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OFFICE OF ENERGY PROJECTS

Project No. 2290-122 – California
Kern River No. 3 Hydroelectric Project
Southern California Edison Company

VIA FERC Service

Mr. Wayne Allen
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Southern California Edison Company
1515 Walnut Grove Avenue
Rosemead, California 91770

Reference: Study Plan Determination

Mr. Allen:

Pursuant to 18 C.F.R. § 5.13(c) of the Commission's regulations, this letter contains the study plan determination for the Kern River No. 3 Hydroelectric Project (FERC No. 2290) (KR3 Project or project) located on the North Fork Kern River and Salmon and Corral Creeks near the town of Kernville in Kern and Tulare Counties, California. The determination is based on the study criteria set forth in section 5.9(b) of the Commission's regulations, applicable law, Commission policy and practice, and the record of information for the project. Concurrently with the issuance of this determination we are separately issuing a Revised Process Plan and Schedule for relicensing the KR3 Project.

Background

On March 7, 2022, Southern California Edison (SCE) filed a Proposed Study Plan (PSP) for 15 studies in support of its intent to relicense the Kern River Project. The PSP addresses studies on project facilities and geologic, aquatic, terrestrial, recreational, cultural, and socioeconomic resources.

SCE held an initial study plan meeting to discuss the PSP on April 5, 2022. Comments on the PSP were filed by the National Park Service (Park Service), U.S. Forest Service (Forest Service), U.S. Fish and Wildlife Service (FWS), California State Water Resources Control Board (Water Board), California Department of Fish and Wildlife (California DFW), California State Historic Preservation Office (SHPO), Kern

River Boaters, American Whitewater, Trout Unlimited, Kern River Fly Fishers Council, Kern River Fly Fishers, Neil Nikirk, Timothy McNeely, Eugene Hacker, John Yates, Ethan Francis, Robert Nash, Lacey Anderson, Gary Ananian, Lawrence Wade, James Spring, Richard Norman, Amin Nikravan, Elizabeth Jens, Ross Allen, Eric Kroh, Jose Pino, Olivia Lemley, Alvaro Villa, Dean Koutzoukis, Matthew Rich, Scott Wilson, Anatoly Muchnikov, Michael Farrell, and Caleb Fujimori.

SCE filed a Revised Study Plan (RSP) on July 5, 2022. The RSP includes 14 studies previously included in the PSP, 2 studies that were formerly one combined study in the PSP, and 2 new studies for a total of 18 studies. Comments on the RSP were filed by the Park Service and Forest Service on July 19, 2022, and FWS, Neil Nikirk, Kern River Fly Fishing Council/Kern River Fly Fishers (Fishing Groups), Kern River Boaters, and American Whitewater on July 20, 2022.

General Comments

Some of the comments on the RSP do not directly address the study plans or proposed methodologies. For example, some comments request that SCE provide additional information, present information differently, or recommend protection, mitigation, and enhancement measures, including potential modifications to existing facilities. This determination does not address such comments, but only addresses comments specific to the merits of the proposed studies submitted pursuant to section 5.13 of the Commission's regulations and comments received thereon. Additionally, this determination does not address requests for study modifications already included in the RSP (e.g., providing data to relevant agencies).

Study Plan Determination

SCE's RSP is approved, with the staff-recommended modifications discussed in [Appendix B](#). As indicated in [Appendix A](#), of the 18 studies proposed, five are approved as filed, 12 are approved with staff-recommended modifications, and one is not required. Of the nine new studies requested by stakeholders, two are adopted with modifications recommended by staff and the remaining seven studies are not required. Additionally, SCE is required to conduct a staff-recommended *Environmental Justice Study*.

The specific modifications and basis for modifying the RSP are discussed in [Appendix B](#). Commission staff reviewed all comments and considered all study plan criteria in section 5.9 of the Commission's regulations. However, only the specific study criteria particularly relevant to the determination are referenced in [Appendix B](#).

Studies for which no issues were raised in comments on the RSP are not discussed in this determination, except for those addressed independently by Commission staff in [Appendix B](#). Unless otherwise indicated, all components of the approved studies not modified in this determination must be completed as described in SCE's RSP. Pursuant

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to section 5.15(c)(1) of the Commission's regulations, the Initial Study Report for all studies in the approved study plan **must be filed by October 12, 2023**.

