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July 1, 2022

Kimberly D. Bose, Secretary  
Federal Energy Regulatory Commission  
888 First Street, NE  
Washington, DC 20426

**Subject: Kern River No. 3 Hydroelectric Project, FERC Project No. 2290-122; Revised Study Plan**

Dear Secretary Bose:

Southern California Edison Company (SCE or Licensee) is the owner and operator of the Kern River No. 3 (KR3) Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC or Commission) Project No. 2290. Pursuant to Section 5.13(a) of the Commission's regulations, SCE hereby files this Revised Study Plan (RSP) for relicensing the Project.

On September 22, 2021, SCE filed a Notice of Intent (NOI) and Pre-Application Document (PAD) for its continued operation and maintenance of the Project, which included 10 draft study plans. FERC issued Scoping Document 1 (SD1) on November 21, 2021, to advise all interested parties of the proposed scope of FERC's National Environmental Policy Act (NEPA) document and solicit comments on the list of issues and alternatives to be addressed in the NEPA document.

In response to FERC's SD1 and stakeholder comments, SCE revised the 10 draft study plans and developed five new study plans that encompass resource topics including water, biological, botanical, recreation, land use, socioeconomics, geology, and Project operations in its Proposed Study Plan (PSP) filed with FERC on March 4, 2022. FERC also issued Scoping Document 2 (SD2) on March 4, 2022, which refined the list of issues to be addressed in the NEPA document based on comments submitted to FERC from interested stakeholders.

Pursuant to 18 C.F.R. 5.12, stakeholders were afforded 90 days from the date of the PSP filing to provide comments on the PSP or to request additional studies. SCE acknowledges and appreciates the time and effort of all stakeholders to submit comments regarding the Project licensing. In response to the PSP filing, stakeholders filed comments about SCE's proposed study plans, requested

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additional studies, and commented generally regarding ongoing Project operations.

The enclosed RSP takes into account FERC's SD2 as well as comments on the PSP filed by stakeholders and communicated during subsequent focused meetings held to address additional questions on individual study plans. SCE has addressed specific study plan comments in this RSP either as a modification to a previously proposed study plan, as a new study plan, or by specifically noting why a comment or new study request was not adopted. As this RSP focuses on study modification requests associated with the PSP and any new study plan requests, general comments about the Project, as well as comments on Project decommissioning previously addressed by SCE and FERC, are not addressed in this RSP.

SCE has updated the study plans for this RSP, which includes 18 individual study plans: 15 previously developed study plans, one of which was split into two studies; and two new study plans. Each revised study is described in further detail as part of Enclosure A, and individual study plans are provided in Attachment 4 and include:

1. WR-1 Water Quality
2. WR-2 Hydrology
3. BIO-1 Foothill Yellow-legged Frog
4. BIO-2 Special-status Salamander
5. BIO-3 General Wildlife Resources
6. BIO-4 Benthic Macroinvertebrate
7. BIO-5 Western Pond Turtle
8. BIO-6 Stream Habitat Typing
9. BOT-1 General Botanical Resources
10. REC-1 Whitewater Boating
11. REC-2 Recreation Facilities Use Assessment
12. REC-3 Recreation Facility Condition Assessment
13. CUL-1 Cultural Resource
14. TRI-1 Tribal Resource
15. LAND-1 Road Condition Assessment

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16. GEO-1 Erosion and Sedimentation

17. SOCIO-1 Socioeconomic Analysis

18. OPS-1 Water Conveyance Assessment

Information obtained as part of these studies included with this RSP, combined with existing information, will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the Federal Power Act. If needed, new protection, mitigation, and enhancement measures to address Project effects will be proposed in SCE's application for a new Project license.

In accordance with FERC's Process Plan and Schedule included in SD1, Stakeholders have until July 19, 2022, to file comments on the RSP, after which FERC will issue its Study Plan Determination by August 3, 2022.

This RSP and all relevant relicensing documents for the Project are available on SCE's KR3 Project relicensing website ([www.sce.com/kr3](http://www.sce.com/kr3)). In addition, the PSP is available on FERC's eLibrary.

SCE looks forward to our continued work with FERC staff and stakeholders on the KR3 Project relicensing. Should there be any questions or concerns regarding this filing, please contact David Moore, SCE Senior Project Manager, by phone at (626) 302-9494 or via email at [david.moore@sce.com](mailto:david.moore@sce.com).

Sincerely,

DocuSigned by:  
  
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Southern California Edison Company

Enclosures:

- Enclosure A – Revised Study Plan

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# REVISED STUDY PLAN AND RESPONSE TO COMMENTS



## KERN RIVER NO. 3 HYDROELECTRIC PROJECT *FERC PROJECT No. 2290*



July 2022

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Attachment 3 Study Plan Comment Response Matrix

Attachment 4 SCE Revised Study Plans

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**LIST OF ACRONYMS AND ABBREVIATIONS**

AIR	Additional Information Request
APE	Area of Potential Effects
AW	American Whitewater
BMI	Benthic Macroinvertebrate
CDFW	California Department of Fish and Wildlife
CEFF	California Environmental Flows Framework
CFR	Code of Federal Regulations
cfs	cubic feet per second
DO	dissolved oxygen
eDNA	environmental DNA
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
gbif	global biodiversity information facility
ILP	Integrated Licensing Process
ISR	Initial Study Report
KR3	Kern River No. 3
KRB	Kern River Boaters
KRFF	Kern River Fly Fishers
NEPA	National Environmental Policy Act
NFKR	North Fork Kern River
NHPA	National Historic Preservation Act
NOI	Notice of Intent
NPS	National Park Service
O&M	operation and maintenance
PAD	Pre-Application Document
PM&E	Protection, Mitigation, and Enhancement
Project	Kern River No. 3 Hydroelectric Project
PSP	Proposed Study Plan
QC	quality control
RSP	Revised Study Plan
SCE	Southern California Edison Company

SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Officer
SQF	Sequoia National Forest
Stakeholders	regulatory agencies, non-government organizations, and other interested parties
SWAMP	Surface Water Ambient Monitoring Program
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S Fish and Wildlife Service
USGS	U.S. Geological Survey
USR	Updated Study Report
VES	Visual Encounter Surveys

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## 1.0 INTRODUCTION

### 1.1. INTRODUCTION

Southern California Edison (SCE) Company is the Licensee, owner, and operator of the Kern River No. 3 (KR3) Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) Project No. 2290. SCE currently operates the Project under a 30-year license that was issued by FERC on December 24, 1996 (77 FERC ¶ 61,313), which was subsequently amended in 1997 (81 FERC ¶ 61,162), 2004 (107 FERC ¶ 62,136), and 2019 (166 FERC ¶ 62,049). Because the current license will expire on November 30, 2026, SCE is seeking a license renewal for continued operation and maintenance (O&M) of the Project.

Pursuant to the Code of Federal Regulations, Title 18, Section 5.13 (18 CFR §5.13), SCE is filing this Revised Study Plan (RSP) with FERC within 30 days following the deadline for comments in support of Project relicensing. This RSP incorporates many of the comments and new study requests provided by regulatory agencies, non-government organizations, and other interested parties, collectively referred to as Stakeholders.

#### 1.1.1. BACKGROUND

On September 22, 2021, SCE filed a Notice of Intent (NOI) and Pre-Application Document (PAD) to initiate the Integrated Licensing Process (ILP) to obtain a new license for the KR3 Project. As part of the PAD, SCE included 10 draft study plans for Stakeholders to review and comment. FERC issued Scoping Document 1<sup>1</sup> (SD1) on November 21, 2021, with the intention to advise all interested parties of the proposed scope of FERC's National Environmental Policy Act (NEPA) document for the Project (i.e., an Environmental Impact Statement or Environmental Assessment) and solicited comments and suggestions on the preliminary list of issues and alternatives to be addressed in the NEPA document. FERC also requested interested parties to identify any studies that would help provide a framework for collecting pertinent information on the resource areas under consideration for FERC's NEPA document with a deadline of January 20, 2022, to file comments. Based on comments filed with FERC in response to the PAD, SD1, and Stakeholder study requests, FERC issued Scoping Document 2<sup>2</sup> (SD2) on March 4, 2022, that included a revised list of issues to address in the NEPA document.

In accordance with 18 CFR §5.11, SCE developed a Proposed Study Plan (PSP) for the Project that was filed with FERC and made available to Stakeholders on March 4, 2022 (SCE, 2022). The purpose of the PSP was to present the studies proposed by SCE and address the comments and study requests submitted by resource agencies and other Stakeholders. Pursuant to 18 CFR §5.11(e), SCE held a public meeting virtually on March 23, 2022, with the purpose of clarifying the PSP, explaining any initial information

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<sup>1</sup> Scoping Document 1 for the Kern River No 3. Hydroelectric Project (FERC Accession No. 2021112-3052) ([eLibrary | File List \(ferc.gov\)](#)).

<sup>2</sup> Scoping Document 2 for the Kern River No 3. Hydroelectric Project (FERC Accession No. 20220304-3000) ([eLibrary | File List \(ferc.gov\)](#)).

gathering needs, and addressing any outstanding issues associated with the PSP. The PSP meeting was attended by representatives from SCE and its consultants, in addition to regulatory agencies, non-government organizations, and other interested parties (Attachment 1). Stakeholders were afforded 90 days from the date of PSP filing (i.e., until June 6, 2022, as June 4 fell on a weekend) to provide comments on the PSP or to request additional studies.

Stakeholders filed timely written correspondence with FERC providing general comments about the Project, SCE's PSP, FERC's SD2, and additional or updated study requests, as further described in Section 2.0, *Revised Study Plan*, of this RSP. A complete list of Stakeholders who filed comments are provided in Attachment 2.

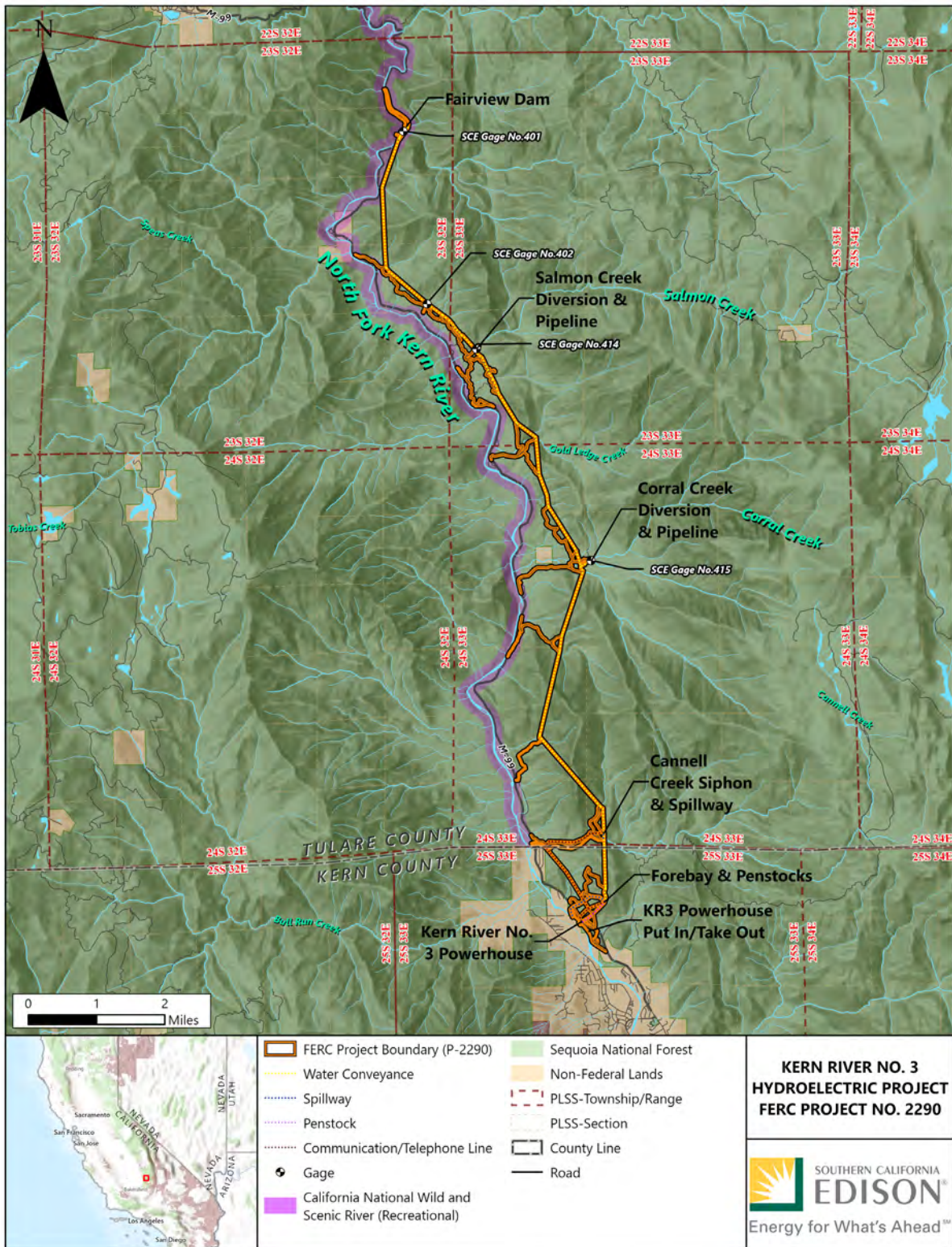
Based on comments and questions raised during the PSP meeting and written comments submitted to FERC, SCE conducted focused outreach with American Whitewater (AW) and the U.S. Forest Service (USFS), Sequoia National Forest (SQF) between April and June 2022 for the purpose of collaborating and discussing outstanding questions or comments regarding SCE's PSP.

As presented in FERC's SD1 Appendix A (FERC, 2021), Stakeholders may file comments on this RSP within 15 days of filing (i.e., on or before July 19, 2022). Within 30 days of filing this RSP, FERC will issue its Study Plan Determination, which will identify all studies and information necessary to meet its NEPA obligations and information required under the Federal Power Act (FPA).

## **1.2. PROJECT DESCRIPTION**

The Project is located on the North Fork Kern River (NFKR), Salmon Creek, and Corral Creek near the town of Kernville in Kern and Tulare Counties, California, approximately 40 miles northeast of Bakersfield, California. The closest towns to the Project are Kernville, Woodford Heights, and Lake Isabella.

Project facilities are primarily located on federal lands within SQF, with a small amount within SCE ownership around the powerhouse. The Project is a run-of-river project with no water storage and a total installed capacity of 40.2 megawatts. Primary Project features include a primary intake diversion dam, water conveyance system consisting of concrete-lined arched tunnels, covered and open concrete box flumes, a metal siphon, two smaller diversions and conduits, a forebay, two penstocks, and a powerhouse (Figure 1.2-1).



PLSS = Public Land Survey System

**Figure 1.2-1. Kern River No. 3 Hydroelectric Project Map.**



### 1.3. ONGOING FERC LICENSE REQUIREMENT: LICENSE ARTICLE 411—KERN RIVER No. 3 PROJECT FISH MONITORING PLAN

In addition to studies included in this RSP, SCE is currently implementing the KR3 Project *Fish Monitoring Plan* (Entrix, 1997), developed in response to License Article 411 of the existing License, to provide information on fish abundance in the Project Vicinity. The plan calls for monitoring fish population at five locations along the NFKR every 5 years for the term of the license using electrofishing and direct observation methodologies. Prior fish monitoring was conducted in 1998, 2006, 2011, and 2016. The fish survey planned for 2021 was postponed to October 2022 due to the Windy Fire, which prolonged a scheduled Project outage. Shortly thereafter, a rain event occurred over the burn area, which increased flow and turbidity in the NFKR and resulted in unsuitable survey conditions. As a result, SCE consulted with resource agencies and requested their concurrence with postponing the fish population monitoring until 2022.<sup>3</sup> On February 17, 2022, FERC issued an Order granting extension of time to file the fish population monitoring report until March 1, 2023.<sup>4</sup> SCE plans to complete the surveys in October 2022 and have the data available for Stakeholder review as part of the current relicensing effort.

Per the plan, monitoring is conducted at two sites upstream and two sites downstream of Fairview Dam, and one site lower in the Fairview Dam Bypass Reach.<sup>5</sup> The upper four sites targeted trout populations (e.g., rainbow and brown trout [*Oncorhynchus mykiss* and *Salmo trutta*]), with the uppermost site located 3.3 miles upstream of Fairview Dam within the special regulation section and less subject to the effects of hatchery trout and high angling pressure. The lowermost site was intended to target native minnow populations (e.g., Sacramento Pikeminnow [*Ptychocheilus grandis*] and hardhead [*Mylopharodon conocephalus*; California Species of Special Concern]). The Project *Fish Monitoring Plan* (Entrix, 1997) is intended to supplement the multi-agency, basin-wide fishery assessment program under the *Upper Kern Basin Fishery Management Plan* (Stephens et al., 1995).

The methods outlined in the plan have been reviewed and updated since 1997 in consultation with California Department of Fish and Wildlife (CDFW), SQF, U.S. Fish and Wildlife Service (USFWS), and the National Park Service (NPS) to accommodate updates to field methods and streamflow conditions, but the approach remains generally consistent to provide long-term comparison of the results. SCE in consultation with the resource agencies modified the upcoming fish population monitoring methods to:

- Continue with direct observation as the primary method at the two sites upstream of Fairview Dam;

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<sup>3</sup> 2021 Fish Population Monitoring-Request for Postponement for Kern River No. 3 Hydroelectric Project (FERC Accession No. 2021209-5193) ([eLibrary | File List \(ferc.gov\)](#)).

<sup>4</sup> FERC Order Granting Extension of Time to File Fish Population Monitoring Report (FERC Accession NO. 20220214-3013) ([eLibrary | File List \(ferc.gov\)](#)).

<sup>5</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse trailrace.



- Add multiple pass snorkeling at all snorkel sites to provide populations abundance estimates with confidence intervals, allowing for more direct comparison to electrofishing results;
- Allow for nighttime snorkeling when trout may be more active;
- Replace electrofishing/mark-recapture with multiple-pass electrofishing methods; and
- Expand the downstream-most site to include snorkeling within deeper pool habitat to target adult hardhead habitat.

SCE is also proposing to add at least two additional snorkel sites along the Fairview Dam Bypass Reach between Hospital Flat Campground and the KR3 Powerhouse during the 2022 surveys to identify the upstream extent of the hardhead population and determine if hardhead are still present within the bypass reach. Additionally, SCE will survey the impoundment pool to confirm species composition within the diversion pool.

Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, amphibians, Bald Eagle, Osprey, and Great Blue Heron) on data sheets and will report this information in the Technical Memo for use by other studies during the relicensing process.

Results of the past four monitoring efforts show that the Fairview Dam Bypass Reach supports both coldwater (trout) and transitional-zone (hardhead, pikeminnow, and sucker) assemblages with high variability in abundances across survey years. Although the area is heavily stocked with trout, Sacramento sucker (*Catostomus occidentalis*), and Sacramento pikeminnow remain the most abundant species, yet hardhead, which were previously abundant at the lowermost site, have not been observed since 1998. Rainbow trout show signs of successful spawning; however, both naturally produced and hatchery-raised trout declined abruptly at all monitoring sites following dry water years (e.g., drought conditions in 2012 through 2016 and 1987 through 1992 [SCE, 2017]). Results of the past studies are further summarized in SCE's PAD filed September 22, 2021 (SCE, 2021). Copies of past monitoring reports can be found on FERC's eLibrary ([eLibrary | File List \(ferc.gov\)](#)) and are also provided on SCE's KR3 Relicensing website under the "Reference Documents" section: [www.sce.com/kr3](http://www.sce.com/kr3).

#### **1.4. WILD AND SCENIC RIVER SYSTEM**

On November 24, 1987, the Wild and Scenic Rivers Act was amended under Section 3(a) to include the North and South Forks of the Kern River as a component of the National Wild and Scenic Rivers System. The amendment also specifically states that:

“(c) Nothing in this Act shall affect the continued operation and maintenance of the existing diversion project, owned by Southern California Edison on the North Fork of the Kern River, including reconstruction or replacement of facilities to the same extent as existed on the date of the enactment of this paragraph.”

Some Project features including Fairview Dam, portions of the water conveyance system, and Project access roads within Tulare County fall within the Wild and Scenic River corridor. The KR3 Powerhouse, siphon, and penstocks are not located within the designated river corridor.

The Wild and Scenic reach of the NFKR within the Project Area is classified as “Recreation” opportunity class. “Recreation” is described as the most modified setting and includes visitor and other user impacts, consisting primarily of long-lasting disturbances of soil and vegetation throughout the area, with modifications that are visually obvious. Additionally, encounters with other recreational users are expected to be frequent, as opportunities to experience river-related activities are easily accessible to the public (USFS, n.d.).

Additionally, the USFS has evaluated and included a recommendation that Salmon Creek from the headwaters near Cannell Peak and Sirretta Peak to the confluence with the NFKR, including SCE’s Salmon Creek Diversion, eligible for inclusion as Wild and Scenic Rivers (USFS, 2019). However, Congress has not designated this reach as a Wild and Scenic river.

It is SCE’s opinion that the existing information identified in the PAD, any new information collected as part of the Study Plans included herein, and ultimately the Project effects analysis completed as part of the Draft and Final License Applications, will include sufficient information for the SQF “... to determine whether any proposed water resources projects will have a direct and adverse effect on the values for which the river was established,” in accordance with Section 7(a) requirements (36 CFR § 297.4).

## **2.0 REVISED STUDY PLAN**

This RSP provides new and modified study plans based on comments in FERC’s SD2, comments filed by Stakeholders on the PSP, and on focused consultation to address additional questions on individual Study Plans. The Study Plans were developed to gather information to supplement the existing information summarized in the PAD.

In its PSP filing, SCE included 15 Study Plans that encompass various resource topics including water, biological, botanical, recreation, land use, socioeconomics, geology, and Project operations. Based on SCE’s review of the requested study modifications and Stakeholder study requests, this RSP includes 18 Study Plans: one previously developed Study Plan was split into two studies (see BIO-2 and BIO-5); and two new Study Plans related to benthic macroinvertebrates (BMI; BIO-4) and stream habitat typing (BIO-6) (Table 2-1). The majority of the previously proposed studies were modified in some way in response to comments received.

**Table 2-1. SCE Revised Study Plans**

<b>Study Plan Title</b>	<b>Modified from PSP or New Study Plan</b>
WR-1 Water Quality	Modified
WR-2 Hydrology	Modified
BIO-1 Foothill Yellow-legged Frog	Modified
BIO-2 Special-status Salamanders	Modified
BIO-3 General Wildlife Resources	Modified
BIO-4 Benthic Macroinvertebrate	New Study Plan
BIO-5 Western Pond Turtle	Modified, split from BIO-2
BIO-6 Stream Habitat Typing	New Study Plan
BOT-1 General Botanical Resources	Modified
REC-1 Whitewater Boating	Modified
REC-2 Recreation Facilities Use Assessment	Modified
REC-3 Recreation Facility Condition Assessment	No Changes
CUL-1 Cultural Resource	No Changes
TRI-1 Tribal Resource	No Changes
LAND-1 Road Condition Assessment	Modified
GEO-1 Erosion and Sedimentation	No Changes
SOCIO-1 Socioeconomic Analysis	Modified
OPS-1 Water Conveyance Assessment (previously title OPS-1 Tunnel Assessment)	Modified

## **2.1. COMMENTS RECEIVED**

Over 40 comments on SCE’s PSP and general interest statements about the Project relicensing were filed with FERC between May and June 2022. In some instances, the same comment was filed multiple times. Comments directly related to SCE’s PSP filing (i.e., comments on proposed study plans and/or updated study plan requests) were received from AW, CDFW, Kern River Boaters (KRB), Kern River Fly Fishers (KRFF), NPS, SQF, USFWS, and three individual members of the public.

A list of all Stakeholders who filed comment letters on the PSP are provided in Attachment 2, and all comment letters can be accessed via FERC’s eLibrary at <https://elibrary.ferc.gov/eLibrary/> under docket P-2290.

In addition to comments received by federal and state resource agencies, there is active public interest and participation from local whitewater and angling groups, as many

individuals filed comments about their observations and opinions about the conditions of the NFKR around the Project Area. SCE acknowledges and appreciates the time and effort of all Stakeholders to submit comments regarding the Project licensing. Information obtained as part of these studies included with this RSP combined with existing information will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the FPA.

SCE reviewed all Stakeholder comment letters; however, this RSP focuses on study modification requests associated with the PSP and any new study plan requests. General comments about the Project as well as comments on Project decommissioning previously addressed by FERC in SD2, are not addressed in this RSP.

SCE's response to comments specifically related to SCE's PSP and Stakeholder proposed studies are included in Attachment 3, *Study Plan Comment Response Matrix*, which is provided to assist Stakeholders in their review of SCE's RSP as required by 18 CFR § 5.13(a). However, SCE's absence of a reply to any comment does not imply that SCE agrees with the comment, and SCE reserves the right to reply to all comments at the appropriate time in this relicensing. Table 2.1-1 lists the studies for which specific comments were submitted in response to SCE's PSP, as well as new study requests.

**Table 2.1-1. Stakeholders who Commented on SCE’s Proposed Study Plan or Submitted Additional Study Requests**

	SQF	CDFW	USFWS	AW	NPS	KRB	KRFF	Neil Nikirk	KRB/KRFF	Richard Norman	Eric Kroh
General PSP Comment								X			
<b>SCE Proposed Studies</b>											
WR-1 Water Quality	X					X		X			
WR-2 Hydrology						X		X			
BIO-1 Foothill Yellow-legged Frog	X	X	X			X		X			
BIO-2 Western Pond Turtle and Special-Status Salamanders <sup>a</sup>	X					X		X			
BIO-3 General Wildlife Resources	X	X						X			
BIO-4 Benthic Macroinvertebrate (New)	X					X		X			
BOT-1 General Botanical Resources	X							X			
REC-1 Whitewater Boating	X			X	X	X		X		X	
REC-2 Recreation Facilities Use Assessment	X			X	X	X					
REC-3 Existing Recreation Facilities Condition Assessment						X					
CUL-1 Cultural Resources	X										
TRI-1 Tribal Resources	X										
LAND-1 Road Condition Assessment	X										
GEO-1 Erosion and Sedimentation	X										
SOCIO-1 Socioeconomic Analysis	X			X	X	X		X			
OPS-1 Tunnel Assessment	X			X		X		X			X

	SQF	CDFW	USFWS	AW	NPS	KRB	KRFF	Neil Nikirk	KRB/KRFF	Richard Norman	Eric Kroh
<b>Stakeholder Proposed Studies</b>											
KRB SR-1: Aesthetic Flows Updated Study Proposal						X		X			
KRB SR 2: Water Quality Flows Updated Study Proposal						X					
KRB SP-3: Enjoyable Angling Flows Updated Study Proposal						X	X	X			
KRB SR-4: Conveyance, Forebay, and Penstock Safety Updated Study Proposal						X					
KRB SR-5: Flow Travel Times Updated Study Proposal						X					
KRB SR-6: Tunnel Maintenance Flows Updated Study Proposal						X					
KRB SR-7: Environmental Flows Updated Study Request / Minimum Fish Flows						X		X	X		
KRB SR-8: Whitewater Flows Updated Study Proposal						X					
KRB SR-9: Comparative Whitewater Opportunities Updated Study Proposal						X					
Fish Population (Determine Populations of the Kern River Rainbow below and above Fairview Dam)							X	X			
Stream Habitat Typing	X										
Diversion for the Hatchery Flow										X	

AW = American Whitewater; CDFW = California Department of Fish and Wildlife; KRB = Kern River Boaters; KRFF = Kern River Fly Fishers; NPS = National Park Service; SQF = Sequoia National Forest; USFWS = U.S Fish and Wildlife Service

Notes:

<sup>a</sup> In response to comments received, this study plan was split into 2 studies: *BIO-2 Special-status Salamanders* and *BIO-5 Western Pond Turtle*.

### 2.1.1. MODIFICATIONS TO SCE PROPOSED STUDIES

In the PSP filed March 4, 2022, SCE included 15 Study Plans based on resource issues and additional information needs identified during early outreach and engagement with Stakeholders, and specific comments or recommendations stated in the comment letters. After evaluation of FERC's SD2, comments received from Stakeholders on the PSP, and comments received during focused outreach meetings held with Stakeholders, SCE has revised a majority of the 15 Study Plans and added 3 new Study Plans (see Table 2-1). Section 2.2 below provides a summary of each proposed Study Plan and any modifications made in response to Stakeholder comments.

## 2.2. SUMMARY OF SCE'S REVISED STUDIES

SCE is proposing 18 studies as part of this RSP filing, as depicted in Table 2-1. This section provides an overview of each Study Plan and summarizes the changes made in response to Stakeholder comments received. Detailed responses to individual Stakeholder comments are included in Attachment 3.

### 2.2.1. WR-1 WATER QUALITY

SCE proposes *WR-1 Water Quality* as part of this RSP to characterize stream temperature, dissolved oxygen (DO), and bacteria levels during summer months to assess Project-related effects on aquatic habitat. Project operations divert streamflow and have the potential to alter water temperatures and DO concentrations in the NFKR downstream of Fairview Dam, Salmon Creek below the Project diversion, Corral Creek below the Project diversion, and the NFKR downstream of the KR3 Powerhouse. The Project also provides water-related recreation opportunities that may contribute to elevated bacteria concentrations in the Project Area. The full study plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

PSP comments on WR-1 were filed by the SQF, KRB, and Neil Nikirk, which generally included:

- Clarification on methods and approach regarding the temperature and DO monitoring, such as monthly logger download frequency, in-stream placement of loggers, and duration of logger deployment;
- Consideration for the inclusion of temperature modeling; and
- Clarification on methods and approach regarding additional bacterial sampling for fecal coliform and arsenic sampling.

SCE has addressed or provided clarification regarding the specific comments and suggested edits in the Study Plan and responded to comments in the Study Plan Comment Response Matrix included as Attachment 3 to this RSP. Modifications to the RSP include: (1) revision of the methods to specify approximate monthly frequency of logger downloads; (2) extension of the 2022 temperature and DO logger deployment through spring 2023 to capture shoulder and winter seasons; (3) three additional fecal

coliform sampling sites, within the Fairview Dam Bypass Reach at monitoring Site 3, WQ-NFKR-10.9 at NFKR at Gold Ledge Campground; Site 8, WQ-CC-0.4 Corral Creek upstream of its confluence with the NFKR (if flow is present); and Site 10, WQ-SC-0.05 Salmon Creek upstream of its confluence with the NFKR (if flow is present); and (4) clarification that a stand-alone Technical Memo will be provided to Stakeholders that will include results, graphics, and other material identified in the Study Plan.

SCE also noted in WR-1 that water temperature and DO loggers were deployed between June and September 2021, at the same locations described in WR-1 to collect 2 years of summer data. The summer months were targeted, as any effects of Project operations (i.e., diversion of flows) on water temperature and DO would be most substantive when water temperatures are highest (i.e., between June 1 and September 30). Outside of this period, there are several environmental factors that reduce or minimize any warming effect, including decreased air temperatures and decreased solar heating. However, SCE has revised the Study Plan to include one continuous year of temperature and DO data (spring 2022 through spring 2023).

Comments not adopted include additional or modified temperature and DO sampling sites, additional temperature modeling, and modifications to the proposed water quality components. WR-1 includes ten water temperature and DO sampling sites that were selected to collect representative temperature and water quality data throughout the Project Area. The proposed sampling sites are sufficient to meet the stated objectives of the Study Plan; additional sampling sites would not contribute information needed to describe existing conditions.

Additional temperature modeling is also not included with this Study Plan, as a prior water temperature model has already been completed for the Fairview Dam Bypass Reach. The effect of the Project and flows on water temperature is well studied and summarized in Section 5.2.4.3 of the PAD, filed September 22, 2021 (SEC, 2021). Furthermore, water temperature monitoring and modeling were conducted as a requirement of the existing license to identify whether the new (i.e., current) minimum instream flows would be sufficient to maintain temperatures below 20 degrees Celsius midway within the bypass reach when stream temperatures upstream of Fairview Dam are 17 degrees Celsius or less. The modeling and subsequent monitoring found that the current instream flows were sufficient to maintain these temperatures.

Lastly, bacterial sampling proposed in WR-1 is consistent with requirements in the State Water Board Basin Plan (State Water Board, 2018); therefore, SCE is sampling for total fecal coliform rather than isolating human from animal bacteria. SCE has also not included arsenic sampling; arsenic is naturally present in the watershed, and the Project does not contribute to or alter levels. Data from the NFKR at Kernville (see PAD Section 5.2.4.4, Table 5.2-6 [SCE, 2021]) indicate that arsenic concentrations remain variable and occasionally elevated, including areas with full (i.e., unimpaired) flow.



### 2.2.2. WR-2 HYDROLOGY

SCE proposes *WR-2 Hydrology* as part of this RSP to compile current license term hydrologic gage data in addition to providing various statistical parameters, including a calculation of natural functional flow ranges for the NFKR upstream of Fairview Dam in wet, moderate, and dry years, consistent with Section A of California Environmental Flows Framework (CEFF) (CEFWG, 2021; Stein et al., 2021). Gage data for existing stream gages along the NFKR from SCE, U.S. Geological Survey (USGS), and/or U.S. Army Corps of Engineers (USACE) will be provided to interested Stakeholders from October 1, 1996, through September 30, 2021 (water years 1997 through 2021). Hourly gage data from water years 2022 and 2023 will be compiled from SCE and USGS after the water year is complete and provided to interested Stakeholders. The full Study Plan with further details on the overall study and methodology is included in Attachment 4 to this RSP.

Comments on WR-2 were filed by KRB and Neil Nikirk, which generally included:

- Request for gage data, including the full period of record at a sufficient time scale to conduct an independent analysis;
- Inclusion of a flow travel time assessment;
- Additional statistical hydrologic analysis;
- Gage data for Salmon and Corral Creeks; and
- Clarification of the USACE and USGS reporting and quality control (QC) standards.

Additional comments were received by KRB, KRFF, Neil Nikirk, and a statement of support by the SQF, requesting an evaluation of instream flows using a portion of the CEFF approach (see also Section 2.3.1.1, *KRB SR-7: Environmental Flows Updated Study Request / Minimum Fish Flows*).

SCE did revise the Study Plan based on Stakeholder comments to include (1) additional years of hourly data for water years 2022 and 2023; (2) addition of flow exceedance probabilities and duration curves as part of the hydrology analysis; (3) clarification that the USACE and USGS reporting and QC standards will be described in the Technical Memo; and (4) calculation of natural functional flow ranges for the NFKR upstream of Fairview Diversion Dam in wet, moderate, and dry years, consistent with CEFF Section A (CEFWG, 2021; Stein et al., 2021).

SCE has stated that hourly gage data will be provided to interested Stakeholders following SCE's review and QC of the data. Through SCE's initial QC of the data, WR-2 has been modified to note that due to technological data storage limitations in the early portion of the current license period (water year 1996 through 2004), the data is not available at a finer time scale than what was already provided publicly (e.g., daily mean). Hourly gage data will be compiled and provided to Stakeholders from water year 2005 through water year 2023. The hourly gage data is a sufficient timescale to depict diurnal patterns of snowmelt and annual variability in water year types. SCE is still in the early stages of

completing the QC process; however, SCE is committed to providing the data to Stakeholders to allow for sufficient time to conduct their own independent review during the Study Implementation phase of relicensing.

As noted in SCE's comments filed with the PSP in March 2022, SCE adopted the Stakeholder request to include a travel time assessment (flow travel time) along the NFKR in the WR-2 *Hydrology* PSP; therefore, no changes were made to the RSP. WR-2 RSP includes a description on how flow travel times along the NFKR between Fairview Dam and Kernville will be calculated. Where existing and available flow data from both the SCE flow gage below Fairview Dam and the USACE flow gage at Kernville, data will be analyzed to detect changes in flow fluctuations. Flow travel times will be estimated (on an hourly level) as depicted from the shifts in flow recorded between the two gages.

The current FERC license only requires documentation of compliance with the stated minimum instream flow requirements at Salmon and Corral Creek diversions. As such, the diversions are configured so that the required instream flows are provided via a fixed-orifice release plate before any additional flow is diverted to the conveyance flowline. SCE and USGS routinely perform site visits to inspect and verify the proper function of the fixed-orifice structures. In accordance with State Bill-88, SCE submits annual reports documenting the monthly volume (acre feet) and maximum flows (cubic feet per second [cfs]) per water right reporting requirements. For these reasons, flow data for Salmon and Corral Creeks have not been included as part of WR-2 *Hydrology*.

### 2.2.3. BIO-1 FOOTHILL YELLOW-LEGGED FROG

SCE proposes *BIO-1 Foothill Yellow-legged Frog* as part of this RSP to evaluate habitat suitability for all foothill yellow-legged frog (*Rana boylei*) life stages and determine whether foothill yellow-legged frogs are present in the study area. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

The Project alters stream flows, which has the potential to affect the state-endangered foothill yellow-legged frog within Project-affected stream reaches on the NFKR, Salmon Creek, Corral Creek, and Cannell Creek. An assessment of potentially suitable habitat combined with Visual Encounter Surveys (VES) and environmental DNA (eDNA) sampling will be used to evaluate habitat suitability for all foothill yellow-legged frog life stages to determine whether foothill yellow-legged frogs are present in the Project Area.

Comments on BIO-1 were filed by SQF, CDFW, USFWS, KRB, and Neil Nikirk, which generally include:

- Request to verify foothill yellow-legged frog habitat suitability rankings using a combination of aerial imagery, video footage, and in-field habitat assessments under a variety of flow conditions;
- Suggestion to recruit citizen scientists to identify foothill yellow-legged frogs in the Project Area;

- Clarification and request for additional information regarding VES and eDNA sampling methodologies, including timing and location of surveys and number of samples collected;
- Additional study areas and sampling sites; and
- Recommendation to collaborate with regulatory agencies on sampling methodologies.

The BIO-1 RSP has been revised based on consultation with the SQF and in response to Stakeholder comments that include additional information to clarify details of the habitat suitability assessment including use of aerial imagery, video footage, and in-field habitat assessments within Project-affected stream reaches; and expanded the information regarding eDNA survey protocols, including further describing sample locations and number of samples proposed for collections.

SCE did not change the timing and methodologies for the VES and eDNA sampling, as assessing the habitat late in the summer is helpful for determining habitat suitability for foothill yellow-legged frogs, in accordance with peer reviewed methodologies. Understanding which areas dry up in late summer is useful in determining potential breeding habitat. SCE understands that California, and particularly the Kern watershed, is experiencing extremely dry conditions this year. Biologists will take that into consideration when qualifying suitable habitat. Biologists will use in-the-field habitat assessment as well as aerial imagery and drone footage to help determine habitat conditions. Furthermore, SCE did not modify the sampling locations or frequency, as SCE will collect eDNA samples every 100 meters along the length of each site and will include a location above the diversion and near the stream's confluence along Salmon, Corral, and Cannell Creeks, where accessible in accordance with methods developed by Bedwell and Goldberg (2020).

While SCE is using crowdsourced information to identify potential locations of foothill yellow-legged frogs (e.g., *iNaturalist* and the *global biodiversity information facility [gbif]*), trained biologists are still needed to conduct VES and eDNA surveys, which are proven to be highly effective to detect presence of small populations.

Based on their comments, SCE requests that the SQF provide any observations and anecdotal reports of foothill yellow-legged frogs within the Project Area to help further inform potential survey locations and sampling sites. If needed, the inclusion of a long-term monitoring program for foothill yellow-legged frogs within the Project Area will be addressed following the results of the BIO-1 study.

#### 2.2.4. BIO-2 SPECIAL-STATUS SALAMANDERS

SCE proposes BIO-2 *Special-Status Salamanders* (previously titled *BIO-2 Western Pond Turtle and Special-status Salamanders*) as part of this RSP to obtain additional information about their habitat and potential documentation in the study area. Salamanders are known to occur in the Project Vicinity, and one special-status wildlife species—Fairview slender salamander (*Batrachoseps bramei*)—is known to occur not only in the Project Vicinity, but also in the Project Area (CDFW, 2020). The full Study Plan

with further details on overall study and methodology is included in Attachment 4 to this RSP.

Comments specifically related to BIO-2 *Special-Status Salamanders* were received from SQF, KRB, and Neil Nikirk and include:

- Use additional sources of information to support the study as salamanders have secretive behavior and often live in habitats difficult for humans to traverse;
- Use protective decontamination measures;
- Remove Cover Boards from the study methodology;
- Include photo documentation if species is observed; and
- Expand the proposed study area.

In response to Stakeholder PSP comments, SCE has included the use of online information, including *iNaturalist*, to help determine potential population locations. However, while citizen science initiatives can be useful, it does not replace the need for highly trained biologists to conduct visual surveys. Likewise, as noted by the SQF, salamanders have a secretive behavior; therefore, SCE biologists have included the use of Cover Boards as they may provide suitable moist habitats for salamanders and increase the opportunity to document presence of the target salamanders and other species of wildlife. The Cover Boards will be placed in safe and accessible locations determined by the field staff and will use caution when setting and accessing the Cover Boards so as not to cause disturbance and to remain safe in the field. SCE recognizes the importance of using protective measures to prevent the spread of amphibian pathogens, and SCE's field biologists will implement appropriate decontamination techniques while in the field.

The habitat suitability study and focused VES are designed to look at areas potentially affected by SCE's O&M activities in conjunction with individual species habitat criteria; for BIO-2, that includes perennial streams, ephemeral creeks, dry ravines, and other areas matching the habitat description provided by Jockusch et al. (2012) for *B. bramei* and *B. altasierrae* and provided by Morey and Basey (1988) for *B. simatus* located within the FERC Project Boundary, including a 50-foot buffer in addition to the NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek. Therefore, no changes to the study area were made in BIO-2.

#### 2.2.5. BIO-3 GENERAL WILDLIFE RESOURCES

SCE proposes *BIO-3 General Wildlife Resources* as part of this RSP to obtain additional information about special-status wildlife or SQF Species of Conservation Concern in the study area. In response to PAD/SD1 Stakeholder comments, bat surveys were also added to the scope of work. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

Thirty special-status wildlife species were evaluated for their potential to occur in the Project Vicinity. With the exception of Fairview slender salamander (see discussion above for BIO-2), the remaining 29 species have not been documented in the Project Area but may occur based on geographic location and elevation of the Project and habitats present (SCE, 2021).

Comments on BIO-3 were received from SQF, CDFW, and Neil Nikirk and included:

- Expanding the proposed survey area;
- Recommendation to conduct full protocol-level surveys and acoustic sampling for the three listed riparian bird species as well as common songbirds;
- Further sub-divide BIO-3 into small independent studies; and
- Expand the list of species to evaluate potential Project impacts on their populations and include eDNA sampling.

SCE has revised BIO-3 based on Stakeholder comments to expand the survey area to include the Fairview Dam Bypass Reach from the river's edge to the outer edge of the riparian strip plus a 50-foot buffer, or to the edge of Mountain Highway 99, whichever is closer. For the remaining comments, SCE has provided the following supplemental information.

- The BIO-3 bat survey is intended to determine if bats are present in Project buildings through visual observations or via evidence of bat use, at locations where bats are most likely to be affected by Project O&M. Incidental observations of bats or bat use will be noted by field biologists when conducting BIO-3 field studies throughout the study area. If bats or bat use is detected, the information will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives.
- Protocol-level bird surveys are outside the scope necessary to evaluate Project-related effects as part of the relicensing process. Information obtained through the studies included with this RSP combined with existing information will be used to evaluate ongoing environmental effects due to Project operations.
- As applicable, the Technical Memo may include relevant sub-sections to describe the individual results of the various wildlife species detected. SCE does not think that further sub-dividing the Study Plan is necessary.

Additional species of interest mentioned by Stakeholders are addressed through other studies proposed in this RSP (*BIO-4 Benthic Macroinvertebrate*) and existing License requirements (License Article 411, *Fish Monitoring Plan*; see Section 1.3). Field biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog,

crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, and amphibians, Bald Eagle, Osprey, Great Blue Heron, and American dipper) on data sheets including their location and behavior, as applicable. Given the number of surveys throughout the Project Area that will include incidental observations for these species, SCE does not propose to include additional eDNA sampling.

#### 2.2.6. BIO-4 BENTHIC MACROINVERTEBRATE

SCE proposes *BIO-4 Benthic Macroinvertebrate* as part of this RSP to conduct an inventory and assessment of BMI diversity and abundance in the Fairview Dam Bypass Reach using an aquatic ecosystem health index and facilitate evaluation of water quality habitat for trout and wildlife along the NFKR within the Project Vicinity. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

Project operations alter flow in three bypass reaches, including the Fairview Dam Bypass Reach, which may affect water quality and influence BMI communities. Several comments on the PSP were filed by SQF, KRB, and Neil Nikirk requesting the inclusion of an assessment of BMI populations in the Project Area, and SQF requested a reach-scale habitat assessment.

Per request from SQF and FERC's inclusion of BMI in SD2, SCE developed *BIO-4 Benthic Macroinvertebrate* in consultation with the SQF. SCE also developed a separate Study Plan for a reach-scale habitat assessment (see Section 2.2.8, *BIO-6 Stream Habitat Typing*).

The BIO-4 study will conduct an inventory and assessment of BMI diversity and abundance in the Fairview Dam Bypass Reach using an aquatic ecosystem health index and facilitate evaluation of water quality habitat for trout and wildlife along the NFKR within the Project Vicinity. Sampling will be conducted using procedures based on the standard reach-wide benthos method for documenting and describing BMI assemblages and physical habitat outlined by the Surface Water Ambient Monitoring Program (SWAMP; Ode et al., 2016). Results of this study will be used to characterize BMI populations and assess stream condition in the Fairview Dam Bypass Reach. The SWAMP methodologies are not intended for small, steep, intermittent tributary streams, and thus, the study area does not include the bypassed tributary streams.

#### 2.2.7. BIO-5 WESTERN POND TURTLE

SCE proposes *BIO-5 Western Pond Turtle* (previously combined with BIO-2) as part of this RSP to obtain additional information to supplement the existing information about Western pond turtles and their habitat in the study area. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

Western pond turtles have been observed throughout the Kern River Valley, and most recently documented in the Project Vicinity on Cannell Creek near the Cannell Siphon and Spillway in 2013.

Comments specifically related to proposed revisions to the Western pond turtle study (BIO-5) were received from SQF, KRB, and Neil Nikirk and include:

- Use additional sources of information to support the study such as other online databases or use of drones;
- Use protective decontamination measures; and
- Expand the proposed study area.

This RSP expands the study area outside the FERC Project Boundary to include a habitat assessment along the Fairview Dam Bypass Reach. The habitat suitability study and focused VES are designed to look at areas potentially affected by SCE's O&M activities in conjunction with Western pond turtle habitat criteria, which includes perennial streams, ephemeral creeks, off-channel ponds, or wetlands located within the FERC Project Boundary, including a 50-foot buffer. The habitat suitability assessment also includes the NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek and the Fairview Dam Bypass Reach between Fairview Dam and the KR3 Powerhouse.

SCE is using crowdsourced information (i.e., *iNaturalist*) to help determine potential population locations. However, while citizen science initiatives can be useful, it does not replace the need for highly trained biologists to conduct visual surveys. Additionally, SCE's proposed VES methodology in BIO-5 is a scientifically accepted practice for detecting Western pond turtles; the use of drones is not expected to elicit new or additional information. Lastly, SCE recognizes the importance of using protective measures to prevent the spread of amphibian pathogens, and SCE's field biologists will implement appropriate decontamination techniques while in the field.

#### 2.2.8. BIO-6 STREAM HABITAT TYPING

SCE proposes *BIO-6 Stream Habitat Typing* as part of this RSP to conduct a reach-wide survey of habitat types and distribution within the Fairview Dam Bypass Reach. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

Project operations have the potential to alter stream flows, which may affect the type and distribution of stream habitat in the Fairview Dam Bypass Reach. BIO-6 is a new study that repeats the 1991 reach-wide habitat typing assessment using high-resolution aerial photographs or video of the Fairview Dam Bypass Reach to describe the current distribution of stream macrohabitats and describe any changes to habitat distribution resulting from large-scale debris flows following the 2002 McNally Fire.

Comments on *BIO-4 Benthic Macroinvertebrate* were filed by SQF, which included a request for a reach-scale habitat characterization of the Fairview Dam Bypass Reach to support the BMI assessment. Because Study BIO-4 uses the SWAMP methodologies, which do not rely on a reach-wide habitat assessment, this effort has been included as BIO-6 *Stream Habitat Typing*. All Stakeholder recommendations for this study were adopted.

### 2.2.9. BOT-1 GENERAL BOTANICAL RESOURCES

SCE proposes *BOT-1 General Botanical Recourses* as part of this RSP to obtain additional information regarding SQF Species of Conservation Concern that are either known to or have the potential to occur in the Project Area, and to document non-native invasive plants with high ecological impact in the Project Area. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

Comments related to BOT-1 were received from SQF and Neil Nikirk and include:

- Remove non-native species during field surveys;
- Use additional sources of information to support the study; and
- Expand the study area.

SCE has revised BOT-1 based on Stakeholder comments and expanded the survey area to include mapping of potentially suitable habitat for special-status plants along the Fairview Dam Bypass Reach riparian corridor. Additionally, as previously noted in BOT-1, SCE will perform a record search in both CalFlora and *iNaturalist* for rare species with habitat known to occur in the Project Area prior to performing surveys.

SCE does not recommend the removal of invasive species during field surveys as this process can be complex, time consuming, and may require additional equipment/transportation. Some species propagate more rapidly when cut or pulled out by the stem, leaving roots in the ground, and many require herbicides. Additionally, the disturbance of removal may provide additional habitat for non-native invasive species, as many are successful in disturbed soils and are likely to out-compete native plants. The removal of species requires additional study for specific locations and populations, effective control, and potential disturbance, such as use of herbicides or soil disturbance. Improper treatment has the potential to increase the spread of non-native invasive plants.

Following consultation with the SQF in March 2022, spring floristic surveys commenced in March and April 2022 due to favorable rainfall response of annual species in the study area. Reference populations for several of the target species were visited to confirm that known populations were identifiable at the time of the surveys. Summer surveys were completed in June 2022, and late summer/fall surveys are anticipated in August through September 2022. If potential habitat for special-status plants is found in the Fairview Dam Bypass Reach, late summer/fall (August through September) surveys will be conducted during the 2022 season, and spring (March through April) and summer (June through July) surveys will be conducted in 2023.

### 2.2.10. REC-1 WHITEWATER BOATING

SCE proposes *REC-1 Whitewater Boating* as part of this RSP to evaluate the whitewater boating opportunities and flow needs for a range of watercraft along the NFKR from Fairview Dam to the KR3 Powerhouse and the NFKR from the KR3 Powerhouse to the



Kern River Park in Kernville. The full Study Plan with further details on overall study approach and methodology is included in Attachment 4 to this RSP.

The study methods follow the three-phase approach described by Whittaker et al. (2005) including an online flow comparison survey with the following objectives:

- Describe the whitewater boating segments in the NFKR from Fairview Dam to Kernville including the length, whitewater difficulty, name of key rapids, and typical access locations for put-in and take-out.
- Identify the range of flows (minimum acceptable and optimum) that would provide whitewater boating opportunities in each whitewater segment for a variety of watercraft including, kayaks, rafts, packrafts, stand-up paddleboards, and body boards.
- Quantify the annual frequency that minimum acceptable and optimum whitewater flows occur in each whitewater segment with Project operations and unimpaired flows for each watercraft type.
- Document potential conflicts of boating flows with other recreation users and identify strategies to mitigate those conflicts.

Specific comments regarding modifications to REC-1 were received on the PSP from the following Stakeholders: AW, SQF, NPS, Neil Nikirk, and Richard Norman. Numerous other Stakeholders submitted general interest statements and comments in support of the formal comment letters listed above and included topics such as:

- Clarification on the proposed study area;
- Revision to the study goals and objectives, specifically questioning the need to include public safety and potential recreation user conflicts;
- The number of individuals to participate in Level 1 focused interviews and Level 2 site reconnaissance;
- The recommendation to conduct an on-water boating study;
- Refinement of the proposed Level 3 Intensive Study methodologies and duration; and
- Need for a Generation Value Assessment.

REC-1 has been revised based on consultation with AW and in response to Stakeholder comments to clarify the study area includes the 16-mile Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse and the NRKR segment from the KR3 Powerhouse to Kern River Park in Kernville. For the remaining comments, SCE has provided the following supplemental information.

Several commenters objected to including public safety concerns and potential conflicts of boating flows with other recreation users in the study goals and objectives. SCE intends to retain these study goals and objectives in the REC-1 RSP. Public safety is a real concern on the Kern River as over 300 drownings have occurred on the Kern River since 1968, including 2 deaths in the last year, per the Kern County Sheriff's Office. Flow fluctuations in the 16-mile Fairview Dam Bypass Reach for the purpose of whitewater recreation raise concerns for public safety. The REC-1 Updated Study Report (USR) will document the types of public safety concerns associated with whitewater releases using available information within the local community of Kernville specific to the NFKR, information from the SQF, and information from other FERC proceedings where whitewater releases occur. Similarly, whitewater boating flows have the potential to conflict with other users recreating in the bypass reach. Recreation uses occurring in and adjacent to the NFKR documented in the REC-2 study will be listed in the REC-1 USR. Potential flow related conflicts will be described based on REC-2 survey responses.

AW requested that the structured interviews in the Level 1 Desktop Analysis be open to all interested Stakeholders. SCE thinks 10 structured interviews is sufficient to collect the necessary information in the Level 1 Desktop Analysis of the REC-1 RSP. Furthermore, SCE must select a measurable number of interviews to fulfill the study requirements in reporting to FERC. Ten structured interviews encompass the range of watercraft commonly used on the NFKR and will provide sufficient information for the Level 1 Desktop Review of existing information. The intent of the structured interviews is not to be a definitive stand-alone report on the whitewater recreation in the study area but rather serve as an introductory guidance to the lead investigator as investigative tools for Levels 2 and 3 are developed. This number of structured interviews is sufficient for the Level 1 investigation designed to provide preliminary information about the resource. Additional investigative tools in Levels 2 and 3 also include opportunities for face-to-face interaction with river recreational users during the Level 2 site visit with study participants touring the whitewater river segments and the focus group during the Level 3 Intensive Study. Similarly, during the Level 2 Limited Reconnaissance, the group size (6 to 12 individuals) allows for diverse representation encompassing all watercraft types listed by the commenter including a range of skill levels and knowledge of the various river segments in the bypass reach. The whitewater community is encouraged to nominate individuals that can speak for a range of skill levels and watercraft. Limiting the group size to 6 to 12 individuals is important for safety and logistical planning, but more importantly allows for deeper conversations in the field with those individuals with direct knowledge of the river segments and flows for respective watercraft.

Several commenters requested implementing an on-water controlled flow study as part of the investigation because it allows boaters to rate a flow immediately rather than relying on memories of past experiences. SCE is not planning to implement a controlled flow study as part of the REC-1 RSP due in part to the lack of storage upstream of Fairview Dam coupled with the unpredictable snowmelt hydrograph in the NFKR. Instead of conducting a controlled flow study, SCE in collaboration with AW is working on an online single flow survey tool that will allow boaters to rate individual flows shortly after boating using a smartphone. The single flow survey will be complimentary to the online flow comparison survey but a shortened version asking questions about the most recent trip

completed. The single flow survey will allow boaters to evaluate a range of flows in the bypass throughout the year in real-time including flow enhancements where run-off patterns present these opportunities. The online single flow survey will address concerns raised by commenters about the inability to rate a past experience due to poor recall.

In meetings with SCE after release of the REC-1 PSP, AW expressed concern that knowledge gaps exist in the boating community on boating flows in the lower ranges due to the Project diversion. AW requested the study specifically investigate potential knowledge gaps in the Level 1 Desktop Analysis and Level 2 Limited Reconnaissance and then, where feasible, provide flow enhancements specifically targeting these flows during the Level 3 Intensive Study allowing boaters to rate these flows. As a result of these discussions, SCE in collaboration with AW revised Section 6.3 in the REC-1 RSP to state that SCE will attempt to enhance flows where potential gaps may exist in user experiences of flow conditions. Additionally, SCE extended the Level 3 study through Spring 2024, if warranted.

A Generation Value Assessment is not applicable nor supported by methods Whittaker et al. (2005) as part of REC-1. SCE will include a statement of Project costs and financing in the Application for New License, Exhibit D. Also, as FERC explained in SD2:<sup>6</sup>

“Commission policy is to evaluate the economics of hydropower projects, as articulated in Mead Corp., comparing the current cost to produce project power to an estimate of the cost to provide the same amount of energy and capacity for the region using the most likely alternative source of power (cost of alternative power). In keeping with the policy described in Mead Corp., SCE’s economic analysis is based on current electric power cost conditions and does not anticipate or estimate changes in fuel costs that could occur during a project’s license term.”

#### 2.2.11. REC-2 RECREATION FACILITIES USE ASSESSMENT

SCE proposes *REC-2 Recreation Facilities Use Assessment* as part of this RSP to identify to what extent and why visitors use developed recreation sites and dispersed camping areas within the FERC Project Boundary and along the Fairview Dam Bypass Reach. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

The NFKR is an active recreation corridor with numerous recreation facilities developed by the SQF. Two recreation sites within the FERC Project Boundary include Willow Creek Take-Out above the Fairview Dam on USFS lands and the KR3 Powerhouse Put-in/Take-out downstream of the KR3 Powerhouse on SCE-owned lands. The remaining recreation sites referenced in the study are located along the Fairview Dam Bypass Reach or are accessed from Project roads.

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<sup>6</sup> Scoping Document 2 for the Kern River No 3. Hydroelectric Project (FERC Accession No. 20220304-3000) ([eLibrary](#) | [File List \(ferc.gov\)](#)).

The study methodology includes visitor surveys (in-person and online questionnaires) and spot counts to accomplish the following revised study objectives:

- Evaluate recreation use at recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach, including both an assessment of the amount of recreation use that each site is receiving (including percent of capacity) and the recreation activities that occur at the site.
- Collect visitor feedback regarding their perception and experience at recreation facilities within the study area including but not limited to facility condition, level of crowdedness, angling opportunities, and the scenic landscape.
- Estimate future recreational demand and needs, including the need for additional recreation facilities and access enhancements.
- Assess consistency of current recreation opportunities with the laws, regulations, policies, and guidelines described in the *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988).

Comments on the REC-2 PSP were received from KRB, NPS, SQF, and AW and included topics such as:

- Request for clarification on Study Goals and Objectives;
- Expansion of study area, including dispersed camping areas;
- Clarify and/or expand on the visitor survey methodology, such as inclusion of bi-lingual options and online components, and incorporate shoulder and winter recreation users.
- Recommendations regarding the topics and/or questions to include on the visitor survey questionnaire, including coordination with SOCIO-1 study needs.

Additional comments regarding aesthetics and enjoyable angler flow studies were submitted from KRB and Neil Nikirk. Mr. Nikirk proposed including questions about these topics as part of the REC-2 surveys. SCE has incorporated many of the comments received regarding REC-2 and has adopted Mr. Nikirk's suggestion to incorporate angling and aesthetics questions as part of this study.

Furthermore, SCE has consulted with the SQF regarding the survey approach and survey questionnaire to address their comments and concerns and have included a revised questionnaire in REC-2. The questionnaire includes five sections: (1) general information and visitor demographics; (2) description of user activities (e.g., length of stay, size of party, activities participated in); (3) user perceptions and experience about activities engaged in during their visit. Focused questions about angling and/or scenic or wildlife viewing (if selected as an activity participated in) are included to collect additional information about their visit; (4) space for visitor to provide general feedback opinions; and (5) visitor expenditure questions to support the SOCIO-1 Study Plan.

SCE also recognizes that including a second option for implementing the visitor survey would be beneficial in gathering information needed in order capture recreation use within the FERC Project Boundary seasonality, while also reaching a broader user base not captured during the intercept surveys. SCE has revised the study to include an online version of the survey to be available from approximately April 2023 through March 2024. Other changes include an English and Spanish survey option (both in-person and online), and the addition of spot counts to obtain visitor use numbers to note the types of activities observed.

#### 2.2.12. REC-3 RECREATION FACILITY CONDITION ASSESSMENT

SCE proposes *REC-3 Recreation Facility Condition Assessment* as part of this RSP to evaluate the condition of and public accessibility to existing recreation facilities within the FERC Project Boundary and along the Fairview Dam Bypass Reach. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

In response to SQF comments on the PAD and SD1, SCE developed this study to meet the following objectives:

- Conduct a facility inventory and condition assessment at existing recreation facilities and associated parking areas, including an evaluation of signage and public safety features.
- Assess the condition and potential for universal accessibility, where feasible.
- Identify existing dispersed recreation sites, including documentation of existing conditions.

One comment was received on the PSP from KRB indicating that they feel there is a “lack of a plausible, identified nexus” with regards to the sites selected for inclusion in this study (see Attachment 3, *Study Plan Comment Response Matrix*). SCE appreciates the comments from KRB but supports SQF’s request to collect additional information on the recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach as this information will support discussions about SQF’s recreation management direction and management activities occurring on USFS lands in the Project Vicinity. Additionally, the Fairview Dam Bypass Reach down to the Kern/Tulare County Line is located within the Kern Wild and Scenic River and is managed under the North and South Forks of the Kern Wild and Scenic River Comprehensive Management Plan (USFS, n.d.). The information obtained from this study will support SQF’s analysis in accordance with Section 7(a) requirements (36 CFR § 297.4).

#### 2.2.13. LAND-1 ROAD CONDITION ASSESSMENT

SCE proposes *LAND-1 Road Condition Assessment* as part of this RSP to conduct an inventory of all roads to document current road conditions in the FERC Project Boundary and to describe the amount and type of road use on open access roads (i.e., no gate)

between the public and SCE. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

Within the FERC Project Boundary, there are 33 access roads totaling more than 18 miles, almost all of which are on federally owned land. SCE conducts maintenance on these roads to sustain access to Project facilities; however, many of the Shared Access Roads are accessible by the public to access other areas within the SQF.

In response to SCE's PAD and FERC's SD1, the SQF proposed a road and facility assessment study. SCE adopted SQF's request and developed two new study plans (LAND-1 and GEO-1) for the PSP. In response to SCE's PSP, the SQF requested clarification on some of the data collected as part of the road inventory in addition to obtaining additional information about trails that venture off Project and Shared Access Roads.

LAND-1 partially adopts the SQF's comments and has expanded the scope of the study to include spot counts and documentation of SCE's road use to characterize use patterns along Project and Shared Access Roads. However, SCE did not include mapping or assessing "informal" trails created by the public located outside of the FERC Project Boundary, as SCE's O&M responsibility is limited to the FERC Project Boundary. SCE did include that if "informal" trails were observed during the road inventory, their locations would be noted and shared with the SQF. Additionally, this study does not include the SQF's request to include the analysis of sediment or erosion from roadways. Refer to Section 2.2.14, *GEO-1 Erosion and Sedimentation*, which examines erosion, sedimentation, and related transport at Project facilities.

#### 2.2.14. GEO-1 EROSION AND SEDIMENTATION

SCE proposes *GEO-1 Erosion and Sedimentation* as part of this RSP to conduct an inventory and focused assessment of erosion and sedimentation at Project spillways, diversions, buildings, and other facilities to characterize the extent of Project impacts on erosion. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

In response to SCE's PAD and FERC's SD1, the SQF proposed a road and facility assessment study. SCE adopted SQF's request and developed two new study plans (LAND-1 and GEO-1) for the PSP. The SQF comment to SCE's PSP included an expansion of the study to include a broader range of erosion and sediment related factors and an assessment of the effects of flow manipulation on post-fire erosion, sedimentation, and accretion in the Project Area. SQF expressed concern that Project flow diversion impairs the system's ability to respond to and recover from post-fire conditions.

No revision to the Study Plan was made in response to this comment because existing information, and other monitoring efforts identified minimal changes to substrate composition and a relatively stable channel morphology prior to and following the 2002 McNally fire. Existing monitoring data over the current license period indicates no long-term substantive deposition or scouring at monitoring sites within the Fairview Dam

Bypass Reach. Additionally, SCE included a new Study Plan in this RSP to conduct a reach-scale habitat assessment (see Section 2.2.8, *BIO-6 Stream Habitat Typing*) to further describe the current distribution of stream macrohabitats and to note any changes to habitat distribution resulting from large-scale debris flows following the 2002 McNally Fire.

#### 2.2.15. SOCIO-1 SOCIOECONOMIC ASSESSMENT

SCE proposes *SOCIO-1 Socioeconomic Assessment* as part of this RSP to supplement existing information about economic conditions within and around the Project Vicinity. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

This will be primarily a desktop study, relying on data collected from the REC-2 visitor study and other existing data sources (e.g., National Visitor Use Monitoring Program recreation and expenditure data for USFS, USFS Concessionaire data, recreation and expenditure literature). The economics in the Project Vicinity will be analyzed using IMPLAN input-output modeling software.

SCE received comments on this Study Plan from AW, NPS, KRB, SQF, and Neil Nikirk and recommended the following changes to the SOCIO-1 PSP:

- Expand the scope of the analysis to include full range of flows, not just current flow conditions;
- Include an evaluation of the Project's economic impact on recreation and tourism in the Fairview Dam Bypass Reach;
- Exclude the context of socioeconomic impacts from recreation in the greater Kern River Valley area;
- Engage local businesses for additional sources of information;
- Expand the analysis to include information about how expenditures change over time;
- Revise the visitor survey questions as part of the REC-2 study; and
- Include supplemental visitor use information such as spot counts or cameras.

Many of the comments were not incorporated into the SOCIO-1 RSP because contrary to many of the opinions provided in the filings, there is no evidence of an adverse effect of the Project to the local economy as this area is enjoyed by thousands of recreationalists each year. Also, the current Project flow regime represents the baseline condition considered for analysis and is consistent with FERC's well-established environmental baseline policy for NEPA review. Per 18 CFR § 5.6(d)(3)(xi), FERC requires applicants to provide a *general* description of socioeconomic conditions in the Project Vicinity and how the Project proposal would affect these conditions (18 CFR § 5.18(b)(5)(ii)). FERC does not require a quantitative analysis of non-power benefits such as recreation and

aesthetics in economic terms.<sup>7</sup> However, SCE has chosen to coordinate with the REC-2 Study Plan and incorporate questions regarding trip expenditures (refer to Section 2.2.11 above) that will be analyzed as part of SOCIO-1. Furthermore, SCE has included outreach with local outfitters to obtain information on their use numbers.

Lastly, SCE is including the greater Kern River Valley, per FERC regulations cited above, as this will provide context for data collected along the Fairview Dam Bypass Reach because the recreation and economy of the Project Area are not independent of the surrounding area. The local economy is influenced by all of the recreation in the area, not just in the Fairview Dam Bypass Reach. Placing the activity in the bypass region in the context of the surrounding area provides a sense of the relative magnitude to support FERC's environmental review.

#### 2.2.16. CUL-1 CULTURAL RESOURCE

SCE proposes *CUL-1 Cultural Resource* as part of this RSP to meet compliance requirements under FERC regulations (18 CFR Part 5) and Section 106 of the National Historic Preservation Act (NHPA), as amended, by determining if Project-related activities and public access will have an effect on historic properties. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

The cultural resource study goals and objectives include the following:

- Meet compliance requirements under FERC regulations (18 CFR Part 5) and Section 106 of the NHPA, as amended, by determining if Project-related activities and public access will have an effect on historic properties.
- Identify archaeological resources, built-environment resources, and Traditional Cultural Properties within the Area of Potential Effects (APE), determine which are historic properties, and develop the Historic Properties Management Plan based on those results.
- Ensure that future Project facilities and operations are consistent with the cultural resources management goals of the SQF.

For historic properties, appropriate study areas are defined by regulations under 36 CFR 800 as the APE. The Proposed APE for the CUL-1 study includes all FERC Project facilities where Project O&M have the potential to cause direct or indirect adverse effects to historic properties. Specifically, the Proposed APE includes all Project facilities and O&M areas located within the existing FERC Project Boundary and any other facilities outside of the FERC Project Boundary where Project O&M activities are conducted, including areas where SCE may propose to expand the FERC Project Boundary.

SCE consulted with local Tribes and SQF during the development of the Study Plan throughout 2020 and 2021, and a draft CUL-1 was included with the PAD filing in

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<sup>7</sup> See Study Plan Determination for Rio, Mongaup Falls, and Swinging Bridge Hydroelectric Projects at B-56, Project Nos. 9690 et al. (issued Feb. 9, 2018).



September 2021 (SCE, 2021). On November 21, 2021, FERC designated SCE as FERC's non-federal representative for carrying out informal consultation, pursuant to Section 7 of the Endangered Species Act and Section 106 of the National Historic Preservation Act. Prior to initiating field studies in early 2022 as outlined in CUL-1, SCE conducted Section 106 consultation with the State Historic Preservation Officer (SHPO) on January 11, 2022, regarding the APE outlined in the PSP. On March 23, 2022, the SHPO found the APE, as defined as the FERC Project Boundary, to be sufficient for the undertaking pursuant to 36 CFR § 800.4(a)(1).

The only comment letter received on the PSP was from SQF, indicating that the APE was too narrowly defined to encompass large-scale resources and indirect effects. SCE's routine Project maintenance activities are limited to the extent of the FERC Project Boundary. Any activities that may occur outside of the FERC Project Boundary would constitute a separate undertaking and therefore would require compliance with Section 106 of the NHPA and require a focused cultural resources assessment as part of that undertaking, which is outside the scope of this relicensing effort. The CUL-1 Study does include the complete documentation of any cultural resources within the APE and the portions of a resource that extends beyond the APE. The study area will be used to identify cultural resources in the vicinity of the project and determine if they extend into the APE and may be indirectly affected by the Project; therefore, SCE has not incorporated the SQF's comments regarding CUL-1.

#### 2.2.17. TRI-1 TRIBAL RESOURCE

SCE proposes *TRI-1 Tribal Resource* as part of this RSP to meet compliance requirements under in FERC regulations (18 CFR Part 5) and Section 106 of the NHPA, as amended, by determining if Project-related activities and public access will have an effect on Tribal Resources. Additional goals are to ensure that Tribal values and resources are identified and acknowledged from a Tribal perspective, and that an adequate baseline ethnohistory is developed. Similarly, a goal of this work is ensuring that the land-managing agencies and any other Stakeholder agencies have their program needs met with respect to the Project APE. The full Study Plan with further details on overall study and methodology is included in Attachment 4 to this RSP.

SCE, along with a focused working group of Stakeholders, SQF, Tribes, and other interested parties, identified the need to conduct baseline Tribal ethnographic and ethnohistoric research. SCE consulted with local Tribes and SQF during the development of the Study Plan throughout 2020 and 2021, and a draft TRI-1 was included with the PAD filing in September 2021 (SCE, 2021).

TRI-1 proposes to identify:

- Tribal matters that exist because of the Project;
- Project effects on Tribal resources that may be direct, indirect, and/or cumulative;

- Existing agreements Tribes may have with other entities, such as the SQF regarding access to Tribal resources, including but not limited to gathering (and gathering protocols), fishing, hunting, camping, ceremony, or other special uses; and
- Resource management goals of the USFS and take them into account when assessing effects.

SCE consulted with local Tribes and SQF during the development of the Study Plan throughout 2020 and 2021, and a draft TRI-1 Study Plan was included with the PAD filing in September 2021 (SCE, 2021). On November 21, 2021, FERC designated SCE as FERC's non-federal representative for carrying out informal consultation, pursuant to Section 7 of the Endangered Species Act and Section 106 of the NHPA. Prior to initiating field studies in early 2022 as outlined in TRI-1, SCE conducted Section 106 consultation with the SHPO on January 11, 2022, regarding the APE outlined in the PSP. On March 23, 2022, the SHPO found the APE, as defined as the FERC Project Boundary, to be sufficient for the undertaking pursuant to 36 CFR § 800.4(a)(1).

The only comment letter received on the PSP was from SQF, indicating that the APE was too narrowly defined to encompass large-scale resources and indirect effects, similar to the CUL-1 comment. The TRI-1 Study Plan does include the complete documentation of any Tribal resources within the APE and the portions of a resource that extends beyond the APE. The study area will be used to identify tribal resources in the Project Vicinity and determine if they extend into the APE and may be indirectly affected by the Project; therefore, SCE has not incorporated the SQF's comments regarding TRI-1.

#### 2.2.18. OPS-1 WATER CONVEYANCE ASSESSMENT

SCE proposes *OPS-1 Water Conveyance Assessment* (previously titled *OPS-1 Tunnel Assessment*) as part of this RSP to conduct an engineering review and evaluation of current Project water conveyance conditions to aid in the identification of guidelines to consider when discussing water conveyance system operations. The Study Plan with additional details on study approach and methodology is included in Attachment 4 of this RSP.

In response to FERC's January 13, 2022, Additional Information Request (AIR), FERC asked SCE to provide any existing study results or available information regarding the current 300 cfs diversion and effects of flow changes. In response to the AIR, SCE stated they could not locate any prior studies or reports; moreover, any such report prepared by SCE during the last relicensing effort is likely outdated in light of SCE's more recent work completed in 2014 to repair the tunnel. For this reason, SCE proposed the (previously titled) *OPS-1 Tunnel Assessment* in their PSP.

Comments on the OPS-1 PSP were received from KRB, SQF, AW, Eric Kroh, and Neil Nikirk and included topics such as:

- The study should be conducted by an independent engineering firm with expertise in water conveyance tunnels;
- SCE should be required to supply as-built drawings, descriptions of recent tunnel refurbishment work conducted, and recent inspection reports to the independent contractor conducting the study;
- Revise Section 2.0, *Project Nexus and How the Results Will be Used*; specifically, strike out “*Tunnel maintenance flows are required to maintain tunnel integrity and prevent unplanned outages;*”
- Expand Section 3.0, *Study Goals and Objectives*, to include a thorough analysis of the types of cycling that the conveyance system is capable of and all operational constraints associated with cycling;
- Include additional existing Project information as part of Section 5.0, *Existing Information*;
- Revise Section 6.0, *Study Approach*, to not only verify current operational practices, but rather report on the rates of damage under various conditions;
- Include an analysis of alternate tunnel configurations or materials that would mitigate damage from cycling flows; and
- The need for additional information and data to understand and establish appropriate minimal levels of diversion for various cycling flows.

In response to these comments, SCE has retained the support and expertise from independent contractors knowledgeable about hydropower engineering principles and with expertise in tunnels and underground structures to enhance *OPS-1 Water Conveyance Assessment*. SCE has revised OPS-1 to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock) under varying flow conditions to identify guidelines to consider when discussing water conveyance system operations. The OPS-1 RSP addresses many of the comments submitted regarding the OPS-1 PSP and includes the following study goals and objectives:

- Conduct an engineering review and evaluation of current conveyance conditions (e.g., hydrostatic pressure, flow depth) under varying flow conditions.
- Identify guidelines for future operational conditions using current Project information and industry best practices to maintain the water conveyance systems integrity.

Results from this study will aid in the identification of guidelines to consider when discussing water conveyance system operations. SCE did not include any additional investigation of alternative tunnel configurations or lining as that is outside the scope of

this study as SCE is not proposing any major infrastructure modifications to the water conveyance system other than routine O&M.

### **2.3. STAKEHOLDER PROPOSED STUDY PLANS**

SCE has identified 12 Stakeholder study requests filed as part of the response to SCE's PSP (Table 2.3-1); similar study requests were combined as one proposed study. Ten of the study requests were previously proposed by Stakeholders in their comments on SCE's PAD and FERC's SD1 but have been slightly updated in response to SCE's PSP filing (as noted in Table 2.3-1). In general, the previously proposed Stakeholder study requests were updated to include additional existing resource information or clarify their position regarding Project nexus. In some instances, the study goal or methods were slightly modified, but the overall study request was similar. SCE has carefully evaluated the new and updated study requests, regardless if they met FERC's seven study request criteria, and has either developed a new study plan; incorporated portions of the study request, with modifications, to an existing study; or has chosen not to adopt the study request as part of the RSP.

**Table 2.3-1. Stakeholder Proposed Studies**

Stakeholder Proposed Study	Stakeholder Requesting Study	SCE's PSP Response	SCE's RSP Response	Applicable Revised Study Plan
KRB SR-1: Aesthetic Flows - Updated Study Proposal	KRB Neil Nikirk	Not Adopted	Not Adopted as requested, incorporated select components with another study	REC-2 Recreation Facilities Use Assessment
KRB SR 2: Water Quality Flows - Updated Study Proposal	KRB	Adopted with modification, incorporated with another study	Previously adopted with modifications in PSP, select components expanded with modification	WR-1 Water Quality
KRB SP-3: Enjoyable Angling Flows - Updated Study Proposal	KRB KRFF Neil Nikirk	Not Adopted	Not Adopted as requested, incorporated select components with another study	REC-2 Recreation Facilities Use Assessment
KRB SR-4: Conveyance, Forebay, and Penstock Safety - Updated Study Proposal	KRB	Not Adopted	Not Adopted	
KRB SR-5: Flow Travel Times - Updated Study Proposal	KRB	Adopted with modification, incorporated with another study	Previously adopted with modifications in PSP, no additional modifications in RSP	WR-2 Hydrology
KRB SR-6: Tunnel Maintenance Flows - Updated Study Proposal	KRB	Adopted with modification, proposed new study	Previously adopted with modifications in PSP, no additional modifications in RSP	OPS-1 Water Conveyance Assessment (previously titled OPS-1 Tunnel Assessment)
KRB SR-7: Environmental Flows - Updated Study Request / Minimum Fish Flows	KRB KRFF Neil Nikirk	Not Adopted	Adopted with Modification, incorporated with another study	WR-2 Hydrology
KRB SR-8: Whitewater Flows - Updated Study Proposal	KRB	Adopted with modification, incorporated with another study	Previously adopted with modifications in PSP, no	REC-1 Whitewater Flows

Stakeholder Proposed Study	Stakeholder Requesting Study	SCE's PSP Response	SCE's RSP Response	Applicable Revised Study Plan
			additional modifications in RSP	
KRB SR-9: Comparative Whitewater Opportunities - Updated Study Proposal	KRB	Not Adopted	Not Adopted	
Fish Population (Determine Populations of the Kern River Rainbow below and above Fairview Dam)	KRFF Neil Nikirk	Not Adopted as requested, existing license requirement	Not Adopted as requested, existing license requirement	License Article 411—Kern River No. 3 Project Fish Monitoring Plan (refer to Section 1.3)
Stream Habitat Typing (component of <i>BIO-4 Benthic Macroinvertebrate</i> )	SQF	--	Adopted	BIO-6 Stream Habitat Typing
Diversion for Hatchery Flow	Richard Norman	--	Not Adopted	

KRB = Kern River Boaters; KRFF = Kern River Fly Fishers; SCE = Southern California Edison

-- Stakeholder proposed study not previously requested

### 2.3.1. STUDIES ADOPTED OR ADOPTED WITH MODIFICATION

Studies that are “Adopted” or “Adopted with Modification” are either a new stand-alone study or components of the study request have been consolidated into another study plan as the overall objective or goal of the plan coincides with objectives or goals with an existing study plan as provided in Attachment 4. SCE has described below which components of the proposed study were incorporated as part of an existing study as well as SCE’s rationale for not incorporating other study components.

