
LAND 2 MULTIPLE USE OPPORTUNITY ASSESSMENT

This study provides information to address the study objectives described in the LAND 2, Multiple Use Opportunity Assessment study plan, developed for the relicensing of the four Big Creek ALP Projects: Mammoth Pool (FERC Project No. 2085); 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). The information provided is organized by the three study plan objectives.

This assessment evaluates the effects of new environmental measures described under the Proposed Action and the CDFG Alternative on multiple use opportunities. Multiple use opportunities include outdoor recreation, range, timber, watershed, and wildlife and fish (Multiple-Use Sustained-Yield Act of 1960, as amended). This assessment evaluates the effect on multiple use opportunities of implementing new environmental measures identified in the Proposed Action, followed by the resulting effects of the proposed CDFG Alternative.

Study Objective No. 1. Evaluate potential changes in Project-related operations and maintenance identified by the Proposed Action on recreation, power generation, wildlife and wilderness resources, cultural resources, and other forest resources.

New environmental measures of the Proposed Action that potentially change existing Project-related operations and maintenance, resulting in an effect on multiple use opportunities are listed below.

New Environmental Measures Common to the Four Big Creek ALP Projects

- Increased minimum instream flow (MIF) and periodic channel riparian maintenance flow (CRMF) releases (including associated infrastructure modifications and additional gages where appropriate) would improve water temperature control, water quality, and aquatic habitat (fish, macroinvertebrates, amphibians, and riparian) over the existing conditions under the current Project operations. An improvement in fish populations in streams in the vicinity of the Projects may help provide increased recreational angling opportunities.
- Implementation of a Fish Monitoring Plan would provide data to establish long-term fish trend monitoring in selected locations to help evaluate the results of increased MIF and CRMF, and related water temperature and sediment improvements on fish community composition and abundance (SCE 2007a).
- The Temperature Monitoring and Management Plan provides a method to assess the effectiveness of increased instream flows in selected reaches associated with the three Big Creek Projects to enhance coldwater aquatic habitat (SCE 2007a), which may enhance trout populations and recreational angling opportunities.
- Implementation of the Flow Monitoring and Reservoir Water Level Measurement Plan will monitor and document flow conditions in specified bypass reaches and

water surface elevations in reservoirs of the Big Creek Projects and will enhance the public's access to this data (SCE 2007a).

- Implementation of proposed Sediment Management Prescriptions would alter diversion operation and maintenance activities to address sediment management issues (SCE 2007b) and improve aquatic habitats in impoundments and streams.
- The Riparian Monitoring Plan proposes methods to monitor the effectiveness of various CRMF releases for enhancing riparian resources (SCE 2007a).
- Protection of Special-status species during new construction through the use of biological assessments/biological evaluations and ensuring all appropriate permits and agency approvals have been obtained.
- Implementation of a Noxious Weed Training Program entails SCE personnel training on noxious weed identification, and noxious weed control in the vicinity of the Big Creek Projects.
- The Northern Hydro Special-Status Species Information Program provides SCE personnel with information on special-status species through photographs or drawings, description, and species' distribution in relation to SCE facilities. This information is used in conjunction with the Environmental Compliance Program to help protect special-status species.
- The Environmental Compliance Program tracks SCE's O&M activities and ensures compliance with required avoidance and protection measures.
- The Bald Eagle Management Plan describes bald eagle habitat locations relative to the Big Creek Projects, avoidance and protection measures for Project O&M activities, monitoring and reporting measures, and agency consultation (SCE 2007a).
- The Vegetation and Integrated Pest Management Plan describes improved vegetation and integrated pest management and road maintenance practices that will (i) protect sensitive plant and wildlife species, plant species of concern to Native Americans, and culturally significant resources; and (ii) reduce the introduction or spread of noxious weed species (SCE 2007a).
- Implementation of the Valley Elderberry Longhorn Beetle (VELB) will protect the VELB and its habitat (SCE 2007a).
- The Special-Status Bat Species Measure describes the consultation requirement that SCE has with the California Department of Fish and Game and Sierra National Forest (SNF) regarding non-routine O&M activities in areas known to support maternal or roosting bat species prior to implementation (SCE 2007a).

