
TABLE OF CONTENTS

	Page
5.2.9 Recreation Resources	1
5.2.9.1 Methods	1
5.2.9.2 Affected Environment	3
5.2.9.3 Impacts of Proposed Action	22
5.2.9.4 Unavoidable Adverse Impacts	35

List of Tables

Table 5.2.9-1.	Recreational Facilities in the Vicinity of the Mammoth Pool Project.
Table 5.2.9-2.	Recreation Facilities in the Vicinity of the Big Creek Nos. 1 and 2 Project.
Table 5.2.9-3.	Big Creek Nos. 2A, 8 and Eastwood Recreational Facilities – Florence Lake and Shaver Lake.
Table 5.2.9-4.	Summary of CDFG Fish Stocking in the Big Creek Basin (1914-2002).
Table 5.2.9-5.	Recreation Facilities in the Vicinity of the Project.

List of Figures

Figure 5.2.9-1	Recreation Facilities in the Vicinity of the Four Big Creek ALP Projects
Figures 5.2.9-2 through 5.2.9-5	Recreation Opportunities: Mammoth Pool Vicinity
Figures 5.2.9-6 through 5.2.9-10	Recreation Opportunities: Huntington Lake Vicinity
Figure 5.2.9-11 through 5.2.9-13	Recreation Opportunities: Upper Basin Vicinity
Figures 5.2.9-14 and 5.2.9-19	Recreation Opportunities: Shaver Lake Vicinity

5.2.9 RECREATION RESOURCES

This section describes the recreation resources and opportunities in the vicinity of the four Big Creek Alternative Licensing Process (ALP) Projects. These resources include developed recreation facilities (campgrounds, day-use areas, boat ramps, etc.) near Project reservoirs and forebays, and dispersed recreation activities. Potential effects to these resources resulting from the continued operations and maintenance of the Projects under the Proposed Action are also identified.

5.2.9.1 Methods

This assessment of recreation resources was based on a review of relevant information, agency and stakeholder consultation, field studies, and recreation user surveys. Detailed descriptions of the study methods are provided in the 2001 Final Technical Study Plans for the Big Creek ALP Projects (SCE 2001; Volume 4, SD-B (Books 6 and 21)). Study results, including comprehensive maps of recreation resources, are provided in the 2002 Technical Study Report Package (TSRP) for the Big Creek Hydroelectric System ALP (SCE 2003; Volume 4, SD-C (Books 7-10, 21 and 22)); the 2003 TSRP for the Big Creek Hydroelectric System ALP (SCE 2004a; Volume 4, SD-D (Books 11-17 and 23)); and the 2004, 2005, and 2007 TSRs for the Big Creek Hydroelectric System ALP (SCE 2004a; SCE 2005a; SCE 2007a; Volume 4, SD-E (Books 18 and 24)). A summary of agency and stakeholder consultation is provided in Section 4.0, Consultation.

Numerous, extensive recreation studies and recreation user surveys were conducted as part of the Big Creek ALP to document recreation resources present in the vicinity of the four Big Creek ALP Projects. This includes completion of the following studies:

- Flow Information Feasibility Study in REC 1 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))
- Manage Spill-Event Feasibility Study in REC 2 (SCE 2004b; Volume 4, SD-E (Books 18 and 24))
- Whitewater Recreation Assessment Study in REC 3 (SCE 2003; SCE 2004a; Volume 4, SD-C (Books 10 and 21) and SD-D (Books 16, 21 and 23))
- Whitewater Play-Site Feasibility Study in REC 4 (SCE 2004b; Volume 4, SD-E (Book 18))
- Reconnaissance Stream Corridor Recreation Assessment in REC 5 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))
- Fisheries Habitat Evaluation in REC 6 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))

- Fish Hatchery and Fish Stocking Evaluation in REC 7 (SCE 2004a; Volume 4, SD-D (Book 16))
- Angling Opportunities and Experience Assessment in REC 8 (SCE 2003; SCE 2004a; Volume 4, SD-C (Books 10 and 21) and SD-D (Book 16))
- Recreation Resources and Facility Inventory Assessment in REC 9 (SCE 2003; Volume 4, SD-C (Books 10 and 21))
- Recreation Opportunities and Needs Assessment (Developed) in REC 10 (SCE 2003; SCE 2004a; Volume 4, SD-C (Books 10 and 21) and SD-D (Book 16))
- Compliance with Americans with Disabilities Act (ADA) Assessment in REC 11 (SCE 2003; SCE 2004a; Volume 4, SD-C (Book 10) and SD-D (Book 16))
- Hunting in REC 12 (SCE 2003; SCE 2004a; Volume 4, SD-C (Books 10 and 21) and SD-D (Books 16 and 23))
- Reservoir Access/Facility Assessment in REC 13 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))
- Concessionaire Contracts Evaluation in REC 14 (SCE 2004a; Volume 4, SD-D (Book 16))
- Reservoir Recreation Water Surface Elevation Study in REC 15 (SCE 2004a; Volume 4, SD-D (Book 16))
- Emergency Services Evaluation in REC 16 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))
- Dispersed Recreation Opportunities and Needs Assessment in REC 17 (SCE 2003; SCE 2004a; Volume 4, SD-C (Books 10 and 21) and SD-D (Book 16))
- Use by Disadvantaged, Handicapped, and Minority Persons Assessment in REC 18 (SCE 2004a; Volume 4, SD-D (Book 16))
- Information and Interpretive Opportunities and Needs Assessment in REC 19 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))
- Trails (Spring, Summer and Fall, Non-Snow Season) in REC 20 (SCE 2004a; Volume 4, SD-D (Books 16 and 23))
- Winter Recreation in REC 21 (SCE 2003; SCE 2004a; Volume 4, SD-C (Book 10) and SD-D (Book 16))
- Wilderness Areas in REC 22 (SCE 2004a; Volume 4, SD-D (Book 16))

Two additional studies and reports on recreation use were completed to supplement the ALP recreation studies as listed in the above list. Both recreation use reports provide information on existing recreation use and recreation activities, occupancy and capacity of developed recreation facilities; potential future recreation use and recreation conflicts. The first report covers recreation use associated with the Mammoth Pool Project (FERC Project No. 2085), filed with the Commission in August 2006 (SCE 2006). The second report covers recreation use associated with the Big Creek Projects (Big Creek Nos. 1 and 2 (FERC Project No. 2175); Big Creek Nos. 2A, 8 and Eastwood (FERC Project No. 67); and Big Creek No. 3 (FERC Project No. 120)). This report is included in the 2007 Recreation Use Report supplemental study, provided as a supporting document to this APDEA (SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

5.2.9.2 Affected Environment

Regional Recreation Opportunities

The four Big Creek ALP Projects are located within the 1.3 million-acre Sierra National Forest (SNF). The SNF is bordered to the north by the Stanislaus National Forest and Yosemite National Park, to the east by the Inyo National Forest, to the south by the Sequoia National Forest and Kings Canyon National Park, and to the west by private lands in the Sierra foothills. Two public recreation areas are located in the Sierra foothills within 50 miles of the vicinity of the four Big Creek ALP Projects. Millerton Lake State Recreation Area is one of these recreation areas. It is located on Millerton Reservoir on the San Joaquin River approximately 40 miles southwest of the Projects and operated by the State Department of Parks and Recreation (DPR) and the U.S. Bureau of Reclamation (BOR). Pine Flat Lake is the other recreation area, operated by the U.S. Army Corps of Engineers (USACE). It is located approximately 38 miles southwest of the Projects on the Kings River. These state, Federal and national parklands located near the vicinity of the Projects offers a wide diversity of recreation opportunities and facilities.

The SNF terrain ranges from snow-capped peaks at the crest of the Sierra Nevada mountains to gently rolling, oak and chaparral covered foothills along the San Joaquin Valley. The SNF provides year-round recreation opportunities, including a wide diversity of land and water-based recreation. The SNF is ranked nationally among the top 15 national forests for recreation use (USDA-FS 1991). Popular recreation opportunities within the SNF include the following:

- 528,000 acres of designated Wilderness areas;
- State highways and paved roads that provide scenic rides for motor vehicles and bicyclists;
- 1,100 miles of hiking trails for hiking, backpacking and horse travel;
- Sixty family campgrounds with around 1,000 campsites that are usually open from early summer through fall;

- Snow recreation areas for snowmobilers (180 miles of designated routes), downhill skiers, snowboarders, cross-country skiers, snowshoers and snow campers;
- Eleven major reservoirs and over 470 smaller lakes offering many flatwater sporting opportunities;
- 1,800 miles of streams and rivers, including two wild and scenic rivers (South Fork Merced and Kings) are popular for canoeing, kayaking and rafting;
- Abundant fish, wildlife and plant species for fishing, hunting and wildlife and plant observation;
- Thirteen designated off-highway vehicle (OHV) routes ranging in length from 2 to 30 miles; and
- Resort areas in Oakhurst, Bass Lake, Fish Camp, Mariposa and near Huntington Lake, Shaver Lake, Lake Thomas A. Edison (Edison Lake), Mono Hot Springs, Mammoth Pool and Florence Lake.

Recreation Opportunities in the Vicinity of the Four Big Creek ALP Projects

Local recreation facilities in the vicinity of the four Big Creek ALP Projects include private and public campgrounds; private resorts, cabins and camps; day-use and picnic areas; Sno-Parks; museums, snowmobile and cross-county snow trails; vista points; hiking and equestrian trails; pack stations; boat ramps; and OHV trails. Developed recreation facilities are concentrated around five of SCE's major reservoirs - Shaver Lake, Huntington Lake, Florence Lake, Edison Lake (a component of the Vermilion Valley Hydroelectric Project (FERC Project No. 2086)), and Mammoth Pool Reservoir. The major reservoirs and recreation opportunities are grouped and discussed by vicinity including: (1) Shaver Lake Vicinity; (2) Huntington Lake Vicinity; (3) Upper Basin Vicinity (including Florence Lake and Edison Lake); and (4) Mammoth Pool Vicinity. Figure 5.2.9-1 provides an overview of the recreation facilities near the Four Big Creek ALP Projects.

Shaver and Huntington lakes are centrally located in the Big Creek Basin along Highway 168 and are the most developed reservoirs in the Big Creek System (BCS). Developed recreation facilities at Shaver Lake include two public campgrounds, picnic areas, three boat-launching ramps, recreation vehicle campsites, and camps operated by private organizations, such as the Boy Scouts of America and the Shaver Lake Fishing Club. The western shoreline of Shaver Lake contains many lakefront properties including privately owned residences, businesses and public and private campgrounds. Developed recreation facilities at Huntington Lake include seven campgrounds, two group camps, and six organizational camps. Also located in the Huntington Lake area are private resorts; rental cabins; a museum, facilities for picnicking, boating, and horseback riding; an alpine and Nordic ski resort; and two Sno-Parks. The western end of Huntington Lake is developed with private resort facilities, and many privately owned seasonal residences.

Florence Lake is located approximately 17 miles and 60 minutes driving time to the east of Huntington Lake in the Upper Basin Region. Developed recreation facilities at Florence Lake include a campground, a picnic area, an equestrian pack station, and a boat launch area. There is a small store near the boat launch that also operates a ferry service to the south end of the lake. Jackass Meadow Campground at Florence Lake is located adjacent to the South Fork San Joaquin River just downstream of the dam. The river is accessible from this or many other locations along the Hooper OHV route, which follows the river below Florence Lake. The Muir Trail Ranch is a private resort located on the South Fork San Joaquin River, five miles upstream of Florence Lake. About three miles before reaching Florence Lake, drivers will reach Ward Lake, a small natural lake next to the road. A public campground is located at Ward Lake.