#### 2.3.1.1. KRB SR-7: Environmental Flows Updated Study Request / Minimum Fish Flows

KRB, KRFF, and Neil Nikirk requested an evaluation of instream flows using a portion of the CEFF approach, which was supported by the SQF.

*WR-2 Hydrology* was revised to include the calculation of natural functional flow ranges for the NFKR upstream of Fairview Dam in wet, moderate, and dry years, consistent with Section A of CEFF (See also Section 2.2.2, *WR-2 Hydrology*, above). SCE believes that determining functional flow criteria ranges is feasible for this system and adopted this proposal with modification.

SCE further believes that subsequent framework steps outlined in CEFF overlap with the FERC ILP. SCE remains committed to discussing effects of current managed flows in the NFKR on water and aquatic resources and will include these assessments in the Application for New License. Following the assessment of Project-related effects, the FERC ILP includes opportunities for participants to make recommendations regarding license conditions, including potential changes to ecological flow releases. Therefore, applying the CEFF as a separate study is unnecessary given that the framework uses data generated by other proposed studies (and/or existing data), and requires the agreement of and negotiation with all Stakeholders in order to make final flow recommendations, which generally would occur as part of the FERC ILP following completion of the relicensing study (Table 2.3-2).

**Table 2.3-2. Comparison of California Environmental Flows Framework Steps and Comparable Steps in the FERC Relicensing Process**

CEFF Steps	Comparable FERC Relicensing Steps
Section A: Identify ecological flow criteria using natural functional flows.	PAD: Provide baseline conditions and identify potential issues.
	Study Plans: Develop and implement study plans to address additional data needs.
Section B: Develop ecological flow criteria for each focal flow component requiring additional consideration.	Final License Application and PM&E measures: Identify ecological criteria, native species and their habitats, and assess potential Project effects.
Section C: Develop environmental flow recommendations.	Discuss License conditions with Stakeholders during and following the License Application, based on results of studies and effects analyses.

CEFF = California Environmental Flows Framework; FERC = Federal Energy Regulatory Commission; PAD = Pre-Application Document; PM&E = Protection, Mitigation, and Enhancement

### 2.3.1.2. Stream Habitat Typing

Comments on *BIO-4 Benthic Macroinvertebrate* filed by SQF included a request for a “reach-scale habitat characterization” of the Fairview Dam Bypass Reach to support the BMI assessment. SCE has prepared a new stand-alone study to address their reach-wide request for a habitat assessment. SCE elected to prepare a new study, *BIO-6 Stream Habitat Typing*, rather than adding to BIO-4 because the BMI assessment uses SWAMP methodologies rather than a reach-wide habitat assessment as presented in BIO-6. Therefore, for clarity in study objectives and reporting, this study component was separated from BIO-4. For additional information about *BIO-6 Stream Habitat Typing*, refer to Section 2.2.8 and Attachment 4.

### 2.3.2. STUDIES NOT ADOPTED

SCE is not proposing to adopt 10 Stakeholder study requests. SCE’s rationale regarding each study request is summarized below but contends that the new information submitted by Stakeholders has not changed SCE’s reasoning for not adopting a majority of the study request as presented in the PSP filing (SCE, 2022). SCE has summarized their rationale below, as well as in the Study Plan Comment Response Matrix (see Attachment 3).

#### 2.3.2.1. KRB SR-1: Aesthetic Flows Updated Study Proposal

***The study request is not necessary because existing information and/or another Study Plan is sufficient to answer the questions posed.***

KRB included an updated Aesthetic Flows Study Proposal in response to SCE’s PSP; however, the goals of the study have not changed from previously provided in response to SCE’s PAD and SD1 and state:

“The goal of this study is to describe and evaluate the effects of project operations on aesthetic flows throughout the dewatered reach of the project — 16 miles of the Wild and Scenic North Fork Kern River — and to evaluate potential measures to alleviate those effects. This would be accomplished by evaluating the aesthetic benefit of various flows released into it from Fairview Dam.”

SCE has incorporated with modifications some components of the study request and amended *REC-2 Recreation Facilities Use Assessment* to collect information regarding the public’s perception and satisfaction about the aesthetic while recreating in the Fairview Dam Bypass Reach as part of the visitor survey. Additionally, if scenic/wildlife viewing or photography was selected as an activity participated in, follow up questions will be asked regarding their opinion about the scenic characteristics of the area. Refer to Appendix A, *Visitor Intercept Survey Questionnaire*, of the REC-2 RSP.

However, SCE did not include the development of a focus group or propose a controlled flow release, as described in the study request. With SCE’s expansion of the visitor survey questions, SCE will obtain information from a broad and diverse group of visitors to the area regarding their perception of the scenic quality in the Project Area. Additionally, for



the same reasons as stated in the REC-1 PSP, a controlled flow study, as proposed, is not feasible at KR3 due to the lack of storage upstream of Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR. These limitations preclude the ability to plan a controlled flow conditions assessment study in advance on the NFKR. Advance planning is necessary for logistics, safety, and data collection as well as broad participation in the study.

The remaining study objectives as noted above are not necessary as existing information is sufficient to address many of the study goals to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the FPA. FERC stated in SD2 that, "the environmental baseline considered in relicensing proceedings is the environment as it exists at the time of relicensing, not conditions that pre-date the project before it was built".

Section 5.9 of the PAD (SCE, 2021) describes the visual character of the Project which was evaluated during the previous relicensing effort. The area surrounding the Project is designated by the USFS with a scenic integrity objective of "High" (Visual Quality Objective of "Retention") and "Moderate/Medium" (Visual Quality Objective of "Partial Retention") as illustrated in the scenic integrity map in the *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988, 2019). The Project components have been part of the visual character of the area and have not significantly changed since construction completed in 1921, including when the Project was designated a Wild and Scenic River in 1988. There are no proposed changes to existing facilities and no new facilities are proposed for the Project. Therefore, the existing information can be used to describe the Project in context with the overall scenic landscape.

Other study objectives included in the Stakeholder study request include an evaluation of effects from altering flows. It is premature at this stage of relicensing to speculate on what new license measures may be appropriate, if any.

#### 2.3.2.2. KRB SR 2: Water Quality Flows Updated Study Proposal

***The study request is not necessary because another Study Plan is sufficient to answer the questions posed and/or beyond scope necessary for relicensing.***

SCE previously adopted portions of this request in its PSP, which are included and expanded upon in this RSP. *WR-1 Water Quality* was modified to include additional bacterial monitoring within the Fairview Dam Bypass Reach and along Salmon and Corral Creeks. Other water quality components most responsive to flow conditions (i.e., water temperature and DO) are already included in WR-1 and will be monitored over a range of flows and conditions.

The remaining proposed study components are not necessary to complete the Application for New License. The run-of-river design of the Project does not contribute substances to the bypass reaches, thus any effects of the Project on water quality are generally limited to those caused by alterations to streamflow. For example, arsenic levels were previously measured in bypass reaches and found to reflect local watershed conditions, as the

Project does not contribute arsenic to the watershed. Therefore, there is no Project nexus to include arsenic sampling as part of this relicensing.

Additionally, a discussion of potential Project effects of ongoing Project operations to water quality (as well as on recreational uses, aquatic resources, aesthetics, and Project generation) will be evaluated in SCE's Application for New License.

#### 2.3.2.3. KRB SR-3: Enjoyable Angling Flows Updated Study Proposal

***The study request is not necessary because another Study Plan is sufficient to answer the questions posed.***

KRB included an updated Enjoyable Angling Flows Study Proposal in which the goal of the study has not changed from previously described.

“The goal of this study is to evaluate the effect that Project operations have on angler enjoyment of fishing in the 16-mile dewatered reach below Fairview Dam. The amount of water present in a fishery can significantly impact an angler's enjoyment of a fishing outing.”

SCE is receptive to obtaining additional information regarding the public's perception of angler enjoyment in the Fairview Dam Bypass Reach. However, for the same reasons as stated in the REC-1 PSP, a controlled flow study, as proposed by the Stakeholder, is not feasible at KR3 due to the lack of storage upstream of Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR. These limitations preclude the ability to plan an on-water angling study in advance on the NFKR. Advance planning is necessary for logistics, safety, and data collection as well as broad participation in the angling study. In lieu of a controlled flow study, SCE has incorporated focused questions for anglers to respond to as part of the *REC-2 Recreation Facilities Use Assessment* Visitor Survey. The questionnaire asks participants to rate their fishing experience at the time of the survey in addition to other questions about their angling visit.

The information obtained from the REC-2 visitor survey, in conjunction with existing information and new data collected as part of this RSP (e.g., *WR-2 Hydrology*, *BIO-6 Stream Habitat Typing*, and ongoing fish population monitoring studies conducted as part of License Condition 411), will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the FPA.

#### 2.3.2.4. KRB SR-4: Conveyance, Forebay, and Penstock Safety Updated Study Proposal

***Existing information is sufficient to answer question and/or beyond scope necessary for relicensing.***

As stated in SCE's PSP filing, Project facility safety is an ongoing process addressed outside of the relicensing process, and any changes related to Project safety would be addressed as they occur. FERC has regularly reviewed and confirmed that the Project

has a rating of "low hazard." Dams assigned low hazard potential classification are those where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses.

Per FERC regulations, the Project infrastructure is subject to inspections and FERC safety reviews. FERC routinely performs safety inspections at Fairview Dam/Intake, Flume/Sandbox, Salmon and Corral Creek Diversions, conveyance flowline, forebay, penstocks, and the powerhouse. The most recent inspection dated July 24, 2017, stated "The project features inspected and described herein were observed to be in satisfactory condition for continued operation."

#### 2.3.2.5. KRB SR-5: Flow Travel Times Updated Study Proposal

***The study request is not necessary because another Study Plan is sufficient to answer the questions posed.***

Following comments on the PAD and FERC's SD1, WR-2 Hydrology was modified in SCE's PSP to include an analysis of flow travel times between Fairview Dam and the USACE stream gage at Kernville. The WR-2 RSP includes a description on how flow travel times along the NFKR between Fairview Dam and Kernville will be calculated. Where existing and available flow data from both the SCE flow gage below Fairview Dam and the USACE flow gage at Kernville, data will be analyzed to detect changes in flow fluctuations. Flow travel times will be estimated (on an hourly level) as depicted from the shifts in flow recorded between the two gages. Additionally, KRB fails to describe in their proposal why the level of granularity and excessive level of effort and cost of their proposed study is needed, and why the existing WR-2 study does not meet the information needs. The KRB proposal would require the establishment of multiple new flow loggers/recorders along the Fairview Dam Bypass Reach and flowline, which makes the KRB proposal significantly more expensive than their \$15,000 estimate.

#### 2.3.2.6. KRB SR-6: Tunnel Maintenance Flows Updated Study Proposal

***The study request is not necessary because another Study Plan is sufficient to answer the questions posed.***

The OPS-1 Study SCE proposed in the PSP incorporated the goals of the Stakeholder proposed study, with some modifications. For this RSP, SCE has further refined the goals of the OPS-1 Study and expanded the study to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock) under varying flow conditions that will aid in the identification of guidelines to consider when discussing water conveyance system operations. The study goals and objectives in SCE's OPS-1 RSP include:

- Conduct an engineering review and evaluation of current conveyance conditions (e.g., hydrostatic pressure, flow depth) under varying flow conditions.
- Develop guidelines for future operational conditions using current Project information and industry best practices to maintain the conveyance systems integrity.

Also, any additional investigation of alternative tunnel configurations or lining are outside the scope of this relicensing, as SCE is not proposing any major infrastructure modifications to the water conveyance system other than routine O&M.

#### 2.3.2.7. KRB SR-8: Whitewater Flows Updated Study Proposal

***The study request is not necessary because another Study Plan is sufficient to answer the questions posed.***

SCE previously incorporated portions of this study request as part of the REC-1 PSP to include the following study objective:

- Quantify the annual frequency that minimum acceptable and optimum whitewater flows occur in each river segment with Project operations and unimpaired flows for each watercraft type.

In response to SCE's PSP, KRB included an updated Whitewater Flows Study Proposal; however, the goals of the study have not changed from the previous request and state:

"The goal of this study is to establish the inventory of days whitewater recreation is lost to project operations. It will elicit the ranges of flow at which enjoyable low flow boating and low-optimal flow boating exist for each form of whitewater recreation. That information, coupled with the historical hydrograph of incoming flows at Fairview Dam, will paint a full picture of project effects in the dewatered reach, thus informing both the scope of the problem to be mitigated and the opportunities for mitigation."

No changes to the REC-1 RSP were made as the current study goal satisfies the commenters study plan intent. Additionally, the made statement above that, "...whitewater recreation is lost to project operations" is not factual, as the current Project flow regime represents the baseline condition considered for analysis in this relicensing not conditions that pre-date the Project before it was built. Also for clarification, the 1994 whitewater boating study referenced in this study request was an opportunistic study relying on unplanned spills associated with the snowmelt hydrograph. Study participants were required to mobilize on short notice, thereby precluding participation from individuals with prior work commitments or greater distance from the NFKR. In addition, there has been substantial improvement in whitewater study design and planning as evidenced in the Whittaker et al. (2005) publication that the 1994 study does not incorporate.

#### 2.3.2.8. KRB SR-9: Comparative Whitewater Opportunities Updated Study Proposal

***Beyond scope necessary for relicensing, the study request constitutes basic research and/or study would not lead to development of future license conditions.***

The request to study other recreational opportunities outside of the Project Area/region will not help inform the development of a license condition. Conducting research about whitewater opportunities outside of the Kern River will not add to the understanding of potential effects from Project operations on the NFKR. Section 5.7 of the PAD filed

September 22, 2021, describes nearby outdoor recreation opportunities upstream and downstream of the Project Area (SCE, 2021).

2.3.2.9. Fish Population (Determine Populations of the Kern River Rainbow below and above Fairview Dam)

***The study request is not necessary because existing information is sufficient to answer the questions posed.***

As described in SCE's PSP and in Section 1.3 of this RSP, *Ongoing FERC License Requirement: License Article 411 – Kern River No. 3 Project Fish Monitoring Plan*, SCE is currently monitoring fish populations every 5 years at three sites within the Fairview Dam Bypass Reach, and at two sites upstream of Fairview Diversion Dam to satisfy License Article 411 and the FERC-approved *Fish Monitoring Plan*. The upstream-most site is located 3.3 miles upstream of Fairview Dam. The next fish population survey is scheduled for fall 2022.

Ongoing fish population surveys have not documented Kern River rainbow trout at any of the established sites, and CDFW has noted that the populations are currently restricted to the Kern River and its tributaries above Johnsondale Bridge in SQF and Sequoia National Park, with remnant populations found above Durrwood Creek, in Rattlesnake and Osa Creeks, and, potentially, upper Peppermint Creek (Stephens et al., 1995; CDFW, 2015). It is not known when the Kern River rainbow trout was extirpated from the bypass reach; however, the introduction of and hybridization with non-native rainbow trout and competition from other non-native trout species (e.g., brown trout) introduced in the 1930s and 1940s likely led to their extirpation. As such, it is unlikely that Kern River rainbow trout occur between Fairview Diversion Dam and the KR3 Powerhouse.

Although the fish ladder at Fairview Diversion Dam was intentionally rendered non-operational in 1997 to protect Kern River rainbow trout from downstream populations of predatory Sacramento pikeminnow and non-native brown trout, these predatory fish populations persist upstream of the dam. Currently, CDFW regularly stocks hatchery rainbow trout upstream and downstream of Fairview Diversion Dam (up to Forks of the Kern).

Because Kern River rainbow trout are not expected to occur in the Project Vicinity, any existing Kern River rainbow trout populations upstream of the Project are not affected by Project operations.

2.3.2.10. Diversion for the Fish Hatchery

***The study request did not otherwise meet the criteria of 18 CFR § 5.9(b).***

The study did not provide clear goals and objectives of the study, a study methodology, or level of effort and cost. Therefore, SCE has not adopted this study request.

### **3.0 EXECUTION OF STUDY PLANS**

SCE has or intends to initiate implementation of five studies in the spring/summer of 2022 prior to receiving FERC's Study Plan Determination (anticipated August 3, 2022). No comments were received on the PSP from Stakeholders related to these five studies that SCE thinks could not be adequately addressed in this RSP.

1. *WR-1 Water Quality*
2. *BOT-1 General Botanical Resources*
3. *BIO-1 Foothill Yellow-legged Frog*
4. *CUL-1 Cultural Resource*
5. *TRI-1 Tribal Resource*

The remaining 13 studies will be initiated as soon as practical following FERC's Study Plan Determination and any subsequent disputes, if they arise starting in late summer/fall of 2022 and continue into 2023, as applicable (Table 3.1-1).

#### **3.1. PROVISIONS FOR PERIODIC PROGRESS REPORTS**




SCE will follow the standard FERC Study Plan progress reporting and meeting sequence as described in 18 CFR §5.15(c) and (f). SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and a USR no later than 2 years after FERC's determination. The reports will describe the progress of implementing each Study Plan, proposed schedule to complete any remaining tasks, and an overview of data collected to date. If a study-specific Technical Memo is complete, it will be appended to the filing. The progress reports will also note any variances from the FERC-approved Study Plan.

A Study Plan meeting with Stakeholders and FERC staff will take place within 15 days of the Initial and USR filing to discuss the study results. SCE will file a meeting summary within 15 days of the meeting.

**Table 3.1-1. Anticipated Study Plan Implementation Schedule**

Study Plan		2022				2023				2024			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	Reporting (ISR/USR)							▲				▲	
	Application for New License											★	★
WR-1 Water Quality													
Water temperature and dissolved oxygen monitoring			■	■	■	■	■						
Bacterial Sampling				■									
Analyze data and prepare Technical Memo					■	■	■	■					
WR-2 Hydrology													
Compile and QC historical gage data and conduct hydrologic analyses				■	■	■	■			■			
Prepare Technical Memo							■	■					
BIO-1 Foothill Yellow-legged Frog													
Conduct desktop analysis and field surveys			■	■									
Analyze data and prepare Technical Memo					■	■							
BIO-2 Special-status Salamanders													
Phase 1 Habitat Assessment				■									
Phase 2 Visual Encounter Surveys						■	■						
Analyze data and prepare Technical Memo								■	■				
BIO-3 General Wildlife Resources													
Phase 1 Habitat Assessment				■									
Phase 2 Visual Encounter Surveys							■	■					
Analyze data and prepare Technical Memo								■					
BIO-4 Benthic Macroinvertebrate													
BMI Surveys				■	■								
Lab, analysis, and prepare Technical Memo					■	■	■						
BIO-5 Western Pond Turtle													
Phase 1 Habitat Assessment				■									
Phase 2 Visual Encounter Surveys							■	■					
Analyze data and prepare Technical Memo								■					
BIO-6 Stream Habitat Typing													
Desktop Assessment (Aerial Imagery Mapping)					■	■							
Field Validation					■	■	■						
Analyze data and prepare Technical Memo							■	■					
BOT-1 General Botanical Resources													
Desktop analysis, habitat mapping and field surveys			■	■									
Analyze data and prepare Technical Memo					■	■							
If needed, conduct focused surveys along Fairview Dam Bypass Reach							■	■					
REC-1 Whitewater Boating													
Conduct Level 1 Desktop Review				■	■								
Conduct Level 2 Limited Reconnaissance						■	■						
Summarize Level 1 and Level 2 results								■					
Implement Level 3 Intensive Study							■	■	■	■	■		
Summarize Level 3 results										■	■	■	

Study Plan	Reporting (ISR/USR) Application for New License	2022				2023				2024			
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
REC-2 Recreation Facilities Use Assessment													
Post online recreation visitor survey questionnaire													
Collect visitor use/count information													
Conduct recreation visitor intercept surveys													
Analyze data and prepare Technical Memo													
REC-3 Recreation Facility Condition Assessment													
Conduct facility condition assessments													
Analyze data and prepare Technical Memo													
LAND-1 Road Condition Assessment													
Conduct desktop analysis, consultation, and field reconnaissance													
Collect visitor use/count information													
Analyze data and prepare Technical Memo													
GEO-1 Erosion and Sedimentation													
Conduct desktop review and field surveys													
Analyze data and prepare Technical Memo													
SOCIO-1 Socioeconomic Analysis													
Conduct desktop analysis													
Analyze data and prepare Technical Memo													
CUL-1 Cultural Resource													
Initiate consultation and conduct archival research													
Conduct cultural resource surveys													
Compile cultural resource survey data and information													
Continue evaluation of cultural resources, as needed													
Analyze data and prepare Cultural Resource Report													
TRI-1 Tribal Resource													
Initiate consultation and conduct archival research													
Conduct Tribal site visits and evaluate Tribal resources													
Analyze data and prepare Tribal Resource Report													
Continue evaluation of Tribal resources, as needed													
Analyze data and prepare Report													
OPS-1 Water Conveyance Assessment													
Conduct desktop analysis on Project tunnels													
Prepare Technical Memo													

-  Study Development and Reporting: May include desktop review of existing information, agency consultation, field surveys, data analysis, and development of a Technical Memo, as outlined in the individual Study Plans.
-  Reporting: Schedule assumes FERC will issue its Study Plan Determination on August 3, 2022, as presented in SD1. SCE will file the Initial Study Report (ISR) within 1 year (August 3, 2023) and the Updated Study Report (USR) within 2 years of FERC's determination (August 2, 2024).
-  Submittal of SCE's Draft License Application (July 3, 2024) and Final License Application (November 30, 2024) in accordance with 18 CFR 5.16(a) and 5.17(a).



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#### **4.0 PROCESS PLAN AND SCHEDULE THROUGH FILING OF LICENSE APPLICATION**

The Process Plan and Schedule outlined in Table 4-1 depicts the schedule for Study Plan development using timeframes set forth in 18 CFR Part 5, *Integrated License Application Process*. Within the Process Plan and Schedule table, bold type highlights the major milestones; shaded milestones identify the steps in the study dispute process that would be unnecessary if no disputes arise.

**Table 4-1. Kern River No. 3 Hydroelectric Project Relicensing—Study Plan Process Plan and Schedule <sup>a,b</sup>**

FERC 18 CFR §	Relicensing Activity	Responsible Party	Activity Time Frame	Deadline <sup>c,d</sup>
<b>Study Plan Development</b>				
5.11 5.12	<b>PSP and Study Requests</b>			
5.11	<b>File PSP</b>	SCE	Within 45 days following the deadline for filing of comments on the PAD and providing study plan requests	3/6/2022
5.11(e)	<b>Conduct Initial Study Plan Meeting</b>	SCE	No later than 30 days after the deadline date for filing the PSP	4/5/2022
5.12	File comments on PSP or submit revised study requests	Participants	Must be filed within 90 days after the PSP is filed	6/4/2022
5.13	<b>RSP and Study Plan Determination</b>			
5.13(a)	File RSP	SCE	Within 30 days following the deadline for filing comments on the PSP	7/4/2022
5.13(b)	File final comments on RSP	Participants	Within 15 days of filing the RSP	7/19/2022
5.13(c)	Issue Study Plan Determination	FERC	Within 30 days of filing the RSP	8/3/2022
5.13(d) 5.14(a)	File notice of study dispute	Mandatory Conditioning Agencies	Within 20 days of the Study Plan Determination	8/23/2022
5.13(d)	Study Plan approved if no notice of study dispute is filed	FERC	20 days following the notice of study plan dispute filing period	8/23/2022
5.14	<b>Formal Study Dispute Resolution Process</b>			
5.14(d)	Convene Dispute Resolution Panel if notice of Study Plan dispute is filed	FERC	Within 20 days of the notice of study dispute	9/12/2022
5.14(i)	File with FERC and serve upon panel members comments and information regarding dispute	SCE	No later than 25 days following the notice of study dispute	9/17/2022

FERC 18 CFR §	Relicensing Activity	Responsible Party	Activity Time Frame	Deadline <sup>c,d</sup>
5.14(k)	Issue findings and recommendations regarding the Study Plan dispute to Director of the Office of Energy Projects	Dispute Resolution Panel	No later than 50 days following the notice of study plan dispute	10/12/2022
5.14(l)	<b>Issue Written Determination on Study Plan Dispute</b>	FERC	No later than 70 days following filing of the notice of study dispute	11/1/2022

CFR = Code of Federal Regulations; FERC = Federal Energy Regulatory Commission; NOI = Notice of Intent; PAD = Pre-Application Document; PSP = Proposed Study Plan; RSP = Revised Study Plan; SCE = Southern California Edison

Notes:

<sup>a</sup> Relicensing activities that are shown in bold represent key milestone activities in the relicensing process.

<sup>b</sup> Shaded milestones represent the steps in the study dispute process that are unnecessary if no disputes arise.

<sup>c</sup> Dates indicate the day or time frame within which an activity must occur in accordance with 18 CFR Part 5 based on a September 22, 2021, filing date for the NOI/PAD.

<sup>d</sup> If the deadline falls on a weekend, part-day holiday, or legal public holiday, the deadline is extended to the next business day.

## 5.0 REFERENCES

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**ATTACHMENT 1**  
**PROPOSED STUDY PLAN PUBLIC MEETING ATTENDEES**  
**(March 22, 2022)**

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List of participants who attended the Kern River No. 3 Hydroelectric Project Relicensing Proposed Study Plan Meeting held on March 22, 2022.

<b>Attendee Name</b>	<b>Affiliation</b>
Jeff Venturino	American Whitewater
Theresa Lorejo-Simsiman	American Whitewater
Abimael Leon	California Fish and Wildlife
Garrett Long	California State Water Resources Control Board
Jillian Roach	Consultant Team
Miranda Freeman	Consultant Team
Lisa DiNicolantonio	Consultant Team
Quinn Emmering	Federal Energy Regulatory Commission
Frank Winchell	Federal Energy Regulatory Commission
Khatoon Melick	Federal Energy Regulatory Commission
Lynn Compas	Consultant Team
Brett Duxbury	Kern River Boaters
Liz Duxbury	Kern River Boaters
Matt Volpert	Kern River Outfitters
Michael Harty	Consultant Team
Terra Alpaugh	Consultant Team
Angela Whelpley	Consultant Team
Randi McCormick	Consultant Team
Lilian Jonas	National Park Service
Daniel Keverline	Southern California Edison
Shelly Davis-King	Consultant Team
David Moore	Southern California Edison
Kelly Henderson	Southern California Edison
Cornelio Artienda	Southern California Edison
Martin Ostendorf	Southern California Edison
Audry Williams	Southern California Edison
Gabriela G Ornelas	Southern California Edison
Nicolas Von Gersdorff	Southern California Edison
Holly Burger	Consultant Team
Adam Cohen	Consultant Team
Russell Liebig	Consultant Team

<b>Attendee Name</b>	<b>Affiliation</b>
Melissa Lane	Consultant Team
Ian Pryor	Consultant Team
Maria Gonzales	Tachi-Yokut Tribe
Paige Berggren	Tachi-Yokut Tribe
Shana Powers	Tachi-Yokut Tribe
Charles R. Sensiba	Troutman Pepper
Chloe J. Hansum	U.S. Fish and Wildlife Service
Dawn Alvarez	U.S. Forest Service
Joseph Martin	U.S. Forest Service
Norman Leonard	U.S. Forest Service
Monique Sanchez	U.S. Forest Service
Gerald Hitchcock	U.S. Forest Service
Karen Miller	U.S. Forest Service
Stephen Elgart	U.S. Forest Service
Brad Blood	Consultant Team
John Gangemi	Consultant Team
James Ahrens	Public
Anthea Raymond	Public

**ATTACHMENT 2  
LIST OF STAKEHOLDERS WHO SUBMITTED COMMENTS ON  
SCE'S PSP**

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List of Stakeholder comment letters and study requests regarding the Kern River No. 3 Hydroelectric Project Relicensing Proposed Study Plan filed with FERC.

<b>Submission Date</b>	<b>Filing Party</b>
3/7/2022	Neil Nikirk
5/4/2022	Brett Duxbury
5/4/2022	Timothy McNeely
5/4/2022	Timothy McNeely
5/17/2022	Eugene Hacker
5/26/2022	Jonathan Yates
5/31/2022	Ethan Francis
5/31/2022	Robert Nash
6/1/2022	Neil Nikirk
5/31/2022 6/1/2022 6/2/2022 6/6/2022	Multiple Authors: Collection of Letters
6/2/2022 6/6/2022	James Ahern
6/2/2022	Kern River Fly Fishers and Kern River Boaters
6/3/2022	Lacey Anderson
6/3/2022	Gary Ananian
6/3/2022	Lawrence Wade
6/3/2022	Garrett Long
6/3/2022	Anna Tamura
6/3/2022	Brett Duxbury
6/3/2022	Teresa Benson
6/6/2022	Amin Nakravan
6/6/2022	James Spring
6/6/2022	Elizabeth Jens
6/6/2022	Eugene Hacker
6/6/2022	Richard Norman
6/6/2022	Ross Allen
6/6/2022	Valerie Cook
6/6/2022	Eric Kroh
6/6/2022	Richard Kyper

<b>Submission Date</b>	<b>Filing Party</b>
6/6/2022	Kern River Fly Fishers (no author)
6/6/2022	Jose Luis Pino
6/6/2022	Olivia Lemley
6/6/2022	Kern River Fly Fishers
6/6/2022	Alvaro Villa
6/6/2022	Theresa Lorejo-Simsiman
6/6/2022	Dean Koutzoukis
6/6/2022	Trout Unlimited (No Author)
6/7/2022	Michael Farrell
6/7/2022	Scott Wilson
6/7/2022	Matthew Rich
6/7/2022	Antoly B. Muchnikov
6/7/2022	Paul Ermishin
6/7/2022	Caleb Fujimori
6/24/2022	Constantine Koutzoukis

**ATTACHMENT 3**  
**STUDY PLAN COMMENT RESPONSE MATRIX**

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Note: all acronyms used in SCE responses are captured in the *List of Acronyms and Abbreviations* in the front matter of the main *Revised Study Plan and Response to Comments* document that this matrix is attached to.

**Study Plan Comment Response Matrix—General/Global**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
GEN-1	Neil Nikirk	Pg. 8	N/A	In addition to the description provided, CDFW has an obligation under Section 5937 of the California Fish and Game Code to maintain fish in "good condition." Allowing SCE to maintain the status quo with current minimum instream flow requirements clearly fails to meet this requirement. In addition, the southern-Sierra clade of foothill yellow-legged frog is listed as endangered by the State of California. In the absence of new minimum flow requirements arrived at through use of contemporary techniques and models, natural flows would provide the best possible conditions for fish and wildlife using the NF Kern River, including Kern River rainbow trout and the endangered foothill yellow-legged frog.	Comment Noted. The current instream flow regime was developed in consultation with resource agencies with the goal of maintaining healthy fish populations while balancing other resource needs in the Project Area, including Project operations. Through the review of existing information, including ongoing fish populations studies, in addition to information obtained from the studies included with the RSP, the data will be used to evaluate the current condition of biological resources in the Fairview Dam Bypass Reach.
GEN-2	Neil Nikirk	Pg. 13	N/A	<i>SCE presents a timeline that covers the remainder of 2022 through 2024</i> The timeline for field studies covers at most one or two quarters of a single year. There is no way that sampling during a single year with a single flow regime and a single set of environmental conditions will adequately characterize the "baseline" conditions or be able to determine the effects of project operations over a wide range of environmental conditions. Sampling is typically at least a three-year proposal, and often much longer to answer the types of questions posed in the studies with even a low level of certainty or to establish the baseline. The study schedule needs to be expanded to include sampling in the appropriate quarters of multiple years and potentially with flow manipulation to adequately determine the effects of project operations.	Comment Noted. SCE has proposed study durations that are consistent with scientific practices, taking into consideration the amount of existing information and the precision of the required analysis to meet study plan objectives within the ILP timeframe. Under the ILP, 1 or sometimes 2 years (or seasons) of data gathering is adequate to gather additional information that FERC needs to address and adequately evaluate a potential project-related issue to support its environmental analysis.

**Study Plan Comment Response Matrix—Water Resources**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
WR-1	Neil Nikirk	Pg. 8	WR-1 Water Quality	WR-1 Water Quality (previously titled: Water Temperature and Dissolved Oxygen) <i>In response to SQF, SCE states: Data loggers will be placed in locations with sufficient circulation yet protected from high scouring flows; loggers will be checked approximately monthly, and redundant thermographs will be deployed at each location to protect against the potential for data logger tampering.</i>  However, the actual study plan only has the dissolved oxygen loggers checked monthly, the temperature loggers will be deployed for 6 months and downloaded at the end of the monitoring period. This is not good practice due to the high likelihood of tampering or removal of the loggers (even with redundant loggers) such that all loggers should be checked, and downloaded, approximately monthly.	All loggers (water temperature and DO) will be checked approximately monthly, except for periods of unsafe conditions (i.e., high flows or limited access due to weather). The WR-1 Study Plan was revised to clarify methods.
WR-2	Neil Nikirk	Pg. 8	WR-1 Water Quality	<i>In response to the State Water Board, SCE states: Variations in water temperature and dissolved oxygen were investigated in detail during the prior relicensing process. Project operations were found to influence water temperature in the bypass reach, and a minimum flow was implemented to maintain reduced water temperatures within the reach. Project operation was found to have little effect on dissolved oxygen.</i>  So, SCE acknowledges that project operations influence water temperatures in the bypass reach. How was the minimum flow to maintain reduced water temperatures arrived at? Was a detailed operations model for project operations used to develop minimum flows protective of	Comment Noted. The effect of the Project and flows on water temperature is well studied and summarized in the Section 5.2.4.3 of PAD filed September 22, 2021. Water temperature modeling and additional monitoring conducted as a requirement of the existing license found that the new (i.e., current) minimum instream flows are sufficient to maintain temperatures below 20 degrees Celsius midway within the bypass reach when stream temperatures upstream of Fairview Dam are 17 degrees Celsius or less.  Current temperature and DO information from the WR-1 Study Plan will be reported in the Technical Memo included as part of the ISR and/or USR. Information obtained through this

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				cool water temperatures in the bypass reach and has the effectiveness of the minimum flows on temperatures been validated? There are very good temperature models available at the current time and a modeling assessment could be used to determine the relationship between project operations and water temperatures in the bypass reach. This should be included in the assessment and should be included in the study plan following collection of the temperature data. A similar approach should be taken to assess the current effect of project operations on dissolved oxygen levels in the bypassed reach.	study in the RSP, combined with existing information will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the FPA.
WR-3	Neil Nikirk	Pg. 9	WR-1 Water Quality	<p><i>In response to the State Water Board, SCE states: The Project does not contribute to arsenic or total suspended solids. These parameters were measured during the prior relicensing study efforts and were found to be related to upstream watershed conditions; the Project was found to not contribute to arsenic or total suspended solids, and no further monitoring was required. Previous fecal coliform samples identified elevated concentrations in Salmon Creek and in the NFKR between Salmon Creek and Corral Creek, likely from animal sources. Because no recent sampling information has been collected in the Fairview Dam Bypass Reach, sampling within the NFKR for recreation-related fecal coliform has been added to WR-1.</i></p> <p>Edison concedes that harmful concentrations of coliform bacteria and arsenic exist in the 16-mile dewatered stretch of the North Fork Kern. Edison has refused to study arsenic, and proposes an incomplete study on fecal coliform. While it may be true that the project does not "contribute to arsenic or total suspended solids," a focused study should be conducted to determine whether concentrations of arsenic can be reduced through dilution with increased flows in the bypass reach.</p> <p>The US Forest Service, the National Parks Service, and the California Department of Fish and Wildlife all concur that the levels of fecal coliform measured are "an environmental concern." The California State Water Resources Control Board has concluded that "increased fecal coliform levels and potential solutions to the problem were flow-related." FERC and USFS have concluded that "Flows in the bypassed reach can influence bacteria counts through dilution."</p> <p>SCE contends that the elevated concentrations of fecal coliform are "likely from animal sources." What is the evidence behind this assertion? While sampling for fecal coliform has been added to the study plan, how will the study differentiate between animal- and recreation-related fecal coliform? And this side-steps the issue of how does project operation affect fecal coliform levels in the bypass reach of the NF Kern River. Edison proposes an incomplete study on fecal coliform that only includes sampling at existing flow levels, not at elevated flow levels that would result though cessation of diversions. Moreover, the study plan only provides for sampling during a 30-day period around Labor Day in September when flows are naturally low, but reduced further by KR-3 diversion. FERC should require SCE to conduct a study to determine the degree to which increased flows can reduce concentrations of arsenic and coliform bacteria in the bypassed reach.</p>	The bacterial sampling proposed in the WR-1 Study Plan is consistent with that required by the State Water Board Basin Plan. Although arsenic is present in the watershed, concentrations reflect local watershed conditions, and the Project does not contribute to or alter levels of arsenic. Data from the NFKR at Kernville (see PAD Section 5.2.4.4, Table 5.2-6) indicate that arsenic concentrations remain variable and occasionally elevated, including at full flow. Therefore, there is no Project nexus to include arsenic sampling as part of this relicensing.
WR-5	Neil Nikirk	Pg. 14	WR-1 Water Quality	<p>4.0 STUDY AREA AND STUDY SITES                      4.1. Temperature And Dissolved Oxygen Monitoring Sites  <i>Temperature monitoring and DO measurements will occur within Project-affected reaches and three comparison sites along stream reaches upstream of Project operations (Figure 4-1)</i></p> <p>Site number 1 WQ-NFKR-19.0: NFKR immediately upstream of Fairview Diversion impoundment pool further upstream to avoid any backwater effect of the pool at higher flow levels.</p>	Comment Noted. Site 1 (WQ-NFKR-19.0) is located upstream of the Fairview Diversion Dam impoundment pool. This site will be reassessed in the field prior to winter 2022 to ensure the loggers are upstream of a backwater effect that may occur under higher flows.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
WR-6	Neil Nikirk	Pg. 14	WR-1 Water Quality	<p>4.2. Fecal Coliform Sampling Sites  <i>Fecal coliform samples will be collected at a subset of the temperature and DO monitoring sites</i></p> <p>There should be at least one intermediate point within the bypass reach as for temp and DO to help determine source(s) of fecal coliform contamination.</p>	<p>The WR-1 Study Plan has been modified to include three additional fecal coliform sampling sites within the Fairview Dam Bypass Reach: monitoring Site 3, WQ-NFKR-10.9 at NFKR at Gold Ledge Campground; Site 8, WQ-CC-0.4 at Corral Creek upstream of its confluence with the NFKR (if flow is present); and Site 10, WQ-SC-0.05 at Salmon Creek upstream of its confluence with the NFKR (if flow is present).</p>
WR-7	Neil Nikirk	Pg. 14	WR-1 Water Quality	<p>6.0 STUDY APPROACH                      Water Temperature Monitoring  <i>Data loggers will be deployed between June 1 and September 30, assuming safe access to the stream channel.</i></p> <p>Water temperatures should be monitored in more than just one year due to interannual variability in temps, snowpack, rainfall, etc. that interact with project operations. In addition, the project operates on a year-round basis. Water temperatures should be monitored for as many months of the year as is feasible in order to determine the effects of project operations during at least the shoulder seasons on each side of the summer months. Winter temperature monitoring is not necessary, but would provide useful information that could be used by other studies such as evaluating fishery impacts.</p>	<p>The WR-1 Study Plan was modified to extend the summer 2022 logger deployment through spring 2023 to capture the shoulder and winter seasons. The loggers will be left in place over winter and checked monthly as conditions allow. There is an increased potential for logger and or data loss over the winter and into early spring due to high flow conditions; however, loggers are placed in locations with sufficient circulation, yet also protected from scouring flows.</p> <p>SCE initiated early data collection and deployed water temperature and DO loggers between June and September 2021 at the same locations described in the WR-1 Study Plan. The loggers are currently deployed and have been collecting data since June 1, 2022.</p> <p>The summer months were targeted for water temperature and DO monitoring, as effects of Project operations (i.e., diversion of flows) on water temperature and DO is most substantive when water temperatures are highest (i.e., between June 1 and September 30). Outside of this period, there are several environmental factors that reduce or minimize any warming effect, including decreased air temperatures and decreased solar radiation.</p>
WR-8	Neil Nikirk	Pg. 15	WR-1 Water Quality	<p><i>Loggers in Salmon and Corral Creeks will be checked monthly during deployment, during which time data will be downloaded from each unit; loggers in the NFKR will be installed in duplicate, and data will be downloaded at the end of deployment.</i></p> <p>Why not check and download the temperature loggers monthly along with the DO loggers? Table 2.4.1 says that loggers will be checked monthly. The duplicate loggers are a good idea as many times loggers are lost to vandalism, tampering, high flows, or inability to relocate them.</p>	<p>Refer to comment response #WR-1.</p>
WR-9	Neil Nikirk	Pg. 15	WR-1 Water Quality	<p>DO Monitoring  <i>DO concentrations will be recorded at 15-minute intervals and summarized as daily means, maxima, and minima. Loggers will be checked monthly during deployment, during which time data will be downloaded from each unit.</i></p> <p>The summary information is useful, but the percent saturation at the coincident water temperatures should also be reported and summarized. Again, the water temperature loggers should be checked and downloaded at the same time as the DO loggers.</p>	<p>Refer to comment response #WR-1.</p> <p>As stated in the WR-1 Study Plan, water temperatures will be reported in addition to DO concentrations.</p>
WR-10	Neil Nikirk	Pg. 15	WR-1 Water Quality	<p>Bacterial Sampling  <i>Samples will be collected on, at minimum, five separate dates during the summer within a 30-day period and will include the Labor Day holiday weekend. Immediately after collection, samples will be placed on ice for transport to the analytical laboratory within the required field hold time (Table 6-1).</i></p> <p>Five sample dates within a 30-day period surrounding Labor Day are extremely limited. Samples should be collected and analyzed at the same time that the water temp and DO loggers are checked – approximately the lab and analyzed within the 8-hour hold time</p>	<p>The bacterial sampling regime specified in the WR-1 Study Plan is consistent with State Water Board Basin Plan requirements.</p>

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				specified in Table 6-1. Perhaps a different methodology should be specified or at least an explanation of how exceeding the hold time can affect the results.	
WR-11	Neil Nikirk	Pg. 15	WR-1 Water Quality	<p>8.0 SCHEDULE</p> <p>All of these parameters should be sampled more than one quarter in one year. There is no way that sampling during a single year with a single flow regime and a single set of environmental conditions will adequately characterize the “baseline” conditions or be able to determine the effects of project operations over a wide range of environmental conditions. Sampling is typically at least a three-year proposal, and often much longer to answer the types of questions posed in the studies with even a low level of certainty or to establish the baseline. The study schedule needs to be expanded to include sampling in the appropriate quarters of multiple years and potentially with flow manipulation to adequately determine the effects of project operations. Most water quality studies take place over multiple years just to establish the baseline; effects monitoring can require more extensive sampling/monitoring.</p>	<p>Water temperature and DO were monitored in summer of 2021 and are being measured again in summer 2022. Both 2021 and 2022 were Dry (i.e. low-flow) water years. Sampling in Dry water years is expected to increase the likelihood of identifying potential Project-related effects compared to Normal or Wet water years when flows are naturally higher in the spring and summer. Data from WR-1 will be summarized in SCE’s ISR.</p> <p>With regard to the request for at least 3 years of data collection, SCE has proposed study durations that are consistent with scientific practices, taking into consideration the amount of existing information and the precision of the required analysis to meet study plan objectives within the ILP timeframe. Under the ILP, 1 or sometimes 2 years (or seasons) of data gathering is adequate to gather additional information that FERC needs to address and adequately evaluate a potential Project-related issue to support its environmental analysis.</p>
WR-12	Neil Nikirk	Pg. 15	WR-1 Water Quality	Any reissuance of the license for KR-3 should be conditioned to include a long-term water quality monitoring program for water temperature, DO, fecal coliform, arsenic, and any other constituents of concern identified by the State Water Board. If adverse effects on water quality or beneficial uses of the NF Kern River due to project operations are found, flow-related mitigation measures should take priority over other forms of mitigation.	Comment Noted. Information obtained through the studies included with this RSP combined with existing information will be used to analyze environmental effects of SCE’s relicensing proposal and reasonable alternatives, pursuant to FERC’s obligations under NEPA and the FPA. It is premature at this stage of relicensing to speculate on what new license measures may be appropriate, if any.
WR-13	Kern River Boaters	Pg. 29	WR-1 Water Quality	<p><i>Collect current stream water temperature [and DO monitoring] data to characterize current water temperatures [and DO concentrations] during summer months. (PSP WR-1 at 1.)</i></p> <p>Project operations remove significant quantities of water from the NFKR year-round. Edison does not provide a rationale for limiting testing to summer months. We request that this very limited study be expanded to include testing for one full year. We also request that sampling be conducted over two summer seasons, since a single summer may experience atypical environmental conditions (dry year v. wet year, low water v. high water, cold water v. warm water).</p>	The WR-1 Study Plan was developed to target the time periods when Project effects are most likely to occur or sample detections are highest. For example, when incoming NFKR temperatures are highest—or in the case of bacterial sampling, when recreational use is highest. Please also see comment responses #WR-7 and #WR-11.
WR-14	Kern River Boaters	Pg. 30	WR-1 Water Quality	<p><i>Collect current fecal coliform data to characterize bacterial concentrations. (PSP WR-1 at 1.)</i></p> <p>Although Edison proposes to study bacterial concentrations, it does not concede in the study plan that project operations may affect those concentrations. Edison accordingly offers no project nexus for the study of bacteria. Although unstated by Edison, a nexus exists: In 1995, USFS, NPS, and CDFW concluded there was an “environmental concern” about coliform bacteria levels in the dewatered reach. CSWRCB has stated that “increased fecal coliform levels and potential solutions to the problem were flow-related.” USFS has noted that “[h]igh coliform bacteria counts may be responsible for instances of low DO” in the dewatered reach. The 1996 EA concluded, “Flows in the bypassed reach can influence bacteria counts through dilution.” Edison’s 2021 PAD concedes that project operations “may influence coliform counts.” We request that this limited study plan be reformulated to include an adequate statement of nexus for the testing of bacteria.</p>	The Project does not contribute fecal coliform to the NFKR. The Project provides water-related recreation opportunities that may contribute to elevated bacteria concentrations in the Project Area. The WR-1 Study Plan includes bacterial sampling consistent with State Water Board Basin Plan requirements to identify if there are elevated levels during peak recreation times.
WR-15	Kern River Boaters	Pg. 30	WR-1 Water Quality	<p>2. <i>WQ-NFKR-18.5: NFKR immediately downstream of Fairview Dam. (PSP WR-1 at 1.)</i></p> <p>As Adam Cohen stated in the March 22, 2022 PSP meeting, this proposed site is so close to the diversion that it does not provide meaningful information on the impact of the project on the dewatered fishery. Given there are so few monitoring sites planned in this limited water quality proposal, we ask that either (a) this site be moved further downstream or (b) an additional site be included downstream, preferably to a site between the 1998-2002 monitoring site (6 km below Fairview Dam) and Goldledge campground.</p>	Site 2, WQ-NFKR-18.5, located immediately downstream of Fairview Dam provides stream temperatures at the upstream-most portion of the Fairview Dam Bypass Reach, to which downstream temperatures can be compared. Moving this site downstream would prevent the study from accurately capturing temperature at the beginning of the bypass reach.

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WR-16	Kern River Boaters	Pg. 31	WR-1 Water Quality	4. WQ-NFKR-3.2: NFKR immediately upstream of the KR3 Powerhouse. (PSP WR-1 at 2.) We ask that the proposed site be placed upstream of the project's emergency spillway so that spillway operation, if needed, does not confound the study's results, which are attempting to capture project effects that would be lost by the inclusion of diverted water from the spillway.	Site 4, WQ-NFKR-3.2, collects temperature and DO information at the downstream-most portion of the Fairview Dam Bypass Reach. The location of this site immediately upstream of the KR3 Powerhouse was selected to capture the downstream conditions in the bypass reach, including flows released from the KR3 Penstock spillway.
WR-17	Kern River Boaters	Pg. 31	WR-1 Water Quality	The proposed bacterial sampling sites are located just above and at the end of the dewatered reach. We ask that a third coliform sampling site be included at Goldledge campground or some other convenient, representative site in the middle of the dewatered reach to greater contextualize and validate data captured at the two far ends of the reach.	Refer to comment response #WR-6.
WR-18	Kern River Boaters	Pg. 31	WR-1 Water Quality	Edison fails to note recent summer water quality sampling above and below Fairview Dam:	Thank you for the additional information; these data will be considered in the License Application.
WR-19	Kern River Boaters	Pg. 32	WR-1 Water Quality	<i>Data loggers will be deployed between June 1 and September 30, assuming safe access to the stream channel. (PSP WR-1 at 4.)</i> Edison does not appear to have described existing information about water quality in the dewatered reach outside the warm season in either its PAD or the PSP. Given that data gap, we ask that the relevant parameters be monitored year-round. Project effects do not begin in June or end in September. Further, since water quality parameters are inherently sensitive to river conditions, and since any single sampling year may experience atypical environmental conditions (dry year v. wet year, low water v. high water, cold water v. warm water), we ask that sampling be accomplished in at least two different years in an attempt to establish reasonable contingent baseline conditions in the dewatered reach (with an option for cancellation if the water outlook is substantially similar to that studied in the first year).	Refer to comment responses #WR-7 and #WR-11.
WR-20	Kern River Boaters	Pg. 32	WR-1 Water Quality	<i>Coordinates of each logger after installation will be recorded using a Global Positioning System (GPS) unit. (PSP WR-1 at 4.)</i> At the March 22, 2022 PSP meeting, Edison consultant Adam Cohen acknowledged that the logger upstream of Fairview Dam would be placed upstream of the influence (e.g., thermal) of the impoundment caused by that dam. This study aims to acquire data representative of natural flows above Fairview Dam and impaired flows below. It is critical that flows above Fairview Dam not be influenced by the impoundment; otherwise, they would not represent the natural state of incoming water prior to project effects. We ask that GPS coordinates for all monitoring devices be revealed for public review to confirm adequate separation from impoundment effects and other potentially confounding placements — after data monitoring is complete and the loggers are removed, of course.	As study sites are often repeated, SCE is concerned about increased potential for vandalism of monitoring instruments if precise locations are made available to the public; however, descriptive locations will be included in the Technical Memo with sufficient information to meet the intent. Refer to comment response #WR-5.
WR-21	Kern River Boaters	Pg. 32	WR-1 Water Quality	<i>Data loggers will be placed in locations with sufficient circulation, yet also protected from high scouring flows. (PSP WR-1) at 5.0</i> We ask that data loggers be positioned to ensure no unrepresentative project influence — i.e., above the powerhouse emergency spillway to avoid measurement of spillway water and far enough above the impoundment at Fairview Dam to ensure no impoundment effects.	Refer to comment response #WR-16 regarding the placement of Site 4, WQ-NFKR-3.2; spillway flows are inclusive of potential Project effects.
WR-22	Kern River Boaters	Pg. 33	WR-1 Water Quality	We ask that all raw data obtained from this study be reported to the public in a hosted electronic spreadsheet format. Hourly flow data should accompany the reporting to show the delta between the natural flow and the impaired flow to allow stakeholders to further refine their understanding of project effects.	A stand-alone Technical Memo included as part of the ISR and/or USR will be provided to Stakeholders after the data are collected, tabulated, summarized, and checked for quality. Associated data files, which will include tabularized results, graphics, and other data and material specifically identified in the Study Plan, will be included with the Technical Memo.
WR-23	SQF	Pg. F3	WR-1 Water Quality	WR-1 Water Quality (Previously titled WR-1 Water Temperature and Dissolved Oxygen) The Forest Service requests that water temperature and dissolved oxygen be monitored continuously for at least a year, but multiple years are preferred. Automated data logging make this task relatively simple, with the majority of the added work amounting to a few more hours of data analysis. No additional equipment is required, and there is only a small amount of additional field work required check on and download data from logging units. This will	Refer to comment responses #WR-7 and #WR-11.

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				provide a more robust understanding of the river's water quality through the year. It is possible that flow manipulation in the late fall and winter months causes seasonal water temperatures and dissolved oxygen concentrations to depart from reference sites above and below the project area, just as we anticipate is the case during warmer months. While it is unlikely that we will see dangerously hot temperatures or low dissolved oxygen during the cooler periods, there are other concerns, such as how these variables affect fish behavior and angling experiences.	
WR-24	Kern River Boaters	Pg. 66	Stakeholder Study Request	<p><b>KRB SR-2: WATER QUALITY FLOWS UPDATED STUDY PROPOSAL</b></p> <p>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained. This study would describe and evaluate the effects of project operations on water quality throughout the dewatered reach of the project — 16 miles of the Wild and Scenic North Fork Kern River — and to evaluate potential measures to alleviate those effects. This would be accomplished by evaluating the benefit to water quality in the dewatered reach afforded by various flows released into it from Fairview Dam. The objectives of this study are to: (1) Document the existing water quality conditions of the dewatered reach; (2) Identify whether additional flows could improve those conditions; and (3) Evaluate the potential effects of water quality flow releases on other resources including recreational uses, aquatic resources, aesthetics, and project generation.</p>	<p>Not adopted. The study request is not necessary because WR-1 <i>Water Quality</i> is sufficient to answer the questions posed.</p> <p>A study objective of WR-1 is to document existing water quality conditions water temperature, DO, and fecal coliform sampling. As such, the WR-1 Study Plan included in this RSP addresses the commenter's first study objective listed in the study request. As noted in SCE's comments filed with the PSP, SCE adopted portions of this request in its PSP and has included those revisions in this RSP. Specifically, <i>WR-1 Water Quality</i> was modified to include bacterial monitoring within the Fairview Dam Bypass Reach consistent with State Water Board Basin Plan requirements (refer to response to comment #WR-6). Other water quality components most responsive to flow conditions (i.e., water temperature and DO) are already included in WR-1 and will be monitored over a range of flows and conditions (refer also to comment response #WR-7).</p> <p>Stakeholder-proposed study objectives 2 and 3 are premature at this time during the relicensing process. Information obtained as part of this, and other studies included with this RSP, combined with existing information, will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the FPA.</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.2, <i>KRB SR 2: Water Quality Flows Updated Study Proposal</i>.</p>
WR-25	Neil Nikirk	Pg. 9	WR-2 Hydrology	<p><i>In response to the State Water Board, SCE clarified the hydrology analysis will include available hourly flow data from the current license term (WY 1997 – WY 2021) and will be of sufficient scale and duration to depict diurnal patterns of snowmelt and annual variability in water year types.</i></p> <p>The hydrologic analysis should include all available data, not just that from the current license term. If information is available at a time scale less than hourly (e.g., 15-minute intervals), that data should be used in the analysis and provided so that others can conduct their own independent analysis of the hydrologic data. The limited time period (1997-2021) is not sufficient to depict annual variability in water year types; many of those years have been during a period of drought or at least drier than normal conditions.</p>	<p>The hydrologic gage data will be compiled from existing SCE, USGS, and/or USACE gages. Technological data storage limitations in the early portion of the current license period (water years 1996 through 2004) are not available on a finer time scale than what was already provided publicly (e.g., daily mean).</p> <p>Although many recent years have been low water years, the remaining 16 years of data, at an hourly level, is of sufficient scale and duration to depict diurnal patterns of snowmelt and annual variability in water year types to describe current Project operations.</p>
WR-26	Neil Nikirk	Pg. 16	WR-2 Hydrology	<p><b>6.0 STUDY APPROACH</b></p> <p><i>Hourly gage data will be compiled from SCE, USGS, and/or USACE for the duration of the current license period (i.e., water year 1997, beginning October 1, 1996, through water year 2021, ending September 30, 2021).</i></p> <p><i>Gage data will be compiled and summarized using various statistical parameters for use in resource evaluations, including:</i></p> <p><i>–A summary of flow travel times from Fairview Diversion to the KR3 Powerhouse based on existing and available data.</i></p>	Refer to comment response #WR-25.

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				<p>–Maximum/minimum, average/median, and variance summarized annually, seasonally, and/or monthly.</p> <p>–Flow duration curves summarized annually and/or monthly.</p> <p>The hydrologic analysis should include all available data, not just that from the current license term. If information is available at a time scale less than hourly (e.g., 15-minute intervals), that data should be used in the analysis and provided so that others can conduct their own independent analysis of the hydrologic data. The limited time period (1997-2021) is not sufficient to depict annual variability in water year types; many of those years have been during a period of drought or at least drier than normal conditions.</p>	
WR-27	Neil Nikirk	Pg. 16	WR-2 Hydrology	<p>Flow travel times within the bypass reach cannot be accurately determined without a gauge above the powerhouse. Conveyance confounds interpretation of bypass reach flow time and using a gauge downstream of the KR-3 powerhouse gives an indication of travel time within the conveyance system and little information on travel times in the bypassed reach unless there are periods with significant diurnal fluctuations in streamflow or changes in project operations. For an accurate estimate of travel time in the bypassed reach, the diversion should be shut down during a period of significant diurnal fluctuation as occurs during the spring snowmelt period. Several of these flow travel time study events (with no diversion) should occur each year at a variety of flows and if flows do not vary much within the study year, should be continued in subsequent years until travel time over a broad range of flows can be determined with the desired level of accuracy.</p>	<p>WR-2 Hydrology includes analysis of flow travel times that is sufficient to answer the question posed. The WR-2 Study Plan includes a calculation of flow travel times along the NFKR between Fairview Dam and Kernville, where existing and available flow data from both the SCE flow gage below Fairview Dam and the USACE flow gage at Kernville will be analyzed to detect changes in flow fluctuations. Flow travel times will be estimated (on an hourly level) as depicted from the shifts in flow recorded between the two gages. Additionally, FERC considers the environmental baseline in relicensing proceedings as the environment as it exists at the time of relicensing, not conditions that pre-date the Project before it was built. Therefore, evaluating travel times without the diversion is not applicable for this study.</p>
WR-28	Neil Nikirk	Pg. 16	WR-2 Hydrology	<p>Flow exceedance probabilities, both annual and monthly, should be developed from the hydrologic data along with flow duration curves. Development of flow duration curves and flow exceedance probabilities is often hampered by lack of data, such that any and all available hydrologic data should be used, not just data from the current license term (1997 to 2021).</p>	<p>The WR-2 Study Plan has been revised to clarify that both flow exceedance probabilities and flow duration curves will be developed as part of the study. The current license term hydrology data (water year 1997 through 2021) was selected as the date range in which to conduct statistical analysis as that encompasses current Project operations and the “environmental baseline.”</p>
WR-29	Neil Nikirk	Pg. 16	WR-2 Hydrology	<p>Any reissuance of the license for KR-3 should be conditioned to include a long-term flow monitoring program in Salmon and Corral creeks, both upstream of the diversion point and downstream (or in the diverted flow) to verify compliance with the terms of the license. Currently there is no way to determine if SCE is in compliance with the diversion criteria that conditions water withdrawal from Salmon and Corral creeks.</p>	<p>Comment Noted. The Salmon and Corral creek diversions are configured so that the required instream flows are provided via a fixed-orifice release plate before any additional flow is diverted to the conveyance flowline. SCE and USGS routinely perform site visits to inspect and verify the proper function of the fixed-orifice structures.</p> <p>Monthly diversion volume measurements in acre feet and maximum flows in cubic feet per second are submitted annually to State Water Board, per water-right reporting requirements.</p>
WR-30	Kern River Boaters	Pg. 34	WR-2 Hydrology	<p>4.0 STUDY AREA AND STUDY SITES</p> <p><i>The study will compile data from: • Southern California Edison (SCE) Company Gage 401 (U.S. Geological Survey [USGS] gage 11186000) in the North Fork Kern River (NFKR) downstream from Fairview Dam. • SCE Gage 402 (USGS gage 11185500) in the conveyance flowline at Adit 6/7. • U.S. Army Corps of Engineers (USACE) gage in Kernville. (PSP WR-2 at 1.)</i></p> <p>The project’s “influence on stream hydrology” (PSP WR-2 at 1) does not start and end with the NFKR; it includes hydrological influence on Salmon and Corral creeks as well, as indicated by their inclusion in Edison’s PSP WR-1. This study should similarly include project effects on the creeks by providing all flow data available from the project’s diversions at Salmon and Corral creeks to “inform evaluations of potential project-related effects on streamflow and hydrology” (PSP WSR-2 at 1) on those creeks by agencies and stakeholders.</p>	<p>Comment Noted. Refer to comment response #WR-29.</p>
WR-31	Kern River Boaters	Pg. 34	WR-2 Hydrology	<p>5.0 EXISTING INFORMATION</p>	<p>A brief discussion of gage equipment error and reporting standards within the data reported will be included with the Technical Memo.</p>

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				<p><i>This [USACE] data is subject to USACE oversight and to a different standard than the USGS gages upstream. (WR-2 at 1.)</i></p> <p>Announcing that the data are subject to different standards without identifying those differences does nothing to promote public understanding or inform the study process. We request that Edison identify the purported differences in an updated study plan.</p>	
WR-32	Kern River Boaters	Pg. 34	WR-2 Hydrology	<p><b>6.0 STUDY APPROACH</b></p> <p><i>Hourly gage data will be compiled from SCE, USGS, and/or USACE for the duration of the current license period (i.e., water year 1997, beginning October 1, 1996, through water year 2021, ending September 30, 2021). (WR-2 at 1.)</i></p> <p>Edison proposes to report out in August 2023. (PSP WR-2 at 2.) There is no reason Edison cannot include water year 2022 in that report — that data is fresh, should not be “on floppy disk, or on paper,” and will have been compiled and provided to USGS many months before that date. We request that water year 2022 be included in this study.</p>	Raw hydrology data through 2021 will be provided to stakeholders after the data are compiled, tabulated, and checked for quality. The data from water years 2022 and 2023 will also be provided (anticipated by the beginning of the following year), after the annual data review process is completed.
WR-33	Kern River Boaters	Pg. 34	WR-2 Hydrology	<p><b>7.0 REPORTING</b></p> <p><i>SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the WR-2 #1 WR-2 #2 This would be explained in the TM? WR-2 #3 We will use '22 in some analysis, so it could be distributed in a 2nd round in Aug 23 with the ISR? 35 Technical Memo will be summarized in, and appended to, the Application for New License. (PSP WR-2 at 2.)</i></p> <p>The fundamental operation of this project is to remove water from the NFKR and two of its tributaries. Edison is obligated under its current license to monitor this operation and provide the data it obtains in that process to the public in real time and to USGS annually. A reasonable hydro company should be aware that flow data is an essential element of the hydro project relicensing process and should be both ready and willing to share that data with the public when announcing its intent to seek a new license. Yet Edison acts like this data can only be provided to managing agencies and stakeholders with a level of cost and exertion associated with an archaeological dig. Further, Edison does not plainly commit to sharing the underlying hourly flow data with the public in its proposed study. We request that Edison subject the hourly flow data it possesses in the POR for the NFKR and the data it possesses on creek flows to its quality assurance process and provide it to the public in an electric spreadsheet format available on the internet by the end of this year (December 31, 2022). Edison remains free to analyze that data as it wishes; stakeholders and managing agencies should be free to do the same in developing their full understanding of project effects at least in the middle of this process — not towards the end of it.</p>	Refer to comment responses #WR-29 and #WR-32.
WR-34	Kern River Boaters	Pg. 36	WR-2 Hydrology	<p><b>8.0 SCHEDULE</b></p> <p><i>Summer 2022: Compile gage data from USGS/SCE for the established period of record; Review and analyze data for integrity, consistency, and data gaps. August 2023: Provide Hydrologic Gage Data and Technical Memo with ISR. (PSP WR-2 at 2.)</i></p> <p>As indicated above, we request that Edison subject NFKR hourly flow data and creek flow data for water years 1997-2022 to its QAP and provide it to the public in an electric spreadsheet format available on the internet by December 31, 2022.</p>	Refer to comment responses #WR-29 and #WR-32.
WR-35	Kern River Boaters	Pg. 36	WR-2 Hydrology	<p><b>9.0 LEVEL OF EFFORT AND COST</b></p> <p><i>The estimated cost (2022 dollars) for this study is \$50,000, which includes data compilation and analysis, and reporting.</i></p>	Flow data will be provided as described in comment responses #WR-29 and #WR-32.



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				This is data Edison is (1) obligated to obtain under the terms of its license, (2) provides to USGS for public reporting, and (3) understands is necessary to capture project effects in a relicensing proceeding. Edison's estimated cost for this study is more than that of its proposed limited water quality study. (Compare PSP WR-1 at 6 [\$42,000] with PSP WR-2 at 2 [\$50,000].) This study involves desktop validation of logged data that has already been submitted to USGS for two gauges, and acquisition of publicly available data from the third gauge. The estimated cost, in our opinion, seems inflated, and should not be appreciably increased by our proposal for the inclusion, validation, and distribution of creek data and hourly NFKR data for water year 2022 — again, this is data that Edison is required to obtain and hold and that is fundamental to a relicensing proceeding. We ask that the Commission direct Edison provide the flow data for all project operations during the current license term by the end of this year.	
WR-36	Kern River Boaters	Pg. 91	Stakeholder Study Request	<p>KRB SR-5: FLOW TRAVEL TIMES UPDATED STUDY PROPOSAL</p> <p><i>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.</i></p> <p>The goal of this study is to evaluate the amounts of time certain flows take to travel from the project's diversion point to its powerhouse, both through its conveyance and through the dewatered reach, the results of which may constrain or afford opportunities for plausible environmental or recreational mitigation measures.</p>	<p>Not adopted. The study request is not necessary because WR-2 <i>Hydrology</i> includes an analysis on travel times and is sufficient to answer the question posed, also refer to comment response #WR-27. As noted in SCE's comments filed with the PSP in March 2022, SCE adopted portions of this request and modified WR-2 <i>Hydrology</i> to include an analysis of flow travel times between Fairview Dam and the USACE stream gage at Kernville utilizing existing gage data.</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.5, <i>KRB SR 5: Flow Travel Times Updated Study Proposal</i>.</p>
WR-37	Neil Nikirk	Pg. 8	N/A	In addition, the scientists at UC Davis have established the California Environmental Flows Framework ("CEFF") to get past the numerous and often confounding individual measurements of river health and instead holistically evaluate what minimum flows are required for a healthy river. This framework should be used as one tool to investigate and establish minimum flow requirements.	<p>CEFF is a framework (e.g., process), not an investigative tool. Therefore, CEFF does not define the minimum flows necessary to maintain riverine ecosystems. However, WR-2 <i>Hydrology</i> was revised to include the calculation of natural functional flow ranges for the NFKR upstream of Fairview Diversion Dam in wet, moderate, and dry years, consistent with Section A of CEFF (CEFWG, 2021; Stein et al., 2021).</p> <p>Refer to the summary of changes to the WR-2 Study Plan in Section 2.2.2, <i>WR-2 Hydrology</i>, of this RSP. See also comments in Section 2.3.1, <i>Studies Adopted or Adopted with Modification</i>, of this RSP—specifically, Section 2.3.1.1, <i>KRB SR-7: Environmental Flows Updated Study Request / Minimum Fish Flows</i>—for additional information about SCE's integration of CEFF as part of the licensing process.</p>
WR-38	SQF	Pg. 3/15	N/A	<p>The Forest Service has no additional comments to add to the WR-2 study. The Forest Service does support the inclusion of the study request from the Kern River Fly Fishers' Council and Kern River Boaters for an environmental flow study (See Section 2).</p> <p>The Forest Service supports the inclusion of the updated Environmental Flows Study proposed by the Kern River Fly Fishers' Council (KRFFC) and Kern River Boaters (KRB) provided to the Forest Service on May 9, 2022, which we understand will be filed to the record by KRFFC and KRB. This updated study request will provide information that will be helpful for the Forest Service and others to develop terms and conditions for the Project. In addition, the information provided by this study will also help the Forest Service with its obligations under Section 7 of the Wild and Scenic Rivers Act. This proposed study would use already available data and data generated by the other studies in a desktop study to characterize natural instream flows based on functional flow components and develop ecological flow criteria and recommendations. This framework and information would be used to help develop terms and conditions and to inform the Wild and Scenic Rivers Section 7 determination.</p>	Refer to response to comment #WR-37 with integrates components of the CEFF framework.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
WR-39	Neil Nikirk	Pg. 12	Stakeholder Study Request	<p>Environmental Flow (KRB and KRFF) <i>SCE responds that the study request is not necessary because existing information is sufficient to answer the questions posed.</i></p> <p>I agree that existing information is available to perform this assessment, but the willingness to do so has not been demonstrated. FERC should require this analysis using the California Environmental Flows Framework (CEFF) and other applicable methodologies for determining minimum instream flows that support the natural environment and ecosystem.</p>	<p>Adopted with Modification, as described in to comment response #WR-38.</p> <p>Refer to the summary of changes to the WR-2 Study Plan in Section 2.2.2, <i>WR-2 Hydrology</i>, of this RSP. See also comments in Section 2.3.1, <i>Studies Adopted or Adopted with Modification</i>, of this RSP—specifically, Section 2.3.1.1, <i>KRB SR-7: Environmental Flows Updated Study Request / Minimum Fish Flows</i>—for additional information about SCE’s integration of CEFF as part of the licensing process.</p>
WR-40	Neil Nikirk	Pg. 13	Stakeholder Study Request	<p>Minimum Flow Study/Fish Flow Study (Richard Arner, Kent Varvel, and Lawrence Elman) <i>SCE responds that the study request is not necessary because existing information is sufficient to answer the questions posed and the study request did not otherwise meet the criteria of 18 CFR § 5.9(b).</i></p> <p><i>An instream flow assessment was previously completed on the NFKR and published in 1991 (SCE, 1991). The results of this extensive study identified fish habitat/flow relationships in the Fairview Dam Bypass Reach. The NFKR is a predominately boulder/bedrock dominated stream, thus the channel is unlikely to have changed significantly since 1991 and it is expected that the results of the study are still applicable.</i></p> <p>Although the channel characteristics may not have substantially changed, the previous instream flow assessment is outdated and utilized a now outdated methodology. The results of that study are no longer applicable and a more modern and scientifically defensible study using state of the art methodology (such as the CEFF) should be undertaken. Although the study request did not otherwise meet the criteria of 18 CFR § 5.9(b), FERC could (and should) insist that a study of this type be conducted for the bypass reach of the NF Kern River. KRB submitted an extensive review of various instream flow methodologies in their comments on SD-1 that could guide the FERC recommendation.</p>	<p>Adopted with Modification. Refer to comment responses #WR-37 and #WR-39.</p> <p>Other existing information includes results of an existing Physical Habitat Simulation System (PHABSIM) study, including streamflow/habitat relationships for individual life stages of rainbow and brown trout, water temperature modeling, fish population monitoring, and sediment mobilization studies.</p> <p>Information obtained as part of this, and other studies included with this RSP, combined with existing information, will be used to analyze environmental effects of SCE’s relicensing proposal and reasonable alternatives, pursuant to FERC’s obligations under NEPA and the FPA.</p>
WR-41	KRFF/KRB RB	Pg. 11 Pg. 103	Stakeholder Study Request	<p>Environmental Flows: Updated Study Request Study Goals and Objectives</p> <p>The study should follow the methods outlined in California Environmental Flows Framework Version 1.0 (CEFWG, 2021). This framework defines each of the objectives as outlined here, and defines steps by which to carry them out: (1) Identify the ecological flow criteria using natural functional flows for the NF Kern River. Determine the natural ranges of the flow metrics for each of the five functional flow components (fall pulse flow, wet-season base flow, wet-season peak flows, spring recession flow, dry-season base flow); (2) Determine functional flow criteria for each of Dry, Moderate, and Wet water years using hydrological data available; (3) Provide the resulting functional flow criteria ranges to all stakeholders</p>	<p>Adopted with Modification. Refer to comment responses #WR-37.</p>

**Study Plan Comment Response Matrix—Biological Resources**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
BIO-1	Neil Nikirk	Pg. 10	BIO-1 Foothill Yellow-legged Frog	<p><i>In response to SQF, the Study Approach has been updated to:</i></p> <ul style="list-style-type: none"> <li><i>Clarify that Visual Encounter Surveys (VES) will include larvae as well as juveniles and adults.</i></li> </ul>	<p>The BIO-1 Study Plan VES approach targeting larval life stages will maximize the likelihood of detecting foothill yellow-legged frogs. Egg masses have a lower detection probability during VES compared to larvae foothill yellow-legged frogs, given that egg masses are typically laid under boulders, making them difficult to find in small populations. The observation of frog larvae will indicate breeding and provide the same information as</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				<ul style="list-style-type: none"> <li>Provide additional information about the number and timing of eDNA samples; eDNA samples will be collected during a single event in the breeding season, timed to coincide with the VES. However, the actual number of survey sites will depend on the results of the habitat assessment.</li> </ul> <p>Visual encounter surveys should include all life stages of the frog, including searching for egg masses. Sampling during a single event is not sufficient to rule out presence of frogs even if there is no detection of eDNA. The very fact that FYLF have not been observed in the Project Area for 50 years (since 1972) indicates that project operations have had an adverse effect on the foothill yellow-legged frog in the NF Kern River.</p>	<p>the observation of an egg mass. During VES, biologists will survey for larva, sub-adults, and adult frogs, and will target habitat that supports those life stages. Because of the limited populations in the region, the inclusion of eDNA sampling is intended to maximize the detection of foothill yellow-legged frogs; while it is very difficult to prove absence, collecting eDNA in conjunction with visual surveys will bolster confidence in VES results.</p> <p>The conclusions that the Project is affecting foothill yellow-legged frogs is unsupported and unjustified. There are many risk factors known to adversely affect foothill yellow-legged frogs and their habitats, including disease, air born contaminants (including pesticides), fire management, introduced species, recreational activities, climate change, UV-b radiation, as well as water development and diversion. It is SCE's objective to assess whether operations under the current license and any changes proposed as part of the new FERC license may affect foothill yellow-legged frog populations or their habitats.</p>
BIO-2	Neil Nikirk	Pg. 17	BIO-1 Foothill Yellow-legged Frog	<p>5.0 EXISTING INFORMATION</p> <p>Historically, foothill yellow-legged frogs were observed in the Project Area, including along the NFKR downstream of Fairview Dam at the confluence of Salmon Creek, and upstream of Cannell Creek, although all observations were recorded prior to 1972 (CDFW, 2020).</p> <p>The Eastern/Southern Sierra clade of foothill yellow-legged frog was listed as endangered by the California Fish and Game Commission on February 21, 2020 (California Fish and Game Commission, 2020).</p> <p>The very fact that FYLF have not been observed in the Project Area for 50 years (since 1972) indicates that project operations have had an adverse effect on the foothill yellow-legged frog population in the NF Kern River.</p>	Refer to comment response #BIO-1.
BIO-3	Neil Nikirk	Pg. 17	BIO-1 Foothill Yellow-legged Frog	Any reissuance of the license for KR-3 should be conditioned to include a long-term monitoring program for foothill yellow-legged frog within the project area to ensure that continued operation of the project will not have an adverse effect on the population of foothill yellow-legged frog or their habitat in NF Kern River. Conditions should also be included in the license to ensure that project operations do not hinder any efforts to protect or re-introduce foothill yellow-legged frogs in the project area.	Comment noted. Monitoring and mitigation for potential effects on foothill yellow-legged frog populations will be addressed following the completion of studies, and an assessment of Project-related effects.
BIO-4	Neil Nikirk	Pg. 17	BIO-1 Foothill Yellow-legged Frog	<p>6.0 STUDY APPROACH</p> <p>SCE has provided a number of criteria to be used for ranking of foothill yellow-legged frog habitat suitability.</p> <p>These criteria should be verified with standard survey protocols for foothill yellow-legged frog and applied through an examination of aerial imagery and video and field reconnaissance at a variety of flows as the suitability of an area can differ depending on the prevailing flow at the time of the survey. Conducting field reconnaissance during one quarter of one year will not capture the natural (and diversion-related) variability in flows required to accurately assess habitat suitability. To achieve the required level of flow variability may require that the diversion be shut down on one or more days of the field reconnaissance in order to examine habitat suitability over a range of flows.</p>	Assessing the habitat late in the summer is helpful for determining habitat suitability for foothill yellow-legged frogs. Understanding which areas dry up in late summer is useful in determining potential breeding habitat. SCE understands that California, and particularly the Kern watershed, is experiencing extremely dry conditions this year. Biologists will take that into consideration when qualifying suitable habitat. Biologists will use in-the-field habitat assessment as well as aerial imagery and drone footage to help determine habitat conditions.
BIO-5	Neil Nikirk	Pg. 17	BIO-1 Foothill Yellow-legged Frog	<p>6.2.1. ENVIRONMENTAL DNA SAMPLING</p> <p>eDNA water samples will be collected during a single event in the breeding season, timed to coincide with the VES. Site-specific eDNA sample design and methods (e.g., filter pore size and sample volume) will be developed to maximize the likelihood of foothill yellow-legged frog detection within the sample site.</p>	The eDNA approach for BIO-1 was adopted from peer reviewed methods developed by Bedwell and Goldberg (2019) for the detection of foothill yellow-legged frogs. As recommended, to increase detection probability, biologist will collect eDNA samples late in the season (July); they will collect 2 liters from each site and will collect samples every

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				A single eDNA sampling event is not sufficient to rule out presence of frogs even if there is no detection of eDNA. There are methods to estimate probability of detection. Has this been done for the sample design chosen and number of samples? It would appear that the number of samples and a one-time event would have a low probability of detection. Additional samples at other time periods should be taken to improve the overall probability of detection. The study design should not be limited only to high suitability sites and include at least some moderate suitability sites to improve detection probability.	100 meters within each site. Biologists will also collect duplicate eDNA samples that can be used to determine detection probability, if necessary.  eDNA samples will be collected at sites that maximize the detection of foothill yellow-legged frogs. Survey/sample sites will include slow/shallow riffles with pebble/cobble or small boulder substrate, back-channel pools, sites associated with tributaries, etc. Sites that are not suitable foothill yellow-legged frog habitat will not be surveyed as surveying poor habitat will not provide any inference on detection probability.
BIO-6	Neil Nikirk	Pg. 17	BIO-1 Foothill Yellow-legged Frog	6.2.2. VISUAL ENCOUNTER SURVEYS  A single Visual Encounter Survey (VES) is not sufficient to determine presence/absence with any level of certainty. A minimum of two surveys is recommended to increase the probability of detection. These two site visits would include a tadpole survey in the late spring/early summer followed by a second survey for juveniles/subadults and adults in the late summer. Surveys for all life stages may be required for additional certainty. Not enough detail is provided to determine if standard protocols are being used.	The BIO-1 Study Plan methods include standard VES protocol and a two-surveyor approach. As described in the study plan, the VES will be conducted by wading or walking the shoreline and shallow-water habitats where possible, scanning ahead and searching stream banks, back-channel areas, and instream habitats. This is the same survey method employed by federal and state agencies.  Collecting eDNA in conjunction with VES will help bolster confidence in survey results and maximize the detection of foothill yellow-legged frogs.
BIO-7	Kern River Boaters	Pg. 37	BIO-1 Foothill Yellow-legged Frog	6.0 STUDY APPROACH <i>CONDUCT FIELD SURVEYS</i> Edison states the goal of this study is to “Determine whether any life stage of the foothill yellow-legged frog is present within the study area.” (BIO-1 at § 3.0.) This goal can be assisted with crowdsourcing at low cost with potentially determinative benefits. As our references below show, crowdsourcing has been used to elicit data over areas too voluminous or timespans too wide for one study team to reasonably be expected to acquire. That makes it one of the best available scientific tools for species identification. In this case, the study team is tasked with one extremely limited field survey (one) at as few as six sites. (BIO-1 at §§ 4.0 & 6.2.2.) The public can be enlisted to assist the field team’s work with Edison’s provision of an information sheet on (1) how to identify the species, (2) how to document a suspected observation of the species (including direction not to disrupt it), and (3) how to report the observation. We do not ask that eDNA or habitat suitability information be divulged in this effort; rather, the effort would simply be educational on identification, documentation, and reporting of suspected encounters for the numerous persons who hike and enjoy the forest in the project-affected area. We accordingly request that Edison’s biologists develop a short but salient information sheet on how to identify, document, and report this species if come across in the project area — including direction not to disturb potential candidates — and host that sheet on a website that can be directly linked to and promulgated by managing agencies and conservation organizations.	SCE is using crowdsourced information, including <i>iNaturalist and gbif</i> , to help determine potential population locations. However, while citizen science initiatives can be useful, it does not replace the need for highly trained biologists to conduct visual surveys. Additionally, using eDNA techniques to detect foothill yellow-legged frogs and other elusive species has proven to be highly effective, especially when populations are assumed to be low. eDNA surveys are not conducive to crowdsourcing because of the training and material required to collect un-contaminated samples. Refer also to comment response #BIO-1.  For additional information on habitat and identification, visit: <a href="https://californiaherps.com">Foothill Yellow-legged Frog - Rana boylei (californiaherps.com)</a>  Any observation can be reported in the California Natural Diversity Database: <a href="https://ca.gov">Submitting Data to the CNDDB (ca.gov)</a>
BIO-8	SQF	Pg. 3	BIO-1 Foothill Yellow-legged Frog	Phase I (habitat assessment) should be completed during late spring, to ensure that water is in channels that might otherwise appear to be dry. This will help avoid the problem of missing suitable habitat.	Understanding which areas dry up in late summer is useful in determining potential breeding habitat for foothill yellow-legged frogs. SCE understands that California, and particularly the Kern watershed, is experiencing extremely dry conditions, and biologists will take that into consideration when qualifying suitable habitat. The current survey timing (July) will maximize detection for breeding foothill yellow-legged frogs using both eDNA as well as VES. See also comment response #BIO-1.
BIO-9	SQF	Pg. 3	BIO-1 Foothill Yellow-legged Frog	Phase I aerial habitat assessment protocols need more detail, including but not limited to an explanation of how drone operators will avoid disturbing birds that actively use the same habitat (e.g., American dipper)	Biologists supporting the BIO-1 study will use existing aerial imagery or drone video, which is available on the Relicensing website. Any additional photography will be flown at elevations and seasons that would minimize disturbance to birds or other wildlife in the area.

