Kaweah Project, FERC Project No. 298

REC 1 – Recreation Resources
Final Technical Study Report

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List of Acronyms

BLM	Bureau of Land Management
CDFW	California Department of Fish and Wildlife
DOF	Department of Finance
DRU	Demographic Research Unit
EAP	Emergency Action Plan
ERMA	Extensive Recreation Management Area
HD	High Definition
NPS	National Park Service
PEP	Population Estimates Program
RMP	Resource Management Plan
ROD	Record of Decision
RV	Recreational Vehicle
SNP	Sequoia National Park
TSP	Technical Study Plan
TSR	Technical Study Report
USACE	U.S. Army Corps of Engineers
USCB	U.S. Census Bureau

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1 INTRODUCTION

This Technical Study Report (TSR) provides a description of the methods and results of recreation studies conducted by Southern California Edison Company (SCE) in accordance with the REC 1 – Recreation Resources Technical Study Plan (REC 1 – TSP) for the Kaweah Project (Project). The REC 1 – TSP was included in SCE's Revised Study Plan[1] (SCE 2017a) for the Kaweah Project (Project). The REC 1 – TSP was approved by the Federal Energy Regulatory Commission (FERC) on October 24, 2017, as part of its Study Plan Determination for the Project (FERC 2017).

2 STUDY OBJECTIVES

The REC 1 – TSP included five study objectives, as follows:

- Identify, map and describe all developed recreation facilities (public and private) in the vicinity of the Kaweah Project, including capacity and ownership;
- Identify, map and describe any existing Project-related recreation facilities/area (i.e., "Edison Beach"), including capacity, condition, user conflicts, consistency with applicable accessibility requirements, and operation and maintenance responsibilities;
- Characterize recreation use and opportunities in the immediate vicinity of the Project facilities and in the bypass reaches, including along the Kaweah No. 2 Flowline;
- Document recreation needs identified in current relevant State or local recreation plans and determine whether those needs can be accommodated by existing recreation facilities; and
- Document potential safety issues and existing features or measures that are implemented to protect the public.

3 EXTENT OF STUDY AREA

The study area generally includes the Kaweah River Watershed. Focused studies were conducted at: the Kaweah No. 2 Powerhouse River Access Parking Area and at a small undeveloped beach located approximately 400 feet upstream of the parking area known locally as "Edison Beach", and along the bypass reaches, which are defined as follows:

- East Fork Kaweah River between the Kaweah No. 1 Diversion Dam and the Kaweah River confluence; and
- Kaweah River between the Kaweah No. 2 Diversion Dam and the Kaweah No. 2 Powerhouse Tailrace.

In addition, per a request by the Bureau of Land Management (BLM), focused studies were conducted along a Project access road referred to as the Kaweah No. 1 Forebay Road, near its intersection with Craig Ranch Road. The Kaweah No. 2 Powerhouse River Access Parking Area, Edison Beach, the bypass reaches, and Craig Ranch Road are shown on Map REC 1-1 relative to the Project facilities.

[1] On May 24, 2017, SCE filed a Proposed Study Plan (PSP) for the Kaweah Project (SCE 2017b). Three comments were filed on the PSP, however, they did not result in revisions to any of the study plans. Therefore, on September 19, 2017, SCE filed a Revised Study Plan (RSP) which stated that the PSP, without revision, constituted the RSP.

4 STUDY APPROACH

This section describes the approach and methods used to implement the REC 1 – TSP.

4.1 Consultation

Some of the information presented in this report was obtained during in-person and teleconference meetings and through e-mail correspondence with SCE personnel, and land managers from the BLM, Tulare County, and the National Park Service (NPS). Table REC 1-1 identifies the key SCE and agency representatives that provided information that was used to implement the REC 1 – TSP.

Prior to initiating any field data-gathering efforts along the Kaweah No. 1 Forebay Road, SCE met with a BLM representative on March 14, 2018 to better understand the BLM's concerns related to recreation use along Craig Ranch Road and the Kaweah No. 1 Forebay Road, and to identify specific study locations. Field data-gathering efforts were implemented based upon feedback provided during that meeting.

4.2 Existing Recreation Facilities in the Kaweah River Watershed

SCE identified the existing developed recreation facilities located in the Kaweah River Watershed, primarily utilizing information that is available to the general public on the internet along with GIS data (recreation facility and trail information) provided by the BLM. The information was used to develop: (1) a summary table that identifies each developed recreation facility, jurisdiction, campground capacity, and facility type; and (2) a map showing the location of the developed recreation facilities in the Kaweah River Watershed relative to the Project facilities.

4.3 Existing Project-Related Recreation Facilities

The Kaweah Project does not include any developed Project recreation facilities. However, SCE maintains a small parking area located adjacent to the Kaweah No. 2 Powerhouse that can be used by recreation visitors on a limited basis to access the river corridor, including a small beach located on the Kaweah River referred to locally as "Edison Beach". The location of the parking area and Edison Beach are shown on Map REC 1-1 relative to the Project facilities. A detailed view of the parking area and beach is provided in Map REC 1-2.

SCE developed information about the capacity, amenities, and condition of the Kaweah No. 2 Powerhouse River Access Parking Area and Edison Beach, using the following methods.

- Parking capacity was determined by counting the number of existing striped stalls located within the boundaries of the parking area. Informal parking areas (e.g., turn outs) that may be present along the access road are not considered part of the Kaweah No. 2 Powerhouse River Access Parking Area and were therefore not included in the parking capacity estimate.
- Amenities (including signage) located within the boundaries of the parking area and along the roadway between the parking area and the beach were identified, documented, and photographed in the field.
- Condition of the parking area was assessed relative to Tulare County design and accessibility standards for parking areas. The beach is not located immediately adjacent to the parking area. Accessing the beach from the parking area requires walking southeast along a paved road (Kaweah River Drive) and then down a natural sandy slope (e.g., the river bank) from the edge of the road pavement to the beach. The beach and pathway to the beach are not formally developed recreation facilities and were therefore not assessed.

- Operation and maintenance responsibilities were identified based on interviews with knowledgeable SCE staff.
- Potential conflicts and associated use restrictions were identified based on interviews with knowledgeable SCE staff.

4.4 Existing Recreation Opportunities and Use in Project Vicinity

Existing recreation opportunities in the Project vicinity were identified using information available on the internet and contained in the following information sources:

- California Freshwater Sport Fishing Regulations 2019–2020 (CDFW 2019)
- REC 2 – Whitewater Boating TSR (SCE 2019a)
- Draft Three Rivers Community Plan 2018 Update (Tulare County 2018)
- Bakersfield Field Office Record of Decision and Approved Resource Management Plan (RMP) (BLM 2014)

Recreation use in the Project vicinity was estimated by:

- Conducting in-person vehicle and visitor counts at the Kaweah No. 2 Powerhouse River Access Parking Area and observations at Edison Beach;
- Conducting camera counts at the Kaweah No. 2 Powerhouse River Access Parking Area using a motion activated camera;
- Conducting camera counts along Craig Ranch Road using a motion activated camera; and
- Reviewing camera count data collected at six locations on the Kaweah No. 2 Flowline that was collected in association with the TERR 1 – Wildlife TSP (SCE 2017c).

Each of these efforts are described in the following subsections.

4.4.1 In-Person Vehicle Counts at the Kaweah No. 2 Powerhouse River Access Parking Area

SCE conducted vehicle counts at the Kaweah No. 2 Powerhouse River Access Parking Area. The vehicle counts were conducted on a total of 34 days over a year-long period, beginning on March 13, 2018, and ending on March 19, 2019, according to a randomized schedule that was established using the parameters identified below.

Non-Peak Use Period

- March 13 to May 27, 2018 and September 4, 2018 to March 19, 2019
- 38-week period (total)
- One observation day every other week
- Observations occurred during one of two randomly selected time blocks:
  - Block 1 (8:00 a.m. – 12:00 p.m.)
  - Block 2 (12:00 p.m. – 7:00 p.m.)

Peak Use Period

- May 28 to September 3, 2018
- 14-week period
- One observation day per week

- Observations occurred during one of three randomly selected time blocks:
  - Block 1 (8:00 a.m. – 12:00 p.m.)
  - Block 2 (12:00 p.m. – 4:00 p.m.)
  - Block 3 (4:00 p.m. – 7:00 p.m.)
- During the peak season, the parking area is only open from Monday through Thursday. Accordingly, counts were not scheduled to occur on Fridays, Saturdays, and Sundays of the peak season.
- The parking area is not open for use on holidays. Therefore, counts were not scheduled to occur on Memorial Day (May 28, 2018) and Fourth of July (July 4, 2018). The parking area were closed on Labor Day (September 3, 2018), but counts were conducted on this holiday due to a scheduling error.

The observation periods, duration, frequency, blocks, and open/closure notes are summarized on Table REC 1-2. In addition, the final random schedule is shown on Figure REC 1-1.

The vehicle/visitor counts were conducted by a field technician who was instructed to visit the parking area and Edison Beach in accordance with the pre-established count calendar. The technician was instructed to conduct "instantaneous" counts meaning the technician visited the site during the specified randomly selected time period, but only stayed on site long enough to record the number of vehicles in the parking area and to observe and record recreation use at the beach. During each visit, the technician recorded the following information:

- Number of vehicles by type present in the parking lot;
- Number of people present in the parking lot;
- Number of people present at the river and/ or in the immediate vicinity of Edison Beach; and
- Types of activities observed (e.g., swimming, boating, fishing, etc.).

All data was collected on a pre-established data form. A blank data form is included as Figure REC 1-2 for reference.

The vehicle and visitor data was entered into an Excel spreadsheet, tabulated by survey day, and reviewed for data entry errors. The data were organized and tabulated by periods (i.e., peak and non-peak) as defined above. The data were used to document/calculate the following information for each time period:

- Total number of vehicles observed;
- Average number of vehicles observed;
- Total number of people observed; and
- Average number of people observed.

In addition, the information collected through this effort was used to characterize the types of recreation activities that occur at Edison Beach.

4.4.2 Camera Counts at the Kaweah No. 2 Powerhouse River Access Parking Area

Although not required by the REC 1 – TSP, SCE conducted camera counts at the Kaweah No. 2 Powerhouse River Access Parking Area. Camera counts were conducted using a Browning Strike Force HD Pro, Sub-Micro Series motion activated camera that was mounted to the powerhouse fence on the southwest side of the Kaweah No. 2 Powerhouse River Access Parking Area (Map REC 1-2). The angle of the camera was set to view all of the parking stalls in the parking area at one time. The camera functions by capturing a photograph every time it senses movement.

The camera was operational for a one-year period extending from March 30, 2018, through March 28, 2019. The camera data was typically downloaded biweekly, with the frequency of download adjusted as necessary throughout the season based on data storage capacity. The photos captured by the camera were systematically reviewed in the office by a technician who entered the following data into an Excel spreadsheet based on the camera footage and timestamps:

- Date
- Season (non-peak/peak)
- Arrival Time
- Departure Time
- Total Time
- Number People Observed
- Vehicle Types
- Comments

The camera count data was organized and tabulated by non-peak and peak periods. Data that was collected by the camera when the parking lot was closed and non-recreation use of the parking lot by SCE or agency vehicles was excluded from the data set. Additionally, dates were removed from the data set when the camera data card was full, meaning no data was collected. After removing these dates, the data set includes a total of 314 days of data (256 non-peak and 58 peak days).

Arrival and departure times for each vehicle were used to calculate the length of stay for each vehicle. In some instances, an arrival or departure time was not captured by the camera. In these instances, the nearest next photo time was used to estimate the arrival or departure time, as appropriate. In addition, in some cases, the number of people associated with a vehicle could not be determined using the camera footage. In these cases, the number of people was estimated by applying the calculated average number of people per vehicle type.

As described below, the photos captured using the camera were used for two purposes. First, the data were used to validate the in-person vehicle and visitor count data. Second, the photos were used to estimate total and average annual recreation use.

4.4.2.1 Data Comparison

The vehicle and visitor count camera data was validated by directly comparing the observational data collected through the in-person vehicle counts to the number of people and vehicles observed on the camera footage during the same dates and times. In-person counts were conducted on a total of 34 days. However, six dates were excluded from the camera count comparison analysis for the following reasons. Two dates were excluded because the camera was not yet set-up when the in-person counts occurred. The other four dates were excluded because the data card was full and therefore did not capture photos during the time the in-person count was conducted. The data were used to determine whether the camera data and in-person data are similar using a paired two sample means t-test in Excel.

4.4.2.2 Recreation Use Estimates

The camera data was tallied and used to compute:

- Total number of vehicles over the entire sample period;
- Average number of vehicles per day;
- Total number of people over the entire sample period;
- Average length of stay; and
- Average number of people per vehicle.

4.4.3 Non-motorized Use along Craig Ranch Road/Salt Creek Road

Per the request of the BLM, SCE assessed non-motorized recreation use along the Kaweah No. 1 Forebay Road near where it intersects Craig Ranch Road/Salt Creek Road (hereafter referred to as Craig Ranch Road), within the BLM's Case Mountain Extensive Recreation Management Area (ERMA). Non-motorized use was assessed using a Cabela Outfitter High Definition (HD) motion activated trail camera located immediately adjacent to the Kaweah No. 1 Forebay Road, in a location that was selected in consultation with the BLM. The camera data is intended to supplement use data that is already collected by the BLM using a vehicle counter located at the junction of Skyline Drive and Salt Creek Road and a pedestrian counter located on Craig Ranch Road just northwest of a gate that blocks vehicular access to the road. The locations of the BLM's counters and the SCE recreation camera are shown on Map REC 1-3.

The camera was inconspicuously mounted to a tree located immediately adjacent to road, pointing southeast to capture people either north or south along the road. The camera functions by capturing a photograph every time it senses movement. All data captured by the camera was saved to a digital storage card. The camera was operational for a one-year period extending from March 27, 2018, through March 26, 2019. The camera data was typically downloaded biweekly, with the frequency of download adjusted as necessary throughout the season based on data storage capacity. During May 2018, the camera and/or storage card was not functioning properly, which resulted in a limited data set for May.

The photos captured by the camera were systematically reviewed in the office by a technician who entered the following data into the spreadsheet based on the camera photos and timestamps:

- Date
- Weekday/Weekend
- Time
- Number of People Observed
- Activity (e.g., hiking, mountain biking, horseback riding, etc.)
- Comments

While reviewing the data, the technician counted each individual or set of individuals only once. For example, if a group of two triggered the camera hiking north along the road, the same group of two was not included again on the return trip. Activity that was clearly not recreation related, for example SCE or SCE contractor use, was excluded from the data set.

A total of 326 days of data were collected by the camera. After the data was entered, it was organized, tabulated, and used to calculate the total and average number of people per day by activity type. The data were sorted two ways: by weekdays (M-F) and weekends (S-S) and by month. No data was collected on a total of 39 dates because the data card was full and/or the camera/card were not functioning properly. These dates were excluded from the calculations.

4.4.4 Recreation Use along the Kaweah No. 2 Flowline

The Project does not include any recreation trails. However, access trails are located on both sides of the concrete sections of the Kaweah No. 2 Flowline and SCE has observed the general public hiking, biking and running on these trails. To characterize use along the Kaweah No. 2 Flowline, SCE utilized photographs that were captured by motion-activated game cameras that were installed at six locations along the flowline where bridges cross the flowline, as shown on Map REC 1-4. The game cameras were installed in conjunction with the TERR 2 – Wildlife Resources TSP (SCE 2017c) to assess whether the bridges that cross the flowline (and nearby escape ramps) are successfully used by wildlife. However, since the cameras are activated by motion, the game cameras also captured humans (and domestic dogs) using the bridges that cross the flowlines.

Per the TERR 2 – TSP, camera monitoring was conducted for five weeks during the spring (March 28 to May 3, 2018) and for five weeks during the fall (November 13 to December 19, 2018). The cameras were positioned to maximize the potential to detect and record movements along the flowline, in the vicinity of the selected wildlife bridges and nearby escape ramps. During each monitoring period, data was downloaded from the cameras on a weekly basis. Data downloaded from the cameras included photographs as well as the date and time that the photograph was taken. A technician reviewed the photographs for the presence of humans (and domestic dogs) and entered the data into an Excel spreadsheet for analysis. Wildlife observations are discussed in the TERR – 1 Wildlife Resources TSR (SCE 2019c). Human (and domestic dog) observations are discussed herein.

To determine human use, the technician first identified all photographs with humans then recorded the number of individual humans (and domestic dogs) observed in the photograph. The technician then compared the data from each camera to determine if the same person or groups of people were captured on multiple cameras. People who were captured on multiple cameras on the same day were counted as one user on that day. People who were clearly inspecting or maintaining the flowline were assumed to be SCE employees and removed from the data set.

4.5 Potential User Conflicts

To characterize potential conflicts between recreation users and private property owners in the Project vicinity, SCE:

- Reviewed the BLM's Approved RMP to identify potential user conflicts that were identified during the development of the RMP, and associated management strategies.
- Reviewed complaints received by SCE and follow up interviews to identify and document potential concerns and issues related to recreation use of the Kaweah No. 2 Powerhouse River Access Parking Area.
- Interviewed Tulare County land use/recreation planners to identify concerns related to conflicts between recreation users and private property owners in the vicinity of the Kaweah Project.

In addition, if non-motorized recreation users (hikers/mountain bikers) were encountered on the Kaweah No. 1 Forebay Road, SCE attempted to interview and document any concerns related to motorized use along this section of road, which is located in the BLM's Case Mountain ERMA.

4.6 Future Recreation Needs in the Project Vicinity

Future recreation needs depend on several factors, including:

- The demographics associated with the people who currently visit the area;
- Future population projections;
- Current recreation use; and
- Trends in outdoor participation rates.

Accordingly, SCE reviewed and summarized information available from the following sources to identify potential future recreation needs in the Project vicinity:

- Estimates available from the U.S. Census Bureau (USCB 2019) and the California Department of Finance Demographic Research Unit (DOF 2019) were used to characterize the current population and demographic make-up of Tulare County.
- Data produced by the State of California Department of Finance (DOF 2018) was used to summarize projected changes in population growth and demographic changes in Tulare County from 2018 to 2060.

- Relevant information from the following two reports was used to summarize current and future trends in outdoor participation rates, based on national surveys.
  - Outdoor Participation Report 2018 (The Outdoor Foundation 2018)
  - Federal Outdoor Recreation Trends: Effects on Economic Opportunities (White et. al. 2016)

This effort focused on the population and demographics of Tulare County because visitors who regularly recreate along the bypass reaches associated with the Project or on neighboring the BLM land are likely local Tulare County residents.

4.7 Public Safety Measures

Existing programs and measures that are implemented by SCE specifically to protect public health and safety were identified and described by:

- Reviewing and interviewing SCE operators and staff that are familiar with the Project facilities and associated safety features;
- Reviewing SCE's Public Safety Plan for the Kaweah Project, which was last filed with the FERC on December 29, 2015, with a revised drawing filed on November 29, 2016;
- Reviewing Environmental Inspection Reports issued by the FERC between January 1, 2000, and May 27, 2019; and
- Reviewing the FERC's e-library covering the period of January 1, 2000, through May 27, 2019, to identify Safety Incident Reports that were filed by SCE, as required by Title 18 of the Code of Federal Regulations (CFR) §12.10.

In addition, a detailed inventory and condition assessment of the safety features that are present along the Kaweah No. 2 Flowline, the Kaweah No. 3 Flowline, the Kaweah No. 3 Forebay, and the Kaweah No. 1 Forebay Road was conducted as part of the LAND 3 – Land Use TSP. The results of this effort are described in detail in the LAND 3 – Land Use TSR (SCE 2019b) and summarized in this report.

Existing designated helicopter landing sites in the vicinity of the Project were identified and mapped using information provided by SCE, the BLM, and the NPS. Helicopter landing sites that are routinely used to operate and maintain the Project were identified through interviews with SCE staff.

5 STUDY RESULTS

This section describes the study results, organized by study element. A brief overview of the setting is provided first, for context.

5.1 Overview

The Project is located on the western slope of the Sierra Nevada in Tulare County, California. All of the facilities under FERC jurisdiction are located along the Kaweah River, upstream of the community of Three Rivers, and along the East Fork Kaweah River, a tributary to the Kaweah River, on private lands or on public lands administered by the BLM. Lake Kaweah, owned and operated by the U.S. Army Corps of Engineers (USACE), is located southwest of the Project, approximately five river miles downstream of the Kaweah No. 2 Powerhouse. The SNP is located immediately north and east of the Project and encompasses the Sequoia-Kings Canyon and John Krebs Wilderness areas (Map REC 1-1).

The Project facilities and bypass reaches associated with the Project are accessible via State Highway 198, which parallels the Kaweah River, and Mineral King Road, which parallels the East Fork Kaweah River. These two roadways serve as the primary access routes into the SNP (Map REC 1-1).

5.2 Existing Recreation Facilities in the Kaweah River Watershed

The nearest developed public recreation facilities (e.g. campgrounds, picnic areas, boat ramps, etc.) are located at Lake Kaweah and in the SNP (Map REC 1-1). Camping opportunities are also available at a private campground in Three Rivers. Historically, developed recreation facilities were also operated along the North Fork Kaweah River on land managed by the BLM. However, consistent with the BLM's approved RMP, public access to these facilities is prohibited due to public safety and resource concerns (BLM 2014).

A list of the developed recreation facilities (e.g. campgrounds, picnic areas, trailheads, etc.) that are located within the Kaweah River Watershed is provided in Table REC 1-3, organized by jurisdiction and type of facility. The locations of the facilities that are identified on Table REC 1-3 are shown on Map REC 1-5. Note that much of the watershed is designated as Wilderness Area, which by definition does not include developed recreation facilities. As such, for presentation purposes, Map REC 1-5 was scaled to exclude areas of the watershed without developed recreation facilities. In addition, the BLM recreation facilities located on the North Fork Kaweah River (Cherry Falls, Advance, and Paradise Recreation Site) are not shown on the map because they are no longer open to public use.

5.3 Existing Project-Related Recreation Facilities

Most of the land surrounding the Project facilities and bypass reaches is privately owned, which restricts public access and limits opportunities for recreational development. Therefore, there are no developed recreational facilities or trails associated with the Project. When the current FERC license was issued, the FERC required SCE to construct a formal river access point at the Kaweah No. 3 Powerhouse with parking, sanitation, and improved trail facilities to enhance recreational use of the Project. However, this site was not constructed due primarily to opposition by adjacent landowners and concerns expressed by NPS law enforcement officials. The FERC formally deleted this requirement from the Kaweah License by order issued June 30, 1993.

Although the Project does not include any developed recreation facilities, SCE maintains a small parking area adjacent to the Kaweah No. 2 Powerhouse and allows the public to use this parking area on a limited basis. This parking area is typically used by recreation visitors who park in the lot then walk to a small beach known locally as "Edison Beach". The parking area and beach are shown on Map REC 1-2 relative to the Project facilities and FERC boundary, and are described in the following subsection.

5.3.1 Kaweah No. 2 Powerhouse River Access Parking Area and Edison Beach

The Kaweah No. 2 Powerhouse River Access Parking Area is located within the FERC Project boundary on land owned by SCE. The parking area is defined by large natural rock bollards which surround the perimeter. A cyclone fence covered in vines separates the parking area from the river, and Kaweah River Drive (a public road maintained by Tulare County) separates the parking area from the powerhouse. The parking area is paved and striped with six parking stalls, one of which is accessible. The pavement and existing striping is in good condition. In addition, the surface material and grade meets accessibility standards. The parking area does not include any amenities such as a bathroom or garbage receptacles.

Edison Beach is located approximately 400 feet southeast of the parking lot, on the northeast bank of the Kaweah River. The route to the beach is along Kaweah River Drive, a paved road that is primarily used by local residents. The beach is accessed from the road via a sandy slope (i.e., the river bank). The beach is not developed as a formal recreation facility and therefore does not include any amenities.

The Kaweah No. 2 Powerhouse River Access Parking Area and Edison Beach are located on land owned by SCE. Due to concerns by local residents, SCE limits use of the beach to between the hours of 8:00 a.m. and 7:00 p.m. as specified on the signage described below. In addition, between Memorial Day and Labor Day, use is limited to Monday through Thursday. During all other times of the year, SCE typically allows use of the parking area seven days a week. However, SCE may sometimes close the

parking area and beach due to complaints by local residents or to address safety or vandalism issues (graffiti), as was the case in late August/early September 2018.

5.3.1.1 Signage

The parking area includes one accessible parking space. The accessible parking space is designated by a standard blue accessible parking sign mounted on a steel post located at the end of the parking stall and a blue accessible marker painted on the parking stall pavement. The signage and markings are in good condition.

Other signage located in the parking area includes three red and white informational/regulatory signs with usage hours, a list of prohibitions, and emergency contact numbers. One of these signs is mounted on a steel pole attached to a white electrical box located at the west end of the parking area. The other two signs are attached to the cyclone boundary fencing. One of these two signs is in English and the other is in Spanish. A small yellow "danger" sign warning visitors to keep out of the stream bed is located southwest of the parking area. All signage located in the parking area is in excellent (i.e., like new) condition.

Two sets of identical signage mounted on black steel poles are located near Edison Beach, between the road and bank leading to the beach. Each set of signage consists of two red and white signs with information about usage hours, a list of prohibitions, and emergency contact numbers. One of these two signs is in English and the other is in Spanish. A third sign is attached to the back of the pole, behind the two red and white signs. This sign includes a Southern California Edison logo and the following information: "This Area is Temporarily Closed. No Trespassing, No Exceptions." A red and white "No Parking/Turn-Out Only" sign mounted on a steel pole is located on the opposite side of the road at the edge of a small unpaved turnout. All signage located near the beach is in excellent (i.e., like new) condition.

When Edison Beach is closed, SCE places a portable sign in the parking area notifying users that the area is temporarily closed and places barrier cord across the parking area to prevent parking. In addition, the sign posts located adjacent to the beach are turned to expose the closure signage mounted on the back of the post and "Caution Do Not Enter" tape is placed across along the road to dissuade access to the beach.

5.4 Recreation Opportunities in the Project Vicinity

As discussed above, the Project does not include any developed Project recreation facilities. In addition, access to the bypass reaches associated with the Project is severely restricted by the presence of private property along nearly the entire length of the Kaweah River and much of the East Fork Kaweah River. As such overall recreation use in the immediate vicinity of the Project is minimal and is generally confined to areas that are only accessible by local residents or lodges, cabins and resorts under private ownership.

As discussed below, fishing and whitewater boating opportunities are available on the Kaweah River and East Fork Kaweah River, and trail opportunities are available on the neighboring public lands. Although not formally developed for recreation purposes, the access trails along the Kaweah No. 2 Flowline are also used by the general public. These opportunities are briefly discussed in the following subsections.

5.4.1 Fishing

The Kaweah River and its tributaries support rainbow trout, brown trout, and brook trout. In addition, smallmouth bass are present at lower elevations. Good fishing opportunities are available on all of the forks of the Kaweah River, but the best fishing reportedly occurs on the river segments located within the SNP.

According to the California Freshwater Sport Fishing Regulations 2019–2020 (CDFW 2019), the Kaweah River and its tributaries are open year-round to angling with a daily limit of five fish, 10 in possession. Fishing on the segments of the Kaweah River and its tributaries located within the SNP are subject to SNP fishing regulations. Segments within the SNP, below 9,000 feet elevation are managed as a catch-

and-release fishery and artificial flies and lures with barbless hooks are required. Above 9,000 feet elevation, state fishing regulations apply (36 CFR § 2.3 – Fishing).

Recreational fishing in the bypass reaches associated with the Project is limited due to the rugged terrain, limited access, and low trout abundance. Historically, the California Department of Fish and Game (now the California Department of Fish and Wildlife [CDFW]) stocked the lower reaches of the Kaweah River (downstream of the SNP boundary) each spring and summer with about 4,000 catchable rainbow trout (FERC 1991). However, the CDFW discontinued this program because the river is naturally too warm to support a self-sustaining trout population. Trout may move downstream into the reach during the winter, but warm summer temperatures typically preclude full-time residency. Recent fish sampling data on the Kaweah River in the vicinity of the Project indicate that the current fish population is dominated by warm water fishes (SCE 2007).

5.4.2 Whitewater Boating

Whitewater boating opportunities are available on the Kaweah River and its tributaries. Various combinations of runs are available, but in general the whitewater boating runs on the bypass reaches associated with the Project can be described as follows:

- **Park Boundary Run.** The 0.6-mile Park Boundary Run is located on the Kaweah River extending from the Kaweah No. 2 Diversion Dam to the East Fork Kaweah River Confluence. This run supports non-commercial rafting and kayaking, and is typically boated in the spring.
- **Gateway Bridge Run.** The 3.1-mile Gateway Bridge Run is located on the Kaweah River extending from the East Fork Kaweah River Confluence to Dinely Bridge. The run supports non-commercial rafting and kayaking, and commercial rafting. The Gateway Bridge Run is typically boated in the spring.
- **Lower East Fork Run.** This 4.3-mile long Lower East Fork Run is located on the East Fork Kaweah River. The put-in for this run is located on private property just downstream of the Kaweah No. 1 Diversion Dam (left bank at approximately River Mile [RM] 4.1). The take-out is at either the Gateway Bridge (private property), or approximately 0.75 mile downstream of the Gateway Bridge (Pumpkin Hollow Condominiums; private property). This run is boated by non-commercial users, generally in kayaks. The Lower East Fork Run is typically boated in the spring.

The main stem of the Kaweah River is boated by private boaters and by commercial outfitters. However, private boating use is minimal, primarily due to access constraints. Commercial use levels vary dramatically based on run off. The rapids on the East Fork Kaweah River are considered very difficult. Therefore, boating use on the East Fork Kaweah River is very low, limited to expert boaters with the skills required to run rivers with limited access and extremely difficult rapids. Additional, detailed information about whitewater boating resources on the bypass reaches, use levels, and constraints is available in the REC 2 – Whitewater Boating TSR (SCE 2019a).

5.4.3 Trail Opportunities

Recreation trails are present throughout the watershed, on the neighboring public lands that are managed by the NPS, the USACE, and the BLM. Numerous developed trail opportunities are available to the east and west of the Project, in the SNP and at Lake Kaweah, respectively. In addition, various trail opportunities are available on the BLM land surrounding the Project.

All of the BLM land that surrounds the Kaweah No. 1 Project facilities is part of the Case Mountain ERMA, which the BLM manages to meet the following recreation objective:

- Offer recreation opportunities in an unchanged middle country setting, which facilitate the visitors freedom to participate in non-motorized activities that includes mountain bicycling, camping, hunting, wildlife and nature observation, photography and picnicking (BLM 2014).

Consistent with this objective, non-motorized trail use occurs along Salt Creek Road and Skyline Road starting at the BLM's Skyline Drive Parking Area and Trailhead and along Craig Ranch Road. These three roads tie into SCE's Kaweah No. 1 Forebay Road (Map REC 1-3). Additional trails are available within the Case Mountain ERMA along the South Fork of the Kaweah River.

The Project does not include any developed recreation trails. However, recreation visitors have been observed using the access trails that parallel both sides of the Kaweah No. 2 Flowline. The Kaweah No. 2 Flowline primarily crosses private land and is accessible via user created trails that extend from various roads and private parcels to the flowline. The access trails that parallel the flowline are not formally developed for recreation purposes. However, SCE does not prohibit the general public from walking along the trails. Recreation use along the Kaweah No. 2 Flowline is discussed in Section 5.5.3.

5.5 Recreation Use in the Project Vicinity

This section describes recreation use in the vicinity of the Project as determined through: (1) in-person vehicle and visitor counts and observations conducted at the Kaweah No. 2 Powerhouse River Access Parking Area and at Edison Beach; (2) camera counts conducted at the Kaweah No. 2 Powerhouse River Access Parking Area; (3) camera counts conducted along Craig Ranch Road; and (4) camera counts conducted at six locations on the Kaweah No. 2 Flowline in association with the TERR 2 – TSP (SCE 2017c).

5.5.1 Kaweah No. 2 Powerhouse Parking Area and Edison Beach Use

Consistent with the REC 1 – TSP, SCE documented recreation use at the Kaweah No. 2 Powerhouse River Access Parking Area and at Edison Beach by conducting in-person vehicle counts in the parking area, and observing and recording use at Edison Beach. In addition, SCE documented use of the Kaweah No. 2 Powerhouse River Access Parking Area using camera counts. The results of these efforts are described below.

5.5.1.1 In-Person Vehicle and Visitor Counts

SCE conducted in-person vehicle and visitor counts at the Kaweah No. 2 Powerhouse Parking Area on a total of 34 days over a one year period extending from March 13, 2018 and March 19, 2019. The data that was collected through this effort is tabulated on Table REC 1-4, and summarized below. Note that the total number of people observed includes people in the parking area and at Edison Beach.

Non-Peak Period

- Total Number of Vehicles Observed = 5
- Average Number of Vehicles Observed per Sampling Event = <1
- Total Number of People Observed = 10
- Average Number of People Observed per Sampling Event = <1

Peak Period

- Total Number of Vehicles Observed = 31
- Average Number of Vehicles Observed per Sampling Event = 2
- Total Number of People Observed = 91
- Average Number of People Observed per Sampling Event = 6

SCE also observed and recorded visitor activities at Edison Beach at the same time that the vehicle counts were conducted. These data are tabulated on Table REC 1-4, and summarized below.

- Total Number of People Boating = 0
- Total Number of People Fishing = 1
- Total Number of People Swimming/Beach Use = 77
- Total Number of People Participating in other Activities = 3

As indicated, swimming/beach use accounted for 95% of all observed activity. All 'other' activity consisted of people walking and/or recreating with dogs. One fisherman was observed and no boaters were observed.

5.5.1.2 Camera Counts

SCE also conducted camera counts at the Kaweah No. 2 Powerhouse River Access Parking Area. The photos captured using the video camera were used for two purposes. First the data were used to validate the in-person vehicle and visitor count data. Second, the photos were used to compute total and average annual recreation use.

Data Comparison

A summary of the in-person and camera count data is provided in Table REC 1-5. A total of 98 people and 33 vehicles and were counted during the in-person site visits. A total of 81 people and 29 vehicles were recorded by the motion activated camera during the same days and times that the in-person counts were conducted. Neither the t-test from the vehicle count comparison (t=2, 27 d.f., P=0.09) or the comparison of the number of people observed (t=2, 27 d.f., P=0.07) were significant at the 0.05 level, meaning that the differences that exist between each data set can be explained by random variation. The comparison of the data collected by the camera and visitor survey data indicate that the camera data is a good indicator of both number of vehicles and visitors.

Annual Recreation Use

The camera data was used to determine the total and average number of recreation vehicles and visitors over the entire year-long sampling period, which included a total of 314 days of data after accounting for closure days or days when the camera did not collect data. The camera data are provided in Appendix A, which include the number of people observed and types of vehicles observed in the camera photos. Note that no watercraft or boaters were observed in any of the camera photos.

Based on the camera data, a total of 2,719 visitors and 1,268 vehicles and were counted during the 314 days the camera was operational, which equates to an average of 8.7 visitors per day, 4.0 vehicles per day, and an average of 2.14 people per vehicle. The latter can be used along with vehicle counts to determine recreation visitor use in the future, if needed. A breakdown of the data by non-peak and peak recreation periods is provided below.

Non-Peak Period

- Total Number of Vehicles = 732
- Total Number of People = 1,413
- Average Number of Vehicles/Day = 3
- Average Number of People/Day = 6
- Average Length of Stay = 1 hour 01 minutes

Peak Period

- Total Number of Vehicles = 536
- Total Number of People = 1,306
- Average Number of Vehicles/Day = 11
- Average Number of People/Day = 26
- Average Length of Stay = 1 hour 36 minutes

The total number of people and vehicles recorded during the entire camera count period (*n=314 days*) is greater during the non-peak verses the peak season due to the greater number of days included in the non-peak season (*n=256*) over peak season (*n=58*). However, the average number of vehicles and people per day is greater during the peak season than the non-peak season. In addition, the total length of time visitors remain at Edison Beach is higher during the peak season by 35 minutes.

5.5.2 Non-motorized Use along Craig Ranch Road/Salt Creek Road

Consistent with the REC 1 – TSP, SCE documented recreation use along the Kaweah No. 1 Forebay Road near where it connects to Craig Ranch Road using data collected by a motion activated camera. The camera data was used to determine the total and average number of recreation visitors over the entire year-long sampling period, by activity type. The camera data are provided in Appendix B and summarized in Table REC 1-6.

A total of 326 days of data were collected (233 weekdays and 93 weekend days). A total of 3,836 people were counted using the road on the weekdays and a total of 3,746 people were counted using the road during the weekend days, for a combined total of 7,582 people. This equates to an average of 16.5 users per day during the weekdays and 40.3 users per day on the weekends. Accordingly, weekend use along Craig Ranch Road is about 2.4 times greater than weekday use.

Hiking was the most common recreation activity observed (59% of the total), followed by mountain biking (41% of the total). Equestrian use was also observed but represents a small fraction (0.38%) of total use. One hunter was observed during a weekday.

The camera data were also sorted by month to assess how use varies by month. A summary of the monthly data is provided in Table REC 1-7 and a graph showing the average number of people per day is provide in Figure REC 1-3. As indicated, use levels are the highest in March and April. Use levels decline during the summer months and increase again during the winter. This pattern is likely related to weather conditions. Note that the camera was not collecting data for much of May. Therefore, the May use data may not be entirely representative of actual use.