Edison Lake is located approximately 17 miles and 60 minutes driving time to the northeast of Huntington Lake in the Upper Basin Region. Developed recreation facilities include two campgrounds, a picnic area, boat ramp, vista point, a pack station, and a privately operated resort. Vermilion Valley Resort, at Edison Lake offers various types of overnight accommodations, a restaurant, a store, boat rentals, and a ferry service to shuttle hikers between the resort and the east end of the lake. This service allows hikers of the nearby John Muir/Pacific Crest Trail to replenish supplies or take a break at the resort. Located in close proximity to Edison Lake are several trailheads with Wilderness access, an equestrian pack station, and the Mono Diversion Forebay with associated camping and picnicking areas.

On the road to Edison Lake, there are two public campgrounds, the privately operated Mono Hot Springs Resort, which has a restaurant, bathhouse, cabins, and a general store, and the Mono Diversion Campground and Day-Use Area.

Mammoth Pool Reservoir is located off Minarets Road, north of the San Joaquin River, approximately three hours driving time from Fresno. Developed recreation facilities include a campground, a boat-in camp, a day-use area, and two boat launches. There is a small store, and a private resort campground located on the road leading to the reservoir. Minarets Road is part of a scenic byway, which provides overlook vistas of the crest of the Sierras and Mammoth Pool Reservoir.

Satisfaction of Recreationists in the Vicinity of the Four Big Creek ALP Projects

A survey of visitors to the four Big Creek ALP Projects area was conducted during summer 2002, to evaluate user satisfaction, current uses and future demands at recreation facilities in the vicinity of the Projects. During summer 2002, about 2,000 survey questionnaires were completed in the form of active and self-census surveys. Visitor surveys were administered at 51 recreation sites and 12 businesses over 32 weekdays (which included Memorial Day, Independence Day, and Labor Day) and 30 weekend days. Visitors were asked to contribute to surveys on a variety of topics including: general background characteristics (e.g., group size, length of stay, approximate trip expenditures), areas visited, activities engaged in, and satisfaction with activities, facilities and conditions. The survey was designed to capture detailed responses from five major activity/location groups including: camping, picnicking, trail

use, boating, and recreation activities in stream/river corridors. Respondents were given the opportunity to offer specific comments about items they may have found unacceptable and any general comments about their trip to the Big Creek area.

Overall, the recreation survey respondents reported high levels of satisfaction with recreation opportunities and facilities in the Big Creek Area (Table REC 10-4, REC 10/17 (SCE 2003; Volume 4, SD-C (Book 10))). The findings from the survey results are summarized in the following text.

- Most survey respondents indicated satisfaction with the recreation activities they participated in by rating them moderately to highly acceptable. The five recreation activities with the highest satisfaction levels include:
 1. Hiking/walking
 2. General relaxing
 3. Camping in developed sites
 4. Viewing wildlife, scenery, photography, etc.
 5. Swimming/wading/water-play
- The four most important factors in choosing a recreation area were:
 1. Scenery/aesthetics
 2. River, stream, lake, or trail access
 3. Lack of crowding
 4. Clean, well maintained facilities
- The four least important factors in choosing a recreation area were:
 1. Recreation vehicle (RV) hookups
 2. Availability of accommodations (cabins, resorts, etc.)
 3. Cultural/historical opportunities
 4. Interpretive/educational opportunities

- The majority of the respondents (87.1%) that engaged in water-related recreation stated that river or lake levels did not affect their recreation satisfaction.
- Respondents were usually return visitors and about evenly split between local and non-local origins.

Big Creek ALP Projects

The following sections discuss recreation resources, facilities, and opportunities specific to each of the four Big Creek ALP Projects under the Proposed Action. Developed recreation facilities and associated amenities in the vicinity of the Mammoth Pool Project, Big Creek Nos. 1 and 2 Project, and Big Creek Nos. 2A, 8 and Eastwood Project are summarized in Tables 5.2.9-1, 5.2.9-2 and 5.2.9-3, respectively. There are no developed recreation facilities associated with the Big Creek No. 3 Project.

Mammoth Pool (FERC Project No. 2085)

At an elevation of 3,330 feet (ft) above mean sea level (msl), Mammoth Pool Reservoir is about 5 miles long and up to 0.5 mile wide. When filled to the spillway elevation, it has a surface area of 1,095 acres. The reservoir provides flatwater recreation activities such as boating, angling and swimming. Other popular activities at the lake include camping and picnicking. Although the lake offers swimming near flat shorelines, there are no designated swimming beaches. There are two boat launches at the reservoir. Recreation facilities in the vicinity of the Mammoth Pool Project are listed in Table 5.2.9-1 and shown on Figure 5.2.9-2. Figures 5.2.9-3 through 5.2.9-5 provide detailed maps for the recreation facilities in the vicinity of the Mammoth Pool Project showing the developed recreation facility footprints, the existing FERC Project boundary, and access roads and trails.

Recreation opportunities in the Mammoth Pool vicinity typically begin in the spring following the snowmelt. Access to the Mammoth Pool vicinity is provided via the Minarets Road (USDA-FS Road No. 4S81). The USDA-FS does not plow this road and access into the area begins once the snow has melted from the roadway. Typically, the Minarets Road becomes passable between April and May depending upon snow conditions. Recreation use during the spring is limited because the campgrounds in the vicinity of Mammoth Pool Reservoir are usually not opened until mid to late May before the Memorial Day weekend. In addition, access to Mammoth Pool Reservoir shoreline is closed by the SNF, in cooperation with the California Department of Fish and Game, to public vehicular traffic from May 1 to June 15 to avoid interference with the annual deer migration through the area. The SNF maintains two gates, which are kept locked between May 1 and June 15 along the roads leading to Mammoth Pool Dam and to the Mammoth Pool Boat Launch. During this period, the public may access the reservoir by hiking about one mile along the road to get to the reservoir shoreline.

The peak recreation season at Mammoth Pool generally begins after June 15, which is after the SNF opens the road to the reservoir. During the summer season, the recreation opportunities in the vicinity of the Mammoth Pool Project include: camping

and picnicking, flat-water recreation activities such as boating (water skiing, jet skiing, etc.), angling and swimming.

In the fall, following the Labor Day weekend, the recreation use in the area decreases substantially. The primary recreation activities during the fall are mostly reservoir angling and limited motorized water sports (water skiing, jet skiing, etc.). Motorized boating continues until late September to October when reservoir storage is reduced by SCE in preparation for the winter season. The campground remains open until September 30 of each year. The Mammoth Pool area is not commonly used for winter recreation activities (e.g., cross-country skiing and snow-mobiling) and is generally inaccessible during the winter season due to the Minarets Road not being plowed for snow removal during the winter.

Developed Recreation. Two campgrounds are located in the vicinity of Mammoth Pool Reservoir. Mammoth Pool Campground is located a short distance from the reservoir, and China Bar Boat Camp is located on the reservoir approximately two miles upstream from the dam and is a boat-in only campground. Both campgrounds provide developed campsites with tables, fire-rings, and toilets. A single day-use facility at the Windy Point Picnic Area has dispersed picnic sites, no developed restrooms, and no water.

Reservoir Recreation. Water skiing and boat angling are the most popular recreation activities at Mammoth Pool Reservoir during the summer. Dispersed camping, where locations are accessible only by boat, is also popular during the summer months. Secondary summer activities include shoreline uses and water play. The main summer recreation season is from June 16 to Labor Day. Water skiing use is higher in the reservoir when water surface elevations (WSE) are high and ample surface water area is available, typically during June, July and August. Anglers use the reservoir at a wide range of WSE, constrained only by their ability to launch boats. For additional details, see REC 15 (SCE 2004a; Volume 4, SD-D (Book 16)).

Two boat launches provide access to Mammoth Pool Reservoir. The Mammoth Boat Launch is a developed boat ramp that provides launch capabilities down to a reservoir WSE of 3,262 ft. Below this WSE, the boat launch ramp is inoperable for most boats. This ramp is normally operable during the peak recreation season. SCE operates the reservoir to maintain a relatively stable and high WSE during the peak recreation season. Reservoir water surface levels do not typically render this boat ramp inoperable until late September to October when reservoir storage is reduced. Windy Point Boat Launch, an undeveloped boat launch is located near the Windy Point Picnic Area. This undeveloped ramp was originally designed as an access road during reservoir construction and now due to the uniform slope is utilized as a boat launch when reservoir levels are low. There is no lower limit to the functional use of the ramp at Windy Point, as it is possible to drive down the reservoir bank until water is reached. However, this boat launch is not suitable for most ski boats and larger fishing boats.

The California Department of Fish and Game (CDFG) stock fish to support angling opportunities at the Mammoth Pool Reservoir. Fish stocking records indicate that CDFG has stocked fish in Mammoth Pool Reservoir every year during the period

between 1980 and 2002. Table 5.2.9-4 presents a summary of the CDFG fish stocking records. In general, the number of fish stocked at Mammoth Pool Reservoir has declined since 1980. The total number of fish stocked between 1980 and 1990 was approximately 150,000 Catchable, 149,000 Fingerling, and 40,000 Subcatchable. With the exception of Subcatchables, these numbers declined between 1992 and 2002 to approximately 77,000 Catchable, 122,000 Fingerling, and 153,000 Subcatchable. The total number of fish stocked each year was variable, ranging between approximately 6,000 to 120,000 fish. The number of Catchable fish stocked also varies from year to year, ranging from about 3,400 to 24,000 fish. However, in recent years, CDFG has modified their stocking practices from those of past periods. Current practices have emphasized on the stocking of larger fish for greater angler satisfaction. Recent fish stocking records are based on weight of fish stocked rather than numbers. During the period between 1998 and 2004, CDFG stocking records indicate that approximately 7,946 pounds of fish were stocked annually in waters associated with the Mammoth Pool Project.

River Corridor Recreation. River corridor recreation along this reach of the San Joaquin River between Mammoth Pool Dam and Dam 6 Forebay includes angling and whitewater boating. However, angling use along this reach is limited by access, because of the steep topography of the river canyon. Of 1,021 survey respondents to the angling survey questionnaire conducted in 2002, only 15 respondents indicated that they fished along this reach. Survey details are provided in REC 8 (REC 8 (SCE 2003; Volume 4, SD-C (Books 10 and 21)). This reach of the San Joaquin River has traditionally not been stocked by CDFG with fish to support angling activities. Fish stocking has been conducted, however, by CDFG in Rock Creek, a tributary to the San Joaquin River. The number of fish stocked in Rock Creek has declined since 1980. The number of fish stocked between 1980 and 1990 was approximately 55,000. Between 1992 and 2002, this number declined to about 34,000. The number of fish stocked each year was variable, ranging between about 950 to 6,000 fish. Fish stocking records are summarized in Table 5.2.9-4.

The 8.5-mile long reach of the San Joaquin River between Mammoth Pool Reservoir and Dam 6 is known as the “Tied-For-First” whitewater boating run, offering Class IV+ to V difficulty (advanced to expert skill level). The desirable flow range for whitewater boating in this reach is between 700 cfs and 2,000 cfs (“whitewater boating flow range”). An evaluation of historical boating opportunities for a period of record from 1983 to 2002 under existing hydrology indicates that boating opportunity days (BODs) within the boatable flow range occur in Wet and Above Normal Water Year types (REC 3, SCE 2003; Volume 4, SD-D (Book 16)). During wet years, BODs occurred between May through August. In Above Normal years, BODs occurred in May and June. Current whitewater boating use is low and no commercial operators utilize the run.

