	5	4.4	7.4	15	3.8
1.91	1.34	0.11	0.34	0.34	0.03	0.03	0.11	0.04	0.03	0.03	0.13	1.36	0.21	0.06	0.07	0.40	0.07	0.05	0.04	3.9	3.9	4.2	3.8	6	5.1	5.4	4.7	4.7	4.5	7.6	7	3.9
1.85	1.32	0.11	0.29	0.32	0.03	0.03	0.11	0.04	0.04	0.03	0.12	1.39	0.21	0.06	0.15	0.40	0.07	0.18	0.03	3.9	3.8	4.2	3.6	6	5	5.4	4.7	5.4	4.5	7.4	7.7	3.9
1.80	1.24	0.34	0.23	0.31	0.03	0.02	0.10	0.04	0.04	0.03	0.21	1.32	0.19	0.06	0.25	0.40	0.06	0.13	0.03	4	3.8	4.2	3.5	6.6	5	5.4	4.8	5.4	4.4	7.4	7.2	3.7
1.74	1.17	0.29	0.21	0.32	0.03	0.03	0.09	0.04	0.04	0.03	0.19	1.13	0.19	0.06	0.21	0.38	0.06	0.12	0.04	4	3.8	4.3	3.5	6.9	5	5.4	4.9	5.2	4.4	7.4	7.1	3.9
1.68	1.09	0.21	0.18	0.31	0.03	0.03	0.09	0.04	0.04	0.03	0.18	1.03	0.19	0.06	0.21	0.36	0.06	0.14	0.03	4	3.8	4.1	3.5	6.7	5	5.4	4.8	5	4.3	7.4	7.1	3.9
1.62	1.11	0.17	0.17	0.31	0.03	0.03	0.09	0.04	0.04	0.03	0.16	0.94	0.18	0.06	0.18	0.36	0.06	0.15	0.03	4	3.8	4	3.4	7	4.9	5.4	4.7	4.8	4.3	7.4	9.1	3.8
1.57	1.13	0.15	0.15	0.29	0.03	0.03	0.09	0.04	0.04	0.03	0.19	0.90	0.17	0.06	0.15	0.38	0.06	0.14	0.03	4	3.8	4.3	3.6	6.3	4.9	5.5	4.8	4.8	4.5	7.4	7	3.6
1.51	1.11	0.21	0.15	0.29	0.03	0.03	0.09	0.04	0.04	0.03	0.27	0.75	0.17	0.06	0.13	0.40	0.06	0.14	0.03	4	3.8	4.4	3.7	6.6	4.9	5.5	4.8	4.6	5.2	7.4	7.2	3.7
1.51	1.09	0.36	0.14	0.27	0.03	0.03	0.09	0.04	0.04	0.03	0.38	0.63	0.17	0.06	0.11	0.40	0.06	0.12	0.03	3.9	3.8	4.5	3.6	6.7	4.7	4.8	4.8	4.6	5.3	7.2	8.7	3.9
1.45	1.09	0.31	0.14	0.29	0.03	0.03	0.09	0.04	0.04	0.03	0.36	0.57	0.16	0.06	0.10	0.40	0.06	0.11	0.03	4.3	3.8	4.6	3.4	6.7	4.7	4.9	4.8	4.6	5.4	7.5	7	3.8
1.41	1.03	0.55	0.13	0.29	0.03	0.02	0.09	0.05	0.04	0.03	0.31	0.54	0.16	0.06	0.09	0.38	0.06	0.10	0.03	4	3.8	4.3	3.4	6.8	4.6	4.9	4.9	4.6	5.4	7.5	6.9	3.8
1.39	0.92	0.52	0.13	0.29	0.03	0.02	0.08	0.05	0.04	0.04	0.27	0.50	0.15	0.07	0.09	0.38	0.06	0.09	0.03	4	3.8	4.7	3.7	6.8	4.6	4.9	4.9	4.7	5.4	7.4	6.9	3.8
1.39	0.86	0.44	0.21	0.31	0.03	0.02	0.16	0.04	0.04	0.11	0.23	0.50	0.16	0.07	0.09	0.36	0.06	0.09	0.03	4.6	3.8	4.4	4.2	7	4.6	4.8	4.8	4.7	5.4	7.5	7	3.8
1.45	0.84	0.40	0.27	0.31	0.07	0.02	1.28	0.04	0.04	0.11	0.21	0.50	0.16	0.08	0.09	0.36	0.06	0.10	0.03	5	3.8	4.6	4.1	7.1	4.6	4.8	4.8	4.7	5.4	7.6	7	3.8
2.10	0.82	0.38	0.38	0.31	0.07	0.03	0.52	0.04	0.04	0.07	0.19	0.50	0.17	0.08	0.09	0.34	0.06	0.10	0.03	4.3	3.8	4.2	3.9	6.3	4.6	4.8	4.8	4.7	5.4	7	7	3.7
3.25	0.82	0.38	0.50	0.29	0.07	0.03	1.91	0.04	0.05	0.06	0.18	0.50	0.17	0.11	0.09	0.40	0.06	0.10	0.03	5.9	3.9	4.2	3.5	6.1	4.6	4.8	5.1	4.7	5.5	6.8	6.9	3.7
16.05	0.80	0.42	0.48	0.29	0.06	0.03	1.82	0.04	0.06	0.06	0.17	0.54	0.17	0.50	0.09	0.59	0.06	0.10	0.03	5.8	4	4.2	3.5	6	4.6	4.8	6.2	4.7	5.6	6.8	7.1	3.8
69.18	0.76	0.42	0.38	0.29	0.06	0.02	1.32	0.03	1.80	0.06	0.16	0.55	0.18	0.23	0.09	0.71	0.06	0.21	0.03	4.7	3.8	9.3	3.4	5.9	4.6	4.8	5.4	4.8	5.6	6.8	7.8	3.8
16.63	0.73	0.42	0.32	0.29	0.06	0.03	1.17	0.03	0.96	0.06	0.15	0.54	0.17	0.18	0.09	0.63	0.06	0.27	0.04	4.6	2.4	5.8	3.4	5.9	4.6	4.8	5.2	4.7	5.3	6.5	7.5	3.8
11.85	0.71	0.36	0.29	0.29	0.25	0.02	0.92	0.03	0.36	0.07	0.15	0.50	0.17	0.17	0.09	0.55	0.06	0.27	0.04	4.5	1.9	4.9	3.4	6.4	4.6	4.8	5.1	4.7	4.9	6.8	7.3	3.7
10.13	0.69	0.34	0.25	0.29	0.94	0.03	0.73	0.03	0.34	0.44	0.15	0.48	0.17	0.18	0.09	0.69	0.06	0.44	0.04	4.3	1.9	4.9	4.9	6.5	4.6	4.8	5.6	4.7	5.1	7	9.6	3.8
51.02	1.15	0.34	0.23	0.27	0.40	0.03	0.63	0.03	0.31	3.06	0.14	0.44	0.16	0.21	0.09	0.82	0.06	0.31	0.25	4.3	1.9	4.6	8.6	6.9	4.6	4.7	5.6	4.7	5.1	7.1	7.5	5.4
23.50	1.26	0.34	0.21	0.27	0.31	0.03	0.55	0.03	0.27	1.11	0.14	0.40	0.16	0.23	0.09	0.67	0.06	0.23	0.36	4.4	2	4.6	4.6	6.9	4.5	4.7	5.6	4.7	5	7.1	7.5	4.4
15.29	1.28	0.31	0.21	0.27	1.01	0.03	0.50	0.05	0.25	0.71	0.14	0.40	0.17	0.21	0.09	0.59	0.06	0.21	0.23	4.3	2.1	4.5	3.9	6.8	4.5	4.7	5.4	4.7	5	7	7.7	3.8
11.85	1.53	0.31	0.19	0.25	1.36	0.03	0.46	0.05	0.25	0.54	0.14	0.48	0.18	0.23	0.09	0.55	0.06	0.25	0.15	4.1	3.8	4.2	3.8	6.6	4.9	4.7	5	4.6	4.9	7	8.8	3.7
10.13	1.26	0.32	0.19	0.27	0.73	0.03	0.46	0.04	0.25	0.48	0.14	0.44	0.17	0.23	0.09	0.52	0.06	0.25	0.12	4.1	7	4.3	3.8	5.3	4.7	4.7	5.6	4.6	5	7	8.9	3.8
8.98	1.13	0.31	0.19	0.25	0.48	0.03	0.44	0.05	0.27	0.46	0.14	0.40	0.17	0.25	0.08	0.50	0.06	0.23	0.10	4	5.1	4.2	3.8	6.1	4.7	4.7	5.7	4.6	4.5	7	10	4.1
7.83	0.90	0.29	0.19	0.25	0.46	0.03	0.42	0.05	0.27	0.40	0.14	1.07	0.18	0.23	0.08	0.48	0.06	0.21	0.09	4.1	4.9	4.3	3.8	5.5	5	4.7	5.5	4.5	4.3	7	7.9	4.1
7.26	0.82	0.32	0.18	0.21	0.73	0.03	0.40	0.05	0.27	0.34	0.14	4.01	0.18	0.21	0.08	0.46	0.06	0.23	0.09	4.1	4.8	4.5	3.8	5.5	5.3	4.7	5.5	4.5	4.3	6.9	11	3.9
6.69	1.01	0.36	0.18	0.21	0.76	0.03	0.38	0.04	0.27	0.31	0.14	1.87	0.18	0.23	0.09	0.54	0.06	0.21	0.08	4	4.9	4.5	3.8	5.5	5.1	4.7	5.1	4.6	5.1	7	3.6	3.8
6.31	1.17	0.42	0.17	0.23	0.63	0.03	0.36	0.05	0.25	0.29	0.14	1.41	0.18	0.27	0.08	0.76	0.23	0.19	0.08	4	4.9	4.6	3.8	5.5	4.9	4.7	4.4	4.4	5.7	8.2	3.3	3.8
5.73	1.01	0.48	0.17	0.23	0.57	0.03	0.36	0.05	0.34	0.29	0.14	1.15	0.18	0.31	0.08	0.63	0.16	0.21	0.08	4	4.9	4.3	3.8	5.5	4.8	4.7	4.5	2.8	5	7.1	3.2	3.7
5.73	1.05	0.44	0.18	0.25	0.55	0.03	0.34	0.05	0.31	0.25	0.15	1.76	0.18	0.34	0.10	0.61	0.13	0.19	0.07	4.1	4.9	4.1	3.8	5.5	5.2	4.7	4.4	2.7	5	6.8	3.2	3.9
7.26	14.14	0.48	0.38	0.25	0.52	0.04	0.34	0.05	0.25	0.23	0.18	2.87	0.18	0.34	0.15	0.69	0.13	0.18	0.12	4.1	4.9	4.1	3.8	6	5	4.7	4.4	39	5.4	6.7	3	4
7.45	5.73	0.52	0.36	0.18	0.50	0.04	0.34	0.05	0.21	0.23	0.23	1.51	0.18	0.36	0.14	0.75	0.13	0.15	0.16	4.1	4.9	4	4	6.1	4.9	4.7	4.4	4.7	5.2	6.7	2.9	4.5
6.88	5.54	0.50	0.29	0.23	0.54	0.13	0.32	0.05	0.18	0.23	0.23	1.17	0.18	0.34	0.14	0.90	0.12	0.15	0.27	4.1	4.9	4	3.9	6	4.9	4.7	4.5	4.9	4.8	6.7	2.9	4.4
6.50	4.01	0.54	0.29	0.29	0.57	0.23	0.32	0.05	0.18	0.23	0.21	1.11	0.17	0.32	0.14	0.96	0.12	0.16	0.23	4.1	4.8	4.1	3.8	5.9	4.8	4.7	4.5	4.8	4.7	6.8	6.6	4.3
6.50	3.25	0.59	0.31	0.27	0.48	0.12	0.31	0.05	0.16	0.23	0.18	1.11	0.16	0.31	0.11	0.94	0.13	0.14	0.23	4.1	4.7	4.1	3.8	5.8	4.7	4.7	4.5	4.7	4.7	6.9	17	4.4
6.50	2.87	0.59	0.31	0.27	0.44	0.09	0.32	0.05	0.16	0.21	0.19	1.13	0.16	0.31	0.11	0.92	0.13	0.13	0.23	4.2	4.7	4.7	3.9	5.8	4.7	4.7	4.5	4.5	4.6	6.8	8.3	4
6.31	8.79	0.55	0.31	0.27	0.88	0.11	0.32	0.05	0.32	0.21	0.21	1.11	0.16	2.29	0.12	0.94	0.34	0.12	0.21	4.1	4.7	5	3.8	5.8	4.7	4.7	4.6	17	4.8	8	17	4
5.92	6.88	0.57	0.29	0.27	1.05	0.10	0.31	0.05	0.32	0.21	0.23	1.22	0.16	7.45	0.12	0.75	0.21	0.12	0.19	4.1	4.7	4.6	3.7	5.8	4.5	4.6	15	66	4.6	6.9	16	4
6.88	11.08	0.57	0.29	0.25	0.73	0.10	0.29	0.05	0.32	0.21	0.21	1.30	0.16	3.25	0.19	0.78	0.19	0.14	0.17	4	4.7	4.4	3.7	5.8	4.2	4.6	6.5	67	4.6	7.1	16	4
7.07	19.49	0.55	0.31	0.25	0.75	0.10	0.29	0.07	0.32	0.18	0.19	1.15	0.16	2.68	0.21	0.69	0.31	0.15	0.15	4	5.1	4.4	3.7	5.7	2.5	4.6	5.3	68	4.6	7.2	7.4	4
6.50	9.94	0.57	0.32	0.25	0.71	0.10	0.27	0.06	0.31	0.19	0.21	1.15	0.16	13.57	0.16	0.71	0.23	0.16	0.17	4.7	5	4.3	3.7	5.7	3.6	4.5	27	70	4.5	7	14	4
6.50	7.26	0.59	0.31	0.25	0.65	0.11	0.27	0.06	0.31	0.25	0.23	1.09	0.16	43.95	0.16	0.80	0.16	0.17	0.86	4.4	4.9	4.2	3.8	5.8	5.4	4.5	87	70	4.7	6.9	14	5.1
6.50	6.50	0.59	0.32	0.25	0.55	0.44	0.27	0.06	0.29	0.23	0.21	1.07	0.16	12.42	0.19	0.92	0.14	0.16	0.65	4	4.7	4	3.8	5.9	5.6	4.4	25	70	4.9	6.6	8.2	4.2
6.12	27.52	0.52	0.38	0.25	0.52	0.44	0.31	0.06	0.29	0.21	0.17	1.09	0.16	9.17	0.17	1.17	0.12	0.17	5.16	4.1	4.7	4	3.9	5.8	5.5	4.3	18	69	5.4	5.9	11	9.9
5.92	19.87	0.42	0.55	0.23	0.48	0.23	0.31	0.04	0.27	0.21	0.14	1.18	0.15	6.88	0.16	1.05	0.13	0.18	3.06	4.6	4.8	11	4.2	5.7	5.5	4.3	14	38	5	5.8	7.1	6.3
5.73	13.38	0.55	0.71	0.19	0.42	0.17	0.23	0.06	0.27	0.21	0.14	1.47	0.17	5.54	0.25	0.90	0.14	0.18	1.59	5.4	5.1	33	3.7	5.7	5.5	4.3	11	5.1	4.9	6	7.1	4.6
5.73	10.13	0.67	0.55	0.16	0.40	0.16	0.34	0.07	0.25	0.21	0.18	1.80	0.16	4.78	0.29	0.96	0.15	0.18	1.15	4.6	5	37	3.7	5.7	5.5	4.3	9.5	4.4	4.8	6	6.7	4.3
5.54	8.03	0.67	0.57	0.16	0.36	0.17	0.40	0.07	0.25	0.18	0.23	1.68	0.17	4.01	0.34	0.94	0.14	0.19	0.97	4.4	8.7	36	3.7	5.7	5.5	4.3	8	4.5	5.3	5.9	8.3	4.2
5.73	7.26	0.78	0.52	0.15	0.36	0.16	0.44	0.09	0.23	0.17	0.27	1.61	0.16	3.82	0.29	1.09	0.15	0.19	0.94	4.3	9.5	36	3.6	6.3	5.5	4.2	7.6	4.4	5.3	5.9	10	4.4
5.16	6.69	0.75	0.57	0.15	0.36	0.17	0.34	0.09	0.21	0.14	0.32	1.62	0.17	4.59	0.27	3.25	0.16	0.18	0.84	4.2	12	36	3.6	6.8	5.5	4.2	9.1	4.7	7.7	5.9	12	4.1
6.31	6.31	0.67	0.55	0.19	0.46	0.17	0.32	0.07	0.19	0.16	0.31	1.78	0.15	3.25	0.23	3.25	0.15	0.17	0.78	4.2	12	36	3.5	6.1	5.6	4.2	6.5	4.6	7.6	6.1	12	4.3
7.83	5.92	0.61	1.09	0.21	0.46	0.16	0.32	0.06	0.21	0.17	0.29	1.87	0.15	4.20	0.21	2.48	0.14	0.17	0.94	4.2	12	32	3.8	5.9	5.6	4.2	8.4	4.5	6.3	6	6.8	5
7.45	4.78	0.63	1.70	0.23	0.44	0.16	0.31	0.07	0.23	0.17	0.27	1.89	0.15	3.63	0.19	1.91	0.13	0.16	1.03	4.2	12	30	3.9	5.9	5.6	4.2	7.2	4.3	5.9	6	10	5.1
6.50	6.31	0.61	2.29	0.23	0.46	0.15	0.32	0.07	0.23	0.15	0.27	1.91	0.21	2.87	0.19	2.10	0.13	0.16	1.05	4.3	12	45	3.9	5.8	5.7	4.3	5.7	4.2	5.4	5.8	13	4.5
6.12	6.31	0.63	1.57	0.18	0.48	0.15	0.32	0.06	0.25	0.13	0.23	1.83	0.21	4.78	0.21	2.10	0.13	0.16	0.86	4.3	12	41	4	5.8	5.6	4.3	9.5	5.4	5.3	5.8	7.8	4.4
5.73	5.73	0.63	1.30	0.16	0.84	0.16	0.31	0.06	0.23	0.11	0.21	1.72	0.19	7.26	0.34	1.74	0.12	0.16	0.80	4.5	8.9	21	4.4	5.8	5.6	4.3	14	7.6	5.4	5.8	13	4.6
5.73	5.35	0.65	1.34	0.15	1.66	0.16	0.31	0.06	0.25	0.11	0.21	1.64	0.19	4.40	0.34	1.74	0.13	0.18	0.76	4.4	4.8	21	4.8	5.7	5.6	4.3	8.7	5.8	6.7	5.7	11	4.7
5.73	5.16	0.65	1.28	0.14	1.53	0.16	0.29	0.06	0.27	0.16	0.23	1.55	0.19	4.01	0.31	1.39	0.10	0.19	0.80	4.3	4.4	21	5.2	5.6	5.6	4.3	8	5.3	5.1	5.9	9.2	4.5
5.54	5.35	0.65	1.15	0.16	1.13	0.15	0.29	0.06	0.27	0.19	0.25	1.53	0.18	4.40	0.31	1.18	0.11	0.19	0.78	4.2	4.3	21	5	5.4	5.5	4.3	8.7	5	5	5.9	7.9	4.6
5.54	5.54	0.65	1.07	0.17	1.18	0.15	0.29	0.06	0.25	0.25	0.25	1.34	0.17	3.44	0.27	1.13	0.10	0.18	0.88	4.1	4.3	21	4.5	5.5	5.4	4.3	6.8	4.9	4.9	5.9	7.5	4.4
5.35	5.35	0.69	0.94	0.19	1.07	0.15	0.29	0.08	0.25	0.23	0.23	1.30	0.40	7.26	0.25	0.97	0.09	0.17	0.78	4.1	4.5	21	4.4	6.7	5.4	5.9	14	4.8	5.2	5.9	8.8	4.4
5.35	5.73	0.67	0.80	0.19	0.82	0.16	0.31	0.10	0.23	0.23	0.25	1.36	6.50	15.67	0.21	0.97	0.10	0.16	0.73	4.2	4.5	20	4.3	6.6	5.2	12	31	4.8	4.9	5.9	7.9	4.2
5.16	5.73	0.65	0.76	0.18	0.61	0.17	0.29	0.10	0.21	0.25	0.27	1.39	2.48	10.51	0.21	0.99	0.12	0.17	0.76	4.2	4.5	20	4.3	5.9	5.2	5.1	21	4.8	4.9	5.9	8.3	4.4
5.16	5.54	0.59	0.78	0.18	0.44	0.17	0.29	0.08	0.21	0.27	0.27	1.53	1.91	8.22	0.23	0.97	0.10	0.17	0.86	4.1	4.4	11	4.3	6	5.2	6	16	4.8	5	5.9	7.7	4.5
5.16	5.35	0.57	0.80	0.17	0.38	0.17	0.29	0.09	0.21	0.29	0.27	1.53	1.57	6.50	0.23	1.34	0.09	0.18	0.92	4.1	4.4	4.3	3.7	5.8	5.3	5.7	13	4.8	4.7	5.9	7.7	4.1
5.16	5.16	0.61	0.78	0.17	0.52	0.16	0.27	0.08	0.19	0.31	0.25	1.53	1.82	5.73	0.23	1.05	0.09	0.18	0.82	4.2	4.4	4.2	3.8	6.4	5.4	5.3	11	4.7	4.7	5.9	7.6	4.3
4.97	4.97	0.54	0.76	0.19	0.63	0.16	0.27	0.07	0.23	0.32	0.25	1.53	2.10	5.54	0.25	0.92	0.09	0.18	0.84	4.3	4.4	4.1	4	5.8	5.4	5.1	11	4.8	4.7	5.9	7.5	4
5.16	4.97	0.52	0.76	0.21	0.63	0.17	0.25	0.08	0.27	0.29	0.25	1.53	1.55	4.97	0.25	0.94	0.09	0.16	0.86	4.4	4.4	5.1	4.2	6.8	5.3	5	9.9	4.7	4.6	5.9	7.6	3.9
5.16	4.78	0.71	0.76	0.15	0.61	0.16	0.25	0.08	0.27	0.27	0.25	1.53	1.28	4.78	0.25	0.92	0.09	0.16	0.86	4.8	4.4	5.2	3.5	6.7	5.3	4.9	9.5	4.7	4.6	5.9	7.6	4.3
5.16	4.59	0.75	0.78	0.13	0.59	0.16	0.23	0.08	0.23	0.27	0.25	1.53	0.94	4.78	0.29	0.67	0.09	0.17	0.90	4.8	4.9	5.1	3.5	6.6	5.3	4.9	9.6	4.7	5	5.9	9.3	4.4
5.16	4.78	0.69	0.78	0.14	0.57	0.16	0.21	0.08	0.18	0.27	0.25	1.53	0.63	4.59	0.29	0.96	0.09	0.18	0.99	4.8	5.1	4.9	3.5	12	5.4	5.1	9.3	4.6	5.9	5.8	8.5	4.3
5.35	4.59	0.57	0.82	0.15	0.54	0.18	0.21	0.08	0.21	0.27	0.25	1.53	0.59	5.35	0.27	1.34	0.09	0.16	1.05	4.9	5.2	5	3.5	18	5.3	4.8	9.5	4.5	4.7	5.8	7.4	4.1
6.31	4.40	0.48	0.90	0.14	0.50	0.18	0.21	0.08	0.27	0.27	0.25	1.53	0.75	8.22	0.27	1.30	0.09	0.15	1.05	4.9	5.4	4.3	3.5	18	5.3	4.9	9.8	4.5	5.1	5.7	8	4.1
6.50	6.69	0.48	0.92	0.13	0.54	0.17	0.21	0.08	0.25	0.27	0.25	1.47	0.59	6.12	0.25	1.53	0.09	0.15	1.03	4.8	5.2	4.4	3.5	5.8	5.5	4.9	9.3	4.5	5	5.8	8	4.4
6.69	85.99	0.48	0.99	0.15	0.57	0.19	0.23	0.09	0.23	0.27	0.27	1.41	0.50	5.16	0.23	1.72	0.09	0.15	0.97	4.8	4.8	4.5	3.5	5.9	5.9	4.8	9	4.5	4.9	5.8	8	4.1
6.69	35.54	0.52	1.07	0.16	0.59	0.17	0.27	0.09	0.25	0.27	0.27	1.61	0.46	4.97	0.25	1.91	0.09	0.13	0.99	4.8	4.6	4.3	3.5	6	5.6	4.7	9.7	4.6	4.9	5.8	7.8	4
6.69	25.42	0.59	1.13	0.17	0.57	0.17	0.25	0.09	0.21	0.27	0.29	1.66	0.44	5.16	0.27	1.72	0.09	0.11	1.05	4.8	4.5	4.4	3.5	6.2	5.5	4.7	13	4.8	4.8	5.8	7.3	4.4
6.69	16.63	0.61	1.13	0.15	0.55	0.17	0.25	0.09	0.23	0.29	0.29	1.66	0.50	4.59	0.29	1.62	0.09	0.12	1.11	4.7	4.5	4.3	3.5	6	5.6	4.7	10	4.8	4.8	5.8	7.6	5.1
8.98	14.14	0.63	1.32	0.16	0.63	0.17	0.23	0.09	0.27	0.23	0.29	1.66	0.65	4.40	0.29	1.53	0.09	0.14	1.53	4.8	4.5	4.3	8	6	6.1	5.1	13	4.8	4.8	5.7	7.7	13
6.12	14.33	0.57	2.87	0.15	0.54	0.17	0.23	0.08	0.29	0.25	0.29	1.66	2.29	19.87	0.29	1.39	0.09	0.12	1.62	4.8	4.6	4.3	8	5.9	6.7	5.5	29	4.8	4.8	5.6	8.9	7.6
6.12	14.14	0.57	3.63	0.15	0.57	0.17	0.23	0.09	0.27	0.34	0.27	1.66	1.85	33.25	0.29	1.24	0.09	0.12	1.91	4.7	4.5	4.5	6	5.9	9.1	5.3	24	4.8	4.8	5.6	8.7	7.9
6.31	11.47	0.55	2.87	0.15	0.65	0.17	0.23	0.09	0.29	0.42	0.27	1.66	1.26	67.27	0.29	1.15	0.09	0.11	2.29	4.7	4.3	4.6	4.8	5.9	5.5	5	78	4.9	4.7	5.6	7.7	6.3
6.50	10.32	0.55	2.68	0.16	0.65	0.17	0.21	0.09	0.31	0.54	0.27	1.66	1.11	420.41	0.31	1.05	0.09	0.12	1.72	4.9	4.2	4.8	4.5	5.8	6.2	4.9	836	5.1	4.7	5.9	7.6	6
6.50	9.75	0.55	2.10	0.16	0.78	0.17	0.23	0.10	0.29	0.59	0.29	1.66	1.22	171.98	0.34	0.96	0.09	0.14	1.72	4.8	5.2	4.5	3.5	6	5.5	4.5	342	4.9	4.3	7	7.8	7.3
6.31	9.75	0.57	2.48	0.16	0.99	0.17	0.23	0.14	0.29	0.57	0.31	1.66	1.13	95.55	0.31	1.15	0.09	0.14	1.72	4.8	5.4	4.9	3.5	6.3	5.7	4	190	4.9	4.1	5.6	7.8	6
5.92	9.94	0.63	9.55	0.15	0.92	0.18	0.25	0.17	0.27	0.54	0.65	1.66	1.05	62.11	0.29	1.15	0.09	0.15	1.53	4.8	4.7	4.8	3.5	6.8	5.7	3.7	124	4.9	4.1	6	7.8	5.5
5.54	9.55	0.73	12.42	0.19	0.90	0.19	0.25	0.13	0.32	0.55	0.71	1.66	1.01	42.04	0.29	1.05	0.09	0.16	1.53	4.8	4.5	4.7	4.5	6.1	5.8	3.8	84	4.9	4.1	7.1	7.8	5.5
5.54	9.36	0.76	7.83	0.21	1.24	0.19	0.25	0.12	0.32	2.10	0.44	1.68	1.11	28.66	0.29	1.01	0.09	0.15	1.53	4.7	4.5	4.6	4	6.1	7.1	3.8	57	4.9	4	5.6	7.7	5.6
6.12	8.60	0.80	5.35	0.21	1.62	0.19	0.27	0.10	0.32	2.10	0.36	1.74	1.13	19.11	0.31	1.05	0.09	0.17	1.53	4.8	4.6	4.6	5.5	6	6.7	4	38	4.9	4.4	6	7.7	5.5
6.12	8.03	0.78	4.40	0.23	1.55	0.19	0.27	0.10	0.34	1.80	0.34	2.29	1.11	15.29	0.34	0.99	0.09	0.17	1.53	4.7	4.4	4.7	6.6	5.8	13	4.2	30	5.7	4.5	5.6	7.6	5.4
5.73	7.83	0.78	3.82	0.27	1.49	0.19	0.29	0.10	0.36	2.10	0.31	5.54	1.07	14.33	0.38	0.96	0.09	0.17	1.34	4.7	5	5	5.6	6.3	43	3.9	29	6.1	4.3	5.6	7.7	5.2
5.54	6.88	0.78	3.63	0.29	1.45	0.19	0.31	0.09	0.34	2.29	0.27	6.12	1.07	13.38	0.44	0.92	0.09	0.17	1.34	4.7	5.1	4.8	6.1	6.3	22	3.7	27	5.3	4.3	5.8	7.4	5.1
5.73	7.26	0.78	3.44	0.29	1.38	0.19	0.32	0.10	0.32	1.83	0.25	6.50	1.11	12.42	0.48	0.86	0.09	0.19	1.34	5.5	4.9	4.7	6.1	6.4	18	3.6	25	7.6	4.2	5.8	8	5.2
5.92	6.50	0.78	3.25	0.31	1.30	0.19	0.36	0.11	0.32	1.47	0.27	7.45	1.17	11.47	0.44	0.82	0.09	0.29	1.34	5.5	4.5	4.6	12	5.8	18	6.6	23	6.4	4.2	5.7	8.4	5.1
5.73	7.26	0.78	3.06	0.31	1.30	0.21	0.42	0.10	0.32	1.43	0.29	6.12	1.11	10.51	0.38	0.78	0.09	0.29	1.15	5.6	4.4	4.5	11	5.8	14	7.7	21	5.8	4.2	5.6	8.1	5
5.73	6.88	0.78	2.87	0.23	1.30	0.21	0.48	0.10	0.34	1.43	0.31	8.41	1.05	9.55	0.34	0.86	0.09	0.19	0.96	5.6	4.4	4.5	11	5.7	14	7.4	19	27	4.3	5.8	7.7	4.9
5.92	6.69	0.84	2.87	0.21	1.30	0.23	0.54	0.11	0.34	1.70	0.31	8.03	1.61	9.94	0.38	0.96	0.09	0.15	0.86	5.6	4.4	4.5	17	5.7	14	12	20	15	4.8	6.9	11	5.1
5.92	5.73	0.90	2.87	0.19	1.39	0.23	0.57	0.11	0.31	1.80	0.29	7.07	3.44	9.75	0.44	1.15	0.09	0.19	0.76	5.2	4.4	4.5	8.6	6.3	11	13	19	9.5	4.4	7.4	12	5.1
5.54	6.31	1.03	3.06	0.19	1.01	0.25	0.63	0.11	0.34	1.68	0.31	7.07	2.87	9.36	0.48	1.34	0.19	0.57	0.71	5.2	4.4	4.5	7.8	5.7	10	12	19	10	4.6	26	9.4	4.8
5.73	5.16	1.22	3.63	0.19	0.97	0.23	0.73	0.11	0.36	1.57	0.32	7.07	2.48	8.60	0.50	2.10	1.39	0.48	0.67	5.1	4.3	4.5	6.8	5.7	9.9	11	17	10	5.8	9	8.4	4.7
6.31	5.16	1.30	3.63	0.19	1.15	0.25	0.73	0.11	0.36	1.47	0.32	6.88	2.29	7.64	0.44	2.29	2.29	1.34	0.54	5.1	4.7	4.5	6.7	5.7	9.5	13	15	7.8	7.7	7.4	7.6	4.7
5.73	5.73	1.34	3.44	0.19	1.26	0.25	0.65	0.11	0.36	1.49	0.31	6.50	1.91	8.41	0.40	2.29	1.91	1.91	0.61	5.2	4.9	4.5	7.3	5.7	9.2	11	17	7.5	5.9	7.1	13	4.5
4.78	5.35	1.34	3.25	0.19	1.30	0.25	0.54	0.11	0.36	2.10	0.31	5.92	1.91	8.79	0.38	2.10	2.10	1.34	0.54	5	5.9	4.5	11	5.7	9.3	13	18	6.7	5.7	6.5	8.7	4.4
5.35	5.54	1.30	3.06	0.19	1.36	0.25	0.48	0.11	0.38	2.10	0.32	5.16	1.80	9.55	0.34	2.29	1.09	0.96	0.38	5	9	4.5	8.3	6.2	9.4	17	19	6.5	6.8	7.6	8.2	4.5
5.16	5.54	1.26	2.87	0.19	1.45	0.25	0.48	0.11	0.36	1.91	0.31	4.78	1.62	10.13	0.32	2.68	0.65	0.76	0.38	5	6.1	4.5	7	6	10	9.8	20	6.2	6.6	23	16	4.8
5.35	5.54	1.26	2.87	0.19	1.51	0.27	0.46	0.10	0.36	1.85	0.32	4.20	1.72	10.51	0.31	2.48	1.61	0.96	0.54	4.9	6	4.5	6.5	6	10	9.9	21	6.1	6.4	18	8.4	4.6
4.97	5.54	1.26	2.87	0.21	1.57	0.27	0.46	0.11	0.36	1.82	0.32	3.63	1.78	12.99	0.29	2.48	3.25	0.57	0.38	4.9	6.3	4.5	6.6	6	10	10	26	6	6.2	11	7.3	4.4
4.78	5.35	1.26	3.06	0.21	1.57	0.27	0.44	0.10	0.36	1.62	0.32	3.44	1.68	13.19	0.29	2.68	1.36	0.96	0.34	4.9	6.6	4.5	6.7	6	10	9.7	26	5.9	6.1	8.5	7.2	4.4
5.35	5.54	1.26	3.25	0.23	1.57	0.27	0.42	0.09	0.36	1.59	0.31	3.25	1.91	9.75	0.29	2.68	0.84	0.76	0.23	4.9	7.7	4.5	6.4	6	10	10	19	5.8	6	7.8	7.7	4.4
5.16	5.54	1.26	3.63	0.21	1.57	0.29	0.46	0.10	0.36	1.55	0.31	3.44	1.80	8.98	0.29	2.68	0.80	0.38	0.19	5	9.8	4.5	6	6	10	9.7	18	6	5.8	7.4	7.2	4.5
4.97	6.12	1.26	9.17	0.19	1.34	0.32	0.48	0.10	0.38	1.55	0.31	3.63	1.70	8.03	0.29	2.68	1.76	0.57	0.15	5	9.6	4.5	5.8	6	10	9.3	16	6.1	5.7	7.4	8.6	4.5
4.78	6.31	1.26	8.41	0.19	1.07	0.38	0.48	0.10	0.34	1.45	0.31	4.01	1.72	7.26	0.29	2.68	2.29	0.76	0.23	5.2	6.6	4.5	5.8	6	10	11	14	6	5.5	7.5	8	4.6
4.97	6.31	1.26	5.54	0.21	1.15	0.42	0.50	0.11	0.38	1.45	0.31	4.20	1.91	7.26	0.31	2.68	1.43	1.34	0.29	5	7	4.5	5.6	6	11	11	14	5.9	5.4	7.4	7.6	4.4
5.16	6.31	1.26	5.16	0.21	1.20	0.42	0.50	0.10	0.40	1.45	0.31	4.40	1.76	7.07	0.38	2.68	1.26	1.91	0.34	5	6.6	4.5	5.6	6	11	11	14	17	5.3	7.5	11	4.3
5.16	6.12	1.26	4.78	0.18	1.09	0.40	0.48	0.10	0.40	1.43	0.31	4.59	1.55	6.88	0.42	2.68	1.34	3.82	0.38	5.1	6.7	4.5	5.5	6	11	10	14	16	5.2	7.3	7.4	4.3
4.97	6.12	1.26	4.78	0.18	1.24	0.38	0.50	0.11	0.38	1.39	0.31	4.78	2.68	6.50	0.38	2.68	1.17	4.59	0.57	5.1	6.5	4.5	5.9	6.1	11	20	13	10	4.9	6.9	7.6	4.3
5.16	6.12	1.26	4.59	0.19	1.36	0.34	0.54	0.12	0.40	1.39	0.31	4.78	28.66	6.69	0.50	2.48	1.18	3.82	0.76	5.1	6.7	4.5	6.8	5.8	11	107	13	8.6	4.8	7.1	7.6	4.3
5.54	6.50	1.26	3.82	0.21	1.43	0.32	0.52	0.12	0.40	1.43	0.31	4.97	19.11	6.88	0.44	2.48	1.18	1.91	0.76	5.2	6.4	4.9	6.9	5.7	11	95	14	9.3	4.8	6.7	7.5	4.4
8.98	6.31	1.26	4.20	0.19	1.49	0.31	0.55	0.12	0.40	1.45	0.32	4.97	14.33	6.69	0.40	2.68	1.13	1.15	0.86	5.1	6	5.9	7	6.1	11	79	13	8.8	8.2	6.7	7.4	4.4
9.17	6.31	1.26	3.82	0.19	1.51	0.34	0.54	0.13	0.46	1.62	0.32	4.97	12.42	5.73	0.38	3.82	1.09	1.15	0.96	5.2	5.7	5.3	13	6.1	11	63	11	8	8.5	6.7	9.8	4.8
5.73	6.69	1.26	4.01	0.23	1.57	0.36	0.52	0.14	0.50	1.78	0.34	4.78	10.51	5.92	0.34	5.16	1.07	0.76	1.34	5.1	5.4	4.9	9.9	6.2	11	55	12	7.7	8.8	7	7.3	4.6
4.78	4.97	1.26	3.63	0.32	1.68	0.34	0.54	0.15	0.46	1.76	0.36	4.59	10.13	5.54	0.36	5.92	1.05	0.57	1.72	5.2	5.1	5.2	8.4	5.9	11	51	11	7.4		8.3	7.6	4.7
4.78	6.69	1.26	3.44	0.34	1.91	0.32	0.59	0.16	0.42	1.70	0.36	4.59	9.17	5.35	0.34	6.12	0.99	0.48	1.82	5.5	4.8	6	8.3	6.4	11	47	11	7.5	8.8	7.5	7.3	4.7
4.97	6.31	1.26	3.82	0.29	1.91	0.32	0.63	0.17	0.42	1.70	0.38	4.59	8.98	5.16	0.34	6.12	0.90	0.38	1.91	5.6	4.6	6.7	7.7	6	11	46	10	7.5	8.7	7.6	9.3	4.8
5.73	6.12	1.26	6.88	0.27	2.29	0.32	0.63	0.19	0.46	1.70	0.38	4.40	7.83	5.16	0.34	6.12	1.34	0.57	2.10	5.5	3.6	6	7	6	10	45	10	7.4	8.5	11	10	4.9
5.16	6.12	1.26	19.49	0.23	2.29	0.36	0.61	0.21	0.48	1.70	0.40	4.59	8.03	5.16	0.32	6.31	5.35	0.38	1.91	5.4	1.6	5	7.2	6	10	47	10	7.6	8.3	40	10	5.1
4.97	6.12	1.26	34.01	0.19	2.29	0.40	0.59	0.25	0.46	1.70	0.42	4.20	8.22	5.35	0.34	6.12	5.92	0.57	2.10	5.2	2.1	5.4	7.3	6.1	11	48	11	7.5	8.2	21	15	5.2
4.78	6.12	1.26	15.29	0.19	2.48	0.40	0.59	0.27	0.54	1.70	0.42	4.01	8.98	5.16	0.32	6.12	4.40	0.96	2.10	5.3	2.3	8.8	7.2	6.2	9.7	51	10	7.4	8	14	8.1	5.2
4.59	6.69	1.26	9.17	0.19	2.48	0.40	0.59	0.25	0.55	1.70	0.96	4.01	10.13	5.35	0.36	5.54	3.82	0.96	2.29	5.4	2.4	5.6	6.5	6.1	9.6	57	11	7.2	7.8	12	7.6	5.6
4.59	6.31	1.26	34.59	0.19	2.29	0.42	0.59	0.21	0.61	1.72	0.54	4.01	8.60	5.35	0.34	4.97	4.01	0.76	2.10	5.4	2	4.9	10	6.1	9.9	50	11	6.9	7.7	11	7.6	5.1
4.78	6.12	1.32	90.20	0.17	2.29	0.46	0.59	0.21	0.86	1.89	0.65	4.20	9.17	4.97	0.32	4.59	3.63	0.48	2.10	8.5	1.8	5.2	18	6.1	11	85	9.9	6.7	7.5	10	8.2	5.1
4.59	6.12	1.41	50.45	0.17	2.29	0.48	0.59	0.23	1.36	2.10	0.55	4.59	10.89	5.16	0.34	4.40	3.44	0.38	2.10	7.2	1.9	6.5	10	6.1	12	90	10	6.8	7.3	12	9.3	5.6
4.59	5.73	1.45	30.38	0.16	2.68	0.48	0.59	0.25	1.91	1.91	0.55	5.16	10.32	5.16	0.36	4.40	3.06	0.57	2.68	6.3	2.1	6.4	8.7	6.1	12	72	10	6.7	7.2	12	9.1	5.8
4.59	5.73	1.47	23.70	0.18	2.68	0.54	0.59	0.25	2.29	1.85	0.57	5.54	7.64	4.97	0.34	4.20	2.68	0.38	3.06	5.5	2.1	6.8	8.5	6.1	13	55	9.9	7	7	10	9.3	6.1
4.59	5.54	1.49	18.35	0.14	3.06	0.57	0.61	0.27	2.29	1.87	0.59	5.92	8.41	4.97	0.34	4.20	2.68	0.29	3.63	5.3	2.2	6.9	7.9	6.1	14	53	9.9	9	7	10	9.2	6.2
4.78	5.35	1.51	17.20	0.12	2.87	0.80	0.61	0.27	2.10	2.10	0.61	6.50	7.64	5.16	0.32	4.20	2.29	0.19	3.44	5.2	2.2	6.6	7.4	6.1	15	52	10	8.5	7.2	9.7	8.5	6
4.59	5.35	1.64	19.11	0.13	3.06	1.11	0.63	0.29	1.87	1.91	0.67	6.88	6.69	4.97	0.34	4.01	2.10	0.38	3.63	5.3	2.3	6.6	7.3	6.7	15	48	9.9	7.7	7.3	9.3	8.3	6.1
4.59	5.54	1.85	21.21	0.15	3.25	1.39	0.69	0.29	1.85	1.83	0.71	7.45	7.07	4.59	0.32	4.01	2.10	0.38	4.20	5.8	2.4	7.2	8	6.9	15	43	9.1	7.4	7.5	9.6	8.4	6.3
4.59	5.54	2.10	22.55	0.21	3.82	1.74	0.73	0.27	1.91	1.85	0.63	7.45	7.07	4.20	0.31	3.82	2.48	0.57	4.59	6.4	2.7	7.4	7.7	6.4	15	42	8.4	7.2	7.6	10	7.9	6.5
4.40	5.54	2.48	23.50	0.27	4.20	2.10	0.96	0.27	2.10	1.74	0.67	7.45	6.31	4.40	0.29	3.63	2.29	0.38	4.97	6.5	3.7	7.1	6.9	6.4	16	43	8.7	7.3	7.7	9.8	7.9	6.7
999999	5.54	999999	999999	999999	4.20	999999	999999	999999	2.10	999999	999999	7.45	5.54	999999	999999	999999	2.29	999999	999999	999999	999999	7	999999	999999	999999	39	999999	999999	999999	9.4	999999	999999
4.78	5.54	2.87	23.89	0.31	3.82	1.72	1.15	0.36	1.82	1.91	0.86	7.45	5.35	4.59	0.31	3.82	2.48	0.38	4.97	6.6	3.4	6.9	7.2	6.3	16	38	9.1	8	7.8	9.6	9.4	6.4
4.78	5.92	3.06	23.70	0.34	3.82	1.39	1.53	0.54	1.72	1.91	1.13	7.07	5.35	4.40	0.31	4.01	2.48	0.38	4.20	6.3	2.6	7.1	7.5	6.8	16	38	8.7	8.3	8.1	9.4	7.7	6.1
4.97	6.12	3.25	22.36	0.48	4.01	1.28	2.48	0.50	1.53	1.91	1.47	6.88	6.31	4.59	0.32	4.59	2.29	0.57	4.20	7.2	6	7.5	7.3	7.1	23	41	9.1	8.5	8.4	10	7.9	6.4
4.40	6.31	3.25	24.08	0.76	4.20	1.39	3.63	7.64	1.57	2.10	1.41	6.50	5.92	4.78	0.31	3.82	2.48	0.38	4.20	6.8	27	7.3	7.3	7.1	18	45	9.5	8.2	8.8	9.6	8.5	6
4.40	6.50	3.06	25.03	2.29	4.40	1.41	3.25	18.15	1.61	2.10	1.39	6.50	5.92	4.78	0.31	3.63	2.29	0.38	4.20	6.2	15	7.1	7.9	7.9	20	43	9.5	8.1	8.7	9.8	8.9	6
4.59	6.88	3.06	25.22	2.48	4.59	1.83	3.06	16.24	1.66	2.29	1.39	6.50	6.31	5.16	0.34	4.40	2.29	0.57	4.40	6	9	7	8.9	7.9	19	45	10	7.8	8.7	9.1	9	6.1
4.78	7.45	3.44	23.70	2.29	4.59	2.87	2.87	15.29	1.62	2.48	1.47	6.88	6.12	5.54	0.38	3.25	2.29	0.76	4.20	6	7	6.3	10	7.8	17	41	11	7.5	8.7	9.4	8.4	5.3
4.97	8.03	3.63	98.99	2.48	5.16	5.73	2.48	9.36	1.59	2.68	1.55	6.50	5.92	6.31	0.42	3.25	2.48	0.76	3.63	6.2	7.1	6	11	8	17	12	13	7.6	8.6	9.4	8.5	4.6
5.54	8.60	3.63	54.65	2.10	5.54	15.48	2.29	5.35	1.57	2.87	1.61	12.04	6.69	7.07	0.46	3.63	2.29	0.48	3.63	6.5	6.6	5.8	11	8.3	55	13	14	7.7	8.6	9.3	8.6	4.6
6.12	9.55	3.44	32.29	2.10	5.35	8.79	2.48	3.44	1.59	2.87	1.91	27.33	7.26	8.03	0.50	3.63	2.10	0.50	3.82	6.7	6.3	6.5	12	8.4	151	14	16	8	8.5	9.4	8.2	4.5
6.69	9.94	3.06	23.50	1.74	4.97	9.17	2.48	3.44	1.78	2.87	2.29	28.09	7.07	10.13	0.57	3.44	2.10	0.57	3.82	6.6	6.3	7.9	13	8.2	69	15	16	8.5	8.5	9.9	7.8	4.4
6.88	8.79	2.87	21.02	1.62	4.20	9.36	2.10	2.29	1.91	3.25	2.10	23.31	6.88	12.23	0.76	3.25	2.29	0.61	4.59	6.7	6.2	8.5	14	7.9	45	14	19	9.5	8.5	10	7.9	5.1
10.51	9.94	2.68	19.30	1.68	3.44	8.98	1.91	2.10	2.10	3.63	2.29	21.02	6.31	13.38	0.96	3.63	2.68	0.63	4.97	6.6	6.1	9.2	17	8.1	40	13	19	10	7.8	11	8	4.6
12.80	9.36	2.68	17.01	1.64	3.82	7.45	1.89	2.48	2.48	4.01	2.68	27.52	5.92	13.76	1.15	4.01	3.06	0.67	4.20	6.2	6.1	9.3	17	8.6	41	13	19	10	7.9	12	8.3	4
9.94	8.98	2.48	15.67	1.61	4.01	6.69	1.91	2.29	2.48	4.40	3.25	23.12	5.92	14.91	1.34	3.82	3.44	0.82	4.01	6.2	6.1	8.9	16	8.7	38	13	20	11	7.9	13	8.4	4.1
9.17	9.75	2.48	14.91	1.57	3.82	6.12	2.29	2.10	2.48	5.54	3.82	21.59	6.88	15.67	1.53	3.25	3.82	0.97	3.63	6.4	6.1	8.4	24	8.7	37	14	21	12	7.8	14	8.4	3.8
8.41	8.98	2.68	13.95	1.57	4.01	5.35	2.48	1.85	2.29	6.50	4.01	18.54	8.60	16.05	2.10	3.44	4.20	1.34	3.44	7.1	6.1	8.1	28	8.4	34	16	20	12	7.8	14	8.8	3.9
7.64	9.55	3.06	13.19	1.74	4.59	4.59	3.63	2.10	2.29	11.47	4.40	16.82	11.66	17.58	2.29	3.63	4.97	1.91	3.44	8.1	6.1	7.9	22	8.6	33	18	21	13	8.3	15	9.8	3.9
7.26	11.08	2.87	13.38	1.62	5.35	4.59	4.01	2.10	2.10	11.08	4.78	20.45	14.33	19.11	3.06	5.35	6.31	3.25	3.25	8.2	6.3	7.9	22	8.8	35	21	22	14	8.8	17	11	3.8
7.07	13.76	3.06	14.91	1.59	6.50	6.12	4.40	1.91	2.10	11.66	4.40	23.31	16.05	21.02	3.82	4.78	6.88	4.20	4.20	9.5	6.1	8	23	8.4	55	22	22	16	8.9	16	12	3.9
6.88	15.10	3.44	17.39	1.57	6.88	8.03	5.54	1.87	2.29	13.95	5.35	25.22	18.35	20.26	4.59	4.01	6.31	4.59	4.59	10	6	8.4	25	8.5	57	22	22	17	9	15	12	4.1
6.69	15.86	5.54	19.87	1.62	7.07	10.13	6.31	1.82	2.29	14.33	5.54	20.26	18.35	20.06	5.73	4.78	6.69	4.78	5.16	10	6	8.8	26	8.5	41	23	23	18	9	16	13	4.3
6.69	16.63	4.01	20.45	1.57	8.60	11.08	8.22	1.91	2.48	16.63	7.83	16.24	14.33	25.61	6.31	4.97	6.88	14.14	4.97	10	6.1	9	30	8.1	37	20	24	25	9	17	13	4.5
6.50	17.58	4.78	19.30	1.57	10.13	10.89	10.89	2.29	2.48	18.35	3.82	14.71	12.42	29.24	7.83	4.78	7.07	19.30	4.59	11	6.2	8.7	116	8	32	18	25	36	9.1	14	14	4.2
6.12	18.54	4.78	20.64	1.57	12.80	9.75	12.80	4.20	2.68	16.43	3.25	13.19	12.23	32.10	7.64	5.35	7.26	13.38	4.20	11	6.2	10	120	8.5	30	17	25	40	9.6	12	14	4.2
5.92	19.68	4.01	24.46	1.57	14.91	7.83	14.33	5.54	3.06	14.71	3.06	12.23	11.85	33.63	7.83	6.12	8.41	11.27	4.01	11	6.4	11	97	7.9	28	17	26	27	9.6	13	14	4.3
5.73	20.06	4.40	28.28	1.62	14.71	6.69	14.52	3.44	3.25	10.51	6.50	11.66	12.80	33.25	7.64	7.45	9.75	11.27	4.20	11	6.5	10	74	8.1	27	17	31	23	10	13	15	5.1
5.54	20.83	5.35	30.58	1.68	13.19	9.17	11.85	2.29	3.63	9.55	4.20	11.47	13.38	32.49	6.88	8.41	10.13	13.76	5.16	10	6.5	11	68	8.4	27	19	31	21	9.6	13	16	5.9
5.54	19.49	5.16	31.91	1.85	12.61	11.47	9.75	2.29	4.59	8.98	5.16	11.08	12.04	32.49	6.88	8.60	10.70	20.06	7.83	9.6	6.5	12	64	8.7	40	17	31	18	9.3	13	16	6.7
6.50	15.48	4.40	35.16	2.29	12.04	12.61	9.17	2.68	5.16	9.36	6.50	10.70	12.42	31.72	6.50	8.60	11.47	19.87	12.61	9.9	6.7	13	68	9.1	80	17	30	17	9.7	13	17	7.6
8.22	13.38	4.59	38.60	2.68	10.89	15.67	11.08	3.06	5.54	10.32	8.41	11.27	13.95	28.86	5.92	8.03	11.85	22.55	15.10	11	7	12	75	9.5	83	17	27	16	9.8	13	19	8.2
8.79	14.14	5.35	38.41	2.87	10.89	17.58	12.61	3.25	7.07	11.85	9.55	12.04	18.15	23.50	6.12	7.45	12.04	24.08	17.20	12	7.2	13	86	9.7	88	25	22	15	8.9	14	19	8.6
9.94	12.61	6.50	34.21	3.63	11.66	17.96	12.99	3.25	8.60	12.23	10.51	12.04	21.21	20.64	5.73	5.73	14.14	21.21	19.68	12	7.2	17	86	10	89	28	19	14	8.9	15	16	9.4
9.94	13.38	8.03	29.62	4.20	12.42	20.45	13.57	3.25	11.85	14.33	10.32	12.80	16.63	19.11	5.16	5.73	18.15	16.43	22.17	13	8.4	23	93	9.7	93	24	18	14	8.6	17	14	11
8.41	14.52	9.94	28.47	3.63	15.10	23.70	13.95	4.78	14.52	16.63	8.79	15.86	16.05	19.11	4.97	4.97	22.93	12.99	24.08	13	11	23	115	9.6	110	23	18	14	8.8	19	13	11
7.64	14.71	12.80	26.37	3.63	17.20	27.14	13.19	6.50	14.52	16.24	8.98	20.06	18.92	19.30	4.97	5.73	26.18	10.70	23.70	12	13	23	115	9.6	98	23	18	13	9	41	12	11
6.88	14.71	17.01	25.03	3.82	18.15	29.81	14.71	8.03	14.33	13.76	8.60	21.59	23.70	18.73	4.97	5.35	26.75	8.98	22.17	12	13	46	93	9.7	39	25	18	13	8.6	147	12	11
6.50	16.63	19.87	23.12	4.97	18.35	33.06	15.10	8.98	15.86	12.04	7.26	21.98	27.90	19.68	4.97	5.16	28.09	7.83	23.12	13	12	117	65	9.4	33	26	19	13	8.6	157	13	10
6.69	16.82	22.74	21.78	7.26	17.39	36.31	13.76	8.79	17.20	13.76	7.26	21.40	32.87	20.64	4.78	4.97	30.58	8.03	26.75	12	12	125	36	9.5	32	26	19	13	8.7	174	11	11
7.45	15.10	24.65	23.31	10.70	17.39	38.41	14.91	9.36	18.73	17.58	6.12	20.26	35.16	18.73	4.59	6.69	30.38	8.22	27.14	11	14	130	39	9.1	31	24	20	14	8.2	180	12	11
7.64	27.52	26.37	27.33	13.95	18.73	36.12	18.92	10.13	19.68	19.30	5.73	19.11	32.87	17.01	4.59	5.35	30.96	7.26	29.43	9.8	14	143	39	8.9	30	24	20	15	8	172	11	12
7.07	25.99	27.71	32.29	16.24	18.54	33.63	21.21	8.22	20.64	20.83	5.92	22.36	29.81	16.82	4.78	4.97	30.38	6.69	32.29	11	11	148	39	9	32	22	19	15	8.9	184	11	13
6.50	27.14	29.43	34.21	16.63	17.20	34.40	23.70	6.69	19.49	20.06	7.83	25.99	28.28	17.96	4.97	4.97	32.68	6.12	35.35	11	11	140	39	9.4	36	21	17	14	8	190	10	14
6.31	30.19	33.06	27.71	17.77	15.86	33.06	26.75	6.69	30.19	18.15	11.08	27.14	25.99	20.64	4.78	5.92	53.32	6.12	37.84	12	11	209	38	9.7	37	19	19	13	8.2	140	10	15
5.92	34.01	38.22	28.28	19.87	17.20	31.34	28.66	8.60	24.65	19.49	14.52	23.12	29.62	24.65	4.78	9.36	33.06	6.12	39.56	12	13	121	38	10	33	19	23	13	8.5	22	11	16
6.12	37.07	35.35	29.24	20.83	14.14	30.58	29.43	9.94	21.21	22.74	17.77	20.06	34.59	28.86	4.78	12.99	25.03	6.69	36.88	13	14	19	39	12	32	21	27	12	8.8	18	12	16
6.88	36.31	30.38	27.14	22.55	12.80	28.28	25.22	9.36	23.31	23.89	19.68	17.39	35.93	33.63	4.78	16.24	23.12	8.60	27.90	12	13	19	39	12	30	32	32	12	9.2	17	14	13
8.41	33.63	24.65	23.70	23.89	14.33	28.47	16.82	8.79	25.80	21.78	21.59	15.29	29.43	37.07	4.59	17.77	20.06	11.08	24.84	10	13	20	38	12	29	34	35	12	9.7	18	15	13
7.83	26.75	20.06	23.50	21.02	14.33	28.09	14.91	8.79	27.52	19.87	24.08	14.52	25.03	39.37	5.16	20.26	18.15	12.42	21.02	10	13	21	34	13	28	37	37	14	10	17	16	11
7.64	22.93	20.83	28.66	17.01	12.61	25.61	17.39	9.17	28.86	22.17	26.56	13.38	21.59	50.26	7.45	24.08	17.20	12.42	19.30	10	14	21	34	12	27	28	47	17	10	17	18	10
8.98	21.21	18.54	40.70	18.92	10.70	24.08	20.64	8.03	31.53	27.14	26.75	12.99	19.87	50.83	11.08	26.94	20.06	10.32	17.96	11	13	21	34	8.1	26	25	48	22	10	21	15	9.9
8.41	21.02	14.71	58.28	22.74	12.04	22.74	20.83	7.64	30.00	32.49	24.46	12.61	18.73	54.08	16.05	28.09	22.74	9.17	17.96	10	13	22	39	7.7	26	23	51	27	9.9	21	15	9.7
8.60	24.27	16.43	67.65	24.27	10.13	19.30	20.06	7.83	25.61	34.59	21.21	12.61	20.83	49.49	22.17	24.27	24.27	8.79	20.26	9.8	12	21	39	7.2	26	22	47	33	9.8	20	15	9.9
10.89	30.58	22.93	61.15	23.70	9.17	15.48	25.42	8.60	24.84	32.87	17.39	14.71	28.09	47.20	26.94	19.68	27.52	10.51	25.03	14	13	21	38	7	28	24	45	34	10	19	16	11
9.75	34.01	26.18	56.75	23.89	10.32	14.14	21.78	11.08	28.28	29.24	13.57	20.26	37.26	41.09	21.98	18.92	31.91	15.67	28.47	12	14	22	38	6.5	31	26	39	29	9.7	19	18	11
8.79	28.66	23.50	57.90	24.84	14.52	12.80	21.59	9.94	33.06	37.45	11.66	26.94	48.54	42.04	19.49	21.02	38.60	23.12	30.38	12	13	23	36	6.3	35	27	40	28	9.7	20	23	12
8.79	22.36	20.83	57.14	24.84	17.77	11.66	26.56	8.98	34.21	47.39	10.70	33.44	61.15	49.11	21.59	27.71	48.16	31.15	30.00	11	12	22	40	6.7	39	30	46	30	9.4	23	26	12
8.41	18.92	22.36	65.35	23.70	19.30	11.66	30.19	11.66	35.16	52.17	9.55	36.31	65.74	52.93	27.52	31.91	54.84	37.07	25.42	11	13	22	44	6	40	31	50	35	9.1	24	28	11
9.17	18.54	26.18	69.37	23.12	20.26	12.80	29.05	15.86	35.35	57.52	9.55	36.12	68.41	48.73	33.06	25.03	49.68	36.31	23.31	11	15	21	45	6.3	42	31	46	38	9.1	22	27	11
9.75	18.15	26.94	76.44	24.08	20.45	12.80	25.03	21.98	37.65	65.74	10.70	56.37	70.51	47.01	37.07	19.30	44.72	35.73	22.17	9.7	18	22	46	6.6	62	32	44	43	9.6	20	27	10
9.55	19.68	31.91	72.62	24.08	19.49	12.99	19.49	27.71	38.22	76.06	11.85	150.39	74.72	47.77	42.81	19.30	52.36	43.76	19.68	8.5	21	22	47	7	122	33	45	51	9.8	21	30	9.7
8.98	20.26	37.45	69.94	18.15	15.29	13.19	16.82	25.03	30.38	80.83	14.14	138.54	77.39	46.24	46.44	23.70	56.37	52.17	18.15	7.7	21	21	48	7.3	107	32	44	52	10	21	30	9
8.79	25.80	35.93	73.19	14.71	14.14	13.95	16.82	14.91	27.71	78.54	17.01	92.30	74.14	43.57	45.10	23.89	60.58	49.49	19.11	7.2	17	19	49	7.9	87	31	41	53	11	22	27	8.8
10.89	29.81	35.16	66.31	15.86	15.29	15.67	18.35	11.85	26.94	71.66	19.11	72.81	65.93	44.91	44.72	19.49	64.21	39.17	23.31	6.8	15	18	47	8.3	73	29	42	57	9.5	23	22	9.3
13.95	30.58	33.25	50.07	17.39	15.10	17.96	19.68	14.52	26.56	66.69	21.78	66.88	60.77	46.63	40.13	18.92	62.68	37.84	27.71	6.6	16	18	46	8.7	74	27	44	68	10	22	20	10
12.04	29.62	32.68	41.09	17.39	13.57	17.58	20.83	25.03	27.14	63.83	23.70	50.83	58.47	47.20	35.54	29.62	61.91	44.14	31.34	6.4	19	16	47	9.5	65	26	45	61	9.1	22	22	11
10.89	29.24	32.10	34.59	15.86	12.42	16.24	20.64	35.35	27.52	62.30	21.21	40.13	59.62	45.48	28.47	42.61	54.08	52.55	33.44	6.1	23	11	48	9.9	55	25	43	53	9	19	25	11
11.85	31.72	29.05	30.19	14.52	11.27	15.29	18.54	43.38	27.90	60.77	17.77	34.21	57.71	48.54	26.37	48.16	74.14	61.53	32.87	5.6	25	10	49	9.9	49	24	46	56	9	23	27	11
14.91	34.78	26.37	31.15	14.33	11.27	14.71	16.05	44.14	28.28	73.00	17.58	31.53	55.42	49.11	25.80	46.44	89.62	63.63	31.72	5	27	9.8	50	9.8	47	22	46	62	9	28	31	11
18.92	35.16	24.46	36.12	13.38	12.42	21.59	14.71	32.87	26.56	84.65	20.45	36.31	53.70	48.35	30.58	41.66	65.16	63.06	30.38	4.6	25	9.2	52	9.7	47	23	46	55	9.3	22	31	11
19.30	35.16	20.45	42.04	12.42	15.10	26.75	13.57	22.93	23.89	98.41	23.89	48.35	55.42	46.24	30.58	39.75	53.51	61.15	28.28	4.8	21	8.1	54	10	49	22	44	45	10	22	28	10
15.29	38.41	18.15	47.96	12.23	19.68	19.30	11.85	18.54	21.78	101.85	27.33	58.47	60.58	45.29	28.28	46.44	39.37	62.30	26.37	5.6	18	7.2	56	10	51	21	43	41	11	17	27	9.5
17.20	38.79	19.87	55.80	11.85	22.17	15.29	11.27	20.06	21.02	96.12	29.24	56.18	63.06	43.76	25.03	53.70	33.06	52.17	26.37	5.4	18	6.9	55	10	51	20	41	39	12	16	26	9.1
20.26	39.56	21.98	63.06	10.70	23.50	13.19	10.70	24.46	18.73	85.23	26.37	43.76	60.58	43.19	20.64	48.54	33.44	44.52	27.90	4.9	20	6.4	51	9.7	49	19	41	35	12	16	26	9.1
22.17	33.44	23.70	64.21	10.32	22.17	12.80	10.32	26.18	16.05	84.08	25.42	35.35	55.61	40.89	17.77	38.79	32.10	43.57	29.81	4.7	20	6	50	9.3	47	58	39	34	11	15	26	9
26.94	25.99	23.31	65.35	19.87	21.21	16.63	9.55	35.54	14.33	89.81	23.12	31.15	83.70	38.41	16.82	33.82	28.66	47.39	30.00	4.6	22	5.6	51	8.6	47	104	36	33	12	15	25	8.9
31.72	21.78	22.36	68.22	22.36	19.11	16.24	8.98	44.33	12.99	107.59	18.54	29.05	315.30	36.12	19.30	33.44	28.09	51.79	29.43	4.7	25	5.1	53	8	45	1750	34	34	12	16	24	8.5
36.50	21.98	21.40	69.37	12.61	15.48	13.38	8.41	36.31	11.85	111.60	14.14	30.77	81.21	33.44	17.01	38.41	29.24	48.16	29.81	5.6	22	4.6	54	7.7	45	862	32	31	12	16	24	8.2
43.00	22.17	21.21	77.78	9.94	13.76	12.42	7.83	24.27	10.70	119.24	13.19	42.42	77.97	31.91	18.35	38.79	33.44	41.09	28.86	5.5	20	5	55	7.6	51	31	30	32	12	16	19	7.8
54.08	25.03	20.45	78.92	8.41	13.57	11.08	7.26	21.59	9.94	116.57	11.66	65.93	60.58	31.72	25.99	37.07	39.56	36.50	26.56	5.1	18	6.4	55	7	62	29	30	34	11	16	20	7.3
68.41	25.80	18.73	71.47	7.64	13.19	10.13	6.69	24.46	9.36	103.00	10.70	82.74	50.07	28.28	33.06	38.60	44.52	35.16	24.65	4.9	19	6.1	53	6.6	69	26	27	36	8.4	15	20	8.4
80.64	25.22	16.43	63.25	7.83	12.23	9.36	6.50	26.37	8.22	92.49	10.89	85.23	44.33	24.65	31.34	36.88	46.82	34.21	22.74	5	20	5.5	49	6.3	69	23	23	33	8.6	15	19	8.9
99.18	24.08	16.43	52.36	7.45	11.27	8.60	6.31	34.01	7.45	90.96	11.27	76.06	38.98	21.98	32.10	37.65	47.96	31.91	22.74	4.7	22	5	49	6	67	21	21	33	9.3	14	17	8.7
110.26	22.74	16.24	46.24	7.83	9.94	8.03	7.07	44.52	6.69	96.88	11.66	69.56	35.73	20.26	37.65	36.88	45.10	28.66	25.42	5.7	24	4.7	50	5.8	66	20	19	34	10	13	16	9
118.29	21.40	15.48	51.02	7.45	9.17	7.45	10.32	51.79	6.31	96.50	12.23	65.16	29.62	18.35	48.92	38.98	40.32	25.22	27.52	6.1	26	4.4	50	6.4	64	17	17	38	10	13	18	8.9
130.13	18.92	14.14	60.00	6.88	8.41	6.88	9.17	50.26	5.73	102.43	11.66	51.02	28.28	17.01	53.51	39.17	36.12	22.17	27.14	5.3	26	4.3	53	6.1	58	16	16	42	10	12	15	8.6
138.54	18.15	12.42	64.21	6.31	7.64	6.50	7.64	42.81	5.54	82.55	11.66	64.21	29.05	16.05	43.57	38.60	32.49	18.73	25.22	4.8	24	4.9	47	5.9	60	15	15	43	9.9	12	14	7.9
147.72	17.58	11.08	65.55	5.92	6.69	6.12	9.75	35.93	5.16	71.47	10.89	80.26	29.81	16.24	35.54	34.40	33.63	15.67	23.12	6.1	22	6.8	44	5.7	65	14	15	39	10	11	14	7.1
156.12	15.10	9.94	69.37	5.73	6.31	5.73	17.39	34.78	4.78	63.06	9.75	87.71	27.71	17.20	39.75	31.53	30.19	13.38	21.98	10	20	6.7	40	5.2	68	14	16	41	10	11	13	6.6
159.95	13.76	9.36	65.16	5.35	12.61	5.54	13.19	33.63	4.59	63.83	8.79	102.24	27.14	16.63	42.81	26.56	26.18	11.85	21.78	7.8	19	6.6	39	4.9	73	13	16	45	11	10	12	6.1
153.07	12.42	8.03	60.96	4.78	8.98	5.35	11.27	30.58	4.20	69.56	8.79	109.31	25.61	16.24	49.49	22.74	23.12	10.51	21.40	6.6	18	6.5	39	5	78	12	15	44	11	9.5	12	5.7
143.70	10.89	7.45	55.04	4.59	8.22	4.97	9.36	27.33	3.82	109.50	24.46	121.34	25.22	15.29	65.93	21.59	20.83	9.75	20.26	6	18	6.3	53	7.4	82	12	14	50	9.8	9.4	11	5.4
110.83	9.55	6.88	57.90	4.20	7.64	4.59	8.03	31.15	3.44	74.91	12.04	117.33	26.94	13.19	76.63	20.64	19.30	8.60	19.87	5.7	17	6.1	43	5.5	78	11	12	56	10	9.1	11	5.4
97.65	8.03	7.26	53.12	3.82	6.31	4.59	6.69	34.40	3.25	61.15	9.17	113.32	27.71	11.47	83.13	19.68	17.58	7.64	17.01	5.3	17	5.9	38	5	76	11	11	59	11	8.7	7.1	5
100.52	7.26	7.26	49.49	3.63	5.73	4.78	6.12	36.88	2.87	53.51	7.64	124.21	27.71	10.70	86.37	18.92	16.43	6.50	15.10	5	17	6	37	4.7	78	9.9	10	80	12	8.5	8.6	6.5
105.48	9.17	6.50	41.85	3.25	5.35	4.20	5.35	35.16	2.68	51.02	6.50	144.08	25.61	11.27	63.83	18.92	15.86	5.92	14.33	4.7	16	5.9	34	4.5	81	9.3	11	61	12	8.3	8.6	11
125.36	10.13	6.50	35.73	2.87	5.16	4.01	5.35	30.58	2.48	54.08	5.73	128.42	22.74	11.85	74.53	23.89	14.71	5.54	13.76	4.4	16	6.2	44	4.3	77	8.8	9.2	58	13	8.1	8.6	9.4
141.41	7.64	6.12	31.91	4.40	5.16	3.82	4.97	27.14	2.48	36.69	5.35	94.59	21.21	9.94	94.97	22.93	13.19	4.97	12.80	4.3	15	5.8	35	6.2	64	8.5	8.5	71	13	7.9	8.6	8.4
137.59	6.88	5.73	29.43	5.16	5.16	3.82	4.59	25.42	2.48	37.07	4.97	67.84	18.92	8.41	102.43	18.92	12.04	4.40	11.66	4.3	14	6	33	7.1	54	8	8.1	82	11	7.8	7.4	8.4
131.47	6.12	5.35	26.75	4.59	4.59	3.82	4.40	24.08	2.29	42.81	4.40	54.46	17.01	8.03	93.64	16.43	15.67	4.01	10.32	5.2	14	5.4	33	5.3	47	7.4	7.9	63	10	11	6.1	8.2
144.85	5.73	4.78	26.56	3.63	4.20	3.44	4.20	23.31	2.10	47.58	4.01	63.63	14.52	7.07	94.97	15.29	15.67	3.82	8.79	6	13	5.7	33	5.9	46	7	7.8	61	10	9	7.7	8.1
154.40	5.35	4.40	26.37	2.87	4.01	3.25	4.01	22.55	1.91	56.37	3.63	91.73	12.04	6.31	85.80	14.14	13.19	3.44	7.07	5.9	13	5.6	33	5.7	51	6.6	7.6	66	9.6	8.2	12	7.9
154.59	5.16	3.82	25.22	2.68	3.82	2.87	3.63	20.83	1.82	58.28	3.25	117.90	10.51	5.73	124.02	13.76	10.70	3.25	6.31	6.1	11	5.2	30	5.6	56	6.4	7.6	99	9.4	7.7	10	7.1
129.18	4.78	3.44	24.08	2.29	3.63	2.68	3.25	17.96	1.85	55.99	2.87	128.99	9.55	5.35	91.15	12.99	9.55	3.06	5.54	5.5	11	5.2	31	5.4	58	6.1	7.6	82	9.2	7.4	10	7
128.22	4.59	3.25	23.50	2.10	3.44	2.48	3.25	15.29	1.85	57.14	2.68	128.99	9.17	5.35	105.67	12.23	9.17	2.87	5.16	5.3	11	5.3	30	5.3	60	6.2	7.8	79	9	7	9.5	6.6
138.93	4.59	3.06	22.74	2.10	3.06	2.29	3.06	12.61	1.91	56.75	2.48	108.54	8.60	6.50	124.78	11.47	8.41	2.68	4.78	5.4	11	5.4	29	5.4	56	7	8.1	81	8.6	6.6	7.9	6.5
143.70	4.59	2.68	20.64	1.91	2.87	2.10	3.06	10.89	1.91	55.42	2.48	86.76	7.64	6.12	148.29	10.70	7.64	2.48	4.40	5.7	10	5.5	27	5.3	56	7.1	7.7	88	8.4	6.4	6.5	6.2
155.93	4.40	2.48	19.30	1.80	2.68	2.10	2.87	9.75	1.91	48.92	2.29	62.68	6.88	4.78	134.91	9.75	7.07	2.29	4.01	6.1	10	5.3	26	5.2	49	6.7	7.3	84	8.3	6.4	6.7	6.2
161.86	3.82	2.29	17.96	1.74	2.68	1.89	2.68	8.60	1.80	44.14	2.10	52.17	6.31	4.40	118.86	8.79	6.12	2.10	3.63	5.8	9.7	5.2	25	5.1	44	6.8	7	72	8.1	6.2	5.7	6.1
152.30	3.44	2.10	16.82	1.62	2.48	1.70	2.48	7.64	1.53	43.76	1.91	59.43	5.73	3.82	122.87	7.83	5.35	1.87	3.44	6.1	9.5	4.9	24	5	43	7	6.7	72	8.2	5.9	5.3	6.1
130.90	3.25	1.91	14.91	1.57	2.48	1.59	2.29	6.88	1.53	43.76	1.83	74.14	5.16	3.44	124.02	7.07	4.78	1.76	3.25	6.1	9.6	5.8	22	4.9	44	6.9	6.6	70	7.9	5.9	7.1	6
122.68	3.06	1.85	12.99	1.45	3.63	1.49	2.10	6.12	1.45	38.98	1.72	77.78	4.97	3.25	125.36	6.31	4.40	1.62	3.06	6	8.6	4.8	22	4.8	42	6.8	6.4	68	8	5.5	7.4	5.9
120.58	2.87	1.72	12.23	1.45	3.06	1.45	1.89	5.73	1.41	33.06	1.66	81.21	4.59	2.87	124.59	5.73	4.01	1.45	2.87	5.8	8.2	4.6	21	4.8	42	6.5	6.6	65	7.8	5.4	6.1	5.7
123.45	2.87	1.59	11.47	1.39	2.29	1.39	1.70	5.16	1.30	30.00	1.55	91.73	4.40	2.68	111.60	5.35	3.82	1.32	2.68	5.6	7.4	5	19	4.7	43	6.5	6.5	60	7.7	5.8	5.1	5.6
123.64	2.68	1.51	10.70	1.30	2.10	1.32	1.59	4.97	1.32	29.62	1.47	103.00	4.01	2.48	101.66	4.78	3.44	1.18	2.48	4.7	7.2	5.1	18	4.7	44	6.8	6.3	56	7.4	8.2	5.9	5.9
114.66	2.48	1.47	9.75	1.22	1.91	1.26	1.55	4.78	1.59	30.58	1.39	112.55	3.82	2.29	102.81	4.59	3.06	1.13	2.10	5.1	7.2	5.2	17	4.7	45	6.5	6.2	56	7	8.4	7	5.8
108.92	2.29	1.47	8.60	1.13	2.10	1.22	1.45	4.59	1.47	29.24	1.32	109.31	4.78	2.10	97.84	4.20	2.87	1.07	2.10	5.3	7.3	5.5	16	4.6	44	6.9	6.1	57	6.6	8.3	7.5	5.4
103.19	2.10	1.39	7.83	1.05	2.29	1.22	1.39	4.40	1.38	27.90	1.26	107.39	6.69	1.85	90.77	3.82	2.87	1.05	1.89	5.3	7.1	4.9	15	4.6	349	7.8	6	55	6.5	8.5	8.7	5.6
95.93	2.10	1.30	7.07	0.97	1.85	1.18	1.36	4.97	1.22	25.42	1.18	107.39	6.12	1.74	88.09	3.44	3.06	1.01	1.83	5.3	7.6	4.5	15	4.6	1300	7	5.9	52	6.4	7.9	9	5.4
93.06	1.91	1.22	6.12	0.86	1.62	1.15	1.26	5.35	1.15	22.93	1.13	102.24	4.97	1.61	90.20	3.06	2.68	0.96	1.72	5.1	8.6	4.6	14	5.7	999	6.3	5.8	47	6.2	7.5	8.2	5.4
84.65	1.82	1.15	5.54	0.76	1.62	1.09	1.22	9.94	1.18	19.68	1.05	93.25	3.82	1.55	90.01	2.87	2.29	0.94	1.57	4.9	9.8	5	13	5.7	806	6	5.8	45	6.1	7.2	7.9	7.4
78.92	1.74	1.09	4.97	0.71	1.51	1.07	1.15	6.12	1.36	17.77	0.88	81.79	3.25	1.49	82.36	2.68	2.29	0.84	1.43	5	8.4	5.1	12	5.7	515	5.6	5.7	42	6	7	8.4	7.6
74.53	1.62	0.97	4.59	0.63	1.39	1.07	1.03	4.78	1.28	17.58	0.75	75.86	2.87	1.49	77.58	2.48	2.10	0.73	1.26	4.8	7.8	4.7	12	5.7	30	5.2	5.5	40	6	6.7	7.6	7.5
74.53	1.53	0.88	4.20	0.61	1.30	0.92	0.94	4.20	1.18	16.43	0.67	73.00	2.48	1.28	77.39	2.29	1.80	0.63	1.17	4.3	7.5	4.7	11	5.7	47	5.2	5	38	5.8	6.6	8.3	6.5
71.85	1.47	0.80	4.01	0.57	1.26	0.76	0.82	3.63	1.05	14.14	0.61	68.22	2.29	1.13	68.41	2.10	1.74	0.55	1.11	4.4	7.4	4.5	11	5.7	603	5.4	4.8	36	5.7	6.7	8.7	6.6
75.86	1.39	0.73	3.63	0.55	1.22	0.69	0.73	3.25	0.84	12.99	0.55	65.74	2.10	1.07	62.87	2.10	1.66	0.52	1.03	4.4	6.7	4.9	10	5.7	25	6.1	4.8	34	5.7	6.6	8.4	6.6
74.14	1.30	0.65	3.25	0.52	1.17	0.61	0.67	3.06	0.69	12.42	0.52	69.75	1.91	0.99	59.24	1.91	1.59	0.54	0.94	4.4	6.5	4.7	9.7	5.7	24	6	4.8	31	5.6	6.6	8.3	6.1
65.74	1.22	0.61	3.06	0.48	1.09	0.52	0.63	2.68	0.59	11.47	0.48	65.16	1.83	0.96	54.65	1.74	1.59	0.65	0.86	4.5	6.4	4.8	9.7	5.7	23	5.9	4.8	29	5.3	6.6	9.5	6
53.89	1.15	0.57	2.87	0.46	0.92	0.46	0.59	2.48	0.54	10.51	0.44	56.56	1.66	0.94	51.79	1.61	1.45	1.80	0.82	4.5	6.2	4.7	9.6	5.7	22	5.6	4.8	27	5.2	6.6	10	6.2
45.10	1.09	0.52	2.68	0.42	0.82	0.42	0.52	2.29	0.48	9.17	0.38	56.18	1.53	0.92	52.36	1.51	1.22	1.51	0.75	4.5	5.9	5.9	9.5	5.5	21	5.4	4.8	25	5.2	6.3	7.7	6.3
38.79	0.97	0.48	2.48	0.40	0.75	0.40	0.46	2.29	0.46	8.03	0.34	54.65	1.41	0.92	48.54	1.39	1.15	1.61	0.65	4.5	6.3	5.8	9.4	5.2	20	5.4	4.9	24	5	6.2	8.9	6.4
35.35	0.90	0.50	2.29	0.36	0.69	0.36	0.42	2.10	0.44	7.07	0.31	44.14	1.24	0.90	41.28	1.34	1.11	1.03	0.57	4.5	6.1	5.8	9.2	5.2	19	5.3	4.9	22	5.2	6.4	8.7	5.9
35.93	0.82	0.48	2.29	0.36	0.61	0.36	0.40	1.91	0.84	6.50	0.29	37.65	1.34	0.90	35.93	1.43	1.07	0.90	0.55	4.5	6.5	6.4	9	5.3	19	5.4	4.9	21	4.8	6.1	10	6.1
35.54	0.75	0.44	2.10	0.34	0.57	0.34	0.59	1.78	4.40	5.73	0.27	33.63	1.91	0.88	33.82	1.61	1.01	0.69	0.59	4.3	6	11	8.8	5.1	19	5.5	5.2	19	5.7	6.1	8	6.3
34.01	0.75	0.42	1.91	0.31	0.54	0.32	0.57	1.66	2.48	5.16	0.27	30.19	1.59	0.86	31.34	1.72	0.94	0.57	0.50	4.4	5.2	7.5	8.7	4.3	18	5.2	4.8	18	7.7	5.8	8.8	5.9
31.15	0.82	0.38	1.80	0.29	0.50	0.31	0.38	1.61	2.68	4.78	0.25	28.86	1.45	0.80	27.90	2.29	0.84	0.50	0.46	4.6	6.2	7.4	8.5	4.3	17	5.1	5.1	17	8.1	5.4	7.2	6.1
28.66	1.15	0.34	1.61	0.29	0.48	0.29	0.34	1.53	2.68	4.40	0.23	28.66	1.15	0.73	25.61	1.62	0.80	0.46	0.40	4.5	5.3	7.3	8.3	4.4	16	5	5.6	16	8.1	5.3	7.2	6.3
25.03	1.70	0.36	1.47	0.27	0.46	0.27	0.31	1.43	1.80	4.20	0.21	28.28	1.07	0.65	24.27	1.34	0.75	0.42	0.36	4.5	5	6.6	8.1	4.2	16	5.2	5.5	15	8.3	5.3	7.2	5.9
22.36	1.83	0.40	1.43	0.25	0.42	0.25	0.29	1.38	1.47	3.82	0.19	29.05	0.99	0.65	22.55	1.15	0.71	0.40	0.34	4.5	5.5	6.3	7.9	4.1	16	5.2	5.1	14	8.4	5.4	8.3	4.7
20.26	2.10	0.34	1.38	0.25	0.34	0.25	0.27	1.32	1.30	3.63	0.18	25.22	0.97	0.63	20.26	1.07	0.61	0.38	0.32	4.6	5	6.1	7.8	4.1	15	5.2	5.2	13	8.4	5.7	8.1	6.1
18.35	1.41	0.31	1.32	0.27	0.31	0.23	0.25	1.34	1.17	3.44	0.19	23.12	0.96	0.55	18.15	1.01	0.55	0.36	0.31	4.6	5.3	6	7.7	4.1	15	5.1	5.1	13	7.9	5.2	8.3	6.1
16.63	1.82	0.48	1.26	0.25	0.31	0.19	0.23	1.49	1.07	3.25	0.19	21.40	0.92	0.50	16.63	0.97	0.52	0.34	0.29	4.5	5.8	5.9	7.6	4.1	14	5	5	12	7.5	5.4	8.5	6
15.48	1.34	0.50	1.24	0.25	0.25	0.17	0.21	1.39	0.88	2.87	0.19	20.64	0.88	0.52	15.48	0.94	0.48	0.31	0.25	4.4	5.7	5.9	7.6	4	13	4.8	5	12	7.7	5.5	7.2	6
15.10	1.28	0.40	1.32	0.25	0.25	0.16	0.19	1.28	0.75	2.87	0.18	19.11	0.78	0.88	17.58	0.88	0.42	0.29	0.21	4.5	5.7	6	7.5	4	12	4.8	4.9	12	7.5	4.9	7.1	5.9
14.14	1.70	0.34	1.51	0.25	0.52	0.16	0.18	1.20	0.69	2.68	0.16	17.01	0.71	0.84	15.86	0.76	0.38	0.27	0.19	4.4	5.6	6.9	7.4	3.9	12	4.7	5	12	6.8	4.8	8.7	5.9
13.19	1.34	0.29	1.38	0.23	1.26	0.15	0.16	1.11	0.61	2.48	0.14	15.10	0.67	0.80	12.80	0.71	0.36	0.25	0.17	4.3	5.2	6.7	7.4	3.9	12	4.7	4.9	11	7	5.3	7.8	5.9
12.23	1.09	0.29	1.32	0.21	0.55	0.14	0.15	0.99	0.55	2.48	0.12	13.95	0.61	0.76	10.51	0.67	0.34	0.23	0.16	4.4	4.6	6.1	7.3	3.8	11	4.7	4.8	11	6.9	6.3	8.3	5.9
11.27	0.82	0.32	1.22	0.18	0.36	0.13	0.15	0.82	0.48	2.48	0.11	12.61	0.55	0.55	8.79	0.59	0.31	0.21	0.15	4.4	4.9	6.3	7.2	3.8	11	5	4.8	10	7.5	7.8	8.1	5.9
10.70	0.69	0.25	1.20	0.16	0.31	0.12	0.14	0.69	0.44	2.29	0.10	12.04	0.54	0.46	7.83	0.54	0.31	0.19	0.14	4.3	4.9	6.4	7.1	3.9	11	4.9	4.8	9.8	7.3	7	7.8	5.9
9.94	0.63	0.23	1.09	0.14	0.25	0.11	0.13	0.61	0.40	1.91	0.09	11.66	0.65	0.42	6.88	0.50	0.27	0.17	0.13	4.1	5.1	6.7	7.1	4.4	11	4.9	4.8	9.3	7.1	6.8	7.2	5.9
9.36	0.57	0.21	1.07	0.13	0.23	0.10	0.12	0.54	0.36	1.82	0.08	10.70	0.55	0.42	6.12	0.46	0.25	0.15	0.12	4	4.5	6.4	6.7	4.3	10	4.9	4.9	9.1	7	6.4	7.1	6.1
8.79	0.54	0.18	0.97	0.13	0.21	0.09	0.11	0.48	0.32	1.72	0.07	9.94	0.46	0.38	5.54	0.42	0.23	0.14	0.11	4.1	4.5	6.1	6.5	4.3	10	4.7	5	8.9	7	6.3	8	5.9
7.83	0.82	0.17	0.86	0.11	0.19	0.09	0.11	0.46	0.31	1.61	0.07	8.60	0.42	0.34	4.97	0.40	0.23	0.14	0.09	4.2	4.5	6	6.3	4.3	10	5	4.9	8.7	7.3	6.8	9.7	5.9
7.07	0.90	0.16	0.76	0.11	0.17	0.09	0.10	0.46	0.31	1.51	0.06	7.83	0.38	0.31	4.40	0.38	0.21	0.14	0.08	4	4.5	6.2	6.2	4.3	9.5	4.9	5	8.5	7.1	7	8.2	5.9
6.50	0.67	0.16	0.69	0.10	0.16	0.08	0.09	0.42	0.25	1.41	0.06	7.26	0.36	0.29	4.01	0.38	0.19	0.12	0.08	4	4.9	6.3	6.1	4.3	9.1	4.9	5	8.2	6.9	7.2	8.8	5.9
6.12	0.55	0.15	0.65	0.09	0.15	0.08	0.09	0.38	0.23	1.39	0.06	6.50	0.32	0.27	3.63	0.36	0.19	0.11	0.08	4	5.3	6	6.1	4.3	9.1	4.8	4.9	7.9	7	7	8	5.8
5.54	0.48	0.13	0.59	0.09	0.14	0.08	0.08	0.34	0.21	1.38	0.05	6.12	0.32	0.25	3.25	0.32	0.19	0.10	0.08	4	4.9	5.5	6.1	4.3	9.1	4.8	4.8	7.7	6.8	6.9	7.2	5.9
5.16	0.42	0.12	0.54	0.08	0.13	0.07	0.07	0.34	0.19	1.32	0.05	5.54	0.32	0.23	3.06	0.31	0.17	0.09	0.07	4	5	5.5	6	4.3	9	4.8	4.7	7.4	6.9	6.7	7.2	5.8
4.78	0.38	0.10	0.52	0.08	0.13	0.07	0.07	0.32	0.19	1.24	0.04	4.97	0.31	0.21	2.68	0.31	0.15	0.09	0.07	4	5	5.9	5.9	4.5	8.8	4.7	5.2	6.9	7	6.7	8.3	5.8
4.78	0.38	0.09	0.48	0.06	0.14	0.06	0.12	0.32	0.18	1.20	0.04	4.40	0.29	0.19	2.48	0.34	0.14	0.08	0.06	4	5.2	6.1	5.8	4.4	8.7	5.4	5.2	6.8	7	6.3	7.5	5.7
4.78	0.36	0.09	0.46	0.06	0.12	0.23	0.13	0.31	0.17	1.17	0.04	4.01	0.27	0.17	2.29	0.34	0.14	0.08	0.06	3.9	4.8	5.8	5.8	4.4	8.7	5.7	5.2	6.7	7	6.5	7.4	5.7
5.16	0.32	0.09	0.42	0.06	0.10	0.32	0.09	0.27	0.16	1.13	0.04	3.63	0.25	0.15	2.10	0.31	0.13	0.07	0.06	3.9	4.8	5.3	5.7	4.5	8.6	5.3	5.2	6.7	7.3	6.6	8.4	5.6
5.16	0.31	0.08	0.40	0.05	0.09	0.21	0.07	0.25	0.14	1.09	0.04	3.25	0.23	0.14	1.87	0.29	0.12	0.06	0.06	3.9	5.3	6.3	5.5	4.3	8.9	12	5.1	6.5	7.3	6.6	7.2	5.6
4.40	0.31	0.08	0.38	0.05	0.09	0.15	0.06	0.23	0.13	0.97	0.04	3.06	0.21	0.14	1.80	0.32	0.11	0.06	0.05	3.9	4.4	5.7	5.5	4.3	8.8	78	5.2	6.5	7	6.7	7	5.7
3.82	0.29	0.08	0.34	0.05	0.08	0.12	0.06	0.23	0.13	0.86	0.03	2.87	0.23	0.14	1.74	0.32	0.10	0.06	0.04	3.9	4.3	5.2	5.4	4.3	8.6	79	5.2	6.2	7.1	6.4	11	5.6
3.44	0.27	0.07	0.32	0.04	0.08	0.10	0.05	0.29	0.12	0.88	0.03	2.68	0.21	0.13	1.64	0.27	0.10	0.05	0.04	3.8	4.6	5.4	5.4	4.3	8.4	36	5.7	6.2	6.9	6.2	8.2	5.6
3.82	0.25	0.07	0.31	0.04	0.08	0.08	0.05	0.27	0.12	0.78	0.03	2.48	0.19	0.12	1.57	0.25	0.09	0.05	0.04	3.8	4.4	5.5	5.4	4.3	8.2	6	5.2	6.1	6.9	6.6	8.7	5.3
4.20	0.27	0.06	0.29	0.05	0.07	0.07	0.05	0.27	0.11	0.76	0.03	2.29	0.17	0.12	1.36	0.23	0.09	0.05	0.04	3.8	4.3	5.5	5.3	4.3	8.1	6	5.2	6	6.9	6.2	7.2	5.6
3.63	0.34	0.06	0.29	0.05	0.07	0.06	0.05	0.29	0.10	0.78	0.02	2.29	0.16	0.11	1.22	0.21	0.09	0.04	0.04	4.1	4.6	5.5	5.2	4.2	8	5.7	5.3	5.8	6.3	6.2	8.6	5.5
3.82	0.32	0.05	0.27	0.04	0.06	0.05	0.05	0.27	0.09	0.73	0.02	2.10	0.16	0.10	1.13	0.19	0.09	0.04	0.04	4.4	4.6	5.5	5.2	4.2	8.1	5.8	5.2	5.7	7.1	6.4	7.6	4.9
5.16	0.27	0.06	0.25	0.04	0.06	0.05	0.05	0.23	0.09	0.61	0.02	2.10	0.15	0.10	1.09	0.18	0.08	0.04	0.03	4.4	4.5	5.6	5.1	4.4	8	5.8	5.3	5.7	7.1	6.1	7	5.4
4.78	0.23	0.06	0.25	0.04	0.05	0.05	0.05	0.21	0.08	0.54	0.02	1.85	0.15	0.09	1.13	0.17	0.07	0.04	0.03	4.7	4.5	5.6	5	4.4	7.8	5.7	5.2	5.3	6.9	6.4	5.6	5.5
4.40	0.21	0.06	0.25	0.03	0.05	0.05	0.06	0.19	0.07	0.54	0.02	1.70	0.14	0.09	1.15	0.15	0.07	0.04	0.03	4.6	4.5	5.6	5	4.5	7.7	5.6	5.2	5.2	6.9	6.1	4.8	5.5
4.40	0.19	0.06	0.27	0.03	0.05	0.05	0.06	0.18	0.06	0.52	0.02	1.70	0.14	0.09	1.07	0.14	0.07	0.04	0.03	4.6	4.5	5.6	4.9	4.8	7.7	5.6	5.1	5.1	7	6.6	8.1	5.6
3.63	0.29	0.05	0.23	0.03	0.04	0.05	0.06	0.16	0.06	0.48	0.02	1.62	0.14	0.09	1.03	0.14	0.07	0.04	0.03	4.4	4.4	5.7	4.9	4.7	7.6	5.5	5	5	6.9	6.2	7	5.6
3.25	0.27	0.05	0.21	0.03	0.04	0.05	0.05	0.15	0.06	0.42	0.02	1.55	0.13	0.08	0.97	0.13	0.07	0.04	0.03	4.4	4.4	5.6	4.8	4.6	7.7	5.3	5.1	5.1	6.9	6.5	12	5.7
2.87	0.23	0.04	0.21	0.03	0.04	0.05	0.04	0.13	0.06	0.40	0.02	1.47	0.13	0.08	0.96	0.12	0.06	0.04	0.03	4.4	4.4	5.4	4.7	4.4	7.6	5.5	5.2	5	6.8	6.4	12	6
2.68	0.19	0.04	0.18	0.03	0.04	0.05	0.04	0.13	0.06	0.38	0.02	1.34	0.12	0.08	0.94	0.11	0.06	0.04	0.03	4.4	4.3	5.3	4.7	4.3	7.6	5.3	5.1	4.9	7	6.4	7.1	5.5
2.48	0.19	0.04	0.17	0.02	0.06	0.05	0.04	0.12	0.06	0.36	0.02	1.20	0.11	0.08	0.90	0.11	0.06	0.04	0.03	4.2	4.4	5.4	4.7	4.2	7.5	5.3	5	4.9	7.2	6.4	6.7	5.7
2.29	0.17	0.03	0.17	0.02	0.17	0.05	0.04	0.11	0.05	0.34	0.02	1.11	0.11	0.08	0.86	0.13	0.06	0.03	0.03	4	4.4	5.3	4.6	4.1	7.4	5.4	5	5	7.1	6.3	6.5	5.6
2.10	0.15	0.03	0.16	0.02	0.11	0.04	0.04	0.11	0.05	0.32	0.02	1.07	0.10	0.07	0.78	0.12	0.06	0.03	0.03	4.4	4.4	5.4	4.6	4	7.4	5.2	5	5	7	6	8.1	5.6
1.91	0.14	0.03	0.16	0.03	0.09	0.04	0.04	0.11	0.05	0.31	0.02	1.03	0.10	0.08	0.73	0.11	0.06	0.03	0.03	4.3	4.3	5.2	4.5	4.3	7.3	5.2	4.9	4.8	6.1	6.3	8.4	5.6
1.91	0.14	0.03	0.15	0.03	0.07	0.04	0.03	0.09	0.05	0.29	0.02	0.97	0.09	0.07	0.65	0.10	0.06	0.03	0.03	4.1	4.4	5.3	5.3	4.3	7.7	5.1	4.9	4.7	4.9	6.3	8.2	5.5
2.68	0.15	0.03	0.16	0.03	0.07	0.04	0.03	0.08	0.06	0.29	0.02	0.92	0.09	0.07	0.63	0.10	0.07	0.03	0.03	4.1	4.3	5.5	6.6	4.1	7.7	4.8	4.8	4.8	4.8	6.4	8.2	5.5
2.10	0.15	0.03	0.15	0.03	0.07	0.04	0.03	0.08	0.06	0.27	0.02	0.90	0.09	0.07	0.61	0.11	0.15	0.03	0.03	4.1	4.3	5.4	7.2	4.1	7.7	5	4.8	4.8	4.7	6.5	5.2	5.8
1.91	0.14	0.03	0.14	0.03	0.07	0.03	0.03	0.07	0.06	0.25	0.02	0.90	0.08	0.08	0.55	0.11	0.19	0.03	0.03	4.1	4.3	5.4	7.6	4	7.7	5.1	4.9	4.7	4.7	6.1	5.2	5.6
1.78	0.13	0.04	0.13	0.03	0.06	0.03	0.03	0.06	0.06	0.25	0.02	0.88	0.08	0.14	0.57	0.11	0.15	0.03	0.03	4.1	4.3	5.4	7.4	4	7.7	4.8	4.7	4.8	4.4	6.1	6.6	5.8
1.68	0.12	0.06	0.12	0.03	0.06	0.03	0.03	0.06	0.06	0.23	0.02	0.82	0.08	0.14	0.84	0.11	0.13	0.03	0.03	4.2	4.3	5.4	7.4	4	7.7	4.8	4.7	5.4	4.7	6.1	7	5.8
1.62	0.11	0.08	0.12	0.02	0.05	0.03	0.03	0.06	0.06	0.23	0.02	0.73	0.07	0.11	0.96	0.11	0.12	0.03	0.03	4.6	4.3	5.2	7.3	4	7.5	4.9	5	5.9	4.6	6.1	7.6	5.6
1.51	0.11	0.09	0.11	0.02	0.04	0.03	0.02	0.13	0.05	0.23	0.02	0.65	0.07	0.10	1.17	0.10	0.10	0.03	0.04	4	4.2	5.1	7.4	4.1	7.6	4.8	4.9	5.7	4.6	6	7.1	5.4
1.45	0.11	0.11	0.11	0.02	0.04	0.03	0.02	0.12	0.05	0.23	0.02	0.59	0.07	0.09	1.20	0.09	0.09	0.03	0.04	4.1	3.8	5.1	7.3	4.3	7.4	4.7	4.8	5.6	4.7	6.1	7.4	5.4
1.41	0.10	0.11	0.11	0.03	0.03	0.03	0.02	0.11	0.05	0.21	0.02	0.55	0.07	0.08	0.96	0.08	0.08	0.03	0.03	4.4	3.8	5.1	6.8	4.1	7.3	4.6	4.8	5.4	7.6	6.1	7	5.4
1.39	0.10	0.11	0.12	0.03	0.02	0.03	0.02	0.11	0.04	0.18	0.02	0.54	0.07	0.07	1.07	0.07	0.07	0.03	0.03	4.5	3.9	5.1	6.9	4.1	7.4	4.7	4.7	5.5	7.8	6.1	5.7	5.4
1.34	0.10	0.11	0.12	0.03	0.02	0.03	0.02	0.10	0.04	0.17	0.02	0.52	0.07	0.07	1.03	0.07	0.07	0.03	0.03	4.4	4.1	5.1	6.8	4.1	7.4	4.5	4.7	5.5	7.4	5.7	5.8	5.4
1.26	0.09	0.27	0.12	0.03	0.03	0.03	0.02	0.10	0.04	0.15	0.02	0.48	0.06	0.07	0.92	0.07	0.07	0.03	0.03	4	4.2	5	6.8	4	7.4	4.4	4.8	5.3	7.5	6.4	6.9	5.6
1.20	0.11	0.29	0.11	0.03	0.03	0.03	0.02	0.10	0.04	0.15	0.02	0.44	0.06	0.07	0.76	0.06	0.06	0.03	0.03	4.2	4.3	5	6.6	4	7.3	4.7	5.5	5.2	7.5	6.1	7.2	5.5
1.15	0.13	0.18	0.12	0.03	0.03	0.03	0.02	0.09	0.04	0.15	0.03	0.42	0.07	0.07	0.65	0.06	0.06	0.03	0.03	4.2	4.2	4.9	6.7	4	7.4	4.9	5.6	5.1	7.5	6	7	5.4
1.11	0.12	0.13	0.14	0.03	0.02	0.03	0.02	0.08	0.04	0.15	0.03	0.38	0.10	0.07	0.59	0.06	0.06	0.03	0.03	4.1	4.3	4.9	6.4	4	7	4.9	5.4	4.9	7.6	5.9	8.1	5.4
1.05	0.10	0.11	0.15	0.03	0.02	0.02	0.02	0.07	0.04	0.14	0.03	0.36	0.11	0.06	0.63	0.06	0.05	0.03	0.03	4.1	4.2	5.2	5.9	4.3	7	5.1	5.4	4.9	7.4	5.9	9	5.4
0.97	0.09	0.10	0.15	0.03	0.02	0.03	0.02	0.06	0.03	0.15	0.03	0.34	0.10	0.06	0.55	0.06	0.05	0.03	0.03	4.3	4.2	5.3	6	4.4	7.1	4.9	5.5	4.9	6.5	6	6.8	5.5
0.92	0.10	0.10	0.19	0.03	0.02	0.92	0.02	0.05	0.04	0.17	0.02	0.32	0.10	0.06	0.50	0.06	0.05	0.03	0.03	4.1	4.2	5.3	6.3	4.1	7.3	4.9	5.5	4.8	6.8	6.3	7	5.4
0.86	0.14	0.17	0.38	0.02	0.03	0.69	0.02	0.05	0.10	0.19	0.02	0.32	0.10	0.11	0.46	0.07	0.05	0.03	0.03	4	4.2	5.4	6.4	4.2	7.2	4.9	5.7	4.8	6.7	5.7	11	5.2
0.80	0.12	0.27	0.27	0.02	0.03	0.67	0.03	0.04	0.07	0.19	0.03	0.31	0.09	0.14	0.44	0.07	0.05	0.03	0.03	4.2	4.3	5.4	6.5	4.2	6.9	4.9	5.6	4.7	6.7	6	8.4	5.2
0.80	0.11	0.16	0.25	0.02	0.03	0.48	0.02	0.04	0.05	0.17	0.03	0.29	0.09	0.13	0.42	0.06	0.05	0.03	0.03	3.9	4.3	6.1	6.8	4.2	6.9	4.9	5.5	4.7	7	5.9	10	4.7
0.75	0.12	0.14	0.25	0.02	0.04	0.29	0.02	0.04	0.05	0.15	0.03	0.29	0.09	0.11	0.42	0.06	0.05	0.03	0.03	4.1	4.2	5.7	6.5	4.2	6.8	4.9	5.6	4.8	7.1	5.8	6.4	4.9
1.17	0.12	0.13	0.23	0.02	0.04	0.21	0.02	0.04	0.04	0.15	0.02	0.29	0.09	0.10	0.44	0.09	0.05	0.03	0.03	4.3	3.9	5.4	6.3	4.2	6.8	4.7		5	7.4	6.2	6.9	5.5
1.22	0.11	0.11	0.23	0.02	0.04	0.16	0.14	0.04	0.04	0.15	0.03	0.27	0.08	0.08	0.42	0.31	0.05	0.03	0.03	4.6	4.2	5.4	6.3	4.3	6.8	4.7	6	5	7.3	6	6.8	5.4
1.18	0.12	0.09	0.54	0.02	0.03	0.13	0.18	0.04	0.04	0.15	0.04	0.27	0.08	0.08	0.40	0.19	0.06	0.03	0.03	4.5	4.5	5.4	6.4	4.5	6.8	4.6	5.9	5.1	7.2	6	6.4	5.2
1.07	0.11	0.09	1.03	0.02	0.04	0.12	0.09	0.04	0.04	0.14	0.04	0.29	0.08	0.07	0.40	0.13	0.06	0.03	0.03	4.4	4.2	5.4	6.4	4.5	6.8	4.7	6.1	5	6.6	6	5.6	5.4
0.96	0.11	0.08	0.76	0.02	0.03	0.11	0.07	0.04	0.04	0.13	0.03	0.29	0.08	0.09	0.69	0.11	0.05	0.03	0.02	4.4	3.9	5.4	6.4	4.4	6.8	4.7	6.2	6.3	6.8	6.4	6.3	5.4
1.22	0.10	0.07	0.80	0.02	0.03	0.09	0.06	0.04	0.04	0.12	0.03	0.27	0.07	0.09	1.28	0.09	0.05	0.03	0.02	4.3	3.9	5.3	6.1	4.3	6.8	4.6	6.2	6.5	7.1	55	6.7	5.2
1.17	0.10	0.08	0.75	0.02	0.03	0.09	0.07	0.04	0.03	0.12	0.16	0.29	0.07	0.09	0.99	0.08	0.05	0.03	0.03	4.3	3.9	5.4	6.3	4.4	6.7	4.6	6.1	5.7	7	57	6.4	4.8
1.61	0.10	0.08	0.63	0.02	0.03	0.34	0.06	0.04	0.03	0.11	0.36	0.31	0.07	0.08	0.96	0.07	0.05	0.03	0.03	4	3.9	5.4	6.3	4.6	6.7	4.5	6.1	5.5	7.8	38	5.8	4.9
3.82	0.10	0.09	0.52	0.02	0.03	0.32	0.06	0.04	0.03	0.11	0.19	0.29	0.07	0.07	0.90	0.07	0.05	0.03	0.03	4.1	3.9	5.2	6.3	4.5	6.7	4.5	6	5.4	7.6	37	5.7	4.8

Table CAWG 6 Appendix L-12a. Stevenson below Shaver Lake IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E= existing

IHA Annual Summary Statistics
Stevenson below Shaver Lake Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	53.33	47.11	39.81	37.56	34.50	44.20	54.02	408.47	823.66	215.80	27.18	8.98	4.96	5.21	5.85	8.72	11.38	1076.60	1042.28	978.00	901.24	488.36	.00	.04	265.00	169.00	.00	.00	9.00	15.67	24.47	-14.16	87.00
	1984	8.36	46.45	72.00	47.32	39.97	78.03	153.33	170.65	31.13	7.86	2.07	.75	.62	.64	.68	.75	1.43	571.98	325.82	242.60	192.23	136.73	.00	.01	255.00	360.00	2.00	19.00	8.00	15.38	14.21	-7.37	97.00
	1985	1.87	3.36	4.05	6.44	9.37	23.82	147.11	140.56	22.52	2.97	.49	.77	.20	.21	.22	.38	.87	254.22	240.66	226.61	182.53	107.53	.00	.01	243.00	105.00	5.00	12.40	2.00	30.50	4.53	-3.01	79.00
	1986	1.58	2.17	7.91	28.25	115.85	173.24	269.55	384.07	146.68	13.48	2.26	1.96	.38	.41	.78	1.06	1.69	658.42	505.89	470.66	395.64	286.99	.00	.01	279.00	68.00	4.00	10.25	3.00	46.00	22.26	-12.35	84.00
	1987	2.28	1.54	1.12	1.38	1.36	11.07	109.23	75.12	15.19	2.13	.33	.17	.14	.14	.14	.16	.26	165.24	163.12	160.16	130.71	67.77	.00	.01	265.00	116.00	10.00	13.40	1.00	47.00	3.37	-1.99	85.00
	1988	.61	4.11	4.53	8.35	15.16	45.92	101.64	90.37	23.16	4.19	.60	.24	.13	.13	.14	.17	.25	156.34	150.41	136.19	105.37	80.88	.00	.01	277.00	134.00	2.00	31.00	2.00	34.50	3.84	-2.42	91.00
	1989	.17	.78	1.10	1.51	3.87	47.99	160.62	83.23	16.38	2.24	.55	1.12	.15	.15	.16	.17	.67	255.49	245.74	232.79	161.22	99.50	.00	.01	275.00	100.00	6.00	19.83	3.00	23.33	5.15	-2.97	75.00
	1990	2.85	2.32	1.78	2.76	3.94	35.79	134.90	80.86	21.49	2.59	.41	.28	.13	.13	.13	.18	.28	200.83	190.24	170.69	143.29	87.34	.00	.01	256.00	118.00	2.00	45.50	2.00	33.50	5.48	-2.82	64.00
	1991	.26	.36	.52	.72	1.29	28.10	62.50	205.50	102.70	11.97	1.56	.43	.22	.22	.22	.26	.38	344.46	324.97	279.45	222.61	125.79	.00	.01	300.00	145.00	2.00	21.00	4.00	19.50	9.12	-5.93	92.00
	1992	1.08	1.73	1.57	2.26	6.60	16.25	159.18	103.45	12.62	7.13	.79	.30	.22	.22	.23	.23	.49	254.22	246.59	231.88	188.71	94.74	.00	.01	283.00	121.00	6.00	10.67	1.00	51.00	4.05	-2.47	77.00
	1993	1.26	1.82	1.57	10.09	11.37	49.49	183.88	578.26	284.81	40.75	5.24	1.15	.19	.19	.20	.90	1.18	793.15	770.27	704.54	579.61	355.08	.00	.00	286.00	139.00	4.00	9.00	1.00	114.00	16.31	-9.77	73.00
	1994	1.18	1.23	1.71	2.21	3.15	23.14	88.59	113.37	22.16	1.85	.21	.31	.13	.13	.13	.15	.60	194.47	183.88	167.05	130.24	79.95	.00	.01	246.00	133.00	8.00	13.25	3.00	21.00	4.92	-3.28	76.00
	1995	4.87	8.96	10.56	30.02	33.87	102.01	170.54	429.09	640.07	228.88	19.51	3.01	.44	.56	1.62	1.28	1.38	1000.34	879.58	815.30	652.40	458.34	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	32.42	-17.99	68.00
	1996	1.25	1.12	6.78	10.51	59.58	64.99	225.62	400.96	74.36	8.26	1.30	.54	.39	.43	.46	.45	.79	2097.28	1064.74	700.73	459.54	246.94	.00	.01	256.00	137.00	3.00	35.67	3.00	37.33	28.47	-12.86	95.00
	1997	.72	28.58	46.74	246.10	37.00	113.45	220.83	222.97	37.16	5.17	.91	.59	.39	.39	.40	.53	.63	2796.37	1525.29	848.17	303.96	191.68	.00	.00	283.00	2.00	3.00	19.33	7.00	19.43	35.92	-18.30	85.00
	1998	.70	1.01	1.71	2.35	2.37	20.38	83.51	226.70	677.61	206.61	11.39	4.83	.39	.40	.42	.65	1.12	986.36	904.58	854.35	677.82	385.49	.00	.00	279.00	167.00	4.00	11.00	2.00	52.00	16.10	-10.65	94.00
	1999	3.31	5.70	9.66	10.79	29.01	31.70	96.64	237.49	73.43	8.49	1.49	.62	.38	.40	.41	.41	.59	357.17	329.63	308.51	240.61	140.20	.00	.01	261.00	133.00	2.00	22.00	2.00	36.00	7.89	-3.98	96.00
	2000	.41	.94	.67	4.94	15.52	34.28	201.34	293.21	57.03	5.75	.69	.48	.31	.30	.29	.33	.64	596.13	507.58	448.33	322.01	191.45	.00	.01	261.00	129.00	5.00	25.40	1.00	83.00	12.36	-6.80	75.00
	2001	.86	1.19	1.06	3.28	7.15	37.58	102.79	259.50	19.90	3.63	.39	.21	.20	.20	.19	.20	.28	423.27	417.34	395.67	291.46	140.93	.00	.01	242.00	129.00	6.00	22.50	2.00	33.50	7.68	-4.41	90.00
	2002	.34	4.09	6.51	6.45	13.95	32.92	170.96	174.96	43.23	3.21	.31	.20	.17	.17	.18	.20	.89	263.11	253.37	227.34	180.28	135.07	.00	.00	270.00	105.00	5.00	17.40	1.00	73.00	5.76	-3.38	64.00
E	1987	3.80	3.06	2.64	2.63	2.84	2.97	3.55	3.54	3.43	3.33	3.42	3.37	2.50	2.60	2.60	2.61	2.66	6.80	6.43	5.19	3.88	3.63	.00	.81	322.00	293.00	.00	.00	.00	.00	.32	-.24	48.00
	1988	3.56	3.84	2.68	2.97	2.96	3.22	3.72	3.68	3.65	3.49	3.26	3.42	2.20	2.27	2.36	2.67	2.84	11.00	6.33	4.87	4.03	3.69	.00	.70	338.00	315.00	.00	.00	.00	.00	.32	-.30	58.00
	1989	3.65	3.19	2.60	2.60	2.68	3.00	3.43	3.56	3.62	3.63	3.61	3.52	2.60	2.60	2.60	2.60	2.62	3.90	3.90	3.77	3.65	3.63	.00	.80	323.00	318.00	.00	.00	.00	.00	.17	-.15	51.00
	1990	3.56	3.01	2.22	2.46	2.39	2.58	3.48	3.51	3.42	3.33	3.31	3.44	2.20	2.20	2.20	2.21	2.35	3.90	3.70	3.63	3.60	3.47	.00	.72	340.00	149.00	.00	.00	.00	.00	.14	-.15	38.00
	1991	3.48	3.30	3.00	3.01	3.34	3.68	3.80	3.45	3.58	3.53	3.46	3.50	3.00	3.00	3.00	3.00	3.06	5.00	4.47	4.12	3.81	3.65	.00	.88	326.00	64.00	.00	.00	.00	.00	.15	-.17	37.00
	1992	3.57	3.17	2.47	2.40	2.66	2.96	3.48	3.45	3.46	3.45	3.30	3.40	1.20	1.33	1.93	2.34	2.47	5.00	4.33	4.00	3.60	3.50	.00	.61	336.00	339.00	1.00	2.00	.00	.00	.31	-.22	44.00
	1993	3.31	2.92	2.51	3.20	2.98	3.30	28.41	112.38	257.59	190.83	4.31	3.93	1.70	1.87	1.93	2.41	2.80	516.00	437.33	427.14	312.99	194.15	.00	.04	362.00	173.00	.00	.00	5.00	13.60	21.29	-16.64	92.00
	1994	3.68	3.72	3.73	2.44	2.56	2.69	3.81	3.69	3.23	3.19	3.33	3.34	2.10	2.10	2.10	2.22	2.55	4.30	4.07	3.97	3.85	3.71	.00	.64	7.00	281.00	.00	.00	.00	.00	.17	-.17	49.00
	1995	3.44	3.09	2.64	3.63	2.77	131.25	255.30	305.81	555.83	494.61	98.41	3.43	2.40	2.43	2.47	2.49	3.00	688.00	685.00	683.29	609.70	459.73	.00	.02	346.00	177.00	.00	.00	3.00	49.00	19.51	-24.39	85.00
	1996	4.34	3.29	2.89	2.21	2.55	2.53	3.70	381.55	418.77	141.27	3.16	3.16	2.00	2.00	2.04	2.18	2.40	650.00	650.00	650.00	489.40	319.78	.00	.03	7.00	139.00	.00	.00	1.00	70.00	29.73	-23.78	58.00
	1997	3.26	3.10	2.68	253.33	280.00	303.55	289.43	315.23	271.10	3.03	3.22	4.90	2.20	2.20	2.23	2.53	2.99	355.00	353.33	349.86	326.63	309.01	.00	.02	335.00	175.00	.00	.00	1.00	171.00	6.94	-6.12	110.00
	1998	3.52	3.45	3.11	2.67	117.20	198.74	91.44	58.47	202.35	384.84	78.89	3.11	2.30	2.30	2.30	2.61	3.06	459.00	459.00	459.00	394.00	227.29	.00	.02	359.00	191.00	.00	.00	5.00	28.60	18.64	-14.96	85.00
	1999	146.75	3.71	2.46	2.33	2.55	2.56	3.80	3.74	3.65	3.63	3.26	3.51	2.20	2.20	2.20	2.23	2.41	278.00	278.00	277.00	151.89	52.58	.00	.14	360.00	288.00	.00	.00	1.00	17.00	7.18	-5.13	44.00
	2000	3.61	3.01	2.18	2.70	3.15	3.10	4.53	3.68	180.40	4.13	4.17	4.26	2.10	2.10	2.10	2.15	2.54	362.00	358.00	336.29	180.43	62.91	.00	.12	361.00	166.00	.00	.00	2.00	11.00	11.87	-8.76	50.00
	2001	4.80	3.91	3.83	3.93	4.11	4.48	4.57	3.37	3.44	3.49	3.51	3.51	3.10	3.10	3.10	3.17	3.12	7.20	6.43	5.39	4.82	4.41	.00	.79	150.00	303.00	.00	.00	.00	.00	.30	-.30	39.00
	2002	3.43	3.33	2.62	2.62	2.50	2.38	3.20	3.22	3.31	3.23	3.29	3.36	2.10	2.10	2.10	2.30	2.49	4.50	4.10	3.63	3.54	3.29	.00	.69	74.00	164.00	.00	.00	.00	.00	.24	-.19	46.00

Table CAWG 6 Appendix L-12b. Stevenson below Shaver Lake IHA Percentile Data.

