SOUTHERN CALIFORNIA EDISON

Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)

FINAL LICENSE APPLICATION
VOLUME II

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead℠

November 2024

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Kern River No. 3 Hydroelectric Project
(FERC Project No. 2290)

Final License Application
Volume II

Southern California Edison
2244 Walnut Grove Avenue
Rosemead, CA 91770

November 2024

Support from:

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REC-1 WHITEWATER BOATING
INTERIM TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

October 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

AW	American Whitewater
cfs	cubic feet per second
COVID-19	coronavirus disease 2019
FERC	Federal Energy Regulatory Commission
KR3	Kern River No. 3
KRB	Kern River Boaters
NFKR	North Fork Kern River
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
PSA	participant survey analysis
QR code	quick-response code
SCE	Southern California Edison
SPD	Study Plan Determination
SQF	Sequoia National Forest
SUP	Special Use Permit
SWRCB	State Water Resources Control Board
URL	Uniform Resource Locator
USFS	U.S. Forest Service
USR	Updated Study Report
WY	water year

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1.0 INTRODUCTION

This interim Technical Memorandum provides the methods and findings of the Level 1 Desktop Review of Existing Information and Level 2 Limited Reconnaissance associated with the *REC-1 Whitewater Boating Study Plan* in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The REC-1 Study was included in SCE's Revised Study Plan submitted on July 1, 2022 (SCE, 2022). In the October 12, 2022, Study Plan Determination (SPD) (FERC, 2022), FERC approved the REC-1 Study with modifications. Specifically, FERC recommended SCE expand the number of structured interviews by developing a structured interview questionnaire available online to the whitewater community, allow up to 12 participants plus interested agency representatives to participate in the Level 2 Limited Reconnaissance, and include the potential for a Level 3 controlled flow study unless the results of the Level 1 and Level 2 studies show that a controlled flow study is unnecessary. The modifications recommended by FERC in the SPD have been incorporated into the study methods and are included in this report for the work completed to date.

This interim Technical Memorandum includes data collected from November 2022 through September 2023 and is being filed with FERC as part of SCE's Initial Study Report. SCE will complete additional work for this study in fall 2023 and into 2024, with study results included as part of the Draft License Application and/or Updated Study Report (USR).

2.0 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 approximately 16-mile bypass reach of the North Fork Kern River (NFKR) from Fairview Dam to the KR3 Powerhouse tailrace (i.e., the Fairview Dam Bypassed Reach) and from the KR3 Powerhouse to the Kern River Park in Kernville under current license conditions; (2) identify potential operational constraints on whitewater boating; 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.

3.0 STUDY AREA AND STUDY SITES

The study area includes the approximately 16-mile Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse tailrace and the NFKR from the KR3 Powerhouse to the Riverside Park in Kernville. The Fairview Dam Bypass Reach contains eight whitewater segments ranging in whitewater difficulty from Class II to Class VI (Figure 3-1). The river can be accessed from multiple locations including designated and informal access locations.

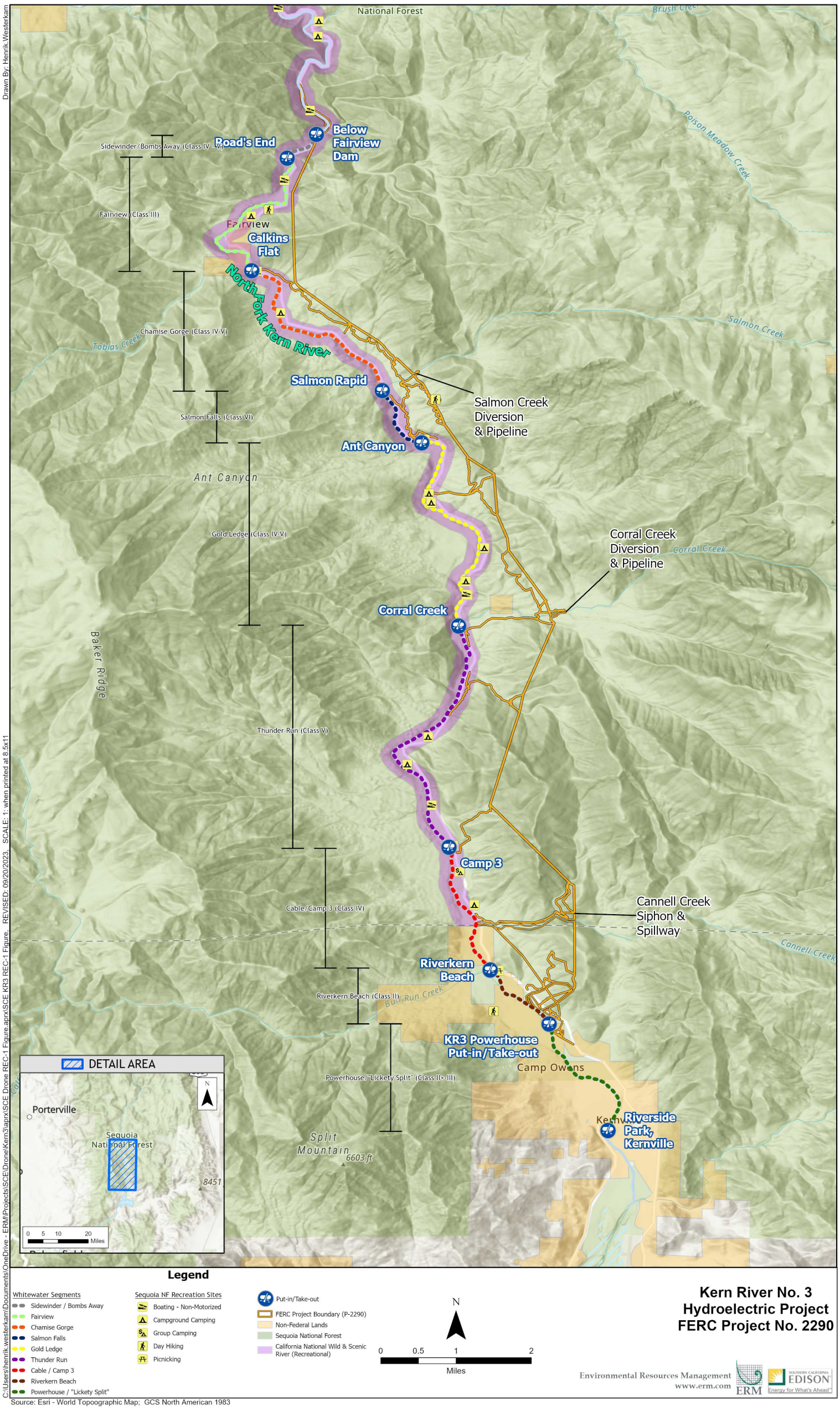

Figure 3-1. Whitewater Boating River Segments in the Study Area.

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4.0 METHODS

The REC-1 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.

Study Plan Variances

There are no variances for the REC-1 Study approved in the FERC SPD (FERC, 2022) issued in October 2022.

4.1. LEVEL 1: DESKTOP REVIEW OF EXISTING INFORMATION

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

- Literature review
  - Literature review included 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 was compiled with the name of the whitewater run, river name, put-in and take-out location, length, gradient (feet per mile), and whitewater difficulty in the Pre-Application Document (SCE, 2021).
  - Detailed information on the whitewater segments from Fairview Dam to Riverside Park in Kernville are provided in this technical memorandum. Information includes length, gradient, whitewater difficulty, as well as formal and informal access points.
  - Summary of commercial and private whitewater boating use where available, using records from the Sequoia National Forest (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
  - Utilize the hourly gage data compiled as part of *WR-2 Hydrology Study Plan* (SCE, 2022), include a summary of the hydrology in the Fairview Dam Bypass Reach

under impaired and unimpaired conditions, as well as the river segment from KR3 Powerhouse to Riverside Park in Kernville.

  - The hydrology summary includes 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 interview questionnaire

  - Develop and distribute a structured interview questionnaire for the whitewater boating community, including commercial and non-commercial boaters.

  - The structured interview questionnaire focused on individual knowledge of the whitewater segments from Fairview Dam to Riverside Park in Kernville. Respondents were asked to estimate the range of preferred flows for each segment for respective watercraft; document knowledge gaps for estimating the range of preferred flows; evaluate flow information; and indicate whitewater use patterns for commercial and non-commercial boaters.

  - Distribute the structured interview questionnaire to the boating community through electronic communication and flyers distributed to local outfitters, the U.S. Forest Service (USFS) office in Kernville, and posted at various whitewater put-in/take-out locations along the Fairview Dam Bypass Reach.

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

4.2. LEVEL 2: LIMITED RECONNAISSANCE

The Level 2 investigation included a limited reconnaissance site visit on August 25, 2023, 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

- Conduct a site visit for direct observation of the whitewater boating segments from Fairview Dam to Riverside Park in Kernville with a group of study participants consisting of agency staff and boaters.

  - SCE distributed a Level 2 participant self-nomination form (Appendix A) to the KR3 Stakeholder List requesting individuals in the boating community nominate themselves to participate in the Level 2 Limited Reconnaissance Site Visit. The form requested information from individuals on the type of watercraft boated, skill

level, and knowledge of the whitewater boating segments in the approximately 16-mile bypass as well as commercial and non-commercial backgrounds.

- Resource agency staff were invited to participate in the Level 2 Limited Reconnaissance site visit and asked to respond for logistical planning purposes.

- Information collected during the Level 2 Limited Reconnaissance included the following:
  - 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 Riverside 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 boaters currently utilize flow information?
    - How 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 increased 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 Riverside Park. Information obtained in the Level 1 and Level 2 investigations is being used to support and guide planning and implementation for the Level 3 Intensive Study.

4.3. LEVEL 3: INTENSIVE STUDY

The Level 3 Intensive Study collects 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. These

survey tools are one of the approaches recommended by Whittaker et al. (2005) for the Level 3 Intensive Study. The single flow survey and flow comparison survey are 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 that 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 (WY) 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 (KRB), 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 the *OPS-1 Water Conveyance Assessment* Study (SCE, 2022) 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 in the Level 3 Intensive Study to provide flows that satisfy knowledge gaps discovered in Levels 1 and 2.

In the SPD, FERC requested SCE provide justification that the information collected is sufficient to develop flow preference curves without the need for a controlled flow study.

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

- The whitewater single flow survey was published online April 1, 2023 (Appendix B).
  - Information collected in Levels 1 and 2 was used to help develop an online single flow survey.
  - The single flow survey allowed respondents to evaluate individual flows shortly after experiencing them. Respondents were asked name, zip code, date, time, watercraft type, and river segment(s), and rated the acceptability of the flow using the quantitative 5-point acceptability scale in Whittaker et al. (2005). Single flow survey questions were formatted for viewing on smart phone screens.
  - Posters containing the link to the single flow survey including a quick-response (QR) code were installed at river access locations and distributed to local retailers in Kernville as well as distributed electronically to local, regional, and national whitewater boating groups and accessible on the KR3 relicensing website (Appendix B).
- A whitewater flow comparison survey will be published online in 2024.
  - Information collected in Levels 1 and 2 as well as the Level 3 single flow survey 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 between minimum acceptable and optimum flow for respective whitewater river segments from Fairview Dam to Riverside 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 as well as the Level 3 single flow survey.
  - 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 Riverside 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 Riverside 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 Riverside 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 the Fairview Dam Bypass Reach.

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 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 (SCE, 2022) will be integrated into the REC-1 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.

5.0 DATA SUMMARY

The data summary includes results for the Level 1 Desktop Review of Existing Information and the Level 2 Limited Reconnaissance.

5.1. LEVEL 1: DESKTOP REVIEW OF EXISTING INFORMATION

The Level 1 Desktop Review of Existing Information includes literature review, hydrology analysis, and structured interview questionnaire.

5.1.1. LITERATURE REVIEW

The NFKR is a popular whitewater destination offering seasonal whitewater boating opportunities. The whitewater boating opportunities on the Kern River are described in

numerous whitewater guidebooks (Holbek and Stanley, 1988; Cassidy and Calhoun, 1990; Penny, 1991) as well as online sources such as AW River Information pages, the Upper Kern River Rafting Guide (Kern River Outfitters, 2023), and commercial whitewater outfitter websites. Most paper guidebooks and even online sources list the whitewater opportunities in the bypass reach as a single or, at the most, two whitewater segments breaking down the bypass further in the narrative description based on specific rapids and difficulty. These guidebooks provide a broad overview of whitewater boating in the bypass reach but lack the detail describing the variety of whitewater boating opportunities between the different whitewater segments, the river access, difficulty, and flow preferences unique to each segment. The Upper Kern River Rafting Guide divides the upper Kern from Johnsondale Bridge into seven distinct segments with detailed descriptions of rapids and locations in each segment (Kern River Outfitters, 2023).

The REC-1 Study divided the Fairview Dam Bypass Reach into eight whitewater segments and included a ninth segment downstream of the bypass reach from the KR3 Powerhouse to Riverside Park in Kernville (Table 5.1-1). Delineation into these river segments was based in part on whitewater difficulty, river access, whitewater boating community use patterns, and commonly used place names. Dividing the bypass reach based in part on whitewater difficulty and community use patterns allowed for more detailed segment specific analysis of flow preferences.

Table 5.1-1. Whitewater Runs in the Fairview Dam Bypass Reach and Directly Downstream of KR3 Powerhouse

Whitewater Run Segment	Whitewater Difficulty [a]	Put-in	Take-out	RM Start [b]	RM End [b]	Length (miles)
Sidewinder / Bombs Away	IV – V	Below Fairview Dam	Roads End/ Calkins Put-in	18.5	18	0.5
Fairview	III	Roads End / Calkins Put In	Calkins Flat	18	15.7	2.3
Chamise Gorge	IV – V	Calkins Flat	Above Upper Salmon Rapid	15.7	13.2	2.5
Salmon Falls	VI	Below Lower Salmon Rapid	Ant Canyon	13.2	12.3	0.9
Gold Ledge	IV – V	Ant Canyon	Corral Creek	12.3	9.2	3.1
Thunder Run	V	Corral Creek	Thunderbird Access or Camp 3	9.2	5.7	3.5
Cable / Camp 3	IV	Camp 3	Riverkern Beach	5.7	3.9	1.8
Riverkern Beach	II	Riverkern Beach	KR3 Powerhouse Put-in/Take-out	3.9	2.9	1
Powerhouse / “Lickety Split”	II+–III	KR3 Powerhouse Put-in/Take-out	Riverside Park, Kernville	2.9	1.1	1.8

KR3 = Kern River No. 3; NFKR = North Fork Kern River; RM = River Mile
Notes:
[a] International Scale of Whitewater Difficulty
[b] River miles are calculated using National Hydrologic Database flowlines and upstream of the confluence of the NFKR and high watermark of Isabella Lake.

The whitewater difficulty across the nine whitewater segments ranges from Class II to VI, depending on flow. Boaters often combine one or more river segments into a single trip for a longer paddling opportunity and in some cases will paddle the entire length of the bypass reach plus the downstream Lickety Split run to Riverside Park in Kernville. Some boaters do a bridge-to-bridge run, putting in at Johnsondale Bridge and taking out at Riverside Park in Kernville just downstream of the Burlando Road bridge. A bridge-to-bridge involves portaging around Fairview Dam and Salmon Falls.

SQF manages developed river access sites throughout the bypass reach. All eight of the whitewater segments in the bypass reach have developed river access sites with the exception of the segment directly below Fairview Dam (Sidewinder / Bomb's Away) and the Class VI Salmon Falls segment.[1] The close proximity of Mountain Highway 99 provides additional access to the river at undeveloped locations. This allows boaters to split up and/or combine river segments based on their personal preferences. Factors may include available time, whitewater difficulty, group size, flow, etc.

Several additional whitewater boating opportunities exist upstream of the Project on the mainstem of the NFKR and on tributaries (SCE, 2021). The mainstem runs upstream of the bypass include the Class V+ Headwaters of the Kern, which is a remote 40-mile wilderness run requiring a 23-mile hike over mountain passes to reach the put-in (AW, 2023a). The popular Forks of the Kern is another wilderness run directly downstream of the Headwaters. The Forks run offers 14.6 miles of Class III to V whitewater and requires a 3-mile hike to the put-in (AW, 2023b). The Forks run terminates at Johnsondale Bridge on Mountain Highway 99. The 2.4-mile river segment from Johnsondale Bridge to Fairview Dam is known as the Limestone Run. The Limestone Run contains Class III to IV whitewater (AW, 2023c; Holbek and Stanley, 1988). Two NFKR tributaries upstream of Fairview Dam are popular with boaters. The iconic Dry Meadow Creek is a 1.8-mile Class V tributary that enters the NFKR on the Forks run (AW, 2023d). Brush Creek, another iconic California creek popular with whitewater boaters, enters the NFKR upstream of Fairview Dam in the Limestone run. Brush Creek is a 1.4-mile Class V run (AW, 2023e).

Several other whitewater opportunities occur downstream of Lake Isabella Lake on the lower Kern River. These whitewater runs include the Class II-III Jungle Run (AW, 2023f); the Class III-V Miracle to Democrat Hot Springs (AW, 2023g; Holbek and Stanley, 1988); the Class IV-V+ Below Democrat to Kern #1 Powerhouse, which contains three distinct segments known as the Cadillacs (Class V); Richbar (Class III-IV); and the Cataracts (Class V+) (AW, 2023h; Holbek and Stanley, 1988). Two additional whitewater opportunities exist downstream of the Kern River Canyon: the Class IV Rio Bravo run (AW 2023i) and the Class I-II Rancheria Road to Hart Park run (AW, 2023j).

A range of watercraft are used in the bypass reach for whitewater boating. These watercraft include rafts, catarafts, open canoes, closed-deck canoes, hardshell kayaks, inflatable kayaks, pack rafts, river boards, and stand-up paddleboards. Other types of watercraft may be used intermittently but are less common. Self-bailing rafts, catarafts,

[1] SQF does not manage the ninth segment, which is outside of the bypass reach.

and hardshell kayaks are the most common types of whitewater watercraft used in the bypass reach. Raft and cataraft lengths vary with water level and river segment. Hardshell kayaks include low-volume play boats, medium volume half-slice river runners, and larger volume creek boats. Kayak choice is typically driven by individual whitewater skill, water level, river segment, and desired experience. Tubing is also popular on the Riverkern Beach and Powerhouse / Lickety Split segments particularly in the summer months when flows are lower and water temperatures warmer. Several Kernville retail shops rent tubes to the public and even provide shuttles to the river. Tubing is not recommended at higher flows. In 2023, tubing was not advised due to the high water conditions.

5.1.1.1. Non-Commercial Whitewater Use

The SQF requires non-commercial whitewater boaters on the NFKR to obtain a Kern River Use Permit. Permits are required for each watercraft, are free of charge, and valid from May 1 through the following April 30 (SQF, 2023). The Kern River Use Permit was suspended during the COVID-19 pandemic (personal communication, Bob Frenes, Assistant Recreation Officer on the Kernville Ranger District, SQF, August 17, 2023). In addition, non-commercial whitewater boaters are required to complete a daily river use manifest (USFS #13-2360-6) for each trip on the NFKR. Drop boxes referred to as “Iron Rangers” are located at developed river access sites. Daily manifest forms were not available in the Iron Rangers at river access sites during the May and August site visits or the Kernville District Ranger office. The SQF does not record the daily manifests or tabulate the number of non-commercial boaters using the NFKR. As a result, annual non-commercial whitewater use numbers are not available for the NFKR.

5.1.1.2. Commercial Whitewater Use

Commercial outfitters offer whitewater rafting trips to the public on the NFKR ranging in duration from approximately 1 hour on the Class II-III Powerhouse / Lickety Split Run to multiday overnight trips with Class IV-V rapids on the Forks of the Kern. Commercial rafting trips occur on all whitewater segments in the bypass reach with the exception of Sidewinder / Bomb’s Away due to access restrictions and Salmon Falls due to the Class VI difficulty. Trips offered in the bypass reach are advertised as intermediate to advanced in difficulty while the Powerhouse / Lickety Split segment is considered suitable for beginners. Trips can range from 1 to 2 hours, half-day, and full-day. The half-day and full-day trips typically combine multiple whitewater segments. These trips advertise Class III-IV rapids.

Commercial outfitters select segments for raft trips based in part on water levels, watercraft, customer skill level, and length of trip purchased by customers. Buses and trailers are used on Mountain Highway 99 to transport commercial customers to river access locations. In some cases, commercial outfitters may utilize their buses and trailers to transport raft customers around a river segment due in part to insufficient skills for the whitewater difficulty in a given segment or inadequate flow for the watercraft being used. Commercial outfitters may also transport raft customers back upstream in the same trip to repeat a whitewater segment to improve customer skills before tackling a more difficult segment or simply repeat because of the quality of the whitewater in the segment. During

low water conditions, commercial outfitters may utilize smaller watercraft or substitute advertised trips for other river opportunities where available.

Several commercial outfitters also offer kayak instruction on the Kern River ranging from beginner classes to advanced instruction. Scheduled group classes are offered as well as private instruction. Class lengths range from 1 to 5 days.

The SQF manages commercial activities on the NFKR through Special Use Permits (SUPs). The SQF issues SUPs for commercial whitewater boating in 5-year increments. The SQF renewed three SUPs for a 5-year period starting in 2023 for the NFKR (personal communication, [Marie] Angie Attencio, Special Uses Permit Administrator, Kern River Ranger District, SQF, August 10, 2023). The number of whitewater SUPs on the NFKR has declined from five to three in the past decade.

Commercial whitewater outfitters report their annual number of passengers on the NFKR to the SQF. In the 18-year period from 2004 to 2022, commercial passenger numbers on the NFKR ranged from a low of 120 in 2015 to a high of 7,510 in 2017 (Figure 5.1-1). The number of commercial passengers in a given year is reflective of the WY type. WY 2015 was a drought year with a limited season for commercial rafting flows. On the other hand, WY 2017 was a wet year with a prolonged run-off allowing the commercial outfitters to offer trips well into the late summer season and early fall.

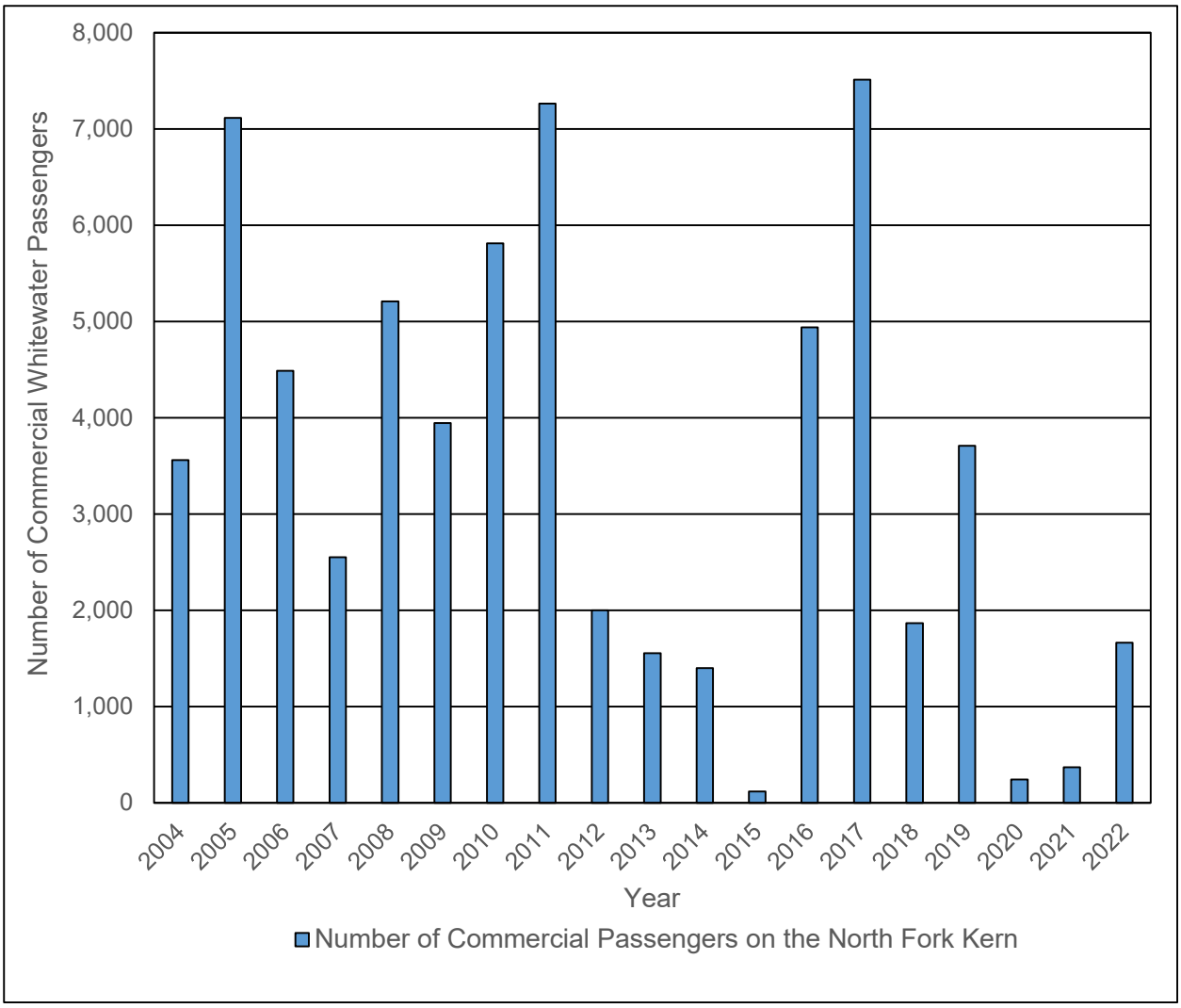

Figure 5.1-1. Annual Commercial Whitewater Passengers Reported to SQF for the North Fork Kern River, 2004–2022.

5.1.1.3. SCE Commercial Use Numbers

SCE issues permits for commercial whitewater outfitters to use the KR3 Powerhouse river access site. The KR3 Powerhouse river access site is the start of the Powerhouse / Lickety Split river segment downstream of the KR3 Powerhouse. This river section is suitable for individuals with no previous rafting experience. This is also the cheapest commercial trip offered by outfitters on the NFKR and is the shortest commercial trip. The commercial whitewater outfitters schedule up to three trips per day for this river segment.

Commercial whitewater outfitters report their annual number of passengers launching at the KR3 Powerhouse river access site to SCE. In the 5-year period from 2017 to 2021, commercial passenger numbers at the KR3 Powerhouse river access site ranged from a low of 1,780 in 2021 to a high of 38,569 in 2017 (Figure 5.1-2). The greatest number of commercial whitewater passenger trips typically occur in May, June, July, and August on the Powerhouse / Lickety Split river segment (Figure 5.1-3). In years with higher

snowpack, the commercial whitewater season is extended. Discharge in WY 2017 was one of the highest in the 25-year period from 1997 to 2022, allowing commercial outfitters to offer trips into October.

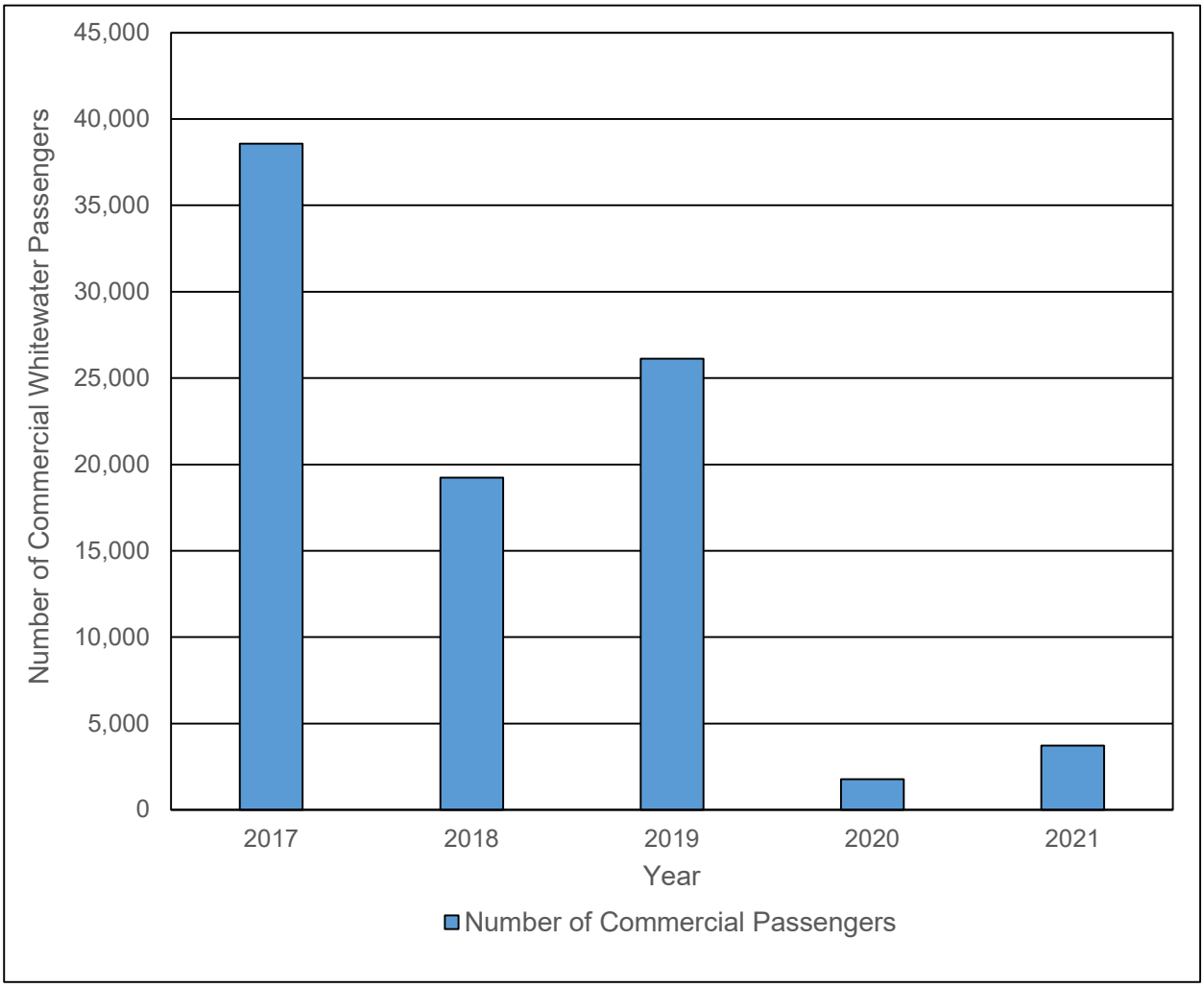

Figure 5.1-2. Annual Commercial Whitewater Passengers Launching at KR3 Powerhouse River Access Site, 2017–2022.

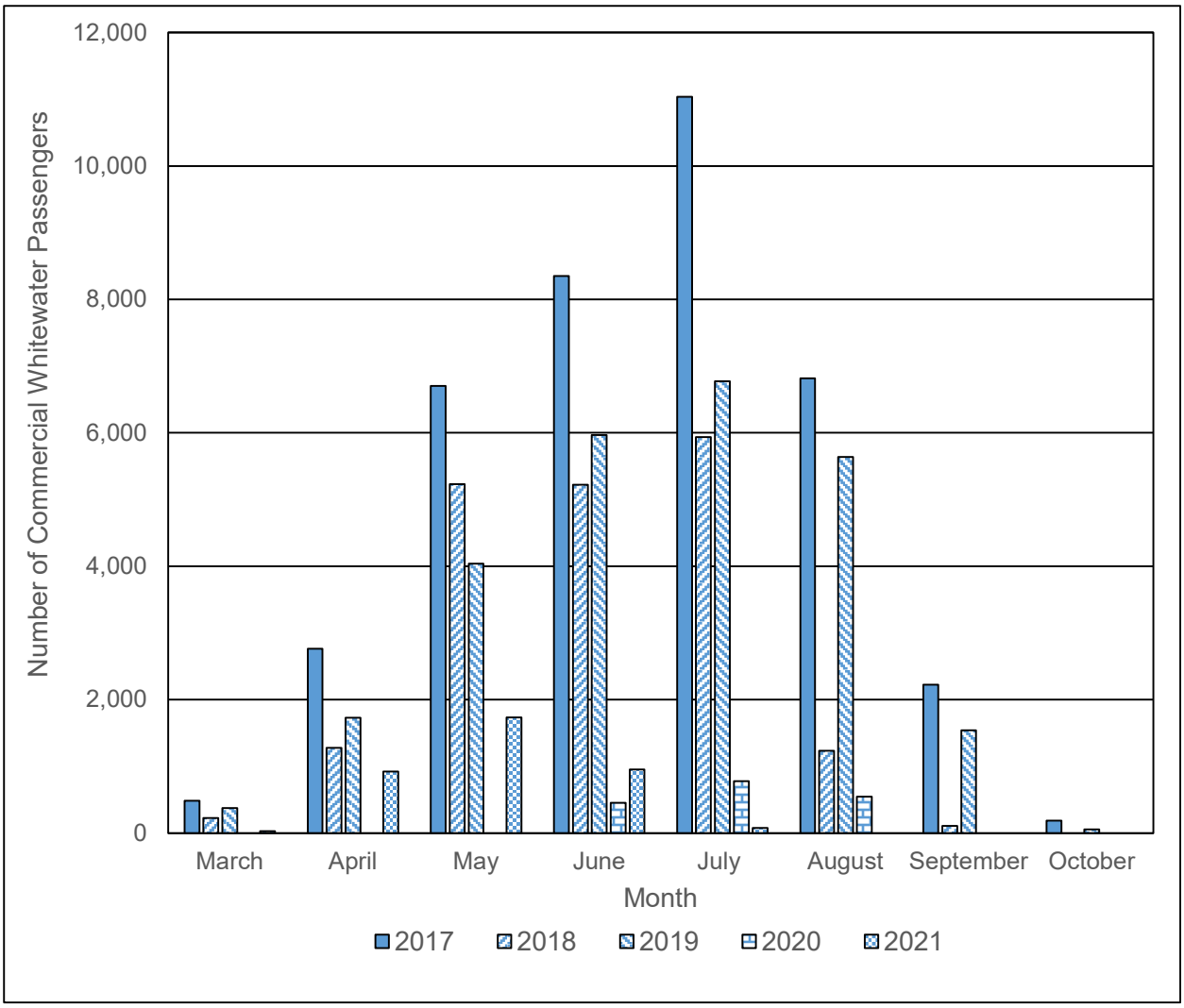

Figure 5.1-3. Monthly Commercial Whitewater Passengers Launching at KR3 Powerhouse River Access Site, 2017–2021.

5.1.1.4. 1994 Study Results

During the previous Project relicensing, a whitewater flow suitability study was conducted to determine the relationship between flows and the quality of whitewater boating in the Fairview Dam Bypass Reach (SCE, 1994). The 1994 study included participant surveys (participant survey analysis [PSA] method) and video survey, field observation, and hydraulic analysis (vector field histogram) methods. The flow suitability study identified the minimal, minimum enjoyable, and lower end of optimal flow for each segment. A summary of the flow preferences from the 1994 whitewater flow suitability study is presented in Table 5.1-2.

Table 5.1-2. 1994 Study Whitewater Flow Suitability Summary (PSA Method)

Whitewater Run	Minimal (Marginal)[a] cfs	Minimum Enjoyable[a] cfs	Lower End Optimal[a] cfs
Sidewinder / Bombs Away	300[b] / --	700 / 900	1,000 / 1,000
Fairview Run	250 / 500	500 / 800	1,000 / 1,200
Chamise Gorge	250 / 500	550 / 900	1,000 / 1,200
Gold Ledge	300 / 700	700 / 1000	1,100 / 1,300
Thunder Run	350 / 800	700 / 1000	1,100 / 1,200
Cable/Camp 3	800 / 700	700 / 900	1,000 / 1,200

Source: SCE, 1994 (Table II-10)

-- = No data; cfs = cubic feet per second; PSA = participant survey analysis
Notes:
[a] Flow ranges were broken down into two boat categories: (1) kayak, canoe, splashyaks; (2) raft, cataraft, oar rigs.
[b] The Bombs Away rapid was not boated at the 300 cfs and 675 cfs, portaged kayaks, and rafts.

The outcome of the whitewater flow suitability study was used to help inform the development of the whitewater flow schedule established as part of the current license and included as part of FERCs Rehearing Order issued on November 4, 1997. In 2002, AW, Friends of the River, Natural Heritage Institute, and SCE signed a Settlement Agreement to resolve outstanding issues associated with USFS Section 4(e) Terms and Conditions, further increasing the number of annual whitewater releases at the Project. Most recently, FERC amended the Project license on January 30, 2019, to include additional clarification regarding the timing of whitewater releases as described in FERC License Article 422, and USFS revised Section 4(e) condition 6(f).

5.1.1.5. FERC License Article 422: Whitewater Release Schedule

During peak run-off in the spring and summer, a flow schedule was developed to enhance whitewater recreation opportunities in the Fairview Dam Bypass Reach (Table 5.1-3). License Article 422 (amended January 30, 2019) states:

> "Beginning no later than 10 a.m. and ending no earlier than 5 p.m. of each day that whitewater flows are scheduled, the Licensee must release the minimum whitewater flows described below into the Project bypass reach. The use of water under the regime below must be based on the previous day's average inflow to the project, from April 1 through July 31, measured by adding the preliminary canal gauge 11185500 data below the diversion to the preliminary river gauge 11186000 data below Fairview Dam. In the event that actual inflows to the Project on a whitewater release day are insufficient to both allow the continuous 300-cfs diversion to the Project powerhouse and meet the minimum whitewater release, then the

whitewater release may be reduced in order to allow the continuous 300-cfs diversion to the Project powerhouse."

The flow release schedule was developed to provide whitewater boating opportunities for the runs in the Fairview Dam Bypass Reach. The flow schedule requires releases of 700 and 1,400 cubic feet per second (cfs). The schedule requires SCE to pass flows over Fairview Dam on certain days from April 1 to July 31. Releases are scheduled based on the previous day's average inflow to Fairview Dam, measured by adding the KR3 Conduit at Adit 6/7 gage (SCE Gage No. 403) to the flow gage located downstream of Fairview Dam (SCE Gage No. 403).

Table 5.1 3. Whitewater Flow Release Schedule for the Project

Dates	Boating Days	River flow at Fairview Dam (cfs)	Minimum Whitewater Release (cfs)
April 1 up to the weekend prior to Memorial Day Weekend	Fridays and Weekends	1,000 to 1,300	700
		More than 1,700	1,400
Weekend prior to Memorial Day weekend until July 4	Daily	1,000 to 1,300	700
		More than 1,700	1,400
July 5 up to July 31	Weekends	1,000 to 1,300	700
		More than 1,700	1,400

Source: License Amendment Order January 30, 2019

cfs = cubic feet per second

SCE publishes preliminary real-time hourly flow information for the Kern River below Fairview Dam (SCE Gage No. 401), KR3 Canal Flow (SCE Gage No. 402), and a calculated inflow at Fairview Dam (sum of gages 401 and 402); a running day average is provided at http://www.sutronwin.com/scedison/tw/jsp/. The Kern River flow phoneline at (877) 537-6356 is also available to obtain current flow information. The USACE operates a gage downstream of the Project in Kernville and provides hourly streamflow data (USACE, 2023).

5.1.1.6. Minimum Instream Flows

License Article 406 requires SCE to maintain continuous minimum flows or natural flows, whichever is less, as measured by SCE gage 401 below Fairview Dam. Minimum instream flow requirements are specified by month(s) (Table 5.1-4).

Table 5.1-4. Monthly Minimum Instream Flow Requirements

Months	Minimum Instream Flow (cfs)
October	80
November through February	40
March	70
April through June	100
July through August	130
September	100

cfs = cubic feet per second

5.1.1.7. Fairview Dam Intake Operation

The Project is operated in compliance with existing regulatory requirements, agreements, and water rights to generate power (SCE, 2021). Water for power is diverted primarily from the NFKR, and the Project is operated as a run-of-river facility. The reservoir upstream of Fairview Dam has no water storage. Therefore, 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, seasonal whitewater flow releases, flowline capacities, and other operational agreements. The powerhouse operates when sufficient water is available at the primary intake at Fairview Dam and the two small diversions that supply additional water to the water conveyance system (i.e., Salmon Creek and Corral Creek Diversions). Normal operating flow capacity of the water conveyance is 585 to 605 cfs.

Water is diverted from the NFKR on the east abutment of Fairview Dam and directed into the conveyance system, bypassing 15.7 miles of the NFKR between Fairview Dam and KR3 Powerhouse (SEC 2021). There are two flowline intake gates located at the east end of the dam that divert water into a concrete-lined sediment trap (sandbox). The intakes are equipped with trash racks that contain a 2-inch clearance. Each gate can move 300 cfs, for a total capacity of 600 cfs. Depending on the availability of water in the conveyance system, SCE may elect to utilize none, one, or both of the generating units. For example, during low-flow periods (e.g., November through April), SCE may elect to operate only one unit and take the other off-line to conduct routine maintenance or may elect to remove both generating units from service during periods of low flow.

The intake gates are operated remotely. Whitewater releases require active monitoring by the operator and cannot be automated. During a whitewater release, the flume gates are slowly closed to reduce inflow into the canal. The operator monitors river flows below Fairview Dam and canal flows to obtain the required flow below Fairview Dam.

5.1.2. HYDROLOGY

Project operations alter flows in the Fairview Dam Bypass Reach between Fairview Dam and the KR3 Powerhouse tailrace, and the timing of flows in the river segment between the KR3 Powerhouse and Riverside Park in Kernville. Flow diversions have the potential to alter the frequency, timing, and quality of whitewater boating opportunities. A summary of the hydrology data in the bypass reach was completed for impaired conditions from 1997 to 2022 and from 1997 to 2021 for unimpaired conditions. SCE maintains two gaging stations that monitor and record water flow for Project compliance (Table 5.1-5).

Table 5.1-5. SCE Gaging Stations

Gage Name/Location	SCE Gage No.	USGS Gage No.	Flow Records
Kern River near Kernville / Downstream of Fairview Dam	401	11186000	2/1922 to present
KR3 Conduit near Kernville / within Flow Conveyance at Adit 6/7	402	11185500	9/1960 to present

KR3 = Kern River No. 3; SCE = Southern California Edison; USGS = U.S. Geological Survey

5.1.2.1. Discharge above Fairview Dam (Unimpaired)

The annual discharge in the NFKR upstream of Fairview Dam varies considerably between years (Figure 5.1-4). The median annual discharge between the WYs 1997 and 2021 ranged from 144 cfs in 2015 to 1,251 cfs in 2017 (Table 5.1-6). In 10 of the 24 WYs between 1997 and 2021, the annual median discharge was less than 300 cfs. The maximum discharge between 1997 and 2021 was 25,219 cfs in 1997, which occurred during a January storm event. In WY 2015, the annual maximum discharge was only 447 cfs. The minimum discharge of 67 cfs occurred in WY 2015 as well. Minimum discharges above Fairview Dam were less than 200 cfs in 21 of the 24 years between 1997 and 2021. Minimum discharge typically occurs in the late summer and fall months. The quartile range illustrates the annual discharge present between 25 and 75 percent for respective WYs. In 14 of the 24 WYs between 1997 and 2021, discharge above Fairview Dam was less than 700 cfs 75 percent of the time.

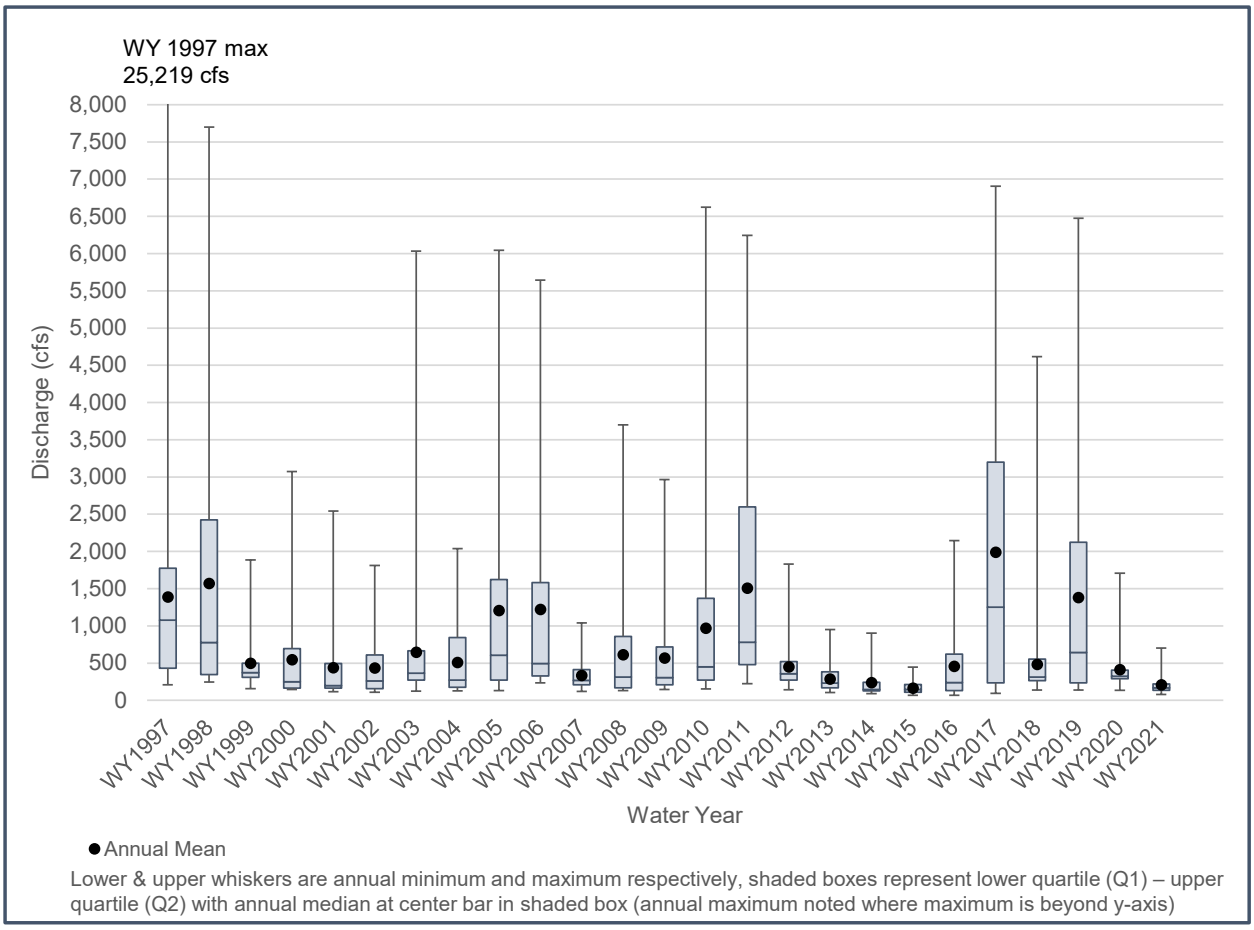

Figure 5.1-4. Annual Discharge (cfs) Statistics for Inflow above Fairview Dam on the North Fork Kern River, WYs 1997–2021.

Table 5.1-6. Annual Discharge (cfs) Statistics for Inflow above Fairview Dam on the North Fork Kern River, WYs 1997–2021

Water Year	Mean	Median	Min	First Quartile	Third Quartile	Max
WY1997	1,388	1,078	208	432	1,776	25,219
WY1998	1,571	778	246	346	2,425	7,700
WY1999	500	374	156	309	497	1,886
WY2000	545	251	145	165	694	3,072
WY2001	438	196	116	165	495	2,543
WY2002	434	262	110	158	610	1,810
WY2003	646	365	124	273	666	6,033
WY2004	510	272	126	175	844	2,039
WY2005	1,206	604	131	270	1,623	6,044
WY2006	1,221	493	234	329	1,583	5,644

Water Year	Mean	Median	Min	First Quartile	Third Quartile	Max
WY2007	334	269	121	209	414	1,040
WY2008	614	313	133	168	860	3,699
WY2009	571	305	145	210	717	2,965
WY2010	968	450	152	271	1,369	6,624
WY2011	1,507	779	223	480	2,598	6,245
WY2012	449	357	142	273	519	1,832
WY2013	287	232	106	168	382	950
WY2014	239	147	89	127	242	903
WY2015	166	144	67	110	212	447
WY2016	456	239	69	132	620	2,144
WY2017	1,988	1,251	93	234	3,201	6,905
WY2018	483	311	137	266	556	4,616
WY2019	1,383	644	137	235	2,124	6,474
WY2020	414	324	133	289	406	1,708
WY2021	209	168	80	137	221	704

WY = water year

Monthly median discharge above Fairview Dam is highest April through June, corresponding to snowmelt run-off patterns in the southern Sierras (Figure 5.1-5) with the highest median flows occurring in May (Table 5.1-7). In the months from September through November, inflows to Fairview Dam are less than 300 cfs 75 percent of the time. In December and January, inflows are less than 400 cfs 75 percent of the time. A rain on snow winter storm event in January 1997 resulted in the peak flow event of 25,219 for the period between 1997 and 2021.

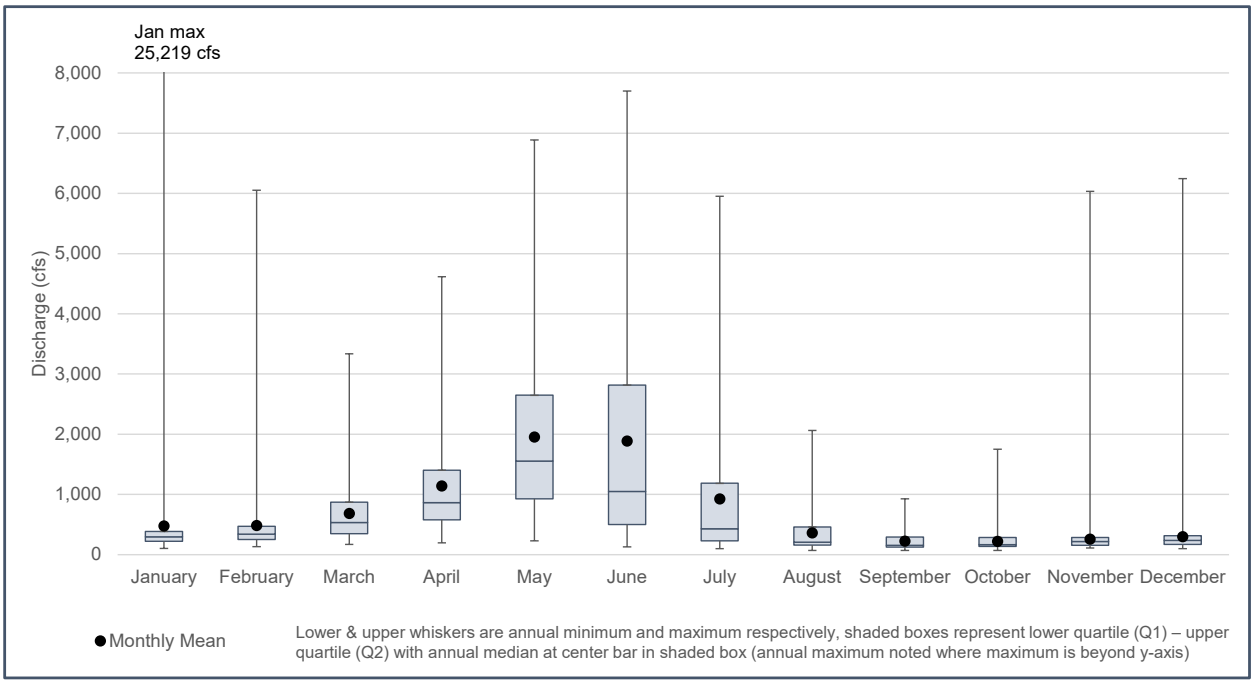

Figure 5.1-5. Monthly Discharge (cfs) Statistics for Inflow above Fairview Dam on the North Fork Kern River, WYs 1997–2021.

Table 5.1-7. Monthly Discharge (cfs) Statistics for Inflow above Fairview Dam on the North Fork Kern River, WYs 1997–2021

Month	Mean	Median	Min	First Quartile	Third Quartile	Max
January	474	294	103	222	385	25,219
February	481	339	133	253	469	6,052
March	680	534	171	349	872	3,335
April	1,138	864	194	576	1,404	4,616
May	1,951	1,555	228	926	2,648	6,887
June	1,886	1,048	128	500	2,817	7,700
July	923	429	98	230	1,185	5,952
August	360	206	70	157	458	2,064
September	223	155	67	125	293	928
October	217	167	69	137	286	1,752
November	255	218	109	156	284	6,033
December	296	236	100	169	314	6,245

5.1.2.2. Fairview Dam Bypass Discharge (Impaired)

The annual discharge in the bypass reach downstream of Fairview Dam varies considerably between years (Figure 5.1-6). The median annual discharge between WYs 1997 and 2022 ranged from 86 cfs in 2016 to 706 cfs in 2017 (Table 5.1-8). In 19 of the 25 WYs between 1997 and 2022, the annual median discharge was less than 200 cfs. The annual median discharge in five of those WYs was less than 100 cfs. The maximum discharge between 1997 and 2022 was 25,100 cfs in 1997, which occurred during a January storm event. The minimum discharge of 26 cfs occurred in the WY 2015. Minimum discharge in the bypass reach was less than 100 cfs in 24 of the 25 years between 1997 and 2022. Minimum discharge typically occurs in the late summer and fall months. The quartile range illustrates the annual discharge present between 25 and 75 percent for respective WYs. In 16 of the 25 WYs between 1997 and 2022, the 75 percent quartile was less than 300 cfs. In other words, discharge in the bypass reach in 16 years between 1997 and 2022 was less than 300 cfs 75 percent of the time.

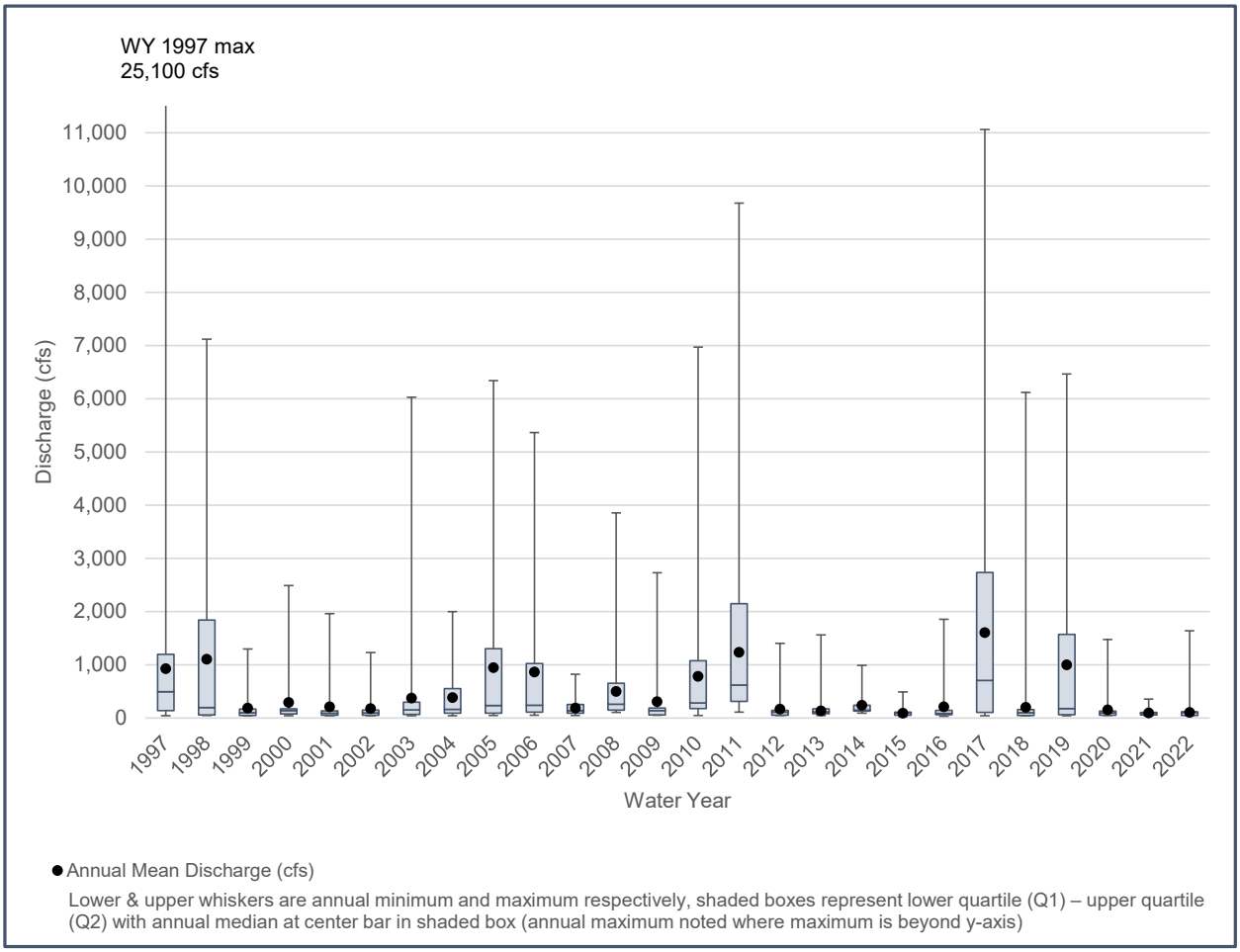

Figure 5.1-6. Annual Discharge (cfs) Statistics in the Fairview Dam Bypass Reach on the North Fork Kern River, WYs 1997–2022.

Table 5.1-8. Annual Discharge (cfs) Statistics in the Fairview Dam Bypass Reach on the North Fork Kern River, WYs 1997–2022

Water Year	Mean	Median	Minimum	First Quartile	Third Quartile	Maximum
WY 1997	930	497	45	141	1,195	25,100
WY 1998	1,105	197	47	60	1,840	7,120
WY 1999	188	103	42	50	166	1,300
WY 2000	294	137	45	79	174	2,490
WY 2001	210	91	43	54	134	1,960
WY 2002	179	96	41	51	150	1,230
WY 2003	377	152	41	67	299	6,030
WY 2004	385	165	44	92	552	2,000
WY 2005	945	235	49	92	1,303	6,340
WY 2006	863	242	51	113	1,026	5,368
WY2007	185	142	47	93	256	821
WY 2008	498	259	108	148	653	3,857
WY 2009	305	140	51	59	187	2,729
WY 2010	784	286	46	178	1,075	6,972
WY 2011	1,236	620	110	310	2,151	9,678
WY 2012	168	108	47	55	144	1,402
WY 2013	134	117	49	83	173	1,562
WY 2014	239	147	89	127	242	988
WY 2015	91	101	26	54	108	491
WY 2016	210	86	27	60	146	1,858
WY 2017	1,607	706	44	104	2,736	11,064
WY 2018	202	103	44	49	157	6,122
WY 2019	1,002	176	41	62	1,572	6,467
WY 2020	152	95	46	52	129	1,476
WY 2021	96	92	39	58	107	354
WY 2022	108	107	42	48	117	1,638

WY = Water Year
Notes:
WY 1997–2004 (shaded grey) based on daily data.
WY 2005–2022 based on hourly data.

Monthly discharge in the bypass reach below Fairview Dam is typically highest in May and June, corresponding to snowmelt run-off patterns in the southern Sierras (Figure 5.1-7). Median flows are highest in May (Table 5.1-9), although the 75 percent quartile range is highest in June. The 75 percent quartile range was greater from November through February compared to the quartile range from August through October due to precipitation associated with winter storm events. Some of these winter storms manifest as rain on snow events and can result in the maximum discharge for the year such as the peak in January 1997.

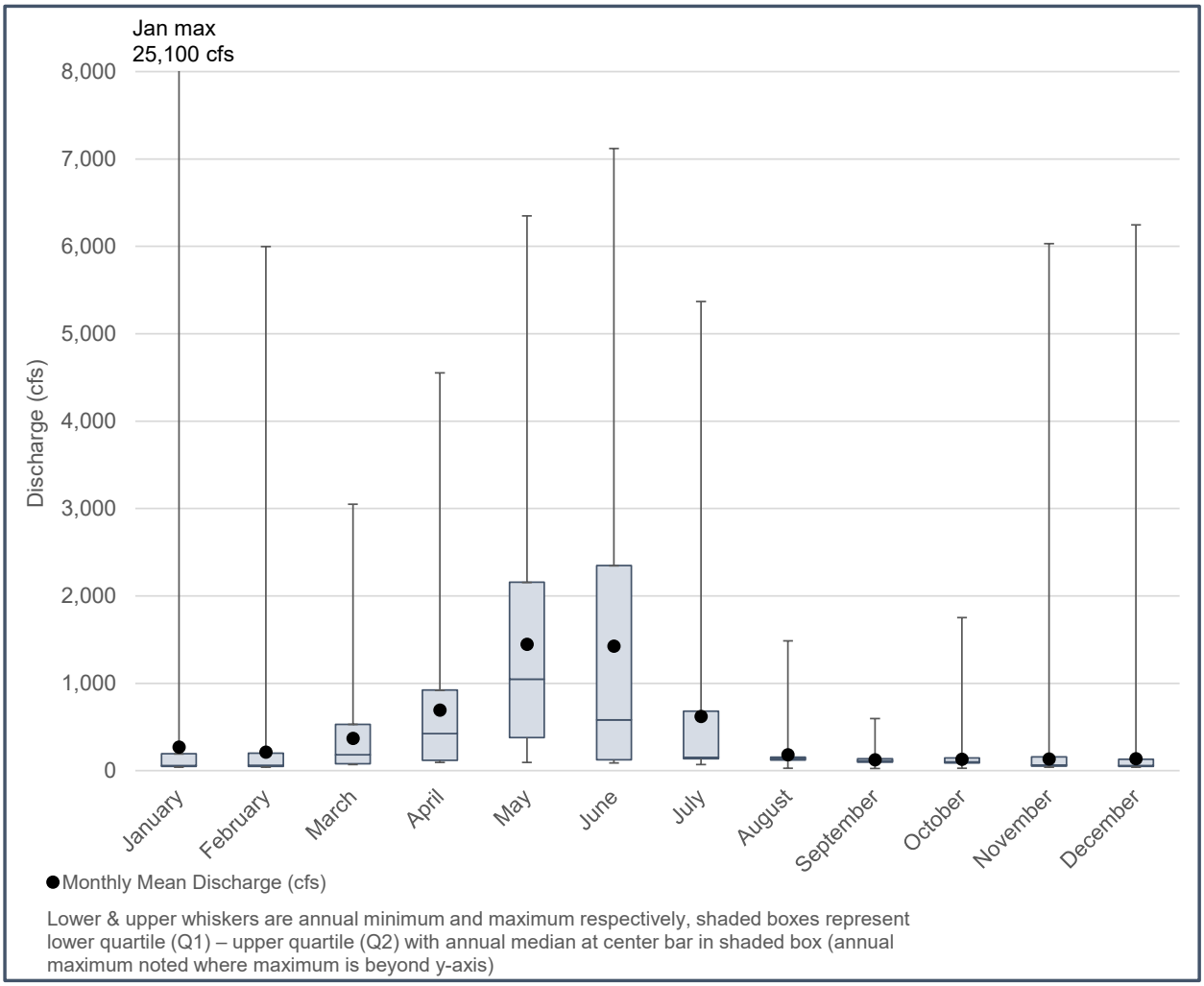

Figure 5.1-7. Monthly Discharge (cfs) Statistics in the Fairview Dam Bypass Reach on the North Fork Kern River, WYs 1997–2022.

Table 5.1-9. Monthly Discharge (cfs) Statistics in the Fairview Dam Bypass Reach on the North Fork Kern River, WYs 1997–2022

Month	Mean	Median	Minimum	First Quartile	Third Quartile	Maximum
January	271	60	41	51	194	25,100
February	214	62	42	48	202	5,997
March	370	182	72	80	530	3,048
April	693	425	96	120	923	4,552
May	1,448	1,049	96	379	2,156	6,350
June	1,427	583	88	127	2,347	7,120
July	620	152	71	137	680	5,370
August	183	140	29	121	156	1,486
September	126	113	26	97	137	596
October	133	100	27	90	145	1,752
November	135	65	40	52	158	6,030
December	137	60	40	50	133	6,245

5.1.2.3. Frequency of Whitewater Boating Opportunities

The annual frequency of whitewater boating opportunities was analyzed for inflows to Fairview Dam and in the bypass reach for flows greater than 700 cfs between 8 a.m. and 8 p.m. (Figure 5.1-8). The frequency analysis selected 700 cfs for the Level 1 hydrology analysis based on the whitewater release requirement established in FERC License Article 422. The discharge volume for the frequency analysis will be revised as additional information becomes available on boater flow preferences in the Level 3 Intensive Study.

There is a high frequency of boating opportunities above Fairview Dam and in the bypass reach in above normal WYs. In low WYs, there are substantially less boating opportunities in the bypass reach, and in some years no boating opportunities at all. The majority of the flows greater than 700 cfs above Fairview Dam and in the bypass reach coincide with discharge events during the snowmelt hydrograph in the months of March, April, May, June, and July (Figure 5.1-9). Stochastic storm events in the winter months also result in flows greater than 700 cfs but are less frequent.

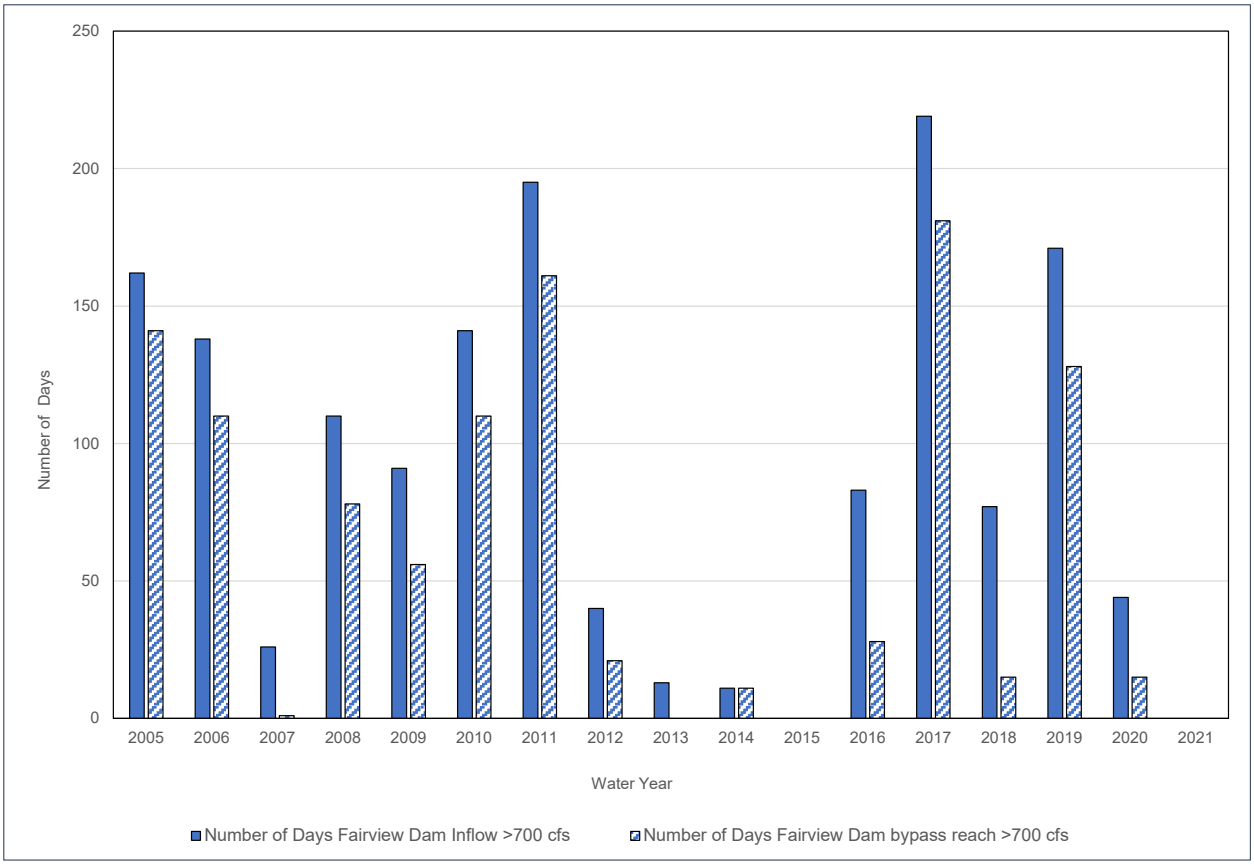

Figure 5.1-8. Comparison of Annual Number of Days Flows are > 700 cfs above Fairview Dam and in the Fairview Dam Bypass Reach, WYs 2005–2021.

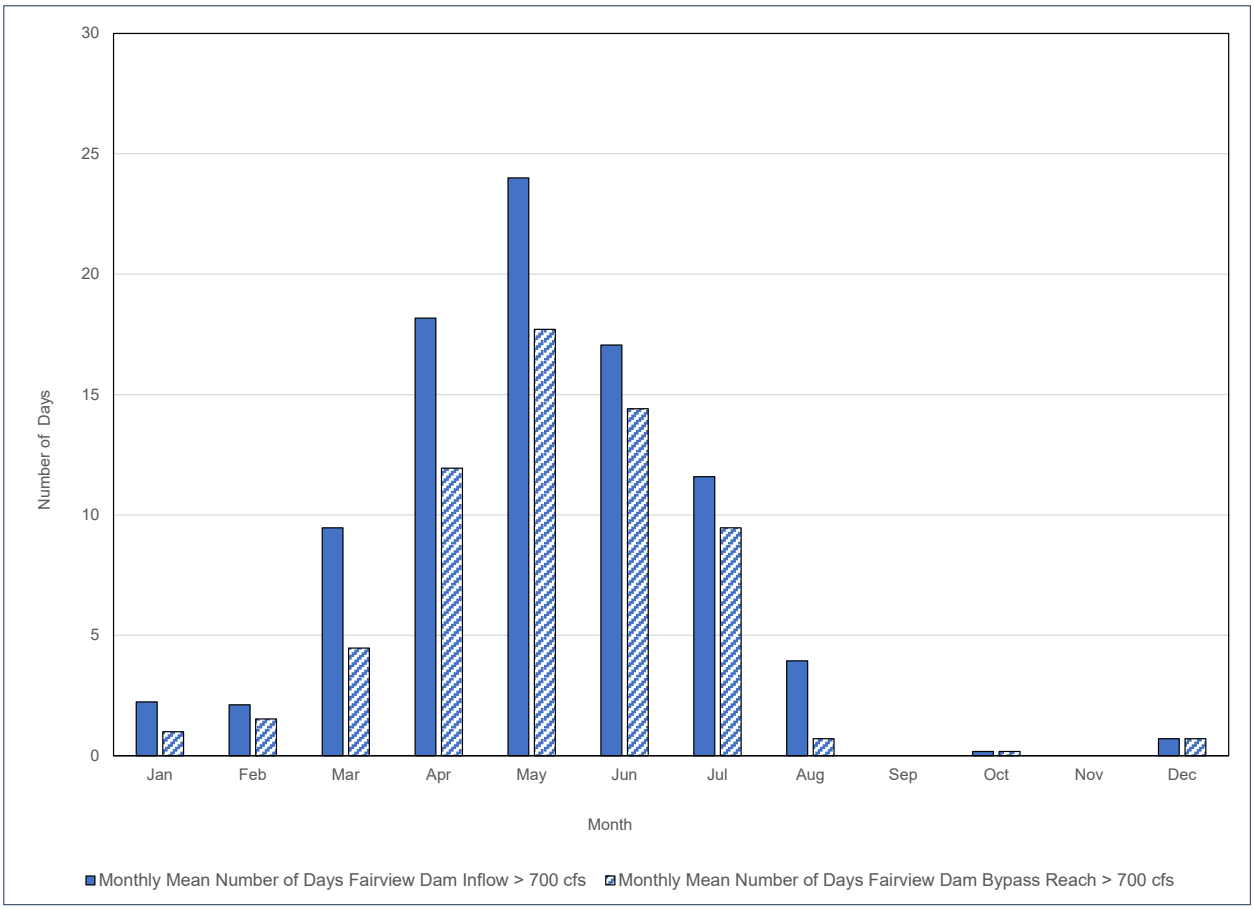

Figure 5.1-9. Comparison of Mean Monthly Number of Days Flows are > 700 cfs above Fairview Dam and in the Fairview Dam Bypass Reach, WYs 2005–2021.

5.1.3. STRUCTURED INTERVIEW QUESTIONNAIRE:

SCE developed a Structured Interview Questionnaire available to all members of the whitewater boating community per the requirements of the FERC SPD. The structured interview questionnaire queried boaters about the individual whitewater segments from Fairview Dam to Riverside Park to document information on recreation use patterns, estimated boating flow ranges for each segment for respective watercraft, potential knowledge gaps about boating flows in the bypass reach, and flow information needs. A copy of the Structured Interview Questionnaire is provided in Appendix C.

The Structured Interview Questionnaire was launched online and sent via electronic notification on May 5, 2023, to all Project Stakeholders announcing the launch of the Structured Interview Questionnaire, including a hyperlink to the survey and a QR code. The electronic notification also explained the purpose of the questionnaire, information being sought, estimated time to complete, and dates the questionnaire would remain open. SCE posted this same information about the Structured Interview Questionnaire on the Project relicensing website including the Uniform Resource Locator (URL) links to the questionnaire. On May 13, 2023, SCE again sent electronic notification to all Project Stakeholders listing availability of the Structured Interview Questionnaire and the Level 2

Limited Reconnaissance participant sign-up form and the Level 3 Intensive Study single flow survey. The electronic notification contained a description of the questionnaire, information being sought, estimated time to complete, and dates the questionnaire would remain open. During the week of May 8, 2023, laminated 8.5- by 11-inch posters were distributed to commercial whitewater outfitters in Kernville, the SQF office, and river access locations announcing availability of the Structured Interview Questionnaire, including the URL and QR code. On May 30, 2023, SCE forwarded the Structured Interview Questionnaire announcement to AW, Gold Country Paddlers, and Los Angeles Kayak Club requesting these organizations make the information available to their membership via their respective websites. The administrators for the KRB Facebook page were included in the distribution to the Project Stakeholders on May 5 and May 13, 2023. On July 7, 2023, SCE contacted KRB requesting the Structured Interview Questionnaire announcement be posted to the KRB Facebook page to inform KRB membership. Outreach efforts to inform the Project Stakeholders, resource agencies, and the broader whitewater community about the Structured Interview Questionnaire are provided in Appendix D.

The Structured Interview Questionnaire closed at midnight on August 15, 2023. Fifty-one individuals responded to the Structured Interview Questionnaire. Analysis of the structured interview responses will occur in early 2024 and will be reported in the USR. Information obtained from the structured interview responses will be used to help develop the comparative flow evaluation survey for the Level 3 Intensive Study.

5.2. LEVEL 2 LIMITED RECONNAISSANCE

The Level 2 limited reconnaissance site visit summarizes the composition of the study participants and information that the participants provided for the individual river segments in the Fairview Dam Bypass Reach as well as the segment downstream of the KR3 Powerhouse.

5.2.1. LEVEL 2 LIMITED RECONNAISSANCE PARTICIPANTS

The Level 2 Limited Reconnaissance site visit occurred on August 25, 2023, with 10 study participants and one agency staff (Figure 5.2-1). In the SPD, FERC limited participation in the Level 2 Limited Reconnaissance site visit to no more than 12 individuals plus interested resource agency staff. KR3 relicensing participants were invited to nominate themselves for participation in the L2 Limited Reconnaissance site visit. On April 12, 2023, SCE distributed an email to the KR3 relicensing participants list requesting individuals complete the Level 2 participant self-nomination form to nominate themselves for the site visit. A copy of the Level 2 participant self-nomination form is provided in Appendix A, as well as SCE outreach and L2 participant communication. The Level-2 participant self-nomination form closed May 15, 2023, at 11:59 p.m.

Figure 5.2-1: Level 2 Limited Reconnaissance Focus Group.

Thirteen individuals nominated themselves to participate in the Level 2 Limited Reconnaissance site visit. SCE sent a confirmation email to all 13 individuals on May 30, 2023, informing them that their self-nomination form was accepted for participation in the site visit. In that communication, SCE requested participants reserve August 25 and September 15 as potential dates for the site visit. SCE sent similar communication to agency representatives inviting their participation in the Level 2 Limited Reconnaissance site visit. Follow-up communication with Level 2 site visit participants on July 14, 2023, established August 25, 2023, for the date of the site visit. On August 11, 2023, SCE emailed a reminder to the Level 2 participants and requested an RSVP for planning purposes. For those individuals that did not RSVP, SCE followed up with additional emails and phone messages to confirm participation. Three individuals that nominated themselves for the Level 2 Limited Reconnaissance site visit indicated they were unable to participate. Another boater nominated a replacement, for a total of 10 boaters participating in the Level 2 Limited Reconnaissance on August 25, 2023.

Two agency staff responded to SCE's invitation to participate in the Level 2 Limited Reconnaissance; the State Water Resources Control Board (SWRCB) and the SQF. The SQF participated in the Level 2 Limited Reconnaissance on August 25, 2023, but the

SWRCB responded to a message on the day of the Level 2 Limited Reconnaissance site visit informing SCE they were not able to attend.

The 10 Level 2 Limited Reconnaissance site visit participants represented a broad cross-section of the whitewater boating community on the NFKR. Seven of the 10 participants identified Kernville as their primary residence and another identified Lake Isabella as their primary residence (Figure 5.2-2). One participant was from Los Angeles and another from Rancho Cordova in Northern California. Most Level 2 participants were greater than 40 years in age (Figure 5.2-3). Two participants were between the age of 20 to 29 (Figure 5.2-4). The group was comprised largely of male participants (Figure 5.2-5). Most of the participants rated themselves as advanced to expert skill level (Figure 5.2-6). More than half of the Level 2 participants boat more than 30 days per year (Figure 5.2-7). Most Level 2 participants have experience boating more than one watercraft on the NFKR with the most common types of watercraft being paddle rafts and hardshell kayaks (Figure 5.2-8). Two participants wrote in packraft and riverboard, respectively. On average, the Level 2 participants have greater than 20 years' boating experience on eight out of the nine river segments (Figure 5.2-9). Two participants indicated they have 37 and 45 years, respectively, of experience boating segments on the NFKR in the Fairview Dam Bypass Reach.

Four of the Level 2 participants were owners and/or managers of commercial whitewater companies operating on the NFKR in the bypass (Figure 5.2-10). Six of the Level 2 participants identified as non-commercial boaters. Nine of the participants indicated they were members of one or more local, regional, and national whitewater river organizations. The river organizations listed by participants included the following: American Canoe Association, America Outdoors, AW, Gold Country Paddlers, KRB, Los Angeles Kayak Club, LA River Expeditions, and Washington Recreational River Runners.

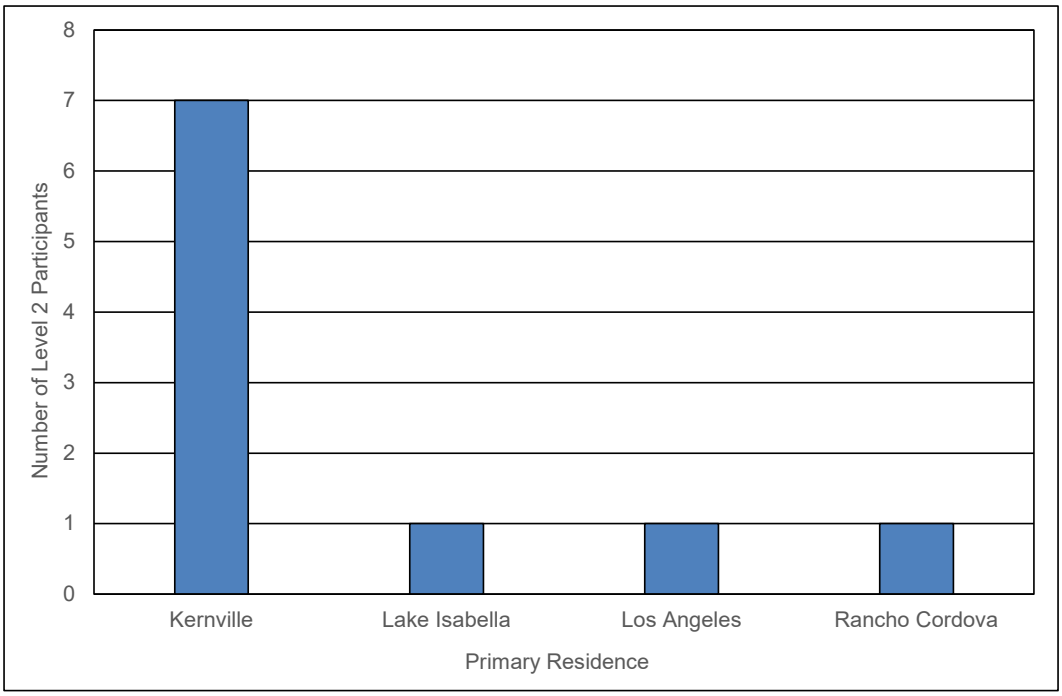

Figure 5.2-2: Level 2 Participant Primary Residence.

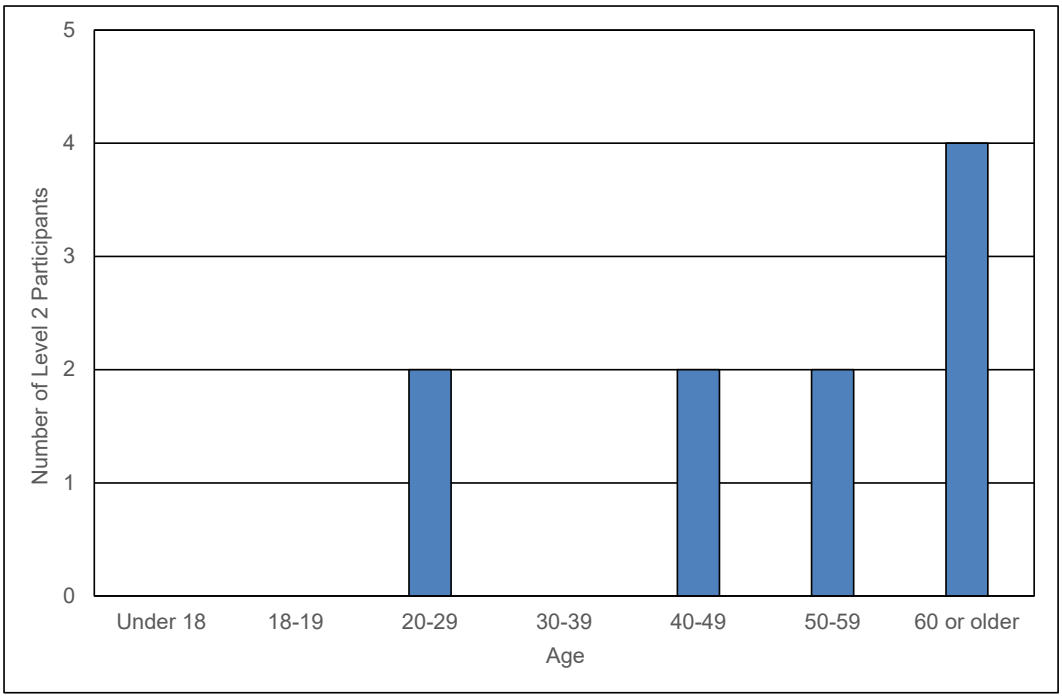

Figure 5.2-3: Age Composition for Level 2 Participants.

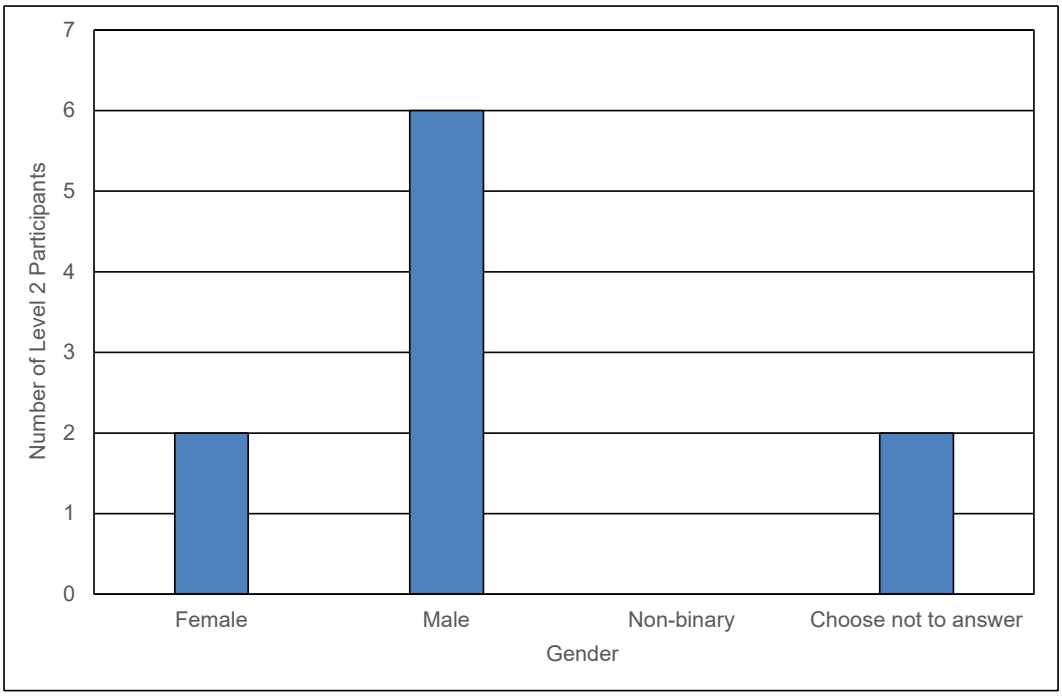

Figure 5.2-4: Gender Composition for Level 2 Participants.

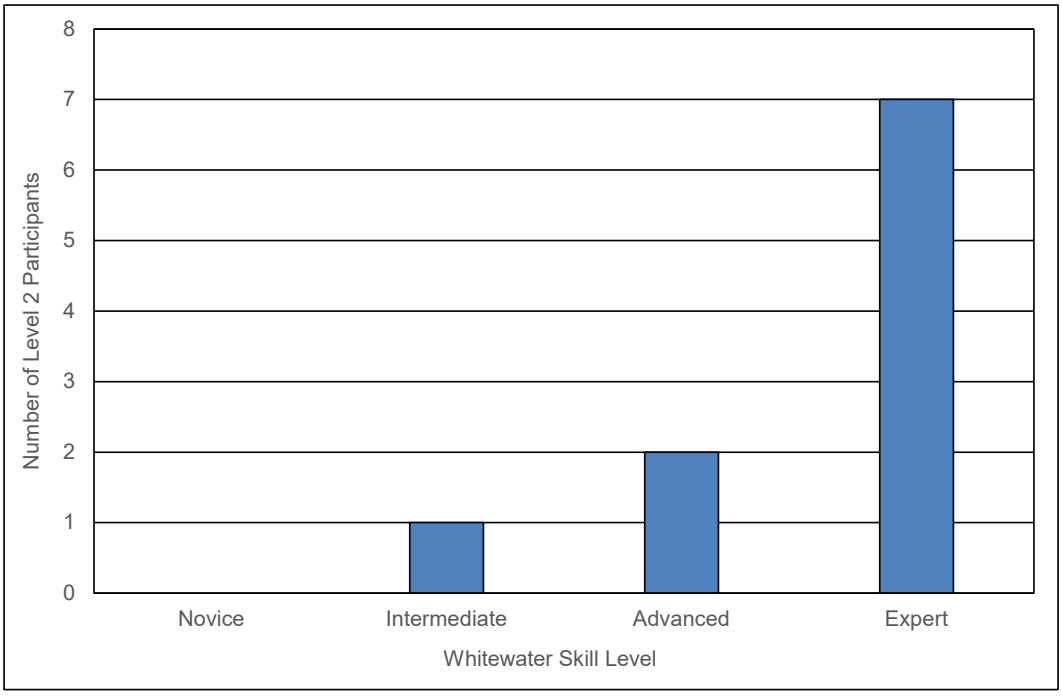

Figure 5.2-5: Whitewater Skill Level for Level 2 Participants.

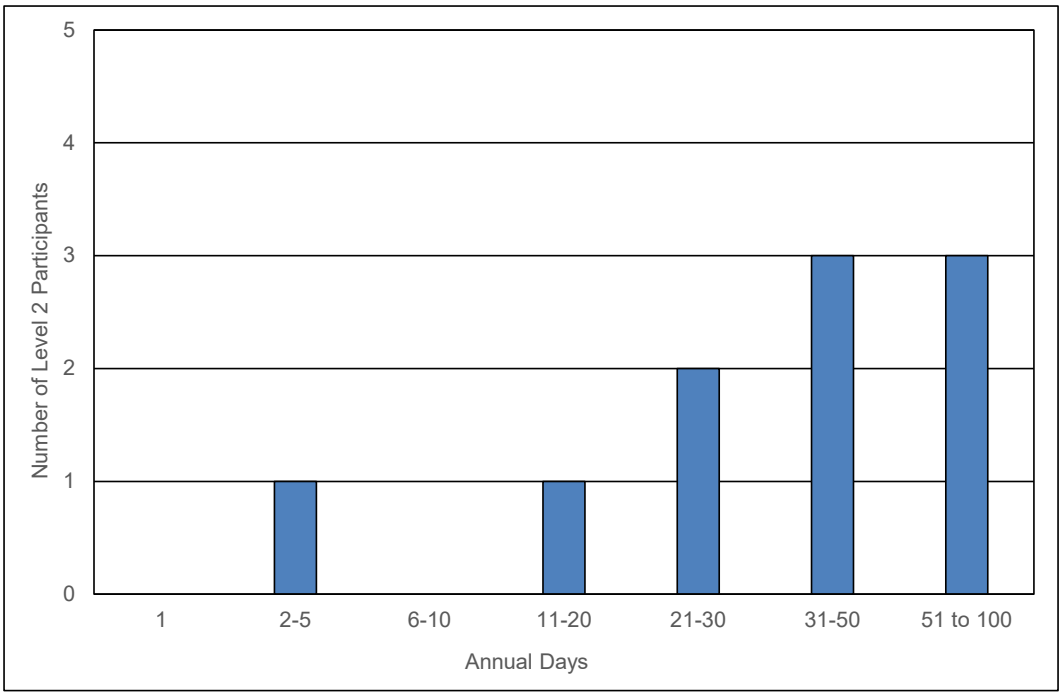

Figure 5.2-6: Annual Number of Days Level 2 Participants Whitewater Boat.

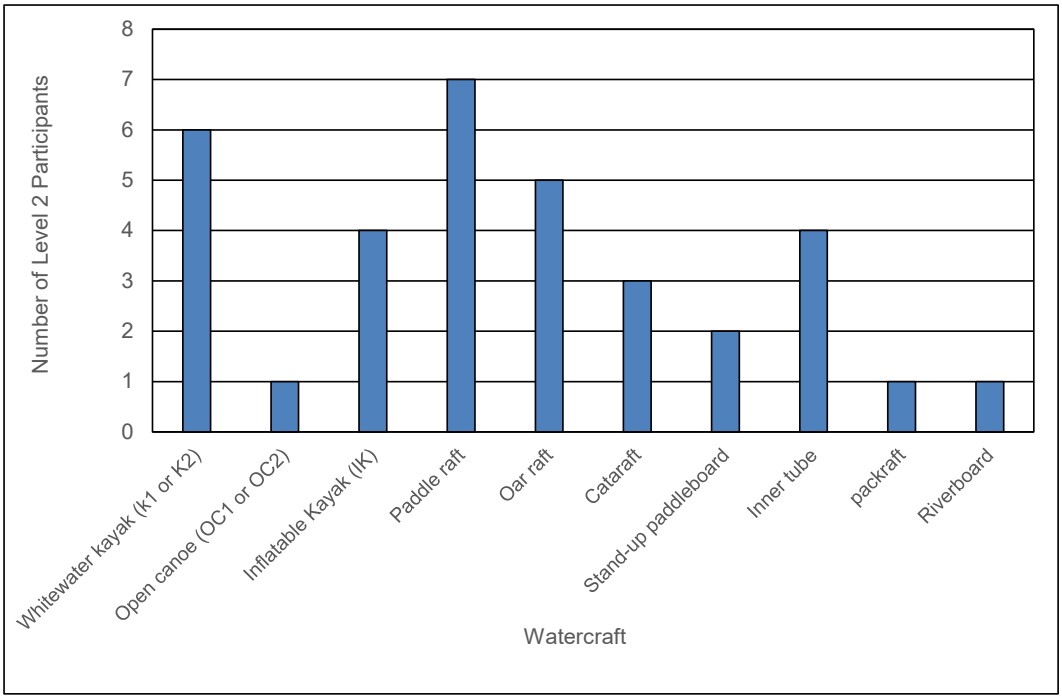

Figure 5.2-7: Watercraft Used by Level 2 Participants.

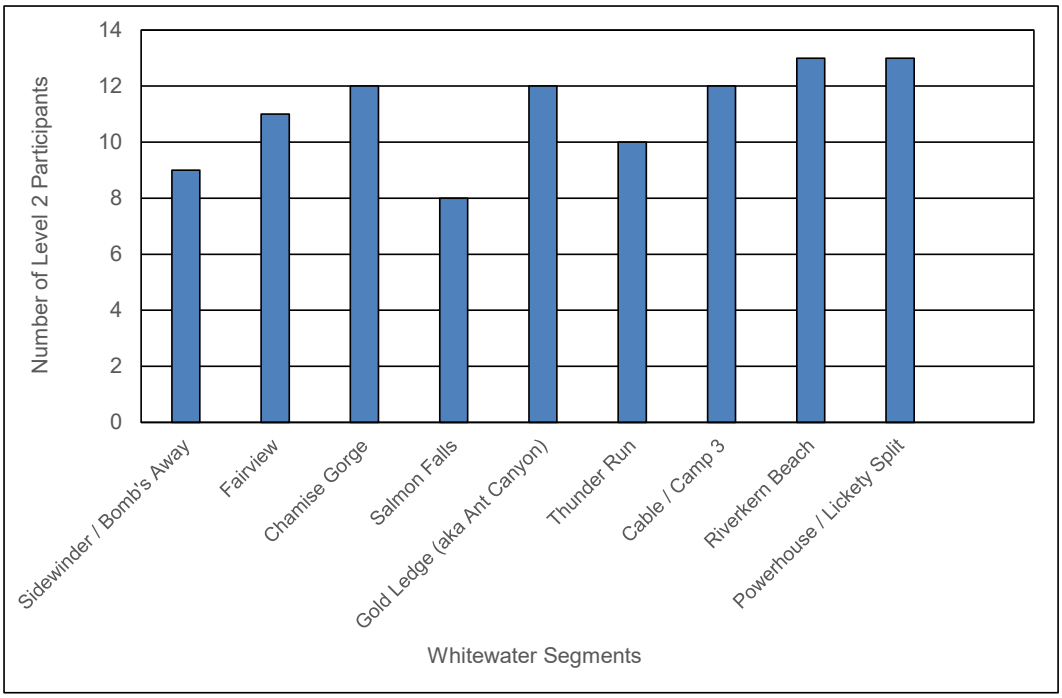

Figure 5.2-8: Whitewater Segments Boated by Level 2 Participants.

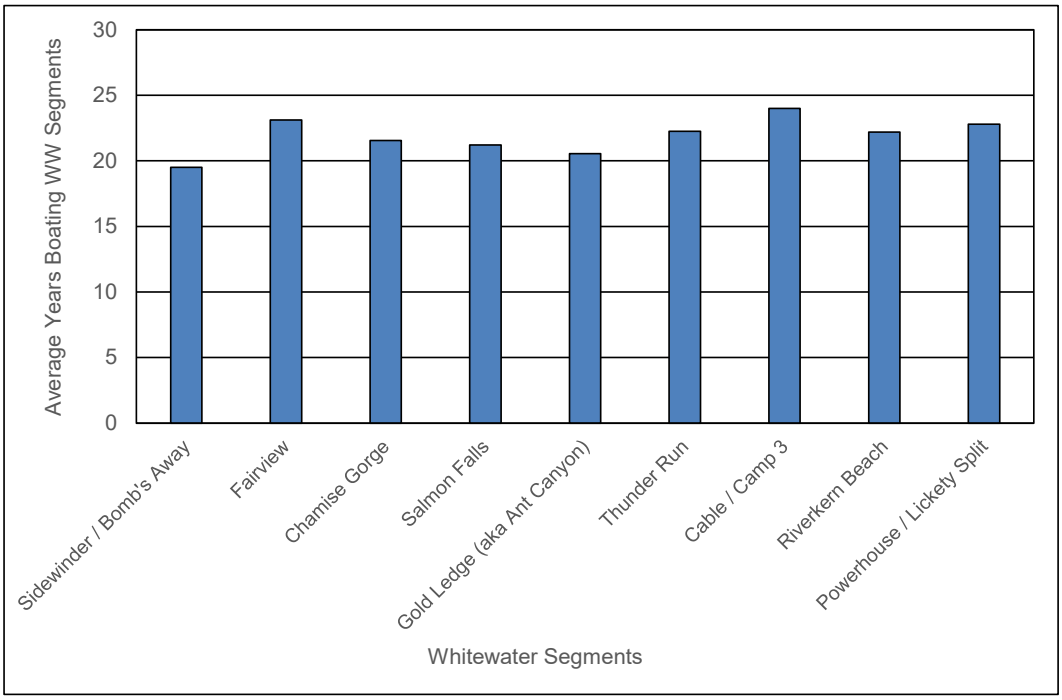

Figure 5.2-9: Average Number of Years Level 2 Participants Boat the North Fork Kern River Whitewater Segments.

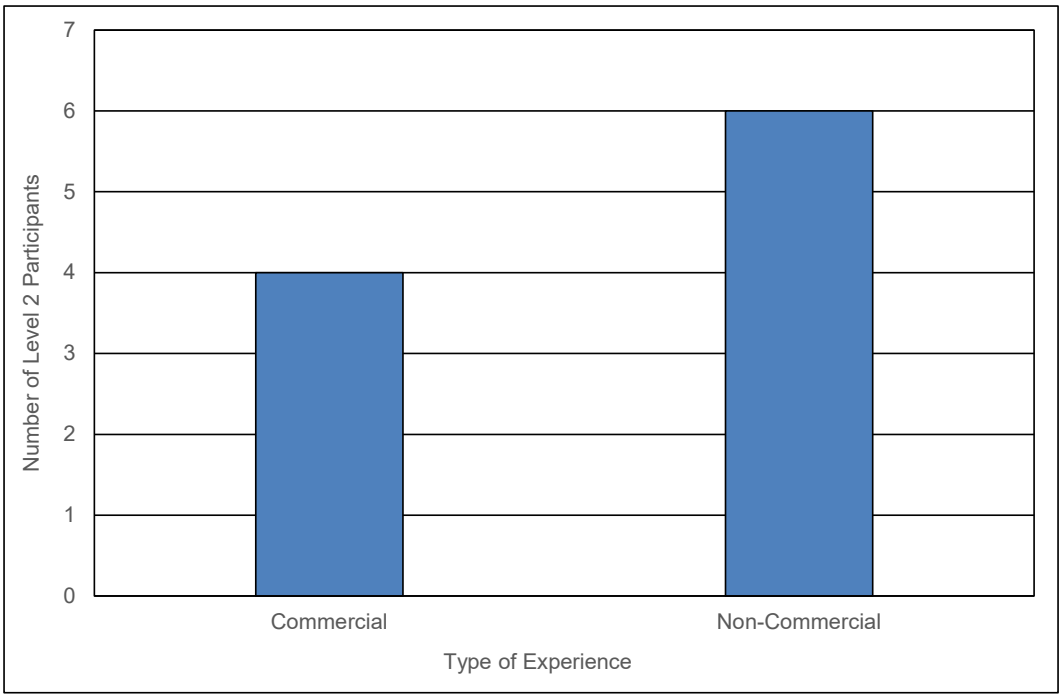

Figure 5.2-10: Level 2 Participant Commercial vs. Non-commercial on the North Fork Kern River.

5.2.2. Level 2 Limited Reconnaissance River Segment Evaluations

Level 2 participants completed a river segment evaluation form followed by a series of focus group questions for each river segment (Appendix B). This section summarizes the river segment evaluation form responses and focus group discussion for each river segment. The river segments are described from upstream to downstream.

5.2.2.1. Sidewinder / Bomb's Away

Sidewinder / Bomb's Away is a short (0.5 mile) river segment starting directly downstream of Fairview Dam. The name of this segment refers to the two more difficult rapids in this section. Focus group participants rated this river segment as Class IV to IV$^+$ whitewater difficulty for flows less than 700 cfs and Class IV and V for flows greater than 700 cfs. The difficulty rating is for the two named rapids. Participants noted that good quality Class III and IV rapids exist in this short segment in addition to the two named rapids. Level 2 participants noted that this river segment is typically boated as part of a "Bridge to Bridge" run (Johnsondale Bridge to Riverside Park in Kernville directly downstream of Highway 178) during high flow periods when the entire bypass reach can be boated in a reasonable amount of time.

Public access to the Sidewinder / Bomb's Away river segment directly below Fairview Dam is restricted with chainlink fence (Figure 5.2-11). Some kayakers gain access by crawling through a culvert under Highway 99 and under the concrete sandbox below the dam. The culvert diameter is too narrow for inflated rafts. In March 2023, floods on the NFKR transported debris into the culvert and under the concrete sandbox further limiting

this access location. Some boaters choose to access this river segment by carrying boats down a gated access road leading to the river gaging station. This access point is located downstream of Sidewinder rapid. The rafters in the focus group noted they had only boated this river segment a couple of times due to the challenging access. The whitewater outfitters stated they do not use this river segment commercially due to the access challenges coupled with lack of warm-up on easier rapids before entering the Class IV^{+} and V rapids. The limited access to this river segment contributes to the lack of knowledge on flow preferences.

Figure 5.2-11: Access restrictions downstream of Fairview Dam.

Focus group participants provided preliminary estimates of flow preferences for a number of watercraft (Table 5.2-1). Preliminary estimates for optimum kayak flows covered a broad range. Preliminary estimates for minimum acceptable flows were only estimated for kayaks and some members of the group lacked sufficient experience boating flows less than 500 cfs to estimate the minimum acceptable. The cataraft focus group participant lacked sufficient experience boating flows less than 700 cfs to estimate the minimum acceptable.

Table 5.2-1. Sidewinder / Bomb's Away Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Sidewinder / Bomb's Away (0.5 mile)	Kayak	500	1,000–5,000 500 for one kayaker	< 500
	Raft		1,500–2,500	
	Cataraft		700–1,000	< 700
	Inflatable Kayak		500–1,000	

cfs = cubic feet per second

5.2.2.2. Fairview

Fairview is a 2.3-mile river segment offering Class II to III boating opportunities suitable for intermediate boaters and used for instruction because it has more features for teaching compared to the other Class II to III segment in the bypass reach. Focus group participants noted that although this segment is only Class II to III in difficulty, it does have Class IV risks due to the strainers and vegetation on the shoreline during higher flow conditions. More advanced boaters use this section as a warm-up for the Chamise segment downstream or as part of a bridge-to-bridge run. Commercial outfitters use this section as a warm-up with groups before tackling more difficult river segments or with groups that have lesser skills.

Commercial outfitters use the boat launch at Road's End to put-in and the Calkin's Flat to take-out. Kayakers in the focus group indicated they use a road pull-out just upstream of Road's End on the curve to put-in. This location gives them access to Class III rapids upstream of the Road's End put-in.

Focus group participants provided preliminary estimates of flow preferences for a number of watercraft in the Fairview segment (Table 5.2-2). Preliminary estimates for optimum kayak flows were grouped by whitewater difficulty. Kayakers desiring higher difficulty listed higher optimum flows. Kayakers aiming for less whitewater difficulty identified a lower starting point for optimum flows. Rafters identified 1,000 to 2,500 cfs for optimum flows.

Preliminary estimates for kayak minimum acceptable flows varied with boater whitewater skills. Higher minimum acceptable flows were identified for boaters with Class II skills to help these boaters navigate through river features. Some of the kayakers in the focus group identified a lack of knowledge to estimate minimum acceptable flows less than 700 cfs and less than 150 cfs. Rafters identified a lack of knowledge for flows less than 500 cfs providing a preliminary estimate for the minimum acceptable at 500 cfs. The catarafter in the focus group also identified a lack of knowledge for flows less than 450 cfs providing a preliminary estimate for the minimum acceptable at 450 cfs. The minimum

acceptable flow for inflatable kayaks was estimated to be 150 cfs. Commercial rafting outfitters identified 700 cfs as the minimum acceptable flow.

Table 5.2-2. Fairview Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Fairview (2.3 miles)	Kayak	Class II: 650 Class III: 150 Class IV: 700	Class II: 650–1500 Class III: 250 (300+)–2,500 Class IV: 1,000+	< 150 < 700
	Raft	500	1,000–2,500	500
	Cataraft	450		450
	Inflatable Kayak	150		

cfs = cubic feet per second

5.2.2.3. Chamise

Chamise is a 2.5-mile river segment rated Class IV for flows from 700 to 2500 cfs and Class V for flows greater than 3500 cfs. One kayaker thought the difficulty decreased to Class III at flows less than 700 cfs although there was some disagreement on this rating among the focus group participants. Chamise contains a high concentration of Class III and IV rapids. All focus group participants rated Chamise as one of the best river segments in the bypass reach. The rapids in Chamise are a steppingstone for intermediate boaters progressing to more advanced skills. The channelized character and large granite boulders are unique compared to other segments in the bypass. Kayakers noted that Chamise is a really good stand-alone run. Chamise is often combined with the Fairview segment upstream or part of a bridge-to-bridge run. Commercial outfitters may combine Fairview and Chamise as well as other runs downstream depending on length of trip and client skill level.

Chamise can be accessed at the Calkin's Flat put-in. Boaters use several unnamed locations to take-out upstream of the Class VI Salmon Falls. None of these take-out locations have an established boat ramp. Boaters typically park in pull-outs on the east side of Highway 99 to complete their run or shuttle around Salmon Falls if continuing downstream.

Preliminary estimates of flow preferences were identified for a number of watercraft in the Chamise segment (Table 5.2-3). There was a difference of opinion on the preliminary estimates for optimum kayak flows in Chamise. One kayaker believed optimum flows ranged from 350 to 2,500 cfs. Other Level 2 participants estimated optimum flows between 800 and 2,500 cfs. Differences of opinion were also expressed for minimum acceptable flows with 150 cfs estimated by one kayaker and others estimating 400 cfs as

the minimum acceptable for kayaks in Chamise. Focus group participants noted that the confined channel makes the Chamise segment boatable across a lower range of flows, and some kayakers do boat in the shoulder season in Chamise when the Project is not operating when flows are between 300 and 400 cfs. Kayakers do not think there are information gaps for estimating minimum acceptable flow preferences in Chamise.

Rafters estimated the optimum flow was between 700 and 3,500 cfs for Chamise with a minimum acceptable of 400 cfs. Commercial rafters listed 700 cfs as their minimum flow for trips. The estimated optimum flow for cataraft was 600 to 2,000 cfs with an estimated minimum acceptable of 450 cfs, although there is a lack of knowledge for flows less than 450 cfs for cataraft. The estimated optimum flow for inflatable kayaks was 250 to 700 cfs. No minimum acceptable was identified for inflatable kayaks. Pack rafts were identified as a watercraft suitable for the Chamise river segment, but none of the focus group participants had experience pack rafting in this segment to estimate a suitable flow range.

Table 5.2-3. Chamise Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Chamise (2.5 miles)	Kayak	150–400	350–2,500 800–2,500 Class III kayaker: 250-700	No gap
	Raft	400	700–3,500	No gap
	Cataraft	450	600–2,000	< 450
	Inflatable Kayak		250–700	
	Pack Raft			Need information

cfs = cubic feet per second

5.2.2.4. Salmon Falls

Salmon Falls is a Class VI river segment 0.9 mile long. This segment is boated by a handful of expert boaters only. Upper and Lower Salmon Falls are the Class VI rapids in this section in addition to Class III and IV rapids. Boaters sometimes put-in just below Lower Salmon Falls to paddle the Class IV rapids connecting into the Goldledge run downstream. A focus group discussion was skipped for this river segment in order to concentrate on other river segments downstream.

5.2.2.5. Goldledge / Ant Canyon

Goldledge / Ant Canyon (Goldledge) is a 3.1-mile river segment rated Class III for flows up to 2,000 cfs and Class IV for flows greater than 2,000 cfs. Goldledge is typically combined with other river segments rather than boated as a standalone river segment.

Goldledge serves as a good warm-up for the Class V Thunder Run immediately downstream. Boaters are also attracted to Goldledge because it is the most upstream river segment in the bypass reach that allows paddlers to boat all the way to town without having to portage around Salmon Falls. Goldledge offers opportunity for boaters to develop skills to step from Class III to Class IV. At higher flows (not specified), Level 2 participants indicated there is good surfing in the Goldledge segment.

Boaters typically put-in for Goldledge at the Ant Canyon dispersed camping site. The take-out is located at the Corral Creek Day Use site although some boaters use an alternate unnamed take-out at a roadside pull-out a short distance downstream.

Preliminary estimates of flow preferences were identified for a number of watercraft in the Goldledge segment (Table 5.2-4). Similar to Chamise, there was a difference of opinion on the preliminary estimates for optimum kayak flows in Goldledge. One kayaker believed optimum flows ranged from 300 to 2,000 cfs while other Level 2 participants estimated optimum flows between 1,200 and 3,500 cfs. Differences of opinion were also expressed for minimum acceptable flows with 175 cfs estimated by one kayaker and others estimating 700 cfs as the minimum acceptable for kayaks in Goldledge. Focus group participants noted that the broader channel in Goldledge makes it less boatable at lower flows. There is a lack of knowledge on minimum acceptable flows for kayaking for flows less than 175 cfs and less than 700 cfs for these two groups of kayakers respectively.

Rafters estimated the optimum flow was between 2,000 and 3,000 cfs for Goldledge with the minimum acceptable between 1,000 and 1,250 cfs. The minimum acceptable is based on the Thunder Run downstream which is typically rafted in combination with Goldledge. Commercial rafters identified 1,200 cfs as their minimum flow for trips and noted this minimum has increased in 2023 due to spring floods creating new bars that require a higher minimum flow to navigate. Rafters identified a lack of knowledge on minimum acceptable flows less than 900 cfs.

The estimated optimum flow for catarafts was 900 to 2,500 cfs, but catarafters were not comfortable estimating a minimum acceptable flow. Catarafters identified a lack of knowledge on minimum acceptable flows less than 700 cfs.

The estimated optimum flow for inflatable kayaks was 250 to 700 cfs with a minimum acceptable flow estimate of 150 cfs. Inflatable kayakers identified a lack of knowledge on minimum acceptable flows less than 500 cfs. Pack rafts were identified as a watercraft suitable for the Goldledge river segment but none of the focus group participants had experience pack rafting in this segment to estimate a suitable flow range.

Table 5.2-4. Goldledge Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Goldledge / Ant Canyon (3.1 miles)	Kayak	175 700	1,200–3,500 300–2,000	< 175 < 700
	Raft	minimum flow constrained by flows for segment below (Thunder Run)	2,000–3,000	< 900
	Cataraft	Don't know	900–2,500	< 700
	Inflatable Kayak	150	250–700	< 500
	Pack Raft		?	

cfs = cubic feet per second

5.2.2.6. Thunder Run

The Thunder Run is a 3.5-mile river segment rated Class IV$^+$ to V for flows between 700 to 2,000 cfs by kayakers in the focus group and Class V by the rafters. Kayakers rated this river segment Class V for flows greater than 2,000 cfs. For flows less than 700 cfs, kayakers rated the Thunder Run Class IV. With the exception of Salmon Falls, the Thunder Run is considered the most difficult segment in the bypass reach. Eight of the focus group participants indicated they boat the Thunder Run. Of those eight participants, six rated the Thunder Run as one of the best river segments in the bypass reach. The Thunder Run is a popular segment for Class V boaters and often paddled after work. During periods of higher flow, boaters often boat the Thunder Run all the way to town combining the downstream segments in a single trip. Boaters will combine the Goldledge segment upstream as a warm-up to the Thunder Run.

Boaters typically put-in for the Thunder Run at the Corral Creek Day Use site. If boating only the Thunder Run then boaters take-out at the Thunderbird access. If continuing downstream, boaters may take-out at a location referred to as Halfway to include the initial rapids in the Cable / Camp 3 (Cable) run or continue to Riverkern beach.

Preliminary estimates of flow preferences were identified for a number of watercraft in the Thunder Run segment (Table 5.2-5). Similar to Chamise and Goldledge, there was a difference of opinion on the preliminary estimates for optimum kayak flows in the Thunder Run. One kayaker believed optimum flows ranged from 300 to 2,000 cfs while other Level 2 participants estimated optimum flows between 1,200 and 4,000 cfs. The minimum acceptable flow was estimated to be 700 cfs for the Thunder Run. Kayakers believed they had sufficient experience to estimate the minimum acceptable flows in the Thunder Run.

Rafters estimated the optimum flow was between 2,000 and 3,000 cfs for the Thunder Run with the minimum acceptable between 1,000 and 1,250 cfs. Commercial rafters noted that 1,600 cfs might be the new minimum acceptable flow for the Thunder Run based on changes to channel shape from spring flooding.

The estimated optimum flow for catarafts was 1,200 to 2,000 cfs with a minimum acceptable flow estimate of 1,000 cfs with some hesitation. Catarafters identified a lack of knowledge on minimum acceptable flows less than 1,000 cfs.

The estimated optimum flow for inflatable kayaks was 250 to 700 cfs with a minimum acceptable flow estimate of 150 cfs. Pack rafts were identified as a watercraft suitable for the Thunder Run but none of the focus group participants had experience pack rafting in this segment to estimate a suitable flow range.

Table 5.2-5. Thunder Run Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack knowledge to estimate minimum acceptable flow (cfs)
Thunder Run (3.5 miles)	Kayak	700	1,200–4,000 300–2,000	none
	Raft	1,000–1,250	2,000–3,000	none
	Cataraft	at least 1,000 maybe lower	1,200–2,000	< 1000
	Inflatable Kayak	150	250–700	
	Pack Raft	?	?	

cfs = cubic feet per second

5.2.2.7. Cables / Camp 3

The Cables / Camp 3 (Cables) is a 1.8-mile river segment rated Class III to III$^+$ for flows less than 2,000 cfs and III$^+$ to IV for flows greater than 2,000 cfs. The Cables river segment is a popular run due to its close proximity to town, intermediate difficulty and ability to combine with other river segments for a trip ending at Riverside Park in Kernville. Focus group participants described the Cables as average compared to other river segments noting that it lacked the beauty found in other segments upstream.

Boaters put-in at the Thunderbird access for the start of Cables or move downstream to the Camp 3 put-in to avoid the first rapid called the Wall considered the most difficult in this river segment. Boaters may take-out at Riverkern beach or add the Powerhouse / Lickety Split river segment (KR3 Powerhouse) and take-out at Riverside Park in Kernville.

Preliminary estimates of flow preferences were identified for a number of watercraft in the Cables river segment (Table 5.2-6). Similar to other river segments, there was a

difference of opinion on the preliminary estimates for optimum kayak flows in the Cables river segment. One kayaker believed optimum flows ranged from 500 to 4,500 cfs while other Level 2 participants estimated optimum flows between 1,400 and 2,200 for Class III boaters and 1,500 to 4,500 cfs for Class IV boaters. The minimum acceptable flow was estimated to be 700 cfs for kayakers although one kayaker noted they boated from the Cables put-in to Tequila rapid at 150 cfs but did not boat below that section. Tequila is located where the Kern River channel splits dividing the water into two channels between an island.

Rafters estimated the optimum flow was between 2,000 and 3,000 cfs for the Cables river segment with the minimum acceptable between 700 and 750 cfs. The estimated optimum flow for catarafts was 1,000 to 6,000 cfs with a minimum acceptable flow estimate of 500 cfs. Catarafters identified a lack of knowledge on minimum acceptable flows less than 1,000 cfs. The estimated optimum flow for inflatable kayaks was 250 to 700 cfs with a minimum acceptable flow estimate of 150 to 200 cfs. Pack rafts were identified as a watercraft suitable for the Cables river segment but none of the focus group participants had experience pack rafting in this segment to estimate a suitable flow range. The estimated optimum flow for stand-up paddleboards was 1,500 to 2,500 cfs with a minimum acceptable flow estimate of 1,000 cfs. None of the focus participants identified a lack of experience in the Cables river segment to estimate the minimum acceptable flows with the exception of no one having direct experience with pack rafts.

Table 5.2-6. Cables Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Cables / Camp 3 (1.8 miles)	Kayak	700 One kayaker boated 150 in upper half of run but stopped upstream of Tequila—has not boated below Tequila at 150 cfs	Class III: 1,400–2,200 Class IV: 155–4,500 500–4,500	
	Raft	700–750	2,000–3,000	
	Cataraft	500	1,000–6,000	
	Inflatable Kayak	150–200	250–700	
	Pack Raft	?	?	
	Stand-up Paddleboard	1,000	1,500–2,500	

cfs = cubic feet per second

5.2.2.8. Riverkern

The Riverkern run is a 1-mile river segment rated Class II. The focus group participants limited discussion of the Riverkern segment to listing of special attributes, identification of minimum acceptable flows and knowledge gaps on minimum acceptable flows. The Riverkern river segment is a great addition to the Powerhouse segment downstream. The run is relatively safe and good for novice boaters to develop skills. Riverkern is less aesthetic compared to upstream river segments.

Boaters access this river segment using the established boat launch at Riverkern Beach or just upstream at a roadside pull-out. Boaters can take-out at the KR3 Powerhouse launch site but typically combine this segment with the Powerhouse run and take-out at Riverside Park in Kernville.

Focus group participants provided preliminary estimates of minimum acceptable flows for a number of watercraft in the Riverkern river segment (Table 5.2-7). The group noted there was no upper limit on flows and did not specify an optimum flow range. Kayakers were divided on the minimum acceptable flow with some identifying 200 cfs as the minimum while others commented they would not boat below 500 cfs. Some of the kayakers noted a lack of direct experience for flows less than 500 cfs to assess the minimum acceptable flow.

Rafters listed 500 cfs as the minimum acceptable flow. The catarafter in the group identified 350 to 400 cfs as the minimum acceptable. The minimum acceptable flow for inflatable kayaks was 150 to 200 cfs. Stand-up paddleboarders identified 600 cfs as the minimum acceptable flow. None of the focus participants had direct experience boating pack rafts in the Riverkern segment to estimate minimum acceptable flows.

Table 5.2-7. Riverkern Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Riverkern (1.0 miles)	Kayak	200 (for some) 500 for others	Focus group did not to discuss optimum flows for this river segment	< 500
	Raft	500		
	Cataraft	350–400		
	Inflatable Kayak	150–200		
	Pack Raft	200–250 (there might not be a minimum acceptable limit)		
	Stand-up Paddleboard	600		

cfs = cubic feet per second

5.2.2.9. Powerhouse / Lickety Split

The Powerhouse run is a 1.8-mile river segment rated Class II for flows less than 700 cfs and Class II to III for flows greater than 700 cfs. The Powerhouse segment is boated more than any other segment simply because it has more reliable flows below the powerhouse resulting in a longer boating season than segments in the bypass reach upstream. This river segment is relatively safe for beginning kayakers and stand-up paddleboarders to develop skills. This section is also popular for tubers. This Powerhouse run is less aesthetic compared to upstream segments and contains less river features to practice river skills.

Boaters access this river segment using SCE's launch site downstream of the KR3 Powerhouse. Boaters take-out at Riverside Park in Kernville or continue downstream to the old cemetery. In 2023, high pool elevations on Isabella Lake required boaters to paddle on the reservoir to reach the old cemetery take-out.

Focus group participants provided preliminary estimates of flow preferences for a number of watercraft in the Powerhouse river segment (Table 5.2-8). Kayakers were divided on the optimum flow and minimum acceptable flows for the Powerhouse segment with some identifying flows from 300 cfs to infinity as the optimum flow while others preferred flows greater than 1,000 cfs for optimum. Minimum acceptable flows for kayakers were divided between 150 cfs for some and 350 cfs for others.

Rafters identified 2,000 cfs to infinity for optimum flows and 400 cfs as the minimum acceptable flow. The catarafter in the group identified 1,000 cfs to infinity for optimum flows and 200 cfs as the minimum acceptable. The optimum flow for inflatable kayaks was 700 to 2000 cfs and the minimum acceptable flow was 150 to 200 cfs. The optimum flow for stand-up paddleboards was greater than 1,000 cfs and the minimum acceptable flow was 700 cfs. The optimum flow for tubes was greater than 250 to 600 cfs and the minimum acceptable flow was 150 cfs. Focus group participants noted that high flows in 2023 may have altered the channel shape in this river segment resulting in new minimum acceptable flows for respective watercraft that will not be known until the hydrograph recedes in the fall season. None of the focus participants had direct experience boating packrafts in the Powerhouse segment to estimate optimum and minimum acceptable flows.

Table 5.2-8. Powerhouse Preliminary Flow Preferences

River Segment	Watercraft	Minimum Acceptable Flow (cfs)	Optimum Flow (cfs)	Lack Knowledge to Estimate Minimum Acceptable Flow (cfs)
Powerhouse / Lickety Split (1.8 miles)	Kayak	150; this year might have changed channel 350 for some members	> 1,000 300–infinity	Flooding may have altered the channel this year; need to assess at lower flows
	Raft	400	2,000–infinity	
	Cataraft	200	1,000–infinity	
	Inflatable Kayak	150–250	700–2,000	
	Pack Raft		?	
	Stand-up Paddleboard	700	1,000–up	
	Inner Tube	150	250–600	

cfs = cubic feet per second

5.2.2.10. Flow Information Sources

Level 2 study participants predominantly use several online information sources to check if flow conditions are suitable for their respective watercraft. The online information sources include Dreamflows, SCE flow information, AW, and the U.S. Army Corps of Engineers. Several participants also use physical markers in the river channel to determine if flow levels are suitable in Sidewinder / Bomb's Away, Fairview, Chamise, Salmon Falls, and Goldledge / Ant Canyon.

5.3. LEVEL 3 INTENSIVE STUDY

SCE launched the Level 3 Intensive Study single flow whitewater boating survey (single flow survey) on April 1, 2023. Information obtained in the Level 1 Desktop Review of Existing Information and planning for the Level 2 Limited Reconnaissance investigation was used to support and guide planning and implementation for the Level 3 single flow survey. The broad range of flows forecasted for WY 2023 presented an opportunity to collect boater flow evaluations encompassing high challenge flows through the spring and summer months to low flow conditions at or below minimum acceptable in the late summer and fall.

SCE notified Project Stakeholders announcing the launch of the single flow survey including a hyperlink to the survey and a QR code (Appendix E). The electronic notification encouraged boaters to complete the single flow survey for each trip completed on the NFKR between Fairview Dam and Riverside Park in Kernville and informing

boaters the survey will remain open through the remainder of 2023. SCE forwarded the single flow survey Announcement to AW, Friends of the River, Gold Country Paddlers, Kern River Alliance, KRB, Los Angeles Kayak Club, and the River Management Society requesting these organizations make the information available to their membership via their respective websites. SCE provided information about the single flow survey to commercial outfitters operating on the NFKR encouraging their guides to complete a survey after each trip. SCE resent the single flow survey announcement periodically throughout the spring and summer months to the Project Stakeholder list and whitewater boating organizations to encourage boater participation in the online survey. SCE posted the single flow survey announcement on the Relicensing Project website (www.SCE.com/kr3) including hyperlinks to the survey and QR code. Laminated 8.5- by 11-inch posters were distributed to commercial whitewater outfitters in Kernville, the SQF office, Kern River Brewery, Sierra Gateway Store, Riverkern Store, and bathrooms at developed river access locations along the NFKR. The posters described the single flow survey including the URL and QR code. The staff administering the REC-2 Visitor Intercept Survey monitored the posters at the developed river access locations, replacing posters as needed.

The single flow survey was accessible through a smartphone or computer using the URL link (https://www.surveymonkey.com/r/KR3WWSingleflow) or the QR code. Providing access to the survey via a smartphone allowed boaters to complete the single flow survey shortly after completing a trip. Alternatively, boaters can complete the single flow survey using a computer. As of September 20, 2023, 401 boaters have participated in the single flow survey providing information on their boating trips on the NFKR. single flow survey responses were distributed across the months of April, May, June, July, August and September (Figure 5.3-1) evaluating flows ranging from 250 cfs in September to 8,500 cfs in May. Single flow surveys have been completed for all nine river segments using a variety of watercraft. The single flow survey will remain open through December 31, 2023, allowing boaters to continue evaluating flows in the NFKR as they hydrograph decreases through the fall and early winter months. Analysis of the single flow survey data will occur in the winter of 2024. Information obtained in the single flow survey will be used to support and guide planning and implementation for the Level 3 Comparative Flow Survey in 2024. The results of the Level 3 Single Flow Survey and Flow Comparison Survey will be reported in the USR.

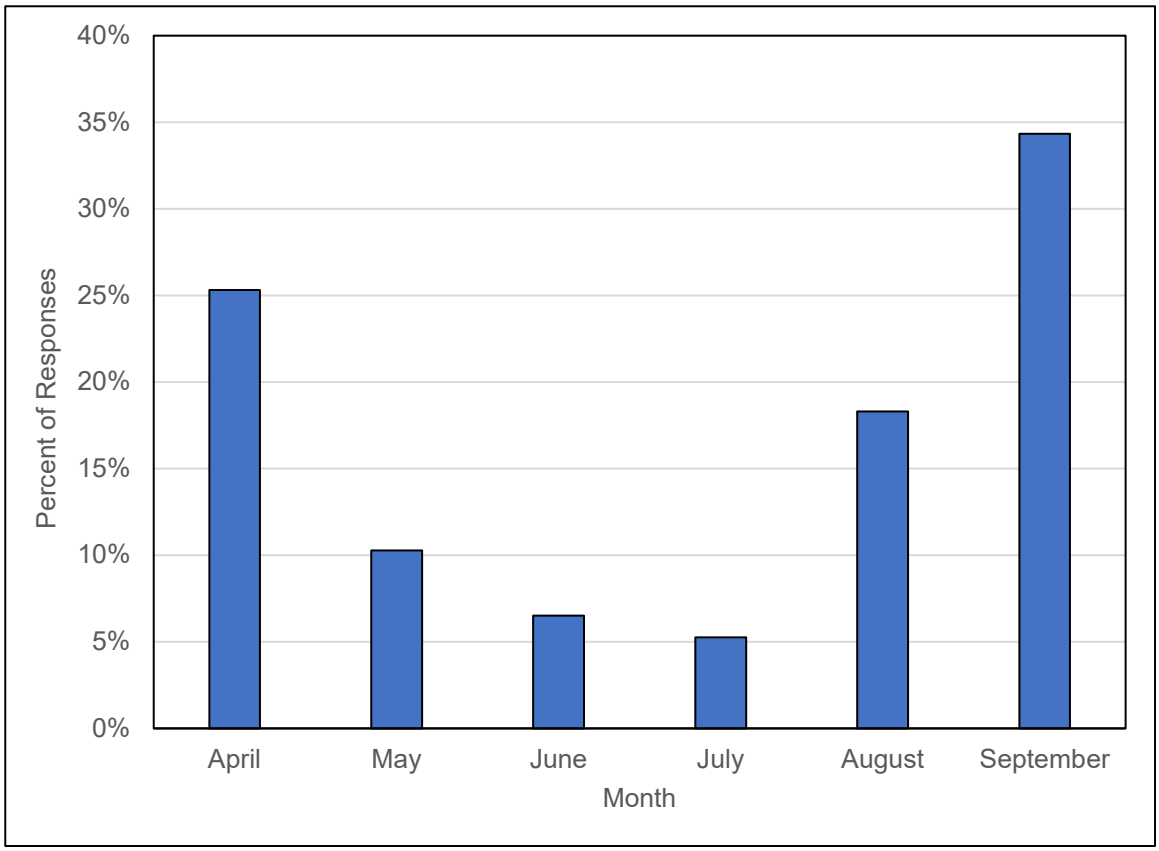

Figure 5.3-1: Single Flow Survey Monthly Boating Flow Evaluations.

5.3.1. NEED FOR CONTROLLED FLOW STUDY

SCE committed to completing a Level 3 Intensive Study using both the Multiple Flow Reconnaissance Assessment Approach and Flow Comparison Survey approach approved in the FERC SPD (FERC, 2022). SCE implemented the single flow survey April 1, 2023. The single flow survey is the Multiple Flow Reconnaissance Assessment approach described in Whittaker et al. (2005). The single flow survey allows boaters in a range of watercraft types to evaluate flows for every boating trip on the river segments in the Fairview Dam Bypass Reach as well as the river segment directly downstream of KR3 Powerhouse. The single flow survey will remain open through December 31, 2023, allowing boaters to evaluate a broad range of flows spanning volumes likely less than minimum acceptable to high challenge flows during peak run-off. Evaluation of broad range of flows by a large number of boaters in a variety of watercraft in all the river segments addresses the limitations identified by Whittaker et al. (2005) in the controlled flow approach.

In 2024, SCE will conduct a Level 3 Flow Comparison Survey described in Whittaker et al. (2005): the Flow Comparison Survey combined with the single flow survey data will allow SCE to develop minimum acceptable and optimum flow preferences using a robust set of quantitative data derived from boaters using a variety of watercraft types in the respective river segments. The results of the Level 3 single flow survey and Flow Comparison Survey will be reported in the USR.

In addition, SCE will analyze the single flow survey data, in combination with results from Levels 1 and 2, to determine if there are gaps in the boating community's knowledge or experience to evaluate specific flows. SCE will attempt to enhance flows where potential gaps exist in boater knowledge and experience for specific flow ranges. 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 as well as the single flow survey. Enhanced flows will be opportunistic, not scheduled in advance, and subject to available inflows and tunnel flow needs. The single flow survey may be reopened for additional data collection if quantitative data does not exist for developing flow preference curves.

The REC-1 Study Plan methods included the Level 3 Intensive Study as a study level that needed to be completed in order to identify the minimum acceptable and optimum flow preferences for whitewater boating in the Fairview Dam Bypass Reach. The Controlled Flow Study is just one of three approaches for Level 3 Intensive Study described in Whittaker et al (2005). The REC-1 Study Level 3 Intensive Study selected two Level 3 approaches described in Whittaker et al. (2005) that are better suited to the Fairview Dam Bypass Reach rather than the Controlled Flow Study approach. The two approaches selected for the REC-1 Study include the Multiple Flow Reconnaissance Assessments and Flow Comparison Surveys.

Whittaker et al. (2005) list "Additional Issues" and "Cautions and Limitations" associated with conducting Controlled Flow Studies. These issues and limitations include insufficient storage to provide flows across boatable flow range, number of boatable flow releases needed for investigation, inability to insure consistent panel of participants across controlled releases, length of bypass reach, complexity of whitewater opportunities in bypass reach, and variety of watercraft being evaluated. Each of these issues exist in the Project Area; for these reasons, SCE determined the Controlled Flow Study approach was not suitable for the Fairview Dam Bypass Reach.

Controlled flow studies are best suited for short bypass reaches where flows can be controlled to provide a range of flows in a 2- to 3-day period for a team of boaters to evaluate in succession. The 2- to 3-day timeframe for a controlled flow study helps ensure the same group of boaters evaluate the full range of flows under similar conditions to eliminate other variables.

The Fairview Dam Bypass Reach comprised of eight different whitewater segments varying in difficulty is not suited for the experimental design necessary for a controlled flow study. In addition, the lack of storage in the reservoir at Fairview Dam, coupled with the uncertainty of the snowmelt hydrograph of the NFKR (Table 5.3-1), severely limits the ability to schedule a controlled flow study with advanced notification let-alone conduct it over a 2- to 3-day timeframe. Predictable advance scheduling is necessary in controlled flow studies to insure a diverse composition of participants representative of a range of watercraft types, skill levels, geographic areas, ages and genders. The lack of storage above Fairview Dam will require boaters to participate on an unpredictable schedule thus severely limiting the potential pool of participants and has the potential to introduce bias to the study results.

The flows in a controlled flow study should include a broad range that includes flows estimated to be lower than the minimum acceptable and greater than the optimum range of flows with several flows between the estimated minimum and optimum. For the Fairview Dam Bypass Reach, the range of flows that need to be evaluated in a comparative flow evaluation need to be between approximately 200 cfs to 2,500 cfs based on information collected in Levels 1 and 2 of the REC-1 Study. Fairview Dam is unable to provide this range of flows over a 2- to 3-day period. KR3 operations can only adjust flows in the bypass reach by 600 cfs and there is no storage behind Fairview Dam to supplement flow diversion from the canal to the bypass reach. The lack of storage at in the reservoir upstream of Fairview Dam and limited capacity of the canal prohibit a comparative whitewater evaluation investigating flows between 200 cfs and 2,500 cfs using a controlled flow study design.

Table 5.3-1. Monthly Mean Flow for the Fairview Dam Bypass Reach, WYs 1997–2022 (USGS Gage 11186000)

Month	Monthly Mean Daily Flow (cfs)
October	133
November	133
December	136
January	268
February	212
March	370
April	693
May	1,449
June	1,427
July	620
August	188
September	126

Sources: SCE, 2023; USGS, 2023
cfs = cubic feet per second

6.0 STUDY SPECIFIC CONSULTATION

Interested resource agencies were invited to participate in the Level 2 Limited Reconnaissance site visit. SQF participated in the Level 2 Limited Reconnaissance on August 25, 2023, but the SWRCB responded to a message on the day of the Level 2 Limited Reconnaissance site visit informing SCE they were not able to attend.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

Analysis of the Structured Interview Questionnaire responses will occur in early 2024 and be reported in the USR. Information obtained from the structured interview responses and the single flow survey will be used to help develop the comparative flow evaluation survey for the Level 3 Intensive Study.

The Level 3 Intensive Study is partially complete. The Level 3 single flow survey was launched in April 2023 to collect boater flow evaluations associated with the run-off from the snowmelt hydrograph available for the spring and summer seasons of 2023. The Level 3 single flow survey will remain open for responses through December 2023. The Level 3 comparative flow survey will be launched in January 2024. Results from the Level 3 single flow survey and comparative flow survey will be included in the USR.

Date	Activity
Fall 2023	Continue Level 3 Intensive Study: Single Flow Survey
Winter 2023/2024	Analyze Structured Interview Questionnaire and Single Flow Survey responses
Spring 2024	Implement Level 3 Intensive Study: Flow Comparison Survey
Fall 2024	Provide Level 3 results in the USR

USR = Updated Study Report

8.0 REFERENCES

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APPENDIX A
LEVEL 2 LIMITED RECONNAISSANCE SITE VISIT NOMINATION FORM AND OUTREACH

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Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

Southern California Edison (SCE) will host a Level 2 limited reconnaissance site visit in the bypass reach on the North Fork of the Kern River (NFKR) as part of the REC-1 Whitewater Boating Study. Per FERC's Study Plan Determination, the site visit is limited to 12 study participants, plus interested agency staff. The self-nomination form helps identify boaters wanting to participate in the Level 2 site visit.

SCE encourages the diverse interest groups in the boating community to work internally to identify an individual to complete the self-nomination form that represents their group's interests. Ideally, the 12 boaters participating in the Level 2 site visit will be a diverse cross-section of the boating community representing a range of watercraft, skill levels and knowledge of the whitewater boating segments in the bypass as well as commercial and non-commercial backgrounds.

If you would like to be considered for this site visit, then please complete the self-nomination form to request participation in the Level 2 site visit before May 15, 2023. SCE will notify the 12 Level 2 site visit participants via email. SCE will work with the boating community to identify representatives if more than 12 individuals self-nominate. The Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern bypass. We anticipate holding the site visit in the 2nd or 3rd quarter of this year.

If you are not selected to participate in this Level 2 limited reconnaissance site visit, there will be additional opportunities to participate in this study over the next year. Please refer to SCE's Relicensing Project website (www.SCE.com/kr3) for information about study participation opportunities.

Thank you,

Dave Moore (SCE KR3 Relicensing Project Manager)

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 1. Please provide your contact information.

First and Last Name

Email Address

Phone Number

* 2. Please provide the five-digit zip code for your primary address

Five-digit zip code

* 3. What is your age?

- ◯ Under 18
- ◯ 18-19
- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60 or older

* 4. What is your gender?

- ◯ Female
- ◯ Male
- ◯ Non-binary
- ◯ Choose not to answer

* 5. How would you rate your overall whitewater skill level?

- ◯ Novice (comfortable boating Class I-II)
- ◯ Intermediate (comfortable boating Class II-III)
- ◯ Advanced (comfortable boating Class IV)
- ◯ Expert (comfortable boating Class V)

* 6. In general, how many days a year do you spend whitewater boating?

- ◯ 1
- ◯ 2-5
- ◯ 6-10
- ◯ 11-20
- ◯ 21-30
- ◯ 31-50
- ◯ >50

* 7. Do you boat on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville?

- ◯ Yes
- ◯ No

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 8. Which whitewater segments have you boated on the North Fork Kern? (select all that apply even if you boat only a portion of one of the named segments)

- [ ] Sidewinder / Bomb's Away
- [ ] Fairview
- [ ] Chamise Gorge
- [ ] Salmon Falls
- [ ] Gold Ledge (aka Ant Canyon)
- [ ] Thunder Run
- [ ] Cable / Camp 3
- [ ] Riverkern Beach
- [ ] Powerhouse / Lickety Split

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 9. How many years have you boated the whitewater segments you selected in the previous question.

Sidewinder / Bomb's Away	
Fairview	
Chamise Gorge	
Salmon Falls	
Gold Ledge (aka Ant Canyon)	
Thunder Run	
Cable / Camp 3	
Riverkern Beach	
Powerhouse / Lickety Split	

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 10. What types of watercraft do you use on the whitewater segments in the bypass? (select all that apply)

- [ ] Whitewater kayak (k1 or K2)
- [ ] Closed-deck canoe (C1 or C2)
- [ ] Open canoe (OC1 or OC2)
- [ ] Inflatable Kayak (IK)
- [ ] Paddle raft
- [ ] Other (please specify)
- [ ] Oar raft
- [ ] Cataraft
- [ ] Shredder
- [ ] Stand-up paddleboard
- [ ] Inner tube

* 11. What types of watercraft do you have direct experience boating on the respective whitewater segments. (check all watercraft types for each whitewater segment that apply but only those where you have direct experience)

	Whitewater kayak (k1 or K2)	Closed-deck canoe (C1 or C2)	Open canoe (OC1 of OC2)	Inflatable Kayak (IK)	Paddle raft	Oar raft	Cataraft	Shredder	Stand-up paddlboard	Inner tube
Sidewinder / Bomb's Away	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fairview	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Chamise Gorge	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Salmon Falls	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Gold Ledge (aka Ant Canyon)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Thunder Run	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Cable / Camp 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Riverkern Beach	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Powerhouse / Lickety Split	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 12. Please list the names of any local, regional or national whitewater groups or river organizations in which you are a member. If you are not a member of any whitewater groups or river organizations respond with "none". The objective in this question is to get representation from local, regional and national whitewater organizations in the site visit.

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 13. Do you currently (or in the past) work as a commercial river guide on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville?

- ◯ Yes
- ◯ No

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

* 14. Please list the commercial companies you currently or previously worked for on the North Fork Kern River guiding trips between Fairview Dam and Riverside Park in Kernville.

Participant Self-Nomination Form for the Level 2 Limited Reconnaissance
REC-1 Whitewater Boating Study
Kern River No. 3 Hydroelectric Project (FERC No. 2290)

Thank you for your interest in the REC-1 Whitewater Boating Study. SCE will contact you via email with further information for the Level 2 limited reconnaissance site visit. The list of participants will be posted on SCE's Relicensing Project website (www.SCE.com/kr3) as well as additional opportunities to participate in this study.

Please select the done button at the bottom of this page to submit your self-nomination form.

Level 2 Limited Reconnaissance Site Visit Outreach					
Item	**Date**	**Format**	**Distribution**	**By**	**Notes**
L2 Participant Self-nomination Form	4/10/2023	electronic	NA	John Gangemi	L2 Participant Self-nomination Form opened to collect responses. Automatically closes 12 AM on May 16, 2023
L2 Participant Self-nomination Form	4/12/2023	electronic	KR3 Stakeholder list	Jilllian Roach	email announcement to KR3 stakeholder group that L2 Participant Self-nomination Form is open for responses. URL and QR code included in email. Inform stakeholders form will close May 15, 2023
L2 Participant Self-nomination Form	5/13/2023	electronic	KR3 Stakeholder list	Jilllian Roach	email announcement to KR3 stakeholder group reminding them that L2 Participant Self-nomination Form is open for responses. URL and QR code included in email. Inform stakeholders form will close mid May 15, 2023. See email PDF in report appendix.
L2 Participant Self-nomination Form	5/30/2023	electronic	L2 Site Visit Participants	Jilllian Roach	email to each L2 Participant (13) confirming their nomination to the L2 Limited Reconnaissance Site Visit and proposed dates for the site visit. See pdf in appendix.
L2 Participant Self-nomination Form	5/30/2023	electronic	Agency stakeholders	Jilllian Roach	email to agency stakeholders informing them that the L2 Limited Reconnaissance Site Visit participants have been self-nominated and proposed dates for the site visit. See pdf in appendix.
L2 Limited Reconnaisance Site Visit	7/14/2023	electronic	Agency and L2 Site Visit Participants	Jilllian Roach	email to agency and L2 Site Visit Participants confirming Date, meeting location and logistics for L2 Site Visit. See pdf in appendix.
L2 Limited Reconnaisance Site Visit	8/11/2023	electronic	Agency and L2 Site Visit Participants	Jilllian Roach	email to agency and L2 Site Visit Participants confirming Date, meeting location and logistics for L2 Site Visit. See pdf in appendix.
L2 Limited Reconnaisance Site Visit	8/17/2023	Phone	Agency and L2 Site Visit Participants	Samantha Bennett	Phone calls to L2 Site Visit Participants confirming attendance. Left a voicemail when no answer and requested that they provide their RSVP for the L2 Limited Reconnaissance Site Visit, by replying to one of the reminder emails.
L2 Limited Reconnaisance Site Visit	8/18/2023	Phone	Agency and L2 Site Visit Participants	Samantha Bennett	Phone calls to L2 Site Visit Participants confirming attendance. Left a voicemail when no answer and requested that they provide their RSVP for the L2 Limited Reconnaissance Site Visit, by replying to one of the reminder emails.
L2 Limited Reconnaisance Site Visit	8/22/2023	electronic	Agency and L2 Site Visit Participants	Jilllian Roach	email reminder to agency and KR3 stakeholders confirming Date, meeting location and logistics for L2 Site Visit. See pdf in appendix.
L2 Limited Reconnaisance Site Visit	8/22/2023	Phone	Agency and L2 Site Visit Participants	Samantha Bennett	Phone calls to L2 Site Visit Participants confirming attendance. Left a voicemail when no answer and requested that they provide their RSVP for the L2 Limited Reconnaissance Site Visit, by replying to one of the reminder emails.

nordich2o@centurytel.net

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Wednesday, April 12, 2023 6:09 PM
Cc: David Moore
Subject: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 2 Participant Self-Nomination Form for the Level 2 Limited Reconnaissance Site Visit

Sent on behalf of Southern California Edison (SCE)

Dear Stakeholder:

Southern California Edison (SCE) will host a Level 2 limited reconnaissance site visit in the bypass reach on the North Fork Kern River (NFKR) as part of the REC-1 Whitewater Boating Study. Per FERC's Study Plan Determination, the site visit is limited to 12 study participants, plus interested agency staff. The self-nomination form helps identify boaters wanting to participate in the Level 2 site visit.

SCE encourages the diverse interest groups in the boating community to work internally to identify an individual to complete the self-nomination form that represents their group's interests. Ideally, the 12 boaters participating in the Level 2 site visit will be a diverse cross-section of the boating community representing a range of watercraft, skill levels and knowledge of the whitewater boating segments in the bypass as well as commercial and non-commercial backgrounds.

If you would like to be considered for this site visit, then **please complete the self-nomination form** to request participation in the Level 2 site visit **before May 15, 2023.** SCE will notify the 12 Level 2 site visit participants via email. SCE will work with the boating community to identify representatives if more than 12 individuals self-nominate. The Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern bypass. We anticipate holding the site visit in the 2nd or 3rd quarter of this year.

If you are not selected to participate in this Level 2 limited reconnaissance site visit, there will be additional opportunities to participate in this study over the next year. Please refer to SCE's Relicensing Project website (www.SCE.com/kr3) for information about study participation opportunities.

Level 2 self-nomination participant Form url and QR code
https://www.surveymonkey.com/r/Level2SiteVisit

Thank you,

Jillian Roach
Senior Consultant

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T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

nordich2o@centurytel.net

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Saturday, May 13, 2023 9:09 PM
Cc: David Moore
Subject: SCE Kern River No. 3: REC 1-Whitewater Boating Study Plan - Data Collection Efforts

Sent on behalf of Southern California Edison (SCE)

Dear Stakeholder:

Southern California Edison (SCE) initiated the Federal Energy Regulatory Commission (FERC) approved REC-1 Whitewater Boating Study Plan in support of the Kern River No. 3 (KR3) hydroelectric relicensing process. As a reminder, the public data collection efforts underway for the REC-1 Whitewater Boating Study include:

- **Level 1 Desktop Analysis**: On May 5, 2023, SCE launched the **structured interview questionnaire.** The questionnaire is designed to gather information about your overall experiences on the North Fork Kern River (NFKR) between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information. You only need to complete the structured interview questionnaire one time. The questionnaire will take you 20 to 30 minutes to complete and will be open through mid-August 2023.

  Direct link to questionnaire: Structured Interview Questionnaire
  Scan the QR code and save it on your phone

- **Level 2 Limited Reconnaissance Site Visit**: On April 12, 2023, SCE launched a **Level 2 Limited Reconnaissance self-nomination participant form**. If you have not already done so, but would like to be considered for this site visit, please complete the self-nomination form by **May 15, 2023** to request participation in the Level 2 site visit. The Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern River bypass reach. We anticipate holding the site visit in the 3rd quarter of this year.

  Direct link to Self-Nomination Participant Form
  Scan the QR code and save it on your phone

- **Level 3 Intensive Study:** On April 1, 2023, SCE launched the **single flow whitewater boating survey** to capture boater survey responses this spring and summer as the NFKR is experiencing high flows. Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the NFKR between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip. Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

  Direct link to survey: Single Flow Whitewater Boating Survey
  Scan the QR code and save it on your phone

Thank you,

SCE Relicensing Team

Jillian Roach
Senior Consultant

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nordich2o@centurytel.net

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, May 30, 2023 2:11 PM
Cc: nordich2o@centurytel.net; David Moore
Subject: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 2 Participant Self-Nomination Form Submission

On behalf of Southern California Edison (SCE)

Dear Whitewater Boating Stakeholder:

Thank you for your interest in SCE's Level 2 limited reconnaissance site visit as part of the REC-1 Whitewater Boating Study. SCE received 13 self-nominations and has elected to invite all who signed up to participate in the Level 2 limited reconnaissance site visit in the bypass reach on the North Fork Kern River (NFKR).

We anticipate holding the site visit in the 3rd quarter of this year, contingent on run-off patterns through the summer season and early fall. Potential target dates may include: Friday August 25th or Friday September 15th. However, the specific date will be confirmed approximately 4 weeks in advance with additional instructions to participants. Please note, the Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern River bypass reach.

Thank you for your interest in the KR3 Relicensing and Whitewater Boating Study.

Jillian Roach
Senior Consultant

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From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, May 30, 2023 2:13 PM
Cc: David Moore; John Gangemi
Subject: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 2 - Agency Participation

On behalf of Southern California Edison (SCE)

Dear Agency Representative:

Southern California Edison (SCE) will host a Level 2 limited reconnaissance site visit in the bypass reach on the North Fork Kern River (NFKR) as part of the REC-1 Whitewater Boating Study. Per FERC's Study Plan Determination, the site visit is limited to 12 study participants, plus interested agency staff. The public stakeholders have been identified, and SCE is reaching out to you regarding your agencies interest in participating in this site visit.

We anticipate holding the site visit in the 3rd quarter of this year, contingent on run-off patterns through the summer season and early fall. Potential target dates may include: Friday August 25th or Friday September 15th. However, the specific date will be confirmed approximately 4 weeks in advance with additional instructions to participants. Please note, the Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern River bypass reach.

Please respond to this email with your agencies representative contact information so we can include them on focused upcoming communication regarding this site visit. If you do not wish to participate in the Level 2 site visit, please respond to this email for our records.

If you have any further questions, please reach out to SCE's Relicensing Manager, Dave Moore at David.moore@sce.com.

Thank you.

Jillian Roach
Senior Consultant

ERM
980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Friday, July 14, 2023 3:54 PM
Cc: David Moore
Subject: SCE KR3 REC-1 Whitewater Boating Study Level 2: SAVE THE DATE-August 25th

Sent on behalf of Southern California Edison (SCE)

Dear Agency and Whitewater Boating Stakeholder:

Thank you for your participation in SCE's Level 2 limited reconnaissance site visit as part of the REC-1 Whitewater Boating Study. SCE has scheduled the Level 2 limited reconnaissance site visit for:

DATE: Friday, August 25, 2023
TIME: 9am to 5pm
MEETING LOCATION: KR3 Powerhouse Put-in/Take-Out Parking Lot

The site visit will include stopping at various whitewater river segments between Fairview Dam and Riverside Park in Kernville. For the site visit, here are a few reminders:

- This site visit is land-based and includes road-side discussions only, no in-water boating as part of Level 2 Limited Reconnaissance
- Please dress accordingly for potentially hot weather and a long day in the sun
- Bring snacks and lunch with you

Study participants: if you are no longer able to participate in the Level 2 site visit or if you have any questions, please contact Jillian Roach at: jillian.roach@erm.com

Resource agency staff: please RSVP to jillian.roach@erm.com if you are interested in participating on the 25th so we can plan accordingly.

Thank you,

Jillian Roach
Senior Consultant

ERM
980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Friday, August 11, 2023 11:09 AM
Cc: David Moore
Subject: REMINDER: SCE KR3 REC-1 Whitewater Boating Study Level 2: SAVE THE DATE-August 25th

Sent on behalf of Southern California Edison (SCE)

Dear Agency and Whitewater Boating Stakeholder:

This is a reminder about SCE's Level 2 limited reconnaissance site visit as part of the REC-1 Whitewater Boating Study. SCE has scheduled the Level 2 limited reconnaissance site visit for:

DATE: Friday, August 25, 2023
TIME: 9am to 5pm
MEETING LOCATION: KR3 Powerhouse Put-in/Take-Out Parking Lot

The site visit will include stopping at various whitewater river segments between Fairview Dam and Riverside Park in Kernville. For the site visit, here are a few reminders:

- This site visit is land-based and includes road-side discussions only, no in-water boating as part of Level 2 Limited Reconnaissance
- Please dress accordingly for potentially hot weather and a long day in the sun
- Bring water, snacks, and lunch with you (we will find a spot to eat riverside)

If you have not already done so, please RSVP to jillian.roach@erm.com to confirm your attendance at the site visit on the 25th so we can plan transportation logistics accordingly.

Thank you,

Jillian Roach
Senior Consultant

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T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

From: Jillian Roach
Cc: David Moore
Subject: REMINDER: SCE KR3 REC-1 Whitewater Boating Study Level 2 Scheduled for August 25th
Date: Tuesday, August 22, 2023 8:45:46 AM
Attachments: image001.png

KR3 Whitewater Study Site Visit Participant:

This is a reminder for the upcoming Level 2 limited reconnaissance site visit as part of the REC-1 Whitewater Boating Study. The site visit is scheduled for:

DATE: Friday, August 25, 2023

TIME: 9am to 5pm

MEETING LOCATION: KR3 Powerhouse Put-in/Take-Out Parking Lot

While the NFKR flows may have increased due to the recent storm events, there are no in-water activities planned for this site visit. The site visit includes stopping at various whitewater river segment access points between Fairview Dam and Riverside Park in Kernville. Please keep in mind that Highway 178 has a small segment with 1-lane traffic controls, so account for a bit of extra time if you are traveling up from Bakersfield.

For the site visit, here are a few reminders:

- This site visit is land-based and includes road-side discussions only, no in-water boating as part of Level 2 Limited Reconnaissance
- Please dress accordingly for potentially hot weather and a long day in the sun
- Bring water, snacks, and lunch with you (we will find a spot to eat riverside)

If you have not already done so, please RSVP to jillian.roach@erm.com to confirm your attendance at the site visit on the 25th so we can plan transportation logistics accordingly.

Jillian Roach
Senior Consultant

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The business of sustainability

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APPENDIX B
LEVEL 3 INTENSIVE STUDY SINGLE FLOW SURVEY

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KR3 Single Flow Whitewater Boating Survey

Welcome to the single flow whitewater boating survey for the Kern River No. 3 (KR3) Hydroelectric Project.

Southern California Edison (SCE) is the owner and operator of the KR3 Project which is currently undergoing a relicensing proceeding with the Federal Energy Regulatory Commission (FERC) to renew its long-term operating license. This single flow whitewater boating survey is one part of the REC-1 Whitewater Boating Study being conducted to support the relicensing process.

Please complete the single flow whitewater boating survey for each boating trip you do on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The following survey questions will ask you to specify which whitewater segment you boated on your trip. For your convenience, a map delineating the whitewater segments is provided at the start of the survey. Your trip may use different access points or overlap one or more whitewater segments. Please select all the whitewater segments you boated during this trip regardless if you used all or part of the segment.

Before starting the single flow whitewater boating survey, please confirm the flow (cfs) for your trip at the time of your launch using the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville. Alternatively, keep the flow information open in a separate browser page to refer back to as you go through the survey questions focused on flow during your trip. Knowing the correct flow you boated will be important to answer several questions in the survey.

Thank you for participating in the single flow whitewater boating survey. Your feedback is important, please encourage your boating friends to document their trips.

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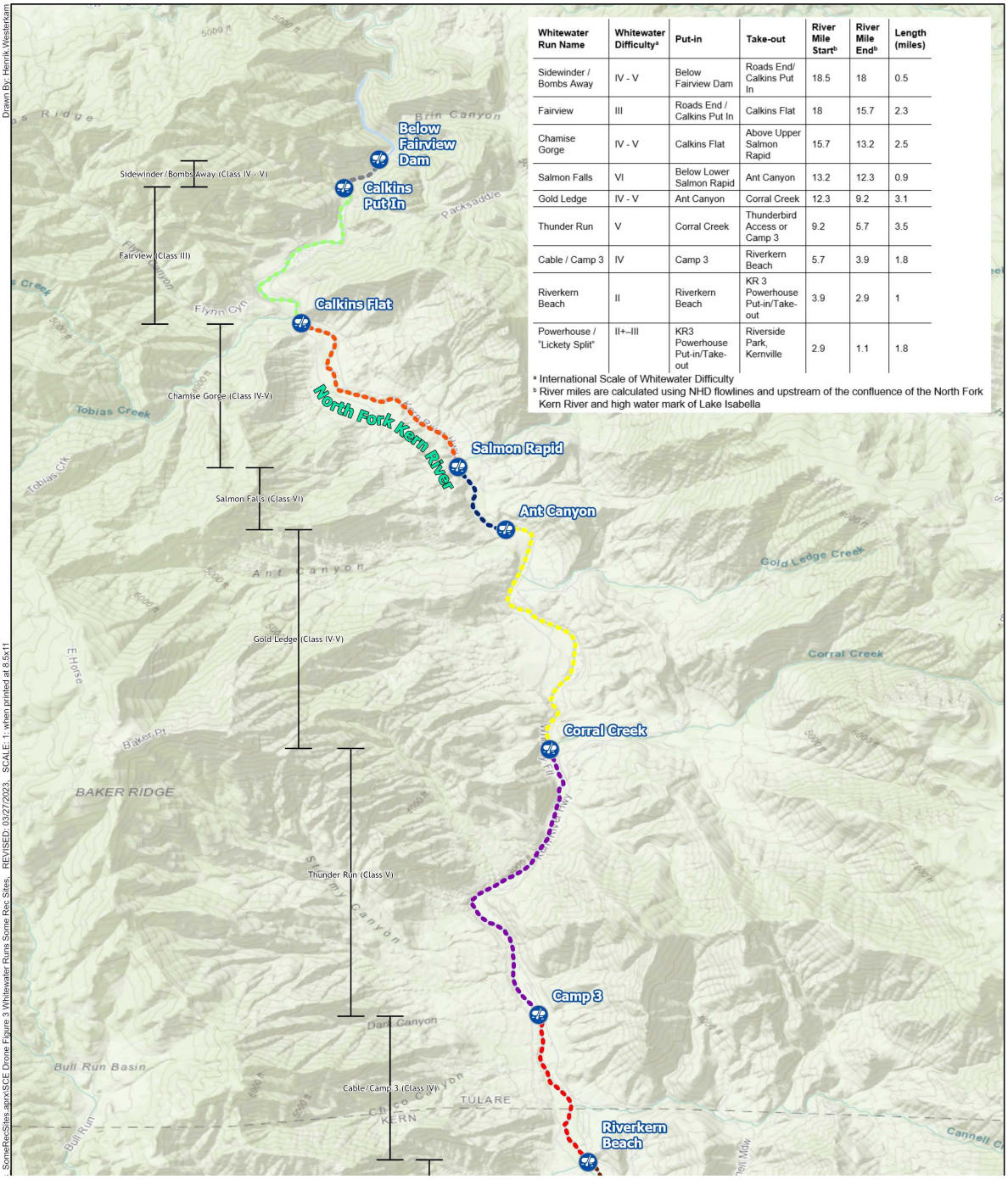
Energy for What's Ahead®

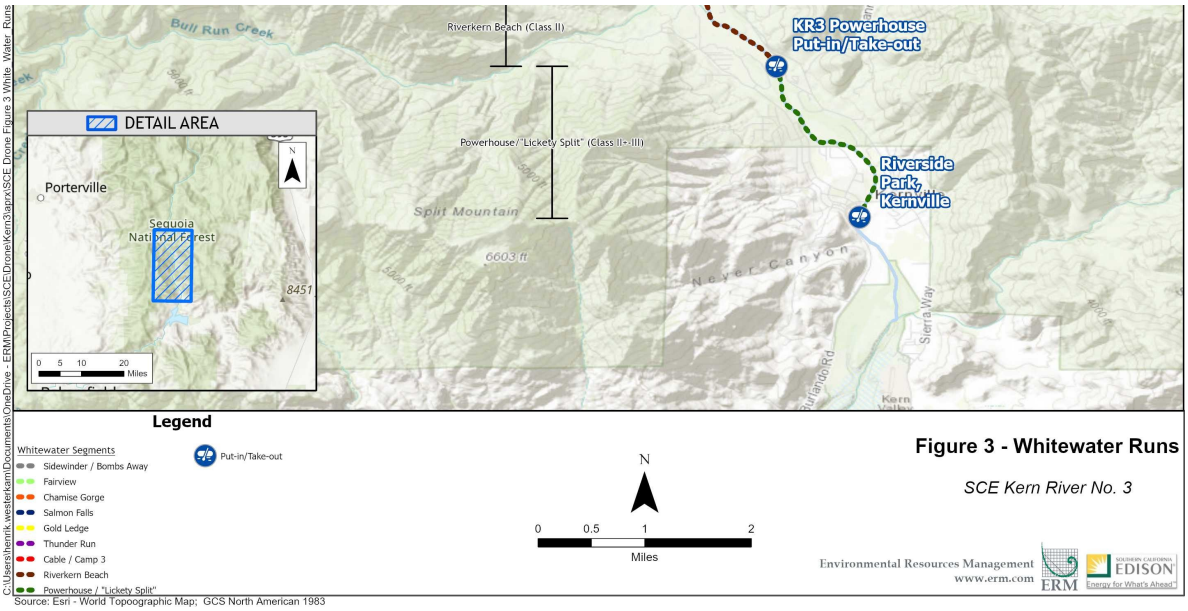
KR3 Single Flow Whitewater Boating Survey

Whitewater segments for the single flow whitewater boating survey commonly delineated on the North Fork Kern River.



Whitewater Run Name	Whitewater Difficulty[a]	Put-in	Take-out	River Mile Start[b]	River Mile End[b]	Length (miles)
Sidewinder / Bombs Away	IV - V	Below Fairview Dam	Roads End/ Calkins Put In	18.5	18	0.5
Fairview	III	Roads End / Calkins Put In	Calkins Flat	18	15.7	2.3
Chamise Gorge	IV - V	Calkins Flat	Above Upper Salmon Rapid	15.7	13.2	2.5
Salmon Falls	VI	Below Lower Salmon Rapid	Ant Canyon	13.2	12.3	0.9
Gold Ledge	IV - V	Ant Canyon	Corral Creek	12.3	9.2	3.1
Thunder Run	V	Corral Creek	Thunderbird Access or Camp 3	9.2	5.7	3.5
Cable / Camp 3	IV	Camp 3	Riverkern Beach	5.7	3.9	1.8
Riverkern Beach	II	Riverkern Beach	KR 3 Powerhouse Put-in/Take-out	3.9	2.9	1
Powerhouse / "Lickety Split"	II+–III	KR3 Powerhouse Put-in/Take-out	Riverside Park, Kernville	2.9	1.1	1.8

[a] International Scale of Whitewater Difficulty
[b] River miles are calculated using NHD flowlines and upstream of the confluence of the North Fork Kern River and high water mark of Lake Isabella


C:\Users\hmrik.westerkam\Documents\OneDrive - ERM\Projects\SCE\Drone\Kern3\aprx\SCE Drone Figure 3 White Water Runs
Bull Run Creek
Riverkern Beach (Class II)
Powerhouse/ "Lickety Split" (Class II- III)
KR3 Powerhouse Put-in/Take-out
Riverside Park, Kernville
DETAIL AREA
Porterville
Sequoia National Forest
Split Mountain
6603 ft
8451
Never Canyon
Sierra Way
Rufiando Rd
Kern
0 5 10 20 Miles
Legend
Whitewater Segments
Sidewinder / Bombs Away
Fairview
Chamise Gorge
Salmon Falls
Gold Ledge
Thunder Run
Cable / Camp 3
Riverkern Beach
Powerhouse / "Lickety Split"
Put-in/Take-out
N
0 0.5 1 2
Miles
Source: Esri - World Topoographic Map; GCS North American 1983
Figure 3 - Whitewater Runs
SCE Kern River No. 3
Environmental Resources Management
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Energy for What's Ahead

KR3 Single Flow Whitewater Boating Survey

* 1. Please provide your full name (used for data sorting purposes only).

First and Last Name

* 2. Please provide the five-digit zip code for your primary address.

Five-digit zip code

* 3. Is this the first time you have completed the **single flow whitewater boating survey** for the KR3 project?

- ◯ Yes
- ◯ No

* 4. What is your age?

- ◯ Under 18
- ◯ 18-19
- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60 or older

* 5. What is your gender?

- ◯ Female
- ◯ Male
- ◯ Non-binary
- ◯ Choose not to answer

* 6. How would you rate your overall whitewater skill level?

- ◯ Novice (comfortable boating Class I-II)
- ◯ Intermediate (comfortable boating Class II-III)
- ◯ Advanced (comfortable boating Class IV)
- ◯ Expert (comfortable boating Class V)

* 7. What type of watercraft did you use for this trip? (choose one)

- ◯ Whitewater kayak (k1 or K2)
- ◯ Closed-deck canoe (C1 or C2)
- ◯ Open canoe (OC1 of OC2)
- ◯ Inflatable Kayak (IK)
- ◯ Paddle raft
- ◯ Other (please specify)
- ◯ Oar raft
- ◯ Cataraft
- ◯ Shredder
- ◯ Stand-up paddleboard
- ◯ Inner tube

* 8. Date and time you launched on the river for this boating trip:

Date / Time

Date: MM/DD/YYYY

Time: hh mm

AM/PM: -

* 9. On this trip, did you boat a whitewater segment between Fairview Dam and the KR3 powerhouse (also known as the "bypass")?

- ◯ Yes
- ◯ No

KR3 Single Flow Whitewater Boating Survey

* 10. Which whitewater segments in the bypass between Fairview Dam and KR3 powerhouse did you boat on this trip? (select all that apply even if you only boated a portion of one of the named segments)

- [ ] Sidewinder / Bomb's Away
- [ ] Fairview
- [ ] Chamise Gorge
- [ ] Salmon Falls
- [ ] Gold Ledge (aka Ant Canyon)
- [ ] Thunder Run
- [ ] Camp 3 / Cable Run
- [ ] Riverkern Beach

KR3 Single Flow Whitewater Boating Survey

* 11. In general, how would you rate the overall whitewater difficulty for the segment(s) you boated on this trip at this flow?

	Class I	Class II	Class III	Class IV	Class V	Class VI	Not Sure
Sidewinder / Bomb's Away	◯	◯	◯	◯	◯	◯	◯
Fairview	◯	◯	◯	◯	◯	◯	◯
Chamise Gorge	◯	◯	◯	◯	◯	◯	◯
Salmon Falls	◯	◯	◯	◯	◯	◯	◯
Gold Ledge (aka Ant Canyon)	◯	◯	◯	◯	◯	◯	◯
Thunder Run	◯	◯	◯	◯	◯	◯	◯
Camp 3 / Cable Run	◯	◯	◯	◯	◯	◯	◯
Riverkern Beach	◯	◯	◯	◯	◯	◯	◯

* 12. What was the flow (cfs) in the bypass reach measured below Fairview Dam? If you are unable to verify the flow using an online gage then enter your best estimate of the flow (cfs). Please use whole numbers.

* 13. Please estimate the number of hits, stops, boat drags and portages you had on this trip at this flow.

Number of times **I hit** rocks and other obstacles (but did not stop):

Number of times I was **stopped** after hitting rocks or other obstacles (but did not have to get out of my boat to continue downstream):

Number of times I had to get out to **drag or pull my boat** off rocks or other obstacles:

Number of times I had to **portage** around unrunnable rapids, log jams, or other obstacles:

* 14. Please rate the flow on this trip for each of the following characteristics. (response required for each characteristic)

	1. Totally Unacceptable	2. Moderately Unacceptable	3. Marginal	4. Moderately Acceptable	5. Totally Acceptable	Not an important characteristic for my trip
Technical Boating	◯	◯	◯	◯	◯	◯
Powerful hydraulics	◯	◯	◯	◯	◯	◯
Whitewater play	◯	◯	◯	◯	◯	◯
Overall whitewater quality	◯	◯	◯	◯	◯	◯
Safety	◯	◯	◯	◯	◯	◯
Length of run	◯	◯	◯	◯	◯	◯
Number of portages	◯	◯	◯	◯	◯	◯

* 15. Are you likely to return to boat the flow you just evaluated for this trip?

◯ Yes

◯ No

* 16. In general, would you prefer a flow that was lower, higher or about the same as this flow?

- ◯ Lower flow
- ◯ Higher flow
- ◯ About the same flow

KR3 Single Flow Whitewater Boating Survey

17. In the previous question , if you prefer a lower or higher flow, please indicate the flow volume in cfs that you would like to paddle. (whole numbers only)

KR3 Single Flow Whitewater Boating Survey

* 18. On this trip, did you boat the Powerhouse / Lickety Split run downstream of the KR3 powerhouse?

- ◯ Yes
- ◯ No

KR3 Single Flow Whitewater Boating Survey

* 19. What was the flow (cfs) downstream of the KR3 Powerhouse (measured at the Army Corps gage for the North Fork Kern at Kernville)? If you are unable to verify the flow using an online gage then enter your best estimate of the flow (cfs). Please use whole numbers.

* 20. Please rate the flow on this trip in the Powerhouse / Lickety Split segment for each of the following characteristics. (response required for each characteristic)

	1. Totally Unacceptable	2. Moderately Unacceptable	3. Marginal	4. Moderately Acceptable	5. Totally Acceptable	Not an important characteristic for my trip
Technical Boating	◯	◯	◯	◯	◯	◯
Powerful hydraulics	◯	◯	◯	◯	◯	◯
Whitewater play	◯	◯	◯	◯	◯	◯
Overall whitewater quality	◯	◯	◯	◯	◯	◯
Safety	◯	◯	◯	◯	◯	◯
Length of run	◯	◯	◯	◯	◯	◯

* 21. Are you likely to return to the Powerhouse / Lickety Split segment to boat this flow you just evaluated?

◯ Yes

◯ No

* 22. For the Powerhouse / Lickety Split segment would you prefer a flow that was lower, higher or about the same as this flow?

- ◯ Lower flow
- ◯ Higher flow
- ◯ About the same flow

KR3 Single Flow Whitewater Boating Survey

23. In the previous question , if you prefer a lower or higher flow, please indicate the flow volume in cfs that you would like to paddle. (use whole numbers)

KR3 Single Flow Whitewater Boating Survey

Be sure to select the **Done** button on the bottom of this page to submit your responses.

Thank you for participating in the single flow whitewater boating survey. Please take the single flow survey for each trip you complete. Encourage other boaters to participate in the survey as well.

The single flow whitewater boating survey results will be included as part of the REC-1 Whitewater Boating Study Technical Report filed with FERC. This is one of several opportunities for the whitewater community to participate in the REC-1 whitewater boating study. For other participation opportunities or additional information about the KR3 relicensing process refer to Southern California Edison's website (www.SCE.com/kr3).

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APPENDIX C
LEVEL 1 STRUCTURED INTERVIEW QUESTIONNAIRE

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KR3 Structured Interview Questionnaire

Welcome to the structured interview questionnaire for the Kern River No. 3 (KR3) Hydroelectric Project.

Southern California Edison (SCE) is the owner and operator of the KR3 Project which is currently undergoing a relicensing proceeding with the Federal Energy Regulatory Commission (FERC) to renew its long-term operating license. This questionnaire is part of the Level 1 desktop analysis for the REC-1 whitewater boating study being conducted to support the relicensing process.

Please complete the structured interview questionnaire to document your whitewater boating experiences on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences and flow information. For your convenience, a map delineating the whitewater segments is provided at the start of the survey. You may use different access points or overlap one or more whitewater segments.

The questionnaire will take you 20 to 30 minutes to complete. Your thorough and thoughtful responses will provide important information about whitewater boating between Fairview Dam and Riverside Park as well as assist with progression to more intensive study. You only need to complete the structured interview questionnaire one time. Please take your time responding to each question.

Thank you for participating in the structured interview questionnaire. Your feedback is important, please encourage other boaters to complete the structured interview questionnaire.

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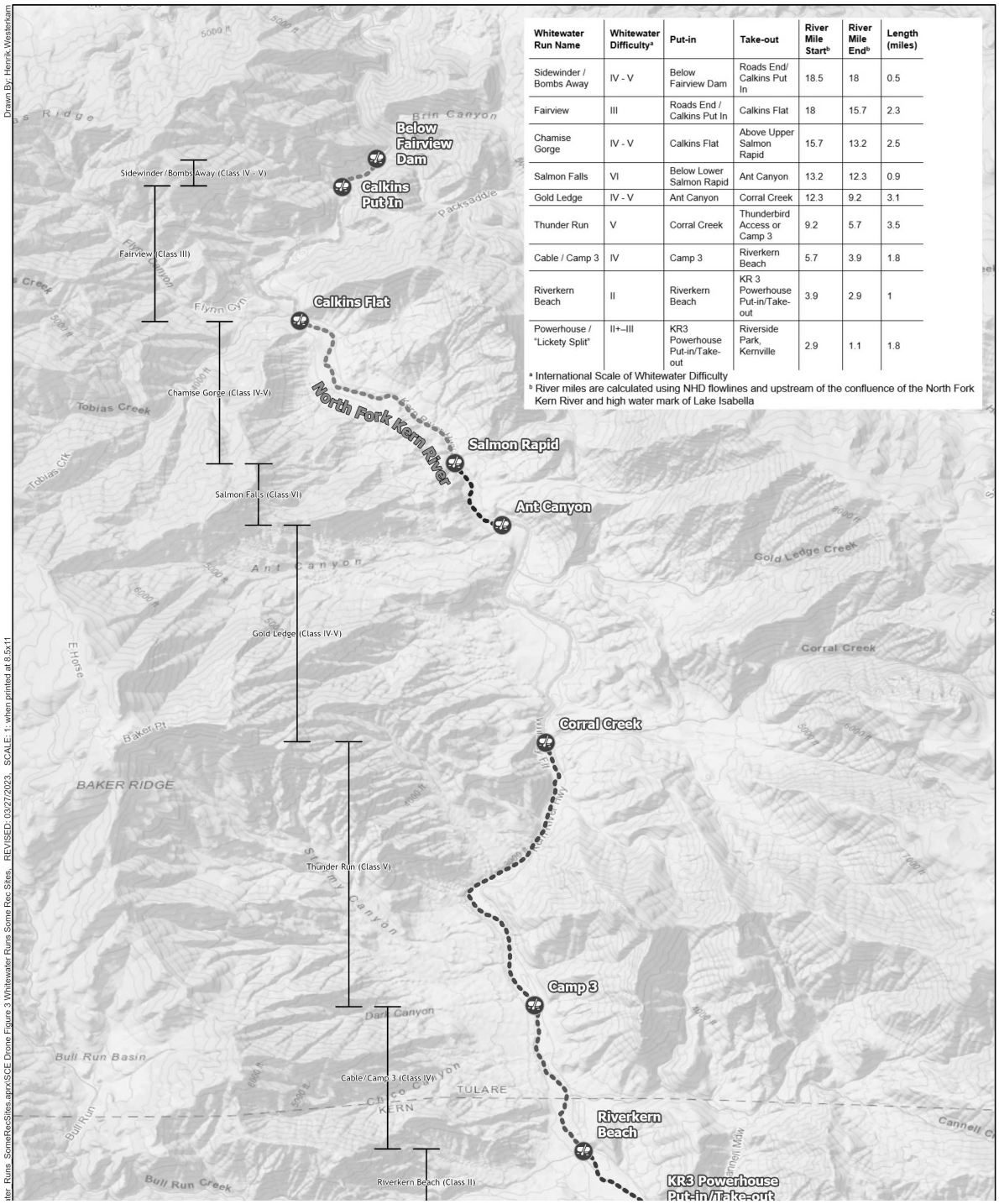
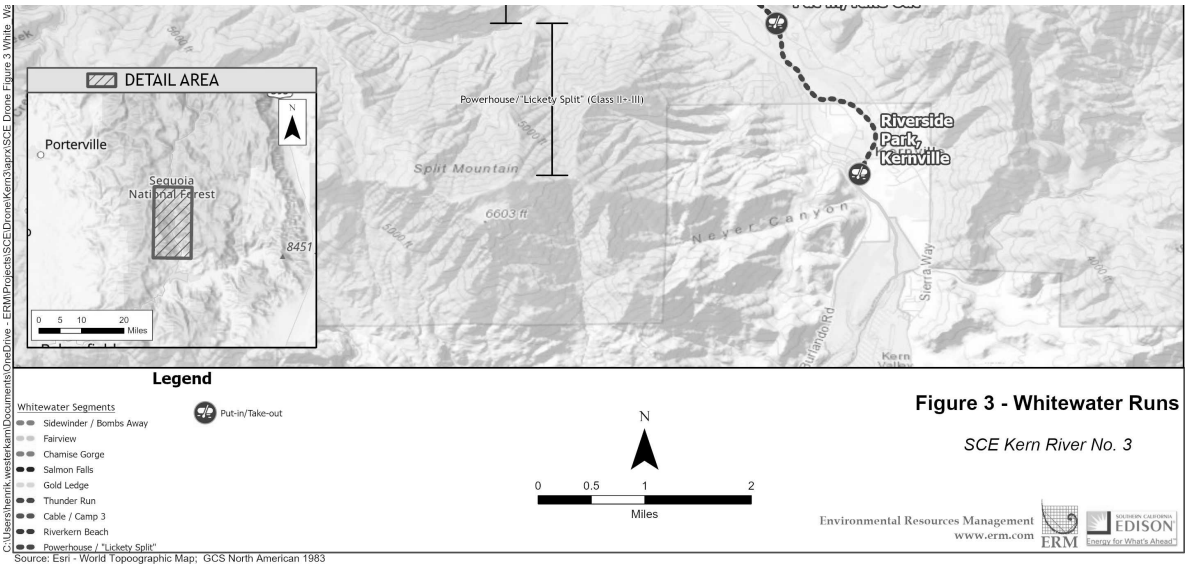
KR3 Structured Interview Questionnaire

Whitewater segments for the REC-1 whitewater boating study on the North Fork Kern River.



Whitewater Run Name	Whitewater Difficulty[a]	Put-in	Take-out	River Mile Start[b]	River Mile End[b]	Length (miles)
Sidewinder / Bombs Away	IV - V	Below Fairview Dam	Roads End/ Calkins Put In	18.5	18	0.5
Fairview	III	Roads End / Calkins Put In	Calkins Flat	18	15.7	2.3
Chamise Gorge	IV - V	Calkins Flat	Above Upper Salmon Rapid	15.7	13.2	2.5
Salmon Falls	VI	Below Lower Salmon Rapid	Ant Canyon	13.2	12.3	0.9
Gold Ledge	IV - V	Ant Canyon	Corral Creek	12.3	9.2	3.1
Thunder Run	V	Corral Creek	Thunderbird Access or Camp 3	9.2	5.7	3.5
Cable / Camp 3	IV	Camp 3	Riverkern Beach	5.7	3.9	1.8
Riverkern Beach	II	Riverkern Beach	KR 3 Powerhouse Put-in/Take-out	3.9	2.9	1
Powerhouse / "Lickety Split"	II+–III	KR3 Powerhouse Put-in/Take-out	Riverside Park, Kernville	2.9	1.1	1.8

[a] International Scale of Whitewater Difficulty
[b] River miles are calculated using NHD flowlines and upstream of the confluence of the North Fork Kern River and high water mark of Lake Isabella


DETAIL AREA
Porterville
Sequoia National Forest
8451
0 5 10 20 Miles
Powerhouse/ "Lickety Split" (Class II - III)
Split Mountain
6603 ft
Riverside Park, Kernville
Never Canyon
Sierra Way
Kern Valley
Legend
Whitewater Segments
Sidewinder / Bombs Away
Fairview
Chamise Gorge
Salmon Falls
Gold Ledge
Thunder Run
Cable / Camp 3
Riverkern Beach
Powerhouse / "Lickety Split"
Put-in/Take-out
N
0 0.5 1 2
Miles
Figure 3 - Whitewater Runs
SCE Kern River No. 3
Environmental Resources Management
www.erm.com
ERM
EDISON
Energy for What's Ahead
C:\Users\henrik.westerkam\Documents\OneDrive - ERM\Projects\SCE\Drone\Kern3\apprx\SCE Drone Figure 3 White_We
Source: Esri - World Topoographic Map; GCS North American 1983

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KR3 Structured Interview Questionnaire

* 1. Please provide your contact information (used for follow-up questions if needed).

First and Last Name

Email Address

Phone Number

* 2. Please provide the five-digit zip code for your primary address.

Five-digit zip code

* 3. What is your age?

- ◯ Under 18
- ◯ 18-19
- ◯ 20-29
- ◯ 30-39
- ◯ 40-49
- ◯ 50-59
- ◯ 60 or older

* 4. What is your gender?

- ◯ Female
- ◯ Male
- ◯ Non-binary
- ◯ Choose not to answer

* 5. How would you rate your overall whitewater skill level?

- ◯ Novice (comfortable boating Class I-II)
- ◯ Intermediate (comfortable boating Class II-III)
- ◯ Advanced (comfortable boating Class IV)
- ◯ Expert (comfortable boating Class V)

* 6. Do you currently (or in the past) boat on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville in a commercial or non-commercial boating capacity? (check all that apply).

- [ ] Commercial guide
- [ ] Non-commercial recreational boater
- [ ] Other (please specify)

* 7. What type of watercraft do you have experience using on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville? (check all that apply)

- [ ] Whitewater kayak (k1 or K2)
- [ ] Closed-deck canoe (C1 or C2)
- [ ] Open canoe (OC1 of OC2)
- [ ] Inflatable kayak (IK)
- [ ] Paddle raft
- [ ] Oar raft
- [ ] Cataraft
- [ ] Shredder
- [ ] Stand-up paddleboard
- [ ] Inner tube
- [ ] Other (please specify)

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KR3 Structured Interview Questionnaire

* 8. What type of watercraft do you use the most to boat on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville? (choose one)

- ◯ Whitewater kayak (k1 or K2)
- ◯ Closed-deck canoe (C1 or C2)
- ◯ Open canoe (OC1 of OC2)
- ◯ Inflatable kayak (IK)
- ◯ Paddle raft
- ◯ Oar raft
- ◯ Cataraft
- ◯ Shredder
- ◯ Stand-up paddleboard
- ◯ Inner tube
- ◯ [Insert text from Other]

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KR3 Structured Interview Questionnaire

* 9. How many boating trips per year do you typically make to the North Fork of the Kern between Fairview Dam and Riverside Park in Kernville? (also known as the "bypass")?

- ◯ 0 times annually
- ◯ 1 to 5 times annually
- ◯ 6 to 10 times annually
- ◯ 11 to 20 times annually
- ◯ 21 to 30 times annually
- ◯ 31 to 50 times annually
- ◯ 51 to 100 times annually
- ◯ more 100 times annually

* 10. How long is a **TYPICAL** boating trip for you on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville.

- ◯ 1 - 2 hours
- ◯ 3 - 4 hours
- ◯ 5 - 6 hours
- ◯ > 6 hours

* 11. When do you typically boat on the North Fork Kern River between Fairview Dam and Riverside Park. (check all that apply)

- ☐ Weekdays between 8 AM and 5 PM
- ☐ Weekdays after 5 PM
- ☐ Weekends
- ☐ Holiday Weekends (not including holiday)
- ☐ Holidays (not including associated weekend)

* 12. Why do you choose to boat on the North Fork Kern between Fairview Dam and Riverside Park in Kernville? (check all that apply)

- [ ] Quality of the whitewater
- [ ] Diversity of whitewater segments
- [ ] Whitewater difficulty
- [ ] River access
- [ ] Landscape and scenery
- [ ] Closest boating to where I live
- [ ] Camping
- [ ] Spending time with friends
- [ ] Other (please specify)

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KR3 Structured Interview Questionnaire

* 13. Which whitewater segments do you boat on the North Fork Kern River between Fairview Dam and Riverside Park? (select all that apply even if you only boat a portion of one of the named segments)

- [ ] Sidewinder / Bomb's Away
- [ ] Fairview
- [ ] Chamise Gorge
- [ ] Salmon Falls
- [ ] Gold Ledge (aka Ant Canyon)
- [ ] Thunder Run
- [ ] Camp 3 / Cable Run
- [ ] Riverkern Beach
- [ ] Powerhouse / Lickety Split

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KR3 Structured Interview Questionnaire

* 14. Please rank the whitewater segments in your order of preference from your favorite (1) to least favorite (9) that you boat on the North Fork Kern River between Fairview Dam and Riverside Park. Use the arrows next to each river segment name to move it up or down to reflect your favorite to least favorite segment.

- Sidewinder / Bomb's Away
- Fairview
- Chamise Gorge
- Salmon Falls
- Gold Ledge (aka Ant Canyon)
- Thunder Run
- Camp 3 / Cable Run
- Riverkern Beach
- Powerhouse / Lickety Split

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KR3 Structured Interview Questionnaire

15. In general, how would you rate the overall whitewater difficulty for the river segments you are familiar with at a flow between **700 cfs and 2000 cfs** below Fairveiw Dam?