The San Joaquin River Trail (SJRT) runs through the vicinity of the Mammoth Pool Project and some sections of the trail are co-aligned with Project roads. The SJRT is a 75-mile long trail that has a proposed alignment, which follows the San Joaquin River from the Millerton Lake State Recreation Area to the Devil’s Postpile National Monument. The proposed alignment of the trail uses primarily existing trails to cross

private, BOR, and USDA-FS lands, and includes sections of trail proposed for construction. In the Mammoth Pool Project vicinity, the proposed SJRT shares its alignment with the Mammoth Pool Powerhouse – Big Creek No. 3 Transmission Line Road (USDA-FS Road Nos. 9S42 and 8S44Y). This is an SCE maintained Project road used to access the transmission line corridor.

Recreation Use. The results of the 2002 BCALP recreation survey indicate that about 87% of the recreation use at Mammoth Pool is associated with overnight visitation and 12.9% of the visitors are day-users. Recreation survey details are provided in REC 10 (SCE 2003; Volume 4, SD-C (Books 10 and 21)). Occupancy data for 2004 was obtained from the USDA-FS for Mammoth Pool Campground, indicating that the annual overnight recreation visitation to the Mammoth Pool area was 3,009 recreation days. Based on the annual overnight visitation and the ratio of overnight users to day-users the total and day-use visitation in 2004 was calculated at 3,455 and 446 recreation days, respectively (SCE 2006).

Typically, facility capacity at Mammoth Pool Campground was low for most weekdays during the recreation season and increased during weekends. The campground occupancies, in reported numbers and percent capacities, were the greatest over the Memorial and Fourth of July holiday weekends. In 2004, during the peak recreation season, weekday occupancy levels ranged between 0% to 55.3% of capacity, with an average of 17.1% of capacity. On weekends, the occupancy levels increased slightly and ranged between 4.3% and 57.4% of capacity with an average of 27.5% of capacity. Reliable campground use and capacity data for the China Bar Boat Camp is not available. Only limited data is available and consists of USDA-FS/SNF estimates, reported in an unpublished spreadsheet entitled: “*Report 4: Ranger’s Decision Financial Summary*”. The USFS has estimated that the average annual occupancy at China Bar Boat Camp is 28.1%. (SCE 2006).

Potential future recreation use for the Mammoth Pool area was estimated for years 2010, 2020, 2030 and 2040. It is projected that recreation visitation will increase in the future, based on the assumption that there would be an increase in the recreation user population and demographic changes. It is estimated that between 2004 and 2040, overall recreation visitation to the Mammoth Pool area will increase approximately 20.1% (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Big Creek Nos. 1 and 2 (FERC Project No. 2175)

Recreation facilities in the vicinity of the Big Creek Nos. 1 and 2 Project are located at Huntington Lake. At an elevation of 7,000 ft msl, Huntington Lake is a regionally significant recreation resource. The lake, when filled to the spillway, has a surface area of 1,435 acres, and a shoreline of approximately 14.3 miles. Huntington Lake provides a variety of flatwater recreation activities, including sailing, canoeing, windsurfing, swimming and angling. The lake is very popular with sailing enthusiasts and hosts several sailing regattas each year. Other popular activities at the lake include: camping, picnicking, hiking, horseback riding, and winter season recreation. The lake offers two

public boat ramps and several private marinas, including Rancheria Marina and Huntington Lake Marina.

Recreation facilities in the vicinity of the Big Creek Nos. 1 and 2 Project (Huntington Lake vicinity) are listed in Table 5.2.9-2 and shown on Figure 5.2.9-6. Detailed maps for the recreation facilities in the vicinity of the Huntington Lake showing the developed recreation facility footprints, existing FERC Project boundary, and access roads and trails are provided in Figures 5.2.9-7 through 5.2.9-10. The recreation facilities include seven campgrounds, five day-use sites, and two boat ramps. There are also interpretive and education facilities at the Billy Creek Cabin/Huntington Lake Big Creek Museum (privately operated under USDA-FS Special Use Permit) and at the Eastwood Overlook and Visitor Center. Huntington Lake is also a popular winter recreation area for snowmobiles and cross-county skiers.

The Huntington Lake vicinity provides year-round recreation opportunities. Peak recreation use begins in mid to late May (around Memorial Day) with the opening of developed public recreation facilities (campground and day-use areas) around the lake. Also located in the Huntington Lake vicinity are organizational camps, private resorts, rental cabins, and rental facilities for boating and horseback riding. The recreation facilities and services are open during the peak summer recreation season through Labor Day and typically close between September and mid-October.

Developed recreation facilities at Huntington Lake include seven campgrounds, two group camps, and six organizational camps, an alpine and Nordic ski resort; and two Sno-Parks. The western end of Huntington Lake is developed with private resort facilities, and many privately owned seasonal residences.

Shoulder season recreation use activities in the vicinity of Huntington Lake are similar to summer peak use, but at a much lower level. Shoulder season use is dependent upon the opening and closing of developed recreation support facilities; road access, and weather conditions.

Winter recreation activities in the vicinity of Huntington Lake is generally determined by the level of vehicular access into the Project area. Highway 168 is the only road that is plowed in winter to provide access into the Huntington Lake Region. Snowmobiling, Nordic and downhill skiing are the predominant winter recreation activities in the Huntington Lake Region. A developed downhill ski area (Sierra Summit) is located at the east side of Huntington Lake along Highway 168. Highway 168 is plowed all the way up to the USFS-FS boat launch/sno-Park at the east end of Huntington Lake.

Developed Recreation. There are a total of 308 camping sites at the seven campgrounds and 47 picnic sites at the five day-use areas, all on Huntington Lake or within walking distance of the lake. All camping and day-use areas include flush toilet restrooms, trash disposal facilities, picnic tables, fire rings, and bear boxes. Drinking water is available, with the exception of the Dowville Day-Use Area. An undeveloped area at the west end of the lake near Dam 3 is used to access the lake for angling and dispersed day-use recreation. This day-use area has no formal parking and no ancillary

support facilities. Interpretive facilities are located at the Billy Creek Museum at the northwestern end of the lake and the Eastwood Overlook. The Eastwood Overlook consists of a small kiosk and trail with interpretive display panels and overlooks Rancheria Creek and Portal Powerhouse.

Reservoir Recreation. Angling (boat and shore), and boating activities, including sailing, and water skiing, are the most popular summer recreation activities at Huntington Lake. It is considered to be one of the few “high quality” high-elevation sailing lakes in California and is the site of several sailing regattas. Other summer activities include: pleasure boating (pontoon boating and personal watercraft), non-motorized boat use (canoe, kayak, and rowboat), and beach use (swimming, wading, and water play). Angling is the primary recreation activity during the spring and fall seasons.

There are two private marinas at the lake: Rancheria Marina and Huntington Lake Resort Marina. The Rancheria Marina is a private concession located at the eastern end of Huntington Lake. Recreation support features include: boat docks and marina services such as boat rentals. The marina operates floating boat docks with 125 mooring slips. The Huntington Lake Resort Marina is located near the western end of the lake. Reservoir recreation support facilities include: a boat ramp and boat docks with slips. The marina services provided include boat rentals.

Two boat ramps are available: Huntington Lake East Boat Launch Ramp and Huntington Lake West (Huntington Lake Resort) boat launch. Huntington Lake East Boat Launch Ramp is operable for most boats when the WSE is 6,936 ft or higher. The Huntington Lake West (Huntington Lake Resort) boat launch ramp is operable for most boats at a WSE of 6,945 ft or higher. The boat ramps are functional during the peak recreation season from June through September. SCE maintains the reservoir at a relatively stable WSE at near full capacity during the peak recreation season.

Maximum recreation use levels occur when the reservoir is at full pool (6,950 ft elevation or 89,166 acre-feet (ac-ft) storage). When the lake level drops three to five feet, water depths are too shallow for launching deep-keeled sailboats. Launching and use of sailboats with keels is constrained at the boat launches and at several locations along the shoreline in the lake due to the reservoir topography. Personal watercraft users and small sail and angling boats are not as constrained by low WSE.

The CDFG stocks fish to support angling opportunities at Huntington Lake. Table 5.2.9-4 presents a summary of the CDFG fish stocking records. In general, the number of fish stocked at Huntington Lake has declined since 1980. The total number of fish stocked between 1980 and 1990 was approximately 1,426,000 Catchable, 1,555,000 Fingerling; 6,000 Subcatchable, and 2,400,000 Salmon Fingerling. These numbers declined between 1992 and 2002 to approximately 422,000 Catchable, 510,000 Fingerling; and 194,000 Salmon Fingerling. The total number of fish stocked each year was variable and ranged between about 5,600 and 640,000 fish. The number of Catchable fish stocked varies from year to year, ranging from about 3,400 to 24,000 fish. Recent fish stocking records, which are based on the weight of fish stocked,

indicate that during the period between 1998 and 2004, CDFG stocked approximately 14,326 pounds of fish annually in waters associated with the Big Creek Nos. 1 and 2 Project.

River Corridor Recreation. Angling and hiking opportunities are available along Big Creek below Huntington Lake, and Big Creek between Dam 4 and Dam 5. Both reaches were identified during the summer recreation user surveys conducted in 2002 as popular stream/corridor reaches visited by people recreating in the Big Creek area. The activities engaged in along these reaches include:

- hiking, walking
- fishing
- swimming, wading, waterplay
- viewing wildlife, scenery, etc.
- general relaxing

Big Creek below Huntington Lake is a popular stream reach for dispersed recreation and access is readily available. Big Creek between Dam 4 and Dam 5 is a steep narrow canyon and access into this reach is available via a foot trail from the Camp Sierra community located on the southern side of the canyon approximately half the distance along the stream reach.

Winter Recreation. Predominant winter recreation activities in the Huntington Lake Region are snowmobiling, Nordic and downhill skiing. A developed downhill ski area (Sierra Summit) is located at the east side of Huntington Lake along Highway 168. The level of vehicular access into the Project area is a primary consideration for winter recreation. Highway 168 is plowed to USDA-FS boat launch/sno-Park at the east end of Huntington Lake to provide access. Access to the private cabins along northern and western sides of Huntington Lake is by snowmobile Nordic skiing or snowshoeing. The Huntington Lake Shoreline Trail along the north shore of the lake is commonly used by winter recreationists. Private businesses at the east end of Huntington Lake provide snowmobile storage and service to the owners of the private cabins at the lake, and snowmobile rentals for recreationists visiting the area. The Huntington Lake area is a starting location for individuals that snowmobile into the backcountry along Kaiser Pass Road. There are two sno-parks near the east end of Huntington Lake that are plowed during the winter months to provide parking and staging sites for winter recreation activities, such as snowmobiling and cross-country skiing. The sno-parks are located at the parking areas for the Huntington Lake East Boat Launch and the Eastwood Visitor Center.