Nothing in this study plan determination is intended, in any way, to limit any agency's proper exercise of its independent statutory authority to require additional studies. In addition, SCE may choose to conduct any study not specifically required herein that they feel would add pertinent information to the record.

If you have any questions, please contact Quinn Emmering, the Commission's relicensing coordinator for the project, at (202) 502-6382 or quinn.emmering@ferc.gov.

Sincerely,

for
Terry L. Turpin
Director
Office of Energy Projects

Enclosures: Appendix A – Summary of Determinations on Proposed and Requested Studies
Appendix B – Staff's Recommendations on Proposed and Requested Studies

**APPENDIX A: SUMMARY OF DETERMINATIONS
ON PROPOSED AND REQUESTED STUDIES**

Kern River No. 3 Hydroelectric Project P-2290-122

Study	Recommending Entity	Approved	Approved with Modifications	Not Required
SCE's Revised Study Plan				
Study WR-1: Water Quality	SCE, Forest Service, KRB, Neil Nikirk		X	
Study WR-2: Hydrology	SCE, Forest Service, KRB, American Whitewater, Neil Nikirk		X	
Study BIO-1: Foothill Yellow-legged Frog	SCE, Forest Service, FWS, KRB, Neil Nikirk		X	
Study BIO-2: Special-status Salamanders	SCE, Forest Service, Neil Nikirk		X	
Study BIO-3: General Wildlife Resources	SCE, Forest Service		X	
Study BIO-4: Benthic Macroinvertebrate	SCE, Forest Service, Neil Nikirk		X	
Study BIO-5: Western Pond Turtle	SCE, Forest Service	X		
Study BIO-6: Stream Habitat Typing	SCE, Forest Service, Neil Nikirk		X	
Study BOT-1: General Botanical Resources	SCE, Forest Service, Neil Nikirk		X	

Study	Recommending Entity	Approved	Approved with Modifications	Not Required
Study REC-1: Whitewater Boating	SCE, American Whitewater, Park Service, Neil Nikirk, KRB, Mr. Norman		X	
Study REC-2: Recreation Facilities Use Assessment	SCE, Forest Service, Park Service, American Whitewater, KRB, Neil Nikirk		X	
Study REC-3: Recreation Facility Condition Assessment	SCE, Forest Service	X		
Study CUL-1: Cultural Resources	SCE, Forest Service	X		
Study TRI-1: Tribal Resources	SCE, Forest Service	X		
Study LAND-1: Road Condition Assessment	SCE	X		
Study GEO-1: Erosion and Sedimentation	SCE, Forest Service		X	
Study SOCIO-1: Socioeconomic Analysis	SCE, Forest Service, Park Service, American Whitewater			X
Study OPS-1: Water Conveyance Assessment	SCE, American Whitewater, KRB		X	
New Studies Requested				
Environmental Justice Study	FERC	X		

Study	Recommending Entity	Approved	Approved with Modifications	Not Required
Aesthetic Flows Study	KRB		X	
Water Quality Flows Study	KRB			X
Enjoyable Angling Flows Study	KRB, Fishing Groups ^a		X	
Conveyance, Forebay, and Penstock Safety Study	KRB			X
Flow Travel Times Study	KRB			X
Tunnel Maintenance Flows Study	KRB			X
Whitewater Flows Study	KRB			X
Comparative Whitewater Opportunities Study	KRB			X
Kern River Rainbow Trout Study	Fishing Groups			X

^a The Fishing Groups consists of the Kern River Fly Fishing Council and Kern River Fly Fishers.

APPENDIX B: STAFF'S RECOMMENDATIONS ON PROPOSED AND REQUESTED STUDIES

Kern River No. 3 Hydroelectric Project P-2290-122

The following discusses staff's recommendations on studies proposed by Southern California Edison (SCE) and requests for study modifications. We base our recommendations on the study criteria outlined in the Commission's regulations [18 C.F.R. section 5.9(b)(1)-(7)].

I. GENERAL COMMENTS ON STUDIES

Objectives and Scope of Studies

Comment

Neil Nikirk provides similar comments on several aquatic and terrestrial studies in the Revised Study Plan (RSP) (e.g., *Study WR-1: Water Quality*, *Study BIO-1: Foothill Yellow-legged Frog*, *Study BOT-1: General Botanical Resources*, etc.). Mr. Nikirk states that SCE does not include objectives in its study plans to examine project effects to environmental resources or species, rather the stated objectives are merely to characterize resources or to determine the presence of certain species and their habitat under current project operations and flow regimes as well as under existing climatic conditions. Mr. Nikirk adds that the scope of the studies is not adequate to determine potential project effects as SCE proposes to conduct the studies over a short time period and limited area.