	Class I	Class II	Class III	Class IV	Class V	Class VI	Not Sure
Sidewinder / Bomb's Away	○	○	○	○	○	○	○
Fairview	○	○	○	○	○	○	○
Chamise Gorge	○	○	○	○	○	○	○
Salmon Falls	○	○	○	○	○	○	○
Gold Ledge (aka Ant Canyon)	○	○	○	○	○	○	○
Thunder Run	○	○	○	○	○	○	○
Camp 3 / Cable Run	○	○	○	○	○	○	○
Riverkern Beach	○	○	○	○	○	○	○
Powerhouse / Lickety Split	○	○	○	○	○	○	○

16. In general, how would you rate the overall whitewater difficulty for the river segments you are familiar with at a flow between **2000 cfs and 3500 cfs** below Fairveiw Dam?

	Class I	Class II	Class III	Class IV	Class V	Class VI	Not Sure
Sidewinder / Bomb's Away	○	○	○	○	○	○	○
Fairview	○	○	○	○	○	○	○
Chamise Gorge	○	○	○	○	○	○	○
Salmon Falls	○	○	○	○	○	○	○
Gold Ledge (aka Ant Canyon)	○	○	○	○	○	○	○
Thunder Run	○	○	○	○	○	○	○
Camp 3 / Cable Run	○	○	○	○	○	○	○
Riverkern Beach	○	○	○	○	○	○	○
Powerhouse / Lickety Split	○	○	○	○	○	○	○

17. In general, how would you rate the overall whitewater difficulty for the river segments you are familiar with at a flow **greater than 3500 cfs** below Fairveiw Dam?

	Class I	Class II	Class III	Class IV	Class V	Class VI	Not Sure
Sidewinder / Bomb's Away	○	○	○	○	○	○	○
Fairview	○	○	○	○	○	○	○
Chamise Gorge	○	○	○	○	○	○	○
Salmon Falls	○	○	○	○	○	○	○
Gold Ledge (aka Ant Canyon)	○	○	○	○	○	○	○
Thunder Run	○	○	○	○	○	○	○
Camp 3 / Cable Run	○	○	○	○	○	○	○
Riverkern Beach	○	○	○	○	○	○	○
Powerhouse / Lickety Split	○	○	○	○	○	○	○

18. In general, how would you rate the overall whitewater difficulty for the river segments you are familiar with at a flow **less than 700 cfs** below Fairveiw Dam?

	Class I	Class II	Class III	Class IV	Class V	Class VI	Not Sure
Sidewinder / Bomb's Away	○	○	○	○	○	○	○
Fairview	○	○	○	○	○	○	○
Chamise Gorge	○	○	○	○	○	○	○
Salmon Falls	○	○	○	○	○	○	○
Gold Ledge (aka Ant Canyon)	○	○	○	○	○	○	○
Thunder Run	○	○	○	○	○	○	○
Camp 3 / Cable Run	○	○	○	○	○	○	○
Riverkern Beach	○	○	○	○	○	○	○
Powerhouse / Lickety Split	○	○	○	○	○	○	○

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KR3 Structured Interview Questionnaire

19. Which type of watercraft do you have direct experience boating on the river segments you identified previously? (check all watercraft that apply for each river segment you boat)

	WW kayak	Closed-deck canoe	Open-deck canoe	Inflatable kayak (IK)	Paddle raft	Oar frame raft	Cataraft	Shredder	SUP	Inner tube
Sidewinder / Bomb's Away	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fairview	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Chamise Gorge	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Salmon Falls	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Gold Ledge (aka Ant Canyon)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Thunder Run	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Camp 3 / Cable Run	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Riverkern Beach	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Powerhouse / Lickety Split	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

KR3 Structured Interview Questionnaire

20. The next three questions ask you to identify your flow preferences for your watercraft type for the river segments where you have direct experience. Your responses to these questions will help us develop more intensive investigation as part of this study. Please base your response on your experience and preferences for your watercraft rather than guidebook recommendations or group suggestions.

Please estimate the **minimum acceptable flow** for the river segments where you have boating experience. The minimum acceptable flow is **defined as the flow you would return to boat a specific river segment**.

Write in the **type of watercraft and flow for your watercraft**. If you have experience with more than one type of watercraft then enter the flow for each watercraft type with correct watercraft label. Be sure to specify the watercraft type for your responses (**example: kayak 400 cfs; raft 900 cfs; shredder 600 cfs**).

If you are unsure of the minimum acceptable flow for a river segment then leave it blank. (**Important: Specify WATERCRAFT TYPE and FLOW (cfs) in your responses**)

Sidewinder / Bomb's Away	
Fairview	
Chamise Gorge	
Salmon Falls	
Gold Ledge (aka Ant Canyon)	
Thunder Run	
Camp 3 / Cable Run	
Riverkern Beach	
Powerhouse / Lickety Split	

21. Please estimate your **optimum flow** for your watercraft for the river segments where you have boating experience. The optimum flow is **defined as your preferred flow for your watercraft** for the specific river segment.

Write in the **type of watercraft and optimum flow for that watercraft**. If you have experience with more than one type of watercraft then enter the optimum flow for each watercraft type with correct watercraft label. Your optimum flow preference may be different for different types of watercraft. The optimum flow may be a single flow number or a range. Be sure to specify the watercraft type for your responses (**example: kayak 1200 - 1500 cfs; raft 1400 - 2000 cfs; shredder 1200 cfs**).

If you are unsure of the optimum flow for a river segment then leave it blank. Please base your response on your experience and preferences rather than guidebook recommendations or group suggestions (**Important: Specify WATERCRAFT TYPE and FLOW (cfs) in your responses**)

Sidewinder / Bomb's Away	
Fairview	
Chamise Gorge	
Salmon Falls	
Gold Ledge (aka Ant Canyon)	
Thunder Run	
Camp 3 / Cable Run	
Riverkern Beach	
Powerhouse / Lickety Split	

22. There is a potential lack of direct boating experience and knowledge about flows in the bypass reach particularly between 40 cfs and and 700 cfs. Identifying these **flow knowledge gaps** in the whitewater boating community will help target flow ranges for more intensive study.

For each of the river segments listed below please specify the flow range where **YOU** personally **DO NOT have direct experience boating on a previous trip**. Include the type of watercraft where you do not have direct experience.

If you are uncertain for a river segment or are satisfied with your experience and knowledge of flows for a river segment then leave that row blank. Please provide a flow range (or more than one range of flows) using whole numbers. (**example responses: Kayak 200 - 400; Kayak 200 - 400 and 600 - 800, paddle raft <700**)

Sidewinder / Bomb's Away	
Fairview	
Chamise Gorge	
Salmon Falls	
Gold Ledge (aka Ant Canyon)	
Thunder Run	
Camp 3 / Cable Run	
Riverkern Beach	
Powerhouse / Lickety Split	

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KR3 Structured Interview Questionnaire

23. Do you **TYPICALLY** access the river using developed river access sites, campgrounds, day use sites, dispersed locations or a combination of all? (check all that apply)

	Developed river access sites	Campgrounds	Developed day-use sites	Dispersed locations	Combination of all
Sidewinder / Bomb's Away	☐	☐	☐	☐	☐
Fairview	☐	☐	☐	☐	☐
Chamise Gorge	☐	☐	☐	☐	☐
Salmon Falls	☐	☐	☐	☐	☐
Gold Ledge (aka Ant Canyon)	☐	☐	☐	☐	☐
Thunder Run	☐	☐	☐	☐	☐
Camp 3 / Cable Run	☐	☐	☐	☐	☐
Riverkern Beach	☐	☐	☐	☐	☐
Powerhouse / Lickety Split	☐	☐	☐	☐	☐

24. Do the river access locations you typically use meet your needs to access the respective river segments for whitewater boating?

- ◯ Yes
- ◯ No

KR3 Structured Interview Questionnaire

25. You indicated the river access locations you typically access do not meet your needs currently. Please describe what river access needs are not being met by the existing developed and dispersed sites. In your response try to describe the location, river segment and river access need.

KR3 Structured Interview Questionnaire

* 26. Do you check flow levels in advance to determine if flows are suitable before choosing to boat on the river segments between Fairview Dam and Riverside Park?

- ◯ Yes
- ◯ No

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KR3 Structured Interview Questionnaire

27. Where do you obtain flow information for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville to determine if flows are suitable for your watercraft? (check all that apply)

- [ ] American Whitewater website
- [ ] Dreamflows website
- [ ] SCE website for flows below Fairview Dam
- [ ] SCE flow phone
- [ ] US Army Corps webpage with flows for gage in Kernville
- [ ] Wait until I arrive at the river for direct observation
- [ ] I don't check flow levels
- [ ] Other source (please specify)

28. Does the available flow information meet your needs?

- ◯ Yes
- ◯ No

KR3 Structured Interview Questionnaire

29. If the available flow information does not meet your needs, what type of flow information improvements could be made to keep you better informed of flow levels on the river segments between Fairview Dam and Riverside Park in Kernville?

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KR3 Structured Interview Questionnaire

30. How does boating on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville compare to other boating opportunities ....

	Worse	Similar	Better	Among the best
on the North Fork Kern upstream of Fairview Dam	○	○	○	○
tributaries on the North Fork Kern	○	○	○	○
below Isabella on the Kern River	○	○	○	○
in southern California	○	○	○	○
in northern California	○	○	○	○

KR3 Structured Interview Questionnaire

31. Do you have any other information to share about whitewater boating use patterns, flow preferences, access or other comments about whitewater boating on the river segments between Fairview Dam and Riverside Park in Kernville?

KR3 Structured Interview Questionnaire

Be sure to select the **Done** button on the bottom of this page to submit your responses.

Thank you for participating in the structured interview questionnaire for the REC-1 whitewater boating study. You only need to complete the structured interview questionnaire one time. Please encourage other members of the whitewater community to participate in the questionnaire.

The structured interview questionnaire results will be included as part of the REC-1 Whitewater Boating Study Technical Report filed with FERC. This is one of several opportunities for the whitewater community to participate in the REC-1 whitewater boating study. For other participation opportunities or additional information about the KR3 relicensing process refer to Southern California Edison's website (www.SCE.com/kr3).

APPENDIX D
LEVEL 1 STRUCTURED INTERVIEW QUESTIONNAIRE OUTREACH

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Level 1 Structured Interview Questionnaire Outreach					
Item	**Date**	**Format**	**Distribution**	**By**	**Notes**
L1 Structured Interview Questionnaire	5/4/2023	electronic	NA	John Gangemi	L1 Structured Interview Questionnaire opened to collect responses. Automatically closes 12 AM on August 16, 2023
L1 Structured Interview Questionnaire	5/5/2023	electronic	KR3 Stakeholder list	Jilllian Roach	email announcement to KR3 stakeholder group that L1 Structured Interview Questionnaire is open for responses. URL and QR code included in email. Inform stakeholders form will close mid August 2023
L1 Structured Interview Questionnaire	5/10/2023	Poster	Sierra South Mountain Sports	John Gangemi	provided Structured interview Questionnaire poster to store. Employee said will post in back for guides and and up front on counter for customers
L1 Structured Interview Questionnaire	5/10/2023	Poster	Whitewater Voyages - Kern Outdoor Center	John Gangemi	provided Structured interview Questionnaire poster to Chris Brown at Whitewater Voyages. Discussed purpose of questionnaire. Requested he encourage his guides to participate in questionnaire
L1 Structured Interview Questionnaire	5/11/2023	Poster	Sierra South Mountain Sports	John Gangemi	Met with Tom and Evan Moore at Sierra South. Explained purpose of Structured interview Questionnaire and difference from Single Flow Survey. Requested they encourage their guides to participate in questionnaire
L1 Structured Interview Questionnaire	5/11/2023	Poster	Sequoia National Forest Office	John Gangemi	Met with Bob Frenes and Veronica at front desk. Provided Structured interview Questionnaire poster. Requested they post the poster in their information kiosk at the Kernville office.
L1 Structured Interview Questionnaire	5/13/2023	electronic	KR3 Stakeholder list	Jilllian Roach	email announcement to KR3 stakeholder group reminding them that L1 Structured Interview Questionnaire is open for responses. URL and QR code included in email. Inform stakeholders form will close mid August 2023. See email PDF in report appendix
L1 Structured Interview Questionnaire	5/30/2023	electronic	Los Angeles Kayak Club	John Gangemi	Email to Anthea Raymond requesting Structured Interview Questionnaire be posted to the Los Angeles Kayak Club Facebook page.
L1 Structured Interview Questionnaire	5/30/2023	electronic	American Whitewater	John Gangemi	Email to Jeff Venturino and Theresa Simsiman requesting Structured Interview Questionnaire be posted to the American Whitewater website.

Level 1 Structured Interview Questionnaire Outreach					
Item	**Date**	**Format**	**Distribution**	**By**	**Notes**
L1 Structured Interview Questionnaire	5/30/2023	electronic	Gold Country Paddlers	John Gangemi	Email to Jeff Venturino and Theresa Simsiman requesting Structured Interview Questionnaire be posted to the Gold Country Paddlers Facebook page.
L1 Structured Interview Questionnaire	7/7/2023	electronic	Kern River Boaters	John Gangemi	Email to Liz Duxbury and Bret Duxbury requesting Structured Interview Questionnaire be posted to the Kern River Boaters Facebook page.

From:	Jillian Roach
Cc:	David Moore
Subject:	SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 1 Structured Interview Questionnaire
Date:	Friday, May 5, 2023 5:10:09 PM
Attachments:	image001.png image002.png

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **structured interview questionnaire** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This questionnaire is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Please complete the structured interview questionnaire to document your whitewater boating experiences on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information.

The questionnaire will take you 20 to 30 minutes to complete. Your thorough and thoughtful responses will provide important information about whitewater boating between Fairview Dam and Riverside Park as well as assist with progression to more intensive study. You only need to complete the structured interview questionnaire one time. Please take your time responding to each question.

Thank you for participating in the structured interview questionnaire. Your feedback is important, please encourage other boaters to complete the structured interview questionnaire. The structured interview questionnaire will be open through mid-August 2023.

Direct link to survey: Structured Interview Questionnaire
Scan the QR code and save it on your phone

Jillian Roach
Senior Consultant

ERM
th

980 9 Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

KR3 Relicensing Website

REC-1 Level 1 Structured Interview Questionnaire and Level 3 Single Flow Survey Announcements

nordich2o@centurytel.net

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Saturday, May 13, 2023 9:09 PM
Cc: David Moore
Subject: SCE Kern River No. 3: REC 1-Whitewater Boating Study Plan - Data Collection Efforts

Sent on behalf of Southern California Edison (SCE)

Dear Stakeholder:

Southern California Edison (SCE) initiated the Federal Energy Regulatory Commission (FERC) approved REC-1 Whitewater Boating Study Plan in support of the Kern River No. 3 (KR3) hydroelectric relicensing process. As a reminder, the public data collection efforts underway for the REC-1 Whitewater Boating Study include:

- **Level 1 Desktop Analysis**: On May 5, 2023, SCE launched the **structured interview questionnaire.** The questionnaire is designed to gather information about your overall experiences on the North Fork Kern River (NFKR) between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information. You only need to complete the structured interview questionnaire one time. The questionnaire will take you 20 to 30 minutes to complete and will be open through mid-August 2023.

  Direct link to questionnaire: Structured Interview Questionnaire
  Scan the QR code and save it on your phone

- **Level 2 Limited Reconnaissance Site Visit**: On April 12, 2023, SCE launched a **Level 2 Limited Reconnaissance self-nomination participant form**. If you have not already done so, but would like to be considered for this site visit, please complete the self-nomination form by **May 15, 2023** to request participation in the Level 2 site visit. The Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern River bypass reach. We anticipate holding the site visit in the 3rd quarter of this year.

  Direct link to Self-Nomination Participant Form
  Scan the QR code and save it on your phone

- **Level 3 Intensive Study:** On April 1, 2023, SCE launched the **single flow whitewater boating survey** to capture boater survey responses this spring and summer as the NFKR is experiencing high flows. Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the NFKR between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip. Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

  Direct link to survey: Single Flow Whitewater Boating Survey
  Scan the QR code and save it on your phone

Thank you,

SCE Relicensing Team

Jillian Roach
Senior Consultant

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980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

Structured Interview Questionnaire for Whitewater Boaters

Southern California Edison (SCE) is conducting a Structured Interview Questionnaire for whitewater boaters as part of the Federal Energy Regulatory Commission relicensing of the Kern River No. 3 (P-2290) Hydroelectric Project. Whitewater boaters are encouraged to complete the **structured interview questionnaire** one time.

The online questionnaire can be accessed at:

https://www.surveymonkey.com/r/KR3StructQuestionnaire

The questionnaire will be available from May through mid-August 2023.

Thank you in advance for your participation!

Cuestionario de Entrevista Estructurada para Navegantes de Aguas Bravas

Southern California Edison (SCE) está realizando un cuestionario de entrevista estructurada para los navegantes de aguas bravas como parte de la renovación de la licencia de la Comisión Federal de Regulación de Energía del Proyecto Hidroeléctrico Kern River No. 3 (P-2290). Se alienta a todos los navegantes de aguas bravas a completar el **cuestionario de la entrevista estructurada** una vez.

Se puede acceder a la encuesta en línea en:

https://www.surveymonkey.com/r/KR3StructQuestionnaire

El cuestionario estará disponible

De mayo a mediados de agosto de 2023.

¡Gracias de antemano por su participación!

nordich2o@centurytel.net

From: nordich2o@centurytel.net
Sent: Tuesday, May 30, 2023 10:01 AM
To: 'Jeff Venturino'
Cc: 'theresa@americanwhitewater.org'
Subject: FW: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 1 Structured Interview Questionnaire

Jeff
Below is the announcement and associated links to the Structured Interview Questionnaire for the North Fork Kern River. This is part of the Level 1 data collection effort described in the FERC SPD.

Can you post this to the American Whitewater website and the Gold Country Paddlers Facebook page? If yes, please send a link to the posts when published.

Thank you.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Friday, May 5, 2023 5:10 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 1 Structured Interview Questionnaire

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **structured interview questionnaire** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This questionnaire is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Please complete the structured interview questionnaire to document your whitewater boating experiences on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information.

The questionnaire will take you 20 to 30 minutes to complete. Your thorough and thoughtful responses will provide important information about whitewater boating between Fairview Dam and Riverside Park as well as assist with progression to more intensive study. You only need to complete the structured interview questionnaire one time. Please take your time responding to each question.

Thank you for participating in the structured interview questionnaire. Your feedback is important, please encourage other boaters to complete the structured interview questionnaire. The structured interview questionnaire will be open through mid-August 2023.

Direct link to survey: Structured Interview Questionnaire
Scan the QR code and save it on your phone

Jillian Roach
Senior Consultant

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E jillian.roach@erm.com | **W** www.erm.com

Kern River Questionnaire to Identify Knowledge Gaps (CA)

Posted: 06/13/2023
By: Jeff Venturino

Southern California Edison (SCE) is in the process of conducting a questionnaire in support of relicensing KR3, the North Fork Kern River hydropower project that includes Fairview Dam and Kern #3 Powerhouse. American Whitewater has been actively engaged in the KR3 relicensing and working to make sure that the Whitewater Boating Study accurately reflects whitewater recreation use within the project-affected reach.

The Structured Interview Questionnaire is a thorough survey designed to help SCE narrow the focus for other components of the Whitewater Boating Study. It will take 20-30 minutes to complete and should only be taken once. Taking some time to complete this study will help identify where gaps in information about the project reach exist in the boating community.

This is the second of several surveys that SCE is conducting over the course of the 2023 paddling season on the Kern. Sharing your knowledge about the North Fork Kern, flows, and

difficulty, will help to inform further investigation of boating on the Kern 3 section. A particular interest of this study is identifying knowledge and experience gaps. If there is a specific flow and section that you have not been able to paddle because of the current KR3 operation schedule, please make note of it in the Structured Interview Survey. American Whitewater has negotiated with SCE to provide additional releases, as possible, for identified flow range knowledge gaps.

The structured interview questionnaire will be open through mid-August 2023. If you anticipate gaining quite a bit of knowledge on paddling the Kern in the coming months, consider setting a reminder to take survey closer to its closure date. Thank you for taking the time to participate in the REC-1 Boating Study!

Use the link below.
https://www.surveymonkey.com/r/KR3StructQuestionnaire

Photo of Macy Burnham by Ian Buckley

Theresa Simsiman

Sacramento, CA

Full Profile

Associated Rivers

Kern CA
3) Johnsondale Bridge to Powerhouse #3 III-V

Kern CA
3.5) Powerhouse #3 to Riverside Park II-III

Gold Country Paddlers

Join group

Discussion People Events Media Files Questions

Theresa L. Lorejo-Simsiman
Yesterday at 8:30 AM ·

Kern River Questionnaire is open until mid August.

Kern River Questionnaire to Identify Knowledge Gaps (CA)

Southern California Edison is in the process of conducting a questionnaire in support of relicensing KR3, the North Fork Kern River hydropower project that includes Fairview Dam and Kern #3 Powerhouse. American Whitewater has been actively engaged in the KR3 relicensing and working to make sure that the Whitewater Boating Study accurately reflects whitewater recreation use on the Kern River.

Read more & find the questionnaire link here:
https://www.americanwhitewater.org/.../CWDNEYVNeibhcq4yN.../

Photo of Macy Burnham by Ian Buckley

nordich2o@centurytel.net

From: nordich2o@centurytel.net
Sent: Tuesday, May 30, 2023 9:57 AM
To: 'anthea.raymond@gmail.com'
Subject: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 1 Structured Interview Questionnaire

Anthea
Below is the announcement and associated links to the Structured Interview Questionnaire for the North Fork Kern River.

Can you post this to the Los Angeles Kayak Club Face Book page? If yes, please send a link to the post when published.

Thank you.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Friday, May 5, 2023 5:10 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: REC-1 Whitewater Boating Study Level 1 Structured Interview Questionnaire

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **structured interview questionnaire** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This questionnaire is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Please complete the structured interview questionnaire to document your whitewater boating experiences on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information.

The questionnaire will take you 20 to 30 minutes to complete. Your thorough and thoughtful responses will provide important information about whitewater boating between Fairview Dam and Riverside Park as well as

assist with progression to more intensive study. You only need to complete the structured interview questionnaire one time. Please take your time responding to each question.

Thank you for participating in the structured interview questionnaire. Your feedback is important, please encourage other boaters to complete the structured interview questionnaire. The structured interview questionnaire will be open through mid-August 2023.

Direct link to survey: Structured Interview Questionnaire
Scan the QR code and save it on your phone

Jillian Roach
Senior Consultant

ERM
980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

Los Angeles Kayak Club

Join group

Discussion Featured People Events Media Files

Anthea Cicchino Raymond
June 7 at 1:09 PM ·

Do you have some history paddling the Upper Kern River? Want to do so more often?

The dam system that often leaves the Upper Kern River unavailable for boating is being relicensed. Advocacy groups like Kern River Boaters and American Whitewater have been playing important roles in speaking to the utility and the federal government. Now, you can give your own feedback in an online survey created as part of the licensing process. It's called the Level 1 Structured Interview Questionnaire:

There is also a link to it here:

https://www.surveymonkey.com/r/KR3StructQuestionnaire

It is a one time survey, unlike the Single Flow Boater Survey, which you can fill out every time you boat the Upper Kern, especially when flows go below 740 cfs:

https://www.surveymonkey.com/r/KR3WWSingleflow

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Friday, July 7, 2023 12:31 PM
To: lizbrackbill@gmail.com; kernriverboaters@gmail.com
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Structured Interview Questionnaire and Single Flow Whitewater Boating Survey

Brett and Liz
Reaching out again to see if KRB can post the announcements copied below for the Structured Interview Questionnaire and the Single Flow Whitewater Boating Survey on the Facebook page. Posting to the KRB facebook page will help increase inform your membership that the structured interview questionnaire and single flow survey are open for responses. KRB membership is encouraged to participate.

Can you notify me with the website url when post it.

Thanks for your assistance getting KRB members to participate.

Subject: SCE Kern River No. 3: REC 1-Whitewater Boating Study Plan - Data Collection Efforts

Sent on behalf of Southern California Edison (SCE)

Dear Stakeholder:

Southern California Edison (SCE) initiated the Federal Energy Regulatory Commission (FERC) approved REC-1 Whitewater Boating Study Plan in support of the Kern River No. 3 (KR3) hydroelectric relicensing process. As a reminder, the public data collection efforts underway for the REC-1 Whitewater Boating Study include:

- **Level 1 Desktop Analysis**: On May 5, 2023, SCE launched the **structured interview questionnaire.** The questionnaire is designed to gather information about your overall experiences on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information. You only need to complete the structured interview questionnaire one time. The questionnaire will take you 20 to 30 minutes to complete and will be open through mid-August 2023.

Direct link to questionnaire: Structured Interview Questionnaire
Scan the QR code and save it on your phone

- **Level 3 Intensive Study:** On April 1, 2023, SCE launched the **single flow whitewater boating survey**. Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip. Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Thank you,

SCE Relicensing Team

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

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APPENDIX E
LEVEL 3 INTENSIVE STUDY SINGLE FLOW SURVEY OUTREACH

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Level 3 Single Flow Survey Outreach					
Survey	**Date**	**Format**	**Distribution**	**URL**	**By**
L3 Single Flow Survey	3/31/2023	Poster	Sierra South Mountain Sports	https://www.sierrasouth.com/	Jillian Roach
L3 Single Flow Survey	3/31/2023	Poster	Sierra Gateway Store	NA	Jillian Roach
L3 Single Flow Survey	3/31/2023	Poster	Kern River Brewery	NA	Jillian Roach
L3 Single Flow Survey	3/31/2023	Poster	Riverken General Store and Deli	NA	Jillian Roach
L3 Single Flow Survey	3/31/2023	Poster	Sequoia National Forest Office		Jillian Roach
L3 Single Flow Survey	4/4/2023	electronic	KR3 Stakeholder list		Jilllian Roach
L3 Single Flow Survey	4/5/2023	electronic	Kern River Brewery	Kern River Brewery	John Gangemi
L3 Single Flow Survey	4/5/2023	electronic	American Whitewater	www.americanwhitewater.org	John Gangemi
L3 Single Flow Survey	4/5/2023	electronic	Kern River Boaters	https://www.kernriverboaters.com/	John Gangemi
L3 Single Flow Survey	4/5/2023	electronic	Kern River Alliance	https://www.kernriver.org/about.html	John Gangemi

Level 3 Single Flow Survey Outreach					
Survey	**Date**	**Format**	**Distribution**	**URL**	**By**
L3 Single Flow Survey	4/5/2023	electronic	Sierra South Mountain Sports	https://www.sierrasouth.com/	John Gangemi
L3 Single Flow Survey	4/5/2023	electronic	Whitewater Voyages - Kern Outdoor Center	NA	John Gangemi
L3 Single Flow Survey	4/25/2023	electronic	Friends of the River	https://www.friendsoftheriver.org/	John Gangemi
L3 Single Flow Survey	4/25/2023	electronic	Los Angeles Kayak Club	https://losangeleskayakclub.wordpress.com/	John Gangemi
L3 Single Flow Survey	4/25/2023	electronic	Gold Country Paddlers	|||3ltqihtzsyw-ufiiqjwx3twl	John Gangemi
L3 Single Flow Survey	5/10/2023	Poster	Sierra South Mountain Sports	https://www.sierrasouth.com/	John Gangemi
L3 Single Flow Survey	5/10/2023	Poster	Whitewater Voyages - Kern Outdoor Center	http://www.whitewatervoyages.com/	John Gangemi
L3 Single Flow Survey	5/11/2023	Poster	Sierra South Mountain Sports	https://www.sierrasouth.com/	John Gangemi
L3 Single Flow Survey	5/11/2023	Poster	McNally's Resort	https://www.johnnymcnallys.com/	John Gangemi
L3 Single Flow Survey	5/11/2023	Poster	Sequoia National Forest Office	NA	John Gangemi

Level 3 Single Flow Survey Outreach					
Survey	**Date**	**Format**	**Distribution**	**URL**	**By**
L3 Single Flow Survey	5/12/2023	Poster	Kernville Chamber of Commerce	www.gotokernville.com	John Gangemi
L3 Single Flow Survey	5/12/2023	Poster	Sierra Gateway Store	NA	John Gangemi
L3 Single Flow Survey	5/12/2023	Poster	Riverken General Store and Deli	NA	John Gangemi
L3 Single Flow Survey	5/12/2023	Poster	Sequoia National Forest Recreation Sites	NA	John Gangemi
L3 Single Flow Survey	5/12/2023	Poster	Riverside Park	NA	John Gangemi
L3 Single Flow Survey	5/13/2023	electronic	KR3 Stakeholder list	NA	Jilllian Roach
L3 Single Flow Survey	6/12/2023	electronic	Los Angeles Kayak Club	anthea.raymond@gmail.com	John Gangemi
L3 Single Flow Survey	7/7/2023	electronic	KRB	lizbrackbill@gmail.com; kernriverboaters@gmail.com	John Gangemi
L3 Single Flow Survey	7/18/2023	electronic	RMS Pacific Chapter	kristinarylands@gmail.com	John Gangemi
L3 Single Flow Survey	8/5/2023	electronic	RMS Pacific Chapter	kristinarylands@gmail.com	John Gangemi
L3 Single Flow Survey	8/7/2023	electronic	KRB	lizbrackbill@gmail.com; kernriverboaters@gmail.com	John Gangemi

Level 3 Single Flow Survey Outreach					
Survey	**Date**	**Format**	**Distribution**	**URL**	**By**
L3 Single Flow Survey	8/7/2023	electronic	Los Angeles Kayak Club	anthea.raymond@gmail.com	John Gangemi
L3 Single Flow Survey	8/7/2023	electronic	American Whitewater	Jeff Venturino <jeffventurino@americanwhitewater.org>; Theresa L. Lorejo-Simsiman	John Gangemi
L3 Single Flow Survey	8/7/2023	electronic	Sierra South Mountain Sports	tom@sierrasouth.com; evan@sierrasouth.com	John Gangemi
L3 Single Flow Survey	8/7/2023	electronic	Whitewater Voyages - Kern Outdoor Center	chris@whitewatervoyages.com	John Gangemi

johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

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T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

KR3 Relicensing Website

REC-1 Level 1 Structured Interview Questionnaire and Level 3 Single Flow Survey Announcements

From:	Jillian Roach
Cc:	David Moore
Subject:	SCE Kern River No. 3: REC 1-Whitewater Boating Study Plan - Data Collection Efforts
Date:	Saturday, May 13, 2023 9:09:22 PM
Attachments:	image001.png image002.png image003.png image004.png

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Sent on behalf of Southern California Edison (SCE)

Dear Stakeholder:

Southern California Edison (SCE) initiated the Federal Energy Regulatory Commission (FERC) approved REC-1 Whitewater Boating Study Plan in support of the Kern River No. 3 (KR3) hydroelectric relicensing process. As a reminder, the public data collection efforts underway for the REC-1 Whitewater Boating Study include:

- **Level 1 Desktop Analysis**: On May 5, 2023, SCE launched the **structured interview questionnaire.** The questionnaire is designed to gather information about your overall experiences on the North Fork Kern River (NFKR) between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information. You only need to complete the structured interview questionnaire one time. The questionnaire will take you 20 to 30 minutes to complete and will be open through mid-August 2023.

  Direct link to questionnaire: Structured Interview Questionnaire
  Scan the QR code and save it on your phone

- **Level 2 Limited Reconnaissance Site Visit**: On April 12, 2023, SCE launched a **Level 2 Limited Reconnaissance self-nomination participant form**. If you have not already done so, but would like to be considered for this site visit, please complete the self-nomination form by **May 15, 2023** to request participation in the Level 2 site visit. The Level 2 limited reconnaissance site visit will require a full day commitment of your time visiting locations in the Kern River bypass reach. We anticipate holding the site visit in the 3rd quarter of this year.

Direct link to Self-Nomination Participant Form
Scan the QR code and save it on your phone

- **Level 3 Intensive Study:** On April 1, 2023, SCE launched the **single flow whitewater boating survey** to capture boater survey responses this spring and summer as the NFKR is experiencing high flows. Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the NFKR between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip. Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

  Direct link to survey: Single Flow Whitewater Boating Survey
  Scan the QR code and save it on your phone

Thank you,

SCE Relicensing Team

Jillian Roach
Senior Consultant

Single Flow Whitewater Boating Survey

Southern California Edison (SCE) is conducting a Whitewater Flow Study as part of the Federal Energy Regulatory Commission relicensing of the Kern River No. 3 (P-2290) Hydroelectric Project. Whitewater boaters are encouraged to complete a **single flow evaluation** shortly after each boating trip. The survey can be completed on your mobile device or computer.

The online survey can be accessed at:

www.surveymonkey.com/r/KR3WWSingleflow

The survey will be available from April through December 2023.

Thank you in advance for your participation!

Encuesta de navegación en aguas bravas de flujo único

Southern California Edison (SCE) está realizando un estudio de flujo de la corriente de agua como parte de la renovación de la licencia de la Comisión Reguladora de Energía Federal del Proyecto Hidroeléctrico Kern River No. 3 (P-2290). Se alienta a los navegantes de aguas a completar **una sola evaluación de flujo** poco después de cada viaje en bote. La encuesta se puede completar en su dispositivo móvil o computadora.

Se puede acceder a la encuesta en línea en:

www.surveymonkey.com/r/KR3WWSingleflow

La encuesta estará disponible desde abril hasta la primavera 2023.

¡Gracias de antemano por tu participación!

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Wednesday, April 5, 2023 12:51 PM
To: jeffreyventurino@gmail.com; theresa@americanwhitewater.org
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Jeff and Theresa
SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project (see below). You should have received the announcement in your email inbox yesterday.

I am reaching out to see if American Whitewater can post this announcement on the AW website and link to the information pages for the Kern River. This will help increase awareness in the boating community that the survey is open for responses.

Can you notify me with the website url if you are able to post it.

Thanks for your assistance getting boaters to participate in the survey.

BTW: I was able to design the survey questions so they were compatible with smart phone screens allowing boaters to respond to the survey shortly after a boating trip on the North Fork Kern.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Tuesday, April 25, 2023 10:17 AM
To: info@friendsoftheriver.org
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Friends of the River
SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project. The announcement is located in the email thread below.

I am the study lead and reaching out to see if Friends of the River can post this announcement on the your website and link to the information pages for the Kern River. This will help increase awareness in the boating community that the survey is open for responses.

Can you notify me with the website url if you are able to post it.

Thanks for your assistance getting boaters to participate in the survey.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Tuesday, April 25, 2023 10:03 AM
To: Sean Varvel
Cc: info@goldcountrypaddlers.org
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Sean
Thanks for responding so quickly. The announcement is posted in the email thread below. Feel free to wordsmith for your membership. AW posted an announcement on their website for reference.
https://www.americanwhitewater.org/content/Article/view/article_id/8Klis4enHGHOVkWTzvZ55/

Can you notify me with the website url once you are able to post to Gold Country Paddlers website.

Thanks for your assistance getting boaters to participate in the survey.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

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980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Wednesday, April 5, 2023 2:13 PM
To: info@kernriver.org
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Kern River Alliance
SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project (see below). You should have received the announcement in your email inbox yesterday.

I am reaching out to see if Kern River Alliance can post this announcement on the KRA website with the links to the survey. This will help increase awareness in the boating community that the survey is open for responses.

Can you notify me with the website url if you are able to post it.

Thanks for your assistance getting boaters to participate in the survey.

The survey questions are formatted to be compatible with smart phone screens allowing boaters to respond to the survey shortly after a boating trip on the North Fork Kern or they can use a computer.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

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980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Wednesday, April 5, 2023 1:02 PM
To: lizbrackbill@gmail.com; kernriverboaters@gmail.com
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Brett and Liz
SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project (see below). You should have received the announcement in your email inbox yesterday.

I am reaching out to see if Kern River Boaters can post this announcement on the KRB website with the links to the survey. This will help increase awareness in the boating community that the survey is open for responses.

Can you notify me with the website url if you are able to post it.

Thanks for your assistance getting boaters to participate in the survey.

The survey questions are formatted to be compatible with smart phone screens allowing boaters to respond to the survey shortly after a boating trip on the North Fork Kern or they can use a computer.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

ERM
980 9th Street, Suite 750 | Sacramento, California | 95814
T +1 916.999.8945 | **M** 916.201.7746
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johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Wednesday, April 5, 2023 1:11 PM
To: eric@kernriverbrewing.com
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Eric
Hope all is well. Looks like the Kern will have a full season of flows this year.

SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project (see below). You should have received the announcement in your email inbox yesterday.

I am reaching out to see if you can help increase awareness in the boating community that the Single Flow Whitewater Boating Survey is open for responses. WE did put a laminated flyer in the brewery this week with information about the survey, URL and QR codes. Can you think of any other way we could increase awareness in the boating community through the brewery?

Thanks for your assistance getting boaters to participate in the survey.

The survey questions are formatted to be compatible with smart phone screens allowing boaters to respond to the survey shortly after a boating trip on the North Fork Kern or they can use a computer.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Tuesday, April 25, 2023 9:40 AM
To: lakayakclub@gmail.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

LA Kayak Club
SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project. I have copied the announcement below.

I am the study lead and reaching out to see if the Los Angeles Kayak Club can post this announcement on your website and facebook page as well as link to the information pages for the Kern River. This will help increase awareness in the boating community that the survey is open for responses.

Can you notify me with the website url if you are able to post it.

Thanks for your assistance getting boaters to participate in the survey.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use

the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

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Scan the QR code and save it on your phone

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Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

ERM
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T +1 916.999.8945 | **M** 916.201.7746
E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Wednesday, April 5, 2023 1:07 PM
To: tom@sierrasouth.com; evan@sierrasouth.com
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Tom and Evan
Hope all is well. Looks like the Kern will have a full season of flows this year.

SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project (see below). You should have received the announcement in your email inbox yesterday.

I am reaching out to see if Sierra South can help increase awareness in the boating community that the Single Flow Whitewater Boating Survey is open for responses. Can Sierra South post the announcement on your website with links to the survey. This will help increase awareness in the boating community that the survey is open for responses. Boaters can complete the survey after each boating trip.

Can you notify me with the website url if you are able to post it.

Thanks for your assistance getting boaters to participate in the survey.

The survey questions are formatted to be compatible with smart phone screens allowing boaters to respond to the survey shortly after a boating trip on the North Fork Kern or they can use a computer.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Wednesday, April 5, 2023 1:24 PM
To: chris@whitewatervoyages.com
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Chris
Hope all is well. Looks like the Kern will have a full season of flows this year.

SCE announced the launch of the Single Flow Whitewater Boating Survey for the KR3 Project (see below). You should have received the announcement in your email inbox yesterday.

I am reaching out to see if you can help increase awareness in the boating community that the Single Flow Whitewater Boating Survey is open for responses. The survey is designed for your guides and non-commercial boaters with direct experience captaining a boat as opposed to commercial guests.

Thanks for your assistance getting your guides and other boaters to participate in the survey.

The survey questions are formatted to be compatible with smart phone screens allowing boaters to respond to the survey shortly after a boating trip on the North Fork Kern or they can use a computer.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

Note: my old email address (nordich2o@centurytel.net) is sunsetting. Please use the new email address above for all future communication.

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Stay tuned for other project-related communications as there will be additional opportunities to participate and support the Whitewater Boating Study over the next year. The proposed schedule includes:

- Structured interview questionnaire (on-line questionnaire available Q2 – Q3 2023)
- Reconnaissance level site visit (limited to 12 stakeholders and agency representatives, summer 2023)
- Comparative flow survey (on-line Q4 2023)
- Focus group meeting(s) (virtual or in-person in 2024)

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach
Senior Consultant

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Friday, July 7, 2023 12:31 PM
To: lizbrackbill@gmail.com; kernriverboaters@gmail.com
Cc: david.moore@sce.com; Jillian.Roach@erm.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Structured Interview Questionnaire and Single Flow Whitewater Boating Survey

Brett and Liz
Reaching out again to see if KRB can post the announcements copied below for the Structured Interview Questionnaire and the Single Flow Whitewater Boating Survey on the Facebook page. Posting to the KRB facebook page will help increase inform your membership that the structured interview questionnaire and single flow survey are open for responses. KRB membership is encouraged to participate.

Can you notify me with the website url when post it.

Thanks for your assistance getting KRB members to participate.

Subject: SCE Kern River No. 3: REC 1-Whitewater Boating Study Plan - Data Collection Efforts

Sent on behalf of Southern California Edison (SCE)

Dear Stakeholder:

Southern California Edison (SCE) initiated the Federal Energy Regulatory Commission (FERC) approved REC-1 Whitewater Boating Study Plan in support of the Kern River No. 3 (KR3) hydroelectric relicensing process. As a reminder, the public data collection efforts underway for the REC-1 Whitewater Boating Study include:

- **Level 1 Desktop Analysis**: On May 5, 2023, SCE launched the **structured interview questionnaire.** The questionnaire is designed to gather information about your overall experiences on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The questionnaire asks you to specify which whitewater segments you typically boat, what type of watercraft you use, when you typically boat, river access, flow preferences, and flow information. You only need to complete the structured interview questionnaire one time. The questionnaire will take you 20 to 30 minutes to complete and will be open through mid-August 2023.

Direct link to questionnaire: Structured Interview Questionnaire
Scan the QR code and save it on your phone

- **Level 3 Intensive Study:** On April 1, 2023, SCE launched the **single flow whitewater boating survey**. Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip. Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey
Scan the QR code and save it on your phone

Thank you,

SCE Relicensing Team

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Monday, August 7, 2023 12:15 PM
To: Jeff Venturino; Theresa L. Lorejo-Simsiman
Cc: Jillian Roach; david.moore@sce.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Jeff and Theresa
Reaching out again to see if you can repost the **Single Flow Whitewater Boating Survey** announcement on the American Whitewater website and include in the monthly beta outreach. The flows are dropping on the NFKR. Reposting the Single Flow Survey announcement will help remind your members the survey is available and encourage them to complete the survey each time they boat on the NFKR.

Can you notify me with the website url when you post it.

Thanks for your assistance getting members informed and participating in the data collection effort.

Below is the original announcement for the REC-1 Level 3 Single Flow Survey.

Thank you.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey

Scan the QR code and save it on your phone

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach

Senior Consultant

ERM

980 9th Street, Suite 750 | Sacramento, California | 95814

T +1 916.999.8945 | **M** 916.201.7746

E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Monday, August 7, 2023 11:49 AM
To: lizbrackbill@gmail.com; kernriverboaters@gmail.com
Cc: Jillian Roach; david.moore@sce.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Brett and Liz
Reaching out again to see if KRB can post the Single Flow Survey announcement copied below on the KRB Facebook page. Posting to the KRB facebook page will help gather more data for rating the quality of flows in the NFKR. KRB members are encouraged to participate.

Can you notify me with the website url when you post it.

Thanks for your assistance getting KRB members informed and participating in the data collection effort.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

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Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey

Scan the QR code and save it on your phone

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach

Senior Consultant

ERM

980 9th Street, Suite 750 | Sacramento, California | 95814

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E jillian.roach@erm.com | **W** www.erm.com

LOS ANGELES KAYAK CLUB

MENU

Kern River

LAKC is supporting efforts to gather data about many of the runs listed below, several of which are impacted by flow diversions to generate energy. Here are two documents you can use to give input on the current quality of the Upper Kern River for whitewater boating at varying flow levels:

- The KR3 Single Flow Whitewater Boating Survey — **https://www.surveymonkey.com/r/KR3WWSingleflow**
- KR3 Structured Interview Questionnaire — **https://www.surveymonkey.com/r/KR3StructQuestionnaire**

For more info about the KR3 Relicensing procedure that is motivating these studies:

https://www.sce.com/pa/regulatory/hydro-licensing/kr3

FEELING LOST ON THE KERN RIVER?

The Kern has many access points along the roads making it easy to get confused. On the plus side, with so many access points, it is easy to customize your run. Here is a rundown of access

points and the common runs. This is not a substitute for guide information. It is just a handy 'Cliff note' reference. More detailed info is available **here**. And **here**. I've provided the class of the rapids directly below each access point so you know what you are getting into at each launch point. The access points open links to Google maps and flow graphs are provided with links to **http://www.dreamflows.com**.

FORKS OF THE KERN

Put in on river **R** – **Forks of the Kern** trail end of **20S67**. **The Forks run.** Class **V Flow**

UPPER KERN

R – **Johnsondale bridge** on hwy 99. **Limestone run. IV Flow**

L Take out – **Willow point** above Fairview dam. (When operating, flow is 500 cfs less between the dam and the KR3 powerhouse access. This is common unfortunately.) **Flow for this section**

L – Turnout 0.4 mi below the dam. **Fairview run. III**

L – **Calkins flat**. **Chamise Gorge run. IV+**

L Take out – Turnout above Salmon falls. V+! Portage

L – Ant Canyon CG. **Ant Canyon run. IV**

L – **Corral creek**. **Thunder run. V**

L – **Thunderbird CG**. **Cables run. IV**

L – **Camp 3 access**. **Alt. Put in below Cables rapid. IV. More IV below**

L – Halfway . **Alt. access below The Wall rapid IV. More IV below.**

L – **Riverkern Beach**. **Powerhouse run. III+**

L – **KR3 access**. **Lickety run. III- Flow from here to the lake**

R – **Riverside park**. **Cemetery run. II**

R Take out – **The Old Cemetery**. **Only Lake Isabella below.**

LOWER KERN

R – **Upper Keysville access** just below hwy 155 bridge. **Jungle run. III+**

As of 2017 the Borel power house is inoperable so this section is fully watered. **Flow for this section**.

L – **Lower Keysville access** off hwy 155. Alt launch. III+

L – **Granite Launch** off highway 178. Alt. Launch below Wallow rock. III+ below

L – Miracle hot spring. **'THE' Lower kern run. IV Flow from here to Democrat take-out**

Portage R Royal flush. V+! No road access

L – **Delonegha access** on highway 178. **Big 5 run. IV**

L Take out – **Democrat access** hwy 178. **Take out before a dam.**

LOWER LOWER KERN INTO BAKERSFIELD

L – **Mouth of the canyon**. **Rio Bravo run. IV** Portage R of dam. (Often dewatered up to 1200 cfs by diversion)

R – **Hiking trail above bridge**. **Rancheria trail run. II+** NO PARKING on the road. Full flow similar to the flow of the 'Lower' Kern sections. (put-in is below powerhouse) **Flow from here to the Hart park take-out**

L – Rancheria bridge parking area (break-ins are common). **Rancheria Bridge run. II+** Put-in options above and below a II+ rapid.

L – **Ming lake** behind golf course. **Alternate launch II-**

L Take out – **Hart park**. **Last good take out.**

PHOTO CREDIT: JONAH GRUBB

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Tuesday, July 18, 2023 10:59 AM
To: kristinarylands@gmail.com
Cc: Jillian Roach
Subject: FW: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Kristina
I just saw the date for the Pacific Chapter of RMS rendezvous on the North Fork of the Kern River Aug 11-13.

I am the study lead for the REC-1 Whitewater Study being conducted as part of the relicensing for Southern California Edison's Kern River No. 3 Hydroelectric Project (FERC No. 2290). We are currently collecting data from whitewater boaters for each trip on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. It would be great if RMS Pacific Chapter members could complete a single flow survey for each trip on the NFKR. This is a two-year study focusing on whitewater recreation. A comparative flow survey will be launched in 2024 to compliment the results from the single flow . You can learn more about the REC-1 Whitewater Study Plan and other relicensing studies on the KR3 Relicensing Page.

I have copied below information about the single flow whitewater boating survey including links and QR codes to the survey. You can complete the survey with a smart phone.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey

Scan the QR code and save it on your phone

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

Jillian Roach

Senior Consultant

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E jillian.roach@erm.com | **W** www.erm.com

johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Monday, August 7, 2023 12:23 PM
To: tom@sierrasouth.com; evan@sierrasouth.com
Cc: Jillian Roach; david.moore@sce.com
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Tom and Evan
Reaching out again to see if you can remind your guides to complete the **Single Flow Whitewater Boating Survey** each time they are on the river. The flows are dropping on the NFKR and offer a great opportunity for guides to rate a range of flows for their watercraft types. This information will be valuable for analyzing flow preferences for future management decisions.

Thanks for your assistance getting your staff informed and participating in the data collection effort.

Below is the original announcement for the REC-1 Level 3 Single Flow Survey.

BTW: I'll be in Kernville this week working. Let me know if you need a new poster in the guide area so they can use the QR code with their phones.

Thank you.

John Gangemi
River Science Institute, Inc.
68 Irish Bend Lane
Columbia Falls, MT 59912

406-249-3972
johngangemi.rsi@outlook.com

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Tuesday, April 4, 2023 5:14 PM
Cc: David Moore <david.moore@sce.com>
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

On behalf of Southern California Edison (SCE)

Dear Stakeholder:

SCE has launched the **single flow whitewater boating survey** for the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. This survey is part of the REC-1 Whitewater Boating Study being undertaken as part of the relicensing proceeding for the Kern River No. 3 (KR3) Hydroelectric Project.

Boaters are encouraged to take the single flow whitewater boating survey for each boating trip completed on the North Fork Kern River between Fairview Dam and Riverside Park in Kernville. The survey questions allow boaters to specify which whitewater segments were boated on each trip.

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Please share the **single flow whitewater boating survey** QR code / link to other members of the boating community and encourage your boating friends to document their trips.

Direct link to survey: Single Flow Whitewater Boating Survey

Scan the QR code and save it on your phone

Thank you for participating in the single flow whitewater boating survey. Your survey responses will help with the data collection efforts in this study.

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johngangemi.rsi@outlook.com

From: John Gangemi
Sent: Monday, August 7, 2023 12:25 PM
To: chris@whitewatervoyages.com
Cc: david.moore@sce.com; Jillian Roach
Subject: SCE Kern River No. 3 Hydroelectric Project: Single Flow Whitewater Boating Survey

Chris
Reaching out again to see if you can remind your guides to complete the **Single Flow Whitewater Boating Survey** each time they are on the river. The flows are dropping on the NFKR and offer a great opportunity for guides to rate a range of flows for their watercraft types. This information will be valuable for analyzing flow preferences for future management decisions.

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Boaters are encouraged to confirm flows in the North Fork Kern River at the time of their trip before starting the single flow whitewater boating survey. Flows between Fairview Dam and the KR3 powerhouse should use the stream gage data below Fairview Dam. If you boated the Powerhouse / Lickety Split segment, please confirm the flow (cfs) downstream of the powerhouse using the stream gage data for the North Fork Kern at Kernville.

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Date:	March 1, 2024
To:	Federal Energy Regulatory Commission
From:	Southern California Edison
Subject:	**Kern River No. 3 Hydroelectric Project (FERC Project No. 2290): REC-1 Whitewater Boating Level 1 Structured Interview Analysis**

1.0 INTRODUCTION

By letter dated February 1, 2024, the Federal Energy Regulatory Commission (FERC) requested Southern California Edison (SCE) to provide the results of the REC-1 Whitewater Boating Study: Level 1 Structured Interview Questionnaire. This information, in conjunction with other information from the Level 1 study—including the literature review, hydrology summary, and Project facility operation information—and the Level 2 study results reported by SCE in the REC-1 interim Technical Memorandum (SCE, 2023), will be used to evaluate progress and the potential need to modify the approved Study Plan regarding data collection approaches used in the Level 3 Intensive Study.

SCE proposed to complete a Level 3 Intensive Study in the Revised Study Plan (RSP) filing using the single flow survey and flow comparison survey approach (SCE, 2022). This approach follows a scientifically accepted method as described in *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker et al., 2005) to collect flow preference information and recreation use patterns on rivers where a controlled flow study is not possible and/or have unpredictable flow. In the Revised Study Plan (SCE, 2022), SCE committed to providing enhanced flow opportunities, when feasible, and to collect flow preferences based on boater knowledge gaps identified in Levels 1 and 2 of the study. Flow enhancements are discussed below as part of the Level 3 Intensive Study Implementation.

Refer to *REC-1 Whitewater Boating Interim Technical Memorandum* (SCE, 2023) for a description of the other Level 1 study methods, including a discussion on the development and deployment of the Structured Interview Questionnaire. The questionnaire and associated public outreach are provided as Appendix C and D to the REC-1 interim Technical Memorandum.

2.0 LEVEL 1 STRUCTURED INTERVIEW QUESTIONNAIRE DATA SUMMARY

SCE developed a Structured Interview Questionnaire for the whitewater boating community per the requirements of the FERC Study Plan Determination. The Structured Interview Questionnaire asked boaters about the individual whitewater segments from Fairview Dam to Riverside Park to document recreation use patterns, estimated boating

flow ranges for each segment for respective watercraft, potential knowledge gaps about boating flows in the Fairview Dam Bypass Reach,[1] and flow information needs.

The Structured Interview Questionnaire was available to the public for over 14 weeks (May 5 through August 15, 2023). In total, 51 responses were documented; however, 1 response was an initial test of the survey by the study lead and was removed from the analysis, for a total of 50 responses. The following analysis of the Structured Interview Questionnaire responses documents the composition of the survey participants, whitewater recreation use patterns across river segments, estimated boating flow ranges for each segment for respective watercraft, potential knowledge gaps about boating flows in the bypass reach, and flow information needs.

The 50 respondents included a mix of genders, ages, and skill levels of the whitewater boating community on the North Fork Kern River (NFKR) (Table 2-1). Sixty-eight percent of the respondents were male. Fifty percent of the respondents self-identified as possessing advanced whitewater skills, while another 30 percent indicated they possessed expert whitewater skills. Most of the respondents were over age 40 (Figure 2-1), 8 percent were between the age of 20 to 29, and 18 percent were between the age of 30 to 39.

Table 2-1. Structured Interview Respondent Gender and Whitewater Skill Level

Gender	Count		Skill Level			
	No.	% of Total	Novice	Intermediate	Advanced	Expert
Male	34	68%	2%	4%	44%	18%
Female	11	22%	2%	10%	6%	4%
Non-binary	2	4%	0%	0%	0%	4%
Choose not to answer	3	6%	0%	2%	0%	4%
Total	**50**	**100%**	**4%**	**16%**	**50%**	**30%**

[1] The Fairview Dam Bypass Reach is defined as the approximately 16-mile bypass reach of the North Fork Kern River (NFKR) between Fairview Dam and the Kern River No. 3 Powerhouse tailrace.

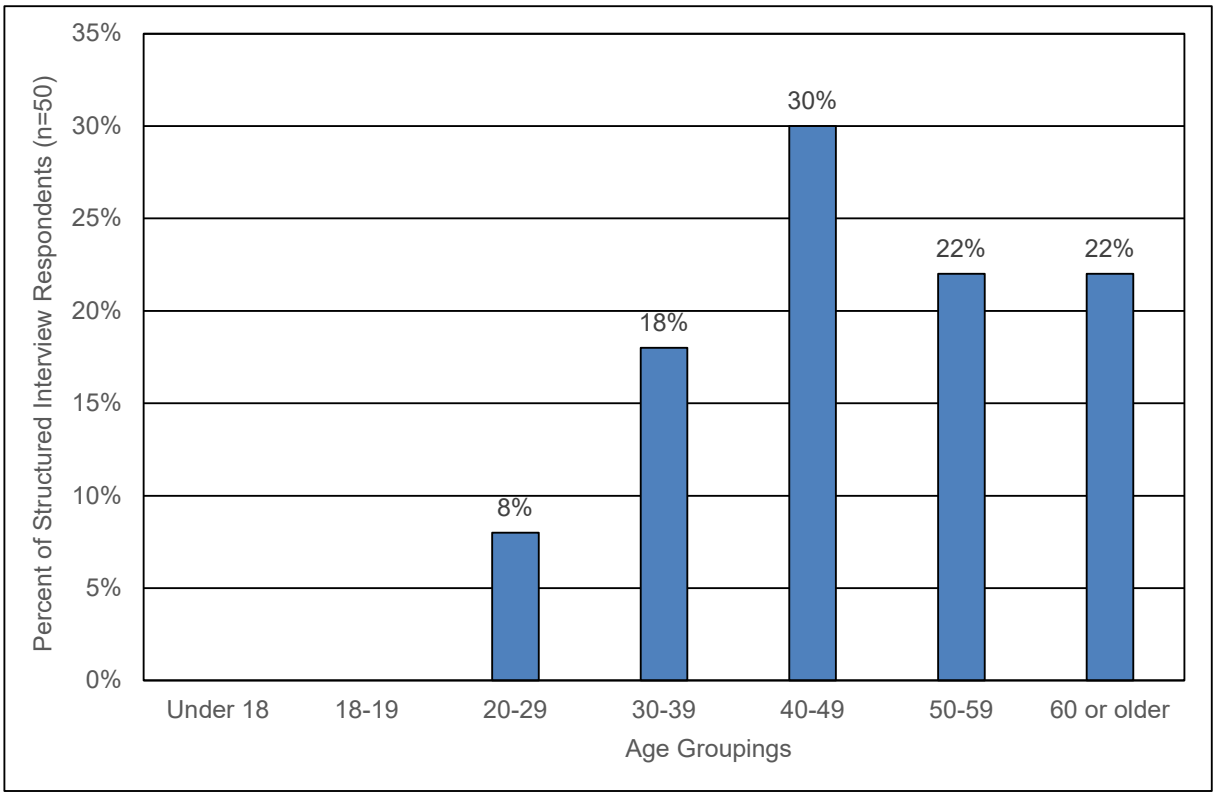


Figure 2-1. Structured Interview Respondent Age Range.

Thirty-four percent of the respondents' primary residence was in the Kernville area between Lake Isabella and Kernville (Figure 2-2). Los Angeles County and Orange County were represented by 14 percent and 10 percent of the respondents, respectively. Ninety-eight percent of the respondents indicated they recreate as non-commercial boaters on the NFKR, 22 percent indicated they work as commercial guides, and 22 percent indicated they operate in both capacities (Figure 2-3).

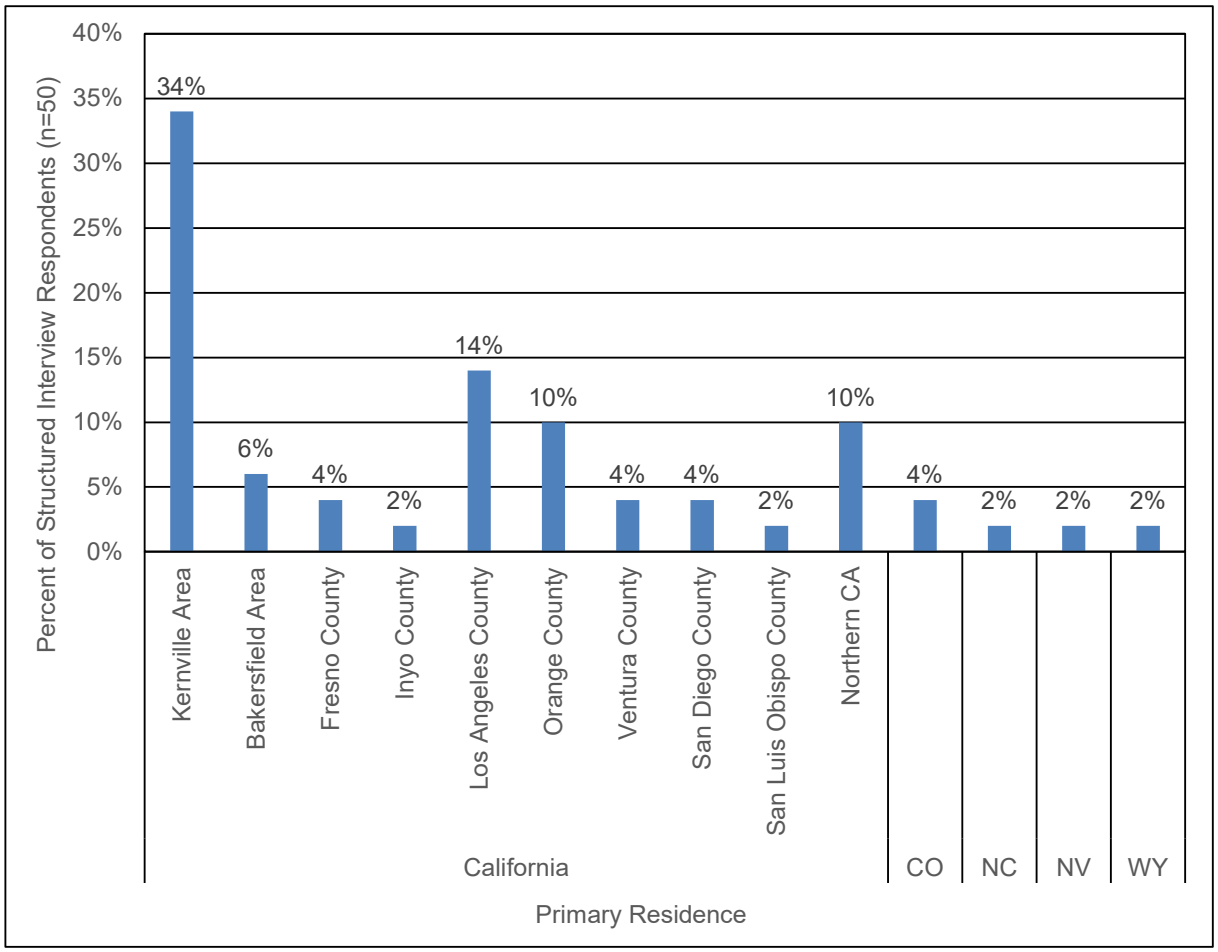


Figure 2-2. Structured Interview Respondent Primary Residence.

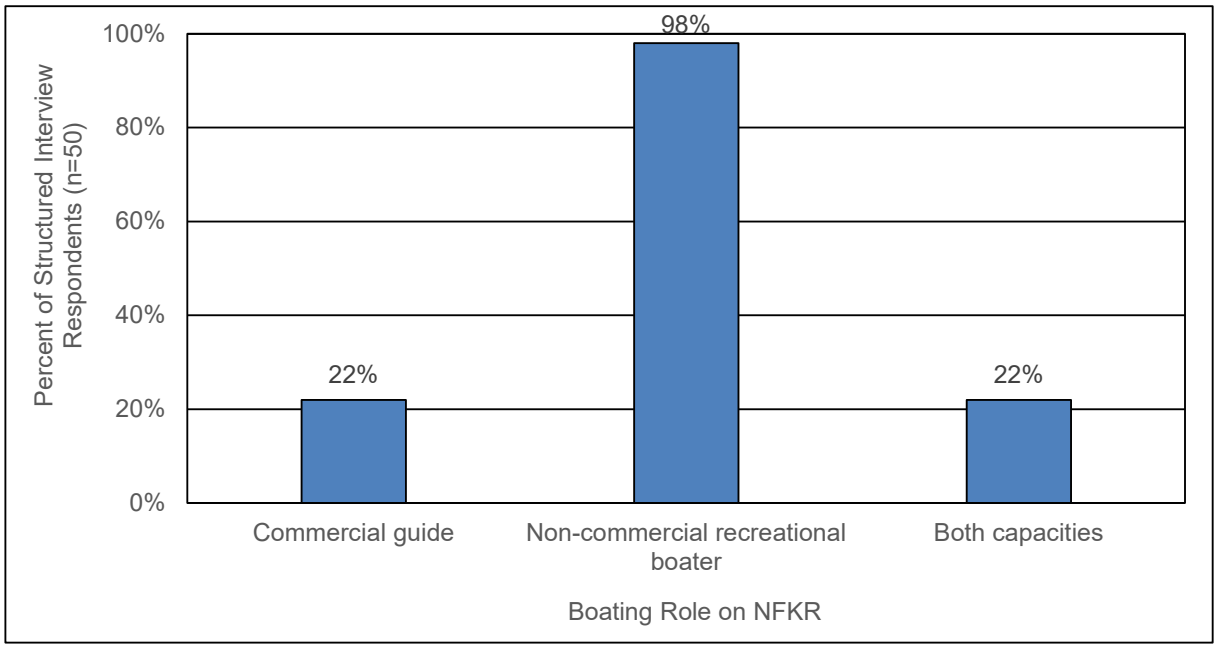
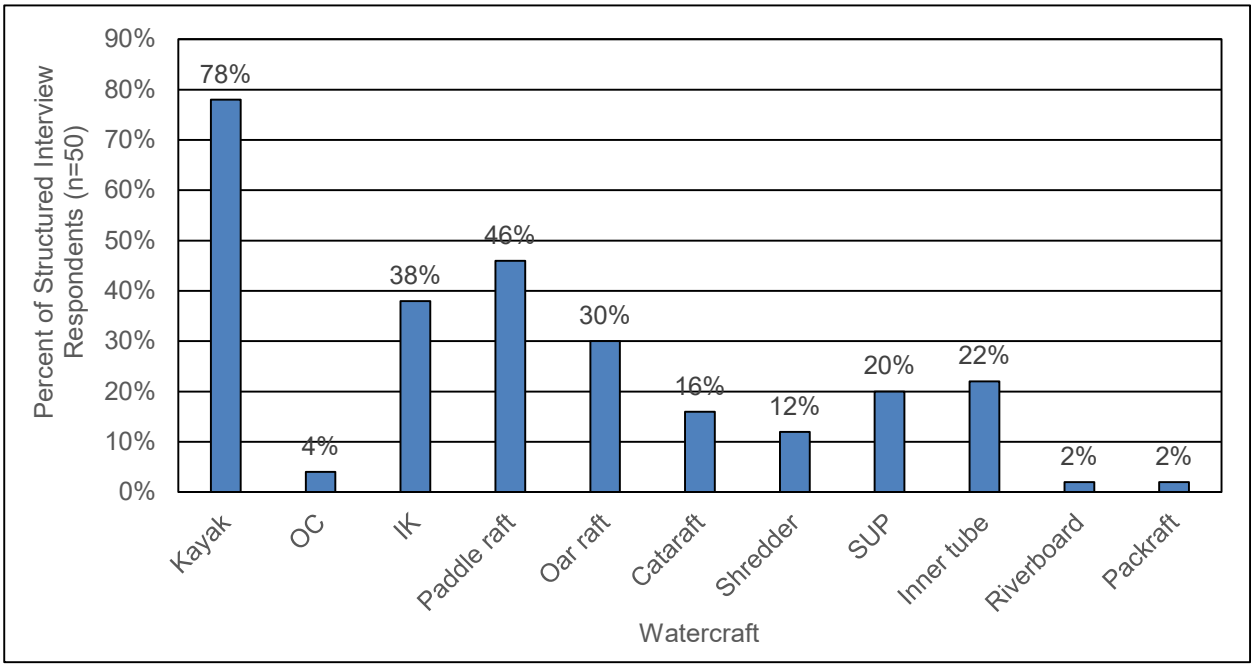


Figure 2-3. Structured Interview Respondent Boating Role on the NFKR.

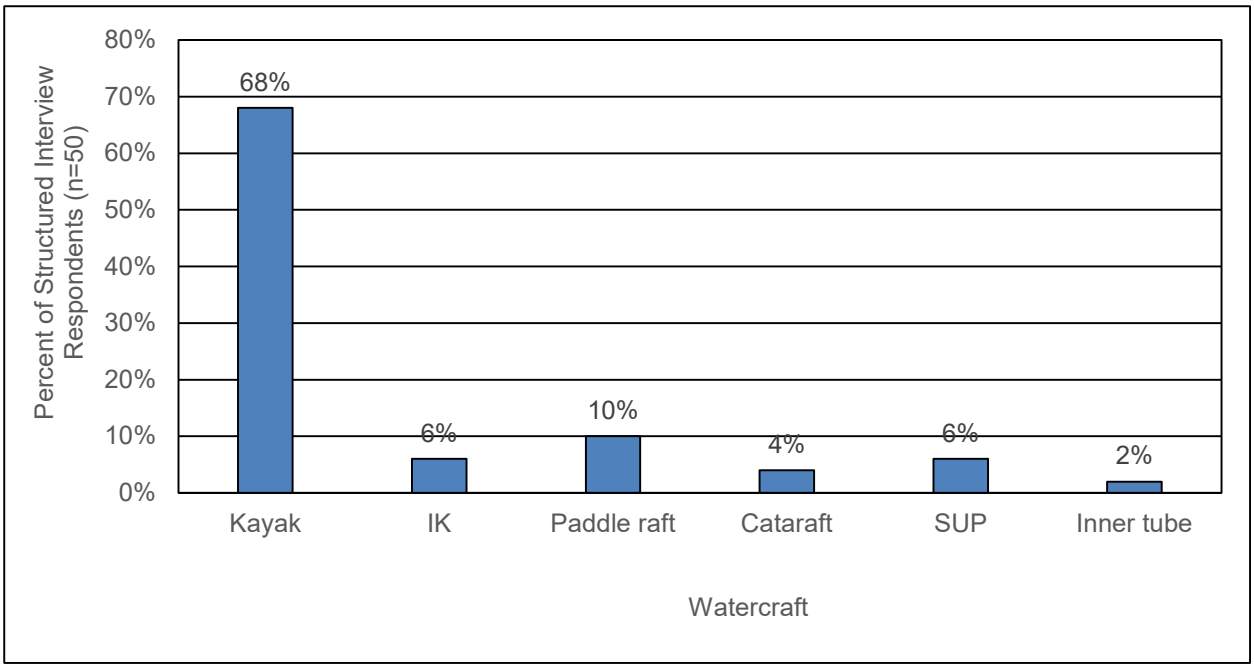
Structured Interview respondents use a variety of watercraft on the NFKR (Figure 2-4), with most respondents using more than one type. Kayaks were the most prevalent watercraft, used by 78 percent of respondents. Paddle rafts were used by 46 percent. Riverboards and packrafts were the least commonly used watercraft.



IK = inflatable kayak; OC = open canoe; SUP = standup paddleboard

Figure 2-4. Watercraft Types Used by Structured Interview Respondents on the NFKR.

When asked which watercraft they used most, respondents listed kayaks (68 percent) followed by paddle rafts (10 percent), inflatable kayaks (IKs) (6 percent), and standup paddleboards (SUPs) (6 percent) (Figure 2-5). No other watercraft types were identified by respondents for most often used.



IK = inflatable kayak; SUP = standup paddleboard

Figure 2-5. Watercraft Types Used Most Often by Structured Interview Respondents on the NFKR.

The Structured Interview Questionnaire queried respondents on their recreation use patterns on the NFKR. More than half of respondents said they make more than 21 trips per year, and 8 percent of respondents said they make more than 100 trips per year (Figure 2-6). One respondent said their number of trips fluctuated annually depending on the type of water year and availability of whitewater opportunities on the NFKR. For the majority of respondents using kayaks, IKs, paddle rafts, and catarafts, trips are 3 to 4 hours long (Figure 2-7). Trips for some kayakers and paddle rafters are only 1 to 2 hours long, while trips for a smaller percentage (10 percent) of kayakers are 5 to 6 hours long. Respondents indicated that trips using SUPs and inner tubes were typically 1 to 2 hours long. Weekends are the most popular time to boat, followed by weekdays between 8 a.m. and 5 p.m. (Figure 2-8). Holiday weekends and holidays were also popular. The least popular time to boat was weekdays after 5 p.m.

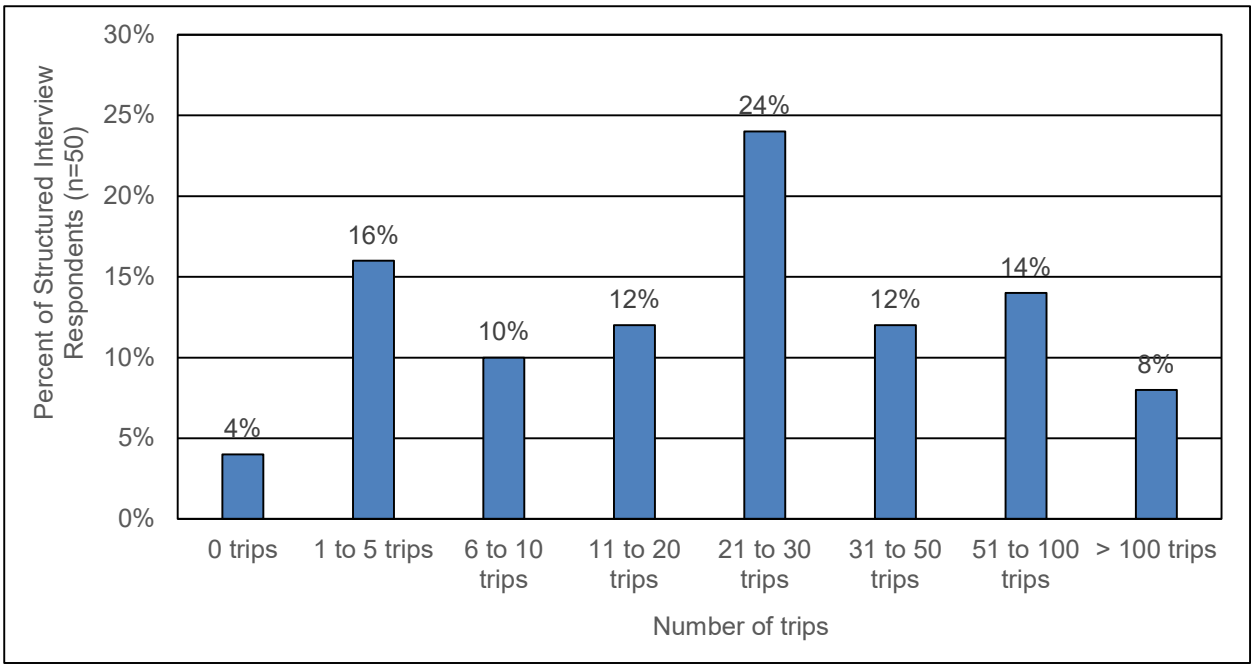
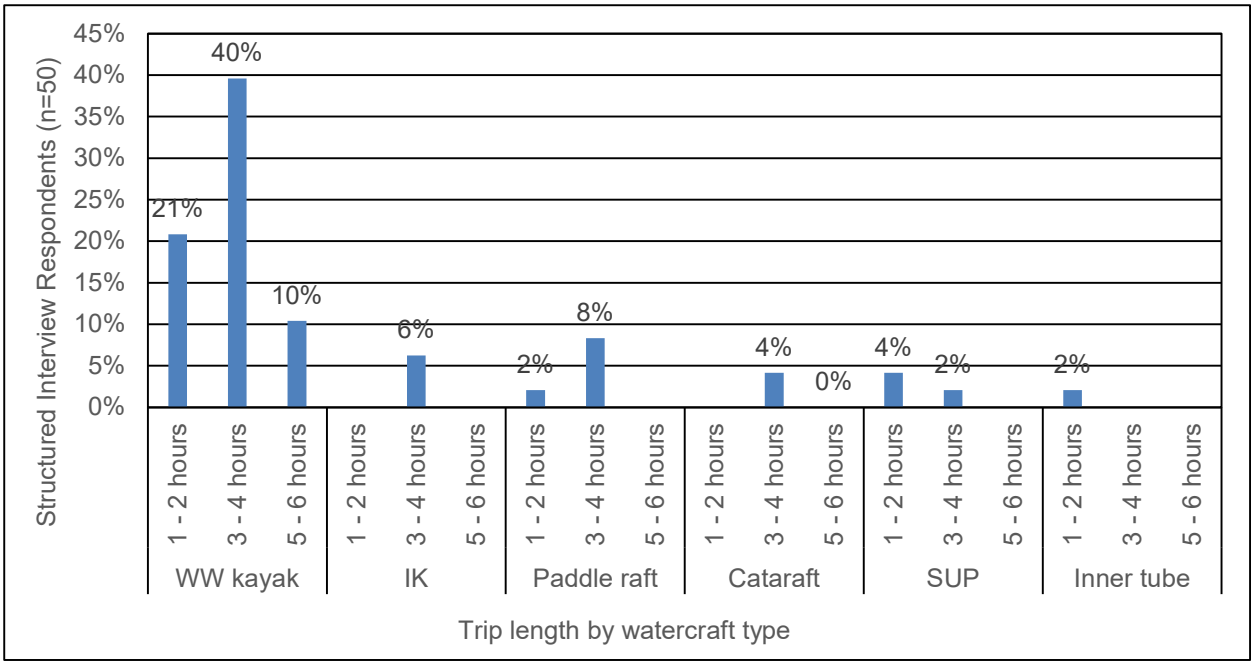


Figure 2-6. Annual Number of Trips on the NFKR.



IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-7. Typical Trip Length for Respective Watercraft Types on the NFKR.

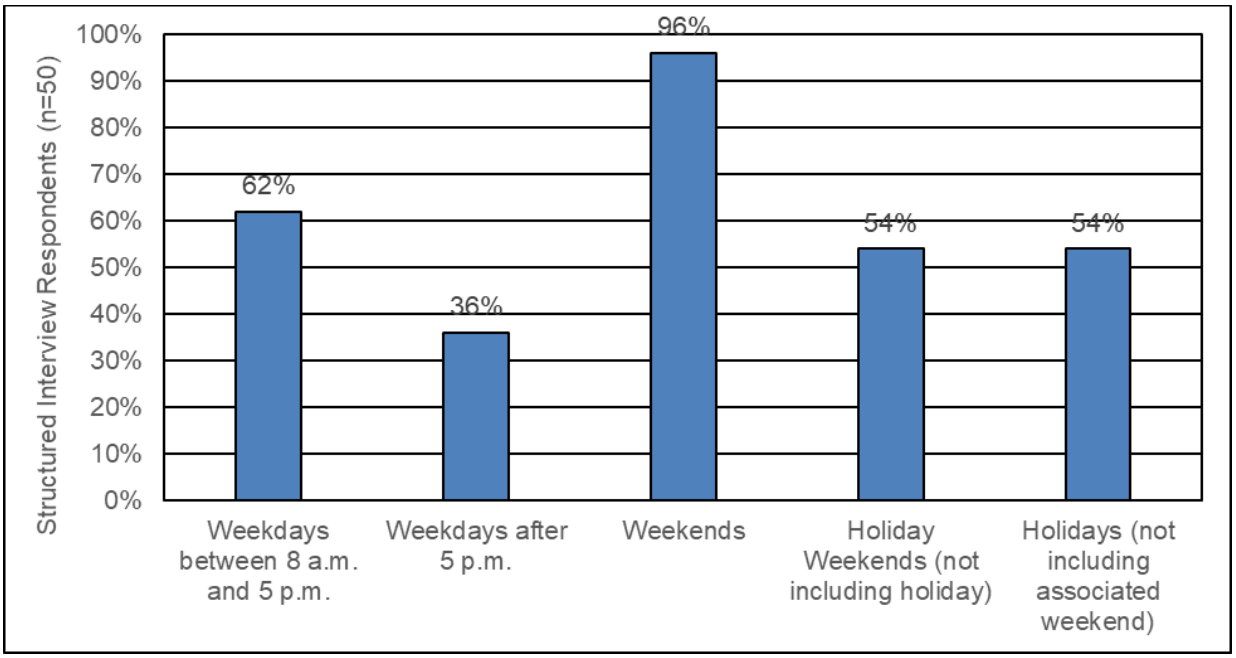


Figure 2-8. Days When Boaters Typically Take Trips on the NFKR.

Respondents cited a number of attributes that attracted them to the NFKR (Figure 2-9). The quality of the whitewater on the NFKR was highest among the respondents (96 percent), followed closely by river access (84 percent), spending time with friends (82 percent), diversity of whitewater segments (80 percent), landscape and scenery (76 percent), closest boating to where they live (70 percent), and whitewater difficulty (70 percent). The opportunity for camping was cited by 28 percent of respondents.

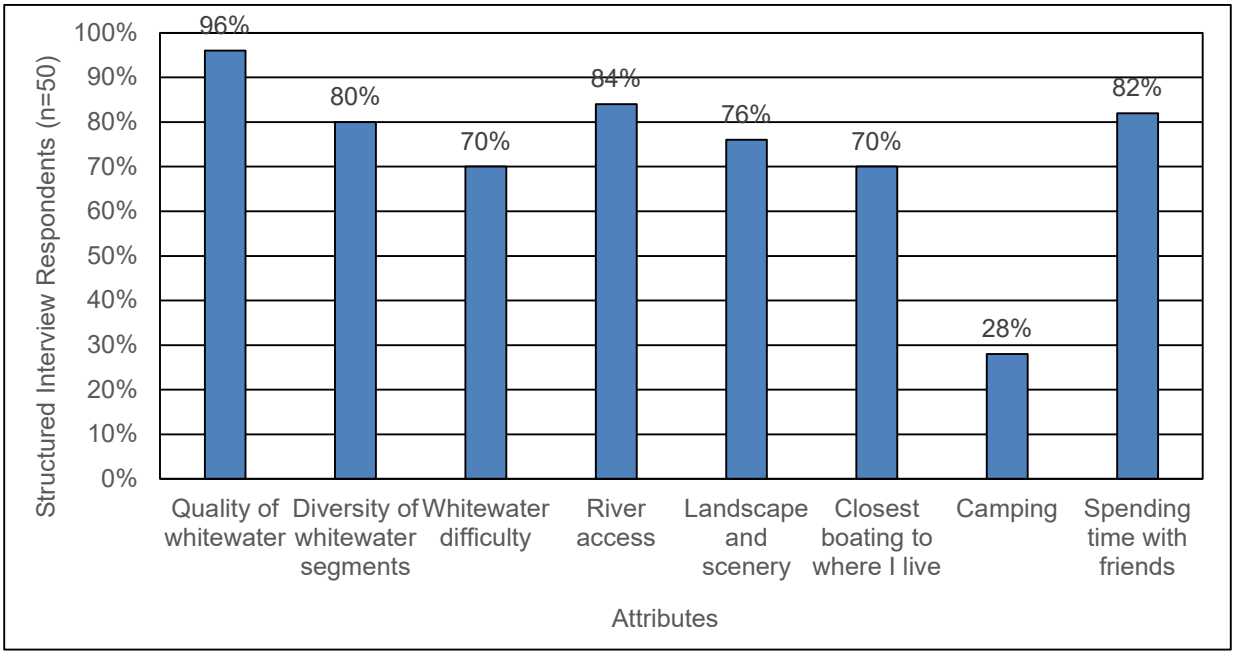


Figure 2-9. Attributes Attracting Boaters to the NFKR.

Respondents to the Structured Interview Questionnaire identified the river segments they boat on the NFKR (Figure 2-10). The nine river segments are as follows, from upstream to downstream:

1. Sidewinder / Bomb's Away (Sidewinder)
2. Fairview
3. Chamise Gorge (Chamise)
4. Salmon Falls
5. Goldledge / Ant Canyon (Goldledge)
6. Thunder Run
7. Camp 3 / Cables Run (Camp 3)
8. Riverkern Beach (Riverkern)
9. Powerhouse / Lickety Split (Powerhouse)

Respondents had the highest percentage of experience boating the Powerhouse, Riverkern, Camp 3, and Chamise river segments, with Fairview, Goldledge, and Thunder Run close behind. Respondents had the least experience boating the Sidewinder and Salmon Falls river segments. Analysis of responses by watercraft type indicates that respondents using kayaks, paddle rafts, and catarafts have experience on all nine river segments; respondents using IKs are limited to experience on six river segments; and respondents using SUPs are limited to experience on two river segments (Figure 2-11).

Structured Interview respondents were asked to list the river segments in order from their most favorite (1) to least favorite (9) (Figure 2-12). The median response for kayakers indicated Chamise was the favorite segment followed by a three-way tie between Goldledge, Thunder Run, and Camp 3. Fairview, Salmon Falls, and Powerhouse were in a three-way tie for least favorite river segment for kayakers. IKers identified Thunder Run and Camp 3 as their favorite river segments. Paddle rafters selected Thunder Run as their favorite river segment, followed by Camp 3. Salmon Falls was the least favorite river segment for paddle rafters. Catarafters identified Goldledge as their most favorite river segment, followed closely by Camp 3, Chamise and Thunder Run. Powerhouse was the least favorite river segment for catarafters. SUPers identified Riverkern and Powerhouse as their favorite river segments. SUPers did not rate any of the other river segments.

Choosing a river segment to boat on a given day is influenced by a number of variables that change on a regular basis. Some of these variables include discharge, watercraft type, skill level, boating group, weather, etc. Favorite river segments change as these variables change. The Structured Interview Questionnaire did not specify the conditions for the suite of variables for respondents listing their favorite river segments. Consequently, the responses to this question in the Structured Interview should be treated with caution. Nonetheless, the response provide insight on whitewater recreation use patterns by watercraft type across the nine river segments.

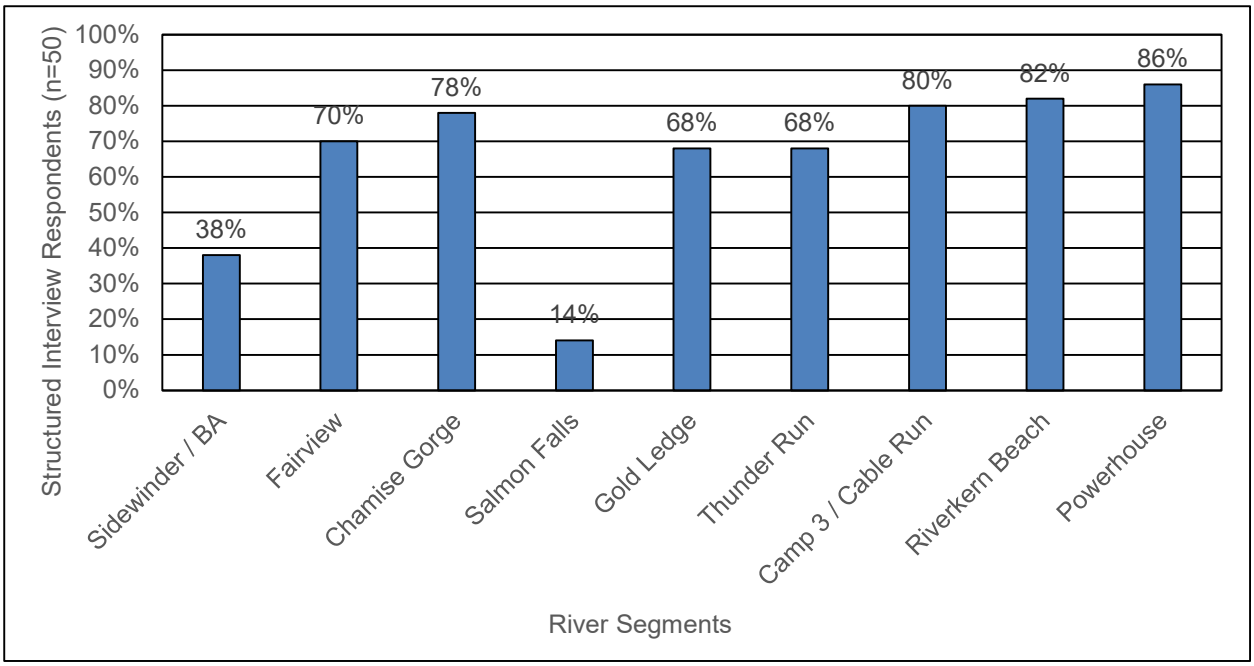
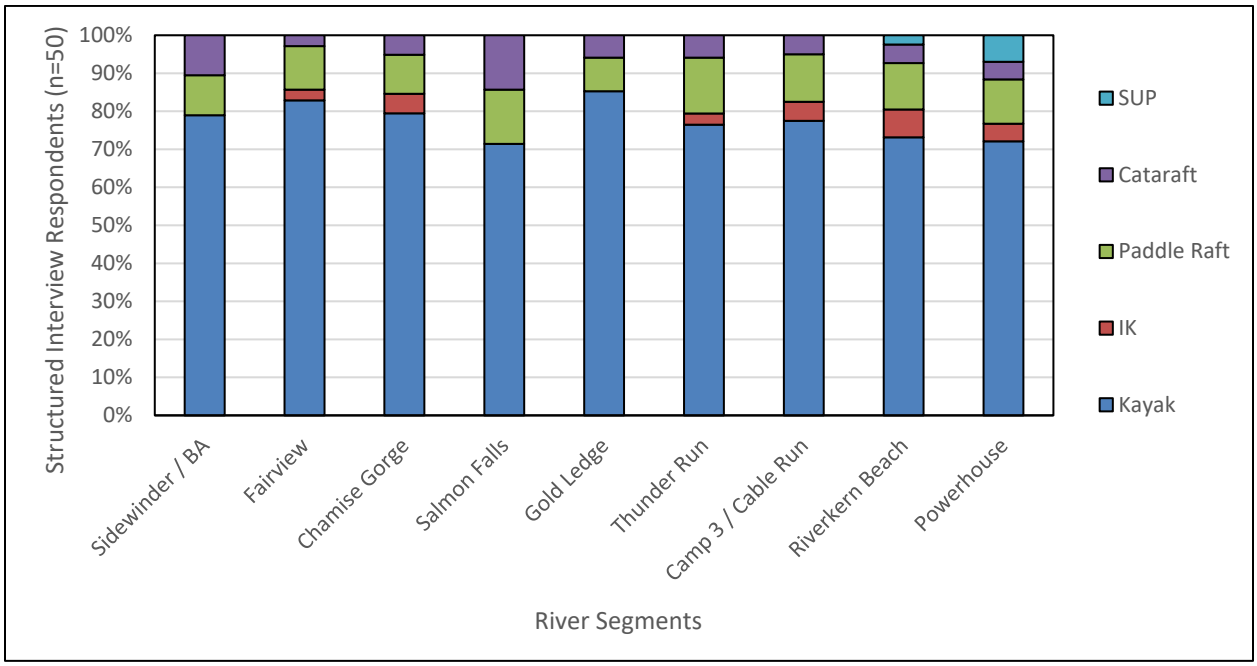
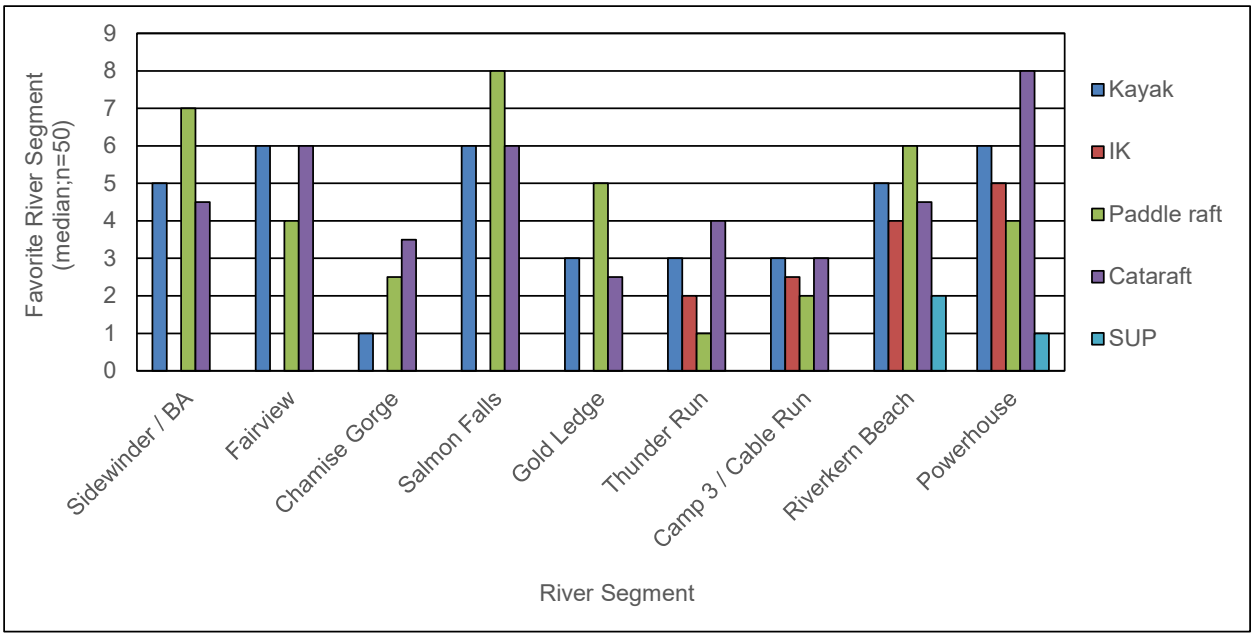


Figure 2-10. River Segments Boated on the NFKR by Respondents.



IK = inflatable kayak; SUP = standup paddleboard

Figure 2-11. River Segments Boated on the NFKR by Watercraft Type for the Respondents.



Note: Most favorite (1) to least favorite (9)
IK = inflatable kayak; SUP = standup paddleboard

Figure 2-12. Favorite River Segment (median) on the NFKR by Watercraft Type for the Respondents.

Respondents were asked to rate the whitewater difficulty for the nine individual river segments across four different flow ranges:

- 700 to 2,000 cubic feet per second (cfs)
- 2,000 to 3,500 cfs
- greater than 3,500 cfs
- less than 700 cfs

These increments were selected based on ranges listed in guidebooks and online river information pages, communication with boaters, and direct experience on the river segments.

For flows ranging from 700 to 2,000 cfs, the majority of respondents rated Chamise, Goldledge, and Camp 3 Class IV; Thunder Run Class V; and Fairview, Riverkern, and Powerhouse Class III (Figure 2-13).

For flows ranging from 2,000 to 3,500 cfs, most respondents were nearly equally divided between rating Chamise Class IV or Class V (Figure 2-14). Most respondents rated Goldledge and Camp 3 as Class IV and Thunder Run as Class V. A higher number of respondents were not sure what the whitewater difficulty of Fairview was at this flow range.

For flows greater than 3,500 cfs, more respondents rated Chamise as Class V compared to lower flows (Figure 2-15). Respondents were nearly evenly split between Class IV and Class V for Goldledge at flows greater than 3,500 cfs. Responses for whitewater difficulty for Thunder Run were similar to the other flows, with the majority rating the segment Class V. The majority of respondents rated Camp 3 Class IV, but a small number of respondents rated it Class V. The whitewater difficulty rating for Riverkern and Powerhouse remained similar to the ratings at the other flows. Respondent uncertainty with the whitewater difficulty at Fairview increased yet again for flows greater than 3,500 cfs.

For flows less than 700 cfs, two-thirds of the respondents rated the whitewater difficulty for Chamise Class IV, while another third of the respondents rated it Class III (Figure 2-16). Respondents were nearly evenly split between Class III and Class IV for the Goldledge river segment. The majority of respondents decreased the whitewater difficulty on the Thunder Run to Class IV, Camp 3 to Class III, and nearly evenly distributed between Class II and III for Fairview, Riverkern, and Powerhouse.

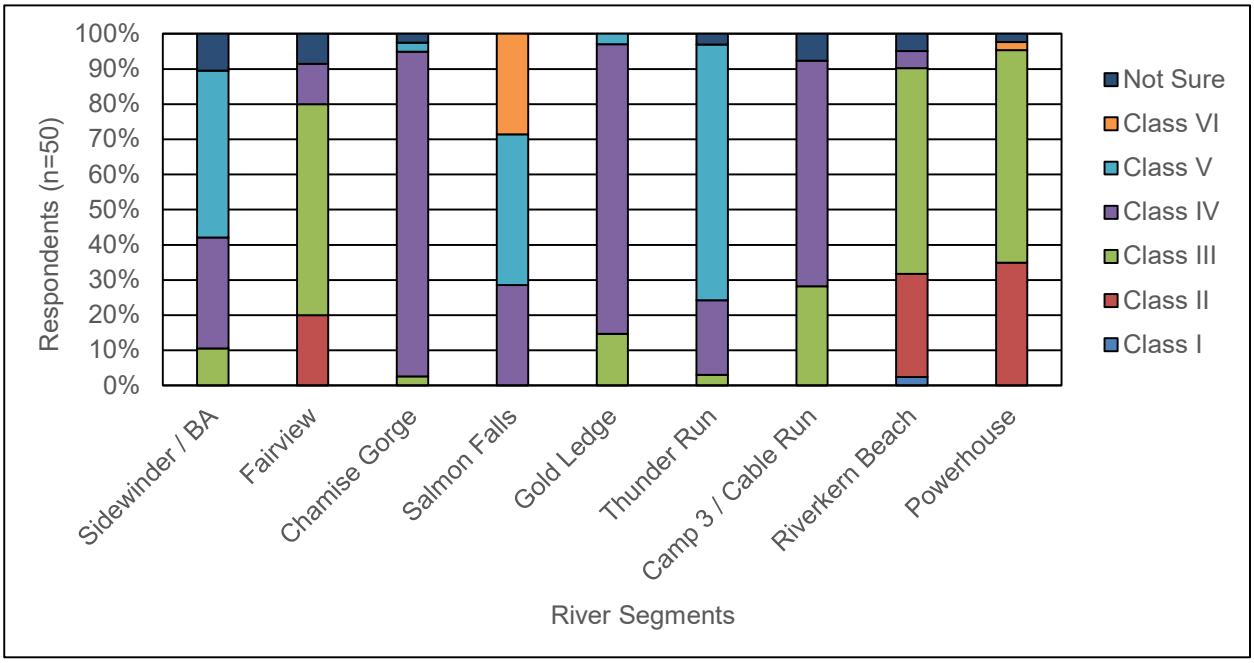


Figure 2-13. Respondent Rating of Whitewater Difficulty for River Segments (Discharge 700–2,000 cfs).

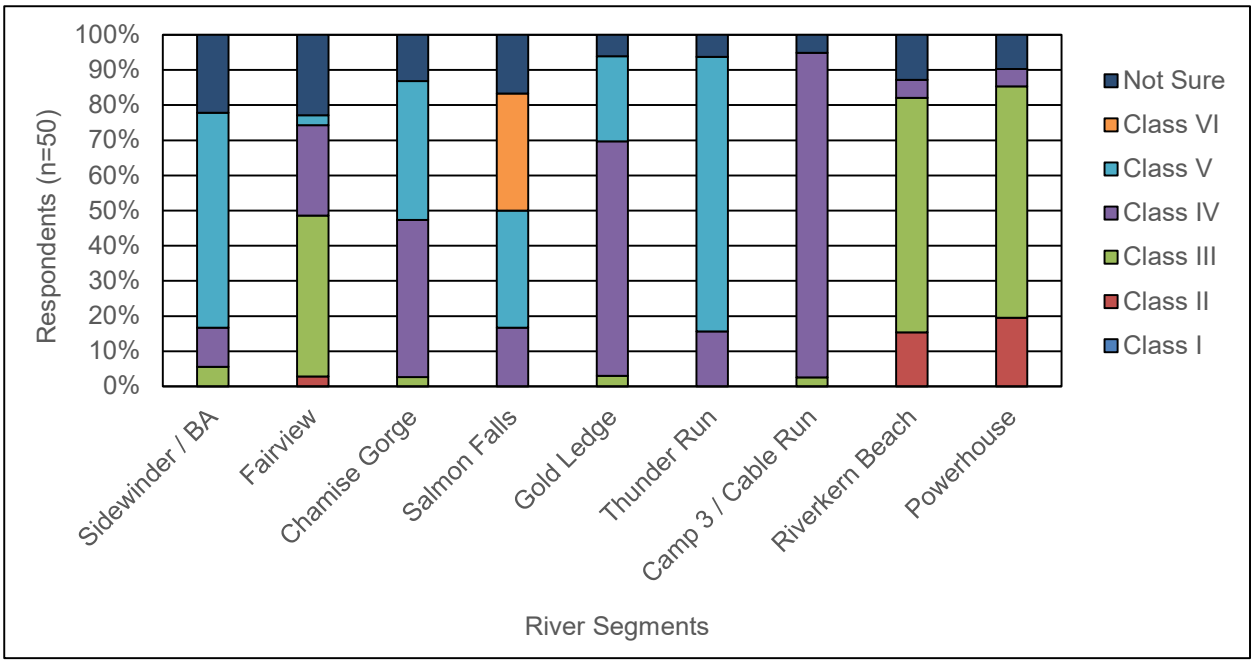


Figure 2-14. Respondent Rating of Whitewater Difficulty for River Segments (Discharge 2,000–3,500 cfs).

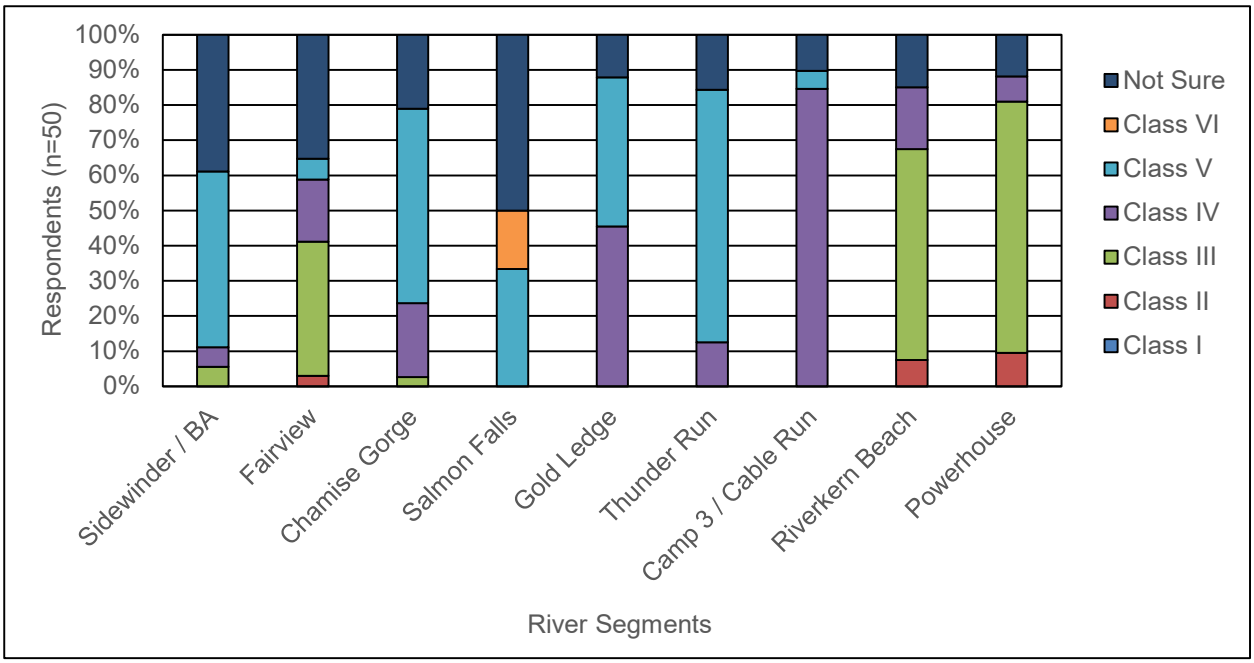


Figure 2-15. Respondent Rating of Whitewater Difficulty for River Segments (Discharge > 3,500 cfs).

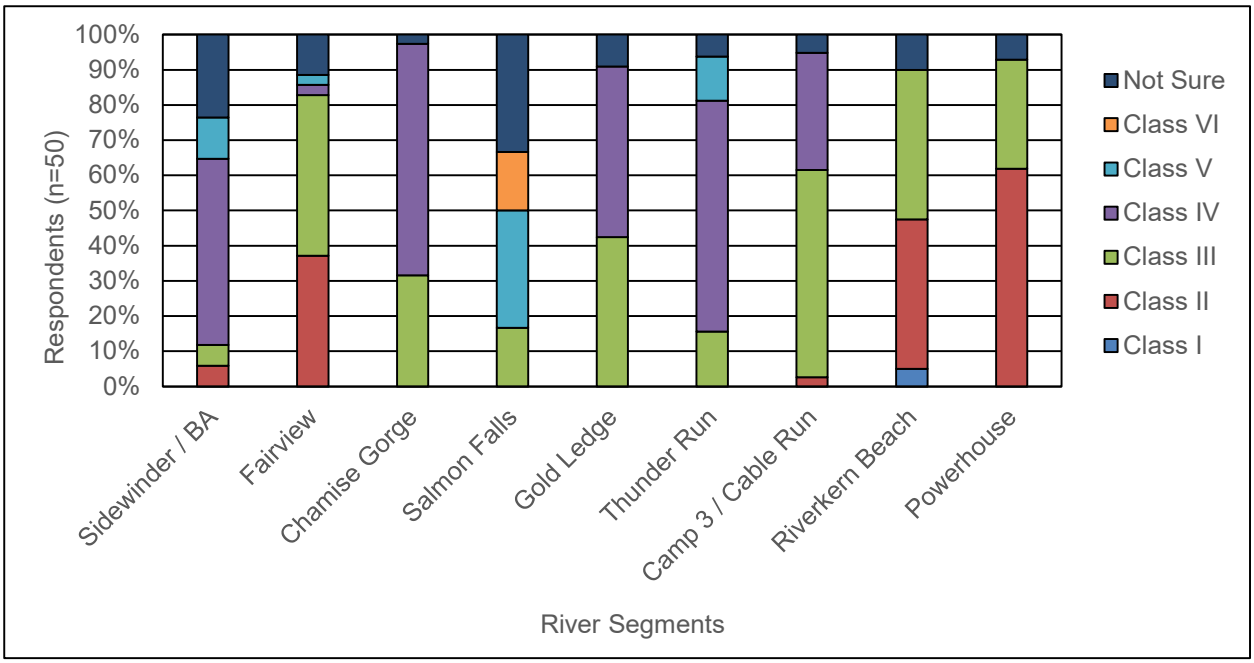


Figure 2-16. Respondent Rating of Whitewater Difficulty for River Segments (Discharge < 700 cfs).

Structured Interview respondents were asked to estimate their minimum acceptable and optimum flow preferences by watercraft type for the respective river segments. Respondent estimates of minimum acceptable flows were displayed on box whisker plots containing five descriptive statistics: median, 25 percent and 75 percent quartile ranges, minimum and maximum value (Figure 2-17). A single value is displayed on river segments where only one response was received for a watercraft type. The minimum acceptable flow estimates from respondents should be used with caution. Respondents provided estimates to an open-ended question. The information obtained from respondents should only be used to help develop flow ranges and associated flow increments for flow preference questions in the Level 3 comparative flow survey.

Kayakers were the highest number of respondents estimating the minimum acceptable flow for the individual river segments followed by rafters (combining paddle rafts and oar rafts). The lowest median minimum acceptable flow identified by kayakers was 300 cfs on the Chamise river segment. The minimum acceptable quartile range from 25 and 75 percent for kayakers on Chamise was 200 to 450 cfs. The minimum acceptable median for IKs on Chamise was 200 cfs. The minimum acceptable median for rafts and catarafts on Chamise was 700 and 725 cfs respectively. On the Goldledge river segment, the minimum acceptable median flow for kayakers was 500 cfs while the median for rafts and catarafts was 850 cfs and 750 cfs respectively. On the more difficult Thunder Run, the minimum acceptable median flow for kayakers was 600 cfs while the median for rafts and catarafts was 1,000 cfs and 950 cfs respectively. On the less difficult Fairview river segment, the minimum acceptable median flow for kayakers was 400 cfs while the median for rafts and catarafts was 550 cfs and 450 cfs respectively. On the Camp 3 river segment, the minimum acceptable median flow for kayakers was 600 cfs while the

median for rafts and catarafts was 650 cfs respectively. The minimum acceptable median for SUP respondents on the Riverkern and Powerhouse river segments was 500 cfs.

For optimum flow estimates, respondents were encouraged to provide a flow range in their answer rather than a single flow number. Responses are displayed on box whisker plots for the optimum low and optimum high for each watercraft type for respective river segments. The box whisker plot for Sidewinder, Fairview, Chamise, and Salmon Falls is displayed in Figure 2-18. The box whisker plot for Goldledge, Thunder Run, Camp 3, and Riverkern is displayed in Figure 2-19. The box whisker plot for Powerhouse is displayed in Figure 2-20. Similar to the caution regarding the respondent estimates of the minimum acceptable flows, the respondent optimum flow estimates serve the purpose of helping guide development of flow ranges and flow increments for flow preference questions in the Level 3 flow comparison survey.

In Chamise, the median optimum low and optimum high flow for kayakers ranged from 750 cfs to 1,500 cfs. The median optimum low and optimum high flow for catarafts was 1,350 cfs and 3,100 cfs respectively. Rafters median optimum flow range was similar with 1,500 cfs and 2,500 cfs for a low and high respectively. In the Fairview river segment, the median optimum low and optimum high flow for kayakers ranged from 1,150 cfs to 2,000 cfs. The median optimum low and optimum high flow for rafts was 800 cfs and 1,250 cfs respectively. In the Goldledge river segment, the median optimum low and optimum high flow for kayakers ranged from 1,200 cfs to 2,000 cfs. The median optimum low and optimum high flow for catarafts was 1,500 cfs and 3,250 cfs respectively. Rafters median optimum flow range was similar with 1,500 cfs and 2,500 cfs for a low and high respectively. In the Thunder Run river segment, the median optimum low and optimum high flow for kayakers ranged from 1,000 cfs to 1,500 cfs. The median optimum low and optimum high flow for catarafts was 1,600 cfs and 3,350 cfs respectively. Rafters median optimum flow range was similar with 2,000 cfs and 3,750 cfs for a low and high respectively. In the Camp 3 river segment, the median optimum low and optimum high flow for kayakers ranged from 1,200 cfs to 3,400 cfs. The median optimum low and optimum high flow for catarafts was 2,000 cfs and 4,750 cfs respectively. Rafters median optimum flow range was similar with 1,250 cfs and 2,250 cfs for a low and high respectively. In the Powerhouse river segment, the median optimum low and optimum high flow for kayakers ranged from 1,200 cfs to 3,000 cfs. The median optimum low and optimum high flow for catarafts and rafts was 1,500 cfs and 3,000 cfs respectively. SUP median optimum flow range was 1,100 cfs and 1,800 cfs for a low and high respectively. IK median optimum flow range was 450 cfs and 3,400 cfs for a low and high respectively.

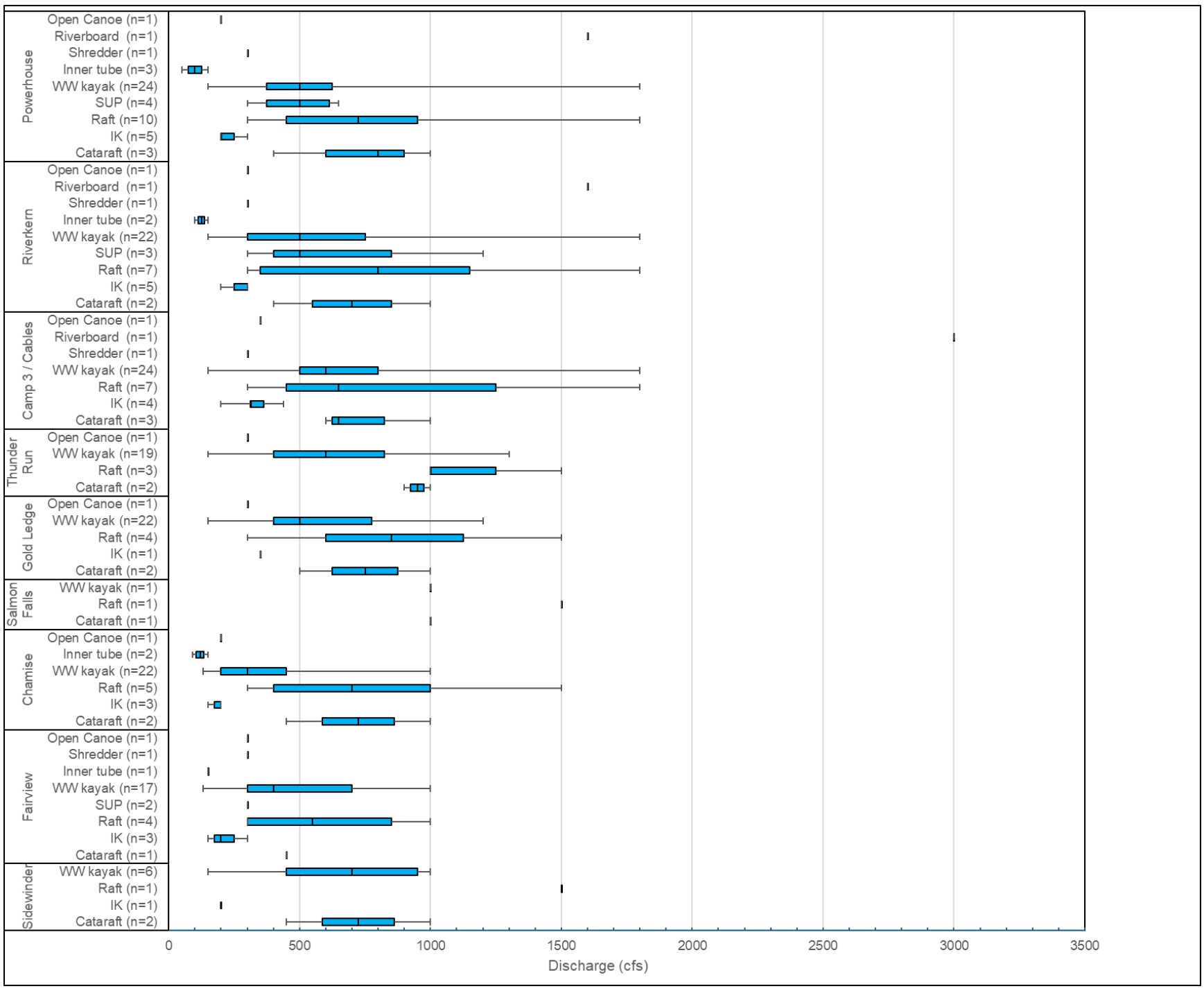
The Structured Interview Questionnaire asked respondents to identify where gaps exist in their experience or knowledge of flows on the NFKR. Some respondents provided a single number while others included a range. In some cases, respondents implied a range by using the “<” symbol followed by a flow number. For responses incorporating a “<” symbol, SCE inserted the minimum instream flow of 40 cfs. This is the lowest flow allowed in the license and is present for individuals to boat at some point during the calendar year. Inserting the 40 cfs value allows for the lowest flow that can be provided.

The knowledge gaps for Sidewinder, Fairview, Chamise and Salmon Falls for respective watercraft types are illustrated in a box whisker plot (Figure 2-21). The median knowledge gap at the high end for all watercraft types across the four river segments was less than 700 cfs. In the Fairview river segment, the median knowledge gap on the high end for kayaks was 300 cfs and the 25 percent quartile range was 200 cfs. For rafts in this river segment, the median knowledge gap on the high end was 550 cfs and the 25 percent quartile range was 375 cfs. In the Chamise river segment, the median knowledge gap on the high end for kayaks was 175 cfs and the 25 percent quartile range was 130 cfs. For rafts in Chamise, the median knowledge gap on the high end was 700 cfs and the 25 percent quartile range was 550 cfs. The median knowledge gap at the low end for all watercraft types across the four river segments was 40 cfs. The latter reflects SCE's assignment of 40 cfs to any response that included a "<" symbol. Further communication will be necessary with the boating community to get clarification on the low end to distinguish between actual knowledge gaps for these river segments versus lack of interest in boating flows in the range of the minimum instream flows required in the FERC license.

The knowledge gaps for Goldledge, Thunder Run, Camp 3, and Riverkern for respective watercraft types are illustrated in a box whisker plot (Figure 2-22). Similar to the four segments upstream, the median knowledge gap at the high end for all watercraft types across these four river segments was less than 700 cfs with the exception of a riverboard respondent that specified a knowledge gap for flows less than or equal to 1,600 cfs in the Camp 3 and Riverkern segments. In the Goldledge river segment, the median knowledge gap on the high end for kayaks was 500 cfs and the 25 percent quartile range was 450 cfs. For rafts in this river segment, the median knowledge gap on the high end was 550 cfs and the 25 percent quartile range was 475 cfs. In the Thunder Run river segment, the median knowledge gap on the high end for kayaks was 475 cfs and the 25 percent quartile range was 188 cfs. For rafts in this river segment, the median knowledge gap on the high end was 700 cfs and the 25 percent quartile range was 600 cfs. In the Camp 3 river segment, the median knowledge gap on the high end for kayaks was 500 cfs and the 25 percent quartile range was 275 cfs. For rafts in this river segment, the median knowledge gap on the high end was 700 cfs and the 25 percent quartile range was 400 cfs. In the Riverkern river segment, the median knowledge gap on the high end for kayaks was 300 cfs and the 25 percent quartile range was 175 cfs. For rafts in this river segment, the median knowledge gap on the high end was 550 cfs and the 25 percent quartile range was 325 cfs. Similar to the four segments upstream, the median knowledge gap at the low end for all watercraft types for Goldledge, Thunder Run, Camp 3 and Riverkern was 40 cfs assigned by SCE where respondents implied a range but did not specify a lower number. Further communication will be necessary with the boating community to get clarification on the low end to distinguish between actual knowledge gaps for these river segments verses lack of interest in boating flows in the range of the minimum instream flows required in the FERC license.

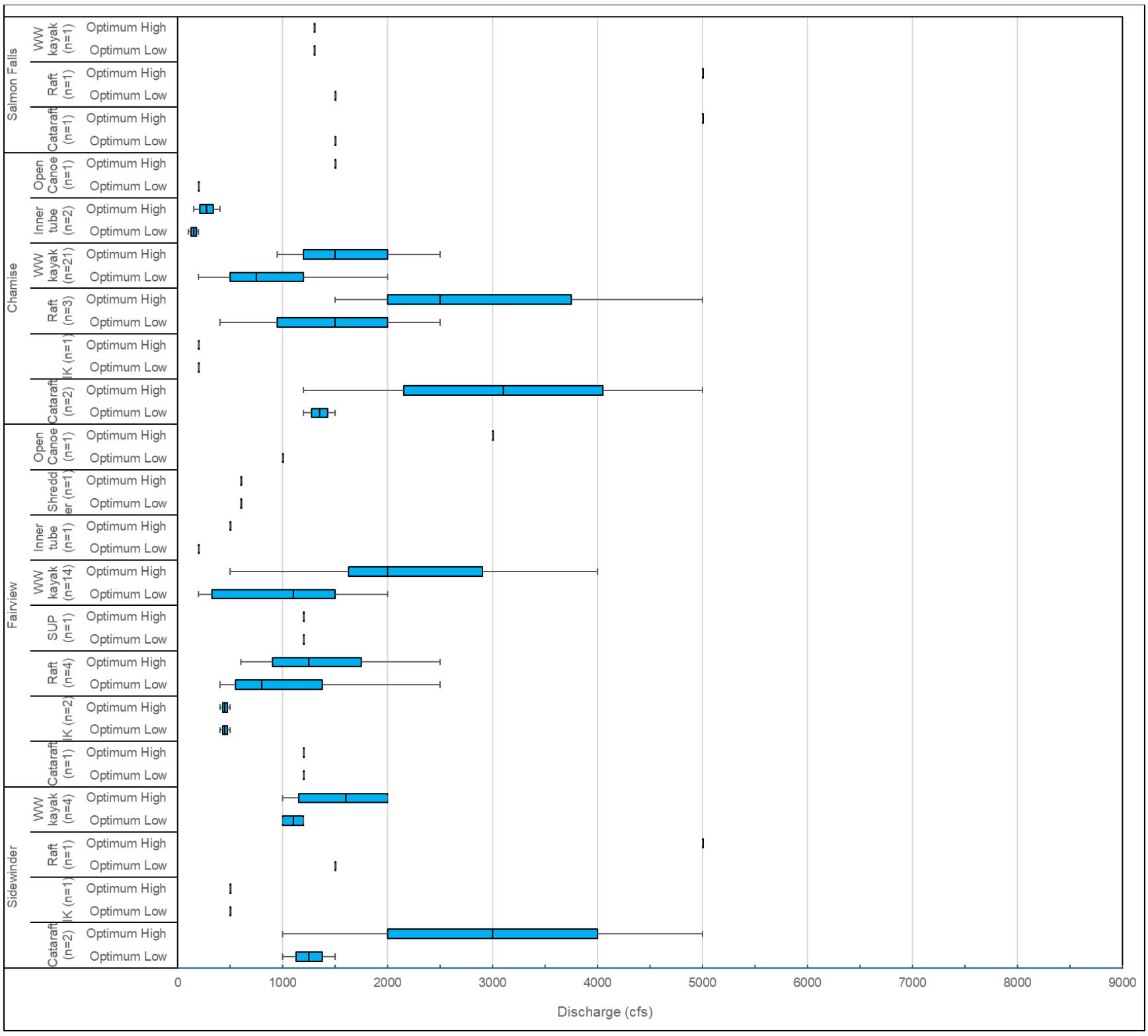
The knowledge gaps for the Powerhouse river segment for respective watercraft types are illustrated in a box whisker plot (Figure 2-23). Similar to the eight segments upstream, the median knowledge gap at the high end for all watercraft types in the Powerhouse river segment was less than 700 cfs with the exception of a riverboard respondent that

specified a knowledge gap for flows 800 cfs. For kayaks in this river segment, the median knowledge gap on the high end was 300 cfs and the 25 percent quartile range was 238 cfs. For rafts in this river segment, the median knowledge gap on the high end was 500 cfs and the 25 percent quartile range was 300 cfs. For IKs in this river segment, the median knowledge gap on the high end was 150 cfs and the 25 percent quartile range was 125 cfs. For SUPs in this river segment, the median knowledge gap on the high end was 600 cfs and the 25 percent quartile range was 300 cfs. Similar to the eight segments upstream, the median knowledge gap at the low end for all watercraft types for the Powerhouse river segment was 40 cfs assigned by SCE where respondents implied a range but did not specify a lower number. Further communication will be necessary with the boating community to get clarification on the low end for knowledge gaps for this river segment.



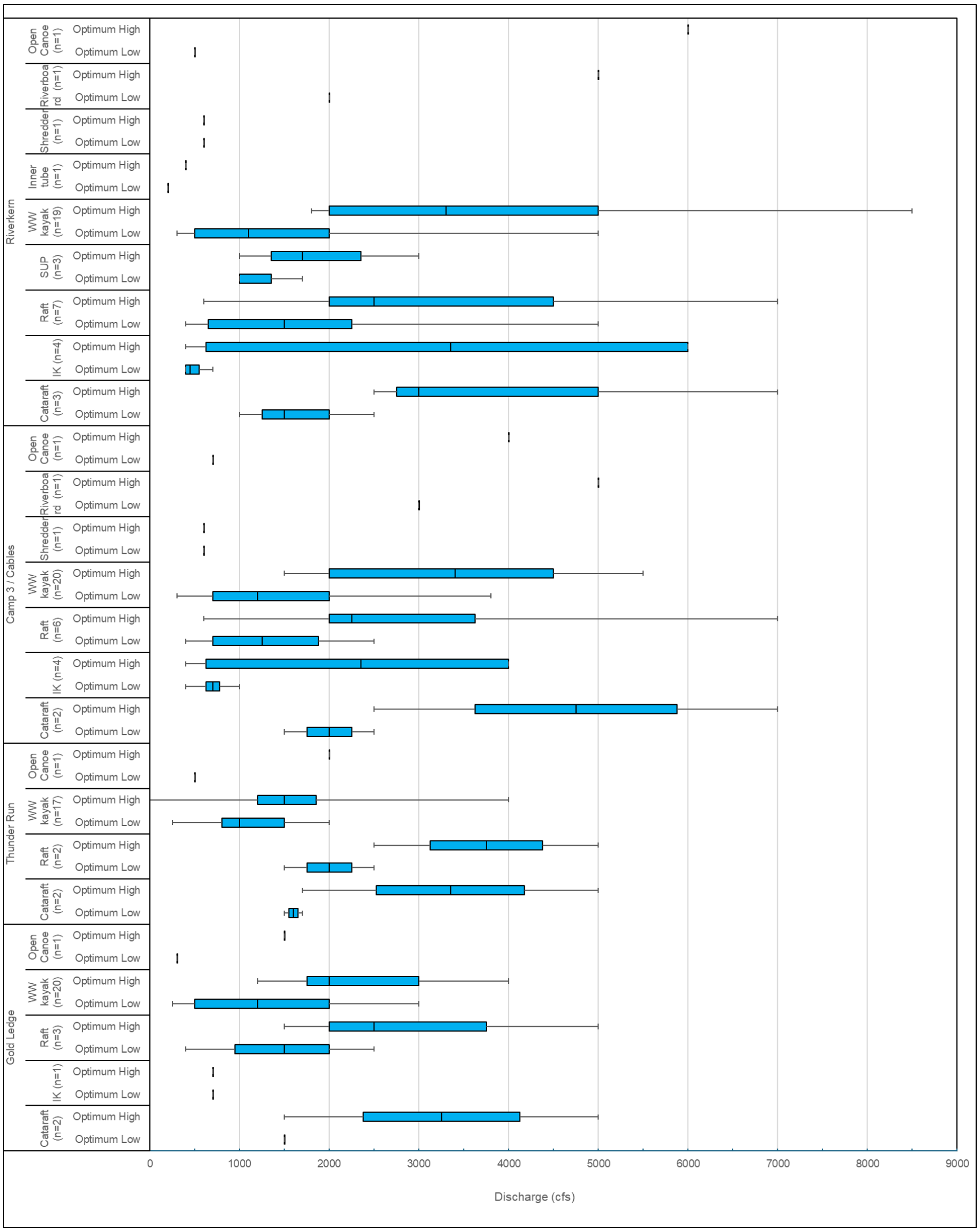
cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-17. Respondent Estimate of Minimum Acceptable Flows by Watercraft Type for Respective River Segments



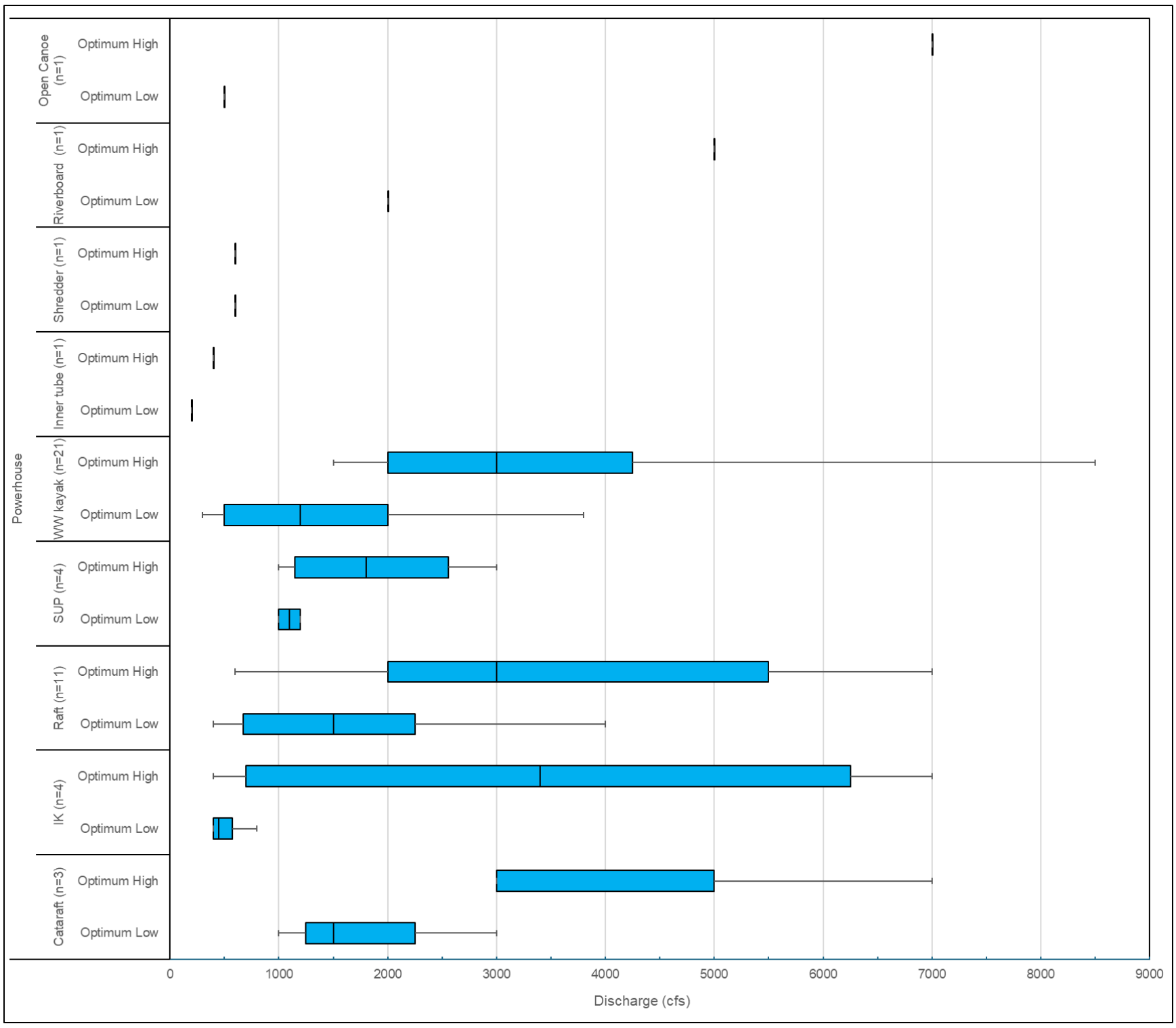
cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-18. Respondent Estimate of Optimum Flows by Watercraft Type for Sidewinder, Fairview, Chamise and Salmon Falls.



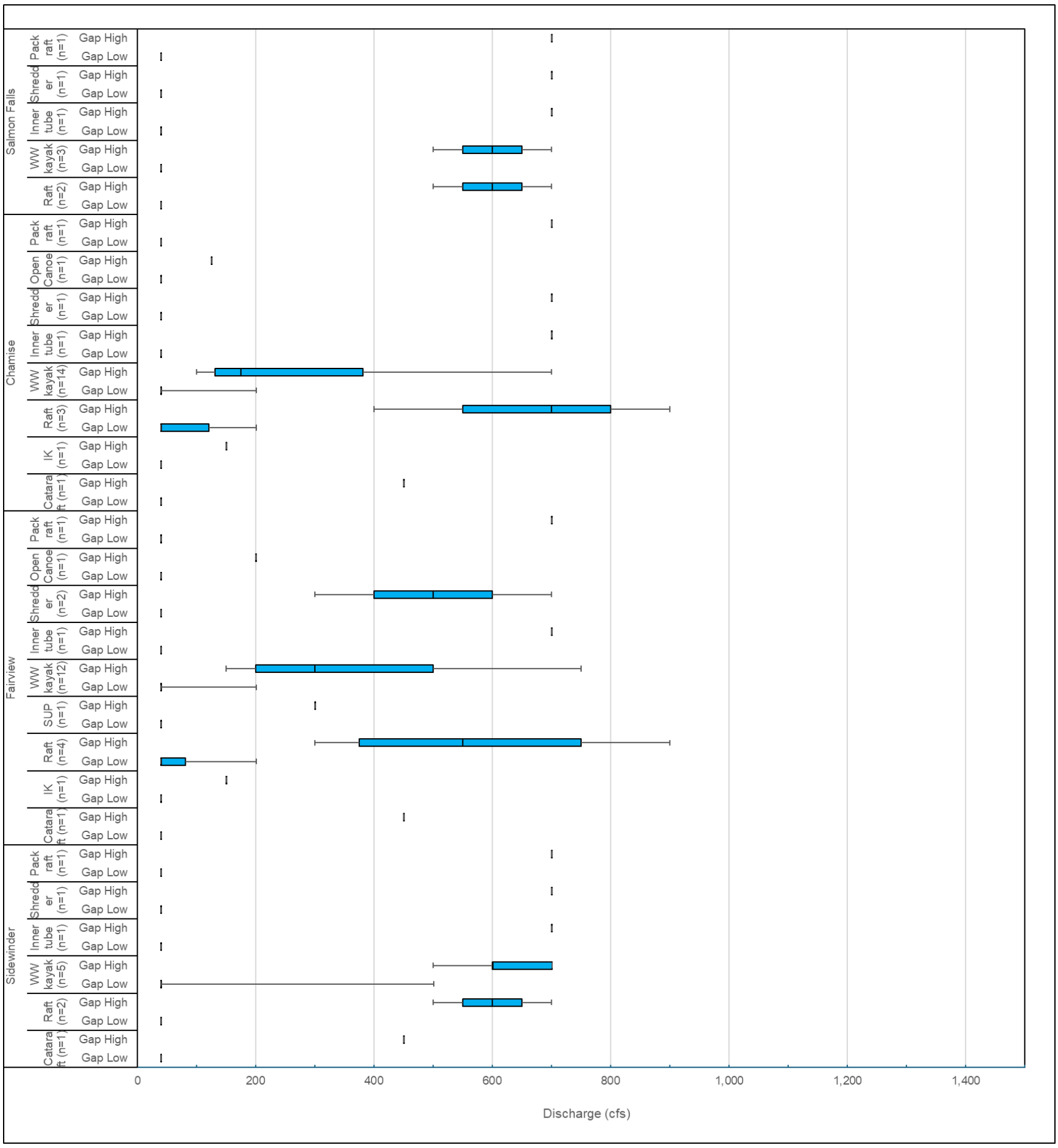
cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-19. Respondent Estimate of Optimum Flows by Watercraft Type for Goldledge, Thunder Run, Camp 3, and Riverkern.



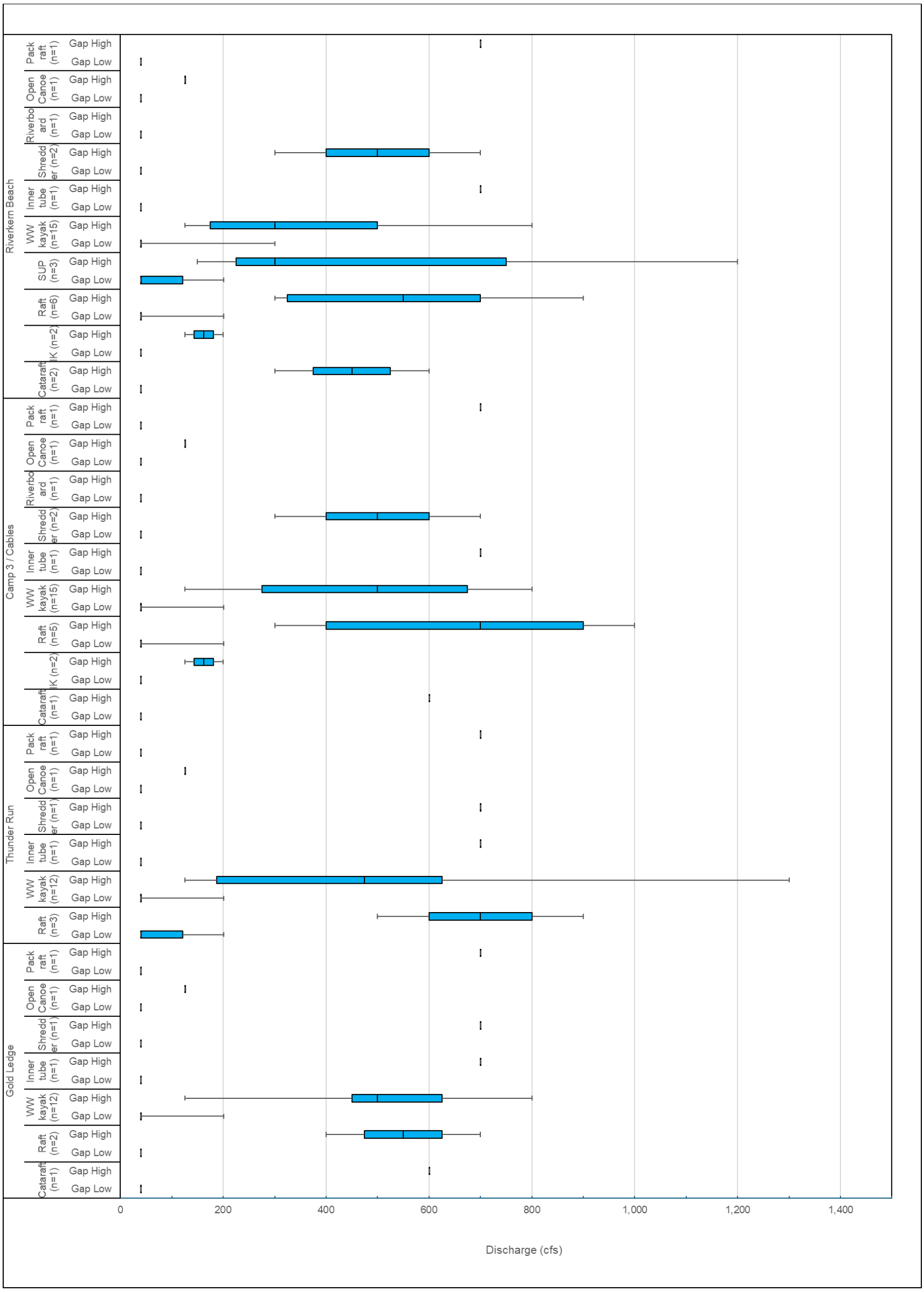
cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-20. Respondent Estimate of Optimum Flows by Watercraft Type for the Powerhouse River Segment.



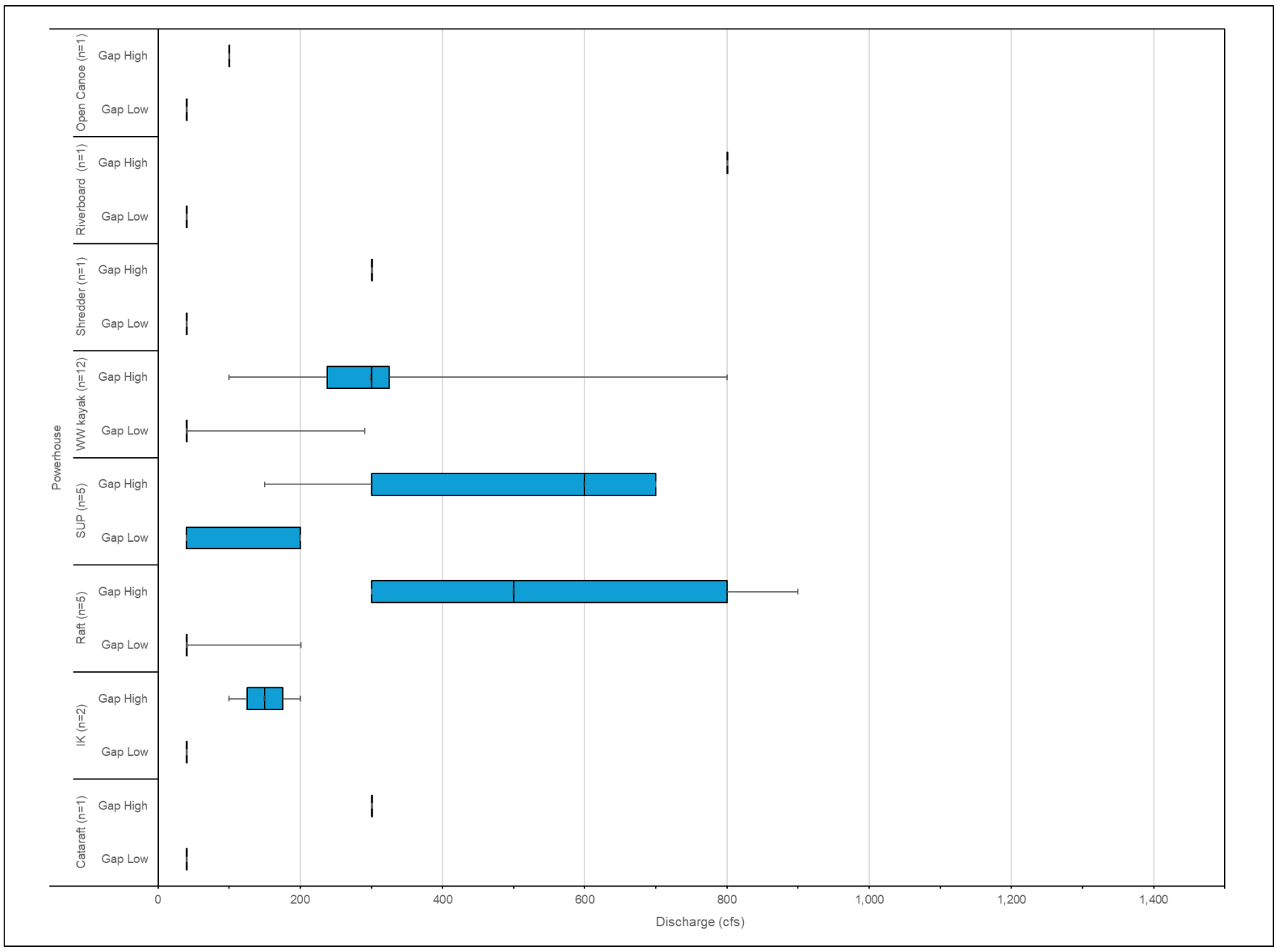
cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-21. Respondent Flow Knowledge Gaps by Watercraft Type for Sidewinder, Fairview, Chamise and Salmon Falls.



cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-22. Respondent Flow Knowledge Gaps by Watercraft Type for Goldledge, Thunder Run, Camp 3, and Riverkern.

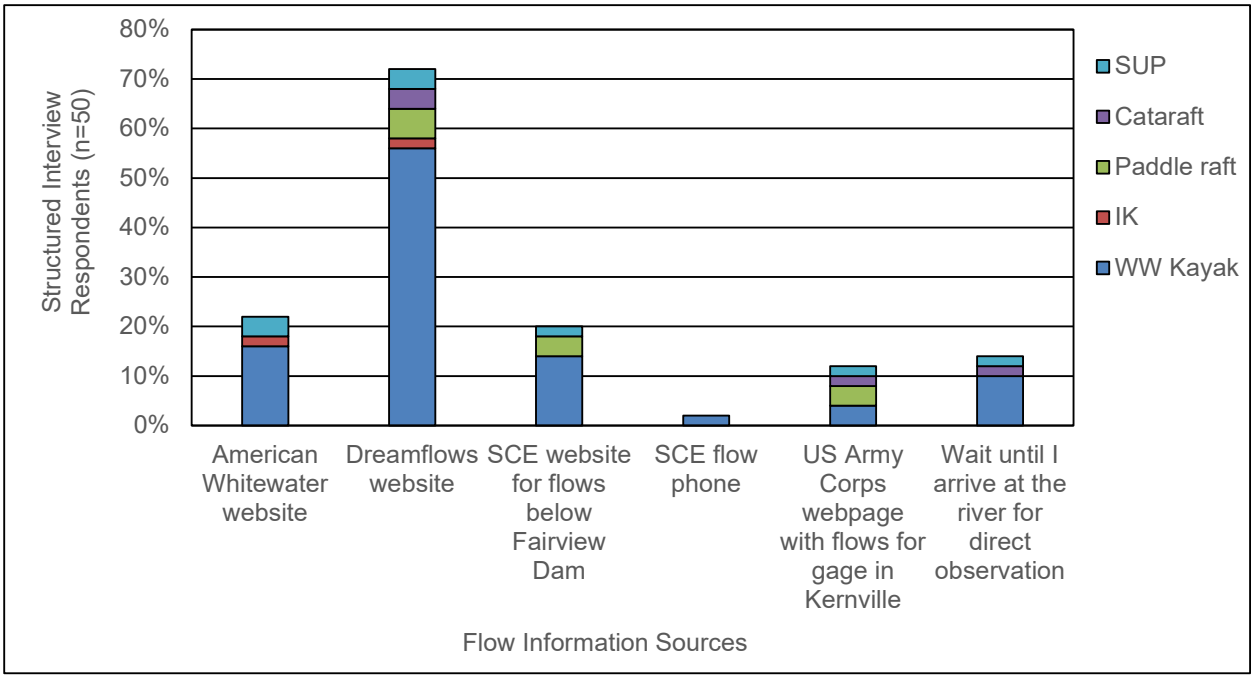


cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 2-23. Respondent Flow Knowledge Gaps by Watercraft Type for Powerhouse.

Boaters use a number of information sources to determine the flow volume in the NFKR (Figure 2-24). Dreamflows was most used by respondents for all watercraft types, followed by the American Whitewater website and the SCE flow information website. Five respondents indicated they check flow information on the Sierra South whiteboard outside the store. Sixty-eight percent of respondents said the existing flow information sources meet their needs, while 8 percent said they do not (Figure 2-25). Respondents identified the following flow information improvements: add more gages and fix existing gauges to improve accuracy, provide 15-minute interval data, and forecast a power generation schedule for boaters outside the area to predict flow conditions below Fairview Dam.

The Structured Interview Questionnaire asked respondents to compare the whitewater opportunities on the NFKR in the bypass with other whitewater opportunities in the watershed as well as Southern and Northern California (Figure 2-26). Most respondents considered the bypass river segments either similar, better, or among the best. For Southern California, 48 percent of respondents considered the bypass river segments to be among the best whitewater opportunities.



IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater; SCE = Southern California Edison

Figure 2-24. Flow Information Sources used by Respondents.

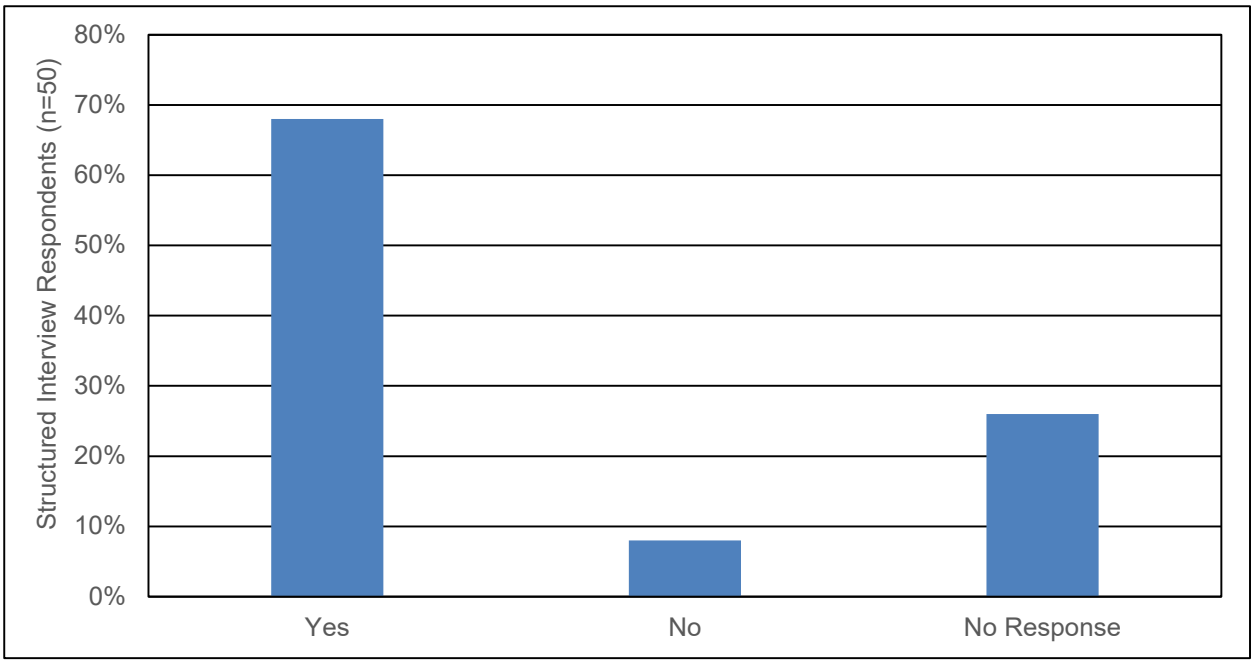


Figure 2-25. Does Available Flow Information Sources Meet Your Needs?

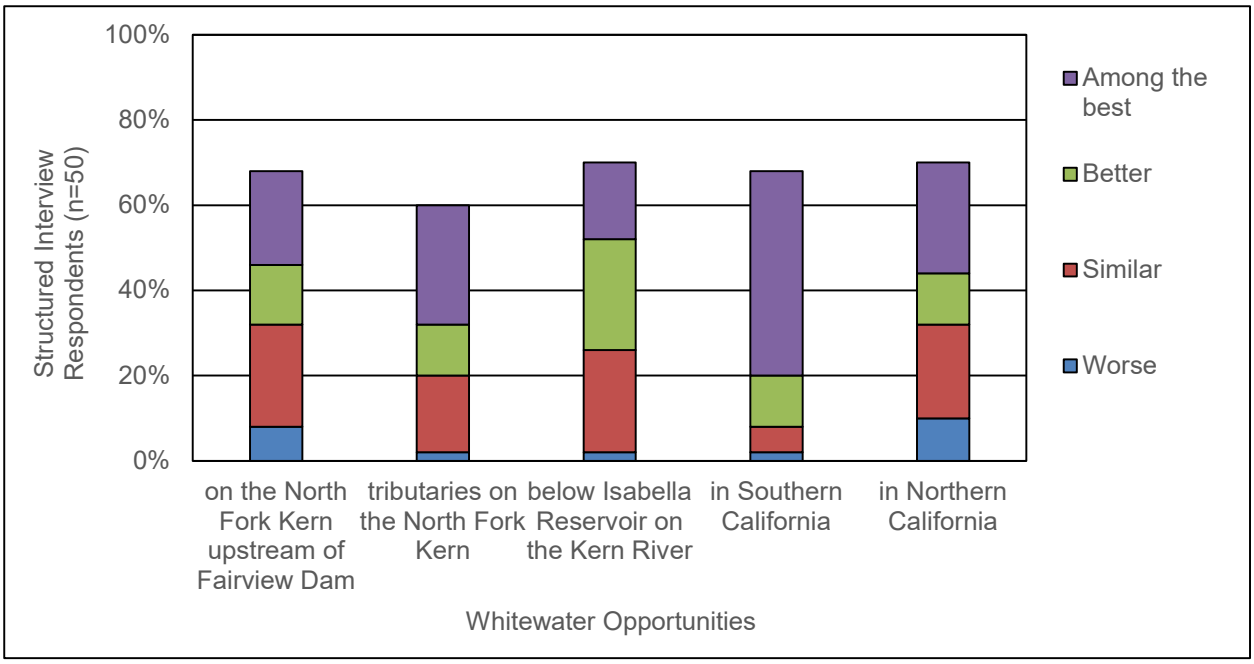


Figure 2-26. Comparison with Whitewater Opportunities in Other Locations.

3.0 LEVEL 3: INTENSIVE STUDY IMPLEMENTATION

In 2024, SCE will complete the following elements of the Level 3 Intensive Study:

- Analysis of the Level 3 whitewater single flow survey (data collected in 2023 and the analysis distributed to Stakeholders in Q1 2024 as an addendum to the REC-1 interim Technical Memorandum);
- Provide enhanced flows targeting knowledge gaps in boater experience on the river segments in the Fairview Dam Bypass Reach;
- Deploy a whitewater flow comparison survey;
- Conduct a whitewater focus group; and
- Complete a hydrology analysis to quantify the annual number of whitewater boating days using flow preference curves from Level 1, Level 2, and Level 3.

Based on the data collected in Levels 1 and 2, SCE will provide enhanced flows designed to target knowledge gaps in boating flows identified in the Level 1 Structured Interview Questionnaire (refer to Figures 2-21 through 2-23) and the Level 2 Limited Reconnaissance (discussion included as part of the SCE's Initial Study Report filing [SCE 2023]). SCE proposes four flow enhancements (Table 3-1), allowing study participants to boat and evaluate individual target flows and rate the quality of the boating opportunity.

Further communication with the boating community may be needed to help refine the proposed flow enhancements; in particular, the lowest target flow, the proposed flow increments, and the range of flows for enhancements. Because the flow enhancement targets are heavily influenced by unregulated inflow to Fairview Dam, the flows listed in Table 3-1 should be viewed as an approximate target range and not absolute discharge volumes. To provide the greatest operational flexibility and opportunity, SCE is preparing to provide flow enhancements during the spring run-off period (typically April into May). If needed, flow enhancement opportunities may also occur on the descending limb of the hydrograph later in the summer.

Study participants will also have an opportunity to complete a final flow comparison survey to evaluate the quality of boating opportunities across a range of flows previously identified in Levels 1 and 2. The flow evaluation data collected in the Level 3 Intensive Study will be used to develop flow preference curves for each watercraft type for the respective river segments.

Table 3-1. Potential Flow Enhancements for Boater Evaluations in 2024

Flow Enhancement Number	Approximate Flow Enhancement Volume (cfs) [a]	River Segment(s)
1	200	Sidewinder, Fairview, Chamise, Goldledge, Thunder Run, Camp 3, Riverkern, Powerhouse
2	400	
3	600	

Flow Enhancement Number	Approximate Flow Enhancement Volume (cfs) [a]	River Segment(s)
4	800	

cfs = cubic feet per second
Note:
[a] flows measured at SCE Gage No. 401 (Kern River below Fairview Dam)

SCE will work with the boating community to compile a list of potential study participants prior to implementing flow enhancements in spring 2024. Any interested boater may sign up to participate in the evaluation of the flow enhancements, and SCE will encourage participants that are representative of the broader boating community, including watercraft type, geographic locations, skill levels, age, and genders. However, full representation of the boating community may not be possible for all flow enhancement opportunities. SCE will use the list of interested boaters to establish communication protocols and directly communicate information about the flow enhancement schedule, as well as documentation and completion of a flow evaluation survey and other study logistics prior to a flow enhancement opportunity. Documentation of the outreach efforts will be included in the final Technical Memorandum.

4.0 REFERENCES

FERC (Federal Energy Regulatory Commission). 2022. *Study Plan Determination for the Kern River No. 3 Hydroelectric Project.* Accession No. 20221012-3024. October 12.

_____. 2024. *Request to File Study Results.* Accession No. 20221012-3024. Accession No. 20240201-3018. February 1.

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_____. 2023. *Kern River No. 3 Hydroelectric Project (FERC Project No. 2290) Initial Study Report*. Filed October 9, 2023.

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.

ADDENDUM TO REC-1 WHITEWATER BOATING INTERIM TECHNICAL MEMORANDUM: LEVEL 3 SINGLE FLOW SURVEY RESULTS

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

March 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

AW	American Whitewater
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
IK	inflatable kayak
KR3	Kern River No. 3
NFKR	North Fork Kern River
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
QR code	quick-response code
SCE	Southern California Edison
SPD	Study Plan Determination
SQF	Sequoia National Forest
SUP	standup paddleboard

1.0 INTRODUCTION

On October 9, 2023, Southern California Edison (SCE) filed an interim Technical Memorandum for the *REC-1 Whitewater Boating Study Plan* as part of its Initial Study Report (SCE, 2023) in support of the Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. As outlined in the revised REC-1 Study Plan (SCE, 2022) and approved in FERC's Study Plan Determination (SPD) (FERC, 2022), the interim Technical Memorandum summarized data collected from November 2022 through September 2023 and included most of the Level 1 Desktop Review of Existing Information elements, which included a literature review, hydrology summary and Project facility evaluation, and information obtained during the Level 2 Limited Reconnaissance. The interim Technical Memorandum also included an overview of the Level 3 Intensive Study Single Flow Survey that was deployed in 2023 and a description of the outstanding tasks scheduled for 2024.

In response to Stakeholder comments on the Initial Study Report, SCE committed to providing an addendum in the first quarter of 2024 that included an analysis of the Level 1 structured interview questions and Level 3 single flow survey (SCE, 2024a). On March 1, 2024, SCE filed the results of the Level 1 Structured Interview Questionnaire in response to FERC's February 1, 2024 additional data request (SCE, 2024b). This report describes the results of the Level 3 single flow survey that was conducted in 2023.

2.0 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 approximately 16-mile bypass reach of the North Fork Kern River (NFKR) from Fairview Dam to the KR3 Powerhouse tailrace (i.e., the Fairview Dam Bypassed Reach) and from the KR3 Powerhouse to the Kern River Park in Kernville under current license conditions; (2) identify potential operational constraints on whitewater boating; 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.

Refer to the *REC-1 Whitewater Study Interim Technical Memorandum* (SCE, 2023) and Request to File Study Results (SCE, 2024b) for additional information collected that supports these study goals and objectives.

3.0 STUDY AREA AND STUDY SITES

The study area includes the approximately 16-mile Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse tailrace and the NFKR from the KR3 Powerhouse to the Riverside Park in Kernville. The Fairview Dam Bypass Reach contains eight whitewater segments ranging in whitewater difficulty from Class II to Class VI (Figure 3-1). The river can be accessed from multiple locations including designated and informal access locations.

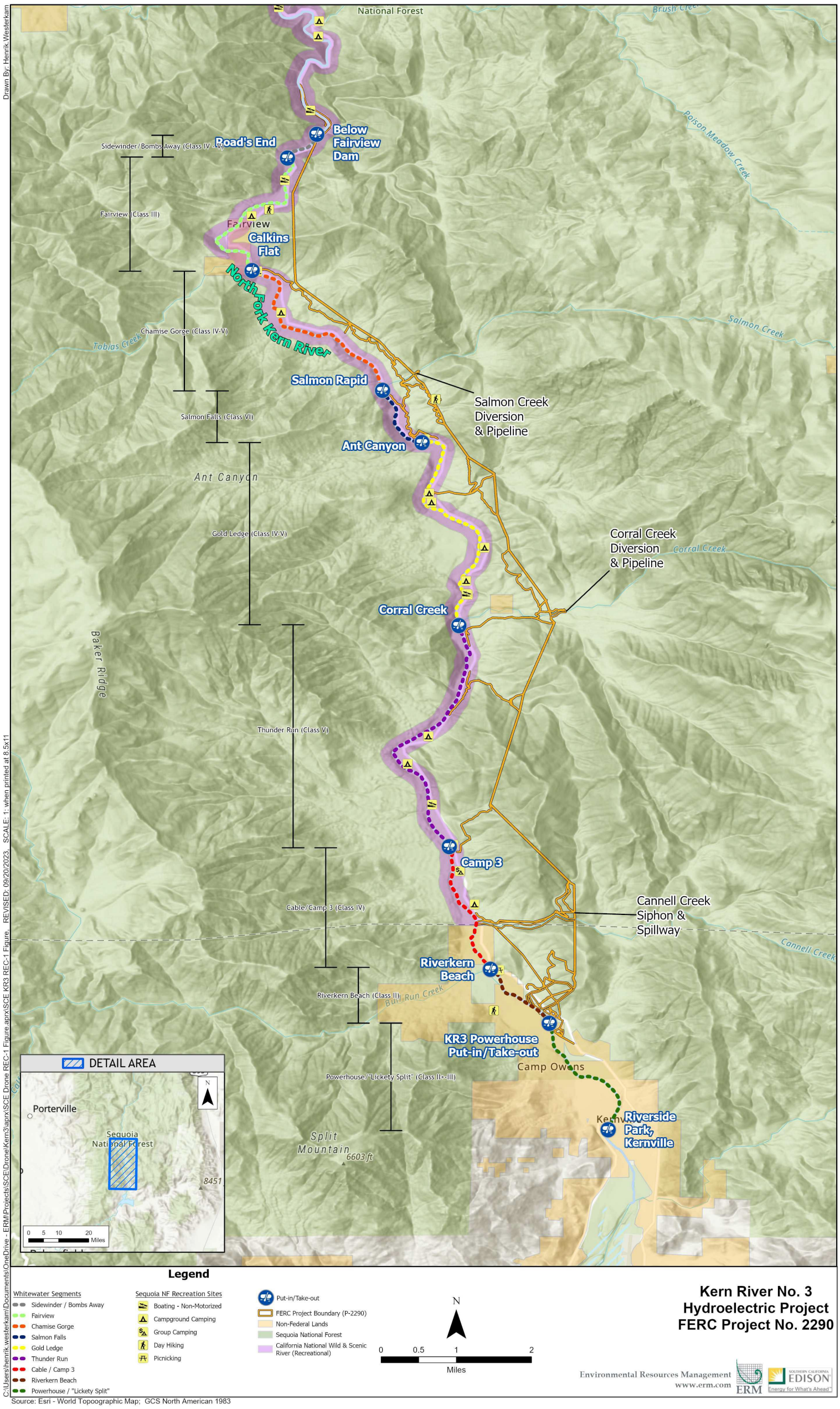

Figure 3-1. Whitewater Boating River Segments in the Study Area.

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4.0 METHODS

This addendum describes methods for the Level 3 Intensive Study. Please refer to the REC-1 interim Technical Memorandum (SCE, 2023) and Request to File Study Results (SCE, 2024b) for additional study methods related to Level 1 Desktop Review of Existing Information and Level 2 Limited Reconnaissance Site Visit.

The REC-1 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.

4.1. LEVEL 3: INTENSIVE STUDY

The Level 3 Intensive Study collects 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. The combination of survey tools is designed to improve the precision of the data when developing flow preference curves for a variety of watercraft types for the respective whitewater segments from Fairview Dam to Riverside Park in Kernville. These survey tools are one of the approaches recommended by Whittaker et al. (2005) for the Level 3 Intensive Study. SCE's approach for Level 3 was outlined in the Revised Study Plan (SCE, 2022) and is summarized below. This approach is consistent with established scientific methods 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 that have unpredictable flow conditions (AW, 2017 and 2021).

The online single flow and flow comparison survey addresses the Project's infrastructure limitations and resolves the experimental design 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. For example, whitewater boaters can provide input immediately after completing individual boating trips using the single flow survey, which was used during 2023 and described in detail below. Similarly, boaters can complete the flow comparison survey based on their collective experience over the course of the study 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 elements of the Level 3 Intensive Study initiated in 2023 and continuing into 2024 are described below.

- Whitewater single flow survey (available online April 1 through December 31, 2023):
  - Boaters completed the single flow survey to evaluate individual flows shortly after experiencing them.
  - Posters containing the link to the single flow survey including a quick-response (QR) code were installed at river access locations and distributed to local retailers in Kernville as well as distributed electronically to local, regional, and national whitewater boating groups and accessible on the KR3 relicensing website.
- 2024 Level 3 Intensive Study implementation:
  - Provide enhanced flow opportunities targeting knowledge gaps in boater experience on the river segments in the Fairview Dam Bypass Reach;
  - Study participants complete an enhanced flow evaluation form rating the quality of whitewater boating opportunity for each enhanced flow opportunity boated;
  - Implement the whitewater flow comparison survey.

SCE will work with the boating community to compile a list of potential study participants prior to implementing flow enhancements. Any interested boater may sign up to participate in the evaluation of the flow enhancements. SCE will work with the boating community to compile a list of participants that are representative of the broader boating community, including watercraft, geographic location, skill level, and gender. However, full representation of the boating community may not be possible for all flow enhancement opportunities given the short notice that may occur. SCE will use the list of interested boaters to directly communicate information about the flow enhancement schedule and links to surveys to evaluate each flow enhancement. Documentation of the outreach efforts will be included in the final Technical Memorandum. Where possible, the Study REC-1 lead will observe targeted flow enhancement opportunities where sufficient notice is provided.

Boaters participating in the targeted flow enhancements will complete a flow evaluation survey for each enhanced flow. Upon completion of the range of flow enhancements, boaters will complete a flow comparison survey.

The whitewater flow comparison survey will be designed to obtain information on flow preferences between minimum acceptable and optimum flow for respective whitewater river segments from Fairview Dam to Riverside 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, flow information needs, and comparison with other whitewater opportunities in the Kern River basin. Information collected in Levels 1 and 2 as well as the Level 3 single flow survey will be used to develop whitewater flow comparison survey. 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.

SCE will develop minimum acceptable and optimum flow preference curves based on watercraft types used for respective river segments using data from the individual flow evaluations and the flow comparison survey. Data collected in the 2023 single flow survey will be cross-referenced with the results from the 2024 flow preference results. Results will be reported in the final Technical Memorandum.

- Conduct a 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 Riverside 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 Riverside 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 Riverside 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.
- Complete a 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 the Fairview Dam Bypass Reach.

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 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 (SCE, 2022) will be integrated into the REC-1 Updated Study Report. Potential flow-related conflicts will

be described based on REC-2 survey responses. Mitigation measures to reduce or manage recreation conflicts will be identified where appropriate.

5.0 DATA SUMMARY

The data summary in this addendum to the REC-1 interim Technical Memorandum is limited to the results for the Level 3 single flow survey (SCE, 2023).

5.1. LEVEL 3: INTENSIVE STUDY

The REC-1 Study Plan uses two approaches approved in the SPD (FERC, 2022) for the Level 3 Intensive Study: Multiple Flow Reconnaissance Assessment and Flow Comparison Survey. Both of these approaches are described in the Level 3 Intensive Study approaches described by Whittaker et al. (2005). SCE launched the Level 3 Multiple Flow Reconnaissance Assessment April 1, 2023, referring to it publicly as the Single Flow Survey so boaters would better understand the survey purpose.

This section summarizes the results from the Level 3 Intensive Study Single Flow Survey and provides recommendations for further implementing Level 3, including enhanced flow opportunities and the Flow Comparison Survey. The single flow survey analysis documents the composition of the survey participants and whitewater recreation use patterns across river segments during the survey.

5.1.1. SINGLE FLOW SURVEY ANALYSIS

SCE launched the Level 3 Intensive Study Single Flow Survey on April 1, 2023. A total of 404 responses were received, providing information on their whitewater boating trips on the NFKR. Single flow survey responses were distributed April, May, June, July, August, September, and October evaluating flows ranging from 250 cubic feet per second (cfs) in September to 8,500 cfs in May. Single flow surveys have been completed for all nine river segments using a variety of watercraft. The single flow survey remained open through December 31, 2023, allowing boaters to continue evaluating flows in the NFKR as the hydrograph decreased through the fall and early winter months. Information obtained in the single flow survey will be used to support and guide planning and implementation for the Level 3 Flow Comparison Survey in 2024.

A total of 91 individuals participated in the single flow survey. The single flow survey respondents included a mix of genders and skill levels of the whitewater boating community on the NFKR (Table 5.1-1). Sixty-eight percent of the respondents were male and 26 percent female. The majority of single flow respondents (51 percent) self-identified as possessing expert whitewater skills. Intermediate and advanced boaters comprised the next two largest groups of respondents: 22 and 24 percent, respectively. Novice boaters comprised only 3 percent of the respondents.

The single flow survey respondents were fairly evenly distributed across the 10-year age groups older than 29 years (Figure 5.1-1). Twelve percent of the respondents were between the age of 20 to 29. None of the survey respondents were younger than 20 years of age. The majority of single flow survey responses by far were for boating trips in

kayaks, followed in distant second by cataraft trips (Figure 5.1-2). Thirty-two percent of the respondents' primary residence was in the Kernville area between the community of Lake Isabella and Kernville (Figure 5.1-3). Los Angeles County and Orange County were represented by 21 percent and 5 percent of the respondents, respectively.

Table 5.1-1. Single Flow Survey Respondent Gender and Whitewater Skill Level.

Gender	Count		Skill Level			
	No.	% of Total	Novice	Intermediate	Advanced	Expert
Male	62	68%	1%	13%	19%	35%
Female	24	26%	2%	9%	3%	12%
Non-binary	0	0%	0%	0%	0%	0%
Choose not to answer	5	5%	0%	0%	2%	3%
Total	**91**	**100%**	**3%**	**22%**	**24%**	**51%**

Note: Total may not sum 100% due to rounding.

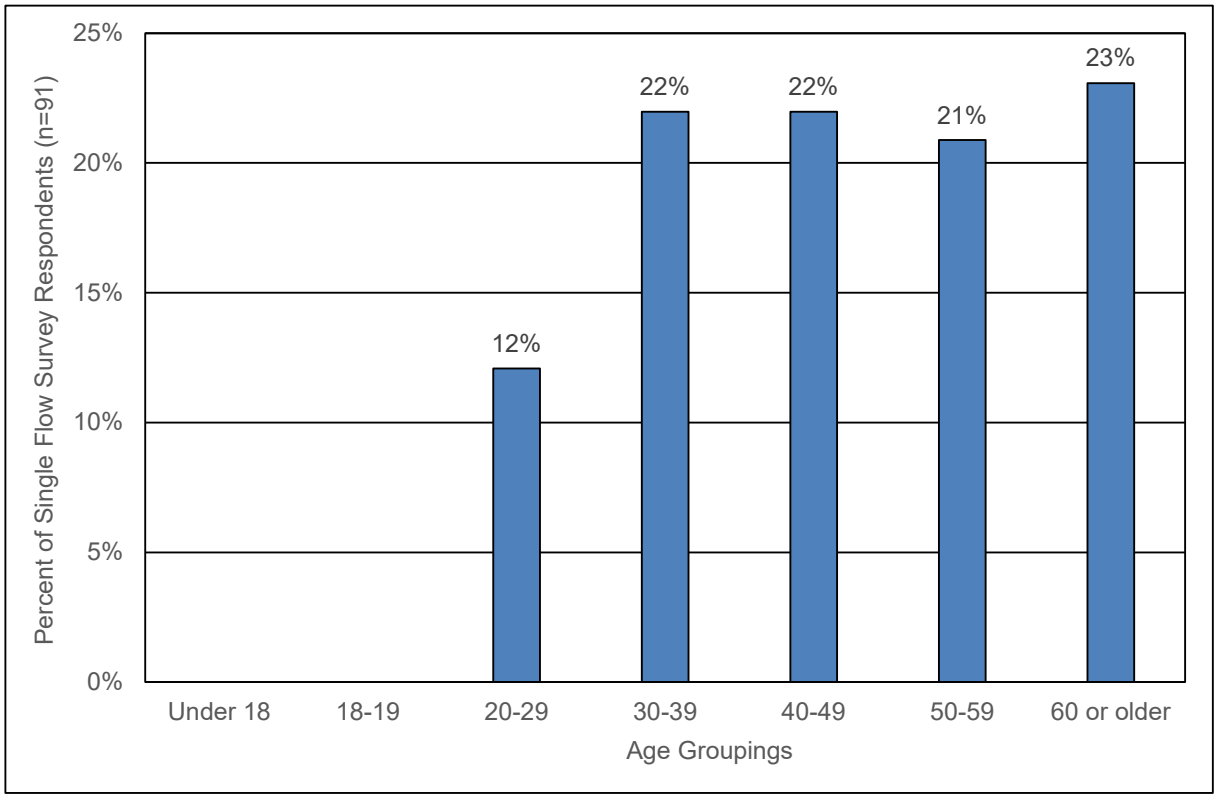
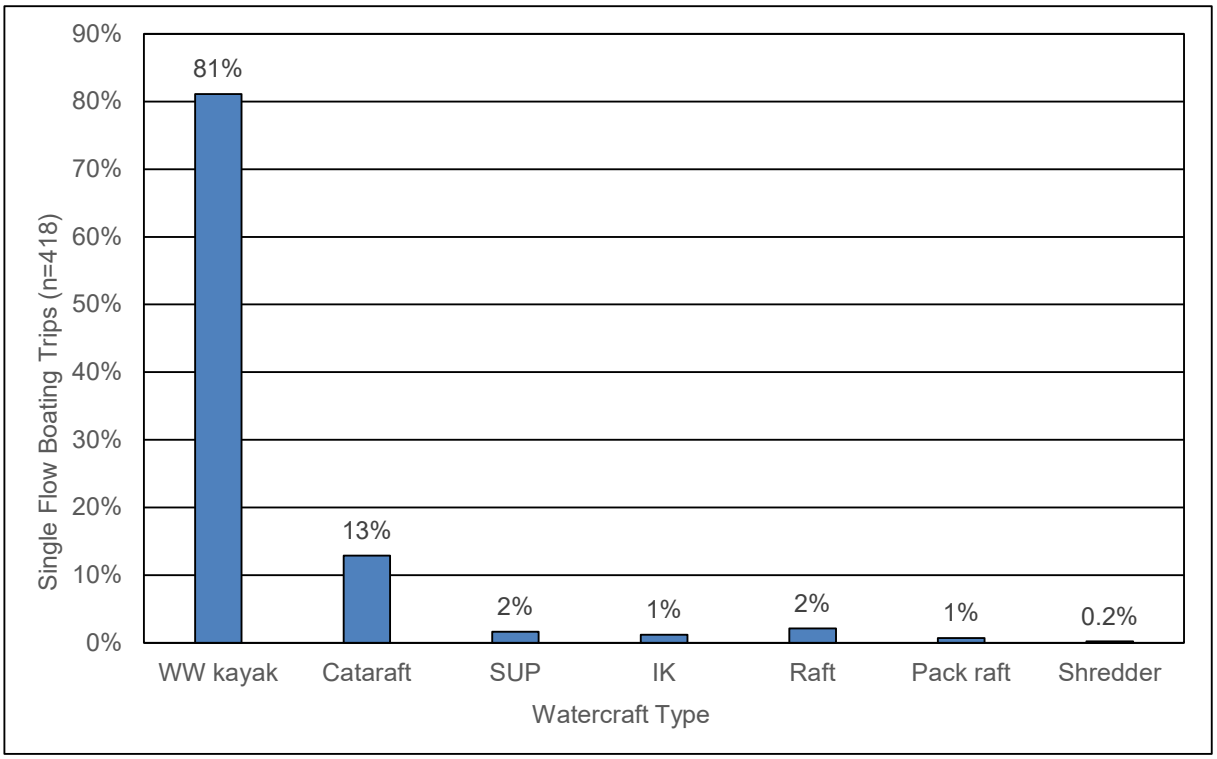


Figure 5.1-1. Single Flow Survey Respondent Age Range.



IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 5.1-2. Watercraft Types Used for Single Flow Survey Boating Trips.

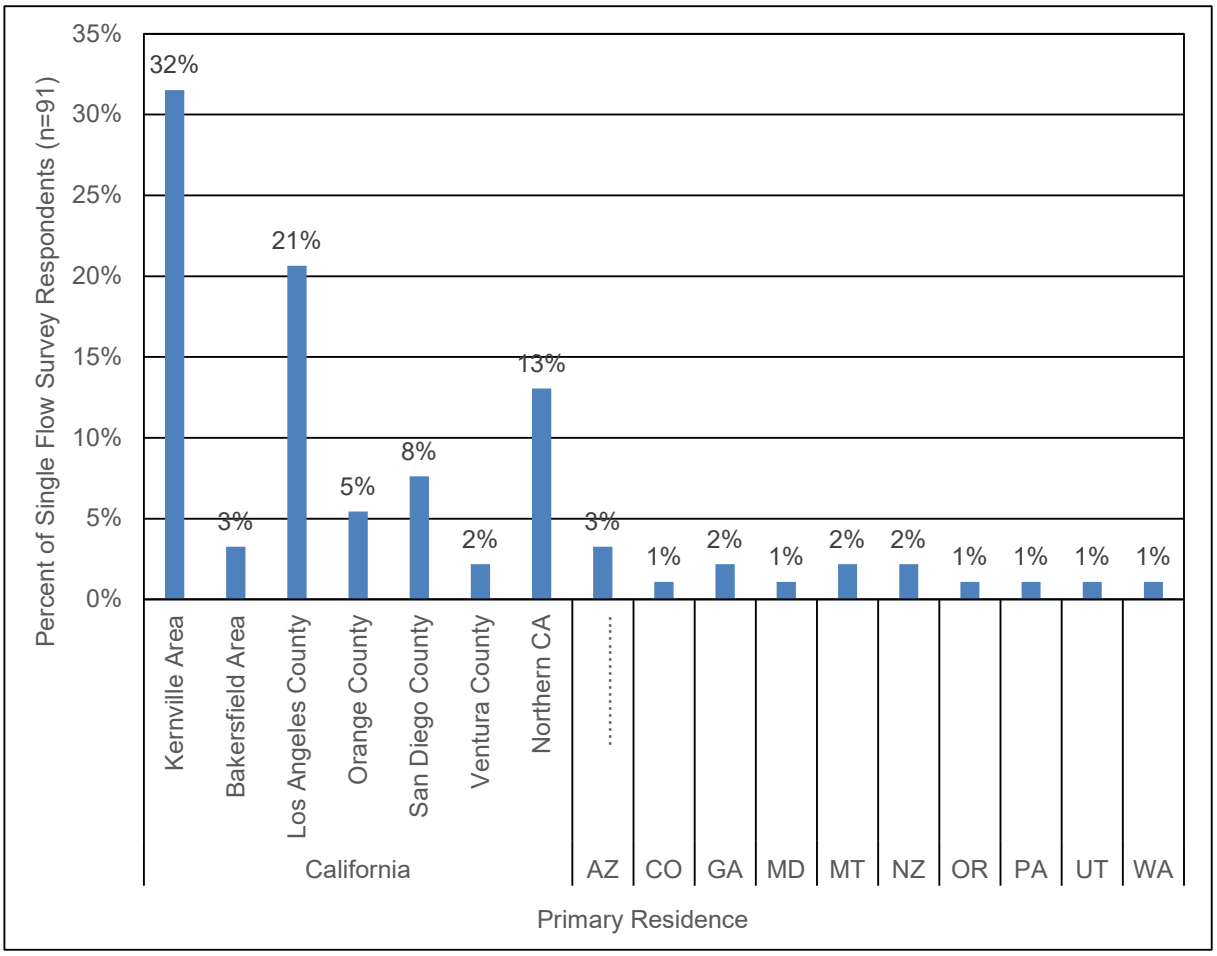


Figure 5.1-3. Single Flow Survey Respondent Primary Residence.

As noted above, the single flow survey was open from April 1 to December 31, 2023; a total of 404 single flow survey responses were completed during that time. The highest percentage of responses occurred in September (Figure 5.1-4), followed by April and August. Discharge in the bypass decreased in September from approximately 500 cfs at the start of the month to 107 cfs by the end of the month. One single flow survey was completed on October 14 for the Powerhouse segment by a boater in an inflatable kayak (IK). Discharge below the powerhouse was approximately 550 cfs for this IK trip. No other single flow surveys were completed in October, November, or December. Seven single flow survey respondents reported historic trips occurring in 1998 (1 response), 2019 (1 response), and 2022 (5 responses).

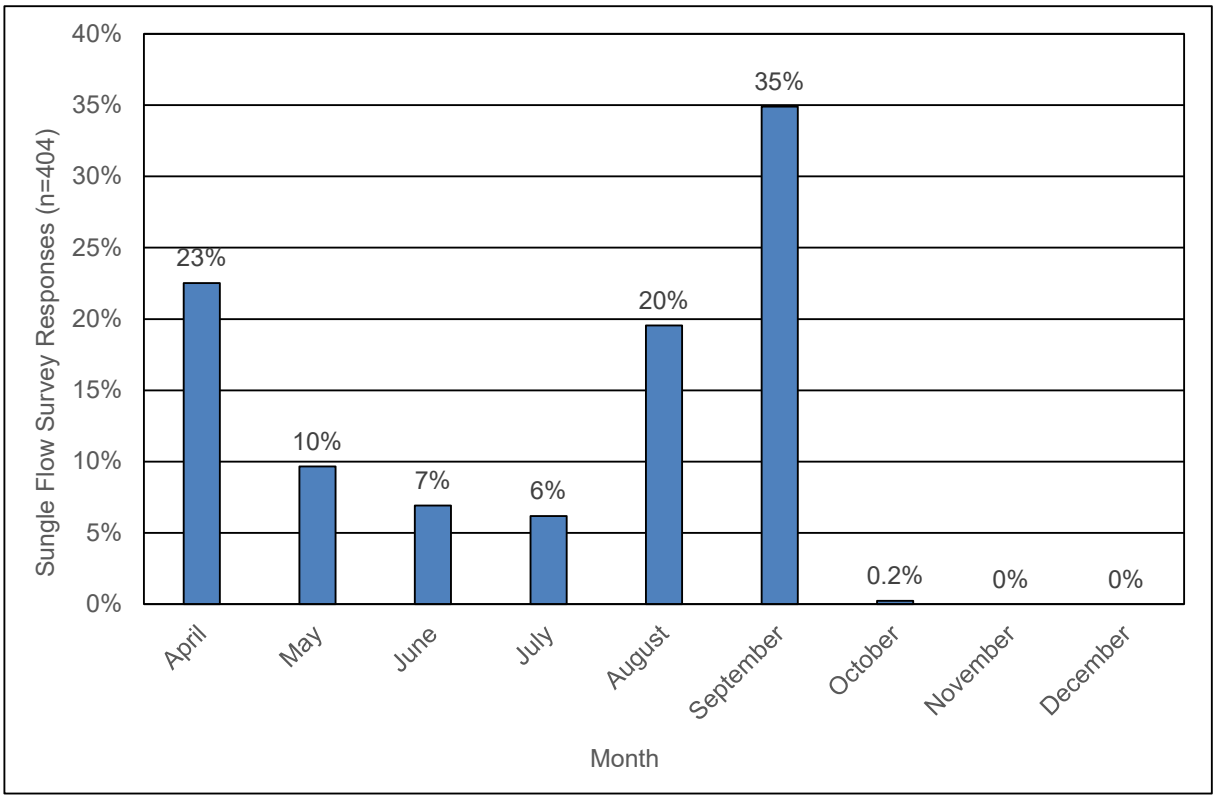


Figure 5.1-4. Single Flow Survey Monthly Responses Between April 1 and December 31, 2023.

Single flow survey respondents boated all nine river segments (Figure 5.1-5). The highest number of respondent trips were on the Powerhouse river segment, and the least were on the Sidewinder river segment (Table 5.1-2). Respondent trips were highest in the Chamise river segment when discharge in the bypass was less than 700 cfs. When flows were greater than 3,000 cfs, the vast majority of trips were on the Camp 3 / Cable run, Riverkern, and Powerhouse river segments.

Single flow survey respondents used a variety of watercraft types (Figure 5.1-6). Kayaks were the predominant watercraft used by respondents, comprising 81 percent of the single flow survey trips (Table 5.1-3). Kayaks were almost exclusively used when discharge was less than 700 cfs in the bypass.