Recreation Use. The results of the 2002 BCALP recreation survey, indicate that about 85% of the recreation use at Huntington Lake is associated with overnight visitation and 15% of the visitors are day-users (REC 10, SCE 2003; Volume 4, SD-C (Books 10 and 21)). Occupancy data for 2006 was obtained from the USDA-FS for recreation facilities in the Huntington Lake vicinity. This data indicates that the annual overnight recreation

visitation to the Huntington Lake vicinity in 2006 was 35,882 recreation days. Based on the annual overnight visitation and the ratio of overnight users to day-users the total and day-use visitation in 2006 was calculated at 42,214 and 6,332 recreation days, respectively (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Typically, facility utilization was low for most weekdays during the recreation season and increased for all campgrounds during weekends. Campground occupancies were the greatest over the Memorial and the Fourth of July holiday weekends. Weekend campsite occupancy for the seven campgrounds in the vicinity of the Big Creek Nos. 1 and 2 Project ranged between 27.8% and 76.9%. The weekday campsite occupancy ranged between 18.5% and 66.0%. Only two campgrounds had weekend occupancy levels greater than 70% (Lower Billy Creek Campground, 72.4%; and Deer Creek Campground, 76.9%). Rancheria Campground, the largest campground in the Huntington Lake Region, had the lowest weekend occupancy level of 27.8%. The SNF estimates that 2006 annual occupancy at campgrounds in the Huntington Lake Region ranged between 13.4% to 54.7% as follows:

- Upper Billy Creek Campground, 34%
- Lower Billy Creek Campground, 44.5%
- Catavee Campground, 21.7%
- College Campground, 33.8%
- Deer Creek Campground, 54.7%
- Kinnikinnick Campground, 36.9%
- Rancheria Campground, 13.4%

The SNF estimates of 2006 annual occupancy at the day-use areas range from 7.1% to 35.9% as follows:

- Bear Cove Day-Use Area, 35.6%
- Billy Creek Day-Use Area, 7.1%
- Dowville Day-Use Area, 10.2%
- Huntington Boat Launch, 35.9%

Potential future recreation use for the Huntington Lake vicinity was estimated for the years 2010, 2020, 2030 and 2040. It is projected that recreation visitation will increase in the future based on the assumption that recreation user populations will increase and demographics will change in accordance with recent trends in the region. It is estimated that between 2004 and 2040 overall recreation visitation to the Huntington Lake vicinity will increase approximately 5.8%. (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Big Creek Nos. 2A, 8 and Eastwood (FERC Project No. 67)

The Big Creek 2A, 8 and Eastwood Project encompasses a large geographical area within the Big Creek Basin ranging from the upper basin high alpine elevations (about 7,000 ft msl) at Florence Lake and the Mono Creek Diversion, to the mid-to-low elevation areas (about 5,000 ft msl down to 2,250 ft msl) at Shaver Lake and the Big Creek Canyon at Powerhouse No. 8. The discussion on the recreation resources in the Big Creek Nos. 2A, 8 and Eastwood Project vicinity is presented in two geographical areas: Upper Basin vicinity and Shaver Lake vicinity. Developed recreation facilities in the Upper Basin vicinity near Florence Lake and Mono Creek, and in the Shaver Lake vicinity near Shaver Lake and Balsam Forebay and are summarized in Table 5.2.9-3. The locations of developed recreation facilities in the Upper Basin vicinity are shown on Figure 5.2.9-11. Figures 5.2.9-12 and 5.2.9-13 provide detailed maps for the recreation facilities in the Upper Basin vicinity (near Florence Lake and Mono Forebay) showing the developed recreation facility footprints, existing FERC Project boundary, and access roads and trails. Figures 5.2.9-14 through 5.2.9-18 provide detailed maps for the recreation facilities in the Shaver Lake vicinity.

Dispersed recreation activities associated with river corridor recreation take place in and along the bypassed reaches in the Upper Basin (near the South Fork San Joaquin River, Mono Creek, Bear Creek, and several small creeks) and the Shaver Lake vicinity (near North Fork Stevenson Creek).

Recreation Resources in the Upper Basin Vicinity

Florence Lake, at an elevation of 7,329 ft msl, is considered an alpine recreation resource. When filled to the spillway, the lake has a surface area of 962 acres and approximately 9.3 miles of shoreline. Florence Lake offers flatwater boating and angling opportunities. Hiking is also popular in this area. A developed campground, day-use area, and boat launch are available to recreationists. Visitors can access the headwaters of the South Fork of the San Joaquin River and the John Muir Wilderness from the lake. Access to the lake by large trailers is difficult due to the winding and narrow Kaiser Pass Road approach. Florence Lake is generally accessible to the public from May to October.

At an elevation of 7,350 ft msl and a capacity of 46 ac-ft, the Mono Creek Diversion and Forebay offers angling opportunities. The Mono Creek Campground and Day-Use Picnic Area are located adjacent to the forebay.

At an elevation of 7,350 ft msl and a capacity of 1,03 ac-ft, the Bear Creek Diversion and Forebay offers excellent angling opportunities. Hiking is also popular in this area.

The peak recreation season in the Upper Basin vicinity begins in late May (around Memorial Day) to early June with the opening of Kaiser Pass Road (USDA-FS Road No. 5S80) to vehicular traffic. Kaiser Pass Road is not plowed for snow removal during the winter and is closed from mid-November to late May (Memorial Day). Developed recreation facilities are not opened until the Kaiser Pass Road is opened. The

recreation opportunities in the Upper Basin include: camping and picnicking, boat angling, dispersed stream corridor angling, hunting, and hiking.

Shoulder season recreation use in the Upper Basin only occurs in the fall and the recreation activities are similar to the peak recreation season, but at a much lower level. The developed recreation facilities in the Upper Basin typically close around the beginning of October.

Winter recreation in the Upper Basin consists primarily of snowmobiling. The SNF provides snow grooming along Kaiser Pass Road from Huntington Lake to Florence Lake and Edison Lake to provide a snowmobile trail into the Upper Basin vicinity.

Developed Recreation. The Jackass Meadows Campground, with 50 campsites, is located a short distance downstream of the dam at Florence Lake along the South Fork of the San Joaquin River. The Florence Lake Day-Use Area with 16 picnic sites is adjacent to the boat launch at the west end of the lake. Both have toilets, picnic tables, fire rings, and bear boxes. The Mono Creek Forebay, also located in the Upper Basin near Edison Lake, has 14 campsites and six picnic sites and is equipped with developed campsites, picnic tables, fire rings, toilets, and bear boxes.

Reservoir Recreation. The two primary summer recreation activities at Florence Lake are boat angling and hiking. Boat angling is the primary activity on Florence Lake using small trailered, or car-top launched boats. Hiking is a popular recreation activity at Florence Lake, due to the Florence Lake Ferry Service, which transports hikers across the reservoir to access the John Muir Wilderness Area, which borders the southern extent of the lake.

The USDA-FS Boat Launch provides access to Florence Lake Day-Use Area and is located between the day-use area and the store at the north end of the lake. The USDA-FS Boat Ramp, approximately 25 ft in length, is designed to function from full pool (7,330 ft elevation or 64,406 ac-ft storage) to the end of the paved ramp at 7,326 ft elevation (62,967 ac-ft storage). However, there is no lower limit to the functional use of the ramp, as it is possible to drive down the reservoir bank until water is reached. SCE operates the reservoir to maintain a relatively high WSE during the peak recreation season. Reservoir WSE are typically at their highest levels between May to August.

The Florence Lake Ferry Service is operated by the Florence Lake Store, which is located at the north end of the lake near the USDA-FS Boat Ramp. A floating dock, which adjusts to varying WSE's is used so that the ferry can function at varying water levels. The functional uses of the dock and the ferry extend from 7,327 ft elevation (64,406 ac-ft storage) to 7,261 ft (12,237 ac-ft storage) (about 19% of reservoir storage capacity) when large areas of the reservoir bed are exposed and rock hazards are high.

River Corridor Recreation. The South Fork San Joaquin River near Mono Hot Springs and the South Fork San Joaquin River below Florence Lake were identified during the summer recreation user surveys conducted in 2002 as the two most popular stream/corridor reaches visited in the Big Creek area. Other popular recreation river

corridors in the Project area include Mono Creek above and below the Mono Diversion, and Bear Creek. The summer recreation user survey results identified the five most popular activities engaged in along river corridors as:

- hiking, walking
- fishing
- swimming, wading, waterplay
- viewing wildlife, scenery, etc.
- general relaxing

Fish stocking to support angling activities in the Upper Basin has been conducted by the CDFG. Stocking records indicate that CDFG has stocked the South Fork San Joaquin River, Mono Creek, and Florence Lake with trout (see Table 5.2.9-4). Stocking activities were conducted annually in the South Fork San Joaquin River between 1980 and 2002, and for most years between 1980 and 2002 on the remaining streams as well. A review of CDFG fish stocking records shows that the number of fish stocked has declined since 1980 as follows:

- In the South Fork San Joaquin River, CDFG stocked approximately 152,000 fish cumulatively between 1980 and 1990, and 54,000 fish between 1992 and 2002. The minimum and maximum number of fish stocked annually between 1980 and 2002 was about 1,000 and 19,000 fish, respectively.
- In the Mono Creek, CDFG stocked approximately 56,000 fish between 1980 and 1990, and 30,000 fish between 1992 and 2002. The minimum and maximum number of fish stocked annually between 1980 and 2002 was zero to approximately 6,200 fish.
- In Florence Lake, CDFG stocked approximately 350,000 fish cumulatively between 1980 and 1990, and 142,000 fish between 1992 and 2002. The minimum and maximum number of fish stocked annually between 1980 and 2002 was zero to approximately 96,000 fish.

Recent fish stocking records, based on the weight of fish stocked, indicate that during the period between 1998 and 2004, CDFG stocked approximately 21,221 pounds of fish annually in waters associated with the Big Creek Nos. 2A, 8 and Eastwood Project. The 6.5-mile long reach of the South Fork San Joaquin River from Florence Lake Dam to the Mono Crossing has been identified as a whitewater boating run, commonly known as the Florence Lake Run. This run is considered a Class IV+ to V difficulty (advanced to expert skills). The desirable flow range for whitewater boating in this reach is between 350 cfs to 2,000 cfs. An evaluation of historical boating opportunities for a period of record from 1983 to 2002 under existing hydrology indicates that BODs within the boatable flow range occur in Wet Water Year types (REC 3, SCE 2004a; Volume 4, SD-D (Book 16)) between the months of May through August. Current whitewater boating use is low and no commercial operators utilize the run.

Winter Recreation. Florence Lake and Edison Lake are popular snow mobiling destinations. Snow mobiling enthusiasts travel along Kaiser Pass Road from Huntington Lake to Florence Lake and Edison Lake. The USDA-FS routinely grooms the snow along the route throughout the winter. During the winter recreation season in the Upper Basin, there are no developed facilities or services available to recreationists. SCE does not normally use Kaiser Pass Road in the winter. However, SCE has, upon occasion, had to remove snow by plowing the road to get vehicles into the backcountry to complete emergency repairs of facilities. Plowing activities are rare and if needed, conducted in consultation with the USDA-FS.

Recreation Use. The results of the 2002 BCALP recreation survey, indicate that about 77% of the recreation use in the Upper Basin vicinity is associated with overnight visitation and 23% of the visitors are day-users (REC 10, SCE 2003; Volume 4, SD-C (Books 10 and 21)). Occupancy data for 2006 was obtained from the USDA-FS for recreation facilities in the Upper Basin vicinity. This data indicates that the annual overnight recreation visitation to the Upper Basin in 2006 was 18,062 recreation days. Based on the annual overnight visitation and the ratio of overnight users to day-users the total and day-use visitation in 2006 was calculated at 23,454 and 5,392 recreation days, respectively (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Typically, facility capacity was low for most weekdays during the recreation season and increased during weekends. The average weekend occupancy level at Jackass Meadow Campground in 2006 was 26.0%. Average occupancy weekday campsite occupancy at Jackass Meadows Campground in 2006 was 17.1%. The average weekend campsite occupancy at Mono Creek Campground in 2006 was 35.7%. Average weekday campsite occupancy at Mono Creek Campground in 2006 was 24.2% (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Potential future recreation use for the Upper Basin vicinity was estimated for the years 2010, 2020, 2030 and 2040. It is projected that recreation visitation will increase in the future based on the assumption that the recreation user population will increase and demographics will change in accordance with recent trends in the region. It is estimated that between 2004 and 2040 overall recreation visitation to the Upper Basin vicinity will increase approximately 8.2% (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Recreation resources in the Shaver Lake Region

Shaver Lake, at an elevation of 5,370 ft msl, is the only major reservoir in the Basin that is not located on USDA-FS land. SCE owns the majority of the land upon which Shaver Lake is located. The lake has a surface area of 2,184 acres when full, and a shoreline of approximately 22 miles. The town of Shaver Lake is the largest community in the Basin and its economy is closely tied to recreation at Shaver Lake. Popular flatwater recreation opportunities include power-boating, fishing, house boating and swimming. The lake is a very popular resource for water skiers and jetskiers. A wide variety of other activities take place at Shaver Lake, including camping, picnicking, hiking, cross-

country skiing, mountain biking, horseback riding, motor biking, and OHV use. Various beaches located around Shaver Lake are enjoyed by sunbathers and picnickers. These beaches also provide access for swimmers and anglers. Shaver Lake also serves as a vacation community for downhill skiers who use the Sierra Summit Ski Resort and other winter recreation facilities located near Huntington Lake.