5.5.3 Recreation Use along the Kaweah No. 2 Flowline

The Project does not include any developed recreation trails. However, recreation visitors have been observed using the trails that parallel the Kaweah No. 2 Flowline. Staff conducting cultural resource and biological studies along the flowline observed the general public walking, running and mountain biking along the trail on numerous occasions in 2018 and 2019, both in groups and as individuals. Informal discussions with people encountered on the trail indicate that the trails are used by both local residents and by visitors lodging in or near Three Rivers in conjunction with a trip to the SNP. The same people were observed on multiple occasions over the study period indicating local residents regularly utilize the trail along the Kaweah No. 2 Flowline to exercise and walk their dogs.

To further characterize use along the flowline, SCE reviewed photographs captured by six game cameras that were installed along the flowline (see Map REC 1-4) to identify people (and domestic dogs) using the trail or trail crossings during the spring and fall of 2018. During the spring (March 28 – May 3, 2018) a

total 117 people were counted using the trail in the camera photos. During the fall (November 13 – December 19, 2018) a total of 101 people were counted using the trail.

Most of the people observed in the photographs are present in the photographs taken at multiple cameras on the same day, meaning they were walking along the flowline as opposed to crossing it. In addition, the same people were repeatedly observed in the photos over the two monitoring periods, indicating the trails are used by local residents.

5.6 Potential User Conflicts

Most of the land surrounding the Project facilities and bypass reaches is public land managed by the BLM or private land. The public land managed by the BLM is part of the Case Mountain ERMA, which the BLM manages in accordance with the policies, goals, objectives, and prescriptions outlined in the Bakersfield Field Office ROD and Approved RMP (BLM 2014). The BLM engaged in an extensive scoping process with the public and through that process identified potential user conflicts as an issue that should be addressed in the RMP. Accordingly, the RMP includes specific management objectives and measures that are designed to reduce the potential for user conflict in each of the planning areas covered in the RMP.

To minimize conflicts between trail users, motorized trail use within the Case Mountain ERMA is prohibited. In addition, the BLM implements the following measures to limit the potential for user conflicts:

- Prohibit air-soft and paintball activities, including organized games and casual use of these types of equipment unless authorized through a Special Recreation Permit.
- Acquire legal public access to suitable parking/staging area.
- Develop suitable facilities to support use at parking/staging areas.
- Manage and maintain connected trails for mountain bicycling experiences.
- Limit available commercial Special Recreation Permits for guide and outfitting services to no more than five (5). Special Recreation Permits for competitive events would not be issued.

During data collection efforts at Craig Ranch Road, if non-motorized recreation users (e.g., hikers/mountain bikers) were encountered, SCE attempted to interview and document any concerns related to motorized use along this section of road located in the BLM's Case Mountain ERMA. Three in-person contacts were made through this effort.

- Two local people from Three Rivers stated they enjoy walking and running on Craig Ranch Road. They did not have an opinion regarding motorized use of the road.
- A mountain biker from Hanford, California stated that he really enjoys riding on Craig Ranch Road. He did not have an opinion regarding motorized use of the road.
- A couple from San Diego, California who were hiking and taking photographs along the road stated they were grateful for the access to public lands. They did not have an opinion regarding motorized use of the road.

As indicated, no user conflicts were identified when users were encountered and interviewed. In addition, no conflicts between recreation users were observed in any of the camera photos taken along Craig Ranch Road between March 27, 2018, and March 26, 2019.

Most of the Project facilities located on the main stem of the Kaweah River are surrounded by private property. Private residences are present along the entire river between the Kaweah No. 3 and the Kaweah No. 2 powerhouses, and many of the roads that SCE uses to access the Project facilities are also used by local residents to access their homes. Due to the prevalence of private property in the vicinity of the Project, public access to the Kaweah River, and opportunities to develop public access, is

extremely limited. Given this situation, conflicts between private property owners and recreation users are known to occur. Based on information and complaints provided to SCE by various private property owners over the years, the private property owners are primarily concerned about trespassing, noise, litter, sanitation, safety, illegal activities (e.g., drug and alcohol use), and illegal parking.

Tulare county land use planners were contacted to identify concerns related to conflicts between recreation users and private property owners in the vicinity of the Kaweah Project. Based on information provided through this effort, potential conflicts between recreation users and private property owners appear to be primarily related to commercial whitewater boating. As such, Tulare County strictly regulates commercial whitewater boating on the Kaweah River through a permit system. To address the concerns of local residents, licensed commercial boating companies are subject to certain operating rules and conditions that specifically address parking, river access, trespassing, littering, and unhealthy sanitation practices, illegal camping, adverse impacts to the riparian environment, and excessive noise during raft trips.

5.7 Future Recreation Needs in the Project Vicinity

Future recreation use (demand) depends on several factors, including:

- The demographics associated with the people who currently visit the area;
- Future population projections;
- Current recreation use; and
- Trends in outdoor participation rates.

These topics are briefly discussed in the following subsections.

5.7.1 Current Tulare County Demographics

The U.S. Census Bureau (USCB) publishes demographic estimates by county based on census information that is collected every decade. The following summarizes select demographic data for Tulare County as of July 1, 2018, as estimated and published by the USCB (2019).

- Population Estimate – 465,861
- Persons under 5 years – 8.2%
- Persons under 18 years – 30.9%
- Persons 65 years and over – 11.1%
- Female persons – 50.0%

5.7.2 Projected Population Growth

Information available from the California Department of Finance (DOF 2019) was used to document how the population of Tulare County is expected to change over time (through 2060) relative to the population in 2018. The results are summarized in Table REC 1-8 and graphically depicted on Figure REC 1-4. As indicated, between 2018 and 2060, the total combined population of Tulare County is expected to grow by 29.5%. In 2060, about 26% of the population in Tulare County is expected to be white (non-Hispanic) and about 68% will be Hispanic (any race).

5.7.3 Recreation Use in the Vicinity of the Project

There are no developed Project recreation facilities in the immediate vicinity of the Project. As such, recreation use in the immediate vicinity of the Project primarily consists of dispersed day use activities such as picnicking along the Kaweah River and hiking and mountain biking on the trails and roads that

cross the neighboring the BLM land. Based on recreation use data collected for this study, trail use is dominated by hiking and mountain biking. Equestrian use represents a small fraction of total trail use. Whitewater boating occurs on the East Fork Kaweah River and the Kaweah River.

5.7.4 Trends in Outdoor Participation Rates

Detailed information about outdoor participation rates based on national surveys is available in the following reports, prepared by the Outdoor Foundation and the U.S. Department of Agriculture-Forest Service (USDA-FS), respectively:

- Outdoor Participation Report 2018 (The Outdoor Foundation 2018)
- Federal Outdoor Recreation Trends: Effects on Economic Opportunities (White et. al. 2016).

Relevant information from these two reports is summarized in the following.

5.7.4.1 Outdoor Participation Report 2018

According to the Outdoor Participation Report, in 2017:

- Almost half (49%) of the U.S. population ages 6 and over participated in an outdoor activity at least once in 2017.
- Outdoor participation was skewed slightly male, with 54% male participation compared to 46% female participation.
- Almost three-quarters of the participants were white American.
- About 65% were age 25 and older.
- Running, jogging and trail running were the most popular outdoor activities, followed by the following activities in order of popularity: fishing; road biking, mountain biking and BMX; hiking; car, backyard, backpacking and RV camping.

5.7.4.2 Federal Outdoor Recreation Trends Report

According to the Federal Outdoor Recreation Trends report:

- Future growth is projected for most recreation activities through 2030.
- The five outdoor recreation activities projected to have the highest percentage growth in total days of participation are developed skiing, visiting interpretative sites, day hiking, birding, and equestrian activities.
- The five activities expected to grow the least are hunting, motorized snow activities, motorized off-road use, floating, and fishing.
- Racial and ethnic diversity and the age of the U.S. population may alter future participation patterns for some recreation activities. However, generalist activities like hiking, viewing nature, and visiting developed recreation and historic sites remain popular with all population subgroups.

5.7.5 Future Recreation Needs in the Project Vicinity

As discussed above, the population of Tulare County is projected to increase by about 29% by 2060. Recreation use in the Project area will likely increase concurrently. However, outdoor recreation participation rates may not increase as substantially as the population due primarily to shifts in the racial and ethnic make-up of Tulare County over time. Regardless, based on general trends in outdoor participation rates, the types of opportunities available in the Project area (swimming, picnicking, hiking, mountain biking and boating) are expected to remain popular and the numbers of visitors participating in

these activities in the Project vicinity will continue to grow as the population grows. Future use levels may warrant new recreation facilities to support that use.

5.8 Public Safety Measures

This section: (1) identifies the existing programs and measures that SCE implements to for public and worker health and safety; (2) characterizes safety incidents that have occurred in the Project vicinity; and (3) identifies designated helicopter landing sites in the vicinity of the Project.

5.8.1 Existing Programs and Measures

SCE and the FERC implement several programs and a variety of measures to protect public and worker safety. These programs and measures are briefly described in the following.

5.8.1.1 Emergency Action Plan

Pursuant to 18 CFR §12.20(a), the FERC requires licensees to develop and file an Emergency Action Plan (EAP) with the Regional Engineer, unless granted a written exemption in accordance with §12.21(a) of the regulations. Since April 1981, SCE has been exempted from filing an EAP for the Project diversions since it demonstrated that no reasonably foreseeable Project emergency would endanger life, health, or property. As required in 18 CFR §12.21(c)(1), SCE annually reviews the conditions that allow them the exemption by conducting field reconnaissance of areas downstream of all exempt diversions to confirm that no new downstream development has occurred (SCE 2018a). Per 18 CFR §12.21(c)(2), if there are any changes to the Project that might cause an emergency endangering life, health, or property, SCE would promptly notify the FERC to determine the necessity to prepare an EAP.

5.8.1.2 FERC Inspections

The FERC periodically inspects the Project to ensure compliance with the Project license conditions. Since 2000, the FERC has conducted two inspections of the Kaweah Project facilities, once on June 27, 2006, and again on August 16, 2016. The FERC's inspection reports are available on the FERC's e-library. The 2006 report states that all public safety devices are adequate. The 2016 report indicates that some wooden planks along the flume walkways have deteriorated. SCE has since replaced the boards.

5.8.1.3 Facility Safety Measures

SCE has installed and maintains a variety of safety measures and devices at the primary Project facilities that are specifically designed to protect public and worker safety. These safety measures are descried in SCE's Public Safety Plan for the Project, which was last filed by SCE on December 29, 2015, with minor update filed on November 29, 2016. The Public Safety Plan includes detailed drawings showing the features that SCE maintains at the primary Project facilities that are designed to protect public and worker health and safety, including for example, signage, physical restraining devices, and a grab line. These features are shown on the drawings included in Appendix C and are briefly described below.

Signage

SCE utilizes signage to warn the public of hazardous areas and potentially dangerous conditions. For example, danger and warning signs are located near facilities that may pose a danger to the public (e.g., flowlines, powerhouses, and switchyards). The type and location of signage that has been installed at the Kaweah Project facilities is shown on the drawings included in Appendix C.

Physical Restraining Devices

SCE uses various devices to restrict public access to hazardous areas, including:

- Fences around powerhouses and switchyards;
- Gates limiting access onto Project facilities;
- Grates and debris catchers on intake structures; and
- Hand rails in elevated areas, including along bridges and flowline walkways.

The type and location of these features are shown on the drawings included in Appendix C.

Grab Line

A horizontal safety cable is strung across the Kaweah River, just upstream of the Kaweah No. 2 intake facility. This cable is intended to function as a grab line to facilitate exiting the river prior to the Kaweah No. 2 Diversion Dam. The location of this grab line is shown on the drawing of the Kaweah No. 2 Intake included in Appendix C.

Flowline Safety Measures

Project flowlines transport diverted water to the powerhouses. Despite signage and restraining devices, the Project flowlines present a potential safety risk to the public and SCE personnel. Accordingly, SCE has installed various features to allow people (and wildlife) to safely cross the flowline and other features that provide a mechanism for escape, should a person or animal fall into the water. These types of features are briefly described in the following subsections.

SCE inventoried and assessed the condition of the safety features that are present along the Kaweah No. 2 Flowline, the Kaweah No. 3 Flowline, the Kaweah No. 3 Forebay, and the Kaweah No. 1 Forebay Road in association with the LAND 3 – Land Use TSP. The results of this effort are available in the LAND 3 – TSR (SCE 2019), Appendix A. SCE inspects and maintains all of these features on a regular basis. Accordingly, as documented in Appendix A of the LAND 3 – TSR (SCE 2019), almost all of these features are in good condition, meaning the feature is in new or like-new condition and functions as intended without signs of wear and/or deterioration.

Footbridges and Crossings

Footbridges and wildlife crossings are present at various intervals along the Kaweah No. 2 and Kaweah No. 3 flowlines to allow SCE personnel and animals to cross safely. The footbridges include signage that they are to be used by SCE personnel only and the public is cautioned to keep off.

Escape Features

SCE installed various features to reduce wildlife mortality (drownings) in the Kaweah No. 2 and Kaweah No. 3 flowlines. These include: escape ramps; log and cable booms that cross the flowline at an angle to direct a swimming animal to an escape ramp; escape fencing (chain link fencing attached to the side of the flowline); flashers/hazers; and ropes. While these features are intended for use by wildlife, they also provide a mechanism for the public and SCE personnel to exit the flowline in the event of an accidental fall into the water.

5.8.2 Safety Incidents

The Title 18 of the Code of Federal Regulations (18 CFR) §12.10 requires a licensee to report safety-related incidents, including deaths and serious injuries, if applicable. These reports are available for review through the FERC's e-library. A search of the e-library was conducted covering the period of January 1, 2000, through May 27, 2019, to identify safety-related incident reports filed by SCE under

18 CFR §12.10. Since 2000, SCE filed seven incident reports, all relating to flume failures, as summarized on Table REC 1-9. None of these incidents resulted in injuries or deaths, nor did they cause serious damage to public or private property.

5.8.3 Helicopter Landing Sites

The closest designated helicopter landing site in the Project vicinity is the Ash Mountain Helicopter site, which is located approximately 6.4 road miles east of Three Rivers. The next closest designated helicopter landing site is at the Woodlake Airport, which is located approximately 17 road miles west of Three Rivers. These two sites are shown on Map REC 1-6.

The Ash Mountain Helicopter site is located within the boundaries of the SNP and is owned and operated by the NPS. SCE does not use helicopters for the routine operation and maintenance of the Project facilities that are under FERC jurisdiction. However, SCE sometimes uses helicopters for special projects, for example the repair of a penstock. In these cases, SCE utilizes the Ash Mountain Helicopter landing site, with the permission of the NPS.

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TABLES

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Table REC 1-1. Consultation and Data Gathering Summary

Primary Contact	Date	Type of Correspondence	Discussion Summary
Southern California Edison (SCE)			
James Kennard, Senior Manager	4/5/18	E-mail	Reviewed and approved camera and visitor count schedule for 2018/2019.
James Kennard, Senior Manager	5/24/18	E-mail	Confirmed Edison Beach closure schedule and protocols.
Dave Moore, Generation and Hydro Relicensing	8/16/2018	E-mail	Provided information about graffiti issues at Edison Beach and closure of the Edison Beach parking area through Labor Day 2018.
Bureau of Land Management (BLM), Bakersfield Field Office			
Brien Chartier, Outdoor Recreation Planner	3/9/18	E-mail	Requested information regarding location of BLM vehicle and trail counters. Discussed possible camera locations and the process for downloading and sharing data. Requested in-person meeting.
Brien Chartier, Outdoor Recreation Planner	3/14/18	In-person meeting	Brien Charier (BLM) met with Rick Evans (Cardno) and: (1) showed Rick the locations of the BLM's counters; (2) identified a location for a trail camera; (3) discussed the advantages and disadvantages of using trail cameras versus counters.
Brien Chartier, Outdoor Recreation Planner	3/14/18	E-mail	Follow up correspondence regarding site visit, counter locations, advantages of using counters to collect recreation use data.
Romina Copado, GIS Specialist	6/17/19	E-mail	Provided geodata base with recreation facility point data and roads and trails data for the BLM lands in the Kaweah River watershed.
Tulare County			
J. Willis, Environmental Planner	6/20/19	Telecom	Called to request information about potential user conflicts.
J. Willis and Hector Guerra, Chief	6/20/19	E-mail	Follow up e-mail to request information about potential user conflicts.
J. Willis, Environmental Planner	6/24/19	E-mails (4)	Provided copies of commercial whitewater boating outfitter licenses, management plans, and 2018 whitewater boating license conditions which include specific measures to address potential conflicts between whitewater boaters and local residents.

Table REC 1-2. Kaweah No. 2 Powerhouse River Access Parking Area and Edison Beach Use Count Schedule

Sampling Period	Sampling Period Dates	Duration	Frequency	Sampling Blocks	Open for Use **
In-Person Counts					
Non-Peak Season	March 13 - May 27, 2018 September 4, 2018 - March 19, 2019	38 weeks	1 time every other week	Block 1 8:00 am - 12:00 pm Block 2 12:00 pm - 7:00 pm	Open 7 days per week 8:00 am to 7:00 pm
Peak Season	May 28 - September 3, 2018	14 weeks	1 time per week	Block 1 8:00 am - 12:00 pm Block 2 12:00 pm - 4:00 pm Block 3 4:00 pm - 7:00 pm	Open Monday through Thursday 8:00 am to 7:00 pm
Camera Counts					
Year Round	March 30, 2018 - March 28, 2019	52 weeks	Daily	Camera data used in comparative analysis was selected using hours of operation and open/closure dates identified above.	

Notes

** The parking area and beach were closed on May 28, July 4 and September 3, 2018 for holidays.
The parking area and beach were closed from August 30 through September 2, 2018 due to graffiti issues.

Table REC 1-3. Developed Recreation Facilities in the Kaweah River Watershed

Facility Name	Jurisdiction/ Ownership	Facility Type	Number of Individual Campsites (if applicable)	Total Campsite Capacity (6 PAOT/site)	Number of Group Sites	Capacity of Group Sites	2019 Season Dates	Information Sources
Sequoia Kings Canyon National Park								
Foothills Visitor Center	NPS	Visitor Center	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/visitorcenters.htm
Lodgepole Visitor Center	NPs	Visitor Center	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/visitorcenters.htm
Moro Rock	NPS	Point of Interest	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/gfdayhikesum.htm
Tunnel Log	NPS	Point of Interest	-	-	-	-	Year Round	https://www.nps.gov/seki/faqtunnel.htm
General Sherman Tree	NPS	Point of Interest	-	-	-	-	Year Round	https://www.nps.gov/seki/learn/nature/sherman.htm
Crescent Meadow (Chimney Tree and Tharp's Log)	NPS	Point of Interest	-	-	-	-	NA	https://www.hikespeak.com/trails/crescent-meadow-sequoia/
Timber Gap	NPS	Point of Interest	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/mkdayhikesum.htm
Giant Forest Museum	NPS	Point of Interest	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/visitorcenters.htm
Crystal Cave	NPS	Point of Interest	-	-	-	-	May 24- Sept. 29	https://www.nps.gov/seki/planyourvisit/crystal-cave.htm
Atwell Mill Campground	NPS	Campground	21	126	0	-	June 21-Oct. 30	https://home.nps.gov/seki/planyourvisit/atwell.htm
Buckeye Flat Campground	NPS	Campground	28	168	0	-	Mar 20 - Sept. 24	https://www.recreation.gov/camping/campgrounds/249982 https://www.nps.gov/seki/planyourvisit/buckeye.htm
Cold Springs Campground	NPS	Campground	40	240	0	-	June 21-Oct. 31	https://www.nps.gov/seki/planyourvisit/cold_springs.htm
Dorst Creek Campground	NPS	Campground	218	1308	4	15-30 each	June 19 - Sept. 24	https://www.nps.gov/seki/planyourvisit/dorst.htm https://www.recreation.gov/camping/campgrounds/232460
Lodgepole Campground	NPS	Campground	214	1284	0	-	May 22 - Dec. 3	https://www.nps.gov/seki/planyourvisit/lodgepole.htm https://www.recreation.gov/camping/campgrounds/232461
Potwisha Campground	NPS	Campground	42	252	0	-	Year Round	https://www.nps.gov/seki/planyourvisit/potwisha.htm https://www.recreation.gov/camping/campgrounds/249979
Southfork Campground	NPS	Campground	10	60	0	-	Year Round	https://www.nps.gov/seki/planyourvisit/south_fork.htm
Lodgepole Picnic Area	NPS	Day Use Area	-	-	-	-	inaccessible when snow	https://www.nps.gov/seki/planyourvisit/picnic.htm
Hospital Rock	NPS	Day Use Area	-	-	-	-	NA	https://www.nps.gov/seki/planyourvisit/picnic.htm
Wolverton Ski Area	NPS	Day Use Area	-	-	-	-	Winter	https://www.nps.gov/seki/planyourvisit/snowplay.htm
Ladybug Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/ladybug-trail.htm
Garfield Grove Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/thingstodo/backpack-into-a-less-traveled-sequoia-grove.htm
Marble Falls Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/foothillhikessum.htm
Middle Fork Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/middle-fork-trail.htm
The Big Trees Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/gfdayhikesum.htm
Tokopah Falls Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/gfdayhikesum.htm
Twin Lakes Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/traildesc.htm
North Fork Trail	NPS	Trail/Trailhead	-	-	-	-	NA	https://www.nps.gov/seki/planyourvisit/foothillhikessum.htm
White Chief Trail	NPS	Trail/Trailhead	-	-	-	-	Year Round	https://www.nps.gov/seki/planyourvisit/traildesc.htm
Indian Head River Trailhead Parking Area	NPS	Trail/Trailhead	-	-	-	-	NA	https://www.nps.gov/seki/planyourvisit/upload/Foothills-Map-w-Descriptions-2012.pdf

Facility Name	Jurisdiction/ Ownership	Facility Type	Number of Individual Campsites (if applicable)	Total Campsite Capacity (6 PAOT/site)	Number of Group Sites	Capacity of Group Sites	2019 Season Dates	Information Sources
Case Mountain Extensive Recreation Area								
Skyline Drive Parking Area and Trailhead	BLM	Trailhead	-	-	-	-	Year Round	https://www.blm.gov/visit/case-mountain
U.S. Army Corps of Engineers (Lake Kaweah)								
Horse Creek Campground	USACE	Campground	80	480	0	-	Year Round	https://www.spk.usace.army.mil/Locations/Sacramento-District-Parks/Lake-Kaweah/
Horse Creek Day Use Area	USACE	Day Use Area	-	-	-	-	Year Round	https://www.recreation.gov/camping/campgrounds/233692
Kaweah Recreation Area	USACE	Day Use Area, Boat Launch	-	-	-	-	Year Round	https://corpslakes.erdc.dren.mil/visitors/projects.cfm?ID=L218090 https://www.spk.usace.army.mil/Locations/Sacramento-District-Parks/Lake-Kaweah/
Lemon Hill Recreation Area	USACE	Day Use Area, Boat Launch	-	-	-	-	Year Round	https://corpslakes.erdc.dren.mil/visitors/projects.cfm?ID=L218090
Slick Rock Recreation Area	USACE	Day Use Area, Boat Launch	-	-	-	-	Year Round	https://corpslakes.erdc.dren.mil/visitors/projects.cfm?ID=L218090
Cobble Knoll	USACE	Recreation Area	-	-	-	-	Year Round	https://corpslakes.erdc.dren.mil/visitors/projects.cfm?ID=L218090
Private Recreation Facilities (excludes resorts, cabins, lodges, hotels, etc.)								
Sequoia Campground and Lodge	Private	Campground, lodging	51 tent sites 31 RV sites 10 cabins	492 *	0	-	Year round	https://www.sequoiacampground.com/

Notes:
* - Excludes cabin capacity
NA - Not available.

Table REC 1-4. Kaweah Powerhouse No. 2 River Access Parking Area and Edison Beach Vehicle and Visitor Count Data

Date	Weather	Open/Close Status**	Sampling Block	Start Time	End Time	In-Person Vehicle Counts											In-Person Observations				Notes Regarding in-Person Counts and Observations
						Number of Vehicles								Number of Visitors			Recreation Activities Observed at/near Edison Beach				
						Trucks	SUV/ Van	Passenger Vehicle	Motorcycle	Agency Vehicle	SCE Vehicle	Other	Total (all vehicles)	In Parking Area	Near/At Edison Beach	Total (all people)	Boating	Fishing	Swimming / Beach Use	Other	
Non-Peak Season																					
3/13/2018	Clear, 68º F, no wind	Open	1	9:41	10:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/29/2018	Partly Cloudy, 68º F	Open	2	12:00	12:05	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	
4/9/2018	Clear and sunny, 80º F	Open	2	16:50	17:00	1	0	0	0	0	0	0	1	2	0	2	0	0	0	2	
4/27/2018	Clear and Sunny	Open	2	13:45	14:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5/8/2018	Clear and Sunny	Open	1	11:15	11:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Peak Season																					
5/30/2018	Clear and Sunny	Open	2	15:30	16:09	0	2	1	0	0	0	0	3	6	0	6	0	0	0	0	
6/6/2018	Clear and sunny	Open	1	11:50	12:20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
6/12/2018	Sunny, 97º F	Open	3	17:00	17:30	1	1	3	0	0	0	0	5	0	13	13	0	0	13	0	
6/20/2018	Sunny, 97º F	Open	2	15:30	16:00	1	4	1	0	0	0	0	6	5	10	15	0	0	10	0	two dogs at beach
6/26/2018	Sunny, 94º F	Open	2	13:00	13:30	1	2	0	0	0	0	0	3	0	13	13	0	0	13	0	
7/5/2018	Sunny	Closed	2	14:00	14:15	0	0	0	0	0	0	0	0	0	8	8	0	0	8	0	parking lot closed
7/9/2018	Sunny, 91º F	Open	2	13:15	13:45	0	3	1	0	0	0	0	4	0	9	9	0	0	9	0	5 visitors surveyed were locals
7/19/2018	Sunny, 102º F	Open	2	14:30	15:00	0	1	1	0	0	0	0	2	0	6	6	0	0	6	0	
7/25/2018	Clear, 100º F	Open	2	14:30	15:00	0	0	1	0	0	0	0	1	0	3	3	0	0	3	0	
8/1/2018	Sunny, 101º F	Open	2	14:15	14:45	0	2	0	0	0	0	0	2	3	0	3	0	0	0	0	people leaving as observer pulled into the lot
8/6/2018	Sunny, 82º F	Open	1	10:50	11:15	1	2	0	0	0	0	0	3	0	8	8	0	0	8	0	
8/14/2018	Sunny, 84º F	Open	1	10:45	11:00	0	0	1	0	0	0	0	1	0	2	2	0	0	2	0	
8/21/2018	Clear, 94º F	Open	3	16:00	16:30	0	1	0	0	0	0	0	1	0	5	5	0	0	5	0	
8/28/2018	Sunny, 86º F	Closed	2	12:45	13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	No vehicles in parking lot. Rec area taped off and signs posted; "Recreation Area Closed".
9/3/2018	Sunny	Closed	2	14:45	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Edison Beach Closed for Memorial Day
Non-Peak Season																					
9/18/2018	Sunny, 84º F	Open	1	12:30	12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/6/2018	Sunny, 76º F	Open	2	17:30	17:45	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	People observed were SCE subcontractors conducting a bat survey
10/17/2018	Sunny, 80º F	Open	2	15:15	15:25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/30/2018	Sunny, 80º F	Open	2	13:00	13:15	0	1	1	0	0	0	0	2	3	0	3	0	0	0	1	Other Activity - person walking dog.
11/13/2018	Sunny, 70º F	Open	2	13:00	13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Date	Weather	Open/Close Status**	Sampling Block	Start Time	End Time	In-Person Vehicle Counts											In-Person Observations				Notes Regarding in-Person Counts and Observations
						Number of Vehicles								Number of Visitors			Recreation Activities Observed at/near Edison Beach				
						Trucks	SUV/ Van	Passenger Vehicle	Motorcycle	Agency Vehicle	SCE Vehicle	Other	Total (all vehicles)	In Parking Area	Near/At Edison Beach	Total (all people)	Boating	Fishing	Swimming / Beach Use	Other	
11/30/2018	Mostly Cloudy, 48º F	Open	2	12:00	12:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/11/2018	Partly Cloudy, 48º F	Open	2	16:45	17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12/23/2018	Mostly Cloudy, 49º F	Open	2	15:20	15:35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1/12/2019	Cold, cloudy	Open	2	17:50	18:10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1/25/2019	Sunny, 62º F	Open	2	14:30	14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2/5/2019	Rainy, 38º F	Open	2	13:20	13:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2/20/2019	Mostly Cloudy, 40º F	Open	1	11:30	12:00	0	0	1	0	0	0	0	1	0	1	1	0	1	0	0	
3/9/2019	Mostly Sunny, 36º F	Open	1	8:00	8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/19/2019	Sunny, 70º F	Open	2	14:30	15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
					Total:	**5**	**19**	**12**	**0**	**0**	**0**	**0**	**36**	**23**	**78**	**101**	**0**	**1**	**77**	**3**	

Notes

** The parking area and beach were closed on May 28, July 4 and September 3, 2018 for the holidays.
The parking area and beach were closed from August 30 - September 2, 2018 due to graffiti issues.

Table REC 1-5. Kaweah Powerhouse No. 2 River Access Parking Area In-Person vs. Camera Count Comparison

In-Person Count Date	Weather	Open/Close Status	Sampling Block	Start Time	End Time	Camera Count Comparison				Notes
						People		Vehicles		
						Total No. of People Observed (in-person counts)	Total No. of People Observed (camera)	Total No. of Vehicles Observed (in-person counts)	Total No. of Vehicles observed (camera)	
Non-Peak Season										
3/13/2018	Clear, 68º F, no wind	Open	1	9:41	10:00	NA *	NA	NA	NA	Camera not yet operational.
3/29/2018	Partly Cloudy, 68º F	Open	2	12:00	12:05	NA	NA	NA	NA	Camera not yet operational.
4/9/2018	Clear and sunny, 80º F	Open	2	16:50	17:00	2	2	1	1	
4/27/2018	Clear and Sunny	Open	2	13:45	14:10	0	0	0	0	
5/8/2018	Clear and Sunny	Open	1	11:15	11:45	0	0	0	0	
Peak Season										
5/30/2018	Clear and Sunny	Open	2	15:30	16:09	6	6	3	3	
6/6/2018	Clear and sunny	Open	1	11:50	12:20	0	0	0	0	
6/12/2018	Sunny, 97º F	Open	3	17:00	17:30	13	10	5	5	
6/20/2018	Sunny, 97º F	Open	2	15:30	16:00	15	15	6	6	
6/26/2018	Sunny, 94º F	Open	2	13:00	13:30	13	12	3	3	
7/5/2018	Sunny	Closed	2	14:00	14:15	8	0	0	0	
7/9/2018	Sunny, 91º F	Open	2	13:15	13:45	9	12	4	4	
7/19/2018	Sunny, 102º F	Open	2	14:30	15:00	6	5	2	2	
7/25/2018	Clear, 100º F	Open	2	14:30	15:00	3	2	1	1	
8/1/2018	Sunny, 101º F	Open	2	14:15	14:45	NA	NA	NA	NA	Camera data card full
8/6/2018	Sunny, 82º F	Open	1	10:50	11:15	8	8	3	3	
8/14/2018	Sunny, 84º F	Open	1	10:45	11:00	2	2	1	1	
8/21/2018	Clear, 94º F	Open	3	16:00	16:30	5	4	1	0	
8/28/2018	Sunny, 86º F	Closed	2	12:45	13:00	0	0	0	0	
9/3/2018	Sunny	Closed	2	14:45	15:00	0	0	0	0	
Non-Peak Season										
9/18/2018	Sunny, 84º F	Open	1	12:30	12:45	0	0	0	0	
10/6/2018	Sunny, 76º F	Open	2	17:30	17:45	4	0	0	0	
10/17/2018	Sunny, 80º F	Open	2	15:15	15:25	0	0	0	0	
10/30/2018	Sunny, 80º F	Open	2	13:00	13:15	3	3	2	0	
11/13/2018	Sunny, 70º F	Open	2	13:00	13:15	0	0	0	0	
11/30/2018	Mostly Cloudy, 48º F	Open	2	12:00	12:15	0	0	0	0	
12/11/2018	Partly Cloudy, 48º F	Open	2	16:45	17:00	0	0	0	0	
12/23/2018	Mostly Cloudy, 49º F	Open	2	15:20	15:35	0	0	0	0	
1/12/2019	Cold, cloudy	Open	2	17:50	18:10	0	0	0	0	
1/25/2019	Sunny, 62º F	Open	2	14:30	14:45	0	0	0	0	

In-Person Count Date	Weather	Open/Close Status	Sampling Block	Start Time	End Time	Camera Count Comparison				Notes
						People		Vehicles		
						Total No. of People Observed (in-person counts)	Total No. of People Observed (camera)	Total No. of Vehicles Observed (in-person counts)	Total No. of Vehicles observed (camera)	
2/5/2019	Rainy, 38º F	Open	2	13:20	13:30	NA	NA	NA	NA	Camera data card full
2/20/2019	Mostly Cloudy, 40º F	Open	1	11:30	12:00	1	0	1	0	
3/9/2019	Mostly Sunny, 36º F	Open	1	8:00	8:30	NA	NA	NA	NA	Camera data card full.
3/19/2019	Sunny, 70º F	Open	2	14:30	15:00	NA	NA	NA	NA	
					Totals:	**98**	**81**	**33**	**29**	

Notes:

* NA = Not Available. Dates were not included in camera count comparison either because the camera was not set-up at the time of the in-person counts (2 dates) or the data card was full during the time the in-person count was conducted (4 dates).

Table REC 1-6. Summary of Camera Count Data Collected on Craig Ranch Road - Weekdays and Weekends

Period	Total Number of Camera Count Data Days [1]	Total Number of Recreation Visitors	Activity	Total Number of People by Activity	Percent of Total by Period	Average Number of People/Day
Weekdays (Monday to Friday)	233	3836	Hiking	2331	60.8%	10.00
			Horseback Riding	9	0.23%	0.04
			Hunting	1	0.03%	0.00
			Mountain Biking	1495	39.0%	6.42
Weekend Days (Saturday/Sunday)	93	3746	Hiking	2130	56.9%	22.90
			Horseback Riding	20	0.5%	0.22
			Hunting	0	0.0%	0.00
			Mountain Biking	1596	42.6%	17.16
Totals:	**326**	**7582**		**7582**		

Percent of Total (all days) by Activity	
Hiking	59%
Horseback Riding	0.4%
Hunting	0.0%
Mountain Biking	41%

Notes:

[1] Camera was operational from 3/27/2018 through 3/26/19.
Dates when no data was collected due to a full card were excluded from the data set.

Table REC 1-7. Summary of Camera Count Data Collected on Craig Ranch Road - By Month

Year	Month	Total Number of Camera Count Data Days[1]	Total Number of Recreation Visitors	Average Number of People / Day	Activity	Total Number of People by Activity	Average Number of People / Day
2018	Mar	5	270	54	Hiking	171	34.20
					Horseback Riding	2	0.40
					Hunting	0	0.00
					Mountain Biking	97	19.40
	Apr	30	1114	37.13	Hiking	620	20.67
					Horseback Riding	3	0.10
					Hunting	0	0.00
					Mountain Biking	491	16.37
	May	4	72	18	Hiking	42	10.50
					Horseback Riding	0	0.00
					Hunting	0	0.00
					Mountain Biking	30	7.50
	Jun	29	454	16.21	Hiking	286	9.86
					Horseback Riding	6	0.21
					Hunting	0	0.00
					Mountain Biking	162	5.59
	Jul	27	343	12.7	Hiking	231	8.56
					Horseback Riding	3	0.11
					Hunting	0	0.00
					Mountain Biking	109	4.04
	Aug	31	387	12.48	Hiking	228	7.35
					Horseback Riding	0	0.00
					Hunting	0	0.00
					Mountain Biking	159	5.13
	Sep	26	429	16.5	Hiking	216	8.31
					Horseback Riding	1	0.04
					Hunting	1	0.04
					Mountain Biking	211	8.12
	Oct	28	523	18.67	Hiking	275	9.82
					Horseback Riding	2	0.07
					Hunting	0	0.00
					Mountain Biking	246	8.79
	Nov	30	561	18.7	Hiking	292	9.73
					Horseback Riding	1	0.03
					Hunting	0	0.00
					Mountain Biking	268	8.93

Year	Month	Total Number of Camera Count Data Days[1]	Total Number of Recreation Visitors	Average Number of People / Day	Activity	Total Number of People by Activity	Average Number of People / Day
	Dec	31	889	28.67	Hiking	454	14.65
					Horseback Riding	1	0.03
					Hunting	0	0.00
					Mountain Biking	434	14.00
2019	Jan	31	945	30.48	Hiking	593	19.13
					Horseback Riding	2	0.06
					Hunting	0	0.00
					Mountain Biking	350	11.29
	Feb	28	644	23	Hiking	416	14.86
					Horseback Riding	5	0.18
					Hunting	0	0.00
					Mountain Biking	223	7.96
	Mar	26	951	36.57	Hiking	637	24.50
					Horseback Riding	3	0.12
					Hunting	0	0.00
					Mountain Biking	311	11.96
	Totals:	**326**	**7582**				

Notes:

[1] Camera was operational from 3/27/2018 through 3/26/2019. Dates when no data was collected due to a full card were excluded from the data set.