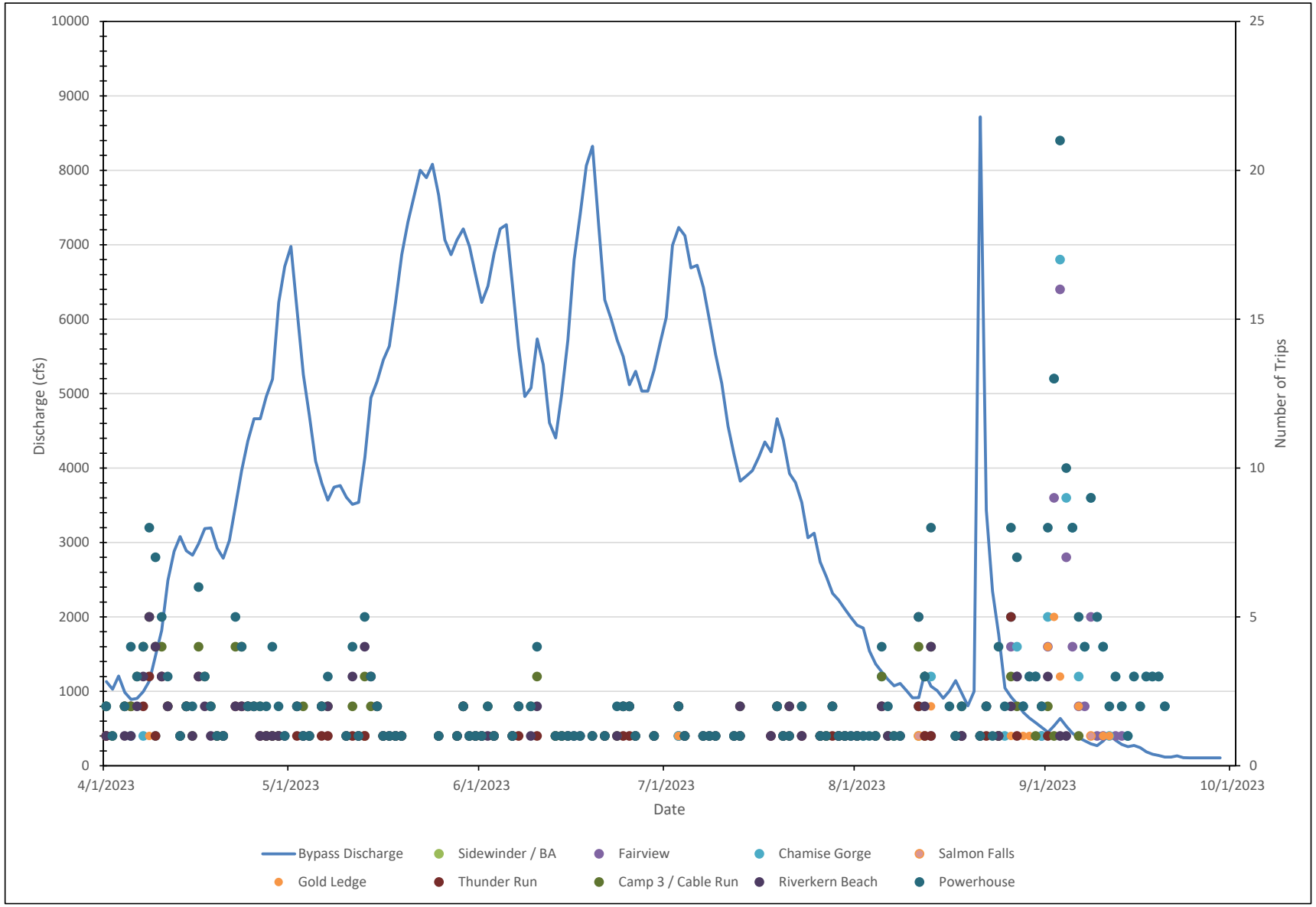
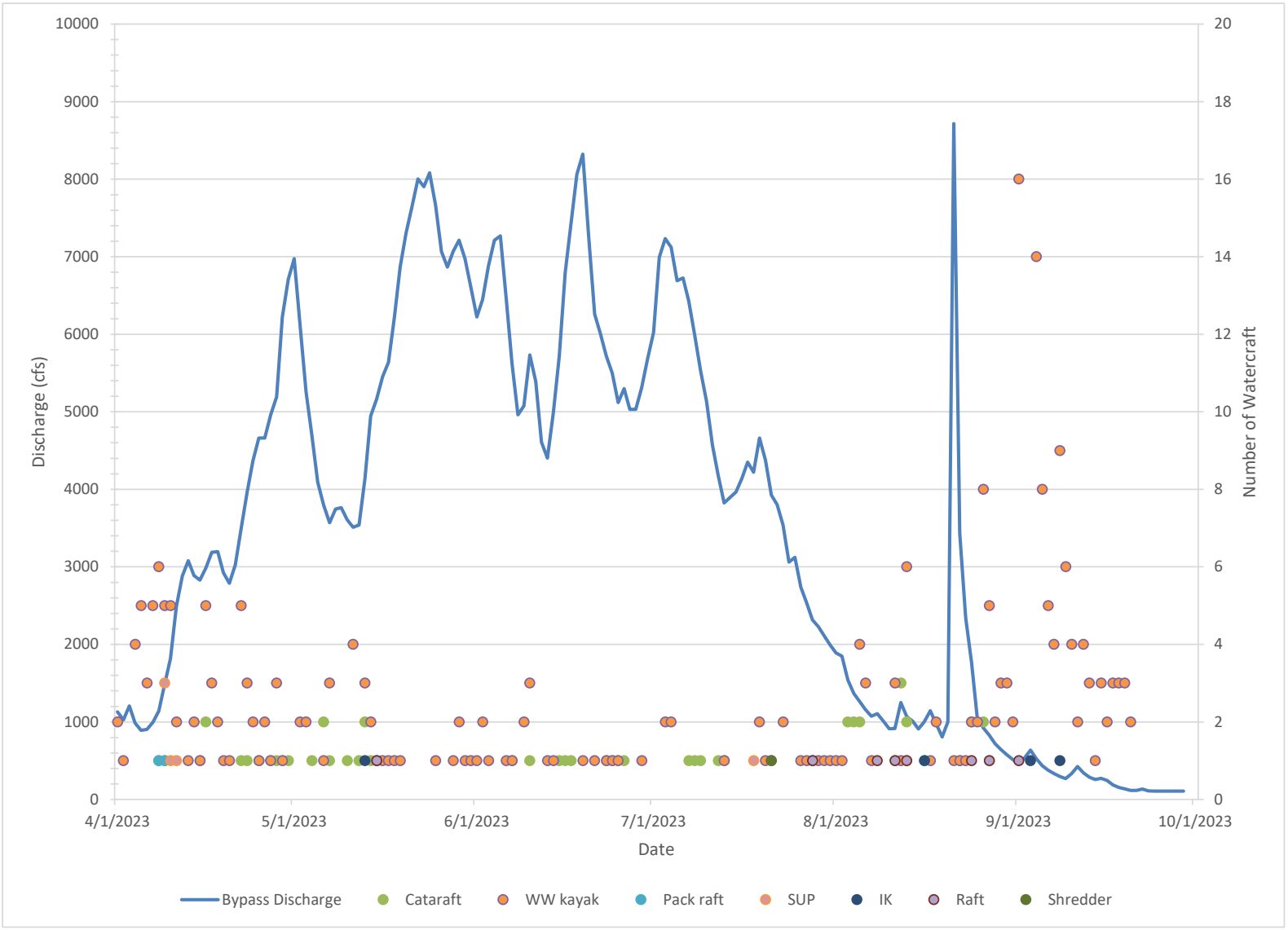


Figure 5.1-5. River Segments Boated by Single Flow Survey Respondents (n=404).

Table 5.1-2. River Segments Boated by Single Flow Survey Respondents Grouped by Discharge

Discharge Range (cfs)	Sidewinder	Fairview	Chamise	Salmon Falls	Gold Ledge	Thunder Run	Camp 3 / Cable Run	Riverkern	Powerhouse
>3,000	3	3	3	1	10	45	96	89	110
1,500–3,000	0	0	4	2	5	19	23	20	35
1,000–1,500	0	1	12	2	7	9	26	22	43
700–1,000	1	11	16	1	5	15	22	18	37
<700	0	60	107	1	20	1	7	5	119
Total per River Segment	4	75	142	7	47	89	174	154	344

cfs = cubic feet per second



cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard; WW = whitewater

Figure 5.1-6. Watercraft Used by Single Flow Survey Respondents (n=404).

Table 5.1-3. Watercraft Used by Single Flow Survey Respondents Grouped by Discharge

Discharge Range (cfs)	Kayak	Cataraft	Packraft	SUP	IK	Raft	Shredder	Total
>3,000	21%	8%	0%	0.2%	0.2%	0.2%	0.2%	29%
1,500–3,000	7%	2%	0%	0.5%	0.0%	0.5%	0%	10%
1,000–1,500	8%	3%	0.7%	1.0%	0.2%	0.5%	0%	13%
700–1,000	9%	1%	0%	0.0%	0.0%	0.5%	0%	11%
<700	36%	0%	0%	0.0%	0.7%	0.2%	0%	37%
Total	**81%**	**13%**	**1%**	**2%**	**1%**	**2%**	**0.2%**	**100%**

cfs = cubic feet per second; IK = inflatable kayak; SUP = standup paddleboard
Note: Total may not sum 100% due to rounding.

Single flow survey respondents were asked to self-identify their whitewater boating skill level. The majority of single flow survey respondents self-identified as advanced and expert level boaters (Table 5.1-4). Novice boaters participated least in the single flow survey. Advanced boaters comprised the majority of the trips when discharge was less than 700 cfs in the bypass.

Table 5.1-4. Single Flow Survey Respondent Boating Skill Level Grouped by Discharge

Discharge Range (cfs)	Novice	Intermediate	Advanced	Expert	Total
>3000	0%	2%	11%	17%	29%
1,500–3,000	0%	1%	3%	5%	10%
1,000–1,500	0.5%	3%	5%	4.0%	13%
700–1,000	0%	1%	6%	3.0%	11%
<700	0.5%	3%	29%	5.0%	37%
Total	**1%**	**11%**	**54%**	**34%**	**100%**

cfs = cubic feet per second; SUP = standup paddleboard
Note: Total may not sum 100% due to rounding.

5.1.2. Level 3 Intensive Study Implementation Next Steps

In 2024, SCE proposes four flow enhancements (ranging from approximately 200 cfs up to 800 cfs) to collect flow evaluations from boaters rating the quality of whitewater boating opportunities. The range of flows proposed for the enhanced flow opportunities is based on boater input in the Level 1 Structured Interview Questionnaire and the Level 2 Limited Reconnaissance site visit (SCE, 2024a and 2024b), as well as the Level 3 Intensive Study Single Flow Survey responses. Providing enhanced flow opportunities targeting this range of flows will improve data resolution on the quality of the whitewater boating opportunities where knowledge gaps were previously identified. SCE is preparing to provide flow enhancements as conditions allow.

Study participants will have an opportunity to complete a final flow comparison survey to evaluate the quality of boating opportunities across a range of flows. The flow evaluation data collected in the Level 3 Intensive Study will be used to develop flow preference curves for each watercraft type for the respective river segments.

6.0 STUDY SPECIFIC CONSULTATION

No additional consultation has occurred in support of the REC-1 Study Plan.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

The Level 3 Intensive Study is ongoing. The Level 3 flow comparison survey will be launched in spring/summer 2024. Refer to the Request to File Study Results (SCE, 2024b) for summary of remaining study elements. Results and an updated Technical Memorandum from the Level 3 flow comparison survey and remaining tasks outlined in Section 5.1, Level 3: Intensive Study, will be included in the Updated Study Report.

Date	Activity
Spring–Summer 2024	Implement Level 3 Intensive Study: Targeted Flow Enhancements and Flow Comparison Survey.
Fall 2024	Provide Level 3 results in the Updated Study Report

8.0 REFERENCES

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REC-1 WHITEWATER BOATING TECHNICAL MEMORANDUM: LEVEL 3 RESULTS

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

October 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
IK	inflatable kayak
ISR	Initial Study Report
KR3	Kern River No. 3
NFKR	North Fork Kern River
PFD	personal flotation device
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
QR code	quick-response code
SCE	Southern California Edison

1.0 INTRODUCTION

On October 9, 2023, Southern California Edison (SCE) filed a Technical Memorandum for the *REC-1 Whitewater Boating Study Plan* as part of its Initial Study Report (ISR) (SCE, 2023) in support of the Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290, for study components completed to date. As outlined in the revised REC-1 Study Plan (SCE, 2022) and approved in FERC's Study Plan Determination (FERC, 2022), the 2023 REC-1 Technical Memorandum summarized data collected from November 2022 through September 2023 and included most of the Level 1 Desktop Review of Existing Information elements, which included a literature review, hydrology summary and Project facility evaluation, and information obtained during the Level 2 Limited Reconnaissance. The 2023 REC-1 Technical Memorandum also included an overview of the Level 3 Intensive Study Single Flow Survey that was deployed in 2023 and a description of the outstanding tasks scheduled for 2024.

In response to FERC and relicensing participants' comments on the ISR, SCE provided additional information and study results for other ongoing REC-1 Study Plan elements. A brief summary and date of FERC's Orders and subsequent SCE filings is described below:

- In response to relicensing participant comments filed with FERC on the ISR in December 2023, SCE filed a Response to Comments document on January 9, 2024, that stated SCE would voluntarily provide additional information to relicensing participants outside of the standard Integrated Licensing Process reporting schedule, and provide an addendum to the 2023 REC-1 Technical Memorandum that included an analysis of the Level 3 single flow survey (SCE, 2024a).

- On March 1, 2024, SCE filed the results of the Level 1 Structured Interview Questionnaire in response to FERC's February 1, 2024, additional data request (SCE, 2024b). In their letter, FERC also revised the Process Plan and Schedule, extending the public comment period to April 1, 2024, to provide additional time for comments on the information requested (FERC, 2024a).

- SCE filed an *Addendum to REC-1 Whitewater Boating Interim Technical Memorandum: Level 3 Single Flow Survey Results* (SCE, 2024c) on March 30, 2024. As part of this filing, SCE described the remaining Level 3 Intensive Study components, which included: (1) provide four flow enhancements (200 to 800 cubic feet per second [cfs]) to address boater knowledge gaps and host focus group discussions; and (2) complete a flow comparison survey to evaluate boating opportunities across a range of flows.

- FERC's *Determination on Requests for Study Modifications and New Studies* issued on May 30, 2024 (FERC, 2024b), stated that the requested modification to the REC-1 Study was approved with additional modifications. Specifically, FERC recommended SCE work with the boating community to identify additional participants prior to hosting focus group discussions; provide enhanced flow opportunities targeting 200 to 600

cfs; hold Level 3 focus groups; reopen the single flow survey; and distribute the flow comparison survey.

This REC-1 Technical Memorandum describes the implementation and results of the Level 3 Intensive Study that includes the enhanced flow opportunities (including focus group discussions) and flow comparison survey conducted in 2024 (including an updated hydrology summary using minimum acceptable flows for different types of watercraft types), in accordance with FERC's May 30, 2024, determination.

2.0 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 approximately 16-mile bypass reach of the North Fork Kern River (NFKR) from Fairview Dam to the KR3 Powerhouse tailrace (i.e., the Fairview Dam Bypassed Reach) and from the KR3 Powerhouse to the Kern River Park in Kernville under current license conditions; (2) identify potential operational constraints on whitewater boating; 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.

Refer to the 2023 REC-1 Technical Memorandum (SCE, 2023), *Request to File Study Results* (SCE, 2024b), and *Addendum to Initial Study Report* (SCE, 2024c) for additional information collected that supports these study goals and objectives.

3.0 STUDY AREA AND STUDY SITES

The study area includes the approximately 16-mile Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse tailrace and the NFKR from the KR3 Powerhouse to the Riverside Park in Kernville. The Fairview Dam Bypass Reach contains eight whitewater segments ranging in whitewater difficulty from Class II to Class VI (Figure 3-1).

The river can be accessed from multiple locations including designated and informal access locations.

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Whitewater Run Name	Whitewater Difficulty[a]	Put-in	Take-out	River Mile Start[b]	River Mile End[b]	Length (miles)
Sidewinder / Bombs Away	IV - V	Below Fairview Dam	Roads End/ Calkins Put In	18.5	18	0.5
Fairview	III	Roads End / Calkins Put In	Calkins Flat	18	15.7	2.3
Chamise Gorge	IV - V	Calkins Flat	Above Upper Salmon Rapid	15.7	13.2	2.5
Salmon Falls	VI	Below Lower Salmon Rapid	Ant Canyon	13.2	12.3	0.9
Gold Ledge	IV - V	Ant Canyon	Corral Creek	12.3	9.2	3.1
Thunder Run	V	Corral Creek	Thunderbird Access or Camp 3	9.2	5.7	3.5
Cable / Camp 3	IV	Camp 3	Riverkern Beach	5.7	3.9	1.8
Riverkern Beach	II	Riverkern Beach	KR 3 Powerhouse Put-in/Take-out	3.9	2.9	1
Powerhouse / "Lickety Split"	II+–III	KR3 Powerhouse Put-in/Take-out	Riverside Park, Kernville	2.9	1.1	1.8

[a] International Scale of Whitewater Difficulty
[b] River miles are calculated using NHD flowlines and upstream of the confluence of the North Fork Kern River and high water mark of Lake Isabella

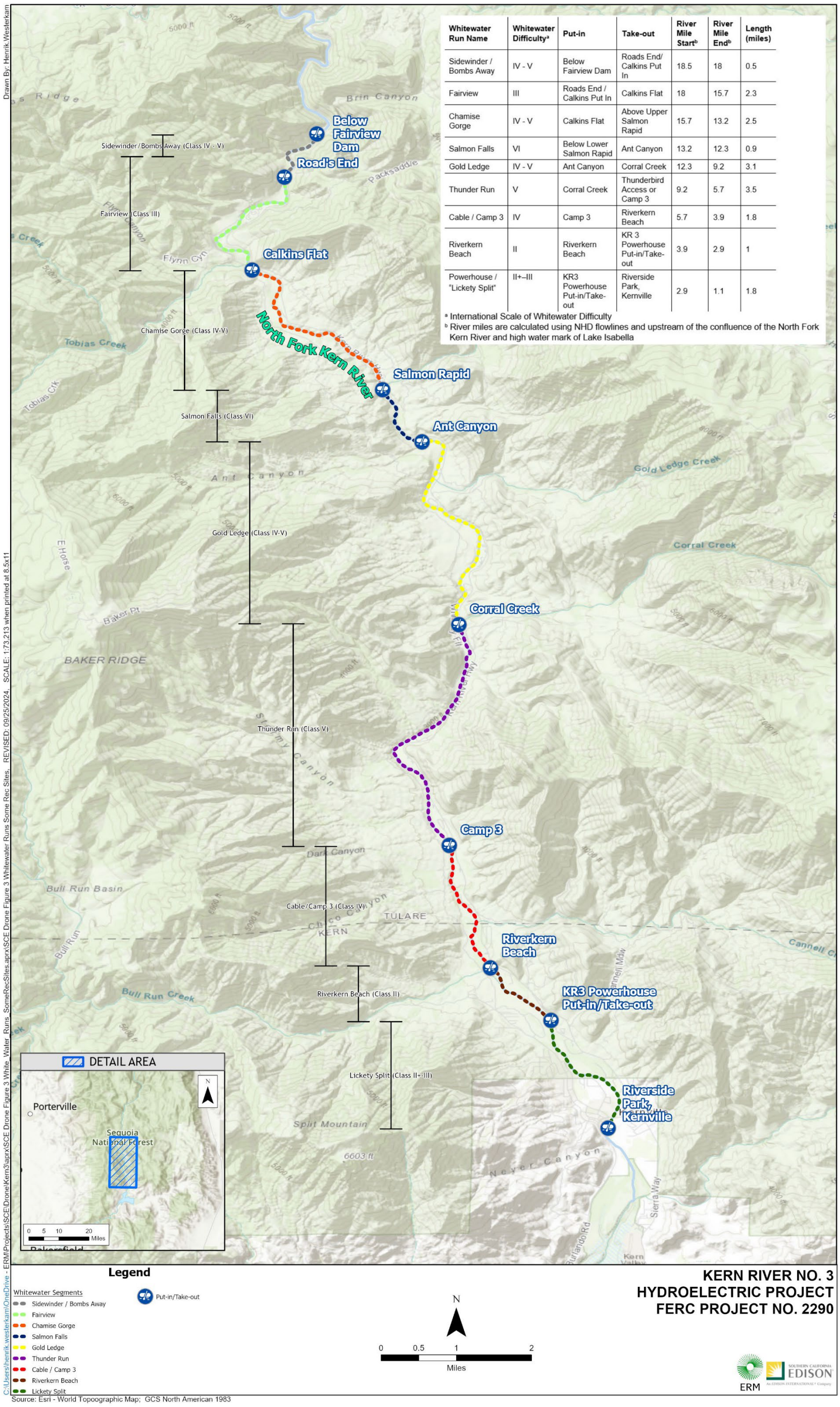

Figure 3-1. Whitewater Boating River Segments in the Study Area.

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4.0 METHODS

This REC-1 Technical Memorandum describes methods for the Level 3 Intensive Study. For Level 1 Desktop Review of Existing Information and Level 2 Limited Reconnaissance, refer to the 2023 REC-1 Technical Memorandum (SCE, 2023); for the Level 1 structured interview analysis, refer to the *Request to File Study Results* (SCE, 2024b). A summary of the Level 3 Single Flow Survey Results are presented in the *Addendum to Initial Study Report* (SCE, 2024c).

The REC-1 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 Fairview Dam 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.

4.1. LEVEL 3: INTENSIVE STUDY

The Level 3 Intensive Study collected 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, enhanced flow opportunities targeting knowledge gaps in boater experience, and a flow comparison survey for a range of flows.

The combination of survey tools was designed to improve the precision of the data when developing flow preference curves for a variety of watercraft types for the respective whitewater segments from Fairview Dam to Riverside Park in Kernville. The survey tools are one of the approaches recommended by Whittaker et al. (2005) for the Level 3 Intensive Study. SCE's approach for Level 3 was outlined in the *Revised Study Plan* (SCE, 2022) and further refined in the Level 3 Single Flow Survey Results (SCE, 2024c). The elements and methods of the Level 3 Intensive Study (initiated in 2023 and continuing into 2024) are summarized below.

- 2023 whitewater single flow survey:
  - Boaters completed the single flow survey to evaluate individual flows shortly after experiencing them (available online April 1 through December 31, 2023).
  - Posters containing the link and a quick-response (QR) code to the single flow survey were installed at river access locations and distributed to local retailers in Kernville; were distributed electronically to local, regional, and national whitewater boating groups; and were made accessible on the KR3 relicensing website.
  - The results were provided as part of SCE's 2024 addendum to REC-1 Technical Memorandum (SCE, 2024c).

- 2024 enhanced flow opportunities and focus groups:
  - Enhanced flow opportunities targeted knowledge gaps in boater experience between 200 and 900 cfs on the river segments in the Fairview Dam Bypass Reach in April and July 2024.
  - Study participants completed an enhanced flow evaluation form rating the quality of whitewater boating for each enhanced flow opportunity boated.
  - Focus groups convened following the enhanced flow opportunities.
- Flow comparison survey:
  - Boaters completed a whitewater flow comparison survey (available online from July 18 through August 16, 2024).
  - Minimum acceptable and optimum flow preference curves were developed and organized by watercraft types for respective river segments using data from the flow comparison survey and cross-referenced to data collected during the Level 3 single flow surveys, enhanced flow opportunity surveys, and focus group discussions, as applicable.
- Hydrology analysis:
  - Flow preference curves from Level 1, Level 2, and Level 3 data were used to quantify the annual number of whitewater boating days.

The approach to each of these above-referenced activities conducted in 2024 as part of the Level 3 Intensive Study are further described below.

4.1.1. LEVEL 3 INTENSIVE STUDY PARTICIPANT OUTREACH

SCE worked with the boating community to compile a list of interested study participants prior to implementing the Level 3 activities, including the flow enhancements and flow comparison survey. SCE developed an electronic enhanced flow self-nomination form (Appendix A). All boaters were encouraged to sign up to participate in the evaluation of the flow enhancements. SCE worked with the boating community to compile a list of participants representative of the broader boating community, including information such as type of watercraft, geographic location, skill level, and gender. However, ensuring full representation of the boating community was out of SCE's control. SCE used the list of interested boaters to directly communicate information about the flow enhancement schedule and links to surveys to evaluate each flow enhancement.

Documentation of the outreach efforts is included in Appendix B.

4.1.2. Enhanced Flow Opportunities

Boaters participating in the enhanced flow opportunities completed an enhanced flow evaluation form following each enhanced flow (Appendix C). SCE collected video (drone footage) for each enhanced flow opportunity at key locations in the respective river segments. Representative screen shots from the video footage are provided in Appendix D. The drone footage is available for viewing via a link on SCE's website (www.sce.com/kr3).

Rather than re-opening the single flow survey used in 2023, per FERC's *Determination on Requests for Study Modifications and New Studies* (FERC, 2024b), SCE refined the survey questions to specifically address the quality of the whitewater opportunity for each enhanced flow in the respective river segments.

SCE hosted five focus group discussions in the evening following each enhanced flow opportunity with the exception of Sunday, April 14, 2024. This focus group was cancelled as the flow was nearly the same as the previous day and many participants stated they could not attend due to travel commitments to return home that day.

The focus group discussions were designed to facilitate input from boaters immediately following each enhanced flow opportunity about their experience and preferences regarding that particular flow. Copies of the meeting notes recorded during the focus group discussions are provided in Appendix E.

4.1.3. Flow Comparison Survey

SCE published an online flow comparison survey for boaters to evaluate the quality of whitewater boating opportunities for a variety of watercraft types across a range of flows (Appendix F). The whitewater flow comparison survey was designed to obtain information on flow preferences between minimum acceptable and optimum flow for respective whitewater river segments from Fairview Dam to Riverside Park. Survey questions asked respondents to rate the acceptability of a range of flows for each whitewater segment and watercraft type, timing of use, flow information needs, and comparison with other whitewater opportunities in the Kern River basin. Information collected in Levels 1 and 2 as well as the Level 3 single flow survey was used to develop the whitewater flow comparison survey. The link to the online whitewater flow comparison survey was distributed to local, regional, and national whitewater boating groups and was accessible via the KR3 relicensing website. SCE requested recommendations from the boating community for expanding their communication efforts to include additional boaters and whitewater groups.

SCE developed flow preference curves for the minimum acceptable and optimum flow for respective watercraft types in each river segment using data from flow comparison survey responses. Data collected in the 2023 single flow survey, the 2024 enhanced flow opportunity survey, and the focus group discussions were cross-referenced with the results from the 2024 flow comparison survey to corroborate the findings.

4.1.4. HYDROLOGY ANALYSIS

The annual number of potential days of whitewater boating opportunities were quantified for inflows to Fairview Dam (i.e., unimpaired hydrology) and flows in the Fairview Dam Bypass Reach under historical Project operations (i.e., impaired). The frequency counts of annual days used minimum acceptable flows for different types of watercraft developed from flow preference curves and analysis of participant minimum acceptable flow responses to open-ended questions in the enhanced flow opportunities and flow comparison surveys and supplemented with information obtained in focus group discussions.

4.1.5. RECREATION USE CONFLICTS AND PUBLIC SAFETY

Public safety concerns associated with whitewater boating flows were documented using available information from the Kernville Chamber of Commerce, Sequoia National Forest, California Department of Boating and Waterways, and the American Whitewater accident database, as well as other FERC proceedings where whitewater releases occur.

Potential recreation use conflicts associated with whitewater boating flows were identified where possible. Recreation uses occurring in and adjacent to the NFKR documented as part of the *REC-2 Recreation Facilities Use Assessment Study Plan* (SCE, 2022), presented in the REC-2 Technical Memorandum (SCE, 2024d) and summarized in this REC-1 Technical Memorandum were applicable. Potential flow-related conflicts were described based, in part, on REC-2 survey responses.

5.0 DATA SUMMARY

The data summary in this REC-1 Technical Memorandum is limited to the 2024 Level 3 Intensive Study components comprising the enhanced flow opportunities, focus groups, and the flow comparison survey.

5.1. LEVEL 3 INTENSIVE STUDY OUTREACH AND PARTICIPATION

This section describes SCE's outreach efforts and participant composition for each component of the study in 2024.

5.1.1. ENHANCED FLOW OPPORTUNITY OUTREACH

The self-nomination form allowed boaters to sign up as study participants for the enhanced flow opportunities. The form collected demographic information, whitewater skill level, watercraft type, and email addresses. This information was compiled and used, in part, to provide targeted communication about upcoming whitewater boating events to interested study participants.

SCE sent an email announcing the publication of the self-nomination form for the enhanced flow opportunities on March 11, 2024, to the entire KR3 Stakeholder list, the REC-1 Level 1 structured interview participants, as well as local, regional, and national whitewater groups and included a link on the Project's relicensing website. Table 5.1-1

provides a summary of the outreach associated with the enhanced flow self-nomination form.

The self-nomination form remained open for boaters to sign up to participate in the enhanced flow opportunities through July 15, 2024. In addition, boaters could sign up and participate on the same day of an enhanced flow release (refer to Section 5.1.2, *Enhanced Flow Opportunity Participation*).

Table 5.1-1. Level 3 Self-Nomination Form Outreach

Date	Format	Distribution	Summary
3/7/2024	Electronic	NA	L3 participant self-nomination form opened to collect responses.
3/11/2024	Electronic	KR3 Stakeholder list	Email announcement to KR3 relicensing Stakeholder group that L3 Enhanced Flow Participant Self-nomination Form is open for sign-ups. Link included in email. Inform Stakeholders to respond by April 1, 2024.
3/13/2024	Electronic	Los Angeles Kayak Club	Email to Anthea Raymond requesting participant sign-up announcement be posted to the Los Angeles Kayak Club Facebook page.
3/13/2024	Electronic	American Whitewater	Email to Jeff Venturino requesting participant sign-up announcement be posted to the American Whitewater website.
3/13/2024	Electronic	Gold Country Paddlers	Email to Jeff Venturino requesting participant sign-up announcement be posted to the Gold Country Paddlers Facebook page.
3/13/2024	Electronic	Kern River Boaters	Email to Liz Duxbury and Bret Duxbury requesting participant sign-up announcement be posted to the Kern River Boaters Facebook page.
3/27/2024	Electronic	Structured Interview participant list	Email to individuals that completed the L1 Structured Interview Questionnaire informing them of enhanced flow participant sign-up announcement.
3/27/2024	Electronic	American Whitewater	Second email to Jeff Venturino requesting participant sign-up announcement be posted to the American Whitewater website.
3/27/2024	Electronic	Sierra South: Tom and Evan Moore	Email to Tom and Evan informing them of enhanced flow participant sign-up announcement and asking them to forward to their guides. Follow-up phone call from Evan requesting more information on flows and potential dates.

Date	Format	Distribution	Summary
3/27/2024	Electronic	Whitewater Voyages: Luther Stephens and Chis Brown	Email to Luther and Chris informing them of enhanced flow participant sign-up announcement and asking them to forward to their guides.

KR3 = Kern River No. 3; L1 = Level 1; L3 = Level 3; NA = not applicable

SCE used the enhanced flow participant list to communicate the proposed dates and flow volumes for the enhanced flow opportunities electronically. This notification also included the KR3 Stakeholder list as well as local, regional, and national whitewater groups (Table 5.1-2). The dates of the enhanced flow opportunities were also posted on the Project website. The frequency of the electronic communication to these groups increased closer to the date for the enhanced flow opportunities, including notifications the day of an enhanced flow informing boaters of the flow volume, logistics, and electronic links to complete the enhanced flow opportunity evaluation form (refer to Section 5.1.2, *Enhanced Flow Opportunity Participation*). The notification also informed boaters about the opportunity to participate in the focus group following each enhanced flow opportunity.

Table 5.1-2. Level 3 Enhanced Flow Opportunity Notifications

Date	Format	Distribution	Summary
4/3/2024	Electronic	Enhanced flow participant list and KR3 Stakeholder list	Email notification to enhanced flow participants and KR3 relicensing Stakeholder list informing them of the L3 enhanced flow schedule and logistics.
4/9/2024	Electronic	All participants signed-up for enhanced flow opportunities including new sign-ups from previous day's enhanced flows	Daily email notification to enhanced flow participants updating them on daily flows, schedule, and logistics.
4/11/2024	Electronic	All participants signed-up for enhanced flow opportunities including new sign-ups from previous day's enhanced flows	Daily email notification to enhanced flow participants updating them on daily flows, schedule, and logistics.
4/12/2024	Electronic	All participants signed-up for enhanced flow opportunities including new sign-ups from previous day's enhanced flows	Daily email notification to all enhanced flow participants updating them on daily flows, schedule, and logistics.

Date	Format	Distribution	Summary
4/13/2024	Electronic	All participants signed-up for enhanced flow opportunities including new sign-ups from previous day's enhanced flows	Daily email notification to all enhanced flow participants updating them on daily flows, schedule, and logistics.
4/14/2024	Electronic	All participants signed-up for enhanced flow opportunities including new sign-ups from previous day's enhanced flows	Daily email notification to all enhanced flow participants updating them on daily flows, schedule, and logistics.
7/1/2024	Electronic	All participants signed-up for enhanced flow opportunities as of 4/14/2024	Email notification to all enhanced flow participants informing them of July enhanced flow schedule and logistics.
7/2/2024	Electronic	American Whitewater	Email notification to Jeff Venturino at American Whitewater informing him of July enhanced flow schedule and logistics.
7/2/2024	Electronic	LA Kayak Club and ACA	Email notification to Anthea Raymond informing her of July enhanced flow schedule and logistics.
7/2/2024	Electronic	Kern River Boaters	Email notification to Brett and Liz Duxbury at Kern River Boaters informing them of July enhanced flow schedule and logistics.
7/2/2024	Electronic	Sierra South: Tom and Evan Moore	Email notification to Tom and Evan Moore at Sierra South informing them of July enhanced flow schedule and logistics.
7/2/2024	Electronic	Whitewater Voyages: Luther Stephens and Chis Brown	Email notification to Luther Stephens and Chris Brown at Whitewater Voyages informing them of July enhanced flow schedule and logistics.
7/2/2024	Electronic	Momentum Raft Company	Email notification to Momentum Raft Company informing them of July enhanced flow schedule and logistics.
7/2/2024	Electronic	Packraft.org	Email notification to Packraft.org informing them of July enhanced flow schedule and logistics.

Date	Format	Distribution	Summary
7/3/2024	Electronic	Relicensing stakeholder list, REC-1 Level 1 structured interview list and Enhanced flow participant list	Email notification to KR3 relicensing Stakeholder list, REC-1 Level 1 structured interview list, and enhanced flow participant list updating them on the REC-1 Study Plan, the KR3 Draft License Application (SCE, 2024d), and dates for July enhanced flow opportunities.
7/9/2024	Electronic	Enhanced flow participant list	Email notification to enhanced flow participant list updating them on July enhanced flow schedule and logistics.
7/9/2024	Electronic	Enhanced flow participant list	Email notification to enhanced flow participant list updating them on July enhanced flow schedule and logistics.
7/10/2024	Electronic	Enhanced flow participant list	Email notification to enhanced flow participant list updating them on July enhanced flow schedule and logistics.
7/12/2024	Electronic	Enhanced flow participant list	Email notification to enhanced flow participant list updating them of July 12 enhanced flow schedule and logistics.
7/13/2024	Electronic	Enhanced flow participant list	Email notification to enhanced flow participant list updating them of July 13 enhanced flow schedule and logistics.

KR3 = Kern River No. 3; L3 = Level 3

5.1.2. Enhanced Flow Opportunity Participation

SCE provided six enhanced flow opportunities in 2024 targeting flows where boaters lacked knowledge on flow preferences (Table 5.1-3). Scheduling the enhanced flow opportunities far in advance was not possible due to the unpredictable snowmelt run-off patterns on the NFKR. Nonetheless, SCE was able to notify boaters 10 days in advance of scheduled enhanced flow opportunities. SCE Project operations can divert up to approximately 600 cfs at Fairview Dam; therefore, to provide flows between 200 and 800 cfs in the river channel below Fairview Dam, inflows needed to be approximately 1,000 cfs or less over consecutive days to help facilitate the enhanced flow opportunities.

Table 5.1-3. Level 3 Enhanced Flow Dates and Volume

Enhanced Flow Number	Date	Flow (SCE Gage 401 Below Fairview Dam)
Enhanced Flow 1	4/11/2024	450
Enhanced Flow 2	4/12/2024	770
Enhanced Flow 3	4/13/2024 [a]	874
Enhanced Flow 4	4/14/2024 [a]	835

Enhanced Flow Number	Date	Flow (SCE Gage 401 Below Fairview Dam)
Enhanced Flow 5	7/12/2024	550
Enhanced Flow 6	7/13/2024	250

SCE = Southern California Edison
Note:
[a] Saturday and Sunday (April 13 and 14, 2024) the previous running day average for NFKR inflows to Fairview Dam was greater than 1,000 cfs requiring SCE to comply with FERC license article 422 requiring SCE to divert a minimum of 700 cfs into the river channel below Fairview Dam.

A total of 88 individuals completed the self-nomination form; however, not all interested individuals were able to participate in all the enhanced flow opportunities due in part to the unpredictable timing of the snowmelt run-off coupled with personal conflicts limiting their ability to attend. Additionally, a number of individuals showed up on the day of and participated in the enhanced flow opportunities but did not complete the self-nomination form prior to participation.

The enhanced flow evaluation form was designed to collect information from participants for each enhanced flow opportunity for each of the nine river segments. Boaters were encouraged to complete the enhanced flow evaluation form following each enhanced flow opportunity. SCE provided the electronic link to the enhanced flow evaluation form in all enhanced flow notifications as well as a QR code to the evaluation form. This information was also provided at the sign-up table in Riverside Park the day of each enhanced flow opportunity and at the focus groups.

A total of 131 enhanced flow evaluation forms were submitted for the 6 enhanced flow opportunities consisting of 63 individual boaters. The highest number of enhanced flow opportunity responses occurred on April 11 and 12, 2024, with 27 and 26 responses, respectively (Figure 5.1-1). The lowest number of enhanced flow opportunity responses occurred on July 13, 2024, with 15 responses.

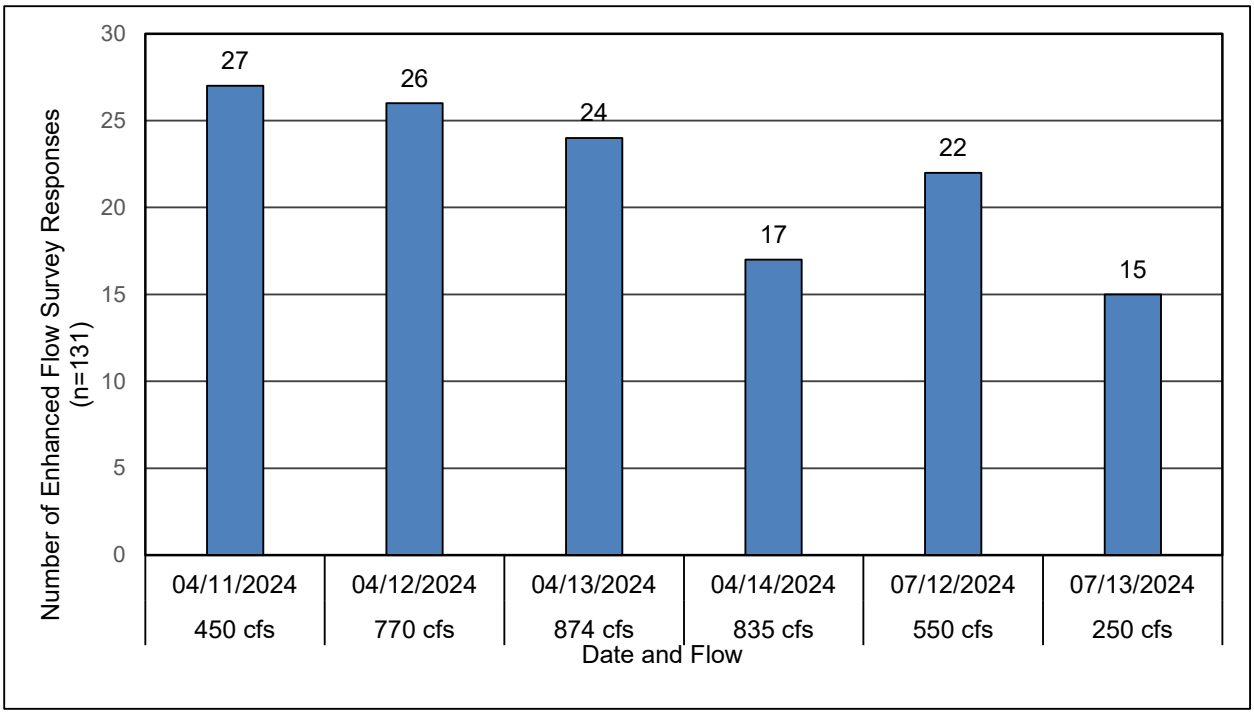


Figure 5.1-1. Level 3 Enhanced Flow Opportunity Evaluation Form Responses.

The enhanced flow opportunity participants included a mix of genders and whitewater skill levels (Table 5.1-4): 68 percent of the participants were male and 29 percent female. Out of the enhanced flow participants, 46 percent self-identified as possessing advanced whitewater skills. Intermediate and expert boaters comprised the next two largest groups of participants, 27 and 24 percent, respectively. Novice boaters comprised only 3 percent of the participants.

Table 5.1-4. Level 3 Enhanced Flow Participants Gender and Whitewater Skill

Gender	Count		Skill Level			
	No.	%	Novice	Intermediate	Advanced	Expert
Male	43	68%	2%	13%	33%	21%
Female	18	29%	2%	14%	10%	3%
Choose not to answer	2	3%	0%	0%	3%	0%
Total	63		3%	27%	46%	24%

The enhanced flow opportunity participants were composed of boaters from each of the age groups (Figure 5.1-2). Individuals aged 60 and older made up the largest percentage of participants (25 percent), followed by those between the ages of 40 and 49 (24 percent). Individuals aged 18 to 19 represented the smallest percentage of participants (2 percent).

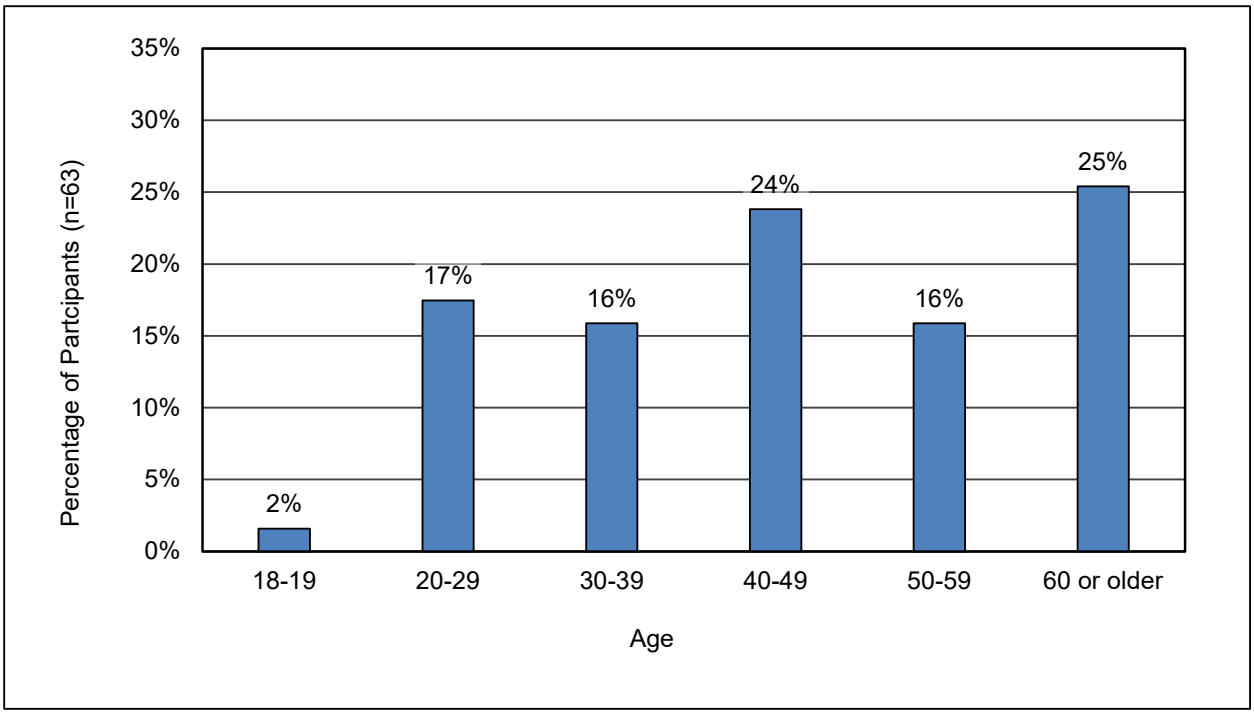


Figure 5.1-2. Level 3 Enhanced Flow Opportunity Participant Age Range.

The majority of enhanced flow opportunity participants (49 percent) identified Kern County as their primary residence (Figure 5.1-3). Los Angeles County and Orange County were represented by 22 percent and 8 percent of the participants, respectively. Northern California comprised 10 percent of the participants.

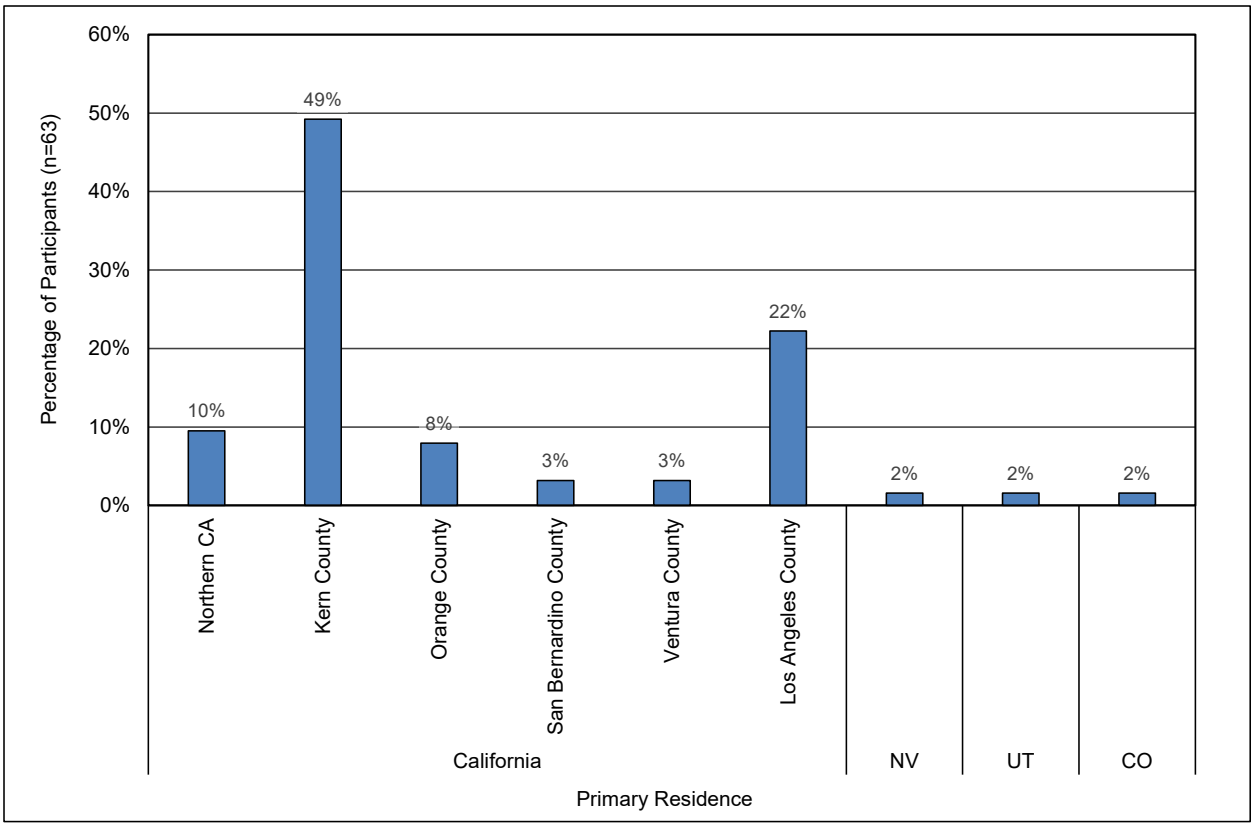


Figure 5.1-3. Level 3 Enhanced Flow Opportunity Participant Primary Residence.

Whitewater kayaks were the dominant watercraft type (69 percent) for the enhanced flow opportunity responses (Figure 5.1-4) and paddle rafts were a distant second watercraft type (11 percent), with the remaining watercraft types each comprising 5 percent or less.

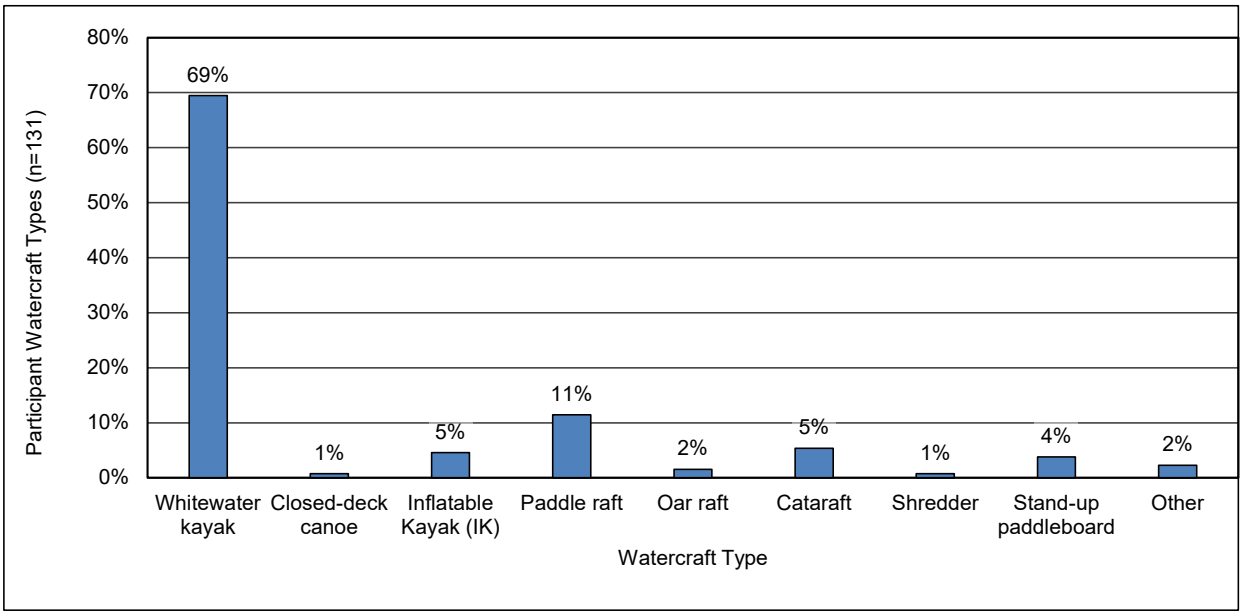


Figure 5.1-4. Level 3 Enhanced Flow Opportunity Watercraft Type.

Participant responses were submitted for all nine river segments but the number of responses varied across the individual enhanced flow opportunities (Figure 5.1-5). Sidewinder / Bomb's Away and Salmon Falls river segments received the least number of evaluations. Cable / Camp 3 and Riverkern received the greatest number of participant evaluations, followed closely by Fairview and Chamise Gorge river segments. Fairview and Chamise Gorge river segments received the greatest number of evaluations for the lowest enhanced flow opportunity (250 cfs).

Enhanced flow opportunity evaluations represented a variety of watercraft types (Figure 5.1-6). Kayaks were the predominant watercraft type selected by enhanced flow opportunity respondents across the nine river segments (Figure 5.1-6). The highest number of whitewater kayak responses was 65 on Chamise Gorge. Enhanced flow opportunity evaluations for paddle rafts and catarafts increased on the lower river segments (Camp 3 / Cables, Riverkern and Lickety Split). Table 5.1-5 tabulates the number of enhanced flow opportunity evaluation responses by watercraft and discharge across the nine river segments.

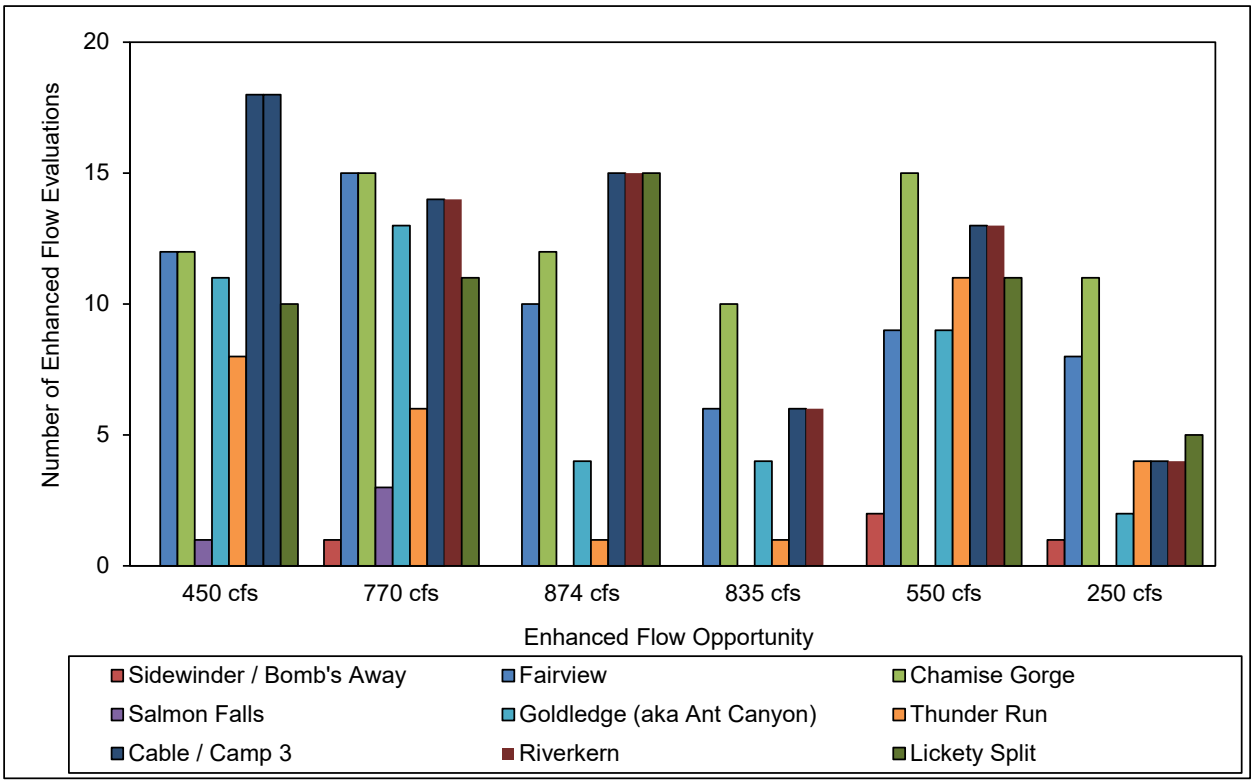


Figure 5.1-5. Participant Responses for each Level 3 Enhanced Flow Opportunity.

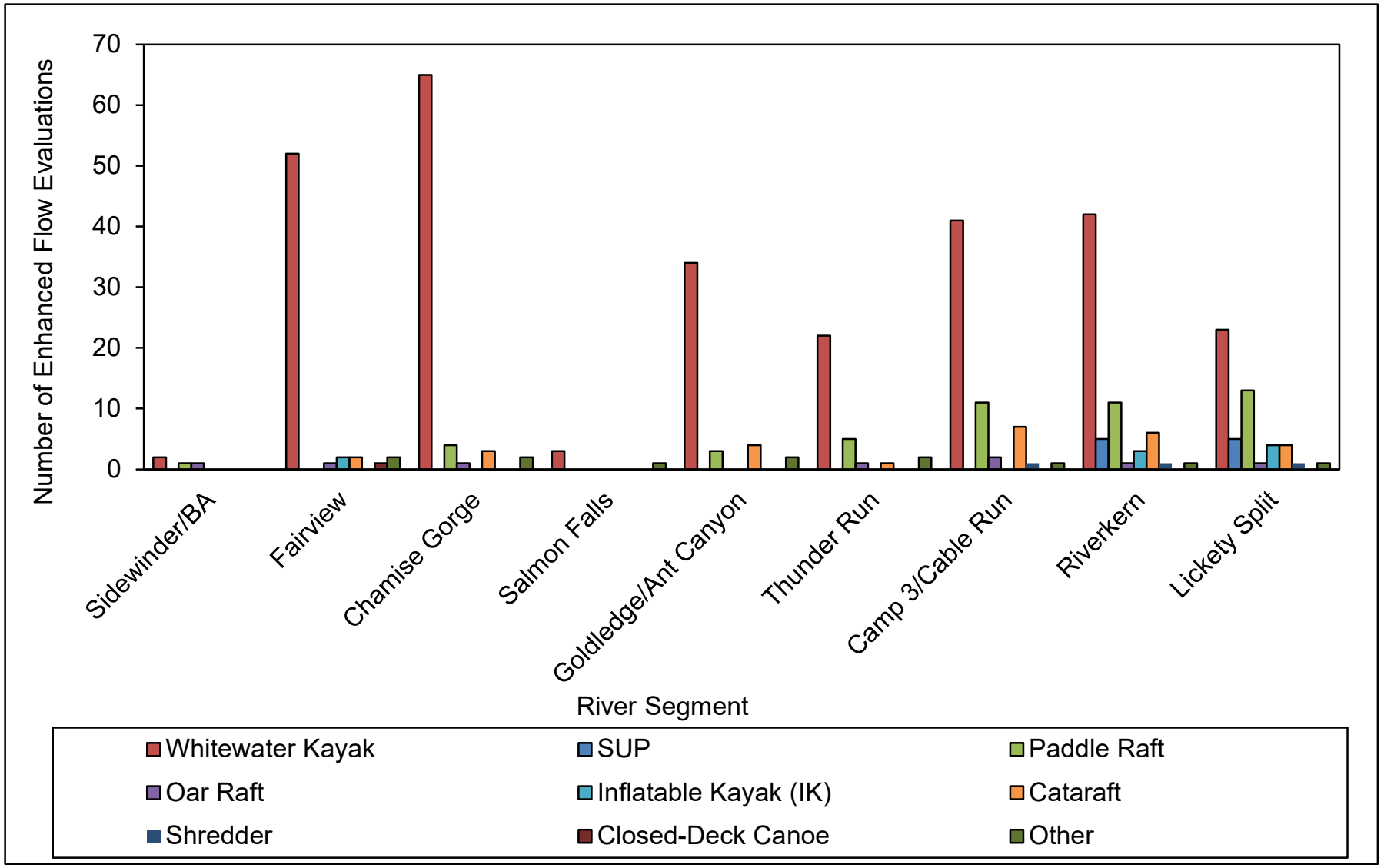


Figure 5.1-6. Watercraft Type Selected in Participant Responses for the Level 3 Enhanced Flow Opportunity Evaluations.

Table 5.1-5. Enhanced Flow Opportunity Evaluation Responses by Watercraft and Discharge Across Nine River Segments

River Segment	Watercraft Type	4/11/2024	4/12/2024	4/13/2024	4/14/2024	7/12/2024	7/13/2024
		450 cfs	770 cfs	874 cfs	835 cfs	550 cfs	250 cfs
Sidewinder / Bomb's Away	Whitewater kayak (K1 or K2)	0	2	0	0	1	0
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	0	0	0	0	0	1
	Oar raft	0	0	0	0	1	0
	Cataraft	0	0	0	0	0	0
	Shredder	0	0	0	0	0	0
	Inflatable Kayak	0	0	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	0	0	0	0	0	0
Fairview	Whitewater kayak (K1 or K2)	9	12	10	6	8	7
	Closed deck canoe (C1 or C2)	0	0	0	0	0	1
	Paddle raft	0	0	0	0	0	0
	Oar raft	0	0	0	0	1	0
	Cataraft	1	1	0	0	0	0
	Shredder	0	0	0	0	0	0
	Inflatable Kayak	1	1	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	1	1	0	0	0	0
Chamise	Whitewater kayak (K1 or K2)	10	13	11	10	12	9
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	0	0	0	0	2	2

River Segment	Watercraft Type	4/11/2024	4/12/2024	4/13/2024	4/14/2024	7/12/2024	7/13/2024
		450 cfs	770 cfs	874 cfs	835 cfs	550 cfs	250 cfs
	Oar raft	0	0	0	0	1	0
	Cataraft	1	1	1	0	0	0
	Shredder	0	0	0	0	0	0
	Inflatable Kayak	0	0	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	1	1	0	0	0	0
Salmon Falls	Whitewater kayak (K1 or K2)	1	2	0	0	0	0
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	0	0	0	0	0	0
	Oar raft	0	0	0	0	0	0
	Cataraft	0	0	0	0	0	0
	Shredder	0	0	0	0	0	0
	Inflatable Kayak	0	0	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	0	1	0	0	0	0
Goldledge / Ant Canyon	Whitewater kayak (K1 or K2)	8	12	3	3	7	1
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	0	0	0	0	2	1
	Oar raft	0	0	0	0	0	0
	Cataraft	2	0	1	1	0	0
	Shredder	0	0	0	0	0	0
	Inflatable Kayak	0	0	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	1	1	0	0	0	0

River Segment	Watercraft Type	4/11/2024	4/12/2024	4/13/2024	4/14/2024	7/12/2024	7/13/2024
		450 cfs	770 cfs	874 cfs	835 cfs	550 cfs	250 cfs
Thunder Run	Whitewater kayak (K1 or K2)	7	5	1	0	7	2
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	0	0	0	0	3	2
	Oar raft	0	0	0	0	1	0
	Cataraft	0	0	0	1	0	0
	Shredder	0	0	0	0	0	0
	Inflatable Kayak	0	0	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	1	1	0	0	0	0
Cable / Camp 3	Whitewater kayak (K1 or K2)	10	6	12	5	7	1
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	6	0	0	0	3	2
	Oar raft	0	0	0	0	2	0
	Cataraft	2	2	2	1	0	0
	Shredder	0	1	0	0	0	0
	Inflatable Kayak	0	0	0	0	0	0
	Stand-up paddleboard	0	0	0	0	0	0
	Other (please specify)	1	0	0	0	0	0
Riverkern	Whitewater kayak (K1 or K2)	9	8	10	5	9	1
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	5	0	0	0	3	3
	Oar raft	0	0	0	0	1	0
	Cataraft	1	2	2	1	0	0
	Shredder	0	1	0	0	0	0

River Segment	Watercraft Type	4/11/2024	4/12/2024	4/13/2024	4/14/2024	7/12/2024	7/13/2024
		450 cfs	**770 cfs**	**874 cfs**	**835 cfs**	**550 cfs**	**250 cfs**
	Inflatable Kayak	0	1	2	0	0	0
	Stand-up paddleboard	2	2	1	0	0	0
	Other (please specify)	1	0	0	0	0	0
Lickety Split	Whitewater kayak (K1 or K2)	1	5	10	0	6	1
	Closed deck canoe (C1 or C2)	0	0	0	0	0	0
	Paddle raft	6	0	0	0	4	3
	Oar raft	0	0	0	0	1	0
	Cataraft	0	2	2	0	0	0
	Shredder	0	1	0	0	0	0
	Inflatable Kayak	1	1	2	0	0	0
	Stand-up paddleboard	2	2	1	0	0	0
	Other (please specify)	0	0	0	0	0	1

cfs = cubic feet per second

Analysis of respondent flow preferences in the enhanced flow evaluation form and associated focus group discussions will be included in Section 5.2, *Flow Preferences*.

5.1.3. Flow Comparison Survey Outreach and Participation

SCE published the Level 3 flow comparison survey on July 18, 2024. The flow comparison survey collected background demographic information on gender, age, whitewater skill level, and watercraft type for aggregating participant responses where appropriate.

SCE sent an email announcing publication of the Level 3 flow comparison survey on July 18, 2024 (Appendix G). The Level 3 flow comparison survey notification was posted on the KR3 relicensing website and distributed to the KR3 Stakeholder list, REC-1 Level 1 structured interview participants, Level 2 site visit reconnaissance participants, Level 3 enhanced flow opportunity participants, as well as local, regional, and national whitewater groups (Table 5.1-6). SCE sent a reminder notification to the same list on August 1 and 12, 2024. Boaters were instructed to complete the Level 3 flow comparison survey for each type of watercraft used on the NFKR. The Level 3 flow comparison survey remained open for boaters to complete through August 16, 2024.

Table 5.1-6. Level 3 Flow Comparison Survey Notifications

Date	Format	Distribution	Summary
7/18/2024	Electronic	REC-1 Study participants and relicensing Stakeholder list	Flow comparison survey notification on 7/18/2024 to REC-1 Study participants (L1 structured interview list, L2 site visit focus group, L3 enhanced flow participants list) and relicensing Stakeholder list to complete the flow comparison evaluation form by August 16, 2024.
8/1/2024	Electronic	REC-1 Study participants and relicensing stakeholder list	Flow comparison survey notification on 8/01/2024 to REC-1 Study participants (L1 structured interview list, L2 site visit focus group, L3 enhanced flow participants list) and relicensing Stakeholder list to complete the flow comparison evaluation form by August 16, 2024.
8/12/2024	Electronic	REC-1 Study participants and relicensing stakeholder list	Flow comparison survey notification on 8/12/2024 to REC-1 Study participants (L1 structured interview list, L2 site visit focus group, L3 enhanced flow participants list) and relicensing Stakeholder list to complete the flow comparison evaluation form by August 16, 2024.

L1 = Level 1; L3 = Level 3

Fifty individuals participated in the flow comparison survey comprising a mix of genders and whitewater skill levels (Table 5.1-7); however, some individuals completed multiple surveys for different watercraft type. Sixty-four percent of the participants were male and 20 percent female. Fifty-four percent of the flow comparison survey participants self-identified as possessing advanced whitewater skills. Intermediate and expert boaters comprised 18 and 28 percent of the participants, respectively. Novice boaters did not submit a flow comparison survey.

Table 5.1-7. Level 3 Flow Comparison Survey Participants Gender and Whitewater Skill

Gender	Count		Skill Level			
	No.	%	Novice	Intermediate	Advanced	Expert
Male	32	64%	0%	4%	36%	24%
Female	10	20%	0%	8%	8%	4%
Choose not to answer	8	16%	0%	6%	10%	0%
Total	50		0%	18%	54%	28%

The flow comparison survey participants comprised boaters from each of the age groups except 18- and 19-year-olds (Figure 5.1-7). The majority of participants were older than 39 years.

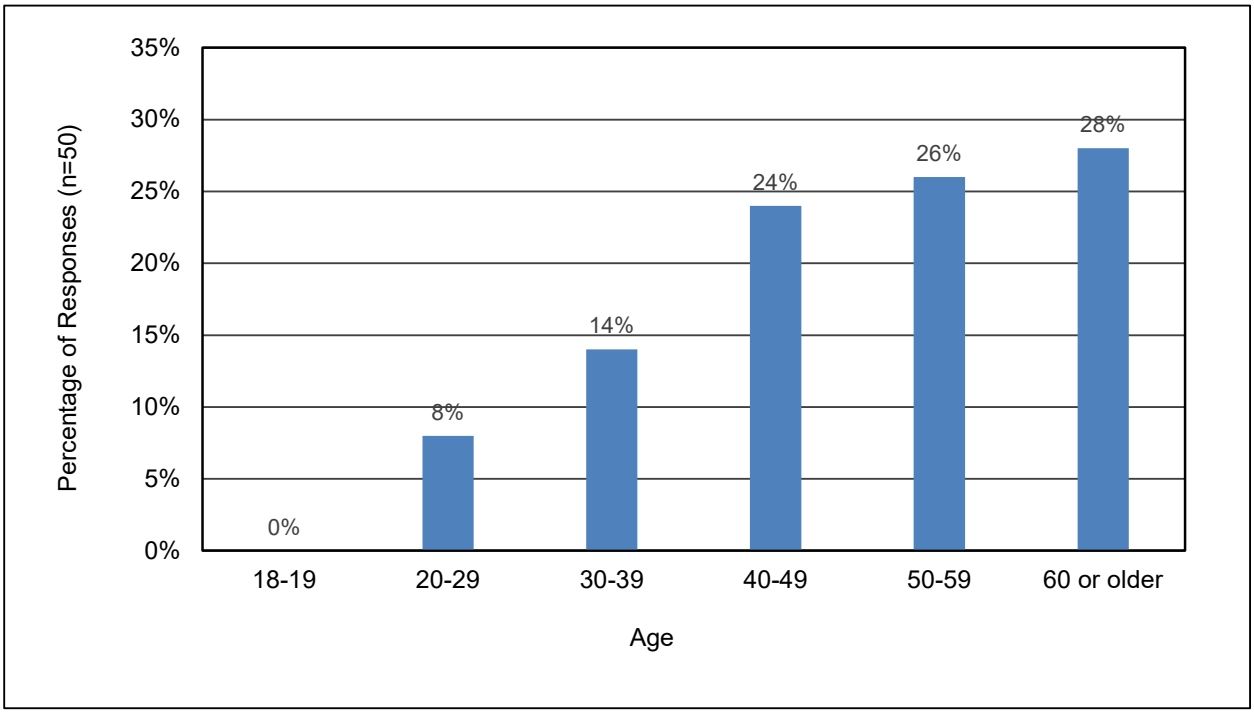


Figure 5.1-7. Level 3 Flow Comparison Survey Participant Age Range.

The majority of flow comparison survey participants (44 percent) identified Kern County as their primary residence (Figure 5.1-8). Los Angeles County and Northern California were represented by 14 percent and 22 percent of the participants, respectively.

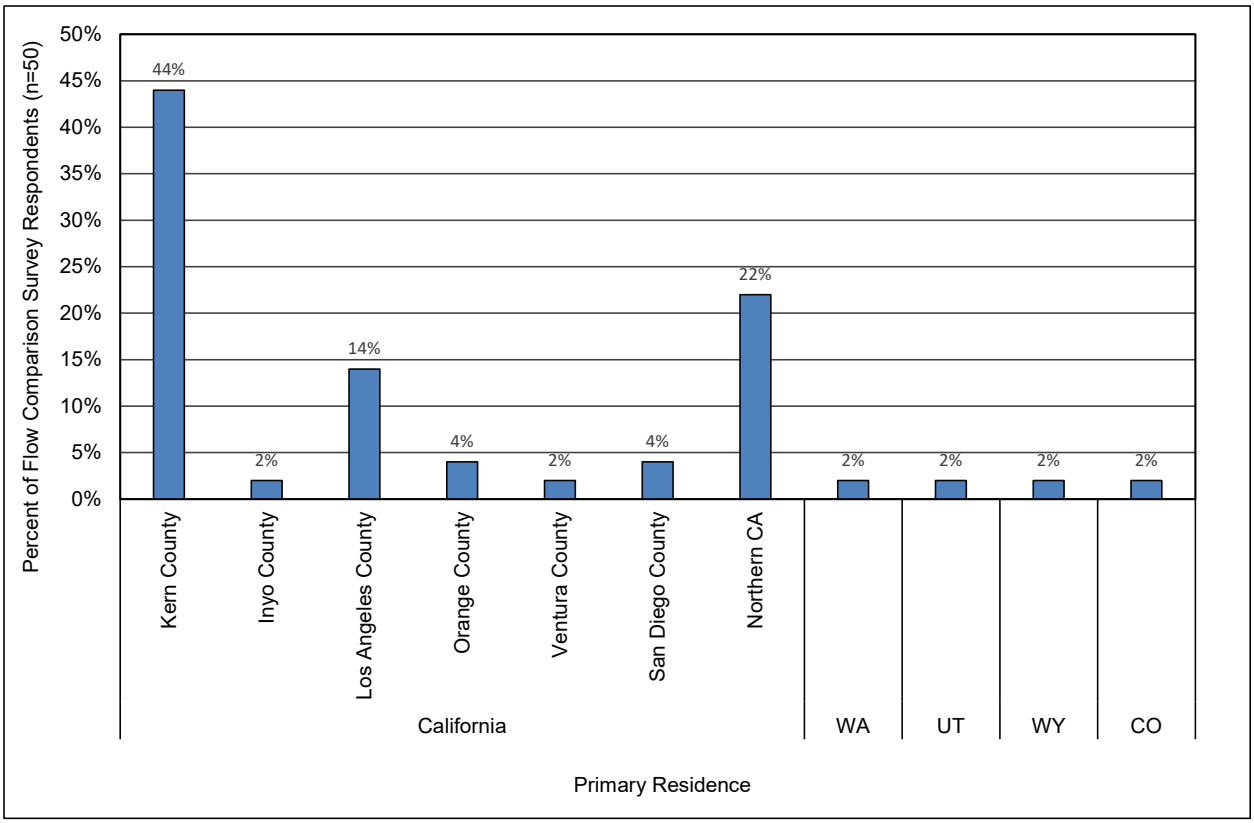


Figure 5.1-8. Level 3 Flow Comparison Survey Participant Primary Residence.

Whitewater kayaks were the dominant watercraft type (68 percent) for the flow comparison survey responses (Figure 5.1-9). All other watercraft types comprised less than 10 percent of the participant responses, respectively. The “other” watercraft types written in by respondents included a packraft and a traditional tule boat. Table 5.1-8 tabulates the number of flow comparison survey participant responses for each river segment by watercraft type.

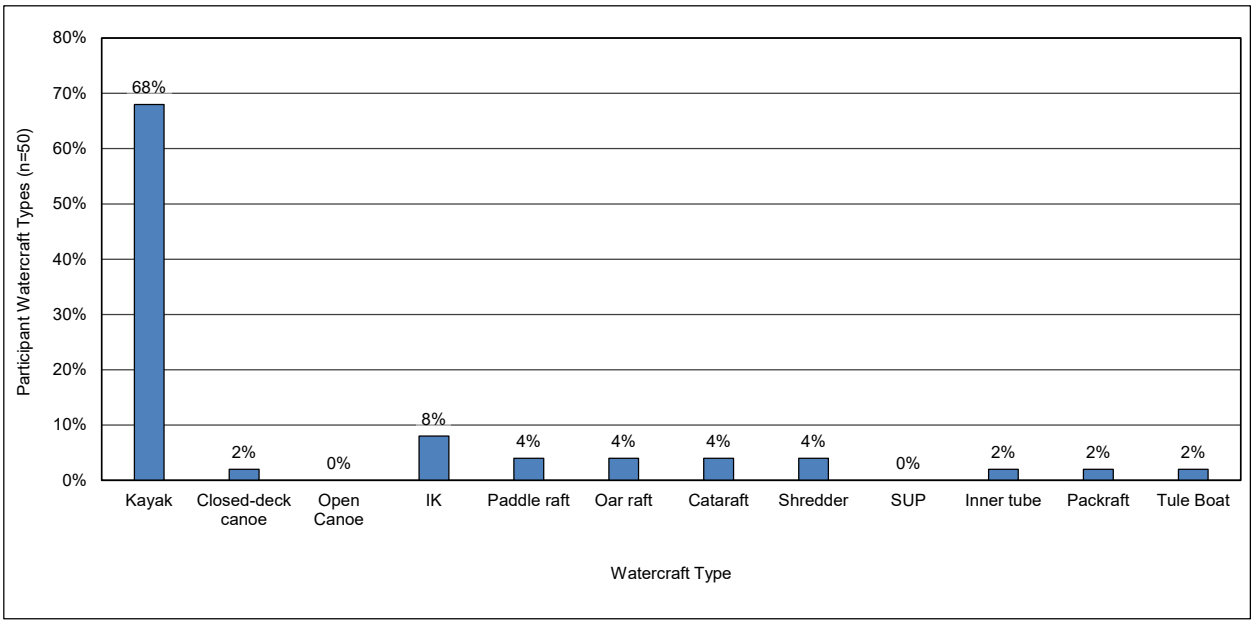


Figure 5.1-9. Level 3 Flow Comparison Survey Participant Watercraft Types.

Table 5.1-8. Number of Level 3 Flow Comparison Survey Participant Responses per River Segment for each Watercraft Type

Watercraft Type	River Segment								
	Sidewinder / Bombs Away	Fairview	Chamise Gorge	Salmon Falls	Goldledge / Ant Canyon	Thunder Run	Camp 3 / Cable Run	Riverkern	Lickety Split
Whitewater Kayak	13	32	31	13	29	26	30	30	31
Closed Deck Canoe	0	1	1	0	0	0	1	1	1
Open Canoe	0	0	0	0	0	0	0	0	0
Inflatable Kayak	1	4	3	1	3	1	3	4	4
Paddle Raft	1	2	2	0	2	2	2	2	2
Oar Raft	0	2	2	1	2	2	2	2	2
Cataraft	0	2	1	0	2	2	2	2	2

Watercraft Type	River Segment								
	Sidewinder / Bombs Away	**Fairview**	**Chamise Gorge**	**Salmon Falls**	**Goldledge / Ant Canyon**	**Thunder Run**	**Camp 3 / Cable Run**	**Riverkern**	**Lickety Split**
Shredder	1	2	2	1	2	2	2	2	2
Stand-up Paddleboard	0	0	0	0	0	0	0	0	0
Inner Tube	0	1	1	0	1	1	1	1	1
Packraft	0	1	1	0	1	1	1	1	1
Tule Boat	1	1	1	1	1	1	1	1	1

5.2. FLOW PREFERENCES

This section analyzes the flow preferences identified by respondents in the Level 3 flow comparison survey cross-referenced with results from the Level 3 enhanced flow opportunities and associated focus groups as well as the Level 3 single flow survey responses. Flow preferences are analyzed by watercraft type and river segment in the Fairview Dam Bypass Reach. The flow preference curves represent the average participant acceptability responses for a specific watercraft type in a given river segment. In cases where two or fewer flow comparison responses were submitted for a watercraft type then the individual participant responses are presented in the flow preference curve. Flow preference average acceptability ratings for each flow are provided in Appendix H for each watercraft type.

The minimum acceptable flow for a watercraft type occurs where the flow preference curve crosses the marginal rating (3) between unacceptable and acceptable (Whittaker et al. 1993). The optimum flow occurs at the peak of the flow preference curve and typically covers a range of flows where the flow preference curve levels out (Whittaker et al. 1993). In some cases, higher flows may be considered unacceptable for some watercraft types causing the flow preference curve to decline below the marginal line.

5.2.1. Flow Preferences by Watercraft Type

5.2.1.1. Whitewater Kayaks

Minimum Acceptable Flow

Flow preference curves were developed for kayaks for all nine river segments in the Fairview Dam Bypass Reach using participant flow acceptability evaluations from the flow comparison survey (Figure 5.2-1). For eight of the nine river segments, the minimum acceptable flow identified (where the flow preference curve crosses the marginal line) was approximately 300 cfs. The exception was the Sidewinder / Bomb's Away river segment where the flow preference curve crosses the marginal line at approximately 400 cfs. In the Fairview, Chamise Gorge, and Salmon Falls river segments, the minimum acceptable flow for kayaks crosses the marginal line between 250 and 300 cfs.

In the flow comparison survey, kayakers were asked to specify their minimum acceptable flow in response to an open-ended question (i.e., they could write in a number rather than select from a list). The median minimum acceptable flow for the kayak responses was consistent with the flow preference curve marginal flow line for Sidewinder (median value = 400 cfs), Fairview (median value = 300 cfs), Chamise Gorge (median value = 250 cfs), and Salmon Falls (median value = 250 cfs) (Figure 5.2-2; Table 5.2-1). The median minimum acceptable flow calculated from the open-ended question for the Goldledge / Ant Canyon, Thunder Run, and Camp 3 / Cables river segments was 400 cfs while the median minimum acceptable flow for Riverkern and Lickety Split river segments was 350 cfs. These median minimum acceptable flow responses for kayakers on the NFKR from the Goldledge / Ant Canyon river segment to the Lickety Split river segment were approximately 100 cfs higher than indicated by the flow preference curve crossing the marginal line for the respective river segments.

On July 13, 2024, an enhanced flow opportunity of 250 cfs occurred in the Fairview Dam Bypass Reach and nine kayakers completed surveys for this enhanced flow opportunity. The kayakers only boated the Fairview and Chamise Gorge river segments for the 250 cfs enhanced flow opportunity but submitted enhanced flow evaluation forms for the other river segments in the Fairview Dam Bypass Reach. The 250 cfs enhanced flow opportunity was acceptable for seven of the nine river segments based on the average flow preference curve for the kayakers (Figure 5.2-3). The 250 cfs enhanced flow opportunity was unacceptable for the Lickety Split river segment and marginal for the Thunder Run.

In focus group discussions following the 250 cfs enhanced flow opportunity, participants noted that 250 cfs was not an ideal flow but it was boatable for smaller watercraft, offering technical challenges and opportunities to explore new lines in rapids, particularly the Chamise Gorge segment. Kayak participants in the focus group discussions indicated they would return to boat this flow. In 2023, when flows in the Fairview Dam Bypass Reach were equal to or less than 300 cfs, single flow survey responses were limited to individuals boating the Fairview and Chamise Gorge river segments only (see

Figure 5.1-5 in *Addendum to REC-1 Whitewater Boating Interim Technical Memorandum: Level 3 Single Flow Survey Results* [SCE, 2024c]).

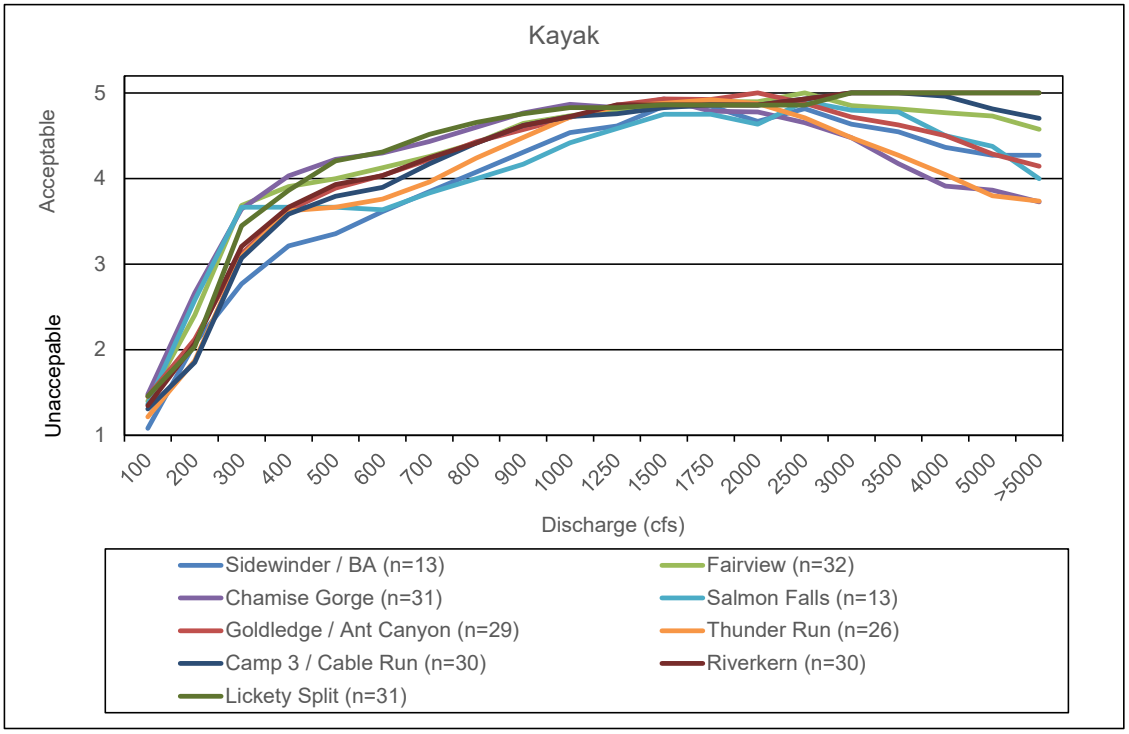


Figure 5.2-1. Whitewater Kayak Flow Preference Curve for Nine River Segments on the North Fork Kern River (Flow Comparison Survey).

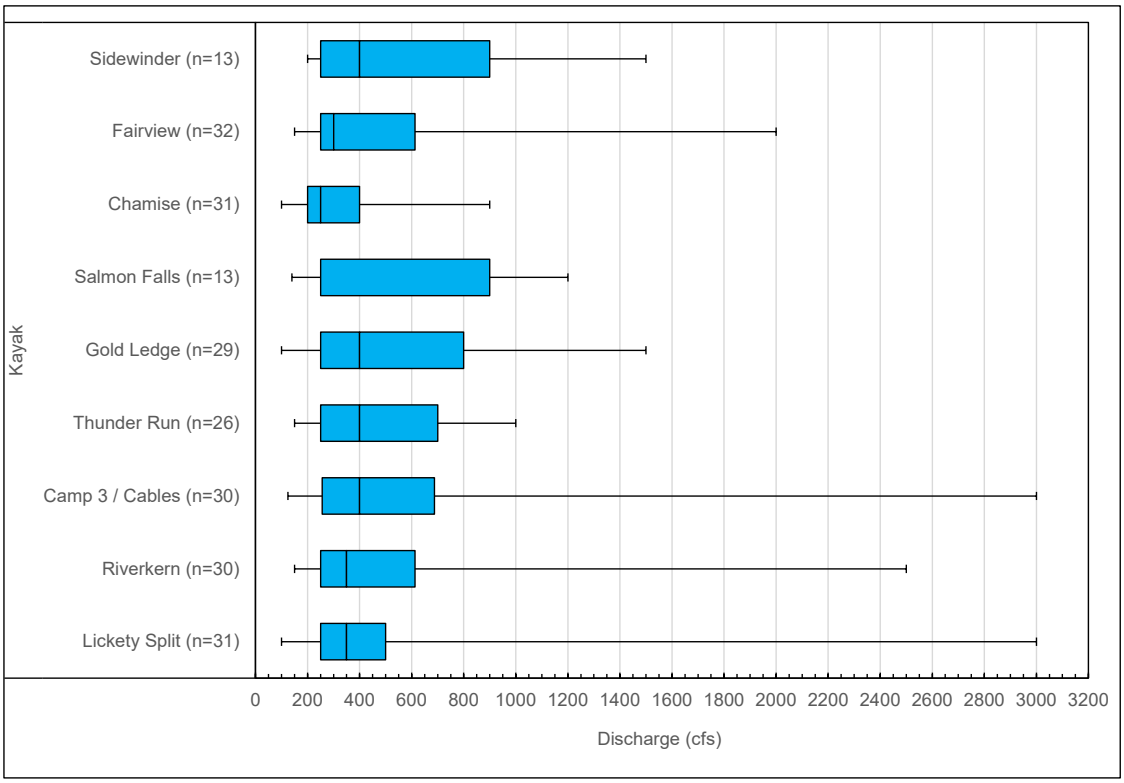


Figure 5.2-2. Whitewater Kayak Minimum Acceptable Flow Preference (Flow Comparison Survey).

Table 5.2-1. Whitewater Kayak Minimum Acceptable Flow Statistics (Flow Comparison Survey)

Descriptive Statistic	Kayak								
	Sidewinder (n=13)	Fairview (n=32)	Chamise (n=31)	Salmon Falls (n=13)	Gold Ledge (n=29)	Thunder Run (n=26)	Camp 3 / Cables (n=30)	Riverkern (n=30)	Lickety Split (n=31)
Mean	610	486	376	501	527	483	547	510	477
Minimum	200	150	100	140	100	150	125	150	100
Q1	250	250	200	250	250	250	256	250	250
Median	400	300	250	250	400	400	400	350	350
Q3	900	613	400	900	800	700	688	613	500
Maximum	1,500	2,000	900	1,200	1,500	1,000	3,000	2,500	3,000

Q1 = 25 percent; Q3 = 75 percent

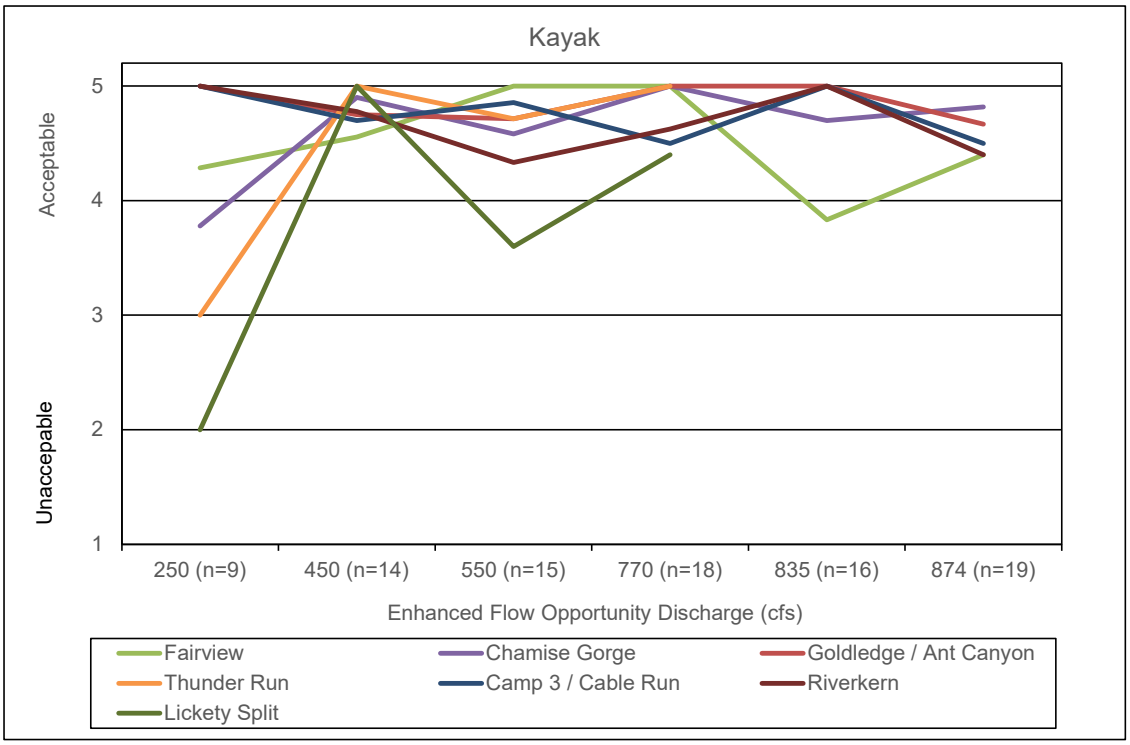


Figure 5.2-3. Whitewater Kayak Flow Preference Curve for Seven River Segments on the North Fork Kern River (Enhanced Flow Opportunities).

Optimum Flow

The optimum flow range for kayaks for the Fairview Dam Bypass Reach was 700 to 3,500 cfs based on participant flow acceptability evaluations from the flow comparison survey. The optimum flow range for individual river segments varied slightly on the low and high end. For example, the optimum flow in Chamise Gorge ranges from 800 to 3,000 cfs for whitewater kayaks. In Goldledge / Ant Canyon and the Thunder Run, flows greater than 3,500 cfs dropped out of the optimum flow range. The optimum flow range in the Lickety Split segment ranged from 700 cfs with no decline in the flow preference curve for flows greater than 5,000 cfs.

Flow comparison survey respondents using kayaks were asked to specify their optimum flow in an open-ended question (Figure 5.2-4; Table 5.2-2). The median kayak optimum flow for the respective river segments went from a low of 800 cfs in the Sidewinder / Bomb's Away river segment to a high of 2,100 cfs in the Riverkern river segment. The quartiles reflect a range of optimum flows for 25 to 75 percent of the survey respondents.

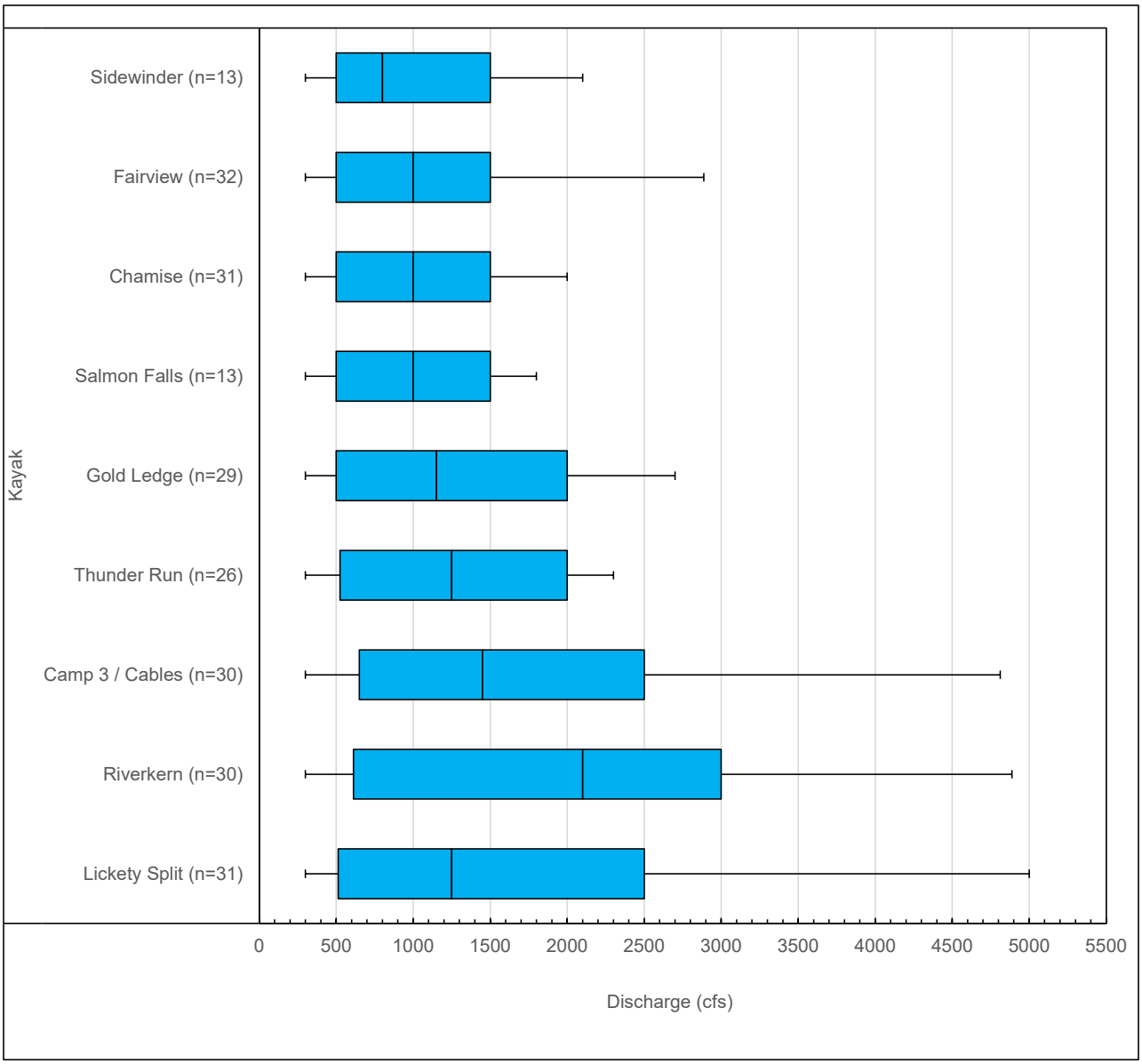


Figure 5.2-4. Whitewater Kayak Optimum Flow Preference (Flow Comparison Survey).

Table 5.2-2. Whitewater Kayak Optimum Flow Statistics (Flow Comparison Survey)

Descriptive Statistic	Kayak								
	Sidewinder (n=13)	Fairview (n=32)	Chamise (n=31)	Salmon Falls (n=13)	Gold Ledge (n=29)	Thunder Run (n=26)	Camp 3 / Cables (n=30)	Riverkern (n=30)	Lickety Split (n=31)
Mean	1,577	1,333	1,184	1,212	1,418	1,371	1,860	2,172	1,807
Minimum	300	300	300	300	300	300	300	300	300

Descriptive Statistic	Kayak								
	Sidewinder (n=13)	Fairview (n=32)	Chamise (n=31)	Salmon Falls (n=13)	Gold Ledge (n=29)	Thunder Run (n=26)	Camp 3 / Cables (n=30)	Riverkern (n=30)	Lickety Split (n=31)
Q1	500	500	500	500	500	525	650	613	513
Median	800	1,000	1,000	1,000	1,150	1,250	1,450	2,100	1,250
Q3	1,500	1,500	1,500	1,500	2,000	2,000	2,500	3,000	2,500
Maximum	5,000	6,000	3,500	3,000	4,500	3,500	5,000	5,000	5,000

Q1 = 25 percent; Q3 = 75 percent

5.2.1.2. Inflatable Kayaks

Minimum Acceptable Flow

Four flow comparison survey responses were completed for inflatable kayaks (IK), evaluating a mix of the nine river segments in the Fairview Dam Bypass Reach. Flow preference curves were developed for the river segments using the average value where three or more IK responses were completed (Figure 5.2-5). The actual acceptability rating for each flow was plotted in the flow preference curve for river segments with only a single IK response. The IK flow preference curve crosses the marginal line between 100 and 200 cfs for eight of the nine river segments, indicating the minimum acceptable flow is in this flow range. The Sidewinder / Bomb's Away river segment is the exception where an IK response was completed scoring flows between 300 cfs and 500 cfs as totally acceptable (5) in the survey but leaving all other flows blank.

The median minimum acceptable flow was calculated where three or more IKs specified the minimum acceptable flow for individual river segments in an open-ended question. The median minimum acceptable flow for Fairview, Chamise Gorge, Goldledge / Ant Canyon, Camp 3 / Cable Run, Riverkern, and Lickety Split river segments was 200 cfs. The single IK respondent for Sidewinder / Bomb's Away and Salmon Falls river segments specified a minimum acceptable flow of 250 and 200 cfs, respectively.

Optimum Flow

IK optimum flows start at 200 cfs for all river segments, virtually the same as the minimum acceptable flow. The upper end of the IK optimum flow varies by river segment. For river segments equal to or greater than Class IV whitewater difficulty, the upper end of the IK optimum flow range is lower than river segments that are Class II to III whitewater difficulty.

In the 250 cfs enhanced flow opportunity focus group, participants noted that the 250 cfs flow was suitable for IKs. No IK boater participated in the 250 cfs enhanced flow opportunity and no enhanced flow opportunity evaluation forms were submitted for IKs for the 250 cfs flow.

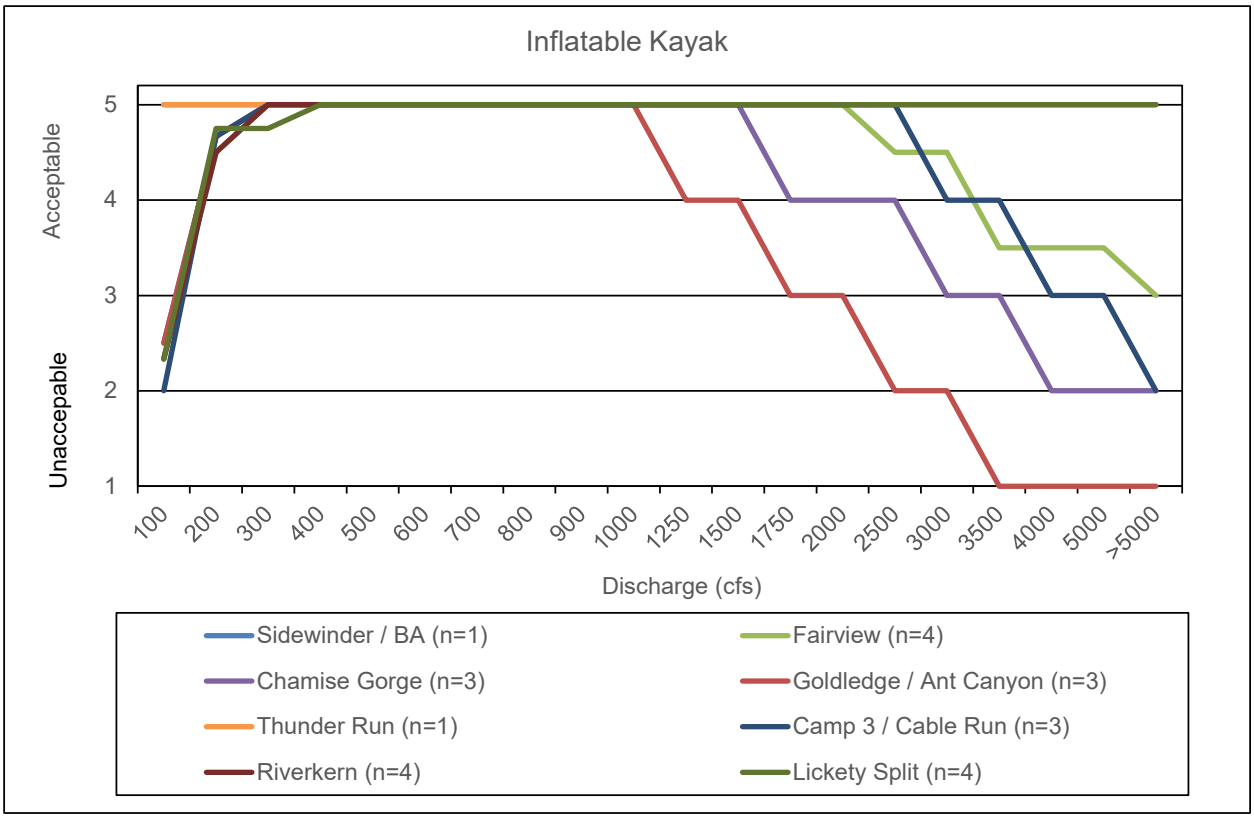


Figure 5.2-5. IK Flow Preference Curve for Eight River Segments on the North Fork Kern River (Flow Comparison Survey).

5.2.1.3. Closed Deck Canoe

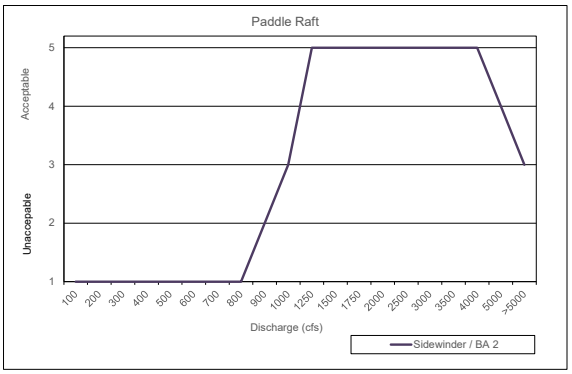
One flow comparison survey was submitted for a closed deck canoe, evaluating the Fairview, Chamise Gorge, Camp 3 / Cable Run, Riverkern, and Lickety Split river segments. The respondent rated all flows from 200 to 400 cfs as totally acceptable (5). One enhanced flow opportunity evaluation form was submitted for closed deck canoe for the 250 cfs flow on July 13. The individual rated the 250 cfs enhanced flow opportunity as marginal in the Fairview river segment. No other river segments were evaluated by the individual.

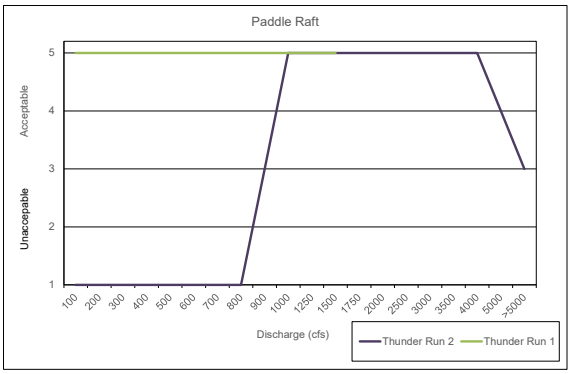
5.2.1.4. Paddle Raft

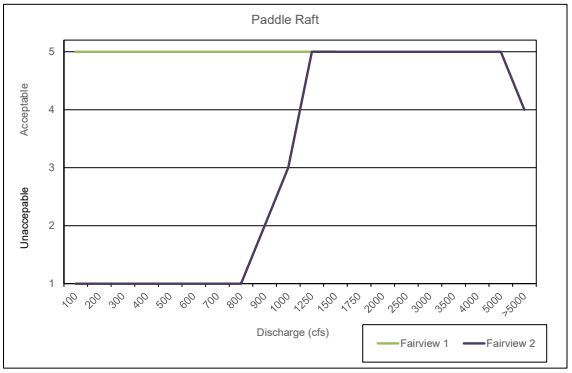
Two flow comparison surveys were submitted for paddle rafts. Flow preference curves were plotted for each paddle raft respondent (Boater 1 and Boater 2) for the individual river segments (Figure 5.2-6). The flow preference curve shows substantial differences in flow preferences between the two paddle rafters for the respective river segments. Boater 1 evaluated a narrower range of flows rating them all totally acceptable (5). Consequently, a minimum acceptable flow cannot be ascertained from the Boater 1 flow evaluation. Boater 2 evaluated the full range of flows in the flow comparison for respective river segments. Boater 2 minimum acceptable flow preferences for a paddle raft were specific to each respective river segment: Sidewinder / Bomb's Away segment (1,000 cfs), Fairview segment (1,000 cfs), Chamise Gorge Segment (900 cfs), Goldledge

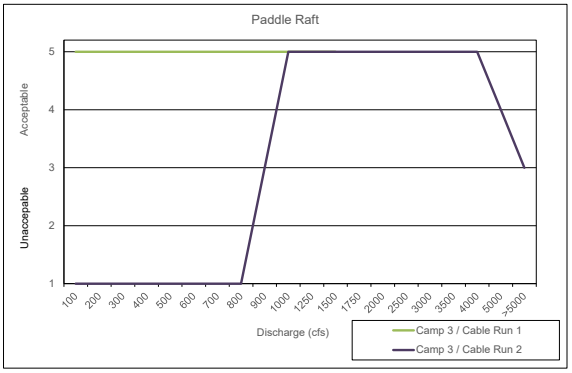
/ Ant Canyon segment (900 cfs), Thunder Run segment (900 cfs), Cables/ Camp 3 segment (900 cfs), Riverkern segment (400 cfs), and Lickety Split segment (400 cfs).

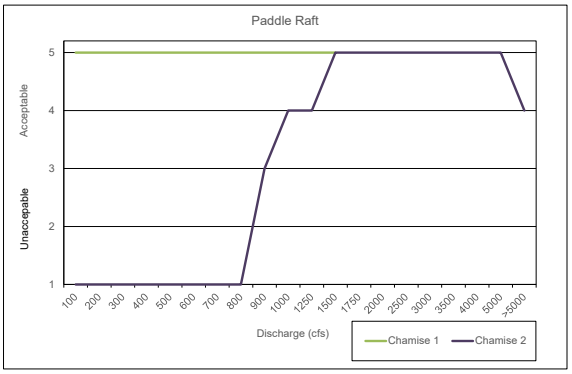
Enhanced flow evaluation forms were submitted for paddle rafts for the 250 cfs, 450 cfs and 550 cfs enhanced flow opportunities. Flow preference curves were developed for three river segments evaluated in the enhanced flow evaluation forms; Camp 3 / Cables Run, Riverkern and Lickety Split (Figure 5.2-7). The 250 cfs, 450 cfs and 550 cfs enhanced flow opportunities in the three river segments were rated unacceptable based on the average of the paddle respondents with the exception of Lickety Split at 450 cfs which was rated marginal. In the 250 cfs enhanced flow opportunity focus group, participants noted that the 250 cfs was not suitable for larger inflatable boats. In the 450 cfs enhanced flow opportunity focus group, participants noted that the 450 cfs was suitable for 12-foot or smaller inflatable boats but also noted that 14-foot inflatable boats could make it down the Camp 3 / Cables Run.

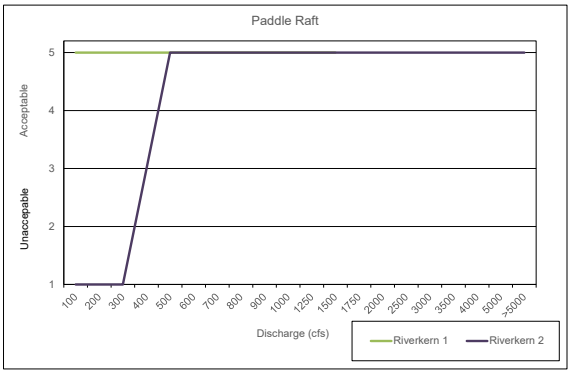


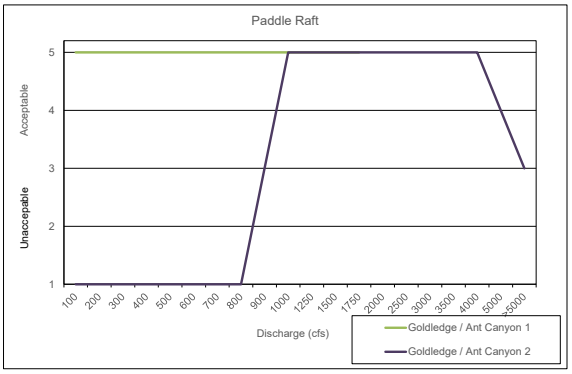












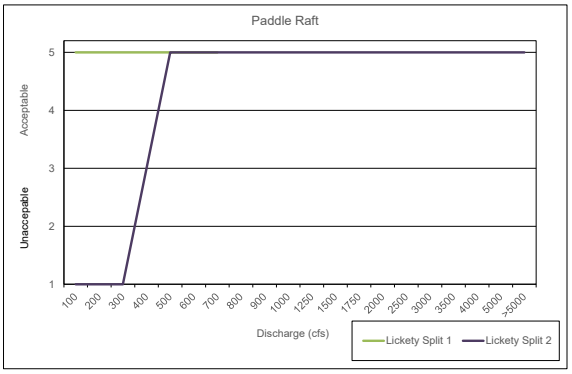


Figure 5.2-6. Paddle Raft Flow Preference Curve for Eight River Segments on the North Fork Kern River (Flow Comparison Survey).

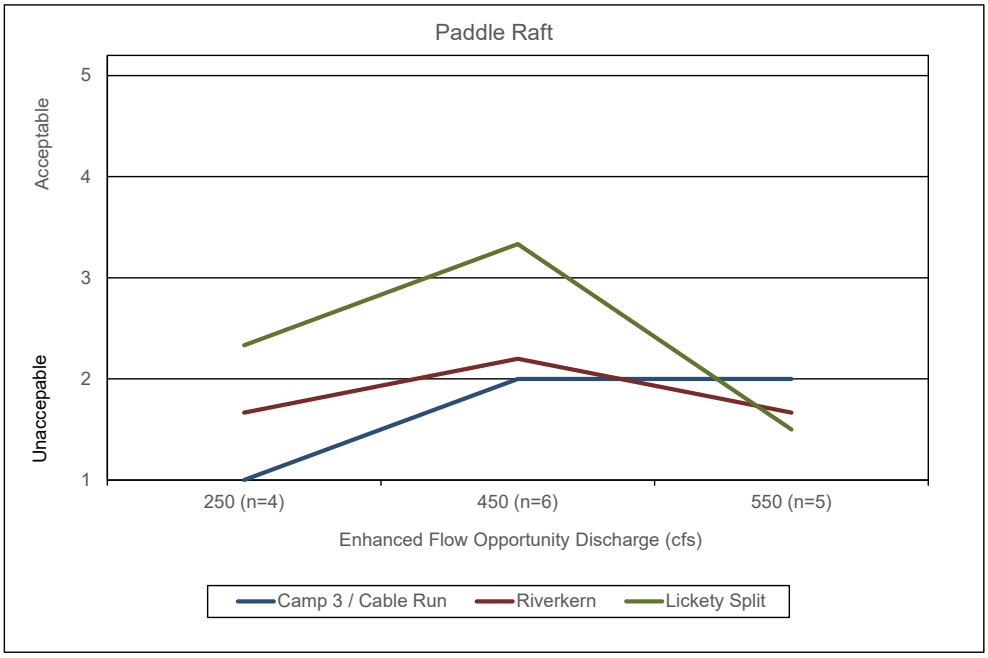


Figure 5.2-7. Paddle Raft Flow Preference Curve for Three River Segments on the North Fork Kern River (Enhanced Flow Opportunities).

5.2.1.5. Oar Raft

Two flow comparison surveys were submitted for oar rafts. Flow preference curves were plotted for each oar raft respondent (Boater 1 and Boater 2) for the individual river segments (Figure 5.2-8). The flow preference curve shows substantial differences in flow preferences between the two individuals using oar rafts for the respective river segments. Boater 1 evaluated a narrower range of flows (200 to 500 cfs) rating them all totally acceptable (5). Consequently, a minimum acceptable flow cannot be ascertained from the Boater 1 flow evaluation. Boater 2 evaluated the full range of flows in the flow comparison for respective river segments. Boater 2 minimum acceptable flow preferences for oar rafts were specific to each river segment: Fairview segment (800 cfs), Chamise Gorge Segment (800 cfs), Goldledge / Ant Canyon segment (900 cfs), Thunder Run segment (900 cfs), Cables/ Camp 3 segment (800 cfs), Riverkern segment (800 cfs), and Lickety Split segment (500 cfs).

Two enhanced flow evaluation forms were submitted for an oar raft for the 550 cfs flow on July 12. The average rating for the 550 cfs was unacceptable for Sidewinder Bomb's / Away, Fairview, Thunder Run, and Riverkern river segments. Lickety Split river segment was rated marginal. Salmon Falls and Goldledge / Ant Canyon river segments were not evaluated.

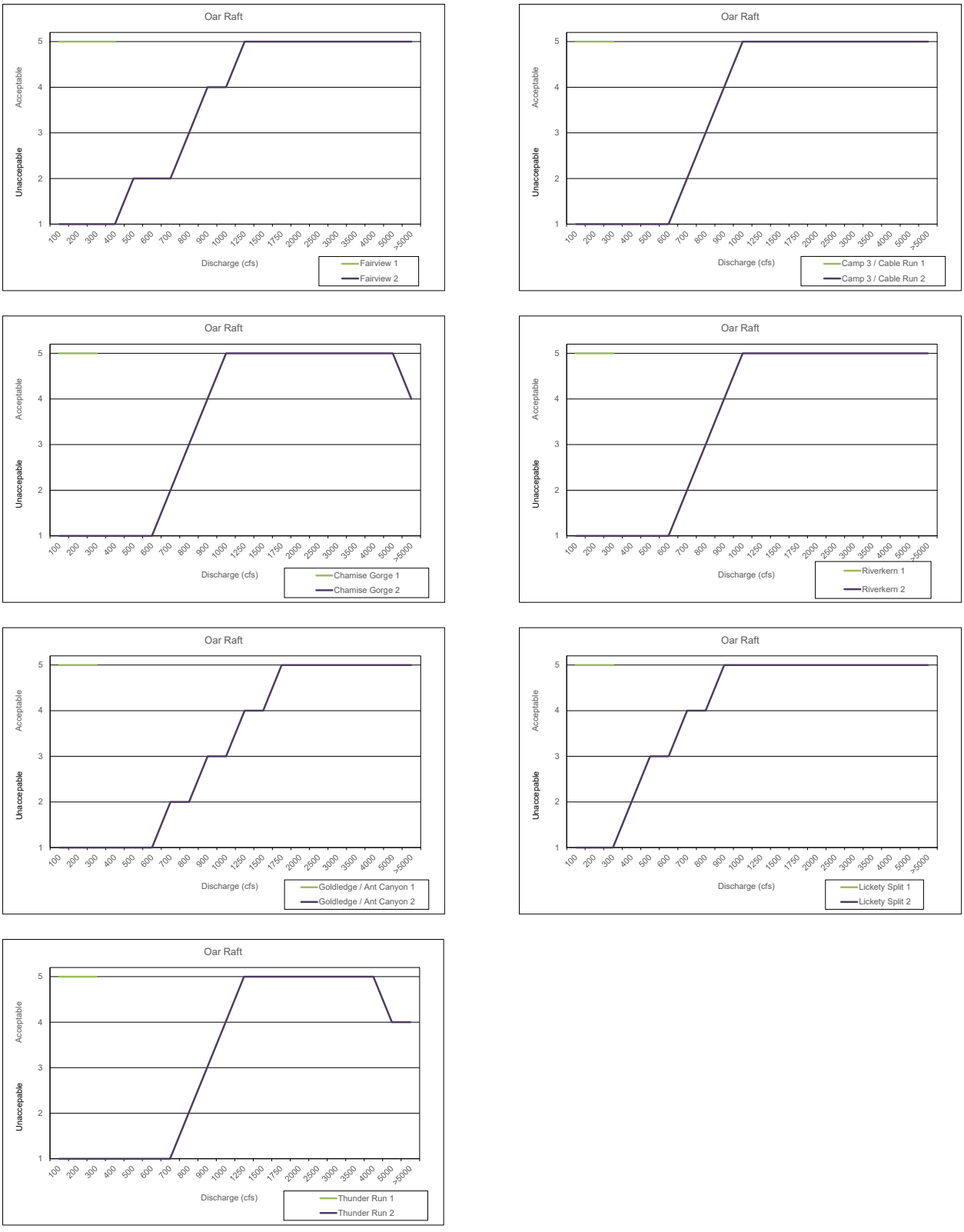


Figure 5.2-8. Oar Raft Flow Preference Curve for Seven River Segments on the North Fork Kern River (Flow Comparison Survey).

5.2.1.6. Cataraft

Minimum Acceptable Flow

Two flow comparison surveys were submitted for catarafts. Flow preference curves were plotted for each cataraft respondent (Boater 1 and Boater 2) for the individual river segments (Figure 5.2-9). The flow preference curves for the two cataraft respondents were similar for the respective river segments with only slight differences in the minimum acceptable flow delineated by the marginal flow line. Cataraft minimum acceptable flows ranged from 500 cfs to 700 cfs across seven river segments in the Fairview Dam Bypass Reach. Neither catarafter evaluated flows in the Sidewinder / Bomb's Away and Salmon Falls river segments.

Optimum Flow

Two enhanced flow evaluation forms were submitted for catarafts for the 450 cfs, 770 cfs, and the 874 cfs enhanced flow opportunities. One enhanced flow evaluation form was submitted for a cataraft for the 835 cfs enhanced flow opportunity. The 450 cfs enhanced flow was considered totally acceptable (5) for the Fairview, Chamise Gorge, and Riverkern river segments but considered marginal for the Goldledge / Ant Canyon and Camp 3 / Cable Run. The catarafters did not evaluate the Sidewinder Bomb's Away, Salmon Falls or Thunder Run at the 450 cfs enhanced flow opportunity. In the 450 cfs enhanced flow opportunity focus group, one of the catarafters commented that he chooses not to boat any of the river segments in the Fairview Dam Bypass Reach when flows are less than 400 cfs. Instead, he boats the Limestone run when flows below Fairview Dam are less than 400 cfs but he considers the Limestone run lesser quality compared to the river segments in the Fairview Dam Bypass Reach.

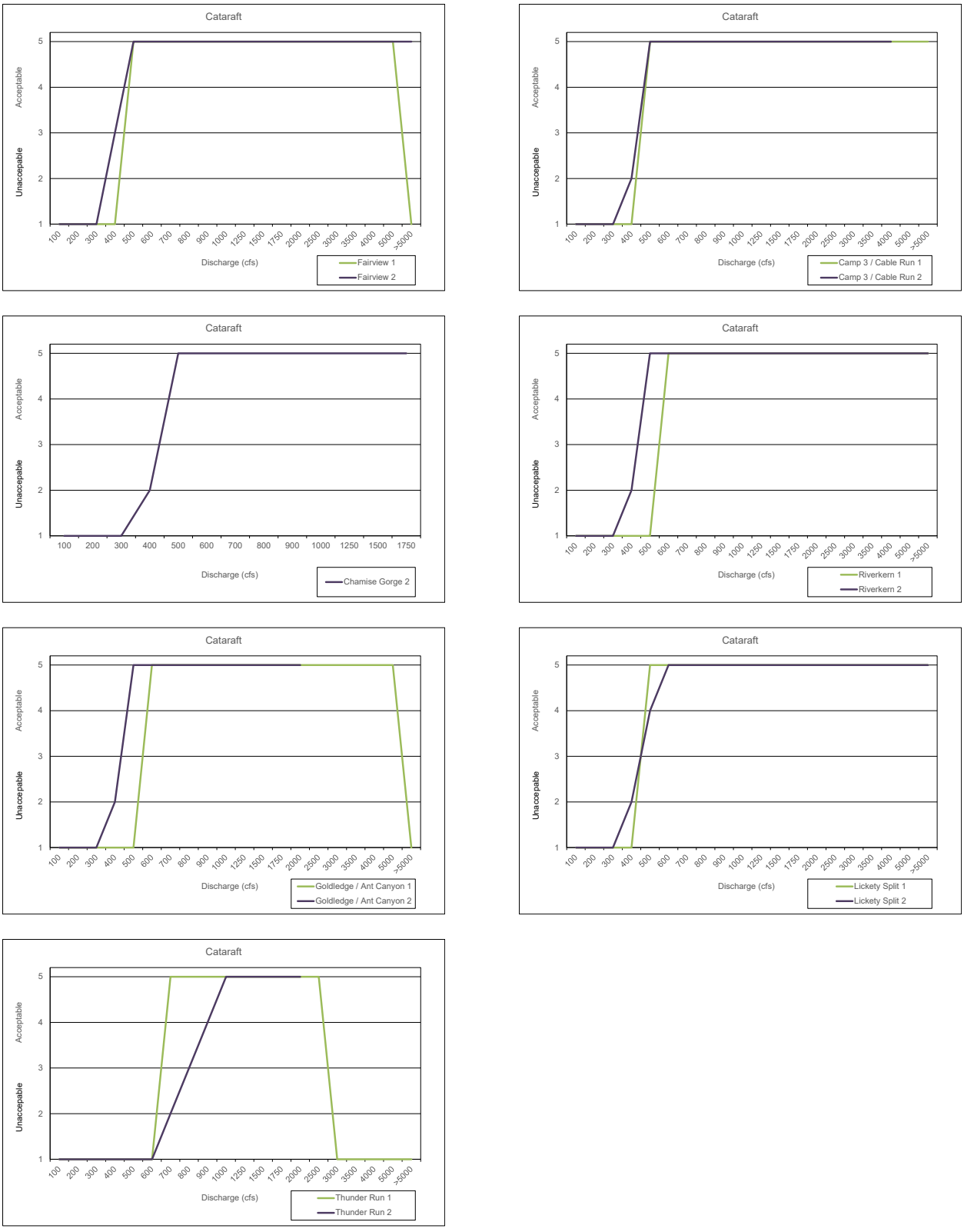


Figure 5.2-9. Cataraft Flow Preference Curve for Seven River Segments on the North Fork Kern River.

5.2.1.7. Shredder

Two flow comparison surveys were submitted for shredders. Flow preference curves were plotted for each shredder respondent (Boater 1 and Boater 2) for the individual river segments (Figure 5.2-10). The flow preference curve shows substantial differences in flow preferences between the two individuals using shredders for the respective river segments. Boater 1 evaluated a narrower range of flows (200 cfs to 500 cfs) rating them all totally acceptable (5). Consequently, a minimum acceptable flow cannot be ascertained from the Boater 1 flow evaluation. Boater 2 evaluated the full range of flows in the flow comparison for respective river segments. Boater 2 minimum acceptable flow preferences for a shredder were specific to each river segment: Sidewinder / Bomb's Away (500 cfs), Fairview segment (500 cfs), Chamise Gorge Segment (600 cfs), Goldledge / Ant Canyon segment (1,250 cfs), Thunder Run segment (900 cfs), Cables/ Camp 3 segment (900 cfs), Riverkern segment (900 cfs), and Lickety Split segment (800 cfs).

5.2.1.8. Packraft

A single flow comparison survey was submitted for a packraft for seven of the river segments in the Fairview Dam Bypass Reach. The packraft minimum acceptable flows in the flow preference curve were 200 cfs for six of the river segments and 300 cfs for the seventh river segment, Goldledge / Ant Canyon (Figure 5.2-11). One enhanced flow evaluation form was submitted for a packraft for the 450 cfs and 770 cfs enhanced flow opportunities. The individual rated each of these flows acceptable for Fairview, Chamise Gorge, Goldledge / Ant Canyon, Thunder Run, Camp 3 / Cable Run, and the Riverkern river segments. In the 450 cfs enhanced flow opportunity focus group, the packrafter noted that 450 cfs was a great flow in the Fairview river segment for boating with children.

5.2.1.9. Tule Boat

A single flow comparison survey was submitted for a traditional tule boat for nine of the river segments in the Fairview Dam Bypass Reach. The traditional tule boat minimum acceptable flows in the flow preference curve were substantially greater than any other watercraft type: Sidewinder / Bomb's Away (1,750 cfs), Fairview and Chamise Gorge Segments (2,000 cfs), Goldledge / Ant Canyon, Thunder Run, Cables/ Camp 3, and Riverkern and Lickety Split river segments (3,000 cfs) (Figure 5.2-12). No enhanced flow evaluation forms were submitted for a traditional tule boat.

5.2.1.10. Inner Tube

A single flow comparison survey was submitted for an inner tube for the Fairview, Chamise Gorge, Goldledge / Ant Canyon, Thunder Run, Camp 3 / Cable Run, Riverkern, and Lickety Split river segments. The respondent rated all flows from 200 to 1,000 cfs as totally acceptable (5). No enhanced flow evaluation forms were submitted for an inner tube.

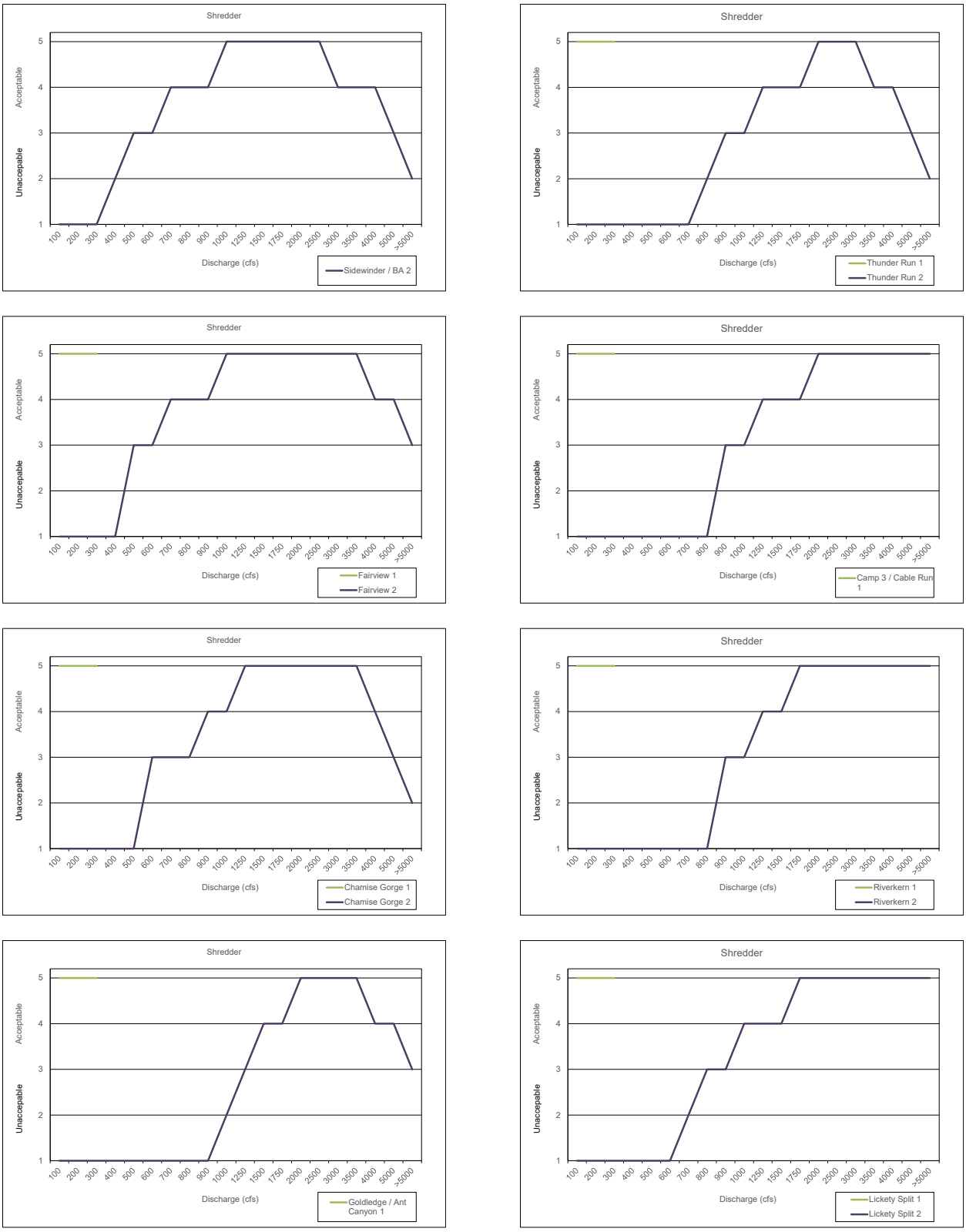


Figure 5.2-10. Shredder Flow Preference Curve for Eight River Segments on the North Fork Kern River (Flow Comparison Survey).

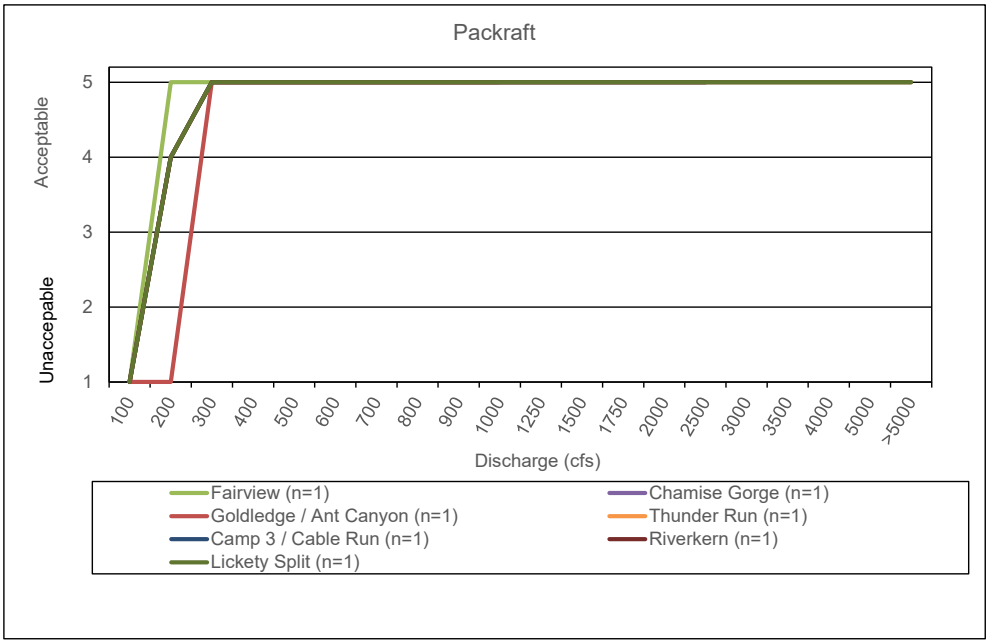


Figure 5.2-11. Packraft Flow Preference Curve for Seven River Segments on the North Fork Kern River (Flow Comparison Survey).

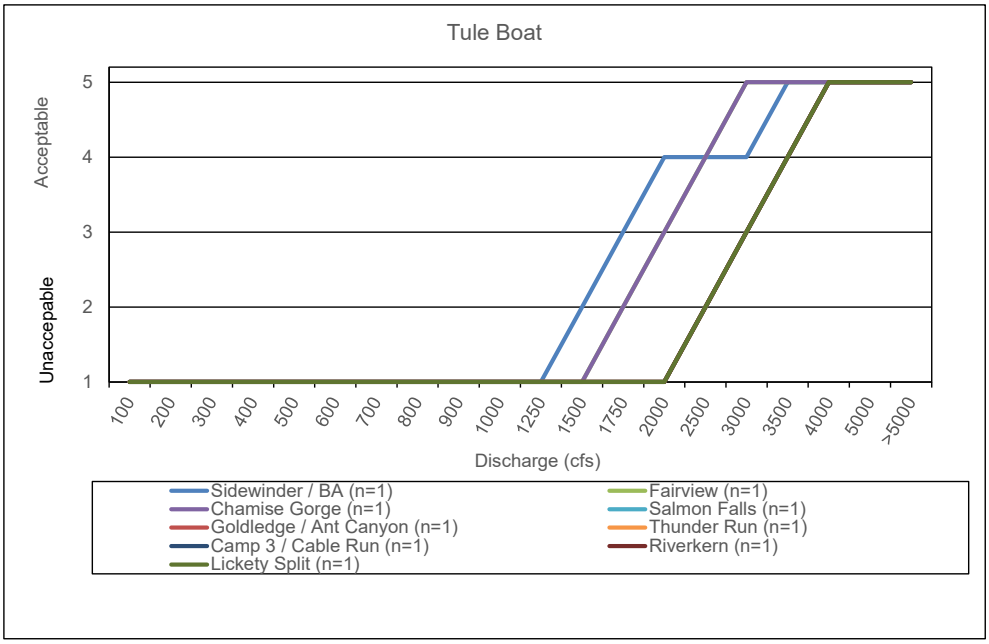


Figure 5.2-12. Traditional Tule Boat Flow Preference Curve for Nine River Segments on the North Fork Kern River (Flow Comparison Survey).

5.2.2. FLOW PREFERENCE SUMMARY

- Minimum acceptable flow preferences differ substantially between watercraft types and river segments in the Fairview Dam Bypass Reach:
  - Smaller watercraft (whitewater kayak, IK, and packraft): the minimum acceptable flow ranged from 200 to 300 cfs depending on watercraft type and river segment.
    - Boaters typically choose Chamise Gorge and Fairview river segments under minimum acceptable flow conditions.
  - Cataraft: the minimum acceptable flow was 400 cfs.
  - Larger inflatables (such as paddle and oar rafts): the minimum acceptable flow ranged between:
    - 800 and 900 cfs for the river segments rated Class IV to V in whitewater difficulty; or
    - Decreased to 500 cfs for the Riverkern and Lickety Split river segments.
- Optimum flow preferences overlapped for whitewater kayaks and large inflatables but started considerably lower for smaller inflatables.
  - The optimum flow range for large inflatables such as paddle and oar rafts ranged between:
    - 900 to 5,000 cfs for most of the river segments; or
    - 500 to greater than 5,000 cfs on the Riverkern and Lickety Split river segments.
  - Whitewater kayak optimum flows covered a broad range with slight differences between river segments in the low and high ends of the range.
    - Sidewinder / Bomb's Away river segment optimum flow range from 1,000 cfs to greater than 3,500 cfs.
    - Fairview river segment optimum flow range from 900 cfs to greater than 5,000 cfs.
    - Chamise Gorge river segment optimum flow range from 800 cfs to 3,000 cfs.
    - Goldledge / Ant Canyon river segment optimum flow range from 900 cfs to greater than 4,000 cfs.
    - Thunder Run river segment optimum flow range from 900 cfs to greater than 3,000 cfs.

- Cable / Camp 3 river segment optimum flow range from 900 cfs to greater than 5,000 cfs.
- Riverkern river segment optimum flow range from 900 cfs to greater than 5,000 cfs.
- Lickety Split river segment optimum flow range from 700 cfs to greater than 5,000 cfs.

– IK and packraft optimum flows started lower than other watercraft—200 cfs on the low end.

In each of the enhanced flow focus group sessions, participants emphasized their preference for whitewater opportunities based on the natural flow patterns in the NFKR noting their ability to take advantage of flow conditions by tracking the hydrograph in real-time through online river gages.

5.3. HYDROLOGY ANALYSIS

The annual number of whitewater boating days (10 a.m. to 5 p.m.) in the Fairview Dam Bypass Reach and inflow to Fairview Dam were quantified using minimum acceptable and optimum flow thresholds for different watercraft types between 2005 and 2023 (Appendix I). A series of flow increments were analyzed covering the range of flow preferences for the watercraft types on the NFKR in the nine river segments. The annual number of whitewater boating days were calculated for 200, 300, 400, 600, 700, 800, and 1,000 cfs. These flow increments correspond to minimum acceptable flow thresholds for different watercraft types and provide an estimate of the number of whitewater boating days in the lower optimum flow range.

The annual number of whitewater boating days for any given flow threshold was obviously greater for inflows to Fairview Dam compared to the Fairview Dam Bypass Reach downstream of the Fairview Dam diversion. The difference in the annual number of days becomes more pronounced for the lower flow thresholds (200, 300, and 400 cfs) particularly in drought years.

5.4. RECREATION USE CONFLICTS AND PUBLIC SAFETY

The Kern River Valley 2023 Visitor's Guide (Kern Valley Sun, 2024) lists more than 40 types of outdoor recreation opportunities. A substantial number of these outdoor recreation activities occur in the NFKR corridor. Mountain Highway 99—the primary travel route within the Project Area—is a two-lane winding road adjacent to the eastern side of the NFKR. Several unincorporated residential areas (including Fairview, Riverkern, and Camp Owens) are located at the northern and southern end of the Project. The Sequoia National Forest manages numerous developed and undeveloped camping areas adjacent to the NFKR. On summer weekends, these developed and undeveloped areas are typically at capacity with campers—many of whom recreate on the banks as well as in the NFKR.

No recreation use conflicts were reported between whitewater boaters and other outdoor recreationists in the Project Area in the REC-2 Technical Memorandum Structured Interview Questionnaire (SCE, 2024b). In late June 2024, SCE received a voice message from an angler asking why flows were increasing in the Fairview Dam Bypass Reach during the day and decreasing at night. License condition 422 requires SCE to provide daily whitewater flows in June between 10 a.m. and 5 p.m. when the previous day's running average inflow to the Project are between 1,000 and 1,300 cfs or greater than 1,700 cfs. License condition 422 was implemented each day in late June due to the previous day's running average inflow meeting the whitewater release requirement (Figure 5.4-1).

During the hot summer period, a substantial number of the non-boating public (including children and adults) recreate adjacent to and in the NFKR in part to cool off. Through on-site observations over the study period, the majority of the non-boating public do not wear personal flotation devices (PFD) in the NFKR. Diurnal flow fluctuations occur regularly on the NFKR during the snowmelt run-off period, which typically extends into the summer period. The flow fluctuations can result in substantial changes in wetted perimeter width, stage height, and velocity at any given location on the NFKR. Members of the non-boating public are vulnerable to these changing flow conditions. Signage warning about the dangers of the river and need to wear a PFD are posted at numerous locations in Kernville and the Kern River corridor.

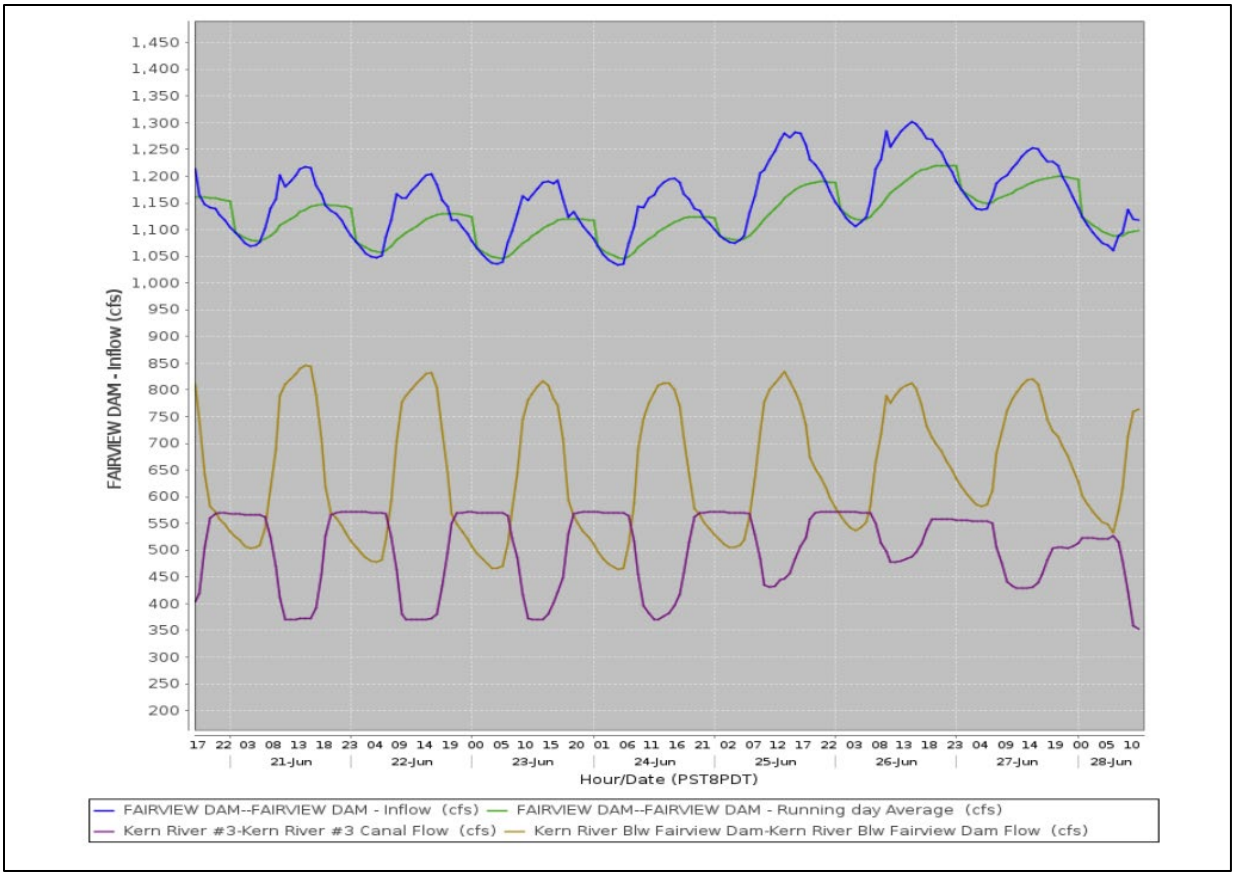


Figure 5.4-1. North Fork Kern River Flows June 21–28, 2024.

5.4.1. WHITEWATER BOATERS

On the NFKR, very few fatalities have involved whitewater boaters. American Whitewater maintains a national database listing whitewater boating accidents through July 28, 2020. On the NFKR from the Johnsondale Bridge to the KR3 Powerhouse, the accident database reports two whitewater boating fatalities between January 1, 2005, and July 28, 2020 (AW, 2024a). Both fatalities were categorized as drownings and both involved rafters. Lack of a PFD was noted as a causal factor in one of the fatalities. The second fatality was listed as a flush drowning—when a swimmer drowns moving downstream, often through rough water and by being repeatedly dunked and/or hit by waves. There was no official recordkeeping of the water level at the time of these fatalities; however, high water level was noted as a factor in the fatality without a PFD. Cold water was noted for both fatalities. With regard to river difficulty, the PFD fatality occurred on a Class III to V rapid and the flush drowning fatality on a Class IV rapid.

In June 2023, during abnormally high flow conditions, a kayaker drowned in Ant Canyon. Despite the unusually high flows in the 2023 water year, no other whitewater fatalities occurred. River difficulty is dynamic and can be affected by a variety of factors, including water level (AW, 2024b). Flows are an important variable to consider for the NFKR. The NFKR contains Class II to Class VI rapids. The more difficult river segments attract more advanced boaters that carry their own rescue equipment and typically have taken courses

in river rescue or developed rescue skills through years of boating. The low number of fatalities on the NFKR is a reflection of the whitewater boating community's judgment, skill, and attention to safety on the river.

6.0 STUDY SPECIFIC CONSULTATION

No additional consultation has occurred in support of the REC-1 Study Plan.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All REC-1 Study Plan elements have been completed as outlined in SCE's Revised Study Plan (SCE, 2022), FERC's Study Plan Determination (FERC, 2022), and FERC's *Determination on Requests for Study Modifications and New Studies* (FERC, 2024b), with the exception of the variance described above regarding the revised post flow evaluation form for the enhanced flow opportunities.

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REC-2 RECREATION FACILITIES USE ASSESSMENT
FINAL TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

July 2024

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Errata to REC-2 Technical Memorandum

Page	Section	Change
vi	Acronyms and Abbreviations	ADA to ABA; Americans with Disabilities Act to Architectural Barriers Act
10	4.2.2	SQF ranger district to Kern River Ranger District
32	5.1.3	Added clarity regarding site visitation seasonality
48	5.1.6	ADA to ABA
49	5.1.6	ADA=Americans with Disabilities Act to ABA=Architectural Barriers Act
56	5.2.3	ADA to ABA within Table 5.2-3; ADA=Americans with Disabilities Act to ABA=Architectural Barriers Act
62	5.5	Removed dispersed sites exist in areas outside of high visitation, which does not adversely impact resources (REC-FW-DA-09)

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LIST OF ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
DCG	developed campground
DUCG	day use area adjacent to developed campground
FERC	Federal Energy Regulatory Commission
ISR	Initial Study Report
KR3	Kern River No. 3
KRB	Kern River Boaters
NFKR	North Fork Kern River
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
Q#	in reference to “Question” numbers
QA/QC	quality assurance and quality control
QR code	quick-response code
REC-2 Study	REC-2 Recreation Facilities Use Assessment Study
RSP	Revised Study Plan
SCE	Southern California Edison
SPD	Study Plan Determination
SQF	Sequoia National Forest

1.0 INTRODUCTION

This Final Technical Memorandum provides the methods and analysis of field surveys associated with the *REC-2 Recreation Facilities Use Assessment Study* (REC-2 Study) in support of Southern California Edison (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The REC-2 Study was included in SCE's Revised Study Plan (RSP) submitted on July 1, 2022 (SCE, 2022).

In the October 12, 2022, Study Plan Determination (SPD), FERC approved the REC-2 Study Plan with modifications (FERC, 2022). Specifically, FERC recommended that SCE adjust the study area to include the 1.9-mile reach of the North Fork Kern River (NFKR) upstream of the FERC Project Boundary, install trail cameras to collect recreation use data at each site in the study area, increase the number of on-site intercept survey days, extend the survey period to include a full calendar year from January 2023 through December 2023, recruit and deploy English- and Spanish-speaking surveyors, and include the U.S. Forest Service (Forest Service) Sequoia National Forest (SQF) modifications as well as FERC's modifications to the recreation user survey.

SCE conducted the study for one full calendar year (April 2023 through March 2024) to capture summer, shoulder season (fall/spring) and winter recreation use in the Project Area.[1] Visitor intercept surveys, spot counts, and calibration counts were conducted on weekdays, weekends, and holiday weekends between April 2023 and March 2024. SCE filed an Interim Technical Memorandum as part of the Initial Study Report (ISR) on October 9, 2023 (SCE, 2023) and provided a summary of data collection efforts conducted between April 1, 2023, through September 30, 2023, as well as a summary of variances to the FERC-approved REC-2 Study Plan.

Per FERC's February 1, 2024, request, SCE filed a summary of spot count and calibration count data collected from April 1 through November 30, 2023. The purpose of the filing was to provide FERC with the information to assess whether the calibration counts and additional spot counts adequately adjust for the data gaps resulting from the removal of the trail cameras and provide sufficient information to analyze the use of the recreation facilities in lieu of the proposed trail cameras (SCE, 2024b) (refer to SCE's ISR filing for additional information regarding this study variance and rationale for SCE's revised methodology [SCE, 2023]). On March 29, 2024, SCE filed an updated Interim Technical Memorandum that included preliminary results of the visitor intercept surveys from the peak summer-use period from Memorial Day, 2023, through Labor Day, 2023.

This Final Technical Memorandum supersedes the March Interim Technical Memorandum and provides the results for the full study period (April 1, 2023 through March 31, 2024). The data provided in Sections 5.1, 5.2 and 5.3 relates to this study period. As noted in SCE's January 9, 2024 response to ISR comments, SCE collected additional spot count and calibration data during the period of April 1, 2024 through May

[1] The geographic area comprised of the lands and waters within the FERC Project Boundary and those lands immediately adjacent to the FERC Project Boundary.

31, 2024 (SCE 2024a). The purpose of this additional data collection was to conduct a comparison with recreation use data collected during the April 1, 2023 through May 31, 2023, a period in which the NFKR experienced abnormally high flows and flooding, which resulted in the temporary closure of some recreation facilities within the study area. Section 5.4 provides a summary and comparison of the data collected and an analysis of the recreation use during these spring periods.

On May 30, 2024, FERC issued their Determination on Requests for Study Modifications and New Studies (FERC Accession No. 20240530-3030) in which FERC did not approve SCE's study variance pertaining to the installation and use of cameras to collect recreation use information. Instead, FERC recommended that SCE work with the SQF to install cameras at river access locations along the Fairview Dam Bypass Reach[2] and above Fairview Dam to Johnsondale Bridge to capture: (1) use estimates including percent capacity at all river access locations; (2) activity-type estimates, specifically commercial vs. non-commercial boaters, including the type of watercrafts used. Refer to Section 7.0, *Outstanding Study Plan Elements*, regarding pending actions to complete this study element.

2.0 STUDY GOALS AND OBJECTIVES

The primary goal of the REC-2 Study is to collect information on recreation use within the FERC Project Boundary and along the Fairview Dam Bypass Reach, as well as those sites included in the approximately 1.9-mile reach upstream of the FERC Project Boundary to the Johnsondale Bridge.

The objectives of the REC-2 Study, as outlined in the REC-2 Study Plan (SCE, 2022), include:

- Evaluate recreation use at recreation sites within the FERC Project Boundary and along the Fairview Dam Bypass Reach, including an assessment of the amount of recreation use each site receives (including percent of capacity) and the 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 the consistency of current recreation opportunities with the laws, regulations, policies, and guidelines described in the *Land Management Plan for the Sequoia National Forest* (Forest Service, 2023).[3]

[2] The Fairview Dam Bypass Reach is defined as the approximate 16-mile bypass reach of the NFKR between Fairview Dam and the KR3 Powerhouse tailrace.

[3] The Forest Service has published a new management plan since the RSP and SPD has been issued. This study will review the new 2023 management plan in lieu of the 1988 Management Plan originally cited in the RSP.

3.0 STUDY AREA AND STUDY SITES

3.1. STUDY AREA

The study area and specific study sites include one SCE-owned, FERC-approved site (KR3 Powerhouse Whitewater Put-in/Take-out) and 24 Forest Service-operated developed (formal) campgrounds, dispersed (informal) camping areas, day use areas, and trailheads within the FERC Project Boundary and along the Fairview Dam Bypass Reach, including sites situated in the approximately 1.9-mile reach upstream of the FERC Project Boundary to the Johnsondale Bridge. The locations are listed below and shown in Figure 3.1-1.

3.2. RECREATION STUDY SITES

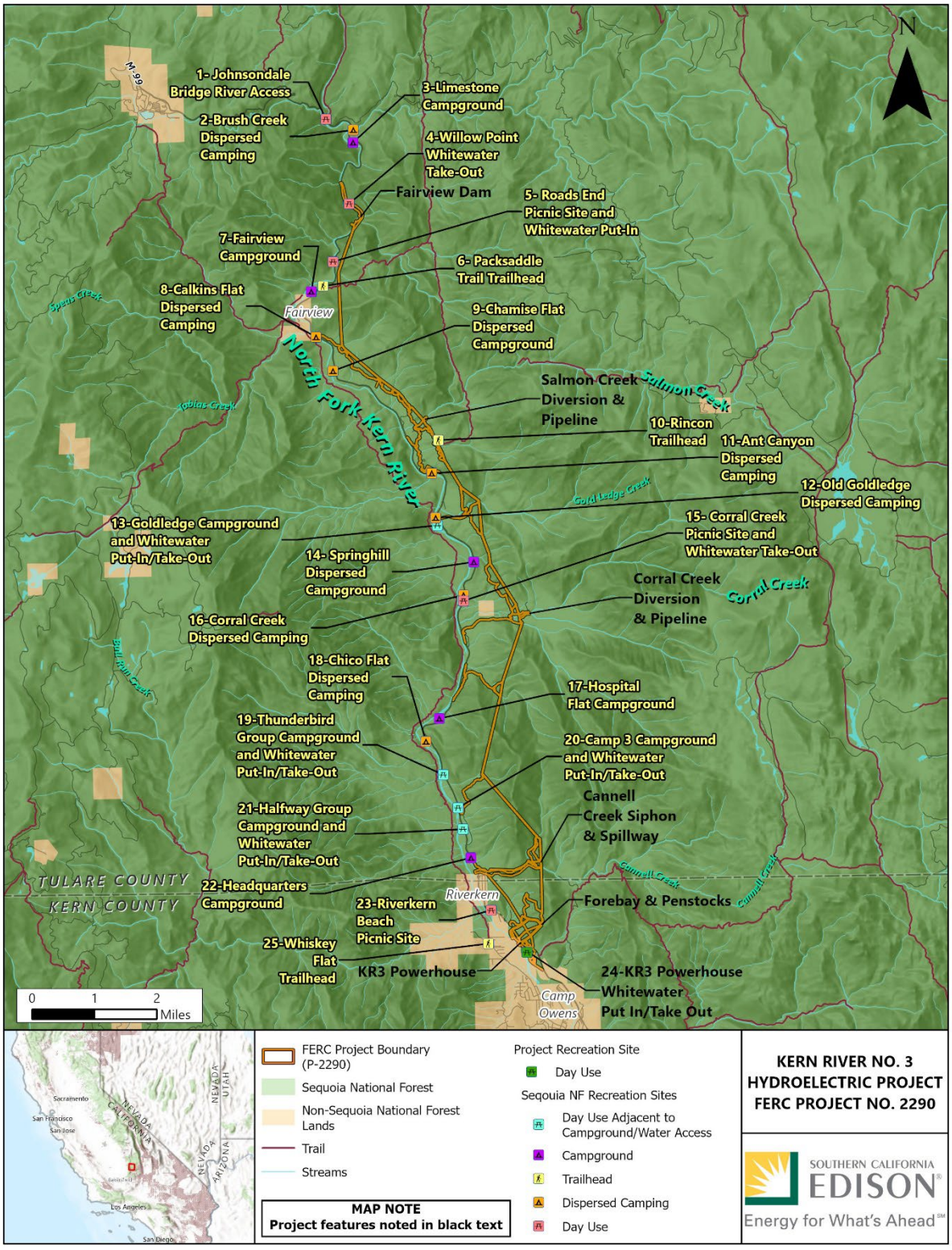
The 25 recreation study sites include 8 dispersed[4] camping areas, 4 developed campgrounds (DCGs),[5] 6 day use sites,[6] 4 day use area and adjacent developed campground (DUCG) sites, and 3 trailhead[7] sites. The majority of the Forest Service-operated sites (20 of 24) are located along the Fairview Dam Bypass Reach, another is located within the FERC Project Boundary (Willow Point Whitewater Take-out), and three sites (Johnsondale Bridge River Access, Brush Creek Dispersed Camping, and Limestone Campground) are located within the approximately 1.9-mile reach upstream of the FERC Project Boundary. Table 3.2-1 provides a summary of the study area sites (upstream to downstream) and site type.

[4] Dispersed camping is available free of charge, year-round, 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.

[5] DCGs require a fee and provide amenities such as potable water, picnic tables, fire pit/rings, trash receptacles, and restrooms.

[6] Day use sites are available free of charge and are open year-round. No permit or pass is required to use these sites.

[7] Trailhead sites are parking areas at the beginning of a trail or trail system.



FERC = Federal Energy Regulatory Commission; KR3 = Kern River No. 3; NF = National Forest

Figure 3.1-1. Recreation Study Sites within the Study Area.

Table 3.2-1. Recreation Study Sites

Site ID Number	Site Name	Site Type	Owned and Maintained
1	Johnsondale Bridge River Access	Day Use	SQF
2	Brush Creek Dispersed Camping	Dispersed Camping	SQF
3	Limestone Campground	DCG	SQF
4	Willow Point Whitewater Take-out	Day Use	SQF
5	Roads End Picnic Site and Whitewater Put-in	Day Use	SQF
6	Packsaddle Trail Trailhead	Trailhead	SQF
7	Fairview Campground	DCG	SQF
8	Calkins Flat Dispersed Camping	Dispersed Camping	SQF
9	Chamise Dispersed Camping	Dispersed Camping	SQF
10	Rincon Trailhead	Trailhead	SQF
11	Ant Canyon Dispersed Camping	Dispersed Camping	SQF
12	Old Goldledge Dispersed Camping	Dispersed Camping	SQF
13	Goldledge Campground and Whitewater Put-in/Take-out	DUCG	SQF
14	Springhill Dispersed Camping	Dispersed Camping	SQF
15	Corral Creek Picnic Site and Whitewater Take-out	Day Use	SQF
16	Corral Creek Dispersed Camping	Dispersed Camping	SQF
17	Hospital Flat Campground	DCG	SQF
18	Chico Flat Dispersed Camping	Dispersed Camping	SQF
19	Thunderbird Group Campground and Whitewater Put-in/Take-out	DUCG	SQF
20	Camp 3 Campground and Whitewater Put-in/Take-out	DUCG	SQF
21	Halfway Group Campground and Whitewater Put-in/Take-out	DUCG	SQF
22	Headquarters Campground	DCG	SQF
23	Riverkern Beach Picnic Site	Day Use	SQF
24	KR3 Powerhouse Whitewater Put-in/Take-out	Day Use (Project Recreation Site)	SCE
25	Whiskey Flat Trailhead	Trailhead	SQF

DCG = developed campground; DUCG = day use area adjacent to developed campground; SCE = Southern California Edison; SQF = Sequoia National Forest

4.0 METHODS

4.1. DATA COLLECTION PERIOD AND SAMPLING DAYS

Implementation of the REC-2 Study relied on a combination of data collection methodologies, including visitor intercept surveys, online surveys, spot counts, and calibration counts. The primary data collection efforts extended from April 2023 through March 2024. In addition, as proposed in the ISR Response to Comments, SCE conducted two additional weekday, two additional weekend, and one additional holiday spot and calibration counts during the April 2024 through May 2024 period.

SCE conducted intercept surveys and spot counts on 56 days, and calibration counts on 28 days during the April 2023 through March 2024 study period. During the April 2024 through May 2024 period, an additional five spot counts and five calibration counts were conducted for a total of 56 intercept survey days, 61 spot count days and 33 calibration count days (Table 4.1-1).

Table 4.1-1. Summary of Data Collection Days by Season and Type

Season	Study Time Period	Spot Count	Calibration Count	Intercept Survey Days
Spring	April 1, 2023 to May 26, 2023; March 1–31, 2024	8	6	8
Summer	May 27, 2023 to September 3, 2023	19	10	19
Fall	September 4, 2023 to November 30, 2023	13	6	13
Winter	December 1, 2023 to February 29, 2024	16	6	16
Spring 2024	April 1, 2024 to May 31, 2024	5	5	0
	Total	**61**	**33**	**56**

The visitor intercept survey sampling schedule included one weekday, one weekend day, and one holiday weekend day (as applicable) per month between April 2023 and March 2024 for a total of 33 survey days.[8] The holiday weekend day surveyed included one of the 3 days of the holiday weekend (Saturday and Sunday and either the Friday before or the Monday after) of Memorial Day (May 27 to 29, 2023), Juneteenth National Independence Day (June 17 to 19, 2023), Fourth of July (July 1 to 3, 2023), Labor Day (September 2 to 4, 2023), Thanksgiving (November 24 to 26, 2023), Christmas (December 23 to 25, 2023), New Year's Day (December 30, 2023, to January 1, 2024), Martin Luther King, Jr. Day (January 13 to 15, 2024), and President's Day (February 17 to 19, 2024). The weekday, weekend, and holiday sampling dates were selected

[8] In FERC's SPD, a total of 35 survey days are identified. When SCE implemented the changes requested from FERC in the SPD, the number of days added up to 33 days. However, as indicated, SCE conducted a total of 56 survey days during the study period.

randomly using R software (Version 4.2.2.; R Core Team, 2022), including one weekday, one weekend, and one holiday, as applicable, per month, as described above. As such, dates were entered into R as samples, and computer code was written to generate the random sampling date.

Following Forest Service SQF's request and subsequent decision to remove all trail cameras (see ISR study plan variances [SCE, 2023]*)* on May 24, 2023, SCE reviewed the study approach and revised the recreation use data collection to implement additional sampling days to include a spot count and a 2-hour calibration count. Intercept surveys were also conducted on these additional spot and calibration count days. A total of 23 days were added to the REC-2 Study.

On each of the additional sampling days, spot and calibration counts were conducted following a bus route method (Pollack et al., 1994) so that site use was counted at each recreation site at various times of the day. The starting time, recreation site, and the direction of travel (i.e., clockwise or counterclockwise) were selected randomly on the days of the spot count and calibration counts. The recreation sites were numbered 1 to 25, and a site number was selected randomly to begin each circuit. Each survey team was assigned recreation sites to visit, a start time, and direction of travel (clockwise or counterclockwise).

Table 4.1-2 summarizes the total number of intercept surveys, spot counts, and calibration counts conducted April 2023 through March 2024 by month, day type (weekday, weekend, and holiday) and by data collection type (intercept survey, spot count, and calibration count). In addition, as proposed in the ISR Response to Comments (SCE, 2024a), SCE conducted two additional weekday, two additional weekend, and one additional holiday spot and calibration counts during the April 2024 through May 2024 period. This resulted in a total of 61 spot counts and 33 calibration count days.

Table 4.1-2. Summary of Data Collection Days by Month and Type

Month	Day Type	Intercept Survey	Spot Count	Calibration Count [a]
April 2023	Weekday	1	1	1
	Weekend	1	1	1
	Holiday	0	0	0
May 2023	Weekday	1	1	1
	Weekend	1	1	1
	Holiday	1	1	1
June 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	2	2	1

Month	Day Type	Intercept Survey	Spot Count	Calibration Count [a]
July 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	2	2	1
August 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	0	0	0
September 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	2	2	1
October 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	0	0	0
November 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	1	1	0
December 2023	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	2	2	0
January 2024	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	1	1	0
February 2024	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	1	1	0
March 2024	Weekday	2	2	1
	Weekend	2	2	1
	Holiday	0	0	0
April 2024	Weekday	0	1	1
	Weekend	0	1	1
	Holiday	0	0	0
May 2024	Weekday	0	1	1
	Weekend	0	1	1
	Holiday	0	1	1

Month	Day Type	Intercept Survey	Spot Count	Calibration Count [a]
Total	Weekday	22	24	14
	Weekend	22	24	14
	Holiday	12	13	5
Cumulative Total		**56**	**61**	**33**

[a] Shaded calibration counts were conducted for a 1-hour duration; the remaining counts were conducted for a 2-hour duration.

4.2. VISITOR SURVEYS

4.2.1. INTERCEPT SURVEYS

SCE conducted visitor intercept surveys at the recreation sites within the study area when the sites were open between April 2023 and March 2024. Concessionaire-hosted campgrounds are open seasonally, with day use sites, dispersed camping areas, and trailheads typically open year-round[9].

SCE deployed field technicians to implement the in-person visitor intercept survey. Field technicians approached recreationists at each recreation site and asked if they would be willing to be surveyed. All survey teams included a technician who was a bilingual English/Spanish speaker[10] and were equipped with a handheld tablet with the survey questions populated in the Survey123 application. Hard copies of the survey, in both English and Spanish, were also available for recreationists to follow along with during the survey if requested to assist in easing any language barriers. A copy of the survey is provided in Appendix A.

Field technicians remained at each recreation site for a total of 1 hour, conducting as many interviews with recreationists as time allowed. Upon arrival at a site, field technicians would begin in the parking area and seek out recreationists to participate in the survey. If time allowed and all recreationists had been interviewed in the parking area, the field technicians would rove the extent of the recreation site to seek out additional recreationists. If a recreationist declined to partake in the survey, the field technician would record the declined survey in the Survey123 application and a postcard-size version of the survey flyer (in English and Spanish) with an online access code was distributed (Appendix B).

[9] Per the SQF website, campground dates are as follows: Limestone Campground, April 1 to October 31; Fairview Campground, April 1 to November 30; Goldledge Campground, May 15 to September 15; Hospital Flat Campground, May 15 to September 15; Thunderbird Group Campground, May 15 to September 15; and Camp 3 Campground, May 15 to September 15. Some sites delayed opening or were temporarily closed in the spring of 2023 due to high spring flows that damaged the sites. Open and closure dates will be noted in the final report.

[10] Field technicians noted the primary language of all respondents. If the primary language was noted as Spanish, field technicians translated for respondents on an as-needed basis.

4.2.2. ONLINE SURVEYS

An online survey option was made available via a flyer with a quick-response code (QR code) advertised at all study sites. A link to the survey was also posted on the Project relicensing website (www.sce.com/kr3). Flyers were provided, in English and Spanish, with the QR code, to Forest Service to post at the SQF ranger district station on March 30, 2023, and again on May 8, 2023. In addition, SCE contacted local outfitters to post the survey link and/or flyer at the outfitters' businesses. SCE also posted the survey flyer at local businesses in Kernville. The online survey was available for a 12-month period (April 2023 to March 2024) in order to capture visitor use through the shoulder seasons (fall/spring) and the winter season. A copy of the flyer is available in Appendix B.

The online survey followed the same structure and format as the in-person visitor intercept surveys and collected recreation user demographics, activities, perception and experience, and feedback (conditions and needs). The data collected was 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.

4.3. SPOT AND CALIBRATION COUNTS

4.3.1. SPOT COUNTS

To document recreation use and use patterns, spot counts were conducted concurrently with the visitor intercept surveys on weekdays, weekends, and holidays (as applicable) monthly. Spot counts were conducted at day use sites, dispersed camping areas, trailheads and the day use portions of sites located adjacent to a DCG (see Section 3.2, *Recreation Study Sites*). Upon arrival at these locations, the field technician roamed the parking area and counted the number of vehicles and people observed. Spot counts were also conducted at DCGs. At the DCGs, the field technician roamed the campground counting the number of sites that were occupied.

Spot counts were conducted concurrently with the visitor intercept surveys, and therefore, sampling dates, start times, and direction of travel were selected using the methodology as noted in Section 4.1. Spot counts were conducted for a total of 56 days between the April 2023 through March 2024 study period. During each spot count, a field technician took approximately 5 to 15 minutes to record the following information: date, time, weather conditions, number of vehicles with and without trailers observed in the recreation site parking area, state of origin for each license plate (no other identifying information), number of visitors observed at the site, and type of recreation activities observed. Data were collected in the Survey123 application based on the spot count form developed for this study (Appendix C).

4.3.2. CALIBRATION COUNTS

Between April 1 and May 28, 2023, SCE conducted 1-hour calibration counts at recreation sites[11] in the study area one weekday, one weekend day, and one holiday weekend day (Memorial Day) in April and May. Calibration counts included recording the following information: number of people observed, observed activities, number of vehicles and trailers, and time in and time out of vehicles during the 1-hour count. Following Forest Service SQF's request and SCE's subsequent decision to remove all trail cameras (see ISR study plan variances [SCE, 2023]) on May 24, 2023, 2-hour calibration counts, and an additional spot count were added to the REC-2 Study for the study period of June 19, 2023, through March 31, 2024.[12]

During each calibration count, the field technician counted all vehicles in the parking area at the start and end of the shift. Throughout the calibration count, the technician recorded the time in and time out of all vehicles that entered and exited the parking area, the number of persons observed per vehicle (when a group was seen and could be associated with a vehicle in the parking area), and the recreation activities observed. This information was used to determine the average vehicle trip length at each recreation site and the average number of people per vehicle (or group size). Data were collected in the Survey123 application using the calibration count form developed for this study (Appendix D). For vehicles that were on site at the start of the shift or were still on site at the end of the shift, the following assumptions for the trip length were made based on best professional judgment: day use sites (4 hours), dispersed camping areas (24 hours), and trailheads (6 hours).

Refer to Section 4.1 for a discussion of the selection of sampling dates, start times, and directions. Additionally, dispersed camping areas were randomly selected to be surveyed either at the beginning or the end of the shift in order to collect both morning and evening data for these sites. SCE completed 5 1-hour calibration count days and 23 2-hour calibration count days during the period April 2023 through March 2024.[13]

4.4. QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

All field data (spot count and calibration count data) and survey data (visitor intercept surveys and online surveys) collected as part of this study are subject to a rigorous multi-step quality assurance and quality control (QA/QC) protocol to validate the dataset used in the recreation use analyses.

[11] DCGs were not included in calibration count data collection as the intent of a calibration count is to determine the site turnover rate. Use at DCGs will be summarized based on actual use records kept by the Forest Service, once provided.

[12] Data collected from April 2024 through May 2024 is included in Section 5.4, Comparison of Spring 2023 and Spring 2024 Recreation Use Data.

[13] As proposed in the ISR Response to Comments (SCE, 2024a), SCE conducted two additional weekday, two additional weekend, and one additional holiday weekend spot and calibration count during the April 2024 through May 2024 period.

The QA/QC protocol involves a multi-stage approach to ensure the integrity and accuracy of the data as follows:

- QC1 focused on verifying that all field data were properly recorded.
- QC2 included a detailed examination of the data to identify and address outliers or suspect values. Data were examined to identify erroneously repeated data, data with questionable validity, or data that contained suspect information otherwise not captured.
- QC3 entailed standardizing data formats and units, as well as more in-depth checks for erroneous data, spelling errors, etc. The QC3 process continued throughout the analysis.

4.5. SQF Developed Campground Visitation Data

SCE reached out to the SQF to obtain available visitor use records at the DCGs and the DCG portion of DUCGs within the study area. As of the date of this filing, no data has been received. If data becomes available, SCE will provide a summary of the data in a supplemental Technical Memorandum filing. SCE collected observations regarding recreation use at DCGs and the DCG portion of DUCGs during spot count and visitor intercept survey days in which technicians noted if a campsite appeared occupied (vehicle or camping equipment present at a site). These data are included in Section 5.2.3.

4.6. Current Recreation Use and Density (Parking Utilization) Estimates

For the day use sites and trailheads, recreation days were estimated using a combination of data from the visitor intercept surveys, online surveys, spot counts, and calibration counts using the following recreation day calculation (Pollock et al., 1994):[14]

Average Vehicle Count (by Season and Day Type from spot count data)

x **Average Group Size** (from visitor intercept survey data, online survey data, and/or calibration count data)

x **Recreation Day[15] Length** (12 hours assumed for day use and 24 hours assumed for overnight use)

x **Total Number of Days** (by Season and Day Type)

÷ **Average Trip Length** (from calibration count data, online survey data, and/or visitor intercept survey data)

= **Estimated Number of Recreation Days** (by Season and Day Type)

The estimates are presented as total recreation days by season, day type, and site type.

[14] DCGs were not included in this assessment. Use at DCGs is summarized in Section 5.2.3, *SQF Developed Campground Utilization*, based on actual use records kept by the Forest Service, if provided.

[15] As defined by FERC, a recreation day is each visit by a person to the study site for recreational purposes during any portion of a 24-hour period.

The recreation day estimates for the dispersed camping areas and DUCG sites were calculated separately to reflect the different lengths of time recreationists spend at these sites for camping (overnight use) versus day use activities. Average vehicle counts and average trip length were estimated based on the observed proportions of people camping. Recreation days were then summed across day types and seasons.

If the average vehicle, group size, or trip length data were not available for a specific site and day type (e.g., a calibration count was not conducted on a fall holiday, or no vehicles or people were observed at a specific site on a specific day type), data from the same site for a different day type in the same season was used. For example, if the average number of vehicles on holidays in fall was not available, the average number of vehicles from weekends in fall at the same site were used. The average group size from the visitor survey was used, unless it was not available, in which case the average number of people per vehicle from the calibration counts was used in the recreation day calculation.

The average length of stay, in hours, from the calibration counts was used in the recreation day calculation for the day use sites and trailheads, as well as for estimating the day use for the dispersed camping areas and DUCG sites. For the dispersed camping areas and campgrounds at DUCG sites, the average length of stay from the visitor surveys was used because the survey provided length of stay information in days.

The parking capacity for a recreation site was 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 that site. Parking capacities for each site with a parking area were described in the REC-3 *Recreation Facility Condition Assessment Technical Memorandum* (Appendix E.2 of this License Application).[16] To determine the parking utilization (density analysis), the average number of vehicles observed on holiday and non-holiday weekends was calculated from the spot counts. This was divided by the available parking capacity. The formula for determining parking utilization is shown below.

$$\text{Parking utilization} = \left(\frac{Average\ Vehicles}{Parking\ Capacity}\right) \text{x } 100$$

Calibration and spot count data collected in April 2024 through May 2024 were reviewed and compared to the calibration and spot count data collected in April 2023 through May 2023 to evaluate any differences. The recreation day calculation and parking utilization estimates presented in Section 5.2 were based on the April 2023 through March 2024 data. The comparison of the 2023 and 2024 spring periods is provided in Section 5.4.

4.7. FUTURE RECREATION USE

Population estimates for 2013 to 2022 were obtained from the U.S. Census Bureau for Kern County, California, Tulare County, California, and the state of California (U.S. Census Bureau, 2024). From the 2013 to 2022 population data, the 10-year average rate

[16] Site 1-Johnsondale Bridge River Access and Site 2-Brush Creek Dispersed Camping were not included in the REC-3 Study; however, as part of this analysis, parking capacity was estimated from Google Earth imagery.

of change in the population for each county and state was estimated. This rate of change was used to estimate the population projections for 2030, 2040, 2050, 2060, and 2070 for Kern County, Tulare County, and the state of California. Future recreation days for 2030, 2040, 2050, 2060, and 2070 were estimated by applying a weighted rate of change to the 2023 recreation days estimates; the rate of change was weighted by the proportion of survey respondents from Kern and Tulare Counties.

5.0 RESULTS

Study results are presented based on locations and type of recreation site. Sites 1 through 3 are located in the 1.9-mile reach upstream of the FERC Project Boundary. Sites 4 through 23 and Site 25 are located within the FERC Project Boundary (Site 4) and along the Fairview Dam Bypass Reach (Sites 5 through 23 and site 25); Site 24 is a Project facility located within the FERC Project Boundary. Much of the data from Sites 4 through 25 are further divided into site types: (1) day use, (2) DCG, (3) dispersed camping, (4) DUCG, (5) trailhead, and (6) the FERC-approved KR3 Powerhouse Whitewater Put-in/Take-out (Site 24).

5.1. VISITOR INTERCEPT AND ONLINE SURVEYS

The visitor surveys provide a variety of information for the study sites, including demographics, user experience, historical recreation use, aesthetics, angling experience, and user feedback. Table 5.1-1 identifies the number of visitor intercept and online surveys completed per season during the study period that were used for data analysis.

Table 5.1-1. Number of Visitor Intercept Surveys Conducted

Season	Study Time Period	Intercept Surveys	Online Surveys	Total
Spring	April 1, 2023 to May 26, 2023; March 1-31, 2024	184	3	187
Summer	May 27, 2023 to September 3, 2023	558	10	568
Fall	September 4, 2023 to November 30, 2023	298	15	313
Winter	December 1, 2023 to February 29, 2024	657	14	671
	Total	**1,697**	**42**	**1,739**

Between April 1, 2023, and March 2024, a total of 2,195 visitor intercept surveys were attempted. Of those, 347 visitors declined to participate in the survey and 151 were determined to be individuals who had previously completed the survey and not included in the final analysis, leading to a visitor intercept survey participation rate of approximately 79 percent, and a verified total of 1,697 completed intercept surveys. During the study period, a total of 42 online surveys were completed, for a combined total of 1,739 completed visitor surveys.

A total of 188 surveys were completed by survey respondents at Study Sites 1 through 3, and a total of 1,551 surveys were completed at Study Sites 4 through 25. All respondents

did not provide responses to each question; therefore, the total responses for each question may be less than the total number of completed surveys. The number of survey respondents that did not respond to a question and the number of responses received are provided for each question, as appropriate. The numbers provided in total rows and the associated percentages in the tables in Sections 5.1 and 5.2 do not include the counts from survey respondents that did not answer a question.

5.1.1. VISITOR DEMOGRAPHICS

Of the respondents at the study sites upstream of the FERC Project Boundary (Sites 1 through 3) that provided their zip code (n=96), 59.4 percent of respondents indicated they were from California, 31.3 percent indicated they lived internationally, and the remaining 9.4 percent were from Alaska, Washington, Colorado, Oregon, Pennsylvania, or Virginia. Of the respondents at the remainder of the study sites (Sites 4 through 25) that provided their zip code (n=595), 70.3 percent of respondents indicated they were from California, 21.5 percent indicated they lived internationally, and the remaining 8.2 percent were from Washington, Alaska, Oregon, Nevada, Texas, Minnesota, Arizona, Illinois, Nebraska, Ohio, New York, New Jersey, Oklahoma, or from an unknown zip code (Table 5.1-2).

Table 5.1-2. Respondents Indicated Home Zip Code (Q1)

State	Study Sites 1–3		Study Sites 4–25	
	Count	%	Count	%
California	57	59.4	418	70.3
International	30	31.3	128	21.5
Alaska	3	3.1	13	2.2
Washington	2	2.1	10	1.7
Unknown	0	0	7	1.2
Texas	0	0	6	1
Nevada	0	0	2	0.3
Oregon	1	1	2	0.3
New York	0	0	2	0.3
Arizona	0	0	1	0.2
Illinois	0	0	1	0.2
Minnesota	0	0	1	0.2
Nebraska	0	0	1	0.2
New Jersey	0	0	1	0.2
Ohio	0	0	1	0.2
Oklahoma	0	0	1	0.2
Pennsylvania	1	1	0	0

State	Study Sites 1–3		Study Sites 4–25	
	Count	%	Count	%
Virginia	1	1	0	0
Colorado	1	1	0	0
Total	**96**	**100**	**595**	**100**
No Answer	92		956	

When asked how far they traveled to get to the recreation site, the majority of respondents at Study Sites 1 through 3 (55.1 percent) indicated they had traveled greater than or equal to 101 miles, and 23.3 percent indicated they had traveled less than 50 miles to visit the site (Table 5.1-3). When asked how far they traveled to get to the recreation site, the majority of respondents at Study Sites 4 through 25 (49.8 percent) indicated they had traveled greater than or equal to 101 miles, and 19.3 percent indicated they had traveled less than 50 miles to visit the site (Table 5.1-3).

Table 5.1-3. Summary of Distance Traveled to Site (Q2)

Distance Traveled	Study Sites 1–3		Study Sites 4–25	
	Count	Percent	Count	Percent
0-25 miles	12	6.8	98	6.7
26-50 miles	29	16.5	184	12.6
51-75 miles	11	6.3	177	12.1
76-100 miles	27	15.3	276	18.9
≥101 miles	97	55.1	728	49.8
Total	**176**	**100**	**1,463**	**100**
No Answer	12		88	

Of those surveyed at Study Sites 1 through 3 that provided their age (n=159), the majority of the respondents ranged from 30 to 59 years old (71.7 percent), followed by 23.3 percent less than 30 years old and 5 percent greater than 60 years old. Of those surveyed at Study Sites 4 through 25 that provided their age (n=1,353), the majority of the respondents ranged from 30 to 59 years old (71.8 percent) with 20 percent less than 30 years and 8.1 percent greater than 60 years old (Table 5.1-4).

Table 5.1-4. Respondents Indicated Age (Q3)

Age	Study Sites 1–3		Study Sites 4–25	
	Count	Percent	Count	Percent
<16 years	0	0	1	0.1
16-19 years	1	0.6	10	0.7
20-29 years	36	22.6	260	19.2
30-39 years	48	30.2	389	28.8
40-49 years	42	26.4	387	28.6
50-59 years	24	15.1	196	14.5
60-69 years	8	5	99	7.3
≥70 years	0	0	11	0.8
Total	**159**	**100**	**1,353**	**100**
No Answer	29		198	

Table 5.1-5 summarizes responses received from questions 4 and 5 that asked how many people in each party were more than 18 years of age and how many people in each party were under 18 years of age. The group size was calculated as the sum of the number of people per party above and below 18 years of age. The overall average group size at study sites 1 through 3 was 3.3 people with a median of 2 people and a maximum group size of 27 people; approximately 78.9 percent of the people were more than 18 years, and the remaining 21.1 percent were under 18. The overall average group size at Study Sites 4 through 25 was 3.5 people, with a median of 2 people, and a maximum group size of 58 people; approximately 80 percent of the people were more than 18 years, and the remaining 20 percent were less than 18.

Table 5.1-5. Summary of Respondents Group Size and Age Category (Q4/Q5)

Age Group	Count	Group Size				Total People
		Minimum	Average	Median	Maximum	
Study Sites 1–3						
≥18 years	188	1	2.6	2	20	494
<18 years	187	0	0.7	0	7	132
Total		**1**	**3.3**	**2**	**27**	**626**
Study Sites 4–25						
≥18 years	1,551	1	2.8	2	58	4,359
<18 years	1,536	0	0.7	0	36	1,077
Total		**1**	**3.5**	**2**	**58**	**5,436**

Respondents were asked to indicate what gender, if any, they identified as. At Study Sites 1 through 3 (n=168), 72 percent of respondents reported being male and 28 percent of respondents reported being female (Table 5.1-6). At Study Sites 4 through 25 (n=1,462), 64.8 percent of respondents reported being male and 35 percent of respondents reported being female, and the remaining 0.2 percent reported their gender as other or indicated that they prefer not to answer.

Table 5.1-6. Respondents Indicated Gender Identification (Q6)

Gender	Study Sites 1–3		Study Sites 4–25 [a]	
	Count	%	Count	%
Female	47	28	511	35
Male	121	72	947	64.8
Other	0	0	1	0.1
Prefer not to answer	0	0	3	0.2
Total	**168**	**100**	**1,462**	**100**
No Answer	20		89	

[a] Total percentages may not equal 100 due to rounding.

When asked to indicate their ethnicity, 62.5 percent of respondents at Study Sites 1 through 3 reported being White, while 21.4 percent of respondents reported being Spanish/Latino, and the remaining respondents reported ethnicity of Asian/Pacific Islander, Black, or Other (Table 5.1-7). At Study Sites 4 through 25, 62.4 percent of respondents reported being White, 28.5 percent of respondents reported being Spanish/Latino, and the remaining respondents reported ethnicity of Asian/Pacific Islander, Black, Native American, or Other.

Table 5.1-7. Respondents Indicated Ethnicity (Q7)

Ethnicity	Study Sites 1–3		Study Sites 4–25	
	Count	%	Count	%
Asian/Pacific Islander	15	8.9	54	3.7
Black	2	1.2	13	0.9
Native American	0	0	10	0.7
Spanish/Latino	36	21.4	417	28.5
White	105	62.5	913	62.4
Other	10	6	57	3.9
Total Responses	**168**	**100**	**1,464**	**100**
No Answer	20		87	

When asked to indicate their total household income, the majority of respondents at Study Sites 1 through 3 (56.3 percent) reported their total household income as being between $40,000 and $80,000, 23 percent reported their income as less than $40,000, and the remaining 20.7 percent indicated their total household income was greater than or equal to $81,000 (Table 5.1-8). The majority of the respondents at Study Sites 4 through 25 (62.6 percent) reported their total household income as being between $40,000 and $80,000 or less, 20.2 percent reported their income as less than $40,000, and the remaining 17.3 percent indicated their total household income was greater than or equal to $81,000.

Table 5.1-8. Respondents Indicated Household Income (Q8)

Household Income	Study Sites 1–3		Study Sites 4–25	
	Count	%	Count	%
< $40k	31	23	257	20.2
$40k-80k	76	56.3	797	62.6
≥ $81k	28	20.7	220	17.3
Total	**135**	**100**	**1,274**	**100**
No Answer	53		277	

The majority of the respondents at Study Sites 1 through 3, (70.1 percent), and at Study Sites 4 through 25 (67.1 percent) indicated they were employed full-time (Table 5.1-8). At Study Sites 4 through 25, a similar number of respondents reported being employed part-time (9.6 percent) or retired (9.7 percent).

Table 5.1-9. Employment Status of Survey Respondents (Q9)

Employment Status	Study Sites 1–3		Study Sites 4–25	
	Count	%	Count	%
Full-time	101	70.1	854	67.1
Homemaker	5	3.5	33	2.6
Part-time	15	10.4	122	9.6
Retired	9	6.3	123	9.7
Self-employed	4	2.8	66	5.2
Student	5	3.5	30	2.4
Unemployed	4	2.8	43	3.4
Other	1	0.7	2	0.2
Total Responses	**144**	**100**	**1,273**	**100**
No Answer	44		278	

When asked what their primary occupation was, if employed, the majority of the respondents indicated their occupation was related to construction/mechanics/trades, health and wellness, education, food/service industry, or retail (Table 5.1-10).

Table 5.1-10. Respondents Indicated Occupation (Q10)

Occupation	Count	%
Construction/Mechanic/Trade	258	21
Healthcare/Wellness	147	12
Education	107	8.7
Food/Drink/Service Industry	103	8.4
Retail	92	7.5
Corporate/Administration/Management	72	5.9
STEM (science, technology, engineering, and mathematics)	62	5.1
Home/Yard Services	51	4.2
Maintenance/Cleaning	45	3.7
Miscellaneous	40	3.3
Transportation	40	3.3
Retired	35	2.9
Finance	30	2.4
Sales	28	2.3
Municipal/State/Federal Worker	27	2.2
Law/Legal/Security	25	2
Homemaker	20	1.6
Caregiver	19	1.5
Entertainment/Hospitality	19	1.5
Military	7	0.6
Total	**1,227**	**100**
No Answer	512	

5.1.2. Current Trip Information and Experience

Table 5.1-11 shows what type of day the respondents arrived at the recreation site by site type. For respondents arriving at Study Sites 1 through 3, 44.1 percent indicated arriving on a weekend, followed by weekdays (36.7 percent), and the remaining 19.1 percent arrived on a holiday. At Study Sites 4 through 25, 38.8 percent of respondents indicated arriving on a weekday, followed by weekends (33.7 percent), and the remaining

27.5 percent arrived on a holiday. At the KR3 Powerhouse Whitewater Put-in/Take-out, 44 percent of respondents arrived on the weekend, and 26 percent and 30 percent arrived on holidays and weekdays, respectively.