Public recreation facilities at Shaver Lake are provided by SCE and USDA-FS. These facilities include boat ramps located at the Sierra Marina and at Camp Edison. Large public camping facilities are available at SCE's Camp Edison and USDA-FS's Dorabelle Campground. In addition to the public facilities, private recreation support facilities provided around the lake include boat docks, winter boat storage, gas pumps, and concessions. Gold Arrow Island operates a summer waterskiing camp. Sierra Marina, Shaver Lake Marina, and the Fresno Fishing Club offer additional recreation facilities. Balsam Forebay, located northeast of Shaver Lake with an elevation of 6,670 ft msl and a storage capacity of approximately 1648 ac-ft, provides day-use recreation and angling opportunities.

The Shaver Lake vicinity provides year-round recreation opportunities. The peak recreation use begins in mid to late May (around Memorial Day) with the opening of developed public recreation facilities (campground and day-use areas) around the lake. The summer season provides many recreation opportunities and activities including flatwater recreation (power-boating, water skiing, personal water craft, and houseboating) fishing, and swimming, camping, picnicking, hiking, mountain biking, horseback riding, motor biking, and OHV use. Shaver Lake also serves as a vacation community with rental cabins.

Shoulder season recreation use activities in the vicinity of Shaver Lake are similar to peak summer use, but at a much lower level. Shoulder season use is dependent upon the opening and closing of developed recreation support facilities; road access, and weather conditions.

Winter recreation activities in the vicinity of Shaver Lake are generally determined by the level of vehicular access into the Project area. Highway 168 into the Shaver Lake Region is plowed for snow removal, and therefore accessible year round, and is a popular destination for day-use snow play and Nordic skiing or snowshoeing in the forest around Shaver Lake. Snow play and cross-country skiing are the primary winter recreation activities in the Shaver Lake Region. SCE operates the Camp Edison facility year-round and manages the land around Shaver Lake for winter recreation activities including snow play, cross-country skiing, and snowshoeing.

Developed Recreation. The USDA-FS Dorabelle Campground and the SCE-owned Camp Edison Campground are located on Shaver Lake. The Dorabelle Campground (70 campsites) has flush toilet restrooms, picnic tables, fire rings, and bear boxes. In addition to standard developed facilities, Camp Edison (252 campsites) provides full hook-up RV sites, flush toilets, showers, fish-cleaning stations, an interpretive display, and cable television connections. Day-use areas at Shaver Lake are located at Dorabelle Picnic Area, the Point immediately off Highway 168, North Shore Roads 1

and 2, and Eagle Point Boat-Only Day-Use Area. A developed day-use area is also located at nearby Balsam Forebay. An interpretive display at the Point Day-Use Area describes the recreation opportunities associated with the Project.

Reservoir Recreation. The primary summer recreation activities at Shaver Lake are camping and picnicking around its shores and angling and boating on its surface (Table REC 15-2 in REC 15, Volume 4, SD-D (Book 16)). Angling is common both by boat and from the shore, and occurs throughout the year. Waterskiing is a primary recreation use on Shaver Lake, due to the lake's low elevation, warmer water temperature, ease of access off of Highway 168, and proximity to the community of Shaver Lake. Other boating recreation activities on the lake include: pontoon boating, personal watercraft use, trolling (angling), and non-motorized boat use (canoe, kayak, and rowboat). Shoreline uses around the lake include camping in developed campgrounds and beach use (swimming, wading, and water play).

Two boat launches provide access to Shaver Lake: the County Boat Ramp (Sierra Marina) and Camp Edison Boat Ramp. The County Boat Ramp is designed to operate from full pool levels (5,370 ft elevation or 135,568 ac-ft storage) to 5,333 ft elevation (66,000 ac-ft storage). The Camp Edison Boat Ramp is designed to operate from full pool (WSE of 5,370 ft or 135,568 ac-ft storage) to a WSE of 5,348 ft (90,000 ac-ft storage). SCE operates the reservoir to maintain a relatively stable and high WSE throughout the peak recreation season. Therefore, boat launches are typically within their functional range throughout the peak recreation season, from May through October.

Fish are stocked by the CDFG to support angling opportunities at Shaver Lake. During the period between 1998 and 2004, CDFG stocked approximately 17,334 pounds of fish annually.

River Corridor Recreation. The North Fork Stevenson Creek upstream of Shaver Lake is used for dispersed day-use recreation activities. These activities include hiking, fishing, swimming/wading, viewing wildlife, scenery, etc., and general relaxing. Stevenson Creek below Shaver Lake is relatively inaccessible and has a steep, incised channel with waterfalls to make hiking the creek difficult.

Winter Recreation. Snow play and cross-country skiing are the primary winter recreation activities in the Shaver Lake Region. Highway 168 into the Shaver Lake Region is plowed for snow removal, therefore, the Region is accessible year-round. It is a popular destination for day-use snow play and Nordic skiing or snowshoeing in the forest around Shaver Lake. SCE operates the Camp Edison facility year-round and manages the land around Shaver Lake for winter recreation activities, including snow play, cross-country skiing, and snowshoeing. At Camp Edison, SCE maintains approximately 15 kilometers of cross-country ski trails. In the winter, the Balsam Trailhead and Parking Area is designated and maintained as a Sno-Park to provide off-highway parking for dispersed winter recreation activities.

Recreation Use. The results of the 2002 BCALP recreation survey, indicate that about 76% of the recreation use in the Shaver Lake Basin vicinity is associated with overnight visitation and 24% of the visitors are day-users (REC 10, SCE 2003; Volume 4, SD-C (Books 10 and 21)). Occupancy data for 2006 was obtained from the USDA-FS for recreation facilities in the Shaver Lake vicinity. These data indicate that the annual overnight recreation visitation to the Shaver Lake vicinity in 2006 was 39,293 recreation days. Based on the annual overnight visitation and the ratio of overnight users to day users, the total and day-use visitation in 2006 was calculated at 51,701 and 12,408 recreation days, respectively (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

For both Camp Edison and Dorabelle campgrounds, the percentage of facility capacity reached was higher during weekends as compared to weekdays. Campground occupancies were the highest over the Memorial and the Fourth of July holiday weekends. SCE owns and operates Camp Edison and has, by far, the highest weekend and weekday campsite occupancies of any facility in any the four Big Creek ALP Project areas. It should be noted that Camp Edison is developed with more facilities and support services than a typical USDA-FS campground. The average weekend occupancy for Camp Edison during the 2006 season was 94.4% and weekday average occupancy was 77.9%. In contrast, the Dorabelle Campground average weekend campsite occupancy in 2006 was 62.6% and weekday average was 42.9% (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Potential future recreation use for the Shaver Lake vicinity was estimated for years 2010, 2020, 2030 and 2040. It is projected that recreation visitation will increase in the future based on the assumption that the user population will increase and demographics will change in accordance with recent trends in the region. It is estimated that between 2004 and 2040, overall recreation visitation to the Shaver Lake vicinity will increase approximately 3.6% (Recreation Use Report, SCE 2007a; Volume 4, SD-E (Books 19 and 24)).

Big Creek No.3 (FERC Project No. 120)

Recreation opportunities in the Big Creek No. 3 Project vicinity consist of dispersed recreation activities, which include angling along the Dam 6 Forebay, and whitewater boating in the bypassed reach of the San Joaquin River between Dam 6 and the Big Creek Powerhouse No. 3. There are no developed camping, day-use, or boating facilities in the vicinity of this Project, except for flatwater boating on Redinger Lake (part of Big Creek No. 4 (FERC Project No. 2017)), which is just downstream of the Big Creek Powerhouse No. 3.

Reservoir Recreation. Angling occurs along the Dam 6 Forebay and access is provided to the north shore at the upstream extent of the forebay via an angler access stairway located near the Mammoth Pool Powerhouse. A parking area is located near the stairs for anglers and hikers wanting to access the forebay. Anglers and hikers can access the south side of the forebay on foot by crossing the bridge over the San

Joaquin River, which ties into Canyon Road. The Canyon Road is an SCE-controlled road, restricted to public vehicle access for safety reasons.

River Corridor Recreation. The bypass reach of the San Joaquin River below Dam 6, is a steep, incised river channel with sheer granite walls along both sides of the river margin. The steep terrain and granite walls along the river severely limit stream access throughout the bypass reach.

The San Joaquin River below Dam 6 reach is identified as the Chawanakee Gorge Run. It is considered class V to V+ in level of difficulty (expert only). This run extends approximately 8 miles along the San Joaquin River from the bottom of Dam 6 to the Italian Bar Bridge crossing the head of Redinger Reservoir. The desirable flow range for whitewater boating in this reach is between 350 cfs to 1,000 cfs. An evaluation of historical boating opportunities for a period of record from 1983 to 2002 under existing hydrology indicates that BOD within the boatable flow range normally occur in Wet and Above Normal Water Year types, and occasionally in a Dry Water Year type (REC 3, SCE 2004a; Volume 4, SD-D (Book 16)). During wet years, BODs occurred between May through August. In Above Normal Years, BODs occurred in May and June.

5.2.9.3 Impacts of Proposed Action

This section discusses the environmental impacts resulting from the implementation of new measures recommended in the Proposed Action for the four Big Creek ALP Projects (see Section 3.1.7, New Environmental Measures). The new measures associated with the Proposed Action are described in the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Books 19 and 24)).

Common Recreation Resource Issues at the Four Big Creek ALP Projects

Developed Recreation. Routine maintenance of developed recreation facilities must be conducted to a level where user satisfaction with the facility conditions is acceptable. Routine maintenance activities keep fixed assets in an acceptable condition and include: repairs, painting, replacement of minor parts and minor structural components. Maintenance activities may include work needed to meet laws, regulations, codes, and other legal direction (such as compliance with ADA). Operational maintenance excludes activities aimed at expanding the capacity of a facility or otherwise upgrading it to serve needs different from, or significantly greater than those originally intended do. A decrease in recreation use and opportunities, and diminishment of the recreation experience will result if facilities are not adequately maintained, or are in a state of deterioration.

In addition to the routine annual maintenance, the rehabilitation of developed recreation facilities will be necessary during the term of the license. The life expectancy of developed recreation facilities is estimated at approximately 15 to 25 years, under normal use and maintenance. Rehabilitation of facilities includes reconditioning or replacing an existing fixed asset or any of its components in order to restore the functionality or life of the facility. Replacement is the substitution or exchange of an

existing fixed asset or component with one having essentially the same capacity and purpose. The decision to replace a fixed asset or component is usually reached when replacement is more cost effective or more environmentally sound. Without rehabilitation, the developed recreation facilities degrade, resulting in a loss of recreation use, opportunities, and a diminished recreation experience.

The Americans with Disabilities Act (ADA) was passed July 26, 1990, establishing certain standards for improving accessibility for disabled persons. These ADA standards, especially as applied to outdoor recreation facilities, did not exist at the time of construction of many of the existing recreation facilities. The USDA-FS has made some modifications to bring certain facilities into compliance with these standards. However, many of the existing recreation facilities do not meet current ADA standards. Retrofitting to meet current standards is not required until individual facilities are rehabilitated or upgraded. At that time, they must comply with current ADA standards. The lack of current standard accessible recreation facilities could result in the loss of use and opportunity, and a diminished recreation experience for those recreationists in need of accessible facilities.