Mr. Nikirk states that more intensive research, conducted over a longer time period than proposed by SCE is needed to determine flow-related effects to resources/species including evaluating effects under a variety of flows and/or other operational scenarios (including cessation of diversion). Mr. Nikirk concludes that the study plans, as proposed, would not provide the results necessary to meet stated goals and objectives.

Discussion

In most instances, resource studies to support hydroelectric project relicensing, including documenting current conditions and associated project effects, take one or two study seasons. Mr. Nikirk has not demonstrated with supporting information that generally speaking, the Kern River No. 3 Project relicensing studies require a longer study period [section 5.9(b)(6)].

Regarding Mr. Nikirk's comments that the studies need to include a provision for analyzing project effects on various environmental resources, such effects analyses will

be conducted by Commission staff in the environmental document as required by the National Environmental Policy Act (NEPA document). Scoping Document 2 outlines the environmental resources issues, and the proposed action and alternatives that have been identified to date and that will be analyzed in the NEPA document. In providing this analysis, staff will use, among other things, the information from the studies completed by the applicant under the pre-filing process. Staff's recommendations in this study plan determination considers, among other things, the information staff will need to assess the proposed action and alternatives that have been identified in Scoping Document 2. For these reasons, we do not recommend modifying any study plans as requested by Mr. Nikirk.

II. REQUIRED STUDIES

Study WR-1: Water Quality

Applicant's Proposed Study

Project diversions could adversely affect water temperatures and dissolved oxygen (DO) concentrations in the North Fork Kern River (NFKR) downstream of Fairview Dam, Salmon Creek downstream of the project diversion, Corral Creek downstream of the project diversion, and the NFKR downstream of the KR3 powerhouse. In addition, project recreational opportunities could be contributing elevated bacterial concentrations within the project area.

SCE proposes to collect data on water temperature, DO, and fecal coliform levels at ten sites. Seven sites are in the project area and the other three are located upstream of the project-affected reaches. Upstream sites would serve as a reference point for conditions in the NFKR, Salmon Creek, and Corral Creek that are not potentially affected by the project. SCE would deploy temperature and DO loggers when stream conditions are safe enough for personnel to enter the streams (approximately June 1), and SCE would check and download the loggers monthly as stream conditions allow. SCE would deploy loggers in duplicate at each site for redundancy, in case of loss or tampering. Deployed temperature and DO loggers would capture 12 months of continuous data (i.e., 15-minute intervals) through Spring 2023, including fall and winter months.²

² On page 11 of the RSP, SCE states that this modification was added to the Water Quality Study Plan; however, the plan was not updated to reflect this edit.

SCE also proposes to conduct bacterial sampling for fecal coliform at five of the monitoring sites, with three sites in the Fairview Dam bypassed reach (bypassed reach)³ and one site each in Salmon and Corral Creeks. Samples would be collected on, at minimum, five separate dates during the summer within a 30-day period, including Labor Day weekend.

Comments on the Study

Water Temperature and Dissolved Oxygen Monitoring and Modeling

Neil Nikirk states that two summer seasons of temperature and DO monitoring would not adequately describe the relationship between water quality and flows in the Fairview Dam bypassed reach and would not assess project-related effects on temperature and DO. Mr. Nikirk recommends that SCE use temperature and DO models to determine the relationship between project operation and these water quality parameters in the project area.

Fecal Coliform Sampling

Mr. Nikirk states that the 30-day period for sampling fecal coliform is not sufficient because it does not include other high-use recreational time frames and holidays including July 4. He recommends the study plan include multiple seasons that encompass a variety of project operations (i.e., a range of flows in the bypassed reach) to determine project effects on bacterial levels and whether there are operational alternatives (including cessation of diversion) that could be used to reduce fecal coliform levels within the bypassed reach.