Table 5.1-11. Summary of Respondents Date of Arrival by Month and Type of Day per Site Type (Q11)

Type of Day	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Holiday	36	19.1	63	47	163	78	54	22	427	27.5
Weekday	69	36.7	88	60	271	99	59	25	602	38.8
Weekend	83	44.1	76	32	224	94	59	37	522	33.7
Total	**188**	**100**	**227**	**139**	**658**	**271**	**172**	**84**	**1,551**	**100**

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked to indicate if the site they were surveyed at was their primary destination. Of those surveyed at Study Sites 1 through 3, 71.1 percent stated the site they were visiting was their primary destination for their trip. At Study Sites 4 through 25, 72.1 percent of those surveyed indicated the site they were visiting was their primary destination for their trip (Table 5.1-12). Approximately 74 percent of respondents at the KR3 Powerhouse Whitewater Put-in/Take-out reported that it was their primary destination.

Table 5.1-12. Percentage of Respondents Indicating They Were or Were Not Surveyed at Their Primary Destination (Q12)

Response	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No Answer	46		48	42	153	73	26	14		
Yes	101	71.1	117	74	356	147	115	52	**861**	**72.1**
No	41	28.9	62	23	149	51	31	18	**334**	**27.9**
Total	**142**	**100**							**1,195**	**100**

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

In order to estimate the length of time recreationists were on site, respondents were asked how many days they had been on this recreation trip, including today, and how many days they expected their trip to last. If recreationists were on site for less than one day, it was recorded that they had been on their recreation trip for one day. The average number of days spent at Study Sites 1 through 3 was 1.8 days with a median of 1 day, and the maximum length of stay was 6 days (Table 5.1-13). At Study Sites 4 through 25, the average number of days spent at a site was 2.1 days with a median of 1 day, and the maximum length of stay was 40 days. The longest lengths of stay (2.2 days to 3 days, on average) were at the DCGs, dispersed camping areas, and DUCGs. Recreationists at the KR3 Powerhouse Whitewater Put-in/Take-out were on site for 1.3 days, on average.

Table 5.1-13. Statistical Summary of Length of Stay (Days) by Site Type (Q13/Q14)

Responses	Study Sites 1–3	Study Sites 4–25						
		Length of Stay by Site Type						Count
	Count	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	
# Responses	188	227	139	658	271	172	84	1,551
Minimum Days	1	1	1	1	1	1	1	1
Average Days	1.8	1.7	3	2.3	2.2	1.3	1.3	2.1
Median Days	1	1	3	2	2	1	1	1
Maximum Days	6	11	11	40	10	6	3	40

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked to indicate their primary reason for selecting the recreation site (Table 5.1-14). At Study Sites 1 through 3, 24.3 percent of respondents indicated their primary reason for selecting the site was scenery or views, and 20.8 percent stated their primary reason was fishing. At Study Sites 4 through 25, 16.9 percent of respondents indicated their primary reason for selecting the site was scenery or views, followed by 14.2 percent stating fishing and 10 percent stating camping. The most common primary reason respondents selected the KR3 Powerhouse Whitewater Put-in/Take-out site was fishing; other responses included the solitude and peace of the site, boating, scenery, and river access.

Survey respondents were asked what their primary recreation activity was that day. The most popular primary activity of respondents at Study Sites 1 through 3 was camping (26.6 percent) followed by fishing (24.5 percent), and hiking/walking/trail use (17.9 percent) (Table 5.1-15). At Study Sites 4 through 25, respondents indicated their primary activities were camping (39 percent), fishing (20.4 percent), and hiking/walking/trail use (13.7 percent) (Table 5.1-15). Those who indicated camping as their primary activity were surveyed at all site types. Most respondents (64 percent) at the KR3 Powerhouse Whitewater Put-in/Take-out indicated their primary activity was fishing.

Survey respondents were also asked what secondary activities were participated in and were able to indicate as many activities as applied. The top three secondary activities at Study Sites 1 through 3 were relaxing (65 percent), viewing scenery (55.2 percent), and scenic driving and hiking/walking/trail use (28.4 percent each) (Table 5.1-16). At Study Sites 4 through 25, the top three activities were relaxing (66.6 percent), viewing scenery (44.1 percent), and picnicking (33.3 percent) (Table 5.1-16).

Table 5.1-14. Respondents Primary Reason for Selecting Site Location (Q15)

Primary Reason for Selecting Site Location	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Availability	3	1.7	1	3	6	9	1	0	20	1.5
Biking	1	0.6	0	0	2	0	5	0	7	0.5
Boating	0	0	7	0	1	4	0	6	18	1.3
Camping	8	4.6	4	24	87	21	1	0	137	10
Check out site/ Quick Stop	6	3.5	11	1	28	10	10	0	60	4.4
Day Use	3	1.7	4	0	2	2	0	1	9	0.7
Exercise	0	0	0	0	0	0	6	0	6	0.4
Family Trip	4	2.3	1	2	9	5	0	2	19	1.4
Fishing	36	20.8	43	4	56	57	0	35	195	14.2
Fishing/Camping	0	0	1	1	14	9	0	3	28	2
Frequent Visitor	3	1.7	3	10	28	10	5	0	56	4.1
Hiking/Walk/Run	13	7.5	7	1	15	2	101	2	128	9.3
Holiday/Vacation/ Special Occasion	4	2.3	4	1	5	5	2	2	19	1.4
Like the Site/Area	6	3.5	7	6	22	8	1	3	47	3.4
Location	1	0.6	2	4	4	6	8	3	27	2
Misc.	9	5.2	7	6	23	6	3	3	48	3.5
Picnicking	3	1.7	4	0	5	1	0	0	10	0.7
Recommendation	6	3.5	1	4	7	4	2	0	18	1.3

Primary Reason for Selecting Site Location	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Restrooms	7	4	7	2	30	7	0	0	46	3.4
River Access	9	5.2	26	14	60	24	5	4	133	9.7
Scenery/Views	42	24.3	50	22	112	31	13	4	232	16.9
Spacious/Solitude/ Peaceful	9	5.2	12	9	59	20	0	6	106	7.7
Total Responses	**173**		**202**	**114**	**575**	**241**	**163**	**74**	**1,369**	
No Answer	15		25	25	83	30	9	10	182	

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Table 5.1-15. Respondents Primary Recreation Activity (Q16a)

Primary Activity	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Primary Activity per Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Biking	1	0.5	1	0	4	1	10	0	16	1.1
Camping	49	26.6	25	105	337	118	4	2	591	39
Fishing	45	24.5	57	9	103	86	1	54	310	20.4
Other	4 [a]	2.2	13	3	20	9	2	0	47 [b]	3.1
Photography/ Painting	5	2.7	7	1	8	2	0	1	19	1.3
Picnicking	8	4.3	25	1	23	4	0	3	56	3.7
Relaxing	18	9.8	48	5	51	19	4	8	135	8.9
Scenic Driving	3	1.6	3	2	10	4	2	2	23	1.5
Hiking/Walking/ Trail Use	33	17.9	16	4	39	8	138	2	207	13.7
Viewing Scenery	17	9.2	18	3	38	9	3	4	75	4.9
Viewing Wildlife	1	0.5	1	0	5	0	2	2	10	0.7
Whitewater Boating/Rafting	0	0	8	0	5	6	2	6	27	1.8
Total Responses	**184**	**100**	**222**	**133**	**643**	**266**	**168**	**84**	**1,516**	**100**
No Answer	4		5	6	15	5	4	0	35	

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

[a] Restroom, hunting

[b] Restroom, swimming, checking their vehicle, just a quick stop/visiting, trash removal, being lost and recycling

Table 5.1-16. Respondents Secondary Recreation Activities (Q16b)

Secondary Activity	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Secondary Activity per Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Biking	5	2.7	4	4	13	13	8	0	42	2.8
Camping	19	10.4	11	12	36	21	5	4	89	5.9
Fishing	13	7.1	17	21	48	17	2	0	105	6.9
Other	5 [a]	2.7	6	4	20	8	2	1	41 [b]	2.7
Photography/Painting	23	12.6	28	14	78	40	14	5	179	11.8
Picnicking	49	26.8	67	67	243	97	10	22	506	33.3
Relaxing	119	65	132	103	464	178	82	52	1,011	66.6
Scenic Driving	52	28.4	65	15	149	52	29	11	321	21.1
Hiking / Walking / Trail Use	52	28.4	56	55	191	85	15	16	418	27.5
Viewing Scenery	101	55.2	111	40	276	119	91	33	670	44.1
Viewing Wildlife	50	27.3	80	29	158	76	53	22	418	27.5
Whitewater Boating/Rafting	6	3.3	4	6	10	9	0	0	29	1.9
Total Responses	**183**		**226**	**134**	**652**	**266**	**160**	**81**	**1,519**	
No Answer	5		1	5	6	5	12	3	32	

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

[a] Swimming, playing sports/games, using restroom, Whiskey Flat Days.

[b] Using the restroom, swimming, playing sports/games, organizing their vehicle, just a quick stop/visit, throwing away trash, recycling, working, and Whiskey Flat Days

Respondents were asked if the flows in the NFKR affected their ability to participate in a water-related activity (Table 5.1-17). Of the 141 respondents who responded to question 17 at Study Sites 1 through 3, approximately 68.1 percent indicated that the flow did not affect their planned water-related activities. Approximately 8.5 percent said the flow was too high, and 2.1 percent said that it was too low. Of the 1,150 respondents who responded to question 17 at Study Sites 4 through 25, approximately 67.6 percent indicated that the flow did not affect their planned water-related activities. Approximately 7 percent said the flow was too high, 2.8 percent said that it was too low, and 1 percent indicated that flows affected their planned water-related activities in other ways. Other ways noted were that the flow was just right and that wildlife along the rapids were minimal due to low flow. Five respondents at the KR3 Powerhouse Whitewater Put-in/Take-out stated that their water-related activity was affected by high flows.

Table 5.1-17. Effect of Flows on Activity (Q17)

Flow Effect	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Flow Effect per Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No Answer	47		61	50	157	84	32	17	401	
Did not Participate in Water-Related Activity	30	21.3	36	20	104	27	52	10	249	21.7
No Effect	96	68.1	117	54	350	124	82	50	777	67.6
Yes High	12	8.5	9	10	30	23	3	5	80	7
Yes Low	3	2.1	4	4	12	10	2	0	32	2.8
Yes Other	0	0	0	1	5	3	1	2	12	1
Total Responses	**141**	**100**	166	89	501	187	140	67	1,150	**100**

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

When asked to identify their activity level, respondents at Study Sites 1 through 3 indicated an activity level of moderate (79.3 percent), followed by low (11.6 percent), and high (9.1 percent) (Table 5.1-18). Respondents at study Sites 4 through 25 indicated an activity level of moderate (71.4 percent), followed by low (15.5 percent), and high (13.1 percent) (Table 5.1-18).

Table 5.1-18. Respondents Indicated Activity Level (Q18)

Activity Level	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Activity Level per Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No Answer	24		18	12	45	21	9	11	116	
High	15	9.1	24	19	72	35	29	9	188	13.1
Low	19	11.6	38	20	110	44	9	2	223	15.5
Moderate	130	79.3	147	88	431	171	125	62	1,024	71.4
Total Responses	**164**	**100**	**209**	**127**	**613**	**250**	**163**	**73**	**1,435**	**100**

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked to identify how much money they expected to spend or had spent in the local area during their entire trip (Table 5.1-19). The average amount spent per trip by survey respondents at Study Sites 1 through 3 was $369, and the median amount spent was $250. For the respondents at Study Sites 4 through 25, the average and median amount spent was $288 and $230, respectively. Based on the data collected, on average, people who visited the DCGs spent more during their trip than any other site type.

Table 5.1-19. Respondents Trip Expenditures (Q19)

Responses	Study Sites 1–3	Study Sites 4–25						
		Respondents Reported Trip Expenditure						Count
	Count	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	
Number of Responses	187	227	139	656	271	172	84	1549
Minimum	0	0	0	0	0	0	0	0
Mean	$369	$300	$347	$302	$312	$170	$210	$288
Median	$250	$275	$300	$250	$300	$146	$153	$230
Maximum	$10,000	$3,000	$2,000	$6,000	$2,000	$850	$1,000	$6,000

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked how they would rate their overall satisfaction or dissatisfaction with their recreation experience that day on a scale of 1 to 5, with 1 indicating very

dissatisfied and 5 indicating very satisfied. Respondents were also given a list of categories and asked to rate the importance of each to the overall quality of their recreation experience on this trip, with 1 being unimportant and 5 being very important. At Study Sites 1 through 3, respondent average satisfaction ratings ranged between 3.9 for adequacy of site access for persons with disabilities and 4.8 for the overall satisfaction of the trip, indicating that respondents were satisfied to very satisfied across all categories. The overall importance rating for all experience categories was above 4.0, indicating that all of the categories are important or very important to the respondents (Table 5.1-20). At Study Sites 4 through 25, respondents' satisfaction ratings ranged between 3.8 for adequacy of site access for persons with disabilities and 4.7 for the overall satisfaction of the trip, indicating that respondents were satisfied to very satisfied across all categories. The overall importance rating for all experience categories was above 4.0, indicating that all of the categories are important or very important to the respondents (Table 5.1-21). At KR3 Powerhouse Whitewater Put-in/Take-out (Site 24) the average ratings ranged between 4.0 for adequacy of site access for persons with disabilities and access to restrooms/showers/drinking water to 4.6 for their overall satisfaction of the trip.

Table 5.1-20. Average Overall Satisfaction and Importance Ratings of Respondents at Study Sites 1–3 (Q20)

Category	Count	Mean Rating [a]	Mean Overall Importance Rating [b]
1. Overall satisfaction of your trip	185	4.8	4.8
2. Satisfaction of primary activity, as listed above in Q16	187	4.4	4.4
3. Cost of facility access fees	173	4.4	4.4
4. River access	186	4.3	4.3
5. Number of people encountered/crowdedness	187	4.4	4.4
6. Available parking when you arrived	188	4.5	4.5
7. Feeling of safety	186	4.5	4.5
8. Adequacy of site access for persons with disabilities	176	3.9	4.0
9. Scenery at this site/area	186	4.7	4.6
10. Maintenance (physical condition) of facilities	185	4.1	4.2
11. Cleanliness of facilities	185	4.2	4.4
12. Access to restroom/shower/drinking water	185	4.1	4.2
13. Informational/educational opportunities	179	4.2	4.1
14. Flows in the river	185	4.1	4.0

[a] Respondents rated their overall satisfaction or dissatisfaction with their recreation experience that day on a scale of 1 to 5, with 1 = very dissatisfied, 2=dissatisfied, 3= neutral, 4=satisfied, and 5 = very satisfied.
[b] Respondents rated the importance of each category to the overall quality of their recreation experience that day on a scale of 1 to 5, with 1 being unimportant and 5 being very important.

Table 5.1-21. Average Overall Satisfaction and Importance Ratings of Respondents at Study Sites 4–25 (Q20)

Category	Count	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Mean Rating [a]	Mean Overall Importance Rating [b]
1. Overall satisfaction of your trip	1,542	4.7	4.7	4.7	4.6	4.6	4.8	4.7	4.7
2. Satisfaction of primary activity, as listed above in Q16	1,540	4.3	4.4	4.3	4.3	4.3	4.3	4.3	4.3
3. Cost of facility access fees	1,359	4.4	4.5	4.4	4.3	4.3	4.4	4.4	4.4
4. River access	1,520	4.3	4.2	4.2	4.2	4.0	4.5	4.2	4.2
5. Number of people encountered/ crowdedness	1,531	4.3	4.5	4.3	4.4	4.3	4.5	4.3	4.3
6. Available parking when you arrived	1,528	4.4	4.5	4.4	4.4	4.3	4.5	4.4	4.4
7. Feeling of safety	1,530	4.5	4.6	4.5	4.6	4.5	4.6	4.5	4.6
8. Adequacy of site access for persons with disabilities	1,474	3.7	4.0	3.9	3.8	3.8	4.0	3.8	4.0
9. Scenery at this site/area	1,531	4.7	4.6	4.6	4.6	4.5	4.7	4.6	4.6
10. Maintenance (physical condition) of facilities	1,506	4.1	4.1	4.1	4.0	4.0	4.2	4.1	4.1
11. Cleanliness of facilities	1,507	4.2	4.2	4.2	4.3	4.3	4.5	4.3	4.3
12. Access to restroom/shower/ drinking water	1,495	3.8	4.1	4.0	3.9	3.6	4.0	3.9	4.0
13. Informational/educational opportunities	1,505	4.1	4.3	4.2	4.1	4.1	4.3	4.2	4.1
14. Flows in the river	1,519	4.1	4.1	4.1	4.0	4.0	4.4	4.1	4.1

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

[a] Respondents rated their overall satisfaction or dissatisfaction with their recreation experience that day on a scale of 1 to 5, with 1 = very dissatisfied, 2 = dissatisfied, 3 = neutral, 4 = satisfied, and 5 = very satisfied.

[b] Respondents rated the importance of each category to the overall quality of their recreation experience that day on a scale of 1 to 5, with 1 being unimportant and 5 being very important.

5.1.3. PAST RECREATION TRIPS

Respondents were asked to indicate the number of times they visited the other recreation sites within the study area in the last 12 months, the number of times they visited the sites (Table 5.1-22), and the primary reason for their visits (Table 5.1-23). The respondents that answered “other” noted they had visited River’s Edge in summer, Trail of 100 Giants in the spring, and all of the sites in the fall. Overall, the results indicate that all site types are visited throughout the year. On average, the number of visits to Study Sites 1 through 3 ranged from 0.4 visits to 1.7 visits in the different seasons (Table 5.1-22). The total annual average number of visits and amount of time on-site were 4.8 visits and 6.2 days, respectively. The most common responses to the reason for visiting the site were relaxing, viewing scenery, fishing, viewing wildlife, and scenic driving (Table 5.1-23). For Study Sites 4 through 25, the total annual average number of visits was highest for trailheads (17.1 visits) and the KR3 Powerhouse Whitewater Put-in/Take-out (10.4 visits) and ranged between 3.2 visits to 5.9 visits for the other site types (Table 5.1-22). The average number of days on-site ranged from 6 days at the dispersed camping areas to 13.6 days at trailheads. The most common reasons for visiting the sites were relaxing, viewing scenery, hiking/walking/trail use, camping, and fishing (Table 5.1-23).

Table 5.1-22. Average Number of Visits by Season and Time On-Site in Last 12 Months (Q21a)

Recreation Site/ Site Type	Count	Average Number of Visits				Total Annual Average Number of Visits	Annual Average Number of Days On-Site
		Spring (March–May)	Summer (June–August)	Fall (September–November)	Winter (December–February)		
Visits to Sites 1–3	100	1.4	1.6	1	0.9	4.8	6.2
Site 1	77	1.5	1.6	1	1	5	6
Site 2	9	0.9	1	1.3	0.4	3.7	8.1
Site 3	21	0.6	1.7	0.5	0.4	3.1	4.2
Visits to Sites 4–25	200	2.9	3.2	2.4	1.8	10.3	11.3
Day Use	64	1.6	1.8	1.2	0.8	5.3	7.3
DCG	15	0.8	1.4	1.5	0.9	4.6	7.1
Dispersed Camping	48	1	1.3	0.6	0.4	3.2	6
DUCG	28	1.8	2.7	1	0.5	5.9	7.6
Trailhead	61	4.7	4.8	4.4	3.3	17.1	13.6
KR3 PH	26	3	2.9	2	2.5	10.4	12.8
Other	4	0.3	1.3	0.5	0	2	7

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Table 5.1-23. Reason for Visit to Other Recreation Sites Last 12 Months (Q21b)

Reason for Visit	Study Sites 1–3 (n=100)		Study Sites 4–25 (n=200)	
	Count	%	Count	%
Biking	5	5	14	7
Camping	24	24	62	31
Fishing	46	46	58	29
Other	2	2	1	0.5
Photography/Painting	13	13	24	12
Picnicking	23	23.	50	25
Relaxing	61	61	118	59
Scenic Driving	34	34	55	27.5
Hiking / Walking / Trail Use	40	40	99	49.5
Viewing Scenery	57	57	109	54.5
Viewing Wildlife	35	35	52	26
Whitewater Boating/Rafting	5	5	15	7.5

Note: Respondents were able to select more than one reason for their visit.

Respondents were asked whether they had visited the area between the Fairview Dam and the KR3 Powerhouse in the last 12 months more, less, or about the same as the respondent normally would. The majority of respondents at all study sites indicated they visited about the same number of times as usual (67.6 percent at Study Sites 1 through 3 and 72.8 percent at Study Sites 4 through 25) (Table 5.1-24). Common responses for the primary reason for the change in visitation or the same level of visitation were that it was an annual trip, that they frequently visit the site, that they like the site, it was their first visit, they infrequently visit the site, fishing, being busy, from out of town, camping, trail use, scenery, and were just checking out the site.

Table 5.1-24. Change in Visitation Last 12 Months (Q22)

Frequency of Visit to the Area	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Percent Change in Visitation Last 12 Months per Site Type						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No Answer	46	--	37	34	105	48	16	9	249	--
More	12	8.5	11	2	35	23	14	5	90	6.9
Less	34	23.9	50	17	117	50	22	8	264	20.3
Same	96	67.6	129	86	401	150	120	62	948	72.8

Frequency of Visit to the Area	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Percent Change in Visitation Last 12 Months per Site Type						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Total Responses	**142**	**100**	**190**	**105**	**553**	**223**	**156**	**75**	**1,302**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

5.1.4. SURROUNDING LANDSCAPES

Respondents were asked to rate the scenic quality of the NFKR area in general on a scale of 1 to 5, with 1 indicating very poor and 5 indicating very good. The mean scenic quality rating at Study Sites 1 through 3 was 4.7 (between good and very good); the individual ratings were all between neutral and very good (Table 5.1-25). The mean scenic quality rating for Study Sites 4 through 25 ranged between 4.6 and 4.7 (between good and very good). All of the ratings at the DUCG and at KR3 Powerhouse Whitewater Put-in/Take-out were neutral or higher. Individual ratings for the other site types ranged from poor to very good. Those who rated the NFKR area's scenic quality as very poor or poor noted this was due to poor river flow, poor views, litter, low water, and impacts from fires.

Table 5.1-25. Respondents Rating of Scenic Quality (Q23)

Scenic Quality Rating	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Rating of Scenic Quality by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Mean	4.7	--	4.7	4.6	4.6	4.6	4.6	4.6	4.6	--
Median	5	--	5	5	5	5	5	5	5	--
No Answer	1	--	4	8	19	6	5	3	45	--
1 Very Poor	0	0	0	0	2	0	0	0	2	0.1
2 Poor	0	0	1	1	1	0	1	0	4	0.3
3 Neutral	3	1.6	7	3	21	9	7	4	51	3.4
4 Good	50	26.7	58	45	183	88	45	27	446	29.6
5 Very Good	134	71.7	157	82	432	168	114	50	1,003	66.6
Total Responses	**187**	**100**	**223**	**131**	**639**	**265**	**167**	**81**	**1,506**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked to identify the scenic feature that most attracted them to this area of the NFKR (Table 5.1-26). A similar number of recreationists at Study Sites 1 through 3 indicated that the feature that most attracted them to the area was general scenery (46.7 percent) or flows in the NFKR (44 percent). Other scenic features included fish, the view, the river, and the bridge. For Study Sites 4 through 25, 52.8 percent of respondents indicated that flows in the NFKR was the feature that most attracted them to the area, and 42.3 percent responded that general scenery most attracted them. Scenic features identified as other included viewing wildlife, wildflowers, the trail, and spacious camping areas. Approximately 76 percent of respondents at the KR3 Powerhouse Whitewater Put-in/Take-out indicated that the scenic feature that most attracted them to the area was flows in the NFKR.

Table 5.1-26. Respondents Identified Key Scenic Features (Q24)

Rating Factor	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Identified Key Scenic Feature per Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No Answer	6	--	11	7	24	14	5	4	65	--
General scenery such as rock outcrops, mountains and valleys	85	46.7	94	57	281	91	90	15	628	42.3
Flows in the NFKR	80	44	116	72	318	156	61	61	784	52.8
Scenery was not a consideration when selecting this location	6	3.3	3	1	21	6	11	2	44	3
Project infrastructure (flowline, powerhouse, dam, and Other built facilities)	3	1.6	2	2	11	3	1	2	21	1.4
Other	8	4.4	1	0	3	1	4	0	9	0.6
Total Responses	**182**	**100**	**216**	**132**	**634**	**257**	**167**	**80**	**1,486**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out; NFKR = North Fork Kern River

Respondents were asked to rate the scenic qualities in the area between Fairview Dam and the KR3 Powerhouse on a scale of 1 to 5, with 1 indicating very poor and 5 indicating very good, for: 1) general scenery such as rock outcrops, mountains and valleys (Table 5.1-27); 2) river flows between Fairview Dam and KR3 Powerhouse Whitewater Put-in/Take-out (Table 5.1-28, and 3) Project infrastructure (flowline, powerhouse, dam, other built facilities) (Table 5.1-29).

For Study Sites 1 through 3, general scenic qualities were all rated as good or very good with a mean rating of 4.8. The scenic quality of NFKR river flows and Project infrastructure were primarily rated good or very good, with average ratings of 4.4 or 4.5. Those who rated the scenic qualities as poor or very poor stated their reasons were related to high and strong river flows.

For Study Sites 4 through 25, the individual ratings for the general scenic quality for day use, DCG, dispersed camping areas, trailheads, and KR3 Powerhouse Whitewater Put-in/Take-out were all between neutral and very good (mean ratings of 4.7 or 4.8). While DUCG received one very poor and one poor rating, on average, the general scenic quality rating was 4.7 (good to very good). The mean scenic quality ratings for NFKR river flows and Project infrastructure ranged between 4.4 and 4.6 (good to very good). Individual ratings for KR3 Powerhouse Whitewater Put-in/Take-out ranged from poor to very good for river flows and between neutral and very good for Project infrastructure. Those who rated the scenic qualities as poor or very poor stated their reasons were related to heavy river flows, low flows, and the Project infrastructure.

Table 5.1-27. Rating of General Scenic Qualities (Q25a)

Scenic Quality Rating	Sites 1-3		Study Sites 4–25							
	Total Responses		Rating of Scenic Quality by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Mean	4.8	--	4.8	4.7	4.7	4.7	4.7	4.8	4.7	--
Median	5	--	5	5	5	5	5	5	5	--
No Answer	2	--	3	6	12	5	2	0	28	--
1 Very Poor	0	0	0	0	0	1	0	0	1	0.1
2 Poor	0	0	0	0	0	1	0	0	1	0.1
3 Neutral	0	0	4	5	14	6	8	2	39	2.6
4 Good	32	17.2	47	25	169	74	41	14	370	24.3
5 Very Good	154	82.8	173	103	463	184	121	68	1112	73
Total Responses	**186**	**100**	**224**	**133**	**646**	**266**	**170**	**84**	**1,523**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Table 5.1-28. Rating of North Fork Kern River Flows Scenic Qualities (Q25b)

Scenic Quality Rating	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Rating of Scenic Quality of NFKR Flows by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Mean	4.4	--	4.4	4.5	4.4	4.4	4.4	4.5	4.4	--
Median	5	--	5	5	5	5	5	5	5	--
No Answer	3	--	4	8	12	6	4	0	34	--
1 Very Poor	1	0.5	3	2	9	5	1	0	20	1.3
2 Poor	3	1.6	1	1	6	4	6	1	19	1.3
3 Neutral	18	9.7	22	8	60	25	15	7	137	9
4 Good	57	30.8	64	40	225	82	44	26	481	31.7
5 Very Good	106	57.3	133	80	346	149	102	50	860	56.7
Total Responses	**185**	**100**	**223**	**131**	**646**	**265**	**168**	**84**	**1,517**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out; NFKR = North Fork Kern River

Table 5.1-29. Rating of Scenic Qualities Project Infrastructure (Q25c)

Scenic Quality Rating	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Rating of Scenic Quality of Project Infrastructure by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Mean	4.5	--	4.5	4.6	4.4	4.4	4.4	4.6	4.4	--
Median	5	--	5	5	5	5	5	5	5	--
No Answer	6	--	7	12	13	9	4	0	45	--
1 Very Poor	0	0	0	0	7	3	3	0	13	0.9
2 Poor	2	1.1	2	4	13	4	2	0	25	1.7
3 Neutral	28	15.4	32	10	83	39	19	8	191	12.7
4 Good	30	16.5	38	25	131	67	49	16	326	21.6
5 Very Good	122	67	148	88	411	149	95	60	951	63.1
Total Responses	**182**	**100**	**220**	**127**	**645**	**262**	**168**	**84**	**1,506**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked how often they had visited the area over the past 12 months to participate in scenic activities such as photography, painting, scenic driving, viewing scenery, and/or viewing wildlife. For the respondents at Study Sites 1 through 3, 36 indicated that they had visited the area for scenic activities (Table 5.1-30). For those 36 respondents, the mean number of visits per season were higher in spring (1.4) and summer (2.8) than in fall (0.8) and winter (0.5) (Table 5.1-31). Approximately 69.4 percent of the respondents visited in summer and 33.3 percent visited in winter. At Study Sites 4 through 25, 308 respondents indicated that they had visited the area in the past 12 months for scenic activities. For those 308 respondents, the mean number of visits ranged from 1.3 in winter to 2.6 in summer. Approximately 71.4 percent and 60.1 percent or respondents visit in summer and spring, respectively, and approximately 55 percent visit in the fall and winter.

Table 5.1-30. Visited in Last 12 Months for Scenic Activities (Q26)

Visited for Scenic Activity	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Respondents Visited in Last 12 Months for Scenic Activity (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No Answer	16	--	23	16	53	30	5	5	132	--
Never Visited	96	55.8	126	88	366	159	111	64	914	64.4
First Time	40	23.3	28	15	97	34	16	7	197	13.9
Yes	36	20.9	50	20	142	48	40	8	308	21.7
Total	**172**	**100**	**204**	**123**	**605**	**241**	**167**	**79**	**1,419**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Table 5.1-31. Statistical Summary of the Number of Visits in Last 12 Months for Scenic Activities (Q26)

Season	Visits Per Season				Total Responses	
	Minimum	Mean	Median	Maximum	Count (more than 0 visits)	% (more than 0 visits)
Study Sites 1–3 (n=36)						
Spring	0	1.4	1	6	21	58.3
Summer	0	1.8	1.5	8	25	69.4
Fall	0	0.8	0	3	15	41.7
Winter	0	0.5	0	3	12	33.3

Season	Visits Per Season				Total Responses	
	Minimum	Mean	Median	Maximum	Count (more than 0 visits)	% (more than 0 visits)
Study Sites 4–25 (n=308)						
Spring	0	2.2	1	50	185	60.1
Summer	0	2.6	1	30	220	71.4
Fall	0	1.9	1	36	172	55.8
Winter	0	1.3	1	24	168	54.5

5.1.5. ANGLING EXPERIENCES

Respondents were asked if they had fished along the Fairview Bypass Reach prior to this visit. Of the 188 people surveyed at Study Sites 1 through 3, 40 responded that they had previously fished along the Fairview Dam Bypass Reach; only those 40 respondents were asked questions 28 through 33 (Table 5.1-32). Of the 40 who had previously fished, 62.2 percent used spin fish with bait, 56.8 percent spin fish with lures, and 13.5 percent fly fish (Table 5.1-33). Further, 91.9 percent of respondents at Study Sites 1 through 3 indicated they fished for fun, with the remaining indicating they fished for food (Table 5.1-34).

Of the 1,551 respondents at Study Sites 4 through 25, 358 indicated that they had previously fished along the Fairview Dam Bypass Reach and subsequently answered questions 28 to 33 (Table 5.1-32). Of the 358 who had previously fished, 66.3 percent used spin fish with bait, 58.4 percent used spin fish with lures, and 15.8 percent fly fish (Table 5.1-33). The majority of respondents (86.5 percent) indicated they fish for fun (Table 5.1-34).

Table 5.1-32. Respondents Fished along Fairview Dam Bypass Reach (Q27)

Prior Fishing Reach Visit	Study Sites 1–3 (n=188)		Study Sites 4–25 (n=1551)	
	Count	Percent	Count	Percent
No	130	76.5	1,067	74.9
Yes	40	23.5	358	25.1
Total Responses	**170**	**100**	**1,425**	**100**
No Answer	18		126	

Table 5.1-33. Type of Fishing Tackle (Q28)

Fishing Method	Study Sites 1–3 (n=40)		Study Sites 4–25 (n=358)	
	Count	Percent	Count	Percent
Spin Fish with Bait	23	62.2	226	66.3
Spin Fish with Lures	21	56.8	199	58.4
Fly Fish	5	13.5	54	15.8
Total Responses	**37**		**341**	
No Answer	3		17	

Note: Respondents were able to select more than one type of tackle.

Table 5.1-34. Fishing for Fun or Food (Q29)

Fishing Reason	Study Sites 1–3 (n=40)		Study Sites 4–25 (n=358)	
	Count	Percent	Count	Percent
Fun	34	91.9	300	86.5
Food	3	8.1	47	13.5
Total Responses	**37**	**100**	**347**	**100**
No Answer	3		11	

Survey respondents at Study Sites 1 through 3 indicated their primary reasons for selecting that specific site for angling activities were fishing (number of fish and success rate) (42.9 percent), solitude/peace/scenery (11.4 percent), miscellaneous (11.4 percent), or they were a frequent visitor, river access, water levels/flows (8.6 percent each) (Table 5.1-35). Miscellaneous reasons included rationale such as recommended by a friend, memories, or less restrictions.

The primary reason for selecting that specific site for angling activities for the respondents at Study Sites 4 through 25 was fishing (number of fish and success rate) (51.4 percent), followed by solitude/peace/scenery (14.6 percent), river access (7.9 percent), good area/like the site (6 percent), and miscellaneous (6 percent) (Table 5.1-35). Miscellaneous reasons included recommendation or just checking out/trying the site.

Table 5.1-35. Primary Reason for Selecting Site for Angling Activities (Q30)

Reason Indicated	Study Sites 1–3 (n=40)		Study Sites 4–25 (n=358)							
	Total Responses		Reason for Selecting Site for Angling Activity (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Camping at Site	0	0	0	3	5	0	0	0	8	2.5
Fishing	15	42.9	28	12	56	36	4	26	162	51.4
Frequent Visitor	3	8.6	2	0	0	3	0	0	5	1.6
Good Area/Like Site	1	2.9	4	2	6	5	0	2	19	6
Miscellaneous	4	11.4	6	0	7	6	0	0	19	6
Proximity/ Convenient	2	5.7	5	2	3	5	1	1	17	5.4
River Access	3	8.6	1	0	15	6	2	1	25	7.9
Solitude/Peaceful/ Scenery	4	11.4	8	3	15	10	0	10	46	14.6
Water Levels/Flows	3	8.6	2	0	8	4	0	0	14	4.4
Total Responses	**35**	**100**	**56**	**22**	**115**	**75**	**7**	**40**	**315**	**100**
No Answer	5		3	4	14	11	1	10	43	

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

A statistical summary of the number of visits per season over the past 12 months for angling activities for the 40 respondents at Study Sites 1 through 3 and the 358 respondents at Study Sites 4 through 25 that indicated they had fished the Fairview Dam Bypass Reach before is provided in Table 5.1-36. Respondents at Study Sites 1 through 3 visited between 1.2 times in winter and 2.0 times in summer, on average, for angling activities. The maximum number of visits per season were 6 or 9 visits. The same percentage of respondents indicated they visit in summer and fall (52.5 percent) with 60 percent visiting in spring and 57.5 percent visiting in winter. At Study Sites 4 through 25, the average number of visits per season over the past 12 months for angling activities ranged from 1.5 in winter to 2.8 in summer (Table 5.1-36). The maximum number of visits per season were 9 or 10 visits. The highest percent of respondents visited in winter (73.5 percent), and the lowest percentage visited in summer (51.4 percent).

Table 5.1-36. Statistical Summary of the Number of Visits in Last 12 Months for Angling Activities (Q31)

Season	Visits Per Season				Total Responses	
	Minimum	Mean	Median	Maximum	Count (more than 0 visits)	% (more than 0 visits)
Study Sites 1–3 (n=40)						
Spring	0	1.9	1	6	24	60
Summer	0	2.0	1	9	21	52.5
Fall	0	1.4	1	6	21	52.5
Winter	0	1.2	1	6	23	57.5
Total	0	6.4	4	21		
Study Sites 4–25 (n=358)						
Spring	0	2.0	1	9	195	54.5
Summer	0	2.8	1	10	184	51.4
Fall	0	1.9	2	10	234	65.4
Winter	0	1.5	1	9	263	73.5
Total	0	8.1	5	30		

Note: Respondents could indicate they visit in more than one season.

When asked if river flows affected their angling experience in the Fairview Dam Bypass Reach, 84.4 percent of respondents at study sites1-3 and 84.3 percent of respondents at Study Sites 4 through 25 indicated that the river flows did not affect their angling experience (Table 5.1-37). At Study Sites 1 through 3 and at Study Sites 4 through 25, 5 respondents and 51 respondents, respectively, indicated that river flows had affected their angling experience. Three of the five respondents stated that river flows affected their angling experience at Study Sites 1 through 3. These three respondents indicated their experience was affected in winter; one respondent said their experience was affected in each of the other seasons (Table 5.1-38). Four of the five respondents indicated the reason their experience was affected was because flows were too high; one respondent said flows were too low (Table 5.1-39). Survey respondents at Study Sites 4 through 25 indicated they had angling experiences affected in all seasons and most frequently in summer and winter (38 percent and 40 percent of respondents, respectively) (Table 5.1-38). More respondents indicated that their angling experience was affected because flows were too high (61.2 percent) than too low (38.8 percent) (Table 5.1-39). Two survey respondents at the KR3 Powerhouse Whitewater Put-in/Take-out stated they have had an angling experience affected by high river flows in spring.

Table 5.1-37. Effects of River Flows on Angling Experiences (Q32a)

Yes/No	Study Sites 1–3 (n=40)		Study Sites 4–25 (n=358)							
	Total Responses		Effects of River Flows on Angling by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
No	27	84.4	49	17	105	59	5	38	273	84.3
Yes	5	15.6	7	7	16	17	2	2	51	15.7
Total Responses	**32**	**100**	**56**	**24**	**121**	**76**	**7**	**40**	**324**	**100**
No Answer	8		3	2	8	10	1	10	34	

DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Table 5.1-38. Season When River Flows Affected Experience (Q32b)

Season	Study Sites 1–3 (n=5)		Study Sites 4–25 (n=51)							
	Total Responses		Season When Flows Affected Experience by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Spring	1	20	2	0	3	3	2	2	12	24
Summer	1	20	3	3	8	4	1	0	19	38
Fall	1	20	0	1	3	3	0	0	7	14
Winter	3	60	2	2	5	11	0	0	20	40
Total Responses [a]	**5**	--	--	--	--	--	--	--	**50**	--
No Answer	0	--	0	1	0	0	0	0	1	--

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

a Respondents were able to select more than one season.

Table 5.1-39. Reason River Flows Affected Experience (Q32c)

Reason	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Reason River Flows Affected Experience by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	%
Too Low	1	20	2	2	7	8	0	0	19	38.8
Too High	4	80	5	4	8	9	2	2	30	61.2
Other	0	0	0	0	0	0	0	0	0	0
Total Responses	**5**	**100**	**7**	**6**	**15**	**17**	**2**	**2**	**49**	**100**
No Answer	0	--	0	1	1	0	0	0	2	--

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Respondents were asked to rate (on a scale of 1 to 5, with 1 being very poor and 5 being very good) the conditions of their angling experience that day or on the day of their most recent angling trip between the Fairview Dam and the KR3 Powerhouse (Table 5.1-40). All survey respondents at Study Sites 1 through 3 rated their experiences as neutral, good, or very good with an average rating of 4.4 (Table 5.1-40). At Study Sites 4 through 25, individual ratings at the day use, DCG, dispersed camping areas, and DUCG site types varied between very poor and very good. All respondents at the KR3 Powerhouse Whitewater Put-in/Take-out rated their experience as good or very good, and all respondents at the trailheads rated their experiences as neutral or higher. Overall, 91.7 percent of respondents at Study Sites 4 through 25 rated the conditions during their angling experiences as good or very good, 5.1 percent gave a neutral rating, and 3.1 percent rated their experience as poor or very poor (Table 5.1-40). The explanations for poor and very poor ratings included that the flow was too low, too high, too fast, and lack of fish during the respondent's first time fishing.

Table 5.1-40. Respondents Condition Rating of Angling Experience (Q33)

Angling Experience Rating	Study Sites 1-3		Study Sites 4–25							
	Total Responses		Rating of Angling Experience by Site Type (Number of Responses)						Total Responses	
	Count	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Count	% [a]
Mean	4.4	--	4.5	4.1	4.5	4.5	4	4.7	4.5	--
Median	4.5	--	5	4	5	5	4	5	5	--
No Answer	0	--	0	1	1	4	1	1	8	--
1 Very Poor	0	0	1	2	4	0	0	0	7	2
2 Poor	0	0	0	1	1	2	0	0	4	1.1
3 Neutral	4	10	5	1	3	6	3	0	18	5.1
4 Good	16	40	15	9	43	20	1	16	104	29.7
5 Very Good	20	50	38	12	77	54	3	33	217	62
Total Responses	**40**	**100**	**59**	**25**	**128**	**82**	**7**	**49**	**350**	**100**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out
[a] Total percentages may not equal 100 due to rounding.

5.1.6. USER FEEDBACK

Respondents were asked to provide any recommended improvements to the recreation site where they were surveyed (Table 5.1-41). Of the improvements recorded at Study Sites 1 through 3, 41.4 percent of respondents indicated they would like restrooms/sanitation features improved and 15.3 percent recommended trash cans/maintenance/cleaning. At Study Sites 4 through 25, 40.4 percent of respondents indicated they would like restrooms/sanitation features improved, 15.9 percent recommended new or repaired benches/tables/grills, and 9.5 percent recommended improvements to the parking area or paving. Common recommendations at the KR3 Powerhouse Whitewater Put-in/Take-out were restrooms/sanitation, trash cans/maintenance/cleaning, and benches/tables/grills.

Respondents were asked to recommend additional recreation facilities at the recreation site where they were surveyed (Table 5.1-42). Approximately 49 percent of respondents at Study Sites 1 through 3 indicated they had no/none recommendations. Of those respondents that recommended additional facilities, restrooms and benches/grills/tables were the most common recommendation with approximately 10 percent of total responses each. Approximately 37 percent of respondents at Study Sites 4 through 25 indicated they had no/none recommendations. Of those respondents that recommended additional facilities, the most common included restrooms (20.4 percent), benches/tables/grills (17.7 percent), and drinking/washing stations (11.8 percent).

Miscellaneous comments included more trees/shade, playground, security items, a bridge, and general comments such as adding more is better or more space to accommodate crowding.

When asked to provide any additional comments about the recreation site where they were surveyed, approximately 11 percent of respondents at Study Sites 1 through 3 commented on trash/recycling/cleaning, 7 percent commented on restrooms, approximately 6 percent commented drinking/washing stations, and 5 percent commented on signs/information/warnings (Table 5.1-43). At Study Sites 4 through 25, approximately 11 percent commented on signs/information/warnings, 8 percent commented on restrooms, 6.5 percent commented on drinking/washing stations, and 6 percent each commented on trash/recycling/cleaning and benches/tables/grills. Miscellaneous comments included restaurants, hotels, trees/shade, clearing, security items, a bridge, playground, and wishing road construction was done.

Table 5.1-41. Respondents Recommended Improvements (Q34)

Improvement	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Number	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Number	%
ADA accessibility	0	0	4	1	0	1	0	0	6	0.6
Bear box	0	0	0	2	0	3	0	0	5	0.5
Benches/Restrooms	0	0	3	1	4	2		2	12	1.2
Benches/Tables/Grills	4	3.6	34	13	72	20	9	11	159	15.9
Better Entrance/Fix Entrance	0	0	1	0	10	2	1	0	14	1.4
Bridge	2	1.8	0	0	1	0	2	0	3	0.3
Fire pit	2	1.8	0	0	6	2	0	0	8	0.8
Landscaping/Clearing	4	3.6	5	5	13	10	1	3	37	3.7
Trash Cans/ Maintenance/Cleaning	17	15.3	9	3	26	10	1	11	60	6
Miscellaneous	6 [a]	5.4	3	10	13	6	5	2	39 [b]	3.9
Open Site	0	0	0	1	0	8	0	0	9	0.9
Parking/Paving	9	8.1	8	9	41	22	14	1	95	9.5
Playground	0	0	0	0	3	3	0	0	6	0.6
Restrooms/Sanitation	46	41.4	56	51	163	70	30	34	404	40.4
River Access	1	0.9	1	1	3	0	0	0	5	0.5
Signs/Information	6	5.4	13	3	25	12	13	2	68	6.8
Trail Maintenance / More Trails	6	5.4	2	0	9	5	7	0	23	2.3
Electricity/cell coverage	2	1.8	2	4	6	0	0	0	12	1.2

Improvement	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Number	%	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Number	%
Emergency/Safety/ Warning Signs	4	3.6	3	1	7	3	5	0	19	1.9
Fishing Access/ fishing line disposal	2	1.8	5	1	4	5	0	2	17	1.7
Total Responses	**111**	**100**	**149**	**106**	**406**	**184**	**88**	**68**	**1,001**	**100**
No Answer	77	--	78	33	252	87	74	26	550	--

-- = not applicable; ADA = Americans with Disabilities Act; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

[a] Reconstruct the area, stay longer than a day, pet friendly area, take more than two fish, stricter reservation rules

[b] Additional activities at campsites, more space for vehicle parking, better pictures of sits on website, shops/convenience store, and additional rules about music and noise

Table 5.1-42. Respondents Recommended Additional Recreation Facilities (Q35)

Recreation Facility	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Number	% [a]	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Number	% [a]
No Additions Needed	92	48.9	81	56	240	84	80	32	573	36.9
Restrooms	19	10.1	34	26	133	62	42	19	316	20.4
Benches/Tables/Grills	19	10.1	51	15	118	39	30	21	274	17.7
Drinking/washing stations	17	9	38	14	74	28	19	10	183	11.8
Camping	13	6.9	6	7	26	19	1	1	60	3.9
Trash/Recycling/Cleaning	9	4.8	21	19	66	24	13	5	148	9.5
Trails/Hiking	9	4.8	1	3	2	5	9	0	20	1.3
Signs/Information/Warnings	8	4.3	7	9	33	14	7	2	72	4.6
Parking/Roads/Paving	8	4.3	13	2	27	12	3	6	63	4.1
River access	5	2.7	5	4	12	10	3	3	37	2.4
Accessibility	3	1.6	5	2	7	1	1	1	17	1.1
Lighting/Electricity/Wifi	3	1.6	1	2	6	0	1	0	10	0.6
Miscellaneous	7	3.7	8	8	43	13	8	6	86	5.5
No Comment	12		19	7	29	30	4	4	93	
Total Responses	**188**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1,551**	**--**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

[a] Respondents were allowed to provide multiple answers; therefore, the percentage total does not equal 100.

Table 5.1-43. Respondents Additional Comments (Q36)

Additional Comments	Study Sites 1–3		Study Sites 4–25							
	Total Responses		Number of Responses per Site Type						Total Responses	
	Number	% [a]	Day Use	DCG	Dispersed Camping	DUCG	Trail-head	KR3 PH	Number	% [a]
Trash/Recycling/Cleaning	21	11.2	16	9	41	26	7	1	100	6.4
Indicated site/facility good as is	16	8.5	17	9	33	14	4	7	84	5.4
Restrooms	14	7.4	16	10	54	20	16	3	119	7.7
Drinking/washing stations	11	5.9	15	10	46	13	13	4	101	6.5
Signs/Information/Warnings	9	4.8	30	14	56	30	18	16	164	10.6
Parking/Roads/Paving	8	4.3	8	3	27	8	7	1	54	3.5
Camping	7	3.7	5	3	20	11	0	2	41	2.6
Trails/Hiking	7	3.7	1	1	7	1	13	0	23	1.5
Miscellaneous	6	3.2	7	4	23	4	2	2	42	2.7
Benches/Grills/Tables	3	1.6	15	12	33	19	12	8	99	6.4
Lighting/Electricity/Wifi	3	1.6	0	1	3	3	1	0	8	0.5
River access	2	1.1	0	3	7	12	1	2	25	1.6
Accessibility	1	0.5	1	2	6	4	0	1	14	0.9
No Comment	100	53.2	113	71	361	141	99	42	827	53.3
Total Responses	**188**	**--**	**--**	**--**	**--**	**--**	**--**	**--**	**1,551**	**--**

-- = not applicable; DCG = developed campground; DUCG = day use site adjacent to a developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

[a] Respondents were allowed to provide multiple answers; therefore, the percentage total does not equal 100.

5.2. CURRENT RECREATION USE AND DENSITY ESTIMATES

5.2.1. RECREATION USE

As part of this year-long study, 10,902 recreationists were observed partaking in recreation activities within the study area based on spot count data. Of those observed, there were a total of 1,076 visitors recreating at Study Sites 1 through 3, 280 visitors recreating at the KR3 Powerhouse Whitewater Put-in/Take-out, and 9,546 visitors recreating at Study Sites 4 through 25. The most commonly observed activity was camping.

The estimated recreation days by season and type of day (weekday, weekend, holiday), between April 1, 2023, and March 31, 2024, are provided in Table 5.2-1. During the study period, there was an estimated total of approximately 31,900 recreation days at Study Sites 1 through 3. The season with the highest number of recreation days was summer at 15,100 days, followed by spring (7,200 days), fall (6,100 days), and winter (3,500 days). The most recreation days, by day type, were recorded on weekdays with 15,100 days.

At Study Sites 4 through 25, the estimated total recreation days for the study period was 117,700 days. Most recreation days were estimated for the day use component of dispersed camping areas (33,200 days) and for day use sites (25,900 days). Approximately 10,900 recreation days were estimated for the KR3 Powerhouse Whitewater Put-in/Take-out. The season with the highest use was summer at approximately 75,900 recreation days. The most recreation days, by day type, were recorded on weekends with approximately 51,200 days.

Table 5.2-1. Estimated Recreation Visitation (Recreation Days) from April 1, 2023 to March 31, 2024

Day type	Study Sites 1–3	Study Sites 4–25							
		Day Use	Dispersed Camping		DUCG		Trail-head	KR3 PH	Total
			Day Use	Camping Use	Day Use	Camping Use			
Spring									
Total Weekday	3,900	1,200	2,600	300	600	25	1,100	500	**10,200**
Total Weekend	3,300	1,000	3,500	500	700	17	700	2,100	**11,800**
Total Spring	**7,200**	**2,200**	**6,100**	**800**	**1,300**	**42**	**1,800**	**2,600**	**22,000**
Summer									
Total Weekday	7,000	6,800	3,500	1,800	4,200	1,000	1,700	800	**26,800**
Total Weekend	4,400	5,500	9,100	5,000	9,000	2,600	800	1,400	**37,800**
Total Holiday	3,700	5,300	8,200	2,900	2,500	1,000	1,300	1,500	**26,400**
Total Summer	**15,100**	**17,600**	**20,800**	**9,700**	**15,700**	**4,600**	**3,800**	**3,700**	**91,000**
Fall									
Total Weekday	2,200	1,900	1,800	800	1,200	58	800	2,100	**10,900**
Total Weekend	2,900	1,500	1,800	800	700	53	900	1,100	**9,800**
Total Holiday	1,000	200	200	68	55	5	300	200	**2,100**
Total Fall	**6,100**	**3,600**	**3,800**	**1,700**	**2,000**	**100**	**2,000**	**3,400**	**22,700**
Winter									
Total Weekday	2,000	1,600	1,600	400	900	2	800	700	**8,000**
Total Weekend	800	500	500	100	500	2	500	300	**3,200**
Total Holiday	700	400	400	100	300	1	500	200	**2,600**
Total Winter	**3,500**	**2,500**	**2,500**	**600**	**1,700**	**5**	**1,800**	**1,200**	**13,800**
Total Annual	**31,900**	**25,900**	**33,200**	**12,800**	**20,700**	**4,800**	**9,400**	**10,900**	**149,600**

KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out; DUCG = Day Use and Adjacent Developed Campground

5.2.2. DENSITY (PARKING UTILIZATION)

During the study period, the maximum parking utilization on non-peak weekends was estimated to be highest at the Whiskey Flat Trailhead (66 percent), followed by the Johnsondale Bridge River Access (55 percent). During peak (holiday) weekends, parking capacity was highest at the Whiskey Flat Trailhead at 98 percent followed by the Camp 3 Campground at 76 percent, Johnsondale Bridge River Access at 67 percent, and the Corral Creek Day Use Site at 64 percent (Table 5.2-2). At 18 of the 25 sites, the date with the maximum number of vehicles was over the Memorial Day, July 4th, or Labor Day holiday weekends. At six sites, the date with the peak number of vehicles was on a summer weekend. At one site, the maximum vehicles were observed on a summer weekday.

Table 5.2-2. Estimated Parking Utilization within the Project Area from April 1, 2023 to March 31, 2024

Site Number	Site Name	Site Type	Parking Capacity (Vehicle Spaces)	Non-Peak Weekend Parking Utilization (%)	Peak (Holiday) Parking Utilization (%)
1	Johnsondale Bridge River Access	Day Use	14	55	67
4	Willow Point Whitewater Take-out	Day Use	18	3	4
5	Roads End Picnic Site and Whitewater Put-in	Day Use	50	3	5
15	Corral Creek Picnic Site and Whitewater Take-out	Day Use	8	17	64
23	Riverkern Beach Picnic Site	Day Use	15	23	55
24	KR3 Powerhouse Whitewater Put-in/Take-out	Day Use	20	24	22
6	Packsaddle Trail Trailhead	Trailhead	18	15	13
10	Rincon Trailhead	Trailhead	4	13	50
25	Whiskey Flat Trailhead	Trailhead	5	66	98
2	Brush Creek Dispersed Camping	Dispersed Camping	107	4	11
8	Calkins Flat Dispersed Camping	Dispersed Camping	75	18	37

Site Number	Site Name	Site Type	Parking Capacity (Vehicle Spaces)	Non-Peak Weekend Parking Utilization (%)	Peak (Holiday) Parking Utilization (%)
9	Chamise Dispersed Camping	Dispersed Camping	42	12	27
11	Ant Canyon Dispersed Camping	Dispersed Camping	28	21	53
12	Old Goldledge Dispersed Camping	Dispersed Camping	10	25	40
14	Springhill Dispersed Camping	Dispersed Camping	100	7	18
16	Corral Creek Dispersed Camping	Dispersed Camping	42	15	46
18	Chico Flat Dispersed Camping	Dispersed Camping	50	13	35
13	Goldledge Campground and Whitewater Put-in/Take-out	DUCG	18	10	21
19	Thunderbird Group Campground and Whitewater Put-in/Take-out	DUCG	11	5	14
20	Camp 3 Campground and Whitewater Put-in/Take-out	DUCG	15	15	76
21	Halfway Group Campground and Whitewater Put-in/Take-out	DUCG	20	5	26

DUCG = day use area adjacent to developed campground; KR3 = Kern River No. 3
Notes:
Sites 3, 7, 17 and 22 are Forest Service-developed campgrounds; therefore, a parking capacity analysis was not completed for these sites.
Sites 13, 19, 20, and 22 parking capacity analysis was only completed for the day use portion of the sites.

5.2.3. SQF Developed Campground Utilization

During the study period, the maximum camping utilization on non-peak weekends was estimated to be highest at the Thunderbird Group Campground (78 percent), followed by the Limestone Campground, Goldledge Campground, Camp 3 Campground and Halfway Group Campground which ranged between 61 percent to 69 percent each. During peak (holiday) weekends, the camping capacity was highest at the Thunderbird Group Campground at 83 percent followed by the Halfway Group Campground at 81 percent and Limestone Campground at 71 percent (Table 5.2-3). At the four DCGs and four DCG

portions of DUCG sites, the date with the maximum number of occupied campsites occurred in summer 2023 on a mix of holidays, weekends, or weekdays.

Table 5.2-3. Estimated Camping Utilization at Developed Campgrounds within the Project Area from April 1, 2023 to March 31, 2024

Site Number	Site Name	Site Type	Camping Capacity (# of Campsites)	Non-Peak Weekend Camping Utilization (%)	Peak (Holiday) Camping Utilization (%)
3	Limestone Campground	DCG	19 single sites	66	71
7	Fairview Campground	DCG	54 single sites (includes 2 ADA)	46	46
			1 group	0	0
13	Goldledge Campground and Whitewater Put-in/Take-out	DUCG	35 single sites	69	56
17	Hospital Flat Campground	DCG	39 single sites (includes 2 ADA)	36	35
19	Thunderbird Group Campground and Whitewater Put-in/Take-out	DUCG	3 group	78	83
20	Camp 3 Campground and Whitewater Put-in/Take-out	DUCG	55 single sites (includes 1 ADA)	64	41
21	Halfway Group Campground and Whitewater Put-in/Take-out	DUCG	4 group	61	81
22	Headquarters Campground	DCG	43 single sites (includes 1 ADA)	14	38

ADA = Americans with Disabilities Act; DCG = developed campground; DUCG = day use area adjacent to developed campground

5.3. FUTURE RECREATION USE AND NEEDS ESTIMATES

The estimated projections of future recreation use were developed using the average annual increase in population growth over the past 10 years, as reported by the U.S. Census Bureau (Table 5.3-1). Based on the 10-year historical data, the average annual increase in population was 0.7 percent for Kern County, California. and 0.6 percent for Tulare County, California.

Table 5.3-1. Population Growth from 2013 through 2022 for Kern County, California

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	10-year Average
Kern County	864,124	874,589	882,176	884,788	893,119	896,764	900,202	916,108	917,673	916,108	0.7
Percent Change		1.2	0.9	0.3	0.9	0.4	0.4	1.8	0.2	-0.2	
Tulare County	454,143	458,198	459,863	460,437	464,493	465,861	466,195	473,117	477,054	477,544	0.6
Percent Change		0.9	0.4	0.1	0.9	0.3	0.1	1.5	0.8	0.1	
California	38,332,521	38,802,500	39,144,818	39,250,017	39,536,653	39,557,045	39,512,223	39,538,223	39,237,836	39,029,342	0.2
Percent Change		1.2	0.9	0.3	0.7	0.1	-0.1	0.1	-0.8	-0.5	

Source: U.S. Census Bureau, 2024

Based on the 10-year average rate of change in population for Kern County, Tulare County, and the state of California, the estimated population projections are provided in 10-year intervals for the anticipated term of the license up to 50 years into the future (Table 5.3-2).

Table 5.3-2. Population Projections through 2070 for Kern County, Tulare County, and the state of California

	2020 Census	2030 Projection	2040 Projection	2050 Projection	2060 Projection	2070 Projection
Kern County	916,108	982,533	1,053,775	1,130,182	1,212,130	1,300,019
Tulare County	473,117	502,373	533,438	566,424	601,450	638,641
California	39,538,223	40,336,948	41,151,808	41,983,130	42,831,246	43,696,494

Per generally accepted practice and the methods described in the study plan, estimates of future recreation use in the Project Area were determined by projecting the 2023 recreation day estimates (Table 5.2-1) in 10-year intervals out to 2070. The projected recreation days were weighted by the proportion of surveys that were completed in Kern and Tulare Counties. The current recreation use is estimated to be approximately 150,000 recreation days in 2023 for the Project Area. FERC may issue SCE a new license for the Project for a term of 50 years, at which time the Project Area could receive approximately 204,900 annual recreation days in 2070. This is an increase of approximately 54,900 recreation days, or approximately 37 percent (Table 5.3-3).

Table 5.3-3. Estimated Future Recreation Days, 2023–2070

Year	Study Sites 1–3 [a]	Study Sites 4–25 [a]							
		Day Use	Dispersed Camping		DUCG		Trail-head	KR3 PH	Total
			Day Use	Camping Use	Day Use	Camping Use			
2023	32,000	26,000	33,000	13,000	21,000	4,800	9,200	11,000	150,000
2030	33,500	27,200	34,600	13,600	22,000	5,000	9,600	11,500	157,100
2040	35,800	29,100	36,900	14,600	23,500	5,400	10,300	12,300	167,900
2050	38,300	31,100	39,500	15,600	25,100	5,700	11,000	13,200	179,500
2060	40,900	33,200	42,200	16,600	26,800	6,100	11,800	14,100	191,800
2070	43,700	35,500	45,100	17,800	28,700	6,600	12,600	15,100	204,900

DUCG = day use area adjacent to developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Note: Numbers have been rounded to the nearest hundred.

[a] Developed campgrounds (sites 3, 7, 17, and 22) are not included in the future recreation day estimates.

Future recreation needs within the Project Area can be assessed in part by comparing the recreation use estimates and parking utilization percentages determined for 2023 to the projected growth rates of Kern County and Tulare County in which the Project is

located. Assuming recreation use would increase at the same rate as population growth, recreation days within the Project Area would increase by approximately 54,900. With this increase, parking utilization and campground utilization at the recreation sites would remain under capacity with the exceptions of the Whiskey Flat Trailhead in 2040, 2050, 2060, and 2070, and the Camp 3 Campground in 2070. In 2070, the parking utilization on non-peak weekends at the KR3 Powerhouse Whitewater Put-in/Take-out is expected to be approximately 33 percent. Parking and campground availability was not identified as a concern within the Project Area based on the utilization analysis and the results of the surveys. Increased parking was not listed as a recommended improvement at the recreation sites. The recommendation for additional camping was noted, however only by 6.9 percent of survey respondents at Study Sites 1 through 3 and 3.9 percent of survey respondents at Study Sites 4 through 25. It is also unclear as to whether additional campsites were needed, or if an additional camping area located elsewhere within the Project Area was desired.

When looking at the surrounding area of the SQF, the National Visitor Use Monitoring reports show an ebb and flow of visitation over the years. From 2006 to 2011, the National Visitor Use Monitoring shows an increase of visits to day use developed sites of approximately 89 percent, while visits to developed overnight sites increased by approximately 70 percent. However, from 2011 to 2016 a decrease in visitation occurred at day use developed sites of approximately 26 percent and at overnight developed sites of approximately 19 percent (Forest Service, 2011 and 2018). Based on these trends in visitation use the future recreation projections for the Project Area would be anticipated to increase slightly, which is in alignment with the population trend for Kern County.

5.4. COMPARISON OF SPRING 2023 AND SPRING 2024 RECREATION USE DATA

After the March 2023 storm event, Mountain Highway 99, was closed just south of Fairview Campground (site 7). All sites north (sites 1-6), including site 7, were closed and inaccessible to the public. Additionally, site damage, and subsequent closure, was reported by the SQF at site 12 and 14. SCE reported closure of site 10 due to the road being washed out. The road closure and site cleanup extended through April and May 2023. Stakeholders commented on the ISR noting 2023 was an anomaly water year and requested additional data be collected through 2024. Based on stakeholder comments on the ISR, SCE filed a response to comments (SCE, 2024a) noting due to the storm event and site closures additional data collection would take place in April and May 2024. The data collected in 2024 would allow comparison to 2023 and to have supplemental data during the 2024 period when sites were open. As part of the additional data collection, SCE conducted spot count and 2-hour calibration counts at the non-fee day use/dispersed camping recreation sites in the study area on 1 weekday and 1 weekend day in April and May 2024 and 1 day of the 3-day Memorial Day weekend, for a total of 5 additional data collection days.

Recreation days were estimated for Spring 2023 and Spring 2024 for comparison based on the spot count and 2-hour calibration count data collection efforts. Results of the data collection efforts for April through May 2023 (Table 5.4-1) and April through May 2024 (Table 5.4-2) are presented below. The recreation day estimates show there was a slight

increase in use at Study Sites 1 through 3 (300 recreation days, 8 percent) from 2023 to 2024. Day use sites and the day use at dispersed camping areas both showed a decrease from 2023 to 2024, 100 recreation days and 2,200 recreation days, respectively. All other site types showed an increase in recreation days ranging from 500 recreation days to 1,500 recreation days. Overall, there was an increase in recreation days of approximately 17.6 percent during the spring of 2024 and decrease in recreation days of approximately 23.8 percent during the Memorial Day holiday weekend.

Table 5.4-1. Estimated Recreation Days, April through May 2023

Day Type	Study Sites 1–3 [a]	Study Sites 4–25[a]							
		Day Use	Dispersed Camping		DUCG		Trail-head	KR3 PH	Total
			Day Use	Camping Use	Day Use	Camping Use			
Total Weekday	0	500	1,500	300	400	32	400	2,200	5,332
Total Weekend	2,800	1,400	2,500	700	400	45	300	1,100	9,245
Total Spring	**2,800**	**1,900**	**4,000**	**1,000**	**800**	**77**	**700**	**3,300**	**14,600**
Memorial Day weekend	1,000	400	2,200	600	200	300	100	27	4,827
Total	**3,800**	**2,300**	**6,200**	**1,600**	**1,000**	**400**	**800**	**3,300**	**19,400**

DUCG = day use area adjacent to developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Note: Numbers have been rounded to the nearest hundred.

[a] Developed campgrounds (sites 3, 7, 17, and 22) are not included in the Spring 2023 and Spring 2024 recreation day estimate comparison.

Table 5.4-2. Estimated Recreation Days, April through May 2024

Day Type	Study Sites 1–3 [a]	Study Sites 4–25 [a]							
		Day Use	Dispersed Camping		DUCG		Trail-head	KR3 PH	Total
			Day Use	Camping Use	Day Use	Camping Use			
Total Weekday	2,900	1,100	2,300	1,100	700	200	600	2,300	11,200
Total Weekend	800	400	1,200	900	800	500	700	1,200	6,500
Total Spring	**3,700**	**1,500**	**3,500**	**2,000**	**1,500**	**700**	**1,300**	**3,500**	**17,700**
Memorial Day weekend	400	700	500	1,100	400	200	300	300	3,900
Total	**4,100**	**2,200**	**4,000**	**3,100**	**1,900**	**900**	**1,600**	**3,800**	**21,600**

DUCG = day use area adjacent to developed campground; KR3 PH = KR3 Powerhouse Whitewater Put-in/Take-out

Note: Numbers have been rounded to the nearest hundred.

[a] Developed campgrounds (sites 3, 7, 17, and 22) are not included in the Spring 2023 and Spring2024 recreation day estimate comparison.

5.5. CONSISTENCY WITH APPLICABLE SQF LAND AND RESOURCE MANAGEMENT PLAN

The Land Management Plan (Forest Service, 2023) was developed to provide direction and adaptive management for the resources in the KR3 Project Area.[17] The following forest-wide (REC-FW) desired conditions (DC), objectives (OBJ), goals (GOAL), and guidelines (GDL) were found to be relevant to this study:

- Sites provide a variety of nature-based recreation opportunities year-round (REC-FW-DC 01, 03, 12).
- Sites accommodate diverse cultures (REC-FW-DC 02).
- Sites provide recreation opportunities with minimal impacts on sensitive environments (REC-FW-DC 05).
- Trail systems provide recreational opportunities compatible with other resources (REC-FW-DC 07, 13).
- Dispersed sites exist in areas outside of high visitation, which does not adversely impact resources (REC-FW-DC 09).

[17] Objectives and goals of the *Land Management Plan for the Sequoia National Forest* (Forest Service, 2023) are part of the 15-year plan that was released in 2023.

- Infrastructure meets the minimum needs of potential uses and mimics the area's natural landscape (REC-FW-GDL 02).

The sites were found to align with the following Destination Recreation Area (MA-DRA) desired conditions (DC), objectives (OBJ), goals (GOAL), and guidelines (GDL):

- Sites have a developed footprint that is appropriate to the setting, visually appealing, and well maintained. (MA-DRA-DC 01).

- Sites provide scenic integrity with a natural-appearing landscape retained outside of the development footprint (MA-DRA-DC 02).

- Sites provide infrastructure and amenities that are consistent with user capacity (MA-DRA-DC 06).

- Sites provide traffic and parking that do not negatively impact the visitor experience (MA-DRA-DC 08).

Additionally, the sites were found to align with the following General Recreation Area (MA-GRA) desired conditions (DC), objectives (OBJ), goals (GOAL), and guidelines (GDL):

- Sites have limited amenities and minor developments (MA-GRA-DC 01).

- Sites provide scenic integrity, including a mosaic of vegetation, while retaining the natural character of landscapes (MA-GRA-DC 02, 07).

- Recreation opportunities are compatible with other resources and result in infrequent conflicts between different uses (MA-GRA-DC 03, 06).

- Roads and trails at the sites support recreation activities (MA-GRA-DC 08).

- Recreation sites provide opportunities for those seeking solitude, as well as high-use areas (MA-GRA-DC 09).

6.0 STUDY-SPECIFIC CONSULTATION

Prior to the installation of trail cameras, SCE sent a list, map, and description of the proposed camera locations to the SQF, National Parks Service, and Kern River Boaters (KRB) via email. The following summarizes the dates and provides a brief overview of the consultation; Appendix E, Consultation Log, contains copies of these correspondence.

- March 3, 2023: SCE emailed SQF, the National Parks Service, and KRB approximately 1 month prior to camera installation of the five selected locations and the addition of 1-hour calibration counts to supplement data captured by the cameras.

- March 17, 2023: Email from KRB to SCE expressing their objection to the choice of camera sites as well as the number of cameras proposed to be installed.

- March 24, 2023: Email from SCE to KRB and other Stakeholders on the email proposing to install an additional camera at a site located above the Fairview Dam and reiterated that in addition to the cameras, calibration counts would be conducted at all 25 sites.

- March 31, 2023: Email from KRB to SCE noting their concern about the number of sites as well as noting their thoughts on an increase in spot counts and survey days in addition to calibration counts in order to collect the amount of data they feel was requested by FERC in the SPD.

- May 4, 2023: In-person consultation with SQF District Ranger and SCE, discussing proposed camera locations at all 25 recreation sites, 24 of those being owned and operated by SQF. Camera installation at all sites was verbally approved by the SQF District Ranger.

- May 24, 2023: Email from SQF Public Services Staff Officer, providing a letter from their concessionaire (Advenco/ExplorUS) requesting that SCE remove all cameras from their permitted recreation facilities (i.e., hosted campground).

- June 1, 2023: Phone call between SCE and FERC notifying FERC staff about the removal of cameras from the recreation facilities.

- August 21, 2023: Letter from SQF Forest Supervisor formally requesting removal of cameras from SQF campgrounds.

SCE reached out to the SQF inquiring about recreation use numbers for the DCGs and the DCG portion of DUCGs within the study area throughout the study plan development phase as part of formal or informal meetings held in October 2020, June 2022, and May 2024.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

As noted in Section 4.5, if the SQF is able to provide additional information regarding the capacity or frequency of use at their DCGs, then SCE will issue a supplemental Technical Memorandum with the Updated Study Report or with the Final License Application.

In accordance with FERC's Determination on Requests for Study Modifications, SCE initiated outreach with the SQF on June 14, 2024, to inquire about the use and installation of cameras at select river access locations. Following feedback from the SQF, SCE will engage with interested Stakeholders regarding the additional data collection efforts to obtain use estimates, including percent capacity at select river access locations and activity-type estimates, specifically commercial vs. non-commercial boaters and the type of watercrafts used. A supplemental Technical Memorandum describing the consultation, methodology, and data analysis will be developed at the conclusion of one year of data collection.

8.0 REFERENCES

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APPENDIX A
FINAL VISITOR INTERCEPT SURVEY QUESTIONNAIRE

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Kern River No. 3 Recreational User Survey

Welcome to the recreation user survey for the Kern River No. 3 Hydroelectric Project (KR3 or Project), Federal Energy Regulatory Commission (FERC) Project No. 2290. The purpose of this survey is to gather information about recreation opportunities within the FERC Project Boundary and along the 16-mile reach of the North Fork Kern River (NFKR) between Fairview Dam and the KR3 Powerhouse (the Fairview Dam Bypass Reach).

Would you mind answering some survey questions? We anticipate this survey will take approximately 10 to 15 minutes.

The information you provide will help guide current and future management of recreation opportunities, sites, and facilities for visitors to the Project Area. Please use the map below to (re)familiarize yourself with the general recreation area before answering the survey questions, and feel free to encourage others to participate in this survey.

[P*rovide a separate hard copy of the map to respondents, if relevant.*]

Any information you provide us today will remain anonymous. If at any time there is a question you prefer not to answer, feel free to skip that question and move to the next. The survey is broken out into the following sections:

- Section 1 - Demographics
- Section 2 - Current Trip Information and Experience
- Section 3 - Past Recreation Trips
- Section 4 - Surrounding Landscapes
- Section 5 - Angling Experiences
- Section 6 - User Feedback

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

Clerk: _____ Site: _____ Date: _____

Time:_____a.m./p.m.

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

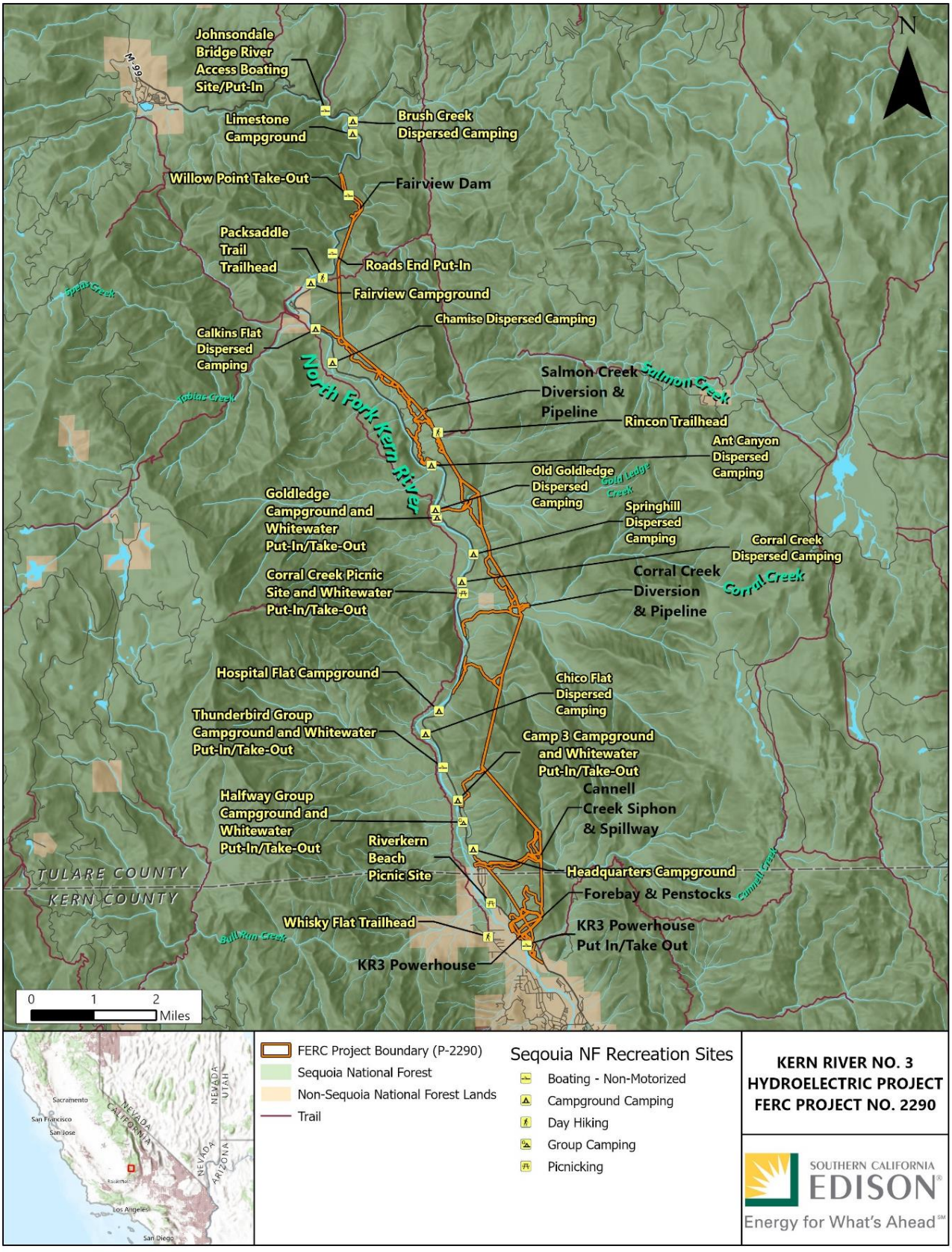
RESPONDENT REFUSED INTERVIEW: ☐

NUMBER OF PEOPLE IN VEHICLE: _____

RESPONDENT'S PRIMARY LANGUAGE: _____

VEHICLE HAS WATERCRAFT RACK: ☐

RESPONDENT HAS BEEN INTERVIEWED AT THIS SITE PREVIOUSLY: ☐



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?
   _____ person/people

5. Including yourself, how many people under 18 are in your party today?
   _____ person/people

6. What gender, if any, do you identify as (open ended)? _____

7. What is your ethnicity?
   a. Spanish/Latino Origin
   b. Black
   c. White
   d. Asian/Pacific Islander
   e. Other

8. What is your total household income?
   a. Less than $40,000
   b. $41,000–$80,000
   c. $81,000 and above

9. What best describes your employment status?
   a. Full-time
   b. Part-time
   c. Unemployed
   d. Self-employed
   e. Homemaker
   f. Student
   g. Retired
   h. Other: _____

10. If employed, what is your occupation? _____

Section 2 – Current Trip Information and Experience

11. What day did you arrive at this recreation site?

    Date: _____

12. Is this site the primary destination for your trip? ☐ YES ☐ NO

13. How many days have you been on this recreation trip, including today?

    _____ day(s)

14. How many total days do you expect your trip to last?

    _____ day(s)

15. What was your primary reason for selecting this location?

    _____

16. 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 ONE Main Activity	Check All Other Activities	Types of Activities
☐	☐	*a)* biking
☐	☐	*b)* camping
☐	☐	*c)* fishing
☐	☐	d) hiking/walking/trail use
☐	☐	*e)* whitewater boating/rafting
☐	☐	*f)* photography/painting
☐	☐	*g)* picnicking
☐	☐	*h)* relaxing
☐	☐	*i)* scenic driving
☐	☐	*j)* viewing scenery
☐	☐	*k)* viewing wildlife
☐	☐	*l)* other (please specify) _____

17. If you participated in a water-related activity, did the flows in the North Fork Kern River affect your ability participate?

    YES (select one): ☐ flow was too high ☐ flow was too low

    ☐ other (explain) _____

    ☐ NO: flow did not affect planned activities

    ☐ N/A: did not partake in water-related activity

18. How would you describe your weekly physical activity? (Select one)

    Low weekly activity **Moderate weekly activity** **High weekly activity**

19. The following question will be used to help estimate how recreation spending contributes to the local community, businesses, and economy. Your answer will be kept confidential.

    For your whole trip, how much do you expect to / did you spend in the local area*?

    $_____

    *Local includes towns within 50 miles, 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*. Include everything you bought (lodging, food, gas, equipment rentals/fees, etc.) or expect to buy before you go home. If there is more than one person in the party, please provide the <u>total</u> cost for your party, even if someone else paid for you, or you paid for someone else.

20. How would you rate your overall satisfaction or dissatisfaction with your recreation experience today on a scale of 1 to 5, 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 listed above in Q.16							
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. Adequacy of site access for persons with disabilities							
9. Scenery at this site/area							
10. Maintenance (physical condition) of facilities							
11. Cleanliness of facilities							
12. Access to restroom/shower/drinking water							
13. Informational/educational opportunities							
14. Flows in the river							

If you marked Very Dissatisfied (1) or Dissatisfied (2) for any above, please explain:

_____

Section 3 – Past Recreation Trips

21. In the last 12 months, have you visited any of the recreation sites listed in the table below? If yes, please indicate in the table the number of times you visited each site during each season; about how much time you typically spent at the site using minutes or hours; and the primary reason for your visit to the site(s).

    If you visited other sites between Johhsondale Bridge and the Kern River No. 3 Powerhouse not listed below, please list the site and complete the table.

Recreation Site	Number of Visits					Approximate Time On-site	Reason for Visit
	Spring (March–May)	Summer (Jun–Aug)	Fall (Sept–Nov)	Winter (Dec–Feb)	Total #		
Johnsondale Bridge River Access							
Brush Creek Dispersed Campground							
Limestone Campground							
Willow Point Whitewater Take-out							
Roads End Picnic Site and Whitewater Put-in							
Packsaddle Trail Trailhead							
Fairview Campground							
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							
Springhill Dispersed Camping							
Corral Creek Picnic Site and Whitewater Take-out							
Corral Creek Dispersed Camping							
Hospital Flat Campground							
Chico Flat Dispersed Camping							

Recreation Site	Number of Visits					Approximate Time On-site	Reason for Visit
	Spring (March–May)	Summer (Jun–Aug)	Fall (Sept–Nov)	Winter (Dec–Feb)	Total #		
Thunderbird Group Campground and Whitewater Put-in/Take-out							
Camp 3 Campground and Whitewater Put-in/Take-out							
Halfway Group Campground and Whitewater Put-in/Take-out							
Headquarters Campground							
Riverkern Beach Picnic Site							
KR3 Powerhouse Whitewater Put-in/Take-out							
Other:							

22. 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? (Select one)

More **About the same** **Less**

What is the primary reason for the answer you gave?

_____

Section 4 – Surrounding Landscapes

23. How would you rate the scenic quality of the NFKR area in general on a scale of 1-5, with 1 indicating very poor and 5 indicating very good?

Scenic Features	1 Very Poor	2 Poor	3 Neutral	4 Good	5 Very Good
General Scenic quality of NFKR area					

If you rated Very Poor (1) or Poor (2), please explain:

_____

24. What is the scenic feature that most attracted you to this area of the NFKR? Select top feature:

    a. General scenery such as rock outcrops, mountains and valleys
    b. Flows in the North Fork Kern River
    c. Project infrastructure (flowline, Powerhouse, Dam, other built facilities)
    d. Other: please provide: _____
    e. Scenery was not a consideration when selecting this location

25. How would you rate the following scenic qualities in the area between Fairview Dam and the Kern River No. 3 Powerhouse on a scale of 1 to 5, with 1 indicating very poor and 5 indicating very good?

Scenic Features	1 Very Poor	2 Poor	3 Neutral	4 Good	5 Very Good
General scenery such as rock outcrops, mountains and valleys					
River flows between Fairview Dam and KR3 Powerhouse					
Project infrastructure (flowline, Powerhouse, Dam, other built facilities)					

If you rated Very Poor (1) or Poor (2) for any above, please explain:

_____

26. Over the past 12 months, how often have you visited the area to partake in photography, painting, scenic driving, viewing scenery, and/or viewing wildlife?

    a. Never _____
    b. This is my first time _____
    c. Spring (March–May) #____
    d. Summer (June–August) #_____
    e. Fall (September–November) #_____
    f. Winter (December–February) #_____

Section 5 – Angling Experiences

27. Have you fished along the Fairview Dam Bypass Reach before?

☐ YES (please respond to the following 5 questions)

☐ NO (skip to Section 6)

28. What type of fishing tackle do you typically use to fish in the Fairview Dam Bypass Reach? (Select all that apply)

Spin fish with Lures **Spin fish with Bait** **Fly fish**

29. 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**

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

_____

31. How often have you fished the Fairview Dam Bypass Reach in each season over the past 12 months?

    a. Spring (March–May) #____
    b. Summer (June–August) #_____
    c. Fall (September–November) #_____
    d. Winter (December–February) #_____

32. Have river flows affected your angling experience in the Fairview Dam Bypass Reach? ☐ YES ☐ NO

    If yes, please indicate in which season your experience has been affected and provide reason.

    a. Spring (March–May) ____ Reason: too low / too high / other: _____
    b. Summer (June–Aug) _____ Reason: too low / too high / other: _____
    c. Fall (Sept–Nov) _____ Reason: too low / too high / other: _____
    d. Winter (Dec–Feb) _____ Reason: too low / too high / other: _____

33. On a scale of 1 to 5, with 1 being very poor and 5 being very good, how would you rate the conditions of your angling experience today or on the day of your most recent angling experience between the Fairview Dam and the Kern River No. 3 Powerhouse.

Fishing Experience	1 Very Poor	2 Poor	3 Neutral	4 Good	5 Very Good
Presence of angling features/habitats (pools, runs, riffles, etc.) to fish					
Ability to access angling features/habitats for preferred fishing					
Speed of river flow					

If you rated Very Poor (1) or Poor (2) for any above, please explain:

_____

Section 6 – User Feedback

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

☐ YES

☐ NO

If yes, what improvements do you recommend?

_____

35. Do you believe that any additional recreation facilities (such as more single-family campgrounds, group campgrounds, parking areas, bathrooms, hiking trails, river launching areas, river access, information kiosks, etc.) are needed in the area between the Fairview Dam and the Kern River No. 3 Powerhouse?

If yes, please describe:

_____

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

_____

_____

THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY

APPENDIX B
ONLINE SURVEY FLYER

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Recreation User Survey

Southern California Edison (SCE) is conducting a Recreation Study as part of the Federal Energy Regulatory Commission relicensing of the Kern River No. 3 (P-2290) Hydroelectric Project. The survey can be completed on your mobile device or computer. Participation is voluntary and responses will remain anonymous.

The online survey can be accessed at:

www.SCE.com/kr3

or

The survey will be available from April 1, 2023, through March 31, 2024. Please only complete one survey per individual.

Thank you in advance for your participation!

Encuesta de usuarios de recreación

Southern California Edison (SCE) está realizando un estudio de recreación como parte de la renovación de la licencia de la Comisión Federal Reguladora de Energía del Proyecto Hidroeléctrico Kern River No. 3 (P-2290). La encuesta se puede completar en su dispositivo móvil o computadora. La participación es voluntaria y las respuestas permanecerán anónimas.

Se puede acceder a la encuesta en línea en:

www.SCE.com/kr3

o

La encuesta estará disponible desde el 1 de abril de 2023 hasta el 31 de marzo de 2024. Complete solo una encuesta por individuo.

¡Gracias de antemano por tu participación!

Recreation User Survey

Southern California Edison (SCE) is conducting a Recreation Study as part of the Federal Energy Regulatory Commission relicensing of the Kern River No. 3 (P-2290) Hydroelectric Project. The survey can be completed on your mobile device or computer. Participation is voluntary and responses will remain anonymous.

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Encuesta de usuarios de recreación

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Se puede acceder a la encuesta en línea en:

www.SCE.com/kr3

o

La encuesta estará disponible desde el 1 de abril de 2023 hasta el 31 de marzo de 2024. Complete solo una encuesta por individuo.

¡Gracias de antemano por tu participación!

APPENDIX C
FINAL 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)*			No. of People Participating in											Total No. of People at Site	Comments/ General Description
				Individual Kayak	Commercial Boat	Other Watercraft	Biking	Camping	Fishing	Hiking/walking/trail use	White-water boating/rafting	Boating (non-motorized	Photography	Picnicking	Relaxing	Viewing Scenery	Viewing Wildlife	Other	

*as observed from water's edge approximately 50-100 feet upstream and downstream

Contact Information:

Additional notes/comments:

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APPENDIX D
FINAL CALIBRATION COUNT FORM

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Calibration Form						Site Name:														
Staff Person:			Date:			Time Start:						Time End:								
						Start Count:						End Count:								
Weekend or Weekday?						# of people participating in activity during visit														
Vehicle Description	License Plate	Trailer Y/N	Time in	Time out	Total # of People	Motor Boating	Non motor boating	Whitewater Boating	Camping	Fishing	Picnic	Walk/ Jog/ Hike	Hunt	Ride Horses	Ride Bikes	Sight See	Swim	Birding	Other Rec Use	Non Rec Use

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APPENDIX E
CONSULTATION LOG

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From: Jillian Roach
To: David Moore (David.Moore@sce.com)
Subject: FW: REC-2 Stakeholder Camera email
Date: Friday, March 3, 2023 11:01:00 AM
Attachments: image001.png
image002.png

Hello Stakeholders

In accordance with Southern California Edison's (SCE's) REC-2 Recreation Facilities Use Assessment Study Plan, and modified by the Federal Energy Regulatory Commission's (FERCs) Study Plan Determination (SPD), SCE is providing the attached list, map, and description of the trail cameras that will be installed prior to the start of the 2023 Recreation field season. FERC's objective for the addition of the trail cameras was to "..record quantitative data and types of recreation use (e.g., number of visitors and how many visitors are anglers or kayakers) for the duration of time that they are installed."

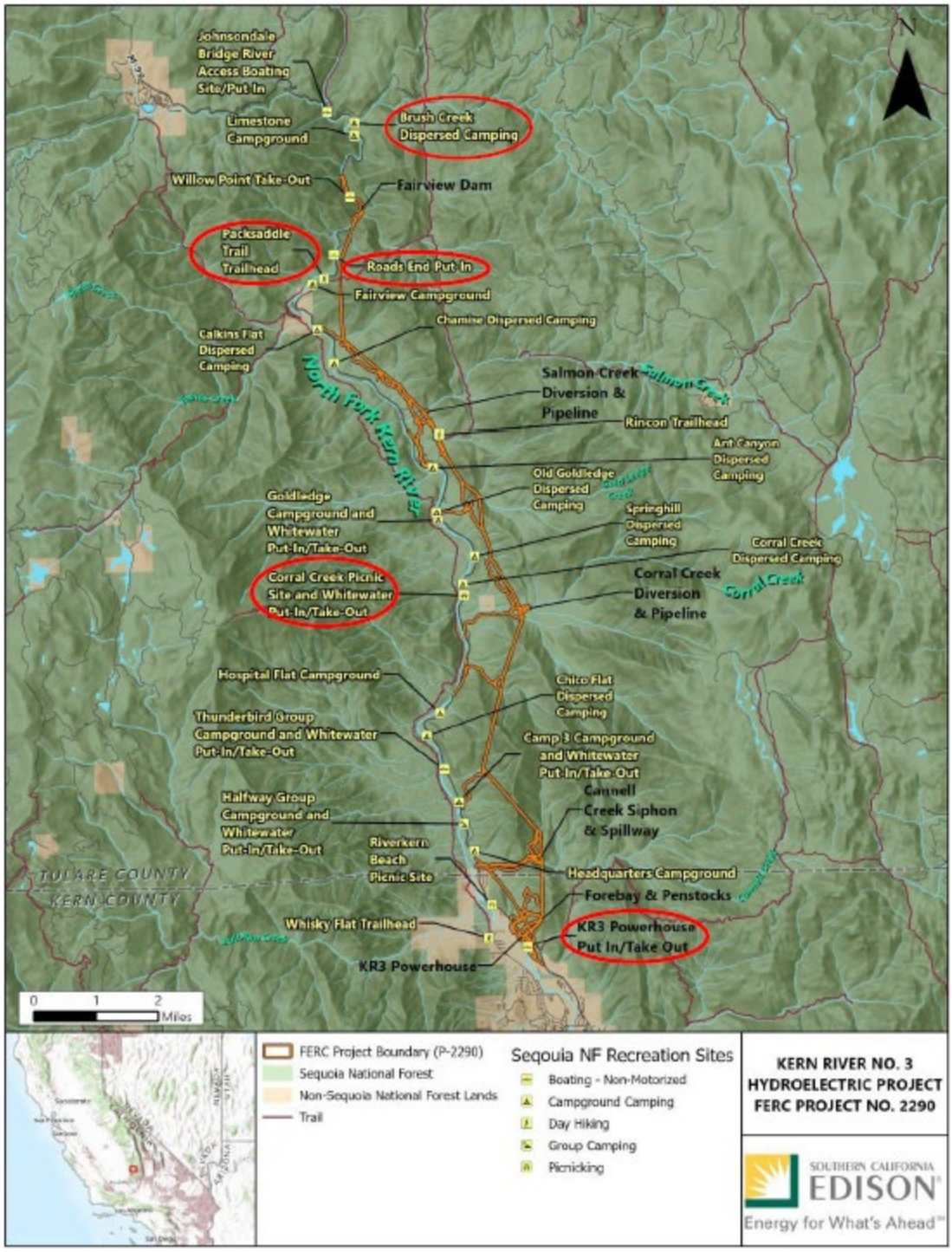
During a field reconnaissance effort to identify camera locations, it became apparent that due to the vast size, dispersed nature, and shoreline vegetation scattered throughout the majority of the recreation sites, installing a trail camera to collect quantitative data to meet FERC's objectives is problematic at all sites. However, SCE has identified five (5) representative recreation sites where a suitable vantage point was identified for trail camera installation. In an effort to achieve FERC's objectives, SCE is supplementing the spot counts proposed in the Revised Study Plan (RSP) to include calibration counts to develop a more complete and timely picture of how people are recreating throughout the Project Area over different times of the day and throughout the year. These will occur at each of the 25 recreation sites at randomly selected dates and times concurrently with the on-site visitor questionnaire survey days, as outlined in FERC's SPD (2 days per month and 9 holiday weekends).

The sites that have been selected for camera installation are as follows:

Brush Creek Dispersed Camping and Day Use
Road's End Picnic Area and Whitewater Put in
Packsaddle Trailhead
Corral Creek Dispersed Camping
KR3 Powerhouse Whitewater Put in/Take out

As stated in the RSP, SCE will obtain concessionaire data from the SQF to collect user count data at the fee based developed campgrounds.

Below is a map noting the camera locations.



If you have any questions or comments, please feel free to reach out to me at David.moore@sce.com or 626-302-9494.

Jillian Roach

From:	Kern River Boaters
To:	David Moore
Cc:	Watson, Alfred -FS; Karen Miller; lilian_jonas@contractor.nps.gov; Jillian Roach; Angela Whelpley; Sanchez, Monique - FS; kevin@amwhitewater.org; ferccaseadmin@sce.com; kelly.henderson@sce.com; theresa simsiman; jgantenbein@waterpowerlaw.com; joshua.rider@usda.gov; rstork@friendsoftheriver.org; wayne.allen@sce.com; Martin Ostendorf; nicolas.von@sce.com; Mary Margaret Richardson; Cornelio Artienda; SOL-FERC@sol.doi.gov; mary.schickling@sce.com; patrick.le@sce.com; Jim Ahrens; brittany.arnold@sce.com; Alvarez, Dawn -FS; Miller, Karen -FS; lawrence elman; Jim Ahrens; Timothy McNeely; Kent Varvel; Hitchcock, Gerald - FS, KERNVILLE, CA; Desenze, Philip - FS; Leonard, Norman - FS, KERNVILLE, CA; Whitton, Kellie -FS; Jonas, Lilian M; Rosebrough-Jones, Susan E; Rice, Barbara M; Bowes, Stephen M; patrick.redmond@usda.gov; Leon, Abimael@Wildlife; Elgart, Stephen - FS, KERNVILLE, CA; Beal, Brian@Wildlife; Hansum, Chloe J; Hatler, Gerald@Wildlife; Vance, Julie@Wildlife; liz duxbury; Neil Nikirk; Quinn Emmering; scott toland
Subject:	Re: Kern River 3 (P-2290) REC-2 Study Plan Camera Information
Date:	Friday, March 17, 2023 4:52:03 PM
Attachments:	Screenshot 2023-03-17 at 4.46.49 PM.png image001.png

David,

Thank you for the opportunity to comment. Unfortunately, KRB must object to your choice of camera sites for REC-2.

One of KRB's positions, as stated during the study plan design process, is that an undeniable project effect is the forced concentration of NF Kern recreation out of the 16-mile dewatered reach and into the two-mile free-flowing section above Fairview Dam when flows in the diverted reach are artificially low and approaching fish flow. During those times, the riverside up to Fairview Dam is virtually bereft of parked cars or recreationalists; above the dam, the number of cars and people enjoying the river *noticeably and dramatically* increases. For instance, no parking lot below the dam is taxed at those times, whereas the parking lots above the dam at Willow Point and, most markedly, Johnsondale Bridge are vibrant and bustling — indeed, to the point of severe overflow. Local Forest and Sherriff staff can no doubt attest to this phenomenon. The only site you have chosen above the dam, Brush Creek, is not used as a NF Kern whitewater put-in or takeout by noncommercial boaters, and is only used by commercial outfitters when the Johnsondale Bridge loading zone is too crowded, or occasionally as a lunch site for paying guests. Your choice of sites accordingly suffers, in our view, from two major faults: (1) you have chosen the least active lot above Fairview Dam (Brush Creek) — which will obscure the real story at Johnsondale Bridge and Willow Point; (2) putting more cameras below Fairview Dam than above guarantees a distortion of the relative incidence of recreation above and below the dam. Your choices will accordingly not satisfy the Commission's desire to obtain a representative analysis of recreation on the NF Kern, thereby denying it and the agencies a meaningful understanding of project effects. We accordingly ask that the number of cameras above and below Fairview Dam be equalized, and that Johnsondale Bridge and Willow Point be included as camera sites above the dam, in that order of priority.

As for as your choice of locations below Fairview Dam, KRB notes the following: Road's End is not widely used as a whitewater put-in by noncommercial boaters (and is never used as a takeout by anyone); Packsaddle is neither a whitewater put-in nor takeout; Corral Creek Dispersed Camping site is infrequently used as a whitewater put-in or takeout given several preferred nearby locations for both; and the KR3 Powerhouse is also infrequently used as a whitewater takeout, given the more frequently used options of taking out at Riverkern Beach or Riverside Park. Your sites will accordingly not capture a representative sample of whitewater recreation in the diverted reach — even during the peak runoff season. To accomplish that, you should choose put-ins and takeouts that are as popular with the boaters of the diverted reach as the KR3 Powerhouse is with boaters of the undiverted reach, namely: Thunderbird, Calkins Flat, and Ant Canyon, in that order of priority. The first two are popular whitewater takeouts, as well, and all three attract

anglers.

We would welcome a meeting on these issues that includes Forest and other interested agency representatives.

Brett Duxbury
KERN RIVER BOATERS
Kernriverboaters.com/kr3
Fb.com/groups/kernriverboaters

A CALIFORNIA PUBLIC INTEREST NONPROFIT

On Mar 3, 2023, at 5:04 PM, David Moore <David.Moore@sce.com> wrote:

Hello Stakeholders,

In accordance with Southern California Edison's (SCE's) REC-2 Recreation Facilities Use Assessment Study Plan, and modified by the Federal Energy Regulatory Commission's (FERCs) Study Plan Determination (SPD), SCE is providing the attached list, map, and description of the trail cameras that will be installed prior to the start of the 2023 Recreation field season. FERC's objective for the addition of the trail cameras was to "..record quantitative data and types of recreation use (e.g., number of visitors and how many visitors are anglers or kayakers) for the duration of time that they are installed."

During a field reconnaissance effort to identify camera locations, it became apparent that due to the vast size, dispersed nature, and shoreline vegetation scattered throughout the majority of the recreation sites, installing a trail camera to collect quantitative data to meet FERC's objectives is problematic at all sites. However, SCE has identified five (5) representative recreation sites where a suitable vantage point overlooking the sites was identified for trail camera installation. In an effort to achieve FERC's objectives, SCE is supplementing the spot counts proposed in the Revised Study Plan (RSP) to include calibration counts to develop a more complete and timely picture of how people are recreating throughout the Project Area over different times of the day and throughout the year. These will occur at each of the 25 recreation sites at randomly selected dates and times concurrently with the on-site visitor questionnaire survey days, as outlined in FERC's SPD (2 days per month and 9 holiday weekends).

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KR3 Powerhouse Whitewater Put in/Take out

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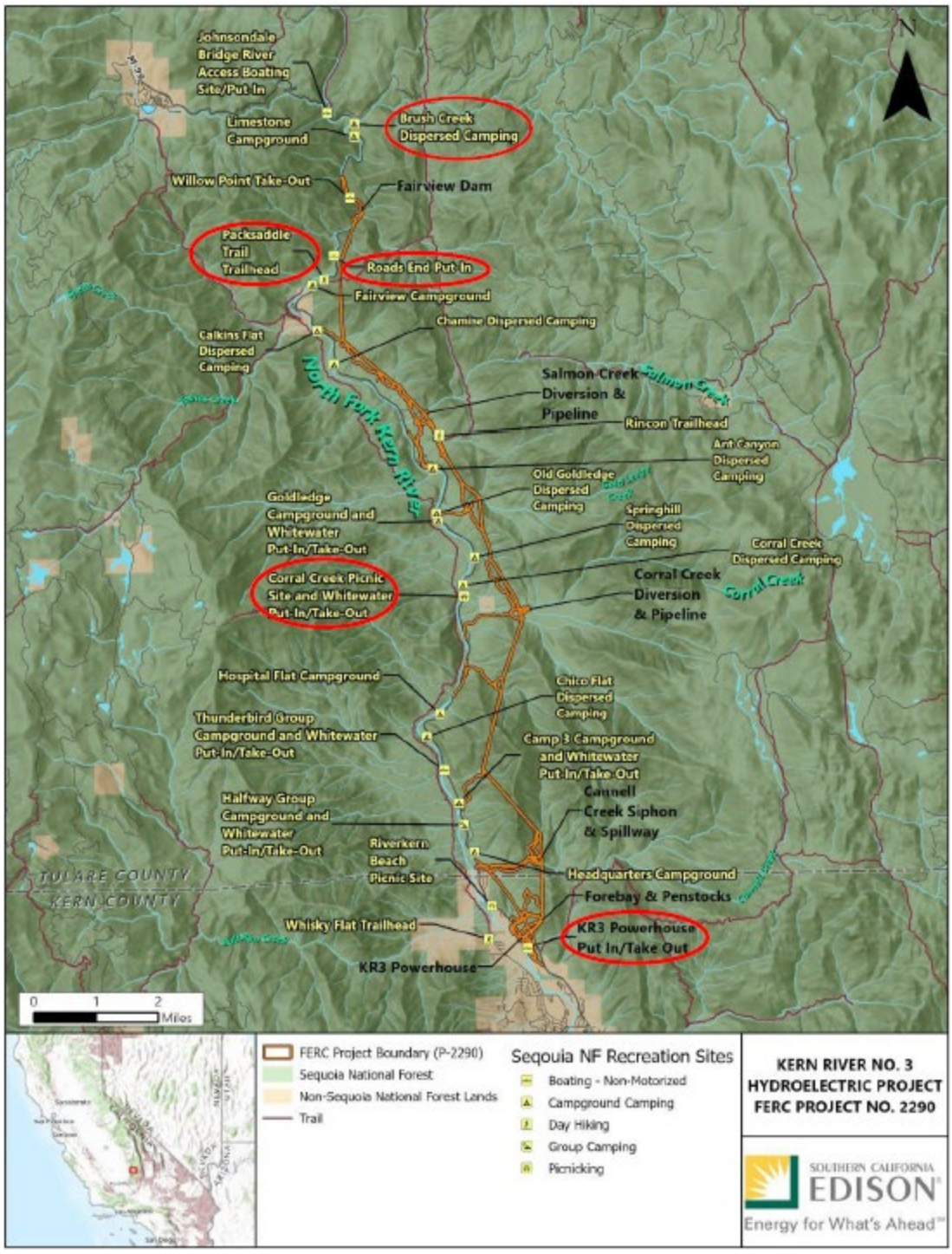
Below is a map noting the camera locations.



If you have any questions or comments, please feel free to reach out to me at David.moore@sce.com or 626-302-9494.

Best regards,

David Moore
Generation | Hydro Licensing
Southern California Edison
T. 626-302-9494 | M. 626-861-5918 (new)

From:	David Moore
To:	Kern River Boaters
Cc:	Watson, Alfred -FS; Karen Miller; lilian_jonas@contractor.nps.gov; Jillian Roach; Angela Whelpley; Sanchez, Monique - FS; kevin@amwhitewater.org; FERC Case Admin; Kelly Henderson; theresa simsiman; Julie Gantenbein; joshua.rider@usda.gov; rstork@friendsoftheriver.org; Wayne Allen; Martin Ostendorf; Nicolas Von Gersdorff; Mary Margaret Richardson; Cornelio Artienda; SOL-FERC@sol.doi.gov; Mary Schickling; Patrick B Le; Jim Ahrens; Brittany Arnold; Alvarez, Dawn -FS; Miller, Karen -FS; lawrence elman; Jim Ahrens; Timothy McNeely; Kent Varvel; Hitchcock, Gerald - FS, KERNVILLE, CA; Desenze, Philip - FS; Leonard, Norman - FS, KERNVILLE, CA; Whitton, Kellie -FS; Jonas, Lilian M; Rosebrough-Jones, Susan E; Rice, Barbara M; Bowes, Stephen M; patrick.redmond@usda.gov; Leon, Abimael@Wildlife; Elgart, Stephen - FS, KERNVILLE, CA; Beal, Brian@Wildlife; Hansum, Chloe J; Hatler, Gerald@Wildlife; Vance, Julie@Wildlife; liz duxbury; Neil Nikirk; Quinn Emmering; scott toland; Daniel Keverline
Subject:	RE: (External):Re: Kern River 3 (P-2290) REC-2 Study Plan Camera Information
Date:	Friday, March 24, 2023 2:58:23 PM
Attachments:	image002.png image003.png

EXTERNAL MESSAGE

Dear Mr. Duxbury,

Thank you for your comments on the REC-2 Study Plan Camera Information and providing your observations about whitewater access on the NFKR.

As the focus of the REC-2 study is to look at all recreation use, the camera locations selected represent the different types of recreation sites and uses within the Project Area (i.e., day use/picnic, hiking, dispersed use, and river access). However, in response to your feedback regarding the number of cameras above and below Fairview Dam, SCE will install an additional camera at a recreation site above the dam, for a total of 6 sites (4 below and 2 above the dam) to capture a variety of recreation use in the Project Area. SCE increased the number of spot count survey days at all 25 recreation sites and added a calibration count study component, as noted in the March 3rd email below.

Thanks you for your time and interest in the KR3 relicensing process.

Best regards,
David Moore
Generation | Hydro Licensing
Southern California Edison
T. 626-302-9494 | M. 626-861-5918 (new)

From: Kern River Boaters <kernriverboaters@gmail.com>
Sent: Friday, March 17, 2023 4:52 PM
To: David Moore <David.Moore@sce.com>
Cc: Watson, Alfred -FS <alfred.watson@usda.gov>; Karen Miller <karen.miller@usda.gov>; lilian_jonas@contractor.nps.gov; Jillian Roach <Jillian.Roach@erm.com>; Angela Whelpley <angela.whelpley@kleinschmidtgroup.com>; Sanchez, Monique - FS <monique.sanchez@usda.gov>; kevin@amwhitewater.org; FERC Case Admin <FERCCaseAdmin@sce.com>; Kelly Henderson <Kelly.Henderson@sce.com>; theresa simsiman <theresa@americanwhitewater.org>; Julie

Gantenbein <jgantenbein@waterpowerlaw.com>; joshua.rider@usda.gov; rstork@friendsoftheriver.org; Wayne Allen <Wayne.Allen@sce.com>; Martin Ostendorf <Martin.Ostendorf@sce.com>; Nicolas Von Gersdorff <Nicolas.Von@sce.com>; Meg Richardson <Mary.M.Richardson@sce.com>; Cornelio Artienda <Cornelio.Artienda@sce.com>; SOL-FERC@sol.doi.gov; Mary Schickling <Mary.Schickling@sce.com>; Patrick B Le <Patrick.le@sce.com>; Jim Ahrens <jimahrensmt@gmail.com>; Brittany Arnold <BRITTANY.ARNOLD@SCE.COM>; Alvarez, Dawn -FS <dawn.alvarez@usda.gov>; Miller, Karen -FS <karen.miller@usda.gov>; lawrence elman <larryelman@gmail.com>; Jim Ahrens <jim@jimahrensmt.com>; Timothy McNeely <tim@lifestoneco.com>; Kent Varvel <avarvel@att.net>; Hitchcock, Gerald - FS, KERNVILLE, CA <Gerald.Hitchcock@usda.gov>; Desenze, Philip - FS <philip.desenze@usda.gov>; Leonard, Norman - FS, KERNVILLE, CA <Norman.Leonard@usda.gov>; Whitton, Kellie -FS <kellie.whitton@usda.gov>; Jonas, Lilian M <lilian_jonas@contractor.nps.gov>; Rosebrough-Jones, Susan E <Susan_Rosebrough@nps.gov>; Rice, Barbara M <Barbara_Rice@nps.gov>; Bowes, Stephen M <Stephen_Bowes@nps.gov>; patrick.redmond@usda.gov; Leon, Abimael@Wildlife <Abimael.Leon@wildlife.ca.gov>; Elgart, Stephen - FS, KERNVILLE, CA <Stephen.Elgart@usda.gov>; Beal, Brian@Wildlife <Brian.Beal@wildlife.ca.gov>; Hansum, Chloe J <chloe_hansum@fws.gov>; Hatler, Gerald@Wildlife <Gerald.Hatler@wildlife.ca.gov>; Vance, Julie@Wildlife <Julie.Vance@wildlife.ca.gov>; liz duxbury <lizbrackbill@gmail.com>; Neil Nikirk <nnikirk62@gmail.com>; Quinn Emmering <quinn.emmering@ferc.gov>; scott toland <scottmtoland@gmail.com>
Subject: (External):Re: Kern River 3 (P-2290) REC-2 Study Plan Camera Information

David,

Thank you for the opportunity to comment. Unfortunately, KRB must object to your choice of camera sites for REC-2.

One of KRB's positions, as stated during the study plan design process, is that an undeniable project effect is the forced concentration of NF Kern recreation out of the 16-mile dewatered reach and into the two-mile free-flowing section above Fairview Dam when flows in the diverted reach are artificially low and approaching fish flow. During those times, the riverside up to Fairview Dam is virtually bereft of parked cars or recreationalists; above the dam, the number of cars and people enjoying the river *noticeably and dramatically* increases. For instance, no parking lot below the dam is taxed at those times, whereas the parking lots above the dam at Willow Point and, most markedly, Johnsondale Bridge are vibrant and bustling — indeed, to the point of severe overflow. Local Forest and Sherriff staff can no doubt attest to this phenomenon. The only site you have chosen above the dam, Brush Creek, is not used as a NF Kern whitewater put-in or takeout by noncommercial boaters, and is only used by commercial outfitters when the Johnsondale Bridge loading zone is too crowded, or occasionally as a lunch site for paying guests. Your choice of sites accordingly suffers, in our view, from two major faults: (1) you have chosen the least active lot above Fairview Dam (Brush Creek) — which will obscure the real story at Johnsondale Bridge and Willow Point; (2) putting more cameras below Fairview Dam than above guarantees a distortion of the relative incidence of recreation above and below the dam. Your choices will accordingly not satisfy the Commission's desire to obtain a representative analysis of recreation on the NF Kern, thereby denying it and the agencies a meaningful understanding of project effects. We accordingly ask that the number of cameras above and below Fairview Dam be equalized, and that Johnsondale Bridge and Willow Point be included as camera sites above the dam, in that order of priority.

As for as your choice of locations below Fairview Dam, KRB notes the following: Road's End is not widely used as a whitewater put-in by noncommercial boaters (and is never used as a takeout by anyone); Packsaddle is neither a whitewater put-in nor takeout; Corral Creek Dispersed Camping site is infrequently used as a whitewater put-in or takeout given several preferred nearby locations for both; and the KR3 Powerhouse is also infrequently used as a whitewater takeout, given the more frequently used options of taking out at Riverkern Beach or Riverside Park. Your sites will accordingly not capture a representative sample of whitewater recreation in the diverted reach — even during the peak runoff season. To accomplish that, you should choose put-ins and takeouts that are as popular with the boaters of the diverted reach as the KR3 Powerhouse is with boaters of the undiverted reach, namely: Thunderbird, Calkins Flat, and Ant Canyon, in that order of priority. The first two are popular whitewater takeouts, as well, and all three attract anglers.

We would welcome a meeting on these issues that includes Forest and other interested agency representatives.

Brett Duxbury
KERN RIVER BOATERS
Kernriverboaters.com/kr3
Fb.com/groups/kernriverboaters

KERN RIVER BOATERS
A CALIFORNIA PUBLIC INTEREST NONPROFIT

On Mar 3, 2023, at 5:04 PM, David Moore <David.Moore@sce.com> wrote:

Hello Stakeholders,

In accordance with Southern California Edison's (SCE's) REC-2 Recreation Facilities Use Assessment Study Plan, and modified by the Federal Energy Regulatory Commission's (FERCs) Study Plan Determination (SPD), SCE is providing the attached list, map, and description of the trail cameras that will be installed prior to the start of the 2023 Recreation field season. FERC's objective for the addition of the trail cameras was to "..record quantitative data and types of recreation use (e.g., number of visitors and how many visitors are anglers or kayakers) for the duration of time that they are installed."

During a field reconnaissance effort to identify camera locations, it became apparent that due to the vast size, dispersed nature, and shoreline vegetation scattered throughout the majority of the recreation sites, installing a trail camera to collect quantitative data to meet FERC's objectives is problematic at all sites. However, SCE has identified five (5) representative recreation sites where a suitable vantage point overlooking the sites was identified for trail camera installation. In an effort to achieve FERC's objectives, SCE is supplementing the spot counts proposed in the Revised Study

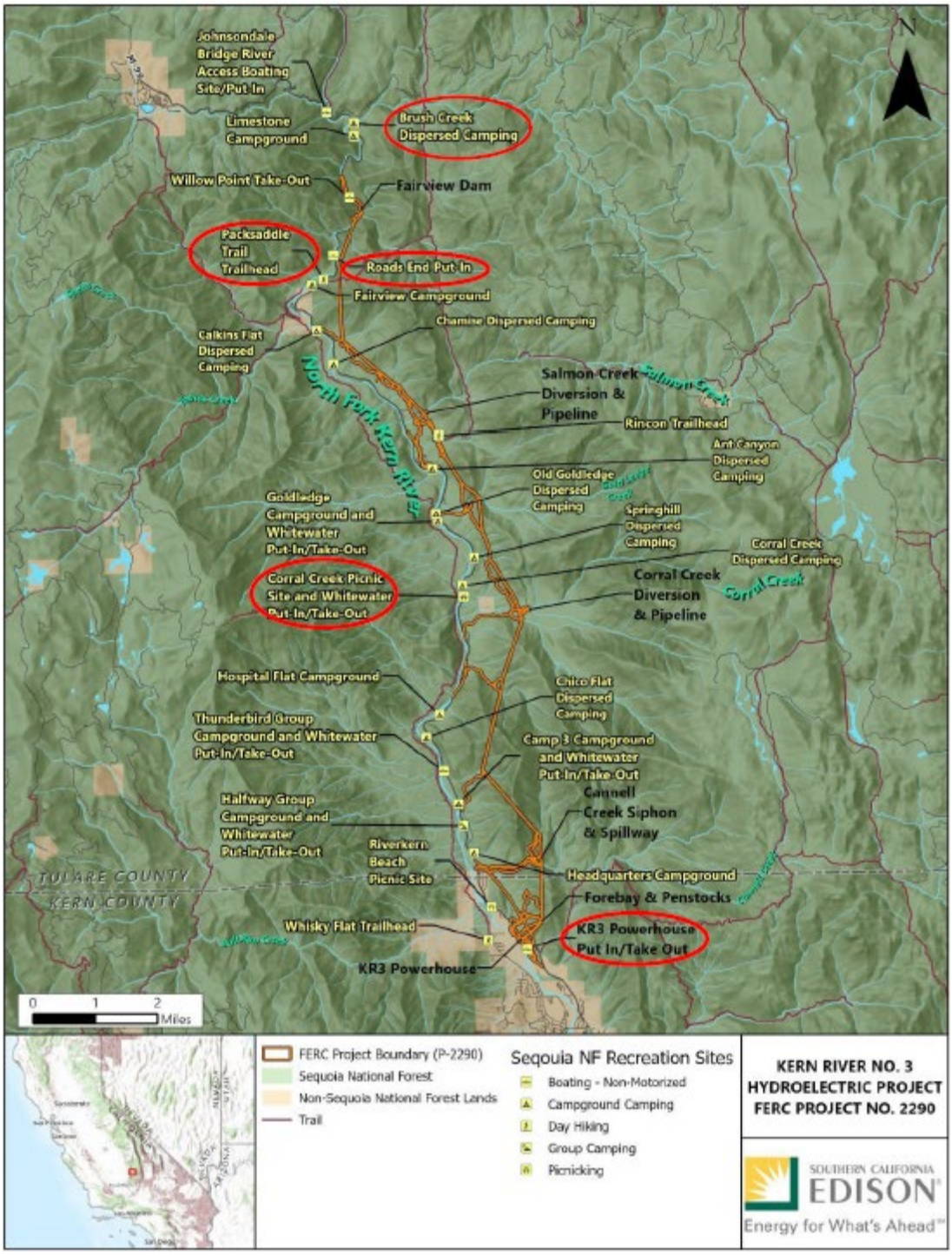
Plan (RSP) to include calibration counts to develop a more complete and timely picture of how people are recreating throughout the Project Area over different times of the day and throughout the year. These will occur at each of the 25 recreation sites at randomly selected dates and times concurrently with the on-site visitor questionnaire survey days, as outlined in FERC's SPD (2 days per month and 9 holiday weekends).

The sites that have been selected for camera installation are as follows:

Brush Creek Dispersed Camping and Day Use
Road's End Picnic Area and Whitewater Put in
Packsaddle Trailhead
Corral Creek Dispersed Camping
KR3 Powerhouse Whitewater Put in/Take out

As stated in the RSP, SCE will obtain concessionaire data from the SQF to collect user count data at the fee based developed campgrounds.

Below is a map noting the camera locations.



If you have any questions or comments, please feel free to reach out to me at David.moore@sce.com or 626-302-9494.

Best regards,

David Moore
Generation | Hydro Licensing
Southern California Edison

T. 626-302-9494 | M. 626-861-5918 (new)

From:	Kern River Boaters
To:	David Moore
Cc:	Watson, Alfred -FS; Karen Miller; lilian_jonas@contractor.nps.gov; Jillian Roach; Angela Whelpley; Sanchez, Monique - FS; kevin@amwhitewater.org; FERC Case Admin; Kelly Henderson; theresa simsiman; Julie Gantenbein; joshua.rider@usda.gov; rstork@friendsoftheriver.org; Wayne Allen; Martin Ostendorf; Nicolas Von Gersdorff; Mary Margaret Richardson; Cornelio Artienda; SOL-FERC@sol.doi.gov; Mary Schickling; Patrick B Le; Jim Ahrens; Brittany Arnold; Alvarez, Dawn -FS; lawrence elman; Jim Ahrens; Timothy McNeely; Kent Varvel; Hitchcock, Gerald - FS, KERNVILLE, CA; Desenze, Philip - FS; Leonard, Norman - FS, KERNVILLE, CA; Whitton, Kellie -FS; Rosebrough-Jones, Susan E; Rice, Barbara M; Bowes, Stephen M; patrick.redmond@usda.gov; Leon, Abimael@Wildlife; Elgart, Stephen - FS, KERNVILLE, CA; Beal, Brian@Wildlife; Hansum, Chloe J; Hatler, Gerald@Wildlife; Vance, Julie@Wildlife; liz duxbury; Neil Nikirk; Quinn Emmering; scott toland; Geno Hacker; dennis rushing
Subject:	Re: (External):Re: Kern River 3 (P-2290) REC-2 Study Plan Camera Information
Date:	Friday, March 31, 2023 4:45:58 PM
Attachments:	image002.png image002.png image003.png

David,

We understand that the study determination seeks data on multiple forms of recreation, and we support that goal. However, the FERC study process requires methodologies accepted by contemporary science, which in this case require a fair representation of recreation on the Upper Kern. The fact that your project impairs multiple forms of recreation is not a valid reason to weaken the requirement that each of those forms be fairly represented in the study.

To ensure fair representation, the determination recommended the installation of cameras at between 26 and 30 sites. (Determination at B28-B29 [“22 recreation sites” in the dewatered reach, plus those needed for the “developed and dispersed campgrounds, day-use areas, river access points, and trailheads that provide river access along the approximately 1.9- mile-long reach of the NFKR upstream of the project boundary“].) You have proposed decreasing the number of sites to 6. (Note also that the determination envisioned multiple “cameras” *at each site* to collect the data; you are proposing but a single camera at many less sites.) Your number of sites is both inadequate to cover the multiple forms of recreation identified for study and is skewed against whitewater. You have chosen to establish a camera at the project powerhouse, which is a popular whitewater put-in due to the easiness of the run, its closeness to town, the lack of Forest Service regulation, and the absence of project effect (that is where the project returns water to the river). You cannot obtain a fair representation of whitewater recreation above the powerhouse — both in the dewatered reach and in the two miles above Fairview Dam — by simultaneously *excluding* cameras at the most popular put-ins, which you have chosen to do. At a minimum, a fair representation would require cameras at the main whitewater put-in above Fairview Dam — Johnsondale Bridge — as well as at popular put-ins for the dewatered reach below the dam, which KRB identified in our prior note, and which *were included in the 22 sites envisioned by the determination*. A fair representation would also include a camera at Willow Point, where, like at Johnsondale Bridge, overuse and over-crowdedness from multiple forms of recreation are likely to occur when project operations depress flows below Fairview Dam towards the current environmental minimums. The determination plainly reflects staff intent to collect data “comprehensive enough to ensure staff has adequate information to analyze environmental effects and inform license conditions [sections 5.9(b)(4) and (5)].” (Determination at B29.) Your choices to date threaten that objective.

Even if you include the sites we have identified, you are left with far less than half the number envisioned in the determination. In our opinion, that merits a commensurate increase of spot counts and survey days — in addition to your calibration counts (please provide a description of your calibration methodology) — both above and below Fairview Dam throughout the study year in order to accomplish the study’s objectives. Otherwise, the timing of that field data might come into question, notwithstanding your assertion that dates will be chosen “randomly.” We remain willing to discuss these matters with you and any other interested

parties further.

Brett Duxbury
KERN RIVER BOATERS
Kernriverboaters.com/kr3
Fb.com/groups/kernriverboaters

A CALIFORNIA PUBLIC INTEREST NONPROFIT

On Mar 24, 2023, at 2:58 PM, David Moore <David.Moore@sce.com> wrote:

Dear Mr. Duxbury,

Thank you for your comments on the REC-2 Study Plan Camera Information and providing your observations about whitewater access on the NFKR.

As the focus of the REC-2 study is to look at all recreation use, the camera locations selected represent the different types of recreation sites and uses within the Project Area (i.e., day use/picnic, hiking, dispersed use, and river access). However, in response to your feedback regarding the number of cameras above and below Fairview Dam, SCE will install an additional camera at a recreation site above the dam, for a total of 6 sites (4 below and 2 above the dam) to capture a variety of recreation use in the Project Area. SCE increased the number of spot count survey days at all 25 recreation sites and added a calibration count study component, as noted in the March 3rd email below.

Thanks you for your time and interest in the KR3 relicensing process.

Best regards,
David Moore
Generation | Hydro Licensing
Southern California Edison
T. 626-302-9494 | M. 626-861-5918 (new)

From: Kern River Boaters <kernriverboaters@gmail.com>
Sent: Friday, March 17, 2023 4:52 PM
To: David Moore <David.Moore@sce.com>
Cc: Watson, Alfred -FS <alfred.watson@usda.gov>; Karen Miller <karen.miller@usda.gov>; lilian_jonas@contractor.nps.gov; Jillian Roach <Jillian.Roach@erm.com>; Angela Whelpley <angela.whelpley@kleinschmidtgroup.com>; Sanchez, Monique - FS <monique.sanchez@usda.gov>;kevin@amwhitewater.org; FERC Case Admin <FERCCaseAdmin@sce.com>; Kelly Henderson <Kelly.Henderson@sce.com>; theresa

simsiman <theresa@americanwhitewater.org>; Julie Gantenbein <jgantenbein@waterpowerlaw.com>; joshua.rider@usda.gov; rstork@friendsoftheriver.org; Wayne Allen <Wayne.Allen@sce.com>; Martin Ostendorf <Martin.Ostendorf@sce.com>; Nicolas Von Gersdorff <Nicolas.Von@sce.com>; Meg Richardson <Mary.M.Richardson@sce.com>; Cornelio Artienda <Cornelio.Artienda@sce.com>; SOL-FERC@sol.doi.gov; Mary Schickling <Mary.Schickling@sce.com>; Patrick B Le <Patrick.le@sce.com>; Jim Ahrens <jimahrensmt@gmail.com>; Brittany Arnold <BRITTANY.ARNOLD@SCE.COM>; Alvarez, Dawn -FS <dawn.alvarez@usda.gov>; Miller, Karen -FS <karen.miller@usda.gov>; lawrence elman <larryelman@gmail.com>; Jim Ahrens <jim@jimahrensmt.com>; Timothy McNeely <tim@lifestoneco.com>; Kent Varvel <avarvel@att.net>; Hitchcock, Gerald - FS, KERNVILLE, CA <Gerald.Hitchcock@usda.gov>; Desenze, Philip - FS <philip.desenze@usda.gov>; Leonard, Norman - FS, KERNVILLE, CA <Norman.Leonard@usda.gov>; Whitton, Kellie -FS <kellie.whitton@usda.gov>; Jonas, Lilian M <lilian_jonas@contractor.nps.gov>; Rosebrough-Jones, Susan E <Susan_Rosebrough@nps.gov>; Rice, Barbara M <Barbara_Rice@nps.gov>; Bowes, Stephen M <Stephen_Bowes@nps.gov>; patrick.redmond@usda.gov; Leon, Abimael@Wildlife <Abimael.Leon@wildlife.ca.gov>; Elgart, Stephen - FS, KERNVILLE, CA <Stephen.Elgart@usda.gov>; Beal, Brian@Wildlife <Brian.Beal@wildlife.ca.gov>; Hansum, Chloe J <chloe_hansum@fws.gov>; Hatler, Gerald@Wildlife <Gerald.Hatler@wildlife.ca.gov>; Vance, Julie@Wildlife <Julie.Vance@wildlife.ca.gov>; liz duxbury <lizbrackbill@gmail.com>; Neil Nikirk <nnikirk62@gmail.com>; Quinn Emmering <quinn.emmering@ferc.gov>; scott toland <scottmtoland@gmail.com>
Subject: (External):Re: Kern River 3 (P-2290) REC-2 Study Plan Camera Information

David,

Thank you for the opportunity to comment. Unfortunately, KRB must object to your choice of camera sites for REC-2.

One of KRB's positions, as stated during the study plan design process, is that an undeniable project effect is the forced concentration of NF Kern recreation out of the 16-mile dewatered reach and into the two-mile free-flowing section above Fairview Dam when flows in the diverted reach are artificially low and approaching fish flow. During those times, the riverside up to Fairview Dam is virtually bereft of parked cars or recreationalists; above the dam, the number of cars and people enjoying the river *noticeably and dramatically* increases. For instance, no parking lot below the dam is taxed at those times, whereas the parking lots above the dam at Willow Point and, most markedly, Johnsondale Bridge are vibrant and bustling — indeed, to the point of severe overflow. Local Forest and Sherriff staff can no doubt attest to this phenomenon. The only site you have chosen above the dam, Brush Creek, is not used as a NF Kern whitewater put-in or takeout by noncommercial boaters, and is only used by commercial outfitters when the Johnsondale Bridge loading zone is too crowded, or occasionally as a lunch site for paying guests. Your choice of sites accordingly suffers, in our view, from two major faults: (1) you have chosen the least active lot above Fairview Dam (Brush Creek) — which will obscure the real story at Johnsondale Bridge and Willow Point; (2) putting more cameras below Fairview Dam than above guarantees a distortion of the relative incidence of recreation above and below the dam. Your choices will accordingly not satisfy the Commission's desire to obtain a representative analysis of recreation on the NF Kern, thereby

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As for as your choice of locations below Fairview Dam, KRB notes the following: Road's End is not widely used as a whitewater put-in by noncommercial boaters (and is never used as a takeout by anyone); Packsaddle is neither a whitewater put-in nor takeout; Corral Creek Dispersed Camping site is infrequently used as a whitewater put-in or takeout given several preferred nearby locations for both; and the KR3 Powerhouse is also infrequently used as a whitewater takeout, given the more frequently used options of taking out at Riverkern Beach or Riverside Park. Your sites will accordingly not capture a representative sample of whitewater recreation in the diverted reach — even during the peak runoff season. To accomplish that, you should choose put-ins and takeouts that are as popular with the boaters of the diverted reach as the KR3 Powerhouse is with boaters of the undiverted reach, namely: Thunderbird, Calkins Flat, and Ant Canyon, in that order of priority. The first two are popular whitewater takeouts, as well, and all three attract anglers.

We would welcome a meeting on these issues that includes Forest and other interested agency representatives.

Brett Duxbury
KERN RIVER BOATERS
Kernriverboaters.com/kr3
Fb.com/groups/kernriverboaters

KERN RIVER BOATERS
A CALIFORNIA PUBLIC INTEREST NONPROFIT

> On Mar 3, 2023, at 5:04 PM, David Moore <David.Moore@sce.com> wrote:
>
> Hello Stakeholders,
>
> In accordance with Southern California Edison's (SCE's) REC-2 Recreation Facilities Use Assessment Study Plan, and modified by the Federal Energy Regulatory Commission's (FERCs) Study Plan Determination (SPD), SCE is providing the attached list, map, and description of the trail cameras that will be installed prior to the start of the 2023 Recreation field season. FERC's objective for the addition of the trail cameras was to "..record quantitative data and types of recreation use (e.g., number of visitors and how many visitors are anglers or kayakers) for the duration of time that they are installed."
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installing a trail camera to collect quantitative data to meet FERC's objectives is problematic at all sites. However, SCE has identified five (5) representative recreation sites where a suitable vantage point overlooking the sites was identified for trail camera installation. In an effort to achieve FERC's objectives, SCE is supplementing the spot counts proposed in the Revised Study Plan (RSP) to include calibration counts to develop a more complete and timely picture of how people are recreating throughout the Project Area over different times of the day and throughout the year. These will occur at each of the 25 recreation sites at randomly selected dates and times concurrently with the on-site visitor questionnaire survey days, as outlined in FERC's SPD (2 days per month and 9 holiday weekends).

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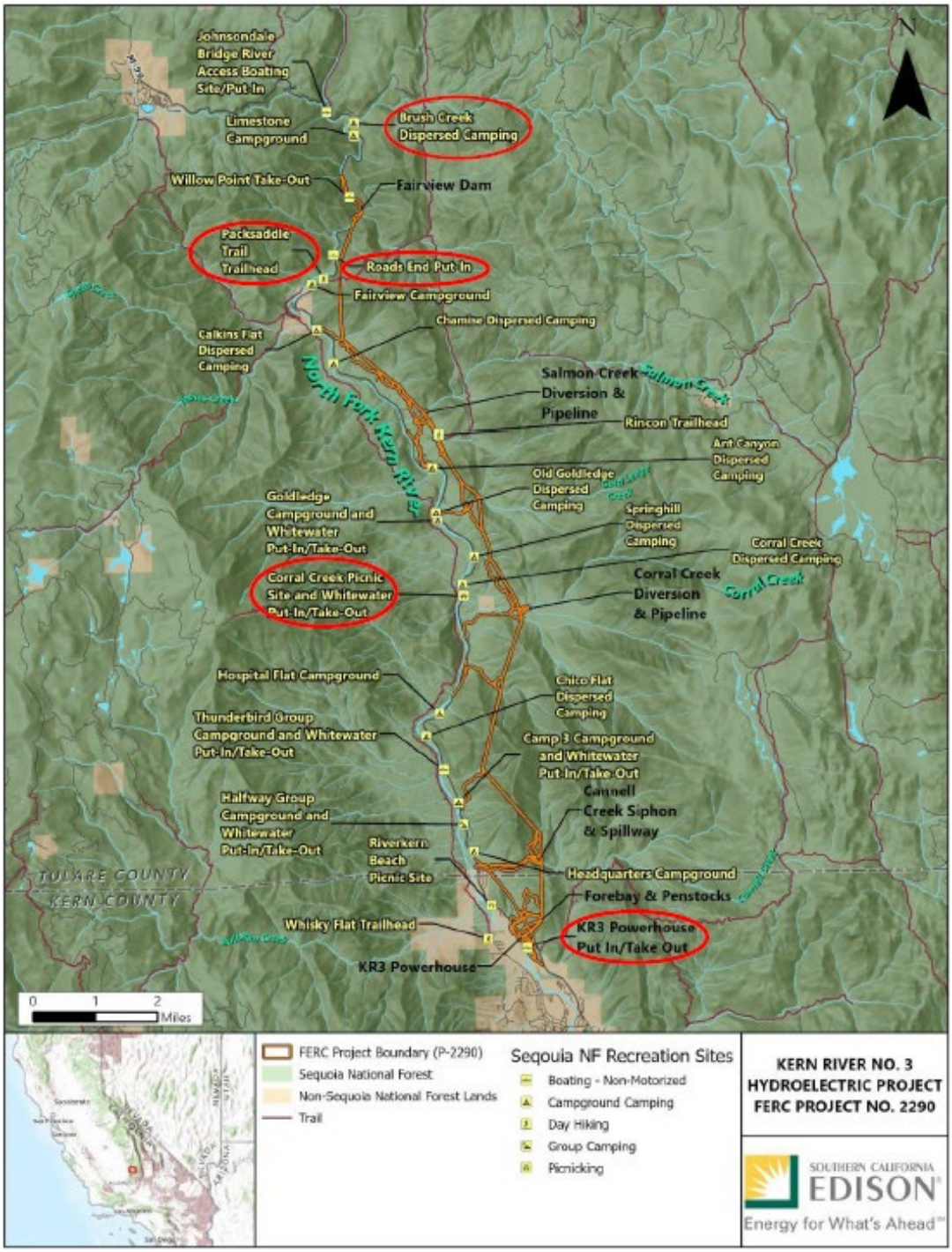
Below is a map noting the camera locations.



If you have any questions or comments, please feel free to reach out to me at David.moore@sce.com or 626-302-9494.

Best regards,

David Moore
Generation | Hydro Licensing
Southern California Edison
T. 626-302-9494 | M. 626-861-5918 (new)

To: Forest Service, Sequoia National Forest
From: Advenco / ExplorUS
Date: May 24, 2023
Re: Response to Kern River No. 3 Recreation Study, Developed Campground Camera Locations

ExplorUS requests that the cameras and signage pertaining to cameras be taken down immediately in the following campgrounds on the Sequoia National Forest. ExplorUS will not assume any liability for complaints and/or lawsuits pertaining to said cameras.

- Limestone Campground
- Fairview Campground
- Goldledge Campground
- Hospital Flat Campground
- Camp 3 Campground
- Camp 3 Whitewater Access
- Thunderbird Campground
- Thunderbird Day-Use/Whitewater Access
- Halfway Group Campground
- Halfway Group Day-Use/Whitewater Access
- Headquarters Campground

California State Law:

- California is a two-party consent state, which means you must get permission from all involved parties before making your recording. Failure to do so might have significant legal ramifications. Note that, while the law refers to “two-party” consent, every participant on camera must give their permission if more than two people are present at the time of the filming.

Other Provisions Under California Video Recording Law:

- In California, it is also illegal to film someone while they are in a location with any reasonable expectation of privacy, such as a bedroom, bathroom, locker room, fitting room or medical office.

When it comes to the topic of filming in a location with any reasonable expectation of privacy, this is a very gray area concerning campsites that visitors pay to stay, which we will not allow ourselves to be exposed to due to cameras in the campgrounds.

This is also currently in violation of any employee that Advenco/ExplorUS has working in these campgrounds, as they have not consented to be recorded.

Sincerely,

Kelly Sighel
VP – Forest Operations
ExplorUS
(913) 220-1258
ksighel@goexplorus.com

USDA United States Department of Agriculture | Forest Service | Sequoia National Forest
Giant Sequoia National Monument
220 East Morton Avenue
Porterville, CA 93257-9353
(559) 784-1500
(559) 781-6650 TDD

File Code: 2300/2700
Date: August 21, 2023

David Moore
Southern California Edison
David.Moore@sce.com

RE: Kern River No. 3 Recreation Study, Developed Campground Cameras

Dear Southern California Edison Representatives:

It has come to my attention that Southern California Edison (SCE) has installed video cameras at several Sequoia National Forest campgrounds in an attempt to gather data for completion of the recreation study required as part of the Kern River No. 3 Hydroelectric Project relicensing. Video cameras were installed in the following campgrounds:

- Limestone Campground
- Fairview Campground
- Goldledge Campground
- Hospital Flat Campground
- Camp 3 Campground
- Camp 3 Whitewater Access
- Thunderbird Campground
- Thunderbird Day-Use/Whitewater Access
- Halfway Group Campground
- Halfway Group Day-Use/Whitewater Access
- Headquarters Campground

These campgrounds are managed by ExplorUS, Sequoia National Forest's campground concessionaire, under Special Use Permit. ExplorUS has requested that the cameras and related signage be removed immediately due to potential liability for complaints and/or lawsuits. It can be reasonably argued that installation of video cameras in campgrounds are in violation of California's two-party consent law, affecting paying visitors and ExplorUS employees, in which permission and consent from all parties being filmed must be obtained and may violate reasonable expectation of privacy that paying visitors may have while staying in campgrounds.

In order to avoid exposing ExplorUS and the Sequoia National Forest to potential legal ramifications, I am requesting that SCE remove any and all cameras currently installed in Sequoia National Forest campgrounds immediately.

If you have any questions or concerns regarding this request, please contact Karen Miller, Public Services Staff Officer, Karen.Miller@usda.gov.

Sincerely,

Teresa Benson

TERESA BENSON
Forest Supervisor

CC: Karen Miller, Arvind Bhuta, Eric Lundgren, Nicole Holland

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REC-2 RECREATION FACILITIES USE ASSESSMENT CAMERA STUDY PLAN

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

October 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

AI	artificial intelligence
API	Application Programming Interface
FERC	Federal Energy Regulatory Commission
Forest Service	USDA Forest Service
KR3	Kern River No. 3
NFKR	North Fork Kern River
NFS	National Forest System
PFD	personal flotation device
PM&E	protection, mitigation, and enhancement
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
QA/QC	quality assurance / quality control
SCE	Southern California Edison
SQF	Sequoia National Forest
USR	Updated Study Report

1.0 NEED FOR STUDY PLAN MODIFICATION

1.1. BACKGROUND

On May 30, 2024, the Federal Energy Regulatory Commission (FERC) issued a Determination on Requests for Study Modifications and New Studies (FERC Accession No. 20240530-3030; FERC, 2024) directing Southern California Edison (SCE) to collect additional data regarding commercial and non-commercial boating activities on the North Fork Kern River (NFKR) to provide FERC staff sufficient information to inform potential license conditions (Section 5.9(b)(5)). Therefore, FERC modified the *REC-2 Recreation Facilities Assessment Study Plan* as follows:

> …staff still do not have the necessary information to inform potential license conditions [section 5.9(b)(5)]. The Whitewater Boating Study's Desktop Review includes no information about the amount of non-commercial boating use. The results of the structured interviews and single flow survey for the Whitewater Boating Study, and the visitor questionnaire for the Recreation Facilities Use Assessment provide information about types of watercrafts used, flow preferences, and the number of boaters represented in the sample, but they do not provide monthly or annual estimates of non-commercial river use in the project area. Additionally, while SCE consulted stakeholders in their initial attempts to install cameras, they did not consult with stakeholders regarding the spot and calibration count variances. For these reasons, we do not approve SCE's study variance.
>
> Instead, SCE should work with Sequoia National Forest to install cameras at all river access locations along the Fairview Dam bypassed reach and above Fairview Dam to Johnsondale Bridge to capture: (1) use-estimates including percent capacity at all river access locations; (2) activity-type estimates, specifically commercial vs. non-commercial boaters, including the type of watercrafts used. The cameras should be deployed for one calendar year and capture use at reasonable intervals to record boating activity, or set to sense motion, depending on camera placement and its ability to detect movement at the river access.

This Study Plan modification describes SCE's planned activities to address FERC's direction for using trail cameras to capture and analyze a year's worth of visitor use data at the river access sites above (1.9-mile segment above Fairview Dam) and along the Fairview Dam Bypass Reach[1]. This focused Study Plan outlines the scope and study site locations, duration, and methodologies to meet FERC's study objectives.

[1] Fairview Dam Bypass Reach is defined as the approximately 16-mile segment of the NFKR from Fairview Dam down to the Kern River No. 3 (KR3) Powerhouse.

1.2. STUDY PLAN DEVELOPMENT CONSULTATION

Per FERC's Determination on Request for Study Modification and New Studies, SCE conducted outreach with the U.S. Department of Agriculture Forest Service (Forest Service) regarding installation of cameras on National Forest System (NFS) lands on June 17 and July 31, 2024. SCE and the Forest Service discussed the purpose and intent of the cameras, the types of information the cameras would collect, and suitable locations on NFS lands. As stated in Forest Service communication dated August 21, 2023, and reiterated again in the July 31, 2024, meeting, cameras would not be allowed at campgrounds managed by the Sequoia National Forest (SQF) and their campground concessionaire because cameras *"may violate reasonable expectations of privacy that paying visitors may have while staying at the campgrounds"* (see the consultation log that is included as Appendix E to the REC-1 Interim Technical Memorandum [SCE, 2023]). SCE evaluated the study sites included as part of the REC-2 Study Plan to ensure they were consistent with Forest Service guidance and determined which ones have river access and are not fee-based. SCE provided the Forest Service with 12 proposed camera locations, as described in Table 4-1 and shown in Appendix A, *Proposed Camera Locations*.

Following these discussions, SCE received an email from the SQF Recreation Officer William "Billy" Brown regarding the 12 camera locations, stating the Forest Service *"doesn't see any concerns related to privacy issues as they are all in publicly accessible areas that would not have any expectation of privacy."* On August 14, 2024, SCE provided the Forest Supervisor with a formal request for approval of the camera locations. The Forest Service also provided guidance that some of the camera locations would require a formalized Special Use Permit with the Forest Service for their installation, specifically for camera locations outside of the FERC Project Boundary, where not currently covered under other Master Special Use Permits (e.g., not on an SCE power pole).

On August 29, 2024, SCE invited other resource agencies and interested boaters to attend a call where SCE provided an update on Forest Service consultation and presented the proposed camera locations. Discussions during and via emailed comments as a follow-up to the meeting, boaters provided feedback on the proposed camera locations. In response to their comments, SCE agreed to include three additional camera locations, subject to Forest Service approval, and to adjust photograph frequency from every 15 minutes to every 5 minutes.

SCE provided the Forest Service an updated request to the SQF recreation lands officer and Forest Supervisor on September 27, 2024, that included the three additional camera locations. Final approval from the Forest Supervisor (including special use authorization for installation) for the 15 camera locations (16 cameras total due to 2 cameras planned at the KR3 Powerhouse Put-In/Take-Out) is still pending at the time of this filing.

Copies of meeting materials and meeting notes and email communications are included in Appendix B, *Consultation Record*.

2.0 PROJECT NEXUS AND HOW THE RESULTS WILL BE USED

As acknowledged in the approved *REC-2 Recreation Facilities Assessment Study Plan* (FERC, 2022), the current Project operations may promote use of the Project Area for recreational purposes, specifically whitewater boating. The study results from this focused Study Plan will be used to further document and augment the understanding of recreation use specific to the river access sites and river uses above (1.9-mile segment above Fairview Dam) and along the Fairview Dam Bypass Reach.

3.0 STUDY GOALS AND OBJECTIVES

The primary goal of this Study Plan modification is to collect additional information on recreation use at river access sites above and along the Fairview Dam Bypass Reach. The objectives of this study plan modification are to:

- Document and estimate river-focused recreation use including validating use estimates and percent capacity (as noted in the REC-2 Technical Memorandum) at river access sites; and

- Compile estimates of other use characteristics at each study site including: (1) commercial and non-commercial whitewater boating recreation use levels, and (2) types of watercraft.

4.0 STUDY AREA AND STUDY SITES

The study sites included in this Study Plan modification include the river access sites above (1.9-mile reach above Fairview Dam) and along the Fairview Dam Bypass Reach (Figure 4-1). In general, the camera locations are at the non-fee day-use/dispersed camping sites and are aligned with the nine whitewater boating runs/segments along the Fairview Dam Bypass Reach section of the NFKR and the associated put-in and/or take-out locations as described in the REC-1 Whitewater Boating Level 1 Interim Technical Memorandum (SCE, 2023).

A total of 16 cameras at 15 locations along the NFKR are included as part of this study. Table 4-1 lists the recreation sites above and along the bypass reach and indicates which sites where cameras are proposed. The table also provides the rationale and other pertinent information regarding the site selection for the cameras. Per the direction of the Forest Service, cameras are not allowed at developed (fee based) campgrounds[2], as noted in Table 4-1. Also, final approval of camera locations and position (field of view) are subject to approval from the SQF at Forest Service managed recreation sites and on NFS lands. Additional approval via a Special Use Permit authorization is required for the installations not on SCE poles. Example photographs are provided in Appendix A from the 10 Forest Service day-use/dispersed camping recreation sites, SCE recreation site (this site has two cameras), three river view sites, and one road shoulder pull-off where cameras are proposed. The photographs show the camera installation locations and approximate field(s) of view.

[2] Fairview Campground, Goldledge Campground, Hospital Flat Campground, Thunderbird Group Campground, Camp 3 Campground, Headquarters Campground, and Halfway Group Campground.

Table 4-1. Recreation Sites and Camera Locations

REC-2 ID [a]	Camera ID	Site Name	Site Type	Camera Proposed?	Rationale/Notes
1	1	Johnsondale Bridge River Access	Day Use	Yes	• River access location/Limestone whitewater run put-in • Install camera on tree facing river access put-in (access via stairs). Views of path, river put-in and start of river run.
2	2	Brush Creek Dispersed Camping	Dispersed Camping	Yes	• Site located between whitewater run. While this site is not typically used by non-commercial boaters, it may periodically be used as an overflow parking and put-in location if the Johnsondale Bridge River Access parking lot is full by the commercial rafting companies. [b] Camera analysis at this site will be focused on documenting occurrence of commercial boating use. • Install on pole along Sherman Pass Road with view of parking area.
3		Limestone Campground	Developed Campground	No	• Forest Service fee campground (cameras are not allowed at fee campgrounds)
4	3	Willow Point Whitewater Take-out	Day Use	Yes	• River access location • Limestone whitewater run take-out • Install camera on tree with “take-out” sign. Camera facing downstream toward take-out and some river views.
	4	Upstream of Roads End Picnic Site	Shoulder pull-off	Yes	• Non-commercial river access location • Fairview whitewater run put-in • Install camera on SCE pole upstream of road shoulder parking area

REC-2 ID [a]	Camera ID	Site Name	Site Type	Camera Proposed?	Rationale/Notes
5	5	Roads End Picnic Site and Whitewater Put-in	Day Use	Yes	• River access location • Sidewinder/Bombs Away whitewater run take-out/Fairview whitewater run put-in • Install camera on tree next to restroom. Camera facing boater access route with some river views.
6		Packsaddle Trail Trailhead	Trailhead	No	• No river access
7		Fairview Campground	Developed Campground	No	• Forest Service fee campground (cameras are not allowed at fee campgrounds per previous direction)
8	6	Calkins Flat Dispersed Camping	Dispersed Camping	Yes	• River access location • Fairview whitewater run take-out • Chamise Gorge whitewater run put-in • Install camera on tree across from road. Camera facing boater access route with some river views.
9		Chamise Dispersed Camping	Dispersed Camping	No	• Site located in middle of whitewater run • Cameras at put-in/take-out of run
--	7	Chamise Gorge Run	NFKR view	Yes	• Chamise Gorge whitewater run take-out • Start of Salmon Falls whitewater run • Camera in tree along upper road segment (installed 7/14/2024)
10		Rincon Trailhead	Trailhead	No	• No river access

REC-2 ID [a]	Camera ID	Site Name	Site Type	Camera Proposed?	Rationale/Notes
11	8	Ant Canyon Dispersed Camping	Dispersed Camping	Yes	• River access location • Salmon Fall whitewater run take-out • Goldledge whitewater run put-in • Install camera on tree across street from site to obtain view of whole parking area • Camera facing parking lot/river access routes (commercial put in downstream end; non-commercial put-in upstream end). Port-a-potty seen in foreground.
-	9	NFKR Goldledge Run	NFKR view	Yes	• Install camera between Goldledge Campground and Springhill Dispersed Campground pending identification of site with suitable river field of view.
12		Old Goldledge Dispersed Camping	Dispersed Camping	No	• Site located in middle of whitewater run • Cameras at put-in/take-out of run
13		Goldledge Campground and Whitewater Put-in/Take-out	Developed Campground and Day Use	No	• Forest Service fee campground (cameras are not allowed at fee campgrounds per previous direction) • Site also located within a whitewater run segment
14		Springhill Dispersed Camping	Dispersed Camping	No	• Site located between whitewater run segments • Cameras at put-in/take-outs
15	10	Corral Creek Picnic Site and Whitewater Take-out	Day Use	Yes	• River access location • Goldledge whitewater run take-out • Thunder Run whitewater run put-in • Camera in tree with view of the parking area..
16		Corral Creek Dispersed Camping	Dispersed Camping	No	• Site located between whitewater run segments • Cameras at put-in/take-outs

REC-2 ID [a]	Camera ID	Site Name	Site Type	Camera Proposed?	Rationale/Notes
17		Hospital Flat Campground	Developed Campground	No	• Forest Service fee campground (cameras are not allowed at fee campgrounds per previous direction)
18		Chico Flat Dispersed Camping	Dispersed Camping	No	• Site located between whitewater run segments • Cameras at put-in/take-outs
19	11	Thunderbird Group Campground and Whitewater Put-in/Take-out	Developed Campground and Day Use	Yes	• River access location • Thunder Run whitewater run take-out • Cable/Camp whitewater run put-in for non-commercial boaters • Install on SCE pole across street; angle camera to capture only parking area and road parking, not the adjacent Forest Service fee campground
20	12	Camp 3 Campground and Whitewater Put-in/Take-out	Developed Campground and Day Use	Yes	• River access location • Thunder Run whitewater run take-out • Cable / Camp whitewater run put-in for commercial boaters • Install on SCE pole across street, angle camera to capture only parking area not the adjacent Forest Service fee campground
21		Halfway Group Campground and Whitewater Put-in/Take-out	Developed Campground and Day Use	No	• Camera field of view would capture adjacent Forest Service fee campground • Located within whitewater run segment • Cameras at put-in/take-outs
22		Headquarters Campground	Developed Campground	No	• Forest Service fee campground (cameras are not allowed at fee campgrounds per previous direction)

REC-2 ID [a]	Camera ID	Site Name	Site Type	Camera Proposed?	Rationale/Notes
23	13	Riverkern Beach Picnic Site	Day Use	Yes	• River access location • Cable/Camp 3 whitewater run take-out • Lickety Split whitewater run put-in • Install on tree/t-post on hill above larger parking area (not capturing road-shoulder parking).
--	14	NFKR above KR3 Powerhouse	NFKR view	Yes	• Riverkern Beach whitewater run • Mounted on SCE catwalk on back of the powerhouse
24	15/16	KR3 Powerhouse Whitewater Put-in/Take-out (SCE Project facility)	Day Use	Yes (2)	• River access location • Riverkern Beach whitewater run take-out • Lickety Split whitewater run put-in • Two cameras SCE pole; looking upstream parking area/river and downstream parking area/river
25		Whiskey Flat Trailhead	Trailhead	No	• No river access

KR3 = Kern River No. 3; NFKR = North Fork Kern River; SCE = Southern California Edison

[a] Site numbers referenced in the REC-2 Recreation Facilities Use Assessment Technical Memorandum; Sites 1 to 4 are located above Fairview Dam and Sites 5 to 25 are located along the NFKR Bypass Reach.

[b] "Brush Creek is not used as a NF Kern whitewater put-in or takeout by noncommercial boaters and is only used by commercial outfitters when the Johnsondale Bridge loading zone is too crowded, or occasionally as a lunch site for paying guests." (email communication from Kern River Boaters dated 3/17/2023, refer to REC-2 Technical Memorandum, Appendix E [SCE, 2023]).

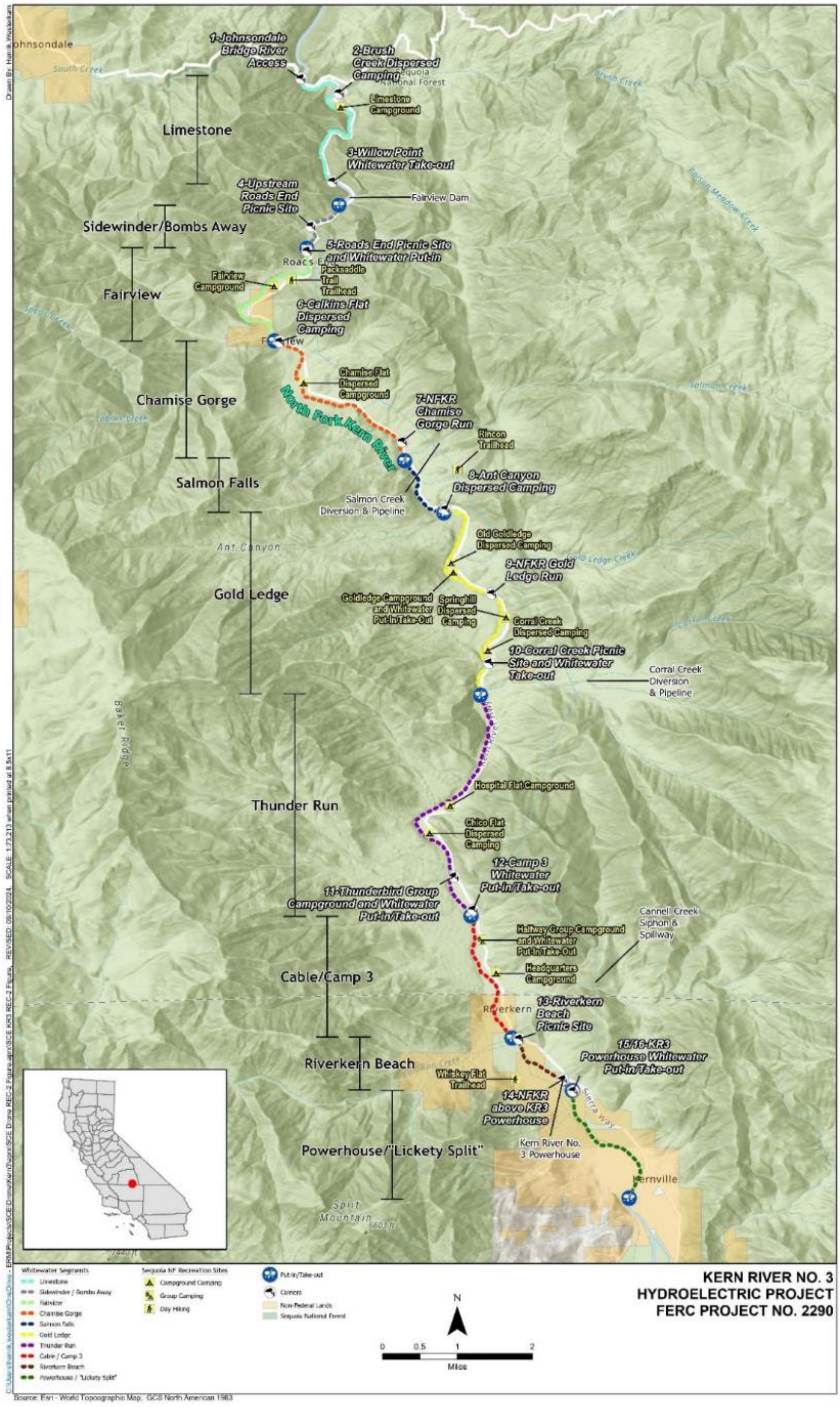

Figure 4-1. Whitewater Runs and Recreation Sites Above Fairview Dam and Along the Fairview Dam Bypass Reach.

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5.0 EXISTING INFORMATION

Results of this study will also reference, or incorporate as applicable, other ongoing relicensing FERC-approved study plans including:

1. REC-1 Whitewater Boating Flow Study Technical Memorandum (SCE, 2024a, 2024b; October 9, 2023; March 1, 2024; March 29, 2024)

2. REC-2 Recreation Facilities Use Assessment Technical Memorandum (SCE, 2024c; July 1, 2024)

6.0 STUDY APPROACH

To accomplish the goals and objectives of the river use estimates Study Plan modification, SCE will use trail cameras to record visitor use at multiple river access sites in the study area. The cameras will be in place to record visitor use for 1 year and will provide a basis to derive quantitative estimates of recreation use, specifically targeting non-commercial boater use, and other key metrics as directed by FERC. A more detailed description of the camera approach is provided below.

6.1. CAMERA INSTALLATION

SCE will install high resolution trail (outdoor) cameras that include a 120-degree detection angle). The cameras will be secured to SCE power poles where possible, or attached to trees, posts, or other landscape features. SCE will generally attempt to install the cameras in inconspicuous locations at each site to help minimize the potential for vandalism or theft. The cameras will be positioned to allow adequate viewing of the ingress/egress location and adjacent parking area that boaters are most likely to use. For river-reach viewing segments, the viewing length of the river segment will be considered when selecting final camera placement to provide for the longest viewing segment possible.

Additionally, to further help address any potential privacy concerns, the cameras will be positioned such that they minimize views of restroom facilities whenever feasible.

6.2. CAMERA USE AND PHOTOGRAPH MANAGEMENT

SCE will program the cameras to take one photograph every 5 minutes (as suggested by both Forest Service and boaters during consultation) from dawn to dusk[3]. This programmed schedule would result in 12 photographs every hour, resulting in approximately 108 to 144 photos per day/per camera over the 9- to 12-hour period of daily data collection.

SCE will deploy staff to routinely check that the cameras are functioning and to download photos. All downloaded photographs will be organized electronically by site and date. In addition, they will be subject to a quality assurance/quality control (QA/QC) check (date,

[3] Approximately 7 a.m. to 7 p.m. in spring through fall (April 1 to September 30) and 8 a.m. to 5 p.m. late fall through winter (October 1 to March 31).

time, location, field of view, etc.). All digital files will be subject to SCE's electronic data storage and backup processes.

SCE will install and maintain the cameras for the 1-year study period. If a camera is not functioning properly, SCE will replace the camera and continue to collect data as soon as possible. SCE will notify the Forest Service within 5 working days following discovery if a camera malfunctions and needs to be replaced. If the cameras are vandalized or stolen, SCE will replace the camera once during the study period. Additionally, if a camera is stolen, alternative locations will be evaluated and if an alternative location is identified, SCE will notify the Forest Service of the revised location for their approval prior to installation.

Any data collection variances that occur over the year of data collection will be noted in the final Technical Memorandum.

6.3. ANALYSIS OF PHOTOGRAPHS

6.3.1. ARTIFICIAL INTELLIGENCE

Given the anticipated number of photographs (potentially more than 730,000), SCE plans to leverage the capabilities of available artificial intelligence (AI) models to perform an initial analysis of the photographs. SCE data scientists will use the Google Gemini Application Programming Interface (API) to create a custom AI model (based on existing models) that can be used to identify specific features in photographs (e.g., presence of watercraft, etc.). The base Gemini API is able to describe the elements or content in a photograph, quantify and summarize elements, and extrapolate quantitative summaries for additional analysis. To help improve the accuracy of this process, SCE will fine-tune Google Gemini on several existing sets of photographs that are available for some of the river access sites. This domain-specific fine-tuning will allow the model to extract the specific types of data and information needed to address the study objectives. During the development of the AI solution, SCE data scientists will also include an active learning loop where photographs with misclassified objects are identified and added back to the training dataset with corrected labels to iteratively improve model performance.

SCE will verify the accuracy of the extracted data by conducting spot checks on the photographs. Staff will randomly select a minimum of 10 photographs per month to view and compare the actual vehicle, people, and other characteristics present to the AI extracted data. Updates will be made, as necessary, to both the AI model, as well as any statistical adjustments to the analysis to account for accuracy concerns.

Related to accuracy, in preliminary testing the Gemini API is highly accurate (97 percent) at correctly identifying and counting the number of people and vehicles present in a photograph. Additionally, preliminary testing indicates that the model is also able to identify various watercraft (by type and total count) and distinguish differences between commercial and non-commercial boaters based on specific criteria (see below). However, these additional characteristics may prove more challenging to consistently and

accurately extract from the photographs. Therefore, SCE will use AI in a tiered approach to analyze the photographs:

1. Use AI to conduct a preliminary analysis to determine if boats/boaters are present at each location.

2. From the subset of photographs where boats/boaters are detected, conduct additional analyses on a sub-set of the photographs to complete a more detailed review and summary of these other visitor characteristics. A stratified approach will be applied to select a random set of days and photographs for further analysis. At a minimum, the year-long study period would be split into two strata: (1) peak whitewater boating season (April 1 through July 31), and (2) non-peak season (August 1 through March 30). Additional strata may also be defined, as needed, to facilitate the analysis potentially including weekday and weekend days, days at specific flow ranges, and others. Sample days and photographs will then be selected randomly within the identified strata. Photographs on the randomly selected days will then be assessed for the other visitor characteristics (commercial and non-commercial use, watercraft types) and summarized (Section 6.3.2).

AI capabilities are rapidly evolving; new techniques and improvements may be available throughout the yearlong period and into the analysis phase of this study. SCE may incorporate any model improvements and new extraction techniques as feasible during the study to help improve the outcomes.

6.3.2. PHOTOGRAPH DATA AND INFORMATION

To facilitate the analysis, SCE will compile the following primary types of data and information from the photographs:

- Metadata for each photograph including:
  - Location (river access site)
  - Date
  - Time
- Using the Gemini API model (to the greatest level of accuracy possible), extract data including:
  - Number of vehicles
  - Number of people
  - Boater/boating criteria identified (Yes/No) (refer to Section 6.4, *Data Analysis*, for a description of the criteria to be used)
    - If yes,
      - Number of commercial and non-commercial boaters
      - Count of watercraft types

The metadata and extracted data and information from the photographs will then be used to establish use estimates, trends and patterns, and visitor characteristics (see Section 6.4).

6.4. DATA ANALYSIS

SCE will analyze the data and information extracted from the photographs to address the study objectives, including:

- Estimate of river-focused recreation use. Based on both photograph analysis approaches (the presence/absence of boaters and boater vehicle and boater counts), SCE will estimate the amount of river-focused recreation at the river access sites. The estimate will be presented as a range of use levels as opposed to a discrete number (a discrete number implies a level of precision that is generally infeasible in studies with spatial and temporal variability). While a 5-minute time interval on the photos provides a high level of coverage of the river access sites, it is not a census of all recreational users on the river. In particular, there are additional dispersed recreation use areas that provide river access that are not included in the study. Furthermore, all use level estimates will be provided in recreation days (a visit to the area for any portion of a 24-hour period) and not individual visitors.

  Use levels will be estimated for each river access site with a camera and aggregated across the entire study area. In addition, trends and use patterns will also be assessed and compiled. These trends and patterns will be based on the relative percentage of use compared to other sites, as well as to specific time periods (e.g., weekdays and weekend days, monthly, seasonal, flow levels, etc.).

  Since most of the camera locations do not capture the full extent of parking areas at the river access sites, parking capacity estimates will instead be determined based on the parking area visible within the frame of view. The number of vehicles in a photograph will be compared to the parking area in the frame of view to estimate a parking utilization (capacity) for each river access site.

  Note: given the 5-minute frequency of photographs, there is a high potential to double-count visitors and vehicles. Statistical adjustments may occur to account for any potential double-counting and varying lengths of stay.

- Estimates of other use characteristics. In addition to general use level estimates, SCE, through the use of Gemini API model, will also use the photographs to estimate commercial versus non-commercial boating use, as well as the types of watercraft used in the study area. The intent is to determine the relative percentage of types of boaters (commercial, non-commercial) and their respective use patterns in the study area (e.g., access locations, timing, etc.). The summary of boat types will inform the distinction between boater type and will also be used as an indicator of the types of boating opportunities available in the study area (to augment the results from the REC-1 study).

There are a number of different types of watercraft used in the study area (see REC-1 Technical Memorandum discussion). To help facilitate AI analysis and reporting, watercraft will be grouped into the following categories to the greatest extent possible utilizing the Gemini API model:

- Individual rafts (one to two person) (i.e., paddle rafts, oar rafts, catarafts, and shredders)
- Large rafts (i.e., paddle rafts for four to eight people)
- Kayaks (if possible, differentiate hardshell from inflatable and packrafts)
- Other (i.e., standup paddle board, inner tube, etc.)

The following criteria will be used to help identify and/or distinguish between non-commercial and commercial boaters (not all criteria may be exclusive to commercial boating, but photographs would be flagged for further analysis):

- Parked van, bus, or other logoed[4] commercial outfitter vehicle
- Large groups of boaters
- Logoed boating gear from the authorized outfitters such as personal flotation devices (PFDs), helmets, paddles, etc.
- Large rafts that accommodate parties of four to eight or more people

Note: The estimates of commercial boating may also be augmented with information from the Forest Service (outfitter permits) and/or outfitter customer data pending availability of this information.

With the large volume of photographs collected and the estimated storage requirement (4 to 5 terabytes), representative photographs will be appended to the final Technical Memorandum.

7.0 REPORTING

SCE will prepare an addendum to the REC-2 Technical Memorandum following the completion of data collection from the installed cameras and file it with FERC. The Technical Memorandum will describe the methods and approach used to install the cameras and data collection efforts; describe in detail the methods used to analyze the photos collected; the data analysis; a summary of consultation, including SQF approval of camera locations; and any study plan variances that occurred.

[4] Commercial outfitters with permits to operate on the NFKR include Momentum River Expeditions, Sierra South, and Whitewater Voyages.

8.0 SCHEDULE

SCE is proposing to conduct this study as outlined below.

Timeframe	Activity
July–September 2024	• Consult with the Forest Service on use and installation of cameras. • Outreach to interested agencies and boating community regarding study approach and methodology. • Request for additional camera installation locations.
12 months (estimated October [a] 2024–October 2025)	• Install cameras and begin data collection effort. • Routinely download data from cameras. • Conduct monthly QA/QC of data.
October 2024	• Include study proposal as part of Updated Study Report (USR) filing, including documentation of consultation efforts. • Obtain FERC ruling on study approach (expected February 2025).
Fall/Winter 2025	• Following completion of 1-year data collection, analyze photographs and prepare REC-2 Technical Memorandum Addendum.
Winter 2025/Spring 2026	• File REC-2 Technical Memorandum Addendum with FERC. • Consult with agencies and relicensing participants on Technical Memorandum Addendum.

PM&E = protection, mitigation, and enhancement; QA/QC = quality assurance / quality control.
[a] Installation pending Forest Service approval and initiates the 1-year of data collection.

9.0 LEVEL OF EFFORT AND COST

The estimated total cost of the study is approximately $450,000 (2024 dollars). This cost estimate is based on the following:

- Trail cameras and associated hardware: $10,000
- Forest Service and Stakeholder consultation: $10,000
- Camera installation: $15,000
- Periodic download of data; post-field data organization and QA/QC: $225,000
- AI photo analysis (AI database creation and analysis): $115,000
- AI QA/QC and final data analysis: $35,000
- Reporting: $40,000

10.0 REFERENCES

FERC (Federal Energy Regulatory Commission). 2022. *Study Plan Determination for the Kern River No. 3 Hydroelectric Project*. Accession No. 20221012-3024. October 12.

FERC (Federal Energy Regulatory Commission). 2024. *Determination of Requests for Study Modification and New Studies*. Accession No. 20240530-3030. May 30.

SCE (Southern California Edison). 2023. *Kern River No. 3 Hydroelectric Project, FERC Project No. 2290-122; Initial Study Report*. Accession No. 20231009-5229. Filed with FERC on October 9, 2023.

SCE (Southern California Edison). 2024a. *Kern River No. 3 Hydroelectric Project, FERC Project No. 2290-122; Request to File Study Results*. Accession No. 20240301-5315. Filed with FERC on March 1, 2024. (REC-1 TM, Level 1 structured interview questionnaire).

SCE (Southern California Edison). 2024b. *Kern River No. 3 Hydroelectric Project, FERC Project No. 2290-122; Addendum to Initial Study Report*. Accession No. 20240329-5136. Filed with FERC on March 29, 2024 (REC-1 TM, Level 3 single flow survey).

SCE (Southern California Edison). 2024c. *Kern River No. 3 Hydroelectric Project, FERC Project No. 2290-122; Draft License Application*. Accession No. 20240701-5180. Filed with FERC on July 1, 2024. (Vol II, Appendix E2, REC-2 TM).

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APPENDIX A
PROPOSED CAMERA LOCATIONS

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1: JOHNSONDALE BRIDGE RIVER ACCESS

Camera mount on tree looking across stream to river/river access location. Access install site from hiker steps on far side of parking area.

2: BRUSH CREEK DISPERSED CAMPGROUND

Mount on SCE pole located above site along Sherman Pass Road.

3: WILLOW POINT WHITEWATER TAKE-OUT

Mount camera on V in tree with danger/take-out sign. Orange box denotes the take-out location.

4: ROADS END NON-COMMERCIAL BOATER PUT-IN

Shoulder pull-off upstream of Roads End site. SCE pole at upstream end. Site used by non-commercial boaters.

5: ROADS END PICNIC AREA AND WHITEWATER PUT-IN

Install on tree adjacent to restroom building; view of boater access location and some river views.

6: CALKINS FLAT DISPERSED CAMPING

Install on tree across street from upstream entrance, view of boater access location to river. Orange box in photos denote boater access point and will attempt to angle camera to capture as much of the parking lot as possible.

7: CHAMISE GORGE RUN

Install along upper roadway on tree looking down/upstream of the Chamise Gorge whitewater run. Camera in tree along upper road segment.

8: ANT CANYON DISPERSED CAMPING

Large tree across street from entrance of parking area and will attempt to angle camera to capture as much of the parking lot as possible.

9: NFKR GOLDLEDGE RUN

Camera placement in final review but will be angled to capture views of the NFKR between Goldledge Campground and Springhill Dispersed Campground. Red bracket denotes targeted stream reach.

10: CORRAL CREEK PICNIC SITE AND WHITEWATER TAKEOUT

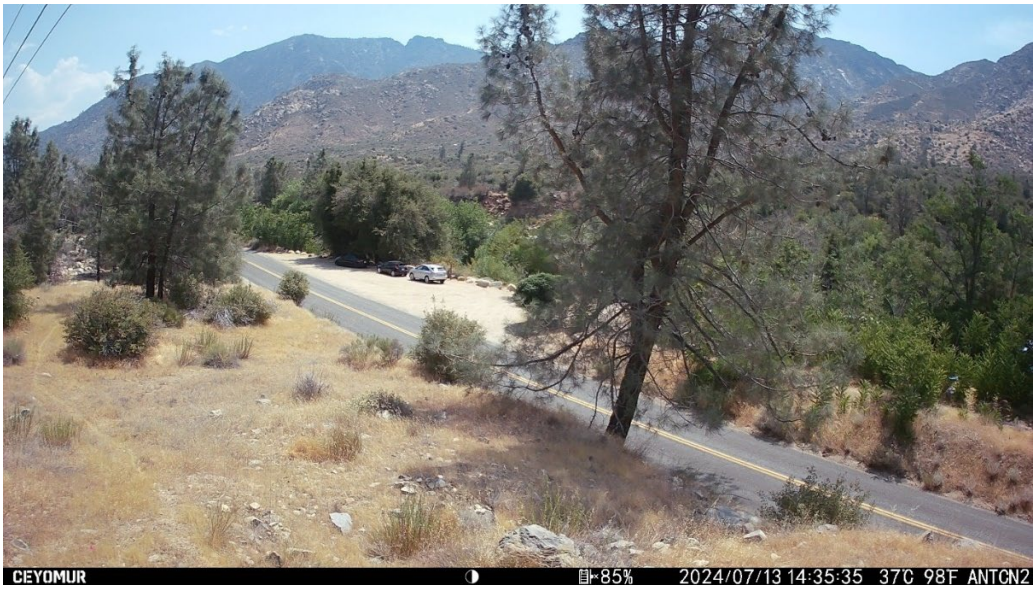
Tree located on picnic/river side looking toward parking area.

11: THUNDERBIRD GROUP CAMPGROUND AND WHITEWATER ACCESS

Camera on SCE pole facing WW/DU parking on river side and shoulder parking across street. Camera would not capture any of the group campground.

12: CAMP 3 WHITEWATER PUT-IN/TAKE-OUT

SCE pole across street and slightly upstream of parking area. Do best to angle camera to capture parking area and downstream road only. Edge of one campsite may be in the frame of view but is mostly blocked by an existing tree.



13: RIVERKERN BEACH PICNIC SITE

Camera mounted on t-post alongside of cliff. Camera facing south to capture roadside parking and larger parking area across street.

14: NFKR ABOVE KR3 POWERHOUSE

Mounted camera on railing at powerhouse. View of river upstream.

15/16: KR3 POWERHOUSE PUT-IN/TAKE-OUT

Two cameras on same pole upstream of SCE garage located in middle of site to capture upstream and downstream parking areas.

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APPENDIX B
CONSULTATION RECORD

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June 17, 2024

USFS Consultation

From:	Meg Richardson
To:	Watson, Alfred -FS; Edwards, Anthony - FS, CA; karen.miller@usda.gov; Steele watt, Kristen - FS; Lundgren, Eric - FS, CA; Maureen.Wooley@usda.gov; Kelly, Tim- FS; monique.sanchez@usda.gov; Alvarez, Dawn -FS; Aguirre orozco, Victor - FS, CA; Rozar, Ronald - FS, CA; Holland, Nicole - FS, CA; Stone, Keith -FS; Bonnette, Anna - FS, CA; Block, Brian - FS, CA; Johnston, Barbara - FS, PORTERVILLE, CA
Cc:	Smith, Julie; Cornelio Artienda; Stephanie Fincher; Meg Richardson; Jillian Roach; Audry Williams; Daniel Keverline; Ramon Anzaldo; Martin Ostendorf; Ryan, Kendra; Sussman, Patricia
Subject:	SCE/USFS - Kern River No. 1 (FERC No. 1930) Relicensing TSP Implementation Updates - VIRTUAL
Date:	Monday, June 17, 2024 4:30:15 PM
Attachments:	image001.png Kern River No. 1 FERC SOF June 2024 .pdf 20240530-3030_P-2290-122 Study Modification Determination.pdf

EXTERNAL MESSAGE

Good afternoon. Thank you to everyone who was able to participate in today's SCE/USFS Kern River No. 1 P-1930 meeting. I have attached a.pdf version of our presentation used during the meeting (*first attachment*) .

SCE also shared FERC's Study Modification Determination (*second attachment*) and its directive on cameras for the Kern River No. 3 P-2290 relicensing. SCE appreciates the USFS willingness to further review/discuss the potential locations for camera installation, and understands that the prior USFS OGC determination that any cameras in fee-campgrounds is a definite NO.

Action Items

KR3

- Coordinate virtual Working Session to Review Camera Locations – SCE to coordinate a date with USFS team for some time in July

KR1

- Survey Box Installation - Cultural and Bio Memos – SCE to email to USFS team for review/concurrence
- Facility Condition Assessment Form – SCE to email to USFS team for review/concurrence
- Land Reconnaissance Survey Methods Memo – SCE to email to USFS team for review/concurrence
- Camera Memo Review with USFS OGC – In Progress/ USFS tracking

SCE noted a few USFS Contact Updates:

- William "Billy" Brown will be the KRRD point of contact into the future for items related to FERC. His start date is today June 17th (USFS please provide Billy's email address
- Al Watson, District Ranger Kern River Ranger District, but will be moving to Montana as the supervisor on the Beaverhead Deerlodge National Forest and Dillon Mt. - alfred.watson@usda.gov **CONGRATULATIONS!**
- Victor Aguirre Orozco, social scientist with the hydropower assistance team - victor.aguirreorozco@usda.gov add to all communications related to Borel, Kern River No. 1, and Kern River No. 3

Please reach out to me with any questions or feedback. Thank you for your continued coordination and collaboration on this Project and across all of SCE's work.

Stay Safe. Be Well. Practice Kindness.

Meg

Mary M. Richardson "Meg"
She/Her/Hers Pronouns
Borel Hydroelectric Project, Kern River No. 1 Project, and Kaweah Project LSA/DP – Project Manager Hydro Relicensing (sce.com)
Dam and Public Safety, Emergency Preparedness and Security, FERC Licensing- Senior Advisor
Generation
M: 626.238.2902
Meg Richardson | LinkedIn
mary.m.richardson@sce.com

See something strange, say something! – Contact Edison Security Operation Center (ESOC) at 626-815-5611 24x7 to report any suspicious activity. Stay Secure and Be Safe!

SOUTHERN CALIFORNIA EDISON | Lighthouse LGBTQ+ & Ally Business Resource Group

USFS – SQF Review/Approval/Concurrence
Kern River No. 3 P-2290 - REC-2 Recreation Facilities Use Assessment - Cameras – *Meg Richardson and Leo Artienda supporting effort*

May 30, 2024 – FERC issued Determination on Requests for Study Modifications and New Studies for Kern River No. 3 P-2290

Link 20240530-3030_P-2290-122_Study_Modification Determination.pdf

FERC did not approve SCE's variance to not install cameras and conduct spot counts and **directed SCE to coordinate with USFS-SQF to install cameras:**

SCE should work with Sequoia National Forest to install cameras at all river access locations along the Fairview Dam bypassed reach and above Fairview Dam to Johnsondale Bridge to capture:

(1) use-estimates including percent capacity at all river access locations;
(2) activity-type estimates, specifically commercial vs. non-commercial boaters, including the type of watercrafts used.

The cameras should be deployed for one calendar year and capture use at reasonable intervals to record boating activity, or set to sense motion, depending on camera placement and its ability to detect movement at the river access.

If the Forest Service continues to assert that no cameras should be used, SCE must consult with interested stakeholders to determine any additional variances before implementing them. We estimate that redeploying trail cameras at each river access location in the study area, as recommended, would cost an additional $1,000.

USFS – SQF Review/Approval/Concurrence
Kern River No. 3 P-2290 - REC-2 Recreation Facilities Use Assessment - Cameras

ASK-

Is USFS open to consideration/discussion on installation at approximately 14 rec sites?

- If YES – with whom should SCE coordinate with from USFS for review/approval?
- If YES – would like to try to install end of July – as soon as approved as will need to be in place one full year.
- If YES – dates for detailed working session to review approximately 14 locations.

From:	Meg Richardson
To:	karen.miller@usda.gov; monique.sanchez@usda.gov; Aguirre orozco, Victor - FS, CA; Edwards, Anthony - FS, CA; Watson, Alfred -FS
Cc:	Cornelio Artienda; Meg Richardson
Subject:	IMPORTANT: Please Reply - Dates for SCE/USFS Kern River No. 3 Working Session for Cameras
Date:	Tuesday, June 18, 2024 8:40:27 AM
Attachments:	image003.png image004.png 20240530-3030_P-2290-122 Study Modification Determination.pdf
Importance:	High

(corrected address for Al Watson – we have an Al Watson at SCE, too:)

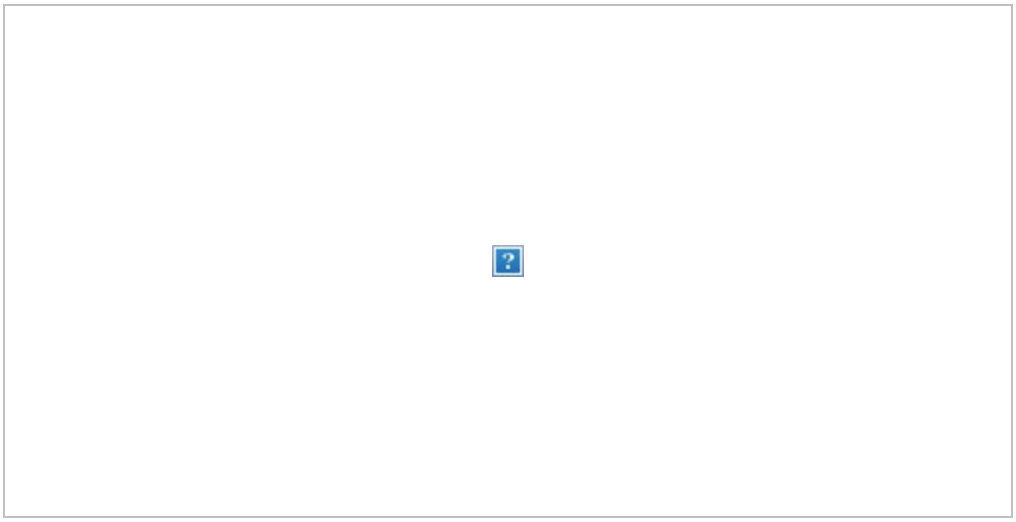
Good morning. Following up on our meeting yesterday, SCE committed to coordinating with USFS to find a date for SCE/USFS to review the FERC Study Modification Determination (attached) and discuss the camera installation options. This working session with be virtual.

Will any of these dates and times work for you in July:

July , Wednesday 1-2:50PM
July 24, Wednesday 1-2:50 PM
July 31, Wednesday 1-2:50 PM

Thank you in advance for your time and consideration.

We do not have an email for William “Billy” Brown; albeit I have found the following listings with USDA – please provide Billy’s email.



Stay Safe. Be Well. Practice Kindness.

Meg

July 31, 2024

USFS Consultation

From:	Jillian Roach
To:	Meg Richardson; Stephanie Fincher; Martin Ostendorf; Cornelio Artienda; Sergio Capozzi; Miller, Karen - FS, CA; Edwards, Anthony - FS, CA; Sanchez, Monique - FS, CA; Holland, Nicole - FS, CA; Aguirre orozco, Victor - FS, CA; Brown, William - FS, CA; Alvarez, Dawn -FS
Cc:	Daniel Keverline; Ramon Anzaldo; Natalie Ho; Ryan, Kendra
Subject:	(External):RE: Kern River No. 3 FERC 2290 SCE/USFS Revised Study Plan for Cameras - Working Session
Date:	Tuesday, July 30, 2024 11:40:25 AM
Attachments:	image003.png image004.png REC-2_Camera Locations_2024 River Access-SQF Meeting 073124.pdf 20240530-3030_P-2290-122 Study Modification Determination (1).pdf KR3 REC-2 Camera Install Overview_07-31-2024.pdf

Team
In preparation for tomorrow's call to discuss the proposed locations for camera installation at KR3, please see the attached files for additional information that will be discussed in more detail on the call.

- FERC's Study Plan Order (see pg. B19-B23)
- Overview slide deck
- Map and site photos of proposed locations

Please reach out if you have any questions.