IHA Percentile Data
Stevenson below Shaver Lake Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1987-2002 (16 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.27	.63	1.22	2.71	8.01	1.71	3.30	3.45	3.57	3.77	47.38	.09
November	.79	1.14	1.99	5.30	44.67	2.09	2.98	3.06	3.24	3.65	3.86	.18
December	.71	1.23	2.92	9.22	46.05	2.74	2.21	2.48	2.64	2.97	3.76	.19
January	1.40	2.28	6.44	23.89	46.34	3.35	2.29	2.44	2.65	3.15	78.75	.27
February	1.46	3.89	12.66	34.34	57.62	2.41	2.47	2.55	2.81	3.30	166.04	.26
March	16.67	24.89	36.68	61.11	112.31	.99	2.49	2.60	3.05	4.28	230.18	.55
April	64.60	97.89	150.22	180.65	225.14	.55	3.36	3.50	3.80	22.45	265.54	4.99
May	81.09	105.93	214.24	361.35	427.03	1.19	3.32	3.47	3.68	98.90	335.12	25.92
June	15.31	21.66	40.19	135.69	673.86	2.84	3.28	3.44	3.63	243.78	459.89	66.18
July	2.14	3.03	6.44	13.10	214.88	1.56	3.14	3.33	3.51	106.99	417.77	29.55
August	.31	.43	.85	2.21	18.70	2.10	3.20	3.27	3.38	4.03	84.75	.23
September	.20	.28	.57	1.14	4.65	1.51	3.14	3.36	3.44	3.52	4.46	.04
Parameter Group #2												
1-day minimum	.13	.16	.22	.39	.60	1.07	1.55	2.10	2.20	2.47	3.03	.17
3-day minimum	.13	.16	.22	.41	.63	1.14	1.71	2.10	2.20	2.56	3.03	.21
7-day minimum	.13	.16	.22	.45	1.53	1.27	1.93	2.10	2.21	2.57	3.03	.21
30-day minimum	.16	.19	.35	.72	1.26	1.52	2.17	2.22	2.45	2.61	3.05	.16
90-day minimum	.26	.40	.65	1.16	1.66	1.16	2.38	2.47	2.64	3.00	3.08	.20
1-day maximum	168.16	254.22	390.22	938.06	1995.21	1.75	3.90	4.63	9.10	434.75	661.40	47.27
3-day maximum	165.20	241.93	327.72	852.26	1062.49	1.86	3.84	4.16	6.43	417.50	660.50	64.25
7-day maximum	160.85	226.80	293.98	703.59	853.73	1.62	3.63	3.98	5.29	407.82	659.99	76.40
30-day maximum	130.29	165.98	231.61	443.56	675.28	1.20	3.58	3.69	4.42	323.22	525.49	72.27
90-day maximum	80.04	95.93	138.46	276.98	451.05	1.31	3.42	3.63	4.06	219.01	361.77	53.04
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.00	.01	.01	.01	.01	.52	.02	.03	.63	.77	.83	1.19
Parameter Group #3												
Date of minimum	243.30	256.00	267.50	279.00	285.70	.06	270.40	328.25	343.00	361.75	27.10	.09
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	146.00	167.75	236.00	312.00	.30	.39
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	.00	.00	.00	.00	.30	.00
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	.00	.00	.00	.00	.60	.00
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	.00	.00	.00	1.75	5.00	.00
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	.00	.00	.00	25.70	100.30	.00
Parameter Group #5												
Rise rate	3.86	4.98	8.50	20.77	32.03	1.86	.15	.19	.32	16.95	23.82	51.83
Fall rate	-17.61	-11.93	-5.17	-2.98	-2.43	-1.73	-23.97	-13.41	-.30	-.18	-.15	-43.68
Number of reversals	64.40	75.00	84.50	91.75	95.90	.20	37.70	44.00	49.50	78.25	97.40	.69

Table CAWG 6 Appendix L-12c. Stevenson below Shaver Lake IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Stevenson below Shaver Lake Data

	Unimpaired period: 1983-2002				Existing period: 1987-2002				RVA Categories		Hydrologic Alteration
			Range Limits				Range Limits				
	Medians	Coeff. of Variance	Low	High	Medians	Coeff. of Variance	Low	High	Low	High	(Middle Category)
Parameter Group #1											
October	1.2	1.71	.2	53.3	3.6	.09	3.3	146.7	.71	1.90	-1.00
November	2.0	2.09	.4	47.1	3.2	.18	2.9	3.9	1.23	4.09	1.50
December	2.9	2.74	.5	72.0	2.6	.19	2.2	3.8	1.57	6.86	1.50
January	6.4	3.35	.7	246.1	2.6	.27	2.2	253.3	2.73	10.53	-.22
February	12.7	2.41	1.3	115.8	2.8	.26	2.4	280.0	6.41	29.35	-1.00
March	36.7	.99	11.1	173.2	3.0	.55	2.4	303.5	31.44	48.09	-1.00
April	150.2	.55	54.0	269.6	3.8	4.99	3.2	289.4	102.71	170.57	-1.00
May	214.2	1.19	75.1	578.3	3.7	25.92	3.2	381.6	138.65	261.86	-1.00
June	40.2	2.84	12.6	823.7	3.6	66.18	3.2	555.8	22.49	76.34	-1.00
July	6.4	1.56	1.9	228.9	3.5	29.55	3.0	494.6	3.60	8.73	-.53
August	.8	2.10	.2	27.2	3.4	.23	3.2	98.4	.55	1.59	-1.00
September	.6	1.51	.2	9.0	3.4	.04	3.1	4.9	.31	.80	-1.00
Parameter Group #2											
1-day minimum	.2	1.07	.1	5.0	2.2	.17	1.2	3.1	.19	.38	-1.00
3-day minimum	.2	1.14	.1	5.2	2.2	.21	1.3	3.1	.19	.40	-1.00
7-day minimum	.2	1.27	.1	5.8	2.2	.21	1.9	3.1	.19	.41	-1.00
30-day minimum	.4	1.52	.1	8.7	2.4	.16	2.1	3.2	.20	.54	-1.00
90-day minimum	.7	1.16	.2	11.4	2.6	.20	2.3	3.1	.58	.91	-1.00
1-day maximum	390.2	1.75	156.3	2796.4	9.1	47.27	3.9	688.0	255.40	667.85	-.06
3-day maximum	327.7	1.86	150.4	1525.3	6.4	64.25	3.7	685.0	246.53	525.97	-.22
7-day maximum	294.0	1.62	136.2	978.0	5.3	76.40	3.6	683.3	231.56	486.76	-.22
30-day maximum	231.6	1.20	105.4	901.2	4.4	72.27	3.5	609.7	182.37	327.16	-.69
90-day maximum	138.5	1.31	67.8	488.4	4.1	53.04	3.3	459.7	106.97	195.55	-.84
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.52	.00	.04	.63	1.19	.02	.88	.01	.01	-1.00
Parameter Group #3											
Date of minimum	267.5	.06	242.0	300.0	343.0	.09	7.0	362.0	260.65	277.14	-1.00
Date of maximum	129.0	.08	2.0	360.0	236.0	.39	64.0	339.0	117.86	134.21	-1.00
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	.0	.00	.0	1.0	2.00	5.00	-1.00
Low Pulse Duration	18.2	.64	.0	45.5	.0	.00	.0	2.0	12.30	21.07	-1.00
High Pulse Count	2.0	1.25	1.0	9.0	.0	.00	.0	5.0	2.00	3.00	-.75
High Pulse Duration	35.3	.81	15.4	114.0	.0	.00	.0	171.0	30.00	46.07	-1.00

The low pulse threshold is 1.40
The high pulse level is 47.03

Parameter Group #5											
Rise rate	8.5	1.86	3.4	35.9	.3	51.83	.1	29.7	5.45	16.12	-.53
Fall rate	-5.2	-1.73	-18.3	-2.0	-.3	-43.68	-24.4	-.1	-9.83	-3.27	-.53
Number of reversals	84.5	.20	64.0	97.0	49.5	.69	37.0	110.0	75.93	90.07	-.69

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
November	6.40	16.00	1.50	4.80	.00	-1.00	4.80	.00	-1.00
December	6.40	16.00	1.50	4.80	.00	-1.00	4.80	.00	-1.00
January	6.40	5.00	-.22	4.80	1.00	-.79	4.80	10.00	1.08
February	6.40	.00	-1.00	4.80	2.00	-.58	4.80	14.00	1.92
March	6.40	.00	-1.00	4.80	3.00	-.38	4.80	13.00	1.71
April	6.40	.00	-1.00	4.80	2.00	-.58	4.80	14.00	1.92
May	6.40	.00	-1.00	4.80	3.00	-.38	4.80	13.00	1.71
June	6.40	.00	-1.00	4.80	6.00	.25	4.80	10.00	1.08
July	6.40	3.00	-.53	4.80	4.00	-.17	4.80	9.00	.87
August	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
September	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
Parameter Group #2									
1-day minimum	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
3-day minimum	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
7-day minimum	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
30-day minimum	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
90-day minimum	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
1-day maximum	6.40	6.00	-.06	4.80	1.00	-.79	4.80	9.00	.87
3-day maximum	6.40	5.00	-.22	4.80	2.00	-.58	4.80	9.00	.87
7-day maximum	6.40	5.00	-.22	4.80	2.00	-.58	4.80	9.00	.87
30-day maximum	6.40	2.00	-.69	4.80	3.00	-.38	4.80	11.00	1.29
90-day maximum	6.40	1.00	-.84	4.80	4.00	-.17	4.80	11.00	1.29
Number of zero days	16.00	16.00	.00	.00	.00	.00	.00	.00	.00
Base flow	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
Parameter Group #3									
Date of minimum	6.40	.00	-1.00	4.80	12.00	1.50	4.80	4.00	-.17
Date of maximum	6.40	.00	-1.00	4.80	15.00	2.12	4.80	1.00	-.79
Parameter Group #4									
Low Pulse Count	10.40	.00	-1.00	4.00	.00	-1.00	1.60	16.00	9.00
Low Pulse Duration	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
High Pulse Count	8.00	2.00	-.75	4.00	2.00	-.50	4.00	12.00	2.00
High Pulse Duration	6.40	.00	-1.00	4.80	3.00	-.38	4.80	13.00	1.71
Parameter Group #5									
Rise rate	6.40	3.00	-.53	4.80	4.00	-.17	4.80	9.00	.87
Fall rate	6.40	3.00	-.53	4.80	9.00	.87	4.80	4.00	-.17
Number of reversals	6.40	2.00	-.69	4.80	2.00	-.58	4.80	12.00	1.50

4 Messages:

Parameter Low pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 7 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-12d. Stevenson below Shaver Lake Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Stevenson below Shaver Lake Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1987-2002 (16 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	55.62	36.96
Mean flow/area	55.62	36.96
Annual C. V.	.68	.01
Flow predictability	.46	.78
Constancy/predictability	.34	.88

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Unimpaired	Existing
% of floods in 60d period	.61	.56
flood-free season	100.00	68.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	1.2	3.6	1.71	.09	1.94	.95	.00	.11
November	2.0	3.2	2.09	.18	.62	.91	.00	.11
December	2.9	2.6	2.74	.19	.09	.93	.30	.19
January	6.4	2.6	3.35	.27	.59	.92	.05	.18
February	12.7	2.8	2.41	.26	.78	.89	.17	.13
March	36.7	3.0	.99	.55	.92	.44	.08	.48
April	150.2	3.8	.55	4.99	.97	8.05	.06	.02
May	214.2	3.7	1.19	25.92	.98	20.74	.09	.00
June	40.2	3.6	2.84	66.18	.91	22.33	.20	.00
July	6.4	3.5	1.56	29.55	.45	17.89	.23	.07
August	.8	3.4	2.10	.23	2.98	.89	.00	.13
September	.6	3.4	1.51	.04	5.05	.97	.00	.30
Parameter Group #2								
1-day minimum	.2	2.2	1.07	.17	9.00	.84	.00	.40
3-day minimum	.2	2.2	1.14	.21	9.00	.82	.00	.43
7-day minimum	.2	2.2	1.27	.21	8.87	.83	.00	.44
30-day minimum	.4	2.4	1.52	.16	5.96	.90	.00	.39
90-day minimum	.7	2.6	1.16	.20	3.04	.83	.00	.25
1-day maximum	390.2	9.1	1.75	47.27	.98	25.97	.01	.00
3-day maximum	327.7	6.4	1.86	64.25	.98	33.50	.00	.00
7-day maximum	294.0	5.3	1.62	76.40	.98	46.11	.01	.00
30-day maximum	231.6	4.4	1.20	72.27	.98	59.30	.01	.00
90-day maximum	138.5	4.1	1.31	53.04	.97	39.56	.02	.00
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.6	.52	1.19	98.42	1.29	.00	.38
Parameter Group #3								
Date of minimum	267.5	343.0	.06	.09	.41	.46	.00	.07
Date of maximum	129.0	236.0	.08	.39	.58	3.69	.01	.00
Parameter Group #4								
Low pulse count	4.0	.0	.94	.00	1.00	1.00	.03	.17
Low pulse duration	18.2	.0	.64	.00	1.00	1.00	.13	.13
High pulse count	2.0	.0	1.25	.00	1.00	1.00	.03	.14
High pulse duration	35.3	.0	.81	.00	1.00	1.00	.04	.13

The low pulse threshold is 1.40
The high pulse level is 47.03

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	8.5	.3	1.86	51.83	.96	26.90	.05	.00
Fall rate	-5.2	-.3	-1.73	-43.68	.94	24.24	.09	.00
Number of reversals	84.5	49.5	.20	.69	.41	2.49	.00	.00

Table CAWG 6 Appendix L-12e. Stevenson below Shaver Lake IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1987-2002).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
27.96	22.88	1.02	0.50	3.43	0.14	0.15	1.40	0.32	0.28	0.22	0.72	0.72	1.78	0.44	0.46	5.34	0.47	0.31	0.20	3.30	3.40	3.70	3.50	3.50	3.50	3.40	3.90	3.30	3.50	3.30	3.50	3.60	3.60	4.50	3.40
24.15	17.80	0.95	0.47	4.32	0.14	0.19	1.05	0.31	0.28	0.22	0.70	0.53	1.78	0.47	0.42	4.45	0.47	0.28	0.20	3.40	3.40	3.70	3.50	3.50	3.50	3.40	3.90	3.30	3.50	3.10	3.60	3.60	3.70	4.60	3.40
20.34	13.98	1.00	0.43	3.94	0.13	0.19	0.97	0.32	0.25	0.24	0.67	0.44	1.53	0.47	0.42	4.07	0.46	0.28	0.19	3.50	3.40	3.60	3.50	3.50	3.60	3.40	3.90	3.30	7.40	3.10	3.60	3.60	3.70	4.60	3.40
17.80	11.69	0.98	0.41	3.30	0.13	0.15	0.97	0.31	0.25	0.25	0.66	7.37	1.53	0.47	0.41	3.94	0.43	0.28	0.18	3.40	3.40	3.60	3.50	3.50	3.60	3.40	3.90	4.10	4.10	3.10	3.60	3.60	3.70	4.60	3.40
16.52	10.68	0.95	0.38	2.92	0.13	0.15	0.92	0.28	0.25	0.25	0.69	12.71	1.40	0.44	0.39	3.69	0.42	0.28	0.18	3.40	3.40	3.60	3.40	3.50	3.60	3.40	3.80	4.10	4.30	3.20	3.60	3.50	3.70	4.60	3.40
15.25	9.91	0.94	1.65	2.67	0.13	0.15	0.86	0.28	0.24	0.24	0.75	6.99	1.40	0.44	0.41	3.43	0.43	0.28	0.19	3.40	3.40	3.60	3.40	3.50	3.60	3.30	4.10	3.50	4.30	3.20	3.50	3.50	3.80	4.60	3.40
13.98	9.41	0.84	4.45	2.42	0.15	0.15	0.84	0.25	0.25	0.24	0.83	6.10	1.40	0.44	0.44	3.18	0.47	0.28	0.19	3.30	3.50	3.70	3.40	3.50	3.60	3.30	4.30	3.40	4.30	3.20	3.50	3.50	3.80	4.60	3.40
13.98	9.28	0.75	2.16	2.42	0.17	0.15	0.78	0.25	0.24	0.24	0.86	6.61	1.40	0.42	0.47	2.80	0.47	0.28	0.22	3.30	3.50	3.70	3.40	3.50	3.60	3.30	3.50	3.40	4.30	3.20	3.50	3.50	3.80	4.60	3.40
12.71	8.90	0.71	2.29	2.29	0.18	0.18	0.75	0.25	0.22	0.22	0.84	9.02	1.40	0.39	0.47	2.67	0.46	0.33	0.24	3.30	3.50	3.70	3.50	3.50	3.50	3.30	3.50	3.40	4.30	3.10	3.50	3.50	3.80	4.90	3.40
12.33	8.77	0.71	1.91	2.16	0.19	0.18	0.71	0.25	0.24	0.22	0.81	9.28	1.40	0.39	0.99	2.67	0.44	1.19	0.22	3.30	3.50	3.70	3.60	3.50	3.50	3.30	3.50	3.40	4.30	3.20	3.70	3.50	3.80	5.00	3.40
11.95	8.26	2.29	1.53	2.03	0.19	0.15	0.66	0.25	0.24	0.22	1.40	8.77	1.27	0.39	1.65	2.67	0.42	0.84	0.23	3.30	3.50	3.70	3.60	3.50	3.50	3.30	3.60	3.40	4.30	3.20	3.60	3.50	3.80	4.70	3.40
11.57	7.75	1.91	1.40	2.16	0.19	0.18	0.60	0.25	0.25	0.19	1.27	7.50	1.26	0.39	1.40	2.54	0.41	0.81	0.24	3.30	3.50	3.70	3.60	3.50	3.50	3.30	3.60	3.40	4.30	3.20	3.60	3.50	3.80	4.70	3.40
11.19	7.25	1.40	1.22	2.03	0.20	0.18	0.57	0.25	0.28	0.19	1.18	6.86	1.23	0.39	1.40	2.42	0.38	0.95	0.23	3.30	3.50	3.70	3.60	3.50	3.50	3.30	3.50	3.40	4.30	3.20	3.50	146.00	3.80	4.60	3.40
10.80	7.37	1.14	1.11	2.03	0.20	0.18	0.57	0.25	0.28	0.19	1.07	6.23	1.18	0.42	1.19	2.42	0.37	1.00	0.23	3.20	3.50	3.70	3.60	3.50	3.50	3.30	3.50	3.40	4.30	3.20	3.50	278.00	3.80	4.60	3.40
10.42	7.50	1.00	1.03	1.91	0.19	0.18	0.57	0.25	0.27	0.19	1.27	5.97	1.16	0.42	0.99	2.54	0.37	0.95	0.23	3.20	3.50	3.70	3.60	3.50	3.50	3.30	3.50	3.40	4.30	3.20	3.50	278.00	3.70	4.60	3.40
10.04	7.37	1.40	0.99	1.91	0.19	0.19	0.60	0.25	0.25	0.22	1.78	4.96	1.13	0.42	0.84	2.67	0.37	0.90	0.23	3.40	3.50	3.70	3.60	3.50	3.50	3.30	3.70	3.40	4.30	3.20	3.50	278.00	3.30	4.60	3.40
10.04	7.25	2.42	0.95	1.78	0.19	0.19	0.60	0.25	0.25	0.22	2.54	4.19	1.12	0.42	0.74	2.67	0.37	0.81	0.23	6.00	3.50	3.70	3.60	3.50	3.50	3.30	3.60	3.40	4.30	3.20	3.50	278.00	3.40	4.60	3.40
9.66	7.25	2.03	0.90	1.91	0.19	0.18	0.60	0.25	0.27	0.22	2.42	3.81	1.07	0.42	0.66	2.67	0.37	0.71	0.23	6.50	3.50	3.70	3.60	3.50	3.50	3.30	3.50	3.40	4.30	3.20	3.50	278.00	3.40	4.60	3.40
9.41	6.86	3.69	0.88	1.91	0.19	0.15	0.57	0.32	0.27	0.22	2.03	3.56	1.05	0.42	0.62	2.54	0.37	0.66	0.23	6.80	3.50	3.70	3.60	3.40	3.50	3.30	3.50	3.40	4.30	3.20	3.50	275.00	3.40	4.60	3.40
9.28	6.10	3.43	0.84	1.91	0.19	0.15	0.56	0.32	0.28	0.24	1.78	3.30	1.02	0.50	0.60	2.54	0.37	0.62	0.23	5.80	3.50	3.60	3.60	3.40	3.50	3.30	3.60	3.40	4.30	3.20	3.50	274.00	3.40	4.60	3.40
9.28	5.72	2.92	1.40	2.03	0.19	0.15	1.07	0.29	0.28	0.76	1.53	3.30	1.04	0.50	0.60	2.42	0.37	0.60	0.23	3.70	3.60	3.60	3.60	3.40	3.50	3.30	3.60	3.40	4.30	3.20	3.50	273.00	3.60	4.70	3.40
9.66	5.59	2.67	1.78	2.03	0.44	0.15	8.52	0.28	0.28	0.72	1.40	3.30	1.07	0.52	0.60	2.42	0.37	0.69	0.23	3.80	3.80	3.60	3.60	3.40	3.50	3.10	3.60	3.40	4.30	3.20	3.50	273.00	3.40	4.70	3.40
13.98	5.47	2.54	2.54	2.03	0.48	0.18	3.43	0.25	0.28	0.47	1.25	3.30	1.11	0.52	0.60	2.29	0.37	0.67	0.23	3.70	3.70	3.60	3.60	3.40	3.60	3.10	3.60	3.40	4.30	3.20	3.50	273.00	3.40	4.60	3.40
21.61	5.47	2.54	3.30	1.91	0.46	0.18	12.71	0.25	0.31	0.38	1.17	3.30	1.12	0.75	0.58	2.67	0.37	0.66	0.23	3.70	3.60	3.60	3.70	3.40	3.60	3.10	3.60	3.40	4.30	3.30	3.50	273.00	3.50	4.60	3.40
106.77	5.34	2.80	3.18	1.91	0.43	0.18	12.08	0.24	0.38	0.37	1.13	3.56	1.16	3.30	0.57	3.94	0.37	0.69	0.23	3.60	3.60	3.60	3.70	3.50	3.60	3.10	3.70	3.40	4.30	3.20	3.50	271.00	3.50	4.50	3.40
460.13	5.08	2.80	2.54	1.91	0.41	0.15	8.77	0.22	11.95	0.37	1.07	3.69	1.17	1.53	0.60	4.70	0.37	1.40	0.23	3.50	3.60	3.60	3.60	3.60	4.20	3.10	3.60	3.40	4.30	3.20	3.50	270.00	3.50	4.40	3.40
110.58	4.83	2.80	2.16	1.91	0.38	0.18	7.75	0.22	6.36	0.37	1.00	3.56	1.14	1.21	0.61	4.19	0.37	1.78	0.24	3.50	3.70	3.60	3.60	3.50	3.70	3.10	3.70	3.40	4.30	3.20	3.50	274.00	3.50	4.50	3.50
78.81	4.70	2.42	1.91	1.91	1.65	0.15	6.10	0.22	2.42	0.44	0.97	3.30	1.13	1.16	0.60	3.69	0.42	1.78	0.24	3.50	3.90	3.60	3.60	3.50	3.70	3.10	3.70	3.40	4.30	3.30	3.50	273.00	3.50	4.70	3.50
67.37	4.58	2.29	1.65	1.91	6.23	0.18	4.83	0.22	2.29	2.92	0.97	3.18	1.12	1.22	0.60	4.58	0.43	2.92	0.25	3.50	4.10	3.60	3.60	3.50	3.60	3.50	3.70	3.40	4.30	3.80	3.40	235.00	3.50	7.20	3.50
339.38	7.63	2.29	1.53	1.78	2.67	0.19	4.19	0.22	2.03	20.34	0.95	2.92	1.09	1.40	0.62	5.47	0.42	2.03	1.65	3.50	3.70	3.60	3.60	3.50	3.60	4.20	3.70	3.40	4.30	4.10	3.40	3.70	3.60	6.20	3.70
156.34	8.39	2.29	1.40	1.78	2.03	0.19	3.69	0.22	1.78	7.37	0.94	2.67	1.08	1.53	0.62	4.45	0.41	1.53	2.42	3.50	3.70	3.60	3.60	3.50	3.60	3.40	3.70	3.40	4.30	3.70	3.40	3.10	3.60	5.90	3.60
101.69	8.52	2.03	1.40	1.78	6.74	0.19	3.30	0.31	1.65	4.70	0.94	2.67	1.13	1.40	0.62	3.94	0.39	1.40	1.53	3.50	3.80	3.60	3.60	3.50	3.60	3.20	3.70	3.40	4.30	3.60	3.40	3.80	3.40	4.80	3.50

Table CAWG 6 Appendix L-13a. Big Creek below Huntington Lake IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Big Ck below Huntington Lake Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min
U	1983	147.12	129.97	109.83	103.60	95.17	121.93	149.02	1126.76	2272.06	595.27	74.99	24.77	13.67	14.38	16.13	24.07	31.41
	1984	23.05	128.14	198.61	130.52	110.27	215.24	422.97	470.75	85.86	21.67	5.70	2.06	1.72	1.77	1.87	2.06	3.95
	1985	5.15	9.26	11.16	17.76	25.85	65.71	405.79	387.72	62.12	8.19	1.35	2.13	.56	.59	.60	1.04	2.39
	1986	4.35	5.98	21.81	77.93	319.57	477.87	743.56	1059.46	404.62	37.18	6.23	5.42	1.05	1.12	2.14	2.93	4.65
	1987	6.28	4.25	3.09	3.82	3.74	30.55	301.31	207.21	41.91	5.87	.90	.47	.39	.39	.37	.44	.71
	1988	1.67	11.34	12.50	23.03	41.81	126.68	280.38	249.29	63.88	11.55	1.66	.65	.35	.35	.37	.46	.69
	1989	.47	2.14	3.04	4.17	10.67	132.37	443.07	229.60	45.19	6.18	1.53	3.10	.42	.42	.44	.47	1.85
	1990	7.85	6.40	4.92	7.62	10.87	98.73	372.13	223.04	59.28	7.16	1.13	.76	.35	.35	.37	.50	.77
	1991	.72	.99	1.44	1.99	3.57	77.51	172.39	566.88	283.31	33.02	4.29	1.20	.60	.60	.61	.71	1.04
	1992	2.98	4.78	4.33	6.22	18.21	44.84	439.10	285.37	34.82	19.66	2.17	.83	.60	.60	.62	.64	1.34
	1993	3.47	5.03	4.32	27.84	31.37	136.52	507.24	1595.13	785.64	112.42	14.44	3.16	.53	.53	.56	2.48	3.24
	1994	3.26	3.40	4.72	6.10	8.69	63.83	244.39	312.74	61.14	5.10	.59	.85	.35	.35	.37	.41	1.67
	1995	13.44	24.72	29.12	82.80	93.42	281.41	470.42	1183.65	1765.64	631.35	53.82	8.30	1.23	1.57	4.46	3.54	3.81
	1996	3.45	3.10	18.70	28.99	164.35	179.27	622.36	1106.06	205.12	22.79	3.60	1.50	1.09	1.19	1.27	1.26	2.17
	1997	1.98	78.83	128.94	678.86	102.06	312.96	609.16	615.07	102.51	14.27	2.51	1.63	1.09	1.09	1.11	1.45	1.74
	1998	1.92	2.80	4.71	6.47	6.52	56.23	230.36	625.36	1869.19	569.94	31.43	13.32	1.09	1.11	1.16	1.80	3.10
	1999	9.14	15.72	26.66	29.77	80.02	87.43	266.59	655.11	202.55	23.41	4.11	1.70	1.05	1.10	1.15	1.12	1.62
	2000	1.12	2.60	1.86	13.63	42.83	94.56	555.39	808.82	157.31	15.85	1.91	1.33	.84	.82	.79	.90	1.76
	2001	2.38	3.28	2.92	9.04	19.72	103.66	283.54	715.84	54.91	10.01	1.07	.58	.56	.56	.53	.56	.76
	2002	.93	11.27	17.96	17.79	38.48	90.82	471.59	482.62	119.24	8.87	.87	.54	.46	.47	.48	.54	1.39
E	1987	2.98	2.87	2.86	2.74	2.63	2.69	2.80	2.74	2.80	2.42	2.40	3.10	2.30	2.30	2.30	2.37	2.52
	1988	2.69	2.72	2.62	2.44	2.07	2.01	3.19	3.03	2.73	2.94	2.93	3.96	1.90	1.90	1.90	2.01	2.10
	1989	2.90	2.76	2.57	2.41	1.88	2.61	3.05	2.94	2.95	3.11	3.02	3.09	1.70	1.73	1.77	1.88	2.26
	1990	2.77	2.52	2.44	2.28	2.10	2.16	2.64	2.64	2.82	2.91	2.97	2.93	1.90	1.90	1.93	2.03	2.18
	1991	2.78	2.81	2.75	2.59	1.69	4.21	4.80	9.71	4.91	3.59	3.79	3.83	1.10	1.13	1.26	1.70	2.34
	1992	3.69	3.76	3.31	3.24	3.34	3.56	3.98	3.81	4.04	4.15	4.05	4.26	3.10	3.10	3.13	3.22	3.29
	1993	4.05	3.82	3.55	3.55	2.48	3.15	5.50	17.74	64.71	4.97	4.69	4.86	2.00	2.00	2.09	2.28	2.98
	1994	4.79	4.55	4.57	4.13	3.52	3.57	4.02	4.55	4.86	4.81	4.80	4.64	3.20	3.20	3.25	3.40	3.66
	1995	4.22	3.96	3.92	4.25	3.52	5.90	7.09	12.12	11.64	6.24	5.50	4.65	3.30	3.30	3.34	3.53	3.90
	1996	4.57	4.09	3.67	2.47	2.25	2.79	4.55	4.06	2.74	2.57	2.26	2.32	.76	.83	1.16	1.77	2.36
	1997	2.52	3.12	3.42	6.45	2.94	3.07	3.41	2.96	3.09	2.77	2.87	2.73	2.10	2.33	2.31	2.32	2.31
	1998	2.32	2.34	2.24	2.28	1.85	1.85	4.99	10.45	10.60	4.38	3.35	3.13	1.20	1.20	1.20	1.40	1.93
	1999	2.75	2.62	2.43	2.04	2.63	2.40	4.20	6.11	4.96	3.61	3.35	3.30	1.70	1.77	1.79	2.00	2.32
	2000	2.65	2.85	2.78	2.20	2.51	2.83	4.18	4.36	5.47	4.70	4.42	4.10	1.70	1.70	1.73	2.16	2.42
	2001	3.10	2.52	3.99	2.37	2.34	2.60	3.65	6.38	5.50	5.12	6.26	5.18	2.00	2.03	2.07	2.20	2.42
	2002	3.35	3.16	2.92	2.75	2.36	2.50	4.08	6.83	5.71	5.14	4.96	3.87	2.10	2.17	2.21	2.31	2.53

	Year	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
U	1983	2969.81	2875.14	2697.82	2486.06	1347.15	.00	.04	265.00	169.00	.00	.00	9.00	15.67	67.49	-39.07	87.00
	1984	1577.82	898.77	669.20	530.26	377.16	.00	.01	255.00	360.00	2.00	19.00	8.00	15.38	39.20	-20.33	97.00
	1985	701.25	663.85	625.12	503.50	296.63	.00	.01	243.00	105.00	5.00	12.40	2.00	30.50	12.51	-8.31	79.00
	1986	1816.25	1395.49	1298.32	1091.38	791.68	.00	.01	279.00	68.00	4.00	10.25	3.00	46.00	61.40	-34.08	84.00
	1987	455.81	449.97	441.79	360.56	186.94	.00	.01	265.00	116.00	10.00	13.40	1.00	47.00	9.30	-5.50	85.00
	1988	431.27	414.91	375.67	290.67	223.12	.00	.01	277.00	134.00	2.00	31.00	2.00	34.50	10.58	-6.69	91.00
	1989	704.76	677.88	642.15	444.71	274.46	.00	.01	275.00	100.00	6.00	19.83	3.00	23.33	14.21	-8.18	75.00
	1990	553.99	524.77	470.84	395.27	240.92	.00	.01	256.00	118.00	2.00	45.50	2.00	33.50	15.11	-7.79	64.00
	1991	950.20	896.44	770.88	614.06	347.00	.00	.01	300.00	145.00	2.00	21.00	4.00	19.50	25.15	-16.36	92.00
	1992	701.25	680.21	639.64	520.56	261.33	.00	.01	283.00	121.00	6.00	10.67	1.00	51.00	11.16	-6.81	77.00
	1993	2187.91	2124.80	1943.47	1598.86	979.50	.00	.00	286.00	139.00	4.00	9.00	1.00	114.00	44.98	-26.95	73.00
	1994	536.46	507.24	460.82	359.28	220.54	.00	.01	246.00	133.00	8.00	13.25	3.00	21.00	13.57	-9.06	76.00
	1995	2759.43	2426.34	2249.02	1799.65	1264.32	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	89.44	-49.62	68.00
	1996	5785.34	2937.08	1932.96	1267.63	681.19	.00	.01	256.00	137.00	3.00	35.67	3.00	37.33	78.54	-35.46	95.00
	1997	7713.79	4207.52	2339.68	838.47	528.75	.00	.01	283.00	2.00	3.00	19.33	7.00	19.43	99.07	-50.48	85.00
	1998	2720.86	2495.29	2356.71	1869.78	1063.37	.00	.00	279.00	167.00	4.00	11.00	2.00	52.00	44.42	-29.38	94.00
	1999	985.26	909.29	851.02	663.74	386.74	.00	.01	261.00	133.00	2.00	22.00	2.00	36.00	21.77	-10.97	96.00
	2000	1644.44	1400.17	1236.71	888.26	528.12	.00	.01	261.00	129.00	5.00	25.40	1.00	83.00	34.10	-18.76	75.00
	2001	1167.59	1151.23	1091.45	803.99	388.77	.00	.01	242.00	129.00	6.00	22.50	2.00	33.50	21.18	-12.17	90.00
	2002	725.80	698.92	627.12	497.31	372.60	.00	.00	270.00	105.00	5.00	17.40	1.00	73.00	15.89	-9.32	64.00
E	1987	4.00	3.60	3.23	3.10	2.91	.00	.84	62.00	44.00	3.00	76.00	.00	.00	.18	-.14	50.00
	1988	8.50	7.73	5.90	3.96	3.28	.00	.68	72.00	271.00	6.00	24.67	.00	.00	.40	-.29	57.00
	1989	3.70	3.47	3.30	3.18	3.08	.00	.64	45.00	261.00	2.00	107.00	.00	.00	.16	-.13	57.00
	1990	3.20	3.17	3.10	3.03	2.94	.00	.74	66.00	114.00	2.00	107.00	.00	.00	.14	-.12	57.00
	1991	13.00	12.67	11.86	9.88	6.76	.00	.32	50.00	148.00	9.00	11.33	.00	.00	.48	-.40	50.00
	1992	4.70	4.50	4.36	4.26	4.15	.00	.83	33.00	194.00	9.00	18.44	.00	.00	.15	-.12	62.00
	1993	115.00	111.67	98.14	71.97	29.55	.00	.20	64.00	171.00	6.00	22.67	.00	.00	2.36	-2.17	71.00
	1994	5.10	5.00	5.00	4.88	4.83	.00	.74	58.00	152.00	3.00	22.33	.00	.00	.12	-.11	39.00
	1995	19.00	18.00	15.29	13.17	10.45	.00	.55	47.00	121.00	5.00	9.60	.00	.00	.83	-.54	73.00
	1996	7.80	6.00	5.24	4.68	4.13	.00	.36	34.00	137.00	9.00	29.11	.00	.00	.51	-.25	60.00
	1997	29.00	20.00	13.27	6.54	4.48	.00	.70	275.00	2.00	10.00	32.40	.00	.00	.99	-.41	49.00
	1998	15.00	14.33	13.86	11.91	9.05	.00	.29	58.00	159.00	4.00	37.50	.00	.00	.50	-.29	48.00
	1999	9.10	8.13	7.51	6.27	5.25	.00	.53	14.00	146.00	7.00	18.43	.00	.00	.32	-.23	47.00
	2000	7.80	7.73	7.23	5.54	4.93	.00	.48	6.00	166.00	3.00	24.67	.00	.00	.37	-.23	62.00
	2001	8.70	8.63	8.27	6.78	5.75	.00	.51	71.00	132.00	3.00	61.67	.00	.00	.25	-.20	57.00
	2002	8.30	8.20	8.06	7.34	5.99	.00	.56	50.00	131.00	4.00	36.75	.00	.00	.27	-.16	43.00

Table CAWG 6 Appendix L-13b. Big Creek below Huntington Lake IHA Percentile Data.

IHA Percentile Data
Big Ck below Huntington Lake Data

Unimpaired period: 1983-2002 (20 years) — Existing period: 1987-2002 (16 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.74	1.73	3.35	7.46	22.09	1.71	2.46	2.70	2.94	3.96	4.64	.43
November	2.19	3.14	5.50	14.62	123.21	2.09	2.46	2.64	2.86	3.80	4.23	.41
December	1.97	3.40	8.04	25.45	127.03	2.74	2.37	2.58	2.89	3.64	4.16	.37
January	3.85	6.28	17.78	65.89	127.83	3.35	2.15	2.31	2.53	3.47	4.91	.46
February	4.02	10.72	34.93	94.73	158.94	2.41	1.80	2.08	2.42	2.86	3.52	.32
March	45.97	68.66	101.20	168.58	309.81	.99	1.96	2.42	2.74	3.46	4.71	.38
April	178.19	270.04	414.38	498.33	621.04	.55	2.76	3.25	4.05	4.74	5.97	.37
May	223.70	292.21	590.98	996.80	1177.96	1.19	2.71	2.98	4.46	8.99	13.80	1.35
June	42.24	59.74	110.87	374.29	1858.84	2.84	2.74	2.85	4.89	5.65	27.56	.57
July	5.90	8.36	17.75	36.14	592.74	1.56	2.52	2.91	3.88	4.93	5.47	.52
August	.87	1.19	2.34	6.10	51.58	2.10	2.36	2.94	3.57	4.78	5.73	.51
September	.55	.78	1.56	3.14	12.82	1.51	2.61	3.09	3.85	4.55	4.95	.38
Parameter Group #2												
1-day minimum	.35	.43	.60	1.09	1.67	1.10	1.00	1.70	1.95	2.25	3.23	.28
3-day minimum	.35	.43	.60	1.12	1.75	1.14	1.04	1.71	1.95	2.32	3.23	.32
7-day minimum	.37	.45	.62	1.24	4.23	1.29	1.19	1.74	2.00	2.31	3.28	.29
30-day minimum	.44	.51	.97	1.99	3.48	1.52	1.61	1.91	2.18	2.36	3.44	.20
90-day minimum	.71	1.12	1.75	3.21	4.58	1.20	2.05	2.27	2.39	2.87	3.73	.25
1-day maximum	463.88	701.25	1076.43	2587.62	5503.79	1.75	3.55	4.80	8.40	14.50	54.80	1.15
3-day maximum	455.69	667.36	904.03	2350.95	2930.89	1.86	3.38	4.62	7.93	13.92	47.50	1.17
7-day maximum	443.69	625.62	810.95	1940.84	2355.01	1.62	3.19	4.52	7.37	12.92	40.14	1.14
30-day maximum	359.40	457.86	638.90	1223.57	1862.76	1.20	3.08	4.03	5.91	9.25	30.81	.88
90-day maximum	220.80	264.62	381.95	764.05	1244.23	1.31	2.93	3.49	4.88	6.57	16.18	.63
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.00	.01	.01	.01	.01	.52	.26	.39	.55	.73	.83	.61
Parameter Group #3												
Date of minimum	243.30	256.00	267.50	279.00	285.70	.06	11.60	36.75	54.00	65.50	132.90	.08
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	31.40	123.50	147.00	169.75	264.00	.13
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	2.00	3.00	4.50	8.50	9.30	1.22
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	10.81	19.42	26.89	55.63	107.00	1.35
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	.00	.00	.00	.00	.00	.00
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	.00	.00	.00	.00	.00	.00
Parameter Group #5												
Rise rate	10.64	13.73	23.46	57.30	88.35	1.86	.13	.17	.34	.51	1.40	1.01
Fall rate	-48.57	-32.90	-14.26	-8.22	-6.70	-1.73	-1.03	-.38	-.23	-.13	-.11	-1.06
Number of reversals	64.40	75.00	84.50	91.75	95.90	.20	41.80	48.25	57.00	61.50	71.60	.23

Table CAWG 6 Appendix L-13c. Big Creek below Huntington Lake IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Big Ck below Huntington Lake Data

	Unimpaired period: 1983-2002				Existing period: 1987-2002				RVA Categories		Hydrologic Alteration
			Range Limits				Range Limits				
	Medians	Coeff. of Variance	Low	High	Medians	Coeff. of Variance	Low	High	Low	High	(Middle Category)
Parameter Group #1											
October	3.4	1.71	.5	147.1	2.9	.43	2.3	4.8	1.98	5.23	1.50
November	5.5	2.09	1.0	130.0	2.9	.41	2.3	4.6	3.39	11.28	-.22
December	8.0	2.74	1.4	198.6	2.9	.37	2.2	4.6	4.32	18.91	-.84
January	17.8	3.35	2.0	678.9	2.5	.46	2.0	6.4	7.54	29.04	-1.00
February	34.9	2.41	3.6	319.6	2.4	.32	1.7	3.5	17.69	80.96	-1.00
March	101.2	.99	30.5	477.9	2.7	.38	1.8	5.9	86.74	132.66	-1.00
April	414.4	.55	149.0	743.6	4.0	.37	2.6	7.1	283.32	470.51	-1.00
May	591.0	1.19	207.2	1595.1	4.5	1.35	2.6	17.7	382.48	722.35	-1.00
June	110.9	2.84	34.8	2272.1	4.9	.57	2.7	64.7	62.05	210.59	-.84
July	17.8	1.56	5.1	631.4	3.9	.52	2.4	6.2	9.93	24.09	-1.00
August	2.3	2.10	.6	75.0	3.6	.51	2.3	6.3	1.52	4.39	.56
September	1.6	1.51	.5	24.8	3.9	.38	2.3	5.2	.85	2.20	-1.00
Parameter Group #2											
1-day minimum	.6	1.10	.3	13.7	2.0	.28	.8	3.3	.53	1.05	-.84
3-day minimum	.6	1.14	.3	14.4	2.0	.32	.8	3.3	.53	1.10	-.84
7-day minimum	.6	1.29	.4	16.1	2.0	.29	1.2	3.3	.53	1.15	-1.00
30-day minimum	1.0	1.52	.4	24.1	2.2	.20	1.4	3.5	.56	1.48	-.84
90-day minimum	1.7	1.20	.7	31.4	2.4	.25	1.9	3.9	1.39	2.44	.56
1-day maximum	1076.4	1.75	431.3	7713.8	8.4	1.15	3.2	115.0	704.51	1842.27	-1.00
3-day maximum	904.0	1.86	414.9	4207.5	7.9	1.17	3.2	111.7	680.05	1450.89	-1.00
7-day maximum	810.9	1.62	375.7	2697.8	7.4	1.14	3.1	98.1	638.77	1342.75	-1.00
30-day maximum	638.9	1.20	290.7	2486.1	5.9	.88	3.0	72.0	503.07	902.47	-1.00
90-day maximum	381.9	1.31	186.9	1347.1	4.9	.63	2.9	29.6	295.08	539.42	-1.00
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.52	.00	.04	.55	.61	.20	.84	.01	.01	-1.00
Parameter Group #3											
Date of minimum	267.5	.06	242.0	300.0	54.0	.08	6.0	275.0	260.65	277.14	-.84
Date of maximum	129.0	.08	2.0	360.0	147.0	.13	2.0	271.0	117.86	134.21	-.53
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	4.5	1.22	2.0	10.0	2.00	5.00	-.13
Low Pulse Duration	18.2	.64	.0	45.5	26.9	1.35	9.6	107.0	12.30	21.07	-.69
High Pulse Count	2.0	1.25	1.0	9.0	.0	.00	.0	.0	2.00	3.00	-1.00
High Pulse Duration	35.3	.81	15.4	114.0	.0	.00	.0	.0	30.00	46.07	-1.00

The low pulse threshold is 3.86
The high pulse level is 129.73

	Medians	Coeff. of Variance	Low	High	Medians	Coeff. of Variance	Low	High	Low	High	Hydrologic Alteration
Parameter Group #5											
Rise rate	23.5	1.86	9.3	99.1	.3	1.01	.1	2.4	15.04	44.46	-1.00
Fall rate	-14.3	-1.73	-50.5	-5.5	-.2	-1.06	-2.2	-.1	-27.12	-9.01	-1.00
Number of reversals	84.5	.20	64.0	97.0	57.0	.23	39.0	73.0	75.93	90.07	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	6.40	16.00	1.50	4.80	.00	-1.00	4.80	.00	-1.00
November	6.40	5.00	-.22	4.80	.00	-1.00	4.80	11.00	1.29
December	6.40	1.00	-.84	4.80	.00	-1.00	4.80	15.00	2.12
January	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
February	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
March	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
April	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
May	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
June	6.40	1.00	-.84	4.80	.00	-1.00	4.80	15.00	2.12
July	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
August	6.40	10.00	.56	4.80	6.00	.25	4.80	.00	-1.00
September	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
Parameter Group #2									
1-day minimum	6.40	1.00	-.84	4.80	15.00	2.12	4.80	.00	-1.00
3-day minimum	6.40	1.00	-.84	4.80	15.00	2.12	4.80	.00	-1.00
7-day minimum	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
30-day minimum	6.40	1.00	-.84	4.80	15.00	2.12	4.80	.00	-1.00
90-day minimum	6.40	10.00	.56	4.80	6.00	.25	4.80	.00	-1.00
1-day maximum	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
3-day maximum	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
7-day maximum	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
30-day maximum	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
90-day maximum	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
Number of zero days	16.00	16.00	.00	.00	.00	.00	.00	.00	.00
Base flow	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
Parameter Group #3									
Date of minimum	6.40	1.00	-.84	4.80	.00	-1.00	4.80	15.00	2.12
Date of maximum	6.40	3.00	-.53	4.80	10.00	1.08	4.80	3.00	-.38
Parameter Group #4									
Low Pulse Count	10.40	9.00	-.13	4.00	7.00	.75	1.60	.00	-1.00
Low Pulse Duration	6.40	2.00	-.69	4.80	12.00	1.50	4.80	2.00	-.58
High Pulse Count	8.00	.00	-1.00	4.00	.00	-1.00	4.00	16.00	3.00
High Pulse Duration	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
Parameter Group #5									
Rise rate	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
Fall rate	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
Number of reversals	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33

4 Messages:

Parameter Low pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 7 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-13d. Big Creek below Huntington Lake Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Big Ck below Huntington Lake Data

	Unimpaired period: 1983-2002 (20 years)	Existing period: 1987-2002 (16 years)
Watershed area	1.00	
Mean annual flow	153.44	10.01
Mean flow/area	153.44	10.01
Annual C. V.	.68	.12
Flow predictability	.46	.73
Constancy/predictability	.34	.87

WARNING: Some of the Colwell Parameters are based on < 20 years of data

% of floods in 60d period	.61	.56
flood-free season	100.00	366.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	3.4	2.9	1.71	.43	.12	.75	.46	.11
November	5.5	2.9	2.09	.41	.48	.81	.02	.33
December	8.0	2.9	2.74	.37	.64	.87	.01	.38
January	17.8	2.5	3.35	.46	.86	.86	.09	.13
February	34.9	2.4	2.41	.32	.93	.87	.32	.18
March	101.2	2.7	.99	.38	.97	.62	.24	.62
April	414.4	4.0	.55	.37	.99	.33	.17	.74
May	591.0	4.5	1.19	1.35	.99	.13	.16	.84
June	110.9	4.9	2.84	.57	.96	.80	.08	.31
July	17.8	3.9	1.56	.52	.78	.67	.06	.12
August	2.3	3.6	2.10	.51	.53	.75	.02	.08
September	1.6	3.9	1.51	.38	1.46	.75	.00	.06
Parameter Group #2								
1-day minimum	.6	2.0	1.10	.28	2.25	.74	.00	.05
3-day minimum	.6	2.0	1.14	.32	2.25	.72	.00	.06
7-day minimum	.6	2.0	1.29	.29	2.25	.78	.00	.08
30-day minimum	1.0	2.2	1.52	.20	1.25	.87	.00	.08
90-day minimum	1.7	2.4	1.20	.25	.37	.79	.00	.09
1-day maximum	1076.4	8.4	1.75	1.15	.99	.34	.15	.69
3-day maximum	904.0	7.9	1.86	1.17	.99	.37	.15	.69
7-day maximum	810.9	7.4	1.62	1.14	.99	.30	.15	.75
30-day maximum	638.9	5.9	1.20	.88	.99	.26	.15	.74
90-day maximum	381.9	4.9	1.31	.63	.99	.52	.15	.56
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.6	.52	.61	87.49	.18	.00	.93
Parameter Group #3								
Date of minimum	267.5	54.0	.06	.08	.83	.25	.77	.50
Date of maximum	129.0	147.0	.08	.13	.10	.50	.02	.24
Parameter Group #4								
Low pulse count	4.0	4.5	.94	1.22	.13	.30	.45	.47
Low pulse duration	18.2	26.9	.64	1.35	.48	1.11	.02	.04
High pulse count	2.0	.0	1.25	.00	1.00	1.00	.00	.11
High pulse duration	35.3	.0	.81	.00	1.00	1.00	.02	.12

The low pulse threshold is 3.86
The high pulse level is 129.73

Parameter Group #5								
Rise rate	23.5	.3	1.86	1.01	.99	.46	.15	.63
Fall rate	-14.3	-.2	-1.73	-1.06	.98	.39	.15	.67
Number of reversals	84.5	57.0	.20	.23	.33	.17	.00	.57

Table CAWG 6 Appendix L-13e. Big Creek below Huntington Lake IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1987-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
77.14	63.11	2.81	1.37	9.47	0.39	0.42	3.86	0.88	0.77	0.60	2.00	2.00	4.91	1.23	1.26	14.73	1.30	0.84	0.56	3.10	2.70	2.80	2.80	2.80	3.80	4.20	4.80	4.50	4.60	2.10	2.30	3.10	3.10	3.90	3.40
66.62	49.09	2.63	1.30	11.92	0.39	0.53	2.91	0.84	0.77	0.60	1.93	1.47	4.91	1.30	1.16	12.27	1.30	0.77	0.56	3.00	2.70	2.80	2.80	2.80	3.80	4.10	4.80	4.40	4.50	2.70	2.30	3.10	3.00	3.90	3.40
56.10	38.57	2.77	1.19	10.87	0.35	0.53	2.66	0.88	0.70	0.67	1.86	1.23	4.21	1.30	1.16	11.22	1.26	0.77	0.53	3.00	2.70	2.80	2.80	2.80	3.70	4.10	4.80	4.40	4.50	4.20	2.30	3.10	2.90	3.90	3.30
49.09	32.26	2.70	1.12	9.12	0.35	0.42	2.66	0.84	0.70	0.70	1.82	20.34	4.21	1.30	1.12	10.87	1.19	0.77	0.49	3.00	2.70	2.80	2.80	2.80	3.60	4.00	4.90	5.70	4.50	2.80	2.30	3.10	2.80	3.80	3.30
45.58	29.45	2.63	1.05	8.06	0.35	0.42	2.52	0.77	0.70	0.70	1.89	35.06	3.86	1.23	1.09	10.17	1.16	0.77	0.49	3.00	2.70	2.80	2.80	2.80	3.60	4.10	4.90	5.40	4.60	2.80	2.30	3.00	2.80	3.50	3.40
42.08	27.35	2.59	4.56	7.36	0.35	0.42	2.38	0.77	0.67	0.67	2.07	19.28	3.86	1.23	1.12	9.47	1.19	0.77	0.53	3.00	2.60	2.80	2.80	2.80	3.60	4.10	4.90	4.50	4.60	2.60	2.30	3.00	2.80	3.20	3.40
38.57	25.95	2.31	12.27	6.66	0.42	0.42	2.31	0.70	0.70	0.67	2.28	16.83	3.86	1.23	1.23	8.77	1.30	0.77	0.53	2.90	2.60	2.80	2.80	2.80	3.60	4.10	4.90	4.40	4.60	2.40	2.30	3.00	2.80	3.10	3.30
38.57	25.60	2.07	5.96	6.66	0.46	0.42	2.14	0.70	0.67	0.67	2.38	18.23	3.86	1.16	1.30	7.71	1.30	0.77	0.60	3.00	2.60	2.80	2.80	2.80	3.70	4.00	4.90	4.30	4.60	2.40	2.30	3.00	2.80	3.10	3.30
35.06	24.54	1.96	6.31	6.31	0.49	0.49	2.07	0.70	0.60	0.60	2.31	24.89	3.86	1.09	1.30	7.36	1.26	0.91	0.67	3.00	2.70	2.80	2.80	2.80	3.70	4.00	4.90	4.20	4.60	2.40	2.30	2.90	2.80	3.10	3.30
34.01	24.19	1.96	5.26	5.96	0.53	0.49	1.96	0.70	0.67	0.60	2.24	25.60	3.86	1.09	2.73	7.36	1.23	3.30	0.60	3.00	2.70	2.80	2.80	2.80	3.70	4.00	4.90	4.20	4.60	2.40	2.50	2.90	2.80	3.30	3.30
32.96	22.79	6.31	4.21	5.61	0.53	0.42	1.82	0.70	0.67	0.60	3.86	24.19	3.51	1.09	4.56	7.36	1.16	2.31	0.63	3.00	2.60	2.80	2.80	2.80	3.70	3.90	4.90	4.10	4.60	2.40	2.40	2.90	2.80	3.10	3.30
31.91	21.39	5.26	3.86	5.96	0.53	0.49	1.65	0.70	0.70	0.53	3.51	20.69	3.47	1.09	3.86	7.01	1.12	2.24	0.67	3.00	2.60	2.80	2.80	2.70	3.70	4.00	4.80	4.10	4.60	2.40	2.40	2.80	2.80	3.10	3.30
30.86	19.99	3.86	3.37	5.61	0.56	0.49	1.58	0.70	0.77	0.53	3.26	18.93	3.40	1.09	3.86	6.66	1.05	2.63	0.63	3.00	2.60	2.80	2.70	2.70	3.60	3.90	4.80	4.10	4.60	2.40	2.40	2.60	2.80	3.10	3.30
29.80	20.34	3.16	3.05	5.61	0.56	0.49	1.58	0.70	0.77	0.53	2.95	17.18	3.26	1.16	3.30	6.66	1.02	2.77	0.63	3.00	2.60	2.80	2.70	2.70	3.60	4.00	4.80	4.10	4.60	2.40	2.30	2.60	2.70	3.00	3.30
28.75	20.69	2.77	2.84	5.26	0.53	0.49	1.58	0.70	0.74	0.53	3.51	16.48	3.19	1.16	2.73	7.01	1.02	2.63	0.63	3.00	2.60	2.80	2.70	2.70	3.60	4.10	4.80	4.10	4.60	2.40	2.30	2.60	2.70	3.00	3.30
27.70	20.34	3.86	2.73	5.26	0.53	0.53	1.65	0.70	0.70	0.60	4.91	13.67	3.12	1.16	2.31	7.36	1.02	2.49	0.63	3.00	2.60	2.70	2.70	2.70	3.50	4.10	5.00	4.10	4.60	2.40	2.30	2.60	2.70	3.00	3.30
27.70	19.99	6.66	2.63	4.91	0.53	0.53	1.65	0.70	0.70	0.60	7.01	11.57	3.09	1.16	2.03	7.36	1.02	2.24	0.63	3.00	2.60	2.70	2.70	2.70	3.50	4.10	4.90	4.10	4.60	2.40	2.30	2.60	2.70	2.90	3.40
26.65	19.99	5.61	2.49	5.26	0.53	0.49	1.65	0.70	0.74	0.60	6.66	10.52	2.95	1.16	1.82	7.36	1.02	1.96	0.63	3.00	2.60	2.70	2.70	2.80	3.50	4.00	4.90	4.10	4.60	2.40	2.30	2.60	2.60	2.90	3.40
25.95	18.93	10.17	2.42	5.26	0.53	0.42	1.58	0.88	0.74	0.60	5.61	9.82	2.91	1.16	1.72	7.01	1.02	1.82	0.63	3.00	2.60	2.70	2.70	2.80	3.60	4.00	4.90	4.00	4.50	2.40	2.30	2.60	2.60	2.80	3.40
25.60	16.83	9.47	2.31	5.26	0.53	0.42	1.54	0.88	0.77	0.67	4.91	9.12	2.81	1.37	1.65	7.01	1.02	1.72	0.63	3.00	2.60	2.70	2.70	2.80	3.60	4.00	4.80	4.00	4.50	2.40	2.30	2.60	2.60	2.80	3.40
25.60	15.78	8.06	3.86	5.61	0.53	0.42	2.95	0.81	0.77	2.10	4.21	9.12	2.88	1.37	1.65	6.66	1.02	1.65	0.63	3.00	2.60	2.90	2.80	2.80	3.60	4.10	4.80	4.00	4.50	2.40	2.30	2.60	2.60	2.80	3.40
26.65	15.43	7.36	4.91	5.61	1.23	0.42	23.49	0.77	0.77	2.00	3.86	9.12	2.95	1.44	1.65	6.66	1.02	1.89	0.63	3.00	2.80	3.40	3.00	2.80	3.60	3.90	4.80	4.00	4.50	2.40	2.30	2.60	2.50	2.80	3.40
38.57	15.08	7.01	7.01	5.61	1.33	0.49	9.47	0.70	0.77	1.30	3.44	9.12	3.05	1.44	1.65	6.31	1.02	1.86	0.63	3.00	2.70	3.40	2.70	2.80	3.60	3.90	4.70	4.00	4.50	2.40	2.30	2.60	2.50	2.80	3.30
59.61	15.08	7.01	9.12	5.26	1.26	0.49	35.06	0.70	0.84	1.05	3.23	9.12	3.09	2.07	1.61	7.36	1.02	1.82	0.63	3.00	2.70	3.40	2.90	2.80	3.70	3.90	4.70	4.00	4.50	2.60	2.30	2.60	2.50	2.80	3.30
294.53	14.73	7.71	8.77	5.26	1.19	0.49	33.31	0.67	1.05	1.02	3.12	9.82	3.19	9.12	1.58	10.87	1.02	1.89	0.63	3.00	2.70	3.40	3.00	2.80	3.70	3.80	4.70	4.00	4.60	2.60	2.30	2.60	2.40	2.80	3.30
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table CAWG 6 Appendix L-14a. Pitman Creek below Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Pitman Ck below Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min
U	1983	41.96	37.07	31.32	29.55	27.14	34.77	42.50	321.35	648.00	169.77	21.39	7.06	3.90	4.10	4.60
	1984	6.57	36.55	56.65	37.23	31.45	61.39	120.63	134.26	24.49	6.18	1.63	.58	.50	.50	.54
	1985	1.48	2.64	3.18	5.06	7.37	18.74	115.73	110.58	17.72	2.34	.39	.61	.20	.20	.20
	1986	1.25	1.70	6.22	22.23	91.14	136.29	212.07	302.16	115.40	10.60	1.78	1.54	.30	.30	.60
	1987	1.79	1.21	.88	1.09	1.06	8.71	85.93	59.10	11.95	1.67	.25	.12	.10	.10	.10
	1988	.49	3.23	3.56	6.57	11.92	36.13	79.97	71.10	18.22	3.29	.47	.19	.10	.10	.10
	1989	.12	.62	.86	1.19	3.04	37.75	126.37	65.48	12.89	1.76	.44	.89	.10	.10	.10
	1990	2.24	1.83	1.40	2.17	3.10	28.16	106.13	63.61	16.91	2.04	.33	.21	.10	.10	.10
	1991	.21	.29	.39	.57	1.02	22.11	49.17	161.68	80.80	9.42	1.23	.33	.20	.20	.20
	1992	.85	1.36	1.23	1.77	5.19	12.79	125.23	81.39	9.93	5.61	.61	.25	.20	.20	.20
	1993	1.01	1.43	1.23	7.94	8.95	38.94	144.67	454.94	224.07	32.06	4.12	.91	.20	.20	.20
	1994	.93	.97	1.35	1.74	2.48	18.20	69.70	89.19	17.44	1.46	.16	.24	.10	.10	.10
	1995	3.83	7.05	8.31	23.62	26.64	80.26	134.17	337.58	503.57	180.06	15.35	2.37	.30	.43	1.27
	1996	.98	.88	5.34	8.27	46.87	51.13	177.50	315.45	58.50	6.50	1.03	.42	.30	.33	.36
	1997	.55	22.48	36.77	193.61	29.11	89.26	173.73	175.42	29.24	4.07	.71	.47	.30	.30	.30
	1998	.55	.80	1.34	1.85	1.86	16.04	65.70	178.35	533.10	162.55	8.96	3.80	.30	.30	.31
	1999	2.61	4.48	7.60	8.49	22.82	24.94	76.03	186.84	57.77	6.68	1.17	.49	.30	.30	.30
	2000	.32	.74	.55	3.91	12.21	26.97	158.40	230.68	44.87	4.52	.54	.37	.20	.20	.20
	2001	.67	.93	.83	2.58	5.63	29.56	80.87	204.16	15.66	2.85	.31	.20	.20	.20	.17
	2002	.28	3.21	5.12	5.07	10.97	25.90	134.50	137.65	34.01	2.53	.25	.15	.10	.10	.10
E	1983	.71	.61	.13	.07	.08	.13	.16	67.44	139.30	2.63	.84	1.35	.05	.05	.06
	1984	1.02	5.96	9.68	7.57	.68	.14	.55	.46	.44	.91	.87	.81	.10	.10	.10
	1985	1.41	2.69	2.55	3.24	3.42	3.38	1.41	1.07	.93	1.12	.36	.48	.10	.10	.10
	1986	1.05	1.42	1.63	1.16	15.71	2.03	9.97	28.21	24.33	1.60	1.37	1.13	.10	.10	.10
	1987	1.40	.68	.85	1.09	1.06	2.04	1.48	1.60	1.13	.60	.24	.11	.10	.10	.10
	1988	.21	.46	1.32	1.79	1.91	2.01	1.32	2.20	1.03	1.21	.47	.19	.10	.10	.10
	1989	.12	.62	.86	1.19	1.97	1.51	2.06	4.82	1.19	.95	.44	.76	.10	.10	.10
	1990	1.26	1.74	1.50	2.17	3.10	24.84	1.75	1.22	.66	.77	.34	.23	.10	.10	.10
	1991	.22	.31	.40	.57	.35	.00	1.94	1.96	1.30	1.22	.79	.39	.00	.00	.00
	1992	.54	1.24	1.23	1.77	5.19	12.79	13.03	1.35	.72	.52	.50	.26	.20	.20	.20
	1993	.28	1.17	1.06	1.20	1.20	.79	53.45	15.41	13.30	21.28	1.40	.90	.10	.10	.11
	1994	.74	.86	1.00	1.10	1.10	1.38	1.22	1.54	.79	.62	.16	.17	.10	.10	.10
	1995	.63	.78	.98	1.12	1.04	1.63	97.68	265.39	138.51	103.99	1.75	1.49	.30	.30	.51
	1998	.55	.84	1.34	1.75	1.82	1.93	12.77	14.07	505.63	132.34	6.17	2.92	.30	.33	.37
	1999	1.61	1.56	.66	.68	.85	.85	.99	7.10	1.17	.83	.59	.40	.30	.30	.30
	2000	.31	.66	.45	1.07	2.46	2.14	1.63	2.00	1.30	1.15	.51	.35	.20	.20	.20
	2001	.54	.84	.79	.89	1.04	12.94	12.61	2.06	2.46	1.86	.36	.20	.20	.20	.17
	2002	.28	.97	.39	.35	8.30	8.93	3.40	1.09	1.52	1.09	.27	.15	.10	.10	.10

	Year	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	6.86	8.96	847.00	820.00	769.43	709.03	384.21	.00	.04	265.00	169.00	.00	.00	9.00	15.67	19.25	-11.14	87.00
	1984	.58	1.13	450.00	256.33	190.86	151.23	107.57	.00	.01	252.00	360.00	2.00	19.00	8.00	15.38	11.71	-6.23	92.00
	1985	.30	.69	200.00	189.33	178.29	143.60	84.60	.00	.01	237.00	105.00	5.00	12.40	2.00	30.50	3.93	-2.80	73.00
	1986	.84	1.33	518.00	398.00	370.29	311.27	225.79	.00	.01	277.00	68.00	4.00	10.25	3.00	46.00	18.75	-10.70	79.00
	1987	.11	.20	130.00	128.33	126.00	102.83	53.32	.00	.01	236.00	116.00	10.00	13.40	1.00	47.00	3.35	-2.01	69.00
	1988	.11	.20	123.00	118.33	107.14	82.90	63.63	.00	.01	275.00	134.00	2.00	31.00	2.00	34.50	3.38	-2.26	79.00
	1989	.12	.52	201.00	193.33	183.14	126.83	78.28	.00	.00	275.00	100.00	6.00	19.83	3.00	23.33	5.21	-2.97	57.00
	1990	.14	.22	158.00	149.67	134.29	112.73	68.71	.00	.01	249.00	118.00	2.00	45.50	2.00	33.50	4.59	-2.61	62.00
	1991	.20	.30	271.00	255.67	219.86	175.13	98.97	.00	.01	276.00	145.00	2.00	21.00	4.00	19.50	9.87	-6.09	70.00
	1992	.20	.39	200.00	194.00	182.43	148.47	74.53	.00	.01	275.00	121.00	6.00	10.67	1.00	51.00	3.51	-2.32	69.00
	1993	.72	.93	624.00	606.00	554.29	456.00	279.36	.00	.00	275.00	139.00	4.00	9.00	1.00	114.00	13.68	-8.50	69.00
	1994	.10	.47	153.00	144.67	131.43	102.47	62.90	.00	.01	228.00	133.00	8.00	13.25	3.00	21.00	4.25	-3.23	71.00
	1995	1.01	1.08	787.00	692.00	641.43	513.27	360.59	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	25.51	-14.15	68.00
	1996	.35	.61	1650.00	837.67	551.29	361.53	194.28	.00	.01	255.00	137.00	3.00	35.67	3.00	37.33	25.96	-12.84	79.00
	1997	.42	.50	2200.00	1200.00	667.29	239.13	150.80	.00	.00	275.00	2.00	3.00	19.33	7.00	19.43	30.20	-16.56	79.00
	1998	.52	.89	776.00	711.67	672.14	533.27	303.28	.00	.00	276.00	167.00	4.00	11.00	2.00	52.00	13.19	-9.10	92.00
	1999	.32	.47	281.00	259.33	242.71	189.30	110.30	.00	.01	255.00	133.00	2.00	22.00	2.00	36.00	6.33	-3.39	96.00
	2000	.25	.49	469.00	399.33	352.71	253.33	150.62	.00	.00	261.00	129.00	5.00	25.40	1.00	83.00	11.07	-6.69	71.00
	2001	.19	.23	333.00	328.33	311.29	229.30	110.88	.00	.01	275.00	129.00	6.00	22.50	2.00	33.50	7.52	-4.34	75.00
	2002	.15	.33	207.00	199.33	178.86	141.83	106.27	.00	.00	278.00	105.00	5.00	17.40	1.00	73.00	5.01	-3.11	59.00
E	1983	.07	.08	453.00	433.67	363.00	175.03	70.58	.00	.00	31.00	150.00	7.00	38.43	2.00	12.50	12.81	-9.52	50.00
	1984	.11	.28	205.00	73.23	41.43	14.96	8.02	.00	.04	317.00	360.00	12.00	26.17	4.00	1.00	8.23	-6.85	67.00
	1985	.23	.59	7.90	7.30	5.16	3.47	3.35	.00	.05	239.00	332.00	7.00	16.71	.00	.00	.46	-.28	45.00
	1986	.78	1.00	418.00	185.67	170.43	51.57	21.31	.00	.01	53.00	50.00	12.00	9.17	3.00	4.33	10.94	-8.53	63.00
	1987	.11	.17	2.10	2.10	2.10	2.10	1.72	.00	.10	109.00	275.00	11.00	17.82	.00	.00	.17	-.16	55.00
	1988	.11	.20	3.20	2.97	2.56	2.41	1.92	.00	.08	275.00	57.00	4.00	28.00	.00	.00	.27	-.17	49.00
	1989	.12	.52	56.00	36.83	16.67	5.54	3.00	.00	.07	275.00	127.00	7.00	17.57	1.00	2.00	1.66	-.78	53.00
	1990	.18	.24	76.00	72.67	61.57	26.44	10.44	.00	.03	92.00	87.00	6.00	26.33	1.00	7.00	1.23	-.98	60.00
	1991	.00	.27	2.70	2.57	2.41	2.26	1.82	49.00	.00	46.00	121.00	4.00	29.00	.00	.00	.18	-.15	53.00
	1992	.20	.34	76.00	71.33	52.86	22.57	10.42	.00	.06	275.00	95.00	7.00	18.86	1.00	5.00	1.13	-1.08	69.00
	1993	.28	.81	152.00	98.00	89.71	55.39	30.98	.00	.01	88.00	162.00	6.00	9.83	5.00	6.60	10.20	-5.65	63.00
	1994	.10	.30	2.90	2.87	2.66	1.63	1.39	.00	.11	228.00	134.00	3.00	48.67	.00	.00	.21	-.14	20.00
	1995	.58	.79	514.00	505.00	485.14	301.30	192.37	.00	.01	168.00	152.00	4.00	8.75	5.00	17.40	30.41	-23.77	34.00
	1998	.55	.90	746.00	682.33	643.57	507.43	221.84	.00	.01	279.00	167.00	4.00	2.00	3.00	20.00	18.17	-11.33	83.00
	1999	.31	.40	120.00	61.40	27.34	7.35	3.16	.00	.21	255.00	132.00	8.00	32.88	1.00	2.00	2.79	-2.19	46.00
	2000	.23	.45	11.00	5.17	3.31	2.77	2.21	.00	.17	241.00	129.00	4.00	33.00	.00	.00	.41	-.21	47.00
	2001	.19	.25	106.00	100.33	88.29	24.77	9.69	.00	.06	275.00	92.00	11.00	16.36	1.00	7.00	1.93	-1.25	61.00
	2002	.15	.49	61.00	26.00	23.67	16.58	6.96	.00	.05	278.00	100.00	11.00	17.91	1.00	1.00	1.81	-1.39	49.00

Table CAWG 6 Appendix L-14b. Pitman Creek below Diversion IHA Percentile Data.

IHA Percentile Data
Pitman Ck below Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1983-2002 (18 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.22	.51	.96	2.13	6.30	1.69	.20	.28	.59	1.10	1.43	1.39
November	.63	.89	1.57	4.17	35.14	2.09	.45	.65	.85	1.46	3.01	.95
December	.58	.97	2.29	7.26	36.23	2.74	.36	.60	.99	1.38	3.26	.78
January	1.10	1.79	5.07	18.79	36.46	3.35	.33	.84	1.14	1.78	3.67	.83
February	1.14	3.06	9.96	27.02	45.33	2.41	.32	.99	1.51	3.18	9.04	1.45
March	13.11	19.58	28.86	48.08	88.36	.99	.11	.84	1.97	4.77	14.13	2.00
April	50.82	77.02	118.18	142.13	177.12	.55	.51	1.29	1.84	12.65	57.87	6.16
May	63.80	83.34	168.55	284.29	335.96	1.19	1.01	1.31	2.03	14.41	87.24	6.44
June	12.05	17.04	31.62	106.75	530.15	2.84	.64	.90	1.24	16.06	175.93	12.19
July	1.68	2.38	5.06	10.31	169.05	1.56	.59	.81	1.13	2.06	106.83	1.10
August	.25	.34	.66	1.74	14.71	2.11	.23	.36	.50	1.00	2.19	1.27
September	.15	.22	.44	.90	3.66	1.54	.15	.20	.40	.96	1.63	1.93
Parameter Group #2												
1-day minimum	.10	.10	.20	.30	.48	1.00	.04	.10	.10	.20	.30	1.00
3-day minimum	.10	.10	.20	.30	.49	1.00	.04	.10	.10	.20	.30	1.00
7-day minimum	.10	.10	.20	.35	1.20	1.23	.06	.10	.10	.20	.39	1.00
30-day minimum	.11	.14	.27	.57	.99	1.55	.06	.11	.18	.29	.60	.94
90-day minimum	.20	.30	.50	.92	1.31	1.24	.16	.25	.37	.64	.91	1.04
1-day maximum	132.30	200.00	307.00	738.00	1569.70	1.75	2.64	6.72	76.00	258.25	537.20	3.31
3-day maximum	129.97	190.33	257.83	670.50	835.90	1.86	2.52	4.62	66.37	121.67	522.73	1.76
7-day maximum	126.54	178.43	231.29	553.54	671.66	1.62	2.38	3.15	34.39	109.89	500.99	3.10
30-day maximum	102.50	130.58	182.22	348.97	531.27	1.20	2.05	2.68	15.77	52.52	321.91	3.16
90-day maximum	62.97	75.47	108.93	217.91	354.86	1.31	1.68	2.13	7.49	23.73	195.32	2.88
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	4.90	.00
Base flow	.00	.00	.01	.01	.01	.65	.00	.01	.05	.09	.18	1.52
Parameter Group #3												
Date of minimum	236.10	252.75	275.00	275.75	277.00	.06	44.50	91.00	240.00	275.00	282.80	.50
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	56.30	94.25	130.50	163.25	334.80	.19
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	3.90	4.00	7.00	11.00	12.00	1.00
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	8.07	14.73	18.38	29.97	39.45	.83
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	.00	.00	1.00	3.00	5.00	3.00
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	.00	.00	2.00	7.00	17.66	3.50
Parameter Group #5												
Rise rate	3.39	4.33	8.70	17.48	25.92	1.51	.18	.38	1.73	10.39	19.40	5.78
Fall rate	-14.02	-10.30	-5.21	-2.84	-2.27	-1.43	-12.57	-7.27	-1.17	-.20	-.15	-6.07
Number of reversals	59.30	69.00	72.00	79.00	92.00	.14	32.60	46.75	53.00	63.00	70.40	.31

Table CAWG 6 Appendix L-14c. Pitman Creek below Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Pitman Ck below Diversion Data

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	1.0	1.69	.1	42.0	.6	1.39	.1	1.6	.55	1.50	.11
November	1.6	2.09	.3	37.1	.8	.95	.3	6.0	.97	3.21	-.17
December	2.3	2.74	.4	56.6	1.0	.78	.1	9.7	1.23	5.40	-.17
January	5.1	3.35	.6	193.6	1.1	.83	.1	7.6	2.15	8.28	-.58
February	10.0	2.41	1.0	91.1	1.5	1.45	.1	15.7	5.05	23.09	-.58
March	28.9	.99	8.7	136.3	2.0	2.00	.0	24.8	24.74	37.83	-.86
April	118.2	.55	42.5	212.1	1.8	6.16	.2	97.7	80.80	134.19	-.86
May	168.5	1.19	59.1	454.9	2.0	6.44	.5	265.4	109.08	206.02	-1.00
June	31.6	2.84	9.9	648.0	1.2	12.19	.4	505.6	17.70	60.06	-.86
July	5.1	1.56	1.5	180.1	1.1	1.10	.5	132.3	2.83	6.87	-1.00
August	.7	2.11	.2	21.4	.5	1.27	.2	6.2	.44	1.25	.11
September	.4	1.54	.1	7.1	.4	1.93	.1	2.9	.25	.63	-.31
Parameter Group #2											
1-day minimum	.2	1.00	.1	3.9	.1	1.00	.0	.3	.19	.30	-.44
3-day minimum	.2	1.00	.1	4.1	.1	1.00	.0	.3	.19	.30	-.44
7-day minimum	.2	1.23	.1	4.6	.1	1.00	.0	.5	.17	.30	-.44
30-day minimum	.3	1.55	.1	6.9	.2	.94	.0	.8	.19	.42	-.17
90-day minimum	.5	1.24	.2	9.0	.4	1.04	.1	1.0	.39	.70	-.31
1-day maximum	307.0	1.75	123.0	2200.0	76.0	3.31	2.1	746.0	200.93	525.42	-.44
3-day maximum	257.8	1.86	118.3	1200.0	66.4	1.76	2.1	682.3	193.95	413.80	-1.00
7-day maximum	231.3	1.62	107.1	769.4	34.4	3.10	2.1	643.6	182.18	382.96	-.86
30-day maximum	182.2	1.20	82.9	709.0	15.8	3.16	1.6	507.4	143.48	257.39	-.86
90-day maximum	108.9	1.31	53.3	384.2	7.5	2.88	1.4	221.8	84.16	153.84	-1.00
Number of zero days	.00	.00	.00	.00	.00	.00	.00	49.00	.00	.00	-.06
Base flow	.01	.65	.00	.04	.05	1.52	.00	.21	.01	.01	-.86
Parameter Group #3											
Date of minimum	275.0	.06	228.0	278.0	240.0	.50	31.0	317.0	255.00	275.00	-.44
Date of maximum	129.0	.08	2.0	360.0	130.5	.19	50.0	360.0	117.86	134.21	-.31
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	7.0	1.00	3.0	12.0	2.00	5.00	-.49
Low Pulse Duration	18.2	.64	.0	45.5	18.4	.83	2.0	48.7	12.30	21.07	-.17
High Pulse Count	2.0	1.25	1.0	9.0	1.0	3.00	.0	5.0	2.00	3.00	-.67
High Pulse Duration	35.3	.81	15.4	114.0	2.0	3.50	.0	20.0	30.00	46.07	-1.00

The low pulse threshold is 1.10
The high pulse level is 37.00

	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	8.7	1.51	3.3	30.2	1.7	5.78	.2	30.4	4.98	13.23	-.44
Fall rate	-5.2	-1.43	-16.6	-2.0	-1.2	-6.07	-23.8	-.1	-8.55	-3.10	-.58
Number of reversals	72.0	.14	57.0	96.0	53.0	.31	20.0	83.0	69.00	79.00	-.91

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	7.20	8.00	.11	5.40	1.00	-.81	5.40	9.00	.67
November	7.20	6.00	-.17	5.40	1.00	-.81	5.40	11.00	1.04
December	7.20	6.00	-.17	5.40	1.00	-.81	5.40	11.00	1.04
January	7.20	3.00	-.58	5.40	.00	-1.00	5.40	15.00	1.78
February	7.20	3.00	-.58	5.40	.00	-1.00	5.40	15.00	1.78
March	7.20	1.00	-.86	5.40	.00	-1.00	5.40	17.00	2.15
April	7.20	1.00	-.86	5.40	.00	-1.00	5.40	17.00	2.15
May	7.20	.00	-1.00	5.40	1.00	-.81	5.40	17.00	2.15
June	7.20	1.00	-.86	5.40	3.00	-.44	5.40	14.00	1.59
July	7.20	.00	-1.00	5.40	3.00	-.44	5.40	15.00	1.78
August	7.20	8.00	.11	5.40	4.00	-.26	5.40	6.00	.11
September	7.20	5.00	-.31	5.40	7.00	.30	5.40	6.00	.11
Parameter Group #2									
1-day minimum	10.80	6.00	-.44	1.80	.00	-1.00	5.40	12.00	1.22
3-day minimum	9.00	5.00	-.44	3.60	1.00	-.72	5.40	12.00	1.22
7-day minimum	7.20	4.00	-.44	5.40	2.00	-.63	5.40	12.00	1.22
30-day minimum	7.20	6.00	-.17	5.40	3.00	-.44	5.40	9.00	.67
90-day minimum	7.20	5.00	-.31	5.40	4.00	-.26	5.40	9.00	.67
1-day maximum	7.20	4.00	-.44	5.40	1.00	-.81	5.40	13.00	1.41
3-day maximum	7.20	.00	-1.00	5.40	3.00	-.44	5.40	15.00	1.78
7-day maximum	7.20	1.00	-.86	5.40	2.00	-.63	5.40	15.00	1.78
30-day maximum	7.20	1.00	-.86	5.40	2.00	-.63	5.40	15.00	1.78
90-day maximum	7.20	.00	-1.00	5.40	2.00	-.63	5.40	16.00	1.96
Number of zero days	18.00	17.00	-.06	.00	1.00	.00	.00	.00	.00
Base flow	7.20	1.00	-.86	5.40	15.00	1.78	5.40	2.00	-.63
Parameter Group #3									
Date of minimum	9.00	5.00	-.44	4.50	3.00	-.33	4.50	10.00	1.22
Date of maximum	7.20	5.00	-.31	5.40	7.00	.30	5.40	6.00	.11
Parameter Group #4									
Low Pulse Count	11.70	6.00	-.49	4.50	12.00	1.67	1.80	.00	-1.00
Low Pulse Duration	7.20	6.00	-.17	5.40	8.00	.48	5.40	4.00	-.26
High Pulse Count	9.00	3.00	-.67	4.50	3.00	-.33	4.50	12.00	1.67
High Pulse Duration	7.20	.00	-1.00	5.40	.00	-1.00	5.40	18.00	2.33
Parameter Group #5									
Rise rate	7.20	4.00	-.44	5.40	2.00	-.63	5.40	12.00	1.22
Fall rate	7.20	3.00	-.58	5.40	12.00	1.22	5.40	3.00	-.44
Number of reversals	10.80	1.00	-.91	3.60	1.00	-.72	3.60	16.00	3.44

14 Messages:

The longest period of missing data is 35 days.
Interpolating across this gap may cause anomalies in
the statistics. Please use them with caution.

Parameter December : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 7 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 4 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 4 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 9 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of minimum : 10 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of minimum : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-14d. Pitman Creek below Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Pitman Ck below Diversion Data

	Unimpaired period: 1983-2002 (20 years)	Existing period: 1983-2002 (18 years)
Watershed area	1.00	
Mean annual flow	43.76	10.33
Mean flow/area	43.76	10.33
Annual C. V.	.68	.08
Flow predictability	.46	.42
Constancy/predictability	.34	.68

WARNING: Some of the Colwell Parameters are based on < 20 years of data

% of floods in 60d period	.61	.58
flood-free season	100.00	118.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	1.0	.6	1.69	1.39	.38	.18	.34	.68
November	1.6	.8	2.09	.95	.46	.55	.10	.45
December	2.3	1.0	2.74	.78	.57	.71	.01	.42
January	5.1	1.1	3.35	.83	.78	.75	.04	.13
February	10.0	1.5	2.41	1.45	.85	.40	.09	.49
March	28.9	2.0	.99	2.00	.93	1.02	.09	.14
April	118.2	1.8	.55	6.16	.98	10.19	.13	.01
May	168.5	2.0	1.19	6.44	.99	4.40	.12	.03
June	31.6	1.2	2.84	12.19	.96	3.30	.06	.01
July	5.1	1.1	1.56	1.10	.78	.30	.10	.80
August	.7	.5	2.11	1.27	.24	.40	.55	.35
September	.4	.4	1.54	1.93	.11	.25	.79	.61
Parameter Group #2								
1-day minimum	.2	.1	1.00	1.00	.50	.00	.29	.81
3-day minimum	.2	.1	1.00	1.00	.50	.00	.29	.84
7-day minimum	.2	.1	1.23	1.00	.50	.19	.29	.74
30-day minimum	.3	.2	1.55	.94	.33	.39	.17	.54
90-day minimum	.5	.4	1.24	1.04	.25	.16	.27	.74
1-day maximum	307.0	76.0	1.75	3.31	.75	.89	.07	.03
3-day maximum	257.8	66.4	1.86	1.76	.74	.05	.07	.91
7-day maximum	231.3	34.4	1.62	3.10	.85	.91	.04	.07
30-day maximum	182.2	15.8	1.20	3.16	.91	1.64	.08	.04
90-day maximum	108.9	7.5	1.31	2.88	.93	1.20	.07	.07
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.1	.65	1.52	7.16	1.33	.00	.05
Parameter Group #3								
Date of minimum	275.0	240.0	.06	.50	.19	6.91	.01	.00
Date of maximum	129.0	130.5	.08	.19	.01	1.24	.80	.03
Parameter Group #4								
Low pulse count	4.0	7.0	.94	1.00	.75	.07	.00	.89
Low pulse duration	18.2	18.4	.64	.83	.01	.30	.99	.36
High pulse count	2.0	1.0	1.25	3.00	.50	1.40	.22	.02
High pulse duration	35.3	2.0	.81	3.50	.94	3.34	.10	.01

The low pulse threshold is 1.10
The high pulse level is 37.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5								
Rise rate	8.7	1.7	1.51	5.78	.80	2.82	.14	.00
Fall rate	-5.2	-1.2	-1.43	-6.07	.78	3.24	.12	.00
Number of reversals	72.0	53.0	.14	.31	.26	1.21	.00	.01

Table CAWG 6 Appendix L-14e. Pitman Creek below Diversion IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1983-2002).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1998	1999	2000	2001	2002
22.00	18.0	0.8	0.4	2.7	0.1	0.1	1.1	0.3	0.2	0.2	0.6	0.6	1.4	0.3	0.4	4.2	0.4	0.2	0.2	0.40	1.5	0.9	0.4	2.1	0.1	0.1	1.2	0.3	0.2	0.2	0.6	0.6	0.4	2.1	0.3	0.2	0.2
19.00	14.0	0.8	0.4	3.4	0.1	0.2	0.8	0.2	0.2	0.2	0.6	0.4	1.4	0.4	0.3	3.5	0.4	0.2	0.2	0.40	1.3	0.9	0.4	2.1	0.1	0.2	0.9	0.3	0.2	0.2	0.6	0.5	0.4	1.9	0.3	0.2	0.2
16.00	11.0	0.8	0.3	3.1	0.1	0.2	0.8	0.3	0.2	0.2	0.5	0.3	1.2	0.4	0.3	3.2	0.4	0.2	0.2	0.40	1.3	0.9	0.4	2.1	0.1	0.2	0.8	0.3	0.2	0.2	0.5	0.4	0.4	1.8	0.3	0.2	0.2
14.00	9.2	0.8	0.3	2.6	0.1	0.1	0.8	0.2	0.2	0.2	0.5	5.8	1.2	0.4	0.3	3.1	0.3	0.2	0.1	0.40	1.3	0.9	0.4	1.9	0.1	0.1	0.8	0.3	0.2	0.2	0.5	0.9	0.4	1.8	0.3	0.2	0.1
13.00	8.4	0.8	0.3	2.3	0.1	0.1	0.7	0.2	0.2	0.2	0.5	10.0	1.1	0.3	0.3	2.9	0.3	0.2	0.1	0.40	1.3	0.9	0.3	1.7	0.1	0.1	0.8	0.2	0.2	0.2	0.5	0.9	0.3	1.6	0.3	0.2	0.1
12.00	7.8	0.7	1.3	2.1	0.1	0.1	0.7	0.2	0.2	0.2	0.6	5.5	1.1	0.3	0.3	2.7	0.3	0.2	0.2	0.48	1.3	0.9	0.7	1.7	0.1	0.1	0.8	0.2	0.2	0.2	0.6	0.8	0.3	1.6	0.3	0.2	0.2
11.00	7.4	0.7	3.5	1.9	0.1	0.1	0.7	0.2	0.2	0.2	0.6	4.8	1.1	0.3	0.3	2.5	0.4	0.2	0.2	0.66	1.2	0.8	3.5	1.5	0.1	0.1	0.7	0.2	0.2	0.2	0.7	0.7	0.4	1.7	0.4	0.2	0.2
11.00	7.3	0.6	1.7	1.9	0.1	0.1	0.6	0.2	0.2	0.2	0.7	5.2	1.1	0.3	0.4	2.2	0.4	0.2	0.2	0.66	1.2	0.8	1.7	1.5	0.1	0.1	0.7	0.2	0.2	0.2	0.7	0.7	0.4	1.8	0.4	0.2	0.2
10.00	7.0	0.6	1.8	1.8	0.1	0.1	0.6	0.2	0.2	0.2	0.7	7.1	1.1	0.3	0.4	2.1	0.4	0.3	0.2	0.56	1.2	0.8	1.5	1.5	0.1	0.1	0.6	0.2	0.2	0.2	0.7	0.7	0.4	1.6	0.3	0.2	0.2
9.70	6.9	0.6	1.5	1.7	0.2	0.1	0.6	0.2	0.2	0.2	0.6	7.3	1.1	0.3	0.8	2.1	0.3	0.9	0.2	0.56	1.0	0.6	1.3	1.5	0.2	0.1	0.6	0.2	0.2	0.2	0.7	0.6	0.7	1.5	0.3	1.0	0.2
9.40	6.5	1.8	1.2	1.6	0.2	0.1	0.5	0.2	0.2	0.2	1.1	6.9	1.0	0.3	1.3	2.1	0.3	0.7	0.2	0.56	1.0	1.5	1.2	1.5	0.2	0.1	0.6	0.2	0.2	0.2	0.8	0.6	0.8	1.5	0.3	0.7	0.2
9.10	6.1	1.5	1.1	1.7	0.2	0.1	0.5	0.2	0.2	0.2	1.0	5.9	1.0	0.3	1.1	2.0	0.3	0.6	0.2	0.56	0.9	1.3	1.0	1.5	0.2	0.1	0.5	0.2	0.2	0.2	0.8	0.6	0.8	1.5	0.3	0.6	0.2
8.80	5.7	1.1	1.0	1.6	0.2	0.1	0.4	0.2	0.2	0.2	0.9	5.4	1.0	0.3	1.1	1.9	0.3	0.8	0.2	0.66	0.9	1.2	0.9	1.4	0.2	0.1	0.5	0.2	0.2	0.2	0.8	0.6	0.8	1.5	0.3	0.8	0.2
8.50	5.8	0.9	0.9	1.6	0.2	0.1	0.4	0.2	0.2	0.2	0.8	4.9	0.9	0.3	0.9	1.9	0.3	0.8	0.2	0.66	0.9	1.0	0.7	1.3	0.2	0.1	0.5	0.2	0.2	0.2	0.8	0.6	0.8	1.4	0.3	0.8	0.2
8.20	5.9	0.8	0.8	1.5	0.2	0.1	0.4	0.2	0.2	0.2	1.0	4.7	0.9	0.3	0.8	2.0	0.3	0.8	0.2	0.66	0.9	0.9	0.7	1.3	0.2	0.1	0.5	0.2	0.2	0.2	0.8	0.6	0.7	1.5	0.3	0.8	0.2
7.90	5.8	1.1	0.8	1.5	0.2	0.2	0.5	0.2	0.2	0.2	1.4	3.9	0.9	0.3	0.7	2.1	0.3	0.7	0.2	0.66	0.9	1.2	0.7	1.2	0.2	0.2	0.5	0.2	0.2	0.2	0.8	0.6	0.7	1.5	0.3	0.7	0.2
7.90	5.7	1.9	0.8	1.4	0.2	0.2	0.5	0.2	0.2	0.2	2.0	3.3	0.9	0.3	0.6	2.1	0.3	0.6	0.2	0.66	0.9	1.6	0.6	1.2	0.2	0.2	0.5	0.2	0.2	0.2	0.8	0.6	0.6	1.5	0.3	0.6	0.2
7.60	5.7	1.6	0.7	1.5	0.2	0.1	0.5	0.2	0.2	0.2	1.9	3.0	0.8	0.3	0.5	2.1	0.3	0.6	0.2	0.66	0.9	1.5	0.7	1.2	0.2	0.1	0.5	0.2	0.2	0.2	0.8	0.6	0.6	1.5	0.3	0.6	0.2
7.40	5.4	2.9	0.7	1.5	0.2	0.1	0.4	0.3	0.2	0.2	1.6	2.8	0.8	0.3	0.5	2.0	0.3	0.5	0.2	0.66	0.9	2.6	0.6	1.2	0.2	0.1	0.5	0.3	0.2	0.2	0.8	0.6	0.6	1.5	0.3	0.5	0.2
7.30	4.8	2.7	0.7	1.5	0.2	0.1	0.4	0.3	0.2	0.2	1.4	2.6	0.8	0.4	0.5	2.0	0.3	0.5	0.2	0.66	0.9	2.6	0.6	1.3	0.2	0.1	0.5	0.3	0.2	0.2	0.8	0.6	0.6	1.4	0.3	0.5	0.2
7.30	4.5	2.3	1.1	1.6	0.2	0.1	0.8	0.2	0.2	0.6	1.2	2.6	0.8	0.4	0.5	1.9	0.3	0.5	0.2	0.66	0.9	2.1	0.8	1.3	0.2	0.1	0.9	0.2	0.2	0.5	0.8	0.6	0.6	1.4	0.3	0.5	0.2
7.60	4.4	2.1	1.4	1.6	0.3	0.1	6.7	0.2	0.2	0.6	1.1	2.6	0.8	0.4	0.5	1.9	0.3	0.5	0.2	0.66	0.9	1.8	1.0	1.3	0.3	0.1	3.6	0.2	0.2	0.6	0.8	0.6	0.5	1.3	0.3	0.5	0.2
11.00	4.3	2.0	2.0	1.6	0.4	0.1	2.7	0.2	0.2	0.4	1.0	2.6	0.9	0.4	0.5	1.8	0.3	0.5	0.2	0.66	0.9	1.8	1.9	1.2	0.4	0.1	3.1	0.2	0.2	0.4	0.8	0.6	0.5	1.3	0.3	0.5	0.2
17.00	4.3	2.0	2.6	1.5	0.4	0.1	10.0	0.2	0.2	0.3	0.9	2.6	0.9	0.6	0.5	2.1	0.3	0.5	0.2	0.78	0.9	1.8	1.9	1.2	0.4	0.1	3.2	0.2	0.2	0.3	0.8	0.6	0.5	1.4	0.3	0.5	0.2
84.00	4.2	2.2	2.5	1.5	0.3	0.1	9.5	0.2	0.3	0.3	0.9	2.8	0.9	2.6	0.4	3.1	0.3	0.5	0.2	0.56	0.9	2.1	1.9	1.2	0.3	0.1	2.7	0.2	0.3	0.3	0.8	0.6	0.5	1.7	0.3	0.5	0.2
362.00	4.0	2.2	2.0	1.5	0.3	0.1	6.9	0.2	9.4	0.3	0.8	2.9	0.9	1.2	0.5	3.7	0.3	1.1	0.2	4.50	0.9	1.8	1.5	1.1	0.3	0.1	2.5	0.2	2.2	0.3	0.8	0.6	0.5	1.8	0.3	0.8	0.2
87.00	3.8	2.2	1.7	1.5	0.3	0.1	6.1	0.2	5.0	0.3	0.8	2.8	0.9	0.9	0.5	3.3	0.3	1.4	0.2	0.27	0.9	1.8	1.3	1.1	0.3	0.1	2.3	0.2	2.4	0.3	0.8	0.6	0.6	1.6	0.3	0.9	0.2
62.00	3.7	1.9	1.5	1.5	1.3	0.1	4.8	0.2	1.9	0.3	0.8	2.6	0.9	0.9	0.5	2.9	0.3	1.4	0.2	0.66	0.9	1.8	1.2	1.1	0.3	0.1	2.1	0.2	2.0	0.4	0.8	0.6	0.5	1.5	0.3	0.8	0.2
53.00	3.6	1.8	1.3	1.5	4.9	0.1	3.8	0.2	1.8	2.3	0.8	2.5	0.9	1.0	0.5	3.6	0.3	2.3	0.2	0.78	0.9	1.6	1.0	1.1	0.3	0.1	2.0	0.2	1.9	0.6	0.8	0.6	0.6	1.8	0.4	0.8	0.2
267.00	6.0	1.8	1.2	1.4	2.1	0.2	3.3	0.2	1.6	16.0	0.8	2.3	0.9	1.1	0.5	4.3	0.3	1.6	1.3	0.78	0.9	1.6	0.9	1.1	0.3	0.2	1.9	0.2	1.6	0.6	0.8	0.6	0.6	2.2	0.3	0.8	1.3
123.00	6.6	1.8	1.1	1.4	1.6	0.2	2.9	0.2	1.4	5.8	0.7	2.1	0.9	1.2	0.5	3.5	0.3	1.2	1.9	0.27	0.9	1.6	0.8	1.1	0.3	0.2	1.8	0.2	1.4	0.3	0.8	0.6	0.6	1.7	0.3	0.8	1.9
80.00	6.7	1.6	1.1	1.4	5.3	0.2	2.6	0.2	1.3	3.7	0.7	2.1	0.9	1.1	0.5	3.1	0.3	1.1	1.2	0.22	0.9	1.6	0.8	1.1	0.3	0.2	2.0	0.3	1.3	0.3	0.7	0.6	0.6	1.6	0.3	0.8	1.2
62.00	8.0	1.6	1.0	1.3	7.1	0.2	2.4	0.2	1.3	2.8	0.7	2.5	0.9	1.2	0.5	2.9	0.3	1.3	0.8	0.18	0.9	1.6	0.8	1.0	0.3	0.2	2.2	0.3	1.2	0.7	0.7	0.6	0.6	1.5	0.3	0.7	0.8
53.00	6.6	1.7	1.0	1.4	3.8	0.2	2.4	0.2	1.3	2.5	0.7	2.3	0.9	1.2	0.4	2.7	0.3	1.3	0.6	0.48	0.9	1.6	0.8	1.1	0.2	0.2	2.1	0.2	1.2	1.0	0.7	0.6	0.6	1.4	0.3	0.7	0.6
47.00	5.9	1.6	1.0	1.3	2.5	0.2	2.3	0.2	1.4	2.4	0.8	2.1	0.9	1.3	0.4	2.6	0.3	1.2	0.5	0.90	0.9	1.5	0.8	1.0	0.4	0.2	2.1	0.3	1.3	1.8	0.7	0.6	0.5	1.4	0.3	0.7	0.5

Table CAWG 6 Appendix L-15a. Balsam Creek above Diversion IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Balsam Ck above Diversion Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	.58	.51	.43	.41	.38	.48	.59	4.45	8.97	2.35	.30	.10	.05	.06	.06	.10	.12	11.72	11.35	10.64	9.81	5.32	.00	.04	265.00	169.00	.00	.00	9.00	15.67	.27	-.17	87.00
	1984	.09	.51	.78	.52	.43	.85	1.67	1.86	.34	.09	.02	.01	.01	.01	.01	.01	.02	6.23	3.55	2.64	2.09	1.49	.00	.02	234.00	360.00	2.00	19.00	8.00	15.38	.18	-.11	82.00
	1985	.02	.04	.04	.07	.10	.26	1.60	1.53	.25	.03	.00	.01	.00	.00	.00	.00	.01	2.77	2.62	2.47	1.99	1.17	21.00	.00	228.00	105.00	5.00	12.40	2.00	30.50	.08	-.06	53.00
	1986	.02	.02	.09	.31	1.26	1.89	2.93	4.18	1.60	.15	.02	.02	.00	.00	.01	.01	.02	7.17	5.50	5.12	4.31	3.12	3.00	.01	277.00	68.00	4.00	10.25	3.00	46.00	.31	-.20	63.00
	1987	.02	.02	.01	.01	.01	.12	1.19	.82	.17	.02	.00	.00	.00	.00	.00	.00	.00	1.80	1.78	1.74	1.42	.74	55.00	.00	220.00	116.00	10.00	13.40	1.00	47.00	.08	-.05	45.00
	1988	.00	.04	.05	.09	.17	.50	1.11	.98	.25	.05	.01	.00	.00	.00	.00	.00	.00	1.70	1.63	1.48	1.15	.88	66.00	.00	275.00	134.00	2.00	31.00	2.00	34.50	.06	-.05	65.00
	1989	.00	.01	.01	.02	.04	.52	1.75	.91	.18	.02	.00	.01	.00	.00	.00	.00	.01	2.78	2.67	2.53	1.75	1.08	78.00	.00	275.00	100.00	6.00	19.83	3.00	23.33	.11	-.07	34.00
	1990	.03	.02	.02	.03	.04	.39	1.47	.88	.23	.03	.00	.00	.00	.00	.00	.00	.00	2.19	2.07	1.86	1.56	.95	46.00	.00	224.00	118.00	2.00	45.50	2.00	33.50	.10	-.06	42.00
	1991	.00	.00	.01	.01	.02	.31	.68	2.24	1.12	.13	.02	.00	.00	.00	.00	.00	.00	3.75	3.54	3.04	2.42	1.37	86.00	.00	275.00	145.00	2.00	21.00	4.00	19.50	.21	-.13	35.00
	1992	.01	.02	.02	.02	.07	.18	1.73	1.13	.14	.08	.01	.00	.00	.00	.00	.00	.00	2.77	2.69	2.53	2.05	1.03	65.00	.00	275.00	121.00	6.00	10.67	1.00	51.00	.07	-.05	45.00
	1993	.01	.02	.02	.11	.12	.54	2.00	6.29	3.10	.44	.06	.01	.00	.00	.00	.01	.01	8.63	8.38	7.67	6.31	3.86	25.00	.00	275.00	139.00	4.00	9.00	1.00	114.00	.24	-.17	51.00
	1994	.01	.01	.02	.02	.03	.25	.96	1.23	.24	.02	.00	.00	.00	.00	.00	.00	.01	2.12	2.00	1.82	1.42	.87	59.00	.00	213.00	133.00	8.00	13.25	3.00	21.00	.10	-.08	41.00
	1995	.05	.10	.11	.33	.37	1.11	1.86	4.67	6.97	2.49	.21	.03	.00	.01	.02	.01	.01	10.89	9.57	8.87	7.10	4.99	1.00	.01	277.00	121.00	1.00	.00	4.00	38.50	.42	-.25	59.00
	1996	.01	.01	.07	.11	.65	.71	2.46	4.36	.81	.09	.01	.01	.00	.00	.01	.00	.01	22.83	11.59	7.63	5.00	2.69	2.00	.01	255.00	137.00	3.00	35.67	3.00	37.33	.42	-.23	66.00
	1997	.01	.31	.51	2.68	.40	1.23	2.40	2.43	.41	.06	.01	.01	.00	.00	.00	.01	.01	30.44	16.60	9.23	3.31	2.09	21.00	.00	275.00	2.00	3.00	19.33	7.00	19.43	.47	-.29	72.00
	1998	.01	.01	.02	.02	.02	.22	.91	2.47	7.38	2.25	.12	.05	.00	.00	.00	.01	.01	10.74	9.85	9.30	7.38	4.20	7.00	.00	275.00	167.00	4.00	11.00	2.00	52.00	.27	-.20	65.00
	1999	.04	.06	.11	.12	.31	.35	1.05	2.58	.80	.09	.02	.01	.00	.00	.00	.00	.00	3.89	3.59	3.36	2.62	1.53	13.00	.00	254.00	133.00	2.00	22.00	2.00	36.00	.10	-.07	76.00
	2000	.00	.01	.01	.06	.17	.37	2.19	3.19	.62	.06	.01	.00	.00	.00	.00	.00	.01	6.49	5.53	4.88	3.51	2.08	63.00	.00	277.00	129.00	5.00	25.40	1.00	83.00	.17	-.14	59.00
	2001	.01	.01	.01	.04	.08	.41	1.12	2.83	.22	.04	.00	.00	.00	.00	.00	.00	.00	4.61	4.54	4.31	3.17	1.53	62.00	.00	275.00	129.00	6.00	22.50	2.00	33.50	.15	-.09	51.00
	2002	.00	.05	.07	.07	.15	.36	1.86	1.90	.47	.03	.00	.00	.00	.00	.00	.00	.01	2.86	2.76	2.47	1.96	1.47	85.00	.00	275.00	105.00	5.00	17.40	1.00	73.00	.09	-.06	45.00
E	1990	.82	.80	.80	.80	.80	.82	.86	.84	1.43	1.38	1.36	1.34	.78	.78	.78	.79	.80	1.50	1.50	1.50	1.43	1.39	.00	.78	277.00	153.00	.00	.00	2.00	.50	.06	-.06	62.00
	1991	.88	.77	.78	.78	.83	.76	.81	.85	1.30	1.29	1.26	1.22	.68	.69	.70	.74	.77	1.40	1.37	1.33	1.30	1.28	.00	.73	313.00	153.00	.00	.00	2.00	.50	.05	-.05	79.00
	1992	.93	1.15	1.44	.80	.82	2.20	2.75	.74	1.41	1.38	1.48	1.50	.65	.67	.67	.67	.76	3.40	3.33	3.29	3.18	1.96	.00	.48	120.00	93.00	.00	.00	2.00	.50	.11	-.10	83.00
	1993	.81	.66	.82	1.10	1.10	1.13	1.13	1.10	1.31	1.37	1.35	1.41	.50	.51	.54	.64	.69	1.60	1.53	1.49	1.41	1.38	.00	.49	284.00	279.00	.00	.00	3.00	117.67	.06	-.07	63.00
	1994	.72	.67	.67	.75	.74	.74	.79	.79	1.16	1.30	1.34	1.36	.60	.61	.62	.64	.68	1.50	1.43	1.41	1.36	1.33	.00	.67	322.00	159.00	.00	.00	2.00	.50	.04	-.03	114.00
	1995	.81	.65	.67	.72	.73	1.05	1.22	1.28	1.45	1.37	1.46	1.37	.58	.60	.60	.63	.65	1.70	1.63	1.57	1.49	1.44	.00	.56	340.00	247.00	.00	.00	2.00	.50	.07	-.07	92.00
	1996	.73	.60	.58	.56	.57	.56	.57	.60	1.16	1.24	1.23	1.27	.50	.51	.52	.54	.56	1.40	1.40	1.34	1.27	1.24	.00	.64	66.00	275.00	.00	.00	3.00	70.00	.04	-.04	98.00
	1997	.70	.57	.62	.67	.66	.67	.75	.83	1.33	1.17	1.25	1.21	.51	.51	.51	.53	.58	1.40	1.40	1.39	1.33	1.25	.00	.59	306.00	169.00	.00	.00	2.00	161.00	.05	-.05	65.00
	1998	.59	.57	.58	.61	.63	.65	.69	.94	1.10	1.26	1.23	1.26	.54	.55	.56	.56	.57	1.30	1.30	1.30	1.27	1.25	.00	.66	335.00	182.00	.00	.00	2.00	.50	.04	-.04	91.00
	1999	.77	.62	.64	.63	.66	.66	.66	.74	1.18	1.18	1.20	1.26	.57	.58	.60	.61	.63	1.40	1.40	1.34	1.29	1.23	.00	.70	136.00	233.00	.00	.00	2.00	.50	.04	-.05	86.00
	2000	1.03	.74	.73	.75	.73	.77	.72	.81	1.15	1.25	1.20	1.23	.59	.64	.68	.72	.73	1.50	1.43	1.31	1.26	1.23	.00	.73	319.00	283.00	.00	.00	2.00	.50	.06	-.05	81.00
	2001	1.21	1.22	1.24	1.26	1.29	1.27	1.32	.76	1.11	1.11	1.10	1.11	.71	.72	.72	.66	.65	1.50	1.40	1.37	1.32	1.29	.00	.62	148.00	44.00	.00	.00	2.00	.50	.10	-.10	59.00
	2002	.65	.65	.66	.65	.63	.64	.69	.68	1.13	1.25	1.21	1.21	.59	.61	.62	.63	.64	1.50	1.40	1.39	1.27	1.22	.00	.74	31.00	194.00	.00	.00	2.00	.50	.04	-.04	161.00

Table CAWG 6 Appendix L-15b. Balsam Creek above Diversion IHA Percentile Data.

IHA Percentile Data
Balsam Ck above Diversion Data

Unimpaired period: 1983-2002 (20 years) — Existing period: 1990-2002 (13 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	.00	.01	.01	.03	.09	2.03	.61	.71	.81	.91	1.14	.24
November	.01	.01	.02	.06	.49	2.14	.57	.61	.66	.78	1.19	.27
December	.01	.01	.03	.10	.50	2.77	.58	.63	.67	.81	1.36	.27
January	.01	.02	.07	.26	.51	3.35	.58	.64	.75	.80	1.20	.22
February	.02	.04	.14	.37	.63	2.42	.59	.64	.73	.82	1.21	.25
March	.18	.27	.40	.67	1.22	.99	.59	.66	.76	1.09	1.83	.57
April	.70	1.07	1.63	1.97	2.45	.55	.60	.69	.79	1.18	2.18	.61
May	.88	1.15	2.33	3.93	4.65	1.19	.63	.74	.81	.89	1.21	.19
June	.17	.24	.44	1.48	7.34	2.84	1.11	1.14	1.18	1.37	1.44	.20
July	.02	.03	.07	.14	2.34	1.60	1.14	1.21	1.26	1.37	1.38	.13
August	.00	.00	.01	.02	.20	2.11	1.14	1.21	1.25	1.35	1.47	.12
September	.00	.00	.01	.01	.05	1.59	1.15	1.21	1.26	1.36	1.46	.12
Parameter Group #2												
1-day minimum	.00	.00	.00	.00	.01	.00	.50	.52	.59	.66	.75	.24
3-day minimum	.00	.00	.00	.00	.01	.00	.51	.53	.61	.68	.75	.25
7-day minimum	.00	.00	.00	.00	.02	.00	.51	.55	.62	.69	.76	.23
30-day minimum	.00	.00	.00	.01	.01	13.75	.53	.59	.64	.70	.77	.17
90-day minimum	.00	.00	.01	.01	.02	1.36	.57	.61	.65	.75	.79	.21
1-day maximum	1.83	2.77	4.25	10.21	21.72	1.75	1.34	1.40	1.50	1.55	2.72	.10
3-day maximum	1.80	2.63	3.57	9.28	11.57	1.86	1.33	1.40	1.40	1.52	2.65	.08
7-day maximum	1.75	2.47	3.20	7.66	9.29	1.62	1.31	1.34	1.39	1.49	2.60	.11
30-day maximum	1.42	1.81	2.52	4.83	7.35	1.20	1.26	1.27	1.32	1.42	2.51	.11
90-day maximum	.87	1.04	1.51	3.01	4.91	1.31	1.22	1.24	1.28	1.39	1.76	.11
Number of zero days	.10	4.00	35.50	64.50	84.30	1.70	.00	.00	.00	.00	.00	.00
Base flow	.00	.00	.00	.01	.02	.00	.49	.58	.66	.73	.76	.24
Parameter Group #3												
Date of minimum	220.40	239.00	275.00	275.00	277.00	.10	126.40	212.50	313.00	337.50	52.00	.34
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	63.60	153.00	182.00	261.00	281.40	.30
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	.00	.00	.00	.00	.00	.00
Low pulse duration	.90	10.75	18.20	22.38	35.20	.64	.00	.00	.00	.00	.00	.00
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	2.00	2.00	2.00	2.00	3.00	.00
High pulse duration	16.04	21.58	35.25	50.00	82.00	.81	.50	.50	.50	35.25	143.67	69.50
Parameter Group #5												
Rise rate	.07	.09	.16	.27	.42	1.10	.04	.04	.05	.07	.11	.46
Fall rate	-.25	-.19	-.10	-.06	-.05	-1.28	-.10	-.07	-.05	-.04	-.03	-.53
Number of reversals	35.60	45.00	56.00	65.75	81.40	.37	60.20	64.00	83.00	95.00	142.20	.37

Table CAWG 6 Appendix L-15c. Balsam Creek above Diversion IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Balsam Ck above Diversion Data

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1990-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	.0	2.03	.0	.6	.8	.24	.6	1.2	.01	.02	-1.00
November	.0	2.14	.0	.5	.7	.27	.6	1.2	.01	.04	-1.00
December	.0	2.77	.0	.8	.7	.27	.6	1.4	.02	.07	-1.00
January	.1	3.35	.0	2.7	.7	.22	.6	1.3	.03	.11	-1.00
February	.1	2.42	.0	1.3	.7	.25	.6	1.3	.07	.32	-1.00
March	.4	.99	.1	1.9	.8	.57	.6	2.2	.34	.52	-1.00
April	1.6	.55	.6	2.9	.8	.61	.6	2.8	1.12	1.86	-.42
May	2.3	1.19	.8	6.3	.8	.19	.6	1.3	1.51	2.85	-1.00
June	.4	2.84	.1	9.0	1.2	.20	1.1	1.4	.25	.83	-1.00
July	.1	1.60	.0	2.5	1.3	.13	1.1	1.4	.04	.10	-1.00
August	.0	2.11	.0	.3	1.2	.12	1.1	1.5	.00	.02	-1.00
September	.0	1.59	.0	.1	1.3	.12	1.1	1.5	.00	.01	-1.00
Parameter Group #2											
1-day minimum	.0	.00	.0	.1	.6	.24	.5	.8	.00	.00	-1.00
3-day minimum	.0	.00	.0	.1	.6	.25	.5	.8	.00	.00	-1.00
7-day minimum	.0	.00	.0	.1	.6	.23	.5	.8	.00	.00	-1.00
30-day minimum	.0	13.75	.0	.1	.6	.17	.5	.8	.00	.01	-1.00
90-day minimum	.0	1.36	.0	.1	.7	.21	.6	.8	.00	.01	-1.00
1-day maximum	4.3	1.75	1.7	30.4	1.5	.10	1.3	3.4	2.78	7.27	-.81
3-day maximum	3.6	1.86	1.6	16.6	1.4	.08	1.3	3.3	2.69	5.73	-.81
7-day maximum	3.2	1.62	1.5	10.6	1.4	.11	1.3	3.3	2.52	5.30	-.81
30-day maximum	2.5	1.20	1.1	9.8	1.3	.11	1.3	3.2	1.99	3.56	-.81
90-day maximum	1.5	1.31	.7	5.3	1.3	.11	1.2	2.0	1.16	2.13	1.50
Number of zero days	35.50	1.70	.00	86.00	.00	.00	.00	.00	12.58	62.07	-1.00
Base flow	.00	.00	.00	.04	.66	.24	.48	.78	.00	.00	-1.00
Parameter Group #3											
Date of minimum	275.0	.10	213.0	277.0	313.0	.34	31.0	340.0	254.93	275.00	-1.00
Date of maximum	129.0	.08	2.0	360.0	182.0	.30	44.0	283.0	117.86	134.21	-1.00
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	.0	.00	.0	.0	2.00	5.00	-1.00
Low Pulse Duration	18.2	.64	.0	45.5	.0	.00	.0	.0	12.30	21.07	-1.00
High Pulse Count	2.0	1.25	1.0	9.0	2.0	.00	2.0	3.0	2.00	3.00	1.00
High Pulse Duration	35.3	.81	15.4	114.0	.5	69.50	.5	161.0	30.00	46.07	-1.00

The low pulse threshold is .02
The high pulse level is .51

	Unimpaired Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	.2	1.10	.1	.5	.1	.46	.0	.1	.10	.24	-.62
Fall rate	-.1	-1.28	-.3	.0	.0	-.53	-.1	.0	-.17	-.07	-.23
Number of reversals	56.0	.37	34.0	87.0	83.0	.37	59.0	161.0	45.00	65.00	-.44

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
November	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
December	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
January	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
February	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
March	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
April	5.20	3.00	-.42	3.90	1.00	-.74	3.90	9.00	1.31
May	5.20	.00	-1.00	3.90	.00	-1.00	3.90	13.00	2.33
June	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
July	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
August	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
September	5.85	.00	-1.00	3.90	13.00	2.33	3.25	.00	-1.00
Parameter Group #2									
1-day minimum	11.70	.00	-1.00	1.30	13.00	9.00	.00	.00	.00
3-day minimum	10.40	.00	-1.00	2.60	13.00	4.00	.00	.00	.00
7-day minimum	9.75	.00	-1.00	3.25	13.00	3.00	.00	.00	.00
30-day minimum	9.10	.00	-1.00	3.90	13.00	2.33	.00	.00	.00
90-day minimum	5.20	.00	-1.00	3.90	13.00	2.33	3.90	.00	-1.00
1-day maximum	5.20	1.00	-.81	3.90	.00	-1.00	3.90	12.00	2.08
3-day maximum	5.20	1.00	-.81	3.90	.00	-1.00	3.90	12.00	2.08
7-day maximum	5.20	1.00	-.81	3.90	.00	-1.00	3.90	12.00	2.08
30-day maximum	5.20	1.00	-.81	3.90	.00	-1.00	3.90	12.00	2.08
90-day maximum	5.20	13.00	1.50	3.90	.00	-1.00	3.90	.00	-1.00
Number of zero days	5.20	.00	-1.00	3.90	.00	-1.00	3.90	13.00	2.33
Base flow	9.75	.00	-1.00	3.25	13.00	3.00	.00	.00	.00
Parameter Group #3									
Date of minimum	7.15	.00	-1.00	1.95	8.00	3.10	3.90	5.00	.28
Date of maximum	5.20	.00	-1.00	3.90	11.00	1.82	3.90	2.00	-.49
Parameter Group #4									
Low Pulse Count	8.45	.00	-1.00	3.25	.00	-1.00	1.30	13.00	9.00
Low Pulse Duration	5.20	.00	-1.00	3.90	.00	-1.00	3.90	13.00	2.33
High Pulse Count	6.50	13.00	1.00	3.25	.00	-1.00	3.25	.00	-1.00
High Pulse Duration	5.20	.00	-1.00	3.90	3.00	-.23	3.90	10.00	1.56
Parameter Group #5									
Rise rate	5.20	2.00	-.62	3.90	.00	-1.00	3.90	11.00	1.82
Fall rate	5.20	4.00	-.23	3.90	9.00	1.31	3.90	.00	-1.00
Number of reversals	7.15	4.00	-.44	3.25	9.00	1.77	2.60	.00	-1.00

15 Messages:

Parameter September : 2 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 17 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of reversals : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 18 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 1-day minimum : 18 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Date of minimum : 9 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 16 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 3-day minimum : 16 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 15 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 7-day minimum : 15 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter 30-day minimum : 10 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-15d. Balsam Creek above Diversion Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Balsam Ck above Diversion Data

Unimpaired period: 1983-2002 (20 years) Existing period: 1990-2002 (13 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	.61	.94
Mean flow/area	.61	.94
Annual C. V.	.68	.38
Flow predictability	.44	.87
Constancy/predictability	.31	.81

WARNING: Some of the Colwell Parameters are based on < 20 years of data

% of floods in 60d period	.61	.58
flood-free season	100.00	.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	.0	.8	2.03	.24	64.12	.88	.00	.57
November	.0	.7	2.14	.27	29.26	.88	.00	.72
December	.0	.7	2.77	.27	20.11	.90	.00	.50
January	.1	.7	3.35	.22	9.63	.94	.00	.43
February	.1	.7	2.42	.25	4.35	.90	.00	.25
March	.4	.8	.99	.57	.89	.42	.00	.36
April	1.6	.8	.55	.61	.52	.11	.10	.73
May	2.3	.8	1.19	.19	.65	.84	.13	.05
June	.4	1.2	2.84	.20	1.70	.93	.00	.19
July	.1	1.3	1.60	.13	17.23	.92	.00	.64
August	.0	1.2	2.11	.12	127.67	.94	.00	.73
September	.0	1.3	1.59	.12	175.28	.92	.00	.66
Parameter Group #2								
1-day minimum	.0	.6	.00	.24	999999.00	999999.00	.00	.00
3-day minimum	.0	.6	.00	.25	999999.00	999999.00	.00	.00
7-day minimum	.0	.6	.00	.23	999999.00	999999.00	.00	.00
30-day minimum	.0	.6	13.75	.17	959.50	.99	.00	.36
90-day minimum	.0	.7	1.36	.21	84.25	.84	.00	.39
1-day maximum	4.3	1.5	1.75	.10	.65	.94	.10	.07
3-day maximum	3.6	1.4	1.86	.08	.61	.96	.14	.12
7-day maximum	3.2	1.4	1.62	.11	.57	.93	.10	.12
30-day maximum	2.5	1.3	1.20	.11	.48	.91	.07	.07
90-day maximum	1.5	1.3	1.31	.11	.15	.91	.11	.19
Number of zero days	35.5	.0	1.70	.00	1.00	1.00	.18	.08
Base flow	.0	.7	.00	.24	999999.00	999999.00	.00	.00
Parameter Group #3								
Date of minimum	275.0	313.0	.10	.34	.21	2.47	.04	.09
Date of maximum	129.0	182.0	.08	.30	.29	2.51	.00	.01
Parameter Group #4								
Low pulse count	4.0	.0	.94	.00	1.00	1.00	.05	.02
Low pulse duration	18.2	.0	.64	.00	1.00	1.00	.01	.00
High pulse count	2.0	2.0	1.25	.00	.00	1.00	.05	.06
High pulse duration	35.3	.5	.81	69.50	.99	85.21	.04	.01

The low pulse threshold is .02

The high pulse level is .51

Parameter Group #5								
Rise rate	.2	.1	1.10	.46	.68	.58	.03	.26
Fall rate	-.1	.0	-1.28	-.53	.53	.58	.06	.26
Number of reversals	56.0	83.0	.37	.37	.48	.01	.00	.99