- Development of a plan to implement focused surveys at new project facilities to identify the presence of special-status species and implement avoidance and protection measures as identified in the Vegetation and Integrated Pest Management Plan, Historic Properties Management Plan (HPMP), and Valley Elderberry Longhorn Beetle Management Plan (SCE 2007a; SCE 2005).
- The Recreation Management Plan addresses the SCE management of developed recreation facilities in the vicinity of the Big Creek Projects (SCE 2007a). SCE will be responsible for the O&M of Camp Edison and day-use areas at Shaver Lake and day-use areas near Balsam Forebay. SCE will rehabilitate a specific group of existing recreation facilities and will manage reservoir water surface elevation (WSE) consistent with the primary purpose of the reservoirs, existing water rights, contracts, and licenses. SCE will also partially fund fish stocking in Project reservoir and bypass reaches and provide flow releases and real time flow information to enhance whitewater recreation opportunities.
- The Transportation Systems Management Plan describes the road system SCE uses for Project O&M, maintenance activities and responsibilities for those roads, measures to minimize or avoid potential impacts from Project road O&M activities, rehabilitation, traffic control, and access (SCE 2007a).
- The Cultural Resources Awareness Program is a training program developed for SCE personnel who perform O&M activities. This program is designed to train SCE O&M personnel on procedures to implement compliance measures in the Historic Properties Management Plan and to develop an awareness of Native American traditional cultural values.
- The Historic Properties Management Plan describes activities to preserve and manage historic properties and other important cultural resources in the vicinity of the Projects (SCE 2005).

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

- The Bear/Human Interaction Measure requires SCE to install and maintain bear proof dumpsters at the SCE facilities in the town of Big Creek and other Project facilities where food waste may be disposed of or stored to help reduce bear/human conflicts and protect the wildlife resource (SCE 2007a).
- Included as part of the Recreation Management Plan, SCE has committed to develop a day-use area adjacent to Dam 3 at Huntington Lake and a handicapped accessible fishing location. The facilities will include a parking area, a trail between the parking area and Dam 3, a toilet, three picnic tables, and a gate to prevent parking on Dam 3.
- The Visual Resources Plan describes measures to reduce the visual contrast of the Big Creek No. 1 switchyard as viewed from Huntington Lake Road and the Big Creek Powerhouse No. 1 penstocks (SCE 2007a).

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

- Implement the Mono Creek Channel Riparian Maintenance Flow Plan to reduce the accumulation of fine sediments in the reach (SCE 2007a).
- Implement the Channel Riparian Maintenance Flows for the South Fork San Joaquin River to provide periodic inundation of riparian habitat in the Jackass Meadows complex to enhance the riparian community (SCE 2007a).
- Decommission four small back country diversions and two domestic water diversions (SCE 2007a).
- Development of Large Wood Debris Measures to address the management of large woody debris at the Bear Creek Diversion (SCE 2007a).
- SCE will implement road closures within the vicinity of the Eastwood Power Station and Balsam Meadow Forebay to minimize disturbance of mule deer and other wildlife.
- Implement focused surveys at five new helicopter landing sites to identify the presence of Special-status species and implement avoidance and protection measures as identified in the Vegetation and Integrated Pest Management Plan, Historic Properties Management Plan, and Valley Elderberry Longhorn Beetle Management Plan.
- As part of the Recreation Management Plan, SCE has committed to develop a handicapped accessible fishing location at the South Fork San Joaquin River near Jackass Meadows, and a handicapped loading facility at the Florence Lake boat ramp.
- The Visual Resources Plan describes measures to reduce the visual contrast of the Mono Bear Siphon Flow Line.

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

- The Valley Elderberry Longhorn Beetle Management Plan describes management of Valley Elderberry Longhorn beetle (VELB) habitat during SCE O&M activities including VELB training for SCE maintenance personnel, habitat location, and avoidance and protection measures.
- The Visual Resources Plan describes measures to reduce visual contrast of the Big Creek Powerhouse No. 3 penstocks with the surrounding environment.

Detailed discussion of each new environmental measure in the Proposed Action is provided in Section 3.1.7, New Environmental Measures of the Amended Preliminary Draft Environmental Assessment (APDEA) (SCE 2007c).

Table LAND-2-1 presents a matrix for the Big Creek Projects that identifies the impacts, either beneficial or adverse, from implementing new environmental measures contained in the Proposed Action for the three Big Creek ALP Projects on recreation, power generation, wildlife and wilderness resources, cultural resources, and other forest resources. An analysis of resource impacts from implementation of new environmental measures in the Proposed Action is provided in Section 5.2, Environmental Setting and Expected Environmental Impacts of the Proposed Action of the APDEA (SCE 2007c). The annual generation loss from implementing new environmental measures is described in the Proposed Action for the Big Creek ALP Projects in Section 7.0, Developmental Analysis of the APDEA (SCE 2007c).