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BIO-10	SQF	Pg. 3	BIO-1 Foothill Yellow-legged Frog	Phase I habitat categorizations seem to ignore anecdotal reports from the public and observations by Forest Service personnel that FYLF utilize tributaries with bedrock pools and steep canyon walls while avoiding the mainstem of the river. The habitat categories seem appropriate for occurrences that may be documented within the river, but much of the habitat in tributaries will be categorized as unsuitable using the currently proposed schema. Re-writing the schema to focus on the habitat features that FYLF need and dispensing with the river-tributary dichotomy will improve the study.	It is unclear which "anecdotal reports from the public" the SQF is referencing. SCE requests that SQF provide any observations/anecdotal reports of foothill yellow-legged frogs in the study area; such information would be very useful in determining sampling/survey sites. Foothill yellow-legged frogs will typically use the mainstem of a river system for breeding and then migrate into tributary habitat during the fall/winter. In some cases, such as the remanent population in the Kern watershed, they will use tributary habitat for breeding and overwintering. SCE's objectives are to determine if Project operations are affecting foothill yellow-legged frogs or their habitats. Therefore, biologists will survey the mainstem NFKR and the three Project-affected tributaries (Salmon, Corral, and Cannell Creeks) to look for evidence of foothill yellow-legged frogs breeding and adults.
BIO-11	SQF	Pg. 3	BIO-1 Foothill Yellow-legged Frog	Phase II (VES and eDNA) should emphasize tributaries to NFKR and include multiple points on Salmon, Corral, and Cannell creeks. For each stream, take water samples for eDNA analysis at a point above the diversion and near the stream's confluence with NFKR.	SCE will collect eDNA samples every 100 meters along the length of each site and will include a location above the diversion and near the stream's confluence along Salmon, Corral, and Cannell creeks, where accessible.
BIO-12	SQF	Pg. 3	BIO-1 Foothill Yellow-legged Frog	Egg mass and YOY surveys are conducted on both the main stem and the 3 above named tributaries.	Refer to comment response #BIO-1.
BIO-13	SQF	Pg. 3	BIO-1 Foothill Yellow-legged Frog	SCE works with the agencies to develop more detailed eDNA survey protocol.	SCE has updated the BIO-1 Study Plan to incorporate additional detail, per consultation with SQF.
BIO-14	SQF	Pg. 4	BIO-1 Foothill Yellow-legged Frog	SCE shares survey results with the Forest Biologist in addition to submitting their data to CNDDB.	SCE will provide survey results to the SQF biologist, as well as submit data to CNDDB.
BIO-15	California Department of Fish and Wildlife	Pg. 3	BIO-1 Foothill Yellow-legged Frog	Comment 1A-3. The Licensee described the study area, as including Project forebays and Project-affected stream reaches (PSP Figure 4-1). As described, "the habitat suitability assessment area includes: (1) North Fork Kern River (NFKR) immediately upstream and around Fairview Dam, (2) Fairview Dam Bypass Reach (the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace), (3) NFKR between the KR3 Powerhouse and Kernville, (4) Salmon Creek Diversion Bypass Reach (the 0.4-mile reach from Salmon Creek Diversion downstream to the confluence with the NFKR), (5) Corral Creek Diversion Bypass Reach (the 1.1-mile reach from Corral Creek Diversion downstream to the confluence with the NFKR), and (6) Cannell Creek between the siphon spillway and the NFKR." BIO-1 states that surveys will occur at: • One to two sites in the NFKR upstream of Fairview Dam • One to four sites in the Fairview Dam Bypass Reach • One to two sites in the NFKR between the KR3 Powerhouse and Kernville • One site in the Salmon Creek Diversion Bypass Reach • One site in the Corral Creek Diversion Bypass Reach • One site in Cannell Creek And that an additional study site upstream of the Project with contemporary documented occurrences of foothill yellow-legged frogs may be included as a reference site for eDNA sampling. The Department supports including the habitat suitability assessment areas and survey locations as described above with the addition of at least two (2) sites in the tributaries.	Biologists will collect eDNA samples from at least four locations along Salmon, Corral, and Cannell creeks, including one location above the diversion and one near the stream's confluence, where accessible. Each survey site is 400 meters, which includes a substantial portion of each of the three tributary reaches. Because a large portion of the survey area of the three tributaries is already included in the three survey sites, SCE does not see a need to add additional sites.
BIO-16	California Department of Fish and Wildlife	Pg. 4	BIO-1 Foothill Yellow-legged Frog	Comment 1A-4. PSP Section 6.2.1 (Environmental DNA Sampling) could benefit from more specificity if the Licensee works with Resource Agencies to develop a more detailed eDNA sampling protocol to refine the site selection and include other target species, listed in Section 1B below	The BIO-1 Study Plan was revised to include additional detail on survey methods and sites. See also comment response #BIO-13.  Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, aquatic reptiles, and amphibians, bald eagle, osprey, and Great blue heron) on data sheets and will report this information in the Technical Memo for use by other studies during the relicensing process.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
BIO-17	California Department of Fish and Wildlife	Pg. 4	BIO-1 Foothill Yellow-legged Frog	<p>Comment 1A-5. PSP Section 6.2.2 (Visual Encounter Surveys) specifies that surveyors will scan and search the sites for larvae (tadpoles) and post-metamorphic frog life stages (juveniles and adults) on both sides of the river, where possible. In addition, the Department requests that surveyors scan and search both mainstem and tributary sites for egg masses and young-of-the-year.</p> <p>Comment 1B-2. Section 3.0 of the PSP (Study Goals and Objectives) does not include the following species and, therefore, does not evaluate the potential impact of the Project on their populations. The Department supports that SCE develops a study plan for the following species in the Project Area: • Fish • Mussels • Macroinvertebrates • Invasive species (e.g., bullfrogs, crayfish, Asian clams, and invasive fishes) • Birds (e.g., bald eagle, osprey, and Great blue heron)</p>	<p>Refer to comment response #BIO-1.</p> <p>Additionally, biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, aquatic reptiles, and amphibians, bald eagle, osprey, and Great blue heron) on data sheets and will report this information in the Technical Memo for use by other studies during the relicensing process.</p>
BIO-18	US Fish and Wildlife Service	Pg. 1	BIO-1 Foothill Yellow-legged Frog	<p>The Service concurs with and supports both the Forest Service and California Department of Fish and Wildlife's comments on the KR3 Project. In addition to these comments, the Service also recommends: Section 1A. BIO-1 Foothill yellow-legged frog Study Plan 1. PSP Section 6.2.1 (Environmental ENA Sampling): A field negative control sample should be collected prior to sampling eDNA in each area. 2. PSP Section 6.2.1 (Environmental ENA Sampling): Only 0.45um cellulose nitrate filters should be used in this eDNA protocol. 3. PSP Section 6.2.1 (Environmental ENA Sampling): The lab chosen should use an eDNA extraction protocol that's been demonstrated to be successful on the filter material used.</p>	<p>As described in the BIO-1 Study Plan:</p> <ol style="list-style-type: none"> <li>1. Field blanks (i.e., control samples) will be collected each day, prior to collecting eDNA that day.</li> <li>2. Crews will use 0.45 micron cellulose nitrate filters, if available, with option to use similar alternatives should there be supply chain/delivery issues.</li> <li>3. SCE will use a qualified eDNA lab that has demonstrated to be successful in the filter material used.</li> </ol>
BIO-19	SQF	Pg. 4	BIO-2 Special-Status Salamanders  BIO-5 Western Pond Turtle <sup>1</sup>	<p>BIO-2 is best treated as two distinct studies; the study is already written in two parts, so separating the studies completely should be an easy task. This organizational approach will benefit readers and stakeholders looking for information specific to the organisms that interest them. Further justification can be drawn from the following facts: The salamanders in question are terrestrial and live beneath cover objects in areas adjacent to streams, but not directly in the streams. The turtles are much larger than the salamanders, exhibit basking behavior that aids in detection, and they take refuge in the water when disturbed. Consequently, eDNA will not detect the salamanders, but it is likely to prove useful for detecting the turtles. Splitting the current study allows SCE and its contractors to focus their survey efforts on terrestrial and aquatic organisms, as appropriate.</p>	<p><i>BIO-2 Western Pond Turtle and Special-Status Salamanders</i> has been updated in this RSP. It has been separated into two separate study plans, as follows:</p> <ul style="list-style-type: none"> <li>• <i>BIO-2 Special-status Salamanders</i>; and</li> <li>• <i>BIO-5 Western Pond Turtle</i></li> </ul> <p>Neither BIO-2 nor BIO-5 studies propose the use of eDNA as eDNA tests for presence, and both target species are known to occur in the study area based on literature review or previous surveys. Additionally, the target species of salamander are more terrestrial than aquatic and may not provide enough DNA in sampled waters to test effectively.</p>
BIO-20	SQF	Pg. 4	BIO-2 Special-Status Salamanders	<p>Salamanders of Special Concern Phase 1 (habitat assessment) is planned as a desktop GIS exercise supplemented by field surveys.</p> <p>The Forest Service recommends a highly conservative habitat modeling approach (i.e., erring in favor of the animals / over-estimating available habitat) due to the secretive nature of the animals in question. The salamanders are all very small, live in habitat that is extremely difficult and dangerous for a human to traverse, and sensitive to humidity. It is possible that scrambling across areas of suitable habitat will crush salamanders sheltering under scree and coarse woody debris that are small enough to be dislodged by a human. Furthermore, the salamanders are rare, so detection probability is decreased as function of low abundance.</p>	<p>SCE concurs with the SQF's proposed approach to (1) take a highly conservative approach to habitat modeling, and (2) perform field surveys with utmost care to prevent damage to salamanders and their habitat.</p>

<sup>1</sup> Per USFS comment #BIO-19, the previously titled *BIO-2 Western Pond Turtle and Special-Status Salamanders* was split into two separate studies: *BIO-2 Special-Status Salamanders* and *BIO-5 Western Pond Turtle*. The Study Plan title column in this table has been revised to reflect the revised study plan title applicable to each study.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
BIO-21	SQF	Pg. 4	BIO-2 Special-Status Salamanders	<p>Salamanders of Special Concern                      Phase 1 (habitat assessment) is planned as a desktop GIS exercise supplemented by field surveys.</p> <p>The current study identifies CNDDDB as the primary source of data for observation records. The Forest Service recommends using "Research Grade" observations from iNaturalist to supplement the CNDDDB records.</p>	SCE has updated the BIO-2 Study Plan to include <i>iNaturalist</i> as other data sources to help determine potential population locations. However, it does not replace the need for highly trained biologists to conduct visual surveys of the area.
BIO-22	SQF	Pg. 4	BIO-2 Special-Status Salamanders	<p>Salamanders of Special Concern                      Phase 1 (habitat assessment) is planned as a desktop GIS exercise supplemented by field surveys.</p> <p>The coverboard study can be removed from the proposed study. On scree slopes, there is abundant cover, and animals are unlikely to move from natural cover to artificial cover. Also, the slopes in near-stream habitats are extremely steep and difficult to traverse, dangerous even. Thus, monitoring cover boards will be difficult. Simple VES in suitable habitat using native cover object should suffice</p>	The SQF previously recommended the use of Cover Boards in their PAD/SD2 comments to assist in the identification of a broad range of amphibians and reptiles in addition to the slender salamander. The use of Cover Boards may provide suitable moist habitats for salamanders and increase the opportunity to document presence of the target salamanders and other species of wildlife. The Cover Boards will be placed in safe and accessible locations determined by the field staff, and will use caution when setting and accessing the Cover Boards so as not to cause disturbance and to remain safe in the field.
BIO-23	SQF	Pg. 4	BIO-2 Special-Status Salamanders	A corollary to the combination of low abundance, secretive behavior, and difficult terrain means that the probability of false negatives is high. Failure to detect salamanders does mean the salamanders are absent from the surveyed habitat.	Comment noted. The study methods for BIO-2 include a habitat assessment to evaluate potential for species to be present and does not rely solely on animal sightings. The results of both the habitat assessment and VES will be summarized in the Technical Memo.
BIO-24	SQF	Pg. 5	BIO-2 Special-Status Salamanders	<p>Salamanders of Special Concern                      Phase 1 (habitat assessment) is planned as a desktop GIS exercise supplemented by field surveys.</p> <p>Salamanders of Special Concern                      Phase 2 (VES)                      The Forest Service reiterates the protective measures that SCE prescribes to prevent the spread of amphibian pathogens. SCE and its contractors must take precautions against the spread of <i>Batrachochytrium</i> sp. and other amphibian pathogens by:</p> <ul style="list-style-type: none"> <li>• Avoiding contact with animals whenever possible</li> <li>• Wearing gloves when handling animals</li> <li>• Sterilizing equipment such as rulers, etc., if they are used to process multiple animals</li> <li>• Sterilizing boots, nets, containers, and other gear when moving between habitats</li> </ul>	SCE recognizes the importance of using protective measures to prevent the spread of amphibian pathogens and concurs with the SQF's comment. SCE's field biologists are experienced with decontamination techniques and will implement them meticulously in the field.
BIO-25		Pg. 5	BIO-2 Special-Status Salamanders	<p>Salamanders of Special Concern                      Phase 2 (VES)                      Photo-document the animals encountered during all survey efforts.</p>	The BIO-2 Study Plan has been updated to note that in the case that slender salamanders are located, a photograph of each individual will be taken in association with GPS data and will be included in reporting efforts. A photo would not be taken if unsafe for either the biologist or salamander.
BIO-26	SQF	Pg. 5	BIO-2 Special-Status Salamanders	<p>Salamanders of Special Concern                      Phase 2 (VES)                      Replace all cover to its original position, taking care not to crush the animals that sheltered beneath it.</p>	Comment noted.
BIO-27	SQF	Pg. 5	BIO-5 Western Pond Turtle	<p>Western Pond Turtle                      Phase 1 (GIS mapping and habitat surveys)                      Western pond turtle habitat is distinct from salamander habitat, so separate methods are necessary. Western pond turtles are active in streams, using the habitat to feed and</p>	<p>Comment noted. Refer to response to comment #BIO-19. <i>BIO-2 Western Pond Turtle and Special-Status Salamanders</i> has been separated into two studies:</p> <ul style="list-style-type: none"> <li>• <i>BIO-2 Special-status Salamanders</i></li> <li>• <i>BIO-5 Western Pond Turtle</i></li> </ul>



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				escape predators; the animals use terrestrial habitat to nest. This contrasts with the salamanders discussed above as the salamanders do not venture into water, and their terrestrial habitat is steeper and comprises more scree	
BIO-28	SQF	Pg. 5	BIO-5 Western Pond Turtle	Western Pond Turtle Phase 2 (VES) As discussed above for salamanders, SCE and its representatives should use iNaturalist research grade observations to supplement observations recorded in CNDDDB.	SCE has updated BIO-2 to include <i>iNaturalist</i> as one type of data source to help determine potential population locations. However, it does not replace the need for highly trained biologists to conduct visual surveys of the area.
BIO-29	SQF	Pg. 5	BIO-5 Western Pond Turtle	Western Pond Turtle Phase 2 (VES) Turtle scutes are primarily keratin, the same protein that chytrid fungi feed on in amphibian skin; therefore, it is possible that turtles could harbor the pathogens that affect amphibians. In light of this, SCE and its contractors should plan to use decontamination protocols as described in studies/study sections that address amphibians directly	SCE concurs with the SQF's comment and recognizes the importance of using protective measures to prevent the spread of pathogens. SCE's field biologists are experienced with decontamination techniques and will implement them meticulously in the field.
BIO-30	SQF	Pg. 5	BIO-5 Western Pond Turtle	Western Pond Turtle Phase 2 (VES) Consider using drones to detect turtles as the animals spook easily and may remain underwater for extended periods once disturbed.	SCE's proposed VES methodology in the BIO-5 Study Plan is a scientifically accepted practice for detecting western pond turtles. The use of drones is not expected to elicit new or additional information.
BIO-31	Neil Nikirk	Pg. 18	BIO-2 Special-Status Salamanders  BIO-5 Western Pond Turtles	4.0 STUDY AREA AND STUDY SITES <i>The habitat suitability assessment and study area minimally includes perennial streams, creeks, off-channel ponds, or wetlands within 50 feet of some identified Project facilities.</i>  The scope of this study is too limited; it only includes areas within 50 feet of facilities. The entire reach is affected by operations. The habitat suitability assessment and study area should include all perennial streams, creeks, off-channel ponds, or wetlands within the project area.	The habitat suitability study is designed to look at areas potentially affected by SCE's operation and maintenance activities in conjunction with individual species habitat criteria.  The habitat suitability assessment for BIO-2 <i>Special-status Salamanders</i> includes perennial streams, ephemeral creeks, dry ravines, and other areas matching the habitat description provided by Jockusch et al. (2012) for <i>B. bramei</i> and <i>B. altasierrae</i> and provided by Morey and Basey (1988) for <i>B. simatus</i> located within the FERC Project Boundary, including a 50-foot buffer. The habitat suitability assessment also includes the NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek.  The habitat suitability assessment for BIO-5 <i>Western Pond Turtle</i> includes perennial streams, ephemeral creeks, off-channel ponds, or wetlands located within the FERC Project Boundary, including a 50-foot buffer. The habitat suitability assessment also includes the NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek and the Fairview Dam Bypass Reach between Fairview Dam and the KR3 Powerhouse.
BIO-32	Kern River Boaters	Pg. 38	BIO-2 Special-Status Salamanders  BIO-5 Western Pond Turtles	6.0 STUDY APPROACH <i>FIELD SURVEYS</i> The stated goal of this study is to "Obtain additional information to supplement the existing information regarding western pond turtles, Fairview slender salamander, and other potential special-status salamanders potentially in the study area . . ." (BIO-2 at § 3.0.) If, under that rubric, a goal of this study is to search for evidence that these special-status species exist in the project affected area, that goal could be assisted with crowdsourcing at a low cost-to-potential-benefit quotient. (See ante, at BIO-1 FOOTHILL YELLOW-LEGGED FROG.) We accordingly request that the Commission direct Edison's biologists develop a short but salient information sheet on how to identify, document, and report these species if come across in the project area — including direction not to disturb potential candidates — and host that sheet on a website that can be directly linked to and promulgated by managing agencies and conservation organizations.	SCE believes the studies are adequate to accomplish the goals while protecting the species of concern.  SCE is using crowdsourced information, including <i>iNaturalist</i> , to help determine potential population locations. However, while citizen science initiatives can be useful, it does not replace the need for highly trained biologists to conduct visual surveys.  For additional information on habitat and identification, visit: <a href="#">California Herps</a>  Any observation can be reported CNDDDB: <a href="#">Submitting Data to the CNDDDB (ca.gov)</a>



Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
BIO-33	Neil Nikirk	Pg. 10	BIO-3 General Wildlife Resources	<p>In response to SQF, BIO-3 has been modified to include Incidental observations around Project out-buildings and other Project structures for signs of bat use. If evidence of bats is observed, SCE will consult with the SQF regarding the need for additional studies.</p> <p>SCE is proposing the use playbacks during bird surveys for the three listed riparian bird species and will notify U.S. Fish and Wildlife Service prior to conducting those surveys; however, SCE is not proposing protocol-level surveys nor the use of acoustic sampling for common songbirds.</p> <p>While this study may provide limited information about bat use of the project out-buildings and structures, it will provide no information on the bats living in and along the bypass reach where they may roost in cavities, crevices, and trees and forage over the river and riparian vegetation. In addition, this study only provides information on the presence or absence of individual bat species and does not help determine project impacts on bats through operation (diversions) at Fairview Dam. The study should be designed to detect the presence of bats in all areas potentially affected by project operations and to identify when and where project operations have an effect on bat species using the project area for roosting or foraging.</p>	<p>The purpose of the study is to determine if bats are present in Project buildings through visual observations or via evidence of bat use, at locations where bats are most likely to be affected by Project O&amp;M. Incidental observations of bats or bat use will be noted by field biologists when conducting BIO-3 field studies throughout the Project area.</p>
BIO-34	Neil Nikirk	Pg. 10	BIO-3 General Wildlife Resources	<p>It is good that SCE is proposing to use playbacks during bird surveys; however full protocol-level surveys and acoustic sampling for the three listed riparian bird species as well as common songbirds should be conducted as all of these species are afforded protection under the Migratory Bird Treaty Act. The study should also be expanded to provide information useful to determine project impacts on all bird species through operation (diversions) at Fairview Dam.</p>	<p>Refer to comment response #BIO-33.</p> <p>Protocol-level bird surveys are outside the scope necessary to evaluate Project-related effects as part of the relicensing process. Information obtained through the studies included with this RSP combined with existing information will be used to evaluate ongoing environmental effects due to Project operations.</p> <p>Additional information is needed as to what the commenter is looking for in terms of "The study should also be expanded to provide information useful to determine project impacts." A description of current Project operations is documented in the PAD (filed September 22, 2021) and will be used to analyze environmental effects of SCE's relicensing proposal and reasonable alternatives, pursuant to FERC's obligations under NEPA and the FPA.</p>
BIO-35	Neil Nikirk	Pg. 18	BIO-3 General Wildlife Resources	<p><b>4.0 STUDY AREA AND STUDY SITES</b>  <i>The wildlife study area shown on Figure 4-1 includes a 50-foot buffer around several aboveground Project facilities.</i>  <i>Biologists will search for signs of bats (staining on walls and guano piles) at the powerhouse and associated out buildings. If signs are detected, acoustic surveys will be performed.</i></p> <p>The scope of this study is too limited; it only includes areas within 50 feet of facilities. The entire reach is affected by operations. Also, many of the target species are associated with streams and riparian vegetation, not facilities. The wildlife study area should include areas within 50 feet of all perennial streams, creeks, off-channel ponds, or wetlands within the project area. The study should be designed to detect the presence of sensitive wildlife species in all areas potentially affected by project operations and to identify when and where project operations have an effect on these species using the project area.</p>	<p>The habitat suitability study is designed to look at areas potentially affected by SCE's O&amp;M activities in conjunction with individual species habitat criteria.</p> <p>The BIO-3 <i>General Wildlife Resources</i> study area includes 50 feet around all aboveground Project facilities and has been expanded to include the Fairview Dam Bypass Reach (up to 50 feet past the riparian corridor or up to the highway, whichever is closer).</p>
BIO-36	Neil Nikirk	Pg. 18	BIO-3 General Wildlife Resources	<p>While this study may provide limited information about bat use of the project out-buildings and structures, it will provide no information on the bats living in and along the bypass reach where they may roost in cavities, crevices, and trees and forage over the river and</p>	<p>Refer to comment response #BIO-33.</p>

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				riparian vegetation. In addition, this study only provides information on the presence or absence of individual bat species and does not help determine project impacts on bats through operation (diversions) at Fairview Dam. The study should be designed to detect the presence of bats in all areas potentially affected by project operations and to identify when and where project operations have an effect on bat species using the project area for roosting or foraging.	
BIO-37	SQF	Pg. 5	BIO-3 General Wildlife Resources	<p>As invasive animals are not addressed in the other proposed studies, the Forest Service requests that invasive animals be included in this study. The list of species that cause concern includes, but is not limited to, the following:</p> <ul style="list-style-type: none"> <li>• Bullfrogs (<i>Lithobates catesbaeanus</i>)</li> <li>• Crayfish (<i>Procambarus</i> spp., others)</li> <li>• Asiatic (aka Asian) clams (<i>Corbicula</i> spp.)</li> <li>• Invasive fishes/naturalized fishes from stocked populations (<i>Micropterus</i>, <i>Lepomis</i>, <i>Oncorhynchus</i>, <i>Cyprinus</i>, etc.)</li> </ul>	<p>SCE has updated biological study plans to include incidental sightings of non-native species, including those listed. Additionally, fish population monitoring being conducted as part of License Article 411, <i>Fish Monitoring Plan</i>, will include incidental observations of aquatic species.</p> <p>Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, aquatic reptiles, and amphibians, bald eagle, osprey, and Great blue heron, and American dipper) on data sheets including their location and behavior, as applicable. This information will be reported in the Technical Memo for use by other studies during the relicensing process.</p>
BIO-38	SQF	Pg. 6	BIO-3 General Wildlife Resources	Several predatory bird species forage and nest along the Kern River corridor, including but not limited to American bald eagle ( <i>Haliaeetus leucocephalus</i> ), osprey ( <i>Pandion haliaetus</i> ), great blue heron ( <i>Ardea herodias</i> ), and American dipper ( <i>Cinclus mexicanus</i> ). These birds are affected by water levels and fish stocks in the river, which means that flow manipulation and the presence of project-related infrastructure have an effect on their hunting success, reproduction, and abundance. The Forest Service therefore requests that BIO-3 incorporate a population census of these animals and collect GPS data for any nesting sites that are discovered.	Refer to comment response #BIO-37.
BIO-39	SQF	Pg. 6	BIO-3 General Wildlife Resources	The freshwater mussels <i>Gonidea angulata</i> and <i>Margaritifera falcata</i> are known from NFKR. Although some scientists believe the species are extirpated from the river, data are scarce and no comprehensive surveys have been done. Given the nature of the river – dangerous rapids and steep canyon walls in many areas – sampling for mussels has historically been logistically difficult, if not impossible. However, modern eDNA methods now make it possible to survey aquatic ecosystems like NFKR for species that were historically difficult to survey. If they are present, these mussels may play an important role in benthic nutrient cycles, water filtration/water quality, and even mediating the effects of post-fire runoff. Furthermore, the species are important to many. Therefore, understanding whether the mussels are present, and where they are present if they are detected, is of interest to the Forest Service and directly related to KR3 operations. The Forest Service is satisfied with the general set of sites and methodologies described in the write up BIO-3. SCE is encouraged to add eDNA sampling to the protocol as the most cost effective method for screening for aquatic invasive species (AIS) and mussels.	SCE is not proposing additional eDNA sampling for AIS. However, if observed incidental sightings will be recorded, including other biological surveys (e.g., BMI, fish monitoring, foothill yellow-legged frog, salamander, and turtle surveys), refer to comment response #BIO-37.
BIO-40	SQF	Pg. 6	BIO-3 General Wildlife Resources	Bats are common throughout the KR3 project area. Along the mainstem NFKR, where flow manipulation affects in-stream habitats and insect production, the bats may be affected. More interesting is the possibility that open-air sections of the water conveyance system are benefitting bats and providing the animals with food subsidies during dry periods by supporting invertebrate production. While not ideal for most invertebrates, some case-building midges and caddisflies, along with insects like Baetid mayflies that hug rock surfaces, may thrive in the flumes. These insects could benefit bats	<p>Bats eat a wide variety of prey items that do not rely on aquatic resources as part of their life cycle, such as moths, beetles, flies, bees and wasp.</p> <p>Open-air conveyances are not proposed for modification or change. Given the large amount of native habitat, including perennial and ephemeral streams, these conveyances would provide a minimal prey base. Refer to comment response #BIO-33</p>
BIO-41	SQF	Pg. 7	BIO-3 General Wildlife Resources	The Forest Service is satisfied with the general set of sites and methodologies described in the write up BIO-3. SCE is encouraged to add eDNA sampling to the protocol as the	Refer to comment response #BIO-39.

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				most cost effective method for screening for aquatic invasive species (AIS) and mussels. VES can be employed for detection of some AIS and censusing birds and in situations where eDNA indicates that further investigation is warranted.	
BIO-42	SQF	Pg. 7	BIO-3 General Wildlife Resources	From an administrative perspective, it may be appropriate to split BIO-3 into two or more independent studies. The Forest Service understands the implications for data management and the possibility that biologists with different skill sets may be more or less suitable for various aspects of the proposed work. Consequently, SCE's administrative decisions will be supported, the concern being the work to be completed more than how the company chooses to administer the study.	As applicable, the Technical Memo may include relevant sub-sections to describe the individual results of the various wildlife species detected. SCE does not feel that further sub-dividing the Study Plan is necessary.
BIO-43	California Department of Fish and Wildlife	Pg. 4	BIO-3 General Wildlife Resources	Comment 1B-2. Section 3.0 of the PSP (Study Goals and Objectives) does not include the following species and, therefore, does not evaluate the potential impact of the Project on their populations. The Department supports that SCE develops a study plan for the following species in the Project Area: • Fish • Mussels • Macroinvertebrates • Invasive species (e.g., bullfrogs, crayfish, Asian clams, and invasive fishes) • Birds (e.g., bald eagle, osprey, and Great blue heron)	<p>Fish population monitoring is being conducted as part of current License Article 411, <i>Fish Monitoring Plan</i>, and includes habitat characterization and assessment of reoccupied sample sites within the Fairview Dam Bypass Reach. Refer to Section 1.3, <i>Ongoing FERC License Requirement: License Article 411 – Kern River No. 3 Project Fish Monitoring Plan</i>, of this RSP for additional information regarding current License monitoring requirement.</p> <p>Per request from SQF and FERC's inclusion of benthic macroinvertebrates in SD2, SCE has developed a benthic macroinvertebrate population Study Plan in consultation with SQF and included <i>BIO-4 Benthic Macroinvertebrate</i> in this RSP. For additional information, refer to comment responses #BIO-45 through #BIO-51.</p> <p>Additionally, biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, aquatic reptiles, and amphibians, bald eagle, osprey, and Great blue heron) on data sheets and will report this information in the Technical Memo for use by other studies during the relicensing process.</p>
BIO-44	SQF	Pg. 14	Stakeholder Study Request	Reduced flows in the project reach have reduced hydrologic power, which may result in the accumulation of more sandy substrates in low-flow years (i.e., years with low snow melt and no flushing flows in the spring). This change in the types, distribution, and area of habitat types can explain differences in macroinvertebrate production of reaches in the project area as compared to reaches outside the project area. Therefore, this project needs a reach-scale habitat characterization component in addition to site-specific habitat data. If the data are already being collected as part of another study, those data can be used herein, and there is no need to do the habitat characterization twice. Regardless of how the data are acquired, they should be reported in this study, and the report discussion should address how flows affect habitat and thus affect invertebrate production.	<p>Adopted. SCE has developed a new Study Plan (<i>BIO-6 Stream Habitat Typing</i>), which includes a reach-wide survey of habitat types and distribution within the Fairview Dam Bypass Reach.</p> <p>See also comments in Section 2.3.1, <i>Studies Adopted with Modification</i>, of this RSP—specifically, Section 2.3.1.2, <i>BIO-6 Stream Habitat Typing</i>.</p>
BIO-45	SQF	Pg. 14	BIO-4 Benthic Macroinvertebrate (New Study Plan)	The Forest Service is aware that <i>Corbicula fluminea</i> , a non-native invasive species of bivalve, is present in parts of the Kern River. All observations of these clams should be recorded and reported as part of this study.	The BIO-4 Study Plan will be updated to state that observations of <i>Corbicula fluminea</i> will be recorded and reported. Additionally, biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, and aquatic reptiles and amphibians) on data sheets and will report this information in the Technical Memo for use by other studies during the relicensing process.
BIO-46	SQF	Pg. 14	BIO-4 Benthic Macroinvertebrate (New Study Plan)	Two species of native freshwater mussels are known from the Kern River, <i>Gonidea angulata</i> and <i>Margaritifera falcata</i> . Neither species is abundant, and some scientists believe the animals are extirpated from the watershed. If any mussels are encountered in the course of sample collection, they should be photographed and returned to the river immediately. The site should be recorded as a GPS waypoint and reported to the Forest Service biologist immediately and included in the study report. Do not continue to sample	The BIO-4 Study Plan will be updated to reflect this request. The ongoing fish population study also includes language to report observations of native freshwater mussels. Study Plans will be updated to state that biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, aquatic reptiles, and amphibians, bald eagle, osprey, and Great blue heron) on data sheets and will report

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				at sites where mussels are encountered and establish a new transect at least 20 meters upstream.	this information in the Technical Memo for use by other studies during the relicensing process.
BIO-47	Neil Nikirk	Pg 12	BIO-4 Benthic Macroinvertebrate (New Study Plan)	<p>Benthic Macroinvertebrate Assessment (SQF) <i>SCE responds that there is no evidence of a problem, and the study request constitutes basic research and/or would not lead to the development of future license conditions.</i></p> <p>There is “no evidence of a problem” because no one has looked. Macroinvertebrates are sensitive to more than temp, DO, and bacteria that proposed to be monitored in WR-1. Macroinvertebrates are sensitive to land indicators of water quality. It is common to sample them. Sampling of benthic macroinvertebrates should be done above and below Fairview Dam to assess the potential effects of project operation on more than just water quality parameters examined in WR-1.</p>	Per request from SQF and FERC’s inclusion of benthic macroinvertebrates in SD2, SCE has developed a benthic macroinvertebrate population Study Plan in consultation with the SQF and included <i>BIO-4 Benthic Macroinvertebrate</i> in this RSP.
BIO-48	KRB	Pg. 138	BIO-4 Benthic Macroinvertebrate (New Study Plan)	<p>EDISON: <i>Although SCE is not opposed to the adoption of a benthic macroinvertebrate assessment, it is unclear how the information collected in this proposed study would be utilized in the development of Project license requirements.</i></p> <p>Where water quality issues have been identified, studies were either previously conducted during the prior relicensing or have been adopted as part of the current relicensing. (PSP at 29.)</p> <p>KRFFC: Edison’s inability to imagine how the information obtained from this study could inform license conditions is unhelpful. Benthic macroinvertebrate (BMI) sampling has been deemed a best available science for evaluating river health and, as such, it has been used in numerous hydro project licensing proceedings. Edison’s sister IOU PG&amp;E, for instance, has conceded that “the information from this [BMI] study proposal could be used to develop: Instream flow releases; and] Site-specific water quality measures.” The same can be said here: The proposed study can help evaluate whether current minimum instream flow releases afford the attainment of adequate aquatic habitat and, by scientific implication, life — or whether they do not.</p> <p>None of the alternative studies Edison references — past or proposed — involve BMI sampling. There are many dozens of parameters that can be studied to evaluate a waterway’s health. Edison is proposing an extremely limited study of Temperature and Dissolved Oxygen during a single season. But both of those parameters have been more thoroughly evaluated in the prior proceeding and the 2002 Entrix study, and the monitoring that has been conducted in the meantime confirms the project’s ongoing negative effect on those parameters.<sup>266</sup> BMI, by contrast, has never been studied in this river. “There are no available data about the benthic macroinvertebrate community within the three project bypass reaches,” notes Edison.<sup>267</sup> Edison remains at a loss to explain how the results of the 2016 fish monitoring study demonstrate an adequate mitigation of project effects. The 2016 study revealed a tragic trout population decline of about 50% above Fairview Dam, but an astonishing, near-total decline of 97% below the dam. Yet even in the face of this data, Edison has suggested no changes in its diversion of water out of the river for the next 40 years. Temp and D.O. studies will not provide much additional understanding of these project effects.</p> <p>BMI is a more fundamental measure of project effects on river health and integrity. Macroinvertebrates are at the base of the riverine ecosystem and inarguably experience significant stress due to dramatic reduction of inflows of cool water. As the Commission has stated, “Benthic macroinvertebrates (BMI) are invertebrates that are retained by a 500-µmeter mesh and are associated with the bottom habitats. There are at least two reasons why they are an important component of water quality studies. First, they form a</p>	Per request from SQF and FERC’s inclusion of benthic macroinvertebrates in SD2, SCE has developed a benthic macroinvertebrate population Study Plan in consultation with the SQF and included <i>BIO-4 Benthic Macroinvertebrate</i> in this RSP (refer also to comment response #BIO-47). BIO-4 focuses on the NFKR; the two bypassed tributary streams in the Project, Salmon and Corral creeks, are steep and intermittent, precluding SWAMP methodologies (e.g., the streams may be dry during the sampling window).

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				<p>fundamental link between organic matter resources (e.g., algae, detritus, and leaf litter) and the fish. Second, the life history characteristics of individual species show adaptations to specific environmental characteristics. The benthos are excellent environmental monitors that integrate information regarding their surroundings.”</p> <p>Since comparisons between natural and project-affected stretches of the dewatered reach help pinpoint effects from the project rather than nature, the BMI study should include “reference” sites above the influence of all three diversion points. Further, since BMI content is inherently sensitive to river conditions, and since any single sampling year may experience atypical environmental conditions (dry year v. wet year, low water v. high water, cold water v. warm water), sampling should be accomplished in at least two different years in an attempt to establish contingent baseline conditions in the dewatered reach.</p>																																														
BIO-49	KRB	Pg. 139	BIO-4 Benthic Macroinvertebrate (New Study Plan)	<p>EDISON: <i>While the request correctly indicates that impoundments have the potential to alter water quality, the impoundment pool formed by Fairview Dam is small, has minimal storage capacity, and has a short residence time. (PSP at 29.)</i></p> <p>KRFFC: Edison fails to cite to the record in support of its assertion that the Fairview Dam impoundment has “short residence time.” Further, it is not simply the impoundment that alters water quality below Fairview Dam; the diversion itself has a greater capacity for negative effects by greatly reducing the water quantity — and thus water quality — below the dam.</p>	Comment noted. SCE has developed a benthic macroinvertebrate population Study Plan in consultation with the SQF and included <i>BIO-4 Benthic Macroinvertebrate</i> in this RSP.																																													
BIO-50	KRB	Pg. 139	BIO-4 Benthic Macroinvertebrate (New Study Plan)	<p>EDISON: <i>Data collected during the prior relicensing effort do not indicate that the pool itself is a major source of warming in the NFKR, and the ongoing effect of the Project on temperature in the NFKR is being addressed under WR-1 Water Quality. (PSP at 29.)</i></p> <p>KRFFC: The project is negatively altering the quality of the water and fish habitat below Fairview Dam. The pool is inarguably a source of warming; the diversion another. NEPA warns against analyzing project effects in a piecemeal manner that fails to capture the overall real-world effect of the project, which is the negative alteration of water quality and fishery health. The BMI study offers the potential for more fundamental insight of project effects on the river below Fairview Dam — and on the two tributaries encumbered by the project, as well (a point unconsidered by Edison).</p>	Comment noted. SCE has developed a benthic macroinvertebrate population Study Plan in consultation with the SQF and included <i>BIO-4 Benthic Macroinvertebrate</i> in this RSP.																																													
BIO-51	KRB	Pg. 140	BIO-4 Benthic Macroinvertebrate (New Study Plan)	<p>EDISON: <i>Similarly, Project effects on trout populations are addressed by (1) an existing population monitoring plan, and (2) minimum flows, as required by the current license, intended to maintain trout and native fish habitat throughout the summer. (PSP at 29.)</i></p> <p>KRFFC: Edison fails to consider that (1) has shown (2) to be inadequate. A more robust minimum flow regime is plainly in order for this river; the question is to what degree. A BMI study is more likely to help inform the answer to that question than limited, cumulative Temp and D.O. sampling.</p> <p>Table 2: Recent Water Quality Sampling, NFKR</p> <table border="1"> <thead> <tr> <th>DATE</th> <th>TEMP ABOVE</th> <th>TEMP BELOW</th> <th>D.O. ABOVE</th> <th>D.O. BELOW</th> <th>COND ABOVE</th> <th>COND BELOW</th> <th>FLOW ABOVE</th> <th>FLOW BELOW</th> </tr> </thead> <tbody> <tr> <td>7/3/2021</td> <td>20.0</td> <td>23.7</td> <td>7.4</td> <td>6.4</td> <td>83</td> <td>254</td> <td>144</td> <td>102</td> </tr> <tr> <td>7/17/2021</td> <td>19.3</td> <td>23.3</td> <td>7.0</td> <td>6.2</td> <td>157</td> <td>194</td> <td>126</td> <td>86</td> </tr> <tr> <td>8/7/2021</td> <td>18.7</td> <td>22.9</td> <td>7.7</td> <td>6.8</td> <td>166</td> <td>199</td> <td>113</td> <td>71</td> </tr> <tr> <td>GOAL</td> <td>&lt;20.0</td> <td>&lt;20.0</td> <td>&gt;8.0</td> <td>&gt;8.0</td> <td>&lt;200</td> <td>&lt;200</td> <td></td> <td></td> </tr> </tbody> </table>	DATE	TEMP ABOVE	TEMP BELOW	D.O. ABOVE	D.O. BELOW	COND ABOVE	COND BELOW	FLOW ABOVE	FLOW BELOW	7/3/2021	20.0	23.7	7.4	6.4	83	254	144	102	7/17/2021	19.3	23.3	7.0	6.2	157	194	126	86	8/7/2021	18.7	22.9	7.7	6.8	166	199	113	71	GOAL	<20.0	<20.0	>8.0	>8.0	<200	<200			Comment noted. SCE has developed a benthic macroinvertebrate population Study Plan in consultation with the SQF and included <i>BIO-4 Benthic Macroinvertebrate</i> in this RSP.
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Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				(ABOVE=Above Fairview Dam, BELOW=Below Fairview Dam, TEMP=Temperature (C), D.O.=Dissolved Oxygen (mg/L), COND=Conductivity (µS/cm), FLOW=Average DailyFlow (cfs))	
BIO-52	Neil Nikirk	Pg. 13	Stakeholder Study Request	<p>Determine Populations of the Kern River Rainbow below and above Fairview Dam (James F. Ahrens)</p> <p><i>SCE responds that the study request is not necessary because existing information is sufficient to answer the questions posed. Kern River rainbow trout are not expected to occur between Fairview Diversion Dam and the KR3 Powerhouse. Any existing Kern River rainbow trout populations upstream of Fairview Diversion Dam are not affected by Project operations.</i></p> <p>It is a pertinent question because Kern River Rainbow used to be found in the bypass reach. Similar to the issues raised regarding the presence/absence of foothill yellow-legged frog, the project obviously has had a negative impact and the reasons for this impact need to be investigated.</p>	<p>Not adopted. Study request is not necessary because existing information is sufficient to answer the questions posed and lacks a Project nexus. Ongoing fish population surveys have not documented Kern River rainbow trout at any of the established sites along the NFKR, including a site approximately 3 miles upstream of Fairview Dam. The closest population is currently restricted to the Kern River and its tributaries above Johnsondale Bridge in SQF and Sequoia National Park (CDFW, 2015), approximately 9 miles upstream, well outside the influence of Project operations.</p> <p>Additionally, as described in Section 1.3 of this RSP, <i>Ongoing FERC License Requirement: License Article 411 – Kern River No. 3 Project Fish Monitoring Plan</i>, SCE is currently monitoring fish populations every 5 years at three sites within the Fairview Dam Bypass Reach, and at two sites upstream of Fairview Diversion Dam, with the upstream-most site located 3.3 miles upstream of the Project. The next fish population survey is scheduled for fall 2022.</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.9, <i>Fish Populations (Determine Populations of the Kern River Rainbow below and above Fairview Dam)</i>.</p>
BIO-53	KRFF	Pg 1	Stakeholder Study Request	<p><b>Request for a study to determine the population of the Kern River Rainbow below and above Fairview Dam (KR-3)</b></p> <p>The Kern River rainbow trout is one of 12 subspecies of trout native to California. Overfishing, loss of habitat and breeding with non-native trout has greatly reduced the population of true Kern River rainbow trout, which is a <b>candidate</b> species for listing under the federal Endangered Species Act.</p> <p>The goals of the proposed study are:</p> <ul style="list-style-type: none"> <li>• Determine if any or how many Kern River Rainbow exist in the Kern River.</li> <li>• Determine what impact KR-3 has on the Kern River Rainbow.</li> <li>• Determine what impact the current flow requirements have on the Kern River Rainbow.</li> </ul> <p>There is no current information available on the status of the Kern River Rainbow. Information is needed to determine whether the Kern River Rainbow should be listed as an endangered species under the Endangered Species Act.</p>	<p>Not adopted. The study request is not necessary because existing information is sufficient to answer the questions posed and the proposed study lacks a Project nexus (Refer to comment response #BIO-52). SCE is currently monitoring fish populations every 5 years at three sites within the Fairview Dam Bypass Reach and at two sites upstream of Fairview Dam.</p> <p>The objective of the RSP is to collect additional information to supplement existing information regarding current baseline conditions, which FERC considers is the environment as it exists at the time of the relicensing. Kern River Rainbow trout are currently only located outside of the Project Area and would not be affected by Project flow releases. Information obtained through these studies combined with existing information will be used to analyze environmental effects of SCE’s relicensing proposal and reasonable alternatives, pursuant to FERC’s obligations under NEPA and the FPA. This assessment will be included in SCE’s Application for New License. The listing of the Kern River Rainbow is outside the scope of this relicensing.</p>

**Study Plan Comment Response Matrix—Botanical Resources**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
BOT-1	Neil Nikirk	Pg. 10	BOT-1 General Botanical Resources	<p><i>In response to SQF, BOT-1 has been modified to clarify the seasonal timing of field studies. Observations of Non-native Invasive Species will be recorded; however, field biologists will not remove any species as part of this Study Plan.</i></p> <p>Why not remove any non-native invasive species encountered during the field studies? This would be an excellent opportunity to do so. FERC should require non-native species</p>	<p>The removal of invasive species can be complex, time consuming, and may require additional equipment/transportation. Some species propagate more rapidly when cut or pulled out by the stem, leaving roots in the ground, and many require herbicides. Additionally, the disturbance of removal may provide additional habitat for non-native invasive species, as many are successful in disturbed soils and are likely to out-compete native plants. The removal of species requires additional study for specific locations and</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				to be removed using standard protocols to avoid the spread of these species during removal.	populations, effective control, and potential disturbance, such as use of herbicides or soil disturbance. Improper treatment has the potential to increase the spread of non-native invasive plants.
BOT-2	Neil Nikirk	Pg. 18	BOT-1 General Botanical Resources	<p>4.0 STUDY AREA AND STUDY SITES</p> <p><i>The botanical resources study area is shown on Figure 6-1 and includes a 50-foot buffer around all aboveground Project facilities.</i></p> <p>Again, the study area is much too limited. The study design seems to presume the only effect of the project is through maintenance activities. Operation affects the river corridor and the plants growing in close proximity to the river. The botanical resources study area should include areas within 50 feet of all perennial streams, creeks, off-channel ponds, or wetlands within the project area. The study should be designed to detect the presence of sensitive plant species in all areas potentially affected by project operations and to identify when and where project operations have an effect on these species found in the project area.</p>	The BOT-1 Study Plan includes 50 feet around all aboveground Project facilities and has been revised to include vegetation community mapping along the Fairview Dam Bypass Reach (up to 50 feet past the riparian corridor or up to the highway, whichever is less) to document potentially suitable habitat for special-status plants.
BOT-3	SQF	Pg. 8	BOT-1 General Botanical Resources	The Forest Service recommends using observations in CNDDDB, CalFlora, and iNaturalist to maximize the probability of detecting rare species. Both TES plants and invasive plants can grow in areas that are difficult to survey, may bloom during narrow windows, may not bloom at all during years with unfavorable conditions, etc. To combat these challenges, use of agency and citizen science observations from the recent past (going back 5-10 years) can greatly increase the probability of detecting species that are otherwise difficult to observe. This recommendation amounts to a desktop exercise that can be accomplished during the off season, so it represents relatively little additional effort with the potential to greatly increase the consultant's ability to detect a wider range of species.	SCE has identified known habitat characteristics of rare plants and will perform a floristic survey, with attention to habitat's known to support rare plants. As stated in the Study Plan, SCE will perform a record search in both CalFlora and <i>iNaturalist</i> for rare species with habitat known to occur in the Project Area prior to performing surveys.

**Study Plan Comment Response Matrix—Recreation Resources**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
REC-1	Neil Nikirk	Pg. 11	REC-1 Whitewater Boating	<p><i>In response to NPS, SCE states that the investigative tools described in Level 1 are limited to (1) literature review, (2) hydrology assessment, and (3) structured interviews; focus groups and Stakeholder meetings are not part of Level 1 investigations. Also, NPS's request to add a "Generation Value Assessment" in the Level 2 investigation is not supported by Whittaker et al. (2005).</i></p> <p><i>In response to KRB, SCE states Comment Noted. REC-1 has been revised. An objective of the Study Plan is to document recreation opportunities and range of flows for whitewater recreation for the respective whitewater segments.</i></p> <p>The National Park Service provided extensive comments on the REC-1 Boating study proposed by SCE in the Draft Whitewater Boating Resource Evaluation Study, Annotated Study Plan Outline that was made available to stakeholders on SCE's website on April 30, 2021. In those comments, NPS noted that the study approach outlined in the Boating Study Plan Outline deviated from the methods outlined in Whittaker et al. (2005) and described what those methods are. SCE has chosen to ignore the comments received from NPS and proceed with their own limited and flawed whitewater flow study methodology when they are clearly aware of the Whittaker et al (2005) document.</p>	As noted by the commenter, the NPS provided comments in April 2021 on an early draft of REC-1. SCE did revise the REC-1 PSP to reflect the NPS request to follow a stepwise fashion as described in Whittaker et al. (2005). The REC-1 PSP includes all three levels of study described in Whittaker et al. (2005). In addition, SCE in collaboration with AW modified the REC-1 PSP to address, in part, requests for on-water evaluations, calibration, gaps in flow knowledge, and respondent recall of past experiences. These changes are reflected in the REC-1 RSP.
REC-2	Neil Nikirk	Pg. 11	REC-1 Whitewater Boating	The Generation Value Assessment is needed and should be part of the Economic and power generation analyses.	A statement of Project costs and financing will be discussed in SCE's Application for New License, Exhibit D.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
					<p>Per the requirements of 18 CFR 4.51(e)(5), the License Application will include “A statement of the estimated annual value of project power, based on a showing of the contract price for sale of power or the estimated average annual cost of obtaining an equivalent amount of power (capacity and energy) from the lowest cost alternative source.” Furthermore, as part of sub-part 4.5.1(e)(9), “the estimated average annual increase or decrease in Project generation, and the estimated average annual increase or decrease of the value of project power, due to a change in Project operations” (<i>i.e.</i>, minimum bypass flows; limits on tunnel fluctuations) for proposed environmental measures included in SCE’s application for a new Project license.</p>
REC-3	Neil Nikirk	Pg. 11	REC-1 Whitewater Boating	<p>Again, SCE has chosen to ignore the substantial comments provided by KRB and their request for an on-water Whitewater Flow Study.</p>	<p>Comment noted. SCE has not ignored comments received by KBR or any other relicensing participant. SCE in collaboration with AW modified the REC-1 PSP to address, in part, requests for on-water evaluations, calibration, gaps in flow knowledge, and respondent recall of past experiences.</p> <p>The REC-1 RSP is a three-phase study consistent with methods in Whittaker et al. (2005). The third phase includes a single flow survey to evaluate individual trips and a flow comparison survey to evaluate a range of flows. The single flow survey and flow comparison survey will be ongoing throughout year two of the study in 2023. Boaters will have opportunities to evaluate their most recent experience on the water as well as populate the survey questions with experiences from previous trips on the river. This online survey approach allows broader data collection covering a range of flows, watercraft types, and users from a broad geographic area throughout the season. In addition, SCE in collaboration with AW modified the REC-1 PSP to include the following language in Section 6.3, <i>Level 3: Intensive Study</i>, of the REC-1 RSP:</p> <p>“In concert with the online survey, and when feasible, SCE will attempt to enhance flows where potential gaps may exist in user experiences of flow conditions. Flow enhancement may include diverting a portion of flow over Fairview Dam to target specific flow ranges where knowledge gaps were identified in Levels 1 and 2 of the study. Enhanced flows will be opportunistic, not scheduled in advance, and subject to available inflows and tunnel flow needs.</p> <p>SCE will make a good-faith effort to inform the boating community in advance when hydrologic conditions for opportunistic flow enhancements are likely possible. If flows are likely to allow for such enhancement, SCE will reach out to Kern River Boaters, AW, Los Angeles Kayak Club, Dreamflows, and outfitters holding permits with SQF. This is not a guarantee of a particular flow, just an indication that there may be the possibility of flow enhancement within the diverted reach outside the ordinary whitewater release schedule based on forecasted inflows upstream of Fairview Dam. This good faith effort will attempt to give boaters advance notice to plan trips to the river using forecasting technology available to SCE at the time of study to encourage additional boater use at the targeted flows and participation in the single flow survey.”</p> <p>As noted in the REC-1 PSP, a controlled flow study is not feasible at KR3 due to the lack of storage upstream of Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR. These limitations preclude the ability to plan an on-water boating study in advance on the NFKR. Advance planning is necessary for logistics, safety, and data collection as well as broad participation across watercraft types, skill levels, and geographic representation.</p>



Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
					The online single flow and flow comparison surveys resolve the limitations of a controlled flow study at the Project. The single flow and flow comparison surveys are not limited to the unpredictable snowpack and associated flows during the ILP study period. The single flow survey allows respondents to evaluate flows during their most recent trip. The flow comparison survey allows respondents to rely on past experiences over a wide range of water year types. Furthermore, the online approach greatly expands the pool of study participants regardless of geographic location or schedule.
REC-4	Neil Nikirk	Pg. 11	N/A	<p>Whitewater Recreation Study /Whitewater Flow Study <i>In response to AW's request, SCE states that REC-1 has been revised to follow the three levels of study outlined in Whittaker et al. (2005). Each level incorporates the investigation tools described by Whittaker et al (2005). The Study Plan assumes Levels 1, 2, and 3 will be implemented during the study period.</i></p> <p>As previously noted by NPS, the proposed study plan does not follow the three levels of study outlined in Whittaker et al. (2005). SCE has chosen to ignore the comments received from NPS and proceed with their own limited and flawed whitewater flow study methodology when they are clearly aware of the Whittaker et al (2005) document.</p>	Refer to comment response #REC-1.
REC-5	Neil Nikirk	Pg. 11	N/A	<p>Whitewater Recreation Study /Whitewater Flow Study <i>Also, with regards to the requested Generation Value Assessment (pg. 8-9), a statement of Project costs and financing will be discussed in SCE's Application for New License.</i></p> <p>A statement of Project costs and financing is not a substitute for the Generation Value Assessment requested by AW and NPS. The rising availability of solar and wind energy or what is commonly known as the Duck Curve in energy markets necessitates a closer look at the generation value of hydropower during the daylight hours when whitewater flows can be provided.</p>	<p>Refer to comment response #REC-2.</p> <p>SCE does not believe that a generation value assessment is appropriate. As FERC explained in SD2:</p> <p>"Commission policy is to evaluate the economics of hydropower projects, as articulated in Mead Corp., comparing the current cost to produce project power to an estimate of the cost to provide the same amount of energy and capacity for the region using the most likely alternative source of power (cost of alternative power). In keeping with the policy described in Mead Corp., our economic analysis is based on current electric power cost conditions and does not anticipate or estimate changes in fuel costs that could occur during a project's license term."</p>
REC-6	Neil Nikirk	Pg. 19	REC-1 Whitewater Boating	<p>3.0 STUDY GOALS AND OBJECTIVES <i>The goals of this study are to (1) document the whitewater boating opportunities and the range of whitewater boating flows in the Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse and the NFKR from the KR3 Powerhouse to the Kern River Park in Kernville under current conditions; and (2) identify potential operational constraints and (3) evaluate public safety concerns associated with boating flows. One of the objectives of the study is to document potential conflicts of boating flows with other recreation users and identify strategies to mitigate those conflicts.</i></p> <p>The study design proposed by SCE does not address how the public safety concerns associated with boating flows will be evaluated. Likewise, there is no description of how potential conflicts of boating flows with other recreation users will be documented. I contend that there is no evidence of a problem and these issues are not relevant goals or objectives of the study as proposed.</p>	<p>The REC-1 Study Plan has been updated to explain how this information will be collected and reported.</p> <p>Public safety is a real concern on the Kern River, where over 300 drownings have occurred since 1968, including 2 deaths in the last year. Flow fluctuations in the 16-mile bypass reach for the purpose of whitewater recreation raise concerns for public safety. The REC-1 USR Technical Memo will document the types of public safety concerns associated with whitewater releases using available information within the local community of Kernville specific to the NFKR, information from the SQF, the AW accident database, and other FERC proceedings where whitewater releases occur. Similarly, whitewater boating flows have the potential to conflict with other users recreating in the bypass reach. Recreation uses occurring in and adjacent to the NFKR documented in the REC-2 study will be listed in the REC-1 USR Technical Memo. Potential flow related conflicts will be described based on REC-2 survey responses.</p>
REC-7	Neil Nikirk	Pg. 19	REC-1 Whitewater Boating	<p>6.0 STUDY APPROACH <i>The Whitewater Boating Resource Evaluation Study follows the methods in Flows Recreation: A Guide to Studies for River Professionals (Whittaker et al., 2005).</i></p>	Refer to comment response #REC-1. SCE did incorporate comments from the NPS into the REC-1 RSP.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				As previously noted by NPS, AW, KRB, and others, the proposed study plan does not follow the three levels of study outlined in Whittaker et al. (2005). SCE has chosen to ignore the comments received from NPS and proceed with their own limited and flawed whitewater flow study methodology when they are clearly aware of the Whittaker et al (2005) document. SCE has chosen to ignore the comments received from these groups and proceed with their own limited and flawed whitewater flow study methodology when they are clearly aware of the Whittaker et al (2005) document. As Whittaker et al. note: “Evaluating a dry or nearly dry bypass reach may be challenging, so there are advantages to scheduling reconnaissance during potentially boatable flows if possible. In some cases, flow releases for the reconnaissance may be arranged, and they can dramatically increase the power of these assessments.”	
REC-8	Neil Nikirk	Pg. 19	REC-1 Whitewater Boating	<p><b>6.2. LEVEL 2: LIMITED RECONNAISSANCE</b>  <i>Conduct a site visit for direct observation of the whitewater boating segments in the 16-mile Fairview Dam Bypass Reach with a group of study participants consisting of agency staff and boaters</i></p> <p><i>–The boating community will nominate study participants for the Level 2 Limited Reconnaissance Site Visit. Study participant composition should be representative of a range of watercraft, skill levels and knowledge of the whitewater boating segments in the 16-mile bypass as well as commercial and non-commercial backgrounds. For logistical and safety reasons, the Level 2 Limited Reconnaissance will consist of 6 to 12 individuals.</i></p> <p>It is relatively easy identify at least 6 different types of watercraft currently used on the NF Kern River: kayak, inflatable kayak, canoe, river board, raft, cataraft, packraft, etc., so limiting participation to 6 to 12 individuals will limit the number of whitewater recreation groups that are represented, will not allow for a variety of skill levels in each type of craft to have a voice, and will only provide input from a select few individuals that may not represent the boating community as a whole. Whittaker et al. note that the number of participants may be small, but they should represent the diversity of recreational opportunities that are at issue on each reach. Limiting the group to 6 to 12 individuals is too few to provide adequate representation.</p>	<p>The Level 2 group size (6 to 12 individuals) allows for diverse representation encompassing all watercraft types listed by the commenter—a range of skill levels and knowledge of the various river segments in the bypass reach. The whitewater community is encouraged to nominate individuals that can speak for a range of skill levels. Limiting the group size to 6-12 individuals is important for safety and logistical planning, but more importantly allows for deeper conversations in the field with those individuals with direct knowledge of the river segments and flows for respective watercraft. SCE will work with the whitewater community in advance of the Level 2 Limited Reconnaissance to insure there is a broad representation in the group. In addition, the lead study investigator for REC-1 welcomes additional input from the boating community throughout the study period that will help inform the report on the whitewater opportunities and flow preferences for the respective whitewater segments.</p>
REC-9	Neil Nikirk	Pg. 19-20	REC-1 Whitewater Boating	<p><i>Information collected during the Level 2 Limited Reconnaissance may include:</i></p> <p><i>–Preliminary estimates of flow preferences for respective watercraft types for each whitewater segment based on recommendations from study participants;</i></p> <p>However, as Whittaker et al caution:                      “On-land boating assessments may suggest whether a river is boatable, but they are unlikely to provide precise assessments of flow ranges. They are helpful for assessing safety issues for an on-water assessment and narrowing flow ranges for additional study, particularly on more challenging (higher gradient) rivers.”</p> <p>Therefore, an On-Water Boating Feasibility Assessment is suggested. Again, Whittaker et al caution:                      “On-water boating feasibility assessments at a single flow may demonstrate whether boating is possible, but they are unlikely to provide precise estimates of flow ranges for boating (unless the range is narrow and reconnaissance fortuitously occurred within that range).”</p>	<p>The Level 2 Limited Reconnaissance is not intended to develop “precise assessments of flow ranges” as the commenter implies. As stated in the study methods, one aspect of the Level 2 Limited Reconnaissance is to develop a preliminary estimate of flow preferences for respective watercraft types based on recommendations from the Level 2 study participants. This flow information will then be used to develop questions for the Level 3 Intensive Study comparative flow survey. Flow-related questions in the comparative flow survey will allow respondents to rate a broad range of flows well below the minimum and well above the preferred flows identified by study participants in the Level 2 Limited reconnaissance. Providing a broad range of flows in survey questions allows boaters the opportunity to rate flows below and above their previously expressed minimums and preferred flows. The flow increments in the flow choices will be determined by the study participants during the Level 2 Limited Reconnaissance with additional input from the broader boating community.</p> <p>The Level 2 Limited Reconnaissance does not require water to be in the bypass reach to conduct the field work. The Level 2 Limited Reconnaissance is an opportunity for the whitewater boating community to communicate their direct knowledge of the respective whitewater segments to the lead study investigator. This includes access locations for each river segment, whitewater difficulty for each segment, broad estimate of flow</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				Because there is limited storage behind Fairview Dam, this may require curtailing diversion on one or more days to conduct the reconnaissance site visit at a variety of potentially boatable flows.	preferences for respective watercraft, whitewater use patterns on the respective segments, etc. The information gathered during the Level 2 Limited Reconnaissance will be used, in part, to develop the Level 3 Intensive Study comparative flow survey.
REC-10	Neil Nikirk	Pg. 20	REC-1 Whitewater Boating	<p>6.3. LEVEL 3: INTENSIVE STUDY                      As described in the PSP, a Level 3 Intensive Study would include:</p> <ul style="list-style-type: none"> <li>•A whitewater flow comparison survey published online accessible.                             <ul style="list-style-type: none"> <li>-Information collected in Levels 1 and 2 will be used to develop an online whitewater flow comparison survey.</li> <li>-The online whitewater flow comparison survey will be designed to obtain information on flow preferences in the Fairview Dam Bypass Reach. Survey questions will ask respondents to rate the acceptability of a range of flows for each whitewater segment and watercraft type, timing of use, preferred whitewater segments, river access locations, flow information needs and comparison with other whitewater opportunities in the Kern River basin. The range of flows presented in comparative flow questions will be based on information gathered in Levels 1 and 2.</li> <li>-The link to the online whitewater flow comparison survey will be distributed to local, regional and national whitewater boating groups and accessible on the KR3 relicensing website.</li> </ul> </li> </ul> <p>Notwithstanding the differences already noted between the proposed study and the methodology suggested by Whittaker et al. (2005), basing the range of flow questions on information gathered in Levels 1 and 2 is problematic. As Whittaker et al. note for both land-based and on-water Level 2 assessments, they are unlikely to provide precise estimates of flow ranges for boating. The range of flows in both the Level 2 and Level 3 assessments should be what occurs naturally and historically, and not limited to minimum and optimum flows garnered from interviews.</p>	Refer to comment response #REC-9.
REC-11	Neil Nikirk	Pg. 20	REC-1 Whitewater Boating	While I agree with attempting to garner as much input as possible on whitewater recreation flow preferences, providing an open link to an online flow comparison survey will lead to a large number of spurious responses from people unfamiliar with the Kern River and that have never boated the Kern River. Nowhere is it described how the responses received will be quality checked for inclusion in the study.	Based on direct experience conducting numerous whitewater flow studies at hydroelectric projects, it is rare that individuals with no experience choose to complete a site-specific whitewater flow survey. The survey includes questions on the number of years' experience boating respective segments of the NFKR and type of watercraft. Numerous questions require responses before the respondent can proceed to the next question. Survey responses will be quality checked and incomplete surveys are not included in the data analysis where key responses are omitted.
REC-12	Kern River Boaters	Pg. 47	REC-1 Whitewater Boating	<p>3.0 STUDY GOALS AND OBJECTIVES                      Document potential conflicts of boating flows with other recreation users and identify strategies to mitigate those conflicts. (REC-1 at 1.)</p> <p>There is no evidence of a conflict among user groups when it comes to flows. To the contrary, anglers and boaters are in agreement that natural flows should obtain. Further, as Edison consultant John Gangemi has noted, "Scheduled whitewater releases are compatible with other recreational uses of the river as has been demonstrated in countless other relicensing proceedings across the country. Angling use and whitewater recreation are compatible uses despite vociferous arguments to the contrary. No study in any relicensing proceeding has demonstrated that flow fluctuations from whitewater releases decrease the catch rate on the same day of the release." We accordingly ask that the language about user group conflict be stricken from the proposal.</p>	Comment noted. REC-1 Study is designed to provide information for all licensing participants including resource agencies and stakeholders that may be less familiar with study results from other FERC proceedings. Objective investigation and reporting of potential resource conflicts or lack thereof provides important information across resource disciplines and helps inform stakeholders that may be less familiar with whitewater boating flows (Whittaker et al. 2005).