To enhance and protect the developed recreation resources in the vicinity of the four Big Creek ALP Projects, SCE has prepared a Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Books 19 and 24)) that describes measures and programs proposed to be implemented during the term of the license. Under the Recreation Plan, SCE would implement the following measures:

- SCE will be responsible for the annual operational maintenance of Camp Edison facilities on Shaver Lake; Day-Use Area recreation facilities located at Shaver Lake, Eastwood Overlook, and the day-use area at Balsam Forebay. The specific facilities are listed on Table 5.2.9-5 (see also Table 1 in the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Book 19)). Recreation facilities owned and operated by the SNF will continue to be owned, operated and administered by the USDA-FS.
- SCE will be responsible for the full cost of rehabilitating recreation features currently existing at the facilities listed on Tables 5.2.9-1 through 5.2.9-3 (also summarized in Table 1 of the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Book 19)). SCE will be responsible for performing all needed rehabilitation activities through the provision of necessary personnel, equipment, materials, and management. Table 3 in the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Book 19)) presents the proposed scheduling of the rehabilitation activities¹.

¹ The proposed schedule is for a period of thirty years. If the Commission issues a longer license term for the BC ALP projects, the recreation rehabilitation schedule would continue, returning to the first scheduled block of projects at the end of the proposed schedule and continuing to work through the schedule again until the new licenses expire.

- SCE will be responsible for the full cost to upgrade developed recreation facilities listed on Tables 5.2.9-1 through 5.2.9-3 (also summarized in Table 1 of the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Book 19)) to meet ADA guidelines in effect at the time of rehabilitation. Recreation facility rehabilitation projects will be designed and constructed after review of applicable USDA-FS specifications and standards at the time of construction. These standards are included in the USDA-FS Manual, identified as direction concerning Outdoor Recreation Accessibility Guidelines and the USDA-FS Trails Accessibility Guidelines. As feasible, the renovated recreation facilities will meet applicable ADA requirements at the time of facility design and construction.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of developed recreation in the vicinity of the four Big Creek ALP Projects. No long-term adverse impacts to recreation are associated with the implementation of these measures. It is anticipated that there will be short-term loss of use of the specific recreation facilities at the time of their rehabilitation. This consideration has been incorporated into the scheduling of rehabilitation of recreation facilities in order to minimize the disruption and/or displacement of recreation use in the region.

Interpretive Opportunities. Consultation with the USDA-FS and stakeholders, identified the need to expand interpretive opportunities in the vicinity of the four Big Creek ALP Projects. Existing interpretive opportunities are primarily located at the Eastwood Overlook and the Billy Creek Museum around Huntington Lake, and at the Point Day-Use Area on Shaver Lake.

To expand interpretive opportunities in the vicinity of the four Big Creek ALP Projects, SCE will implement the following measure:

- SCE will be responsible for the full cost of designing and installing up to 13 interpretative display exhibits (kiosks) at various locations in the vicinity of the four Big Creek ALP Projects. SCE will consult with the USDA-FS and the Big Creek Heritage Advisory Committee (as defined in the Historic Properties Management Plan (HPMP) (SCE 2005b; Volume 4, SD-I (Book 27)) regarding the design, content, and placement of the interpretative display panels/kiosks. Upon approval by the USDA-FS, the final design will be submitted to FERC for approval. The schedule for the design and installation of the interpretive display exhibits will be coordinated with the major rehabilitation of recreation facilities where the kiosks are to be installed.

The implementation of this measure would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of the recreation experience in the vicinity of the four Big Creek ALP Projects. There will be no adverse impacts to recreation associated with the implementation of this measure.

Reservoir Water Surface Elevation. Low reservoir WSE, which reduces depth and water surface area may result in some loss of on-reservoir recreation use, and a diminished recreation experience. In addition, when reservoir levels are lowered below the end of the boat ramps, boater access to the reservoirs becomes impaired or eliminated, resulting in the loss of use and/or diminishment of the recreation experience.

Consultation with the USDA-FS and stakeholders identified the need for up-to-date information on WSEs at Project reservoirs in order to facilitate planning of recreation trips and activities. The lack of pertinent WSE information could result in the loss of recreation use and the diminishment of the recreation experience.

SCE will implement the following measures as specified in the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Books 19 and 24)) to protect and enhance reservoir recreation opportunities. These measures pertain to the SCE Projects in the vicinity of the Mammoth Pool Project (FERC No. 2085), Big Creek Nos. 1 and 2 Project (FERC Project No. 2175), and Big Creek Nos. 2A, 8 and Eastwood Project (FERC Project No. 67):

- SCE will support reservoir-based recreation through the maintenance of reservoir water surface elevations at Project reservoirs/lakes. SCE manages its reservoir water surface elevations to be consistent with the primary purpose of the reservoirs for hydroelectric generation, existing water rights, contracts, and/or licenses associated with the reservoirs, and other beneficial uses. In meeting the primary purpose of the reservoirs, SCE will make a good faith effort to maintain reservoir water surface elevations through the peak recreation season, as identified in the Recreation Management Plan, at Project reservoirs that will support recreation.
- SCE will provide reservoir elevation information to the public via the Internet or other appropriate technologies. Where feasible, SCE will provide year-round midnight reservoir surface elevations at Huntington Lake, Shaver Lake, Mammoth Pool Reservoir and Florence Lake. Reservoir water surface elevation data will be provided in feet above mean sea level (msl). All reservoir water surface elevation values may be rounded to the tenth of a foot. In association with the reservoir water surface elevation, SCE will also post the functional operating ranges of the boat launch ramps at the reservoirs.
- SCE will annually notify the Forest Service, Huntington Lake Resort, Lakeshore Resort, Rancheria Enterprises, Sierra Marina, and Shaver Lake Marina, of its monthly storage targets for Huntington, Shaver, Mammoth Pool, Florence, and Thomas A. Edison reservoirs for the recreation season (May through September). SCE will post this information at the Sierra National Forest boat ramp at Huntington Lake and via a website, or other similar information method.
- Notification need not be given if SCE must reduce the reservoir elevation for emergency purposes or other circumstances. Additional water rights were obtained through appropriation of water prior to the implementation of the Water

Commission Act of 1914, and by prescriptive use against other parties. SCE also holds other water rights as a riparian landowner, which authorizes SCE to divert and use water on land owned by SCE precluding the issuance of a notification. In such case, SCE will make a good faith effort to inform the above listed entities of the circumstances and expected reservoir elevation and fluctuations as soon as feasible.

- SCE will install a staff gage and post the annual water plan for Huntington Lake at the Forest Service boat ramp. The annual water plan for the lake will provide estimates of projected reservoir water surface elevations during the recreation season to the general public.
- SCE will provide the annual report on Huntington Lake water surface elevations (including an exceedance table of water surface elevations) from the previous year to the SNF, the Huntington Lake Association (HLA) and other interested parties. Upon request of the HLA, SCE will attend the HLA annual meeting or meet with the HLA Board, in lieu of the annual meeting, to discuss the annual water plan.

Project-related Fish Stocking. SCE will equally match the CDFG stocking of Project-related reservoirs and bypass stream reaches below Project diversions and upstream of Redinger Lake, up to the following amounts:

Rainbow Trout:

- Fingerlings – up to 20,000 per year
- Catchables – up to 60,000 per year
- Subcatchables – up to 40,000 per year

Kokanee:

- Fingerlings – up to 30,000 per year

- At SCE's option, SCE will either acquire the fish directly through available sources or reimburse CDFG for the cost of fish production. SCE will consult with CDFG annually to obtain fish stocking targets and verify the completion of the previous years stocking efforts.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of reservoir recreation in the Big Creek ALP Projects listed above. There will be no adverse impacts to reservoir recreation associated with the implementation of these measures.

River Corridor Recreation. Streamflow information is needed by a variety of recreationists in order to plan recreation trips focused on stream corridor recreation activities. The lack of publicly available streamflow information may result in the loss of potential stream corridor recreation use and a diminished recreation experience.

To protect and enhance river corridor recreation in the vicinity of the four Big Creek ALP Projects, SCE will implement the following measures:

- SCE shall provide streamflow information to the public via the Internet or other appropriate publicly accessible technology. The dissemination of streamflow information may come directly from SCE, or be provided by a third party. SCE may modify the flow information protocols after consultation with interested stakeholders. Where feasible, SCE will provide year-round hourly flow data for the following stream reaches:
 - South Fork San Joaquin River below Florence Dam
 - San Joaquin River below Mammoth Pool Reservoir
 - San Joaquin River below Dam 6
 - Stevenson Creek below Shaver Dam
 - Mono Creek between Vermilion Valley Dam and Mono Diversion
- SCE shall install and maintain staff gages from which streamflow in cfs or reservoir elevation can be determined. Staff gages will be installed in the San Joaquin River below Mammoth Pool Dam, in the South Fork San Joaquin River below Florence Dam, and at the Forest Service Rancheria Boat Ramp at Huntington Lake. SCE shall make a good faith attempt to locate the staff gages near locations used for angling access and whitewater boating put-ins, so they are viewable by the public.
- SCE shall make available on the Internet the forecast of the water year type in the same fashion as the streamflow information, and if available, will forecast the probability of spill and/or supplemental flows at Florence Lake Dam and Mammoth Pool Dam. SCE shall make a good faith effort to provide notice of the anticipated date of the beginning of spill at Florence Lake Dam and Mammoth Pool Dam during years when spill is likely to occur.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of river corridor recreation in the four Big Creek ALP Project areas. There will be no adverse impacts to recreation associated with the implementation of these measures.

Winter Recreation. Existing non-plowed roads are often used for winter recreation activities such as snowmobiling and Nordic skiing. Kaiser Pass Road (USDA-FS Road No. 5S80) and Florence Lake Road (USDA-FS Road No. 7S01) provide snowmobiling opportunities during the winter recreation season, which typically extends from November 15 through the spring, depending on snow conditions. The Forest Service maintains the snowmobile trail along these roads by grooming the trail following significant winter storms. On occasion, SCE has an emergency need to access Project facilities using Kaiser Pass Road. At such times, it could be necessary to plow portions of Kaiser Pass Road to provide vehicular access for SCE personnel. Disruption of the

snowmobile trail could result in the loss of use and diminishment of the recreation experience.

To protect winter recreation use and opportunities in the vicinity of Big Creek Nos. 1 and 2 Project (FERC Project No. 2175) and Big Creek Nos. 2A, 8 and Eastwood Project, SCE will implement the following measures:

- Should SCE need to plow Kaiser Pass Road or Florence Lake Road in winter for Project purposes, SCE will as follows, unless required for larger equipment, plow one lane only on the Eastwood/Badger Flat segment of USDA-FS Road No. 5S80. The other lane will be maintained and reserved for winter sports use. Placement of blown snow on the reserved lane should be avoided.
- Where practical, SCE will provide a uniform travel surface of a maximum one-tractor blade width on snow adjacent to the cleared roadway.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license for winter recreation activities in the Project area. There will be no long-term or short-term adverse impacts to recreation associated with the implementation of these measures.

Recreation Resource Issues at Individual Big Creek ALP Projects

Potential impacts on recreation resources under current Project operations (No Action Alternative), and environmental impacts resulting from the implementation of new measures recommended in the Proposed Action for individual Big Creek ALP Projects are included in the following sections. The new measures are presented in the Recreation Management Plan (SCE 2007b; Volume 4, SD-G (Book 19)).