Table REC 1-8. Projected Population of Tulare County through 2060

Race	2018	2019	2020	2030	2040	2050	2060	Overall % Change	Percent of Total Population in 2018	Percent of Total Population in 2060
White (Non-Hispanic)	144,533	145,138	145,813	151,896	157,596	164,328	173,225	17%	30%	26%
Black (Non-Hispanic)	5,842	5,892	5,951	6,649	7,324	8,006	8,849	34%	1%	1%
American Indian and Alaska Native	3,475	3,492	3,539	3,836	4,049	4,138	4,286	19%	1%	1%
Asian (Non-Hispanic)	15,216	15,316	15,409	16,240	16,860	17,238	17,527	13%	3%	3%
Native Hawaiian and other Pacific Islander (Non-Hispanic)	430	432	431	474	481	486	501	14%	0%	0%
Multiracial (Two or more races, Non-Hispanic)	6,442	6,567	6,673	8,115	9,692	11,237	12,811	50%	1%	2%
Hispanic (any race)	300,971	304,967	308,861	351,431	395,386	431,696	459,690	35%	63%	68%
Total:	476,909	481,804	486,677	538,641	591,388	637,129	676,889	29.5%	100.0%	100.0%

Source: Projections Prepared by Demographic Research Unit, California Department of Finance, May 2019, available at: http://www.dof.ca.gov/Forecasting/Demographics/projections/

Table REC 1-9. Public Safety Incident Reports filed by SCE between January 1, 2000 and May 27, 2019.

Doc. Number	Document Date	Document Filing Date	Subject	Date of Incident	Cause of Incident
20030423-0068	4/14/2003	4/15/2003	Kaweah No. 1 Flume Failure Incident Report	3/12/2003	Rockslide
20080717-0046	7/08/2008	7/14/2008	Kaweah 1 Flume Failure Incident Report	6/09/2008	Large rock dislodged from the hill above the flume.
20090709-0218	7/01/2009	7/06/2009	Kaweah 1 Flume Failure Incident Report	5/16/2009	Large oak tree fell into the flume from the hill above.
20140617-5013	6/16/2014	6/16/2014	Kaweah No. 1 Flume Failure Incident Report	6/06/2014	Flume collapse (2 segments)
20170414-5045	4/13/2017	4/14/2017	Kaweah 1 Flume Failure Incident Report	4/06/2017	Flume overtopping
20180703-5135	7/03/2018	7/03/2018	Kaweah No. 3 Canal Incident Report	6/20/2018	Flume overtopping
20180719-5004	7/18/2018	7/19/2018	Kaweah 1 Rockslide Incident Report	7/05/2018	Rockslide

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FIGURES

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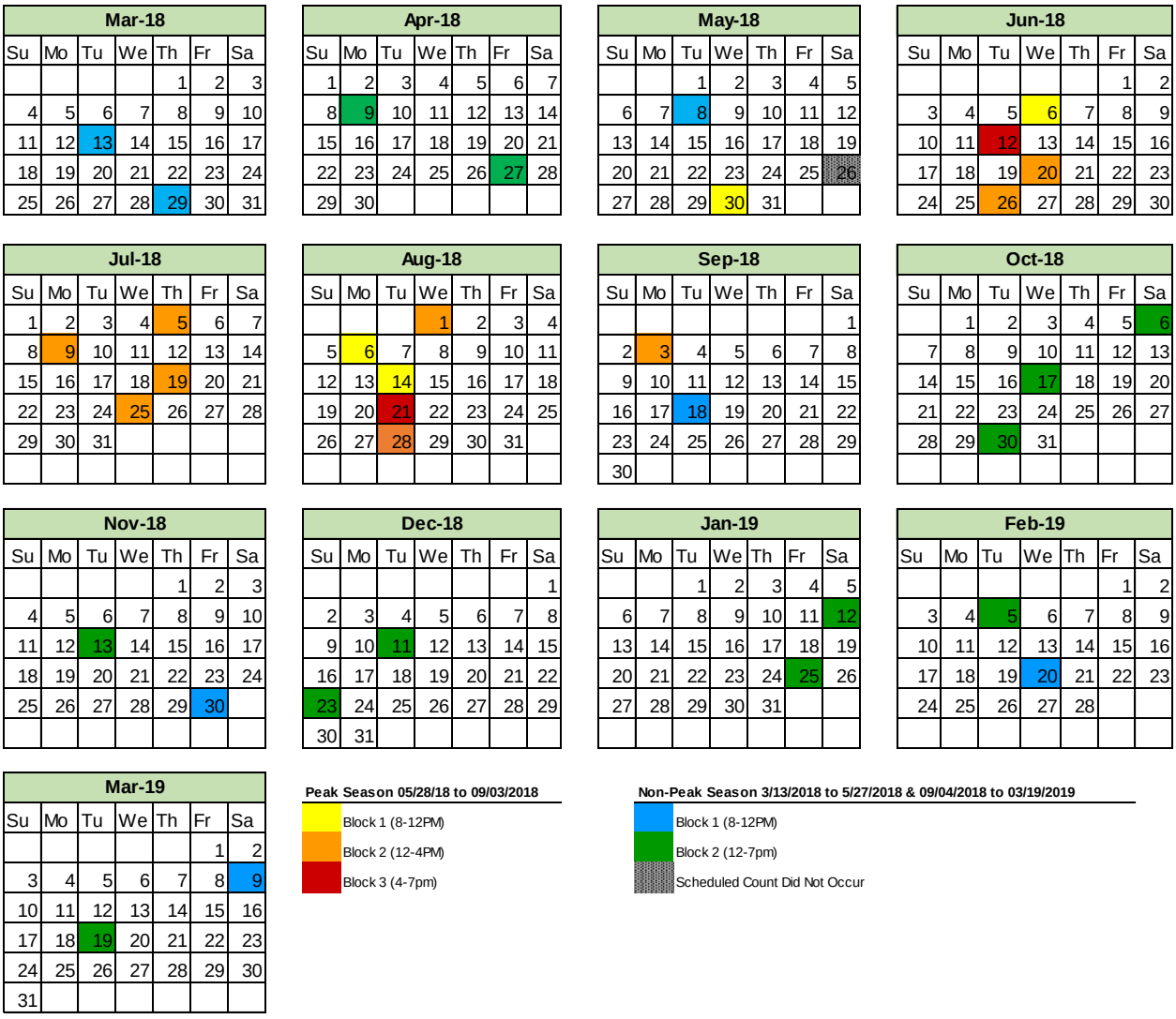
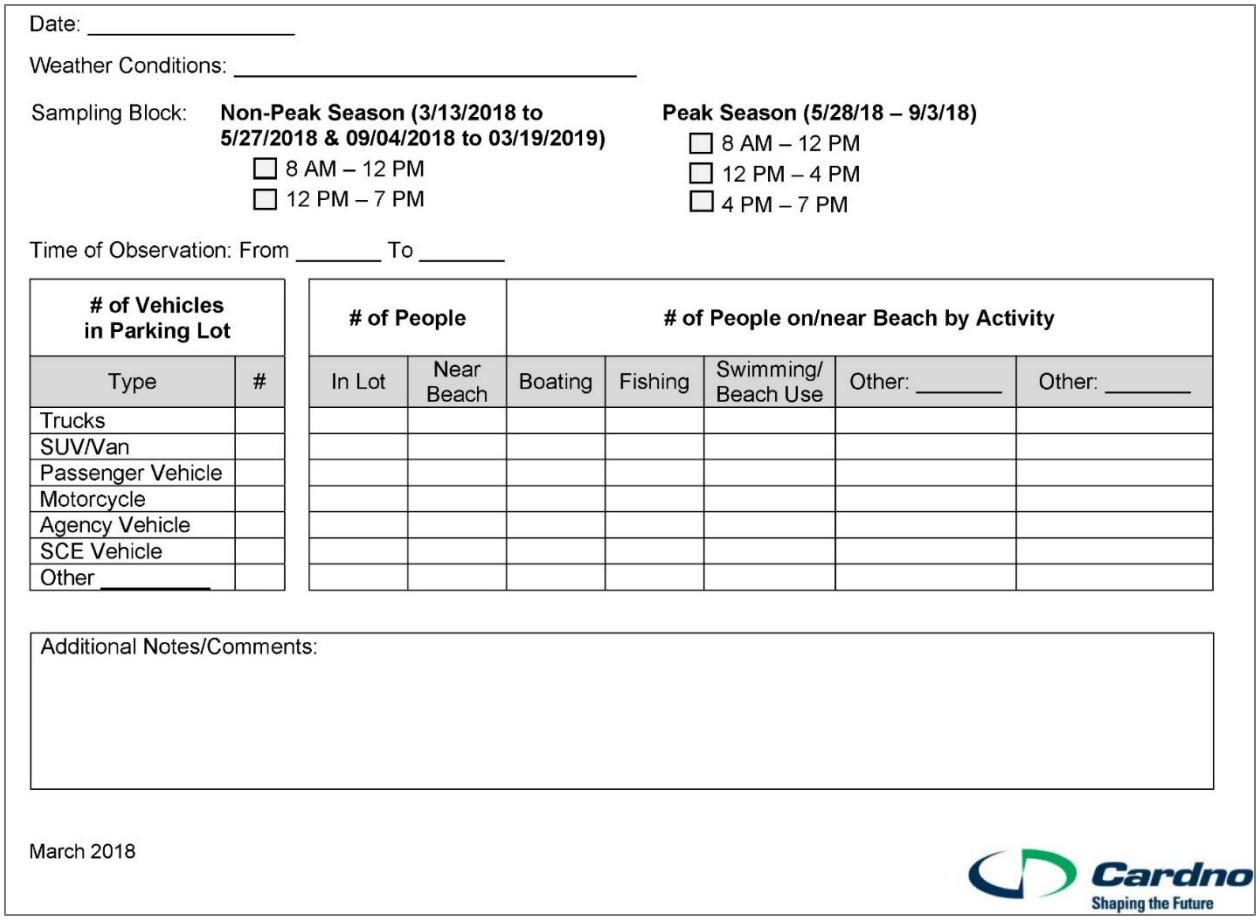


Figure REC 1-1. Kaweah No. 2 Powerhouse River Access Parking Area Vehicle Count Schedule



Date: _____

Weather Conditions: _____

Sampling Block: **Non-Peak Season (3/13/2018 to 5/27/2018 & 09/04/2018 to 03/19/2019)**
- ☐ 8 AM – 12 PM
- ☐ 12 PM – 7 PM

Peak Season (5/28/18 – 9/3/18)
- ☐ 8 AM – 12 PM
- ☐ 12 PM – 4 PM
- ☐ 4 PM – 7 PM

Time of Observation: From _____ To _____

# of Vehicles in Parking Lot		**# of People**		**# of People on/near Beach by Activity**				
Type	#	In Lot	Near Beach	Boating	Fishing	Swimming/ Beach Use	Other: _____	Other: _____
Trucks								
SUV/Van								
Passenger Vehicle								
Motorcycle								
Agency Vehicle								
SCE Vehicle								
Other _____								

Additional Notes/Comments:

March 2018

Cardno
Shaping the Future

Figure REC 1-2. Kaweah No. 2 Powerhouse River Access Parking Area and Edison Beach Data Sheet

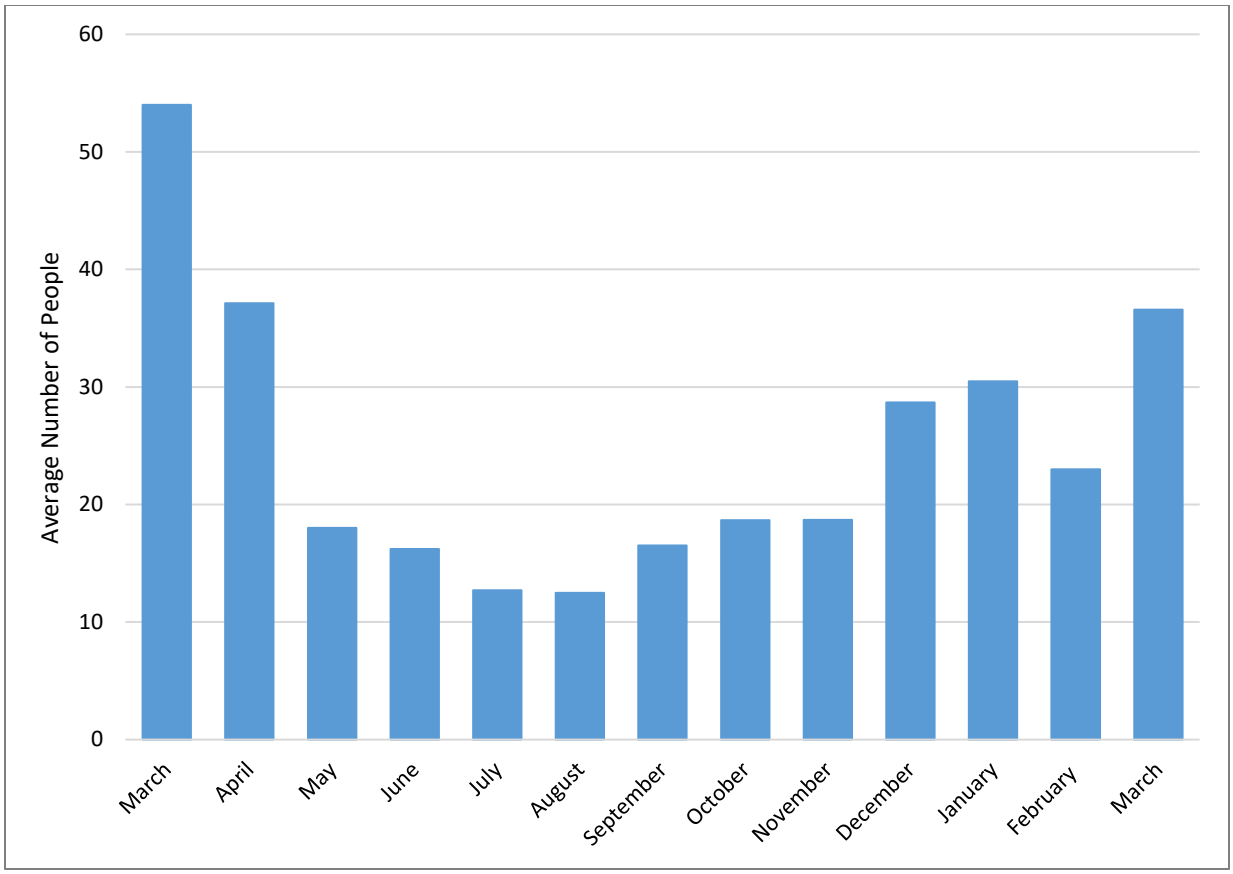


Figure REC 1-3. Craig Ranch Road Use Average Number of People/Day by Month

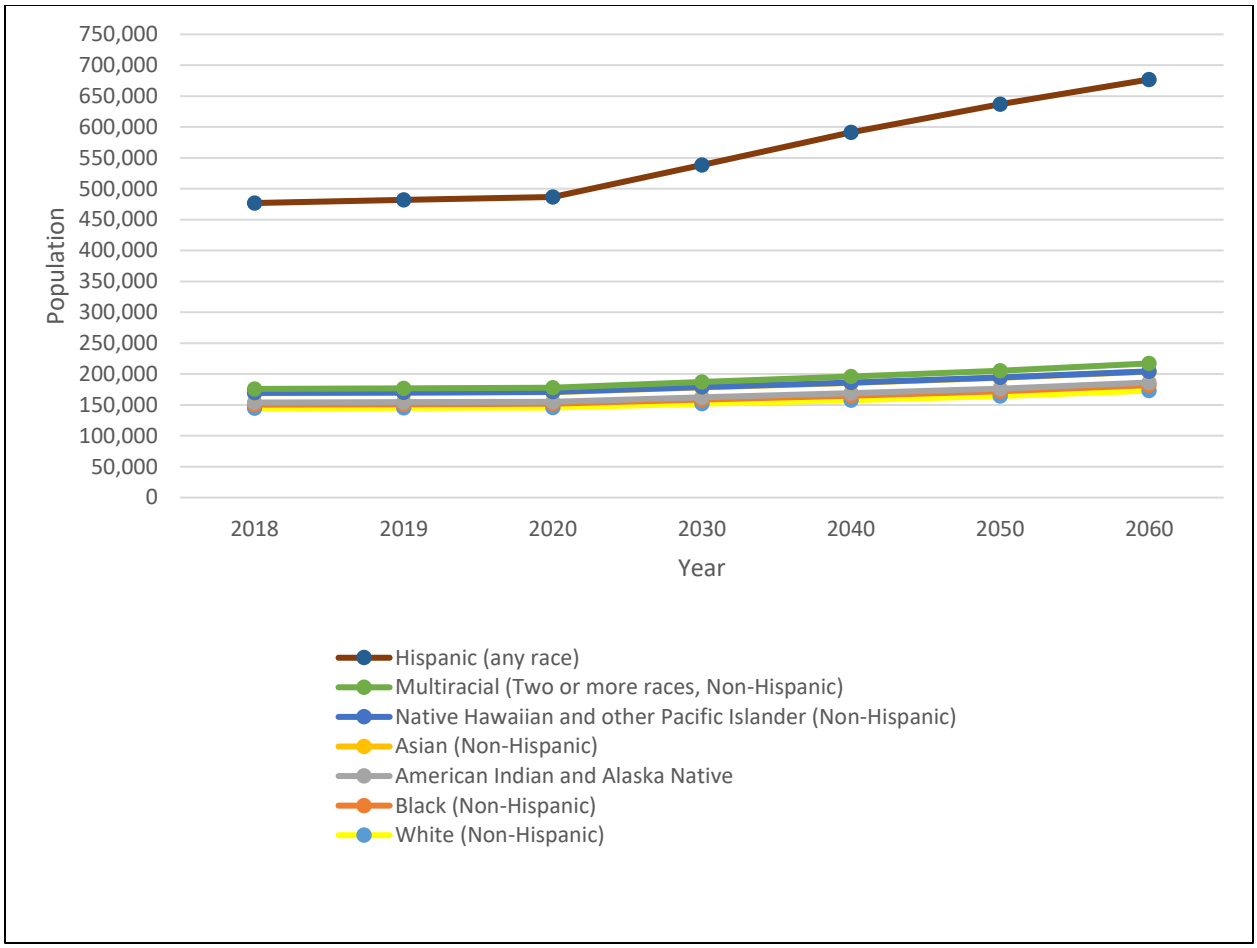


Figure REC 1-4. Tulare County Population Projections

MAPS

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SEQUOIA - KINGS CANYON WILDERNESS

SEQUOIA NATIONAL PARK

Marble Fork Kaweah River

Marble Fork Diversion Dam (Non-FERC Facility)

Middle Fork Kaweah River

Middle Fork Diversion Dam (Non-FERC Facility)

Kaweah River

Kaweah No. 3 Flowline (Non-FERC Facility)

Kaweah No. 3 PH to Three Rivers Substation Transmission Line

Kaweah No. 2 Diversion Dam

K3 Forebay

Kaweah No. 2 Flowline

Kaweah No. 3 Flowline

Kaweah No. 3 Powerhouse

Kaweah No. 1 Powerhouse

Kaweah No. 2 Powerhouse

K2 Forebay

Kaweah No. 2 Powerhouse River Access Area ("Edison Beach")

Dinely Rd

Craig Ranch Rd

K1 Forebay Rd

K1 Forebay Tank

Skyline Dr

Kaweah River Dr

Three Rivers Substation (Non-FERC Facility)

Kaweah No. 1 Flowline

Mineral King Rd

East Fork Kaweah River

Kaweah No. 1 Diversion Dam

North Fork Kaweah River

N. Fork Dr

Kaweah River

THREE RIVERS

198

99

SCE Facilities

- Powerhouse
- Diversion
- Utility
- Forebay
- Flowline
- Penstock
- Transmission Line
- Project FERC Boundary

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body
- River Mile

Land Jurisdiction*

- Bureau of Land Management
- National Park Service
- Private (Blank)

Land Management*

- National Wilderness Area
- BLM Case Mountain Extensive Recreation Management Area (ERMA)

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County.

Study Area

- Bypass Reaches

SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map REC1-1

Recreation Resources Study Area

0 0.25 0.5 Miles

Projection: UTM Zone 11
Datum: NAD 83

Date: 6/20/2019

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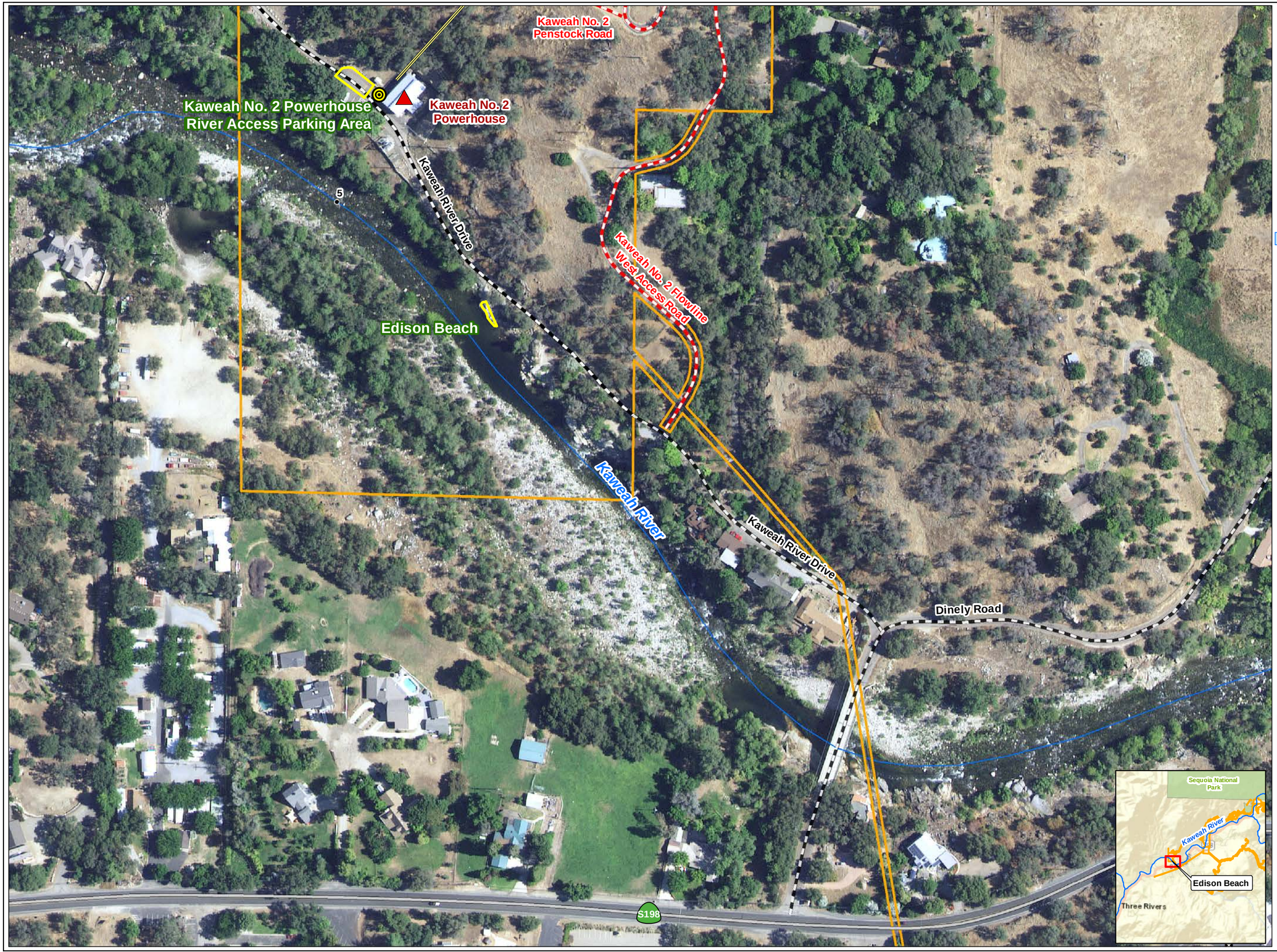

SCE Facilities

- Powerhouse
- Diversion
- Forebay
- Flowline
- Penstock
- FERC Boundary

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body
- River Mile

Transportation

- Project Road
- Non-Project General Access Road
- Gate

Recreation Use Study

- Camera Location

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FERC Project No. 298

Map REC1-2

Kaweah No. 2 Powerhouse River Access Parking Area and Edison Beach Location Map

0 50 100 200 Feet

Projection: UTM Zone 11
Datum: NAD 83

Date: 6/20/2019

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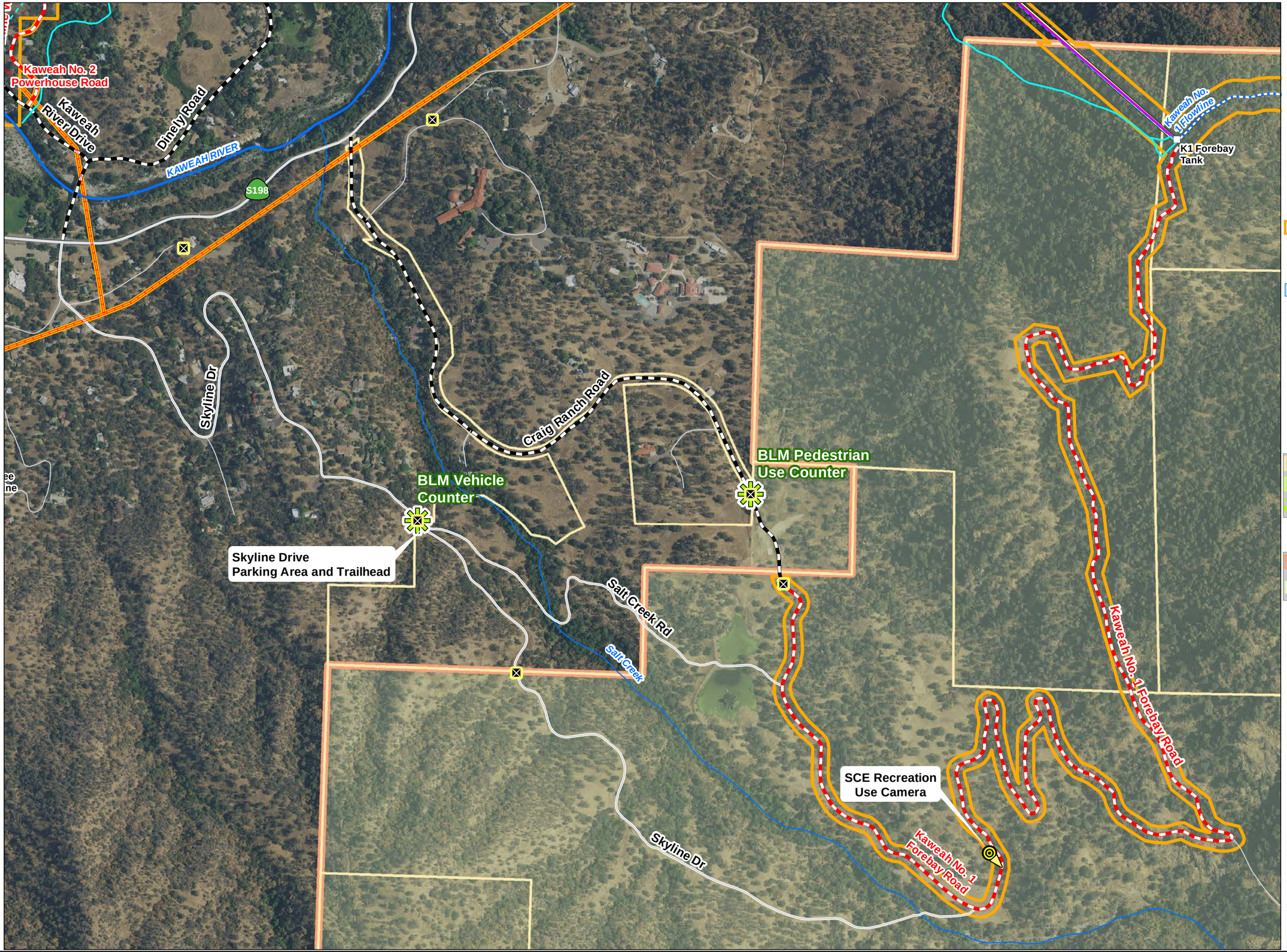

SCE Facilities

- Powerhouse
- Diversion
- Flowline
- Penstock
- Spillway Channel or Pipe
- Transmission Line
- Power Line
- Communication Line
- Ancillary Facility
- Gage
- Project FERC Boundary

Other Features

- Watercourse
- Water Body

Transportation

- Project Road
- Project Trail
- Non-Project General Access Road
- Other Road
- Gate

Land Jurisdiction*

- Bureau of Land Management
- Wilderness Area
- National Park Service

Land Management*

- BLM Area of Critical Environmental Concern (ACEC)
- BLM Case Mountain Extensive Recreation Management Area (ERMA)

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County

Recreation Use Study

- SCE Recreation Use Camera Location (with Direction)
- BLM Visitor Use Counter Location

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FERC Project No. 298

Map REC1-3

SCE Camera and BLM Counter Locations on/near Craig Ranch Road

0 250 500 Feet

Date: 6/20/2019

Projection: UTM Zone 11
Datum: NAD 83

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Kaweah No. 2 Diversion Dam
Kaweah No. 3 Powerhouse
Kaweah No. 3 PH to Three Rivers Substation Transmission Line
Kaweah No. 2 Flowline
GC1
GC2
GC3
GC4
GC5
GC6
Kaweah River
Mineral King Rd.
Kaweah No. 1 Powerhouse
K2 Forebay
Kaweah No. 2 Powerhouse
Dinely Rd
K3 Forebay
East Fork Kaweah River
Kaweah No. 1 Flowline
K1 Forebay Tank
Craig Ranch Rd
K1 Forebay Rd
Skyline Dr
Three Rivers Substation (Non-FERC Facility)
9
8
7
6
5
1
2

SCE Facilities

- Powerhouse
- Diversion
- Utility
- Forebay
- Flowline
- Penstock
- Transmission Line
- Project FERC Boundary

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body
- River Mile

Land Jurisdiction*

- Bureau of Land Management
- National Park Service
- Private (Blank)

Land Management*

- National Wilderness Area
- BLM Case Mountain Extensive Recreation Management Area (ERMA)

*SOURCE: BLM 2016
Kaweah Project entirely within Tulare County.

Wildlife Game Cameras

- Game Camera Location

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FERC Project No. 298

Map REC1-4

Kaweah No. 2 Flowline Game Camera Locations

0 500 1,000 Feet

Date: 6/21/2019

Projection: UTM Zone 11
Datum: NAD 83

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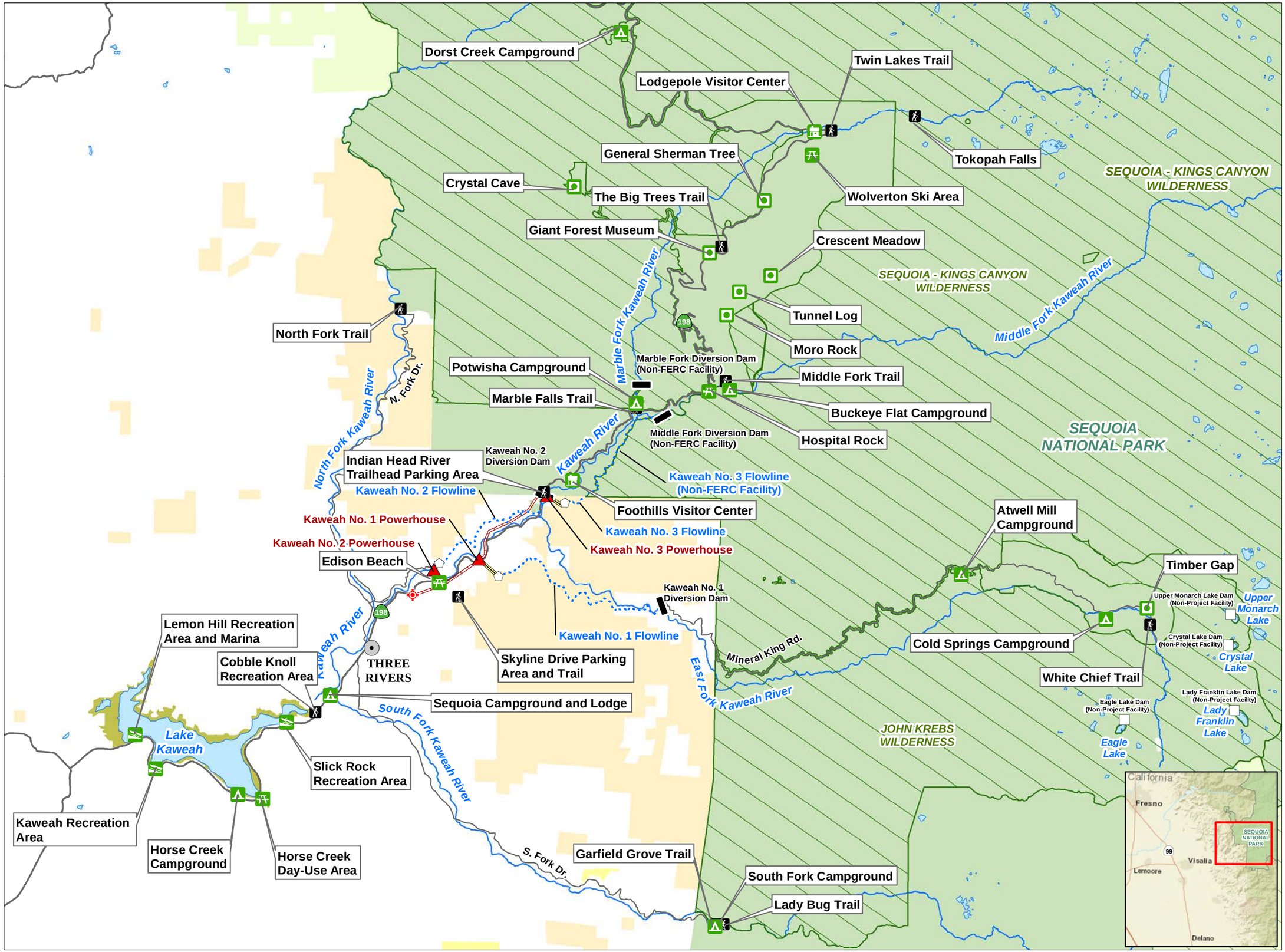

SCE Facilities

- Powerhouse
- Diversion
- Dam
- Utility
- Forebay
- Flowline
- Penstock
- Transmission Line

Recreation Facilities

- Boat Launch
- Campground
- Day-Use Area
- Point of Interest
- Trailhead
- Visitor Center

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body

Land Jurisdiction*

- Bureau of Land Management
- U.S. Army Corps of Engineers
- National Park Service
- U. S. Bureau of Reclamation
- State Of California
- State Of California
- Private (Blank)

*SOURCE: BLM 2016

Land Management

- National Wilderness Area

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FERC Project No. 298

Map REC1-5

Developed Recreation Facilities in the Kaweah River Watershed

Date: 6/21/2019

0 0.5 1 2 Miles

Projection: UTM Zone 11
Datum: NAD 83

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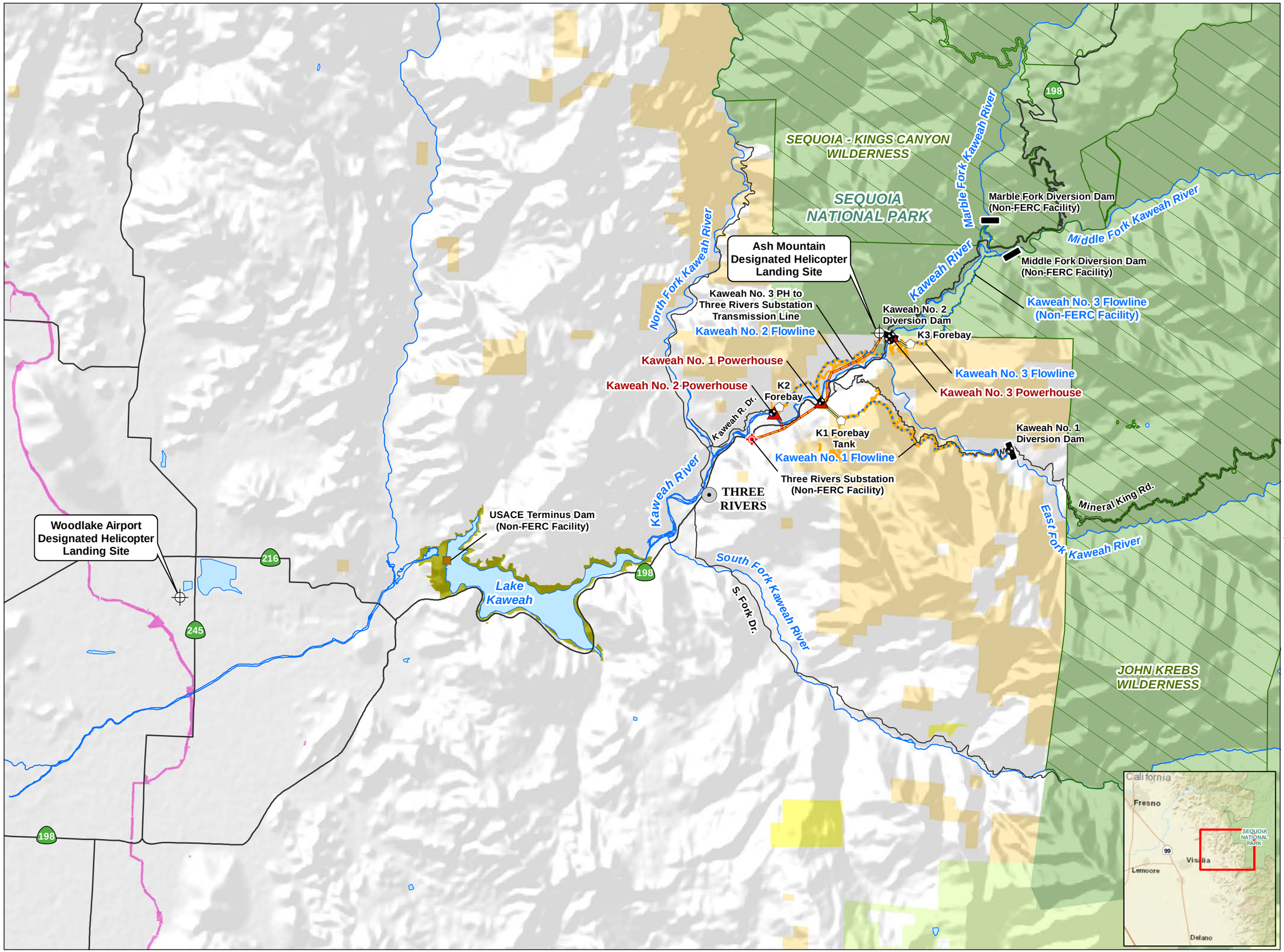

SCE Facilities

- Powerhouse
- Diversion
- Dam
- Utility
- Forebay
- Gage
- Flowline
- Penstock
- Transmission Line
- Project FERC Boundary

NOTE: The Marble and Middle Fork Diversion Dams are not in designated Wilderness

Other Features

- Dam
- City/Town
- Designated Helicopter Landing Site
- Highway/Road
- Watercourse
- Water Body

Land Jurisdiction*

- Bureau of Land Management
- U.S. Army Corps of Engineers
- National Park Service
- U. S. Bureau of Reclamation
- State Of California
- State Of California
- Private (Blank)

*SOURCE: BLM 2016

Land Management

- National Wilderness Area

SOUTHERN CALIFORNIA EDISON®
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FERC Project No. 298

Map REC1-6

Designated Helicopter Landing Sites in the Vicinity of the Kaweah Project

Date: 6/21/2019

0 0.5 1 2 Miles

Projection: UTM Zone 11
Datum: NAD 83

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Kaweah Project, FERC Project No. 298

REC 2 – Whitewater Boating
Final Technical Study Report

December 2019

Southern California Edison Company
Regulatory Support Services
1515 Walnut Grove Avenue, Rosemead, CA 91770

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List of Acronyms

ADCP	Acoustic Doppler Current Profiler
AVM	Acoustic Velocity Meter
AW	American Whitewater
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
RV	Recreational Vehicle
SCE	Southern California Edison Company
TCRMA	Tulare County Resource Management Agency
TSP	Technical Study Plan
TSR	Technical Study Report
USACE	U.S. Army Corps of Engineers
USGS	U.S. Geological Survey
WBFG	Whitewater Boating Focus Group

1 INTRODUCTION

This Technical Study Report (TSR) describes the data and findings developed by Southern California Edison Company (SCE) in association with implementation of the REC 2 – Whitewater Boating Technical Study Plan (REC 2 – TSP) for the Kaweah Project (Project). The REC 2 – TSP was included in SCE's Revised Study Plan (RSP)[1] (SCE 2017a) and was approved by the Federal Energy Regulatory Commission (FERC) on October 24, 2017, as part of its Study Plan Determination for the Project (FERC 2017).