Table CAWG 6 Appendix L-15e. Balsam Creek above Diversion IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1983-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
0.30	0.25	0.01	0.01	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.06	0.01	0.00	0.00	1.40	0.91	1.10	1.40	1.20	1.40	1.40	1.20	0.99	1.00	1.20	1.20	0.91
0.26	0.19	0.01	0.01	0.05	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.00	0.05	0.01	0.00	0.00	1.10	0.89	0.93	1.40	0.71	1.40	1.10	1.20	0.59	0.70	1.20	1.20	0.61
0.22	0.15	0.01	0.00	0.04	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.00	0.04	0.00	0.00	0.00	0.78	0.92	0.95	1.40	0.71	1.30	0.64	1.10	0.59	0.75	1.20	1.10	0.62
0.19	0.13	0.01	0.00	0.04	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.08	0.02	0.01	0.00	0.04	0.00	0.00	0.00	0.78	0.89	0.94	1.50	0.70	1.30	0.64	1.20	0.59	0.78	1.20	1.20	0.64
0.18	0.12	0.01	0.00	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.14	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.78	0.89	0.89	1.60	0.70	1.20	0.70	1.20	0.59	0.81	1.20	1.20	0.64
0.17	0.11	0.01	0.02	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.08	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.78	0.89	0.95	1.50	0.70	0.96	0.81	1.20	0.59	0.87	1.30	1.20	0.61
0.15	0.10	0.01	0.05	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.02	0.00	0.00	0.03	0.01	0.00	0.00	0.78	0.87	0.99	1.00	0.70	0.69	0.81	1.20	0.59	0.89	1.40	1.20	0.63
0.15	0.10	0.01	0.02	0.03	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.02	0.00	0.01	0.03	0.01	0.00	0.00	0.78	0.85	0.94	0.61	0.70	0.67	0.77	0.85	0.59	0.88	1.40	1.20	0.65
0.14	0.10	0.01	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.10	0.02	0.00	0.01	0.03	0.00	0.00	0.00	0.81	0.87	0.92	0.58	0.68	0.67	0.75	0.56	0.59	0.88	1.50	1.20	0.62
0.13	0.10	0.01	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.10	0.02	0.00	0.01	0.03	0.00	0.01	0.00	0.81	0.89	0.94	0.50	0.67	0.67	0.75	0.56	0.59	0.89	1.20	1.30	0.64
0.13	0.09	0.02	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.10	0.01	0.00	0.02	0.03	0.00	0.01	0.00	0.81	0.89	0.95	0.50	0.67	0.67	0.75	0.56	0.59	0.89	1.10	1.20	0.63
0.13	0.08	0.02	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.08	0.01	0.00	0.02	0.03	0.00	0.01	0.00	0.78	0.89	0.95	0.52	0.67	0.68	0.73	0.56	0.57	0.89	1.10	1.30	0.64
0.12	0.08	0.02	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.02	0.03	0.00	0.01	0.00	0.78	0.89	0.95	0.51	0.69	0.70	0.73	0.56	0.59	0.89	1.10	1.20	0.64
0.12	0.08	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.01	0.03	0.00	0.01	0.00	0.78	0.87	0.94	0.55	0.72	0.70	0.73	0.56	0.57	0.87	1.10	1.20	0.64
0.11	0.08	0.01	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.07	0.01	0.00	0.01	0.03	0.00	0.01	0.00	0.81	0.87	0.89	0.66	0.71	0.68	0.73	0.56	0.56	0.87	1.10	1.20	0.63
0.11	0.08	0.02	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.05	0.01	0.00	0.01	0.03	0.00	0.01	0.00	0.81	0.89	0.91	0.70	0.71	0.69	0.71	0.54	0.56	0.87	1.00	1.20	0.67
0.11	0.08	0.03	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.05	0.01	0.00	0.01	0.03	0.00	0.01	0.00	0.78	0.89	0.90	0.66	0.71	0.69	0.71	0.54	0.56	0.86	1.10	1.20	0.62
0.11	0.08	0.02	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.03	0.04	0.01	0.00	0.01	0.03	0.00	0.01	0.00	0.78	0.85	0.89	0.63	0.71	0.70	0.71	0.54	0.56	0.86	1.10	1.20	0.63
0.10	0.07	0.04	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.04	0.01	0.00	0.01	0.03	0.00	0.01	0.00	0.78	0.80	0.89	0.68	0.71	0.68	0.71	0.54	0.56	0.87	1.10	1.20	0.62
0.10	0.07	0.04	0.01	0.02	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.04	0.01	0.01	0.01	0.03	0.00	0.01	0.00	0.78	0.78	0.90	0.69	0.70	0.70	0.63	0.54	0.56	0.73	1.20	1.30	0.64
0.10	0.06	0.03	0.02	0.02	0.00	0.00	0.01	0.00	0.00	0.01	0.02	0.04	0.01	0.01	0.01	0.03	0.00	0.01	0.00	0.78	0.84	0.91	0.69	0.70	0.71	0.61	0.54	0.56	0.60	0.97	1.20	0.65
0.11	0.06	0.03	0.02	0.02	0.00	0.00	0.09	0.00	0.00	0.01	0.02	0.04	0.01	0.01	0.01	0.03	0.00	0.01	0.00	0.78	0.82	0.91	0.70	0.70	0.71	0.61	0.54	0.56	0.64	0.75	1.30	0.66
0.15	0.06	0.03	0.03	0.02	0.01	0.00	0.04	0.00	0.00	0.01	0.01	0.04	0.01	0.01	0.01	0.02	0.00	0.01	0.00	0.78	0.86	0.92	0.72	0.70	0.71	0.59	0.54	0.56	0.61	0.75	1.30	0.64
0.24	0.06	0.03	0.04	0.02	0.00	0.00	0.14	0.00	0.00	0.00	0.01	0.04	0.01	0.01	0.01	0.03	0.00	0.01	0.00	0.78	0.88	0.91	0.71	0.70	0.71	0.59	0.54	0.56	0.61	0.75	1.20	0.64
1.16	0.06	0.03	0.03	0.02	0.00	0.00	0.13	0.00	0.00	0.00	0.01	0.04	0.01	0.04	0.01	0.04	0.00	0.01	0.00	0.78	0.89	0.89	0.70	0.68	0.72	0.59	0.56	0.57	0.64	0.75	1.20	0.62
5.01	0.06	0.03	0.03	0.02	0.00	0.00	0.10	0.00	0.13	0.00	0.01	0.04	0.01	0.02	0.01	0.05	0.00	0.02	0.00	0.78	0.89	0.92	0.70	0.70	0.72	0.69	0.56	0.59	0.67	0.74	1.20	0.65
1.20	0.05	0.03	0.02	0.02	0.00	0.00	0.08	0.00	0.07	0.00	0.01	0.04	0.01	0.01	0.01	0.05	0.00	0.02	0.00	0.81	0.89	0.96	0.72	0.70	0.74	0.67	0.54	0.59	0.67	0.72	1.20	0.64
0.86	0.05	0.03	0.02	0.02	0.02	0.00	0.07	0.00	0.03	0.00	0.01	0.04	0.01	0.01	0.01	0.04	0.00	0.02	0.00	0.81	0.89	0.95	0.62	0.70	0.74	0.73	0.54	0.59	0.64	0.71	1.20	0.64
0.73	0.05	0.02	0.02	0.02	0.07	0.00	0.05	0.00	0.02	0.03	0.01	0.03	0.01	0.01	0.01	0.05	0.00	0.03	0.00	0.81	0.92	0.95	0.63	0.71	0.72	0.73	0.54	0.60	0.59	0.70	1.20	0.62
3.69	0.08	0.02	0.02	0.02	0.03	0.00	0.05	0.00	0.02	0.22	0.01	0.03	0.01	0.02	0.01	0.06	0.00	0.02	0.02	0.81	0.92	0.95	0.68	0.72	0.71	0.67	0.54	0.61	0.60	0.68	1.20	0.67
1.70	0.09	0.02	0.02	0.02	0.02	0.00	0.04	0.00	0.02	0.08	0.01	0.03	0.01	0.02	0.01	0.05	0.00	0.02	0.03	0.81	0.89	0.95	0.65	0.71	0.73	0.63	0.52	0.59	0.62	0.67	1.20	0.65
1.11	0.09	0.02	0.02	0.02	0.07	0.00	0.04	0.00	0.02	0.05	0.01	0.03	0.01	0.02	0.01	0.04	0.00	0.02	0.02	0.81	0.87	0.92	0.60	0.72	0.71	0.61	0.51	0.60	0.59	0.72	1.20	0.64
0.86	0.11	0.02	0.01	0.02	0.10	0.00	0.03	0.00	0.02	0.04	0.01	0.03	0.01	0.02	0.01	0.04	0.00	0.02	0.01	0.81	0.90	0.94	0.65	0.72	0.68	0.61	0.51	0.62	0.59	0.72	1.20	0.66
0.73	0.09	0.02	0.01	0.02	0.05	0.00	0.03	0.00	0.02	0.03	0.01	0.03	0.01	0.02	0.01	0.04	0.00	0.02	0.01	0.81	0.91	0.95	0.70	0.76	0.63	0.60	0.51	0.62	0.60	0.71	1.20	0.62
0.65	0.08	0.02	0.01	0.02	0.03	0.00	0.03	0.00	0.02	0.03	0.01	0.03	0.01	0.02	0.01	0.04	0.00	0.02	0.01	0.81	0.84	0.95	0.69	0.71	0.65	0.61	0.51	0.61	0.61	0.71	1.20	0.62
0.57	0.07	0.02	0.01	0.02	0.03	0.00	0.03	0.00	0.02	0.03	0.01	0.08	0.01	0.02	0.01	0.03	0.00	0.02	0.01	0.78	0.87	0.92	0.67	0.78	0.67	0.61	0.51	0.63	0.61	0.70	1.30	0.63
0.53	0.06	0.02	0.01	0.02	0.05	0.00	0.03	0.00	0.02	0.02	0.01	0.29	0.01	0.02	0.01	0.03	0.00	0.02	0.01	0.81	0.81	0.91	0.67	0.72	0.66	0.61	0.51	0.61	0.61	0.68	1.30	0.66
0.48	0.07	0.03	0.01	0.02	0.06	0.00	0.03	0.00	0.02	0.02	0.01	0.14	0.01	0.02	0.01	0.04	0.00	0.02	0.01	0.81	0.70	0.92	0.68	0.72	0.66	0.61	0.51	0.60	0.60	0.78	1.30	0.64
0.46	0.08	0.03	0.01	0.02	0.05	0.00	0.03	0.00	0.02	0.02	0.01	0.10	0.01	0.02	0.01	0.06	0.02	0.01	0.01	0.81	0.68	0.90	0.70	0.69	0.70	0.61	0.51	0.57	0.60	0.81	1.20	0.63
0.42	0.07	0.03	0.01	0.02	0.04	0.00	0.03	0.00	0.02	0.02	0.01	0.08	0.01	0.02	0.01	0.05	0.01	0.02	0.01	0.81	0.70	0.91	0.69	0.67	0.70	0.60	0.51	0.57	0.61	0.80	1.20	0.63
0.42	0.08	0.03	0.01	0.02	0.04	0.00	0.02	0.00	0.02	0.02	0.01	0.13	0.01	0.02	0.01	0.04	0.01	0.01	0.01	0.81	0.70	0.91	0.70	0.67	0.70	0.60	0.51	0.57	0.61	0.75	1.20	0.64
0.53	1.02	0.03	0.03	0.02	0.04	0.00	0.02	0.00	0.02	0.02	0.01	0.21	0.01	0.02	0.01	0.05	0.01	0.01	0.01	0.81	0.70	0.91	0.68	0.67	0.69	0.63	0.51	0.57	0.61	0.76	1.20	0.66
0.54	0.42	0.04	0.03	0.01	0.04	0.00	0.02	0.00	0.02	0.02	0.02	0.11	0.01	0.03	0.01	0.05	0.01	0.01	0.01	0.78	0.70	0.91	0.67	0.67	0.67	0.61	0.51	0.57	0.60	0.74	1.20	0.67
0.50	0.40	0.04	0.02	0.02	0.04	0.01	0.02	0.00	0.01	0.02	0.02	0.08	0.01	0.02	0.01	0.07	0.01	0.01	0.02	0.78	0.71	0.92	0.64	0.67	0.63	0.61	0.52	0.56	0.61	0.67	1.20	0.65
0.47	0.29	0.04	0.02	0.02	0.04	0.02	0.02	0.00	0.01	0.02	0.02	0.08	0.01	0.02	0.01	0.07	0.01	0.01	0.02	0.78	0.71	0.91	0.63	0.63	0.65	0.59	0.54	0.56	0.61	0.59	1.20	0.65
0.47	0.24	0.04	0.02	0.02	0.03	0.01	0.02	0.00	0.01	0.02	0.01	0.08	0.01	0.02	0.01	0.07	0.01	0.01	0.02	0.78	0.71	0.95	0.60	0.63	0.64	0.59	0.54	0.56	0.63	0.67	1.20	0.66
0.47	0.21	0.04	0.02	0.02	0.03	0.01	0.02	0.00	0.01	0.02	0.01	0.08	0.01	0.02	0.01	0.07	0.01	0.01	0.02	0.78	0.73	0.98	0.59	0.62	0.62	0.59	0.54	0.56	0.64	0.70	1.30	0.65
0.46	0.64	0.04	0.02	0.02	0.06	0.01	0.02	0.00	0.02	0.02	0.02	0.08	0.01	0.17	0.01	0.07	0.02	0.01	0.02	0.78	0.73	1.00	0.59	0.60	0.59	0.59	0.69	0.56	0.64	0.71	1.30	0.64
0.43	0.50	0.04	0.02	0.02	0.08	0.01	0.02	0.00	0.02	0.02	0.02	0.09	0.01	0.54	0.01	0.05	0.02	0.01	0.01	0.81	0.73	0.97	0.57	0.62	0.60	0.59	0.66	0.56	0.64	0.87	1.20	0.65
0.50	0.80	0.04	0.02	0.02	0.05	0.01	0.02	0.00	0.02	0.02	0.02	0.09	0.01	0.24	0.01	0.06	0.01	0.01	0.01	0.81	0.75	0.96	0.56	0.63	0.63	0.58	0.59	0.56	0.64	0.87	1.20	0.64
0.51	1.41	0.04	0.02	0.02	0.05	0.01	0.02	0.00	0.02	0.01	0.01	0.08	0.01	0.19	0.02	0.05	0.02	0.01	0.01	0.81	0.75	0.95	0.59	0.61	0.59	0.59	0.59	0.56	0.64	0.81	1.20	0.65
0.47	0.72	0.04	0.02	0.02	0.05	0.01	0.02	0.00	0.02	0.01	0.02	0.08	0.01	0.98	0.01	0.05	0.02	0.01	0.01	0.81	0.75	0.95	0.57	0.63	0.60	0.61	0.67	0.56	0.64	0.80	1.20	0.62
0.47	0.53	0.04	0.02	0.02	0.05	0.01	0.02	0.00	0.02	0.02	0.02	0.08	0.01	3.18	0.01	0.06	0.01	0.01	0.06	0.81	0.73	0.94	0.57	0.64	0.60	0.62	0.71	0.56	0.61	0.76	1.20	0.67
0.47	0.47	0.04	0.02	0.02	0.04	0.03	0.02	0.00	0.02	0.02	0.02	0.08	0.01	0.90	0.01	0.07	0.01	0.01	0.05	0.81	0.75	0.96	0.58	0.65	0.60	0.61	0.66	0.56	0.61	0.73	1.20	0.68
0.44	1.99	0.04	0.03	0.02	0.04	0.03	0.02	0.00	0.02	0.02	0.02	0.08	0.01	0.66	0.01	0.08	0.01	0.01	0.37	0.81	0.78	0.96	0.62	0.66	0.60	0.62	0.60	0.56	0.61	0.73	1.20	0.67
0.43	1.44	0.03	0.04	0.02	0.03	0.02	0.02	0.00	0.02	0.02	0.01	0.09	0.01	0.50	0.01	0.08	0.01	0.01	0.22	0.81	0.81	1.50	0.71	0.68	0.62	0.62	0.60	0.56	0.61	0.73	1.20	0.68
0.42	0.97	0.04	0.05	0.01	0.03	0.01	0.02	0.00	0.02	0.02	0.01	0.11	0.01	0.40	0.02	0.07	0.01	0.01	0.11	0.81	0.79	2.10	0.74	0.66	0.65	0.61	0.59	0.56	0.61	0.73	1.20	0.63
0.42	0.73	0.05	0.04	0.01	0.03	0.01	0.02	0.01	0.02	0.02	0.01	0.13	0.01	0.35	0.02	0.07	0.01	0.01	0.08	0.81	0.78	2.10	0.74	0.65	0.64	0.61	0.59	0.56	0.61	0.73	1.30	0.66
0.40	0.58	0.05	0.04	0.01	0.03	0.01	0.03	0.01	0.02	0.01	0.02	0.12	0.01	0.29	0.02	0.07	0.01	0.01	0.07	0.78	0.78	2.10	0.74	0.66	0.66	0.60	0.59	0.56	0.61	0.73	1.20	0.64
0.42	0.53	0.06	0.04	0.01	0.03	0.01	0.03	0.01	0.02	0.01	0.02	0.12	0.01	0.28	0.02	0.08	0.01	0.01	0.07	0.81	0.78	2.10	0.76	0.67	0.67	0.59	0.59	0.56	0.61	0.73	1.20	0.67
0.37	0.48	0.05	0.04	0.01	0.03	0.01	0.02	0.01	0.02	0.01	0.02	0.12	0.01	0.33	0.02	0.24	0.01	0.01	0.06	0.81	0.81	2.10	0.77	0.67	0.67	0.59	0.57	0.54	0.64	0.73	1.20	0.63
0.46	0.46	0.05	0.04	0.01	0.03	0.01	0.02	0.01	0.01	0.01	0.02	0.13	0.01	0.24	0.02	0.24	0.01	0.01	0.06	0.81	0.81	2.10	0.76	0.67	0.65	0.59	0.56	0.56	0.64	0.73	1.20	0.62
0.57	0.43	0.04	0.08	0.02	0.03	0.01	0.02	0.00	0.02	0.01	0.02	0.14	0.01	0.30	0.02	0.18	0.01	0.01	0.07	0.81	0.81	2.20	0.75	0.66	0.60	0.56	0.55	0.56	0.61	0.73	1.20	0.64
0.54	0.35	0.05	0.12	0.02	0.03	0.01	0.02	0.00	0.02	0.01	0.02	0.14	0.01	0.26	0.01	0.14	0.01	0.01	0.07	0.81	0.81	2.20	0.75	0.67	0.63	0.57	0.57	0.56	0.61	0.73	1.20	0.63
0.47	0.46	0.04	0.17	0.02	0.03	0.01	0.02	0.00	0.02	0.01	0.02	0.14	0.02	0.21	0.01	0.15	0.01	0.01	0.08	0.81	0.81	2.10	0.75	0.65	0.64	0.58	0.59	0.56	0.61	0.73	1.30	0.62
0.44	0.46	0.05	0.11	0.01	0.03	0.01	0.02	0.00	0.02	0.01	0.02	0.13	0.02	0.35	0.02	0.15	0.01	0.01	0.06	0.81	0.81	2.10	0.73	0.63	0.58	0.58	0.68	0.56	0.61	0.73	1.30	0.62
0.42	0.42	0.05	0.09	0.01	0.06	0.01	0.02	0.00	0.02	0.01	0.02	0.12	0.01	0.53	0.02	0.13	0.01	0.01	0.06	0.81	0.81	2.10	0.73	0.61	0.65	0.59	0.63	0.59	0.61	0.73	1.20	0.61
0.42	0.39	0.05	0.10	0.01	0.12	0.01	0.02	0.00	0.02	0.01	0.02	0.12	0.01	0.32	0.02	0.13	0.01	0.01	0.06	0.81	0.80	2.00	0.75	0.63	0.65	0.58	0.61	0.59	0.61	0.73	1.20	0.63
0.42	0.37	0.05	0.09	0.01	0.11	0.01	0.02	0.00	0.02	0.01	0.02	0.11	0.01	0.29	0.02	0.10	0.01	0.01	0.06	0.84	0.78	2.00	0.75	0.62	0.69	0.58	0.60	0.57	0.62	0.73	1.30	0.61
0.40	0.39	0.05	0.08	0.01	0.08	0.01	0.02	0.00	0.02	0.01	0.02	0.11	0.01	0.32	0.02	0.09	0.01	0.01	0.06	0.84	0.81	2.00	0.75	0.66	0.69	0.57	0.63	0.56	0.61	0.73	1.20	0.61
0.40	0.40	0.05	0.08	0.01	0.09	0.01	0.02	0.00	0.02	0.02	0.02	0.10	0.01	0.25	0.02	0.08	0.01	0.01	0.06	0.81	0.84	2.00	0.73	0.63	0.68	0.59	0.64	0.55	0.61	0.73	1.20	0.62
0.39	0.39	0.05	0.07	0.01	0.08	0.01	0.02	0.01	0.02	0.02	0.02	0.09	0.03	0.53	0.02	0.07	0.01	0.01	0.06	0.78	0.81	2.00	0.73	0.66	0.65	0.60	0.69	0.58	0.61	0.73	1.20	0.65
0.39	0.42	0.05	0.06	0.01	0.06	0.01	0.02	0.01	0.02	0.02	0.02	0.10	0.47	1.13	0.02	0.07	0.01	0.01	0.05	0.78	0.80	2.00	0.73	0.69	0.63	0.64	0.71	0.58	0.62	0.73	1.20	0.62
0.37	0.42	0.05	0.06	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.10	0.18	0.76	0.02	0.07	0.01	0.01	0.06	0.78	0.78	2.00	0.71	0.67	0.62	0.60	0.67	0.59	0.61	0.73	1.20	0.62
0.37	0.40	0.04	0.06	0.01	0.03	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.14	0.59	0.02	0.07	0.01	0.01	0.06	0.78	0.78	1.90	0.71	0.64	0.63	0.59	0.64	0.58	0.61	0.72	1.20	0.66
0.37	0.39	0.04	0.06	0.01	0.03	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.11	0.47	0.02	0.10	0.01	0.01	0.07	0.78	0.77	2.10	0.71	0.70	0.70	0.58	0.61	0.58	0.61	0.71	1.20	0.63
0.37	0.37	0.04	0.06	0.01	0.04	0.01	0.02	0.01	0.01	0.02	0.02	0.11	0.13	0.42	0.02	0.08	0.01	0.01	0.06	0.81	0.75	1.50	0.71	0.72	0.71	0.59	0.62	0.59	0.63	0.72	1.30	0.63
0.36	0.36	0.04	0.06	0.01	0.05	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.15	0.40	0.02	0.07	0.01	0.01	0.06	0.78	0.78	0.80	0.71	0.70	0.66	0.58	0.60	0.58	0.65	0.73	1.30	0.72
0.37	0.36	0.04	0.06	0.02	0.05	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.11	0.36	0.02	0.07	0.01	0.01	0.06	0.81	0.76	0.81	0.73	0.72	0.67	0.59	0.60	0.59	0.67	0.73	1.20	0.64
0.37	0.35	0.05	0.06	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.09	0.35	0.02	0.07	0.01	0.01	0.06	0.81	0.73	0.84	0.71	0.72	0.68	0.58	0.60	0.59	0.66	0.73	1.20	0.68
0.37	0.33	0.05	0.06	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.07	0.35	0.02	0.05	0.01	0.01	0.07	0.81	0.74	0.83	0.71	0.70	0.71	0.58	0.60	0.58	0.64	0.73	1.20	0.71
0.37	0.35	0.05	0.06	0.01	0.04	0.01	0.02	0.01	0.01	0.02	0.02	0.11	0.05	0.33	0.02	0.07	0.01	0.01	0.07	0.81	0.75	0.83	0.71	0.69	0.64	0.57	0.61	0.59	0.64	0.73	1.30	0.79
0.39	0.33	0.04	0.06	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.04	0.39	0.02	0.10	0.01	0.01	0.08	0.81	0.77	0.84	0.71	0.71	0.74	0.59	0.60	0.57	0.64	0.73	1.30	0.71
0.46	0.32	0.03	0.07	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.05	0.59	0.02	0.09	0.01	0.01	0.08	0.78	0.75	0.84	0.85	0.69	0.70	0.58	0.60	0.59	0.65	0.73	1.30	0.64
0.47	0.48	0.03	0.07	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.11	0.04	0.44	0.02	0.11	0.01	0.01	0.07	0.78	0.78	0.84	0.98	0.70	0.69	0.57	0.61	0.58	0.67	0.73	1.30	0.73
0.48	6.23	0.03	0.07	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.10	0.04	0.37	0.02	0.12	0.01	0.01	0.07	0.81	0.79	0.81	0.99	0.69	0.63	0.57	0.61	0.57	0.65	0.73	1.30	0.65
0.48	2.57	0.04	0.08	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.12	0.03	0.36	0.02	0.14	0.01	0.01	0.07	0.78	0.78	0.78	1.00	0.69	0.75	0.57	0.61	0.58	0.68	0.73	1.30	0.69
0.48	1.84	0.04	0.08	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.12	0.03	0.37	0.02	0.12	0.01	0.01	0.08	0.81	0.78	0.79	1.10	0.68	0.74	0.55	0.61	0.56	0.69	0.73	1.30	0.62
0.48	1.20	0.04	0.08	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.12	0.04	0.33	0.02	0.12	0.01	0.01	0.08	0.81	0.76	0.84	1.10	0.68	0.73	0.57	0.61	0.58	0.68	0.73	1.20	0.67
0.65	1.02	0.05	0.10	0.01	0.05	0.01	0.02	0.01	0.02	0.02	0.02	0.12	0.05	0.32	0.02	0.11	0.01	0.01	0.11	0.81	0.78	0.83	1.10	0.69	0.64	0.58	0.61	0.58	0.67	0.73	1.20	0.66
0.44	1.04	0.04	0.21	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.12	0.17	1.44	0.02	0.10	0.01	0.01	0.12	0.81	0.78	0.81	1.10	0.67	0.71	0.59	0.61	0.58	0.67	0.73	1.20	0.66
0.44	1.02	0.04	0.26	0.01	0.04	0.01	0.02	0.01	0.02	0.02	0.02	0.12	0.13	2.41	0.02	0.09	0.01	0.01	0.14	0.81	0.77	0.79	1.10	0.66	0.71	0.58	0.61	0.58	0.67	0.72	1.20	0.82
0.46	0.83	0.04	0.21	0.01	0.05	0.01	0.02	0.01	0.02	0.03	0.02	0.12	0.09	4.87	0.02	0.08	0.01	0.01	0.17	0.81	0.75	0.80	1.10	0.70	0.74	0.58	0.62	0.58	0.66	0.71	1.20	0.67
0.47	0.75	0.04	0.19	0.01	0.05	0.01	0.02	0.01	0.02	0.04	0.02	0.12	0.08	30.44	0.02	0.08	0.01	0.01	0.12	0.81	0.78	0.79	1.10	0.70	0.66	0.59	0.67	0.57	0.64	0.71	1.20	0.68
0.47	0.71	0.04	0.15	0.01	0.06	0.01	0.02	0.01	0.02	0.04	0.02	0.12	0.09	12.45	0.02	0.07	0.01	0.01	0.12	0.81	0.78	0.84	1.10	0.71	0.68	0.59	0.67	0.57	0.64	0.71	1.30	0.67
0.46	0.71	0.04	0.18	0.01	0.07	0.01	0.02	0.01	0.02	0.04	0.02	0.12	0.08	6.92	0.02	0.08	0.01	0.01	0.12	0.81	0.78	0.83	1.20	0.70	0.74	0.59	0.67	0.55	0.64	0.72	1.30	0.67
0.43	0.72	0.05	0.69	0.01	0.07	0.01	0.02	0.01	0.02	0.04	0.05	0.12	0.08	4.50	0.02	0.08	0.01	0.01	0.11	0.81	0.75	0.80	1.10	0.72	0.76	0.60	0.67	0.55	0.64	0.73	1.30	0.66
0.40	0.69	0.05	0.90	0.01	0.07	0.01	0.02	0.01	0.02	0.04	0.05	0.12	0.07	3.04	0.02	0.08	0.01	0.01	0.11	0.81	0.75	0.79	1.10	0.74	0.76	0.58	0.67	0.56	0.64	0.73	1.30	0.66
0.40	0.68	0.06	0.57	0.02	0.09	0.01	0.02	0.01	0.02	0.15	0.03	0.12	0.08	2.08	0.02	0.07	0.01	0.01	0.11	0.81	0.75	0.79	1.10	0.75	0.80	0.57	0.67	0.56	0.64	0.73	1.30	0.63
0.44	0.62	0.06	0.39	0.02	0.12	0.01	0.02	0.01	0.02	0.15	0.03	0.13	0.08	1.38	0.02	0.08	0.01	0.01	0.11	0.78	0.78	0.81	1.10	0.75	0.79	0.59	0.67	0.57	0.64	0.73	1.30	0.65
0.44	0.58	0.06	0.32	0.02	0.11	0.01	0.02	0.01	0.02	0.13	0.02	0.17	0.08	1.11	0.02	0.07	0.01	0.01	0.11	0.78	0.75	0.84	1.10	0.75	0.81	0.57	0.67	0.57	0.64	0.73	1.30	0.66
0.42	0.57	0.06	0.28	0.02	0.11	0.01	0.02	0.01	0.03	0.15	0.02	0.40	0.08	1.04	0.03	0.07	0.01	0.01	0.10	0.78	0.74	0.76	1.10	0.75	0.84	0.57	0.67	0.58	0.64	0.73	1.30	0.63
0.40	0.50	0.06	0.26	0.02	0.11	0.01	0.02	0.01	0.02	0.17	0.02	0.44	0.08	0.97	0.03	0.07	0.01	0.01	0.10	0.78	0.74	0.75	1.10	0.77	0.77	0.58	0.67	0.59	0.64	0.73	1.30	0.65
0.42	0.53	0.06	0.25	0.02	0.10	0.01	0.02	0.01	0.02	0.13	0.02	0.47	0.08	0.90	0.03	0.06	0.01	0.01	0.10	0.78	0.78	0.76	1.10	0.77	0.72	0.56	0.67	0.59	0.64	0.73	1.30	0.63
0.43	0.47	0.06	0.24	0.02	0.09	0.01	0.03	0.01	0.02	0.11	0.02	0.54	0.08	0.83	0.03	0.06	0.01	0.02	0.10	0.78	0.79	0.76	1.10	0.75	0.71	0.54	0.67	0.59	0.64	0.72	1.20	0.62
0.42	0.53	0.06	0.22	0.02	0.09	0.02	0.03	0.01	0.02	0.10	0.02	0.44	0.08	0.76	0.03	0.06	0.01	0.02	0.08	0.78	0.81	0.76	1.10	0.81	0.71	0.54	0.67	0.59	0.64	0.71	1.20	0.63
0.42	0.50	0.06	0.21	0.02	0.09	0.02	0.03	0.01	0.02	0.10	0.02	0.61	0.08	0.69	0.02	0.06	0.01	0.01	0.07	0.78	0.84	0.74	1.10	0.79	0.71	0.54	0.67	0.75	0.64	0.71	1.20	0.65
0.43	0.48	0.06	0.21	0.02	0.09	0.02	0.04	0.01	0.02	0.12	0.02	0.58	0.12	0.72	0.03	0.07	0.01	0.01	0.06	0.78	0.81	0.73	1.10	0.78	0.71	0.56	0.67	0.66	0.61	0.71	1.20	0.68
0.43	0.42	0.07	0.21	0.01	0.10	0.02	0.04	0.01	0.02	0.13	0.02	0.51	0.25	0.71	0.03	0.08	0.01	0.01	0.06	0.78	0.81	0.74	1.10	0.76	0.71	0.56	0.67	0.59	0.62	0.71	1.20	0.65
0.40	0.46	0.07	0.22	0.01	0.07	0.02	0.05	0.01	0.02	0.12	0.02	0.51	0.21	0.68	0.03	0.10	0.01	0.04	0.05	0.78	0.82	0.75	1.10	0.78	0.70	0.54	0.67	0.64	0.61	0.79	1.20	0.62
0.42	0.37	0.09	0.26	0.01	0.07	0.02	0.05	0.01	0.03	0.11	0.02	0.51	0.18	0.62	0.04	0.15	0.10	0.03	0.05	0.78	0.82	0.80	1.10	0.76	0.70	0.54	0.67	0.62	0.64	0.78	1.20	0.66
0.46	0.37	0.09	0.26	0.01	0.08	0.02	0.05	0.01	0.03	0.11	0.02	0.50	0.17	0.55	0.03	0.17	0.17	0.10	0.04	0.78	0.81	0.80	1.10	0.77	0.70	0.54	0.67	0.61	0.67	0.78	1.20	0.63
0.42	0.42	0.10	0.25	0.01	0.09	0.02	0.05	0.01	0.03	0.11	0.02	0.47	0.14	0.61	0.03	0.17	0.14	0.14	0.04	0.81	0.80	0.82	1.10	0.77	0.70	0.55	0.67	0.61	0.64	0.78	1.20	0.64
0.35	0.39	0.10	0.24	0.01	0.09	0.02	0.04	0.01	0.03	0.15	0.02	0.43	0.14	0.64	0.03	0.15	0.15	0.10	0.04	0.81	0.79	0.83	1.10	0.74	0.70	0.54	0.67	0.60	0.62	0.76	1.30	0.63
0.39	0.40	0.09	0.22	0.01	0.10	0.02	0.03	0.01	0.03	0.15	0.02	0.37	0.13	0.69	0.02	0.17	0.08	0.07	0.03	0.81	0.79	0.84	1.10	0.76	0.70	0.54	0.67	0.60	0.61	0.75	1.30	0.64
0.37	0.40	0.09	0.21	0.01	0.11	0.02	0.03	0.01	0.03	0.14	0.02	0.35	0.12	0.73	0.02	0.19	0.05	0.06	0.03	0.81	0.79	0.84	1.10	0.75	0.70	0.55	0.67	0.62	0.61	0.88	1.30	0.68
0.39	0.40	0.09	0.21	0.01	0.11	0.02	0.03	0.01	0.03	0.13	0.02	0.30	0.12	0.76	0.02	0.18	0.12	0.07	0.04	0.81	0.78	0.82	1.10	0.76	0.70	0.56	0.67	0.63	0.61	0.84	1.30	0.64
0.36	0.40	0.09	0.21	0.02	0.11	0.02	0.03	0.01	0.03	0.13	0.02	0.26	0.13	0.94	0.02	0.18	0.24	0.04	0.03	0.81	0.77	0.84	1.10	0.77	0.70	0.55	0.67	0.65	0.61	0.82	1.30	0.65
0.35	0.39	0.09	0.22	0.02	0.11	0.02	0.03	0.01	0.03	0.12	0.02	0.25	0.12	0.95	0.02	0.19	0.10	0.07	0.02	0.81	0.77	0.88	1.10	0.77	0.70	0.56	0.67	0.65	0.61	0.78	1.30	0.69
0.39	0.40	0.09	0.24	0.02	0.11	0.02	0.03	0.01	0.03	0.11	0.02	0.24	0.14	0.71	0.02	0.19	0.06	0.06	0.02	0.81	0.76	0.86	1.10	0.76	0.70	0.55	0.67	0.60	0.61	0.78	1.30	0.64
0.37	0.40	0.09	0.26	0.02	0.11	0.02	0.03	0.01	0.03	0.11	0.02	0.25	0.13	0.65	0.02	0.19	0.06	0.03	0.01	0.81	0.76	0.84	1.10	0.75	0.70	0.55	0.67	0.64	0.61	0.77	1.30	0.61
0.36	0.44	0.09	0.66	0.01	0.10	0.02	0.03	0.01	0.03	0.11	0.02	0.26	0.12	0.58	0.02	0.19	0.13	0.04	0.01	0.81	0.75	0.84	1.10	0.74	0.70	0.56	0.67	0.63	0.61	0.73	1.30	0.63
0.35	0.46	0.09	0.61	0.01	0.08	0.03	0.03	0.01	0.02	0.11	0.02	0.29	0.12	0.53	0.02	0.19	0.17	0.06	0.02	0.78	0.75	0.82	1.10	0.75	0.70	0.55	0.67	0.65	0.61	0.73	1.30	0.59
0.36	0.46	0.09	0.40	0.02	0.08	0.03	0.04	0.01	0.03	0.11	0.02	0.30	0.14	0.53	0.02	0.19	0.10	0.10	0.02	0.78	0.77	0.79	1.10	0.74	0.70	0.55	0.67	0.63	0.61	0.71	1.30	0.63
0.37	0.46	0.09	0.37	0.02	0.09	0.03	0.04	0.01	0.03	0.11	0.02	0.32	0.13	0.51	0.03	0.19	0.09	0.14	0.02	0.79	0.77	0.84	1.10	0.76	0.70	0.54	0.67	0.68	0.61	0.71	1.30	0.62
0.37	0.44	0.09	0.35	0.01	0.08	0.03	0.03	0.01	0.03	0.10	0.02	0.33	0.11	0.50	0.03	0.19	0.10	0.28	0.03	0.81	0.77	0.84	1.10	0.76	0.73	0.55	0.67	0.67	0.61	0.71	1.30	0.63
0.36	0.44	0.09	0.35	0.01	0.09	0.03	0.04	0.01	0.03	0.10	0.02	0.35	0.19	0.47	0.03	0.19	0.08	0.33	0.04	0.81	0.78	0.82	1.10	0.77	0.76	0.60	0.67	0.62	0.61	0.71	1.30	0.64
0.37	0.44	0.09	0.33	0.01	0.10	0.02	0.04	0.01	0.03	0.10	0.02	0.35	2.08	0.48	0.04	0.18	0.09	0.28	0.06	0.81	0.78	0.81	1.10	0.74	0.76	0.64	0.67	0.62	0.61	0.71	1.40	0.59
0.40	0.47	0.09	0.28	0.02	0.10	0.02	0.04	0.01	0.03	0.10	0.02	0.36	1.38	0.50	0.03	0.18	0.09	0.14	0.06	0.83	0.78	0.79	1.10	0.75	0.77	0.58	0.67	0.61	0.61	0.71	1.30	0.66
0.65	0.46	0.09	0.30	0.01	0.11	0.02	0.04	0.01	0.03	0.11	0.02	0.36	1.04	0.48	0.03	0.19	0.08	0.08	0.06	0.81	0.78	0.81	1.10	0.78	0.75	0.57	0.67	0.61	0.64	0.71	1.30	0.64
0.66	0.46	0.09	0.28	0.01	0.11	0.02	0.04	0.01	0.03	0.12	0.02	0.36	0.90	0.42	0.03	0.28	0.08	0.08	0.07	0.81	0.76	0.78	1.10	0.77	0.74	0.59	0.67	0.61	0.67	0.71	1.20	0.64
0.42	0.48	0.09	0.29	0.02	0.11	0.03	0.04	0.01	0.04	0.13	0.02	0.35	0.76	0.43	0.02	0.37	0.08	0.06	0.10	0.81	0.78	0.78	1.10	0.77	0.74	0.59	0.65	0.61	0.70	0.71	1.20	0.63
0.35	0.36	0.09	0.26	0.02	0.12	0.02	0.04	0.01	0.03	0.13	0.03	0.33	0.73	0.40	0.03	0.43	0.08	0.04	0.12	0.81	0.81	0.76	1.10	0.77	0.74	0.59	0.64	0.61	0.68	0.71	1.20	0.61
0.35	0.48	0.09	0.25	0.02	0.14	0.02	0.04	0.01	0.03	0.12	0.03	0.33	0.66	0.39	0.02	0.44	0.07	0.03	0.13	0.81	0.82	0.78	1.10	0.74	0.72	0.59	0.64	0.62	0.67	0.71	1.20	0.63
0.36	0.46	0.09	0.28	0.02	0.14	0.02	0.05	0.01	0.03	0.12	0.03	0.33	0.65	0.37	0.02	0.44	0.07	0.03	0.14	0.81	0.81	0.80	1.10	0.75	0.71	0.58	0.64	0.64	0.67	0.71	1.20	0.62
0.42	0.44	0.09	0.50	0.02	0.17	0.02	0.05	0.01	0.03	0.12	0.03	0.32	0.57	0.37	0.02	0.44	0.10	0.04	0.15	0.81	0.84	0.79	1.10	0.74	0.78	0.57	0.64	0.64	0.68	0.72	1.50	0.63
0.37	0.44	0.09	1.41	0.02	0.17	0.03	0.04	0.02	0.03	0.12	0.03	0.33	0.58	0.37	0.02	0.46	0.39	0.03	0.14	0.80	0.84	0.78	1.10	0.72	0.73	0.57	0.65	0.64	0.69	0.81	1.30	0.63
0.36	0.44	0.09	2.46	0.01	0.17	0.03	0.04	0.02	0.03	0.12	0.03	0.30	0.59	0.39	0.02	0.44	0.43	0.04	0.15	0.79	0.87	0.80	1.10	0.70	0.76	0.57	0.64	0.63	0.67	0.75	1.20	0.63
0.35	0.44	0.09	1.11	0.01	0.18	0.03	0.04	0.02	0.04	0.12	0.03	0.29	0.65	0.37	0.02	0.44	0.32	0.07	0.15	0.78	0.87	0.82	1.10	0.72	0.75	0.57	0.65	0.64	0.67	0.71	1.30	0.63
0.33	0.48	0.09	0.66	0.01	0.18	0.03	0.04	0.02	0.04	0.12	0.07	0.29	0.73	0.39	0.03	0.40	0.28	0.07	0.17	0.81	0.87	0.84	1.10	0.72	0.73	0.57	0.66	0.64	0.68	0.71	1.30	0.65
0.33	0.46	0.09	2.50	0.01	0.17	0.03	0.04	0.02	0.04	0.12	0.04	0.29	0.62	0.39	0.02	0.36	0.29	0.06	0.15	0.79	0.87	0.84	1.10	0.75	0.77	0.57	0.66	0.64	0.70	0.71	1.30	0.64
0.35	0.44	0.10	6.53	0.01	0.17	0.03	0.04	0.02	0.06	0.14	0.05	0.30	0.66	0.36	0.02	0.33	0.26	0.03	0.15	0.78	0.87	0.84	1.10	0.74	0.72	0.75	0.66	0.64	0.70	0.71	1.30	0.64
0.33	0.44	0.10	3.65	0.01	0.17	0.03	0.04	0.02	0.10	0.15	0.04	0.33	0.79	0.37	0.02	0.32	0.25	0.03	0.15	0.78	0.87	0.84	1.10	0.72	0.75	0.64	0.65	0.64	0.67	0.72	1.30	0.63
0.33	0.42	0.11	2.20	0.01	0.19	0.03	0.04	0.02	0.14	0.14	0.04	0.37	0.75	0.37	0.03	0.32	0.22	0.04	0.19	0.80	0.87	0.84	1.10	0.70	0.71	0.58	0.66	0.62	0.67	0.75	1.30	0.61
0.33	0.42	0.11	1.72	0.01	0.19	0.04	0.04	0.02	0.17	0.13	0.04	0.40	0.55	0.36	0.02	0.30	0.19	0.03	0.22	0.81	0.87	0.84	1.10	0.71	0.71	0.55	0.65	0.61	0.68	0.72	1.30	0.61
0.33	0.40	0.11	1.33	0.01	0.22	0.04	0.04	0.02	0.17	0.14	0.04	0.43	0.61	0.36	0.02	0.30	0.19	0.02	0.26	0.80	0.87	0.84	1.10	0.71	0.71	0.54	0.66	0.61	0.68	0.73	1.30	0.64
0.35	0.39	0.11	1.25	0.01	0.21	0.06	0.04	0.02	0.15	0.15	0.04	0.47	0.55	0.37	0.02	0.30	0.17	0.01	0.25	0.78	0.87	0.84	1.10	0.71	0.73	0.54	0.65	0.61	0.69	0.75	1.30	0.61
0.33	0.39	0.12	1.38	0.01	0.22	0.08	0.05	0.02	0.14	0.14	0.05	0.50	0.48	0.36	0.02	0.29	0.15	0.03	0.26	0.78	0.84	0.84	1.10	0.73	0.71	0.54	0.65	0.61	0.66	0.75	1.30	0.64
0.33	0.40	0.13	1.54	0.01	0.24	0.10	0.05	0.02	0.13	0.13	0.05	0.54	0.51	0.33	0.02	0.29	0.15	0.03	0.30	0.81	0.84	0.86	1.10	0.70	0.70	0.54	0.65	0.61	0.66	0.75	1.30	0.62
0.33	0.40	0.15	1.63	0.02	0.28	0.13	0.05	0.02	0.14	0.13	0.05	0.54	0.51	0.30	0.02	0.28	0.18	0.04	0.33	0.81	0.84	0.85	1.10	0.76	0.75	0.54	0.65	0.61	0.66	0.75	1.30	0.64
0.32	0.40	0.18	1.70	0.02	0.30	0.15	0.07	0.02	0.15	0.13	0.05	0.54	0.46	0.32	0.02	0.26	0.17	0.03	0.36	0.81	0.84	0.82	1.10	0.72	0.73	0.53	0.65	0.61	0.65	0.75	1.30	0.62
999999	0.40	999999	999999	999999	0.30	999999	999999	999999	0.15	999999	999999	999999	0.40	999999	999999	999999	0.17	999999	999999	999999	999999	0.84	999999	999999	999999	0.51	999999	999999	999999	0.75	999999	999999
0.35	0.40	0.21	1.73	0.02	0.28	0.12	0.08	0.03	0.13	0.14	0.06	0.54	0.39	0.33	0.02	0.28	0.18	0.03	0.36	0.81	0.84	0.81	1.10	0.72	0.72	0.52	0.65	0.61	0.64	0.75	1.30	0.63
0.35	0.43	0.22	1.72	0.02	0.28	0.10	0.11	0.04	0.12	0.14	0.08	0.51	0.39	0.32	0.02	0.29	0.18	0.03	0.30	0.81	0.81	0.79	1.10	0.71	0.73	0.54	0.65	0.61	0.64	0.77	1.30	0.62
0.36	0.44	0.24	1.62	0.03	0.29	0.09	0.18	0.04	0.11	0.14	0.11	0.50	0.46	0.33	0.02	0.33	0.17	0.04	0.30	0.78	0.81	0.81	1.20	0.70	0.75	0.53	0.65	0.62	0.64	0.75	1.30	0.64
0.32	0.46	0.24	1.74	0.06	0.30	0.10	0.26	0.55	0.11	0.15	0.10	0.47	0.43	0.35	0.02	0.28	0.18	0.03	0.30	0.78	0.96	0.77	1.10	0.70	0.72	0.51	0.65	0.66	0.64	0.75	1.30	0.62
0.32	0.47	0.22	1.81	0.17	0.32	0.10	0.24	1.31	0.12	0.15	0.10	0.47	0.43	0.35	0.02	0.26	0.17	0.03	0.30	0.78	0.78	0.75	1.10	0.71	0.70	0.51	0.65	0.61	0.66	0.75	1.30	0.60
0.33	0.50	0.22	1.83	0.18	0.33	0.13	0.22	1.18	0.12	0.17	0.10	0.47	0.46	0.37	0.02	0.32	0.17	0.04	0.32	0.78	0.73	0.76	1.10	0.70	0.60	0.50	0.64	0.61	0.66	0.75	1.30	0.63
0.35	0.54	0.25	1.72	0.17	0.33	0.21	0.21	1.11	0.12	0.18	0.11	0.50	0.44	0.40	0.03	0.24	0.17	0.06	0.30	0.78	0.73	0.81	1.10	0.70	0.62	0.51	0.64	0.61	0.64	0.75	1.30	0.62
0.36	0.58	0.26	7.17	0.18	0.37	0.42	0.18	0.68	0.11	0.19	0.11	0.47	0.43	0.46	0.03	0.24	0.18	0.06	0.26	0.81	0.73	0.83	1.10	0.70	0.70	0.55	0.64	0.61	0.64	0.75	1.30	0.62
0.40	0.62	0.26	3.96	0.15	0.40	1.12	0.17	0.39	0.11	0.21	0.12	0.87	0.48	0.51	0.03	0.26	0.17	0.03	0.26	0.81	0.71	0.83	1.10	0.70	0.87	0.55	0.64	0.61	0.64	0.75	1.30	0.63
0.44	0.69	0.25	2.34	0.15	0.39	0.64	0.18	0.25	0.11	0.21	0.14	1.98	0.53	0.58	0.04	0.26	0.15	0.04	0.28	0.81	0.71	1.50	1.10	0.71	1.00	0.55	0.64	0.62	0.64	0.75	1.30	0.63
0.48	0.72	0.22	1.70	0.13	0.36	0.66	0.18	0.25	0.13	0.21	0.17	2.03	0.51	0.73	0.04	0.25	0.15	0.04	0.28	0.81	0.71	2.30	1.10	0.70	0.67	0.55	0.64	0.63	0.64	0.75	1.20	0.63
0.50	0.64	0.21	1.52	0.12	0.30	0.68	0.15	0.17	0.14	0.24	0.15	1.69	0.50	0.89	0.06	0.24	0.17	0.04	0.33	0.84	0.73	2.30	1.10	0.70	1.30	0.54	0.64	0.62	0.65	0.75	1.20	0.63
0.76	0.72	0.19	1.40	0.12	0.25	0.65	0.14	0.15	0.15	0.26	0.17	1.52	0.46	0.97	0.07	0.26	0.19	0.05	0.36	0.84	0.73	2.30	1.10	0.72	1.30	0.53	0.64	0.63	0.64	0.75	1.20	0.65
0.93	0.68	0.19	1.23	0.12	0.28	0.54	0.14	0.18	0.18	0.29	0.19	1.99	0.43	1.00	0.08	0.29	0.22	0.05	0.30	0.84	0.73	2.40	1.10	0.72	1.20	0.54	0.63	0.65	0.64	0.75	1.20	0.64
0.72	0.65	0.18	1.13	0.12	0.29	0.48	0.14	0.17	0.18	0.32	0.24	1.67	0.43	1.08	0.10	0.28	0.25	0.06	0.29	0.84	0.73	2.30	1.10	0.72	1.20	0.56	0.65	0.65	0.64	0.75	1.20	0.63
0.66	0.71	0.18	1.08	0.11	0.28	0.44	0.17	0.15	0.18	0.40	0.28	1.56	0.50	1.13	0.11	0.24	0.28	0.07	0.26	0.84	0.73	2.50	1.10	0.72	1.20	0.59	0.65	0.65	0.65	0.77	1.20	0.63
0.61	0.65	0.19	1.01	0.11	0.29	0.39	0.18	0.13	0.17	0.47	0.29	1.34	0.62	1.16	0.15	0.25	0.30	0.10	0.25	0.78	0.75	3.00	1.10	0.74	1.20	0.61	0.65	0.66	0.64	0.78	1.20	0.63
0.55	0.69	0.22	0.95	0.13	0.33	0.33	0.26	0.15	0.17	0.83	0.32	1.22	0.84	1.27	0.17	0.26	0.36	0.14	0.25	0.84	0.75	3.00	1.10	0.73	1.20	0.60	0.66	0.65	0.65	0.78	1.20	0.63
0.53	0.80	0.21	0.97	0.12	0.39	0.33	0.29	0.15	0.15	0.80	0.35	1.48	1.04	1.38	0.22	0.39	0.46	0.24	0.24	0.84	0.75	3.00	1.10	0.71	1.20	0.58	0.67	0.65	0.67	0.78	1.20	0.65
0.51	1.00	0.22	1.08	0.11	0.47	0.44	0.32	0.14	0.15	0.84	0.32	1.69	1.16	1.52	0.28	0.35	0.50	0.30	0.30	0.84	0.73	3.10	1.10	0.75	1.30	0.60	0.67	0.67	0.67	0.78	1.20	0.65
0.50	1.09	0.25	1.26	0.11	0.50	0.58	0.40	0.14	0.17	1.01	0.39	1.83	1.33	1.47	0.33	0.29	0.46	0.33	0.33	0.84	0.73	3.00	1.10	0.77	1.30	0.61	0.67	0.68	0.67	0.78	1.20	0.64
0.48	1.15	0.40	1.44	0.12	0.51	0.73	0.46	0.13	0.17	1.04	0.40	1.47	1.33	1.45	0.42	0.35	0.48	0.35	0.37	0.84	0.73	3.00	1.10	0.80	1.30	0.61	0.70	0.69	0.67	0.78	1.20	0.62
0.48	1.20	0.29	1.48	0.11	0.62	0.80	0.59	0.14	0.18	1.20	0.57	1.18	1.04	1.85	0.46	0.36	0.50	1.02	0.36	0.84	0.75	3.00	1.20	0.78	1.30	0.61	0.72	0.71	0.67	0.79	1.30	0.64
0.47	1.27	0.35	1.40	0.11	0.73	0.79	0.79	0.17	0.18	1.33	0.28	1.07	0.90	2.12	0.57	0.35	0.51	1.40	0.33	0.84	0.76	2.90	1.20	0.79	1.20	0.60	0.73	0.76	0.68	0.81	1.30	0.65
0.44	1.34	0.35	1.49	0.11	0.93	0.71	0.93	0.30	0.19	1.19	0.24	0.95	0.89	2.32	0.55	0.39	0.53	0.97	0.30	0.84	0.78	2.80	1.20	0.75	1.20	0.59	0.74	0.73	0.67	0.80	1.30	0.64
0.43	1.42	0.29	1.77	0.11	1.08	0.57	1.04	0.40	0.22	1.07	0.22	0.89	0.86	2.43	0.57	0.44	0.61	0.82	0.29	0.81	0.78	2.90	1.20	0.78	1.20	0.59	0.73	0.70	0.68	0.78	1.30	0.62
0.42	1.45	0.32	2.05	0.12	1.07	0.48	1.05	0.25	0.24	0.76	0.47	0.84	0.93	2.41	0.55	0.54	0.71	0.82	0.30	0.81	0.75	2.90	1.20	0.79	1.20	0.58	0.72	0.69	0.68	0.78	1.30	0.61
0.40	1.51	0.39	2.21	0.12	0.95	0.66	0.86	0.17	0.26	0.69	0.30	0.83	0.97	2.35	0.50	0.61	0.73	1.00	0.37	0.81	0.75	3.10	1.10	0.78	1.20	0.58	0.72	0.69	0.68	0.78	1.30	0.71
0.40	1.41	0.37	2.31	0.13	0.91	0.83	0.71	0.17	0.33	0.65	0.37	0.80	0.87	2.35	0.50	0.62	0.77	1.45	0.57	0.81	0.75	3.20	1.10	0.79	1.20	0.60	0.73	0.69	0.67	0.78	1.40	0.64
0.47	1.12	0.32	2.55	0.17	0.87	0.91	0.66	0.19	0.37	0.68	0.47	0.77	0.90	2.30	0.47	0.62	0.83	1.44	0.91	0.84	0.75	3.20	1.20	0.77	1.20	0.57	0.73	0.68	0.67	0.76	1.40	0.66
0.59	0.97	0.33	2.79	0.19	0.79	1.13	0.80	0.22	0.40	0.75	0.61	0.82	1.01	2.09	0.43	0.58	0.86	1.63	1.09	0.84	0.75	3.20	1.20	0.78	1.20	0.59	0.72	0.67	0.67	0.75	1.40	0.66
0.64	1.02	0.39	2.78	0.21	0.79	1.27	0.91	0.24	0.51	0.86	0.69	0.87	1.31	1.70	0.44	0.54	0.87	1.74	1.25	0.84	0.75	3.30	1.20	0.77	1.20	0.59	0.71	0.66	0.68	0.75	1.40	0.69
0.72	0.91	0.47	2.48	0.26	0.84	1.30	0.94	0.24	0.62	0.89	0.76	0.87	1.54	1.49	0.42	0.42	1.02	1.54	1.42	0.84	0.75	3.40	1.20	0.80	1.20	0.60	0.71	0.66	0.67	0.73	1.30	0.70
0.72	0.97	0.58	2.14	0.30	0.90	1.48	0.98	0.24	0.86	1.04	0.75	0.93	1.20	1.38	0.37	0.42	1.31	1.19	1.60	0.84	0.75	3.30	1.10	0.76	1.20	0.58	0.71	0.66	0.64	0.75	1.30	0.72
0.61	1.05	0.72	2.06	0.26	1.09	1.72	1.01	0.35	1.05	1.20	0.64	1.15	1.16	1.38	0.36	0.36	1.66	0.94	1.74	0.84	0.78	3.20	1.10	0.76	1.20	0.58	0.71	0.66	0.65	0.76	1.30	0.71
0.55	1.07	0.93	1.91	0.26	1.25	1.96	0.95	0.47	1.05	1.18	0.65	1.45	1.37	1.40	0.36	0.42	1.90	0.77	1.72	0.84	0.78	3.10	1.10	0.77	1.20	0.59	0.72	0.65	0.66	0.76	1.30	0.69
0.50	1.07	1.23	1.81	0.28	1.31	2.16	1.07	0.58	1.04	1.00	0.62	1.56	1.72	1.36	0.36	0.39	1.94	0.65	1.60	0.84	0.78	3.30	1.10	0.76	1.20	0.62	0.72	0.66	0.64	0.75	1.30	0.70
0.47	1.20	1.44	1.67	0.36	1.33	2.39	1.09	0.65	1.15	0.87	0.53	1.59	2.02	1.42	0.36	0.37	2.03	0.57	1.67	0.84	0.78	3.30	1.10	0.75	1.20	0.63	0.73	0.67	0.61	0.79	1.30	0.72
0.48	1.22	1.65	1.58	0.53	1.26	2.63	1.00	0.64	1.25	1.00	0.53	1.55	2.38	1.49	0.35	0.36	2.21	0.58	1.94	0.87	0.78	3.30	1.10	0.75	1.20	0.63	0.72	0.66	0.59	0.77	1.20	0.70
0.54	1.09	1.78	1.69	0.77	1.26	2.78	1.08	0.68	1.36	1.27	0.44	1.47	2.55	1.36	0.33	0.48	2.20	0.59	1.96	0.87	0.81	3.30	1.10	0.75	1.20	0.62	0.73	0.67	0.59	0.73	1.30	0.72
0.55	1.99	1.91	1.98	1.01	1.36	2.61	1.37	0.73	1.42	1.40	0.42	1.38	2.38	1.23	0.33	0.39	2.24	0.53	2.13	0.89	0.81	3.30	1.10	0.74	1.20	0.56	0.73	0.71	0.61	0.73	1.30	0.73
0.51	1.88	2.01	2.34	1.18	1.34	2.43	1.54	0.59	1.49	1.51	0.43	1.62	2.16	1.22	0.35	0.36	2.20	0.48	2.34	0.89	0.81	3.30	1.10	0.77	1.20	0.55	0.73	0.70	0.61	0.72	1.30	0.74
0.47	1.96	2.13	2.48	1.20	1.25	2.49	1.72	0.48	1.41	1.45	0.57	1.88	2.05	1.30	0.36	0.36	2.37	0.44	2.56	0.92	0.81	3.20	1.10	0.78	1.20	0.55	0.71	0.70	0.63	0.72	1.30	0.73
0.46	2.19	2.39	2.01	1.29	1.15	2.39	1.94	0.48	2.19	1.31	0.80	1.96	1.88	1.49	0.35	0.43	3.86	0.44	2.74	0.92	0.81	3.20	1.10	0.78	1.20	0.54	0.73	0.69	0.64	0.71	1.30	0.75
0.43	2.46	2.77	2.05	1.44	1.25	2.27	2.08	0.62	1.78	1.41	1.05	1.67	2.14	1.78	0.35	0.68	2.39	0.44	2.86	0.92	0.81	3.20	1.10	0.77	1.20	0.54	0.71	0.68	0.64	0.71	1.30	0.72
0.44	2.68	2.56	2.12	1.51	1.02	2.21	2.13	0.72	1.54	1.65	1.29	1.45	2.50	2.09	0.35	0.94	1.81	0.48	2.67	0.92	0.81	3.30	1.10	0.78	1.20	0.54	0.73	0.66	0.64	0.69	1.30	0.71
0.50	2.63	2.20	1.96	1.63	0.93	2.05	1.83	0.68	1.69	1.73	1.42	1.26	2.60	2.43	0.35	1.18	1.67	0.62	2.02	0.89	0.81	3.20	1.10	0.79	1.20	0.61	0.73	0.65	0.66	0.64	1.30	0.64
0.61	2.43	1.78	1.72	1.73	1.04	2.06	1.22	0.64	1.87	1.58	1.56	1.11	2.13	2.68	0.33	1.29	1.45	0.80	1.80	0.87	0.81	3.20	1.10	0.80	1.20	0.57	0.73	0.67	0.69	0.66	1.30	0.67
0.57	1.94	1.45	1.70	1.52	1.04	2.03	1.08	0.64	1.99	1.44	1.74	1.05	1.81	2.85	0.37	1.47	1.31	0.90	1.52	0.87	0.81	2.90	1.10	0.79	1.20	0.57	0.72	0.68	0.72	0.69	1.30	0.67
0.55	1.66	1.51	2.08	1.23	0.91	1.85	1.26	0.66	2.09	1.60	1.92	0.97	1.56	3.64	0.54	1.74	1.25	0.90	1.40	0.87	0.81	2.70	1.20	0.81	1.20	0.53	0.72	0.69	0.74	0.68	1.40	0.67
0.65	1.54	1.34	2.95	1.37	0.77	1.74	1.49	0.58	2.28	1.96	1.94	0.94	1.44	3.68	0.80	1.95	1.45	0.75	1.30	0.87	0.81	3.00	1.20	0.78	1.20	0.52	0.73	0.70	0.73	0.70	1.30	0.66
0.61	1.52	1.07	4.22	1.65	0.87	1.65	1.51	0.55	2.17	2.35	1.77	0.91	1.36	3.92	1.16	2.03	1.65	0.66	1.30	0.84	0.81	3.40	1.20	0.74	1.20	0.53	0.82	0.68	0.73	0.71	1.30	0.67
0.62	1.76	1.19	4.90	1.76	0.73	1.40	1.45	0.57	1.85	2.50	1.54	0.91	1.51	3.58	1.60	1.76	1.76	0.64	1.47	0.84	0.81	3.20	1.20	0.73	1.20	0.54	0.83	0.68	0.71	0.72	1.30	0.66
0.79	2.21	1.66	4.43	1.72	0.66	1.12	1.84	0.62	1.80	2.38	1.26	1.07	2.03	3.42	1.95	1.42	1.99	0.76	1.81	0.87	0.81	3.20	1.20	0.71	1.20	0.56	0.80	0.71	0.64	0.72	1.30	0.71
0.71	2.46	1.90	4.11	1.73	0.75	1.02	1.58	0.80	2.05	2.12	0.98	1.47	2.70	2.97	1.59	1.37	2.31	1.13	2.06	0.87	0.81	3.20	1.20	0.75	1.20	0.56	0.79	0.71	0.65	0.73	1.30	0.68
0.64	2.08	1.70	4.19	1.80	1.05	0.93	1.56	0.72	2.39	2.71	0.84	1.95	3.51	3.04	1.41	1.52	2.79	1.67	2.20	0.87	0.81	2.10	1.10	0.90	1.20	0.55	0.81	0.71	0.70	0.73	1.30	0.69
0.64	1.62	1.51	4.14	1.80	1.29	0.84	1.92	0.65	2.48	3.43	0.77	2.42	4.43	3.56	1.56	2.01	3.49	2.26	2.17	0.84	0.81	0.72	1.10	0.79	1.20	0.56	0.82	0.70	0.70	0.72	1.40	0.68
0.61	1.37	1.62	4.73	1.72	1.40	0.84	2.19	0.84	2.55	3.78	0.69	2.63	4.76	3.83	1.99	2.31	3.97	2.68	1.84	0.84	0.81	0.72	1.10	0.93	1.20	0.54	0.80	0.71	0.70	0.72	1.40	0.70
0.66	1.34	1.90	5.02	1.67	1.47	0.93	2.10	1.15	2.56	4.16	0.69	2.61	4.95	3.53	2.39	1.81	3.60	2.63	1.69	0.84	0.87	0.67	1.10	0.90	1.20	0.53	0.78	0.74	0.65	0.71	1.40	0.65
0.71	1.31	1.95	5.53	1.74	1.48	0.93	1.81	1.59	2.73	4.76	0.77	4.08	5.11	3.40	2.68	1.40	3.24	2.59	1.60	0.84	0.87	0.65	1.20	0.92	1.40	0.54	0.77	0.77	0.65	0.72	1.40	0.65
0.69	1.42	2.31	5.26	1.74	1.41	0.94	1.41	2.01	2.77	5.51	0.86	10.89	5.41	3.46	3.10	1.40	3.79	3.17	1.42	0.84	0.89	0.70	1.20	0.89	1.60	0.54	0.83	0.82	0.65	0.71	1.40	0.65
0.65	1.47	2.71	5.06	1.31	1.11	0.95	1.22	1.81	2.20	5.85	1.02	10.03	5.60	3.35	3.36	1.72	4.08	3.78	1.31	0.84	0.89	0.67	1.10	0.91	1.40	0.53	0.85	0.84	0.67	0.75	1.20	0.64
0.64	1.87	2.60	5.30	1.07	1.02	1.01	1.22	1.08	2.01	5.69	1.23	6.68	5.37	3.15	3.27	1.73	4.39	3.58	1.38	0.84	0.84	0.67	1.10	0.88	1.40	0.53	0.88	0.85	0.67	0.86	0.85	0.64
0.79	2.16	2.55	4.80	1.15	1.11	1.13	1.33	0.86	1.95	5.19	1.38	5.27	4.77	3.25	3.24	1.41	4.65	2.84	1.69	0.81	0.81	0.67	1.10	0.88	1.30	0.53	0.83	0.86	0.65	0.87	0.79	0.65
1.01	2.21	2.41	3.62	1.26	1.09	1.30	1.42	1.05	1.92	4.83	1.58	4.84	4.40	3.38	2.91	1.37	4.54	2.74	2.01	0.81	0.81	0.67	1.10	0.86	1.30	0.52	0.79	0.85	0.64	0.84	0.76	0.67
0.87	2.14	2.37	2.97	1.26	0.98	1.27	1.51	1.81	1.96	4.62	1.72	3.68	4.23	3.42	2.57	2.14	4.48	3.20	2.27	0.81	0.87	0.67	1.10	0.79	1.30	0.52	0.78	0.81	0.64	0.82	0.76	0.68
0.79	2.12	2.32	2.50	1.15	0.90	1.18	1.49	2.56	1.99	4.51	1.54	2.91	4.32	3.29	2.06	3.09	3.92	3.80	2.42	0.84	0.89	0.67	1.20	0.75	1.20	0.52	0.76	0.77	0.64	0.84	0.76	0.66
0.86	2.30	2.10	2.19	1.05	0.82	1.11	1.34	3.14	2.02	4.40	1.29	2.48	4.18	3.51	1.91	3.49	5.37	4.45	2.38	0.84	0.89	0.67	1.20	0.71	1.20	0.52	0.78	0.77	0.67	0.84	0.76	0.67
1.08	2.52	1.91	2.26	1.04	0.82	1.07	1.16	3.20	2.05	5.28	1.27	2.28	4.01	3.56	1.87	3.36	6.49	4.61	2.30	0.84	0.87	0.67	1.20	0.71	1.20	0.54	0.78	0.88	0.62	0.82	0.74	0.69
1.37	2.55	1.77	2.61	0.97	0.90	1.56	1.07	2.38	1.92	6.13	1.48	2.63	3.89	3.50	2.21	3.02	4.72	4.57	2.20	0.84	0.78	0.67	1.30	0.77	1.20	0.57	0.78	0.97	0.61	0.80	0.74	0.65
1.40	2.55	1.48	3.04	0.90	1.09	1.94	0.98	1.66	1.73	7.12	1.73	3.50	4.01	3.35	2.21	2.88	3.87	4.43	2.05	0.84	0.73	0.67	1.20	0.76	1.30	0.57	0.80	0.88	0.63	0.79	0.74	0.64
1.11	2.78	1.31	3.47	0.89	1.42	1.40	0.86	1.34	1.58	7.37	1.98	4.23	4.39	3.28	2.05	3.36	2.85	4.51	1.91	0.84	0.73	0.67	1.20	0.76	1.30	0.57	0.79	0.75	0.67	0.75	0.74	0.64
1.25	2.81	1.44	4.04	0.86	1.60	1.11	0.82	1.45	1.52	6.96	2.12	4.07	4.57	3.17	1.81	3.89	2.39	3.78	1.91	0.84	0.75	0.67	1.20	0.76	1.20	0.57	0.85	0.76	0.70	0.73	0.73	0.65
1.47	2.86	1.59	4.57	0.77	1.70	0.95	0.77	1.77	1.36	6.17	1.91	3.17	4.39	3.13	1.49	3.51	2.42	3.22	2.02	0.84	0.78	0.67	1.20	0.79	1.20	0.58	0.85	0.73	0.67	0.73	0.73	0.63
1.60	2.42	1.72	4.65	0.75	1.60	0.93	0.75	1.90	1.16	6.09	1.84	2.56	4.03	2.96	1.29	2.81	2.32	3.15	2.16	0.84	0.81	0.67	1.20	0.79	1.20	0.59	0.86	0.72	0.60	0.73	0.73	0.63
1.95	1.88	1.69	4.73	1.44	1.54	1.20	0.69	2.57	1.04	6.50	1.67	2.26	6.06	2.78	1.22	2.45	2.08	3.43	2.17	0.84	0.84	0.67	1.20	0.78	1.20	0.61	0.86	0.71	0.57	0.75	0.73	0.65
2.30	1.58	1.62	4.94	1.62	1.38	1.18	0.65	3.21	0.94	7.79	1.34	2.10	22.83	2.61	1.40	2.42	2.03	3.75	2.13	0.84	0.84	0.67	1.20	0.75	1.20	0.71	0.86	0.71	0.57	0.78	0.73	0.66
2.64	1.59	1.55	5.02	0.91	1.12	0.97	0.61	2.63	0.86	8.08	1.02	2.23	5.88	2.42	1.23	2.78	2.12	3.49	2.16	0.84	0.84	0.67	1.10	0.75	1.20	0.63	0.86	0.70	0.61	0.78	0.73	0.66
3.11	1.60	1.54	5.63	0.72	1.00	0.90	0.57	1.76	0.77	8.63	0.95	3.07	5.64	2.31	1.33	2.81	2.42	2.97	2.09	0.84	0.84	0.67	1.10	0.76	1.30	0.60	0.88	0.70	0.61	0.78	0.74	0.62
3.92	1.81	1.48	5.71	0.61	0.98	0.80	0.53	1.56	0.72	8.44	0.84	4.77	4.39	2.30	1.88	2.68	2.86	2.64	1.92	0.84	0.84	0.67	1.10	0.78	1.30	0.60	0.87	0.76	0.61	0.77	0.73	0.63
4.95	1.87	1.36	5.17	0.55	0.95	0.73	0.48	1.77	0.68	7.46	0.77	5.99	3.62	2.05	2.39	2.79	3.22	2.55	1.78	0.84	0.87	0.67	1.00	0.78	1.30	0.58	0.87	1.10	0.61	0.77	0.73	0.66
5.84	1.83	1.19	4.58	0.57	0.89	0.68	0.47	1.91	0.59	6.70	0.79	6.17	3.21	1.78	2.27	2.67	3.39	2.48	1.65	0.84	0.87	0.67	0.98	0.77	1.30	0.59	0.82	1.20	0.61	0.75	0.73	0.68
7.18	1.74	1.19	3.79	0.54	0.82	0.62	0.46	2.46	0.54	6.59	0.82	5.51	2.82	1.59	2.32	2.73	3.47	2.31	1.65	0.84	0.87	0.67	0.99	0.75	1.30	0.57	0.73	1.20	0.61	0.76	0.73	0.66
7.98	1.65	1.18	3.35	0.57	0.72	0.58	0.51	3.22	0.48	7.01	0.84	5.04	2.59	1.47	2.73	2.67	3.27	2.08	1.84	0.84	0.87	0.67	1.00	0.79	1.30	0.57	0.67	1.20	0.61	0.75	0.73	0.66
8.56	1.55	1.12	3.69	0.54	0.66	0.54	0.75	3.75	0.46	6.99	0.89	4.72	2.14	1.33	3.54	2.82	2.92	1.83	1.99	0.81	0.87	0.67	0.99	0.81	1.30	0.57	0.66	1.20	0.61	0.78	0.73	0.65
9.42	1.37	1.02	4.34	0.50	0.61	0.50	0.66	3.64	0.42	7.42	0.84	3.69	2.05	1.23	3.87	2.84	2.61	1.60	1.96	0.81	0.87	0.67	1.00	0.84	1.30	0.58	0.69	1.20	0.81	0.79	0.72	0.65
10.03	1.31	0.90	4.65	0.46	0.55	0.47	0.55	3.10	0.40	5.98	0.84	4.65	2.10	1.16	3.15	2.79	2.35	1.36	1.83	0.81	0.89	0.67	0.99	0.82	1.30	0.58	0.67	1.10	1.20	0.80	0.73	0.69
10.69	1.27	0.80	4.75	0.43	0.48	0.44	0.71	2.60	0.37	5.17	0.79	5.81	2.16	1.18	2.57	2.49	2.43	1.13	1.67	0.81	0.87	0.67	0.99	0.84	1.30	0.58	0.67	1.10	1.20	0.86	0.71	0.69
11.30	1.09	0.72	5.02	0.42	0.46	0.42	1.26	2.52	0.35	4.57	0.71	6.35	2.01	1.25	2.88	2.28	2.19	0.97	1.59	0.81	0.87	1.00	1.00	0.83	1.30	0.59	0.63	1.20	1.20	0.92	0.72	0.65
11.58	1.00	0.68	4.72	0.39	0.91	0.40	0.95	2.43	0.33	4.62	0.64	7.40	1.96	1.20	3.10	1.92	1.90	0.86	1.58	0.81	0.87	1.30	0.98	0.83	1.30	0.58	0.86	1.20	1.10	0.95	0.72	0.65
11.08	0.90	0.58	4.41	0.35	0.65	0.39	0.82	2.21	0.30	5.04	0.64	7.91	1.85	1.18	3.58	1.65	1.67	0.76	1.55	0.81	0.81	1.30	1.00	0.83	1.30	0.81	1.30	1.10	1.20	0.90	0.72	0.84
10.40	0.79	0.54	3.98	0.33	0.59	0.36	0.68	1.98	0.28	7.93	1.77	8.79	1.83	1.11	4.77	1.56	1.51	0.71	1.47	1.10	1.10	1.20	1.00	0.80	1.40	1.30	1.30	1.20	1.20	1.10	0.83	1.10
8.02	0.69	0.50	4.19	0.30	0.55	0.33	0.58	2.26	0.25	5.42	0.87	8.49	1.95	0.95	5.55	1.49	1.40	0.62	1.44	1.50	1.40	1.60	1.00	0.81	1.30	1.30	1.30	1.20	1.20	1.20	1.10	1.10
7.07	0.58	0.53	3.85	0.28	0.46	0.33	0.48	2.49	0.24	4.43	0.66	8.20	2.01	0.83	6.02	1.42	1.27	0.55	1.23	1.50	1.40	2.10	1.00	0.80	1.30	1.20	1.30	1.20	1.10	1.20	1.10	1.10
7.28	0.53	0.53	3.58	0.26	0.42	0.35	0.44	2.67	0.21	3.87	0.55	8.99	2.01	0.77	6.25	1.37	1.19	0.47	1.09	1.50	1.30	1.70	1.00	0.80	1.30	1.30	1.30	1.20	1.10	1.20	1.10	1.10
7.64	0.66	0.47	3.03	0.24	0.39	0.30	0.39	2.55	0.19	3.69	0.47	10.43	1.85	0.82	4.62	1.37	1.15	0.43	1.04	1.50	1.30	1.30	1.00	0.78	1.20	1.30	1.30	1.10	1.10	1.20	1.10	1.10
9.08	0.73	0.47	2.59	0.21	0.37	0.29	0.39	2.21	0.18	3.92	0.42	9.30	1.65	0.86	5.40	1.73	1.07	0.40	1.00	1.50	1.30	1.30	1.00	0.78	1.20	1.20	1.30	1.10	1.20	1.20	1.10	1.10
10.24	0.55	0.44	2.31	0.32	0.37	0.28	0.36	1.96	0.18	2.66	0.39	6.85	1.54	0.72	6.88	1.66	0.95	0.36	0.93	1.50	1.30	1.20	1.10	1.20	1.30	1.20	1.30	1.20	1.20	1.20	1.10	1.10
9.96	0.50	0.42	2.13	0.37	0.37	0.28	0.33	1.84	0.18	2.68	0.36	4.91	1.37	0.61	7.42	1.37	0.87	0.32	0.84	1.50	1.30	1.30	1.00	1.50	1.50	1.20	1.30	1.20	1.10	1.20	1.10	1.10
9.52	0.44	0.39	1.94	0.33	0.33	0.28	0.32	1.74	0.17	3.10	0.32	3.94	1.23	0.58	6.78	1.19	1.13	0.29	0.75	1.40	1.30	1.20	1.10	1.40	1.60	1.20	1.30	1.20	1.20	1.20	1.10	1.10
10.49	0.42	0.35	1.92	0.26	0.30	0.25	0.30	1.69	0.15	3.44	0.29	4.61	1.05	0.51	6.88	1.11	1.13	0.28	0.64	1.40	1.30	1.30	1.30	1.20	1.50	1.20	1.30	1.20	1.20	1.20	1.10	1.10
11.18	0.39	0.32	1.91	0.21	0.29	0.24	0.29	1.63	0.14	4.08	0.26	6.64	0.87	0.46	6.21	1.02	0.95	0.25	0.51	1.40	1.30	1.30	1.20	1.20	1.60	1.10	1.30	1.10	1.20	1.10	1.10	1.10
11.19	0.37	0.28	1.83	0.19	0.28	0.21	0.26	1.51	0.13	4.22	0.24	8.54	0.76	0.42	8.98	1.00	0.77	0.24	0.46	1.40	1.30	1.30	1.40	1.20	1.60	1.10	1.30	1.10	1.20	1.10	1.10	1.10
9.35	0.35	0.25	1.74	0.17	0.26	0.19	0.24	1.30	0.13	4.05	0.21	9.34	0.69	0.39	6.60	0.94	0.69	0.22	0.40	1.40	1.30	1.40	1.40	1.20	1.60	1.10	1.30	1.10	1.20	1.10	1.10	1.10
9.28	0.33	0.24	1.70	0.15	0.25	0.18	0.24	1.11	0.13	4.14	0.19	9.34	0.66	0.39	7.65	0.89	0.66	0.21	0.37	1.50	1.30	1.40	1.40	1.20	1.60	1.10	1.30	1.10	1.20	1.10	1.10	1.10
10.06	0.33	0.22	1.65	0.15	0.22	0.17	0.22	0.91	0.14	4.11	0.18	7.86	0.62	0.47	9.03	0.83	0.61	0.19	0.35	1.50	1.30	1.30	1.40	1.20	1.50	1.10	1.30	1.10	1.20	1.10	1.10	1.20
10.40	0.33	0.19	1.49	0.14	0.21	0.15	0.22	0.79	0.14	4.01	0.18	6.28	0.55	0.44	10.74	0.77	0.55	0.18	0.32	1.40	1.30	1.40	1.40	1.30	1.50	1.10	1.30	1.10	1.20	1.10	1.10	1.10
11.29	0.32	0.18	1.40	0.13	0.19	0.15	0.21	0.71	0.14	3.54	0.17	4.54	0.50	0.35	9.77	0.71	0.51	0.17	0.29	1.40	1.30	1.40	1.40	1.20	1.50	1.20	1.30	1.10	1.20	1.10	1.20	1.10
11.72	0.28	0.17	1.30	0.13	0.19	0.14	0.19	0.62	0.13	3.20	0.15	3.78	0.46	0.32	8.61	0.64	0.44	0.15	0.26	1.40	1.30	1.40	1.40	1.20	1.50	1.20	1.40	1.10	1.20	1.10	1.10	1.00
11.03	0.25	0.15	1.22	0.12	0.18	0.12	0.18	0.55	0.11	3.17	0.14	4.30	0.42	0.28	8.90	0.57	0.39	0.14	0.25	1.40	1.30	1.40	1.40	1.20	1.50	1.20	1.40	1.00	1.20	1.10	1.10	1.00
9.48	0.24	0.14	1.08	0.11	0.18	0.11	0.17	0.50	0.11	3.17	0.13	5.37	0.37	0.25	8.98	0.51	0.35	0.13	0.24	1.40	1.30	1.50	1.40	1.20	1.50	1.10	1.40	1.00	1.20	1.10	1.10	1.20
8.88	0.22	0.13	0.94	0.11	0.26	0.11	0.15	0.44	0.11	2.82	0.12	5.63	0.36	0.24	9.08	0.46	0.32	0.12	0.22	1.40	1.20	1.40	1.40	1.20	1.50	1.10	1.40	1.00	1.20	1.10	1.10	1.20
8.73	0.21	0.12	0.89	0.11	0.22	0.11	0.14	0.42	0.10	2.39	0.12	5.88	0.33	0.21	9.02	0.42	0.29	0.11	0.21	1.40	1.20	1.40	1.40	1.20	1.50	1.20	1.40	1.00	1.20	1.10	1.10	1.20
8.94	0.21	0.11	0.83	0.10	0.17	0.10	0.12	0.37	0.09	2.17	0.11	6.64	0.32	0.19	8.08	0.39	0.28	0.10	0.19	1.40	1.20	1.50	1.40	1.20	1.50	1.10	1.30	1.00	1.20	1.10	1.10	1.20
8.95	0.19	0.11	0.77	0.09	0.15	0.10	0.11	0.36	0.10	2.14	0.11	7.46	0.29	0.18	7.36	0.35	0.25	0.09	0.18	1.40	1.30	1.40	1.50	1.20	1.50	1.10	1.40	1.00	1.20	1.20	1.10	1.20
8.30	0.18	0.11	0.71	0.09	0.14	0.09	0.11	0.35	0.11	2.21	0.10	8.15	0.28	0.17	7.44	0.33	0.22	0.08	0.15	1.40	1.30	1.40	1.50	1.20	1.50	1.10	1.40	1.00	1.20	1.20	1.10	1.30
7.89	0.17	0.11	0.62	0.08	0.15	0.09	0.11	0.33	0.11	2.12	0.10	7.91	0.35	0.15	7.08	0.30	0.21	0.08	0.15	1.40	1.30	1.40	1.50	1.20	1.50	1.10	1.40	1.00	1.20	1.20	1.10	1.10
7.47	0.15	0.10	0.57	0.08	0.17	0.09	0.10	0.32	0.10	2.02	0.09	7.78	0.48	0.13	6.57	0.28	0.21	0.08	0.14	1.40	1.30	1.50	1.50	1.20	1.50	1.10	1.40	1.00	1.20	1.20	1.20	1.10
6.95	0.15	0.09	0.51	0.07	0.13	0.09	0.10	0.36	0.09	1.84	0.09	7.78	0.44	0.13	6.38	0.25	0.22	0.07	0.13	1.40	1.30	1.40	1.50	1.20	1.40	1.10	1.30	1.00	1.20	1.10	1.20	1.20
6.74	0.14	0.09	0.44	0.06	0.12	0.08	0.09	0.39	0.08	1.66	0.08	7.40	0.36	0.12	6.53	0.22	0.19	0.07	0.12	1.40	1.30	1.40	1.50	1.30	1.30	1.20	1.30	1.10	1.10	1.20	1.10	1.20
6.13	0.13	0.08	0.40	0.06	0.12	0.08	0.09	0.72	0.09	1.42	0.08	6.75	0.28	0.11	6.52	0.21	0.17	0.07	0.11	1.40	1.30	1.40	1.40	1.30	1.30	1.20	1.30	1.20	1.20	1.20	1.20	1.20
5.71	0.13	0.08	0.36	0.05	0.11	0.08	0.08	0.44	0.10	1.29	0.06	5.92	0.24	0.11	5.96	0.19	0.17	0.06	0.10	1.40	1.30	1.40	1.40	1.30	1.30	1.20	1.30	1.30	1.10	1.20	1.10	1.20
5.40	0.12	0.07	0.33	0.05	0.10	0.08	0.07	0.35	0.09	1.27	0.05	5.49	0.21	0.11	5.62	0.18	0.15	0.05	0.09	1.40	1.20	1.40	1.40	1.30	1.20	1.30	1.20	1.30	1.10	1.20	1.10	1.10
5.40	0.11	0.06	0.30	0.04	0.09	0.07	0.07	0.30	0.09	1.19	0.05	5.28	0.18	0.09	5.60	0.17	0.13	0.05	0.08	1.40	1.20	1.40	1.40	1.30	1.20	1.30	1.30	1.30	1.10	1.20	1.10	1.20
5.20	0.11	0.06	0.29	0.04	0.09	0.06	0.06	0.26	0.08	1.02	0.04	4.94	0.17	0.08	4.95	0.15	0.13	0.04	0.08	1.40	1.30	1.40	1.30	1.30	1.20	1.40	1.30	1.30	1.10	1.20	1.10	1.10
5.49	0.10	0.05	0.26	0.04	0.09	0.05	0.05	0.24	0.06	0.94	0.04	4.76	0.15	0.08	4.55	0.15	0.12	0.04	0.07	1.40	1.30	1.30	1.30	1.30	1.20	1.20	1.40	1.30	1.10	1.20	1.10	1.10
5.37	0.09	0.05	0.24	0.04	0.08	0.04	0.05	0.22	0.05	0.90	0.04	5.05	0.14	0.07	4.29	0.14	0.11	0.04	0.07	1.40	1.30	1.30	1.40	1.30	1.20	1.20	1.30	1.30	1.10	1.20	1.10	1.10
4.76	0.09	0.04	0.22	0.03	0.08	0.04	0.05	0.19	0.04	0.83	0.03	4.72	0.13	0.07	3.96	0.13	0.11	0.05	0.06	1.40	1.30	1.30	1.30	1.30	1.50	1.20	1.30	1.20	1.10	1.20	1.20	1.10
3.90	0.08	0.04	0.21	0.03	0.07	0.03	0.04	0.18	0.04	0.76	0.03	4.10	0.12	0.07	3.75	0.12	0.11	0.13	0.06	1.40	1.30	1.20	1.30	1.30	1.40	1.20	1.30	1.30	1.20	1.20	1.10	1.20
3.27	0.08	0.04	0.19	0.03	0.06	0.03	0.04	0.17	0.03	0.66	0.03	4.07	0.11	0.07	3.79	0.11	0.09	0.11	0.05	1.40	1.40	1.40	1.30	1.30	1.40	1.20	1.30	1.30	1.20	1.30	1.10	1.10
2.81	0.07	0.03	0.18	0.03	0.05	0.03	0.03	0.17	0.03	0.58	0.02	3.96	0.10	0.07	3.51	0.10	0.08	0.12	0.05	1.40	1.30	1.40	1.30	1.30	1.30	1.30	1.20	1.30	1.20	1.30	1.10	1.40
2.56	0.07	0.04	0.17	0.03	0.05	0.03	0.03	0.15	0.03	0.51	0.02	3.20	0.09	0.07	2.99	0.10	0.08	0.07	0.04	1.40	1.30	1.40	1.30	1.30	1.30	1.30	1.20	1.30	1.20	1.30	1.10	1.20
2.60	0.06	0.03	0.17	0.03	0.04	0.03	0.03	0.14	0.06	0.47	0.02	2.73	0.10	0.07	2.60	0.10	0.08	0.07	0.04	1.40	1.30	1.40	1.30	1.30	1.30	1.30	1.20	1.30	1.20	1.30	1.10	1.30
2.57	0.05	0.03	0.15	0.02	0.04	0.02	0.04	0.13	0.32	0.42	0.02	2.43	0.14	0.06	2.45	0.12	0.07	0.05	0.04	1.40	1.30	1.40	1.30	1.30	1.30	1.20	1.20	1.30	1.30	1.20	1.10	1.50
2.46	0.05	0.03	0.14	0.02	0.04	0.02	0.04	0.12	0.18	0.37	0.02	2.19	0.11	0.06	2.27	0.12	0.07	0.04	0.04	1.40	1.30	1.40	1.30	1.30	1.30	1.20	1.20	1.30	1.30	1.20	1.20	1.30
2.26	0.06	0.03	0.13	0.02	0.04	0.02	0.03	0.12	0.19	0.35	0.02	2.09	0.11	0.06	2.02	0.17	0.06	0.04	0.03	1.40	1.30	1.40	1.30	1.30	1.40	1.30	1.20	1.30	1.30	1.20	1.10	1.30
2.08	0.08	0.02	0.12	0.02	0.03	0.02	0.02	0.11	0.19	0.32	0.02	2.08	0.08	0.05	1.85	0.12	0.06	0.03	0.03	1.40	1.30	1.40	1.30	1.30	1.50	1.30	1.10	1.30	1.30	1.30	1.10	1.40
1.81	0.12	0.03	0.11	0.02	0.03	0.02	0.02	0.10	0.13	0.30	0.02	2.05	0.08	0.05	1.76	0.10	0.05	0.03	0.03	1.40	1.30	1.40	1.40	1.30	1.40	1.30	1.10	1.30	1.20	1.30	1.10	1.40
1.62	0.13	0.03	0.10	0.02	0.03	0.02	0.02	0.10	0.11	0.28	0.01	2.10	0.07	0.05	1.63	0.08	0.05	0.03	0.02	1.40	1.30	1.40	1.40	1.30	1.50	1.30	1.10	1.30	1.20	1.30	1.10	1.40
1.47	0.15	0.02	0.10	0.02	0.02	0.02	0.02	0.10	0.09	0.26	0.01	1.83	0.07	0.05	1.47	0.08	0.04	0.03	0.02	1.50	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.30	1.20	1.30	1.10	1.40
1.33	0.10	0.02	0.10	0.02	0.02	0.02	0.02	0.10	0.08	0.25	0.01	1.67	0.07	0.04	1.31	0.07	0.04	0.03	0.02	1.40	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.30	1.20	1.40	1.10	1.40
1.20	0.13	0.03	0.09	0.02	0.02	0.01	0.02	0.11	0.08	0.24	0.01	1.55	0.07	0.04	1.20	0.07	0.04	0.02	0.02	1.30	1.30	1.40	1.40	1.30	1.50	1.20	1.10	1.20	1.20	1.30	1.20	1.40
1.12	0.10	0.04	0.09	0.02	0.02	0.01	0.02	0.10	0.06	0.21	0.01	1.49	0.06	0.04	1.12	0.07	0.03	0.02	0.02	1.40	1.20	1.40	1.40	1.30	1.50	1.20	1.10	1.20	1.20	1.20	1.10	1.30
1.09	0.09	0.03	0.10	0.02	0.02	0.01	0.01	0.09	0.05	0.21	0.01	1.38	0.06	0.06	1.27	0.06	0.03	0.02	0.02	1.30	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.20	1.20	1.20	1.10	1.30
1.02	0.12	0.02	0.11	0.02	0.04	0.01	0.01	0.09	0.05	0.19	0.01	1.23	0.05	0.06	1.15	0.06	0.03	0.02	0.01	1.30	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.20	1.20	1.20	1.10	1.30
0.95	0.10	0.02	0.10	0.02	0.09	0.01	0.01	0.08	0.04	0.18	0.01	1.09	0.05	0.06	0.93	0.05	0.03	0.02	0.01	1.30	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.20	1.10	1.30	1.10	1.10
0.89	0.08	0.02	0.10	0.02	0.04	0.01	0.01	0.07	0.04	0.18	0.01	1.01	0.04	0.06	0.76	0.05	0.02	0.02	0.01	1.30	1.30	1.40	1.50	1.30	1.50	1.20	1.10	1.20	1.10	1.30	1.10	1.10
0.82	0.06	0.02	0.09	0.01	0.03	0.01	0.01	0.06	0.03	0.18	0.01	0.91	0.04	0.04	0.64	0.04	0.02	0.02	0.01	1.30	1.20	1.40	1.50	1.30	1.40	1.20	1.10	1.20	1.10	1.30	1.10	1.10
0.77	0.05	0.02	0.09	0.01	0.02	0.01	0.01	0.05	0.03	0.17	0.01	0.87	0.04	0.03	0.57	0.04	0.02	0.01	0.01	1.40	1.30	1.40	1.50	1.30	1.40	1.20	1.10	1.30	1.20	1.30	1.20	1.20
0.72	0.05	0.02	0.08	0.01	0.02	0.01	0.01	0.04	0.03	0.14	0.01	0.84	0.05	0.03	0.50	0.04	0.02	0.01	0.01	1.40	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.30	1.20	1.30	1.10	1.20
0.68	0.04	0.02	0.08	0.01	0.02	0.01	0.01	0.04	0.03	0.13	0.01	0.77	0.04	0.03	0.44	0.03	0.02	0.01	0.01	1.40	1.30	1.40	1.30	1.30	1.40	1.20	1.10	1.20	1.20	1.30	1.10	1.20
0.64	0.04	0.01	0.07	0.01	0.02	0.01	0.01	0.03	0.02	0.12	0.01	0.72	0.03	0.03	0.40	0.03	0.02	0.01	0.01	1.30	1.30	1.40	1.40	1.30	1.40	1.20	1.10	1.20	1.10	1.20	1.10	1.20
0.57	0.06	0.01	0.06	0.01	0.01	0.01	0.01	0.03	0.02	0.12	0.00	0.62	0.03	0.02	0.36	0.03	0.02	0.01	0.01	1.40	1.40	1.40	1.40	1.30	1.40	1.20	1.10	1.20	1.10	1.20	1.10	1.20
0.51	0.07	0.01	0.06	0.01	0.01	0.01	0.01	0.03	0.02	0.11	0.00	0.57	0.03	0.02	0.32	0.03	0.02	0.01	0.01	1.30	1.40	1.40	1.40	1.30	1.40	1.30	1.10	1.30	1.10	1.20	1.10	1.30
0.47	0.05	0.01	0.05	0.01	0.01	0.01	0.01	0.03	0.02	0.10	0.00	0.53	0.03	0.02	0.29	0.03	0.01	0.01	0.01	1.30	1.30	1.40	1.40	1.30	1.50	1.30	1.10	1.30	1.10	1.20	1.10	1.20
0.44	0.04	0.01	0.05	0.01	0.01	0.01	0.01	0.03	0.02	0.10	0.00	0.47	0.02	0.02	0.26	0.03	0.01	0.01	0.01	1.30	1.20	1.40	1.30	1.30	1.40	1.30	1.00	1.30	1.20	1.20	1.10	1.20
0.40	0.03	0.01	0.04	0.01	0.01	0.01	0.01	0.02	0.02	0.10	0.00	0.44	0.02	0.02	0.24	0.02	0.01	0.01	0.01	1.30	1.20	1.40	1.30	1.30	1.40	1.30	1.10	1.30	1.20	1.20	1.10	1.20
0.37	0.03	0.01	0.04	0.01	0.01	0.01	0.01	0.02	0.01	0.10	0.00	0.40	0.02	0.02	0.22	0.02	0.01	0.01	0.01	1.40	1.20	1.40	1.30	1.30	1.40	1.20	1.10	1.20	1.20	1.20	1.10	1.20
0.35	0.03	0.01	0.04	0.01	0.01	0.00	0.01	0.02	0.01	0.09	0.00	0.36	0.02	0.02	0.19	0.02	0.01	0.01	0.00	1.40	1.20	1.40	1.40	1.30	1.40	1.20	1.10	1.20	1.20	1.10	1.10	1.20
0.35	0.03	0.01	0.03	0.00	0.01	0.00	0.01	0.02	0.01	0.09	0.00	0.32	0.02	0.01	0.18	0.02	0.01	0.01	0.00	1.30	1.20	1.50	1.40	1.30	1.40	1.20	1.40	1.20	1.20	1.20	1.10	1.30
0.35	0.03	0.01	0.03	0.00	0.01	0.02	0.01	0.02	0.01	0.08	0.00	0.29	0.02	0.01	0.17	0.02	0.01	0.01	0.00	1.40	1.20	1.50	1.40	1.30	1.50	1.20	1.30	1.20	1.10	1.20	1.10	1.20
0.37	0.02	0.01	0.03	0.00	0.01	0.02	0.01	0.02	0.01	0.08	0.00	0.26	0.02	0.01	0.15	0.02	0.01	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.50	1.20	1.30	1.20	1.10	1.20	1.10	1.20
0.37	0.02	0.01	0.03	0.00	0.01	0.02	0.01	0.02	0.01	0.08	0.00	0.24	0.02	0.01	0.14	0.02	0.01	0.00	0.00	1.30	1.10	1.50	1.40	1.30	1.50	1.20	1.30	1.20	1.10	1.10	1.10	1.30
0.32	0.02	0.01	0.03	0.00	0.01	0.01	0.00	0.02	0.01	0.07	0.00	0.22	0.02	0.01	0.13	0.02	0.01	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.50	1.30	1.30	1.20	1.10	1.20	1.10	1.20
0.28	0.02	0.01	0.02	0.00	0.01	0.01	0.00	0.02	0.01	0.06	0.00	0.21	0.02	0.01	0.13	0.02	0.01	0.00	0.00	1.30	1.30	1.50	1.40	1.30	1.50	1.20	1.30	1.30	1.10	1.20	1.10	1.20
0.25	0.02	0.01	0.02	0.00	0.01	0.01	0.00	0.02	0.01	0.06	0.00	0.19	0.02	0.01	0.12	0.02	0.01	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.50	1.20	1.30	1.30	1.10	1.20	1.10	1.20
0.28	0.02	0.01	0.02	0.00	0.01	0.01	0.00	0.02	0.01	0.06	0.00	0.18	0.01	0.01	0.11	0.02	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.50	1.20	1.30	1.30	1.10	1.20	1.10	1.20
0.30	0.02	0.00	0.02	0.00	0.01	0.00	0.00	0.02	0.01	0.06	0.00	0.17	0.01	0.01	0.10	0.02	0.01	0.00	0.00	1.40	1.40	1.50	1.40	1.40	1.40	1.30	1.30	1.30	1.30	1.20	1.10	1.20
0.26	0.02	0.00	0.02	0.00	0.01	0.00	0.00	0.02	0.01	0.06	0.00	0.17	0.01	0.01	0.09	0.02	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.40	1.50	1.30	1.30	1.20	1.30	1.20	1.10	1.20
0.28	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.01	0.05	0.00	0.15	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.40	1.20	1.50	1.30	1.40	1.50	1.20	1.30	1.20	1.30	1.10	1.10	1.20
0.37	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.01	0.04	0.00	0.15	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.30	1.30	1.50	1.30	1.40	1.50	1.20	1.20	1.20	1.30	1.20	1.10	1.20
0.35	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.01	0.04	0.00	0.13	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.30	1.30	1.50	1.30	1.40	1.50	1.20	1.20	1.30	1.30	1.20	1.20	1.20
0.32	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.12	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.30	1.40	1.40	1.20	1.20	1.20	1.40	1.20	1.10	1.20
0.32	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.04	0.00	0.12	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.30	1.40	1.40	1.20	1.30	1.20	1.40	1.20	1.10	1.20
0.26	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.12	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.40	1.30	1.50	1.30	1.40	1.40	1.20	1.30	1.20	1.40	1.20	1.10	1.20
0.24	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.11	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.40	1.20	1.50	1.30	1.40	1.50	1.20	1.30	1.20	1.30	1.30	1.10	1.20
0.21	0.02	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.11	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.40	1.20	1.50	1.30	1.40	1.50	1.20	1.30	1.20	1.20	1.30	1.10	1.20
0.19	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.10	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.40	1.30	1.50	1.30	1.40	1.50	1.20	1.40	1.20	1.20	1.20	1.10	1.20
0.18	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.00	0.09	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.40	1.20	1.50	1.30	1.30	1.60	1.20	1.30	1.20	1.20	1.30	1.10	1.20
0.17	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.08	0.01	0.01	0.06	0.01	0.00	0.00	0.00	1.40	1.30	1.50	1.30	1.30	1.50	1.20	1.20	1.20	1.20	1.20	1.10	1.20
0.15	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.08	0.01	0.01	0.06	0.01	0.00	0.00	0.00	1.40	1.30	1.50	1.30	1.30	1.50	1.20	1.20	1.20	1.10	1.20	1.10	1.20
0.14	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.07	0.01	0.01	0.05	0.01	0.00	0.00	0.00	1.40	1.30	1.50	1.30	1.30	1.50	1.20	1.30	1.20	1.10	1.30	1.10	1.20
0.14	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.07	0.01	0.01	0.05	0.01	0.00	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.30	1.30	1.30	1.20	1.20	1.20	1.10	1.20
0.19	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.07	0.01	0.01	0.05	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.30	1.30	1.20	1.20	1.20	1.20	1.10	1.20
0.15	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.01	0.00	0.02	0.00	0.07	0.01	0.01	0.04	0.01	0.01	0.00	0.00	1.40	1.20	1.50	1.40	1.30	1.50	1.40	1.20	1.20	1.30	1.30	1.10	1.20
0.14	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.07	0.01	0.01	0.04	0.01	0.01	0.00	0.00	1.40	1.20	1.50	1.50	1.30	1.60	1.40	1.20	1.20	1.40	1.20	1.10	1.20
0.13	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.06	0.01	0.01	0.04	0.01	0.01	0.00	0.00	1.40	1.20	1.50	1.40	1.30	1.70	1.40	1.20	1.20	1.40	1.20	1.10	1.20
0.12	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.06	0.01	0.01	0.06	0.01	0.01	0.00	0.00	1.40	1.20	1.50	1.40	1.30	1.60	1.30	1.20	1.20	1.40	1.20	1.10	1.20
0.12	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.05	0.01	0.01	0.07	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.50	1.30	1.20	1.20	1.30	1.30	1.10	1.20
0.11	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.05	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.50	1.30	1.20	1.20	1.30	1.20	1.10	1.20
0.11	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.04	0.01	0.01	0.09	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.50	1.30	1.20	1.20	1.30	1.30	1.10	1.20
0.10	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.00	0.04	0.01	0.01	0.07	0.01	0.01	0.00	0.00	1.40	1.30	1.50	1.40	1.30	1.50	1.30	1.20	1.30	1.30	1.20	1.10	1.20
0.10	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.04	0.01	0.01	0.08	0.01	0.01	0.00	0.00	1.30	1.30	1.50	1.40	1.30	1.40	1.30	1.20	1.30	1.30	1.30	1.10	1.20
0.10	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.04	0.01	0.00	0.07	0.00	0.01	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.40	1.30	1.20	1.30	1.30	1.20	1.10	1.20
0.09	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.07	0.00	0.00	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.40	1.30	1.20	1.30	1.30	1.20	1.10	1.20
0.09	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.03	0.00	0.01	0.06	0.00	0.00	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.30	1.30	1.20	1.30	1.20	1.30	1.10	1.20
0.08	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.03	0.01	0.01	0.05	0.00	0.00	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.30	1.30	1.20	1.30	1.30	1.20	1.00	1.20
0.08	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.03	0.01	0.00	0.04	0.00	0.00	0.00	0.00	1.30	1.20	1.50	1.40	1.30	1.30	1.30	1.20	1.20	1.30	1.20	1.00	1.20
0.08	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.03	0.01	0.00	0.05	0.00	0.00	0.00	0.00	1.30	1.10	1.50	1.40	1.50	1.30	1.30	1.20	1.30	1.30	1.20	1.10	1.20
0.07	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.00	0.04	0.00	0.00	0.00	0.00	1.30	1.10	1.50	1.40	1.40	1.30	1.30	1.20	1.30	1.20	1.20	1.10	1.30
0.07	0.01	0.01	0.01	0.00	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.00	0.04	0.00	0.00	0.00	0.00	1.40	1.10	1.50	1.40	1.40	1.30	1.30	1.20	1.30	1.20	1.20	1.10	1.30
0.06	0.01	0.01	0.03	0.00	0.00	0.05	0.00	0.00	0.01	0.01	0.00	0.02	0.01	0.01	0.03	0.00	0.00	0.00	0.00	1.40	1.10	1.50	1.40	1.40	1.30	1.20	1.20	1.30	1.20	1.20	1.10	1.30
0.06	0.01	0.02	0.02	0.00	0.00	0.05	0.00	0.00	0.01	0.01	0.00	0.02	0.01	0.01	0.03	0.00	0.00	0.00	0.00	1.40	1.10	1.50	1.40	1.40	1.30	1.20	1.20	1.30	1.20	1.30	1.10	1.20
0.06	0.01	0.01	0.02	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.00	0.00	0.00	0.00	1.40	1.20	1.50	1.40	1.40	1.30	1.20	1.30	1.30	1.20	1.20	1.10	1.10
0.05	0.01	0.01	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.00	0.00	0.00	0.00	1.40	1.20	1.50	1.40	1.40	1.30	1.20	1.30	1.30	1.20	1.20	1.20	1.20
0.08	0.01	0.01	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.01	0.00	0.00	0.00	1.40	1.20	1.50	1.40	1.40	1.30	1.20	1.20	1.30	1.20	1.20	1.20	1.20
0.09	0.01	0.01	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.02	0.00	0.00	0.00	1.40	1.20	1.50	1.40	1.40	1.30	1.20	1.20	1.20	1.20	1.20	1.20	1.20
0.09	0.01	0.01	0.04	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.01	0.00	0.00	0.00	1.40	1.20	1.50	1.50	1.40	1.20	1.20	1.20	1.30	1.20	1.20	1.20	1.20
0.08	0.01	0.01	0.07	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.01	0.00	0.00	0.00	1.30	1.20	1.50	1.40	1.40	1.20	1.20	1.20	1.30	1.20	1.20	1.10	1.20
0.07	0.01	0.01	0.06	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.05	0.01	0.00	0.00	0.00	1.30	1.30	1.50	1.40	1.40	1.20	1.20	1.20	1.20	1.20	1.30	1.10	1.20
0.09	0.01	0.01	0.06	0.00	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.02	0.01	0.01	0.09	0.01	0.00	0.00	0.00	1.20	1.30	1.50	1.40	1.40	1.20	1.20	1.20	1.30	1.20	1.40	1.10	1.20
0.08	0.01	0.01	0.05	0.00	0.00	0.01	0.01	0.00	0.00	0.01	0.01	0.02	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.20	1.30	1.50	1.40	1.40	1.30	1.20	1.20	1.30	1.20	1.30	1.10	1.20
0.12	0.01	0.01	0.05	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.03	0.02	0.01	0.01	0.07	0.01	0.00	0.00	0.00	1.20	1.30	1.50	1.40	1.40	1.40	1.20	1.20	1.30	1.20	1.20	1.10	1.20
0.28	0.01	0.01	0.04	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.01	0.02	0.01	0.01	0.07	0.00	0.00	0.00	0.00	1.20	1.30	1.50	1.40	1.40	1.40	1.20	1.20	1.30	1.20	1.20	1.10	1.20

Table CAWG 6 Appendix L-16a. Big Creek above SJR (at mouth) IHA Annual Summary Statistics for Unimpaired and Existing Flows.

U=unimpaired, E=existing

IHA Annual Summary Statistics
Big Ck above SJR (at mouth) Data

	Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse	#Lo pulse	LHi pulse	#Hi pulse	LRise rate	Fall rate	Reversals
U	1983	237.64	209.93	177.40	167.35	153.73	196.95	240.71	1820.04	3670.04	961.54	121.13	40.00	22.09	23.22	26.05	38.87	50.73	4797.10	4644.18	4357.77	4015.71	2176.03	.00	.04	265.00	169.00	.00	.00	9.00	15.67	109.01	-63.11	87.00
	1984	37.23	206.99	320.82	210.83	178.11	347.67	683.22	760.39	138.68	35.00	9.20	3.32	2.78	2.85	3.03	3.32	6.39	2548.64	1451.78	1080.95	856.53	609.22	.00	.01	255.00	360.00	2.00	19.00	8.00	15.38	63.32	-32.84	97.00
	1985	8.32	14.95	18.03	28.68	41.75	106.15	655.47	626.29	100.34	13.23	2.18	3.45	.91	.94	.97	1.67	3.86	1132.73	1072.31	1009.74	813.30	479.14	.00	.01	243.00	105.00	5.00	12.40	2.00	30.50	20.20	-13.43	79.00
	1986	7.03	9.66	35.22	125.88	516.20	771.90	1201.07	1711.33	653.58	60.05	10.06	8.75	1.70	1.81	3.46	4.74	7.52	2933.77	2254.13	2097.16	1762.90	1278.79	.00	.01	279.00	68.00	4.00	10.25	3.00	46.00	99.19	-55.04	84.00
	1987	10.14	6.86	5.00	6.16	6.04	49.35	486.70	334.70	67.70	9.48	1.45	.76	.62	.62	.60	.71	1.14	736.27	726.83	713.62	582.41	301.97	.00	.01	265.00	116.00	10.00	13.40	1.00	47.00	15.02	-8.88	85.00
	1988	2.70	18.31	20.19	37.20	67.53	204.62	452.90	402.67	103.19	18.65	2.68	1.06	.57	.57	.60	.75	1.11	696.63	670.20	606.82	469.52	360.40	.00	.01	277.00	134.00	2.00	31.00	2.00	34.50	17.09	-10.80	91.00
	1989	.76	3.46	4.91	6.73	17.23	213.81	715.70	370.88	72.99	9.99	2.47	5.00	.68	.68	.71	.75	2.99	1138.39	1094.97	1037.26	718.34	443.34	.00	.01	275.00	100.00	6.00	19.83	3.00	23.33	22.95	-13.22	75.00
	1990	12.69	10.35	7.95	12.31	17.56	159.48	601.10	360.28	95.75	11.56	1.83	1.23	.57	.57	.59	.81	1.25	894.86	847.66	760.55	638.48	389.15	.00	.01	256.00	118.00	2.00	45.50	2.00	33.50	24.40	-12.58	64.00
	1991	1.16	1.60	2.32	3.21	5.77	125.20	278.46	915.68	457.62	53.33	6.93	1.93	.96	.96	.98	1.15	1.68	1534.85	1448.01	1245.19	991.89	560.51	.00	.01	300.00	145.00	2.00	21.00	4.00	19.50	40.62	-26.42	92.00
	1992	4.82	7.72	6.98	10.05	29.41	72.42	709.28	460.95	56.24	31.75	3.50	1.34	.96	.96	.99	1.02	2.17	1132.73	1098.75	1033.21	840.86	422.13	.00	.01	283.00	121.00	6.00	10.67	1.00	51.00	18.03	-11.00	77.00
	1993	5.60	8.11	6.97	44.96	50.67	220.52	819.34	2576.59	1269.03	181.58	23.33	5.10	.85	.85	.90	4.01	5.24	3534.11	3432.17	3139.27	2582.62	1582.17	.00	.00	286.00	139.00	4.00	9.00	1.00	114.00	72.66	-43.53	73.00
	1994	5.27	5.50	7.62	9.85	14.04	103.10	394.76	505.16	98.75	8.25	.96	1.37	.57	.57	.59	.66	2.69	866.54	819.34	744.36	580.33	356.24	.00	.01	246.00	133.00	8.00	13.25	3.00	21.00	21.92	-14.63	76.00
	1995	21.71	39.93	47.04	133.75	150.90	454.55	759.87	1911.93	2852.02	1019.82	86.93	13.40	1.98	2.53	7.20	5.71	6.15	4457.28	3919.24	3632.82	2906.96	2042.25	.00	.01	277.00	121.00	1.00	.00	4.00	38.50	144.47	-80.15	68.00
	1996	5.56	5.00	30.20	46.83	265.47	289.58	1005.30	1786.60	331.32	36.81	5.81	2.42	1.76	1.93	2.05	2.03	3.50	9345.01	4744.24	3122.28	2047.59	1100.32	.00	.01	256.00	137.00	3.00	35.67	3.00	37.33	126.87	-57.29	95.00
	1997	3.19	127.34	208.28	1096.55	164.85	505.52	983.96	993.51	165.59	23.06	4.05	2.64	1.76	1.76	1.79	2.35	2.81	12460.01	6796.37	3779.27	1354.37	854.08	.00	.00	283.00	2.00	3.00	19.33	7.00	19.43	160.03	-81.54	85.00
	1998	3.10	4.52	7.60	10.45	10.54	90.82	372.10	1010.14	3019.29	920.62	50.77	21.52	1.76	1.79	1.88	2.90	5.00	4394.98	4030.62	3806.77	3020.23	1717.66	.00	.00	279.00	167.00	4.00	11.00	2.00	52.00	71.76	-47.46	94.00
	1999	14.76	25.39	43.06	48.09	129.25	141.23	430.63	1058.19	327.17	37.82	6.63	2.76	1.70	1.78	1.85	1.81	2.62	1591.48	1468.77	1374.64	1072.13	624.70	.00	.01	261.00	133.00	2.00	22.00	2.00	36.00	35.16	-17.71	96.00
	2000	1.81	4.19	3.01	22.02	69.17	152.74	897.12	1306.47	254.11	25.60	3.08	2.15	1.36	1.32	1.28	1.46	2.84	2656.25	2261.68	1997.65	1434.79	853.07	.00	.01	261.00	129.00	5.00	25.40	1.00	83.00	55.08	-30.30	75.00
	2001	3.85	5.29	4.72	14.60	31.86	167.44	458.00	1156.30	88.69	16.18	1.73	.94	.91	.91	.86	.91	1.23	1885.99	1859.56	1763.01	1298.67	627.97	.00	.01	242.00	129.00	6.00	22.50	2.00	33.50	34.22	-19.66	90.00
	2002	1.51	18.21	29.01	28.74	62.16	146.81	761.67	779.58	192.57	14.35	1.35	1.00	.79	.81	.85	1.00	1.86	1172.00	1128.67	1012.86	803.20	601.84	.00	.01	278.00	105.00	5.00	17.60	1.00	74.00	27.24	-17.74	59.00
E	1987	3.33	2.78	2.62	2.76	2.66	2.87	3.06	2.23	2.23	2.20	2.39	2.33	1.90	1.90	1.96	2.18	2.02	9.70	5.03	3.57	3.41	2.92	.00	.75	324.00	44.00	3.00	84.00	.00	.00	.44	-.37	74.00
	1988	2.44	1.97	1.62	2.67	1.69	2.21	2.81	2.78	2.78	2.47	2.27	2.35	1.30	1.47	1.51	1.60	1.98	21.00	9.30	5.26	2.92	2.82	.00	.65	322.00	5.00	3.00	89.33	.00	.00	.64	-.49	85.00
	1989	2.62	2.87	1.84	1.61	1.80	2.25	2.35	2.61	2.59	2.75	2.53	2.58	1.40	1.47	1.51	1.60	1.75	11.00	5.37	3.83	3.15	2.66	.00	.64	38.00	195.00	3.00	109.00	.00	.00	.40	-.33	131.00
	1990	2.72	2.19	1.68	1.80	1.95	2.33	2.40	2.71	2.70	2.45	2.53	2.70	1.50	1.60	1.61	1.67	1.76	4.10	3.10	2.96	2.87	2.87	.00	.69	11.00	61.00	2.00	107.00	.00	.00	.22	-.25	140.00
	1991	2.85	2.79	1.79	1.88	1.74	3.25	2.52	2.94	3.21	2.91	2.94	2.93	1.30	1.63	1.67	1.75	1.80	8.30	6.67	4.46	3.28	3.08	.00	.63	329.00	79.00	3.00	70.67	.00	.00	.36	-.30	100.00
	1992	3.15	2.73	1.61	1.64	2.34	2.03	13.34	6.26	3.97	3.95	3.88	3.69	1.40	1.40	1.40	1.47	1.77	193.00	79.00	38.47	14.06	7.95	.00	.35	339.00	99.00	7.00	30.71	.00	.00	2.87	-2.23	101.00
	1993	3.70	2.97	3.84	38.99	9.08	50.25	13.58	18.46	37.13	54.01	5.51	5.97	2.40	2.40	2.49	2.96	3.49	886.00	503.33	219.53	72.38	39.41	.00	.12	309.00	192.00	20.00	7.75	3.00	3.33	22.83	-18.00	107.00
	1994	5.66	5.39	5.42	5.62	6.16	5.79	6.12	5.87	5.63	6.00	6.22	6.34	4.50	4.57	4.80	5.22	5.21	8.20	7.43	6.87	6.41	7.26	.00	.82	297.00	48.00	13.00	23.85	.00	.00	.23	-.20	93.00
	1995	5.57	8.47	1.28	10.85	2.65	377.40	58.30	326.94	267.47	109.75	5.93	4.26	1.00	1.00	1.06	1.24	3.20	1430.00	1280.00	1232.57	402.39	305.55	.00	.01	343.00	72.00	13.00	14.54	7.00	8.00	53.91	-34.67	106.00
	1996	3.81	3.13	2.57	2.96	5.38	123.95	25.21	89.95	19.97	9.97	4.44	3.79	2.10	2.13	2.30	2.46	2.84	1030.00	852.67	522.59	128.41	252.34	.00	.09	326.00	137.00	11.00	22.09	4.00	2.00	33.58	-18.48	106.00
	1997	3.56	261.33	554.16	785.97	331.39	63.12	9.07	20.91	6.88	6.47	5.87	6.53	2.80	3.47	3.47	3.56	4.18	3540.00	2066.67	1365.14	808.30	608.34	.00	.02	250.00	2.00	7.00	10.00	5.00	18.20	103.80	-68.07	105.00
	1998	4.38	4.29	3.81	5.20	26.41	6.83	26.55	17.23	569.03	136.95	26.67	25.39	3.30	3.47	3.53	3.64	4.05	999.00	838.00	785.00	592.70	271.39	.00	.05	310.00	169.00	17.00	11.76	5.00	8.60	42.35	-20.89	127.00
	1999	88.94	356.59	334.01	6.09	5.57	4.84	5.46	4.89	5.70	8.25	3.98	4.53	3.80	3.80	3.80	3.88	3.92	807.00	793.67	759.86	627.03	264.41	.00	.05	289.00	342.00	13.00	20.69	3.00	11.67	38.80	-29.21	105.00
	2000	3.99	3.98	3.78	4.87	6.97	5.08	4.60	34.26	4.31	62.32	4.58	4.24	3.30	3.30	3.30	3.77	3.89	632.00	417.00	259.03	64.44	34.60	.00	.27	342.00	194.00	14.00	14.36	2.00	1.50	20.32	-12.03	119.00
	2001	4.24	4.06	3.91	4.09	4.30	4.84	4.18	3.30	2.90	2.84	2.65	2.55	2.40	2.43	2.43	2.48	2.56	15.00	9.43	6.97	5.17	4.45	.00	.66	211.00	65.00	5.00	41.80	.00	.00	.57	-.45	85.00
	2002	2.51	3.04	2.50	2.11	1.97	1.73	7.96	3.14	3.42	3.45	3.34	3.32	1.30	1.33	1.36	1.63	1.88	38.00	31.67	18.34	8.09	4.90	.00	.42	74.00	99.00	5.00	63.60	.00	.00	1.54	-1.13	79.00

Table CAWG 6 Appendix L-16b. Big Creek above SJR (at mouth) IHA Percentile Data.

IHA Percentile Data
Big Ck above SJR (at mouth) Data

Unimpaired period: 1983-2002 (20 years) | Existing period: 1987-2002 (16 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	1.20	2.80	5.42	12.05	35.68	1.71	2.49	2.75	3.63	4.35	30.64	.44
November	3.53	5.08	8.89	23.62	199.02	2.09	2.12	2.78	3.09	5.12	289.91	.76
December	3.18	5.49	12.99	41.10	205.19	2.74	1.51	1.71	2.60	3.89	400.06	.84
January	6.22	10.15	28.71	106.43	206.49	3.35	1.63	1.94	3.52	5.97	263.08	1.14
February	6.49	17.31	56.41	153.02	256.73	2.41	1.73	1.95	3.48	6.77	117.91	1.38
March	74.26	110.91	163.46	272.31	500.43	.99	1.94	2.27	4.84	39.39	199.98	7.67
April	287.83	436.19	669.35	804.92	1003.16	.55	2.39	2.88	5.79	13.52	36.07	1.84
May	361.34	472.00	954.60	1610.12	1902.75	1.19	2.49	2.82	5.38	20.30	161.05	3.25
June	68.23	96.50	179.08	604.59	3002.56	2.84	2.48	2.81	4.14	16.70	357.94	3.36
July	9.53	13.51	28.67	58.37	957.45	1.56	2.37	2.78	4.97	43.00	117.91	8.09
August	1.36	1.92	3.77	9.84	83.31	2.10	2.36	2.56	3.93	5.78	12.35	.82
September	.95	1.26	2.53	5.08	20.71	1.51	2.34	2.61	3.74	5.61	12.19	.80
Parameter Group #2												
1-day minimum	.57	.71	.96	1.76	2.70	1.10	1.21	1.32	2.00	3.17	4.01	.93
3-day minimum	.57	.71	.96	1.81	2.82	1.14	1.23	1.47	2.02	3.42	4.03	.97
7-day minimum	.59	.75	.99	2.01	6.83	1.28	1.27	1.51	2.13	3.43	4.10	.90
30-day minimum	.71	.84	1.57	3.22	5.61	1.52	1.40	1.61	2.32	3.62	4.28	.87
90-day minimum	1.15	1.73	2.83	5.18	7.40	1.22	1.76	1.82	2.70	3.91	4.49	.77
1-day maximum	749.30	1132.73	1738.73	4179.76	8890.22	1.75	6.97	10.02	115.50	970.75	2063.00	8.32
3-day maximum	736.08	1077.98	1460.27	3797.47	4734.24	1.86	4.45	6.86	55.33	826.92	1516.00	14.82
7-day maximum	716.69	1010.52	1309.92	3135.03	3804.02	1.62	3.39	4.66	28.41	700.54	1272.34	24.50
30-day maximum	580.54	739.55	1032.01	1976.42	3008.90	1.20	2.90	3.31	11.08	333.90	681.41	29.84
90-day maximum	356.66	427.43	616.96	1234.17	2009.79	1.31	2.77	2.96	7.61	261.40	396.39	33.98
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.00	.01	.01	.01	.01	.51	.02	.06	.39	.66	.77	1.55
Parameter Group #3												
Date of minimum	243.30	256.00	270.00	279.00	285.70	.06	238.30	300.00	325.00	342.75	48.80	.12
Date of maximum	71.20	107.75	129.00	138.50	168.80	.08	360.20	45.00	75.50	161.00	194.30	.32
Parameter Group #4												
Low pulse count	1.10	2.00	4.00	5.75	7.80	.94	2.70	3.00	7.00	13.00	17.90	1.43
Low pulse duration	.90	10.75	18.30	22.38	35.20	.64	9.32	14.40	27.28	80.67	107.60	2.43
High pulse count	1.00	1.25	2.00	3.75	7.90	1.25	.00	.00	.00	3.75	5.60	.00
High pulse duration	16.04	21.58	35.25	50.00	82.10	.81	.00	.00	.00	6.83	13.63	.00
Parameter Group #5												
Rise rate	17.18	22.18	37.89	92.55	142.71	1.86	.23	.41	2.21	37.49	68.88	16.79
Fall rate	-78.45	-53.15	-23.04	-13.27	-10.82	-1.73	-44.69	-20.28	-1.68	-.34	-.23	-11.86
Number of reversals	64.40	75.00	84.50	91.75	95.90	.20	77.50	87.00	105.00	116.00	133.70	.28

Table CAWG 6 Appendix L-16c. Big Creek above SJR (at mouth) IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Big Ck above SJR (at mouth) Data

	Unimpaired period: 1983-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Existing period: 1987-2002 Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #1											
October	5.4	1.71	.8	237.6	3.6	.44	2.4	88.9	3.19	8.45	.41
November	8.9	2.09	1.6	209.9	3.1	.76	2.0	356.6	5.48	18.21	-.84
December	13.0	2.74	2.3	320.8	2.6	.84	1.3	554.2	6.98	30.55	-1.00
January	28.7	3.35	3.2	1096.6	3.5	1.14	1.6	786.0	12.18	46.91	-.84
February	56.4	2.41	5.8	516.2	3.5	1.38	1.7	331.4	28.58	130.77	-1.00
March	163.5	.99	49.3	771.9	4.8	7.67	1.7	377.4	140.10	214.28	-1.00
April	669.3	.55	240.7	1201.1	5.8	1.84	2.3	58.3	457.64	760.00	-1.00
May	954.6	1.19	334.7	2576.6	5.4	3.25	2.2	326.9	617.81	1166.81	-1.00
June	179.1	2.84	56.2	3670.0	4.1	3.36	2.2	569.0	100.23	340.16	-.84
July	28.7	1.56	8.2	1019.8	5.0	8.09	2.2	136.9	16.05	38.90	-1.00
August	3.8	2.10	1.0	121.1	3.9	.82	2.3	26.7	2.45	7.09	1.03
September	2.5	1.51	.8	40.0	3.7	.80	2.3	25.4	1.37	3.56	.09
Parameter Group #2											
1-day minimum	1.0	1.10	.6	22.1	2.0	.93	1.0	4.5	.85	1.70	.09
3-day minimum	1.0	1.14	.6	23.2	2.0	.97	1.0	4.6	.85	1.78	.09
7-day minimum	1.0	1.28	.6	26.1	2.1	.90	1.1	4.8	.86	1.86	.09
30-day minimum	1.6	1.52	.7	38.9	2.3	.87	1.2	5.2	.99	2.39	.25
90-day minimum	2.8	1.22	1.1	50.7	2.7	.77	1.7	5.2	2.14	3.94	-.06
1-day maximum	1738.7	1.75	696.6	12460.0	115.5	8.32	4.1	3540.0	1137.99	2975.79	-.84
3-day maximum	1460.3	1.86	670.2	6796.4	55.3	14.82	3.1	2066.7	1098.48	2343.61	-.69
7-day maximum	1309.9	1.62	606.8	4357.8	28.4	24.50	3.0	1365.1	1031.79	2168.92	-.69
30-day maximum	1032.0	1.20	469.5	4015.7	11.1	29.84	2.9	808.3	812.59	1457.76	-1.00
90-day maximum	617.0	1.31	302.0	2176.0	7.6	33.98	2.7	608.3	476.64	871.31	-.84
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.51	.00	.04	.39	1.55	.01	.82	.01	.01	-1.00
Parameter Group #3											
Date of minimum	270.0	.06	242.0	300.0	325.0	.12	11.0	343.0	260.65	278.07	-1.00
Date of maximum	129.0	.08	2.0	360.0	75.5	.32	2.0	342.0	117.86	134.21	-1.00
Parameter Group #4											
Low Pulse Count	4.0	.94	.0	10.0	7.0	1.43	2.0	20.0	2.00	5.00	-.33
Low Pulse Duration	18.3	.64	.0	45.5	27.3	2.43	7.8	109.0	12.30	21.07	-.53
High Pulse Count	2.0	1.25	1.0	9.0	.0	.00	.0	7.0	2.00	3.00	-.63
High Pulse Duration	35.3	.81	15.4	114.0	.0	.00	.0	18.2	30.00	46.07	-1.00

The low pulse threshold is 6.23
The high pulse level is 209.55

	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	Medians	Coeff. of Variance	Range Limits Low	Range Limits High	RVA Categories Low	RVA Categories High	Hydrologic Alteration (Middle Category)
Parameter Group #5											
Rise rate	37.9	1.86	15.0	160.0	2.2	16.79	.2	103.8	24.30	71.82	-.38
Fall rate	-23.0	-1.73	-81.5	-8.9	-1.7	-11.86	-68.1	-.2	-43.81	-14.55	-.22
Number of reversals	84.5	.20	59.0	97.0	105.0	.28	74.0	140.0	75.93	90.07	-.53

Assessment of Hydrologic Alteration

	Middle RVA Category Expected	Observed	Alter.	High RVA Category Expected	Observed	Alter.	Low RVA Category Expected	Observed	Alter.
Parameter Group #1									
October	6.40	9.00	.41	4.80	1.00	-.79	4.80	6.00	.25
November	6.40	1.00	-.84	4.80	2.00	-.58	4.80	13.00	1.71
December	6.40	.00	-1.00	4.80	2.00	-.58	4.80	14.00	1.92
January	6.40	1.00	-.84	4.80	1.00	-.79	4.80	14.00	1.92
February	6.40	.00	-1.00	4.80	1.00	-.79	4.80	15.00	2.12
March	6.40	.00	-1.00	4.80	1.00	-.79	4.80	15.00	2.12
April	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
May	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
June	6.40	1.00	-.84	4.80	1.00	-.79	4.80	14.00	1.92
July	6.40	.00	-1.00	4.80	4.00	-.17	4.80	12.00	1.50
August	6.40	13.00	1.03	4.80	1.00	-.79	4.80	2.00	-.58
September	6.40	7.00	.09	4.80	9.00	.87	4.80	.00	-1.00
Parameter Group #2									
1-day minimum	6.40	7.00	.09	4.80	9.00	.87	4.80	.00	-1.00
3-day minimum	6.40	7.00	.09	4.80	9.00	.87	4.80	.00	-1.00
7-day minimum	6.40	7.00	.09	4.80	9.00	.87	4.80	.00	-1.00
30-day minimum	6.40	8.00	.25	4.80	8.00	.67	4.80	.00	-1.00
90-day minimum	6.40	6.00	-.06	4.80	3.00	-.38	4.80	7.00	.46
1-day maximum	6.40	1.00	-.84	4.80	1.00	-.79	4.80	14.00	1.92
3-day maximum	6.40	2.00	-.69	4.80	.00	-1.00	4.80	14.00	1.92
7-day maximum	6.40	2.00	-.69	4.80	.00	-1.00	4.80	14.00	1.92
30-day maximum	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
90-day maximum	6.40	1.00	-.84	4.80	.00	-1.00	4.80	15.00	2.12
Number of zero days	16.00	16.00	.00	.00	.00	.00	.00	.00	.00
Base flow	6.40	.00	-1.00	4.80	16.00	2.33	4.80	.00	-1.00
Parameter Group #3									
Date of minimum	6.40	.00	-1.00	4.80	11.00	1.29	4.80	5.00	.04
Date of maximum	6.40	.00	-1.00	4.80	6.00	.25	4.80	10.00	1.08
Parameter Group #4									
Low Pulse Count	10.40	7.00	-.33	4.00	9.00	1.25	1.60	.00	-1.00
Low Pulse Duration	6.40	3.00	-.53	4.80	10.00	1.08	4.80	3.00	-.38
High Pulse Count	8.00	3.00	-.63	4.00	4.00	.00	4.00	9.00	1.25
High Pulse Duration	6.40	.00	-1.00	4.80	.00	-1.00	4.80	16.00	2.33
Parameter Group #5									
Rise rate	6.40	4.00	-.38	4.80	1.00	-.79	4.80	11.00	1.29
Fall rate	6.40	5.00	-.22	4.80	10.00	1.08	4.80	1.00	-.79
Number of reversals	6.40	3.00	-.53	4.80	12.00	1.50	4.80	1.00	-.79

4 Messages:

Parameter Low pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 7 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-16d. Big Creek above SJR (at mouth) Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Big Ck above SJR (at mouth) Data

Unimpaired period: 1983-2002 (20 years) | Existing period: 1987-2002 (16 years)

	Unimpaired	Existing
Watershed area	1.00	
Mean annual flow	247.85	39.18
Mean flow/area	247.85	39.18
Annual C. V.	.68	.05
Flow predictability	.46	.54
Constancy/predictability	.34	.75

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Unimpaired	Existing
% of floods in 60d period	.61	.56
flood-free season	100.00	45.00

	MEDIANS Pre	MEDIANS Post	COEFF. of DISP. Pre	COEFF. of DISP. Post	DEVIATION FACTOR Medians	DEVIATION FACTOR C.V.	SIGNIFICANCE COUNT Medians	SIGNIFICANCE COUNT C.V.
Parameter Group #1								
October	5.4	3.6	1.71	.44	.33	.74	.15	.22
November	8.9	3.1	2.09	.76	.65	.64	.09	.46
December	13.0	2.6	2.74	.84	.80	.69	.08	.33
January	28.7	3.5	3.35	1.14	.88	.66	.14	.23
February	56.4	3.5	2.41	1.38	.94	.43	.24	.55
March	163.5	4.8	.99	7.67	.97	6.77	.10	.01
April	669.3	5.8	.55	1.84	.99	2.34	.19	.20
May	954.6	5.4	1.19	3.25	.99	1.72	.11	.13
June	179.1	4.1	2.84	3.36	.98	.18	.10	.79
July	28.7	5.0	1.56	8.09	.83	4.17	.15	.01
August	3.8	3.9	2.10	.82	.04	.61	.87	.20
September	2.5	3.7	1.51	.80	.48	.47	.05	.30
Parameter Group #2								
1-day minimum	1.0	2.0	1.10	.93	1.08	.16	.00	.75
3-day minimum	1.0	2.0	1.14	.97	1.10	.15	.00	.75
7-day minimum	1.0	2.1	1.28	.90	1.16	.30	.00	.52
30-day minimum	1.6	2.3	1.52	.87	.48	.43	.05	.18
90-day minimum	2.8	2.7	1.22	.77	.04	.37	.75	.26
1-day maximum	1738.7	115.5	1.75	8.32	.93	3.75	.01	.00
3-day maximum	1460.3	55.3	1.86	14.82	.96	6.96	.01	.00
7-day maximum	1309.9	28.4	1.62	24.50	.98	14.10	.01	.00
30-day maximum	1032.0	11.1	1.20	29.84	.99	23.90	.01	.00
90-day maximum	617.0	7.6	1.31	33.98	.99	24.99	.03	.00
Number of zero days	.0	.0	.00	999999.00	999999.00	.00	.00	.00
Base flow	.0	.4	.51	1.55	61.05	2.01	.00	.13
Parameter Group #3								
Date of minimum	270.0	325.0	.06	.12	.30	.86	.00	.04
Date of maximum	129.0	75.5	.08	.32	.29	2.77	.01	.00
Parameter Group #4								
Low pulse count	4.0	7.0	.94	1.43	.75	.52	.07	.41
Low pulse duration	18.3	27.3	.64	2.43	.49	2.82	.07	.01
High pulse count	2.0	.0	1.25	.00	1.00	1.00	.03	.06
High pulse duration	35.3	.0	.81	.00	1.00	1.00	.11	.11

The low pulse threshold is 6.23
The high pulse level is 209.55

	MEDIANS Pre	MEDIANS Post	COEFF. of DISP. Pre	COEFF. of DISP. Post	DEVIATION FACTOR Medians	DEVIATION FACTOR C.V.	SIGNIFICANCE COUNT Medians	SIGNIFICANCE COUNT C.V.
Parameter Group #5								
Rise rate	37.9	2.2	1.86	16.79	.94	8.04	.02	.00
Fall rate	-23.0	-1.7	-1.73	-11.86	.93	5.85	.02	.00
Number of reversals	84.5	105.0	.20	.28	.24	.39	.00	.21

Table CAWG 6 Appendix L-16e. Big Creek above SJR (at mouth) IHA Input Data File (missing data = 999999, unimpaired = 1983-2002, existing = 1987-2002).