As depicted in Table LAND-2-1, the environmental measures identified in the Proposed Action for the three Big Creek Projects benefit environmental, recreational, and cultural resources. These benefits result in a negative impact to power generation due to increased MIF and the implementation of CRMF which reduce the volume of stored water available for power generation.

A detailed analysis of resource impacts from implementation of new environmental measures in the Proposed Action is provided in Section 5.2, Environmental Setting and Expected Environmental Impacts of the Proposed Action of the APDEA (SCE 2007c).

Study Objective No. 2. Determine if potential changes in Project-related operations and maintenance affect multiple use opportunities.

Multiple use opportunities include: outdoor recreation, range, timber, watershed, wildlife and fish (Multiple-Use Sustained-Yield Act of 1960). As identified in Table LAND-2-1, implementation of new environmental measures in the Proposed Action results in an overall enhancement of environmental and cultural resources in the vicinity of three Big Creek ALP Projects. These environmental, recreational, and cultural enhancements directly improve wildlife and fish habitats, and opportunities for the public to participate in outdoor recreation. These enhancements include: protecting cultural resources, maintaining and operating recreational facilities over the term of the new license, cooperating with the SNF in the maintenance of the transportation system, providing access for the disabled, developing interpretive exhibits, maintaining reservoir elevations during the recreation season, stocking fish, providing whitewater recreation flow releases, supporting area recreational trails, and disseminating flow information to the public. Outdoor recreation is also enhanced by environmental measures that improve overall watershed condition and fish and wildlife resources.

Overall watershed condition and fish and wildlife resources and associated multiple use opportunities are enhanced through implementation of higher instream flow releases, improved vegetation, pest management, road maintenance practices, continuation of fire and hazardous materials management measures, and implementation of management plans for special-status wildlife species. This includes proposed license articles for bald eagle, VELB, bats, and other special-status species, and mule deer. Timber and range multiple uses are generally unaffected by implementation of new measures associated with the Proposed Action.

Study Objective No. 3. Identify Alternatives to Increase Multiple Use Opportunities.

The CDFG filed a letter on October 17, 2005 with the Commission that provided recommended measures for the protection of the fish and wildlife resources encompassed within and downstream of the four Big Creek ALP Projects. The CDFG provides recommendations for both aquatic and terrestrial resources; these are discussed in Section 3.2, CDFG Alternative; and an analysis of resource impacts from implementation of these measures are provided in Section 6.1, CDFG Alternative of the APDEA (SCE 2007c). Annual generation loss for the three Big Creek Projects from implementing the CDFG Alternative environmental measures is provided in Section 6.3, Comparison of Alternatives of the APDEA (SCE 2007c).

The CDFG Alternative and the Proposed Alternative recommend similar measures for many of the overlapping environmental measures. The CDFG Alternative differs from the Proposed Action in solely focusing on aquatic and terrestrial resources. The CDFG Alternative proposes limited environmental measures that focus on an increase in MIFs for 23 Project reaches; monitoring and mitigation for fish entrainment; densities; bioaccumulation of silver in fish and fish prey in Project reservoirs; extension of the 1600 Stream Bed Alteration Permit for the Projects; deer and bear protection, and wildlife mortality mitigation. The CDFG Alternative is unlikely to provide measurable improvement to habitat conditions beyond the improvements created by the Proposed Action, and is a less-balanced approach toward other multiple uses and resource issues in the Project vicinity.

Both the Proposed Action and the CDFG Alternative would protect environmental resources by enhancing existing natural resources above the baseline condition under current Project operations. Both are intended to meet Regional Water Quality Control Board Basin Plan objectives. An objective, which will be met by both the Proposed Action and CDFG Alternative that is not met by the No Action Alternative, is the protection of a coldwater fishery by providing suitable water temperatures for trout in all bypass reaches where such water temperatures are controllable. Specifically, the alternatives provide flows sufficient to reduce water temperatures (daily mean and maximum water temperatures) into acceptable ranges, although the CDFG Alternative typically includes higher flows than are necessary to address this limiting factor in many bypass reaches.

Neither the Proposed Action nor the CDFG Alternative is expected to impact reservoir recreation, because higher MIF and CRMF will only result in a slight change in the timing of reservoir filling and drawdown. In both cases, reservoir WSE will remain relatively stable and boat ramps will be functional during the peak recreation season.