Monitoring Site Location

Kern River Boaters (KRB) recommends that SCE relocate Site 4 (WQ-NFKR-3.2) to an area well upstream of the area near the project powerhouse and forebay spillway (described in KRB's letter as the emergency spillway), within the bypassed reach. The proposed location of Site 4 is in the bypassed reach near the powerhouse and the forebay spillway. KRB suggests that cooler and cleaner flows from the water conveyance system that discharges from the forebay spillway could confound water quality data recorded at the proposed monitoring location. KRB states that if Site 4 is not moved, SCE should

³ A bypassed reach is the length of river between the point of diversion and where discharge from the powerhouse enters the river channel. SCE defines the Fairview Dam bypassed reach as the 16-mile reach of the NFKR between Fairview Dam and the project powerhouse tailrace.

provide the time and quantity of flows released via the forebay spillway to provide adequate context for the water quality monitoring results.

Discussion and Staff Recommendations

Water Temperature and Dissolved Oxygen Monitoring and Modeling

In the RSP, SCE states that they monitored water temperature and DO in the summer of 2021 (i.e., June 1 to September 30) at the same locations and frequency proposed in their study and are currently monitoring water temperature and DO through Spring 2023. Accordingly, SCE would have one summer season (2021) and one full year (2022-2023) of water temperature and DO data recorded during various flows in the project-affected area, to describe baseline water quality conditions and inform staff's environmental analysis [section 5.9(b)(4)]. In addition, both 2021 and 2022 were dry (i.e., low-flow) water years, and monitoring in dry water years is expected to increase the likelihood of identifying potential effects of project operation because low flows in the project-affected area would be more susceptible to warming and lower DO concentrations [section 5.9(b)(6)]. Therefore, SCE would collect sufficient data such that the additional monitoring and/or modeling efforts recommended by Mr. Nikirk is not justified [section 5.9(b)(7)].

Fecal Coliform Monitoring

In the RSP, SCE states that project operation does not contribute to fecal coliform inputs, but that project-related recreational opportunities may indirectly increase fecal coliform levels in the project area. However, as Mr. Nikirk indicates, project operation affects flows and water temperatures in the NFKR, Salmon Creek, and Corral Creek, and therefore, could also affect the concentrations of fecal coliform in the project-affected stream reaches [section 5.9(b)(5)]. SCE's current proposal only includes fecal coliform sampling on five dates within a 30-day period that includes the Labor Day holiday weekend. Additional fecal coliform sampling would better characterize the relationships between flow and fecal coliform levels over a longer portion of the recreation season, including during other high-use periods [section 5.9(b)(6)]. Accordingly, we recommend SCE include an additional period of sampling, with five additional sampling dates during the recreation season for a total of ten sampling dates. The timeframe should include the July 4 holiday weekend to capture another high-use recreation period with potentially different flows than that which typically occurs on and around Labor Day. We anticipate that the additional fecal coliform sampling would cost about \$5,000.

Monitoring Site Location

Moving Site 4 upstream of the influence of the forebay spillway would not allow SCE to characterize the water quality in the full length of the bypassed reach, because the

effects of flow releases from the spillway would not be captured [section 5.9(b)(5)]. Therefore, we recommend not moving Site 4.

We assume that releases from the forebay spillway are rare and not representative of typical project operation as stated by KRB; thus, the forebay spillway operation should not substantially affect the water quality monitoring results at SCE's proposed Site 4 monitoring location. We note that operation of the Cannell Creek spillway could also influence flow and water temperature in the bypassed reach upstream of the powerhouse, though we expect the Cannell Creek spillway is infrequently utilized, similar to the forebay spillway.⁴ However, to characterize the influence of the releases from these spillways on water quality in the bypassed reach, we recommend that SCE describe spill operation (e.g., frequency, duration, volume) and identify periods of spill, consistent with KRB's recommendation, at both spillways to identify potential effects of spill on water quality at Site 4. We anticipate the cost to summarize spill operation at the Cannell Creek and forebay spillways during the water quality study would be \$500.

Study WR-2: Hydrology

Applicant's Proposed Study

SCE proposes to compile and summarize existing hydrologic gage data for use in other proposed studies such as *Study WR-1: Water Quality* discussed above. SCE currently maintains two gaging stations to monitor and record flows at the project with one gage located immediately downstream of Fairview Dam and the other gage located within the water conveyance system. In addition, SCE would summarize flow data from the U.S. Army Corps of Engineers' (Corps) gage at Kernville located approximately 1.7 miles downstream of the KR3 powerhouse. As part of this study, SCE would also calculate flow travel times along the NFKR between Fairview Dam and Kernville using the existing SCE gage at Fairview Dam and the Corps' gage at Kernville. SCE would estimate flow travel times on an hourly interval as evidenced from shifts in flow between the two gages.