1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
124.60	101.95	4.53	2.21	15.29	0.62	0.68	6.23	1.42	1.25	0.96	3.23	3.23	7.93	1.98	2.04	23.79	2.10	1.36	0.91	3.00	2.30	2.60	2.60	3.10	3.10	3.80	6.10	6.40	3.90	3.50	4.20	279.00	4.10	4.10	2.40
107.61	79.29	4.25	2.10	19.26	0.62	0.85	4.70	1.36	1.25	0.96	3.12	2.38	7.93	2.10	1.87	19.82	2.10	1.25	0.91	3.00	2.40	2.80	2.60	3.20	3.20	3.80	6.10	6.30	3.80	3.50	4.20	286.00	4.10	4.10	2.50
90.62	62.30	4.47	1.93	17.56	0.57	0.85	4.30	1.42	1.13	1.08	3.00	1.98	6.80	2.10	1.87	18.12	2.04	1.25	0.85	3.10	2.40	2.50	2.70	3.10	3.00	3.80	6.30	6.20	4.00	3.50	4.20	286.00	4.10	4.10	2.40
79.29	52.11	4.36	1.81	14.73	0.57	0.68	4.30	1.36	1.13	1.13	2.95	32.85	6.80	2.10	1.81	17.56	1.93	1.25	0.79	3.10	2.40	2.50	2.70	2.60	3.00	3.80	6.30	7.30	3.90	3.50	4.20	284.00	4.10	4.20	2.40
73.63	47.57	4.25	1.70	13.03	0.57	0.68	4.08	1.25	1.13	1.13	3.06	56.64	6.23	1.98	1.76	16.42	1.87	1.25	0.79	3.10	2.40	2.50	2.70	2.60	3.10	3.70	6.30	6.60	3.90	3.50	4.20	284.00	4.10	4.20	2.40
67.96	44.18	4.19	7.36	11.89	0.57	0.68	3.85	1.25	1.08	1.08	3.34	31.15	6.23	1.98	1.81	15.29	1.93	1.25	0.85	3.00	2.40	2.50	2.70	2.50	3.10	3.60	6.20	5.40	3.90	3.50	4.20	229.00	4.10	4.20	2.40
62.30	41.91	3.74	19.82	10.76	0.68	0.68	3.74	1.13	1.13	1.08	3.68	27.19	6.23	1.98	1.98	14.16	2.10	1.25	0.85	3.00	2.40	2.50	2.70	2.60	3.20	3.80	6.20	5.40	3.90	3.50	4.20	4.10	4.10	4.20	3.00
62.30	41.34	3.34	9.63	10.76	0.74	0.68	3.45	1.13	1.08	1.08	3.85	29.45	6.23	1.87	2.10	12.46	2.10	1.25	0.96	3.00	2.40	2.50	2.60	2.50	3.20	3.70	6.10	5.40	3.90	3.50	4.20	4.70	4.10	4.20	2.50
56.64	39.65	3.17	10.19	10.19	0.79	0.79	3.34	1.13	0.96	0.96	3.74	40.21	6.23	1.76	2.10	11.89	2.04	1.47	1.08	3.20	2.40	2.50	2.70	2.50	3.20	3.70	5.90	5.40	3.90	3.50	4.20	4.70	4.10	4.30	2.50
54.94	39.08	3.17	8.50	9.63	0.85	0.79	3.17	1.13	1.08	0.96	3.62	41.34	6.23	1.76	4.42	11.89	1.98	5.32	0.96	3.50	2.40	2.50	2.70	2.40	3.20	3.60	5.80	5.50	3.80	3.50	4.50	4.70	4.10	4.30	2.50
53.24	36.81	10.19	6.80	9.06	0.85	0.68	2.95	1.13	1.08	0.96	6.23	39.08	5.66	1.76	7.36	11.89	1.87	3.74	1.02	3.50	2.40	2.50	2.70	2.60	3.10	3.50	5.90	5.50	3.80	3.50	8.20	4.70	4.10	4.30	2.50
51.54	34.55	8.50	6.23	9.63	0.85	0.79	2.66	1.13	1.13	0.85	5.66	33.42	5.61	1.76	6.23	11.33	1.81	3.62	1.08	3.40	2.40	2.60	2.70	2.80	3.10	3.50	5.90	5.40	3.80	3.50	4.60	4.60	4.10	4.20	2.50
49.84	32.28	6.23	5.44	9.06	0.91	0.79	2.55	1.13	1.25	0.85	5.27	30.58	5.49	1.76	6.23	10.76	1.70	4.25	1.02	3.30	2.40	2.50	2.60	2.60	3.00	3.50	5.80	5.50	3.70	3.50	4.50	3.90	4.10	4.20	2.50
48.14	32.85	5.10	4.93	9.06	0.91	0.79	2.55	1.13	1.25	0.85	4.76	27.75	5.27	1.87	5.32	10.76	1.64	4.47	1.02	3.30	2.40	2.60	2.70	2.90	3.00	3.50	5.70	5.60	3.60	3.50	4.50	3.90	4.00	4.20	2.50
46.44	33.42	4.47	4.59	8.50	0.85	0.79	2.55	1.13	1.19	0.85	5.66	26.62	5.15	1.87	4.42	11.33	1.64	4.25	1.02	3.30	2.40	2.60	2.70	2.70	3.00	3.60	5.90	5.60	3.60	3.50	4.40	3.80	3.90	4.20	2.50
44.74	32.85	6.23	4.42	8.50	0.85	0.85	2.66	1.13	1.13	0.96	7.93	22.09	5.04	1.87	3.74	11.89	1.64	4.02	1.02	3.30	2.40	2.60	2.60	2.70	3.00	3.60	5.90	5.60	3.60	3.50	4.40	10.00	3.90	4.20	2.50
44.74	32.28	10.76	4.25	7.93	0.85	0.85	2.66	1.13	1.13	0.96	11.33	18.69	4.98	1.87	3.28	11.89	1.64	3.62	1.02	4.40	2.40	2.50	2.70	2.70	3.00	3.50	5.80	5.50	3.60	3.50	4.30	13.00	3.90	4.20	2.40
43.04	32.28	9.06	4.02	8.50	0.85	0.79	2.66	1.13	1.19	0.96	10.76	16.99	4.76	1.87	2.95	11.89	1.64	3.17	1.02	3.40	2.40	2.50	2.70	2.90	3.00	3.50	5.80	5.40	9.10	3.50	4.40	13.00	3.90	4.20	2.30
41.91	30.58	16.42	3.91	8.50	0.85	0.68	2.55	1.42	1.19	0.96	9.06	15.86	4.70	1.87	2.78	11.33	1.64	2.95	1.02	3.40	2.30	2.60	2.70	2.70	3.00	3.50	5.50	5.30	3.60	3.50	4.10	13.00	3.90	4.20	2.30
41.34	27.19	15.29	3.74	8.50	0.85	0.68	2.49	1.42	1.25	1.08	7.93	14.73	4.53	2.21	2.66	11.33	1.64	2.78	1.02	3.40	2.40	2.60	2.70	2.90	3.00	3.50	5.30	5.30	3.50	3.50	4.10	13.00	3.90	4.20	2.40
41.34	25.49	13.03	6.23	9.06	0.85	0.68	4.76	1.30	1.25	3.40	6.80	14.73	4.64	2.21	2.66	10.76	1.64	2.66	1.02	3.40	2.40	2.50	2.70	2.70	3.10	3.70	5.00	5.30	3.40	3.50	4.10	13.00	3.90	4.20	2.60
43.04	24.92	11.89	7.93	9.06	1.98	0.68	37.95	1.25	1.25	3.23	6.23	14.73	4.76	2.32	2.66	10.76	1.64	3.06	1.02	3.40	2.70	2.70	2.80	2.70	3.10	3.80	4.70	5.40	3.40	3.50	4.10	12.00	3.90	4.10	2.50
62.30	24.35	11.33	11.33	9.06	2.15	0.79	15.29	1.13	1.25	2.10	5.55	14.73	4.93	2.32	2.66	10.19	1.64	3.00	1.02	3.40	2.40	2.70	2.80	2.90	3.10	3.80	4.50	5.40	3.40	3.50	4.20	18.00	3.90	4.10	2.60
96.28	24.35	11.33	14.73	8.50	2.04	0.79	56.64	1.13	1.36	1.70	5.21	14.73	4.98	3.34	2.61	11.89	1.64	2.95	1.02	3.40	2.30	3.00	3.00	2.80	3.10	3.60	4.50	5.40	3.40	3.60	4.20	23.00	3.90	4.10	2.50
475.75	23.79	12.46	14.16	8.50	1.93	0.79	53.80	1.08	1.70	1.64	5.04	15.86	5.15	14.73	2.55	17.56	1.64	3.06	1.02	3.40	2.40	2.70	3.40	2.80	3.10	3.60	4.70	5.30	3.50	3.60	4.20	20.00	3.90	4.30	2.50
2050.24	22.65	12.46	11.33	8.50	1.81	0.68	39.08	0.96	53.24	1.64	4.76	16.42	5.21	6.80	2.66	20.96	1.64	6.23	1.02	3.50	2.40	2.80	2.70	3.10	4.30	3.60	5.00	5.30	3.40	3.60	4.20	16.00	3.90	4.60	2.70
492.74	21.52	12.46	9.63	8.50	1.70	0.79	34.55	0.96	28.32	1.64	4.47	15.86	5.10	5.38	2.72	18.69	1.64	7.93	1.08	3.50	2.40	2.80	2.70	3.30	3.30	3.70	5.20	5.20	3.40	3.60	4.20	15.00	3.90	4.20	2.50
351.15	20.96	10.76	8.50	8.50	7.36	0.68	27.19	0.96	10.76	1.98	4.30	14.73	5.04	5.15	2.66	16.42	1.87	7.93	1.08	3.50	3.10	2.70	2.70	3.40	3.20	3.90	5.40	5.20	3.40	3.50	4.20	15.00	3.90	4.20	2.50
300.17	20.39	10.19	7.36	8.50	27.75	0.79	21.52	0.96	10.19	13.03	4.30	14.16	4.98	5.44	2.66	20.39	1.93	13.03	1.13	3.40	3.00	2.80	2.60	3.40	3.30	4.40	5.70	5.20	3.40	4.20	3.90	108.00	3.90	5.10	2.50
1512.19	33.98	10.19	6.80	7.93	11.89	0.85	18.69	0.96	9.06	90.62	4.25	13.03	4.87	6.23	2.78	24.35	1.87	9.06	7.36	3.40	2.40	2.80	2.60	3.40	3.30	5.20	6.00	5.20	3.30	4.20	4.40	252.00	3.90	4.20	2.90
696.63	37.38	10.19	6.23	7.93	9.06	0.85	16.42	0.96	7.93	32.85	4.19	11.89	4.81	6.80	2.78	19.82	1.81	6.80	10.76	3.30	2.40	2.60	2.70	3.30	3.30	2.90	5.90	5.20	3.30	3.60	4.40	516.00	3.90	4.20	2.60
453.09	37.95	9.06	6.23	7.93	30.02	0.85	14.73	1.36	7.36	20.96	4.19	11.89	5.04	6.23	2.78	17.56	1.76	6.23	6.80	3.20	2.30	3.00	2.70	3.30	3.20	2.70	5.70	5.20	3.30	3.40	4.40	742.00	3.90	4.60	2.50
351.15	45.31	9.06	5.66	7.36	40.21	0.91	13.59	1.36	7.36	15.86	4.19	14.16	5.32	6.80	2.61	16.42	1.64	7.36	4.53	3.30	2.80	3.20	2.70	3.30	3.20	2.50	5.50	5.40	3.20	3.50	4.40	700.00	3.70	4.20	2.50
300.17	37.38	9.63	5.66	7.93	21.52	0.96	13.59	1.25	7.36	14.16	4.19	13.03	5.10	6.80	2.55	15.29	1.64	7.36	3.51	3.40	2.30	3.20	2.70	3.30	3.20	2.50	5.50	5.20	3.30	3.50	4.40	391.00	3.50	4.20	2.50
266.19	33.42	9.06	5.66	7.36	14.16	0.96	13.03	1.36	7.93	13.59	4.25	11.89	5.10	7.36	2.49	14.73	1.64	6.80	3.06	3.40	2.10	3.20	2.70	3.70	3.20	2.40	5.50	5.20	3.20	3.40	4.30	189.00	3.50	4.20	2.50
232.21	26.62	8.50	5.49	7.36	13.59	0.85	12.46	1.42	7.93	11.89	4.25	31.72	5.32	6.80	2.44	14.16	1.64	6.23	2.78	3.40	2.40	3.20	2.70	3.60	3.20	2.40	5.50	5.30	3.10	3.50	3.30	7.70	3.50	4.20	2.50
215.22	24.35	9.63	5.32	6.23	21.52	0.96	11.89	1.36	7.93	10.19	4.19	118.94	5.27	6.23	2.38	13.59	1.64	6.80	2.55	3.30	2.50	7.30	2.60	3.20	3.20	2.40	5.40	9.90	3.10	3.50	3.30	7.20	3.80	4.10	3.30
198.23	30.02	10.76	5.21	6.23	22.65	0.96	11.33	1.25	7.93	9.06	4.19	55.50	5.44	6.80	2.61	15.86	1.70	6.23	2.38	3.20	2.10	3.40	2.60	3.20	3.20	2.50	5.40	15.00	3.30	3.50	3.80	7.10	3.90	4.20	13.00
186.90	34.55	12.46	5.15	6.80	18.69	0.79	10.76	1.42	7.36	8.50	4.08	41.91	5.38	7.93	2.49	22.65	6.80	5.66	2.27	3.20	2.00	3.20	2.70	3.30	3.20	2.90	5.30	18.00	3.90	3.50	4.70	7.20	4.40	4.20	2.80
169.91	30.02	14.16	5.04	6.80	16.99	0.79	10.76	1.53	10.19	8.50	4.19	33.98	5.21	9.06	2.44	18.69	4.87	6.23	2.27	3.20	2.00	3.20	2.60	3.30	3.10	3.10	5.20	13.00	3.90	10.00	4.50	6.70	3.90	4.20	2.60
169.91	31.15	13.03	5.21	7.36	16.42	0.91	10.19	1.47	9.06	7.36	4.30	52.11	5.38	10.19	3.00	18.12	3.79	5.66	2.21	3.20	2.00	3.20	2.60	3.30	3.10	3.40	5.40	30.00	4.00	3.60	4.70	6.90	3.90	4.20	2.50
215.22	419.11	14.16	11.33	7.36	15.29	1.08	10.19	1.36	7.36	6.80	5.27	84.95	5.38	10.19	4.36	20.39	3.79	5.27	3.62	3.20	2.60	3.20	2.60	3.30	3.10	3.40	5.80	17.00	4.00	3.60	4.50	6.60	3.90	4.20	2.60
220.88	169.91	15.29	10.76	5.21	14.73	1.08	10.19	1.42	6.23	6.80	6.80	44.74	5.21	10.76	4.25	22.09	3.79	4.42	4.87	3.10	2.50	3.30	2.60	3.40	3.10	3.20	5.50	15.00	3.90	19.00	4.50	6.50	3.90	4.10	3.60
203.89	164.25	14.73	8.50	6.80	15.86	3.96	9.63	1.42	5.44	6.80	6.80	34.55	5.27	10.19	4.19	26.62	3.57	4.36	7.93	3.10	2.50	3.70	2.60	3.40	3.10	3.20	5.30	15.00	3.90	167.00	4.50	6.30	3.90	4.10	2.70
192.56	118.94	15.86	8.50	8.50	16.99	6.80	9.63	1.42	5.32	6.80	6.23	32.85	4.98	9.63	4.02	28.32	3.57	4.70	6.80	3.00	2.50	3.70	2.60	3.30	3.10	3.10	5.30	14.00	3.80	392.00	4.50	7.10	3.90	4.10	2.50
192.56	96.28	17.56	9.06	7.93	14.16	3.57	9.06	1.53	4.81	6.80	5.44	32.85	4.81	9.06	3.40	27.75	3.79	4.13	6.80	3.20	2.50	3.40	2.60	3.30	3.10	3.10	5.10	14.00	3.80	310.00	4.50	6.50	4.00	4.10	2.50
192.56	84.95	17.56	9.06	7.93	13.03	2.72	9.63	1.42	4.64	6.23	5.55	33.42	4.81	9.06	3.23	27.19	3.91	3.91	6.80	3.10	1.80	3.00	2.30	3.30	3.10	3.10	4.80	15.00	3.60	377.00	4.40	303.00	3.90	4.10	2.50
186.90	260.53	16.42	9.06	7.93	26.05	3.12	9.63	1.53	9.63	6.23	6.23	32.85	4.70	67.96	3.45	27.75	10.19	3.57	6.23	2.90	1.30	2.70	1.60	3.60	3.40	3.00	4.90	16.00	3.50	439.00	4.40	212.00	4.40	4.10	3.70
175.57	203.89	16.99	8.50	7.93	31.15	2.95	9.06	1.53	9.63	6.23	6.80	36.25	4.76	220.88	3.45	22.09	6.23	3.68	5.49	2.50	1.50	2.30	1.60	3.10	3.30	3.10	5.00	6.70	3.50	368.00	4.30	452.00	4.40	3.90	2.60
203.89	328.49	16.99	8.50	7.36	21.52	2.95	8.50	1.53	9.63	6.23	6.23	38.51	4.76	96.28	5.66	23.22	5.66	4.13	4.98	1.90	1.60	2.30	1.60	3.20	3.20	3.10	5.20	3.40	3.40	330.00	4.20	671.00	4.20	3.90	2.60
209.55	577.69	16.42	9.06	7.36	22.09	2.83	8.50	1.98	9.63	5.21	5.49	33.98	4.70	79.29	6.23	20.39	9.06	4.30	4.47	2.00	1.80	2.40	1.60	2.30	3.20	3.10	5.30	3.40	3.00	428.00	4.20	665.00	4.30	3.90	3.50
192.56	294.51	16.99	9.63	7.36	20.96	2.83	7.93	1.64	9.06	5.61	6.23	33.98	4.70	402.12	4.87	20.96	6.80	4.64	5.04	2.00	1.70	2.10	1.60	1.40	3.20	3.00	5.40	2.90	2.10	480.00	4.20	787.00	4.10	3.90	2.60
192.56	215.22	17.56	9.06	7.36	19.26	3.23	7.93	1.64	9.06	7.36	6.80	32.28	4.81	1302.64	4.81	23.79	4.64	5.04	25.49	1.90	1.70	1.90	1.60	1.80	2.80	3.10	5.70	2.10	2.40	683.00	4.10	784.00	4.10	3.90	2.90
192.56	192.56	17.56	9.63	7.36	16.42	13.03	7.93	1.64	8.50	6.80	6.23	31.72	4.70	368.14	5.66	27.19	4.08	4.70	19.26	1.90	1.60	2.10	1.70	2.30	1.60	3.10	5.90	2.00	2.40	658.00	4.10	777.00	4.10	3.90	2.60
181.24	815.56	15.29	11.33	7.36	15.29	13.03	9.06	1.64	8.50	6.23	4.93	32.28	4.70	271.85	5.04	34.55	3.62	4.98	152.92	1.90	1.60	1.90	1.60	1.30	1.60	3.10	5.70	2.00	2.40	411.00	4.10	800.00	4.10	3.90	3.40
175.57	589.02	12.46	16.42	6.80	14.16	6.80	9.06	1.13	7.93	6.23	4.25	35.11	4.59	203.89	4.76	31.15	3.91	5.27	90.62	2.10	1.60	2.40	2.00	1.70	1.60	3.10	5.60	2.50	2.40	453.00	4.10	785.00	4.10	3.90	2.70
169.91	396.45	16.42	20.96	5.55	12.46	5.10	6.80	1.87	7.93	6.23	4.02	43.61	5.10	164.25	7.36	26.62	4.25	5.21	47.01	2.50	1.60	1.90	2.50	2.00	1.50	3.10	5.40	2.50	2.30	467.00	5.70	439.00	4.10	3.90	2.40
169.91	300.17	19.82	16.42	4.70	11.89	4.87	10.19	2.21	7.36	6.23	5.27	53.24	4.81	141.59	8.50	28.32	4.42	5.38	33.98	2.60	1.60	1.90	1.60	1.90	1.50	3.10	5.20	2.10	2.30	474.00	4.30	317.00	4.10	3.90	2.10
164.25	237.87	19.82	16.99	4.70	10.76	4.98	11.89	2.21	7.36	5.27	6.80	49.84	4.93	118.94	10.19	27.75	4.19	5.66	28.88	2.60	1.60	2.00	1.60	1.80	1.60	3.10	5.10	2.10	2.30	448.00	4.20	594.00	4.10	3.90	2.10
169.91	215.22	23.22	15.29	4.59	10.76	4.76	13.03	2.55	6.80	5.10	7.93	47.57	4.81	113.27	8.50	32.28	4.42	5.61	27.75	2.50	1.50	2.00	1.60	1.80	1.50	3.10	5.60	2.10	2.30	425.00	4.10	371.00	4.00	3.90	2.70
152.92	198.23	22.09	16.99	4.30	10.76	5.04	10.19	2.66	6.23	4.19	9.63	48.14	5.04	135.93	7.93	96.28	4.76	5.21	24.92	2.50	1.50	1.90	1.60	1.90	1.50	3.10	5.50	2.10	2.30	466.00	4.10	643.00	3.90	3.90	2.20
186.90	186.90	19.82	16.42	5.66	13.59	5.10	9.63	2.21	5.66	4.70	9.06	52.67	4.42	96.28	6.80	96.28	4.53	4.93	23.22	2.50	1.50	1.60	1.60	2.30	1.50	3.10	5.20	2.10	2.20	467.00	3.90	758.00	3.60	3.90	2.40
232.21	175.57	18.12	32.28	6.23	13.59	4.87	9.63	1.87	6.23	5.15	8.50	55.50	4.30	124.60	6.23	73.63	4.19	4.98	27.75	2.50	1.50	1.60	1.60	1.90	1.50	3.40	5.10	1.60	2.40	473.00	3.60	778.00	3.50	3.80	2.90
220.88	141.59	18.69	50.41	6.80	13.03	4.70	9.06	1.98	6.80	5.04	7.93	56.07	4.47	107.61	5.66	56.64	3.79	4.76	30.58	2.60	1.50	1.60	1.80	1.80	1.50	3.40	5.10	1.10	2.40	448.00	4.10	675.00	3.50	3.90	4.20

Table CAWG 6 Appendix L-17a. Redinger Lake Inflows Complete Period of Record (unimpaired = 1983-2002; historical = 1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Annual Summary Statistics for Unimpaired and Existing Flows.

IHA Annual Summary Statistics
Inflows to Redinger Lake All Available Data

Year	October	November	December	January	February	March	April	May	June	July	August	September	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
1963	2252.71	1915.07	1616.74	1531.47	1455.68	1824.65	2053.30	14456.75	29745.24	11208.83	3324.29	1093.60	545.05	551.53	577.38	607.49	1005.59	38913.51	37700.50	34617.74	31927.72	18823.74	.00	.10	295.00	169.00	.00	.00	4.00	31.00	768.09	-493.27	109.00
1964	579.38	1852.82	2544.63	1679.69	1445.25	2751.28	5235.82	8703.87	3523.98	1905.33	724.33	354.48	179.95	223.79	227.14	267.55	323.50	17333.51	12130.34	10974.41	8852.17	6009.18	.00	.09	274.00	360.00	1.00	1.00	6.00	19.83	441.02	-282.78	130.00
1965	275.89	364.32	346.92	435.20	550.20	974.83	5499.13	6093.55	2313.31	630.40	247.54	226.81	166.02	158.57	151.57	208.52	222.50	9592.53	9086.44	8643.35	6794.27	4706.79	.00	.10	274.00	105.00	3.00	8.00	3.00	23.33	160.84	-107.42	104.00
1966	248.80	276.60	571.19	1135.98	4092.60	5884.78	8895.43	14391.40	8994.28	2402.58	764.14	316.33	128.19	136.04	163.44	226.75	163.99	21631.37	19646.04	19204.37	15525.19	11012.56	.00	.04	315.00	68.00	3.00	5.00	4.00	37.50	725.11	-433.94	98.00
1967	227.36	141.32	109.10	125.72	184.08	559.33	4163.87	4080.23	1721.52	489.64	255.21	97.60	69.00	69.36	71.93	74.44	124.62	7864.40	6799.33	6422.28	5510.46	3358.83	.00	.07	268.00	137.00	6.00	29.00	3.00	16.33	133.36	-110.31	146.00
1968	107.23	281.27	269.73	457.24	670.85	1720.10	3700.71	4281.75	2071.29	606.93	252.84	131.28	59.14	62.92	66.64	73.95	97.55	6986.02	6880.39	6169.19	4460.71	3503.39	.00	.05	292.00	136.00	5.00	8.80	5.00	13.40	137.94	-101.80	131.00
1969	73.38	113.42	131.51	173.05	295.91	1942.31	6122.97	4319.48	2055.83	491.26	225.94	231.76	60.68	64.57	66.54	73.45	104.77	9106.88	8817.88	8484.53	6140.15	4348.33	.00	.05	281.00	100.00	6.00	16.67	5.00	13.80	148.24	-113.05	138.00
1970	260.75	213.83	168.02	204.19	291.17	1427.52	4860.60	3656.32	2132.23	672.96	177.61	93.56	76.16	77.05	79.70	77.58	69.23	7687.12	6968.14	6107.18	5364.59	3728.95	.00	.07	261.00	155.00	6.00	19.17	5.00	13.80	190.59	-132.81	111.00
1971	75.80	64.80	64.86	72.24	101.59	1085.24	2391.32	7807.48	5774.11	1345.72	258.68	132.03	50.57	60.27	62.08	63.88	66.64	12182.26	11676.40	10584.10	9180.65	5455.89	.00	.04	312.00	145.00	4.00	9.75	6.00	11.50	236.23	-182.26	133.00
1972	90.36	189.82	125.34	159.69	329.63	634.40	5184.41	4742.49	1211.43	548.27	228.72	79.68	48.44	48.78	49.14	57.79	113.97	9020.40	8793.36	8086.29	6679.22	3770.91	.00	.04	293.00	120.00	7.00	21.14	2.00	25.50	121.56	-80.24	99.00
1973	95.23	171.61	161.80	518.19	520.25	1761.47	5766.13	18564.00	11763.23	4277.47	1099.71	309.59	49.68	49.68	51.46	85.60	135.01	25611.79	24738.81	22996.64	18619.68	12589.94	.00	.01	287.00	139.00	5.00	10.80	4.00	30.75	458.73	-302.53	107.00
1974	159.28	108.35	136.07	150.63	209.47	878.22	3092.71	4793.89	2400.21	463.91	134.42	140.05	41.37	41.87	43.02	49.71	129.72	7870.91	7814.38	6888.74	4886.84	3483.15	.00	.04	255.00	133.00	4.00	43.50	2.00	29.50	174.88	-124.87	102.00
1975	524.19	472.76	475.15	1133.06	1224.95	3198.10	5344.44	13068.71	21848.74	12340.70	2918.82	806.71	219.10	227.35	232.26	261.77	243.24	31224.49	28594.67	26104.47	21993.87	16182.94	.00	.04	308.00	156.00	.00	.00	4.00	37.75	953.66	-605.60	90.00
1976	254.12	133.81	358.64	495.87	1998.63	2199.87	7104.10	13454.44	5520.39	2246.99	658.32	235.23	78.40	87.53	95.24	113.22	217.32	61753.31	33562.36	23019.53	15167.89	8835.63	.00	.03	338.00	137.00	5.00	13.80	5.00	22.80	749.41	-398.87	132.00
1977	134.06	987.48	1559.33	7712.05	1241.34	3569.03	7098.34	9615.49	4125.48	1577.83	535.21	259.97	84.91	92.76	98.25	130.77	177.29	85918.56	47053.14	26060.44	11033.89	7361.39	.00	.03	293.00	2.00	5.00	4.60	5.00	25.40	947.79	-572.94	118.00
1978	170.41	145.03	215.74	251.78	358.68	929.74	2916.50	7411.14	22604.41	11001.56	2021.83	706.01	93.17	95.52	97.88	122.16	175.48	32321.98	29772.52	29283.44	22991.58	13897.53	.00	.02	311.00	167.00	8.00	9.13	2.00	57.00	446.91	-347.98	134.00
1979	253.64	291.54	390.77	419.89	992.18	1100.30	3115.05	9066.69	4939.09	1242.88	320.44	261.30	136.03	147.19	168.70	120.92	101.29	12705.02	11672.36	10971.67	9416.13	5877.16	.00	.09	262.00	133.00	10.00	2.50	2.00	38.00	215.80	-163.84	138.00
1980	116.93	106.01	74.93	214.61	623.02	1263.41	6385.20	11103.22	4914.77	1062.58	346.57	148.62	52.89	53.44	55.12	64.37	84.82	18910.48	16615.96	15029.44	11280.76	7562.51	.00	.03	9.00	129.00	3.00	46.67	1.00	88.00	298.54	-216.39	130.00
1981	124.31	147.11	117.01	333.10	337.08	1386.40	3457.61	9949.08	1642.02	541.38	123.57	49.34	36.00	34.90	34.30	36.06	55.77	15019.89	14785.31	13921.96	10587.60	5394.14	.00	.02	273.00	132.00	9.00	14.89	4.00	13.50	243.93	-150.62	129.00
1982	45.01	191.30	402.92	392.96	623.04	1168.60	5664.54	6712.96	3440.89	673.63	127.94	60.77	32.15	32.31	33.53	40.54	204.64	9090.12	8754.70	7931.41	6963.24	5360.79	.00	.02	291.00	105.00	2.00	29.00	1.00	83.00	172.06	-119.11	110.00
1987	1275.96	821.84	628.47	596.69	877.31	1259.42	1871.32	2224.65	1606.17	1608.66	1479.68	1055.31	310.90	442.63	460.10	529.46	403.30	2737.50	2684.20	2640.36	2364.29	1914.42	.00	.36	19.00	137.00	.00	.00	3.00	2.00	95.70	-109.94	202.00
1993	509.19	262.68	421.25	1619.46	2193.78	2968.78	3862.34	7238.61	7652.59	4929.27	2010.55	1974.55	125.70	167.03	228.99	260.98	396.77	10320.00	10008.67	9532.87	7991.56	6802.84	.00	.08	333.00	140.00	2.00	2.00	6.00	26.17	243.21	-234.31	158.00
1994	1607.39	967.99	956.06	713.13	790.55	1304.46	1697.87	1967.73	1930.16	1681.43	1552.54	957.32	248.60	358.30	451.50	672.90	816.85	2997.20	2963.90	2615.81	2083.70	1905.28	.00	.33	22.00	121.00	.00	.00	1.00	5.00	142.40	-160.04	219.00
1996	1637.00	1159.99	1171.00	1388.84	2320.94	3844.63	3982.53	6353.97	5728.00	3218.33	2208.96	1803.79	129.10	759.50	1031.79	953.10	1229.26	24170.00	14520.67	10878.86	7267.73	5409.32	.00	.36	49.00	137.00	1.00	1.00	2.00	76.50	315.96	-258.83	172.00
1997	938.50	1135.19	2592.40	7019.85	2258.54	3713.78	3923.34	6374.48	5218.58	2306.64	2069.75	2015.20	350.00	366.00	372.86	771.37	1142.58	32197.20	23505.70	13166.64	7054.71	5206.67	.00	.11	45.00	3.00	.00	.00	5.00	36.40	417.50	-354.90	190.00
1998	1398.44	991.39	1008.00	1375.35	2498.15	3089.37	3072.15	3864.96	10739.69	6781.58	2865.87	2564.08	27.70	90.03	502.46	906.94	1070.81	13437.00	13207.33	12930.14	11093.73	7161.77	.00	.15	311.00	174.00	1.00	3.00	12.00	15.83	271.57	-288.48	188.00
1999	1009.43	1449.70	1873.51	1114.69	1558.81	1768.01	2229.16	3094.24	3919.38	2020.42	2105.71	1819.54	131.70	206.00	310.03	790.21	860.87	5763.60	5286.93	4732.99	4139.14	3204.03	.00	.16	16.00	150.00	2.00	1.00	15.00	5.27	285.41	-261.44	192.00
2000	1109.40	608.45	806.76	522.52	953.89	2676.50	3155.80	4757.56	4492.14	2185.65	1712.85	1275.83	5.50	70.67	107.33	436.97	622.58	8173.40	7496.73	7137.69	5565.33	4158.82	.00	.05	8.00	149.00	3.00	4.00	8.00	14.75	288.33	-261.20	189.00
2001	1167.18	967.67	702.93	526.49	417.88	1248.39	2074.04	3323.56	2225.19	1169.02	1640.87	1213.50	189.50	202.50	214.11	405.82	518.57	3819.20	3729.77	3576.88	3396.71	2636.30	.00	.15	36.00	148.00	2.00	1.50	2.00	20.00	181.59	-196.15	204.00
2002	625.27	435.91	625.87	1277.63	1316.78	1297.90	2302.00	2637.33	2781.82	1465.20	1751.95	1457.02	174.00	205.10	323.71	387.56	533.11	3566.20	3533.53	3490.34	3127.82	2581.50	.00	.22	316.00	152.00	3.00	1.00	7.00	5.57	195.02	-192.00	191.00

Table CAWG 6 Appendix L-17b. Redinger Lake Inflows Complete Period of Record (unimpaired = 1983-2002; historical = 1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Percentile Data.

IHA Percentile Data
Inflows to Redinger Lake All Available Data

Pre-impact period: 1963-1982 (20 years) Post-impact period: 1987-2002 (10 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	73.62	98.23	164.84	259.09	573.86	.98	520.80	860.20	1138.29	1450.68	1634.04	.52
November	106.24	135.69	190.56	346.13	1766.29	1.10	280.01	565.31	967.83	1141.39	1420.73	.60
December	78.35	126.88	242.73	457.10	1611.00	1.36	441.71	627.82	881.41	1346.63	2520.51	.82
January	128.22	180.83	406.43	979.34	1664.87	1.96	522.91	579.14	1196.16	1446.49	6479.81	.73
February	186.62	304.34	586.61	1237.24	1944.33	1.59	455.14	855.62	1437.79	2274.14	2480.43	.99
March	658.78	1002.43	1406.96	2135.48	3531.94	.81	1249.49	1288.28	2222.25	3245.47	3831.54	.88
April	2443.84	3200.69	5210.11	6033.76	7103.52	.54	1715.21	2023.36	2687.08	3877.59	3976.61	.69
May	4100.38	4755.34	8255.67	12577.34	14450.21	.95	1993.42	2534.16	3594.26	6359.10	7152.20	1.06
June	1649.97	2086.53	3824.73	8189.24	22528.84	1.60	1638.57	2151.43	4205.76	6209.15	10430.98	.96
July	489.80	562.94	1152.73	2363.68	11188.11	1.56	1198.64	1572.80	2103.04	3646.06	6596.35	.99
August	128.59	226.63	289.56	754.18	2829.12	1.82	1486.97	1618.79	1881.25	2131.52	2800.18	.27
September	62.66	106.02	229.28	314.64	796.64	.91	967.12	1173.95	1630.41	1984.71	2509.19	.50
Parameter Group #2												
1-day minimum	36.54	49.90	72.58	134.07	215.19	1.16	7.72	101.20	152.85	264.17	346.09	1.07
3-day minimum	35.60	50.62	73.21	144.40	226.99	1.28	72.60	147.78	205.55	385.16	727.81	1.15
7-day minimum	35.17	52.37	75.81	160.47	231.75	1.43	118.01	225.27	348.29	470.69	978.85	.70
30-day minimum	41.46	64.00	81.59	189.08	266.98	1.53	273.64	401.25	601.18	819.39	948.48	.70
90-day minimum	66.90	98.48	132.37	214.15	315.47	.87	397.42	489.75	719.72	1088.75	1220.59	.83
1-day maximum	7704.85	9037.83	13862.46	29821.31	59469.32	1.50	2763.47	3423.95	6968.50	16120.25	31394.47	1.82
3-day maximum	6889.17	8764.37	11903.37	27630.71	37286.68	1.58	2712.17	3391.12	6391.83	13535.67	22607.19	1.59
7-day maximum	6194.50	7970.13	10973.04	23013.81	28965.54	1.37	2618.27	3277.85	5935.34	11391.68	13142.99	1.37
30-day maximum	4934.61	6274.91	9298.39	15435.86	22891.81	.99	2111.76	2936.94	4852.24	7448.69	10783.51	.93
90-day maximum	3485.18	3915.27	5666.52	10468.33	15954.40	1.16	1906.20	2414.73	3681.42	5757.70	7125.88	.91
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.02	.03	.04	.07	.09	1.03	.06	.10	.15	.34	.36	1.53
Parameter Group #3												
Date of minimum	261.10	273.25	291.50	310.25	335.70	.10	311.50	328.75	17.50	38.25	48.60	.21
Date of maximum	71.20	108.75	134.50	152.50	168.80	.12	14.80	133.00	144.00	150.50	171.80	.05
Parameter Group #4												
Low pulse count	.10	3.00	5.00	6.00	8.90	.60	.00	.00	1.50	2.25	3.00	1.50
Low pulse duration	.10	4.70	10.27	20.65	42.05	1.55	.00	.00	1.00	2.25	3.90	2.25
High pulse count	1.10	2.00	4.00	5.00	5.90	.75	1.10	2.00	5.50	9.00	14.70	1.27
High pulse duration	13.41	14.43	25.45	37.69	80.40	.91	2.30	5.20	15.29	28.73	72.49	1.54
Parameter Group #5												
Rise rate	133.82	163.65	240.08	658.51	929.82	2.06	100.37	171.79	257.39	295.24	407.35	.48
Fall rate	-564.97	-386.14	-173.05	-114.57	-102.36	-1.57	-348.26	-268.20	-246.57	-184.01	-114.95	-.34
Number of reversals	98.10	104.75	123.50	132.75	138.00	.23	159.40	184.00	190.50	202.50	217.50	.10

Table CAWG 6 Appendix L-17c. Redinger Lake Inflows Complete Period of Record (unimpaired = 1983-2002; historical = 1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Inflows to Redinger Lake All Available Data

	Pre-impact period: 1963-1982				Post-impact period: 1987-2002				RVA Categories		Hydrologic Alteration
			Range Limits				Range Limits				
	Medians	Coeff. of Variance	Low	High	Medians	Coeff. of Variance	Low	High	Low	High	(Middle Category)
Parameter Group #1											
October	164.8	.98	45.0	2252.7	1138.3	.52	509.2	1637.0	98.23	259.09	-1.00
November	190.6	1.10	64.8	1915.1	967.8	.60	262.7	1449.7	135.69	346.13	-.80
December	242.7	1.36	64.9	2544.6	881.4	.82	421.2	2592.4	126.88	457.10	-.80
January	406.4	1.96	72.2	7712.1	1196.2	.73	522.5	7019.8	180.83	979.34	-.20
February	586.6	1.59	101.6	4092.6	1437.8	.99	417.9	2498.1	304.34	1237.24	-.20
March	1407.0	.81	559.3	5884.8	2222.3	.88	1248.4	3844.6	1002.43	2135.48	.00
April	5210.1	.54	2053.3	8895.4	2687.1	.69	1697.9	3982.5	3200.69	6033.76	-.40
May	8255.7	.95	3656.3	18564.0	3594.3	1.06	1967.7	7238.6	4755.34	12577.34	-.20
June	3824.7	1.60	1211.4	29745.2	4205.8	.96	1606.2	10739.7	2086.53	8189.24	.40
July	1152.7	1.56	463.9	12340.7	2103.0	.99	1169.0	6781.6	562.94	2363.68	.40
August	289.6	1.82	123.6	3324.3	1881.3	.27	1479.7	2865.9	226.63	754.18	-1.00
September	229.3	.91	49.3	1093.6	1630.4	.50	957.3	2564.1	106.02	314.64	-1.00
Parameter Group #2											
1-day minimum	72.6	1.16	32.1	545.1	152.9	1.07	5.5	350.0	49.90	134.07	-.40
3-day minimum	73.2	1.28	32.3	551.5	205.5	1.15	70.7	759.5	50.62	144.40	-.60
7-day minimum	75.8	1.43	33.5	577.4	348.3	.70	107.3	1031.8	52.37	160.47	-.80
30-day minimum	81.6	1.53	36.1	607.5	601.2	.70	261.0	953.1	64.00	189.08	-1.00
90-day minimum	132.4	.87	55.8	1005.6	719.7	.83	396.8	1229.3	98.48	214.15	-1.00
1-day maximum	13862.5	1.50	6986.0	85918.6	6968.5	1.82	2737.5	32197.2	9037.83	29821.31	-.40
3-day maximum	11903.4	1.58	6799.3	47053.1	6391.8	1.59	2684.2	23505.7	8764.37	27630.71	-.20
7-day maximum	10973.0	1.37	6107.2	34617.7	5935.3	1.37	2615.8	13166.6	7970.13	23013.81	-.20
30-day maximum	9298.4	.99	4460.7	31927.7	4852.2	.93	2083.7	11093.7	6274.91	15435.86	-.20
90-day maximum	5666.5	1.16	3358.8	18823.7	3681.4	.91	1905.3	7161.8	3915.27	10468.33	.00
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.04	1.03	.01	.10	.15	1.53	.05	.36	.03	.07	-.80
Parameter Group #3											
Date of minimum	291.5	.10	9.0	338.0	17.5	.21	8.0	333.0	269.25	304.75	-1.00
Date of maximum	134.5	.12	2.0	360.0	144.0	.05	3.0	174.0	108.75	152.50	.60
Parameter Group #4											
Low pulse count	5.0	.60	.0	10.0	1.5	1.50	.0	3.0	3.00	6.00	-.67
Low pulse duration	10.3	1.55	.0	46.7	1.0	2.25	.0	4.0	4.70	20.65	-1.00
High pulse count	4.0	.75	1.0	6.0	5.5	1.27	1.0	15.0	2.00	5.00	-.50
High pulse duration	25.5	.91	11.5	88.0	15.3	1.54	2.0	76.5	14.43	37.69	.00

The low pulse threshold is 201.64
The high pulse level is 2644.22

	Pre-impact period: 1963-1982				Post-impact period: 1987-2002				RVA Categories		Hydrologic Alteration
Parameter Group #5											
Rise rate	240.1	2.06	121.6	953.7	257.4	.48	95.7	417.5	163.65	658.51	.60
Fall rate	-173.0	-1.57	-605.6	-80.2	-246.6	-.34	-354.9	-109.9	-386.14	-114.57	.80
Number of reversals	123.5	.23	90.0	146.0	190.5	.10	158.0	219.0	104.75	132.75	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	5.00	.00	-1.00	2.50	10.00	3.00	2.50	.00	-1.00
November	5.00	1.00	-.80	2.50	9.00	2.60	2.50	.00	-1.00
December	5.00	1.00	-.80	2.50	9.00	2.60	2.50	.00	-1.00
January	5.00	4.00	-.20	2.50	6.00	1.40	2.50	.00	-1.00
February	5.00	4.00	-.20	2.50	6.00	1.40	2.50	.00	-1.00
March	5.00	5.00	.00	2.50	5.00	1.00	2.50	.00	-1.00
April	5.00	3.00	-.40	2.50	.00	-1.00	2.50	7.00	1.80
May	5.00	4.00	-.20	2.50	.00	-1.00	2.50	6.00	1.40
June	5.00	7.00	.40	2.50	1.00	-.60	2.50	2.00	-.20
July	5.00	7.00	.40	2.50	3.00	.20	2.50	.00	-1.00
August	5.00	.00	-1.00	2.50	10.00	3.00	2.50	.00	-1.00
September	5.00	.00	-1.00	2.50	10.00	3.00	2.50	.00	-1.00
Parameter Group #2									
1-day minimum	5.00	3.00	-.40	2.50	5.00	1.00	2.50	2.00	-.20
3-day minimum	5.00	2.00	-.60	2.50	8.00	2.20	2.50	.00	-1.00
7-day minimum	5.00	1.00	-.80	2.50	9.00	2.60	2.50	.00	-1.00
30-day minimum	5.00	.00	-1.00	2.50	10.00	3.00	2.50	.00	-1.00
90-day minimum	5.00	.00	-1.00	2.50	10.00	3.00	2.50	.00	-1.00
1-day maximum	5.00	3.00	-.40	2.50	1.00	-.60	2.50	6.00	1.40
3-day maximum	5.00	4.00	-.20	2.50	.00	-1.00	2.50	6.00	1.40
7-day maximum	5.00	4.00	-.20	2.50	.00	-1.00	2.50	6.00	1.40
30-day maximum	5.00	4.00	-.20	2.50	.00	-1.00	2.50	6.00	1.40
90-day maximum	5.00	5.00	.00	2.50	.00	-1.00	2.50	5.00	1.00
Number of zero days	10.00	10.00	.00	.00	.00	.00	.00	.00	.00
Base flow	5.00	1.00	-.80	2.50	9.00	2.60	2.50	.00	-1.00
Parameter Group #3									
Date of minimum	5.00	.00	-1.00	2.50	3.00	.20	2.50	7.00	1.80
Date of maximum	5.00	8.00	.60	2.50	1.00	-.60	2.50	1.00	-.60
Parameter Group #4									
Low pulse count	6.00	2.00	-.67	2.00	.00	-1.00	2.00	8.00	3.00
Low pulse duration	5.00	.00	-1.00	2.50	.00	-1.00	2.50	10.00	3.00
High pulse count	8.00	4.00	-.50	1.00	5.00	4.00	1.00	1.00	.00
High pulse duration	5.00	5.00	.00	2.50	1.00	-.60	2.50	4.00	.60
Parameter Group #5									
Rise rate	5.00	8.00	.60	2.50	.00	-1.00	2.50	2.00	-.20
Fall rate	5.00	9.00	.80	2.50	1.00	-.60	2.50	.00	-1.00
Number of reversals	5.00	.00	-1.00	2.50	10.00	3.00	2.50	.00	-1.00

5 Messages:

Parameter Low pulse count : 3 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Low pulse count : 5 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 6 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter Number of falls : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-17d. Redinger Lake Inflows Complete Period of Record (unimpaired = 1983-2002; historical = 1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Inflows to Redinger Lake All Available Data

Pre-impact period: 1963-1982 (20 years)   Post-impact period: 1987-2002 (10 years)

	Pre	Post
Watershed area	1.00	
Mean annual flow	2339.88	2154.27
Mean flow/area	2339.88	2154.27
Annual C. V.	.83	.57
Flow predictability	.40	.59
Constancy/predictability	.31	.64

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Pre	Post
% of floods in 60d period	.57	.49
flood-free season	79.00	72.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	164.8	1138.3	.98	.52	5.91	.47	.00	.23
November	190.6	967.8	1.10	.60	4.08	.46	.00	.23
December	242.7	881.4	1.36	.82	2.63	.40	.00	.44
January	406.4	1196.2	1.96	.73	1.94	.63	.01	.15
February	586.6	1437.8	1.59	.99	1.45	.38	.01	.40
March	1407.0	2222.3	.81	.88	.58	.09	.12	.81
April	5210.1	2687.1	.54	.69	.48	.27	.06	.49
May	8255.7	3594.3	.95	1.06	.56	.12	.09	.77
June	3824.7	4205.8	1.60	.96	.10	.40	.82	.57
July	1152.7	2103.0	1.56	.99	.82	.37	.02	.70
August	289.6	1881.3	1.82	.27	5.50	.85	.00	.26
September	229.3	1630.4	.91	.50	6.11	.45	.00	.47
Parameter Group #2								
1-day minimum	72.6	152.9	1.16	1.07	1.11	.08	.02	.85
3-day minimum	73.2	205.5	1.28	1.15	1.81	.10	.00	.87
7-day minimum	75.8	348.3	1.43	.70	3.59	.51	.00	.29
30-day minimum	81.6	601.2	1.53	.70	6.37	.55	.00	.29
90-day minimum	132.4	719.7	.87	.83	4.44	.05	.00	.93
1-day maximum	13862.5	6968.5	1.50	1.82	.50	.22	.24	.65
3-day maximum	11903.4	6391.8	1.58	1.59	.46	.00	.19	1.00
7-day maximum	10973.0	5935.3	1.37	1.37	.46	.00	.11	1.00
30-day maximum	9298.4	4852.2	.99	.93	.48	.06	.08	.93
90-day maximum	5666.5	3681.4	1.16	.91	.35	.21	.09	.75
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.2	1.03	1.53	2.65	.48	.00	.39
Parameter Group #3								
Date of minimum	291.5	17.5	.10	.21	.50	1.04	.02	.05
Date of maximum	134.5	144.0	.12	.05	.05	.60	.10	.36
Parameter Group #4								
Low pulse count	5.0	1.5	.60	1.50	.70	1.50	.12	.02
Low pulse duration	10.3	1.0	1.55	2.25	.90	.45	.29	.52
High pulse count	4.0	5.5	.75	1.27	.38	.70	.13	.13
High pulse duration	25.5	15.3	.91	1.54	.40	.68	.21	.22

The low pulse threshold is 201.64
The high pulse level is 2644.22

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
Parameter Group #5	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Rise rate	240.1	257.4	2.06	.48	.07	.77	.83	.17
Fall rate	-173.0	-246.6	-1.57	-.34	.42	.78	.21	.09
Number of reversals	123.5	190.5	.23	.10	.54	.57	.00	.07

Table CAWG 6 Appendix L-17e. Redinger Lake Inflows Complete Period of Record (unimpaired = 1983-2002; historical = 1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Input Data File (missing data = 999999, unimpaired = 1963-1982, existing = 1987-2002).

1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1987	1993	1994	1996	1997	1998	1999	2000	2001	2002
1785.7	1338.7	250.6	158.9	405.7	89.0	67.9	420.5	97.5	81.8	53.7	159.8	619.8	642.3	152.2	327.8	391.5	235.4	79.4	34.4	1217.2	410.5	2487.2	1696.8	1116.6	1186.8	2147.0	995.1	514.9	1002.9
1543.2	1239.2	240.9	150.8	325.5	83.6	68.9	344.0	91.6	87.1	53.7	150.8	475.5	316.6	194.1	201.0	298.3	176.0	80.7	34.4	1197.3	341.5	1577.3	1846.8	1076.4	1206.9	2237.0	915.2	1619.2	1226.9
1333.8	1057.9	239.7	141.2	353.1	80.7	74.5	283.0	87.5	85.3	54.4	150.1	476.8	294.3	194.1	162.3	281.4	152.2	78.4	34.0	1457.4	458.5	1357.3	1750.7	1146.4	1386.9	1357.0	748.2	1798.0	1167.0
1170.1	944.8	234.5	136.5	281.7	78.7	65.1	251.5	86.9	70.4	54.7	141.6	659.1	290.1	177.6	157.2	268.1	161.2	73.8	33.7	1337.3	440.5	1477.3	1707.4	1326.4	1326.9	1347.0	1087.2	1658.0	953.9
1056.2	837.2	223.9	130.3	284.9	77.2	65.1	221.1	80.3	59.5	54.7	142.2	1079.9	438.9	160.5	149.2	263.9	143.3	73.3	33.7	1057.3	435.6	1897.2	1667.6	1166.5	1206.9	2116.9	1067.2	1528.0	1166.9
969.9	763.8	220.5	182.2	266.5	73.0	67.9	202.4	82.9	57.4	51.1	144.0	926.2	385.7	152.2	141.5	285.2	121.2	71.3	34.0	1297.3	385.4	1647.5	1597.6	1306.5	1136.8	2066.9	531.3	1098.1	1096.9
900.1	731.7	210.3	402.7	258.5	75.9	60.7	186.7	78.3	63.8	51.1	146.0	885.5	269.9	152.2	142.1	217.2	157.9	70.8	34.0	1547.2	426.4	1617.7	1687.6	1426.5	1396.8	2116.9	763.3	848.1	1016.9
864.6	696.4	201.4	329.4	270.9	70.9	66.2	167.8	76.4	59.3	51.1	147.0	882.7	264.0	143.3	136.3	194.9	138.1	69.8	34.7	1597.2	440.4	1726.9	1597.6	1256.5	1636.9	2136.8	1737.2	1118.1	934.8
789.2	650.4	195.8	327.8	240.2	72.5	68.4	156.0	77.3	58.6	50.4	138.1	943.3	255.5	134.3	136.3	253.9	123.9	80.8	35.4	1547.2	472.4	1916.8	1577.6	1236.4	1626.9	2166.9	1487.2	1468.4	961.6
745.9	616.4	209.3	286.5	263.9	74.7	72.4	145.7	75.7	56.8	57.0	137.4	908.2	260.4	120.2	156.4	282.9	127.5	141.4	34.7	1507.2	528.4	1886.8	1667.6	1226.5	1487.1	1866.9	1327.3	1158.4	799.9
712.1	567.1	275.4	290.3	224.6	74.1	69.7	138.1	73.7	55.2	51.4	186.2	838.8	257.0	119.5	187.1	550.7	126.8	145.4	35.0	1497.2	660.4	2236.9	1617.6	1086.5	1417.0	1676.9	1167.3	828.2	702.9
683.8	533.9	298.6	279.8	234.2	71.4	71.9	130.7	71.9	53.9	52.4	197.3	738.5	557.6	110.4	176.7	281.4	118.2	143.6	35.4	1747.2	641.4	1457.0	1807.6	934.5	1557.0	2166.9	985.3	1088.2	603.9
662.0	508.6	283.4	250.0	226.9	76.3	67.9	125.9	71.2	57.0	49.7	180.4	647.1	307.1	113.2	182.1	173.5	109.3	138.9	35.0	1447.2	664.4	1436.9	1757.6	843.5	1536.9	1075.0	864.3	1458.1	536.9
637.7	482.9	250.0	220.9	225.5	71.8	66.4	121.3	71.4	57.0	49.7	169.0	572.2	205.8	108.3	205.4	212.9	95.6	140.2	34.2	1757.1	785.4	1446.9	1757.6	1026.5	1756.9	368.0	778.2	992.1	377.9
623.4	482.6	228.2	205.4	215.8	71.5	69.6	119.6	69.1	54.2	49.7	174.5	524.1	196.6	107.6	168.4	216.3	142.2	138.9	33.1	1637.1	776.4	1556.9	1407.6	893.3	1786.9	371.0	783.1	1088.1	553.9
602.7	466.4	256.3	197.3	217.1	69.3	73.6	117.8	67.9	52.2	56.6	204.7	455.4	196.4	103.2	157.2	212.8	112.6	132.5	32.6	1677.3	755.4	1477.1	1457.6	782.3	1586.9	373.0	702.7	1548.1	436.9
593.1	464.0	330.3	190.8	207.8	73.8	74.1	115.0	70.8	50.6	66.5	225.3	410.1	188.0	96.4	145.3	197.3	102.1	130.1	32.1	1197.9	543.4	1327.0	1587.6	667.5	1546.9	373.0	989.8	1268.1	489.9
567.8	445.4	350.5	186.4	186.3	59.1	118.1	112.2	71.0	49.3	61.5	221.9	383.3	184.7	96.9	133.5	197.0	100.6	127.4	32.1	1050.4	517.4	1746.8	1537.6	752.5	1596.9	373.0	656.8	1548.1	445.9
558.0	426.9	404.2	178.2	179.8	63.6	66.3	109.4	75.8	48.4	58.3	203.3	360.0	173.8	84.9	122.9	196.0	93.3	126.0	65.9	1020.7	630.5	1626.9	1667.6	692.5	1616.9	370.0	994.8	1588.1	412.9
551.6	410.3	374.8	169.7	182.9	66.1	75.0	111.8	75.5	50.4	57.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
545.1	356.7	334.0	208.8	181.0	63.1	78.6	141.4	75.0	48.8	79.6	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
787.4	406.1	316.7	241.6	186.2	85.7	79.0	425.3	76.3	48.8	87.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1113.5	382.8	302.2	320.2	188.1	115.1	72.4	281.3	77.3	48.8	79.7	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1631.9	382.5	317.7	419.3	192.8	101.9	77.1	756.9	76.2	49.5	70.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5470.4	382.2	323.1	408.9	183.1	97.4	78.1	655.4	76.8	52.4	67.1	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
15980.9	339.0	320.1	360.2	188.0	91.5	77.5	487.3	73.3	423.9	66.4	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4450.7	321.9	295.6	322.4	185.7	90.8	76.1	456.0	70.2	244.1	68.3	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3234.1	310.1	275.8	285.6	189.5	290.6	81.8	383.4	69.8	207.6	71.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2789.4	323.5	273.4	262.2	169.8	433.5	79.8	331.9	68.8	153.9	170.0	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
10889.5	537.5	266.8	245.3	157.8	265.6	73.6	296.2	67.3	157.3	721.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table CAWG 6 Appendix L-18a. Redinger Lake Inflows Equal Period of Record (1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Annual Summary Statistics for Unimpaired and Existing Flows.

IHA Annual Summary Statistics
Inflows to Redinger Lake 1987-2003 Equal Period of Record Data

Year	October	November	December	January	February	March	April	May	June	July	August	September
1967	227.36	141.32	109.10	125.72	184.08	559.33	4163.87	4080.23	1721.52	489.64	255.21	97.60
1973	95.23	171.61	161.87	518.19	520.25	1762.12	5766.13	18570.45	11763.23	4277.47	1099.71	309.66
1974	159.34	108.35	136.07	150.63	209.62	878.22	3092.71	4793.89	2400.21	463.91	134.49	140.05
1976	254.25	133.81	358.64	495.87	1999.32	2199.87	7104.10	13454.44	5520.46	2246.99	658.32	235.23
1977	134.06	987.48	1559.33	7712.70	1241.34	3569.03	7098.34	9616.13	4125.48	1577.83	535.21	259.97
1978	170.41	145.03	215.74	251.84	358.68	929.74	2916.50	7411.14	22605.07	11008.01	2021.83	706.01
1979	253.70	291.54	390.77	419.89	992.18	1100.30	3115.05	9066.69	4939.09	1242.88	320.51	261.30
1980	116.93	106.01	74.93	214.61	623.02	1263.41	6385.20	11103.22	4914.83	1062.64	346.57	148.62
1981	124.31	147.11	117.01	333.10	337.08	1386.40	3457.61	9949.08	1642.02	541.38	123.57	49.34
1982	45.01	191.30	402.92	392.96	623.04	1168.60	5664.54	6712.96	3440.89	673.63	127.94	60.77
1987	1276.03	821.84	628.47	596.69	877.31	1259.42	1871.32	2224.65	1606.17	1609.31	1479.68	1055.31
1993	509.19	262.68	421.25	1619.46	2194.50	2968.78	3862.34	7238.61	7652.59	4929.27	2010.55	1974.55
1994	1607.39	967.99	956.06	713.13	790.55	1304.46	1697.87	1968.37	1930.83	1681.43	1552.54	957.32
1996	1637.00	1159.99	1171.00	1388.84	2321.63	3844.63	3982.53	6353.97	5728.00	3218.33	2209.60	1804.45
1997	938.50	1135.19	2593.69	7019.85	2258.54	3713.78	3923.34	6374.48	5218.58	2306.64	2071.04	2015.20
1998	1398.44	991.39	1008.00	1375.35	2498.15	3090.01	3072.15	3864.96	10739.69	6781.58	2865.87	2564.08
1999	1009.43	1449.70	1873.51	1114.69	1559.52	1768.65	2229.83	3094.24	3919.45	2021.07	2106.36	1819.54
2000	1109.40	608.45	806.76	522.52	953.89	2676.50	3155.80	4757.56	4492.14	2185.65	1713.49	1275.83
2001	1167.18	967.67	702.93	526.49	417.88	1248.39	2074.04	3323.57	2225.19	1169.02	1641.52	1213.50
2002	625.27	435.91	625.87	1277.63	1316.78	1297.90	2302.00	2637.33	2781.82	1465.20	1752.60	1457.02

Year	1-day min	3-day min	7-day min	30-day min	90-day min	1-day max	3-day max	7-day max	30-day max	90-day max	Zero days	Base flow	Date min	Date max	Lo pulse #	Lo pulse L	Hi pulse #	Hi pulse L	Rise rate	Fall rate	Reversals
1967	69.00	66.55	59.21	62.02	117.81	7864.40	6799.33	6422.28	5510.46	3358.83	.00	.06	268.00	137.00	7.00	20.86	3.00	17.00	133.36	-110.31	146.00
1973	49.68	49.68	51.46	85.60	135.04	25611.79	24738.81	22996.64	18626.35	12592.16	.00	.01	287.00	139.00	4.00	10.25	5.00	25.40	458.59	-302.44	107.00
1974	41.37	41.87	43.02	49.71	129.72	7870.91	7814.38	6888.74	4886.84	3483.15	.00	.04	255.00	133.00	5.00	32.00	2.00	30.00	174.89	-124.88	102.00
1976	78.40	87.53	95.24	113.22	217.32	61753.31	33562.36	23019.53	15167.89	8835.63	.00	.03	338.00	137.00	5.00	10.00	5.00	23.60	749.57	-398.95	132.00
1977	84.91	92.76	98.25	130.77	177.29	85918.56	47053.14	26060.44	11034.56	7361.61	.00	.03	293.00	2.00	6.00	5.83	5.00	25.80	947.79	-572.94	118.00
1978	93.17	95.52	97.88	122.16	175.48	32321.98	29772.52	29283.44	22998.91	13899.97	.00	.02	311.00	167.00	6.00	8.67	2.00	58.00	448.17	-348.96	134.00
1979	136.03	147.19	168.70	120.92	101.29	12705.02	11672.36	10971.67	9416.13	5877.16	.00	.09	262.00	133.00	2.00	3.00	1.00	78.00	214.42	-164.63	140.00
1980	52.89	53.44	55.12	64.37	84.82	18910.48	16615.96	15029.44	11280.76	7562.53	.00	.03	9.00	129.00	3.00	44.67	1.00	93.00	298.54	-216.39	130.00
1981	36.00	34.90	34.30	36.06	55.77	15019.89	14785.31	13921.96	10587.60	5394.14	.00	.02	273.00	132.00	8.00	14.75	4.00	14.25	243.93	-150.62	129.00
1982	32.15	32.31	33.53	40.54	204.64	9090.12	8754.70	7931.41	6963.24	5360.79	.00	.02	291.00	105.00	3.00	24.67	1.00	84.00	172.06	-119.11	110.00
1987	310.90	442.63	460.10	529.46	403.30	2737.50	2684.20	2640.36	2364.29	1914.42	.00	.36	19.00	137.00	.00	.00	3.00	4.00	95.81	-110.06	202.00
1993	125.70	167.03	228.99	260.98	396.77	10320.00	10008.67	9532.87	7991.56	6802.84	.00	.08	333.00	140.00	1.00	1.00	5.00	32.20	243.32	-234.42	158.00
1994	248.60	358.30	451.50	672.90	816.85	2997.20	2963.90	2615.81	2085.04	1905.73	.00	.33	22.00	121.00	.00	.00	3.00	2.33	142.50	-160.16	219.00
1996	129.10	759.50	1031.79	953.10	1229.26	24170.00	14520.67	10878.86	7267.73	5409.32	.00	.36	49.00	137.00	1.00	1.00	2.00	78.00	316.09	-258.93	172.00
1997	350.00	366.00	372.86	771.37	1142.58	32197.20	23505.70	13166.64	7054.71	5206.67	.00	.11	45.00	3.00	.00	.00	5.00	36.60	417.74	-355.11	190.00
1998	27.70	90.03	502.46	906.94	1070.81	13437.00	13207.33	12930.14	11093.73	7161.77	.00	.15	311.00	174.00	1.00	2.00	9.00	22.56	273.03	-286.79	188.00
1999	131.70	206.00	310.03	790.21	860.87	5763.60	5286.93	4732.99	4139.14	3204.27	.00	.16	16.00	150.00	1.00	1.00	18.00	4.89	285.43	-261.46	192.00
2000	5.50	70.67	107.33	436.97	622.58	8173.40	7496.73	7137.69	5565.33	4158.82	.00	.05	8.00	149.00	3.00	3.67	9.00	13.44	288.45	-261.31	189.00
2001	189.50	202.50	214.11	405.82	518.57	3819.20	3729.77	3576.89	3396.71	2636.30	.00	.15	36.00	148.00	.00	.00	2.00	20.00	181.70	-196.27	204.00
2002	174.00	205.10	323.71	387.56	533.11	3566.20	3533.53	3490.34	3127.82	2581.50	.00	.22	316.00	152.00	.00	.00	7.00	6.14	194.91	-191.88	191.00

Table CAWG 6 Appendix L-18b. Redinger Lake Inflows Equal Period of Record (1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Percentile Data.

IHA Percentile Data
Inflows to Redinger Lake 1987-2003 Equal Period of Record Data
Pre-impact period: 1967-1982 (10 years) Post-impact period: 1987-2002 (10 years)

	Pre-Impact						Post-Impact					
	10%	25%	50%	75%	90%	(75-25)/50	10%	25%	50%	75%	90%	(75-25)/50
Parameter Group #1												
October	50.03	111.51	146.70	233.95	254.19	.83	520.80	860.20	1138.29	1450.68	1634.04	.52
November	106.24	127.44	146.07	216.36	917.88	.61	280.01	565.31	967.83	1141.39	1420.73	.60
December	78.35	115.03	188.80	393.81	1443.69	1.48	441.71	627.82	881.41	1346.63	2521.67	.82
January	128.22	198.62	363.03	501.45	6993.24	.83	522.91	579.14	1196.16	1446.49	6479.81	.73
February	186.64	305.22	571.63	1054.47	1923.52	1.31	455.14	855.62	1438.15	2274.31	2480.49	.99
March	591.22	916.86	1216.01	1871.55	3432.12	.79	1249.49	1288.28	2222.57	3245.95	3831.54	.88
April	2934.12	3109.46	4914.21	6563.49	7103.52	.70	1715.21	2023.36	2687.08	3877.59	3976.61	.69
May	4151.60	6233.20	9341.41	11691.03	18058.85	.58	1994.00	2534.16	3594.26	6359.10	7152.20	1.06
June	1649.97	2230.54	4520.16	7081.15	21520.89	1.07	1638.63	2151.60	4205.79	6209.15	10430.98	.96
July	466.49	528.44	1152.76	2754.61	10334.95	1.93	1198.64	1573.28	2103.36	3646.06	6596.35	.99
August	124.01	132.85	333.54	768.66	1929.62	1.91	1486.97	1619.27	1881.58	2132.17	2800.25	.27
September	50.49	88.39	191.92	273.39	666.38	.96	967.12	1173.95	1630.74	1984.71	2509.19	.50
Parameter Group #2												
1-day minimum	32.53	40.03	60.95	86.97	131.74	.77	7.72	101.20	152.85	264.17	346.09	1.07
3-day minimum	32.57	40.13	59.99	93.45	142.02	.89	72.60	147.78	205.55	385.16	727.81	1.15
7-day minimum	33.61	40.84	57.16	97.97	161.65	1.00	118.01	225.27	348.29	470.69	978.85	.70
30-day minimum	36.51	47.42	74.98	121.23	129.91	.98	273.64	401.25	601.18	819.39	948.48	.70
90-day minimum	58.67	97.17	132.38	184.13	216.05	.66	397.42	489.75	719.72	1088.75	1220.59	.83
1-day maximum	7865.05	8785.32	16965.19	39679.81	83502.03	1.82	2763.47	3423.95	6968.50	16120.25	31394.48	1.82
3-day maximum	6900.84	8519.62	15700.63	30719.98	45704.06	1.41	2712.17	3391.13	6391.83	13535.67	22607.19	1.59
7-day maximum	6468.92	7670.74	14475.70	23779.75	28961.14	1.11	2618.27	3277.85	5935.34	11391.68	13142.99	1.37
30-day maximum	4949.20	6600.05	10811.08	16032.50	22561.65	.87	2112.96	2936.94	4852.24	7448.69	10783.51	.93
90-day maximum	3371.26	4891.38	6619.38	9774.76	13769.19	.74	1906.60	2414.73	3681.54	5757.70	7125.88	.91
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.01	.02	.03	.05	.09	.83	.06	.10	.15	.34	.36	1.53
Parameter Group #3												
Date of minimum	255.70	266.50	289.00	317.75	5.30	.14	311.50	328.75	17.50	38.25	48.60	.21
Date of maximum	12.30	123.00	133.00	137.50	164.20	.04	14.80	133.00	144.00	150.50	171.80	.05
Parameter Group #4												
Low pulse count	2.10	3.00	5.00	6.25	7.90	.65	.00	.00	.50	1.00	2.80	2.00
Low pulse duration	3.28	7.96	12.50	26.50	43.40	1.48	.00	.00	.50	1.25	3.50	2.50
High pulse count	1.00	1.00	2.50	5.00	5.00	1.60	2.00	2.75	5.00	9.00	17.10	1.25
High pulse duration	14.52	21.95	27.90	79.50	92.10	2.06	2.50	4.67	16.72	33.30	73.86	1.71
Parameter Group #5												
Rise rate	137.23	174.18	271.23	531.33	927.97	1.32	100.48	171.90	258.17	295.36	407.58	.48
Fall rate	-555.54	-361.45	-190.51	-123.44	-111.19	-1.25	-348.28	-267.79	-246.68	-183.95	-115.07	-.34
Number of reversals	102.50	109.25	129.50	135.50	145.40	.20	159.40	184.00	190.50	202.50	217.50	.10

Table CAWG 6 Appendix L-18c. Redinger Lake Inflows Equal Period of Record (1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Non-Parametric RVA Scorecard.

IHA Non-Parametric RVA Scorecard

Inflows to Redinger Lake 1987-2003 Equal Period of Record Data

	Pre-impact period: 1967-1982				Post-impact period: 1987-2002				RVA Categories		Hydrologic Alteration
			Range Limits				Range Limits				
	Medians	Coeff. of Variance	Low	High	Medians	Coeff. of Variance	Low	High	Low	High	(Middle Category)
Parameter Group #1											
October	146.7	.83	45.0	254.2	1138.3	.52	509.2	1637.0	111.51	233.95	-1.00
November	146.1	.61	106.0	987.5	967.8	.60	262.7	1449.7	127.44	216.36	-1.00
December	188.8	1.48	74.9	1559.3	881.4	.82	421.2	2593.7	115.03	393.81	-1.00
January	363.0	.83	125.7	7712.7	1196.2	.73	522.5	7019.8	198.62	501.45	-1.00
February	571.6	1.31	184.1	1999.3	1438.2	.99	417.9	2498.1	305.22	1054.47	-.33
March	1216.0	.79	559.3	3569.0	2222.6	.88	1248.4	3844.6	916.86	1871.55	-.17
April	4914.2	.70	2916.5	7104.1	2687.1	.69	1697.9	3982.5	3109.46	6563.49	-.33
May	9341.4	.58	4080.2	18570.5	3594.3	1.06	1968.4	7238.6	6233.20	11691.03	-.50
June	4520.2	1.07	1642.0	22605.1	4205.8	.96	1606.2	10739.7	2230.54	7081.15	-.17
July	1152.8	1.93	463.9	11008.0	2103.4	.99	1169.0	6781.6	528.44	2754.61	.17
August	333.5	1.91	123.6	2021.8	1881.6	.27	1479.7	2865.9	132.85	768.66	-1.00
September	191.9	.96	49.3	706.0	1630.7	.50	957.3	2564.1	88.39	273.39	-1.00
Parameter Group #2											
1-day minimum	60.9	.77	32.1	136.0	152.9	1.07	5.5	350.0	40.03	86.97	-1.00
3-day minimum	60.0	.89	32.3	147.2	205.5	1.15	70.7	759.5	40.13	93.45	-.67
7-day minimum	57.2	1.00	33.5	168.7	348.3	.70	107.3	1031.8	40.84	97.97	-1.00
30-day minimum	75.0	.98	36.1	130.8	601.2	.70	261.0	953.1	47.42	121.23	-1.00
90-day minimum	132.4	.66	55.8	217.3	719.7	.83	396.8	1229.3	97.17	184.13	-1.00
1-day maximum	16965.2	1.82	7864.4	85918.6	6968.5	1.82	2737.5	32197.2	8785.32	39679.81	-.33
3-day maximum	15700.6	1.41	6799.3	47053.1	6391.8	1.59	2684.2	23505.7	8519.62	30719.98	-.33
7-day maximum	14475.7	1.11	6422.3	29283.4	5935.3	1.37	2615.8	13166.6	7670.74	23779.75	-.33
30-day maximum	10811.1	.87	4886.8	22998.9	4852.2	.93	2085.0	11093.7	6600.05	16032.50	-.33
90-day maximum	6619.4	.74	3358.8	13900.0	3681.5	.91	1905.7	7161.8	4891.38	9774.76	-.33
Number of zero days	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00	.00
Base flow	.03	.83	.01	.09	.15	1.53	.05	.36	.02	.05	-1.00
Parameter Group #3											
Date of minimum	289.0	.14	9.0	338.0	17.5	.21	8.0	333.0	260.25	297.50	-1.00
Date of maximum	133.0	.04	2.0	167.0	144.0	.05	3.0	174.0	123.00	137.50	-.67
Parameter Group #4											
Low pulse count	5.0	.65	2.0	8.0	.5	2.00	.0	3.0	3.00	6.25	-.86
Low pulse duration	12.5	1.48	3.0	44.7	.5	2.50	.0	3.7	7.96	26.50	-1.00
High pulse count	2.5	1.60	1.0	5.0	5.0	1.25	2.0	18.0	1.00	5.00	-.40
High pulse duration	27.9	2.06	14.3	93.0	16.7	1.71	2.3	78.0	21.95	79.50	-.33

The low pulse threshold is 169.73
The high pulse level is 2549.43

Parameter Group #5											
Rise rate	271.2	1.32	133.4	947.8	258.2	.48	95.8	417.7	174.18	531.33	.33
Fall rate	-190.5	-1.25	-572.9	-110.3	-246.7	-.34	-355.1	-110.1	-361.45	-123.44	.50
Number of reversals	129.5	.20	102.0	146.0	190.5	.10	158.0	219.0	109.25	135.50	-1.00

Assessment of Hydrologic Alteration

	Middle RVA Category			High RVA Category			Low RVA Category		
	Expected	Observed	Alter.	Expected	Observed	Alter.	Expected	Observed	Alter.
Parameter Group #1									
October	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
November	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
December	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
January	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
February	6.00	4.00	-.33	2.00	6.00	2.00	2.00	.00	-1.00
March	6.00	5.00	-.17	2.00	5.00	1.50	2.00	.00	-1.00
April	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
May	6.00	3.00	-.50	2.00	.00	-1.00	2.00	7.00	2.50
June	6.00	5.00	-.17	2.00	2.00	.00	2.00	3.00	.50
July	6.00	7.00	.17	2.00	3.00	.50	2.00	.00	-1.00
August	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
September	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
Parameter Group #2									
1-day minimum	6.00	.00	-1.00	2.00	8.00	3.00	2.00	2.00	.00
3-day minimum	6.00	2.00	-.67	2.00	8.00	3.00	2.00	.00	-1.00
7-day minimum	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
30-day minimum	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
90-day minimum	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
1-day maximum	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
3-day maximum	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
7-day maximum	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
30-day maximum	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
90-day maximum	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
Number of zero days	10.00	10.00	.00	.00	.00	.00	.00	.00	.00
Base flow	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00
Parameter Group #3									
Date of minimum	6.00	.00	-1.00	2.00	3.00	.50	2.00	7.00	2.50
Date of maximum	6.00	2.00	-.67	2.00	6.00	2.00	2.00	2.00	.00
Parameter Group #4									
Low pulse count	7.00	1.00	-.86	2.00	.00	-1.00	1.00	9.00	8.00
Low pulse duration	6.00	.00	-1.00	2.00	.00	-1.00	2.00	10.00	4.00
High pulse count	10.00	6.00	-.40	.00	4.00	.00	.00	.00	.00
High pulse duration	6.00	4.00	-.33	2.00	.00	-1.00	2.00	6.00	2.00
Parameter Group #5									
Rise rate	6.00	8.00	.33	2.00	.00	-1.00	2.00	2.00	.00
Fall rate	6.00	9.00	.50	2.00	1.00	-.50	2.00	.00	-1.00
Number of reversals	6.00	.00	-1.00	2.00	10.00	4.00	2.00	.00	-1.00

3 Messages:

Parameter Low pulse count : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 5 yearly values are equal to the upper RVA limit. Use caution in interpreting expected and observed compliance rates.
Parameter High pulse count : 3 yearly values are equal to the lower RVA limit. Use caution in interpreting expected and observed compliance rates.

Table CAWG 6 Appendix L-18d. Redinger Lake Inflows Equal Period of Record (unimpaired = 1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) Non-Parametric IHA Scorecard (999999 = value cannot be calculated).

Non-Parametric IHA Scorecard

Inflows to Redinger Lake 1987-2003 Equal Period of Record Data

Pre-impact period: 1967-1982 (10 years)   Post-impact period: 1987-2002 (10 years)

	Pre	Post
Watershed area	1.00	
Mean annual flow	2112.16	2154.37
Mean flow/area	2112.16	2154.37
Annual C. V.	.78	.57
Flow predictability	.48	.59
Constancy/predictability	.26	.64

WARNING: Some of the Colwell Parameters are based on < 20 years of data

	Pre	Post
% of floods in 60d period	.68	.68
flood-free season	97.00	71.00

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #1								
October	146.7	1138.3	.83	.52	6.76	.38	.00	.73
November	146.1	967.8	.61	.60	5.63	.02	.01	.99
December	188.8	881.4	1.48	.82	3.67	.45	.01	.39
January	363.0	1196.2	.83	.73	2.29	.13	.02	.80
February	571.6	1438.2	1.31	.99	1.52	.25	.04	.52
March	1216.0	2222.6	.79	.88	.83	.12	.06	.83
April	4914.2	2687.1	.70	.69	.45	.02	.01	.97
May	9341.4	3594.3	.58	1.06	.62	.82	.09	.09
June	4520.2	4205.8	1.07	.96	.07	.10	.84	.89
July	1152.8	2103.4	1.93	.99	.82	.49	.05	.56
August	333.5	1881.6	1.91	.27	4.64	.86	.00	.14
September	191.9	1630.7	.96	.50	7.50	.48	.00	.64
Parameter Group #2								
1-day minimum	60.9	152.9	.77	1.07	1.51	.38	.01	.43
3-day minimum	60.0	205.5	.89	1.15	2.43	.30	.00	.63
7-day minimum	57.2	348.3	1.00	.70	5.09	.30	.00	.66
30-day minimum	75.0	601.2	.98	.70	7.02	.29	.00	.80
90-day minimum	132.4	719.7	.66	.83	4.44	.27	.00	.71
1-day maximum	16965.2	6968.5	1.82	1.82	.59	.00	.25	1.00
3-day maximum	15700.6	6391.8	1.41	1.59	.59	.12	.23	.82
7-day maximum	14475.7	5935.3	1.11	1.37	.59	.23	.20	.72
30-day maximum	10811.1	4852.2	.87	.93	.55	.07	.14	.90
90-day maximum	6619.4	3681.5	.74	.91	.44	.23	.12	.62
Number of zero days	.0	.0	.00	.00	999999.00	999999.00	.00	.00
Base flow	.0	.2	.83	1.53	4.55	.84	.00	.15
Parameter Group #3								
Date of minimum	289.0	17.5	.14	.21	.52	.47	.00	.14
Date of maximum	133.0	144.0	.04	.05	.06	.21	.04	.84
Parameter Group #4								
Low pulse count	5.0	.5	.65	2.00	.90	2.08	.21	.06
Low pulse duration	12.5	.5	1.48	2.50	.96	.69	.23	.53
High pulse count	2.5	5.0	1.60	1.25	1.00	.22	.00	.65
High pulse duration	27.9	16.7	2.06	1.71	.40	.17	.21	.87

The low pulse threshold is 169.73
The high pulse level is 2549.43

	MEDIANS		COEFF. of DISP.		DEVIATION FACTOR		SIGNIFICANCE COUNT	
	Pre	Post	Pre	Post	Medians	C.V.	Medians	C.V.
Parameter Group #5								
Rise rate	271.2	258.2	1.32	.48	.05	.64	.75	.31
Fall rate	-190.5	-246.7	-1.25	-.34	.29	.73	.28	.06
Number of reversals	129.5	190.5	.20	.10	.47	.52	.00	.14

Table CAWG 6 Appendix L-18e. Redinger Lake Inflows Equal Period of Record (1987, 1993, 1994, 1996, 1997, 1998, 1999, 2000, 2001, 2002) IHA Input Data File (missing data = 999999, unimpaired = 1967-1982, existing = 1987-2002).

1967	1973	1974	1976	1977	1978	1979	1980	1981	1982	1987	1993	1994	1996	1997	1998	1999	2000	2001	2002
405.7	53.7	159.8	642.3	152.2	327.8	391.5	235.4	79.4	34.4	1217.2	410.5	2487.2	1696.8	1116.6	1186.8	2147.0	995.1	514.9	1002.9
325.5	53.7	150.8	316.6	194.1	201.0	298.3	176.0	80.7	34.4	1197.3	341.5	1577.3	1846.8	1076.4	1206.9	2237.0	915.2	1619.2	1226.9
353.1	54.4	150.1	294.3	194.1	162.3	281.4	152.2	78.4	34.0	1457.4	458.5	1357.3	1750.7	1146.4	1386.9	1357.0	748.2	1798.0	1167.0
281.7	54.7	141.6	290.1	177.6	157.2	268.1	161.2	73.8	33.7	1337.3	440.5	1477.3	1707.4	1326.4	1326.9	1347.0	1087.2	1658.0	953.9
284.9	54.7	142.2	438.9	160.5	149.2	263.9	143.3	73.3	33.7	1057.3	435.6	1897.2	1667.6	1166.5	1206.9	2116.9	1067.2	1528.0	1166.9
266.5	51.1	144.0	385.7	152.2	141.5	285.2	121.2	71.3	34.0	1297.3	385.4	1647.5	1597.6	1306.5	1136.8	2066.9	531.3	1098.1	1096.9
258.5	51.1	146.0	269.9	152.2	142.1	217.2	157.9	70.8	34.0	1547.2	426.4	1617.7	1687.6	1426.5	1396.8	2116.9	763.3	848.1	1016.9
270.9	51.1	147.0	264.0	143.3	136.3	194.9	138.1	69.8	34.7	1597.2	440.4	1726.9	1597.6	1256.5	1636.9	2136.8	1737.2	1118.1	934.8
240.2	50.4	138.1	255.5	134.3	136.3	253.9	123.9	80.8	35.4	1547.2	472.4	1916.8	1577.6	1236.4	1626.9	2166.9	1487.2	1468.4	961.6
263.9	57.0	137.4	260.4	120.2	156.4	282.9	127.5	141.4	34.7	1507.2	528.4	1886.8	1667.6	1226.5	1487.1	1866.9	1327.3	1158.4	799.9
224.6	51.4	186.2	257.0	119.5	187.1	550.7	126.8	145.4	35.0	1497.2	660.4	2236.9	1617.6	1086.5	1417.0	1676.9	1167.3	828.2	702.9
234.2	52.4	199.3	557.6	110.4	176.7	281.4	118.2	143.6	35.4	1747.2	641.4	1457.0	1807.6	934.5	1557.0	2166.9	985.3	1088.2	603.9
226.9	49.7	180.4	307.1	113.2	182.1	173.5	109.3	138.9	35.0	1447.2	664.4	1436.9	1757.6	843.5	1536.9	1075.0	864.3	1458.1	536.9
225.5	49.7	169.0	205.8	108.3	205.4	212.9	95.6	140.2	34.2	1757.1	785.4	1446.9	1757.6	1026.5	1756.9	368.0	778.2	992.1	377.9
215.8	49.7	174.5	198.6	107.6	168.4	216.3	142.2	138.9	33.1	1637.1	776.4	1556.9	1407.6	893.3	1786.9	371.0	783.1	1088.1	553.9
217.1	56.6	204.7	198.4	103.2	157.2	212.8	112.6	132.5	32.6	1677.3	755.4	1477.1	1457.6	782.3	1586.9	373.0	702.7	1548.1	436.9
207.8	66.5	225.3	188.0	96.4	145.3	197.3	102.1	130.1	32.1	1199.9	543.4	1327.0	1587.6	667.5	1546.9	373.0	989.8	1268.1	489.9
186.3	61.5	221.9	184.7	96.9	133.5	199.0	100.6	127.4	32.1	1050.4	517.4	1746.8	1537.6	752.5	1596.9	373.0	656.8	1548.1	445.9
179.8	58.3	203.3	173.8	84.9	122.9	196.0	93.3	126.0	65.9	1020.7	630.5	1626.9	1667.6	692.5	1616.9	370.0	994.8	1588.1	412.9
182.9	57.5	196.5	177.4	98.0	287.7	186.8	92.1	116.4	42.7	987.7	553.5	1517.0	1627.6	737.5	1616.9	339.5	1176.8	1528.1	427.9
181.0	79.6	181.4	173.0	100.6	283.5	192.9	91.6	119.3	41.8	1027.6	663.5	1607.0	1677.6	682.5	1546.9	363.0	1767.0	1138.2	315.9
186.2	87.8	169.7	165.3	109.7	148.1	190.9	79.8	111.1	41.9	1017.7	579.3	1757.0	1557.6	672.5	1456.9	366.0	1446.8	1318.2	327.9
188.1	79.7	157.3	148.2	128.8	279.4	188.0	80.0	122.8	42.1	1017.6	508.3	1357.0	1627.6	747.5	1306.9	338.5	1566.8	1028.1	427.9
192.8	70.8	147.0	195.1	113.7	233.7	212.4	96.0	118.7	40.3	1067.6	398.3	1317.0	1617.6	888.6	1346.9	337.5	1726.9	1228.0	496.9
183.1	67.1	146.0	196.2	177.6	122.7	247.2	103.3	114.3	41.3	1017.5	359.3	1497.1	1637.6	702.5	1216.9	336.0	1876.9	1017.9	424.9
188.0	66.4	136.0	282.4	130.6	131.6	288.7	78.0	136.9	37.8	1137.4	454.3	1587.0	1637.6	692.4	1436.9	334.5	1326.9	851.9	432.9
185.7	68.3	126.1	169.7	133.5	123.7	268.9	77.1	155.5	38.9	1037.4	437.3	1407.1	1637.6	777.5	1166.9	337.5	903.9	852.0	273.0
189.5	71.5	116.8	159.8	131.8	115.1	251.2	93.0	161.4	41.5	1057.4	412.3	1467.1	1637.6	893.3	1176.9	337.5	576.9	797.2	316.0
169.8	170.0	116.8	153.9	128.6	129.8	282.4	108.2	238.9	42.1	1037.4	454.6	1557.1	1697.6	688.1	929.8	299.5	1196.9	766.7	363.0
157.8	721.8	116.5	186.2	148.8	126.8	306.0	95.9	209.7	127.1	1147.4	438.3	1257.1	1707.6	889.4	891.8	187.7	1197.0	534.7	476.2
174.6	384.4	107.9	185.9	232.7	112.1	272.0	92.8	205.6	179.1	1207.4	211.6	1597.1	1287.6	758.0	1256.8	1009.1	1047.0	905.4	212.1
161.1	346.7	107.9	179.0	236.1	107.5	268.4	93.1	184.0	125.0	1167.4	227.4	1447.1	1377.6	692.9	1126.8	1187.2	1516.8	1058.2	552.0
140.6	306.2	105.4	145.9	197.5	105.0	224.0	83.9	183.7	96.4	1197.3	336.4	1107.1	1647.5	712.9	1126.8	1727.8	843.6	958.9	496.0
140.9	293.0	101.3	171.1	158.4	98.2	233.7	81.1	167.2	81.7	1177.3	323.5	1247.1	1277.6	772.8	1646.7	1688.0	525.6	1057.7	390.0
143.8	276.6	100.8	171.1	159.1	96.4	216.0	79.0	141.7	72.3	1027.3	314.5	1237.1	1277.6	833.8	1296.7	1737.9	611.6	1007.4	472.0
132.0	268.7	101.6	172.5	145.2	97.0	201.6	78.7	151.3	68.5	940.3	269.5	1017.1	1167.6	788.8	195.7	1448.0	460.8	1057.4	409.0
147.3	233.9	98.0	236.4	149.6	93.2	182.7	76.3	144.2	67.4	834.3	268.5	889.1	1187.6	762.8	27.7	1278.0	418.8	1087.4	208.0
139.0	251.5	91.4	151.9	151.0	103.6	216.5	73.5	131.8	63.1	839.3	263.5	1027.1	1177.2	767.8	46.7	1288.0	687.8	1087.4	191.0
128.3	234.1	89.0	156.1	165.0	100.9	264.1	112.4	120.7	53.5	799.3	234.5	864.1	1166.9	858.7	722.7	1308.1	682.9	1097.4	499.0
130.8	175.6	83.1	154.4	177.7	96.0	243.3	115.1	136.7	45.4	809.4	260.4	1247.1	1126.9	702.4	717.7	1248.0	566.7	1087.5	422.0
143.7	160.8	84.6	150.0	178.2	117.5	261.0	114.8	133.3	41.6	799.4	216.7	728.1	1086.9	692.3	709.8	1508.0	722.7	1007.5	363.0
153.4	160.9	91.3	139.5	173.3	123.3	281.2	112.9	139.1	56.8	773.4	280.7	889.2	1006.9	924.3	1096.9	1398.0	616.7	534.6	174.0
137.4	160.5	98.1	141.0	178.7	134.3	298.4	110.9	158.7	71.9	793.4	322.7	859.2	1116.9	687.3	1066.8	1467.9	596.7	588.4	495.3
151.2	159.4	107.1	146.8	170.7	137.5	328.2	103.5	158.4	91.8	834.4	319.7	889.1	1086.9	1056.3	997.9	1637.9	561.7	722.3	241.2
151.8	150.9	102.1	136.6	158.3	136.5	341.9	107.2	160.4	97.9	768.4	170.7	909.1	1046.9	1056.3	1116.8	1367.8	384.7	931.3	434.1
146.0	152.0	108.0	126.5	151.4	126.2	337.9	110.9	157.0	99.3	844.4	217.3	819.1	1096.9	1016.4	1076.8	1627.8	631.7	671.3	470.1
150.1	147.0	124.3	123.1	131.2	115.6	324.8	109.1	172.1	96.8	792.9	279.7	829.1	1056.9	1004.4	1046.8	1887.8	682.7	878.3	642.2
164.3	141.0	120.2	116.9	636.7	134.5	321.7	147.9	178.3	82.8	818.5	300.7	935.1	1216.9	1498.0	1126.7	1017.9	596.9	809.3	678.0
177.3	121.0	123.6	114.7	1618.3	126.5	261.4	120.8	203.7	70.8	808.7	320.7	869.1	1106.9	1016.9	1186.7	1176.9	465.7	531.2	563.0
161.4	116.0	112.8	112.2	900.4	153.3	254.9	122.9	181.7	65.4	823.7	286.7	884.1	1136.9	1186.4	1116.8	1376.0	481.7	621.2	622.0
159.1	105.4	105.9	107.8	776.5	161.7	252.8	145.1	166.3	68.9	828.7	284.7	834.1	1206.2	1335.6	1106.7	2085.8	798.9	804.3	564.0
155.1	139.3	110.3	113.4	2923.9	147.5	259.7	129.8	143.6	76.8	823.7	201.7	879.1	1235.6	1516.2	1176.7	1466.0	530.8	839.3	200.0
142.8	149.4	131.9	107.0	8539.6	143.2	270.8	97.8	137.7	313.3	687.7	266.7	763.1	1145.6	1107.5	1206.7	1286.0	601.5	1077.3	211.2
142.7	121.9	114.4	113.1	2674.6	147.8	293.9	114.1	135.7	220.4	782.6	310.7	864.1	1155.6	1586.0	944.7	2316.0	741.6	1427.3	204.1
141.7	125.0	104.9	109.1	2030.2	136.5	326.9	110.6	120.9	1152.0	727.6	340.7	1005.1	1135.6	1305.7	1256.7	1496.0	776.6	1157.3	308.1
132.3	129.5	106.6	105.2	1554.7	138.9	311.8	113.7	122.6	663.8	687.6	262.7	960.1	1155.6	1365.6	1226.6	1276.0	478.7	1197.3	324.1
118.0	119.4	103.5	109.1	1269.1	195.3	279.8	109.1	122.3	438.5	631.7	180.7	1037.1	1115.6	1395.6	1027.2	1106.0	301.7	1067.3	477.0
117.0	127.4	109.4	90.2	1128.1	187.9	287.5	105.3	115.1	369.1	651.6	194.7	935.1	1185.6	1435.5	1096.9	974.0	321.8	1003.3	1215.9
114.0	95.5	117.0	109.5	954.7	301.9	301.1	95.5	116.8	328.8	661.6	125.7	930.1	1275.6	1745.5	1066.7	1276.0	575.7	1217.3	490.9
115.3	97.4	138.7	97.2	894.4	317.0	349.6	99.6	115.6	319.5	656.6	235.7	990.3	1015.6	2145.5	1086.7	1056.0	514.6	1057.3	428.0
101.5	81.9	157.3	107.2	1041.5	270.5	750.2	106.0	112.4	339.3	666.6	262.7	1147.4	807.6	2085.4	1096.7	1776.1	555.7	1387.3	332.0
118.0	105.6	153.9	98.2	775.8	238.4	751.4	99.3	100.8	341.5	581.6	377.7	975.2	1015.6	2155.4	512.6	1896.3	450.7	1267.3	342.0
126.8	111.4	142.2	86.0	916.3	227.4	620.7	92.8	98.6	380.6	581.7	408.7	1005.1	1255.6	1915.4	466.6	1556.1	1275.6	1237.3	337.8
139.4	90.2	147.0	78.4	863.3	152.9	517.1	94.2	101.4	413.2	682.7	432.7	1037.1	1235.6	2015.4	744.6	1396.1	928.7	1294.8	463.4
146.7	85.4	147.0	130.6	669.8	296.4	525.3	93.4	91.0	497.5	687.7	465.7	458.7	1145.6	1635.4	939.6	1546.1	761.6	738.3	483.1
129.9	81.1	131.9	118.6	1087.7	180.3	526.9	87.1	93.8	486.9	727.7	354.7	404.7	1215.6	1776.0	1036.7	1446.1	797.6	744.3	675.0
120.8	74.2	136.7	108.6	1523.4	251.0	460.7	77.2	92.3	437.3	661.7	363.8	930.0	1255.6	1525.7	1217.1	1576.1	1065.7	1547.3	700.0
106.7	74.4	128.5	125.2	1034.8	286.2	466.5	86.0	99.2	396.6	656.7	613.0	1057.1	1085.6	1835.6	1317.2	1826.0	913.7	928.3	635.0
100.0	79.8	131.9	110.7	960.3	261.3	408.4	65.6	101.9	388.1	677.7	525.9	1037.1	1105.6	1995.5	1307.1	1856.0	1235.6	755.3	418.0
117.4	121.5	135.3	108.5	1033.7	282.7	360.6	77.2	104.4	369.0	651.7	641.2	1277.1	1221.8	1905.7	1176.9	1826.0	983.6	817.3	463.0
112.9	142.1	135.3	105.9	881.5	286.7	344.8	62.5	105.8	343.0	661.7	569.0	1047.1	1013.3	2417.6	1136.8	1446.0	923.6	1047.2	388.0
120.1	165.2	123.6	201.6	1622.9	251.8	314.1	73.4	111.8	445.8	671.7	666.2	1137.2	1109.2	3244.1	1076.7	1426.0	797.7	932.2	745.9
122.9	194.1	127.1	1491.4	3250.4	236.9	314.4	76.0	102.2	427.3	343.7	389.0	824.2	1486.5	2231.9	1026.7	2046.0	822.6	796.3	729.9
120.8	202.6	130.5	649.4	2420.5	236.4	320.3	82.8	110.7	434.1	540.7	378.9	804.2	1275.9	1771.6	875.7	1886.0	842.7	600.3	755.9
112.7	239.9	130.5	662.9	1848.6	225.9	314.6	73.0	112.7	337.9	601.6	594.9	909.2	1155.7	1638.5	912.7	1636.0	681.7	444.3	662.0
101.9	247.3	130.5	608.7	1479.9	235.4	379.3	72.2	107.4	351.8	621.6	504.8	884.2	1065.6	1865.7	1000.7	1756.0	943.7	530.3	640.9
108.3	233.8	127.1	598.0	1322.7	236.4	326.8	73.9	123.0	350.3	626.7	664.9	793.2	1025.6	1985.6	932.7	1446.0	771.7	600.4	402.9
109.0	226.2	127.1	645.3	1273.2	234.8	300.3	74.7	123.0	336.7	621.7	509.9	889.2	1025.5	1655.6	1006.7	2025.8	832.6	531.4	747.0
116.2	198.4	127.1	551.3	1156.9	219.3	304.3	73.9	128.5	351.8	636.7	393.9	950.1	1065.4	2905.6	979.8	2025.7	711.7	613.4	694.0
102.1	196.0	127.1	431.2	1106.6	202.3	293.3	76.3	127.8	337.4	641.7	248.9	914.1	1135.4	2895.6	1026.8	1785.7	570.7	511.4	702.0
95.7	203.0	135.3	399.0	1099.5	211.2	228.3	78.0	145.3	329.2	677.7	301.9	884.1	1185.4	2895.5	1226.8	1935.7	660.7	703.3	691.0
92.8	189.0	135.3	364.4	1045.9	200.1	277.7	71.0	122.6	365.8	682.7	437.9	1057.1	1295.4	2975.6	1086.7	3025.7	721.7	618.3	691.0
99.2	181.9	135.3	270.9	1179.2	185.6	336.7	66.9	110.9	382.6	671.7	358.9	1087.1	1245.5	3105.6	1136.4	2995.7	1255.7	540.2	489.0
98.8	174.9	135.3	344.2	1807.6	180.2	332.0	65.3	126.1	393.6	671.7	366.9	1067.1	1115.5	2965.6	1075.8	3255.7	787.6	380.3	447.0
92.7	168.9	135.3	313.7	1508.5	168.2	382.7	63.6	126.8	392.6	677.7	277.9	1097.1	1255.5	3025.5	1015.7	2925.7	625.6	390.3	765.0
96.3	167.9	138.7	265.1	1293.4	158.3	415.5	62.8	215.8	371.9	661.7	224.7	980.1	1185.5	3015.6	1015.7	2185.6	610.6	463.3	511.0
100.2	166.9	147.0	258.2	1224.9	159.8	451.3	64.4	139.5	361.3	666.7	254.4	1057.1	1295.4	3195.7	985.7	1905.6	660.5	537.3	553.0
101.0	159.9	150.4	257.3	1252.7	165.2	413.9	69.4	109.6	354.1	671.7	253.0	940.1	1265.5	3854.2	1075.7	1705.6	605.5	430.3	779.0
92.6	159.3	150.4	268.7	1164.8	169.6	389.3	66.9	104.8	364.0	671.7	303.1	980.1	1235.6	3589.6	989.7	2035.6	832.5	468.3	841.2
94.3	152.0	142.2	293.0	1112.5	182.1	370.6	66.1	124.7	542.2	515.8	468.5	1147.1	1215.7	3722.9	1000.7	1675.6	746.5	437.3	978.3
91.3	184.4	142.2	626.1	4023.9	181.6	346.1	66.9	128.5	601.1	525.8	422.3	1107.1	1085.7	4704.5	1000.7	1155.6	580.6	438.3	757.2
94.5	240.5	130.5	546.9	6397.9	183.1	320.2	70.2	136.4	605.7	510.8	285.3	899.1	1025.7	3982.2	944.7	872.6	610.5	446.3	913.4
97.2	290.2	130.5	434.4	13806.7	185.1	300.5	65.3	134.7	653.4	515.8	280.2	920.1	973.7	6006.1	1025.7	2215.6	630.6	520.3	795.3
97.8	308.8	130.5	389.8	85918.6	199.6	283.9	63.6	137.1	523.3	520.8	400.2	925.1	1145.7	23908.3	1095.7	1185.6	595.6	459.3	700.4
104.6	319.1	142.2	407.6	35963.5	210.1	264.7	66.9	173.2	529.3	525.9	391.2	1117.1	923.6	32197.2	959.8	1785.6	585.6	532.3	584.8
106.6	317.7	145.6	376.5	19277.4	186.2	299.0	66.9	248.1	530.3	567.0	520.2	1067.1	852.4	14411.6	996.8	1645.6	580.6	411.3	766.3
99.8	283.8	215.6	343.8	12536.0	185.7	299.8	65.3	240.5	484.5	782.9	547.2	1096.7	1335.4	6300.1	1085.7	1695.6	544.5	477.3	902.2
113.2	279.3	225.9	333.4	8523.1	192.1	281.6	65.3	268.3	515.9	671.8	926.3	877.6	1365.4	4580.6	1095.7	1505.6	519.5	436.3	999.2
125.6	622.6	177.9	360.1	5972.1	192.1	274.8	69.4	201.0	510.9	671.8	1958.9	781.5	1285.3	4762.6	1025.7	1345.6	179.5	514.3	1236.2
126.2	651.0	164.1	369.0	4137.2	190.5	276.1	58.7	103.1	495.9	692.8	1716.7	807.5	1375.3	4376.1	990.7	908.6	5.5	403.3	1466.2
134.9	599.3	152.5	356.6	3380.0	196.9	265.3	52.9	113.7	479.8	651.8	1245.8	847.5	1525.3	4825.1	1175.8	867.6	99.4	554.4	1666.1
151.5	673.1	145.6	338.5	3171.6	205.8	259.5	52.9	140.2	443.0	671.8	1155.7	726.5	1475.3	4529.0	1236.0	963.6	143.3	536.5	1516.1
165.7	669.5	138.7	334.6	2914.4	227.6	252.6	54.5	156.5	457.5	671.9	1195.6	907.5	1505.4	4622.0	1195.9	1105.6	118.5	573.6	1426.1
168.7	570.2	135.3	353.5	2739.8	249.0	246.3	55.4	380.7	459.0	656.9	1475.9	756.5	1445.4	4183.0	1246.3	963.6	141.7	398.5	977.1
164.9	499.0	138.7	372.3	2531.9	243.1	229.5	57.0	356.6	465.0	666.9	1577.6	706.5	1205.4	4064.0	1106.1	1045.6	135.8	368.5	1186.1
152.7	520.3	142.2	362.3	2307.1	266.9	226.6	54.4	348.4	424.6	682.9	1909.9	706.6	1335.4	2845.6	1036.0	666.6	162.9	482.5	1576.1
131.3	507.4	145.6	333.2	2119.8	311.8	237.4	59.5	372.5	392.8	651.9	1488.2	373.6	1355.4	2055.0	1888.7	246.6	5.9	420.5	1666.1
119.3	634.7	145.6	461.0	2148.9	347.9	258.0	66.1	596.5	358.7	853.9	1578.0	736.6	1535.7	4279.0	1656.9	131.7	43.2	590.4	1666.1
111.6	660.7	133.9	835.8	2088.4	359.7	305.8	69.1	760.1	347.1	520.9	1737.4	570.6	1625.5	5034.0	1436.2	239.7	287.0	619.4	1716.1
111.0	625.1	145.6	745.6	2013.2	300.8	352.3	117.3	614.3	326.1	501.9	1657.0	716.6	1605.5	6146.0	1466.6	781.7	738.4	900.4	1916.1
111.9	595.1	149.0	680.5	1895.5	345.1	505.7	380.4	363.8	317.7	310.9	1896.8	424.6	1635.7	6106.0	1816.5	220.9	380.2	709.4	1286.0
112.9	544.8	149.0	647.9	1750.2	331.6	561.1	482.6	496.2	300.3	516.0	1846.7	509.6	1465.6	6251.0	1536.1	732.3	722.1	879.4	984.0
111.6	531.3	145.6	583.3	1869.5	315.7	561.6	396.6	605.5	324.5	501.0	1796.6	560.6	1465.5	5913.0	1406.0	383.0	1216.0	507.4	1596.0
110.2	666.1	145.6	560.1	1976.8	296.3	551.8	451.5	489.0	292.2	498.0	1907.0	248.6	1455.4	5913.0	1436.0	741.8	300.0	510.4	1626.0
110.9	633.7	140.8	505.3	2135.6	276.4	611.0	291.5	393.4	260.3	632.0	1326.3	265.7	1525.3	6096.0	1676.0	887.9	326.5	515.5	2226.0
112.3	575.4	137.4	599.2	2299.1	263.0	661.6	254.3	342.5	295.8	508.0	1936.2	575.7	1585.3	5919.0	1625.9	988.9	1739.1	591.6	1066.0
113.9	573.2	149.0	566.8	2399.6	256.6	642.3	437.1	369.4	337.2	748.0	1946.1	575.7	1525.4	6360.0	1555.9	1375.9	1247.6	610.5	846.0
121.7	569.9	149.0	599.4	2793.2	245.1	644.2	696.1	303.8	297.3	531.0	1946.1	756.7	1665.3	6363.0	1695.9	1455.7	355.3	657.5	737.0
141.9	528.3	149.0	812.5	2805.8	242.5	680.1	383.7	372.0	285.4	551.1	2046.0	802.7	1646.9	6219.0	1675.8	1535.6	515.0	514.5	813.0
152.5	451.4	145.6	599.0	2184.4	242.1	692.6	333.1	338.2	281.3	577.2	2496.0	650.7	1445.6	6203.0	1595.8	2025.8	973.9	556.5	1076.0
143.1	463.3	145.6	600.0	1993.8	238.6	679.1	317.7	269.0	278.4	597.2	3145.9	691.7	1195.5	6042.0	1673.7	2005.8	1045.8	595.5	1416.0
137.7	463.6	153.9	554.5	1797.3	251.6	659.4	490.7	303.1	259.6	531.2	3095.8	706.7	1195.4	5131.0	1606.0	1655.8	1046.0	266.5	1646.0
134.5	436.1	153.9	555.2	1643.2	251.5	652.3	577.3	334.8	254.9	516.2	3055.8	696.7	1376.0	5974.0	1615.9	1245.8	813.0	207.5	1526.0
142.2	433.1	145.6	609.5	1628.1	250.0	650.4	413.9	426.6	252.2	546.2	2465.9	756.7	1205.7	5875.0	1776.0	1175.8	206.2	218.5	1676.0
143.8	427.1	145.6	577.0	1565.6	288.3	650.9	413.1	486.4	260.5	557.2	2455.9	958.7	1005.5	5843.0	2168.4	1545.8	389.2	192.5	1546.0
140.9	424.2	145.6	520.4	1512.2	348.4	660.9	436.3	813.1	275.3	713.2	2415.9	943.7	1015.4	5813.0	2318.6	1235.8	672.2	196.5	1606.0
135.1	417.3	137.4	945.1	1437.5	377.6	666.9	387.9	955.8	333.6	582.2	2535.9	812.7	1248.3	5783.0	1877.0	1435.8	621.2	263.8	1516.0
138.7	436.2	137.4	6151.5	1504.9	437.4	613.5	377.9	842.2	356.4	562.2	2685.9	686.8	2602.5	5752.0	1906.5	1325.8	510.2	189.5	1256.0
144.2	434.5	137.4	4018.4	1480.3	438.6	598.6	355.4	495.9	371.5	597.3	2475.9	706.8	1993.5	5154.0	2058.1	1295.7	73.2	230.5	1286.0
143.2	446.5	140.8	3021.1	1452.1	390.6	683.6	344.4	329.2	383.8	516.3	2155.9	853.1	1905.7	4043.0	2167.5	1766.3	727.2	272.5	1486.0
143.7	485.9	165.5	2614.2	1280.4	431.3	909.5	333.0	356.4	415.5	434.3	2377.2	813.0	1795.3	628.0	2197.3	1826.2	697.1	357.5	1386.1
157.4	514.8	185.5	2287.8	1315.8	473.4	1153.0	327.1	241.6	479.6	508.3	2106.7	838.0	1875.5	393.0	2216.7	1797.2	329.1	468.5	1236.1
191.1	514.3	180.6	2204.8	1248.1	460.7	1261.7	319.7	203.5	567.7	521.3	2006.4	933.9	1975.4	380.0	2596.4	1546.2	611.4	514.6	1296.0
215.2	504.1	180.6	2009.4	1205.3	410.9	1356.6	311.1	202.2	634.8	582.6	2086.2	1035.9	1965.4	379.0	2654.4	1396.0	1136.2	453.6	769.0
203.7	495.1	184.1	1968.9	1159.0	365.3	1399.9	307.5	208.1	669.4	693.6	1896.1	741.9	1965.4	379.0	2750.4	1955.9	157.4	508.5	832.0
307.6	488.1	184.1	1752.2	1170.8	334.9	1372.2	397.9	269.5	616.4	1289.5	1986.1	741.9	1955.3	384.0	2694.4	1505.9	1907.5	507.6	814.0
233.3	481.6	187.5	1794.4	1163.2	321.5	1372.5	1213.2	240.3	542.6	758.3	1516.0	928.8	1935.3	350.0	2764.4	1025.8	1646.8	436.6	806.0
241.6	478.1	199.2	1833.7	1206.7	343.3	1305.7	1321.8	256.1	578.9	940.6	1836.0	462.7	1975.3	399.0	2734.4	1425.8	1057.2	748.6	1216.0
226.9	477.1	199.2	1977.3	1177.9	353.9	1299.2	1066.8	317.3	566.5	894.5	2056.0	500.7	1865.3	366.0	2755.4	1615.8	777.8	443.6	1166.0
227.5	465.6	287.0	2184.5	1210.9	352.7	1213.9	1012.8	308.6	601.8	809.5	2466.0	641.6	284.1	368.0	2647.4	1696.1	747.2	507.6	961.1
217.9	473.0	211.5	1846.7	1187.3	341.9	1110.2	1005.3	272.7	582.0	1197.5	2157.3	803.2	129.1	364.0	2593.4	1985.9	545.5	479.7	1166.0
201.4	519.3	232.1	2049.1	1122.3	325.0	1029.1	900.2	227.5	590.5	1087.5	2347.9	767.0	3253.2	389.0	2689.4	1645.9	596.4	463.7	1316.0
193.9	628.1	214.9	2350.4	1152.6	328.3	983.0	843.1	201.6	606.0	1387.5	1856.7	687.0	3522.6	443.0	2698.4	1465.9	626.6	445.8	1346.0
183.4	622.8	214.9	2272.1	1157.6	328.3	987.6	772.7	244.6	733.4	914.5	1796.4	752.0	2593.7	634.0	2848.0	1385.9	672.9	461.7	1326.0
178.7	620.4	234.9	1780.1	1114.8	325.8	965.3	704.1	209.5	829.7	602.5	1866.3	803.0	2942.4	1211.0	2720.0	2035.9	1096.6	489.7	1496.0
170.4	625.8	271.3	1980.1	1097.2	339.8	962.7	702.3	197.2	937.1	1327.5	2036.4	762.0	4052.2	935.0	2678.4	1905.9	1676.7	510.7	1296.0
161.4	677.0	307.7	1836.6	1124.8	348.5	963.3	629.9	180.1	886.8	1397.5	2536.3	772.0	3913.5	2241.0	2624.0	1905.9	1926.4	464.7	1406.0
179.7	651.7	318.0	1523.5	1101.0	377.9	926.9	608.3	233.8	927.6	1367.5	2246.2	944.1	3262.5	3720.0	2714.0	1925.9	2028.0	464.7	1565.9
168.4	630.0	333.1	1520.1	1031.6	337.5	919.0	600.0	236.0	1060.1	1457.6	2466.2	762.1	3782.4	3593.0	2716.4	1275.9	1716.4	469.7	1915.8
173.1	617.4	294.6	1508.7	958.9	312.0	891.7	668.6	259.3	1162.0	1357.6	2376.1	772.1	3762.3	3702.0	2716.4	1295.9	1863.4	474.8	1665.9
189.9	577.8	293.3	1539.3	990.7	299.0	873.4	650.8	223.6	1223.6	960.5	2236.1	954.0	3772.3	3718.0	2666.4	1265.8	989.9	464.8	1515.9
999999.0	999999.0	999999.0	1303.1	999999.0	999999.0	999999.0	642.6	999999.0	999999.0	999999.0	999999.0	999999.0	3772.3	999999.0	999999.0	999999.0	1656.8	999999.0	999999.0
200.5	590.1	360.5	1254.8	1031.3	303.4	924.1	681.2	235.4	1200.1	1037.5	1906.1	872.9	3792.4	4002.0	2706.4	1535.8	2426.6	414.8	1625.9
215.6	574.1	449.8	1253.1	988.5	302.9	973.8	673.7	208.5	1029.2	1327.5	1626.2	963.9	3802.4	3745.0	2706.4	1835.9	2376.5	499.8	1515.9
247.9	576.2	536.3	1444.4	998.1	313.8	1092.7	632.1	265.7	1015.5	1127.5	1546.2	933.9	3722.4	3566.0	2694.4	1465.9	1446.6	705.7	1475.9
326.6	608.4	534.3	1387.4	1060.9	301.9	954.1	664.4	235.1	1014.5	1187.5	1816.3	1045.9	3683.5	3779.0	2674.4	1405.9	2836.6	779.9	1105.9
937.3	629.5	506.1	1372.7	1015.6	288.8	890.2	641.2	290.5	1012.1	1588.6	1666.4	823.0	3673.3	3811.0	2666.4	1995.9	2676.7	894.9	1175.9
919.6	696.9	456.6	1461.4	1094.8	290.8	1001.9	623.7	369.2	1058.9	1608.4	1866.4	843.0	3732.8	3782.0	2716.4	1635.9	2736.6	802.7	1226.0
762.0	764.2	462.1	1453.5	1168.4	294.9	768.1	606.7	413.9	1025.2	1438.0	2386.4	912.9	3312.6	3636.0	2715.4	1495.8	2726.5	1238.0	1186.2
780.2	825.5	492.3	1437.6	1331.3	298.5	752.7	645.0	423.9	919.8	1507.8	2266.4	897.9	3552.6	3723.0	2665.4	1765.8	3086.5	1218.0	603.1
665.5	856.3	535.6	1653.0	1499.6	311.4	826.1	610.2	378.9	930.6	1437.7	2046.3	902.9	3680.6	3725.0	3014.3	2065.9	2896.4	1238.0	545.0

APPENDIX M

IHA GRAPHS

Placeholder for Appendix M

To keep file size manageable, this information is being provided as a separate file.
Please refer to the file named "02CAWG-06_Appendix_M_IHAGraphs.pdf"

APPENDIX N

20 YEAR DAILY HYDROGRAPH UNIMPAIRED VERSUS HISTORICAL – COMPARISON PLOTS

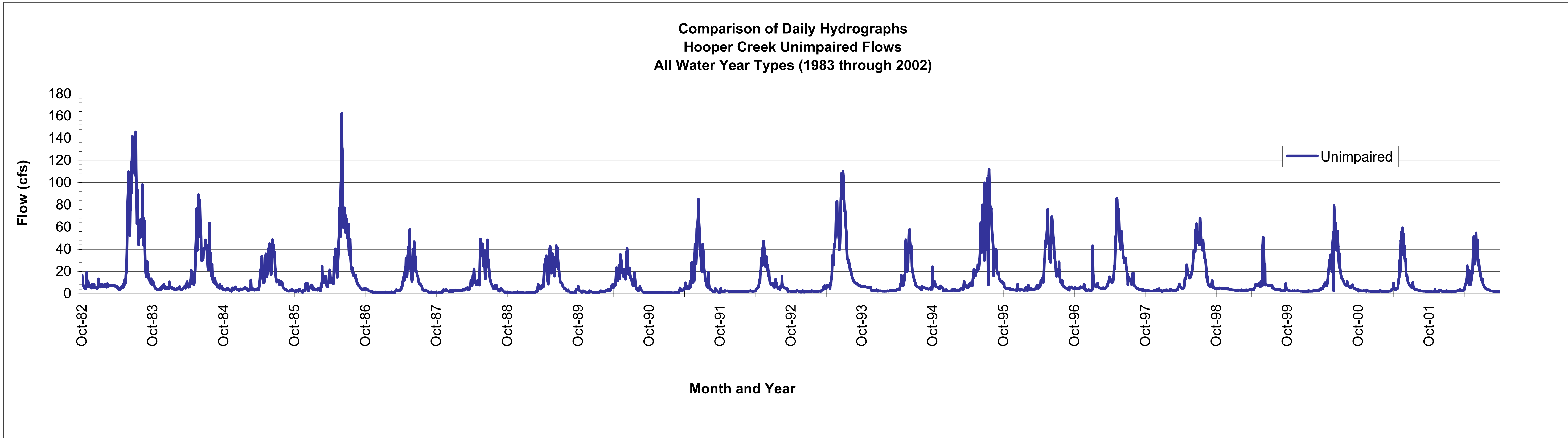
APPENDIX N

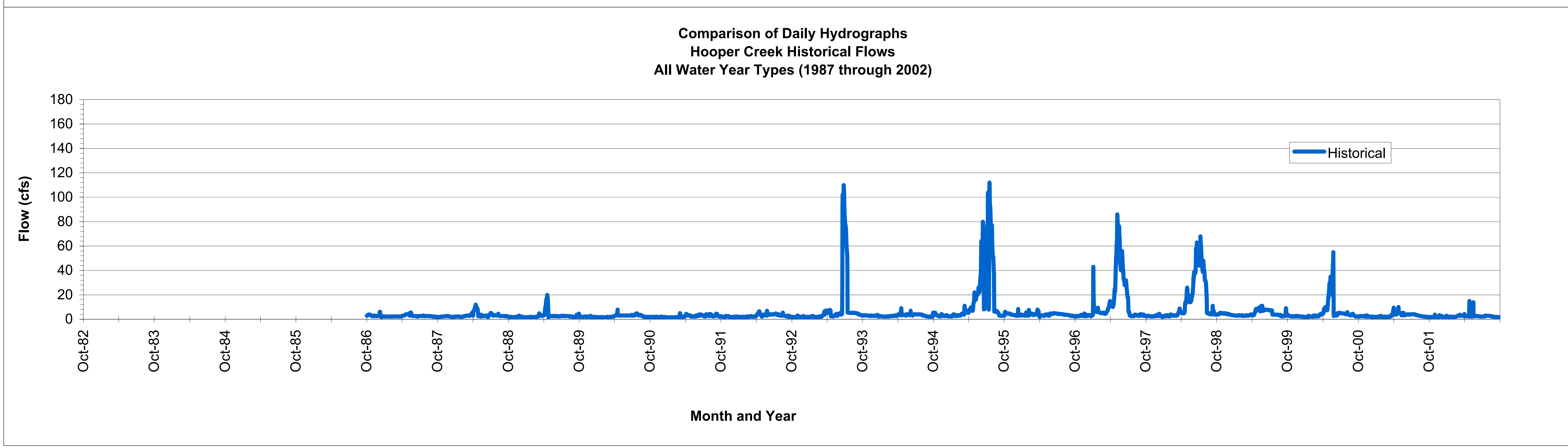
BIG CREEK

CAWG 6 HYDROLOGY

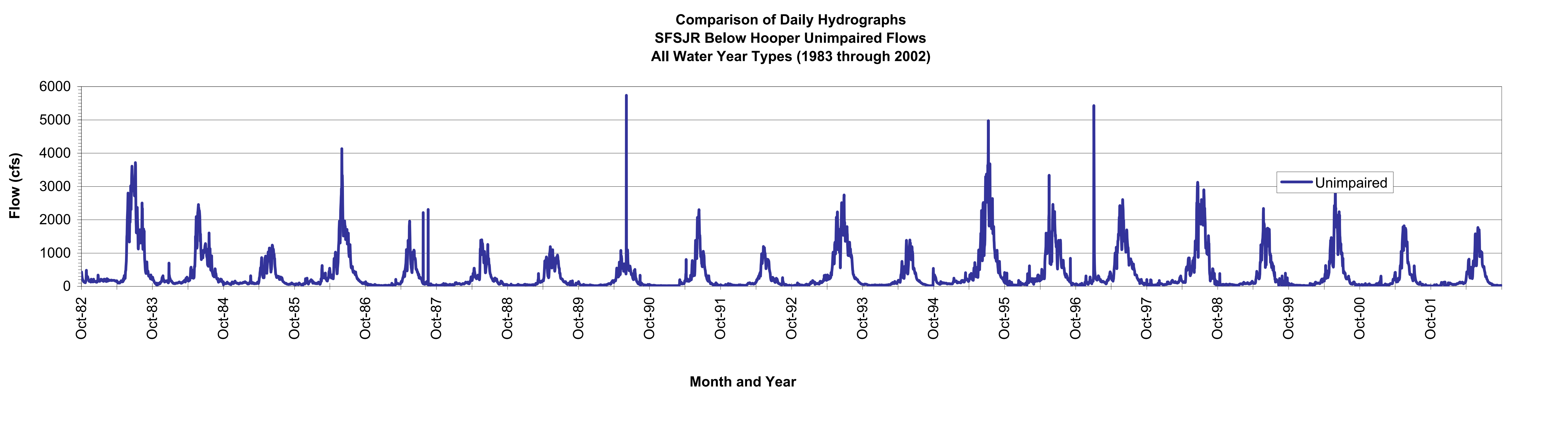
20 YEAR DAILY HYDROGRAPH UNIMPAIRED VERSUS HISTORICAL COMPARISON PLOTS

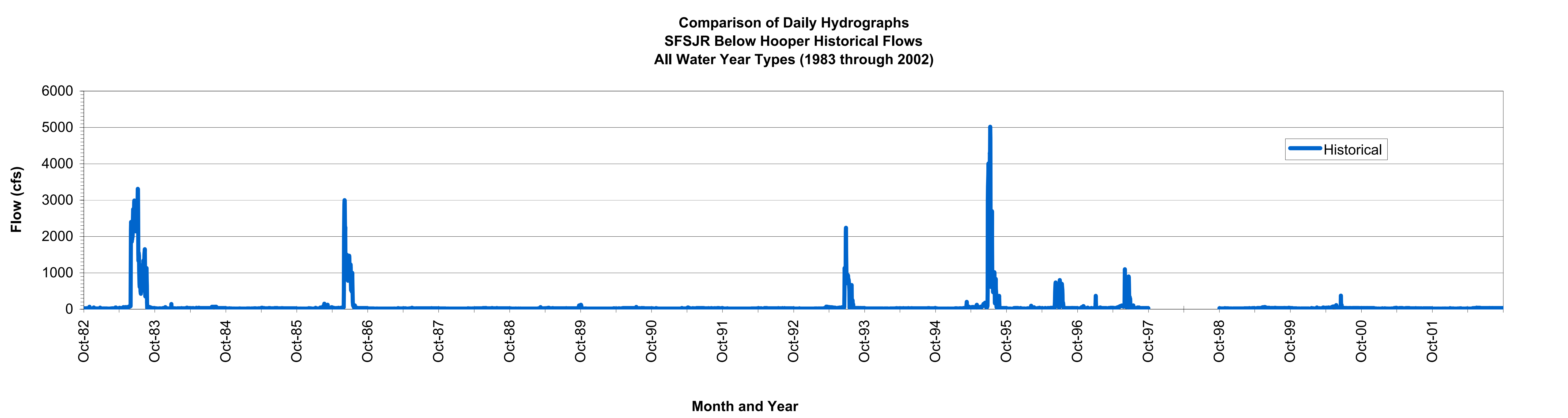
Hooper Creek below Diversion
South Fork San Joaquin River below Hooper Creek
Bear Creek below Diversion
Chinquapin Creek below Diversion
Camp 62 Creek below Diversion
Bolsillo Creek above Diversion
Bolsillo Creek below Diversion
Mono Creek below Diversion - Area Based
San Joaquin River above Shakeflat Creek
San Joaquin River above Stevenson Creek
Rock Creek
Ross Creek
North Fork Stevenson Creek near Perimeter Road
Stevenson Creek below Shaver Lake
Pitman Creek near Tamarack Mountain (below Diversion)
Balsam Creek below Balsam Meadow Forebay
Big Creek near Mouth
Redinger Lake Inflows



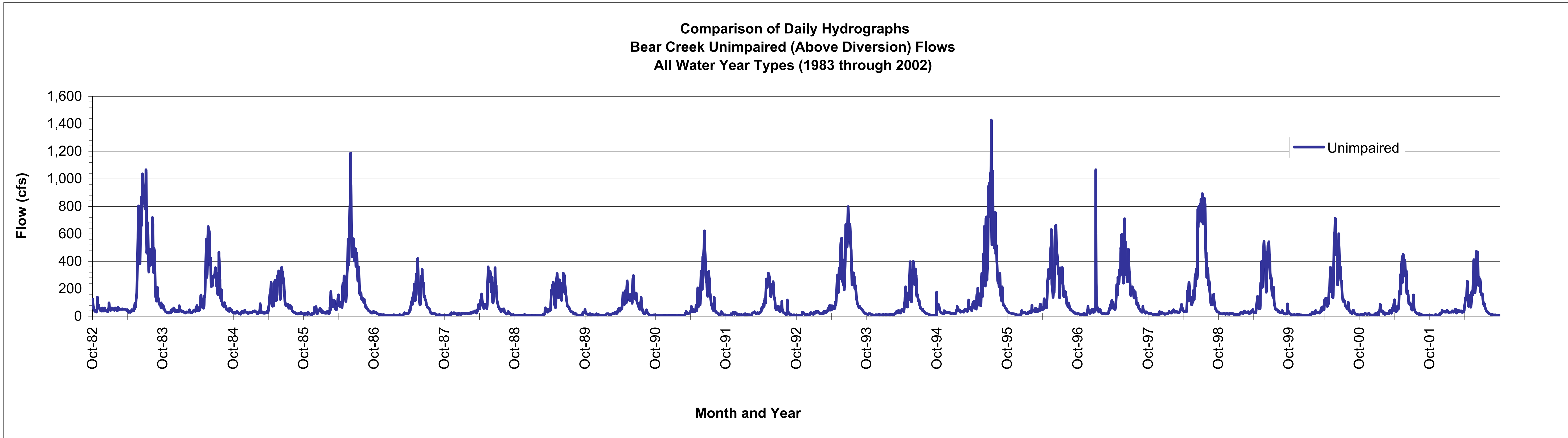


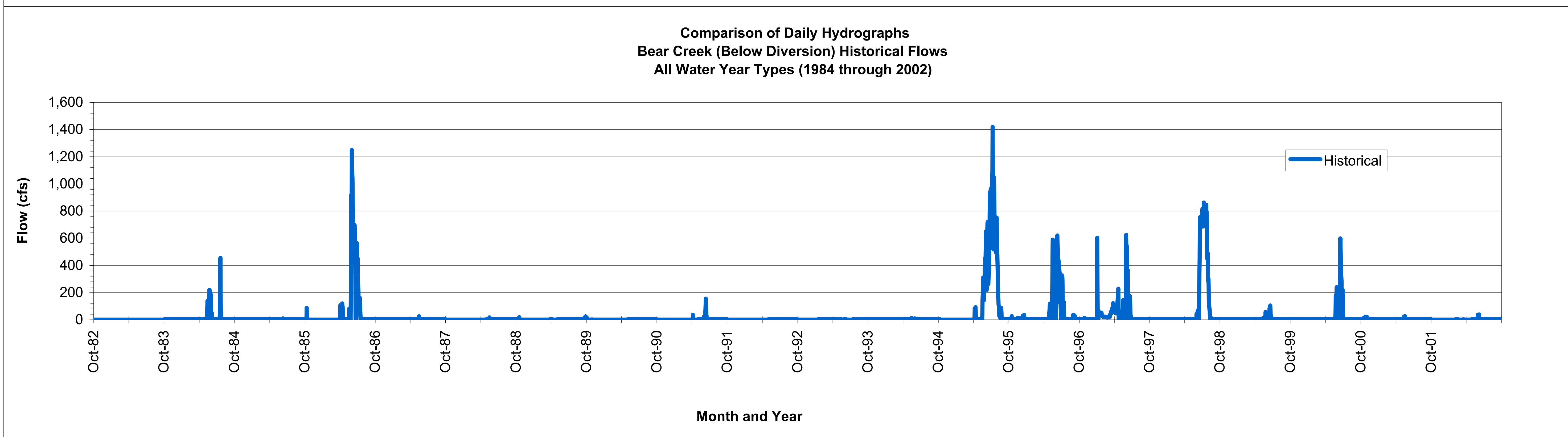
CAWG 6 Appendix N Figure N-1. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Hooper Creek.