This report provides a description of the methods and results of the study which was conducted in 2017 and 2018 for the bypass reaches[2] associated with the Project. Specifically, this report: (1) characterizes existing whitewater boating opportunities; (2) summarizes commercial and private whitewater boating use; (3) summarizes flows (hydrology) under impaired and unimpaired conditions as it relates to whitewater boating opportunities; and (4) identifies existing real-time flow dissemination mechanisms. In addition, this report discusses results of the Whitewater Boating Focus Group (WBFG) meeting conducted in April 2018.

2 STUDY OBJECTIVES

The REC 2 – TSP included three study objectives, as follows:

- Characterize commercial and private whitewater boating opportunities and use levels on the bypass reaches;
- Identify the range of flows on the bypass reaches that accommodate whitewater boating; and
- Identify opportunities for disseminating real-time flow information to the public.

3 EXTENT OF STUDY AREA

The REC 2 – TSP identifies three whitewater boating runs located on the bypass reaches as the extent of the Study Area. These whitewater runs are potentially affected by Project operations and include:

- Park Boundary Run: Kaweah River from the Kaweah No. 2 Diversion Dam to the East Fork Kaweah River Confluence;
- Gateway Bridge Run: Kaweah River from the East Fork Kaweah River Confluence to Dinely Bridge; and
- Lower East Fork Run: East Fork Kaweah River from near Oak Grove Bridge to Gateway Bridge at Highway 198.

The locations of the three whitewater runs included in the Study Area are shown on Map REC 2-1. Map REC 2-1 also shows other runs on the Kaweah River for context.

[1] SCE filed a Proposed Study Plan (PSP) on May 24, 2017 (SCE 2017b). Three comments were filed on the PSP; however, they did not result in revisions to any of the study plans. Therefore, SCE filed a Revised Study Plan (RSP) on September 19, 2017, which stated that the PSP, without revision, constituted its RSP. The FERC subsequently issued a Study Plan Determination on October 24, 2017, approving all study plans for the Kaweah Project.

[2] A bypass reach is a segment of river downstream of a diversion facility where Project operations result in the diversion of a portion of the water from the river.

4 STUDY APPROACH AND METHODS

The study approach generally followed the methods summarized in *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker et al. 2005). This method is a three-phase approach where the results of the first phase (also referred to as Level 1) are used to determine whether the subsequent phases (referred to as Levels 2 and 3) are warranted. The three phases for the Kaweah Project include:

- Phase 1 – Develop Information about Whitewater Resources and Hydrology
- Phase 2 – Potential Site Visit
- Phase 3 – Potential Whitewater Boating Flow Studies

Phase 1 activities included:

- Characterizing existing whitewater boating opportunities and use on the bypass reaches, based on existing published information sources;
- Summarizing commercial and private whitewater boating use on the bypass reaches;
- Conducting a hydrology assessment;
- Identifying existing flow dissemination mechanisms;
- Preparing and distributing a summary report; and
- Conducting a WBFG meeting.

All Phase 1 activities were completed with the exception of preparing and distributing a summary report. Information was developed and incorporated into the WBFG meeting presentation. This report, herein, serves as the summary report.

After completing Phase 1, it was decided by the WBFG meeting participants that Phase 2 (potential site visit) is deferred at this time and may not be warranted, and Phase 3 (potential whitewater boating flow study) is not warranted. Based on the review and comments by stakeholders on this REC 2 – TSR, the Phase 2 site visit may be conducted in 2019, if warranted.

4.1 Whitewater Boating Focus Group Meeting

A WBFG meeting was conducted to substantiate and develop additional information about whitewater boating opportunities on the bypass reaches. The WBFG meeting was held on April 3, 2018, at the Three Rivers Memorial Building located in Three Rivers, California. The objective of the meeting was twofold: (1) provide whitewater boaters with understanding of the Kaweah Project and Project hydrology; and (2) collect whitewater boating resource information to be used for REC 2 – TSR.

American Whitewater (AW) and the Tulare County Resource Management Agency (TCRMA) were contacted to assist in identifying potential WBFG participants. A total of 17 people were contacted to participate in the WBFG. Of the 17 people contacted, 4 people, not including SCE and Cardno staff, participated in the WBFG meeting: 2 kayakers, 1 commercial outfitter, and 1 representative from AW.

The meeting presentation included an overview of the Kaweah Project and the relicensing process. Information on Kaweah Project hydrology was presented to provide an understanding of how the Project influences flow on the East Fork Kaweah River and the Kaweah River and the relationship to flow below the Kaweah No. 1 Diversion Dam, Kaweah No. 2 Diversion Dam, Gateway Bridge[3], and the Three Rivers Gage.

[3] The Gateway Bridge is also referred to as the Pumpkin Hollow Bridge.

A whitewater boating resource assessment was conducted with meeting participants that included a presentation summarizing existing information about the three runs on the bypass reaches. Subsequent discussion focused on developing additional details about the boating runs. In addition to general comments regarding the runs, for each run the following factors were assessed:

- Access conditions or constraints
- Difficulty class
- Types of watercraft used
- Existing and potential uses
- Boating season
- Boatable flow ranges

At the conclusion of the meeting, WBFG participants determined that a site visit is deferred at this time and may not be warranted, and a whitewater boating flow study is not warranted to develop additional information. Based on the review and comments by stakeholders on this REC 2 – TSR, the site visit may be conducted in 2019, if warranted. The agenda, list of meeting attendees, and meeting notes from the WBFG meeting are presented in Appendix A: Whitewater Boating Focus Group Meeting.

5 STUDY RESULTS

The following section presents the results of the REC 2 – TSP.

5.1 Whitewater Boating Opportunities and Use on the Bypass Reaches

Information contained in published whitewater guide books (Cassady et al. 1995; Holbeck et al. 1998) and available on the internet[4] were used to characterize the three whitewater boating runs on the bypass reaches. These data were augmented by information collected through targeted phone interviews with commercial boating outfitters and private boaters with boating experience on the three whitewater runs, and information collected during the WBFG meeting. Information collected in this effort included the identification of access points (put-in and take-out); difficulty class; length of runs; boatable flow ranges; types of watercraft typically used; existing and potential uses; boating season; and access conditions or constraints. Each run is summarized below and in Table REC 2-1.

For contextual purposes, other whitewater runs on the Kaweah River are depicted on Map REC 2-1 and are summarized on Table REC 2-2.

5.1.1 Whitewater Runs on the Bypass Reaches

Park Boundary Run

The 0.6-mile Park Boundary Run is located on the Kaweah River extending from the Kaweah No. 2 Diversion Dam to the East Fork Kaweah River Confluence. The run supports non-commercial rafting and kayaking, and is typically boated in the spring. This run is not considered a “stand-alone” run and is typically run as an extension of the upstream Ash Mountain Run or downstream Gateway Bridge Run. The put-in is located at the Indian Head River Trailhead (within Sequoia National Park) or near SCE’s Kaweah No. 2 Diversion Dam (private property). The take-out is either at the Gateway Bridge (private property) located just downstream of the confluence of the Kaweah River and East Fork Kaweah River, or approximately 0.75 mile downstream of the Gateway Bridge (Pumpkin Hollow Condominiums; private property). The run is rated as Class IV+ to V (advanced/expert). A separate flow range was not

[4] Available at: www.cacreeks.com; www.americanwhitewater.org; www.c2.com/kaweah; www.kaweah-river.com; and www.awetstate.com

established for the Park Boundary Run since the run is short and typically run in conjunction with upstream and/or downstream runs. The boatable flow range is assumed to be consistent with the downstream Gateway Bridge Run described below.

Gateway Bridge Run

The 3.1-mile Gateway Bridge Run is located on the Kaweah River extending from the East Fork Kaweah River Confluence to Dinely Bridge. The run supports non-commercial rafting and kayaking, and commercial rafting. The Gateway Bridge Run is typically boated in the spring. When boated for commercial activities, the Gateway Bridge Run is most often boated in conjunction with downstream runs to extend the whitewater boating experience. The put-in is either at the Gateway Bridge (private property), or approximately 0.75 mile downstream of the Gateway Bridge (Pumpkin Hollow Condominiums; private property; designated commercial rafting put-in). The take-out is located at Dinely Bridge (private property), or at the Three Rivers Hideaway (private property) located 0.3 mile downstream of Dinely Bridge. The run is rated as Class IV to V (intermediate/advanced). Two boatable flow ranges were identified for the Gateway Bridge Run: a rafting flow range and a kayaking flow range. The rafting flow range was established as 500 cubic feet per second (cfs) to 3,000 cfs. The kayaking flow range was established as 300 cfs to 3,000 cfs.

Lower East Fork Run

This 4.3-mile long Lower East Fork Run is located on the East Fork Kaweah River. The run is boated by non-commercial user, generally in kayaks. The Lower East Fork Run is typically boated in the spring. The put-in for this run is located on private property just downstream of the Kaweah No. 1 Diversion Dam (left bank at approximately River Mile [RM] 4.1). The take-out is at either the Gateway Bridge (private property), or approximately 0.75 mile downstream of the Gateway Bridge (Pumpkin Hollow Condominiums; private property). This run is rated as Class V to V+ (expert) and is described as very difficult requiring expert technical river-running and portaging skills. Given its level of difficulty and remote location with limited access, this run is best suited to highly-skilled boaters that are capable of portaging across difficult terrain, potentially with ropes and other technical equipment. The boatable flow range identified for this run is 80 cfs to 400 cfs with a subset flow range of 160 cfs to 250 cfs considered the optimum. The run requires an average of 6 to 7 hours to complete; however experts with extensive knowledge of the run can complete it in 2.5 to 3 hours.

5.2 Limiting Factors

The primary constraints for non-commercial whitewater boating on the bypass reaches in Kaweah River and East Fork Kaweah River is access to and/or from the river channel, and lack of real-time flow information (refer to Section 5.5).

River access in the Study Area is limited due to extensive private property holdings that border the bypass reaches. Theoretically, any location along the river could serve as a potential access location if agreement is reached with the private property owner. Instead of speculating on potential access sites, this section identifies existing access locations and describes their condition; and characterizes known private access agreements and bridge crossing easements.

Existing whitewater put-in and take-out locations in the Project vicinity occur on private property, at bridge crossings, and on public lands within Sequoia National Park and along the shore of Lake Kaweah, a U.S. Army Corps of Engineers managed facility. Conditions at existing river access locations vary significantly and range from undeveloped, very steep, and overgrown to developed with paved parking and support facilities. Table REC 2-3 identifies existing access along the Kaweah River and East Fork Kaweah River within the Study Area and downstream to Lake Kaweah and summarizes access conditions, parking availability, and public facilities at each location. Photographs of existing access locations are presented

in Appendix B: Access Location Site Photographs (permission to photograph access locations on private property was granted by property owner).

For commercial rafting operations on the Kaweah River, access is authorized through agreements with private property landowners. Commercial outfitter access is identified in Table REC 2-4. However, for private whitewater boaters, permission to use these properties for river access must be obtained from the property owner. Permission to use these properties by private whitewater boaters is at the private property owner's discretion.

There are two bridge crossings over the Kaweah River within the Study Area, including Dinely Bridge and Gateway Bridge. Dinely Bridge is under the jurisdiction of Tulare County and Gateway Bridge is under the jurisdiction of Caltrans. Bridge crossings include a public easement of 30 feet from centerline on either side of the road. According to both Tulare County and Caltrans, the public has the right to access the river within the boundaries of the easement (Anderson, Tulare County Department of Right of Way; Nunez, Caltrans). In addition, for Tulare County easements, the public can park vehicles within the county easement as constrained by topography and safety (Anderson, Tulare County Department of Right of Way). Confirmation as to the public's right to park on Caltrans easement has not yet been determined. In no way is SCE's consultation with Caltrans and Tulare County to be interpreted as authorization for the public to access the river at these bridge crossings. Obtaining permission to park and access the river at bridge crossings is the responsibility of individual parties.

It should be noted that at all bridge crossing locations private property owners have erected fencing and posted signage to keep the public from accessing the river in the vicinity of the bridge crossings. In addition, there is limited space for parking and/or staging of equipment if these areas are used as a put-in or take-out for whitewater boating activities.

5.3 Commercial and Private Whitewater Boating Use on the Bypass Reaches

Commercial whitewater boating use on the Kaweah River is summarized below based on records available from the TCRMA. The TCRMA manages commercial whitewater use on the Kaweah River and issues permits for commercial outfitters to conduct whitewater boating operations on the Kaweah River. Commercial boating is regulated by the TCRMA in accordance with the Kaweah River Management Plan. This plan was originally adopted by the Tulare County Board of Supervisors on December 16, 1997 (Resolution No. 97-1103), and subsequently updated in 2000 and 2005. The current Kaweah River Management Plan (TCRMA 2005) is presented Appendix C: Kaweah River Management Plan.

The Kaweah River Management Plan allows for up to eight commercial licenses per year. Commercial outfitters are required to file a license application annually along with a Commercial River Plan and an application fee to obtain a permit from the TCRMA to operate commercial whitewater boating services on the Kaweah River.

In 2018, seven commercial licenses were issued by the TCRMA. The 2018 licensed outfitters on the Kaweah River are: All-Outdoors California Whitewater Rafting; Kaweah Adventures; Adventure Connection; River Runners; Good Time Adventures; Kaweah Whitewater Adventures; and Sequoia Adventures. Information on each licensed outfitter is presented in Table REC 2-4.

Commercial whitewater boating activities take place on the Kaweah River within, and extending past, the Study Area. The run typically associated with commercial whitewater trips is the Gateway Bridge Run, which starts 0.75 mile downstream of the Gateway Bridge at a private property designated by the TCRMA as the put-in for commercial whitewater boating trips (Pumpkin Hollow Condominiums). There are multiple configuration options (length and difficulty) for commercial whitewater trips. Typically, the commercial run extends through the relatively short Gateway Bridge Run (3.1 miles long) to various downstream locations, and the "full-day" trip extends to Lake Kaweah (refer to Table REC 2-2).

Flows within the Kaweah River and East Fork Kaweah River are primarily dependent on snowmelt. The Project has limited storage capacity and is operated in a "run-of-river" mode. As such, whitewater boating use (private and commercial) on both the Kaweah River and East Fork Kaweah River will correlate to the water-year type and associated runoff.

In 2017 (a "normal" water year), commercial whitewater use on the Kaweah River totaled 674 people. Commercial trips were run in April, May, and June, with May accounting for 65% (434 people) of the total use. Based on discussion with the TCRMA, it was ascertained that there are no existing mechanisms to count private boating use on either the Kaweah or East Fork Kaweah Rivers, and no reliable estimates of private boating use are available (Garcia- LoBue, TCRMA).

5.4 Hydrology Assessment

Hydrologic information was developed to characterize Project hydrology on the bypass reaches and to support the development of boating flow ranges for whitewater runs on the bypass reaches. The following sections describe the results of the hydrology assessment.

5.4.1 Stream Gages

In order to assess the potential availability of stream flow information, stream gages within the Kaweah River Watershed were identified from U.S. Geological Survey (USGS)[5] and California Department of Fish and Wildlife[6] websites. There is network of gaging stations to monitor and record water flow throughout the Kaweah River Watershed. The majority of these gages have been installed and are maintained by the USGS. On the Kaweah River and East Fork Kaweah River some gages are joint USGS and SCE, and maintained by SCE while other gages are solely SCE-owned and maintained specially for hydroelectric facility operations and/or Project license requirements. The gages are listed in Table REC 2-5 and a brief description of the gages is provided if maintained/installed by SCE. The gage locations are shown on Map REC 2-2.

5.4.2 Kaweah Project Hydrology

To summarize the hydrology (impaired and unimpaired) on the river reaches associated with the Kaweah Project the following information was developed:

- Exceedance charts showing 10%, 50%, and 90% exceedance flows above and below the Kaweah No. 1 and No. 2 diversions, as well as flows within the Kaweah No. 1 and No. 2 flowlines.
- Hydrographs of the flow below the Kaweah No. 1 and No. 2 diversions.
  - Period of record from 1994 through 2017.
- Hydrographs representing normal and dry water years.
  - 2005, 2016, and 2017 represented normal year flows.
  - 1999, 2007, and 2015 represented dry year flows.

This information graphically portrayed the nature of Project-associated hydrology and the difference between impaired and unimpaired flow within the bypass reaches. The hydrographs of flows below the Kaweah No. 1 and No. 2 diversions were plotted for all years of record (1994 through 2017). These charts are presented in Appendix D: Exceedance Charts, and Appendix E: Hydrographs below the Kaweah No. 1 and No. 2 Diversions.

[5] Available at: https://ca.water.usgs.gov/flooding/california-streamgages.html
[6] Available at: https://map.dfg.ca.gov/bios/?al=Hydrography:0

To simplify the understanding of the differences in hydrology between normal and dry water years, hydrographs representing these year-types were developed using three representative years for each water-year type to show "low," "medium," and "high" flows. These charts show the range of variability within a water-year type and are presented in Appendix F: Hydrographs Representing Normal and Dry Years.

5.4.3 Whitewater Boating Opportunities

To develop boating flow ranges on the bypass reaches, an understanding of how boaters estimate flow was required as currently there is no publically accessible stream gage data on the bypass reaches. The only stream gage that is publically available, and measures real-time flow, is the U.S. Army Corps of Engineers (USACE) Three Rivers Gage located on the Kaweah River approximately 2.3 miles downstream of the Gateway Bridge Run take-out (near the town of Three Rivers). Real-time flow information for the Kaweah River is collected at this gage and can be accessed through Dreamflows.[7] This is the gage commonly referred to on the website for information on flows on the bypass reaches. However, the flow measured at this location is a combination of flows on both the Kaweah River and the East Fork Kaweah River.

Whitewater boating flow ranges developed though the WBFG process were applied to Project hydrology to calculate the number of whitewater boating opportunities. For the Gateway Bridge Run on the Kaweah River, two boating flow ranges were identified: a rafting flow range and a kayaking flow range. The rafting flow range was established as 500 cfs to 3,000 cfs. The kayaking flow range was established as 300 cfs to 3,000 cfs. The boating range identified for the Lower East Fork Run on the East Fork Kaweah River is 80 cfs to 400 cfs.

These boating flow ranges were used to calculate boating opportunity days on bypass reaches under impaired and unimpaired conditions. This calculation was applied to both impaired and unimpaired conditions for normal and dry water-year types. The distribution of the water-year types between 1994 and 2017 is presented in Table REC 2-6.

There is a decrease in the number of boating opportunities between unimpaired and impaired conditions, and this difference is more pronounced during dry water-year types. On the Kaweah River, during normal water-year types under impaired conditions, the average decrease in boating opportunity days for rafts and kayaks is about 13% as compared to unimpaired conditions. During dry water-year types this difference is more pronounced with an average decrease in boating opportunities days for rafts of 24% and for kayaks 22%. On the East Fork Kaweah River the decrease in boating opportunity days for kayaks as compared to unimpaired conditions is about 9% in normal water-year types and 14% for dry water-year types.

The boating flow range thresholds are plotted on the hydrographs representing normal and dry water years. These plots graphically show the seasonal distribution of flow suitable for whitewater boating under impaired and unimpaired condition and are presented in Appendix G: Boating Flow Hydrographs – Representative Water-year Types.

On the Kaweah River, during normal water-year types, boating opportunities for rafting and kayaking are associated with spring runoff which typically begins in early April, and ends in mid-June. In a "high-water" year such as 2005, boating opportunities would be available starting in January and continue through late July. During dry water-year types there may be no boating opportunities except during a water year such as 1999, and then for a duration during the month of May. As a result of having a lower flow threshold for boating, kayaking opportunities during a water year such as 1999 would extend from mid-April to mid-June.

On the East Fork Kaweah River, during normal water-year types, boating opportunities for kayaking can start in January and extend to August for a high-water year such as 2005. However, flows can be too high for boating from about May to July. During dry water-year types there is more variability in the

[7] Available at: www.dreamflows.com/graphs/day.103.php

availability of boating opportunities; there may be only a few boating opportunities or there can be boating opportunities from April through June, depending on that water year.

Boating opportunity day summary tables showing the average, minimum, and maximum numbers of boating opportunity days for impaired and unimpaired conditions in dry and normal water-year types are presented in Table REC 2-7 and Table REC 2-8. Annual boating opportunity days under impaired and unimpaired conditions are presented in Table REC 2-9.

5.5 Existing Flow Dissemination Mechanisms

The type of flow information that is currently available to the public was identified through the initial information gathering process using published information and existing websites. This information was verified, and augmented, by the WBFG.

The only real-time flow information for the Kaweah River used by whitewater boaters is collected at a gage located on the Kaweah River, near Three Rivers (USGS Gage No. 11209900, Map REC 2-2). This gage is maintained by the USACE and is referred to as the Kaweah River at Three Rivers Gage. This gage measures and records river stage on an hourly basis.[8]

River stage data collected at the Three Rivers Gage is disseminated through the website Dreamflows[9], the website commonly used by whitewater boaters to obtain flow information on whitewater boating runs. Dreamflows collects the Three Rivers Gage data and converts the stage data to flow in cfs using a stage-discharge relationship.

It was noted by the WBFG participants that providing additional real-time flow information on the bypass reaches would enhance the ability to take advantage of the existing whitewater boating opportunities within the bypass reaches, as well as other river reaches within the Kaweah River Watershed.

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[8] Available at: http://rivergages.mvr.usace.army.mil/WaterControl/shefdata2.cfm?sid=TRR&d=7&dt
[9] Available at: http://www.dreamflows.com/graphs/day.103.php

TABLES

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Table REC 2-1. Whitewater Boating Runs on the Bypass Reaches

Run	Put-in	Take-out	Difficulty Class	Run Length	Boatable Flow Ranges	Watercraft used	Existing and Potential Uses	Boating Season	Access Conditions or Constraints	Notes
Kaweah River: Park Boundary	• Indian Head River Trailhead • SCE Kaweah No. 3 Powerhouse	• Gateway Bridge[1] • Private property on left bank 0.75 mile downstream of Gateway Bridge	IV+ – V	0.6 mile	• N/A - Flow range is assumed to be consistent with Gateway Bridge Run	• Kayaks • Rafts	• Non-commercial rafting and kayaking	Year-round	• Put-in at Kaweah No. 3 Powerhouse is on SCE property • Take-outs are on private property	• This run is not considered a “stand-alone” run and is typically run as an extension of the upstream Ash Mountain Run or downstream Gateway Bridge Run.
Kaweah River: Gateway Bridge	• Gateway Bridge • Private property on left bank 0.75 mile downstream of Gateway Bridge – designated commercial rafting put-in (see Table REC 2-4: 2018 Kaweah River Commercial Whitewater Licenses)	• Dinely Bridge • Three Rivers Hideaway 0.3 mile downstream of Dinely Bridge – take-out is on private property (see Table REC 2-4: 2018 Kaweah River Commercial Whitewater Licenses)	IV – V	3.1 miles	• Rafts: 500 to 3,000 cfs • Kayaks: 300 to 3,000 cfs • Flow range is based on Three Rivers Gage flow measurement	• Kayaks • Inflatable kayak • Rafts	• Non-commercial kayaking and rafting • Commercial rafting	Year-round	• Put-ins and take-outs are on private property	• Take-out at Three Rivers Hideaway is on private property and is not normally used due to paying customers filling the lot in the summer when the river is most commonly run. • Boaters can continue downstream 6.6 miles to take-out on public lands on Lake Kaweah. • Boaters expressed an interest in obtaining access (take-out) to SCE lands at Kaweah No. 1 Powerhouse and Kaweah No. 2 Powerhouse.
East Fork Kaweah River: Lower East Fork	• The Oak Grove Bridge has historically been used as the put-in for this run, however is no longer used due to a rock slide hazard below the bridge • Private property on river left approximately RM 4.1 (SCE could not document any established agreement with the private property owner to use this location as a put-in)	• Confluence with East Fork Kaweah (Gateway Bridge) • Private property on left bank 0.75 mile downstream of Gateway Bridge	V – V+	4.3 miles	• 80 to 400 cfs: boatable flow range • 160 to 250 cfs: optimum flow range	• Kayaks • Note: there have been reports of rafts running this section. Whitewater Boating Focus Group members could not confirm this information.	• Non-commercial rafting and kayaking • Inflatable kayaks on lower section downstream of RM 1.1	Year-round	• Put-ins and take-outs are on private property	• Access points at approximately RM 3.45, RM 3, and RM 1.1 were identified by Whitewater Boating Focus Group members. These locations are on private property and would be considered for emergency access. • Requires an average of 6 to 7 hours to complete. Experts with extensive knowledge of run can complete it in 2.5 to 3 hours. • Boaters expressed interest in establishing a put-in for this run as the current put-in is on private property.

Notes:

1. The Gateway Bridge is also referred to as the Pumpkin Hollow Bridge.

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Table REC 2-2. Description of Other Whitewater Boating Runs in the Kaweah River Watershed

Run	Put-in	Take-out	Difficulty Class	Run Length	Watercraft Used	Notes
Ash Mountain	• Trailhead at the RV dump station near Potwisha Campground	• Sequoia National Park Foothills Visitor Center • Indian Head River Trailhead • Confluence with East Fork Kaweah (Gateway Bridge[1]) • Private property on left bank 0.75 mile downstream of Gateway Bridge	V – V+	3.9 miles	• Kayaks • Rafts	• The run is located within the Sequoia National Park. Whitewater Boating Focus Group Meeting attendees say it is legal to boat in the park and have had no access issues with park staff. • Boaters typically continue the run to take-outs on the bypassed reach. • Boaters expressed an interest in obtaining access (take-out) to SCE lands at Kaweah No. 3 Powerhouse - Kaweah No. 2 Diversion.
Dinely Bridge	• Dinely Bridge	• North Fork Bridge	III – IV	3.0 miles	• Kayaks • Rafts	• Includes a Class V rapid just above the take-out.
Three Rivers	• North Fork Bridge	• Lake Kaweah	II – III	4.0 miles	• Kayaks • Rafts	

Notes:

1. The Gateway Bridge is also referred to as the Pumpkin Hollow Bridge.

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Table REC 2-3. Summary of Existing River Access Locations

Existing Access Location	Property Jurisdiction	Parking Availability	Access Conditions	Public Facilities
Kaweah River				
Indian Head River Trailhead	Sequoia National Park	• 10 total delineated spaces; paved • 1 disabled parking space • 4 ten-minute-only parking spaces	• Developed river access trail from parking lot • Access trail is 650 feet in length • Approximately 100 feet elevation drop from parking area to river channel	• Trash receptacles
Kaweah No. 2 Diversion Dam / Kaweah No. 3 Powerhouse[1]	SCE	• No public parking for river access	• No established public access for river recreation	• None
Gateway Bridge	Caltrans (bridge easement[3] / private property)	• Non-delineated roadside parking (<10 cars)	• Public road easement 30 feet from road centerline • Posted "No Parking" • Posted "No Trespassing" • River access is fenced off	• None
Commercial Rafting Put-in (private property on left bank 0.75 mile downstream of Gateway Bridge)	Private	• No public parking for river access	• Gated • Public use of property granted by property owner permission on a case-by-case basis	• None
Kaweah No. 1 Powerhouse[1]	SCE	• No public parking for river access	• No established public access for river recreation	• None
Dinely Bridge	Tulare County (bridge easement[3] / private property)	• Non-delineated roadside parking (<10 cars)	• Public road easement 30 feet from road centerline • Posted "No Trespassing" in some locations • River access is fenced off in some locations	• None
Kaweah No. 2 Powerhouse River Access (Edison Beach)	SCE	• 5 total delineated spaces; paved • 1 disabled parking space	• Limited hours; closed on weekends	• Trash receptacles
Three Rivers Hideaway	Private	• No public parking for river access	• Controlled access • Public use of property granted by property owner permission on a case-by-case basis	• Restrooms • Trash receptacles
North Fork Bridge[2]	Tulare County (bridge easement[3] / private property)	• Non-delineated roadside parking (<10 cars)	• Public road easement 30 feet from road centerline • Posted "No Trespassing" in some locations • River access is fenced off in some locations	• None
Slick Rock Recreation Area[2]	USACE	• 91 delineated spaces; paved	• Paved access to lake at boat ramp • Undeveloped access to lake/river along paved road (approximately 0.8 miles)	• Developed boat ramp facility • Restrooms • Trash receptacles
Lake Kaweah Recreation Area[2]	USACE	• 63 delineated spaces; paved	• Paved access to lake at boat ramp • Undeveloped access to lake on unpaved road	• Developed boat ramp facility • Restrooms • Trash receptacles
East Fork Kaweah River				
Private property on river left approximately at River Mile 4.1	Private	• No public parking for river access	• No established public access for river recreation	• None

Notes:

1. This is not an existing river access location, however, is included in this table at the request of the National Park Service and American Whitewater.
2. This location is outside Study Area.
3. In no way is SCE's consultation with Caltrans and Tulare County to be interpreted as authorization for the public to access the river at these bridge crossings. Obtaining permission to park and access the river at bridge crossings is the responsibility of individual parties.

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Table REC 2-4. Kaweah River Commercial Whitewater License Conditions for 2018

License No.	Applicant	Max. # People/day	Max # Rafts/day	Max # Kayaks/day	Client Parking	Company Parking	Put-in	Meals / Rest Location	Portage Sites	Take-out
CRL 10-001	River Runners Inc.	64	8	2	Three Rivers Hideaway	Three Rivers Hideaway	• Pumpkin Hollow Condominiums • Three Rivers Hideaway	• Not permitted to provide meals	• Not expected	• Three Rivers Hideaway • Lake Kaweah – Slick Rock Recreation Area
CRL 10-002	All-Outdoors Whitewater Rafting	64	8	2	River View Restaurant and Lodge	Three Rivers Hideaway	• Pumpkin Hollow Condominiums	• River View Restaurant and Lodge	• Not expected	• Lake Kaweah – Slick Rock Recreation Area
CRL 10-003	Sequoia Adventures				Three Rivers Hideaway	Three Rivers Hideaway	• Pumpkin Hollow Condominiums • Three Rivers Hideaway	• Not permitted to provide meals	• Not expected	• Three Rivers Hideaway • Lake Kaweah – Slick Rock Recreation Area
CRL 10-004	Good Times Adventures LLC	64	8	3	Three Rivers Hideaway	Three Rivers Hideaway	• Gateway Restaurant and Lodge • Three Rivers Hideaway • Kaweah River Trading Company	• Three Rivers Hideaway – No meals provided	• Not expected	• Three Rivers Hideaway • Kaweah River Trading Company • Lake Kaweah – Slick Rock Recreation Area
CRL 10-005	Adventure Connection Inc.	64	8	0	Three Rivers Hideaway	Three Rivers Hideaway	• Pumpkin Hollow Condominiums	• Pumpkin Hollow Condominiums – No meals provided	• Not expected	• Three Rivers Hideaway
CRL 10-006	Kaweah River Adventures #1	64	8	4	Kaweah Whitewater Adventures	Kaweah Whitewater Adventures	• Pumpkin Hollow Condominiums • Hearts Desire Gifts	• None	• Not expected	• Lake Kaweah – Slick Rock Recreation Area
CRL 10-007	Kaweah River Adventures #1	64	8	4	Kaweah Whitewater Adventures	Kaweah Whitewater Adventures	• Gateway Restaurant and Lodge • Pumpkin Hollow Condominiums • Hearts Desire Gifts	• Anne Lang's Emporium	• Not expected	• Lake Kaweah – Slick Rock Recreation Area

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Table REC 2-5. Kaweah River Watershed Stream Gages

River	Identification	Location	Notes
East Fork Kaweah River	USGS Gage No. 11208730 SCE Gage No. 201	East Fork Kaweah River near Three Rivers	Traditional stage-discharge stream gage located on the southwest bank (left bank) of the East Fork Kaweah River that measures streamflow between the intake dam and the gage pool weir.
	USGS Gage No. 11208800 SCE Gage No. 200a	East Fork Kaweah River Conduit 1 at Kaweah No. 1 Powerhouse near Hammond	Acoustic Velocity Meter (AVM) located on the penstock to the Kaweah No. 1 Powerhouse that measures flow into the powerhouse.
	SCE Gage No. 201a	Kaweah No. 1 release pipe	Operational AVM located on a release pipe that comes out of the Kaweah No. 1 Sandbox and measures minimum instream flow releases.
	SCE Gage No. 202	Downstream from the Kaweah No. 1 Flowline intake	Operational AVM just downstream from the Kaweah No. 1 Flowline intake that measures flow in the flowline.
Middle Fork Kaweah River	USGS Gage No. 11206500	Middle Fork Kaweah River near Potwisha Campground	SCE Gage No. 209 – Minimum Release only. Reviewed by the USGS from 0 to 38 cfs.
	SCE Gage No. 210	Middle Fork Kaweah River Conduit No. 3 near Potwisha Campground	No longer USGS Reviewed or published.
	USGS Gage No. 11208565	Middle Fork Kaweah River Conduit No. 3 at Kaweah No. 3 Powerhouse	AVM located on the penstock to the Kaweah No. 3 Powerhouse that measures flow into the powerhouse.
Marble Fork Kaweah River	SCE Gage No. 208	Marble Fork Kaweah River Conduit No. 3 Potwisha Campground	SCE Operational gage 208. No longer USGS Reviewed or published.
	USGS Gage No. 11208000	Marble Fork Kaweah River at Potwisha Campground	This former full range gage was replaced by a minimum release AVM gage around 2004. Full Marble Fork flows are computed after the fact using downstream and adjacent gages.
	USGS Gage No. 11206820	Marble Fork Kaweah R above Horse Cr near Lodgepole CA	
Kaweah River	USGS Gage No. 11208600	Kaweah River below No. 2 Intake near Hammond	This river gage provides the flow below the No. 2 Diversion, and is the flow for the Park Boundary and Gateway Bridge runs.
	SCE Gage No. 204a	Kaweah No. 2 Canal Argonaut below Intake	Operational Acoustic Doppler Current Profiler (ADCP) located on the Kaweah No. 2 Flowline that measures flow from the Kaweah No. 2 Intake into the flowline.
	USGS Gage No. 11208818 SCE Gage No. 205a	Kaweah River Conduit No. 2 at Power Plant	AVM located on the penstock to the Kaweah No. 2 Powerhouse that measures flow into the powerhouse.
	USGS Gage No. 11209900	Kaweah River at Three Rivers	This stage gage is operated by USACE and information is uploaded to whitewater boating websites and referenced for whitewater boating activities.