Comments on the Study

Flow Travel Times

American Whitewater suggests that the proposed flow travel time assessment would not accurately predict flow travel times in the bypassed reach using the Corps' gage because the influence of powerhouse releases in combination with diurnal and other

⁴ Cannell Creek spillway can be used to release water into Cannell Creek which enters the NFKR approximately 1.4 miles upstream from the powerhouse.

flow changes in the NFKR, including periods where the diversion flow is changing, could confound the assessment. Accordingly, American Whitewater recommends that SCE include an additional metric of either diverted flow or instream flow to clearly define the flow travel times in the bypassed reach.

Hydrology in Salmon and Corral Creeks

In comments on the Proposed Study Plan (PSP), KRB states that the project's influence on stream hydrology includes effects on Salmon and Corral Creeks. Accordingly, KRB recommends SCE provide all flow data available from the project's diversions at Salmon and Corral Creeks to inform evaluations of potential project-related effects on streamflows. Similarly, in comments on the PSP, Neil Nikirk expresses concern regarding the effects of diversions in these creeks and notes there is no information available to determine if SCE is in compliance with the conditions of operating the diversions (e.g., minimum flow releases).

Discussion and Staff Recommendation

Flow Travel Times

Although the results of SCE's proposed study would describe flow travel times from Fairview Dam to the Corps' gage at Kernville it would not necessarily accurately describe flow travel times in the bypassed reach. As stated by American Whitewater, this is due to several confounding variables, including diurnal flow changes in the NFKR, changes in diversions at Fairview Dam and releases from the powerhouse, and travel time differences between the bypassed reach and water conveyance system. Accurate flow travel times in the bypassed reach are needed to evaluate the potential effects of diversions and recreational flow releases at Fairview Dam on various aquatic and recreational resources (e.g., timing of recreational boating flows) in and downstream of the bypassed reach and would inform the development of license conditions [section 5.9(b)(5)]. Therefore, in addition to the proposed *Study WR-2: Hydrology*, we recommend that SCE install a water level logger in the bypassed reach upstream of the KR3 powerhouse to record changes in water depth at 15-minute intervals and calculate flow travel times in the bypassed reach for a variety of flows including minimum bypassed reach flows (40 to 130 cubic feet per second (cfs)) up to the existing maximum whitewater flow release target of 1,400 cfs. SCE could use operational data (timing of diversion changes) as well as gage data from Fairview Dam to compare changes in flow and associated travel times along the bypassed reach. Per our discussion in *Studies Requested but not Adopted – Flow Travel Times Study*, flow travel times should be determined at regular increments (e.g., 100-cfs increments) to clearly describe the flow vs. travel time relationship in the bypassed reach. Data collection need not be continuous to capture the full range of flows, but flow levels at the recommended gage site should be monitored for the entire recreational boating season (April 1 to July 31) to record flow

changes associated with recreational flow releases and account for diurnal flow variability. In total, we expect SCE to collect approximately 6 months of flow data, downloaded monthly, and estimate that the bypassed reach flow travel time assessment would cost an additional \$5,000.

Hydrology in Salmon and Corral Creeks

In the RSP, SCE states that the diversions are configured to release the required minimum flows via a fixed-orifice plate and any additional flow is diverted to the conveyance system. SCE states that the diversions are routinely inspected and that monthly diversion volume measurements in acre-feet, and maximum flows in cfs, are compiled and submitted annually to the California State Water Resources Control Board (Water Board). However, this data and reporting is not in the project record, nor does SCE propose to summarize the data in the study report. In addition, SCE states in the RSP that Salmon and Corral Creeks are intermittent, while the PAD indicates that these streams are perennial.

Based on the available information, we are unable to describe actual inflows and outflows at the diversions as well as potential effects of diversions on other resources in the bypassed reaches of Salmon and Corral Creeks [section 5.9(b)(4)]. Therefore, we recommend that SCE summarize all existing data for flows and diversions in Salmon and Corral Creeks in the WR-2 study report, including data from all available routine inspections and the annual flow reports submitted to the Water Board, to inform the description of baseline conditions and analysis of project effects in Salmon and Corral Creeks. We anticipate that summarizing the existing flow data for Salmon and Corral Creeks would cost an additional \$2,500.