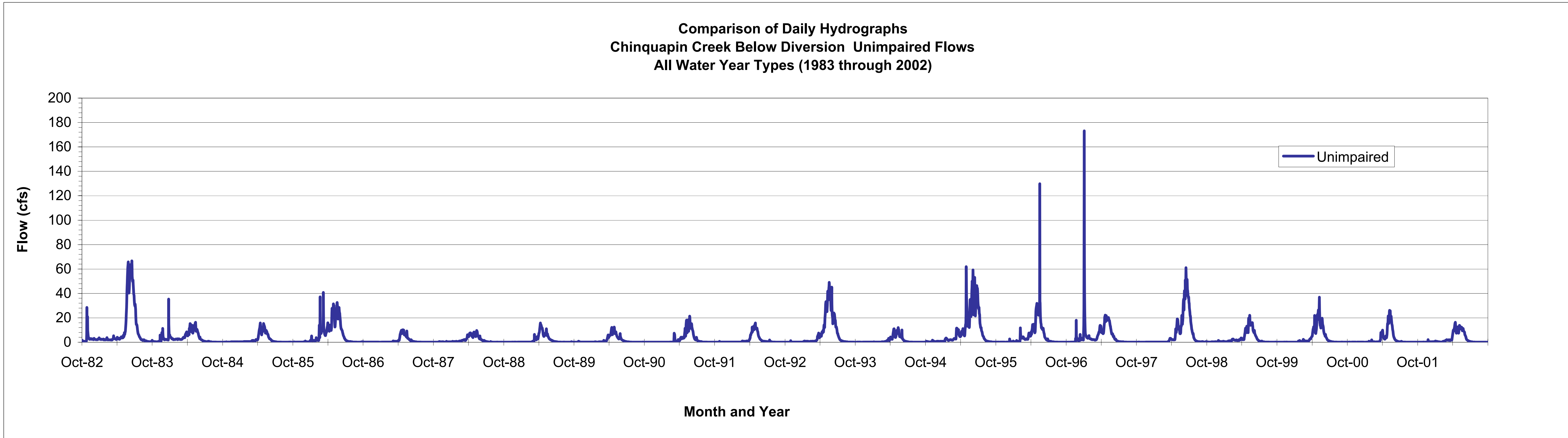


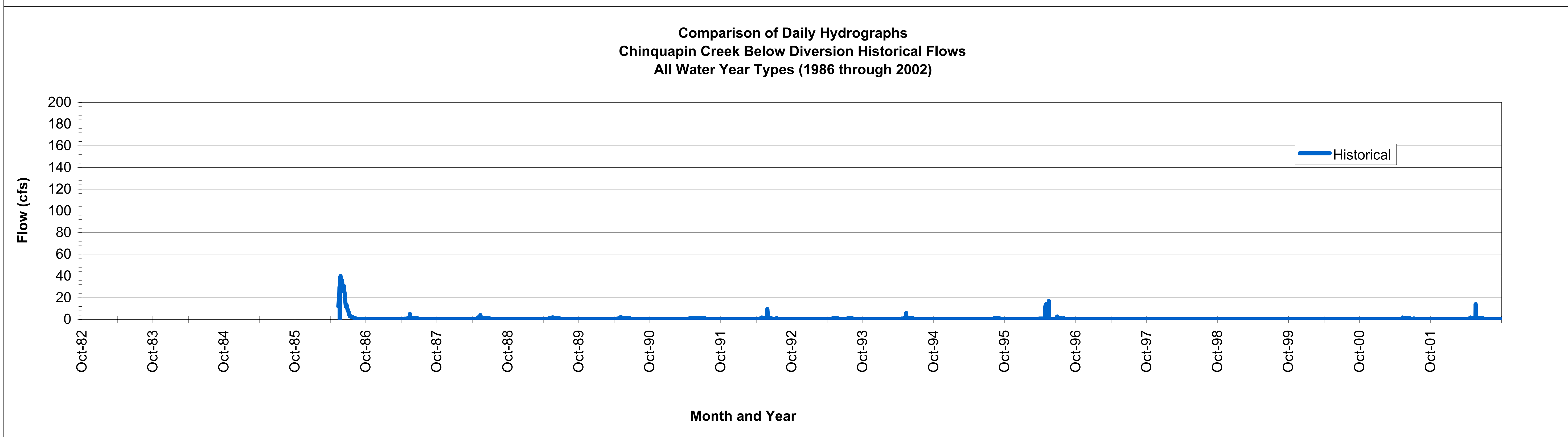
CAWG 6 Appendix N Figure N-2. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for South Fork San Joaquin River below Hooper Creek.



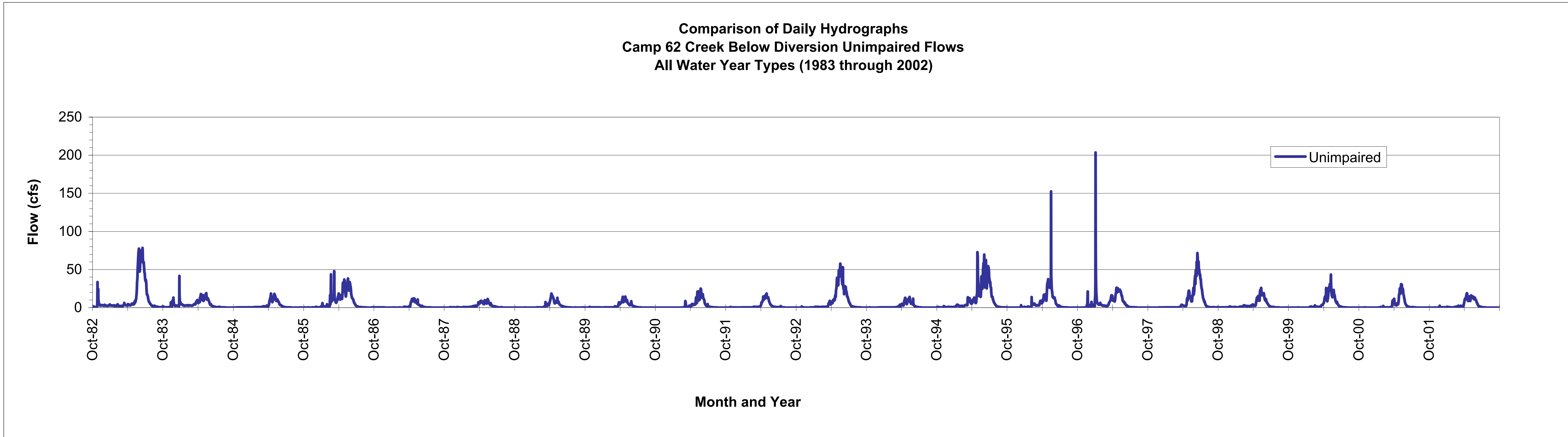


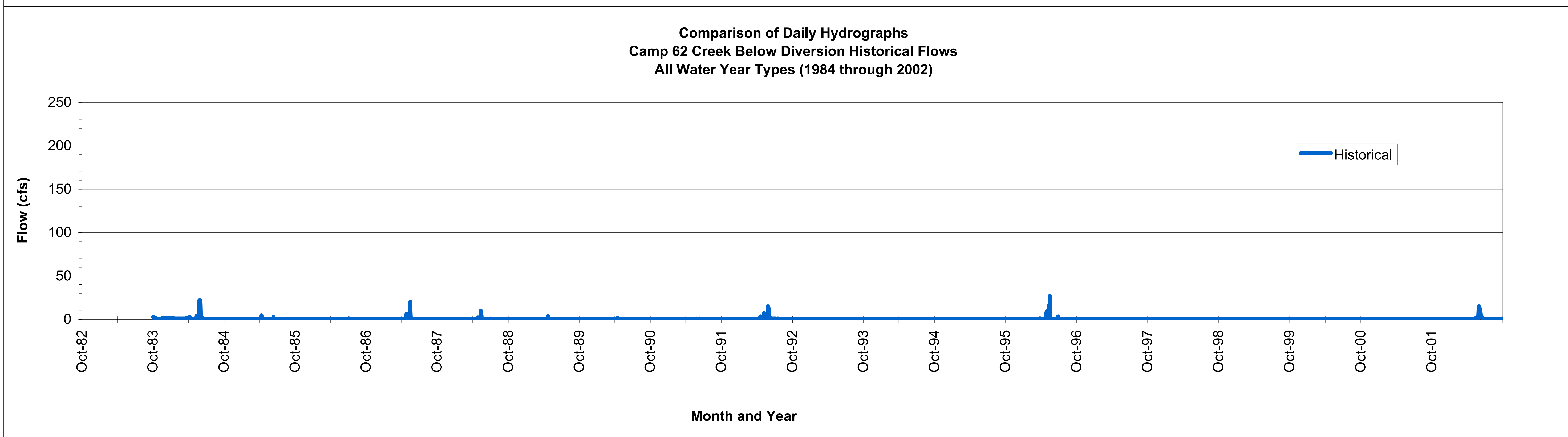
CAWG 6 Appendix N Figure N-3. 20 Year Daily Hydrograph Unimpaired (Above Diversion) Versus Historical (Below Diversion) - Comparison Plots for Bear Creek.



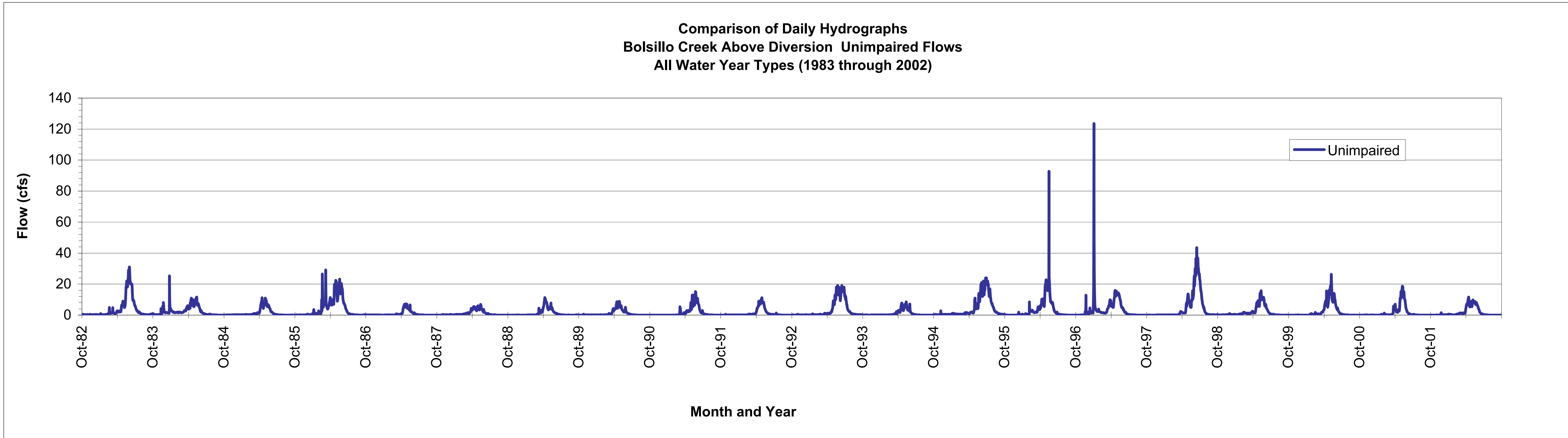


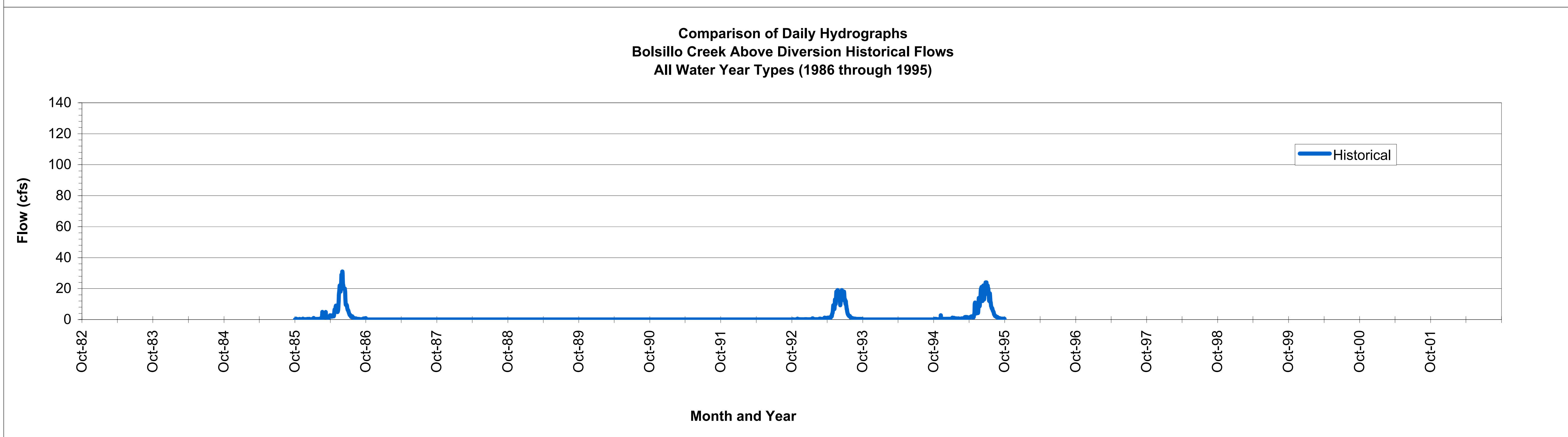
CAWG 6 Appendix N Figure N-4. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Chinquapin Creek.



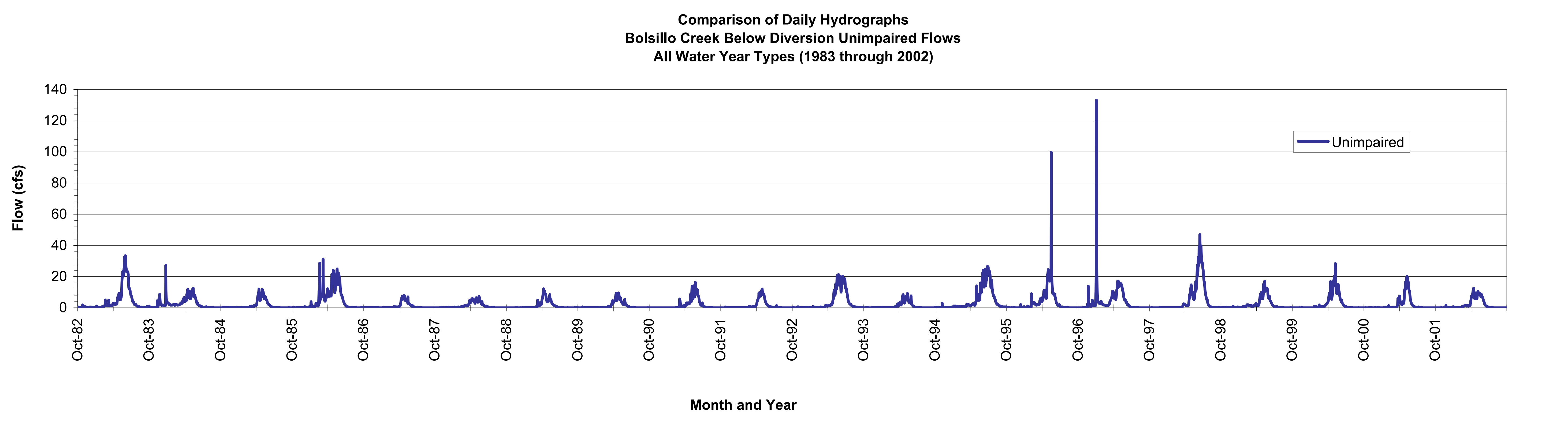


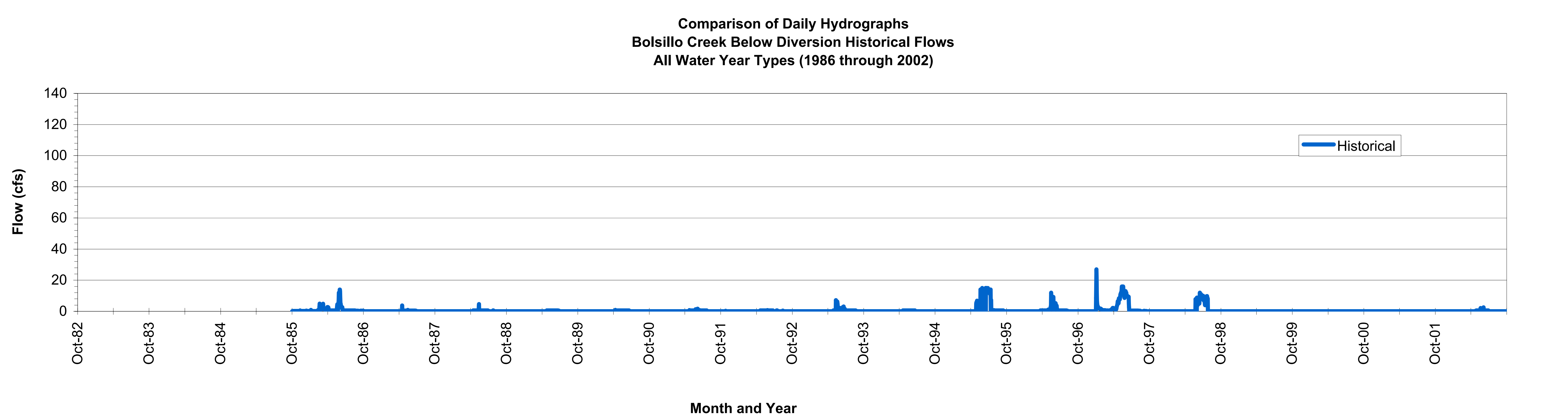
CAWG 6 Appendix N Figure N-5. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Camp 62 Creek.



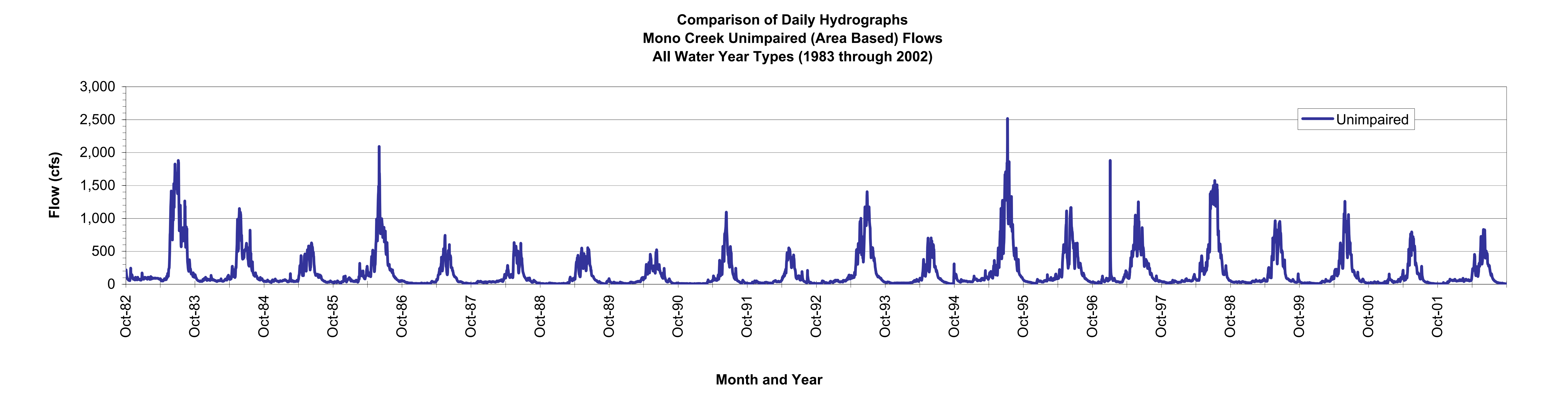


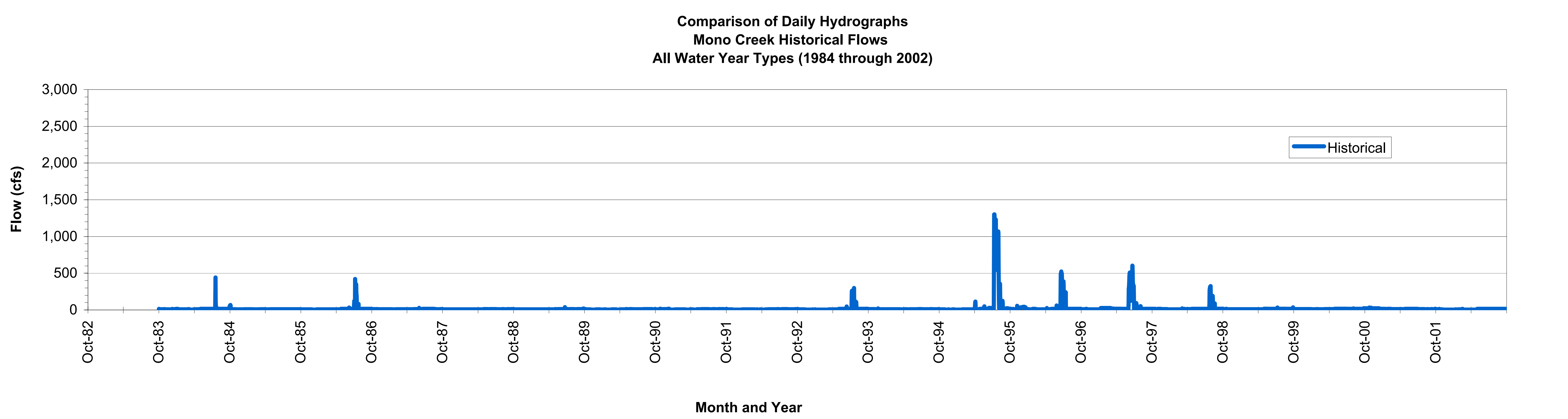
CAWG 6 Appendix N Figure N-6. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Bolsillo Creek Above Diversion.



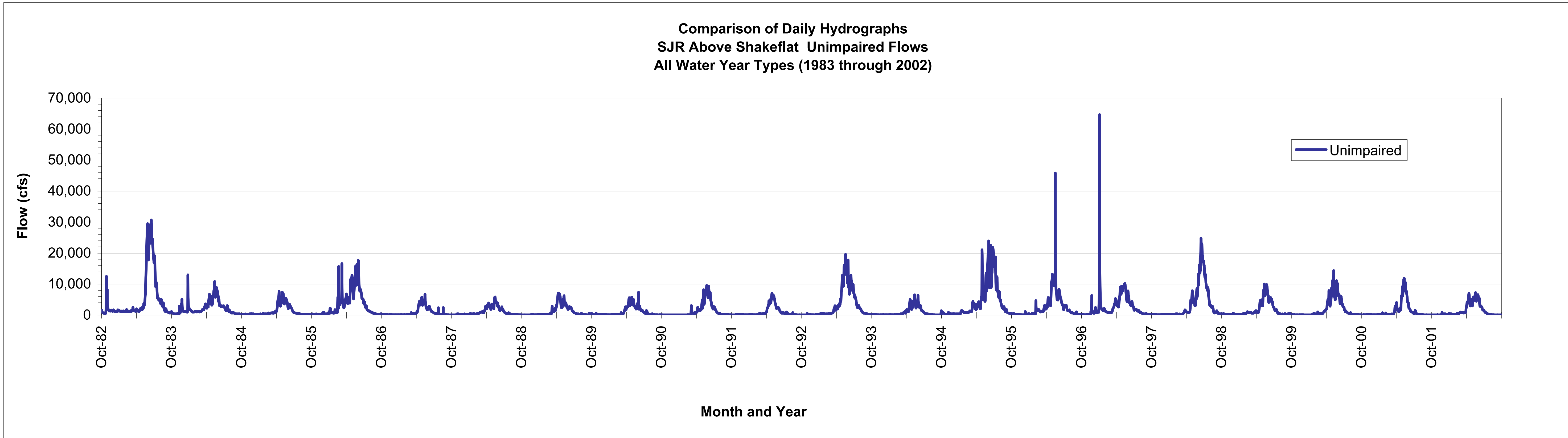


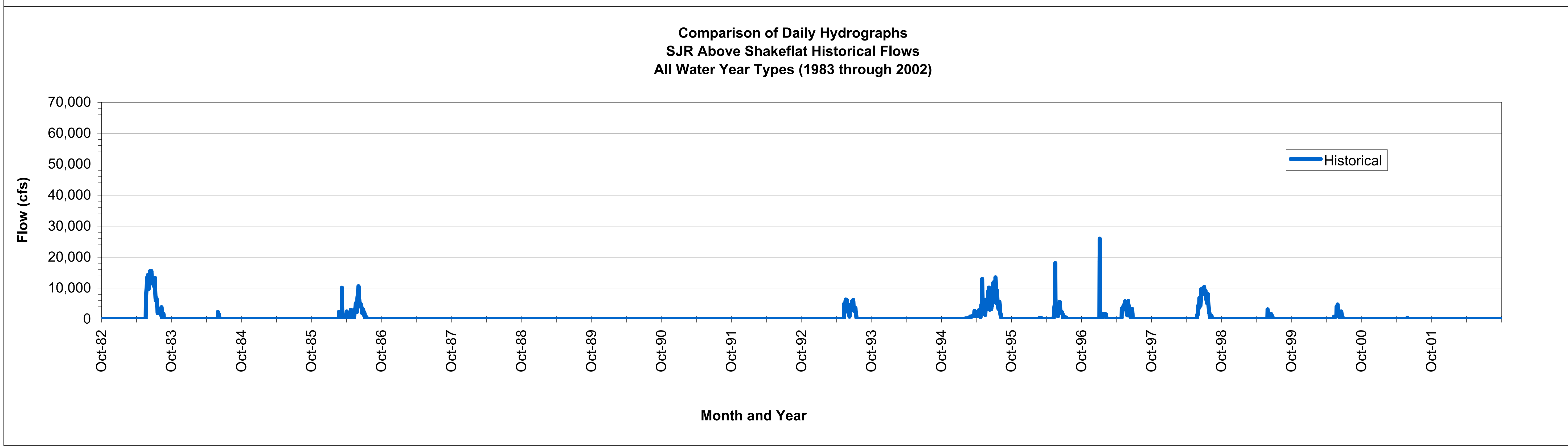
CAWG 6 Appendix N Figure N-7. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Bolsillo Creek Below Diversion.



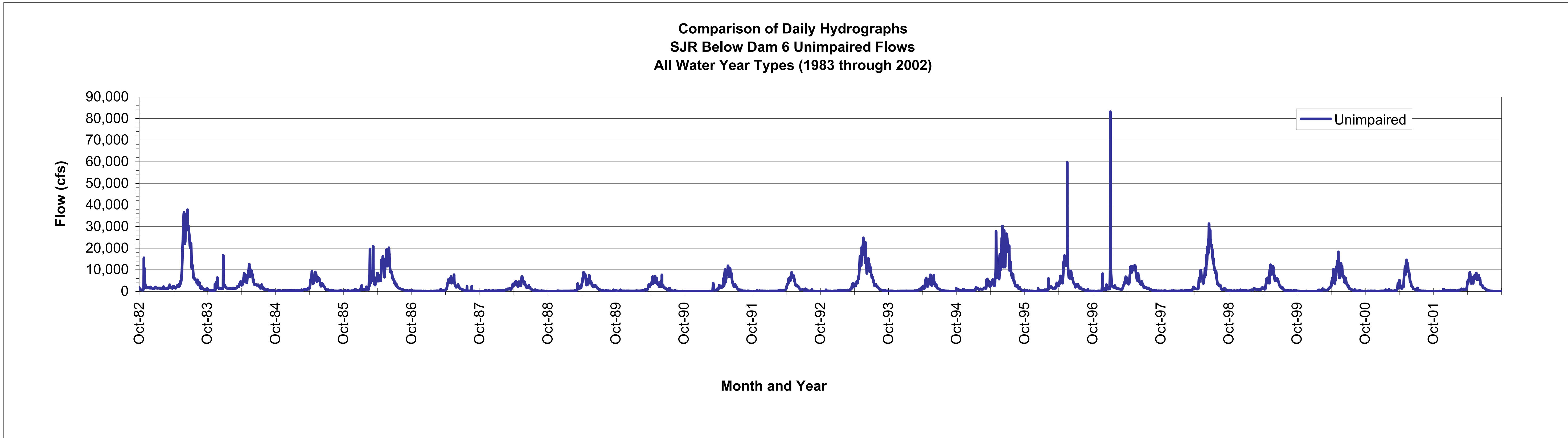


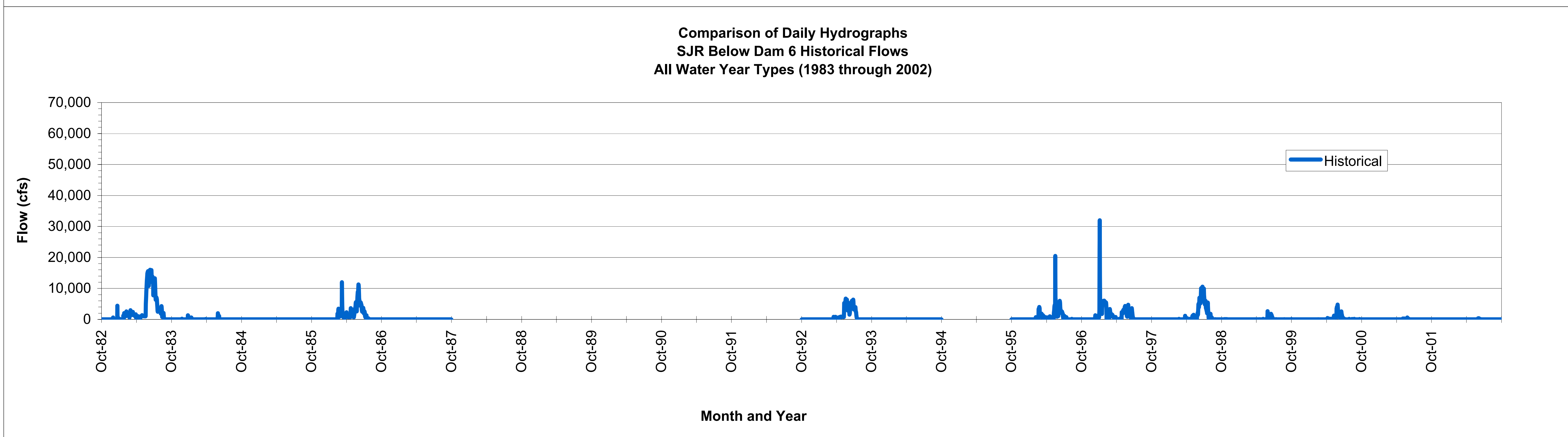
CAWG 6 Appendix N Figure N-8. 20 Year Daily Hydrograph Unimpaired (Area Based) Versus Existing (Historical) - Comparison Plots for Mono Creek.



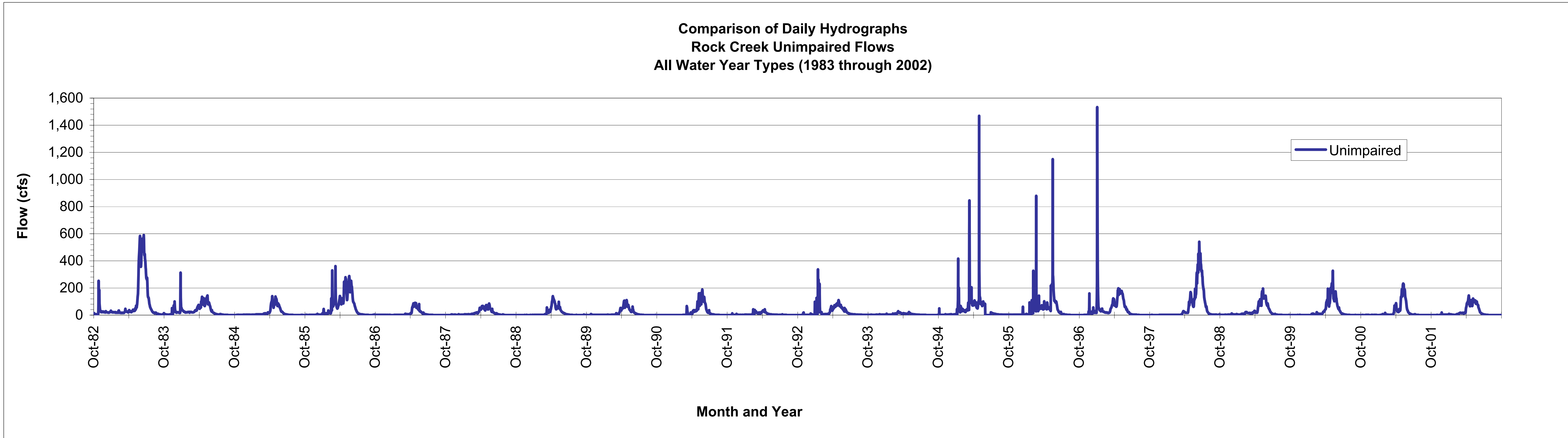


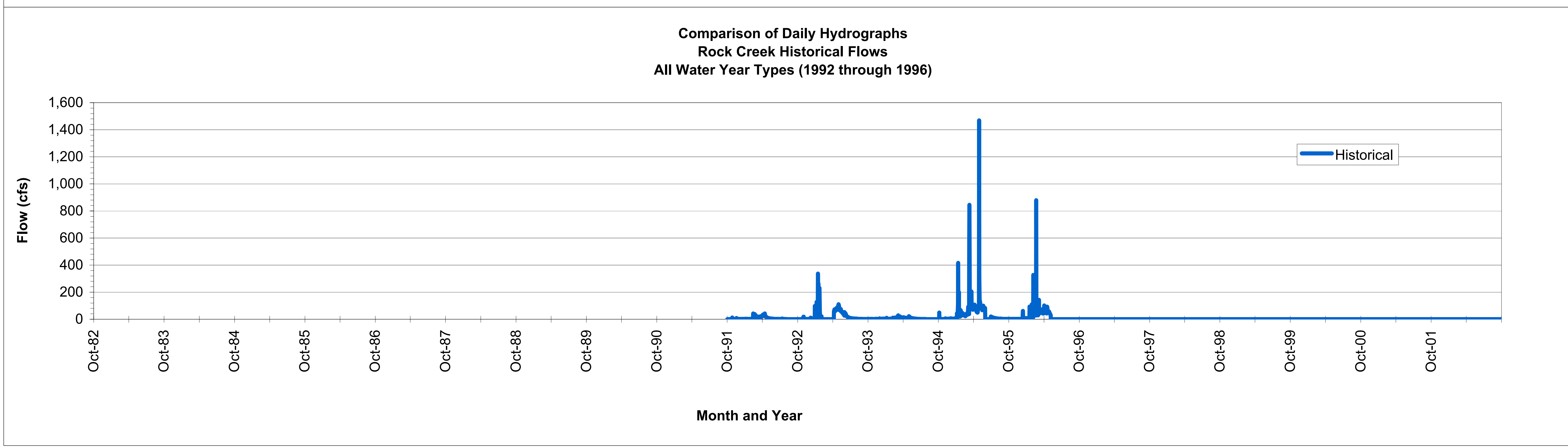
CAWG 6 Appendix N Figure N-9. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for San Joaquin River Above Shakeflat Creek.



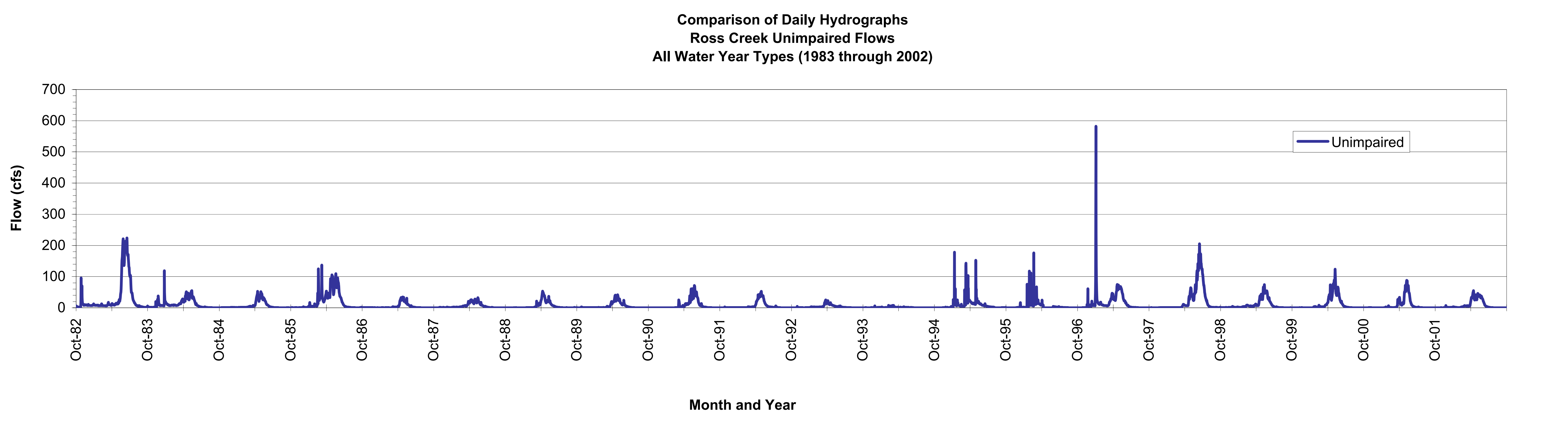


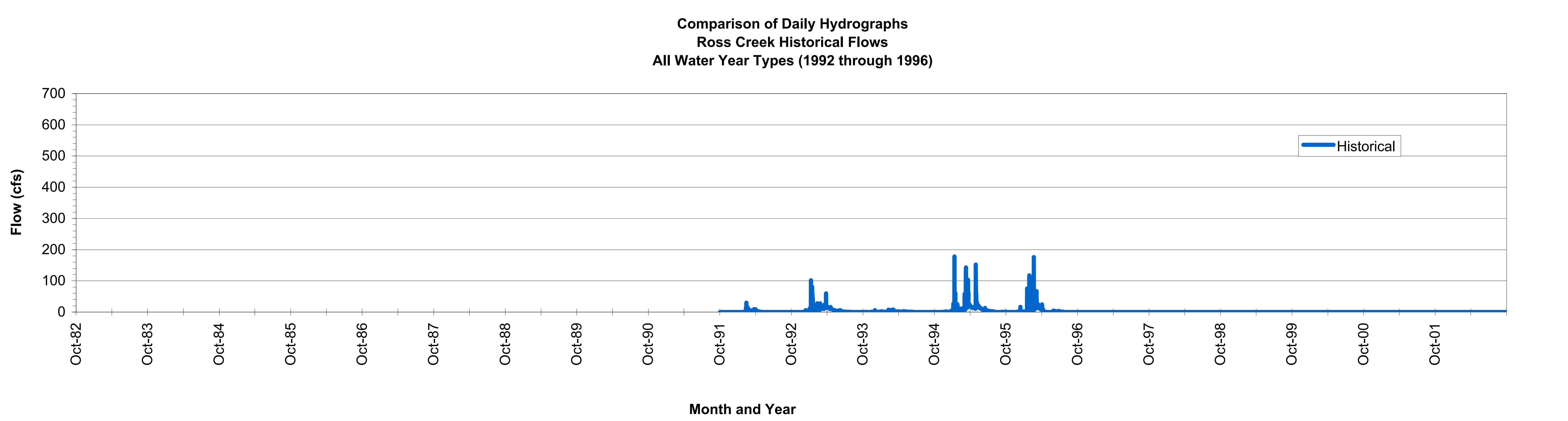
CAWG 6 Appendix N Figure N-10. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for San Joaquin River Above Stevenson Creek.



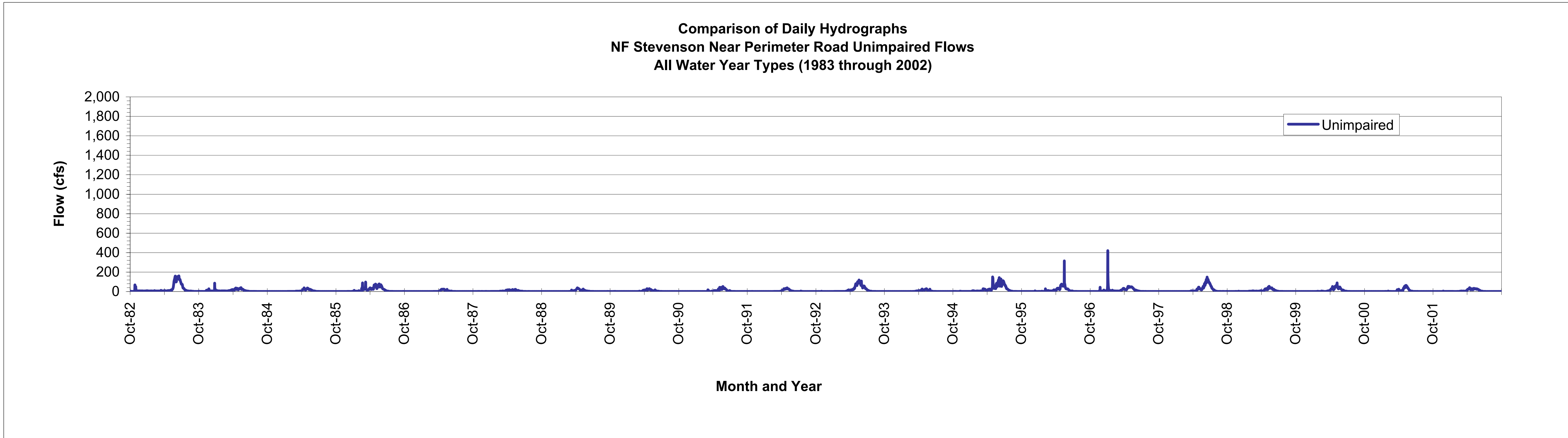


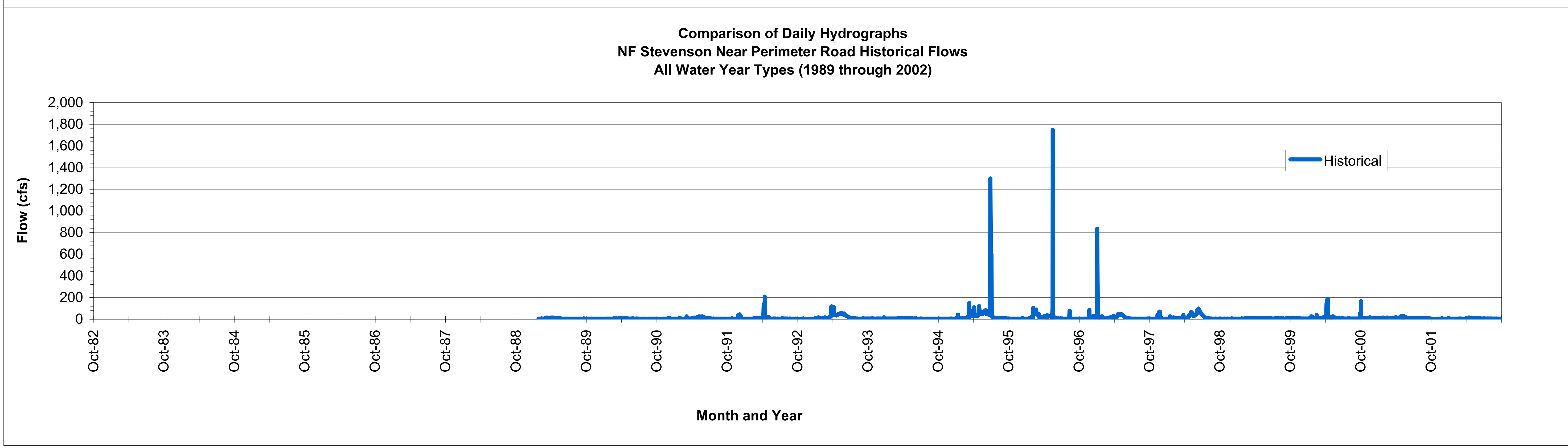
CAWG 6 Appendix N Figure N-11. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Rock Creek.



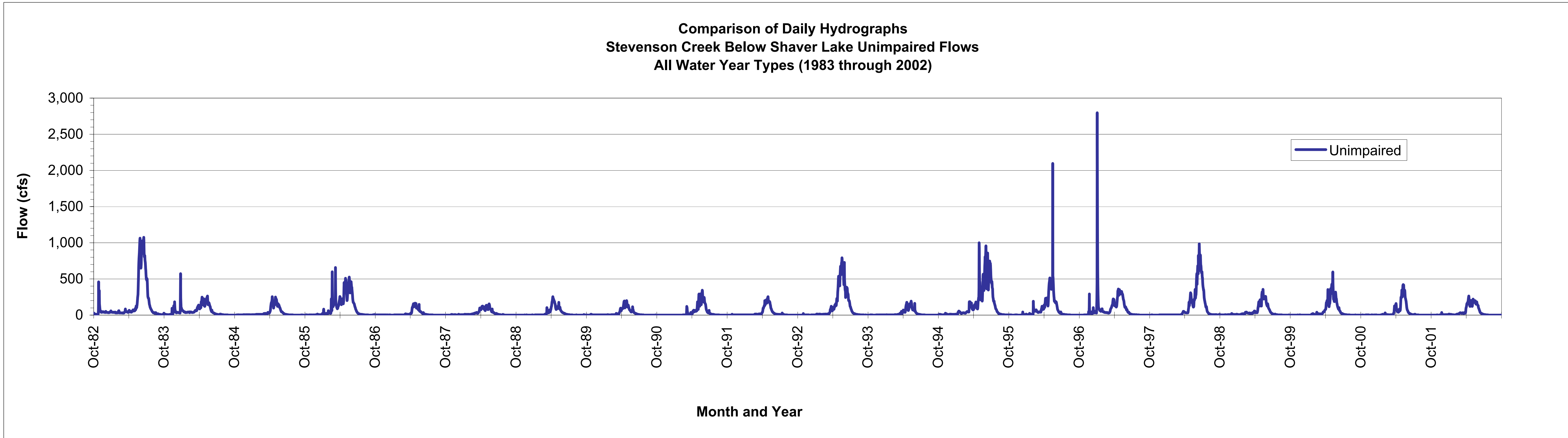


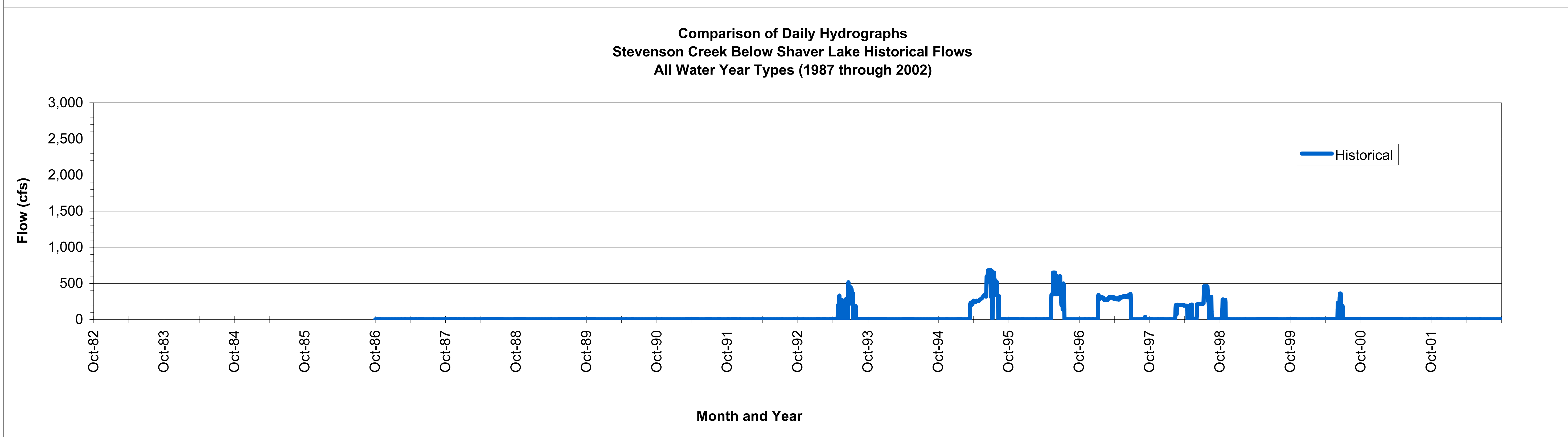
CAWG 6 Appendix N Figure N-12. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Ross Creek.



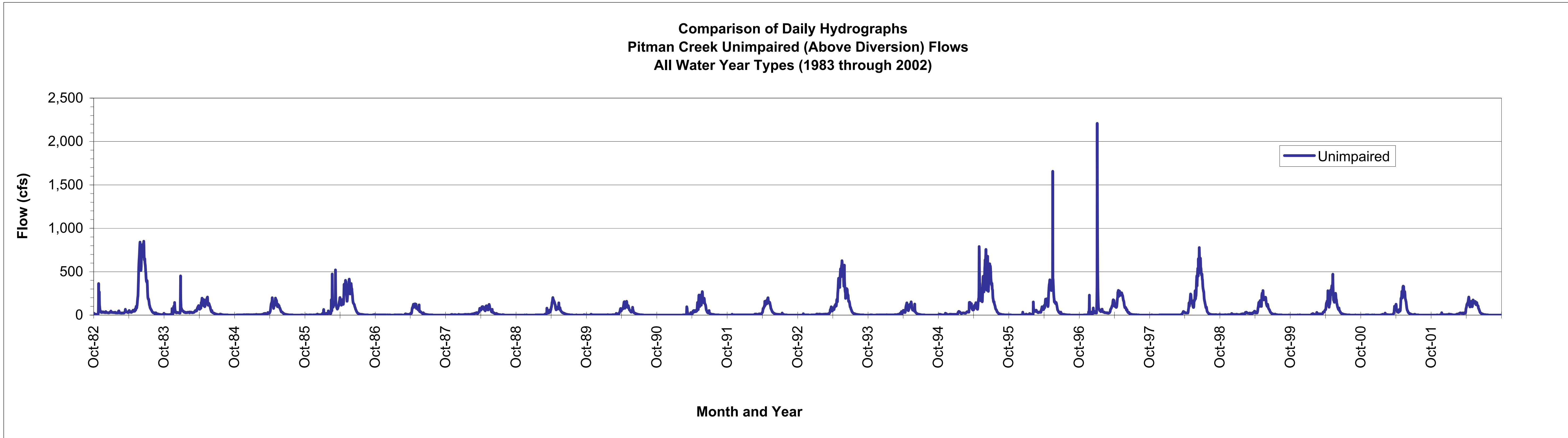


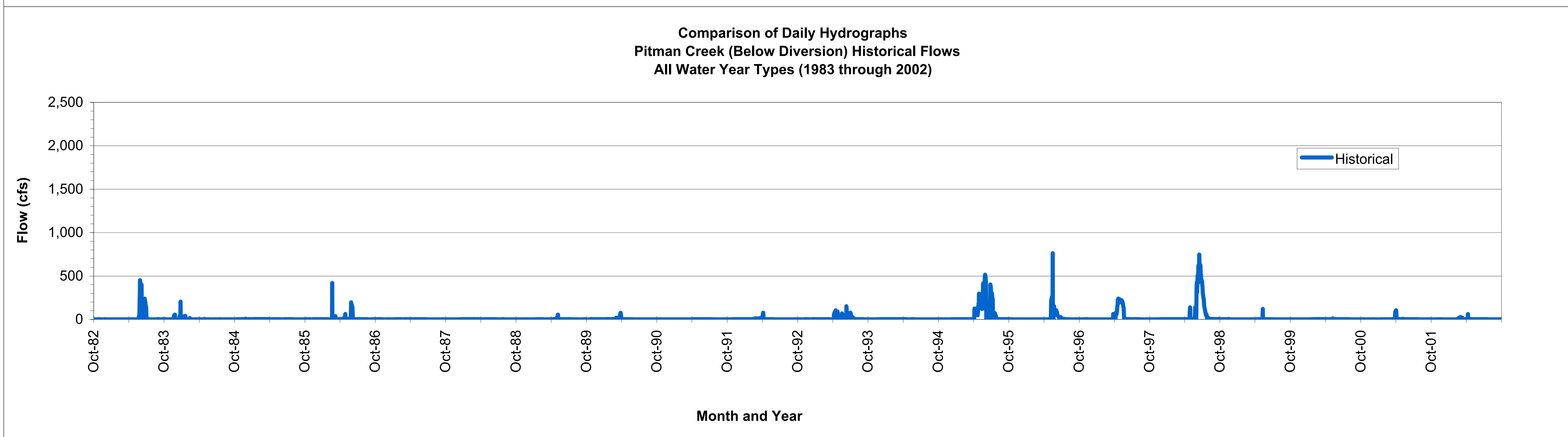
CAWG 6 Appendix N Figure N-13. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for North Fork Stevenson Creek.



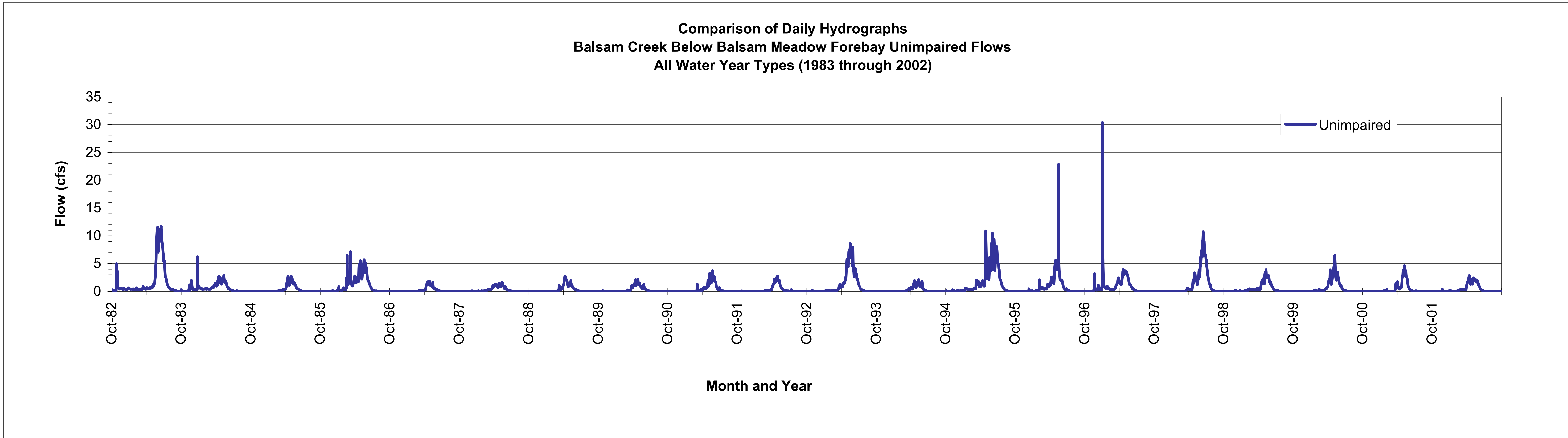


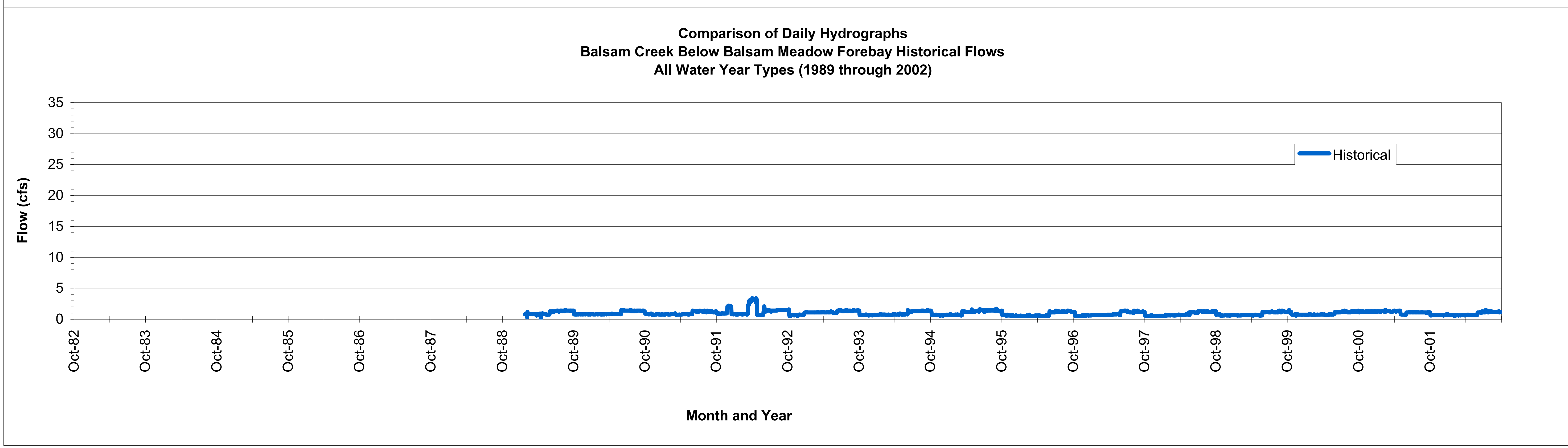
CAWG 6 Appendix N Figure N-14. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Stevenson Creek.



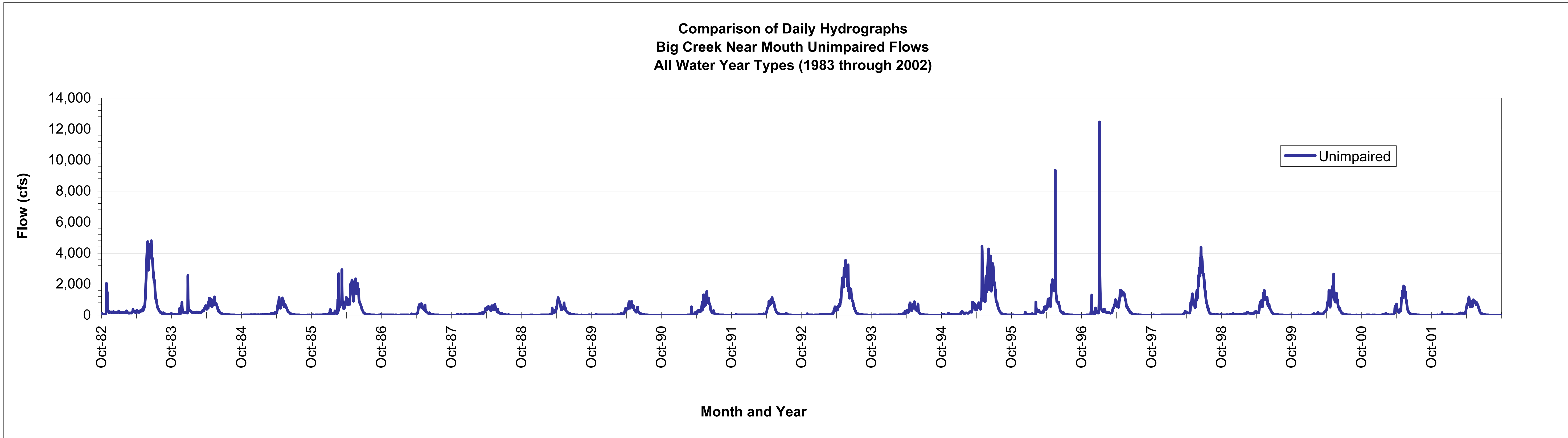


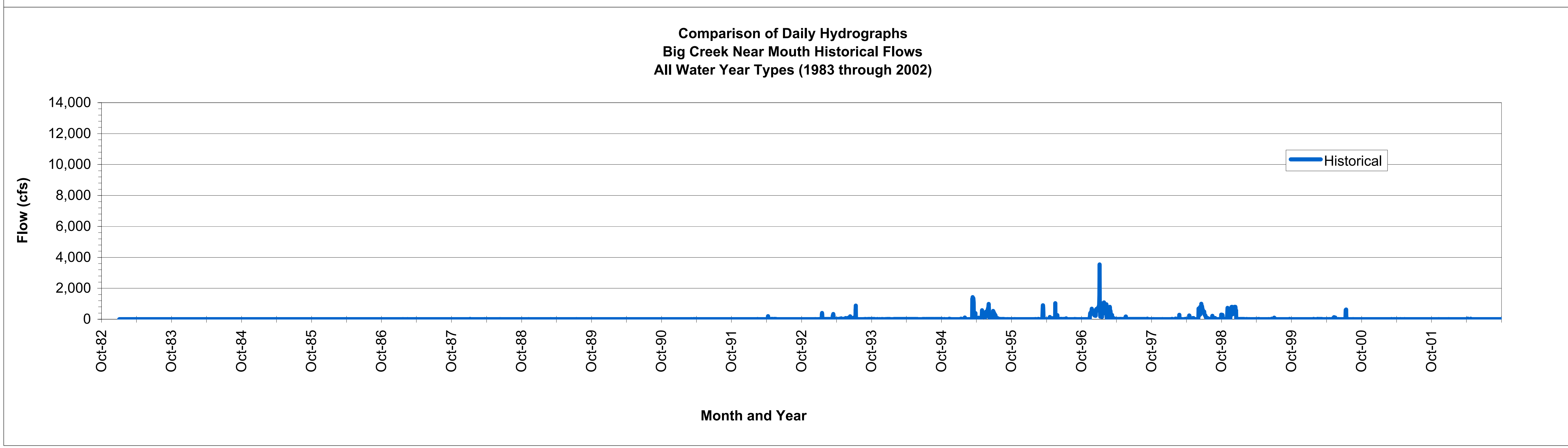
CAWG 6 Appendix N Figure N-15. 20 Year Daily Hydrograph Unimpaired (Above Diversion) Versus Historical (Below Diversion) - Comparison Plots for Pitman Creek.



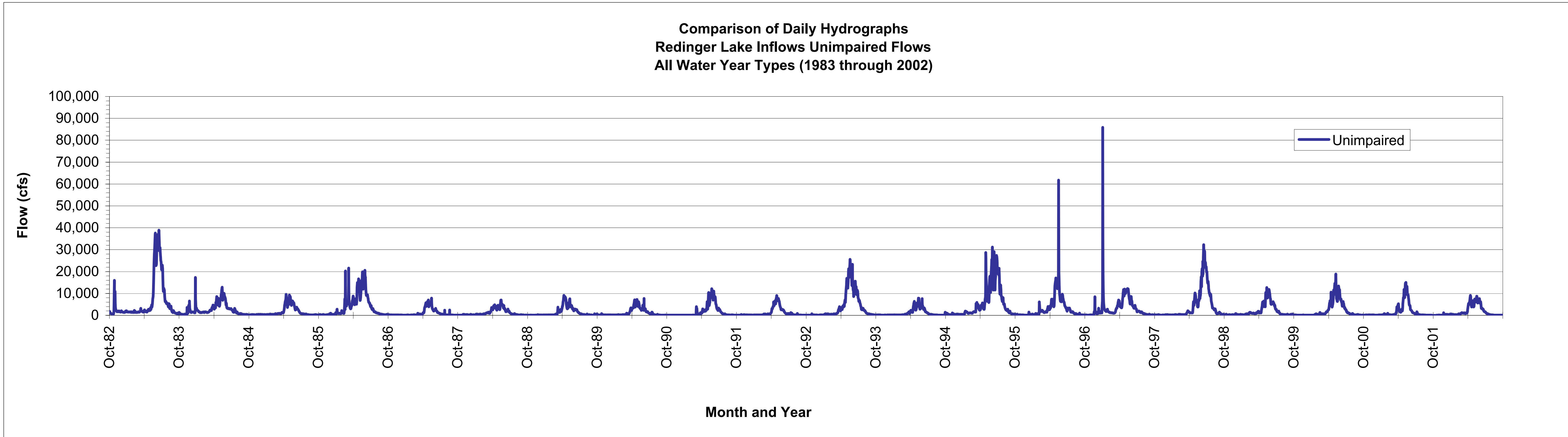


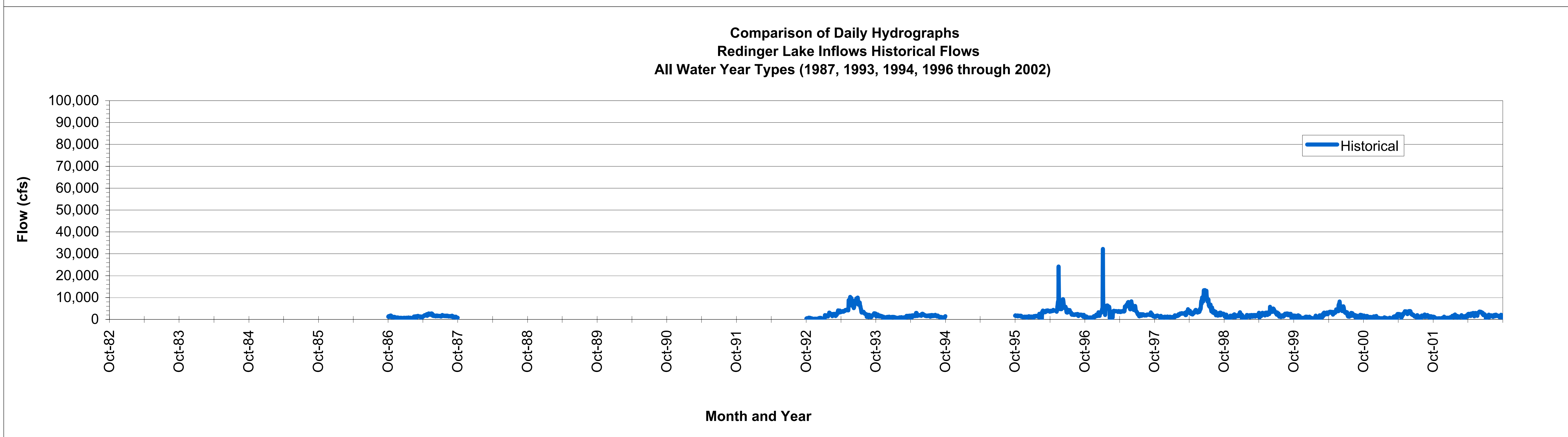
CAWG 6 Appendix N Figure N-16. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Balsam Creek.





CAWG 6 Appendix N Figure N-17. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Big Creek Near Mouth.





CAWG 6 Appendix N Figure N-18. 20 Year Daily Hydrograph Unimpaired Versus Existing (Historical) - Comparison Plots for Redinger Lake Inflows.

APPENDIX O

MONTHLY EXCEEDANCE UNIMPAIRED VERSUS HISTORICAL – COMPARISON PLOTS

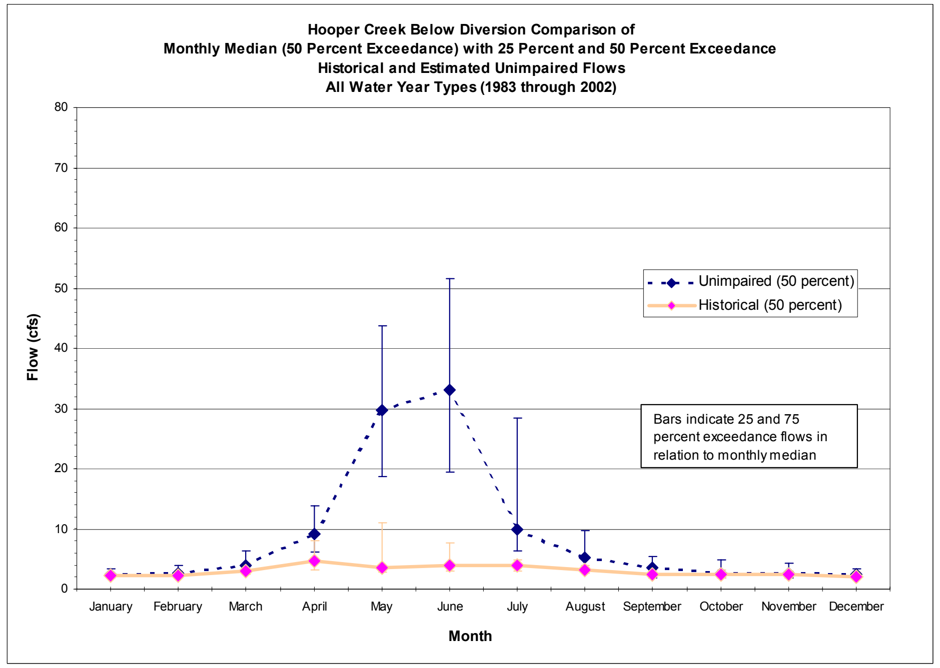
APPENDIX O

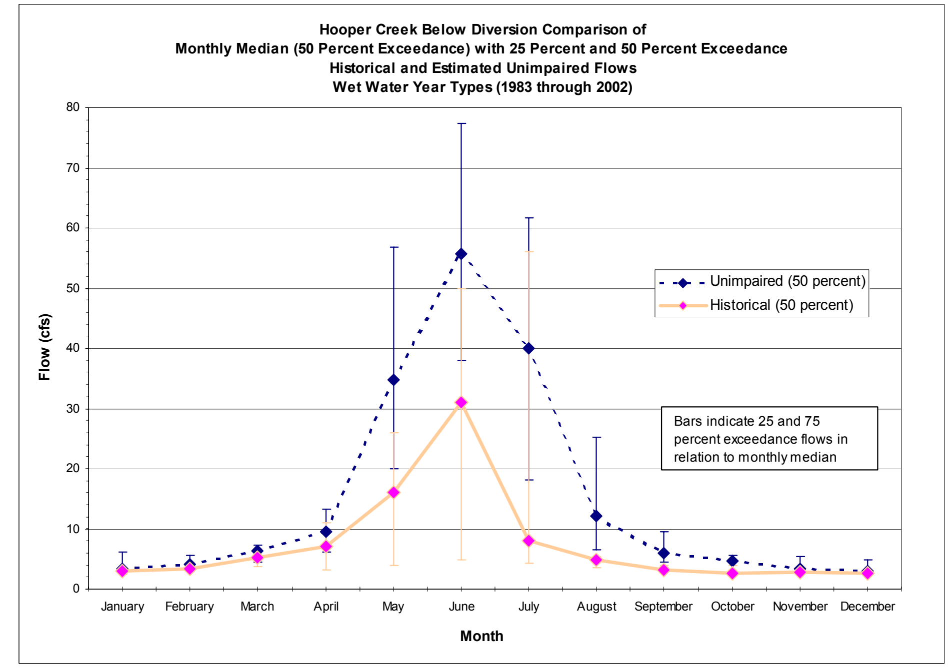
BIG CREEK

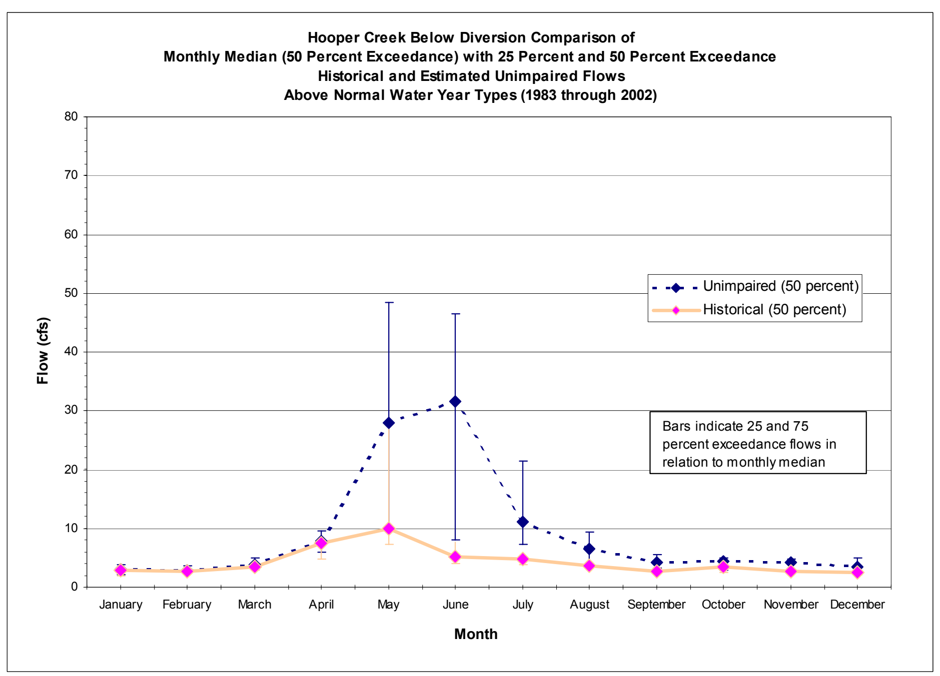
CAWG 6 HYDROLOGY

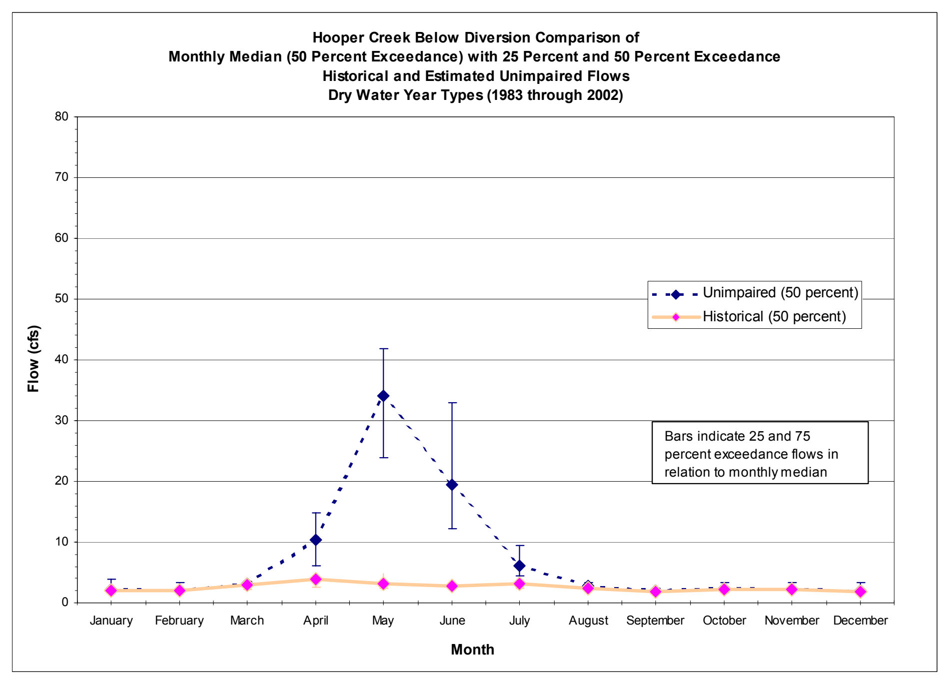
MONTHLY EXCEEDANCE UNIMPAIRED VERSUS HISTORICAL COMPARISON PLOTS

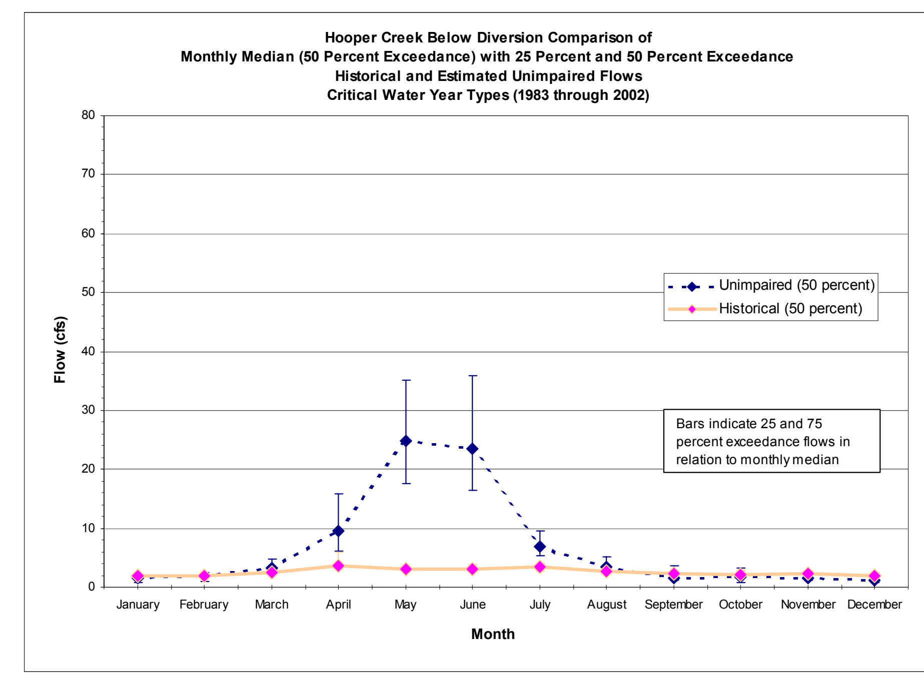
Hooper Creek below Diversion
South Fork San Joaquin River below Hooper Creek
Bear Creek below Diversion
Chinquapin Creek below Diversion
Camp 62 Creek below Diversion
Bolsillo Creek above Diversion
Bolsillo Creek below Diversion
Mono Creek below Diversion - Area Based
San Joaquin River above Shakeflat Creek
San Joaquin River above Stevenson Creek
Rock Creek
Ross Creek
North Fork Stevenson Creek near Perimeter Road
Stevenson Creek below Shaver Lake
Pitman Creek near Tamarack Mountain (below Diversion)
Balsam Creek below Balsam Meadow Forebay
Big Creek near Mouth
Redinger Lake Inflows (Complete Period of Record)
Redinger Lake Inflows (Equal Period of Record)





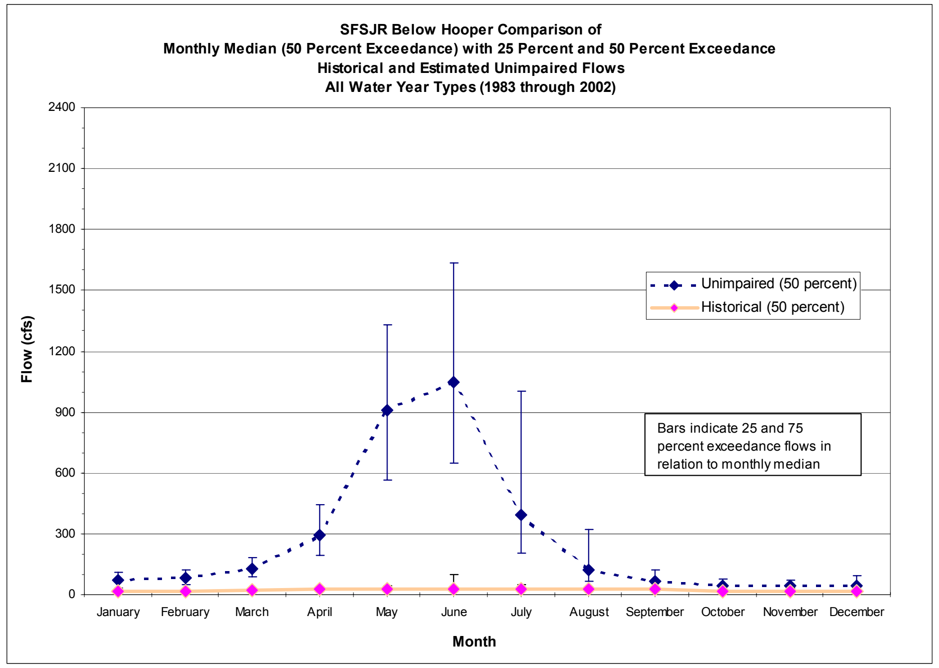


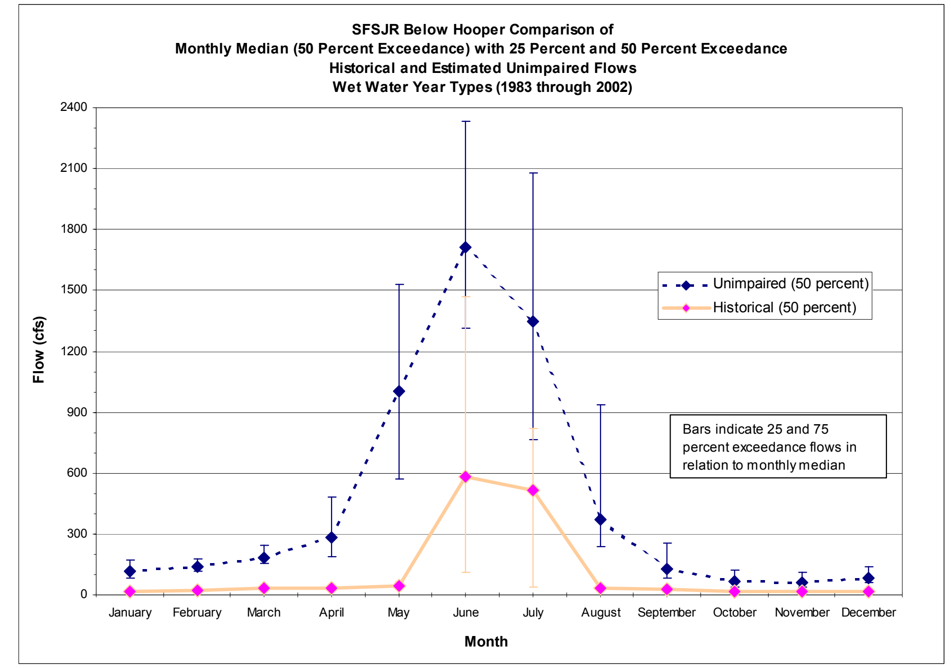


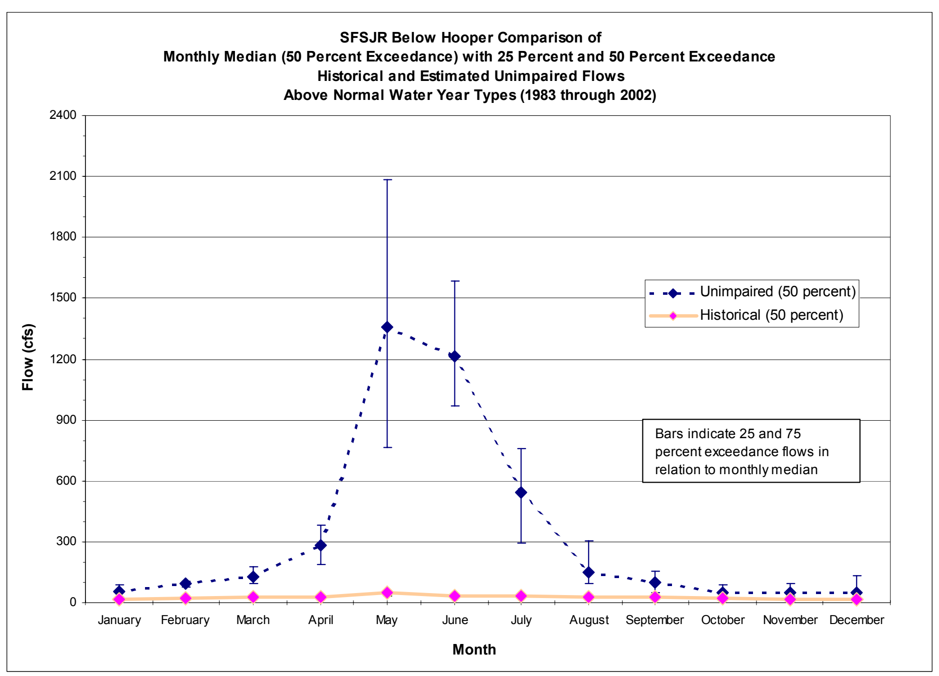


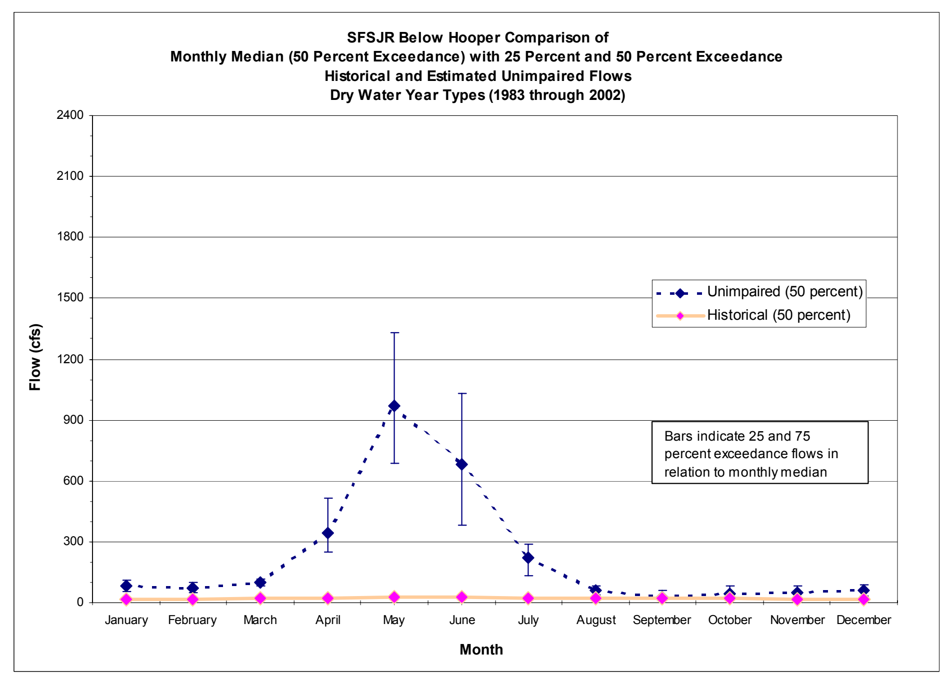
Note: Historical Data Available for Water Years 1987 through 2002

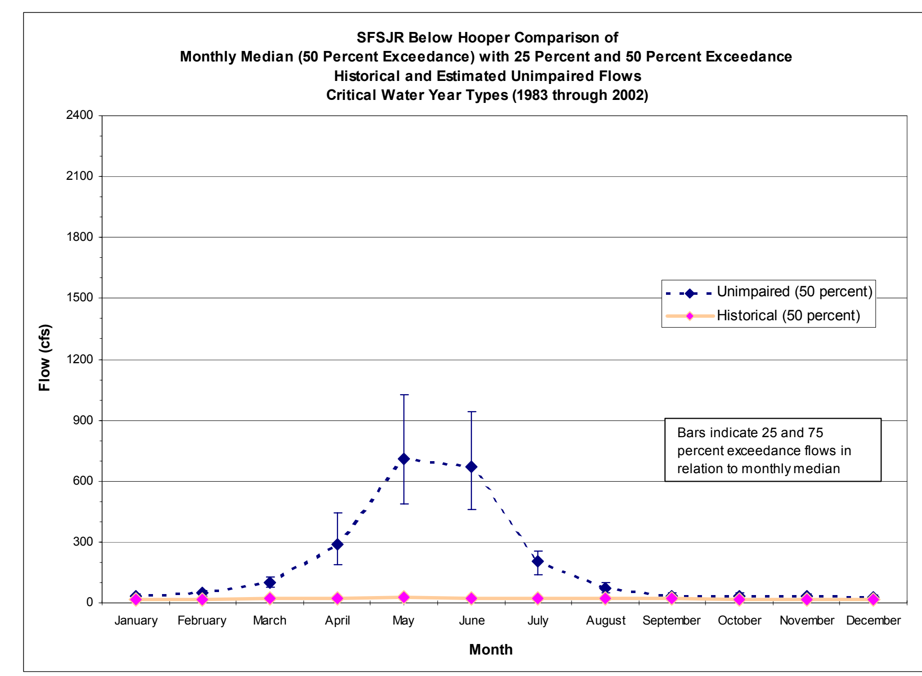
CAWG 6 Appendix O Figure O-1. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Hooper Creek.





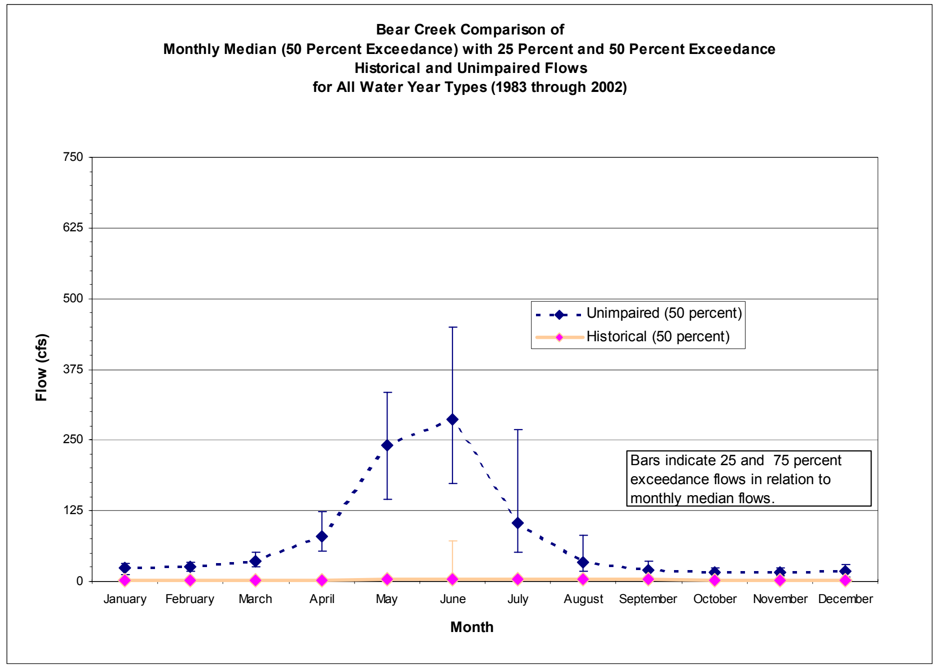


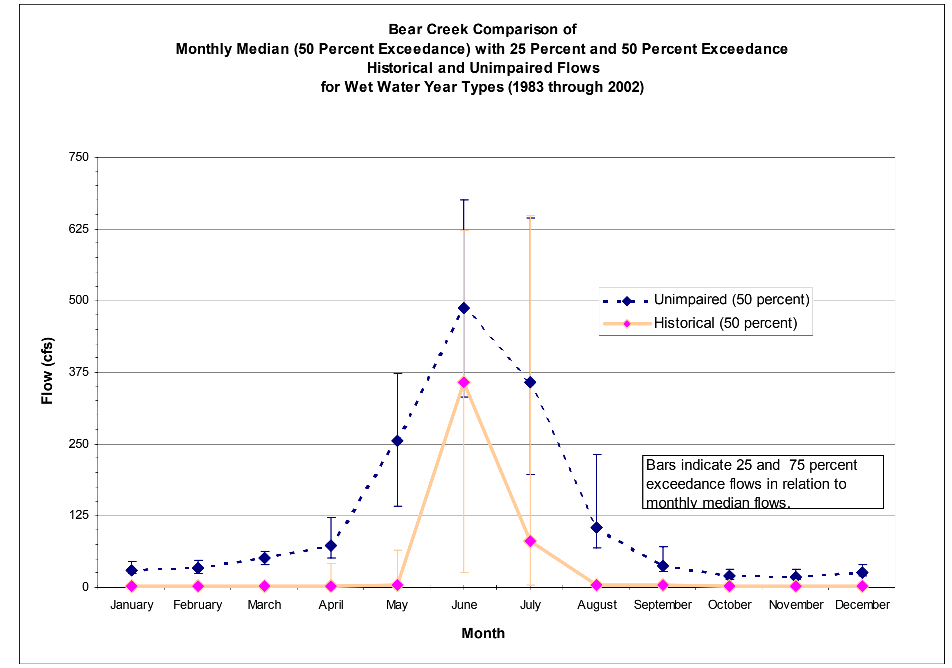


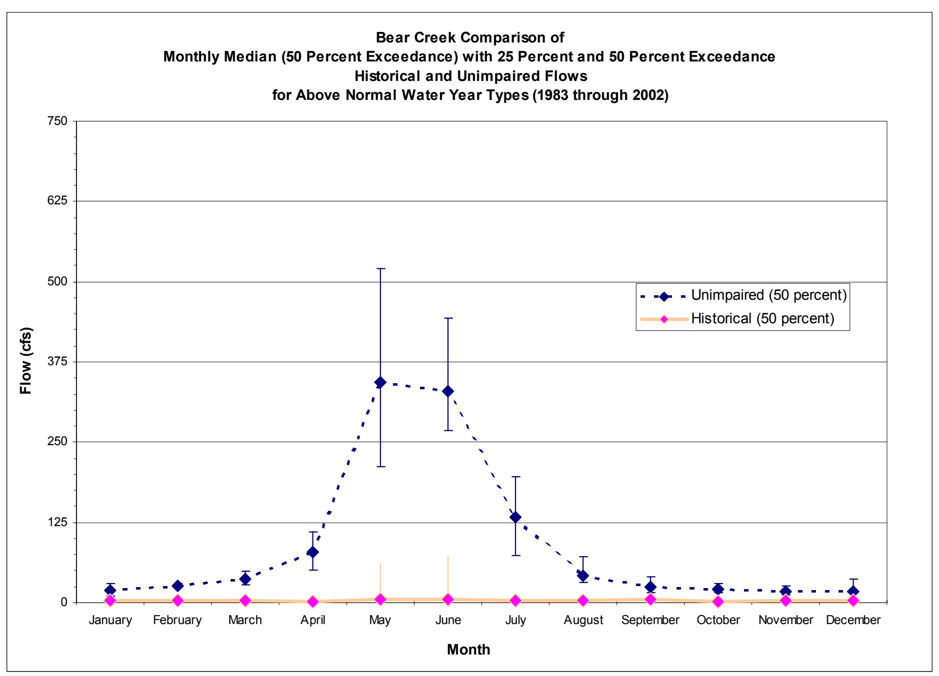


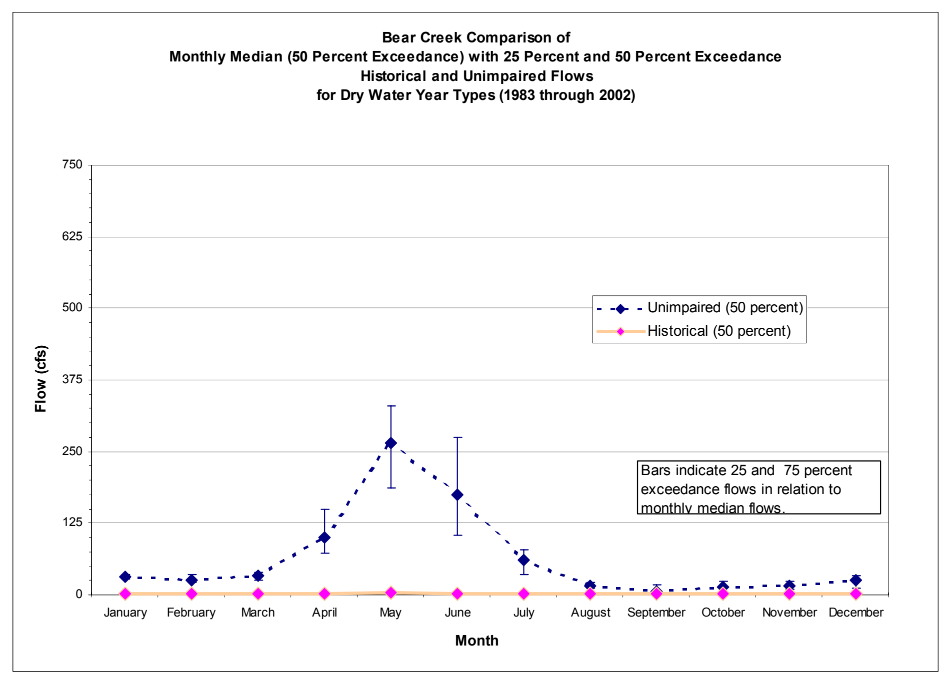
Note: Historical Data Available for Water Years 1983 through 2002

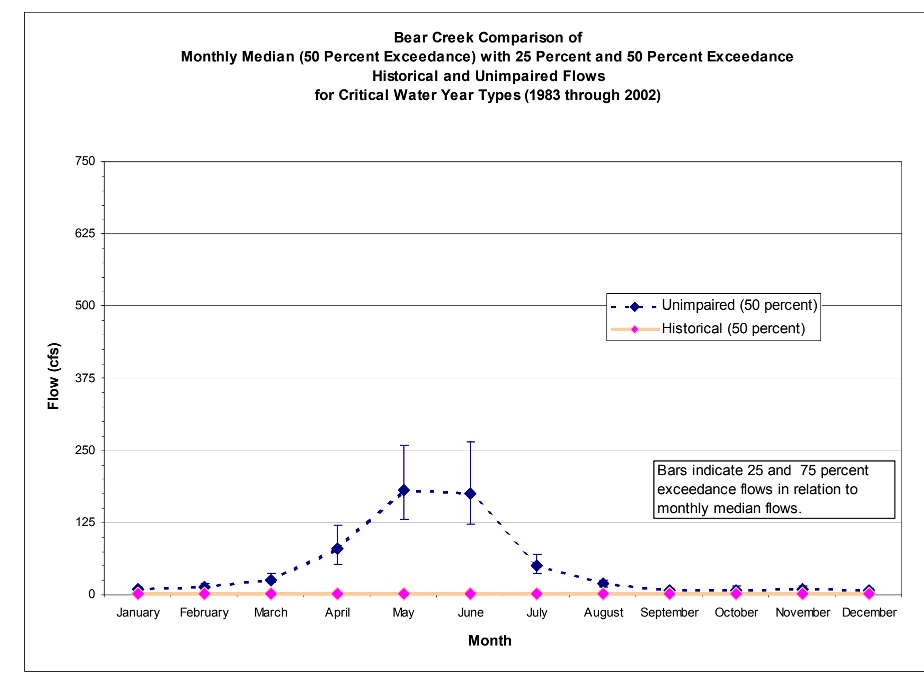
CAWG 6 Appendix O Figure O-2. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for South Fork San Joaquin River below Hooper Creek.





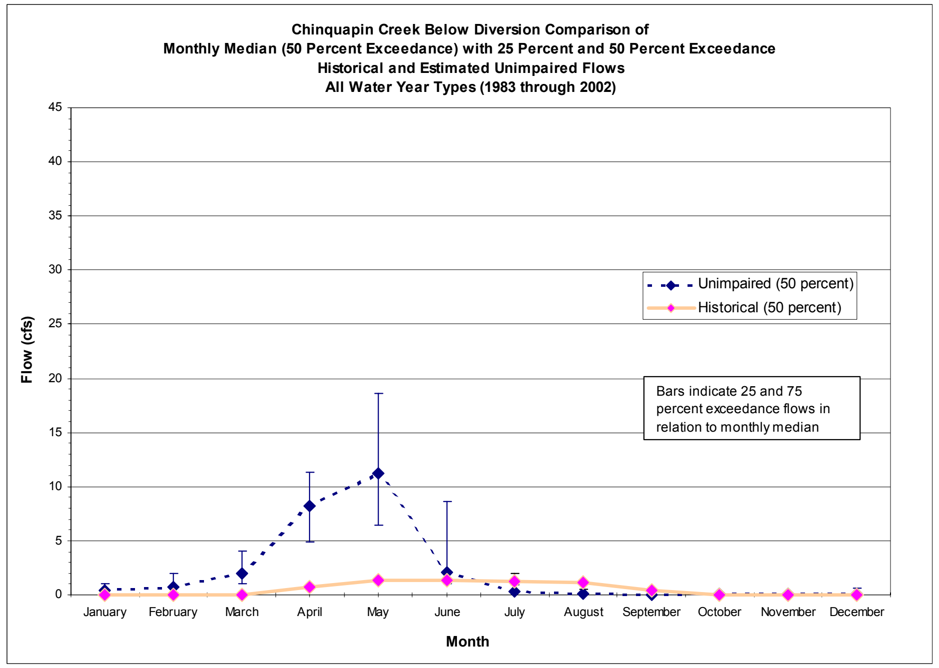


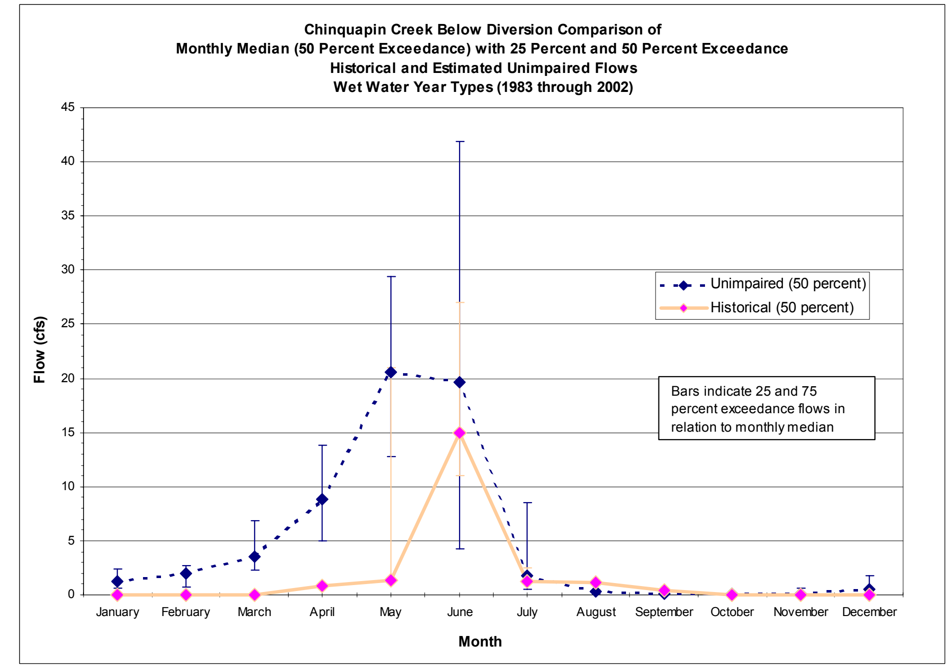


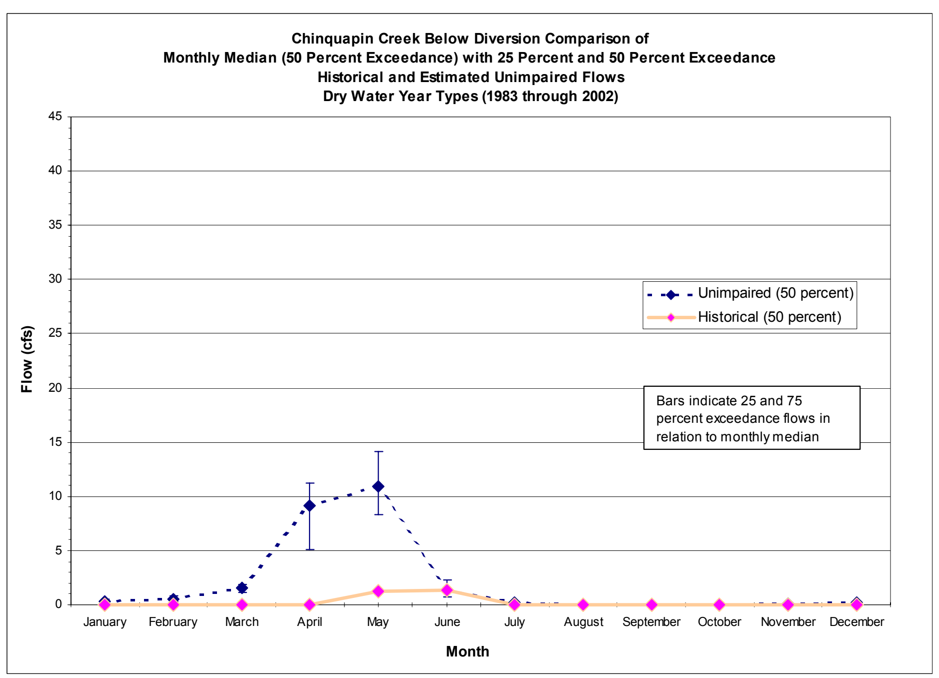


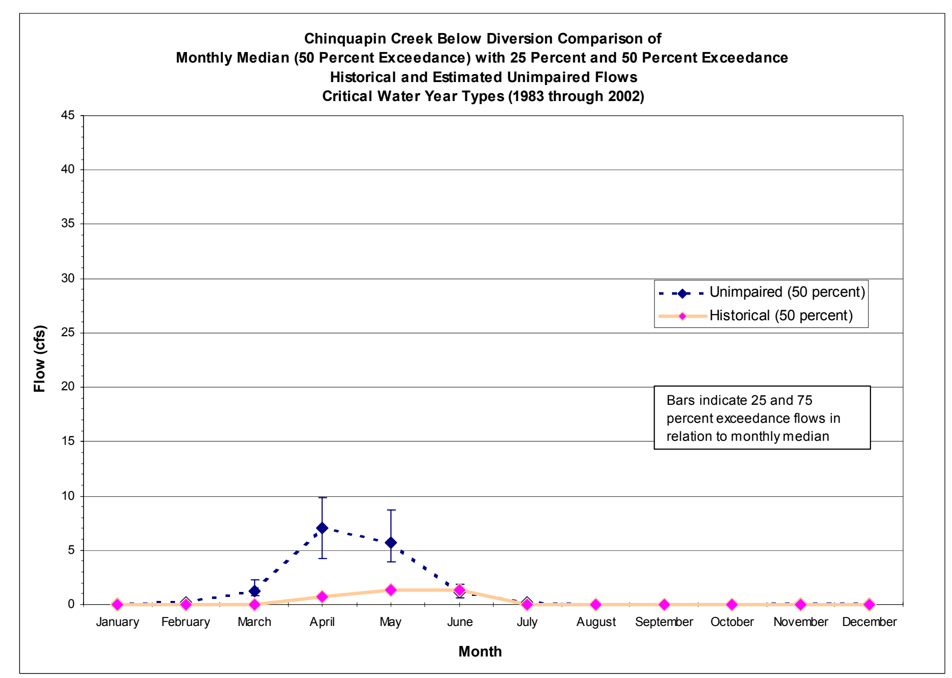
Note: Historical Data Available for Water Years 1984 through 2002

CAWG 6 Appendix O Figure O-3. Monthly Exceedance Unimpaired (Above Diversion) Versus Historical (Below Diversion) by Water Year Type – Comparison Plots for Bear Creek.