Literature Cited

- Southern California Edison Company (SCE). 2005. Historic Properties Management Plan (HPMP). *In* SCE's Amended Preliminary Draft Environmental Assessment (APDEA) for the Big Creek Alternative Licensing Process (ALP) (Mammoth Pool Project (FERC Project No. 2085), 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)). February 2007 (Volume 4, SD-I (Book 27)).
- SCE. 2007a. Management and Monitoring Plans/License Articles. *In* SCE's APDEA for the Big Creek ALP. February 2007 (Volume 4, SD-G (Books 19 and 24)).
- SCE. 2007b. Settlement Agreement. *In* SCE's APDEA for the Big Creek ALP. February 2007 (Volume 4, SD-H (Books 20 and 25)).
- SCE. 2007c. Amended Preliminary Draft Environmental Assessment (APDEA) for the Big Creek Alternative Licensing Process (ALP) (Mammoth Pool Project (FERC Project No. 2085), 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)). February 2007 (Volume 4, (Books 4, 5 and 21)).

TABLE

Table LAND-2-1. Proposed Action - Effects of New Environmental Measures on Environmental and Cultural Resources

New Environmental Measures	Resource Areas									
	Recreation	Power Generation	Wildlife		Wilderness Resources	Cultural Resources	Other Forest Resources			
			Terrestrial	Amphibian/ Reptile			Vegetation	Riparian	Fish	Water Quality
MEASURES COMMON TO THE THREE BIG CREEK PROJECTS										
Water and Aquatic Resources										
Implement Increased and New Minimum Instream Flow and Channel Riparian Maintenance Flow Releases and Associated Infrastructure Changes	+	-		+				+	+	+
Implement the Fish Monitoring Plan									+	
Implement the Temperature Monitoring and Management Plan				+					+	+
Implement the Flow Monitoring and Reservoir Water Level Measurement Plan				+					+	+
Implement the Sediment Management Prescriptions		-		+				+	+	+
Implement the Mono Creek Riparian Monitoring Plan				+				+	+	+
Terrestrial Resources										
Continue to Protect Special-status Species During New Construction			+				+		+	
Implement the Noxious Weed Training Program							+			
Implement the Northern Hydro Special-status Species Information Program			+				+			
Implement the Environmental Compliance Program			+	+		+	+	+		+
Implement the Bald Eagle Management Plan			+							
Implement the Vegetation and Integrated Pest Management Plan			+	+		+	+	+		+
Implement the Special-status Bat Species Measure			+							
Implement focused surveys at new project facilities to protect special-status species			+				+		+	
Implement the Bear/Human Interaction Measure			+							
Recreational Resources										
Recreation Facility Annual Operational Maintenance	+									
Recreation Facility Major Rehabilitation	+					+				
Interpretative Program	+					+				
Reservoir Recreation-Reservoir Water Surface Elevation	+									
Fish Stocking	+			-					+	
Real-Time Flow Information Dissemination	+									
Land Resources										
Implement the Transportation System Management Plan	+								+	+
Cultural Resources										
Implement the Cultural Resources Awareness Program						+				
Implement the Historic Properties Management Plan			+			+	+			
Schedule and Attend an Annual Meeting with Interested Native Americans			+			+	+			
Continue to Schedule and Attend an Annual Coordination Meeting with the USDA-FS.	+		+		+	+	+	+	+	+
SPECIFIC MEASURES ASSOCIATED WITH THE MAMMOTH POOL PROJECT										
Implement the Valley Elderberry Longhorn Beetle Management Plan			+				+			
SPECIFIC MEASURES ASSOCIATED WITH THE BIG CREEK NOS. 1 AND 2 PROJECT										
Recreation Enhancements - Accessible Fishing Location, Dam 3 Day-Use Area	+									
Reduce Visual Contrast of Big Creek No.1 Switchyard										
SPECIFIC MEASURES ASSOCIATED WITH THE BIG CREEK NOS. 2A, 8 AND EASTWOOD										
Implement the Mono Creek Riparian Maintenance Flow Plan		-						+	+	
Implement the Channel Riparian Maintenance (CRM) Flows for the South Fork San Joaquin River	+	-						+	+	
Decommission four Small Back Country Diversions		-			+					
Implement the Large Woody Debris Measure				+				+	+	
Implement Mule Deer Protect Measures			+							
Recreation Enhancements - Accessible Fishing Location, Accessible Boat Loading Facility	+									
Reduce Visual Contrast of Mono Bear Siphon Flow Line Conduit						+				
Implement focused surveys at five new helicopter landing sites to protect special-status species			+				+			
SPECIFIC MEASURES ASSOCIATED WITH THE BIG CREEK NO. 3										
Implement the Valley Elderberry Longhorn Beetle Management Plan			+				+			
Reduce Visual Contrast of the Big Creek No. 3 Penstocks						+				

Key: + = Beneficial Effect to Resources - = Adverse Effect to Resources Blank = No Effect to Resources