Notes:
ADCP = Acoustic Doppler Current Profiler
AVM = Acoustic Velocity Meter
cfs = cubic feet per second
SCE = Southern California Edison Company
USACE = U.S. Army Corps of Engineers
USGS = U.S. Geological Survey

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Table REC 2-6. Kaweah River Watershed Water-year Type Distribution, 1994 – 2017

Water-year Type	
Normal	**Dry**
1995	1994
1996	1999
1997	2004
1998	2007
2000	2013
2001	2014
2002	2015
2003	
2005	
2006	
2008	
2009	
2010	
2011	
2012	
2016	
2017	

Note: Period of Record is 1994 – 2017

Table REC 2-7. Gateway Bridge Run, Average, Minimum, Maximum Boating Opportunity Days, 1994 – 2017

Water-year Type	Gateway Bridge Run					
	Rafting (500 to 3,000 cfs)			Kayaking (300 to 3,000 cfs)		
	Impaired	Unimpaired	Difference	Impaired	Unimpaired	Difference
Normal Year						
Average No. Days	90	103	-13	122	139	-18
Minimum No. Days	28	32	-4	52	76	-24
Maximum No. Days	157	181	-24	212	226	-14
Dry Year						
Average No. Days	41	54	-13	73	94	-21
Minimum No. Days	6	11	-5	19	28	-9
Maximum No. Days	86	101	-15	108	134	-26

Note: Period of Record is 1994 – 2017

Table REC 2-8. Lower East Fork Run, Average, Minimum, Maximum Boating Opportunity Days, 1994 – 2017

Water-year Type	Lower East Fork Run Kayaking (80 to 400 cfs)		
	Impaired	Unimpaired	Difference
Normal Year			
Average No. Days	104	115	-11
Minimum No. Days	37	39	-2
Maximum No. Days	183	186	-3
Dry Year			
Average No. Days	76	89	-13
Minimum No. Days	24	27	-3
Maximum No. Days	103	124	-21

Note: Period of Record is 1994 – 2017

Table REC 2-9. Annual Number of Boating Opportunity Days

Year	Water-year Type	Gateway Bridge Run				Lower East Fork Run	
		Rafting (500 to 3,000 cfs)		Kayaking (300 to 3,000 cfs)		Kayaking (80 to 400 cfs)	
		Impaired	Unimpaired	Impaired	Unimpaired	Impaired	Unimpaired
1994	Dry	86	101	108	134	99	124
1995	Normal	149	163	191	195	131	133
1996	Normal	148	181	212	226	183	186
1997	Normal	107	113	140	166	128	149
1998	Normal	75	85	103	113	75	86
1999	Dry	60	84	103	120	103	111
2000	Normal	62	78	85	100	78	91
2001	Normal	57	70	79	95	80	93
2002	Normal	52	84	105	113	112	118
2003	Normal	78	95	115	123	97	107
2004	Dry	54	77	92	118	98	115
2005	Normal	116	127	139	163	107	114
2006	Normal	72	87	106	138	75	94
2007	Dry	43	51	71	108	88	105
2008	Normal	69	79	103	126	99	112
2009	Normal	56	85	116	133	116	118
2010	Normal	133	140	159	205	145	185
2011	Normal	100	102	118	141	92	101
2012	Normal	28	32	52	76	58	78
2013	Dry	11	16	43	58	46	59
2014	Dry	6	11	19	28	24	27
2015	Dry	29	39	74	93	73	83
2016	Normal	157	163	170	175	147	147
2017	Normal	71	67	79	82	37	39

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MAPS

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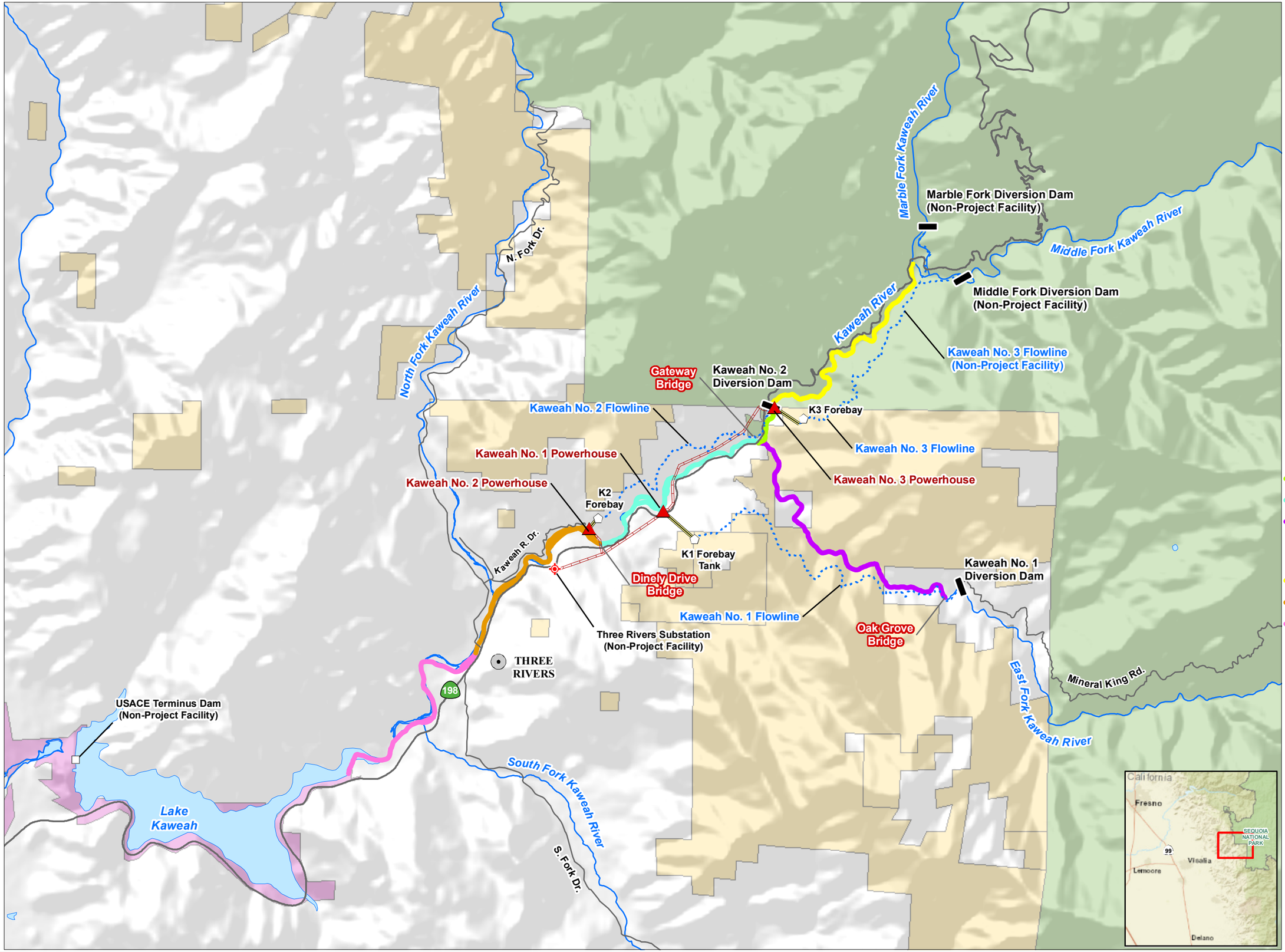

Facilities

- Powerhouse
- Diversion
- Dam
- Utility
- Flow Gage
- Forebay
- Flowline
- Penstock
- Transmission Line

Other Features

- City/Town
- Highway/Road
- Watercourse
- Water Body

Land Jurisdiction*

- Bureau of Land Management
- U.S. Army Corps of Engineers
- National Park Service
- U. S. Forest Service
- Private (Blank)

*SOURCE: BLM 2012

Whitewater Runs on the Bypass Reaches

- Park Boundary Run
- Gateway Bridge Run
- Lower East Fork Run

Other Whitewater Runs on the Kaweah River

- Ash Mountain Run
- Dinely Bridge Run
- Three Rivers Run

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Map REC 2-1

Whitewater Runs on the Kaweah River and East Fork Kaweah River

Date: 10/24/2018

0 0.25 0.5 1 Miles

Projection: UTM Zone 11
Datum: NAD 83

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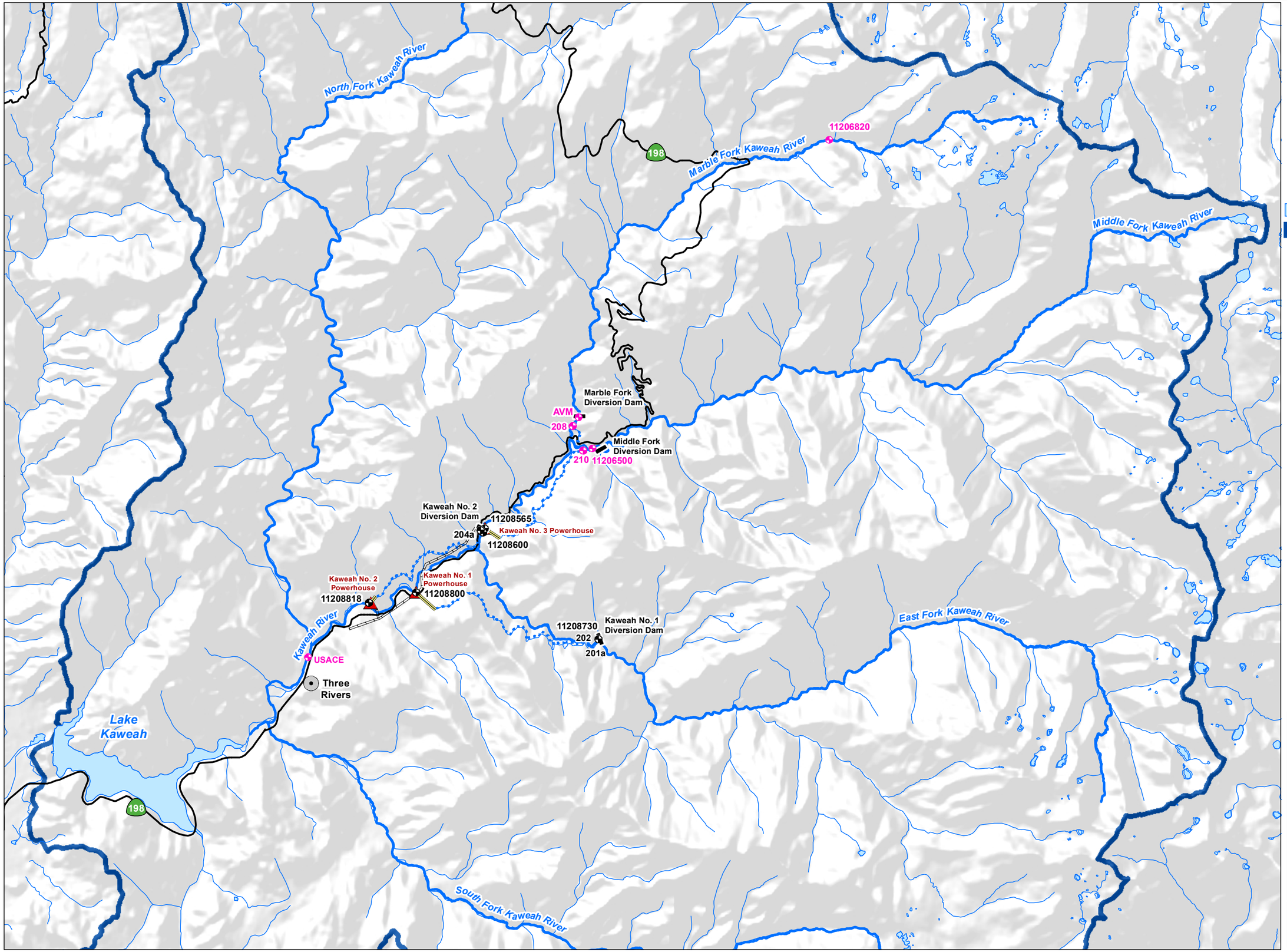

Facilities

- Powerhouse
- Diversion
- Flowline
- Penstock
- Transmission Line
- Project Gage (current)
- Non-Project Gage (current)

Other Features

- Highway
- Watercourse
- Water Body
- Watershed Boundary

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Eastern Hydro Generation

Map REC 2-2

Kaweah River Watershed Stream Gages

N W E S

0 0.5 1 2 Miles

Projection: UTM Zone 11
Datum: NAD 83

Date: 8/14/2018

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APPENDIX A

Whitewater Boating Focus Group Meeting

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SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead℠

Kaweah Project (FERC Project No. 298) Relicensing
REC 2 – Whitewater Boating Technical Study Plan

Whitewater Boater Focus Group Meeting

April 3, 2018 7:00 – 9:30
Three Rivers Memorial Building
Three Rivers, Ca.

GENERATION

Purpose of Meeting & Expected Outcome(s):

- Conduct the REC 2 – Whitewater Boating Technical Study Plan whitewater boater focus group meeting
  - Provide whitewater boaters with understanding of Kaweah Project and project hydrology
  - Collect whitewater boating resource information to be used for REC 2 – Whitewater Boating Technical Study Plan

AGENDA

Time	Topic	Who	Method	Expected Outcome
15 mins. (7:00 - 7:15)	Meeting objectives and introductions	SCE Attendees	Presentation Discussion	Presentation of Information
15 mins. (7:15 - 7:30)	Kaweah Project overview	SCE	Presentation	Presentation of Information
15 mins. (7:30 - 7:45)	Relicensing process overview	SCE	Presentation	Presentation of Information
30 mins. (7:45 - 8:00)	Project hydrology	SCE	Presentation	Presentation of Information
60 mins. (8:00 - 9:00)	Whitewater boating resource assessment	SCE Attendees	Presentation Discussion	Collection of information on whitewater boating
30 mins. (9:00–9:30)	Next steps	SCE Attendees	Discussion	Determination of need for a site visit Determination of need for a flow study
9:30	Adjourn	SCE		
http://www.sce.com/kaweah				

MEETING NOTES

Kaweah Project (FERC Project No. 298) Relicensing
REC 2 – Whitewater Boating Technical Study Plan
Whitewater Boater Focus Group Meeting

April 3, 2018 7:00 – 9:30 pm
Three Rivers Memorial Building, Three Rivers, CA

Meeting Notice

Meeting invites were sent to the following contacts with instructions to share the meeting notice with interested parties:

Commercial Outfitters

- Sequoia Adventures
  - Dave Hammond
  - info@sequoiaadventures.com
  - 559 561 4413
- Kaweah Whitewater Adventures
  - Frank Root
  - raft3rivers@gmail.com
  - 559 740 8251
- Good Times Adventures
  - Amicaya Frediani
  - raftgoodtimes@gmail.com
  - 800 250 5227
- All Outdoors
  - Scott Armstrong
  - rivers@aorafting.com
  - 530 919 1283

Non-Commercial Boaters

- Evan Moore
  - evanmoore32@yahoo.com
  - 760 741 0305
- Johnny Chase
  - chasewhitewater@gmail.com
  - 760 417 0422
- Tom Moore
  - moreinfo@sierrasouth.com
  - 760 376 3745
- Chris Tulley
  - christulley@gmail.com
- Bill Pooley
  - bill.pooley@gmail.com

- Eric Giddens
  - eric@kernriverbrewing.com
- Darin McQuoid
  - d_mcquoid@hotmail.com
- Paul Martzen
  - paul_martzen@yahoo.com
- Derrick Tito
  - Derrick.Tito@sce.com
- Chase Hauber
  - trkayaker@ymail.com

National Park Service

- Steve Bowes
  - Stephen_bowes@nps.gov

American Whitewater

- Theresa L. Simsiman
  - theresa@americanwhitewater.org

Tulare County Resource Management Agency

- Jason Garcia La Blu
  - Out of the office until April 2 – will follow up with a phone call
  - Contacted on April 3rd – will not make the meeting but will follow up with commercial boating numbers

Meeting Attendees

Name	Email	Phone #	Affiliation
Theresa Simsiman	theresa@americanwhitewater.org	916 835 1460	American Whitewater
Eric Giddens	Eric@kernriverbrewing.com		Private Kayaker
Chris Tulley (by phone)	Christulley@gmail.com		Private Kayaker
Amicaya Frediani	raftgoodtimes@gmail.com	831 419 4354	Commercial Outfitter
Derrick Tito	Derrick.tito@sce.com	760 485 5973	SCE
David Moore	David.moore@sce.com	626 302 9494	SCE
Ed Bianchi	Edward.bianchi@cardno.com	916 386 3817	Cardno
Dave Martinez	Dave.martinez@cardno.com	916 502 85236	Cardno

Purpose of Meeting

- Conduct the REC 2 – Whitewater Boating Technical Study Plan whitewater boater focus group meeting.

Expected Outcomes

- Provide whitewater boaters with understanding of Kaweah Project and project hydrology.
- Collect whitewater boating resource information to be used for REC 2 – Whitewater Boating Technical Study Plan.

Meeting Objectives and Introductions

David Moore convened the meeting.

- Start of meeting was delayed until 7:15 to provide the opportunity for additional attendees to call in or show up.
- Meeting attendees introduced themselves and their experience with the whitewater boating runs.
- Primary focus for meeting is on the Ash Mountain Run take-out, the Lower East Fork Run, and the Gateway Bridge Run.
- It was noted that at this point in the process we are at an information gathering stage.
    - Specific proposals regarding whitewater boating opportunities will be addressed later in the process.

Kaweah Project Overview

David Moore provide an overview of the Kaweah Project.

- Federal Energy Regulatory Commission (FERC) – Kaweah Project (FERC Project No. 298)
- FERC Project Developments
    - Current license expires December 31, 2021
    - Generator nameplate capacity of 8.85MW
    - Located in Tulare County (Bureau of Land Management and private land)
    - Project elements
        - Portions of Kaweah No. 1 Development
        - Kaweah No. 2 Development
        - Portions of Kaweah No. 3 Development
- Non-FERC Project Developments
    - Located in Sequoia National Park
    - Operated under Special Use Permit (SUP)
    - SUP expires September 8, 2026
    - No generating facilities
    - Project elements
        - Portions of Kaweah No. 1 Development (Mineral King Dams)
        - Portions of Kaweah No. 3 Development (Marble Fork and Middle Fork Diversions)

Relicensing Process Overview

Ed Bianchi provided a synopsis of the relicensing process and outlined the steps and timeline from application for a new license, to license issuance.

- Pointed out that we are in the "Study Implementation Phase"
    - In addition to recreation studies there are numerous other resource studies associated with the relicensing effort
- This meeting is associated with the REC 2 – Whitewater Boating Study. The REC 2 – Whitewater Boating Study elements are:
    - Compile information regarding commercial and private boating use
    - Develop additional information regarding whitewater boating opportunities and use
    - Conduct site visit (if necessary, as determined in WW Boating Focus Group)
    - Develop WW flow study survey instrument (if necessary, as determined in WW Boating Focus Group)

Project Hydrology

Dave Martinez presented information on Kaweah Project hydrology to provide an understanding of how the project influences instream flow on the East Fork of the Kaweah and Kaweah rivers.

- Presented exceedance charts showing 10%, 50%, 90% exceedance flows above and below Diversions No. 1 and No.2, as well as flows within the No. 1 and No.2 flowlines.
- Presented hydrographs of the flow below Diversions No. 1 and No. 2.
    - Period of recorded is 1994 though 2017
- Presented hydrographs representing Normal and Dry Water Years.
    - 2005, 2016, and 2017 represented Normal Year flows
    - 1999, 2007, and 2015 represented Dry Year flows
    - Both diverted and non-diverted flow are shown on the hydrographs
- The "take-home" from the group is that the project does not have a large influence on instream flow, or the seasonal timing of instream flow.

In order to assess boatable flow range estimates, graphs were presented showing the relationship to flow below Diversion No. 1, Diversion No. 2, and below Pumpkin Hollow Bridge (Gateway Bridge), and the Three Rivers Gage.

- These plots show data from SCE gages and a liner regression line to correlate flow in the specific reach to the Three Rivers gage.
    - East Fork Kaweah below Diversion No. 1 is approximately 26% of the Three Rivers gage
    - Kaweah River below Diversion No. 2 is approximately 53% of the Three Rivers gage
    - Kaweah River below Pumpkin Hollow Bridge is approximately 80% of the Three Rivers gage
- Whitewater boaters commented that the analysis does not accurately reflect the seasonal variability of East Fork Kaweah River contributions to the Kaweah River flow.
    - East Fork contributes more proportionally after the spring runoff – later in the season (SCE will review hydrology data set and develop new regression if appropriate)

- Diurnal flows are typically not taken into consideration when boating the Lower East Fork Run.
    - Early in the season boaters typically put-in between 11:00 am and 12:00 pm to avoid diurnal flow influences

Whitewater Boating Resource Assessment

Dave Martinez facilitated the whitewater boating resource assessment. General comments included:

- The Whitewater boating attendees believe that the Kaweah watershed and the runs being discussed are world class attracting visitors from around the world, region and state.
- All whitewater runs discussed are thought to be boatable year round with sufficient rain and snowmelt
- The main improvement opportunities identified by the focus group were:
    - Access to real time flows.
    - Improved put-in and take out access.
    - These improvements were said to be valuable for most sections of the Kaweah including runs not associated with the Kaweah Project.
- It was explained that the reaches for the assessment were the Ash Mountain Run take-out, the Lower East Fork Run, and the Gateway Bridge Run.
- Factors to be assessed for each run were:
    - Access conditions or constraints
    - Difficulty class
    - Types of watercraft used
    - Existing and potential uses
    - Boating season
    - Boatable flow ranges
- Kaweah River – Ash Mountain Run
    - The run is located within the Sequoia National Park
        - Meeting attendees say it is legal to boat in the park and have had no access issues with park staff
    - Put-in:
        - Trailhead at the RV dump station near Potwisha Campground
    - Take Outs:
        - Sequoia National Park Foothills Visitor Center
            - Take-out will avoid a difficult section of river
        - Indian Head River Trailhead
        - Confluence with East Fork Kaweah (Pumpkin Hollow Bridge[1])
            - Most boaters run Kaweah No. 2 Diversion Dam (not an impediment to the run)

[1] Pumpkin Hollow Bridge is commonly referred to as the "Gateway Bridge"

        - Take-out is on private property
        - No authorized access
    - Dave Hammond property on left bank 0.75 mile downstream of Pumpkin Hollow Bridge
        - Take-out is on private property
        - Must get permission to use property
        - This location is used as put-in for commercial rafting for the Gateway Run
  - Access:
    - Boaters expressed an interest in obtaining access (take-out) to SCE lands at Kaweah No. 3 Powerhouse/Kaweah No. 2 Diversion
- <u>East Fork Kaweah River – Lower East Fork Run</u>
  - Difficulty class:
    - Class V/V+
  - Types of watercraft used:
    - Hardshell kayak
    - There are reports of rafts boating this run
  - Existing and potential uses:
    - Non-commercial kayaking
    - Late season inflatable kayak
        - Just the "lower section"
        - Hike-in from Bear Ranch (private property)
  - Put-in:
    - Oak Grove Bridge
        - This put-in is no longer used due to rock slide hazard below the bridge
    - Private property on river left approximately RM 4.1 (typically used as the put-in)
    - Private property near Sky Hook Rapid (approx. RM 3.45)
        - Steep access, requiring ropes to lower people or boats (considered emergency access only)
    - River Mile 3
        - BLM Land
        - Near old helipad
        - Long steep hike, requiring ropes to lower people or boats (considered emergency access only)
    - Bear Ranch (approx. RM 1.1)
        - Low flow inflatable kayak run
        - Hike-in
        - Private property, requiring ropes to lower people or boats (considered emergency access only)

- Take Out:
  - Confluence with East Fork Kaweah (Pumpkin Hollow Bridge)
    - Take-out is on private property
    - No authorized access
  - Dave Hammond property on left bank 0.75 mile downstream of Pumpkin Hollow Bridge
    - Take-out is on private property
    - Must get permission to use property
    - This location is used as put-in for commercial rafting for the Gateway Run
- Boating season/timing:
  - Year-round depending on flow
  - Requires an average of 6-7 hours (experts with extensive knowledge of run 2.5 to 3 hours)
- Boatable flow range:
    - 160-250 cfs: optimum flow range
    - 80-400 cfs: boatable flow range
- Access:
  - Boaters expressed interest in establishing a put-in for this run as the current put-in is on private property.

- <u>Kaweah River – Gateway Bridge Run</u>
  - Difficulty class:
    - IV – IV+ (V upstream of Pumpkin Hollow Bridge)
  - Types of watercraft used:
    - Hardshell kayak
    - Inflatable kayak
    - Rafts
  - Existing and potential uses:
    - Non-commercial kayaking and rafting
    - Commercial rafting (eight commercial licenses issued to seven outfitters)
  - Put-in:
    - Non-commercial
      - Indian Head River Trailhead
      - Pumpkin Hollow Bridge (private property)
      - Dave Hammond property on left bank 0.75 mile downstream of Pumpkin Hollow Bridge – private property – by arrangement (designated commercial rafting put-in)

        - Commercial
            - Designated commercial rafting put-in on left bank 0.75 mile downstream of Pumpkin Hollow Bridge – private property (Dave Hammond) – by arrangement
    - Take Out:
        - Dinely Bridge
            - Take-out is on private property
            - No authorized access
        - Three Rivers Hideaway
            - 0.3 mile downstream of Dinely bridge
            - Take-out is on private property
            - Need authorization, not normally used due to paying customers filling the lot in the summer when river is most commonly run.
        - Terminus Reservoir
            - Cobble Knoll Recreation Area (high reservoir storage)
            - Slick Rock Recreation Area (low reservoir storage)
    - Boating season/timing:
        - Year-round depending on flow
        - Rafts require 5 hours from commercial put-in to Terminus Reservoir
        - Kayaks require 3-4 hours from Pumpkin Hollow Bridge to Terminus Reservoir
        - Kayaks require 2 hours from Pumpkin Hollow Bridge to Three Rivers Hideaway
    - Boatable flow range:
        - Boatable flow range for rafts is 500-3,000 cfs (Three Rivers Gage)
        - Boatable flow range for kayaks is 300-3,000 cfs (Three Rivers Gage)
    - Access:
        - Boaters expressed an interest in obtaining access (take-out) to SCE lands at Kaweah No. 1 Powerhouse and Kaweah No. 2 Powerhouse

Determination of need for a site visit

- It was determined that a site visit is not needed at this time.
- Pending review of the technical study report a site visit may be conducted at a later date.

Determination of need for a flow study

- It was determined that a study flow to validate boatable flow range estimates will not be required as a component of the REC 2 – Whitewater Boating TSP.

Other

- Whitewater boating participants indicated the availability of flow data would be highly beneficial to improving the use of existing boating opportunities.
- Whitewater boating participants indicated the availability of flow data on “non-project” reaches would be highly beneficial to improving the use of existing boating opportunities.

Adjourn

- Meeting adjourned at 10:00 pm – no follow-up action item were recorded.

APPENDIX B

Access Location Site Photographs

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Indian Head River Trailhead (Sequoia National Park)

Photo B-1. Indian Head River Trailhead, Parking

Photo B-2. Indian Head River Trailhead, Parking

Photo B-3. Indian Head River Trail

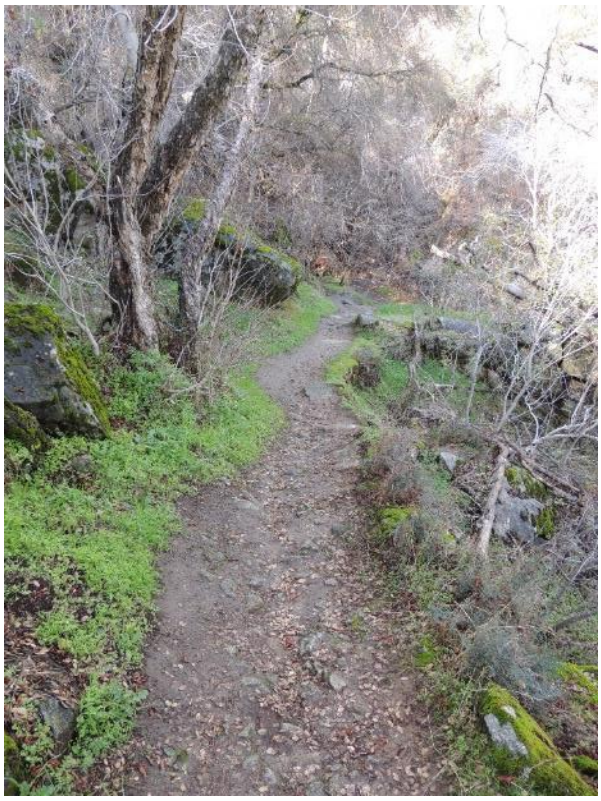

Photo B-4. Indian Head River Trail

Photo B-5. Indian Head River Trail

Photo B-6. Indian Head River Trail, River Access

Gateway Bridge (Caltrans / Bridge Easement[1] / Private Property)

Photo B-7. Gateway Bridge, Upstream Left

Photo B-8. Gateway Bridge, Upstream Right

[1] In no way is SCE's consultation with Caltrans and Tulare County to be construed as authorization for the public to access the river at these bridge crossings. Obtaining permission to park and access the river at bridge crossings is the responsibility of individual parties.

Photo B-9. Gateway Bridge, Downstream Left

Photo B-10. Gateway Bridge, Downstream Right

Photo B-11. Gateway Bridge, Roadside Pull-off

Photo B-12. Gateway Bridge, Roadside Pull-off

Commercial Rafting Put-in (Private property on left bank 0.75 mile downstream of Gateway Bridge)

Photo B-13. Commercial Rafting Put-in, Parking

Photo B-14. Commercial Rafting Put-in, Access Road

Photo B-15. Commercial Rafting Put-in, Access Road

Photo B-16. Commercial Rafting Put-in

Dinely Bridge (Tulare County / Bridge Easement[2] / Private Property)

Photo B-17. Dinely Bridge, Upstream Left

Photo B-18. Dinely Bridge, Upstream Right

[2] In no way is SCE's consultation with Caltrans and Tulare County to be construed as authorization for the public to access the river at these bridge crossings. Obtaining permission to park and access the river at bridge crossings is the responsibility of individual parties.

Photo B-19. Dinely Bridge, Downstream Left

Photo B-20. Dinely Bridge, Downstream Right

Photo B-21. Dinely Drive, Upstream of Bridge

Photo B-22. Dinely Drive, Upstream of Bridge, River Access

Kaweah No. 2 Powerhouse River Access (Edison Beach) (SCE)

Photo B-23. Kaweah No. 2 Powerhouse, Public Parking

Photo B-24. Kaweah No. 2 Powerhouse, River Access

Photo B-25. Kaweah No. 2 Powerhouse, River Access

Photo B-26. Kaweah No. 2 Powerhouse, River Access

Three Rivers Hideaway (Private Property)

Photo B-27. Three Rivers Hideaway, Parking Area

Photo B-28. Three Rivers Hideaway, River Access Road

Photo B-29. Three Rivers Hideaway, River Access

North Fork Bridge[3] (Tulare County / Bridge Easement[4] / Private Property)

Photo B-30. North Fork Bridge, Upstream Left

Photo B-31. North Fork Bridge, Upstream Right

[3] This location is outside Study Area.

[4] In no way is SCE's consultation with Caltrans and Tulare County to be construed as authorization for the public to access the river at these bridge crossings. Obtaining permission to park and access the river at bridge crossings is the responsibility of individual parties.

Photo B-32. North Fork Bridge, Downstream Left

Photo B-33. North Fork Bridge, Downstream Right

Photo B-34. North Fork Road, Upstream of Bridge

Slick Rock Recreation Area[5] (USACE)

Photo B-35. Slick Rock Recreation Area, Parking

Photo B-36. Slick Rock Recreation Area, Lake/River Access

[5] This location is outside Study Area.

Photo B-37. Slick Rock Recreation Area, Lake/River Access

Photo B-38. Slick Rock Recreation Area, Lake/River Access

Lake Kaweah Recreation Area[6] (USACE)

Photo B-39. Lake Kaweah Recreation Area, Parking

Photo B-40. Lake Kaweah Recreation Area, Lake Access

[6] This location is outside Study Area.

APPENDIX C

Kaweah River Management Plan

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AGENDA DATE: December 20, 2005 Public Hearing

RESOURCE MANAGEMENT AGENCY

5961 South Mooney Blvd.
Visalia, CA. 93277
Phone (559) 733-6291
Fax (559) 730-2653

Britt L. Fussel	Engineering
Deborah Kruse	Development Services
Jean P. Brou	Transportation
George Finney	Long Range Planning
Deborah West	Support Services
Roger Hunt	Administrative Services

HENRY HASH, DIRECTOR

THOMAS W. SHERRY, ASSOCIATE DIRECTOR

AGENDA ITEM

ITEM NO._____
District 1

SUBJECT:

Public Hearing to review the proposed 2005 Update to the Kaweah River Management Plan, which implements Tulare County Ordinance Code Chapter 11 of Part VI, pertaining to river rafting.

REQUEST(S):

At the time set for hearing, take the following actions:

(a) Take testimony from interested parties.

(b) Adopt the 2005 Update to the Kaweah River Management Plan, including the recommendations set forth on Page 9 of the 2005 Update report, as attached.

SUMMARY:

The Kaweah River Management Plan (KRMP) was adopted by your Board on December 12, 1997, in order to address certain problems that result from use of the Kaweah River in the Three Rivers area by commercial river rafting and to determine the maximum numbers of commercial rafting companies to be permitted on the river. Post-season review of the rafting season and Plan are required in order to evaluate capacity restrictions and other regulations and to secure community input on the preceding season. The 2005 Update to the KRMP provides a review of the rafting season, including the commercial rafting usage numbers (total and per company), comparison with the last seven rafting seasons, complaints received and resolution of any complaints, RMA staff field observations, and staff conclusions and recommendations.

A notice of public hearing is not required by Ordinance or by the KRMP for the annual update; however, to assure input from the community of Three Rivers, a notice of public hearing was published in the local newspaper prior to the hearing, and affidavits of publication will be submitted to the Clerk when received.

2005 UPDATE -- *KAWEAH RIVER MANAGEMENT PLAN*

I. BACKGROUND

The *Kaweah River Management Plan* (KRMP) was adopted by the Tulare County Board of Supervisors on December 16, 1997. The KRMP addresses certain problems that result from use of the middle fork of the Kaweah River (in the Three Rivers area, between Sequoia National Park and Kaweah Lake) by commercial rafting operations and determines the maximum numbers of commercial rafting companies to be permitted on the river. Section VII. A, of the Plan allows a maximum of eight commercial rafting companies to utilize the Kaweah (each company is allowed a maximum of 8 rafts and 64 people per day), after approval of a Commercial River License (CRL) for each. Post-season review of the rafting season and KRMP by the County Resource Management Agency (RMA) is required, in order to evaluate capacity restrictions and other regulations and to secure community input on the preceding season.

II. SUMMARY OF THE 2005 RAFTING SEASON

A. 2005 Commercial Rafting Numbers

Unlike the past several years, the 2004-2005 Kaweah watershed snowpack was above normal, so that the 2005 Kaweah River commercial rafting season lasted several weeks longer than previous years' seasons (for approximately eleven weeks). The 2004 season (the shortest season thus far since adoption of the KRMP) lasted for only five weeks, and the previous five rafting seasons (1999 – 2003) all ranged between six and seven weeks. These seasons contrast with the 1998 season, which followed a heavy, extended snow season for Tulare County that resulted in a Kaweah River commercial rafting season lasting for approximately 17 weeks and with correspondingly greater total rafting use. The 1997 rafting season (the first year that commercial rafting numbers were recorded) at approximately 10 weeks was also several weeks longer than the past six seasons.

In 2005, Tulare County issued Commercial River Licenses (CRLs) to seven companies (six of which have been licensed since the first year /1997) - Mariah Adventure Connection, All Outdoors, American River Recreation, Kaweah Whitewater Adventures, Tributary Whitewater Tours, Whitewater Connection, and Whitewater Voyages, and Wilderness Adventures. An eighth company (Wilderness Adventures) also submitted a CRL application but ultimately was not granted the license because its application was deemed to be incomplete (the required letters of permission from owners of the support sites it was to utilize were not returned to the RMA).

Usage numbers for the 2005 Kaweah River rafting season, based on the monthly river use reports submitted by the licensed commercial rafting companies, are as follows: [NOTE: Numbers of 'Rafters' include clients and guides, and Raft numbers include safety rafts; safety kayak numbers are not included.]