Thank you,
Jillian

ERM

Jillian Roach
Principal Consultant, Project Manager

980 9th St, Ste 750 Sacramento, CA
M. 916.201.7746
erm.com

-----Original Appointment-----
From: Meg Richardson <Mary.M.Richardson@sce.com>
Sent: Tuesday, June 18, 2024 8:45 AM
To: Meg Richardson; Stephanie Fincher; Jillian Roach; Martin Ostendorf; Cornelio Artienda; Sergio Capozzi; Miller, Karen - FS, CA; Edwards, Anthony - FS, CA; Sanchez, Monique - FS, CA; Holland, Nicole - FS, CA; Aguirre orozco, Victor - FS, CA; Brown, William - FS, CA; Alvarez, Dawn -FS
Cc: Daniel Keverline; Ramon Anzaldo; Natalie Ho; Ryan, Kendra
Subject: Kern River No. 3 FERC 2290 SCE/USFS Revised Study Plan for Cameras - Working Session
When: Wednesday, July 31, 2024 1:00 PM-2:30 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

EXTERNAL MESSAGE

Greetings and Happy Summer! Following up on our meeting June 17th (*notes attached*) , SCE committed to coordinating with USFS on the FERC Study Modification Determination and discuss the camera installation options. This working session with be virtual.

SCE and our Kern River No. 3 Consultant team will provide the potential camera locations, suggested schedule, and other pertinent details for discussion.

Thank you in advance for your time and continued collaboration.

Stay Safe. Be Well. Practice Kindness.

Meg

Mary M. Richardson "Meg"
She/Her/Hers Pronouns
Borel Hydroelectric Project, Kern River No. 1 Project, and Kaweah Project LSA/DP – Project Manager Hydro Relicensing (sce.com)
Dam and Public Safety, Emergency Preparedness and Security, FERC Licensing- Senior Advisor
Generation
M: 626.238.2902
Meg Richardson | LinkedIn
mary.m.richardson@sce.com

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 249 740 490 029

Kern River No. 3 Project (P-2290)

REC-2 Recreation Facilities Use Assessment

FERC Study Plan Determination - Camera Modification

July 2024

Purpose of Meeting

- Obtain USFS approval for camera locations for FERC-required camera study

FERC Determination on Study Modifications (May 30, 2024):

SCE should work with Sequoia National Forest to install cameras at all river access locations along the Fairview Dam bypassed reach and above Fairview Dam to Johnsondale Bridge to capture:

(1) use-estimates including percent capacity at all river access locations;

(2) activity-type estimates, specifically commercial vs. non-commercial boaters, including the type of watercrafts used.

The cameras should be deployed for one calendar year and capture use at reasonable intervals to record boating activity, or set to sense motion, depending on camera placement and its ability to detect movement at the river access.

Study Goals and Objectives

- Document and estimate recreation use and percent capacity at each river access site
- Compile estimates of other use characteristics of each site:
  1) types of river-based activities
  2) types of river access site users (e.g., commercial versus non-commercial whitewater boaters)
  3) types of watercraft

Camera Installation

- Temporarily attached to SCE power poles, facilities, or trees in inconspicuous locations to minimize the potential for vandalism or theft
- Positioned to view river access locations
  - including instream and land-based use (the width of the river and the riverbank put-in/take-out area where possible)
- Cameras equipped with solar power and battery backup
- Routinely download photos to reduce potential data loss

Proposed Camera Locations

- 12 total proposed monitoring locations (13 cameras)
- REC-2_Camera Locations_2024 River Access

Camera Site ID	Site Name	Site Type
1	Johnsondale Bridge River Access	Day Use
2	Willow Point Whitewater Take-out	Day Use
3	Roads End Picnic Site and Whitewater Put-in	Day Use
4	Calkins Flat Dispersed Camping	Dispersed Camping
5	NFKR Chamise Gorge Run	NFKR view
6	Ant Canyon Dispersed Camping	Dispersed Camping
7	Corral Creek Picnic Site and Whitewater Take-out	Day Use
8	Thunderbird Group Campground and Whitewater Put-in/Take-out	Day Use portion of site
9	Camp 3 Whitewater Put-in/Take-out	Day Use
10	Riverkern Beach Picnic Site	Day Use
11	NFKR above KR3 Powerhouse	NFKR view
12 / 13	KR3 Powerhouse Whitewater Put-in/Take-out	Day Use

Photo Analysis

- Record key information from each photo:
  - Number of people and vehicles visible
  - Classify boating activity as commercial or non-commercial use
  - Watercraft types
  - Other recreation activities observed
- Given large number of photographs SCE is exploring options:
  - AI assisted photo processing
  - Stratified random sampling approach

Draft Schedule

Date	Activity
July/August 2024	Consult with the USFS on use and installation of cameras; obtain concurrence of camera locations Provide boating community with draft proposal for review and comment
Sep* 2024 – Sep 2025	Install cameras and begin data collection effort; routinely download data from cameras; conduct monthly QA/QC of data (*contingent on USFS approval)
October 2024	Include study proposal as part of Updated Study Report (USR) filing-including documentation of consultation efforts; obtain FERC ruling on study approach (January 2025)
Sep – Nov 2025	Analyze full data set and prepare Technical Memorandum; File with FERC
November 2025+	Consult with Agencies and Stakeholders on data and whitewater boating PM&E measure; file amended License Application

Next Steps

- Camera Location Review Process
  1. USFS approval of camera install locations (documentation)
  2. Boating community concurrence of locations
- Camera Installation
  - Coordination with SCE T&D and Veg. Mgmt
  - USFS notification?
- Study Implementation
  - One calendar year data collection
  - Routine site visit and photo downloads
  - Inform stakeholders of any theft or vandalism

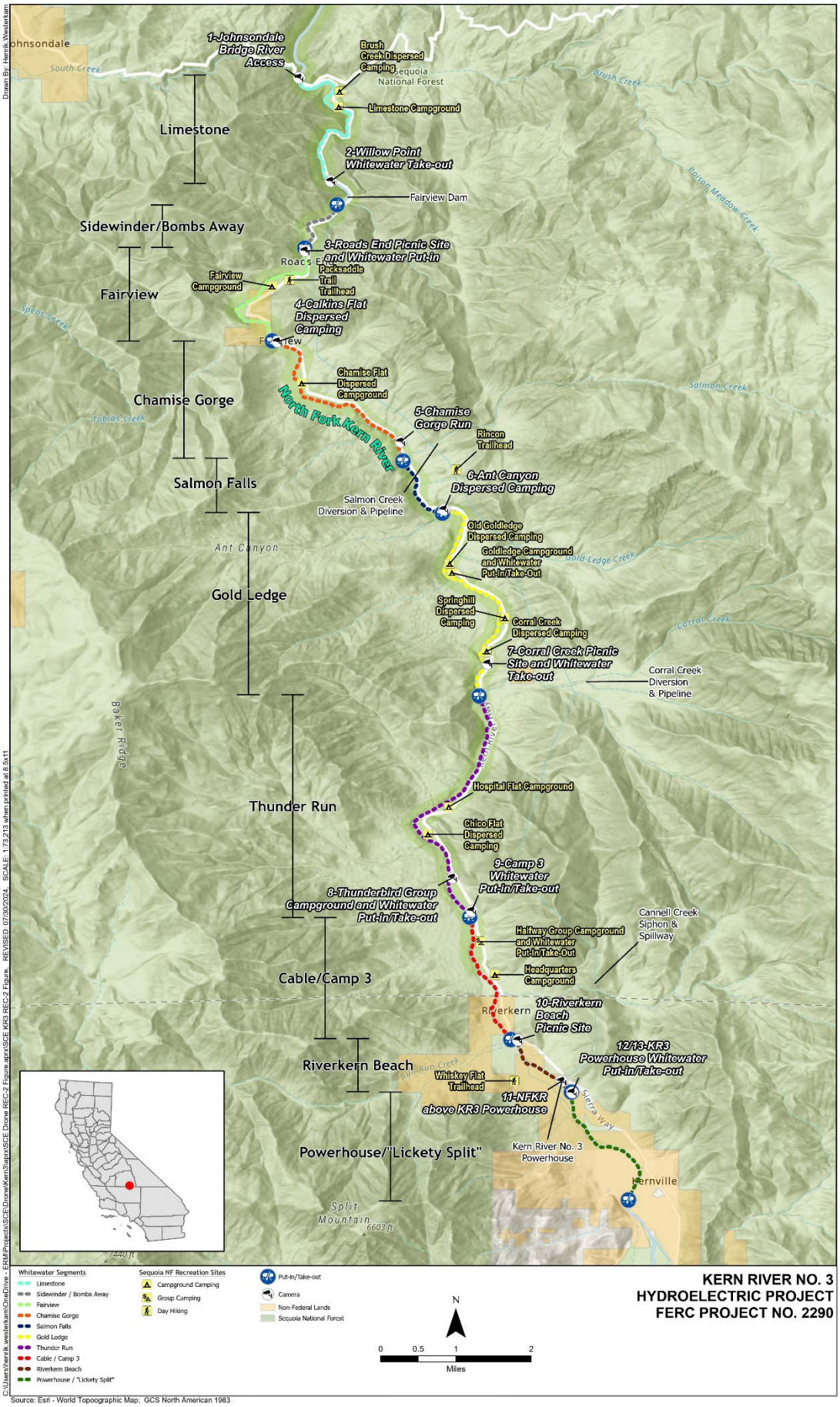


Figure 1. REC-2 Recreation Facility Use Assessment Recreation Study Plan Camera Locations.

Table 1. Recreation Facilities and Proposed Camera Locations

Camera ID Number	Site Name	Site Type	Camera	Rationale/Notes
1	Johnsondale Bridge River Access	Day Use	Yes	-River access location; Limestone whitewater run Put-in -Install camera on tree facing river access put-in (access via stairs). Views of path, river put-in and start of river run
	Brush Creek Dispersed Camping	Dispersed Camping	No	-Site located between whitewater run; not used by non-commercial boaters[a]
	Limestone Campground	Developed Campground	No	-USFS fee campground
2	Willow Point Whitewater Take-out	Day Use	Yes	-River access location; Limestone whitewater run Take-out -Install camera on tree with “take-out” sign. Camera facing downstream towards take-out and possibly some river views. Seasonal port-a-potty may be seen from afar
3	Roads End Picnic Site and Whitewater Put-in	Day Use	Yes	-River access location; Sidewinder / Bombs Away whitewater run Take-out/Fairview whitewater run put-in. -Install camera on tree next to restroom. Camera facing boater access route, possibly some river views
	Packsaddle Trail Trailhead	Trailhead	No	-No river access
	Fairview Campground	Developed Campground	No	-USFS fee campground
4	Calkins Flat Dispersed Camping	Dispersed Camping	Yes	-River access location; Fairview whitewater run take-out/ Chamise Gorge whitewater run put-in -Install camera on tree across from road. Camera facing boater access route, possibly some river views. Port-a-potty seen in foreground
	Chamise Dispersed Camping	Dispersed Camping	No	-Site located in middle of whitewater run; cameras upstream/downstream at put-in/take-out. Not needed here.
5	NFKR Chamise Gorge Run	NFKR view	Yes	-Chamise Gorge whitewater run; Take-out/start of Salmon Falls whitewater run. -Camera in tree along upper road segment.
	Rincon Trailhead	Trailhead	No	-No river access
6	Ant Canyon Dispersed Camping	Dispersed Camping	Yes	-River access location; Salmon Fall whitewater run take-out/ Gold Ledge whitewater run put-in -Install camera on tree across street from site; obtain view of whole parking area -Camera facing parking lot/river access routes (commercial put in downstream end; non-commercial put-in upstream end). Port-a-potty seen in foreground

Camera ID Number	Site Name	Site Type	Camera	Rationale/Notes
	Old Goldledge Dispersed Camping	Dispersed Camping	No	-Site located between whitewater run segments, cameras at put-in/take-outs
	Goldledge Campground and Whitewater Put-in/Take-out	Developed Campground and Day Use	No	-River access within USFS fee campground; site located within whitewater run segment
	Springhill Dispersed Camping	Dispersed Camping	No	-Site located between whitewater run segments, cameras at put-in/take-outs
7	Corral Creek Picnic Site and Whitewater Take-out	Day Use	Yes	-River access location; Gold Ledge whitewater run take-out/Thunder Run whitewater run put-in -Camera in tree across from parking area; data collected from parking area. No view of river access (no trees to install camera)
	Corral Creek Dispersed Camping	Dispersed Camping	No	-Site located within whitewater run segment, cameras at put-in/take-outs
	Hospital Flat Campground	Developed Campground	No	-USFS fee campground
	Chico Flat Dispersed Camping	Dispersed Camping	No	-Site located within whitewater run segment, cameras at put-in/take-outs
	Thunderbird Group Campground	Developed Campground	No	-USFS fee campground
8	Thunderbird Group Campground and Whitewater Put-in/Take-out	Day Use	Yes	-River access location; Thunder Run whitewater run take-out/Cable / Camp 3 whitewater run put-in for non-commercial boaters -Install on SCE pole across street, angle camera to capture only parking area and road should parking, not the adjacent to USFS fee campground
	Camp 3 Campground and Whitewater Put-in/Take-out	Developed Campground	No	-USFS fee campground
9	Camp 3 Whitewater Put-in/Take-out	Day Use	Yes	-River access location; Thunder Run whitewater run take-out/Cable / Camp 3 whitewater run put-in for commercial boaters -Install on SCE pole across street, angle camera to capture only parking area not the adjacent to USFS fee campground
	Halfway Group Campground and Whitewater Put-in/Take-out	Developed Campground and Day Use	No	-Adjacent to USFS fee campground; located within whitewater run segment, cameras at put-in/take-outs
	Headquarters Campground	Developed Campground	No	-USFS fee campground

Camera ID Number	Site Name	Site Type	Camera	Rationale/Notes
10	Riverkern Beach Picnic Site	Day Use	Yes	-River access location; Cable / Camp 3 whitewater run take-out/Lickety Split put-in -Install on tree/t-post on hill above larger parking area (not capturing road-should parking). View of restroom
11	NFKR above KR3 Powerhouse	NFKR view	Yes	-Riverkern Beach whitewater run -Mounted on SCE powerhouse
12 13	KR3 Powerhouse Whitewater Put-in/Take-out	Day Use	Yes	River access location; Riverkern Beach whitewater run Take-out/Lickety Split whitewater run Put-in -2 cameras SCE pole; looking upstream parking area/river and downstream parking area/river
	Whiskey Flat Trailhead	Trailhead	No	No river access

[a]"Brush Creek is not used as a NF Kern whitewater put-in or takeout by noncommercial boaters, and is only used by commercial outfitters when the Johnsondale Bridge loading zone is too crowded, or occasionally as a lunch site for paying guests." (email communication from Kern River Boaters dated 3/17/2023, refer to REC-2 Technical Memorandum, Appendix E).

Camera 1-Johnsondale Bridge Access

Camera mount on tree looking across stream to river/river access location. Access install site from hiker steps on far side of parking area, climb tree to mount.

Camera 2- Willow Point Whitewater Takeout

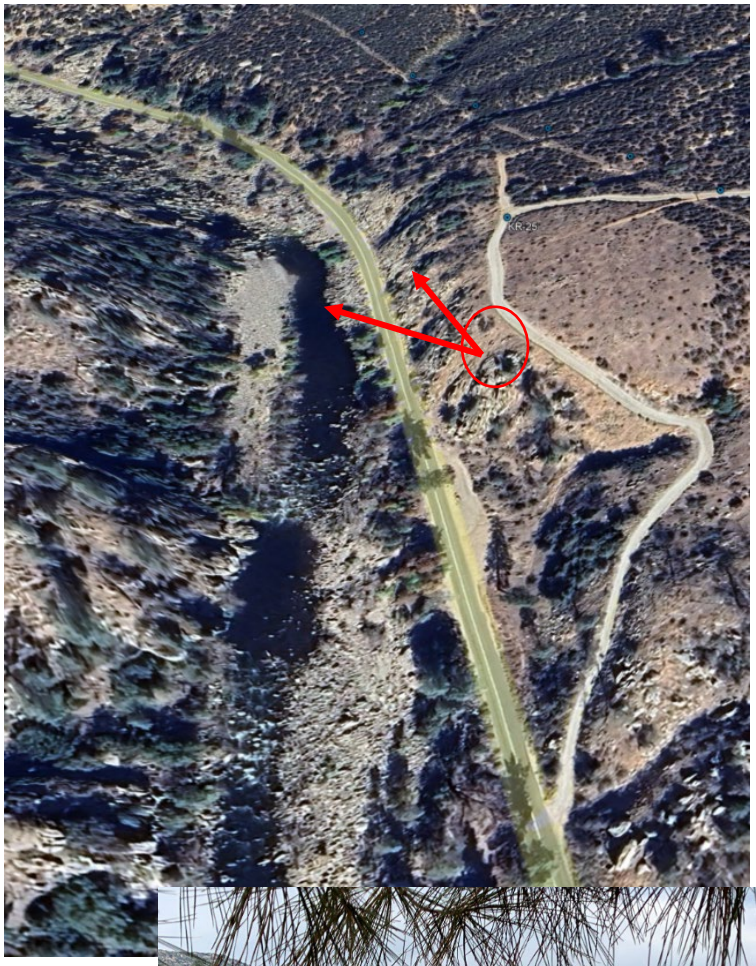
Mount camera on V in tree with Danger/Take out sign. Orange box denotes the take-out location.

Camera 3 - Roads End Picnic Area/WHITEWATER Put in

Install on tree adjacent to restroom building; view of boater access location and possibly some river views.

Camera 4 - NFKR@ Chamise Gorge Run

Install along upper roadway on tree looking down/upstream of the-Chamise Gorge whitewater run. Camera in tree along upper road segment.



Camera 5 - Calkins Flat Dispersed

Install on tree across street from upstream entrance, view of boater access location to river. Note view of restrooms in the foreground. Orange box in photos denote boater access point

Camera 6 - Ant Canyon Dispersed

Large tree across street from entrance of parking area.

Camera 7 - Corral Creek Picnic Site and Whitewater Takeout

Tree located on picnic/river side above sign/picnic table looking toward parking area.

Camera 8 - Thunderbird Group Campground and Whitewater Access

Camera on SCE pole facing day-use parking on river side and shoulder parking across street. Camera would not capture any of the Group Campground.

Camera 9 - Camp 3 Whitewater Put In

SCE Pole across street and slightly upstream of parking area. Angle camera to capture parking area and downstream road only. Note, edge of 1 campsite may be in the viewshed, but is mostly blocked by an existing tree

Camera 10 - Riverkern Beach Picnic Site

Camera mount on t-post along side of cliff. Camera facing south to capture larger parking area.

Camera 11 - NFKR Lickety Split @ KR3 Powerhouse:

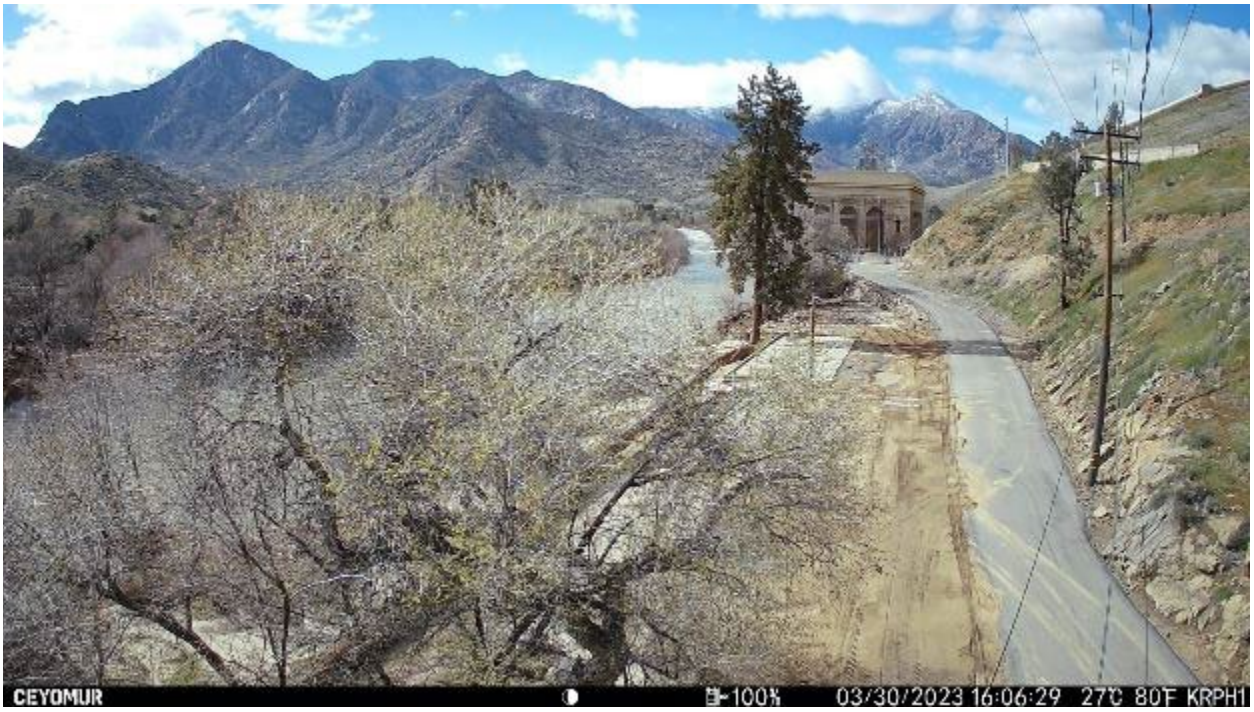
Mount camera on railing at Powerhouse. View of river looking upstream.

Cameras 12/13 - KR3 Powerhouse Put-in/Take Out

2 cameras on same SCE pole upstream of garage, capture upstream and downstream parking areas.

KR3 Powerhouse Put-in/Take Out, cont.

KRPH1 facing upstream towards PH



KRPH2 facing downstream towards WHITEWATER parking area

August 13, 2024

USFS Communication Regarding Proposed Camera Locations

From: Johnston, Barbara - FS, CA
To: Jillian Roach; Stephanie Fincher
Cc: Meg Richardson; Miller, Karen - FS, CA; Sanchez, Monique - FS, CA; Brown, William - FS, CA
Subject: Kern River No. 3 FERC 2290 SCE/USFS use of cameras
Date: Tuesday, August 13, 2024 9:51:39 AM

Good morning! Billy Brown reviewed the proposed locations for the cameras you are proposing to use to get an idea of the number of boaters using the Kern River for recreational boating. Billy sent me his review:

> *I reviewed locations of all suggested camera placements and don't see any concerns related to privacy issues as they are all in publicly accessible areas that would not have any expectation of privacy. I think the camera locations were well thought out and should be able to capture the desired data.*

Therefore, the Forest Service is approving the use of the cameras at the proposed locations.

Thank you,
Barbara

Barbara Johnston
Affiliate
Sequoia National Forest
220 East Morton Avenue
Porterville, CA 93257
barbara.johnston@usda.gov

August 23, 2024

SCE Formal Submittal and Request for Approval of Proposed Camera Locations and Special Use Permit Application

September 27, 2024

SCE Updated Request for Approval of Proposed Camera Locations and Special Use Permit Application

From:	Chung Jordan
To:	Johnston, Barbara - FS, PORTERVILLE, CA; Edwards, Anthony - FS, CA; Miller, Karen G -FS; monique.sanchez@usda.gov; William.Brown2@usda.gov
Cc:	Chung Jordan; Stephanie Fincher; Martin Ostendorf; Meg Richardson; Cornelio Artienda; Jillian Roach; Sergio Capozzi
Subject:	Kern River No. 3 FERC 2290 - REQUEST for Approval of Cameras (and SUP Submittal)
Date:	Friday, August 23, 2024 10:41:06 AM
Attachments:	image002.png image003.png SF299_Att_REC-2_Camera Locations_2024 River Access.pdf KR3 Rec Camera Locations.kmz Att1_FERC Study Modification Determination.pdf 1_KR3 REC-2 Camera USFS Approval Request Letter_081424.pdf SF299-23.pdf Cameras_.pdf

Hello Everyone,
Please see the attached documentation in support of the KR3 camera installations.
SCE has a total of 12 camera locations, with 8 being outside the FERC Boundary and requiring forest authorization. See attachment SF299 Att REC-2 Camera locations. The 8 locations needing forest approval are identified on page 2 and 3.

After your review of the attached documentation, please let me know when SCE has approval to proceed with the installation of the cameras.

If you have any questions, or need any additional information, please let me know.
Thanks

Chung "Cissy" Jordan
Senior Right of Way Agent – Government Lands Department
Vegetation, Inspections & Operational Servicers (VI&OS)
Transmission & Distribution (T&D)
T. 559-684-3571 | C. 559-903-5360

2425 South Blackstone, Tulare, CA 93274

"You can never learn that Christ is all you need, until Christ is all you have."
-Corrie Ten Boom-

From: Johnston, Barbara - FS, CA
To: Jillian Roach
Cc: Stephanie Fincher; Chung.Jordan@sce.com
Subject: RE: [External Email]RE: SCE Kern River No. 3: Recreation Camera Installation; Meeting follow-up
Date: Tuesday, September 17, 2024 9:50:41 AM
Attachments: image001.png
SF299 KR3 Cameras.pdf

We need your application updated with the changes you are proposing in this email. Also, add details as to how the cameras will be attached to any trees if they are the most logical option.

I also received an application from Cissy. I have not had time to compare them. Are they the same or is Cissy's updated from the one I received on 8/14? I am forwarding Cissy's to you so you can see what I have from her.

Please send me one updated package unless there are actually 2 applications, and I am at fault for not taking the time to compare them.

Please let me know what is good and what isn't!

Thanks,
Barbara

Barbara Johnston
Affiliate
Sequoia National Forest
220 East Morton Avenue
Porterville, CA 93257
barbara.johnston@usda.gov

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Monday, September 9, 2024 12:38 PM
Cc: Stephanie Fincher <stephanie.fincher@sce.com>
Subject: [External Email]RE: SCE Kern River No. 3: Recreation Camera Installation; Meeting follow-up

Sent on behalf of SCE.

Dear Agencies and interested boaters

Thank you to those that attended the call on August 29th regarding the proposed camera locations to support the REC-2 study plan. For those of you who could not attend, SCE has attached a copy of the information presented during the call which summarized SCE's proposed camera locations.

A few key take-aways from the call include:

- SCE agreed to increase the picture frequency from 15 minutes to every 5 minutes
- Obtained feedback on proposed camera locations (see additional notes below)
- A detailed methodology and analysis for the camera study will be part of the USR filing due in October
    - SCE is finalizing the photo analysis methodology and study approach
    - If SCE has the methodology finalized prior to the filing of the Updated Study Report by October 11th, then SCE will provide it in advance

Additional changes following the call in response to Stakeholder feedback:

- All cameras will be set to record at 5 min intervals (rather than 15 min intervals as originally proposed)
- SCE will add 2-3 new camera locations, pending USFS approval (see below), for a total of 15-16 cameras as part of this study.

During the call and in a follow up email, comments were provided regarding proposed camera locations. Please see email attached. SCE has considered a few revisions to the camera locations, as noted below in blue (reordered upstream to downstream). For locations where additional cameras are proposed, SCE will conduct follow-up consultation with the USFS for final approval.

- Include parking lot activity at Brush Creek
    - SCE will add a camera at this location that focuses on the parking lot, pending USFS approval.
    - Note, the purpose of this location is to evaluate potential overflow parking due to crowding concerns that may occur at Johnsondale Bridge put-in; as such this location may not be analyzed to the same level of detail as the other camera locations.
- Noncommercial Fairview Segment Put In (USFS put in: kiosk/manifest box)
    - SCE will add a camera at this location, pending USFS final approval.
- Calkins Flat, expand coverage not just iron ranger location:
    - The camera is focused on the primary boater access location where the "iron ranger" is located. SCE will attempt to angle to camera to capture as much of the

parking lot as possible.
    - Also, camera #5 (Chamise Gorge Run) has a view of the river and boating use along this whitewater run and use can be accounted for from that camera.
- River cam near the Chamise segment takeout, but there are three actual places boaters take out (red boxes at parking areas); each are frequently used depending on personal preference; however, large rafts only use the northernmost one.
    - Comment noted. Camera #5 (Chamise Gorge Run) has a view of this river segment and boating use will be accounted for with that view.
- Ant Canyon, there are five places boaters put in, much of it is personal preference (each has its own trail of varying difficulty and beach of varying size); as a result, their cars could be anywhere in the big lot:
    - Comment noted. When installing the camera, SCE will attempt to angle to camera to capture as much of the parking lot as possible.
    - Also, see response to "Geno creek" takeout below.
- Noncommercial "Geno creek" Ant Canyon Takeout, near MM16 on M99:
    - SCE will conduct a reconnaissance trip to evaluate if there is a suitable location along the Gold Ledge whitewater run to install a camera with a view of the river. Once a location is identified, SCE will consult with the USFS for final approval prior to installation.
- Dispersed camping area at Corral Creek
    - SCE has included the day-use parking site (#7) located just downstream. However, as noted in the bullet above, if a suitable river view location is identified along the Gold Ledge WW run (put in at Ant Canyon-take out at Corral Ck), boaters along this reach will be accounted for.
    - Also, the camera viewshed to capture the Corral Creek dispersed camping site would overlap with the private/paid camping facility located to the north, as such there is a reasonable expectation of privacy at that location.
- Halfway day use lot
    - The configuration of the developed (fee-based) facility and camera viewshed to capture the day use parking lot would overlap, as such this is not an accepted location by the USFS.
- Riverside Park (many who put in at Ant, Thunder, or Cables take out at Riverside Park *[below the project in Kernville]*).
    - Boaters would be captured/counted from the PH river camera (#11) and/or KR3 Powerhouse cameras (#12/13) that capture river views.

Meeting notes and other communication/consultation will be included as part of the Updated Study Report (USR) filing in Oct.

Thank you all for your continued support and interest in the KR3 Relicensing. If you have any questions, please reach out to Stephanie Fincher-DeMillo at stephanie.fincher@sce.com.

Sustainability is our business

Jillian Roach
Principal Consultant, Project Manager

980 9th St, Ste 750 Sacramento, CA
M. 916.201.7746

erm.com

From: Jillian Roach
Sent: Friday, August 16, 2024 9:43 AM
Cc: Stephanie Fincher <stephanie.fincher@sce.com>
Subject: SCE Kern River No. 3: Recreation Camera Installation

Agencies and interested boaters:

Southern California Edison (SCE) has initiated consultation with the Sequoia National Forest (SQF) regarding the installation of cameras at river access locations to support the KR3 relicensing effort. Specifically, this effort is to support the REC-2: Recreation Facilities Use Assessment Study Plan, per direction from the Federal Energy Regulatory Commission's (FERC) May 30, 2024 Determination on Requests for Study Modifications and New Studies.

SCE held discussions with the SQF on June 17 and July 31, 2024 to discuss and review proposed camera installation locations and is currently awaiting formal written approval from SQF.

Before proceeding with the camera installations, SCE would like to share the proposed locations with other agencies and interested boaters. SCE is scheduling a call to review the proposed camera locations along the North Fork Kern River, from Johnsondale Bridge and down along the Fairview Dam bypass reach to the KR3 Powerhouse put-in/take-out location.

Call Details:

- **Date:** Thursday, August 29, 2024
- **Time:** 1:00 PM - 2:00 PM Pacific
- **Meeting Link:** [Teams Meeting Link]
- **Call In:** 213-279-1475 ID: 463 615 051#

If you would like to participate in this call, please use the link provided above to join the Teams meeting.

Following formal approval from SQF, SCE will proceed with camera installation. The cameras

will be deployed for one calendar year as stipulated by FERC's Order. A summary of SCE's consultation with SQF, agencies and interested boaters, along with a detailed study approach and methodology, will be included in the Updated Study Report (USR) to be filed with FERC by October 11, 2024.

We look forward to your participation and feedback.

-Stephanie Fincher-DeMillo (SCE KR3 Relicensing Manager)

Jillian Roach
Principal Consultant, Project Manager

980 9th St, Ste 750 Sacramento, CA
M. 916.201.7746

erm.com

From:	Jillian Roach
To:	Johnston, Barbara - FS, CA; Edwards, Anthony - FS, CA; Karen Miller; Sanchez, Monique - FS; Brown, William - FS, CA
Cc:	Stephanie Fincher; Chung.Jordan@sce.com; Cornelio Artienda; Sergio Capozzi
Subject:	RE: Kern River No. 3 FERC 2290 - UPDATED REQUEST for Approval of Cameras (and SUP Submittal)
Date:	Friday, September 27, 2024 9:38:00 AM
Attachments:	1_KR3 REC-2 Camera Approval_Letter_Updated Sept 2024.pdf KR3 Rec Camera Locations.kmz image001.png SF299 Att2_REC-2_Camera Locations_2024 River Access_Updated Sept 2024.pdf Kern River No. 3 FERC 2290 - REQUEST for Approval of Cameras (and SUP Submittal).msg

Sent on behalf of SCE

Dear Forest Service,
Please see the attached **revised** documentation in support of the KR3 camera installations.

Based on feedback from the boating community, SCE is now proposing a total of 15 camera locations, with 11 locations outside the FERC Boundary and requiring forest authorization. At 9 of these locations, cameras would be installed on a tree or t-post (rather than on SCE powerpole). See attachment SF299 Att REC-2 Camera locations. Additional locations are shown in red text.

After your review of the attached documentation, please let SCE (Stephanie Fincher) know when they have approval to proceed with the installation of the cameras.

If you have any questions, please reach out to either myself or SCE (Cissy or Stephanie) if you need any additional information.

Thank you,

Jillian

ERM
Sustainability is our business

Jillian Roach
Principal Consultant, Project Manager

980 9th St, Ste 750 Sacramento, CA
M. 916.201.7746
erm.com

From: Johnston, Barbara - FS, CA <Barbara.Johnston@usda.gov>
Sent: Tuesday, September 17, 2024 9:50 AM
To: Jillian Roach <Jillian.Roach@erm.com>

Cc: Stephanie Fincher <stephanie.fincher@sce.com>; Chung.Jordan@sce.com
Subject: RE: [External Email]RE: SCE Kern River No. 3: Recreation Camera Installation; Meeting follow-up

We need your application updated with the changes you are proposing in this email. Also, add details as to how the cameras will be attached to any trees if they are the most logical option.

I also received an application from Cissy. I have not had time to compare them. Are they the same or is Cissy's updated from the one I received on 8/14? I am forwarding Cissy's to you so you can see what I have from her.

Please send me one updated package unless there are actually 2 applications, and I am at fault for not taking the time to compare them.

Please let me know what is good and what isn't!

Thanks,
Barbara

Barbara Johnston
Affiliate
Sequoia National Forest
220 East Morton Avenue
Porterville, CA 93257
barbara.johnston@usda.gov

From: Jillian Roach <Jillian.Roach@erm.com>
Sent: Monday, September 9, 2024 12:38 PM
Cc: Stephanie Fincher <stephanie.fincher@sce.com>
Subject: [External Email]RE: SCE Kern River No. 3: Recreation Camera Installation; Meeting follow-up

Sent on behalf of SCE.

August 29, 2024

Boater Outreach Consultation

(meeting invitation, meeting materials, and notes)

From:	Jillian Roach
Cc:	Stephanie Fincher
Bcc:	Sanchez, Monique - FS; lilian_jonas@contractor.nps.gov; stephen_bowes@nps.gov; barbara_rice@nps.gov; anna_tamura@nps.gov; Susan_Rosebrough@nps.gov; patrick_johnston@nps.gov; alyssa_l_walker@nps.gov; catherine_brown@nps.gov; Brown, William - FS, CA; Aguirre orozco, Victor - FS, CA; Barbara.Johnston@usda.gov; Edwards, Anthony - FS, CA; Karen Miller; NNIKIRK62@GMAIL.COM; lacey2u@sbcglobal.net; bethjens@gmail.com; riverlakere@gmail.com; laceypayne89@gmail.com; tsherman91@gmail.com; johnwarnshuis@att.net; joshbull@icloud.com; johnryan009@yahoo.com; kirillmyagkov1@gmail.com; anthea.raymond@gmail.com; calmyoga@gmail.com; lizbrackbill@gmail.com; mtndjd@gmail.com; farrelmj@lacitycollege.edu; joseluispino@gmail.com; allisonstrabic@gmail.com; amin.nikravan@gmail.com; olly@gotel.net; wade1larry@gmail.com; lynn.siodmak@gmail.com; mhittle24@gmail.com; ellenkenney@gmail.com; evan@sierrasouth.com; scottwilson54321@live.com; nicholasw5@hotmail.com; ekroh@socalgas.com; brettduxbury@mac.com; dbernsten@gmail.com; dunawayfields@yahoo.com; calmyoga@gmail.com; ben@burde.org; friedbodfish@gmail.com; amin.nikravan@gmail.com; dave.waner@gmail.com; jmwucb@gmail.com; olly@gotel.net; david@davidmichael.org; johnarmstrong5@mac.com; ndex_mail@yahoo.com; joelrem@gmail.com; pauljreep@gmail.com; ravenhall_99@msn.com; anastassia2108@gmail.com; anatolm07@gmail.com; katharine4@gmail.com; samsparhawk@gmail.com; olivialemley16@gmail.com; alvarovilla95@gmail.com; christianabuckley@gmail.com; timothyjbrown1@gmail.com; rushing661@aol.com; prahareal@gmail.com; mikecroak@sbcglobal.net; garycca@yahoo.com; denrushing@gmail.com; dlemley68@gmail.com; kseeger1@gmail.com; jmigoni@yahoo.com; johnwarnshuis@att.net; jonathan.cizmar@gmail.com; scottwilson54321@live.com; geimanbill@hotmail.com; dylan.warburg@gmail.com; potatosachs@yahoo.com; jtgelder@yahoo.com; bengilliland@gmail.com; karacampbell4@yahoo.com; krdkrdkrd@gmail.com; allison@extremeline.com; rpoudrier90@gmail.com; dlharrisx2@aol.com; TJCormack@gmail.com; cottmtoland@gmail.com; diangeloandrew01@gmail.com; carolirving@mac.com; cvmattox@gmail.com; dkoutzoukis@gmail.com; geoffcj@gmail.com; jason559559559@gmail.com; mebaier00@yahoo.com; matt.mayry@gmail.com; thesensingsamurai@gmail.com; mffu@att.net; nadiaalmuti@yahoo.com; nzmyewski@gmail.com; peppermalo@gmail.com; bubnlu@hotmail.com; ryanguy@gmail.com; scottxdonachie@gmail.com; scott_timmons@yahoo.com; spencershepard45@gmail.com; tomlivingstone30@gmail.com; tlawson@lgcgeotechnical.com; Martin Ostendorf; Sergio Capozzi; Samantha Bennett; Long, Garrett@Waterboards; Cornelio Artienda; Leon, Abimael (Abimael.Leon@wildlife.ca.gov); brian.beal (brian.beal@wildlife.ca.gov); Eric.Jones@wildlife.ca.gov; Dale.Stanton@wildlife.ca.gov; alexandra.clarfield@gmail.com; ross.emerson.allen@gmail.com; bioschmid@gmail.com; caleb.fujimori@gmail.com; jackschurman@gmail.com; ajtritt@fastmail.com; dirtybootned@gmail.com; tom@sierrasouth.com; bioschmid@gmail.com; jeffventurino@americanwhitewater.org; Jessica.Fefer@ferc.gov; Quinn.Emmering@ferc.gov; Jillian Roach; Mary Margaret Richardson
Subject:	SCE Kern River No. 3: Recreation Camera Installation
Date:	Friday, August 16, 2024 9:42:00 AM
Attachments:	image001.png

Agencies and interested boaters:

Southern California Edison (SCE) has initiated consultation with the Sequoia National Forest (SQF) regarding the installation of cameras at river access locations to support the KR3 relicensing effort. Specifically, this effort is to support the REC-2: Recreation Facilities Use Assessment Study Plan, per direction from the Federal Energy Regulatory Commission's (FERC) May 30, 2024 Determination on Requests for Study Modifications and New Studies.

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Following formal approval from SQF, SCE will proceed with camera installation. The cameras will be deployed for one calendar year as stipulated by FERC's Order. A summary of SCE's consultation with SQF, agencies and interested boaters, along with a detailed study approach and methodology, will be included in the Updated Study Report (USR) to be filed with FERC by October 11, 2024.

We look forward to your participation and feedback.

-Stephanie Fincher-DeMillo (SCE KR3 Relicensing Manager)

ERM

Jillian Roach
Principal Consultant, Project Manager

980 9th St, Ste 750 Sacramento, CA
M. 916.201.7746

erm.com

Kern River No. 3 Project (P-2290)

REC-2 Recreation Facilities Use Assessment:

Camera Study

August 29, 2024

Purpose of Meeting

- Inform agencies and interested boaters of proposed camera locations

FERC Determination on Study Modifications (May 30, 2024):

SCE should work with Sequoia National Forest to install cameras at all river access locations along the Fairview Dam bypassed reach and above Fairview Dam to Johnsondale Bridge to capture:

(1) use-estimates including percent capacity at all river access locations;

(2) activity-type estimates, specifically commercial vs. non-commercial boaters, including the type of watercrafts used.

The cameras should be deployed for one calendar year and capture use at reasonable intervals to record boating activity, or set to sense motion, depending on camera placement and its ability to detect movement at the river access.

Consultation Update

- June 17 and July 31, 2024
  - SCE and SQF reviewed FERC's Order, discussed proposed camera locations, and provided an overview of the scope of work associated with the cameras
- August 13, 2024
  - SQF-Recreation Officer provided verbal (email) approval of the camera locations
- August 14, 2024
  - SCE provided Forest Supervisor a formal request for approval and Special Use Permit to install the cameras

Camera Installation

- Day-use/dispersed camping locations and 2 river-view locations
  - Put-in/take-outs associated with the ww rapid segments
  - Does not include locations where there is a “reasonable expectation of privacy” (i.e., campground)
  - Includes 10 of the 25 sites of the REC-2 Study
- Attach to SCE power poles, trees, or other inconspicuous locations to minimize the potential for vandalism or theft
- Positioned to capture river/river access locations
  - Where possible includes both instream and land-based use (parking)
  - Collect photos from dawn-dusk every 15 min
- Routinely download photos over the year to reduce potential data loss

Proposed Camera Locations

- 12 Locations (13 cameras)

Camera Site ID	Site Name	Site Type
1	Johnsondale Bridge River Access	Day Use
2	Willow Point Whitewater Take-out	Day Use
3	Roads End Picnic Site and Whitewater Put-in	Day Use
4	Calkins Flat Dispersed Camping	Dispersed Camping
5	NFKR Chamise Gorge Run	NFKR view
6	Ant Canyon Dispersed Camping	Dispersed Camping
7	Corral Creek Picnic Site and Whitewater Take-out	Day Use
8	Thunderbird Group Campground and Whitewater Put-in/Take-out	Day Use portion of site
9	Camp 3 Whitewater Put-in/Take-out	Day Use portion of site
10	Riverkern Beach Picnic Site	Day Use
11	NFKR above KR3 Powerhouse	NFKR view
12 / 13	KR3 Powerhouse Whitewater Put-in/Take-out	Day Use

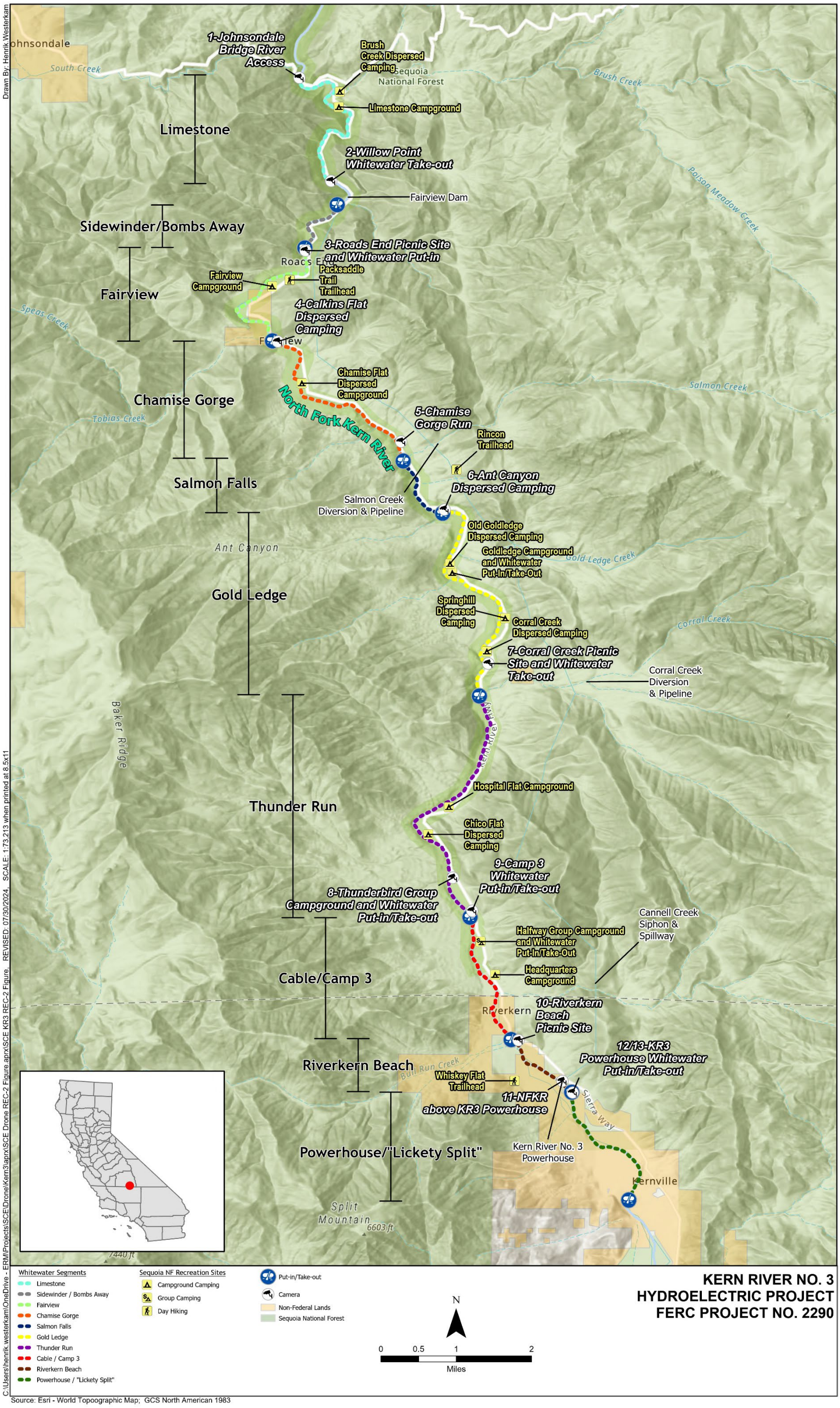


Figure 1. REC-2 Recreation Facility Use Assessment Recreation Study Plan Camera Locations

1-Johnsondale Bridge River Access

Camera mount on tree looking across stream to river/river access location.

2-Willow Point Whitewater Takeout

Mount camera in tree. Orange box denotes the take-out location.

3-Roads End Picnic Area and Whitewater Put-in

Install on tree adjacent to restroom building; view of boater access location and some river views.

T

4-Calkins Flat Dispersed Camping

Install on tree across street from upstream entrance, view of boater access location to river..
Orange box in photos denote boater access point

5-NFKR Chamise Gorge Run

Install along upper roadway on tree looking down/upstream of the-Chamise Gorge whitewater run.

6-Ant Canyon Dispersed Camping

Large tree across street from entrance of parking area.

7-Corral Creek Picnic Site and Whitewater Takeout

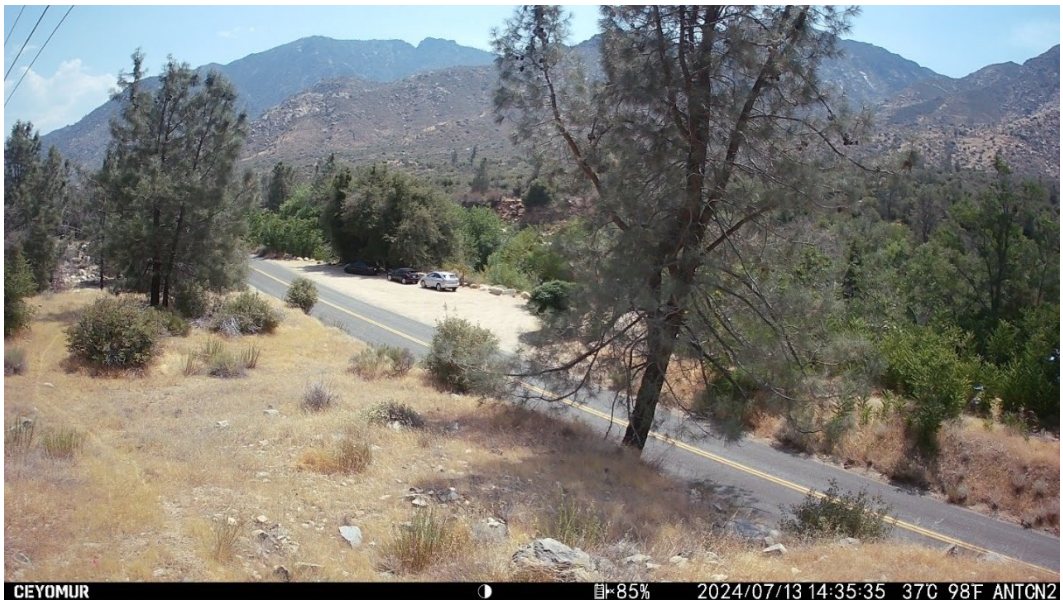
Tree located on picnic/river side above sign/picnic table looking toward parking area.

8-Thunderbird Group Campground and Whitewater Access

Camera on SCE pole facing WW/DU parking on river side and shoulder parking across street. Camera would not capture any of the Group Campground.

9-Camp 3 Whitewater Put-In/Takeout

SCE Pole across street and slightly upstream of parking area. Do best to angle camera to capture parking area and downstream road only. Note, edge of 1 campsite may be in the frame of view, but is mostly blocked by an existing tree.



10-Riverkern Beach Picnic Site

Camera mounted on t-post alongside of cliff. Camera facing south to capture roadside parking and larger parking area across street.

11-NFKR Above KR3 Powerhouse

Mount camera on railing at Powerhouse. View of river upstream.

12/13-KR3 Powerhouse Put-in/Takeout

Two cameras on same pole upstream of garage, capture upstream and downstream parking areas.

Draft Schedule

Date	Activity
July-Sept 2024	-Consult with the USFS on use and installation of cameras; obtain formal concurrence of camera installation locations -Update agencies/boating community with proposed camera locations
October 2024	Include detailed study proposal as part of Updated Study Report (USR) filing to further describe study approach and methodology
Oct* 2024 – Oct 2025	-Install cameras and begin data collection effort; -routinely download data from cameras; conduct monthly QA/QC of data
Fall/Winter 2025	Analyze full data set and prepare Technical Memorandum; File with FERC
Winter 2025+	Consult with Agencies and Stakeholders on data collected and supplemental filing to License Application

*Installation following USFS approval

Next Steps

- Upon USFS written approval, SCE to install cameras (est Oct); initiate one-year study timeframe
- SCE to provide study approach and methodology with the USR filing (file by October 9th)
  - Stakeholders have opportunity to provide formal comments to FERC per the ILP Relicensing Process Plan and Schedule

SCE KR3 Recreation Camera Installation Meeting

August 29, 2024

1:00 PM – 2:00 PM PST

Meeting Attendants:

- Jillian Roach (ERM)
- Lia Conrath (ERM)
- Catherine M Brown – NPS Hydropower
- Brett and Liz Duxbury - Kern River Boaters (KRB)
- Lilian M Jonas – Contractor with the Park Service
- Stephanie Fincher (SCE)
- Martin Ostendorf (SCE)
- Sergio Capozzi (ERM)
- Meg Richardson (SCE)
- Jeff Venturino - American Whitewater

See slide deck for material/information presented (see attached).

A summary of comments and discussion following the presentation is summarized below regarding proposed camera locations and data collection approach:

- Johnsondale bridge parking lot is not included but should be because it is used often when the flows below Fairview Dam are lower and crowding at this location is a concern, especially for boaters accessing the river.
    - Response: SCE was following FERC's direction to focus on river access locations, rather than parking capacity. SCE has captured vehicle counts and visitor use over the past year and reported this data as part of the other REC-2 study components.
- Recommendation to collect photos every 5 minutes instead of 15 minutes as boaters can have gear on prior to arriving at a location (or may not need to unload a vehicle) and can quickly put on the river in less time, thus the 15 min photo frequency may not capture them.
    - Response: SCE will take this recommendation into consideration.
- Comments that installation of a camera that captures above Fairview dam and one that captures below Fairview dam would be helpful, but not necessarily sufficient
- Why wasn't Brush Creek parking lot considered? Especially during those times of high flow above the dam, but flows are reduced below the dam. During this time, the put in at Johnsondale parking lot may be full, and commercial boaters especially will utilize this location, and possibly non-commercial use it too.
    - Response: SCE noted that use information from commercial boating may provide information about their use of Brush Creek, therefore a camera may not be necessary. Use along this river segment will also be captured by the camera at the Willow Point Take Out.
    - Roads End Picnic Area- The FS recreation site is pretty much solely used by commercial boaters. The non-commercial boaters utilize a shoulder pull-off

upstream of this location, and only use the Roads End site if their preferred location is full.

    - Response: SCE will review potential camera locations for consideration to add this location.

- Calkins Flat – this is a large parking lot and boaters could access the river at various locations.
    - Response: Agreed, however SCE has focused the camera at the location with the "iron ranger". These photos are approximate views, the final camera installation will angle the camera that captures the largest extent of the parking area.
- Chamise Gorge Run - boaters could get through that stretch in less than 15 minutes; 10 minutes may capture most boaters.
    - Response: SCE will review photo frequency based on your recommendations.
- Ant Canyon – SCE mentioned 2 spots people walk in, but KRB knows of 4 at this location. This could cause some data gaps.
    - Response: Similar to Calkins Flat, SCE will focus the camera angle that captures the largest extent of the parking area.
- Corral Creek – There is an undeveloped camping area around the corner that might be used by boaters for putting in or taking out. Also noted there is an easier takeout is around mile marker 15, downstream around the corner – popular spot for putting in/taking out that is not a Forest Service spot.
    - Response: Understood that there are many places boaters can get on/off the river and it's just not physically possible to capture every location. Also, there is a private campground adjacent to the dispersed camping site you noted and camera angles would likely overlap that area; therefore, not a preferred camera location (per USFS direction).
- Thunderbird Campground looks good.
- Halfway Campground is a location some people will use and its popular during high water in 2023 because it's easier to put in/take out.
    - Response: Not an approved location as the developed campsite area is adjacent to the parking area/would be in the camera's view, which could cause a privacy issue (per USFS direction).
- Camp 3-location is good, but many people may just drop off, so a photo every 15 minutes may not capture all use. Similarly, at Riverkern and below, boaters could go by pretty quick, consider a 5-minute interval.
    - Response: SCE will take this recommendation into consideration, as above.
- How will you avoid double counting boaters during this study?
    - Response: SCE noted that double counting and identifying the same party is likely to occur and is something that SCE is trying to iron out as we are actively working on the methodology right now.

- KR3 Powerhouse – Many people will park along the stretch and not in the KR3 Powerhouse parking lot, so they wouldn't be captured. That stretch can go quickly, so would suggest pictures every 5 minutes at this reach.
- This effort and costs appear to be a bit bigger than FERC noted in their filing; has SCE considered AI or other tools as part of this study?
    - Response: SCE is still working out some approaches and more detailed methodology analysis as part of the USR filing; however, AI is definitely being considered and looking for cost savings and efficiencies, where possible.
- Will the map and locations be shared after this call?
    - Response: Yes, the slide deck with map will be sent to agencies and interested boaters invited to this call.
- What is the timeline and schedule for camera deployment; is there a way for SCE to distribute the methodology prior to the USR filing?
    - Response: SCE is currently waiting written approval from the Forest Supervisor to install cameras. Upon Forest approval, SCE will work to install the cameras. Additionally, SCE is currently finalizing the methodology, and if there is time prior to the USR, SCE may provide the document for an informal review. SCE also noted that there is time during the USR comment period for stakeholders to comment and/or make recommendations.
- Would there be benefit to putting the cameras on the river instead of the parking lots?
    - Response: SCE is following the direction FERC provided where they asked about the put ins/take outs; however, SCE has identified a few river view locations as well.

Action Items:

- Brett to provide alternative locations/suggestions as noted in his comments to SCE.
- SCE to provide the meeting materials/map to the group following this meeting.

August 30, 2024

Email from Brett Duxbury

From: brett duxbury
To: Martin Ostenrorf; Jillian Roach
Cc: brett harding duxbury; Liz Duxbury; jose pino; James, Lilian H; jeffreyoconturino@gmail.com; Karen Miller
Subject: KR3 Trail Cameras
Date: Friday, August 30, 2024 11:37:48 AM
Attachments: Screenshot 2024-08-30 at 8.58.56 AM.png
Screenshot 2024-08-30 at 9.00.58 AM.png
Screenshot 2024-08-30 at 9.06.47 AM.png
Screenshot 2024-08-30 at 9.07.18 AM.png
Screenshot 2024-08-30 at 9.13.59 AM.png
Screenshot 2024-08-30 at 9.15.28 AM.png
Screenshot 2024-08-30 at 9.20.39 AM.png

Hi Martin & Jillian,

First below are the sites w/o cameras I referenced yesterday. Two pictures of each (close-up and then backed out). Hopefully the coordinates/orientation pix work; if not, let me know and we can figure something else out.

Below those are pictures showing alternate put-ins that may not get picked up by the proposed cameras.

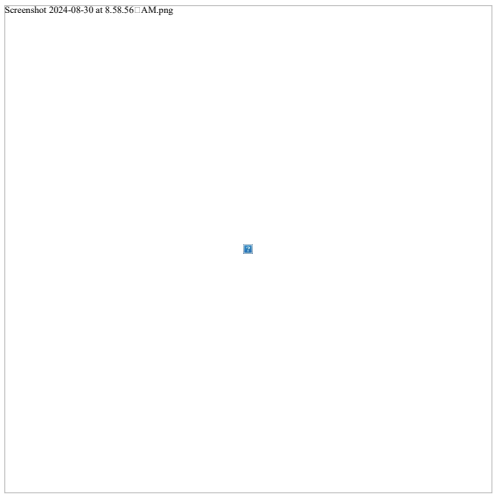
Finally, I summarize the known omitted sites where the proposal will miss parking lot traffic.

Thanks & have a great Holiday weekend!

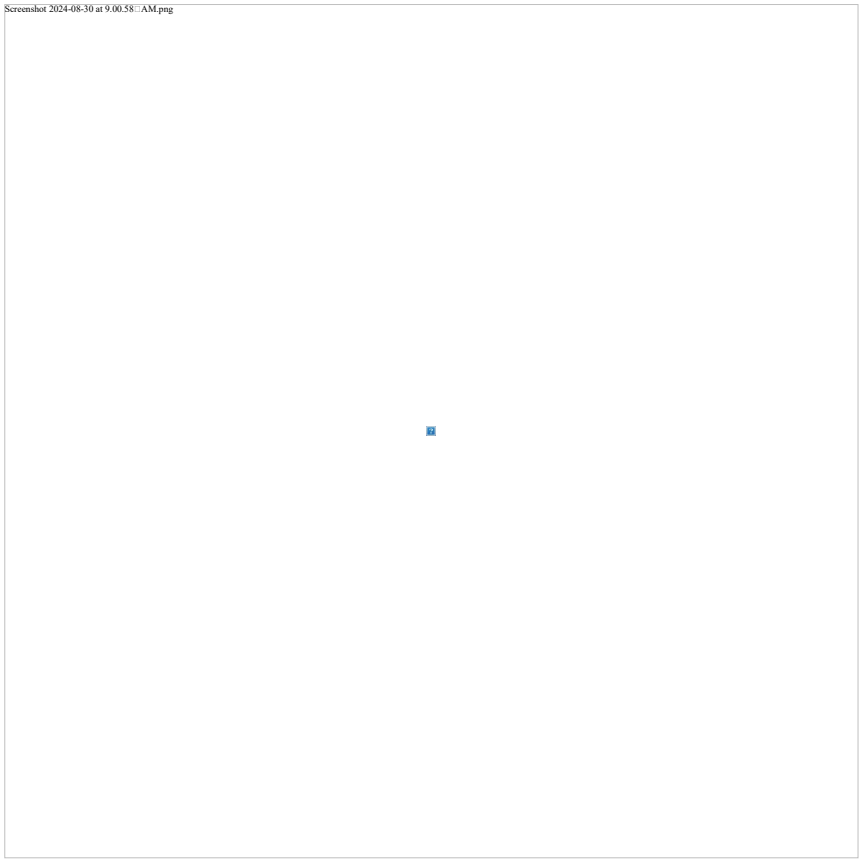
Brett

Noncommercial Fairview Segment Put In (USFS put in: kiosk/manifest box there):

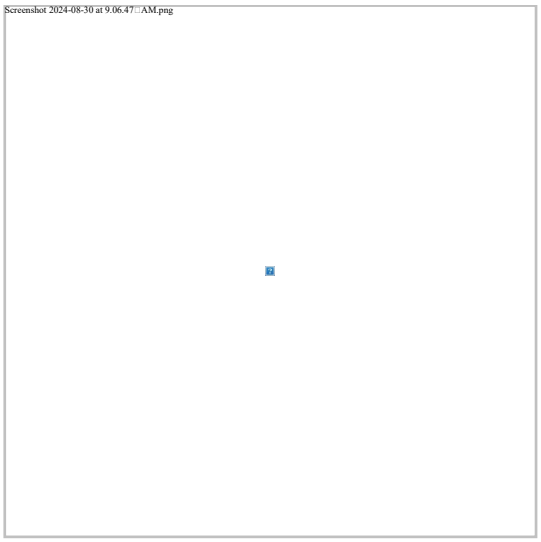
Screenshot 2024-08-30 at 8.58.56□AM.png

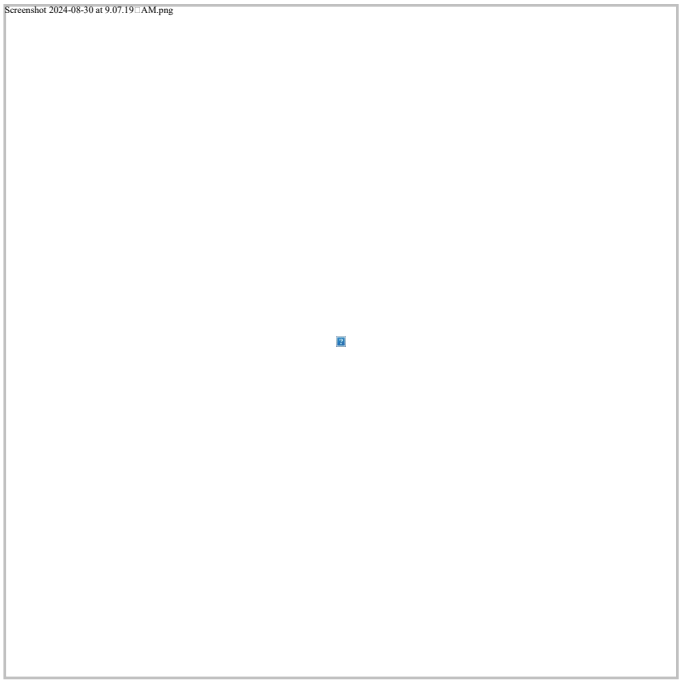


Screenshot 2024-08-30 at 9.00.58□AM.png

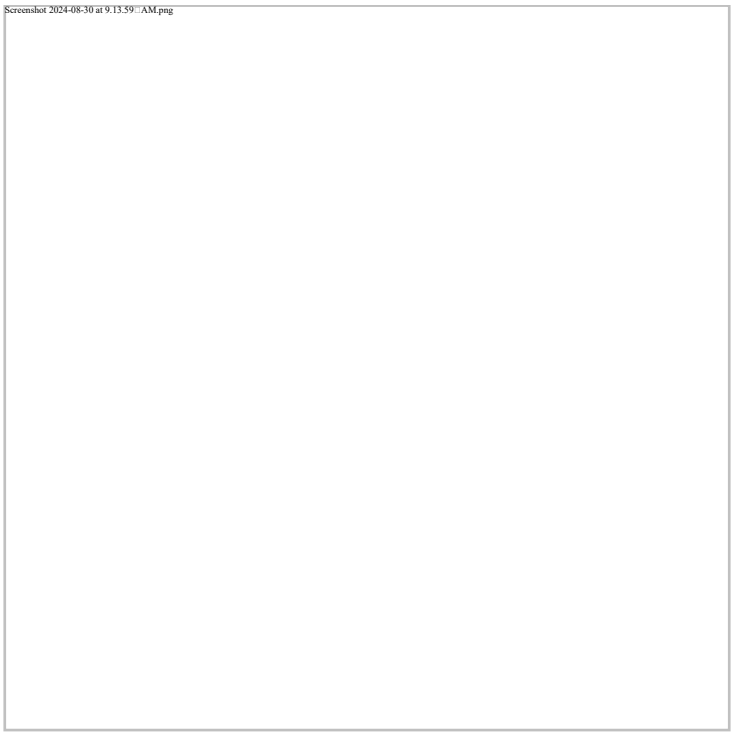


Noncommercial "Geno creek" Ant Canyon Takeout, near MM16 on M99:

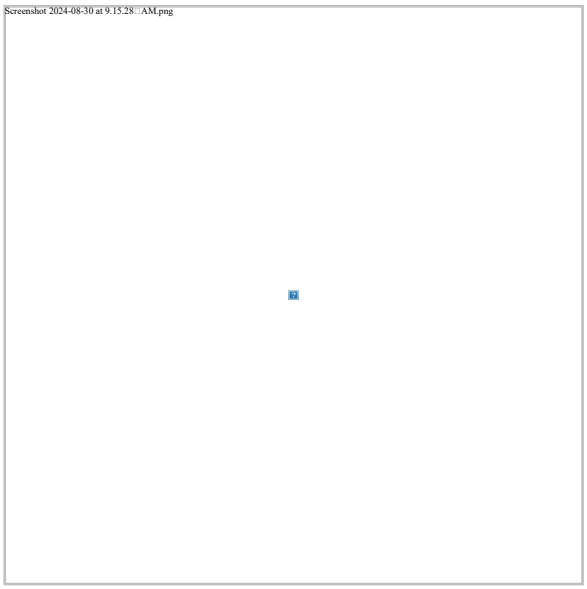




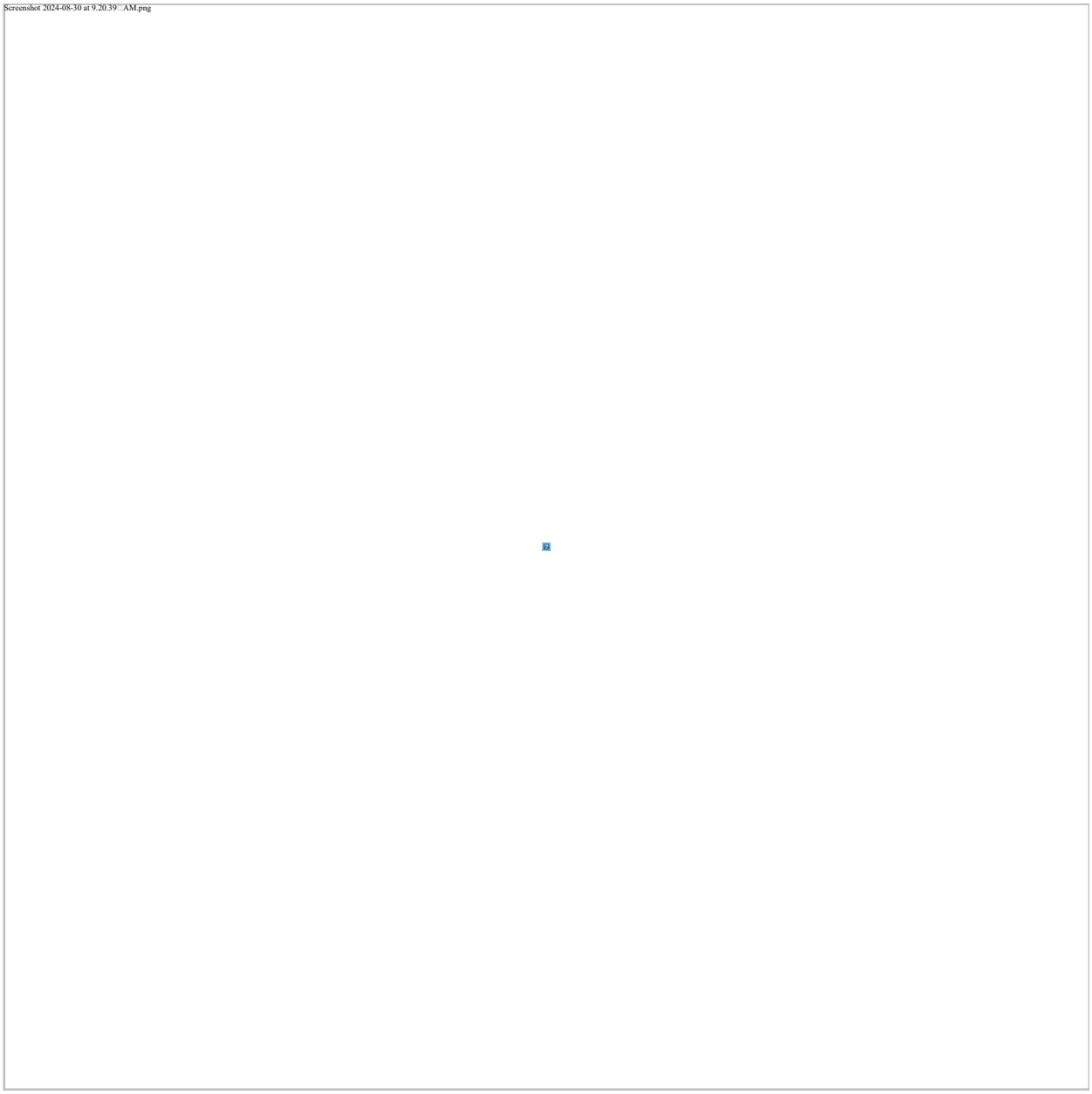
When crowded, folks put in at Calkins Flat all along the riverbank, not just where your red box is pointed (but you camera would admittedly up some (can't tell how much) of the downriver activity):



I know you have a river cam near the Chamise segment takeout, but FYI here are the three actual places boaters take out (red boxes at parking areas); each are frequently used depending on personal preference; however, large rafts only use the northernmost one .



These are the five places boaters put in at Ant Canyon, much of it is personal preference (each has its own trail of varying difficulty and beach of varying size); as a result, their cars could be anywhere in the big lot:



And as we discussed, the proposal may also miss parking lot activity at Brush Creek, the dispersed camping area at Corral Creek, the Halfway day use lot, and Riverside Park (many who put in at Ant, Thunder, or Cables take out at Riverside Park). The incredible choices of access to the world-class whitewater in this roadside stretch of river gives boaters the ability to customize their run(s) based on flow/skill/mood — a truly unique and valuable affordance for Southern Californian boaters when flows are able to overcome the diversion.

September 9, 2024

Email from SCE summarizing August 29, 2024 meeting and SCE's response to Stakeholder feedback

From: Jillian Roach
Sent: Monday, September 9, 2024 12:38 PM
Cc: Stephanie Fincher <stephanie.fincher@sce.com>
Subject: RE: SCE Kern River No. 3: Recreation Camera Installation; Meeting follow-up

Sent on behalf of SCE.

Dear Agencies and interested boaters

Thank you to those that attended the call on August 29th regarding the proposed camera locations to support the REC-2 study plan. For those of you who could not attend, SCE has attached a copy of the information presented during the call which summarized SCE's proposed camera locations.

A few key take-aways from the call include:

- SCE agreed to increase the picture frequency from 15 minutes to every 5 minutes
- Obtained feedback on proposed camera locations (see additional notes below)
- A detailed methodology and analysis for the camera study will be part of the USR filing due in October
    - SCE is finalizing the photo analysis methodology and study approach
    - If SCE has the methodology finalized prior to the filing of the Updated Study Report by October 11th, then SCE will provide it in advance

Additional changes following the call in response to Stakeholder feedback:

- All cameras will be set to record at 5 min intervals (rather than 15 min intervals as

originally proposed)

- SCE will add 2-3 new camera locations, pending USFS approval (see below), for a total of 15-16 cameras as part of this study.

During the call and in a follow up email, comments were provided regarding proposed camera locations. Please see email attached. SCE has considered a few revisions to the camera locations, as noted below in blue (reordered upstream to downstream). For locations where additional cameras are proposed, SCE will conduct follow-up consultation with the USFS for final approval.

- Include parking lot activity at Brush Creek
    - SCE will add a camera at this location that focuses on the parking lot, pending USFS approval.
    - Note, the purpose of this location is to evaluate potential overflow parking due to crowding concerns that may occur at Johnsondale Bridge put-in; as such this location may not be analyzed to the same level of detail as the other camera locations.
- Noncommercial Fairview Segment Put In (USFS put in: kiosk/manifest box)
    - SCE will add a camera at this location, pending USFS final approval.
- Calkins Flat, expand coverage not just iron ranger location:
    - The camera is focused on the primary boater access location where the "iron ranger" is located. SCE will attempt to angle to camera to capture as much of the parking lot as possible.
    - Also, camera #5 (Chamise Gorge Run) has a view of the river and boating use along this whitewater run and use can be accounted for from that camera.
- River cam near the Chamise segment takeout, but there are three actual places boaters take out (red boxes at parking areas); each are frequently used depending on personal preference; however, large rafts only use the northernmost one.
    - Comment noted. Camera #5 (Chamise Gorge Run) has a view of this river segment and boating use will be accounted for with that view.
- Ant Canyon, there are five places boaters put in, much of it is personal preference (each has its own trail of varying difficulty and beach of varying size); as a result, their cars could be anywhere in the big lot:
    - Comment noted. When installing the camera, SCE will attempt to angle to camera to capture as much of the parking lot as possible.
    - Also, see response to "Geno creek" takeout below.
- Noncommercial "Geno creek" Ant Canyon Takeout, near MM16 on M99:
    - SCE will conduct a reconnaissance trip to evaluate if there is a suitable location along the Gold Ledge whitewater run to install a camera with a view of the river. Once a location is identified, SCE will consult with the USFS for final approval prior to installation.
- Dispersed camping area at Corral Creek
    - SCE has included the day-use parking site (#7) located just

downstream. However, as noted in the bullet above, if a suitable river view location is identified along the Gold Ledge WW run (put in at Ant Canyon-take out at Corral Ck), boaters along this reach will be accounted for.
    - Also, the camera viewshed to capture the Corral Creek dispersed camping site would overlap with the private/paid camping facility located to the north, as such there is a reasonable expectation of privacy at that location.
- Halfway day use lot
    - The configuration of the developed (fee-based) facility and camera viewshed to capture the day use parking lot would overlap, as such this is not an accepted location by the USFS.
- Riverside Park (many who put in at Ant, Thunder, or Cables take out at Riverside Park *[below the project in Kernville]*).
    - Boaters would be captured/counted from the PH river camera (#11) and/or KR3 Powerhouse cameras (#12/13) that capture river views.

Meeting notes and other communication/consultation will be included as part of the Updated Study Report (USR) filing in Oct.

Thank you all for your continued support and interest in the KR3 Relicensing. If you have any questions, please reach out to Stephanie Fincher-DeMillo at stephanie.fincher@sce.com.

ERM
Sustainability is our business

Jillian Roach
Principal Consultant, Project Manager

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M. 916.201.7746

erm.com

REC-3 RECREATION FACILITY CONDITION ASSESSMENT TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

KERNVILLE, CALIFORNIA

October 2023

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Errata to REC-3 Technical Memorandum

Page	Section	Change
iii	Acronyms and Abbreviations	ADA to ABA; Americans with Disabilities Act to Architectural Barriers Act
2	3.1	USFS to Forest Service
7/8	5.1	Americans with Disabilities Act to Architectural Barriers Act; ADA to ABA
8	5.1	Added Accessibility Standards (ABAAS)
9	5.2.2	ADA to ABA
10	5.2.4	ADA to ABA (3 instances)
11	5.2.6, 5.2.8	ADA to ABA (3 instances)
12	5.2.9, 5.2.10, 5.2.12	ADA to ABA (3 instances)
13	5.2.13	ADA to ABA (1 instance)
14	5.3	Removed dispersed sits exist in areas outside of high visitation, which does not adversely impact resources (REC-FW-DC-09)
C-11	Appendix C	ADA to ABA

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LIST OF ACRONYMS AND ABBREVIATIONS

ADA	Americans with Disabilities Act
FERC	Federal Energy Regulatory Commission
GIS	geographic information system
KR3	Kern River No. 3
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
RSP	Revised Study Plan
SCE	Southern California Edison
SPD	Study Plan Determination
SQF	Sequoia National Forest
USFS	U.S. Forest Service

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1.0 INTRODUCTION

This Technical Memorandum provides the methodology and findings of field surveys associated with the *REC-3 Recreation Facility Condition Assessment* Study (REC-3 Study). The REC-3 Study was conducted in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The final REC-3 Study Plan was included in SCE's Revised Study Plan (RSP) submitted on July 1, 2022 (SCE, 2022). In the October 12, 2022, Study Plan Determination (SPD) (FERC, 2022), FERC approved the REC-3 Study without modifications.

Field data collection and recreation facility condition assessments were conducted in October 2022. All data collection and analysis are complete, summarized below, and being filed with FERC as part of SCE's Initial Study Report.

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in the final REC-3 Study Plan (SCE, 2022), are as follows:

- Conduct a facility inventory and condition assessment at existing developed (formal) 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 (informal) recreation sites and document existing conditions.

3.0 STUDY AREA AND STUDY SITES

3.1. DISPERSED RECREATION SITE ASSESSMENT

The study area and specific study sites are focused on non-Project U.S. Forest Service (USFS)-operated dispersed (informal) campsites and parking areas along the Fairview Dam Bypass Reach.[1] The locations are listed below and shown in Figure 3.1-1.

- Calkins Flat Dispersed Camping (non-Project facility)
- Chamise Flat Dispersed Camping (non-Project facility)
- Ant Canyon Dispersed Camping (non-Project facility)
- Old Goldledge Dispersed Camping (non-Project facility)
- Spring Hill Dispersed Camping (non-Project facility)
- Corral Creek Dispersed Camping (non-Project facility)
- Chico Flat Dispersed Camping (non-Project facility)

[1] The Fairview Dam Bypass Reach is defined as the approximatly 16-mile bypass reach of the North Fork Kern River between Fairview Dam and the KR3 Powerhouse trailrace.

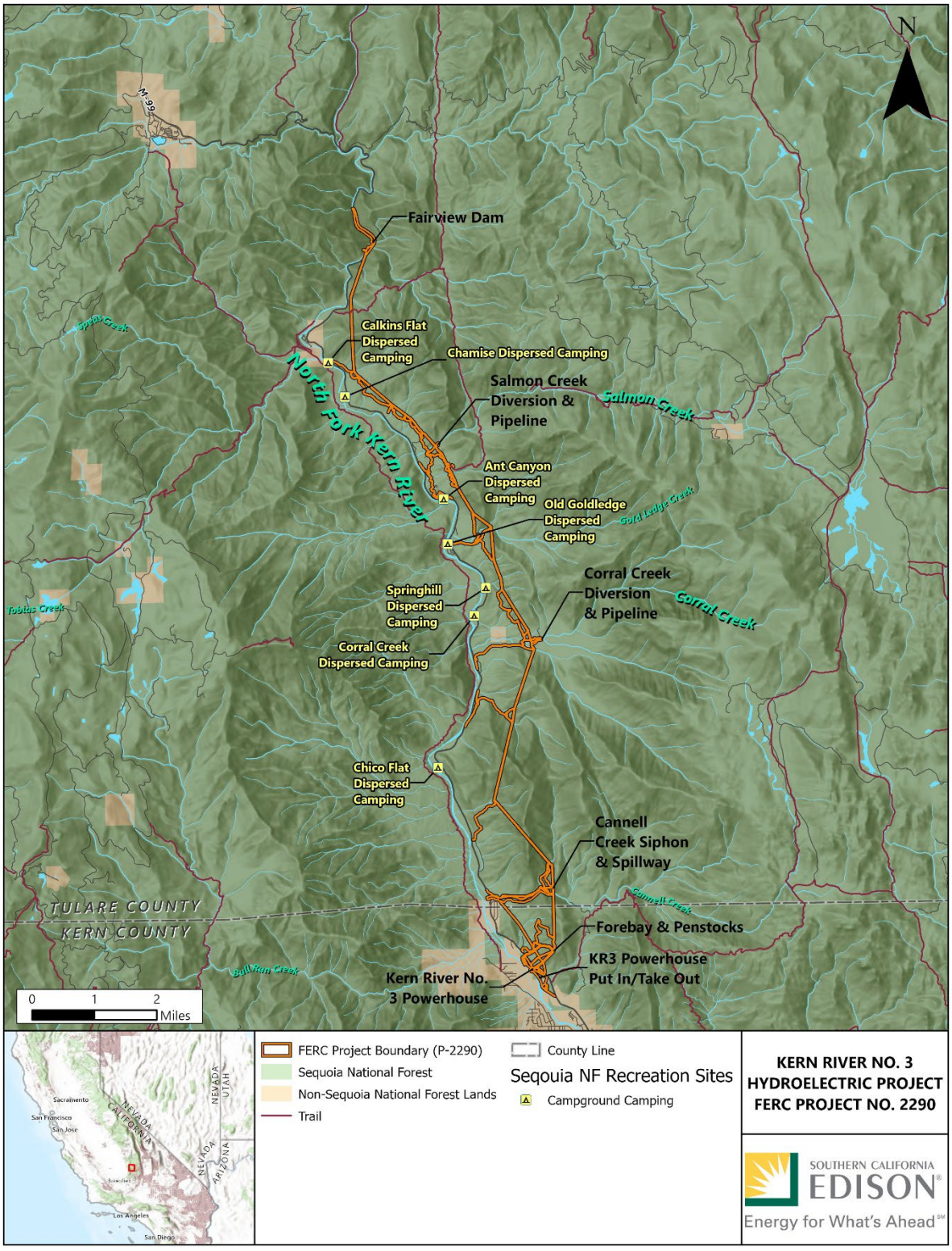

Figure 3.1-1. Dispersed Recreation Sites in the Study Area.

3.2. FACILITY INVENTORY AND CONDITION ASSESSMENT

The study area and study sites focused on one SCE-owned FERC-approved and 14 non-FERC USFS-operated formal, developed campgrounds, day-use areas, trailheads, and river access points along the Fairview Dam Bypass Reach. The locations are listed below and shown in Figure 3.2-1.

- Willow Point Whitewater Take-out (non-Project facility)
- Roads End Whitewater Put-in (non-Project facility)
- Packsaddle Trail Trailhead (non-Project facility)
- Fairview Campground (non-Project facility)
- Rincon Trail Trailhead (non-Project facility)
- Goldledge Campground and Whitewater Put-in/Take-out (non-Project facility)
- Corral Creek Picnic Site and Whitewater Take-out (non-Project facility)
- Hospital Flat Campground (non-Project facility)
- Thunderbird Group Campground and Whitewater Put-in/Take-out (non-Project facility)
- Camp 3 Campground and Whitewater Put-in/Take-out (non-Project facility)
- Halfway Group Campground and Whitewater Put-in/Take-out (non-Project facility)
- Headquarters Campground (non-Project facility)
- Riverkern Beach Picnic Site (non-Project facility)
- KR3 Powerhouse Whitewater Put-in/Take out (Project facility)
- Whiskey Flat Trailhead (non-Project facility)

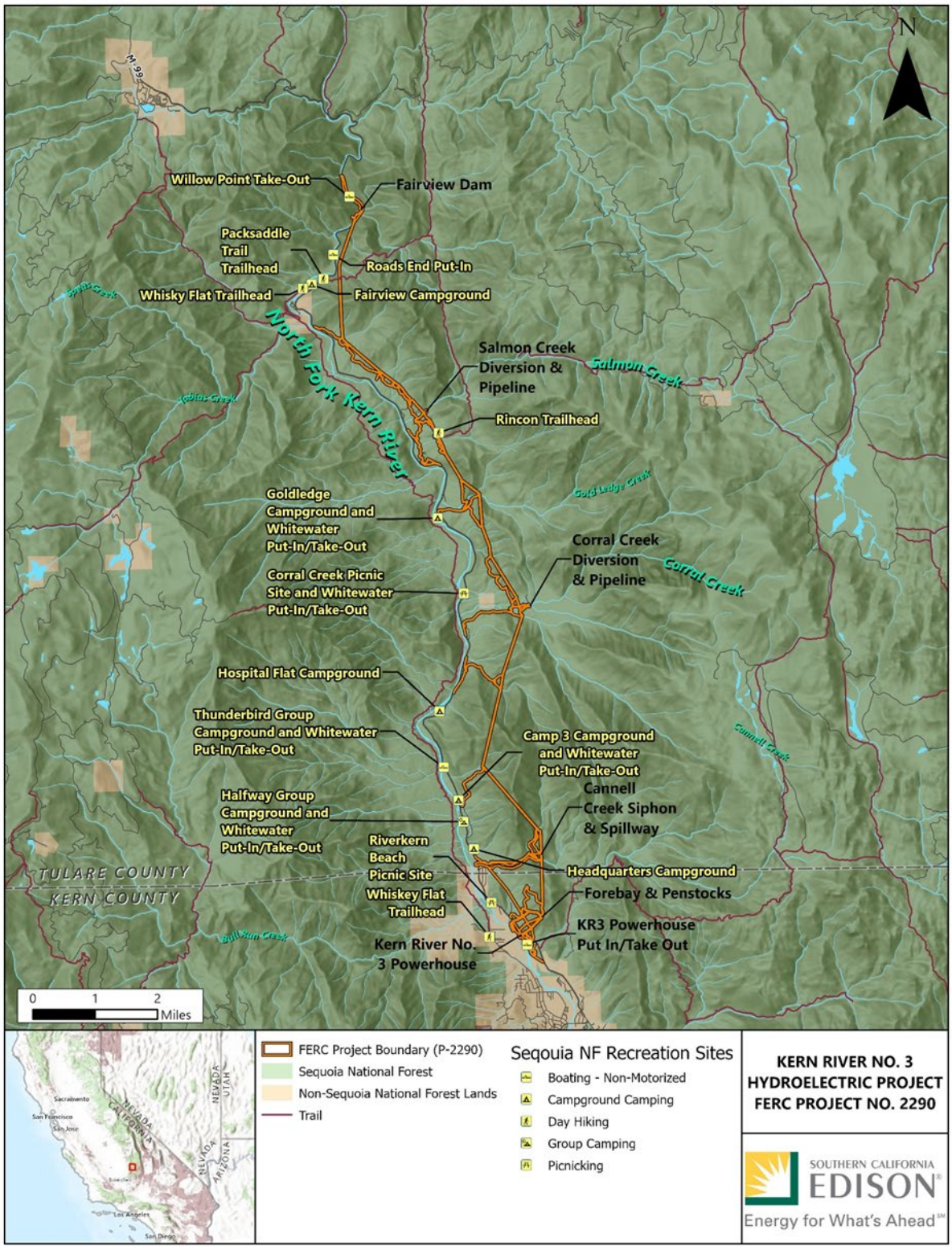

Figure 3.2-1. Recreation Study Sites within the Study Area.

4.0 METHODS

Field surveys and data collection conducted at public recreation sites located within the FERC Project Boundary and along the Fairview Dam Bypass Reach followed the methods described in SCE's RSP Package (SCE, 2022). Two field staff conducted the recreation facility inventory from October 10 through October 13, 2022, at each recreation site using tablets and an Esri ArcGIS Survey123 form.

Data collected from the field surveys was analyzed for quality assurance, and results are discussed below in Section 5.0, Data Summary. In accordance with the RSP, the analysis provided in this memorandum is representative of the conditions observed at the recreation facilities during the survey period and may not reflect changes due to use or weather since that time.

Study Plan Variances

Study implementation followed the methods described in SCE's RSP (SCE, 2022), and approved by FERC in their SPD (FERC, 2022), with no variances.

4.1. SEQUOIA NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN REVIEW

Consistent with the National Forest Management Act of 1976, the USFS developed an amended forest plan and released the final forest plan in May 2023 (USFS, 2023), which was finalized since the filing of the Project Pre-Application Document in 2021 (SCE, 2021). The final document was reviewed, and key findings related to this study are summarized in Section 5.0, Data Summary.

4.2. DISPERSED RECREATION SITE ASSESSMENT

A Dispersed Recreation Site Assessment was conducted at the seven dispersed (informal) Sequoia National Forest (SQF) recreation sites identified in Section 3.1, Dispersed Recreation Site Assessment.

Information collected during field surveys included campsite locations, parking areas, and trails. Dispersed use was documented using data sheets and photographs integrated into a geographic information system (GIS) database with relevant attributes (e.g., spatial location, number of fire rings, and length of roads or trails).

Additional qualitative information was also collected, including potential issues, possible accommodations, or future recreation opportunities at the sites.

4.3. FACILITY INVENTORY AND CONDITION ASSESSMENT

A facility inventory and condition assessment were performed at the 15 developed (formal) campgrounds, day-use areas, trailheads, and water access points identified in

Section 3.2, Facility Inventory and Condition Assessment. Generally, the following parameters were recorded:

- 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.

Information collected during field surveys was consistent with the Recreation Site Inventory Form provided to SQF staff on October 3, 2022 (Appendix A). The survey documented the condition of all amenities. Items in need of maintenance, repair, replacement, or similar action were noted according to Table 4.2-1. All inventories were documented with photographs and integrated into a GIS database with relevant attributes.

Table 4.2-1. 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

5.0 DATA SUMMARY

5.1. DISPERSED RECREATION SITE ASSESSMENT

Dispersed Recreation Site Assessment data includes information on dispersed campsites and parking areas with minimal amenities. Available data is summarized below for all amenities. A brief description of each site is provided below; figures and photographs of each site are provided in Appendix B.

All of the dispersed recreation sites are non-KR3 Project facilities located along the Fairview Dam Bypass Reach. The sites are all owned and operated by the USFS but are unstaffed. No fee is required, and all areas are first-come/first-serve.

As noted below, all sites have access to parking and trails. Only some sites have restroom facilities available. Possible accommodations or future recreation opportunities could include the addition of restroom facilities at those sites that currently do not have facilities. Additionally, upgrading restroom facilities currently on-site to Americans with Disabilities Act (ADA) accessible facilities could be a future recreation opportunity.

5.1.1. CALKINS FLAT DISPERSED CAMPING

Calkins Flat Dispersed Camping is open year-round and is accessible via Kern River Highway, which is a two-lane paved road that is also known as Mountain Road 99. There are 15 fire rings on-site, as well as two informational signs outlining site rules and safety. This site offers one restroom facility with two unisex toilets and three trash receptacles. A gravel parking area provides parking for approximately 75 vehicles. There are 4,310 feet of trails identified within the site.

5.1.2. CHAMISE FLAT DISPERSED CAMPING

Chamise Flat Dispersed Camping is open year-round and accessible via Kern River Highway. There are 27 fire rings on-site. A gravel parking area provides parking for approximately 42 vehicles. There are 6,488 feet of trails within the site.

5.1.3. ANT CANYON DISPERSED CAMPING

Ant Canyon Dispersed Camping is open year-round and accessible via Kern River Highway. There are 10 fire rings, four trash receptacles, two informational signs, and one unisex portable restroom on-site. A gravel parking area provides parking for approximately 28 vehicles. There are 3,327 feet of trails within the site.

5.1.4. OLD GOLDLEDGE DISPERSED CAMPING

Old Goldledge Dispersed Camping is open year-round and accessible via Kern River Highway. There are six fire rings and one informational sign outlining site rules and safety on-site. A gravel parking area provides parking for approximately 10 vehicles. There are 1,288 feet of trails identified within the site.

5.1.5. SPRING HILL DISPERSED CAMPING

Spring Hill Dispersed Camping is open year-round and accessible via two access points—one to the north and one to the south—from Kern River Highway. There are 42 fire rings identified on-site. A gravel parking area provides parking for approximately 100 vehicles. There are 5,359 feet of trails within the site.

5.1.6. CORRAL CREEK DISPERSED CAMPING

Corral Creek Dispersed Camping is open year-round and accessible via Kern River Highway. There are nine fire rings on-site. A gravel parking area provides parking for approximately 42 vehicles. There are 2,272 feet of trails within the site.

5.1.7. CHICO FLAT DISPERSED CAMPING

Chico Flat Dispersed Camping is open year-round and accessible via Ker River Highway. There are 25 fire rings on-site. A gravel parking area provides parking for approximately 50 vehicles. There are 8,127 feet of trails within the site.

5.2. FACILITIES INVENTORY AND CONDITION ASSESSMENT

The Recreation Facilities Inventory and Condition Assessment data includes information focused on developed (formal) campgrounds, day-use areas, trailheads, and river access points with expanded amenities. An assessment of the condition of each site at the time of observation is provided below. Available data is summarized below for all amenities. A brief description of each site is provided below; photographs of each site are provided in Appendix C.

5.2.1. WILLOW POINT WHITEWATER TAKE-OUT

Willow Point Whitewater Take-out is a day-use area open year-round, from sunrise to sunset. The site is accessible via Kern River Highway. The USFS owns and maintains the site, but it is unstaffed. The site is not a KR3 Project facility but is within the FERC KR3 Project Boundary along the North Fork Kern River. No fee is required at the site, primarily consisting of whitewater access and an unpaved parking area. Visitors have access to a two-lane carry-in boat launch and one trash receptacle. There is parking for approximately 18 vehicles along the shoulder of Kern River Highway, which was in good condition during the time of the assessment. The one informational kiosk on-site was observed to be in good condition, providing boating safety information in both English and Spanish. Overall, the site is in good condition and is functioning as intended. There is evidence of vegetation impacts and/or erosion due to extended trail use.

5.2.2. ROADS END WHITEWATER PUT-IN

Roads End Whitewater Put-in is a day-use area open year-round, from sunrise to sunset. The site is accessible via Kern River Highway. The USFS owns and operates the site, which is unstaffed. The site is not a KR3 Project facility but falls along the Fairview Dam Bypass Reach. The site primarily consists of whitewater access, a day-use area, and multiple parking areas. Visitors can access a boating prep area, restrooms, and picnic areas. Restrooms include two ADA compliant unisex vault toilets. A gravel area provides parking for approximately 50 vehicles. The one informational kiosk identified on-site provides USFS and boating safety information in both English and Spanish and was observed in good condition. Four informational signs are present on-site. Restrooms are suitable for persons with disabilities to participate in recreation opportunities. Overall, the site is in adequate condition and is functioning as intended. There is evidence of vegetation impacts and/or erosion due to extended trail and boat launch use.

5.2.3. PACKSADDLE TRAIL TRAILHEAD

Packsaddle Trail Trailhead provides parking on the west side of Kern River Highway and access to the Packsaddle Trail on the east side of Kern River Highway. The USFS owns and operates the site, and no fee is required. The site is not a KR3 Project facility but falls along the Fairview Dam Bypass Reach. A gravel parking area provides parking for approximately 18 vehicles, which needs repair due to broken pavement at the entrance from Kern River Highway and potholes. There is one informational kiosk identified in good

condition. One informational sign is present on-site and requires maintenance. Overall, the site is in poor condition but functioning as intended.

5.2.4. Fairview Campground

Fairview Campground is a seasonal campground open April through October. The site is accessible via Kern River Highway. The gravel campground road needs repair. The USFS owns and operates the site via a concessionaire[2], and a campground host staffs it throughout the season. A $32 fee is required to camp at this site, with an $8 extra vehicle fee applied per vehicle over one per site. The campground is not a KR3 Project facility but falls along the Fairview Dam Bypass Reach. The campground includes 54 standard campsites, 2 of which are ADA accessible, and one group site. All sites include a picnic table, a firepit ring, and one parking space. Eight of the picnic tables are in poor condition and require maintenance. Visitors have access to restrooms, potable water, and trash receptacles. The site has three restroom facilities, providing six ADA-compliant vault toilets for men and six ADA-compliant vault toilets for women. There is additional parking for approximately seven vehicles within a paved lot at the entrance to the site, which needs repair. The one informational kiosk on-site is in good condition, providing fee information and regulations. Two informational signs are present on-site, providing fee information and site rules. Restrooms, picnic tables, firepit rings, grills, and trash receptacles are suitable for persons with disabilities to participate in recreation opportunities. Overall, the site is in adequate condition and is functioning as intended. There is some evidence of vegetation impacts due to extended footpath use.

5.2.5. Rincon Trail Trailhead

Rincon Trail Trailhead provides access to the Rincon Trail via a dirt road off from Kern River Highway. The dirt access road is approximately 0.6 mile north of the Ant Canyon Dispersed Camping site on the east side of Kern River Highway. The USFS owns and operates the site, and no fee is required. There are approximately four parking spaces available along the gravel road. Overall, the site is in good condition and functioning as intended.

5.2.6. Goldledge Campground and Whitewater Put-in/Take-out

Goldledge Campground and Whitewater Put-in/Take-out is a campground and day-use area. The site is accessible via Kern River Highway. The campground and whitewater put-in/take-out is not a KR3 Project facility but falls along the Fairview Dam Bypass Reach. The USFS owns and operates the site, which is seasonally staffed by a campground host. A $32 fee is required to camp per site, plus an additional $2 per site per night on holidays. The campground consists of 35 standard campsites, none of which are ADA-accessible. All sites include a picnic table, firepit ring, and a single parking space. Five of the picnic tables are in poor condition and require maintenance. Visitors additionally have access to restrooms, potable water, recycling bins, and trash receptacles. Sanitation facilities include eight portable restrooms: four for men and four

[2] The USFS contracts with a maintenance company (concessionaire) to maintain and operate the developed campgrounds along the Fairview Dam Bypass Reach.

for women. There is one informational kiosk in good condition. There is parking for day-use activities across Kern River Highway for approximately 18 vehicles within a paved lot in adequate condition. Overall, the site is in adequate condition and functioning as intended. There is no evidence of vegetation impacts or erosion observed.

5.2.7. Corral Creek Picnic Site and Whitewater Take-out

Corral Creek Picnic Site and Whitewater Take-out is a day-use area open year-round, from sunrise to sunset. The USFS owns and operates the site, which is unstaffed. The site primarily consists of whitewater access and a picnic area. The picnic area and whitewater put-in/take-out are not KR3 Project facilities but fall along the Fairview Dam Bypass Reach. Visitors have access to one picnic table, a two-lane carry-in boat launch, and one trash receptacle. The picnic table is in poor condition and requires maintenance. The one informational kiosk is on-site in good condition, providing safety and site information. Five informational signs are present on-site, providing site information and rules. There is parking for approximately eight vehicles in the parking area on the opposite side of Kern River Highway. Overall, the site is in adequate condition and functioning as intended.

5.2.8. Hospital Flat Campground

Hospital Flat Campground is a campground and day-use area. The USFS owns and operates the site via a concessionaire, which is staffed by a campground host year-round. The site is accessible via Kern River Highway and provides camping facilities and water access. The campground consists of 39 standard campsites, two of which are ADA-accessible. All sites include a picnic table, a firepit ring, and a parking space for one vehicle. Nineteen of the picnic tables and four of the firepit rings are in poor condition and require maintenance or repair. Visitors additionally have access to restrooms, recycling, and trash receptacles. Restroom facilities include 12 vault toilets: 6 for men and 6 for women. The one informational kiosk on-site is in good condition, and three informational signs are present on-site. There is parking for approximately nine vehicles within the paved lot for day users of the site, which is in adequate condition. One parking spot is ADA-accessible. Overall, the site is in adequate condition and functioning as intended. There is no evidence of vegetation impacts or erosion.

5.2.9. Thunderbird Group Campground and Whitewater Put-in/Take-out

Thunderbird Group Campground and Whitewater Put-in/Take-out is a group campground with whitewater access. The Group Campground and Whitewater Put-in/Take-out is not a KR3 Project facility but falls along the Fairview Dam Bypass Reach. The site is accessible via Kern River Highway. The USFS owns and operates the site, which is staffed seasonally by park rangers. The campground consists of three group campsites. Each group site provides access to multiple parking spots, a picnic shelter with picnic tables, and a firepit ring. Visitors also have access to trash receptacles and restrooms. Restrooms include two portable unisex toilets, one of which needs repair. The three informational kiosks on-site are in good condition, providing site rules and fishing information. Three additional informational signs providing site information are also

on-site. There is parking for approximately 10 vehicles and one ADA space within the day-use parking area, which is in adequate condition. Overall, the site is in adequate condition and functioning as intended. There is notable evidence of erosion, as well as litter and vandalism.

5.2.10. Camp 3 Campground and Whitewater Put-in/Take-out

Camp 3 Campground and Whitewater Put-in/Take-out are not KR3 Project facilities but fall along the Fairview Dam Bypass Reach. The site is accessible via Kern River Highway. The USFS owns and operates the site via a concessionaire, which is staffed seasonally. The campground consists of 55 standard campsites, 1 of which is ADA-accessible. All sites include a single parking spot, picnic table, and firepit ring. One campsite, 20 picnic tables, and five of the firepit rings require maintenance or repair. Visitors have access to restrooms and picnic shelters. This site offers 10 restroom facilities: 4 portable unisex restrooms, 3 vault toilets for men, and 3 vault toilets for women. There are three informational signs observed on-site. There is evidence of vegetation impacts and erosion on-site, as well as compaction, litter, ground disturbance, vegetation removal, and vandalism. The day-use area includes parking for approximately 15 vehicles within a paved lot, which is in adequate condition. Overall, the site is in adequate condition and functioning as intended.

5.2.11. Halfway Group Campground and Whitewater Put-in/Take-out

Halfway Group Campground and Whitewater Put-in/Take-out is a group campground with a trail to whitewater access. The site is accessible via Kern River Highway. The USFS owns and operates the site, which requires a fee of $48 to $200, depending on the season and the site. The campground and whitewater put-in/take-out are not KR3 Project facilities but fall along the Fairview Dam Bypass Reach. The campground consists of four group campsites; each has access to a parking area, picnic tables, and a firepit ring. Visitors have access to restrooms, picnic shelters with tables, and trash receptacles. This site offers three unisex portable toilets. There is one informational kiosk and seven informational signs on-site, providing fee information and site rules. There is no evidence of vegetation impacts or erosion; however, evidence of vandalism, ground disturbance, litter, and compaction is present. There is parking for approximately 20 vehicles within the day-use parking area, which is in adequate condition. Overall, the site is in adequate condition and functioning as intended.

5.2.12. Headquarters Campground

Headquarters Campground is accessible via Kern River Highway. The site is open year-round and is owned and operated by the USFS via a concessionaire. The site is staffed year-round by a campground host. The campground consists of 43 standard campsites, 1 of which is ADA-accessible. Each site includes a picnic table, firepit ring, and parking for one vehicle. Twenty-one of the picnic tables and two of the firepit rings require maintenance, replacement, or repair. Visitors additionally have access to a parking area, restrooms, potable water, bear-proof boxes, two grills, and a trash receptacle. This site offers 11 restroom facilities: 5 vault toilets for men, 5 vault toilets for women, and 1 unisex

vault toilet. Two of the men's toilets require maintenance. There are two informational kiosks identified in good condition. Additionally, seven informational signs are present on-site, one of which needs maintenance. There is evidence of vegetation impacts, erosion, tree damage, compaction, ground disturbance, vegetation removal, and vandalism on-site. Overall, the site is in adequate condition and functioning as intended.

5.2.13. RIVERKERN BEACH PICNIC SITE

Riverkern Beach Picnic Site is a day-use area open from sunrise to sunset, year-round. The site is accessible via Sierra Way, which is a two-lane paved road. The USFS owns and operates the site, but it is unstaffed. No fee is required at the site, which primarily consists of water access and a designated unpaved parking area. Visitors have access to a restroom and trash receptacles. The restroom includes two ADA-compliant unisex vault toilets. A gravel parking lot provides parking for approximately 15 vehicles in good condition. There is additional parking for approximately 42 vehicles along the shoulder of Sierra Way. There is one informational kiosk on-site in good condition, providing site and safety information. Three informational signs on-site are in good condition. Overall, the site is in adequate condition and functioning as intended. There is evidence of on-site vegetation impacts, erosion, litter, and vandalism.

5.2.14. KR3 POWERHOUSE WHITEWATER PUT-IN/TAKE OUT

KR3 Powerhouse Whitewater Put-in/Take-out is a whitewater access area reachable via a two-lane paved road that branches off Sierra Way. SCE owns and operates the KR3 Project facility, which is unstaffed year-round. Visitors have access to a carry-in boat launch and loading area and trash receptacles. The parking area includes space for approximately 8 vehicles in the paved area and 12 vehicles in the gravel parking area, all in good condition. Two informational signs are present on-site, one requiring maintenance. A FERC Part 8 sign, which includes KR3 Project information, ownership, and operating hours, is also present on-site as a license requirement, given this site is a FERC-approved KR3 Project facility. There is some evidence of vegetation impacts or erosion on-site, as well as litter, compaction, ground disturbance, and vandalism. Overall, the site is in adequate condition and functioning as intended.

5.2.15. WHISKEY FLAT TRAIL ACCESS

Whiskey Flat Trail is connected by two access areas: one to the north and one to the south. The north trail access site is accessible via Kern River Highway, and the south trail access site is accessible via a one-lane gravel road. The USFS owns and operates both the north and south trail access sites, and no fee is required. Both the north and south access sites are open year-round. There is parking for approximately 12 vehicles within the gravel parking area at the north trail access site, which is in good condition. There is parking for approximately five vehicles within the gravel parking area at the south trail access site, which is in good condition. One informational sign is at the Whiskey Flat Trail North Access site, and two are at the Whiskey Flat Trail South Access site. There is some

evidence of vegetation impacts and litter due to extended trail use. Overall, the access sites are in adequate condition and functioning as intended.

5.3. SEQUOIA NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN

The Land Management Plan (USFS, 2023) was developed to provide direction and adaptive management for the resources in the KR3 Project Area.[3] The following forest-wide (REC-FW) desired conditions (DC), objectives (OBJ), goals (GOAL), and guidelines (GDL) were found to be relevant to this study:

- Sites provide a variety of nature-based recreation opportunities year-round (REC-FW-DC 01, 03, 12).
- Sites accommodate diverse cultures (REC-FW-DC 02).
- Sites provide recreation opportunities with minimal impacts on sensitive environments (REC-FW-DC 05).
- Trail systems provide recreational opportunities compatible with other resources (REC-FW-DC 07, 13).
- Dispersed sites exist in areas outside of high visitation, which does not adversely impact resources (REC-FW-DC 09).
- Infrastructure meets the minimum needs of potential uses and mimics the area's natural landscape (REC-FW-GDL 02).

Additionally, the sites were found to align with the following General Recreation Area (MA-GRA) desired conditions (DC), objectives (OBJ), goals (GOAL), and guidelines (GDL):

- Sites have limited amenities and minor developments (MA-GRA-DC 01).
- Sites provide scenic integrity, including a mosaic of vegetation, while retaining the natural character of landscapes (MA-GRA-DC 02, 07).
- Recreation opportunities are compatible with other resources (MA-GRA-DC 03).
- Roads and trails at the sites support recreation activities (MA-GRA-DC 08).
- Recreation sites provide opportunities for those seeking solitude, as well as high-use areas (MA-GRA-DC 09).

[3] Objectives and goals of the *Land Management Plan for the Sequoia National Forest* (USFS, 2023) are part of the 15-year plan that was released in 2023.

6.0 STUDY-SPECIFIC CONSULTATION

Data forms were transmitted to the SQF for review via email on October 3, 2022, prior to study implementation.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All REC-3 Study Plan elements have been completed as outlined in SCE's RSP (SCE, 2022) and FERC's SPD (FERC, 2022). No further work is currently planned for this study.

8.0 REFERENCES

FERC (Federal Energy Regulatory Commission). 2022. S*tudy Plan Determination for the Kern River No. 3 Hydroelectric Project*. Accession No. 20221012-3024. October 12.

SCE (Southern California Edison). 2021. *Kern River No. 3 Hydroelectric Project (FERC Project No. 2290) Pre-Application Document.* Accessed: July 2023. Retrieved from https://www.sce.com/sites/default/files/inline-files/KR3_PAD_Volume_I_Public.pdf

_____. 2022. *Kern River No. 3 Hydroelectric Project, Revised Study Plan*. Filed with FERC on July 1. Accessed: August 2023. Retrieved from: sce.com/sites/default/files/custom-files/Webfiles/Revised_Study_Plan_KR3_20220701.pdf

USFS (U.S. Forest Service). 2023. *Land Management Plan for the Sequoia National Forest: Fresno, Kern, and Tulare Counties, California*. U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, Sequoia National Forest. R5-MB-330A. Accessed: August 25, 2023. Retrieved from: https://www.fs.usda.gov/project/?project=3375.

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APPENDIX A
RECREATION SITE INVENTORY FORM

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KERN RIVER NO. 3 PROJECT
RECREATION SITE INVENTORY FORM

Observed by:_____ Date/Time: _____

Site Name:_____ GPS Coordinates:_____

Facility Type:

☐ Campground ☐ Day Use Area ☐ Picnic Area
☐ Trailhead ☐ Boat Launching Area ☐ Informal Site

Road Access: Condition Description: [N; R; M; G] _____

☐ Paved access # lanes _____
☐ Unpaved access # lanes _____

Parking Lots: Condition Description: _____

Type	# Paved	# Estimated Gravel	Space Delineation
Universal Access Spaces	_____	_____	☐ Painted ☐ Curbs ☐ Signage
Regular Spaces	_____	_____	☐ Painted ☐ Curbs ☐ Signage
Vehicle & Trailer Spaces	_____	_____	☐ Painted ☐ Curbs ☐ Signage

Operations:

☐ Staffed ☐ Unstaffed ☐ Seasonal (From _____ To_____)
☐ Fee: (Site $_____; Parking $_____) ☐ Year Round

Operating Hours_____ Owner/Manager_____
Project Facility: _____ Within FERC Project boundary?_____

Day Use Site Amenities (total # of all amenities per site; provide additional specifications on next page):

#	Type	Condition (N-replace, R-repair, M-maintain, G-good)	Universal Access
_____	Picnic Shelter	_____	_____
_____	Overlook	_____	_____
_____	Picnic Tables	_____	_____
_____	Pedestrian Trail	_____	_____
_____	Boating Prep Area	_____	_____
_____	Trash Receptacles	_____	_____
_____	Grills	_____	_____
_____	Fishing Pier/Platform	_____	_____
_____	Firepit/ring	_____	_____
_____	Fishing Prep Area	_____	_____
_____	Safety Signage	_____	_____
_____	Restrooms	_____	_____
_____	Information Kiosk	_____	_____
_____	Informational Signage	_____	_____
_____	Benches	_____	_____
_____	Dumping Station	_____	_____
_____	Potable Water	_____	_____
_____	Playground	_____	_____

Other (specify)_____

_____

Boat Launch Facilities: Condition Description: _____

☐ Hard surface ☐ Unimproved (informal) ☐ Gravel ☐ Carry In

☐ Universal Access ☐ Boat Prep Area _____ # of Lanes

Courtesy/Fishing Docks: Condition Description: _____

☐ Courtesy Dock ☐ Fishing Dock Dimensions:_____ ☐ Universal Access

☐ Courtesy Dock ☐ Fishing Dock Dimensions:_____ ☐ Universal Access

Trails (within the recreation area): Condition Description: _____

Type:_____ Length (ft):_____ Condition: _____ ☐ Universal Access

Type:_____ Length (ft):_____ Condition: _____ ☐ Universal Access

Type:_____ Length (ft):_____ Condition: _____ ☐ Universal Access

Interpretive/Site Information: Condition Description: _____

____ No. of Displays

☐ Boating Safety ☐ Invasive Species ☐ Fishing Regulations ☐ Fish Type

☐ Regional Events ☐ Other (specify)_____

Signage: Condition Description: _____

☐ Part 8 ☐ Directional ☐ Informational ☐ Other

Sanitation Facilities: Condition Description: _____

	# Flush	(# UA*)	# Portable	(# ADA)	Showers	(#UA)
Unisex	_____	(_____)	_____	(_____)	_____	(_____)
Women	_____	(_____)	_____	(_____)	_____	(_____)
Men	_____	(_____)	_____	(_____)	_____	(_____)

**UA = Universal Access*

Campground/Campsite: Condition Description: _____

	Tent-improved	**Tent-Primitive**	**Group Sites**	**Camps/Cabins**	**RV Sites**
# of sites					
On site parking					
Waterfront					
Universal Access					

Observed Vegetation and Erosion Impacts:

_____ Cut trees for fires
_____ Trampled vegetation
_____ Mowed areas
_____ Trees damaged by people
_____ Trees damaged by environment
_____ Areas of noticeable erosion

Description of Observations/Evidence of Vegetation Impacts: _____

_____

Description of Observations/Evidence of Erosion: _____

_____

Evidence of use at site: _____

(C) Compaction, (E) Erosion, (G) Garbage, (GD) Ground disturbance, (HW) Human waste, (UI) Unauthorized improvements, (V) Vandalism, (VR) Vegetation removal, (O) Other (Specify)

Evidence of Overcrowding: _____

(A) Anecdotal information, (FA) facility/amenity @ capacity, (I) improper parking, (S) Signage, (SD) Site degradation, (U) Unauthorized sites, (W) Waiting lines, (O) Other (Specify)

Notes (including general condition, any restrictions/alerts, such as boating use, invasive species, etc.):

_____
_____
_____
_____
_____

Photo number from _____ to _____

Sketch of Site and Facilities:

KERN RIVER NO. 3 PROJECT
DATA DICTIONARY

Conditional Ratings

N: Needs replacement-is non-functional or has broken or missing components
R: Needs repair-has structural damage or is in an obvious state of disrepair
M: Needs maintenance- is in need of attention (i.e. cleaning or painting is needed)
G: Good condition-is functional and well maintained

Anecdotal Information:

observations made by field staff (i.e. overflowing trash cans, tire tracks outside of delineated parking areas and access roads)

Facility Type:

The primary use of the site

Road Access:

The road in which is used to access/enter the site.

Parking Lot:

The designated or observed area where vehicles park to access the facility.

Trash receptacles:

Include all vessels designed to collect trash (i.e. trash cans, dumpsters)

Informational Kiosk:

A display structure with multiple informational signs

APPENDIX B
DISPERSED RECREATION SITE FIGURES AND PHOTOS

Note: All photographs were taken by Kleinschmidt during the field surveys and data collection conducted in October 2022, unless otherwise noted.

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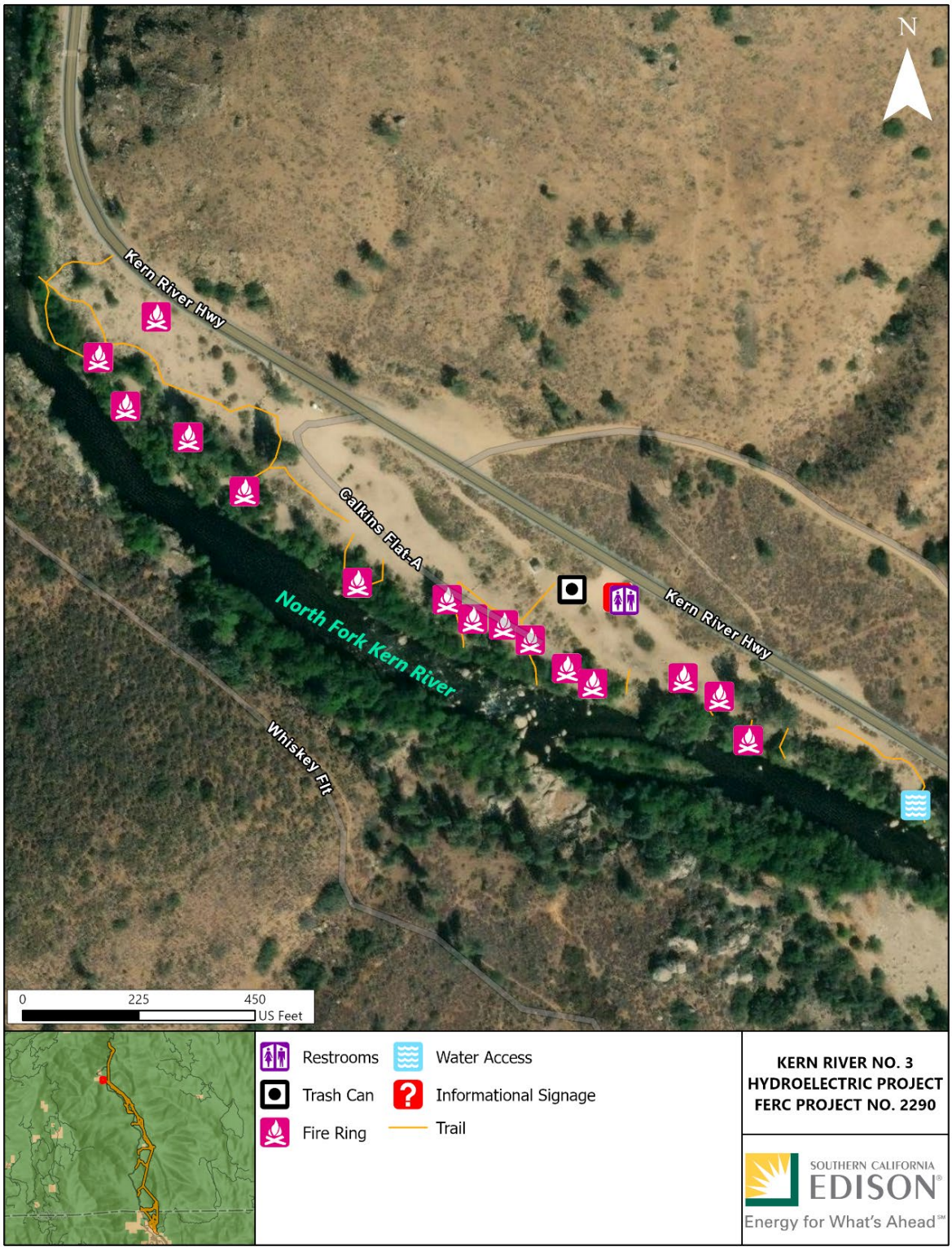

Figure B-1. Calkins Flat Dispersed Camping.

Photo B-1. Calkins Flat Dispersed Camping

Photo B-2. Calkins Flat Dispersed Camping Informational Signage

Photo B-3. Calkins Flat Dispersed Camping Water Access Area

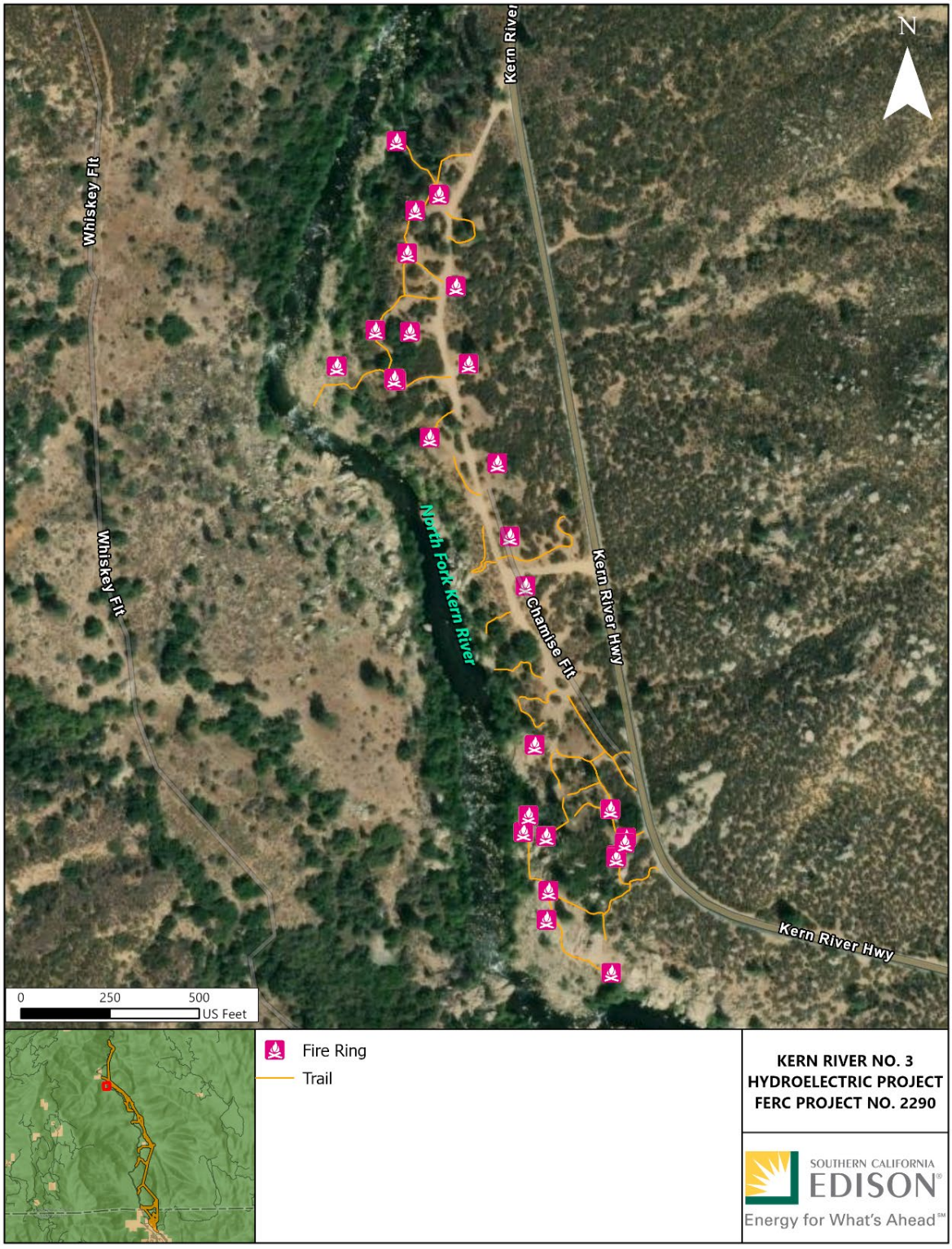

Figure B-2. Chamise Flat Dispersed Camping.

Photo B-4. Chamise Flat Dispersed Camping

Photo B-5. Chamise Flat Dispersed Camping Firepit

Photo B-6. Chamise Flat Dispersed Camping Boundary

Figure B-3. Ant Canyon Dispersed Camping.

Photo B-7. Ant Canyon Dispersed Camping

Photo B-8. Ant Canyon Dispersed Camping Trash Facilities

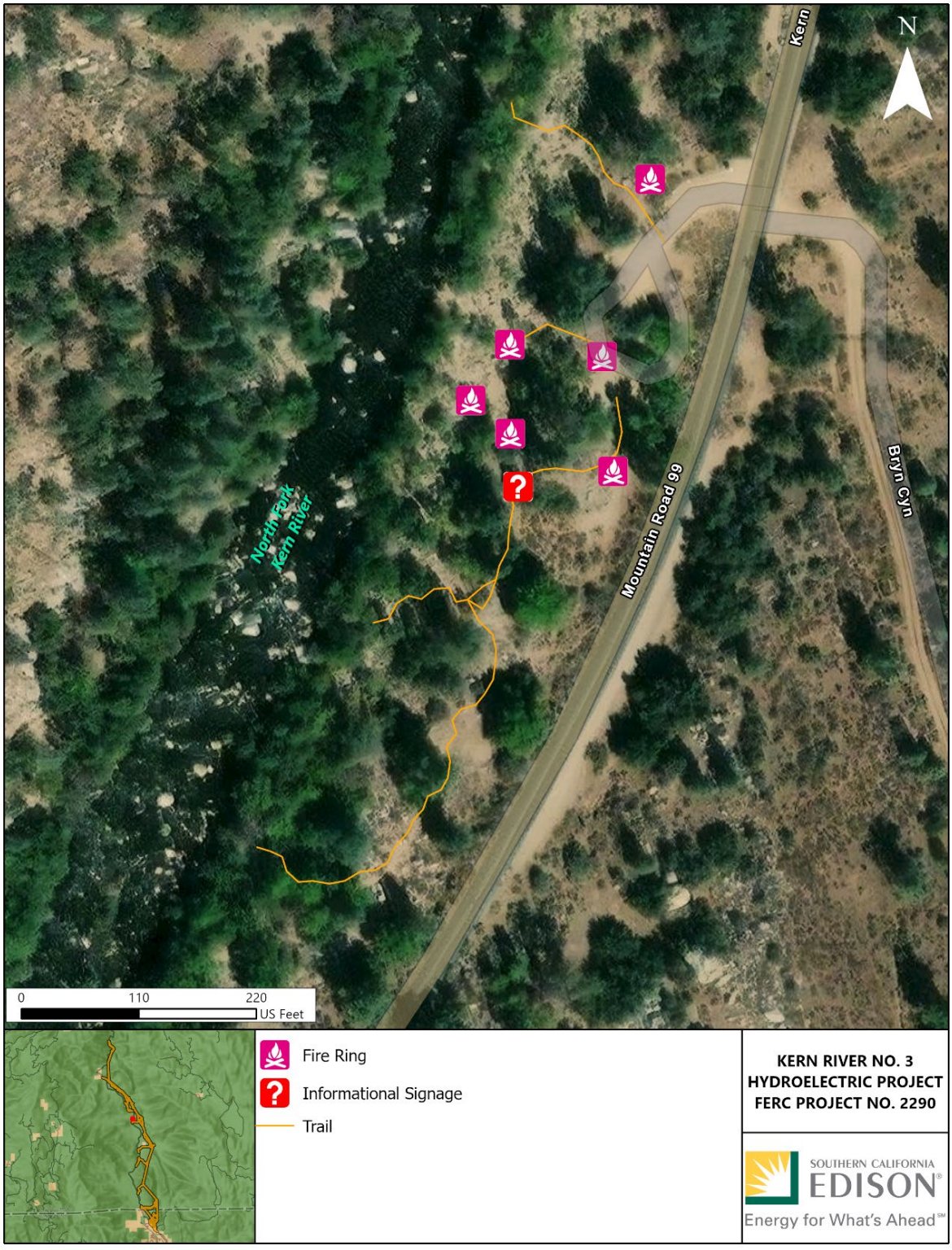

Figure B-4. Old Goldledge Dispersed Camping.

Photo B-9. Old Goldledge Dispersed Camping Use

Photo B-10. Old Goldledge Dispersed Camping Boundary

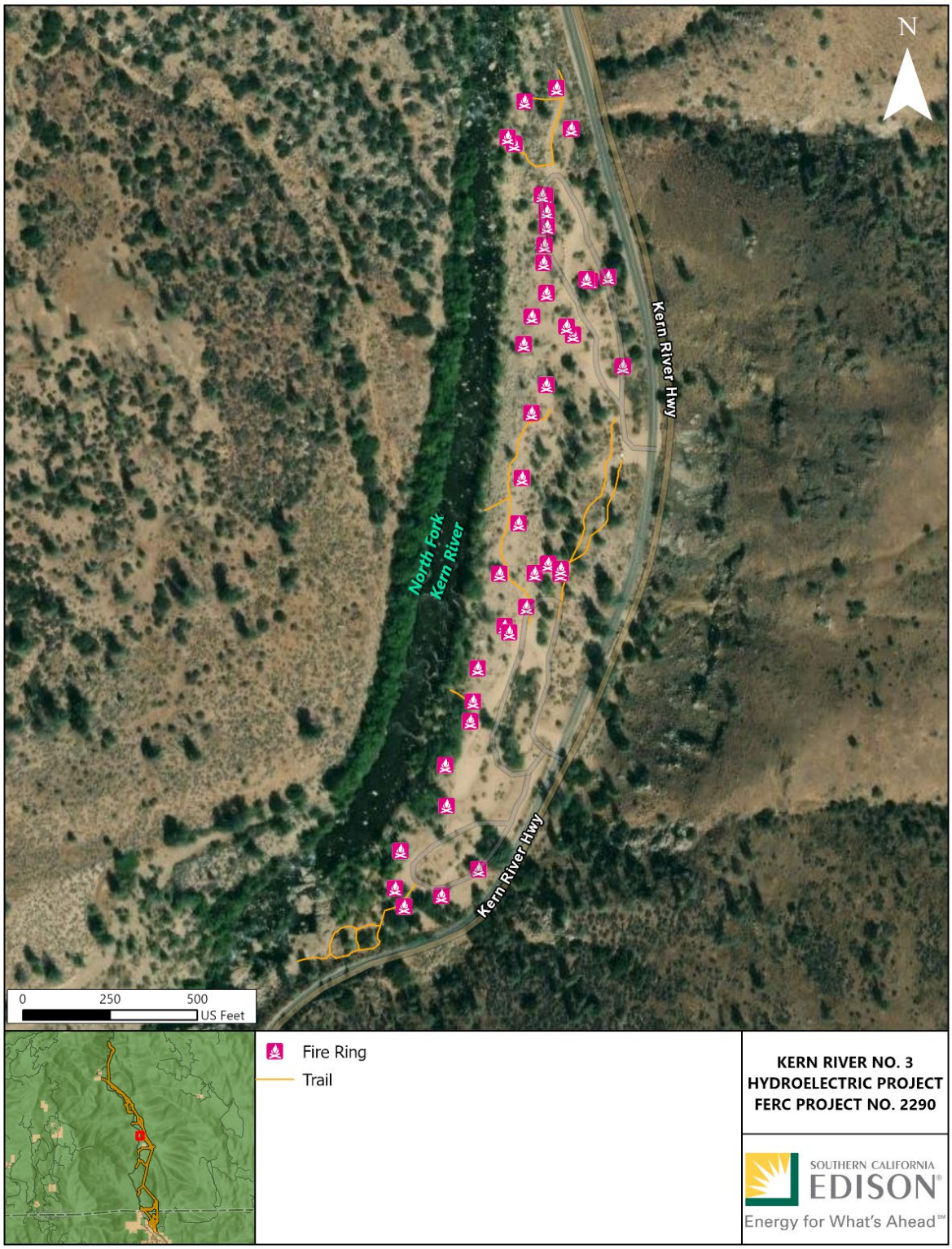

Figure B-5. Spring Hill Dispersed Camping.

Photo B-11. Spring Hill Dispersed Camping Boundary Marker

Photo B-12. Spring Hill Dispersed Camping Firepit

Figure B-6. Corral Creek Dispersed Camping.

Photo B-13. Corral Creek Dispersed Camping Firepit

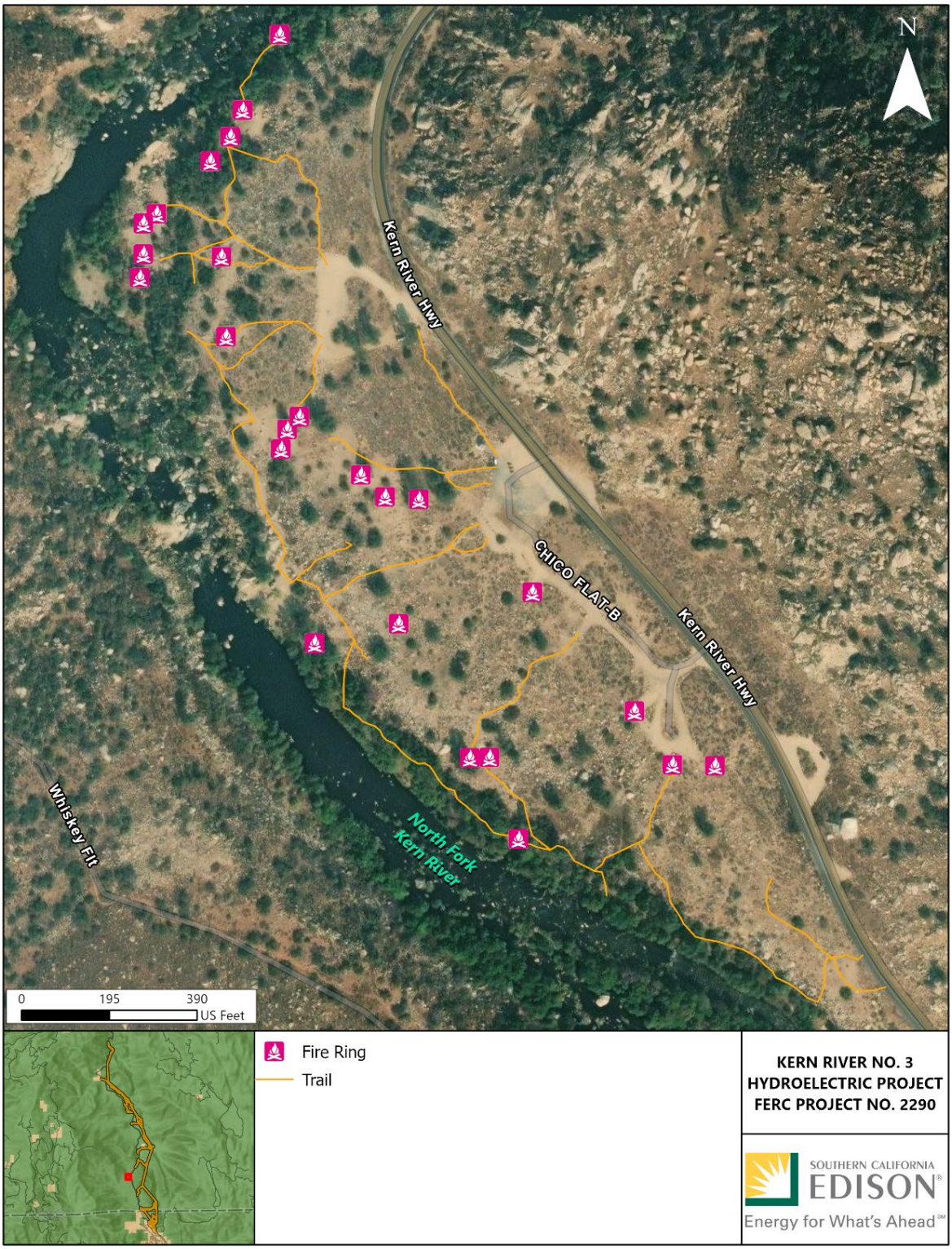

Figure B-7. Chico Flat Dispersed Camping.

Photo B-14. Chico Flat Dispersed Camping Boundary Marker

Photo B-15. Chico Flat Dispersed Camping Firepit

APPENDIX C
FACILITIES INVENTORY AND CONDITION ASSESSMENT SITE FIGURES AND PHOTOS

Note: All photographs were taken by Kleinschmidt during the field surveys and data collection conducted in October 2022, unless otherwise noted.

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Figure C-1. Willow Point Whitewater Take-out.

Photo C-1. Willow Whitewater Take-out

Photo C-2. Willow Point Water Access

Photo C-3. Willow Point Informational Kiosk

Figure C-2. Roads End Whitewater Put-in.

Photo C-4. Road's End Whitewater Put-in

Photo C-5. Road's End Entrance and Restroom Access

Figure C-3. Packsaddle Trail Trailhead.

Photo C-6. Packsaddle Trail Parking Area

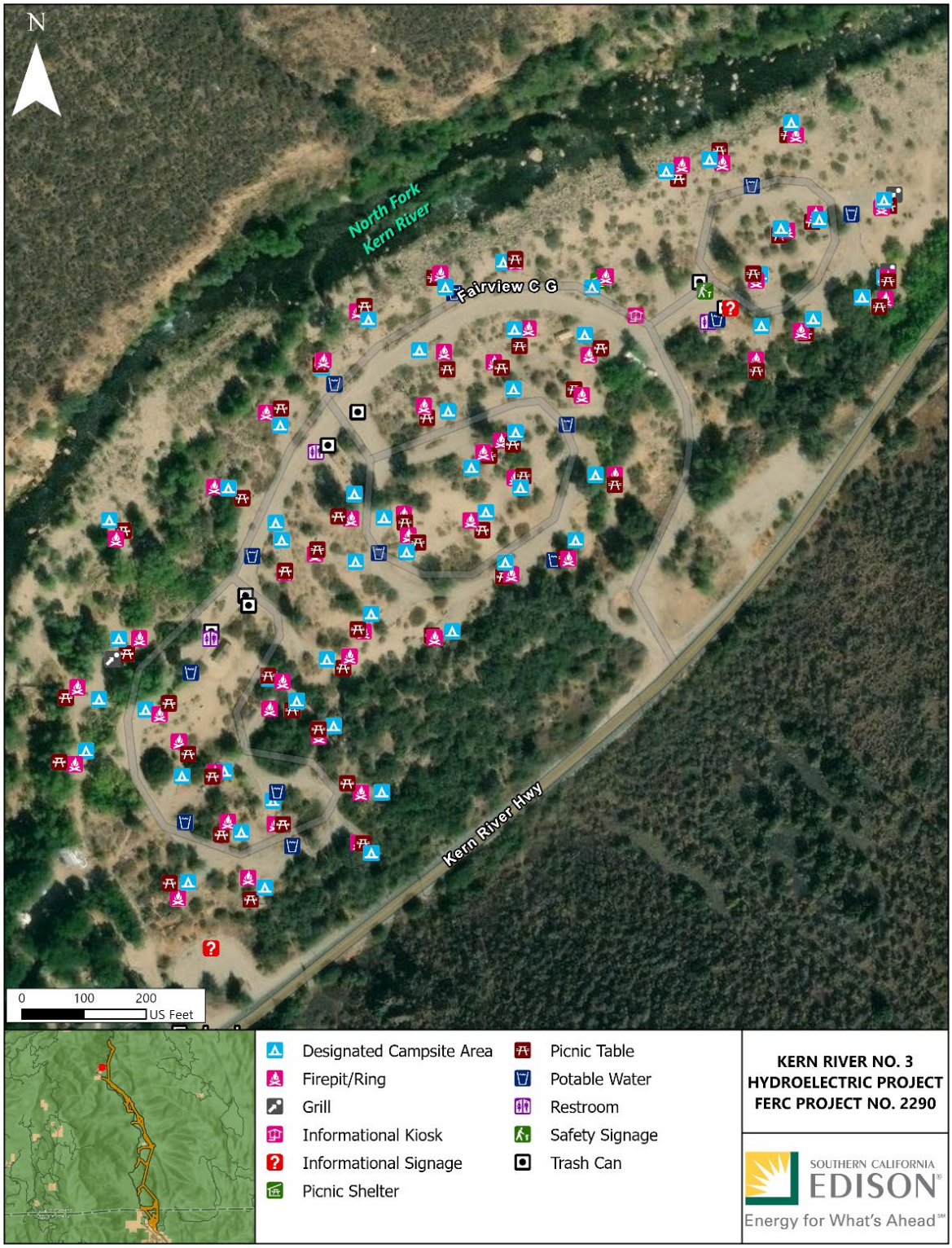

Figure C-4. Fairview Campground.

Photo C-7. Fairview Campground ADA Site

Photo C-8. Restrooms at Fairview Campground

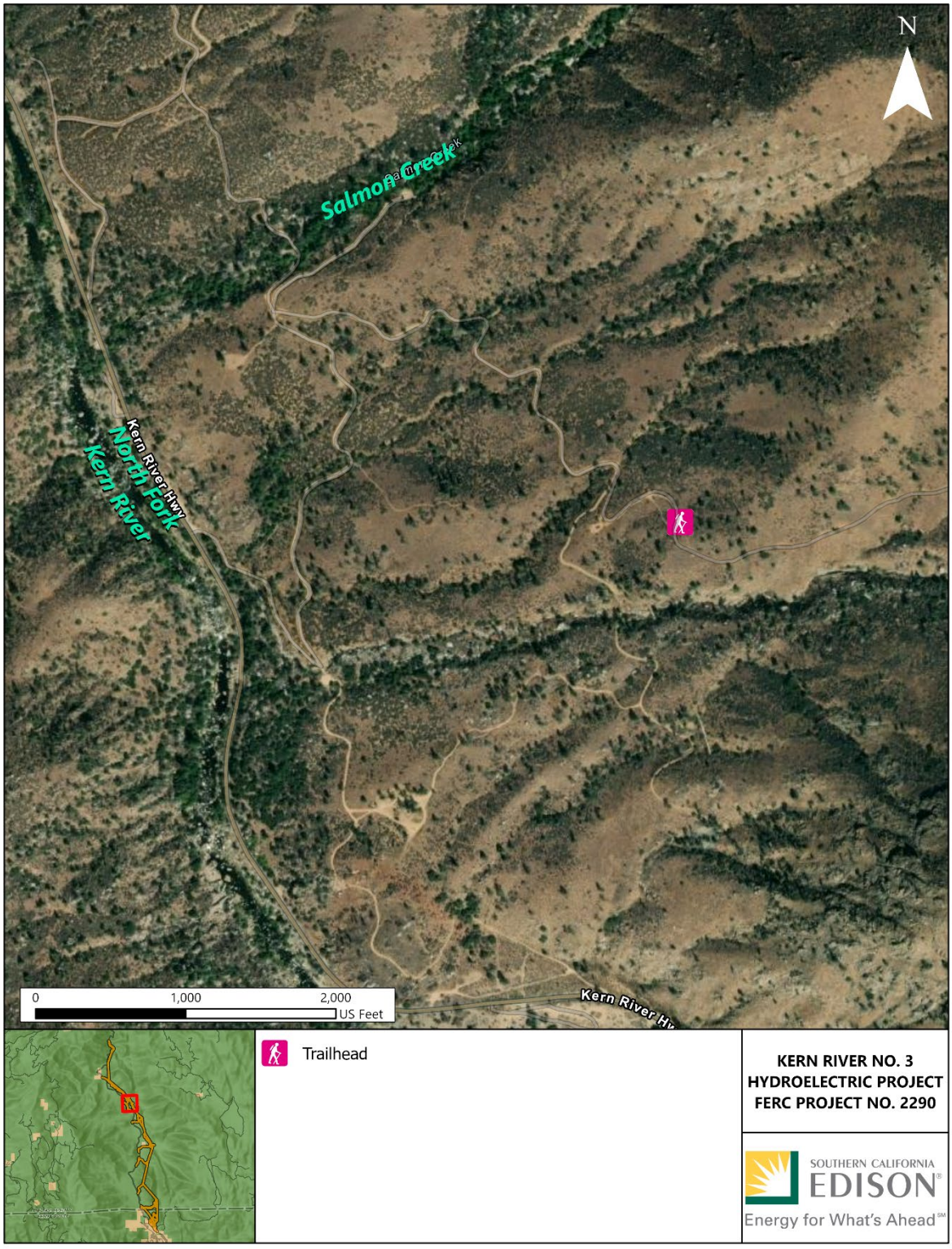

Figure C-5. Rincon Trail Trailhead.

Source: ERM Field team photo taken during field work on September 4, 2023.

Photo C-9. Parking Area at Rincon Trailhead

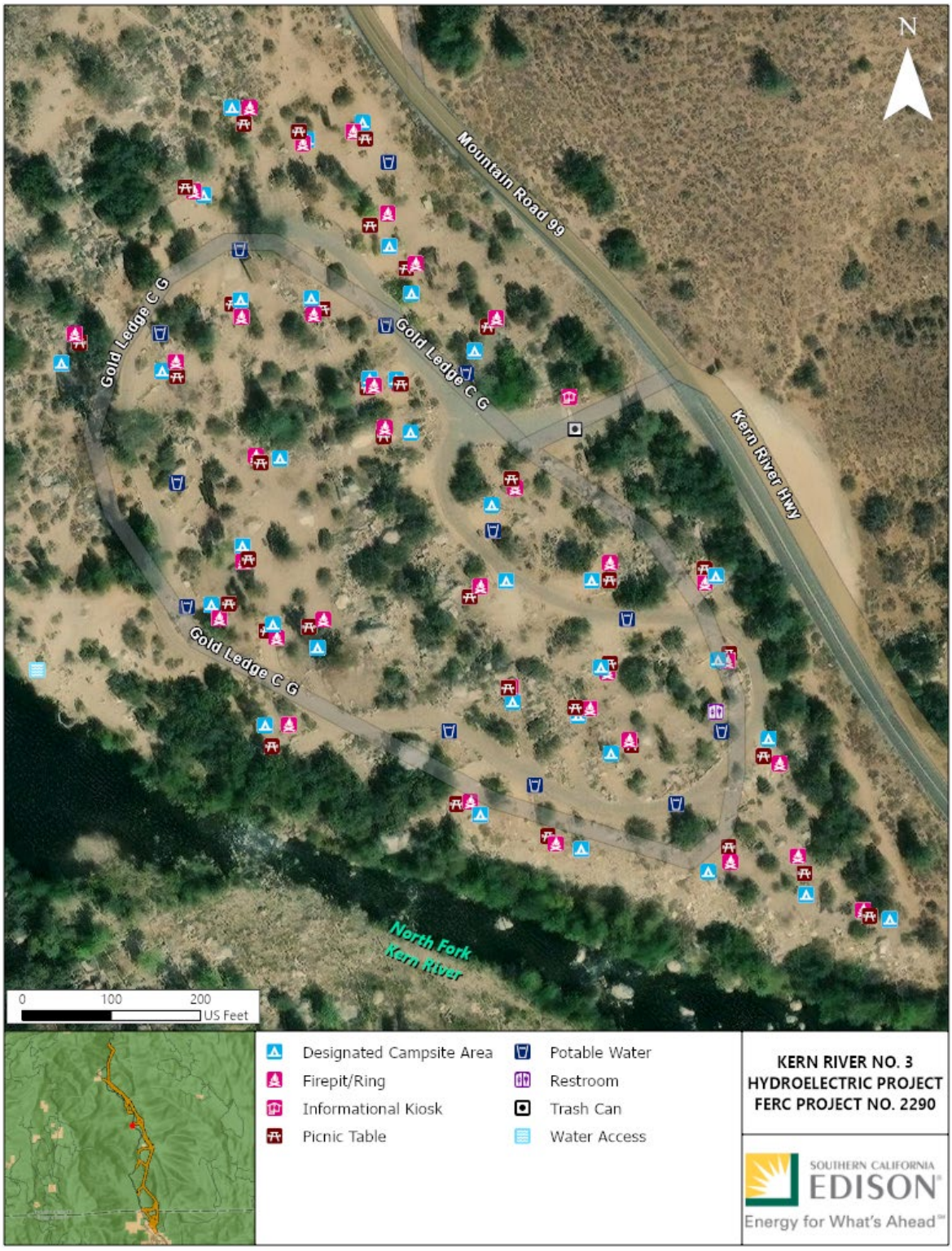

Figure C-6. Goldledge Campground and Whitewater Put-in/Take-out.

Photo C-10. Goldledge Campground Campsite

Photo C-11. Goldledge Whitewater Put-in/Take-out Water Access

Figure C-7. Corral Creek Picnic Site and Whitewater Take-out.

Photo C-12. Corral Creek Picnic Area and Water Access

Photo C-13. Corral Creek Picnic Area

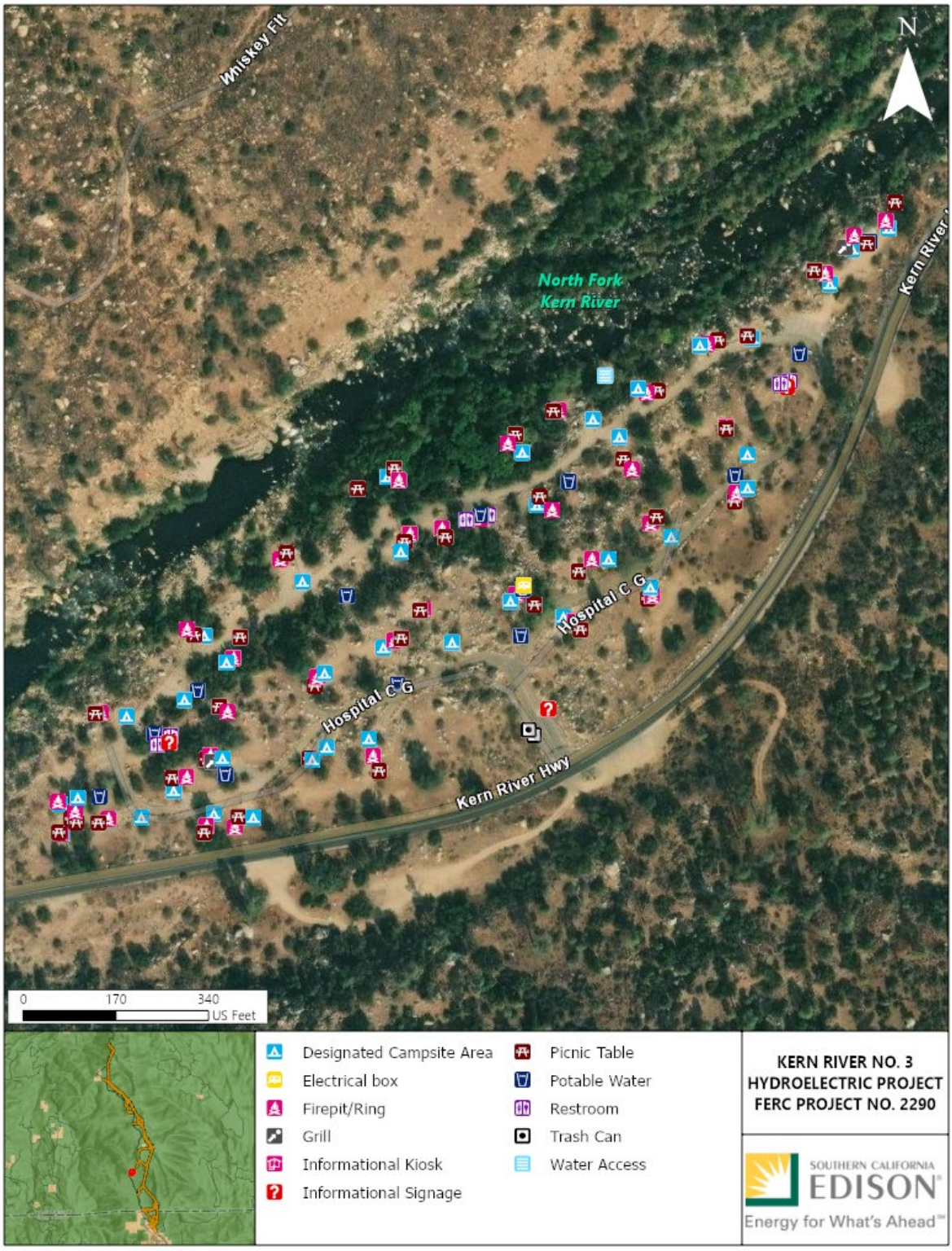

Figure C-8. Hospital Flat Campground.

Photo C-14. Hospital Flat Campground Entrance

Photo C-15. Hospital Flat Trail to Water Access

Figure C-9. Thunderbird Group Campground and Whitewater Put-in/Take-out.

Photo C-16. Thunderbird Campground Group Camp Site

Photo C-17. Thunderbird Campground Informational Signage

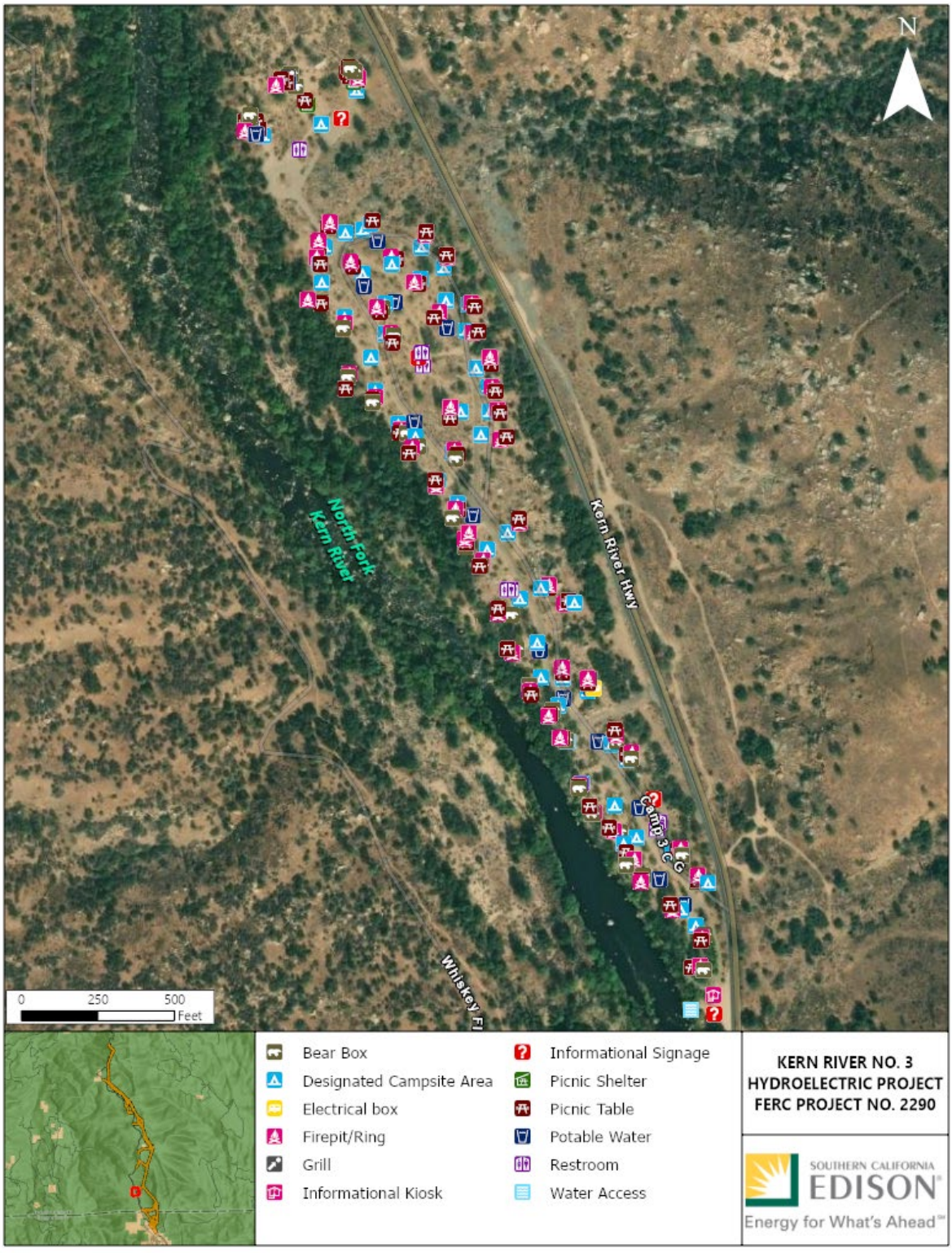

Figure C-10. Camp 3 Campground and Whitewater Put-in/Take-out.

Photo C-18. Camp 3 Campground Entrance

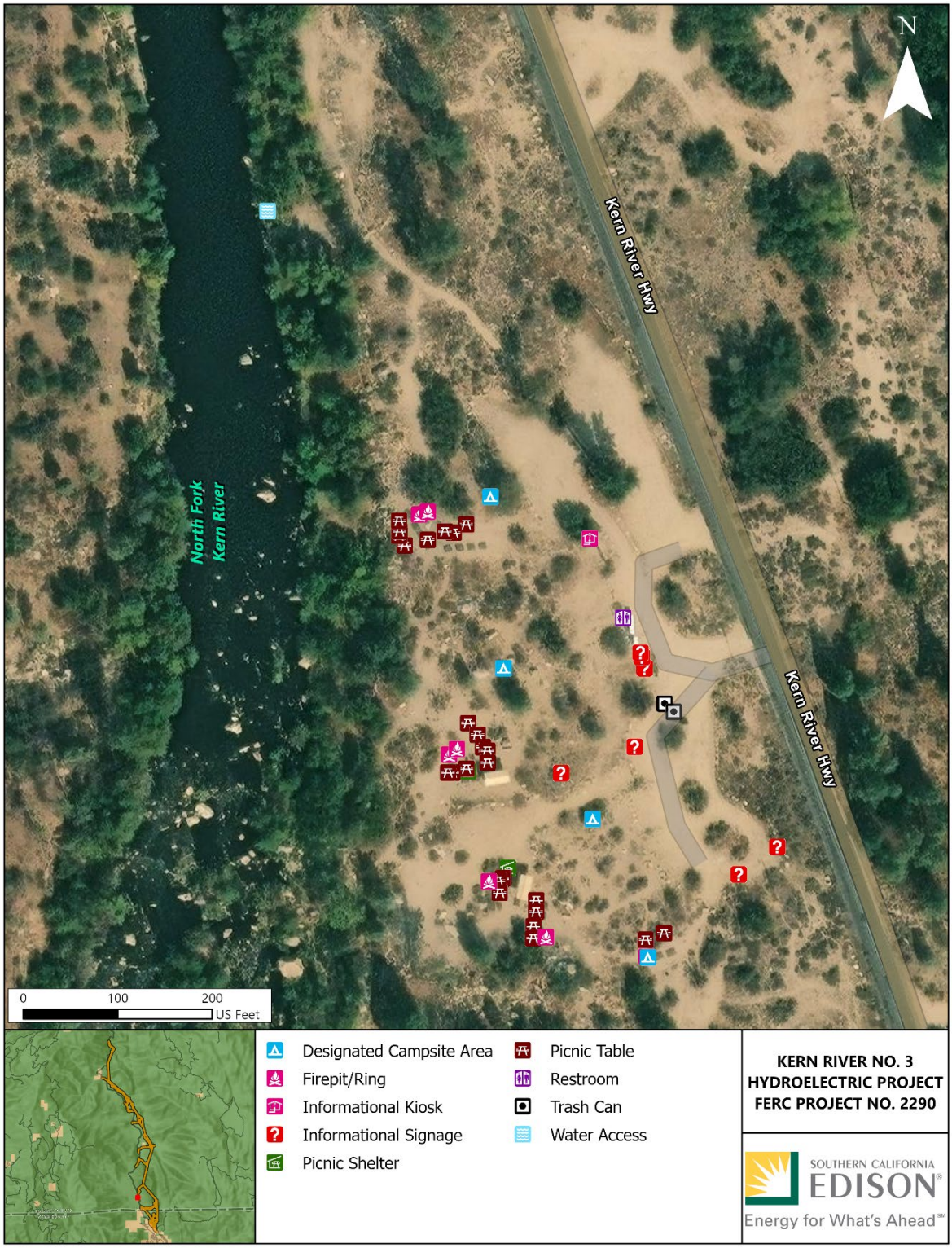

Figure C-11. Halfway Group Campground and Whitewater Put-in/Take-out.

Photo C-19. Halfway Group Campground Picnic Shelter and Tables

Photo C-20. Halfway Group Campground Typical Campsite

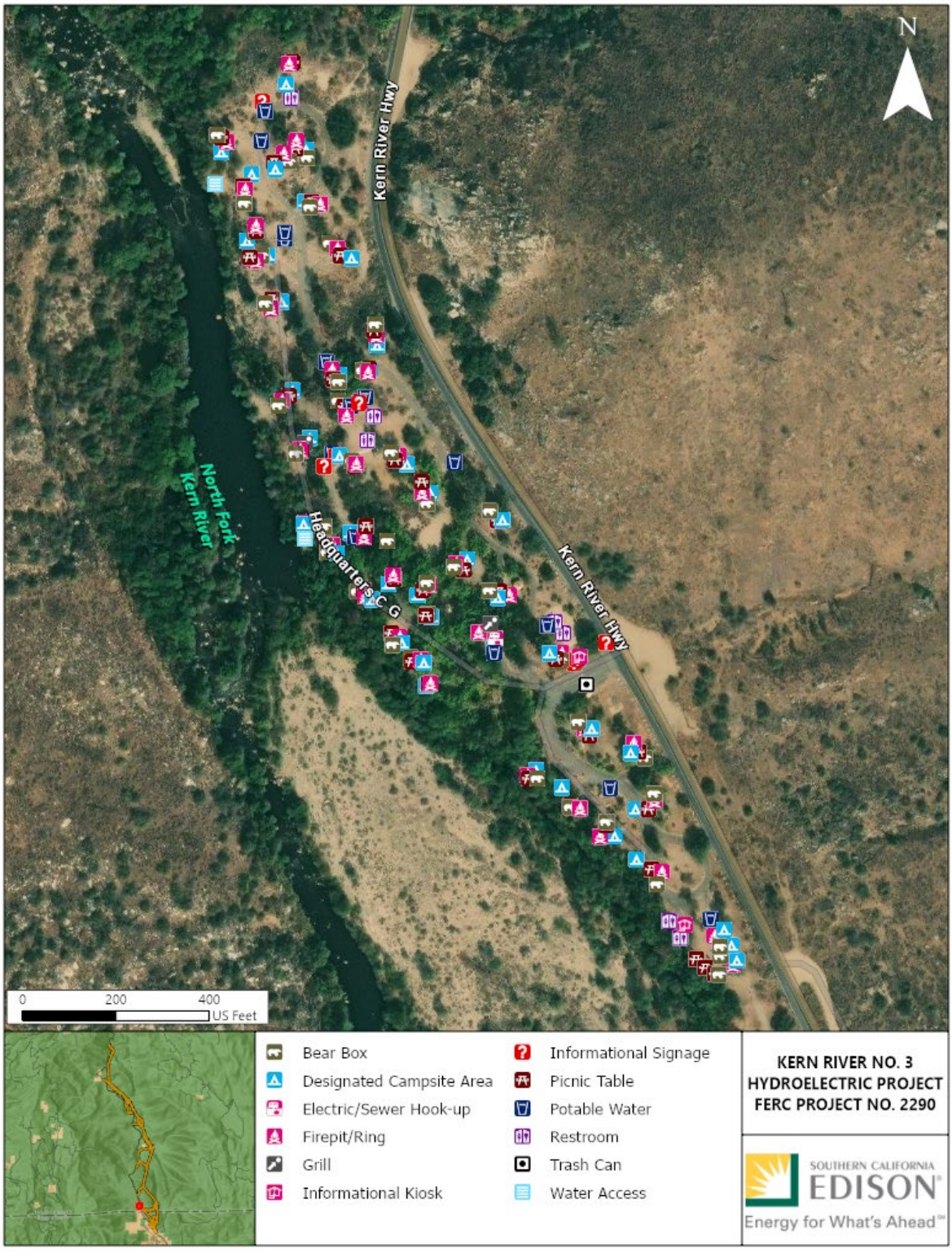

Figure C-12. Headquarters Campground.

Photo C-21. Headquarters Campground Typical Campsite

Photo C-22. Headquarters Campground Water Access

Figure C-13. Riverkern Beach Picnic Site.

Photo C-23. Riverkern Beach Informational Signage

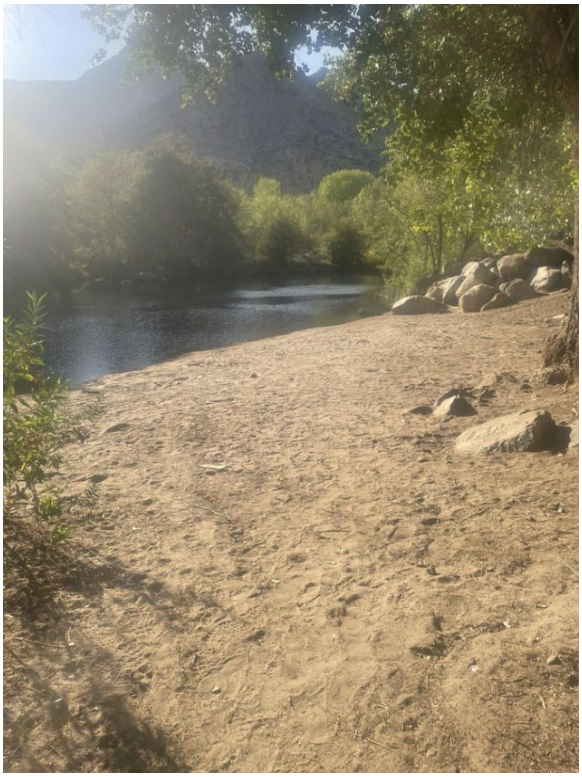

Photo C-24. Riverkern Beach Water Access

Figure C-14. KR3 Powerhouse Whitewater Put-in/Take-out.

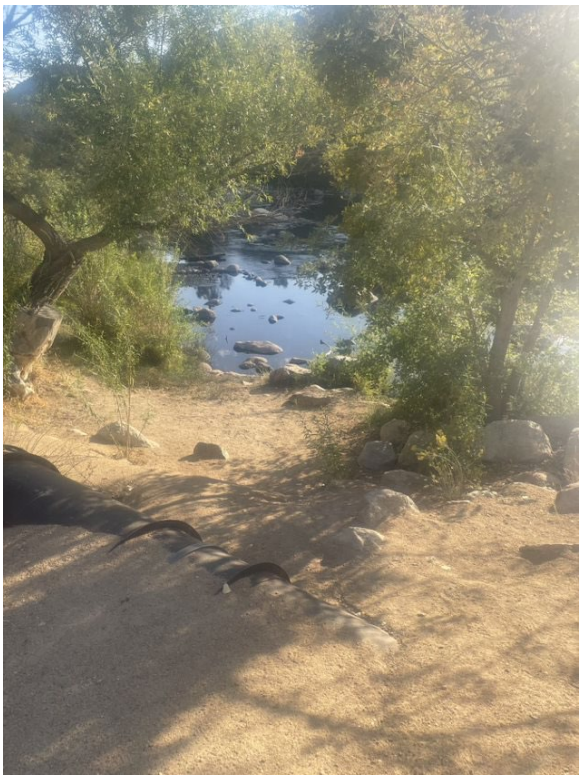

Photo C-25. KR3 Whitewater Put-in/Take-out Trail to Water Access

Photo C-26. KR3 Whitewater Put-in/Take-out Informational Signage

Figure C-15. Whiskey Flat Trail North Access.

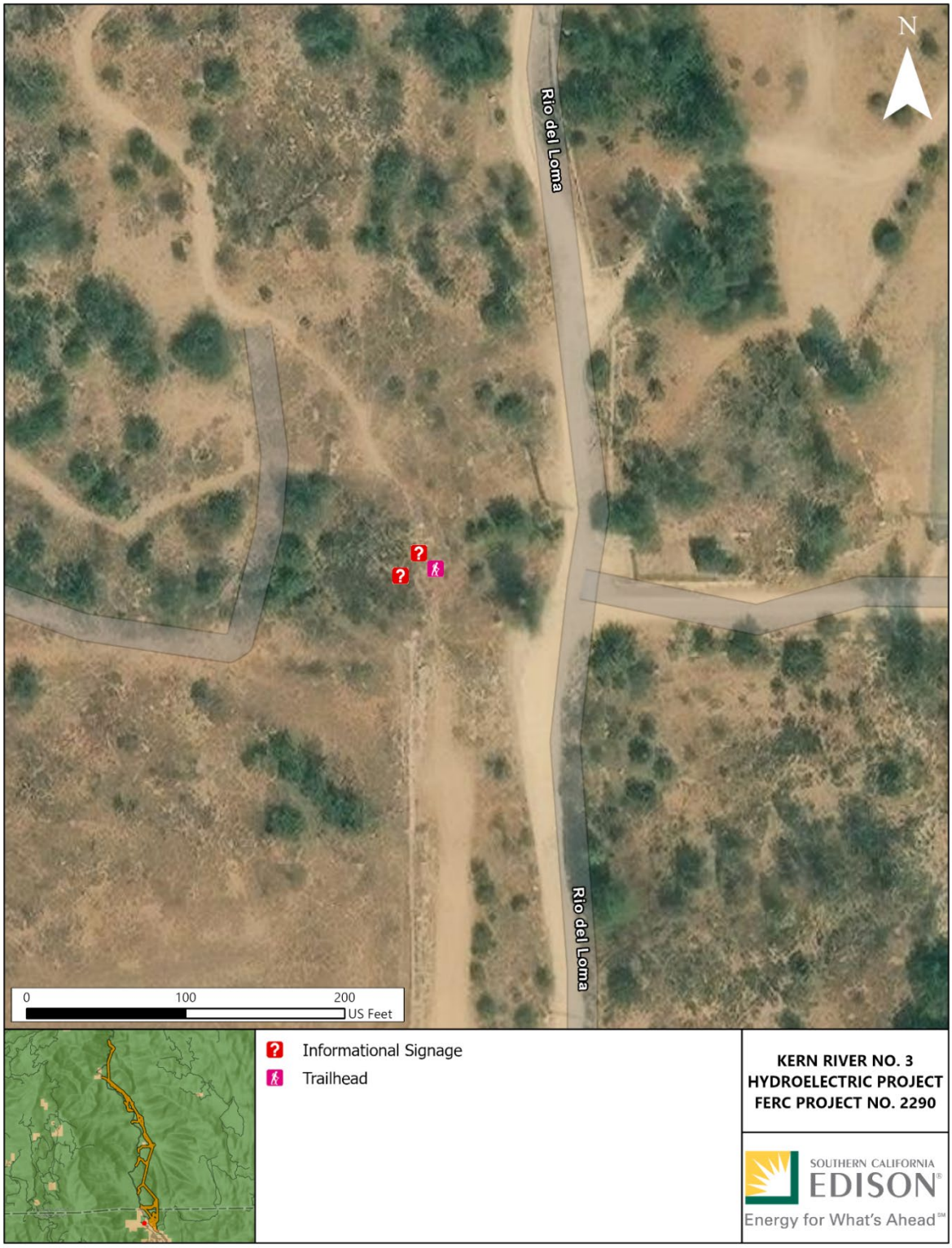

Figure C-16. Whiskey Flat Trail South Access.

Source: Alltrails, LLC. 2017. Photos of Whiskey Flat Trail. Accessed: September 2023. Retrieved from: https://www.alltrails.com/trail/us/california/whiskey-flat-trail--3/photos

Photo C-27. Whiskey Flat Trail

GEO-1 EROSION AND SEDIMENTATION TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®

Energy for What's Ahead®

KERNVILLE, CALIFORNIA

October 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

FERC	Federal Energy Regulatory Commission
GSD	ground sample distance
KR3	Kern River No. 3
LiDAR	Light Detection and Ranging
NAIP	National Agricultural Imagery Program
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
SCE	Southern California Edison

1.0 INTRODUCTION

This Technical Memorandum provides the methods and findings from reconnaissance-level desktop and field assessments of erosion and sedimentation associated with the *GEO-1 Erosion and Sedimentation Study Plan* in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The GEO-1 Study Plan was included in SCE's Revised Study Plan (RSP) submitted on July 1, 2022 (SCE, 2022). In the October 12, 2022, Study Plan Determination (SPD) (FERC, 2022), FERC approved the GEO-1 Study Plan without modification.

During a desktop review from May to June 2023, aerial imagery, topographic data from 2008 to 2009 Light Detection and Ranging (LiDAR) imagery, and available operation and maintenance records were reviewed. A field survey was conducted from July 25 to 26, 2023, to document erosion from Project-related sources. All field sampling efforts and data analyses are complete and summarized below.

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in GEO-1 Erosion and Sedimentation (SCE, 2022), include the following:

- Reconnaissance-level inventory and assessment of erosion and sedimentation to identify the extent to which Project facilities—including structures—are contributing to erosion.
- Inform the assessment of potential effects of erosion and sedimentation caused by Project operations and/or run-off from Project-related facilities and/or other hard surfaces.

3.0 STUDY AREA AND STUDY SITES

The study area includes lands and waters within and adjacent to the FERC Project Boundary for the purposes of characterization and data collection relevant to understanding potential effects of Project operation and maintenance activities on erosion and sedimentation (Figure 3-1). Survey locations include the following areas and locations, which are shown on Figure 3-1:

- Project spillways, including KR3 Powerhouse Spillway and Cannell Creek Siphon and Spillway;
- KR3 Powerhouse and surrounding Project-related buildings, parking areas, and access road;
- Project diversions, including Fairview Dam, Salmon Creek Diversion Dam, and Corral Creek Diversion Dam;
- Fairview Dam Sandbox facility;
- Exposed sections of the KR3 Conveyance Flowline segments; and
- Project spoil piles sites.

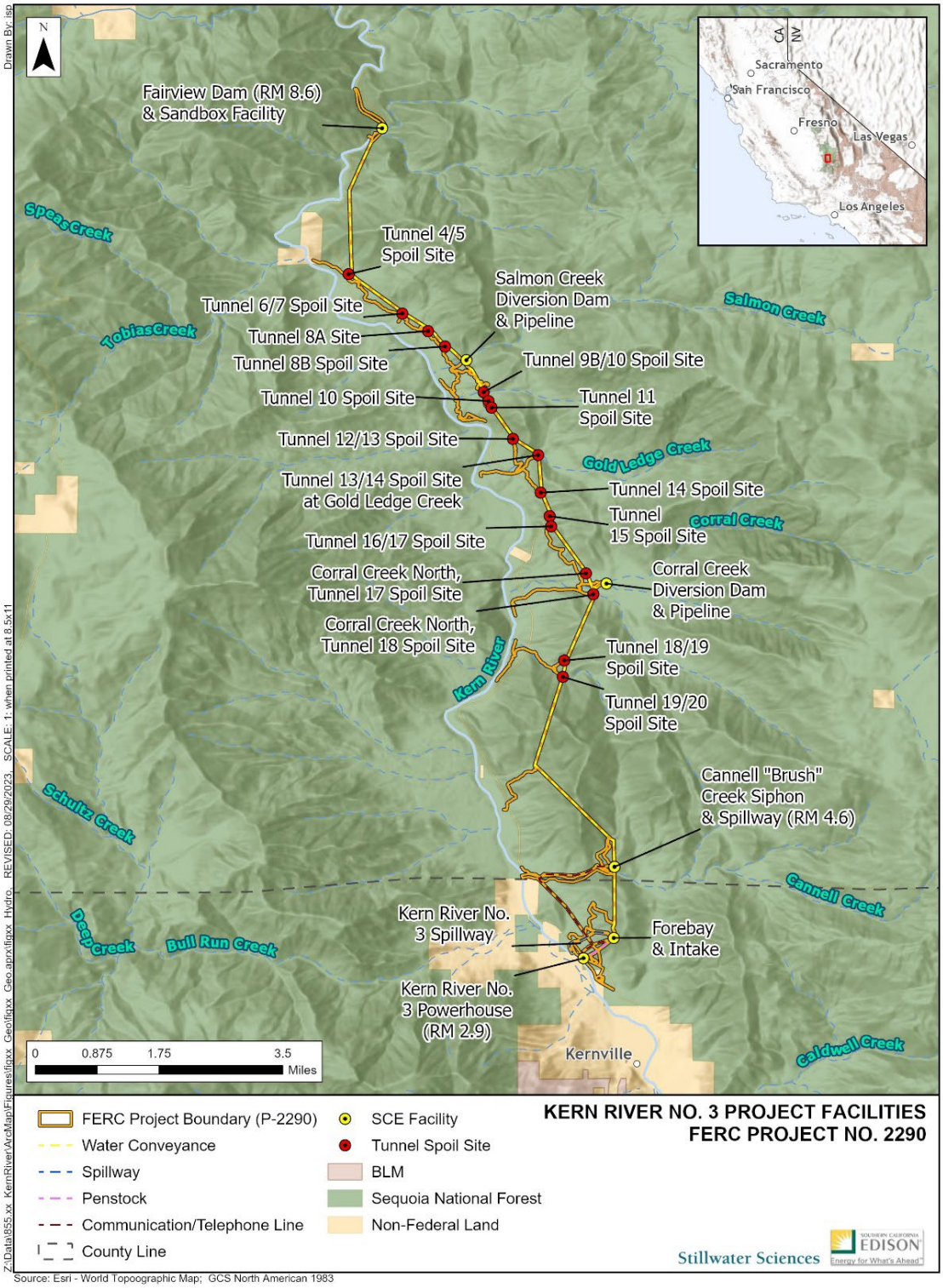

Figure 3-1. Erosion and Sedimentation Study Area.

4.0 METHODS

Study implementation followed the methods described in SCE's RSP Package (SCE, 2022), as amended by FERC in its SPD (FERC, 2022).

Study Plan Variances

There are no variances from the GEO-1 Study Plan, as amended by FERC in its SPD (FERC, 2022).

4.1. DESKTOP REVIEW AND GEOMORPHIC INTERPRETATION

Desktop reviews of maps, geological and soils data, hydrological records, and available construction operation and management records were conducted to provide information about potential locations, causes, and relative severity of erosion and sedimentation at Project facilities.

Topographic maps, digital aerial imagery, 2020 unmanned aerial vehicle imagery and videos, and 2008 to 2009 LiDAR data (USACE, 2019) were reviewed to provide the geomorphic context for the Project Area and to identify areas of past and active erosion in the vicinity of Project structures. Aerial imagery data included the following sources: (1) 2005 National Agricultural Imagery Program (NAIP) digital ortho(-graphic) imagery at 1-meter ground sample distance (GSD), (2) 2008 and 2014 Kern County digital ortho imagery at 0.33-meter GSD, and (3) 2022 NAIP digital ortho imagery at 0.6-meter GSD. Digital aerial imagery was downloaded from the U.S. Geological Survey Earth Explorer website.[1] Digitized historical single-frame aerial images were evaluated but were not available at adequate resolutions to make meaningful comparisons. The Google Earth historical imagery feature was also used to help determine the approximate timing of erosion and sedimentation events.

4.2. FIELD SURVEYS AND ANALYSIS

Field surveys were performed to document erosion from Project-related sources and the potential for sediment delivery to watercourses. Field methods were adapted from relevant guidance documents about 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 included (1) feature location mapped using submeter global navigation satellite system (GNSS), (2) photography of Project structures and conditions, (3) narrative description of erosion processes, (4) estimates of the volume of eroded material and delivery potential, and (5) estimates of historical erosion rates and potential future erosion. Erosion volumes were visually estimated or recorded with measurements of average dimension (length, width, depth) where appropriate.

Erosion and sedimentation conditions were assessed for each site based on data collected during field surveys. Sediment delivery volumes were estimated, and future erosion potential was categorized based on the potential for sediment delivery to streams

[1] Available at: https://earthexplorer.usgs.gov/. Accessed: June 2023.

or reservoirs. A geographic information system map was prepared to show the locations of all features identified during the inventory (Figure 3-1).

5.0 DATA SUMMARY

5.1. DESKTOP REVIEW AND GEOMORPHIC INTERPRETATION

The desktop review of existing topographic data and aerial imagery indicates erosion and sedimentation related to Project features are likely small scale and remained stable from 2005 to 2022, the period for which historical data were reviewed. Legacy spoil piles from drilling the KR3 Conveyance Flowline are visible in all photo sets and appear largely unchanged between 2005 to 2022. One notable exception is a failed road crossing and graded pad constructed from legacy spoils within an unnamed tributary channel where the Tunnel 9B/10 section daylights and crosses the channel (Figure 3-1). Based on historical imagery, the failure occurred sometime between April 2010 and April 2013 and continues to be a site of active erosion (Table 5.1-1).

The KR3 Powerhouse Forebay Spillway channel was identified as an area of concern for potential active erosion and sedimentation based on communication with Stakeholders. The KR3 Powerhouse Forebay Spillway channel is formed in native hillslope soils and colluvium from direct surface discharge released at the end of the KR3 Conveyance Flowline immediately before the flowline enters the KR3 Powerhouse penstock (Figure 3-1). Over time, water released into the spillway has carved a distinct channel through the hillslope colluvial mantle down to underlying bedrock (Figures A-56 to A-63). The channel averages 40 to 50 feet wide and 10 to 15 feet deep over the entire length of the spillway channel, based on LiDAR measurements. KR3 Powerhouse Forebay Spillway channel enters the Kern River floodplain approximately 1,300 feet upstream of the KR3 Powerhouse. The channel planform pattern and degree of incision appears largely unchanged from 2005 to 2022, based on aerial imagery analysis.

Similar to the KR3 Powerhouse Forebay Spillway channel, the Cannell Creek Siphon and Spillway discharges directly onto the hillslope and has channelized a watercourse through native material that has remained largely unchanged since 2005, based on aerial imagery analysis.

Table 5.1-1. Significant Sources of Erosion and Sedimentation at GEO-1 Study Sites

Site	Photographs (Appendix A)	Volume (CY)	% Delivery	Description
Fairview Dam Sandbox Facility [a]	A-1 to A-4	N/A	N/A	Significant erosion of (non-Project) Mountain Highway 99 road fill prism and basal area surrounding intake flume of the Fairview Dam Sandbox Facility occurred during significant March 2023 flood event as a result of failed culvert.
	A-5 to A-6	<1	100	Minor surface rilling and road fill prism failure at small access road leading to parking area located at the southwestern area of the Fairview Dam sandbox. See results from Appendix A, *Project and Shared Access Roads*, in the *LAND-1 Road Condition Assessment Interim Technical Memorandum* (Attachment R of this Initial Study Report).
Tunnel 6/7 Spoil Site	A-10 to A-13	3	60	Small failure located along the distal margin of the graded pad area of the Tunnel 6/7 Spoil Site caused by concentrated surface drainage (Figure A-13).
Tunnel 9B/10 Spoil Site	A-22 to A-25	N/A	N/A	Failed road crossing immediately downstream of an exposed section of Tunnel 9B/10 Spoil Site. Legacy material from tunnel excavation was likely placed directly in the watercourse and the road crossing was built with spoil material. Based on review of satellite imagery, the failure occurred sometime between April 2010 and April 2013. An unnamed tributary continues to erode the spoil material. See Section 5.5, Erosion Concerns and Impassable Road Sections, in the *LAND-1 Road Condition Assessment Interim Technical Memorandum* (Attachment R of this Initial Study Report).
Corral South Tunnel 18 Spoil Site	A-48 to A-49	1-2	100	Surface erosion and direct delivery of sediment to watercourse at Corral South Tunnel 18 Spoil Site. Legacy spoil pile placed directly within watercourse; subsequent channelization through legacy spoil pile develops steep banks and active erosion of the toe and spoil pile margins.
Tunnel 19/20 Spoil Site	A-52 to A-53	N/A	N/A	Legacy spoil material placed directly in watercourse where exposed tunnel section crosses unnamed drainage swale. Spoil material is actively being reworked and captured by run-off, and the disrupted surface drainage patterns are forcing run-off across road. A small gulley is forming within the inboard ditch of the access road (Figure A-53). See results from Appendix A, *Project and Shared Access Roads*, in the LAND-1 Interim Tech Memo).
KR3 Spillway Channel	A-56 to A-63	N/A	N/A	Spillway channel formed in native hillslope colluvial mantle. Majority of erosion and sedimentation occurred shortly after operations began in 1921 according to historical records. Spillway channel banks continue to actively erode but at low rates. Numerous knickpoints were observed but are generally stable.

Site	Photographs (Appendix A)	Volume (CY)	% Delivery	Description
KR3 Powerhouse	A-64 to A-68	1-2	100	Scour and bank erosion along KR3 Powerhouse retaining wall and access road. Large volumes of sediment and debris from March 2023 flood accumulated within Kern River floodplain and powerhouse maintenance storage yard.

CY = cubic yard; KR3 = Kern River No. 3; N/A= data not available

Notes:

[a] The western portion of Fairview Dam was inaccessible during the July 25 to 26, 2023, field surveys due to high flows in the North Fork Kern River; however, the western abutment is built into bedrock, and based on results of Task 1, there were no visible signs of erosion around the western abutment of the dam.

5.2. TASK 3: FIELD SURVEYS AND ANALYSIS

Field staff surveyed Project sites July 25 to 26, 2023, to document Project-related erosion and sedimentation conditions. Table 5.1-1 presents volume estimates and feature descriptions at sites where field staff observed more significant erosion and sedimentation. Appendix A presents an annotated photo log with field photographs for all GEO-1 Study sites visited.

6.0 STUDY SPECIFIC CONSULTATION

No study specific consultation is required for this study, and no consultation has been conducted to date.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All Study Plan elements have been completed as outlined in SCE's RSP (SCE, 2022) filing and FERC's SPD (FERC, 2022). No further work is currently planned for this study.