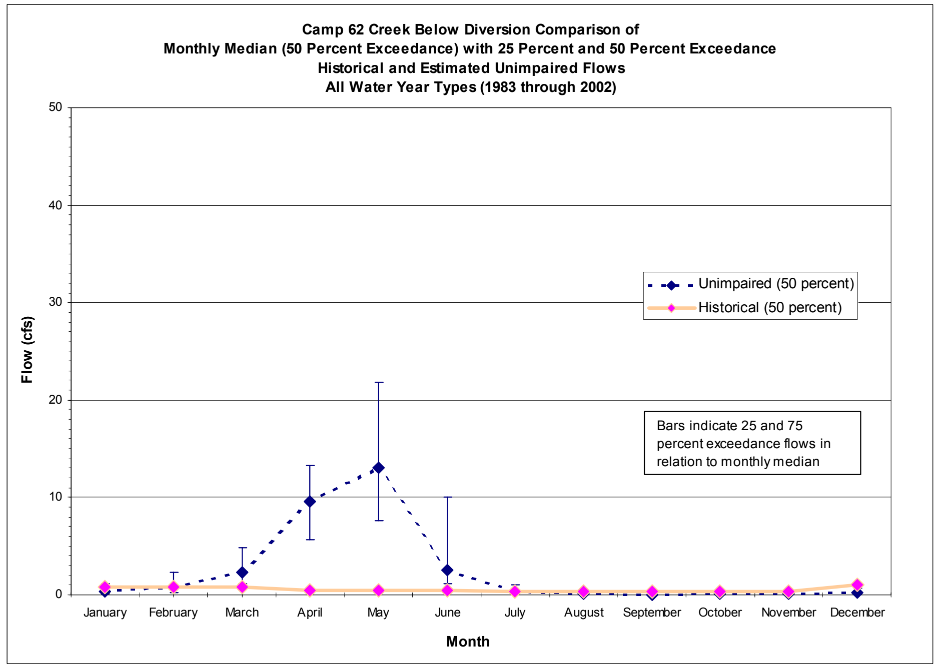


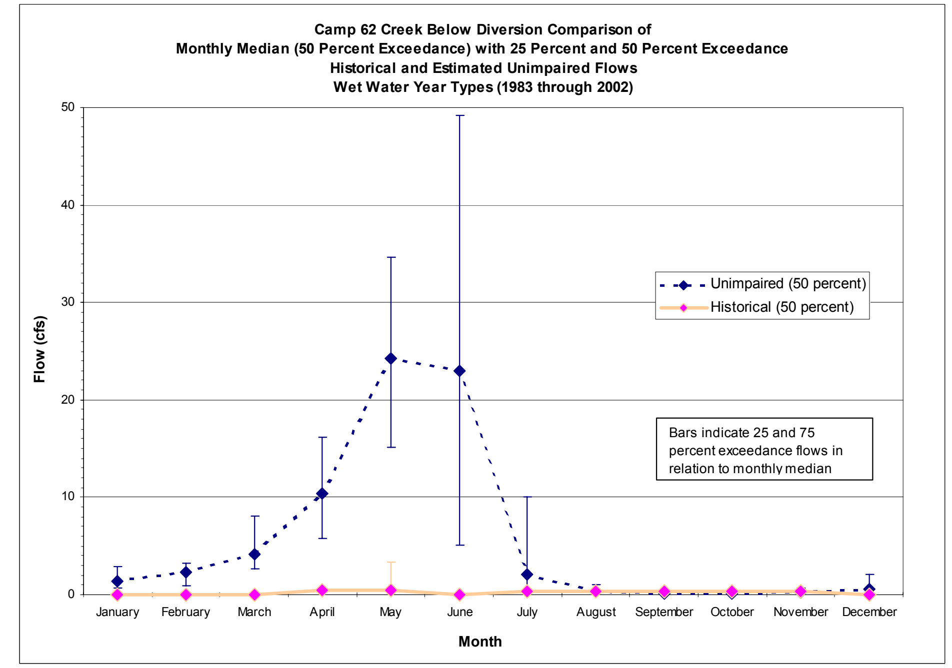


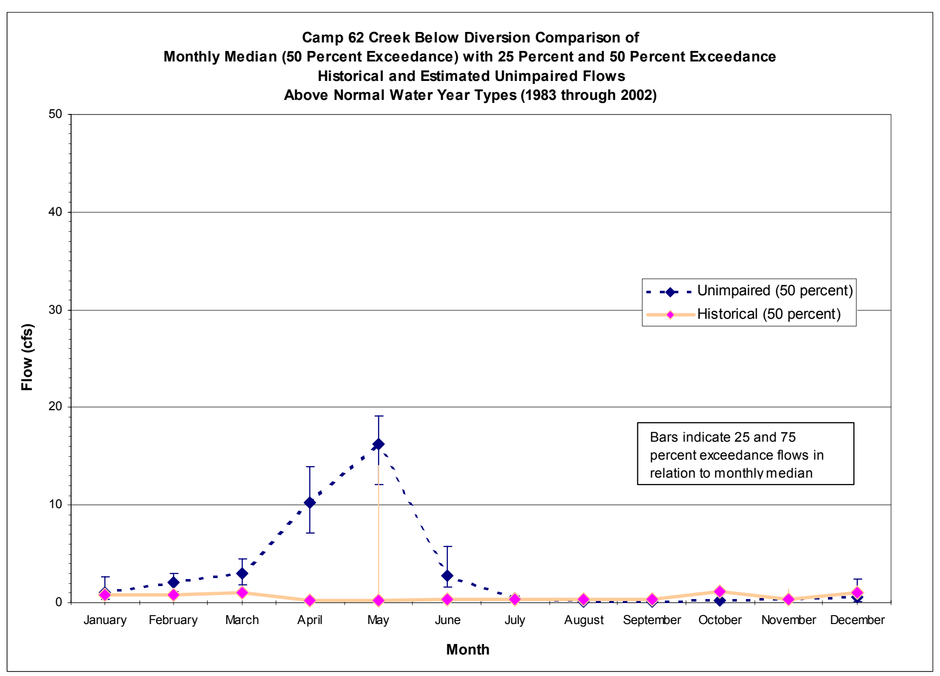


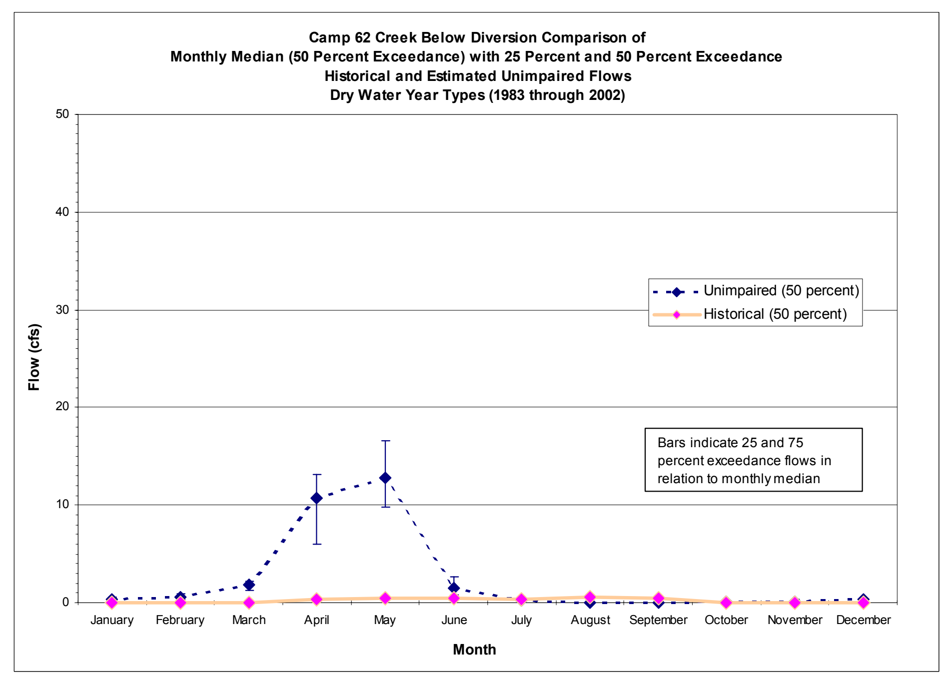
Note: Historical Data Available for Water Years 1986 through 2002

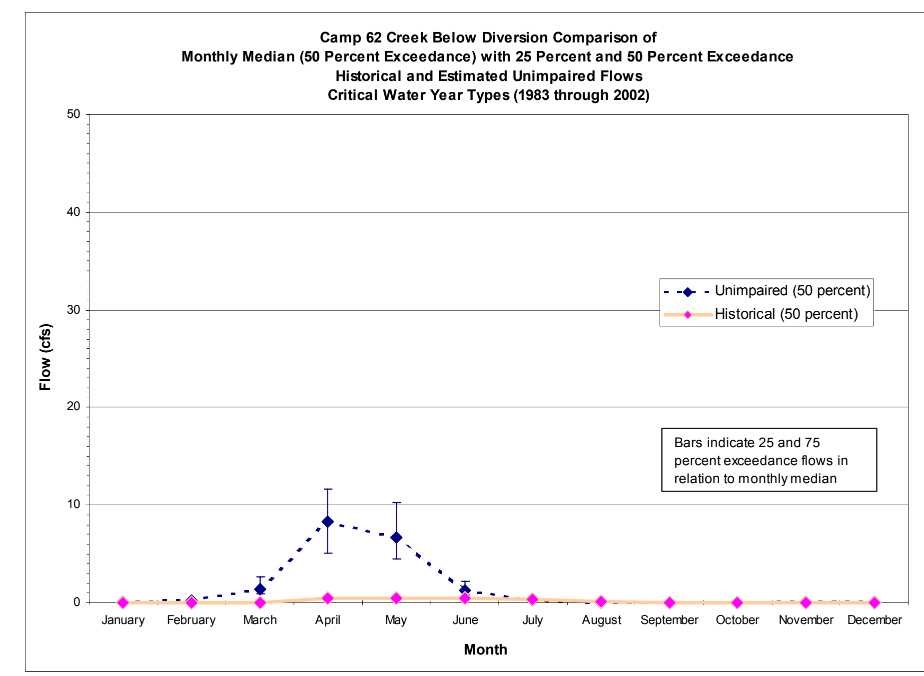
CAWG 6 Appendix O Figure O-4. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Chinquapin Creek.





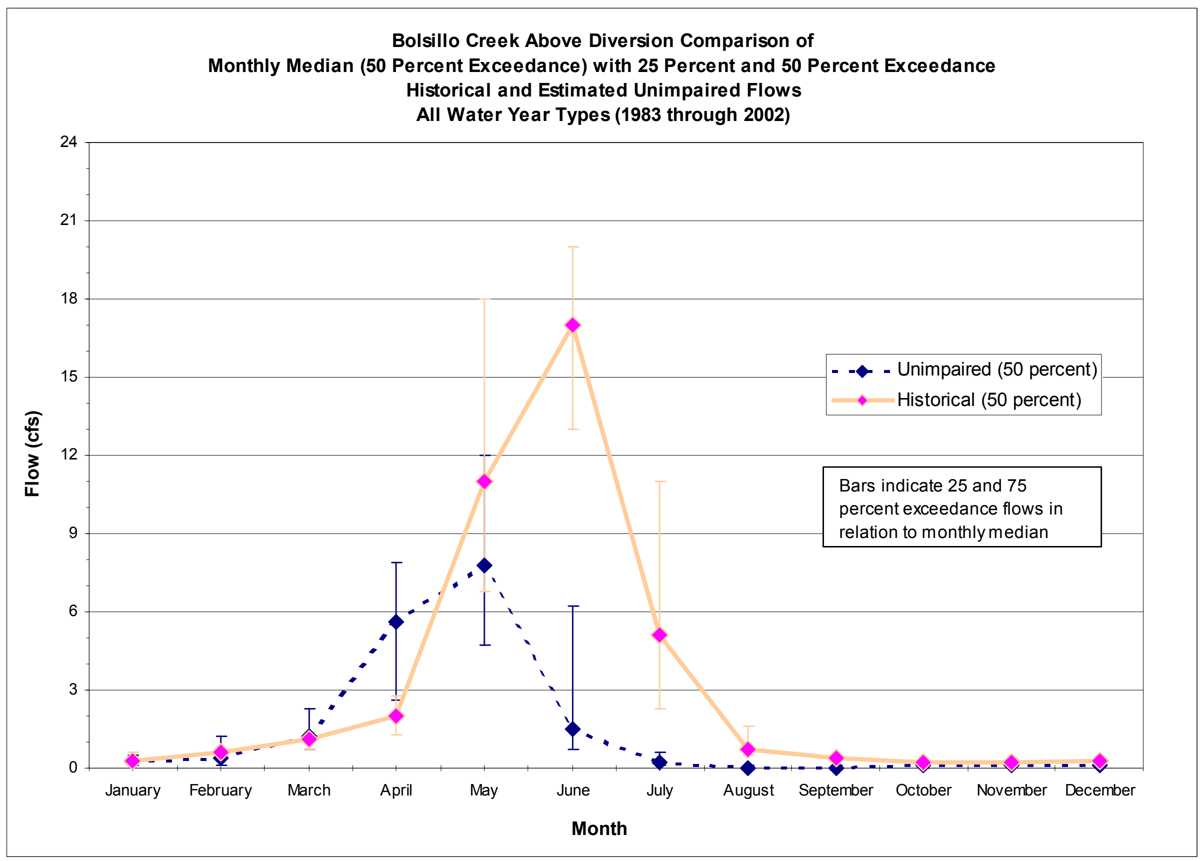


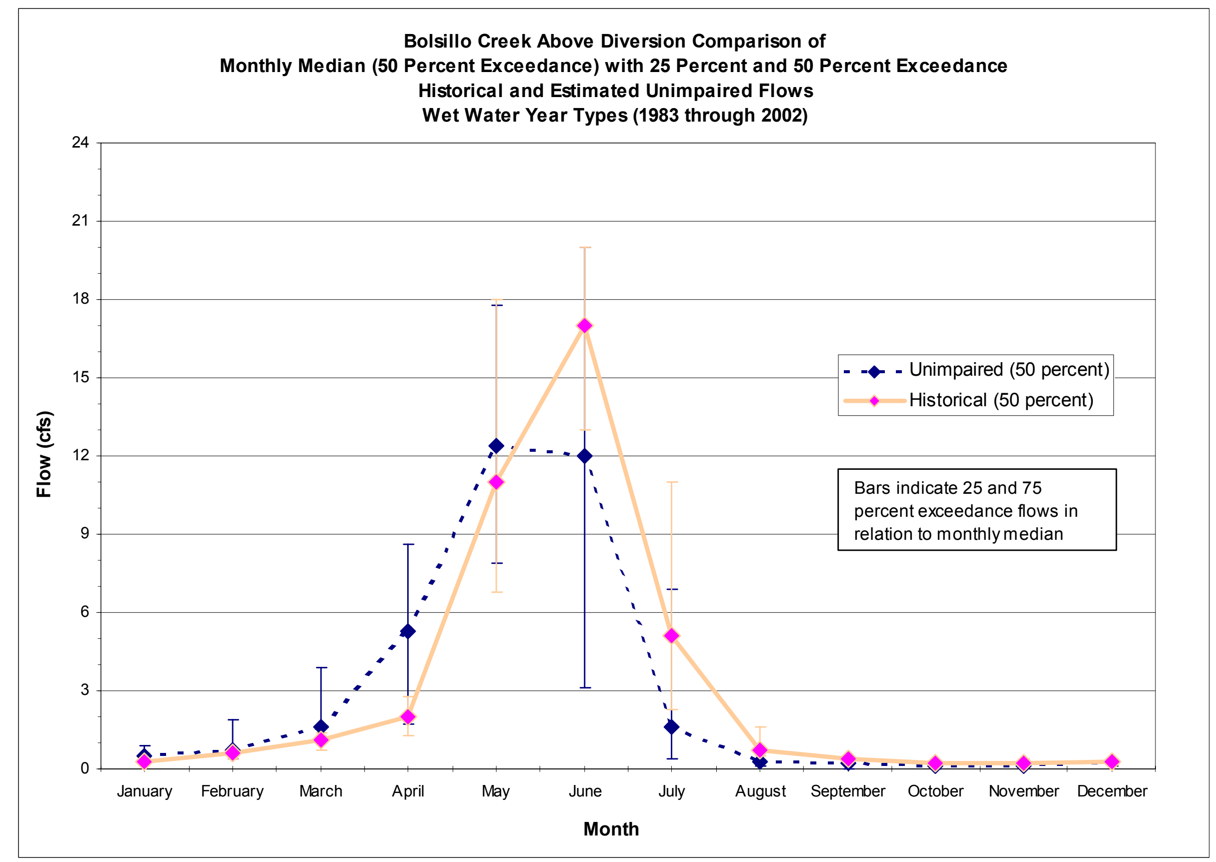




Note: Historical Data Available for Water Years 1984 through 2002

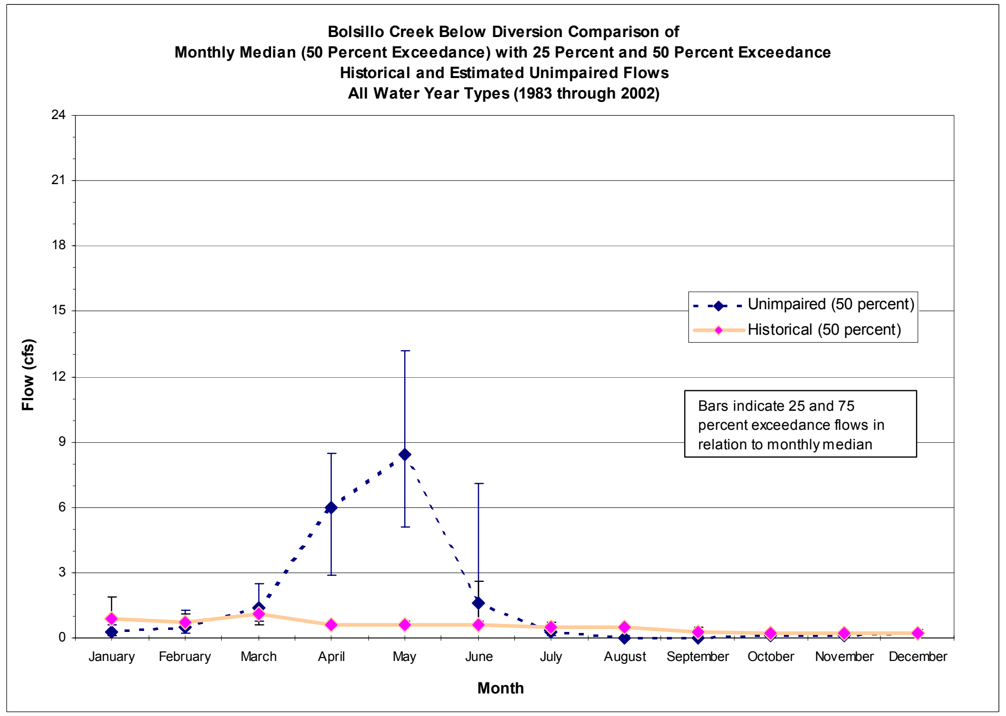
CAWG 6 Appendix O Figure O-5. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Camp 62 Creek.

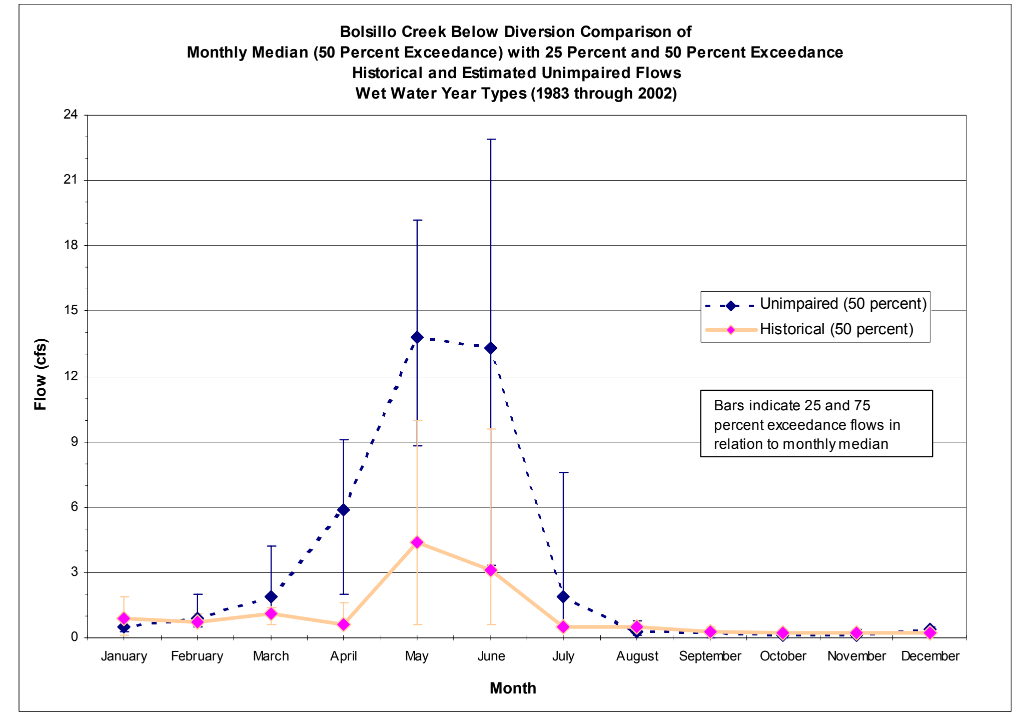


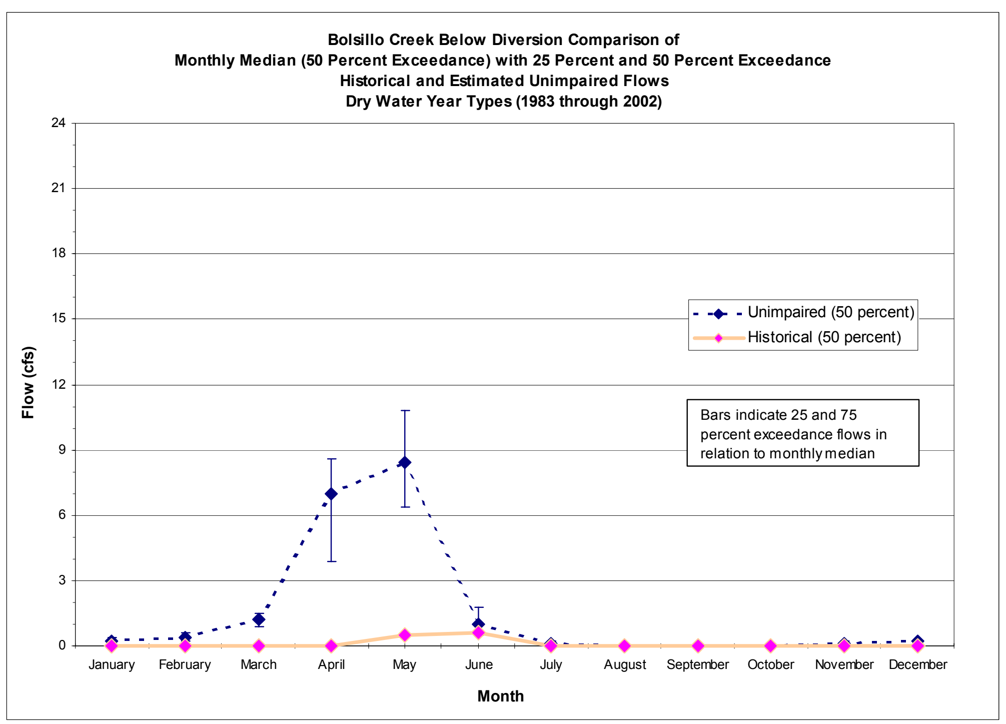


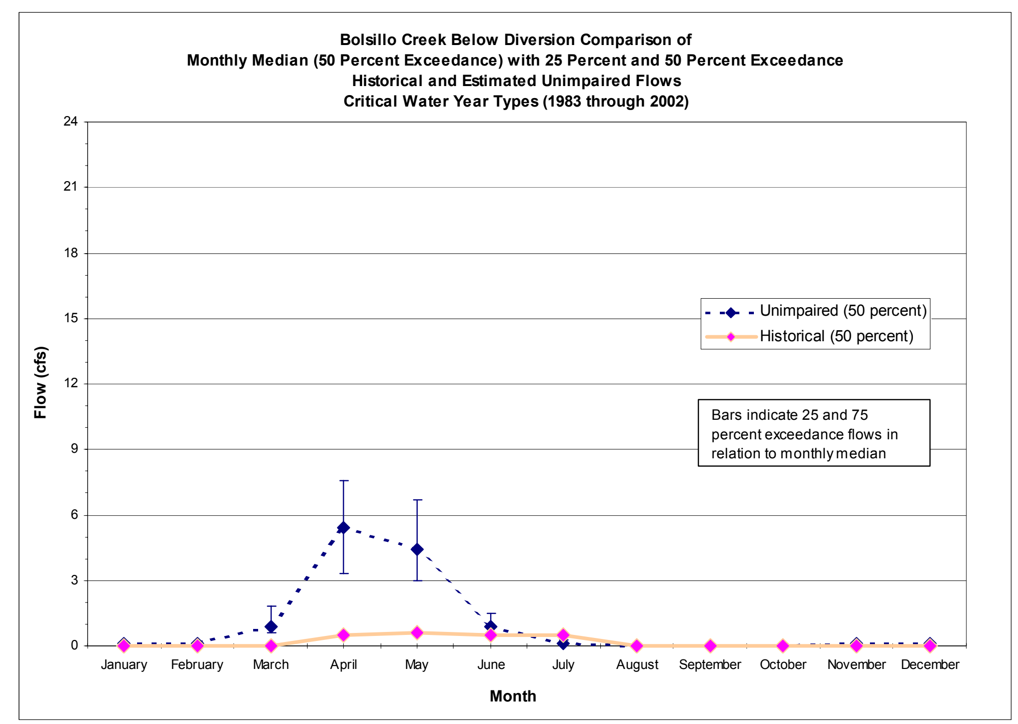
Note: Historical Data Available for Water Years 1986 through 1995

CAWG 6 Appendix O Figure O-6. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Bolsillo Creek above Diversion.



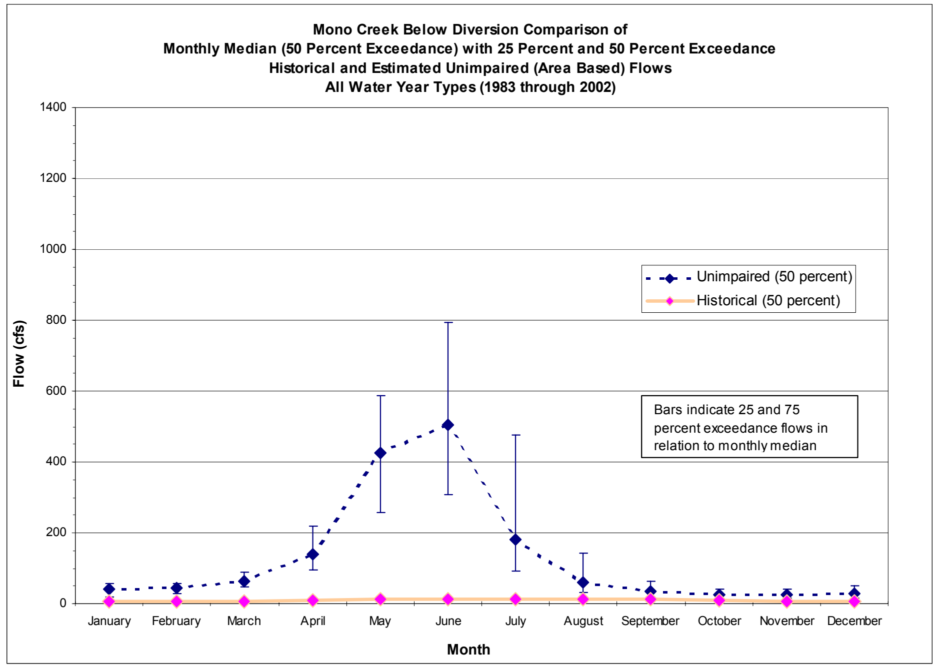


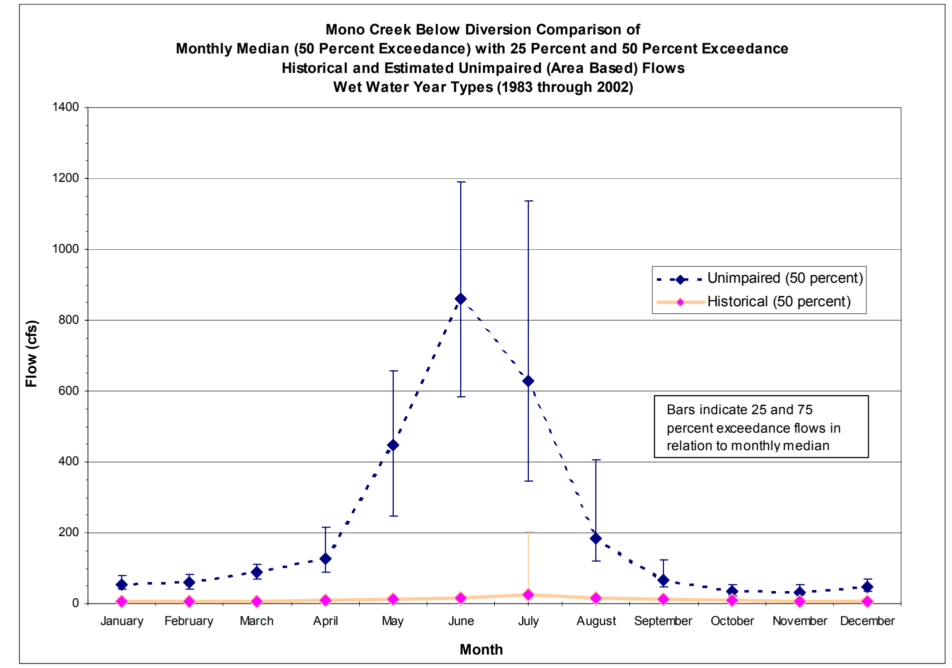


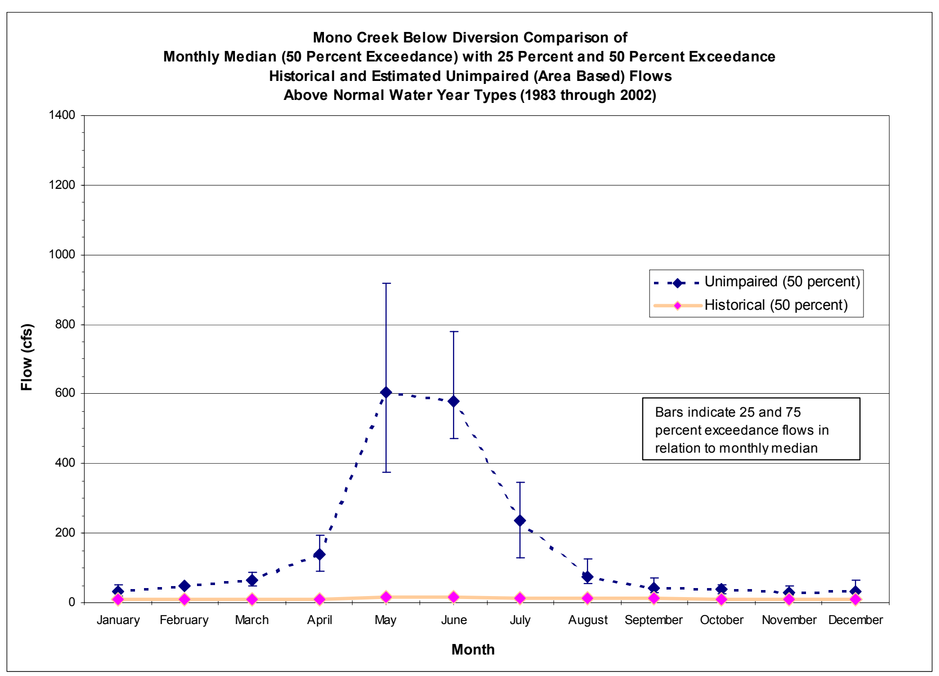


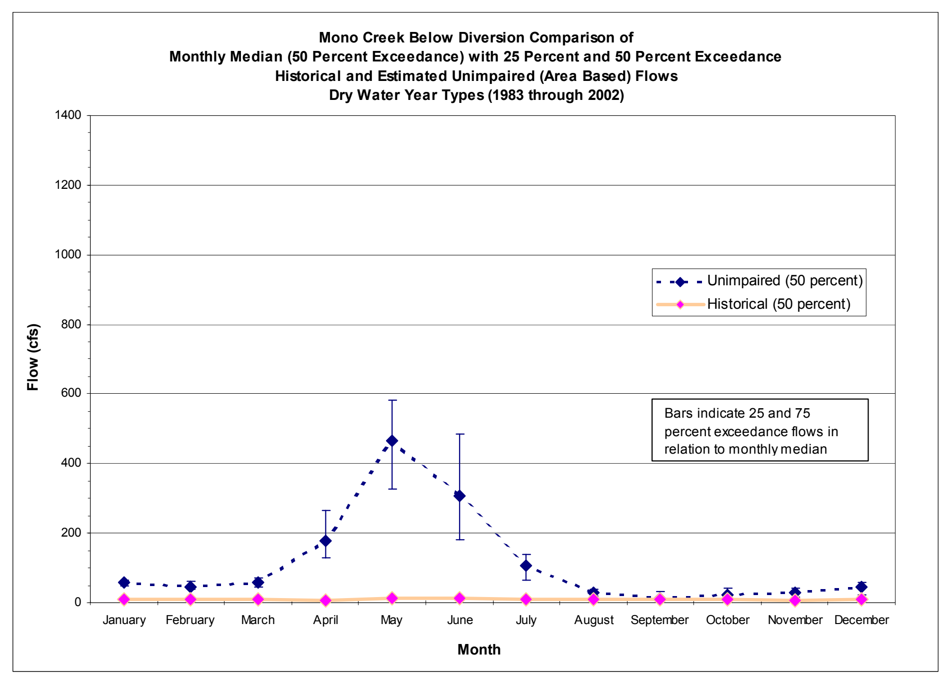
Note: Historical Data Available for Water Years 1986 through 2002

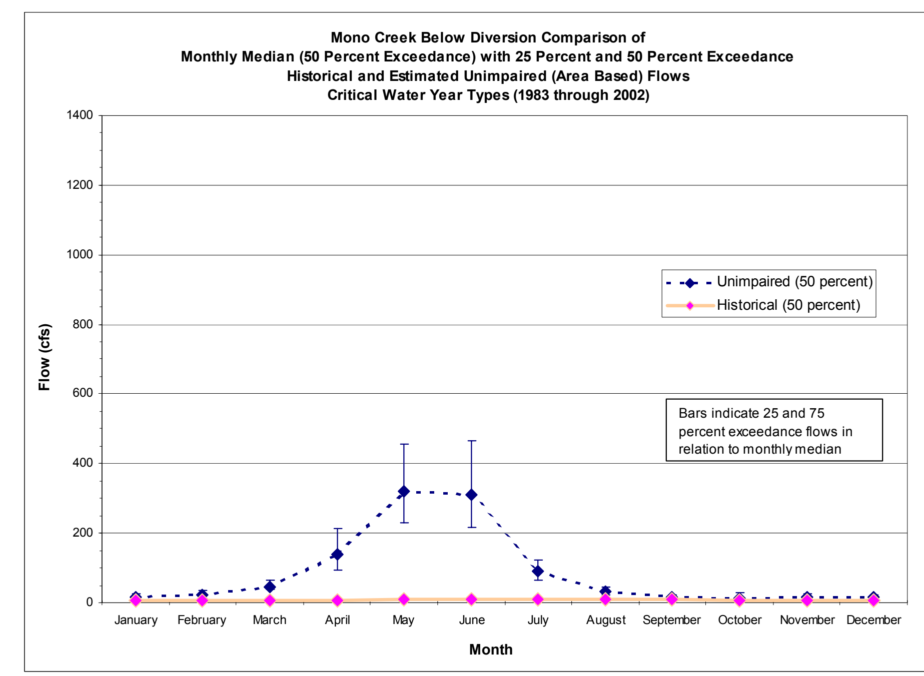
CAWG 6 Appendix O Figure O-7. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Bolsillo Creek below Diversion.





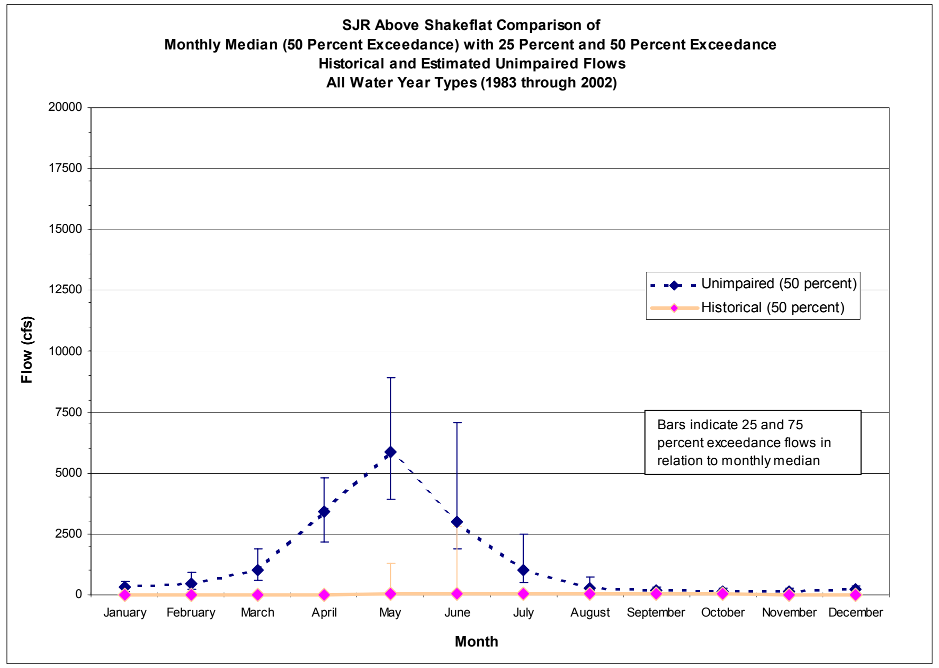


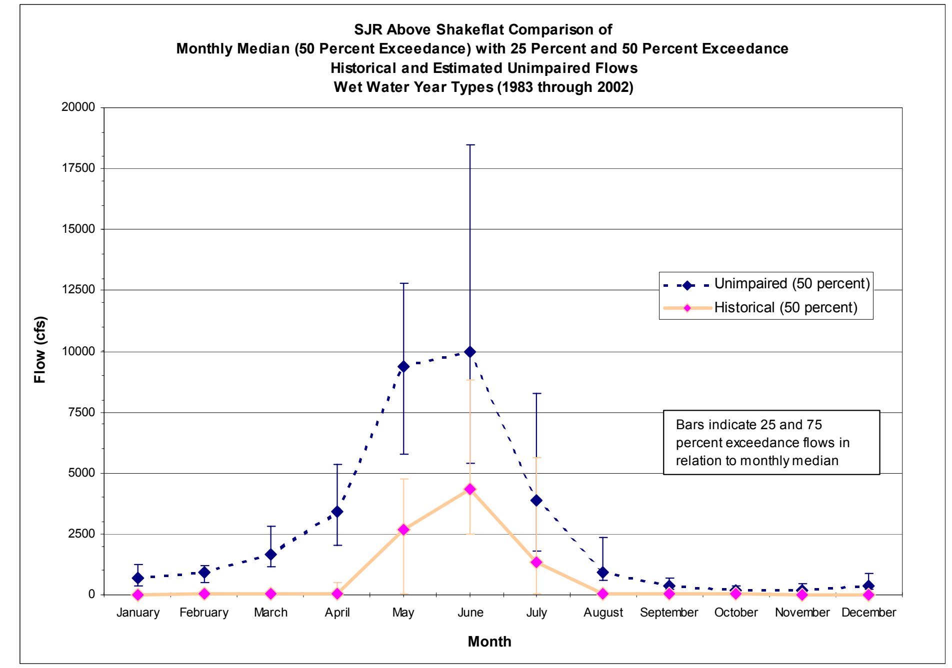


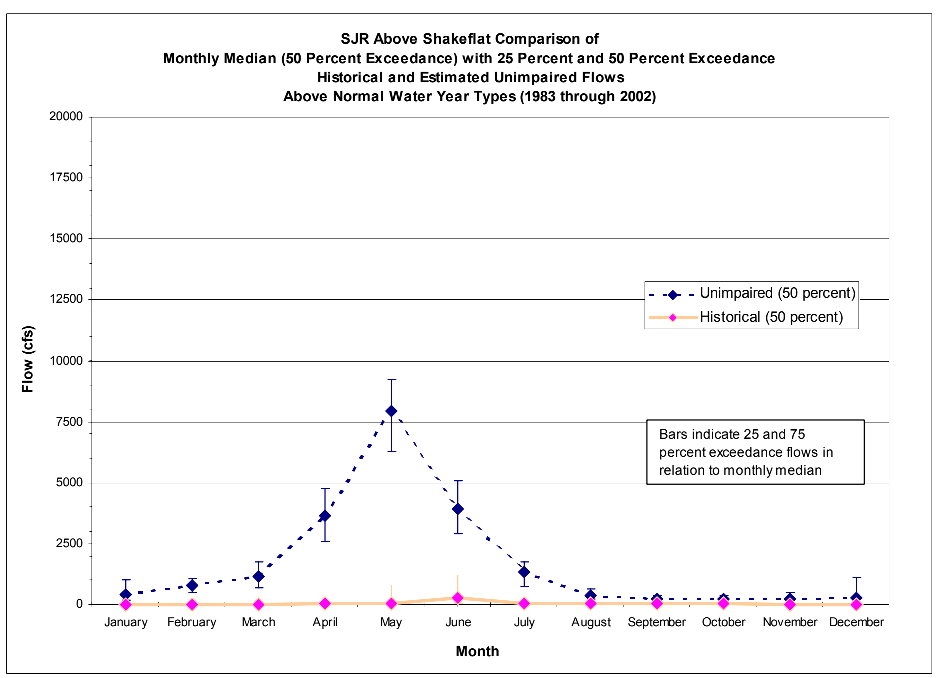


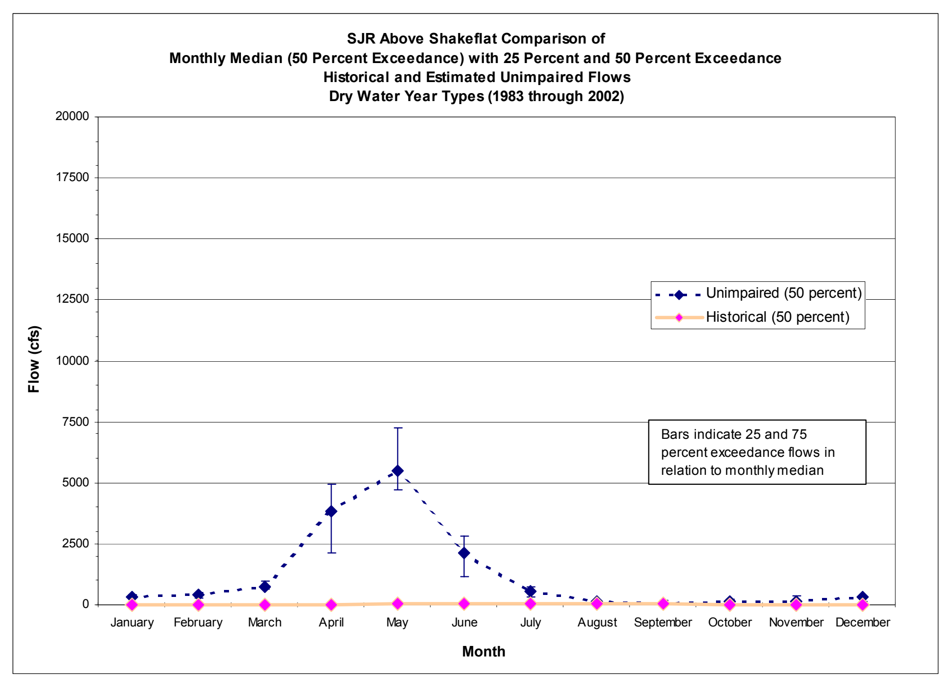
Note: Historical Data Available for Water Years 1984 through 2002

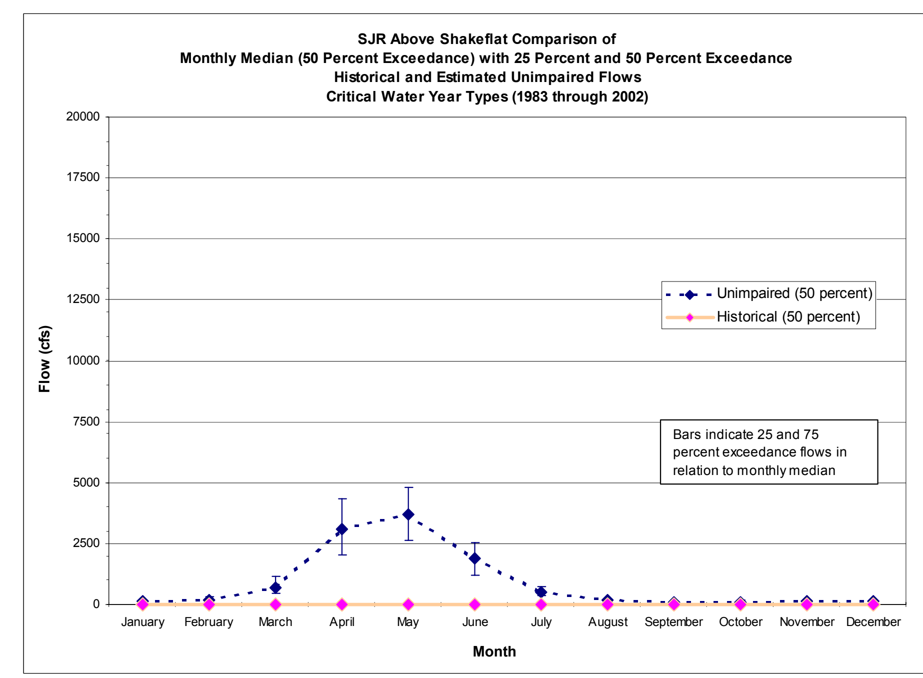
CAWG 6 Appendix O Figure O-8. Monthly Exceedance Unimpaired (Area Based) Versus Existing (Historical) by Water Year Type – Comparison Plots for Mono Creek.





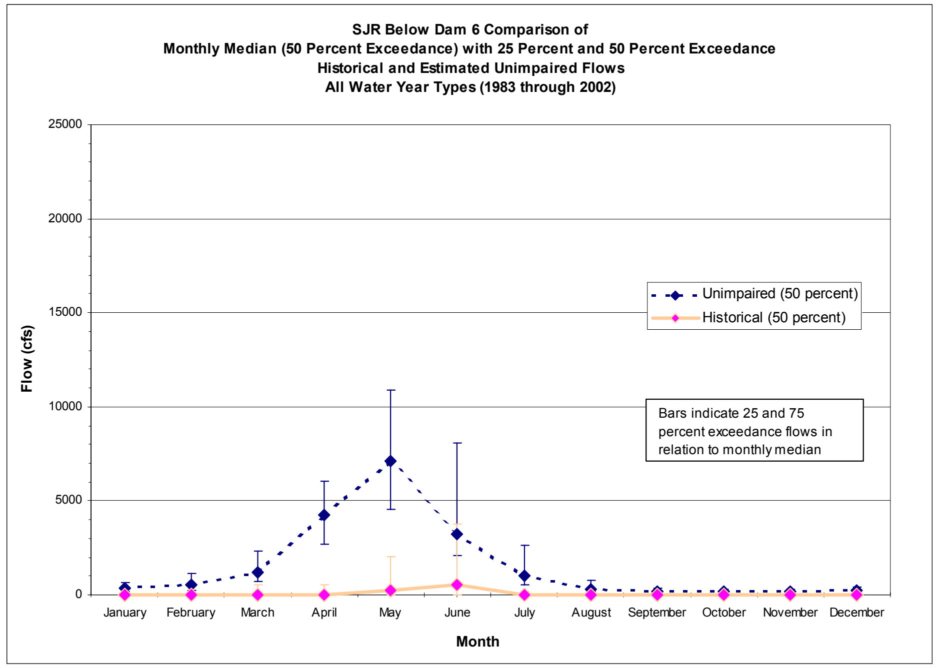


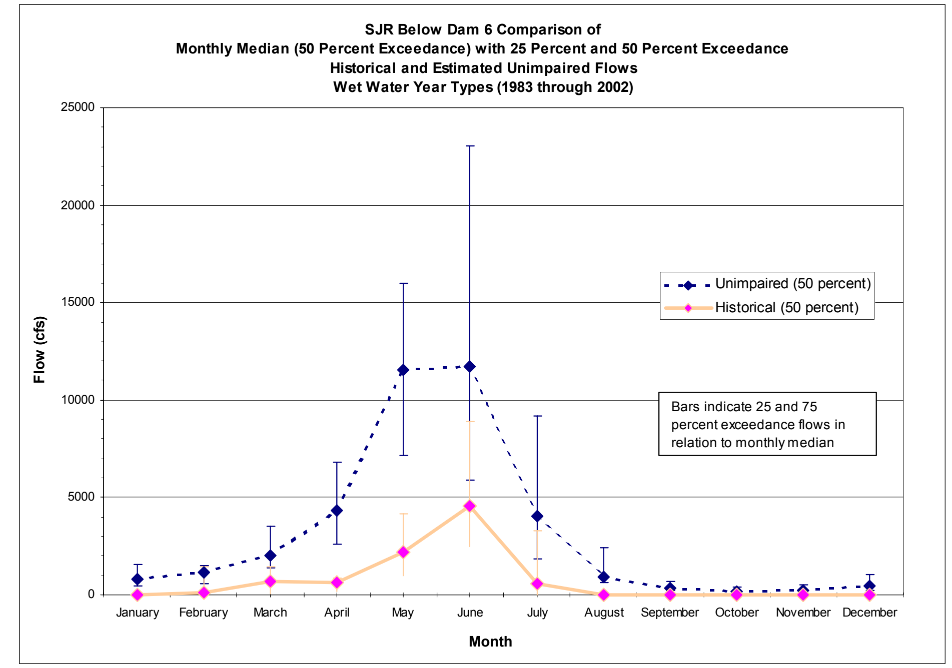


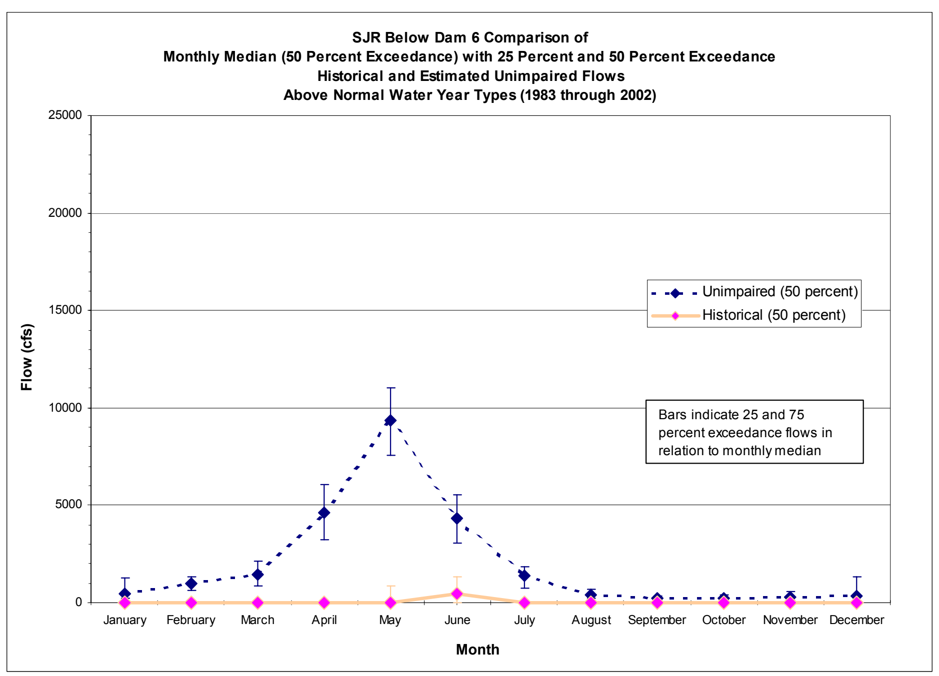


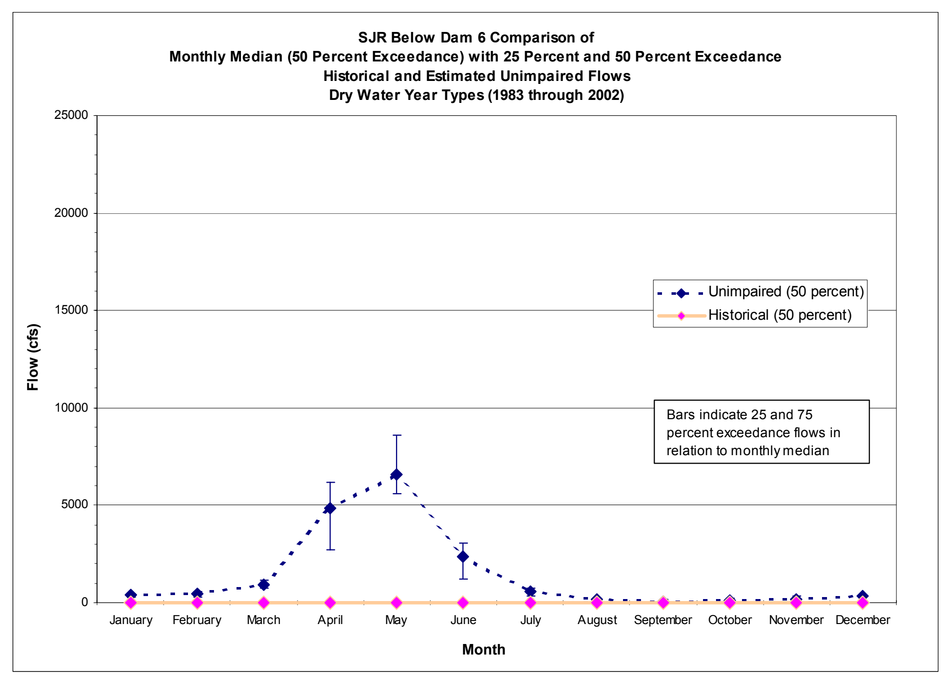
Note: Historical Data Available for Water Years 1983 through 2002

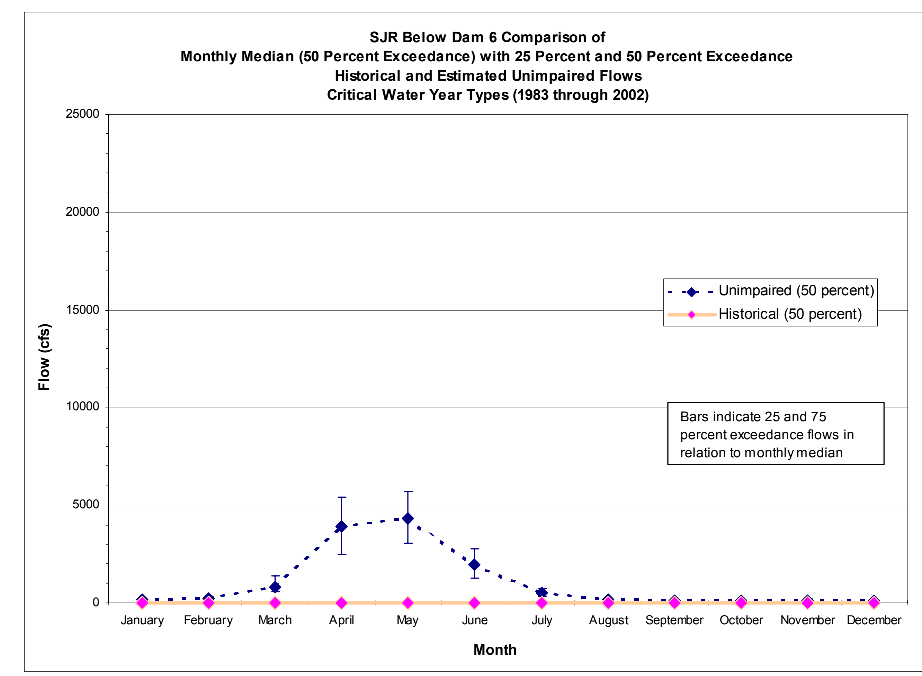
CAWG 6 Appendix O Figure O-9. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for San Joaquin River above Shakeflat Creek.





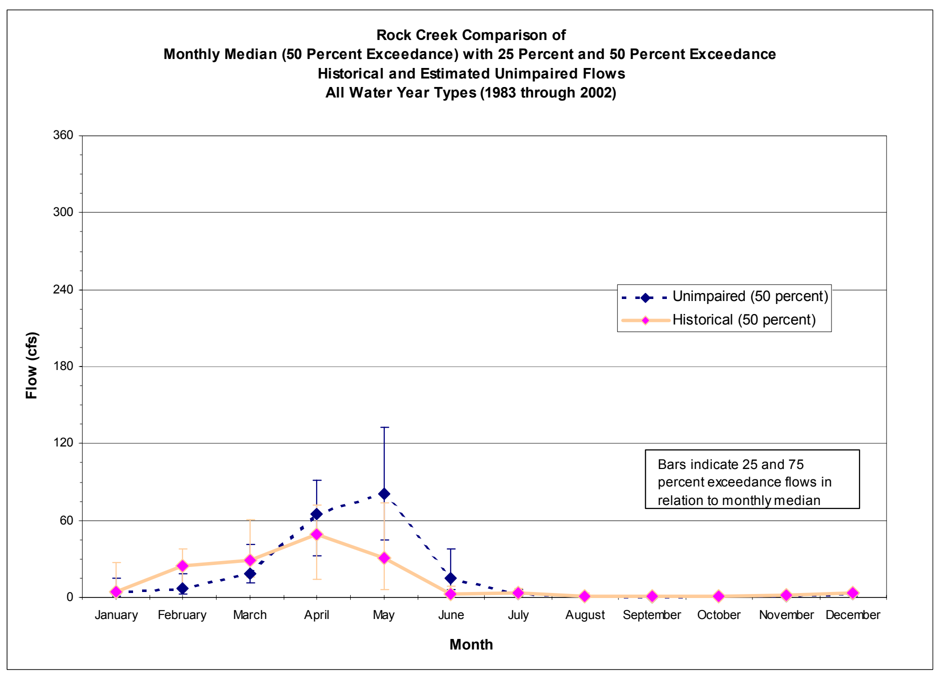


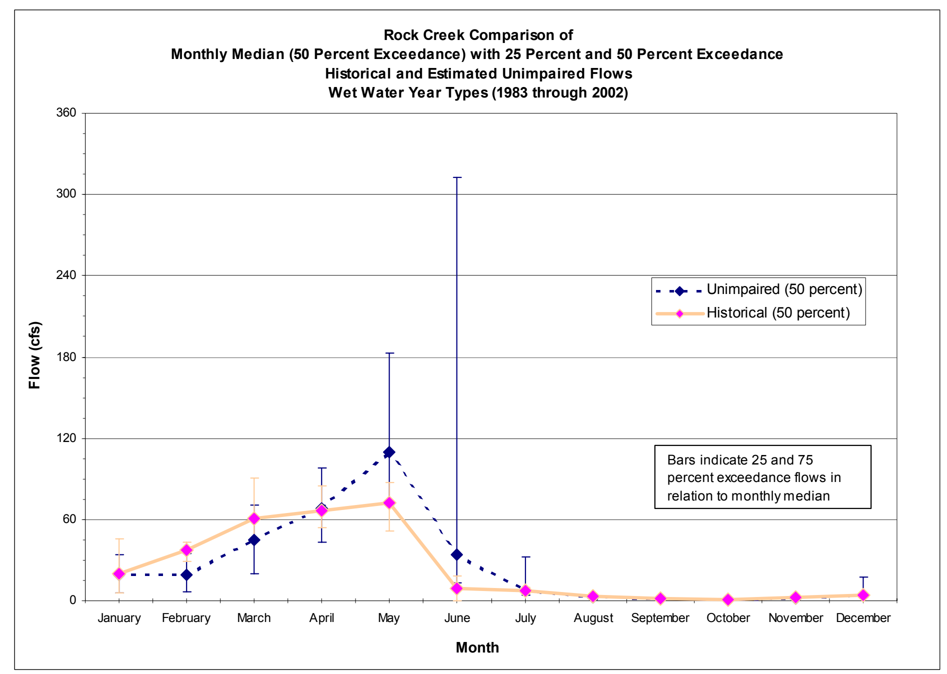


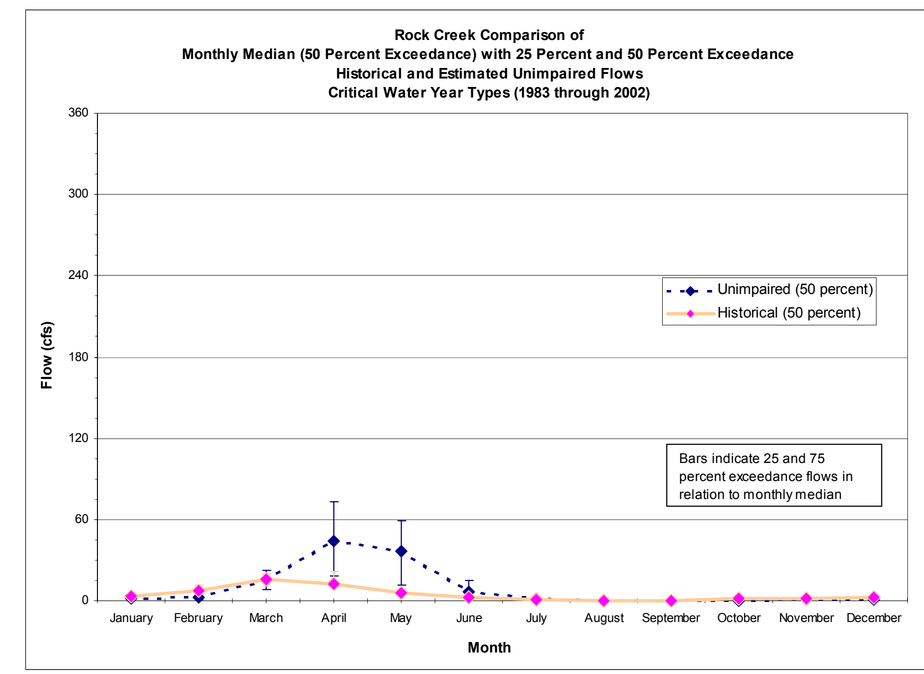


Note: Historical Data Available for Water Years 1983 through 2002

CAWG 6 Appendix O Figure O-10. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for San Joaquin River below Dam 6.

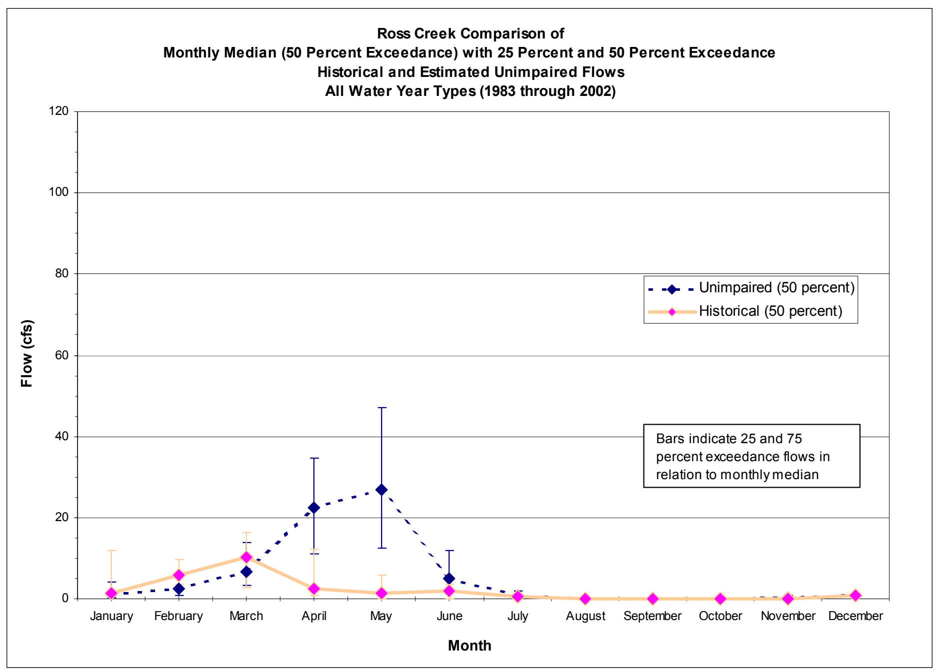


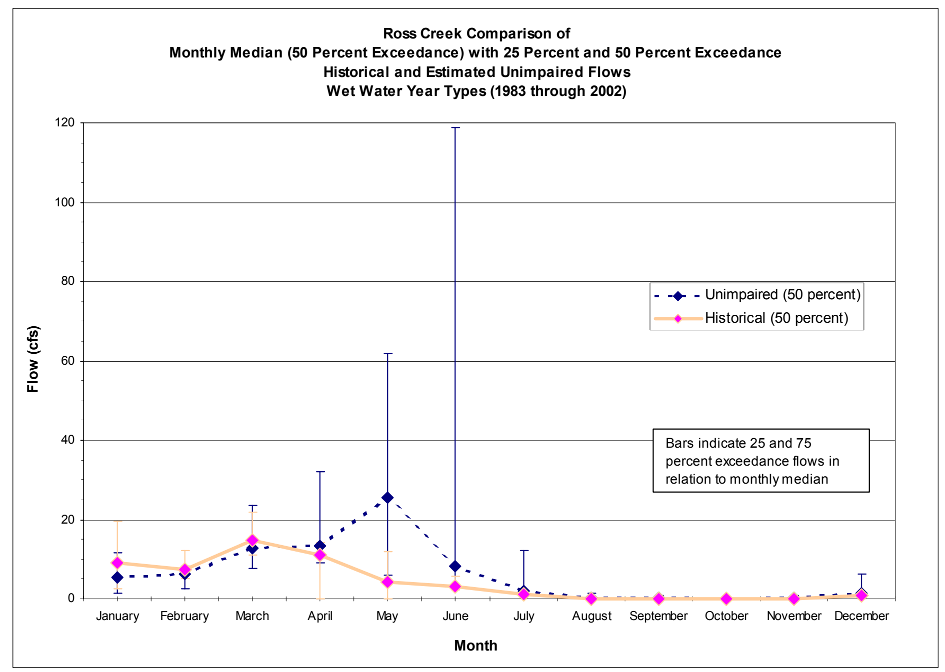


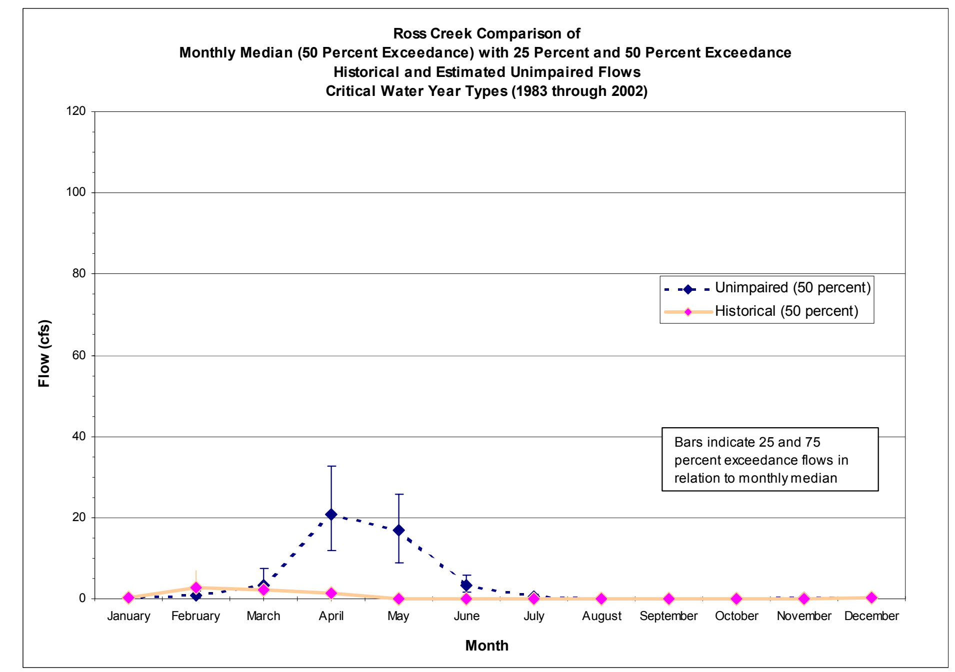


Note: Historical Data Available for Water Years 1992 through 1996

CAWG 6 Appendix O Figure O-11. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Rock Creek.

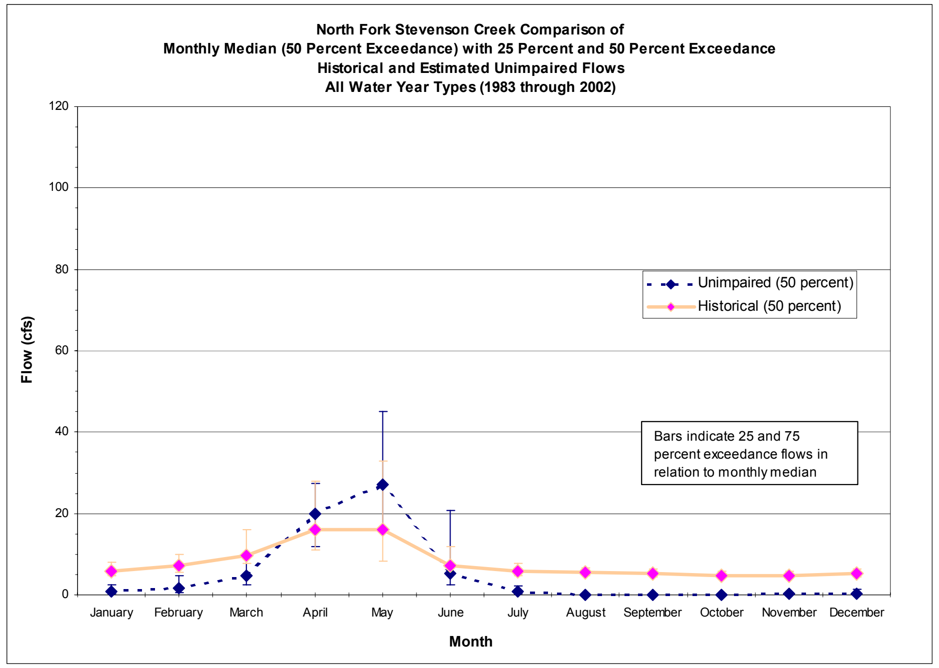


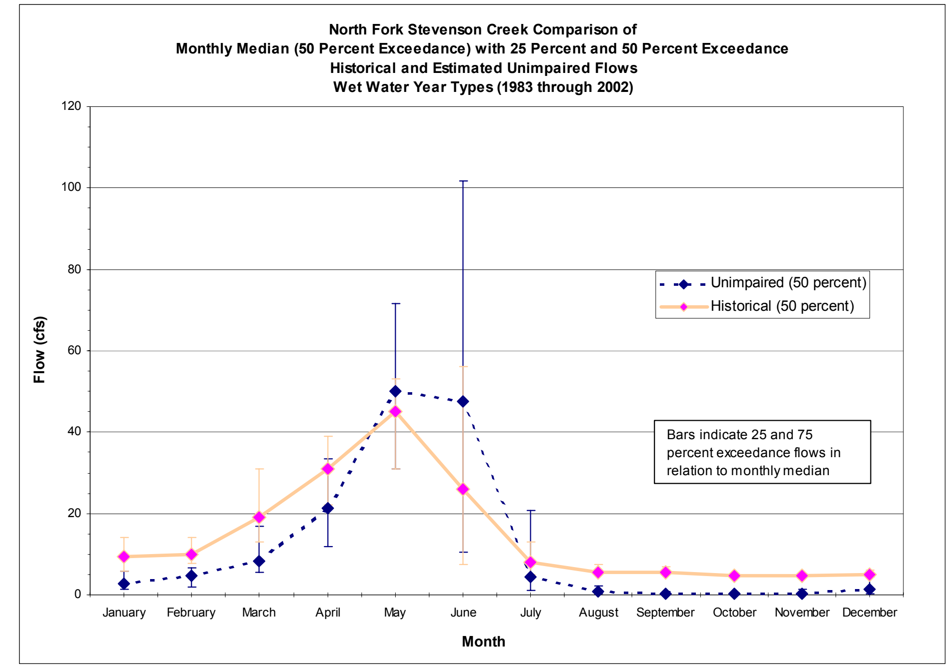


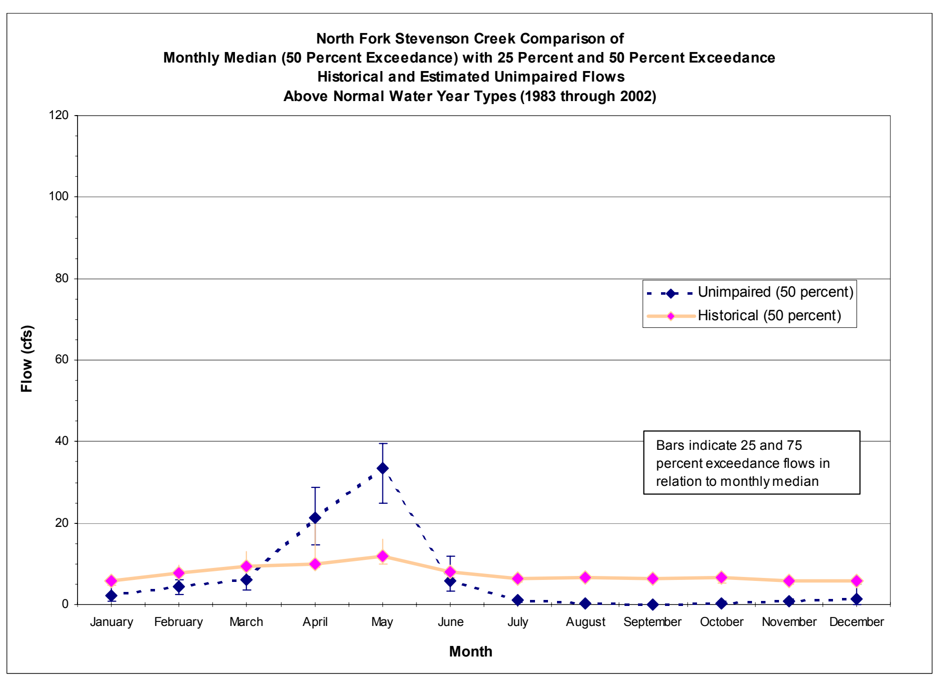


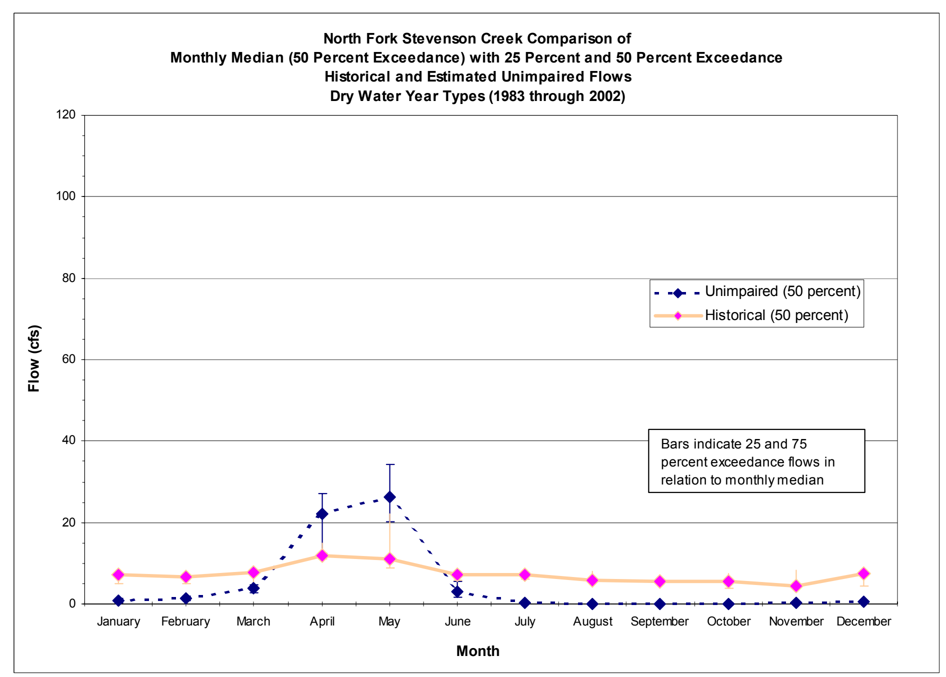
Note: Historical Data Available for Water Years 1992 through 1996

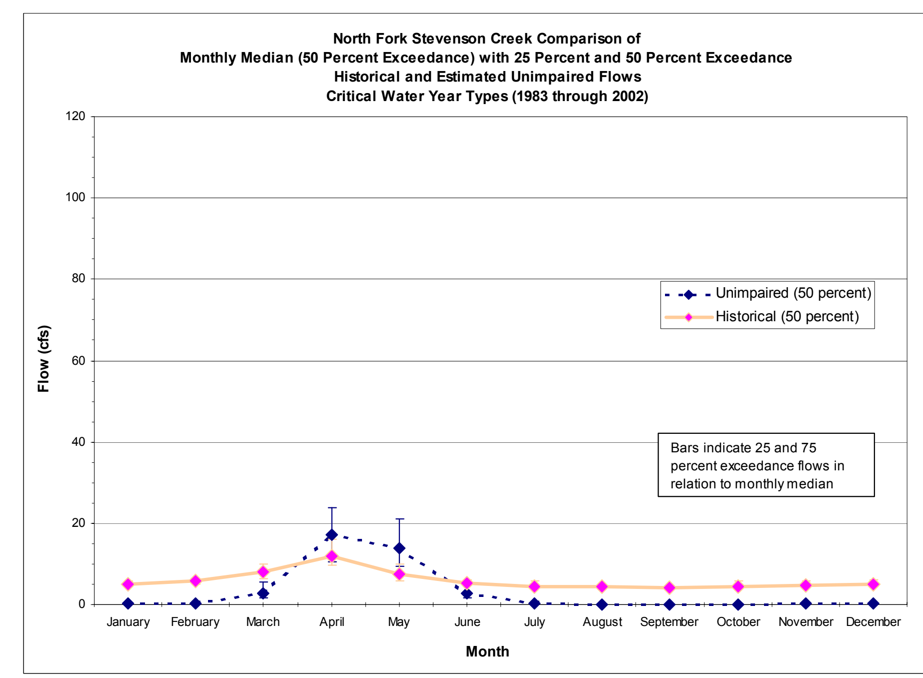
CAWG 6 Appendix O Figure O-12. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Ross Creek.





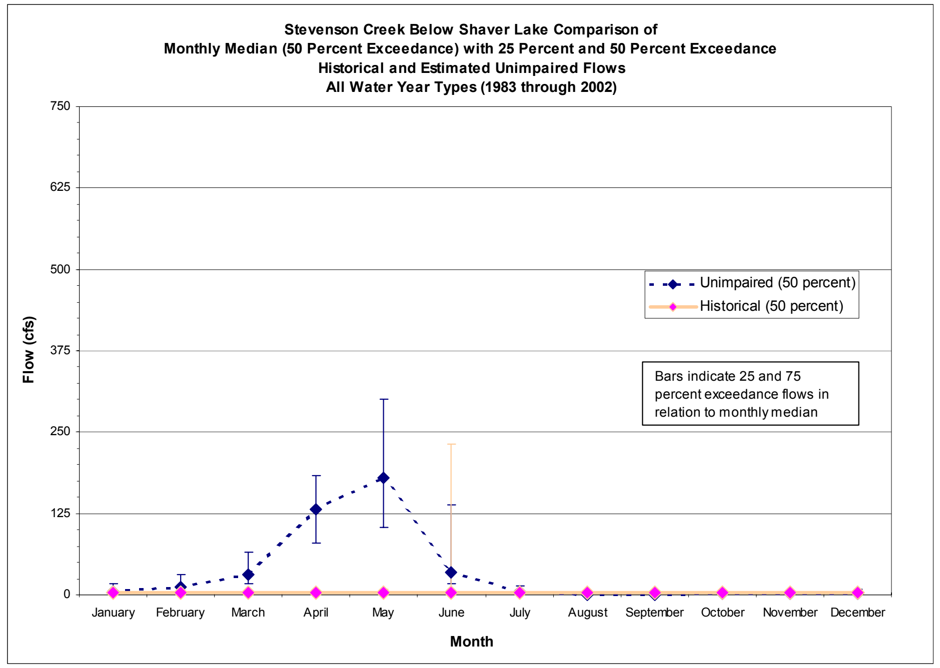


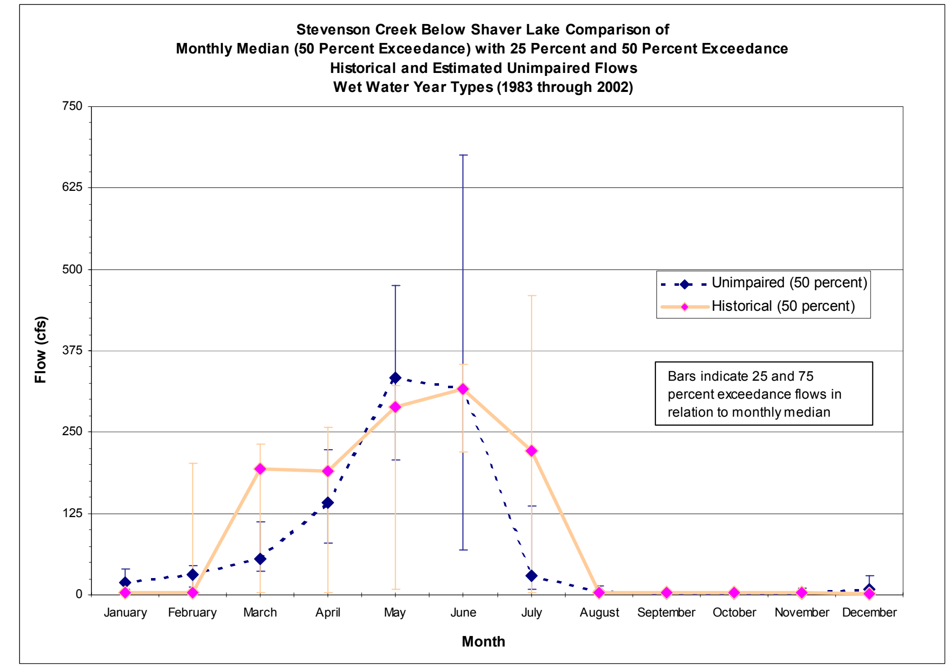


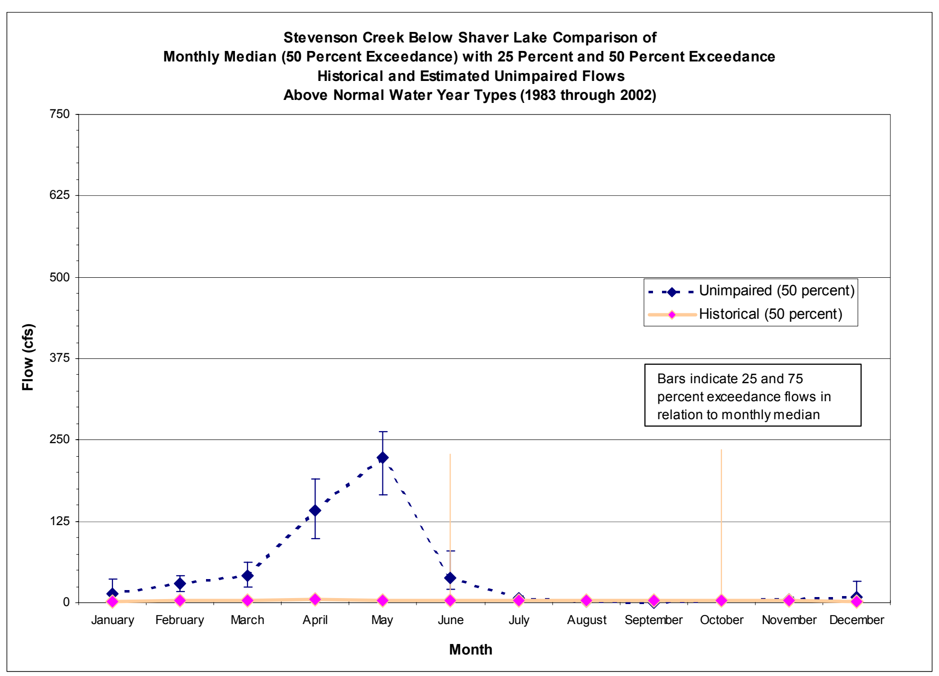


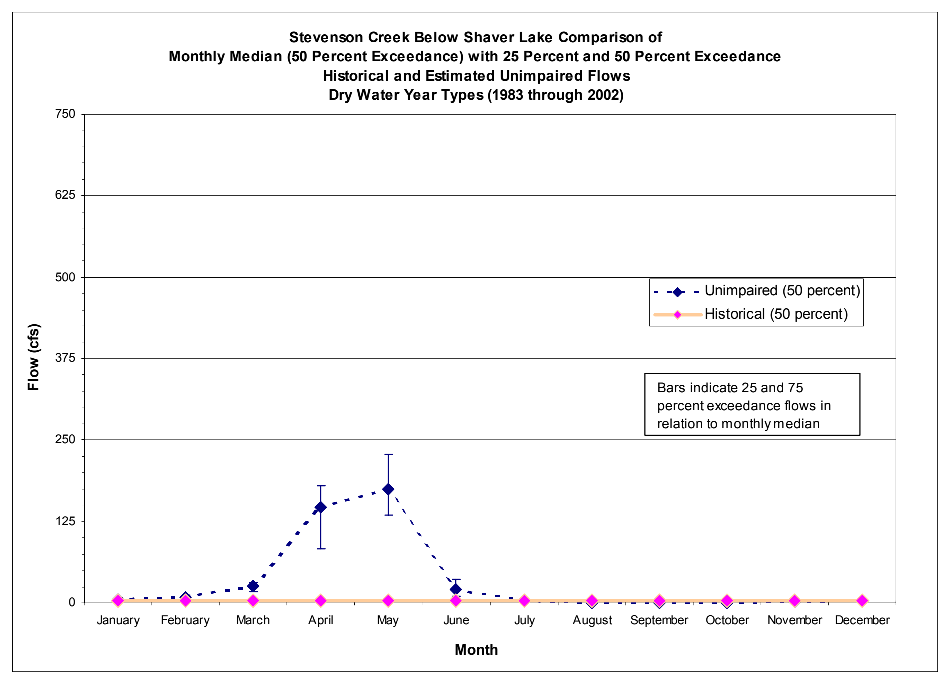
Note: Historical Data Available for Water Years 1989 through 2002

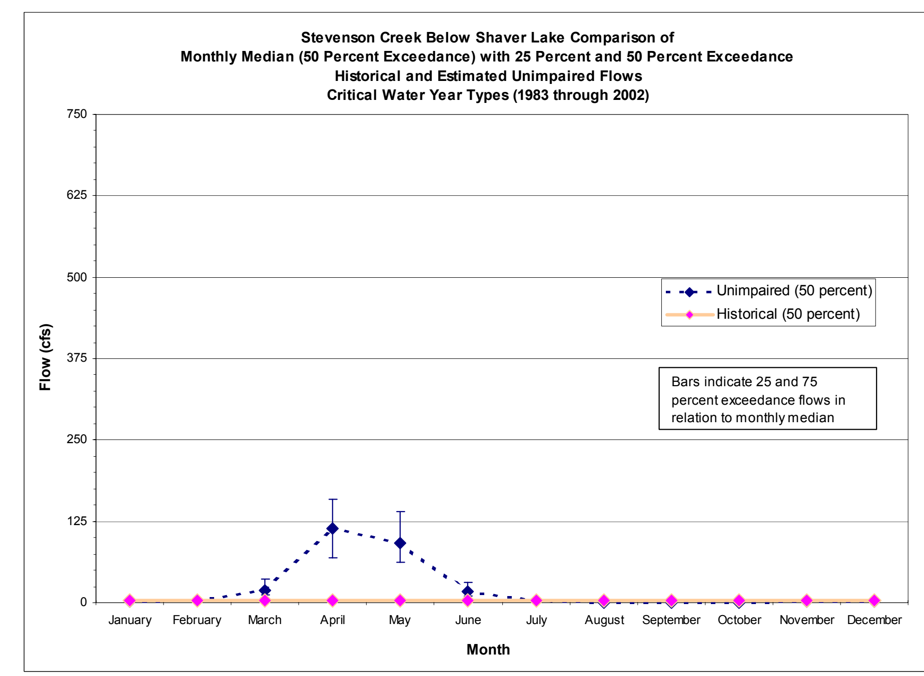
CAWG 6 Appendix O Figure O-13. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for North Fork Stevenson Creek.





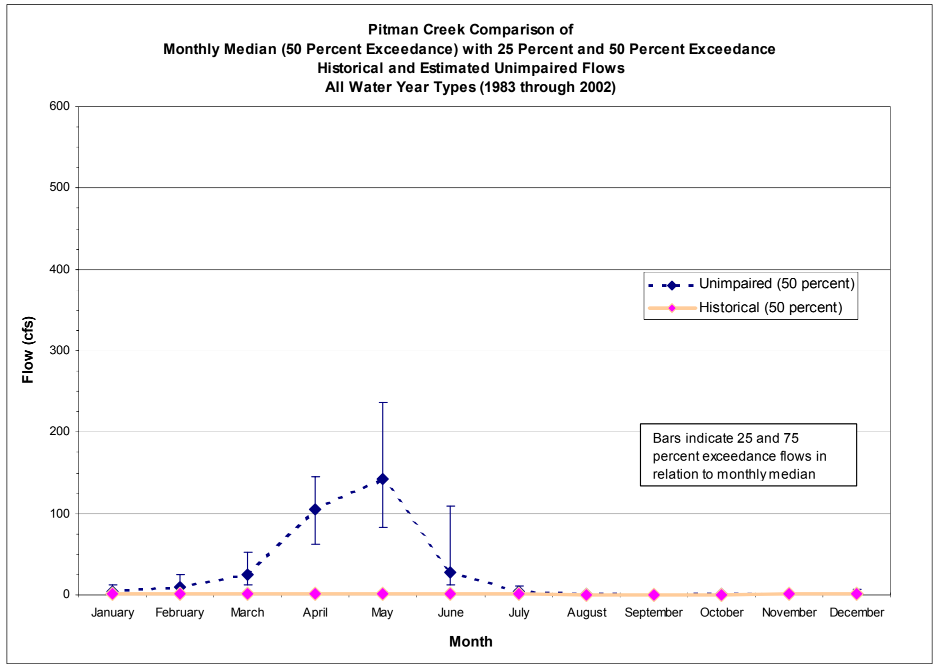


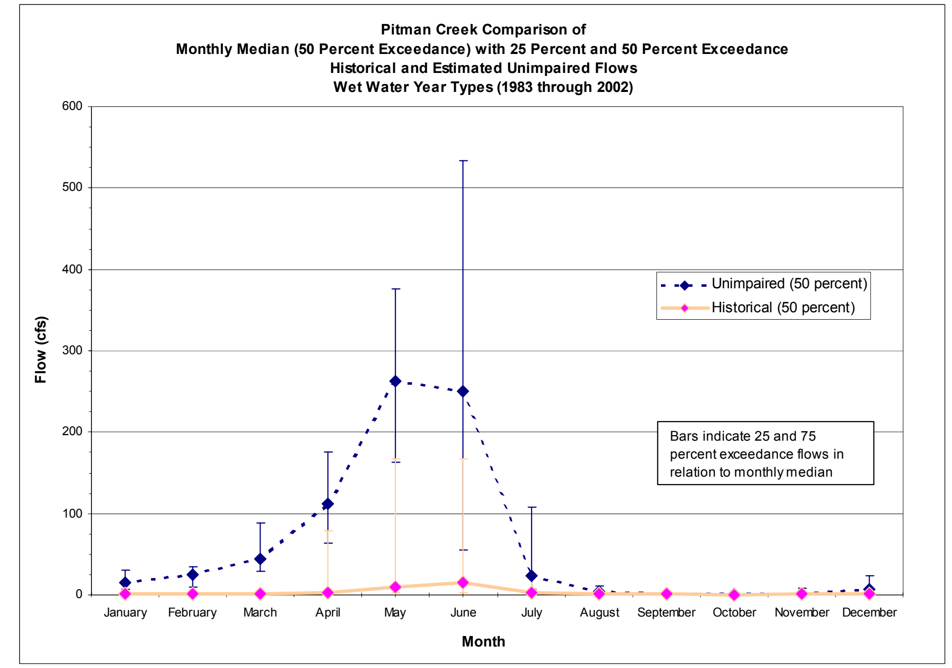


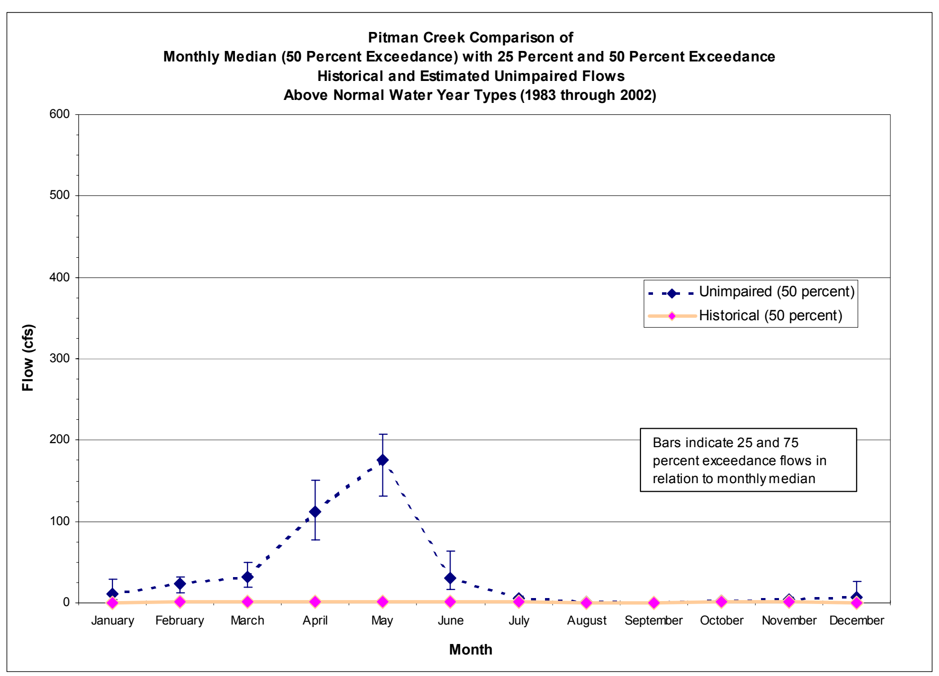


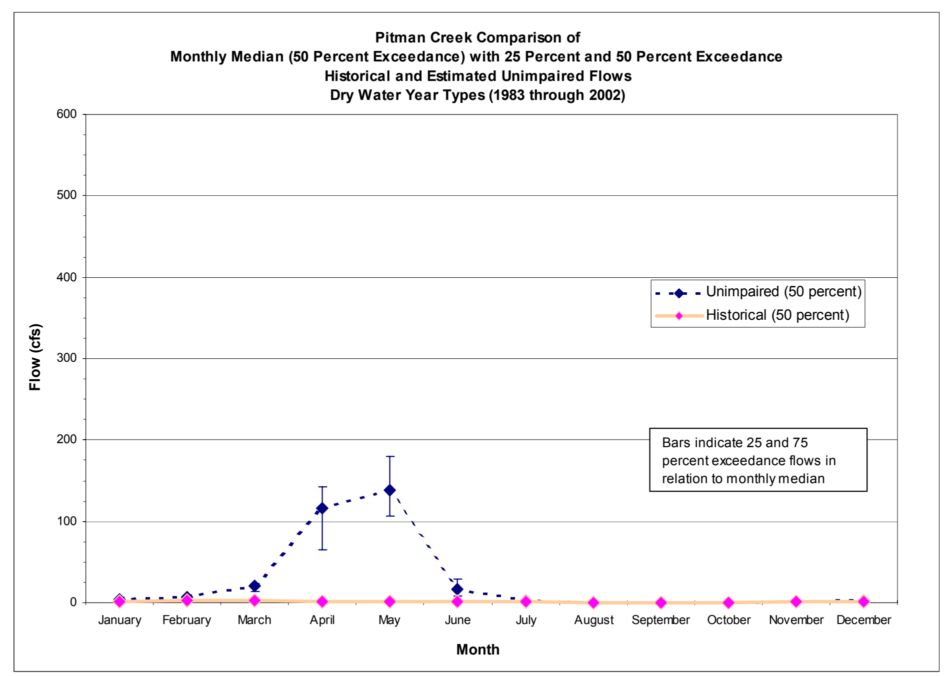
Note: Historical Data Available for Water Years 1987 through 2002

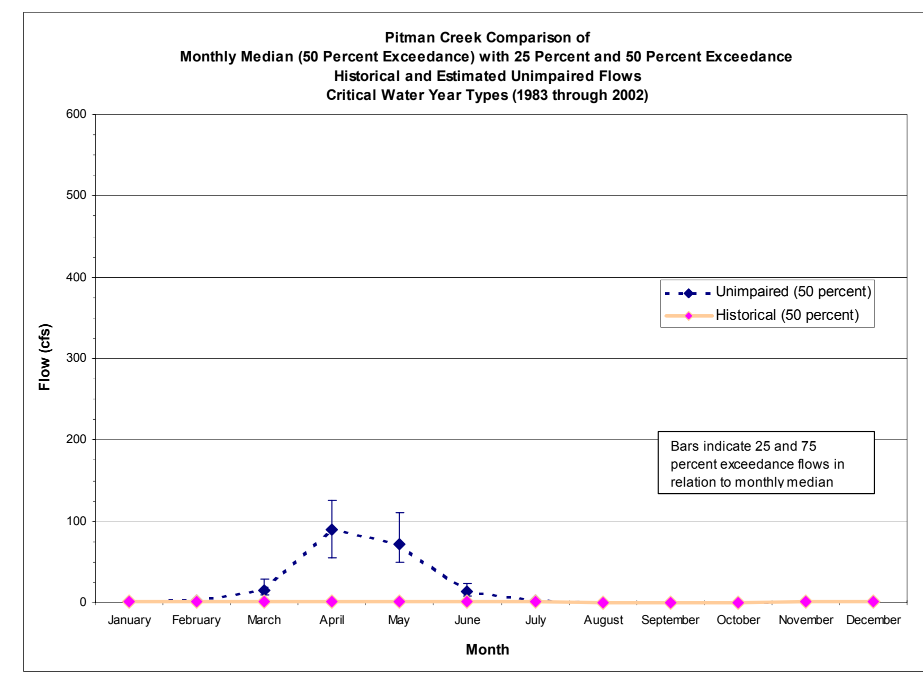
CAWG 6 Appendix O Figure O-14. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Stevenson Creek below Shaver Lake.





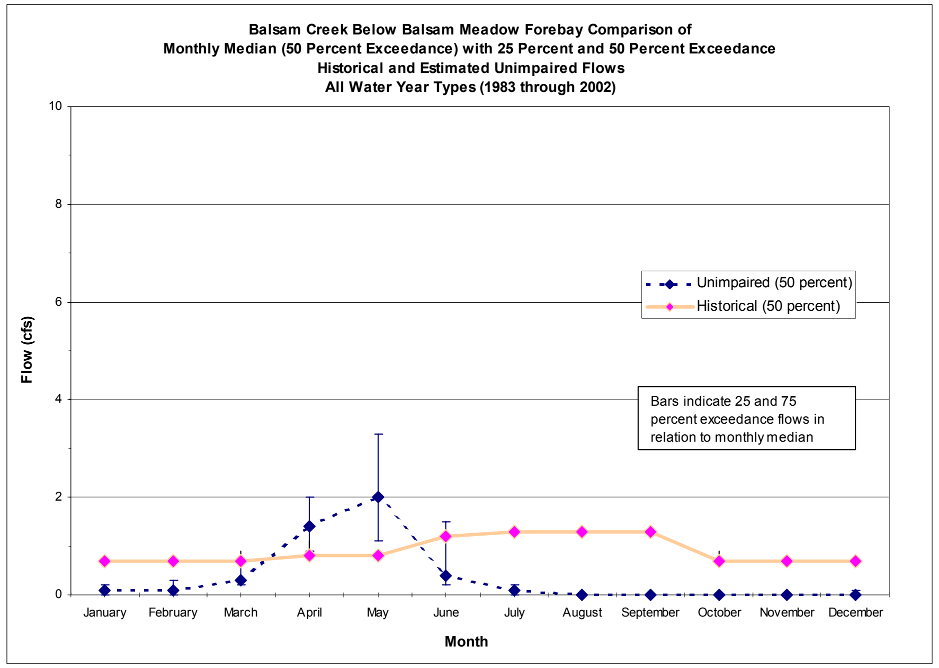


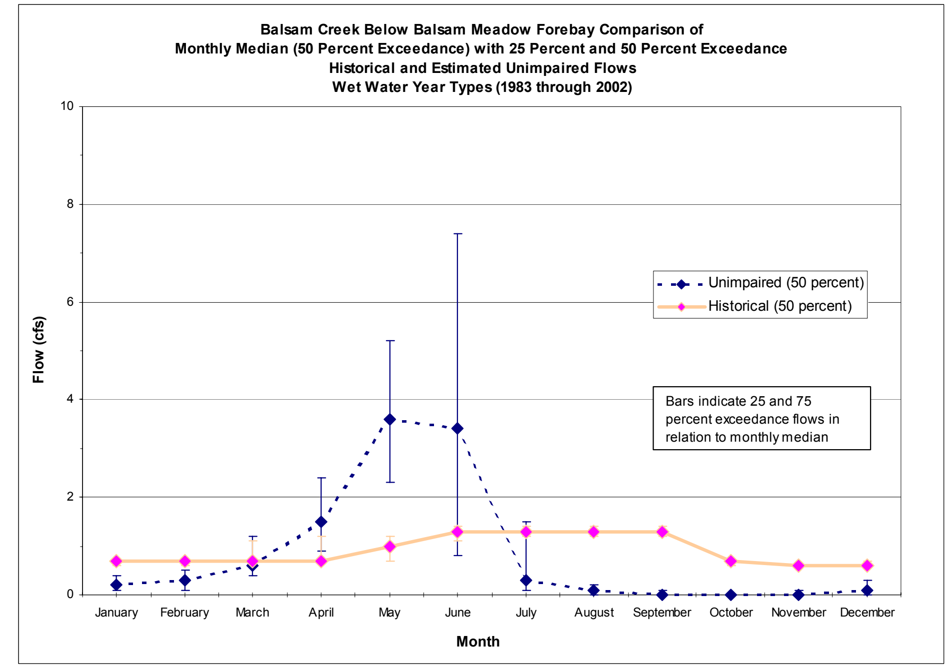


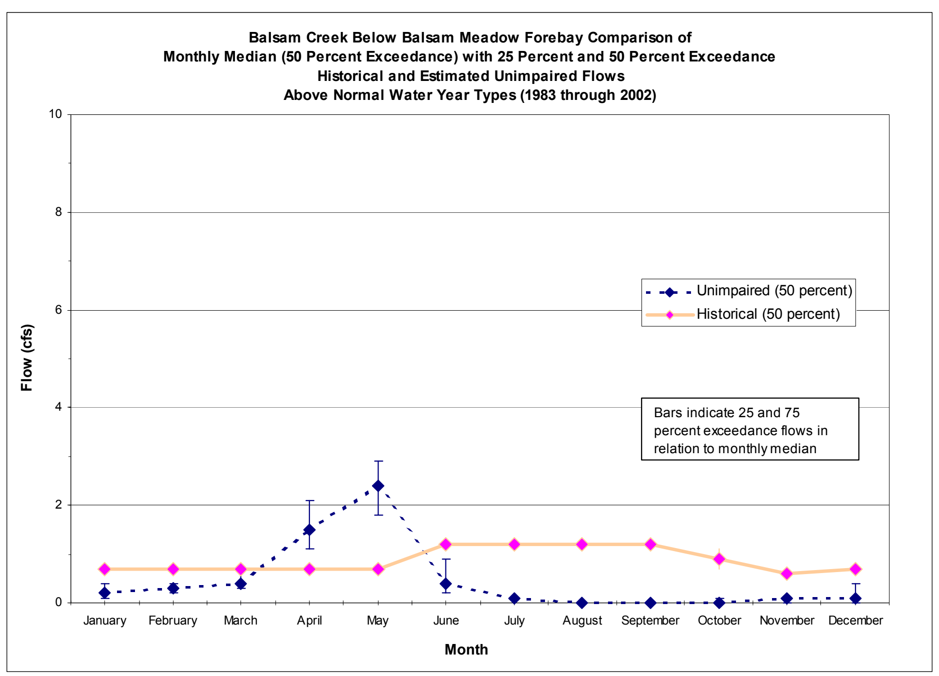


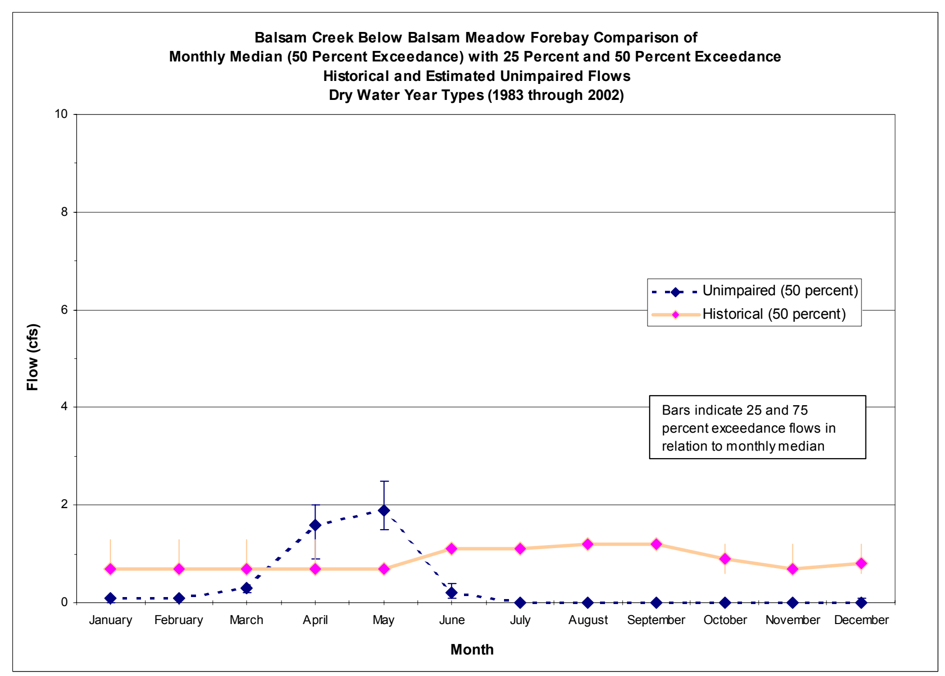
Note: Historical Data Available for Water Years 1983 through 2002

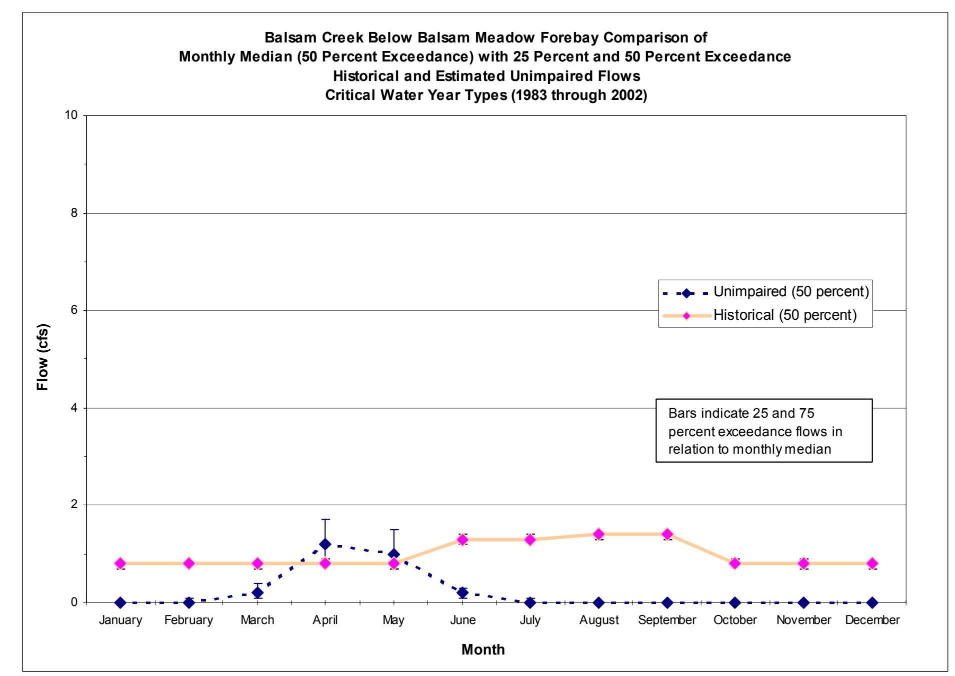
CAWG 6 Appendix O Figure O-15. Monthly Exceedance Unimpaired (Above Diversion) Versus Historical (Below Diversion) by Water Year Type – Comparison Plots for Pitman Creek.





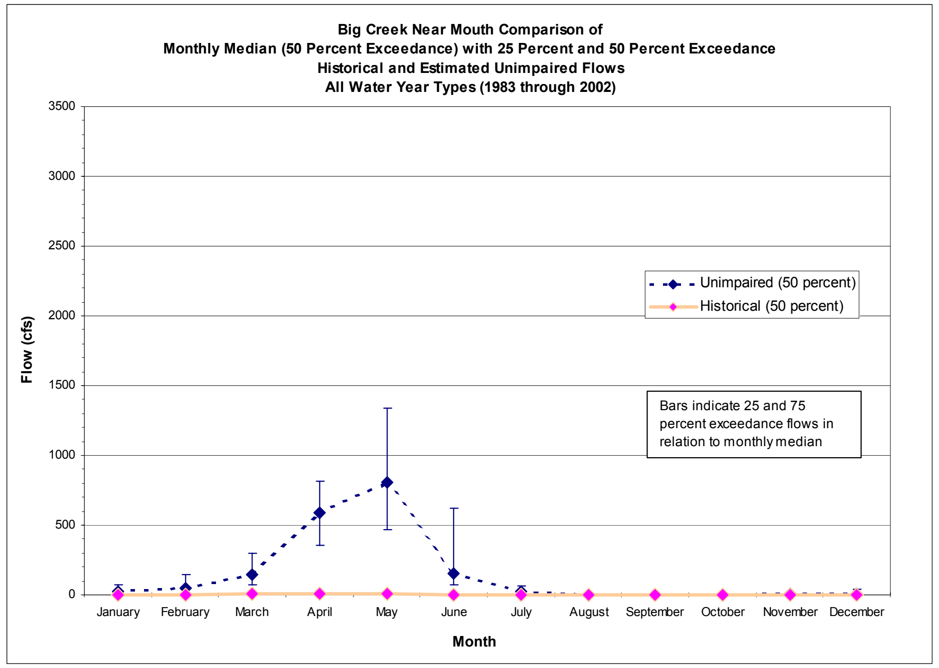


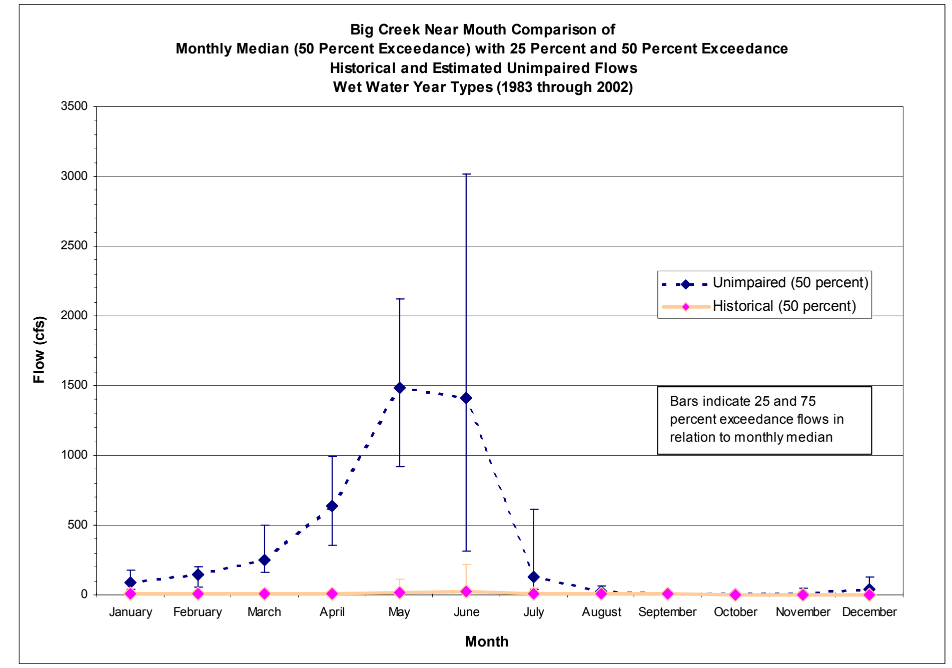


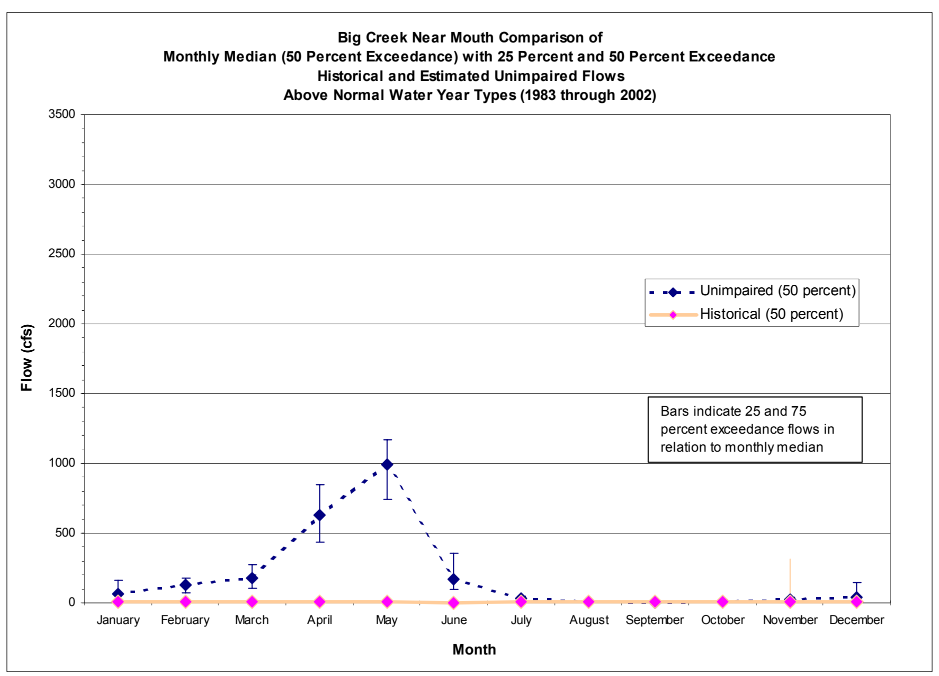


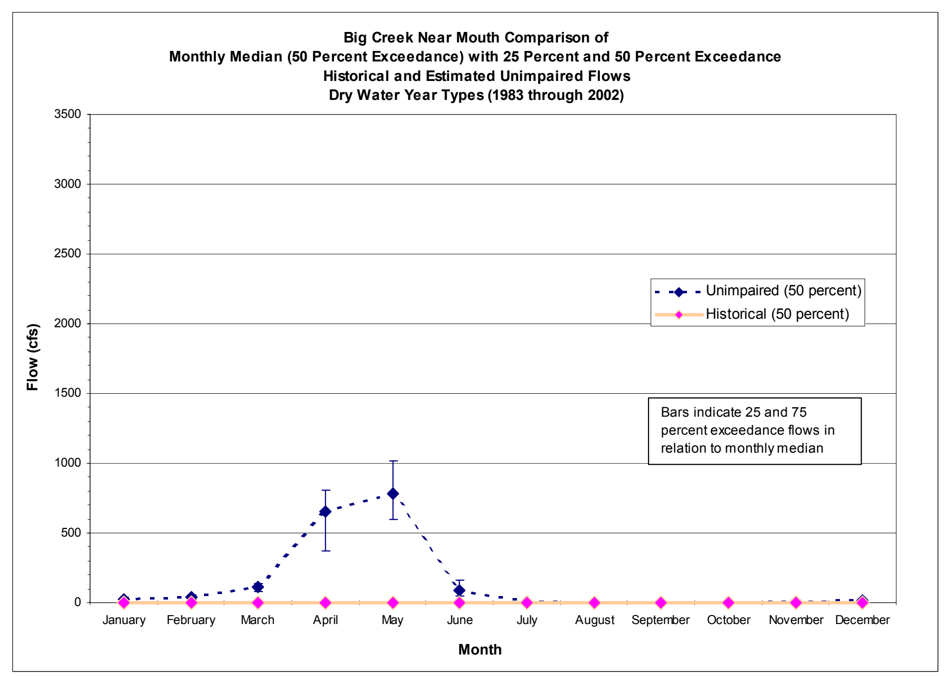
Note: Historical Data Available for Water Years 1989 through 2002

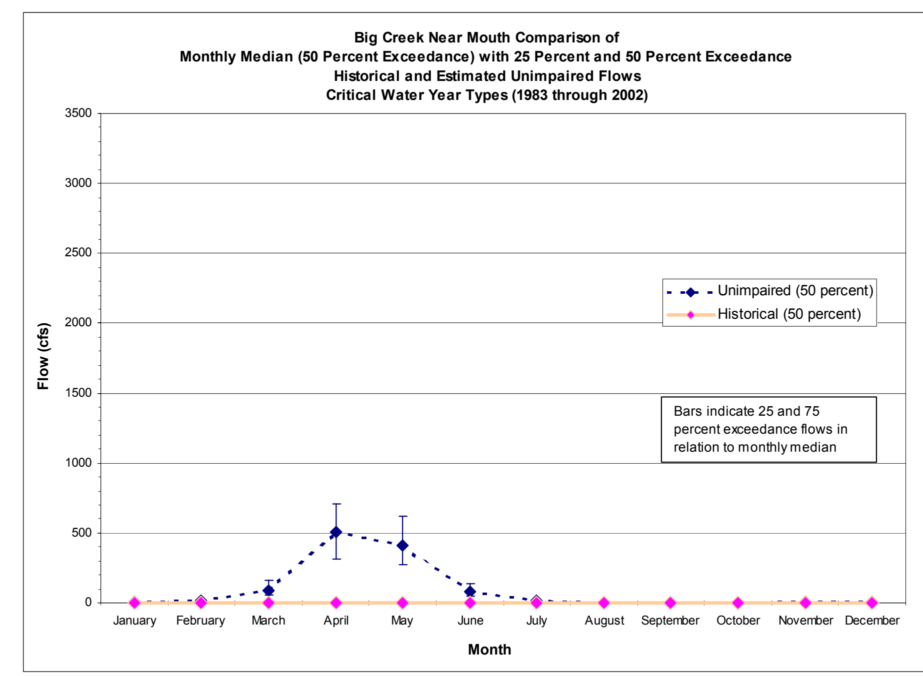
CAWG 6 Appendix O Figure O-16. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Balsam Creek.





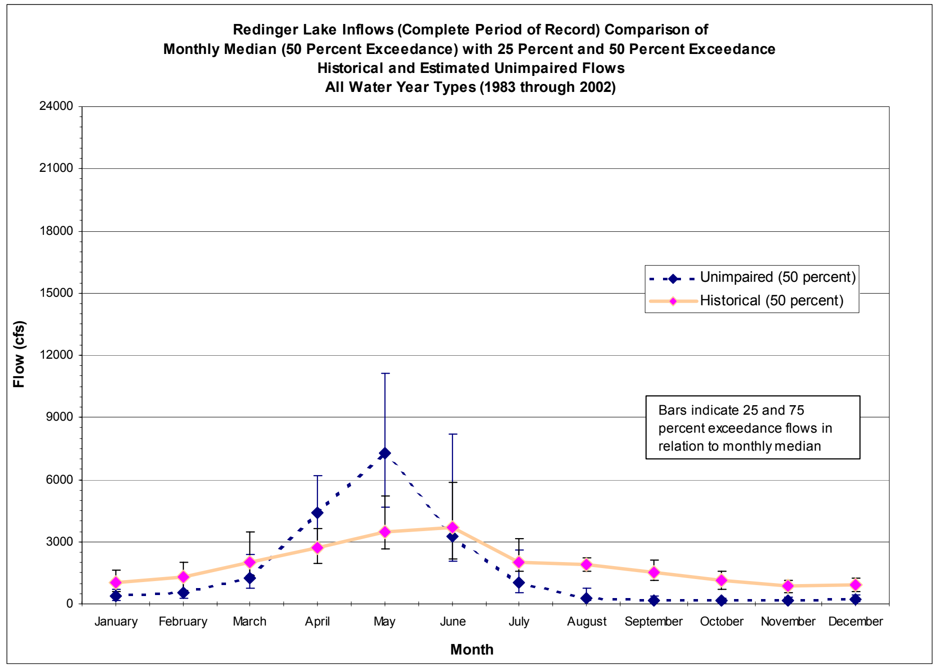


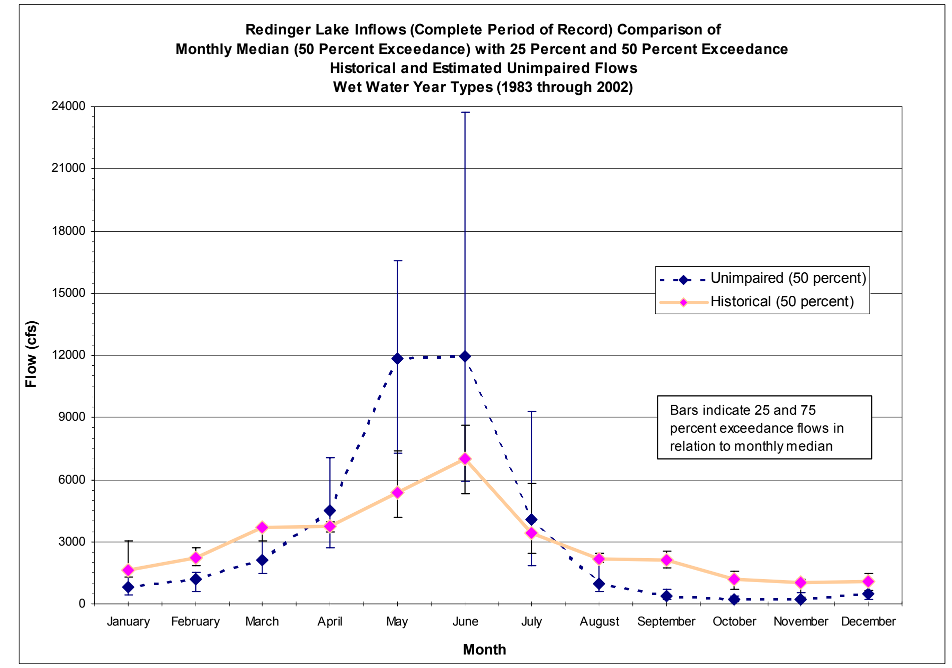


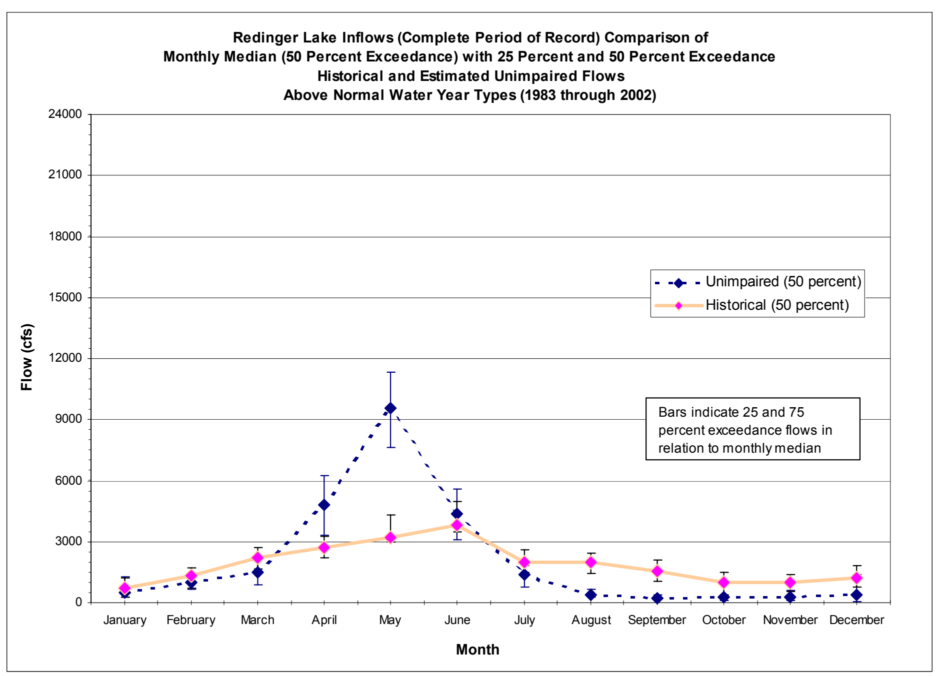


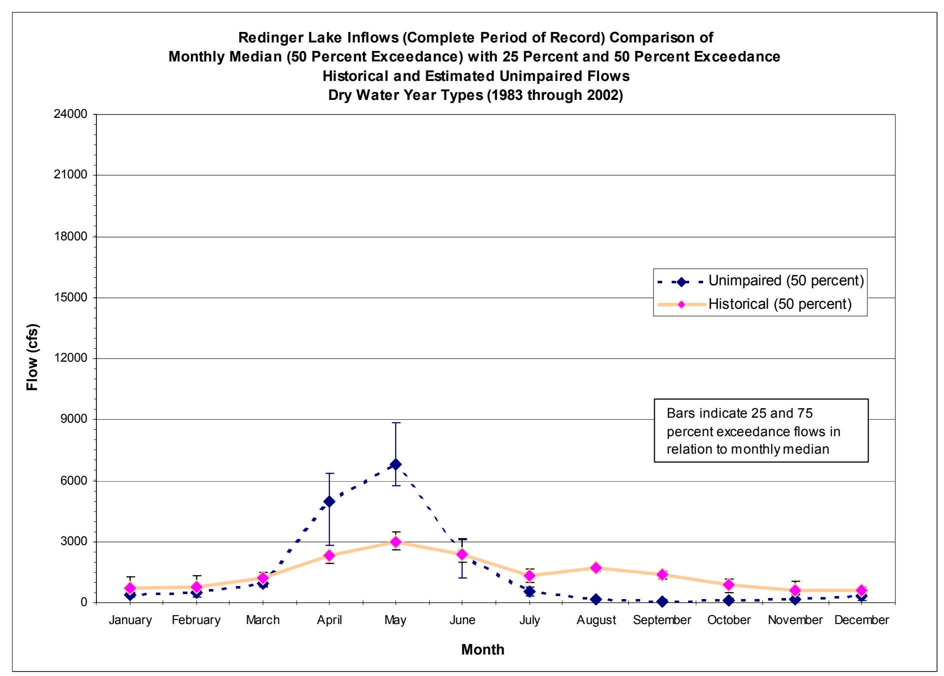
Note: Historical Data Available for Water Years 1983 through 2002

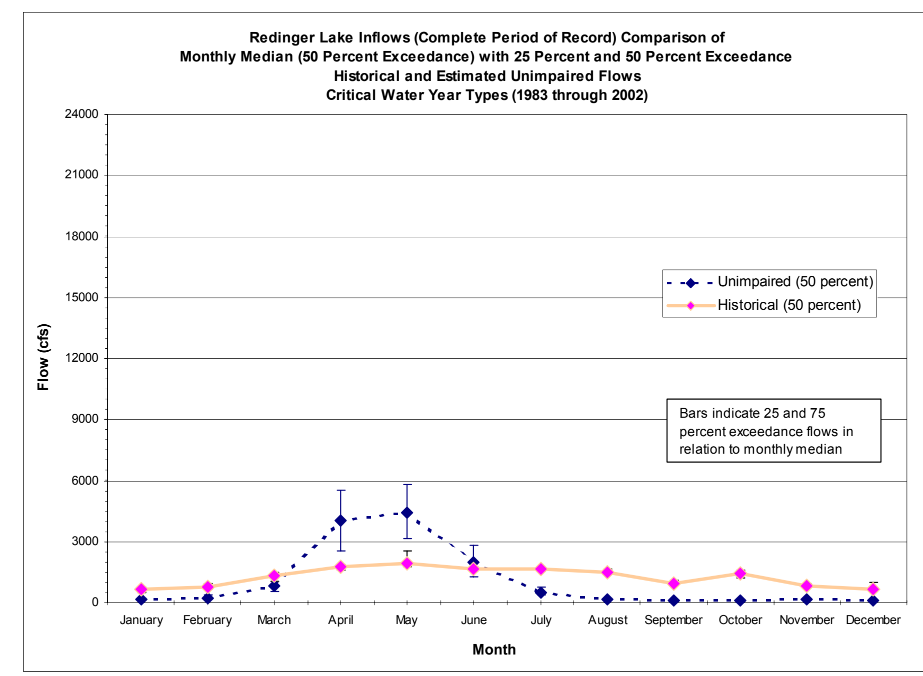
CAWG 6 Appendix O Figure O-17. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Big Creek near Mouth.