-- **Total commercial rafting use for the entire year (from April 2 to July 24) was ± 3,182 Rafters & 522 Rafts**

-- Peak use month was June (1,283 Rafters & 211 Rafts)

-- Highest use days were June 4 (180 Rafters & 28 Rafts), May 22 (182 Rafters & 25 Rafts), May 21 (133 Rafters & 21 Rafts), May 29 (123 Rafters & 24 Rafts), May 28 (128 Rafters & 22 Rafts, May 14 (133 Rafters & 21 Rafts), June 25 (128 Rafters & 21 Rafts) = five Saturdays and two Sundays.

[Refer to Appendix 'A' for the year and season rafting totals and tallies of the numbers for each day and each company.]

B. Comparison of 2005 with Previous Commercial Rafting '*Seasons*'

For the following, the rafting '*season*' is defined as beginning on the first day when at least two licensed companies and eight rafts ran and ending on the last day when at least two companies and eight rafts ran. This definition is necessary in order to eliminate variations between years due to rafting days run by a single company before or after the main season started or stopped; thus, the '*season*' rafting numbers are less than the total annual rafting numbers noted elsewhere.

-- *Length of rafting season:*

1998 and 2005 have had the longest and 2004, 2003, and 2001 have had the shortest commercial rafting *seasons* thus far, as follows:

2005 *season* (4/30 - 7/10) ran ± 11 weeks
2004 *season* (4/24 - 5/30) ran ± 5 weeks
2003 *season* (5/10 - 6/21) ran ± 6 weeks
2002 *season* (5/04 - 6/16) ran ± 7 weeks
2001 *season* (5/05 - 6/09) ran ± 6 weeks
2000 *season* (5/06 - 6/25) ran ± 7 weeks
1999 *season* (5/08 - 6/27) ran ± 7 weeks
1998 *season* (5/02 - 8/22) ran ± 17 weeks
1997 *season* (4/26 - 6/29) ran ± 10 weeks

-- *Numbers of Rafters and Rafts per Season:*

2005 had the third-highest total commercial rafting *season* numbers thus far, as follows:

2005 *season* totals = ± 2,930 People and 478 Rafts;
(÷ 11 weeks = Average ± 266 People/week & 43 Rafts/week)

2004 *season* totals = ± 1,064 People & 186 Rafts;
(÷ 5 weeks = Average ± 213 People/week & 37 Rafts/week)

2003 *season* totals = ± 1,630 People & 257 Rafts;
(÷ 6 weeks = Average ± 271 People/week & 42 Rafts/week)

2002 *season* totals = ± 1,981 People & 323 Rafts;
(÷ 7 weeks = Average ± 283 People/week & 46 Rafts/week)

2001 *season* totals = ± 1,986 People & 325 Rafts;
(÷ 6 weeks = Average ± 331 People/week & 54 Rafts/week)

2000 *season* totals = ± 2,122 People & 345 Rafts;
(÷ 7 weeks = Average ± 303 People/week & 49 Rafts/week)

1999 *season* totals = ± 1,730 People & 292 Rafts;
(÷ 7 weeks = Average ± 247 People/week & 42 Rafts/week)

1998 *season* totals = ± 4,375 People & 749 Rafts;
(÷ 17 weeks = Average ± 257 People/week & 44 Rafts/week)

1997 *season* totals = ± 3,052 People & 508 Rafts;
(÷ 10 weeks = Average ± 305 People/week & 51 Rafts/week)

-- *Biggest individual rafting days:*

2005's peak day of 180 Rafters and 28 Rafts was well below 2001's peak day of 253 Rafters and 39 Rafts (which is thus far the Kaweah River's biggest single commercial rafting day) and 1997's peak day of 196 Rafters and 31 Rafts. However, this record peak rafting day so far (in 2001) equals only 49% of the potential maximum of 512 Rafters/day and 61% of the potential maximum 64 Rafts/day allowed by the KRMP, while 2005's peak day had only 35% of the potential maximum rafters and 44% of the maximum rafts allowed.

-- *Higher use days (with totals ≥ 100 Rafters & 16 Rafts):*

As in previous years, 2005's highest use days were on weekends, as follows:

2005 = 10 days (8 Saturdays, 2 Sundays)
2004 = 4 days (2 Saturdays, 2 Sundays)
2003 = 5 days (3 Saturdays, 2 Sundays)
2002 = 6 days (5 Saturdays, 1 Sunday)
2001 = 9 days (6 Saturdays, 2 Sundays, 1 Monday)
2000 = 9 days (7 Saturdays, 2 Sundays)
1999 = 5 days (3 Saturdays, 2 Sundays)
1998 = 13 days (11 Saturdays, 2 Sundays)
1997 = 14 days (7 Saturdays, 5 Sundays, 1 Monday, 1 Friday)

III. COMPLAINTS

As required by the *Kaweah River Management Plan*, the Resource Management Agency (RMA) implemented a monitoring program for commercial rafting that includes a public input and complaint system. Any rafting-related complaints received by the RMA are referred to the RMA's Code Compliance Division staff, who maintains a complaint log and is to contact the rafting companies identified in complaints as soon as possible (generally by the following day) to notify them of reported problems and determine if there are reasonable explanations or if a warning should be issued. To be considered as an investigable complaint, the name and/or logo of the suspect rafting company, date, time, and location of the incident, and the nature of the offense must be cited by the complainant. Complaints about rafting in general or about private rafting-related uses on or near the River are noted but not pursued.

During the 2005 rafting season, the RMA received no investigable complaints regarding the commercial rafting operations from either the public or from other departments or agencies (see attached correspondence from RMA Code Compliance Division).

At the start of the 2005 commercial rafting season, a Notice (containing information on the allowed commercial rafting on the Kaweah River, the procedure to make complaints about the rafting, and the names and logos of the licensed rafting companies) was mailed to all owners of property within 400' of the Middle Fork of the Kaweah and to other interested individuals and public agencies and was posted in Three Rivers. Previously, in 2003, since there had been no investigable commercial rafting complaints received in the preceding two seasons, the Board of Supervisors adopted the 2003 KRMP Update's recommendation that "*the Notice will be sent out every other year unless complains are received in the preceding year*". Since no investigable complaints were received during the 2005 season, the Notice will not be mailed out in 2006 (but will be available from the Resource Management Agency upon request).

IV. RMA STAFF FIELD OBSERVATIONS

In order to check the rafting companies' compliance with commercial river license conditions, the KRMP requires that Resource Management Agency staff make on-site inspections to the commercially-rafted area, during the potentially peak part of the rafting season, so as to count actual numbers of rafts /rafters and observe raft put-ins, take-outs, and rapid-running activities, particularly to note any noise and crowding conditions on the river. Due to the lack of rafting complaints received, only one RMA inspection visit was made in 2005.

RMA staff observed the commercial rafting on the Kaweah River on Saturday June 11, 2005, when four companies ran (in a total of 17 rafts). RMA staff's general conclusion of that day's observations was that the commercial rafting seemed to have a very low impact. At least 15 minutes between put-in times of different rafting groups was observed, and once the rafts put in, they moved along quickly and generally did not linger in any spot (which is allowed if there were an emergency-type situation or if rafts that were ahead of the other rafts in a company's group were waiting for the others), and no crowding of the rafts from different companies after put-in was seen.

A. RMA staff field observations of the specific licensed rafting support uses/sites are as follows:

-- Client Parking -- Clients do not travel to/from the rafting put-in or take-out sites in their individual vehicles, as they are required to park at specific parking areas set forth in the CRLs. Most of these licensed client parking sites are not visible from or are set back from Highway 198. Only one parking area is next to Highway 198 (just west of the Chevron station), where one rafting company had its headquarters this season and which has good site distance for traffic access. All licensed parking sites are zoned for commercial-type uses (C-1, C-2, or 'O').

-- Transport of clients to put-in sites and from take-out sites -- Is done by rafting company shuttle bus or van and not by not by individual client vehicles (which remain in licensed client parking areas); was observed as being orderly and having a low impact on the highway and traffic (no more than ± four such vehicles per hour).

-- Put-Ins (of rafts into the river) -- Are primarily done at two locations (most companies put in at the condo site (now owned by Hammond) just downstream of the Gateway Bridge, and several are also licensed to put in at the Gateway Restaurant, while one company also puts in at several locations further down-stream, between the Dinely Bridge and the North Fork Bridge). On the observation day, put-ins were viewed from the Condo site and from the Gateway Restaurant site - these were observed to be done orderly, with the rafts from different companies adequately spaced (the required minimum 15 minutes between put-ins at the Condo site by different companies is facilitated by coordination of the shuttle bus or van arrival times).

-- Lunch -- Was observed at two sites -- the River View and Anne Lang's restaurants (where the restaurants prepared food that had been pre-ordered and so was ready when the rafters arrived). Lunch-related operations (beaching of rafts, movement by rafters, and coordination of food service) at both sites observed appeared orderly and non-obtrusive to nearby properties.

-- Take-Outs (of rafts from the river, at the end of the trip /day) -- In the past several years, the end of the trip/day take-outs for most of the companies were done at a private site (owned by Haley) located just upriver from 'Slick Rock' and adjacent lands managed by the U.S. Army Corps of Engineers. However, due to the Federal project to raise Terminus Dam and enlarge Lake Kaweah, the Haley site is now government owned (and becomes part of Lake Kaweah during the lake's high water periods) and is thus no longer available as a take-out site. However, the rafting companies with agreements with the Army Corps were able in 2005 to take out upstream from the Haley site at the 'Cobble Knoll Dike' (which is adjacent to the southwestern side of the Holiday Lodge parcel). Staff observed rafts from one company take out at the Cobble Knoll Dike site. This take-out was accomplished quickly and orderly, and the rafters afterward boarded the shuttle bus to return to their parking area.

B. RMA staff field observations and comments regarding the potential impacts from commercial rafting as cited in the KRMP are as follows:

-- Noise -- The River itself was very noisy (especially when standing in close proximity); generally, rafting-related noise was most noticed where the river canyon is deep (where the main rafter noise generated was the shouting of guide directions and, after rapids, outcries from clients - such noise was of short duration).

-- Parking and traffic congestion -- No rafting-related congestion was noticed; clients were shuttled to put-in sites in rafting company buses or vans, having previously parked their vehicles in commercially-zoned licensed sites, outside of any State or County right-of-way.

-- Raft access to and from the river -- Observed doing so only only at the licensed sites and in an orderly manner.

-- Trespassing of rafters -- None noticed; the only observations of rafters out of the river channel were at licensed support sites.

-- Food handling and sanitation -- Lunch sites are all at commercially-zoned locations specified in each CRL that are under permit with the County Environmental Health Services Division. Environmental Health staff noted (in a 11/29/05 telephone conversation) that, regarding the commercial rafting operations, no problems had been noted, and no no complaints had been received.

-- Adverse impacts on the riparian environment (from disturbance by rafting-related operations) -- Viewed all 2005 put-in and take-out sites and noticed very little impact to riparian areas (all were either rocky or sandy, with little vegetation removal or trampling evident) or were previously developed.

-- Use of public safety services -- The RMA has not been made aware, by the public or through the news media, of excessive use of these services by rafting companies. **The Tulare County Sheriff's Department Resident Deputy for the Three Rivers area noted (in a 11/29/05 telephone conversation) that there were no commercial rafting-related complaints reported to him or problems observed by him this year.**

V. CONSULTATION INPUT

Letters requesting comments on the 2005 rafting season and/or suggestions for future rafting seasons were sent to agencies previously notified during the consultation process for the 1997 KRMP and the subsequent Updates to the KRMP. Written comments were received only from the Tulare County RMA Code Compliance Division and the U.S. Army Corps of Engineers (see attached), and telephone calls were received from the County Sheriffs Department and County Environmental Health Services (see comment summaries above), and the California Highway Patrol and CalTrans (the latter two noted no problems with the commercial rafters). The full list of agencies consulted is as follows:

Tulare County HHSA Environmental Health Services Division
Tulare County RMA - Code Compliance; Roads/Bridges
Tulare Co. Sheriff's Department (Resident Deputy Jim Fansett)
Tulare County Fire Warden
Tulare County Counsel - Risk Management
CalTrans District 06
California Highway Patrol
California Department of Fish and Game, District 4
U.S. Army Corps of Engineers (Phil Deffenbaugh)

VI. KRMP UPDATE HISTORY AND 2005 ANALYSIS

The requirement for a River Management Plan was established by County Ordinance No. 3179 (which added Chapter 11 to Part VI of the Ordinance Code of Tulare County, pertaining to river rafting, and was adopted by the Tulare County Board of Supervisors on March 11, 1997), under which commercial river rafting is regulated and the requirements for obtaining a Commercial River License (CRL) are established. Based on recommendations of past Updates to the KRMP, several minor revisions to the Plan have been made since its adoption in 1997. In a previous (Year 2000) Update, the Board revised the KRMP by adopting standards to determine the 'inactivity' that would cause a commercial rafting company to lose its spot on the list of eight companies eligible to apply for/ receive CRLs for the Kaweah River, which reads as follows:

"A commercial rafting company is determined to be 'inactive' and is not allowed to apply for a Commercial Rafting License (unless another rafting company does not request to apply to fill one of the eight allocated positions) if it: (1) did not apply for or applied for but was not issued a CRL the previous rafting season; and/or (2) was issued CRLs but, for the past two consecutive rafting seasons, either ran no commercial trips or ran fewer than four commercial rafting trips. For the purposes of #2, to be counted as a 'commercial rafting trip', said trip must be: (a) used for commercial/client trips (guide-training trips do not count); (b) run in the company-labeled rafts staffed by its own personnel (referred clients that run with another company do not count); and (c) not be a shared allocation (overflow rafts from another company that needs to run more than eight rafts in one day do not count)."

These standards were to commence with the 2001 rafting season, so evaluation of the licensed companies for 'inactivity' (standard Section No. 2) commenced with the 2002 season. In 2005, five of the licensed companies ran at least four commercial rafting trips (and had no violations) and so will automatically be allowed to apply for CRLs in 2006.

Of the three companies that ran fewer than four trips, one of these (American River Recreation) was a new company in 2004 and did not receive authorization to apply for its 2004 CRL until after the first part of the year and so was not issued its license until later than the other companies; thus, as noted in the 2004 KRMP Update Report, American River Recreation was not to start being evaluated for potential 'inactivity' until the 2005 rafting season. If it does not run at least four commercial rafting trips during the 2006 season, American River Recreation could lose its license spot after next season. The other company that did not run at least four commercial trips (Tributary Whitewater) also did not run at least four trips during the 2004 season, and so should lose its license spot for next year (NOTE: Tributary Whitewater's potential 'probationary' status was noted in last years/the 2004 KRMP Update Report). Finally, one rafting company (Wilderness Adventures) was ultimately not issued its CRL from Tulare County because it submitted an incomplete license application (did not return to the RMA the required letters of permission from owners of the support sites it was to utilize) and thus automatically loses its CRL spot for 2006. There are several companies on the waiting list for potential open Kaweah River Commercial River License spots. The procedure to determine what companies would obtain any open CRL spots vacated by rafting companies determined to be 'inactive' in 2005 (Tributary Whitewater Tours and Wilderness Adventures) is for the Resource Management Agency to hold a lottery and draw names.

VII. CONCLUSIONS AND STAFF-RECOMMENDED REVISIONS

Staff recommends that the Board determine, based on the information set forth in the last paragraph under Section VI above, that the rafting companies Tributary Whitewater Tours and Wilderness Adventures be considered 'inactive' for the year 2005 and not be allowed to apply for a Commercial Rafting License for the 2006 season (unless no other rafting companies request to apply for the vacant CRL positions) and that the RMA hold a lottery to determine which other rafting companies will obtain the two CRL spots.

Due to the lack of complaints or negative comments received from river property owners, community members, and/or local or state agencies and to the relatively low commercial rafting usage in 2005 (when compared with the potential maximum usage allowed under the KRMP), RMA staff is not recommending any revisions to the amended 1997 *Kaweah River Management Plan*, thus reaffirming that for future seasons on the Middle Fork Kaweah River, the maximum number of comercial rafting companies allowed continue to be eight licensed companies and the maximum numbers of commercial rafters and rafts per company continue to be restricted to eight rafts per day and eight persons per raft maximum.

An Update report has been prepared annually for the Board since the 1998 rafting season. No investigable complaints regarding the Kaweah River commercial rafting operations have been received by the RMA since 2000. Therefore, Staff is also recommending that, in the future, formal Updates to the KRMP for future rafting seasons not be prepared for Board of Supervisors hearing unless requested by a Board member or recommended by RMA staff (due to the receipt of investigable complaints or to the occurrence of other/unforeseen issues or problems). The RMA would continue to annually monitor the commercial rafting operations as required by the KRMP and conduct a year-end review internally.

VIII. CEQA

Since the 2005 Update to the *Kaweah River Management Plan* is only a review of the 1997 Plan (for which a Negative Declaration was prepared and adopted) and since no action or change is recommended, no CEQA review is required for the Update.

This report was prepared by Jennifer Munn, Resource Management Agency Countywide Planning Division, on November 29, 2005.

Appendix 'A'

2005 KAWEAH RIVER TOTAL RAFTING NUMBERS - PER COMMERCIAL RAFTING LICENSE # / COMPANY

[Rafts & People and Days Run per Month]

	#05-01,WV (Raft~Folk)	#05-02,AR (Raft~Folk)	#05-03,KW (Raft~Folk)	#05-04,AO (Raft~Folk)	#05-05,AC (Raft~Folk)	#05-06,WC (Raft~Folk)	#05-07,TW (Raft~Folk)	#05-08,WA (Raft~Folk)	TOTAL/Month Rafts ~ Folks
APRIL	7 ~ 45 [1 Day]	0	5 ~ 30 [5 Days]	5 ~ 27 [2 Days]	3 ~ 20 [1 day]	0	6 ~ 32 [2 Days]	0	= 26 ~ 154
MAY	27 ~ 173 [8 Days]	0	48 ~ 306 [18 Days]	63 ~ 323 [10 Days]	25 ~ 157 [9 Days]	20 ~ 155 [5 Days]	0	0	= 183 ~ 1,114
JUNE	68 ~ 444 [16 Days]	2 ~ 14 [1 Day]	59 ~ 362 [24 Days]	53 ~ 296 [11 Days]	20 ~ 108 [9 Days]	7 ~ 45 [4 Days]	2 ~ 14 [1 Day]	0	= 211 ~ 1,283
JULY	3 ~ 22 [2 Days]	4 ~ 22 [1 Day]	76 ~ 477 [24 Days]	15 ~ 88 [6 Days]	4 ~ 22 [2 Days]	0	0	0	= 102 ~ 631
TOTAL / Co. (% All)	105~ 684 (20%)	6 ~ 36 (1%)	188 ~ 1175 (36%)	136 ~ 734 (26%)	52 ~ 307 (10%)	27 ~ 200 (5%)	8 ~ 46 (2%)	0 (0%)	= 522 ~ 3,182
DAYS RUN: (Commercial Trips)	[27 Days]	[2 Days]	[71 Days]	[29 Days]	[21 Days]	[9 Days]	[3 Days]	[0 Days]	

YEAR 2005 TOTAL YEAR (4/2 - 7/24) NUMBERS = ± 522 Rafts and 3,182 People
(Clients & Guides)

[YEAR 2005 "SEASON" (4/30 - 5/10) TOTALS = ± 478 Rafts and 2,930 People]

April 2005 -- NUMBERS OF COMMERCIAL RAFTS AND RAFTERS

DATE	DAY	# 05-01, WV Rafts~Folks	# 05-02, AR Rafts~Folks	# 05-03, KW Rafts~Folks	# 05-04, AO Rafts~Folks	# 05-05, AC Rafts~Folks	# 05-06, WC Rafts~Folks	# 05-07, TW Rafts~Folks	# 05-08, WA Rafts~Folks	Totals / DAY Rafts~Folks
April										
1	Fri									
2	Sat			1 ~ 7						1 ~ 7
3	Sun									
4	Mon									
5	Tues									
6	Wed									
7	Thurs									
8	Fri									
9	Sat									
10	Sun									
11	Mon									
12	Tues									
13	Wed									
14	Thurs									
15	Fri									
16	Sat									
17	Sun			1 ~ 3						1 ~ 3
18	Mon									
19	Tues									
20	Wed									
21	Thurs									
22	Fri									
23	Sat			1 ~ 6	3 ~ 17					4 ~ 23
24	Sun									
25	Mon									
26	Tues									
27	Wed									
28	Thurs									
29	Fri			1 ~ 6				3 ~ 16		4 ~ 22
30	*Sat*	7 ~ 45		1 ~ 8	2 ~ 10	3 ~ 20		3 ~ 16		16 ~ 99
Totals	/ CRL =	7 ~ 45	NONE	5 ~ 30	5 ~ 27	3 ~ 20	NONE	6 ~ 32	NONE	
Total	APRIL =									26 ~ 154

NOTE: **"Folks"** includes both Customer and Guide Numbers

* Ran boats in excess of eight under another Company's ^ logo and CRL numbers and at staggered put-in times

MAY 2005 -- NUMBERS OF COMMERCIAL RAFTS AND RAFTERS

DATE	DAY	# 05-01, WV Rafts~Folks	# 05-02, AR Rafts~Folks	# 05-03, KW Rafts~Folks	# 05-04, AO Rafts~Folks	# 05-05, AC Rafts~Folks	# 05-06, WC Rafts~Folks	# 05-07, TW Rafts~Folks	# 05-08, WA Rafts~Folks	Totals / DAY Rafts~Folks
May										
1	Sun	2 ~ 7		1 ~ 4	2 ~ 9	3 ~ 20				8 ~ 40
2	Mon									
3	Tues									
4	Wed									
5	Thurs									
6	Fri					2 ~ 13				2 ~ 13
7	Sat	1 ~ 5		4 ~ 28		2 ~ 13				7 ~ 46
8	Sun			1 ~ 5		3 ~ 19				4 ~ 24
9	Mon									
10	Tues									
11	Wed									
12	Thurs	2 ~ 12		1 ~ 7						3 ~ 19
13	Fri	2 ~ 11		2 ~ 13	4 ~ 18					8 ~ 42
14	Sat	6 ~ 38		3 ~ 19	10 ~ 63	2 ~ 13				21 ~ 133
15	Sun			3 ~ 18	3 ~ 16					6 ~ 34
16	Mon									
17	Tues									
18	Wed									
19	Thurs			1 ~ 4						1 ~ 4
20	Fri	2 ~ 14					2 ~ 15			4 ~ 29
21	Sat	4 ~ 32		4 ~ 27	6 ~ 38	3 ~ 18	6 ~ 46			23 ~ 161
22	Sun	8 ~ 54		7 ~ 47	4 ~ 25		6 ~ 56			25 ~ 182
23	Mon			2 ~ 14						2 ~ 14
24	Tues			2 ~ 14						2 ~ 14
25	Wed			1 ~ 8						1 ~ 8
26	Thurs									
27	Fri			1 ~ 6	3 ~ 17					4 ~ 23
28	Sat			5 ~ 32	11 ~ 56	3 ~ 19	3 ~ 21			22 ~ 128
29	Sun			6 ~ 38	11 ~ 44	4 ~ 24	3 ~ 17			24 ~ 123
30	Mon			3 ~ 18	9 ~ 37	3 ~ 18				15 ~ 73
31	Tues			1 ~ 4						1 ~ 4
Totals	/ CRL =	27 ~ 173	NONE	48 ~ 306	63 ~ 323	25 ~ 157	20 ~ 155	NONE	NONE	
Total	MAY =									183 ~ 1,114

NOTE: **"Folks"** includes both Customer and Guide Numbers

* Ran boats in excess of eight under another Company's ^ logo and CRL numbers and at staggered put-in times

JUNE 2005 -- NUMBERS OF COMMERCIAL RAFTS AND RAFTERS

DATE	DAY	# 05-01, WV Rafts~Folks	# 05-02, AR Rafts~Folks	# 05-03, KW Rafts~Folks	# 05-04, AO Rafts~Folks	# 05-05, AC Rafts~Folks	# 05-06, WC Rafts~Folks	# 05-07, TW Rafts~Folks	# 05-08, WA Rafts~Folks	Totals / DAY Rafts~Folks
June										
1	Wed			2 ~ 10						2 ~ 10
2	Thurs			1 ~ 3						1 ~ 3
3	Fri	6 ~ 24								6 ~ 24
4	Sat	9 ~ 60		4 ~ 25	11 ~ 64	2 ~ 12	2 ~ 19			28 ~ 180
5	Sun	6 ~ 40			6 ~ 38	2 ~ 12	1 ~ 6			15 ~ 96
6	Mon			1 ~ 5		2 ~ 11				3 ~ 16
7	Tues									
8	Wed			1 ~ 3						1 ~ 3
9	Thurs									
10	Fri	3 ~ 16		2 ~ 11						5 ~ 27
11	Sat	5 ~ 37		7 ~ 52	3 ~ 19	2 ~ 12				17 ~ 120
12	Sun	7 ~ 56		2 ~ 10	2 ~ 9	4 ~ 23				15 ~ 98
13	Mon									
14	Tues	3 ~ 19								3 ~ 19
15	Wed	3 ~ 17		1 ~ 6	3 ~ 15					7 ~ 38
16	Thurs			3 ~ 18						3 ~ 18
17	Fri	2 ~ 14		2 ~ 15	5 ~ 25					9 ~ 54
18	Sat	5 ~ 30		6 ~ 38	5 ~ 27	2 ~ 10				18 ~ 105
19	Sun	2 ~ 15		6 ~ 39	5 ~ 31	2 ~ 10				15 ~ 95
20	Mon			1 ~ 7						1 ~ 7
21	Tues	2 ~ 10		1 ~ 6						3 ~ 16
22	Wed			1 ~ 7						1 ~ 7
23	Thurs			3 ~ 19						3 ~ 19
24	Fri	3 ~ 18	2 ~ 14	2 ~ 12						7 ~ 44
25	Sat	6 ~ 47		4 ~ 21	7 ~ 36		2 ~ 10	2 ~ 14		21 ~ 128
26	Sun	3 ~ 19		3 ~ 21	4 ~ 20	2 ~ 9	2 ~ 10			14 ~ 79
27	Mon	3 ~ 22		1 ~ 4		2 ~ 9				6 ~ 35
28	Tues			2 ~ 10						2 ~ 10
29	Wed			1 ~ 8						1 ~ 8
30	Thurs			2 ~ 12	2 ~ 12					4 ~ 24
Totals	/ CRL =	68 ~ 444	2 ~ 14	59 ~ 362	53 ~ 296	20 ~ 108	7 ~ 45	2 ~ 14	NONE	
Total	JUNE =									211 ~ 1,283

NOTE: **"Folks"** includes both Customer and Guide Numbers

* Ran boats in excess of eight under another Company's ^ logo and CRL numbers and at staggered put-in times

July 2005 -- NUMBERS OF COMMERCIAL RAFTS AND RAFTERS

DATE	DAY	# 05-01, WV Rafts~Folks	# 05-02, AR Rafts~Folks	# 05-03, KW Rafts~Folks	# 05-04, AO Rafts~Folks	# 05-05, AC Rafts~Folks	# 05-06, WC Rafts~Folks	# 05-07, TW Rafts~Folks	# 05-08, WA Rafts~Folks	Totals / DAY Rafts~Folks
July										
1	*Fri*			5 ~ 35	2 ~ 8					7 ~ 43
2	*Sat*	2 ~ 15	4 ~ 22	6 ~ 41	2 ~ 11					14 ~ 89
3	*Sun*			5 ~ 37	3 ~ 21					8 ~ 58
4	*Mon*			5 ~ 36	2 ~ 7					7 ~ 43
5	*Tues*	1 ~ 7		1 ~ 6						2 ~ 13
6	*Wed*			1 ~ 7						1 ~ 7
7	*Thurs*			5 ~ 27						5 ~ 27
8	*Fri*			4 ~ 28						4 ~ 28
9	*Sat*			5 ~ 33	3 ~ 20	2 ~ 11				10 ~ 64
10	*Sun*			5 ~ 30	3 ~ 21	2 ~ 11				10 ~ 62
11	Mon			1 ~ 8						1 ~ 8
12	Tues			2 ~ 11						2 ~ 11
13	Wed			2 ~ 10						2 ~ 10
14	Thurs			4 ~ 24						4 ~ 24
15	Fri			2 ~ 11						2 ~ 11
16	Sat			4 ~ 27						4 ~ 27
17	Sun			1 ~ 5						1 ~ 5
18	Mon			1 ~ 7						1 ~ 7
19	Tues			4 ~ 26						4 ~ 26
20	Wed			1 ~ 4						1 ~ 4
21	Thurs			1 ~ 4						1 ~ 4
22	Fri			5 ~ 26						5 ~ 26
23	Sat			4 ~ 24						4 ~ 24
24	Sun			2 ~ 10						2 ~ 10
25	Mon									
26	Tues									
27	Wed									
28	Thurs									
29	Fri									
30	Sat									
31	Sun									
Totals	/ CRL =	3 ~ 22	4 ~ 22	76 ~ 477	15 ~ 88	4 ~ 22	NONE	NONE	NONE	
Total	JULY =									102 ~ 631

NOTE: **"Folks"** includes both Customer and Guide Numbers

* Ran boats in excess of eight under another Company's ^ logo and CRL numbers and at staggered put-in times

RESOURCE MANAGEMENT AGENCY

INTEROFFICE MEMORANDUM

November 14, 2005

To: Jennifer Munn, Long Range Planning

From: Cindy Wynalda, Code Compliance Division

Subject: Kaweah River Management Plan 2005 Update

The RMA Code Compliance division did not receive any complaints during the 2005 rafting season.

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
LAKE KAWEAH
P.O. BOX 44270, LEMONCOVE, CA 93244-4270
Tel: (559) 597-2301 Fax: (559) 559-2468

November 21, 2005

Resource Management Agency
5961 South Mooney Blvd.
Visalia, CA 93277

Dear Ms. Munn,

This letter is sent in response to your request for comments for the 2005 Update of the Kaweah River Management Plan.

Our agency received no complaints related to the rafting companies.

At our new higher lake level the rafters were taking out at the Cobble Knoll Dike. We allowed them to stage a couple of vehicles to haul rafts and they had plenty of room for their vans.

This winter and spring we will start construction of a new boat launching facility at Slick Rock. We will ask for the rafting companies to be flexible to work around any construction. We will also ask them to work with us, to find the best take out area/procedure at the new facility.

We appreciate you including the Corps of Engineers in your planning process. If you have any questions please give me a call.

Very truly yours,

Phil Deffenbaugh
Park Manager

NOTICE

RE: COMMERCIAL RAFTING ON THE KAWEAH RIVER, THREE RIVERS AREA

Commercial river rafting (for profit/exchange of money) is allowed on the middle fork of the Kaweah River in the Three Rivers area only by rafting companies that are licensed by the County of Tulare (per Tulare County Ordinance Nos. 3179 and 3199 and the Kaweah River Management Plan, which regulates the portion of the Kaweah River located between Sequoia National Park and Lake Kaweah). The following eight rafting companies are permitted to run commercial rafting trips on the Kaweah River in 2005 (the logos that appear on the permitted companies' rafts are shown on the back of this page):

All-Outdoors Whitewater Rafting
American River Recreation
Kaweah White Water Adventures
Mariah Adventure Connection
Tributary Whitewater Tours
Whitewater Connection
Whitewater Voyages
Wilderness Adventures

The licensed rafting companies are subject to certain operating rules and conditions that address parking and river access (which are allowed at locations specified in each license); trespassing; littering; unhealthy sanitation practices; illegal camping; adverse impacts on the riparian environment; and excessive noise during the raft trips.

If you believe that a licensed rafting company has violated the rules, or if you are aware of an unlicensed company (one not listed above) running illegal commercial rafting trips in the Three Rivers area, please report any such activity to the Tulare County Resource Management Agency Code Compliance Coordinator, by calling (559) 733-6291 or by writing or visiting the Tulare County Resource Management Agency, 5961 South Mooney Blvd., Visalia, CA 93277. In your report, be sure to include the following information:

The name and/or logo of the rafting company involved, the date and time and location of the incident, and the nature of the offense. Photographic evidence would be helpful, but is not required.

FINAL NOTE: Private river rafting does not require a license from Tulare County but is subject to all trespass and traffic control laws of the State of California and the County of Tulare.

All Outdoors

All-Outdoors

Kaweah White Water Adventures

American River Recreation

Whitewater Connection

WWC

Mariah Adventure Connection

AC or MAC

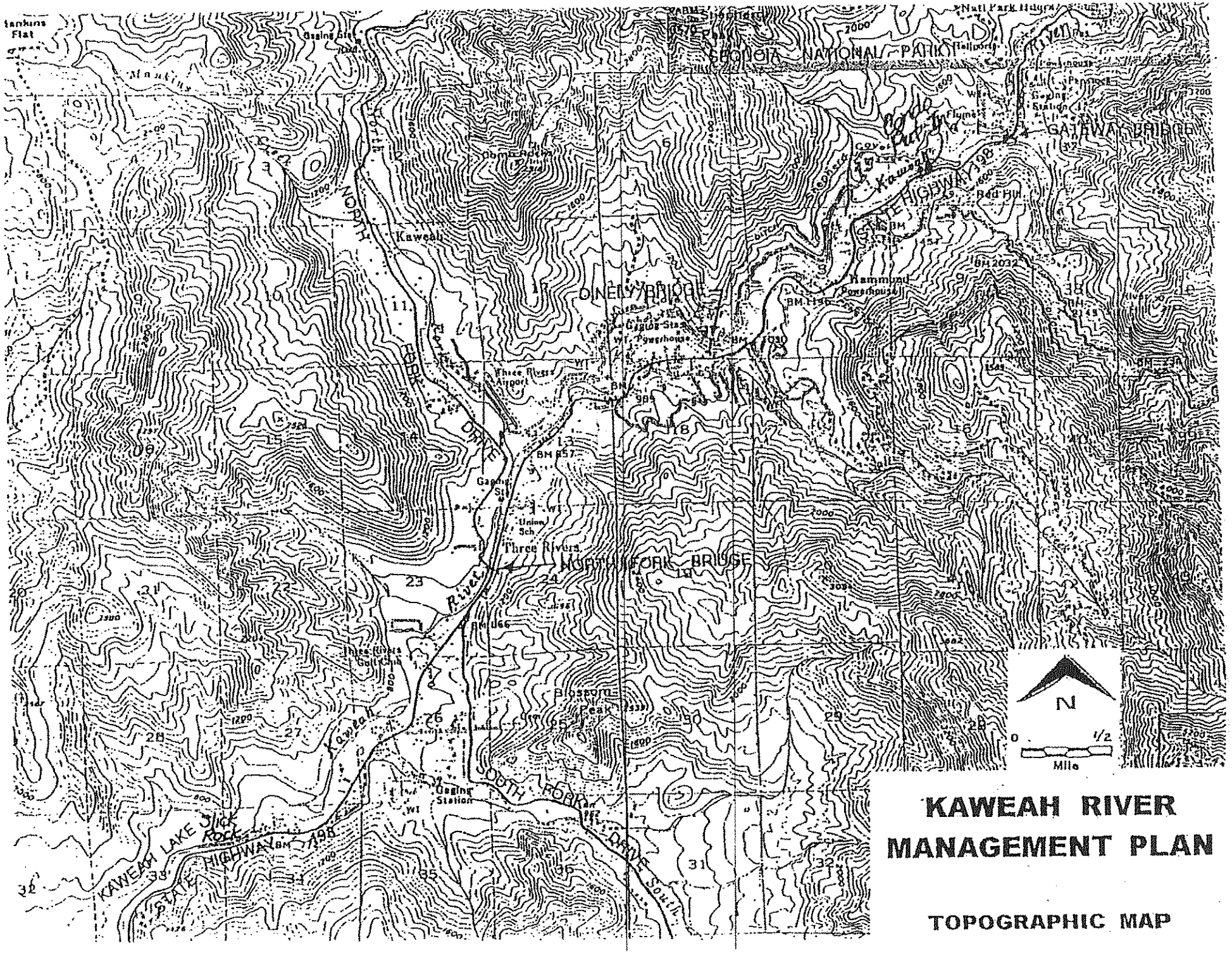
Whitewater Voyages

Whitewater Voyages

Tributary Whitewater Tours

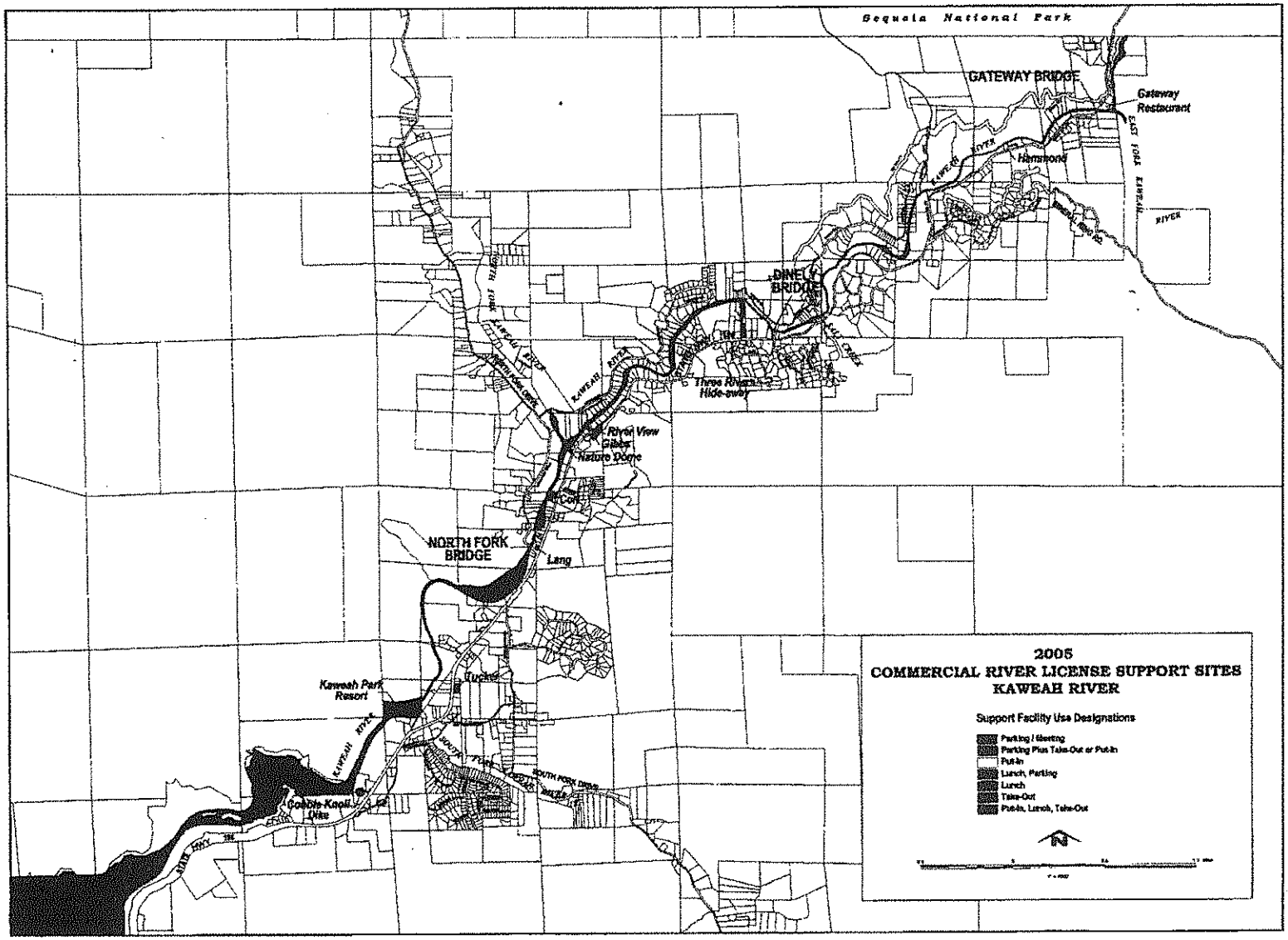
Tributary

Wilderness Adventures



KAWEAH RIVER MANAGEMENT PLAN

TOPOGRAPHIC MAP


Sequoia National Park
GATEWAY BRIDGE
Gateway Restaurant
EAST FORK KAWEAH RIVER
Hammond
DINELY BRIDGE
Three Rivers Hide-away
Riverview Cabins Nature Dome
NORTH FORK BRIDGE
Lang
Kaweah Park Resort
Cobble-Knoll Lake
SOUTH FORK DRIVE
2005
COMMERCIAL RIVER LICENSE SUPPORT SITES
KAWEAH RIVER
Support Facility Use Designations
Parking / Meeting
Parking Plus Take-Out or Put-In
Put-In
Lunch, Parking
Lunch
Take-Out
Put-In, Lunch, Take-Out

FINANCING:

Not applicable.