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REC-13	Kern River Boaters	Pg. 47	REC-1 Whitewater Boating	<p>5.0 EXISTING INFORMATION  <i>Southern California Edison (SCE) conducted a Whitewater Flow Study (SCE, 1994) that will be reviewed during the Desktop Review as part of Phase 1. (REC-1 at 4.)</i></p> <p>Edison again announces its intention to rely upon the 1994 on-water boating study to inform issues regarding whitewater mitigation.<sup>131</sup> We do not believe that study's conclusions as to the lower end of flows worthy of protection remains valid, and the study accordingly fails to capture the full inventory of recreation days lost to project operations. We initially note that flows between 325 and 650 cfs were simply not tested in that study.<sup>132</sup> Furthermore, boating preferences have changed since the study was conducted. Whitewater boating may not have been in its infancy when the study was conducted, but it was still in its formative years. As the sport has matured, three elements have conspired to increase public interest in boating at lower flows. First is the influence of "creeking." Creek boating began on creeks — low water, sufficiently steep and channelized tributaries — and its popularity has expanded to low water, sufficiently steep and channelized rivers. The PAD concedes that the makeup of "Segment 1" — the seven-mile stretch immediately below Fairview Dam, including the popular Fairview, Chamise, and upper Ant Canyon runs — is more channelized and sports a higher gradient than Segment 2, making it more suitable for low water runs. Second, boat designs have changed dramatically since 1994. Boat ergonomics have increased boater comfort while increased rocker, progressive rocker, and neo-displacement hull designs have made boats more comfortable and boaters more able to negotiate tight maneuvers and wet boulder engagements — to the point such experiences are pleasant and challenging features of whitewater recreation. Third, boater skills have changed. In 1994, the "boof" stroke had yet to be born of its parent the "ski jump." The boof stroke enables boaters to keep the nose of the boat from submerging on steep drops. There are classes dedicated solely to teaching the boof stroke, and it is used to boater advantage on downspouts of water, wet boulder faces, or combinations of the two. KRB is confident that a contemporary on-water study would return different results than the 1994 study on the low end of enjoyable flows. Boaters capable of negotiating the dewatered reach of the NFKR generally enjoy flows starting around 200 cfs in Segment 1. We have seen commenters in agreement during the last relicensing proceeding; we have also seen that whenever the project is offline and flows approach 200 cfs, boaters use Segment 1. We believe a new on-water study is in order, whether through tailoring the flow level with the diversion at Fairview Dam or through reasonably contemporaneous reporting of actual boating trips at targeted flow levels. (See post.) For these reasons, we ask that reference to the 1994 boating study be removed from the proposal.</p>	<p>Comment noted. SCE recognizes that whitewater boat design and techniques have advanced since the 1994 Whitewater Flow Study was conducted on the NFKR. Similarly, the tools used to investigate whitewater recreation have advanced over time. Nonetheless, the 1994 Whitewater Flow Study provides a source of information that should be included in the Level 1 Desktop Review of Existing Information. SCE plans to summarize the 1994 report with an objective and critical eye that takes into account advances in technology, skill, and study methods. The commenter may not agree with the results of the 1994 study, but that is not justification to censor this information source.</p>
REC-14	Kern River Boaters	Pg. 48	REC-1 Whitewater Boating	<p>6.1. LEVEL 1: DESKTOP REVIEW OF EXISTING INFORMATION  <i>Literature review will include reviewing the 1994 Whitewater Flow Study (SCE, 1994), whitewater guidebooks, magazine publications with a focus on whitewater recreation and online river information pages. (REC-1 at 4.)</i></p> <p>See our comments on Edison's use of this study, directly above. We ask that reference to it be removed for the same reasons.</p>	<p>Refer to comment response #REC-13.</p>
REC-15	Kern River Boaters	Pg. 48	REC-1 Whitewater Boating	<p>6.3. LEVEL 3: INTENSIVE STUDY  <i>The Flow Comparison Survey would be similar to other studies conducted by American Whitewater to collect flow preference information and recreation use patterns on rivers where a controlled flow study is not possible and/or have unpredictable flow conditions (American Whitewater, 2017 and 2021). (REC-1 at 6.)</i></p>	<p>Refer to comment response #REC-3. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise.</p> <p>In addition, SCE in collaboration with AW added a single flow survey to the Level 3 Intensive Study. The online single flow and flow comparison surveys resolve the</p>

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				<p>Twice prior Edison has cited its 1994, on-water boating study. Now Edison claims such a study is “not possible.” The existence of the 1994 study proves the only thing preventing an updated on-water study is lack of will. This is shown by the old study’s reasonable efforts to work with the hydrograph it was given that year. It is shown further by an analysis of how many days per year, on average, certain flows can be achieved in the dewatered reach by Edison’s ability to “shape” flows anywhere from the level of natural incoming flow at Fairview Dam to a figure 600 cfs below that level. For instance, if incoming flows are 900 cfs, Edison could set the flow in the dewatered reach anywhere between 300 and 900 cfs for study. That capability is a powerful tool for study use. Here is an example of Edison shaping flows in the dewatered reach from May 2018; the first chart shows flows above Fairview Dam, the second below. As can be seen above, flows above Fairview Dam between 10 a.m. and 5 p.m. on May 21 were between 1,000 and 1,100 cfs. Edison was able to shape the flows below Fairview and keep them at about 775 cfs (760-790). On May 22, incoming flows were 980 to 1,070 cfs, and Edison shaped flows below the dam at about 730 cfs (720-740). The fact that Edison can shape flows below Fairview anywhere between the level of incoming flow to a level 600 cfs below that figure means there is a vast inventory of days upon which different flow levels could be tested in the dewatered reach. KRB took the daily average flow data from the last 25 years and found the following average numbers of days upon which different flow levels could be tested annually. These figures show there to be more than a month’s worth of days on average — indeed, two or more months’ worth at the 600-699 cfs range and below — for testing at these relevant ranges. Tightening the targeted range, moreover, does not appreciably decrease these opportunities; here is the same data with the testing range decreased to 50 cfs, which is about the range tested in 1994 (“Probable Flow During Boating”). Again, as these figures show, the only thing preventing an update to the 1994 study is lack of will. The two AW studies cited by Edison are inapposite. One was an internal study<sup>139</sup>; the other the result of a grant<sup>140</sup>; neither was conducted during a FERC proceeding, and thus both were done to keep costs down rather than to obtain the most reliable data with the best available science. Here, by contrast, we have a relicensing proceeding and an applicant that can substantially affect flows in the dewatered reach. An on-water study has been conducted before, and it can be again. There is no reason to settle for less reliable data when an on-water study would most accurately capture project effects upon whitewater recreation for this outstanding public resource. Edison contends that an on-water study can only be conducted over a wide range of flows: “A controlled flow study below Fairview Dam would be limited to collecting data for a narrow range of flows, thus failing to meet the study objectives as described in Whittaker et al. (2005).” This is a misrepresentation; Whittaker actually says the opposite. Whittaker states: “Three to four flows are commonly assessed in these [on-water] studies,” and he makes clear that on-water studies “work best when they are focused on discrete flow ranges where more precision is needed.” No one in this proceeding has suggested that the 1994 study’s determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 700 cfs and above is incorrect. The only suggestion is that as times have changed, boaters enjoy paddling at even lower flows, the project’s negative effects on recreation have increased commensurately, and thus flows below those levels should be tested. We believe that — at a minimum — an evaluation of flows at 300, 400, 500, and 600 cfs is in order to capture present-day project effects on all craft. These levels fall below those identified as enjoyable by various craft in the 1994 study — i.e., these are four levels where, in Whittaker’s words, “more precision is needed.” Nevertheless, the particular levels of flow to be evaluated can await guidance from the level 1 and 2 portions of the proposed study. For these reasons, we ask that the proposal be updated to include an on-water evaluation of relevant targeted flows to fully capture project effects on recreation. See comment letter for figures and tables.</p>	<p>limitations of a controlled flow study at the Project. The single flow and flow comparison surveys are not limited to the unpredictable snowpack and associated flows during the ILP study period. The single flow survey allows respondents to evaluate flows during their most recent trip(s) for the full study season. The flow comparison survey allows respondents to rely on past experiences over a wide range of water year types. These two survey tools, in combination with flow enhancements where feasible, will increase the opportunities for evaluating flows. Furthermore, the online approach greatly expands the pool of study participants regardless of geographic location or schedule.</p>

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REC-16	Kern River Boaters	Pg. 53	REC-1 Whitewater Boating	<p><i>The lack of storage in the reservoir at Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR severely limits the scheduling and flow volume for a controlled flow study. (REC-1 at 6.)</i></p> <p>Edison fails to square how it conducted an on-water study in 1994 at multiple flow levels given these “severe” limitations. The answer is that the limitations are not as severe as Edison would have the Commission think, as shown by the existence of that old study and the large number of days on average at which various targeted flows could be tested, described above. We ask that this sentence be modified accordingly.</p>	<p>Refer to comment response #REC-3 and #REC-15. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise in addition to adding a single flow survey to the Level 3 Intensive Study approach.</p> <p>For clarification, the 1994 study was an opportunistic study relying on unplanned spills associated with the snowmelt hydrograph. Study participants were required to mobilize on short notice, thereby precluding participation from individuals with prior work commitments or greater distance from the NFKR. In addition, there has been substantial improvement in whitewater study design and planning as evidenced in the Whittaker et al. (2005) publication that the 1994 study does not incorporate.</p>
REC-17	Kern Rivers Boaters	Pg. 53	REC-1 Whitewater Boating	<p><i>The online flow comparison survey resolves the limitations of a controlled flow study at the Project. The online flow comparison survey is not limited to the unpredictable snowpack and associated flows during the ILP study period. Whitewater boaters can provide input based on experiences over a wide range of water year types, and the online approach greatly expands the pool of study participants regardless of geographic location or schedule. The goal of the survey is to improve the precision for developing flow preference curves for a variety of watercraft types for the respective whitewater segments in the 16-mile Fairview Dam Bypass Reach. (REC-1 at 6.)</i></p> <p>The proposed survey “resolves” these purported issues by decreasing the rigor and reliability of the data obtained. In our experience, most boaters do not independently investigate, follow, log, or record flows and the experiences they have had with those flows. As Whittaker cautions, “Assessing how well users are calibrated to a gage is important with [the flow survey] method. Pre-testing or pre-study interviews/focus groups should be considered to probe whether users really pay attention to a gage through the range of interest.”<sup>145</sup> Further, “Some users may not independently evaluate flows, and simply repeat ‘conventional wisdom’ about acceptable or optimal flows for a recreation opportunity. Unfortunately, this method is limited in its ability to distinguish independent evaluations from those that are ‘passed down’ over the years.”<sup>146</sup> As Whittaker concludes, far greater reliable resolution of boater preferences is to be found with on-water studies.<sup>147</sup> Furthermore, unlike Edison, Whittaker is undeterred by a project’s inability to pinpoint flows with storage: “In some cases, the study may capitalize on natural flows instead of controlled flows,” Whittaker writes.<sup>148</sup> Indeed, that is precisely how the 1994 study came to be. But as we have shown above, the existence of Fairview Dam and its capacity to divert up to 600 cfs greatly expands the ability of Edison to conduct a study on a range of targeted flows. No one has suggested that the 1994 study’s determination that kayakers enjoy flows at 550 cfs and above and rafters enjoy flows at 950 cfs and above is incorrect. We still do. The only suggestion is that, as times have changed, we enjoy flows lower than those levels. As Chris Brown, owner of the Whitewater Voyages rafting company has commented, the project “eliminates the very good Kayaking and “low water” craft (splashyaks, shredders, paddle board, etc.) flows of 200-700cfs.”<sup>149</sup> We agree that the low end of the numbers obtained by the 1994 study has come down, the project’s negative effect on recreation has increased commensurately, and thus flows below those levels should be tested.<sup>150</sup> There is another way to obtain reasonably reliable results comparable to a targeted on-water flow study: namely, to gather survey results that are reasonably contemporaneous with actual recent boating trips at targeted flow ranges. Tying survey results to actual recent boater trips goes away towards reducing the problems of memory haze and groupthink identified by Whittaker. This can be accomplished through one of two means: either through an intercept team or through a controlled online reporting system. Intercepting boaters taking out at segments when the</p>	<p>As noted by the commenter, flow calibration is an important component for survey respondents to provide accurate and consistent evaluations of flows in the online comparative survey tool. The lead investigator for the REC-1 study will be working with the boating community during Levels 1 and 2 of the study to identify the appropriate sources and locations used by boaters to calibrate flows for their current and past experiences. This will then be incorporated into the online comparative flow survey.</p> <p>The REC-1 RSP includes investigative tools in Levels 1, 2, and 3 designed to critically assess flow preferences to separate responses based on “conventional wisdom” from those based on actual acceptability ratings of individual flows. These tools include structured interviews, site visits with study participants, and focus groups. The results of these investigations will be reported along with results from survey responses for objective reporting.</p> <p>Refer to comment response #REC-15. SCE in collaboration with AW added a single flow survey to the Level 3 Intensive Study approach.</p>

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				flows are “right” — i.e., at targeted levels of interest for study — appears to provide a heightened quality of data in comparison with a more generalized survey untethered to actual recent boating trips. Results of intercept surveys would be contemporaneous with the segment and flow level run, and thus there would be no issue with memory and less concern about the rote transmission of “conventional wisdom.” Alternatively, a controlled online survey system could be established that asks boaters to report within a reasonable time (say, 18 hours) of their running a trip on a segment. Boaters could describe the date, time, and experience on the segment run per study design, and those responses would then be cross-checked against actual gauge information and included in (or excluded from) the study analysis. Again, these reasonably contemporaneous responses would be relatively free of issues regarding memory haze or groupthink that infect a more generalized survey untethered to actual boating trips. Boaters would not even have to indicate what they thought the flow was — flows would be judged with reference to gauge information by time and date and survey results amalgamated according to targeted levels. For these reasons, we ask that the generalized survey approach, untethered to actual boating trips, be removed from this proposal and replaced with an on-water study approach, whether through a controlled online survey of actual boating trips, the interception of actual boating trips — including a commitment from Edison to shape flows to achieve the desired amount of surveys for each craft at each level and each segment — or, our preferred method, an on-water study that takes advantage of Edison’s ability to shape flows below Fairview Dam.	
REC-18	Kern Rivers Boaters	Pg. 55	REC-1 Whitewater Boating	<p><i>The online whitewater flow comparison survey will be designed to obtain information on flow preferences in the Fairview Dam Bypass Reach. Survey questions will ask respondents to rate the acceptability of a range of flows for each whitewater segment and watercraft type, timing of use, preferred whitewater segments, river access locations, flow information needs and comparison with other whitewater opportunities in the Kern River basin. (REC-1 at 7.)</i></p> <p>The issue in this proceeding is how to capture and understand the project’s effect on recreation in the dewatered reach — i.e., it seeks to capture real project effects. “Comparison with other whitewater opportunities in the Kern River basin” does not begin to answer that question. Further, the survey as described fails to vet the degree to which boater recall is based in fact — namely, whether the recounting of boater experience with other opportunities is reliable given that they are untethered to actual boating trips. For these reasons, we ask that the comparison element be stricken from the proposal.</p>	The flow comparison survey collects a range of information from participants as noted in REC-1 Study quoted by the commenter. Comparing the whitewater segments in the study area with other opportunities in the Kern River basin is one of many questions in the survey and a routine question in whitewater flow surveys in FERC proceedings (Whittaker et al. 1993). The comparative flow survey approach has been used successfully in other FERC proceedings. Contrary to the commenter’s opinion, boaters are able to recall experiences for individual trips and typically correlate those experiences with the volume of flow. In fact, many boaters plan repeat trips to rivers based on the quality of past experiences integral with the flows at the time of the experience. It is not uncommon for some boaters to record trips, flow volume, and experience in a daily journal for future reference.
REC-19	Kern River Boaters	Pg. 122	Stakeholder Study Request	<p>KRB SR-8: WHITEWATER FLOWS UPDATED STUDY PROPOSAL  <i>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.</i></p> <p>The goal of this study is to establish the inventory of days whitewater recreation is lost to project operations. It will elicit the ranges of flow at which enjoyable low flow boating and low-optimal flow boating exist for each form of whitewater recreation. That information, coupled with the historical hydrograph of incoming flows at Fairview Dam, will paint a full picture of project effects in the dewatered reach, thus informing both the scope of the problem to be mitigated and the opportunities for mitigation.</p>	<p>Not adopted. The study request is not necessary because the REC-1 Study Plan is sufficient to answer the questions posed.</p> <p>REC-1 already includes this study objective:</p> <ul style="list-style-type: none"> <li>Quantify the annual frequency that minimum acceptable and optimum whitewater flows occur in each river segment with Project operations and unimpaired flows for each watercraft type.</li> </ul> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.7, <i>KRB SR-8: Whitewater Flows Updated Study Proposal</i>.</p>
REC-20	National Park Service	Pg. 2	REC-1 Whitewater Boating	A study objective is to determine a range of boatable flows for a variety of watercraft including kayaks, rafts, packrafts, stand-up paddleboards, and body boards. Because stand-up paddleboarding, body boarding, and other types of watercrafts (e.g., innertubes) used on the North Fork Kern River (NFKR) are not generally considered whitewater boating, we recommend that either the study name be amended to account for these	The NFKR is classified as a whitewater river using the international scale of whitewater difficulty. New types of watercraft are being used on whitewater rivers across the country. These new types of watercraft do not change the classification. The whitewater classification of the NFKR remains the same across the various river segments. The study methods will accommodate these new types of watercraft. SCE thinks the study name of

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				other water-based recreation activities or clarify the term “whitewater boating” to include various water-based recreation such as kayaking, rafting, canoeing, paddleboarding, body boarding and tubing	“Whitewater Boating” is adequate for users to understand the intent of the plan. No changes to the Study Plan title were made.
REC-21	National Park Service	Pg. 2	REC-1 Whitewater Boating	The study area description should be revised to clarify its breadth and depth. For example, Section 3.0 Study Goals and Objectives and Section 4.0 Study Area and Study Sites, the study area is identified as 1) the “Fairview Dam Bypass Reach,” which consists of the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace and 2) the NFKR from the Kern River 3 (KR3) Powerhouse to the Kern River Park in Kernville. In contrast, the Fairview Dam Bypass Reach is the only area identified in the study under all three levels of analysis. The section of the NFKR below the KR3 Powerhouse is accessed from the KR3 Powerhouse Put-in/Take-out, a Project recreation facility, and has been identified as part of the study area; this section of river should also be included in all levels of analysis	The study area will include the 16-mile bypass reach starting at Fairview Dam and include the river segment downstream of the KR3 Powerhouse to Kern River Park in Kernville. Sections 3.0, 4.0, and 6.0 in the REC-1 Study have been updated for consistency with the study area description.
REC-22	National Park Service	Pg. 2	REC-1 Whitewater Boating	For the Level 3 Intensive Study, the Applicant intends to utilize a flow comparison survey approach instead of a controlled flow study. This approach is an acceptable way to estimate flow ranges for recreation opportunities by surveying experienced users. It relies on those users being “calibrated” to an existing gage. Assessing how well users are calibrated to a gage is important with this method, which can be difficult to determine, and inaccurate assessments may reduce the reliability of the method. The Applicant made the decision to use a flow comparison survey due to the lack of storage in the reservoir at Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR, which severely limits the scheduling and flow volume for a controlled flow study. The NPS understands the limitations of the Project to allow for scheduling a controlled flow study; nonetheless, such limitations do not eliminate the possibility of conducting a limited control flow study to obtain a more accurate instream flow-recreation relationship. This may be accomplished by enhancing flows within the Project constraints, such as by diverting a portion of flow over Fairview Dam. While the amount of flow would be limited and would depend on available flows upstream of Fairview Dam, it might be sufficient to target specific flow ranges where knowledge gaps are identified during the first two levels of analysis.	Refer to comment responses #REC-3 and #REC-15. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise in addition to adding a single flow survey to the Level 3 Intensive Study approach.  Refer to comment response #Rec-17. The lead investigator for the REC-1 study will be working with the boating community during Levels 1 and 2 of the study to identify the appropriate sources and locations used by boaters to calibrate flows for their current and past experiences.
REC-23	SQF	Pg. 8	REC-1 Whitewater Boating	The Forest Service sees the possibility that data collected during the Level 1 Desktop Review of Existing Information may not be reflective of the full scope of possible boating conditions on the NFKR, particularly the Structured Interviews portion. The study should highlight any gaps in the data for respective flow conditions in the Fairview Dam Bypass Reach. Knowledge of these existing gaps may prove useful in seeking out individuals with experience in these flow conditions, or for capitalizing on opportunistic events (either natural or when the potential to release additional water into the bypass exist) that create these flow conditions and collecting associated data to fill those knowledge gaps. These gaps should be identified and shared at the completion of Level 1.	SCE in collaboration with AW added language in REC-1 to the Level 1 structured interview data collection to include “...document gaps, if any, for estimating range of preferred flows...”. Gaps in flow information will be carried forward to the Level 2 Limited Reconnaissance and the Level 3 Intensive Study.  Refer to comment response #REC-3. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise.
REC-24	American Whitewater	Pg. 3	REC-1 Whitewater Boating	The river segment from the KR3 Powerhouse to the Kern River Park in Kernville should be included in Levels 1-3 of the study. It is described in Section 4.0 Study Area and Study Sites of REC-1 but not actually included in Levels 1-3 as a section which will be studied. It is a whitewater segment within the Project Area.	Refer to comment response #REC-21.
REC-25	American Whitewater	Pg. 3	REC-1 Whitewater Boating	The structured interviews should be open to all interested stakeholders with whitewater boating experience on the Kern River, and represent a range of watercraft, skill levels and knowledge of the whitewater boating segments in the Project Area.	SCE must select a measurable number of interviews to fulfill the study requirements in reporting to FERC. Ten structured interviews encompass the range of watercraft commonly used on the NFKR and will provide sufficient information for the Level 1 Desktop Review of existing information. The intent of the structured interviews is not to be a definitive stand-alone report on the whitewater recreation in the study area, but rather



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					<p>serve as an introductory guidance to the lead investigator as investigative tools for Levels 2 and 3 are developed.</p> <p>Whitewater flow studies at other FERC hydroelectric projects typically complete 6 to 10 structured interviews as part of the Level 1 investigation. This number of structured interviews is sufficient for the Level 1 investigation designed to provide preliminary information about the resource. Additional investigative tools in Levels 2 and 3 also include opportunities for face-to-face interaction with river recreational users during the Level 2 site visit with study participants touring the whitewater river segments and the focus group during the Level 3 Intensive Study.</p>
REC-26	American Whitewater	Pg. 4	REC-1 Whitewater Boating	Level 3 of the study should include language describing the possibility of enhancing flows below Fairview dam by reducing the powerhouse diversion.	Refer to comment response #REC-3. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise.
REC-27	American Whitewater	Pg. 4	REC-1 Whitewater Boating	SCE should make a good faith effort to provide advance notice of these opportunistic flow enhancements to local and regional paddling groups in order to create the greatest opportunity for individuals to experience the target flows and incentivize participation in the information gathering aspects of Level 3.	Refer to comment response #REC-3. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise.
REC-28	American Whitewater	Pg. 4	REC-1 Whitewater Boating	SCE should include an aspect of the online flow survey that gathers flow experience information related to specific dates and times. Gathering flow preference information based upon actual experiences within the project reach will provide important accuracy, when coupled with flow travel time and other aspects of Level 1 and Level 2. This information could give important additional information not otherwise captured through relying on individuals' recollection of the flow in units they believe they experienced. This might be a separate online (or physical) flow survey which is less comprehensive but designed to quickly capture users' experience of a single paddling trip, requesting information about put-in time, takeout-time, estimate of changes in flow condition throughout the course of the day, and other important qualifying information.	Refer to comment response #REC-15. SCE in collaboration with AW added a single flow survey to the Level 3 Intensive Study approach.
REC-29	American Whitewater	Pg. 4	REC-1 Whitewater Boating	The current license guarantees the first 300cfs for tunnel maintenance flow, which limits the types of flow enhancements which could be made to address data gaps identified in Levels 1 and 2 of the study. SCE should include the possibility of incorporating findings from OPS-1, should they become available in time, to the extent that they describe additional flexibility in the flow cycling regime for the conveyance system. Should findings from OPS-1 determine it is both safe and feasible to reduce this maintenance flow in order to target flows that meet knowledge gaps from Level 1 and Level 2 of the study, that additional flexibility should be incorporated into Level 3 flow enhancements	<p>In collaboration with AW, SCE agreed to add the following language to the REC-1 RSP:</p> <ul style="list-style-type: none"> <li>• "Results from <i>OPS-1 Water Conveyance Assessment</i> may become available prior to or during implementation of the Level 3 study. Additional tunnel operations flexibility identified in the OPS-1 study beyond the current license condition may be used to provide flows that satisfy knowledge gaps discovered in Levels 1 and 2."</li> </ul>
REC-30	American Whitewater	Pg. 5	REC-1 Whitewater Boating	Section 8.0. Schedule The schedule should include the possibility of increasing the duration of Level 3 Intensive Study through Spring 2024 in the event that 2023 flows or other issues do not allow flow information to be adequately captured within that year.	In collaboration with AW, SCE agreed to extend the Level 3 Intensive Study into spring 2024 if needed in the REC-1 RSP.
REC-31	Richard Norman	Pg 1	REC-1 Whitewater Boating	Additionally, I would request on-the-water boating flow studies at various flow levels, utilizing the local boater expertise to map out the detailed recreational white water opportunities that are currently sacrificed when the section is rendered unusable for the power generation, compared with the current over supply of electrical production, taking into account the rapid increase in wind and solar contributions, making the need for KR3 generation obsolete.	<p>SCE in collaboration with AW modified REC-1 to address, in part, requests for on-water evaluations, calibration, gaps in flow knowledge, and respondent recall of past experiences.</p> <p>The REC-1 RSP is a three-phase study consistent with methods in Whittaker et al. (2005). The third phase includes a single flow survey to evaluate individual trips and a flow comparison survey to evaluate a range of flows. The single flow survey and flow comparison survey will be ongoing throughout year two of the study in 2023. Boaters will have opportunities to evaluate their most recent experience on the water as well as populate the survey questions with experiences from previous trips on the river. This</p>

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					<p>online survey approach allows broader data collection covering a range of flows, watercraft types and users from a broad geographic area throughout the season.</p> <p>In addition, refer to comment responses #REC-3 and #REC-15. SCE in collaboration with AW revised the language to the REC-1 Level 3 Intensive Study to specifically target potential flow knowledge gaps in the boating community by enhancing flows where opportunities arise in addition to adding a single flow survey to the Level 3 Intensive Study approach.</p>
REC-32	Kern River Boaters	Pg. 39	REC-2 Recreation Facilities Use Assessment	<p>3.0 STUDY GOALS AND OBJECTIVES</p> <p><i>The Recreation Facilities Use Assessment (Study) would characterize visitor use along the NFKR at recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach.</i></p> <p>We ask that Edison specify how it intends this study to “characterize” visitor use; as it stands, the term “characterize” is too vague to justify the study.</p>	<p>The study goals and objectives in the REC-2 RSP have been updated and expanded upon. SCE will implement a holistic approach to evaluate all recreation use at recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach. This will be accomplished by assessing of the amount of recreation use that each site is receiving; collecting information on the type of recreation activities that occur; obtaining visitor feedback regarding their perception and experiences; and developing an estimate on future recreational demand and needs in the area.</p> <p>Refer to the REC-2 RSP for additional information on study goals and objectives.</p>
REC-33	Kern River Boaters	Pg. 39	REC-2 Recreation Facilities Use Assessment	<p>4.0 STUDY AREA AND STUDY SITES</p> <p><i>The study area and specific study sites will be focused on developed campgrounds, day-use areas, and river access points within the FERC Project Boundary and along the Fairview Dam Bypass Reach.</i></p> <p>Edison does not explain why it excludes undeveloped campgrounds within this study but includes them in its proposed study on facility conditions (REC-3). This inconsistency needs to be resolved. Visitors to undeveloped campgrounds are equally affected by project operations (as Edison states in § 1.0 of the proposal: “specifically changes in instream flows”) as are those who visit developed campgrounds and day use areas. Moreover, visitors to undeveloped campgrounds, which are free of charge, are more likely to be from economic and environmental justice communities, and the Commission has been directed specifically to consider project effects on them. We accordingly request that this study be amended to include undeveloped campgrounds.</p>	<p>Dispersed camping areas along the Fairview Dam Bypass Reach have been added to this study and will be incorporated as part of the visitor use surveys and spot counts as described in the REC-2 RSP.</p>
REC-34	Kern River Boaters	Pg. 39	REC-2 Recreation Facilities Use Assessment	<p>6.1. VISITOR INTERCEPT SURVEY</p> <p><i>During the 2023 recreation season, visitor intercept surveys will be conducted at the sites identified in Section 4.0 to collect data and information regarding recreation user information. Survey sample design will follow applicable protocols for sample size, weekdays/weekends, start/end times, and sample locations.</i></p> <p>Edison does not define the “recreation season” in the project-affected area. The project takes water out of the river year-round, and the project-affected area is a treasured public resource year-round. We accordingly ask that the study encompass an entire calendar year. Edison also fails to identify the governing “protocols,” and we request that they be identified prior to study approval.</p>	<p>SCE has expanded on the methods and approach to conducting the visitor intercept surveys.</p> <p>The peak recreation season for this study is defined as April to September, and SCE acknowledges that there is recreation taking place during the shoulder seasons (fall and spring) as well as winter. Therefore, SCE has included two visitor survey approaches: in-person surveys during the peak recreation season, supplemented with an online survey that will be accessible to visitors for 12 months. The online survey access code (QR code) will be posted at various information boards at the entrance to the recreation sites, and a link will be available on the Project relicensing website.</p> <p>Refer to Appendix A, <i>Visitor Intercept Survey Questionnaire</i>, of the REC-2 RSP for additional details.</p>
REC-35	National Park Service	Pg. 3	REC-2 Recreation Facilities Use Assessment	<p>Based on its name, this study would focus on visitor use at developed recreation sites (i.e., campgrounds, day use facilities, and whitewater boating access locations) and relies on the use of a questionnaire to collect information “to better understand who uses the facilities, the timing of recreation use, and user motivation for going to the location.” The NPS suggests the study’s name be changed to “REC-2 Visitor Use and Experience</p>	<p>Commented noted. SCE feels the study name of “Recreation Facilities Use Assessment” is adequate for users to understand the intent of the plan. No changes to the Study Plan title were made.</p>

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				Assessment” to better capture the complex nature of visitor use and experiences potentially affected by Project operations.	
REC-36	National Park Service	Pg. 3	REC-2 Recreation Facilities Use Assessment	In addition to gathering data at developed recreation facilities, the study should also examine visitor use and experiences at dispersed recreation sites within the Project boundary and along the Fairview Dam Bypass Reach. As with REC-1, the study area should also include NFKR from the KR3 Powerhouse to the Kern River Park in Kernville. Visitors are attracted to the Project shorelines and utilize other areas along the NFKR not associated with a developed recreation facility. For instance, visitors can access the river from a variety of locations for boating, swimming, fishing, picnicking, hiking, or enjoying the scenery. Data should be gathered on these types of users and not limited to those using developed sites.	Refer to comment response #REC-33. SCE has expanded the survey area to include dispersed camping locations along the Fairview Dam Bypass Reach.
REC-37	National Park Service	Pg. 3	REC-2 Recreation Facilities Use Assessment	The Visitor Intercept Survey is currently limited to data on use of recreation facilities, timing of recreation use, and visitor motivation for location of use. It should also collect information on activity participation (e.g., various types of boating, fishing, swimming, tubing, etc.), accessibility needs, areas visited, group size, user conflicts, perceived crowding, visitor profile, visual impressions, and satisfaction with or desire for recreational opportunities and facilities in the Project area. The NPS mentioned the need for additional data in previous comments on the Visitor Intercept Survey in the PAD. The questionnaire should provide the opportunity for visitors to express any potential concerns over the current condition of and future possibilities for recreation opportunities and recreation facilities in the Project area. The NPS appreciates the Applicant’s intention to share the draft Visitor Intercept Survey with the Recreation Technical Working Group for comment before being administered, which would give stakeholders the opportunity to determine if the survey instrument would capture all aspects of visitor use and experiences within the study area.	The draft REC-2 visitor survey questions will collect various visitor information such as: recreation user demographics, activities, perception and experience, feedback (conditions and needs), and socioeconomic data. A copy of the survey questionnaire is included as Appendix A, <i>Visitor Intercept Survey Questionnaire</i> , to the REC-2
REC-38	National Park Service	Pg. 3	REC-2 Recreation Facilities Use Assessment	The NPS suggests that the Applicant consider various methods to administer the Visitor Intercept Survey instrument, as well as prepare surveys in different languages to capture the use and experiences on non-English speaking visitors	SCE has expanded the visitor intercept surveys to be available in both English and Spanish. SCE has also expanded this study to include an online survey option. Refer to comment response #REC-34.
REC-39	National Park Service	Pg. 3	REC-2 Recreation Facilities Use Assessment	In addition to delivering in-person questionnaires, the Applicant should consider other surveying techniques to increase the number and variety of surveys completed. This could include having self-administered surveys in areas frequented by recreationists, providing visitors the option to fill out online or digital surveys at a later date, providing outfitters and concessionaires hard copies and/or links to the survey instruments for their clients to fill out, or posting links to the survey instrument in local businesses that generally cater to visitors who recreate in the Project study area.	Refer to comment response #REC-34. The survey is intended to obtain visitor feedback regarding their experience along the Fairview Dam Bypass Reach. Information will be posted (i.e., QR Code) at the sites listed in Section 4.0 of REC-2 asking visitors to complete the survey.
REC-40	National Park Service	Pg. 3	REC-2 Recreation Facilities Use Assessment	To reduce the potential length of each survey, consider using several different surveys that focus on different aspects of visitor use and experiences. For instance, all questionnaires would have the same questions aimed at collecting data on visitor use and demographics, some questionnaires would include additional questions regarding user satisfaction, and other questionnaires would include additional questions pertaining visit-related expenditures. The US Forest Service has used similar types of varied questionnaires in their National Visitor Use Monitoring Program	SCE has consulted with the SQF on developing a survey to collect information relevant to the KR3 Relicensing, while also being mindful of visitors’ time to complete the survey. As such, recreationalists will have the option to respond to the survey at a later date through the use of the QR code.
REC-41	National Park Service	Pg. 4	REC-2 Recreation Facilities Use Assessment	Specific data on visitor use collected under REC-2 is necessary for conducting SOCIO-1 Socioeconomic Analysis and should be considered when developing the Visitor Intercept Survey. This includes collecting data on overall visitor numbers, visitor characteristics, types of visitor use (e.g., boating, fishing, swimming), and location of use (i.e., section of river)	Coordination between REC-2 and SOCIO-1 study needs was considered when developing the visitor intercept survey.  In addition to collecting various visitor information (refer to comment response #REC-37), questions regarding trip expenditures such as total cost spent on lodging, food, guide or outfitter fees, equipment rentals, or other purchases have been incorporated into the visitor survey questionnaire to support the SOCIO-1 analysis. A copy of the survey

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					questionnaire is included as Appendix A, <i>Visitor Intercept Survey Questionnaire</i> , to the REC-2 RSP.
REC-42	National Park Service	Pg. 4	REC-2 Recreation Facilities Use Assessment	Visitors access this section of the river from the KR3 Powerhouse Put-in/Take-out, a Project recreation facility. Visitor use downstream of this access point has a direct nexus to the Project.	NFKR downstream of the KR3 Powerhouse is outside of the FERC Project Boundary. If visitors access the NFKR between Fairview Dam and the KR3 Powerhouse Put-in/Take-out, they will have the opportunity to respond to the survey either via in-person or online. Therefore, SCE does not propose to include recreation sites downstream of the Project in the REC-2 Study Plan.
REC-43	National Park Service	Pg. 4	REC-2 Recreation Facilities Use Assessment	The applicant should develop the survey instrument and its means of delivery in association with the data requirements of the socioeconomic analysis. NPS also recommends that the applicant conduct surveys of local businesses that cater to the recreation and tourism industry in the Project area.	Refer to comment responses #REC-41 and #SOCIO-6. The SOCIO-1 Study Plan has been updated to include, if available, daily boating trip records from local outfitters. However, SOCIO-1 is not planning to survey other local businesses (e.g., restaurants, grocery stores, lodging) because their activity is influenced by many factors not solely related to recreation along the Fairview Dam Bypass Reach.
REC-44	SQF	Pg. 8	REC-2 Recreation Facilities Use Assessment	The Forest Service believes the visitor intercept survey (the survey) for the Recreation Facilities Use Assessment should seek to be as accessible and inclusive as possible. To this end: The survey should be as accommodating as possible of the all the potential languages spoken by a likely visitor to the area and not simply rely on English being their primary language. The U.S. Census Bureau list 51% of the population in Bakersfield area identifying their race as Hispanic/Latino (U.S. Census Bureau Quick Facts: Bakersfield city, California) At a minimum, the survey should be available in Spanish.	Refer to comment response #REC-38.
REC-45	SQF	Pg. 8	REC-2 Recreation Facilities Use Assessment	The survey should be available digitally to capture the largest possible audience. Not only for those visitors who do not wish to interrupt their recreating in order to take a survey, or who may not wish to be engaged by a stranger in a social interaction due to the continued uncertainty during of the COVID-19 pandemic or for personal reasons. The ability to provide input on the users schedule increases response rates and the quality of responses. Outfitters, guides and concessionaires can assist in increasing response rates by providing clients/visitors with access to the survey (e.g. a QR code or website link provided as a separate handout, social media post, or available through the companies' own follow-ups). Additionally, a digital survey is not only more accessible in general, but may increase participation by being made available in more languages for a minimal expense. The forest feels the recreation pursuits of many visitors is undercounted because their primary language is not accommodated by in-person surveys conducted only in English, using English-only speakers.	Refer to comment response #REC-34 and #REC-38.
REC-46	SQF	Pg. 8	REC-2 Recreation Facilities Use Assessment	Recreation on the forest does not look consistent across the year, but changes with the seasons. A digital survey, especially one augmented by an in-person option at various times throughout the year, would provide a more complete picture of users and their recreation pursuits than an in-person survey conducted during the narrow timeline of one summer season.	Refer to comment response #REC-34.
REC-47	SQF	Pg. 8	REC-2 Recreation Facilities Use Assessment	The current recreation survey list gender as an identifying characteristic; will the surveyor be asking the participants to self-identify, or will the surveyor be making their own assessment? How is gendered used when one respondent represents an entire group?	Thank you for your comment. SCE has removed any reference to gender from the survey as there is no benefit in collecting this information to support the KR3 relicensing.
REC-48	SQF	Pg. 9	REC-2 Recreation Facilities Use Assessment	The district appreciates the granular work of individual surveys, but would like to see an attempt to capture some more overarching data, such as vehicles counters, or broad surveys of the total number of visitors along this portion of the river. We think that having this larger understanding of visitation will allow us to make better extrapolations from the survey about economic impact and recreation use.	SCE has revised REC-2 to included spot counts throughout a 12-month period.

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REC-49	SQF	Pg. 9	REC-2 Recreation Facilities Use Assessment	As a general comment, we believe the survey itself to be long and difficult to complete. SCE has scheduled a meeting with the forest for June 3, 2022. The stated agenda for this meeting is to discuss the survey and provide input and feedback. We hope this meeting will provide a more collaborative approach to crafting a survey instrument and will address Forest Service concerns.	Comment noted. SCE appreciates your feedback regarding the survey length and difficulty. SCE has consulted with the SQF on developing a survey to collect information relevant to the KR3 relicensing, while also being mindful of visitors' time to complete the survey.
REC-50	American Whitewater	Pg. 5	REC-2 Recreation Facilities Use Assessment	Data should be collected at not only established access points but also dispersed recreation sites throughout the Project Area. This might include users fly-fishing from pull-outs on the side of the road, mountain biking and hiking up SCE-maintained project roads away from the river's edge, or otherwise recreating outside established recreation facilities. Visitor interceptor should include an effort to make contact with these users, either at the location that they are recreating, or on their way to or from the Project Area.	Refer to comment response #REC-33.
REC-51	American Whitewater	Pg. 6	REC-2 Recreation Facilities Use Assessment	Study data should be collected in at least two modes. Visitor-intercept alone may not accurately capture all users, so an additional survey component (e.g. digital survey, accessible via QR code, website link, etc.) would add information from individuals not present on sampling days, unwilling to interact with study staff, or otherwise excluded.	Refer to comment response #REC-34. Additionally, the survey is intended to obtain visitor feedback regarding their experience along the Fairview Dam Bypass Reach. Visitor surveys will include in-person intercept and online.
REC-52	American Whitewater	Pg. 6	REC-2 Recreation Facilities Use Assessment	The study is currently not described as gathering information from individuals in multiple languages. Regional demographics suggest that, at minimum, the in-person intercept and digital survey (if included) should be expanded to include Spanish-language questions and Spanish fluent study staff. Additional languages should be included, as appropriate, if study contractors deem them to represent a substantive population of likely or actual respondents.	Refer to comment response #REC-38.
REC-53	American Whitewater	Pg. 6	REC-2 Recreation Facilities Use Assessment	The temporal range of the study conduct needs to be expanded beyond a single Summer study season. The year-round nature of recreation within the area, and specific temporal changes in the types and quantities of recreationists from season to season, necessitates at least some visitor intercept study attempts in Spring, Fall, and possibly Winter. Trout opener users, hunting season users, and others, all utilize project facilities in different ways at different times of the year, so Summer sampling alone will not accurately meet the study information gathering goals.	Refer to comment response #REC-34.
REC-54	American Whitewater	Pg. 7	REC-2 Recreation Facilities Use Assessment	Insofar as SOCIO-1 does not specifically include any additional in-person sampling in the Proposed Study Plan, a few socioeconomic questions should be included into REC-2 in order to capture the income demographics as well as likely or actual economic impact of recreationists.	Refer to comment responses #REC-37 and #REC-41.  In addition to collecting various visitor information (refer to comment response #REC-37), questions regarding trip expenditures such as total cost spent on lodging, food, guide or outfitter fees, equipment rentals, or other purchases have been incorporated into the visitor survey questionnaire to support the SOCIO-1 analysis. A copy of the survey questionnaire is included as Appendix A, <i>Visitor Intercept Survey Questionnaire</i> , to the REC-2 RSP.
REC-55	Kern River Boaters	Pg. 40	REC-3 Recreation Facility Condition Assessment	<p>2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED</p> <p><i>During the previous relicensing process, SCE developed a Recreation Plan (SCE, 1997) in accordance with the FERC license (License Article 421), which outlined specific one time capital improvements SCE would undertake to improve or enhance three USFS owned recreation sites along the Fairview Dam Bypass Reach: Fairview Campground, Thunderbird Group Campground and whitewater put-in/take out, and Hospital Flat Campground.</i></p> <p>Edison fails to describe a project nexus between project operations and the condition of USFS-owned recreation sites outside the project boundary. Simply because USFS accepted money from SCE for forest improvements in lieu of hydrological mitigation for project effects during the last proceeding does not render such an appropriate issue for</p>	<p>As a clarification, the only Project-owned and operated recreation facility is the KR3 Powerhouse Put-in/Take-out. The Willow Point take-out is a USFS owned and maintained site located upstream of Fairview Dam within the FERC Project Boundary.</p> <p>SCE has included the listed facilities in REC-3 in response to the SQF's study request submitted in response to SCE's PAD and FERC's SD1. This study will support discussions about SQF's recreation management direction and management activities occurring on USFS lands in the Project Vicinity. Additionally, the Fairview Dam Bypass Reach down to the Kern/Tulare County Line is located within the Kern Wild and Scenic River and is managed under the North and South Forks of the Kern Wild and Scenic River Comprehensive Management Plan (USFS, n.d.). The information obtained from this study</p>

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				study in the present proceeding, which is governed by the more structured ILP rubric requiring a plausible project nexus between project operations and proposed studies. As FERC states in its ILP Guide, “A study request should demonstrate that there is a potential project effect associated with the resource, explain why a specific aspect of project construction or operation is a likely or probable source of the effect, and explain how the information that would be obtained may be used to define alternatives to address the effect.” We request that this study request be rejected for all but the two project-owned sites for lack of a plausible, identified nexus.	will support SQF’s analysis in accordance with Section 7(a) requirements (36 CFR § 297.4).
REC-56	Kern River Boaters	Pg. 130	Stakeholder Study Request	<p>KRB SR-9: COMPARATIVE WHITEWATER OPPORTUNITIES UPDATED STUDY PROPOSAL <i>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.</i></p> <p>The goal of this study is to compare and contrast available whitewater recreational opportunities for people from Southern California with those from the Bay Area. It will reveal the inventory of whitewater opportunities afforded to residents of each area and identify whether any differences are due to natural or regulatory differences.</p>	<p>Not adopted. Beyond scope necessary for relicensing, the study request constitutes basic research and/or study would not lead to development of future license conditions.</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.8, <i>KRB SR-9: Comparative Whitewater Opportunities Updated Study Proposal</i>.</p> <p>The request to study other recreational opportunities outside of the Project Area/region will not inform the development of a license condition. Conducting research about whitewater opportunities outside of the Kern River will not add to the understanding of potential project effects of Project operations on the NFKR. Section 5.7 of the PAD filed September 22, 2021, describes nearby outdoor recreation opportunities upstream and downstream of the Project Area (SCE, 2021).</p>
REC-57	Kern River Boaters  KRFF	Pg. 74	Stakeholder Study Request	<p>KRB SR-3: ENJOYABLE ANGLING FLOWS UPDATED STUDY PROPOSAL <i>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.</i></p> <p>The goal of this study is to evaluate the effect that project operations have on angler enjoyment of fishing in the 16-mile dewatered reach below Fairview Dam. The amount of water present in a fishery can significantly impact an angler’s enjoyment of a fishing outing. This proposal focuses on situations where Edison’s diversion of water from the North Fork Kern may leave a quantity of water in the riverbed that is so low as to render an angling outing for a typical person less than enjoyable.</p>	<p>Not adopted. The study request is not necessary because the REC-2 RSP is sufficient to answer the questions posed. A copy of the survey questionnaire is included as Appendix A, <i>Visitor Intercept Survey Questionnaire</i>, to the REC-2 RSP. SCE has incorporated focused questions for anglers to respond. The questionnaire asks participants to rate their fishing experience at the time of the survey in addition to other questions about their visit.</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.3, <i>KRB SR-3 Enjoyable Angling Flows Updated Study Proposal</i>.</p>
REC-58	Neil Nikirk	Pg. 12	Stakeholder Study Request	<p>Enjoyable Angling Flows (KRB and KRFF) <i>SCE responds that there is no evidence of a problem</i></p> <p>Several comments on the flow-related effects on angling and angling enjoyment were received during scoping. All of them stated project operations reduce flows and have harmed not only the fish populations but the enjoyment of fishing. NEPA will require an evaluation of effects on Recreational Resources. This study would help to identify potential impacts of the project on recreational resources other than whitewater recreation. In addition, this study would be easy to integrate into the proposed whitewater recreational flow and the recreational facility studies.</p>	<p>SCE has modified REC-2 to collect information regarding anglers’ experience; therefore, the study request is not necessary because another Study Plan is sufficient to answer the questions posed.</p> <p>Refer to comment response #REC-57 for additional information.</p>

**Study Plan Comment Response Matrix—Land Resources/Aesthetics**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
LAND-1	SQF	Pg. 11	LAND-1 Road Condition Assessment	However, no part of the study proposes to measure erosion, deposition, damage to roads, the causes and frequency of events that drive erosion (presumably storms), or factors effecting erosion such as particle size or slope. Instead, the assessment amounts to a roads inventory.	The <i>LAND-1 Road Condition Assessment</i> study objective is to collect information regarding road condition and description of road use. Refer to <i>GEO-1 Erosion and Sedimentation</i> regarding runoff from roads with potential to affect streams.
LAND-2	SQF	Pg. 11	LAND-1 Road Condition Assessment	A roads inventory and the associated survey described in the methods section of the study will certainly be useful, and the Forest Service want those elements retained. Nonetheless, there is a need for additional data: Additional roads inventory data including but not limited to the items listed below <ul style="list-style-type: none"> <li>• Number of users</li> <li>• User data broken down by type of user (hiker, mountain bike, OHV, etc.)</li> <li>• Seasonality of road use</li> <li>• Map the location of gates, if any</li> </ul>	SCE has updated LAND-1 to include spot counts and documentation of SCE's road use to characterize use patterns along Project and Shared Access Roads. Documenting the location of any gates is also included as one of the road inventory items.
LAND-3	SQF	Pg. 11	LAND-1 Road Condition Assessment	Trails assessment – the project area is used by hikers, mountain bikers, and OHV that venture off roads and onto trails (note that true cross-country travel is forbidden on Forest Service lands; we refer here to the use of trails instead of roads). There are erosion concerns related to trail use that are not discussed in the Proposed Study Plan.	Trails leading from Project roads outside the FERC Project Boundary, regardless of use type, are not used by SCE for routine O&M, are not maintained by SCE, and have not been identified for study. However, SCE has updated the LAND-1 Study Plan to document the locations of informal non-Project trailheads if observed along the roads identified in the Study Plan.
LAND-4	SQF	Pg. 11	LAND-1 Road Condition Assessment	Information about erosion associated with roads – in keeping with the stated resource concern, which is also in line with Forest Service concerns, this study should discuss the measurement of erosion and how such measurement will be accomplished. Some possible questions to consider are: <ul style="list-style-type: none"> <li>• Are the existing water bars sufficient?</li> <li>• Are more water bars needed?</li> <li>• Are additional mitigation measures necessary</li> </ul>	LAND-1 includes the documentation of all road features with evidence of active erosion or sediment sources and provides an inventory of erosion control features to address this resource concern. Information obtained as part of this, and other studies included with this RSP, combined with existing information, will be used to analyze environmental effects of SCE's O&M activities, if any  Refer to <i>GEO-1 Erosion and Sedimentation</i> regarding runoff from roads with potential to affect streams.
LAND-5	Kern River Boaters	Pg. 58	Stakeholder Study Request	<i>KRB SR-1: AESTHETIC FLOWS UPDATED STUDY PROPOSAL</i>  The goal of this study is to describe and evaluate the effects of project operations on aesthetic flows throughout the dewatered reach of the project — 16 miles of the Wild and Scenic North Fork Kern River — and to evaluate potential measures to alleviate those effects. This would be accomplished by evaluating the aesthetic benefit of various flows released into it from Fairview Dam	Not adopted. The study request is not necessary because existing information and/or another Study Plan is sufficient to answer the questions posed.  The visual character of the Project was evaluated during the previous relicensing effort as described in Section 5.9 of the PAD (SCE, 2021). Additionally, SCE has amended REC-2 <i>Recreation Facilities Use Assessment</i> to obtain information regarding the public's perception about the scenery while recreating in the Fairview Dam Bypass Reach.  See also comments in Section 2.3.2, <i>Studies Not Adopted</i> , of this RSP—specifically, Section 2.3.2.1, <i>KRB SR-1: Aesthetic Flows Updated Study Proposal</i> .
LAND-6	Neil Nikirk	Pg. 12	Stakeholder Study Request	Aesthetic Flows (KRB) <i>SCE responds that there is no evidence of a problem.</i>	Refer to comment response #LAND-5 for additional information.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				Several comments on the aesthetic and visual aspects of the bypass reach were received during scoping. All of them stated that the aesthetic value is flow related and that project operations reduce flows to less appealing levels from a visual and aesthetic standpoint. NEPA will require an evaluation of effects on Visual Resources. This study would help to identify potential impacts of the project on visual resources. In addition, this study would be easy to integrate into the proposed whitewater recreational flow and the recreational facility studies.	

**Study Plan Comment Response Matrix—Geological Resources**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
GEO-1	SQF	Pg. 11	GEO-1 Erosion and Sedimentation	<p>The Forest Service manages erosion and sedimentation issues on the Sequoia National Forest in several ways including, but not limited to:</p> <ul style="list-style-type: none"> <li>• Runoff from roads</li> <li>• Pour points, spillways, and drains</li> <li>• Instream sediment transport</li> <li>• Post-fire runoff and debris flows</li> </ul> <p>The write up for GEO-1 mentions most of these issues in the description of the Potential Resource Issue, but the remaining parts of the study are limited in scope and primarily address the identification of SCE infrastructure that might contribute to erosion and sedimentation without quantifying it. This is particularly true with respect to sediment in the mainstem NFKR.</p> <p>In-stream sedimentation and sediment transport are likely to be affected by KR3 water consumption, which manipulates water levels in the river within the Project Area. Water diverted into the conveyance system cannot move sediment downstream, and the reduced hydrologic power in the project reach likely changes the distribution of sediments along the 16-mile river corridor affected by this project. With water diverted for power generation being unavailable to the river, the types and abundances of instream habitats has likely changed. Furthermore, the system's capacity to respond to and recover from post-fire runoff and resultant sedimentation is an issue. From the Forest Hydrologist, regarding this point and referring to repeated statements of concern about low flows on post-fire conditions:</p> <p>"... Sediment studies (D50 Particle Size and V* ratio) occurred between 1997-2001 but [were not] monitor[ed] after the McNally Fire of 2002. As such, post-fire sediment transport models need to be run to determine if flow conditions (350cfs) are sufficient to move excess sediment after a fire using the modified sand box flushing procedure adopted in 2010."</p> <p>The Forest Service therefore requests that GEO-1 be expanded to include a broader range of erosion-related and sedimentation-related factors. In addition to studying the contribution of SCE infrastructure, the effects of flow manipulation on sediment transport in the river must be considered. Furthermore, SCE should consult with the Forest hydrology experts to further study the effects of flow manipulation on post-fire erosion, sedimentation, and accretion as it pertains to Project effects on the hydrograph and the river's resultant hydrologic power.</p>	<p>SCE has conducted numerous sediment studies and habitat surveys within the bypass reach that include both pre- and post-fire surveys, which provide insight on the mobilization of sediments following large debris flows. There have been two large debris flows in recent history: (1) resulting from the December 1966 flooding, and (2) following the 2002 McNally Fire and subsequent 100-year storm event totaling 22 inches of precipitation in 30 hours, which resulted in significant sediment deposition both upstream and downstream of Fairview Dam altering channel bed textures from boulder and cobble dominant to fine sand and gravel dominant over much of the Fairview Dam Bypass Reach.</p> <p>Existing sediment related studies include an <i>Investigation of the Relationship between Trout Spawning and Sandbox Flushing Kern River No. 3 Hydroelectric Project</i> (ENTRIX, 1992), the <i>Fairview Dam Sandbox Flushing Study Assessment</i> (ENTRIX, 2002), the <i>Fairview Dam Revised Sandbox Flushing Regime Validation Study</i> (ENTRIX, 2009), and habitat assessments at fish survey locations between 1998 and 2016. The 2002 sediment surveys were repeated in 2007 and 2009 at the upstream most site (Site A, identified as the most sensitive to sandbox flushing), located approximately 200 feet downstream of Fairview Dam (Entrix, 2009), and included channel cross section profile analysis, particle size distribution, and qualitative evaluation of channel morphology.</p> <p>These studies found that the large framework grains that dominate the channel bed in the Fairview Dam Bypass Reach are only mobilized during large, infrequent flood events, while more frequent peak flows (e.g., 1.3- to 1.5-year recurrence interval) mobilize smaller grains (e.g., gravel and sand) (PAD Section 5.1.4.1, <i>Channel Geomorphology and Sediment Transport</i>). The 350 cfs flushing flows were not intended to mobilize and transport excess sediment deposits from the McNally Fire; however, naturally occurring high flows in 2005 and 2006 did scour much of the deposited sediment in the Fairview Dam Bypass Reach, although the channel did not entirely return to pre-fire conditions by 2009 (ENTRIX, 2009). The NFKR downstream of Fairview Dam experiences relatively frequent high flows.</p>



Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
					<div> </div> <p><b>Annual Flood Frequency Curve for North Fork Kern River below Fairview Dam, 1961–2019 (USGS gage 111860000).</b></p> <p>The 2009 study found that 350 cfs is sufficient to transport fine-grained material released from the sandbox through the Fairview Dam Bypass Reach, but also that in 2009, the channel was continuing to adjust to the large disequilibrium event following the McNally fire (Entrix, 2009). Additionally, other studies suggest fine sediment deposits after the McNally fire continue to dynamically adjust throughout the bypassed reach. Fish population monitoring being conducted as part of current License Article 411, <i>Fish Monitoring Plan</i>, includes habitat characterization and assessment of reoccupied sample sites within the Fairview Dam Bypass Reach. Comparison of channel characteristics measured in 1998, 2006, 2011, and 2016 indicate a relatively stable morphology with minimal changes in the size, shape, and substrate characteristics of surveyed reaches. Specifically related to sediment, minimal changes to substrate composition were observed at three sites downstream of Fairview Dam (Roads End, Gold Ledge, and Hospital Flat). Following the 2002 McNally fire, the percentage of sand (substrate 2 to 8 millimeters) at these sampling sites increased by 10%, 2%, and 33%, respectively; however, by 2016, the percentage of sand had returned to at or below pre-fire levels at the Roads End and Gold Ledge sites and decreased from 48% to 30% at Hospital Flat site.</p> <p>Given the Project's limited ability to buffer peak flows or hold sediment, and given the observations of scouring under current operations, a repeat of the previously completed sediment transport studies is unwarranted.</p>

**Study Plan Comment Response Matrix—Cultural Resource**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
CUL-1	SQF	Pg. 8	CUL-1 Cultural Resource	<p>The Forest Service is concerned that the Area of Potential Effect (APE) for cultural resources is too narrowly defined—essentially the FERC boundary and the footprint of any activities outside of the current FERC boundary—to encompass direct effects let alone indirect effects. Potential resources issues include the following:</p> <ul style="list-style-type: none"> <li>Road maintenance - Communication with SCE suggests that the APE is in places as narrow as 25 feet wide (centered along the road prism). Such a space is too narrow to capture the direct effects of features such as waterbars or overside drains which have the potential to direct ground-disturbing runoff well beyond that buffer. With such a narrow buffer, activities such as roadside brushing could extend beyond the APE. Additionally, members of the tribal community have already reached out to the forest and expressed concern that known sites located just outside of that 25-foot APE may receive direct effects.</li> <li>Indirect effects – An APE narrowly defined around the FERC boundary and the footprint of activities located outside that boundary cannot possibly capture indirect effects such as impacts to integrity of setting and feeling (both of which are critical integrity elements for Criterion A National Register Eligibility) which can occur at distances well beyond 25 feet. In a dry, windy environment dust deposition as result of road grading could extend well beyond the proposed APE and impact resources such as prehistoric rock art. At a broader level, some cultural resources such as Traditional Cultural Properties (TCPs) exist at the level of entire viewsheds.</li> <li>The APE does not encompass the historic district associated with KR-3 – The National Register eligible historic district associated with KR-3 not only completely encompasses the entire proposed APE but extends well beyond it. While that district is discontinuous, many contributing elements of the district intersect the proposed APE. Effects, both direct and indirect, need to be understood at the level of the entire historic property. In some cases, considering those effects more broadly could actually simplify mitigation.</li> </ul> <p>Considering the APE narrowly along the lines of the FERC boundary precludes an understanding of effects to those large-scale resources and essentially forecloses on any significant consideration of indirect effects. In order to adequately address potential direct and indirect, the APE should be expanded at least to the extent of the study area, be shaped around any cultural resources that extend beyond that study area and be the product of consultation which includes the forest and tribal partners.</p>	<p>On November 21, 2021, FERC designated SCE as the Commission’s non-federal representative for carrying out informal consultation, pursuant to section 7 of the Endangered Species Act and section 106 of the National Historic Preservation Act. Prior to initiating field studies in early 2022 as outlined in the CUL-1 Study, SCE conducted Section 106 consultation with the State Historic Preservation Officer (SHPO) on January 11, 2022, regarding the APE outlined in the PSP. On March 23, 2022, the SHPO found the APE, as defined as the FERC Project Boundary, to be sufficient for the undertaking pursuant to 36 CFR § 800.4(a)(1).</p> <p>SCE’s routine Project maintenance activities are limited to the extent of the FERC Project Boundary. Any activities that may occur outside of the FERC Project Boundary would constitute a separate undertaking and therefore would require compliance with Section 106 of the NHPA and require a focused cultural resources assessment as part of that undertaking, which is outside the scope of this relicensing effort. The CUL-1 Study Plan does include the complete documentation of any cultural resources within the APE and the portions of a resource that extends beyond the APE. The study area will be used to identify cultural resources in the Project Vicinity and determine if they extend into the APE and may be indirectly affected by the Project.</p>

**Study Plan Comment Response Matrix—Tribal Resource**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
TRI-1	SQF	Pg. 10	TRI-1 Tribal Resource	<p>The Area of Potential Effects (APE) for tribal resources is stated to be "coincident" with the FERC boundary. That boundary differs from the APE laid out in consultation with the California Office of Historic Preservation for cultural resources which also mentioned "any other facilities outside of the FERC Boundary where Project O&amp;M activities are conducted including areas where SCE may propose to expand the FERC Boundary." The Forest Service is therefore concerned that an APE aligned with the FERC boundary cannot adequately capture the space within which direct and indirect effects could occur. Below are some potential resource issues:</p>	<p>Refer to comment response #CUL-1.</p> <p>The TRI-1 Study Plan includes the complete documentation of any Tribal resources within the APE and the portions of a resource that extends beyond the APE. The study area will be used to identify Tribal resources in the Project Vicinity and determine if they extend into the APE and may be indirectly affected by the Project.</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				<ul style="list-style-type: none"> <li>• Unlike the FERC boundary, which is shaped by facilities associated with the hydroelectric project, tribal resources including sacred sites and Traditional Cultural Properties (TCPs) often consist of intangible things that do not fit neatly into specific spots on the ground. In some cases, TCPs and sacred sites can encompass entire landscapes.</li> <li>• Some tribal resources such as gathering areas actually move as plant species ebb and flow over time or respond to conditions such as wildfire.</li> <li>• Dust deposition from road maintenance or other ground-disturbing activities could directly affect traditional gathering areas located well outside the narrow roadside APE. Similarly, in a windy environment pesticide applied within the FERC boundary could affect nearby gathering areas.</li> </ul> <p>As noted for cultural resources, the proposed APE is too narrow to give any serious consideration to indirect effects such as visual impacts from roadside brushing to a sacred site that is important for its natural appearance. Given the intangible nature of some tribal resources, the Forest Service recommends that the APE be aligned with the larger study area, that it include any "other areas outside the FERC boundary" where activities may occur, and that its boundaries be the product of collaboration with both federally and non-federally recognized tribes to ensure it adequately reflects the extent of potential effects.</p>	

**Study Plan Comment Response Matrix—Socioeconomic Resources**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
SOCIO-1	Neil Nikirk	Pg. 11	SOCIO-1 Socioeconomic Analysis	<p>Economic Study of Flow Related Recreation  <i>The NPS requested a study that will evaluate the economic contributions of flow-related recreation in the Project bypass reach on the local economy, specifically the communities of Kernville and Wofford Heights, as well as Lake Isabella to a lesser degree. The purposes of this study are to 1) quantify the baseline economic values and socioeconomic benefits supported by water-based recreation, 2) evaluate various flow regimes on economic contributions, and 3) evaluate any long-term socioeconomic effects due to Project operations and potential changes in visitor use and expenditures due to proposed flow regimes.</i></p> <p>This study request is reasonable and SCE has included a study plan for SOCIO-1 Socioeconomic Analysis in the current PSP. I caution that (1) the "baseline" economic values and benefits seems to be based on the current flow regime and that the value and benefits would increase with an enhanced recreation flow regime and would be maximized under a no diversion alternative, which so far FERC has been unwilling to even consider. (2) The evaluation of flow regimes on economic contributions must include an analysis of full natural flows (i.e., no diversion). The analysis also needs to recognize that far more recreation would occur if adequate flows were provided and that the "baseline" is not indicative of the full potential for recreation that would be provided by enhanced recreational flows, including full natural flows in the bypass reach. I don't think the commercial outfitters have annual limits on their use in the permits, so their contribution to the economy would only increase with more recreational flow days to utilize.</p>	<p>SOCIO-1 uses the current flow regime as the baseline to describe the current socioeconomic conditions, which is consistent with FERC's well-established environmental baseline policy for NEPA review.</p> <p>In fact, the commenter's speculative allegation that "far more recreation would occur" under different flow conditions underscores the wisdom of FERC's environmental baseline policy. Any effort to recreate a "without project" scenario is necessarily unreliable and highly subjective. The commenter cannot present any evidence supporting this comment, which overlooks the significant socioeconomic benefits the Project unquestionably provides to the region.</p>
SOCIO-2	Kern River Boaters	Pg. 41	SOCIO-1 Socioeconomic Analysis	<p>9.0 POTENTIAL RESOURCE ISSUE  <i>Contribution of the Kern River No. 3 (KR3) Project Area recreation and tourism to the local economy.</i></p> <p>Edison proposes to describe the project-affected area's contribution to the local economy. It does not seek to evaluate the project's effect on that contribution. The fundamental operation of this project is to remove water from the NFKR. The effect of this operation obviously depresses human economic and experiential enjoyment of the dewatered reach by damaging river aesthetics, fish habitat, the riverine ecosystem, opportunities for recreation, water quality, and the like. The study process is supposed to identify and evaluate such direct project effects;</p>	<p>Refer to comment response #SOCIO-1.</p> <p>Contrary to the commenter's opinion, the current Project flow regime represents the baseline condition considered for analysis in this relicensing, and there is no evidence of an adverse effect of the Project to the local economy. The commenter presents no evidence that the Project "depresses human economic and experiential enjoyment of the dewatered reach." In fact, this</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				instead, Edison proposes to describe the economic state of affairs as-is. We ask that the study be amended to include an evaluation of the project's economic impact on recreation and tourism in the dewatered reach.	<p>comment is belied by the popularity of this reach of the river, enjoyed by thousands of recreationalists each year.</p> <p>In addition, the commenter provides no support for the proposition that conducting such a granular socioeconomic analysis on the Project's bypassed reach is at all consistent with FERC policy and precedent. To the contrary, FERC regulations (18 CFR § 5.6(d)(3)(xi)) require applicants to provide a <i>general</i> description of socioeconomic conditions in the Project Vicinity, including general land use patterns, population patterns, and sources of employment in the Project Vicinity. The regulations also require that the final license application contain an analysis of how the Project proposal would affect these conditions (18 CFR § 5.18(b)(5)(ii)). FERC does not, however, require a quantitative analysis of non-power benefits such as recreation and aesthetics in economic terms. See Study Plan Determination for Rio, Mongaup Falls, and Swinging Bridge Hydroelectric Projects at B-56, Project Nos. 9690 et al. (issued Feb. 9, 2018).</p> <p>In other study plan determinations, FERC staff has rejected requested studies on, for example, "the economic value of environmental, recreation, or cultural resources." See e.g., Study Plan Determination for Skagit River Hydroelectric Project at B-81, Project No. 553 (issued Jul. 16, 2021); Study Plan Determination for Potter Valley Project at B-43, Project No. 77 (issued Mar. 16, 2021). Rather, FERC has provided that its regulations already require license applicants "to provide an economic analysis of the cost of constructing, operating, and maintaining the project and an estimate of the cost of each proposed or recommended protection, mitigation, and enhancement measure..." See Study Plan Determination for County Line Road Project at B-45, Project No. 14513 (issued Mar. 2, 2016) (citing 18 CFR § 5.18(b)(5)(ii)(E)).</p> <p>Consistent with FERC regulations, SCE's proposed socioeconomic study is intended to obtain information about economic conditions under current Project operations.</p>
SOCIO-3	Kern River Boaters	Pg. 41	SOCIO-1 Socioeconomic Analysis	<p><b>2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED</b></p> <p><i>This study will analyze the economic benefits to the surrounding community of the current river-related recreation in the Fairview Dam Bypass Reach. The study will also provide context for these economic benefits by characterizing the contribution of outdoor recreation in the greater surrounding area (e.g., Isabella Lake, other reaches of the North Fork Kern River [NFKR]) to the economy of the local community. The results of this study will be used to support SCE[']s Application for New License and Federal Energy Regulatory Commission FERC[']s NEPA analysis.</i></p> <p>Edison is proposing to "contextualize" its descriptive study with more description: namely, of recreational dollars derived from the surrounding area — i.e., from beyond the reach of any project effect. There is no conceivable license condition that could be developed with this information. Edison is free to conduct a descriptive study of the economic state of affairs as they are around the project and in the greater Kern River Valley, but the Commission should not grant it the imprimatur of being an ILP Study of project effects. We ask that the study be modified to be evaluative of the project's negative economic effects on recreation and tourism in the dewatered reach, or be rejected.</p>	<p>The purpose of this study is to identify the economic effects of recreation in the Project Area. The context of the surrounding area is relevant for this study because the resource, recreation, and economy are not independent of the surrounding area. The local economy is influenced by all recreation in the area, not just within the Fairview Dam Bypass Reach. Placing the activity in the bypass region in the context of the surrounding area provides a sense of the relative magnitude to support FERC's environmental review. Also, refer to comment response #SOCIO-2.</p> <p>Finally, SCE disagrees with the commenter's statement of negative economic effects. Commenters presented no evidence that the Project may have a negative economic effect.</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
SOCIO-4	Kern River Boaters	Pg. 41	SOCIO-1 Socioeconomic Analysis	<p>3.0 STUDY GOALS AND OBJECTIVES</p> <p>Quantify and qualify recreation expenditures for river-related recreation in the bypass reach from data collected in the REC-2 Recreation Facilities Use Assessment Study Plan, including contributions to the local economy resulting from tourism and recreation. Qualify outdoor recreation expenditures in the surrounding area outside of the bypass reach using publicly available data, such as the National Visitor Use Monitoring (NVUM) data for Sequoia National Forest (SQF). Contextualize the contribution of the bypass reach recreation relative to the overall contribution of recreation in the area.</p> <p>As per our comments above in § 2.0, we ask that the study goals be amended to (1) exclude the study of economics not affected by the project and (2) include an evaluation of the project's negative economic impact on recreation and tourism in the dewatered reach.</p>	Refer to comment responses #SOCIO-2 and #SOCIO-3.
SOCIO-5	National Park Service	Pg. 4/Pg 13	SOCIO-1 Socioeconomic Analysis	<p>Visitor Intercept Surveys for SOCIO-1 should also collect data on residency (i.e., if visitors are nearby residents or from beyond the local area), duration of the visit, and expenditures on local amenities (i.e., dining, lodging, and use of outfitters).</p> <p>In short, there is a strong, undeniable "project nexus" between recreation and the operation of KR3. The socioeconomic impacts of this complex relationship are significant, and understanding the dynamic between KR3 and the user base is important. Consequently, the current socioeconomic study needs to be done exceptionally well.</p>	The visitor intercept survey included as part of REC-2 will obtain information on residency based on zip code. A copy of the survey questionnaire is included as Appendix A, <i>Visitor Intercept Survey Questionnaire</i> , to the REC-2 RSP.
SOCIO-6	National Park Service	Pg. 4	SOCIO-1 Socioeconomic Analysis	<p>The NPS recommends several adjustments to further improve the study, including expanding the study area to include the NFKR from the KR3 Powerhouse to the Kern River Park in Kernville.</p> <p>NPS also recommends that the applicant conduct surveys of local businesses that cater to the recreation and tourism industry in the Project area.</p>	<p>Refer to comment response #REC-42; however, the desktop review as part of the SOCIO-1 Study Plan includes the greater area surrounding the Project. Refer to comment response #SOCIO-3.</p> <p>The SOCIO-1 Study Plan was amended to include, if available, daily boating trip records from local outfitters and concessionaire use data at sites along the Fairview Dam Bypass Reach. The study is not planning to survey other local businesses (e.g., restaurants, grocery stores, lodging) because their activity is influenced by many factors not solely related to recreation along the Fairview Dam Bypass Reach.</p>
SOCIO-7	American Whitewater	Pg. 7	SOCIO-1 Socioeconomic Analysis	<p>The Proposed Study Plan describes SOCIO-1 as a desktop study which includes information from REC-2 survey results, SQF concessionaire data, and other sources in an attempt to quantify the economic impact of recreation-driven expenditures associated with the Project Area. It does not, but should include analysis of how these expenditures change over time and relative to the hydrologic conditions present in the North Fork Kern River. This might include additional nondesktop engagement with individuals and businesses in the region, temporal analysis of number of users between months and years through the information currently incorporated as proposed, and/or expansion of the study scope to include temporal granularity as a targeted study outcome. This temporal granularity would provide crucial information regarding possible project operational changes in order to protect, preserve, and incentivize recreation and recreationist spending in the economies of Kernville, Lake Isabella, and surrounding communities</p>	<p>Refer to comment response #SOCIO-5.</p> <p>The SOCIO-1 Study Plan has been amended to include engagement with local outfitters to obtain information on the number of commercial boating users over the past several years.</p>
SOCIO-8	SQF	Pg. 12	SOCIO-1 Socioeconomic Analysis	<p>The Forest Service reiterates that the visitor intercept survey (the survey) for the Recreation Facilities Use Assessment should seek to be as accessible and inclusive as possible. Providing digital access to the survey and extending the survey beyond one summer season, as well as accommodating additional languages, will help ensure a more complete picture of how river related recreation in the Fairview Dam Bypass Reach economically benefits the local community.</p>	Refer to comment responses #REC-34 through #REC-38.
SOCIO-9	SQF	Pg. 12	SOCIO-1 Socioeconomic Analysis	<p>Attitudes towards surveys vary across cultures and socioeconomic groups, so a variety of approaches to data collection will be necessary to fully capture the range of attitudes that bring people to the Kern River and the Project Area in particular. While the Forest Service leaves the details of study design to SCE, the following should be part of SCE's approach:</p>	Comment noted. The SOCIO-1 study will be primarily a desktop analysis, using information from REC-2 (as well as other sources described in the Study Plan). Refer to comment responses #REC-34 and #REC-38, which describes the updated study approach that includes the use of an online survey and multi-lingual survey

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				<ul style="list-style-type: none"> <li>Keep survey questions brief and surveys short</li> <li>Utilize multiple channels                             <ul style="list-style-type: none"> <li>Paper format</li> <li>Web-based survey site</li> <li>Social media – all four major platforms: TikTok, Instagram, Facebook, and Twitter</li> </ul> </li> <li>Sample throughout the year and across a minimum of 2 years as resources are used differentially across seasons</li> <li>The study shall be available in multiple languages</li> <li>Utilize data scraping in addition to voluntary survey responses                             <ul style="list-style-type: none"> <li>Define a set of relevant hashtags</li> <li>Tally the number of posts for each hashtag in a pre-defined time frame</li> <li>Tally tone, any indication of group size, activity class, etc.</li> </ul> </li> <li>Utilize web site and social media analytics</li> </ul> <p>This study can be approached by starting with the question, “If I owned a business that relies on users coming to visit the Kern River, how would I craft my ad campaign?” Assessing the existing user base is at the root of this question as well as the question currently under consideration by SCE and FERC. So, the base data are the same, it’s simply the intended use of those data that is different.</p>	options. Additional details are described in the revised <i>REC-2 Recreation Facilities Use Assessment</i> for a description of the survey methodology.
SOCIO-10	SQF	Pg. 13	SOCIO-1 Socioeconomic Analysis	Data that SCE collects should be analyzed using appropriate multivariate techniques to describe the current user base with a condensed set of descriptors. Forest Service personnel versed in these techniques are available to assist SCE and its contractors if needed.	Comment noted. The team is familiar with regression analysis techniques and will incorporate as appropriate. The REC-2 study will summarize the recreation characteristics of the user base, such as resident vs. tourist status, activity type, party size, and trip length.
SOCIO-11	SQF	Pg. 13	SOCIO-1 Socioeconomic Analysis	Concurrent with the effort to describe the user base, the businesses should be described too. Again, the same basic set of principles applies to gathering this information: keep surveys and survey questions brief, use a broad range of channels, and consider which variables are most pertinent.	The SOCIO-1 study will not survey businesses as stated in comment response #SOCIO-3; however, the analysis results will include a description of the types of businesses affected by recreation spending and the magnitude of the impact. This will be generated using IMPLAN analysis software and information on recreation expenditures from REC-2 and the other data sources specified in <i>SOCIO-1 Socioeconomic Analysis</i> .
SOCIO-12	SQF	Pg. 13	SOCIO-1 Socioeconomic Analysis	For data that are specific to recreation within the Project Area more specific tools exist, most of which are low cost and highly reliable. Examples include car counts, using game cameras to count hikers or paddlers moving past a certain spot, and a subset of the aforementioned social media data.	Comment noted. Spot counts of recreation use over a 12-month period is included in the REC-2 and LAND-1 studies.

**Study Plan Comment Response Matrix—Operations**

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
OPS-1	Neil Nikirk	Pg. 14	OPS-1 Water Conveyance Assessment (previously titled	<p>3.4. REQUEST 4 Please provide any existing study results or available information regarding the current 300-cfs diversion and effects of flow changes on the tunnel walls/liner of the conveyance system.</p> <p><i>SCE responds that the source of this finding appears to be the USFS’s 1998 Finding of No Significant Impact (FONSI) (USFS, 1998). While the 2002 Settlement Agreement, as noted by FERC’s additional information request, mentions an “SCE study,” SCE could not locate any prior study that identifies 300 cfs as the requisite minimum flow needed to avoid pressure changes that cause damage to the wall liner. Moreover, any such report prepared by SCE during the last relicensing effort is likely outdated in light of SCE’s more</i></p>	<p>SCE has revised OPS-1 to state that the conveyance flowline analysis will be supported by SCE engineering staff and work will be conducted by independent contractors knowledgeable about hydropower engineering principles and with expertise in tunnels and underground structures.</p> <p>SCE will provide the technical team with available and applicable drawings or materials to support their analysis.</p>

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
			Tunnel Assessment) <sup>2</sup>	<p>recent work completed in 2014 to repair the tunnel. For this reason, SCE is proposing the OPS-1 Tunnel Assessment Study Plan that will evaluate the effect on tunnel integrity from routine cycling of flows (i.e., dewatering and refilling). The objective of the study is to validate that tunnel maintenance flows and tunnel flow cycling procedures are needed to protect tunnel integrity during long-term Project operations. The study will utilize information from as-built drawings, descriptions of recent tunnel refurbishment work conducted, and recent inspection reports.</p> <p>The USFS FONSI is not an adequate justification for the 300 cfs flow needed to avoid pressure changes that cause damage to the wall liner. SCE has maintained for years and during the prior relicensing proceedings that this amount of flow was “required” and has largely ignored numerous requests for additional information to justify this claim. When pushed at this point, SCE admits that there has been no study that identifies any requisite minimum flow, let alone 300 cfs. SCE also admits that any such hypothetical report would be outdated in light of their recent work on the tunnels. While SCE has proposed a study (OPS-1), any such study should be conducted by an independent engineering firm with expertise in water conveyance tunnels. SCE should be required to supply as-built drawings, descriptions of recent tunnel refurbishment work conducted, and recent inspection reports to the independent contractor conducting the study.</p>	
OPS-2	Kern River Boaters	Pg. 43	OPS-1 Water Conveyance Assessment	<p>2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED  <i>Tunnel maintenance flows are required to maintain tunnel integrity and prevent unplanned outages. Results from the tunnel assessment will validate the need for tunnel maintenance flows.</i></p> <p>Edison shifts without explanation from positing in § 1.0 that “routine cycling has the potential to effect tunnel integrity” to asserting that such cycling affects tunnel integrity in the absence of a tunnel maintenance flows, which “are required.” Edison cites no evidence to support this assertion; indeed, validating that assertion is the purported goal of the study. We ask that the assertion “Tunnel maintenance flows are required to maintain tunnel integrity and prevent unplanned outages” be stricken from the proposed study.</p>	Comment noted. The OPS-1 Study Plan, Project nexus has been revised to state. Results from this study will aid in the identification of guidelines to consider when discussing water conveyance system operations.
OPS-3	Kern River Boaters	Pg. 43	OPS-1 Water Conveyance Assessment	<p>5.0 EXISTING INFORMATION  <i>The Project’s water conveyance flowline includes approximately 60,270 feet of below-ground tunnels that include 24 tunnel segments that vary in length from several hundred feet to over 1 mile. The tunnel segments range in size from 8.5 feet wide by 8 feet high to 9.5 feet wide by 8 feet high. The floors and sides of the tunnel are lined with concrete, and the arched ceiling of the tunnel is lined only where rock appears to be unstable. Tunnel portal access points, or adits, are situated at various tunnel or tunnel/flume junctions along the flowline.</i></p> <p>Edison’s recitation of the above as “existing information” merely describes in limited detail the tunnels of its conveyance. This underscores the absence of evidence that tunnel maintenance flows “are required” as asserted in § 2.0. The current rec flow schedule limits the benefits of hydrological mitigation for recreation to a maximum of 300 (less if the tunnel is not full) of the 600 cfs Edison can divert at Fairview Dam. The rationale for this limitation was founded upon a purported “SCE study” that showed “the removal of water from the [KR3 diversion’s conveyance] tunnel for whitewater boating on a regular basis</p>	Commented noted. The existing information about the conveyance system was included in this RSP, in addition to a brief summary of the current operating conditions. SCE has revised the Study Plan to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock) under varying flow conditions that will aid in the identification of guidelines to consider when discussing water conveyance system operations. As applicable and relevant to the engineering evaluation, SCE will include an expanded description of current operational practices in the Technical Memo prepared as part of this Study Plan.

<sup>2</sup> OPS-1 Tunnel Assessment title has been updated to OPS-1 Water Conveyance Assessment for this RSP to clarify the scope includes all the components of the KR3 conveyance system, not just the tunnels.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				<p>will create greater and more frequent damage to the tunnel liner.” From the earliest stage in this proceeding, stakeholders have asked to see this study. Stakeholders — including stakeholders who have already been qualified by FERC to view CEII — continued asking to see this study throughout the TWG process. John Gangemi, who was American Whitewater’s signatory to the 2002 recreation settlement and who has subsequently switched sides, could not recall ever seeing this study. Current AW lead Theresa Simsiman looked for the study in AW’s records and could not find it and has never seen it. At the December 09, 2020 TWG meeting, David Moore said Edison would look for the study. At the April 29, 2021 TWG meeting, Moore said Edison could not find and did not have this study. So no person outside of Edison has ever seen this study, if it existed. And no current Edison employee has ever seen it. The purported study’s conclusion that 300 cfs is required to remain in the tunnel during rec days to prevent damage is controversial. Why is the required level for tunnel “integrity” 300 cfs instead of 250, or 200, or 150, or 100, or 50? Is the reason that 300 cfs is half of what Edison can divert, thereby strictly limiting the economic downside of mitigation? Is the reason that 300 cfs is the lowest quantity at which Edison can operate both of KR3’s turbines? Absent a scientific case for the selection of that number, 300, the number will continue to appear to be based on factors far afield of tunnel integrity. Indeed, Edison does not choose to limit its diversion to steady levels when the diurnal naturally results in a cycling of tunnel flows below 300 cfs; it only moves to “protect” the tunnels when mitigation comes into play. Absent the claims of recreation, Edison takes all the water it can get out of the river regardless of the diurnal’s cycling effects on its tunnels and accepts those effects as a cost of doing business. We ask that the study proposal’s existing information section be amended to include these known facts, which should inform the study approach.</p>	
OPS-4	Kern River Boaters	Pg. 45	OPS-1 Water Conveyance Assessment	<p><b>6.0 STUDY APPROACH</b>  <i>With support from a qualified engineer, SCE will conduct a desktop analysis summarizing current and available information on the Project tunnels as well as any readily available industry guidance on flow cycling in tunnels. The information to be collected and summarized may be obtained from: SCE documents including as-built drawings, descriptions of recent refurbishment work conducted on the tunnels, and any recent inspection reports. SCE’s operational practices when cycling tunnel flows during Project operations or during tunnel dewatering for routine maintenance outages. Literature review of studies on tunnel structural integrity and long-term effects of cycling tunnel flows.</i></p> <p>Given the facts that (1) the tunnel maintenance flow serves Edison’s primary interest in the project by significantly limiting the amount of hydrological mitigation it can provide for recreation and (2) Edison has announced its desired conclusion of this study—namely, to validate the existing regime, and nothing else—it is unreasonable to expect Edison’s own engineers to conduct this study without bias. The public simply cannot be confident in a result here unless an independent engineering firm conducts it; Edison’s self-interest in the outcome is too great, and a clear conflict of interest exists. The Commission has conceded that in situations where a generator’s interest in a certain engineering result is too great to ignore, an independent engineering evaluation is called for. We ask that the Commission reject this study request absent a requirement that it be conducted by an independent engineering firm selected in conjunction with the stakeholders. Next, the study should not simply attempt to validate the current regime. Transporting water over concrete inevitably damages the concrete, as recent pictures of the project’s conveyance confirm. There is thus some rate of damage to the concrete tunnel liners inherent in project operations absent any hydrologic mitigation. The relevant question for this study to answer is what additional damage attends mitigation? The study should accordingly not simply provide an up-or-down thumb on the current 300 cfs regime. It should instead report on the rates of damage under various mitigation schemes, including one that</p>	<p>SCE has revised the Study Plan to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock) under varying flow conditions that will aid in the identification of guidelines to consider when discussing water conveyance system operations, as described in comment response #OPS-3.</p> <p>The OPS-1 study will describe the current water conveyance conditions to better understand how the conveyance system’s integrity may be affected by rapid flow changes. As part of that analysis, a summary of the recent tunnel repairs will also be included in the Technical Memo. Additional investigation of alternative tunnel configurations or lining are outside the scope of this study, as SCE is not proposing any major infrastructure modifications to the water conveyance system other than routine O&amp;M.</p>



Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
				provides for full natural flows (i.e., a complete cycling that empties the conveyance), one that reflects the current 300 cfs cap (i.e., cycling of all but 300 cfs from the tunnels), and other levels in between (e.g., the cycling of all but 50, 100, 150, 200 & 250 cfs from the tunnels). Finally, Edison's position is that it cannot provide more than 0-300 cfs in hydrologic mitigation at any time (whatever is in the tunnel minus 300 cfs) due to the configuration of its project. The study should investigate whether there are alternate tunnel configurations (e.g., different sealants, concrete formulations, or types of liner material) that would mitigate damage from mitigation cycling and what the costs of those materials would be. Edison shut the project down for 16 months in 2013-2014 to complete, among other things, a "Tunnel Rehabilitation Project." One aspect of the tunnel project was to "improve the structural integrity" of the tunnels. Edison does not indicate whether it chose to use superior materials for this project. Given the congressional mandate to mitigate recreational losses from project operations that dates back to the mid-1980s, the study should inquire into what steps Edison took during its tunnel rehabilitation project to improve the structural integrity of the tunnels so that recreational flows of more than 0-300 cfs could be afforded the public as mitigation for project operations or, if it did not take any such steps, why not. Edison should not be allowed to avoid adequate statutory mitigation consistent with contemporary values simply because it has chosen to construct and rehabilitate its project in a manner that breaks if that mitigation provided. We accordingly ask that the study approaches described above be incorporated.	
OPS-5	SQF	Pg. 14	OPS-1 Water Conveyance Assessment	<p>The Forest Service has a broad mission to find a balance and support many uses on the public lands we steward. To accomplish our mission of balancing the health of the NFKR ecosystem, recreationists' demand for water along the FDBR, and KR3's operational demand for water, we need to better understand how much water is needed by the facility at various cycling flows. We wish to see the appropriate amount of water diverted to the facility so that it can operate efficiently, safely, and in a cost-effective manner, but we also want this diversion to be as minimal as possible to meet these other competing needs, so that the river and its ecosystem can remain viable and healthy and so visitors can have the best experience possible along the FDBR.</p> <p>We hope this study will give us the data we need to understand and establish appropriate minimal levels of diversion for various cycling flows, and not simply broadly defend a maximal diversion at all cycling flows. To date, the current diversion numbers have not been operationally explained, or backed by data, simply stated to us. We hope to see this study support these diversion claims</p>	Refer to comment response #OPS-3.
OPS-6	American Whitewater	Pg. 7	OPS-1 Water Conveyance Assessment	OPS-1 is a critical study in determining prospective opportunities for flow enhancement below Fairview Dam throughout the duration of a prospective future license. It is therefore critical that the safe operational constraints of the conveyance system be thoroughly described. For this reason, the study goals and objectives of OPS-1 should be expanded to include a thorough analysis of the types of cycling that the conveyance system is capable of, and all operational constraints associated with cycling. The Proposed Study describes specific validation of the 300cfs tunnel maintenance flow but does not describe analysis of the types of flow cycling allowed for by the project's physical limitations. This might entail describing the magnitude and frequency of dewatering which is safe and allowable, i.e. daily, weekly, monthly.	Refer to comment response #OPS-3.
OPS-7	American Whitewater	Pg. 8	OPS-1 Water Conveyance Assessment	A thorough description of the current license condition's impact on tunnel integrity, possible modifications allowable in a prospective future license, and baseline degradation of the tunnels without modifications will allow for a much more robust understanding of the opportunities available through changes in the conveyance system's management than would the currently proposed study.	SCE has revised the Study Plan to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock), as described in comment responses #OPS-3. SCE is not proposing any major infrastructure modifications to the water conveyance system other than routine O&M as described in comment response #OPS-4.