8.0 REFERENCES

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APPENDIX A
GEO-1 FIELD SURVEY ANNOTATED PHOTO LOG

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Figure A-1. Erosion of (non-Project) Mountain Highway 99 at Fairview Dam Sandbox Facility initiated by failed culvert crossing (view looking upstream).

Figure A-2. Erosion of (non-Project) Mountain Highway 99 at Fairview Dam Sandbox Facility initiated by failed culvert crossing (view looking downstream).

Figure A-3. Close-up view of erosion and debris along inboard edge of Fairview Dam Sandbox Facility near the failed (non-Project) Mountain Highway 99 culvert location.

Figure A-4. Erosion and debris near access gate to Fairview Dam Sandbox Facility.

Figure A-5. Minor surface rilling and road fill prism failure cut into access road to Fairview Dam Sandbox Facility (view looking upslope).

Figure A-6. Minor surface rilling and road fill prism failure cut into access road to Fairview Dam Sandbox Facility (view looking toward river channel, behind vegetation).

Figure A-7. Historical tunnel spoil material placed in drainage swale at Tunnel 4/5 Spoil Site (view looking into channel from downstream margin of spoil pile).

Figure A-8. Minor surface rilling cut into native decomposed granite hillslope at Tunnel 4/5 Spoil Site. Material potentially historical tunnel spoil material; sediment delivery captured by Tunnels 5-8A Access Road and spoil pile pad.

Figure A-9. Adjacent view to Figure A-8 image of minor surface rilling.

Figure A-10. Tunnel 6/7 Spoil Site showing exposed tunnel section built through drainage swale; upslope side filled to top of tunnel with sediment (view looking upslope from below tunnel).

Figure A-11. Tunnel 6/7 Spoil Site showing exposed tunnel section built through drainage swale; upslope side filled to top of tunnel with sediment (view looking downslope from above tunnel).

Figure A-12. Minor surface erosion at exposed tunnel section from disrupted drainage patterns.

Figure A-13. Small failure in outboard edge of spoil pile fill pad at Tunnel 6/7 Spoil Pile Site; erosional feature located near the farthest downstream edge of spoil pile.

Figure A-14. Sediment and debris accumulation at Tunnel 8A Site (view looking up drainage channel from road crossing).

Figure A-15. Recently replaced culvert at Tunnel 8A Site (view looking downstream). Figure A-14 Image photographed from center of road (see witness post for reference).

Figure A-16. Tunnel 8B Spoil Pile Site showing stable spoil pile pad surface.

Figure A-17. Downslope margin of tunnel 8B spoil pile.

Figure A-18. Downstream side of Salmon Creek Diversion Dam with coarse colluvium from minor rockfall erosion along Left (south) channel margin (view looking upstream).

Figure A-19. Upstream side of Salmon Creek Diversion Dam with sand and debris accumulation above Diversion intake structure (view from right bank toward left bank, north to south).

Figure A-20. Right Bank (north side) immediately downstream of the exposed flume crossing at Salmon Creek with little-to-no active erosion in historical spoil material.

Figure A-20. Left bank (south side) immediately downstream of the exposed flume crossing at Salmon Creek with little-to-no active erosion in historical spoil material.

Figure A-22. Failed road crossing at Tunnel 9B/10 Spoil Site (view looking upstream from historical road–stream crossing location).

Figure A-23. Failed road crossing at Tunnel 9B/10 Spoil Site (view looking across channel at right bank [north side]).

Figure A-24. Failed road crossing at Tunnel 9B/10 Spoil Site (view looking across channel at left bank [south side]).

Figure A-25. Close-up view of failed road Crossing at Tunnel 9B/10 Spoil Site (view looking across channel at left bank [south side]).

Figure A-26. Overview of Tunnel 10 Spoil Site (view looking downstream from top of exposed tunnel section).

Figure A-27. Access road cut through historical coarse spoil pile material at Tunnel 10 Spoil Site (view looking upstream from left bank [south side]). Small section of exposed tunnel visible (circled in yellow), near location of Figure A-26 Image.

Figure A-28. Small gully formed in road-cut embankment in historical spoil pile at Tunnel 10 Spoil Site; sediment delivered to road surface.

Figure A-29. Minor rilling cut into road surface at Tunnel 10 Spoil Site.

Figure A-30. Tunnel 11 Spoil Site with minor surface erosion along outboard edge of roadbed built on spoil pile pad (view looking upslope).

Figure A-31. Coarse Tunnel 11 spoil material with stable spoil edge with Little-to-no active erosion of spoil pile (view looking downslope).

Figure A-32 Outer edge of Tunnel 12/13 Spoil Site with little-to-no active erosion (view looking downslope with Kern River in foreground).

Figure A-33. Close-up view of access road built on top of Tunnel 12/13 spoil material (Figure A-32 image immediately adjacent to right side of Figure A-33 image).

Figure A-34. Access road built on Tunnel 13/14 Spoil Site at Gold Ledge Creek (view looking upstream and showing left bank [south side] of spoil material).

Figure A-35. Spoil Material Exposed along right bank (north side) of Gold Ledge Creek at Tunnel 13/14 Spoil Site; low-to-moderate erosion activity accelerated by cattle crossing trails down embankment (view looking across creek).

Figure A-36. Moderate erosion of coarse spoil material placed in steep drainage swale at Tunnel 14 Spoil Site; sediment delivered directly to watercourse.

Figure A-37. Close-up view of erosion into Tunnel 14 spoil material.

Figure A-38. Tunnel 15 Spoil Site (view looking upslope from access road).

Figure A-39. Stable outboard edge of Tunnel 15 spoil pile with little-to-no active erosion; Kern River visible in background (view looking downslope).

Figure A-40. Spoil material and access road at Tunnel 16/17 Spoil Site with little-to-no active erosion.

Figure A-41. Spoil material and access road at Tunnel 16/17 Spoil Site (view from immediately adjacent to right side of Figure A-40).

Figure A-42. Spoil material and large pad at Corral North Tunnel 17 Spoil Site. Aggregate stockpile adjacent to exposed tunnel structure in foreground likely imported material for road maintenance.

Figure A-43. Coarse spoil material at Corral North Tunnel 17 Spoil Site, located at head of broad, low-gradient upland valley swale, little-to-no active erosion.

Figure A-44. Concrete footings of elevated flume with minor erosion and sedimentation at Corral Creek crossing.

Figure A-45. Gunite erosion control/bank stabilization along upstream edge of Corral Creek crossing flume.

Figure A-46. Minor sand and debris accumulation on the upstream face of Corral Creek Diversion Dam.

Figure A-47. Small gully erosion along Corral Creek Diversion Tunnel, approximately 300 feet upslope of point where diversion empties into exposed tunnel structure.

Figure A-48. Moderate erosion of left bank (south side) of Corral South Tunnel 18 Spoil Site; sediment delivered directly to the watercourse.

Figure A-49. Additional view of moderate erosion along left bank (south side) of Corral South Tunnel 18 Spoil Site (view immediately adjacent to left of Figure A-48 image).

Figure A-50. Tunnel 18/19 Spoil Site with moderate surface erosion of spoil caused by disrupted surface drainage patterns from exposed tunnel section (view from downstream).

Figure A-51. Semi-active erosion of Tunnel 18/19 Spoil Site along watercourse margin; exposed tunnel section that disrupts surface drainage pattern visible in background behind vehicle (view upstream).

Figure A-52. Spoil material and debris at Tunnel 19/20 Spoil Site with moderate erosion of spoil material on both margins of watercourse.

Figure A-53. Active erosion of inboard ditch along access road to Tunnel 19/20 Spoil Site.

Figure A-54. Cannel Creek Siphon Spillway (view looking downslope).

Figure A-55. Cannel Creek Siphon Spillway Channel (view looking upslope).

Figure A-56. KR3 Powerhouse Forebay Spillway channel with incision in bedrock and vertical/overhanging banks.

Figure A-57 Tension crack in vertical/overhanging bank of KR3 Powerhouse Forebay Spillway channel (tension crack located at the bottom edge of Figure A-57 image).

Figure A-58. Knickpoint in KR3 Powerhouse Forebay Spillway channel; few loose or separated blocks in knickpoint face indicate relatively stable feature.

Figure A-59. Second knickpoint in KR3 Powerhouse Forebay Spillway channel.

Figure A-60. Top of KR3 Powerhouse Forebay Spillway channel (looking downstream; location of knickpoint in Figure A-59 image indicated by yellow circle).

Figure A-61. KR3 Powerhouse Forebay Spillway channel where it empties into the Kern River floodplain (looking downstream).

Figure A-62. KR3 Powerhouse Forebay Spillway channel where it empties into the Kern River floodplain (looking upstream).

Figure A-63. KR3 Powerhouse Forebay Spillway channel where it empties into the Kern River floodplain (looking upstream).

Figure A-64. Small berm constructed of sediment and debris from the March 2023 flood event deposited at the KR3 Powerhouse maintenance yard.

Figure A-65. Scour along base of retaining wall at KR3 Powerhouse access gate.

Figure A-66. Potential erosion of road prism fill near KR3 Powerhouse access road and gate.

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LAND-1 ROAD CONDITION ASSESSMENT TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

July 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

FERC	Federal Energy Regulatory Commission
GIS	geographic information system
KR3	Kern River No. 3
O&M	operation and maintenance
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
SCE	Southern California Edison
SQF	Sequoia National Forest

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1.0 INTRODUCTION

This Technical Memorandum provides the methods and findings of the desktop review and field survey associated with the Land-1 Road Condition Assessment Study (LAND-1 Study) in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The *LAND-1 Road Condition Assessment Study Plan* was included in SCE's Revised Study Plan submitted on July 1, 2022 (SCE, 2022). In the October 12, 2022, Study Plan Determination, FERC approved the LAND-1 Study without modifications (FERC, 2022).

Data collection efforts associated with the reconnaissance level road inventory were initiated in June 2023 and completed in May 2024. Road use methodology and data collected have been updated and presented below in Section 4.4, *Characterization of Use and Section*, and Section 5.7, *Characterization of Use*, respectively. No other data or results have presented in this Technical Memorandum have changed since the data presented and filed with FERC as part of SCE's Initial Study Report in October 2023 (SCE 2023).

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in the LAND-1 Study Plan (SCE, 2022), are as follows:

- Reconnaissance level inventory of Project and Shared Access Roads within the 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.

3.0 STUDY AREA AND STUDY SITES

The study area includes 36 roads totaling 19.33[1] miles within the FERC Project Boundary in addition to areas adjacent to, or in the proximity of, the FERC Project Boundary along the North Fork Kern River and Salmon, Corral, and Cannell Creeks for the purposes of characterization and data collection relevant to understanding Project operation and maintenance (O&M) activities.

Project and Shared Access Roads included in this study are summarized in Table 3-1 and shown on Figure 3-1.

[1] The FERC Project includes 33 roads (18.26 miles); 3 additional roads outside of the FERC Project Boundary (1.07 miles) were also included in this analysis. See Section 5.1, *Desktop Analysis*, for more information.

Table 3-1. Project and Shared Access Roads

Road ID	SCE Road Name	SQF Road ID/Name	Road Start/End	Land Ownership	Gate
Fairview Dam/North Road Segments					
1	Sandbox Access Road	--	Mountain Road 99/Sandbox	SQF	Yes
2	Tunnel 1/4 Flume Access Road	23S20 –Roads End G.S.	Mountain Road 99/Tunnel 1/4 Flume	SQF	No
3	Tunnels 5-8A Access Road	--	Mountain Road 99/Tunnel 8B Access Road	SQF	No
4	Tunnel 8A/8B Flume Access Road	--	Rincon Access Road/Tunnel 8A/8B Flume, Tunnel 8B Portal	SQF	No
Non-FERC Road A	Mtn Hwy to Tunnel 8A/8B	--	Sierra Highway to Tunnel 8A/8B Flume Access road	SQF	No
Salmon Creek and Rincon Trail Road Segments					
5	Salmon Creek Diversion Access Road	--	Rincon Access Road/Salmon Creek Diversion	SQF	No
6	Rincon Access Road	24S89-Rincon (portion)	Mountain Road 99/Tunnels 10–12 Access Road	SQF	No
7	Tunnel 9A/9B Flume Access Road	--	Rincon Access Road/Tunnel 9A/9B Flume	SQF	No
8	Tunnel 9B Spur Road	24S89-Rincon (portion)	Rincon Access Road/end	SQF	No
9	Tunnels 10–12 Access Road	--	Rincon Access Road/Tunnel 11/12 Flume	SQF	No
Non-FERC Road B	4WD Road to access Tunnels 10–12	--	Rincon Trail Access Road/Tunnel 10/11 Flumes Access Road	SQF	No
10	Tunnel 10/11 Flumes Access Road	--	Tunnels 10–12 Access Road/Tunnel 10/11 Flumes	SQF	No
11	Rincon Trail Access Road	33E23	Mountain Road 99/Rincon Access Road	SQF	No

Road ID	SCE Road Name	SQF Road ID/Name	Road Start/End	Land Ownership	Gate
12	Rincon Trail Access Road Spur	--	Mountain Road 99/Rincon Access Road	SQF	No
Goldledge Road Segments					
13	Tunnel 12/13 Flume Access Road	--	Gold Ledge Access Road/Tunnel 12/13 Flume, portals	SQF	No
14	Gold Ledge Access Road	--	Mountain Road 99/Tunnel 13/15 Flumes, portal	SQF	No
15	Tunnel 14/15 Flume Access Road	--	Gold Ledge Access Road/Tunnel 14/15 Flume, portals	SQF	No
Corral Creek Road Segments					
16	Tunnel 16/17 Flume Access Road	--	Corral Creek Flumes Access Road/Tunnel 16/17 Flume, portal	SQF	No
17	Corral Creek Flumes North Access Road	--	Corral Creek Diversion Access Road/Corral Creek Flumes	SQF	No
18	Corral Creek Diversion Access Road	--	Mountain Road 99/Corral Creek Diversion	SQF	No
19	Corral Creek Flumes South Access Road	--	Corral Creek Diversion Access Road/Corral Creek Flumes	SQF	No
20	Tunnel 18/19 Flume Access Road	--	Mountain Road 99/Tunnel 18/19 Flume, portal	SQF	No
21	Tunnel 19/20 Flumes Access Road	--	Tunnel 18/19 Flume Access Road/Tunnel 19/20 Flumes, portal	SQF	No
Cannell Creek Road Segments					
22	Cannell Creek Siphon Spillway Access Road	--	Cannell Creek Access Road/Cannel Creek Siphon Spillway	SQF	Gate on lower road segment
23	Cannell Creek Access Road	--	Mountain Road 99/Cannell Creek Siphon-Siphon Spillway Access Road	SQF	Yes [a]

Road ID	SCE Road Name	SQF Road ID/Name	Road Start/End	Land Ownership	Gate
24	Cannell Creek Siphon Access Road	--	Cannell Creek Access Road/Cannell Creek Siphon	SQF	Gate on lower road segment
Powerhouse Road Segments					
25	Kern River No. 3 Forebay Access Road	--	Mountain Road 99/Kern River No. 3 Forebay	SQF	No
26	Kern River No. 3 Machine Shop Access Road	--	Mountain Road 99/Kern River No. 3 Powerhouse	SQF SCE	Yes
27	Kern River No. 3 Penstocks North Access Road	--	Mountain Road 99/Kern River No. 3 Penstocks	SQF	No
Non-FERC Road C	Upper Spillway Channel Access (from Road 27)	--	Sierra Highway/Kern River No. 3 Penstock Access	SQF	No
28	Kern River No. 3 Penstocks South Access Road	--	Mountain Road 99/Kern River No. 3 Penstocks	SQF	Yes
29	Chlorinator House Access Road	--	Mountain Road 99/Chlorinator House and Water Tanks	SQF	Yes
30	Kern River No. 3 Powerhouse Access Road	--	Mountain Road 99/Kern River No. 3 Powerhouse	SQF SCE	Yes
31	Kern River No. 3 Warehouse Access Road	--	Kern River No. 3 Powerhouse Access Road/Kern River No. 3 Warehouse	SCE	Yes
32	Kern River No. 3 Campus Access Road	--	Mountain Road 99/Kern River No. 3 Powerhouse	SQF	Yes
33	Kern River South Garage Access Road	--	Mountain Road 99/Kern River South Garage	SQF	Yes

FERC = Federal Energy Regulatory Commission; SCE = Southern California Edison Company; SQF = Sequoia National Forest

[a] A Forest Service gate was installed along this road segment in April 2024 to prevent vehicular access.

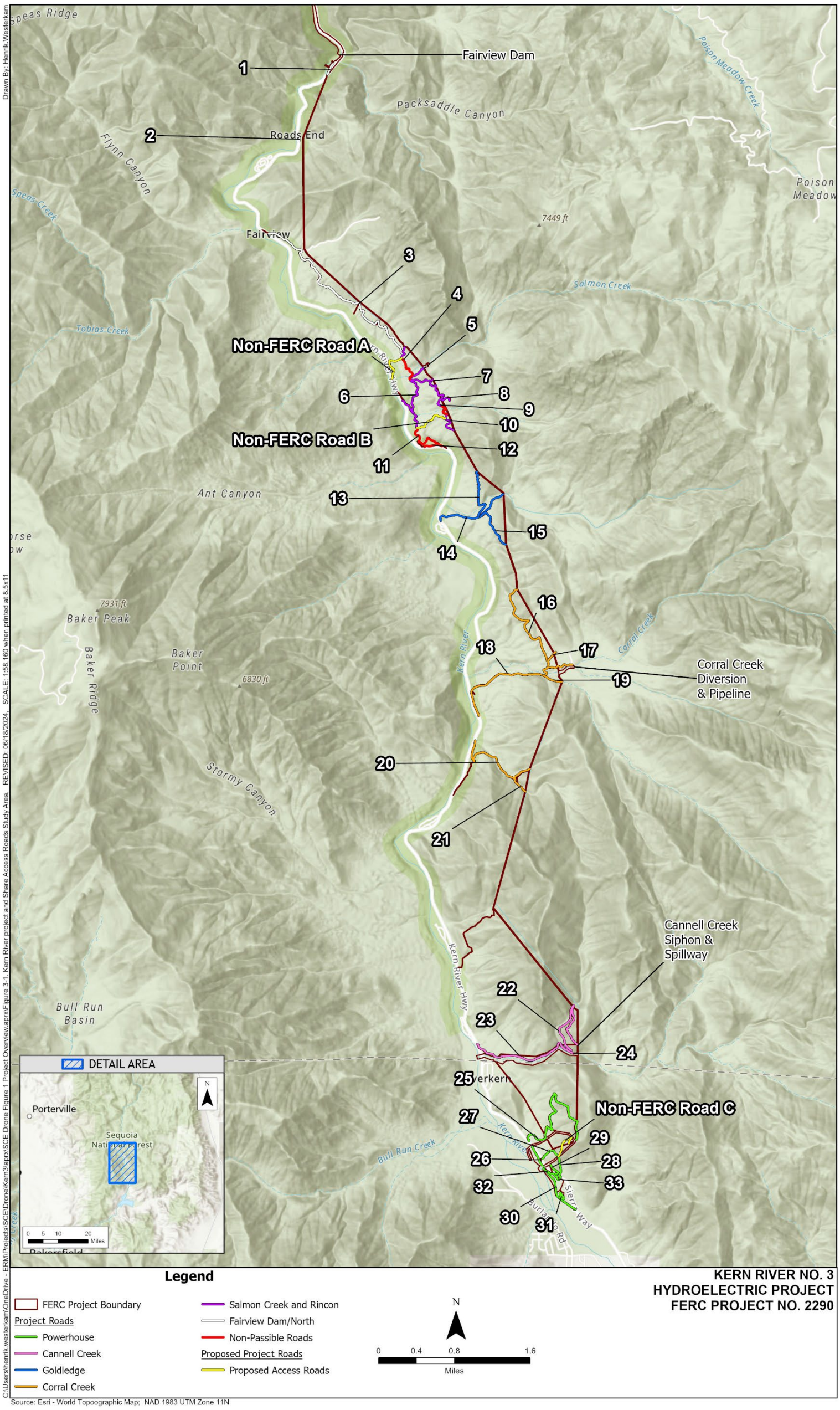

Figure 3-1. Kern River Project and Shared Access Roads Study Area.

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4.0 METHODS

Study implementation generally followed the methods described in SCE's Revised Study Plan Package (SCE, 2022) with the exception noted below.

4.1. STUDY PLAN VARIANCES

Due to the large storm event that occurred in the Project Area in March 2023, impacting many roads in the area, the start date of the monthly road use spot count survey was delayed until June 2023. The spot counts will occur over 1 full year, through May 2024, for a total of 12 weekend days, as outlined in the LAND-1 Study Plan.

During the year-long study, observations made by SCE employees of public use along Project and Shared Access Roads were not formally recorded; however, incidental observations were occasionally noted in SCE maintenance logs.

4.2. DESKTOP ANALYSIS

The Project and Shared Access Roads that SCE uses for Project O&M were identified and mapped as part of the KR3 Pre-Application Document (SCE, 2021). Following consultation with SCE operations, three additional road segments outside of the FERC Project Boundary were identified and may be considered for future Project access (Non-FERC Roads A, B, and C as depicted in Table 3-1 and on Figure 3-1). SCE met with the Sequoia National Forest (SQF) regarding the inclusion of these road segments for further analysis as part of this LAND-1 Study Plan. Refer to Section 6.0, *Study-Specific Consultation*, for additional consultation information.

A desktop analysis using publicly available geographic information system (GIS) data was conducted in May 2023 to compile Project road information for the list of roads identified in Table 3-1, including:

- Land ownership/jurisdiction
- Route, road, or spur number (and common name, if applicable)
- Beginning and end points and overall length
- Surface type (e.g., paved, gravel, dirt)
- Areas of concern, including road sections that were damaged from recent flooding
- Average road width
- U.S. Forest Service (Forest Service) Road Maintenance Level

4.3. RECONNAISSANCE LEVEL CONDITION ASSESSMENT

A field assessment to characterize existing road conditions, including drainage and erosion features, in addition to verifying data collected during the desktop analysis was conducted in June 2023. Assessment methodology was based on the Forest Service (2005 and 2014) criteria for assigned maintenance levels (to assess current road conditions.

The following information was field-verified and/or collected during the June 2023 field assessment:

- Beginning and end points and overall length
- Average width
- Surface type (e.g., paved, gravel, dirt)
- Overall road condition (e.g., active erosion, potholes, ruts, loose aggregate, missing aggregate, cracking, debris, and excessive vegetation)
- Location, size, and condition of culverts, erosion control features (e.g., water bars), and other drainage features
- Delineation of natural resource features that may occur along Project roads (e.g., stream crossings and riparian areas)
- Location and condition of signs (i.e., safety, traffic control, or informational)
- Location of access control features (e.g., gates and other closure methods)
- Location of informal trailheads located adjacent to Project or Shared Use Roads
- All road features and evidence of active erosion or sediment sources[2]
- Any notable indicators of culvert capacity in relation to stream flow (e.g., signs of plugging, condition of drainage structures)
- Condition and road features for four proposed Project Access Roads

All roads identified in the desktop review were surveyed by field personnel by walking and/or slowly driving along each road segment and periodically stopping to record general road conditions and document the condition of observed features. Features surveyed included culverts and other drainage features (i.e., water bars), erosion features, signs, riparian areas, and gates. All features identified in the field were assigned a feature ID, photographed, and georeferenced using the ArcGIS application Field Maps. The location

[2] These features and evidence were 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.

of each feature is provided in Universal Transverse Mercator projection coordinates. Condition and general observations were also recorded for each feature.

Based on conditions observed in the field, all drainage features were placed in one of the following categories:

- **No Apparent Concern**—Drainage feature appears to be functioning as designed; no major concerns with water conveyance due to sediment/detritus build-up or overgrown vegetation; no signs of erosion concerns including scouring; and no signs of structural issues including major rusting, holes, or other observed issues that would impact functioning of drainage feature.

- **Potential Concern**—Drainage feature shows some signs of not functioning as designed and warrants further monitoring and potential maintenance due to sediment/detritus build-up, overgrown vegetation, erosion concerns, and other observable structural issues.

- **Concern Likely**—Drainage feature is not functioning as designed and needs major maintenance or possible replacement due to sediment/detritus blockage, erosion concerns that are directing run-off away from drainage, and other observable structural issues.

Following the field visit, all feature data collected with ArcMap GIS Field Maps were imported to Microsoft Excel and organized for reporting purposes. All data fields and photographs collected for each feature were reviewed for data quality assurance. Road conditions were categorized as “Good,” “Fair,” or “Poor” based on field observations including erosion features, potholes, ruts, loose aggregate, missing aggregate, cracking debris, and excessive vegetation. These are defined as follows:

- **Good**—Most drainage features are designated as “No Apparent Concern” and functional; road has adequate width to drive safely; few erosion features may be present but are minor (small rills); little sign of surface deformation, including potholes, ruts, and wash boarding; no loose aggregate; sparce established vegetation in road; road is well-graded and does not need any maintenance/construction repairs.

- **Fair**—Most drainage features are designated as “No Apparent Concern” or “Potential Concern;” road has adequate width to drive safely; erosion features are present but consist of rills or minor drainage ditch erosion; some instances of surface deformation; sparse loose aggregate; vegetation may be present in some sections; road may need some minor maintenance/construction repair; further monitoring may be necessary.

- **Poor**—Drainage features are in not functioning as intended (standing water may be present) and need maintenance; sections of road do not have adequate width for safe passage; major erosion concerns, including gully formation; road surface deformation features are present and impact passage; loose aggregate is present; vegetation is established within roadway; road may have grading issues and needs maintenance/construction repairs; further monitoring is necessary.

4.4. CHARACTERIZATION OF USE

4.4.1. SCE USE

To document SCE's frequency of use on Project and Shared Access Roads, Project inspection and maintenance records/logs were reviewed to describe the location and frequency of use on each road segment that has occurred along the road segments over the past year.

4.4.2. PUBLIC USE

One weekend day (Saturday or Sunday) per month from June 2023 through May 2024, field staff were deployed to drive the open access (i.e., not gated) Project and Shared Access Roads during daylight hours (between 8:00 a.m. and 3:00 p.m.) (Table 3-1). SCE Project roads that are gated were visited and any vehicles observed parked outside the gate were recorded. If roads were determined not safe to drive by the field staff, a note about the road condition was documented on the field form.

For months that included holidays, weekend spot counts were conducted on 1 of the 3 days over the holiday weekend and included the following:

- Saturday, June 10, 2023 (holiday)
- Monday, July 3, 2023 (holiday)
- Sunday, August 6, 2023
- Monday, September 4, 2023 (holiday)
- Saturday, October 7, 2023
- Saturday, November 11, 2023
- Saturday, December 9, 2023
- Saturday, January 27, 2024
- Saturday, February 10, 2024
- Sunday, March 17, 2024
- Sunday, April 14, 2024
- Monday, May 27, 2024 (holiday)

The field crew drove each road segment and noted any vehicles, the approximate location, and type of recreation activities (if observed) (Attachment D, KR3 Vehicle Spot Count Data Form).

Refer to the *REC-2 Recreation Facilities Use Assessment* Technical Memorandum (Appendix E.2 of this Draft License Application) for a summary of additional recreation uses (i.e., spot counts) that occurred between April 2023 and May 2024 at the Rincon Trail Recreation Site (accessed via the Rincon Access Road and Tunnel 9B Spur Road Shared Access Roads) and the KR3 Powerhouse Put-in/Take-Out Recreation Facility (accessed via the Kern River No. 3 Powerhouse Access Road).

5.0 DATA SUMMARY

5.1. DESKTOP ANALYSIS

The FERC Project Boundary and adjacent roads within proximity to the FERC Project Boundary in the study area includes 33 roads (18.26 miles) that SCE uses to access Project facilities to conduct ongoing O&M activities. Three additional roads outside of the FERC Project Boundary (1.07 miles) were included with the survey as these roads are under consideration by SCE if needed to access Project facilities and conduct ongoing O&M activities.

The majority of these roads are on SQF lands. A short segment (0.5 mile) of the KR3 Powerhouse Access Road is located on SCE-owned lands. SCE conducts maintenance on all roads within the FERC Project Boundary to sustain access to Project facilities. The SQF Shared Access Roads are accessible by public to access other areas within the SQF (SCE, 2022).

All roads surveyed fall into one of the three following categories:

1. Project Access Roads are gated to restrict public vehicular access. The gate is located at the entrance of the Project access road and use is limited to SCE personnel.

2. Multi-purpose Project and Shared Access Roads primarily extend off the public roadway (i.e., Sierra Highway/Mountain Highway 99) and are not gated, allowing public and residential access, in addition to providing SCE access for O&M activities at Project facilities.

3. Forest Service maintained roads are not within the FERC Project Boundary and are not gated, allowing for public and residential access.

Attachment A summarizes the existing information about Project and Access Road lengths, widths, general condition, and beginning and ending Universal Transverse Mercator coordinates.

5.2. RECONNAISSANCE LEVEL CONDITION ASSESSMENT

Attachment B includes the features identified and documented during the reconnaissance level field assessment, in addition to notes and general conditions of each feature. Attachment C shows the location of Project and Shared Project Access roads in relation to Project facilities, in addition to categorized road and culvert conditions.

5.3. ROAD CONDITIONS

The 19.33 miles of Project and Shared Access Roads as well as non-FERC roads were surveyed during the June 2023 field event. Of the 36 roads surveyed, 25 were categorized as “Good” or “Good/Fair” condition, 7 were categorized as “Fair,” and 4 were categorized as “Poor” or “Poor/Fair.”

All SCE Project roads within proximity of the KR3 Powerhouse were paved and in good condition. Examples of road conditions and their respective categories are shown in Attachment E, Photo Log. A full list of Project and Shared Access Road conditions with descriptions are included in Attachment A.

5.4. CULVERTS AND OTHER DRAINAGE FEATURES

A total of 105 drainage features were identified in the field, including 75 culverts. Other drainage features observed included water bars, broad-based dips, armored crossings, and wing ditches. Of the 75 culverts, 49 were categorized as “No Apparent Concern,” 19 were “Potential Concern,” and 7 had “Concern Likely.” Examples are shown in Attachment E, Photo Log.

The most common concerns were associated with excess vegetation and sediment/detritus in the inlet of the culvert, potentially impacting water conveyance. Two culverts were completely non-functional, one of which was located below a drainage crossing where a previous bridge was located at Tunnels 10–12 Access Road (refer to Section 5.3, *Road Conditions*, for additional discussion). A full list of features identified in the field are shown in Attachment B.

5.5. EROSION CONCERNS AND IMPASSABLE ROAD SECTIONS

A total of 56 erosion features were observed in the field. Most of the erosion features observed in the field were minor, including rills and drainage ditch erosion. Several roads were not passable due to more severe erosion concerns and damage associated from past rain and high flow events (see Attachment E, Photo Log). Three road segments that were identified as impassable were evaluated and later discussed with SCE. These specific segments are shown in Attachment C.

- Tunnel 8A/8B Flume Access Road (#4)
  - Approximately 30 feet off the south end of the road, immediately north of Rincon Access Road, was not passable due to a bridge washout. The rest of the Tunnel 8A/8B road is in good condition.
  - There are no apparent erosion concerns at the bridge washout location as the surviving bridge foundation, and boulders are protecting the stream banks from stream flow (see Attachment E, photograph 11).
- Tunnels 10–12 Access Road (#9)

- Approximately 100 feet of the road over the stream crossing was not passable due to a bridge washout.
- Based on historical imagery, a large storm event between 2010 and 2013 caused the road crossing to wash out.
- Currently, the streambank is not stabilized by vegetation or boulders, making it susceptible to streambank erosion (see Attachment E, photographs 12 and 13). Also refer to Table 5.1-1 of the *GEO-1 Erosion and Sedimentation Technical Memorandum* (Appendix E.2 of this Draft License Application).

- Rincon Trail Access Road (#11)
  - The southeastern portion of Rincon Trail Access Road did not appear to be maintained and was not passable for a vehicle due to erosion gullies and soil sloughing (see Attachment E, photograph 10).

5.6. MAINTENANCE

5.6.1. SCE ROAD MAINTENANCE

Most of the roads in the Project Area are unpaved and may be susceptible to erosion where run-off 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, Project Location, Facilities, and Operations, of the Pre-Application Document and generally occurs annually or as needed (SCE, 2021).

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

5.6.2. U.S. Forest Service Maintenance Levels

The Forest Service classifies maintenance of National Forest System roads into five levels. Maintenance Level 1 roads are closed to motor vehicle use, while Maintenance Level 2 roads are maintained for high-clearance vehicles. Maintenance Levels 3, 4, and 5 roads are maintained for passage by standard passenger cars during the normal season use (Forest Service, 2014). Based on publicly available GIS data and June 2023 field survey, a majority (32) of the 36 roads surveyed fall within Maintenance Level 2.[3] Road Maintenance Level 2 is defined by the Forest Service (2014) as:

> Assigned to roads open for use by high-clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are not provided with the exception that some signs, such as W-18-1 "No Traffic Signs" may be posted at intersections. Motorists should have no expectations of being alerted to potential hazards while driving on these roads. Traffic normally is minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level.

The remaining four roads, all of which were located within proximity of the SCE Powerhouse, were classified as Maintenance Level 3. Road Maintenance Level 3 is defined by the Forest Service (2014) as:

> Assigned to roads open and maintained for travel by a prudent driver in a standard passenger car. User comfort and convenience are not considered priorities. The 'Manual on Uniform Traffic Control Devices' (MUTCD) is applicable. Warning signs and traffic control devices are provided to alert motorists of situations that may violate expectations. Roads in this maintenance level are typically low speed with single lanes and turnouts. Appropriate traffic management strategies are either 'encourage' or 'accept.' Discourage or prohibit strategies may be employed for certain classes of vehicles or users.

[3] Based on publicly available Forest Service *National Forest System Road*s data (Forest Service, 2023), three Shared Access Roads (Tunnel 1-4 Flume Access Road, Rincon Access Road, and Tunnel 9B Spur Road) were identified as Maintenance Level 2 roads. Based on this information, the Forest Service *Guidelines for Road Maintenance Levels* (Forest Service, 2005), and conditions observed in the field, Maintenance Levels were determined for the rest of the Project and Shared Access Roads.

5.7. CHARACTERIZATION OF USE

5.7.1. SCE USE

Routine inspections and maintenance logs indicate that most Project roads are used daily or at least once per week (Monday through Friday) to access major Project features such as Fairview Dam and the sandbox, Salmon and Corral Creek diversions, stream gages, above ground flowline segments, and the forebay area. Other road segments leading to Project adits or tunnel muck locations are utilized once per month (during routine inspections), or on an as-needed basis. The number of SCE vehicles also varies depending on the type of activity being conducted. Typically, one or two SCE trucks are utilized during routine inspection and maintenance activities. During routine annual road maintenance work, additional equipment (e.g., a grader) is also on site. A summary of the frequency of use over the past 12 months (June 2023 through May 2024) is provided in Table 5.7-1.

Table 5.7-1. SCE's Project and Shared Access Road Use

Road ID	SCE Road Name	Land Ownership	Gate	Frequency of Use	Public Use Observed	Notes
Fairview Dam/North Road Segments						
1	Sandbox Access Road	SQF	Yes	Daily	Yes (parked next to gate)	
2	Tunnel ¼ Flume Access Road	SQF	No	Monthly	Occasionally	
3	Tunnels 5-8A Access Road	SQF	No	Weekly	Yes	Smaller segments of road are driven daily throughout the week
4	Tunnel 8A/8B Flume Access Road	SQF	No	Monthly	Yes, cars/evidence of camping	Only segment up to the adit is used; the road crossing over Salmon Creek is not passable at this time
Non-FERC Road A	Mtn Hwy to Tunnel 8A/8B	SQF	No	Monthly	Occasionally	Alternative access road to Tunnel 8A/8B
Salmon Creek and Rincon Trail Road Segments						
5	Salmon Creek Diversion Access Road	SQF	No	Weekly; Daily during run-off	Yes	
6	Rincon Access Road	SQF	No	Weekly; Daily during run-off	Yes	Lower segment to Salmon Creek Diversion Access Road driven weekly; remaining segment driven monthly
7	Tunnel 9A/9B Flume Access Road	SQF	No	Monthly	Occasionally	
8	Tunnel 9B Spur Road	SQF	No	Monthly (by foot)	Yes	Road crossing over creek (Road ID 9) is not passible at this time; access to flowline is only on foot
9	Tunnels 10–12 Access Road	SQF	No	Monthly (by foot)	No	Road access over creek (Road ID 9) is not passible at this time; access to flowline is only on foot
Non-FERC Road B	4WD Road to access Tunnels 10–12	SQF	No	None	No	Road improvements needed to accommodate vehicular access

Road ID	SCE Road Name	Land Ownership	Gate	Frequency of Use	Public Use Observed	Notes
10	Tunnel 10/11 Flumes Access Road	SQF	No	Monthly (by foot)	No	Road access over creek (Road ID 9) is not passible at this time; access to flowline is only on foot
11	Rincon Trail Access Road	SQF	No	Not utilized	No	Road maintenance not currently conducted along segment south of Non-FERC Road B
12	Rincon Trail Access Road Spur	SQF	No	Not utilized	No	Road maintenance not currently conducted along segment
Goldledge Road Segments						
13	Tunnel 12/13 Flume Access Road	SQF	No	Monthly	Occasionally	
14	Gold Ledge Access Road	SQF	No	Monthly	Occasionally	
15	Tunnel 14/15 Flume Access Road	SQF	No	Monthly	Occasionally	
Corral Creek Road Segments						
16	Tunnel 16/17 Flume Access Road	SQF	No	Monthly	Occasionally	
17	Corral Creek Flumes North Access Road	SQF	No	Monthly	Occasionally	
18	Corral Creek Diversion Access Road	SQF	No	Weekly; Daily during run-off	Occasionally	
19	Corral Creek Flumes South Access Road	SQF	No	Monthly	Occasionally	
20	Tunnel 18/19 Flume Access Road	SQF	No	Monthly	Occasionally	
21	Tunnel 19/20 Flumes Access Road	SQF	No	Monthly	Occasionally	
Cannell Creek Road Segments						
22	Cannell Creek Siphon Spillway Access Road	SQF	Gate on lower road segment (Road ID 23)	Weekly	Yes	

Road ID	SCE Road Name	Land Ownership	Gate	Frequency of Use	Public Use Observed	Notes
23	Cannell Creek Access Road	SQF	Yes	Weekly	Yes	
24	Cannell Creek Siphon Access Road	SQF	gate on lower road segment (Road ID 23)	Weekly	No	
Powerhouse Area						
25	Kern River No. 3 Forebay Access Road	SQF	No	Weekly	Occasionally, mostly hikers	
26	Kern River No. 3 Machine Shop Access Road	SQF SCE	Yes	Daily	No	
27	Kern River No. 3 Penstocks North Access Road	SQF	No	Monthly	No	
Non-FERC Road C	Upper Spillway Channel Access (from Road 27)	SQF	No	Weekly	No	Access on foot only at this time
28	Kern River No. 3 Penstocks South Access Road	SQF	Yes	Monthly	No	
29	Chlorinator House Access Road	SQF	Yes	Weekly	No	
30	Kern River No. 3 Powerhouse Access Road	SQF SCE	Yes	Daily	Yes, highly traveled	Access road to Project Recreation Facility
31	Kern River No. 3 Warehouse Access Road	SCE	Yes	Daily	No	
32	Kern River No. 3 Campus Access Road	SQF	Yes	Daily	No	
33	Kern River South Garage Access Road	SQF	Yes	Daily	No	

FERC = Federal Energy Regulatory Commission; SCE = Southern California Edison Company; SQF = Sequoia National Forest

5.7.2. PUBLIC USE

Of the 33 Project and Shared Access Road segments surveyed, the highest rate of public use was observed along the Kern River No. 3 Powerhouse Access Road. This road provides access to SCE's Powerhouse Put-in/Take-Out recreation facility. Additionally, public use was noted on the two road segments leading up to the non-Project Rincon Trailhead located in the SQF: the Rincon Trail Access Road and the Tunnel 9B Spur Road. A tally of observed uses (i.e., total number of cars) over the past 12 months (June 2023 through May 2024) is summarized in Table 5.7-2.

Table 5.7-2. Public Use along Shared Access Roads

Road ID	SCE Road Name	Land Ownership	Gate	Number of Cars Observed	Notes (activity if observed)
Fairview Dam/North Road Segments					
1	Sandbox Access Road	SQF	Yes	3	Vehicles were observed parked outside the gate; anglers observed near the water
2	Tunnel ¼ Flume Access Road	SQF	No	2	
3	Tunnels 5-8A Access Road	SQF	No	11	Activities observed include biking and site seeing
4	Tunnel 8A/8B Flume Access Road	SQF	No	9	Road crossing over Salmon Creek not passable; parked cars observed along road leading to creek; activities observed include camping and hiking
Salmon Creek and Rincon Trail Road Segments					
5	Salmon Creek Diversion Access Road	SQF	No	3	
6	Rincon Access Road	SQF	No	17	Primary access road to Rincon Trailhead
7	Tunnel 9A/9B Flume Access Road	SQF	No	0	
8	Tunnel 9B Spur Road	SQF	No	2	Spur road from Rincon Access Road up to Rincon Trailhead; activities observed include hiking and site seeing
9	Tunnels 10–12 Access Road	SQF	No	0	Road crossing over creek is not passible
10	Tunnel 10/11 Flumes Access Road	SQF	No	0	No access to road segment by vehicle

Road ID	SCE Road Name	Land Ownership	Gate	Number of Cars Observed	Notes (activity if observed)
11	Rincon Trail Access Road	SQF	No	0	Road segment not maintained for vehicle access
12	Rincon Trail Access Road Spur	SQF	No	0	Road segment not maintained for vehicle access
Goldledge Road Segments					
13	Tunnel 12/13 Flume Access Road	SQF	No	2	
14	Gold Ledge Access Road	SQF	No	0	
15	Tunnel 14/15 Flume Access Road	SQF	No	0	
Corral Creek Road Segments					
16	Tunnel 16/17 Flume Access Road	SQF	No	0	
17	Corral Creek Flumes North Access Road	SQF	No	0	
18	Corral Creek Diversion Access Road	SQF	No	0	
19	Corral Creek Flumes South Access Road	SQF	No	6	Activities observed include biking and site seeing
20	Tunnel 18/19 Flume Access Road	SQF	No	1	Activities observed include hiking
21	Tunnel 19/20 Flumes Access Road	SQF	No	0	
Cannell Creek Road Segments					
22	Cannell Creek Siphon Spillway Access Road	SQF	Gate on lower road segment (Road ID 23)	2	Vehicles observed prior to installation of gate along Cannell Creek Access Road; activities observed include biking
23	Cannell Creek Access Road	SQF	Yes	0	

Road ID	SCE Road Name	Land Ownership	Gate	Number of Cars Observed	Notes (activity if observed)
24	Cannell Creek Siphon Access Road	SQF	Gate on lower road segment (Road ID 23)	6	Vehicles observed prior to installation of gate along Cannell Creek Access Road; activities observed include hiking, camping, and site seeing
Powerhouse Area					
25	Kern River No. 3 Forebay Access Road	SQF	No	0	
26	Kern River No. 3 Machine Shop Access Road	SQF SCE	Yes	1	Vehicle observed parked outside of gate
27	Kern River No. 3 Penstocks North Access Road	SQF	No	0	
28	Kern River No. 3 Penstocks South Access Road	SQF	Yes	0	
29	Chlorinator House Access Road	SQF	Yes	0	
30	Kern River No. 3 Powerhouse Access Road	SQF SCE	Yes	73	Activities observed include angling, in-water activities and site seeing
31	Kern River No. 3 Warehouse Access Road	SCE	Yes	0	
32	Kern River No. 3 Campus Access Road	SQF	Yes	0	
33	Kern River South Garage Access Road	SQF	Yes	0	

FERC = Federal Energy Regulatory Commission; SCE = Southern California Edison Company; SQF = Sequoia National Forest

6.0 STUDY-SPECIFIC CONSULTATION

- May 8, 2023: SCE met with the SQF (Al Watson, SQF District Ranger) at the Kern River Ranger Station to review the list of non-FERC roads included as part of LAND-1 Study data collection.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All Study Plan elements have been completed as outlined in SCE's Revised Study Plan (SCE, 2022), and as amended in FERC's Study Plan Determination (FERC 2022), with the exception of the variances described above. This study is now complete.

8.0 REFERENCES

FERC (Federal Energy Regulatory Commission). 2022. *Study Plan Determination for the Kern River No. 3 Hydroelectric Project*. Accession No. 20221012-3024. October 12.

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APPENDIX A
PROJECT AND SHARED ACCESS ROAD CONDITIONS

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SCE Road Name	SQF Road ID	Ownership	Within FERC Boundary?	Gated	Road Start/End	Road Length (feet)	Road Width (feet)	Surface	Road Start	Road Start	Road End	Road End	Characterization of Use	USFS Maintenance Level	Overall Condition	Comments
Fairview Dam/ North																
Sandbox Access Road	Sierra Highway	SQF	Yes	Yes	Mountain Road 99/Sandbox	709	16	Aggregate	366637.1382	3978798.551	366536.1274	3978610.808	Gated, project access road used by SCE employees for SCE operations.	2	Good	Single lane, gated (locked) road used by SCE staff for Fairview Dam Intake operations. Road is made of aggregate material and has adequate turnaround areas. There are signs of erosion on the west side due to run-off of the Sierra Highway.
Tunnel 1/4 Flume Access Road	23S20 –Roads End G.S.	SQF	No	No	Mountain Road 99/Tunnel 1/4 Flume	198	12	Aggregate	366057.6618	3977483.635	366069.6481	3977542.188	Shared access road, off of main highway, not on FERC boundary.	2	Good	Single lane road, very steep (4x4 vehicle recommended). Adequate turnaround area at top of road. Road is beginning to erode in turnaround area (east side).
Tunnels 5-8A Access Road	--	SQF	Yes	No	Mountain Road 99/Tunnel 8B Access Road	12,331	12	Native	367830.152	3973859.393	365538.786	3975914.089	Shared access road, on FERC boundary	2	Good	Single lane, very good condition, appears to be graded recently. Culverts and drainage features are in good condition.
Tunnel 8A/8B Flume Access Road	--	SQF	Yes	No	Rincon Access Road/Tunnel 8A/8B Flume, Tunnel 8B Portal	2,387	12	Native	367945.0398	3973434.859	367854.4413	3973989.316	Shared access road, on FERC boundary	2	Good/Fair	Single lane road, with rills halfway through. In good condition, with exception of bridge blow out, however there are no sediment concerns as water energy is dissipated by vegetation, bridge foundation, and large rocks. Road east of blow out is also in good condition. Observed van camper on north side of bridge. Vegetation (shrubs) slightly overgrown on certain sections.
Salmon Creek and Rincon																
Salmon Creek Diversion Access Road	--	SQF	Yes	No	Rincon Access Road/Salmon Creek Diversion	1,128	12	Native	368158.0374	3973622.39	367940.3794	3973442.996	Shared access road, on FERC boundary	2	Good	Single lane road in good condition, no obvious erosion issues. The one culvert is showing some erosion on the outlet side. Good turnaround at northeast end.
Rincon Access Road	24S89-Rincon (portion)	SQF	Yes	No	Mountain Road 99/Tunnels 10-12 Access Road	6,410	12	Native	368496.7157	3973144.366	367809.0143	3973083.471	Shared access road, on FERC boundary	2	Good	Single lane road in good condition. Culverts/drainage features are in good condition. Some roadside erosion concern on southeast end, right before the Tunnel 9B Spur Road.
Tunnel 9A/9B Flume Access Road	--	SQF	No	No	Rincon Access Road/Tunnel 9A/9B Flume	127	12	Native	368324.398	3973442.193	368293.7448	3973420.214	Shared access road, not on FERC boundary	2	Fair	Unimproved access road to 9A/9B tunnel. Drainage ditches appear to be unmaintained, creating potential erosion concerns. A drainage ditch that runs through the Rincon access road cuts through the start of the Tunnel 9A/9B Flume Access. {ile of garbage (hot tub chemicals) was found on the side of road.
Tunnel 9B Spur Road	24S89-Rincon (portion)	SQF	Yes	No	Rincon Access Road/Ends by Rincon Trailhead	758	12	Native	368612.8073	3973081.504	368496.7157	3973144.366	Shared access road, on FERC boundary, Salmon Rincoln trail head is located here	2	Poor/Fair	Steep, single lane unimproved road used for access to Rincon Trail head. Rills present for most of road. There is a social trail at the end of the road, that connects with established Rincon Trail. Observed tourists in a parked truck watching jets go by. Vegetation observed in rills.
Tunnels 10-12 Access Road	--	SQF	Yes	No	Rincon Access Road/Tunnel 11/12 Flume	3,050	12	Native	368678.4411	3972583.454	368496.7157	3973144.366	Shared access road, on FERC boundary	2	Poor	Road is in poor condition, and not passable south of KR. 37 culvert due to bridge blow out. Downed tree in middle of road at two locations. Erosion concerns from where bridge was blown out, with steep exposed banks.. Erosion in aggregate by tunnel is south side of the road. Signs of erosion (rilling) throughout road. Culvert (KR. 36) that was located below blown out road is destroyed. Good turnaround area at south end of road.
Tunnel 10/11 Flumes Access Road	--	SQF	No	No	Tunnels 10-12 Access Road/Tunnel 10/11 Flumes	175	12	Native	368628.0474	3972746.611	368574.6898	3972750.053	Shared access road, not witihin FERC boundary	2	Fair	Single lane road in fair condition. Road has rills, and vegetation is overgrown in some sections. Good turnaround area at end of road.
Rincon Trail Access Road	24S89-Rincon	SQF	Yes	No	Mountain Road 99/Rincon Access Road	3,644	12	Native	368481.3534	3972310.716	368011.4231	3972857.588	Shared access road, on FERC boundary	2	Poor	Single lane road in poor condition. Not passable in several sections, due to major erosion features, including the formation of gullys and roadside erosion. A non-funcitonal culvert was located halfway up the road, which originally drained the sub-basin. Major erosion and sediment concern (road is collapsed) near Rincon Trail Access Road Spur.
Rincon Trail Access Road Spur	--	SQF	Yes	No	Mountain Road 99/Rincon Access Road	829	12	Native/Asphalt	368423.3567	3972351.144	368191.7091	3972295.093	Shared access road, on FERC boundary	2	Fair	Road in fair condition, sections of native and asphault. Observed woman hiking on road.
Tunnel 12/13 Flume Access Road	--	SQF	Yes	No	Gold Ledge Access Road/Tunnel 12/13 Flume, portals	3,351	12	Native	369079.8745	3971876.279	369083.5195	3971098.484	Shared access road, on FERC boundary	2	Good/Fair	Single lange access road in mostly good condition, there are 4-6" rills found intermittently throughout. Drainage features are in good condition.
Goldledge																
Gold Ledge Access Road	--	SQF	Yes	No	Mountain Road 99/Tunnel 13/15 Flumes, portal	4,436	12	Native	369521.6673	3971494.231	368463.2479	3971044.067	Shared access road, on FERC boundary	2	Good	Single lane access road, rills found intermittently. Good turnaround at northeast end of road.
Tunnel 14/15 Flume Access Road	--	SQF	Yes	No	Gold Ledge Access Road/Tunnel 14/15 Flume, portals	2,693	10-12	Native/Aggregate	369567.4502	3970643.981	369130.2666	3971114.833	Shared access road, on FERC boundary	2	Fair	Road in fair condition, very narrow at sections, rills. Sections of aggregate.
Tunnel 16/17 Flume Access Road	--	SQF	Yes	No	Corral Creek Flumes Access Road/Tunnel 16/17 Flume, portal	5,818	12	Native	369761.0773	3969879.755	370279.7469	3968658.686	Shared access road, on FERC boundary	2	Good	Single land road in good condition, minor rills throughout.
Corral Creek																
Corral Creek Flumes North Access Road	--	SQF	Yes	No	Corral Creek Diversion Access Road/Corral Creek Flumes	1,082	12	Native/Aggregate	370420.276	3968812.883	370268.906	3968553.018	Shared access road, on FERC boundary	2	Good	Single lane road, mix of native and aggregate, in good condition.
Corral Creek Diversion Access Road	--	SQF	Yes	No	Mountain Road 99/Corral Creek Diversion	8,207	12	Native	370698.4584	3968603.503	369104.882	3967733.047	Shared access road, on FERC boundary	2	Good	Single lane road in good condition. Culvert is fortified with concrete at stream crossing. Informal mountain bike trail at south end of road.
Corral Creek Flumes South Access Road	--	SQF	Yes	No	Corral Creek Diversion Access Road/Corral Creek Flumes	1,165	12	Native	370519.1262	3968310.87	370196.9883	3968422.447	Shared access road, on FERC boundary	2	Good	Single lane road in good condition. Adequate turnaround on east end of road.
Tunnel 18/19 Flume Access Road	--	SQF	Yes	No	Mountain Road 99/Tunnel 18/19 Flume, portal	5,908	12	Native/Aggregate	369977.1094	3966837.995	369047.2144	3967317.995	Shared access road, on FERC boundary	2	Good	Single lane road changes from native to aggregate. Good condition with exception of erosion concern at inlet side of KR. 58. Adequate turnaround at tunnel access.
Tunnel 19/20 Flumes Access Road	--	SQF	Yes	No	Tunnel 18/19 Flume Access Road/Tunnel 19/20 Flumes, portal	883	12	Aggregate	369902.0871	3966447.941	369720.898	3966636.285	Shared access road, on FERC boundary	2	Fair	Single lane access road, leads to flume. Road is steep and bumpy. Erosion concern at beginning of road where road goes over culvert.
Channel Creek																
Cannel "Brush" Creek Siphon Spillway Access Road	--	SQF	Yes	No	Cannel “Brush” Creek Access Road/Cannel “Brush” Creek Siphon Spillway	6,455	8-12	Native/Aggregate	370784.0088	3962157.569	370498.3875	3962172.624	Shared access road, on FERC boundary	2	Good	Single lane road, changes from native to aggregate going east. Road becomes very thin as the spillway is approached, due to exposed bedrock on side of road. Very small area to turnaround, may be a safety concern, it is recommend walking the last quarter mile or so.
Cannel "Brush" Creek Access Road	--	SQF	Yes	No	Mountain Road 99/Brush Creek Siphon-Siphon Spillway Access Road	5,446	12	Native/Aggregate	370498.3875	3962172.624	369077.2423	3962163.419	Shared access road, on FERC boundary	2	Good	Single lane road, good condition. Road turns from dirt to aggregate heading east.

SCE Road Name	SQF Road ID	Ownership	Within FERC Boundary?	Gated	Road Start/End	Road Length (feet)	Road Width (feet)	Surface	Road Start	Road Start	Road End	Road End	Characterization of Use	USFS Maintenance Level	Overall Condition	Comments
Cannel "Brush" Creek Siphon Access Road	--	SQF	Yes	No	Cannel "Brush" Creek Access Road/Cannel "Brush" Creek Siphon	941	12	Native	370717.7926	3962009.285	370498.3875	3962172.624	Shared access road, on FERC boundary	2	Good	Single lane road in good condition. Adequate turnaround at southend of road.
Kern River No. 3 Forebay Access Road	--	SQF	Yes	No	Mountain Road 99/Kern River No. 3 Forebay	8,334	12	Native/Aggregate/Concrete	370758.0664	3960544.116	369956.7457	3960519.103	Shared access road, on FERC boundary	2	Good	Steep road, mix of native/aggregate, section of concrete at top. Very good condition. Observed people driving to top.
Powerhouse																
Kern River No. 3 Machine Shop Access Road	--	SCE/SQF	Yes	Yes	Mountain Road 99/Kern River No. 3 Powerhouse	1,445	16	Paved	370222.6408	3960039.075	370017.7787	3960425.877	Gated project road used by SCE for machine shop access, on FERC boundary	3	Good	Road used by SCE for machine shop access. Good condition. Gated, some sediment build up at west side of road.
Kern River No. 3 Penstocks North Access Road	--	SQF	Yes	No	Mountain Road 99/Kern River No. 3 Penstocks	1,300	12	Native/Aggregate	370454.2807	3960250.947	370183.4693	3960220.857	Shared project access road used by SCE for North side penstock access, on FERC boundary	2	Fair	Single lane aggregate/native road. Several erosion concerns, with rills and gullys forming. Road not passable without 4x4 high clearance vehicle. Scattered aggregate.
Kern River No. 3 Penstocks South Access Road	--	SQF	Yes	Yes	Mountain Road 99/Kern River No. 3 Penstocks	1,157	12	Native/Aggregate	370469.6619	3960243.572	370497.1824	3959907.867	Gated project access road used by SCE to get to Penstocks, on FERC boundary	2	Good	Gated aggregate/gravel road. Good condition. Steep at sections. Rills in some sectons.
Chlorinator House Access Road	--	SQF	Yes	Yes	Mountain Road 99/Chlorinator House and Water Tanks	821	12	Native/Aggregate	370326.3944	3960118.032	370401.9773	3959968.265	Gated project access road used by SCE for chlorinator house access, on FERC boundary	2	Good	Gated native/gravel road. Good condition.
Kern River No. 3 Powerhouse Access Road	--	SCE/SQF	Yes	Yes	Mountain Road 99/Kern River No. 3 Powerhouse	3,053	16	Paved	370202.3163	3960053.921	370747.9315	3959363.553	Shared access road, gated on west end for SCE Powerhouse, on FERC boundary, owned by SCE and USFS, public recreational river access	3	Good	Road used by both SCE and public (access to river). Paved, good condition Slight erosion issue on asphault by public access area. Gate at powerhouse.
Kern River No. 3 Warehouse Access Road	--	SCE	Partial	Yes	Kern River No. 3 Powerhouse Access Road/Kern River No. 3 Warehouse	1,003	16	Paved	370491.9709	3959573.37	370472.3721	3959556.389	Gated project access road, owned by SCE, partially on FERC boundary	3	Good	Gated road use by SCE for warehouse access. Good condition.
Kern River No. 3 Campus Access Road	--	SQF	Yes	Yes (2)	Mountain Road 99/Kern River No. 3 Powerhouse	806	16	Paved	370234.4625	3960021.236	370433.7567	3959937.996	Gated project access road used by SCE for campus access, on FERC boundary	3	Good	Road use by SCE to get to living area. Asphalt, good condition. Gated towards campus.
Kern River South Garage Access Road	--	SQF	Yes	Yes	Mountain Road 99/Kern River South Garage	377	12	Native/Aggregate	370442.422	3959921.928	370491.5365	3959900.338	Gated project access road used by SCE for garagae access, on FERC boundary	2	Good	Gated road to garage access area, good condition.
Proposed Roads																
USFS Road A	--	SQF	No	No	Sierra Highway to Tunnel 8A/8B Flume Access road	1837	12	Native	367639.1847	3973457.288	367799.5507	3973805.175	USFS road, not on FERC boundary	2	Good	Native road with in good condition. Several lead out ditches which are also in good condition.
USFS Road B	--	SQF	No	No	Rincon Trail Access Road/Tunnel 10/11 Flumes Acess Road	2048	12	Native	368055.9068	3972619.686	368539.1266	3972786.267	USFS road, not on FERC boundary	2	Fair	Native road in fair condition. Very steep in sections that would require 4x4 vehicle. Rills observed in several locations.
USFS Road C	--	SQF	No	No	Sierra Highway/Kern River No. 3 Penstock Access	1775	10-12	Native	370458.5421	3960263.596	370689.2934	3960585.84	USFS road, very small portion on FERC boundary	2	Poor-Fair	Single lane steep road, overgrown with vegetation in most areas. Turnaround at top is not adequate.

APPENDIX B
PROJECT AND SHARED ACCESS ROAD FEATURES

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Road Name	OBJECTID	Road Feature	Road Feature Description	Condition	Photo	Comments	UTM_E	UTM_N
1-Sandbox Access Road	179	Gate	Sandbox Access Road gate.	NA	Yes	No comments.	366544.7667	3978643.902
	180	Erosion Feature	Sheet erosion and minor rills	NA	Yes	Water is flowing off Sierra Highway and causing sheet erosion/rills, leading to minor roadside erosion on west side of road.	366556.008	3978654.491
	181	General Observation	Road Condition	NA	Yes	Good dirt access	366611.8039	3978774.321
	182	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	366571.5842	3978689.703
2-Tunnel 1/4 Flume Access Road	107	Sign	SCE Sign "ADIT 1.4"	NA	Yes	No comments.	366056.6933	3977501.69
	110	Erosion Feature	Ditch Erosion	NA	Yes	Minor erosion concern on east side of road, drainage ditch is starting to erode. May consider regrading and re-establishing drainage.	366068.4377	3977545.459
3-Tunnels 5-8A Access Road	73	Culvert	24" CMP	No Apparent Concern	Yes	Large hole 5 feet from inlet.	365757.9585	3975851.622
	74	Culvert	24" CMP	No Apparent Concern	Yes	Some sediment in culvert.	365852.0916	3975804.093
	75	Erosion Feature	Ditch Erosion	NA	Yes	Ditch erosion occurring on inlet side of culvert. Warrants further monitoring.	365845.4417	3975805.333
	76	Culvert	24" CMP	Potential Concern	Yes	Evidence of water running over road.	365934.1013	3975733.936
	78	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	365934.6517	3975726.925
	80	Culvert	36" CMP	No Apparent Concern	Yes	Culvert appears to be slightly bend , some cobbles by inlet.	366102.1446	3975625.749
	81	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	366122.5949	3975489.741
	82	Culvert	12" Steel	No Apparent Concern	Yes	No comments.	366226.311	3975469.913
	83	Culvert	36" CMP	No Apparent Concern	Yes	Inlet side has vegetation in front.	366281.1111	3975417.5
	84	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	366327.3802	3975328.117
	85	Culvert	24" CMP	No Apparent Concern	Yes	Some sediment in culvert.	366417.0515	3975201.041
	86	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	366486.5993	3975030.159
	87	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	366558.1331	3975016.577
	88	Culvert	18" CMP	No Apparent Concern	Yes	No comments.	366641.9369	3974944.677
	89	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	366715.8957	3974867.372
	90	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	366716.6446	3974864.187
	91	Culvert	18" CMP	No Apparent Concern	Yes	No comments.	366960.5297	3974754.706
	92	Culvert	24" CMP	Potential Concern	Yes	Excess detritus 10 feet from inlet, major rain event may move material into inlet and cause clogging issues. Excessive vegetation at outlet.	367087.2266	3974737.482
	93	Culvert	24" CMP	No Apparent Concern	Yes	Minor sediment and debris build up on inlet side.	367158.6157	3974598.741
	94	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	367405.7291	3974430.094
	95	Culvert	12" Steel	Potential Concern	Yes	Culvert is rusted. Vegetation on outlet side needs to be cleared.	367471.3704	3974329.202
	96	Other Drainage Feature	Metal Drain	No Apparent Concern	Yes	No comments.	367293.5297	3974403.841
	97	Culvert	24" CMP	Concern Likely	Yes	Inlet side is clogged with detritus and sediment. Needs to be cleared to ensure proper water conveyance.	367538.0244	3974339.071
	98	Culvert	18" CMP	No Apparent Concern	Yes	No comments.	367647.5519	3974156.846
	99	Culvert	18" CMP	No Apparent Concern	Yes	No comments.	367657.0628	3974129.021
	100	Culvert	18" CMP	Potential Concern	Yes	Inlet and outlet sides have excessive vegetation that may cause future issues.	367755.0895	3973997.507
	101	Culvert	18" CMP	No Apparent Concern	Yes	Slight sediment build up at inlet.	367792.7469	3973933.288
	104	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	367823.5347	3973873.82
	106	Sign	SCE Sign "7B 8A"	NA	Yes	Sign is showing signs of wear and tear, bullet holes. May need to be replaced in near future.	367533.0623	3974340.664
4-Tunnel 8A/8B Flume Access Road	52	Sign	SCE Sign "9A 9C"	NA	Yes	Sign is barely legible, rusting, and multiple bullet holes. Needs to be replaced.	367795.0989	3973809.533
	53	Culvert	12" CMP	Potential Concern	Yes	Unmarked culvert, sediment and detritus, perched outlet.	367838.6003	3973767.391
	54	Other Drainage Feature	Broad-Based Dip	No Apparent Concern	Yes	No comments.	367922.6977	3973623.056
	55	Other Drainage Feature	Broad-Based Dip	No Apparent Concern	Yes	No comments.	367932.7293	3973611.59
	59	General Observation	Bridge is blown out	NA	Yes	Blown out bridge. No erosion/sediment concerns, sides of stream are reinforced by bridge foundation and boulders.	367987.022	3973536.76
		General Observation	Stream Crossing	NA	No	Stream crossing where bridge was located.	367981.044	3973523.198
	102	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	367840.9361	3973960.024
	103	Culvert	24" CMP	No Apparent Concern	Yes	Slight sediment build up on inlet side. Some scouring on outlet side.	367845.4719	3973881.003
	105	Sign	SCE Sign "ADIT 8A-8B"	NA	Yes	No comments	367839.929	3973864.227
	56	Erosion Feature	Erosion on side of roads	NA	Yes	Minor erosion concern on both sides of road. May need to re-establish drainage ditches.	367922.1865	3973601.464
	57	Public Usage of Project Road	Van camping	NA	Yes	Van camping off of road	367915.2385	3973590.899
	58	Other Drainage Feature	Armored fill crossing	No Apparent Concern	Yes	Water flowing through armored crossing, good condition.	367956.4806	3973569.674
5-Salmon Creek Diversion Access Road	26	Sign	33E23 Rincon Trail	NA	Yes	No comments	367946.0535	3973446.552
	27	Sign	SCE Sign "8A-8B"	NA	Yes	Sign needs to be replaced.	367944.4239	3973447.664
	28	Sign	"Salmon 8-9"	NA	Yes	No comments	367945.8847	3973460.749
	29	Culvert	24" CMP	No Apparent Concern	Yes	No comments	367942.2819	3973447.871
	62	Culvert	18" CMP	Potential Concern	Yes	Scouring on outlet side, causing erosion concern.	368029.8104	3973517.325
6-Rincon Access Road	3	Culvert	24" CMP	No Apparent Concern	Yes	No comments	367883.099	3973020.266
	4	Other Drainage Feature	Metal drainage	No Apparent Concern	Yes	No comments.	367869.0964	3973019.196
	5	Culvert	18" CMP	No Apparent Concern	Yes	No comments	367933.3144	3972994.395
	21	Sign	SCE Sign "ADIT 9-12"	NA	Yes	No comments	367997.1633	3972875.665
	22	Culvert	24" CMP	No Apparent Concern	Yes	No comments	367997.3401	3972981.892
	23	Culvert	24" CMP	Potential Concern	Yes	Scour at outlet, plunge pool left of outlet causing embankment erosion	368077.9497	3973205.559
	24	Culvert	24" CMP	No Apparent Concern	Yes	No comments.	368062.5744	3973315.387
	25	Culvert	18" CMP	Potential Concern	Yes	Outlet side of culvert is clogged with silt, excessive vegetation, may impact water convervance.	368043.796	3973377.488
	30	Sign	SCE Sign "ADIT 9-12"	NA	Yes	Sign needs to be replaced.	367965.9894	3973434.932
	31	Culvert	24" CMP	Potential Concern	Yes	Possible pipping (signs of water going under culvert). May consider installing longer culvert, and implenting steeper gradient to avoid plunge pool on outlet side.	368108.7078	3973414.621
	32	Culvert	24" CMP	Potential Concern	Yes	Moderate clogging on outlet side	368285.945	3973424.514
	37	Erosion Feature	Rilling	NA	Yes	Minor rills observed, drainage in area could be improved with installation of culvert up gradient.	368382.1925	3973339.575
	38	General Observation	Standing water on road	NA	Yes	Standing water in road. Could install culvert, southwerst downstreamside of road is eroding	368502.3772	3973180.632
	60	Sign	"Salmon 9-12 PS0618"	NA	Yes	Sign showing signs of wear and tear	367813.0413	3973091.003
7-Tunnel 9A/9B Flume Access Road	33	Sign	SCE Sign "ADIT 9-9"	NA	Yes	Signs need to be replaced.	368308.5217	3973421.526
	34	General Observation	Garbage	NA	Yes	Hot tub chemicals were dumped about a foot off of access road.	368313.4512	3973436.254
	35	Erosion Feature	Rilling	NA	Yes	Minor rills observed. Regrade road to redirect surface runoff to existing ditch.	368298.5118	3973424.78
	36	Other Drainage Feature	Drainage ditch	No Apparent Concern	Yes	Drainage ditch is running north of Salmon Creek and Rincon road, running perpendicular through start of tunnel 9A/9B flume access road.	368293.4455	3973420.611
8-Tunnel 9B Spur Road	40	Informal Trail Head	Unmarked Trail Head	NA	Yes	No comments.	368619.4101	3973060.701
	41	Other Drainage Feature	Broad-Based Dip	No Apparent Concern	Yes	No comments.	368565.3156	3973130.628
	42	Erosion Feature	Rillls	NA	Yes	Vegetation growing in rills.	368552.2605	3973124.707
	43	Erosion Feature	Rilll/Gully	NA	Yes	Rills forming gully through middle of road.	368515.1995	3973101.615

Road Name	OBJECTID	Road Feature	Road Feature Description	Condition	Photo	Comments	UTM_E	UTM_N
9-Tunnel 10-12	71	General Observation	Blown out bridge area	NA	Yes	<Null>	368521.2614	3972938.22
	72	Culvert	24" CMP	Concern Likely	Yes	Culvert is destroyed	368525.3736	3972930.176
		General Observation	Stream Crossing	NA	No	Stream crossing where bridge was located.	368436.7111	3972936.03
		Erosion Feature	Gullys	NA	Yes	Large gullys forming downhill towards bridge. Major erosion along stream banks where bridge used to be.		
	39	Sign	Not legible	NA	Yes	Sign needs to be replaced.	368493.3411	3973145.394
	44	General Observation	Downed tree	NA	Yes	<Null>	368447.5704	3973008.21
	45	Culvert	18" CMP	No Apparent Concern	Yes	No comments	368475.5259	3972990.467
	64	Culvert	24" CMP	Potential Concern	Yes	Full of sediment on inlet side	368553.4448	3972664.667
	67	General Observation	Downed tree	NA	Yes	Dead tree in middle of road.	368631.0341	3972607.122
	68	Erosion Feature	Erosion on road in turnout	NA	Yes	Water is draining out of turnaround area onto southside of road, causing roadside erosion.	368679.6496	3972581.884
	69	Erosion Feature	Rills	NA	Yes	Rills forming in middle of road.	368623.7953	3972718.926
10-Tunnel 10/11 Flumes Access Road	65	Sign	SCE Sign "ADIT 10-11"	NA	Yes	Sign needs to be replaced.	368588.1604	3972753.416
	66	Erosion Feature	Rills	NA	Yes	No comment.	368596.5113	3972747.785
11-Rincon Portion Not Passable	10	Erosion Feature	Seep, water on road	NA	Yes	Water is seeping onto road; could install Culvert 30 feet down install swale to connect, or install armored crossing	368239.8329	3972451.298
		Erosion Feature	Gully	NA	Yes	Large gullys, 3 feet deep, 8 feet long, road not passable	368298.9515	3972419.423
	14	Culvert	NA	Potential Concern	Yes	Worth reparing culvert to stop further erosion, as it would drain swale	368160.2695	3972342.939
	6	Culvert	24" CMP	Concern Likely	Yes	Riprap, culvert mangled, debris present, scour hole, sluffing at inlet. Water seeping under road away from culvert	368019.2806	3972849.479
		Erosion Feature	Gully	NA	Yes	Large gully, road impassable	368130.4329	3972368.028
	7	Nature Resources	Water from seep is flowing onto road	NA	Yes	Water flowing over road; future monitoring is recommended, could install culvert or armored crossing.	368037.8781	3972825.237
	8	Erosion Feature	Ditch Erosion	NA	Yes	Gully erosion in drainage ditch	368472.9689	3972319.644
	11	Culvert	Old culvert, non-functional	Concern Likely	Yes	Drainage from both basins are routed down this road. Repairing culvert would potentially alleviate erosion along easterly road	368249.1895	3972455.021
	12	Erosion Feature	Slumping	NA	Yes	Road not passable, needs full repair. Could consider installing culvert upgradient once road is repaired.	368289.4217	3972422.741
	13	Culvert	Old culvert, non-functional	No Apparent Concern	Yes	Non-functioning culvert. Does not appear to be causing any erosion issues in surrounding area.	368215.4963	3972402.736
	15	Erosion Feature	Rilling	NA	Yes	Minor rilling on road	368069.5	3972593.953
12-Rincon Trail Access Road Spur	9	Public Usage of Project Road	Usfs day use, woman hiking	NA	Yes	Woman was hiking on access spur, asked about trail access in area.	368296.2453	3972322.709
13-Tunnel 12/13 Flume Access Road	113	Culvert	24" CMP	Potential Concern	Yes	Sediment and vegetation build up at the inlet side.	369096.1019	3971127.811
	114	Sign	SCE Sign "ADIT 12-13"	NA	Yes	No comments	369090.5733	3971115.764
	115	Other Drainage Feature	Broad-Based Dip/Water bar	No Apparent Concern	Yes	No comments	369142.7287	3971214.587
	116	Erosion Feature	Roadside erosion	NA	Yes	No comments	369134.0502	3971206.264
	117	Other Drainage Feature	Armored Crossing	No Apparent Concern	Yes	No comments	369200.6974	3971285.449
	118	Other Drainage Feature	Armored stream crossing	No Apparent Concern	Yes	No comments.	369220.8447	3971324.353
		General Observation	Stream Crossing	NA	No	Armored crossing goes over small stream.	369220.8447	3971324.353
	119	Erosion Feature	Roadside ditch erosion	NA	Yes	No comments	369194.0018	3971333.061
	120	Sign	"Spot 89" hand-written on aluminum sign	NA	Yes	Sign needs to be replaced.	369112.0292	3971311.238
	121	Erosion Feature	Rills	NA	Yes	Two 6" rills running about 50'	369096.3107	3971677.554
	122	Erosion Feature	Rills	NA	Yes	Two 6" rills running about 30'	369114.372	3971586.245
	123	Erosion Feature	Road side ditch coming on to road	NA	Yes	Water on drainage ditch is flowing on bedrock and coming onto road.	369094.9344	3971469.626
	124	Erosion Feature	Road ditch going on to road	NA	Yes	Water on drainage ditch is flowing on bedrock and coming onto road.	369112.0949	3971369.036
	125	Erosion Feature	Rills	NA	Yes	Multiple 3" rills running down road for 30'	369105.3342	3971156.937
14-Gold Ledge Access Road	111	Erosion Feature	Rills	NA	Yes	No comments.	368469.8967	3971121.134
	112	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	369017.3411	3971087.322
	126	Sign	SCE Sign "Adit 14-15"	NA	Yes	No comments.	369138.4427	3971126.321
	127	Sign	"5B and 5C"	NA	Yes	Sign needs to be replaced.	369140.1072	3971127.427
	128	Sign	"BRYN CYN"	NA	Yes	No comments.	369138.0283	3971127.789
	130	Culvert	24" CMP	No Apparent Concern	Yes	No comments	369208.4388	3971190.229
	131	Culvert	18" CMP	Potential Concern	Yes	Inlet is covered in sediment and vegetation	369282.9304	3971259.377
	133	General Observation	Exposed water tunnel 13-14	NA	Yes	Water level is 18 inches from top of concrete	369532.1719	3971489.988
	134	Erosion Feature	Rill	NA	Yes	4" rill extends about 15'	369322.2254	3971336.702
	135	Erosion Feature	Rill	NA	Yes	No comments	369301.1031	3971288.596
	142	Erosion Feature	Rill	NA	Yes	5" rills	368973.4852	3971089.162
	143	Erosion Feature	Rilling across road	NA	Yes	No comments	368716.9185	3971144.867
	144	Erosion Feature	Minor rilling	NA	Yes	No comments	368530.8231	3971118.964
15-Tunnel 14/15 Flume Access Road	129	Culvert	24" CMP	Potential Concern	Yes	Full of sediment in both inlet and outlet	369140.0067	3971123.103
	136	Culvert	18" CMP	No Apparent Concern	Yes	No comments.	369304.8586	3971057.616
	137	Culvert	18" CMP	No Apparent Concern	Yes	Cobble in inlet.	369343.1884	3970937.02
	138	Erosion Feature	Rill	NA	Yes	No comments.	369341.1769	3970938.314
	139	Culvert	18" CMP	No Apparent Concern	Yes	Remove vegetation at the inlet	369368.0102	3970896.47
	140	Erosion Feature	Rill	NA	Yes	No comments.	369514.937	3970666.657
16-Tunnel 16/17 Flume Access Road	165	Sign	SCE Sign "Adit 15-16"	NA	Yes	No comments.	370266.9349	3968674.158
	166	Culvert	18" CMP	No Apparent Concern	Yes	Buildup of detritus and sediment at the inlet side	369679.384	3969817.027
	167	Erosion Feature	Side of road eroding	NA	Yes	No comments.	369684.3119	3969632.497
	169	Other Drainage Feature	Water Bar	No Apparent Concern	Yes	No comments	369949.8723	3969359.569
	170	Erosion Feature	Roadside erosion	NA	Yes	Road drainage causing side of road to erode.	369942.3711	3969360.561
	171	Erosion Feature	Rills	NA	Yes	No comments.	370160.5648	3968973.48
	172	Erosion Feature	Rill	NA	Yes	8" inch rill	370187.4403	3968869.153
	174	Erosion Feature	Rill	NA	Yes	No comments.	370237.6345	3968753.993
	175	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	370241.0916	3968754.606
	177	Erosion Feature	Lead out ditch	NA	Yes	Upslope area needs work to encourage flow to ditch	370256.6753	3968721.362
17-Corral Creek Flumes North Access Road	158	Sign	Not legible	NA	Yes	Sign needs to be replaced.	370273.6513	3968564.149
	161	Culvert	24" CMP	No Apparent Concern	Yes	No comments	370285.2119	3968624.503
	164	Sign	Not legible	NA	Yes	Sign needs to be replaced.	370321.1469	3968718.933
18-Corral Creek Diversion Access Road	1	Culvert	12" CMP	No Apparent Concern	Yes	No comments	369020.3596	3967971.589
	2	Informal Trail Head	Mountain Bike Trail	NA	Yes	No comments	368991.672	3968152.249
	145	Sign	SCE Sign "Corral 15 18"	NA	Yes	No comments.	369107.0965	3967753.066
	146	Culvert	18" CMP	Potential Concern	Yes	Sediment and vegetation buildup in front of inlet and outlet	369006.1462	3968195.96
	147	Culvert	18" CMP	No Apparent Concern	Yes	Some vegetation buildup in inlet	369219.5172	3968257.475
	148	Culvert	18" CMP	Potential Concern	Yes	Sediment and vegetation buildup in inlet, may cause future water conveyance issues	369234.2375	3968261.836
	149	Erosion Feature	Rills	NA	Yes	Not part of the road we are inventorying, the rill extends to the road that is being inspected	369244.4142	3968254.848
	150	Culvert	18" CMP	No Apparent Concern	Yes	Vegetation on outlet side	369448.6152	3968443.139
	151	Culvert	18" CMP	Potential Concern	Yes	Sediment and excess vegetation on inlet side	369614.669	3968439.658
	152	Erosion Feature	Rills	NA	Yes	Rilling from adjacent road may become an issue in future	369604.3559	3968437.602
	153	Culvert	12" CMP	No Apparent Concern	Yes	Some sediment and vegetation buildup in inlet	369821.3184	3968438.846
	155	Sign	Not legible	NA	Yes	Sign needs to be replaced.	370205.8581	3968425.64
		General Observation	Stream Crossing	NA	No	Concrete road goes over stream.	370256.7505	3968466.202
	156	Culvert	48" CMP	No Apparent Concern	Yes	Section of road is fortified with concrete	370256.7505	3968466.202
	160	Erosion Feature	Rills	NA	Yes	No comments.	370503.1967	3968563.914
	178	Public Usage of Project Road	SUV present	NA	Yes	No comments.	369061.3818	3968225.56

Road Name	OBJECTID	Road Feature	Road Feature Description	Condition	Photo	Comments	UTM_E	UTM_N
19-Corral Creek Flumes South Access Road	154	Other Drainage Feature	Armored road crossing	No Apparent Concern	Yes	No comments.	370243.8663	3968405.45
20-Tunnel 18/19 Flume Access Road	183	Culvert	96" CMP	No Apparent Concern	Yes	No comments	369357.1079	3967035.151
	184	Culvert	24" CMP	No Apparent Concern	Yes	No comments	369567.6944	3966755.44
	185	Culvert	24" CMP	No Apparent Concern	Yes	Sediment buildup in the outlet	369624.7413	3966707.969
	188	Sign	Not legible	NA	Yes	Sign needs to be replaced.	369721.5767	3966635.743
	189	Sign	SCE Sign "Adit 18-19"	NA	Yes	Sign needs to be replaced.	369731.2977	3966644.94
	193	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	369684.0499	3966689.327
	194	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	369440.4969	3966910.415
	261	Sign	Sign not legible	NA	Yes	Cannot read sign, unknown.	369026.142	3966956.158
	262	Other	Road Condition	NA	Yes	Overgrown with vegetation, in good shape otherwise	368963.3825	3966870.774
21-Tunnel 19/20 Flumes Access Road	186	Culvert	24" CMP	Concern Likely	Yes	Inlet side of culvert is exposed due to erosion, rusting	369710.2132	3966619.563
	187	Erosion Feature	Erosion	NA	Yes	Inlet side of culvert on road is beginning to erode	369718.5797	3966626.421
	190	General Observation	Exposed water tunnel	NA	Yes	16 inches from concrete	369902.192	3966439.274
	191	General Observation	Road Condition	NA	Yes	Fair, aggregate, bumpy steep	369865.4429	3966477.418
22-Cannel "Brush" Creek Siphon Spillway Access Road	201	Other Drainage Feature	Metal drainage	No Apparent Concern	Yes	No comments.	370766.9402	3962168.129
	202	Other	Road Condition	NA	Yes	Thin, aggregate and dirt, good condition, can't turnaround	370746.0991	3962190.546
23-Cannel "Brush" Creek Access Road	197	Sign	Not legible	NA	Yes	Sign needs to be replaced.	369090.8594	3962165.817
	198	Other Drainage Feature	Water bar	No Apparent Concern	Yes	No comments	369294.2274	3962010.689
	199	Culvert	36" CMP	Potential Concern	Yes	Sediment and cobble on both inlet and outlet side, may pose water conveyance issues in future	370459.7067	3962183.569
	203	Other	Changes from aggregate to dirt going west	NA	Yes	Changes from aggregate to dirt going west	370052.8186	3961902.752
	204	Other Drainage Feature	Water bar	No Apparent Concern	Yes	No comments.	369930.0416	3961905.709
	205	Erosion Feature	Rill	NA	Yes	Small rill running perpendicular through road	369346.9803	3961997.585
	206	Sign	SCE Sign "KR3 Syphon"	NA	Yes	No comments.	369074.3691	3962167.319
24-Cannel "Brush" Creek Siphon Access Road	200	Erosion Feature	Road side erosion	NA	Yes	Water is draining through rill and creating minor roadside erosion.	370504.3768	3962144.083
25-Kern River No. 3 Forebay Access Road	207	Sign	SCE Sign "KR3 Forebay"	NA	Yes	No comments.	369960.1562	3960526.536
	208	Culvert	8" Steel	Concern Likely	Yes	Clogged with sediment and vegetation on both sides	369978.6456	3960627.38
	209	Culvert	12" Steel	No Apparent Concern	Yes	Outlet side buried in sediment, needs to be cleared	370053.8941	3960607.293
	210	Culvert	12" or 10" CMP	No Apparent Concern	Yes	No comments	370154.2906	3960543.938
	211	Culvert	18" CMP	Concern Likely	Yes	Top of culvert has holes, entire culvert is filled with sediment	370334.8527	3960826.724
	212	Culvert	24" CMP	No Apparent Concern	Yes	Minor vegetation cleanup on the inlet side	370409.1086	3961013.872
	213	Culvert	18" CMP	No Apparent Concern	Yes	Clear vegetation on the inlet side	370383.7444	3961303.703
	214	Culvert	18" CMP	No Apparent Concern	Yes	Sediment and cobbles need to be cleared at the inlet	370419.7707	3961296.532
	215	Other Drainage Feature	Culverts on top of spillway	No Apparent Concern	Yes	No comments.	370756.0054	3960550.618
	216	Other Drainage Feature	Spillway drainage	No Apparent Concern	Yes	No comments.	370786.2949	3960856.918
	217	Other	Road Condition	NA	Yes	Good native material.	370765.9286	3960868.752
	219	Culvert	18" CMP	No Apparent Concern	Yes	Sediment in inlet	370622.2747	3961117.063
	220	Culvert	32" CMP	No Apparent Concern	Yes	No comments.	369934.6943	3960546.178
26-Kern River No. 3 Machine Shop Access Road	250	Other	Other Observation	Sediment from potential flooding	Yes	Sediment deposit on road, likely from flooding	370046.8286	3960352.536
	251	Gate	West gate, coming off of Sierra Highway, access to SCE machine shop and powerhouse.	NA	Yes	No comments.	370130.8186	3960208.545
27-Kern River No. 3 Penstocks North Access Road	240	Erosion Feature	Drainage ditch eroding	NA	Yes	Drainage ditch on eastside of road is eroding (spreading to road).	370220.8491	3960276.105
	241	Erosion Feature	Rills	NA	Yes	Rills running through center of road. 3-4" rills	370291.7857	3960336.736
	242	Erosion Feature	Rills	NA	Yes	Minor rills on road, no clear drainage ditch for water to run along road; 3" rills	370406.8203	3960315.533
	243	Erosion Feature	Rills	NA	Yes	Small rills running down center of road.	370436.9058	3960282.42
28-Kern River No. 3 Penstocks South Access Road	223	Gate	Kern River No.3 Penstocks gate.	NA	Yes	No comments.	370483.0945	3959968.972
	226	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	Ditch used for road drainage, minor rilling upland. Good condition.	370491.9345	3960042.476
29-Chlorinator House Access Road	221	Gate	Chlorinator House Access Road gate.	NA	Yes	No comments.	370450.5793	3960005.749
	222	Other	Road Condition	NA	Yes	Aggregate and gravel on road, single lane, road closed, has a gate.	370404.9898	3959969.671
30-Kern River No. 3 Powerhouse Access Road	233	Gate	East gate to SCE powerhouse.	NA	Yes	No comments.	370221.2783	3960033.001
31-Kern River No. 3 Warehouse Access Road	255	Other	Road Condition	NA	Yes	No Comments	370492.2512	3959586.07
	256	Gate	Gate to maintenance shops.	NA	Yes	No comments.	370487.7616	3959573.622
32-Kern River No. 3 Campus Access Road	235	Sign	SCE sign going up to living area, "Private Road Keep Off"	NA	Yes	No comments.	370280.7145	3960001.708
	236	Gate	North gate to SCE campus, off of Sierra Highway.	NA	Yes	No comments.	370358.1641	3959969.614
	237	Other	Road Condition	NA	Yes	Paved, very good condition.	370244.0704	3960019.861
	259	Gate	West gate to SCE campus.	NA	Yes	No comments.	370428.0868	3959936.007
	260	Other	Road Condition	NA	Yes	No comments.	370423.6651	3959931.978
33-Kern River South Garge Access Road	227	Other	Road Condition	NA	Yes	Road filled with aggregate and gravel, has a closed gate	370481.6178	3959880.448
	228	Other	Road Condition	NA	Yes	Gravel and car equipment, lots of pine cones, fencing at the end on the other side	370440.4771	3959881.431
	229	Gate	South garage access gate.	NA	Yes	No comments.	370485.2476	3959900.555
USFS Road A	46	Erosion Feature	Water draining across road	NA	Yes	Water is draining across road, could cause issues in future; may need to be armored	367673.3147	3973620.158
	47	Culvert	18" CMP	Potential Concern	Yes	Outlet is 2/3 sediment	367585.1121	3973750.064
	48	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	367713.6187	3973751.688
	49	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	367665.0612	3973752.362
	50	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	367758.1194	3973776.201
	51	Other Drainage Feature	Lead out ditch	No Apparent Concern	Yes	No comments.	367791.2486	3973803.619
USFS Road B	16	Public Usage of Project Road	12 people hiking up proposed road	NA	Yes	Observed large group of people hiking on proposed project road	368119.0127	3972629.764
	17	Erosion Feature	Rill	NA	Yes	4" rills extend 20 feet from south end of road	368084.1613	3972620.103
	19	Erosion Feature	Rill	NA	Yes	Minor rills, roughly 10" for about 30'.	368322.7146	3972752.347
	20	Erosion Feature	Rill	NA	Yes	Minor rilling about 6 inches for about 50'	368350.7495	3972820.58
	70	Erosion Feature	Rill	NA	Yes	Rills extend for about 100' towards Tunnels 10-12 Access Road	368529.6816	3972782.385
USFS Road C	244	Other	Road Condition	NA	Yes	No comments	370474.5914	3960273.59
	245	Erosion Feature	Drainage ditch erosion	NA	Yes	East side of road is being eroding by drainage ditc; need to establish drainage	370485.9785	3960313.224
	246	Other	Road Condition	Road Condition	Yes	No Comments	370522.063	3960453.499
	247	Other	Road Condition	Road Condition	Yes	No Comments	370651.7421	3960557.383
	248	Other	Road Condition	Road Condition	Yes	Good A lot of vegetation	370643.9209	3960500.922

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APPENDIX C
PROJECT AND SHARED ACCESS ROAD CONDITIONS FIGURES

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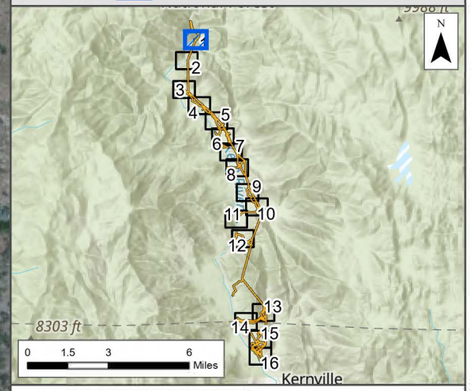
DETAIL AREA



FERC Project Boundary

Vehicle Access Gate

Put-in/Take-out Sites

Facilities

Access Route Condition

Good

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 1 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON

Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

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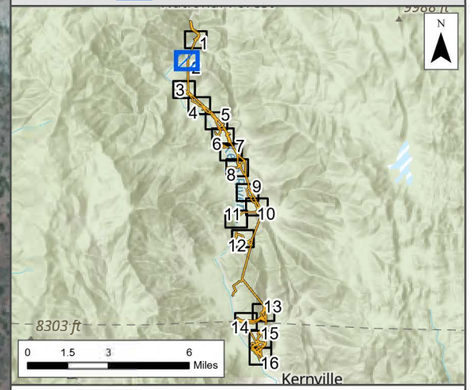


FERC Project Boundary

Sequoia NF Recreation Sites

Boating - Non-Motorized

Day Hiking

Access Route Condition

Good

N

0 160 320 640

Feet

Access Route Conditions

Project:

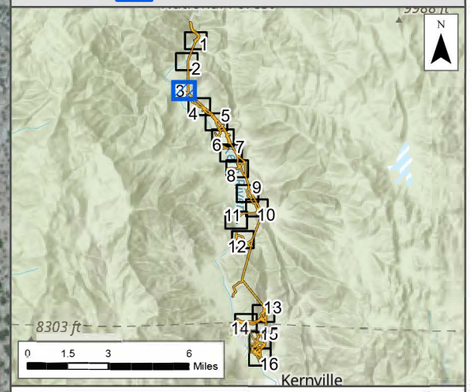
Sheet 2 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead

DETAIL AREA



FERC Project Boundary

Put-in/Take-out Sites

Sequoia NF Recreation Sites

Campground Camping

Access Route Condition

Good

Culvert Condition

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 3 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
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DRAWN BY: Henrik.Westerkam

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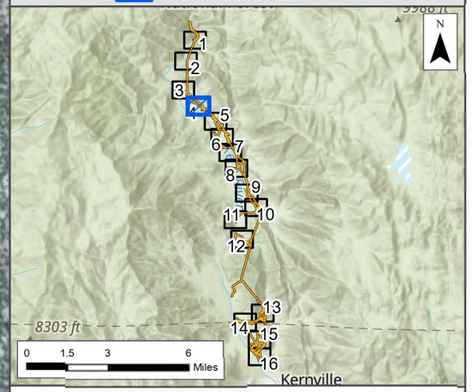

FERC Project Boundary

Facilities

Access Route Condition

Good

Culvert Condition

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 4 of 16

SCE Kern River No. 3

ERM

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3-Tunnels 5-8A Access Road

3-Tunnels 5-8A Access Road

USFS Road A

5-Salmon Creek Diversion Access Road

Salmon Creek Diversion Dam & Pipeline

Stream Crossing

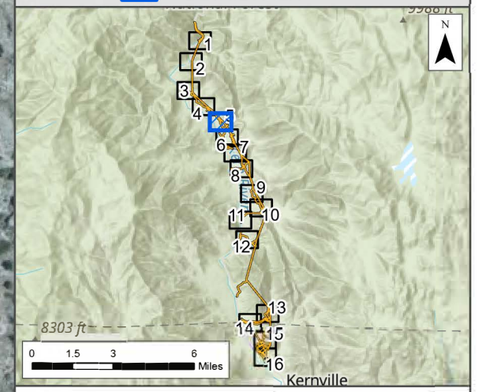
Bridge Blown Out

4-Tunnel 8A/8B Flume Access Road

7-Tunnel 9A/9B Flume Access Road

6-Rincon Access Road

DETAIL AREA



FERC Project Boundary

Facilities

Not Passable Road

Access Route Condition

Good

Good/Fair

Fair

Culvert Condition

Concern Likely

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

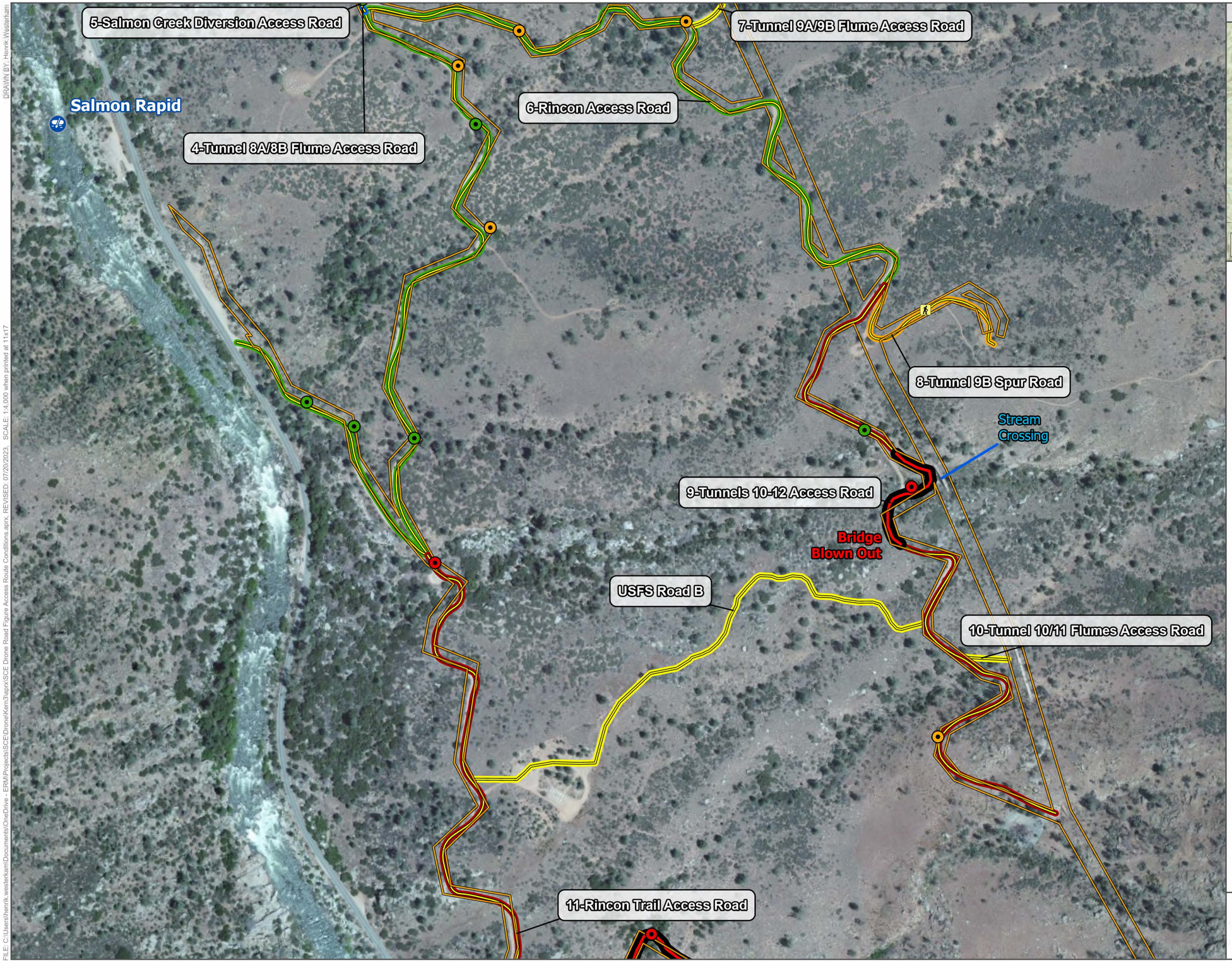
Project:

Sheet 5 of 16

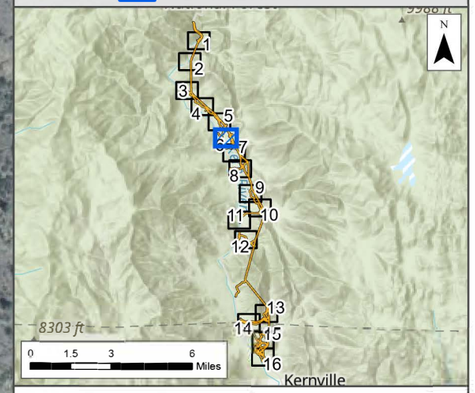
SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead



DETAIL AREA



FERC Project Boundary

Put-in/Take-out Sites

Not Passable Road

Sequoia NF Recreation Sites

Day Hiking

Access Route Condition

Good

Good/Fair

Fair

Poor/Fair

Poor

Culvert Condition

Concern Likely

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 6 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON

Energy for What's Ahead

DRAWN BY: Henrik Westerdam

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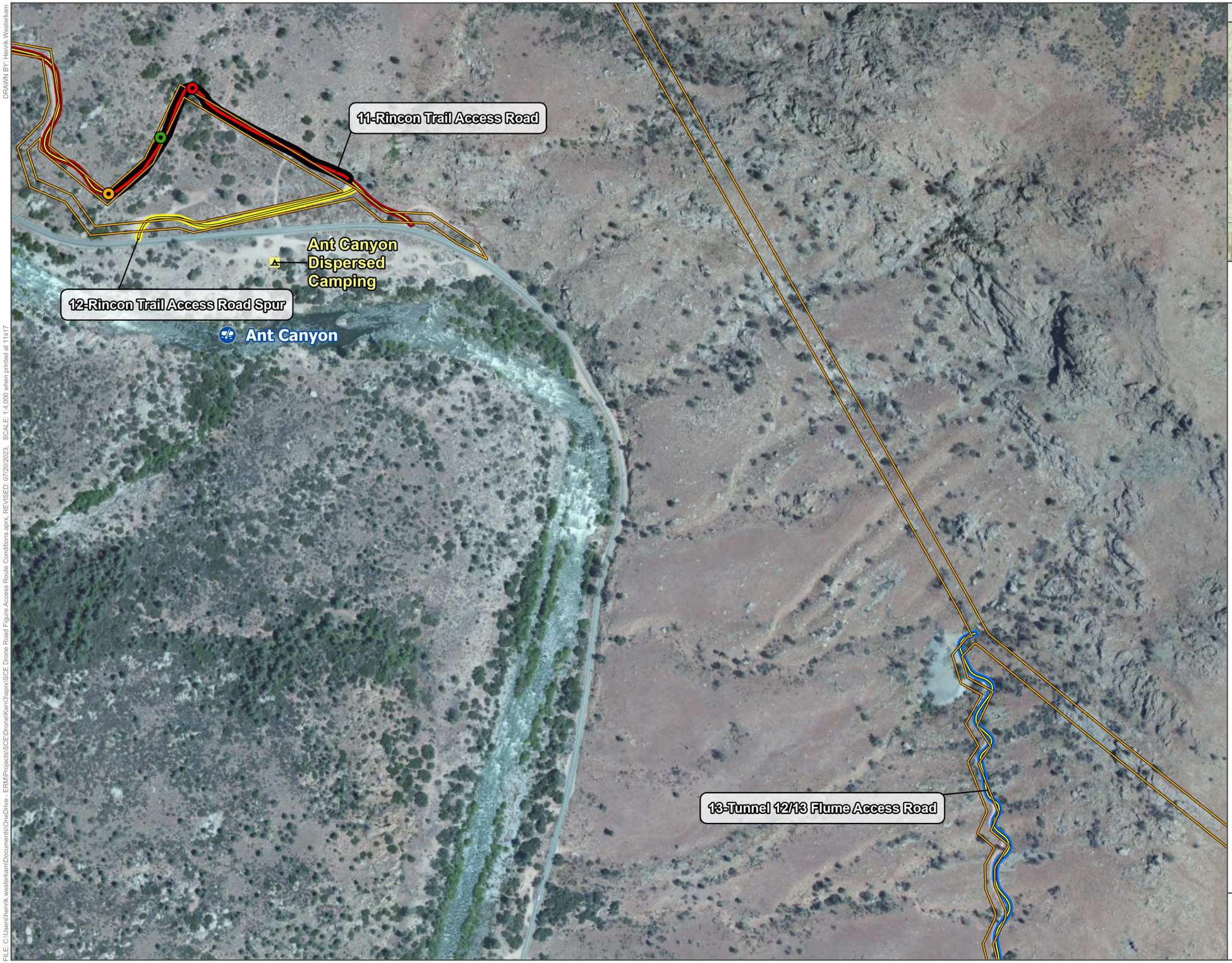
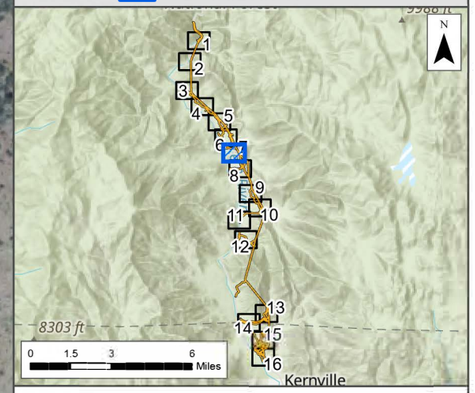


DETAIL AREA



FERC Project Boundary
Put-in/Take-out Sites
Not Passable Road

Sequoia NF Recreation Sites
Campground Camping

Access Route Condition
Good/Fair
Fair
Poor

Culvert Condition
Concern Likely
No Apparent Concern
Potential Concern

N

0 160 320 640
Feet

Access Route Conditions

Project:

Sheet 7 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

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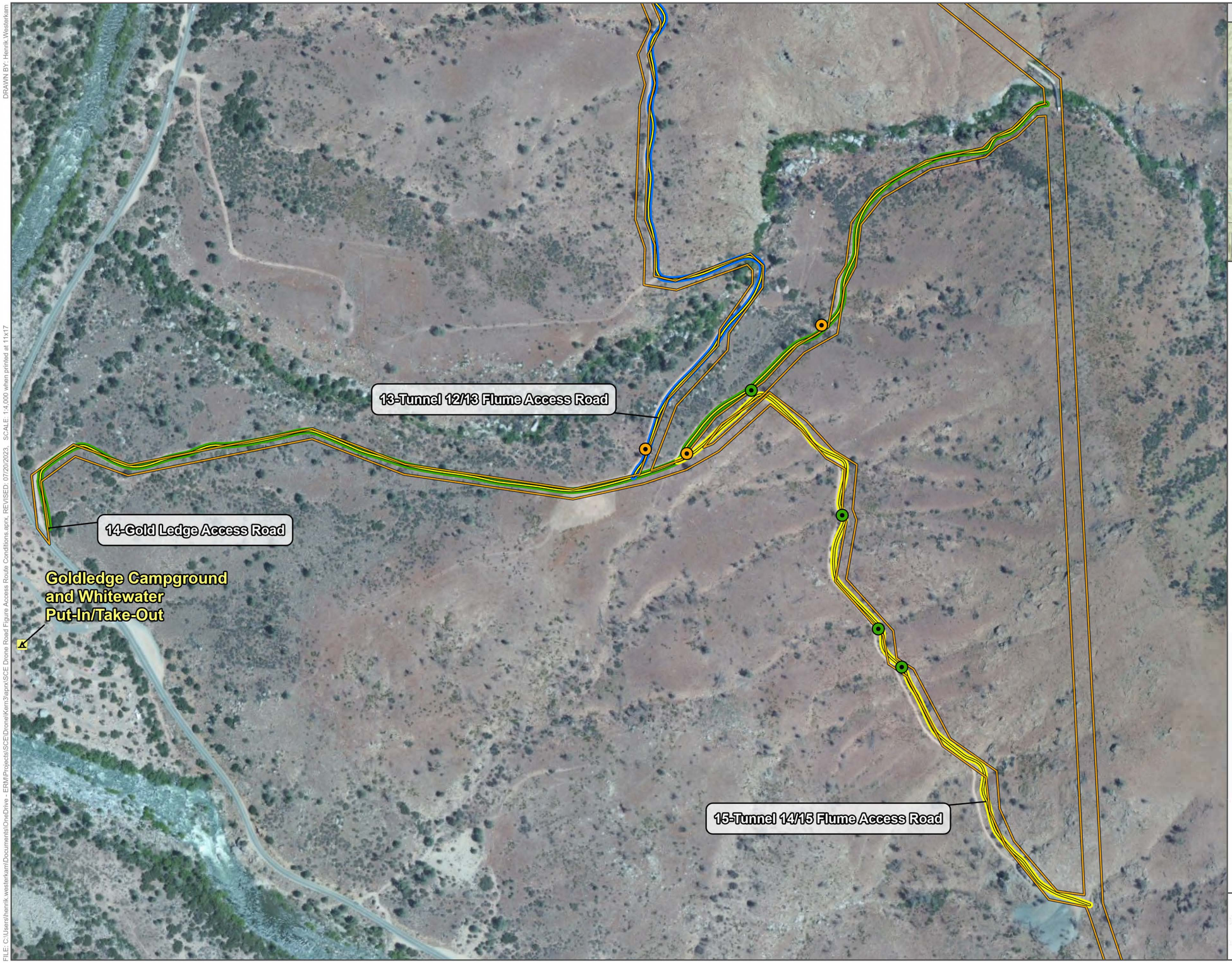
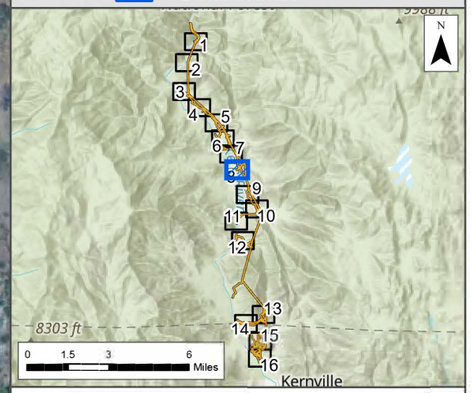


DETAIL AREA



FERC Project Boundary

Sequoia NF Recreation Sites

Campground Camping

Access Route Condition

Good

Good/Fair

Fair

Culvert Condition

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

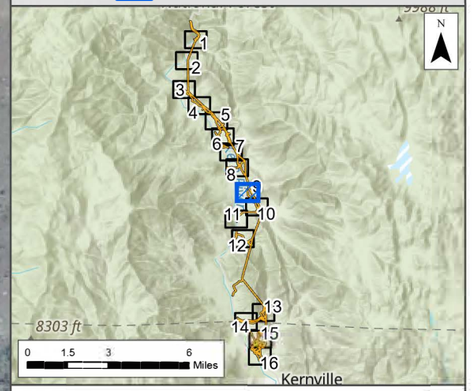
Sheet 8 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON Energy for What's Ahead

DETAIL AREA



FERC Project Boundary

Sequoia NF Recreation Sites

Campground Camping

Access Route Condition

Good

Culvert Condition

No Apparent Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 9 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

FILE: C:\Users\henrik.westerkam\Documents\OneDrive - ERM\Projects\SCE\DroneKern3\aprx\SCE Drone Road Figure Access Route Conditions.aprx, REVISED: 07/20/2023, SCALE: 1:4,000 when printed at 11x17

DRAWN BY: Henrik.Westerkam

FILE: C:\Users\henrik.westerkam\Documents\OneDrive - ERM\Projects\SCE\Drone\Kern3\aprx\SCE Drone Road Figure Access Route Conditions.aprx, REVISED: 07/20/2023, SCALE: 1:4,000 when printed at 11x17

16-Tunnel 16/17 Flume Access Road

17-Corral Creek Flumes North Access Road

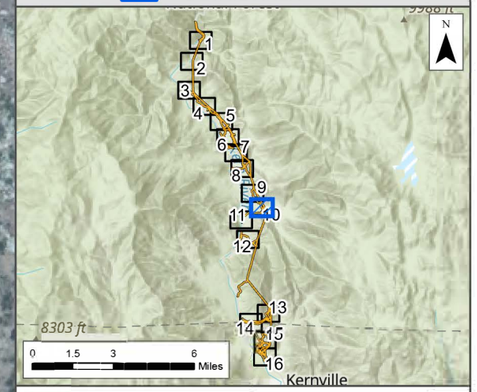
Stream Crossing

Corral Creek Diversion Dam & Pipeline

18-Corral Creek Diversion Access Road

19-Corral Creek Flumes South Access Road

DETAIL AREA



FERC Project Boundary

Facilities

Access Route Condition

Good

Culvert Condition

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

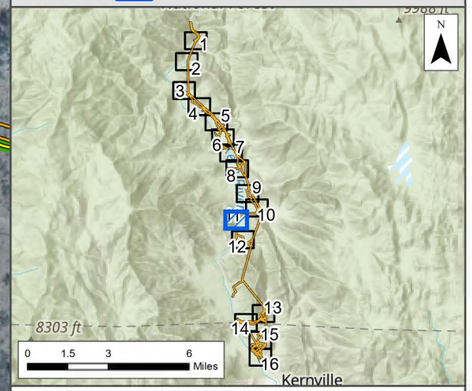
Sheet 10 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead

DETAIL AREA



FERC Project Boundary

Put-in/Take-out Sites

Access Route Condition

Good

Culvert Condition

No Apparent Concern

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 11 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead

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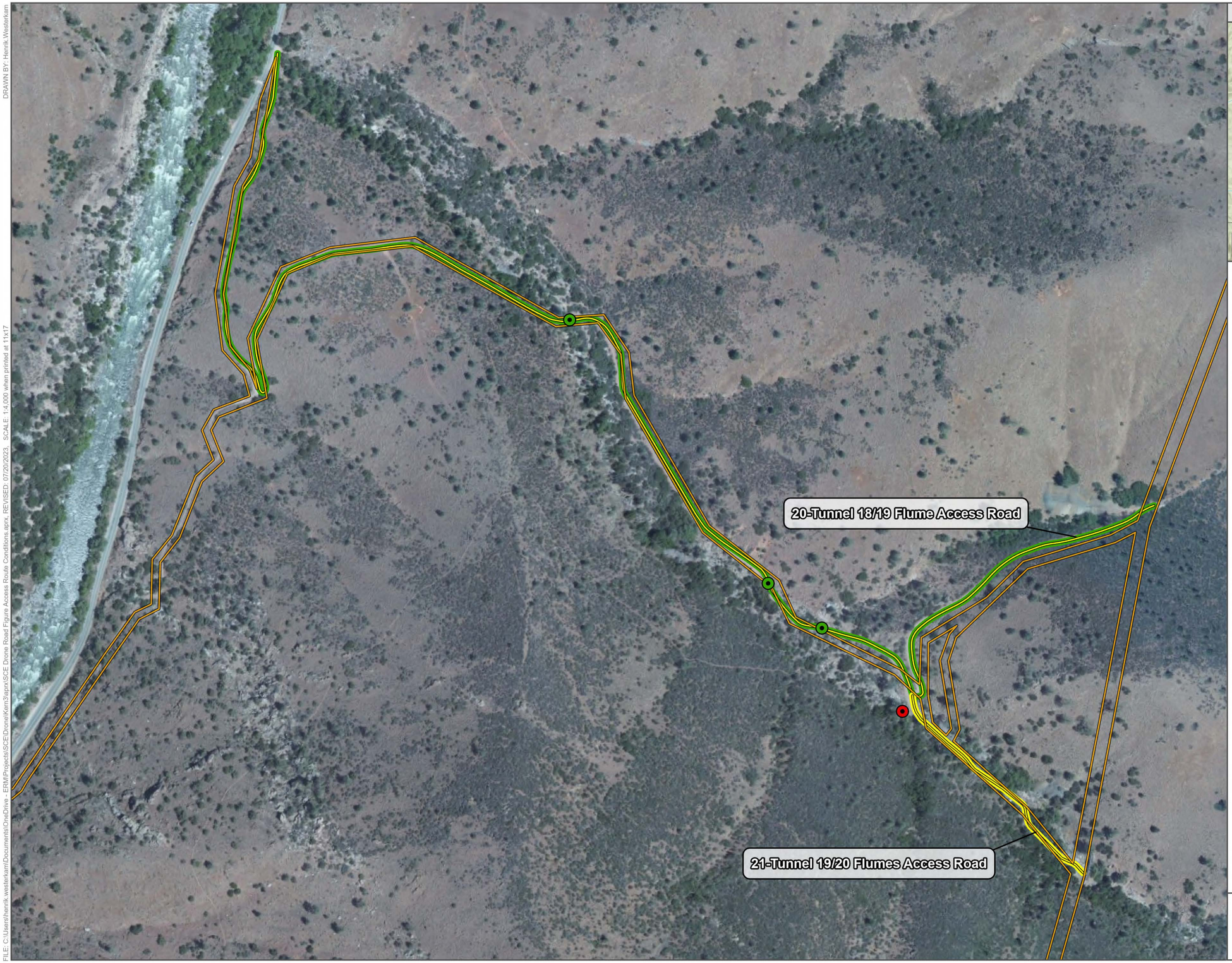

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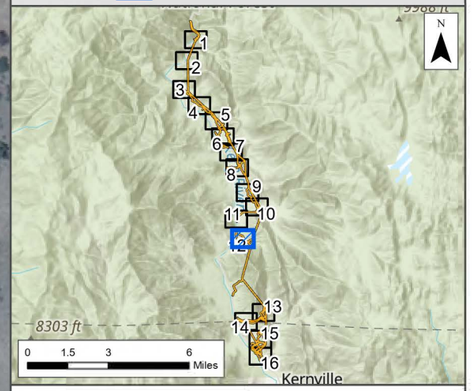

FERC Project Boundary

Access Route Condition

Good

Fair

Culvert Condition

Concern Likely

No Apparent Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 12 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON

Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

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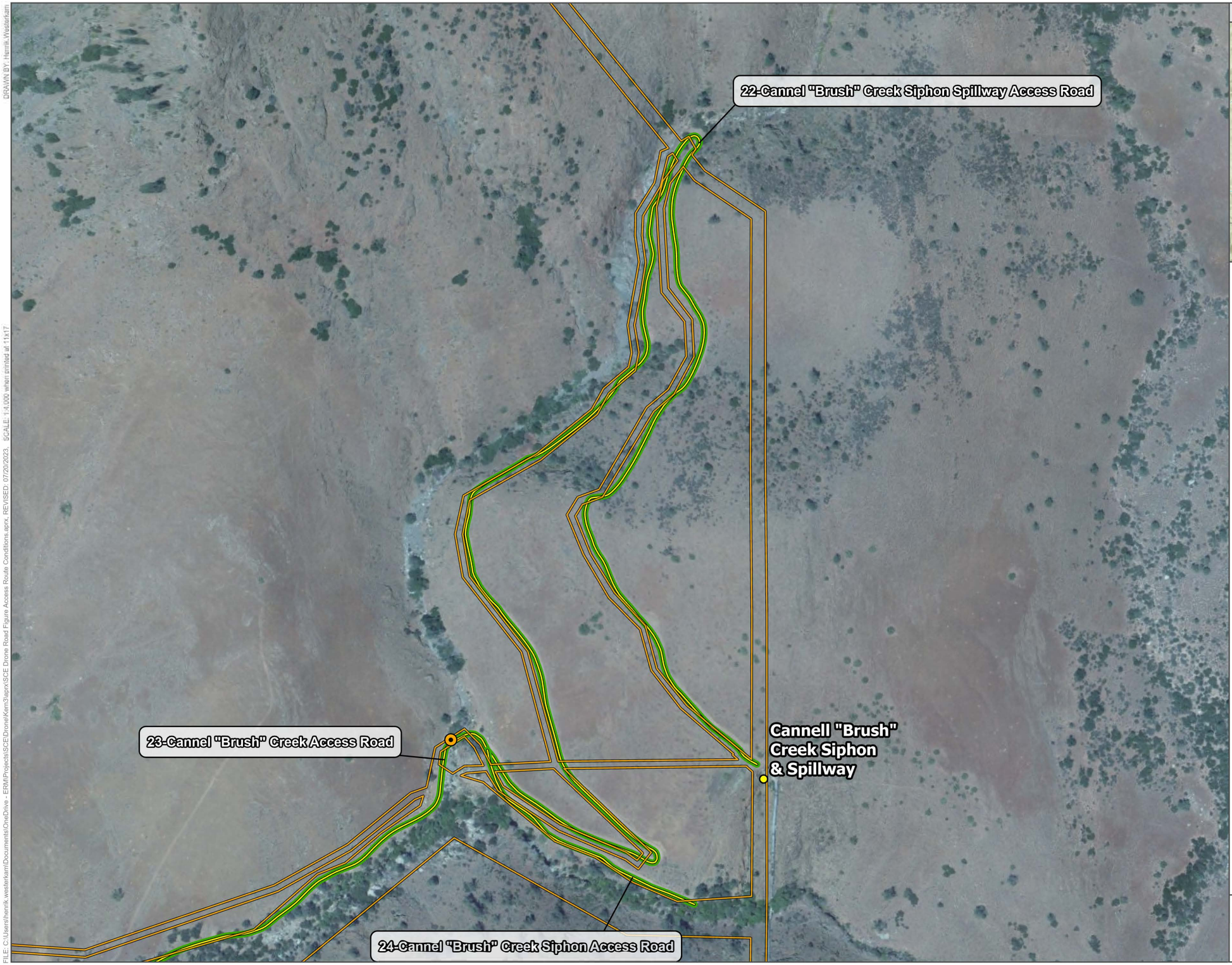
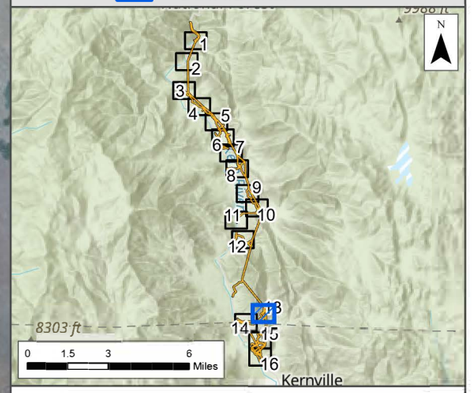


DETAIL AREA



FERC Project Boundary

Facilities

Access Route Condition

Good

Culvert Condition

Potential Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 13 of 16

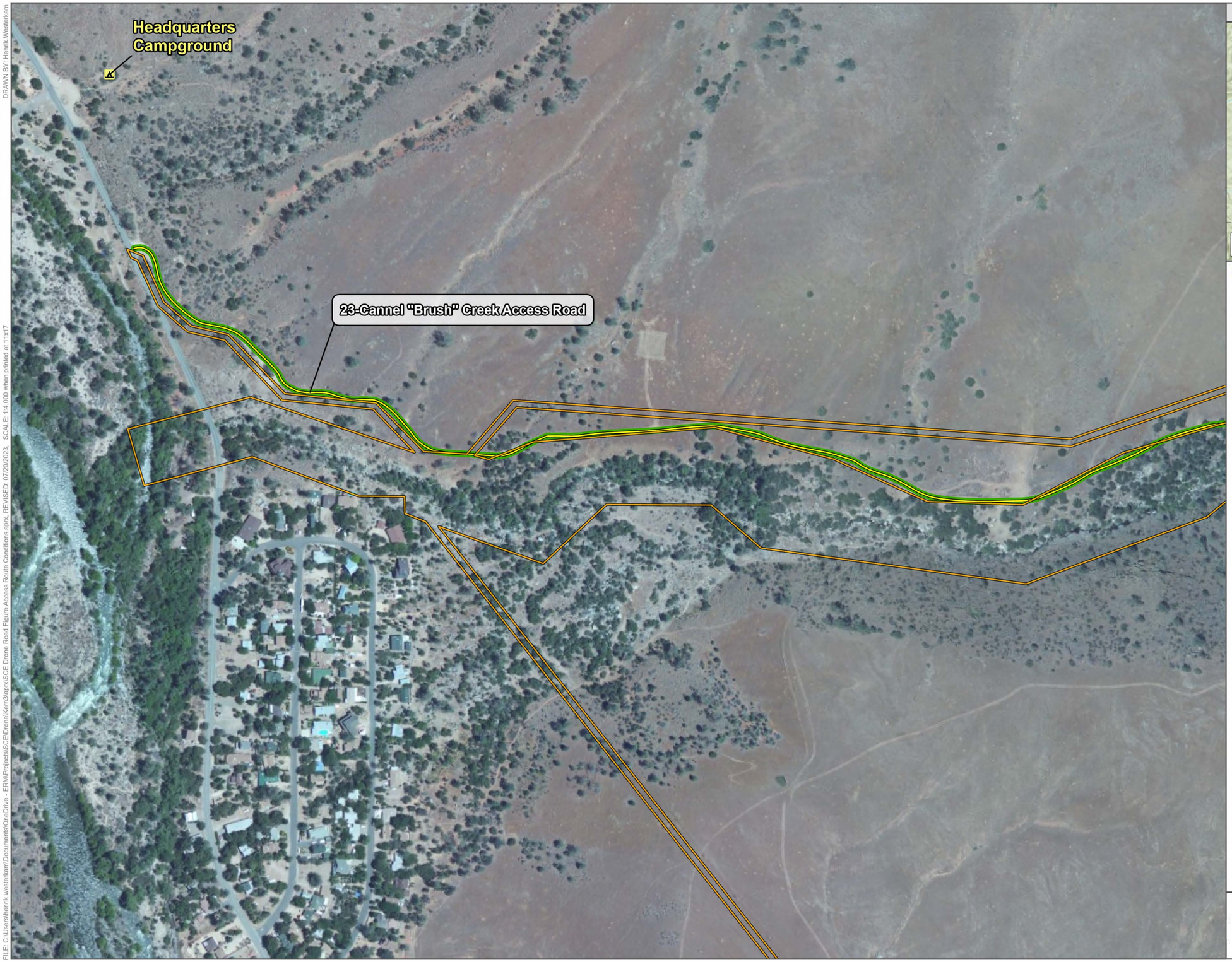
SCE Kern River No. 3

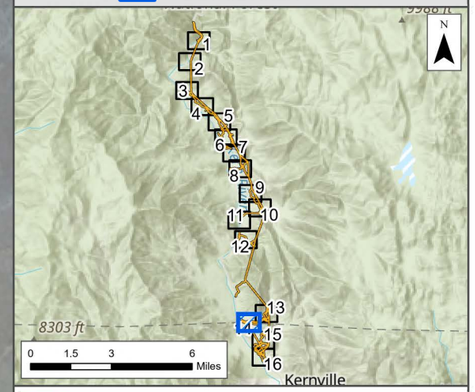
ERM

SOUTHERN CALIFORNIA EDISON Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

FILE: C:\Users\henrik.westerkam\Documents\OneDrive - ERM\Projects\SCE\Drone\Kern3\aprx\SCE Drone Road Figure Access Route Conditions aprx, REVISED: 07/20/2023, SCALE: 1:4,000 when printed at 11x17





FERC Project Boundary

Sequoia NF Recreation Sites

Campground Camping

Access Route Condition

Good

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 14 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON
Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

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25-Kern River No. 3 Forebay Access Road

Spillway

USFS Road C

Forebay & Intake

26-Kern River No. 3 Machine Shop Access Road

27-Kern River No. 3 Penstocks North Access Road

DETAIL AREA

9586 ft

8303 ft

0 1.5 3 6 Miles

Kernville

FERC Project Boundary

Vehicle Access Gate

Facilities

Access Route Condition

Good

Fair

Poor/Fair

Culvert Condition

Concern Likely

No Apparent Concern

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 15 of 16

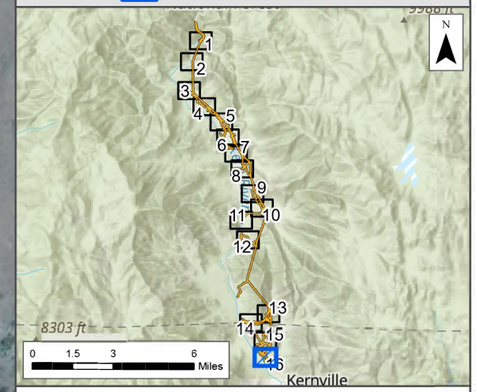
SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON

Energy for What's Ahead

DETAIL AREA



FERC Project Boundary

Vehicle Access Gate

Put-in/Take-out Sites

Facilities

Sequoia NF Recreation Sites

Boating - Non-Motorized

Access Route Condition

Good

Fair

Poor/Fair

N

0 160 320 640

Feet

Access Route Conditions

Project:

Sheet 16 of 16

SCE Kern River No. 3

ERM

SOUTHERN CALIFORNIA EDISON Energy for What's Ahead

DRAWN BY: Henrik.Westerkam

FILE: C:\Users\henrik.westerkam\Documents\OneDrive - ERM\Projects\SCE\Drone\Kern3\aprx\SCE Drone Road Figure Access Route Conditions.aprx, REVISED: 07/20/2023, SCALE: 1:4,000 when printed at 11x17

APPENDIX D
KR3 VEHICLE SPOT COUNT DATA FORM

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Kern River No. 3 Relicensing
Project Road Use Information and Incidental Public Observations

Road ID	SCE Road Name	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs
1	Sandbox Access Road							
2	Tunnel 1/4 Flume Access Road							
3	Tunnels 5-8A Access Road (north of Adit 6/7)							
3	Tunnels 5-8A Access Road (south of Adit 6/7)							
4	Tunnel 8A/8B Flume Access Road							
A	Mtn Hwy to Tunnel 8A/8B (NOT an SCE road, alt access road as Salmon Ck crossing not passable)							
5	Salmon Creek Diversion Access Road							
6	Rincon Access Road (primary public road to trailhead)							
7	Tunnel 9A/9B Flume Access Road							
8	Tunnel 9B Spur Road							
9a	Tunnels 10-12 Access Road (trailhead spur to creek crossing - road not drivable)							
B	4WD Road to access Tunnel 10-12 (NOT an SCE road at this time)							
10	Tunnel 10/11 Flumes Access Road							
9b	Tunnels 10-12 Access Road (south end from proposed road B to Tunnel 12)							
11	Rincon Trail Access Road (turnoff from Rincon Access Rd to proposed Rd B; remainder not drivable)							
12	Tunnel 12/13 Flume Access Road (not drivable)							
13	Gold Ledge Access Road (road to the north)							
14	Tunnel 14/15 Flume Access Road (primary road from Mtn Hwy)							
15	Tunnel 16/17 Flume Access Road (road to the south)							

Kern River No. 3 Relicensing
Project Road Use Information and Incidental Public Observations

Road ID	SCE Road Name	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs	Date/# of Cars Obs
16	Corral Creek Flume North Access Road							
17	Corral Creek Diversion Access Road							
18	Corral Creek Flume South Access Road							
19	Tunnel 18/19 Flume Access Road							
20	Tunnel 19/20 Flume Access Road							
21	Cannel Creek Siphon Spillway Access Road							
22	Cannel Creek Siphon Spillway Access Road (junction to top)							
23	Cannel Creek Siphon Access Road (from Mtn Hwy)							
24	Cannel Creek Siphon Access Road (junction to bottom)							
25	Kern River No. 3 Machine Shop Access Road							
26	Kern River No. 3 Penstocks North Access Road (Gated)							
27	Kern River No. 3 Penstocks South Access Road							
C	Upper Spillway Channel Access (from Road 27)							
28	Chlorinator House Access Road							
29	Kern River No. 3 Powerhouse Access Road							
30	Kern River No. 3 Campus Access Road (main road to access PH rec site)							
31	Kern River South Garage Access Road							

Comments or Notes

APPENDIX E
PHOTO LOG

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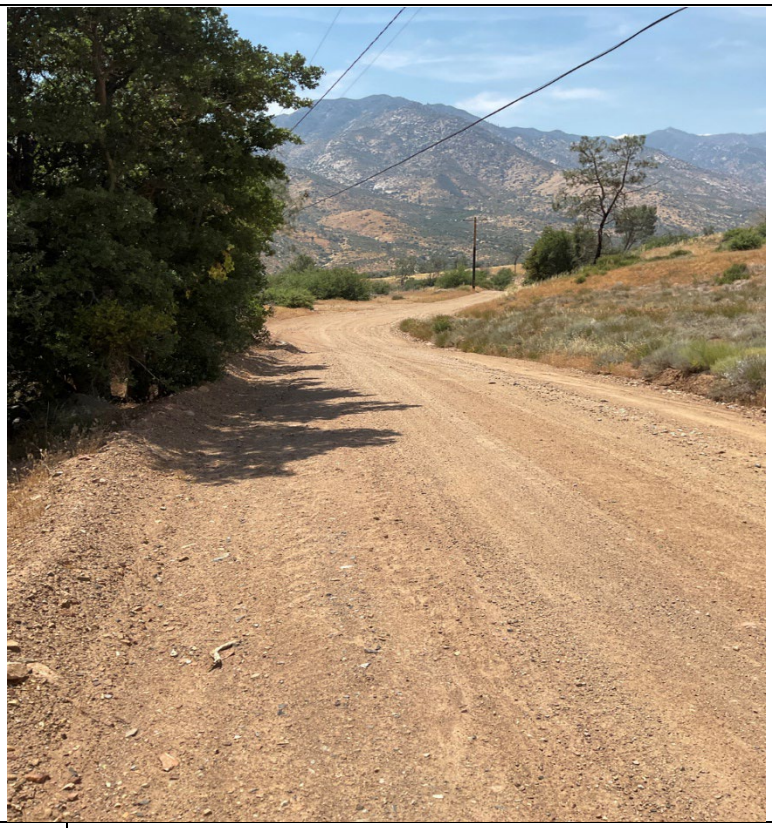


Photograph: 1	Example of Project Access Road in “Good Condition”; no ruts or potholes, no vegetation in the road, drainage features were in good condition. Cannel Brush Creek Access Road, facing south.

Photograph: 2	Example of Project Access Road in “Good Condition”, with very minor vegetation concern. Tunnel 16/17 Access Road, facing south.

Photograph: 3	Example of Project Access Road in “Good Condition”. Kern River No. 3 Powerhouse Access Road, facing east.

Photograph: 4	Example of road in “poor condition”; erosion gullies, vegetation growing in road, multiple rills. West side of Rincon Trail Access Road, facing west.

Photograph: 5	Example of road in “Fair Condition. Note the rills and some overgrown vegetation. North Penstocks Access Road, facing east.

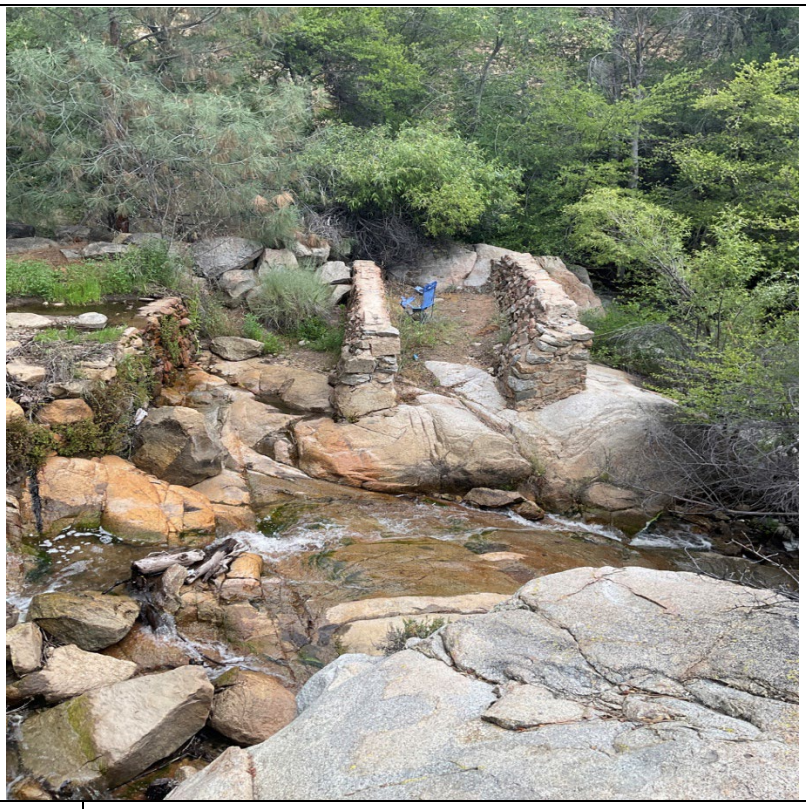
Photograph: 6	Example of culvert categorized as “No Apparent Concern”, inlet side, facing west.

Photograph: 7	Example of culvert categorized as “Potential Concern”, due to blockage inlet side, facing north.

Photograph: 8	Example of culvert categorized as “Concern Likely”, inlet side, facing northeast.

Photograph: 9	Example of unmarked, non-functioning culvert. Rincon Trail Access Road, facing west.

Photograph: 10	Section of Rincon Access Trail Road that is not passable due to erosion concerns. On the east side of Rincon Access Trail road, facing west.



Photograph: 11	Where bridge used to be, Tunnel 8A/8B Flume Access Road, facing south. There are little erosion concerns as stream banks are protected by boulders and vegetation, dissipating the water's energy.

Photograph: 12	Erosion concern, where bridge used to be at Tunnels 10-12 Access Road. Facing northwest.

Photograph: 13	Where bridge used to be at Tunnels 10-12 Access Road. Facing southeast.

Photograph: 14	Example of erosion rill, the most common erosion feature observed in the field.

Photograph: 15	Example of gated SCE Project Road, restricting public access. All SCE gates were locked and in good working condition.

Photograph: 16	Example of SCE sign that will need to be replaced.

Photograph: 17	Example of sheet erosion due to run-off from Sierra Highway. Sandbox Access Road, facing southwest.

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OPS-1 WATER CONVEYANCE ASSESSMENT
INTERIM TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

October 2023

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ACRONYMS AND ABBREVIATIONS

cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
KR3	Kern River No. 3
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
RSP	Revised Study Plan
SCE	Southern California Edison
SPD	Study Plan Determination

1.0 INTRODUCTION

This interim Technical Memorandum provides the methods and findings of the desktop analysis associated with the *OPS-1 Water Conveyance Assessment Study Plan* in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The OPS-1 Study Plan was included in SCE's Revised Study Plan (RSP) submitted on July 1, 2022 (SCE, 2022). In the October 12, 2022 Study Plan Determination (SPD) (FERC, 2022), FERC approved the OPS-1 Study Plan with modifications. Specifically, FERC recommended SCE evaluate a full range operational flows (no flow to full tunnel flows) with the goal of determining what flows are necessary for maintaining Project safety and tunnel integrity in addition to reviewing any available construction documents or reports associated with previous tunnel rehabilitation projects.

Data review and analysis efforts associated with characterization of the hydraulics (hydraulic assessment) for the full range of tunnel flows were initiated in 2023 and summarized below. SCE will complete additional work associated with the structural integrity analysis of the unlined and concrete-lined conveyance tunnel (structural integrity assessment), with results included as part of the Draft License Application and Updated Study Report.

The OPS-1 Study was conducted with support from engineering firms MarshWagner and Kleinschmidt Associates, who have documented expertise in hydropower, hydraulic analyses, and tunnels / underground structures. MarshWagner led the evaluation of tunnel and lining integrity based on their desktop review of documentation available on the tunnel design and construction and supported by tunnel hydraulic characteristics developed by Kleinschmidt Associates. Note that a site visit was not conducted and that all analyses were based on available information on the geology, tunnel design and construction, and hydraulic flow data.

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in OPS-1 Study Plan (SCE, 2022), include:

- Conduct an engineering review and evaluation of current water 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 water conveyance system integrity.

3.0 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 between Fairview Dam and the KR3 Forebay. The water conveyance infrastructure included with the analysis and described herein was limited to tunnels, open and covered aboveground flumes, a steel siphon, and a regulated pressure flume.

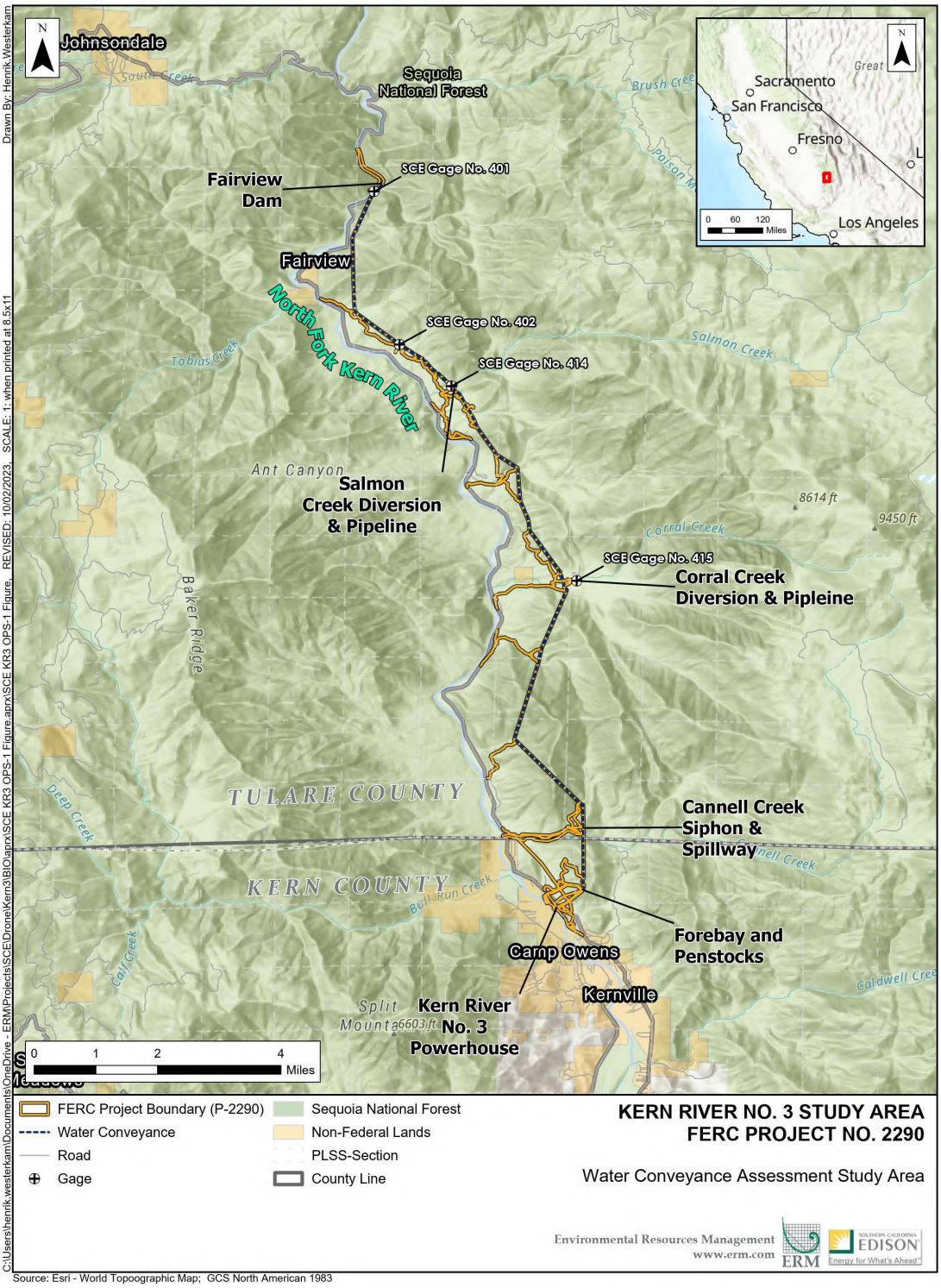


Figure 3-1. Water Conveyance Assessment Study Area.

4.0 METHODS

Study implementation followed the methods described in SCE's RSP Package (SCE, 2022), and as amended by FERC in their SPD (FERC, 2022).

Study Plan Variances

There are no variances from the OPS-1 Study approved in the FERC SPD (FERC, 2022) issued in October 2022.

4.1. PHASE 1: SUMMARY OF EXISTING INFORMATION

The information sources used in this study for the hydraulic assessment include Project drawings to define tunnel alignment, profile, and cross-sections; correspondence with SCE staff regarding observed flow conditions in the tunnel; recorded flow data in the tunnel to correlate to observed flow conditions; and HEC-RAS reference manual (USACE, 2022). Specific references are listed below, which are also presented in the attached technical memorandum on the hydraulic assessment (see Appendix A, filed as CEII).

- SCE (Southern California Edison). 1990a. *Exhibit F General Design Drawings Kern River No. 3 Project*. Rosemead, CA
- SCE (Southern California Edison). 1990b. *Exhibit G Plan View of Kern River No. 3 Project.* Rosemead, CA.
- SCE (Southern California Edison). 2023a. North Fork Kern River time series table (preliminary data). Accessed: June 28, 2023. Retrieved from: https://www.sutronwin.com/scedison/tw/jsp/
- SCE (Southern California Edison). 2023b. RE: Exposed Tunnel Photos. Email Received: June 19, 2023.
- USACE (U.S. Army Corps of Engineers). 2022. *HEC-RAS River Analysis System Hydraulic Reference Manual,* Version 6.3.1. U.S. Army Corps of Engineers Hydrologic Engineering Center.
- WCC (Woodward – Clyde Consultants). 1998. *Reconnaissance Inspection and Evaluation of Kern River No. 3 Tunnels.* Prepared for SCE.
- Project documents, including as-built drawings, hydraulic information, descriptions of recent refurbishment work conducted on the tunnels, and any recent inspection reports.
- Interviews with SCE'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.

- Literature review of studies on tunnel structural integrity, tunnel operation and long-term effects of cycling tunnel flows and industry best practices.

4.2. PHASE 2: PROJECT CONVEYANCE FLOWLINE ASSESSMENT

4.2.1. HYDRAULIC ASSESSMENT

The following provides a brief summary of the hydraulic assessment methodology. Additional details are presented in a separate hydraulic assessment technical memorandum (Appendix A).

A 1D quasi-steady-state HEC-RAS hydraulic model was created to model flow conditions in the KR3 power conveyance tunnel (USACE, 2022). Although pressurized flow in the tunnel was not expected, the HEC-RAS model was set up with a Preissmann slot to accommodate pressurized flow conditions using open channel flow equations.

Flows modeled included constant flows of 100, 200, 300, 400, 500, and 600 cubic feet per second (cfs). The upstream boundary of the model is the tunnel entrance (Sta 10+57.69), just downstream from the sediment settling basin, and the downstream boundary is where the tunnel transitions to the concrete pressure pipe (Sta 643+44.21). The upstream boundary condition was set as a constant flow and the downstream boundary was modeled as a set water surface elevation of 3,505 feet, which represents the normal pond elevation of the forebay downstream of the concrete pressure pipe.

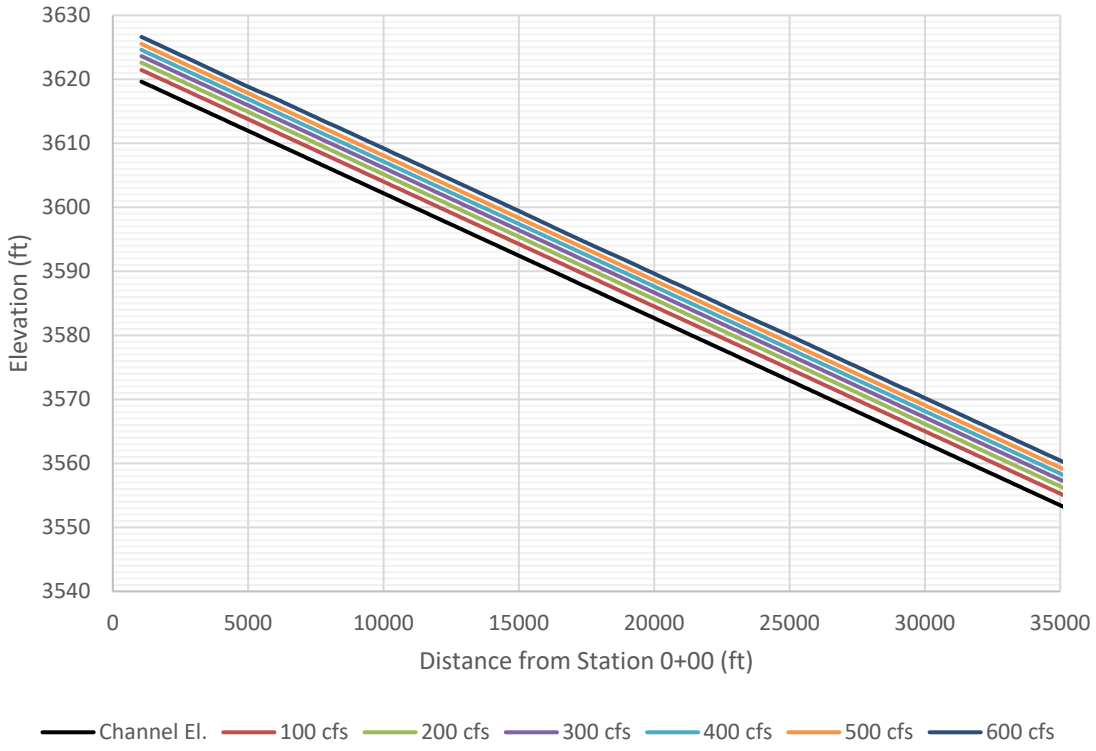
The results were used to inform potential conveyance lining abrasion and lining stability assessments along the tunnel segments of the conveyance flowline.

5.0 DATA SUMMARY

5.1. HYDRAULIC ASSESSMENT

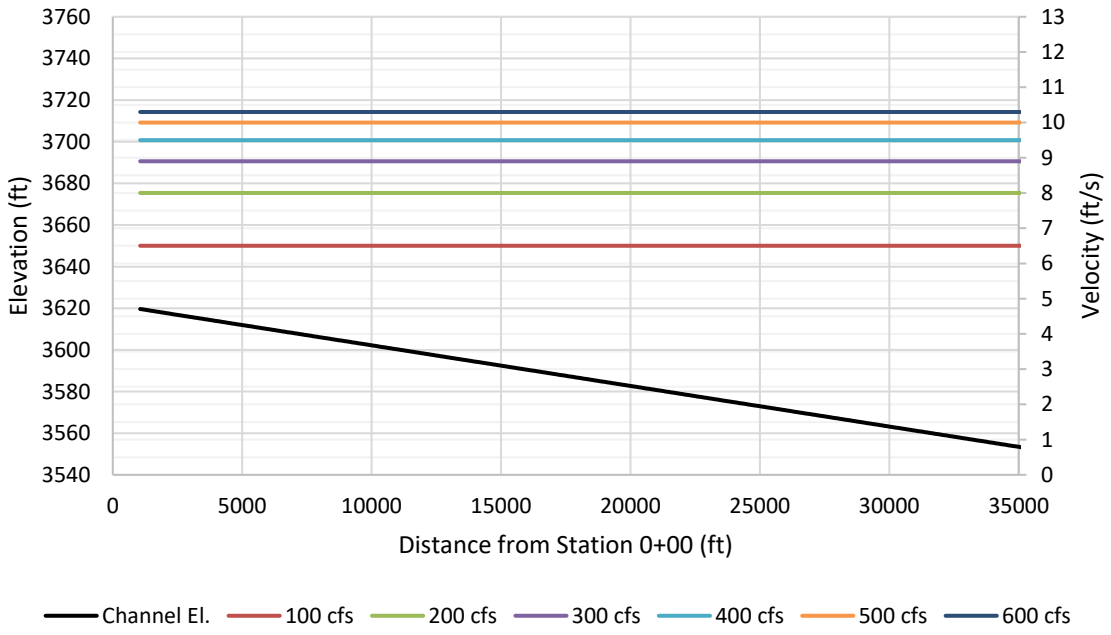
The following provides a brief summary of the hydraulic assessment results. Additional details are presented in a separate hydraulic assessment technical memorandum (Appendix A).

Water surface profiles and average flow velocity along the length of tunnel are presented in Figures 5.1-1 through 5.1-4 for the modeled flows ranging from 100 cfs to 600 cfs. Typical corresponding flow depth and velocity rating curves for each modeled flow are presented in Figures 5.1-5 and 5.1-6.



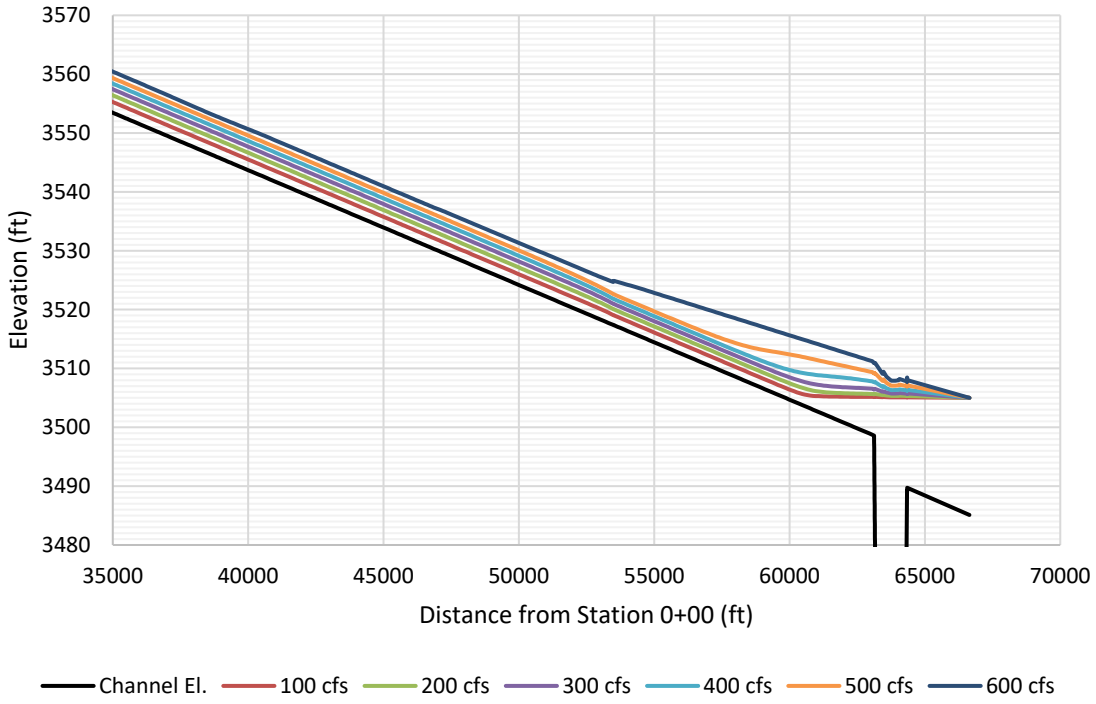
cfs = cubic feet per second; ft = foot

Figure 5.1-1. Estimated Water Surface Profiles in Tunnel STA 000+00 to 350+00.



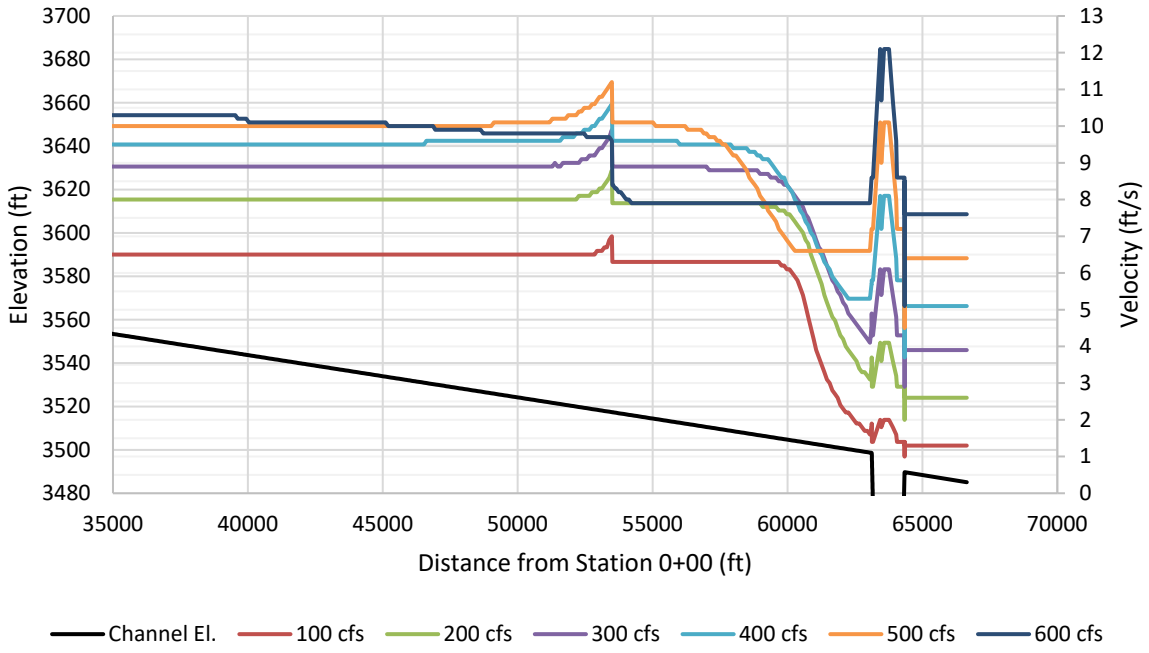
ft = foot; ft/s = feet per second

Figure 5.1-2. Estimated Velocity in Tunnel STA 000+00 to 350+00.



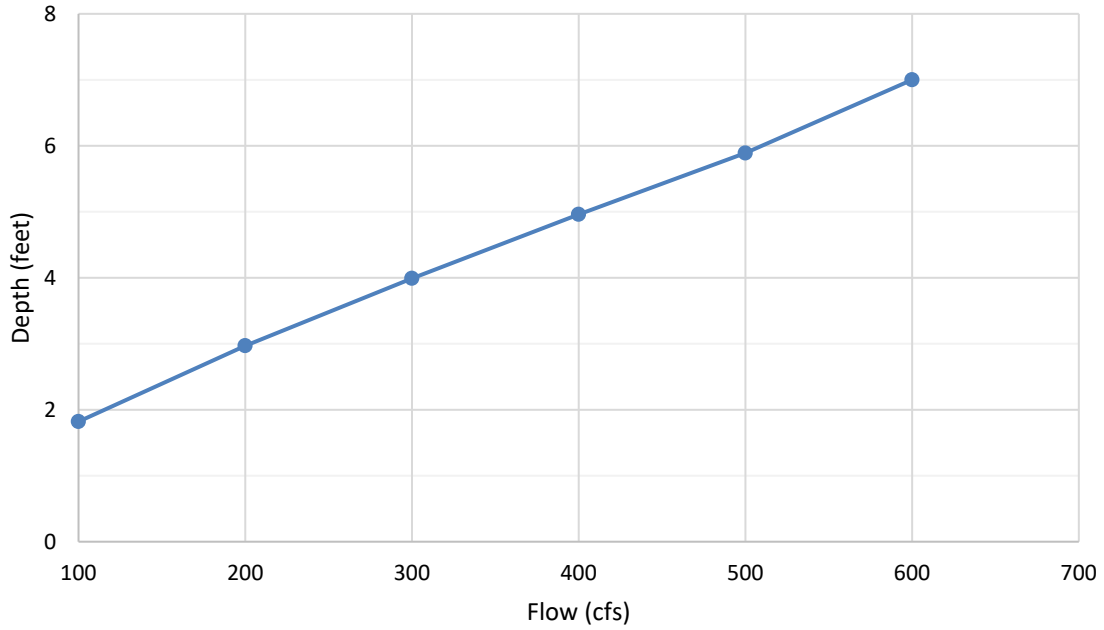
cfs = cubic feet per second; ft = foot

Figure 5.1-3. Estimated Water Surface Profiles in Tunnel STA 350+00 to 666+44.21.



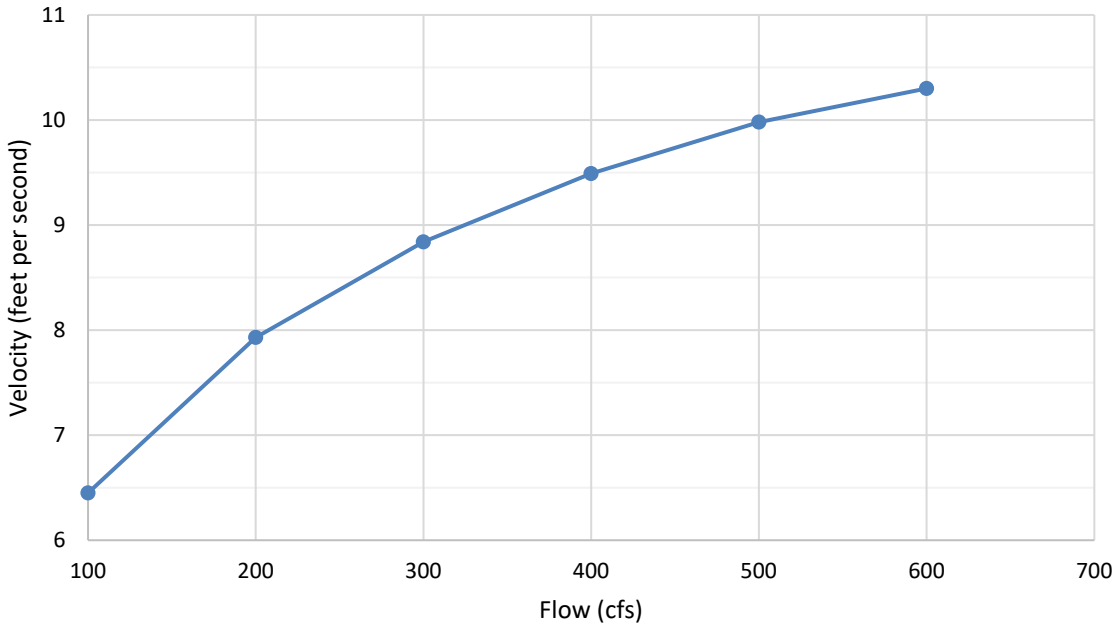
ft = foot; ft/s = feet per second

Figure 5.1-4. Estimated Velocity in Tunnel STA 350+00 to 666+44.21.



cfs = cubic feet per second; ft = foot

Figure 5.1-5. Typical Depth to Flow Relationship in Concrete-lined Tunnel Sections.



cfs = cubic feet per second

Figure 5.1-6. Typical Velocity to Flow Relationship in Concrete-lined Tunnel Sections.

6.0 STUDY SPECIFIC CONSULTATION

No study-specific consultation is required for this study, and no consultation has been conducted to date.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

Date	Activity
Fall/Winter 2023-2024	Complete Coneyance Flowline Structural Integrity Assessment
Fall 2024	Provide results in the Updated Study Report

8.0 REFERENCES

FERC (Federal Energy Regulatory Commission). 2022. *Study Plan Determination for the Kern River No. 3 Hydroelectric Project.* Accession No. 20221012-3024. October 12.

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APPENDIX A
KERN RIVER NO. 3 – STUDY OPS-1: WATER CONVEYANCE ASSESSMENT POWER TUNNEL HYDRAULIC MODEL RESULTS (FILED AS CEII)

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MEMORANDUM

To: Jillian Roach (ERM)

From: Cheyenne Kinn, EIT; Carl Mannheim, PE

Cc: Carlos Jaramillo, PE (MarshWagner)

Date: October 5, 2023 (REV 1)

Re: Kern River No. 3 – Study OPS-1: Water Conveyance Assessment Power Tunnel Hydraulic Model Results (REDACTED – PUBLIC VERSION)

INTRODUCTION

The Kern River No. 3 Hydroelectric Project (KR3) power conveyance tunnel segments may be affected by rapid flow cycling (i.e., decreases or increases in flow rates and corresponding decreases or increases in water levels in the conveyance). Current operating conditions include flows ranging from as little as 2-3 cubic feet per second (cfs) up to the maximum capacity of approximately 600 cfs. As part of Southern California Edison's (SCE) relicensing efforts for KR3, Federal Energy Regulatory Commission (FERC) has accepted a water conveyance assessment study (Study OPS 1: Water Conveyance Assessment) to evaluate the effects on conveyance tunnel lining stability for different flow rates by conducting an engineering review and evaluation of current water conveyance conditions (i.e., hydrostatic pressure, flow depth, and velocity) under varying flow conditions (up to 600 cfs), and to identify guidelines for future operation conditions using current project information and industry best practices to maintain water conveyance system (lining) integrity.

The purpose of this memorandum is to support the evaluation of lining stability in the tunnel segments by MarshWagner by providing a steady-state characterization of the flow conditions in the tunnel segments for a range of flows up to 600 cfs.

All elevations are reported in the KR3 Plant Datum.

BACKGROUND

The power conveyance comprises approximately 13 miles of water tunnels, open and covered aboveground flumes, a steel inverted siphon, flume overflow sections, and a forebay from which two penstocks connect to the powerhouse. The project FERC Exhibits F and G provided profile elevations (referenced to the Kern River No. 3 Plant datum), as well as tunnel and siphon geometry. The overall conveyance includes a combination of arched (D-shaped) tunnels, covered flumes, aboveground open flumes, an inverted siphon, and a concrete pressure pipe.

Figure 1 shows a plan and profile of the conveyance, based on known elevations at the tunnel entrance and at the siphon entrance but with assumed intermediate elevations. Per the referenced FERC exhibits, stationing is in the downstream direction starting at 0+00 at the diversion structure.

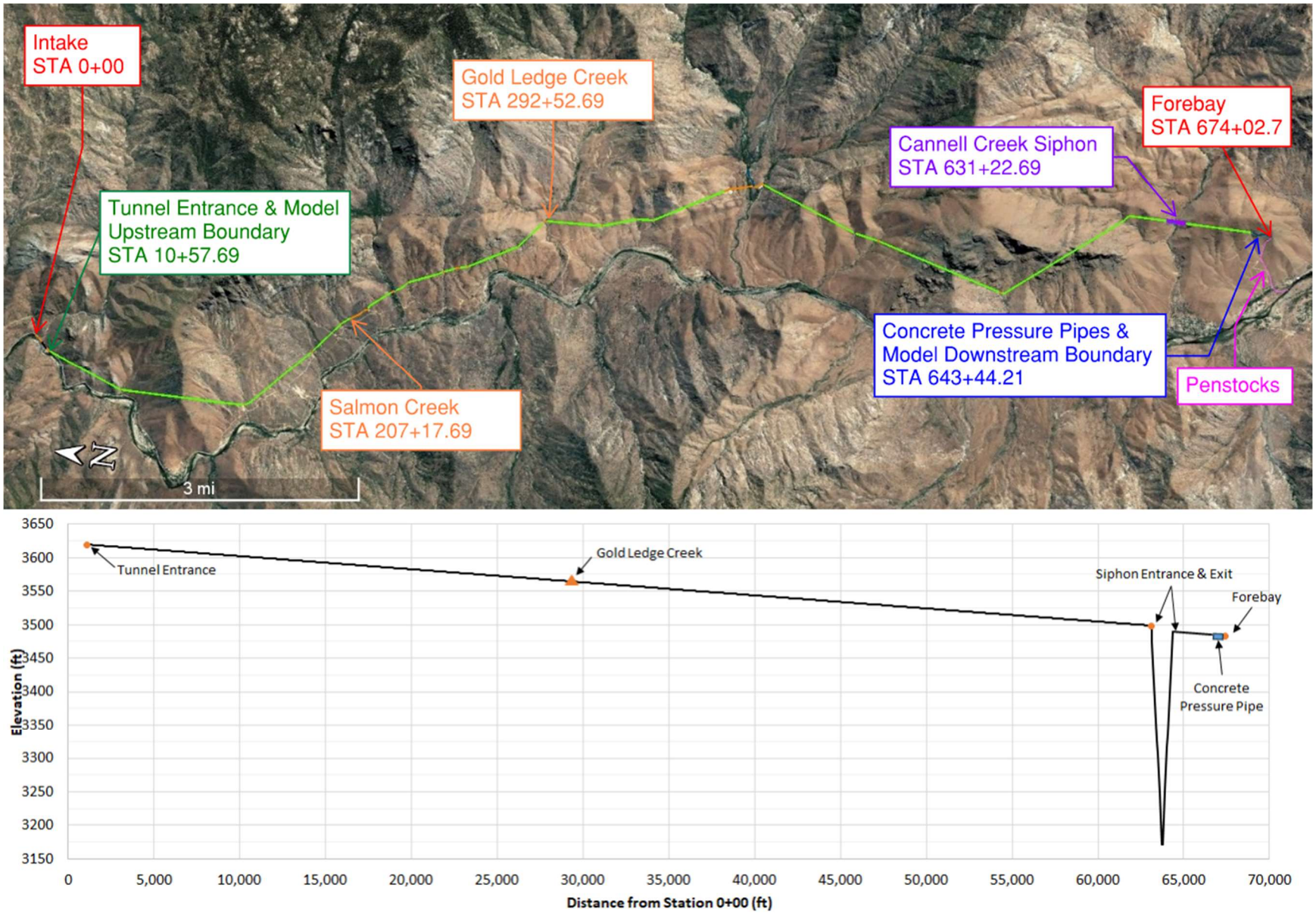

Figure 1. Plan and Profile of the KR3 Power Conveyance

HYDRAULIC MODEL

A 1D quasi-steady-state HEC-RAS hydraulic model was created to model flow conditions in the KR3 power conveyance tunnel (USACE 2022). Although pressurized flow in the tunnel was not expected, the HEC-RAS model was set up to with a Preissmann slot to accommodate pressurized flow conditions using open channel flow equations.

Flows modeled include constant flows of 100 cfs, 200 cfs, 300 cfs, 400 cfs, 500 cfs, and 600 cfs. The upstream boundary of the model is the tunnel entrance, just downstream from the sediment settling basin, and the downstream boundary is where the tunnel transitions to the concrete pressure pipe. The upstream boundary condition was set as a constant flow (e.g., 600 cfs), and the downstream boundary was modeled as a set water surface elevation of 3,505 feet, which represents the normal pond elevation of the forebay downstream of the concrete pressure pipe. Figure 2 shows the elevation profile used for the tunnel, and Table 1 provides the elevations used to linearly interpolate the cross-section elevations.

All stationing refers to the approximate FERC Exhibit stationing, unless otherwise specified.

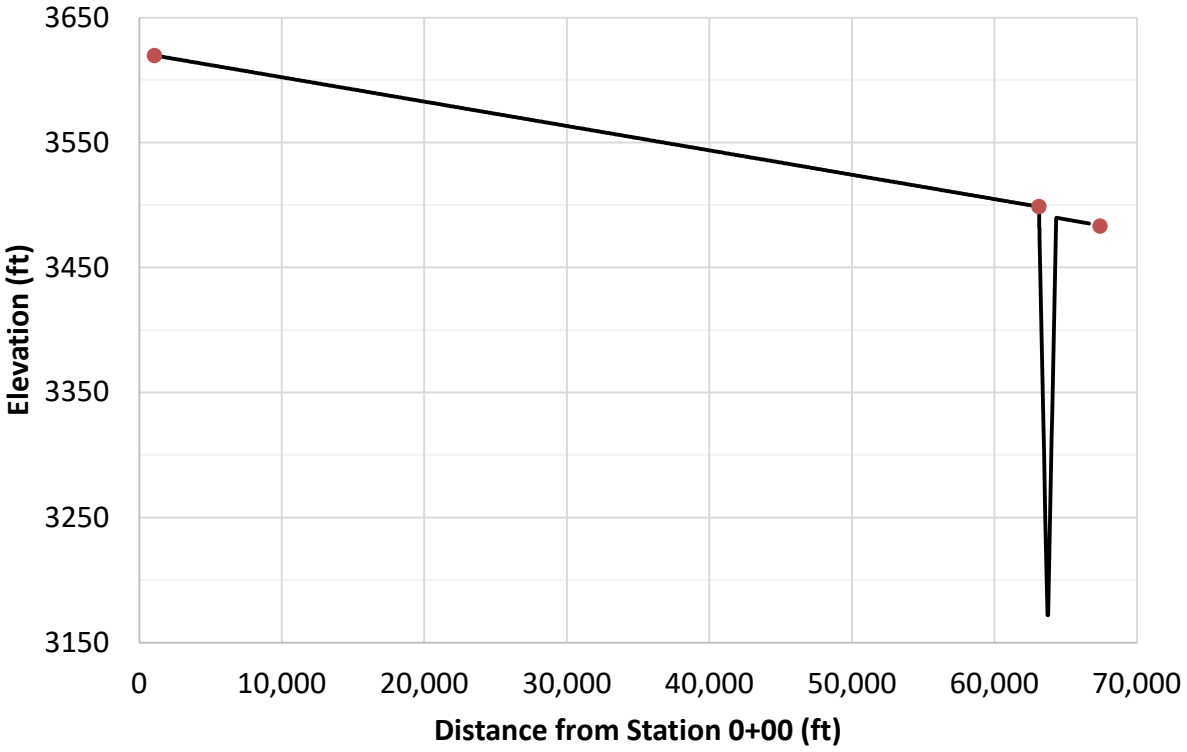

Figure 2. Elevation Profile Used for the 1D HEC-RAS Model of KR3 Project.

Table 1. Elevations Used for Linear Interpolation of Cross-section Elevations

Location	Approximate FERC Exhibit F/G Station	Elevation (ft)
Tunnel Entrance	10+57.7	3,619.6
Siphon Entrance	631+22.7	3,498.6
Forebay	674+02.7	3,483.1

The siphon was modeled with cross-sections ranging from a diameter of 8 feet at the narrowest up to 9.5 feet at the widest, with transitions between these sizes determined from Exhibit F drawings. Figure 3 shows a typical siphon section.

The locations and lengths of different cross-section types (open flume, lined/unlined tunnel, covered flumes, siphon) were determined using Exhibits F and G for the KR3 Project. The approximate shape of the arched tunnel sections was also based on these Exhibits. The tunnel segments are 8.5 feet wide by 8 feet high north of Station 533+63 and 9.5 feet wide by 8 feet high south of Station 533+63, with arched tops. Figure 4 shows a typical arched tunnel section. For modeling simplicity, the tunnel cross-sections were approximated as rectangles, with the height of the tunnel being the highest point of the arch. This approximation slightly increases the model tunnel capacity at very high flows but does not affect the results with lower flows.

The approximately 1,000 feet of aboveground flumes were modeled as 8.5 feet wide and 8.25 feet high. See Figures 5 and 6 below for typical covered and open flume sections, respectively.

FIGURE REDACTED
CONTAINS CRITICAL ENERGY INFRASTRUCTURE INFORMATION (CEII)

Figure 3. Typical Siphon Section (SCE 1990).

FIGURE REDACTED
CONTAINS CRITICAL ENERGY INFRASTRUCTURE
INFORMATION (CEII)

Figure 4. Typical Arched Tunnel Section (SCE 1990).

FIGURE REDACTED
CONTAINS CRITICAL ENERGY INFRASTRUCTURE
INFORMATION (CEII)

Figure 5. Typical Covered Flume Section (SCE 1990).

FIGURE REDACTED
CONTAINS CRITICAL ENERGY INFRASTRUCTURE
INFORMATION (CEII)

Figure 6. Typical Open Flume Section (SCE 1990).

A single Manning's n roughness coefficient of 0.012 was assigned to the concrete-lined tunnels, flumes, covered flumes, and the riveted steel pipe siphon. This is a slightly lower than typical value used for concrete but within a normal range. See Model Validation below.

MODEL VALIDATION

ERM provided observations (Appendix A) of flume water levels at two locations along the conveyance (SCE 2023a): 1) at Gold Ledge; and 2) at Corral Creek. The flow at the time of these observations was obtained from SCE's online hourly flow log and ranged from 550 cfs to 585 cfs. Manning's roughness coefficient (n) was adjusted in the HEC-RAS model, and a final value of 0.012 was selected, resulting in a very close match of model results to those observed conditions. This Manning's n value is in the lower range of what is typical for the materials described in the tunnels as well as the corrugated metal pipe siphon. Table 2 below presents the model validation results, which confirms a very good match of model results the with observed flow conditions.

Table 2. HEC-RAS Model Validation Results

Location	Flow (cfs)[a]	Observed Approximate Depth (ft)[b]	Modeled Depth (ft)	Difference (ft)
Gold Ledge	585	6.75	6.76	0.01
Corral Creek 17	550	6.25	6.35	0.10
Corral Creek 18	550	6.25	6.35	0.10

cfs = cubic feet per second, ft = feet

[a] Obtained from preliminary hourly data (SCE 2023a)

[b] Estimated depth based on observation of distance of water surface below top of flume walls (SCE 2023b)

RESULTS

Figures 7a through 7d present the final water surface elevations, flow depths, velocities, and invert elevations through the length of the tunnel.

Upstream of the siphon, flow depths and velocities in the tunnel range from 1.7 ft and 1.6 fps for 100 cfs to 8.3 ft and 10.3 fps for 600 cfs. The model results indicate that the conveyance is pressurized for varying distances upstream of the siphon for all flows. The model indicates that the conveyance is fully pressurized downstream of the siphon for all flows due to the elevation of the forebay water surface elevation. Consistent with observations of historic power flows, no overtopping of the flume is indicated by the model for any of the modeled flows up to and including 600 cfs.

In Figure 7b, the velocity for a flow of 600 cfs is less consistent than the other flow velocities. The variation is likely a computational artifact of the quasi steady-state HEC-RAS model, since it varies less than 0.25 feet per second throughout the region of the tunnel depicted in Figure 7b.

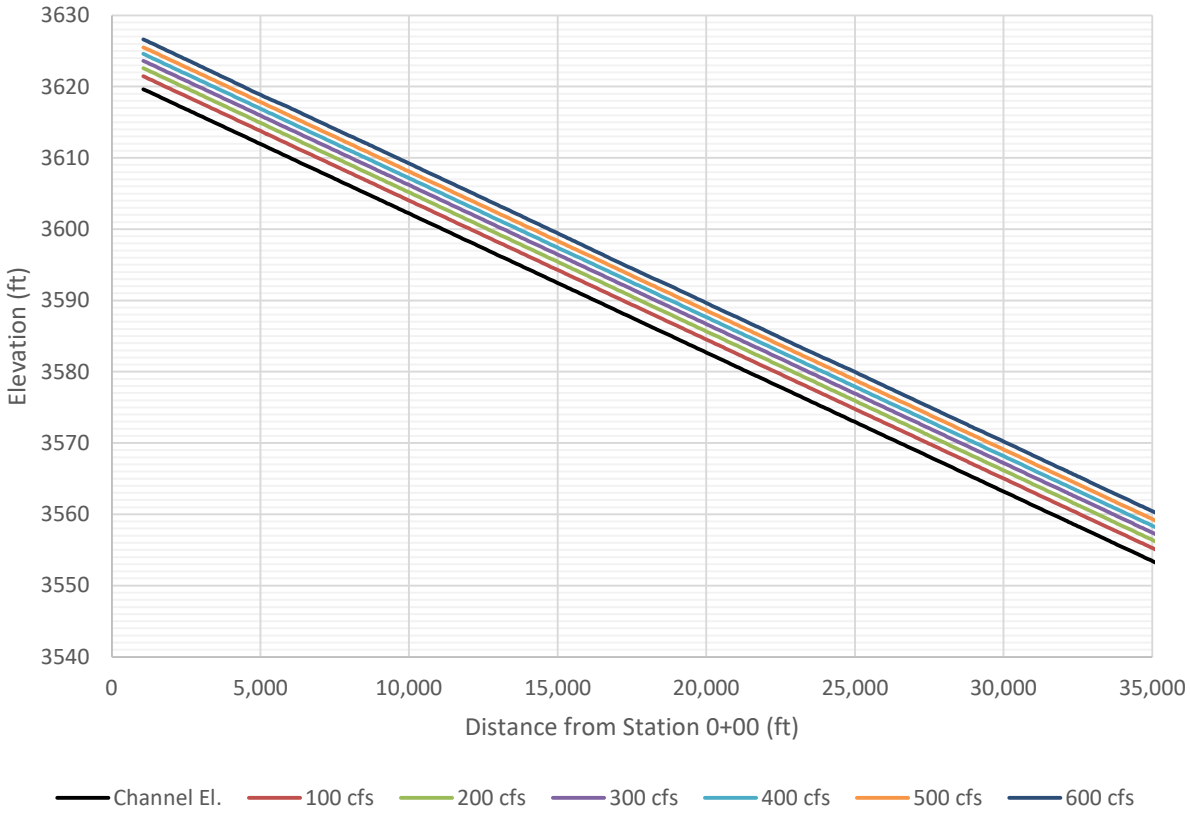

Figure 7a. Estimated Water Surface Elevation Results in Tunnel STA 000+00 to 350+00.

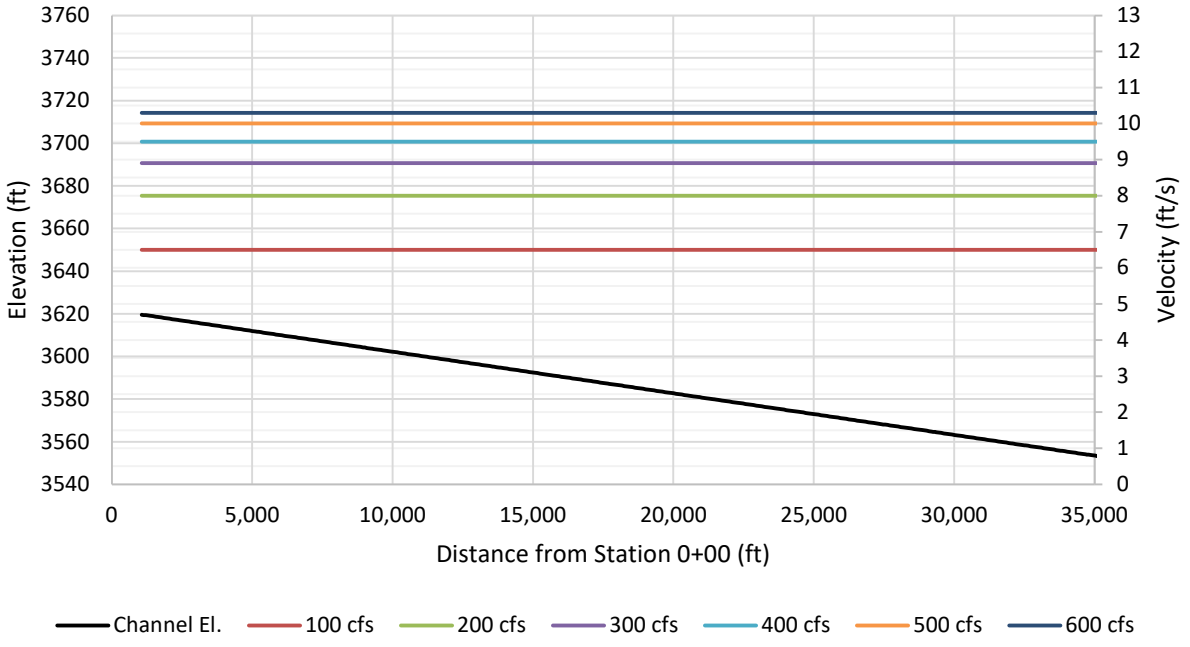

Figure 7b. Estimated Velocity Results in Tunnel STA 000+00 to 350+00.

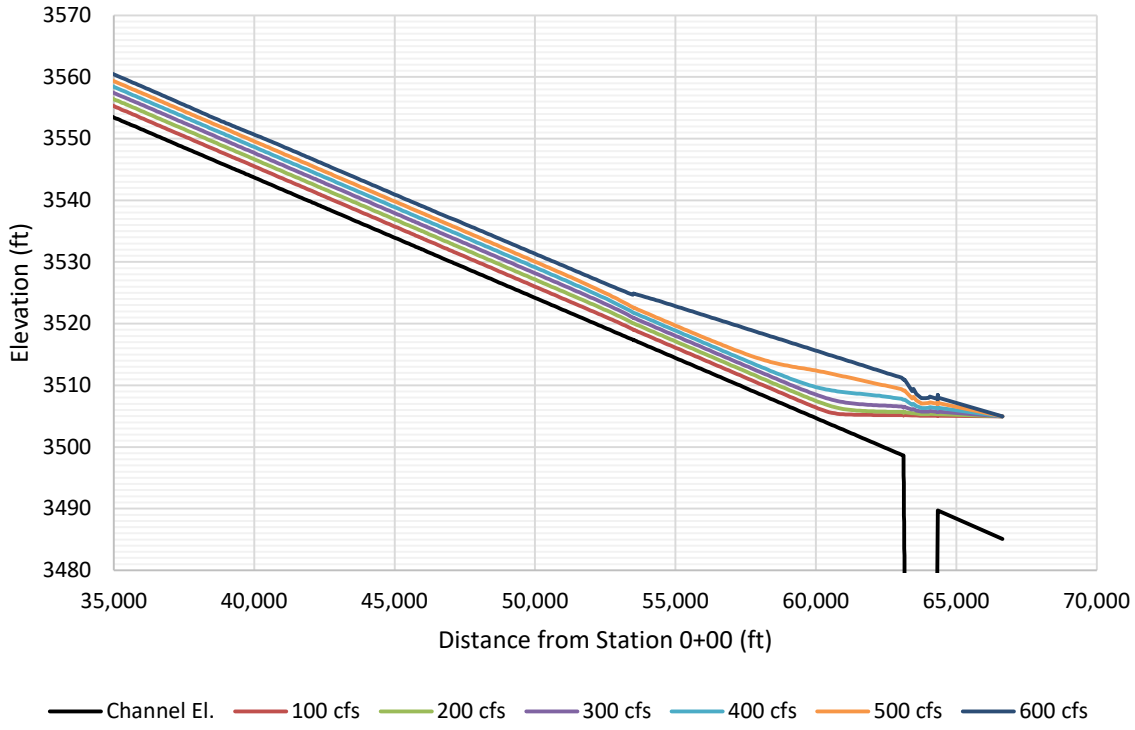

Figure 7c. Estimated Water Surface Elevation Results in Tunnel STA 350+00 to 666+44.21.