ALTERNATIVES:

Your Board may wish to make other recommendations for the 2005 Update or consider changes to the Kaweah River Management Plan or decline to make any changes at this time.

INVOLVEMENT OF OTHER DEPARTMENTS OR AGENCIES:

Tulare County Counsel provided input to the Kaweah River Management Plan.

SIGNATURE REQUIREMENTS:

County Administrative Officer/Clerk of the Board of Supervisors or authorized Deputy to attest to the Resolution.

ADMINISTRATIVE SIGN OFF:

RESOURCE MANAGEMENT AGENCY

George E. Finney
Assistant Director – Long Range Planning

Henry Hash, Director

JM

Submittal Date: December 7, 2005

December 20, 2005 Item #3

PUBLIC HEARING: Request from Resource Management Agency to review the proposed 2005 Update to the Kaweah River Management Plan, which implements Tulare County Ordinance Code Chapter 11 of Part VI pertaining to river rafting.

Resolution No. 2005-0814

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF ADOPTION OF THE 2005 UPDATE TO THE KAWEAH RIVER MANAGEMENT PLAN) **RESOLUTION NO. 2005-0814**

UPON MOTION OF SUPERVISOR Cox, SECONDED BY SUPERVISOR Worthley, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD DECEMBER 20, 2005, BY THE FOLLOWING VOTE:

AYES: Supervisors Ishida, Conway, Cox, Worthley and Maples
NOES: None
ABSTAIN: None
ABSENT: None

ATTEST: C. Brian Haddix
County Administrative Officer/
Clerk, Board of Supervisors

BY: Michelle Baldwin
Chief Clerk

* * * * * * * * * * *

Adopted the 2005 Update to the Kaweah River Management Plan, which implements Tulare County Ordinance Code Chapter 11 of Part VI, pertaining to river rafting including the recommendations set forth on Page 9 of the 2005 Update Report, as attached.

Cc: RMA
County Counsel
CAO
Auditor

12/21/05
mb

APPENDIX D

Exceedance Charts

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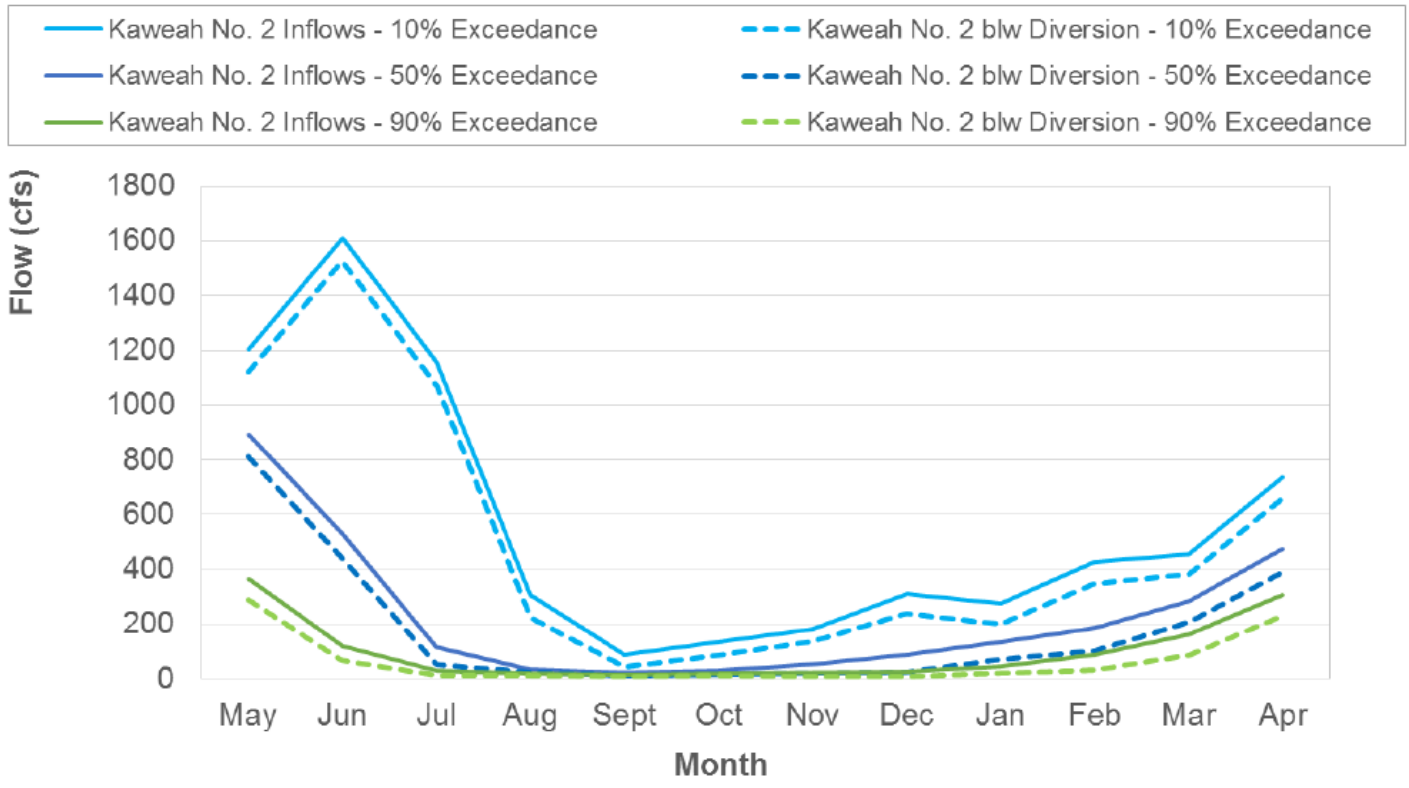
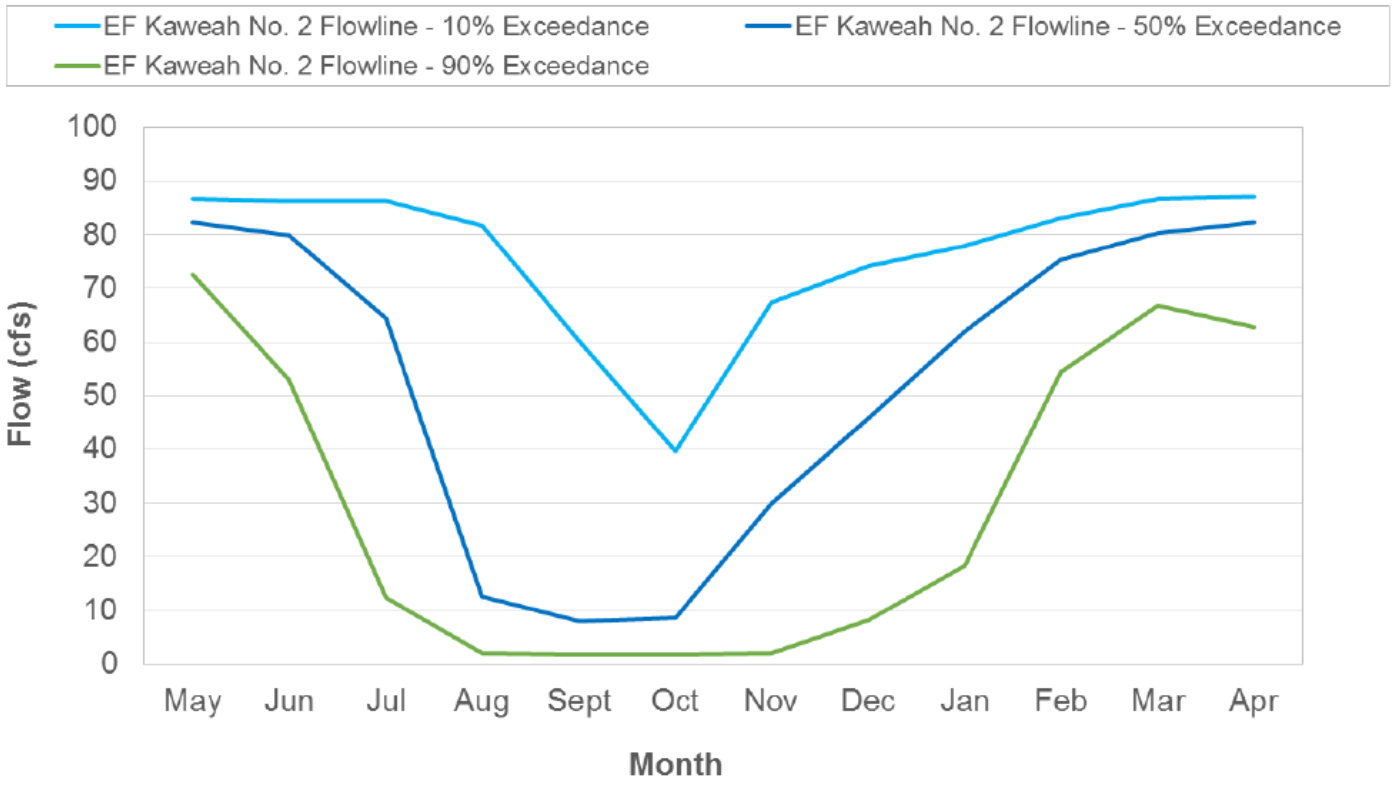
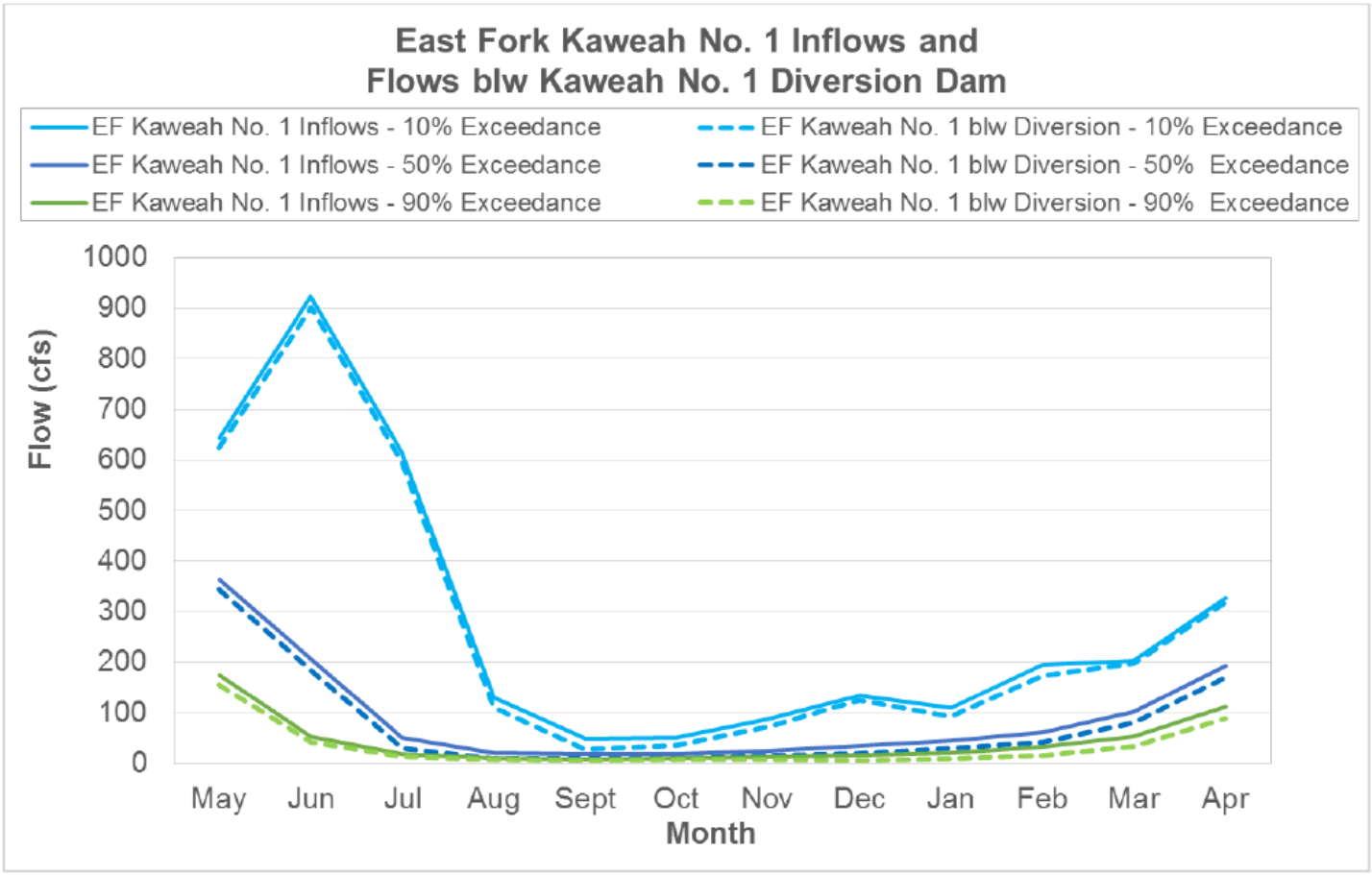
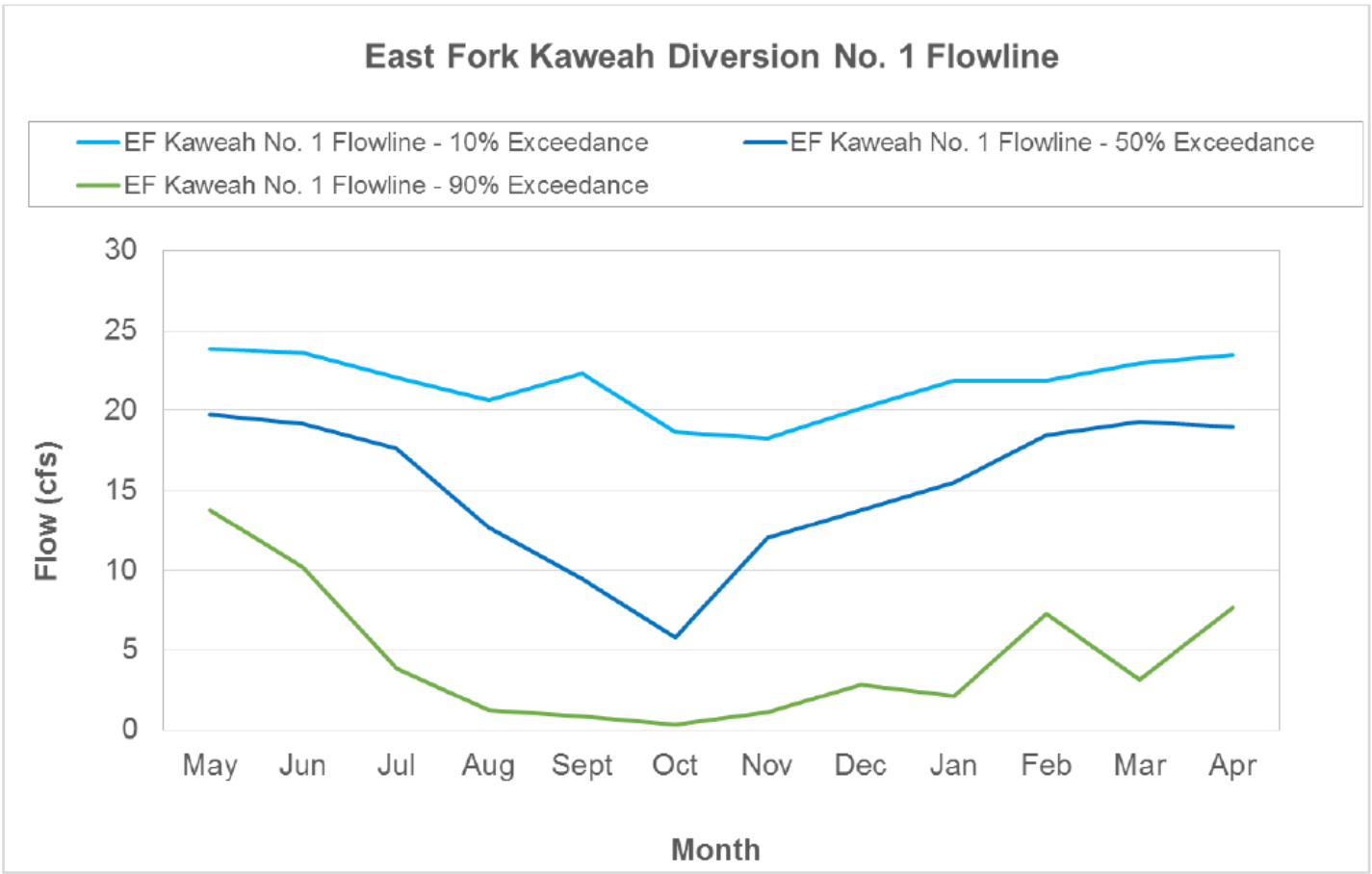
Kaweah River Inflows and Flows blw Kaweah No. 2 Diversion Dam



Kaweah Diversion No. 2 Flowline




East Fork Kaweah No. 1 Inflows and
Flows blw Kaweah No. 1 Diversion Dam
EF Kaweah No. 1 Inflows - 10% Exceedance
EF Kaweah No. 1 Inflows - 50% Exceedance
EF Kaweah No. 1 Inflows - 90% Exceedance
EF Kaweah No. 1 blw Diversion - 10% Exceedance
EF Kaweah No. 1 blw Diversion - 50% Exceedance
EF Kaweah No. 1 blw Diversion - 90% Exceedance
Flow (cfs)
1000
900
800
700
600
500
400
300
200
100
0
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Month


East Fork Kaweah Diversion No. 1 Flowline
EF Kaweah No. 1 Flowline - 10% Exceedance
EF Kaweah No. 1 Flowline - 50% Exceedance
EF Kaweah No. 1 Flowline - 90% Exceedance
Flow (cfs)
30
25
20
15
10
5
0
May
Jun
Jul
Aug
Sept
Oct
Nov
Dec
Jan
Feb
Mar
Apr
Month

APPENDIX E

Hydrographs below the Kaweah No. 1 and No. 2 Diversions

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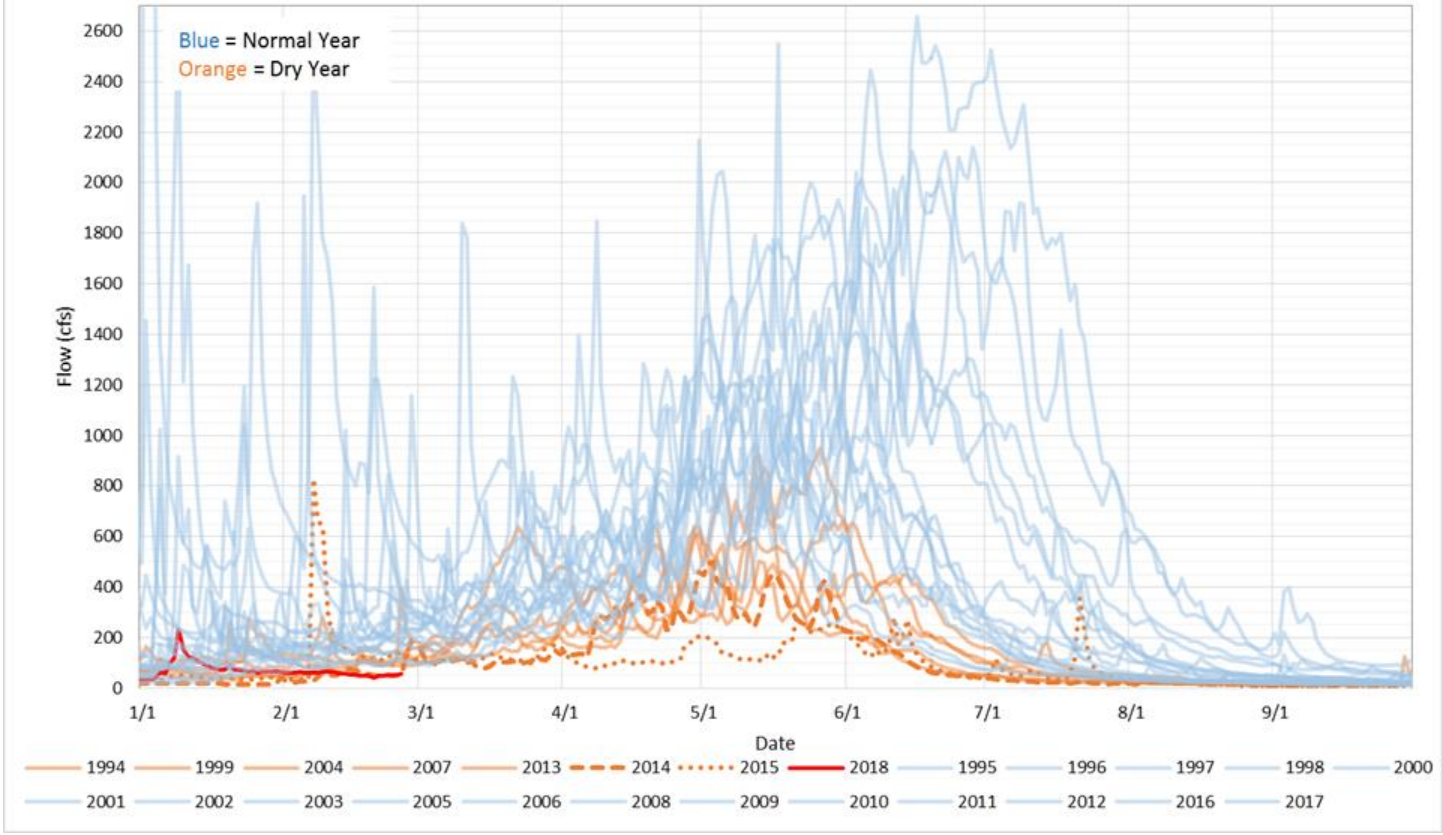
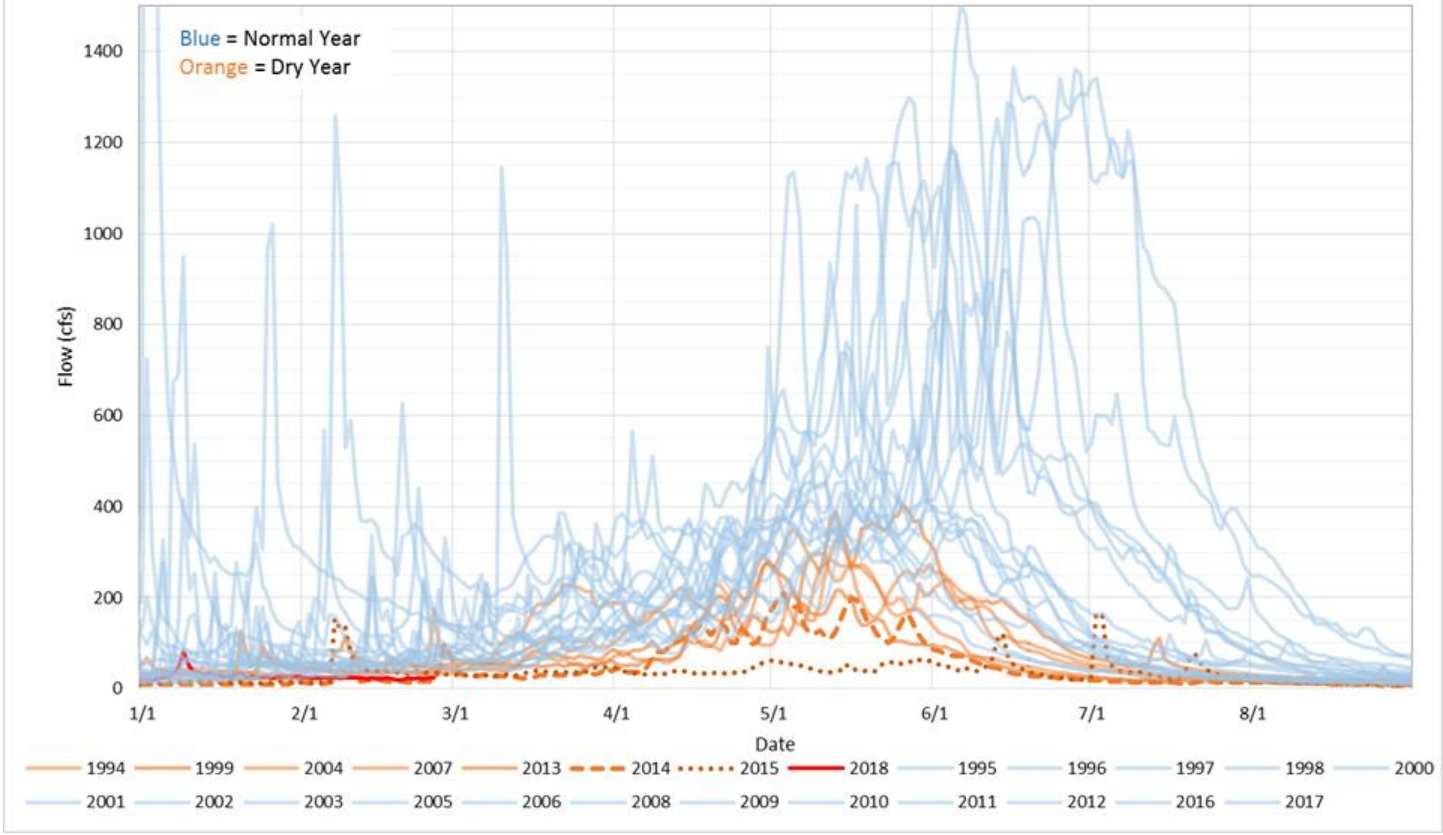
Kaweah No. 2 Diversion Normal and Dry Year Flows