Key ID #	Stakeholder	Comment Letter Page	Study Plan	Comment	SCE Response to Comment
OPS-8	Eric Kroh	Pg 2	OPS-1 Water Conveyance Assessment	Compromising to allow a few hours of water release would provide a massive amount of people in southern California the opportunity to enjoy an amazing out door location and help foster healthy family pastimes for generations. Its been said that not diverting flow is hard on the turbines. FERC needs to ensure this be evaluated by a third party engineering firm and confirmed with historical data showing a correlation with not diverting water and subsequent turbine failures. Simply taking a corporations word that its "not feasible" is irresponsible.	Refer to comment response #OPS-1.
OPS-9	Kern River Boaters	Pg. 83	Stakeholder Study Request	<p>KRB SR-4: CONVEYANCE, FOREBAY, AND PENSTOCK SAFETY UPDATED STUDY PROPOSAL</p> <p><i>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.</i></p> <p>The goal of this study is to describe and evaluate the potential safety risks of project operations to life, property, and infrastructure in the area that lies below the penstocks, forebay, and elevated conveyance near the powerhouse of the project, and to evaluate potential measures to prevent or minimize those risks. The study would be accomplished by an independent engineering firm.</p>	<p>Not adopted. Existing information is sufficient to answer question and/or beyond scope necessary for relicensing. Project facility safety is an ongoing process addressed outside the relicensing process, and any changes related to Project safety would be addressed as they occur. FERC has regularly reviewed and confirmed that the KR3 Project has a rating of "low hazard." Dams assigned low hazard potential classification are those where failure or mis-operation results in no probable loss of human life and low economic and/or environmental losses. Losses are principally limited to the owner's property.</p> <p>Per FERC regulations, the Project infrastructure is subject to inspections and FERC safety reviews. FERC routinely performs safety inspections at Fairview Dam/In-take, Flume/Sandbox, Salmon and Corral Creek Diversions, conveyance flowline, forebay, penstocks, and the powerhouse. The most recent inspection dated July 24, 2017, stated "The project features inspected and described herein were observed to be in satisfactory condition for continued operation."</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.4, <i>KRB SR-4: Conveyance, Forebay, and Penstock Safety Updated Study Proposal</i>.</p>
OPS-10	Kern River Boaters	Pg. 96	Stakeholder Study Request	<p>KRB SR-6: TUNNEL MAINTENECE FLOWS UPDATED STUDY PROPOSAL</p> <p><i>Criterion (1) – Describe the goals and objectives of each study proposal and the information to be obtained.</i></p> <p>The goal of this study is to evaluate the effect that increasing and decreasing the quantity of water diverted at Fairview Dam — and thereby, increasing or decreasing the quantity of water conveyed through the project's tunnels — for purposes of whitewater mitigation has over and above the baseline rate of damage incurred by the tunnel liner due to naturally occurring variations in tunnel flow (annual, seasonal, and daily diurnal) and the nature of the material used to line the tunnel walls — namely, concrete — the results of which may constrain or afford opportunities for recreational mitigation measures.</p>	<p>Not adopted. The study request is not necessary because the OPS-1 Study Plan is sufficient to answer the questions posed.</p> <p>SCE has revised the OPS-1 Study Plan to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock) under varying flow conditions that will aid in the identification of guidelines to consider when discussing water conveyance system operations. Additional investigation of alternative tunnel configurations or lining are outside the scope of this relicensing, as SCE is not proposing any major infrastructure modifications to the water conveyance system other than routine O&amp;M.</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.6, <i>KRB SR-6: Tunnel Maintenance Flows Updated Study Proposal</i>.</p>
OPS-11	Richard Norman	Pg 1	Stakeholder Study Request	A study on any continued diversion for the fish hatchery which lays abandoned now for many years.	<p>Not adopted. The study request did not otherwise meet the criteria of 18 CFR § 5.9(b).</p> <p>See also comments in Section 2.3.2, <i>Studies Not Adopted</i>, of this RSP—specifically, Section 2.3.2.10, <i>Diversion for the Fish Hatchery</i>.</p> <p>The study did not provide clear goals and objectives, a study methodology, or level of effort and cost. Therefore, SCE has not adopted this study request.</p>

## 1.0 REFERENCES

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Whittaker, D., B. Shelby, W. Jackson, and R. Beschta. 1993. *Instream Flows for Recreation: A Handbook on Concepts and Research Methods*. US Department of Interior, National Park Service.

Whittaker, Doug, Bo Shelby, and John Gangemi. 2005. *Flows and Recreation: A Guide to Studies for River Professionals*. Washington, DC: Hydropower Reform Coalition and National Park Service Hydropower Recreation Assistance Program.

## **ATTACHMENT 4 SCE REVISED STUDY PLANS**

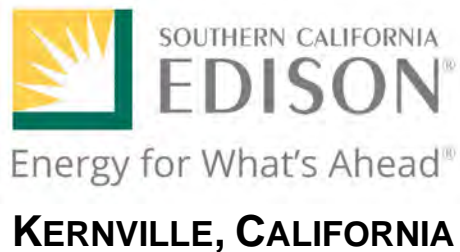
WR-1	Water Quality
WR-2	Hydrology
BIO-1	Foothill Yellow-legged Frog
BIO-2	Special-status Salamanders
BIO-3	General Wildlife Resources
BIO-4	Benthic Macroinvertebrate
BIO-5	Western Pond Turtle
BIO-6	Stream Habitat Typing
BOT-1	General Botanical Resources
REC-1	Whitewater Boating
REC-2	Recreation Facilities Use Assessment
REC-3	Recreation Facility Condition Assessment
CUL-1	Cultural Resource
TRI-1	Tribal Resource
LAND-1	Road Condition Assessment
GEO-1	Erosion and Sedimentation
SOCIO-1	Socioeconomic Analysis
OPS-1	Water Conveyance Assessment

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# **WR-1 WATER QUALITY STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## **1.0 POTENTIAL RESOURCE ISSUE**

- Kern River No. 3 Hydroelectric Project (Project) operations have the potential to alter water temperatures and dissolved oxygen (DO) concentrations, which may affect suitable habitat for fish and other aquatic species.

## **2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED**

- Project diversions affect streamflows, which may affect water temperatures and DO concentrations in the North Fork Kern River (NFKR) below Fairview Dam, Salmon Creek below the Project diversion, Corral Creek below the Project diversion, and the NFKR downstream of the Kern River No. 3 (KR3) Powerhouse.
- The Project provides water-related recreation opportunities, which may contribute to elevated bacteria concentrations in the Project Area.
- Additional data are needed to characterize water temperature, DO, and bacterial levels in the Project Area.
- Results will be used to assess Project-related effects on aquatic habitat and determine when the Regional Water Quality Control Board (RWQCB) water quality objectives related to stream temperatures, DO concentrations, and bacteria levels are met.

## **3.0 STUDY GOALS AND OBJECTIVES**

- Collect current stream water temperature data to characterize current water temperatures during summer months.
- Collect current DO monitoring data to characterize current DO concentrations during summer months.
- Collect current fecal coliform data to characterize bacterial concentrations.

## **4.0 STUDY AREA AND STUDY SITES**

### **4.1. TEMPERATURE AND DISSOLVED OXYGEN MONITORING SITES**

Temperature monitoring and DO measurements will occur at ten sites: seven locations within Project-affected reaches and three comparison sites along stream reaches upstream of Project operations (Figure 4-1):

Site 1: WQ-NFKR-19.0: NFKR upstream of Fairview Diversion impoundment pool

Site 2: WQ-NFKR-18.5: NFKR immediately downstream of Fairview Dam

Site 3: WQ-NFKR-10.9: NFKR at Gold Ledge Campground

Site 4: WQ-NFKR-3.2: NFKR immediately upstream of the KR3 Powerhouse

Site 5: WQ-NFKR-3.0: NFKR downstream of the KR3 Powerhouse

Site 6: WQ-NFKR-1.2: NFKR at the existing Kernville U.S. Army Corps of Engineers gage

Site 7: WQ-CC-1.4: Corral Creek upstream of the Project diversion

Site 8: WQ-CC-0.4: Corral Creek upstream of its confluence with the NFKR

Site 9: WQ-SC-0.55: Salmon Creek upstream of the Project diversion

Site 10: WQ-SC-0.05: Salmon Creek upstream of its confluence with the NFKR

#### **4.2. FECAL COLIFORM SAMPLING SITES**

Fecal coliform samples will be collected at a subset of the temperature and DO monitoring sites listed below:

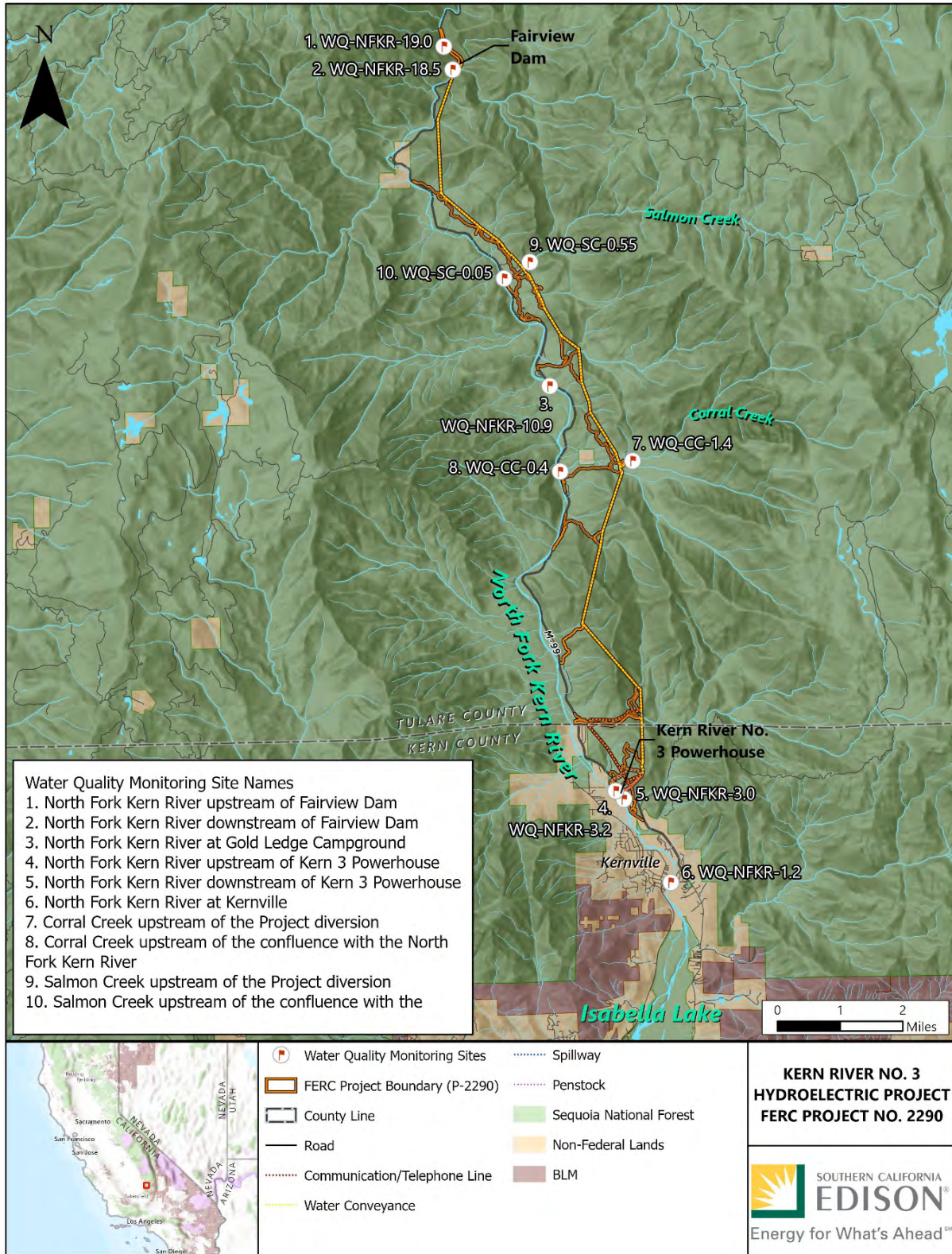
Site 1: WQ-NFKR-19.0: NFKR upstream of Fairview Diversion impoundment pool

Site 3: WQ-NFKR-10.9: NFKR at Gold Ledge Campground

Site 4: WQ-NFKR-3.2: NFKR immediately upstream of the KR3 Powerhouse

Site 8: WQ-CC-0.4: Corral Creek upstream of the confluence with the NFKR (if flow is present)

Site 10: WQ-SC-0.05: Salmon Creek upstream of the confluence with the NRKR (if flow is present)



BLM = Bureau of Land Management

**Figure 4-1. Water Quality Study Monitoring Sites.**

## 5.0 EXISTING INFORMATION

The KR3 Project Pre-Application Document (September 2021) reviewed the existing, relevant, and reasonably available information associated with water quality in the three Project bypass reaches. Water quality in the NFKR within the Project Vicinity is typical of west slope Sierra Nevada mid-elevation rivers, with low concentrations of minerals, metals, and nutrients; low turbidity; and DO near 100 percent saturation. Water temperature in the NFKR supports a variety of aquatic resources including both coldwater and transitional zone fish assemblages, as temperatures vary seasonally from lows during peak snowmelt period to highs at or above 20 degrees Celsius (°C) in late summer, including upstream of the Fairview Dam Bypass Reach.<sup>1</sup>

The following sources were also used and reviewed when developing this study plan:

- Central Valley RWQCB—beneficial use designations and DO objectives
- U.S. Forest Service—Sportfish and Forest Service Sensitive species
- California Department of Fish and Wildlife—Fish (sportfish and California special-status species)

To capture additional years of summer water temperature and DO information, SCE initiated early data collection between June and September 2021 at the same locations described below in this study plan. The results of the 2021 monitoring event will be included as part of the Technical Memo prepared for either the ISR or USR filing.

## 6.0 STUDY APPROACH

- Water Temperature Monitoring
  - Continuous water-temperature data loggers (e.g., Onset HOBO) will be installed at the sites identified above. Both prior to and after deployment, quality control calibrations will be performed on each unit. Data loggers will be placed inside protective housing and then installed in each stream segment at a location representative of the main channel.
  - Data loggers will be deployed starting June 1, 2022, and will collect data for 12 months (through May 31, 2023) to capture summer shoulder (fall and spring) and winter seasons.
  - Coordinates of each logger after installation will be recorded using a Global Positioning System (GPS) unit.

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<sup>1</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse trailrace.

- Water temperature will be recorded at 15-minute intervals and summarized as daily means, maxima, and minima.
- All loggers will be checked approximately monthly during the summer deployment, during which time data will be downloaded from each unit. Loggers deployed over winter and early spring will be checked approximately monthly, or as flow and weather conditions allow; there is an increased potential for logger and or data loss over the winter and into early spring due to high-flows conditions. Data loggers will be placed in locations with sufficient circulation, yet also protected from high scouring flows.
- Two thermographs will be installed at each site to provide redundancy in the case of tampering or vandalism.
- DO Monitoring
  - Continuous DO data loggers (e.g., Precision Measurement Engineering, Inc. [PME] miniDOT) will be installed at the sites identified in Section 4.1 above.
  - Data loggers will be deployed between June 1 and September 30, assuming safe access to the stream channel. Both prior to and after deployment, quality control calibrations will be performed on each unit. Data loggers will be placed inside protective housing and then installed in each stream segment at a location representative of the main channel.
  - Coordinates of each logger after installation will be recorded using a GPS unit.
  - DO concentrations will be recorded at 15-minute intervals and summarized as daily means, maxima, and minima. Loggers will be checked approximately monthly during deployment, during which time data will be downloaded from each unit.
  - Data loggers will be placed in locations with sufficient circulation, yet also protected from high scouring flows.
- Bacterial Sampling
  - Sampling for fecal coliform will occur at sites listed in Section 4.2 above. Samples will be collected from just below the water surface as a composite sampling from a well-mixed area at each stream site. Samples will be collected on, at minimum, five separate dates during the summer within a 30-day period and will include the Labor Day holiday weekend (i.e., August through September 2022). Samples will be collected in sterilized bottles supplied by a certified Environmental Laboratory Accreditation Program analytical laboratory. Field sampling personnel will fill each sample bottle by direct immersion in the river. Immediately after collection, samples will be placed on ice for transport to the analytical laboratory within the required field hold time (Table 6-1).

**Table 6-1. Bacterial Sampling Methods**

Parameter	Method	Target Reporting Limit	Hold Time
Fecal Coliform	SM 9221E	1.8 MPN / 100 mL	8 hours at 4 °C

°C = degrees Celsius; MPN = most probable number; mL = milliliter

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Associated data files, which will include tabularized results, graphics, and other data and material specifically identified above, will be included with the Technical Memo, and relevant data will be included as appendices to the Technical Memo, as well as in electronic format upon request. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

Date	Activity
Spring 2022–Spring 2023	Deploy temperature and DO loggers; Collect bacterial samples
Spring 2023	Analyze data and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

DO = dissolved oxygen; ISR = Initial Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$65,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

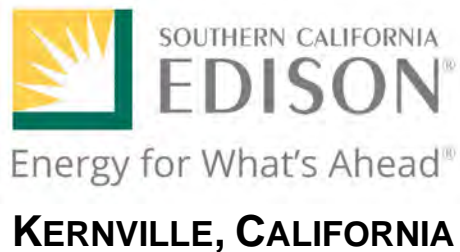
## 10.0 REFERENCES

None.

# **WR-2 HYDROLOGY STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## **1.0 POTENTIAL RESOURCE ISSUE**

- Potential effects of Kern River No. 3 (KR3) Hydroelectric Project (Project) operations on stream hydrology.

## **2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED**

- Project operations influence streamflow along the bypassed reaches downstream of the Fairview Dam on the North Fork Kern River (NFKR) and below the small diversions on Salmon and Corral Creeks.
- Hydrologic gage data collected and verified in this study will be used to analyze environmental effects of Southern California Edison (SCE) Company's relicensing proposal and reasonable alternatives.

## **3.0 STUDY GOALS AND OBJECTIVES**

- Compile and summarize hydrologic gage data for use in other resource assessments.
- Determine, compile, and summarize natural functional flow ranges in wet, moderate, and dry years using existing unimpaired data.

## **4.0 STUDY AREA AND STUDY SITES**

The study will compile data from:

- SCE Gage 401 (U.S. Geological Survey [USGS] gage 11186000) in the NKFR downstream from Fairview Dam;
- SCE Gage 402 (USGS gage 11185500) in the conveyance flowline at Adit 6/7; and
- U.S. Army Corps of Engineers (USACE) gage in Kernville.

## **5.0 EXISTING INFORMATION**

SCE currently maintains two gaging stations to monitor and record flows associated with Project operation. The gages record flow in NFKR below Fairview Dam and within the KR3 conveyance flowline. These gages are operated with independent review by USGS. Depending on the period of record required, this data might be available electronically, on floppy disk, or on paper.

USACE operates a streamflow gage at Kernville. This data is subject to USACE oversight and to a different standard than the USGS gages upstream. A brief discussion of equipment error and reporting standards will be included in a Technical Memo (see Section 7.0, Reporting, below).

## 6.0 STUDY APPROACH

This is a desktop analysis, with the below tasks anticipated.

- Compile hydrology data from SCE, USGS, and/or USACE for the current license term from water year 1997 through 2021.
  - Daily mean gage data will be compiled from SCE and/or USGS for the period October 1, 1996, to September 30, 2004, due to technological data storage limitations in the early portion of the current license period.
  - Hourly gage data will be compiled from SCE, USGS, and/or USACE for the remainder of the current license period (i.e., water year 2005 beginning October 1, 2004, through water year 2021 ending September 30, 2021).
- Hourly gage data from water years 2022 and 2023 will be compiled from SCE and USGS after the water year is complete to support other studies, but not included with other statistical analyses described below.
- Gage data will be verified through a quality assurance (QA) process at the hourly or daily level. This QA process includes compiling and then aggregating data from various sources into a comprehensive data set, identifying data gaps, and validating data consistency.
- Gage data will be compiled and summarized using various statistical parameters for use in resource evaluations, including:
  - Maximum/minimum, average/median, and variance summarized annually, seasonally, and/or monthly; and
  - Flow duration curves and flow exceedance probabilities summarized annually and/or monthly.
- In order to calculate flow travel times along the NFKR between Fairview Dam and Kernville, existing and available flow data from both the SCE flow gage below Fairview Dam and the USACE flow gage at Kernville will be analyzed to detect changes in flow fluctuations. Flow travel times will be estimated (on an hourly level) as depicted from the shifts in flow recorded between the two gages.
- Calculate natural functional flow ranges for the NFKR upstream of Fairview Dam in wet, moderate, and dry years with existing gage data, consistent with Section A of the California Environmental Flows Framework (CEFF) (CEFWG 2021; Stein et al. 2021).

Because this Project operates as run-of-river, hydrologic modeling is not included in this study.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders. Additionally, raw hydrology data through water year 2021 will be provided to Stakeholders after the data are compiled, tabulated, and checked for quality and prior to issuance of the application. The data from water years 2022 and 2023 will also be provided (anticipated by the beginning of the following year), after the annual data review process.

## 8.0 SCHEDULE

Date	Activity
Summer–Fall 2022	Compile gage data from USGS/SCE for the established period of record; Review and analyze data for integrity, consistency, and data gaps
August 2023	Complete hydraulic analyses and provide hydrologic gage data and Technical Memo with ISR

ISR = Initial Study Report; SCE = Southern California Edison Company; USGS = U.S. Geological Survey

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for this study is \$70,000, which includes data compilation and analysis, and reporting.

## 10.0 REFERENCES

CEFWG (California Environmental Flows Working Group). 2021. *California Environmental Flows Framework Version 1.0*. California Water Quality Monitoring Council Technical Report.

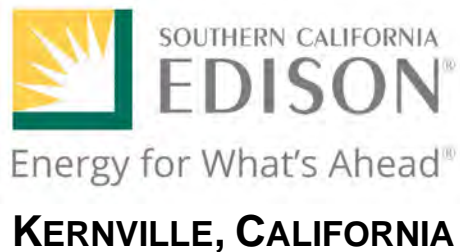
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# **BIO-1 FOOTHILL YELLOW-LEGGED FROG STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Potential effects on foothill yellow-legged frog (*Rana boylei*) and their habitat.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- Kern River No. 3 (KR3) Hydroelectric Project (Project) operations affect streamflows, which may affect the state-endangered foothill yellow-legged frog in the Project Area.
- Results of this study will be used to examine Project operations and maintenance activities.

## 3.0 STUDY GOALS AND OBJECTIVES

This study will:

- Evaluate habitat suitability for all foothill yellow-legged frog life stages (i.e., egg masses, tadpoles, post-metamorphs) in the study area; and
- Determine whether any life stage of the foothill yellow-legged frog is present within the study area.

## 4.0 STUDY AREA AND STUDY SITES

The study area includes Project forebays and Project-affected stream reaches (Figure 4-1). The habitat suitability assessment area includes: (1) North Fork Kern River (NFKR) immediately upstream and around Fairview Dam, (2) Fairview Dam Bypass Reach (the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace), (3) NFKR between the KR3 Powerhouse and Kernville, (4) Salmon Creek Diversion Bypass Reach (the 0.4-mile reach from Salmon Creek Diversion downstream to the confluence with the NFKR), (5) Corral Creek Diversion Bypass Reach (the 1.1-mile reach from Corral Creek Diversion downstream to the confluence with the NFKR), and (6) Cannell Creek between the siphon spillway and the NFKR.

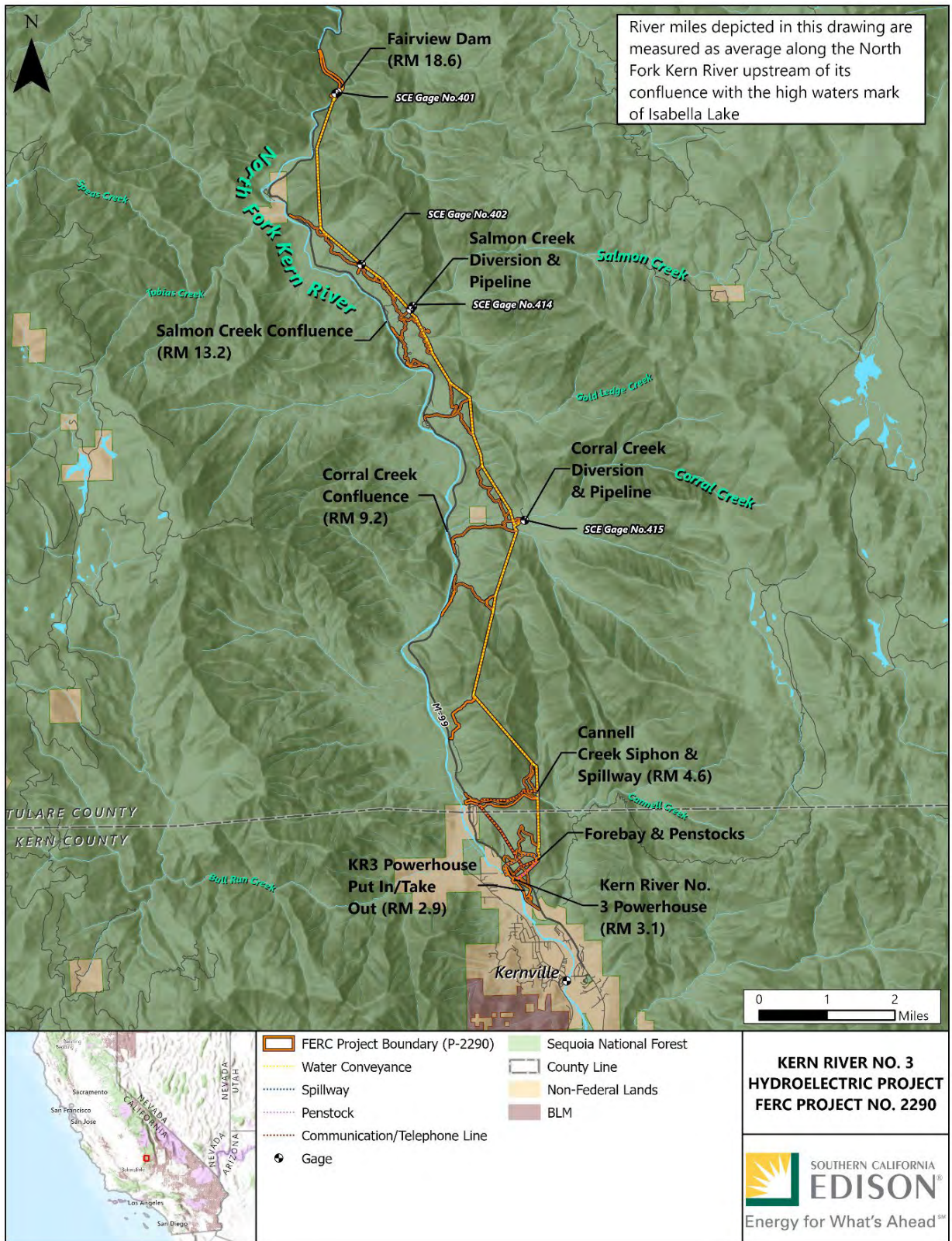
Specific sites for environmental deoxyribonucleic acid (eDNA) sampling and visual encounter surveys (VESs) will be selected using habitat suitability assessment information including habitat quality or value, species-specific habitat criteria, suitability for eDNA sampling, and safety and access considerations. The actual number of survey sites will depend on the results of the habitat assessment. Surveys will occur at 6 to 11 sites depending on the availability of habitat, including:

- One to two sites in the NFKR upstream of Fairview Dam
- One to four sites in the Fairview Dam Bypass Reach
- One to two sites in the NFKR between the KR3 Powerhouse and Kernville
- One site in the Salmon Creek Diversion Bypass Reach

- One site in the Corral Creek Diversion Bypass Reach
- One site in Cannell Creek

An additional study site upstream of the Project with contemporary documented occurrences of foothill yellow-legged frogs may be included as a reference site for eDNA sampling.





**Figure 4-1. Foothill Yellow-legged Frog Study Area.**

## 5.0 EXISTING INFORMATION

- Historically, foothill yellow-legged frogs were observed in the Project Area, including along the NFKR downstream of Fairview Dam at the confluence of Salmon Creek, and upstream of Cannell Creek, although all observations were recorded prior to 1972 (CDFW, 2020).
- The Eastern/Southern Sierra clade of foothill yellow-legged frog was listed as endangered by the California Fish and Game Commission on February 21, 2020 (California Fish and Game Commission, 2020).
- Biological evaluation surveys within stream reaches have not documented foothill yellow-legged frog; however, contemporary focused foothill yellow-legged frog surveys have not been conducted within Project-affected stream reaches (Psomas, 2004, 2013a, 2013b, 2013c; SCE, 2012).
- The nearest recorded observations to the Project Area are in Sequoia National Forest approximately 5 miles northeast from Fairview Dam. Two small, isolated populations were observed in two unnamed tributaries to the NFKR, locally referred to as Jywood Creek and Ash Creek, during multiple surveys between 1998 and 2018 (CDFW, 2020; Hayes et al., 2016).

## 6.0 STUDY APPROACH

A three-phased approach is being developed, as outlined below.

- Phase I: Assess the general study area for suitable habitat and select survey and sampling sites.
- Phase II: Implement eDNA and VES protocols.
- Phase III: Pending positive identification in any Project-affected stream reaches, additional data collection may be conducted.

### 6.1. PHASE I: IDENTIFICATION OF SUITABLE HABITAT AND SELECTION OF SURVEY SITES

- Available data sources such as online databases, aerial imagery, and video will be reviewed prior to the reconnaissance visit to aid in identifying areas of potential habitat for the foothill yellow-legged frog.
- A field reconnaissance visit will be conducted at specific locations to support the identification of suitable foothill yellow-legged frog habitat, select study sites, and test eDNA methods prior to sampling.
- Sites will be selected to provide reasonable coverage of representative suitable habitat and stream conditions suitable for eDNA sampling at access points that do not compromise surveyor safety.

The following are foothill yellow-legged frog habitat suitability ranking categories.

- High: areas containing suitable habitat for all life stages, especially breeding. These stream segments would provide protection for egg mass deposition and larval maturation (e.g., wide channel areas with edgewater and backwater areas sheltered from flow; banks with shallow slopes).
- Moderate: areas containing suitable habitat for most life stages, although areas may lack potential habitat for one or more life stages (e.g., some habitat may be exposed to the main flow; there may be moderately steep or incised banks).
- Low: areas containing little or no suitable habitat for breeding or larval development and minimal refugia for post-metamorphic life stages (young-of-year, juveniles, adults). Habitat may function as a dispersal corridor.
- Not suitable: areas containing no potentially suitable habitat for any life stage.

Site selection will focus on areas with high habitat suitability; sites with moderate or low suitability will be selected if highly suitable sites are not identified.

## 6.2. PHASE II: CONDUCT FIELD SURVEYS

To minimize the potential spread of invasive species and pathogens (e.g., Chytrid fungus [*Batrachochytrium dendrobatidis*]), appropriate standard and currently accepted decontamination protocols will be followed prior to each aquatic-based field effort.

### 6.2.1. ENVIRONMENTAL DNA SAMPLING

eDNA field collection methods are based on current eDNA sample collection literature and protocols (e.g., Halstead et al., 2020; Bedwell and Goldberg, 2020; Carim et al., 2016; Laramie et al., 2015; Goldberg et al., 2015; and Pilliod et al. 2014).

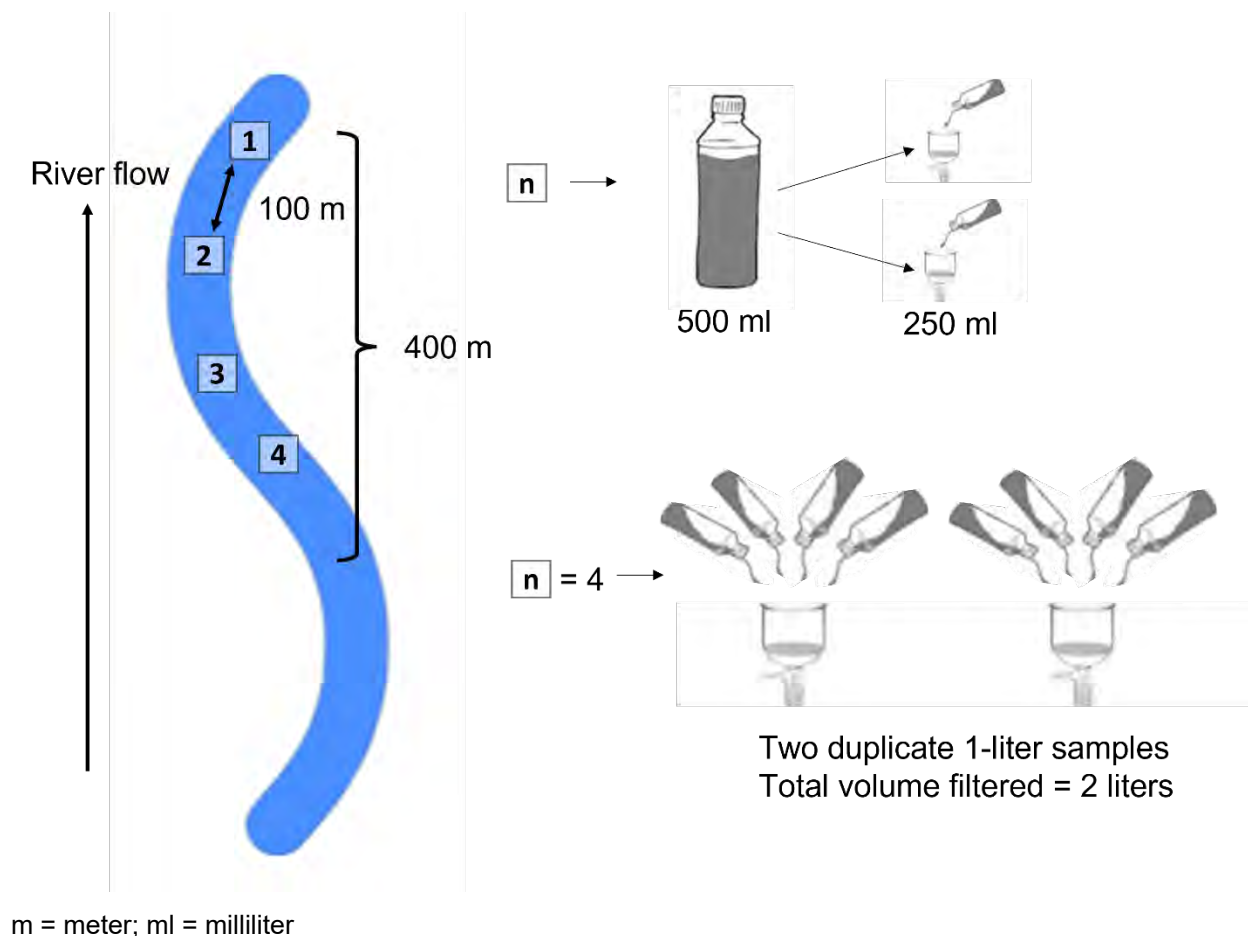
#### 6.2.1.1. Sample Timing

eDNA samples will be collected between July and August. Detection rates in lotic systems for foothill yellow-legged frogs improve later in the season, as drying of sites lead to increased population densities and concentrations of DNA (Bedwell and Goldberg, 2020). Additionally, any larvae foothill yellow-legged frogs would be present in July and August, increasing chances of eDNA detection as yellow-legged frog larvae are exclusively aquatic.

#### 6.2.1.2. Sample Collection

A minimum of four ( $n \geq 4$ ) 500-milliliter water samples will be collected at each site (see Section 4.0, Study Area and Study Sites, for site information). Water samples will be collected every 100 meters. Surveyors will split the water sample into two ( $n \geq 8$ ) 250-milliliter samples. To create duplicate ( $n \geq 2$ ) 1-liter samples, surveyors will combine the 250-milliliter samples (see Figure 6.2-1 for eDNA sampling design). Surveyors will extend

sampling locations ( $n > 4$  sampling locations per site) if suitable habitat/high quality habitat is observed. If a filter clogs prior to filtering 1 liter, an additional filter will be used, resulting in a 2-liter minimum volume sampled at each site as recommended by Bedwell and Goldberg (2020). Surveyors will collect all samples from the water's surface and target sampling locations in habitats/micro-habitats that appear high quality foothill yellow-legged frog habitat (e.g., backwaters, rocky slow-moving streams). To prevent downstream contamination, surveyors will collect all samples from downstream to upstream, and where possible surveyors will avoid entering the riverine system. All boots, equipment, and other material that come in contact with the water will be decontaminated with a 10 percent bleach solution for 10 minutes prior to changing sampling sites.



**Figure 6.2-1. eDNA Sampling Protocol Design**

### 6.2.1.3. Sample Filtration

To filter all water samples, surveyors will use 0.45- to 5.00-micron filters and a polypropylene vacuum flask with a rubber stopper fixed to a hand pump or peristaltic pump. Surveyors will filter all water samples in the field or store the filters in a cooler/refrigerator and filter within 24 hours. To remove the filter membrane after filtration, surveyors will use single-use forceps or forceps soaked in a 50 percent bleach solution

and rinsed in distilled water. All personnel will wear disposable latex gloves during sample collection and changed gloves prior to handling the filter membrane. To create a field blank (i.e., control sample), surveyors will filter 1 liter of distilled water at each site or at the end of each day following collection. Following filtration, surveyors will either desiccate filters or store filters in 95 percent ethanol. All filters will be kept in cool areas out of the sun and will be extracted within 6 months post collection.

#### 6.2.1.4. eDNA Extraction and Analysis

eDNA samples will be extracted and analyzed by a recognized laboratory that conducts eDNA analysis. The laboratory will extract the eDNA in a “clean” room where no quantitative polymerase chain reaction (qPCR) products or high-quality DNA (i.e., tissue or blood samples) is handled. Laboratory personnel will follow best practices for eDNA extraction and create and analyze an extraction and qPCR negative with every extraction batch and qPCR plate. All eDNA samples will be analyzed with an internal positive control to ensure samples are not inhibited and that a negative result signifies DNA was not detected (not a failed qPCR reaction). Laboratory personnel will analyze the samples for foothill yellow-legged frogs using previously published assays that have been peer reviewed as well as tested *in situ* and *in vivo*.

#### 6.2.2. VISUAL ENCOUNTER SURVEYS

- A single VES for foothill yellow-legged frog will be conducted along with eDNA sampling at each site.
- The survey area will include safely accessible aquatic features within approximately 100 meters upstream (greater than or equal to 400 meters total survey distance) of the eDNA sample location.
- Surveys will be conducted by a minimum of two surveyors working in tandem. Surveyors will wade or walk the shoreline and shallow-water habitats where possible, scanning ahead and searching stream banks, back-channel areas, and instream habitats for larvae (tadpoles) and post-metamorphic frog life stages (juveniles and adults) on both sides of the river, where possible.
- All other amphibian and aquatic reptile species observed during the surveys will be recorded. Each species' detection will be recorded by life stage along with associated habitat data. Data collected will include species information, microhabitat characteristics where the individual was detected (e.g., air and water temperature, substrate, location in the stream, associated vegetation or cover), and Universal Transverse Mercator (UTM) coordinates.
- Biologists will also note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, bald eagle, osprey, and Great blue heron) on data sheets and will report this information in the Technical Report for use by other studies during the relicensing process.



- A California Native Species Field Survey Form will be completed for any special-status species observed during the field surveys and will be submitted to the California Natural Diversity Database (CNDDDB).

### 6.3. PHASE III: ADDITIONAL FIELD SURVEYS

If the results of field surveys indicate that foothill yellow-legged frogs are present in any stream reach, additional studies may be developed in consultation with Stakeholders to characterize the population of foothill yellow-legged frog (e.g., multi-life stage surveys) that may be affected by Project operations.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Confidential information (e.g., precise locations of any incidental special-status species observations) will be provided directly to relevant agencies and filed as “Privileged Information” with FERC. Standard geographic information system (GIS) shapefiles, including metadata, will be provided to relevant agencies upon request. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

One year of data collection will occur for foothill yellow-legged frog; a second year of data collection would be considered in consultation with relevant agencies if the results of eDNA and field surveys indicate that this species is present in any of the study areas.

Date	Activity
Spring–Fall 2022	Conduct desktop analysis and field surveys
Winter 2022/2023	Analyze data and prepare Technical Memo
Spring–Summer 2023	If needed, conduct additional field surveys pending consultation with relevant agencies
August 2023	Provide Technical Memo with ISR
August 2024	Provide updated Technical Memo with USR, if applicable

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$100,000, which includes field work, data compilation and analysis, and reporting.

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\_\_\_\_\_. 2013c. *Biological Resources Technical Report for the Kern River 3 Sandbox Repair Project at Kern River 3 Hydroelectric Facility, Tulare County, California*. Prepared for Southern California Edison, Eastern Hydro Division.

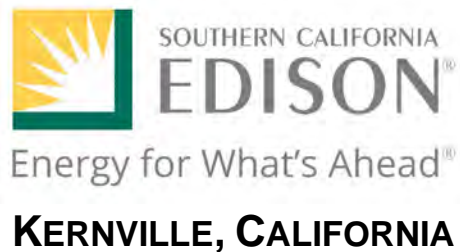
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# **BIO-2 SPECIAL-STATUS SALAMANDERS STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Special-status salamanders—Fairview salamander (*Batrachoseps bramei*), which is a Forest Sensitive Species; Kern Canyon salamander (*Batrachoseps simatus*), which is a state-listed threatened species; Kern Plateau salamander (*Batrachoseps robustus*); and Greenhorn mountains slender salamander (*Batrachoseps altasierrae*)—may be affected by Project operations and maintenance.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- One U.S. Forest Service (USFS) Sensitive Species salamander (Fairview slender salamander) has been documented as occurring in the study area.
- Determine direct and/or indirect effects on special-status salamanders and their habitat from continued Project operations and maintenance activities in the context of applicable regulatory requirements, including the most recent federal and state land management and conservations plans, the USFS Management Plan, the federal and state Endangered Species Acts (ESAs), the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

## 3.0 STUDY GOALS AND OBJECTIVES

- Obtain additional information to supplement the existing information regarding Fairview slender salamander, and other potentially occurring special-status salamanders in the study area including:
  - Identify and map potentially suitable habitat.
  - Document presence, if found.

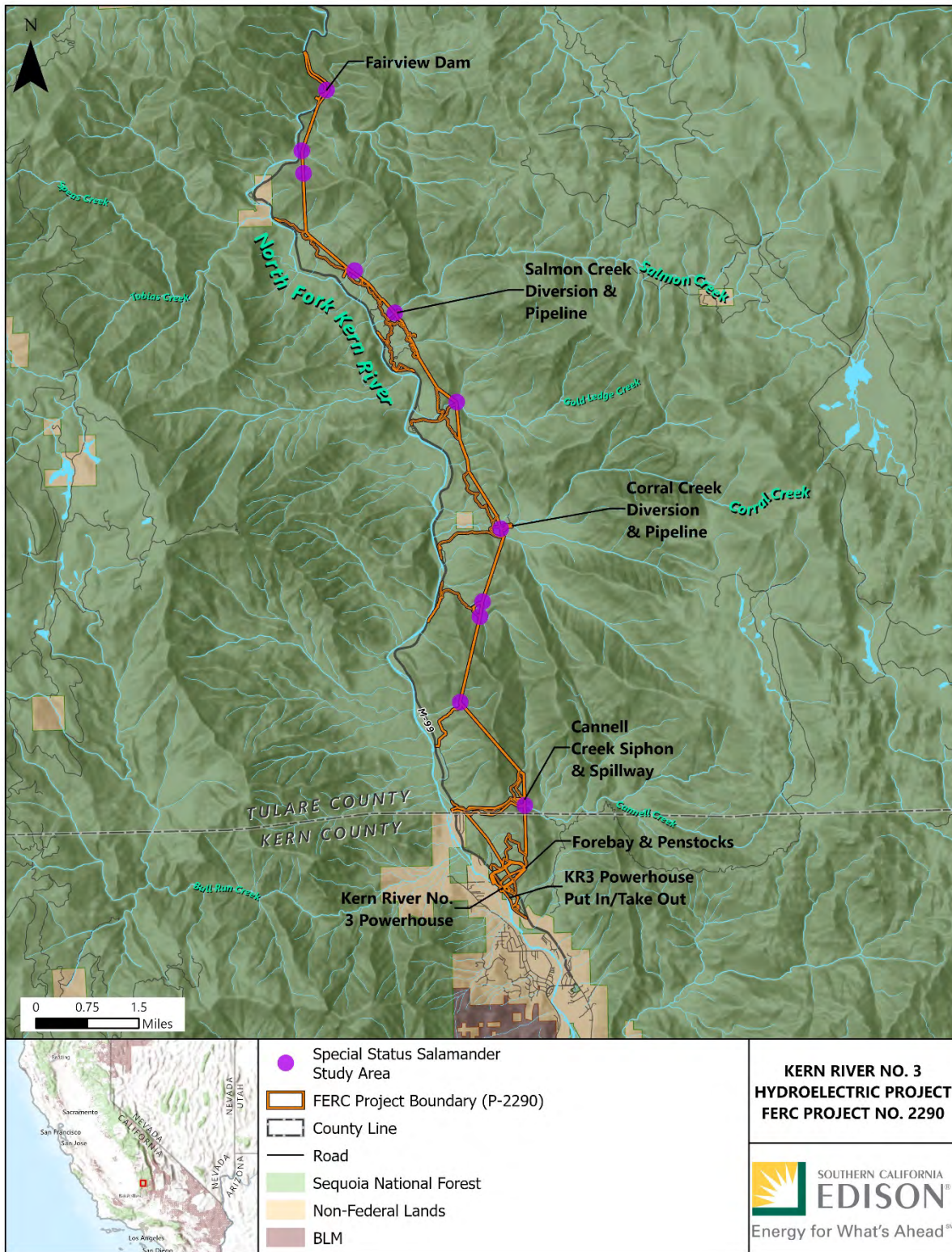
## 4.0 STUDY AREA AND STUDY SITES

The special-status salamander study area is shown on Figure 4-1.

- The study area includes:
  - Perennial streams, ephemeral creeks, dry ravines, and other areas matching the habitat description provided by Jockusch et al. (2012) for *B. bramei* and *B. altasierrae* and provided by Morey and Basey (1988) for *B. simatus* located within the FERC Project Boundary, including a 50-foot buffer. Target survey locations include, but are not limited to the following Project facilities:
    - Fairview Dam
    - Salmon Creek Diversion, Open Flume, Adit 8B-9A, and adjacent access roads
    - Gold Ledge Creek Open Flume, Adit 13-14, and adjacent access road

- Corral Creek Diversion, Open Flume, and access road
- Cannell Creek, Siphon, and access road
- North Fork Kern River junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek

The type locality for *B. bramei* is located in an upland gully adjacent to Fairview Dam and will be surveyed to provide the model for *B. bramei* habitat.



**Figure 4-1. Special-status Salamander Study Area.**

## 5.0 EXISTING INFORMATION

Special-status amphibians in the Project Vicinity<sup>1</sup> have been documented in the California Natural Diversity Database (CNDDDB) (CDFW 2020), iNaturalist (2020), as well as literature by Jockusch et al. (2012 and 2020). Three other special-status salamanders (Kern Plateau salamander, Greenhorn Mountains slender salamander, and Kern Canyon slender salamander) are known to be in the Project Vicinity but have not been identified as being present in the FERC Project Boundary.

## 6.0 STUDY APPROACH

### 6.1. LITERATURE REVIEW AND MAPPING

A new literature review will be conducted to determine if the regulatory status of the species has changed and if there are new reported occurrences in the vicinity of the Project.

### 6.2. FIELD SURVEYS

- Phase 1: Habitat Assessment
  - Utilizing online database queries (i.e., CNDDDB, iDigBio, i-Naturalist, and Amphibaweb) and literature reviews (e.g., Jockusch et al. 2012 and 2020) of known locations of special-status salamanders will be mapped in relation to the Project study area.
    - Mapping of museum records obtained from iDigBio and Amphibaweb will be performed prior to field work. iDigBio has records for *B. bramei*, *B. simatus*, and *B. altasierrae*. Mapped records of readily accessible locations will be used to assist in determining characteristics of suitable habitat.
    - Prior to the start of the habitat assessment survey, field maps created from aerial photographs at a 1-inch to 200-foot scale will be prepared for field use. Field maps will be loaded onto an iPad for field data collection.
  - Biologists will walk the study area looking for potentially suitable habitat for special-status salamanders based on habitat characteristics. Suitable habitat locations will be mapped directly onto an iPad with pre-loaded study area maps.
  - Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, amphibians, Bald Eagle, Osprey, and Great Blue Heron) on data sheets and will

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<sup>1</sup> Project Vicinity is identified as lands surrounding the FERC Project Boundary within a 0.5-mile buffer and an approximate 100-foot buffer along the right bank (west shore) within the Fairview Dam Bypass Reach. The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the North Fork Kern River between Fairview Dam and the Kern River No. 3 Powerhouse tailrace.

report this information in the Technical Report for use by other studies during the relicensing process.

- The results of the habitat assessment survey will be used to target specific areas within the Project Area that will be the subject of Visual Encounter Surveys (VES) to be conducted in 2023.
- Up to six Cover Board arrays for salamanders and other reptiles will be laid out. The arrays will consist of up to three different boards of varying sizes. The locations for the arrays have not yet been determined but will be placed to provide cover for both reptiles and salamanders. The Cover Board arrays will be checked periodically and inspected during Phase 2 VES.
  - Although the target special-status salamanders are known to inhabit dryer situations under rocks and cover in moist microhabitats, the boards will be left out over the winter and during rain events. These salamanders, as all salamanders, are known to move about during rain events when the surrounding terrain is wet, and so the available suitable habitat is expanded. Therefore, the cover boards may provide suitable moist habitats for salamanders and increase the opportunity to document presence of the target salamanders and other species of wildlife.
- Phase 2: Visual Encounter Surveys
  - Survey sites for visual encounter surveys will be selected using the available information on potential habitat identified during Phase 1. The actual number of survey sites and extent of study area will depend on the results of the initial habitat assessment in the field during Phase 1.
  - Pedestrian visual encounter surveys will be seasonally timed to maximize the potential for observing these species based on life history and the literature review. Slender salamanders are generally easier to observe on rainy nights with moderate temperatures and a day or two following rain events while the habitat is still damp, and temperatures are moderately cool. Surveys will target the January to March timeframe. Two separate surveys are planned for the late winter rainy season.
  - Surveys will generally follow the methods described in Strain et al. (2009) and Grover (2006) for Area Constrained Surveys and may include lifting, overturning, and carefully replacing objects such as rocks, boards, and debris; carefully searching leaf litter and under loose tree bark; and inspecting burrows. Biologists will take care to minimize the disturbance to potentially suitable habitat and animals during field surveys.
  - Any sightings of special-status salamanders and other incidental salamander sightings will be recorded on an iPad.

- Slender salamanders will be identified to species in the field to the extent possible based on Jockusch et al. (2012), Stebbins (2003), and other references; however, individual salamanders will not be collected for later identification.
  - In the case that slender salamanders are found, a photograph of each individual will be taken in association with Global Positioning System (GPS) data and will be included in reporting efforts. A photo would not be taken if unsafe for either the biologist or salamander.
- Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, amphibians, Bald Eagle, Osprey, and Great Blue Heron) on data sheets and will report this information in the Technical Report for use by other studies during the relicensing process.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. Standard Geographic Information System (GIS) shapefiles, including metadata, will be provided to relevant agencies upon request. A California Native Species Field Survey Form will be completed for any special-status species observed during the pedestrian surveys and will be reported to the CNDDDB. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

One year of desktop analysis and habitat assessment, and 1 year of visual encounter field surveys will occur.

Date	Activity
Summer–Fall 2022	Phase 1: Conduct desk top analysis and habitat assessment field surveys
Late Winter/Early Spring 2023	Phase 2: focused visual encounter field surveys
Summer 2023	Analyze data and prepare Technical Memo



Date	Activity
August 2023	Provide Study Plan progress and schedule updates or Technical Memo with ISR, as applicable
August 2024	Provide Technical Memo with USR, if needed

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$50,000, which includes field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

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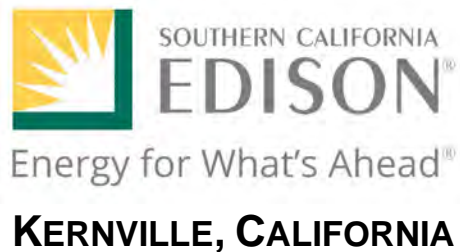
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# **BIO-3 GENERAL WILDLIFE RESOURCES STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Special-status wildlife species or U.S. Forest Service (USFS) Species of Conservation Concern (FSCC) that may be affected by Project operations and maintenance including:
  - Western yellow-billed cuckoo (*Coccyzus americanus*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), California condor (*Gymnogyps californianus*), and Pacific fisher (*Pekania pennant*).

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- Project maintenance activities may result in direct and/or indirect effects on special-status wildlife species or FSCC.
- If special-status wildlife or FSCC are present within the study area, the data will be examined to determine the effects of Project operations and maintenance activities on wildlife in the context of applicable regulatory requirements, including the most recent USFS Management Plan, the federal and state Endangered Species Acts (ESAs), the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

## 3.0 STUDY GOALS AND OBJECTIVES

- For the species listed below and any other special-status wildlife or FSCC, obtain additional information to supplement the existing information.
  - Western yellow-billed cuckoo
  - Southwestern willow flycatcher
  - Least Bell's vireo
  - California condor
  - Pacific fisher
- This will be done by:
  - Identifying and mapping potentially suitable nesting or denning habitat in the study area.
  - Identifying and mapping their presence in the study area.

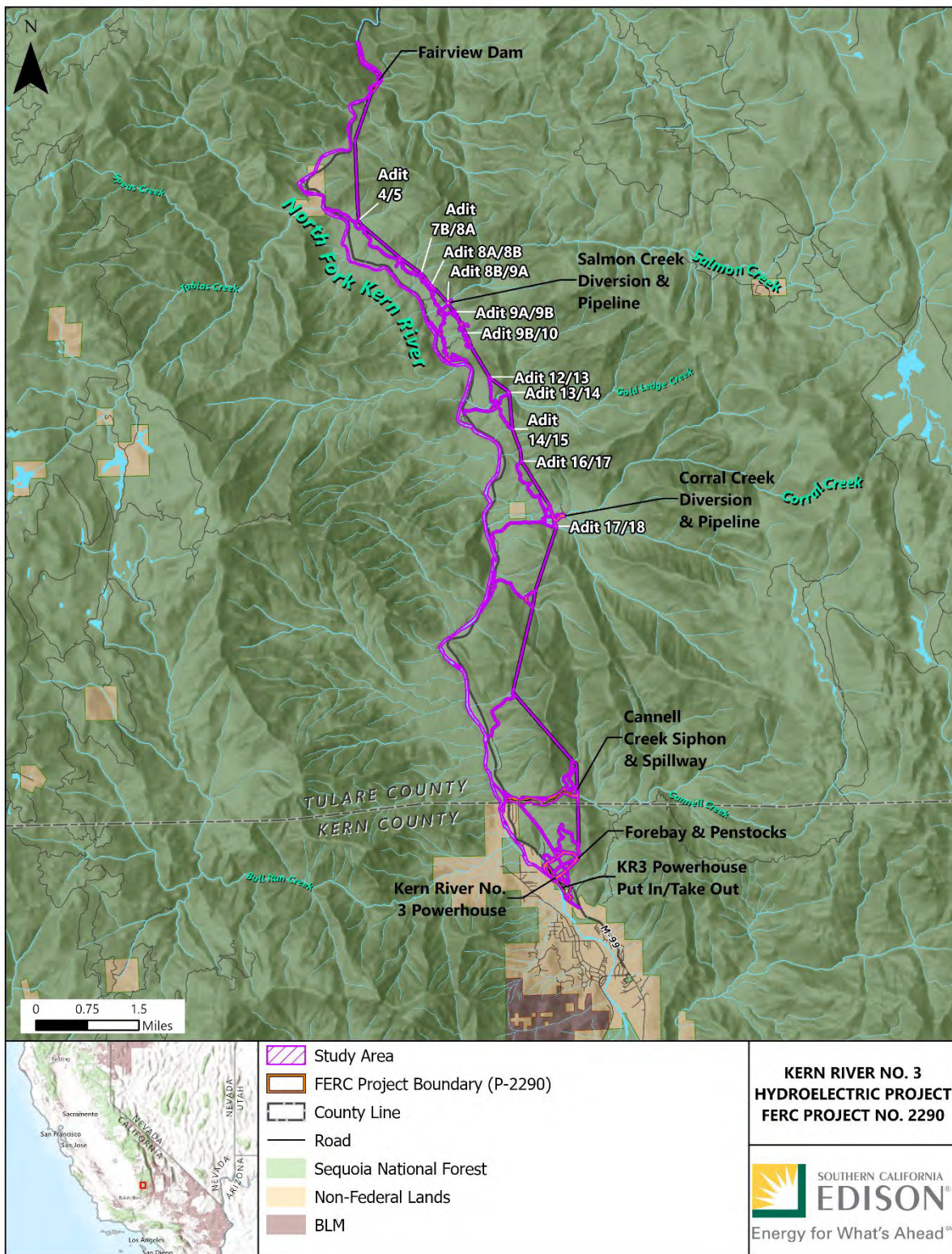
## 4.0 STUDY AREA AND STUDY SITES

The wildlife study area shown on Figure 4-1 includes:

- A 50-foot buffer around aboveground Project facilities, including:
  - Fairview Dam, intake, and sandbox
  - Aboveground sections of the conveyance flowline, including the siphon
  - Salmon and Corral Creek Diversions
  - Pressure flume, forebay, and penstocks
  - Project access roads
  - Kern River No. 3 (KR3) Powerhouse and supporting maintenance buildings
- Fairview Dam Bypass Reach<sup>1</sup> from the river's edge to the outer edge of the riparian strip plus a 50-foot buffer, or to the edge of Mountain Highway 99, whichever is closer.

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<sup>1</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the North Fork Kern River between Fairview Dam and the KR3 Powerhouse tailrace.



**Figure 4-1. Wildlife Study Area.**

## **5.0 EXISTING INFORMATION**

Wildlife occurrences within the Project Vicinity<sup>2</sup> have been documented in the California Natural Diversity Data Base (CNDDDB) (CDFW, 2020), by past studies (Psomas, 2004, 2006, 2008, 2011, 2013a, 2013b, 2013c, and 2013d) and in the Environmental Assessment (EA) for the previous KR3 Project Relicensing (FERC and USFS, 1996). Since those studies were undertaken new species have been added to the federal and state endangered species lists, and others have been deemed sensitive by various government agencies.

## **6.0 STUDY APPROACH**

### **6.1. LITERATURE REVIEW**

A literature review will be conducted to:

- Determine if any additional special-status wildlife species or FSCC have been identified as having the potential to occur within the study area or in the surrounding Project Vicinity.
- Verify the protective status of any of the previously identified special-status species and will review any new literature on the ecology and life history of special-status wildlife species.

Additionally:

- USFS vegetation alliances will be cross-referenced with the criteria for potentially suitable habitat for the above listed species.
- Where the criteria for potentially suitable habitat intersect or match the USFS vegetation alliances, those areas will be mapped as target areas for field surveys for the above species.

### **6.2. FIELD SURVEYS**

#### **6.2.1. PEDESTRIAN SURVEYS**

- Prior to the start of the surveys, field maps created from aerial photographs of each facility at a 1-inch to 200-foot scale will be prepared for field use and will include any known wildlife occurrences and areas of potentially suitable habitat for special-status wildlife. These aerials will be pre-loaded on to an iPad for use in collected data in the field.

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<sup>2</sup> Project Vicinity is identified as lands surrounding the FERC Project Boundary within a 0.5-mile buffer and an approximate 100-foot buffer along the right bank (west shore) within the Fairview Dam Bypass Reach. The Fairview Dam Bypass Reach includes the 16-mile bypass reach of the North Fork Kern River between Fairview Dam and the KR3 Powerhouse tailrace.



- Surveys will be performed at appropriate times of the year (e.g., nesting season) to maximize the opportunity to observe western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, California condor, and Pacific fisher as determined by the literature review (USFWS 1998, 2002, 2020; Sogge et al., 2010; Spencer et al., 2016).
- During surveys in appropriate habitat, a biologist holding an appropriate 10(A) permit from the U.S. Fish and Wildlife Service (USFWS) will play calls for western yellow-billed cuckoo and southwestern willow flycatcher. Per USFWS guidelines, the biologist will notify the USFWS 15 days prior to the start of surveys on which recorded vocalizations will be used. Because of seasonal variability, three replicate surveys are planned between April and September.
- Surveys for riparian birds will be scheduled to begin at dawn. All survey biologists are experienced in surveying for birds by-ear, as that is a standard practice.
- Biologists will perform pedestrian surveys within the wildlife study area defined above to: (1) ground-truth the potentially suitable habitat maps developed during the literature review and (2) document any wildlife observations. Pedestrian surveys will be performed with binoculars to directly observe wildlife.
- Access roads will be driven slowly in teams of two, with one biologist acting as an observer.
- Access roads will be walked in areas of representative habitat.
- Active searches for reptiles and amphibians will be conducted. Methods will include lifting, overturning, and carefully replacing objects such as rocks, boards, and debris. Cover boards (Strain et al., 2009; Grover, 2006) will be placed throughout the study area during Phase 1 of special-status salamander surveys and be checked for salamanders and other amphibians and reptiles during general wildlife surveys.
- Evening spot-lighting surveys will be undertaken as road/safety conditions allow.
- Biologists will search for signs of bats (staining on walls and guano piles) at the powerhouse and associated out buildings. If signs are detected, acoustic surveys will be performed.
- Mammals will be identified by visual recognition or evidence of diagnostic sign, including scat, footprints, scratch-outs, dust bowls, burrows, and trails.
- Observations of active or abandoned raptor nests will be recorded using an iPad with pre-loaded study area maps.
- All wildlife species observed will be recorded in field notes to species (if possible).

- Special status wildlife species will be recorded and their location mapped onto an iPad.
- Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles, amphibians, Bald Eagle, Osprey, Great Blue Heron, and American dipper) on data sheets, including their location and behavior, as applicable. This information will be reported in the Technical Memo for use by other studies during the relicensing process.

#### Trail Camera Surveys

- Biologists will install up to six trail cameras at locations likely to capture wildlife—specifically Pacific fisher—that may not be observable during pedestrian surveys. Locations of cameras will be determined in consultation the relevant resource agencies. All cameras will be able to take night photographs.
- Cameras will be left set-up for 1 to 2 years. Memory cards will be replaced every 6 months to download photos and document wildlife captured on camera. Camera placement will be reassessed after reviewing the second round of data.

### 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

One year of desktop analysis and field habitat assessment, and 1 year of visual encounter field surveys will occur.

Date	Activity
Summer–Fall 2022	Conduct desktop analysis and habitat assessment field surveys
Spring–Summer 2023	Phase 2 focused surveys
August 2023	Provide Study Plan progress and schedule updates with ISR
Fall 2023	Analyze data and prepare Technical Memo
August 2024	Provide Technical Memo with USR

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$80,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

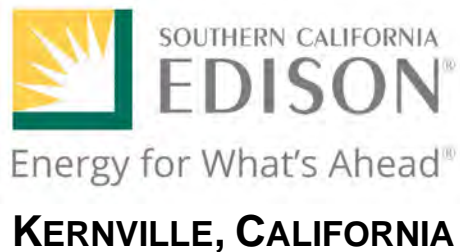
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# **BIO-4 BENTHIC MACROINVERTEBRATE STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT**  
***FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Kern River No. 3 (KR3) Hydroelectric Project (Project) operations alter flow in the Fairview Dam Bypass Reach (the 16-mile bypass reach of the North Fork Kern River [NFKR] between Fairview Dam and the KR3 Powerhouse tailrace) and have the potential to alter water quality, which may influence benthic macroinvertebrate (BMI) populations.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- Project diversions influence flow in the bypass reach and have the potential to influence water quality and BMI populations.
- BMI study results will supplement existing BMI data from within the Project Area to further characterize BMI populations within the Fairview Dam Bypass Reach.
- BMI is an indicator that can be used to evaluate water quality habitat for trout and wildlife along the NFKR within the Project Vicinity.

## 3.0 STUDY GOALS AND OBJECTIVES

- Conduct an inventory and assessment of BMI diversity and abundance in the bypass reach using an aquatic ecosystem health index.

## 4.0 STUDY AREA AND STUDY SITES

BMI samples will be collected at the following locations within the NFKR:

- Upstream of Fairview Dam (control site)
- Downstream of Gold Ledge Campground
- Immediately upstream of KR3 Powerhouse

The control site upstream of Fairview Dam will be used to characterize nearby BMI assemblages outside of Project influence.

## 5.0 EXISTING INFORMATION

There are no available data regarding BMI communities within the Fairview Dam Bypass Reach; however, historical data within a few miles of the Project were identified in the Pre-Application Document (SCE, 2021; Section 5.3.5, *Benthic Macroinvertebrates*) and could be utilized for reference. These data include BMI samples collected at a site on the NFKR 0.5 mile upstream of Johnsondale Bridge, a site on Salmon Creek approximately 5.5 miles upstream of the Federal Energy Regulatory Commission (FERC) Project Boundary, and three sites on the South Fork Kern River upstream of Isabella Lake (State Water Board, 2020a). Additional BMI samples were collected on tributaries to the NFKR upstream of the Project (State Water Board, 2020b).

## 6.0 STUDY APPROACH

### 6.1.1. BENTHIC MACROINVERTEBRATE SAMPLING AND PHYSICAL HABITAT DATA COLLECTION

Sampling will be conducted using procedures based on the standard reach-wide benthos method for documenting and describing BMI assemblages and physical habitat outlined by the Surface Water Ambient Monitoring Program (SWAMP; Ode et al., 2016). Sites will be placed as close as possible to the general locations described in Section 4.0; however, site locations may need to be adjusted slightly upstream or downstream to comply with contiguity of sampleable habitat recommendations described in the SWAMP protocol (Ode et al., 2016). To maximize wadeable habitat during surveys, sample collection will occur in the fall, when flows in the NFKR are at their lowest.

#### 6.1.1.1. Benthic Macroinvertebrate Collection Methods

The SWAMP protocol was developed for wadeable streams, and collection procedures will be modified as necessary to accommodate stream conditions in the NFKR. Modifications may include sample collectors wearing dry suits instead of waders to increase accessibility, adjusting the standard length of sample reaches (typically based on average wetted width), and partitioning sample reaches if necessary within a site (e.g., adjusting transect placement to omit inaccessible or unsampleable habitat) due to safe accessibility limitations (e.g., swift water) and/or lack of contiguously sampleable aquatic habitat (e.g., large deep pools).

Sites will be divided into 11 equidistant transects arranged perpendicular to the direction of flow, and a single inter-transect will be located between main transects. A total of 11 (1 per main transect) BMI subsamples will be collected by rubbing cobble and boulder substrates and disturbing finer sediments upstream of a D-frame kicknet fitted with 0.02-inch-diameter (0.5 millimeter) mesh to form a single composite sample for each site. Subsamples will be taken from 1 square foot of the stream bottom with a 1-square-foot frame used for calibration, as necessary. The BMI subsample position will alternate between the left, center, and right positions along each main transect (25 percent, 50 percent, and 75 percent of wetted width, respectively). If a subsample cannot be made at the designated point due to deep water or unsafe conditions, the point will be relocated as close as possible to the designated position. Samples will be taken moving upstream from the downstream end of the sample site in order to minimize instream disturbance.

Incidental observations of native freshwater mussels—*Gonidea angulata* and *Margaritifera falcata*—and the invasive Asian clam (*Corbicula fluminea*) will be recorded at each site. If freshwater mussels are observed, a new transect will be established at minimum 20 meters upstream.

Biologists will also note any incidental observations of other non-native invasive aquatic species (e.g., bullfrog, crayfish, and invasive fishes) and other key species of interest (e.g., aquatic reptiles and amphibians, Bald Eagle, Osprey, and Great Blue Heron) on



data sheets and will report this information in the Technical Report for use by other studies during the relicensing process.

#### 6.1.1.2. Physical Habitat, Water Quality, and Instream Habitat Complexity Measurements

In accordance with the SWAMP protocol (Ode et al., 2016), physical habitat, water quality parameters, and instream habitat complexity and riparian cover data will also be recorded, as listed below. Physical habitat data (e.g., substrate size) from points along transects that are not safely accessible (e.g., in a rapid) will not be collected and will be noted as inaccessible on the datasheet. Physical habitat and water quality parameters that will be measured include percent gradient; discharge; average wetted width; canopy cover; dominant and subdominant habitat and substrate types; and water temperature, pH, dissolved oxygen, and specific conductivity. Instream habitat complexity will be characterized by recording the amount of filamentous algae, aquatic macrophytes, emergent vegetation, large boulders, woody debris, undercut banks, overhanging vegetation, and live tree roots.

#### 6.1.2. LABORATORY METHODS

Laboratory methods will follow procedures outlined in the *Standard Operating Procedures for Laboratory Processing and Identification of Benthic Macroinvertebrates in California* (Woodard et al., 2012). At least 600 BMIs will be subsampled from each composite sample and identified using standard aquatic BMI identification keys (e.g., Merritt et al., 2008; Stewart and Stark, 2002; Thorp and Covich, 2001; Wiggins, 1996) and other appropriate references. All organisms from the subsample will be identified to a minimum Level 1 taxonomic effort as specified in the Southwestern Association of Freshwater Invertebrate Taxonomists (Richards and Rogers, 2011), and an independent laboratory will be contracted to conduct an external quality control of the BMI identification for 10 percent of the samples.

#### 6.1.3. DATA ANALYSIS

As recommended by SWAMP, the California Stream Condition Index (CSCI; Rehn et al., 2015) and a suite of standard metrics describing richness, composition, and other characteristics that are often used to describe BMI assemblages (Karr and Chu 1999) will be calculated for each sample. The CSCI is based on predictive modeling generated from a state-wide BMI database, utilizing geographic information system (GIS) and statistical software (R Core Team, 2022) for its calculation (Rehn et al., 2015). The CSCI is used as a composite biological response variable to evaluate aquatic habitat quality at sites and identify overall trends related to stream condition as reflected by the BMI community.

The CSCI integrates two measures for evaluating sites: BMI taxonomic completeness, which is based on an observed-to-expected (O/E) ratio, and a multi-metric index (MMI). The O/E is a measure of taxonomic completeness between observed (O) taxa collected at a site and expected (E) taxa generated through predictive modeling from the input of site-specific environmental variables (e.g., climate, topography, and geology) that are

known to influence BMI communities (Rehn et al., 2015). Based on these site-specific environmental variables, the MMI component of the CSCI generates anticipated values for six metrics<sup>1</sup> demonstrated to have a high signal to noise response (Rehn et al., 2015) and compares results with empirical values from the BMI sample collected from a given site. As observed taxa and metric values deviate from those predicted from reference sites using the site-specific environmental variables described above, scores for each measure (i.e., MMI and O/E) decrease. Conversely, as observed taxa and metric values approach similar distributions of expected taxa and metric values from reference sites, scores for each measure increase.

CSCI calculation integrates O/E taxonomic richness and MMI results into a single score typically ranging from 0.1 (great deviation from reference condition) to 1.4 (exceeding quality of reference condition). CSCI scores are further divided into three thresholds based on the 30th, 10th, and 1st percentiles of CSCI scores at reference sites in the state-wide database. These three thresholds divide the CSCI scoring range into four categories of biological condition:

1.  $\geq 0.92$  = likely intact condition
2. 0.91 to 0.80 = possibly altered condition
3. 0.79 to 0.63 = likely altered condition
4.  $\leq 0.62$  = very likely altered condition (Rehn et al., 2015)

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Standard GIS shapefiles, including metadata, will be provided to relevant agencies upon request. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

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<sup>1</sup> (1) Percent Clinger Taxa; (2) Percent Coleoptera Taxa; (3) Percent Ephemeroptera, Plecoptera, and Trichoptera (EPT) Taxa; (4) Percent Intolerant Individuals; (5) Shredder Taxa Richness; and (6) Taxonomic Richness

## 8.0 SCHEDULE

Date	Activity
Fall 2022	Conduct field survey
Winter 2022/2023	Analyze data and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$70,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

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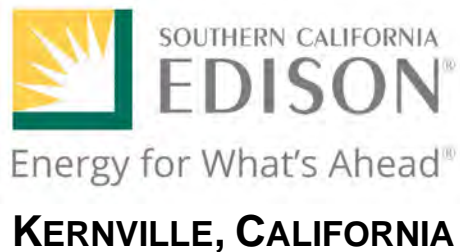
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# **BIO-5 WESTERN POND TURTLE STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- One state Species of Special Concern and U.S. Forest Service (USFS) Sensitive Species, the Western pond turtle (*Actinemys marmorata*),<sup>1</sup> is known to occur in the Kern River No. 3 (KR3) Hydroelectric Project (Project) Area and may be affected by Project operations and maintenance.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- The Western pond turtle is a state Species of Special Concern and Forest Service Sensitive Species that has been documented as occurring in the study area.
- Determine direct and/or indirect effects on this species and its habitat from continued Project operations and maintenance activities in the context of applicable regulatory requirements including, the most recent federal and state land management and conservations plans, the USFS Management Plan, the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

## 3.0 STUDY GOALS AND OBJECTIVES

- Obtain additional information to supplement the existing information regarding the Western pond turtle including:
  - Identify and map potentially suitable habitat.
  - Document presence, if found.
  - Resurvey previously documented locations of Western pond turtles in the study area.

## 4.0 STUDY AREA AND STUDY SITES

The Western pond turtle study area is shown on Figure 4-1.

- The study area includes:
  - Perennial streams, ephemeral creeks, off-channel ponds, or wetlands located within the Federal Energy Regulatory Commission (FERC) Project Boundary, including a 50-foot buffer. Target survey locations included, but are not limited to:
    - Fairview Dam
    - Salmon Creek Diversion, Open Flume, Adit 8B-9A, and adjacent access roads

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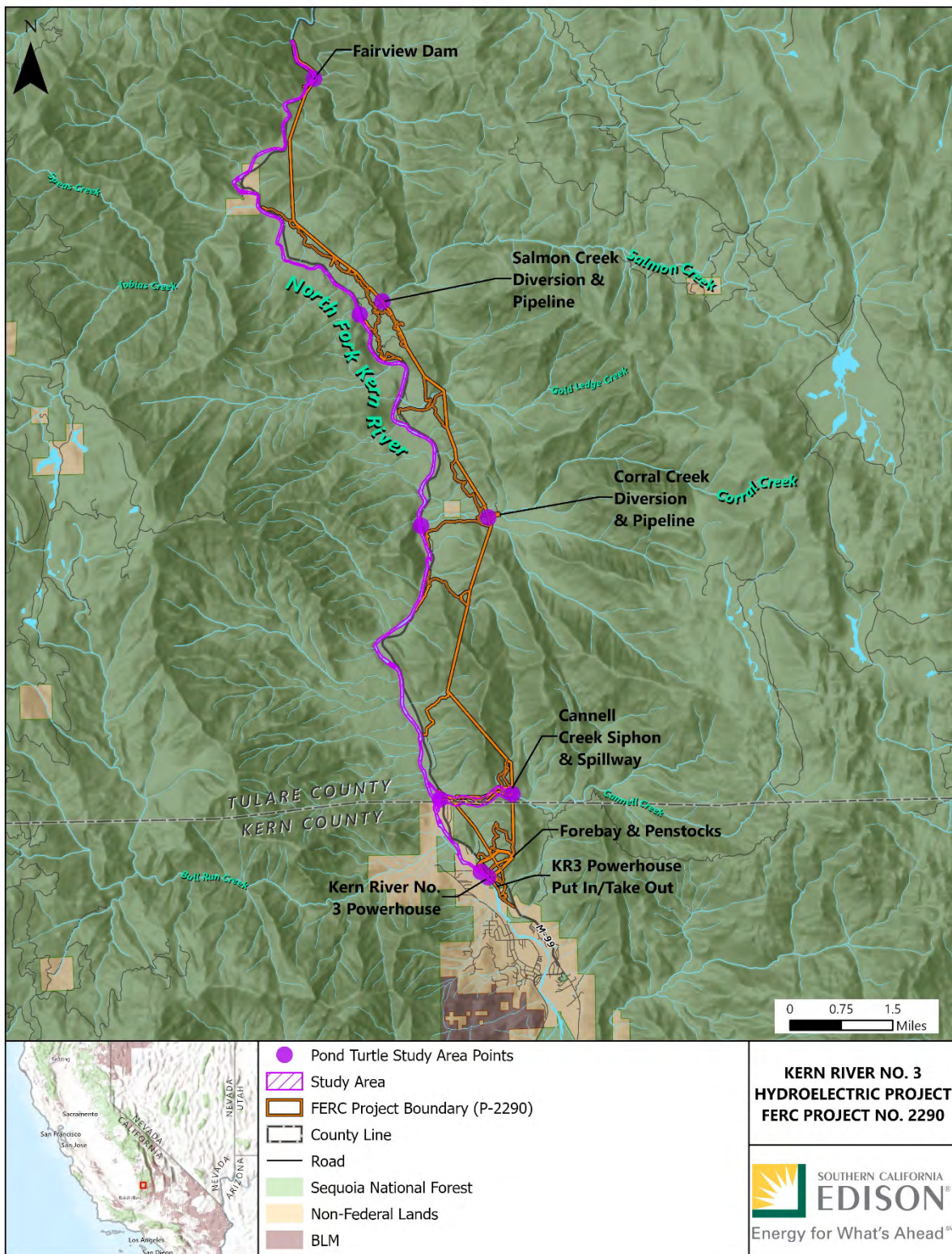
<sup>1</sup> Species is also identified as *Emys marmorata* (e.g., CDFW, 2020).

- 
- Gold Ledge Creek Open Flume, Adit 13-14, and adjacent access road
  - Corral Creek Diversion, Open Flume, and access road
  - Cannell Creek, Siphon, and access road
  - North Fork Kern River (NFKR) junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek.
  - Fairview Dam Bypass Reach<sup>2</sup> between Fairview Dam and the KR3 Powerhouse.

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<sup>2</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the Kern River No. 3 Powerhouse tailrace.





**Figure 4-1. Western Pond Turtle Study Area.**

## 5.0 EXISTING INFORMATION

The Western pond turtle was previously documented in Project Area (Psomas, 2013; CDFW, 2020).

## 6.0 STUDY APPROACH

### 6.1. LITERATURE REVIEW AND MAPPING

A new literature review will be conducted and will include the use of online databases such as California Natural Diversity Database (CNDDDB) records (CDFW, 2020) or iNaturalist (2020) if there are new reported occurrences in the Project Vicinity.

### 6.2. FIELD SURVEYS

#### Phase 1: Habitat Assessment

- In-house Geographic Information System (GIS) mapping of USFS vegetation communities and National Wetlands Inventory sites will be compiled and followed by on-the-ground habitat assessment surveys.
  - Prior to the start of the habitat assessment survey, field maps created from aerial photographs at a 1-inch to 200-foot scale will be prepared including key existing features and any previous Western pond turtle occurrences.
- Biologists will walk the study area to document habitat conditions. Maps will be loaded onto an iPad for field data collection.
  - The Fairview Dam Bypass Reach will be walked where accessible, otherwise visually surveyed with binoculars for suitable pond turtle habitat, such as basking sites and slow water pools and ponds. All potential pond turtle sites will be mapped using an iPad.
- Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special status freshwater mussels, aquatic reptiles, and amphibians, bald eagle, osprey, and Great blue heron) on data sheets and will report this information in the Technical Report for use by other studies during the relicensing process.
- The results of the habitat assessment survey will be used to target specific areas within the study area that will be the subject of Visual Encounter surveys to be conducted in 2023.

#### Phase 2: Visual Encounter Surveys

- Western pond turtle surveys will be timed to coincide with their typical breeding period in southern California, typically March through August. Two separate

surveys periods are proposed. One early in the breeding season (March to May) and one later in the breeding season (June to August).