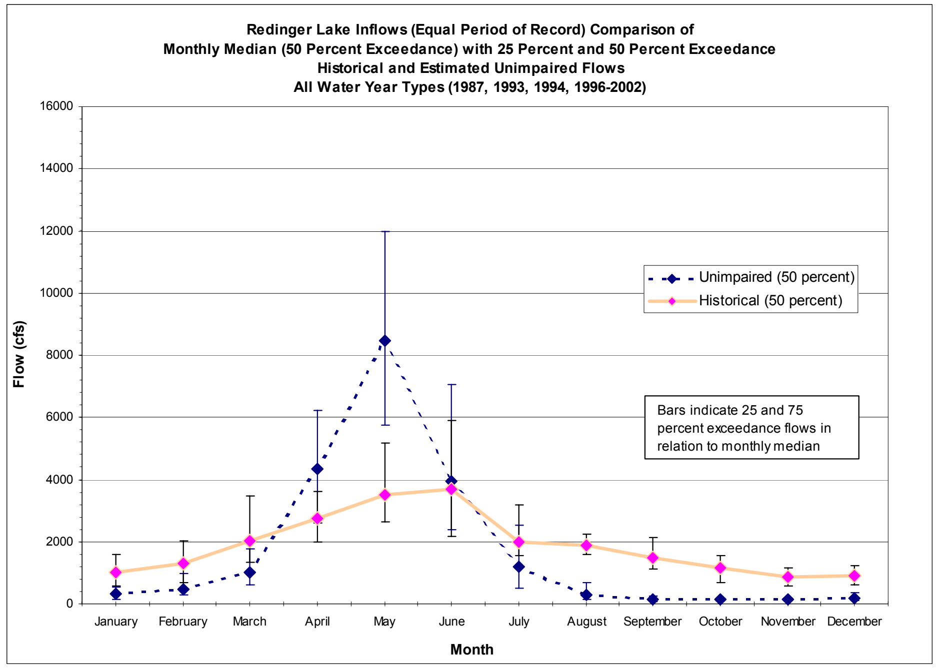


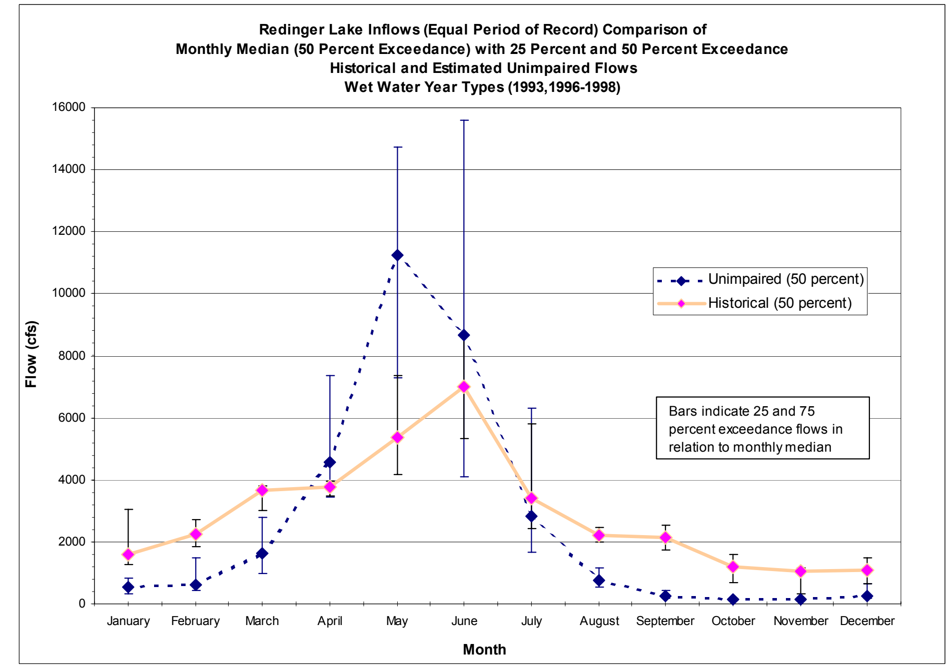


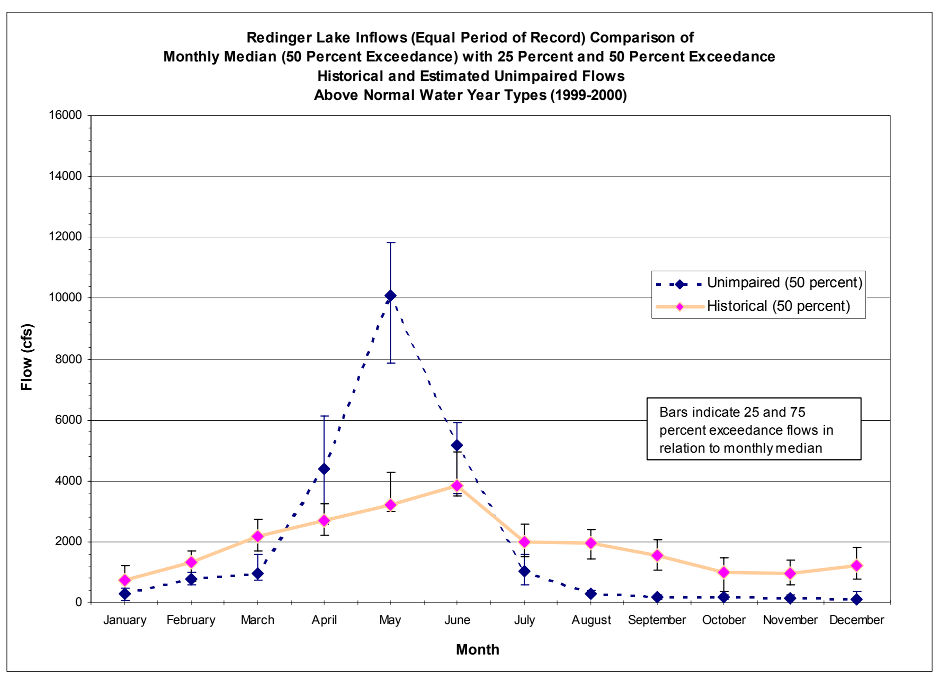


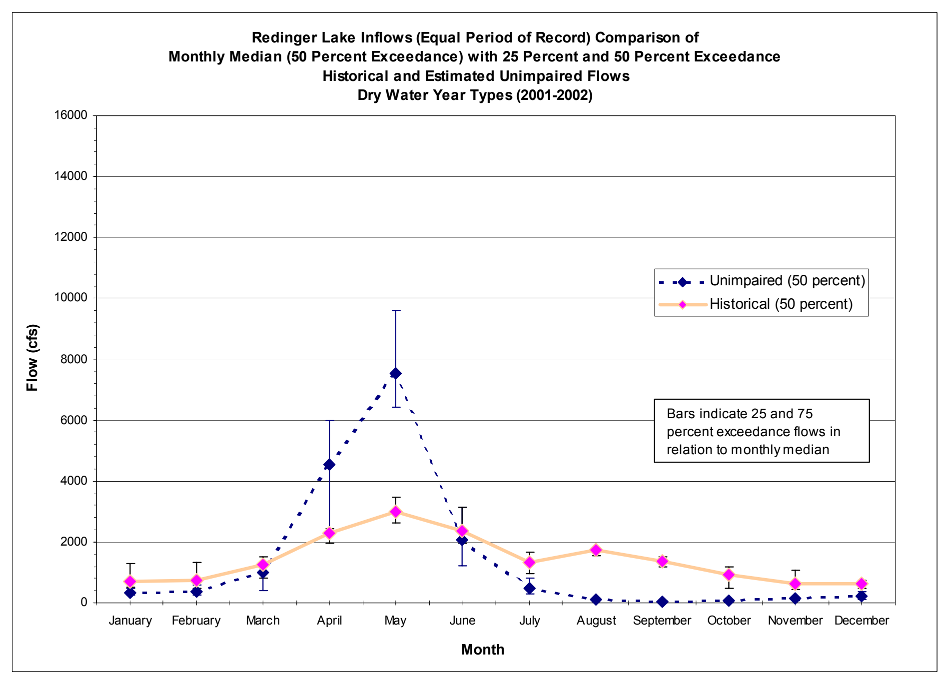
Note: Historical Data Available for Water Years 1987, 1993, 1994, 1996 through 2002

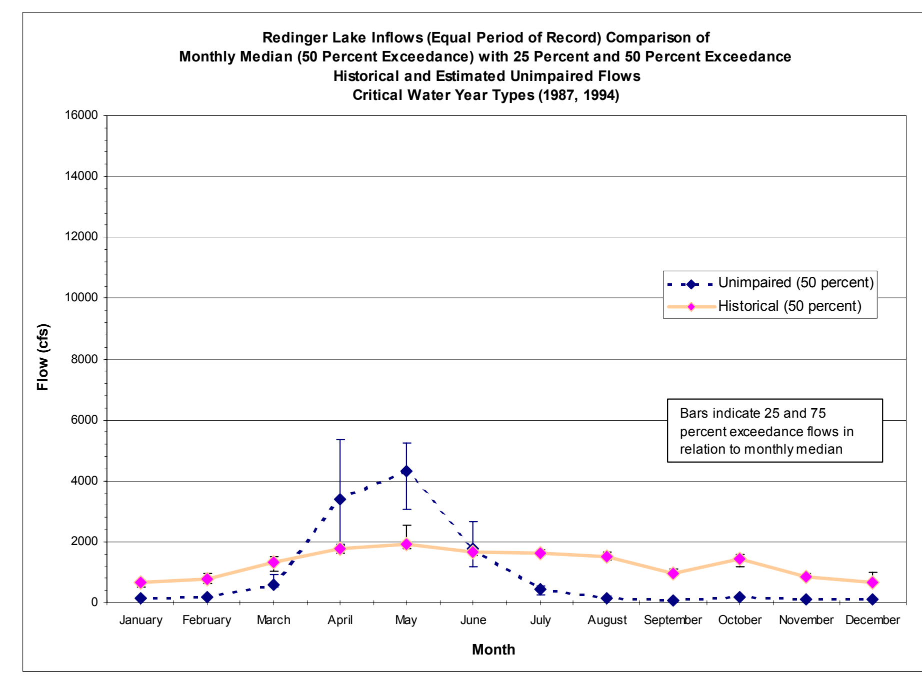
CAWG 6 Appendix O Figure O-18. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Redinger Lake Inflows (Complete Period of Record).











Note: Historical Data Available for Water Years 1987, 1993, 1994, 1996 through 2002

CAWG 6 Appendix O Figure O-19. Monthly Exceedance Unimpaired Versus Existing (Historical) by Water Year Type – Comparison Plots for Redinger Lake Inflows (Equal Period of Record).

APPENDIX P

CONSULTATION DOCUMENTATION

Big Creek Collaborative

Combined Aquatic Working Group

March 19, 2002

Final Meeting Notes

Time:	10:00 – 2:15 PM	**Moderator:**	Wayne Lifton
Location:	USFS Supervisors Office Clovis, CA	**Coordinator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Cody Fleece
Teleconference Name:	Combined Aquatic Working Group		

Attended By	Wendy Van Dyke	North Fork Rancheria
	Steve Rowan	SCE
	Phil Strand	USFS-SNF
	Bill Pistor	Kearns & West
	Janelle Nolan-Summers	ENTRIX
	Lonnie Schardt	Huntington Lake Association
	Sara Yarnell	ENTRIX
	Rick Hopson	USFS-SNF
	Darrin Doyle	ENTRIX
	Geoff Rabone	SCE
	Larry Lockwood	Huntington Lake Association
	Julie Means	CDFG
	Britt Fecko	SWRCB
	Wayne Lifton	ENTRIX
	Cody Fleece	ENTRIX
	Mitchell Katzel	ENTRIX

Phone Participants

<u>Introductions and Review Agenda</u>

The following Handouts were provided to the group:

- March 19, 2002 Meeting Agenda
- Draft Meeting Notes February 13, 2002
- Final Meeting Notes January 9, 2002
- Draft Meeting Notes August 1, 2001
- 2002 Field Schedule
- Depth Requirements Reference for Mountain Yellow-legged Frogs

The meeting was opened with everyone making introductions followed by a review of the agenda.

Review Previous Action Items

Action Item No. 1: Provide the paper describing the depth requirement for MYLF rationale approach for the identification of "deep pool" to the group. **COMPLETED**

Action Item No. 2: Provide references to publications identifying the temperature ranges for FYLF. **COMPLETED**

Action Item No. 3: Make the ranking scales for the mesohabitat consistent with the system that was used to rank the amphibian habitat. **COMPLETED**

Action Item No 4: Schedule Amphibian and Reptile Subgroup meeting to review CD data. March 1 at the USFS Clovis office from 1 PM to 4 PM. **COMPLETED**

Action Item No. 5: Riparian subgroup meeting on March 19th from 1 PM at the USFS Clovis Office. **ON AGENDA**

Action Item No. 6: Provide copy of USFWS meeting notes. **COMPLETED**

USFWS meeting notes passed out.

Review February 13, 2002 Draft Meeting Minutes

Approved by all.

Amphibian and Reptile Subgroup Meeting

PowerPoint presentation by Janelle Nolan-Summers

- Refine Mesohabitat queries
- Run Mesohabitat queries
- Prepare preliminary habitat map
- Determine highest ranking reaches
- Cross-reference with other data (ground survey, helicopter, etc.)
- Identify sub-basin Geomorphology
- Select sample sites
- Complete queries for areas where special-status species are found
- Prepare map of potential habitats

Presentation by Sarah Yarnell
    Mesohabitats considered as part of stream habitat criteria
        Gradient
        Substrate
        Cover type
        Canopy (% as quartiles)

Habitat Criteria
        0 = Poor
        1 = Moderate
        2 = Good
        3 = Very Good (Just for substrate for FHYL frog)
        N/A = Not Available

<u>Criteria Weighting</u>
    FYLF – Substrate

% Coarse = Gravel + 2 Cobble + 2 Boulder + Bedrock
0-35 Coarse = 1
35-75 Coarse = 2
75-100 Coarse = 3
FYLF Cover
Any cover = 2
No cover = 1

Summed each habitat unit
Component = 0
Score = 0

Next step will be to look at Histograms for reaches, compare scores and look at scores of adjacent mesohabitats.
Conditional sum = if any score = 0 then mesohabitat score is 0 except FYLF.

Action Item 1: Request for PowerPoint presentation. Will send via E-mail.

Survey Protocols
Presentation by Janelle

- FYLF – Lind 1997 (high ranking habitat types); Fellers and Freel (other types)
- MYLF – Fellers and Freel
- Yosemite Toad – Fellers and Freel modified zigzag transect
- Western Pond Turtle – Reese (undated)

Reference Site Selection

Why is Jose Creek identified as a potential reference reach, as well as Willow Creek?
For Jose Creek:
Population present on Jose Creek
Want non-project impaired reaches
Jose Creek is more information gathering than true referencing
Problems with use of Willow Creek:
Bullfrogs – Willow Creek
Fish – Willow Creek
Diversions – Willow Creek

Action Item 2: Request sub-group review of issue. Willow Creek in or out?

Action Item 3: Include Mill Creek as a reference?

Action Item 4: Does the CAWG agree on approach? Perhaps time is needed to reflect and submit comments. Comments to be submitted to Janelle by 3/27.

1. Areas above Diversion
2. Non-Project affected reaches

The Subgroup will further evaluate how to use Jose Creek and Willow Creek.

Willow Creek not dropped at this time, despite alterations and presence of Bullfrogs.

Action Item 5: <u>The Subgroup will evaluate if Willow Creek should be removed from the potential Reference Reach list.</u>

Reference Reach selection
Similar Geomorphology

Next steps
3/22 Amphibian, Reptile, Riparian CD available for distribution.

Create preliminary Habitat map based on stream habitat criteria 3/29.

Conduct mesohabitat typing of Jose Creek 3/25.

USFWS meeting 3/29.

Janelle – Handouts
Amphibian/ Reptile helicopter survey data for high elevation on streams
Amphibian/Reptile ground survey data for high elevation streams

Action Item 6: Wayne distributed info regarding angling opportunities to the subgroup. Notify prior to 3/21 if interested in participating (Martin Ostendorf).

Action Item 7: Rick will check with Julie Tupper re: status of SCI Protocol.

Action Item 8: Request Mitchell's PowerPoint presentation.

Geomorphic Assessment
Presentation by Mitchell Katzel
- Goals
  - Inventory Geomorph condition
  - Characterize effect of Project operations
    - Flow regime
    - Channel Geomorphology
    - Sediment recruitment
    - Sediment transport
    - Riparian function
  - Discuss significance of Project effects
  - Link with other technical studies: riparian and wildlife

Technical Objectives
Pre- and Post-project hydrology: timing, magnitude, duration

Sediment Recruitment
Identify process
Magnitude of supply
Project facility and operational effects particle size in reservoir.

Basin Stratification
Rosgen Level II
Guidance for reference reach selections

Existing Data
Photos – recent and historic
Identify sediment sources

Characterize Flow Regime

Sediment and Woody Debris Management

Roads Assessment as Sediment Source

Aerial Survey
Level I and II classification
- Entrenchment
- Pattern and Form
- Materials
- Bedform
- Floodplain Presence

Snowmelt Runoff Observations
Bankfull indicators
Focus on C and E Channel types most likely connected to floodplain

Geomorphology Field Surveys
Focus on sensitive channels B, C, E, F, G. A and B less responsive
- Validate channel type
- Compare particle size upstream and downstream of diversions

Does sediment supply relate to soil information? Yes, but will not use soil information unless it is available in a format that assists with evaluating sediment supply conditions. Probably greater emphasis on Geologic conditions such as bedrock lithology.

Sediment Transport
Determine effective discharge
- Peak flows
- Estimate bankfull discharge – defined as flow that moves sediment. Does work.

Map sediment deposits, fine sediment accumulations
Compare unimpaired and regulated channels

Project Effects
Inventory channel morphology
Stability
- Degrading, aggrading

Riparian Habitat Functionality
Floodplain connectivity (hydrology, sediment deposition))
Vegetation encroachment

General Approach Geomorphic Assessment

2002 Technical Studies
- Review and analyze existing data
- Qualitative Reconnaissance Survey
- Data Reduction, Synthesis and Interpretation
- Select Quantitative study sites for 2003 (CAWG Participation)
- CAWG Consults on Impacted Areas and Reference Locations for Further Study

Field Inventories
- Identify transition between geomorphic types.

What about diversion locations? Often located at transitions between channel types.

Does this affect ability to identify useful reference?
Yes – need to consider if important indicators are similar up and downstream of diversions. May not have suitable reference areas upstream of diversions, must consider:

- Bankfull indicators (type quality)
- Entrenchment and floodplain connectivity
- Bed particle size
- Slope
- Geology

Provide Level II map? Yes, perhaps Level "1.5" classification is best description of work product for 2002.

- Identify aggradation degradation – braiding
- Classify channel bedform
- Categorize recruitment processes
- Presence of woody debris and function
- Reservoirs – visually estimate volume and particle size
- Road inventory
    - Will submit classification system to CAWG
    - Which roads? Only SCE roads?
    - Possibly identify non-project sources if impacting streams

Action Item 9: Group can provide forms for road assessment to Mitchell. Identify non-project roads that are sediment sources. Study only project roads.

<u>Data Synthesis and Interpretation</u>

- Reference reach
    - Compare channel morphology to quantify Project effects
- Reference reach screening
    - Basin stratification
        Drainage Area   Elevation
        Valley slope   Etc.
    - Field verification and observations
        Project effected and non-effected must be similar for valid comparison
    - CAWG review and approval
- Indicators of altered channel morphology
    Aggradation/Degradation
    Lateral instability
    Longitudinal comparison (e.g. particle size)
        How does character change with distance along stream?

Action Item No. 10: Regional curves available for hydraulic geometry. USFS has data available (possibly use?). Use to predict channel dimensions based on drainage area.

End of this year select quantitative study sites
Field inspections with study groups

Review existing data March-May
Qualitative reconnaissance
    CAWG approves data sheets June
    Field inventor May-September
Synthesize data In September
Select sites in October

Hydrology study should feed into geomorphology study

Analysis of Indicators of Hydrologic Alteration up front would be a good idea

Scheduling

Identify opportunities for CAWG to participate

Wetted Perimeter Data collection

High flow	4/23-4/27
Mid Q	5/29-6/2
Low Q	7/9-7/13

Action Item No. 11: Steve needs to run IFIM flows by generation folks to discuss timing.

Bear Creek 6/3-6/6

Select wetted perimeter PHABSIM transects

Wetted perimeter	8/5-8/15
PHABSIM	8/19-8/23
	9/9-9/13
	9/23-9/26

We'll try to be sensitive to notification issues

HSC Verification

50 Observations/Species and lifestage

Streams will be stratified in upper and lower basins for streams used for PHABSIM.

Action Item No. 12 Presentation on how HSC criteria comparison. Possibly fall 2002 Action Item.

Water Quality Sampling

Spring snowmelt	5/6-5/24
30 day fecal	7/24-7/26
Fall baseflow	(Dates?)

Reservoir Profile

Each month

Mammoth Pool only. Yes concern about mine waste bioaccumulation.

Geomorphology

May helicopter reconnaissance weather dependent

June – general reconnaissance

Field crew – start up July

Big Creek – end July

August – work toward higher elevation streams. Reference last so they will know if those chosen are adequate compared to Project.

Fish population studies must wait for flows to come down.

Entrainment – Bi-monthly

Macros – Cross comparison of labs will be implemented to ensure quality of results

Amphibians – (input from Janelle)

Western Pond	May – select sites
FYFL	June
MYLF	Start in late May –June also YT. Site selection late April
Red-legged	Site assessment

Action Item No. 13: Revise Amphibian schedule and e-mail.

Review of Action Items:

Action Item No. 1: Request for PowerPoint presentation. Will send via E-mail.

Action Item No. 2: Request sub-group review of issue. Willow Creek in or out?
Action Item No. 3: Include Mill Creek as a reference?

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Action Item No. 8: Request Mitchell's PowerPoint presentation.

Action Item No. 9: Group can provide forms for road assessment to Mitchell. Identify non-project roads that are sediment sources. Study only project roads.

Action Item No. 10: Regional curves available for hydraulic geometry. USFS has data available (possibly use?). Use to predict channel dimensions based on drainage area.

Action Item No. 11: Steve needs to run IFIM flows by generation folks to discuss timing.

Action Item No. 12: Presentation on how HSC criteria comparison. Possibly fall 2002 presentation.

Action Item No. 13: Revise Amphibian schedule and e-mail.

Adjourn

Big Creek Collaborative
Combined Aquatics Working Group

January 8, 2003

FINAL Meeting Notes

Time:	12:30 PM to 4:00 PM	**Moderator:**	Larry Wise
Location:	Piccadilly Inn, Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Bill Pistor	Kearns & West
	Bryan Harland	Kearns & West
	Kelly Catlett	Friends of the River
	Wayne Thompson	Federation of Fly Fishers
	Ed Bianchi	ENTRIX
	Geoff Rabone	Southern California Edison
	Mike Henry	FERC
	Cindy Whelan	USFS – Sierra National Forest
	Phil Strand	USFS – Sierra National Forest
	Rick Hopson	USFS – Sierra National Forest
	Julie Means	CDFG
	Jean Baldrige	ENTRIX
	Wayne Allen	Southern California Edison
	Larry Wise	ENTRIX
	Larry Lockwood	SAMS
	Brandi Bradford	National Park Service
	Roger Robb	Friant Water Users Authority
Phone Participants:	Carson Cox	SWRCB
	Britt Fecko	SWRCB
	Wayne Lifton	ENTRIX

Introductions
Stakeholders introduced themselves and the organization they represent, then reviewed and approved the day's agenda.

Action Item 1: Check mailing list for accuracy:
-W. Lifton will add Cindy Whelan to the CAWG mailing list, E. Bianchi will make sure she is added to all ENTRIX working group mailing lists.
-W. Lifton will check if Lonnie Schardt is on the CAWG email distribution list.

Review of Previous Action Items
Bill reviewed action items from the October 9, 2002 CAWG meeting. All had been addressed. There were no outstanding actions.

Review and Approve October 9, 2002 CAWG Meeting Notes

Bill reviewed edits submitted by the SWRCB with the group and asked for any other comments or edits. No additional edits were offered. The meeting summary was approved with the SWRCB edits.

Review of 2002 Field Activities
W. Lifton (ENTRIX) reviewed the 2002 Field Activities for the group:

- Habitat inventory work completed.
- Water Quality program executed.
- Additional temperature monitoring was completed on Balsam Creek in 2002, the creek was diverted during 2002, but not 2000 or 2001.
- All identified amphibian sampling completed.
- All fish sampling completed.
- Riparian sampling delayed to 2003.
- Macroinvertebrate sampling completed.
- Phase I of geomorphology study.

W. Lifton and L. Wise briefly summarized field work yet to be completed in 2003:

- Entrainment preliminary work for site selection.
- Anadromous fish and passage
- Water use and hydrology.
- Geomorphology quantitative studies.
- Riparian
- Decisions to be made regarding additional amphibian work.
- Data collection for PHABSIM sites and remaining WP sites.

Wetted Perimeter and PHABSIM Transect Selection
L. Wise gave a presentation on Wetted Perimeter and PHABSIM transects selected during the 2002 field season. P. Strand (USFS), B. Fecko (SWRCB), P. DeVries (USFS), Dennis Smith (USFS), Julie Means (CDFG) and C. Cox (SWRCB) were present for portions of the transect selection. There were 193 transects selected for the IFIM studies and 32 for the Wetted Perimeter studies. The presentation is attached to this meeting summary in its entirety, highlights listed below. Due to the extremely technical nature of the transect selection field discussions, and the fact that few CAWG members were present throughout the transect selection period, the presentation has been recorded in more detail for these meeting notes than is customary. It is intended to provide a record of what decisions were made in the field and why.

Action Item 2: Ed Bianchi (ENTRIX) to send Britt Fecko a copy of this presentation.

Wetted Perimeter

Seven seasonally diverted streams in the Lower Basin were considered for wetted perimeter transect placement. These included Adit 8, Ross, Rock, Ely, Balsam, Pitman, and Rancheria Creeks. Transects were placed on six of these creeks during a CAWG field visit conducted between July 29 and August 2, 2002. The CAWG Transect Selection Team (CTST) decided not to place transects in Ross Creek, because it goes dry in the summer and does not provide suitable habitat for fish or amphibians. No transects were placed in Adit 8 Creek above the diversion as this stream, which starts from a leaking pipe, essentially starts at the diversion, which is no longer used.

Habitat in Rock Creek below the diversion was largely composed of cascade/pool habitat, with few riffles or runs. The wetted perimeter approach was considered inappropriate for application here by the CTST. The CTST decided a food transport approach would be more appropriate. Two appropriate locations for food transport transects were located above the diversion on Rock Creek and one appropriate location was located below the diversion.

PHABSIM

PHABSIM transects were placed in each stream reach identified in the CAWG-3 study plan with the exception of reaches of the South Fork San Joaquin River downstream of Mono Crossing. These reaches were excluded because of safety concerns and inability to access these areas at higher flow levels. Each stream reach was sub-divided by Rosgen habitat type. Within each major Rosgen sub-reach (>5 percent), transects were placed to represent all major habitat types representing more than 5 percent of that stream reach. Transects were placed to capture the diversity of the habitats present within each major habitat type.

In each Rosgen sub-reach, the CTST visited three sites or walked a long section of stream to access the sites reviewed prior to placing transects. The objective was for the CTST to review in the field the habitats present and their characteristics prior to placing transects. The CTST recommended holding off on PHABSIM studies on Big Creek below Huntington Lake until decisions were made with regard to riparian and geomorphic concerns.

SF San Joaquin River – Bear Creek to Florence Lake

In the B-channel sub-reach three sites were visited and transects were placed in two of them to capture the range of variability in pocket water and run habitats. In the C-channel, nearly the entire reach was walked by the CTST. This reach was very homogenous with lots of pool and run habitat. Transects were placed to represent these habitats. Additionally, two transects were placed in a unique riffle section where exceptionally good spawning gravel was observed. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

SF San Joaquin River – Mono Crossing to Bear Creek

Transects were placed in each of the three Rosgen channel types present in this stream reach: B, C and G. Transect placement followed the protocols and the number of transects placed met or exceeded the number of transects proposed during previous CAWG meetings. The CTST did not install transects in shallow pool (172), located in the B-channel section, but instructed ENTRIX to do so when returning to this area in Spring 2003. The shallow pool selected to represent the G channel was relatively uniform and required only two transects to represent the habitat type. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

Mono Creek below Mono Diversion

CTST visited two sites and walked about 1 mile of stream in Mono Creek (Rosgen Level 1 B-Channel). The CTST observed that the two sites were different in terms of gradient and structure and spawning gravel was present. CTST put a complete set of transects in both sites to capture the range of variability in these habitat types. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

San Joaquin River – Mammoth Reach

CTST revisited the BiCEP study sites and a few headpins that were found in these areas. The majority of the BiCEP transects appeared to be representative of habitat types identified in the BiCEP models. Some channel changes had occurred, which required some transects to be replaced. CAWG had previously identified uncertainty about flatwater habitat types identified in the BiCEP study. Additional transects were placed in run and pocket water habitat types to address this.

In the G channel (near Shakeflat Creek), CTST accepted 13 of the 14 BiCEP transects. They discarded one of the riffle transects as inappropriate and replaced it with a new transect in a different habitat unit. Two new transects were placed in pocket water habitat and a new transect was placed to capture pool tail habitat, which did not appear to be represented in the BiCEP transects.

In the B channel (above Mammoth Pool powerhouse), CTST accepted eight of nine existing BiCEP transects as appropriate, although some channel changes were observed. The CTST replaced one pocket water transect with a new transect. Two BiCEP shallow pool transects were observed to be deep now. CTST decided to re-measure these transects to represent deep pool habitat (the BiCEP version would still be used to represent shallow pool habitat). Two new transects were installed in this area to represent riffle habitat, which was not represented in the BiCEP model. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

San Joaquin River – Stevenson Reach

CTST drove along a substantial portion of this reach where they had a clear view of the channel. The reach was quite different than the Mammoth Reach in that it was more confined and had larger substrates. CTST felt that new transects were appropriate for all but deep pool habitats. Confined Mammoth reach deep pool transects could be used to represent deep pools in the Stevenson Reach, as well. New transects were placed in flatwater, riffle, and shallow pool habitats. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

Big Creek – PH1 to Huntington Lake

This section of the stream was heavily overgrown with riparian vegetation that will have a significant effect on the PHABSIM models. In the view of the CTST, the CAWG needs to make a decision about the management objectives for this reach and about riparian and geomorphic issues before deciding if a PHABSIM study is appropriate here. If a PHABSIM study were to be implemented at this time, and then the riparian and geomorphic conditions altered, the results of the PHABSIM study would probably be invalidated. Preliminary transects were placed pending the CAWG's decision on this recommendation. Transect locations were selected in the A and B channel types, no transects were placed in the G channel type as it was described as being intermediate in terms of habitat characteristics to the others. Because releases must be made from Huntington Lake for this study, there is flexibility for the CAWG to evaluate these issues without compromising the schedule. The potential need to look at these channels with a multi-disciplined approach was discussed and the possible formation of a subgroup. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

Action Item 3: CAWG to discuss (w/ geomorphology and riparian vegetation info) management and future studies needed for Big Creek between PH1 and Huntington Lake. A decision must be reached by August to allow PHABSIM work to be done in 2003. (BIN ITEM)

Big Creek –PH2 to Dam 4

Transect selection was made to supplement existing BiCEP models and to replace flatwater transects. In the B-channel section, the CTST walked nearly the entire length of the channel type sub-reach. The CTST supplemented the BiCEP transects with three deep pool transects and 2 riffle transects. No new transects were added in flatwater habitat, as the habitat inventory identified only one trench chute. This unit would not provide suitable habitat for fish and amphibians, under even moderate flows. In the A-channel type, uncertainty about the BiCEP transects led the CTST to place transects in all habitat types – a total of 14 new transects. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

Big Creek –PH8 to Dam 5

Transects were placed to supplement BiCEP transects in the A channel type. The Aa+ channel type was not represented in the BiCEP models. In the A-channel type, new transects were placed in all major habitat types, for a total of 13 transects. The CTST felt that these transects, in combination with those from the BiCEP models should adequately represent the habitat in this reach.

In the Aa+ channel the only habitat types that can be modeled that composed more than 5 percent of the stream length were shallow pools and deep pools. Transects were placed through both of these habitat types. There was some misunderstanding about categorization of cascade habitats in this reach. The

CTST observed that in one cascade unit, some riffle and run habitat were lumped with a downstream cascade, leading to the question of whether the riffle and run habitats were adequately represented.

Dennis Smith (USFS) and Larry Wise (ENTRIX) went back and reviewed the habitat inventory in the lower half of this reach to ascertain the extent of the problem. This review indicated that the habitat inventory was generally accurate. There may be a minor amount of usable habitat in some cascades. Dennis and Larry discussed giving shallow pools a slightly higher proportion of the overall habitat to account for these small pockets of habitat.

Larry relayed the results of discussions he had had with the habitat inventory crew regarding this. The habitat inventory crew indicated that if they were in a cascade and found pockets of habitat which were not as long as the stream was wide they were not broken out separately. Additionally, they reported that if it appeared that fish would be washed out of this small piece of habitat at higher flows, then that piece was not broken out as a separate habitat unit.

NF Stevenson Creek – below Outlet Reach

In this reach the CTST felt that some of the pool transects in the Aa+ and C channel types could be adequately represented by 2 transects. One of the riffle transects in the Aa+ channel type, was placed in a run-like section. Additionally the CTST, elected not to put transects in the G-channel type. While this channel type comprised eight percent of the stream, it consisted of only 5 habitat units and was only 1,500 feet long. Two of the habitat units were affected by the gage weir and bridge footings. The CTST felt the remaining units would be adequately represented by transects placed elsewhere. A summary of transects selected by channel type is provided in the accompanying copy of the presentation.

CTST selected transects in all appropriate channel types in this reach according to the protocols and previous CAWG presentations. The CTST felt that the transects selected were representative of what was present in the stream and would do a good job of characterizing the response of the stream to different flows. Only one section of B channel was available for transect selection. The CTST walked most of this section prior to placing transects. The second section of B channel is located immediately below the dam and is heavily influenced by the dam and Highway 168. Both the Aa+ and A channel types in this stream reach are difficult to access. The CTST walked a long section of A-channel in visiting the three sites. This section was generally steep and most riffles were on the verge of being cascades with super-critical flow. This type of habitat cannot be modeled using PHABSIM. The CTST therefore placed only one transect in riffle habitat in this channel type. A summary of transects selection by channel type is provided in the accompanying copy of the presentation.

Summary of Transect Placement

Transects were placed in all stream reaches and Rosgen sub-reaches
The CTST felt that the transect placements were representative of the range of habitat conditions observed for each habitat type.
BiCEP transects in the Mammoth Reach of the SJR were generally representative and acceptable with some supplementation.
CTST recommends that PHABSIM in Big Creek below Huntington Lake be held aside pending consideration of observed riparian and geomorphic issues.

Follow up on Issues Identified during Transect Selection Presentation
Habitat Characterization

Concern was expressed regarding habitat characterization in the Big Creek reach between Powerhouse 8 and Dam 5 (discussed above). Specifically the concern focused on habitat characterization in cascade habitats and the presence of small pockets of other habitats and excessive lumping of habitats. Some stakeholders expressed concerns that habitats are not adequately characterized,. Although D. Smith and L. Wise (ENTRIX) re-walked a portion of this reach, and while they found some minor inconsistencies at current flows, they felt that the habitat inventory was generally appropriate.

The group discussed the importance of habitat characterization in the final models and ways to address this.

M. Henry (FERC) suggested that during the analysis phase the WUA functions could be developed by habitat type and for each transect to determine how different habitat types respond to changes in flow. This could be used in conjunction with the composite WUA function (all habitat types together) in evaluating alternative flow regimes. By looking at the functions in this way, the response of habitats that are less available are not swamped out by those that are more available.

Others suggested that some reaches could be flown to see if what we have on paper matches the mapping. Ed Bianchi indicated that this would not be feasible due to heavy canopy in this reach. Mike suggested doing QA/QC checks on habitat maps when in the field, which was done in other reaches. It was suggested that ground truthing, with CAWG oversight would work. The Group did not resolve this issue and opted to form a subgroup to address this issue.

Action Item 4: Convene group/subgroup to discuss potential actions to verify habitat designations and bring a recommendation back to the CAWG (BIN ITEM)

PHABSIM Memo
B. Pistor (Kearns & West) reviewed the latest version of the memo on transect selection methodology drafted by SCE, SWRCB and the CDFG with the first paragraph removed. Bill moved for approving this version of the memo. A copy of this memo is attached to these meeting minutes.
AGREEMENT: The Group Agreed.

Scheduling
Transect Weighting
The CAWG will need to make a decision on Transect weighting, as pertaining to how the sub-habitat types within major habitat types will be treated in the final models by early this fall. This will be needed to develop composite weighted usable area functions for the analysis of PHABSIM model results.

Habitat Suitability Criteria
Data were collected for testing the transferability of HSC to the project area. SCE is proposing to use the Altered Flow Criteria for rainbow and brown trout and the Pit River criteria for Sacramento sucker, hardhead and Sacramento pikeminnow. The Altered Flow criteria were developed as regional criteria for southern Sierra Nevada streams by SCE and PG&E. These criteria were based upon observations from several local streams including Big Creek and NF Stevenson Creek. These criteria have been verified for use on Big Creek and NF Stevenson Creek. This study will evaluate whether these criteria can be transferred to larger streams in both the lower and upper basin and to smaller streams in the supper basin. Larry will give a presentation in March on the progress of this validation study. Depending on the results of the validation, a discussion of next steps will be needed and a decision regarding the need for additional data. The decision will be needed by May/June to enable additional data to be collected if necessary.

Whitewater Study Protocols
Need to look at in Feb/March. P. DeVries (USFS) will forward protocols to Larry.

Action Item 5: Once L. Wise (ENTRIX) receives whitewater study protocols examples from P. DeVries (USFS) he will forward to the CAWG.

E. Bianchi (ENTRIX) provided some clarification regarding the whitewater studies. He said there has been some whitewater work done with the Recreation Working Group, namely single flow studies. The recreation group is currently discussing the need to do more single flow studies, as well as controlled flow studies. Currently, single flow studies are being planned contingent on spill from project facilities. Ed will communicate to the CAWG as planning progresses. ID of reaches has been passed on to the group and protocols for the whitewater studies have been agreed upon. F&WS has agreed to protocols for in-season whitewater studies. If Rec. decides out-of-season flow releases are needed, F&WS will need to readdress. Ed stressed that PHABSIM studies during whitewater type flows are contingent upon spill and will be piggy-backed on whitewater studies. There are no plans for controlled flow releases in the whitewater range of flows for PHABSIM studies. No opportunity to collect data for PHABSIM after the whitewater studies are completed.

Geoff Rabone notes F&WS gave approval for the flow studies if they are performed within spill season. However, F&WS wanted to limit the number of people participating in the study.

Wayne – depending on whether using natural hydrograph or controlled flows, differing strategy will be used to collect required information.

Julie Tupper – Requested that people conducting field work record general ecological data (species observations, habitat, etc) while conducting the field work (FEB/MAR).

Review of Action Items
Action Item 1: Check mailing list for accuracy:
-W. Lifton will add Cindy Whelan to the CAWG mailing list, E. Bianchi will make sure she is added to all ENTRIX working group mailing lists.
-W. Lifton will check if Lonnie Schardt is on the CAWG email distribution list.
Action Item 2: Ed Bianchi (ENTRIX) to send Britt Fecko a copy of the Transect Selection presentation.
Action Item 3: CAWG to discuss (w/ geomorphology and riparian vegetation info) management and future studies needed for Big Creek between PH1 and Huntington Lake. A decision must be reached by August to allow PHABSIM work to be done in 2003. (BIN ITEM)
Action Item 4: Convene group/subgroup to discuss potential actions to verify habitat designations and bring a recommendation back to the CAWG. (BIN ITEM)
Action Item 5: Once L. Wise (ENTRIX) receives whitewater study protocols examples from P. DeVries (USFS) he will forward to the CAWG.

Big Creek Collaborative
Combined Aquatics Working Group

February 10, 2003

FINAL Meeting Notes

Time:	10:00 AM to 4:00 PM	**Moderator:**	Wayne Lifton
Location:	Piccadilly Inn, Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Ed Bianchi	ENTRIX
	Roger Robb	Friant Water Users Authority
	Wayne Thompson	Fresno Fly Fishers for Conservation
	Geoff Rabone	Southern California Edison
	Lonnie Schardt	Kokanee Power
	Carson Cox	SWRCB
	Britt Fecko	SWRCB
	Rick Hopson	Sierra National Forest
	Phil Strand	Sierra National Forest
	Julie Means	CA Dept of Fish and Game
	Mitchell Katzel	ENTRIX
	Wayne Lifton	ENTRIX
Phone Participants:	Wayne Allen (until noon)	SCE

Introductions
Stakeholders introduced themselves and the organization they represent. Bill Pistor (Facilitator, Kearns & West) proposed changing the agenda by adding an agenda item on the Confidentiality Agreement before discussing the study reports, the group agreed to the edited agenda.

Review of Previous Action Items
Bill reviewed the action items from the last meeting. Outstanding action item below:

- **Action Item #5:** Once L. Wise (Entrix) receives whitewater study protocols examples from P. Devrees (USFS) he will forward to the CAWG (Larry has not yet received the study methodology from Paul Devrees as of this meeting).

Confidentiality Agreement
Geoff Rabone (SCE) reviewed the FERC's policy and proposed rulemaking on releasing confidential information about power infrastructure to the public (i.e. maps, engineering drawings) in light of the events of September 11, 2001. Nino Mascolo (SCE) and Geoff drafted a confidentiality agreement, which was distributed with the first round of study reports. Some stakeholders may need to have their legal team review before signing. Geoff, Nino, and Kearns & West will be contacting stakeholders to expedite the distribution of confidential information. If any stakeholder has concerns or questions about signing the confidentiality agreement, they should call Geoff immediately.

Rick Hopson (USFS) requested a copy of the Portal application with the confidential map information included. Ed Bianchi (ENTRIX) informed the group that SCE sent out one confidential version of the application to the lead representative of each agency and Cindy Whelan (USFS) should have received one for the Forest Service.

Action Item #1: Ed will supply a copy of the Portal application, including confidential information, to Rick Hopson.

Ed informed the group that he has both confidential and non-confidential versions of the study plans on CD for distribution today. If stakeholders sign a confidentiality agreement, they can receive the reports with confidential information included. Ed also suggested that while the SWRCB has their legal department review the agreement, they can review the confidential reports at the ENTRIX Sacramento office.

Action Item #2: SWRCB to provide legal contacts to Geoff Rabone (SCE) so he can have Nino Mascolo (SCE Legal) call SWRCB legal department to explain the confidentiality agreement.

Action Item # 3: ENTRIX to arrange opportunities for SWRCB and others to review confidential maps offline. Copies of the reports will also be available at the SCE Relicensing Library in Big Creek.

Study Reports Review Process Discussion
Ed stated that the initial distribution of the Draft Technical Study Reports did not go as smoothly as they had anticipated and apologized for any inconveniences stakeholders experienced downloading the reports and any confusion over the review and approval process. Ed also explained that ENTRIX did not make conclusions about project effects –that is for the working groups to agree upon.

Stakeholders should keep the following in mind when reviewing the reports:
- Has SCE/ENTRIX addressed the study objectives as laid out in the Final Technical Study Plans?
- Has SCE/ENTRIX identified in the Draft Technical Study Reports the study objectives from the Final Technical Study Plans that have not been addressed?
- Is there any additional analysis needed?

The need for additional information will be addressed through the supplemental study report development process.

Ed was asked when the study reports need to be approved. Ed explained the proposed review process and the dates the groups will aim to have work completed by:
- Working group members are asked to get their edits to the Draft Technical Study Reports (DTSR) to their respective technical coordinators by March 28.
- Each Working Group will try to reconcile edits and approve their reports for distribution to the Plenary group on April 15.
- The Plenary group will review and provide comments on the DTSRs up until the 30-day public comment period ends on May 16, 2003.
- ENTRIX and SCE will incorporate all comments and are aiming to present the Final Technical Study Reports for Plenary approval on June 12, 2003.

It was discussed that time sensitive information gaps need to be highlighted and brought to the attention of the group.

Action Item #4: ENTRIX Technical Coordinators will identify additional elements that are time sensitive and send out to the CAWG within two weeks of this meeting. Kearns & West will schedule a conference call with stakeholders to discuss further.

Stakeholders asked if hardcopies of the study reports will be provided to the group. Ed said the idea was to distribute by CD due to size and the number of iterations the group will create. Ed explained that bringing hard copies of maps to the working groups is difficult due to the size and amount of information included in the GIS layers. The electronic versions also provide easier ability to zoom in and out. Stakeholders are willing to try out this method, but would like the group to stay open to the idea of providing hardcopies to at least the CAWG members.

Action Item #5: Stakeholders can request hardcopies of study reports and supporting documents by emailing Bryan Harland (Kearns & West) at bharland@kearnswest.com and K&W will compile a list of who wants hardcopies and of what study reports and/or maps diagrams, appendices.

Ed reviewed the study reports that will be distributed to the group this month, other reports may not be ready, since those studies are either ongoing or the results are not fully compiled for the group's review.

The status of CAWG 6: Hydrology was brought up. Ed explained that SCE is in the process of reviewing historical hydrology data and compiling into a matrix. The CAWG will need to form a hydrology subgroup to start reviewing the data.

Action Item #6: CAWG to form a Hydrology subgroup. Those interested in joining should contact Kearns & West. Hydrology Subgroup will hold its first meeting on March 6 from 12PM-4PM (no lunch). Steve will send out the information a week ahead of time on CDs. Steve will summarize the data available by year and identify data gaps for the group. The objective is to tell subgroup what type of information is available at what station, when, and at what time-step.

Hydrology Subgroup Members:
- Julie Means (CA Department of Fish and Game)
- Mitchell Katzell (ENTRIX)
- Wayne Lifton (ENTRIX)
- Roger Robb (Friant Water Users Authority)
- Bryan Harland (Kearns & West)
- Steve Rowan (SCE)
- Britt Fecko (SWRCB)
- Rick Hopson (USFS)
- Phil Strand (USFS)

Steve Rowan (SCE) said they are not analyzing the data, only compiling into a usable form and should be complete by the end of February. It was suggested that different techniques for presenting the data be used, so it would not be proprietary and subject to confidentiality by SCE's corporate review. Steve explained that the concern is that if another company used the information to maximize their profit based on SCE's predicted generation capabilities.

CAWG-2: Geomorphology
Mitchell Katzell (ENTRIX) presented CAWG-2 report information to the group. Mitchell explained the structure of the report and what sections are included. Information from the geomorphology surveys is presented in three data sets for easier viewing on the GIS maps (see CAWG-2 study report).

Mitchell then reviewed sample maps and information from the CAWG-2 DTSR with working group. He explained that ENTRIX used brackets to denote the spatial extent of longer stream reaches that contain certain morphological characteristics. Mitchell showed a couple of photo examples to the group.

Action Item #7: Mitchell will add photo examples of geomorphology classifications to the CAWG-2 study report.

Mitchell was asked what the assigned sensitivity of reaches will mean in terms of undertaking quantitative studies. Mitchell explained that the Montgomery-Buffington classifications are a reach scale look at channel morphology and if we are considering potential channel adjustments at a more detailed habitat unit scale, Montgomery-Buffington isn't as good at predicting sensitivity or the extent of possible channel adjustments to a habitat unit. As an example, the extent to which gravel deposits may have changed in pools of a bedrock channel such as Big Creek couldn't be predicted by the channel classification tools such as Montgomery-Buffington that was used in the qualitative field studies conducted this past year. The classification tools are more useful for predicting potential for changes at a larger, reach-scale level.

The group will need to discuss and decide whether to study further and will need to use a different method or technique than classification systems to address more subtle, morphological changes at the habitat-scale for quantitative studies..

CAWG-1: Stream and Reservoir Habitat
Wayne Lifton (ENTRIX) reviewed the outline of CAWG-1 and the information within each section.

A stakeholder asked if data for numbers of pools in reaches was acquired above Florence Lake. Wayne responded that they didn't do much work above Florence and the information is not included in this summary.

It was asked if the water temperature profiles take into account the reservoir level when taking the readings. Wayne said that the information was obtained and both depth and elevation information was available for each profile. However, since the standard limnological presentation of temperature profile data is made with reference to the lake surface, the data are presented in that manner. It was requested that a table of contents be included in the reports.

Action Item #8: ENTRIX will include a table of contents for all CAWG Draft Technical Study Reports.

Next CAWG meeting: March 10 from 11AM-6PM

Review of Action Items:
(From January CAWG Meeting) Action Item #5: Once L. Wise (Entrix) receives whitewater study protocols examples from P. Devrees (USFS), he will forward to the CAWG (Larry has not yet received the study protocols from P. Devrees as of this meeting).
Action Item #1: Ed will supply a copy of the Portal application, including confidential information, to Rick Hopson.
Action Item #2: SWRCB to provide legal contacts to Geoff Rabone (SCE) so he can have Nino Mascolo (SCE Legal) call SWRCB legal department to explain the confidentiality agreement.
Action Item # 3: ENTRIX to arrange opportunities for SWRCB and others to review confidential maps offline. Copies of the reports will also be available at the SCE Relicensing Library in Big Creek.
Action Item #4: ENTRIX Technical Coordinators will identify additional study elements that are time sensitive and send out to the CAWG within two weeks of this meeting. Kearns & West will schedule a conference call with stakeholders to discuss further.
Action Item #5: Stakeholders can request hardcopies of study reports and supporting documents by emailing Bryan Harland (Kearns & West) at bharland@kearnswest.com and K&W will compile a list of who wants hardcopies and of what study reports and/or maps diagrams, appendices.
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Hydrology Subgroup Members:

- Julie Means (CA Department of Fish and Game)
- Mitchell Katzell (ENTRIX)
- Wayne Lifton (ENTRIX)
- Roger Robb (Friant Water Users Authority)
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- Steve Rowan (SCE)
- Britt Fecko (SWRCB)
- Rick Hopson (USFS)
- Phil Strand (USFS)

Action Item #7: Mitchell will add photo examples of geomorphology classifications to the CAWG-2 study report.
Action Item #8: ENTRIX will include a table of contents for all CAWG Draft Technical Study Reports.

Big Creek Collaborative Relicensing
Combined Aquatics Working Group – Hydrology Subgroup Meeting
March 6, 2003
12:00PM – 4:00PM
USFS Clovis Office

Attendees:

Present	
Bryan Harland	Kearns & West
Steve Rowan	SCE
Wayne Allen	SCE
Mitchell Katzel	ENTRIX
Woody	ENTRIX
Julie Means	CDFG
Rick Hopson	USFS

Phone	
Geoff Rabone	SCE
Wayne Lifton	ENTRIX
Ed Bianchi	ENTRIX
Britt Fecko	SWRCB

Introduction – Stakeholders present introduced themselves and the organizations they represent. The group then reviewed the agenda as distributed on March 3, 2003.

Agreement: The group approved the agenda as presented.

Review of Study Objectives and General Approaches– Steve Rowan (SCE) reviewed the study objectives from CAWG-6: Hydrology. The group held a brief discussion on CAWG-6 Study Objective #2: "Determine if additional gages are needed."

Agreement: The group agreed that any additional gauges placed at this time would not be helpful for the development of PM&Es.

The Water Board pointed out that while this group will not be placing more gauges in the field, there may be a need for additional data, which will be addressed as necessary.

Action Item 1: (Bin Item) The group acknowledged that Objective #5 from CAWG-6: "Determine the effects of PM&Es on the hydrologic regime" will have to be addressed at a later date.

The group reviewed the five water year types based on DWR water year index for SJR basin. Water years are categorized as Wet, Above Normal, Below Normal, Dry and Critical Water Years.

Action Item 2: Wayne Lifton (ENTRIX) will obtain the CA DWR water year criteria and distribute to the subgroup members.

Action Item 3: Check CAWG-1, 11, & 12 (Whitewater: Rec-3) for any related elements that may need to be addressed in the Hydrology subgroup. Woody Trihey and Ed Bianchi (ENTRIX) to develop a box diagram with relationships designated.

Steve reviewed the general approach to CAWG-6 and discussed the products that are to be produced. He asked those present to review the products presented, and if there are products that have been left out, please point out for the next meetings discussion. Below are the products presented to the group:

- Products
    a. Tables of:
        - mean monthly exceedance flows;
        - average monthly flow;
        - mean daily flow for each year of tht period of record; and
        - duration curves depicting the median flow for each station
    b. Hydrographs illustrating mean daily stream flow at the point of diversion and in the bypassed reaches for each month of representative water year types will be presented.
    c. Comparisons of volume of water diverted for hydroelectric generation and the volume remaining instream, including minimum flow requirements by water year type.
    d. Flood frequency analysis tables of geomorphically-significant flows assessing the magnitude, timing, frequency, duration, and rate of change of out of channel flows.
    e. Tables summarizing the occurrences of historical whitewater boating opportunities (boatable flows) within target stream reaches.

The group discussed possible products to analyze the hydrological data. Possibilities include average flows by using the average of daily flows and sorting the data by water year type. The group discussed the possibility of only using certain water year types or creating water year types specific to the project. Wayne Lifton pointed out to the group that for Exhibit B of the license application, there are specific criteria for water year types. The group agreed to ENTRIX's suggestion to prepare a sample product for approval.

Action Item 4: ENTRIX to prepare sample duration curve using Bear Creek Diversion for all five water year types. The goal will be to provide similar presentations of data for both unimpaired and existing flows.

The Forest Service asked if the data can be organized in a way that the group can run sample queries to see what data will work best with what product? Woody explained that there is a lot of data to be put into electronic format that will need to be entered to run these scenarios, so it is unlikely to be ready for the next Hydrology Subgroup meeting.

Ed said that we would need to check with other working groups about consolidating the water year types. The Recreation Working Group for example, might need better resolution for their analysis.

Action Item 5: When available, put together a packet of the information to show to the other groups for approval (part of Bear Creek example).

Action Item 6: (Bin Item) Flood Frequency analysis set up as a major discussion at a later date taking into account the data that will be presented. Need probably 2 or 3 hours agenda.

Ed said that there is some information on boatable flows from reconnaissance field work that can be used to sort the data for the historical whitewater boating opportunities. ENTRIX did a similar analysis for that on Big Creek No.4, which has been used in discussion of the Forest Service 4(e) conditions.

Action Item 7 (WG Coordination): Need to collaborate with the Recreation working group on the type of information that might be generated during Whitewater Boating Opportunities Study which could be useful for their analysis. Need to have the flow ranges from Rec. In April meeting, have item in Recreation Working Group to discuss. There also might be the need for whitewater representatives to attend a Hydrology Subgroup meeting in the future.

Wayne Allen (SCE) is working on locating other sources of information that can help the group make a decision on how to synthesize data that's missing (General Approach #3).

Agreement: The group agreed to this technique.

Steve outlined the Key Decision Points for this subgroup to address in its next meetings:

- Period of Record
- Time Step Requirements
- Water Year Type Designation
- Synthesized Hydrology Needs and Locations
- Others?

Woody explained that it's common to work with average daily stream flow for timestep requirements and that most of these small diversions will probably not require ramping rates information (i.e. 15 minute time step increments).

Agreement: The group agreed to leave the timestep designation open until we know how much data we have.

Julie asked if reservoir draw down curves will be available to this group? Wayne Lifton informed her that the CAWG-1 DTSR contains that information.

Summary of Available Information – Wayne distributed four tables that detail the representative information available from example diversions as well as a San Joaquin River Basin flow schematic.

Action Item 8: Steve Rowan will have Carla Anthony scan the schematic handout and email to the group.

Wayne A. explained that one of the issues SCE is encountering in the collection of the historical hydrologic data is that SCE had a fire at their offices that may have destroyed hard copy versions of the data, which was the only way it was kept at the time.

Wayne also explained that some stream flow data from gauges in the backcountry is unavailable because the gauges are usually frozen from December to March, so the information presented is an estimate.

Action Item 9: Wayne will make correction on data available vs. USGS and SCE electronic data available columns.

Woody asked if the flow release information is the flow that is being released. If you were to have a spill at that gauge, would that be recorded? Wayne said that the information would be recorded downstream.

Bypass vs. release data
Bypass could be a combination of spill, leakage and release. Sometimes the data will be available and sometimes it won't. The group can make some reasonable estimates based on what that information is to be used for. For some months, the group can assume that the release is equal to the flow because there is no spill. However, during the spring runoff, the group will not have the information necessary to make that determination. The original purpose of the gauges is to show compliance with instream flow requirements. When there is not enough water during the dry months, they will turn off the valve and let all the water flow through without measuring it.

Agreement: The group recognized and agreed to work within this data constraint by synthesizing data using supplemental information that is available.

Action Item 10: Wayne to clarify the difference between release and bypass. And if known reasons for data gaps are known, footnote for the group.

Wayne A. explained that every one of the data sets that come in will have to be looked at to see if the flow numbers make sense. After that the group will have to come up with a method to determine the estimated flows. Wayne said he can have the information for all diversions ready for the next Hydrology Subgroup meeting. The group can then make some decisions at the next meeting where to go with analysis.

The Water Board said that there are two issues to keep in mind when analyzing this data: 1) What data is available? 2) What are the conditions of operation?

Action Item 11: All subgroup members are to review other study plans for items that need to be addressed in this group by next meeting.

Action Item 12: Mitchel Katzel (ENTRIX) will look into other papers and reports on how to synthesize this information.

Action Item 13: Steve to verify that all data can be made available (run by Nino Mascolo).

Action Item 14: Julie will request information from Dale Mitchell about this project. 3 or 4 books (antiques) of the Big Creek project. *Upper Big Creek Watershed* Serial Number flow records. Archives at Fresno State possibly. Bryan will check with Karen if the Forest Service has any historical books with big creek information.

Unimpaired Hydrology – Steve Rowan said that he is researching SCE ledgers with information about each reservoir and putting it into electronic format. The ledgers record the storage and the spill and routing of each reservoir each day each day at midnight. The difference between the releases (spill, Portal) and the storage is the inflow. The information goes back as far as the 1920's and possibly the 1910's. Steve explained that this information can be useful for measuring inflows of the large diversions, but not for the smaller diversions where information might be missing.

Identification of Information Needs
Moved to next agenda.

Schedule for Addressing Outstanding Issues
Will be kept on all Hydrology Subgroup agendas.

Next Hydrology Subgroup Meeting:
April 10, 2003 9AM – 12PM @ USFS Clovis Office
Same Call-in number

List of Action Items
Action Item 1: (Bin Item) The group acknowledged that Objective #5 from CAWG-6: "Determine the effects of PM&Es on the hydrologic regime" will have to be addressed at a later date.
Action Item 2: Wayne Lifton (ENTRIX) will obtain the CA DWR water year criteria and distribute to the subgroup members.
Action Item 3: Check CAWG-1, 11, & 12 (Whitewater: Rec-3) for any related elements that may need to be addressed in the Hydrology subgroup. Woody Trihey and Ed Bianchi (ENTRIX) to develop a box diagram with relationships designated.
Action Item 4: ENTRIX to prepare sample duration curve using Bear Creek Diversion for all five water year types. The goal will be to provide similar presentations of data for both unimpaired and existing flows.
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Big Creek Collaborative

Combined Aquatics Working Group

March 10, 2003

Final Meeting Notes

Time:	11:00 AM to 5:00 PM	**Moderator:**	Wayne Lifton
Location:	CDFG Office, Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Bryan Harland	Kearns & West
	Bill Pistor	Kearns & West
	Julie Means	CDFG
	Lonnie Schardt	Kokanee Power
	Steve Rowan	SCE
	Geoff Rabone	SCE
	Wayne Allen	SCE
	Rick Hopson	USFS
	Julie Tupper	USFS
	Wayne Thompson	Federation of Fly Fishermen
	Ed Bianchi	ENTRIX
	Phil Strand	USFS
	Cindy Whelan	USFS
Phone Participants:	Wayne Lifton	ENTRIX

Introductions

Stakeholders introduced themselves and the organization they represent. Bill Pistor (Facilitator, Kearns & West) proposed approving the meeting agenda as distributed to the group. Ed suggested adding an item on the FERC Critical Energy Infrastructure Information (CEII) Rulemaking.

Action Item #1: Check distribution lists for accuracy with ENTRIX. Lonnie Schardt did not receive the last distribution add ldschardt@aol.com.

Critical Energy Infrastructure Information

Geoff Rabone (SCE) explained the final rule adopted by FERC on Critical Energy Infrastructure Information and the classifications of information. A copy of the FERC summary of the new rule is available online at www.ferc.gov. FERC has created four categories of information: Public; Non-Internet Public; Critical Energy Infrastructure Information (Confidential); and Privi leged. The distribution of each category of information is as follows:

- *Public* – Maintained in FERC Public Reference Room and on FERRIS.
- *Non-Internet Public (NIP)* – Maintained in Public Reference Room but not on FERRIS, except as an indexed item. Not to be posted on the internet.
- *CEII (Nonpublic)* – Not maintained in Public Reference Room, but is maintained as an indexed item on FERRIS.
- *Privileged* – Not Maintained in Public Refernce Room or on FERRIS, except as an indexed item.

Action Item #2: Geoff to supply the CAWG the FERC summary of the final rulemaking RE: CEII. He will get clarification from Nino on its implications for the Big Creek Relicensing and get an email out to the group.

Review Action Items from February Meeting

Outstanding action items from the February CAWG meeting are listed below with comments.

- ENTRIX to add photo examples to CAWG-2. ENTRIX to add table of contents to all CAWG DTSRs. (There has not been another distribution of the CAWG DTSRs at this time. Future versions of the reports will contain tables of contents.)

- Larry Wise to distribute the whitewater study protocols from the Forest Service to the group after he has reviewed. (protocols are for controlled flow studies only)

- **HABITAT CLASSIFICATION SUBGROUP** (Continuing action item) - An initial subgroup meeting hasn't been convened yet, will take place during low-flow time of year. This item will be added to the CAWG-3 Habitat Classification time sensitive element.

Hydrology Subgroup Update

Steve gave the group an update on the Hydrology subgroup meeting. The Hydrology Subgroup met on March 6th at the USFS Clovis Office. There is a meeting summary available for interested stakeholders. The subgroup will meet next on April 10, 2003 9AM to 12Noon at the Clovis Forest Service Office.

Jan Meeting Summary

Action Item #3: Cindy asked that the meeting summaries be placed on the web as soon as approved. Jan notes were approved.

Feb Meeting Summary

Feb meeting summary was approved without edits.

CAWG-3: Determine Flow-Related Physical Habitat in Bypass Reaches Presentation (Larry Wise)

Larry Wise (ENTRIX) gave a PowerPoint Presentation *(Attachment A: 03-10-03 CAWG Presentation)* on the CAWG-3: Flow-Related Physical Habitat in Bypass Reaches Draft Technical Study Report. Larry reviewed the CAWG-3 objectives, study elements completed and outstanding as well as the results for upper basin seasonally diverted streams.

Study Elements Completed:

- Wetted Perimeter
    - Measurements and analysis completed at Wetted Perimeter transects selected in Fall 2001.
    - Transects selected for all remaining Wetted Perimeter streams.
- PHABSIM
    - BiCEP models reviewed.
    - Transects selected for PHABSIM studies on all candidate reaches.
- HSC observations collected for verification.

Outstanding Study Elements:

- CAWG approval of PHABSIM target flows
- Scheduled 2003 data collection.
- Modeling of remaining transects.
- BiCEP model revisions with additional transects.
- HSC transferability testing and presentation to CAWG
- Whitewater studies.
- Decision on habitat time series analysis.

Results for upper basin small streams - Wetted Perimeter and Food Transport Analysis
Larry summarized the results for the upper basin small streams (Bolsillo, Camp 62, Chinquapin, Crater, North Slide, South Slide, Tombstone, and Hooper creeks). Wetted perimeter analysis was used for all streams except Bolsillo Creek, where a Food Transport analysis was used.

Measurement flows for these streams typically ranged between less than a tenth of CFS to more than 30. Ed Bianchi (ENTRIX) asked if there are higher flows below the diversions than above due to accretion. This was the case for some streams. Larry reported that there were no runs or riffles above the Chinquipin diversion, and therefore there is no reference site here. Additionally the CAWG Transect Selection Team (CTST) did not place transects above North and South Slide Creek diversions as habitat was dissimilar and these diversions are no longer operational.

Larry stated that the model calibrations using IFG4a or MANSQ were highly successful. MANSQ was used on four of the 30 transects. Most of the simulated water surface elevations were within three hundredths of a foot of the measured water surface elevation. At two transects, simulated water surface elevations differed from measured water surface elevations by as much as six one-hundredths of a foot.

Larry next reviewed the Wetted Perimeter vs. Discharge Relationship results with the group. Flows at the inflection points above and below the diversions ranged from 0.4 to 1.5 CFS. The results on each stream were very similar above and below diversions. Camp 62 creek is a good example with a 0.7 cfs inflection point above the diversion and 0.8 cfs below. All inflection points occurred within range of measured flows, which increases the confidence in the results as the model is interpolating between known point rather than extrapolating. Larry informed the group that ENTRIX feels confident in the results' accuracy.

ENTRIX field crews also conducted food transport analysis on Bolsillo Creek last field season. The concept of these analyses was to look at velocities through pools and look at what flows would provide food transport across a third of the width of the pool. Food transport results for Bolsillo Creek are as follows:

- **Low Flow (0.2cfs)** – Food transport limited.
- **Mid Flow (2.3cfs)** – Initiation at all transects. Sustained transport at one transect, nearly attained at other two transects.
- **High Flow (7.2cfs)** – Initiation and sustained transport attained at two transects. Initiation and sustained transect not attained at the transect where sustained transport was attained at middle flow.

The group discussed whether the Bolsillo Creek food transport results were giving the group the information they needed in terms of fish habitat and the possible need to use a different approach for future food transport studies. The group agreed to explore alternatives to the proposed food transport methodology used on Bolsillo Creek.

Action Item #4: Larry to identify alternative approaches for Bolsillo Creek for food transport for group consideration at a future CAWG meeting.

A stakeholder asked what the assumed food is for this study. Larry answered that drifting larval life stages of aquatic insects are the assumed food. Follow up question: Do we know what they're eating? Larry answered that although stomach pumping on trout has not been done, it is safe to say that trout are opportunistic and will eat whatever is around. Other studies have indicated that trout will use non-drift benthos. Ed stated that there will be a discussion of the usability of this approach in the report and Food Transport will be carried over as an outstanding study element for CAWG-3.

Action Item #5: ENTRIX to put the discussion on the suitability of the proposed methodology in the CAWG-3 Draft Technical Study Report. This item will also be identified as time-sensitive for CAWG review.

Fish Passage Analysis
Larry next gave a summary of the Fish Passage Analysis done as part of the CAWG-3 study. Fish passage studies were conducted on Camp 62, Chinquapin, Crater, Hooper, Bolsillo, North Slide, South Slide and Tombstone Creeks. Objective is to provide an estimate of the flow required for adult migration through typical wide, shallow habitats. Larry reviewed the criteria used for analyzing fish passage (Thompson's Criteria) and the minimum passage flows above and below the diversions.

Ed asked if there is a seasonality or time period associated with the criteria. Larry stated that the time period is during the spawning season, when trout are typically moving up or down stream looking for suitable spawning areas. Wayne Lifton (ENTRIX) added that most of the trout in the tributaries are fall spawners, which means they are moving upstream at low flow times of year.

Passage flows generally ranged from 0.2 to 3.6 cfs, which typically fell within measured flows. High velocities might be affecting passage opportunities at Hooper, but velocities across portions of each transect were low enough to allow passage. On South Slide Creek the 3.6 cfs average flow was affected by one transect that had a 7.5 cfs reading. Since that creek is not currently in operation, it shouldn't affect the results.

A stakeholder asked why passage flows for Hooper Creek below diversion is so much higher than above. Larry answered that there is a different channel type above and below. The channel above the diversion is narrower and steeper than it is below the diversion. Passage flows are based on a strict interpretation of the Thompson criteria. There are places where passage criteria are not quite met, but passage is still likely possible.

Another stakeholder asked if there are other barriers in place that can make this information moot (i.e., structures). Larry responded that those are noted in the habitat survey. When instream flow work is completed all information pertinent to fish passage will be summarized in CAWG 14.

Next Steps for CAWG-3:
- Determination of target flows for 2003 PHABSIM studies.
- Determine whitewater protocols.
- HSC verification presentation.
- Collection of data at transects selected in 2002.
- Decision on habitat time series analysis.
- Modeling and analysis of 2003 data.
- BiCEP model revisions with additional transects.

A stakeholder asked when will the CAWG have geomorphic information to look at in terms of fish passage. Wayne responded that the information has been mapped out and barriers noted. Ed added that the first step in approving the Draft Technical Study Reports is getting the basic information and then as we move on to the project effects analysis stage, we need to collect data from multiple plans and put together in one spot –summary tables, etc. Once the CAWG reaches a consensus on the data that has been presented in each study plan the group will begin to look at data across multiple studies.

Report Review Schedule
The Forest Service asked how to submit comments on the draft study reports? Bill responded that all working groups will use the single text protocol from the Big Creek Relicensing Communications Protocol.

Ed explained the proposed DTSR review schedule. From the time working group members receive the study report, they'll have 30 days (the schedule) to review and submit comments to Kearns & West. Then, Kearns & West will have 7 days to incorporate the comments and redistribute to the group for review and consideration for approval at the next working group meeting.

Bill asked if the group agrees with the proposed deadlines.

Agreement: The group agreed to the proposed DTSR review schedule.

Action Item #6: Kearns & West and ENTRIX will make a table of release dates, review dates, with the time sensitive elements listed in the order which they should be addressed by stakeholders and distribute to the Plenary group.

Water Quality Report

Lonnie Schardt (Kokanee Power) asked where the coliform samples were taken for Huntington lake? The maps included don't show enough resolution to know exactly where the samples were taken. ENTRIX will look at the maps again and see if they can better describe where the locations are in relation to Bear and Line Creeks.

Action Item #7: ENTRIX will check the Water Quality maps for resolution problems and report back to the group.

Review of Action Items

Action Item #1: Check distribution lists for accuracy with ENTRIX. Lonnie Schardt did not receive the last distribution add ldschardt@aol.com. (WAS MISSING the 'd' in the middle)
Action Item #2: Geoff to supply the CAWG the FERC summary of the final rulemaking RE: CEII. He will get clarification from Nino on its implications for the Big Creek Relicensing and get an email out to the CAWG.
Action Item #3: Cindy asked that the meeting summaries be placed on the web as soon as approved. January notes were approved.
Action Item #4: Larry to ID alternative approaches for Bolsillo Creek for food transport for group consideration at a future CAWG meeting.
Action Item #5: ENTRIX to put the discussion on the suitability of the proposed methodology in the CAWG-3 Draft Technical Study Report. This item will also be identified as time-sensitive for CAWG review.
Action Item #6: Kearns & West and ENTRIX will make table of release dates, review dates, with the time sensitive elements listed in the order which they should be addressed by stakeholders and distribute to the Plenary group.
Action Item #7: ENTRIX will check the Water Quality maps for resolution problems and report back to the group.

Big Creek Collaborative
Combined Aquatics Working Group

April 17, 2003

Final Meeting Notes

Time:	9:00 AM to 3:00 PM	**Moderator:**	Wayne Lifton
Location:	USFS Forest Supervisors Office, Clovis, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Phil Strand	USFS
	Bill Pistor (Facilitator)	Kearns & West
	Larry Wise	ENTRIX
	Roger Robb	Friant Water Users Authority
	Steve Rowan	Southern California Edison
	Martin Ostendorf	ENTRIX
	Britt Fecko	SWRCB
	Kelly Catlett	Friends of the River
	Rick Hopson	USFS
	Wayne Thompson	Federation of Fly Fishers
	Julie Means	CDFG
	Cindy Whelan	USFS
	Mitchell Katzel	ENTRIX
Phone Participants:	Intern from OPEC	
	Julie Tupper	USFS-RHAT

Introductions

Stakeholders introduced themselves and the organization they represent. Bill Pistor (Facilitator, Kearns & West) proposed approving the REVISED meeting agenda distributed to the group this morning. The group agreed to the revised agenda.

Review previous meeting action items

Outstanding action items listed below:

- **Action Item #2:** Geoff Rabone to send out CEII information as related to the Big Creek ALP.
- **Action Item #4:** Larry to identify alternative approaches for the food transport study on Bolsillo Creek for the CAWG review.
- **Habitat Classification Subgroup Meeting**

Britt suggested the group holding a conference call to discuss issues related to the 2003 Field Season.

Approve Meeting Summary

No comments to the CAWG March 10, 2003 Meeting Summary. The group approved the summary.

Big Creek Operations Update

Steve Rowan (SCE) gave an overview of water storage for this year. According to SCE's April 16, 2003 projections, runoff is expected to be 66% of normal this water year. Due to the projected water year and the fact that the PHABSIM studies use a significant amount of water, Steve proposed postponing the Mono Creek and South Fork San Joaquin studies to next field season. Steve acknowledged that April has been an above normal month for precipitation, but the moisture has been offsetting the dryer months, so the net result is still below normal.

Britt asked if the moisture forecasted for the end of this month would offset the current water year forecast. Steve said that in all likelihood it will not make a big enough difference to change the generation and runoff forecast.

<u>Study Flows for CAWG-3</u>

Larry Wise (ENTRIX) gave a PowerPoint presentation on the proposed target flows for the CAWG-3 PHABSIM studies. In the Mammoth Reach of the San Joaquin River. ENTRIX is hoping to do the measurements in the second half of May to avoid any potential conflicts with amphibian egg masses or, because of the below normal water year, ISO may declare “no touch days,” in which case SCE would not be able to change their operations. (Please see Appendix A: CAWG-3 PHABSIM Calibration Flows PowerPoint Presentation)

The methodology for conducting PHABSIM studies has been approved by the CAWG at previous meetings. Transects for PHABSIM studies were selected in coordination with the CAWG in 2002. The next step is to select the calibration (target) flows for each reach, which must be approved by this working group.

The Hydrology sub-group is currently working on developing flow information for the various Project streams. This information will not be available in time to be used for the PHABSIM studies to be conducted this year. Because of this, ENTRIX has developed proposed target flows using the USGS pre-project flow information from the San Joaquin River at Mammoth; Stevenson Creek above Shaver Lake; and all available information for Bear Creek above the diversion. This information has been supplemented and corroborated with information from other sources (specifically Barre 1925 and the USBR USAN model for the San Joaquin River. Theproposed target flows meet the stated objective for flow simulations stated in CAWG-3, and leave room for adjustments that may be needed based on the results of the Hydrology Subgroup work, which are not completed at this time.

Bear Creek above Diversion

Based on USGS records at USGS gaging station 11230500, the flows above the diversion are 36, 16, and 11 cfs in the months of August, September and October respectively. This is based on an 80-year period of record.

SCE proposes target flows of 5, 25, and 50 cfs, which would provide an extrapolation range of 2 to 125 cfs, based on the generally accepted PHABSIM modeling rule-of-thumb. According to this rule PHABSIM model simulation flows can be reliably extrapolated from 0.4 times the measured low flow to 2.5 times the measured high flow. The actual range of acceptable simulation depends on the model calibration statistics – sometimes the range can be extended – in other situations, the model may not be extrapolated that far. ENTRIX has had very good success in meeting and often being able to exceed the rule-of-thumb extrapolation range.

San Joaquin River – Mammoth

Based on available information, the median unimpaired flows for this reach are 425, 226, and 157 cfs in the months of August, September and October respectively.

Proposed target flows are 200, 80, and 30 cfs, which would give an extrapolation range of 5 to 500 cfs.

San Joaquin River – Stevenson Reach

There are no USGS flow records available for this reach., Unimpaired flows were estimated based on information available for the Mammoth Pool Reach and Big Creek to estimate the flowentering the Stevenson Reach. These flows ranged from which measured 440 cfs in August to 175 cfs in October.

The proposed target flows are 7, 35, and 200 cfs, which should give a range of extrapolation of 3 to 500 cfs. These calibration flows differ from the Mammoth Pool Reach because of the lower current minimum flow requirements for the Stevenson Reach. This range of measurement flow will cover the range of summer unimpaired flows.

A stakeholder asked why Larry picked the months of August, September and October. Larry answered that while November flows are often lower than those in October, in November water starts to cool down, fish change habitat and feeding behaviors and require less habitat due to lower metabolic requirements.

Big Creek
There are no USGS unimpaired flow numbers for Big Creek, so information from AH Barre in 1924 to estimate unimpaired summer flows. The numbers are the sum of Pitman Creek and Huntington Lake flows. These flows ranged from 9 cfs in September to 18 cfs in October. Proposed target flows are 3, 15, 40 cfs, which would providean extrapolation range from 1 to 100 cfs.

Stevenson Creek above Shaver
These unimpaired flows are also taken from Barre. Unimpaired flows range from 2 to 5 cfs during the August through October timeframe. Proposed target flows are 3, 10, 20 cfs. Higher measurement flows are proposed for this creek because the minimum flow requirement is currently greater than the unimpaired flow in some months. A range of proposed measurement flows higher than the summer unimpaired flow was required to allow a robust stage-discharge relationship to be developed. The proposed flows should allow for an extrapolation range of 1 to 50 cfs.

Larry gave the group an update on the North Fork Stevenson Creek Flows. The group held a conference call on March 20, 2003 and agreed to target flows of 15 and 30 cfs for the North Fork Stevenson Creek. ENTRIX did go out in the field and measured flows of 28 and 13 cfs. They will go back out to take the low flow measurements in the summer.

A stakeholder asked if the evaluation of the hydrology information could cause this study to change in any way? Larry answered that it might change slightly, but ENTRIX left a margin of error in these numbers for that purpose.

The stakeholders requested some time to review the proposed target flows.

Action Item #1: The CAWG plans to hold a conference call on April 28, 2003 at 8:30AM to discuss and approve the proposed target flows.

A stakeholder asked if the San Joaquin – Mammoth Reach is more time sensitive than the other reaches. Larry answered only in terms of whitewater. All the flows will require SCE to open a valve. The later in the summer the greater the probability that SCE will not be allowed to do releases due to the previously mentioned restraints.

The group discussed the timing of conducting these studies. Bill suggested scheduling the studies to coincide with the whitewater study releases, which will most likely take place in mid-May. The Recreation Working Group has not yet selected a date as of this meeting, but will be working offline to finalize dates in April.

The Forest Service and USFWS have expressed concerns about affecting amphibian spawning and conducting the flows in mid-May may help reduce the risk of affecting egg masses.

Martin informed the group that ENTRIX is trying to schedule a conference call to discuss whitewater study scheduling as well. Britt Fecko (SWRCB) expressed interest in participating in that call.

Action Item #2: Martin to inform Britt of any scheduled whitewater conference call.

Action Item #3: Larry to email the proposed target flows presentation to the CAWG no later than Friday the 18th.

Whitewater Stranding Study Protocol

Larry next gave a presentation on the Whitewater Stranding Study Protocol, which will be completed in coordination with the whitewater study. The focus of the study will be the Mammoth reach. This proposed protocol stems from field discussions held while reviewing the BiCEP PHABSIM transects in the Mammoth Reach and R2's suggested study approach. The goal of this discussion is to agree on the proposed methodology. (Please see Appendix B: Whitewater Stranding Study Protocol PowerPoint Presentation)

The study objective is to analyze the potential effects of a single, in season whitewater test flow on fish populations. The study focus will be on the stranding and trapping of fish during flow recessions following the whitewater release. The group will use this information to obtain insight into potential measures that may be needed to provide recreational flow releases, while providing adequate protection for fish populations.

A stakeholder asked for clarification of the terms "stranding" and "trapping." Stranding occurs when a fish is left out of the river in an unwatered area as flows recede. Trapping occurs when a pool forms on the side of the channel (on a bank or bar) during higher flows and a fish is trapped in the isolated pool, once the water recedes.

Larry explained that the results of the study will not be quantitative, but the emphasis will be on the mechanisms rather than on population information impacts. Main area of concern is when whitewater releases are done during times of year when fish aren't used to seeing higher flows.

Larry explained that the will be conducted the study in areas where PHABSIM transects are placed. These areas can be accessed at the proposed whitewater flow levels. These areas also contain features conducive to trapping or stranding fish, including bars, high flow channels and backwater pools.

Depth and velocity measurements must be done when flows are at peak. Due to the travel time of the water from top to bottom of 8-9 miles, the flow duration could be as long as 24 hours. This is a longer duration than what whitewater boaters would be asking for.

The group discussed ramping rates for the study. ENTRIX proposed a ramping rate of 200 cfs an hour. Some stakeholders requested information regarding the ramping rates for consideration of the proposed methodology.

Action Item #4: Larry to send out information (BiCEP, stage discharge level, 15min data, etc.) and the proposed study methodology and ramping rates for stakeholder review before the April 28th call.

The group agreed that it would help in their review to receive materials at least one business week in advance of the meetings.

HSC for Use in Instream Flow (PowerPoint)

Larry gave a presentation introducing the Habitat Suitability Criteria (HSC) verification process. This was a presentation only, with no proposal for approval at this meeting. (please see Appendix C: Intro to HSC Verification PowerPoint Presentation)

Selected criteria were developed from stream observations in the immediate study area (Big Creek and NF Stevenson Creek, as well asthe Tule River, and Willow Creek, and all observations were taken together to generate regional criteria sets for rainbow and brown trout for central Sierra streams. Those criteria are based on numerous observations and have been tested on the Tule. The criteria were also tested for rainbow trout in Big Creekand found to be valid for use there, as well.

A stakeholder asked if the criteria were developed in regulated streams. Larry said yes and that observations were collected at different flow s, as well. This was followed by a discussion of the number of observations made to date on various streams and within various stream strata. Streams were divided into upper and lower basin streams and into large streams and mid-sized streams. These strata were based on the physical characteristics of the various reaches including consideration of flow, structural and temperature aspects. Larry mentioned that different species will be observed in different areas. For example, it is difficult to get a lot of observations for adult trout in the Stevenson Reach of the San Joaquin River. The CAWG will need to address in the group at a later date **(Bin Item).**

A stakeholder asked if the criteria were created in the Big Creek area does that mean they have already been tested. Larry answered that for rainbow trout yes, because they have been tested. There are not enough observations to verify all lifetages of brown trout. Because the criteria were developed in the area, they do seem transferable, but because observations from other streams also were used to develop the criteria, there may be differences between observed utilization in a single stream and the composite utilization function.

The HSC verification will utilize the Groshens and Orth (1984) approach. In using this approach threshold suitability values will need to be selected to differentiate between suitable and unsuitable habitat and optimal and usable habitat. These values will be selected in during a future CAWG meeting. The approach calls for testing two null hypotheses:

- H_0: Suitable habitat is not used more than unsuitable.
- H_a: Suitable habitat is used more than unsuitable.

- H_1: Optimal habitat is not used more than marginal.
- H_a: Optimal habitat is used more than marginal.

Both null hypotheses should be rejected for a criteria set to transfer.

Larry outlined the methods for data collection for the ALP and the sampling locations and stream categories. The CAWG can discuss next steps at a future meeting.

A stakeholder asked in what months and year types were these samples taken. Larry said they were taken in the summer (July, August, and September) during normal, dry and wet years. Larry said sampling during these months may limit habitat availability, but that we will try to maximize habitat availability in sampling design, by sampling across all habitat types equally and sampling at different flow levels..

Bill asked for the timing of the HSC work. Larry does not expect to get through this in one or two meetings. Bill said that often an HSC subgroup is formed for this. A stakeholder asked when the CAWG can expect to have a validation report from ENTRIX. Larry answered that in July or August they will bring back preliminary results for group review.

Amphibian Egg Mass Monitoring / USFWS Consultation

Janelle spoke with Jesse Wild today and sent a consultation letter describing the methodology for the implementation of the Recreation whitewater study. Jesse gave verbal approval today for surveys through mid-May.

Action Item #5: The Amphibian Subgroup will hold a conference call on April 22 at 1PM to discuss issues related to this study.

Geomorphology and the Whitewater Release
A stakeholder asked Mitchell if the 800 cfs release would be enough for geomorph sub-group to obtain useful information on gravel transport and painted gravel study. Mitch didn't know if it will be enough. A follow-up question was asked if the 800 cfs could be a preliminary study and could lead to further study. Mitch said that unless you do the study over a range and increments of flows, it's hard to track when gravel moved. Doing the study as proposed would only give you an answer of whether the flow is enough to move or not and not give any graded information.

Mitch asked what the objective of the 800 cfs study would be. Martin explained that the work could be supplemental to the information we hope to get from the formal study. Mitchell said what might be of interest would be sand transport for the pools.

Action Item #6: Mitchell to consider/propose to the group geomorphic work that could be conducted in coordination with the Whitewater study.

Review Comments on CAWG-2: Geomorphology
The group reviewed comments received from the USFS and SWRCB on the CAWG-2 Draft Technical Study Report. Bill walked through comment by comment. Comments will be noted in the revised draft of the study report and not in this meeting summary. This meeting summary will capture any disagreement or actions that result from the discussion.

Agreement: Continue to have same structure, but within the completed elements all study elements will be listed with the status of each listed in parenthesis. Then, in the study elements not completed section, the elements not completed will be listed again.

The group discussed the need for a timeline on the study elements yet to be completed. ENTRIX explained that a timeline will be produced separately from the DTSRs. The group agreed.

Action Item #7: ENTRIX to produce timeline separate from the DTSR's on the study elements yet to be completed.

Mitchell explained that ENTRIX fully documented (photographically) the field surveys and that the photos will be incorporated as an Appendix.

DTSR Edit: Add Photo document Appendix.

Bin Item: CAWG to address the unregulated/regulated stream length question at a later date after Mitch, Rick and Britt hold offline meeting to discuss.

DTSR Edit: Mitchell to provide field data sheets in an appendix (section 5.0)

Action Item #8: Bryan to send out May 6th Amphib (8-12) and CAWG (1-5) meeting agenda. Bryan check with Julie Means for the CDFG meeting room.

Action Item #9: Geomorph Subgroup meeting May 7th 8AM to 1PM.

Action Item #10: K&W to call CAWG members regarding a separate Water Quality DTSR meeting?

<u>Review of Action Items</u>
Action Item #1: The CAWG to hold a conference call on April 28, 2003 at 8:30AM to discuss and approve the proposed target flows.
Action Item #2: Martin to inform Britt of any scheduled whitewater conference call.
Action Item #3: Larry to email the proposed target flows presentation to the CAWG no later than Friday the 18th.

Action Item #4: Larry to send out information (BiCEP, stage discharge level, 15min data, etc.) and the proposed study methodology and ramping rates for stakeholder review before the April 28th call.
Action Item #5: The Amphibian Subgroup will hold a conference call on April 22 at 1PM to discuss issues related to this study.
Action Item #6: Mitchell to consider/propose to the group geomorphic work that can be conducted in coordination with the Whitewater study.
Action Item #7: ENTRIX to produce timeline separate from the DTSR's on the study elements yet to be completed.

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Action Item #9: Geomorph Subgroup meeting May 7th 8AM to 1PM.
Action Item #10: K&W to call CAWG members regarding a separate Water Quality DTSR meeting?

<u>Action Items From Previous Meetings</u>
(March 10, 2003) Action Item #2: Geoff Rabone to send out CEII information as related to the Big Creek ALP.
(March 10, 2003) Action Item #4: Larry to identify alternative approaches for the food transport study on Bolsillo Creek for the CAWG review.
Habitat Classification Subgroup Meeting

<u>Appendices</u>
Appendix A: CAWG-3 PHABSIM Calibration Flows
Appendix B: Whitewater Stranding Study Protocol PowerPoint Presentation
Appendix C: Intro to HSC Verification PowerPoint Presentation

Big Creek Collaborative

Combined Aquatic Working Group

May 6, 2003

Final Meeting Notes

Time:	1PM to 3 PM	**Moderator:**	Wayne Lifton
Location:	CDFG Office, Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatic Working Group		

Attended By	Bill Pistor	Kearns & West
	Bryan Harland	Kearns & West
	Wayne Lifton	ENTRIX
	Julie Means	CDFG
	Phil Strand	USFS
	Geoff Rabone	SCE
Phone Participants:	Rick Hopson	USFS
	Britt Fecko	SWRCB

Introductions

Stakeholders introduced themselves and the organization they represent, then reviewed and approved the day's agenda.

Review CAWG-1 Comments

The group reviewed comments submitted by CAWG members on the CAWG-1 Draft Technical Study Report (DTSR). Agreements and actions related to changes in the CAWG-1 DTSR text will be recorded in this meeting summary. For changes to the study report text, please see the next version of the CAWG-1 DTSR.

DTSR Comment: Page 1(Fecko)

Wayne Lifton (ENTRIX) said that ENTRIX can provide the general dates that surveys were conducted, but exact dates may not be possible. Wayne will place the material in the methodology appendix.

DTSR Comment: Page 4 (Fecko)

Wayne will put a timeline together for any supplemental work after all comments have been received on the DTSRs. Wayne said that they have a draft schedule and as they work through the comments and get approval from the group to implement additional tasks, they can add actual dates. Runoff conditions may affect scheduling.

DTSR Comment: Page 5 (Fecko)

Bill Pistor suggested addressing the Large Woody Debris (LWD) comments as a general topic. The group agreed.

The Forest Service is concerned that the CAWG has not collected all the information as planned in the study plan. The question they would like answered from the study is whether there's a difference in Large

Woody Debris from above the diversions to the bypass reaches.

Wayne said that a lot of the habitat data was collected in 2000 before the study plan was developed. This contributed to reduced collection of LWD data in those reaches. Wayne presented the CAWG a table with the availability of the LWD data.

The SWRCB expressed concern that obtaining LWD information was agreed to in the study plan, but work was not completed. Wayne suggested that if the group finds non-essential data gaps, then they can decide not to make the effort to collect the data.

Wayne said that Balsam creek will be mapped this year, and they will get LWD information then.

Wayne discussed two possibilities for addressing
1. ENTRIX will look at the aerial photography for an open-canopy reaches with LWD data, such as part of the SFSJR, and compare it to data gathered on the ground to see if the photographs could be used to develop additional information.
2. We could have somebody join the geomorphology team or have the geomorph team take the information on LWD themselves, in reaches they are working in.

ENTRIX will bring the results to the CAWG for review. After reviewing this data, the CAWG will look at data needs and assess the need for further actions on the subject of LWD.

Action Items
1. ENTRIX will compare the aerial photography with data gathered on the ground to see if this could be used to develop information.
2. ENTRIX will look into having the geomorphology team collect the information on LWD, in sites they are working in.
3. ENTRIX will bring the results to the CAWG for review.

Action Item #4 (Bin): keep track of the LWD data gaps and progress.

The Forest Service stated that what they are trying to get at is if there is a difference above and below diversions. There may be places where there's a large discrepancy above and below. If there's a big enough difference then there may be an effect. If the LWD is passed downstream there is probably no need for additional data.

SWRCB agreed that above and below diversion differences were their primary concern with regard to the LWD data.

Wayne asked Geoff what SCE operations were for LWD. What do the SCE people in the field do with the LWD when they find it?

Action Item #5: Geoff to check on what SCE does with LWD that collects in the diversions. Do they throw it over the top? Do they take it and burn it? Do they remove it from the creek?

DTSR Comment: Page 6 (Strand)
Wayne will provi de Study Objectives in column format.

Action Item #6: Geoff and Ed to review the structure of outstanding and completed study elements for a easier to reference format.

DTSR Comment: Page 8 (Strand)
Action Item #7: Phil to forward the Dynamic Segmentation papers to ENTRIX.

Wayne explained that they had problems in the field with the GPS reception in some locations and the 3D measurements would need to be projected to 2D, this would result in inaccuracies. The time that would be needed to do this would be very costly. Wayne suggested that the information can be presented in a useful format in spreadsheets.

Phil Strand asked if it is possible to add mesohabitat percentages to the GIS maps instead. This would meet his needs. If this is done, no need for dynamic segmentation.

Wayne said that that information is included in the report in both the Hawkins and R5 breakouts, but not on the GIS maps themselves.

Action Item #8: Wayne to see if GIS personnel can put the percentage information on the existing maps. Present to Geoff and come back to the group with a plan.

DTSR Comment: Page 10 (Fecko)
DTSR Edit: Wayne will put together a table that details the sources of information for the reaches named in the comment.

DTSR Comment: Page 13 (Fecko)
The SWRCB explained that their concern with Big Creek was that some habitats may have been mischaracterized or that lumping of habitats may have resulted in loss of detail that may be important for weighting PHABSIM results.

Wayne said that when they were in the field with Paul Devrees and Dennis Smith, they found reaches that were split habitats across the width of some habitat units within the reach. There also were groups of short length habitats. They will be going into the field this year to resolve the Big Creek discrepancies.

Wayne said that if there is an issue with the sensitivity of the PHABSIM results to split habitats and lumping, they will do a sensitivity analysis in a stepwise process that will hopefully address the SWRCB concerns. When they calibrate the models, they'll be modeling by habitat type and looking at the final information to see if differences make an impact. Then, they will do ground truthing in the field to analyze whether they are getting enough detail.

The Forest Service stated that they use one person per reach to keep each reach classification consistent and a minimum habitat unit length is defined as one bankfull width. Wayne said that is the same protocol that they are using in the field and that is common to the R5 and CDFG habitat mapping approaches. The SWRCB said that this proposed methodology addresses their concern and would like to be present during the ground truthing. Wayne said they will send out notice to the group a month or two in advance for those that would like to be present.

Action Item #9: ENTRIX to notify CAWG in advance of habitat ground truthing on Big Creek.

DTSR Edit: Wayne to add the proposed methods into the report or the methodology appendix.

DTSR Comment: Page 15 (Fecko)
Used 1980 through 2000 because it was the dataset Steve Rowan (SCE) put together and QC checked. Below normal years are relatively rare. Wayne said they have talked to Steve about this, but he only went to 1980.

Geoff said they can do one more year and QC, but it will delay the release of this Report and the release to the public, since the information requested by the SWRCB is dependent on the Hydrology data, which has not been released yet. Wayne suggested adding it later, but moving forward with what they have now since the below normal year is bounded by the dry and above normal years and is intermediate to these.

Action Item #10: Geoff to ask Wayne Allen what below normal water year he can get first and how fast he can compile and QC.

DTSR Comment: Page 16 (Fecko)
DTSR Edit: Wayne Lifton to add methodology for shoreline development in the methodology section.

DTSR Comment: Page 17 (Fecko)
DTSR Edit: Wayne Lifton to add visual assessment methodology.

DTSR Comment: Page 36 (Strand)
Wayne explained that they were using 2000 data and the detail came out after the fact.

DTSR Edit: Wayne Lifton will footnote to keep the general methodology.

DTSR Comment: Page 49 (Strand)
DTSR Edit: Wayne will explain the discrepancy for all comments on barriers.

DTSR Comment: Page 64 (Strand)
Had a couple of large deposits but very little gravel overall in the reach. Wayne will clarify in the text of the report.

DTSR Comment: Page 103 (Strand, Fecko)
DTSR Edit: Wayne will add language on how the shoreline development index is calculated.

DTSR Comment: Page 105 (Fecko)
DTSR Edit: Wayne will clarify if the statement is an interpretation or observation.

DTSR Comment: Page 111 (Fecko)
DTSR Edit: Wayne will clarify.

DTSR Comment: Page 116 (Fecko)
Wayne has added "The Water surface elevation" to the sentence.

DTSR End Notes Comments
Action Item #11: Ed and Geoff to address the suggested edits to DTSR structure (i.e. putting charts and tables in the text sections that are being discussed).

General Discussion
Julie asked how much they looked at barriers as reservoirs were drawn down for the fish passage DTSR. Wayne said they looked at that and will be including in the Fish Passage DTSR although, they didn't always get out for minimum pool for all the reservoirs.

The Forest Service stated that the CAWG needs the Hydrology information ASAP.

Action Item #12: Geoff to check with Wayne Allen on the Hydrology data and give an update at the next CAWG meeting.

<u>Action Items</u>

Action Items
Action Item #1: ENTRIX will look at the aerial photography for LWD and compare to ground data for an open canopy reach.
Action Item #2: Consider having the geomorph team take the information on LWD themselves for reaches they study.
Action Item #3 After reviewing this data, the CAWG will look at data needs and assess the need for further

actions on the subject of LWD.
Action Item #4 (Bin): keep track of the LWD data gaps and progress.
Action Item #5: Geoff to check on what SCE do with LWD that collects in the diversions. Do they throw it over the top? Do they take it home and burn it? Do they throw it out of the creek?
Action Item #6: Geoff and Ed to review the structure of outstanding and completed study elements.
Action Item #7: Phil to forward the Dynamic Segmentation papers to ENTRIX.
Action Item #8: Wayne to see if GIS personnel can put the percentage information on the existing maps. Present to Geoff and come back to the group with a plan.
Action Item #9: ENTRIX to notify CAWG in advance of hbavitat ground truthing on Big Creek.
Action Item #10: Geoff to ask Wayne Allen what dry water year he can get first and how fast he can compile and QC.
Action Item #11: Ed and Geoff to address the suggested edits to DTSR structure (i.e. putting charts and tables in the text sections that are being discussed).
Action Item #12: Geoff to check with Wayne Allen on the Hydrology data and give an update at the next CAWG meeting.

Big Creek Collaborative
Combined Aquatic Working Group

May 19, 2003

Final Meeting Notes

Time:	10AM to 2:30 PM	**Moderator:**	Wayne Lifton
Location:	Piccadilly Inn University Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatic Working Group		

Attended By	Bill Pistor	Kearns & West
	Bryan Harland	Kearns & West
	Lonnie Schardt	Huntington Lake Association
	Geoff Rabone	SCE
	Phil Strand	USFS
	Julie Means	CDFG
	Wayne Lifton	ENTRIX
Phone Participants:	Britt Fecko	SWRCB

Introductions

Stakeholders introduced themselves and the organization they represent, then reviewed and approved the day's meeting agenda.

Review of Previous Meetings' Action Items

Outstanding action items below:

Ongoing

- Action Item #2: Geoff Rabone to send out CEII information as related to the Big Creek ALP.
- Action Item #4: Larry to ID alternative approaches for the food transport study on Bolsillo Creek for the CAWG review.

April 17, 2003 Meeting

- Action Item #8: Geomorphology meeting originally scheduled for May 7th has been postponed.
- Action Item #9: Water Quality meeting on hold.

May 6, 2003 Meeting

- Action Item #3: Geoff to check SCE operatio0ns on how they handle LWD that collects in the diversions.
- Action Item #6: Geoff to check with Wayne Allen on the Hydrology data and report back to the CAWG at the next meeting. (Wayne Allen has been in the field, Geoff will check back with him)

Review and Approve Meeting Notes

Meeting notes have not been sent out at this time.

<u>Presentation of CAWG-9 Entrainment Sampling Recommendations: Large and Medium Size Reservoirs</u>

Wayne Lifton (ENTRIX) gave a presentation on CAWG-9: Entrainment Draft Technical Study Report. For the full details, please see the PowerPoint presentation attached to this summary. Stakeholders requested that Wayne L. distribute a copy of the CAWG-9: Entrainment PowertPoint presentation to the group.

Action Item #1: Wayne Lifton will burn CD copies of the Fish Entrainment PowerPoint presentation and send to Phil, Britt, and Julie.

CAW-9 General Approach:

1. Review Scientific Literature
2. Evaluate Potential for entrainment mortality
3. Evaluate entrainment rates

Wayne L. explained that according to the CAWG-9 Study Plan, the study will prioritize the large reservoirs with no source of turbine mortality upstream which may entrain fish. Wayne L. proposed sampling Huntington and Shaver Lakes for the Big Creek Chain since the other reservoirs intake water from other reservoirs and would not be the primary source of turbine mortality.

For the small diversions, Wayne L. explained that a representative subset would be selected by the CAWG.

Wayne next reviewed the evaluation of vulnerability to entrainment with the group. Entrainment vulnerability was determined by evaluating the following information:

- Available information on turbine mortality
- Data on the design of the intake
  - o Review of design drawings
  - o Intake capacity
  - o Location of the intake
  - o Records of operations and flows
  - o Approach velocities calculated
- Data on fish vulnerability and their use of the area near the intake face

Wayne reviewed the potential turbine mortality for each of the types of turbines used in the Big Creek system. The Vertical Francis turbine, which is used in most Big Creek powerhouses, has low potential turbine mortality. The medium head (250-500 ft) Francis Reaction turbine has low to medium potential mortality. The high head (>500 ft) Francis Reaction turbine has low to high potential turbine mortality; and the Impulse Pelton turbine has high potential turbine mortality.

A stakeholder asked if there's a difference between small and large fish survival on the Pelton. Wayne L. said not really.

Two stakeholders asked if the differences in intake and output depths can harm fish. Wayne L. said that if there's an intake at a greater depth and a fish is taken in and then spit out at less depth, they can experience pressure-related injuries (such as the Bends in humans).

Wayne L. reviewed the intake design and fish vulnerability for the large reservoirs (Florence Lake, Huntington Lake, Mammoth Pool, and Shaver Lake), medium size reservoirs (Bear Creek Forebay, Mono Creek Diversion Forebay, Balsam Meadow Forebay, Dam 4 Big Creek Powerhouse 2 Forebay, Dam 5 Big Creek Powerhouse 8 Forebay, and Dam 6 Big Creek Powerhouse 3 Forebay). The factors for potential fish entrainment mortality examined for each of the listed reservoirs include:

- o Potential turbine mortality, if entrained.

- o Relative numbers of fish in source waterbody.
- o Fish presence near intake face.
- o Intake velocities.
- o Fish swimming capabilities.

Based on these factors, Wayne L. proposed sampling recommendations to the group. For the large reservoirs, the proposal is to sample at Big Creek Powerhouses 1 and 2A due to the large numbers of fish upstream and the high mortality of entrained fish likely due to impulse turbines, as well as sample the Mammoth Pool Powerhouse due to the large numbers of fish upstream, the relatively high head Francis Turbine, the variability if potential mortality, and the intermediate /high head among other high head Francis Turbines (1,100 ft).

The sampling approach would be to place a Kodiak trawl with a live car to hold fish in the tailrace. Sampling would take place bi-monthly during the summer months and quarterly for the remainder of the year, depending on project operations. Each sample would entail a 48 hour period where the trawls would be checked once or twice a day.

A stakeholder asked if there's evidence that some fish are attracted to the tailrace areas due to flows. Wayne L. said not that he knows of, but they try to get the netting as close to tailrace to avoid that possibility. He said it is certainly something to field crews to watch out for.

A stakeholder asked if decisions were made on recommended sampling sites because there's a lot of fish in reservoirs. Wayne L. said that they are trying to get at the original source of mortality, before fish pass through several diversions. Since there is no powerhouse upstream from Mammoth, would be getting information on the powerhouse itself.

Two stakeholders asked for more time to review the proposed fish entrainment sampling. The group agreed.

A stakeholder asked how well covered the winter months will be. Wayne L. said that usually less operations in the winter. The samples will be focusing on the time when operations are high, which is during the warmer months (June thru October).

A stakeholder asked if the information provided in the fish entrainment study for the Portal application is sufficient to make conclusions about entrainment on that project. Wayne L. answered yes, and they found low mortality on that project. He doesn't recall how many times they sampled, but the field crew was out there 5 times. They tried to get out there this winter, but powerhouse was not in operation. They got the expected results at Portal: fish came through in pretty good shape. Wayne L. stated that there are plenty of fish up in the upper basin around the diversions and fish aren't highly vulnerable for entrainment at Portal.

BREAK FOR LUNCH

<u>Presentation of CAWG-9 Entrainment Sampling Recommendations: Small Diversions</u>

Wayne L. continued on the topic of the CAWG-9: Fish Entrainment study by presenting information regarding the small diversions in the Big Creek system to the group.

In the Upper Basin, three small diversions are out of service and therefore will not be considered for entrainment sampling. These diversions are Tombstone Creek, South Slide Creek and North Slide Creek.

Wayne L. reviewed the schematics and fish present in the stream for the upper basin small diversions that are in service (Hooper Creek, Crater Creek, Camp 62 Creek, Chinquapin Creek, and Bolsillo Creek); Pitman Creek and Big Creek small diversions (Pitman Creek, Balsam Creek, Ely Creek and Adit 8 Creek); and the Mammoth reach small diversions (Rock Creek and Ross Creek).

Wayne L. recommended sampling two small diversions by netting incoming flow to diversion pool. The two diversions he recommended are Balsam Creek and Rock Creek. Sampling would take place twice during runoff, once near the peak and then later in the season.

A stakeholder asked for the rationale for choosing Balsam and Rock creek. Wayne L. said that because they divert water to the powerhouses and the potential for turbine mortality. Ross dries out and showed no fish present, whereas Rock Creek has fish present. Balsam and Ely diversions are twins and operate more frequently. Balsam will be used as a model for Ely Creek diversion.

Another stakeholder asked how collecting all the fish upstream of the diversion will indicate how many fish are being diverted. Wayne L. answered that the assumption is that all fish are diverted.

<u>Fish Entrainment Study at Portal Powerhouse</u>
After reviewing the Portal entrainment study, the State Water Board advises that the study be conducted again. The reason for this is that six complete samples were taken during the study and the Water Board does not believe that to be representative enough to base management decisions on. Their concern is that there is more entrainment taking place than the study results indicate. Based on the results, they see entrainment taking place at Portal, but not enough evidence to suggest that entrainment is insignificant. Wayne L. said they wanted to take two more samples, but due to the net being shredded and operational restrictions, they couldn't. The Water Board asked if the group could reevaluate the Portal study after reviewing other information on entrainment studies from other licensings.

Action Item #2: Britt Fecko to review information regarding entrainment studies on the Stanislaus and Pit relicensings and forward to Bryan, who will forward to the CAWG.

The Water Board proposed that the group should also sample the medium size reservoirs in the Big Creek chain. Their concern is that excluding all the medium-sized diversions will not give the information they need to make management recommendations.

Wayne suggested that examining the medium size reservoirs would not give the group the information it needs, since medium size reservoirs are downstream from other sources of potential entrainment.

A stakeholder requested a different schematic than the one referenced in the presentation.

Action Item #3: Geoff Rabone to locate a different schematic of the Big Creek system and forward to Bryan Harland, who will distribute to the CAWG.

A stakeholder asked if there is a verification process to where a fish was killed in the system. Wayne L. answered that there are challenges to determining the location of fish mortality. The variability can be reduced by sampling at sites with no upstream probability of fish entrainment.

Action Item #4: The CAWG to hold a conference call on May 29th (time to be determined) for approving the proposed fish entrainment sampling. Bryan will finalize the time with CAWG members and send out an agenda ASAP.

Another stakeholder stated that the group should put the fish entrainment sampling information into perspective before concluding that there are project effects on fish populations. Wayne L. agreed and explained that the group will be looking at a couple of methods for determining fish populations and mortality rates.

Big Creek Collaborative
Combined Aquatics Working Group

July 9, 2003

Final Meeting Notes

Time:	10:00 AM to 4:00 PM	**Moderator:**	Wayne Lifton
Location:	USFS Forest Supervisors Office, Clovis, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Bill Pistor (Facilitator)	Kearns & West
	Bryan Harland (Notetaker)	Kearns & West
	Wayne Lifton	ENTRIX
	Wayne Allen	SCE
	Phil Strand	USFS
	Geoff Rabone	SCE
	Cindy Whelan	USFS
	Rick Hopson	USFS
	Wayne Thompson	Federation of Fly Fishermen
	Martin Ostendorf	ENTRIX
	Julie Means	CDFG
	Julie Tupper	USFS - RHAT
	Ed Bianchi	ENTRIX
Phone Participants:	Britt Fecko	SWRCB
	Kelly Catlett	Friends of the River
	Larry Wise	ENTRIX

Introductions

Stakeholders introduced themselves and the organization they represent. Bill Pistor (Facilitator, Kearns & West) proposed approving the REVISED meeting agenda distributed to the group this morning. The group agreed to the revised agenda.

Kearns & West distributed the summaries from the April 17th, May 6th, and May 19th CAWG meetings. The summaries were approved with slight revisions.

Review Previous Meeting Action Items

Outstanding action items listed below:

- **Action Item:** Geoff Rabone to send out FERC's Critical Energy Infrastructure Information (CEII) guidelines as they relate to the Big Creek ALP.
- **Action Item:** Bryan to send PowerPoint presentation on fieldwork to the CAWG.
- **Action Item:** Wayne Lifton to provide citations for Mokelumne entrainment study and for relevant literature on trout movement and provide to the CAWG for review.
- **Action Item:** Geomorphology subgroup will schedule a fieldtrip at the July 10 Geomorphology subgroup meeting.

Action Item #1: Timeline for outstanding study elements in the DTSRs will be developed on a group by group basis. ENTRIX will provide an initial draft of the timeline, then discussed in the groups. The CAWG will need to make decisions before the outstanding study elements timeline can be fully developed. Two weeks from today.

South Fork San Joaquin Single Flow Study

Action Item #2: Bryan to send the South Fork San Joaquin Single Flow Study ramping down rate PowerPoint slide to the CAWG.

Bolsillo Diversion Downward Flow

Wayne Lifton (ENTRIX) gave a presentation on the Bolsillo Diversion down ramping flows per an action item from the June 12 CAWG meeting. He explained that information provided by Wayne Allen was used to prepare velocity calculations. At lower flows, water passes through the grating at the side of the intake or overflows the upper lip. Velocity is proportional to the height of the flow and when the water surface elevation is higher, the surface area for intake is larger. Velocity increases are related to the flow passing through the area formed by the depth of flow and the circumference of the intake. At larger flows, water passes through the entire upper surface of the intake, as well as the side resulting in lower velocities. Velocities were presented for average, maximum, and minimum monthly flows for 2001 and 2002. Velocities ranged from 0.19 to 1.06 ft/s for the flows evaluated.

Geoff Rabone (SCE) said that there is surface flow and an orienting flow going downstream when the diversion is diverting water. He thinks that smaller fish will be towards the shallower areas.

A stakeholder asked what time period has the highest downward velocities. Wayne L. answered that May is consistently the highest daily average velocities. The stakeholder asked if the other diversions are similar structures. Wayne Allen said yes. Geoff said the only difference in other diversions is that the bore hole is at more of an angle.

Fieldwork Schedule

Wayne explained the process for the study timeline and fieldwork schedule. ENTRIX does not have a master schedule yet because the CAWG needs to make decisions in other meetings before the schedule can be set. Martin gave a brief overview of the scheduled events as of today.

Entrainment

Last week did small diversions. Next week will do BC1, 2A, Mammoth and Eastwood. Wayne explained that the work is contingent on operations constraints and that the ISO may issue a “no touch day” especially with the hot weather. During September, we will do a second round of entrainment sampling.

Instream Flow

PHABSIM for SFSJR and Bear Creek being done this week.
Wetted perimeter and PHABSIM on Big Creek Stevenson Creek and NF Stevenson in August.
Supplementary Habitat mapping in August.
Habitat Suitability Criteria in August.

Native American Mollusk Sampling will be conducted at the end of September near Big Creek 4.

No further scheduled activities at this time, but shifts in the schedule are possible. There will be entrainment sampling in November.

Action Item #3: Wayne Allen will notify members of the CAWG when he receives fieldwork notifications. Kearns & West and Wayne Allen will coordinate on the CAWG distribution list. CAWG members interested in attending fieldwork can contact Wayne Allen to coordinate logistics.

A stakeholder asked about the Supplemental Habitat Mapping work. Wayne Lifton said that there is an area that needs to be mapped and the Big Creek QC work as well. Woody debris work also may take place, depending upon CAWG decisions regarding need and geomorphology studies. Mitchell will discuss where there will be additional mapping with the Geomorphology group.

Overview of CAWG-4: Chemical Water Quality Draft Technical Study Report

Martin reviewed the CAWG-4 with the group. The CAWG-4 DTSR is not up for approval at this meeting. Martin will be presenting the report and the comments simultaneously. After Martin reconciles the stakeholder comments into the report it will be up for approval at a future meeting. References to stakeholder comments are included in this summary along with the group's decision on addressing those comments.

DTSR Comment: Page 1-2: SWRCB
Samples not taken in 2002 should be taken in 2003. Martin explained that they are tracking to see if they can get them. Flows too high, inaccessible areas stand in the way. ENTRIX will try to take those samples.

DSTR Comment: Page 2: SWRCB
Martin explained that the intent was not to try to interpret, but compare to the CA Toxic rule, the national rule and Basin Plan. Needs further discussion with the SWRCB and SCE. Britt explained that for compliance with the CWA, they need to use the strictest standards available.
DSTR Edit: ENTRIX will change language to be less interpretive.

DTSR Comment: Page 2: SWRCB
DTSR Edit: ENTRIX will add a discussion of those samples.

DTSR Comment: Page 3: SWRCB
DTSR Edit: ENTRIX will provide edits to the text. The justification of eliminating reservoirs will be included.

DTSR Comment: Page 3: SWRCB
DTSR Edit: The reservoirs and impoundments need to be listed. ENTRIX will provide the justification for not sampling all reservoirs.

DTSR Comment: Page 4: SWRCB
DTSR Edit: ENTRIX will make changes to address the beneficial uses. Martin said that the study element can be kept and the SWRCB comment on beneficial uses will be provided in the text. State that it may meet standards and include more detailed discussion below.

DTSR Comment: Page 5: SWRCB
DTSR Edit: ENTRIX will incorporate references to proper tables, figures, etc.

Action Item #4: Martin to send the preliminary results of In-situ gas saturation at mammoth pool during a spill event.

DTSR Comment: Pg 5: SWRCB
Arsenic will be evaluated.

DTSR Comment: Pg 6: SWRCB
DTSR Edit: Comments on the most controlling values and beneficial uses. Will be made a footnote to the report. Another paragraph will be added regarding a water quality subgroup being formed to decide which standards will be used.

DTSR Comment: Pg 7: SWRCB
DTSR Edit: ENTRIX will add an explanation on justifications.

DTSR Comment: Pg 8: SWRCB

DTSR Edit: Martin will address the explanation developed by subgroup.

DTSR Comment: Pg 8: SWRCB
Fecal sampling will be completed.

DTSR Comment: Pg 8: SWRCB
DTSR Edit: Tombstone diversion mention will be fixed.

DTSR Comment: Pg 8: SWRCB
DTSR Edit: ENTRIX will add language on why some samples cannot be taken due to safety issues.

DTSR Comment: Pg 8 (bottom paragraph): SWRCB
DTSR Edit: ENTRIX will add the dates when diversions were turned out. ENTRIX will explain the Hooper Creek diversion.
North Slide, South Slide and Tombstone samples will be explained.

DTSR Comment: Pg 9: SWRCB
DTSR Edit: 4.3.3 ENTRIX will add paragraph on fish tissue sampling.

DTSR Comment: Pg 11: SWRCB
DTSR Edit: Appendix A will add discussion on methyl mercury.

DTSR Comment: Pg 11: SWRCB
DTSR Edit: ENTRIX will include a paragraph that will address the J-values limit.

DTSR Comment: Pg 13: SWRCB
DTSR Edit: ENTRIX will strike the reference to USFS.

DTSR Comment: Pg 14: USFS
DTSR Edit: ENTRIX will correct statement Re: Shaver Lake Tributaries.

DTSR Comment: Pg 15: SWRCB
DTSR Edit: ENTRIX fix

DTSR Comment: Pg 17: SWRCB
DTSR Edit: ENTRIX will define water quality goals

DTSR Comment: Pg 17: USFS
DTSR Edit: ENTRIX will add % of pH

DTSR Comment: Pg 19: SWRCB
DTSR Edit: ENTRIX will incorporate turbidity standard.

DTSR Comment: Pg 29: SWRCB
DTSR Edit: Will be addressed in Appendix J

DTSR Comment: Pg 29: SWRCB
DTSR Edit: Referred to in Appendix A comments

DTSR Comment: Pg 31: USFS
DTSR Edit: Edit will be incorporated. Partial sentence will be fixed

DTSR Comment: Pg A3: SWRCB
DTSR Edit: Will be incorporated.

DTSR Comment: Pg A4: SWRCB
DTSR Edit: Edit will be incorporated. Geoff suggested "when the hardness is high…" be added to the sentence before the comment.

DTSR Comment: Pg A8: SWRCB
DTSR Edit: Edit will be incorporated

DTSR Comment: Pg A9: SWRCB
DTSR Edit: Edit will be incorporated

DTSR Comment: Pg A10: SWRCB
DTSR Edit: Will be incorporated

DTSR Comment: Pg A10: SWRCB
DTSR Edit: Will be incorporated

DTSR Comment: Pg A11: SWRCB
DTSR Edit: Will be addressed in Appendix J

DTSR Comment: Pg A12: SWRCB
DTSR Edit: Will be incorporated

DTSR Comment: Pg A14: SWRCB
DTSR Edit: Will be incorporated

DTSR Comment: Pg A21: SWRCB
DTSR Edit: Edit will be incorporated

A stakeholder asked why the study was analyzing Silver. Ed Bianchi explained that the Cloud seeding study is a cross reference to this and will be referenced in the DTSR. (Silver Iodide) CAWG-12: Water Use addresses cloud seeding.

Action Item #5: ENTRIX will make the edits necessary and Kearns & West will redistribute the CAWG-4 to the group. The group will review and then approve at future meeting.