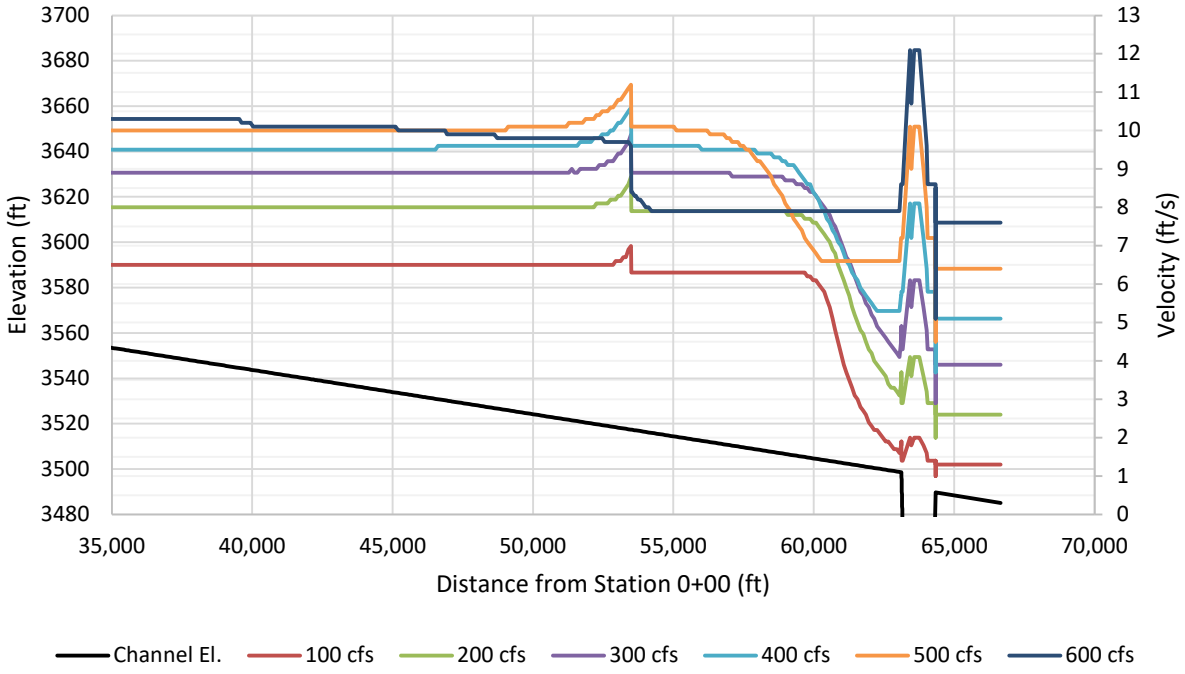

Figure 7d. Estimated Velocity Results in Tunnel STA 350+00 to 666+44.21.

In Figure 7d, the velocity for a flow of 600 cfs does not follow the same general pattern seen with the other flows, especially lacking a spike in velocity around Station 533+63. At this station, the width of the tunnel expands from 8.5 feet to 9.5 feet, causing an increased velocity for flows from 100 cfs to 500 cfs. At 600 cfs, the spike does not occur because the tunnel is pressurized through Station 533+63 and diminishing the effect of expansion on the velocity.

Additionally, in Figure 7d, all model runs have a spike in velocity, with the highest velocity occurring at the lowest elevation of the siphon. These increases and decreases in velocity are caused by the changing diameters through the siphon. The highest velocity in the siphon corresponds to the smallest diameter in the siphon.

SUMMARY OF RESULTS

The KR3 conveyance tunnel was modeled using HEC-RAS for flows ranging from 100 cfs to 600 cfs. It used validation data provided by ERM to confirm water surface elevations at select locations in the tunnel. The final model results closely represent the observed water surface elevations with final Manning's n values that are on the lower end of the range of what would be considered typical values for the tunnel lining and siphon piping materials.

The results indicate that flow depths and velocities in the concrete-lined tunnel segments range from 1.7 ft and 6.3 feet per second (fps) for 100 cfs to 8.0 ft and 10.1 fps for 600 cfs, per Figures 8 and 9 and Table 3 below.

The results of this analysis will be used to support further research on the stability of the tunnel concrete lining under varying flow conditions.

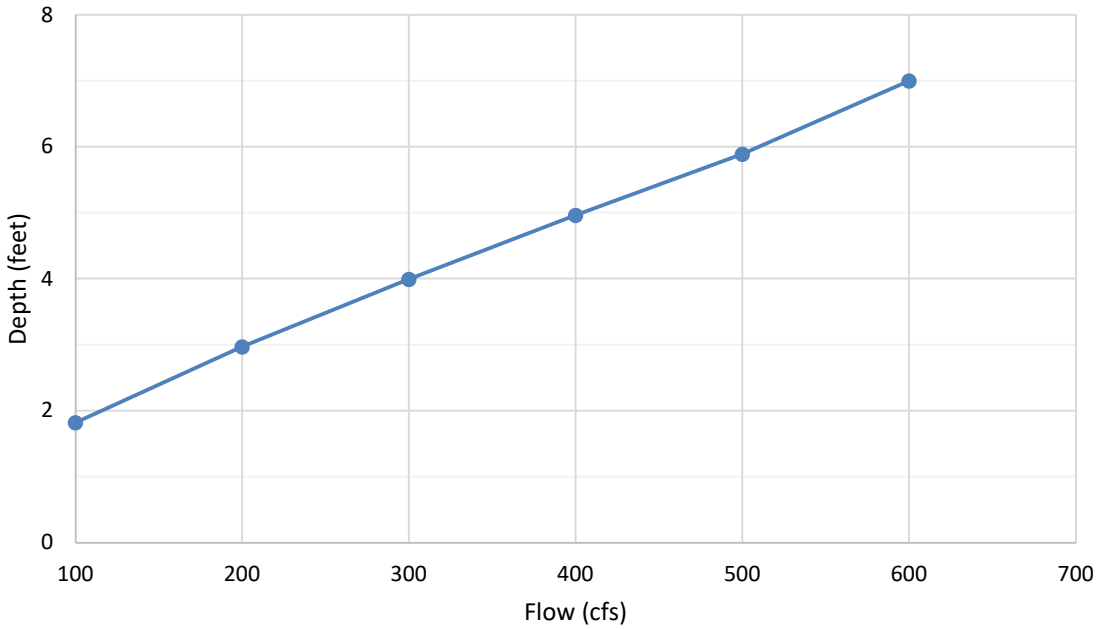

FIGURE 8. Typical Depth to Flow Relationship in Concrete-lined Tunnel Sections.

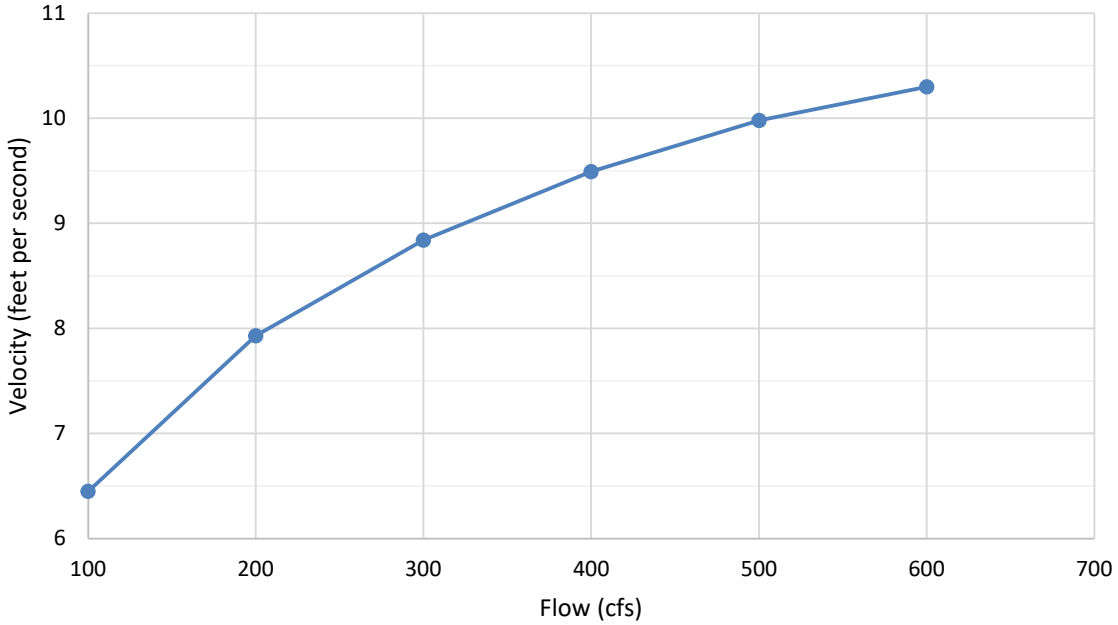

FIGURE 9. Typical Velocity to Flow Relationship in Concrete-lined Tunnel Sections.

Table 3. Typical Depth and Velocity in Concrete-lined Tunnel Sections

Flow (cfs)	STA 313+76.39 (Width = 8.5 ft)	
	Depth (ft)	Velocity (fps)
100	1.8	6.5
200	3.0	7.9
300	4.0	8.8
400	5.0	9.5
500	5.9	10.0
600	7.0	10.3

cfs = cubic feet per second, ft = feet, fps = feet per second

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Appendix A

Tunnel/Flume Flow Depth Field Observations

Tunnel at 14 Goldledge .jpg

Tunnel at 17Corral Creek North (002).jpg

Tunnel at 18 Corral Creek Access (002).jpg

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ADDENDUM TO OPS-1 WATER CONVEYANCE ASSESSMENT
INTERIM TECHNICAL MEMORANDUM: TUNNEL STABILITY

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

March 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

CEII	Critical Energy Infrastructure Information
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
KR3	Kern River No. 3
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
SCE	Southern California Edison

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1.0 INTRODUCTION

Southern California Edison (SCE) filed an interim Technical Memorandum associated with the Study *OPS-1 Water Conveyance Assessment* as part of its Initial Study Report on October 9, 2023 (SCE, 2023), in support of SCE's Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, Federal Energy Regulatory Commission (FERC) Project No. 2290. The interim Technical Memorandum included the analysis and results from the Phase 1 desktop analysis and Phase 2 hydraulic assessment.

In response to Stakeholder comments on the Initial Study Report filed January 9, 2024 (SCE, 2024), SCE committed to providing an addendum in the first quarter of 2024 that included the results of the Phase 2 structural integrity assessment. The findings and recommendations provided as part of this Phase 2 analysis are summarized below.

The OPS-1 Study was conducted with support from engineering firms MarshWagner and Kleinschmidt Associates, who have documented expertise in hydropower, hydraulic analyses, and tunnels/underground structures. MarshWagner led the evaluation of tunnel and lining integrity based on their desktop review of documentation available on the tunnel design and construction and supported by tunnel hydraulic characteristics developed by Kleinschmidt Associates.

A site visit was not conducted, and all analyses were based on available information on the geology, tunnel design and construction, and hydraulic flow data.

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in OPS-1 Study Plan (SCE, 2022), include:

- Conduct an engineering review and evaluation of current water 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 water conveyance system integrity.

3.0 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 between Fairview Dam and the KR3 Forebay. The water conveyance infrastructure included in the analysis and described herein was limited to tunnels, open and covered aboveground flumes, a steel siphon, and a regulated pressure flume.

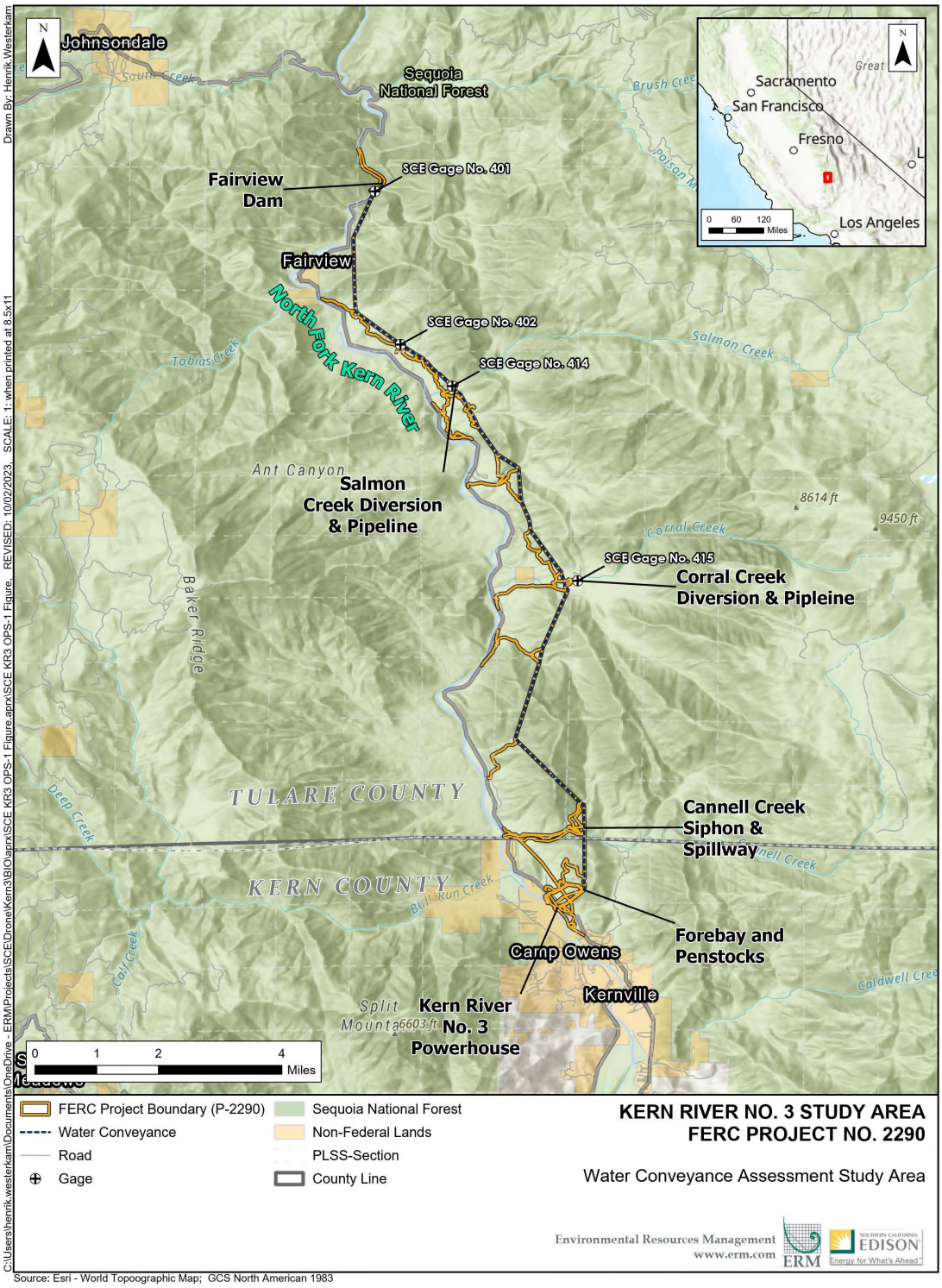

Figure 3-1. Water Conveyance Assessment Study Area.

4.0 DATA SUMMARY

4.1. STRUCTURAL INTEGRITY ASSESSMENT

This study evaluates tunnel conditions (i.e., stability of the tunnel lining) when water levels are decreased and presents recommendations for the continued operation of the underground tunnel sections of the water conveyance. The analysis was conducted using (1) results of hydraulic calculations presented in the *OPS-1 Water Conveyance Assessment Interim Technical Memorandum* prepared by Kleinschmidt (SCE, 2023), (2) information on the tunnel presented in a tunnel inspection and evaluation report prepared by Woodward-Clyde (WCC, 1998), and (3) SCE maintenance and inspection documents.

A summary of the structural integrity assessment results and recommendations is below. Additional details are presented in a separate hydraulic assessment Technical Memorandum, including calculations for the upward pressure differential on the invert due to a flow reduction (Appendix A, filed as CEII).

4.1.1. REPORT FINDINGS AND CONCLUSIONS

Hydropower conveyances are subject to continuous flow changes due to the operation of the hydroelectric equipment. These usual variations are typically not considered detrimental to the stability of the tunnel conveyances. However, recent research (Neupane et al., 2020; Neupane and Panthi 2021) indicates that variation of pressures in the power conveyance can result in changes in the rock mass pore pressure leading to “fatigue” of the rock mass. This is an active research area, and it would be difficult to quantify the effect for the Project, but there is sufficient information to ascertain that variations in water level in the power conveyance could lead to unfavorable tunnel conditions over the long-term.

The purpose of the concrete tunnel wall and floor lining is to provide a smooth surface to convey flows efficiently through the tunnel, rather than serve as an integral piece of tunnel stability. The tunnel invert (i.e., the floor of the tunnel) is probably susceptible to effects from rapid changes in tunnel flows over time, as the concrete lining was likely cast on top of tunnel muck, which typically has less adhesion and contact with the concrete lining material. A simple estimate of the upward pressure differential on the invert (uplift) due to a flow reduction (draw down rate) of 50 cubic feet per second (cfs) per hour (0.5 foot of water level drop per hour) results in an invert slab at the verge of “floating,” increasing the potential for the concrete floor to break apart and be mobilized within the tunnel (calculations provided in Appendix A). This is a reasonable but conservative estimate. If parts of the tunnel invert were cleaned before casting the floor slab, then there would be adhesion between the concrete and the rock and the tunnel floor slab could withstand higher differential uplift pressures and faster draw down rates. If the tunnel lining invert fails and the conveyance flowline is not maintained, the broken concrete pieces could be mobilized by the flow and slowly migrate downstream, which could result in reduced tunnel capacity and functionality.

SCE operates the tunnel with a constant flow when feasible, but flow reductions greater than 50 cfs per hour have occurred in the past (e.g., unplanned drop in flow due to generating unit tripping or planned flow adjustments to comply with license conditions). Observations from routine (monthly and annual) inspections of the conveyance flowline have not documented excessive leaking, cracking, or broken concrete along the floor. Additionally, periodic inspection of the "rock trap"[1] located upstream of the Cannel Creek siphon have not noted any large pieces of concrete.

Conclusions and recommendations for continued operation of the water conveyance to mitigate potential long-term effects of water level changes include:

- The tunnel lining, specifically the tunnel invert is potentially the most susceptible for cracking and uplift of concrete fragments during tunnel dewatering and subsequent mobilization further down the tunnel.
- While current operational practices have not observed uplift of tunnel invert sections, rapid changes in depth of flow, specifically reducing flow in the conveyance, could have an unfavorable effect on the long-term integrity of section of the tunnel invert.
- The KR3 water conveyance should be operated at near-constant flows. If flow reduction is necessary, a ramping rate of 50 cfs per hour or less is recommended when operationally feasible to mitigate long-term potential impacts on the lining invert.
- No constraints on ramping rates to increase the flow in the water conveyance were found necessary for tunnel floor integrity.

5.0 REFERENCES

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Neupane, B., and K.K. Panthi. 2021. "Evaluation on the Effect of Pressure Transients on Rock Joints in Unlined Hydropower Tunnels Using Numerical Simulation." *Rock Mechanics and Rock Engineering* 54: 2975–2994.

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[1] The rock trap collects large rocks or material entrained within the conveyance flowline.

APPENDIX A
OPS-1 WATER CONVEYANCE ASSESSMENT: TUNNEL STABILITY
(FILED AS CEII)

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AES-1 AESTHETIC FLOW TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®

Energy for What's Ahead®

KERNVILLE, CALIFORNIA

July 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

AES-1	Aesthetic Flow Study
cfs	cubic feet per second
CMP	Comprehensive Management Plan
FERC	Federal Energy Regulatory Commission
GPS	Global Positioning System
KOP	key observation point
KR3	Kern River No. 3
LMP	land management plan
NFKR	North Fork Kern River
PAD	Preliminary Application Document
PLSS	Public Land Survey System
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
SCE	Southern California Edison
SIO	Scenic Integrity Objective
SQF	Sequoia National Forest
W&SR	Wild and Scenic River

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1.0 INTRODUCTION

An Aesthetic Flow Study (AES-1) was developed in response to the Federal Energy Regulatory Commission's (FERC) October 12, 2022, Study Plan Determination (FERC, 2022) for Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project; FERC Project No. 2290) relicensing. This Technical Memorandum includes the methodology and findings of the AES-1 Study. Applicable results from the study are also included as part of SCE's Application for New License.

Section 8.0, *Recommendation and Need for Continued Study,* addresses the adequacy of the results of the Level 1 data collection effort and the need for any subsequent data collection (i.e., justification for whether proceeding to a Level 2 or a Level 3 aesthetic flow study is warranted).

2.0 STUDY GOALS AND OBJECTIVES

The AES-1 Study documents the existing character of aesthetic flows and conditions within the Fairview Dam Bypass Reach.[1] This information is needed to support discussions of potential effects of flows on resources and may be used to inform potential minimum flow requirements in the bypass reach resulting from the licensing process.

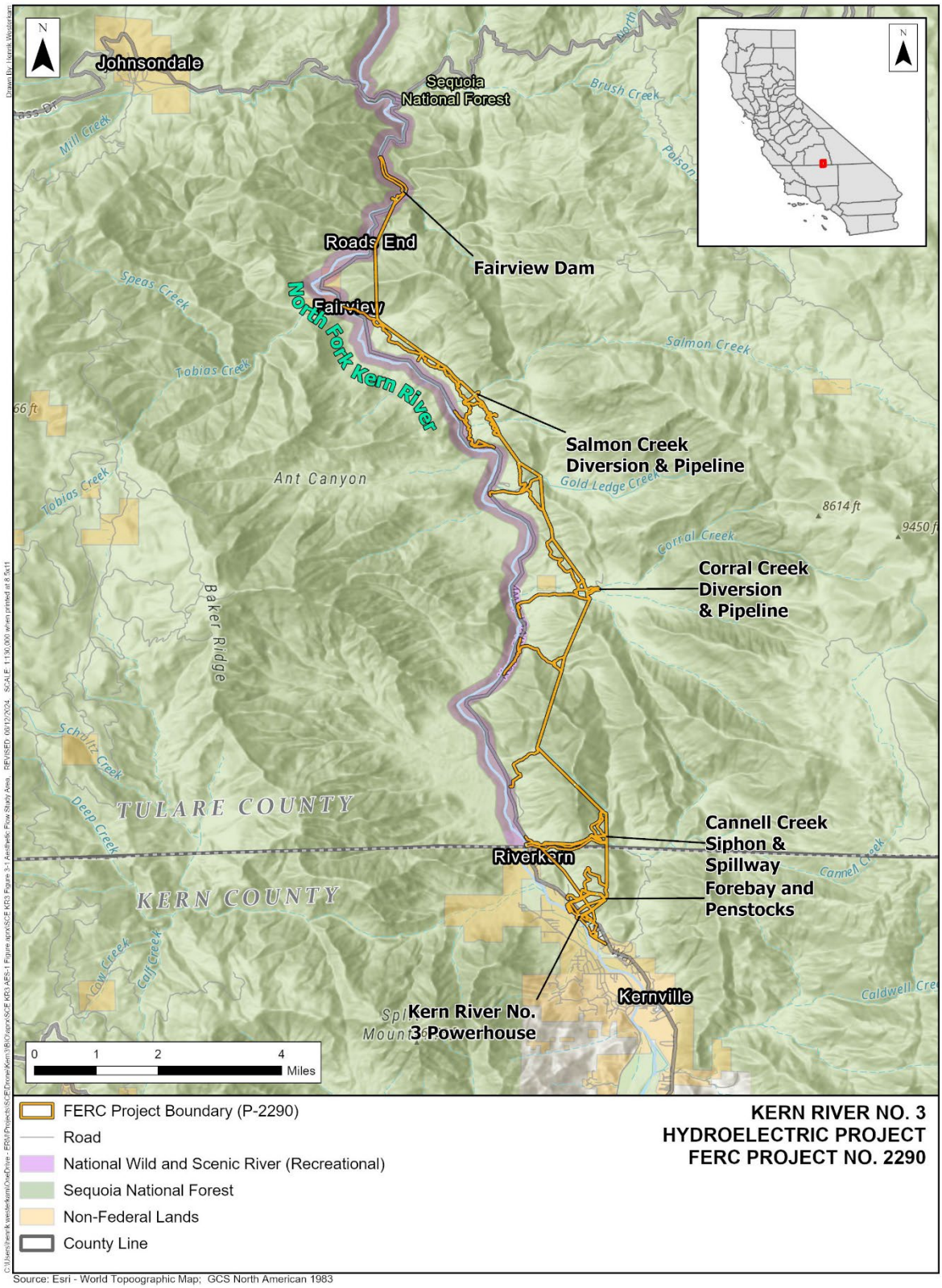
Visual/aesthetic resource studies at licensed hydroelectric projects typically follow a tiered or staged approach to information and data collection (Whittaker and Shelby, 2017). This approach starts with a Level 1 or desktop analysis and—based on potential data gaps—progresses to a Level 2 (limited reconnaissance) or Level 3 (intensive studies) assessment. The AES-1 Study followed the general framework of a Level 1 aesthetic analysis. The study goals and objectives associated with a Level 1 assessment and desktop analysis of existing aesthetic flow characteristics along the Fairview Dam Bypass Reach included:

- Summarizing the applicable land use management plans relevant to aesthetic features and adjacent landscape of the Fairview Dam Bypass Reach.
- Documenting the aesthetic features and flow characteristics of the Fairview Dam Bypass Reach under existing conditions.
- Identifying key observation points (KOPs) along the Fairview Dam Bypass Reach and providing general descriptions of the aesthetic characteristics and public access associated with these KOPs.
- Describing visitors' preferences, perceptions, and satisfaction with aesthetics within the Fairview Dam Bypass Reach by analyzing the pertinent results from the REC-2 Visitor Intercept Survey Questionnaire (herein referred to as the "REC-2 visitor questionnaire").

[1] The Fairview Dam Bypass Reach is defined as the approximately 16-mile bypass reach of the North Fork Kern River (NFKR) between Fairview Dam and the KR3 Powerhouse tailrace.

3.0 STUDY AREA

The study area for the AES-1 Study includes the approximately 16-mile Fairview Dam Bypass Reach of the North Fork Kern River between Fairview Dam and the KR3 Powerhouse tailrace (Figure 3-1).



FERC = Federal Energy Regulatory Commission; SCE = Southern California Edison

Figure 3-1. Aesthetic Flow Study Area.

4.0 METHODOLOGY—LEVEL 1 DESKTOP REVIEW OF EXISTING INFORMATION

The AES-1 Study generally follows the methods prescribed in *Flows and Aesthetics: A Guide to Concepts and Methods* (Whittaker and Shelby, 2017), as well as *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker et al., 2005). The 2017 publication builds on the sequential framework described in the 2005 publication to investigate flows and aesthetics using established tools across three progressive levels of study. These guidelines recommend a progressive approach with phased efforts of increasing resolution. The phased approach considers the information obtained from the preceding levels of the study to determine if there is a need to proceed to the next level of data collection. The progression to the next level in the sequential framework occurs when more intensive study is needed to inform a potential future license condition.

Overall, the intent of the AES-1 Study is to characterize the existing visual setting and resources and to document aesthetic conditions at varying river flows in the study area. The visual setting and its resources include the topography, vegetation, water, and human-built features that characterize the overall aesthetic quality of the area. River flows (i.e., the amount of water in a river) may change the appearance and influence the overall scenic quality of an area (previous aesthetic flow research has shown that visitors have different preferences for different flow levels [Whittaker and Shelby, 2017]). Specific to this AES-1 Study, the Level 1 desktop review and data collection effort focused on documenting four types of existing information in the study area related to the existing visual setting and aesthetic considerations of river flows, including:

- Resource management plans with aesthetic information and guidance for the study area.
- A description of existing aesthetic conditions and resources.
- Documentation of aesthetic conditions and viewsheds from KOPs.
- A summary of pertinent results from the REC-2 visitor questionnaire.

Study implementation followed the approach described in FERC's Study Plan Determination (FERC, 2022) and Determination of Requests for Study Modifications and New Studies (FERC, 2024).

4.1. RESOURCES MANAGEMENT PLANS

As noted in Section 5.9 of the *Preliminary Application Document* (PAD) (SCE, 2021), there are several applicable management plans that include visual resource information and management direction for the study area. These include the Sequoia National Forest (SQF) *Land and Resource Management Plan* (Forest Service, 1988), U.S. Forest Service (Forest Service) *Comprehensive Management Plan: North and South Forks of the Kern Wild and Scenic River* (Forest Service, 1994a), Tulare County *General Plan 2030 Update* (Tulare, 2012), and Kern County *General Plan* (Kern County, 2009). Additional information about these plans is provided in the PAD and summarized in Section 5.1,

Aesthetic/Scenic Components of Resource Management Plans, of this Technical Memorandum.

Following the submission of the PAD in 2021 (SCE, 2021), SQF finalized its Land Management Plan (LMP; Forest Service, 2023), leading to a review and consolidation of updated information pertinent to the Project's viewshed, aesthetics, and aesthetic flows. The updated applicable visual resource management information related to the *Land Management Plan for the Sequoia National Forest* (Forest Service, 2023) is also summarized in Section 5.1.

4.2. AESTHETIC CHARACTERISTICS OF THE STUDY AREA

A review of existing relevant information sources was performed to provide a general characterization of the NFKR watershed and the Fairview Dam Bypass Reach key aesthetic features. This assessment covered published viewshed descriptions and analyses from the PAD (SCE, 2021) along with visitor brochures, magazines, online publications, event calendars, maps, guidebooks, and other available sources of existing information about the scenic qualities in the vicinity of the Project.

Flows are an important factor in the scenic integrity of a river. A robust discussion of the hydrologic and related river characteristics is included in the *WR-2 Hydrology Study* (Appendix E.2 of the License Application). Information related to the Fairview Dam Bypass Reach physical characteristics is available in the *BIO-6 Stream Habitat Study* (Appendix E.2 of the License Application). Additionally, recreational considerations within the bypass reach are discussed in the suite of recreation studies, including the *REC-1 Whitewater Boating*, *REC-2 Recreation Facilities Use Assessment*, and *REC-3 Recreation Facility Condition Assessment* (see Appendix E.2 of the License Application). The aesthetic considerations of both flow levels and the physical characteristics of the river are also referenced and discussed in the AES-1 Study results, as noted below.

4.3. KEY OBSERVATION POINTS

SCE identified 16 publicly accessible and representative KOPs in the Fairview Dam Bypass Reach (note: one of the KOPs is immediately downstream of the bypass reach) to document and characterize key aesthetic features of the aesthetic conditions in the study area (Figure 4.4-1). A KOP is a viewpoint from which the public may view a landscape, project, or other feature of interest. While each KOP is established at a specific site or location, they are intended to be representative of the broader types of views or viewing opportunities available on a landscape. KOPs are a common element of aesthetic assessments and are used to evaluate existing landscape conditions and potential changes to these conditions from a proposed or the continued presence of a project on a landscape. The KOPs for this assessment were selected using criteria designed to help identify characteristics distinct to aesthetic flow investigations (Whittaker and Shelby, 2017).

At each KOP location, SCE collected relevant site location and aesthetic characteristics including site name, Global Positioning System (GPS) coordinates, the date of each

documentation, weather conditions, primary site use, landscape vegetation and features, cultural modifications, general visual characteristics, unique visual characteristics, waters visible from the site, and river flow. SCE also documented the viewing distance zones (foreground, middle ground, and background views) and took representative photographs of the landscape as viewed from each KOP. For purposes of this assessment and per the best practices established for aesthetic flow investigations, existing-conditions photographs were taken at various river flow levels (Whittaker and Shelby, 2017), as documented in Section 5.0, *Level 1 Desktop Review Data Summary*. Attachment A provides the Aesthetic Inventory Form that was used to document this information at each KOP location.

4.4. REC-2 VISITOR QUESTIONNAIRE

Per the FERC Study Plan Determination (FERC, 2022), SCE updated the REC-2 visitor questionnaire to include questions designed to query visitors on their perceptions of aesthetic flows in the Fairview Dam Bypass Reach (see *REC-2 Recreation Facilities Use Assessment Final Technical Memorandum* [Appendix E.2 of the License Application]). These additional questions primarily centered on visitor perceptions of scenic quality and activities with a scenic focus (e.g., photography, scenic driving). The aesthetics-related questions that were added to the REC-2 visitor questionnaire are provided in Attachment B. Participant responses and a summary of the aesthetic-related questions is provided in Section 5.4, *REC-2 Visitor Questionnaire—Aesthetic-Related Questions*.

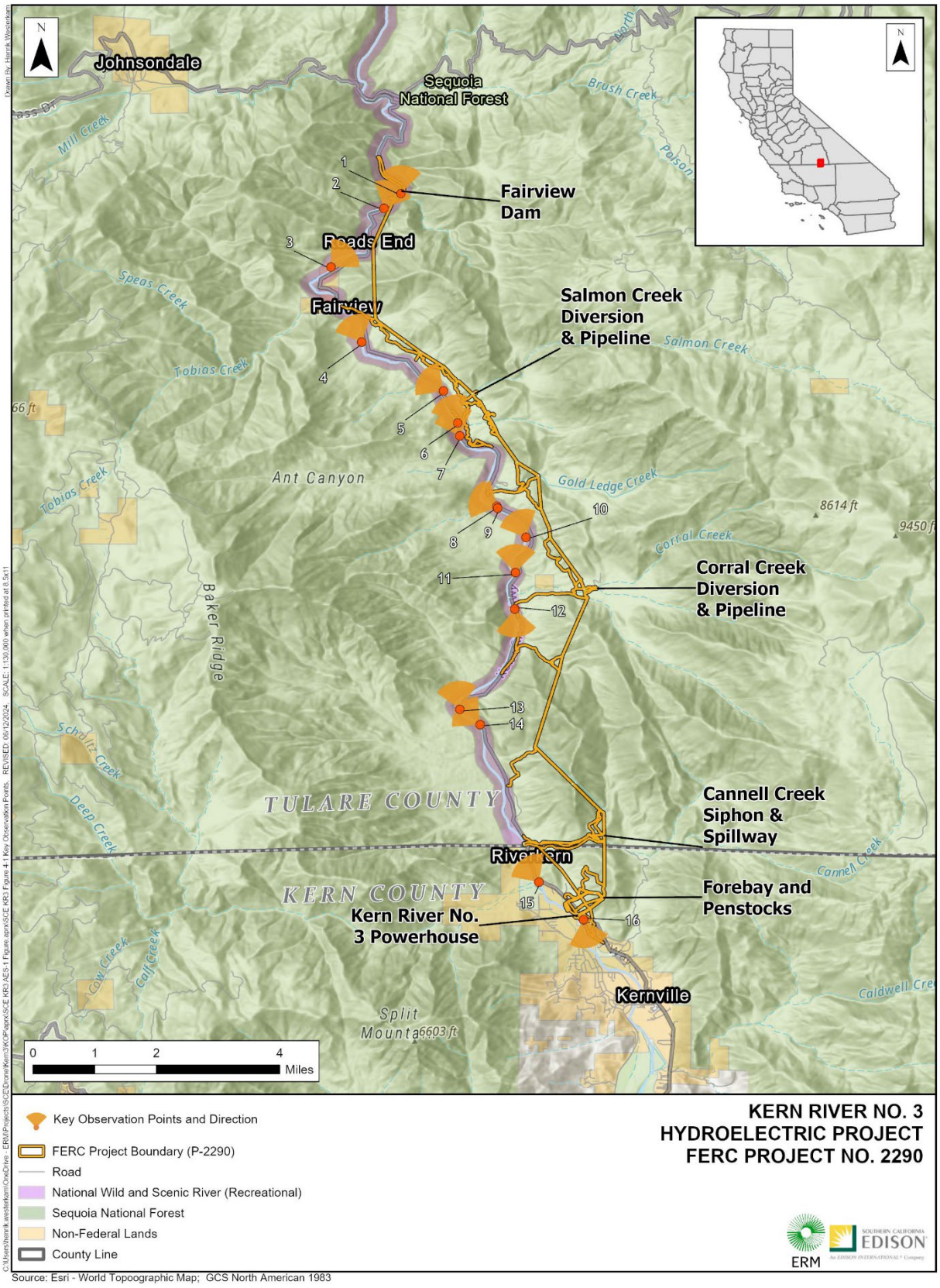


Figure 4-1. Key Observation Points.

5.0 LEVEL 1 DESKTOP REVIEW DATA SUMMARY

This section addresses existing information about visual resources and aesthetic conditions in the vicinity of the Project.

5.1. AESTHETIC/SCENIC COMPONENTS OF RESOURCE MANAGEMENT PLANS

The Project is primarily located within the boundaries of the SQF and falls under the SQF LMP (Forest Service, 2023). The NFKR from its headwater down to the Tulare/Kern County line is also designated a Wild and Scenic River (W&SR) segment and subject to the management prescriptions also detailed in the recently updated SQF LMP, as well as the *North and South Forks of the Kern Wild and Scenic River Plan* (Forest Service, 1994a). In addition, the Project is located in unincorporated areas of Kern and Tulare Counties. Because the Project is a federally licensed facility, county and other local-level planning documents and ordinances do not apply. However, for completeness of the analysis, these documents are considered as part of this Technical Memorandum.

5.1.1. LAND MANAGEMENT PLAN FOR THE SEQUOIA NATIONAL FOREST

The Forest Service updated the LMP for the SQF in May 2023 (Forest Service, 2023). This plan replaces the 1988 Sequoia National Forest Land and Resource Management Plan (Forest Service, 1988) and establishes planning and decision-making guidance to help direct activities on Forest Service-administered lands. Specifically, it identifies overall desired resource conditions and outlines general strategies to achieve these conditions. The LMP addresses the connection between aesthetics or scenic resources and other resource values (e.g., ecology, recreation), and establishes five desired conditions for aesthetic resources:

1. The SQF provides a variety of ecologically sound, resilient, and visually appealing forest landscapes that sustain scenic character, supporting the national forest recreation program niche in ways that contribute to visitors' sense of place and connection with nature.

2. Scenic character is maintained and/or adapted to changing conditions to support ecological, social, and economic sustainability in the SQF and in surrounding communities.

3. The SQF's scenic resources meet or are moving toward desired Scenic Integrity Objectives (SIOs). In places with distinctive scenic attractiveness, and in "special places," scenic integrity is maintained or improved to assure high-quality viewing experiences.

4. The built environment meets or exceeds SIOs and contributes to scenic stability.

5. Scenery stability is enhanced through integrated fuels and forest health projects.

Related to these desired conditions, the SQF LMP describes actions intended to help maintain existing and achieve desired scenic conditions. These actions include:

- Improve long-term scenery resources in all forest restoration projects, especially in areas that do not meet established SIOs.

- Cooperate with other entities such as Bureau of Land Management, public and investor-owned utility companies, California Department of Transportation, local governments, and commercial and private entities, to protect scenic character and meet SIOs on and adjacent to the SQF.

- Improve scenic stability through forest restoration projects.

- Rehabilitate areas that do not meet or exceed their desired scenic integrity objective.

The cooperation action is pertinent to the Project and provides an impetus for coordination with the Forest Service to help ensure that any potential changes in Project conditions and/or operations are consistent with the scenic guidance and objectives established in the LMP.

In addition to establishing desired scenic conditions, the LMP also designates SIOs for lands within the SQF. The Forest Service Scenery Management System process uses five inventory components (Description of the Landscape Character, Scenic Attractiveness, Concern Levels, Distant Zones, and Scenic Integrity) to develop SIOs for a given area. The SIOs describe the desired condition of a region or state of "intactness," which becomes the target condition that all site-specific projects must adhere to. Figure 5-1 displays the SQF SIOs for lands within and in the vicinity of the FERC Project Boundary.

The majority of the landscape within and around the FERC Project Boundary is mapped with an SIO of High (defined as management activities are unnoticed and the landscape appears unaltered), with smaller areas adjacent to the Project mapped as Moderate (defined as management activities are noticeable but are subordinate to the scenic character, and the landscape appears slightly altered) or are located outside of federal land designation on private SCE land (Forest Service, 2023). Importantly, the Project existed and was part of the scenic landscape when the Forest Service established these SIOs. As such, the existing Project can be considered consistent with the current SIOs.

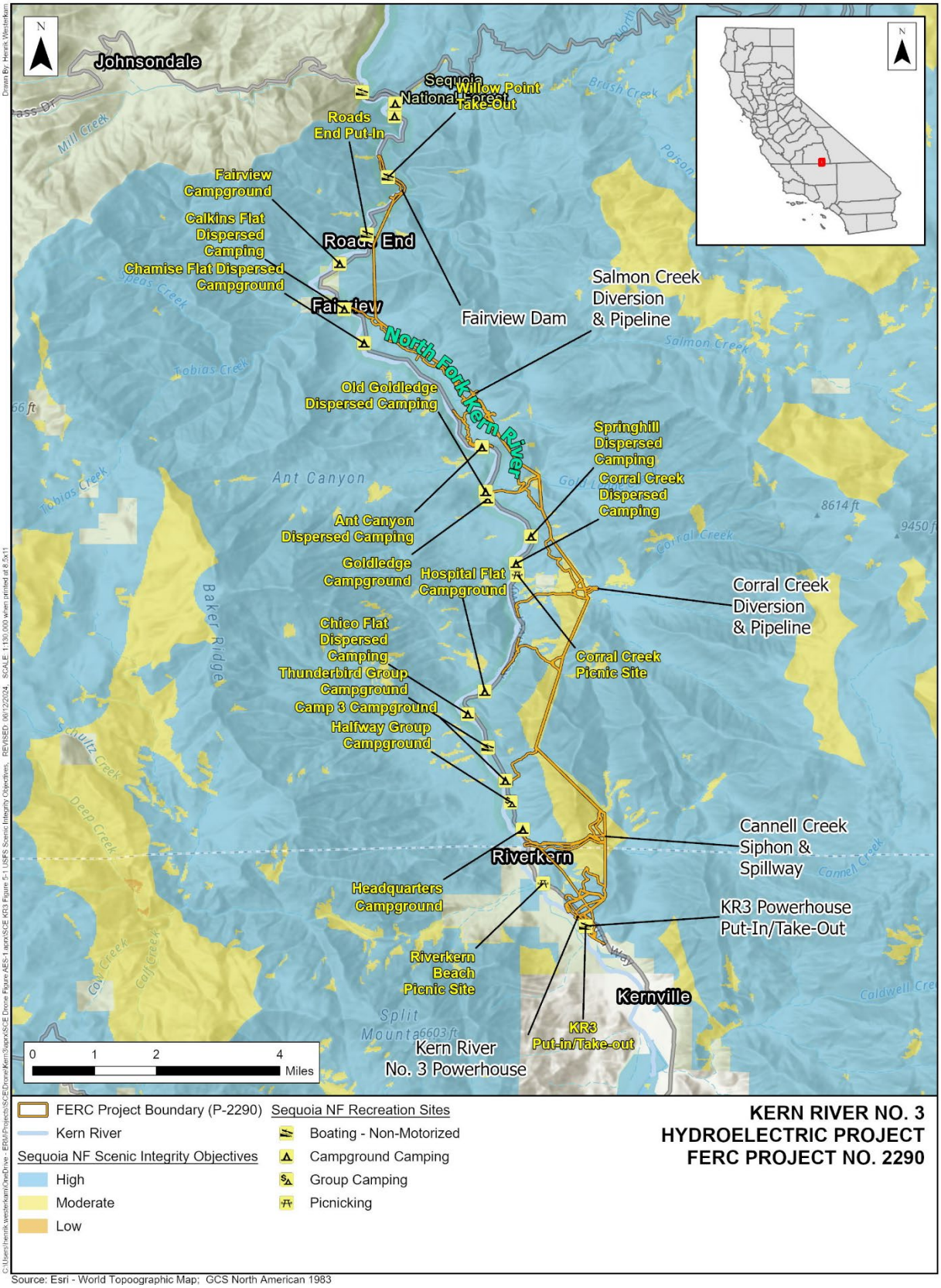


Figure 5-1. Forest Service Scenic Integrity Objectives.

5.1.2. Comprehensive Management Plan North and South Forks of the Kern Wild and Scenic River

Portions of the North and South Forks of the Kern River were designated into the National Wild and Scenic River System in 1987 (Pub. L. No. 100-174, § 247, 101 Stat. 924, 1987), including the 78.5-mile segment of the NFKR from the Tulare County line to its headwaters in Sequoia National Park. The designation applies to the river as well as an approximate 0.25-mile buffer on each riverbank. The Project was developed and operated for decades before both the federal and state W&SR designations and the federal enabling legislation specifically indicates that the designation does not "affect the continued operations and maintenance of the existing diversion project, owned by Southern California Edison on the North Fork of the Kern River" (Pub. L. No. 100-174, § 247, 101 Stat. 924, 1987).

The federal W&SR classification system (wild, scenic, and recreational) is an indicator of the level of development along the river at the time of designation, with "recreational" rivers reflecting the highest level of development. On the other end of the spectrum, "wild" rivers are generally free of development. The NFKR within the Fairview Dam Bypass Reach, from the Kern/Tulare County line to Fairview Dam, is designated as "recreational," meaning that it is accessible by road (Mountain Highway 99), has development along its shorelines (e.g., campgrounds, private residences, resorts, and other commercial development), and has been previously impounded or diverted (the Project outdates the W&SR designation) (Wild and Scenic Rivers Act of 1968, Pub. L. No. 90-542, 82 Stat. 918, 1968). The Fairview Dam, intake, and sandbox are within the W&SR designation, while other Project facilities such as the KR3 Powerhouse, siphon, and penstocks are not.

SQF protects the outstanding remarkable values identified at the time of designation (1987) of this recreational river segment. The only outstanding remarkable value identified at the time of designation on the Fairview Dam Bypass Reach was wildlife because of the presence of a unique species of slender salamander (Forest Service, 1982). The 1994 *Final Impact Statement North and South Forks of the Kern Wild and Scenic River* (Forest Service, 1994b) and the *Record of Decision for the Inyo National Forest Plan Amendment #4 and Sequoia National Forest Plan Amendment* (Forest Service, 1994c) added recreation and scenic resources as outstandingly remarkable values within this W&SR reach, which includes the Fairview Dam Bypass Reach.

Previously, the 1994 Comprehensive Management Plan (CMP) North and South Forks of the Kern Wild and Scenic River identified the outstandingly remarkable values along the designated Project reach and provided management direction for protecting these values (Forest Service, 1994c). This plan specifically identified visual resource management objectives consistent with the 1988 Sequoia National Forest Land and Resource Management Plan (Forest Service, 1988) for the NFKR. These objectives included "retention" and "partial retention" of the scenic integrity of landscapes along the

designated portion of the Fairview Dam Bypass Reach.[2] The plan and its corresponding resource protection objectives did not specifically address scenic or aesthetic conditions associated with river flow levels.

The 2023 LMP for the SQF (Forest Service, 2023) updates the management direction of the 1994 CMP for the W&SR designation within the jurisdictional boundaries of the SQF, including the Fairview Dam Bypass Reach. The LMP acknowledges the desired conditions and standards that will guide the Forest Service management and decision-making processes for the river, and includes the following (applicable to all segments of the W&SR including the Fairview Dam Bypass Reach):

- Desired Conditions
  - The free flow, water quality, and outstandingly remarkable values of designated wild and scenic rivers are protected and enhanced from conditions at the date of designation. Development and management are consistent with each designated river's comprehensive river management plan and classification.
  - Public recreation and resource uses do not adversely impact or degrade the values for which each river was designated.
- Standards
  - Road and motorized trail access to rivers must be consistent with each designated river's classification.
  - Structures and facilities must be consistent with each designated river's comprehensive river management plan, classification, any other applicable congressional designations (e.g., wilderness, national scenic trails), the Wild and Scenic Rivers Act, and LMP direction (e.g., scenic integrity objectives).
  - Any new recreation facilities, if needed, must be consistent with the river's classification and located to protect outstandingly remarkable values.
  - Utility rights-of-way within segments classified as wild must not be authorized. Utility rights-of-way within segments classified as recreational or scenic may be authorized only if there are no alternatives and unavoidable impacts are mitigated.
  - Use of facilities in existence at the date of designation that do not conform to a river's classification is allowed so long as the river's free flow, water quality, and outstandingly remarkable values are protected.
  - Grazing is allowed so long as each designated river's free flow, water quality, and outstandingly remarkable values are protected.

[2] The Forest Service has updated its visual resource terminology since the 1994 CMP was developed; the current terminology supplants the use of visual quality objectives with scenic integrity objectives.

- When evaluating a federally assisted water resources project under the Wild and Scenic Rivers Act section 7(a) and where a comprehensive river management plan has not yet been completed, documented baseline conditions at date of designation for free flow, water quality, and outstandingly remarkable values to evaluate effects of the project must be used. A river's classification is not a factor in the evaluation.

Similar to the 1994 CMP, the 2023 LMP and its W&SR desired conditions and standards do not address aesthetic flows on the river. Standard 5 addresses facilities that were and continue to be located on designated rivers. These facilities are "allowed so long as the river's free flow, water quality, and outstandingly remarkable values are protected" (Forest Service, 2023). The Project falls into this category of existing facilities. Additionally, the LMP also notes that while new hydroelectric projects are not permitted on W&SRs, existing FERC-licensed projects at the time of designation may continue to operate.

The LMP for the SQF also describes actions intended to help maintain existing and achieve desired W&SR-related scenic conditions. These actions include (Forest Service, 2023):

- Complete comprehensive river management plans for W&SRs newly designated by Congress.
- Help maintain and enhance the outstandingly remarkable values of each designated and eligible W&SR through partnerships with other agencies, organizations, and volunteers.
- Provide information to the public that will increase understanding and appreciation of designated and eligible W&SRs and promote citizen stewardship.
- Implement comprehensive river management plans for W&SRs designated by Congress.

As noted previously, the Project was constructed and operated prior to the designation of the NFKR as a W&SR. Section 7 of the W&SR Act (Wild and Scenic Rivers Act of 1968, Pub. L. No. 90-542, 82 Stat. 918, 1968) prohibits the development and licensing of new hydroelectric projects on designated W&SRs. This section of the Act also identifies the need for the administering federal agency to provide an evaluation of continued hydroelectric operations on designated rivers during the FERC licensing process. In the case of the NFKR, the Forest Service is the administering agency with authority to evaluate the continued operation of the Project under established "direct and adverse effect" guidelines for W&SRs (Forest Service, 2004). The Section 7 process, including coordination with the Forest Service and determination, is addressed in SCE's Application for new License.

5.1.3. Tulare County General Plan

A large portion of the Project is located in Tulare County. However, the portion of the Project in Tulare County is located entirely on lands administered by the Forest Service.

As noted in the PAD (SCE, 2021), the Land Use and Environmental elements of the Tulare County General Plan contains several provisions regarding scenic resources that are relevant to lands in the vicinity of the Project (Tulare County, 2012). Most of these provisions are oriented toward maintaining the open space character of the county and appropriately designing and screening facilities to minimize their potential impact on scenic quality. While the Tulare County General Plan does not address aesthetic flows in the Kern River, and as a technical matter does not apply to the Project, it does acknowledge the need to protect and maintain the scenic character of the county's rivers, lakes, and irrigation canals.

5.1.4. KERN COUNTY GENERAL PLAN

The southern portion of the Project is located in Kern County. Similar to Tulare County, the Kern County General Plan includes goals, policies, and implementation measures to help protect scenic resources in the county (Kern County, 2009). As documented in the PAD (SCE, 2021), the Land Use, Open Space, and Conservation Element of the General Plan outlines several provisions that aim to minimize potential impacts to scenic quality from land development and facilities through proper design and screening techniques. It also identifies provisions to protect views of the Kern River but does not specifically address aesthetic flows in the river and as a technical matter does not apply to the Project.

5.2. AESTHETIC CHARACTERISTICS OF THE STUDY AREA

The Project and adjacent areas are within the Sierra Nevada foothills. The topography of the area ranges from rolling hills to mountains with large rocks and granite outcrops that provide localized contrast and interest. The mountains in this region spatially dominate many views through their sheer scale, rocky textures, and colors on the landscape. The area's vegetation shifts from riparian to oak and grass communities to mixed conifer communities depending on elevation. The varied topography and vegetation create an engaging mix of forms, lines, colors, and textures that contribute to the overall scenic quality of the area. Changes in vegetation colors (from vibrant greens to more subdued greens and tans) and kinetic flows in the river further enhance and add seasonal variation to the scenic opportunities in the area.

Within the Fairview Dam Bypass Reach, the river itself adds another dominant feature to the landscape. The river is accentuated by and provides contrast with the surrounding topography. The sides of the canyon act as walls that enclose the landscape and focus viewers' attention on those landscape features within the enclosed area, including the river, riparian vegetation, rock outcrops, and general topography. The river's dark blue hues, dynamic, sinuous, directional form and shifting textures (generally from smooth to coarse) create visual interest and contrast with the surrounding landscape forms, textures, and colors. The result is a highly scenic river corridor that has intrinsic aesthetic value that is also integral to the recreational experiences found along the Fairview Dam Bypass Reach.

Rivers are dynamic systems and their flow levels directly influence the scenic interest and quality of the landscape. Flow levels, along with the underlying river channel material

create rapids, riffles, runs, cascades, and pools that add movement, color, and texture to the landscape. In both natural and controlled river systems, these landscape characteristics (e.g., forms, colors, line, textures) change throughout the year based on water availability and corresponding flow levels. During periods of heavy snowmelt or precipitation, flow rates tend to increase while flow levels decrease during dry periods. This seasonal variation creates visual differences in a river's scenic qualities that are akin to the color changes of deciduous vegetation over the course of a year. That is, similar to the seasonal changes in colors and textures of deciduous vegetation that transform a landscape's scenic characteristics throughout the year, seasonal flow changes also result in different landscape characteristics on a river. The Fairview Dam Bypass Reach follows this similar pattern of changing scenic conditions related to flow levels over the course of the year based on water availability and natural flow levels, as well as Project operational needs and minimum instream flow requirements. The changing visual conditions under different flow levels are described in Section 5.3, *Key Observation Points*.

The Project includes several existing facilities and structures that are visible on the landscape. The visibility of these facilities and structures to the public is variable and based on viewing location, vegetation, and topography. The public primarily has views of the Project's facilities and structures at specific points along Mountain Highway 99/Sierra Way. These include Fairview Dam, sandbox, forebay, penstocks, powerhouse, and other associated infrastructure (e.g., fencing, access roads, etc). The Project's flowline (below-ground tunnels, above ground flumes and siphon) is primarily hidden from public view since it is mostly underground or screened by existing vegetation and topography. Overall, the Project's facilities and structures are generally consistent with the area's level of development and are not visually dominant or overly obtrusive on the landscape. Per the 1997 *Visual Resource Protection Plan* (a condition of the existing license), Project facilities and structures are painted with appropriate earth tones to help them better blend into the surrounding landscape (SCE, 1997).

In addition to the Project, there are multiple other cultural modifications (i.e., human-built structures and/or human-altered areas). These modifications include primarily Forest Service owned and maintained recreational sites and facilities (e.g., campgrounds-both developed and dispersed, river put-in/take-outs, day use / picnic areas), private residences, commercial buildings and support facilities (e.g., restaurants, resorts, distribution lines, signs), and travel corridors (e.g., paved and striped roads, signs), among others. In general, these cultural modifications do not substantially detract from the overall scenic quality and are generally consistent with the level of development found throughout the area.

Mountain Highway 99 (Sierra Way through the town of Kernville), the primary travel route within the area, is a two-lane winding road adjacent to the eastern side of the NFKR. Several unincorporated residential areas (including Fairview, Riverkern, and Camp Owens) are located at the northern and southern end of the Project. Additionally, there are over 20 Forest Service-owned and managed, formally developed, and dispersed-use recreational areas situated between the river and Mountain Highway 99, including numerous informal road shoulder pull-offs. The western riverbank and hillside are composed primarily of SQF lands with minimal development. Just 2 miles south of the

FERC Project Boundary, the town of Kernville serves as the largest residential community in the vicinity with residential and commercial developments along both sides of the river.

The *Kern River Valley, 2023 Visitor's Guide* (Kern Valley Sun, 2023) promotes activities, destinations, and events available in the region. The guide provides a list of more than 40 types of outdoor recreation opportunities, many of which (e.g., whitewater rafting and other forms of boating, fishing, and gold panning) are directly influenced by or dependent on the NFKR. The visual quality and aesthetic characteristics of the region are a clear driving force in the draw to the area and the value of the outdoor recreation available to visitors. Recreational opportunities, visitation patterns, and visitor preferences are addressed in detail in the REC-2 Final Technical Memorandum (Appendix E.2 of the Application for a New License).

5.3. KEY OBSERVATION POINTS

To better understand the changing aesthetic conditions associated with different flow levels, SCE established a series of 15 KOPs in the Fairview Dam Bypass Reach and one KOP immediately downstream of the KR3 Powerhouse (not in the bypass reach) from which to document aesthetic flows for a total of 16 KOPs. These KOPs are displayed on Figure 4-1. The KOPs were selected from public access and use areas that reflect typical views of the river. They are primarily located at sites along Mountain Highway 99 since it generally parallels the eastern side of the river throughout the Fairview Dam Bypass Reach and offers multiple opportunities to view the river. The views from these KOPs are intended to capture publicly accessible sites from which viewers would be able to see and experience the changes in flow levels that are caused by operational and seasonal water variations or flow rates throughout the year.

Table 5.3-1 lists the KOPs, their locations, and general descriptions of viewshed conditions. In general, most of the KOP views are oriented upriver and are focused on landscape elements in the foreground because of vegetation and the surrounding topography that enclose most of the views. Enclosed views are defined by landscape elements that form a "floor" and "walls" that frame the visible landscape. In the case of the NFKR, the river channel and broader floodplain serve as the floor, while the surrounding hills, rock outcrops, and mountains form the walls that enclose the landscape. Within this enclosed landscape, the river is one element or feature that contributes to the overall scenic quality of the area. It is the combination of the river along with vegetation, rock outcrops, and the surrounding topography that create a varied (e.g., forms, lines, colors, and textures) and visually engaging landscape.

Table 5.3-1. Key Observation Points

KOP	Location	Project Infrastructure	Viewshed Description
1	Fairview Dam	Dam with fish passage structure, flume, fencing	View is oriented upriver and enclosed by surrounding topography; the river is the dominant natural feature; the dam (and associated Project structures) is highly visible and co-dominant on the landscape; the dam creates a horizontal break across the river and enhances the visible movement of water (turbulence) as water cascades over the dam at higher flows
2	Bombs Away Rapid	None visible	View is oriented upriver and enclosed by surrounding topography; river is dominant with riparian vegetation and rocks/boulders providing visual contrast and texture to the river corridor; interaction of water with rocks emphasizes visibility of movement; roadway, signs, and distribution lines visible above the eastern bank of the river
3	McNally's Suspension Bridge	None visible	View is oriented upriver and enclosed by surrounding topography; river, riparian vegetation, rocks, and steep western bank are prominent features; distribution line is visible as a horizontal line above the river channel
4	Chamise Flat Campground	None visible	View is oriented upriver; river channel is broader but still enclosed by surrounding topography; water acts as focal point of views; movement of water highly perceptible around and downstream of rocks in and along the river channel; riparian and other vegetation, as well as rock outcrops add visual contrast and texture
5	Black Bottom Falls	None visible	View is oriented upriver within a concave, broader canyon with hills and mountains enclosing the landscape; the river is prominent through the valley bottom with visible movement/turbulence, but the extent of the river is limited to the foreground due to its contours and the area's topography; boulders, large rock outcrops, and vegetation provide contrast and texture
6	Upper Salmon Falls	None visible	View is oriented upriver and enclosed by the surrounding topography; boulders in and along the river channel and moving water dominate the foreground with riparian and other vegetation providing vertical interest and scale along the river

KOP	Location	Project Infrastructure	Viewshed Description
7	Lower Salmon Falls	None visible	View is oriented upriver; steep, rocky cliff along western bank encloses the view and provides vertical contrast to the horizontally aligned river; boulders and large rock outcroppings are dominant in and along the river; water is dynamic and movement is readily apparent as it flows around the boulders; clumped vegetation within the rock outcroppings on the riverbanks adds contrast to the view
8	Screaming Right Turn 1	None visible	View is oriented upriver and enclosed by the surrounding topography; the river is centered in the foreground; the interaction of water and rocks/boulders is bordered by riparian vegetation and prominent in the view; surrounding topography and vegetation add contrast and texture to the landscape
9	Screaming Right Turn 2	None visible	View is oriented upriver; sloped hillside on western bank with more distant view into middle ground; the river channel includes a balanced combination of water, a large boulder field and rapids, and riparian vegetation; the vibrant greens of the riparian vegetation are contrasted with the muted greens, grays, and tans of the surrounding area
10	Springhill North	None visible	View is oriented upriver within a broader section of the river canyon; the view is enclosed by gently sloped hills along the riverbank with steeper, more pronounced rock outcroppings and mountains framing the background/skyline; the river serves as a focal point within the channel with boulders and riparian vegetation adding color and texture
11	Corral Creek Put-In	None visible	View is oriented upriver and while within a broader section of the canyon is still enclosed by the surrounding hills; wide river channel features prominently in the foreground; the river transitions from an area of large rocks and rapids where water movement is pronounced to a calmer, flatter area; clumped riparian vegetation adds vertical elements and texture to the view
12	Corral Creek Road 15-18	None visible	View is oriented downriver and enclosed by the surrounding topography; Mountain Highway 99 parallels the edge of the eastern bank of the river while a broad boulder field and clumped riparian vegetation forms the western bank; movement of water is pronounced with visible churn and color differentiation compared to calmer, flat section visible downriver
13	Chico Flat Flume Road	None visible	View is oriented upriver and enclosed by surrounding topography; broad river channel with boulder field spanning the channel and creating visible areas of water turbulence; riparian vegetation and clumped vegetation on surrounding hillsides add color and interest to the view

KOP	Location	Project Infrastructure	Viewshed Description
14	Fender Bender Rapid	None visible	View is oriented upriver and enclosed by surrounding topography; concave river channel includes a mix of water, boulders, and pockets of dense riparian vegetation; water movement is pronounced and facilitated by rocks and boulders; brighter riparian vegetation creates contrast with the lighter tan/gray of the rocks and boulders in and along the river, as well as the muted tans of the hillsides
15	Kern River Beach	None visible	View is oriented upriver, enclosed by the surrounding topography, and limited primarily to the foreground by vegetation and topography; the river features prominently along the canyon bottom; water is slightly textured (indicating movement); a dense wall of riparian vegetation frames the western bank and contrasts with the colors and textures of the hillsides
16	KR3 Powerhouse	Access road to the powerhouse, ancillary buildings and parking areas, and a distribution line (this KOP is downstream of the Fairview Dam Bypass Reach)	View is oriented downriver; broader section of the canyon is semi-enclosed with more distant views into the middle and background; wide section of the river includes mix of calmer, flatter water and areas with visible movement in the surface water; the river is surrounded by dense vegetation that adds color and texture to the landscape; human development is prominent along both river banks with Project-related facilities along the eastern side and residential homes along the western side and onto the surrounding hillside

KOP = key observation point; KR3 = Kern River No. 3

At each KOP, the presence and dominance of the river in the viewshed changes depending on flow level. In the Fairview Dam Bypass Reach, the amount of water in the river or flow level changes based on Project operations, as well as seasonal variations in water availability. Project operational flows are prescribed in the existing FERC license to meet for power generation and resource goals. The *WR-2 Hydrology* Study provides typical monthly flows in the Fairview Dam Bypass Reach based on river gage data from the U.S. Geological Survey from 1997 to 2022 (see the *WR-2 Hydrology Interim Technical Memorandum* [Appendix E.2 of the License Application]). These flows generally follow a seasonal pattern, with the highest average monthly flow levels in spring (April and May) and early summer (June and July) when snow melt is highest, and lower flows throughout the rest of the year.

Photographs were taken during a range of flow levels to document the variation and changes in aesthetic conditions associated with these flows (KOP photographs are provide in Attachment C). For purposes of this assessment, the photographs were taken at lower flows (approximately 130-160 and 300-400 cfs), moderate flows (between 700 cfs up to 1,000 cfs), and high flows (over 1,000 cfs). In addition, drone footage, other available Project photos, and field observations were also used to help document and describe aesthetic conditions under low flow rates (under 160 cfs) in the Fairview Dam Bypass Reach. Examples of the drone footage that was taken at lower flows (approximately 40 cfs) and reviewed for assessment purposes are provided in Figures 5-2 through 5-4. Refer to *BIO-6 Stream Habitat Typing Technical Memorandum* (Appendix E.2 of the License Application) for additional photographs depicting stream habitat conditions at low flows (approximately 80 cfs).

Figure 5-2. Example Image from Drone Footage of the Fairview Dam Bypass Reach at Lower Flow Rate (November 2020, approximately 40 cfs) – Example 1

Figure 5-3. Example Image from Drone Footage of the Fairview Dam Bypass Reach at Lower Flow Rate (November 2020, approximately 40 cfs) – Example 2

Figure 5-4. Example Image from Drone Footage of the Fairview Dam Bypass Reach at Lower Flow Rate (November 2020, approximately 40 cfs) – Example 3

In total, photographs were taken on five different dates each with different flow levels at each KOP, as listed in Table 5.3-2. Figures 5-5 through 5-9 display an example

photograph at each captured flow level/range on the date ranges listed in Table 5.3-2. A full set of photographs from each KOP at each flow range is provided in Attachment C. The flow rates capture the amount of water released below the Fairview Dam as measured by USGS gage 111860000, SCE gage 401 and do not factor in flows from tributaries along the bypass reach. More detailed information about the hydrology and stream characteristics in the Fairview Day Bypass Reach is available in the *WR-2 Hydrology Interim Technical Memorandum* (Appendix E.2 of the License Application).

Table 5.3-2. Dates and Approximate Flow Rates at Key Observation Points

Date	Flow Rate [a] of KOP Photography (cfs)		
	Above Fairview Dam [b]	Fairview Dam Bypass Reach [c]	Below KR3 Powerhouse [d]
5/8/2023 to 5/9/2023	3,748	3,676–3,874	3,678
8/9/2023 to 8/10/2023	1,495	897–1,000	1,469
8/27/2023 to 8/28/2023	1,279	719–829	1,276
9/6/2023 to 9/7/2023	895	331–381	900
9/18/2023 to 9/19/2023	726	134–160	701

cfs = cubic feet per second; KOP = key observation point

[a] The flow rates on the same date fluctuate slightly throughout the day. All flow rates were recorded at the specific time the KOP photograph was taken and estimated to the nearest hour.

[b] Flows were estimated by adding USGS gage 111860000, SCE gage 401, USGS gage 111855000, and SCE gage 402.

[c] Flows recorded at USGS gage 111860000, SCE gage 401, USGS gage 111855000, and SCE gage 402.

[d] Due to high flows in early 2023, the stream gage in Kernville did not provide accurate flows; therefore, flows below the KR3 Powerhouse were estimated by adding USGS gage 111860000, SCE gage 401, USGS gage 111855000, and SCE gage 402. Flow estimates do not account for any tributary accretion flows that may occur throughout the reach.

Figure 5-5. 134–160 cfs Flow Range at KOP 2.

Figure 5-6. 331–381 cfs Flow Range at KOP 4.

Figure 5-7. 719–829 cfs Flow Range at KOP 7.

Figure 5-8. 897–1,000 cfs Flow Range at KOP 9.

Figure 5-9. 3,676–3,874 cfs Flow Range at KOP 14.

Table 5.3-3 lists the water resource characteristics captured on the aesthetics field inventory form at different flow rates. These water resource characteristics are based on guidance from the Forest Service Scenery Management System (Forest Service, 1995). They provide an indicator of the visual changes to the river and landscape at each KOP at different flow levels. Table 5.3-3 also provides a description of the differences in visual characteristics of the river, including the interaction of the water, river channel, riverbanks, and surrounding landscape at different flow levels at each KOP.

Table 5.3-3. Visual Characteristics at Different Flow Levels

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 1					
Stream Habitat	Cascade	Cascade	Cascade	Cascade	Cascade
Water Movement	Rapid, falls	Rapid, falls	Rapid, falls	Rapid, falls	Rapid, falls
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Dominant	Dominant	Dominant	Dominant	Dominant
Description	• At lower flow rates, the concrete dam and a large rock outcrop below the dam (on the eastern side) are clearly visible and create a hard break in the river delineating an upper and lower area that is not connected by flowing water • At higher flow rates, the dam disappears under a cascading flow of water; the rock outcrop below the dam remains partially visible at moderate flows but is completely submerged at high flows • Water movement becomes apparent when the river flow is high enough to flow over the dam—at lower flows, the water appears still while the magnitude of turbulence generally increases as the flow level increases (i.e., as the volume of water cascading over the dam increases so does the amount of visible turbulence) • While the Project structures (e.g., dam, penstock, fish passage, etc.) are visible or noticeable at all flow levels, they become more pronounced as flow levels decrease (i.e., the visual focus shifts from the kinetic flow of water above, over, and below the dam to the concrete Project structures)				
KOP 2					
Stream Habitat	Boulder run	Boulder run	Boulder run	Boulder run	Boulder run
Water Movement	Medium	Medium	Rapid	Rapid	Rapid
Scale Contrast	Medium	Medium	Medium	Medium	Medium
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• At lower flow rates, the water becomes less dominant, though still provides an additional element that complements the broader landscape • Rocks and boulders in the stream channel are highly visible at lower flow rates and create pockets of turbulence • At moderate flows (over 300 cfs), larger rapids and riffles appear that add more color and texture to the river channel • As flows increase (over 1,000 cfs), many of the rocks and boulders in the stream channel disappear below the surface of the water and the movement of water becomes powerful with a higher degree of churn, waves, and a corresponding change in color (whites and gray-green colors dominate)				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 3					
Stream Habitat	Riffle	Riffle	Riffle	Riffle	Riffle
Water Movement	Slow	Slow	Medium	Medium	Medium
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• At lower flows, the river appears shallow with multiple exposed rocks and boulders peppering the channel, and the water surface is generally calm but there are several small areas of turbulence • As flows increase at this location, the visual changes to the river are subtler with fewer exposed rocks, the water filling more of the channel's width, and additional areas of turbulence • At higher flows, the water expands across the full width of the channel, rocks and boulders are fully submerged, riparian vegetation is partially submerged, and there is large amount of visible churn in the water (characterized by a change in color and texture of the water surface)				
KOP 4					
Stream Habitat	Deep pool, run, riffle	Deep pool, run, riffle	Deep pool, run, riffle	Deep pool, run, riffle	Boulder run, run
Water Movement	Slow	Medium	Rapid	Rapid	Rapid
Scale Contrast	Medium	Medium	Medium	Medium	Medium
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• At low flows, the river cuts through a visible boulder field (along both banks of the river) with several large rocks and boulders in the river channel that break up the surface of the water and create small areas of turbulence • As flows increase, the width of the water widens slightly, but maintains a serpentine form through the adjacent boulder field; the rocks and boulders in the channel are fully or partially submerged creating a longer run of turbulence • At higher flows (over 1,000 cfs), more of the rocks and boulders in the channel are fully submerged, the riparian vegetation is partially submerged, and several large rapids form (increased turbulence and churn)				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 5					
Stream Habitat	Shallow pool, run	Boulder run, run	Boulder run, run	Boulder run, run	Boulder run, run
Water Movement	Medium	Medium	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• While the river is visible and an integral component of the landscape, its prominence is minimized at low flows (i.e., it complements the overall scenic conditions but is not the dominant feature on the landscape) • At lower flows, a series of rocks and boulders is visible across the channel bottom and continues the pattern of clusters of rock scattered throughout the rest of the adjacent landscape; the water flows around these rocks and boulders creating small pockets of turbulence and interest • At moderate flows (between 700–1,000+ cfs), the general form and presence of the river is relatively unchanged, but the quantity of water submerges some of the rocks and boulders and creates larger areas of turbulence (rapids) • At very high flows, the greater quantity of water acts to widen and better define the river (e.g., continuous lines along the edges) and submerges most of the rocks and boulders in the river channel which results in a higher degree of turbulence				
KOP 6					
Stream Habitat	Boulder run, deep pool	Boulder run, cascade, deep pool	Boulder run, cascade, deep pool	Boulder run, cascade, deep pool	Boulder run, cascade, deep pool
Water Movement	Medium	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Dominant	Dominant	Dominant	Dominant	Dominant
Description	• Except at very high flows, a large boulder field dominates the view at this KOP • At low flows, water is visible cutting through the boulder field in the river channel with multiple small areas of turbulence • As flows increase, the boulders remain prominent, but the flow of water around the rocks increases and creates a longer run of rapids • At very high flows, the width of the water in the channel widens and the volume of water submerges many of the boulders in the river channel creating a continuous run of rapids with heavy turbulence				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 7					
Stream Habitat	Boulder run, Shallow pool	Boulder run, cascade	Boulder run, cascade	Boulder run, cascade	Boulder run, cascade
Water Movement	Medium	Medium	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Dominant
Description	• At lower flows, there is a prominent cluster of boulders across the river channel in this location • The presence of water at this KOP generally follows a similar pattern as KOP 7; that is, as flows increase, the amount of water passing through the boulder field increases and creates larger areas of turbulence • At moderate flows, there is a balance of water and rock landscape elements with both co-dominating views • At very high flows, the volume of water fully or partially submerges many of the boulders and creates a large rapid that dominates views				
KOP 8					
Stream Habitat	Boulder run, riffle	Boulder run	Boulder run	Boulder run	Boulder run
Water Movement	Medium	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Medium	Medium	Medium	Medium	Medium
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• At low flows, the river is present on the landscape, but adjacent features (e.g., a larger boulder field, riparian vegetation) equally defined the river channel's landscape elements (e.g., form, line, color, and textures) • As flows increase, more of the boulder-filled river channel fills with water creating a more textured combination of exposed rock, water, and small pockets of turbulence • At very high flows, the volume of water in the river channel submerges many of the rocks and boulders, and extends into a wider area thereby partially submerging portions of the river's banks and riparian vegetation; water movement is very apparent with a longer stretch of turbulent water and rapids				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 9					
Stream Habitat	Boulder run, deep pool	Boulder run, deep pool	Boulder run, deep pool	Boulder run, deep pool	Boulder run, deep pool
Water Movement	Medium	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Co-dominant	Co-dominant	Dominant	Dominant	Dominant
Description	• The view of the river at KOP 10 is similar to KOP 9 in that a large boulder field dominates and extends fully across the river channel and is particularly visible at lower flows • As flows increase, the natural channels and voids in the boulder field fill with water and create small rapids and areas of turbulence that are distinguished by their color (white) and texture (rough); this contrasts with the calmer, flatter, and glossier pool downriver of the boulder field • At very high flows, the boulders in the river channel are partially or fully submerged, as are portions of the riverbanks and riparian vegetation; the magnitude of turbulence is very high with a consistent run of rapids and churn that changes the color (white caps intermixed with gray water) and texture (matte, rough) of the river				
KOP 10					
Stream Habitat	Boulder run, run	Boulder run, run	Boulder run, run	Boulder run, run	Boulder run, run
Water Movement	Rapid	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Medium	Medium	Medium	Medium	Medium
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• At lower flows, the water is one of several landscape features (along with boulders, riparian vegetation, and the surrounding topography) that contributes to the overall scenic setting; the water is present and visible in the foreground with a large boulder field and riparian vegetation framing the river's banks; the presence of rocks in the river creates a small riffle and turbulence • As flows increase from lower to more moderate levels the river's width expands primarily into the boulder field along the eastern bank and the amount of turbulence increases changing the surface texture • At very high flows, the river expands into the boulder field along the eastern bank, partially or fully submerges the rocks in the river channel, and partially submerges riparian vegetation; there is also a substantial increase in turbulence with an extended run of small waves and whitecaps				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 11					
Stream Habitat	Boulder run, deep pool	Boulder run, deep pool	Boulder run, deep pool	Boulder run, deep pool	Boulder run, deep pool
Water Movement	Slow	Slow	Medium	Medium	Medium
Scale Contrast	Medium	Medium	Medium	Medium	Medium
Spatial Dominance	Co-dominate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• At lower flows, a section of boulders and small rapids is visible upriver from this site; the rapids transition to a broader, calmer section of river with a sandbar on the eastern bank and a steep hillside on the western bank; turbulence is visible on the calmer section of river through the slightly textured surface of the pool • As flows increase, the river spreads across more of the boulder field creating additional areas of turbulence; while the width slightly increases, the pool below the rapids remains largely unchanged with similar visual characteristics across a range of lower to moderate flows • At very high flows, the water dominates the river channel and overruns the riparian vegetation and sandbar on the eastern bank; the upriver rapids increase in size and visible turbulence also increases across the pool				
KOP 12					
Stream Habitat	Boulder run, deep pool	Boulder run	Boulder run	Boulder run	Boulder run
Water Movement	Medium	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Dominant	Dominant	Dominant	Dominant	Dominant
Description	• At low flows, the water cuts through a channel along the eastern side of a large boulder field that extends from the hillside to the west, across a flat portion of the canyon bottom, and then across the deeper river channel; the interaction of the boulders and the water creates a run of small rapids that are distinguished by their visible turbulence (different color [white] and texture [rough] from other areas of water); the river is a focal point within the canyon but is co-dominant with the surrounding topography • As flows increase, the magnitude of the rapids visible at this KOP also increases; the rising water submerges many of the boulders in the stream channel and there is a longer run of whitewater; as the size and length of the rapids increases, they becomes a more prominent focal point in the river canyon and on the landscape • At very high flows, the width of the river increases by expanding into the adjacent, flat boulder field and riparian vegetation; the high degree of visual turbulence from increased rapids help make the river the dominant landscape feature at these very high flows				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 13					
Stream Habitat	Boulder run, shallow pool	Cascade	Cascade	Cascade	Cascade
Water Movement	Rapid	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Large	Large	Large
Spatial Dominance	Dominant	Dominant	Dominant	Dominant	Dominant
Description	• Similar to other areas of the river, there is a boulder field that extends from the western to the eastern bank of the river channel and dominates the view at lower flows at this KOP; at low flows, the water is visible moving between the boulders with several small rapids distinguished by their color (white) and texture (rough) • As flows increase, the water fills in and partially or fully submerges the boulders in the river channel; more rapids form and the river takes a more prominent focus on the landscape • At very high flows, the water extends farther into the adjacent boulder-covered banks and the boulder field in the river channel transforms into a series of large rapids that dominate the view				
KOP 14					
Stream Habitat	Boulder run, riffle	Boulder run, riffle	Boulder run, riffle	Boulder run, riffle	Boulder run, riffle
Water Movement	Medium	Rapid	Rapid	Rapid	Rapid
Scale Contrast	Large	Large	Medium	Medium	Medium
Spatial Dominance	Subordinate	Co-dominate	Co-dominate	Co-dominate	Co-dominate
Description	• A extensive boulder field with a dense patch of riparian vegetation extends across the river channel in this location; at low flows the water splits around a patch of boulders and vegetation forming two separate branches; each branch is dominated by large boulders with dark blue water flowing around them and several small rapids; while the water is evident, the landscape is characterized by a high degree of contrast and variety across the different landscape features (e.g., the river, boulders and rock outcrops, vegetation, and topography) • As flows increase, the length and magnitude of the rapids in each branch of the river increase and become more apparent (larger sections of white water and turbulence) and more pronounced on the landscape • At higher flows (~1,000 cfs), the rapids take on more prominence with their visible turbulence serving to elevate the dominance of the river in the view; this is particularly evident at very high flows, where not only are the rapids larger and longer but the water extends through the patch of boulders and riparian vegetation that splits the river at lower flows				

Water Resource Characteristics	Flow Ranges [a]				
	134–160 cfs	**331–381 cfs**	**719–826 cfs**	**879–1,000 cfs**	**3,600–3,800 cfs**
KOP 15					
Stream Habitat	Boulder run, riffle	Run, riffle	Run, riffle	Run, riffle	Run, riffle
Water Movement	Slow	Medium	Medium to rapid	Medium to rapid	Medium to rapid
Scale Contrast	Small	Small	Small to medium	Small to medium	Small to medium
Spatial Dominance	Co-dominant	Co-dominant	Dominant	Dominant	Dominant
Description	• At low to moderate flows, the visual characteristics of the river stay relatively consistent at this location; the general form, lines, and degree of visual turbulence change slightly as flows increase; the most noticeable change as flows increase is the degree to which rocks in the river channel are exposed (lower flows) or submerged (higher flows) • At high to very high flows, the water extends onto the low riverbanks partially submerging riparian vegetation and increasing the width of the river; there is also a noticeable increase in the level of turbulence at these higher flows				
KOP 16 (below the Fairview Dam Bypass Reach)					
Stream Habitat	Run, riffle	Run, riffle	Run, riffle	Run, riffle	Run, riffle
Water Movement	Medium	Medium	Medium	Medium	Medium
Scale Contrast	Small	Small	Small	Medium	Medium
Spatial Dominance	Co-dominant	Co-dominant	Co-dominant	Co-dominate	Co-dominate
Description	• The river maintains similar visual characteristics across a range of flows at this KOP; as flows increase, the primary differences in visual characteristics are a slight widening of the river into lower areas along its banks and additional areas of turbulence • At all flow levels, the river is co-dominate with other elements of the surrounding landscape				

cfs = cubic feet per second; KOP = key observation point

[a] Similar flows from Table 5.3-3 are grouped here for reporting purposes. The ranges are based on the flows (cfs) between the Fairview Dam (KOP 2) and the KR3 Powerhouse (KOP 16) that occurred on the scheduled KOP photography dates and times per U.S. Geologic Survey gage 401.

In general, at lower flows (under 160 cfs) the river level (amount of water) tends to be less prominent compared to other landscape features (e.g., vegetation, topography, rock outcrops) but still contributes positively to the overall scenic character of the Fairview Dam Bypass Reach. However, at very low flows (under 40 cfs), the lack of water creates an emphasis on other landscape features, in particular large boulder fields and riparian vegetation along the river channel, which reduces the visual complexity of the landscape (see Figures 5-2 through 5-4). At very high flows (over 3,000 cfs), the river takes on flood characteristics including water overflowing the banks, fully submerged rock outcrops, partially submerged riparian vegetation, and a much higher degree of turbulence (and associated color and texture changes). While impressive from a water volume standpoint, the visual characteristics under these very high flows tend to detract from the overall scenic integrity of the landscape (that is, the river becomes such a dominant feature to the detriment of other landscape elements).

Outside of these extremes, there is a high degree of visual variability across a range of moderate flows (generally between 160 and 1,000 cfs). This variability includes changes to the visibility of boulders in the river channel (exposed, partially submerged, fully submerged), the presence and magnitude of rapids, the width of the water in the river channel, and other visual changes in landscape elements. The degree of visual change depends in part on the viewing location, specifically the location of the KOP and the structure of the river channel that is visible from the KOP. At some KOPs, the visual changes associated with different moderate flow levels are minimal, while at others, the degree of visual changes is high (Attachment C). For example, at KOPs 3, 4, 8, and 16 there are small changes in the visual characteristics of the river across various moderate flow levels, while at KOPs 2, 9, 12, and 14, the changes in water volumes and corresponding changes in the visual characteristics across moderate flows are more pronounced.

Flows are an important component of the scenic integrity and aesthetic quality of the Fairview Dam Bypass Reach. Flows are also important for other resources including recreation, fish, vegetation, and others. The effects and flow-dependent needs of other resource areas are described separately in each resource area's Technical Memorandum (Appendix E.2 of the License Application).

5.4. REC-2 VISITOR QUESTIONNAIRE—AESTHETIC-RELATED QUESTIONS

Several aesthetics-related questions were added to the REC-2 visitor questionnaire to augment the public input process. These aesthetics-related questions are provided in Attachment B. Summarized responses from the entire year of data collection are provided below (the full results of the recreation survey, including a summary by season are available in the REC-2 Final Technical Memorandum [Appendix E.2 of the License Application]). These results are specific to visitors who were contacted within the Fairview Dam Bypass Reach unless noted otherwise.

Not only are some types of recreation dependent on flow levels, but others are enhanced by their scenic contribution to the overall recreational experience (Whittaker and Shelby, 2017). Specific to flows in the river, survey participants were asked if flow levels in the

Fairview Dam Bypass Reach affected their ability to participate in water-related activities. Overall, about 86 percent of visitors indicated that flows had no effect on their ability to participate in water-related activities. Approximately 9 percent of visitors indicated flows were too high, while slightly less than 4 percent of visitors responded that flows were too low for them to participate in a water-based activity. These responses are not specifically indicative of aesthetic preferences, although they do point to the influence of flow levels on recreation activity preferences and visitor satisfaction with the overall recreational experience.

For comparison purposes, visitors above the Fairview Dam responded similarly to those in the bypass reach in terms of the effect of flow levels on water-related activities. Slightly more than 86 percent of respondents above the dam also indicated that flows had no effect on their ability to participate in water-related activities. Additionally, about 11 percent and 3 percent of respondents above the dam reported that flow levels were too high or too low, respectively. A portion of the survey period coincided with abnormally high flow levels in the Kern River. This may have influenced the responses to this question (both above and below Fairview Dam); that is, high seasonal flows may have contributed to more visitors indicating that flows were too high compared to periods with more average flows.

According to the survey results, visitors highly rated the scenic quality of the Fairview Dam Bypass Reach. In total, slightly more than 96 percent of visitors rated scenic quality as “very good” (66.6 percent) or “good” (29.6 percent). This high rating is comparable to ratings of the scenic quality of the Kern River above the Fairview Dam Bypass Reach. About 98 percent of visitors above the Fairview Dam rated scenic quality as “very good” (71.7 percent) or “good” (26.7 percent) in the river reach above the dam. Only about 0.4 percent of visitors gave the scenic quality of the Fairview Dam Bypass Reach a poor rating (combination of “poor” [0.3 percent] and “very poor” [0.1 percent] responses). The reasons these visitors gave for the poor scenic quality included low river flows (2 responses), lack of great views (1 response), and the effects of fires on the area (1 response).

In terms of the scenic features that are most attractive in the Fairview Dam Bypass Reach, approximately 95 percent of visitors indicated either river flows (52.8 percent) or the general scenery of the area (42.3 percent). Flows (44 percent) and the general scenery (46.7) were also the most indicated scenic features of visitors who participated in the survey at recreation sites and use areas above the Fairview Dam. Based on the overall scenic ratings and percentage of visitors who value flows as an important scenic feature, visitors appear to be generally satisfied with flow levels in the Fairview Dam Bypass Reach from an aesthetics perspective.

This does not mean that there are not visitors who may be dissatisfied with some flow-related aesthetic characteristics in the Fairview Dam Bypass Reach. During public scoping and other commenting opportunities during the licensing process, some members of the public voiced their concerns about the aesthetic conditions in the bypass reach resulting from Project operations. However, when considered in aggregate with other sources of public perceptions of visual quality, including the visitor survey, the

majority of the visitors are satisfied with the aesthetic conditions and opportunities found throughout the Fairview Dam Bypass Reach.

The general satisfaction with flows is further supported by visitors' specific ratings of the scenic qualities of existing flows in the Fairview Dam Bypass Reach across the variety of flows found throughout the year. A majority of visitors (88.4 percent) rated the scenic conditions of flows in the bypass reach as either "very good" (56.7 percent) or "good" (31.7 percent). Less than 3 percent of visitors gave the scenic condition of flows a low rating (combined "very poor" and "poor" responses). Of those respondents who provided a negative rating of flows ("very poor" and "poor" responses), about 12 percent attributed their rating to low flows in the bypass reach.

Visitors also highly rated the scenic conditions of the general scenery and Project facilities in the bypass reach. More than 97 and about 85 percent of visitors rated the general scenery and Project infrastructure, respectively, as either "very good" or "good." These results further reinforce that visitors are satisfied with the current aesthetic conditions at the NFKR, including the specific aesthetic quality associated with flows, the general scenery, and Project infrastructure in the bypass reach.

Finally, nearly 21 percent of visitors indicated that they visited the Fairview Dam Bypass Reach specifically to participate in an aesthetic-oriented activity. These activities include photography, painting, scenic driving, viewing scenery, and viewing wildlife. These visitors most often visited the bypass reach area in spring and summer and took fewer trips to the area in fall and winter. This visitation pattern is similar to that of other visitors to the Fairview Dam Bypass Reach.

In general, the survey results are representative of a visitor population that highly rates the scenic opportunities or aesthetic conditions available in the Fairview Dam Bypass Reach. However, while aesthetic conditions and opportunities are an important component of the recreation experience, they are only one of many contributing factors to why most visitors choose to recreate in the bypass reach.

6.0 STUDY-SPECIFIC CONSULTATION

No study-specific consultation has occurred during the Level 1 desktop analysis.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All planned components of the AES-1 Level 1 Study have been completed to date.

8.0 RECOMMENDATION AND NEED FOR CONTINUED STUDY

This report captures all of the planned elements of the Level 1 aesthetics assessment, including a review of area management plans that address visual resources and scenic integrity, a general description of the aesthetic characteristics of the Fairview Dam Bypass Reach, and more detailed aesthetic characteristics under different flow conditions at specific locations (KOPs). It also incorporates input from visitors to the study area who participated in the REC-2 visitor questionnaire. Cumulatively, these sources of

information provide a robust understanding about aesthetic conditions in the Fairview Dam Bypass Reach and frame the types of scenic characteristics and changes to these characteristics under various flow levels.

Whittaker and Shelby (2017) does not provide specific criteria for evaluating the level of information needed to progress from one aesthetics study level to the next. However, Whittaker et al. (2005) provides a series of questions intended to help address the sufficiency of information to guide the progression from one study level to the next. These questions are presented in the context of whitewater boating flows but have been modified here for aesthetic purposes. The questions help determine if Level 1 information is sufficient or if additional study is necessary and include the following:

- Are there flow-dependent aesthetic opportunities on the river?
  - *Yes, the river is one of several landscape features that contributes to the overall scenic context and quality in the area. As noted in Section 5.3,* Key Observation Points, *river flows change throughout the year and influence the level of prominence of the river on the landscape.*
- Are flow-dependent opportunities affected by project operations?
  - *Seasonally yes, Project operations can divert up to approximately 600 cfs for Project generation once the minimum instream flow is met (ranging from 40 cfs up to 130 cfs, depending upon the month). However, as the Project is run-of-river and has no storage, there are numerous periods of time (days, weeks, or months) where the inflows above Fairview Dam far exceed the diversion capacity and flows spill over the dam. This typically occurs during spring run-off and storm events. The* WR-2 Hydrology Interim Technical Memorandum *(Appendix E.2) summarizes historical flows along the Fairview Dam Bypass Reach.*
- Are flow-dependent aesthetic conditions "important" relative to other resources or foregone power generation? If certain aesthetic conditions will not be considered when determining project operation decisions (e.g., if agencies and stakeholders agree that flow releases will be primarily driven by biological needs for an endangered species), more detailed information about flows may be unnecessary, and Level 1 information may be sufficient (assuming it documents stakeholder and agency agreement about this evaluation).
  - *Yes, aesthetic conditions are one of several resources that influence the overall recreational experience in the Fairview Dam Bypass Reach. As noted in Section 5.4, REC-2 Visitor Questionnaire—Aesthetic-Related Questions, many recreational activities are enhanced by their scenic contribution to the overall recreational experience, and the Fairview Dam Bypass Reach is known for its scenic quality and viewing opportunities. In addition, the bypass reach provides popular and easily accessible opportunities to angling, whitewater boating, and other shoreline-based activities (see the* REC-2 Final Technical Memorandum *[Appendix E.2] for additional information about visitor uses and activity preferences*

in the area). As such, aesthetics will be considered during the development of license conditions. A discussion of flows pertaining to aquatic resources is provided in Section 7.9, Aesthetic Resources, of the License Application.

- Does Level 1 information precisely define aesthetic flow ranges and potential project effects on aesthetic conditions?

  - *Yes, as documented in Section 5.3,* Key Observation Points*, aesthetic conditions change under different flows regimes in the Fairview Dam Bypass Reach. While these descriptions do not evaluate specific public flow preferences, they do provide an understanding of how flows influence aesthetic conditions. Per the results from the REC-2 visitor questionnaire, visitors value and highly rate the scenic quality and contribution of river flows to the overall aesthetic context of the bypass reach. Since the surveys were administered over the course of a year and at different flow levels, it appears that visitors' aesthetic preferences are not necessarily sensitive to flow levels. This is supported by the small percentage of visitors (3 percent) who gave the scenic condition of flows a low rating across the entire survey period. Therefore, while the AES-1 Study did not specifically evaluate visitors' preferences for precise flow ranges, there is enough related information to gage general flow preferences and sufficient historical hydrology data available to evaluate potential Project effects on aesthetics within these flow ranges. This evaluation is discussed in Section 7.9, Aesthetic Resources, of the License Application.*

Per Whittaker et al. (2005), if none of these questions are answered affirmatively, Level 1 information is probably not sufficient, and more intensive study (Level 2 or 3) may be necessary. Given the level of existing information about flows, aesthetic conditions, and hydrology in the Fairview Dam Bypass Reach, progressing to a Level 2 or 3 assessment is not warranted.

As noted above, one of the justifications for moving to a Level 2 or 3 assessment is to augment descriptive information with evaluative information about river flows to better establish a preferred range of flows under which scenic conditions are optimal (i.e., perceived as being more scenic). While there is value in evaluative processes, in this case, the descriptive scenic characteristics of the Fairview Dam Bypass Reach point to a wide range of moderate flows (160 to 1,000 cfs) under which the river exhibits characteristics that may be perceived as more or less scenic than other flows. This means that there is a high degree of variability in the scenic conditions created by different flow levels. As noted in Section 5.3, *Key Observation Points*, this variability is also dependent on the specific location (KOP) on the river from which the flow is observed. From a practical standpoint, this means that there is not one flow (or highly discrete range of flows) under which the river reach would exhibit optimal scenic conditions across all sites. Instead, there are multiple opportunities at multiple flow levels for the public to experience the river's aesthetic resources and perceive the scenic quality of these resources based on their specific preferences (e.g., low versus high flows, no to high levels of turbulence, presence of boulders and rock outcrops, variety and color of riparian vegetation).

Additionally, the flows in the river are not only influenced by Project operations, but also by seasonal water availability. The Project is a run-of-river (diversion) development without a large impoundment and so is subject to seasonal (and annual) changes in water availability and flows. As such, there is a normal fluctuation in flows and corresponding change in scenic characteristics that would be present with or without the Project. These variable flow-related characteristics are not unusual and similar to other rivers throughout the region, as noted in the *Final Environmental Impact Statement and Study Report North Form Kern Wild and Scenic River Study* (Forest Service, 1982). Given the range of average daily flows (see the *WR-2 Hydrology Interim Technical Memorandum* [Appendix E.2 of the License Application]) in the Fairview Dam Bypass Reach, there are times of the year across different seasons when flow levels are likely to be perceived as more scenic than others to different visitor groups under current operations. Importantly and as noted in Whittaker and Shelby (2017), optimal aesthetic flows do not need to be available at all times. While research suggests that the public generally perceives lower flows as less acceptable from a scenic quality standpoint, moderate and high flows (more commonly perceived as acceptable flows) are periodically available in the Fairview Dam Bypass Reach under existing conditions.

Finally, as acknowledged in Section 5.1, *Aesthetic/Scenic Components of Resource Management Plans*, the NFKR is a designated W&SR with the Fairview Dam Bypass Reach managed as, and to the standards of, a recreational river and the outstandingly remarkable values at the time of designation. The KR3 Project was constructed and operated for decades prior to the designation. Crucially, the establishing legislation specifically identifies and allows for the continued presence and operation of the Project. Furthermore, the W&SR study that was the basis for the federal designation indicated that the Project “does not create an extensive impoundment, nor does it greatly alter the free-flowing character of the river” (Forest Service, 1982). The current SQF LMP (Forest Service, 2023) provides management direction and guidance for the W&SR portions of the NFKR, including the Fairview Dam Bypass Reach.[3] The LMP does acknowledge that visual resources and aesthetics are an important component of the visitor experience, and as such, maintaining the aesthetic conditions in the river reach is pertinent to meeting the plan’s recreation objectives. However, it does not address desired conditions and standards related to aesthetic flows on the river. While not explicitly stated, the implication is that flows are important to the recreation experience, but specific aesthetic flows are not a critical resource value or standard by which to manage the W&SR designation of the bypass reach. This is supported by the results of the visitor survey that show that a majority of visitors to the Fairview Dam Bypass Reach are satisfied with current aesthetic conditions and do not identify flows as a factor that detracts from the visitor experience.

The License Application further addresses current and future aesthetic flows under the proposed new license conditions.

[3] The plan updates and supersedes earlier environmental documents and management plans for the W&SR.

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APPENDIX A
AESTHETIC INVENTORY FORM

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KR3 Relicensing Project
Aesthetics Study
Field Inventory Form

Name:_____ **Date:**_____ **Time**:_____ **Weather:**_____ **Bypass cfs:**_____

1. VIEWPOINT INFORMATION
KOP No.: _____ KOP Name/Description: _____
GPS No. : _____ GPS Reading: _____
Distance From River Edge (ft): _____ Elevation Above River (ft): _____
Reference Points: _____
Photo No./Direction: _____

Notes

2. WATER RESOURCES
Stream Habitat (circle visible): boulder pocket water boulder run cascade deep pool shallow pool run riffle
Water Movement (circle visible): none slow medium rapid falls
Scale Contrast (circle one): small/minimal medium/moderate large/severe
Spatial Dominance (circle one): subordinate co-dominate dominant
Characteristic Landscape Description (Select: strong, moderate, weak, or none):
_____form _____line _____color _____texture

Notes

3. LANDFORM
Type (circle visible): river valley hills mountains cliffs/rock outcrops other
Scale Contrast (circle one): small/minimal medium/moderate large/severe
Spatial Dominance (circle one): subordinate co-dominate dominant
Characteristic Landscape Description (Select: strong, moderate, weak, or none):
_____form _____line _____color _____texture

Notes

4. VEGETATION
Shade Cover (circle one): 0-25 percent 26-50 percent 51-75 percent 76-100 percent
Diversity (circle one): none little present substantial extensive
Scale Contrast (circle one): small/minimal medium/moderate large/severe
Spatial Dominance (circle one): subordinate co-dominate dominant
Characteristic Landscape Description (Select: strong, moderate, weak, or none):
_____form _____line _____color _____texture

Notes

5. LAND/WATER USE AND STRUCTURES

Intensity (circle one): undeveloped dispersed developed

Type (circle visible): campground day use area river access city park
dispersed camping trail dirt road highway

Structures (circle one): none/undeveloped few/low development moderately developed
many/highly developed

Scale Contrast (circle one): small/minimal
medium/moderate large/severe

Spatial Dominance (circle one): subordinate co-dominate dominant

Characteristic Landscape Description (Select: strong, moderate, weak, or none):

_____form _____line _____color _____texture

Notes

6. USER ACTIVITY

Time of Day: morning noon evening

Frequency: low moderate high

Activity Type: camping WW boating fishing swimming hiking birding/wildlife
viewing sightseeing cycling off-roading picnicking highway driving

Viewer Attentiveness (circle one): fleeting competing focused

Notes

7. OTHER CONSIDERATIONS

Smells (circle one in each row): present absent
dominant inconspicuous discordant harmonious

Sound of River? (circle one in each row): present absent
dominant inconspicuous discordant harmonious

Other Sounds (circle one in each row): present absent
dominant inconspicuous discordant harmonious

Raw Visibility (circle one in each pair): unscreened partially screened screened panorama
inferior normal superior

Distance in Relation to River (circle one): 0-30ft 31-100ft 101-300ft

Elevation in Relation to River (circle one): 0-20ft 21-50ft 51-100ft

Notes

8. OVERALL SCENIC INTEGRITY RATING

(Based on discussion in Chapter 2 and examples in Appendix H of the SMS Handbook

Scenic Integrity Rating:

_____very high ____high _____moderate ___low _____very low ____unacceptably low

Notes

APPENDIX B
REC-2 VISITOR QUESTIONNAIRE—AESTHETIC-RELATED QUESTIONS

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The REC-2 Final Visitor Intercept Survey Questionnaire is provided in the *REC-2 Recreation Facilities Use Assessment Final Technical Memorandum* (included in Appendix E.2 of Exhibit E of the License Application). The aesthetics-related questions from the survey are provided below.

17. If you participated in a water-related activity, did the flows in the North Fork Kern River affect your ability participate?

YES (select one): □ flow was too high □ flow was too low

□ other (explain) _____

□ NO: flow did not affect planned activities

□ N/A: did not partake in water-related activity

23. How would you rate the scenic quality of the NFKR area in general on a scale of 1-5, with 1 indicating very poor and 5 indicating very good?

Scenic Features	1 Very Poor	2 Poor	3 Neutral	4 Good	5 Very Good
General Scenic quality of NFKR area					

If you rated Very Poor (1) or Poor (2), please explain:

_____

24. What is the scenic feature that most attracted you to this area of the NFKR? Select top feature:

a. General scenery such as rock outcrops, mountains and valleys

b. Flows in the North Fork Kern River

c. Project infrastructure (flowline, Powerhouse, Dam, other built facilities)

d. Other: please provide: _____

e. Scenery was not a consideration when selecting this location

25. How would you rate the following scenic qualities in the area between Fairview Dam and the Kern River No. 3 Powerhouse on a scale of 1 to 5, with 1 indicating very poor and 5 indicating very good?

Scenic Features	1 Very Poor	2 Poor	3 Neutral	4 Good	5 Very Good
General scenery such as rock outcrops, mountains and valleys					
River flows between Fairview Dam and KR3 Powerhouse					
Project infrastructure (flowline, Powerhouse, Dam, other built facilities)					

If you rated Very Poor (1) or Poor (2) for any above, please explain:

_____

26. Over the past 12 months, how often have you visited the area to partake in photography, painting, scenic driving, viewing scenery, and/or viewing wildlife?

a. Never _____

b. This is my first time _____

c. Spring (March–May) #____

d. Summer (June–August) #_____

e. Fall (September–November) #_____

f. Winter (December–February) #_____

APPENDIX C
KEY OBSERVATION POINT PHOTOGRAPHS

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KOP 1—FAIRVIEW DAM

September 18, 2023: 134–160 cfs flow range

September 6, 2023: 331–381 cfs flow range

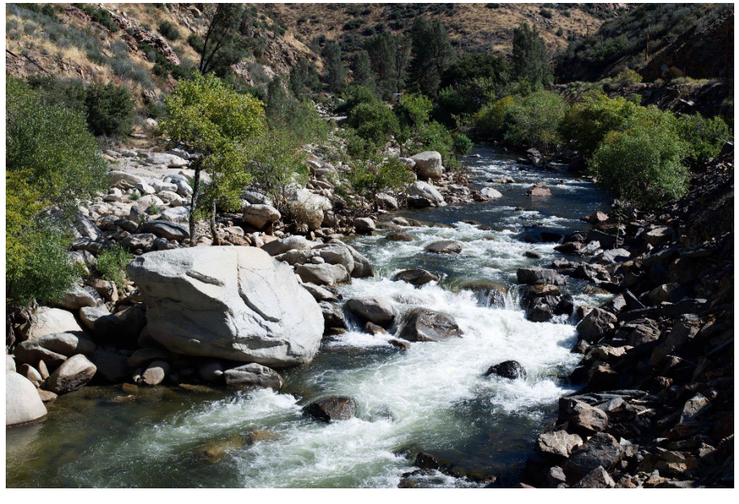
August 27, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 2—BOMBS AWAY

September 18, 2023: 134–160 cfs flow range



September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 3—MCNALLY'S BRIDGE

September 18, 2023: 134–160 cfs flow range

September 6, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 4—CHAMISE FLAT

September 18, 2023: 134–160 cfs flow range

September 6, 2023: 331–381 cfs flow range

August 27, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 5—BLACK BOTTOM FALLS

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 6—UPPER SALMON FALLS

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

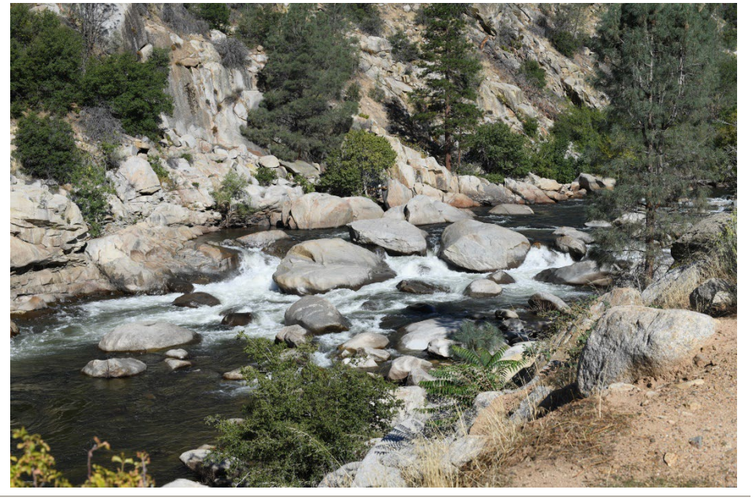
August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 7—LOWER SALMON FALLS

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range



August 28, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 8—SCREAMING RIGHT TURN 1

September 18, 2023: 134–160 cfs flow range

September 6, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

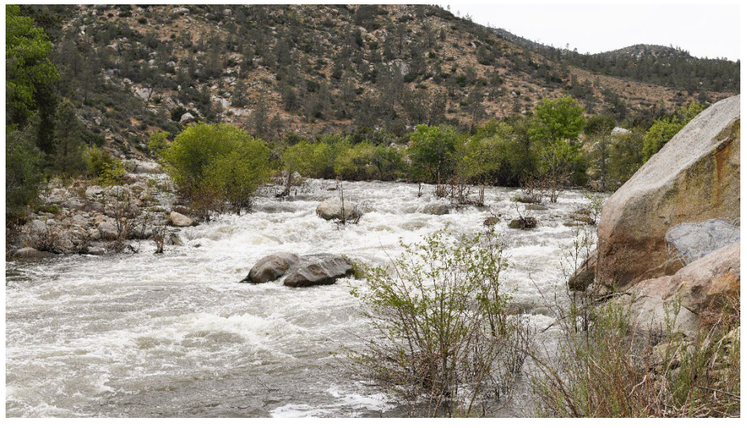
KOP 9—SCREAMING RIGHT TURN 2

September 19, 2023: 134–160 cfs flow range

September 6, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range



May 9, 2023: 3,676–3,874 cfs flow range

KOP 10—SPRINGHILL NORTH

September 18, 2023: 134–160 cfs flow range

September 6, 2023: 331–381 cfs flow range

August 27, 2023: 719–829 cfs flow range

August 9, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 11—CORRAL CREEK PUT-IN

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 12—CORRAL CREEK RD 15-18

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 13—CHICO FLAT FLUME RAPID

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 14—FENDER BENDER

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 15—KERN RIVER BEACH

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

KOP 16—KERN RIVER NO. 3 POWERHOUSE

September 19, 2023: 134–160 cfs flow range

September 7, 2023: 331–381 cfs flow range

August 28, 2023: 719–829 cfs flow range

August 10, 2023: 891–1,000 cfs Flow Range

May 9, 2023: 3,676–3,874 cfs flow range

ANG-1: ENJOYABLE ANGLING FLOWS TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

July 2024

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LIST OF ACRONYMS AND ABBREVIATIONS

ANG-1	Enjoyable Angling Flows Study
CDFW	California Department of Fish and Wildlife
cfs	cubic feet per second
FERC	Federal Energy Regulatory Commission
KR3	Kern River No. 3
NFKR	North Fork Kern River
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
SCE	Southern California Edison
SPD	Study Plan Determination
SQF	Sequoia National Forest
USGS	U.S. Geological Survey

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1.0 INTRODUCTION

An Enjoyable Angling Flows Study (ANG-1) was developed in response to the Federal Energy Regulatory Commission's (FERC) October 12, 2022, Study Plan Determination (FERC, 2022) in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (FERC Project No. 2290; Project) relicensing. This Technical Memorandum includes the detailed methodology and the findings and results of the ANG-1 Study. Applicable results from this study are also incorporated and detailed in SCE's Application for New License.

2.0 STUDY GOALS AND OBJECTIVES

The ANG-1 Study will inform discussions regarding suitable flows for angling opportunities in the Fairview Dam Bypass Reach[1] and support FERC in assessing the potential impacts of the Project on angling activities, including flow preferences, accessibility, and overall enjoyment.

Angling studies at licensed hydroelectric projects typically follow a tiered approach to information and data collection (Whittaker et al., 2005). This approach starts with a Level 1 desktop assessment and based on any additional data gaps then progresses to a Level 2 (limited reconnaissance) and a Level 3 (intensive studies) analysis, as needed.

The goals and objectives of this ANG-1 Study Level 1 assessment included (1) documenting the types of angling use and patterns of use in the Fairview Dam Bypass Reach under current flow conditions, (2) collecting information on anglers' perceptions of suitable flows in the Fairview Dam Bypass Reach for spin fishing, bait fishing, and fly fishing, and (3) describing angler preferences, perceptions, and satisfaction with angling within the Fairview Dam Bypass Reach using pertinent results from the *REC-2 Recreation Facility Use Assessment* Final Visitor Intercept Survey Questionnaire.

3.0 STUDY AREA AND STUDY SITES

The study area includes the approximately 16-mile Fairview Dam Bypass Reach from Fairview Dam to the KR3 Powerhouse tailrace (Figure 3-1).

[1] The Fairview Dam Bypass Reach is defined as the approximately 16-mile reach of the North Fork Kern River (NFKR) between the Fairview Dam and the KR3 Powerhouse tailrace.

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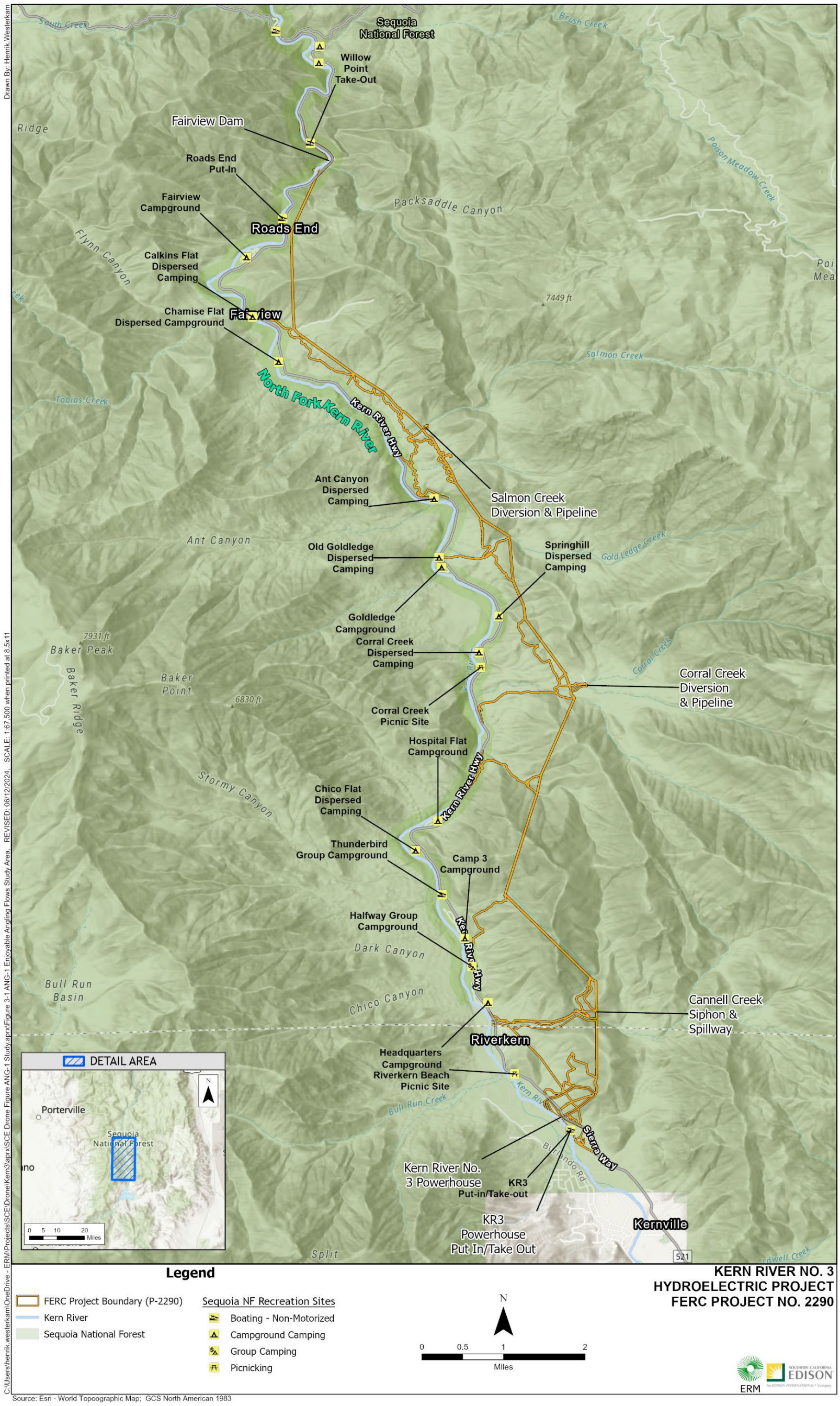

FERC = Federal Energy Regulatory Commission; KR3 = Kern River No. 3; NF = National Forest

Figure 3-1. ANG-1 Enjoyable Angling Flows Study Area.

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4.0 METHODS

The ANG-1 Study generally follows the recommended methods and best practices described in *Flows and Recreation: A Guide to Studies for River Professionals* (Whittaker et al., 2005), which includes a sequential framework to investigate flows for angling using recommended tools and best practices across three progressive levels of study. The approach outlines three levels of study that increases data resolution as investigations progress from one level to the next. Advancing to the next level of study is, in part, contingent on the need for additional information. The ANG-1 Study followed the recommended approaches of a Level 1 angling assessment, which included a desktop review of existing information, structured interviews with anglers with local knowledge and experience with fishing conditions in the Fairview Dam Bypass Reach, and angling-related questions in the REC-2 visitor questionnaire. The angling-related visitor questions are not a typical component of a Level 1 angling assessment but were included in the methodology to augment the desktop analysis, structure interviews, and other public comments and input received during the relicensing process.

The results of this Level 1 angling assessment are presented in Section 5.0, *Data Summary*, and were also used to inform the Application for a New License. Section 7.0, *Outstanding Study Plan Elements*, addresses the adequacy of the results of the Level 1 effort and the need for any subsequent data collection (i.e., justification for whether proceeding to a Level 2 angling analysis is warranted).

Refer to *REC-2 Recreation Facility Use Assessment Technical Memorandum* (included in Appendix E.2 of the License Application) regarding variances to the visitor questionnaire and survey timing.

4.1. LEVEL 1 DESKTOP ANALYSIS

The Level 1 desktop analysis included a desktop review of existing information, including:

- Angling literature, fishing regulations, hydrology, and stream habitat
- Structured interviews with anglers familiar with fishing in the Fairview Dam Bypass Reach
- A summary of pertinent results from the REC-2 visitor questionnaire.

Using information collected as part of the Level 1 desktop analysis outlined above, including other public comments and input received during the relicensing process, Section 5.0, *Data Summary*, describes the angling flow preferences and use patterns in the study area per the stated study goals and objectives of the ANG-1 Study. Section 7.0, *Outstanding Study Plan Elements*, addresses the potential need for proceeding to a Level 2 Angling Study if additional assessments are warranted based on the results of the desktop analysis.

4.1.1. Literature Review of Angling Opportunities in the Fairview Dam Bypass Reach

The literature review compiled a description of the angling opportunities along the Fairview Dam Bypass Reach of the NFKR between Fairview Dam and the KR3 Powerhouse using existing information (e.g., state fishing regulations, guidebooks, retail stores, commercial guides, visitor information brochures, magazines, online publications). The level of effort was documented through a catalog of online searches, tourism brochures, fishing guidebooks reviewed, and informal conversations with proprietors at local retail stores selling fishing tackle, as well as angling outfitters. Additionally, the Sequoia National Forest (SQF) and California Department of Fish and Wildlife (CDFW) regulations, goals, and objectives pertinent to angling on the NFKR (with a focus on the Fairview Dam Bypass Reach) were reviewed and summarized.

While the desktop review focused on angling-related information, other aspects of the angling experience were also addressed through several of the Project's other resource studies. In particular, the *REC-2 Study Recreation Facility Use Assessment*, *WR-2 Hydrology*, *BIO-6 Stream Habitat Typing*, and the *AES-1 Aesthetic Flow* Studies assessed current recreation, hydrology, stream habitat, and aesthetics of the bypass reach, respectively. Pertinent results from each of these studies are provided in their respective Technical Memorandums (Appendix E.2 of the License Application).

4.1.2. Structured Interviews

Structured interviews with eight people knowledgeable about angling along the Fairview Dam Bypass Reach were conducted in June and July 2023 as part of the Level 1 study effort.

The eight individuals selected for structured interviews were identified from the Project Stakeholder contact list that expressed an interest in angling. In addition, retail shop proprietors in Kernville and Bakersfield, California, specializing in angling equipment provided contact information for individuals with direct experience with angling in the bypass reach. Other individuals were nominated by Stakeholders or other interviewees. The interviewees encompassed bait, spin, and fly fishers; fishing guides and non-guides; and Kernville residents in addition to anglers from Bakersfield to San Diego.

Interview questions were developed to understand angling opportunities and to identify flow-dependent attributes and followed previous FERC fishability studies (Whittaker and Shelby, 2001, 2003; Whittaker et al., 2005). Interview questions were grouped according to angling recreation use patterns, angling location, flow information, flow preferences, and bank versus wading preferences. The set of questions used in the structured interviews is provided in Attachment A.

4.1.3. REC-2 Recreation Facility Use Assessment - Visitor Survey

Per the FERC Study Plan Determination (FERC, 2022), SCE updated the REC-2 visitor questionnaire to include questions designed to query visitors about their angling flow preferences and use patterns in the Fairview Dam Bypass Reach (*REC-2 Recreation*

Facility Use Assessment Technical Memorandum [Appendix E.2]). The angling-related questions that were added to the REC-2 Final Visitor Intercept Survey are provided in Attachment B to this Technical Memorandum. Participant responses and a summary of the angler-related questions are provided in Section 5.0, *Data Summary;* the *REC-2 Technical Memorandum* included in Appendix E.2 includes the complete summary and analysis of the visitor survey, including the angling-related questions.

5.0 DATA SUMMARY

This section includes a summary of information collected as part of the Level 1 desktop analysis.

5.1. LEVEL 1 DESKTOP ANALYSIS

5.1.1. LITERATURE REVIEW OF ANGLING OPPORTUNITIES IN THE FAIRVIEW DAM BYPASS REACH

The headwaters of the Kern River begin at the base of Mount Whitney, flowing south into the Golden Trout Wilderness through the SQF downstream and spanning Kern and Tulare Counties. The river flows in its north/south orientation through an unparalleled range of relatively unaltered habitats (National Wild and Scenic Rivers System, 2023).

The NFKR upstream of Johnsondale Bridge is designated wilderness and is a catch-and-release wild trout fishery managed under special angling regulations. Deep pools and fast runs characterize this section of the river, along with pocket water, short runs, long riffles, and deep pools. No bait is allowed in the wilderness area; artificial lures and/or flies with barbless hooks are allowed. The NFKR contains rainbow (*Oncorhynchus mykiss*) and brown (*Salmo trutta*) trout species near Johnsondale Bridge. No roads exist along this section of the NFKR; the only access is by hiking trail (Walters, 2022).

The section of river from Johnsondale Bridge downstream to Isabella Lake, including its tributaries, offers year-round fishing opportunities and includes the approximate 16-mile Fairview Dam Bypass Reach. Angling opportunities along this section of the NFKR include bait, spin, and fly fishing for rainbow trout and brown trout. Fishing regulations also allow for use of spears and bows in the bypass reach. The section of NFKR from Johnsondale Bridge to Kernville is stocked annually with hatchery rainbow trout by CDFW (CDFW, 2023a).

The Fairview Dam Bypass Reach is easily accessible along Mountain Highway 99. Opportunities for angling can be accessed using both developed recreation sites and dispersed river access locations (see the *REC-2 Recreation Facilities Use Assessment Technical Memorandum* for more information about each recreation site [Appendix E.2]). In addition to developed access routes, much of the river along the bypass reach has road shoulder pull-outs and social trails to the river.

Angling use on the NFKR is generally patterned around the spring snowmelt run-off hydrograph and less predictable precipitation events. When spring run-off begins—typically in May—the combination of high gradient, high flows, and turbidity make conditions challenging for anglers and unsafe for wading (Shaffer, 2006). April has

historically been categorized as one of the best months to fish because there tends to be many sunny days, more daylight, and warmer temperatures; however, winter storms can still occur in April, and it should be generally anticipated that the potential for increased flow rates and turbulent water are high from April through June due to snowpack run-off.

River features and structure are additional factors that influence the timing and location for angling. During higher flow conditions, anglers typically focus on shore structure and slack water behind rocks (Smith, 2023). Fishability of the Kern River is excellent the remainder of the year; according to a Kern River *Weekly Fishing Report* from the week of March 3, 2023 (Cope's Tackle and Rod Shop, 2023), trout action had been consistent all winter, with CDFW planting going in almost weekly. Cope's website recommended trying a section downstream of the Fairview Dam Bypass, between Riverside Park and the KR3 Powerhouse, noting successful fishing in that section (Cope's Tackle and Rod Shop, 2023). The website noted that spin anglers were finding success with salmon eggs, mini jigs, and spinners in winter/early spring 2023, as well as fly anglers with nymphs and streamers.

Colder water temperatures in the winter months also affect fish distribution (CDFW, 2023b); trout migrate to slower moving water (long and slow runs, deep holes, and shallow flats) to conserve energy. In more moderate temperatures, trout are more mobile and more likely to respond to moving baits like spinners and spoons (Shaffer, 2006). In addition to seasonal fish distribution patterns associated with water temperature, time of day also affects angling preferences. Smith (2023) suggests that the best times to fish are early mornings or late evenings when the light is low because insects will be most active at the water's surface, which will increase trout activity. Tables 5.1-1 and 5.1-2 categorize popular bait, lure, or fly patterns that anglers have success with along the Kern River (The Ecological Angler, 2006; Schalla, 2021; Shaffer, 2006; Smith 2023; Walters, 2023).

The Fairview Dam Bypass Reach contains cold water and transitional-zone fish assemblages. The NFKR, including the Fairview Dam impoundment and the reach between Fairview Dam and Isabella Lake, contains a combination of rainbow trout (*Oncorhynchus mykiss*) and assemblages of pikeminnow (*Ptychocheilus oregonensis*), hardhead (*Mylopharodon conocephalus*), and sucker fish (*Castostomus occidentalis*). Brown trout are also present in low numbers downstream of Fairview Dam, and warm water species, such as common carp (*Cyprinus carpio*) and green sunfish (*Lepomis cyanellus*), occasionally travel up into the lower reaches of the NFKR from Isabella Lake (SCE, 2021). Refer to periodic fish population monitoring reports conducted as part of FERC License Article 411 for more information about fish species in the Fairview Dam Bypass Reach. The most recent fish population monitoring study was completed in 2023 and filed with FERC on February 29, 2024; this study is included in Appendix E.2 of the License Application.

Table 5.1-1. Spin Fishing Bait/Lures Best Suited for Upper Kern

Bait	**Lure**
Salmon Eggs	Spooners
Crickets	Panther Martins (Spinner)
Pink Mice Tails	Blue Fox (Spinner)
Worms	Rooster Tails (Spinner)
	Mini Jigs
	Rapala-type Minnow

Source: The Ecological Angler, 2006; Schalla, 2021; Shaffer, 2006; Smith, 2023; Walters, 2023

Table 5.1-2. Fly Fishing Patterns Best Suited for Upper Kern

Pattern Name	**Pattern Type**
Matuka	Streamer
Copper John	Nymph
Hart's Bead Head Dark Lord	Nymph
Flash Back Hare's Ear	Nymph
Hare's Ear	Nymph
Gold Ribbed Hare’s Ear	Nymph
Bird’s Nest	Nymph
Zug Bug	Nymph
Zonker	Streamer
Grey Ghost	Streamer
Kern Emerger	Nymph
Pheasant Tail	Nymph
Beaded Prince	Nymph
Wooly Bugger	Streamer
Muddler Minnow	Streamer
Black Rubberlegs	Stonefly Nymph
Bird’s Stonefly	Stonefly Nymph
Kaufmann Stone (Gold or Black)	Stonefly Nymph
Poxyback Stonefly	Stonefly Nymph
Elk Hair Caddis	Dry Fly
X-Caddis "Cripple Caddis"	Dry Fly

Pattern Name	Pattern Type
Parachute Adams	Dry Fly
PMD Biot Parachute	Dry Fly
Royal Wulff	Dry Fly
Madam X	Dry Fly
Stimulator	Dry Fly

Source: The Ecological Angler, 2006; Schalla, 2021; Shaffer, 2006; Smith, 2023; Walters, 2023

5.1.1.1. Resource Agency Regulations, Goals, and Objectives

Agencies with authority to manage recreational angling and access to the NFKR, specifically in the Fairview Dam Bypass Reach, include the SQF and CDFW.

SEQUOIA NATIONAL FOREST

The SQF encompasses 1.1 million acres, spanning the counties of Tulare (62 percent), Kern (26 percent), and Fresno (12 percent), with about 46,000 acres of private, state, county, and other land ownerships embedded within its boundaries (Forest Service, 2023). The Fairview Dam Bypass Reach and access to the river is located on lands managed by SQF. The SQF recently issued a revised *Land Management Plan for the Sequoia National Forest* (Forest Service, 2023), replacing the 1988 version.

The SQF offers a diversity of natural and recreation opportunities for people to enjoy including scenery viewing, driving, hiking, angling, horseback riding, mountain biking, paddling, climbing, skiing, snowshoeing, over-snow vehicle use, and off-highway vehicle use. According to the Land Management Plan (Forest Service, 2023), “habitat for nonnative fish and game species is managed in ways that do not pose substantial risk to native species, while still contributing to economies of local communities.”

The segment of the NFKR from Johnsondale Bridge to the Kern County and Tulare County line in the Fairview Dam Bypass Reach is classified as recreation under the 1968 Wild and Scenic River Act. SQF is required to protect the outstanding remarkable values of this recreational river segment identified at the time of designation in 1987. The outstanding remarkable values identified in the recreational river segment encompassing the bypass reach is a species of slender salamander (Forest Service, 1982). The 1994 *Final Impact Statement North and South Forks of the Kern Wild and Scenic River* (Forest Service, 1994a) and the *Record of Decision for the Inyo National Forest Plan Amendment #4 and Sequoia National Forest Plan Amendment* (Forest Service, 1994b) add recreation and scenic resources as outstandingly remarkable values within the Wild and Scenic River NFKR reach that includes Fairview Dam Bypass Reach.

A Comprehensive Management Plan for management of the Wild and Scenic portion of the NFKR (Forest Service, 1988) was developed by the SQF. For the recreation river segment starting at the Tulare County line to Johnsondale Bridge, the SQF identified the

following action: encourage fishing and other shore-based activities or opportunities by providing enhanced access for individuals with disabilities.

The SQF manages commercial activities on the NFKR through special use permits. SQF issued one special use permit for commercial angling guides on the NFKR for 2023 (personal communication, Bob Frenes, Assistant Recreation Officer, U.S. Forest Service Kern River Ranger District, June 20, 2023; personal communication, [Marie] Angie Attencio, Special Uses Permit Administrator, U.S. Forest Service Kern River Ranger District, June 20, 2023). Angie stated that "the permits are issued for more than one year and there have been two issued for multiple years. Over the past few years, we have issued two outfitter/guide permits for fly fishing."

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE

CDFW manages fish and wildlife on the NFKR, including establishing the angling regulations. The NFKR from Isabella Lake upstream to Johnsondale bridge is open to angling all year. The daily bag/possession limit for trout is five. Fishing regulations upstream of the Johnsondale Bridge are more restrictive, limiting anglers to artificial lures only and a daily bag/possession limit of two trout (CDFW, 2021). For a detailed list of California Freshwater Sports Fishing Regulations specific to the Kern River, see Attachment C of this memorandum.

CDFW stocks the NFKR above and below Fairview Dam with trout annually, generally between the months of March and July to support recreational fishing. Fish are planted upstream and downstream of Fairview Dam weekly during the summer and on alternate weeks during the winter. Between 2001 and 2023, an average of 27,100 nonnative rainbow trout were planted in the NFKR annually between Fairview Dam and the KR3 Powerhouse, and 11,600 were planted annually just upstream of Fairview Dam (CDFW, 2021; Personal Communication, Willian Branch, Senior Hatchery Supervisor, California Department of Fish and Wildlife San Joaquin River Hatchery, January 2024) Historically, an additional 3,500 pounds were stocked in roadside sections of western tributary streams upstream of Fairview Dam.

In 2023 (during the study implementation period), trout stocking occurred at the beginning of the year but was halted in March due to storm conditions causing substantial increases in flow. Circumstances for fish planting remained unsuitable for much of the spring and did not resume until the week of June 30. Individual fish stocking events typically consist of 200 to 500 pounds of trout, depending on fish size, water quality, staff availability, and production goals. The trout have historically come from the Kern River Hatchery, but the hatchery has been closed for repairs since 2020. Trout for the Kern River are currently being imported from hatcheries in the surrounding area. The 2023 stocking events in segment 5 (stocked section inside the Fairview Dam Bypass Reach) of the NFKR through August 2023 are as follows (CDFW, 2024):

- February 19 to February 25
- February 26 to March 4

- March 5 to March 11
- July 30 to August 5
- August 20 to August 26

There are no commercial permits or commercial anglers approved for any section of the NFKR above Kernville (personal communication, Brian Beal, Senior Environmental Scientist Supervisor, CDFW [Central Region—Fisheries], June 20, 2023). In addition, CDFW does not issue any permits for commercial take of fish species on the NFKR.

UPPER KERN BASIN FISHERY MANAGEMENT PLAN

The *Upper Kern Basin Fishery Management Plan* (Stephens et al., 1995) was developed through the partnership of CDFW, SQF, and Sequoia National Park. The fisheries goals provided in the management plan include protecting and enhancing native fish populations and their habitats; restoring, protecting, and enhancing the native Kern River rainbow trout populations (specifically the golden trout [*Oncorhynchus aguabonita*] subspecies complex) to avoid the need for listing the species as threatened or endangered; and providing for recreational fishing.

The Upper Kern Basin is defined as the Kern River watershed in Kern and Tulare Counties from Isabella Reservoir upstream to its headwaters in Sequoia National Park. The management plan divides the Upper Kern Basin into four segments based on differences in proposed management and provides goals, objectives, and monitoring recommendations for each segment (Stephens et al., 1995). The management plan also provides an action plan for realizing proposed goals and objectives within each designated segment. The segment from Isabella Reservoir to Johnsondale Bridge includes the Fairview Dam Bypass Reach. The management plan lists several factors that currently threaten the survival and proliferation of golden trout subspecies found in the NFKR, including the introduction of nonnative trout, habitat damage, land management practices, and heavy recreation use (Stephens et al., 1995). Goals, objectives, and action plans for the segment from Isabella Reservoir to Johnsondale Bridge focus on the following:

- Protecting and enhancing native fish populations and their habitats
- Providing satisfactory fishing opportunities and continuing to stock catchable-sized nonnative rainbow trout in the Kern River
- Improving comprehension of ecological relationships between organisms in the ecosystem through continued study
- Maintaining angling regulations that promote satisfactory fishing opportunities

5.1.2. STRUCTURED INTERVIEWS

Structured interviews were conducted in June through August 2023 as part of the Level 1 study effort. A total of 14 anglers were contacted for structured interviews. Of the 14 anglers contacted, 1 declined to be interviewed and 5 did not respond to multiple requests for a structured interview. Structured interviews were completed with eight anglers. The interviewees encompassed bait, spin, and fly fishers; fishing guides and non-guides; and Kernville residents and anglers from the San Diego area to Bakersfield (Table 5.1-3).

Table 5.1-3: Composition of Individuals Participating in the Angling Structured Interviews

Interviewee	Location (California)	Organization(s)	Angling Preference	Gender	Age	Years	No. of times per year	Guide (Y/N)	Subsistence or Sport?
1	Kernville	Kern River Fly Shop	Fly	M	58	5 years as guide, 25 personally	150 guide trips, 50 personal trips	Y	Sport
2	Bakersfield	Kern River Fly Fishers	Fly	M	81	16 years	6–12 trips	N	Sport
3	Poway	San Diego Fly Fishers, Golden State Flycasters, Southern Sierra Fly Fishers, SoCal Women on the Fly	Fly	F	72	26 years	25–50 trips	N	Sport
4	Gardena	N/A	Spin (bait)	M	70	60 years	12 trips	N	Subsistence
5	Kernville	Kern River Fly Shop	Fly	M	54	20 years	70 guide trips, 30 personal trips	Y	Sport
6	Bakersfield	Kern River Fly Fishers	Fly	M	64	20–25 years	30 trips	N	Sport
7	Bakersfield	Kern Valley Search and Rescue	Fly	M	36	17 years	Once or twice per month (about 25–30 trips)	N	Sport
8	Inglewood	N/A	Spin (bait, lure)	M	46	7 years	24–25 trips	N	Both

N = No; N/A = data not available; Y = Yes

This broad cross-section of anglers for the structured interviews provided additional detailed information on angling use patterns and preferences in the Fairview Dam Bypass Reach. This information is summarized below. The structured interview questions and summary of responses can be found in Attachment A.

5.1.2.1. Angling Recreation Use Patterns

A mix of spin and fly fishing occurs in the Fairview Dam Bypass Reach. Interviews were conducted with spin and fly anglers. Individuals included non-commercial (personal) and commercial (guides) anglers. Personal trips to the bypass reach ranged from 6 to 50 times per year; guided trips to the area ranged from 70 to 200 times per year. According to interviewees, the Fairview Dam Bypass Reach is most visited by fly anglers generally fall through spring, and the summer tends to attract more spin fishers, which is often correlated with camping and other recreational opportunities provided during the summer months. Several respondents, however, commented that summers on average get too hot and the water flows are at their lowest and/or the water is too warm for trout. Respondents stated they try to avoid weekends and holidays due to crowds (Figure 5.1-1). However, guides will take clients during the week and weekends depending on clients' availability. Work also served as a hinderance for people's ability to fish during the week rather than the weekend. Clients looking for a less crowded experience tend to go in the middle of the week. Preference for time of day to fish had a consensus of mornings to about noon, and again in the evenings. In winter, this changed to late morning-afternoon fishing once the water temperature warms enough for trout to be active.

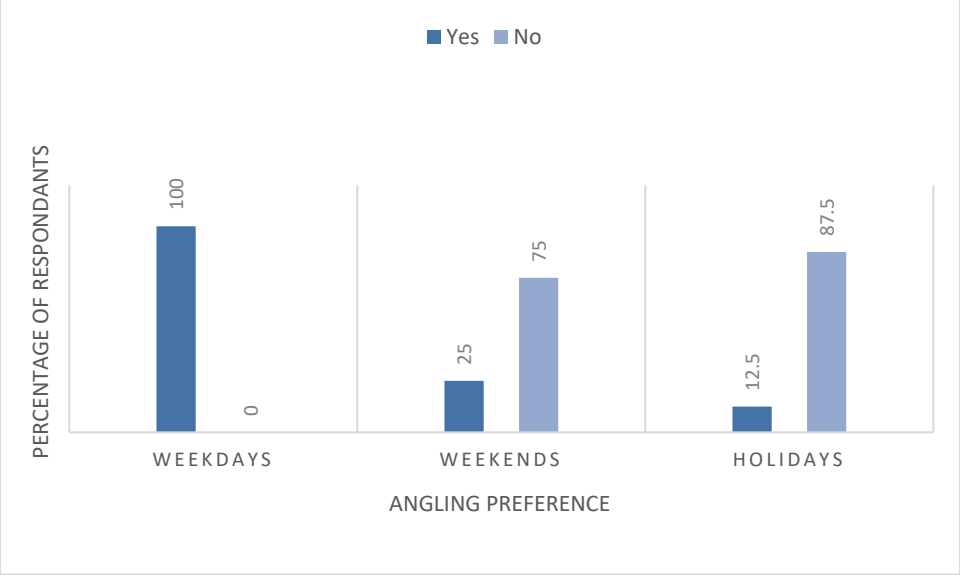

Figure 5.1-1. Preferred Angling Times for Interviewees.

The type of angling and bait/lures/flies that an individual preferred did not appear to change seasonally. Many fly fishers noted that the type of flies used varied with insect availability and activity rather than seasonality. Spin fishers noted they have preferred bait and lures they use year-round.

5.1.2.2. Angling Location Preferences

Generally, anglers seem to denote sections they fish in the NFKR and Fairview Dam Bypass Reach by points of interest. Johnsondale Bridge (above Fairview Dam), Road's End, McNally's, Rodeo Grounds (downstream of KR3 Powerhouse), Riverside Park (downstream of KR3 Powerhouse), developed campgrounds and day-use areas, and dispersed stretches between these developed locations are often used as references.

Based on interviewee comments, many anglers prefer both developed access points and undeveloped/dispersed sites for fishing. For guides, it depends on the physical ability of the client. Developed points have easier access for older or physically disadvantaged clients. Clients with better physical ability prefer undeveloped and/or more challenging access points. The more challenging areas are available throughout the Fairview Dam Bypass Reach between developed access points. Generally, anglers will try to avoid crowded areas. Some anglers will scout areas to fish once they arrive at the river. Preference is given to locations, developed or dispersed, where no one is camping or recreating. Rafting access points (put-in, take-out) are sometimes also preferred if there are not many boaters in the area. A few preferred sections include Chamise Flat up to Fairview Dam, Hospital Flat, and between Goldledge Campground and Old Goldledge Campground. Interviewees also identified specific locations such as Road's End, McNally's, and locations above and below Ant Canyon dispersed area. Additional dispersed locations include sections within a few miles of either side of Headquarters Campground and Fairview Campground and around the Salmon Falls. Anglers typically use parking adjacent to campgrounds and pull-off points where there is space to park.

Factors that influence the decision to choose one area over another to fish are primarily driven by discharge and water temperature (Figure 5.1-2).

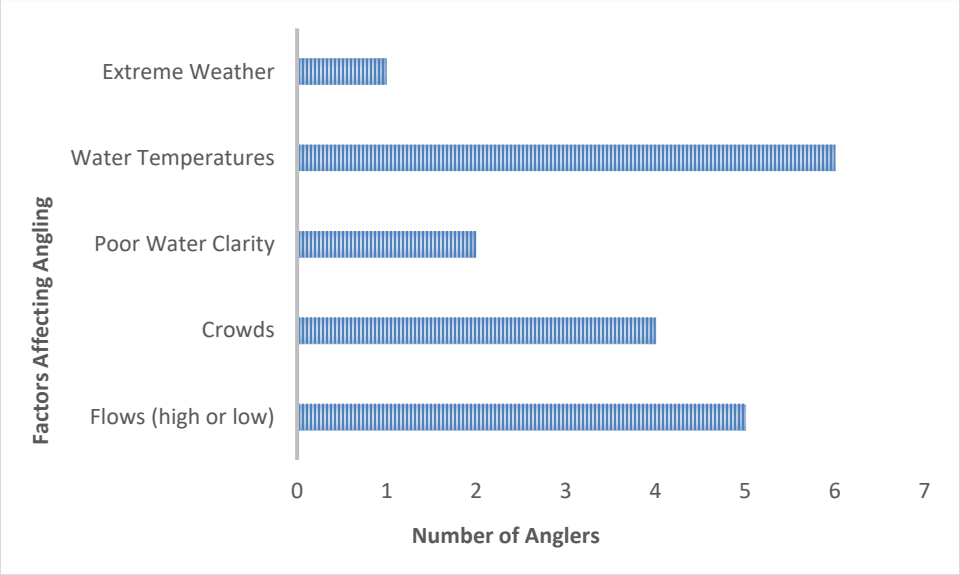

Figure 5.1-2. Factors Affecting Angling Choices in the Fairview Dam Bypass Reach.

Trout are most active in a temperature range between 50 and 70 degrees Fahrenheit. Trout are more sluggish when water temperatures exceed 75 degrees Fahrenheit. Notably, sections in the Fairview Dam Bypass Reach with narrower wetted perimeter contain deeper water habitat and seem to maintain more favorable water temperatures even during periods of low flows.

Factors that contribute to the creation of optimal trout habitat include boulders, stream flow, and the amount/type of insects. Boulders create eddies and places for trout to hide. Riffles, pools, runs, and pocket water are all used by anglers, and many of these characteristics are flow-dependent. These river features change with flows, and flows will determine where to fish.

For fly fishing, nymphs are preferred because there are not many hatches along the Kern River. A few respondents commented that river characteristics like boulders and areas with higher gradient can influence the type of fly being used. Fishing with an indicator (float) with a nymph below the surface is preferred for a bit faster water. If there is a good flow but not raging, a dry fly is preferable. One bait angler noted that they only use salmon eggs for all river features.

5.1.2.3. Flow Information and Flow Range Estimates

Most respondents check the flows before arriving at the river. A common source for finding this information is the Dream Flows website (http://www.dreamflows.com). A few individuals also call friends to check the flows, and a single bait fisher stated that they do not check flows at all before arriving to fish.

Flow preferences for fishing varied across interviewees depending on physical abilities, tackle, and angling experience. The preferred flows for fishing between Fairview Dam and Riverside Park ranged from 150 to 1,000 cubic feet per second (cfs), with the higher flow identified by more advanced anglers, like fishing guides. Interviewees identified 100 to 200 cfs as the minimum angling flow but noted that stream temperatures were also a consideration at lower flows, and the upper threshold for angling flows was 700 to 800 cfs. Guides deemed anything over 2,000 to 4,000 cfs as unfishable for most anglers due to safety. Several respondents commented that fish are active and anglers can access all areas of the river safely (i.e., wading) between 200 and 800 cfs. However, some individuals thought 400 to 500 cfs was too fast to wade and preferred 200 cfs.

Interviewees expressed concern with the warmer water temperature associated with the low flow conditions (below 100 cfs). Once flows reach 50 cfs, they noted that flows begin to affect fish activity and fishability. Some fly fishers mentioned that higher fish mortality seemed to be associated with angling under high temperature conditions. Of the two spin anglers interviewed, both stated that they did not follow flow and instead gained insight on where to fish once on-site by observing what different sections of the river look like that day. If flows are too low in the Fairview Dam Bypass Reach, several respondents reported going above Fairview Dam or below the KR3 Powerhouse.

At lower flows (down to 100 cfs), narrower channel sections of the river are targeted for fishing because water depths are deeper. When flows are high (700 to 1,000 cfs), broader channel sections as well as locations with slower velocities are sought out for fishing. Lower flows tend to be optimal times to fish pools; however, higher flow conditions also have good fishing in pools.

In general, flow did not influence the type of tackle being used for any fishing type. Fly fishing is mostly dependent on insect activity. Some anglers noted they will not fish if the flows are too high or too low. A bait fisher noted that tackle type does not change with flow. Some anglers suspected that higher flows would require heavier bait for spin anglers. Others mentioned for fly fishing that higher flows would need heavier weighted flies (streamers or nymphs) and lower flows could use a dry fly or dry dropper. River features (pools, pocket water, runs, riffles) do change with discharge. Lower flows were generally thought to be better for most river features as more locations are accessible by wading. With increased flows, anglers seem to be more selective. Features targeted during higher flows include pools; curves in faster flowing water where the water slows down; pocket water; and wider, flatter sections of river.

5.1.2.4. Bank Versus Wading Preferences

The fly fishers interviewed stated that they typically wade to some degree because they believe better trout habitat is more accessible via wading. Other fly fishers and a bait fisher preferred a combination of wading and shore fishing. Angling preference and section of river did not influence the type of angling an individual pursued. Many respondents mentioned that flows are the most important factor to determine whether they will wade and/or fish in general.

More advanced anglers stated that the entire section was classified as safe as long as flows are under 1,000 cfs, with most locations still being safely wadable but may not be able to access the entirety of the river. Others stated that when flows are below 400 cfs, the whole bypass reach is wadable while another noted that none of the river is safely wadable at any flow. Sections with difficult access, rapids, and slippery boulders and rocks were documented to be unsafe for wading by many anglers interviewed. One fly fisher thought flows between 80 and 150 cfs were wadable and allowed access to areas with better runs for angling.

Flows between 100 and 200 cfs were generally deemed as safely wadable depending on the location. Suitable locations for wading tended to be on the inside of river bends and areas where the channel widens. Ant Canyon is narrower and access is more difficult. Camp 3 in the bypass reach offers easy access in the fall when the flows are lower.

5.1.3. REC-2 Recreation Facility Use Assessment Survey, Angling

Implementation of the REC-2 Study included the administration of a recreational user questionnaire to include questions designed to query visitors on their angling experience in the Fairview Dam Bypass Reach. These angling-specific questions are provided in Attachment B to this Technical Memorandum. A summary of the question responses

specific to the Fairview Dam Bypass Reach are provided here, but also includes the approximate 1.9 mile reach above the dam to Johnsondale Bridge. Upon review of the data, there was no substantial difference in responses above and below the dam, however results are reported separately in this Technical Memorandum. The full questionnaire and summary results are provided in the (see *REC-2 Recreation Facility Use Assessment* [Appendix E.2 of the License Application]).

In total, about 25 percent of visitors who responded to the REC-2 visitor questionnaire (approximately 400 surveys) indicated that they had fished either along the Fairview Dam Bypass Reach or within the 1.9 miles above the dam. Note, not all angling visitors answered every question, so the number of responses may vary for each question. On average, angling visitors generally reported taking more trips per season to fish the Fairview Dam Bypass Reach in the summer (5.5 trips) and spring (3.6 trips) than the fall (2.8 trips) and winter (2.0 trips). A similar pattern is evident in trips per season by visitors above the Fairview Dam; that is, visitors contacted who fish above the dam reported taking a greater number of angling trips in the summer (3.8 trips) and spring (3.1 trips) than the fall (2.5 trips) and winter (2.1 trips).

Angling visitors reported that they primarily fished for fun in the Fairview Dam Bypass Reach. About 87 percent of angling visitors fished for fun, while approximately 14 percent fished for subsistence (note: approximate percentages total to more than 100 percent due to rounding). For angling visitors in the Fairview Dam Bypass Reach, about 47 percent spin fish with bait, approximately 41 percent spin fish with lures, and about 11 percent fly fish. These fishing type and tackle percentages are similar in respondents above the Fairview Dam.

The primary reasons angling visitors selected the Fairview Dam Bypass Reach for fishing include “for the fishing” (50.8 percent), solitude/peaceful/scenery (14.4 percent), and river access (7.8 percent), among others.

When angling visitors surveyed below Fairview Dam were asked if river flows affected their fishing experience, 76 percent responded “no” and 14 percent responded “yes” (the remaining 9 percent declined to answer). A similar percentage breakdown was observed for angling visitors above the dam (68 percent answered “no” and 13 percent answered “yes”) when asked if flows affected their angling experience. Of the angling visitors that responded “yes,” the majority stated that flows were “too high” (61 percent below and 80 percent above Fairview Dam). The majority of responses stating that flows were “too high” could be in response to the higher-than-average summer flows that naturally occurred in 2023. During this time, the NFKR watershed experienced a high water year and many of the questionnaire responses occurred in June and July when flows were above 4,000 cfs. Conversely, 39 percent of angling visitors below (19 angling visitor responses) and 20 percent above (two angling visitor responses) Fairview Dam stated that flows in the winter months were “too low.” Flows in the Fairview Dam Bypass Reach were near the minimum instream flow release requirement during this time (December 2023), ranging from approximately 40 cfs to 70 cfs.

Overall, nearly 62 percent and 30 percent of angling visitors rated their most recent fishing experience in the Fairview Dam Bypass Reach as “very good” or “good,” respectively. Only about 3 percent of angling visitors gave their most recent angling experience a negative rating (combination of “poor” and “very poor” responses). The reason these visitors gave for their low rating included that the river flows were too low (5 responses) or too high/fast (3 responses), among other responses. These responses are not specifically indicative of angling flow preferences, although they do point to the influence of flow levels on angling and visitor satisfaction with the overall recreational experience. In general, the results are representative of a visitor population that highly rates the angling experience in the Fairview Dam Bypass Reach.

6.0 STUDY-SPECIFIC CONSULTATION

Other than the Stakeholder-focused structured interviews described above, there was no additional study-specific consultation for the ANG-1 Study.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

All planned components of the ANG-1 Level 1 Study have been completed to date.

8.0 RECOMMENDATION AND NEED FOR CONTINUED STUDY

The purpose of the ANG-1 Study was to collect data on anglers’ perceptions to provide FERC with additional information to analyze potential Project effects on angling opportunities within the bypassed reach (FERC 2022). The information within this Technical Memorandum presents findings on flow preferences that support enjoyable fishing opportunities and experiences in the Fairview Dam Bypass Reach.

As outlined in Whittaker et al. (2005), the process to determine if Level 1 information is sufficient or, if progressing to another level of study is necessary, rests on answers to these four questions:

1. Are there flow-dependent recreation opportunities on the river segments?

   - Yes, river-based recreation opportunities along the Fairview Dam Bypass Reach include angling and whitewater boating, among others. This study focused on enjoyable angling flows; refer to the *Addendum to REC-1 Whitewater Boating Interim Technical Memorandum: Level 3 Single Slow Survey Results* in Appendix E.2 of this License Application for information on whitewater boating flows.

2. Are flow-dependent opportunities affected by project operations?

   - Seasonally yes, Project operations can divert up to approximately 600 cfs for Project generation, once the minimum instream flow is met (ranging from 40 cfs up to 130 cfs, depending upon the month). However, as the Project is run-of-river and has no storage, there are numerous periods of time (days, weeks, or months) where the inflows above Fairview Dam far exceed the diversion capacity and flows

spill over the dam. This typically occurs during spring run-off and storm events. The *WR-2 Hydrology Interim Technical Memorandum* (Appendix E.2 of the License Application) summarizes historical flows along the Fairview Dam Bypass Reach.

3. Are flow-dependent recreation opportunities "important" relative to other resources or foregone power generation? If certain recreation opportunities will not be considered when determining project operation decisions (e.g., if agencies and stakeholders agree that flow releases will be primarily driven by biological needs for an endangered species), more detailed information about flows may be unnecessary, and Level 1 information may be sufficient (assuming it documents stakeholder and agency agreement about this evaluation).

   - Yes, the Fairview Dam Bypass Reach is known for its whitewater boating opportunities in addition to being a popular and easily accessible river reach for various other shoreline-based recreation activities (see the *REC-2 Recreation Facilities Use Assessment Final Technical Memorandum* in Appendix E.2 of the License Application for additional information about visitor uses and activity preferences in the area). A discussion of flows pertaining to aquatic resources is provided in Section 7.4, Fish and *Aquatic Resources*, of Exhibit E in the License Application.

4. Does Level 1 information precisely define flow ranges and potential project effects for each flow-dependent opportunity? For example, flow ranges for a commonly boated whitewater reach may be sufficiently well-known and agreed upon, and there may be no need for additional study.

   - Yes, based on focused interviews and visitor feedback from the REC-2 Visitor Intercept Survey Questionnaire, preferred angling flows range from a low of approximately 100 to 200 cfs up to 700 to 800 cfs. Sufficient historical hydrology data is available to evaluate potential Project effects within these flow ranges and is discussed in SCE's Application for New License.

Per Whittaker et al. (2005), if none of these questions are answered affirmatively, Level 1 information is probably not sufficient and more intensive study (Level 2 or 3) may be necessary.

Given that all of the above questions could be answered affirmatively regarding angling flows, additional angling studies or assessments (progressing to a Level 2 or Level 3 assessment) are not warranted and would not further enhance the level of understanding needed for licensing purposes. Coupled with the analysis of potential Project effects detailed in Section 7.7, *Recreation Resources*, of Exhibit E in the License Application, this information also sufficiently meets FERC's objectives for this study and provides an appropriate level of detail to guide the development of protection, mitigation, or enhancement measures in support of a new license.

The Fairview Dam Bypass Reach is generally easily accessible to anglers with Mountain Highway 99 providing vehicular access to multiple developed and dispersed recreation sites and access points along the river. CDFW stocks the bypass reach annually with hatchery-raised rainbow trout helping to ensure a quality sport fishery. Given the ease of access and quality of the fishery, the Fairview Dam Bypass Reach offers a variety of fishing opportunities for different types of angling (generally spin and fly fishing) and anglers with different experience levels throughout the year and under different flow conditions.

Per the structured angler interviews that were conducted as a component of the ANG-1 Study and the angler-specific survey results from the REC-2 visitor questionnaire, most anglers have a high degree of satisfaction with their current fishing experiences in the Fairview Dam Bypass Reach. Specifically, about 92 percent of respondents to the angling-specific questions on the REC-2 visitor questionnaire provided a positive rating (combination of “very good” and “good” response categories) for their most recent fishing experience in the bypass reach. This is not to say that all anglers describe all of their experiences in the bypass reach as enjoyable. During the structured interviews and through other public input opportunities during the licensing process (e.g., project scoping meetings, public workshops), some members of the angling public voiced their concerns with the quality of fishing opportunities and conditions in the bypass reach. However, the visitor survey results and the structured interviews point to a broader angling population that is generally satisfied with the range of fishing opportunities in the Fairview Dam Bypass Reach.

As noted in Section 5.0, Data Summary, angling use on the Fairview Dam Bypass Reach tends to broadly follow seasonal and daily use patterns, and preferred angling flows tend to vary according to several factors, including angling experience, safety, and fishing type. Anglers in the bypass reach tend to either spin and/or fly fish with seasonality influencing the fishing method (fly fishing tends to be more popular in the spring and fall, while spin fishing tends to be more popular in the summer). In addition to fishing method, use patterns in general tend to follow seasonal patterns.

The Fairview Dam Bypass Reach provides fishing opportunities throughout the year, but there are challenging angling conditions during specific seasons. High flows during spring run-off and lower flows in late fall and winter create challenging fishing conditions, although opportunities for angling remain good depending on skill level and other angler preferences. Throughout the rest of the year, the river conditions are less challenging and provide good opportunities for spin and fly fishing. The reported trips per season per the REC-2 visitor questionnaire follows this seasonal pattern with the highest number of reported angling trips in summer (5.5 trips) and spring (3.6 trips) and a lower number of trips in fall (2.8 trips) and winter (2.0 trips). The number of reported trips per season in the Fairview Dam Bypass Reach is similar to those reported above the Fairview Dam (see Section 5.0).

River flows are one of several factors that influence angling choices within the Fairview Dam Bypass Reach. Other important factors include water temperature (related to flows) and crowding (related to overall use patterns in the bypass reach), among others. Flow levels affect fishing conditions, specifically the river's features and structures (e.g., riffles, pools, runs), and thus influence the timing and location of specific angling opportunities (beyond the seasonality discussed above). Anglers (based on the structured interviews and survey results) generally have a wide preference for fishable flows and varying river conditions.

Flow preferences for fishing varied across the interviewees depending on physical abilities, tackle, and angling experience. In general, flows between 150 and 800 cfs are preferred as they provide a range of opportunities to anglers with different experience levels and different methods of fishing. In this range, the upper threshold for angling flows was 700 to 800 cfs, which tended to be preferred by more advanced anglers, like fishing guides. Higher flows are still fishable, though more challenging; however, once flows reach 2,000 cfs and above the river generally becomes unfishable due to safety. At the low end of the range, interviewees identified 100 to 200 cfs or less for the minimum angling flow. While angling is possible at flows in the 40 to 50 cfs range, flows below 40 cfs are unfishable given the shallower water depths and higher water temperatures that are not conducive to fish activity.

The current flow regime influences but does not limit or adversely impact the range of fishing opportunities and experiences available in the Fairview Dam Bypass Reach except at very low (under 40 cfs) and very high flows (over 2,000 cfs). Both during the study and in other public commenting opportunities during the relicensing process, several anglers noted that fishing quality and/or access (safety) is problematic at low and high flows, respectively. While the bypass reach experiences these low and high flows (see the WR-2 Hydrology Technical Memorandum [Appendix E.2 of SCE's License Application]), there are ample opportunities throughout the year when more acceptable flows (between 150 and 800 cfs) are available to anglers.

Furthermore, and as noted in Section 5.0, the majority of anglers in the bypass reach (76 percent) indicated that flows did not affect their fishing experience. Only about 14 percent of anglers indicated that flows did affect their fishing experience (a similar percentage of anglers above the Fairview Dam indicated that flows affected their fishing experience). Of these anglers below Fairview Dam, about 61 percent indicated that flows were "too high," while the remaining 39 percent stated that flows were "too low." The majority of responses noting that flows were too high could be in response to the higher-than-average summer flows (above 4,000 cfs in June and July) that naturally occurred in 2023. Similarly, the anglers who noted that flows were too low primarily participated in the REC-2 visitor questionnaire during the winter months when flows in the bypass reach were near the minimum instream flow requirements (ranging from approximately 40 cfs to 70 cfs).

As noted in Flows and Recreation, anglers typically assess "fishing conditions over multiple visits that vary where they fish or the tackle and techniques they use, as well as larger factors such as weather, season, time of day, and availability of a hatch" (Whittaker, Shelby, and Gangemi 2005). Other considerations include fish habitat, target fish species, the quality of the fishery, and flows. While some of these factors are social and related to the experiential characteristics of a fishing excursion, others are biophysical conditions that affect fish populations. Ultimately, fishery management requires an integration of fish habitat (biophysical conditions) and angler habitat (social, experiential characteristics that influence angler preferences and decision-making) considerations. The results of the ANG-1 Study, as well as other pertinent licensing studies (BIO-6, REC-2, WR-2), provide a considerable amount of information that will be used to balance the tradeoffs of multiple resource values under the new license. That is, there is a sufficient level of detail across multiple resource areas related to fishing and the fishery in the Fairview Dam Bypass Reach that will be considered and integrated into a comprehensive set of protection, mitigation, and enhancement measures in the new license.

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APPENDIX A
ANGLER STRUCTURED INTERVIEW QUESTIONNAIRE AND RESPONSES

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Structured Interview Questions

ANG-1 Enjoyable Angling Flows Study

Welcome and thank you for your interest in SCE's *ANG-1 Enjoyable Angling Flows* Study. This study is being done as part of Southern California Edison's relicensing process for the Kern River No. 3 Hydroelectric Project. Your participation in the structured interview questionnaire will provide helpful information on your use patterns and preferred flows for angling in the bypass reach on the North Fork Kern River (NFKR) between Fairview Dam and the KR3 Powerhouse (see figure 1 below).

The structured interview questionnaire will take approximately 40 minutes to complete. I will document your responses as we conduct the interview. I will share my screen so you can view my summary of your response. I will also record the interview so I can compare my notes with the recorded interview.

Are you ready to begin?

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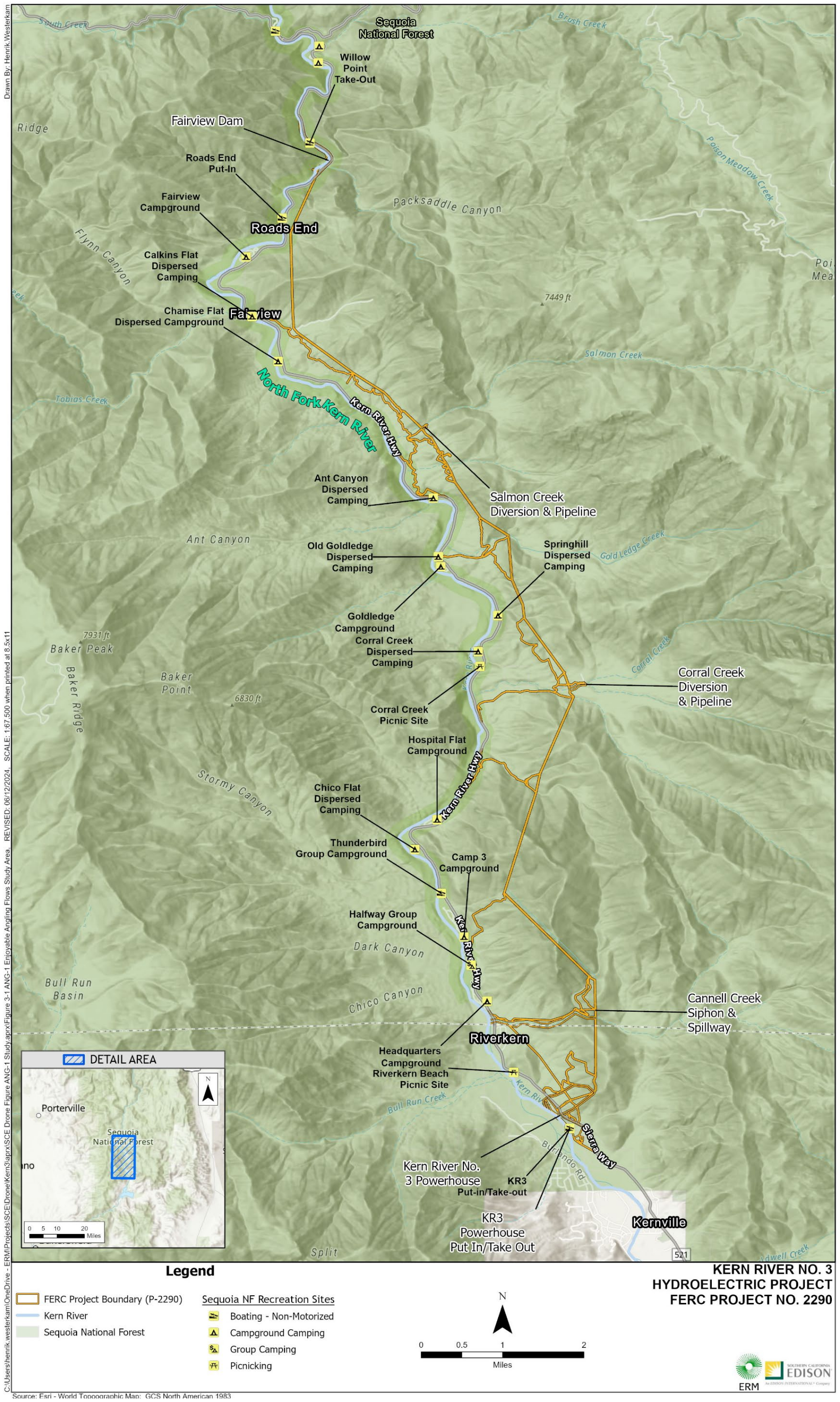
Drawn By: Henrik.Westerkam
Sequoia National Forest
Willow Point Take-Out
Fairview Dam
Roads End Put-In
Fairview Campground
Roads End
Calkins Flat Dispersed Camping
Chamise Flat Dispersed Campground
Fairview
North Fork Kern River
Kern River Hwy
Ant Canyon Dispersed Camping
Salmon Creek Diversion & Pipeline
Old Goldledge Dispersed Camping
Springhill Dispersed Camping
Goldledge Campground
Corral Creek Dispersed Camping
Corral Creek Diversion & Pipeline
Corral Creek Picnic Site
Hospital Flat Campground
Chico Flat Dispersed Camping
Thunderbird Group Campground
Camp 3 Campground
Halfway Group Campground
Cannell Creek Siphon & Spillway
Riverkern
Headquarters Campground
Riverkern Beach Picnic Site
Kern River No. 3 Powerhouse
KR3 Put-in/Take-out
KR3 Powerhouse Put In/Take Out
Kernville
Sierra Way
Ridge
Flynn Canyon
Packsaddle Canyon
Brush Creek
Poison Meadow Creek
Salmon Creek
Ant Canyon
Gold Ledge Creek
Corral Creek
7931 ft
Baker Peak
Baker Ridge
Baker Point
6830 ft
Stormy Canyon
Dark Canyon
Bull Run Basin
Chico Canyon
Tobias Creek
Bull Run Creek
Burlando Rd
Split
7449 ft
DETAIL AREA
Porterville
Sequoia National Forest
0 5 10 20 Miles
Legend
FERC Project Boundary (P-2290)
Kern River
Sequoia National Forest
Sequoia NF Recreation Sites
Boating - Non-Motorized
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KERN RIVER NO. 3
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FERC PROJECT NO. 2290
ERM
SOUTHERN CALIFORNIA EDISON
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Source: Esri - World Topoographic Map; GCS North American 1983

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Structured Interview Questions

1. Full name:
2. Phone number:
3. Email address:
4. Zip code for primary residence:
5. Age:
6. What is your gender (circle one)?

Male Female Non-binary Choose not to answer

Angling Recreation Use Patterns

7. How many fishing trips per year do you typically make to the North Fork Kern bypass?
    1. Section 5 is what they call KR3 to Fairview Dam. Most heavily used areas. 150 trips per year guiding. 50 personal trips per year.
    2. Typical year: 6-12 times per year.
    3. Up there year-round. 25-50 fishing days (most likely the low end).
    4. Once or twice per month. 25-30 trips per year.
    5. Fished the area all his life, only fish from Kernville to Johnsondale Bridge and Keysville. 8-10 days out of 30 per month once moved SoCal. Before 1979, for 27 years went 5 days/week when in Bakersfield.
    6. Probably at least 30 times a year, try to go out once per week. At least half the year.
    7. 70 guide trips, 30 personal trips.
    8. 7 years has been fishing on the Kern. Periodically, whenever has time, twice per month (24-25 times per year in the Kern). In Lake Isabella every other week.

8. What time of year do you prefer to fish in the North Fork Kern bypass?
    1. Fall through Spring. Summer gets too hot and usually when the water is the lowest and/or too warm. And most heavily used by the public from July 4th through Labor Day. Clients want a wilderness experience so better when less recreated.
    2. Right after run-off (typically the beginning of July, every year is a little different (variable)) and in the Fall. Summer is tough because the water is so low.

3. In the Fall (late Sept-Nov). Weather dependent.
4. Fall and Winter. Summertime flow is too low and water temp is too high and it affects the fish.
5. Year round in the area.
6. Pretty much between March through early December.
7. Fall through Spring.
8. October through December. Less crowds, better odds at catching fish.

9. Do you prefer to fish during the week or on weekends?
    1. Middle of the week for guiding trips, lots of weekend trips as well since that's when people have days off. All week long.
    2. During the week to avoid weekend crowds (camping, other recreation).
    3. During the week.
    4. Weekends 80% of the time, due to work.
    5. Weekdays preferable but will fish weekends as well.
    6. On weekdays because there are fewer people.
    7. During the week for guide trips and personal.
    8. During the week, Tuesday or Wednesday because the least amount of people. Wants to be there alone.

10. Is fishing during holidays preferable? Why?
    1. Lots of business during holidays but not for personal use.
    2. Try to avoid the crowds (camping, other recreation), so will not fish on the holidays.
    3. Try to avoid it. They have a place in Kernville, so it is easy to avoid the crowds.
    4. Try to avoid because of crowds. Usually with the Sheriff's office for Search and Rescue.
    5. Yes, from the area so fishing during the holidays brings back lots of memories (ie: will spend Christmas up there and will go fishing).
    6. Pretty much avoid holidays, also because of crowds.
    7. Generally, no because it is too crowd/tourist oriented. Typically fishing won't change, more about access.
    8. No, too many crowds.

11. Are there certain times of day that you prefer to fish?
    1. Times from 8-1600 because most people want to go out during that time. Normally the middle of the day. 0600 start in the summer to beat the heat.
    2. Early morning till about 1400-1500. Year round.

3. Summer and warm: early morning (before 7 till 12), evening (a few hours before sunset). Winter: 10 or 12 start (water temperature dependent).
4. Depending on flows, lower flows late in the evening or early morning.
5. In the morning and late afternoon. Fishing midday is not as good. Note: the planter fish do seem to bite at all times of day. Must be in the river awhile (approx 90 days or so) to adjust to morning/late afternoon schedule- 6/630 to 1000, 1500/1600 to dusk.
6. Typically, between 900 to 1600.
7. Changes throughout the year. In the summer, the water is warm so fish morning and evening, in winter fish during day when water warms up. The ideal water temperature is 58F for trout.
8. At 530 AM to watch the water flow for 20-30 minutes. Tells if there are any fish within a couple of feet of the area. Will stay from 530-1000 or 1030, depending.

12. What would you say is the most common type of fishing in the bypass? Bait, spin or fly fishing?
    1. During most of the year, fly fishing. During summer, mostly bait fishing, and the general public.
    2. A mix of bait and fly anglers.
    3. Spin with bait (salmon eggs and worms, powerbait, crickets): Summer/holidays many people from Bakersfield and LA.
    4. Summertime mostly used by campers- spin fishers. Fly fishers typically will fish above the dam.
    5. Trout (rainbows only seen), native trout not seen since 1960s. Note: Water gets too low now for native trout. Good mix of spin and fly fishing. Most people seem to use power bait.
    6. Fly fisher. More than half are bait fishermen, maybe 30% are fly fisherman. Some spinners and what not make up the rest.
    7. Only goes fly fishing. Bait, lure, def influx of fly fisher. Many more fly fishers now compared to 10 years ago.
    8. Fly fishing.

13. What type of angling do you typically do along the Kern River bypass (Bait, spin or fly fish. Bow and arrow or spear fish)?
    1. Fly fishing.
    2. Fly fishing.
    3. Nearly 100% fly fishing. If bring grandnieces, they spin fish with crickets.
    4. Fly fishing.

5. Trout (rainbows only seen). He uses Salmon eggs (balls of fire, green label, pautzke). Only bait fishing. The rest of his family fly fishes. Does not fish for sport, only for food.
6. Fly fishing.
7. Fly fishing.
8. Reel and fly fishing. Will determine which to do once on site and can observe the river. Both bait and lure: rooster tails, worms, put a small split-shot and then determine weight needed.

14. Does the type of fishing you do (fly fish, spin fish with bait, or spin fish with lures) vary seasonally?
    1. Indicator fishing: indicator up top and a fly below (nymphing) 80%. Dry fly (adult insects) 20%. All year can vary between the two. Depends more on the time of day and bug activity. What are the insects doing will determine what style to use.
    2. Only fly fishing. No, does not vary seasonally.
    3. No, all fly fishing.
    4. Varies according to insects in the area. A difference can be seen even between lower and higher up the river. Lower flows could affect the insects and technique.
    5. Only bait fishing. Bait does not vary seasonally.
    6. No.
    7. No.
    8. Yes, June-July will typically go in with fly fishing or rod and then change depending on what is being caught. Fall is trickier, fish are biting more, usually use floater with rod and a hot worm (artificial worm). Does both year-round.

15. What factors influence your decision to choose one type of fishing tackle over another?
    1. Depends more on the time of day and bug activity. What are the insects doing will determine what style to use.
    2. Fly fishing is more challenging. Most bait fishermen use treble hooks. Uses both nymphs and dry flies depending on whether there is a hatch. If flies (adult) on the water, then use a dry fly. Mostly use nymphs.
    3. Fly fishing is better for trout's health. All catch and release. Spin fishing tends to do more harm if using bait. Lures are somewhat better since only caught in the mouth; bait tends to get swallowed.
    4. The flows and the weather do influence this a little.

5. Tried all salmon eggs, family member trial and error for types of bait/lures since 1900s. Seems to work best.
6. Typically use both. Function of flow and temperature of water and time of day determines what insects are more prevalent.
7. Seasonal hatches- different bug activity. Terrestrial and aquatic insects available at the time: grasshoppers, ants, stoneflies, mayflies, midges, caddisfly. And several subspecies of insects of each of these. Specific times of year, temperature determines hatches.
8. No, will go gut feeling. People ask him what/why he is using certain tackle and that is what he tells them.

16. What type of conditions (weather, flow, crowding, etc.) cause you to choose not to fish in the bypass reach?
    1. Flow dependent primarily, sometimes clarity of the water. Over 3000 cfs no one will fish. At 3000 cfs if water is clear, Him/his brother will fish (more experienced anglers). 1000 cfs safe for public to get water and wade. Below 100 cfs the water gets too cold or too hot and affects the fishing dramatically. If water gets muddy fishing will also not occur. Weather events typically do not matter (rain/snow). More extreme weather events will affect fishing, weeklong or more of intense heat or cold.
    2. High run-off and low water (and high temperatures (anything at or over 70 degrees F)) conditions will determine whether he wants to fish.
    3. Right now, the flow is far too high, but flow dependent mostly (Generally that section is too low). Some crowding but can go to undeveloped spots to fish.
    4. The biggest one is flow. If diverting water and the river is already low, they would rather go higher above the dam for cooler water and higher flows. Crowds as well during summer season. Fish are stressed in hotter water and mortality rate can increase when being caught and released.
    5. After a rain the river gets muddy and will not fish. Will never fish the day after it rains.
    6. River temps being too hot, crowds. Catch and release fisher, so temps higher than 70 F and the trout cannot handle the stress. Flows can be too high (dangerous), too low (fish get trapped in areas, doesn't allow fish to move and hide- fish hold in water and these areas are far between so need more bush whacking, et cetera).
    7. Water flow, water temp, crowds (in that order).
    8. Crowds are the primary reason, if 3 or more people. People condense and it becomes a hazard and/or people will scare the fish away.

17. Do you currently, or in the past, work in the bypass reach as a fishing guide, or do you fish in a non-commercial angling capacity?
    1. Fishing guide as main profession on the Kern for about 5 years. Fishing in the river for 25 years.
    2. No, all personal and with friends (recreation). No guiding.
    3. No.
    4. Not a guide but helps fly shop with education courses (classroom beginner classes and CPR).
    5. Just recreationally.
    6. No.
    7. Yes, currently.
    8. No.

Angling location preferences

18. Do you prefer developed access points or undeveloped/dispersed sites for angling? Why?
    1. Clients: depends on physical ability. Developed points trails and access are generally easier. Mostly developed access points due to an older cliental. For clients that have better physical activity try to get around and in areas that are more undeveloped/rugged access. In Section 5, rugged areas are in between developed access points.
    2. Use both developed and undeveloped sites. Does not use some of the camp sites because they are over-developed. Generally, if there are too many will try to avoid. Will scout areas to fish once on the river. Some developed will use it because it is the only access to the river. Day use areas tend to not get as crowded.
    3. Undeveloped, or where people are not camping. The rafting access points (put-in, take-out) in the Fall. Summer there are too many boaters coming in and out. The rafting areas provide good access, once there can walk up or down the river.
    4. Undeveloped and dispersed. Might use developed parking lots but will hike out from there to dispersed sections.
    5. Undeveloped because if it's easy to get to it will be crowded and you won't catch anything.
    6. Undeveloped/dispersed, fewer people to compete with, more solitude.
    7. Both, lots of elderly or less mobile clients so easy access locations are great (campgrounds and day-use). Fishing for native trout in harder to reach areas, some clients can do that. Easy to access areas are often stocked with hatchery rainbow trout.

8. Undeveloped and dispersed sites. The harder it is to get somewhere the less traffic; fish are more calm and more likely to go after whatever is being cast out.

19. Where do you choose to fish between Fairview Dam and Riverside Park? (Please reference with named locations or features)
    1. Favorite spots: Chamise Flat up to Fairview Dam. Northern end of Section 5.
    2. Generally, if there are too many people, will try to avoid it. Will scout areas to fish once on the river. Some developed will use it because it is the only access to the river. Day use areas tend to not get as crowded. Bush-whacking down to the river. Below the dam, at McNally's. Use trails at pull-out locations as well.
    3. Ant Canyon dispersed area (fish a little bit above dispersed area) down to Springhill. Closer to town likes to fish W side of river (Rodeo grounds): the stretch near the Rodeo; River nook campground is on the other side of the river (E).
    4. Hospital Flat area (personally). Right below the Dam. Some areas with easy access and lower flows when bringing out people to fish.
    5. Approx 300 yards below the Johnsondale Bridge. The closer to Fairview Dam the less fish there are (have never caught a fish in that area).
    6. Near headquarters campground, within a mile or two of it. Area closer to Fairview campground, mile or two out. Salmon creek Falls area. Will use campground parking or the pull-off points, wherever there is space to park. Uncrowded parking areas. Catching not as good in dispersed areas, more interested in the solitude aspect. Tend to get more wild fish in those areas, they pull harder and are stronger.
    7. Chamise Flat, Above Goldledge campground (between Goldledge and Old Goldledge), Road's End day-use area. Between Goldledge and Old Goldledge): hike in area, more difficult to get to. A little above and below Road's End also has great fishing for native and hatchery trout, more difficult access, need to be physically fit, can cross the river at this section.
    8. All depends. The past couple of weeks the river has been so high has been fishing higher up and off of the streams leading into the Kern. Catching a lot of carp, catfish, rainbow, and brown trout. Note: the carp are getting more aggressive and are taking over the river. There is a huge carp in the river currently. Will go where the powerhouses are at. His kids love catfish and so he will hit those places. Trout and bass are catch and release. Will keep carp if it looks good. Stays completely away from campgrounds because of crowds. Day use areas depend on if people are around.

20. What factors influence your decision to choose one area over another to fish? (Season? type of tackle? Stocking location, Flows? River features? Other?)

1. In general, comes down to water temperatures (50-60 degrees F is where there are active trout). Northern area of Section 5 maintains a good water temperature year-round. Habitat: boulders, stream flow, and amount the insects in the area create optimal trout habitat.
2. A quieter section river with less rocks. Note: when trout are stocked, they all seem to be dumped into a single area. People will look for the trucks to follow and go fish after being stocked.
3. Flows and season primarily. River features change with flows. Boulders create eddies and places for trout to hide. Flows will determine where to fish. If flows are too low in the bypass reach will go above Fairview Dam or below KR3.
4. Crowds, flows.
5. Determined by water level. If the water level is real low goes to upper Kern (above Kernville, just below Johnsondale Bridge).
6. 400-200 cfs optimum flow rates, places you can wade, more places for the fish to hide and more challenging fishing. 200-400 cfs is good for the bypass reach in entirety.
7. Typically stay out of the bypass reach during the summer due to low flows and high-water temps. Will go above Fairview Dam in the summer.
8. Mostly crowds. Will not go to where stocking is happening because fish are not mature.

21. What river features do you look for when deciding where to fish (for example: riffles, pools, runs, pocket water)?
    1. The canyon comes together in the Northern part of Section, in the summer the water is still a little higher since the canyon is narrower. Lots of boulders for good trout habitat.
    2. Try for riffles (faster, needs to be more careful), pools, and runs. By the rocks the water is calmer but not exactly pocket water.
    3. All of these: riffles, pools, runs, pocket water. These characteristics are all flow dependent. When the water is lower, look for pocket water.
    4. Fish fast water with pocket water at the end. Pocket water would be it.
    5. On the Kern, you don't to be in the ripples. Want to be in faster moving water, where you start to see it calm down a bit, cast into the edge of the riffles and let that pull you into the slower moving water. Always there and behind rocks (10-15yds in front of rock and let it lead you behind it).
    6. Easier wading. Good habitat structure: boulders, riffles, brush in the river can provide cover for the fish.
    7. Changes throughout the year. For example, summer trout do not like hot water, going into the oxygenation high flowing white water, coming off a riffle where there is broken water. Stay there during Fall. Winter will move to

deeper pools since bottoms of these are warmer. Move through each day but these are the generalizations.

8. If fly fishing will look for calm areas (still), pools behind boulders (mature trout seem to be found). Reel casting is about where there are deep pools (can find catfish).

22. Does this change with the type of tackle you are using? Please explain.
    1. Using the same flies in all areas (for example: riffles, pools, runs, pocket water) since insect diversity is the same all up and down the river.
    2. Must change the type of tackle depending on insect behavior. Changing tackle can change multiple times per day. Preferred: nymph fishing because there are not a lot of hatches.
    3. River characteristics, where fishing, the boulders and gradient/drop determine type of fly being used. Faster flowing could use streamers deeper in water. Nymphs are just below the surface. Fishing with an indicator (float) and hanging nymph below the surface: would prefer a little faster water for this. If good flow and not raging (not too high), dry fly is preferable. The hatch, what insects are around. Plays into the health of the river, a healthy river would create more hatches. A greater abundance of bugs, subsurface and on surface.
    4. Yes, if slower water may need smaller leader. Faster water/ pockets heavier flies and leaders to sink into the pockets.
    5. No, for trout just uses a 4-lb test.
    6. No, river features do not determine types of flies being used.
    7. Yes, bobber/nymph fish deeper pools (winter), dry flies/dry dropper set up for riffles (generally). Mix of these in Spring through Fall.
    8. Yes, will not use rooster tails where there are fallen trees/branches/etc because it will get stuck. Will use single hook and a bobber with a nightcrawler in those areas. Use everything else mentioned previously in pools.

23. Whitewater boaters have names for different river segments between Fairview Dam and Riverside Park based on whitewater boating difficulty. Do anglers name different sections of the river between Fairview Dam and Riverside Park? If yes, what are those names and locations?
    1. Usually divide it by campgrounds (sections in between the campgrounds).
    2. Thinks some anglers do but he does not. Different groups of anglers seem to have different names for sections of the river. Section off by campgrounds or McNally's, etc.

3. A couple places: the rodeo section. Much solo fishing. Fly fishing shops tend to use names of campgrounds, WW put-in/take-outs, section above the dam, or something like “fish limestone” (the campground). Where to fish could be in between developed access points/campgrounds.
4. Use campgrounds/ day use areas/ sometimes the raft take-in and put-outs.
5. Caught below the bridge in Kernville. Johnsondale Bridge, Road’s End, McNally’s, all campsites used as references. These are the big ones.
6. Most people use campgrounds and day use areas to name where they are at.
7. Nothing specific. Many bait anglers from Riverside Park to KR3. Typically, hatchery fish in these areas, if not stocked typically less anglers in the park to KR3.
8. He does not personally name sections. People use campgrounds and day-use areas, but others use markers (trees, rock formations, etc), and others use parking areas.

24. How do river features change with flow at your preferred angling locations within the bypass? Do these changes affect your preference to fish there? Why?
    1. Yes, much of it is because of flows being too low. So, if it is too hot or too cold the trout will go into hibernation, and anything below 100 cfs.
    2. If the flow is low not going to be able to do much fishing. Need a steady flow year-round. If the flows are low, there are more pools than any other areas to fish. Fish go to deeper water. If it is too high, try to avoid the river all together.
    3. In much higher flows no riffles or runs, might just be raging water with no river features. Lower flows get pocket water and easier access to get down to the river. For example: spring run-off and pulling max out (600 cfs) it is just enough to make the Kern fishable, so sometimes there are advantages to water take out; good for when flows are very high.
    4. Yeah, if flows are lower the features may not be there. Wants fast water near pockets. Stagnant water is no good.
    5. Optimum water level in normal years is Dec through May is peak fishing time. Once it is June the water level is too low. In the summer move up closer to Johnsondale and fish the deep pools.
    6. River flows change the character of the river and where the sweet spot is. Trout don’t want to expend lots of energy so tend to be where insects are. The speed of the water drops down to maybe a couple miles per hour or less than that- where trout like to hang out. If not moving, trout usually do not like that. Pools can be a good place to fish, fish are harder to find. Runs/Seams more water that is waist deep.
    7. Flows def affect river features. Higher flows tend to not be able to fish riffles and faster water they will stick to slower pools or side water.

8. Yes, the changes do affect fishing and that is why they go early to watch the river for a while to determine where the fish will be and what type of fish there are. These changes do not affect preference to fish. Mostly look for places with low traffic.

Flow Range Estimates Section

25. Do you have a preferred range of flows (in cfs) for fishing between Fairview Dam and Riverside Park?
    1. Prefers 1000-500 cfs is ideal. Why: fish active and anglers can access all areas of the river safely (ie: wading).
    2. Prefers 200 cfs (preferably year-round). Something that could be amended with the release of water.
    3. 250/300-700/800 cfs: good flows (perfect). This depends on the area. Where sections tend to be shallower the higher flow is better (700/800) since it is wadable yet safe. 100/150 cfs is fishable but not optimal.
    4. Anything over 800 cfs (800-1000 cfs). If lower will typically go above the dam. Depends on flow above dam and amount being diverted out.
    5. Doesn't know what it would be in cfs. Thinks only boaters or people working at the dam would need to know that.
    6. 200-400 cfs.
    7. 150-300 cfs would be ideal.
    8. Not really, no.