- Prior to the start of the surveys, aerial photographs at a 1-inch to 200-foot scale will be prepared for field use and map existing features and note any previous Western pond turtle occurrences.
- Surveys will be led by a team of qualified biologists with experience following the Visual Survey protocol for Western pond turtle (USGS, 2006).
- Biologists will walk slowly along the stream channels scanning with and without binoculars and stopping at all likely pond turtle habitat areas to look for basking or underwater turtles. Vegetation data and physical features will be recorded at each site turtles are observed. Deep pool dip nets may be used to search for pond turtles.
  - Biologists will survey and document current conditions at the known Cannell Creek location documented in Psomas (2013).
  - Biologists will use an iPad in the field with pre-loaded study area maps. Any sightings of Western pond turtle will be recorded on an iPad.
- Biologists will note any incidental observations of non-native invasive aquatic species (e.g., bullfrog, crayfish, Asian clams, and invasive fishes) and other key species of interest (e.g., special-status freshwater mussels, aquatic reptiles and amphibians, Bald Eagle, Osprey, and Great Blue Heron) on data sheets and will report this information in the Technical Report for use by other studies during the relicensing process.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. Standard GIS shapefiles, including metadata, will be provided to relevant agencies upon request. A California Native Species Field Survey Form will be completed for any special-status species observed during the pedestrian surveys and will be reported to the CNDDDB. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

One year of desktop analysis and habitat assessment, and 1 year of visual encounter field surveys will occur.

Date	Activity
Summer–Fall 2022	Phase 1: Conduct desk top analysis and habitat assessment field surveys
Spring–Summer 2023	Phase 2: focused visual encounter field surveys
August 2023	Provide Study Plan progress and schedule updates with ISR
Fall 2023	Analyze data and prepare Technical Memo
August 2024	Provide Technical Memo with USR

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$60,000, which includes field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

CDFW (California Department of Fish and Wildlife). 2020. California Natural Diversity Database. RareFind 5 [Internet]. Version 5.1.1. Electronic database. Natural Heritage Division, California Department of Fish and Game, Sacramento, California. Accessed: May 2020.

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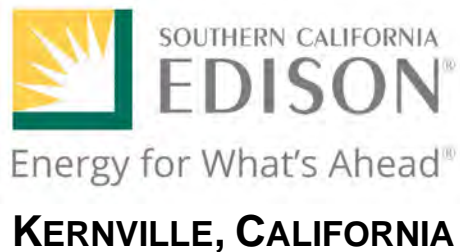
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# **BIO-6 STREAM HABITAT TYPING STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Kern River No. 3 (KR3) Hydroelectric Project (Project) operations have the potential to alter stream flows in the North Fork Kern River (NFKR) Fairview Dam Bypass Reach,<sup>1</sup> which may affect stream habitat for fish and other aquatic species.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- Project diversions alter stream flows, which may affect the type and distribution of stream habitat in the NFKR Fairview Dam Bypass Reach.
- Additional data are needed to describe current habitat distribution within the Fairview Dam Bypass Reach and to allow for comparison to historical habitat composition results to assess Project-related effects on stream habitat.

## 3.0 STUDY GOALS AND OBJECTIVES

- Conduct reach-scale habitat characterization within the Fairview Dam Bypass Reach to evaluate the effects of Project operations on stream habitat and distribution.
- Map macro-habitats within the study area using high-resolution aerial photographs or video of the Fairview Dam Bypass Reach.
- Compare current conditions to habitat composition described in the *Kern River No.3 Water Power Project (FERC Project No.2290) Application for New License* (SCE, 1991).

## 4.0 STUDY AREA AND STUDY SITES

The study area includes the Project-affected stream reach between Fairview Dam and the KR3 Powerhouse on the NFKR. The reach will be assessed as two segments (see Table 4-1 and Figure 4-1).

**Table 4-1. Proposed Habitat Mapping Stream Segments**

Segment	Boundaries	River Mile <sup>a</sup>
NFKR Segment 1	Fairview Dam to Hospital Flat Campground	18.6–10.0
NFKR Segment 2	Hospital Flat Campground to KR3 Powerhouse	10.0–3.1

<sup>a</sup> River Mile 0.0 begins at the high water mark of Isabella Lake.

<sup>1</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace.



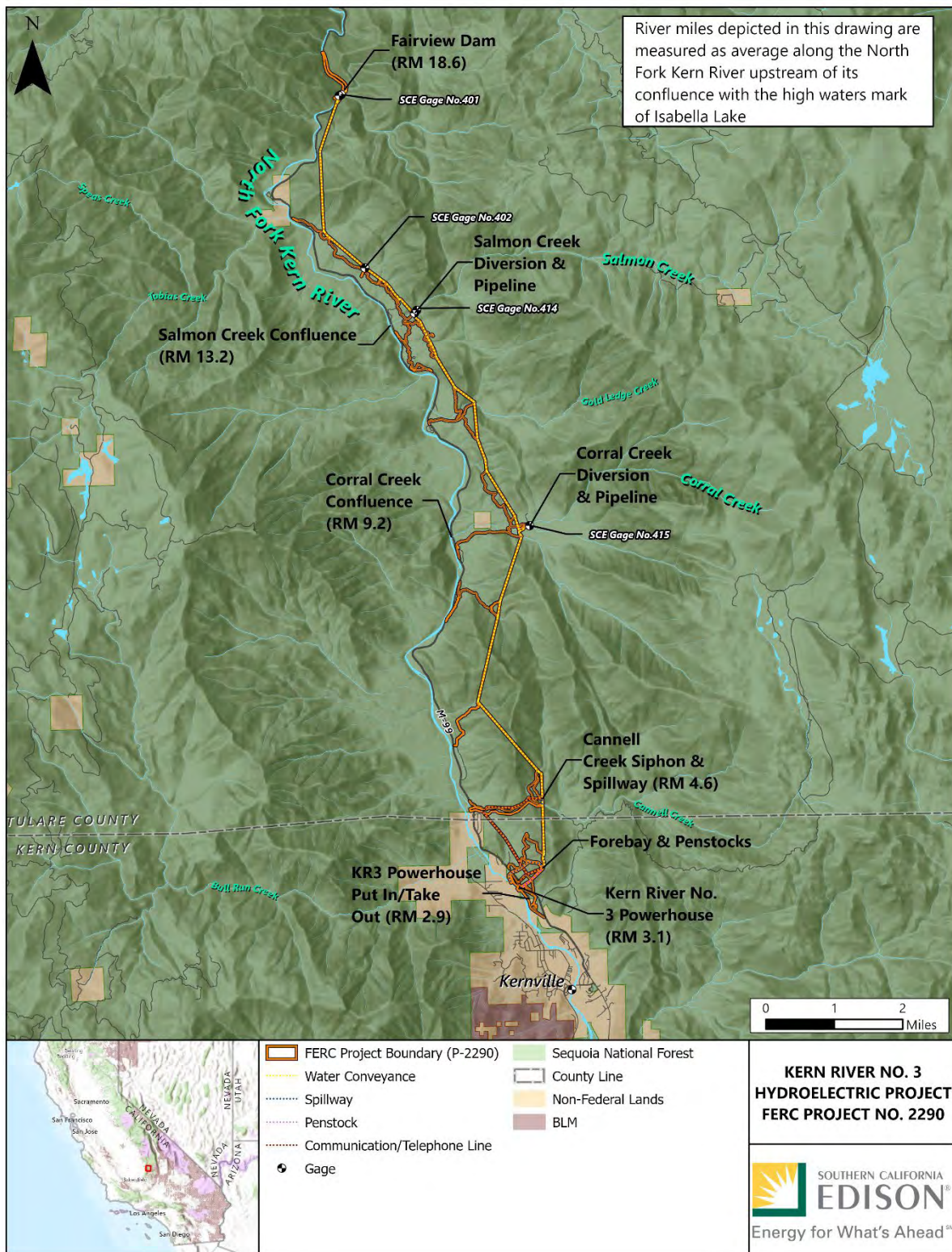


Figure 4-1. Project Area.



## 5.0 EXISTING INFORMATION

The Fairview Dam Bypass Reach is characterized by a variety of habitat types, including high gradient riffles, cascades, runs, pools, and pocket water (SCE, 1991). Runs are the dominant habitat type from Fairview Dam to Hospital Flat Campground (Segment 1), and shallow pools are the dominant habitat type from Hospital Flat Campground to KR3 Powerhouse (Segment 2). The substrate is composed primarily of bedrock and large boulders with coarse sand along the river margins; fish spawning gravel deposits are limited due to the flushing action of peak storm and runoff events. Although the average gradient ranges from 1 to 3 percent, a majority of the reach (89.6 percent) is flatwater (57.4 percent run, boulder run, and pocket water habitat; and 32.2 percent deep and shallow pool habitats); riffles and cascades account for only 10.4 percent of the reach.

There have been two large debris flows in recent history that have affected stream habitat within the Fairview Dam Bypass Reach: (1) resulting from the December 1966 flooding, and (2) following the 2002 McNally Fire and subsequent 100-year storm event totaling 22 inches of precipitation in 30 hours, which resulted in significant sediment deposition both upstream and downstream of Fairview Dam, altering channel bed textures from boulder and cobble dominant to fine sand and gravel dominant over much of the Fairview Dam Bypass Reach. Existing sediment related studies have identified flow levels to mobilize fine sediments (ENTRIX, 1992, 2002, 2009). These studies found that the large framework grains that dominate the channel bed in the Fairview Dam Bypass Reach are only mobilized during large, infrequent flood events, while more frequent peak flows (e.g., 1.3- to 1.5-year recurrence interval) mobilize smaller grains (e.g., gravel and sand) (see the Pre-Application Document (SCE, 2021) Section 5.1.4.1, *Channel Geomorphology and Sediment Transport*). The NFKR downstream of Fairview Dam experiences relatively frequent high flows, and the ENTRIX (2009) survey also found that the naturally occurring high flows in 2005 and 2006 scoured much of the deposited sediment in the Fairview Dam Bypass Reach following the McNally fire in 2002, although the channel did not entirely return to pre-fire conditions by 2009 (ENTRIX, 2009).

Similarly, habitat characterizations conducted as part of current License Article 411, *Fish Monitoring Plan*, in 1998, 2006, 2011, and 2016 found a relatively stable morphology with minimal changes in the size, shape, and substrate characteristics of surveyed reaches. Specifically related to sediment, minimal changes to substrate composition were observed at three sites downstream of Fairview Dam (Roads End, Gold Ledge, and Hospital Flat). Following the 2002 McNally fire, the percentage of sand (substrate 2 to 8 millimeters) at these sampling sites increased by 10 percent, 2 percent, and 33 percent, respectively; however, by 2016, the percentage of sand had returned to at or below pre-fire levels at the Roads End and Gold Ledge sites and decreased from 48 to 30 percent at Hospital Flat site.

## 6.0 STUDY APPROACH

This study will use aerial video and high-resolution aerial photographs to map habitat types and measure unit dimensions with field validation to confirm/update results.

- Habitat type classification
  - Macrohabitat typing will follow the previous habitat type classifications from the 1991 Application for New License SCE (see Table 6-1). Habitat units will be separately identified where the unit length is at least equal to one to two times the active channel width (McCain et al., 1990; Flosi and Reynolds, 1994), or if the unit is otherwise distinctive. Each distinct habitat unit will be numbered consecutively in an upstream direction, beginning at the downstream end of a designated reach. Unit lengths will be measured, and average width estimated. Dominant and subdominant substrate types will be recorded.
  - Similar to the prior NKFR habitat typing data, the study reach will be divided into two segments: a narrow single channel segment from Fairview Dam downstream to Hospital Flat campground, and a wider segment with split and single channels from Hospital Flats campground to the KR3 Powerhouse.
  - Pedestrian surveys will be conducted at a subset of units to validate and refine mapping results. Field validation will be conducted on foot by teams of two individuals where survey teams are able to safely access portions of the reach.

**Table 6-1. Habitat Type Classifications**

Macrohabitat	Description (SCE, 1991)
Boulder Pocket Water	Moderate and high-gradient stream sections containing large closely spaced boulders which cause uneven water surface elevations, multi-directional flow patterns, small cascades, strong eddy currents, and backwater zones.
Boulder Run	Low to moderate gradient stream reach containing sparsely spaced boulders and cobbles. Water surface elevations are generally flat and of a uniform gradient through the habitat unit. The large streambed particles disrupt vertical and horizontal velocity profiles often causing high velocity zones to occur adjacent to low velocity areas.
Cascade	Steep gradient habitat unit with a vertical change or series of changes in the water surface elevation of more than 4 percent.
Deep Pools	Low gradient habitat unit with a flat-water surface, low velocities, and depths greater than six feet.
Shallow Pools	Low gradient habitat unit with a flat-water surface, low velocities, and depths less than 6 feet.
Runs	Low to moderate gradient habitat unit with a relatively uniform water surface gradient, moderate velocities, and relatively uniform depths.
Riffles	Moderate to steep gradient habitat unit of shallow depth, high velocity, and irregular water surface elevation.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

Date	Activity
Summer–Fall 2022	Habitat mapping and field surveys
Winter 2022–Spring 2023	Analyze data and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$32,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

ENTRIX, Inc. 1992. *Investigation of the Relationship between Trout Spawning and Sandbox Flushing Kern River No. 3 Hydroelectric Project*. Prepared for Southern California Edison. September 22.

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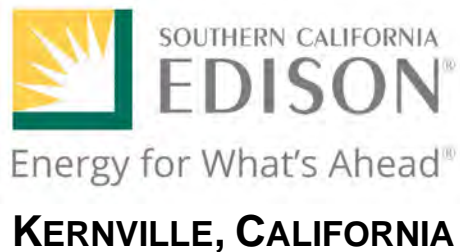
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\_\_\_\_\_. 2021. *Kern River No. 3 Hydroelectric Project (FERC Project No. 2290), Pre-Application Document, Volume 1*. September 22, 2021.

# **BOT-1 GENERAL BOTANICAL RESOURCES STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Special-status botanical resources, including U.S. Forest Service (USFS) Species of Conservation Concern (FSCC) that are either known to or have the potential to occur in the Kern River No. 3 (KR3) Hydroelectric Project (Project) Area (Table 3-1) and may be affected by Project operations and maintenance. These species include the following state listed species:
  - Mojave tarplant (*Deinandra mohavensis*) and Tracy's eriastrum (*Eriastrum tracyi*).
- Introduction and/or spread of invasive plant populations with a high ecological impact due to Project maintenance activities (Table 3-2).

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- Project maintenance activities may result in direct and/or indirect effects on sensitive natural communities and special-status plants or FSCC.
- Project maintenance activities may result in the spread or introduction of invasive plants.
- If special-status botanical resources or FSCC are found to be present within the study area, the data will be examined to determine the effects of Project operation and maintenance activities in the context of applicable regulatory requirements, including the most recent USFS Management Plan, the federal and state Endangered Species Acts (ESAs), the National Environmental Policy Act (NEPA), and the California Environmental Quality Act (CEQA).

## 3.0 STUDY GOALS AND OBJECTIVES

- Obtain additional information to supplement the existing information regarding special-status botanical resources in the study area by:
  - Documenting the presence of Mojave tarplant and Tracy's eriastrum
  - Mapping any sensitive natural communities
  - Documenting the presence of other special-status plants including FSCC
  - Ground-truthing USFS vegetation mapping
  - Documenting non-native invasive plants with high ecological impact (Cal-IPC, 2020)

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**Table 3-1. Special-Status Plant Species That Are Known or Have the Potential to Occur**

Species Name	Status Federal/State/CRPR /USFS	Blooming Period	Elevation Range	Habitat	Potential to Occur
<b>Known to Occur</b>					
Palmer's mariposa lily <i>Calochortus palmeri</i> var. <i>palmeri</i>	-/-/1B.2/FSS	April–July	2,325–7,840	Chaparral, lower montane coniferous forest, meadows and seeps	Known to occur. Suitable habitat is present and at least one population is located within the Project Vicinity (CDFW, 2020).
Mojave tarplant <i>Deinandra mohavensis</i>	-/SE/1B.3/FSS	(sometimes May) June–October (sometimes January)	2,095–5,250	Chaparral, coastal scrub, riparian scrub	Known to occur. Localities reported include “Kernville” and Corral Creek near the Kern River within the Project Vicinity (CCH, 2020).
Kern Canyon clarkia <i>Clarkia xantiana</i> subsp. <i>parviflora</i>	-/-/4.2/-	May–June	2,295–11,875	Chaparral, cismontane woodland, Great Basin scrub, valley and foothill grassland	Known to occur. This plant is known from several locations both inside and outside of the Project Vicinity within the Kern River drainage (CCH, 2020; CDFW, 2020).
Rose-flowered larkspur <i>Delphinium purpusii</i>	-/-/1B.3/FSS	(sometimes March) April–May	980–4,395	Chaparral, cismontane woodland, pinyon and juniper woodland	Known to occur. Suitable habitat present and several populations are known to occur within the Project Vicinity (CCH, 2020).
Kern River daisy <i>Erigeron multiceps</i>	-/-/1B.2/FSS	June–September	4,920–8,315	Meadows and seeps, openings in upper montane coniferous forest	Known to occur. Several populations known from the Project Vicinity (CCH, 2020; CDFW, 2020).
Piute cypress <i>Hesperocyparis nevadensis</i>	-/-/1B.2/-	NA	2,360–6,005	Closed-cone coniferous forest, chaparral, cismontane woodland, pinyon and juniper woodland	Known to occur. Two locations recorded within the Project Vicinity with several just outside of the Project Vicinity (CCH, 2020; CDFW, 2020).
Prairie wedge grass <i>Sphenopholis obtusata</i>	-/-/2B.2/-	April–July	980–6,560	Cismontane woodland, meadows, streambanks, and seeps	Known to occur. Northern portion of Project Vicinity in limestone cliffs Kern River Canyon (CCH, 2020; CDFW, 2020).
Shevock's copper moss <i>Mielichhoferia shevockii</i>	-/-/1B.2/FSS	NA	2,460–4,595	Areas of cismontane woodland with metamorphic rock and mesic soils	Known to occur. One CNDDDB record located along the Kern River within the Project Vicinity (CDFW, 2020)
<b>May Occur</b>					
Call's angelica <i>Angelica callii</i>	-/-/4.3/-	June–July	3,605–6,560	Cismontane woodland, lower montane coniferous forest	May occur. This species has been recorded less than 1 mile north of the Project Vicinity (CCH, 2020)
Alkali mariposa lily <i>Calochortus striatus</i>	-/-/1B.2/FSS	April–June	225–5,235	Moist alkaline and/or mesic sites in chaparral, chenopod scrub, Mojavean desert scrub, meadows and seeps	May occur. Potentially suitable habitat is present; nearest record is less than 1 mile southeast of the Project Vicinity near Kernville (CCH, 2020).
Kern River evening-primrose <i>Camissonia integrifolia</i>	-/-/1B.3/-	(sometimes April) May	2,295–3,280	Chaparral	May occur. Suitable habitat is present; and the nearest record is in rabbitbush scrub approximately 9 miles southeast of the Project Vicinity (CCH, 2020).
White pygmy-poppy <i>Canbya candida</i>	-/-/4.2/FSS	March–June	1,965–4,790	Sandy soils in Joshua tree woodland, Mojavean desert scrub, pinyon and juniper woodland	May occur. Several populations have been recorded in Cyrus Canyon, approximately 3.5 miles south of the Project Vicinity, and one location was recorded as “Kernville” in 1891, which is less than 1 mile south of the Project Vicinity (CCH, 2020). Given the widespread nature of the known occurrences in the region, this plant should be considered even though habitat types are not present.
Muir's tarplant <i>Carlquistia muirii</i>	-/-/1B.3/FSS	July–August (sometimes October)	2,475–8,200	Dry, open sites on granitic soil in montane chaparral, lower montane coniferous forest, upper montane coniferous forest	May occur. Potentially suitable habitat is present, although records in the region are within chaparral types that are typically found at higher elevations; nearest record is approximately 2.7 miles west of Project Vicinity (CCH, 2020).
Tulare cryptantha <i>Cryptantha incana</i>	-/-/1B.3/FSS	June–August	4,690–7,055	Gravelly or rocky areas in lower montane coniferous forest	May occur. Potentially suitable habitat is present several populations recorded within 5 miles of the Project Vicinity (CCH, 2020; CDFW, 2020).

Species Name	Status Federal/State/CRPR /USFS	Blooming Period	Elevation Range	Habitat	Potential to Occur
Unexpected larkspur <i>Delphinium inopinum</i>	-/-/4.3/FSS	May–July	6,200–9,185	Areas with metamorphic rocks in upper montane coniferous forest	May occur. Although the Project Vicinity is outside of the published elevation range and habitat for this species, a record has been reported from about 2.5 miles south of the Project Vicinity at Kern Hot Springs with habitat similar to the Project Vicinity in the surrounding area (CCH, 2020).
Calico monkeyflower <i>Diplacus pictus</i>	-/-/1B.2/-	March–May	325–4,690	Broadleafed upland forest, cismontane woodland	May occur. Suitable habitat is present; numerous populations are known from as close as 12 miles south and west of the Project Vicinity (CCH, 2020), with several records in habitat similar to the Project Vicinity.
Tracy's eriastrum <i>Eriastrum tracyi</i>	-/CR/3.2/FSS	May–July	1,030–5,840	Chaparral, cismontane woodland, valley and foothill grassland	May occur. Suitable habitat is present; records less than 1 mile north and 6 miles southeast of the Project Vicinity in similar habitat (CCH, 2020; CDFW, 2020).
The Needles buckwheat <i>Eriogonum breedlovei</i> var. <i>shevockii</i>	-/-/4.3/-	(sometimes June) July–September	5,295–8,450	Granite crevices; pinyon and juniper woodland, upper montane coniferous forest	May occur. Although potential vegetation types are not present, granite outcrops and crevices occur in Project Vicinity; several records approximately 2.5 miles west of Project Vicinity near Baker Point (CCH, 2020).
Two-colored monkeyflower <i>Erythranthe discolor</i> <sup>c</sup>	//FSS	June–July	4,265–8,200	Openings along small streams, meadow edges, generally in granitic soils	May occur. Suitable habitat is present; several records in vicinity of Project Vicinity in similar habitat (CCH, 2020).
Kernville poppy <i>Eschscholzia procera</i>	-/-/3/-	June–July (sometimes August)	2,655–3,365	Sandy floodplains in cismontane woodland	May occur. Suitable habitat is present on the Project Vicinity and populations are known from the vicinity (CCH, 2020).
Delicate bluecup <i>Githopsis tenella</i>	-/-/1B.3/-	April–June	1,065–6,235	Chaparral, cismontane woodland	May occur. Suitable habitat is present and there are records from approximately 9 miles southeast of the Project Vicinity in similar habitat (CCH, 2020).
Shevock's golden-aster <i>Heterotheca shevockii</i>	-/-/1B.3/FSS	August–November	750–2,955	Chaparral, cismontane woodland	May occur. Suitable habitat is present; records approximately 11 miles south-southwest of the Project Vicinity in similar habitat along the lower Kern River canyon (CCH, 2020).
Cut-leaf checkerbloom <i>Sidalcea multifida</i>	-/-/2B.3/-	May–September	5,740–9,185	Great Basin scrub, lower montane coniferous forest, meadows and seeps, pinyon and juniper woodland	May occur. A small portion of the Project Vicinity is within the elevation range for this species; general vegetation may be present, conditions in the Project Vicinity are unlikely to support this species. One record is located approximately 2.5 miles north of the northern portion of the Project Vicinity (CDFW, 2020). Note: One CCH specimen location is within the Project Vicinity; however, the specimen label states: “in open Yellow Pine forest” and “along fork of Kern Trail between Lloyd Meadow and canyon rim Sequoia National Forest” (CCH, 2020). Lloyd Meadow is 12 miles north of the northern limit of the Project Vicinity.

CNDDDB = California Natural Diversity Data Base; CRPR = California Rare Plant Rank; FSS = Forest Service Sensitive; USFS = U.S. Forest Service

**Status:**

*Federal*

- FE Federally listed as endangered
- FT Federally listed as threatened
- No federal status

*State*

- SE California State listed as endangered
- ST California State listed as threatened
- SR California State Listed as rare
- No state status

*CRPR (California Rare Plant Rank) List Ranks*

- List 1B Plants rare, threatened, or endangered in California and elsewhere
- List 2B Plants rare, threatened, or endangered in California, but more common elsewhere
- List 3 More information needed about this plant, a review list
- List 4 Plants of limited distribution, a watch list

*CRPR Threat Ranks*

- 0.1 Seriously threatened in California (high degree/immediacy of threat)
- 0.2 Fairly threatened in California (moderate degree/immediacy of threat)

**Table 3-2. Non-Native Invasive Plants Potentially Occurring in the Project Vicinity with a High Ecological Impact Rating (Cal-IPC)**

<b>Scientific Name</b>	<b>Common Names</b>
<i>Aegilops triuncialis</i>	Barb goatgrass
<i>Arundo donax</i>	Giant reed
<i>Brassica tournefortii</i>	Sahara mustard
<i>Bromus madritensis</i> subsp. <i>rubens</i>	Red brome
<i>Bromus tectorum</i>	Cheatgrass
<i>Carthamnus lanatus</i>	Woolly distaff thistle
<i>Centaurea solstitialis</i>	Yellow starthistle
<i>Centaurea stoebe</i> subsp. <i>micranthos</i>	Spotted knapweed
<i>Cortaderia jubata</i>	Jubatagrass
<i>Cortaderia selloana</i>	Pampasgrass
<i>Cytisus scoparius</i>	Scotch broom
<i>Elymus caput-medusae</i>	Medusahead
<i>Euphorbia virgata</i>	Leafy spurge
<i>Genista monspessulana</i>	French broom
<i>Hedera helix</i>	English ivy
<i>Lepidium latifolium</i>	Perennial pepperweed
<i>Lythrum salicaria</i>	Purple loosestrife
<i>Onopordum acanthium</i>	Scotch thistle
<i>Rubus armeniacus</i>	Himalayan blackberry
<i>Sesbania punicea</i>	Scarlet wisteria
<i>Spartium junceum</i>	Spanish broom
<i>Tamarix chinensis</i>	Chinese tamarisk
<i>Tamarix parviflora</i>	Smallflower tamarisk
<i>Tamarix ramosissima</i>	Saltcedar
<i>Ulex europaeus</i>	Gorse

## **4.0 STUDY AREA AND STUDY SITES**

The botanical resources study area is shown on Figure 6-1 and includes:

- A 50-foot buffer around all aboveground Project facilities including:
  - Project roads
  - Fairview Dam, intake, and sandbox
  - Aboveground sections of the conveyance flowline, including the siphon
  - Salmon and Corral Creek Diversions
  - Pressure flume, forebay, and penstocks
  - KR3 Powerhouse Put-in/Take out parking area
  - KR3 Powerhouse and supporting maintenance buildings
- Fairview Dam Bypass Reach<sup>1</sup> from the river's edge to the outer edge of the riparian strip, plus a 50-foot buffer or to the edge of Mountain Highway 99, whichever is closer.

## **5.0 EXISTING INFORMATION**

Special-status plant occurrences and sensitive vegetation communities have been documented by past studies (Psomas, 2004, 2006, 2008, 2011, 2013a, 2013b, and 2013c), the Environmental Assessment (EA) for the previous KR3 Project Relicensing (FERC and USFS, 1996), and the California Natural Diversity Database (CNDDDB) (CDFW, 2020). Since those studies were undertaken, new occurrences have been recorded to the CNDDDB, new species have been added to the federal and state special-status species lists, and others have been deemed sensitive by various government and non-governmental organizations (NGOs).

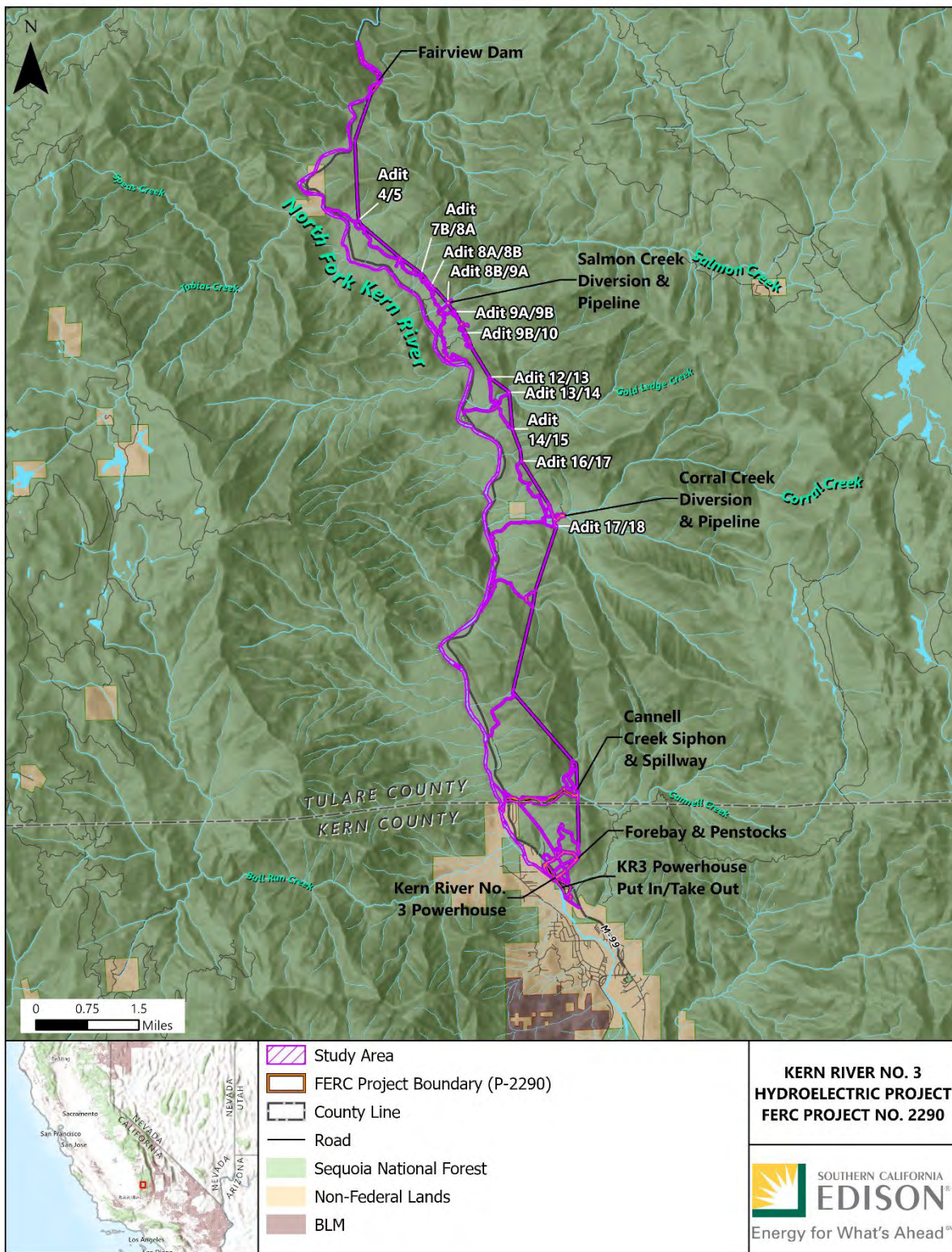
## **6.0 STUDY APPROACH**

### **6.1. LITERATURE REVIEW AND HABITAT MAPPING**

A literature review, including online databases will be conducted to determine if any additional special-status botanical resources have been identified as having the potential to occur within the Project Area. This literature review will also verify the protective status of any of the previously identified special-status plants and will review any new literature on the ecology and life history of these resources. The literature review will be used to define potentially suitable habitat for special-status plants, including Mojave tarplant and Tracy's eriastrum.

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<sup>1</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace.



**Figure 6-1. Botanical Study Area.**



Habitat mapping of the study area will include the following.

- Existing vegetation alliances from the USFS will be overlain onto the study area maps, and information will be verified using recent photographs or aerial footage of the study area.
- Vegetation alliances will be cross-referenced to defined habitats for special-status plants.
- Areas of potentially suitable habitat for special-status plants will be mapped over the study area.

## **6.2. FIELD SURVEYS**

Surveys along the aboveground Project facilities will be floristic in nature and performed in 2022 during the spring (March through April), summer (June through July), and late summer/fall (August through September) to maximize the opportunity of observing Mojave tarplant and Tracy's eriastrum as determined by the literature review and in consultation with the relevant resource agencies. If potential habitat for special-status plants is found in the Fairview Dam Bypass Reach, late summer/fall (August through September) surveys will be conducted during the 2022 season, and spring (March through April) and summer (June through July) surveys will be conducted during 2023.

Prior to the start of surveys, aerial photographs of each Project facility at a 1-inch to 200-foot scale or equivalent will be prepared for field use and will include:

- Known occurrences of special-status botanical resources
- Areas of potentially suitable habitat for special-status botanical resources

Biologists will perform pedestrian surveys at each study site to identify and map existing conditions and document any observed plants. Natural communities previously mapped by USFS will be verified or adjusted if conditions on the ground are not consistent with previously identified resources. During the pedestrian surveys, biologists will ground-truth the geographic information system (GIS)-based mapping of potentially suitable habitat as identified by the literature review.

Plants will be identified by visual recognition and comparison to plant keys using *The Jepson Manual* (Baldwin et al., 2012) and supplemented by the *Jepson eflora* (Jepson Flora Project, 2020). Existing USFS vegetation community mapping will be referenced while in the field, and the extent of each botanical community will be verified. Observations of special-status botanical resources and non-native invasive plant species (high ecological impact) will be recorded using a hand-held Global Positioning System (GPS) unit and mapped onto the field map. All plant species observed will be recorded in field notes to species, subspecies, or variety (if possible), and the vegetation community in which it is found will be recorded.

## 7.0 REPORTING

Southern California Edison (SCE) will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Standard GIS shapefiles, including metadata, will be provided to relevant agencies upon request. A California Native Species Field Survey Form will be completed for any special-status species observed during the pedestrian surveys and will be reported to the CNDDDB. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

One year of desktop analysis, habitat assessment, and field surveys will occur.

Date	Activity
Spring–Summer 2022	Conduct desktop analysis, habitat mapping, and field surveys
Winter 2022/2023	Analyze data and prepare Technical Memo
Spring–Summer 2023	Focused surveys along Fairview Dam Bypass Reach, if needed
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$140,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

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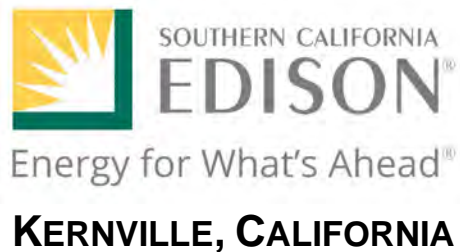
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# **REC-1 WHITEWATER BOATING STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## **1.0 POTENTIAL RESOURCE ISSUE**

- Evaluation of whitewater boating opportunities and flow needs for a range of watercraft in the Fairview Dam Bypass Reach (the 16-mile bypass reach of the North Fork Kern River [NFKR] between Fairview Dam and the Kern River No. 3 [KR3] Powerhouse tailrace).

## **2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED**

- KR3 Hydroelectric Project (Project) operations at Fairview Dam divert water from the NFKR to the KR3 Powerhouse, potentially affecting whitewater boating opportunities in the 16-mile Fairview Dam Bypass Reach and timing of flows in the river segment downstream of the KR3 Powerhouse.
- Information obtained in this study may be used to document whitewater boating opportunities over a range of flows.
- Describe existing flow information available to public, assess usability of flow information, and seek improved communication of real-time flow information in the bypass.

## **3.0 STUDY GOALS AND OBJECTIVES**

The goals of this study are to (1) document the whitewater boating opportunities and the range of whitewater boating flows in the Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse and the NFKR from the KR3 Powerhouse to the Kern River Park in Kernville under current conditions; and (2) identify potential operational constraints and (3) evaluate public safety concerns associated with boating flows.

The study has the following objectives:

- Describe the whitewater boating segments in the NFKR from Fairview Dam to Kernville including the length, whitewater difficulty, name of key rapids, and typical access locations for put-in and take-out.
- Identify the range of flows (minimum acceptable and optimum) that would provide whitewater boating opportunities in each whitewater segment for a variety of watercraft including, kayaks, rafts, packrafts, stand-up paddleboards, and body boards.
- Quantify the annual frequency that minimum acceptable and optimum whitewater flows occur in each whitewater segment with Project operations and unimpaired flows for each watercraft type.
- Document potential conflicts of boating flows with other recreation users and identify strategies to mitigate those conflicts.

#### **4.0 STUDY AREA AND STUDY SITES**

The study area includes the 16-mile Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse and the NFKR from the KR3 Powerhouse to the Kern River Park in Kernville. The Fairview Dam Bypass Reach contains eight whitewater segments ranging in whitewater difficulty from Class II to Class VI (Figure 4-1). The river can be accessed from multiple locations including designated and informal access locations.

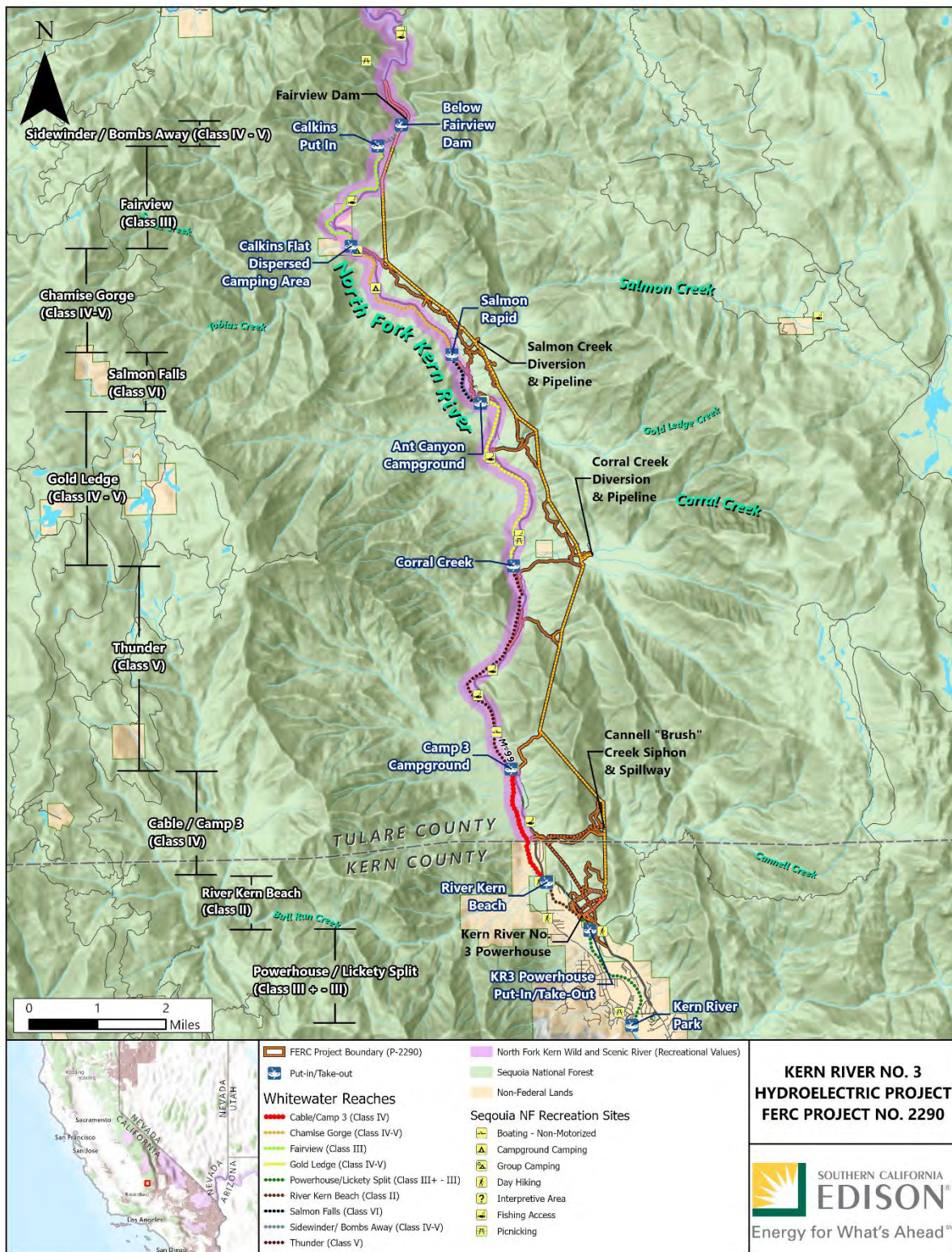


Figure 4-1. Whitewater Boating Runs along North Fork Kern River.

## 5.0 EXISTING INFORMATION

Whitewater boating is a well-established activity on the Kern River with a long history of commercial and non-commercial use in a variety of watercraft. The whitewater community has a deep knowledge and understanding of flow dependent recreation opportunities in the 16-mile Fairview Dam Bypass Reach. Southern California Edison (SCE) conducted a Whitewater Flow Study (SCE, 1994) that will be reviewed during the desktop review as part of Phase 1. The Sequoia National Forest (SQF) manages special use permits authorizing commercial whitewater use on the bypass reach. Whitewater opportunities in the bypass reach are documented in commercial outfitter brochures and websites. Whitewater guidebooks and online resources provide detailed descriptions of the whitewater boating opportunities and whitewater difficulty across a broad range of flows.

## 6.0 STUDY APPROACH

The Whitewater Boating Resource Evaluation Study follows the methods in *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker et al., 2005). The 2005 publication outlines a sequential framework to investigate flow dependent recreation opportunities using various investigative tools across three progressive levels of study. Progression through the framework affords a better understanding of the whitewater recreation opportunities and flow needs in each segment of the bypass reach. The three levels of study increase data resolution as investigations progress from one level to the next and share interim results earlier in the relicensing process across resource disciplines.

### 6.1. LEVEL 1: DESKTOP REVIEW OF EXISTING INFORMATION

The Level 1 Desktop Review of Existing Information will include the following elements:

- Literature review
  - Literature review will include reviewing the 1994 Whitewater Flow Study (SCE, 1994), whitewater guidebooks, magazine publications with a focus on whitewater recreation and online river information pages.
  - A table summarizing whitewater opportunities in the Kern River basin will be compiled that will include the name of the whitewater run, river name, put-in and take-out location, length, gradient (feet per mile), and whitewater difficulty.
    - Detailed information on the whitewater segments from Fairview Dam to Kern River Park will be included in the table. This will include length, gradient, whitewater difficulty, as well as formal and informal access points.
  - Summarize commercial and private whitewater boating use where available using records from the SQF and/or provided by local commercial outfitters.
  - Summary of regulatory agency resource management goals and Tribal interests where applicable from Fairview Dam to Kern River Park.



- Hydrology summary
  - Utilizing the hourly gage data compiled as part of WR-2 Hydrology Study Plan, include a summary of the hydrology in the 16-mile Fairview Dam Bypass Reach under impaired and unimpaired conditions, as well as the river segment from KR3 Powerhouse to Kern River Park.
  - The hydrology summary will include discharge frequency, timing, duration, and magnitude. Data will be reported using mean, median, interquartile and range.
- Project facility evaluation
  - Description of Fairview Dam impoundment storage and gate operation.
- Structured interviews:
  - Conduct structured interviews (not to exceed 10) with individuals nominated from the whitewater boating community representative of a range of watercraft, skill levels, and knowledge of the whitewater boating segments from Fairview Dam to Kern River Park as well as commercial and non-commercial backgrounds.
  - The interviews will focus on individual knowledge of the whitewater segments from Fairview Dam to Kern River Park; estimated range of preferred flows for each segment for respective watercraft; document gaps, if any, for estimating range of preferred flows; flow information needs; and use patterns for commercial and non-commercial boaters.

Information obtained in the Level 1 investigation will be used to support and guide the Level 2 Limited Reconnaissance.

## **6.2. LEVEL 2: LIMITED RECONNAISSANCE**

The Level 2 investigation will include a limited reconnaissance site visit with study participants consisting of agency staff and boaters as described in the study guidance in Whittaker et al. (2005). The elements of the Level 2 Limited Reconnaissance are described below.

### Limited Reconnaissance

- Site visit for direct observation of the whitewater boating segments from Fairview Dam to Kern River Park with a group of study participants consisting of agency staff and boaters.
  - The boating community will nominate study participants for the Level 2 Limited Reconnaissance Site Visit. Study participant composition should be representative of a range of watercraft, skill levels and knowledge of the whitewater boating segments in the 16-mile bypass as well as commercial and non-commercial backgrounds. For logistical and safety reasons, the Level 2 Limited Reconnaissance will consist of 6 to 12 individuals.

- Information collected during the Level 2 Limited Reconnaissance may include:
  - Review of information collected in Level 1 to confirm accuracy and revise where necessary based on input from Level 2 study participants and field observations;
  - Preliminary estimates of flow preferences for respective watercraft types for each whitewater segment and potential knowledge gaps in flow preferences based on input from study participants;
  - Information on factors influencing flow preferences for respective whitewater segments based on recommendations from study participants;
  - Recreation use patterns in the river segments from Fairview Dam to Kern River Park, e.g., watercraft use by segment, segments typically combined, preferred segments for respective watercraft types and skill levels, and timing of use per respective whitewater segment (weekday, weekend, time of day);
  - Visits to formal and informal access locations used for respective whitewater segments; and
  - Flow information use and needs:
    - How do boaters currently utilize flow information?
    - How do boaters assess flow conditions on-site for respective whitewater segments, e.g., visual inspection of staff gages, rocks, etc.?
    - What are the whitewater boating community's flow information needs?

The Level 2 Limited Reconnaissance Site Visit coupled with the study participant recommendations will increase the precision of estimated boating flow ranges for respective whitewater segments and watercraft types as well as knowledge of recreation use patterns in the river segments from Fairview Dam to Kern River Park. Information obtained in the Level 1 and Level 2 investigations will be used to support and guide planning and implementation for the Level 3 Intensive Study.

### **6.3. LEVEL 3: INTENSIVE STUDY**

The Level 3 Intensive Study will collect flow preference information directly from whitewater boaters for a variety of watercraft for the respective whitewater segments using a single flow survey for individual trips and a flow comparison survey for a range of flows as described by Whittaker et al. (2005). The single flow survey and flow comparison survey would be similar to other studies conducted by American Whitewater (AW) to collect flow preference information and recreation use patterns on rivers where a controlled flow study is not possible and/or have unpredictable flow conditions (AW, 2017 and 2021).

The lack of storage in the reservoir at Fairview Dam coupled with the uncertainty of the snowmelt hydrograph of the NFKR severely limits the scheduling and flow volume for a controlled flow study. Recommended boating flows in guidebooks and online greatly exceed the capacity of Fairview Dam to provide flows in a controlled flow study format. The online single flow and flow comparison survey resolves the limitations of a controlled

flow study at the Project. The single flow survey and flow comparison survey is not limited to the unpredictable snowpack and associated flows during the Integrated Licensing Process study period. Whitewater boaters can provide input immediately after completing individual boating trips using the single flow survey and complete the flow comparison survey based on their collective experience over the study season including past experiences over a wide range of water year types. Furthermore, the online single flow and flow comparison survey approach greatly expands the pool of study participants regardless of geographic location or schedule. The goal of the survey is to improve the precision for developing flow preference curves for a variety of watercraft types for the respective whitewater segments from Fairview Dam to Kern River Park. In concert with the online survey, and when feasible, SCE will attempt to enhance flows where potential gaps may exist in user experiences of flow conditions. Flow enhancement may include diverting a portion of flow over Fairview Dam to target specific flow ranges where knowledge gaps were identified in Levels 1 and 2 of the study. Enhanced flows will be opportunistic, not scheduled in advance, and subject to available inflows and tunnel flow needs.

SCE will make a good-faith effort to inform the boating community in advance when hydrologic conditions for opportunistic flow enhancements are likely possible. If flows are likely to allow for such enhancement, SCE will reach out to Kern River Boaters, AW, Los Angeles Kayak Club, Dreamflows, and outfitters holding permits with SQF. This is not a guarantee of a particular flow, just an indication that there may be the possibility of flow enhancement within the diverted reach outside the ordinary whitewater release schedule based on forecasted inflows upstream of Fairview Dam. This good faith effort will attempt to give boaters advance notice to plan trips to the river using forecasting technology available to SCE at the time of study to encourage additional boater use at the targeted flows and participation in the single flow survey. Ideally, boaters will be notified 2 to 3 days in advance to plan a trip. However, inflows to the Project are subject to run-off patterns, which are difficult to forecast in advance.

Results from *OPS-1 Water Conveyance Assessment* may become available prior to or during implementation of the Level 3 study. Additional tunnel operations flexibility identified in the OPS-1 study beyond the current license condition may be used to provide flows that satisfy knowledge gaps discovered in Levels 1 and 2.

The elements of the Level 3 Intensive Study are described below.

- A whitewater single flow survey published online.
  - Information collected in Levels 1 and 2 will be used to develop an online single flow survey.
  - The single flow survey will allow respondents to evaluate individual flows shortly after experiencing them. Respondents will be asked name, zip code, date, time, watercraft type, and river segment(s), and to rate the acceptability of the flow using scale in Whittaker et al. (2005). Single flow survey questions will be formatted for viewing on smart phone screens.

- Posters containing the link to the single flow survey including a QR code will be installed at river access locations and distributed to local retailers in Kernville as well as local, regional, and national whitewater boating groups and accessible on the KR3 relicensing website.
- A whitewater flow comparison survey published online.
  - Information collected in Levels 1 and 2 will be used to develop an online whitewater flow comparison survey.
  - The online whitewater flow comparison survey will be designed to obtain information on flow preferences for respective whitewater river segments from Fairview Dam to Kern River Park. Survey questions will ask respondents to rate the acceptability of a range of flows for each whitewater segment and watercraft type, timing of use, preferred whitewater segments, river access locations, flow information needs and comparison with other whitewater opportunities in the Kern River basin. The range of flows presented in comparative flow questions will be based on information gathered in Levels 1 and 2.
  - The link to the online whitewater flow comparison survey will be distributed to local, regional and national whitewater boating groups and accessible on the KR3 relicensing website.
- Whitewater focus group
  - The Level 3 Intensive Study will include a focus group designed to gather information from boaters with direct experience on the whitewater river segments from Fairview Dam to Kern River Park. Focus group questions will prompt discussion on suitable range of flows for a variety of watercraft for each whitewater segment; navigability and whitewater difficulty across a range of flows; preferred whitewater segment(s) from Fairview Dam to Kern River Park; daily, weekly, and seasonal use patterns; flow information needs; river access; safety; other areas of concern; and uniqueness of the whitewater river segments compared to other opportunities in the region.
  - Focus group participants will be identified in advance and nominated collaboratively with the whitewater community. Selection will be based in part on knowledge of whitewater boating opportunities in the Kern River basin and direct experience on the river segments from Fairview Dam to Kern River Park. The focus group will include representation across watercraft types, commercial and non-commercial as well as the local boating community and boaters traveling to paddle on the bypass from outside the North Fork Kern watershed.
- Hydrology analysis
  - Quantify annual number of days of whitewater boating using flow preference curves developed from data collected in the online single flow and flow comparison survey and supplemented with information obtained in focus groups. Analysis will be done for respective watercraft in each whitewater segment under impaired and unimpaired hydrology in Fairview Dam bypass.

Public safety concerns associated with whitewater boating flows will be documented using available information such as the Kernville Chamber of Commerce, SQF, California Department of Boating and Waterways, AW accident database and other Federal Energy Regulatory Commission (FERC) proceedings where whitewater releases occur. Potential measures to mitigate public safety concerns will also be described.

Potential recreation-use conflicts associated with whitewater boating flows will be identified where possible. Recreation uses occurring in and adjacent to the NFKR documented in the *REC-2 Recreation Facilities Use Assessment* study will be integrated into the REC-1 Updated Study Report (USR). Potential flow related conflicts will be described based on REC-2 survey responses. Mitigation measures to minimize recreation conflicts will be identified where appropriate.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an USR no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. The information provided in the ISR and USR will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

Date	Activity
Summer/Fall 2022	Conduct Level 1 Desktop Study
Winter/Spring 2023	Conduct Level 2 Limited Reconnaissance
August 2023	Provide study plan progress, including Level 1 and Level 2 results, and any schedule updates in the Initial Study Report (ISR)
Spring/Summer/Fall 2023	Implement Level 3 Intensive Study
Spring 2024	Continue Level 3 Intensive Study if needed
Fall 2024	Provide Level 3 results in the Updated Study Report (USR)

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The cost estimate (2022 dollars) for the study is \$100,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting for all three Levels.

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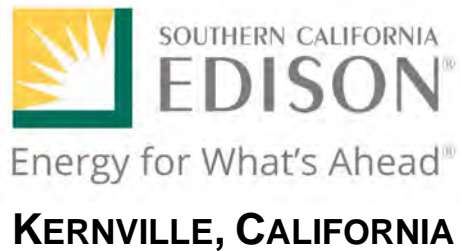
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Whittaker, D., B. Shelby, and J. Gangemi. 2005. *Flows and Recreation: A Guide to Studies for River Professionals*. Washington, DC: Hydropower Reform Coalition and National Park Service Hydropower Recreation Assistance Program.

# **REC-2 RECREATION FACILITIES USE ASSESSMENT STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

Recreation use and opportunities at developed and dispersed<sup>1</sup> recreation sites (i.e., campgrounds, day use facilities, and whitewater boating access locations) along the Fairview Dam Bypass Reach<sup>2</sup> and within the Kern River No. 3 (KR3) Hydroelectric Project (Project) Area.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- Current Project operations may promote use of the Project Area for recreational purposes.
- The study results will be used to document recreation use (e.g., type, volume, and location), assist in the development of recreation use and density estimates, and estimate future Project-related recreational demand and needs for the Project Area.

## 3.0 STUDY GOALS AND OBJECTIVES

The primary goal is to collect information on recreation use within the FERC Project Boundary and along the Fairview Dam Bypass Reach. The objectives of this recreation study are to:

- Evaluate recreation use at recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach, including both an assessment of the amount of recreation use that each site is receiving (including percent of capacity) and the recreation activities that occur at the site.
- Collect visitor feedback regarding their perception and experience at recreation facilities within the study area including but not limited to facility condition, level of crowdedness, angling opportunities, and the scenic landscape.
- Estimate future recreational demand and needs, including the need for additional recreation facilities and access enhancements.
- Assess consistency of current recreation opportunities with the laws, regulations, policies, and guidelines described in the *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988).

## 4.0 STUDY AREA AND STUDY SITES

The North Fork Kern River (NFKR) is an active recreation corridor, with numerous recreation facilities developed by the U.S. Forest Service (USFS) Sequoia National Forest

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<sup>1</sup> Dispersed camping is available free of charge but has little or no amenities such as potable water, picnic tables, or fire pits, and trash or restroom services may only be seasonally available.

<sup>2</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the North Fork Kern River (NFKR) between Fairview Dam and the KR3 Powerhouse trailrace.

(SQF). Two recreation sites within the FERC Project Boundary include Willow Creek Take-Out above the Fairview Dam on USFS lands, and the KR3 Powerhouse Put-in/Take-out downstream of the KR3 Powerhouse on Southern California Edison (SCE)-owned lands. The remaining recreation sites along the Fairview Dam Bypass Reach are on USFS lands located outside the FERC Project Boundary.

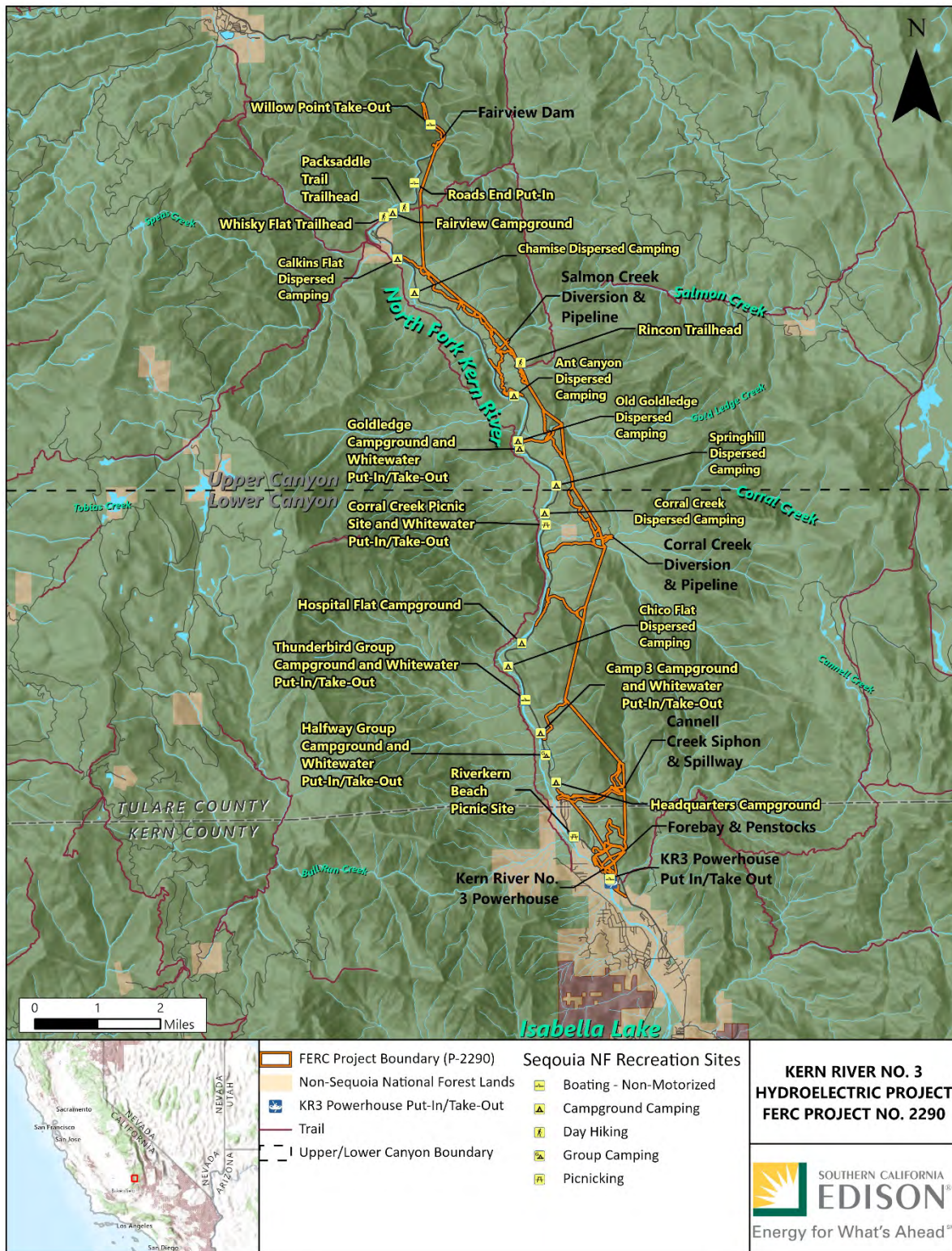
The study area and specific study sites include developed and dispersed campgrounds, day-use areas, river access points and trailheads within the FERC Project Boundary and along the Fairview Dam Bypass Reach. The locations are listed below and shown on Figure 4-1. The recreation study area is sub-divided into 2 areas: Upper Canyon and Lower Canyon.

- **Upper Canyon Recreation Sites**

- Willow Point Whitewater Take-out (developed)
- Roads End Picnic Site and Whitewater Put-in (developed)
- Packsaddle Trail Trailhead
- Fairview Campground (developed)
- Whiskey Flat Trailhead
- Calkins Flat Dispersed Camping
- Chamise Dispersed Camping
- Rincon Trailhead
- Ant Canyon Dispersed Camping
- Old Goldledge Dispersed Camping
- Goldledge Campground and Whitewater Put-in/Take-out (developed)
- Springhill Dispersed Camping

- **Lower Canyon Recreation Sites**

- Corral Creek Picnic Site and Whitewater Take-out (developed)
- Corral Creek Dispersed Camping
- Hospital Flat Campground (developed)
- Chico Flat Dispersed Camping
- Thunderbird Group Campground and Whitewater Put-in/Take-out (developed)
- Camp 3 Campground and Whitewater Put-in/Take-out (developed)
- Halfway Group Campground and Whitewater Put-in/Take-out (developed)
- Headquarters Campground (developed)
- Riverkern Beach Picnic Site (developed)
- KR3 Powerhouse Whitewater Put-in/Take-out (developed)



**Figure 4-1. Recreation Study Sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach.**

## 5.0 EXISTING INFORMATION

The following sources will be used and reviewed when developing this study and when analyzing the survey results:

- *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988)<sup>3</sup>
- *Comprehensive Management Plan—North and South Forks of the Kern Wild and Scenic River* (USFS, n.d.)
- *California’s 2021-2025 Statewide Comprehensive Outdoor Recreation Plan* (CDPR, 2020)
- National Visitor Use Monitoring (NVUM) Reports for SQF<sup>4</sup>
- SQF Concessionaire data

## 6.0 STUDY APPROACH

To accomplish the goals and objectives of this study, SCE is proposing a variety of data collection techniques: (1) compile information on the historical trends (i.e., past 10 years) of recreation use and use patterns in the Project Area, and (2) collect current recreation use data in the study area through visitor use surveys, both in person and online, and spot counts. The combination of historical and current recreation use and use patterns will support analysis on future recreation estimates and needs. A description of each collection technique is provided below.

### 6.1. VISITOR USE SURVEYS

#### 6.1.1. INTERCEPT SURVEY

Visitor intercept surveys will be conducted on-site using a questionnaire (available in both English and Spanish) at the sites identified in Section 4.0 to collect recreation user demographics, activities, perception and experience, feedback (conditions and needs), and socioeconomic data. The data collected will be used to provide a general pattern of recreation use (e.g., type, volume, and location) and assist in the development of recreation use estimates for the Project Area. SCE has developed a questionnaire (see Appendix A of this Study Plan) for use during the visitor intercept surveys.

SCE will conduct visitor intercept surveys on 2 days per month (1 weekday and 1 weekend day) from April to September 2023, and 1 day of each holiday weekend for a total of 15 days throughout the study period. For the purposes of this study, the holidays

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<sup>3</sup> A revised Land Management Plan is currently under development with the SQF and will supersede the 1988 Plan when finalized.

<sup>4</sup> 2021 NVUM data is currently being analyzed by the USFS. A report will be made available once analysis is complete.



include the 3 days of the holiday weekends: Memorial Day (May 28 to 30, 2023); Fourth of July (July 2 to 4, 2023); and Labor Day (September 3 to 5, 2023).

The surveys will be conducted following a bus route method (e.g., Pollack et al., 1994); the shift, the starting recreation site for each circuit, and the direction of travel (i.e., clockwise or counterclockwise) will be selected randomly on the days the surveys are conducted. One visitor intercept survey circuit includes conducting surveys at the recreation sites in either the upper canyon or lower canyon identified in Section 4.0, *Study Area and Study Sites*. There will be three 4-hour shifts: Shift 1 (7 a.m. to 11 a.m.), Shift 2 (11 a.m. to 3 p.m.), and Shift 3 (3 p.m. to 7 p.m.). On each of the 15 survey days, two circuits (one at the upper canyon recreation sites and one at the lower canyon recreation sites) will be completed within a 4-hour shift. SCE anticipates each circuit will take approximately 2 hours. Within each shift, once the first circuit is completed, the second circuit will commence. A survey day is assumed to be an 8-hour period (two 4-hour shifts) occurring between 7 a.m. to 7 p.m. in an attempt to encounter the most recreationists and gather surveys from recreationists exiting in the morning, afternoon, and evening. Calculations for the number of surveys assume an average of four surveys completed per hour.

All survey clerks will be trained thoroughly as a means of quality control. Survey clerks will be provided with detailed information on the study schedule, appropriate materials to aid in data collection, and direction on appropriate interviewing techniques and attire. In the event a recreationist declines to participate in the survey, the survey clerk will offer a hard copy of the survey (in English or Spanish) with the QR code to the recreationist. Instructions will be given as to where they can drop off their completed hard copy survey (if they choose to accept the survey) at their convenience.

#### 6.1.2. ONLINE SURVEY

An online survey option will be made available via a QR code advertised at all sites identified in Section 4.0, *Study Area and Study Sites*, in addition to posting a link to the survey on the Project relicensing website. The QR code will be posted for a 12-month period (approximately from April 2023 to March 2024) in order to capture visitor use through the shoulder seasons (fall/spring) and winter season.

The online survey will collect recreation user demographics, activities, perception and experience, feedback (conditions and needs), and socioeconomic data. The data collected will be used to document recreation use (e.g., type, volume, and location) and assist in the development of recreation use estimates for the Project Area, similar to the visitor intercept surveys.

### 6.2. SPOT COUNTS

Spot counts will be conducted at each recreation site identified in Section 4.0. During each spot count, the following information will be recorded: date, time, weather conditions, number of vehicles observed at the site, license plant (state of origin), number of visitors

observed at the site, and type of recreation activities observed. SCE has developed a spot count form (see Appendix B of this Study Plan) for use during the spot counts.

SCE will conduct spots counts 2 days per month (1 weekday and 1 weekend day) from April 2023 to March 2024, and 1 day of each holiday weekend for a total of 27 days throughout the study period. For the purposes of this study, the holidays include the 3 days of the holiday weekends: Memorial Day (May 28 to 30, 2023); Fourth of July (July 2 to 4, 2023); Labor Day (September 3 to 5, 2023). One circuit includes conducting spot counts at each of the sites identified in Section 4.0. There will be three 4-hour shifts: Shift 1 (7 a.m. to 11 a.m.), Shift 2 (11 a.m. to 3 p.m.), and Shift 3 (3 p.m. to 7 p.m.). On each of the 27 spot count days, two circuits will be completed within a 4-hour shift and two 4-hour shifts will be randomly selected, resulting in 4 circuits per day. The spot counts will be conducted following a bus route method (e.g., Pollack et al., 1994); the shift, the starting recreation site for each circuit, and the direction of travel (i.e., clockwise or counterclockwise) will be selected randomly on the days the spot counts are conducted.

## **7.0 REPORTING**

The following sections provide a description of the approach to estimating existing and future recreational use, recreation site capacity and use density percentages, and recreation needs. A report will be prepared documenting the analysis results and will include a summary of all collected information and discussion of the analyses described below. The report will address all applicable laws, regulations, policies, and guidelines of the *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988).

### **7.1. CURRENT RECREATION USE AND DENSITY ESTIMATES**

Average recreation use will be calculated using data collected from the visitor intercept surveys, online surveys, and spot counts. Recreation user day estimates based on vehicle counts will use an average party size of 2.4 people per vehicle, per the SQF's most recent NVUM report (USFS, 2018). Estimates will be categorized by site; site type; and activity based on weekday, weekend, holiday, morning, afternoon, or evening use, as well as by monthly total use.

For the purposes of this study, the carrying capacity for a recreation site is defined as the number of vehicles that can be parked at a recreation site at one time, based on the number of available parking spaces associated with the particular site. For paved parking lots, this will be achieved by counting the number of designated parking spaces available at the recreation site. For unmarked parking, maximum vehicle space will be estimated. Peak and average use density at each site will be estimated based on the average number of vehicles observed divided by the parking capacity of that site.

### **7.2. FUTURE RECREATION USE ESTIMATES**

Estimated projections of future recreation use will be developed using the average annual increase in population growth over the past 10 years, as reported by the U.S. Census Bureau. These estimates will be augmented with discussion of trends reported in *California's 2021-2025 Statewide Comprehensive Outdoor Recreation Plan* (CDPR,

2020); 2006, 2011, 2016, and 2021 (when available) NVUM reports for SQF (USFS, 2006, 2011, 2018), and the *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988). Estimated projections will be provided in 10-year intervals for the anticipated term of the license up to 50 years into the future.

While it is acknowledged that future changes in the supply of recreation resources either in their quantity, accessibility, and/or quality may influence future demand and use, the demand analysis undertaken for this study does not attempt to predict future changes or how they might specifically affect levels of use at Project facilities. Therefore, the demand analysis results should be viewed as a general guide of potential future recreation pressure developed for planning purposes only.

### 7.3. RECREATION NEEDS ASSESSMENT

Estimates of future Project-related recreational demand and needs will rely on the results provided by the recreation use assessment and visitor surveys for user preferences and opinions on needs and crowding.

The need for new recreation opportunities, new site development, or modification of existing recreation resources will be assessed based on the results of site capacity estimates and user surveys that provide user preferences and opinions on needs and crowding at each site and the Project as a whole.

SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

### 8.0 SCHEDULE

SCE is proposing to conduct this study as outlined below.

Date	Activity
Fall 2022–Spring 2023	Consult with the USFS to review visitor intercept survey and online survey
Summer 2023	Conduct on-site recreation visitor intercept surveys
Spring 2023– Spring 2024	Conduct online recreation user surveys and spot counts
August 2023	Provide overall study plan progress and schedule update with ISR

Date	Activity
Spring/Summer 2024	Analyze data and prepare Technical Memo
August 2024	Provide Technical Memo with USR

ISR = Initial Study Report; USFS = U.S. Forest Service; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$200,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

CDPR (California Department of Parks and Recreation). 2020. *California’s 2021–2025 Statewide Comprehensive Outdoor Recreation Plan*. California Department of Parks and Recreation, Sacramento, CA.

Pollack, K.H., C.M. Jones, and T.L. Brown. 1994. “Angler Survey Methods and Their Applications in Fisheries Management.” *American Fisheries Society Special Publication 25*. American Fisheries Society, Bethesda, MD.

SCE (Southern California Edison). 1997. *Recreation Plan*. FERC Project No. 2290. Rosemead, CA.

USFS (U.S. Forest Service). 1988. *Sequoia National Forest Land and Resource Management Plan*. U.S. Department of Agriculture, Forest Service, Sequoia National Forest. March 1988. Accessed: July 2022. Available online: [https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5400303.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5400303.pdf).

\_\_\_\_\_. 2006. Visitor Use Report, Sequoia NF, USDA Forest Service, Region 5, National Visitor Use Monitoring Data collected FY 2006. United States Department of Agriculture.

\_\_\_\_\_. 2011. Visitor Use Report, Sequoia NF, USDA Forest Service, Region 5, National Visitor Use Monitoring Data collected FY 2011. United States Department of Agriculture.

\_\_\_\_\_. 2018. Visitor Use Report, Sequoia NF, USDA Forest Service, Region 5, National Visitor Use Monitoring Data collected FY 2016. United States Department of Agriculture.

\_\_\_\_\_. No Date. *Comprehensive Management Plan—North and South Forks of the Kern Wild and Scenic River*. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, Sequoia and Inyo National Forests. Accessed: May 2020. Available online: <https://www.rivers.gov/documents/plans/kern-plan.pdf>.



**APPENDIX A**  
**VISITOR INTERCEPT SURVEY QUESTIONNAIRE**

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**Recreation User Survey  
Kern River No. 3 Hydroelectric Project (FERC No. 2290)**

***To be filled out by survey technician***

**Clerk:** \_\_\_\_\_ **Site:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Time:** \_\_\_\_\_ **a.m./p.m.**

**Weather:**  **Sunny**       **Partly Cloudy**       **Cloudy**       **Light Rain**        
**Heavy Rain**

**RESPONDENT REFUSED INTERVIEW:**

**NUMBER OF PEOPLE IN VEHICLE:** \_\_\_\_\_

**RESPONDENT'S PRIMARY LANGUAGE:** \_\_\_\_\_

**VEHICLE HAS WATERCRAFT RACK:**

**RESPONDENT HAS BEEN INTERVIEWED AT THIS SITE PREVIOUSLY:**

Introduction: Good Morning/Afternoon. My name is \_\_\_\_\_ and I am surveying visitors at the (SITE LOCATION) on behalf of Southern California Edison to collect information on recreation use in the area surrounding the Kern River No. 3 Hydroelectric Project (share map to show area described) and would like to obtain your feedback about your current visit and recreation experience. Your input will help us to better understand recreation use and needs in the area.

Any information you provide us today will remain anonymous. The survey will take approximately 10 to 15 minutes, would you mind answering some survey questions?

## Section 1 – Demographics

1. What is your home zip code? \_\_\_\_\_
  
2. How far did you travel to get to this site today?  
 0–25 miles    26–50 miles    51–75 miles    76–100 miles    101+ miles
  
3. What is your age?  
 Under 16    16–19    20–29    30–39    40–49    50–59    60–69    70+
  
4. Including yourself, how many people 18 or older are in your party today?  
\_\_\_\_\_ people in party
  
5. How many people under 18 are in your party today?  
\_\_\_\_\_ people in party

---

**Section 2 – User Activities**

6. What day did you arrive at this recreation site?  
\_\_\_\_\_
7. How many days have you been on this recreation trip, including today?  
\_\_\_\_\_ day(s)
8. How many total days do you expect your trip to last?  
\_\_\_\_\_ day(s)
9. How many recreation trips have you made to the area between the Fairview Dam and the Kern River No. 3 Powerhouse in the past 12 months?  
\_\_\_\_\_ trip(s) in the last 12 months
10. In the last 12 months, have you visited the area between the Fairview Dam and the Kern River No. 3 Powerhouse more, less, or about the same as you normally would?  
(Circle one)

**MORE**

**ABOUT THE SAME**

**LESS**

- a. What is the primary reason for the answer you gave?  
\_\_\_\_\_
11. What was your primary reason for selecting this location?  
\_\_\_\_\_

12. What is the primary recreation activity that you participated in today at this recreation site? *(Please read the list to respondents. Check only one main activity in the first column.)* What other activities did you participate in today at this recreation site? *(Check all that apply in the second column.)*

Check only <u>one</u> main activity	Check all other activities	Types of Activities
<input type="checkbox"/>	<input type="checkbox"/>	a. biking
<input type="checkbox"/>	<input type="checkbox"/>	b. camping
<input type="checkbox"/>	<input type="checkbox"/>	c. fishing
<input type="checkbox"/>	<input type="checkbox"/>	d. hiking/walking/trail use
<input type="checkbox"/>	<input type="checkbox"/>	e. white water boating/rafting
<input type="checkbox"/>	<input type="checkbox"/>	f. boating (non-motorized)
<input type="checkbox"/>	<input type="checkbox"/>	g. Photography
<input type="checkbox"/>	<input type="checkbox"/>	h. picnicking
<input type="checkbox"/>	<input type="checkbox"/>	i. relaxing
<input type="checkbox"/>	<input type="checkbox"/>	j. scenic driving
<input type="checkbox"/>	<input type="checkbox"/>	k. viewing scenery
<input type="checkbox"/>	<input type="checkbox"/>	l. viewing wildlife
<input type="checkbox"/>	<input type="checkbox"/>	m. other:

[Ask Q 13–15 only if respondent selects c. fishing]

13. Are you fishing for fun or to catch food to eat (circle one)? If you are planning to eat your fish but are mostly fishing for fun, please choose fun. If you enjoy fishing, but are mostly fishing to catch food, please choose food.

**Food**

**Fun**

14. What was your primary reason for selecting this location to fish?

---

15. Have you fished along this reach of the river before? YES NO

If yes, how often have you fished this reach in each season over the past 12 months?

- b. Spring (March-May) # \_\_\_\_\_
- c. Summer (June-August) # \_\_\_\_\_
- d. Fall (September-November) # \_\_\_\_\_
- e. Winter (December-February) # \_\_\_\_\_

[Ask Q 16–18 only if respondent selects: g. photography, j. scenic driving, k. viewing scenery, or l. viewing wildlife]

16. What are the scenic features that most attracted you to this area? Provide top 1 or 2.

---

17. Over the past 12 months, how often have you visited the area to partake in these activities?

- f. This is my first time \_\_\_\_\_
- g. Spring (March-May) #\_\_\_\_\_
- h. Summer (June-August) #\_\_\_\_\_
- i. Fall (September-November) #\_\_\_\_\_
- j. Winter (December-February) #\_\_\_\_\_

18. On a scale of 1-5, with 1 being very poor and 5 being very good, how would you rate the scenic quality of the area?      **1**      **2**      **3**      **4**      **5**

k. If you selected a 1 or 2, please explain:

---

**Section 3 – User Perception and Experience**

19. How would you rate your overall satisfaction or dissatisfaction with your recreation experience today on a 1-5 scale, with 1 indicating very dissatisfied and 5 indicating very satisfied? If not applicable, check N/A. Next, rate the importance of each item to the overall quality of your recreation experience on this trip in the far-right column, with 1 being unimportant and 5 being very important:

	1 Very Dissatisfied	2 Dissatisfied	3 Neutral	4 Satisfied	5 Very Satisfied	N/A	Importance (1–5)
1. Overall satisfaction of your trip							
2. Satisfaction of your primary activity, as noted above							
3. Cost of facility access fees							
4. River access							
5. Number of people encountered/crowdedness							
6. Available parking when you arrived							
7. Feeling of safety							
8. Disability access							
9. Scenery at this site/area							
10. Maintenance of facilities							
11. Cleanliness of facilities							
12. Access to restroom/shower/drinking water							
13. Interpretive/educational opportunities							
14. Flows in the river							



- a. If you marked a 1 or 2 for any of the items listed above, please explain.

---

---

20. If you participated in a water-related activity, did the flows in the NFKR affect your ability participate?

Yes (select one): flow was too high flow was too low other (explain)

No, flow did not affect planned activities

NA-did not partake in water-related activity

#### Section 4 – User Feedback

21. Are there any improvements that you would recommend for this site?

YES

NO *(If no, skip to Question 18.)*

- a. What improvements do you recommend?

---

22. Are there any additional recreation facilities needed in the area between the Fairview Dam and the Kern River No. 3 Powerhouse?

---

23. Do you have any additional comments about this recreation site, including comments on existing or needed recreation facilities? (Please be as specific as possible.)

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#### Section 5 – Socioeconomics

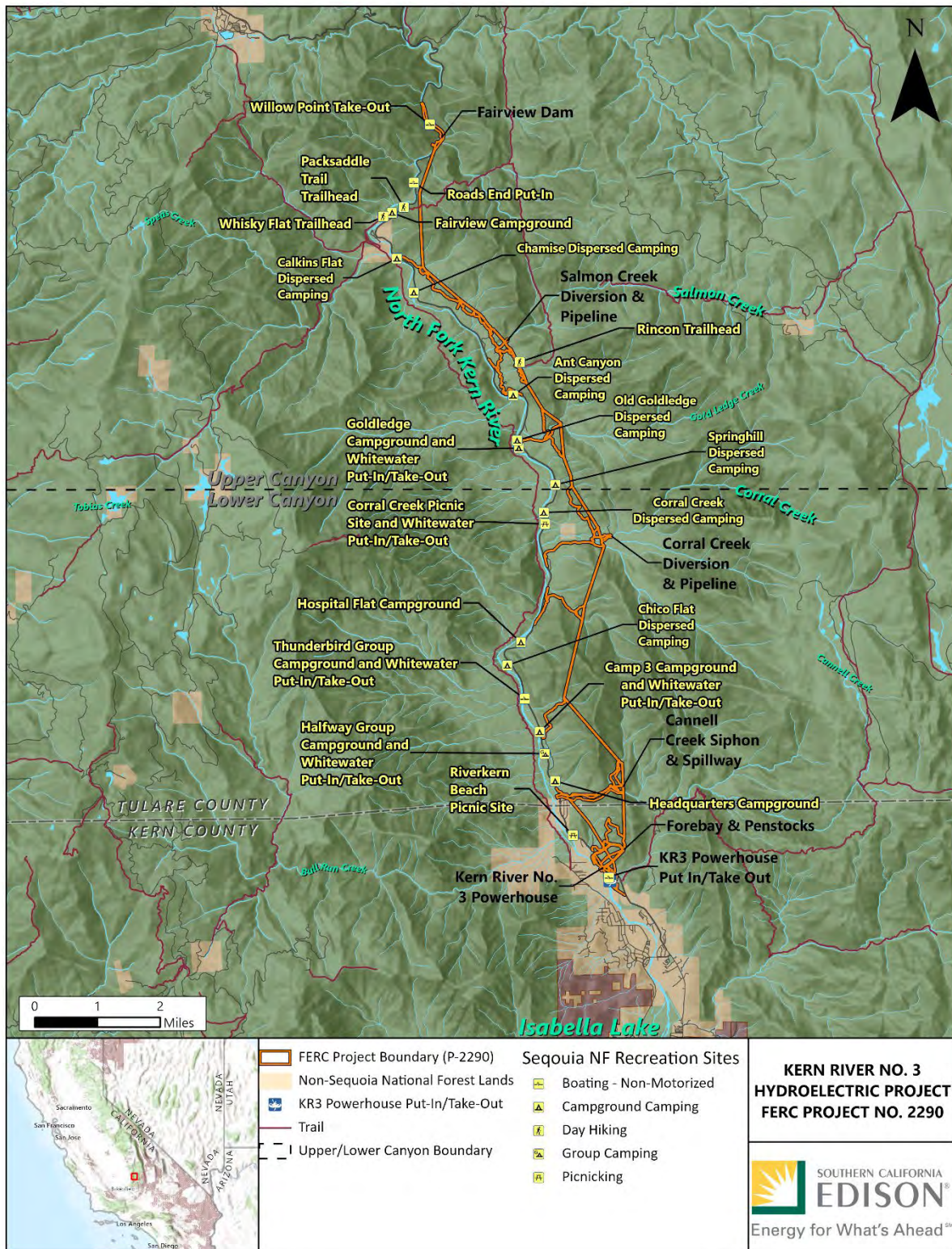
This portion of the survey will ask about your expenditures for your recreation trip. These questions will be used to help estimate how recreation spending contributes to the local community, businesses, and economy. Your answers will be kept confidential.