Kaweah No. 1 Diversion Normal and Dry Year Flows



APPENDIX F

Hydrographs Representing Normal and Dry Years

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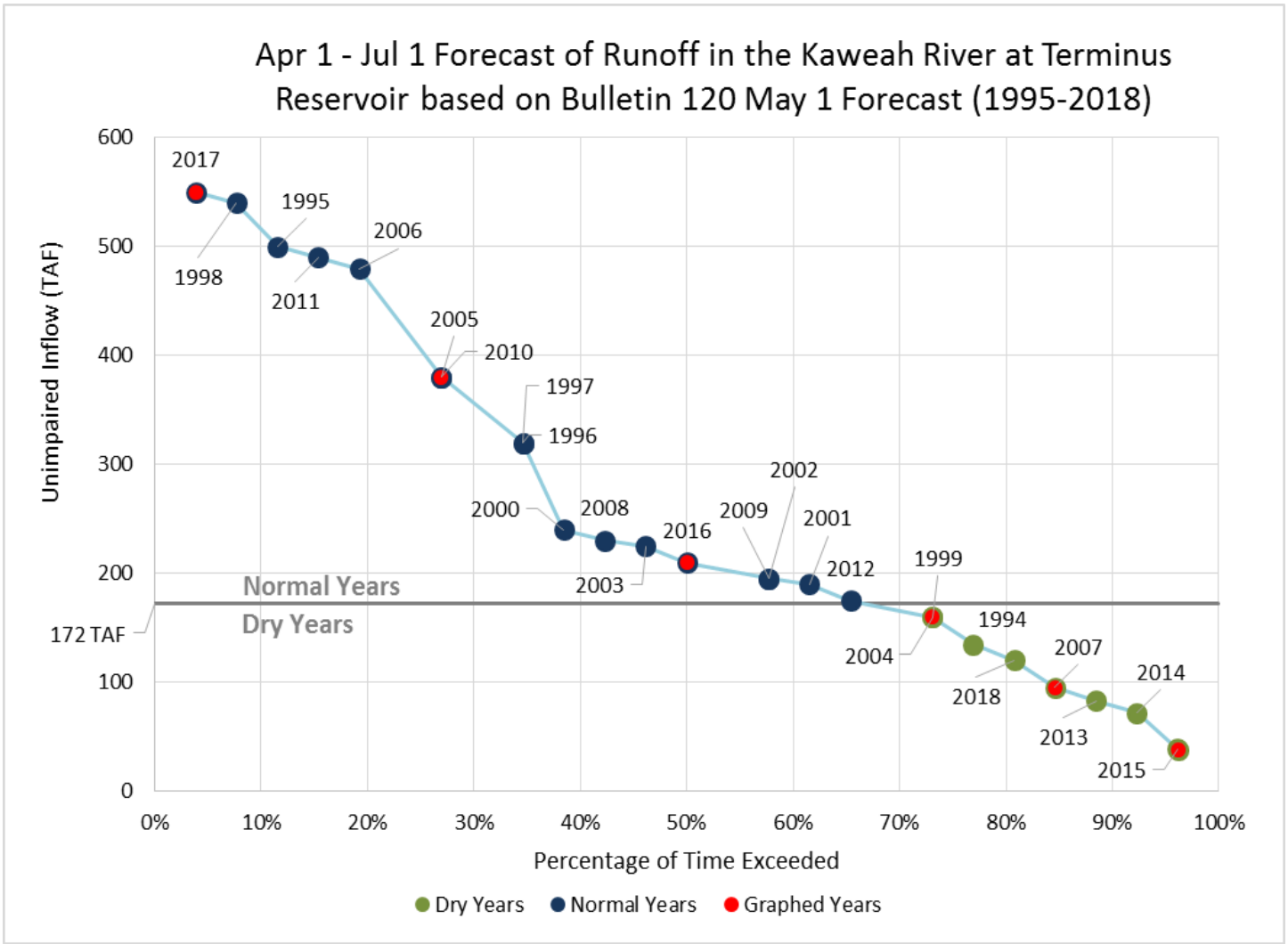
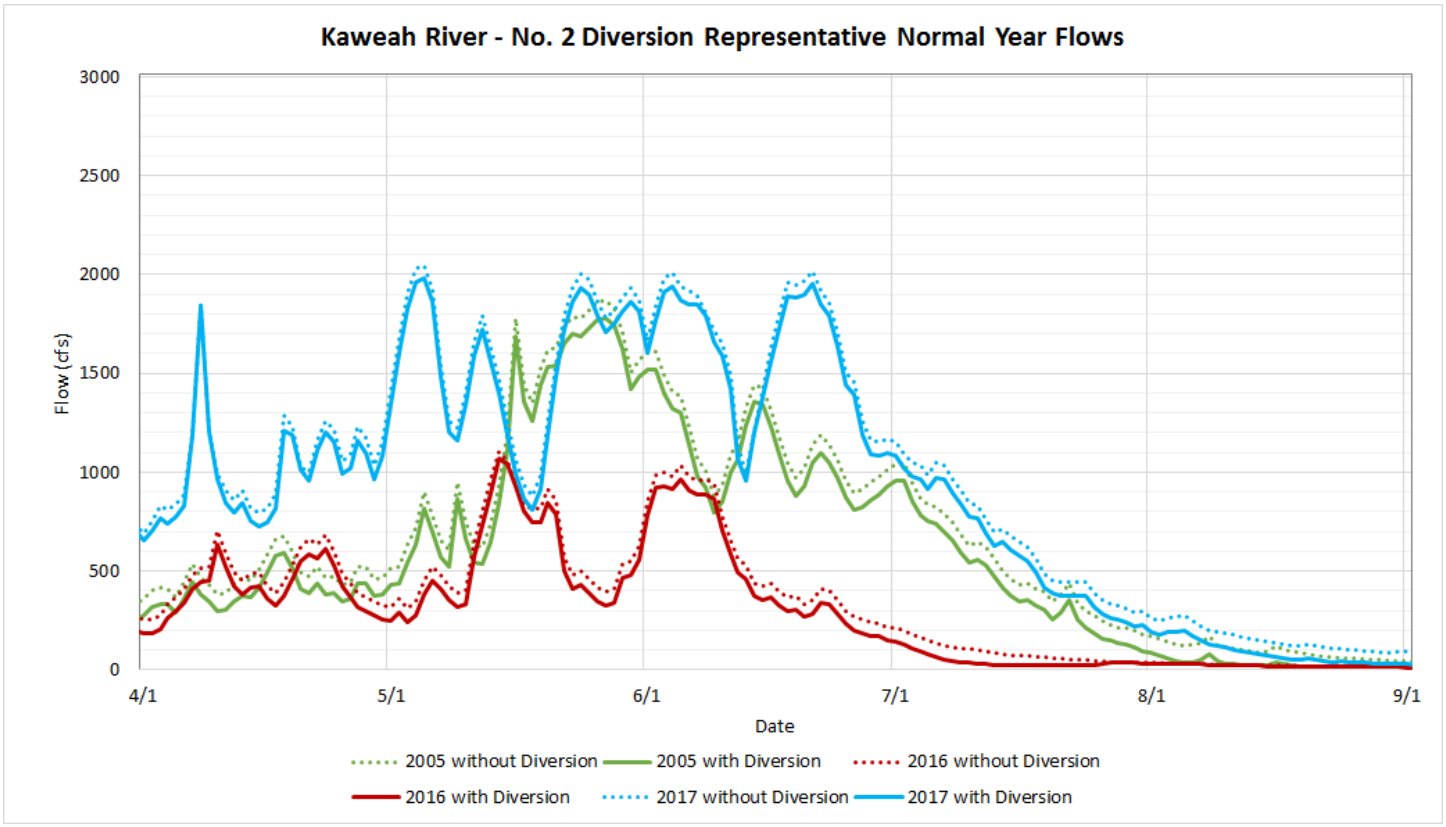
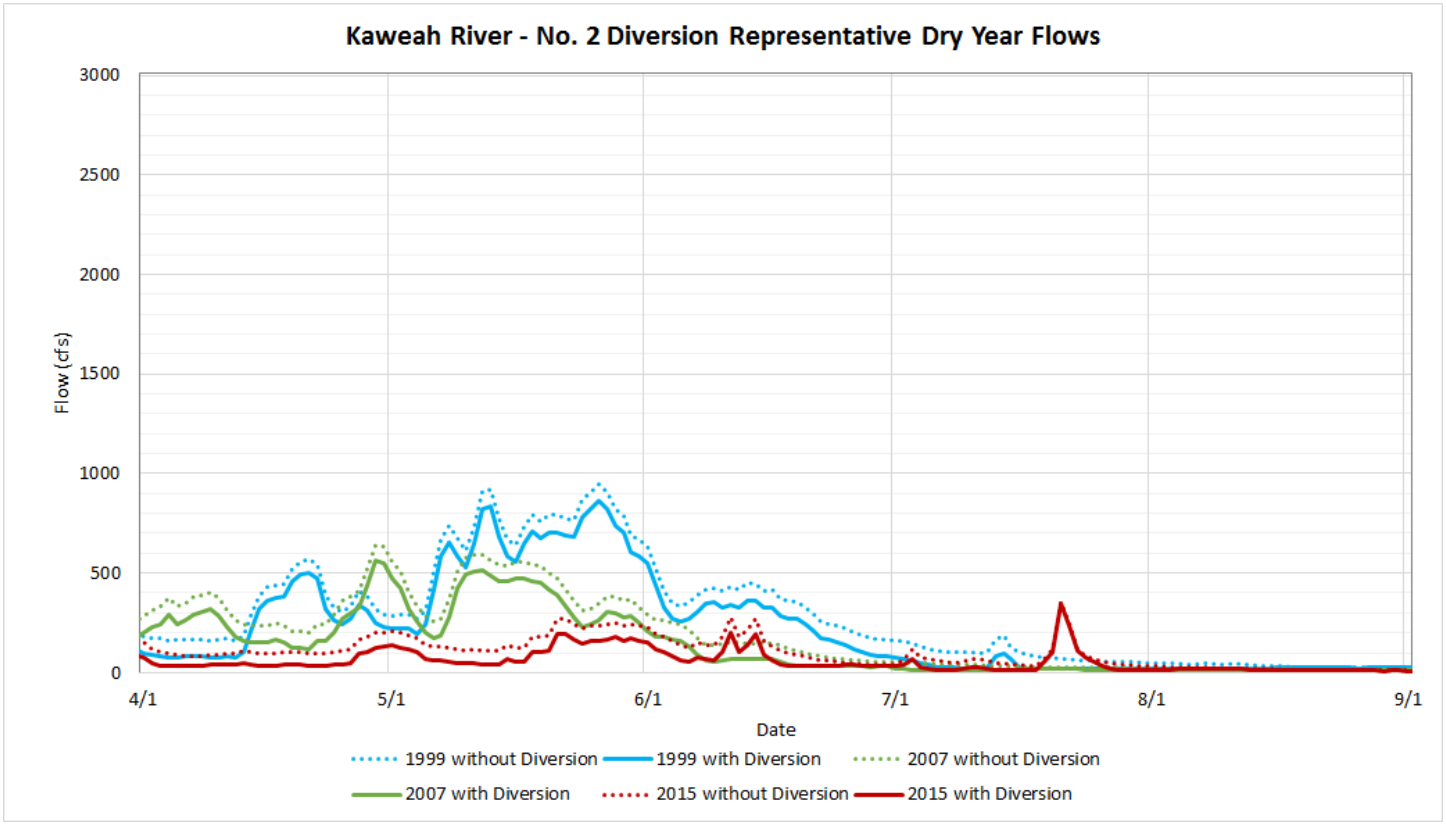
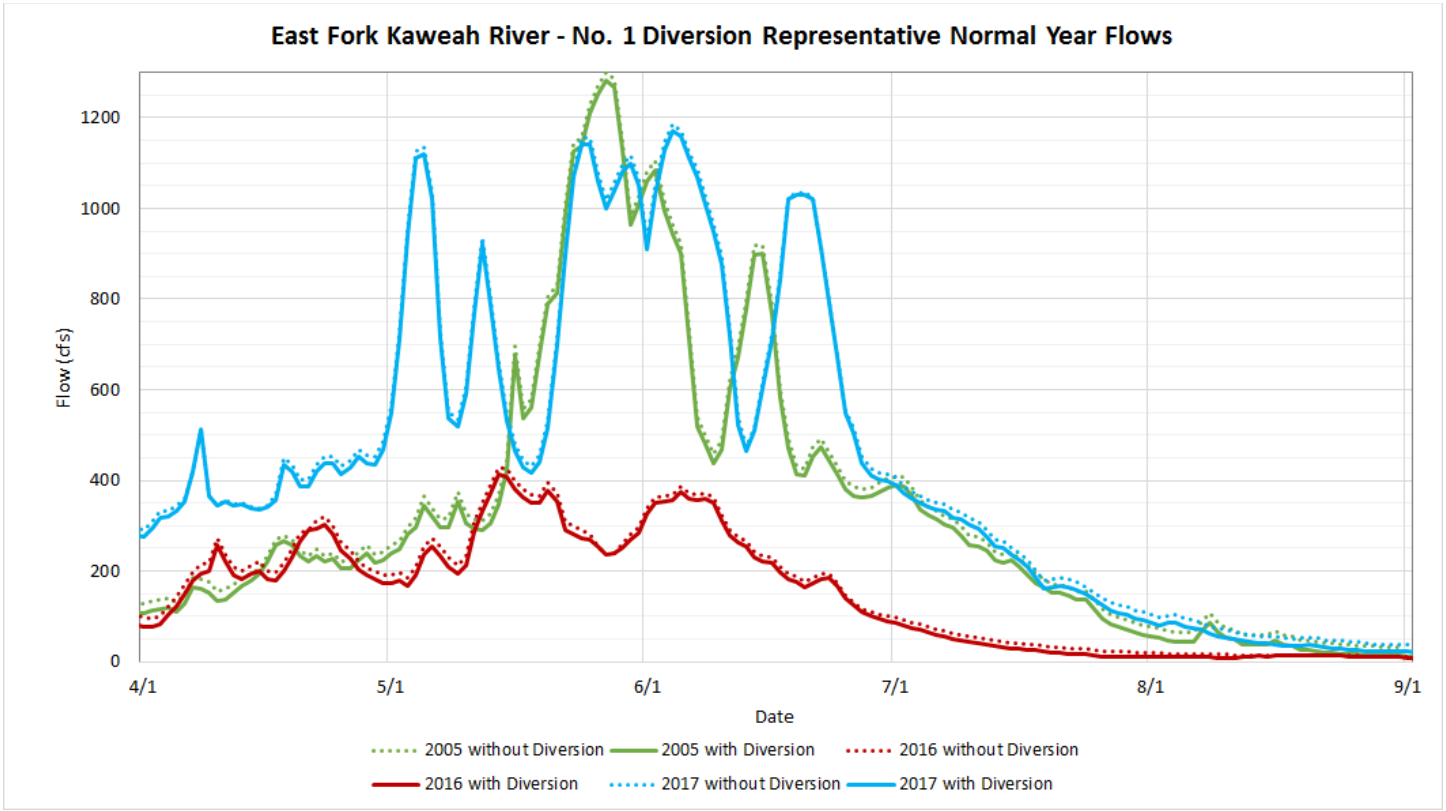
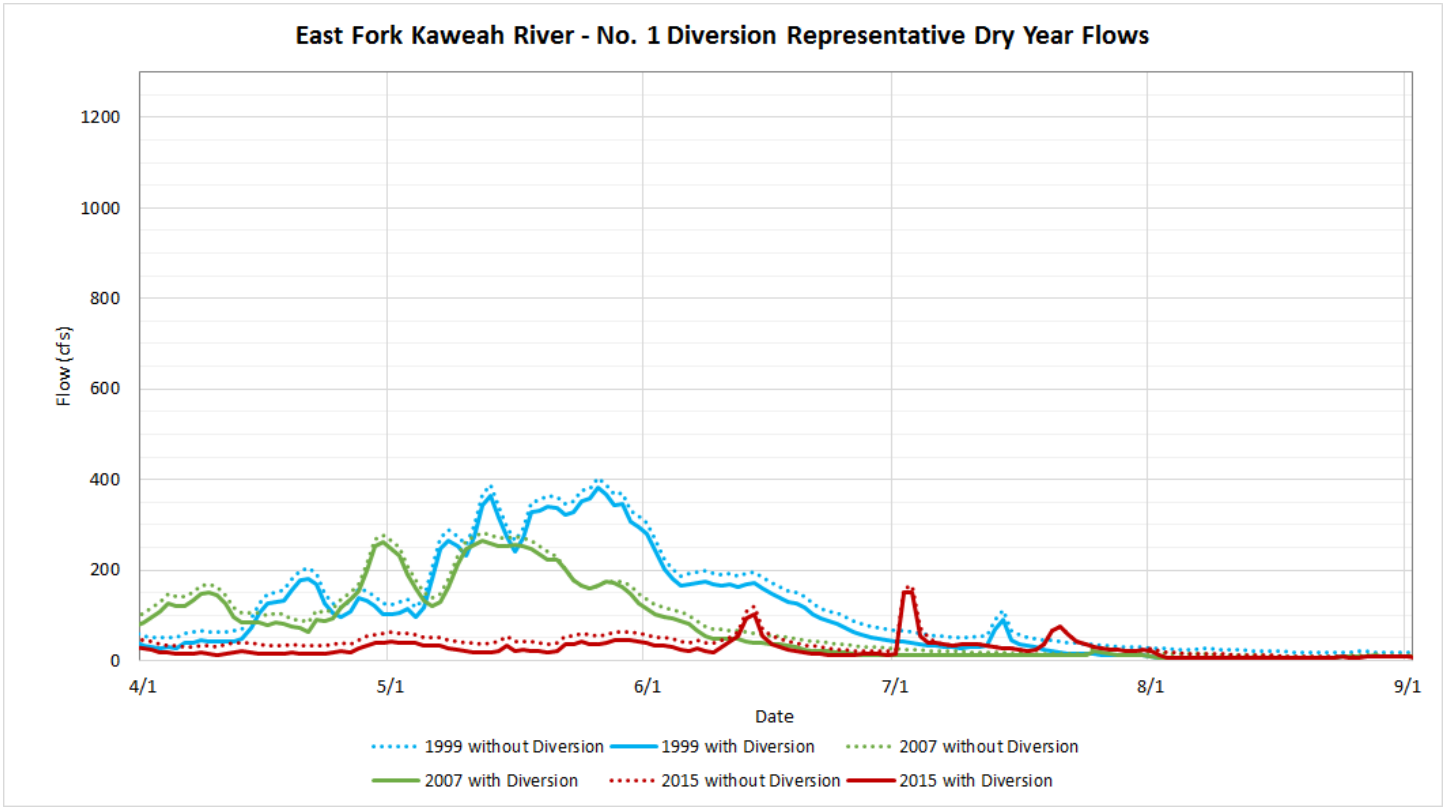

Apr 1 - Jul 1 Forecast of Runoff in the Kaweah River at Terminus Reservoir based on Bulletin 120 May 1 Forecast (1995-2018)
Unimpaired Inflow (TAF)
600
500
400
300
200
100
0
172 TAF
Normal Years
Dry Years
2017
1995
2006
1998
2011
2005
2010
1997
1996
2000
2008
2016
2002
2009
2001
2012
1999
2003
1994
2004
2007
2018
2014
2013
2015
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percentage of Time Exceeded
Dry Years
Normal Years
Graphed Years


Kaweah River - No. 2 Diversion Representative Normal Year Flows
3000
2500
2000
1500
1000
500
0
Flow (cfs)
4/1
5/1
6/1
7/1
8/1
9/1
Date
2005 without Diversion
2005 with Diversion
2016 without Diversion
2016 with Diversion
2017 without Diversion
2017 with Diversion


Kaweah River - No. 2 Diversion Representative Dry Year Flows
3000
2500
2000
1500
1000
500
0
Flow (cfs)
4/1
5/1
6/1
7/1
8/1
9/1
Date
1999 without Diversion
1999 with Diversion
2007 without Diversion
2007 with Diversion
2015 without Diversion
2015 with Diversion


East Fork Kaweah River - No. 1 Diversion Representative Normal Year Flows
Flow (cfs)
0
200
400
600
800
1000
1200
4/1
5/1
6/1
7/1
8/1
9/1
Date
2005 without Diversion
2005 with Diversion
2016 without Diversion
2016 with Diversion
2017 without Diversion
2017 with Diversion


East Fork Kaweah River - No. 1 Diversion Representative Dry Year Flows
Flow (cfs)
0
200
400
600
800
1000
1200
4/1
5/1
6/1
7/1
8/1
9/1
Date
1999 without Diversion
1999 with Diversion
2007 without Diversion
2007 with Diversion
2015 without Diversion
2015 with Diversion

APPENDIX G

Boating Flow Hydrographs – Representative Water-year Types

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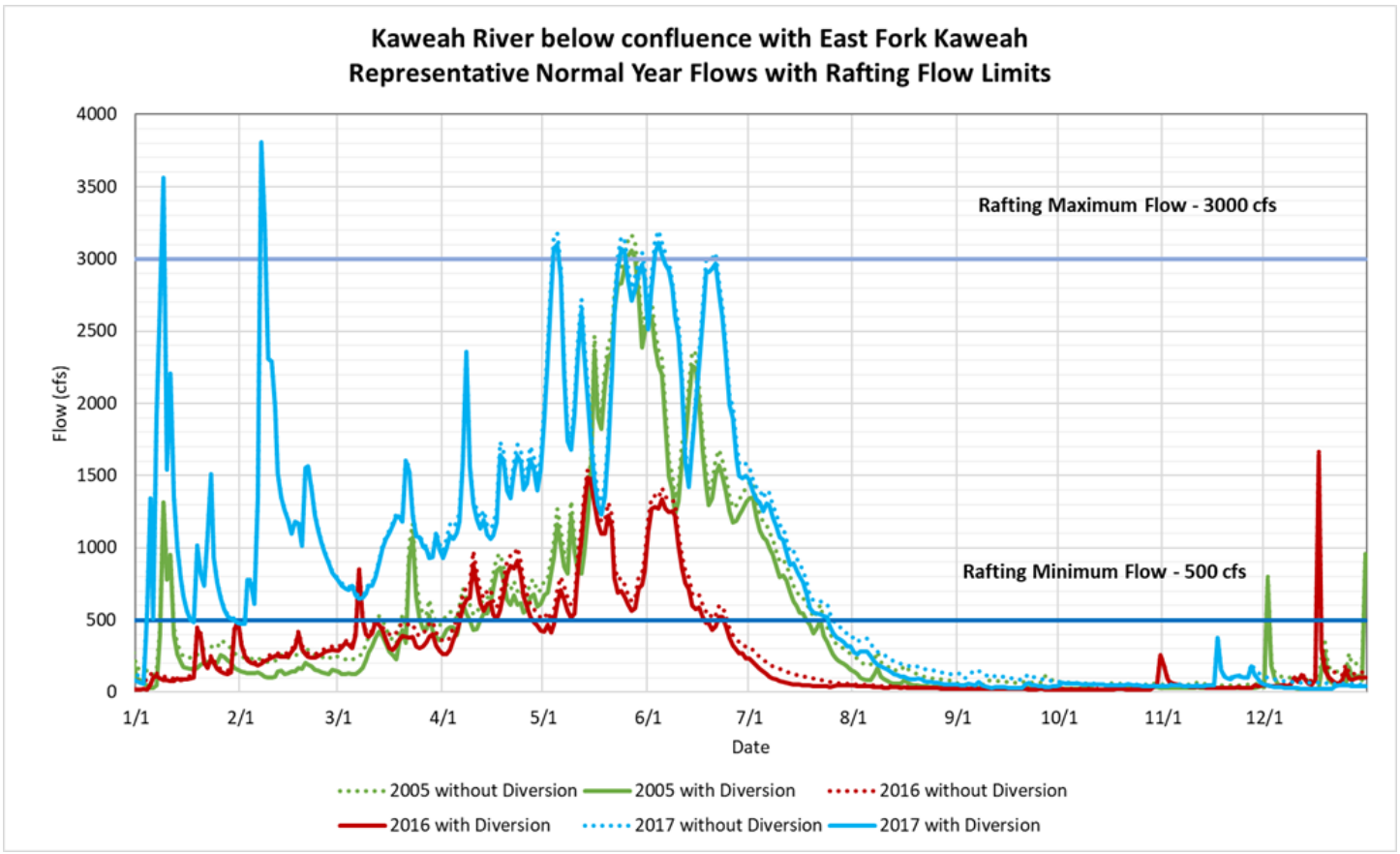
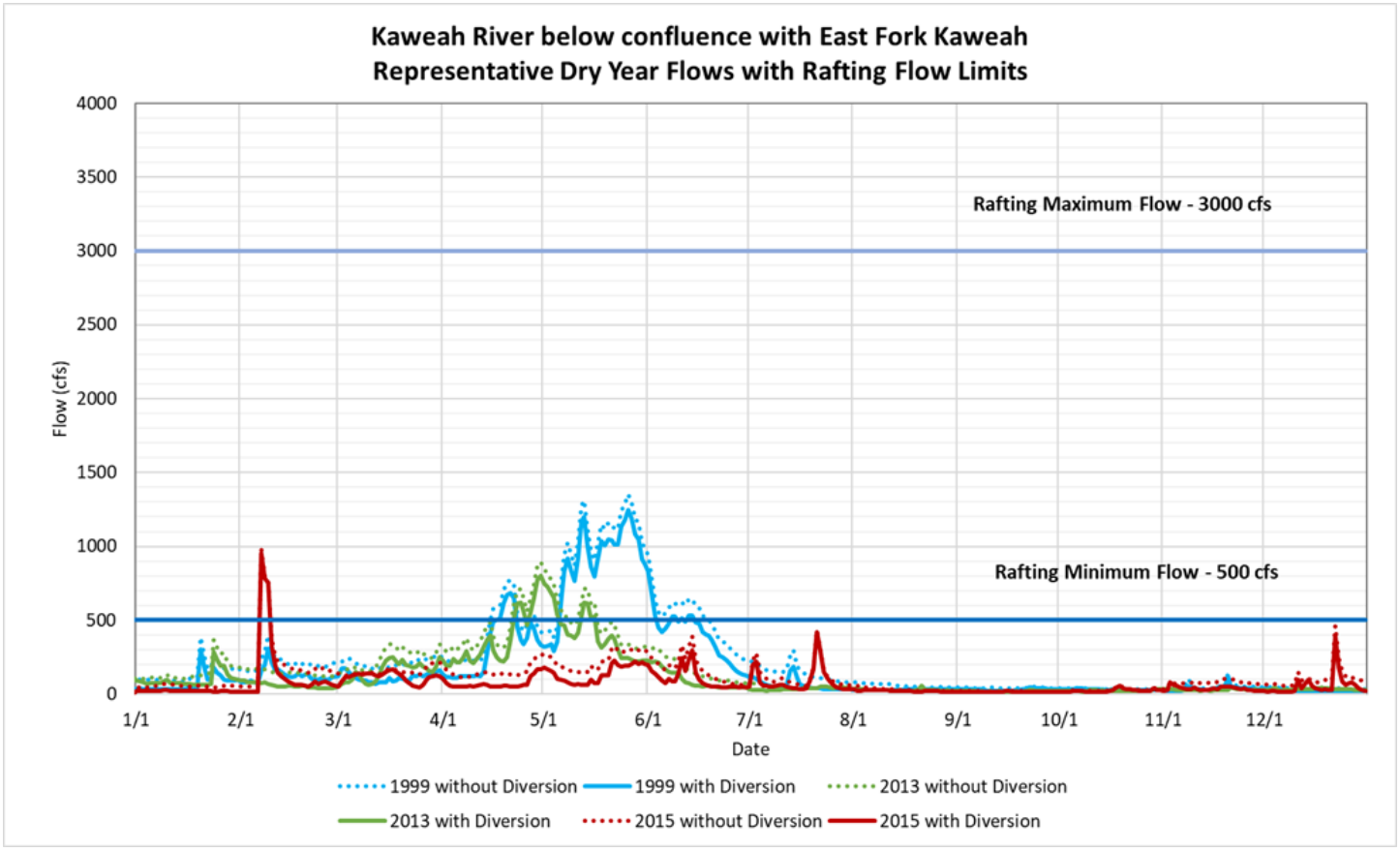
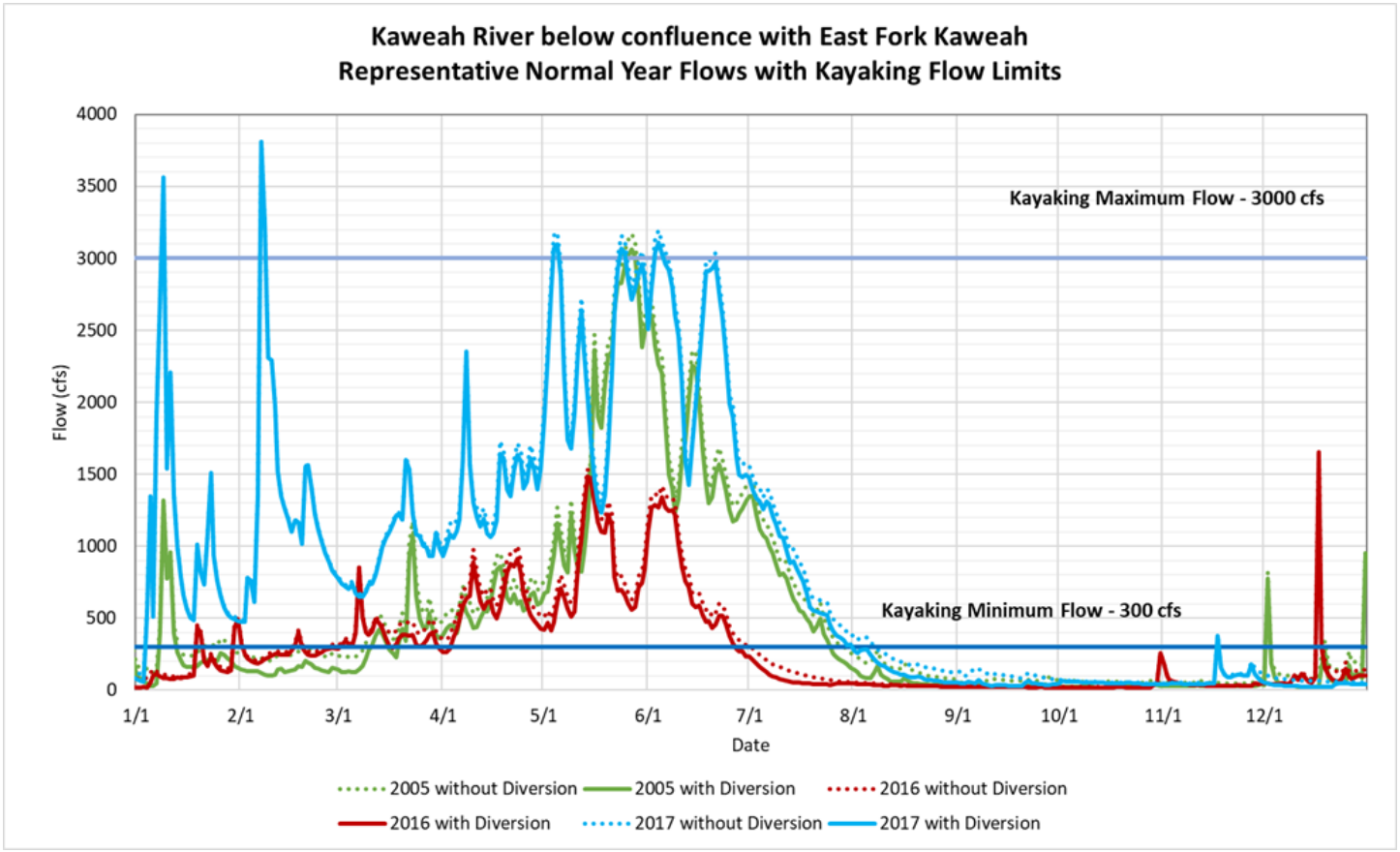
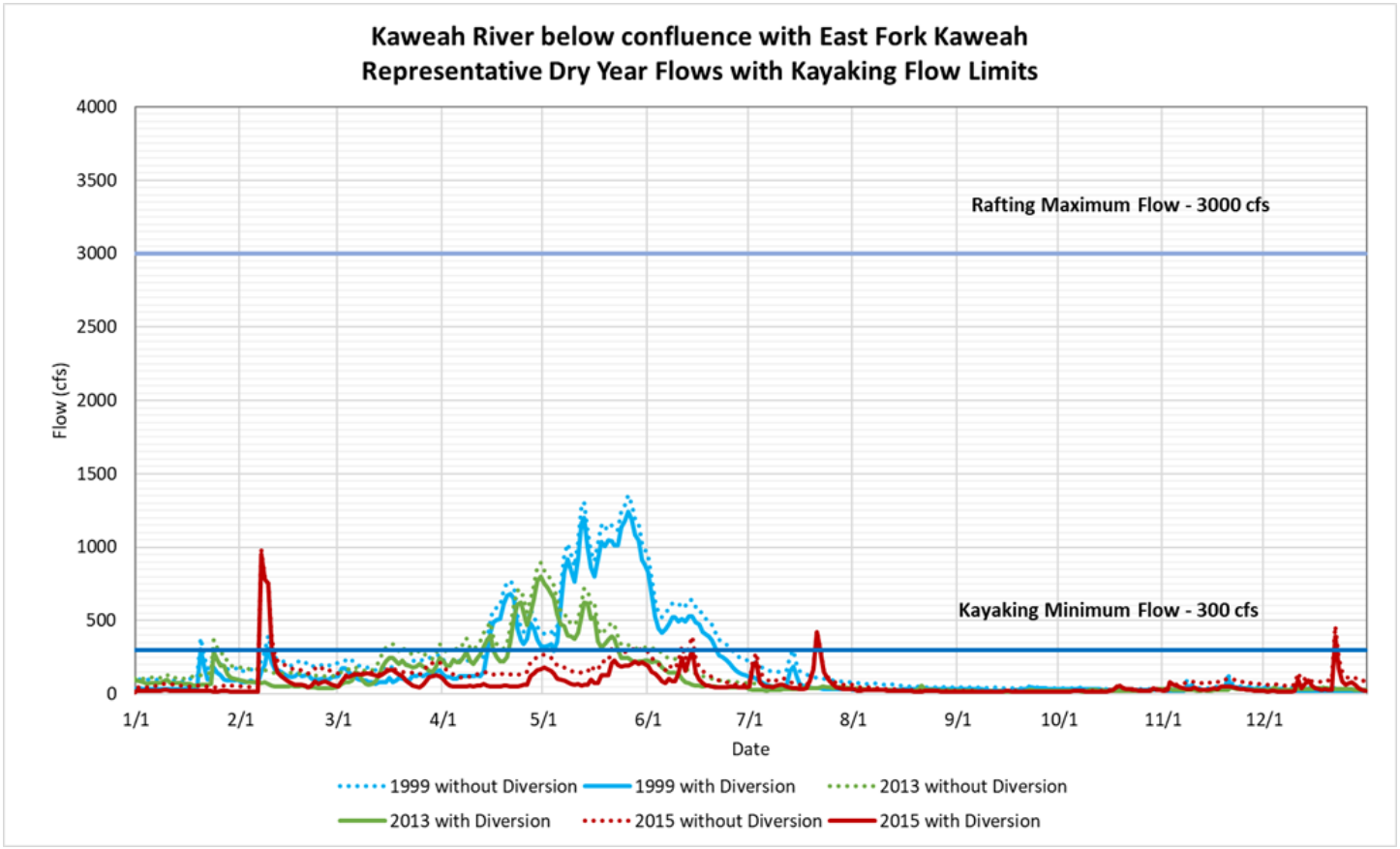
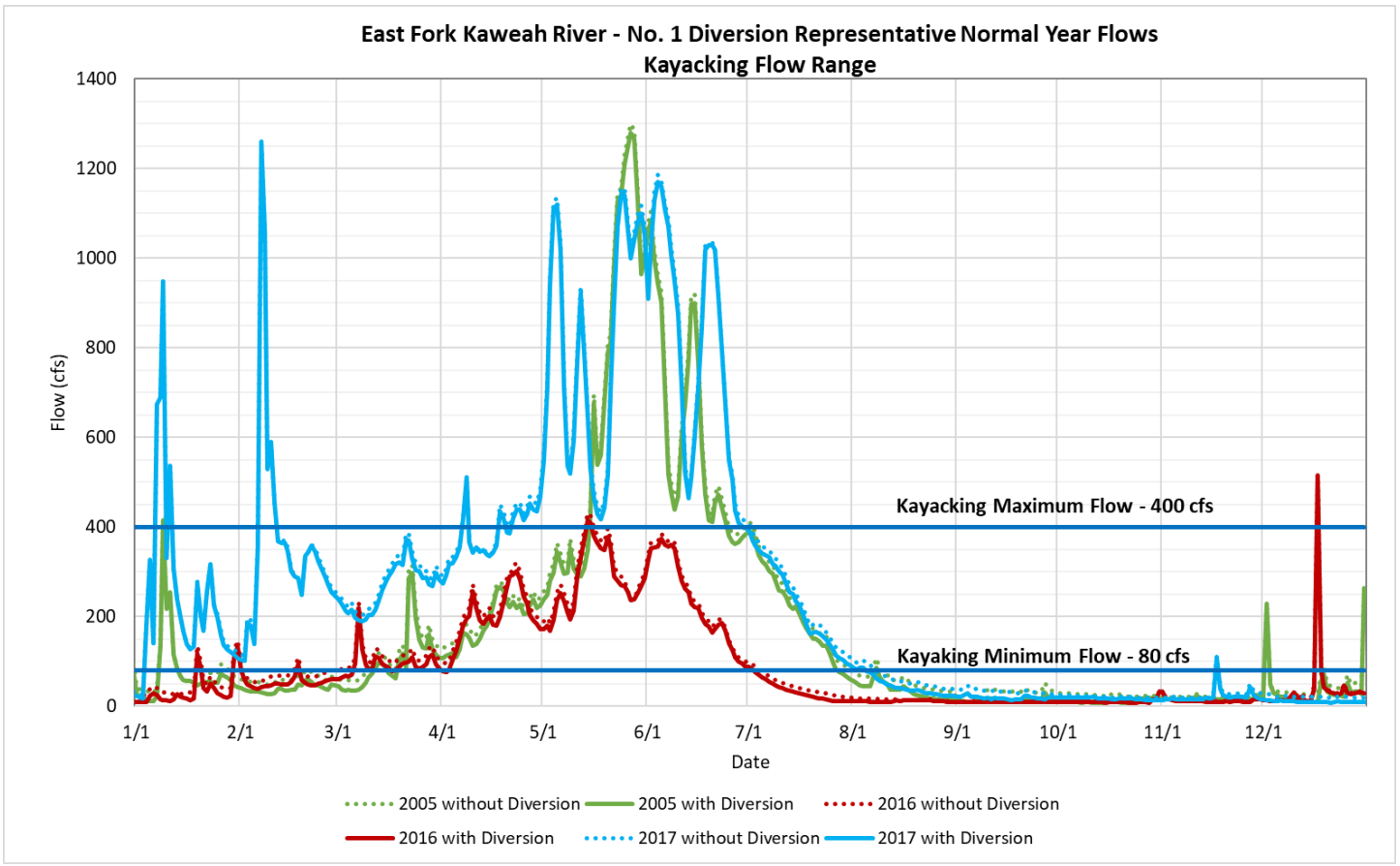
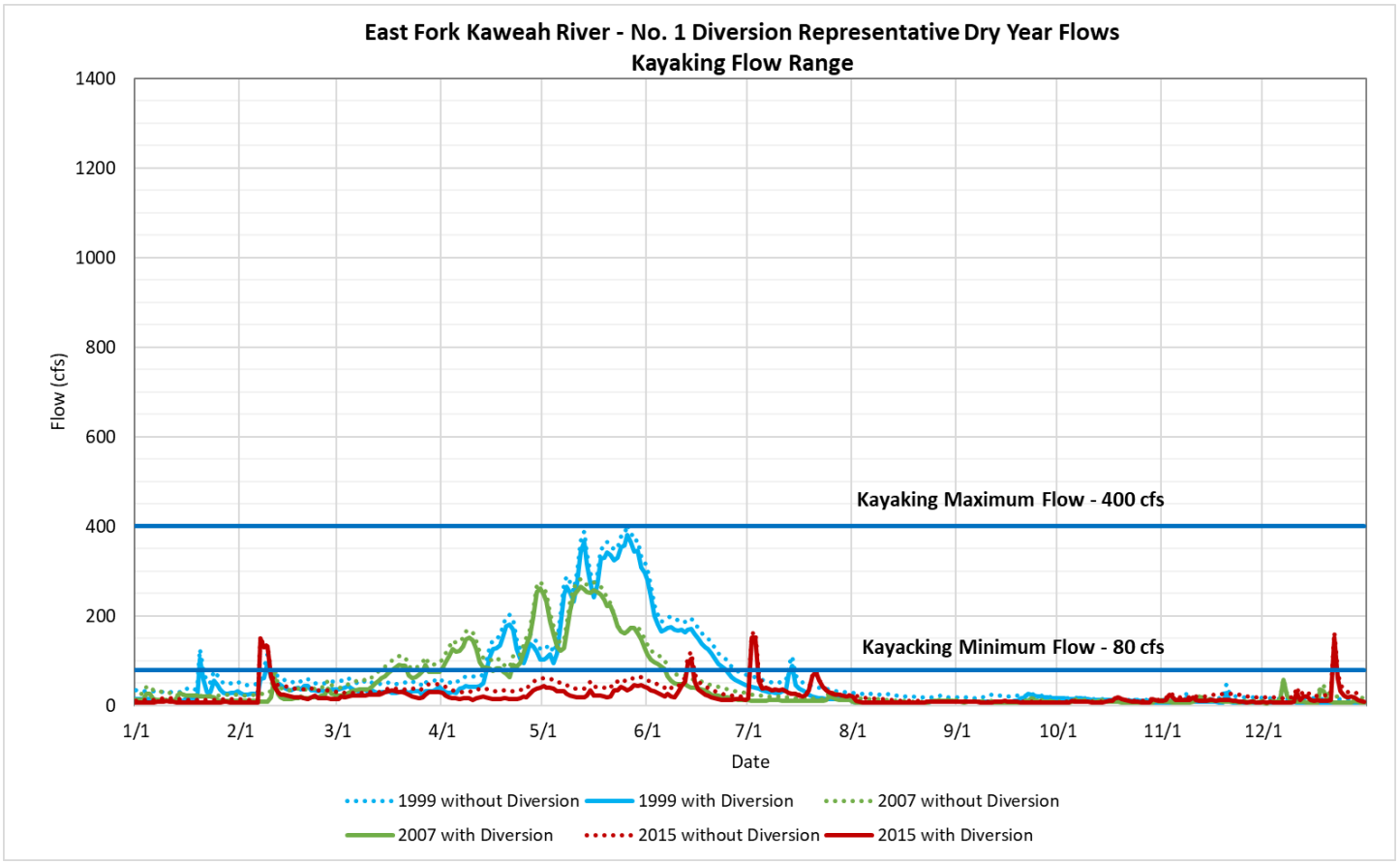

Kaweah River below confluence with East Fork Kaweah
Representative Normal Year Flows with Rafting Flow Limits
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date
Rafting Maximum Flow - 3000 cfs
Rafting Minimum Flow - 500 cfs
2005 without Diversion
2005 with Diversion
2016 without Diversion
2016 with Diversion
2017 without Diversion
2017 with Diversion


Kaweah River below confluence with East Fork Kaweah
Representative Dry Year Flows with Rafting Flow Limits
Flow (cfs)
4000
3500
3000
2500
2000
1500
1000
500
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date
Rafting Maximum Flow - 3000 cfs
Rafting Minimum Flow - 500 cfs
1999 without Diversion
1999 with Diversion
2013 without Diversion
2013 with Diversion
2015 without Diversion
2015 with Diversion


Kaweah River below confluence with East Fork Kaweah
Representative Normal Year Flows with Kayaking Flow Limits
Kayaking Maximum Flow - 3000 cfs
Kayaking Minimum Flow - 300 cfs
Flow (cfs)
Date
2005 without Diversion
2005 with Diversion
2016 without Diversion
2016 with Diversion
2017 without Diversion
2017 with Diversion


Kaweah River below confluence with East Fork Kaweah
Representative Dry Year Flows with Kayaking Flow Limits
Rafting Maximum Flow - 3000 cfs
Kayaking Minimum Flow - 300 cfs
Flow (cfs)
Date
1999 without Diversion
1999 with Diversion
2013 without Diversion
2013 with Diversion
2015 without Diversion
2015 with Diversion


East Fork Kaweah River - No. 1 Diversion Representative Normal Year Flows
Kayacking Flow Range
Flow (cfs)
1400
1200
1000
800
600
400
200
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date
Kayacking Maximum Flow - 400 cfs
Kayaking Minimum Flow - 80 cfs
2005 without Diversion
2005 with Diversion
2016 without Diversion
2016 with Diversion
2017 without Diversion
2017 with Diversion


East Fork Kaweah River - No. 1 Diversion Representative Dry Year Flows
Kayaking Flow Range
Flow (cfs)
1400
1200
1000
800
600
400
200
0
1/1
2/1
3/1
4/1
5/1
6/1
7/1
8/1
9/1
10/1
11/1
12/1
Date
Kayaking Maximum Flow - 400 cfs
Kayacking Minimum Flow - 80 cfs
1999 without Diversion
1999 with Diversion
2007 without Diversion
2007 with Diversion
2015 without Diversion
2015 with Diversion