26. Do different locations within the bypass have different preferred flows?
    1. Consistent the through the bypass reach.
    2. No, would like it consistent along the river.
    3. Areas with an increased drop in gradient, places with shallower water, places like Salmon Creek Falls are unfishable. Bait fishermen seem to be able use the Salmon Creek area. Dependent on geological composition and river topography. After the large flow event this Spring the river topography has changed.
    4. Some areas have class V rapids and water will flow much faster.
    5. Different preferred water levels- will drive around the area and will determine where is going to be a good spot to catch fish.
    6. No.
    7. No.
    8. If there are many boulders/rocks/etc can notice the flow of water and where it is going. Will look for high water if looking for trout. Pools when looking for catfish.

27. Does this flow range change with the type of fishing tackle you are using? If yes, please specify each type of angling and explain.
    1. Flow does not determine the type of tackle used. Insect activity is what determines tackle used.
    2. Too low or too high will not be fishing.
    3. Yes, for spin/bait fishing, they must get the bait down to where the fish are; higher flows need heavier bait. If flows too high bait will get swept away. For fly fishing, for higher flows need heavier weighted flies: streamers or anything subsurface (nymphs). If lower flows could go to dry fly or dry dropper (dry fly is top fly and then nymph underneath).
    4. Not necessarily. Higher water may need more weight to get it down.
    5. No.
    6. More about insects that are observed. Does not change based on flow of the water.
    7. Yes, when high flows using more subsurface flies/nymphs/streamers. When lower flows use a wide variety of flies.
    8. No.

28. Do you target different river features (pools, pocket water, runs, riffles) with changes in flow? Please explain.
    1. Yes, the lower the flows (down to 100cfs) looking for skinnier and narrower sections of river. When flows are high (700-1000 cfs) looking for wider sections of river.
    2. Yes, as flow gets lower will go to the pools. If steady, will go to any type of river feature to figure out what it might be.
    3. If dry fly fishing, 80-150 cfs could wade out (wadable flows) comfortably and get to areas with better runs. This is when you could be able to wade out to all the above-mentioned features.
    4. Yes, faster flows like pocket water. More oxygenated water- fish will gravitate to those areas. Lower flows will still look for deeper water. Knowing where the water is deep along that section is helpful.
    5. If water levels are high, will cast under the embankment. The trout will sit right along the edge, get behind rocks and will stay there. Will stay closer to Johnsondale Dam if water levels are lower.
    6. Yes, the range of 200-400 cfs is good for all the above river features. Can easily wade all points.
    7. Yes, higher flows will go to pools and slower side water, lower can access all water.

8. When the river is higher will look for curves where the water slows down, fish like the calmer areas before heading into the higher flows. When the river is lower the fish do not have an advantage, not much of a sport. Likes going in the Fall because the water level is higher and creates more of a challenge.

29. Do you have a maximum flow for angling between Fairview Dam and Riverside Park? If you do multiple forms of angling, what flows are the max for each form?
    1. Anything over 3000 cfs and unfishable, mostly due to safety.
    2. Always looked from a minimum point of view. If 400-500 cfs water gets moving to fast to wade. Preferred is 200 cfs.
    3. 700/800 cfs.
    4. Over 3000cfs not safe.
    5. No.
    6. Stay away if above 400 cfs, safety reasons and hard to push through water above this. They don't schedule maintenance changes so could get stuck on the other side of the river. Does not happen a lot but a handful of times per year. This only happens when the flows are higher. The change in flow happens dramatically.
    7. At 4000 cfs right now and could fish but not best, very experienced person could go out but not generally safe. 2000 cfs not ideal but fishable, still safe for clients.
    8. Will not fish during rain because too many unknown factors. Will wait about two days to go out after a rain (fly and reel cast).

30. Conversely, do you have a minimum flow for angling between Fairview Dam and Riverside Park? If you do multiple forms of angling, what flows are the max for each form?
    1. 100 cfs is the minimum to fish. Last year the river got to 40 cfs in the summer and it shut down fishing activities.
    2. Would like to keep at 200 cfs, 100 cfs may be okay depending on the temperature of water.
    3. 250/300 cfs.
    4. Depends on air temp, even if 100 cfs and cold may be okay but if 100 cfs and hot out will not fish. If water is over 70F will not fish.
    5. No.
    6. More temp related. Want water temp between 40-70 F and flow rates above 200 cfs.

7. 100 cfs, it's been at 90 cfs and still fishable. Once at 50 cfs it dramatically affects fish activity and fishability. Note: even if only flow is low, and all other conditions are the same, fish will still tend to go into hibernation mode.
8. Does not have a minimum flow (fly and reel cast).

Bank vs wade fishing section

31. Do you typically fish from shore, wade or do a combination of both?
    1. Typically wading. Better trout habitat is more accessible via wading.
    2. Typically wade.
    3. Combination of both.
    4. Will wade, maybe knee deep. Occasionally will fish from the shore. Most of it is walking in.
    5. Yes, will wade in the river in May/early June. The water level is still a little high so will need to wade into about 2-3FT of water to get into the riffles and dead spots.
    6. Principally wades.
    7. Combination. A lot of wading. From shore, will use large boulders that are over pools to fish in.
    8. Combination.

32. Does your preference to fish from shore or wade depend on the type of angling and/or the river section? Please explain.
    1. Not the section but dependent on the flows that are happening.
    2. No, just prefer to wade if it is possible. Not a lot of bank space for fly fishing because you need to move the rod around.
    3. The river sections and her ability to safely wade (flow dependent).
    4. Yes, fishing fast water and pockets so all depends on where you can access pocket water and be safe.
    5. Yes, would wade in upper Kern, not in Kernville, they would also wade in Keyesville. Depends on how wide the river is. Wider section that is faster in center to wade.
    6. Not really prefers to fish from shore, moves around a lot. Only catch and release. Usually not in a spot for more than 10 min.
    7. Not the section but more so the geology and habitat, each pool is different.
    8. Hard to explain. If catfish or crappies, etc will typically stay on shore because the bigger fish are harder to reel in. Fly fishing usually wades.

33. What parts of the bypass do you consider to be safely wadable?

1. The entire section is as long as under 1000 cfs. Most are still safely wadable at 1000 cfs, but maybe not able to access the entirety of the river.
2. All depends on the flow. They like McNally's or below the Dam (a couple 100 yds below), sometimes down by the powerhouse itself. At the powerhouse it is good if there is less flow.
3. Road's End, will fish there lot since there is the boat ramp. Road's End to Fairview campground fishes a lot, can cross the river to the other side at certain flows. A little bit above Ant Canyon area. Again, looking for places to safely enter the river.
4. Doesn't think there is. Variable depending on ability/experience but overall says no.
5. No, does not think any area of the river is safe. Many people have drowned.
6. Yeah, when below 400 cfs typically the whole stretch is wadable (95%).
7. All safely wadable at a certain flow (50cfs). At 4000cfs very limited accessibility. For example, at Corral Creek flows currently (July) come up over side and create a second river and flows are slower.
8. From McNally's up (north). Camp 3 to Johnsondale Bridge safe to wade. Can find places along the area and can tell by watching the river for a while before entering. Need to be conscientious, find your path, where to step.

34. Are there locations you consider to be unsafe for wading?
    1. Right at the spillway/ Dam of Fairview. The area is hard to get around and access (Water coming over the spillway and over the rocks makes access difficult and potentially unsafe for wading).
    2. Yes, but cannot name them. Areas with too many rocks or where the water is rushing to quickly.
    3. Anywhere the river gradient is steep (ex: Salmon Creek Area), anywhere with large drops/falls. Some sections of the river make turns and have large drops, faster moving water (rapids, area where boaters prefer).
    4. Unsafe around class IV and V rapids. Class 1 and 2 if water is low could be okay. Depends on flow and class area.
    5. All areas seem unsafe.
    6. When flows are 1000 cfs most areas are unsafe or potentially unsafe. Sections with rapids would not get near under 400 cfs.
    7. Primarily flow dependent. Heavier rapids at higher flows are less safe in general.
    8. Yes and no. When water is high like now (1400 cfs) is not safe. The powerhouse right before getting into Kernville because there are too many people, people get hurt, etc. Crowds can make it unsafe.

35. What physical river features make a location unsafe for wading?
    1. The granite boulders are unsafe for wading, get water-worn and slick.
    2. The main hazard is the rocks, they become very slick.
    3. Anywhere the river gradient is steep (ex: Salmon Creek Area), anywhere with large drops/falls. Some sections of the river make turns and have large drops, faster moving water (rapids, area where boaters prefer). Even with the possibly to enter the water these locations could cause you to get swept down a fall or pressed against a rock.
    4. Rapids. In March had 43K flows changed the features, some areas may now be unsafe, and others may be safe (it is a whole new river).
    5. The swiftness of the river and too many rocks and too much of a drop.
    6. Slippery rocks and boulders; can get pulled under or swept up.
    7. Rapids, sloping granite ledges/rocks – slippery.
    8. Anything that looks like it has a beach will draw a crowd. Crowds make it unsafe when fishing- does not want to hurt anyone. All depends on river features, mostly crowds are the largest safety concern.

36. Does wadability change with flows? If yes, what do you consider the safe range of flows for wading in each of these locations?
    1. If it does not get too high (over 1000 cfs) in most areas of Section 5, it will still be considered safe.
    2. Between 100-200 cfs can safely wade depending on the area.
    3. Old Goldledge: 100/150 cfs for safely wading. Note: uses wading staff and maybe go thigh-high. Anywhere the river makes a nice turn, has a campground, and the river widens, it will be very wadable. Ant Canyon is narrower, and access is more difficult. Rodeo grounds, Camp 3 at certain times of year (easy to get to, autumn when no one is camping): 250-800 cfs.
    4. For him anything under 3000 cfs, level of experience is different than the average individual.
    5. No, believes it is all unsafe. Got picked up off his feet in a few feet of water in May/June before (note-not this year). Will not wade above the knee, ever.
    6. 200-400 cfs.
    7. Below 2000 cfs can find plenty of safe spots.
    8. Yes. When the river is low gets more algae and rocks are slick. When higher, the swiftness of the river makes locations unsafe.

37. Is there a maximum flow threshold for wading?
    1. Right at 1000 cfs.
    2. 200 cfs or above.

3. Yes, for herself, threshold is probably lower for her than younger/larger men/individuals. 300 cfs might be max.
4. 3000 cfs.
5. No.
6. 400 cfs.
7. Anything above 2000 cfs.
8. Right now (1400 cfs) does not seem safe to wade in. In a normal year this would be a good time to wade, mentioned Johnsondale Bridge area in August 2020 was at a good flow (maybe 600-700 cfs).

Flow Information Section

38. Before choosing to go fishing in the bypass reach, do you check for flow information to determine if conditions are suitable? If so, what type of flow information do you use?
    1. Check flows all the time from Dream Flows (most rivers listed around the state).
    2. Yes, maybe USGS or will call a friend in the club (Kern River Fly Fishers). Note: SCE could make the flow knowledge more available to the public.
    3. Yes, every day, use Dream Flows. Can track the flows in the bypass reach by subtracting the 600 the powerhouse takes out.
    4. Yes, for fishing and search and rescue side. Dream Flows, Army Corp of Engineers, WW rafting shops. Meets the needs for determination.
    5. Will drive out and uses the knowledge of everyone he knows to determine if a section is going to be good for fishing that day. Does not check flows or use cfs estimates.
    6. Yes, Dream Flows website, Kern River Flow Data (sutronWIN.com) shows everything. Must check all this before leaving Kernville because of lack of service.
    7. Yes, uses Kern River Sierra.com/Flows.
    8. No, just goes out and looks for spots that are favorable to fish. Will check a spot out for a while, read the river, and will decide if needs to go up or down from the area: how much debris, fallen trees, how the water is flowing, rocks/boulders, sandy. Catfish like sandy and boulder areas. Rainbows love a decent flow rate. Bass fish like debris and tree materials. This will also determine if fly or reel casts.

39. Do you have other comments about angling use patterns and flows in the North Fork Kern River bypass.
    1. No, covered a lot of it.
    2. SCE should try for a consistent flow (around 200cfs). In the summer when it gets to 40 cfs the flows are too low, and it affects the health of the fish.

3. The preference for many people would be to see the dam removed (recreation, health of the river). Designated W&S, for aesthetics would not prefer to have the dam there.
4. Fish ladder fish cannot be reached by fish at lower flows.
5. Water levels seem to be good for fishing. Gets too low and is not good for fishing anymore. If water levels are high, they will cast under the embankment. The trout will sit right along the edge, get behind rocks and will stay there.
6. No.
7. No.
8. No.

40. Are there any other anglers you would recommend we contact about angling opportunities on the North Fork Kern River between Fairview Dam and Riverside Park.*

Thank you for participating in the ANG-1 Structured Interview. This interview will be summarized in the ANG-1 study report. All reports will be available to the public when complete, as well as other information about the relicensing process for the KR3 hydroelectric project. You can find information about the KR3 relicensing at www.SCE.com/kr3.

* Answers not shown to protect privacy of anglers recommended.

APPENDIX B
REC-2 FINAL VISITOR INTERCEPT SURVEY QUESTIONNAIRE—ANGLING-RELATED QUESTIONS

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Section 5 – Angling Experiences

27. Have you fished along the Fairview Dam Bypass Reach before?
☐ YES (please respond to the following 5 questions)
☐ NO (skip to Section 6)

28. What type of fishing tackle do you typically use to fish in the Fairview Dam Bypass Reach? (Select all that apply)

Spin fish with Lures **Spin fish with Bait** **Fly fish**

29. 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**

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

31. How often have you fished the Fairview Dam Bypass Reach in each season over the past 12 months?
a. Spring (March–May) #____
b. Summer (June–August) #_____
c. Fall (September–November) #_____
d. Winter (December–February) #_____

32. Have river flows affected your angling experience in the Fairview Dam Bypass Reach? ☐ YES ☐ NO

If yes, please indicate in which season your experience has been affected and provide reason.
a. Spring (March–May) ____ Reason: too low / too high / other: _____
b. Summer (June–Aug) _____ Reason: too low / too high / other: _____
c. Fall (Sept–Nov) _____ Reason: too low / too high / other: _____
d. Winter (Dec–Feb) _____ Reason: too low / too high / other: _____

33. On a scale of 1 to 5, with 1 being very poor and 5 being very good, how would you rate the conditions of your angling experience today or on the day of your most recent angling experience between the Fairview Dam and the Kern River No. 3 Powerhouse.

Fishing Experience	1 Very Poor	2 Poor	3 Neutral	4 Good	5 Very Good
Presence of angling features/habitats (pools, runs, riffles, etc.) to fish					
Ability to access angling features/habitats for preferred fishing					
Speed of river flow					

If you rated Very Poor (1) or Poor (2) for any above, please explain:
_____

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APPENDIX C
CALIFORNIA FRESHWATER SPORTS FISHING REGULATIONS

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North Fork Kern River fishing regulations (California Freshwater Sport Fishing Regulations, 2021–2022)

FISHING METHODS—GENERAL	
(a)	Except as otherwise authorized, all fish may be taken only by angling with one closely attended rod and line or one hand line with not more than three hooks nor more than three artificial lures (each lure may have three hooks attached) attached thereto. Anglers in possession of a valid two-rod stamp and anglers under 16 years of age may use up to two rods in inland waters which regulations provide for the taking of fish by angling, except those waters in which only artificial lures or barbless hooks may be used. See District Trout, Salmon and Special regulations for exceptions.
(b)	(b) Snagging is prohibited. Snagging is defined as impaling or attempting to impale a fish in any part of its body other than inside the mouth by use of a hook, hooks, gaff, or other mechanical implement. This definition does not include activities otherwise authorized under these regulations for the lawful use of a gaff, bow and arrow, or spear.
(c)	It is unlawful to kill, or retain in possession any fish which has not voluntarily taken the bait or artificial lure inside its mouth. Any fish not taken pursuant to these regulations, shall be released immediately back into the water.
CATFISH AND BULLHEADS	
(a)	Open season: All year, except for closures listed under special regulations.
(b)	Limit: Bullheads, no limit; all other catfish, no limit.
TAKING FISH NEAR DAMS, FISHWAYS, SCREENS AND EGG-TAKING STATIONS.	
	No fish may be taken within 250 feet of:
(a)	Any fishway or any egg-taking station.
(b)	Any dam or any weir or rack which has a fishway or an egg-taking station.
(c)	The upstream side of any fish screen. Fish may be taken upstream or downstream from any dam that does not have a fishway or egg-taking station (this supersedes Section 5502 of the Fish and Game Code).
SPECIAL REGS for KERN	
SPEARFISHING	
(a)	The Kern River from the Kern-Tulare county line upstream to the Johnsondale Bridge for carp, goldfish, western sucker, hardhead and Sacramento pikeminnow, from May 1 through September 15. (d) See bullfrogs (Section 5.05).
FISHING HOURS	
(a)	Day Defined: One hour before sunrise to one hour after sunset. Remaining hours are night.
(b)	All fish may be taken day or night.
5.95. OTHER SPECIES	
(a)	Other species of fish may be taken in any number and at any time of the year by angling, except for closures and restrictions listed under district special regulations.
2.25. BOW AND ARROW FISHING	

(a)	Bow and arrow fishing is permitted only for the taking of carp, goldfish, western sucker, Sacramento blackfish, hardhead, Sacramento pikeminnow and lamprey, all year, except in: (1) Designated salmon spawning areas (See Fish and Game Code Section 1505). (2) The Colorado River District where only carp, tilapia, goldfish and mullet may be taken. (3) See bullfrogs (section 5.05). (4) The East Fork of the Walker River between Bridgeport Dam and the Nevada State line where only carp may be taken.
2.45. COMPUTER ASSISTED REMOTE FISHING	
(a)	It is unlawful to take or assist in the taking of any fish in or from this state, by computer-assisted remote fishing.
(b)	It is unlawful to establish or operate a computer assisted remote fishing site for the purpose of taking any fish from or within this state.
(c)	For the purposes of this section, “computer assisted remote fishing” means the use of a computer or any other remotely controlled device, equipment, software, or technology, to remotely 2021-2022 Freshwater Sport Fishing Regulations 19 control the aiming or discharge of any weapon, including, but not limited to, any firearm, bow and arrow, spear, harpoon or any other weapon capable of killing or injuring any fish, for the purposes of taking any fish.
(d)	For the purposes of this section, “computer assisted remote fishing site” means any computer, internet site or web-based device or system, or other electronically operated site or system used to assist in the remote taking fish.
ALPHABETICAL LIST OF TROUT WATERS WITH SPECIAL FISHING REGULATIONS	
(69) Kern River (Kern and Tulare cos.)	
(a)	From Lake Isabella upstream to the Johnsondale bridge. All year. 5 trout.
(b)	From Johnsondale bridge upstream to the Sequoia National Park boundary near the Kern Canyon Ranger Station. All year. Only artificial lures may be used. 2 trout.
(c)	Downstream of Lake Isabella. All year. 5 trout.

EJ-1 ENVIRONMENTAL JUSTICE INTERIM TECHNICAL MEMORANDUM

KERN RIVER NO. 3 HYDROELECTRIC PROJECT
FERC PROJECT NO. 2290

PREPARED FOR:

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead®

KERNVILLE, CALIFORNIA

October 2023

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LIST OF ACRONYMS AND ABBREVIATIONS

ACS	American Community Survey
BG	Block Group
CalEPA	California Environmental Protection Agency
CBG	Census Block Group
CDC	Centers for Disease Control and Prevention
CT	Census Tract
DAC	Disadvantaged Communities
FERC	Federal Energy Regulatory Commission
EJ	environmental justice
EJScreen	Environmental Justice Screening and Mapping Tool
KR3	Kern River No. 3
N/A	data not available
Project	Kern River No. 3 Hydroelectric Project (FERC Project No. 2290)
SCE	Southern California Edison
SPD	Study Plan Determination
USEPA	U.S. Environmental Protection Agency

1.0 INTRODUCTION

An Environmental Justice Study (EJ-1) was developed in response to Federal Energy Regulatory Commission's (FERC) October 12, 2022, Study Plan Determination (SPD) (FERC, 2022). This Technical Memorandum provides the methods and findings of desktop research associated with the *EJ-1 Environmental Justice Study Plan* outlined in FERC's SPD in support of Southern California Edison's (SCE) Kern River No. 3 (KR3) Hydroelectric Project (Project) relicensing, FERC Project No. 2290. The EJ-1 Study follows federal guidelines and methodologies to identify the presence of environmental justice (EJ) communities, develop outreach strategies and solicit input from these communities regarding the Project, and assess the potential for the Project to have disproportionately adverse and significant impacts on those communities.

Desktop data collection efforts were completed in 2023 and summarized below.

2.0 STUDY GOALS AND OBJECTIVES

The objectives of the study, as outlined in FERC's SPD and addressed in this memorandum, include:

- Identify the presence of EJ communities that may be affected by the relicensing of the KR3 Project and identify outreach strategies to engage the identified EJ communities in the relicensing process, if present;
- Identify the presence of non-English speaking populations that may be affected by the Project, and identify outreach strategies to engage non-English speaking populations in the relicensing process, if present; and
- Identify sensitive receptor locations within the study area, and identify potential impacts and measures taken to avoid or minimize the impacts on such locations, if they are present.

3.0 STUDY AREA AND STUDY SITES

The study area for the EJ-1 Study includes the Project with a 1-mile buffer. The Study Plan calls for a 1-mile radius, which is a largely unoccupied area that includes only the communities of Kernville and Camp Owens. Applicable Census Block Groups (CBGs) within the study area are referenced. The study area is shown on Figure 3-1.

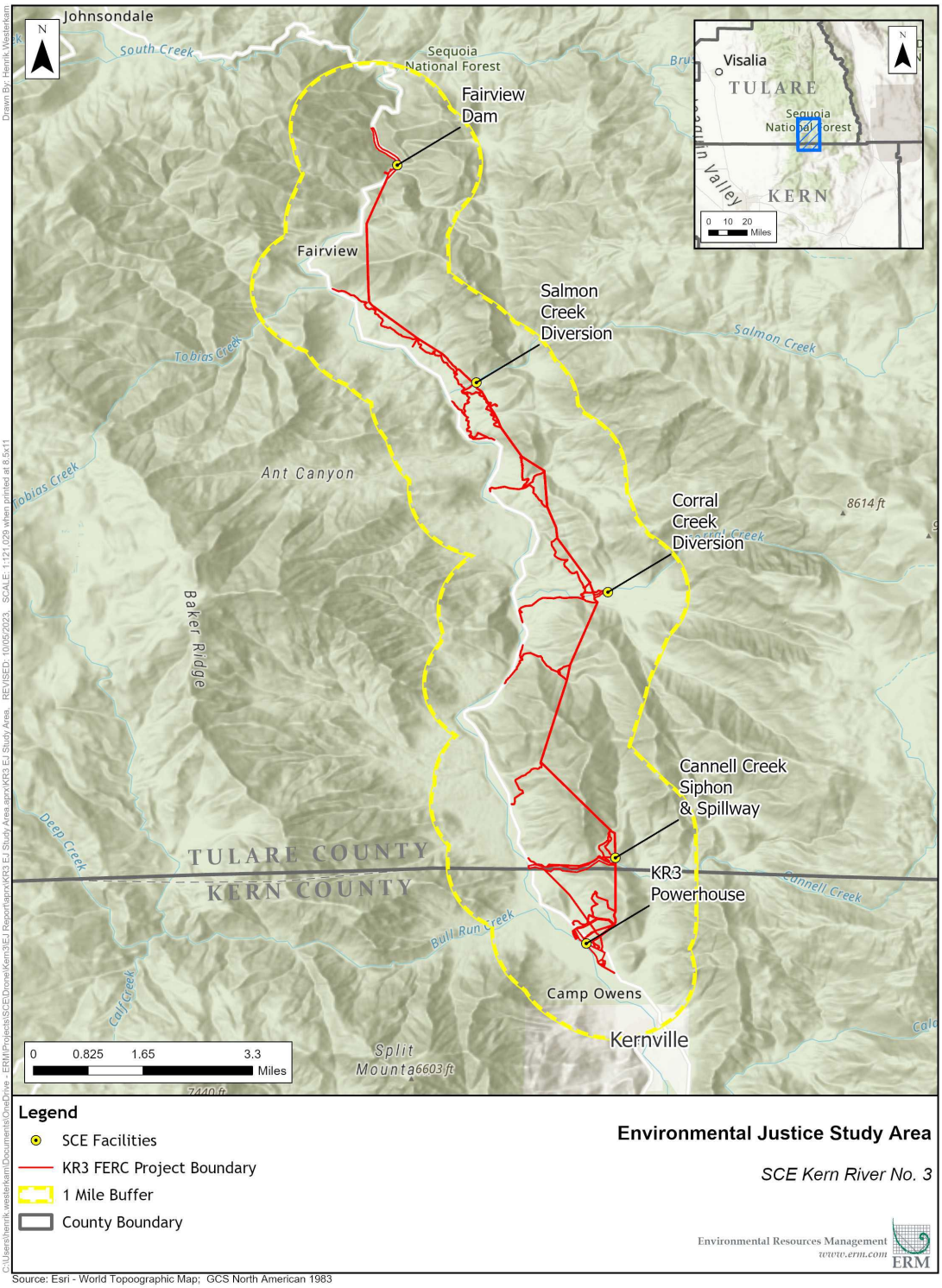


Figure 3-1. Environmental Justice Study Area.

4.0 METHODS

Study implementation followed the methods described in FERC's SPD (FERC, 2022).

The methodology used in the study is consistent with guidance from the U.S. Environmental Protection Agency's (USEPA) *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG, 2016). The analysis was accomplished through a desktop review of available EJ data including but not limited to population, health, racial and economic composition, minority groups, low-income individuals, and non-English-speaking groups. The following sources were used to compile this information:

- U.S. Census Bureau
- USEPA Environmental Justice Screening and Mapping Tool (EJScreen)
- California Environmental Protection Agency (CalEPA) CalEnviroScreen 4.0 (CalEPA, 2021a)

Study Plan Variances

There are no variances from FERC's SPD (FERC, 2022).

4.1. ENVIRONMENTAL JUSTICE DEMOGRAPHIC DATA

In accordance with federal guidelines, the EJ assessment includes demographic and poverty-level data for the geographical area potentially affected by the Project to determine if EJ populations are present. EJ populations have been identified by applying the methods included in USEPA's *Promising Practices for EJ Methodologies in NEPA Reviews* (NEPA Committee and EJ IWG, 2016).

Individuals who identify as any race other than White and/or list their ethnicity as Hispanic or Latino are considered minority (USEPA, 2022). According to federal guidelines, an area where the minority population exceeds 50 percent of the total population or where the minority population percentage is "meaningfully greater" than the minority population of an appropriate unit of geographic analysis, referred to as a reference population, is determined to be an EJ population (CEQ, 1997); for the purpose of this Technical Memorandum, and as recommended by FERC in the SPD, "meaningfully greater" has been set as 10 percent greater than the reference population percentage.

Unlike federal guidance on minority populations, there is no quantitative definition of what proportion of low-income populations constitutes an EJ population. Guidelines suggest using an appropriate poverty threshold and comparing the low-income population in an affected area to a reference population (NEPA Committee and EJ IWG, 2016). Within this memorandum, low-income percentages of CBGs are compared to the relative county percentage, and any equal to or greater than that percentage is designated a low-income EJ population. Low-income is defined by the USEPA as households where the income is less than or equal to twice the federal poverty level (USEPA, 2023). The poverty threshold

is calculated as a percentage of those for whom the poverty ratio was known, as reported by the U.S. Census Bureau. In 2021, the federally defined poverty threshold for an individual under age 65 was $14,097 (U.S. Census Bureau, 2022b).

To define an analysis area and identify potentially impacted EJ populations, federal guidance advises using an "appropriate unit of geographic analysis" that does not "artificially dilute or inflate" the population (CEQ, 1997). The selected area may be a neighborhood CBG[1], Census Tract (CT)[2], a governing body's jurisdiction, or other similar geographic unit. The CBG is the smallest geographic unit for which U.S. Census Bureau demographic data are available.

The assessment defines the analysis area as the CBGs where the Project is located and any CBGs within 1 mile of the Project. A CBG was selected as the appropriate geographic unit for analysis for purposes of determining whether EJ populations are in the area that may be affected by construction and operation.

4.2. OTHER COMMUNITY VULNERABILITIES

In addition to minority and low-income populations, EJ considers additional demographic and access vulnerabilities for communities: most common are non-English-speaking populations, large percentages of older or younger residents, lack of access to services, and health burdens.

Using FERC's recommendations for demographic indicators of age and language, data from the U.S. Census Bureau is used and the same method is applied as with low-income: percentages of CBGs are compared to the relative county percentage, and any equal to or greater than that percentage is designated a population with language or age EJ vulnerabilities.

In addition to demographic and environmental vulnerabilities, a community may experience gaps in critical services or a disproportionate share of health burdens. EJScreen (USEPA, 2023) includes layers showing key burdens for communities as percentile rankings.

Critical service gaps mapped by EJScreen are as follows:

- Broadband gaps—Areas with the lowest rate of households with a broadband internet subscription. EJScreen pulls this data layer from the Census Bureau's American Community Survey (ACS) 5-year summary estimates.

- Lack of health insurance—Percent of all persons without Health Insurance Coverage. EJScreen pulls this data layer from the Census Bureau's ACS 5-year summary estimates.

[1] A CBG is comprised of a Census Tract (CT) and a specific Block Group (BG) within the CT.
[2] A CT is comprised of a group of BGs.

- Housing burden—This dataset contains CT-level percentiles for housing cost, which is the share of households that are both earning less than 80 percent of Housing and Urban Development's Area Median Family Income and are spending more than 30 percent of their income on housing costs. The housing cost percentiles were adopted as Housing Burden for EJScreen. EJScreen sources this data layer from the Climate and Economic Justice Screening Tool.

- Transportation access—This dataset contains CT-level percentiles. The Average of Transportation Indicator uses an average of four transportation-related indicator percentiles, including Transportation Cost Burden, National Walkability Index, Percentage of Households with No Vehicle Available, and Mean Commute Time to Work. It was renamed "Transportation Access" for EJScreen. EJScreen pulls this data layer from the Department of Transportation's Transportation Disadvantaged Census Tracts.

- Food desert—Low-income and low-access tract measured at 1 mile for urban areas and 10 miles for rural areas. This data is available at the CT level and is pulled from the USDA.

4.3. CALENVIROSCREEN 4.0

In addition to using the U.S. Census Bureau demographics, information from the California-specific EJ tool, CalEnviroScreen (CalEPA, 2021a), were reviewed. CalEnviroScreen shows cumulative impacts in California communities by CT. The Project is located within two CTs in Kern and Tulare Counties: CT 52.01 in Kern County and CT 27.00 in Tulare County. These two CTs make up the study area for the CalEnviroScreen data.

CalEnviroScreen scores are calculated from the scores for two groups of indicators (i.e., Pollution Burden and Population Characteristics) and present a relative, rather than an absolute, evaluation of Pollution Burdens and vulnerabilities in California communities by providing a relative ranking of communities across the state. The model uses 21 statewide indicators to characterize Pollution Burden and Population Characteristics and uses percentiles to assign scores for each of the indicators in a given geographic area. The percentile represents a relative score for the indicators. Percentiles are averaged using a scoring system for the set of indicators in each of the four components: Exposures, Environmental Effects, Sensitive Populations, and Socioeconomic Factors. These component scores are then combined to produce a CalEnviroScreen Score for a given place relative to other places in the state. The formula for calculating the CalEnviroScreen Score is as follows:

Pollution Burden x Population Characteristics = CalEnviroScreen Score

Where Pollution Burden is the average of exposures and environmental effects (environmental effects score is weighted half as much as the exposures score) and Population Characteristics is the average of sensitive populations and socioeconomic

factors. A full description of the methodology for the tool can be found in the October 2021 CalEnviroScreen 4.0 Document on the CalEPA website (CalEPA, 2021b).

CalEnviroScreen's purpose is to help calculate the cumulative impact of multiple environmental and social burdens on communities. It is not intended to determine classification of a community as an EJ population. The tool has helped CalEPA and other local, state, and federal agencies ensure their activities address these Pollution Burdens and protect those communities from additional ones. CalEPA uses CalEnviroScreen to prioritize enforcement and outreach in vulnerable communities.

4.4. SENSITIVE RECEPTORS

A look at specific locations within a study area community that may be associated with sensitive populations is also included. Sensitive Receptors include:

- Places where the community gathers such as community centers, senior facilities, or places of worship;
- Facilities where health vulnerable populations gather such as medical facilities; and
- Locations with large concentrations of children such as schools and daycare centers.

For this Study, sensitive receptors were identified using a combination of mapping tools (Google Earth Pro, EJScreen, and ArcGIS) to search the study area for the closest sensitive receptor facilities to the Project.

5.0 DATA SUMMARY

The EJ assessment follows the federal guidelines and methodologies outlined in Section 4.0 to assess the potential for the Project to have disproportionately adverse impacts on vulnerable populations (or EJ populations).

5.1. ENVIRONMENTAL JUSTICE POPULATIONS IN THE STUDY AREA

Using the U.S. Census data and the recommended FERC guidelines for identifying an EJ population, three CBGs within 1-mile of the Project are classified as EJ communities based on income.

None of the CBGs within the study area have minority populations that are meaningfully greater than the county minority populations. Both Tulare and Kern Counties have total minority populations that are greater than 50 percent in addition to being greater than the minority population in the state of California; however, the CBGs in these portions of these counties have much lower populations of minority residents. Throughout the study area, the minority group with the highest populations are those identifying as Latino or Hispanic or American Indian. Refer to Table 5.1-1 and Figure 5.1-1 for a breakdown of the CBGs in the study area. Detailed breakdowns of minority populations by race and low-income populations within 1-mile of the study area are summarized in Table 5.1-2.

Table 5.1-1. Census Block Groups within 1-Mile of the Project

	1-mile Radius
Kern County	CT 52.07 BG 3 [a] CT 52.07 BG 2 [a] CT 52.08 BG 3
Tulare County	CT 27.01 BG 2 [a]

BG = Block Group; CT = Census Tract

[a] EJ community based on low-income population higher than the relative counties.

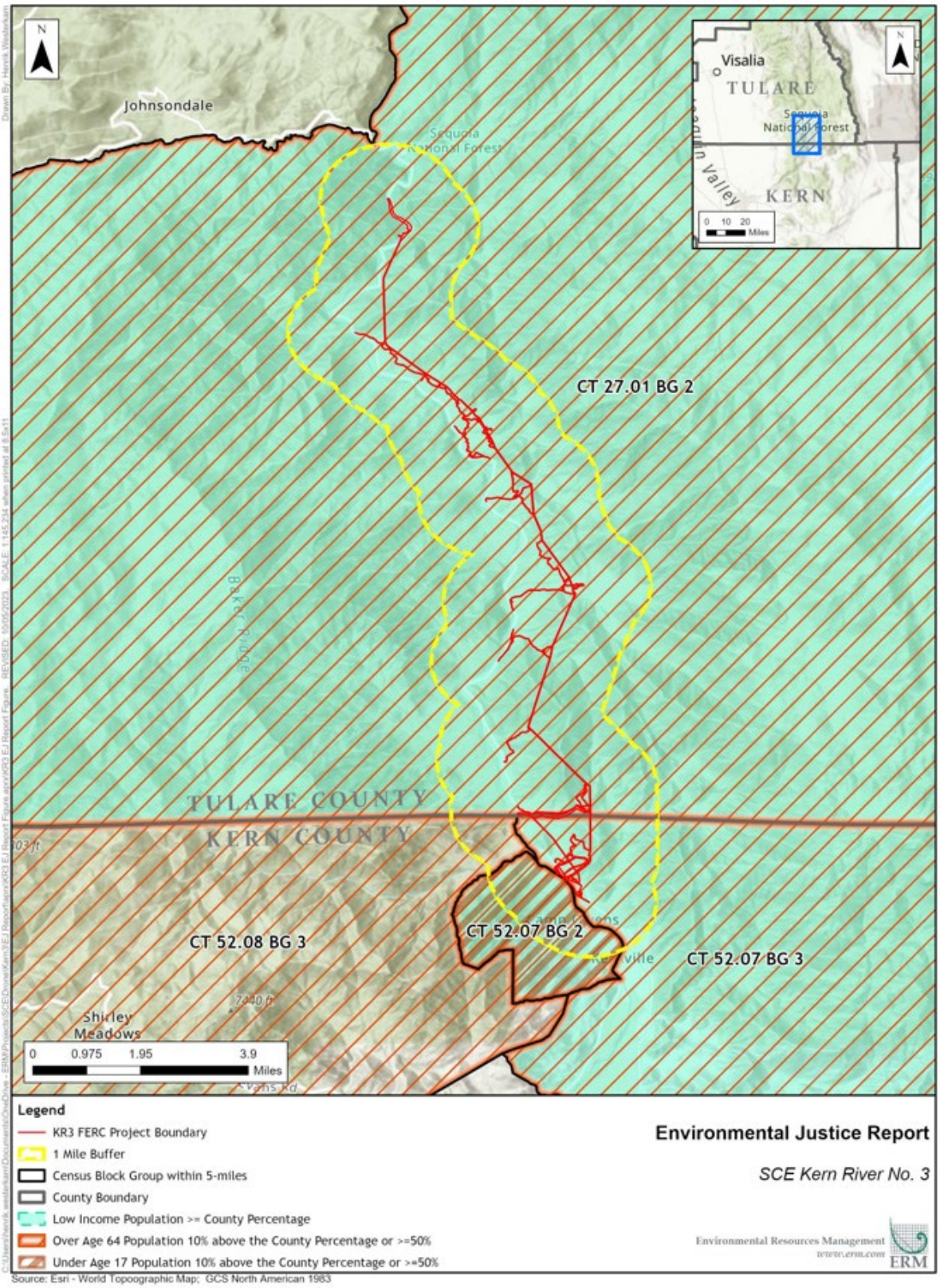


Figure 5.1-1. Project Area Map with Identified Environmental Justice Communities.

Table 5.1-2. Minority Populations by Race and Low-Income Populations in the 1-Mile Study Area

	White (Non-Hispanic)	Black or African American	Asian	American Indian and Alaskan Native	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races	Hispanic or Latino	Total Minority [a]	Total Population Below Poverty Level [b]
California	*35.8%*	*5.4%*	*14.7%*	*0.3%*	*0.3%*	*0.4%*	*3.6%*	*39.5%*	*64.2%*	*11.8%*
Tulare County	*27.0%*	*1.3%*	*3.5%*	*0.5%*	*0.1%*	*0.3%*	*1.5%*	*65.8%*	*73.0%*	*18.0%*
CT: 27.01 BG: 2 Project-occupied	94.0%	0.0%	0.0%	6.0%	0.0%	0.0%	0.0%	0.0%	6.0%	**28.3%**
Kern County	*32.2%*	*5.1%*	*4.7%*	*0.4%*	*0.1%*	*0.3%*	*2.5%*	*54.7%*	*67.8%*	*18.2%*
CT: 52.07 BG: 2	91.3%	0.3%	0.0%	0.0%	0.0%	0.2%	0.0%	8.2%	8.7%	**20.6%**
CT: 52.07 BG: 3 Project-occupied	67.0%	0.0%	7.4%	0.0%	0.0%	3.0%	0.0%	22.6%	33.0%	**22.2%**
CT: 52.08 BG: 3	79.7%	0.0%	0.0%	1.9%	0.0%	0.0%	12.9%	5.5%	20.3%	14.6%

Source: U.S. Census Bureau 2021b and 2021d

BG = Block Group; CT = Census Tract

[a] "Minority" refers to people who reported their ethnicity and race as something other than Non-Hispanic White.

[b] Minority or low-income populations exceeding the established thresholds are indicated in bold type and gray shading. Due to rounding differences in the dataset, the totals may not reflect the sum of the addends.

5.2. OTHER COMMUNITY VULNERABILITIES

5.2.1. LIMITED-ENGLISH-SPEAKING GROUPS AND AGE DATA

The non-English speaking groups identified within the study area are Spanish speakers and speakers of a language or languages categorized as Indo-European. Both Tulare County and Kern County show high percentages of groups who display limited English: 50.5 percent and 44.3 percent, respectively (Table 5.2-1). Overall, the CBG with the highest percentage of total limited English in the study area is CT 52.07 CBG 3 with 24.8 percent, a majority of that being speakers of an Indo-European language contributing 23.9 percent to the total.

Age data in the study area was also collected. A higher percentage of non-English speaking residents over the age of 64 were identified in all four CBGs compared to their respective county percent averages. A high percentage of residents under the age of 17 compared to the respective county percentages were identified in CT 52.07 CBG 2. This data may be explained by the presence of Camp Erwin Owen, a juvenile correctional facility located in the CBG.

Table 5.2-1. Limited-English-Speaking Groups and Age Census Data within the Project Study Area

	Vulnerable Age Groups		Limited-English-Speaking Groups				
	Age 17 and Under	Over Age 64	Spanish	Indo-European	Asian and Pacific Islands	Other	Total Limited English
California	*22.8%*	*14.4 %*	*28.3 %*	*4.6 %*	*9.9 %*	*1.1%*	*43.9%*
Tulare County	*30.8%*	*11.3%*	*46.5%*	*1.3%*	*2.2%*	*0.5%*	*50.5%*
CT: 27.01 BG: 2	13.2%	**41.0%**	1.1%	6.9%	0.0%	0.3%	8.3 %
Kern County	*29.0%*	*10.9%*	*39.2%*	*1.7%*	*2.9%*	*0.5%*	*44.3%*
CT: 52.07 BG: 2	**35.3**%	**28.0%**	0.0%	0.0%	0.0%	0.0%	0.0%
CT: 52.07 BG: 3	0.0%	**94.3%**	0.9%	23.9%	0.0%	0.0%	24.8%
CT: 52.08 BG 3	16.6%	**28.4** %	0.0 %	0.0 %	0.0 %	0.0 %	0.0 %

Source: U.S. Census Bureau 2021a and 2021c

BG = Block Group; CT = Census Tract

5.2.2. Service Gaps and Health Burdens

The Project facilities are in two CBGs with limited broadband. In Kern County, CT 52.07 BG 3 has limited broadband access of 22 percent, which is in the 78th percentile nationally and the 88th percentile for the state of California. In Tulare County, CT 27.01 BG 2 has limited broadband access of 28 percent, which is in the 86th percentile nationally and the 93rd percentile for the state.

Lack of health insurance does not seem to be a gap in critical services for these block groups with CT 52.07 BG 3 in the 17th percentile nationally and in the 21st percentile for the state of California. In Tulare, CT 27.01 BG 2 is in the 23rd percentile nationally and the 28th percentile for the state.

Housing burden is not labeled as a concern in Kern County CT 52.07 BG 3 but is a concern in Tulare County CT 27.01 BG 2. Both CBGs are classified as food deserts and as having a lack of transportation access, which is not unusual for very rural communities. See Table 5.2-2.

Table 5.2-2. Critical Service Gaps

Indicator	Value	State Average	State Percentile	U.S. Average	U.S. Percentile
Kern County CT 52.07 BG 3					
Broadband internet	22%	10%	88	14%	78
Lack of health insurance	3%	7%	21	9%	17
Housing burden	No	N/A	N/A	N/A	N/A
Transportation access	Yes	N/A	N/A	N/A	N/A
Food desert	Yes	N/A	N/A	N/A	N/A
Tulare County CT 27.01 BG 2					
Broadband internet	28%	10%	93	14%	86
Lack of health insurance	3%	7%	28	9%	23
Housing burden	Yes	N/A	N/A	N/A	N/A
Transportation access	Yes	N/A	N/A	N/A	N/A
Food desert	Yes	N/A	N/A	N/A	N/A

Source: USEPA 2023

BG = Block Group; CT = Census Tract; N/A = data not available

Health disparities included in EJScreen are as follows:

- Low life expectancy—Average life expectancy data developed as a collaboration between National Center for Health Statistics, the National Association for Public Health Statistics and Information Systems, and the Robert Wood Johnson Foundation. This data is available at the CT level; the same tract value is then assigned to all sub

CBGs. EJScreen pulls this data layer from the U.S. Small-area Life Expectancy Estimates Project.

- Heart disease—Heart disease prevalence among adults aged 18 years or older. The term "heart disease" refers to several types of heart conditions. This data is available at the CT level; the same tract value is then assigned to all sub CBGs. EJScreen pulls this information from the Centers for Disease and Prevention (CDC) Places Data.

- Asthma—Asthma prevalence among adults aged 18 or older. This data is available at the CT level; the same tract value is then assigned to all sub CBGs. EJScreen pulls this information from the CDC Places Data.

- Cancer—Cancer (excluding skin cancer) prevalence among adults aged 18 or older. This data is available at the CT level; the same tract value is then assigned to all sub BGs. EJScreen pulls this information from the CDC Places Data.

- Persons with Disabilities—Percent of all persons with disabilities. This data is derived from Census ACS data at the CT level. CBG values are calculated by multiplying the tract value by the block population weight. The weights are derived from the same Census source used by the EJScreen buffer reports and analysis. EJScreen uses data from the Census Bureau's ACS 5-year summary estimates for this map layer.

Both of the CBGs crossed by the Project facilities have various health indicators above the average on both national and statewide measurements. Kern County CT 52.07 BG 3 is in the 80th percentile and above for all five health indicators compared to the state of California, although asthma and low life expectancy are in the 70th percentile nationally. Tulare County CT 27.01 BG 2 is in the 80th percentile or above in all of the health indicators except low life expectancy both in California and nationally. Overall, the Project overlaps with populations that exhibit high occurrence of heart disease, asthma, cancer, and persons with disabilities, which should be taken into account when considering impacts and mitigation measures.

Health vulnerabilities are present within the study area with rankings above the 80th percentile appearing either for the state of California or nationally for all the indicators in Kern County and for all but low life expectancy in Tulare County (Table 5.2-3).

Table 5.2-3. Health Indicators

Indicator	Value	State Average	State Percentile	U.S. Average	U.S. Percentile
Kern County CT 52.07 BG 3					
Low life expectancy	22%	18%	86	20%	70
Heart disease	12.1	5.2	99	6.1	99
Asthma	10.9	9.5	86	10	77
Cancer	10.1	5.3	98	6.1	98
Persons with disabilities	31.9%	10.9%	99	13.4%	99

Indicator	Value	State Average	State Percentile	U.S. Average	U.S. Percentile
Tulare County CT 27.01 BG 2					
Low life expectancy	14%	18%	13	20%	7
Heart disease	8.7	5.2	97	6.1	91
Asthma	11.1	9.5	89	10	81
Cancer	7.9	5.3	91	6.1	87
Persons with disabilities	25.4%	10.9%	98	13.4%	95

Source: USEPA EJScreen, 2023

BG = Block Group; CT = Census Tract; N/A = data not available

5.3. CALENVIROSCREEN 4.0

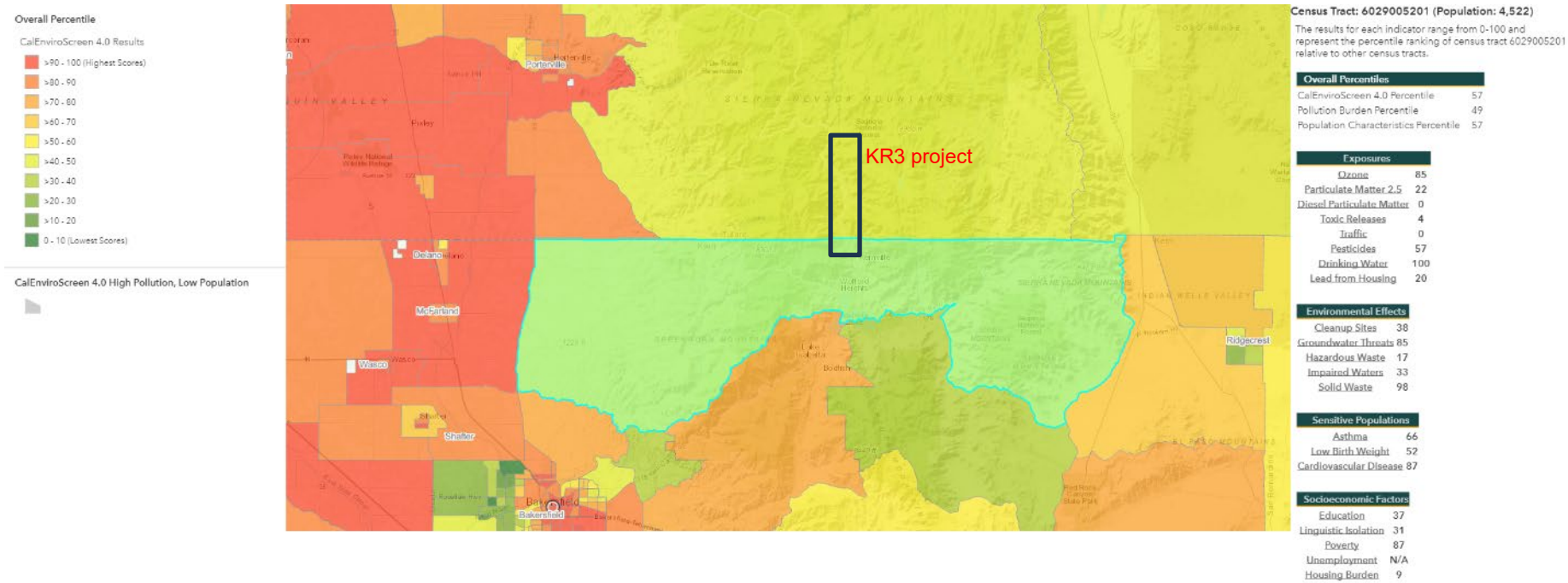
CTs with darker red colors have higher CalEnviroScreen scores and therefore have relatively high pollution burdens and population sensitivities. CTs with lighter green colors have lower scores and correspondingly lower pollution burdens and sensitivities.

In Kern County CT 52.01, the overall percentile for CalEnviroScreen is 57 with a Pollution Burden percentile of 49 and a Population Characteristics percentile of 57 (Figure 5.3-1).

In Tulare County CT 27.00, the CalEnviroScreen percentile is 46 with the Pollution Burden Percentile at 34 and the Population Characteristics Percentile at 52 (Figure 5.3-2).

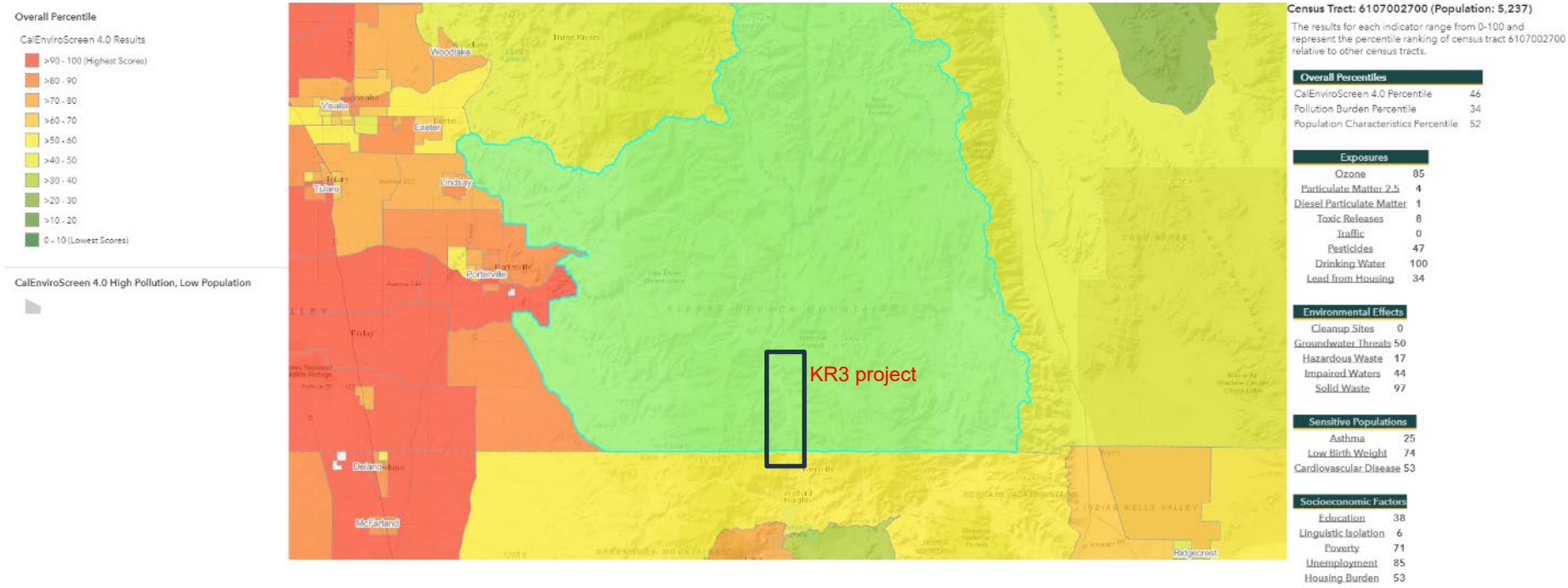
CalEPA also provides a mapping tool that identifies Disadvantaged Communities (DACs) in accordance with Senate Bill 535 established in 2012. The Senate Bill 535 detailed initial requirements for minimum funding levels to DAC and gives CalEPA the responsibility for identifying those communities. The legislation states that CalEPA's designation of DACs must be based on "geographic, socioeconomic, public health, and environmental hazard criteria" (CalEPA, 2023).

According to the CalEPA SB 535 map for the study area, the pollution and demographic burdens are in the low to mid-range for the state of California. Within the 1-mile buffer established around the Project, there are no communities that qualify as DACs following the designation established by CalEPA. The cumulative impacts to the communities within the study area are minimal, with the closest identified DAC being the Lake Isabella community south of the Project, which is outside the 1-mile radius of the study area (see Figure 5.3-3).



Source: CalEPA, 2021a

Figure 5.3-1. Kern County Census Tract 52.01 CalEnviroScreen Map.



Source: CalEPA, 2021a

Figure 5.3-2. Tulare County Census Tract 27.00 CalEnviroScreen Map.

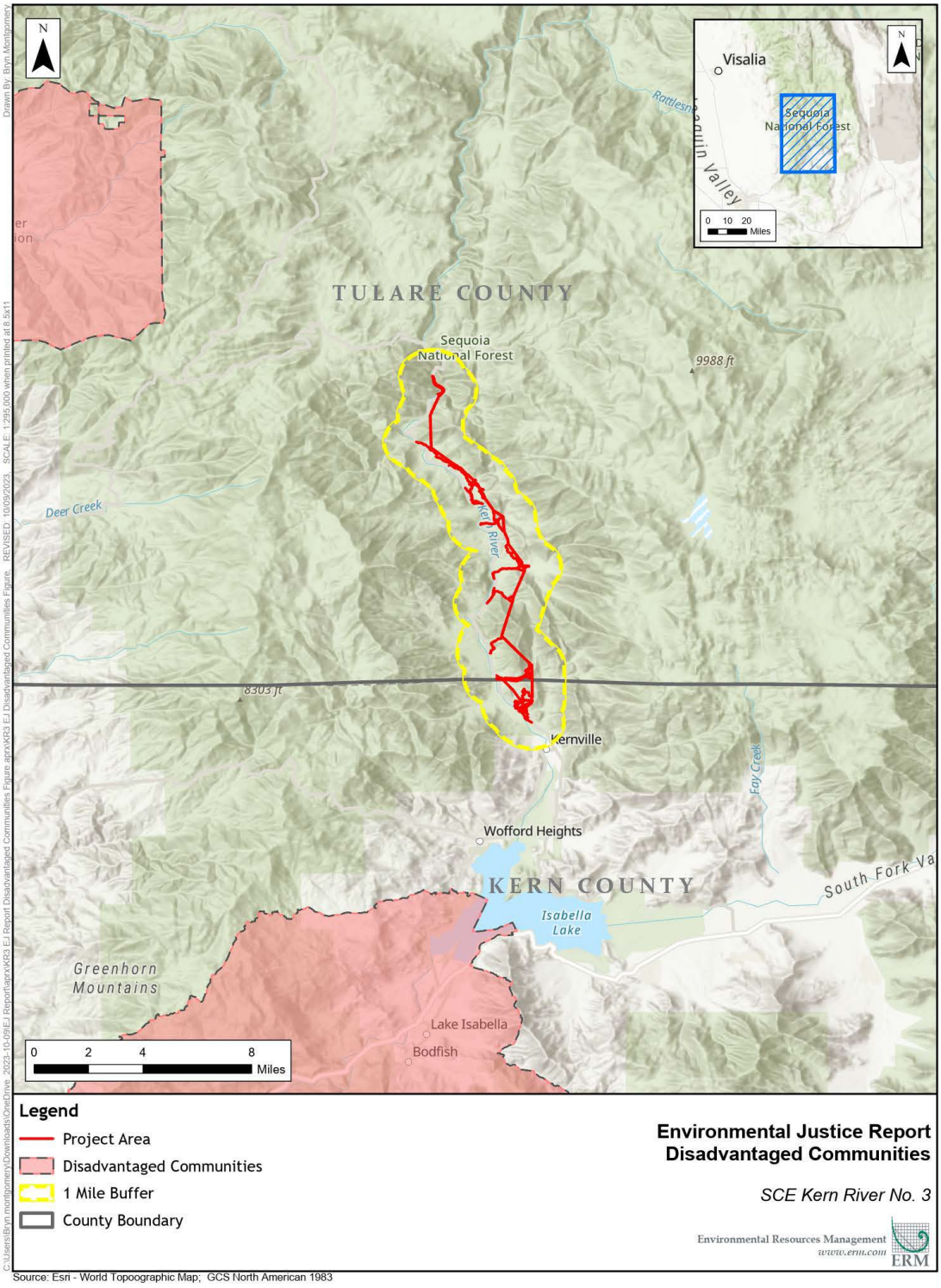


Figure 5.3-3. Map of CalEPA Identified Disadvantaged Communities Relative to the Study Area.

5.4. SENSITIVE RECEPTORS

SCE is not proposing any new construction or facility modifications to the Project at this time; therefore, there are no new identified sensitive receptor locations within the geographic scope of analysis. For reference, previously identified sensitive receptors included:

- Camp Ewin Owen, a juvenile detention center in Kernville located across Sierra Way Road from the southern end of the Project;
- Kernville United Methodist Church located 0.8 mile south of the southern end of the Project; and
- Kernville Elementary School located 1.2 miles southeast of the southern end of the Project.

There are also no newly identified medical facilities in the study area. The nearest hospital is Kern Valley Hospital located 9.96 miles south of the southern end of the FERC Project Boundary. The second closest medical facility is Family Healthcare Network Health Center in Springville located 32.9 miles from the southern end of the Project.

6.0 PUBLIC OUTREACH AND CONSULTATION

There are no minority EJ communities in the study area, but there are low-income EJ communities within the study area. To support public outreach and consultation, SCE has engaged with interested Stakeholders throughout the relicensing process since 2020. Documents related to the relicensing are publicly available on FERC's e-Library and on SCE's public website. All interested Stakeholders (including those who have filed a comment on the relicensing proceeding) are notified via email when documents are filed with FERC as part of this proceeding.

In addition to the consultation required as part of the Integrated Relicensing Process, SCE has conducted the following stakeholder engagement activities:

- Prior to SCE filing the Pre-Application Document (SCE, 2021), an informational postcard with a link to an online survey was distributed via mail in August 2020 so that interested Stakeholders were aware of SCE's intent to relicense the KR3 Project; SCE could identify topics of interest and to refine the Project Stakeholder contact list. Names and addresses of potentially interested Stakeholders were compiled from public distribution lists (i.e., FERC's Project No. 2290 Service List); previous KR3 relicensing Stakeholder lists; federal, state, and local governments; and an internet search of local businesses or interest groups within 5 miles of the Project to create a comprehensive Project Distribution List.
- A virtual public open house was hosted by SCE on October 1, 2023, so the public could learn about the Project, the FERC relicensing process, and how they can be involved during the relicensing process. The meeting notice was posted on SCE's

public website, interested Stakeholders were notified via email, and a meeting notice was posted on social media (e.g., Nextdoor).

- As part of other FERC approved studies that include direct interactions with the public as part Study Plan implementation (e.g., Study *REC-2 Recreation Facilities Use Assessment*), bilingual (English and Spanish) information flyers, public questionnaires, and bi-lingual field staff have been deployed.

SCE will continue ongoing outreach to the local communities and Stakeholders in the Project Vicinity to obtain comments regarding the relicensing of the Project and to understand primary concerns and questions from interested stakeholders as part of the Integrated Relicensing Process. If a Project-related impact on low-income EJ communities is identified through the relicensing process and there is a potential nexus between the impact and the EJ community, additional consultation and potential mitigation measures may be necessary.

7.0 OUTSTANDING STUDY PLAN ELEMENTS

Two additional study objectives noted by FERC in the SPD will be addressed, as applicable, in the License Application and include: (1) A discussion of impacts from relicensing the Project on any identified EJ communities and if those impacts are disproportionate, significant and adverse; and (2) if needed, include proposed mitigation measures to avoid or minimize Project impacts on EJ communities.

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TECHNICAL REPORT ◦ FEBRUARY 2024

Kern River No. 3 Hydroelectric Project
2023 Fish Population Monitoring Report – Draft

Southern California Edison Company
FERC Project No. 2290-006

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Suggested citation:
Stillwater Sciences and ERM. 2024. Kern River No. 3 Hydroelectric Project, 2023 Fish Population Monitoring Report. Prepared by Stillwater Sciences, Davis, California, and ERM, Sacramento California, for Southern California Edison, Rosemead, California.

Cover photos: Top–fish monitoring on the North Fork of the Kern River, 2023; bottom–Sacramento sucker captured during fish monitoring on the North Fork of the Kern River, 2023.

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LIST OF ACRONYMS AND ABBREVIATIONS

Abbreviation/Acronym	Definition
µS/cm	microsiemen per centimeter
ºC	degrees Celsius
CDFW	California Department of Fish and Wildlife
FERC	Federal Energy Regulatory Commission
Forest Service	U.S. Department of Agriculture, Forest Service
GPS	Global Positioning System
KR3 Project	Kern River No. 3 Hydroelectric Project, FERC Project 2290
m	meter
m^2	square meter
mg/L	milligram per liter
mm	millimeter
NFKR	North Fork Kern River
Plan	Kern River No. 3 Project Fish Monitoring Plan
SCE	Southern California Edison
YOY	young-of-the-year

1 INTRODUCTION

1.1 Background

Southern California Edison (SCE) owns and operates the Kern River No. 3 Hydroelectric Project, Federal Energy Regulatory Commission (FERC) Project No. 2290 (KR3 Project), located along the North Fork Kern River (NFKR) near the town of Kernville in Kern and Tulare counties, California. The KR3 Project is classified as a run-of-the-river hydroelectric project with a total installed capacity of 40.2 megawatts. The KR3 Project is located on both private lands owned by SCE and on National Forest System lands within the Sequoia National Forest managed by the U.S. Department of Agriculture, Forest Service (Forest Service).

FERC issued the current operating license for the KR3 Project on December 24, 1996. Article 411 of the license required that SCE develop a fish monitoring plan in consultation with the Forest Service, California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and the U.S. National Parks Service (ENTRIX 1997). Article 411 states the following:

> Within six months from the date of issuance of this license, the Licensee shall file with the Commission for approval a plan to monitor fish populations (Monitoring Plan). The Monitoring Plan shall include, but not be limited to, an implementation schedule, standard techniques for assessing fish populations, and sampling fish populations in 5 locations once every 5 years for the term of the license. The monitoring shall be 100 meter stations using techniques similar to those utilized in studies conducted for Exhibit E of the Licensee's application. A report shall be provided to the signatory agencies to the Settlement Agreement and to the Commission within 120 days of the end of each reporting period.
>
> The Licensee shall prepare the Monitoring Plan after consultation with the California Department of Fish and Game, the U.S. Forest Service, U.S. Fish and Wildlife Service, and the U.S. National Park Service....

In May 2004, FERC issued a final order that amended the license to include the final Forest Service 4(e) conditions, per Section 4(e) of the Federal Power Act. Forest Service 4(e) Condition No. 5, *Fish and Wildlife Plan*, provided additional specifications on the fish population monitoring effort on the NFKR. The relevant portion of Condition No. 5 states the following:

> The Licensee [SCE] shall monitor fish populations in five locations along the Kern River. Two sites above the diversion, two sites between the diversion and Goldledge Campground and one site in the lower portion of the diverted reach. Monitoring should consist of standard techniques for assessing fish populations. The methods used should be similar to those used for preparation of Exhibit E for this process. Monitoring shall be conducted at each station every five years during the term of the license. Sampling should be conducted during the fall. A plan for monitoring must be agreed to by the agencies and the Licensee.

In response to these license requirements, SCE filed the Kern River No. 3 Project Fish Monitoring Plan (Plan) (ENTRIX 1997) with FERC on June 23, 1997. The Plan was subsequently approved by FERC Order on October 7, 1997. The principal objective of the monitoring program, as described in the Plan, is to provide information on the abundance of fish near the KR3 Project area over time.

Fish population monitoring was conducted in October 1998, 2006, 2011, and 2016. Subsequent monitoring scheduled for October 2021 was postponed due to storms and runoff in the Windy Fire burn scar, which resulted in high flows and turbidity that prevented safe and effective sampling. Monitoring was postponed again in 2022 due to substantial rainfall resulting in high turbidity in the river that prevented effective sampling. With agency concurrence, SCE postponed scheduled monitoring until 2023 to allow for safe and effective monitoring conditions, and updated methodologies to allow for better comparisons across sites.

1.2 Study Area Description

The study area includes two monitoring sites located upstream of Fairview Dam and four monitoring sites located in the bypassed reach of the NFKR between Fairview Dam and the KR3 Powerhouse, including one site, Headquarters, located near Headquarters Campground added in 2023 (Table 1-1, Figure 1-1).

Monitoring sites from the Plan were either located within the same, or nearby, habitat units surveyed during prior surveys. Global Positioning System (GPS) coordinates and habitat unit lengths were used to verify site locations, and in general, the reach length was set to match the length of the habitat units measured in 2011 and 2016. However, the electrofishing site at Roads End was moved upstream by 530 feet in 2023 due to higher flows and deep (>4 feet) sections preventing effective electrofishing at the previously sampled site. Additionally, as agreed upon during agency consultation, the Hospital Flat snorkel site was extended and an additional site near Headquarters Campground was added, both to include deeper pool habitats to target adult hardhead.

GPS coordinates (Universal Transverse Mercator World Geodetic System 84) at the upstream and downstream ends of each survey reach were recorded (Table 1-1). Photos of each study site were taken from the upstream end and downstream end of each unit, and any elements of interest were documented.

Table 1-1. Fish monitoring site locations, 2023.

Site	Survey Method	Upstream End		Downstream End	
		Longitude	Latitude	Longitude	Latitude
Above Johnsondale Bridge	Direct Observation	35.97889	-118.484456	35.978204	-118.484812
Above Fairview Dam	Direct Observation	35.962542	-118.478541	35.962468	-118.477918
Roads End	Electrofishing	35.931173	-118.487633	35.931146	-118.488376
	Direct Observation	35.930793	-118.489818	35.93053	-118.490430
Goldledge	Electrofishing	35.877787	-118.457151	35.877273	-118.457582
	Direct Observation	35.879219	-118.456503	35.878615	-118.456738
Hospital Flat	Electrofishing	35.828006	-118.461338	35.827539	-118.462027
	Direct Observation	35.826287[1]	-118.464183[1]	35.825306[1]	-118.464732[1]
		35.834439	-118.453381	35.834194	-118.453576
Headquarters	Direct Observation	35.798184[1]	-118.452164[1]	35.796702[1]	-118.451798[1]

[1] An additional deep pool was sampled in 2023 to target adult hardhead habitat.

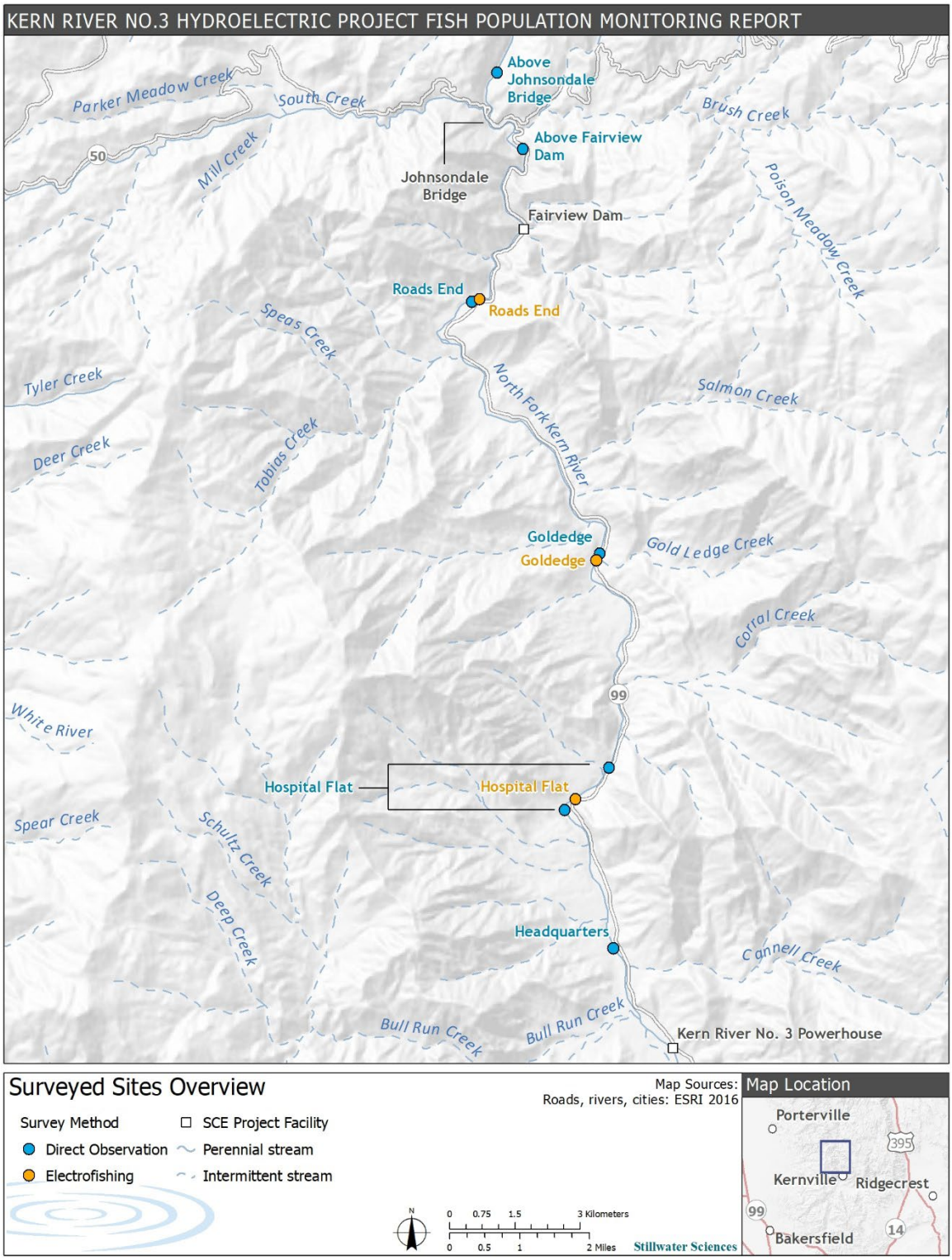


Figure 1-1. Fish monitoring site locations, North Fork Kern River, 2023.

2 METHODS

A team of five to seven biologists from Stillwater Sciences (Stillwater) conducted fish population monitoring on October 4–12, 2023, using multiple-pass electrofishing and multiple-pass direct observation (snorkeling) techniques. The analyses used for the 2023 assessment combined data from prior survey years and results were standardized to more commonly used units. Sampling and analytical methods are described in more detail below.

2.1 Stream Habitat

Habitat data were collected at each electrofishing and direct observation site. Data collected at each site included stream channel length, width, depth, gradient, substrate composition, habitat type, and fish cover types. Sampling site length and channel width were measured using a laser range finder. The channel widths were measured at 11 equidistant cross-sections at each sampling site, with the first and last cross-sections at the upstream and downstream limits of the sampling unit. Depths were measured using a stadia rod at one-quarter, one-half, and three-quarters of the distance across each of the width cross-sections from the right to left bank. Stream gradient (water surface slope) over the total length of each sampling site was measured using a clinometer.

Stream habitat, fish cover, and substrate types were visually estimated by percent surface area of the total sampling site. Stream *habitat* types were defined as:

- *Pool* habitat included areas with nearly zero velocity and relatively deep/pooled water;
- *Run* habitat included areas with uniform, laminar flow and moderate depth;
- *Riffle* habitats included areas with shallow depth and visible surface turbulence; and
- *Pocket water* included areas where eddies or scour holes are formed behind boulders or other large instream objects in a moderate- to fast-moving stream section.

Fish *cover* types include surface turbulence, instream objects, undercut bank, and overhanging vegetation within 48 inches of the water surface. The *substrate* types, distinguished by size in millimeters (mm), were:

- Organic debris or vegetation
- Fine sediment (less than 2 mm)
- Sand (2 to 8 mm)
- Gravel (8 to 75 mm)
- Cobble (75 to 305 mm)
- Boulder (greater than 305 mm)
- Bedrock

A Yellow Springs Instrument Professional Plus water quality meter was used to measure water temperature (degrees Celsius [°C]), dissolved oxygen (milligrams per liter [mg/L]), pH (standard units), and conductivity (microsiemen per centimeter [µS/cm] to °C) at each sampling site. Streamflow upstream and downstream of Fairview Dam was estimated for each day of surveying from SCE gages.

2.2 Electrofishing

Quantitative electrofishing surveys were conducted at three sites downstream of Fairview Dam following a multiple-pass depletion protocol (comprehensive sampling) described by Reynolds (1996), in which captured fish are temporarily removed from the sample site during sequential passes and returned to the stream once sampling is completed. Biologists used 1/8-inch mesh block nets to prevent migration into and out of the sample site and to facilitate an accurate assessment of the sample population. The electrofishing crew consisted of seven biologists—two to three biologists were equipped with Smith-Root LR-24 or LR-20 backpack electrofishing units, and the remaining biologists were responsible for netting fish. Electrofishing unit settings were selected at the beginning of the first pass at each sample site using an auto-run feature and were adjusted based on fish response.

Captured fish were placed in 5-gallon buckets equipped with aerators, and then transferred to a large, aerated holding tank for processing. No anesthetic was applied to the captured fish. All captured fish longer than 40 mm were identified to species, measured for length to the nearest millimeter fork length, and weighed to the nearest tenth of a gram. When large numbers of a fish species less than 40 mm were encountered, a subsample of at least 50 fish were measured to fork length and weighed; the remaining fish were counted and, if trout, were weighed in bulk. Each fish processed was examined for disease or injury and its condition noted on the field datasheets. Scale samples were collected from rainbow trout (*Oncorhynchus mykiss*) for age determinations, and the origin of each rainbow trout was determined to be either wild or hatchery by visually assessing wear on fins and/or stubbed rostrums (snouts). Scale samples from captured trout were taken from above the lateral line just below the dorsal fin and stored in labeled envelopes indicating sample site, date, species, and fork length.

2.3 Direct Observation Sampling

Direct observation sampling was conducted via snorkeling at all monitoring sites by a team of five biologists. Snorkel surveys were conducted in habitats that were too deep to effectively sample by electrofishing. Daytime underwater visibility was determined at each site immediately prior to the snorkel survey. Visibility was determined by measuring the horizontal distance (feet) from which a diver could see a Secchi disk facing into the sun and facing away from the sun. Prior to sampling, all divers observed a graduated rod to calibrate length estimations and familiarized themselves with local species traits in a non-sampling pool. Consistent with prior monitoring years, direct observations of fish were grouped into the following total length size classes: 0–3, 3–6, 6–12, 12–16, and 16+ inches.

The stream channel was visually divided into swimming lanes parallel to the direction of stream flow. Where possible, divers swam upstream in an aligned group approximately 6 feet apart. Snorkelers identified, counted, and made visual total-length estimates of fish within their respective lanes while moving at a slow, uniform pace.

At the monitoring site Above Johnsondale Bridge, high flows prevented snorkelers from swimming upstream in the middle of the channel, and the river right bank was not safely accessible. Consequently, two snorkelers floated from the upstream extent of the unit down the middle of the channel, while the left bank was surveyed from downstream to upstream. Only the portion of the stream surveyed was included in the density and biomass estimates.

Three repeat passes were made through each site to account for variability among observations and to allow for bounded count population estimates. Upon completion of the survey, fish

observations were compiled and recorded on datasheets. Small cyprinids less than 40 mm long that could not be adequately identified during snorkel surveys as either hardhead (*Mylopharadon conocephalus*) or Sacramento pikeminnow (*Ptychocheilus grandis*) were classified as "mixed minnow."

2.3.1 Snorkeling Methods Comparison

The first snorkel site was surveyed in both daylight and at night. A comparison of night and day snorkeling results was then made to determine the most effective survey timing for the remainder of the direct observation monitoring sites. Direct observation sampling for the methods comparison was conducted following the protocols described in Section 2.3 above, within 1 day of each other, and within the same unit boundaries. The number of fish observed, species composition, and size class distribution were compared between day and night snorkeling to determine the survey timing that provided the most accurate and comprehensive observation totals.

2.4 Analysis

2.4.1 Population Estimates

Fish capture data from each electrofishing pass were tallied for focal species (rainbow trout, Sacramento sucker [*Catostomus occidentalis*], and Sacramento pikeminnow) and entered into MicroFish 3.0 (Van Deventer and Platts 1989), where a maximum-likelihood, k-pass removal method was used to estimate population size and generate 95% confidence intervals.

At electrofishing sites where depletion numbers did not allow use of the maximum likelihood estimator (i.e., low counts, or where the number of fish observed during each subsequent pass did not decrease), the population estimate for the site was set to the total number of that species captured at the site. For sites where the lower bounds of the 95% confidence intervals were estimated to be lower than the total number of fish observed, the values of the lower bounds of the 95% confidence intervals were adjusted to equal the sum of fish captured during all passes.

Data collected during direct observation snorkel surveys were used to estimate population size using the bounded counts estimator (Robson and Whitlock 1964):

$$\widetilde{y}_B = d_{[m]} + (d_{[m]} - d_{[m-1]})$$

where $d_{[m]}$ is the maximum number of fish counted during any pass and $d_{[m-1]}$ is the second highest count; counts were arranged in ascending order as:

$$d_{[1]} \le d_{[2]} \le d_{[3]} \le \cdots \le d_{[m-1]} \le d_{[m]}$$

Ninety-five percent confidence intervals were calculated for 2023 observations based on Robson and Whitlock (1964) and Routledge (1982), as cited in Mohr and Hankin (2005). The lower bound (N_L) was calculated as:

$$N_L = d_{[m]}$$

The upper bound (N_U) was calculated as:

$$N_U = d_{[m]} + [(1-\alpha)/\alpha] \cdot [d_{[m]} - d_{[m-1]}]$$

where α is the level of significance (i.e., α=0.05 for calculation of a 95 percent confidence interval) unless $d_{[m]} = d_{[m-1]}$, in which case the upper bound for the confidence interval is equivalent to the abundance estimate, and the coverage probability for the confidence interval tends to be poor (Robson and Whitlock 1964). In these instances, an adjustment proposed by Routledge (1982) provides improved coverage probabilities to the confidence intervals used, where upper bound is estimated as:

$$N_U = d_{[m]} + (1-\alpha)/(\alpha f)$$

where *f* is the number of times that the highest dive count is repeated.

Assumptions underlying the use of the bounded counts estimator include:

- No fish are double-counted on any given pass.
- All fish present can be observed.
- Diver observation probability is constant over all *m* dives.

2.4.2 Species Densities, Biomass, and Age Class Distribution

Density and biomass data from prior monitoring reports were standardized to commonly used units (i.e., number of fish per acre and pounds per acre of stream). Where no population estimates were available from single-pass snorkel surveys during prior monitoring years, the total number of fish observed was used in lieu of the population estimate to calculate minimum density and biomass estimates. Where population estimates were available, density estimates were calculated for target species from the population estimates of the site divided by the site surface area:

$$\text{Density (number/acre)} = \frac{\text{Site population estimate}}{\text{Site surface area (acre)}}$$

Biomass estimates (pounds per surface acre) were calculated for individual trout species at each site using multiple pass regression analysis software developed by Van Deventer and Platts (1989).

Biomass per acre (*B.ac*) was calculated as:

$$\hat{B}.ac = \overline{w} \cdot \hat{d},$$

where $\overline{w}$ is the average fish weight and $\hat{d}$ is the estimated density for the segment.

Rainbow trout scales were analyzed using a dissecting microscope to allow annual rings, or annuli, to be distinguished for age estimation and to validate age/size class determinations according to methods described by Lux (1971).

3 RESULTS

3.1 Stream Habitat

Stream flow in 2023 at sites upstream of Fairview Dam ranged from 569 to 627 cubic feet per second (cfs) and from 83 to 84 cfs at the sites downstream of Fairview Dam (Table 3-1). Water quality conditions indicated well oxygenated water with temperatures from 10 to 18ºC and moderately low conductivity. Runs were the most prevalent habitat type within the sites, and surface turbulence and instream objects provided the most fish cover. Underwater visibility during direct observation surveys ranged from 6 to 32 feet facing the sun and 5 to 18 feet facing away from the sun. Physical habitat, water quality, and habitat characteristics measurements are provided for each sampling site in Table 3-1.

Representative photos of monitoring sites are provided in Appendix A. Summary tables of habitat data are provided in Appendix B.

Table 3-1. Habitat and water quality measurements at monitoring sites, 2023.

Site	Above Johnsondale Bridge	Above Fairview Dam	Roads End		Goldledge		Hospital Flat		Headquarters
Sampling Method	**Direct Obs.**	**Direct Obs.**	**Electrofish**	**Direct Obs.**	**Electrofish**	**Direct Obs.**	**Electrofish**	**Direct Obs.**	**Direct Obs.**
Date	**Oct. 6**	**Oct. 4**	**Oct. 9**	**Oct. 5**	**Oct. 7**	**Oct. 5**	**Oct. 11**	**Oct. 5, 6**	**Oct. 7**
Streamflow and Site Dimensions									
Approximate streamflow (cfs)	569	627	83	84	83	84	83	84, 84	83
Site length (m)	83.0	50.6	65.1	62.9	72.4	71.8	82.0	171.7	169.0
Mean width (m)	24.3	32.9	17.8	17.6	26.2	20.1	26.4	24.2	31.4
Surface area (m^2)	2,017	1,665	1,159	1,107	1,897	1,443	2,165	4,155	5,307
Mean depth (m)	1.0	1.1	0.5	0.7	0.4	0.8	0.6	0.9	1.0
Maximum depth (m)	1.8	2.0	1.1	1.2	0.9	1.2	1.4	2.6	2.2
Gradient (%)	<1	3	<1	3	1.5	1	<1	1	0
Water Quality									
Time	11:47	16:29	11:15	11:00	10:25	14:53	12:46	16:31	11:17
Water temperature (ºC)	11.4	13.1	12.9	12.1	13.1	15.4	13.4	17.7	12.1
Conductivity (µS/cm to °C)	68.4	69.6	77.7	71.2	108.0	108.4	108.3	114.8	71.2
Dissolved oxygen (mg/L)	10.97	10.18	10.34	11.80	9.39	10.6	9.42	9.42	11.80
Habitat Type (% of site)									
Pool	0	0	0	0	5	0	30	5	100
Run	95	50	95	10	5	85	70	0	0
Riffle	0	50	5	0	90	0	0	0	0
Pocket water	5	<1	0	90	0	15	0	95	0

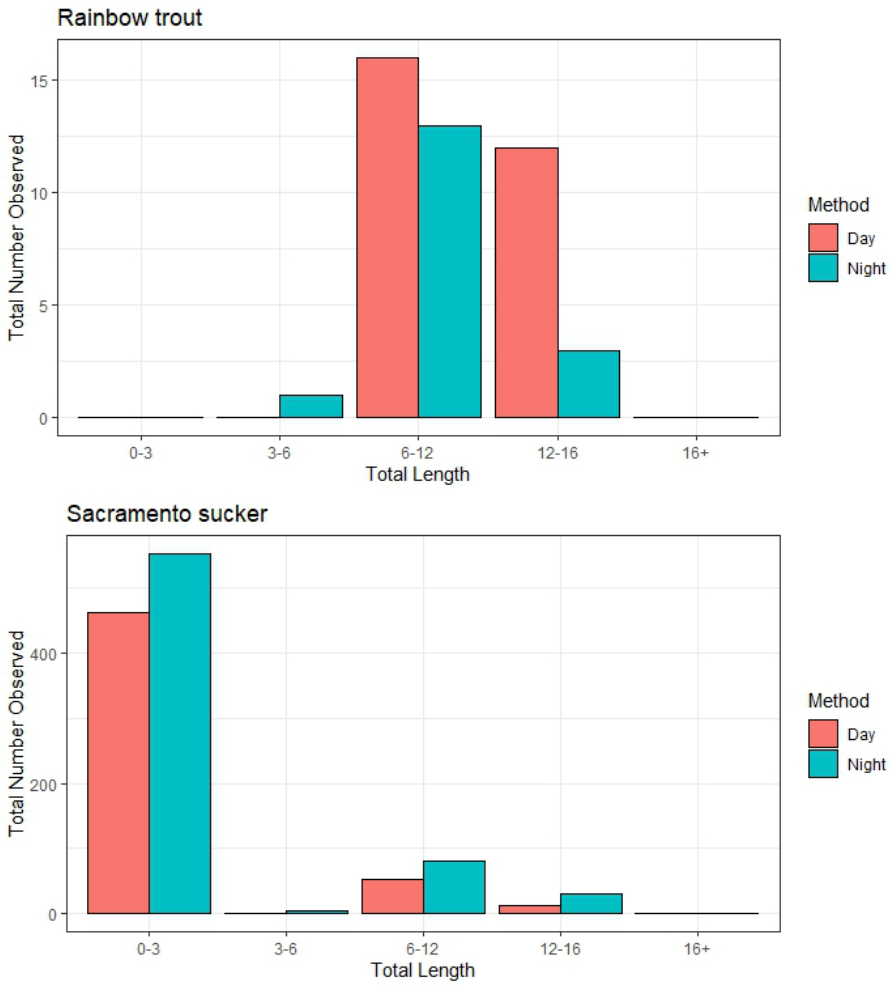
Site	Above Johnsondale Bridge	Above Fairview Dam	Roads End		Goldledge		Hospital Flat		Headquarters
Sampling Method	**Direct Obs.**	**Direct Obs.**	**Electrofish**	**Direct Obs.**	**Electrofish**	**Direct Obs.**	**Electrofish**	**Direct Obs.**	**Direct Obs.**
Date	**Oct. 6**	**Oct. 4**	**Oct. 9**	**Oct. 5**	**Oct. 7**	**Oct. 5**	**Oct. 11**	**Oct. 5, 6**	**Oct. 7**
Fish Cover (% of site)									
Surface turbulence	<5	30	<1	45	30	15	0	30	0
Instream object	0	0	25	0	11	<1	31	10	0
Undercut bank	<1	0	<1	0	5	<1	0	5	5
Overhanging vegetation	<1	<1	0	0	1	0	0	0	<1
Substrate (% of site, visual estimates)									
Organic debris / vegetation	0	<1	NA	0	NA	<1	NA	0	0
Fines (<2 mm)	0	<1	0	0	0	<1	0	0	5
Sand (2–7 mm)	15	<1	5	5	10	10	10	5	45
Gravel (8–75 mm)	0	5	0	0	5	<1	5	<1	0
Cobble (76–300 mm)	75	70	35	70	50	10	45	<1	35
Boulder (>300 mm)	5	20	35	70	50	10	35	90	10
Bedrock	5	5	0	0	5	5	5	5	0

Notes: °C = degree Celsius
< = less than
> = greater than
cfs = cubic feet per second
m = meter
m^2 = square meter
mg/L = milligram per liter
mm = millimeter

3.2 Snorkeling Methods Comparison

Results of an initial comparison of daytime and nighttime snorkeling at the Roads End direct observation site demonstrated little variability in species composition and abundance (Figure 3-1). Fish composition at the Roads End site during the methods comparison included rainbow trout and Sacramento sucker. Higher counts of rainbow trout between 6 and 16 inches in length were observed during daytime surveys, while slightly fewer Sacramento suckers of all size bins were observed during daytime surveys compared with nighttime surveys. Because there were no discernable patterns or benefits observed between the two methods, daytime snorkeling was conducted for the remainder of the effort considering survey logistics and safety.

The lower pool segment of the Hospital Flat snorkeling site was also resurveyed at night to ensure that no potential hardhead were missed during the daytime snorkeling effort; the same species composition was observed during day and night snorkeling efforts. Data for both surveys are included in Appendix C.



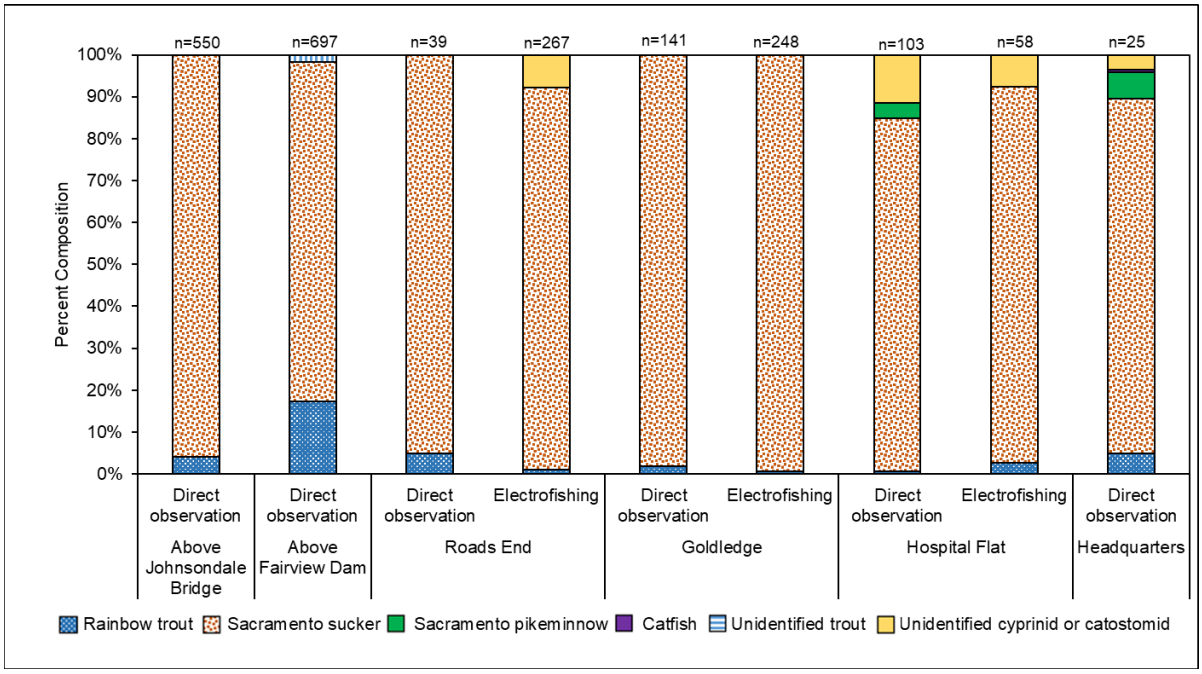
Note: For the methods comparison, the total number observed is the total number of fish observed across all snorkeling passes.

Figure 3-1. Comparison of fish species observed during daytime and nighttime snorkeling at the Roads End direct observation monitoring site, 2023.

3.3 Fish Species Composition and Distribution

Native Sacramento sucker and Sacramento pikeminnow, and non-native rainbow trout and catfish were observed during 2023 fish monitoring. Sacramento sucker was the dominant species observed across all sites in 2023 (Figure 3-2). A total of 61 rainbow trout were observed across all direct observation sites, where only one rainbow trout was captured at each electrofishing site. Sacramento pikeminnow were only observed at the two downstream-most sites. Catfish (channel catfish [*Ictalurus punctatus*] and unidentified catfish species) were observed for the first time during the Fish Population Monitoring efforts; however, they were observed only at the downstream-most site, which was added in 2023. Numerous larval fish were observed and identified as either cyprinid or catostomid during surveys. The total number of each fish species captured by electrofishing and highest count of each fish species observed during snorkeling at each of the sampling sites in 2023 is provided in Table 3-2. Individual fish capture and observation data are provided in Appendix C.

Although no brown trout (*Salmo trutta*) were observed during the 2023 surveys, one brown trout, with an estimated total length of 6 to 12 inches, was observed incidentally in a pool downstream of the monitoring site Above Fairview Dam during snorkeler calibration.



Note: Catfish includes channel catfish (*Ictalurus punctatus*) and unidentified catfish species.

Figure 3-2. Fish species composition at sites surveyed in the North Fork Kern River, 2023.

Table 3-2. Number of fish observed by electrofishing and direct observation at monitoring sites, 2023.

Site	Electrofishing[1]			Direct Observation[1]					
Species	**RBT**	**SKR**	**UNKC**	**RBT**	**PKM**	**SKR**	**UNKC**	**CAT**	**UNKT**
Above Johnsondale Bridge	NA			1	0	24	0	0	0
Above Fairview Dam	NA			10	0	47	0	0	1
Roads End	1	94	8	12	0	236	0	0	0
Goldledge	1	140	0	5	0	262	0	0	0
Hospital Flat	1	35	3	4	26	587	80	0	0
Headquarters	NA			29	37	497	21	4	0

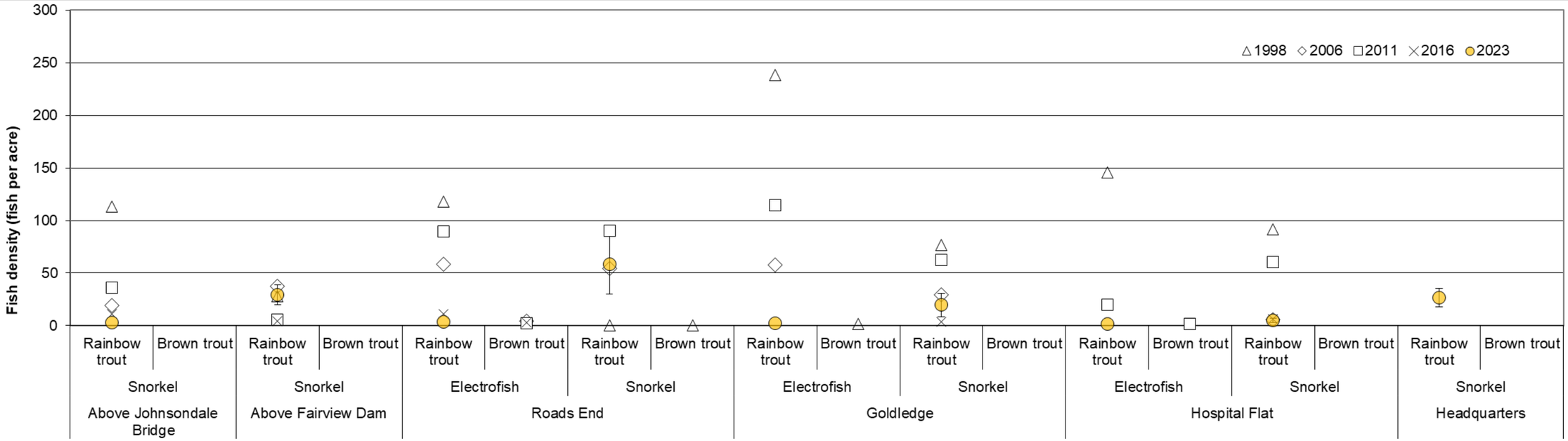
Notes: CAT = Catfish species
NA = Not applicable
PKM = Sacramento pikeminnow
RBT = Rainbow trout
SKR = Sacramento sucker
UNKC = Unidentified cyprinid (minnow) or catostomid (sucker)
UNKT = Unidentified trout

[1] The total number of fish captured (electrofishing) or highest count observed in one pass (snorkeling) by species was used to determine observation totals.

3.4 Population Density and Biomass

Trout densities were relatively low in 2023 compared with prior survey years, and densities show a consistently decreasing trend from 1998 to 2023 (Figure 3-3). While Sacramento pikeminnow have been observed in low numbers historically across all survey sites, they were absent from most sites in 2023 (Figure 3-4). Conversely, Sacramento sucker densities were relatively high at the deeper snorkel sites and relatively low to moderate at electrofishing sites, compared with prior survey years, with no discernable patterns over time (Figure 3-4).

Low trout biomass levels in 2023 generally reflect the few fish captured at electrofishing sites (Figure 3-5). Density, biomass, and trout condition data are provided in Appendix B.



Note: Confidence intervals could not be calculated for rainbow trout captured at electrofishing sites in 2023 due to low catch rates.

Figure 3-3. Estimated rainbow trout and brown trout densities (fish/acre) at electrofishing and direct observation (snorkel) sites in 1998 (ENTRIX 1999), 2006 (ECORP 2007), 2011 (SCE 2012), 2016 (SCE 2016), and 2023.

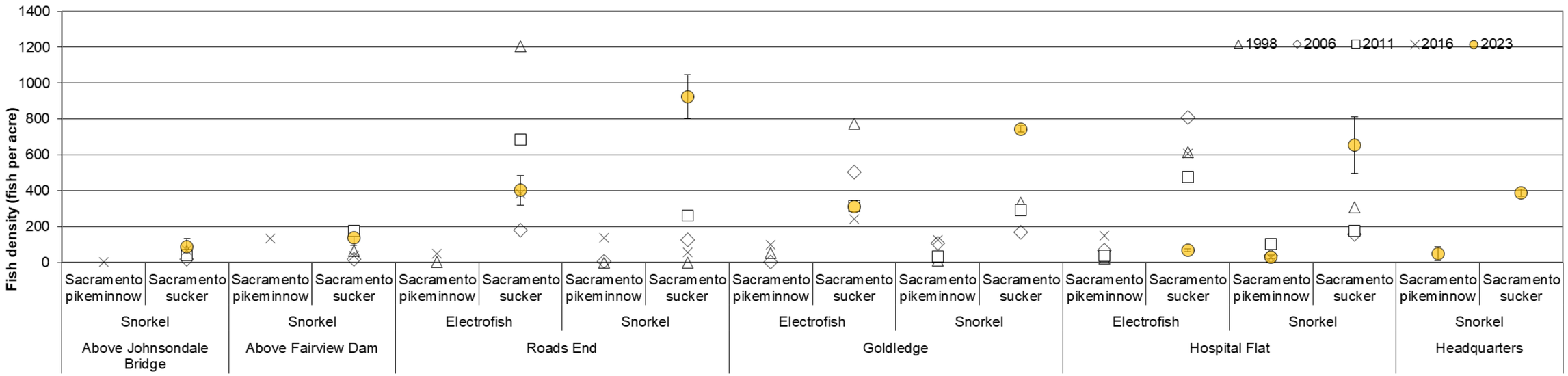
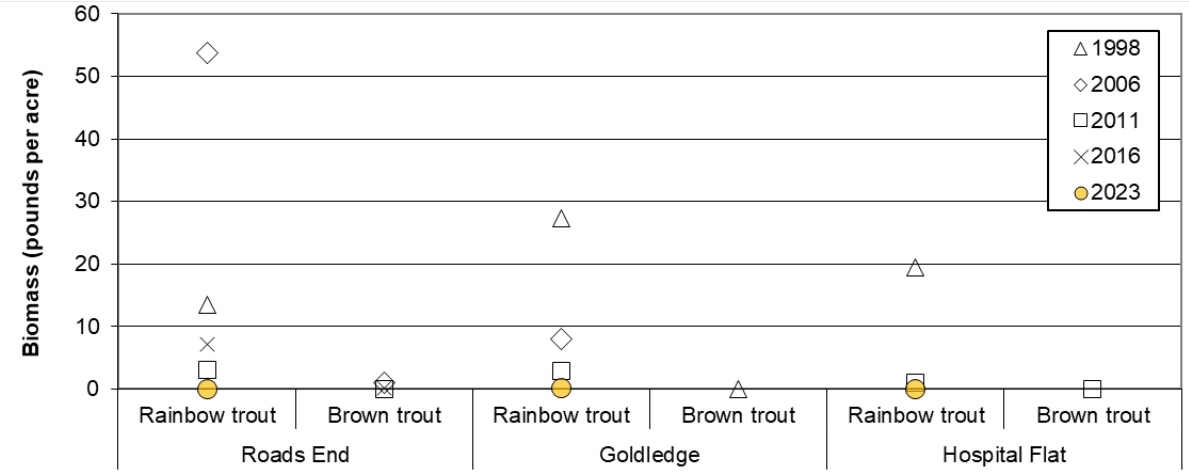


Figure 3-4. Estimated Sacramento pikeminnow and Sacramento sucker densities (fish/acre) at electrofishing and direct observation (snorkel) sites in 1998 (ENTRIX 1999), 2006 (ECORP 2007), 2011 (SCE 2012), 2016 (SCE 2016), and 2023.



Note: Confidence intervals could not be calculated for rainbow trout captured at electrofishing sites in 2023 due to low catch rates.

Figure 3-5. Trout biomass (pounds/acre) at electrofishing sites in 1998 (ENTRIX 1999), 2006 (ECORP 2007), 2011 (SCE 2012), 2016 (SCE 2016), and 2023.

3.5 Age Structure and Length Distribution

Rainbow trout showed an atypical age-class distribution, with most individuals observed within the 6- to 12-inch (153 to 305 mm) size class and no fish observed under 3 inches (75 mm), indicating low natural recruitment in 2023. This distribution may reflect recent fish stocking activities (discussed below in Section 4.1). The two rainbow trout captured at electrofishing sites in 2023 with fork lengths of 75 and 84 mm belonged to the young-of-the-year (YOY) age class, and the rainbow trout with a fork length of 248 mm belonged to the 2+ age class, according to scale analysis. These trout were in good condition and did not show any signs of hatchery marking (e.g., worn or deformed fins). The YOY trout appeared to be from natural spawning, which indicates limited recruitment in 2023.

Sacramento sucker showed a more typical age-class distribution, with most individuals observed falling within the 0- to 3-inch (0 to 75 mm) size class and fewer fish in the larger size classes. Sacramento sucker was the most abundant species observed in 2023 and included a large cohort of YOY and larval fish (Figure 3-2).

The Sacramento pikeminnow observed were all within the 6- to 12-inch (153 to 305 mm) size class, which would indicate low recruitment in 2023; however, it is possible that a portion of the 100+ unidentified cyprinids (minnows) or catostomids (suckers) were larval pikeminnow (Table 3-2, Figure 3-6).

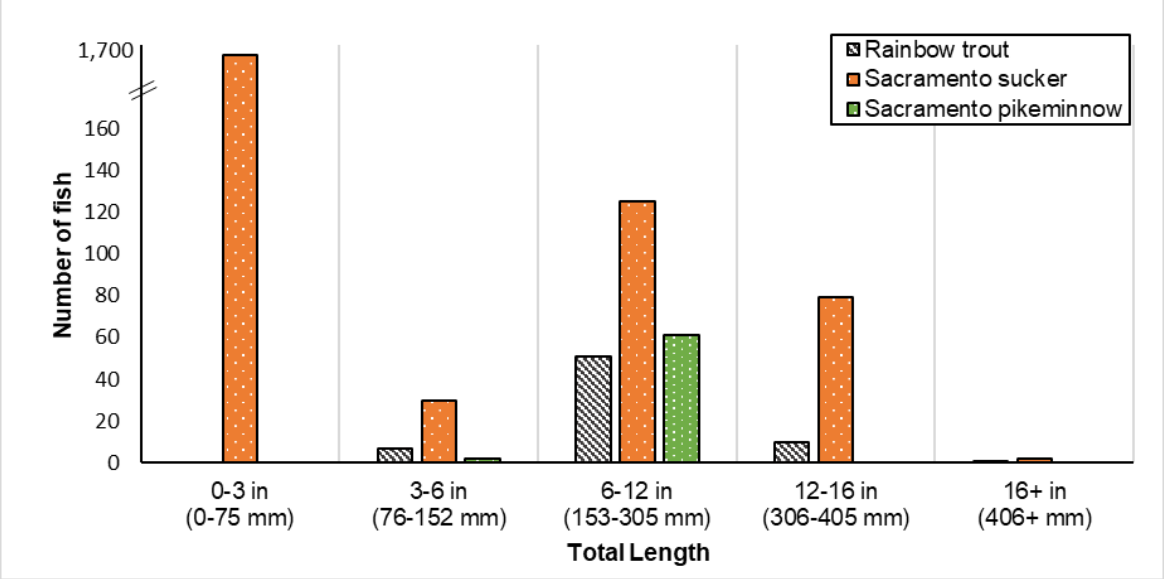


Figure 3-6. Length-frequency distribution of fish observed at electrofishing and direct observation sites, 2023.

4 DISCUSSION AND RECOMMENDATIONS

4.1 Discussion

4.1.1 Survey Conditions

Stream flows upstream of Fairview Dam (569–627 cfs) resulted in challenging conditions for direct observation surveys and required modifications of snorkeling methods within swift habitat. Additionally, although flows downstream of Fairview Dam were near minimum flow levels (80 cfs), conditions for backpack electrofishing at one location (Roads End) were nonetheless swift and deep, requiring the site to be shifted slightly upstream. These challenges and modifications to the methods and site location may have affected sampling effectiveness; however, a suitable alternative site was located near the original electrofishing site at Roads End, and all data were standardized to the survey area, which minimizes any effect of survey area changes.

4.1.2 Fish Populations

Portions of the NFKR are managed as a put-and-take trout fishery by CDFW (FERC and Forest Service 1996, CDFW 2021). CDFW regularly stocks the NFKR with catchable rainbow trout (i.e., trout weighing between 0.25 and 0.75 pound each), currently from the San Joaquin River Hatchery, and in 2023, more than 9,800 rainbow trout were released in the reach between Brush Creek (a tributary of the NFKR with its confluence upstream of Fairview Dam; see Figure 1-1) and the KR3 Powerhouse prior to the fish sampling effort (SCE 2021; Branch, pers. comm., 2024). Although relatively few trout were observed in 2023, most were rainbow trout within the catchable size group (e.g., 6–12 inches), likely reflecting the recent stocking within the reaches. Given the low numbers of rainbow trout observed both upstream and downstream of Fairview Dam, it is unclear if those fish dispersed outside of the survey areas during the higher flows in

2023, or whether high recreational fishing pressure removed the large quantities of stocked trout from survey reaches prior to the surveys.

Three naturally spawned rainbow trout were captured at electrofishing sites downstream of Fairview Dam, which are presumed to be from naturalized historical (non-sterile) stocked populations. Given that divers were unable to differentiate between naturally spawned and hatchery-appearing trout during snorkel surveys, it is possible that additional naturally spawned fish were present and unaccounted for at snorkel sites.

The limited recruitment of YOY rainbow trout in 2023 may also reflect the stocking of catchable-size trout within the study area. Between 2001 and 2020, an average of 41,100 rainbow trout were planted in the NFKR annually between Brush Creek and the KR3 Powerhouse (CDFW 2021). Although not native to the survey area, naturalized rainbow trout from historical stocked populations may be affected by the stocking of larger trout, which compete for resources and may prey upon smaller trout (Vincent 1987). Additionally, the stocking amounts, timing, and distribution of sterile versus non-sterile rainbow trout in the North Fork Kern River is uncertain (Branch, pers. comm., 2024). The stocking of sterile rainbow trout may decrease the overall fecundity of the remnant naturalized population, because the stocked sterile trout may unsuccessfully attempt to reproduce with naturalized non-sterile trout, decreasing the overall reproductive success of the local population (Knipling 1955). If a majority of stocked fish within the study reaches were sterile, this may have had an effect on natural recruitment in the reaches.

The limited recruitment of rainbow trout in 2023 could also reflect poor spawning conditions during the preceding five years of drought, including the second driest year on record in 2022, and/or flood-level flows in 2023. However, both rainbow trout and Sacramento suckers spawn in the spring and early summer, on the descending limb of the snowmelt runoff, and the suckers showed a strong recruitment of YOY fish in 2023, although their spawning timing appears to have been delayed.

While Sacramento pikeminnow were previously observed at all sites downstream of Fairview Dam, they were observed in 2023 only at the two downstream-most direct observation sites—Hospital Flat and Headquarters. Similarly, even with additional deep pool habitat sampled in the reach downstream of Fairview Dam, no hardhead were observed at any monitoring site in 2023 and have not been observed at monitoring sites in the NFKR since 1998.

4.2 Recommendations

Although the Plan originally included electrofishing upstream of Fairview Dam, the sites upstream of Fairview Dam were surveyed using only direct observation in 2006, 2011, 2016, and now 2023 due to flow conditions (either high-flow conditions, or as in 2016, to avoid undue stress to native fish during drought conditions) (ECORP 2007, SCE 2012, SCE 2016). In 2021, the resource agencies and SCE adopted prior recommendations to continue direct observation surveys upstream of Fairview Dam.

Given the large size of the NFKR and current population of suckers, stocked trout, and few other species, Stillwater Sciences found limited benefit to the electrofishing surveys and recommends any future monitoring include methods that can be implemented consistently across a greater range of flows. Direct observation may accommodate a greater range of flows; however, as experienced in 2021 and 2022, surveys may be affected by fall storm flows and increased

turbidity. Therefore, Stillwater Sciences also recommends direct observation surveys occur earlier in summer, when not limited by other factors, such as high flows.

Continuing the three-pass snorkel methods, in lieu of multiple-pass electrofishing, would still allow for estimates of fish abundance and density. Although biomass could not be calculated for snorkel sites, information on biomass is available on stocked trout populations from stocking records. If adopted, Stillwater Sciences also recommends continuing the comparison of day/night snorkeling methods at the beginning of each monitoring year to establish the ideal survey timing under different hydrological conditions. Lastly, Stillwater Sciences recommends modifying the size bins for direct observation surveys to 25- or 50-mm size bins to allow for more precision in data analysis.

5 CONSULTATION

The draft 2023 Fish Population Monitoring Report was provided to CDFW, Forest Service, National Parks Service, and U.S. Fish and Wildlife Service on January 26, 2024, for review. No comments were received on the draft report.

Agency representatives from the Forest Service and CDFW attended a consultation meeting on February 14, 2024, to discuss the 2023 monitoring results and any preliminary comments. During the meeting, SCE presented a summary of monitoring results, discussion, and recommendations. Documentation of agency consultation, including attendees and notes from the consultation meeting, are included in Appendix D.

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Appendices

Appendix A

Representative Photographs of Fish Monitoring Sites and Captured Fish

Figure A-1. Upstream end of direct observation site Above Johnsondale Bridge, looking downstream, North Fork Kern River, October 6, 2023.

Figure A-2. Downstream end of direct observation site Above Johnsondale Bridge, looking upstream, North Fork Kern River, October 6, 2023.

Figure A-3. Middle of direct observation site Above Fairview Dam, looking from river left, North Fork Kern River, October 4, 2023.

Figure A-4. Upstream block net at Roads End electrofishing site, looking downstream, North Fork Kern River, October 9, 2023.

Figure A-5. Downstream block net at Roads End electrofishing site, looking upstream, North Fork Kern River, October 9, 2023.

Figure A-6. Downstream end of Roads End direct observation site, looking upstream, North Fork Kern River, October 4, 2023.

Figure A-7. Roads End direct observation site, looking at downstream end, North Fork Kern River, October 4, 2023.

Figure A-8. Upstream block net at Goldledge electrofishing site, looking downstream, North Fork Kern River, October 7, 2023.

Figure A-9. Downstream block net at Goldledge electrofishing site, looking upstream, North Fork Kern River, October 7, 2023.

Figure A-10. Upstream end of Goldledge direct observation site, looking downstream, North Fork Kern River, October 5, 2023.

Figure A-11. Downstream end of Goldledge direct observation site, looking upstream, North Fork Kern River, October 5, 2023.

Figure A-12. Upstream end of Hospital Flat electrofishing site, looking downstream, North Fork Kern River, October 11, 2023.

Figure A-13. Downstream block net at Hospital Flat electrofishing site, looking upstream, North Fork Kern River, October 11, 2023.

Figure A-14. Upstream end of prior Hospital Flat direct observation site, looking downstream, North Fork Kern River, October 5, 2023.

Figure A-15. Downstream end of prior Hospital Flat direct observation site, looking upstream, North Fork Kern River, October 5, 2023.

Figure A-16. Upstream end of the Hospital Flat direct observation pool added in 2023, looking downstream, North Fork Kern River, October 6, 2023.

Figure A-17. Downstream end of the Hospital Flat pool direct observation pool, looking upstream, North Fork Kern River, October 6, 2023.

Figure A-18. Upstream end of Headquarters direct observation site, looking downstream, North Fork Kern River, October 7, 2023.

Figure A-19. Downstream end of Headquarters direct observation site, looking upstream, North Fork Kern River, October 7, 2023.

Figure A-20. Sacramento sucker (*Catostomus occidentalis*) captured at Roads End electrofishing site, North Fork Kern River, October 9, 2023.

Figure A-21. Sacramento sucker (*Catostomus occidentalis*) captured at Roads End electrofishing site, North Fork Kern River, October 9, 2023.

Figure A-22. Rainbow trout (*Oncorhynchus mykiss*) captured at Hospital Flat electrofishing site, North Fork Kern River, October 11, 2023.

Figure A-23. Unidentified catfish species (*Ictalurus* spp.) observed at Headquarters direct observation site, North Fork Kern River, October 7, 2023.

Appendix B

Fish Population Surveys Data Summary Tables and Length-Frequency Histograms, 1998–2023

Table B-1. Physical habitat conditions at three electrofishing sites, North Fork Kern River, 1998, 2006, 2011, 2016, and 2023.

Parameter	Roads End					Goldledge					Hospital Flat				
Year sampled	1998	2006	2011	2016	2023[1]	1998	2006	2011	2016	2023	1998	2006	2011	2016	2023
Date	10/13	10/28	10/10	10/23	10/9	10/13	10/28	10/10	10/18	10/7	10/13	10/28	10/10	10/19	10/11
Time (military)	1015	1445	1150	1500	1115	1300	900	1202	1330	1025	1309	900	1033	1030	1246
Site Dimensions															
Site (reach) length (m)	70.0	100.0	105.0	94.2	65.1	75.0	60.0	66.0	73.2	72.4	82.0	90.0	90.0	82.8	82.0
Mean width (m)	14.4	17.6	18.4	15.3	17.8	27.0	27.8	28.1	26.7	26.2	30.9	29.1	29.2	27.0	26.4
Surface area (m^2)	1,014	1,760	1,935	1,437	1,159	2,040	1,666	1,848	1,952	1,897	2,543	2,619	2,617	2,232	2164.8
Mean Depth (m)	0.9	0.5	0.7	0.5	0.5	0.6	0.4	0.5	0.4	0.4	0.5	0.5	0.6	0.5	0.6
Maximum Depth (m)	1.3	0.9	1.3	0.9	1.1	1.1	1	1	0.8	0.9	1.3	1.7	1.4	0.9	1.4
Water Quality															
Water temperature (°C)	8	8.3	12	8.44	12.9	12	7.4	12.9	10.51	13.1	12	7.7	11.5	8.95	13.4
Specific conductivity (µS/cm)	70	71	87	192	101	100	85	122	218	140	100	85	128	219	139.2
Dissolved oxygen (mg/L)	9.8	10.3	10.8	10.3	10.34	9.4	11.4	8.4	10	9.39	9	11.1	9.8	10.5	9.42
Habitat Type (% of site)															
Pool	0	0	5	10	0	0	25	15	10	5	0	25	5	5	30
Run	100	65	40	30	95	40	35	25	25	5	25	75	80	80	70
Riffle	0	35	30	15	5	40	40	55	60	90	75	0	5	5	0
Pocketwater	0	0	25	45	0	20	0	5	5	0	0	0	10	10	0
Substrate (% of site)															
Fines	0	0	5	<5	0	2	3	5	5	0	0	2	5	5	0
Sand	10	20	5	10	5	15	17	20	10	10	15	48	30	30	10
Gravel	5	5	10	5	0	13	15	15	10	5	30	5	10	5	5
Cobble	25	15	30	40	35	29	30	30	50	50	40	35	25	50	45
Boulder	60	60	50	45	60	50	35	30	25	30	15	10	30	10	35
Bedrock	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5

Notes: °C = degree Celsius
µS/cm = microsiemen per centimeter
m = meter
m^2 = square meter
mg/L = milligram per liter

[1] The electrofishing site at Goldledge was moved upstream in 2023 from the prior site location due to depth and flow conditions that prevented effective sampling.

Table B-2. Physical habitat conditions at direct observation sites, North Fork Kern River, 1998, 2006, 2011, 2016, and 2023.

Parameter	Above Johnsondale Bridge					Above Fairview Dam					Roads End					Goldledge					Hospital Flat					Headquarters
Year sampled	**1998**	**2006**	**2011**	**2016**	**2023**	**1998**	**2006**	**2011**	**2016**	**2023**	**1998**	**2006**	**2011**	**2016**	**2023[1]**	**1998**	**2006**	**2011**	**2016**	**2023**	**1998**	**2006**	**2011**	**2016**	**2023**	**2023**
Date	10/17	11/1	10/15	10/21	10/6	10/18	10/26	10/16	10/21	10/4	--	10/31	10/15	10/20	10/5	10/15	10/26	10/15	10/18	10/5	10/14	10/26	10/9	10/19	10/5, 10/6	10/7
Time	1220	1030	1543	1020	1147	1015	1030	952	1230	1629	--	930	1133	1415	1100	1145	1530	935	1535	1453	1145	1300	1530	1415	1631, 1653	1117
Site Dimensions																										
Site (reach) length (m)	50	30	51	85.3	83	50	50	41	53.9	50.6	--	40	49	45.3	62.9	50	50	68	59.4	71.8	30	30	32	32.9	171.7	169
Mean width (m)	20	25	26.4	23.6	24.3	15	30	30.3	26.6	32.9	--	18.7	21.9	19.7	17.6	18	30	20.9	18.2	20.1	25	25	21	19.6	24.2	31.4
Surface area (m^2)	1,000	750	1,349	2,015	2,017	750	1,500	1,247	1,437	1,665	--	748	1,082	891	1107	900	1,500	1,424	1,084	1,443	750	750	679	646	4,155	5307
Mean depth (m)	2	1.5	--	1.2	1	1.5	1	--	0.9	1.1	--	0.5	0.7	0.6	0.7	1.8	0.4	0.7	0.7	0.8	1.4	1	0.8	0.6	0.9	1
Maximum depth (m)	2.5	2.5	~2	2.1	1.8	3	2	~2.5	2.3	2	--	1	1.2	1	1.2	3.7	1.2	1.6	1.2	1.2	2	2	1.4	1.1	2.6	2.2
Water Quality																										
Water temperature (°C)	--	6.5	12.5	7.58	11.4	--	7.6	10.7	10.01	13.1	--	5.8	11.7	11.31	12.1	--	10.7	12.2	13.17	15.4	--	11.3	14.6	13.34	17.7, 18.4	12.1
Specific conductivity (µS/cm)	--	93	85	190	--	--	75	86	187	90.1	--	67	85	187	94.4	--	81	116	215	132.7	--	80	126	213	133.6, 134.9	71.2
Dissolved oxygen (mg/L)	--	11.4	9.2	10.39	10.97	--	11.2	10	9.91	10.18	--	12	9.5	9.7	11.8	--	10.4	9.7	9.4	10.6	--	10.1	8.8	9.5	9.54, 8.97	11.8
Habitat Type (% of site)																										
Pool	0	20	30	85	0	0	0	5	20	0	--	5	5	0	0	100	5	20	<5	0	0	5	35	10	82	100
Run	100	65	60	5	95	100	100	85	40	50	--	70	55	55	10	0	90	65	75	85	0	90	10	75	0	0
Riffle	0	15	5	5	0	0	0	5	10	45	--	25	5	5	0	0	5	0	5	0	0	5	5	5	0	0
Pocketwater	0	0	5	5	5	0	0	5	30	5	--	0	35	40	90	0	0	15	20	15	100	0	50	10	18	0
Substrate (% of site)																										
Fines	0	2	5	10	0	0	2	5	0	<1	--	2	5	5	0	0	3	5	<2	<1	0	1	5	5	0	0
Sand	30	18	20	40	15	20	8	20	10	<1	--	20	15	20	5	30	20	30	25	10	5	1	25	20	5	5
Gravel	10	10	5	10	0	10	12	5	10	5	--	8	10	15	0	0	2	5	5	<1	5	8	5	5	0	45
Cobble	20	35	20	10	75	50	8	25	30	70	--	40	20	15	75	0	50	25	25	10	30	25	20	20	65	0
Boulder	40	30	40	30	5	10	60	30	30	20	--	30	50	45	20	10	25	35	45	75	60	65	45	50	29	35
Bedrock	0	5	10	0	5	10	10	15	20	5	--	0	0	0	0	60	0	0	0	5	0	0	0	0	1	10

Notes: °C = degree Celsius
µS/cm = microsiemen per centimeter
m = meter
m^2 = square meter
mg/L = milligram per liter

[1] An additional pool was added to the Hospital Flat direct observation site and sampled on 10/6/2023 to target adult hardhead habitat.

Table B-3. Estimates of fish density for rainbow trout, brown trout, Sacramento sucker, and Sacramento pikeminnow at electrofishing and direct observation sites, North Fork Kern River, 1998, 2006, 2011, 2016, and 2023.

Site	Survey Method	Year[1]	Density (fish/acre)			
			Rainbow trout	Brown trout	Sacramento pikeminnow	Sacramento sucker
Above Johnsondale Bridge	Direct Observation	1998	113	0	0	65
		2006	19	0	0	19
		2011	36	0	0	42
		2016	11	0	3	68
		2023	3	0	0	88
Above Fairview Dam	Direct Observation	1998	28	0	0	65
		2006	38	0	0	16
		2011	6	0	0	174
		2016	4	0	135	36
		2023	29	0	0	136
Roads End	Electrofishing	1998	118	0	4	1205
		2006	59	5	0	178
		2011	89	2	0	686
		2016	11	3	48	386
		2023	3	0	0	402
	Direct Observation	1998	--	--	--	--
		2006	54	0	5	124
		2011	91	0	0	260
		2016	0	0	136	54
		2023	59	0	0	925
Goldledge	Electrofishing	1998	238	2	51	773
		2006	58	0	2	504
		2011	114	0	0	314
		2016	0	0	98	242
		2023	2	0	0	311
	Direct Observation	1998	76	0	9	333
		2006	30	0	105	170
		2011	63	0	31	293
		2016	4	0	127	0
		2023	20	0	0	744

Site	Survey Method	Year[1]	Density (fish/acre)			
			Rainbow trout	Brown trout	Sacramento pikeminnow	Sacramento sucker
Hospital Flat	Electrofishing	1998	146	0	22	616
		2006	0	0	68	810
		2011	20	2	36	476
		2016	0	0	150	607
		2023	2	0	0	67
	Direct Observation	1998	92	0	0	308
		2006	5	0	38	156
		2011	60	0	102	175
		2016	6	0	25	0
		2023	5	0	31	653
Headquarters	Direct Observation	2023	27	0	49	388

[1] Densities for 1998, 2006, 2011, and 2016 were calculated using the total number of fish observed. Densities in 2023 were calculated using population estimates for the monitoring site.

Table B-4. Estimates of fish biomass for rainbow trout, brown trout, Sacramento sucker, and Sacramento pikeminnow at electrofishing sites, North Fork Kern River,1998, 2006, 2011, 2016, and 2023.

Site	Year	Biomass (lbs/acre)			
		Rainbow trout	Brown trout	Sacramento pikeminnow	Sacramento sucker
Roads End	1998	13.38	0.00	0.68	441.38
	2006	53.68	0.96	0.00	116.34
	2011	3.01	0.05	0.00	195.84
	2016	7.17	0.12	0.70	204.50
	2023	<0.1	0.00	0.00	152.37
Goldledge	1998	27.33	0.03	0.53	206.13
	2006	8.06	0.00	0.00	215.34
	2011	2.92	0.00	0.00	63.56
	2016	0.00	0.00	1.94	93.50
	2023	0.18	0.00	0.00	36.38
Hospital Flat	1998	19.43	0.00	0.29	82.87
	2006	0.00	0.00	4.87	13.46
	2011	1.01	0.03	0.40	10.76
	2016	0.00	0.00	1.19	3.17
	2023	<0.1	0.00	0.00	9.40

Table B-5. Natural-spawned rainbow trout size, condition, and relative abundance at electrofishing sites, North Fork Kern River, 1998, 2006, 2011, 2016, and 2023.

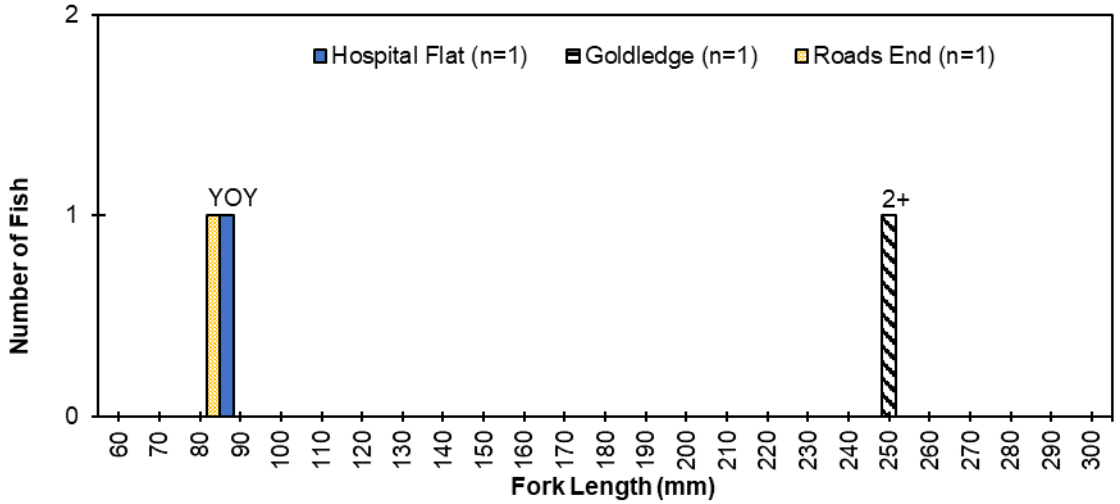
Age Class	Length Range (mm)[1]	Average Length (mm)	Average Weight (g)	Average Condition Factor (K-value[2])	Percent Natural Spawned
Roads End					
1998					
Age 0+	91–95	94	9	1.1	23
Age 1+	103–136	119	21	1.2	35
Age 2+	156–201	183	72	1.2	23
Age 3+	211–229	217	113	1.1	19
2006					
Age 0+	102	102	12	1.2	2
Age 1+	92–215	146	42	1.1	79
Age 2+	186–220	210	114	1.2	19
2011					
Age 0+	76–138	104	14	1.2	85
Age 1+	182–192	189	78	1.2	11
Age 2+	255	255	192	1.2	4
2016					
Age 0+	---	---	---	---	0
Age 1+	108	108	15	1.2	25
Age 2+	---	---	---	---	0
Age 3+	241	241	157	1.1	25
Age 4+	244–415	330	494	1.2	50
2023					
Age 0+	75	75	4	1.1	100
Age 1+	---	---	---	---	0
Age 2+	---	---	---	---	0
Goldledge					
1998					
Age 0+	81–101	92	9	1.2	28
Age 1+	101–135	115	18	1.2	44
Age 2+	156–232	192	81	1.1	25
Age 3+	189-252	221	123	1.1	3
2006					
Age 0+	89	89	7	1.0	7
Age 1+	113–178	141	36	1.2	80
Age 2+	237–252	246	183	1.2	13

Age Class	Length Range (mm)[1]	Average Length (mm)	Average Weight (g)	Average Condition Factor (K-value[2])	Percent Natural Spawned
2011					
Age 0+	93–139	111	15	1.1	76
Age 1+	170–226	195	77	1.0	22
Age 2+	259	259	179	1.0	2
2016					
	No trout captured at this site in 2016				
2023					
Age 0+	---	---	---	---	0
Age 1+	---	---	---	---	0
Age 2+	248	248	173	1.0	100
Hospital Flat					
1998					
Age 0+	77–98	87	8	1.2	11
Age 1+	98–147	117	19	1.2	53
Age 2+	162–222	195	78	1.1	29
Age 3+	200–244	215	117.5	1.1	8
2006					
	No trout captured at this site in 2006				
2011					
Age 0+	79–132	106	15	1	78
Age 1+	221–228	225	124	1	22
Age 2+	---	---	---	---	0
2016					
	No trout captured at this site in 2016				
2023					
Age 0+	84	84	7	1.2	100
Age 1+	---	---	---	---	0
Age 2+	---	---	---	---	0

[1] Use of fork and/or total length was inconsistent, or not reported over the monitoring period
[2] K-value (Fulton's Condition Factor) = (Weight/Fork Length) x 100,000 (Ricker 1975)

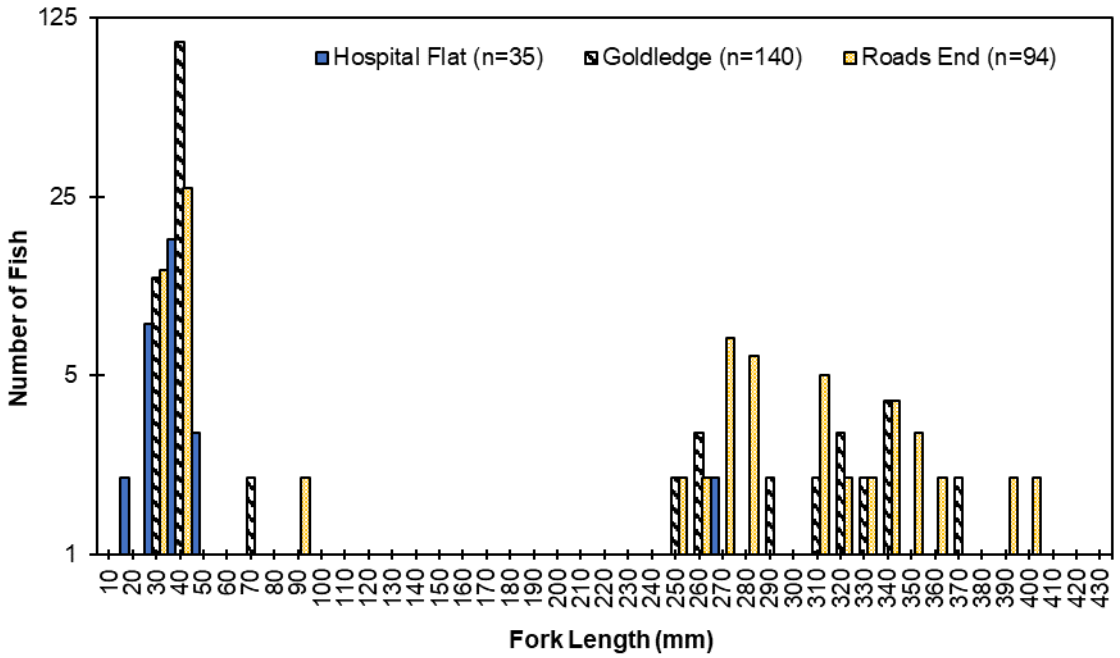
Table B-6. Fish observed during daytime and nighttime snorkeling comparisons at Roads End direct observation site, North Fork Kern River, 2023.

Survey Method	Species	Size Bin (inches)	Total Number of Fish Observed[1]		
			Pass 1	Pass 2	Pass 3
Day Snorkel	Rainbow trout	0–3	0	0	0
		3–6	0	0	0
		6–12	5	6	5
		12–16	3	6	3
		16+	0	0	0
	Sacramento sucker	0–3	191	207	64
		3–6	0	0	0
		6–12	35	10	7
		12–16	10	2	0
		16+	0	0	0
Night Snorkel	Rainbow trout	0–3	0	0	0
		3–6	0	0	1
		6–12	5	7	1
		12–16	1	2	0
		16+	0	0	0
	Sacramento sucker	0–3	120	210	223
		3–6	1	3	0
		6–12	44	26	11
		12–16	12	11	8
		16+	0	0	1



Note: Results of scale analysis of trout captured at Hospital Flat and Roads End are listed above each column.

Figure B-1. Length frequency distribution of rainbow trout captured at Hospital Flat, Goldledge, and Roads End electrofishing sites, 2023.



Note: Tally counts of Sacramento sucker in the 0-40mm fork length size bin are included in the 30-40mm column.

Figure B-2. Length frequency distribution of Sacramento sucker captured at Hospital Flat, Goldledge, and Roads End electrofishing sites, North Fork Kern River, 2023.

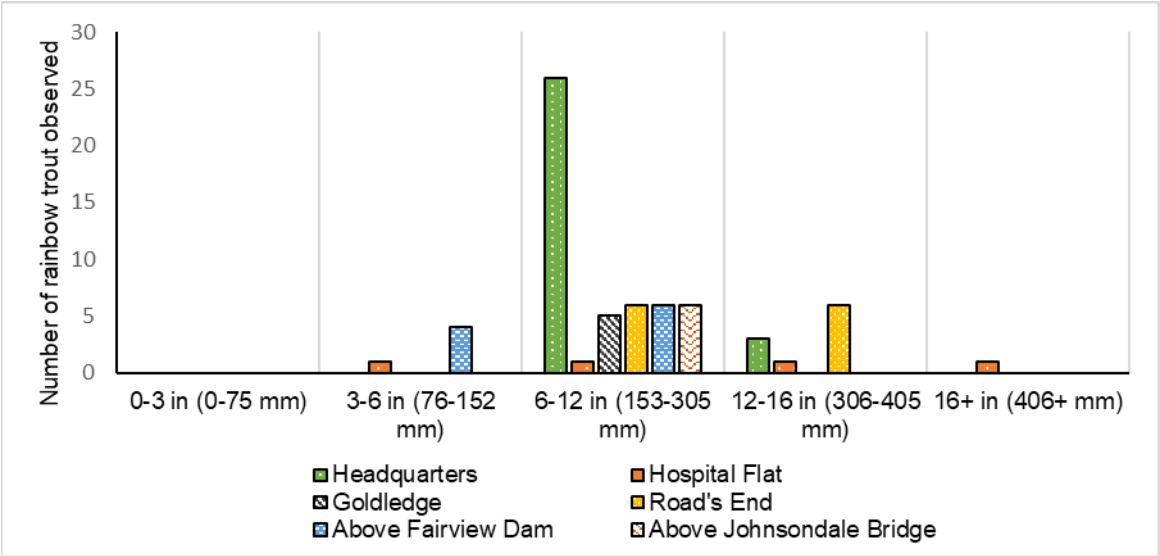


Figure B-3. Length frequency distribution of rainbow trout observed at direct observation sites, North Fork Kern River, 2023.

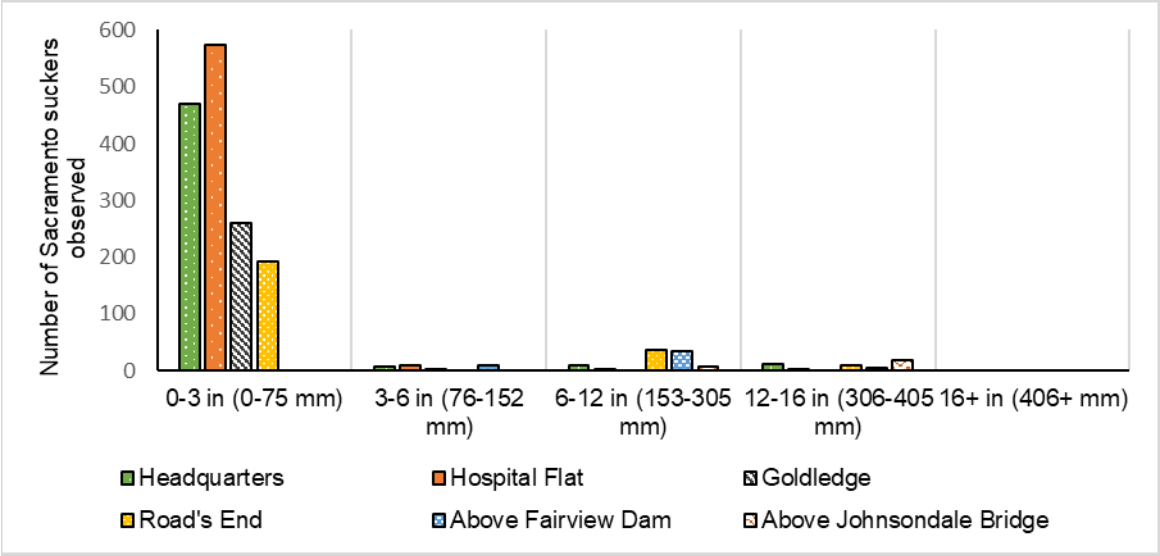


Figure B-4. Length frequency distribution of Sacramento sucker observed at direct observation sites, North Fork Kern River, 2023.

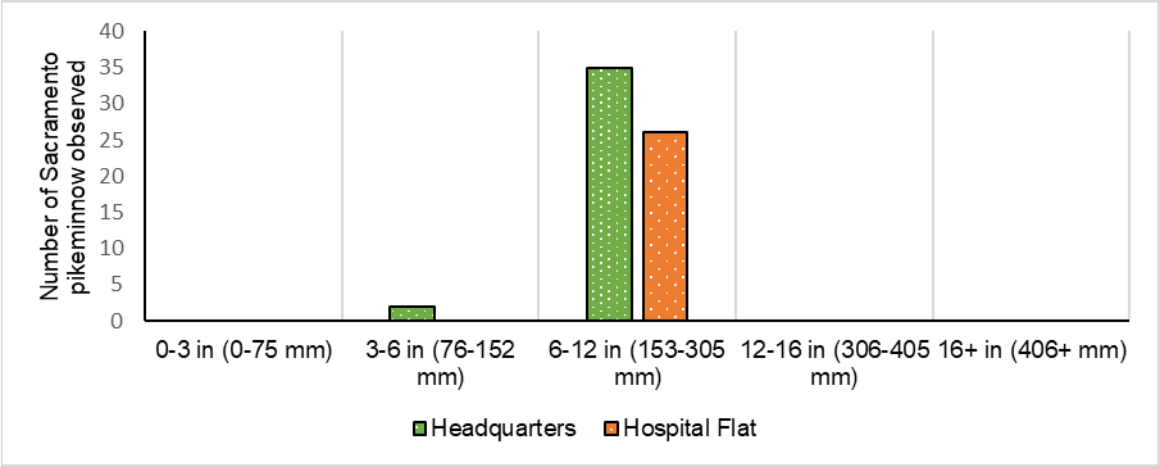


Figure B-5. Length frequency distribution of Sacramento pikeminnow observed at direct observation sites, North Fork Kern River, 2023.

Appendix C

Individual Fish Capture and Observation Data, 2023

Table C-1. Individual fish capture data at electrofishing sites, North Fork Kern River, 2023.

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/9/2023	Roads End	Electrofishing	1	SSK	391	1	690	
10/9/2023	Roads End	Electrofishing	1	SSK	308	1	400	
10/9/2023	Roads End	Electrofishing	1	SSK	271	1	250	
10/9/2023	Roads End	Electrofishing	1	SSK	340	1	490	
10/9/2023	Roads End	Electrofishing	1	SSK	275	1	260	
10/9/2023	Roads End	Electrofishing	1	SSK	147	1	42.7	
10/9/2023	Roads End	Electrofishing	1	SSK	336	1	470	
10/9/2023	Roads End	Electrofishing	1	SSK	385	1	570	
10/9/2023	Roads End	Electrofishing	1	SSK	334	1	460	
10/9/2023	Roads End	Electrofishing	1	SSK	330	1	410	
10/9/2023	Roads End	Electrofishing	1	SSK	344	1	420	
10/9/2023	Roads End	Electrofishing	1	SSK	310	1	340	
10/9/2023	Roads End	Electrofishing	1	SSK	355	1	500	
10/9/2023	Roads End	Electrofishing	1	SSK	260	1	218.3	
10/9/2023	Roads End	Electrofishing	1	SSK	269	1	232.1	
10/9/2023	Roads End	Electrofishing	1	SSK	272	1	233.3	
10/9/2023	Roads End	Electrofishing	1	SSK	242	1	160.9	
10/9/2023	Roads End	Electrofishing	1	SSK	277	1	235.9	
10/9/2023	Roads End	Electrofishing	1	SSK	370	1	590	
10/9/2023	Roads End	Electrofishing	1	SSK	252	1	184.4	
10/9/2023	Roads End	Electrofishing	1	SSK	208	1	112.2	
10/9/2023	Roads End	Electrofishing	1	SSK	250	1	177.1	
10/9/2023	Roads End	Electrofishing	1	SSK	270	1	231.7	
10/9/2023	Roads End	Electrofishing	1	SSK	229	1	147	

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/9/2023	Roads End	Electrofishing	1	SSK	75	1	5.4	
10/9/2023	Roads End	Electrofishing	1	SSK	82	1	7.2	
10/9/2023	Roads End	Electrofishing	1	SSK	114	1	10.1	
10/9/2023	Roads End	Electrofishing	1	RBT	75	1	4.1	Natural
10/9/2023	Roads End	Electrofishing	1	SSK	86	1	7.3	
10/9/2023	Roads End	Electrofishing	1	SSK	25–50	17	---	
10/9/2023	Roads End	Electrofishing	1	UNKC	25–50	6	---	
10/9/2023	Roads End	Electrofishing	2	SSK	391	1	690	
10/9/2023	Roads End	Electrofishing	2	SSK	342	1	480	
10/9/2023	Roads End	Electrofishing	2	SSK	385	1	580	
10/9/2023	Roads End	Electrofishing	2	SSK	380	1	560	
10/9/2023	Roads End	Electrofishing	2	SSK	354	1	460	
10/9/2023	Roads End	Electrofishing	2	SSK	344	1	440	
10/9/2023	Roads End	Electrofishing	2	SSK	335	1	390	
10/9/2023	Roads End	Electrofishing	2	SSK	272	1	250	
10/9/2023	Roads End	Electrofishing	2	SSK	264	1	215.7	
10/9/2023	Roads End	Electrofishing	2	SSK	268	1	200.1	
10/9/2023	Roads End	Electrofishing	2	SSK	269	1	213	
10/9/2023	Roads End	Electrofishing	2	SSK	94	1	10.1	
10/9/2023	Roads End	Electrofishing	2	SSK	35	1	0.4	
10/9/2023	Roads End	Electrofishing	2	UNKC	24	1	0.2	
10/9/2023	Roads End	Electrofishing	2	SSK	263	1	210.5	
10/9/2023	Roads End	Electrofishing	2	SSK	281	1	239.7	
10/9/2023	Roads End	Electrofishing	2	UNKC	22	1	0.1	
10/9/2023	Roads End	Electrofishing	2	SSK	411	1	810	
10/9/2023	Roads End	Electrofishing	2	SSK	301	1	330	

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/9/2023	Roads End	Electrofishing	2	SSK	328	1	390	
10/9/2023	Roads End	Electrofishing	2	SSK	303	1	310	
10/9/2023	Roads End	Electrofishing	2	SSK	28	1	0.1	
10/9/2023	Roads End	Electrofishing	2	SSK	28	1	0.1	
10/9/2023	Roads End	Electrofishing	2	SSK	30	1	0.2	
10/9/2023	Roads End	Electrofishing	2	SSK	35	1	0.2	
10/9/2023	Roads End	Electrofishing	2	SSK	34	1	0.2	
10/9/2023	Roads End	Electrofishing	2	SSK	26	1	0.1	
10/9/2023	Roads End	Electrofishing	2	SSK	312	1	340	
10/9/2023	Roads End	Electrofishing	2	SSK	314	1	380	
10/9/2023	Roads End	Electrofishing	2	SSK	275	1	230	
10/9/2023	Roads End	Electrofishing	2	SSK	262	1	220	
10/9/2023	Roads End	Electrofishing	2	SSK	39	1	0.7	
10/9/2023	Roads End	Electrofishing	2	SSK	34	1	0.3	
10/9/2023	Roads End	Electrofishing	2	SSK	34	1	0.3	
10/9/2023	Roads End	Electrofishing	2	SSK	29	1	0.1	
10/9/2023	Roads End	Electrofishing	2	SSK	47	1	0.8	
10/9/2023	Roads End	Electrofishing	2	SSK	37	1	0.4	
10/9/2023	Roads End	Electrofishing	2	SSK	22	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	304	1	290	
10/9/2023	Roads End	Electrofishing	3	SSK	187	1	74.8	
10/9/2023	Roads End	Electrofishing	3	SSK	32	1	0.2	
10/9/2023	Roads End	Electrofishing	3	SSK	26	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	25	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	28	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	37	1	0.4	

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/9/2023	Roads End	Electrofishing	3	SSK	20	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	27	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	28	1	0.2	
10/9/2023	Roads End	Electrofishing	3	SSK	38	1	0.2	
10/9/2023	Roads End	Electrofishing	3	SSK	29	1	0.1	
10/9/2023	Roads End	Electrofishing	3	SSK	28	1	0.1	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	362	1	550	
10/10/2023	Goldledge	Electrofishing	1	SSK	331	1	440	
10/10/2023	Goldledge	Electrofishing	1	SSK	315	1	340	
10/10/2023	Goldledge	Electrofishing	1	SSK	316	1	430	
10/10/2023	Goldledge	Electrofishing	1	SSK	334	1	420	
10/10/2023	Goldledge	Electrofishing	1	SSK	248	1	191.9	
10/10/2023	Goldledge	Electrofishing	1	SSK	253	1	199	
10/10/2023	Goldledge	Electrofishing	1	SSK	220	1	151.4	
10/10/2023	Goldledge	Electrofishing	1	SSK	282	1	250	
10/10/2023	Goldledge	Electrofishing	1	SSK	310	1	350	
10/10/2023	Goldledge	Electrofishing	1	SSK	365	1	580	
10/10/2023	Goldledge	Electrofishing	1	SSK	244	1	153.7	
10/10/2023	Goldledge	Electrofishing	1	SSK	325	1	340	
10/10/2023	Goldledge	Electrofishing	1	SSK	318	1	360	
10/10/2023	Goldledge	Electrofishing	1	SSK	298	1	320	
10/10/2023	Goldledge	Electrofishing	1	SSK	335	1	410	
10/10/2023	Goldledge	Electrofishing	1	SSK	367	1	530	
10/10/2023	Goldledge	Electrofishing	1	SSK	272	1	225.5	
10/10/2023	Goldledge	Electrofishing	1	SSK	254	1	164.7	
10/10/2023	Goldledge	Electrofishing	1	RBT	248	1	172.7	Natural

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/10/2023	Goldledge	Electrofishing	1	SSK	69	1	4	
10/10/2023	Goldledge	Electrofishing	1	SSK	39	1	0.7	
10/10/2023	Goldledge	Electrofishing	1	SSK	32	1	0.4	
10/10/2023	Goldledge	Electrofishing	1	SSK	32	1	0.6	
10/10/2023	Goldledge	Electrofishing	1	SSK	52	1	1.9	
10/10/2023	Goldledge	Electrofishing	1	SSK	33	1	0.3	
10/10/2023	Goldledge	Electrofishing	1	SSK	28	1	0.1	
10/10/2023	Goldledge	Electrofishing	1	SSK	33	1	0.5	
10/10/2023	Goldledge	Electrofishing	1	SSK	29	1	0.1	
10/10/2023	Goldledge	Electrofishing	1	SSK	30	1	0.5	
10/10/2023	Goldledge	Electrofishing	1	SSK	44	1	1.1	
10/10/2023	Goldledge	Electrofishing	1	SSK	28	1	0.2	
10/10/2023	Goldledge	Electrofishing	1	SSK	33	1	0.2	
10/10/2023	Goldledge	Electrofishing	1	SSK	27	1	0.2	
10/10/2023	Goldledge	Electrofishing	1	SSK	33	1	0.2	
10/10/2023	Goldledge	Electrofishing	1	SSK	28	1	0.2	
10/10/2023	Goldledge	Electrofishing	1	SSK	32	1	0.2	
10/10/2023	Goldledge	Electrofishing	1	SSK	27	1	0.1	
10/10/2023	Goldledge	Electrofishing	1	SSK	33	1	0.3	
10/10/2023	Goldledge	Electrofishing	1	SSK	34	1	0.4	
10/10/2023	Goldledge	Electrofishing	1	SSK	34	1	0.3	
10/10/2023	Goldledge	Electrofishing	1	SSK	27	1	0.3	
10/10/2023	Goldledge	Electrofishing	1	SSK	34	1	0.3	
10/10/2023	Goldledge	Electrofishing	1	SSK	26	1	0.4	
10/10/2023	Goldledge	Electrofishing	1	SSK	37	1	0.8	
10/10/2023	Goldledge	Electrofishing	1	SSK	37	1	0.7	

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/10/2023	Goldledge	Electrofishing	1	SSK	25–50	47	---	
10/10/2023	Goldledge	Electrofishing	1	SSK	62	1	3.5	
10/10/2023	Goldledge	Electrofishing	2	SSK	302	1	70	
10/10/2023	Goldledge	Electrofishing	2	SSK	322	1	400	
10/10/2023	Goldledge	Electrofishing	2	SSK	337	1	480	
10/10/2023	Goldledge	Electrofishing	2	SSK	32	1	0.5	
10/10/2023	Goldledge	Electrofishing	2	SSK	27	1	0.4	
10/10/2023	Goldledge	Electrofishing	2	SSK	29	1	0.4	
10/10/2023	Goldledge	Electrofishing	2	SSK	28	1	0.3	
10/10/2023	Goldledge	Electrofishing	2	SSK	25–50	31	---	
10/10/2023	Goldledge	Electrofishing	3	SSK	25–50	8	---	
10/10/2023	Goldledge	Electrofishing	3	SSK	284	1	260	
10/10/2023	Goldledge	Electrofishing	3	SSK	259	1	240	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	413	1	765	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	302	1	350	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	272	1	230	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	279	1	295	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	29	1	0.1	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	51	1	1.9	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	48	1	0.9	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	46	1	1.2	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	37	1	0.4	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	34	1	0.5	
10/11/2023	Hospital Flat	Electrofishing	1	UNKC	16	1	---	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	45	1	0.8	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	39	1	0.8	

Date	Site	Sample Method	Pass	Species	Fork Length (mm)	Count	Weight	Condition
10/11/2023	Hospital Flat	Electrofishing	1	SSK	50	1	1.7	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	29	1	0.3	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	45	1	0.8	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	36	1	0.6	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	34	1	0.6	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	48	1	1.5	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	47	1	1.4	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	53	1	1.7	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	43	1	1	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	42	1	1	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	49	1	1.6	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	41	1	0.8	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	52	1	2	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	46	1	1.2	
10/11/2023	Hospital Flat	Electrofishing	1	SSK	44	1	1.1	
10/11/2023	Hospital Flat	Electrofishing	2	SSK	46	1	1.1	
10/11/2023	Hospital Flat	Electrofishing	2	SSK	37	1	0.4	
10/11/2023	Hospital Flat	Electrofishing	2	SSK	35	1	0.4	
10/11/2023	Hospital Flat	Electrofishing	2	UNKC	22	1	0.1	
10/11/2023	Hospital Flat	Electrofishing	2	SSK	41	1	0.8	
10/11/2023	Hospital Flat	Electrofishing	2	SSK	42	1	0.9	
10/11/2023	Hospital Flat	Electrofishing	2	SSK	39	1	0.8	
10/11/2023	Hospital Flat	Electrofishing	2	UNKC	10	1	0.1	
10/11/2023	Hospital Flat	Electrofishing	2	RBT	84	1	7	Natural
10/11/2023	Hospital Flat	Electrofishing	2	SSK	49	1	1	

Notes: mm = millimeter, RBT = rainbow trout, SSK = Sacramento sucker, UNKC = unknown larval cyprinid or catostomid

Table C-2. Fish observation data at direct observation sites, North Fork Kern River, 2023.

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	1	SSK	12–16	5
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	1	SSK	12–16	6
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	1	SSK	6–12	3
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	1	SSK	12–16	6
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	1	SSK	6–12	4
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	2	SSK	12–16	1
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	2	SSK	6–12	4
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	2	SSK	12–16	1
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	2	RBT	6–12	1
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	2	SSK	12–16	4
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	3	SSK	6–12	7
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	3	SSK	12–16	2
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	3	RBT	6–12	1
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	3	SSK	6–12	2
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	3	SSK	12–16	1
10/6/2023	Above Johnsondale Bridge	NA	Direct Observation	3	SSK	12–16	3
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	6–12	15
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	12–16	3
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	3–6	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	RBT	3–6	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	UNKT	0–3	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	RBT	6–12	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	6–12	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	0–3	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	RBT	6–12	1

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	6–12	3
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	6–12	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	1	SSK	12–16	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	3–6	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	6–12	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	12–16	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	6–12	10
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	3–6	8
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	RBT	3–6	3
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	RBT	6–12	4
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	RBT	3–6	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	RBT	6–12	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	6–12	21
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	12–16	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	SSK	6–12	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	2	RBT	6–12	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	12–16	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	6–12	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	3–6	11
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	RBT	3–6	4
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	6–12	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	RBT	3–6	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	RBT	6–12	2
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	0–3	1
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	6–12	20
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	SSK	12–16	2

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/4/2023	Above Fairview Dam	NA	Direct Observation	3	RBT	6–12	1
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	6–12	30
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	12–16	7
10/5/2023	Roads End	Day comparison	Direct Observation	1	RBT	6–12	5
10/5/2023	Roads End	Day comparison	Direct Observation	1	RBT	12–16	3
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	0–3	32
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	6–12	1
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	12–16	2
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	12–16	1
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	6–12	4
10/5/2023	Roads End	Day comparison	Direct Observation	1	SSK	0–3	159
10/5/2023	Roads End	Day comparison	Direct Observation	2	SSK	0–3	160
10/5/2023	Roads End	Day comparison	Direct Observation	2	RBT	6–12	1
10/5/2023	Roads End	Day comparison	Direct Observation	2	RBT	6–12	5
10/5/2023	Roads End	Day comparison	Direct Observation	2	RBT	12–16	6
10/5/2023	Roads End	Day comparison	Direct Observation	2	SSK	0–3	37
10/5/2023	Roads End	Day comparison	Direct Observation	2	SSK	0–3	10
10/5/2023	Roads End	Day comparison	Direct Observation	2	SSK	6–12	10
10/5/2023	Roads End	Day comparison	Direct Observation	2	SSK	12–16	2
10/5/2023	Roads End	Day comparison	Direct Observation	3	SSK	0–3	170+
10/5/2023	Roads End	Day comparison	Direct Observation	3	SSK	6–12	3
10/5/2023	Roads End	Day comparison	Direct Observation	3	RBT	6–12	5
10/5/2023	Roads End	Day comparison	Direct Observation	3	RBT	12–16	3
10/5/2023	Roads End	Day comparison	Direct Observation	3	SSK	0–3	18
10/5/2023	Roads End	Day comparison	Direct Observation	3	SSK	0–3	42
10/5/2023	Roads End	Day comparison	Direct Observation	3	SSK	6–12	4

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/5/2023	Roads End	Day comparison	Direct Observation	3	SSK	0–3	4
10/4/2023	Roads End	Night comparison	Direct Observation	1	RBT	12–16	1
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	0–3	45
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	3–6	1
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	12–16	4
10/4/2023	Roads End	Night comparison	Direct Observation	1	RBT	6–12	2
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	6–12	37
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	12–16	8
10/4/2023	Roads End	Night comparison	Direct Observation	1	RBT	6–12	2
10/4/2023	Roads End	Night comparison	Direct Observation	1	RBT	6–12	1
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	6–12	2
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	0–3	48
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	0–3	27
10/4/2023	Roads End	Night comparison	Direct Observation	1	SSK	6–12	5
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	3–6	3
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	6–12	12
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	12–16	4
10/4/2023	Roads End	Night comparison	Direct Observation	2	RBT	6–12	3
10/4/2023	Roads End	Night comparison	Direct Observation	2	RBT	12–16	2
10/4/2023	Roads End	Night comparison	Direct Observation	2	RBT	6–12	1
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	6–12	4
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	12–16	4
10/4/2023	Roads End	Night comparison	Direct Observation	2	RBT	6–12	1
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	6–12	1
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	0–3	164
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	0–3	46

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	6–12	9
10/4/2023	Roads End	Night comparison	Direct Observation	2	SSK	12–16	3
10/4/2023	Roads End	Night comparison	Direct Observation	2	RBT	6–12	2
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	12–16	2
10/4/2023	Roads End	Night comparison	Direct Observation	3	RBT	6–12	1
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	6–12	1
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	12–16	3
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	0–3	1
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	6–12	10
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	12–16	3
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	16+	1
10/4/2023	Roads End	Night comparison	Direct Observation	3	RBT	3–6	1
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	0–3	61
10/4/2023	Roads End	Night comparison	Direct Observation	3	SSK	0–3	161
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	0–3	93
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	6–12	17
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	12–16	2
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	3–6	9
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	3–6	2
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	6–12	16
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	12–16	2
10/5/2023	Goldledge	NA	Direct Observation	1	RBT	6–12	3
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	0–3	40
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	6–12	13
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	16+	1
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	0–3	61

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	6–12	2
10/5/2023	Goldledge	NA	Direct Observation	1	SSK	12–16	1
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	0–3	76
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	0–3	60+
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	12–16	1
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	0–3	65
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	3–6	4
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	6–12	3
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	0–3	9
10/5/2023	Goldledge	NA	Direct Observation	2	SSK	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	2	RBT	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	3	SSK	0–3	76
10/5/2023	Goldledge	NA	Direct Observation	3	SSK	3–6	2
10/5/2023	Goldledge	NA	Direct Observation	3	RBT	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	3	SSK	0–3	115
10/5/2023	Goldledge	NA	Direct Observation	3	SSK	0–3	60
10/5/2023	Goldledge	NA	Direct Observation	3	RBT	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	3	SSK	0–3	9
10/5/2023	Goldledge	NA	Direct Observation	3	RBT	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	0–3	13
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	3–6	1
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	6–12	2
10/5/2023	Goldledge	NA	Direct Observation	4	RBT	6–12	2
10/5/2023	Goldledge	NA	Direct Observation	4	RBT	6–12	2
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	0–3	46

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	0–3	67
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	4	RBT	6–12	1
10/5/2023	Goldledge	NA	Direct Observation	4	SSK	0–3	90
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	0–3	4
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	6–12	6
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	0–3	3
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	0–3	26
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	3–6	2
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	0–3	20
10/5/2023	Hospital Flat	NA	Direct Observation	1	SSK	3–6	1
10/5/2023	Hospital Flat	NA	Direct Observation	1	RBT	6–12	2
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	0–3	12
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	3–6	1
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	0–3	28
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	3–6	1
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	0–3	36
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	3–6	2
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	0–3	7
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	3–6	1
10/5/2023	Hospital Flat	NA	Direct Observation	2	SSK	6–12	2
10/5/2023	Hospital Flat	NA	Direct Observation	2	RBT	6–12	1
10/5/2023	Hospital Flat	NA	Direct Observation	3	SSK	0–3	55
10/5/2023	Hospital Flat	NA	Direct Observation	3	SSK	0–3	13
10/5/2023	Hospital Flat	NA	Direct Observation	3	SSK	3–6	1

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/5/2023	Hospital Flat	NA	Direct Observation	3	RBT	3–6	1
10/5/2023	Hospital Flat	NA	Direct Observation	3	RBT	6–12	1
10/5/2023	Hospital Flat	NA	Direct Observation	3	SSK	0–3	7
10/5/2023	Hospital Flat	NA	Direct Observation	3	SSK	0–3	60
10/5/2023	Hospital Flat	NA	Direct Observation	3	SSK	3–6	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	0–3	135
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	3–6	3
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	UNKC	0–3	18
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	6–12	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	0–3	10
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	6–12	8
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	12–16	2
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	PKM	6–12	8
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	0–3	100+
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	PKM	6–12	6
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	6–12	4
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	PKM	16+	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	0–3	70
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	0–3	130
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	PKM	3–6	4
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	RBT	6–12	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	3–6	4
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	SSK	12–16	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	1	PKM	12–16	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	0–3	25
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	UNKC	0–3	15

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	0–3	135
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	3–6	10
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	6–12	3
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	RBT	6–12	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	0–3	150+
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	0–3	83
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	UNKC	0–3	10
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	UNKC	0–3	30
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	0–3	25
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	PKM	6–12	9
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	6–12	4
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	12–16	2
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	0–3	120
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	3–6	6
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	PKM	6–12	8
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	UNKC	0–3	25
10/6/2023	Hospital Flat	Day comparison	Direct Observation	2	SSK	12–16	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	0–3	110
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	3–6	4
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	RBT	12–16	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	0–3	130
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	RBT	16+	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	0–3	40
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	PKM	6–12	2
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	6–12	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	PKM	6–12	13

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	12–16	3
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	0–3	45
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	UNKC	0–3	20
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	3–6	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	0–3	115
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	SSK	3–6	1
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	PKM	6–12	11
10/6/2023	Hospital Flat	Day comparison	Direct Observation	3	UNKC	0–3	15
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	0–3	49
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	UNKM	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	0–3	57
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	3–6	5
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	6–12	12
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	12–16	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	16+	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	PKM	6–12	18
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	RBT	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	RBT	16+	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	0–3	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	6–12	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	12–16	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	RBT	6–12	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	PKM	12–16	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	0–3	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	12–16	5

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	RBT	12–16	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	RBT	16+	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	RBT	12–16	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	PKM	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	1	SSK	12–16	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	6–12	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	0–3	62
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	UNKM	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	0–3	87
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	3–6	3
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	PKM	3–6	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	PKM	6–12	4
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	RBT	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	16+	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	0–3	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	6–12	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	RBT	12–16	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	RBT	16+	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	RBT	6–12	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	PKM	6–12	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	2	SSK	0–3	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	12–16	6
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	6–12	2

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	16+	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	RBT	12–16	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	PKM	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	0–3	71
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	16+	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	PKM	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	PKM	6–12	3
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	0–3	3
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	PKM	6–12	5
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	0–3	2
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	0–3	49
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	UNKM	3–6	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	6–12	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	SSK	12–16	1
10/8/2023	Hospital Flat	Night comparison	Direct Observation	3	PKM	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	1	CAT	16+	1
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	12–16	12
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	0–3	40
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	3–6	5
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	6–12	5
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	0–3	55

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	3–6	2
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	6–12	2
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	1	PKM	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	0–3	206
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	0–3	8
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	3–6	2
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	6–12	2
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	3–6	1
10/7/2023	Headquarters	NA	Direct Observation	1	PKM	6–12	8
10/7/2023	Headquarters	NA	Direct Observation	1	UNKC	0–3	1
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	0–3	50
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	6–12	9
10/7/2023	Headquarters	NA	Direct Observation	1	RBT	12–16	2
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	6–12	16
10/7/2023	Headquarters	NA	Direct Observation	1	SSK	12–16	3
10/7/2023	Headquarters	NA	Direct Observation	1	CC	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	1	PKM	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	2	RBT	6–12	6
10/7/2023	Headquarters	NA	Direct Observation	2	RBT	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	6–12	3
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	12–16	2
10/7/2023	Headquarters	NA	Direct Observation	2	CAT	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	2	RBT	6–12	20
10/7/2023	Headquarters	NA	Direct Observation	2	RBT	12–16	2

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	6–12	19
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	12–16	4
10/7/2023	Headquarters	NA	Direct Observation	2	PKM	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	0–3	30
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	0–3	200
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	0–3	50
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	3–6	2
10/7/2023	Headquarters	NA	Direct Observation	2	PKM	6–12	7
10/7/2023	Headquarters	NA	Direct Observation	2	PKM	3–6	1
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	0–3	25
10/7/2023	Headquarters	NA	Direct Observation	2	SSK	0–3	150
10/7/2023	Headquarters	NA	Direct Observation	2	CC	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	3	CAT	16+	3
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	12–16	7
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	16+	1
10/7/2023	Headquarters	NA	Direct Observation	3	PKM	6–12	2
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	0–3	40
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	3–6	3
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	0–3	195
10/7/2023	Headquarters	NA	Direct Observation	3	UNKC	0–3	1
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	6–12	13
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	12–16	3
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	6–12	10
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	12–16	4
10/7/2023	Headquarters	NA	Direct Observation	3	PKM	6–12	3

Date	Site	Comparison Method	Sample Method	Pass	Species	Total Length (inches)	Count
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	0–3	28
10/7/2023	Headquarters	NA	Direct Observation	3	UNKC	0–3	10
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	0–3	69
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	3–6	3
10/7/2023	Headquarters	NA	Direct Observation	3	UNKC	0–3	10
10/7/2023	Headquarters	NA	Direct Observation	3	PKM	6–12	30
10/7/2023	Headquarters	NA	Direct Observation	3	PKM	3–6	2
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	12–16	1
10/7/2023	Headquarters	NA	Direct Observation	3	SSK	0–3	138
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	6–12	1
10/7/2023	Headquarters	NA	Direct Observation	3	RBT	12–16	1

Notes: SSK = Sacramento sucker, RBT = rainbow trout, PKM = Sacramento pikeminnow, CC = channel catfish, CAT = unidentified catfish species, UNKT = unknown trout, UNKM = unknown cyprinid, UNKC = unknown larval cyprinid or catostomid

Appendix D

Consultation

From:	David Moore
To:	Abimael Leon; Chole Hansum; Arvind Bhuta; Watson, Alfred -FS; Karen Miller; Monique Sanchez; Dawn Alvarez; Rice, Barbara M
Cc:	Martin Ostendorf; Russell Liebig; Colleen Kamoroff; Annabelle Howe; Jillian Roach
Subject:	SCE's KR3 2023 Fish Population Monitoring Draft Report
Date:	Friday, January 26, 2024 5:23:56 PM
Attachments:	Kern 3_FishPop_2023_Report_Agency Draft.pdf

Dear Agency Representative,

As part of the current license for the Kern River No. 3 Project (KR3), SCE is to conduct fish population monitoring in accordance with the Fish Population Monitoring Plan (License Article 411). As you recall, SCE had to postpone the 5-year monitoring in 2021 and again in 2022 due to unsafe/poor stream conditions. SCE was able to complete the fish monitoring effort in the fall of 2023.

The attached draft report contains the results of the 2023 monitoring survey and is being provided to you for a 30-day review and comment period. SCE would appreciate receiving any comments by February 26th, in order to meet the Commissions filing deadline of March 1, 2024. SCE will host a meeting on **Wed Feb 14th from 1-2 PM** to review the conclusions and recommendations presented in the report and to facilitate any questions or comments you may have (meeting invite to follow shortly).

Please contact me if you have any questions regarding this request.

Thank you,
David Moore
Southern California Edison
T: 626-861-5918

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KERN RIVER NO. 3 (KR3) HYDROELECTRIC PROJECT (P-2290)
SOUTHERN CALIFORNIA EDISON
FISH POPULATION MONITORING REPORT
AGENCY INFORMATION MEETING

Date:	February 14, 2024
Time:	1:00 pm – 2:00 pm
Purpose of Meeting:	• Review 2023 Fish Population Monitoring Effort • Questions/Comments

ATTENDEES

NAME	ORGANIZATION
David Moore	SCE, Kern 3 Compliance/Relicensing Project Manager
Al Watson	USFS-Sequoia National Forest (SQF), Kern River District Ranger
Karen Miller	USFS, FERC Program Manager, Public Services Staff Officer
Abimael Leon	CDFW, FERC Coordinator
Ronald Rozar	USFS-SQF, Wildlife Biologist
Monique Sancez	USFS, Regional Hydropower Team (RHAT)
Jillian Roach	ERM, Sr. Compliance/Relicensing Project Manager
Annabelle Howe	Stillwater Sciences, Aquatic Resources
Russ Liebig	Stillwater Sciences, Aquatic Resources

MEETING NOTES
Introduced meeting attendees and reviewed meeting agenda.

Meeting slide deck attached.

Notes below summarize questions and next steps:

- Al Watson (SQF): any surprises on the data found/observed
  - Response: The fish observed in 2023 are similar as to what has been observed in the past in that rainbow trout are declining in the reach and no hardhead were observed, even as SCE conducted focused deep pool snorkeling lower in the reach.
- Al Watson (SQF): Is this pattern/species distribution typical/seen in other rivers?
  - Response: Hard to make broad generalizations as this reach is heavily stocked and the species distribution we observed is expected in terms for presence of native vs non-native species.
  - HH were observed early monitoring, but have seen them continually move downstream, and have not been observed since 1998.
- Al Watson (SQF): Given that the area has experienced several drought years, with one large water year in 2023, did that have any impact on species?
  - Response: It could be possible that low water years influenced recruitment of some fish species. However, this year field teams did see high recruitment of Sacrament suckers this year. While it was a high flow year, we would have assumed to see higher recruitment of rainbow trout as well.
- Monique Sanchez (SQF): How deep are some of these pools snorkeled?

    - Response: The deeper pools were located at the downstream sites, with the deepest sections approx. 9 ft. Visibility was good and biologists could see down to bottom. Sacramento suckers were distinguishable from minnows due to their downturned mouth and behavior (foraging along the bottom of the river). If biologists were unable to detect differences between species, they were grouped into a combined minnow and sucker category.
- Monique Sanchez (SQF): If turbidity is an issue during sampling, are there other sampling methods that could be utilized (hardhead specifically)?
    - Response: If there is an assay available, could sample for eDNA in the reach. However, eDNA can only be used to determine if that species was present in the river, it would not provide species density or age class distribution information.
- Monique Sanchez (SQF): This survey was delated due to impacts from Windy Fire, have there been other delays in the past years?
    - Response: Yes, this has happened in past years and the 5yr sampling sequence has been delayed due to high turbidity issues and surveys were delayed seasonally and even postponed until following year as high turbidity and/or higher flows prevented electrofishing effectively/safely.

Next Steps:

- Provide any written comments on the report to Dave Moore by February 26, 2024.
- Reviewed the FERC Revised Process Plan and Schedule and Licensing timeline and due dates based on updated schedule published February 2, 2024.

Kern No. 3 Project (FERC Project No. 2290)

Fish Population Monitoring 2023 Study Results

February 14, 2024; 1:00 PM – 2:00 PM

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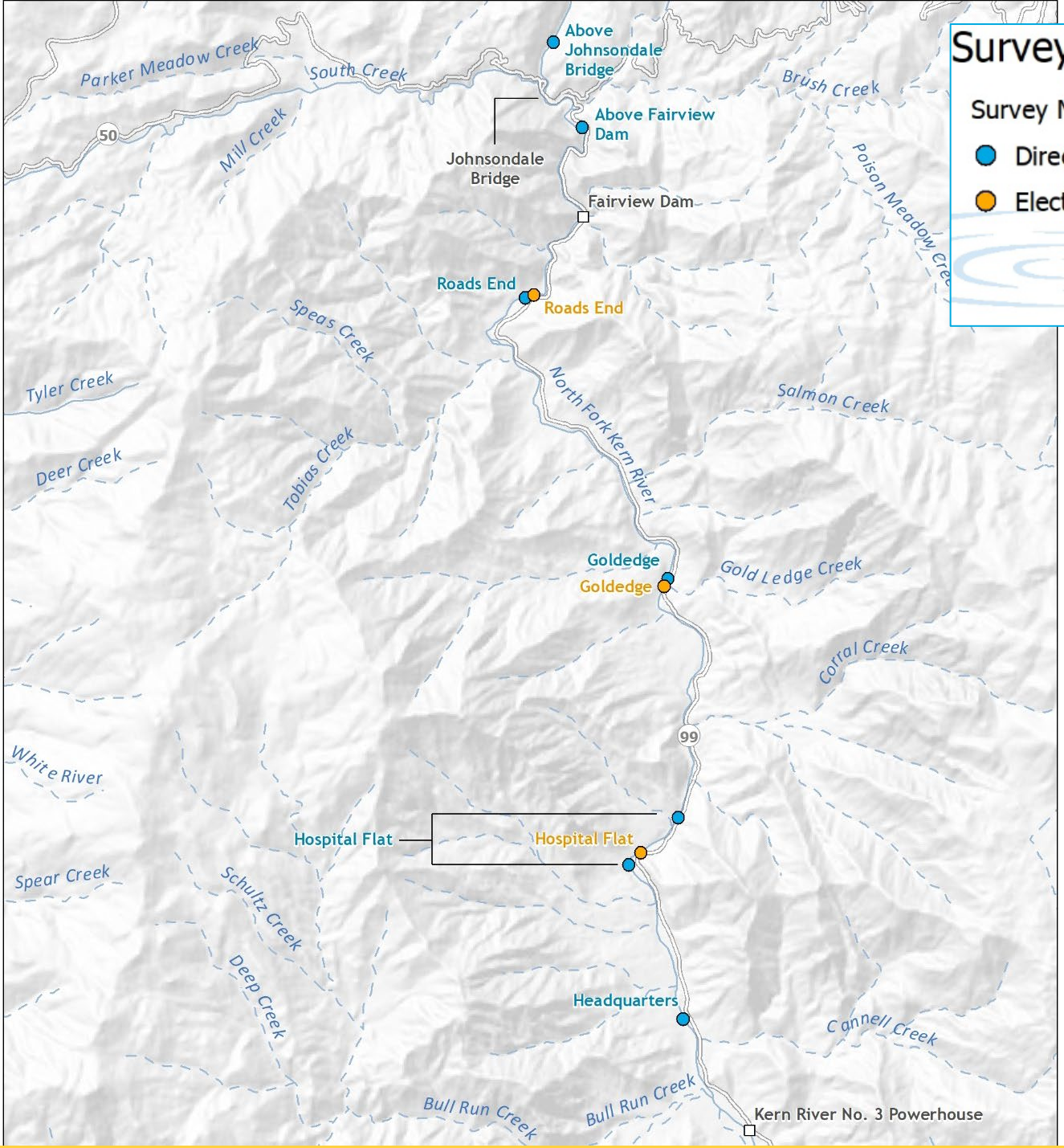
Meeting Agenda

- ❑Welcome & Introductions
- ❑Purpose and Objective of Meeting
- ❑Review of 2023 Fish Population Study Results
- ❑Differences from Study Plan and Recommendations
- ❑Questions / Comments
- ❑Next Steps

Fish Monitoring Study

- Current License Requirement (License Article 411)
- Monitor fish populations every 5 years at 5 sites along the NFKR
- Uses both backpack electrofishing and snorkel methods



Surveyed Sites Overview

Survey Method	
Direct Observation	Perennial stream
Electrofishing	Intermittent stream
	SCE Project Facility

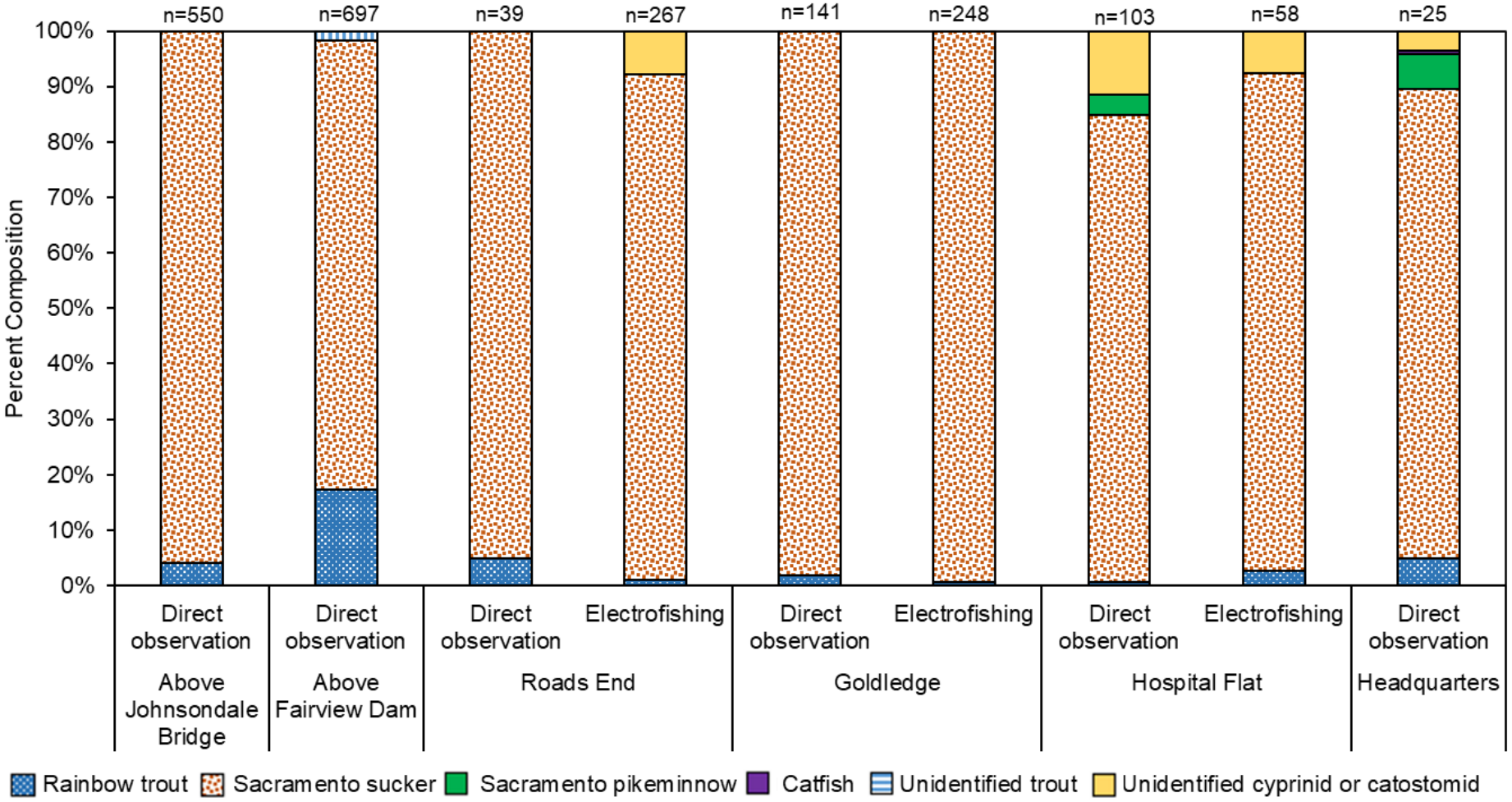
2023 – 6 sites

- Upstream Johnsondale Br.
- Upstream Fairview Dam
- Roads End
- Goldledge Campground
- Hospital Flat
- Headquarters Campground (new)

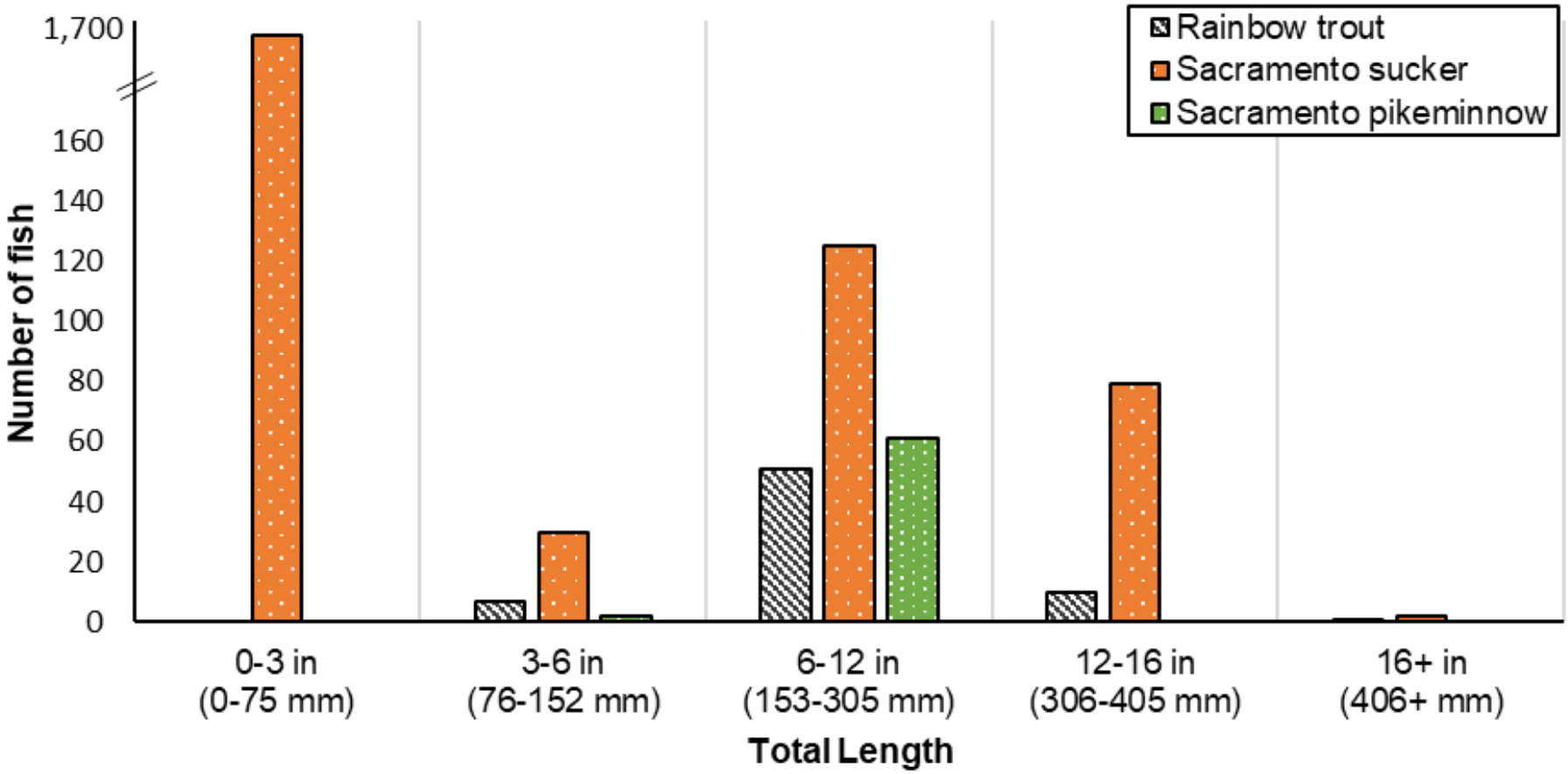
Methods

- 3-pass snorkeling
  - 2 sites above Fairview Dam
  - 4 sites between Fairview Dam and the KR3 Powerhouse
  - Day/night methods comparison
- Multiple-pass electrofishing
  - 3 sites between Fairview Dam and the KR3 Powerhouse

North Fork Kern River Species Composition, Oct. 2023



North Fork Kern River Size Groups, Oct. 2023



Differences from Study Plan Methods

- Conditions at the Roads End site were swift and deep, compared to prior years, requiring the backpack electrofishing site to be shifted slightly upstream
- Surveyed additional pool habitat lower in the Fairview Dam Bypass Reach

Recommendations for Future Monitoring

- Conduct snorkel surveys in lieu of electrofishing
- Survey earlier in the summer to avoid fall rain events
- Continue 3-pass snorkel methods:
  - day/night comparison
  - 25-50 mm size bins

Questions / Comments

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Next Steps

- **February 26, 2024**: Provide any written comments to SCE via email to Dave Moore (David.moore@sce.com)
- **March 1, 2024**: SCE to file final Fish Population Report with FERC

Thank You

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