For these questions, please include anything you bought or expect to buy in the local area during this trip. By local area, I mean areas and towns within 50 miles of here, including Johnsondale, Roads End, Kernville, Wofford Heights, Mountain Mesa, Lake Isabella, South Lake, Weldon. Please do not include expenditures at any other locations outside this area.

If there is more than one person in the party: Please provide the total cost for your party, even if someone else paid for you, or you paid for someone else.

24. For your whole trip, how much do you expect to spend in the local area on each of the following things? Please include any purchases you expect to make before you go home.
- a. (read only if on a multiple day trip) Lodging at hotels, motels, lodges?  
\$ \_\_\_\_\_
  - b. (read only if on a multiple day trip) Lodging at cabins, bed and breakfasts, campgrounds, Airbnbs, etc.?  
\$ \_\_\_\_\_
  - c. Food and drink at restaurants and bars?  
\$ \_\_\_\_\_
  - d. Food and drink at grocery stores?  
\$ \_\_\_\_\_
  - e. Food and drink at gas stations or convenience stores?  
\$ \_\_\_\_\_
  - f. Gas? As a reminder, please include any purchases you expect to make before you go home.  
\$ \_\_\_\_\_
  - g. Vehicle rentals—car, SUV, camper or RV, truck, trailer, or ATV?  
\$ \_\_\_\_\_
  - h. Local transportation—buses, shuttles, car service such as Uber?  
\$ \_\_\_\_\_
  - i. Entry, parking, permit or recreation use fees?  
\$ \_\_\_\_\_
  - j. Guide fees, pack trip fees, or outfitter costs? This includes costs for guided white water rafting trips, outdoor adventure trips, horseback riding, etc.  
\$ \_\_\_\_\_
  - k. Equipment rentals, such as boats, bikes, camping equipment, etc.?  
\$ \_\_\_\_\_
  - l. Sporting goods purchases for use on your trip, such as equipment for camping, hunting, boating, hiking, fishing, etc?  
\$ \_\_\_\_\_
  - m. Souvenirs, clothing, and other miscellaneous purchases?  
\$ \_\_\_\_\_
  - n. Any other costs that I haven't asked about? (list amount and what was purchased)  
\$ \_\_\_\_\_

**THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY.**



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**APPENDIX B**  
**SPOT COUNT FORM**

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Date \_\_\_\_\_ Temp \_\_\_\_\_ Observer Initials \_\_\_\_\_  
 Weather Sunny Part Cloudy Cloudy Light Rain Heavy Rain (Note any weather changes during site visits)

Site Location	Time Hour/Min AM or PM	No. of Vehicles	Vehicle State Origin	Type/Number of Boat(s) <sup>a</sup>			No. of People Participating In											Total No. of People at Site	Comments/ General Description			
				Individual Kayak	Commerci- al Boat	Other Watercraft	Biking	Camping	Fishing	Hiking/wal- king/trail use	White- water boating/r- afting	Boating (non- motorized)	Photography	Picnicking	Relaxing	Viewing Scenery	Viewing Wildlife			Other		

<sup>a</sup>as observed from water's edge approximately 50-100 feet upstream and downstream  
 Contact Information:  
 Additional notes/comments:

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# **REC-3 RECREATION FACILITY CONDITION ASSESSMENT STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



Energy for What's Ahead®

**KERNVILLE, CALIFORNIA**

July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

This study will evaluate the condition of and public accessibility to existing recreation facilities, as specified in Section 4.0, *Study Area and Study Sites*.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

The Federal Energy Regulatory Commission (FERC) established seven criteria (Code of Federal Regulations, Title 18, Section 5.9(b)) as part of the study request process. Criterion five instructs study proponents to explain the nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

The North Fork Kern River (NFKR) is an active recreation corridor, with numerous recreation facilities developed by the U.S. Forest Service (USFS) Sequoia National Forest (SQF). Two recreation sites within the FERC Project Boundary include Willow Creek Take-Out, located above the Fairview Dam on USFS lands, and the KR3 Powerhouse Put-in/Take-out, located downstream of the KR3 Powerhouse on Southern California Edison (SCE)-owned lands. The remaining recreation sites along the Fairview Dam Bypass Reach<sup>1</sup> are not located within or adjacent to the FERC Project Boundary.

As most of the Project and the majority of the recreation sites listed herein are on SQF lands, this study will be used to supplement information to support of SQF's recreation management directions. Management activities on National Forest System Lands are performed in accordance with the National Forest Management Act (Public Law No. 94-588 [1976]); *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988), and as amended in 1990 by the *Sequoia National Forest Land Management Plan Mediated Settlement Agreement* (USFS, 1991), and by the 2004 *Sierra Nevada Forest Plan Amendment* (USFS, 2004), commonly referred to as the 2004 Framework.

The Fairview Dam Bypass Reach down to the Kern/Tulare County Line is located within the Kern Wild and Scenic River and managed under the North and South Forks of the Kern Wild and Scenic River Comprehensive Management Plan (USFS, nd). The Fairview Dam Bypass Reach is located within the Kern Wild and Scenic River with an opportunity class of "Recreation." Management emphasis is to provide a variety of recreation opportunities that are compatible with a Wild and Scenic River "Recreation" designation. Roads and trails will be maintained for resource protection, user safety, and convenience. The information obtained from this study will support SQF's analysis in accordance with Section 7(a) requirements (Code of Federal Regulations, Title 36, Section 297.4).

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<sup>1</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse trailrace.

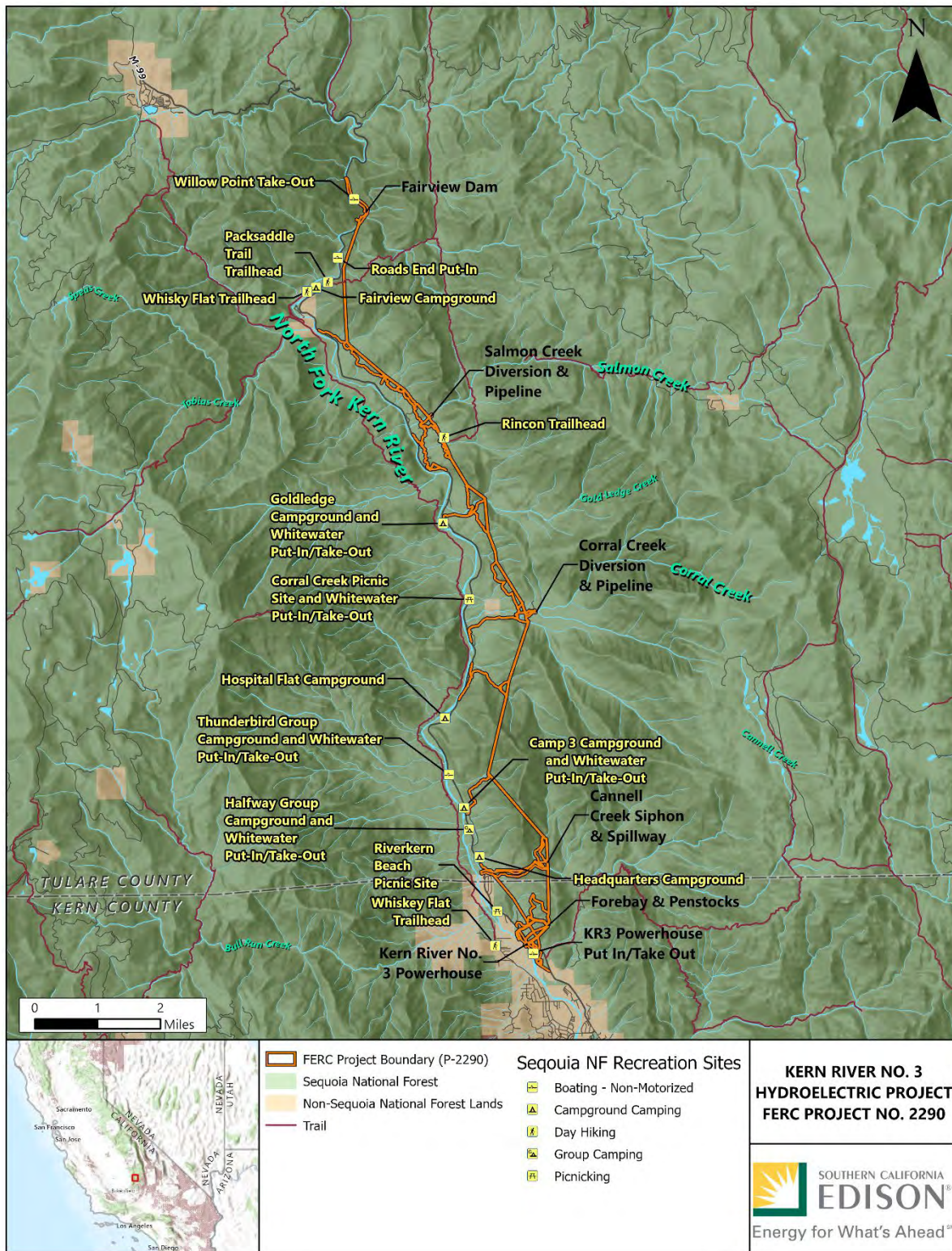
### **3.0 STUDY GOALS AND OBJECTIVES**

- Conduct a facility inventory and condition assessment at existing recreation facilities and associated parking areas, including an evaluation of signage and public safety features.
- Assess the condition and potential for universal accessibility, where feasible.
- Identify existing dispersed recreation sites, including documentation of existing conditions.

### **4.0 STUDY AREA AND STUDY SITES**

The study area and specific study sites will be focused on developed campgrounds, day-use areas, trailheads, and river access points within the FERC Project Boundary and along the Fairview Dam Bypass Reach. The locations are listed below and shown on Figure 4-1.

- Willow Point whitewater take-out
- Roads End whitewater put-in
- Fairview Campground
- Goldledge Campground and whitewater put-in/take-out
- Corral Creek Picnic Site and whitewater take-out
- Hospital Flat Campground
- Thunderbird Group Campground and whitewater put-in/take-out
- Camp 3 Campground and whitewater put-in/take-out
- Headquarters Campground
- Riverkern Beach Picnic Site
- KR3 Powerhouse whitewater put-in/take out
- Halfway Group Campground and whitewater put-in/take-out
- Rincon Trail trailhead
- Whiskey Flat trailhead
- Packsaddle Trail trailhead



**Figure 4-1. Recreation Study Sites within the FERC Project Boundary or along the Fairview Dam Bypass Reach.**

## **5.0 EXISTING INFORMATION**

The following sources will be utilized and reviewed when developing this study and when analyzing the results:

- *Sequoia National Forest Land and Resource Management Plan* (USFS, 1988)<sup>2</sup>
- *Comprehensive Management Plan—North and South Forks of the Kern Wild and Scenic River* (USFS, n.d.)
- *2021-2025 Statewide Comprehensive Outdoor Recreation Plan* (California State Parks, 2020)
- National Visitor Use Monitoring (NVUM) Reports for SQF<sup>3</sup>
- SQF Concessionaire data

## **6.0 STUDY APPROACH**

### **6.1. DISPERSED RECREATION SITE ASSESSMENT**

A dispersed recreation site assessment will be conducted within the FERC Project Boundary and along the Fairview Dam Bypass Reach. This study will collect information using data sheets designed to provide an inventory of dispersed campsites and parking areas at the following areas (Figure 6-1):

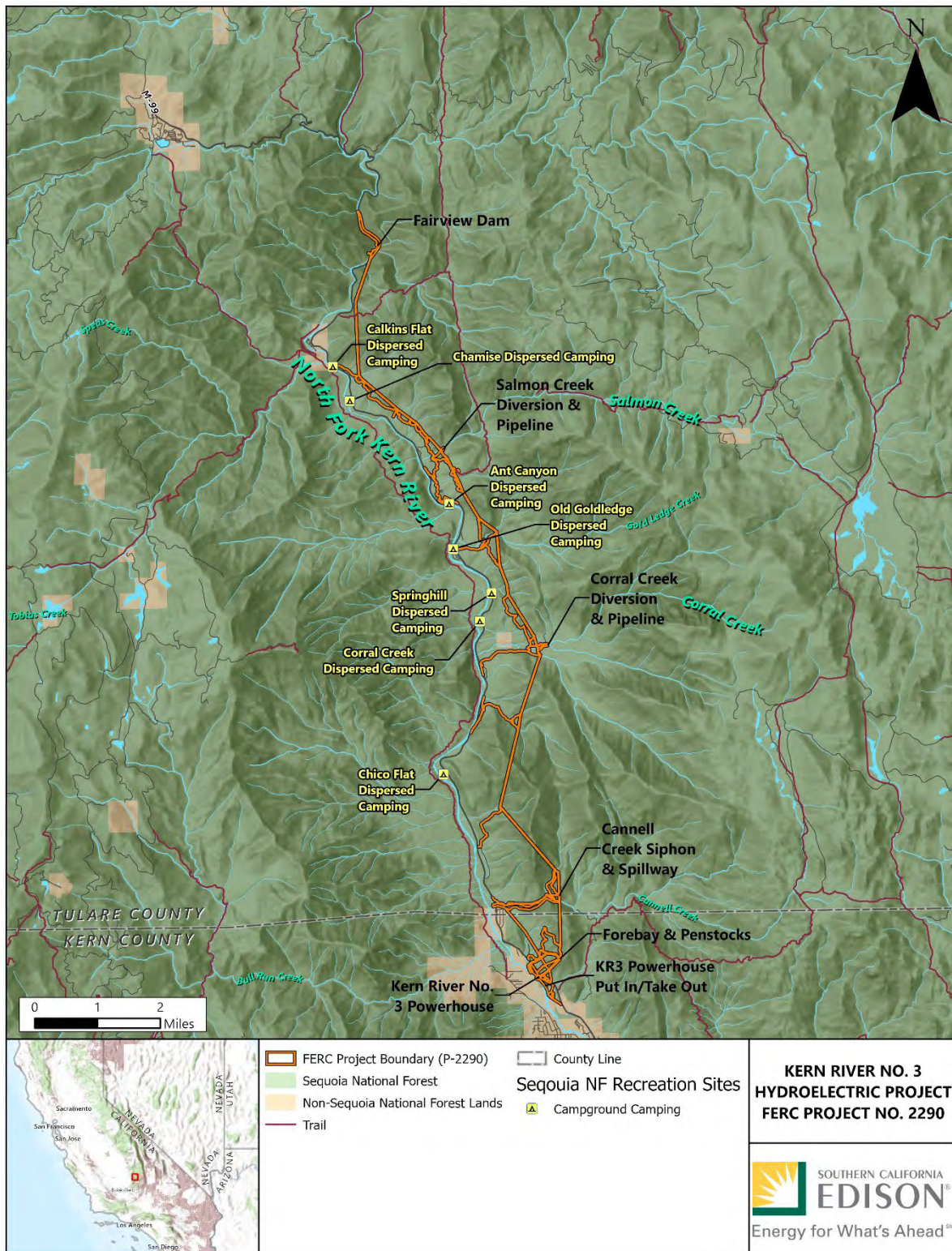
- Chico Flat dispersed campground
- Corral Creek dispersed campground
- Spring Hill dispersed campground
- Old Goldledge dispersed campground
- Ant Canyon dispersed campground
- Chamise Flat dispersed campground
- Calkins Flat dispersed campground

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<sup>2</sup> A revised Land Management Plan is currently under development with the SQF and will supersede the 1988 Plan when finalized.

<sup>3</sup> 2021 NVUM data is currently being collected by the USFS and will be analyzed once available.





**Figure 6-1. Dispersed Recreation Sites within the FERC Project Boundary or along the Fairview Dam Bypass Reach.**

Dispersed use will be documented with photographs and integrated into a geographic information system (GIS) database with relevant attributes (e.g., spatial location, number of fire rings, or length of roads or trails) to facilitate future analysis and ongoing assessment. Additional qualitative information will be collected, including potential issues or possible accommodations or future recreation opportunities at the sites.

A report will be prepared documenting the findings of this study. The report will include the collected information, summarized in a narrative to include all observations and a visual representation of the observed dispersed use. The report will discuss findings in relation to the laws, regulations, policies, and guidelines of *Sequoia National Forest land and Resource Management Plan* (USFS, 1988), as applicable.

## 6.2. FACILITY INVENTORY AND CONDITION ASSESSMENT

A facility inventory and condition assessment will be performed on the recreation sites as indicated in Section 4.0 above. SCE will consult with the SQF to develop appropriate methods and forms for the field assessment. Generally, the study will include an inventory and cursory condition assessment of the following within the study area:

- General assessment of the condition of facilities;
- Universal accessibility of facilities;
- Public safety measures;
- Signage and wayfinding; and
- Site-specific circulation roads, campsite spurs, and parking areas.

The survey will document any items in need of correction, repair, replacement, or similar action, noting facility condition according to Table 6-1. All inventories will be documented with photographs and integrated into a GIS database with relevant attributes to facilitate future analysis and ongoing assessments.

**Table 6-1. Facility Condition Rating Table**

ID	Category	Description
N	Needs replacement	Facility is non-functional or has broken or missing components
R	Needs repair	Facility has structural damage or is in an obvious state of disrepair
M	Needs maintenance	Facility needs maintenance, such as cleaning or painting
G	Good condition	Facility is functional and well maintained

A report will be prepared documenting the findings of this study. The report will include an inventory and assessment of the selected site facilities (see Section 4.0) and appurtenant features, including applicable maps and illustrations. The report will discuss



findings in relation to the Desired Conditions, Goals, Standards, and Guidelines of the *Sequoia National Forest land and Resource Management Plan* (USFS, 1988), as applicable.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Standard GIS shapefiles, including metadata, will be provided to relevant agencies upon request. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

SCE is proposing to conduct this study during 1 study year as outlined below.

Date	Activity
Summer 2022	Consult with SQF to review field inventory forms
Fall 2022	Conduct dispersed recreation site assessment and facility inventory and condition assessment
Winter 2022/2023	Analyze data and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report; SQF = Sequoia National Forest

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$40,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

California State Parks. 2020. *2021-2025 Statewide Comprehensive Outdoor Recreation Plan*.

USFS (U.S. Forest Service). No Date. *Comprehensive Management Plan*. North and South Forks of the Kern Wild and Scenic River. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, Sequoia and Inyo National Forests. Accessed: May 2020. Available online:  
<https://www.rivers.gov/documents/plans/kern-plan.pdf>.

\_\_\_\_\_. 1988. *Sequoia National Forest Land and Resource Management Plan*. U.S. Department of Agriculture, Forest Service, Sequoia National Forest. March 1988. Accessed: June 2020. Available online:  
[https://www.fs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb5400303.pdf](https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5400303.pdf).

\_\_\_\_\_. 1991. *Sequoia National Forest Land Management Plan Mediated Settlement Agreement (MSA)*. Porterville, CA: Sequoia National Forest

\_\_\_\_\_. 2004. *Sierra Nevada Forest Plan Amendment*. Final Environmental Impact Statement and Record of Decision. Vallejo, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Region.

# **CUL-1 CULTURAL RESOURCE STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

Southern California Edison (SCE) Company, along with a Technical Working Group (TWG) of Stakeholders including the federal land-managing agency, Sequoia National Forest (SQF), Tribes, and other interested parties, identified the need to conduct cultural resource studies including archaeological, built environment, and Tribal resources study. This Study Plan details the study objectives, study area, methods, and schedule for the non-American Indian Traditional Cultural Properties (TCPs), archaeological and built-environment cultural resource studies. Native American TCPs will be considered within the *TRI-1 Tribal Resource Study Plan*.

Several terms used throughout this Study Plan warrant definition at the outset.

- **Historic Property(ies)**, as defined in the Code of Federal Regulations, Title 36, Subpart 800.16(l)(1) [36 CFR 800.16(l)(1)], are prehistoric or historic archaeological sites, buildings, structures, objects, or districts included in or eligible for inclusion in the National Register of Historic Places (NRHP). Historic properties are identified through a process of evaluation against specific NRHP criteria in 36 CFR § 60.4.
- **A District** is a geographic area containing a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan and physical development. Examples of districts include (but are not limited to) prehistoric archaeological site complexes, hydroelectric projects, residential areas, commercial zones, mining complexes, transportation networks, rural villages, canal systems, irrigation systems, or large ranches (NPS, 1997).
- **Cultural Resource(s)**, for the purpose of this document, is used to discuss any prehistoric or historic-period district, site, building, structure, object, landscape, TCP, or TCR, regardless of its National Register eligibility.

There may be any number of cultural resources in the Project Vicinity. Some of these resources may be eligible for the NRHP (i.e., historic properties).

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

The Federal Energy Regulatory Commission (FERC) decision to issue a new license is considered an “undertaking” pursuant to 36 CFR 800.16(y). The National Historic Preservation Act (NHPA) requires federal agencies to take into account the effect of undertakings on historic properties and allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment.

Continued Project Operation and Maintenance and other activities, including public recreation activities, may have an effect on historic properties. The effect may be direct (e.g., result of ground-disturbing activities), indirect (e.g., public access to Project areas), or cumulative (e.g., caused by a Project activity or public access in combination with other past, present, and reasonably foreseeable future projects). This study focuses on these potential Project effects to historic properties.

For historic properties, appropriate study areas are defined by regulations under 36 CFR 800 as the Area of Potential Effects (APE). The APE for the Project is further defined in Section 4.0, *Extent of Proposed Study Area and Study Sites*, of this Study Plan. The following will be assessed during the archaeological and built environment surveys:

- Are the impacts due to the presence of the Project? Impacts to NRHP-eligible resources or resources with associated Tribal values may include but are not limited to ground disturbance due to driving or excavation; erosion from higher flows; changes to a landscape viewshed; changes to a built environment feature.
- Are the impacts direct, indirect, and/or cumulative?
- If impacts are a result of the presence of the Project, how will they be addressed?

Data collected during this study will inform the following:

- Cultural Resource Technical Reports (CUL-1) for archaeological and built-environment resources.
- Cultural Resource Evaluation Reports for archaeological and built-environment resources.
- Historic Properties Management Plan (HPMP) for archaeological and built-environment resources as well as resources with associated Tribal values.

### **3.0 STUDY GOALS AND OBJECTIVES**

The cultural resource study goals and objectives include the following:

- Meet FERC compliance requirements under in its regulations (18 CFR Part 5) and Section 106 of the NHPA, as amended, by determining if Project-related activities and public access will have an effect on historic properties.
- Identify archaeological resources, built-environment resources, and TCPs within the APE, determine which are historic properties, and develop the HPMP based on those results.
- Ensure that future Project facilities and operations are consistent with the cultural resources management goals of the Sequoia National Forest (SQF).

### **4.0 STUDY AREA AND STUDY SITES**

The cultural resource studies will focus upon the FERC Project Boundary, the proposed APE, and a larger Study Area proposed to be a 0.5-mile radius around the proposed APE. This Study Area is a guide for archival research, development of the historic context and background statements (Figure 5-1).

## 5.0 EXISTING INFORMATION

### 5.11. SUMMARY OF RECORD SEARCHES ARCHIVAL RESEARCH

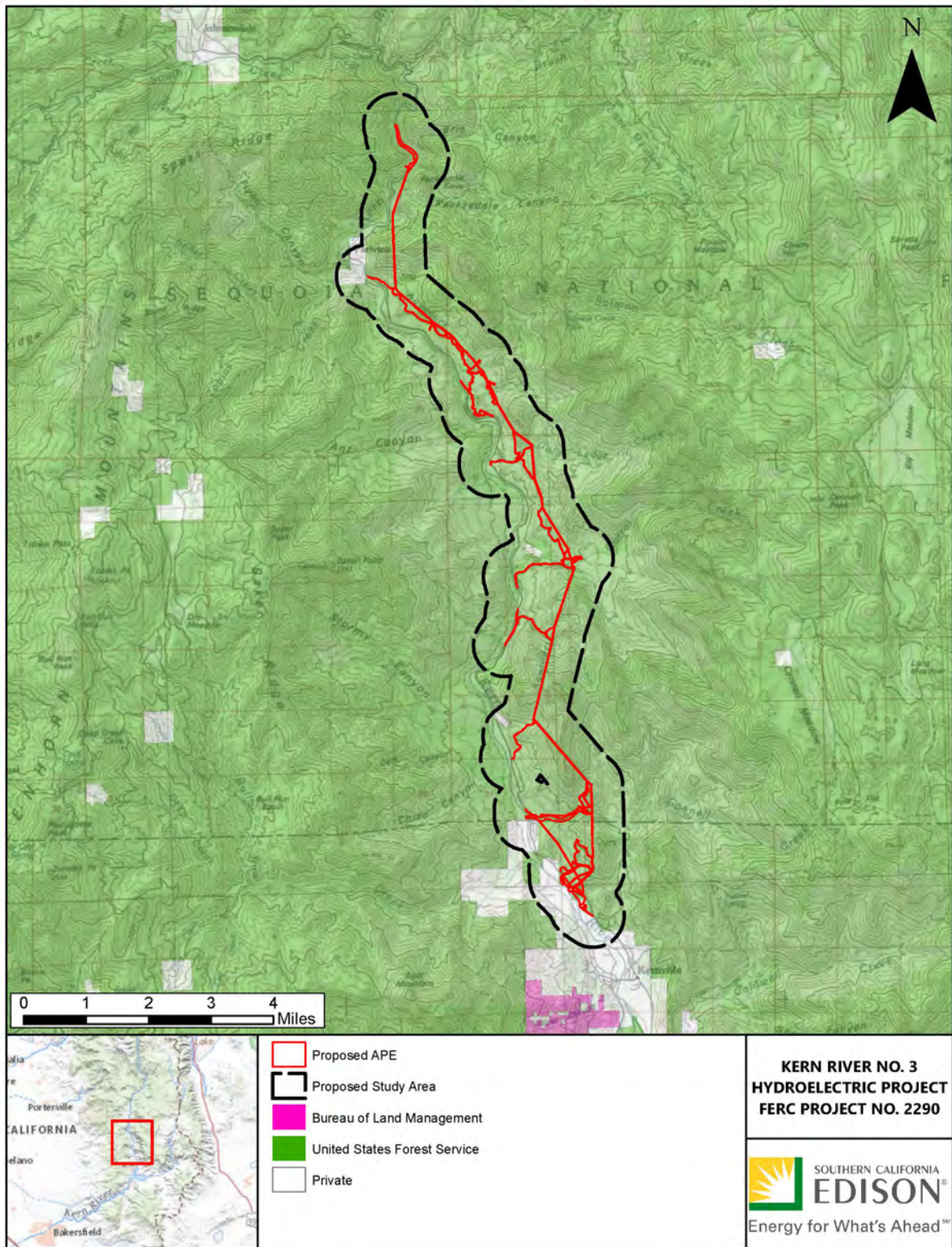
The cultural resources section of the Pre-Application Document (PAD) was developed using information obtained from the SCE archives, the Sierra National Forest, and the California Historical Resources Information System (CHRIS), Southern San Joaquin Valley Information Center (SSJVIC), California State University, Bakersfield.

A records search was conducted utilizing the ArcGIS Online (AGOL) database, which is maintained by SCE and includes a heritage search of all U.S. Forest Service (USFS) Heritage Programs in USFS Region 5 within the SCE service territory as well as records searches from CHRIS.

The USFS Region 5 has developed and maintains corporate databases that include information about heritage resources and heritage resource investigations (Natural Resource Manager [NRM] Heritage Database) and geospatial data (GIS) in accordance with Section 112(2) of the NHPA and Forest Service Manual 2360. Region 5 Forests have shared with SCE all NRM and GIS data that intersect utility facilities (e.g., transmission and distribution facilities, roads) on all USFS lands. Detailed information is presented in Section 5.10.6, *Previous Cultural Resource Studies*, and Section 5.10.7, *Current Cultural Resources Management*, of the PAD and is summarized here.

#### 5.11.1. PREVIOUS CULTURAL RESOURCE STUDIES

Ninety-three previous cultural resource investigations were identified within the proposed Study Area (Table 5-1 below). Of these, 53 have been conducted within the proposed APE. Among them are three studies conducted during the last relicensing. Archaeologists from ENTRIX, Inc. conducted an archaeological survey of the Kern River No. 3 (KR3) Hydroelectric Facilities and associated transmission lines in 1990. Twelve previously unrecorded archaeological sites were identified during the survey: CA-TUL-1477, CA-KER-2512, -2513, -2517, -2518 -2519, -2520, -2521, -2522, -2524, -2527, and -2528. Eight of the sites located within the 1990 FERC Project Boundary (CA-TUL-1477, CA-KER-2512, -2513, -2518, -2519, -2522, -2524, and -2528) were evaluated and determined not eligible for listing in the NRHP. They recommended NRHP evaluation of sites CA-KER-405, -479, -2517, -2520, and -2527. In November of 1990, CA-KER-405, -479, -2517, -2520, 2521, and -2527 were evaluated for their NRHP eligibility. Sites CA-KER-405, -2517, -2020, and 2527 were determined eligible for the NRHP.



**Figure 5-1. Proposed APE and Study Area.**



The transmission lines that were in the 1990 APE have since been removed from the FERC Project Boundary and are not a part of the currently proposed APE. As a result, only archaeological site CA-TUL-1477 is located within the currently proposed APE while archaeological site CA-KER-2528 is located within the proposed Study Area outside of the proposed APE. The rest of the archaeological sites discussed in the previous paragraph are now located outside of both the proposed APE and Study Area.

In 1989, Steven Mikesell evaluated and prepared an NRHP nomination for the KR3 Hydroelectric Project District (KR3HD) as part of the relicensing effort. KR3HD was determined eligible for inclusion on the NRHP. Several years later, in 2011 Natalie Brodie and Roderic McLean conducted a survey of the KR3 Hydroelectric System access roads (Brodie and McLean, 2011). They identified 29 archaeological sites and evaluated them for NRHP eligibility, as well as expanded the KR3HD to include archaeological sites associated with the construction of KR3. The KR3HD has been assigned P-54-004636 / P-15-013772 (CA-TUL-2887H / CA-KER-7729H [FS 05-13-56-00022]). Sites identified during this effort included trails, roads, waste rockpiles, satellite work areas, and construction camps associated with the construction of KR3.

The KR3 Hydroelectric System access roads were determined not individually eligible for the NRHP; however, they were determined eligible as contributing resources to the KR3HD. Archaeological sites characterized as waste rock piles, sparse historic debris scatters, and satellite work camps—were all determined not eligible for the NRHP on an individual basis or as contributing elements of the KR3HD. Sites characterized as roads, trails and construction camps for the Project—were determined eligible for the NRHP on an individual basis and as contributing elements to the KR3HD (Brodie and McLean, 2012:41-82). In 2013, Matthew Weintraub prepared Historic American Engineering Records for the KR3HD as well as the Sandbox, and Fairview Dam (Weintraub, 2013a, 2013b, 2013c). Previous studies in the proposed Study Area are depicted on Figures 1a through 1e in Appendix F, *Cultural Resources (Confidential)*, of the PAD.

**Table 5-1. Previous Cultural Resource Studies Located Within the Proposed Study Area and APE**

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
KE-01490	--	R197405135621	1974	Schiffman	<i>Archaeological Investigation of a Tubatulabal Indian Hamlet Site, Sequoia National Forest, Kern County, California</i>	No
KE-02018	--	--	1977	Panlaqui and Henry	<i>Environmental Impact Statement for Archaeological Values prepared for the Indian Wells Valley County Water District's Community Emergency Drought Program Application</i>	Yes
TU-00236	--	--	1979	Cantwell	<i>Archaeological and Historical Survey Report: Salmon Creek Bridge #M99-11.95, Tulare County</i>	Yes
N/A	--	R1980051356007	1980a	Unknown	<i>Fairview Campground Rehabilitation Project</i>	No
N/A	--	R1980051356009	1980b	Unknown	<i>Kern Canyon Trail</i>	No
N/A	--	R1981051356003	1981	Unknown	<i>Cultural Resource Investigations North Fork Kern River</i>	Yes
N/A	--	R1982051356002	1982a	Unknown	<i>Chamise East Prescribed Burn Project</i>	Yes
N/A	--	R1982051356006	1982b	Unknown	<i>Springhill Prescribed Burn</i>	No
N/A	--	R1982051356007	1982c	Unknown	<i>Nicoll's Rockhouse Basin Mineral Exploration</i>	No
TU-00512	--	--	1984a	Uli and Schiffman	<i>Archaeological Investigation of the Twenty Acre Zone Change PZ 83-30, 4.5 Miles North of Kern/Tulare County Line, Tulare County, California</i>	No
N/A	--	R1984051356008	1984b	Unknown	<i>Camp Owens Exchange</i>	Yes
N/A	--	R1984051356011	1984c	Unknown	<i>Cal State Fish &amp; Game Fish Hatchery Settling Pond</i>	No

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
TU-00457	--	--	1986	Schiffman	<i>Archaeological Evaluation of a 20 Acre Residential Development: Field Testing, Tulare County, California</i>	No
N/A	--	R1987051356003	1987a	Unknown	<i>ERFO Trail Relocation and Reconstruction Project</i>	No
N/A	--	R1987051356007	1987b	Unknown	<i>Fairview/Flynn Wildlife Burn</i>	No
N/A	--	R1988051353001	1988	Unknown	<i>Contel Project</i>	Yes
N/A	1160340	--	1989	Mikesell	<i>National Register of Historic Places Nomination: Kern River No. 3 Relicensing Project</i>	Yes
TU-00101; KE-01622	1160330	--	1989	Sutton and Pruett	<i>An Archaeological Inventory and Assessment of Southern California Edison Company's Kern River No. 3 Hydroelectric Project, Kern and Tulare Counties, California (FERC Project No. 2290)</i>	Yes
N/A	1161226	--	1990a	ENTRIX	<i>Archaeological Inventory and Assessment Kern River No. 3 Relicensing Project</i>	Yes
N/A	1161227	--	1990b	ENTRIX	<i>Ethnographic Background and Native American Consultation Kern River No. 3 Relicensing Project</i>	Yes
KE-01921	1160475	--	1990	Sutton et al.	<i>An Assessment of Seven Archaeological Sites on Southern California Edison Company Kern River No. 3 Hydroelectric Project, Kern and Tulare Counties, California (FERC Project No. 2290)</i>	Yes
N/A	--	R1990051356008	1990	Unknown	<i>Riverkern Fence Project</i>	Yes
N/A	1160477	--	1991	Taylor	<i>Cultural Resources Management Plan for Southern California Edison Company's Kern River No. 3 Hydroelectric System Kern</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
					<i>and Tulare Counties, California FERC Project No. 2290</i>	
N/A	--	R1991051356003	1991	Unknown	<i>Fairview Campground Handicap River Access</i>	No
KE-00990	--	--	1992a	Schiffman	<i>Archaeological Investigation of 55 Acre Parcel Near Kernville Section 9, T. 25S, R. 33E., Kern County, California</i>	No
TU-00472	--	--	1992b	Schiffman	<i>Archaeological Investigation of 145.6 Acre Parcel by Fairview, Sections 14 and 23, T.23S., R.32E., Tulare County, California</i>	No
N/A	--	R1992051356008	1992	Unknown	<i>Domeland Trail</i>	Yes
TU-00847	--	R1993051356013	1993	Lomax and Manureflectorel	<i>Negative Results Archaeological Reconnaissance Report for the Lower Thunderbird Blockage Project</i>	No
TU-00854	--	R1993051356014	1994	Lomax	<i>Archaeological Reconnaissance Report for the Manifest Box Installation at Ant Canyon</i>	Yes
TU-00852	--	R1994051356008	1994	Lomax and Manuel	<i>Negative Results Archaeological Reconnaissance Report for the Headquarters Campground Restroom Installation Project</i>	No
N/A	--	R1994051354023	1994	Unknown	<i>Archaeological Evaluation of Headquarters Campground</i>	No
N/A	--	R1995051356004	1995	Unknown	<i>SCE/Passive Reflector Installation</i>	No
KE-00868 / 1140962	--	--	1996	Getchell and Atwood	<i>Cultural Resources Inventory and Impact Assessment of the Proposed Mountain &amp; River Adventures Campground, Located Between the Communities of Kernville and Riverkern, Kern County, California</i>	No
N/A	--	R1996051356002	1996	Unknown	<i>Kern River Horse Stables</i>	No

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
N/A	--	R1998051356004	1998a	Unknown	<i>Riverkern Fuel Reduction Project</i>	Yes
N/A	--	R1998051356010	1998b	Unknown	<i>SCE Forebay Road Realignment Project</i>	Yes
TU-00977	--	--	1999	Hudlow	<i>A Phase I Cultural Resource Survey for the Kern River Golden Trout Resort, Tulare County, California</i>	No
KE-02469; TU-01037	1161234	--	2000	Schmidt	<i>Kernville Deteriorated Pole Replacement Project, Kern and Tulare Counties</i>	No
TU-01137; KE-02724	1161663	--	2002	Schmidt	<i>76 Work Locations for the Kernville 76 Deteriorated Pole Replacement Project, Kern and Tulare Counties</i>	Yes
TU-01282	1161003	--	2006	Jordan and Wise	<i>Archaeological Survey Report for the Southern California Edison Company Replacement of Two Deteriorated Poles on the Intake 16kV Circuit, Sequoia National Forest, Tulare County, California</i>	No
TU-01433	1162217	R2010051354001	2007	Pollock	<i>Archaeological Assessment Report for the Kern River 3 Hydroelectric Project Intake Cableway Improvements, Sequoia National Forest, Tulare County, California</i>	Yes
KE-03649	1161422	--	2007	Switalksi	<i>Archaeological Survey Report for the Southern California Edison Company Installation of Two Power Poles on the Vestal-Glennville-Greenhorn-Kern River #3 66 kV Transmission Line (DWO 4229-0084, JO 0287), Kernville, Kern County, California</i>	No
N/A	--	R2007051354006	2007	Unknown	<i>GHN-MJZ Jeep Commercial</i>	No
KE-03968	--	R2008051356021	2008	Dodd	<i>Historic Resource Evaluation Report for Camp Erwin Owen Land Exchange between Sequoia National Forest and Kern County, Kernville, Kern County, California</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
TU-01510; KE-03828	1163376	R2008051354037	2008	Orfila	<i>Archaeological Survey for the Southern California Edison Company Replacement of Six Deteriorated Power Poles (Sequoia National Forest) on the Bonanza 12 kV, Intake 12kV, and Mustang 12kV, Kern County, California (DWO 6053-4800 7-4801/CWA 9 SQF)</i>	Yes
KE-03650	--	--	2008a	Cal Heritage	<i>Archaeological Inventory of the Kern River Fish Hatchery on the Kern River Ranger District, Sequoia National Forest, Kern County, California</i>	Yes
KE-03667	--	--	2008b	Cal Heritage	<i>Archaeological Inventory of Camp Erwin Owen Kern River Ranger District, Sequoia National Forest, Kern County, California</i>	No
KE-03743	1163120	--	2008a	Parr	<i>Cultural Resource Assessment for the Installation of a Fault Return Conductor and Replacement of Two Deteriorated H-frame Structures on the Southern California Edison Company Borel - Isabella - KR3 - Lakegen - Weldon 66 kV Circuit Near Lake Isabella, Kern County, California</i>	No
TU-01355	1161750	R2008051356019	2008b	Parr	<i>Cultural Resources Assessment for the Replacement of Damaged Power Pole #4417077E on the Southern California Edison Intake 16 kV Circuit, Sequoia National Forest, Tulare County, California</i>	Yes
TU-01521; KE-04019	1161776	R2008051354011	2008	Pollock	<i>Archaeological Assessment Report for the Kern River 3 Hydroelectric Project 4E Conditions, Sequoia National Forest, Tulare and Kern Counties, California</i>	Yes
N/A	--	R2008051354028	2008a	Unknown	<i>Rockhouse Basin Road (23S54)</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
N/A	--	R2008051356023	2008b	Unknown	<i>Upper Kern Birdhouse Fire Restrictions Signs</i>	Yes
N/A	--	R2008051354027	2008c	Unknown	<i>Gold Ledge Road Maintenance</i>	No
N/A	--	R2008051356010	2008d	Unknown	<i>Camp Owen Roadside Weed Abatement</i>	No
KE-03879	1162283	R2010051354030	2009	Howard et al.	<i>Cultural Resources Assessment of the Kern River 3 Fiber Optic Line, Kernville and Wofford Heights, Kern County, California</i>	Yes
TU-01342	--	--	2009	Parr	<i>Cultural Resource Assessment for the Replacement of Deteriorated Power Pole #270010E on the Southern California Edison Company Intake 16 kV Circuit, Sequoia National Forest, Tulare County, California</i>	Yes
KE-03891; TU-01513	1162041	-----	2009	Schmidt	<i>WO 4229-0302/SAP 800234185; 2009 Deteriorated Pole Replacement Project. Vestal-Kern River 3 66 kV, and Vestal-Glennville-Greenhorn-Kern River 3 66 kV Transmission Lines, Tulare and Kern Counties, California</i>	No
N/A	--	R2009051354001	2009a	Unknown	<i>Campground Prospectus</i>	Yes
N/A	--	R2009051354002	2009b	Unknown	<i>Upper Kern River Toilet Installation</i>	No
N/A	--	R2009051354027	2009c	Unknown	<i>Kern River Intake 3 Radio Repeater</i>	No
N/A	--	R2009051354038	2009d	Unknown	<i>Riverkern Burn Piles</i>	Yes
N/A	--	R2009051354043	2009e	Unknown	<i>Burma Road Burn Piles</i>	No
N/A	--	R2009051354051	2009f	Unknown	<i>Upper River Burn Piles</i>	Yes
N/A	--	R2009051354060	2009g	Unknown	<i>Fairview CG Emergency Waterline Repair</i>	No
N/A	--	R2009051354104	2009h	Unknown	<i>Roads End Brushing and Thinning Project</i>	No
N/A	--	R2009051354105	2009i	Unknown	<i>Fairview Helispot Borrow Area</i>	No

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
TU-01519; KE-04017	1162050	R2010051354024	2010	Henrikson et al.	<i>Archaeological Inventory of SCE Kern River No. 3 Hydroelectric System, Road Maintenance and Culvert Installation, Kern and Tulare Counties, California</i>	Yes
KE-04046	1162833	R2011051354028	2010a	Parr	<i>Cultural Resource Assessment for the Replacement of Twenty-eight Deteriorated Power Poles on the Southern California Edison Company Borel-Isabella-Kern River 3- Lakegen-Weldon 66 kV Circuit and Borel-Havilah-Lorraine-Monolith-Walker Basin 66 kV Circuit, Sequoia National Forest, Kern County, California</i>	Yes
KE-04049	1163056	--	2010b	Parr	<i>Cultural Resource Assessment for the Replacement of Eighteen Deteriorated Power Poles on the Southern California Edison Company Borel-Isabella-Kern River 3-Lakegen-Weldon 66kV Circuit and Borel-Havilah-Lorraine-Monolith-Walker Basin 66 kV Circuit, Kern County, California</i>	No
KE-04831	1162834	--	2010c	Parr	<i>Cultural Resource Assessment for the Replacement of Forty-two Deteriorated Power Poles on the Southern California Edison Company Borel-Isabella-Kern River 3-Lakegen-Weldon 66kV Circuit and Borel-Havilah-Lorraine-Monolith-Walker Basin 66kV Circuit, Sequoia National Forest, Kern County, California</i>	Yes
TU-01450	1162628	--	2010d	Parr	<i>Cultural Resource Assessment for an RAR Switch and Pole Replacement on the Southern California Edison Company Intake 16 kV Circuit, Sequoia National Forest, Tulare County, California</i>	Yes



IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
TU-01405; KE-03753	1162943	--	2010	Schmidt	<i>Negative Archaeological Monitoring Report: Southern California Edison Bull Fire Monitoring Program Intake and Forebay 16 kV Emergency Pole Replacement Project, Sequoia National Forest, Kern County</i>	Yes
TU-01798; KE-05019	1163131	--	2011	Brodie and McLean	<i>Cultural Resources Survey Results: Kern River 3 Access Roads Improvements Project, I.O. # 316520, Southern California Edison, Kern and Tulare Counties, California</i>	Yes
TU-01529; KE-04212	--	--	2011a	Parr	<i>Archaeological Assessment for a Southern California Edison Company Grid Reliability Maintenance Project: Intake 16 kV Cutover on the Sequoia National Forest, Kern River Ranger District, Tulare and Kern Counties, California</i>	Yes
KE-04213; TU-01530	--	--	2011b	Parr	<i>Archaeological Assessment for a Southern California Edison Company Grid Reliability Maintenance Project: Intake 16 kV Cutover on Private Property in Kern and Tulare Counties, California</i>	No
TU-01581	--	--	2011c	Parr	<i>Cultural Resource Assessment for the Replacement of Deteriorated Power Pole #269900E on the Southern California Edison Company Intake 16 kV Circuit, Sequoia National Forest, Tulare County, California</i>	Yes
TU-01797; KE-05018	1163131	R2012051354015	2012	Brodie and McLean	<i>Kern River 3 Hydroelectric Historic District Update: Kern River Number 3 Hydroelectric System Kern River 3 Access Roads Improvements Project, I.O. Number 316520, Southern California Edison,</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
					<i>Sequoia National Forest, Kern and Tulare Counties, California</i>	
KE-04187	1162966	--	2012	Orfila	<i>Archaeological Survey of Two Poles and Access Routes on the Bonanza 12 kV Circuit Near Kernville, Kern County, California (Routine Preventative Maintenance IO# 320708/TD561443; RSOC CWA 28)</i>	No
KE-04095	--	--	2012a	Parr	<i>Archaeological Survey Report for a Southern California Edison Company Grid Reliability and Maintenance (GRM) Project on the Bonanza 12 kV Distribution Circuit (TD 572195), Camp Irwin Owen, Kernville, Kern County, California</i>	No
TU-01524	1163026	--	2012b	Parr	<i>Archaeological Monitoring and Supplemental Survey Report for the Southern California Edison Company Intake 16 kV Cutover Project on the Sequoia National Forest, Kern River Ranger District, Tulare County, California</i>	Yes
--	1163619	--	2013	Millington and Bean	<i>Cultural Resources Report for the Pre-Construction Survey of Seven Deteriorated Poles on the Erskine and Intake 12kV Circuits (IO 301934), Sequoia National Forest, Kern County, California</i>	Yes
--	--	--	2013a	Weintraub	<i>Kern River 3 Hydroelectric System Historic American Engineering Record Number CA-2309</i>	Yes
--	--	--	2013b	Weintraub	<i>Kern River 3 Hydroelectric System, Sandbox, Historic American Engineering Record Number CA-2309A</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
--	--	--	2013c	Weintraub	<i>Kern River 3 Hydroelectric System, Fairview Dam Historic American Engineering Record Number CA-(number not on form)</i>	Yes
TU-01710	1163999	--	2014	Brodie	<i>Archaeological Survey Report for the Southern California Edison Company Replacement of Six Deteriorated Power Poles on the Intake 12kV Circuit, TD716766, Sequoia National Forest, Tulare County, California</i>	No
N/A	1163769	--	2015	Carvajal and Denniston	<i>Letter Report for Cultural Resources Monitoring for Southern California Edison Emergency Tree Cutting, Sequoia National Forest, Kern and Tulare Counties, California</i>	Yes
KE-04742	1163687	--	2015	Elzinga and Millington	<i>Cultural Resources Report for Pre-Construction Survey of Six Deteriorated Poles on the Intake 12 kV, Bonanza 12 kV, and Borel-Isabella-Kern River 3-Lakegen-Weldon 66 kV Circuits, Sequoia National Forest, Kern County, California</i>	Yes
--	1163707	--	2015	Heidelberg and Duff	<i>Archaeological Survey Report for Southern California Edison's Replacement of Sixty-seven Deteriorated Power Pole Structures on the Intake 12kV, Borel-Isabella-Kern River 3-Lakegen-Weldon 66kV, Kern River 3-Kernville 66 kV, Erskine 12kV, and Other Circuits (TD750600, TD788908, TD805660T, TD805689, TD841048, TD853032, TD853504, TD853510, TD862839, TD862859, TD862870, TD868537, TD899622, TD945755, TD993667) in the Kern River District of</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
					<i>Sequoia National Forest in Kern County, California</i>	
--	1164177	--	2016	Belcourt	<i>Letter Report for Cultural Resources Survey and Monitoring for Southern California Edison Deteriorated Pole Replacement (TD1064452/Pole1235549E), on Lands Administered by the Sequoia National Forest, north of Kernville, Tulare County, California</i>	Yes
--	1164273	--	2016a	Hall and Brodie	<i>Archaeological Survey Report for the Southern California Edison Company Replacement of Sixty-one Deteriorated Poles on the Bonanza 12 kV, Erskine 12 kV, Intake 16 kV, Isabella 12 kV, Johnsondale 4kV, Mebane 2.4 kV, Mustang 12 kV, Pascoe 2.4kV, Tee Vee 12kV, and Tungsten 12kV Circuits, Sequoia National Forest, Kern and Tulare Counties, California</i>	Yes
--	1164280	--	2016b	Hall and Brodie	<i>Archaeological Survey Report for the Southern California Edison Company Replacement of Twelve Deteriorated Poles on the Erskine 12 kV, Intake 16 kV, Tee Vee 12 kV, and Unnamed Circuits, TD1114808, TD1114817, TD1130300, TD1140759, TD1134709, and TD1085929, Sequoia National Forest, Kern and Tulare Counties, California</i>	Yes
TU-01835; KE-05068	1164450	--	2017	Millington et al.	<i>Cultural Resources Survey and Monitoring Report for Southern California Edison's Replacement of Deteriorated Poles in Support of the Region 5 Special Use Permit R50003, Sequoia National Forest, Tulare and Kern Counties, California</i>	Yes

IC Number	SCE Document ID	USFS Number	Report Year	Author(s)	Report Title	In Proposed APE?
--	1164587	--	2018	Gilbert and Wilson	<i>Cultural Resources Survey and Monitoring Report for Southern California Edison Company's Emergency Special Use Permit (R50003) 2016-2017 Hazard Tree Removals in Sequoia National Forest, Fresno, Tulare, and Kern Counties, California</i>	Yes

APE = Area of Potential Effects; FERC = Federal Energy Regulatory Commission; IC = Information Center; kV = kilovolt; N/A = data not available;  
 SCE = Southern California Edison; USFS = U.S. Forest Service

## **5.12. PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES**

Archival research conducted to date identified 30 pre-contact, 18 multi-component (pre-contact and historic-period), and 31 historic-period previously recorded archaeological sites within the proposed Study Area. Of these, 4 pre-contact, 7 multi-component, and 24 historic-period archaeological sites are located within the proposed APE. The diverse types of sites and their NRHP eligibility are listed in Table 5-2. Pre-contact sites primarily include bedrock milling stations (BRMs), lithic scatters, ground stone, and midden deposits. Petroglyphs and pictographs have also been recorded. Multi-component sites include BRMs, lithic scatters, ground stone, and historic debris (e.g., can scatters, domestic debris scatters). Historic-period sites include historic debris and the remains of buildings or structures. Some of these historic-period sites may be related to Native American reoccupation on their older sites. Twenty-six of the archaeological sites within the proposed APE have been evaluated for their eligibility for listing in the NRHP. Six of the evaluated sites have been determined to be individually eligible and contributing elements of the KR3HD. Six of the evaluated sites have been determined not to be individually eligible, but are eligible as contributing elements of to the KR3HD. Fourteen of the sites have been determined not eligible on an individual basis or as a contributing element to the KR3HD. The remaining nine sites have not been evaluated for their NRHP eligibility. The locations of these sites are depicted on the Cultural Studies Map Series, which is filed as Privileged Information in Volume III of the PAD.

## **5.13. PREVIOUSLY RECORDED BUILT-ENVIRONMENT RESOURCES**

Three built-environment resources have been recorded within the proposed Study Area (Table 5-3). Of these, two are located within the proposed APE. One is the KR3HD, which has been determined eligible for the NRHP. The other is Camp Irwin Owen, a juvenile probation camp that has been determined not eligible for the NRHP on an individual basis, or as a contributor to the KR3HD. The third built-environment resource consists of a culvert and check dam located within the proposed Study Area but outside of the APE. It has not been evaluated for the NRHP.

**Table 5-2. Previously Recorded Archaeological Sites Located Within the Proposed Study Area and APE**

Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
P-15-002398	CA-KER-2398	05-13-56-00021	N/A	P	1 BRM, Lithic Scatter, Midden, Groundstone, Pottery, Trail	Unevaluated		X	USFS
P-15-002517	CA-KER-2517	05-13-56-00823	N/A	P	5 BRMs, Midden, Groundstone	Eligible		X	USFS
P-15-012947	N/A	05-13-56-00729	N/A	P	3 BRMs, Lithic Scatter, Groundstone, Pictograph	Unevaluated		X	USFS / Private
P-15-013773	N/A	05-13-54-00730	N/A	H	Abandoned Loading Dock	Not Individually Eligible / non-CE KR3HD	X		USFS
P-15-014890	CA-KER-8315	N/A	N/A	P	1 BRM	Unevaluated		X	Private
P-15-015656	CA-KER-8639	05-13-54-00861	N/A	H	Remains of Tramway and Trail, Waste Rock Piles	Not Individually Eligible / CE KR3HD	X		USFS
P-15-018562	CA-KER-10157	--	N/A	P	3 BRMs, Lithic Scatter,	Unevaluated	X		USFS
P-54-000048	CA-TUL-48	--	N/A	P	1 BRM, Lithic Scatter, Groundstone	Unevaluated		X	USFS
P-54-000861	CA-TUL-861	05-13-56-00242	Intake Cabin, CWA002-S-1207	H	Stone Wall, Foundation, Historic Debris	Unevaluated	X		USFS
P-54-000862	CA-TUL-862	05-13-56-00240	N/A	P	1 BRM, 3 Milling Stations, Lithic Scatter, Groundstone	Unevaluated		X	Private

Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
P-54-000863	CA-TUL-863	05-13-56-00260	N/A	M	1 BRM, 8 Milling Stations, Lithic Scatter, Groundstone, Historic Debris	Unevaluated		X	USFS
P-54-000864	CA-TUL-864	05-13-56-00235	N/A	P	Lithic Scatter	Unevaluated		X	USFS
P-54-000865	CA-TUL-865	05-13-56-00236	N/A	H	Concrete Foundation, Historic Debris, Waste Rock Pile	Individually Eligible / CE KR3HD	X		USFS
P-54-000866	CA-TUL-866	05-13-56-00237	N/A	H	Mine Adit	Unevaluated		X	USFS
P-54-000867	CA-TUL-867	05-13-56-00238	N/A	P	1 BRM	Unevaluated		X	USFS
P-54-000868	CA-TUL-868	05-13-56-00239	N/A	H	2 Concrete Foundations, Collapsed Wooden Structure, Historic Debris	Unevaluated		X	USFS
P-54-000869	CA-TUL-869	05-13-56-00233	N/A	P	Lithic Scatter	Unevaluated		X	USFS
P-54-000870	CA-TUL-870	05-13-56-00007	N/A	P	9 BRMs, Lithic Scatter, Midden, Pictograph	Unevaluated		X	USFS
P-54-000871	CA-TUL-871	05-13-56-00229	N/A	P	6 BRMs, Lithic Scatter; Midden, Possible Pictograph	Unevaluated		X	USFS
P-54-000872	CA-TUL-872	05-13-56-00230	N/A	P	Lithic Scatter, Midden	Unevaluated		X	USFS
P-54-000873	CA-TUL-873	05-13-56-00091	N/A	P	2 BRMs, Midden	Unevaluated		X	USFS
P-54-000874	CA-TUL-874	05-13-56-00232	N/A	P	8 BRMs, Midden	Unevaluated		X	USFS
P-54-000875	CA-TUL-875 (TUL-876, -2123 -2127)	05-13-56-00525, 05-13-56-00227, 05-13-56-00228	N/A	M	Multiple Concrete Foundations	Individually Eligible / CE KR3HD	X		USFS



Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
P-54-001024	CA-TUL-1024	--	N/A	P	3 BRMs, 2 Possible Milling Stations, Lithic Scatter	Unevaluated		X	USFS
P-54-001477	CA-TUL-1477	05-13-54-00836	N/A	P	3 BRMs, Lithic Scatter	Unevaluated	X		USFS
P-54-002215	CA-TUL-2129	05-13-56-00706	N/A	M	Lithic Scatter Groundstone, Glass Fragments	Unevaluated		X	USFS
P-54-003396	CA-TUL-2301	--	N/A	H	Mine Shaft, Tailings, 2 Small Pits	Unevaluated		X	USFS
P-54-003922	CA-TUL-2406	05-13-54-00585	N/A	P	12 BRMs, Midden, Lithic Scatter	Unevaluated		X	USFS
P-54-004635	CA-TUL-2888	05-13-54-00717	N/A	H	Historic Debris	Not Individually Eligible / non-CE KR3HD	X		USFS
P-54-004636	CA-TUL-2889	05-13-54-00708	N/A	H	19 Tent Pads, 3 Pits / Depressions, Historic Debris	Not Individually Evaluated / CE KR3HD	X		USFS
P-54-004637	CA-TUL-2890	05-13-54-00709, 05-13-54-00855	N/A	M	1 BRM, Pictograph, Tent Pads, Rock Walls, Historic Debris	Individually Eligible (P & H) / CE KR3HD (H only)	X		USFS
P-54-004641	CA-TUL-2894	05-13-54-00713	N/A	M	Lithic Scatter, Historic Debris	Not Individually Eligible / non-CE KR3HD	X		USFS
P-54-004642	CA-TUL-2895	05-13-54-00714	N/A	H	Historic Debris	Not Individually Eligible / non-CE KR3HD	X		USFS

Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
P-54-004643	CA-TUL-2896	05-13-54-00715	N/A	H	Rock Wall, Foundations, Historic Debris, Waste Rock Pile	Not Individually Eligible / CE KR3HD	X		USFS
P-54-004644	CA-TUL-2897	05-13-54-00716	N/A	H	Rock and Dirt Platforms, 4 Granite Quarries, Historic Debris	Eligible / CE KR3HD	X		USFS
P-54-004645	CA-TUL-2898	05-13-54-00718	N/A	H	Waste Rock Piles, Historic Debris, Concrete Foundation	Not individually eligible / non-CE KR3HD	X		USFS
P-54-004650	N/A	05-13-54-00723	N/A	H	Waste Rock Pile	Not individually eligible / non-CE KR3HD	X		USFS
P-54-004651	N/A	05-13-54-00724	N/A	H	Remains of wooden bridge	Not individually eligible / non-CE KR3HD	X		USFS
P-54-004652	N/A	05-13-54-00725	N/A	H	Waste Rock Pile, Steel Bucket	Not individually eligible / non-CE KR3HD	X		USFS
P-54-004654	CA-TUL-2902	05-13-54-00727	N/A	H	Tent Pads, Foundations, Historic Debris	Not individually eligible / non-CE KR3HD	X		USFS
P-54-004655	N/A	05-13-54-00728	N/A	H	Tent Pad	Not individually eligible / non-CE KR3HD	X		USFS
P-54-004656	N/A	05-13-54-00726	N/A	H	Granite Boulders with Drill Holes	Not individually eligible / non-CE KR3HD	X		USFS

Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
P-54-004658	CA-TUL-2996	05-13-54-00857	N/A	H	Remains of Crusher Plant	Not individually eligible / CE KR3HD	X		USFS
P-54-004793	CA-TUL-2984	--	N/A	H	3 Foundations, Stone Fireplaces, Stone-Lined Paths	Unknown		X	USFS
P-54-004816	CA-TUL-2990	05-13-54-00866	N/A	H	2 Concrete Generator Pads, Trail, and Historic Debris	Not individually eligible / CE KR3HD	X		USFS
P-54-004817	CA-TUL-2991	05-13-54-00867	N/A	H	Historic Debris	Not Individually Eligible / non-CE KR3HD		X	USFS
P-54-004818	CA-TUL-2992	05-13-54-00860	N/A	H	Historic Debris, Waste Rock Pile	Not Individually Eligible / CE KR3HD	X		USFS
P-54-004819	CA-TUL-2993 (TUL-2899, 2900, 2901)	--	N/A	M	Rock Shelter, Pictograph Tent Pads, Rock Features, Waste Rock Piles, Historic Debris	Individually Eligible (both P and H) / CE KR3HD (historic portion only)	X		USFS
P-54-004820	CA-TUL-2994	05-13-54-00865	N/A	H	Generator Footings, Waste Rock Piles, Bridge Remnants, Historic Debris	Not Individually eligible / non-CE KR3HD	X		USFS
P-54-004821	CA-TUL-2995	05-13-54-00856, 05-13-54-00456	N/A	H	Concrete Generator Pads, Historic Debris	Not Individually Eligible / non-CE KR3HD	X		USFS
P-54-004822	CA-TUL-2997	05-13-54-00858	N/A	H	Generator Pad, Waste Rock Pile	Not Individually Eligible / non-CE KR3HD	X		USFS

Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
P-54-004823	CA-TUL-2998 (TUL- 2891, 2892, 2893, P-54-4663)	--	N/A	M	Lithic Scatter, Foundation, Historic Debris, Waste Rock Pile	Individually Eligible / non-CE KR3HD	X		USFS
P-54-004837	N/A	05-13-56-00860	N/A	M	BRM, Lithic Scatter, Concrete Stairs	Unevaluated		X	USFS
P-54-005238	CA-TUL-3094	--	N/A	P	1 BRM, Groundstone	Unevaluated		X	USFS
P-54-005330	CA-TUL-3111	--	N/A	M	Lithic Scatter, Rock Alignments, Historic Debris	Unevaluated	X		USFS
P-54-005407	CA-TUL-003160/H	--	CWA002-S-1311	M	Metate, Historic Debris	Unevaluated		X	USFS
P-54-4005411	CA-TUL-003161/H	--	CWA002-S-1313	M	Lithic Scatter, Historic Debris	Unevaluated		X	USFS
P-54-005414	CA-TUL-003164/H	--	CWA002-S-1349	M	Lithic Scatter, Groundstone, Historic Debris	Unevaluated	X		USFS
N/A	N/A	05-13-54-00542	N/A	P	1 BRM (feature has been pushed off road not in-situ)	Unevaluated		X	USFS
N/A	N/A	05-13-56-00090	N/A	P	BRM, 2 Possible Milling Stations	Unevaluated		X	USFS / Private
N/A	N/A	05-13-56-00114	N/A	P	need site record	Unevaluated		X	USFS / Private
N/A	N/A	05-13-56-00263	N/A	P	need site record	Unevaluated		X	USFS
N/A	N/A	05-13-56-00728	N/A	P	1 BRM	Unevaluated		X	USFS
N/A	N/A	05-13-56-00778	N/A	M	BRM, Lithic Scatter, Groundstone; Concrete Foundations	Unevaluated		X	USFS

Primary Number	Trinomial	USFS Number	Other Identifier	Site Type	Composition of Site	NRHP Eligibility	In APE	In Study Area	Property Owner
N/A	N/A	05-13-56-00781	N/A	P	3 BRMs	Unevaluated		X	USFS
N/A	N/A	05-13-56-00813	N/A	P	Lithic Scatter, Rock Shelter, Handstone	Unevaluated		X	USFS
N/A	N/A	05-13-56-00814	N/A	P	Lithic Scatter, Rock Shelter, Milling Feature, Midden, Petroglyph	Unevaluated		X	USFS
N/A	N/A	05-13-56-00851	N/A	M	BRM, Stone Foundation, Fire Pits	Unevaluated		X	USFS
N/A	N/A	05-13-56-00852	N/A	M	Lithic Scatter, Rock Walls	Unevaluated		X	USFS
N/A	N/A	05-13-56-00853	N/A	P	4 BRMs	Unevaluated		X	USFS
N/A	N/A	05-13-56-00854	N/A	M	4 BRMs, Concrete / Rock Fireplace	Unevaluated		X	USFS
N/A	N/A	05-13-56-00855	N/A	P	10 BRMs, Pictograph	Unevaluated	X		USFS
N/A	N/A	05-13-56-00856	N/A	H	Concrete Pad, Fire Pit	Unevaluated		X	USFS
N/A	N/A	--	CWA002-S-1207	M	Lithic, Historic Debris	Unevaluated		X	USFS
N/A	N/A	--	CWA002-S-1221	H	Concrete Foundation, Hearth Feature, Historic Debris	Unevaluated	X		USFS
N/A	N/A	--	CWA002-S-1322	M	Lithic Scatter, Rock Hearth, Groundstone	Unevaluated		X	USFS
N/A	N/A	--	IEA20150719-001	H	Stone and Mortar Retaining Wall (Need Record)	Unevaluated		X	USFS

APE = Area of Potential Effects; BRM = bedrock milling station; CE KR3HD = Contributing Element to the Kern River No. 3 Historic District; H = Historic; M = Multicomponent; N/A = data not available; NRHP = National Register of Historic Places; P = Prehistoric; USFS = U.S. Forest Service

**Table 5-3. Previously Recorded Built-Environment Resources Located Within the Proposed Study Area and APE**

Primary Number	Trinomial	USFS Number	Other Identifier	Historic Name / Current Name (if different)	Resource Type	Date of Construction/Period of Significance	NRHP Eligibility	In proposed APE	In Study Area	Property Owner
P-54-004634 (and other associated P numbers)	CA-TUL-2887	05-13-56-00022	N/A	HAER No. CA-2309; Kern 3 Hydroelectric System Historic District	Kern 3 Historic District	1910-1930	Eligible historic district	X		SCE/USFS
P-15-015173	N/A	N/A	N/A	Camp Irwin Owen	Kern County Probation Dept. Juvenile Probation Camp	1938-present	Not individually eligible / non- CE KR3HD	X		USFS/Kern County
N/A	N/A	N/A	CWA002-S-1317 (erroneously recorded as a site)*		Two erosion control features along County Road SM99, an earthen check dam and a steel culvert with cobble and cement facing	Unknown	Unevaluated		X	USFS

APE = Area of Potential Effects; N/A = data not available; NRHP = National Register of Historic Places; SCE = Southern California Edison; USFS = U.S. Forest Service; \*Site Record Very Old, Location is Uncertain

## **5.14. PREVIOUSLY RECORDED NON-AMERICAN INDIAN TRADITIONAL CULTURAL PROPERTIES**

No non-American Indian traditional resources have been identified within the APE. Non-American Indian resources anticipated to be identified within the APE are likely to be related to Project construction, road construction, settlement, mining, and recreation.

## **6.0 STUDY APPROACH**

### **6.11. GENERAL CONCEPTS**

- Personal safety is an important consideration of each fieldwork team. If SCE determines the information cannot be collected in a safe manner, SCE will notify FERC and relicensing participants as soon as possible via email to discuss alternative approaches to perform the study.
- SCE shall obtain permission to access private property where needed well in advance of performance of the study. If access is not granted or if it is not feasible or safe, SCE will notify FERC and relicensing participants as soon as possible via email to discuss alternative approaches to perform the study.
- Field crews may make minor modifications to the study proposal in the field to accommodate actual field conditions and unforeseen problems. When modifications are made, the SCE field crew will follow the protocols in this Study Plan. If minor modifications are made SCE will notify FERC and relicensing participants as soon as possible via email to discuss alternative approaches to perform the study.
- SCE's performance of the study does not presume SCE is responsible as in whole or in part for resource management measures that may arise from that study.
- SCE shall treat all information regarding the specific locations of archaeological sites as privileged and confidential. The Global Positioning System (GPS) coordinates and maps showing the locations of such resources will not be made available to any relicensing participant other than the SQF, FERC, State Historic Preservation Office (SHPO), the SSJVIC, and participating Tribes.

### **6.12. STUDY METHODS**

The methods proposed to meet the study goals and objectives are discussed in the following sections.

#### **6.12.1. ARCHIVAL RESEARCH**

As needed during implementation of the studies, archival research will be conducted at most of the repositories listed below to obtain additional information specific to the prehistory, ethnography, and history of the Project Area, the hydroelectric Project in whole, and its individual features. This may include contacting SCE employees, as appropriate, to gather feature-specific information. The results of the archival research will serve as the basis for preparing the prehistoric and historic contexts against which archaeological and built-environment resources may be evaluated. Historical

photographs located during the archival research will be cited in the text as figures and provided in a separate appendix unless they are subject to copyright laws. Previous NRHP evaluations of Project features will be used as much as possible (although, if previous studies are dated or lacking in necessary detail, additional, site-specific research may be required on an as-needed basis during the studies). Places to be contacted or visited include:

- Annie Mitchell Local History Research Room, Tulare County Library, Visalia
- Autry Museum of the American West, Los Angeles
- California State Archive, Sacramento
- California State Library, California History Room, Sacramento
- California State University Bakersfield Archives
- Fort Tejon Historical Association, Lebec
- Fort Tejon State Historic Park, Fort Tejon
- Hulse and Essene (Berkeley and elsewhere)
- Huntington Library, SCE Collection: Records, Documents, and Photos
- Kern Valley Historical Society and Museum, Kernville
- Kern County Museum, Bakersfield
- Kern County Historical Society, Bakersfield
- Maturango Museum, Ridgecrest
- National Archive and Records Administration (Riverside and San Bruno)
- Native American Heritage Commission
- Pomona Public Library, Pomona
- SSJVIC, California State University, Bakersfield
- SCE, Rosemead Office
- Tulare County Historical Society, Visalia
- USFS, SQF Ranger District
- University of California, Berkeley, Bancroft Library
- Other online repositories as applicable



### 6.12.2. MEETINGS WITH TRIBAL GOVERNMENTS

All Tribal groups will be contacted via telephone or email at a minimum to elicit their interest. As appropriate, meeting(s) with Tribal governments and/or Tribal members will be held.

### 6.12.3. ARCHAEOLOGICAL INVENTORY

Based on the existing data described above, FERC is required to make a reasonable and good-faith effort to identify historic properties that may be affected by the Project. As described in 36 CFR 800.4(b)(1), this may be accomplished through sample field investigations and/or field surveys within the APE that are implemented in accordance with the Secretary of the Interior's Standards and Guidelines for Identification (NPS, 1983). FERC is required to consider any other applicable professional standards and Tribal, state, or local laws or procedures to complete the identification of historic properties.

To assist FERC in meeting its compliance obligations and to develop appropriate management measures for historic properties identified within the APE, an archaeological inventory will be performed to verify locations of previously recorded archaeological resources and to examine accessible lands not previously surveyed or that need to be resurveyed to meet current professional standards.

Areas within the APE that cannot be accessed in a safe manner (e.g., locations with dense vegetation or unsafe slopes) will not be included within the survey or recording of archaeological resources; these areas will be identified in the resulting survey report and an explanation for survey exclusion will be provided.

The field survey will be supervised by one or more qualified, professional archaeologists (i.e., individuals who meet the Secretary of the Interior's Professional Qualifications for Archaeology) who will participate in all field work. During the survey, archaeologists will walk parallel transects spaced at no more than 65.6-foot intervals (20-meters) as vegetation and terrain allow. The purpose of the field survey is to: (1) examine lands that have not been previously surveyed; (2) examine lands previously surveyed but where the field strategy is unknown; and (3) examine lands previously surveyed but for which the field strategy does not meet current professional standards, as defined in the *Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation* (NPS, 1983) and the California Office of Historic Preservation (OHP).

Locations of previously recorded archaeological sites within the APE will be verified, and their site records will be updated only if the existing documentation does not meet current standards for recording or if the condition and/or integrity of the property has changed since its previous recording. The archaeologists will determine if sketch maps for previously documented sites require revision to describe current site conditions more accurately. Newly discovered archaeological resources within the APE, including isolated finds, will be fully documented following the documentation procedures outlined in *Instructions for Recording Historical Resources* (OHP, 1995), which utilizes California

Department of Parks and Recreation (DPR) Forms 523 A through L. Sketch maps will be drawn to-scale and the resource will be photographed. Field personnel will use a GPS receiver to document the location of cultural resources (including isolates) which will be plotted onto the appropriate U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle using the Universal Transverse Mercator (UTM) coordinate system. GPS data collection will adhere to the SQF specifications for accuracy and site-specific procedures where applicable. Additionally, the areas examined will be plotted onto the appropriate USGS 7.5-minute topographic quadrangle for comparison with previous survey coverage maps.

Archaeological surveys that occur on SQF lands will require valid Organic Act permits. Any ground disturbing testing that occurs on SQF lands will require valid Archaeological Resource Protection Act (ARPA) permits. SCE, or, as appropriate, their consultants will obtain all required permits prior to beginning field work and notify the SQF when field work is scheduled. Representative, examples of time diagnostic artifacts will be photographed, and described. All artifacts encountered during the field survey will be left in place; no artifacts will be collected during the field survey.

#### 6.12.3.1. Discovery and Treatment of Human Remains

##### FEDERALLY MANAGED LANDS

Should human skeletal materials, burials, and/or associated funerary objects be identified during the survey or other Project phases or prior to license issuance on federal land, at the moment of discovery all work in the immediate area will cease and the location of the find will be secured. Personnel responsible for the discovery will notify the SCE Cultural Resources Specialist who in-turn will notify the appropriate federal land management agency's archaeologist and law enforcement officer. The remains will be treated in accordance with protocols of the appropriate land management agency.

If the human skeletal remains are Native American and are located on federal land, FERC and SCE's Cultural Resources Specialist shall coordinate with the SQF to comply with their Native American Graves Protection and Repatriation Act (NAGPRA) protocols pursuant to 25 United States Code (USC) 3001 et seq.

##### PRIVATE OR STATE LAND

Should human skeletal materials, burials and/or associated funerary objects be identified during the survey or other Project phases or prior to license issuance, they will be treated in accordance with California Health and Safety Code (CHSC) Section 7050.5(b). At the moment of discovery, all work in the immediate area will cease and the location of the find will be secured. Personnel responsible for the discovery will notify the SCE Cultural Resources Specialist who in-turn, given that the skeletal materials are verified as human, will contact the Kern County Coroner, and a qualified archaeologist will be secured to evaluate the find to determine, in consultation with the coroner, if the remains are Native American. The skeletal remains will be treated following CHSC Section 7050.5.

#### 6.12.4. BUILT-ENVIRONMENT INVENTORY

Field inspection, documentation and subsequent NRHP evaluation of resources within the APE will be undertaken by individuals meeting the Secretary of the Interior's Professional Qualifications for Architectural History (NPS, 2021). The architectural historian will record or re-record (as appropriate, to meet current OHP and California Department of Parks and Recreation standards) each individual building or structure within the APE, including those that do not yet meet the age requirement for evaluation for the relicensing effort which in consultation with the SQF is any building or structure that will attain 45 years of age by of 2027. In addition to the hydroelectric-related resources, the architectural historian will be specifically looking for buildings, structures, and objects associated with construction, grazing, mining and recreation as well as any additional resources found during survey.

Fieldwork will include digital color photography of all resources and the production of sketch maps of individual features which show the relationship of buildings and structures within each complex that may be associated with them (e.g., an operational hydroelectric facility or a campground within the APE). When possible, GPS points will be taken of each resource that will then be plotted onto maps to create a comprehensive inventory of built-environment resources within the APE.

#### 6.12.5. NON-AMERICAN INDIAN TRADITIONAL RESOURCES

As described above, FERC is required to make a reasonable and good-faith effort to identify historic properties that may be affected by the Project. As described in 36 CFR 800.4(b)(1), this may be accomplished through sample field investigations and/or field surveys that are implemented in accordance with the *Secretary of the Interior's Standards and Guidelines for Identification* (NPS, 1983). FERC is required to consider any other applicable professional standards and Tribal, state, or local laws or procedures to complete the identification of historic properties. To assist FERC in meeting its compliance obligations, and to develop appropriate management measures for historic properties identified within the APE, a non-American Indian traditional resources inventory will be performed to identify their presence.

The inventory will be coordinated among the archaeological, built environment, and Native American Traditional Resource studies. Supervision will be a joint effort by one or more qualified, professionals who meet the *Secretary of the Interior's Professional Qualifications Standards*, and who will participate in all research, public outreach, and field work.

If a potential resource is identified during research, public outreach, and/or field work, oral interviews and/or field verification will be conducted as appropriate. Resource locations will be verified and fully documented following NRHP Bulletin No. 38, *Guidelines for Evaluating and Documenting Identification of Traditional Cultural Properties* (Parker and King, 1990, 1998). The locations of all non-American Indian TCRs identified during the survey will be entered into a GPS receiver to document the location, which will be plotted onto the appropriate USGS 7.5-minute topographic quadrangle using the UTM coordinate

system. GPS data collection will adhere to the SQF specifications for accuracy and site-specific procedures where applicable.

#### 6.12.6. NATIONAL REGISTER OF HISTORIC PLACES EVALUATION

SCE shall utilize the results of the inventories to prepare, in collaboration with the SQF, Tribes, and other relicensing participants, an Evaluation Plan that will be executed to evaluate the eligibility of potential historic properties (in this case, archaeological sites, built-environment resources, and non-American Indian TCPs) for the NRHP. The Evaluation Plan will include an assessment of past, present, and reasonably foreseeable Project effects on potential historic properties and detail the methods of evaluation to be implemented. The Evaluation Plan will be provided to the TWG as appropriate for review 30 days prior to submitting to the OHP.

#### NATIONAL REGISTER CRITERIA FOR EVALUATION

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- Are associated with events that have made a significant contribution to the broad pattern of American history; or
- Are associated with the lives of persons significant in America's past; or
- Embody the distinctive characteristics of a type, period, or method of construction; or
- Represent the work of a master; or
- Possess high artistic values; or
- Represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important to prehistory or history (NPS, 1997).

### **7.0 REPORTING AND HISTORIC PROPERTIES MANAGEMENT PLAN**

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule.