CAWG-7: Characterize Fish Populations
Wayne reviewed the CAWG-7 DTSR with the group. Comments from stakeholders on CAWG-7 will be due on August 3, 2003. The group will discuss comments at the next CAWG meeting.

Hydroacoustics
Wayne explained that when sampling with hydroacoustics, the beam of the device starts narrow and widens as it gets farther from the boat. This results in a smaller sampled volume for shallower water, when compared to deeper water.

A stakeholder asked if ENTRIX lumped hatchery and wild rainbow trout. Wayne L. said they did not. They did not age hatchery rainbow trout because their scales do not allow adequate aging.

Action Item #6: Wayne Lifton will check the condition factors reported in the CAWG-7 DTSR to confirm that hatchery trout were not included with wild rainbow trout.

<u>Portal Entrainment Monitoring Discussion</u>
Wayne L. showed the group a chart of information provided by Wayne Allen and USGS with the generation, total flow, ISO no touch days and ISO emergency days and the entrainment sampling for 2001-2002. When

the HB valve is open, sampling cannot take place. When the ISO issues no touch or emergency days, there can be no outages to set up a net or retrieve a sample. The net was damaged in August 2002 due to HB valve operation, so no samples could be taken at that time.

Wayne L. showed the group the exceedance flows for Portal. Most water is moved between the months of May to August. Wayne pointed out that there appeared to be adequate numbers of samples in the winter months when operations are generally decreased due to decreased flow availability, but the summer months were represented by few samples.

The State Water Board said that the problems of having inadequate sampling are due to sampling during the wrong part of the year. The Board referenced the Portal Application which states that for the December 12th period sampling started at 12 o'clock, and went for 24 hours. The Water Board stated that this is not enough info. The second sample was in January, there was no information on the volume of water when a Kokannee carcass was caught. The application says you did not catch any fish in the summer months, but that there were portions of fish that were caught in the net.

Agreement: The CAWG agreed that additional entrainment sampling will be taken at Portal to represent the higher flow period. Sampling will focus on flows of over 400 cfs. ENTRIX will coordinate with SCE operations to find the window of opportunity and go take the samples.

<u>Review of Habitat Suitability Data Collection</u>

Wayne L. reviewed the HSC Verification Update with the group. Focus will be on testing the altered flows preference criteria for trout and the Pit River criteria developed by Peter Moyle and Don Baltz for Sacramento sucker, Sacramento pikeminnow, and hardhead.

Wayne explained that there are two components in using PHABSIM to analyze habitat at different flows. A hydraulic model such as IFG4a is used to simulate velocities and depths for a range of flows at each transect. The other is to evaluate these results in terms of fish microhabitat. The PHABSIM HABTAT, HABTAV, and HABTAE models interpret hydraulic model results using habitat suitability criteria to interpret the suitability of habitat for different species and lifestages.

Suitability goes from 0 to 1. Zero is unsuitable habitat and 1 is completely suitable habitat. Wayne drew some sample curves and explained what they meant. Suitability of velocity multiplied by suitability of depth for an area of stream equals the weighted usable area for that location in the example shown.

A stakeholder asked how we know that a fish is "happy" in a habitat. Wayne said that "happy" fish is determined by how many fish are observed in certain microhabitat conditions. We observe where the fish are in relation to the availability of habitat choices. Geoff added that there's a different set of suitability for different fish and different lifestages.

The habitat suitability curves that we will be using are based on large data sets of habitat availability and fish habitat use observations. The first step in this study is to see if the existing curves can be used for our purposes. The specific approach will be to use the Groshens and Orth testing approach to compare HSC to observations of habitat availability and use by fish in the study streams. If HSC pass the test then they will be adequate for use in PHABSIM.

A stakeholder asked what the timeframe for developing site specific curves is. Wayne said that the first order of business is to determine whether existing curves are adequate, then we will assess what information we have and don't have, then see where we stand.

A stakeholder asked if they are using any of the snorkeling results to develop suitability curves. Wayne said they need about 50 snorkeling observations of fish habitat use to test a HSC. However, these are not the same observations collected for CAWG-7.

A stakeholder explained that on the Pit River, recent observations of juvenile suckers were different from the curves they had developed there. Wayne said that the HSC would be tested prior to use. In addition, there are ways to adjust curves to reflect actual habitat use, otherwise site-specific curves would need to be developed.

Wayne gave a summary of the sampling locations and years and numbers of observations collected, so far. He then outlined the data gaps for each fish species. Wayne said they tried not to take observations where they stock fish to avoid having hatchery fish from influencing the HSC decisions.

A stakeholder asked if the adequate sample numbers have been verified. Larry Wise (ENTRIX) said they are ready to do the QC work, and then will run through the various tests for information available. Larry said they will come back to the August CAWG meeting with the tests where there are sufficient numbers of observations.

Ed Bianchi asked about the latest time they can continue to make observations this year. Larry said until October. The CAWG will need to decide soon whether to do site-specific models or to use existing data. Ed said that they need to put together a schedule for collecting the data and bring back to the group with the decision whether to go site specific.

Action Item #7: ENTRIX will develop a schedule for making a decision on whether existing habitat suitability criteria (HSC) for fish, to be used in PHABSIM, can be verified and used or whether they will need to be adjusted or site specific HSC will need to be developed. Schedule will be incorporated into field work schedule to be distributed to the CAWG by July 23.

Schedule
CAWG is behind on approving study reports. Bill proposed having multiple CAWG meetings next month. The CAWG will meet on August 19, 20, 21. No Plenary in August.

The USFS said the hydrology information will affect every study we have right now. Ed recognized that and said that SCE and ENTRIX are working on a solution to get the information to the group as soon as possible. The USFS that they are concerned that if the hydrology data comes out and makes the group have to revisit the DTSRs.

Action Item #8: Per the USFS's request, SCE and ENTRIX will get the Hydrology Information out to the group, soon.

<u>Meeting Adjourned</u>

<u>Summary of Action Items</u>
Action Item #1: Timeline for outstanding study elements in the DTSRs will be developed on a group by group basis. ENTRIX will provide an initial draft of the timeline, then discussed in the groups. The CAWG will need to make decisions before the outstanding study elements timeline can be fully developed. Two weeks from today.
Action Item #2: Bryan to send the South Fork San Joaquin Single Flow Study ramping down rate PowerPoint slide to the CAWG.
Action Item #3: Wayne Allen will notify members of the CAWG when he receives fieldwork notifications. Kearns & West and Wayne Allen will coordinate on the CAWG distribution list. CAWG members interested in attending fieldwork can contact Wayne Allen to coordinate logistics.
Action Item #4: Martin to send the preliminary results of In-situ gas saturation at mammoth pool during a spill event.
Action Item #5: ENTRIX will make the edits necessary and Kearns & West will redistribute the CAWG-4 to the group. The group will review and then approve at future meeting.
Action Item #6: Wayne Lifton will check the condition factors reported in the CAWG-7 DTSR to confirm that

hatchery trout were not included with wild rainbow trout.
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Action Item #8: Per the USFS's request, ENTRIX will get the Hydrology Information out to the group, soon.

Big Creek Collaborative
Combined Aquatics Working Group

August 19, 2003

Final Meeting Notes

Time:	10:00 AM to 4:00 PM	**Moderator:**	Wayne Lifton
Location:	CDFG Office Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		
Attended By:	Britt Fecko	SWRCB	
	Geoff Rabone	SCE	
	Wayne Allen	SCE	
	Wayne Lifton	ENTRIX	
	Ed Bianchi	ENTRIX	
	Phil Strand	USFS	
	Rick Hopson	USFS	
	Wayne Thompson	Federation of Fly Fishers	
	Julie Tupper	USFS-RHAT	
	Cindy Whelan	USFS	
	Larry Wise	ENTRIX	
	Julie Means	CDFG	
Phone Participants:	Mitchel Katzel	ENTRIX	

Introductions
Stakeholders introduced themselves and the organization they represent. Bill Pistor (Facilitator, Kearns & West) proposed approving the REVISED meeting agenda distributed to the group last week. The group agreed to the revised agenda.

The CAWG reviewed the June 12 and July 9 CAWG meeting summaries. The group changed the July 9 summary to include the SWRCB's support of the USFS's request for hydrology information.

Agreement: The June 12 and July 9 meeting summaries were approved with that edit.

Review previous meeting action items (Incomplete Actions Listed Below):
- **Action Item**: Timeline for outstanding study elements to be developed by ENTRIX and distributed to the CAWG.
- Fieldwork participation email notifications will no longer be an outstanding action item as it is ongoing.
- **Action Item**: Per the USFS's request, ENTIRX will get the Hydrology information to the group soon.

Ed Bianchi (ENTRIX) explained that there has been a change in how the hydrology information is being developed for the group. Since Wayne Allen (SCE) has been dealing with the fieldwork, he has had little time to complete the compilation of the information. ENTRIX has taken over the responsibility for compiling the information and will be presenting a strategy for dealing with the unimpaired hydrology information to the Hydrology subgroup at the next subgroup meeting.

The group discussed the period of record for the data. The SWRCB and CDFG agreed that 25 years is a sufficient period of record, but more would be useful.

The SWRCB stated that the raw hydrology data may be helpful. Geoff Rabone (SCE) stated that providing the raw data would take manpower away from compiling the information from the hydrology subgroup. Wayne Allen (SCE) stated that the raw information can be accessed from the USGS website. The CDFG stated that they would be willing to supply the SWRCB with copies of the historical data that they posses.

Action Item: Julie Means (CDFG) to provide hardcopies of the historical hydrology data to Britt Fecko (SWRCB).

Several stakeholders expressed that the hydrology information is needed to understand the context of the other CWAG study results.

The CDFG requested a Hydrology subgroup meetings for an update on the information by held before the October CAWG meeting.

Action Item #2: Hydrology Subgroup meeting scheduled for 10AM on September 30 at the CDFG Office.

CAWG-1: Habitat Overview of Comments and revisions

Wayne Lifton (ENTRIX) explained that ENTRIX sent the CD to the CAWG with the revised versions of CAWG-1 and CAWG-4 along with a table detailing the revisions made based on stakeholder comments. Wayne L. reviewed the CAWG-1: Habitat DTSR and stakeholder comments with the group.

Action Item #3: Wayne Lifton (ENTRIX) will remind the Sacramento office that Britt needs to be called for document distributions, so she can pick up from the ENTRIX office.

Action Item #4: Julie Means (CDFG) will send an email with her interim contact information during the CDFG move to Carla Anthony (SCE) and Bryan Harland (Kearns & West).

Action Item #5: Any member of the CAWG should contact either Bryan Harland (Kearns & West), Carla Anthony (SCE), or Martin Ostendorf (ENTRIX) with their new information. Those three will coordinate information.

The SWRCB asked how the group will reconcile the lack of information on SCE's Large Woody Debris (LWD) management and inventory, specifically the small tributaries. The USFS reviewed the CAWG-2 Study Objectives and explained that they are trying to find out what impact the project has had on LWD. Wayne L asked if the group can defer this to CAWG-2 and consider the CAWG-1 part of LWD being complete. The group agreed and the information would be provided in the CAWG-2 2003 Study Report.

Action Item #6: ENTRIX will specify a date for a PHABSIM Dam 5 to Powerhouse 8 fieldtrip and distribute to the CAWG. Martin Ostendorf (ENTRIX) will call Britt once the trip is scheduled.

The USFS asked if the group will find out how much gravel movement occurred during this summer's spill event. Mitchell Katzel (ENTRIX) said ENTRIX will be providing that information to the group at a future meeting.

Bill asked the group if they can approve CAWG-1. The USFS said that the QC in the Dam 5 to Powerhouse 8 needs to be resolved. Wayne L. suggested approving the report as is and the QC then be included as an outstanding study element, which will be provided in the 2003 report. The USFS agreed.

The USFS asked what the status of the reservoirs bathymetric surveys that are noted in CAWG-1 as an outstanding element. These also are identified in CAWG-2. It was explained that some work was done, but the work was to be completed under CAWG 2.The CDFG stated that they had fisheries people look at the report and they did not have any edits.

Agreement: CAWG-1 DTSR was approved.

Action Item #7: Bryan Harland (Kearns & West) will remove Holly Eddinger from all Big Creek Relicensing mailing lists. She is no longer involved with the relicensing.

CAWG-2: Geomorphology, Review Stakeholder Comments

Mitchell reviewed the remaining stakeholder comments to the CAWG-2 DTSR, which was not completely reviewed at the April CAWG meeting. He suggested that he and the SWRCB and USFS stakeholders hold a meeting regarding their request for the information on the total length of unregulated and regulated streams and watershed area.

Action Item #8: Mitchell Katzel (ENTRIX), Rick Hopson (USFS) and Britt Fecko (SWRCB) will hold a conference call on the request for information on stream reaches. Will report back to the CAWG on the results. Bryan Harland (Kearns & West) will help coordinate the call.

Discussion of incomplete GIS portions of work. Wayne L asked if the GIS item can be included in the 2003 report and moved to the outstanding study elements section. The group agreed.

The USFS explained their reference to the Grant research paper. He explained that it proposes a new methodology for examining sediment transport. Mitchell said that he reviewed the paper and the methodology relies on having real sediment load data and we cannot use it here since no such data exists for the ALP streams. The USFS said that he doesn't think you need that data, but only hydrology data. The USFS requested that the group to take a look at this data using the Grant as a concept.

The SWRCB said the Grant methodology would be helpful for dealing with the sediment budget component of the CAWG-2 study. Mitchell said when he read the paper it seemed to him that you need the sediment info, but he will go back and look. Another stakeholder said that she thinks what Grant is proposing is an approach at looking at how you have tributary contributions. This would be considered for 2003 report.

Action Item #9: Geomorphology Subgroup will discuss the Grant research paper and it's relation to the CAWG-2 study.

Mitchell then reviewed the rest of the stakeholder comments and stated that he will take the comments and draft a revised CAWG-2 DTSR, which will be distributed to the CAWG.

Agreement: The group approved the study report, if the changes are made as requested in the stakeholder comments.

CAWG-3 Instream Flow, Review Stakeholder Comments and Responses

Larry Wise (ENTRIX) reviewed a table detailing comments received on CAWG 3 and the responses to those comments. The group discussed and agreed on proposed changes which Larry will make to the CAWG-3 DTSR and then redistribute to the group. .

The USFS stated that if they have an issue with the HSC, they will contact Larry within a week. If not, they approve the report.

Agreement: The group approved CAWG-3 with those changes. Kearns & West will contact stakeholder to obtain approval offline

HSC Verification Update

Larry gave a presentation on the HSC Verification Update. See PowerPoint presentation for further details on the approach and fieldwork update.

The SWRCB asked if snorkeling will bias the results. Larry answered that the technique is to look as far forward as they swim up and observe the fish. If you come up on a fish and they dart under a rock that doesn't count as an observation. The visibility is very good in the project area too. Habitat is assessed whether or not there are fish. The SWRCB asked if sampling at base flows will bias the results. Larry said it would if not taken into account, to do this they are looking at different reaches at different flows. When they are at ungaged reaches, they make a note of the flow.

Larry said that the next step is to look at the relationships of the microhabitat variables for independence or correlation and which the test is appropriate. Ed asked if with additional work will there be something to present to the group for the fish to pass the test. He pointed out that the information needs to come to the group soon for a decision.

Action Item #10: Larry Wise (ENTRIX) to send Bryan the HSC PowerPoint presentation, Bryan to send to the CAWG.

Ed asked what will happen if they are unable to collect enough observations. The group will have to decide on how to handle. Possibly use different criteria or adjust the criteria to account for actual habitat use.

The USFS asked Larry if they have avoided looking for hardheads in deep pools due to trying to sample equal areas. Larry said yes, but they are going to change that and go looking.

Larry will summarize the HSC results and bring the approach to be used based on testing to the CAWG for approval. If HSC pass test, they will be used, if not Larry will propose what should be done.

<u>CAWG-5: Water Temperature, Overview</u>
Wayne L reviewed the PowerPoint presentation on the CAWG-5: Temperature Monitoring DTSR. See CAWG-5 DTSR for details.

The SWRCB stated that they are the ultimate decision maker for the criteria for beneficial uses. The stakeholder representative can provide advice to the CAWG on what the SWRCB will decide. They can provide suggestions and references. When the SWRCB looks at temperature, they only look at peer reviewed, published references. Ed asked if the SWRCB can bring references information on how they've dealt with temperature criteria in other relicensings for the group to discuss.

Action Item #11: Britt Fecko (SWRCB) will provide examples of SWRCB criteria for water temperature from other relicensings to Bryan Harland (Kearns & West), who will distribute to the CAWG.

The SWRCB asked if 24°C is considered the LD 50. Larry said no. They asked where the hardhead reference of 28°C came from. Larry said it's in Peter Moyle's new textbook.

A stakeholder asked if ENTRIX has information on the sampling sites from the 2000 field season, which occurred before the study plan was approved. Wayne L said they are in there and where the data collection differed from the final study plan, it is noted.

Another stakeholder asked how Wayne interpreted the 5°F increase. Wayne answered that they looked at the difference in temperature. If the difference in temperature was greater than 5°F, then they flag it. In the summary, the report notes if the increase occurs, when the flow was being diverted

The SWRCB asked if they looked at temps above the diversion. Wayne said that they didn't take the temperature above the diversion at all sites, primarily at the diversion. Most diversions being very small.

<u>CAWG-10 Macroinvertebrates Overview</u>
Wayne went over the CAWG-10 DTSR. Please see the CAWG-10 DTSR for further details.

The USFS stated that Midden areas have been used to determine historic presence of Mollusks.

Action Item #12: Geoff Rabone (SCE) to talk to Tom Taylor (SCE) regarding Cultural Midden sites and the identification of historic Mollusks collection points.

Meeting Adjourned

Review Action Items

Action Item #1: Julie Means (CDFG) to provide hardcopies of the historical hydrology data to Britt Fecko (SWRCB).
Action Item #2: Hydrology Subgroup meeting scheduled for 10AM on September 30 at the CDFG Office.
Action Item #3: Wayne Lifton (ENTRIX) will remind the Sacramento office that Britt needs to be called for document distributions, so she can pick up from the ENTRIX office.
Action Item #4: Julie Means (CDFG) will send an email with her interim contact information during the CDFG move to Carla Anthony (SCE) and Bryan Harland (Kearns & West).
Action Item #5: Any member of the CAWG should contact either Bryan Harland (Kearns & West), Carla Anthony (SCE), or Martin Ostendorf (ENTRIX) with their new information. Those three will coordinate information.
Action Item #6: ENTRIX will specify a date for a PHABSIM Dam 5 to Powerhouse 8 fieldtrip and distribute to the CAWG. Martin Ostendorf (ENTRIX) will call Britt once the trip is scheduled.
Action Item #7: Bryan Harland (Kearns & West) will remove Holly Eddinger from all Big Creek Relicensing mailing lists. She is no longer involved with the relicensing.
Action Item #8: Mitchell Katzel (ENTRIX), Rick Hopson (USFS) and Britt Fecko (SWRCB) will hold a conference call on the request for information on stream reaches. Will report back to the CAWG on the results. Bryan Harland (Kearns & West) will help coordinate the call.
Action Item #9: Geomorphology Subgroup will discuss the Grant research paper and it's relation to the CAWG-2 study.
Action Item #10: Larry Wise (ENTRIX) to send Bryan the HSC PowerPoint presentation, Bryan to send to the CAWG.
Action Item #11: Britt Fecko (SWRCB) will provide examples of SWRCB criteria for water temperature from other relicensings to Bryan Harland (Kearns & West), who will distribute to the CAWG.
Action Item #12: Geoff Rabone (SCE) to talk to Tom Taylor (SCE) regarding Cultural Midden sites and the identification of historic Mollusks collection points.

Big Creek Collaborative
Combined Aquatics Working Group

September 10, 2003

Final Meeting Notes

Time:	3:00 PM to 5:00 PM	**Moderator:**	Wayne Lifton
Location:	Piccadilly Inn University Fresno, CA	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Bill Pistor (Facilitator)	Kearns & West
	Bryan Harland (Note Taker)	Kearns & West
	Wayne Lifton	ENTRIX
	Phil Strand	USFS
	Wayne Allen	SCE
	Geoff Rabone	SCE
	Julie Means	CDFG
	Roger Robb	Friant Water Users Authority
	Lonne Schardt	Kokanee Power
	Rick Hopson	USFS
	Britt Fecko	SWRCB

Phone Participants: [none]

<u>Introductions</u>
Stakeholders introduced themselves and the organization they represent. Bill Pistor (Facilitator, Kearns & West) reviewed the agenda. Wayne Lifton (ENTRIX) proposed changing the meeting agenda to accommodate for Larry's absence. The group agreed to move the CAWG-03 discussion to tomorrow's meeting and move CAWG-07 to today.

Action Item #1: Wayne Lifton (ENTRIX) to check on Rick Hopson's mailing address.

<u>Review Action Items From Previous Meetings</u>
Outstanding and/or follow-up actions are listed below:

Action Item: Julie Means (CDFG) to provide hardcopies of the historical hydrology data to Britt Fecko (SWRCB).
Action Item: Hydrology Subgroup meeting scheduled for 10AM on September 30 at the CDFG Office has been rescheduled to October 7th from 1 to 4:30PM
Action Item: Wayne Lifton (ENTRIX) will RE-remind the Sacramento office that Britt needs to be called for document distributions, so she can pick up from the ENTRIX office.
Action Item: ENTRIX will specify a date for a PHABSIM Dam 5 to Powerhouse 8 fieldtrip and distribute to the CAWG. Martin Ostendorf (ENTRIX) will call Britt once the trip is scheduled.
Action Item: Bryan Harland (Kearns & West) will call Rick Hopson (USFS) regarding removing Holly Eddinger from all Big Creek Relicensing mailing lists.
Action Item: Mitchell Katzel (ENTRIX), Rick Hopson (USFS) and Britt Fecko (SWRCB) will hold a conference call on the request for information on stream reaches. Will report back to the CAWG on the

results. Bryan Harland (Kearns & West) will help coordinate the call.
Action Item: Geomorphology Subgroup will discuss the Grant research paper and it's relation to the CAWG-2 study. Bryan Harland (Kearns & West) will send the Grant paper to the entire CAWG.
Action Item: Larry Wise (ENTRIX) to send Bryan the HSC PowerPoint presentation, Bryan to send to the CAWG.
Action Item: Wayne Lifton (ENTRIX) will send the CEC temperature references to Bryan Harland (Kearns & West), who will distribute to the CAWG.
Action Item: Wayne Lifton (ENTRIX) to talk to Tom Taylor (SCE) regarding Cultural midden sites and the identification of historic Mollusks collection points.
Action Item: Julie Means (CDFG) will identify the appropriate person at the CDFG for Wayne Lifton (ENTRIX) to send the fish tissue samples to.
Action Item: Julie Means (CDFG) will contact Phil Bartholomew (CDFG-Ret.) regarding fish stocking information for Balsam Forebay.
Action Item: Julie Tupper (USFS) will contact Amy Lind to review the query method in the next month. Britt will send Sarah Kupferburg's comments on the query methodology to Bryan Harland (Kearns & West), who will forward to the CAWG.

Agreement: Per Action Item #1 from the August 20 CAWG meeting, after reviewing the CAWG-4 DTSR, the SWRCB indicated that they had no further comments and approved the CAWG-4 DTSR. The group agreed.

July 10 and 28 Meeting Summaries
Agreement: The July 10 CAWG meeting summary was approved with one edit. The July 28 CAWG Riparian Subgroup meeting summary was approved with no edits.

CAWG-07: Characterize Fish Populations
Action Item #2: Wayne Lifton (ENTRIX) to send a hardcopy of the CAWG-7 response table to Phil Strand (USFS). These were subsequently handed out to those present at the meeting.

Wayne L. reviewed the comments and responses table for CAWG-07 with the group. All responses to comments are included in the text of the report.

A stakeholder asked if ENTRIX has lifestage data for NF Stevenson Creek. Wayne said yes. She asked if the CAWG can have access to the Biosystems NF Stevenson Creek report. Wayne answered yes, pending SCE approval.

Action Item #3: Wayne Lifton (ENTRIX) will make a hardcopy of the BioSystems NF Stevenson Creek Report and send to Britt Fecko (SWRCB) or call her to pick up from the ENTRIX Sacramento office, pending SCE approval.

The stakeholder asked if she could have access to the literature cited in the CAWG-07 report.

Action Item #4: Britt Fecko (SWRCB) will provide Wayne Lifton (ENTRIX) with a list of the literature cited in CAWG-7 DTSR she would like copies of. SCE has instructed ENTRIX not to provide copies of multiple references to stakeholders, if the references are otherwise available to the scientific community. ENTRIX will check with SCE for direction once they receive the list from Britt.

A stakeholder asked if ENTRIX was going to include fish population data from other relicensings in the CAWG-7 DTSR, Wayne L. answered that the information is currently in the summary table.

The CDFG said that ENTRIX can call Stan Stephens (CDFG) for further citations. Wayne L. said they tried to contact him, but he has not called back yet.

Action Item #5: Julie Means (CDFG) will follow up with Stan Stephens on fish populations citations.

A stakeholder asked if ENTRIX had access to the Myrick and Check (1999) study. Wayne said it sounds familiar, but he will check and see if it was in their library.

Action Item #6: Wayne Lifton (ENTRIX) to check if they have access to Myrick and Check (1999).

Action Item #7: Members of the CAWG will review the revised versions of CAWG-2, 3 and 7 DTSRs by September 19, 2003. If they have no further comments on the DTSRs, then the reports will be approved. If any member has comments, they will notify Kearns & West and the CAWG will then hold a conference call on September 22 at 3:30 PM to discuss outstanding issues. If there are no comments, there will be no conference call. Kearns & West will notify members of the CAWG if the conference call is cancelled by the morning of September 22.

Summary of Action Items

Action Item #1: Wayne Lifton (ENTRIX) to check on Rick Hopson's mailing address.
Action Item #2: Wayne Lifton (ENTRIX) to send a hardcopy of the CAWG-7 response table to Phil Strand (USFS). This was subsequently handed out at the meeting.
Action Item #3: Wayne Lifton (ENTRIX) will make a hardcopy of the BioSystems NF Stevenson Creek Report and send to Britt Fecko (SWRCB) or call her to pick up from the ENTRIX Sacramento office, pending SCE approval.
Action Item #4: Britt Fecko (SWRCB) will provide Wayne Lifton (ENTRIX) with a list of the literature cited in CAWG-7 DTSR she would like copies of. SCE has instructed ENTRIX not to provide copies of multiple references to stakeholders, if the references are otherwise available to the scientific community. ENTRIX will check with SCE for direction once they receive the list from Britt.
Action Item #5: Julie Means (CDFG) will follow up with Stan Stephens on fish populations citations.
Action Item #6: Wayne Lifton (ENTRIX) to check if they have access to Myrick and Check (1999).
Action Item #7: Members of the CAWG will review the revised versions of CAWG-2, 3 and 7 DTSRs by September 19, 2003. If they have no further comments on the DTSRs, then the reports will be approved. If any member has comments, they will notify Kearns & West and the CAWG will then hold a conference call on September 22 at 3:30Pm to discuss outstanding issues. If there are no comments, there will be no conference call. Kearns & West will notify members of the CAWG if the conference call is cancelled by the morning of September 22.

Big Creek Collaborative
Combined Aquatics Working Group – Hydrology Subgroup

October 7, 2003

Final Meeting Notes

Time:	1:00 PM to 4:30 PM	**Moderator:**	Brian Caruso
Location:	USFS Clovis Office	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group - Geomorphology/Hydrology Subgroups	**Coordinator:**	Wayne Lifton

Attended By:	Rick Hopson	USFS
	Bill Pistor	Kearns & West
	Bryan Harland	Kearns & West
	Wayne Lifton	ENTRIX
	Wayne Allen	SCE
	Lonnie Schardt	Kokanee Power
	Julie Means	CDFG
	Phil Strand	USFS
	Cindy Whelan	USFS
	Brian Caruso	ENTRIX
	Roger Robb	Friant Water Users Authority
Phone Participants:	Britt Fecko	SWRCB
	Julie Tupper	USFS - RHAT

Introductions

Bill reviewed the day's agenda with the group and had everyone introduce themselves and the organization they represent. Bill introduced Brian Caruso (ENTRIX) and had him give a brief introduction on his background. He has worked on regional hydrological analysis and reconstructing natural flows.

Present Analytical Approach/Challenges for Hydrology Analysis

Brian gave a presentation on the approach for hydrology and the handout provided to the group. The steps in evaluating the existing hydrology were explained (see Hydrology PowerPoint presentation for further details).

Brian gave an example hydrograph for Bear Creek above the diversion from 1921 to 2001. Most of the data is coming from the USGS gauging stations in mean daily discharge. ENTRIX is also using 15 minute data for flood peaks. For Bear Creek below the diversion, there is a gap between 1971 and 1978. 1971 is important because it's the last below normal water year. Brian reviewed the different water year types as they appear on the hydrograph.

Stakeholders submitted edits to Brian on the presentation of the hydrology information.

Action Item #1: Brian Caruso (ENTRIX) will revise the Hydrology slides and tables according to edits received by stakeholders and send to Bryan Harland (Kearns & West) to send to the CAWG.

The SWRCB requested the raw hydrology data from SCE. Geoff Rabone (SCE) did not have an answer for them at this time, but said he would get back to them.

Action Item #2: Geoff Rabone (SCE) to respond to Britt Fecko's (SWRCB) request for raw hydrology data to "play with."

The group submitted further comments on the hydrology presentation. Action Items are listed below.

Action Item #3: Brian Caruso (ENTIRX) to QA hydrology tables for possibly transposed numbers.

A stakeholder asked if they can track spills. Brian said we haven't explicitly looked at that, but is something that they can think about how to summarize and present. Wayne Allen (SCE) said that one problem is that if they don't know from the flow record if it's a spill or an open drain gate because of maintenance. Geoff Rabone also pointed out that some spills are not measured at all, as for example, during the flood of January 1997, when gauging stations were washed out and measuring capacities exceeded.

Action Item #4: Brian Caruso (ENTRIX) and Wayne Allen (SCE) to look into characterizing spill events for the hydrology subgroup.

A stakeholder asked if they will be presenting 15 minute data. Brian said that 15 minute data is used in the calculation of the Mean Daily Averages. The San Joaquin Paddlers have requested the data in the past. Another stakeholder said that the 15 minute data is handy for determining the spill events that are advantageous for the whitewater boaters. She said that you usually need the hourly data for the ramping rates.

Action Item #5: Brian Caruso (ENTRIX) to determine the availability of 15-minute data.

Action Item #6: Kearns & West will work with ENTRIX and stakeholders to schedule a meeting for the hydrology subgroup, possibly as a part of the whole CAWG in November.

Action Item #7: Bryan Harland (Kearns & West) to e-mail out the presentations and schematic by Geoff Rabone (SCE) to the CAWG.

Summary of Action Items

Action Item #1: Brian Caruso (ENTRIX) will revise the Hydrology slides and tables according to edits received by stakeholders and send to Bryan Harland (Kearns & West) to send to the CAWG.
Action Item #2: Geoff Rabone (SCE) to respond to Britt Fecko's (SWRCB) request for raw hydrology data to "play with."
Action Item #3: Brian Caruso (ENTIRX) to QA hydrology tables for possibly transposed numbers.
Action Item #4: Brian Caruso (ENTRIX) and Wayne Allen (SCE) to look into characterizing spill events for the hydrology subgroup.
Action Item #5: Brian Caruso (ENTRIX) to determine the availability of 15-minute data.
Action Item #6: Kearns & West will work with ENTRIX and stakeholders to schedule a meeting for the hydrology subgroup, possibly as a part of the whole CAWG in November.
Action Item #7: Bryan Harland (Kearns & West) to e-mail out the presentations and schematic by Geoff Rabone (SCE) to the CAWG.

Big Creek Collaborative
Combined Aquatics Working Group

October 8, 2003

Final Meeting Notes

Time:	9:00 AM to 5:00 PM	**Moderator:**	Wayne Lifton
Location:	USFS Clovis Office	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group - Geomorphology/Hydrology Subgroups		

Attended By:	Phil Strand	USFS
	Bill Pistor	Kearns & West
	Bryan Harland	Kearns & West
	Wayne Lifton	ENTRIX
	Wayne Allen	SCE
	Roger Robb	Friant Water Users Authority
	Phil Strand	USFS
	Larry Wise	ENTRIX
	Julie Means	CDFG
	Geoff Rabone	SCE
Phone Participants:	Britt Fecko	SWRCB
	Ken Voos	ENTRIX
	Paul Devries	R2 – USFS
	Dudley Reiser	R2 – USFS

Introductions and Agenda
Bill Pistor (Kearns & West) began the meeting by having stakeholders introduce themselves and the organizations they represent. He then reviewed the day's agenda. Wayne Lifton (ENTRIX) suggested adding the approval of the pebble count methodology, the group approved the revised agenda.

Review Action Items
Outstanding action items listed below:

Action Item: Britt Fecko (SWRCB) will provide Wayne Lifton (ENTRIX) with the list of literature cited in the CAWG-7 DTSR she would like copies of. There was no commitment to provide the references, however. ENTRIX will check with SCE for direction.
Action Item: Larry Wise (ENTRIX) will send an e-mail with the scheduled flows for the PHABSIM work to Bryan Harland (Kearns & West), who will forward to the CAWG.

A stakeholder asked if there will be a schedule of fieldwork activities sent to the CAWG. Mitchell Katzel (ENTRIX) said that they are finishing up next week.

Action Item #1: Mitchell Katzel (ENTRIX) will send a fieldwork schedule for geomorphology to Bryan Harland (Kearns & West), who will forward to the CAWG.

Approve Meeting Summaries

The SWRCB submitted comments on the September 11 CAWG meeting. Geoff (SCE) said that he thinks the SWRCB edits should be added to this meeting summary and not to those of Sept 11th. Bill proposed adding a footnote to the Sept 11 notes and adding the clarification language to this meeting summary. Bill suggested putting into the meeting note "The SWRCB gave a demonstration on temperature parameters at the meeting; a follow up e-mail was submitted at a later date, which is presented in the October meeting notes." Then, the full text of the e-mail will be presented in these notes. The group agreed.

Action Item #2: Britt Fecko will send the SWRCB water temperature criteria e-mail to Bryan Harland (Kearns & West), who will forward to the CAWG and attach to the September 11 CAWG meeting summary.

With that edit, the meeting summaries were approved.

Geomorphology Methodology

Bill reviewed the revised methodology for pebble counts for the CAWG and asked for the CAWG's approval.

Agreement: The revised pebble count methodology was approved.

Instream Flow

Discussion of Habitat Suitability Criteria

Larry Wise (ENTRIX) gave a presentation on the results of the HSC testing analysis. He reviewed management goals and objectives from the CAWG-3 Study Plan as well as the general and specific approaches. He then gave a PowerPoint presentation on HSC (for further details, please see the attached presentation).

Larry reviewed the Groshens and Orth method, which provides a statistical evaluation of whether a set of HSC is appropriate for use on a given stream. This approach compares the frequency of utilization of depth and velocity with the availability of these parameters within the stream. The values of depth and velocity are divided into "suitable" vs. "unsuitable" and "optimal" vs. "marginal" categories based upon the criteria being tested and threshold suitability values (in this case 0.5 and 0.1). He provided an example showing a curve with lines depicting the threshold values that divide suitable from unsuitable, and optimal from marginal. In CAWG 3 the threshold values were defined as 0.1 and 0.5. The Groshens and Orth test compares the utilization and availability within these categories in two one-tailed chi-square tests; one for suitable vs. unsuitable and one for optimal vs. marginal. The null hypothesis being tested is that both categories are being used to the same extent based on their relative availability within each test. The alternate hypothesis is that suitable habitat is used more than unsuitable habitat and optimal habitat is used more than marginal habitat. Both null hypotheses must be rejected for the criteria to pass for a given parameter.

The values of depth available may influence the way in which a fish selects velocities and vice versa. Where depth and velocity are not being selected independently, a simultaneous test of both parameters is indicated. This is termed a "joint" test. Larry discussed testing for such interactions and considering a criteria set to pass where there is an interaction and the joint test passes. When there is no interaction, then depth and velocity may be considered to be independent and would both need to pass for a criteria set to be accepted for use..

Larry reviewed, basin by basin, the observations for each fish species. Larry sent out the curves for each fish species before this meeting, and indicated that some have already passed. For those that didn't pass, he sought recommendations from the CAWG as to how to move forward.

A stakeholder asked if Larry can provide a curve depicting the ratio of use to availability from the verification data. Larry replied that in most cases there are not enough observations to develop a reliable relationship in this manner. Such a curve would be badly skewed if there was a low number of utilization observations available. Additionally, this is beyond the scope of what was agreed to in CAWG-3. Wayne L. said that ENTRIX would need to ask SCE if they should do the extra work of attempting to prepare such curves. Geoff added that the altered flows are preference curves and included in their development were observations collected on streams within the Big Creek system, as well as from adjacent watersheds (i.e., Willow Creek).

Action Item #3: Britt Fecko (SWRCB) to contact Larry Wise (ENTRIX) regarding her request for additional curves. They will report back to the group with any further related actions.

Larry showed examples of HSC that didn't pass and some overlays of different criteria curves. Paul Devries questioned the narrow peaks of the curves and said that he thought that the AF Preference velocity curve needed to be shifted to the right and that a preferred velocity of zero did not reflect trout's use of feeding lanes.

Wayne L. stated that the velocity criteria reflected the actual mean column velocities being used by the fish. Therefore, adjusting criteria that reflect actual habitat use is not appropriate.
For the Juvenile rainbow trout, Larry suggested using the S&A criteria. He asked the group for approval and/or opinions on a future conference call.

The group discussed the study methodology and the use of Altered Flows criteria. Larry said that the study plan called for the testing of Altered Flows Preference Criteria for trout and the Pit River Criteria for non-trout species. If these passed, then they would be used. If they didn't pass, then other criteria would be sought and tested, such as the Smith and Aceituno Criteria for trout. The USFS representative said he looked at the study plan and it does specify what Larry said. He has concerns regarding the criteria, but wishes he looked at the criteria when the study plan was approved. Dudley asked if there will not be a chance to go back. This issue will be addressed at a future HSC meeting.

Some stakeholders said they wanted the opportunity to look at the other curves.

A stakeholder said that he's not sure that the Altered Flows (AF) curves will be applicable if they don't reflect feeding lanes. He said that S&A provide criteria for areas where cover is available and a second set where cover is absent. Larry used the S&A criteria with-cover for this study, as cover is abundant in the Big Creek system.

Wayne L said he has problems using criteria that incorporate velocities for feeding, as trout are not necessary drift feeding only. Larry looked into the feeding lane issue as far as criteria sets. Larry said there is only one criterion he knows of which was developed by the Fish and Wildlife service of Colorado. The feeding lane criteria are separate from the normal velocity HSC and represent the use of a modeling option in HABTAE or HABTAV, the PHABSIM habitat models.

A stakeholder suggested that there needs to be some time for the group to digest this and then hold a conference call or a meeting to discuss the curves. He thinks that the goal really needs to be getting agreement before moving on because we don't want to revisit this in the future.
The stakeholder asked if Larry would provide a short summary of the background information on the different sets of HSC curves that we are being asked to consider, so that we can make better decisions about their use.

Action Item #4: Larry Wise (ENTRIX) to prepare a memo providing a background on the different HSC criteria and send to Bryan Harland (Kearns & West), who will forward to the CAWG.

Agreement: The group proposed forming a HSC subgroup. The group agreed.

The group discussed adding all the curves to all the plots of the observed data sets, rather than just the AF if it passes.

Action Item #5: Julie Means (CDFG) to provide Gary Smith's rationale for not using the Raleigh HSC criteria to the CAWG.

Action Item #6: 6A-Larry Wise (ENTRIX) will send plots with all HSC curves overlain on utilization histograms out to the CAWG by Tuesday (10/14). The CAWG will review, then hold a meeting on October 27 and 28 (10AM to 4PM each day) in Modesto to discuss further.
6B-Paul Devries (R2) will check into getting the UARP criteria data to Larry by Friday (10/10).

The group discussed potential agenda items for the HSC subgroup meeting.

Potential HSC subgroup agenda items:

- Review Gary Smith's rationale for not preferring the Raleigh curve.
- Discussion of correlation between depth and velocity selection.
- Paul DeVries proposed not spending a lot of time on the YOY, and only focusing on the Adult and Juvenile, since the fry are not typically used in any decision making process in relicensing for trout.
- Cover in relation to the HSC.

Larry showed a table summarizing which habitat suitability criteria had passed the transferability test, and were therefore acceptable for use in the PHABSIM studies, as outlined in the CAWG-3 study plan.

Recommendation on Approach for Bolsillo Creek Habitat Analysis
Larry explained that at a previous meeting, the group decided that the food transport analysis was inconsistent with the observed conditions. The group asked that Larry come up with an alternate approach, which he presented.

Larry explained that in the Vermilion Relicensing, they used flows required to maintain depth suitability in pools. Results were presented as the percentage of stream width with suitable depths as a function of flow.

A stakeholder asked if this was the same approach used in Portal. Larry said no. This is focused on pools, while portal was focused on riffles.

Action Item #7: Larry Wise (ENTRIX) will copy the pool evaluation methodology from the Vermilion report and send to Bryan, who will forward to the CAWG.

Larry said that since people were comfortable with the approach in the Vermilion relicensing he recommends the same approach for Bolsillo Creek. He also proposes using this approach on Rock Creek.

A stakeholder asked why the methodology doesn't work. Larry explained that the answer obtained during the first analysis didn't relate to reality, it was suggesting a flow of 7 cfs when there is only a flow of 10 cfs for a maximum of a couple of days during peak runoff. The new method will give the group a better idea of habitat rather than a flow that doesn't exist in the stream, except for a short period of time.

Agreement: The group agreed to use the Vermilion method on Bolsillo and Rock Creeks.

Temperature Modeling Decision: Approval of Model to be Used
Action Item #8: Bryan Harland (Kearns & West) will send PDF versions of the slide presentations from today's meeting to the CAWG.

Wayne Lifton and Ken Voos (ENTRIX) reviewed the recommended model for temperature to the group. The proposal is to use SNTEMP, using Heat Source or CE-QUAL-W2 to supplement the information, if necessary.

Wayne reviewed the language from CAWG-5 discussing the use of existing models. He also gave the results of BiCEP Model calibration check.

A stakeholder asked what “bias” referred to in the presentation. Wayne explained that the Maximum Error is the biggest deviation at any time of any day. Ken explained “bias” as the average difference between the predicted temperature and actual temperature. The probable error is the 50% confidence interval, which means that 50% of the time, the model predictions will be within the actual temperature (plus/minus) the probable difference.

Wayne gave the status of the model reaches. The fourth model needs some additional work, but the others are ready to go. Wayne asked for approval of the proposed models.

A stakeholder asked what the improved maximum temperature algorithm referred to. Ken explained that the prediction in the original SNTEMP model for the maximum daily temperature was not very accurate downstream from dams. He has modified the code to improve maximum temperature predictions by accounting for upstream conditions. This has proven to be very satisfactory in use.

The stakeholder asked what “looks upstream” means. Ken said that the new version considers dams and tributaries, so it retrieves the actual recorded value from that point downstream and takes the packet downstream under daylight conditions.

A stakeholder asked if there was any chance that the methodology be provided in writing to the CAWG.

Action Item #9: Ken Voos and Wayne Lifton (ENTRIX) will provide a written description of the maximum temperature methodology of the modified SNTEMP to Bryan Harland (Kearns & West), who will forward to the CAWG.

A stakeholder asked if they have any areas in mind right now that they might want to use CE-QUAL-W2. Wayne said no, but they wanted to be clear that if SNTEMP doesn’t work, they will have a backup in mind that may be appropriate.

The USFS said that Julie Tupper felt that there would be a need to compare SNTEMP to other dynamic models in some reaches. Wayne said that the idea is that they will run the SNTEMP to the actual data set, then the group will be able to see whether it can accurately predict actual temperatures. He said that there is a lot of set up work involved in running these models. The USFS requested giving a tentative approval of the SNTEMP, then if Julie T. has a problem, to discuss later.

Action Item #10: Ken Voos, Wayne Lifton (ENTRIX), Geoff Rabone, Wayne Allen (SCE), and Julie Tupper (USFS) to hold a conference call to discuss her issues related to the SNTEMP model. Bryan Harland (Kearns & West) will help to coordinate the call and inform members of the CAWG when it will take place.

Agreement: The group agreed to use SNTEMP, using Heat Source or CE-QUAL-W2 to supplement the information, if necessary with the above caveat.

Follow-up discussion of reaches to be modeled

The group discussed the reaches to be modeled for temperature and developed a proposed methodology, which is listed below:

A stakeholder asked if Mono and Bear creeks could be modeled to see what the effect of additional flow releases would be on the SFSJR.

PROPOSAL: Perform a sensitivity analysis to game out a range of flows for Mono and/or Bear, then if the ability to evaluate the effect on the SFSJR is too close to call, then in the PME phase, the CAWG will decide whether to model. Sensitivity analysis includes looking at the effect of increased flows from the creeks at water temperatures representative of both the diversion (coolest temperature available) and near the confluence with the SFSJR. The results would be the effect on SFSJR temperatures.

Wayne proposed supplying the proposal in writing so stakeholders can review, then revisit at the next CAWG meeting, or a later date.

Action Item #11: Ken Voos and Wayne Lifton (ENTRIX), will write up an approach (phased) for dealing with analyzing the effect of Bear Creek and Mono Creek flow releases on the South Fork San Joaquin River and deciding whether modeling of those creeks is necessary. This will be sent to Bryan Harland (Kearns & West) to send to the CAWG.

The SWRCB said that they don't have a problem with the proposed reaches, just the exclusion of the other reaches. Wayne asked that the group approve the reaches now as a starting point and then revisiting at a later date the other reaches. The group agreed.

Simulation Conditions
Simulation Output will include the predicted water temp based on numerous variables.

Wayne proposed modeling the same flows as considered in PHABSIM modeling for that reach. And average and 20% exceedance meteorology and normal hydrology for summer months: June, July, and August and including September for SJR downstream of Mammoth Pool and Stevenson Reach.

A stakeholder asked what normal hydrology means. As a conservative estimate, can't the group look at a hot and dry year? Wayne Allen (SCE) said that they have two different operations: normal and dry. Wayne said that they can simulate for average and dry. The group agreed. Phil asked if we can include the month of May as well for the lower reaches only (Mammoth, Stevenson and Big Creek).

Simulation from the point of discharge to the end of the reach with the results reported at 0.5-km intervals along the stream was proposed and accepted by the group as the simulation framework. ENTRIX will take the results and put into table of reach, month, meteorology and flow of stream temps by location for daily mean and maximum temp. They will provide figures of temperature along stream longitude for each flow by month and meteorology as well as percent of stream length exceeding certain temperatures.

A stakeholder asked if Wayne can write up the simulation proposal as well. He said that he could provide the presentation slides to her as modified by the group today.

Action Item #12: Wayne Lifton (ENTRIX) will modify the slides on modeling conditions and send to Bryan Harland (Kearns & West), who will send to the CAWG.

CAWG-5 and CAWG-10 Revised DTSRs
The group received the revised editions of CAWG-5 and 10 as well as a table detailing the response to comments. The group decided to discuss and approve the DTSRs at a later date.

Meeting Adjourned

Summary of Action Items
Action Item #1: Mitchell Katzel (ENTRIX) will send a fieldwork schedule for geomorphology to Bryan Harland (Kearns & West), who will forward to the CAWG.
Action Item #2: Britt Fecko will send the SWRCB water temperature criteria e-mail to Bryan Harland (Kearns & West), who will forward to the CAWG and attach to the September 11 CAWG meeting summary.
Action Item #3: Britt Fecko (SWRCB) to contact Larry Wise (ENTRIX) regarding her request for additional curves. They will report back to the group with any further related actions.
Action Item #4: Larry Wise (ENTRIX) to prepare a memo providing a background on the different HSC criteria and send to Bryan Harland (Kearns & West), who will forward to the CAWG.
Action Item #5: Julie Means (CDFG) to provide Gary Smith's rationale for not using the Raleigh HSC

criteria to the CAWG.
Action Item #6: 6A-Larry Wise (ENTRIX) will send plots with all provided HSC curves overlain on utilization histograms out to the CAWG by Tuesday (10/14). The CAWG will review, then hold a meeting on October 27 and 28 (10AM to 4PM each day) in Modesto to discuss further.
6B-Paul DeVries (R2) will check into getting the UARP criteria to Larry by Friday (10/10).
Action Item #7: Larry Wise (ENTRIX) will copy the pool evaluation methodology from the Vermilion report and send to Bryan, who will forward to the CAWG.
Action Item #8: Bryan Harland (Kearns & West) will send PDF versions of the slide presentations from today's meeting to the CAWG.
Action Item #9: Ken Voos and Wayne Lifton (ENTRIX) will provide a written description of the maximum temperature methodology of the modified SNTEMP to Bryan Harland (Kearns & West), who will forward to the CAWG.
Action Item #10: Ken Voos, Wayne Lifton (ENTRIX), Geoff Rabone, Wayne Allen (SCE), and Julie Tupper (USFS) to hold a conference call to discuss her issues related to the SNTEMP model. Bryan Harland (Kearns & West) will help to coordinate the call and inform members of the CAWG when it will take place.
Action Item #11: Ken Voos and Wayne Lifton (ENTRIX), will write up an approach (phased) for dealing with analyzing the effect of Bear Creek and Mono Creek flow releases on the South Fork San Joaquin River and deciding whether modeling of those creeks is necessary. This will be sent to Bryan Harland (Kearns & West) to send to the CAWG.
Action Item #12: Wayne Lifton (ENTRIX) will modify the slides on modeling conditions and send to Bryan Harland (Kearns & West), who will send to the CAWG.

Big Creek Collaborative
Combined Aquatics Working Group

December 10, 2003

Meeting Notes

Time:	10:00 AM to 4:30 PM	**Moderator:**	Wayne Lifton
Location:	Piccadilly Inn University	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Bill Pistor (Facilitator)	Kearns & West
	Bryan Harland (Note Taker)	Kearns & West
	Wayne Lifton	ENTRIX
	Larry Wise	ENTRIX
	Ryan Bricker	Kearns & West
	Jean Baldrige	ENTRIX
	Rick Hopson	USFS
	Julie Means	CDFG
	Roger W. Robb	Friant Water Users Authority
	Dudley Reiser	R2
	Phil Strand	USFS
	Wayne Thompson	Federation of Fly Fisherman
	A. Britt Fecko	SWRCB
	Russ Kanz	SWRCB
	Julie Tupper	USFS – RHAT
	Geoff Rabone	SCE
	Wayne Allen	SCE
Phone Participants:	Brian Caruso	ENTRIX

Introductions and Agenda

Bill Pistor began the meeting by having stakeholders introduce themselves and indicate the organizations they represented. Bill reminded the group that Bryan Harland will be leaving Kearns & West and that all future correspondences should be sent to Ryan Bricker of Kearns & West at rbricker@kearnswest.com. The group reviewed and approved the agenda.

A stakeholder requested that meeting summaries and materials be sent in a timelier manner. Bill explained that with the transition of Bryan to Ryan, there has been some delay, but Kearns & West will make every effort to get materials to stakeholders in a timely manner.

Review Action Items

Outstanding action items from previous meetings are listed below:

Action Item: Mitchell Katzel (ENTRIX) will revise the October 2, 2003 SCI, Rosgen Level II and PFC Memo according to the approved edits from stakeholders and send to Bryan Harland (Kearns & West) to send to the CAWG.

Action Item : Britt Fecko (SWRCB) will send the SWRCB water temperature criteria email to Bryan

Harland (Kearns & West), who will forward it to the CAWG and attach it to the September 11 CAWG meeting summary.

Julie Means (CDFG) asked that all materials be distributed to her on a CD through the mail.

CAWG-6: Hydrology
Brian Caruso (ENTRIX) gave the group a status update on the hydrology study. He told the group that he had gone back over the tables and QC'd for any errors. Those tables were distributed to the CAWG before this meeting. Rick Hopson (USFS) said that he still had errors on his copies.

Action Item #1: Ryan Bricker (Kearns & West) to contact Rick Hopson (USFS) regarding the hydrology tables distributed to the CAWG.

Brian said that they have plotted diversion flow hydrographs and are currently evaluating them for adequacy, accuracy and usability for the group.

Since Camp 61 is not diverted, Brian suggested that Camp 61 flow information can be used to represent the unaltered flow.

A stakeholder asked if ENTRIX will be estimating data for the gaps. Brian answered that he is not sure how that can be done since missing data can mean that there was no water being diverted at the time of measurement. For unaltered flow, he said that synthesis is more appropriate. ENTRIX will use a methodology for synthesizing based on runoff and area, as well as the Forest Service's regression curves.

A stakeholder asked how the fact that information only being available for a few months out of the year will factor into the IHA analysis. Brian said that they can use monthly information to develop the mean annual flow.

Brian said they are in the process of characterizing spill events, where data is available, by plotting hydrographs and estimating summary statistics, including flow percentiles/exceedance probabilities. The information will be presented when the analysis of diversion and other data is complete.

Brian asked the group what people were interested in, in terms of spill events. The State Water Board, US Forest Service and San Joaquin Paddlers have all expressed an interest in the information to get an idea of which diverted streams are receiving spills and what the magnitude and frequency of those spills are. Brian stated that ENTRIX is in the process of preparing that information and can address those needs when the information is presented to the group.

Brian said they have the hourly data, but are not sure about the availability of the 15-minute data. Wayne Allen (SCE) said that they have the 15-minute data for the USGS sites operated by SCE going back to the 1990/91 water year. However, SCE does not have the 15-minute data for the water rights stations.

A stakeholder suggested that the USGS might have the information buried in an archive somewhere. Brian said that might be the case and ENTRIX would investigate this (Continuing Action Item).

Brian next addressed Action Item #3 to "define adequate data." He said that the goal right now was to try to summarize the rationale behind the decision making process and that when the group gets the actual diversion data, they can go through station by station to define what constitutes "adequate." Brian then gave a summary of the decision making process, which can be found in the PowerPoint presentation attached to this summary.

Brian said that the Terrestrial Working Group is currently working on the cloud seeding study and will be presenting the findings at a future meeting.

Rick asked if he could get the right tables sent to him and also if high flow data is normal for critically dry years from time to time. Brian answered that the way that the water years are estimated doesn't always reflect what is happening in the sub-basin. In some cases, higher flows are seen in particular locations even though it's a dry year. Wayne L. suggested that the timing of precipitation can affect the information too. Brian agreed and added that sometimes you will see higher peak flows earlier in the snow melt season. As information is interpreted, they will have to look at why higher flows were observed.

The group was told that often times in a dry year, the operator will keep the reservoir high, then a big storm will come along and they will have to spill and that could account for the higher flows.

A stakeholder asked Geoff Rabone (SCE) if SCE was going to make information available electronically. Geoff answered that once Brian finishes, they will readdress the issue.

Wayne L. (ENTRIX) told the group that in a couple of weeks they will see if some of the information will be ready for January. Britt requested holding a hydrology subgroup meeting in late January.

CAWG-3: Instream Flow (HSC Discussion)
Larry Wise (ENTRIX) gave an update on the habitat inventory field trip. He told the group that they tracked through the habitat mapping up to the point where the transects were selected. Their conclusion was that the habitat inventory was done correctly, but found that during the initial PHABSIM transect selection the flagging crew had referenced the wrong units (pool 26 was actually pool 21). A stakeholder said that there were a couple of units that were short units that they were separated out into their own units, but could have been lumped together. These were riffles that were shorter than bankfull widths.

Larry said that they have not done a good job at previous meetings of explaining what the Altered Flows (AF) Project was and where the criteria came from. Jean Baldrige (ENTRIX) was present and gave the group a presentation on the Altered Flows Project and preference criteria. She described the history of the project to the group. In order to ensure that the AF group had proper guidance, a technical advisory committee was established that consisted of experts including well-known scientists, members of the Instream Flow Group, and resource agency technical experts. The committee helped to validate predictions and identify limiting factors. The goal of this project was to look at fish populations' response to altered flow regimes and determine if PHABSIM could be used to predict population changes, when other limiting factors are accounted for. They had the opportunity to look at the influence of different habitat suitability criteria as well as study different methods. Jean went on to describe the contents of the study to the group including fish population sampling in the spring and fall, monitoring flows to understand changes, evaluating food production, fishing pressure, water quality and other factors, and finally manipulating flows to see if a population response could be predicted.

Jean went on to explain the study design, study variables, and the three levels of analysis.

She then discussed the process of making and testing predictions. For each test, they estimated the population under the altered flow conditions. Abundance and biomass were predicted for each year and each site, based on such indices as weighted usable area from PHABSIM models and based on different HSC. For each, they evaluated the accuracy. Dr. Bob Smith set up the statistical analysis.

Next, Jean went over the results with the group. All tests resulted in positive correlation. However, the best statistical relationship was with the WUA resulting from the AFP criteria. Combining rainbow and brown trout criteria to represent niche overlap to predict total trout with PHABSIM gave the best statistical fit.

Geoff asked if the new license was granted for the Tule. Jean said that everything except a higher flow that they proposed for a certain time of year was written into the license.

Dudley asked what the number of years for the study was at the altered flow and the answer was three at the higher flow with one transition year.

A stakeholder asked what they attributed the increase in population to. Jean answered that there was an improvement in water quality and habitat. A different stakeholder asked if there were any changes to the geomorphology that contributed to the improved habitat and asked if there was a bigger flow. The answer was no.

Larry took over the presentation and told the group that the Altered Flows criteria were developed using some observations from the Big Creek system. He told the group that they had input from the technical advisory committee throughout the development of the Altered Flows project. They also held a workshop that was hosted by the IFG in 1995 and what came out of that was the desire to develop generic transferable criteria that could be used for PHABSIM studies in many streams. He went on to describe the stratification of the sampling effort. Samples were done in the NFMF Tule, SFMF Tule, Big Creek, North Fork Stevenson, Stevenson, and SF Willow Creek. The samples were taken between July and October with temperatures in excess of 12 degrees Celsius. For curve development they used numerous observations collected over a range of geomorphic and hydraulic stream conditions. They evaluated transferability testing techniques such as Goshen's and Orth and Thomas and Bovee and found that the Groshens and Orth method worked better.

A stakeholder asked if they used the Thomas and Bovee approach. The answer was yes, it was tested extensively. They used one vertical, two verticals and all combos to represent utilization and availability, but it didn't help. They found that Thomas and Bovee did not do a good job of predicting the microhabitat at the location of the fish. The variability of the bottom of the stream means that if you are not measuring the velocity at the location of the fish, you are measuring something different than what the fish is selecting for.

Larry explained that at different thresholds they found that Altered Flows transferred, using Groshens and Orth. He added that the results of the curves were approved by the panel of experts. The curves were robust when using different densities and were applicable to different streams. The Altered Flows did and excellent job.

Next, Dudley Reiser (R2) gave a presentation on the UARP (Upper American River Project) relicensing. He told the group that the UARP is on a parallel path to Big Creek. The UARP might be a little ahead. They have approved the rainbow curves, but the verdict on hardheads is still "out." He told the group that the process used in the development of the UARP curves is not unlike what is going on here. Their data sets came from Tom Payne from observations collected on the American River. He told the group that he collected a lot of site specific data with the intention of developing transferable curves for other sites. He also told the group that a lot of data was collected. When they went through all of the transferability analyses, it turned out that some of the curves that had passed did not match the observations. Because of this, it was recommended that site specific criteria be used. The biggest issue had to do with the curve fitting program used that resulted in single peaks.

The group was told that Mark Allen helped guide everyone through the curve development and transferability process for the UARP. When they first presented the curve sets, Dudley and the USFS were skeptical because the polynomial set had one peak. He told the group that fish do not respond in a single peak, but are more opportunistic.

The UARP group ended up approving sets for the large, medium, and small channel types. The collective thinking was that fish are not that sensitive and curve maxima need to be spread out. The largest changes made were associated with the tops of the curves and, in the end, none of the agreed to curves were exactly like what Mark Allen presented or what the data revealed.

The UARP did not have an abundance of data for brown trout, so they ended up pulling some information from the literature and published information. Jean asked how the group came up with medium streams and the answer was that they extrapolated between small and large streams. Dudley told the group that he was not a proponent of the large, medium, and small curves. When Dudley was originally working with Bob and

Dennis, they brought forward the notion of regionalization of curve sets. He suspects that everyone here would like to head in that same direction.

Russ told the group that they just went through a similar process in the Stanislaus relicensing. He told the group that as he sees it, he thinks a fish is a fish is a fish. He also told the group that there is a full write up on the Stanislaus relicensing website (www.stanrelicensing.com). Dudley told the group that the Stanislaus information was used on the UARP. Russ asked if the data was from the North Fork, because that data was older. Dudley said that he would check on that.

Action Item #2: Wayne Lifton (ENTRIX) to obtain Stanislaus HSC curves for comparison.

Jean told the group that the issue with drawing curves is that they are arbitrary and that the group needs to be able to use an objective test for determining what curves to use. Russ said that it might take too much time and money and thought that the group needed to discuss many different variables.

Geoff asked if they came up with multiple curves or just one for the Stanislaus relicensing. Russ said that they came up with two because the licensee and the agencies couldn't agree.

Geoff asked if the group could review the curves again and Dudley told the group that one of the things to think about was when to limit depth. Dudley added that he did not think that adult rainbow trout were really not going to use streams that are 7 feet deep if given the opportunity. With that in mind, the group might not want to limit the depth. Geoff asked how, philosophically, did they decide on the broadness of the curve and then extrapolate to the other streams. Dudley said that it was done by looking at the original polynomial and then just drawing them. They did not use any mathematical equations. He said that it was more about looking at it from a biological perspective and using professional judgment. There was no mathematical extrapolation made. It was a discussion among biologists.

Russ said that drawing your own curves would bias your time series and said that he thought that it would be a mistake. He added that the group should look at time series in the future. Russ also told the group that there were some good real time series spreadsheets used in the Stanislaus that he can not reveal because they are proprietary of Divine Tarbell and Associates.

A stakeholder asked if Peter Moyle was still working on the hardhead curves for the UARP. Dudley answered that, as far as he knows, yes.

Dudley said that for the UARP they were not comfortable with limiting the depth. He told the group that he personally doesn't want to get hung up on the depth curve. He is more concerned with the velocity. Larry agreed that the velocities affect fish behavior more than depth.

Next, Larry gave a presentation on the results of the testing and covered the following topics: determining weighted useable area; HSC selections; transferability studies; decision pathway; and criteria considered.

Next, Larry showed the group the transferability testing results.

Britt asked Larry if they could include the sample size on the slides for future distributions.

Action Item #4: Larry Wise (ENTRIX) to include the sample size (N) of each species on the revised HSC charts.

Larry reviewed the new plots that included the UARP curves. Britt asked if graphs existed where the suitability and the availability were overlapped. Larry answered that they had gotten rid of them.

Russ asked if the flows at the time of observation could be added to the graphs.

Action Item #5: Larry Wise (ENTRIX) to add a reference chart on the flows at the time observations were made.

Action Item #6: ENTRIX to provide cloud seeding study results to the CAWG, when available.

The meeting was adjourned.

Actions from December 10, 2003 Meeting

Action Item #1: Ryan Bricker (Kearns & West) to contact Rick Hopson (USFS) regarding the hydrology tables distributed to the CAWG. Will redistribute correct tables.
Action Item #2: Wayne Lifton (ENTRIX) to obtain Stanislaus HSC curves for comparison.
Action Item #3: Wayne Lifton and Larry Wise (ENTRIX) to incorporate the Altered Flows total trout curves to the current charts.
Action Item #4: Larry Wise (ENTRIX) to include the sample size (N) of each species on the revised HSC charts.
Action Item #5: Larry Wise (ENTRIX) to add a reference chart on the flows at the time observations were made.
Action Item #6: ENTRIX to provide cloud seeding study results to the CAWG, when available.

Big Creek Collaborative
Combined Aquatics Working Group

December 11, 2003

Meeting Notes

Time:	8:00 AM to 3:30 PM	**Moderator:**	Wayne Lifton
Location:	Piccadilly Inn University	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Bryan Harland
Name:	Combined Aquatics Working Group		

Attended By:	Bill Pistor (Facilitator)	Kearns & West
	Bryan Harland (Note Taker)	Kearns & West
	Wayne Lifton	ENTRIX
	Larry Wise	ENTRIX
	Ryan Bricker	Kearns & West
	Jean Baldrige	ENTRIX
	Rick Hopson	USFS
	Julie Means	CDFG
	Roger W. Robb	Friant Water Users Authority
	Dudley Reiser	R2
	Phil Strand	USFS
	Wayne Thompson	Federation of Fly Fishermen
	A. Britt Fecko	SWRCB
	Russ Kanz	SWRCB
	Julie Tupper	USFS – RHAT
	Geoff Rabone	SCE
	Wayne Allen	SCE

Introductions and Agenda

Bill initiated the meeting and the group picked up with the overlay curves from the previous day.

A stakeholder asked where all this was leading and how the subgroup's decisions would potentially affect projects operations. Geoff Rabone (SCE) told the group that SCE does have some points that do not have current instream requirements, and the group is trying to determine if existing instream release requirements are appropriate or whether they need to be adjusted. It was said that this was just first step of the process, and the group was being asked to approve curves without knowing what the effects will be on the project. Wayne Lifton (ENTRIX) replied that the group wants to make sure that the HSC is representative of fish use and he said that the power issues are more negotiation-related items. A stakeholder added that the real decision here was to figure out the best science and to apply the best tool.

The group then discussed the use of professional judgment when determining curve shapes. Geoff told the group that in the past, people used a method nicknamed BOGSAR (Bunch Of Guys Standing Around Stream), whereby experts just stood by a stream and "estimated" appropriate flows. Now, they have modeled the biology and PHABSIM process is a more scientifically based process.

A stakeholder told the group that they should not be looking at the criteria and how they affect SCE operations and influence flow. He added that the goal should not be to look at it economically, but, rather to look at it biologically.

A stakeholder asked if they had looked at the 2-D modeling yet and told the group about some tools that Pit River used. He said that it was amazing how close the results were. A different stakeholder added that they did 2-D modeling, 1-D modeling, and habitat mapping for the UARP and said that it was interesting how close they all were.

Geoff told the group that if they expect Larry Wise (ENTRIX) to go back and analyze more curves, they need to identify exactly what they expected him to do. Wayne L. added that all tools must be in place before they do the PHABSIM.

A stakeholder asked if all the data sets had been collected. Wayne L. answered yes and said that there will be a 2003 report coming out soon that will contain all the information. It was added that the hope was to get through the negotiations by the end of 2004. The PDEA will have to be filed by the end of 2005. Bill said that the schedule mentioned would be ideal, but thought that negotiations would probably continue through 2005.

A stakeholder asked if the hydrology information would be out soon. Wayne L. said that the schedule is to have the 2003 reports out in mid-February and Bill added that Brian Caruso (ENTRIX) is hoping to have the hydrology information ready by January 2004.

A stakeholder suggested that if an agreement was not reached on the HSC, the group could still go forward on the calibration issues. Bill asked if the Altered Flows curves and the UARP curves were different enough that they would take a massive effort to resolve the differences between them. Dudley Reiser (R2) thought that the biggest differences had to do with velocity. He also added that he thought that the UARP curves fit the data better. Bill asked Russ Kanz (SWRCB) if he agreed or if he thought that the Stan curves were better. Russ said he agrees with what Dudley was saying, but could not remember the Stan curves. He thought that they were similar to UARP's.

The group then discussed fish velocity preference and Russ told the group that he does not think that fish prefer zero velocity. He referenced a video by Craig Adley of a fish feeding behind a rock, not expending much energy except to go out from behind the rock and grab a bug. Dudley said that it's hard to judge this because the fish is in zero velocity, but the food is coming by with a velocity of the water. He added that the group needed to think about what is really important to the fish. Wayne said that there are other factors to take into account for the PHABSIM modeling. Dudley asked for the display of the curves and told the group that he thinks the observational data fits UARP criteria better.

The group examined the overlaid curves.

Geoff told the group that his worry was that changing curves would make it impossible to keep the science in mind. Britt Fecko (SWRCB) said that when you adjust the curves you do keep the science in mind.

A stakeholder asked if you would get a lot of zero velocity preference data if you're at low velocities to begin with. Larry responded that there are a number of velocities at higher levels. A stakeholder said that fish in a reservoir do like the zero velocity so he has a problem with saying that fish don't prefer zero velocity. Russ replied that reservoir and river fish are different issues.

Wayne told the group that everyone needs to assume that fish are doing both benthic and drift feeding. In some streams and times, benthic feeding may be dominant. Geoff added that fish are complex and no model will adequately capture everything.

Russ told the group that the problem he had with the UARP curves was the top was not broad enough. Wayne L. told the group that the Altered Flows curves were based on observations that have been checked against reality. Russ responded by saying that he had a lot of heartburn around when the Altered Flows observations were made and thought that the Stan curves do the best job. Roger Robb (Friant Water Users Authority) told the group that he thought the altered flows curves fit the raw data. Russ replied that you have to be careful because you have to keep in mind what the flow was when the observations were made.

A stakeholder asked what the flow was at the time of the AFP observations. Larry answered that the flow was between 3 and 38 cfs depending on the reach. Dudley said that part of his heartburn with the Altered Flows is that if you look at the other curve sets for adult rainbow and adult brown you just do not see that sort of suitability curve for anything else. He added that he did not think that the curve should start out at zero and trail straight down. This suggests that the best velocity is zero and then everything from there is downhill. He said maybe for brown trout but not for a rainbow trout. Russ thought that .25 to .5 could be equally suitable and said that velocities are very important.

Wayne L. pointed out to the group that Jean Baldrige showed in her presentation that the biology (fish populations) did respond to flows resulting from these curves very well.

Larry presented a table that showed the electivity index for shear zones in non-pool habitats. Observations were divided into three ranges: less than one meter, one to two meters, and more than two meters. He told the group that anything more than .25 is significant based on work by Moyle. It was asked how it was measured and Larry said that after they observed the fish they would go back and look for the nearest shear zone and measure the distance to the nearest area of higher velocity. A fish within an area of high velocity water would be considered to be less than 1 meter from shear. The overall conclusion from the table is that trout were not selecting to be selecting for velocity shears, even though those were readily available. Rather, the fish appeared to be using velocities as they were available, regardless of whether a shear zone was located nearby or not. By looking only at non-pool habitats, we are focusing on those areas where fish are most likely to be utilizing shears.

Russ asked for an explanation of the availability percentage use. Larry explained that his overall conclusion was that the fish are not selecting to be in shear zones. The group then discussed the possibility of using a feeding model, but most felt that this method would not be necessary.

Russ told that group that if the flow is low then the results will vary and he added that, to him, the results were almost inconclusive. Larry said that he thought that the results were saying that the fish are using what is out there.

The group then discussed fry and spawning habitat. For the Upper American process, fry were considered but not included. Russ said the public does not scream for trophy fry programs. Wayne L told the group that because of the low number of fry observed, they will have to rely on a fallback. Dudley said they did address spawning in the UARP.

Russ told the group that he was in favor of radio tagging fish to measure spawning. He said that it is a cost effective tool that is not used enough. Wayne L. told the group that there are access issues when rainbow are spawning, which make radio tagging difficult.

Larry had put together spawning curves and presented them to the group. There was a brief discussion on the importance of depth. Some believed that the right combination of velocity and gravel will allow fish to spawn at any depth. The group was told that the size of the fish is of particular importance when it comes to spawning and Dudley asked if ENTRIX had any spawning observations. The answer was no, only incidental observations. Larry showed a spawning gravel graph. He told the group that he thought that everyone could agree that spawning takes place in small and large gravel.

Next, the group reviewed the brown trout spawning velocity curves. Russ told the group that he had heartburn thinking that was not enough information on the spawning. It was asked if there is any more fieldwork planned and the answer was no, not on spawning. The problem is finding access and tracking the fish. If they get into bedrock canyon areas, you'll know they're down there, but you will not be able to get to them. Another severe difficulty is in getting a sufficient number of observations to elicit any meaningful information from the effort. Even for some of the more abundant species and lifestages, we were unable to get enough observations, even under good conditions. For spawning, conditions would be poor for making observations, and the fish could only be counted if they were actively creating a redd, so it would be very difficult to collect more than a few observations.

Britt asked how accessible the North Fork Stevenson was and the answer was that it is the most accessible. Larry told the group that even if they go through the effort to find spawning, they will only get 20 to 30 observations on a few reaches and that may not be very useful. Britt said that it can be helpful for the geomorphology work.

Dudley told the group that the main interest is in the depth and velocity in the spawning area with the best gravel and agreed with Larry in thinking that you wouldn't have much of a data set with the observations. He also added that there are lots of spawning curves out there to use. Russ said that since rainbow trout typically spawn in higher flows, the information is important.

The group moved on to discuss juvenile life stage curves. Dudley told the group that there are no channel distinctions for the UARP curves and that the assumption is that a juvenile is a juvenile is a juvenile. There was a brief discussion about fish size and sexual maturity after which the group moved on to discuss hardhead, pikeminnow and suckers.

Larry gave a presentation on transition zone species, discussed the different criteria that were looked at, and gave statistics on where the criteria came from.

Larry went on to give the results of the criteria testing.

Action Item #1: Larry Wise (ENTRIX) will provide a revised packet of HSC presentations to Ryan Bricker (Kearns & West), who will distribute to the CAWG and burn a CD for Julie Means (CDFG).

Julie Tupper (USFS) told the group that they could never reach an agreement on the Pit River. Some of the fish people say that there was a debate in the Pit process that the juvenile and the fry do not hang out together. Julie T asked how long the juveniles are juveniles. Larry said approximately four years.

Larry went on to review the hardhead lower basin large stream velocity and depth curves with the group. Larry told the group that the West Sierra passed on all joint, depth and velocity tests, so he recommends starting there. Dudley asked if they have the UARP curves. Larry answered that the UARP curves have not been finalized yet.

Russ asked if they collected a bunch of information on the UARP. Dudley and Wayne L. looked up the UARP curves and told the group that they resemble the Pit curves and go horizontal, then up again at an angle and did not seem, to fit this project's data.

Dudley says he has a problem with any curves that go up and down. Larry agreed. Russ told the group that in the Klamath they do have an up and down curve.

Wayne asked Dudley if they can get the curves from him.

Action Item #2: Dudley Reiser (R2) to supply the UARP hardhead, pikeminnow and sucker curves to ENTRIX.

Dudley suggested engaging Peter Moyle for this process and the group agreed it could be beneficial.

Action Item #3: Wayne Lifton and Larry Wise (ENTRIX) to contact Peter Moyle regarding hardhead.

Russ told the group that we need to be very careful what we ask Peter for because there's a lack of information on hardhead.

Julie T. asked about overlap on fry and juvenile and if there are predation problems. Larry said that there are.

Larry told the group that the next step is to take a look at other criteria for trout and the total trout and then get revised plots out to everybody.

Julie asked if they are planning on getting PHABSIM done by January and the answer was no.

In January we can look at all this stuff and get into the details of sorting through the information.

Russ told the group that one of the things to keep in mind from the agency's perspective was that there has been a willingness to not require site specific curves and in exchange for that, there should be leeway for professional judgment and "drawing" to some degree for the curves.

Geoff asked for information on what curves passed to be included in the legend.

Action Item #4: Larry Wise (ENTRIX) to add a reference on which curves passed on the charts.

Action Item #5: Debbie Giglio (USFWS) to check on the USFWS position on using HABTAE for addressing shear zones.

Next meeting: January 28 and 29th in Modesto.

The meeting was adjourned.

Summary of Action Items

Action Item #1: Larry Wise (ENTRIX) will provide a revised packet of HSC presentations to Ryan Bricker (Kearns & West), who will distribute to the CAWG and burn a CD for Julie Means (CDFG).
Action Item #2: Dudley Reiser (R2) to supply the UARP hardhead, pikeminnow and sucker curves to ENTRIX.
Action Item #3: Wayne Lifton and Larry Wise (ENTRIX) to contact Peter Moyle regarding hardhead.
Action Item #4: Larry Wise (ENTRIX) to add a reference on which curves passed on the charts.
Action Item #5: Debbie Giglio (USFWS) to check on the USFWS position on using HABTAE for addressing shear zones.

Big Creek Collaborative
Combined Aquatics Working Group

January 14, 2004

Meeting Notes

Time:	10:00 AM to 4:30 PM	**Moderator:**	Wayne Lifton
Location:	Piccadilly Inn University	**Facilitator**:	Bill Pistor
Teleconference No.:	1-800-556-4976	**Recorder**:	Ryan Bricker
Name:	Combined Aquatics Working Group		

Attended By:	Bill Pistor (Facilitator)	Kearns & West
	Ryan Bricker (Note Taker)	Kearns & West
	Andrew Wyckoff	Kearns & West
	Wayne Lifton	ENTRIX
	Julie Means	CDFG
	Geoff Rabone	SCE
	Wayne Thompson	Federation of Fly Fisherman
	Rick Hopson	USFS
	Julie Tupper	USFS
	A. Britt Fecko	SWRCB
	Phil Strand	USFS
	Lonnie Schardt	Huntington Lake Association
	Monty Schmidt	NRDC
	Roger W. Robb	Friant Water Users Authority
	Larry Wise	ENTRIX
	Wayne Allen	SCE
Phone Participants:	Brian Caruso	ENTRIX
	Debbie Giglio	USFWS
	Mitchell Katzel	ENTRIX
	Woody Trihey	ENTRIX
	Paul Devries	R2 Resource Consultants

Introductions and Agenda

Bill initiated the meeting by introducing Ryan Bricker (Kearns & West) and Andrew Wyckoff (Kearns & West) and then asked for everyone to introduce themselves and the organizations they represent.

Review Action Items/Meeting Notes

The group reviewed and approved the November Meeting Summary and went through the Action Items from the December CAWG meeting.

Action Item #1: Geoff Rabone (SCE), Phil Strand (USFS), and others to check for an email from Jim Canaday (SWRCB) regarding the SWRCB water temperature criteria (from late September or October). If not found, Britt Fecko (SWRCB) to re-craft and provide to Kearns & West for distribution to the CAWG.

Action Item #2: Brian Caruso (ENTRIX) to correct the hydrology table error identified by Rick Hopson (USFS) and provide new Hydrology Packet on CD.

The group then discussed the 2004 CAWG meeting schedule. The group was informed that SCE is considering having all meetings held regularly at the Piccadilly Inn and that it is safe to say that we will be having more meetings this year than in the past.

Action Item #3: CAWG meeting currently scheduled for February 12, 2004 to be adjusted due to State Holiday.

Monty Schmitt (NRDC) was new to the group and asked if he could be given a brief update on the CAWG 12 and CAWG 13 studies. Wayne Lifton (ENTRIX) responded that CAWG 12 "Water Use" is still a little further out. The hydrology must be completed as well as the water routing modeling before "Water Use" can be wrapped up. Right now they are shooting for March for the distribution of CAWG 12 "Water Use." Wayne L. also added that they are just entering the impact analysis phase and they might be a little behind of where they would like to be. CAWG 13 "Anadromous Fish" is one of the 2004 reports coming out in the next month or two and there will be the normal comment period.

Action Item #4: Add NRDC (Monty Schmitt) to CAWG Distribution Lists and Kearns & West to provide contact info to Carla Anthony (SCE).

Britt Fecko (SWRCB) asked for a negotiations scheduling estimate. Negotiations are expected to kick off in March along with a Mutual Gains training session. The goal is to wrap-up settlement in December 2004.

Rick Hopson (USFS) asked if the routing models will be a CAWG decision point. Wayne L. replied that it is in the study plan that CAWG consensus is required.

Britt brought to the group's attention that the February CAWG meeting is currently scheduled for the 12th which is a state holiday and will need to be rescheduled.

The group reviewed past Action Items.

CAWG 6 Hydrology Update:
Wayne L. displayed a PowerPoint presentation on the Big Creek Hydrology Study to the group while Brian Caruso (ENTRIX) narrated from the phone. Brian talked the group through the slides and explained how to read the various graphs and informed the group of the sources of various data. It was mentioned that the graphs presented are going to be distributed on CD with updates made. As they go through the streams and diversions, the spreadsheet has constantly been updated.

Brian continued explaining the data summary tables and what the columns and symbols represented. Rick asked why they were choosing to use twenty year records rather than the entire records. Brian replied that they are looking at the entire record, but in many cases some stations only have data going back to the 80s. In addition, the conditions from the last 20 years may be more valid for the group's purposes than data from the 30s or 40s, because of additional project facilities being constructed since then. Wayne L. added that the reason for looking at the 20 year records is to have "apples to apples" comparison. Brian agreed, but added that there are still some cases where we don't even have 20 years of data, so the data is not entirely consistent, but they are trying to be as consistent as possible.

Brian went on to further explain the data summary sheet. Britt asked if the tunnel numbers could also be added as well as the names. In other documents and data sheets, sites are referenced by their tunnel numbers. Brian answered that they have found some inconsistency in names from different documents but they can add tunnel numbers.

Action Item #5: Brian Caruso (ENTRIX) to correct Eastwood table, add tunnel numbers to conduit names, and provide annotations to the small diversion hydrographs.

Brian continued to explain the data summary table for small diversions. Rick had a question about Crater Creek and why there was only one gauge. Wayne Allen (SCE) explained the location of the gauge to the group and Wayne L. added for clarification that these are diverted flows. It was explained that it is impossible to tell by just looking at it. It was decided that as an Action Item that Wayne A. would look into this issue.

Action Item #6: Wayne Allen (SCE) to look into why there is only one gauge value for Crater Diversion.

Brian went on to explain why flat peaks were excluded from the statistics while their values were included on the table. He explained that the flat peaks value tells us that it was at least a certain value. He also told the group that in the end less than 2 percent of the data was excluded from analysis. However, even though these are small percentages, the values tended to be located at the extreme ends of the highs and lows and therefore could have an impact on the final results, so this should be talked about in the future.

Where they did see peaks flatten out, they checked for streams below the diversion to look for increased flows there as well. From this they can look to see if measurement devices were working properly. Rick thought that the next step might be to throw the numbers back in and see how sensitive the analysis would be.

Wayne Allen told the group that at Camp 62, where they had flat peaks, vertical shafts were drilled into the tunnel in 2001-2002 and Camp 62 had experienced a problem. It would not accept the water. Wayne A. then suggested that it be added as an Action Item for him to look into this issue further.

Action Item #7: Wayne Allen (SCE) to look into issues regarding Camp 62 and the vertical shafts that were drilled in 2000-2001.

Rick added that this would not explain Hooper or Bolsillo.

Bill asked Brian if the sensitivity analysis suggested by Rick was something that they would already do or if the group should make it an Action Item. Brian responded that it is not something that they would do. Julie Tupper (USFS) added that it is more important to understand the hydrology of the main streams. She thought that the group should figure out if there are more important things that need to be done first. Geoff Rabone (SCE) agreed with Julie and suggested it be added to the bin list.

Bin Item: Brian Caruso (ENTRIX) to consider sensitivity analysis for excluded data for small diversions.

Brian continued with the presentation. One of the slides showed hydrographs for each year at Chinquapin. It was pointed out that there was no data for the years 1996-1997 when the station was knocked out by a flood. Geoff asked if Chinquapin was the one with the flat peak and wanted to look at that. Brian answered that it didn't have a flat peak, but did have a series of low flows very close to 0 (looking at 1992). The graph excluded September which included some of the data they wanted to look at and Brian told the group that it could be included in the final version.

Brian continued to explain the hydrograph slides and data gaps for 1972 through the early 80's. Rick asked if they were planning on doing an unimpaired analysis for these streams. Brian responded that right now the goal is to estimate the unimpaired flows where we have gauges. There are requests for data at flows where there are no gauges and they are looking at those by a case by case basis. Geoff asked if it would be possible to add the vertical lines to the graphs for ease of viewing. Brian answered that they could.

Action Item #8: Brian Caruso (ENTRIX) to add appropriate vertical lines to hydrographs for ease of viewing.

Britt asked if the Bear Creek conduit was just for Bear Creek. Wayne A. answered that it is.

Brian went on to explain the exceedance tables. Julie T. asked when the minimum pool went into effect in Florence Lake. The answer was 1979. Julie T. suggested that it might be nice to use that as our cut-off date.

Action Item #9: Brian Caruso (ENTRIX) to use 1979 (when minimum pool went into effect) as the beginning of modern period for exceedance tables for Florence storage (minimum storage requirement estimates).

Geoff wanted to confirm that the plan was to distribute these graphs on CD. He brought up that it would be difficult to read these graphs in black and white and wanted to make sure it was acceptable to the group if the graphs were in color on CD instead. It was agreed that for now the graphs will continue to be in color and that all stakeholders will have an opportunity to receive a CD.

Brian continued with the presentation. Julie T. brought up that the group has piles of data - so much that it becomes complicated figuring the whats, wheres, and whys of everything that is going on and suggested that a summary be provided to the Working Group.

Action Item #10: Brian Caruso (ENTRIX) to produce a summary list (which, where, and what) for the large volume of data.

Rick mentioned that a table for IHA and Summary Statistics locations was previously provided to the group, but there was never any resolution on what will be done and at which locations. It would be unfortunate if later in the process people started asking for additional information.

Action Item #11: Brian Caruso (ENTRIX) to present rationale with examples for doing different levels of IHA in different cases. To present at February CAWG.

Phil Strand (USFS) asked about the possibility of making all the data for discharge stations available to the CAWG. Wayne A. answered that all the data used is on the USGS website. Julie T. added that some SCE data was also used and believes that it would helpful if the CAWG could at least be provided with the information that is not on the USGS website

Action Item #12: Brian Caruso (ENTRIX) and Wayne Allen (SCE) to identify what data is being used that is not USGS data.

CAWG 2 Geomorphology Review of Field Notes

Mitchell Katzel (ENTRIX) and Woody Trihey (ENTRIX) joined the meeting by telephone to discuss their responses to the USFS's field inspection draft summary comments. Mitchell told the group that one of the points discussed was that Big Creek below Huntington has undergone a great deal of change. He believes that they will need to work with the channel as it is (currently first order status) rather than attempt to change it to a fourth order channel, which is probably what it used to be. But for Big Creek below Huntington, if the group is not happy with the first order status maybe it will have to be changed to a fourth order channel. Rick replied that the Forest Service was not proposing a fourth order channel, but thought that there needs to be a discussion on whether a fourth order channel was needed. Phil added that they did have a discussion out in the field and it was suggested there to think about it as a first order channel, but no decisions were made.

Mitchell asked the group if they thought that it needs to be added to the memo that further discussion is needed. Rick replied that he thought so. He also added that Mitchell and Woody should also include this as one of their recommendations, but maybe present it as a decision point. It was also suggested that the memo be revised using a single text technique. Julie T. added that everyone needs to be cautious when writing these memos to make sure they are presenting data rather than making decisions. Someone who wasn't involved in this discussion could pick this up and think that a decision had been made. It was agreed that it would be better to phrase the memo as a proposal.

Action Item #13: Mitchell Katzel (ENTRIX) to revise field trip memo as recommendations rather than a decision and distribute for approval by the CAWG. (Future Decision Point)

Rick asked when the quantitative data and would be available. Mitchell answered that it will be coming out, but he couldn't give a date. But it will be part of the 2003 DTSR.

Britt said that, referring to Mitchell's response on measuring the channel, she thought it might be necessary to evaluate the quantitative results then reevaluate on whether it will be necessary to make measurements based on what the channel naturally was. Mitchell agreed that the current study plan will provide some information but may not have all the information that the CAWG needs to make decisions. This means that sometimes additional information gathering will be needed. We may need hard data with test flows.

Woody told the group that if they are going to work with the existing channel they could look at the type of movement from the fine sediment in the channel. If they were thinking of changing the channel type, there are some considerations that need to be taken into account. Information could be used from cross-sections for determining what the channels used to be like and if it was decided to release water, think of the debris that would flow down to dam one. There are lots of other factors to look at and the group might not even want to go there. They have got a lake and a first order flow regime and might want to work with what currently exists rather than what used to be there. Bill added that it sounded like the discussion was important, but might be needed later in the PM&E stage. Wayne L. agreed that this is a discussion for down the road after the reports have been distributed.

The Group took a lunch break.

<u>CAWG 3 Instream Flow – HSC Update</u>
Larry Wise (ENTRIX) went through the Stanislaus River HSC with the group and discussed what they will be using for the meeting on the 28^{th} and 29^{th}. He explained that on the Stanislaus River, they took their observations and developed a generic trout criteria similar in concept to the total trout criteria (adults + juveniles) the CAWG discussed at their previous meeting. The original intent had been to verify criteria using transferability testing, as we were doing here. They were unable to verify curves and ended up developing site specific curves from the smaller transferability data set. Generally substantially more observations are required to develop site specific criteria. The group began to review the different curve sets.

Phil asked about the difference between the Stan 1 and Stan 2 curves. Larry replied that they ran two different sets of criteria in the Stanislaus relicensing process. He added that for adult trout velocity, one of the things they looked at was bioenergetics when they developed Stan 1. Phil asked to know how they arrived at that and if they used habitat runs. Larry replied that he talked to Mark Allen to get his information and beyond that he didn't have all the answers. Britt told the group that Russ Kanz might be able to fill everyone in. Julie T. told the group that they might be able to get Craig Addley to come talk to the group about the Stanislaus River Criteria.

Geoff noted that the Stan curves were developed on a fairly low number of observations compared to SCE's. Larry agreed that those numbers would be considered low if you were developing criteria. Julie M. said that she could get a copy of the final report for everyone.

A stakeholder asked about UARP criteria. Larry responded that they had already talked about the UARP. Geoff asked about information on the hardhead specifically, but this information was not on the slides. Larry went on to explain the UARP hardhead criteria to the group. He added that the UARP hardhead criteria have not been approved by Peter Moyle yet so everything should be considered preliminary. UARP only had adult hardhead criteria. They couldn't find any criteria for juvenile hardhead.

Action Item #14: Britt Fecko (SWRCB), Julie Tupper (USFS), and Julie Means (CDFG) to give Larry Wise (ENTRIX) a copy of the SPLAT Validation Study Report. ENTRIX to distribute to the CAWG.

The group moved on to Passage Analysis. It was proposed that 10 percent contiguous width criterion be dropped from the analysis. Larry explained to the group that by the time you get to your 25 percent total you almost always get your 10 percent contiguous. The 10 percent contiguous width requires a substantial amount of work, as is not output directly by the RHABSIM or PHABSIM programs. Rather you have to manually go through reams of output to determine the flow at which the 10 percent contiguous width is met.

It was asked if this was separate from barrier analyses and the answer was yes. In PHABSIM there are transects in representative riffles. There are physical barriers (falls, culverts, etc.) identified in CAWG 1 that will be included in the barrier report, along with the typical passage flows from the passage analysis described above. Wayne continued to explain that what Larry was suggesting has been done on many larger rivers. It's hard to get the 10 percent contiguous values from the data and it is very labor intensive

Geoff said that he would say to go ahead, because it seems like the Thompson's 0.4 foot depth criteria is based on the physical dimensions of a trout, velocity on swimming speed, and width would be based on the physical dimensions of a trout as well. Ten percent of the width of most streams is much larger than the typical width of an adult trout.

Britt asked what exactly they are trying to get at with this study. The answer was that they are trying to identify the flows in the larger streams in which passage may be obstructed. They are picking representative riffles and calculating a representative passage flow. For each transect they look to see what flow is needed to achieve the minimum passage criteria over at least 25 percent of the stream width. Britt asked what they are trying to get at with the contiguous. It was Larry's opinion that the contiguous is supposed to be big enough for the fish to find and the 25 percent is intended to allow the fish to find its way from one area of passage within a unit to another, as the thalweg of the channel is not always contiguous. Paul asked if this was going to be applied to both high and low flows? Larry replied that it would be applied mostly to low flows. Phil concluded that this meant that they are mostly going to be looking at depth as the main issue.

It was stated that they are not asking for approval at this point but will likely ask for approval at the next meeting. The CAWG was asked to please forward questions to Kearns & West and they will forward them to ENTRIX. It would be nice to get a sense from everyone if this seems like an acceptable approach.

Future Decision Point: Use of Thompson's Criteria for Passage Analysis.

Larry handed out a packet that included the Stanislaus and UARP criteria in addition to what was handed out at the previous meeting. He went through the tables with the group and explained what the codes meant. Larry agreed to provide the group with a legend to accompany the packet.

Action Item #15: Larry Wise (ENTRIX) to produce page of glossary keys/legend for abbreviations, symbols, line width, etc.

Action Item #16: Ryan Bricker (Kearns & West) to email location info for Modesto HSC meeting to the CAWG.

Action Item #17: ENTRIX to distribute HSC meeting agenda to the CAWG early next week.

Phil asked if the background materials from Julie M. could be provided to the group before the next meeting. Julie M. answered that if it was small enough she could make copies.

There was no more business on HSC and the group moved on to discuss responses to CAWG 5.

Discussion of CAWG 5 Report Comments and Responses

All comments received on CAWG 5 have been entered into the table accompanied by the response.

Referring to her comment that included replacing the words “warm” and “cold” in the report with numeric values, Britt said that she agrees that it is easier to read “warm” and “cold” and can live with it, even though it is a technical report.

Britt’s next issue had to do with natural warming in comparison to warming resulting from the diversion of flows. She stated that the EPA is very specific about what natural waters are and suggested that rather than saying increase temperatures “due to natural warming” it may be better to say “warming is due to absence of flow.” She also offered to provide Geoff with the EPA definition that the SWRCB follows.

Action Item #18: Britt Fecko (SWRCB) to provide Geoff Rabone (SCE) with citation for the EPA’s definition of natural warming, anthropogenic effect, etc.

Britt also had a concern with the data gap for Big Creek Upstream of Huntington Lake resulting from vandalism. The following year experienced a dramatic temperature jump. She said that there has to be some other reference stream in comparison to Big Creek Downstream. Wayne L. replied that they do have some. Home Creek and Line Creek are examples. Britt added that it may be helpful to provide comments or footnotes where there are data gaps or jumps in the graphs. Wayne L. replied that they have been modifying the text and it will be footnoted on the graphs.

Phil had a comment regarding using the 24 degree Celsius criteria as a baseline before the CAWG has accepted what the effects might be. Wayne L. replied that they also have data for 22 degrees Celsius and 23 degrees Celsius. The main reason for using 24 was to conservatively identify reaches for modeling. All the data for different temperatures will be appended to the report. A stakeholder told the group that there was NOAA fisheries temperature data that they could use. Wayne L. told the group that they have referred to the EPA issue paper #5. Jim Canaday pointed this out when it first came out and they have been watching it. There is a lot of good stuff that they have compiled, but there are also many differences in the species and strains of fish that are being evaluated in the Pacific Northwest as opposed to what we find in California, the southern portion of the range for many of these species.

Wayne L. told the group that the rewrite will be significant in terms of edits with all the tables being entered in. The executive summary table will have the reference streams that Britt wanted to see. He added that they will try to make it as painless as possible, but with all the changes it will be pretty complex

Monty said that while looking at the 2001 study plans, one of the things that he was interested in was trying to understand how the issue of restoration of Anadromous fish downstream was being looked at. It has been unclear for years how to look at water temperature as a connected element. Wayne L. replied that temperature and other variables downstream of the Project area are only addressed in terms of biological effects in the Anadromous fish report and only as they have been identified to date. It is a summary of project potential effects and proposed projects (in addition to Big Creek) that may affect this project in terms of cumulative impacts. Potential downstream effects of the Big Creek system will be noted in the report, but basically no actions will be suggested until something is proposed as a suitable project or PM&E.

Monty told the group that he was still trying to figure out what it would take to restore Anadromous fish below Friant dam. He is looking at anything that would have to do with timing of flows and providing suitable temperatures downstream at different times of the year. There is a draft restoration study in the works. The SCE studies are further along than their research downstream, but they are just trying to get a handle on it to see if temperature is an issue.

Monty told the group that it would help to look at some of SCE's data. Bill suggested that Monty talk to Wayne L. Monty asked if there was a modeling of outflows as part of Big Creek No. 4. Temperature models would be helpful since it is the end of the SCE project. Wayne L. and Geoff responded that it was a long time ago, but that they could look at the Big Creek No. 4 license application.

Action Item #19: Geoff Rabone (SCE) to provide Monty Schmitt (NRDC) with a copy of the Big Creek 4 temperature portion of the license application.

Geoff brought up a comment made by Britt where she talked about the effects of temperatures and "species of concern". He told Britt that when he thinks about "management species," he thinks of things like trout or frogs, but when he read in her comments about "species of concern," he was a bit troubled. He wanted to know if she was looking at something else that was not being currently considered in the study plans. Britt responded that it was just a generic term that she used.

There were no further issues and the Group Reviewed Action Items and adjourned.

Action Item #1: Geoff Rabone (SCE), Phil Strand (USFS), and others to check for an email from Jim Canaday (SWRCB) regarding the SWRCB water temperature criteria (from late September or October). If not found, Britt Fecko (SWRCB) to re-craft and provide to Kearns & West for distribution to the CAWG.
Action Item #2: Brian Caruso (ENTRIX) to correct the hydrology table error identified by Rick Hopson (USFS) and provide new Hydrology Packet on CD.

Action Item #3: CAWG meeting currently scheduled for February 12, 2004 to be adjusted due to State Holiday.
Action Item #4: Add NRDC (Monty Schmitt) to CAWG Distribution List and Kearns & West to provide contact info to Carla Anthony (SCE).
Action Item #5: Brian Caruso (ENTRIX) to correct Eastwood table, add tunnel numbers to conduit names, and provide annotated hydrographs to the data summary tables.
Action Item #6: Wayne Allen (SCE) to look into why there is only one gage value for Crater Diversion.
Action Item #7: Wayne Allen (SCE) to look into issues regarding Camp 62 and the vertical shafts that were drilled in 2000-2001.
Action Item #8: Brian Caruso (ENTRIX) to add appropriate vertical lines to hydrographs for ease of interpreting.
Action Item #9: Brian Caruso (ENTRIX) to use 1979 (when minimum pool went into effect) as the beginning of modern period for exceedance tables for Florence storage (minimum storage requirement estimates).
Action Item #10: Brian Caruso (ENTRIX) to produce a summary list (which, where, and what) for the large volume of data.
Action Item #11: Brian Caruso (ENTRIX) to present rationale with examples for doing different levels of IHA in certain cases. Present at February CAWG.
Action Item #12: Brian Caruso (ENTRIX) and Wayne Allen (SCE) to identify what data is being used that is not USGS data.
Action Item #13: Mitchell Katzel (ENTRIX) to revise field trip memo to sound like a record of the trip with recommendations rather than decisions and distribute for approval by the CAWG. (Future Decision Point)
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Action Item #18: Geoff Rabone (SCE) to provide Monty Schmitt (NRDC) with a copy of the Big Creek No. 4 temperature portion of the license application.

Bin Items and Future Decision Points
Bin Item: Brian Caruso (ENTRIX) to consider sensitivity analysis for excluded data for small diversions.
Future Decision Point: Use of variation of Thompson's Criteria for Passage Analysis.

Big Creek Collaborative
Combined Aquatics Working Group

February 11, 2004

Meeting Notes

Time:	10:00 AM – 4:00 PM	**Moderator:**	Wayne Lifton, ENTRIX
Location:	Broadmoor Room	**Facilitator:**	Bill Pistor, K&W
	Piccadilly Inn, Fresno, CA	**Recorder:**	Andrew Wyckoff, K&W

Teleconference No.: 1-800-556-4976

Attended by:
Bill Pistor, K&W
Andrew Wyckoff, K&W
Geoff Rabone, SCE
Wayne Allen, SCE
Roger Robb, FWUA
Wayne Thompson, FFF
Debbie Giglio, USFWS
Phil Strand, USFS
Rick Hopson, USFS
A. Britt Fecko, SWRCB
Kelly Catlett, FOTR
Wayne Lifton, ENTRIX
Julie Tupper, FS-RHAT
Geoff Rabone, SCE
Paul Martzem, SJP

Phone Participants:
Julie Means, CDFG
Larry Wise, Entrix
Brian Caruso, Entrix
Paul DeVries, R2

Introductions
The meeting was initiated and stakeholders introduced themselves and specified which organization they represented. Bill Pistor (Facilitator, Kearns & West) introduced Andrew Wyckoff (Kearns & West) and indicated that Andrew would now be the K&W contact person/liaison for the CAWG and for the Terrestrial Working Group.

Review of Action Items
A number of the Action Items had been assigned to Brian Caruso (ENTRIX). Since Brian was not joining the meeting until the afternoon, via phone, the group agreed to pass over Brian's Action Items for the morning and revisit them in the afternoon after Brian joined the meeting.

Following are the updates on the rest of the Action Items covered on the morning of 2/11/04.

Ongoing Action Items

- **Action Item:** Mitchell Katzel (ENTRIX) will revise the October 2, 2003 SCI, Rosgen Level II and PFC Memo according to the approved edits from stakeholders and send to Ryan Bricker (Kearns & West) to send to the CAWG.
  Response: Wayne Lifton (Entrix) to contact Mitchell for resolution
- **Action Item:** Larry Wise (ENTRIX) to add a reference chart on the flows at the time observations were made.
  Response: Completed
- **Action Item:** ENTRIX to provide cloud seeding study results to the CAWG when applicable studies are concluded.
  Response: This Action Item is still ongoing
- **Action Item:** Dudley Reiser (R2) to supply the UARP hardhead, pikeminnow and sucker curves to ENTRIX.
  Response: Completed
- **Action Item:** Wayne L and Larry Wise (ENTRIX) to continue their efforts to contact Peter Moyle regarding hardhead.
  Response: Wayne and Larry are still working on contacting Peter
- **Action Item:** Debbie Giglio (USFWS) to check on the USFWS position in using HABTAE for addressing shear zones.
  Response: This Action Item was marked as a Bin item by the group.

Actions from January 14, 2004 Meeting

- **Action Item #1:** Geoff Rabone (SCE), Phil Strand (USFS), and others to check for an email from Jim Canaday (SWRCB) regarding the SWRCB water temperature criteria (from late September or October). If not found, Britt Fecko (SWRCB) to re-craft and provide to Kearns & West for distribution to the CAWG.
  Response: Britt will take care of this Action Item
- **Action Item #3:** CAWG meeting currently scheduled for February 12, 2004 to be adjusted due to State Holiday.
  Response: Completed
- **Action Item #4:** Add NRDC (Monty Schmitt) to CAWG Distribution Lists and Kearns & West to provide contact info to Carla Anthony (SCE).
  Response: Completed
- **Action Item #6:** Wayne Allen (SCE) to look into why there is only one gauge value for Crater Diversion.
  Response: Completed and Wayne discussed with Brian Caruso
- **Action Item #7:** Wayne Allen (SCE) to look into issues regarding Camp 62 and the vertical shafts that were drilled in 2000-2001.
  Response: Completed
- **Action Item #13:** Larry Wise (ENTRIX) to produce page of glossary keys/legend for abbreviations, symbols, line width, etc.
  Response: Completed
- **Action Item #14:** Ryan Bricker (Kearns & West) to email location info for Modesto HSC meeting to the CAWG.
  Response: Completed
- **Action Item #15:** ENTRIX to distribute HSC meeting agenda to the CAWG early next week.
  Response: Completed
- **Action Item #16:** Britt Fecko (SWRCB) to provide Geoff Rabone (SCE) with citation for the EPA's definition of natural warming, anthropogenic effect etc.
  Response: Ongoing—Britt will contact Geoff when she had the information
- **Action Item #17:** Geoff Rabone (SCE) to provide Monty Schmitt (NRDC) with a copy of the Big Creek 4 temperature portion of the license application.
  Response: Completed

- **Action Item #18:** Mitchell Katzel (ENTRIX) to revise field trip memo to sound like a recommendation rather than a decision and distribute for approval by the CAWG. (Future Decision Point)
  Response: Ongoing—Wayne to contact Mitchell for resolution
- **Action Item #19:** Britt Fecko (SWRCB), Julie Tupper (USFS), and Julie Means (CDFG) to give Larry Wise a copy of the SPLAT Validation Study Report. ENTRIX to distribute to the CAWG.
  Response: Britt, Julie T and Julie M provided their documents to Larry. Entrix will distribute the materials.

HSC Subgroup Action Items from January 28-29, 2004 Meetings

- **Action Item #1:** Britt Fecko (SWRCB) to send out Stan curves and additional background information regarding various Stan tools to the CAWG.
  Response: Completed
- **Action Item #2:** Larry Wise to contact Mark Allen (TRPA) to get information regarding the Upper North Fork Feather River and Lower North Fork Feather River and whether there are two sets of curves.
  Response: Larry talked with Mark and discovered there were two curves used. Britt said she would contact Russ (SWRCB) to discuss his interest in this matter.
- **Action Item #3:** CAWG members to continue seeking Peter Moyle's (DWFCB) review for Hardhead curves.
  Response: Ongoing
- **Action Item #4:** Larry Wise (ENTRIX) to look into what is driving the failure of the Pit Hardhead criteria on transferability tests.
  Response: Larry will continue
- **Action Item #5:** Dudley Reiser (R2) to send the TRPA UARP data report to Ryan Bricker (Kearns & West) to distribute to Julie Means (DFG). (Presentation might be on the web or Larry Wise might have it.)
  Response: Completed

<u>*Additional Analysis Actions*</u>

- **Action Item #6:** SCE to assess the SWRCB's request for Use to Availability Analysis.
  Response: Ongoing

Britt said that observations were taken at low flows. She wanted to find out if the observations were biased. Wayne L explained that there are mathematical problems in performing Use to Availability analysis when many of the higher velocity (and depth) bins are unoccupied. Furthermore, the observations the SWRCB are asking for this analysis on were performed for transferability, not curve development, not curve development, He continued to tell the group that when doing criteria development one needs a huge number of observations. Britt agreed, then asked what the maximum flows were during the test. Wayne L said that velocities are not considered within the test. Transferability testing is not the same as criteria development. Britt then asked if the observations were limited to a lower range of flows and habitats. Wayne said there was not a terribly wide range of flows but that velocities went out to 2 feet per second, and that most observations of positions occupied by fish were at the lower velocities. .

Britt then expressed that it would be easier for everyone to discuss this matter if copies of the Stan E-3 Appendix were in each person's hands. Wayne L asked for Britt to tag the relevant page numbers. It was agreed that these pages numbers would be identified when the report gets distributed (on CD) to the group.

Julie M mentioned concerns that Gary Smith had regarding the flow levels used on the Stan. She added they had made requests for a habitat time series on the Stan. She said that she had notes from the conversation and that she would distribute them in Memo form to the CAWG. Debbie wanted Mark Gard (USFWS) to look at them as well.

- **Action Item #7:** Wayne Allen (SCE) to create a table indicating the flows existing during PHABSIM fish observations and distribute to CAWG by February 11, 2004.
  Response: Completed
- **Action Item #8:** CRWG to review and make better assessment of the Stan data, TRPA analysis, and Validation Report.
  Response: Ongoing. Wayne L said the tools were still being gathered for this effort
- **Action Item #9:** Re-distribute the Altered Flows paper.
  Response: Wayne L to distribute copies to Geoff, Julie M, Paul Devries, and Wayne Allen
- **Action Item #10:** ENTRIX to make data available to stakeholders.
  Response: Ongoing. Geoff is still working on it.
- **Action Item #11:** CAWG to review UARP presentations.
  Response: Ongoing
- **Action Item #12:** SCE to assess possibility of running sensitivity analysis for curves using different asymptotes, as well as on tentatively agreed to adult rainbow and adult brown trout velocities.
  Response: Wayne mentioned that Dudley and Julie T. suggested running PHABSIM on other stream data with the HSC. Britt felt this was premature. Wayne agreed and suggested that this be marked as a Bin item. The group agreed—Bin.
- **Action Item #13:** Larry Wise (ENTRIX) and Kearns & West to distribute the new tentatively agreed to curves by February 4, 2004 for discussion at the February 11, 2004 CAWG meeting.
  Response: Completed
- **Action Item #14:** Wayne L (ENTRIX) and others to acquire, look at and distribute winter use curves.
  Response: Larry had a number of winter criteria for his presentation but was unable to make it in person due to illness. Wayne L told CAWG members if they find the information applicable then ENTRIX can distribute to the group.

Review Agenda

Bill ran through the day's meeting agenda and then explained how the December CAWG meeting notes were temporarily lost on Bryan Harland's computer due to a crashed server. He apologized for the delay and said K&W is working to improve efficiency in this matter.

Break 11:00 – 11:15

Upon returning from a break, CAWG members reintroduced themselves.

Passage Analysis Approach Discussion

Larry began by reviewing with the group the discussion in CAWG 3 re: general flows needed for fish migration. He said the CAWG elected to use a modification of Thompson's method using the PHABSIM riffle transects. This was intended to provide an idea of the flow required to pass a fish through typical shallow habitat types, but was not a critical riffle analysis as described by Thompson. Thompson's criteria for adult trout migration are 0.4 feet depth and 4 feet per second velocity. The Thompson methodology requires that these minimum passage requirements be met at 25 percent of the total transect width and 10 percent of the contiguous width cannot be automatically generated by the PHABSIM program and is labor intensive. In addition, it has been ENTRIX's experience that the 10 percent contiguous criterion is almost always met when the 25 percent total width criterion is. Because calculation of the 10 percent contiguous is labor intensive and very rarely changes the estimated passage flow for a transect, SCE was requesting approval to drop the 10 percent contiguous criterion and proceed with only the 25 percent criterion. Britt asked for clarification on the 10% and 25% requirements and asked if this has not been used in critical riffles where transects are). Larry said the passage analysis is done in riffles. The criteria are set up for gravel bottom streams as opposed to the bedrock and boulder dominated streams in the project area. Thus the criteria would tend to be more conservative, due to the greater roughness and hydraulic complexity in the project streams. Britt asked if there were any differences arising on account of doing passage analysis along the same transects as PHABSIM. Larry responded that the primary difference was in the objective: in this study we are attempting to determine a passage flow through typical riffles, whereas in Thompson's approach, the intent was to determine passage flows for critical riffles – those that are most limiting to migration.

The results of the analysis would be presented by reach, with the passage flow for each transect and the average for the reach. Paul (R2) mentioned doing a similar study along transects. Paul mentioned that the 25% was good to a certain stream width. He asked Larry if any of the transects were less than 10 feet wide. Larry said at least 90% were greater than this width.

Caveat: Paul asked that for transects less than 10 feet wide, Entrix should look to see if a sufficient contiguous width was available that would provide a reasonable passage opportunity for adult trout. His concern is for the fish to get through comfortably. Bill affirmed that the **CAWG approves the suggested modification of the Thompson passage criteria with the *caveat* of additional analysis for transects less than 10 feet in width**.

Review of HSC Criteria from January 28 & 29, 2004 HSC Meetings

Adult Rainbow Trout Depth

After Larry introduced the topic and showed the slide depicting the curve, Britt clarified that the criteria/curves about to be reviewed were **tentatively agreed to by the HSC subgroup *without* the consent of the State Water Board**. Bill then asked the group if the slide and curve were what they remembered and had in their notes. The group said yes.

Julie T said a lot of the discussion among the fish biologists is that when looking at availability you just don't know if the fish are simply using what is there because that is what is currently available. She said the fish biologists incorporated their expertise into the discussion during the last HSC meeting.

Adult Rainbow Trout Velocity

Larry showed the slide with the curve agreed to by the HSC subgroup *without* the consent of the State Water Board. Bill asked everyone if this was the curve they remembered. Debbie said, with her fish expert's (M. Gard) input, that they support shifting the curve over to the right to match the Stan curve. The expert in her office thought it would be a more appropriate curve for trout. Britt Fecko asked if this was related to Thomas Payne's work. Debbie thought it might be. Britt said the SWRCB was comfortable with the Stan curve because they worked with use to availability curves.

Julie T confirmed that the group was not in agreement on the adult rainbow trout curves. She stated that five fish biologists are not going to have the same answer. Britt then asked if the curves should be shifted to the right and if the data was biased. Julie T reminded Larry that she had asked him to provide a count for each class. Larry said he had not had time to get to that.

Bill asked Debbie for her thoughts on the tentatively agreed to curve. She said she no longer had tentative agreement on the curve developed at the last HSC meeting. Geoff mentioned he was hesitant to run two curves. He said it gets too political. Bill then asked the group if they were in tentative agreement that this was the slide established in Modesto (last HSC meeting). The group said yes.

Juvenile Rainbow Trout Depth

Wayne L showed the slide depicting the curve and Bill asked the group if it was what they had tentatively agreed to. The group said yes (with the exception of the State Water Board).

Juvenile Rainbow Trout Velocity
Wayne L showed the slide and Paul asked for a differentiation to be made between fry and juvenile. Bill asked him if this would be an adjustment when the fry were discussed and Paul said yes. Bill asked the group if the slide and curve were what they had tentatively agreed to. The group said yes (with the exception of the State Water Board).

Fry Rainbow Trout Depth
Wayne L showed the slide depicting the curve and Bill asked the group if it was what they had tentatively agreed to. The group said yes (with the exception of the State Water Board).

Fry Rainbow Trout Velocity
Wayne L showed the slide depicting the curve and Bill asked the group if it was what they remembered. Paul requested a change to 0.5 feet of velocity, pointing out the fry criteria reach peak suitabilities at slightly higher velocities than the juvenile criteria. He recommended changing the juvenile velocity criteria to match the peak of the fry velocity criteria. Bill asked everyone if they could live with the change. They said yes. Bill then asked the group if they had tentative agreement. The group said yes (with the exception of the State Water Board).

Rainbow Trout Spawning Depth
Wayne L showed the slide depicting the curve and Larry said it followed the UARP curve. Bill asked the group if it was what they had tentatively agreed to. The group said yes (with the exception of the State Water Board).

Rainbow Trout Spawning Velocity
Wayne L showed the slide depicting the curve. Bill asked the group if it was what they had tentatively agreed to. The group said yes (with the exception of the State Water Board). Wayne L told Paul that he remembered Dudley saying this particular curve is not the final one, considering the fish size we are dealing with.

Break for lunch—12:30-1:30

Adult Brown Trout
Wayne L showed the slide depicting the curves. Bill asked the group if it was what they had tentatively agreed to. Debbie G. said she no longer had agreement with the adult brown trout depth curve. The USFWS now supported the use of the Stan-1 generic criteria for the Big Creek studies. The rest of the group said yes (with the exception of the State Water Board)

Juvenile Brown Trout
Wayne L showed the slide depicting the velocity and depth curves and Bill asked the group if it was what they had tentatively agreed to. The group said yes (with the exception of the State Water Board). Phil, in concert with Paul, asked for the curve to be adjusted so there was a suitability of 1.0 at 0.5 feet of velocity. The group agreed to this adjustment.

Fry Brown Trout
Wayne L showed the slide depicting the velocity and depth curves and Bill asked the group if it was what they had tentatively agreed to. The group was still in agreement (with the exception of the State Water Board).

Brown Trout Spawning
Wayne L showed the slide depicting the velocity and depth curves and Bill asked the group if it was what they had tentatively agreed to. The group was still in agreement (with the exception of the State Water Board).

Adult Hardhead

Wayne L showed the slide depicting the velocity and depth curves and Paul said that there was still no resolution yet on the Upper American hardhead curve. Bill asked the group if it was what they had tentatively agreed to. The group was still in agreement.

Juvenile Hardhead
Wayne L showed the slide depicting the velocity and depth curves and Bill asked the group if it was what they had tentatively agreed to. The group was still in agreement.

Adult Sacramento Sucker
Wayne L showed the slide depicting the velocity and depth curves and Larry said he was not sure about the swale at 2.25 feet. He said he would modify it to a straight line. Bill asked the group they were fine with "straightlining" the swale. The group said yes.

Juvenile Sacramento Sucker
Wayne L showed the slide depicting the velocity and depth curves and Bill asked the group if it was what they had tentatively agreed to. The group was are still in agreement.

Adult Pikeminnow
Wayne L showed the slide depicting the curve and Bill asked the group if it was what they had tentatively agreed to. The group was still in agreement.

Juvenile Pikeminnow
Wayne showed the slide depicting the curve and Bill asked the group if it was what they had tentatively agreed to. The group was still in agreement.

To summarize these HSC curve discussions Bill restated that there were some adjustments made to some juvenile curves and that there was a non-agreement from Debbie and Mark Gard on the rainbow and brown trout adult criteria. Additionally, the SWRCB has not tentatively agreed to any of the trout criteria. Otherwise, he said we still have tentative agreement on the curves. Debbie said she needed to have a discussion with Mark about the brown trout adults too. She requested a placeholder so she could check in with him.

<u>Macroinvertebrate Criteria Discussion</u>
After some discussion, the group decided to not look at macroinvertebrate criteria. It was mentioned that since it has not been used in other relicensings and it had previously not been a factor in determining instream flow regimes, that the group could live with not investigating further. Bill confirmed asking the group if they could live with not doing it. They answered yes.

<u>Winter Criteria Discussion</u>
Larry said that at the HSC meeting people expressed interest in seeing some winter criteria for trout habitat. He said there was some California criteria but not local to Big Creek. Paul asked whether there was discussion about the fish residing in gravel and added that they are not keying in on flow too much in the research. Paul feels it is worth looking at.

Adult Trout Velocity Winter
Wayne L brought up the first slide and Larry explained the myriad of curves. He said the criteria indicated that trout are inactive and hunkering down. Wayne L stated that the group needs to consider the varying snow and ice conditions which affect the winter criteria.

Adult Trout Depth Winter
Wayne L brought up the first slide and iterated that the curves are dependent upon the stream habitat where the data was collected. He asked Larry if a summary could be developed for the winter criteria, like the summary for the summer criteria. Larry said yes.

Juvenile Trout Velocity & Depth Winter

Finally, curves were shown for Juvenile Trout Velocity and Depth Winter. Wayne L indicated that they would get the information out so people could review it for the next meeting.

Hydrology Discussion

Brain Caruso joined the group via conference call. He wanted to address the Action Items from January and to discuss the next steps.

Action Item 2: Completed. Brian had corrected the error highlighted by Rick. He had replaced the critically dry year flow and fixed it. He also indicated that zeros meant there was no data for low water level years.

Action Item 8 and part of 5: Completed. The vertical lines were inserted. Brian said the slides will all be provided on CD in the near future. Re: Action Item 5: Bill asked the group if Brian's annotations were what they were looking for. The group said yes.

Action Item 9: Completed.

Action Item 5: The correction was made to the Eastwood table.

Action Item 10: Ongoing. The table has been continuously updated; this is the current version.

Action Item 12: Ongoing. Now shows which data is USGS data and which is not. Shows all except for Rock Creek and Ross Creek—smaller creeks.

Action Item 11: Brian explained that the methodology recommends 20 years of data so we are only doing it where we do have 20 years of data. He continued recommending that at other gauged locations we should calculate mean, annual one day minimum, mean annual flood, and annual 7-day minimum.

Britt said that she would like to wait before agreeing with these recommendations. Rick told Brian that for Action Item 11 he felt like the same information was still being presented. He asked if the data were robust to a single data set. He asked why some statistics from IHA work but others do not. Brian responded saying that other parameters could be added and shorter data sets could be used, but that the confidence in the results would be correspondingly lower. The rationale is to use data from those with over 20 years of information—which leaves the four we have been using. That is not to say we wouldn't have synthetic data to use.

A discussion regarding synthetic data ensued. Brian felt it might not be as reliable even though they were coming up with it for all gauges. Julie T. mentioned that it had been used at other relicensings. Rick said he would be more comfortable having IHA done on the full suite of parameters. Brian said he could present IHA results at the locations he recommended and go over the synthesized data at the unimpaired locations. Julie T. also expressed seeing this data to see the timing of the flows and to get a better idea of when peaks probably occur.

Wayne L. asked Brian to redistribute documents for the next Hydrology Subgroup meeting scheduled for 9:00 AM – 12:00 PM on February 26th. During this meeting Brian will address Action Item 11. He will also go through each site and provide what kind of data he has, the degree of confidence he has, and sites with less data and why ENTRIX has recommended not addressing these with IHA but using a simpler methodology..

Next HSC Meeting

The topic for the next meeting will be what additional analysis needs are there?

Actions from February 11, 2004 Meeting

Action Item #1: Wayne Lifton (SCE) to send the relevant Hal Beecher article on adjacent cell velocity to CAWG.

Action Item #2: Britt Fecko (SWRCB) to tell Jim Canaday (SWRCB) to redo the email on SWRCB temperature approach.

Action Item #3: Larry Wise (ENTRIX) to distribute the following:

- 2002 validation report
- CD with Stanislaus Appendix E-36 from Britt Fecko; relevant page numbers will be identified.

- Winter curves
- Macroinvertebrate criteria

Action Item #4: Larry Wise (ENTRIX) to distribute the Altered Flow Report to: Geoff Rabone (SCE), R2, Julie Means (CDFG), and Wayne Allen (SCE).
Action Item #5: Britt Fecko (SWRCB) to check with Russ regarding whether we need to bring the Lower North Fork Feather River criteria into our discussions.
Action Item #6: Julie Means (CDFG) will provide a memo to CAWG regarding Gary Smiths' concerns about Stanislaus HSC.
Action Item #7: Julie Means (CDFG) will give Mark Gard's memos on Stanislaus HSC to Kearns and West to distribute.
Action Item #8: Larry Wise (ENTRIX) will check the colors on the PDF for the new HSC subgroup curves: adult rainbow depth, fry rainbow depth, and adult brown depth.
Action Item #9: Larry Wise (ENTRIX) will prepare a document on origin and background regarding winter curves.
Action Item #10: Brian Caruso (ENTRIX) will provide a table indicating the varying levels of confidence with the synthetic hydrographs.
Action Item #11: Brian Caruso (ENTRIX) will present a proposal in two weeks on IHA data where only the synthetic unimpaired flows are available.
Action Item #12: Brian Caruso (ENTRIX) will fix the errors in the IHA/Data Table and redistribute to Kearns and West.
Action Item #13: Brian Caruso (ENTRIX) will prepare a summary of methods used for estimating unimpaired flow.

Bin Items and Future Decision Points
Bin Items:
- HABTAE—adjacent cell velocity won't be used
- Sensitivity analysis for curves using synthetic data