Mammoth Pool (FERC Project No. 2085)

Access to Recreation Resources. Access to Mammoth Pool Reservoir is limited from May 1 to June 15, due to the closure of Mammoth Pool Road to public vehicles during the annual deer migration. This road closure impacts recreation resources including use of developed recreation facilities, reservoir recreation opportunities (boating and angling), and river corridor recreation opportunities (angling and whitewater boating). However, the reservoir and bypassed reach below can still be accessed by foot during this period. The closure of this road is performed by the USDA-FS, in cooperation with the CDFG, and is not a result of SCE Project operations. As this road closure is not a Project-related effect, SCE does not propose any measures to address it under the Proposed Action.

Reservoir Recreation. Low seasonal WSE at Mammoth Pool Reservoir could result in the loss of water surface area available for use by water skiers and anglers. Therefore, increases in minimum instream flow releases and channel riparian instream maintenance flows into the downstream reach may potentially impact WSE in the lake. HydroBasin modeling results indicate that there will be a slight shift in the timing of

reservoir filling and drawdown, however, the shift does not affect the peak recreation season, nor does it reduce lake WSE below the functional range of the boat ramps. Therefore, reservoir recreation and support facilities will not be adversely impacted by the Proposed Action.

To protect and enhance reservoir recreation at Mammoth Pool Reservoir, SCE will implement the following measure:

- In order to provide recreation and cultural resource benefits at Mammoth Pool Reservoir, SCE will make every effort to secure recreation benefits by maintaining the water surface at the maximum elevation practical for water storage, with minimum noticeable fluctuation, from June 1 to September 1 of each year.

The implementation of this measure would be consistent with current operations, and with the recreation needs projected over the term of the new license and will result in no change to reservoir recreation at Mammoth Pool Reservoir. There will be no adverse impacts to recreation associated with the implementation of this measure.

Recreation use conflicts in the Mammoth Pool Area were identified based on information provided by survey respondents in the 2002 BCALP recreation use survey (REC 10, SCE 2003; Volume 4, SD-C (Books 10 and 21)). Five survey respondents indicated that they had a recreation use conflict at Mammoth Pool Reservoir. Four of the accounts of conflicts were provided by anglers affected by motorized water sports (jet skis, ski boats and speeding on the lake). These four individuals identified speeding on the lake as a conflict. The fifth individual identified that water skiing and camping was affected by the lake water level going down. Additional information regarding recreation use conflicts is presented in the Mammoth Pool Recreation Use Report (SCE 2006). The Proposed Action does not include any measures to resolve social conflicts between reservoir recreationists on Mammoth Pool Reservoir. Restrictions on one type of use will result in a loss of recreation use and opportunity for that user-type. These conflicts are not a result of SCE operation and maintenance of the Project. Mammoth Pool Reservoir will accommodate angling and motorized boating activities based on the social demand for this recreation resource.

River Corridor Recreation. There are existing whitewater boating opportunities in the Tied-For-First whitewater boating in the bypassed reach of the San Joaquin River below Mammoth Pool Reservoir. These opportunities occur on the shoulder of spill events, and the timing of opportunities varies from year to year. The lack of flow information limits the whitewater boating community's ability to utilize these existing boating opportunities, which results in a loss of opportunities. In addition to existing whitewater boating opportunities, there is the potential to provide additional whitewater boating opportunities through the provision of pre-spill flow releases.

To protect and enhance whitewater recreation, and other stream corridor recreation activities, SCE will implement the following measures:

- SCE shall provide streamflow information to the public via the Internet, or other appropriate publicly accessible technology, for the San Joaquin River below Mammoth Pool Reservoir. Where feasible, SCE will provide year-round hourly flow data.
- Upon request of the American Whitewater Association or regional whitewater boating representatives after March 15, SCE will discuss the anticipated water run-off conditions in relation to providing pre-spill releases. If the water year type is determined to be a Wet or Above Normal water year, the timing and flow magnitudes of pre-spill releases will be proposed.
- In Wet water years, as defined by the DWR forecast, SCE will provide a continuous release of between approximately 350 cfs and 850 cfs, until such time as Mammoth Pool Dam spills. This pre-spill whitewater release is targeted to begin on April 15. If, on April 15, Mammoth Pool Dam is spilling, SCE will have no further responsibilities to provide whitewater recreation flows for the year. If, SCE determines conditions are suitable to provide pre-spill flows prior to April 15, SCE may initiate pre-spill releases at an earlier date.
- In Above Normal water years, SCE will provide pre-spill whitewater releases below Mammoth Pool Dam of between approximately 350 cfs and 850 cfs for two consecutive weekend days. At a minimum, the whitewater flows would be provided between the hours of 10 AM to 4 PM over one weekend. These pre-spill whitewater releases would be made after April 15. If by April 15, Mammoth Pool Dam is spilling, SCE will have no further responsibilities to provide whitewater releases for that year. Upon the request of regional whitewater boating representatives, and if SCE determines conditions are suitable, SCE may initiate pre-spill releases at an earlier date.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of whitewater boating opportunities in the Tied-for-First Run and other stream corridor recreation opportunities with no adverse impacts.

San Joaquin River Trail. The San Joaquin River Trail (SJRT) is a public multi-use trail that runs through the San Joaquin River Canyon from Millerton Reservoir to the crest of the Sierra Nevada Mountains. The San Joaquin River Trail is co-aligned with the Mammoth Pool Transmission Line Project Road for about 9 miles. Additionally, the SJRT also crosses two other Project roads: USDA-FS Road No. 8S03 (Mammoth Pool Powerhouse Road) and USDA-FS Road No. 7S47 (Rock Creek Diversion access road). The SJRT has Trail Class 3 designation under the USDA-FS National Trail Management Class system (USDA-FS 2005). A Class 3 trail is a developed improved trail that is continuous and obvious, accommodates unhindered one-lane travel with occasional allowances constructed for passing, and typically has a native material surface. The Mammoth Pool Transmission Line Road has a Level 2 maintenance designation as per the USDA-FS Transportation System Maintenance Handbook. The handbook defines a Level 2 road as: "open for use by high clearance vehicles.

Passenger car traffic is not a consideration. Traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level. Appropriate traffic management strategies are either to (1) discourage or prohibit passenger cars, or (2) accept or discourage high clearance vehicles” (USDA-FS 1995). Routine trail maintenance activities are required to ensure the functionality of the trail and minimize the need for trail reconstruction activities. The deterioration of the trail could result in the loss of use and diminishment of the recreation experience by trail users.

In order to protect and enhance the recreation use of the SJRT, SCE will:

- Maintain the section of the San Joaquin River Trail that is co-aligned with the Mammoth Pool Transmission Line Project Road. The Mammoth Pool Transmission Line Project Road will be maintained in accordance with, and to USDA-FS road standards for a Level 2 road. The maintenance standards for a Class 2 road are adequate to satisfy the management prescription for a Class 3 trail designation.
- Maintain the two Project road crossings of the trail with a surface material that accommodates multiple use of the San Joaquin River Trail.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of recreation use associated with the SJRT. No adverse impacts on recreation will occur as a result of implementing these actions.

Big Creek Nos. 1 and 2 (FERC Project No. 2175)

Developed Recreation. The area around Dam 3 at Huntington Lake is a popular location for dispersed day-use recreation activities (angling, picnicking, hiking, and general relaxing). Currently there are no developed recreation support facilities at this location. The lack of developed infrastructure (parking, tables, toilets) could result in resource damage, loss of potential recreation use, safety concerns, and a diminished recreation experience for individuals using the area.

To protect and enhance recreation use at the Dam No. 3 Day-Use Area, SCE will implement the following measure:

- SCE will develop a day-use area adjacent to Dam No. 3 at Huntington Lake. The development will include a parking area, a trail from such parking area to Dam 3, an accessible toilet, three picnic tables, and a new gate to prevent parking on Dam 3. Two handicap parking spaces will be designated at the north end of the dam.

The implementation of the above measure would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of recreation at the Dam 3 Day-Use Area. There could be a short-term loss of use of the Dam 3 Day-Use Area during construction of the proposed facilities.

Reservoir Recreation. Low seasonal WSE at Huntington Lake could result in the loss of water surface area available for use by sailboats, water skiers and anglers, which in turn could result in the loss of use and diminishment of the recreation experience. Increases in minimum instream flow releases and channel riparian instream maintenance flows into the downstream reach may potentially impact WSE in the lake. While this is of most concern to sail boats with deep-keeled hulls, no increased loss of surface area under the Proposed Action should occur, as identified in the HydroBasin model results. The HydroBasin model results indicate that there will be a slight shift in the timing of reservoir filling and drawdown. However, the shift does not affect the peak recreation season nor does it reduce WSE below the functional range of the boat ramps.

To protect and enhance reservoir recreation at Huntington Lake, SCE will implement the following measures:

- SCE will make every reasonable effort to maintain Huntington Lake water surface at as high an elevation, and with as little fluctuation as feasible during the period between May 1 to September 10, of each water year as is consistent with the primary purpose of the reservoir; existing water rights, and contracts.
- SCE will develop an accessible fishing access platform at Huntington Lake. SCE will consult with the USDA-FS to select a specific site for the construction of this facility. The accessible fishing access may take advantage of existing parking facilities or may require expanded parking, depending on the site that is selected. SCE will consult with the USDA-FS to define design specifications and develop final construction design packages.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of reservoir recreation at Huntington Lake. There will be no adverse impacts associated with the implementation of the proposed actions.

Recreation use conflicts at Huntington Lake were experienced by 54 of the 393 Huntington Lake survey respondents in the 2002 Big Creek ALP Recreation Survey. The highest numbers of conflicts (30 respondents, 7.6%) were associated with motor boats. Additional information regarding recreation use conflicts is presented in the 2007 Recreation Use Report (SCE 2007a; Volume 4, SD-E (Books 19 and 24)). Huntington Lake is popular for sailing, angling, and motorized boating. Conflicts have been reported between anglers, water skiers, and users of personal watercraft on Huntington Lake regarding close approaches, noise, and speeding on the lake. The Proposed Action does not include any measures to resolve social conflicts between reservoir recreationists on Huntington Lake. Restrictions on one type of use will result in a loss of recreation use and opportunity for that user-type. Therefore, Huntington Lake will continue to accommodate sailing, angling, and motorized boating activities, based on social demand for the recreation resource. The SNF and Fresno County Sheriff's Department has enforcement authority over Huntington Lake recreation users. These conflicts are not a result of SCE operation and maintenance of the Project.

Big Creek Nos. 2A, 8 and Eastwood (FERC Project No. 67)

Reservoir Recreation. Low seasonal WSE at Florence Lake and Shaver Lake could result in the loss of water surface area available for use by reservoir recreationists resulting in a loss of use and diminishment of the recreation experience. At Florence Lake, low WSE could result in the discontinuance of Florence Ferry operations. Increases in minimum instream flow releases and channel riparian instream maintenance flows into the downstream reach may potentially impact WSE in the lakes. However, no loss of surface area under the Proposed Action should occur as identified in the HydroBasin model results. The HydroBasin model results indicate that there will be a slight shift in the timing of reservoir filling and drawdown. However, the shift does not affect the peak recreation season, nor does it reduce WSE below the functional range of the boat ramps. Therefore, reservoir recreation support facilities will not be adversely impacted by the Proposed Action. In addition, consultation with the USDA-FS and stakeholders has identified a need for an accessible boat loading facility at Florence Lake.

To protect and enhance reservoir recreation at Florence Lake and Shaver Lake, SCE will implement the following measures:

- At Florence Lake, SCE will maintain minimum reservoir storage of 21,000 ac-ft levels at Florence Lake during the period from July 1 through August 31, and minimum reservoir storage of 1,000 ac-ft level during the remainder of the year.
- At Florence Lake, SCE will develop an accessible boat loading facility. SCE will consult with the USDA-FS for design specifications and final construction design for the facility.
- At Shaver Lake, SCE will make every effort to secure recreation benefits by maintaining the water surface at the maximum elevation practical for water storage, with minimum noticeable fluctuation, from Memorial Day to September 10.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of reservoir recreation at Florence and Shaver lakes. There will be no adverse impacts to recreation associated with the implementation of the Proposed Action.