In addition, SCE may prepare interim reports during the study to apprise relevant agencies and Tribes on study implementation progress and to support ongoing consultation. The archaeological records and other sensitive information will be included in a confidential report withheld from public disclosure, in accordance with Section 304

(16 USC 4702-3) of the NHPA, and provided directly to relevant agencies and Tribes. Standard GIS shapefiles, including metadata, will be provided to relevant agencies and Tribes upon request. The information provided in the ISR/USR and confidential report will be summarized in, and appended to, the Application for New License.

SCE anticipates FERC will enter into a programmatic agreement with the ACHP, OHP, and any other agencies or entities FERC elects to include. SCE anticipates that one of the programmatic agreement stipulations will be the completion and implementation of a HPMP to be implemented during the new license term.

The HPMP will consider direct and indirect effects of continued Project Operations and Maintenance on NRHP-listed or eligible archaeological and built-environment resources and will require avoidance and protection of specified resources, whenever possible. Processes and procedures will be developed for general and site-specific treatment measures, including minimization and mitigation measures to be taken should license implementation create unavoidable adverse effects to historic properties.

## 8.0 COORDINATION WITH OTHER STUDIES

To the extent feasible, SCE will coordinate archaeological and built-environment resources field studies with other Project-related environmental studies (e.g., Tribal resources and habitat surveys) and conduct them in a manner that does not affect other sensitive natural resources. When conducting archaeological and built-environment resources or other investigations, Project sponsors should consider that Tribes may utilize natural resources for subsistence or specific ceremonial uses and should avoid affecting those uses or events while conducting studies.

## 9.0 CONSISTENCY WITH GENERALLY ACCEPTED SCIENTIFIC PRACTICE

The proposed study methods discussed in this document are consistent with the study methods followed in several recent relicensing projects along the western slope of the Sierra Nevada. These methods have been accepted by the participating Tribes, agencies, and other interested parties associated with those projects. The methods presented in this Study Plan are consistent with ACHP guidelines for compliance with the requirements of Section 106 of the NHPA found in 36 CFR 800.

## 10.0 SCHEDULE

Date	Activity
Spring 2022	Consult with resource agencies and affected Tribes regarding cultural resource studies; Conduct background research online and at the appropriate repositories
Spring–Fall 2022	Conduct cultural resource surveys, including historic-period archaeological site and built-environment evaluations
Summer–Winter 2022/2023	Compile cultural resource survey data and information

Date	Activity
Spring 2023	As needed, conduct pre-contact archaeological site evaluations and any follow-up survey and/or historic-period site or built-environment resource evaluations
August 2023	Provide Study Plan progress and schedule update with ISR
August 2024	Provide Cultural Resource Report with USR
Summer/Fall 2024	Prepare and distribute draft HPMP

HPMP = Historic Properties Management Plan; ISR = Initial Study Report; USR = Updated Study Report

## 11.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for this study is \$650,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting. The cost estimate may change because it depends on several factors including the nature and number of cultural resources identified.

## 12.0 REFERENCES

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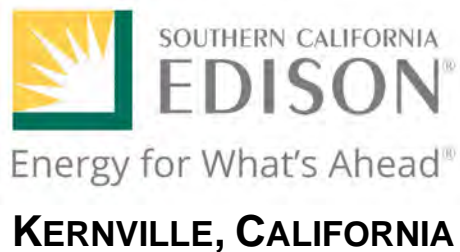
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# **TRI-1 TRIBAL RESOURCE STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

SCE along with a Technical Working Group (TWG) of Stakeholders, including the federal land-managing agency, Sequoia National Forest (SQF), Tribes, and other interested parties identified the need to conduct Tribal Resource ethnographic and ethnohistoric research. Technical professionals of the relicensing team have further acknowledged that to date there has been no investigation of the Project Area American Indian ethnography, the potential for American Indian Traditional Cultural Properties (TCPs), or the potential for other American Indian resources, some of which may be eligible for listing in the National Register of Historic Places (NRHP). This *TRI-1 Tribal Resource Study Plan* is presented to address the need to conduct this baseline research. Potential resource areas include TCPs; Tribal economic ventures; resources of traditional, cultural, or religious importance; and environmental considerations of importance to the American Indian community

Research has indicated there are no American Indian federal trust lands/allotments in the proposed Area of Potential Effects (APE), although formerly a least one federal trust allotment existed in the proposed Study Area. The Tejon Indian Tribe is the sole federally recognized Tribe in Kern County, but is as yet without federal trust land. The Tule River Indian Tribe is the only federally recognized Tribe in Tulare County, with reservation lands of nearly 50,000 acres located roughly 25 miles northwest of the Project. Several other Tribes, as discussed in the Tribal Resource Section of the Pre-Application Document (PAD), also have an interest in the Project Area.

Each Tribe may have resources of value in the Study Area. There may be Tribal gathering, fishing, or hunting areas in the Project Vicinity, as the local American Indian community continues to access medicine plants, food plants, materials for tools, and many other items as part of their ongoing traditional cultural lifeways. The communities also have a connection with certain biological species, which may not be currently present in the area, but nonetheless have value to heritage, stories, and traditional ecological knowledge (TEK). Ceremonies and cultural transmission of values (teaching youth and others) among at least one local Tribe also appears to be ongoing. Some of these places may be TCPs or other properties eligible for inclusion in the NRHP based on associations with the cultural practices, traditions, beliefs, lifeways, arts, crafts, or social institutions. Some of the resources may not be TCPs because they are not associated with the ongoing community values, but may have other ethnographic or Tribal values, and may also be eligible for NRHP listing. There is potential for both American Indian TCPs and other historic properties to be located in the Project. Located in the region there are potentially other Tribal Resources that have values other than those traditionally investigated in historic property surveys. The Federal Energy Regulatory Commission (FERC) recognizes these values. The National Historic Preservation Act (NHPA) implementing regulations from the Code of Federal Regulations, Title 36, Part 800 (36 CFR 800) apply Section 101(d)(6)(B)) of NHPA by stating that when properties of religious and cultural significance to Tribes may be affected by an undertaking, consultation with the Tribes is required, and that the Tribe shall be a consulting party. To date, neither new research nor interviews have been

conducted to identify or discuss such places of religious or cultural significance specific to this Project.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

The FERC decision to issue a new license is considered a federal undertaking pursuant to 36 CFR 800.16(y). The NHPA requires federal agencies to take into account the effect of its undertakings on historic properties and allow the Advisory Council on Historic Preservation (ACHP) an opportunity to comment.

Continued Project operation and maintenance (O&M) and other activities, including public recreation activities, may have an effect on Tribal Resources, which may include historic properties. The effect may be direct (e.g., result of ground-disturbing activities), indirect (e.g., public access to Project areas), or cumulative (e.g., caused by a Project activity or public access in combination with other past, present, and reasonably foreseeable future projects). Tribal consultants have indicated they would like to have an understanding of previous effects, and the Tribal resource study will focus on the identifying potential effects to Tribal resources.

FERC's requirements for involving Tribes outline the need to:

- Describe Tribes, Tribal lands, and Tribal interests that may be affected by the Project;
- Include analysis of existing Project construction and operations that may impact Tribal cultural or economic interests; and
- Identify impacts on Tribes from existing Project construction and operations that may affect Tribal interests (e.g., Tribal fishing practices or agreements between the Tribe and other entities) not necessarily associated with archaeological resources or other historic properties.

The Tribal Resource study proposes to identify:

- Tribal matters that exist because of the Project;
- Project effects on Tribal resources that may be direct, indirect, and/or cumulative;
- Existing agreements Tribes may have with other entities, such as the SQF regarding access to Tribal resources, including but not limited to gathering (and gathering protocols), fishing, hunting, camping, ceremony, or other special uses; and
- Resource management goals of the U.S. Forest Service and take them into account when assessing effects.

Data collected during this study will inform the following:

- *Tribal Resource Technical Study Report (TRI-1).*



- *Tribal Resource Evaluation Report* as needed (may be included in *TRI-1 Tribal Resource Technical Study Report*).
- Technical assistance to the cultural resource team, as needed.
- Tribal resource input for the Historic Properties Management Plan (HPMP) with the goal of managing NRHP-eligible Tribal resources and other resources with identified Native values.

### **3.0 STUDY GOALS AND OBJECTIVES**

The principal goal of the *TRI-1 Tribal Resource Study Plan* implementation is to assist FERC in meeting compliance requirements identified in its regulations (18 CFR Part 5) along with those requirements subject to NHPA Section 106 (as amended), among other federal laws and regulations, by determining if licensing of the Project would have an effect on Tribal Resources, which may also include historic properties. FERC desires to know to whether and to what extent the existing Project O&M may affect Tribal cultural or economic interests, Tribal cultural sites, and may have cross interests with other technical group studies. In addition to historic properties, which may be a type of Tribal resource, there are other Tribal resources that may be identified through archival research, oral interviews, field inspections, and government-to-government consultation. The study intends to ensure such places are described from a Tribal perspective and to identify options for potential O&M effects.

Research conducted to date suggests that an ethnographic overview/background of the Project Area has never been conducted. Additional goals of the Study Plan implementation are to ensure that Tribal values and resources are identified and acknowledged from a Tribal perspective, and that an adequate baseline ethnohistory is developed. Similarly, ensuring that the land-managing agencies and any other Stakeholder agencies have their program needs met with respect to the Project APE is a goal of the work. Finally, it is anticipated that management issues will be identified to be described and developed in subsequent planning efforts for the life of the license.

- Identify and document Tribal resources identified within or immediately adjacent to the proposed APE.
- Conduct an American Indian ethnographic/ethnohistoric survey of the proposed APE and Study Area.
- Conduct outreach and contact with Tribal governments and their representatives.

### **4.0 STUDY AREA AND STUDY SITES**

The Tribal resource study will focus upon the FERC Project Boundary, currently coincident with the proposed APE, and a larger Study Area proposed to be a 5-mile radius from the APE. This Study Area is a guide for archival research, development of the historic context and background statements, and general Tribal informant interviews (Figure 4-1).

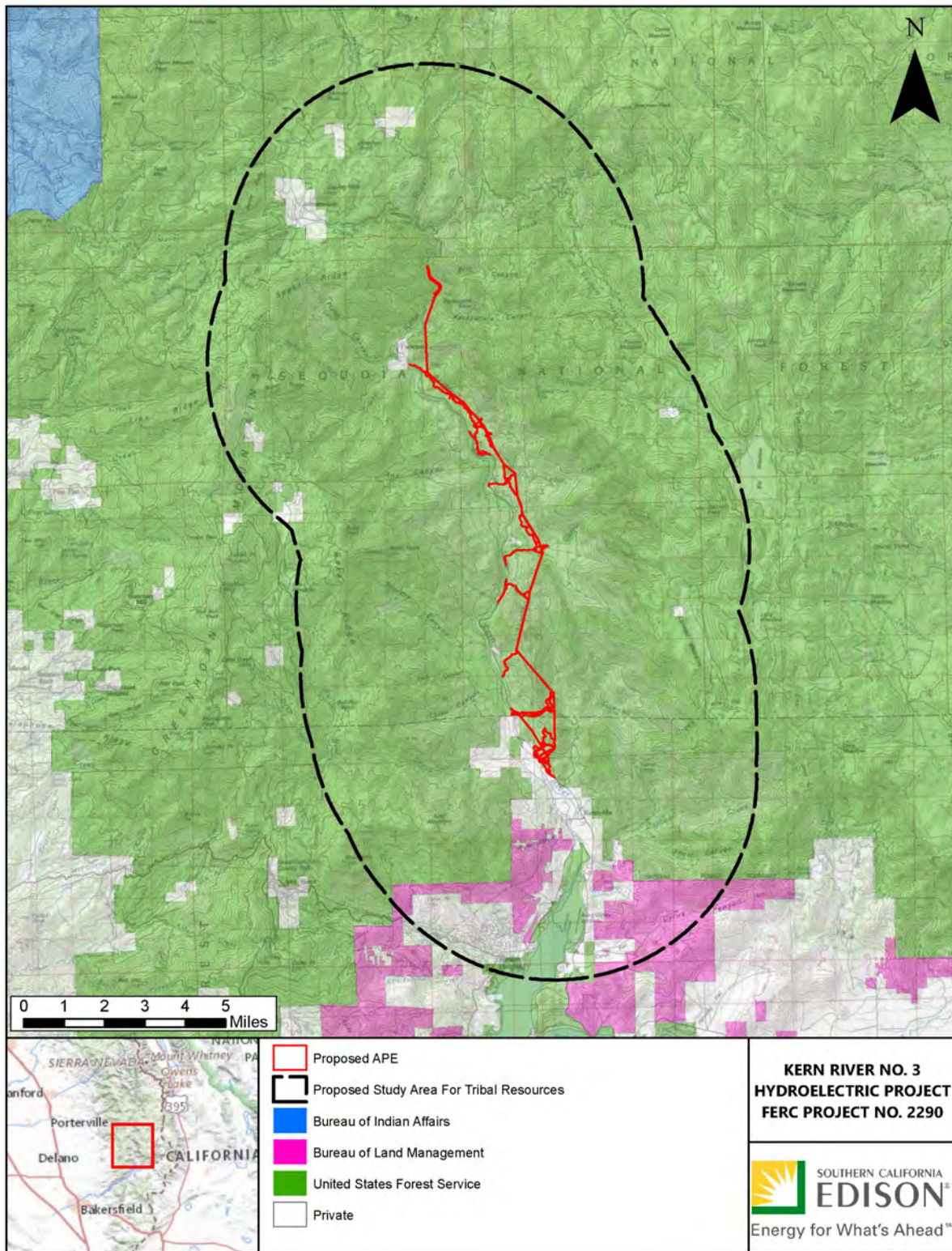


Figure 4-1. Proposed Tribal Resource APE with Study Area.

## 5.0 EXISTING INFORMATION

Section 5.12, *Tribal Resource*, of the PAD describes existing information, partially summarized in the bullets below.

- Native American Heritage Commission (NAHC) Sacred Lands File and Native American Consultation List (NAHC, 2020) identified 13 Tribal groups with affiliation to the Project Area.
- Nineteen cultural affiliations/heritage associations have been identified by extracting data from mid-late 20th century ethnographic work in the vicinity.
- An ethnographic background for the existing license (Blount, 1990; Blount and McCarthy, 1990) provided some information about resources. Other available ethnographic literature includes Davis-King et al., 2010; Stephen Powers, 1976; Smith, 1978; C. Voegelin, 1935a, 1935b; E. Voegelin, 1938.
- Local historian, Bob Powers (1974, 1979, 1980, 1989, 1999, 2003) provided extensive summaries of historic and American Indian issues in the region.
- The Garcés Diary (Coues, 1900) of pre-statehood exploration in the Study Area provided details about lifeways, trade patterns, and cultural affiliations.
- The Project is located in the specific drainage and general vicinity of the 1862 massacre of the Kern River people.
- Numerous named places known in the Study Area have been identified to include villages, gathering locales, sacred areas, burial grounds, fishing locales, hunting grounds, and more.

These background data are applicable to a broader territory than the Project APE, and to date there has not been an investigation of the main stem of the Kern River. Previous ethnographies have focused on nearby and related Tribal groups but not on the specific Project Area Tribal group, the Palawan.

## 6.0 STUDY APPROACH

### 6.1. GENERAL CONCEPTS

- Personal safety is an important consideration of each fieldwork team. If SCE determines the information cannot be collected in a safe manner, SCE will notify FERC and relicensing participants via email to discuss alternative approaches to perform the study.
- SCE shall obtain permission to access private property where needed. If access is not granted, or if it is not feasible or safe, SCE will notify FERC and relicensing participants via email to discuss alternative approaches to perform the study.
- SCE shall treat all information regarding the specific locations of Tribal resources as privileged and confidential if the Tribes express this need.

## **6.2. STUDY METHODS**

The methods proposed to meet study goals are listed below.

## **6.3. ARCHIVAL RESEARCH**

As needed during the implementation of the studies, archival research will be conducted at most of the repositories listed below to obtain additional information specific to the prehistory, ethnography, and history of the Project Area. The results of the archival research will (1) provide primary data to create a background American Indian ethnohistory of the proposed Study Project Area, and (2) inform the Tribal resource historic context against which such resources may be evaluated for the NRHP.

The Tribal resource expert will conduct background archival research of the Study Area. This will involve visits to many repositories, which may include:

- Annie Mitchell Local History Research Room, Tulare County Library, Visalia
- Autry Museum of the American West, Los Angeles
- California State Archive
- California State Library, California History Room
- Fort Tejon Historical Association
- Fort Tejon State Historic Park, Fort Tejon
- Hulse and Essene (Berkeley and elsewhere)
- Harrington (n.d.) fieldnotes (available online?)
- Huntington Library
- Kern County Museum, Bakersfield
- Kern Valley Historical Society and Museum, Kernville
- Kern County Historical Society, Bakersfield
- Tulare County Historical Society, Visalia
- California State University Bakersfield Archives
- Maturango Museum, Ridgecrest
- National Archive and Records Administration (Riverside and San Bruno)
- Pomona Public Library, Pomona
- SQF
- Southern California Edison Archive (Huntington Library)

- University of California, Berkeley, Bancroft Library (Waterman, n.d.)
- University of California, Davis, C. Hart Merriam Collection
- University of California, Riverside, J. P. Harrington Field Notes

Background research will be conducted as needed throughout the life of the Project.

## **7.0 ASSIST OTHER RESOURCE SPECIALISTS**

Other resource areas may have a connection to Tribal resources. This includes various biological areas, water, trails and recreation, among other areas. As needed, the Tribal resource expert will work to assist other resource experts. Assistance to the cultural resource team is anticipated to aid field identification and documentation of historic American Indian resources, potential gathering areas, and other places that may have value to Tribes.

## **8.0 MEETINGS WITH TRIBAL GOVERNMENTS**

Meetings with Tribal governments or administrators and/or attendance at Tribal Council meetings are proposed to provide Project data to Tribal groups, elicit areas of interest, identify appropriate Tribal informants, and establish protocols for conveying information. To date, 13 Tribes have been identified as having potential interests in the Project:

1. Big Pine Paiute Tribe of Owens Valley
2. Chumash Indian Council of Bakersfield
3. Fort Independence Indian Community of Paiute Indians/Fort Independence Reservation
4. Kawaiisu Tribe
5. Kern Valley Indian Community
6. Kitanemuk & Yowlumne Tejon Indians
7. Lone Pine Paiute-Shoshone Tribe
8. Santa Rosa Indian Community of The Santa Rosa Rancheria
9. Tejon Indian Tribe
10. Tübatulabals Of Kern Valley
11. Tule River Indian Tribe
12. Wuksache Indian Tribe/Eshom Valley Band
13. Yak Tit̕u Tit̕u Yak Tihini - Northern Chumash Tribe

One Tribe has participated in TWG meetings to date and is expected to participate further in this study. Another Tribe responded to FERC's release of the draft PAD and requested information from the cultural resource team. All Tribal groups will be contacted via telephone or email at a minimum to elicit their interest. At least three Tribal government meetings are anticipated.

## **9.0 INTERVIEWS**

Fifteen interviews are proposed with Tribal experts to gain understanding about what is important to them and why. Knowledgeable individuals from each of the participating Tribes will be interviewed. The methods and nature of the interviews are expected to vary from person to person, while some may be held in the field Project Area, others held in private homes, and still others held via telephone or teleconference. Interview records are similarly likely to be variable regarding confidentiality protocols and the Tribal expert's willingness to share. Recording methods (handwritten notes, video, audio tape, etc.) will be determined by consulting with the informant.

## **10.0 DOCUMENTATION AND EVALUATION**

Three main categories of Tribal resources are anticipated. These are: (1) Tribal Places; (2) TCPs; and (3) Tribal Matters. Each is documented in a different manner. Tribal places may be potential historic properties, places associated with the ancestral past, related to current gathering and/or hunting practices, or other resource types. Those that qualify as potential historic properties will be documented on California Department of Parks and Recreation (DPR) 523 forms as appropriate and with Tribal permission, while others will be described in the TRI-1 Study. TCPs will be documented on DPR 523 forms. Tribal Matters may be documented in the TRI-1 Study or may be larger resource types. All resources will be documented and described according to Tribal values and submitted for review to Tribal representatives. NRHP evaluation of Tribal resources suitable for DPR 523 documentation will use site-specific procedures to identify historic context of the resource, the boundaries, the jurisdiction or land ownership, the Tribal significance, integrity from a Tribal perspective, and contributing characteristics. Evaluation of other resource types may occur at the managerial or agency level.

## **11.0 REPORTING AND HISTORIC PROPERTIES MANAGEMENT PLAN**

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule.

In addition, SCE may prepare interim reports during the study to apprise relevant agencies and Tribes on study implementation progress and to support ongoing consultation. Tribal Resource documentation and other sensitive information may be included in a confidential report withheld from public disclosure, in accordance with



Section 304 (United States Code, Title 16, Section 4702-3) of the NHPA. The California Public Records Act similarly exempts site data from disclosure while Public Resources Code Section 21082.3(c) contains provisions specific to confidentiality related to any information submitted by a Tribe during the environmental review process, including, but not limited to, the location, description, and use of the Tribal cultural resources. The information provided in the ISR/USR and confidential reports will be summarized in, and appended to, the Application for New License.

SCE anticipates FERC will enter into a programmatic agreement (PA) with the ACHP, California Office of Historic Preservation, and any other agencies or entities FERC elects to include. SCE anticipates that one of the PA stipulations will be the completion and implementation of a HPMP through the new license term.

The HPMP will consider direct and indirect effects of continued Project O&M on NRHP-listed or Tribal resources and will require avoidance and protection of specified resources, whenever possible. Processes and procedures will be developed for general and resource-specific treatment measures, including mitigation measures to be taken should license implementation create unavoidable adverse effects to historic properties.

## **12.0 COORDINATION WITH OTHER STUDIES / WORK WITH OTHER TECHNICAL LEADS TO INTEGRATE TRIBAL CONSIDERATIONS**

To the extent feasible, SCE will coordinate Tribal resource studies with other Project-related environmental studies (e.g., cultural resources and habitat surveys) and conduct them in a manner that does not affect other sensitive natural resources. When conducting Tribal resource investigations, Project sponsors and/or their contractors should consider that Tribes may utilize natural resources for subsistence, medicine, tools, ceremonial uses, and other activities, and should avoid affecting those uses or events while conducting studies.

## **13.0 CONSISTENCY WITH GENERALLY ACCEPTED SCIENTIFIC PRACTICE**

The Tribal resource investigation will make a good-faith effort at proper communication with Tribal leaders as laid out in FERC's *Policy Statement on Consultation with Indian Tribes in Commission Proceedings*, issued July 23, 2003 (Docket No. PL03-4-000; Order No. 635; FERC 2003). The investigation will also follow the FERC regulations at 18 CFR § 2.1c, which added a policy statement on consultation with Tribes in FERC proceedings.

All phases of the Tribal Resource investigation will be conducted in accordance with the American Indian community consultation standards outlined by the implementing regulations of Sections 101 and 106 of the NHPA and discussed in the 2012 ACHP publication *Consultation with Indian Tribes in the Section 106 Review Process: A Handbook*.

Potential TCP documentation, consultation, and any necessary fieldwork will be implemented in accordance with Section 106 of the NHPA, as amended, and shall take into consideration National Register Bulletin No. 38, *Guidelines for Evaluating and*

*Documenting Identification of Traditional Cultural Properties* (Parker and King 1990, 1998).

Tribal Resource documentation will be implemented in accordance with FERC regulations and with Section 106 of the NHPA, as amended, if such resources are potential historic properties, and shall take into consideration National Register Bulletin No. 38 (Parker and King 1998).

NRHP evaluations will be conducted in adherence with National Register Bulletin No. 15, *How to Apply the National Register Criteria for Evaluation* (NPS 1995), and other NRHP Bulletins as appropriate.

#### 14.0 RELATIONSHIP TO OTHER STUDIES

Tribal resources may include animals, plants, the air, the sky, water, archaeological sites, gathering areas, hunting locales, places in stories, and many more categories. Thus, from a Tribal perspective, all of the relicensing studies are investigating some sort of Tribal resource. This will be considered in the study analysis, with several specific aspects listed below:

- The location of culturally important plant species identified by Tribes will be incorporated into the TRI-1 Study, as appropriate, and shared with the botanical resource study team.
- Information about culturally important aquatic species, including fisheries, identified by Tribes will be incorporated into the TRI-1 Study, as appropriate, and shared with the proposed aquatic resource study team.
- Information about culturally important terrestrial animal species identified by Tribes will be incorporated into the TRI-1 Study, as appropriate, and shared with the proposed terrestrial resource study team.
- The locations of culturally important plant and/or animal species will be considered in the Recreation and Land Use Study, to the extent possible without divulging confidential information.
- Information on sites associated with prehistoric and ethnographic-period American Indian occupation and use of the landscape will be identified in both the TRI-1 and CUL-1 Studies.

#### 15.0 SCHEDULE

Date	Activity
Spring 2022	Work with Tribal groups to arrange meetings and establish protocols; Meet with relevant resource agencies and affected Tribes regarding Tribal resource studies; Conduct archival research online and at appropriate repositories
Summer–Fall 2022	Conduct Tribal site visits and assist with cultural resource surveys
Spring–Summer 2023	Continue identification and evaluation of Tribal resources, as needed



Date	Activity
August 2023	Provide study plan progress and schedule update with ISR
August 2024	Provide Tribal Resources Report with USR
Summer–Fall 2024	Prepare and distribute draft HPMP

HPMP = Historic Properties Management Plan; ISR = Initial Study Report; SQF = Sequoia National Forest; USR = Updated Study Report

## 16.0 LEVEL OF EFFORT AND COST

The cost estimate (2022 dollars) for this study through the HPMP is estimated to be \$70,000 to \$95,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 17.0 REFERENCES

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# LAND-1 ROAD CONDITION ASSESSMENT STUDY PLAN

**KERN RIVER No. 3 HYDROELECTRIC PROJECT**  
***FERC PROJECT No. 2290***

***PREPARED FOR:***



Energy for What's Ahead®

**KERNVILLE, CALIFORNIA**

July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Erosion on or adjacent to Kern River No. 3 (KR3) Hydroelectric Project (Project) Roads and Shared Access Roads may deliver sediment to adjacent drainages.
- Protection of resources during Project operation and maintenance (O&M) activities.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

Certain roads located on Sequoia National Forest (SQF) and on Southern California Edison Company (SCE)-owned lands are necessary to access various Project facilities for O&M of the Project. Identify locations with erosion or sources of sediment that may be improved by redesign or repair. Refer to the *GEO-1 Erosion and Sediment Study Plan* regarding runoff from roads with potential to affect streams.

## 3.0 STUDY GOALS AND OBJECTIVES

- Reconnaissance level inventory of Project and Shared Access Roads within the Federal Energy Regulatory Commission (FERC) Project Boundary to document current road conditions.
- Characterize SCE's current maintenance practices and frequency of use along Project and Shared Access Roads.
- Characterize the frequency and type of use along Project and Shared Access Roads.

## 4.0 EXTENT OF STUDY AREA AND STUDY SITES

The study area includes Project and Shared Access Roads that are used to access Project facilities to conduct O&M activities. A list of Project and Shared Access Roads are listed on Table A-1 in Appendix A and shown on the map series in Appendix B.

## 5.0 EXISTING INFORMATION

The following information was included as part of SCE's Pre-Application Document (PAD) and reviewed to determine Road Condition Assessment study needs.

The FERC Project Boundary includes 33 roads (totaling over 18 miles) that SCE uses to access Project facilities to conduct ongoing O&M activities. The majority of these roads are on federal lands. A short segment (approximately 0.5 mile) of the KR3 Powerhouse Access Road is located on SCE-owned lands. SCE conducts maintenance on these roads to sustain access to Project facilities. The SQF Shared Access Roads are accessible by public to access other areas within the SQF.

These access roads are unpaved and may be susceptible to erosion where runoff flows from graded areas to natural slopes. To minimize erosion along the access roads and retain the original drainage to the extent possible, SCE routinely re-grades any disturbed

areas to follow the pre-disturbance natural ground contours (SCE, 1997). To reduce erosion and dissipate energy from flowing water, SCE installs water bars constructed from earth, concrete, or sandbags on steep slopes where necessary and applicable. Straw bales and sediment fences may also be installed to slow water flow and filter and capture sediment. Maintenance of dirt/native roads is described in Section 4.0 of the PAD and generally occurs annually or as needed.

Minor Project maintenance includes:

- Grading approximately within the road prism
- Debris removal and basic repairs including filing of potholes
- Maintenance of erosion control features such as drains, ditches, and water bars
- Repair, replacement, or installation of access control structures such as posts, cables, and barrier rock
- Cleaning and clearing debris and sediment from culverts with a backhoe or hand shovel
- Repair and replacement of signage
- Vegetation management may be conducted concurrently with road maintenance on an as-needed basis

Major Project Road maintenance includes:

- Placement or replacement of culverts and other drainage features

Most roads within the FERC Project Boundary have unrestricted public access (i.e., no gate). Roads or road segments with restricted public access (i.e., behind SCE-owned gates) are around Project facilities including Fairview Dam and the KR3 Powerhouse, as noted on Table A-1.

## **6.0 STUDY APPROACH**

### **6.1. STUDY-SPECIFIC CONSULTATION**

- Review and consult with the SQF on roads to be included as part of the evaluation.
- If available, obtain additional road information from SQF and incorporate information into the desktop analysis.

### **6.2. DESKTOP ANALYSIS**

- With support from SCE O&M staff, compile past studies and/or road maintenance projects that may include information on location and size of culverts and frequency of maintenance activities.

- Qualitatively characterize the types of known use of Project and Shared Access Roads.
- Use desktop geographic information system (GIS) to compile data of available road features (i.e., culverts) and develop annotated maps for use during the Reconnaissance Level Condition Assessment.

### **6.3. RECONNAISSANCE LEVEL CONDITION ASSESSMENT**

- Road Inventory
  - All Project and Shared Access Roads will be surveyed with respect to U.S. Forest Service criteria for the assigned maintenance level (USFS 2005, 2014) to assess the current condition relative to prescribed maintenance levels and standards.
  - The following information will be collected:
    - Land ownership/jurisdiction;
    - Route, road, or spur number (and common name, if applicable);
    - Beginning and end points, and overall length;
    - Average width;
    - Surface type (e.g., paved, gravel, dirt);
    - Overall road condition, including identification of issues pertaining to condition such as active erosion, potholes, ruts, loose aggregate, missing aggregate, cracking, debris, and excessive vegetation;
    - Location, size, and condition of culverts, erosion control features such as water bars, and other drainage features;
    - Delineation of natural resource features that may occur along Project roads, such as stream crossings and riparian areas;
    - Location and condition of signs (i.e., safety, traffic control, or informational);
    - Location of access control features such as gates and other closure methods; and
    - Location of informal trailheads located adjacent to Project or Shared Use Roads;
  - All road features and evidence of active erosion or sediment sources will be photographed and located using a sub-meter Global Positioning System (GPS) unit, and the data will be incorporated into the Project GIS database for tabulation, analysis, and mapping.

- Document any notable indicators of culvert capacity in relation to stream flow (e.g., signs of plugging, condition of drainage structures).
- Describe SCE maintenance practices and frequency of activities, including culvert clearing and vegetation management and/or avoidance measures for the protection of sensitive resource areas.
- Characterization of Use
  - Document SCE's frequency of use on Project and Shared Access roads.
    - SCE employees to keep monthly travel logs to note location and frequency of use on each road segment.
    - SCE will also note any public use of Project and Shared Access Roads when traveling to/from Project facilities (i.e., capture use during weekdays).
  - Document public's use of Project and Shared Access roads through spot counts.
    - Spot counts will be conducted along Project and Shared Access Roads. During each spot count, the following information will be recorded: date, time, weather conditions, number of vehicles observed, and type of recreation activities being participated in, if applicable. SCE will work with the SQF to develop a spot count form prior to the 2023 to 2024 field season.
    - SCE will conduct spots counts on 1 weekend day (Saturday or Sunday) per month from approximately April 2023 to March 2024, for a total of 12 days throughout the study period. Weekend spot counts will include three holiday weekends: Memorial Day (May 28 to 30, 2023); Fourth of July (July 2 to 4, 2023); Labor Day (September 3 to 5, 2023).
    - As relevant, incorporate any data collected from the *REC-2 Recreation Facilities Use Assessment* spot counts.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the study plan and schedule and the data collected, including an explanation of any variance from the study plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Standard GIS shapefiles, including metadata, will be provided to relevant agencies upon request. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.



In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

SCE is proposing to conduct this study during as outlined below.

Date	Activity
Fall/Winter 2022	Consult with SQF and compile existing resource information
Spring 2023	Conduct road inventory
Spring 2023–Spring 2024	Conduct road use spot counts
August 2023	Provide Study Plan progress and schedule update with ISR
Spring–Summer 2024	Analyze road use data and prepare Technical Memo
August 2024	Provide Technical Memo in USR

ISR = Initial Study Report; SQF = Sequoia National Forest; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$75,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

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**APPENDIX A**  
**PROJECT AND SHARED ACCESS ROADS**

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**Table A-1. Project and Shared Access Roads**

SCE Road Name	SQF Road ID/Name	Road Start/End	Approx. Length (feet)	Approx. Road Width (feet)	Surface	Land Ownership	Gate
Sandbox Access Road	--	Mountain Road 99/Sandbox	709	16	Aggregate	SQF	Yes
Tunnel 1/4 Flume Access Road	23S20 –Roads End G.S.	Mountain Road 99/Tunnel 1/4 Flume	198	12	Paved/Aggregate	SQF	No
Tunnels 5-8A Access Road	--	Mountain Road 99/Tunnel 8B Access Road	12,331	12	Native	SQF	No
Tunnel 8A/8B Flume Access Road	--	Rincon Access Road/Tunnel 8A/8B Flume, Tunnel 8B Portal	2,387	12	Native	SQF	No
Salmon Creek Diversion Access Road	--	Rincon Access Road/Salmon Creek Diversion	1,128	12	Native	SQF	No
Rincon Access Road	24S89-Rincon (portion)	Mountain Road 99/Tunnels 10-12 Access Road	6,410	12	Native	SQF	No
Tunnel 9A/9B Flume Access Road	--	Rincon Access Road/Tunnel 9A/9B Flume	127	12	Native	SQF	No
Tunnel 9B Spur Road	24S89-Rincon (portion)	Rincon Access Road/end	758	12	Native	SQF	No
Tunnels 10-12 Access Road	--	Rincon Access Road/Tunnel 11/12 Flume	3,050	12	Native	SQF	No
Tunnel 10/11 Flumes Access Road	--	Tunnels 10-12 Access Road/Tunnel 10/11 Flumes	175	12	Native	SQF	No

SCE Road Name	SQF Road ID/Name	Road Start/End	Approx. Length (feet)	Approx. Road Width (feet)	Surface	Land Ownership	Gate
Rincon Trail Access Road	33E23	Mountain Road 99/Rincon Access Road	3,644	12	Native	SQF	No
Rincon Trail Access Road Spur	--	Mountain Road 99/Rincon Access Road	829	12	Native	SQF	No
Tunnel 12/13 Flume Access Road	--	Gold Ledge Access Road/Tunnel 12/13 Flume, portals	3,351	12	Native	SQF	No
Gold Ledge Access Road	--	Mountain Road 99/Tunnel 13/15 Flumes, portal	4,436	12	Native	SQF	No
Tunnel 14/15 Flume Access Road	--	Gold Ledge Access Road/Tunnel 14/15 Flume, portals	2,693	12	Native	SQF	No
Tunnel 16/17 Flume Access Road	--	Corral Creek Flumes Access Road/Tunnel 16/17 Flume, portal	5,818	12	Native	SQF	No
Corral Creek Flumes North Access Road	--	Corral Creek Diversion Access Road/Corral Creek Flumes	1,082	12	Native	SQF	No
Corral Creek Diversion Access Road	--	Mountain Road 99/Corral Creek Diversion	8,207	12	Native	SQF	No
Corral Creek Flumes South Access Road	--	Corral Creek Diversion Access Road/Corral Creek Flumes	1,165	12	Native	SQF	No
Tunnel 18/19 Flume Access Road	--	Mountain Road 99/Tunnel 18/19 Flume, portal	5,908	12	Native	SQF	No

SCE Road Name	SQF Road ID/Name	Road Start/End	Approx. Length (feet)	Approx. Road Width (feet)	Surface	Land Ownership	Gate
Tunnel 19/20 Flumes Access Road	--	Tunnel 18/19 Flume Access Road/Tunnel 19/20 Flumes, portal	883	12	Native	SQF	No
Cannel "Brush" Creek Siphon Spillway Access Road	--	Cannel "Brush" Creek Access Road/Cannel "Brush" Creek Siphon Spillway	6,455	12	Native	SQF	No
Cannel "Brush" Creek Access Road	--	Mountain Road 99/Brush Creek Siphon-Siphon Spillway Access Road	5,446	12	Native	SQF	No
Cannel "Brush" Creek Siphon Access Road	--	Cannel "Brush" Creek Access Road/Cannel "Brush" Creek Siphon	941	12	Native	SQF	No
Kern River No. 3 Forebay Access Road	--	Mountain Road 99/Kern River No. 3 Forebay	8,334	12	Native/ Concrete		No
Kern River No. 3 Machine Shop Access Road	--	Mountain Road 99/Kern River No. 3 Powerhouse	1,445	16	Paved	SQF SCE	Yes
Kern River No. 3 Penstocks North Access Road	--	Mountain Road 99/Kern River No. 3 Penstocks	1,300	12	Native		No
Kern River No. 3 Penstocks South Access Road	--	Mountain Road 99/Kern River No. 3 Penstocks	1,157	12	Native		No
Chlorinator House Access Road	--	Mountain Road 99/Chlorinator House and Water Tanks	821	12	Native	SQF	No

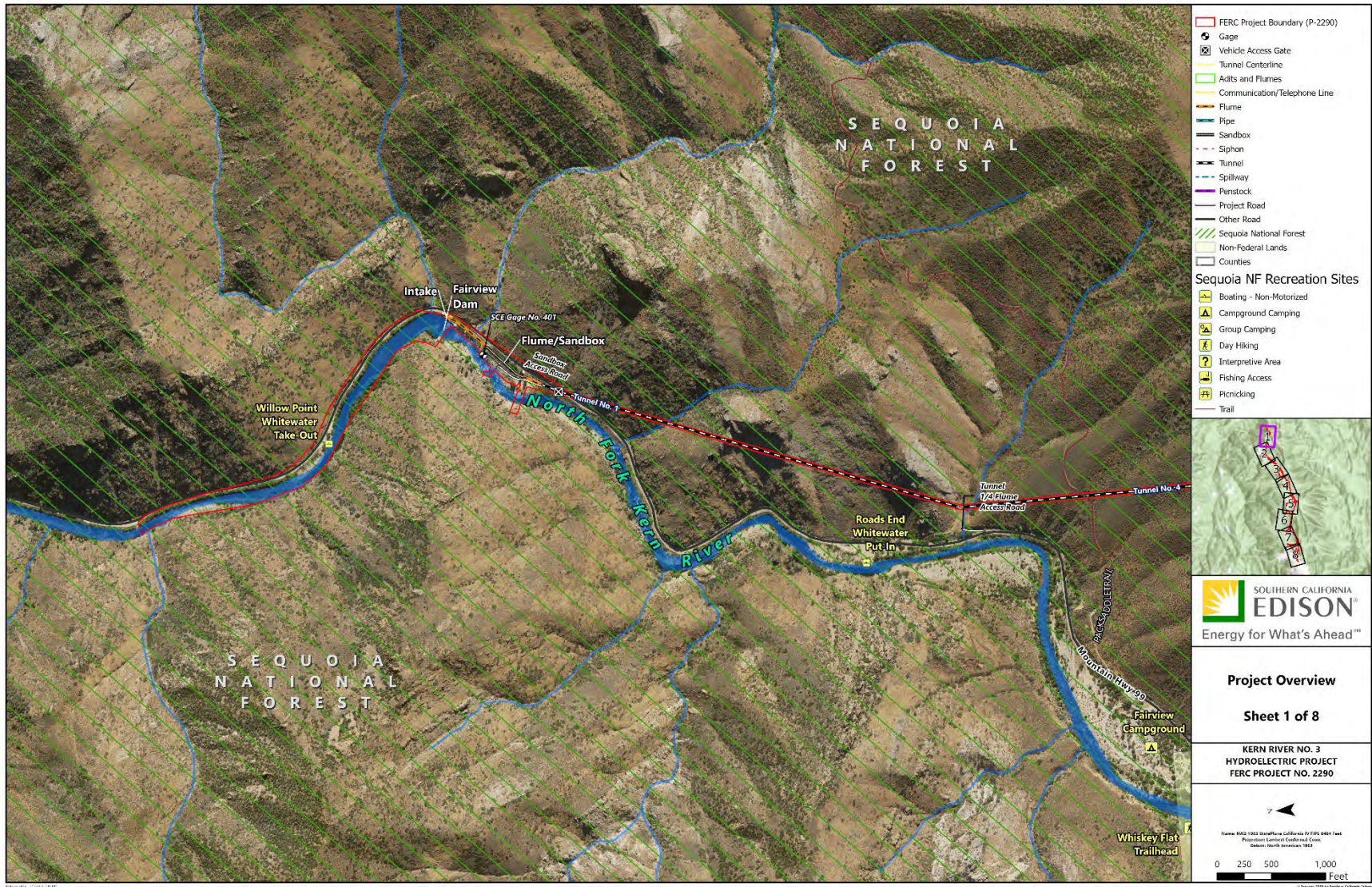
SCE Road Name	SQF Road ID/Name	Road Start/End	Approx. Length (feet)	Approx. Road Width (feet)	Surface	Land Ownership	Gate
Kern River No. 3 Powerhouse Access Road	--	Mountain Road 99/Kern River No. 3 Powerhouse	3,053	16	Paved	SQF SCE	Yes
Kern River No. 3 Warehouse Access Road	--	Kern River No. 3 Powerhouse Access Road/Kern River No. 3 Warehouse	1,003	16	Paved	SCE	No
Kern River No. 3 Campus Access Road	--	Mountain Road 99/Kern River No. 3 Powerhouse	806	16	Paved	SQF	Yes
Kern River South Garage Access Road	--	Mountain Road 99/Kern River South Garage	377	12	Native	SQF	No

FERC = Federal Energy Regulatory Commission; SCE = Southern California Edison Company; SQF = Sequoia National Forest



**APPENDIX B  
MAP SERIES**

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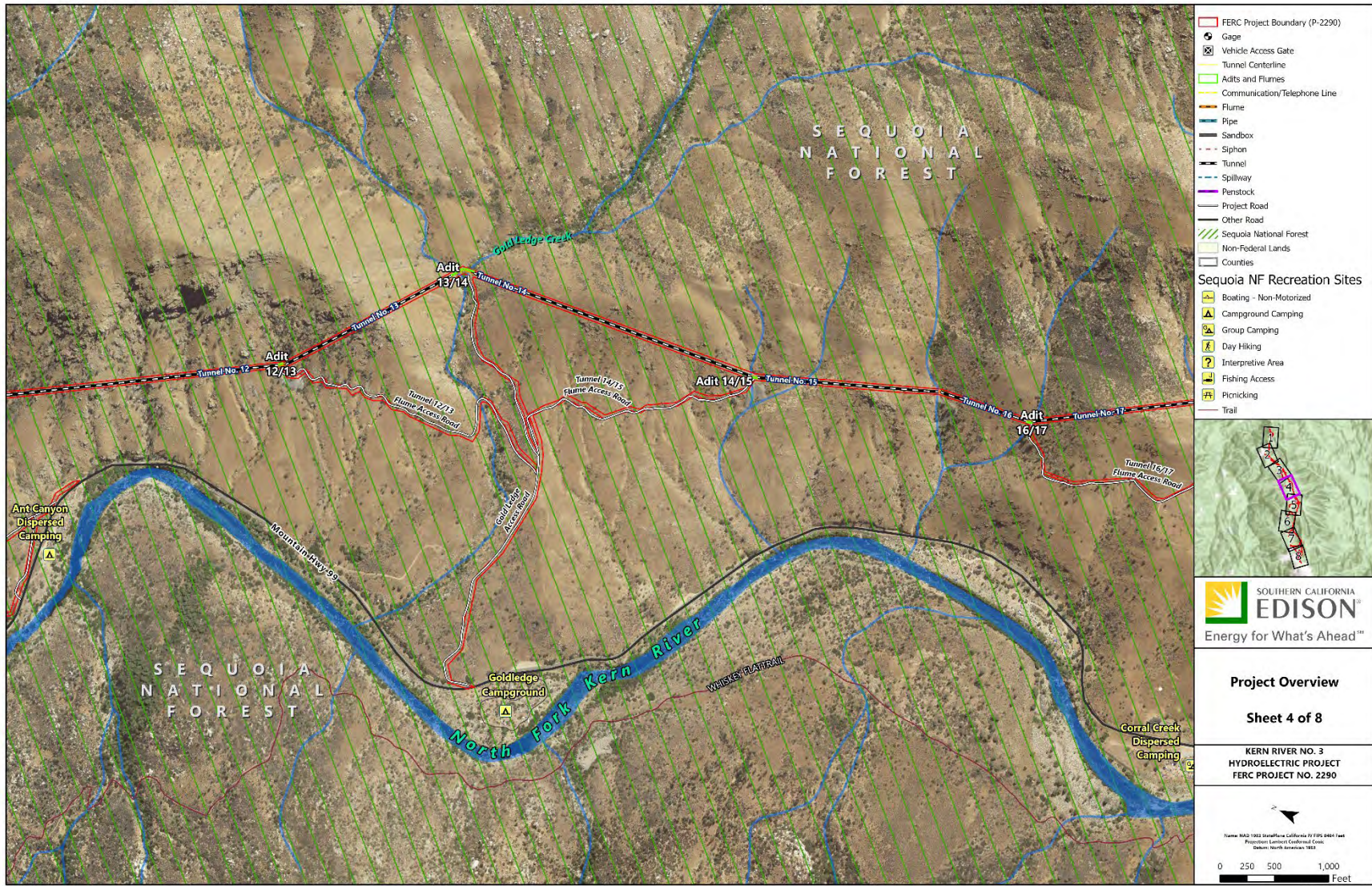




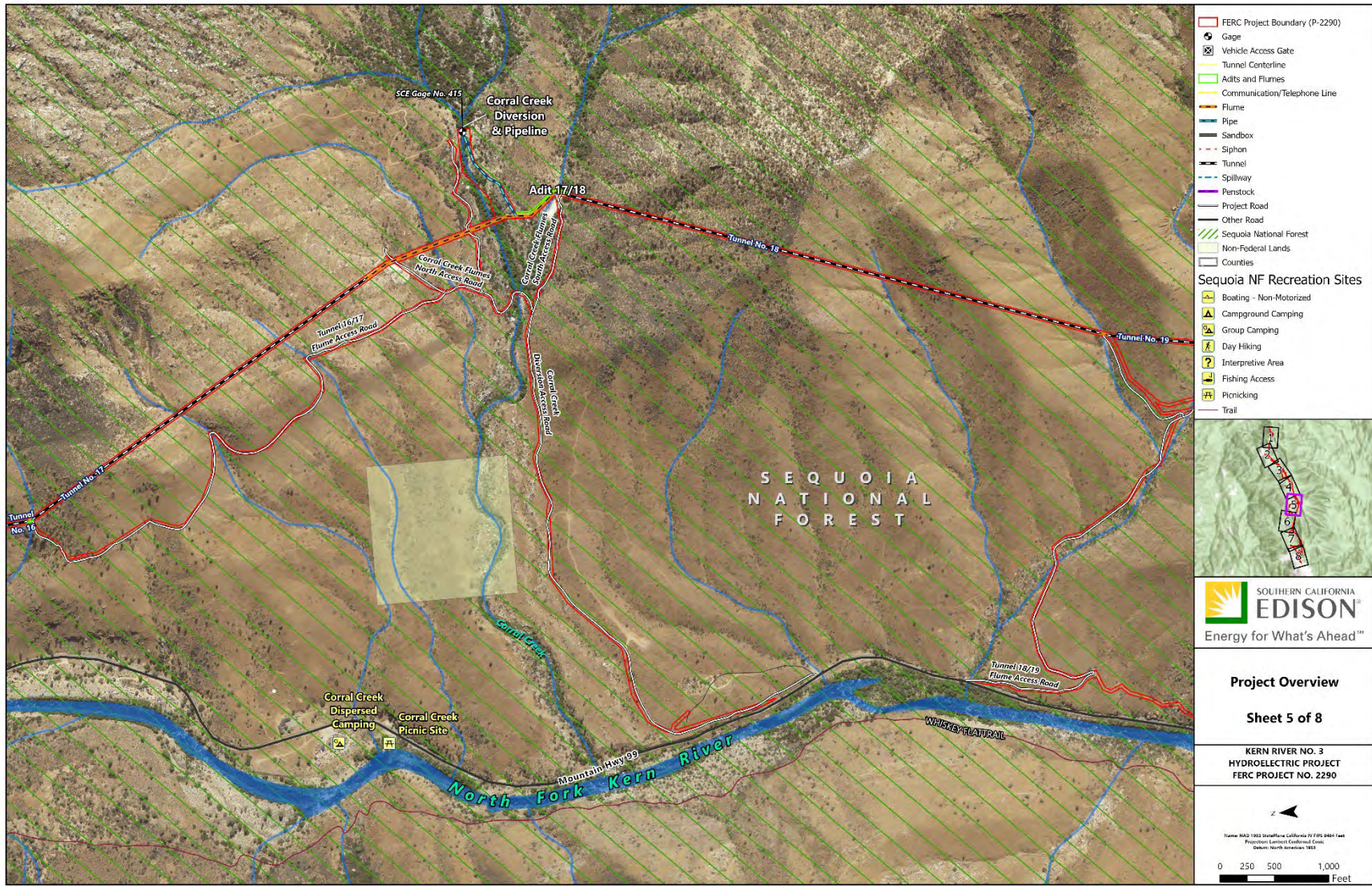








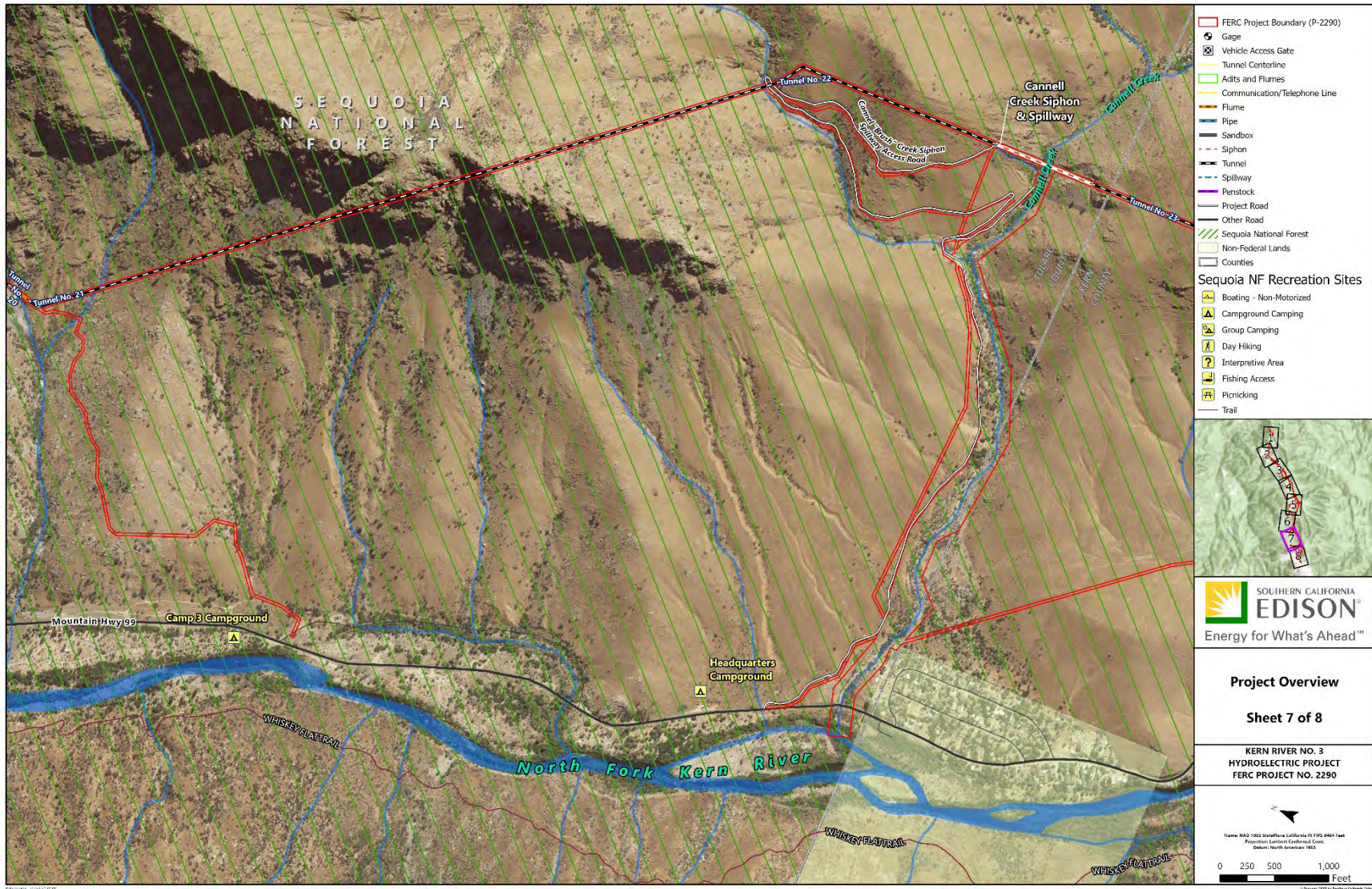




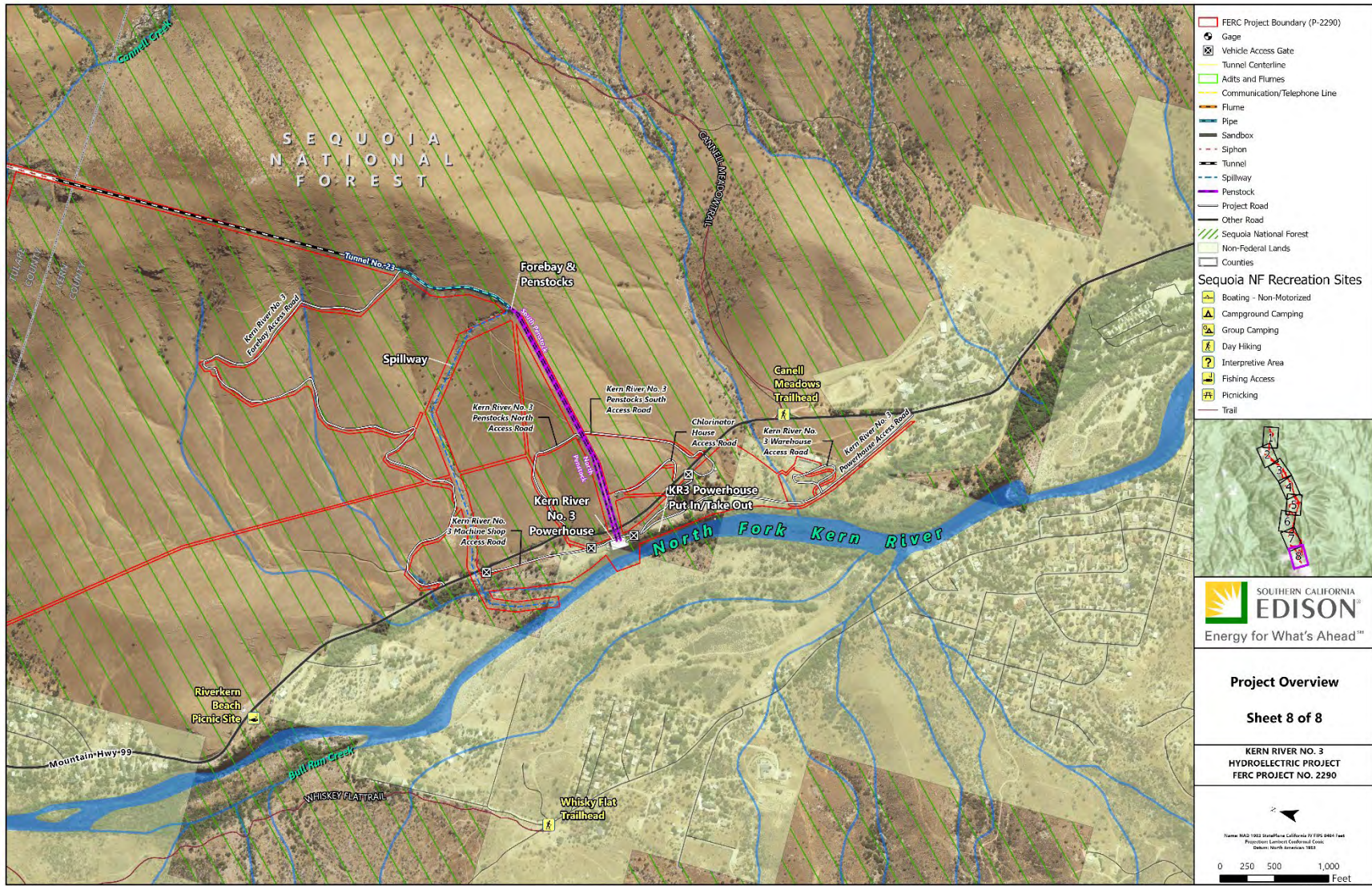








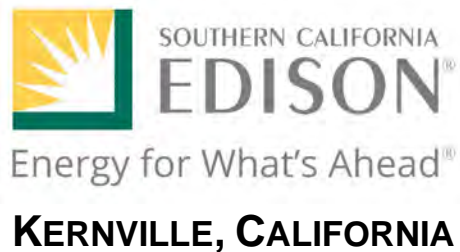




# **GEO-1 EROSION AND SEDIMENTATION STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## **1.0 POTENTIAL RESOURCE ISSUE**

- Kern River No. 3 Hydroelectric Project (Project) routine operation and maintenance (O&M) activities have the potential to contribute to erosion and sediment delivery to adjacent drainages.

## **2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED**

- Routine Project O&M activities have the potential to increase erosion and sediment delivery to nearby drainages. Runoff from hard surfaces such as roads and structures can cause surface erosion and potentially contribute to mass wasting. Refer to Study Plan *LAND-1, Road Condition Assessment*, regarding an evaluation of Project and Shared Access Roads that are used to access Project facilities to conduct O&M activities. Eroded soil and debris can affect water quality (e.g., turbidity), stream channel geomorphology, and aquatic habitats if delivered directly to waterbodies or stream channels. The use of Project dam spillways and dam outlet release facilities can cause erosion in the area near the point of discharge, resulting in potential effects to the downstream stream channel and aquatic habitats.
- Additional data are needed to characterize the potential for increased erosion at Project facilities due to routine O&M activities.

## **3.0 STUDY GOALS AND OBJECTIVES**

This study will include a reconnaissance level inventory and assessment of erosion and sedimentation to identify the extent to which Project facilities—including structures—are contributing to erosion. This study will inform the assessment of potential effects of erosion and sedimentation caused by Project operations and/or runoff from Project-related facilities and/or other hard surfaces.

## **4.0 STUDY AREA AND STUDY SITES**

The study area includes Project facilities and features. A road assessment, including documentation of road-side erosion, is addressed in Study Plan *LAND-1, Road Condition Assessment*. Specific study sites include:

- Project spillways, including Kern River No. 3 Powerhouse Spillway and Cannell Creek Siphon Spillway.
- Project diversions, including Fairview Dam, Salmon Creek Diversion, and Corral Creek Diversion.
- Uncovered Conveyance Flowline flume segments.
- Project-related buildings and parking areas, including the KR3 Powerhouse.
- Project spoil piles.



## **5.0 EXISTING INFORMATION**

The Kern River No. 3 Pre-Application Document (July 2021) reviewed existing, relevant, and reasonably available information associated with erosion in the Project Area. As there are no major proposed changes to the existing Project, sources of erosion and sedimentation include routine activities associated with maintenance (e.g., dam and diversion structures, the water conveyance system, and buildings), minor improvements (e.g., removing accumulated sediment/large debris from the diversion pools), and operation of the existing Project (e.g., spillways and other release locations).

Previous assessments identified the potential for erosion associated with the spill channel located between the KR3 Powerhouse forebay structure and the North Fork Kern River. Southern California Edison Company (SCE) stabilized the section by placing riprap along 200 to 300 feet of the spill channel (FERC, 1996). SCE also developed a comprehensive erosion control plan in 1997 in response to License Article 401 and Forest Service Condition 7 (SCE, 1997). The plan includes application of erosion-control structures as protective measures against erosion, including structures such as riprap and rock in areas prone to significant flows and in areas prone to erosion.

## **6.0 STUDY APPROACH**

The study methods will consist of the following three tasks:

### **Task 1: Desktop Review**

Conduct an initial review of maps, geological and soils data, construction O&M records, and interviews with maintenance personnel to provide information about the locations, causes, and relative severity of past erosion, as well as potential sediment delivery to streams and reservoirs.

### **Task 2: Geomorphic Interpretation**

Topographic maps, historical aerial photographs, 2020 UAV imagery and videos, and any available LiDAR data will be reviewed to provide the geomorphic context for the Project Area and identify areas of past and active erosion in the vicinity of Project structures and roads.

### **Task 3: Field Surveys**

Field surveys will be performed to document erosion from Project-related sources and the potential for sediment delivery to streams. Field methods will be adapted from relevant guidance documents regarding erosion inventory and sediment control in California and the Pacific Northwest (CDFG, 2010; USFS, 2012; Weaver et al., 2014). Documentation of erosion condition at sites will include: (1) location of site mapped using submeter global navigation satellite system (GNSS), (2) photo documentation, (3) description of erosion processes, (4) estimate volume of eroded material and delivery potential, (5) estimate historic erosion rates and potential future erosion. Erosion volumes will be visually

estimated or recorded with measurements of average dimension (length, width, depth) where appropriate.

#### Task 4: Analysis

An assessment of erosion and sediment delivery potential will be made for each site based on data collected during Task 3. Sediment delivery volumes will be estimated, and future erosion potential will be categorized based on the potential for sediment delivery to streams or reservoirs. Slopes and soil types identified as potentially unstable will be included, as appropriate. A geographic information system (GIS) map will be prepared to show the locations of all features identified during the inventory.

### 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. Standard GIS shapefiles, including metadata, will be provided to relevant agencies upon request. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

### 8.0 SCHEDULE

Date	Activity
Spring 2023	Conduct Tasks 1–3: Desktop Review, Geomorphic Interpretation, and Field Surveys
Summer 2023	Analyze data and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report

### 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$52,000, which includes study-specific consultation, field work, data compilation and analysis, and reporting.

## 10.0 REFERENCES

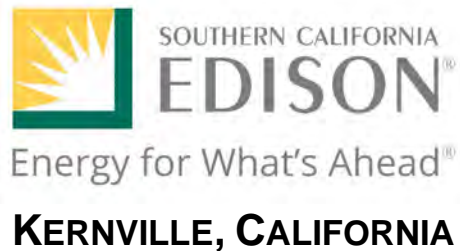
- CDFG (California Department of Fish and Game). 2010. *California salmonid stream habitat restoration manual*. Fourth edition. Wildlife and Fisheries Division.
- FERC (Federal Energy Regulatory Commission). 1996. *Environmental Assessment for Hydropower License*. Kern River No. 3 Hydroelectric Project. FERC Project No. 2290.
- SCE (Southern California Edison). 1997. *Plan for Control of Erosion, Stream Sedimentation, Soil Mass Movement, and Dust*. Kern River No. 3 Hydroelectric Project FERC No. 2290.
- USFS (U.S. Forest Service). 2012. "National Best Management Practices for Water Quality Management on National Forest System Lands (FS-990a)." Volume 1: *National Core BMP Technical Guide*. April 2012. Available at: [https://www.fs.fed.us/biology/resources/pubs/watershed/FS\\_National\\_Core\\_BMPs\\_April2012.pdf](https://www.fs.fed.us/biology/resources/pubs/watershed/FS_National_Core_BMPs_April2012.pdf).
- Weaver, W., E. Weppner, and D. Hagens. 2015. *Handbook for Forest, Ranch, and Rural Roads*. Prepared for the Mendocino County Resource Conservation District.



# **SOCIO-1 SOCIOECONOMIC ANALYSIS STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



July 2022

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## 1.0 POTENTIAL RESOURCE ISSUE

- Contribution of the Kern River No. 3 (KR3) Hydroelectric Project (Project) Area recreation and tourism to the local economy.

## 2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

- In accordance with Federal Energy Regulatory Commission (FERC) regulations (18 CFR § 5.6(d)(3)(xi)), this study is intended to supplement existing information about economic conditions under current Project operations. The information obtained from this study will support Southern California Edison (SCE) Company's analysis of how changes to the current Project, if proposed, may affect economic conditions.

## 3.0 STUDY GOALS AND OBJECTIVES

- Evaluate expenditures associated with recreation in the Fairview Dam Bypass Reach<sup>1</sup> using data collected in *REC-2 Recreation Facilities Use Assessment*.
- Qualify outdoor recreation expenditures in the surrounding area outside of the bypass reach using publicly available data, such as the National Visitor Use Monitoring (NVUM) data for Sequoia National Forest (SQF).
- Contextualize the contribution of the Fairview Dam Bypass Reach recreation relative to the overall contribution of recreation in the greater surrounding area.

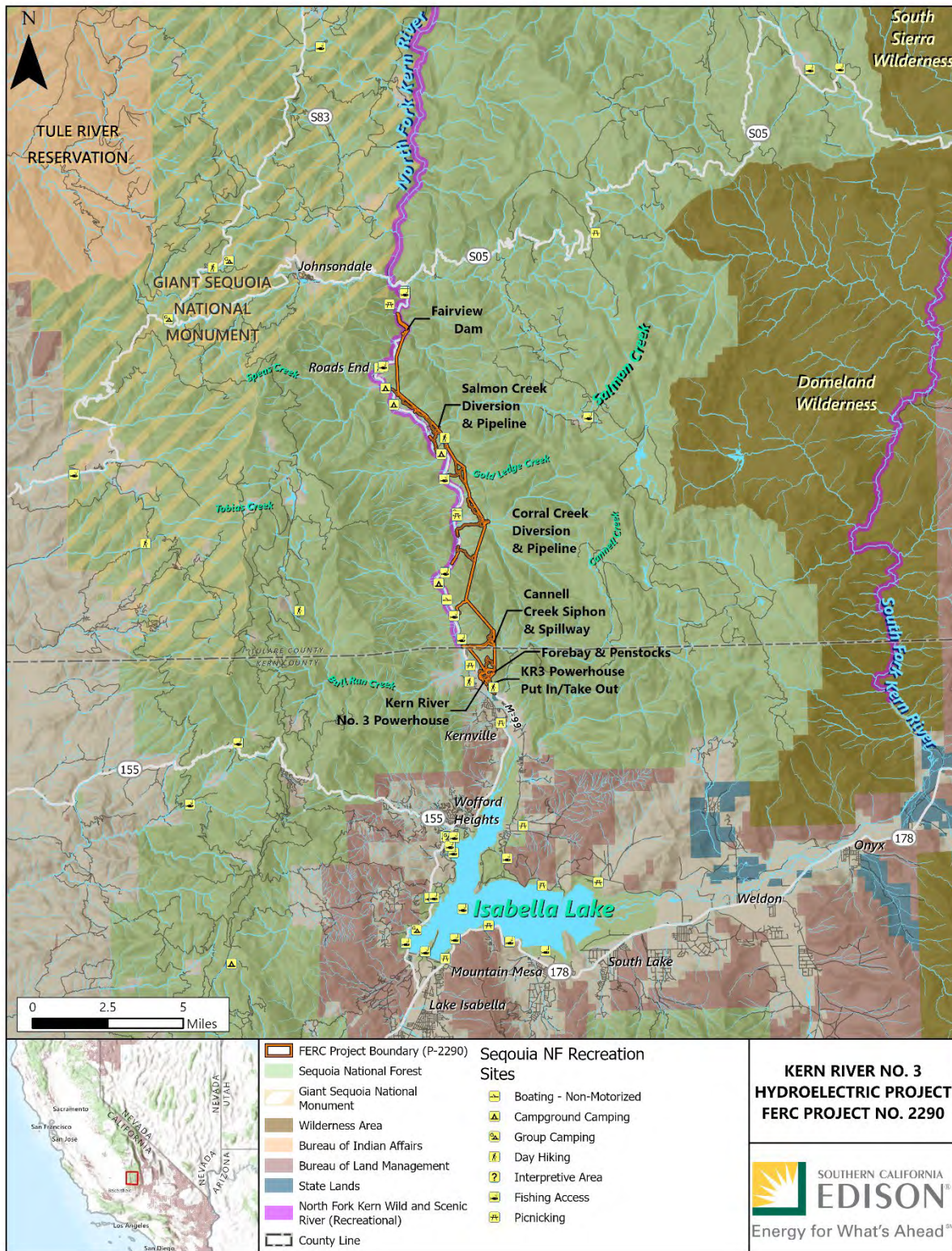
## 4.0 STUDY AREA AND STUDY SITES

The study area for this desktop review will primarily focus on recreation-related activity within and around the Project Area (Figure 4-1), including but not limited to:

- Fairview Dam Bypass Reach;
- Areas within the SQF in the Project Vicinity, such as North Fork Kern River (NFKR) upstream of the Project, Isabella Lake, and the main stem of the Kern River; and
- Nearby towns, including Kernville, Woodford Heights, and Lake Isabella.

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<sup>1</sup> The Fairview Dam Bypass Reach is defined as the 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace.



**Figure 4-1. Sequoia National Forest Recreation Sites in the Project Vicinity.**

## 5.0 EXISTING INFORMATION

The following information was included as part of SCE's Pre-Application Document (PAD) Section 5.12, *Socioeconomic Resources* (SCE, 2021):

- Land use patterns
- Population patterns
- Housing
- Economic indicators
- Employment

## 6.0 STUDY APPROACH

This study will analyze the economics of the surrounding community related to current river-related recreation in the Fairview Dam Bypass Reach. The study will also supplement the socioeconomic analysis by characterizing the contribution of outdoor recreation in the greater surrounding area (e.g., Isabella Lake, other reaches of the NFKR) to the local economy. This will be accomplished through a desktop review of available recreation-based socioeconomic data and analysis utilizing the following sources, as applicable:

- Information obtained from the visitor intercept survey as proposed in *REC-2 Recreation Facilities Use Assessment*, including but not limited to the estimated number of visitors, type of activities participated in (e.g., camping, hiking, boating) during their visit, and their corresponding trip expenditures;
- Informal interviews with, and obtain data from, commercial boating outfitters regarding the number of people served and prices, ideally daily or monthly for the past several years;
- The NVUM recreation and expenditure data for SQF;
- SQF Concessionaire data;
- Isabella Lake recreation and expenditure data;
- Literature studies and government reports on recreation activity and expenditures by type of recreation;
- Socioeconomic resource information that includes general land use patterns, population patterns, and sources of employment in the Project Vicinity as presented in SCE's Pre-Application Document (PAD) Section 5.12 (SCE, 2021);
- Census data; and
- IMPLAN input-output modeling software.

## 7.0 REPORTING

Pursuant to 18 C.F.R. 5.15, SCE will file an Initial Study Report (ISR) within 1 year following FERC’s Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC’s Study Plan Determination. The ISR and USR will provide an update on SCE’s overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

SCE is proposing to conduct this study as outlined below.

Date	Activity
Summer–Spring 2024	Compile desktop information on local economy and visitor use information collected as part of <i>REC-2 Recreation Facilities Use Assessment</i>
August 2023	Provide Study Plan progress and schedule update with ISR
Summer 2024	Analyze data and prepare Technical Memo
August 2024	Provide Technical Memo with USR

ISR = Initial Study Report; USR = Updated Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is \$50,000, which includes study-specific consultation, data compilation and analysis, and reporting.

## 10.0 REFERENCES

SCE (Southern California Edison). 2021. *Kern River No. 3 Hydroelectric Project (FERC Project No. 2290), Pre-Application Document, Volume 1*. September 22, 2021.

# **OPS-1 WATER CONVEYANCE ASSESSMENT STUDY PLAN**

**KERN RIVER No. 3 HYDROELECTRIC PROJECT  
*FERC PROJECT No. 2290***

***PREPARED FOR:***



Energy for What's Ahead®

**KERNVILLE, CALIFORNIA**

July 2022

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## **1.0 POTENTIAL RESOURCE ISSUE**

The Kern River No. 3 (KR3) Hydroelectric Project (Federal Energy Regulatory Commission [FERC] Project No. 2290) water conveyance system may be affected by rapid flow cycling (i.e., decreases or increases in flow rates and corresponding decreases or increase in water levels in the conveyance).

## **2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED**

Results from this study will aid in the identification of guidelines to consider when discussing water conveyance system operations.

## **3.0 STUDY GOALS AND OBJECTIVES**

- Conduct an engineering review and evaluation of current water conveyance conditions (i.e., hydrostatic pressure, flow depth, etc.) under varying flow conditions.
- Identify guidelines for future operational conditions using current Project information and industry best practices to maintain water conveyance system integrity.

## **4.0 STUDY AREA AND STUDY SITES**

The study area includes the approximately 13 miles of water conveyance infrastructure that runs along the eastern hillslope above the North Fork Kern River (NFKR) between Fairview Dam and the KR3 Forebay. The water conveyance infrastructure includes tunnels, open and covered above-ground flumes, steel siphon, regulating pressure flume, forebay and penstock.

## **5.0 EXISTING INFORMATION**

Project operations divert water in the NFKR towards the intake at Fairview Dam where flow is directed through a sediment settling basin (sandbox), and then into a series of tunnels, open and covered aboveground flumes, and a steel siphon before connecting to a regulating pressure flume, forebay, and penstocks leading to the KR3 Powerhouse. The Project water conveyance system conveys up to approximately 600 cubic feet per second (cfs) and descends between 1.5 and 2 vertical feet for every 1,000 horizontal feet.

Key components of the water conveyance system include:

- Twenty-four tunnel segments totaling approximately 60,270 feet and varying in length from several hundred feet to over 1 mile. The tunnel segments range in size from 8.5 feet wide by 8 feet high to 9.5 feet wide by 8 feet high. Tunnel portal access points, or adits, are situated at various tunnel or tunnel/flume junctions along the flowline.
- Aboveground sections of the conveyance system, or flumes, are located between tunnel segments. The flumes are constructed of reinforced concrete and are 8.5 feet wide and 8.25 feet high. The majority of the 4,600 feet of flumes are enclosed;

however, there is approximately 1,000 feet of uncovered, or open-topped flume segments.

- Two smaller diversions, Salmon Creek Diversion and Corral Creek Diversion, were built to divert seasonal runoff from the creeks, and diverted flow is directed into the main water conveyance system via aboveground pipes. Both diversions were constructed after the main water conveyance system.
- The Cannell Creek Siphon (historically called Brush Creek Siphon) is situated approximately 1 mile upstream from the KR3 Forebay. The siphon is made of riveted steel pipe and is supported on concrete piers that are anchored to bedrock as it crosses above Cannell Creek. The total length of the siphon is 1,146 feet with a diameter of 9.5 feet at the upstream tunnel connection narrowing to 8 feet at the lowest point.
- The end of the water conveyance system consists of a 9.5-foot diameter, 1,100-foot reinforced concrete pipe, referred to as the pressure flume, and a 61-foot-long, 20-foot-wide, and 30-foot-high concrete forebay box structure.

The Project is operated as a run-of-river facility in accordance with the FERC license that was issued on December 24, 1996 (77 FERC ¶ 61,313) and subsequently amended in 1997 (81 FERC ¶ 61,162), 2004 (107 FERC ¶ 62,136), and 2019 (166 FERC ¶ 62,049). The amount and timing of flow diverted for power at Fairview Dam is a function of inflow from the NFKR upstream of the Project, FERC License requirements for minimum instream flow (refer to License Article 406), seasonal whitewater flow releases (refer to License Article 422), flowline capacities, and other operational agreements. Furthermore, License Article 407 states that the “the Licensee shall operate the project such that flow reductions [below Fairview Dam in the NFKR] do not exceed 30 percent of the existing flow per half hour.”

## 6.0 STUDY APPROACH

A two-phased approach will be utilized to complete a desktop engineering review and evaluation of current conveyance flowline conditions.

Phase 1 includes an assessment to summarize existing and available information on the Project conveyance. Additionally, any readily available industry guidance on flow cycling and effects to tunnel integrity will be reviewed and summarized, as applicable.

Information sources may include, but are not limited to:

- Project documents including as-built drawings, hydraulic information, descriptions of recent refurbishment work conducted on the tunnels, and any recent inspection reports;
- Interviews with Southern California Edison (SCE) Company’s Project Operators and review of Station Orders or other documents describing SCE’s current operational

practices when cycling conveyance flows in accordance with license requirements, or during tunnel dewatering events for maintenance outages;

- Geologic maps and other published information; and
- Literature review of studies on tunnel structural integrity and long-term effects of cycling tunnel flows and industry best practices.

Phase 2 will utilize the information obtained during Phase 1 to further describe the existing conditions within the Project conveyance flowline during operations and includes:

- An initial hydraulic assessment (e.g., conveyance flow depth, internal flowline pressure, flow velocities, etc.) for various flows up to approximately 600 cfs. This information will further be used to describe, for example, potential conveyance lining abrasion and to inform lining stability assessments along the various segments of the conveyance flowline.
- A preliminary structural integrity assessment, including uplift and unbalanced hydraulic pressure loading of lined/unlined tunnel sections during flow increases and decreases as well as changes in conveyance flowline conditions at transition points (i.e., tunnel-flume junctions).

The results of the Phase 1 and Phase 2 analyses will be used to compile a list of guidelines and/or considerations for use when evaluating long-term Project operations.

The conveyance flowline analysis will be supported by SCE engineering staff and work will be conducted by independent contractors knowledgeable about hydropower engineering principles and with expertise in tunnels and underground structures.

## 7.0 REPORTING

SCE will file an Initial Study Report (ISR) within 1 year following FERC's Study Plan Determination (estimated August 3, 2023) and an Updated Study Report (USR) no later than 2 years after FERC's Study Plan Determination. The ISR and USR will provide an update on SCE's overall progress in implementing the Study Plan and schedule and the data collected, including an explanation of any variance from the Study Plan and schedule. A Technical Memo will be appended to either the ISR or USR filing, as applicable. The information provided in the Technical Memo will be summarized in, and appended to, the Application for New License.

In addition, SCE may prepare interim reports during the study year to apprise Stakeholders on study implementation progress and to support consultation with Stakeholders.

## 8.0 SCHEDULE

SCE is proposing to conduct this study during the course of one study year as outlined below.

Date	Activity
Winter 2022/2023	Conduct desktop analysis and prepare Technical Memo
August 2023	Provide Technical Memo with ISR

ISR = Initial Study Report

## 9.0 LEVEL OF EFFORT AND COST

The estimated cost (2022 dollars) for the study is approximately \$60,000 to \$75,000, which includes study-specific consultation, data compilation and analysis, and reporting.

## 10.0 REFERENCES

None.