Study BIO-1: Foothill Yellow-legged Frog

Applicant's Proposed Study

The objectives of the proposed study are to assess habitat suitability and presence for all foothill yellow-legged frog (FYLF) life stages (i.e., eggs, tadpoles, metamorphs,⁵ juveniles, adults) in the study area. The study would consist of three phases that include: (1) conducting a habitat suitability assessment by reviewing available data sources to identify and rank the quality of potential habitat (high, moderate, low) for all FYLF life stages, field verification of habitat, and selection of survey sites; (2) performing visual encounter surveys (surveys) and collecting water samples for analysis of environmental

⁵ The metamorph stage begins when a tadpole grows forelimbs and ends upon full resorption of the tail.

DNA (eDNA)⁶ to increase detection probability; and (3) developing additional study components to further characterize/delineate FYLF populations, if surveys or eDNA analysis confirm FYLF presence in the study area. Surveys would occur at 6 to 11 sites depending on the availability of FYLF habitat, including: one to two sites in the NFKR upstream of Fairview Dam; one to four sites in the Fairview Dam bypassed reach; one to two sites in the NFKR between the powerhouse and Kernville; and one site in the Salmon Creek Diversion bypassed reach. SCE initiated the desktop analysis in spring 2022 and planned to initiate field surveys in late summer 2022, prior to issuance of the study plan determination.

Comments on the Study

Use of Crowdsourced Observations

KRB requests that SCE develop information on a website that would assist users of data crowdsourcing applications (e.g., *iNaturalist*) that may upload their observations of FYLF to identify, document, report, and instruct users on how to avoid harming any FYLF observed in the project area. In its response in the RSP, SCE suggests two sources of information for identifying and reporting observations of FYLF.⁷

Survey Transects

Forest Service comments that SCE clearly stated that survey transects would be 400 meters long in the comment response matrix of the RSP, but the study description in *Section 6.2.2. Visual Encounter Surveys* does not clearly indicate what transect length is being proposed. Forest Service and the U.S. Fish and Wildlife Service (FWS) request clarification confirming that each transect would comprise an aggregate 400 meters of linear transect. Forest Service states the clarification would ensure surveyors bypass unsafe and inaccessible portions of habitat and accumulate a total of 400 meters of surveyed transect in safely accessible areas. Neil Nikirk comments that sites selected for surveys assessed as moderately suitable habitat for FYLF also be surveyed, rather than only surveying sites considered highly suitable for the species.

⁶ eDNA is a standard method for detecting the presence of an animal's DNA that originates from cellular material (e.g., feces, skin, etc.) and is released into the environment. The technique is used to increase the detection probability of small, rare, or secretive species, and/or other species that are difficult to observe using traditional survey methods. In aquatic environments, water samples are collected systematically for laboratory analysis of potential DNA for targeted organisms.

⁷ See <https://californiaherps.com/frogs/pages/r.boyllii.html> and <https://wildlife.ca.gov/Data/CNDDDB/Submitting-Data>.

Study Schedule

Forest Service comments that the 2022 field season is appropriate for characterizing FYLF habitat and scouting sites for future surveys (study phase 1). However, both Forest Service and FWS state that SCE's proposed schedule to complete FYLF habitat assessments, field surveys, and eDNA sampling by fall 2022 (study phase 2) is concerning due to the late date [i.e., late considering the species' reproductive life cycle] and that 2022 is a low-water year. Mr. Nikirk also comments that a single survey period (late summer/early fall 2022), as proposed by SCE, is not sufficient to determine if the FYLF is present and requests that a minimum of two surveys be conducted: one in late spring/early summer for tadpoles, a second survey in late summer for juveniles and adults, and additional surveys at other time periods.

In the RSP, SCE explains that it did not change the timing of surveys and eDNA sampling, as stakeholders requested, because assessing potential habitat in late summer is helpful for determining habitat suitability for FYLF, and that the timing would maximize FYLF detection using both eDNA and surveys, in accordance with peer reviewed methodologies. Forest Service comments that the literature SCE bases its decision for the late summer schedule is based on field work that was conducted well to the north of, and at a higher elevation than, Sequoia National Forest where the timing of snow melt, spring rains, and FYLF reproductive phenology are different from the drier, warmer forests found in Sequoia National Forest.