Recreation use conflicts were experienced by 30 of the 146 Upper Basin vicinity survey respondents in the 2002 Big Creek ALP Recreation Survey. Twelve conflicts were reported at Florence Lake, and 18 conflicts were reported at Mono Diversion. The highest number of conflicts reported at Florence Lake was six responses (4.1%) of an unspecified category; and four responses (2.7%) of water level conflicts. The highest number of conflicts reported at Mono Diversion was five responses (3.4%) of an unspecified category, and four responses (2.7%) of water level conflicts. Additional information regarding recreation use conflicts is presented in the 2007 Recreation Use Report (SCE 2007a; Volume 4, SD-E (Books 19 and 24)). The nature of the conflicts is

primarily related to the interactions of the recreationists, rather than to WSE. The Proposed Action does not include any measures to resolve social conflicts between reservoir recreationists on Florence Lake or Mono Diversion.

User conflicts on Shaver Lake between anglers, personal watercraft users, and water skiers have been documented in the recreation surveys conducted in 2002. Of the 299 respondents, 52 individuals indicated that they experienced a recreation use conflict at Shaver Lake. The highest numbers of conflicts (16 respondents, 5.3%) were associated with motor boats. Additional information regarding recreation use conflicts is presented in the 2007 Recreation Use Report (SCE 2007a; Volume 4, SD-E (Books 19 and 24)). As with other reservoirs, conflicts are mostly related to the interactions of the recreationists, rather than to WSE. The Proposed Action does not include any measures to resolve social conflicts between reservoir recreationists on Shaver Lake. Restrictions on one type of use will result in a loss of recreation use and opportunity for that user-type. The Fresno County Sheriff's Department has enforcement authority over Shaver Lake recreation users. These conflicts are not a result of SCE operation and maintenance of the Project. Shaver Lake will continue to accommodate angling and motorized boating based on social demand for the recreation resource.

River Corridor Recreation. There is an interest in increasing the existing whitewater boating recreation opportunities in the Florence Run along the bypassed reach of the South Fork San Joaquin River below Florence Lake. This reach is a Class IV+ to V difficulty whitewater boating run. The lack of real-time flow information limits the whitewater boating community's ability to utilize existing boating opportunities that occur on the shoulder of spill events from the reservoir. In addition, consultation with the USDA-FS and stakeholders has identified a need for an accessible fishing platform on the South Fork San Joaquin River.

To protect and enhance river corridor recreation on the South Fork San Joaquin River downstream of Florence Lake, SCE will implement the following measures:

- SCE shall provide streamflow information to the public via the Internet or other appropriate publicly accessible technology for the South Fork San Joaquin River below Florence Lake. Where feasible, SCE will provide year-round hourly flow data.
- Upon request of the American Whitewater Association or regional whitewater boating representatives after March 15, SCE will discuss the anticipated water run-off conditions in relation to providing pre-spill releases. If the water year type is determined to be a Wet or Above Normal water year, the timing and flow magnitudes of pre-spill releases will be proposed.
- To the extent, it is within SCE's control and consistent with the requirements of the Jackass Meadows Management Plan CRMF schedule at Florence Dam, SCE will attempt to provide flows sufficient in timing and magnitude for whitewater boating opportunities in the SFSJR below Florence Dam during the descending portion of the CRMF release in Wet and Above Normal water years.

- SCE will develop an accessible fishing access platform on the SFSJR near Jackass Meadows Campground. SCE will consult with the USDA-FS to select a location for the construction of this facility. The universally accessible fishing access facilities may take advantage of existing parking facilities. SCE will consult with the USDA-FS to define design specifications and develop a final construction design package.

The implementation of the measures listed above would be consistent with the recreation needs projected over the term of the new license and will result in the overall enhancement of river corridor recreation opportunities below Florence Dam. There will be no adverse impacts to recreation as a result of the implementation of these measures.

Big Creek No.3 (FERC Project No. 120)

No specific proposals for recreation in the Big Creek No. 3 Project area are proposed. The implementation of the measures listed in the above section, Common Recreation Resource Issues at the Four Big Creek ALP Projects, which include the provision of streamflow information in the San Joaquin River below Dam 6 and the forecast of spill probability from Mammoth Pool Dam, would be consistent with the recreation needs projected over the term of the new license and result in the overall enhancement of stream corridor recreation in the San Joaquin River at the Big Creek No. 3 Project vicinity.

5.2.9.4 Unavoidable Adverse Impacts

There are no unavoidable adverse impacts to recreation resources from the Proposed Action.

TABLES

Table 5.2.9-1. Recreation Facilities in the Vicinity of the Mammoth Pool Project.

Facility	Campsites	Picnic Site	Tables	Fire rings	Bear Boxes	Food Storage	Toilets	Dumpsters	Amphitheater	Boat Ramp	ADA Boat Loading	Access Stairs
Mammoth Pool (FERC Project No. 2085)												
Mammoth Pool Reservoir												
Boat Ramp – Mammoth Boat Launch							1	1		1		
China Bar Boat Camp	6		6	6			2					
Mammoth Pool Campground	47		47	47			8	4				
Windy Point Picnic Area							1					
Windy Point Boat Launch										1		

Table 5.2.9-2. Recreation Facilities in the Vicinity of the Big Creek Nos. 1 and 2 Project.

Facility	Campsites	Picnic Site	Tables	Fire rings	Bear Boxes	Food Storage	Toilets	Dumpsters	Amphitheater	Boat Ramp	ADA Boat Loading	Access Stairs
Big Creek Nos. 1 and 2 (FERC Project No. 2175)												
Huntington Lake												
Boat Launch Ramp and Parking Huntington Lake East							2	2		1	1	
Boat Ramp – Huntington Lake West (Huntington Lake Resort)										1		
Upper Billy Creek Campground	44		44	44			7	4				
Lower Billy Creek Campground	13		13	13			1	1				
Catavee Campground	24		24	24			1	4				
College Campground	11		11	11			2	2				
Deer Creek Campground	28		28	28			1	3				
Kinnikinnick Campground	27		27	27			1	3				
Rancheria Campground	161		161	161			18	11	1			
Bear Cove Day-Use Picnic Area		30	30	30			1	1				
Billy Creek Day-Use Picnic Area		7	7	7								
Deer Creek Day-Use Picnic Area		5	5	5			1	1				
Dowville Day-Use Picnic Area		5	5	5			1	1				
Eastwood Overlook and Parking							1					

Table 5.2.9-3. Big Creek Nos. 2A, 8 and Eastwood Recreational Facilities – Florence Lake and Shaver Lake.

Facility	Campsites	Picnic Site	Tables	Fire rings	Bear Boxes	Food Storage	Toilets	Dumpsters	Amphitheater	Boat Ramp	ADA Boat Loading	Access Stairs
Big Creek Nos. 2A, 8 and Eastwood (FERC Project No. 67)												
Recreation Resources in the Vicinity of Upper Basin												
Florence Lake												
Boat Ramp – Florence Lake										1		
Jackass Meadow Campground	50		50	50	50		2	4				
Florence Lake Day-Use Picnic Area		16	16	16			1	1				
Mono Forebay												
Mono Creek Campground	14		16	14	16		2					
Mono Creek Day-Use Picnic Area		6	6	6	6		1					
Recreation Resources in the Vicinity of Shaver Lake												
Shaver Lake												
Camp Edison Campground	252	38	290	252		252	13	17	1			
Camp Edison Boat Ramp/Launch								2		1		
Dorabelle Campground	70		70	70			16	6				
Dorabelle Day-Use Picnic Area		22	22	22			2	1				
Day-Use Areas on North Shore Roads 1 and 2		40	40	24			3	2				
Day-Use Area off of Hwy 168 (The Point)							1	2				
Eagle Point Boat Only Day-Use Picnic Area			7	12			1	2				
Balsam Forebay												
Balsam Meadow Forebay Day-Use Picnic Area			2				1					
Balsam Meadow Trailhead and Parking							1					

Table 5.2.9-5. Recreation Facilities in the Vicinity of the Project.

Project	Operation and Maintenance Responsibility
Big Creek Nos. 1 and 2 (FERC Project No. 2175)	
Huntington Lake	
Existing Recreation Facility	
Boat Launch Ramp and Parking – Huntington Lake East	Forest Service
Boat Launch – Huntington Lake West (Huntington Lake Resort)	Forest Service
Upper Billy Creek Campground	Forest Service
Lower Billy Creek Campground	Forest Service
Catavee Campground	Forest Service
College Campground	Forest Service
Deer Creek Campground	Forest Service
Kinnikinnick Campground	Forest Service
Rancheria Campground	Forest Service
Bear Cove Day-Use Picnic Area	Forest Service
Billy Creek Day-Use Picnic Area	Forest Service
Deer Creek Day-Use Picnic Area	Forest Service
Dowville Day-Use Picnic Area	Forest Service
Eastwood Overlook and Parking	SCE
New Recreation Facility	
Huntington Dam 3 Day-Use Area	Forest Service
Huntington Lake Universally Accessible Fishing Platform	Forest Service
Big Creek No. 3 (FERC Project No. 120)	
Dam 6 Forebay	
Existing Recreation Facility	
Angler Access Stairway at Mammoth Pool Powerhouse	Forest Service
Parking Area near Mammoth Pool Powerhouse Gate	Forest Service
Big Creek Nos. 2A, 8 and Eastwood (FERC Project No. 67)	
Florence Lake	
Existing Recreation Facility	
Boat Ramp – Florence Lake	Forest Service
Jackass Meadow Campground	Forest Service
Florence Lake Day-Use Picnic Area	Forest Service

Table 5.2.9-5. Recreation Facilities in the Vicinity of the Project (continued).

Project	Operation and Maintenance Responsibility
Big Creek Nos. 2A, 8 and Eastwood (FERC Project No. 67) (continued)	
New Recreation Facility	
Florence Lake Universally Accessible Boat Loading Platform	Forest Service
South Fork San Joaquin River Universally Accessible Fishing Platform	Forest Service
Shaver Lake	
Existing Recreation Facility	
Camp Edison Campground	SCE
Camp Edison Boat Ramp/Launch	SCE
Dorabelle Campground	Forest Service
Dorabelle Day-Use Picnic Area	Forest Service
Day-Use Areas on North Shore Roads 1 and 2	SCE
Day-Use Area off Hwy 168 (The Point)	SCE
Eagle Point Boat Only Day-Use Area	SCE
Balsam Meadow Forebay	
Existing Recreation Facility	
Balsam Meadow Forebay Day-Use Picnic Area	SCE
Balsam Meadow Trailhead and Parking	SCE
Mono Creek Forebay	
Existing Recreation Facility	
Mono Creek Campground	Forest Service
Mono Creek Day-Use Picnic Area	Forest Service
Mammoth Pool (FERC Project No. 2085)	
Mammoth Pool Reservoir	
Existing Recreation Facility	
Boat Ramp – Mammoth Pool Boat Launch	Forest Service
China Bar Boat Camp	Forest Service
Mammoth Pool Campground	Forest Service
Windy Point Day-Use Picnic Area	Forest Service
Windy Point Boat Launch	Forest Service

FIGURES

Placeholder for Figures

Non-Internet Public Information

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

These Figures are considered Non-Internet Public information and should not be posted on the Internet. This information is provided in Book 21 of the Application for New License and is identified as “Non-Internet Public” information. This information may be accessed from the FERC’s Public Reference Room, but is not expected to be posted on the Commission’s electronic library, except as an indexed item.