In the RSP, SCE comments that understanding which areas dry up in late summer is useful for determining potential breeding habitat. SCE states that it understands that California, and particularly the Kern Watershed, is experiencing extremely dry conditions this year (2022) and that they would take this into consideration when qualifying suitable habitat and use in-the-field habitat assessment, aerial imagery, and drone footage to help determine habitat conditions. In response, Forest Service asserts that knowing which areas have dried up that could provide suitable habitat requires observing the habitat when it is wet. Otherwise, surveys in late summer and fall and/or during dry years would need to be modified in a way to identify and assess dried-up areas that may potentially provide suitable habitat when it's wet earlier in the breeding season or does not dry up at all in wetter years. Forest Service also states that aerial imagery does not adequately convey the steepness and complexity of the areas to be surveyed and that operating drones in the canyons of Salmon Creek and Corral Creek would be problematic due to thick vegetation and tree canopy screening the drone camera's view.

Therefore, Forest Service recommends that the habitat suitability assessments for FYLF be moved to earlier in the season to account for conditions in the project area and request the study be fully conducted during the 2023 study season. FWS also requests that surveys be delayed until an average water year.

Discussion and Staff Recommendation

In December 2021, FWS published a proposed rule to list the South Sierra Distinct Population Segment (DPS) of the FYLF as endangered under the Endangered Species Act (ESA), with publication of the final rule anticipated in December 2022. Therefore, if finalized, the species would potentially be listed during the relicensing process for the KR3 Project, which could require consultation with FWS under Section 7 of the ESA.

Use of Crowdsourced Observations

Regular users of crowdsourced-based applications like *iNaturalist* that may contribute their wildlife observations in the project area are likely already familiar with various sources of information on species identification, habitat, and natural history, including the FYLF. Regardless, existing information like those provided in the RSP, are readily available to the public at public libraries and on the internet [section 5.9(b)(4)]. Therefore, we do not recommend that SCE modify the study plan to develop information sheets or information on their website to assist users to identify and avoid harming the FYLF.

Survey Transects

We understand that some reaches selected for conducting surveys may include sections that are inaccessible, present safety hazards, or include gaps where no suitable habitat is present. Therefore, some transects may be discontinuous, but would include a total of 400 feet of potential habitat surveyed. Though the RSP may be somewhat unclear, staff interpret SCE's description of the length of transects as minor oversight and minimally defined [section 5.9(b)(6)]. Therefore, we recommend that the Initial Study Report (ISR) more clearly describe and/or illustrate the total length of survey transects and conclude no modifications to the study plan are necessary.

Mr. Nikirk does not explain what additional information would be provided by surveying at least some moderately suitable habitat [section 5.9(b)(4)]. In the RSP, SCE states it would prioritize surveying habitat assessed/ranked as highly suitable for FYLF, but if highly suitable habitat is not present, SCE would survey FYLF habitat assessed as moderate or low suitability. Surveys conducted in reaches assessed as highly suitable habitat are more likely to detect FYLF than reaches of lower suitability. However, because high suitability sites may not be present in all project-affected reaches, it is likely that moderately suitable sites may also be surveyed. We conclude that specifically requiring additional surveys of moderately suitable habitat is unnecessary to meet the goals and objectives of the study plan [section 5.9(b)(1)]. For these reasons, we do not recommend that SCE modify the study plan as requested by Mr. Nikirk.

Study Schedule

Discussions of study methodology in the primary literature generally recommend that surveys be conducted more than once and/or at different time periods over a species' life cycle. This may be particularly necessary for rare species due their scarcity and sparse distribution. The reproductive life cycle of FYLF is strongly dependent on environmental conditions including the onset of breeding and development of eggs and young. For example, the start of breeding activity and egg laying is extremely variable from year to year and geography as it is dependent on the transition from the wet to the dry season, stream flows, air and water temperatures, and microsite conditions for egg laying (FWS, 2021). In low base-flow years, for instance, breeding may occur earlier in spring (FWS, 2021) and thus the timing of egg laying and tadpole development as well. This annual variation could affect survey results and should be considered when scheduling the timing and frequency of surveys to maximize the likelihood of detecting FYLF and adequately characterize its habitat use in project-affected reaches (Seltenrich and Pool, 2002). Accordingly, recommended survey methods typically include more than one survey period to increase the likelihood of FYLF detection (Seltenrich and Pool, 2002; CDFW, 2018), including Commission-approved relicensing studies (PG&E, 2007; FERC, 2007; YCWA, 2011; FERC, 2011). Therefore, obtaining adequate data to meet the study's objectives [section 5.9(b)(1)] and the information needed for staff's environmental assessment with reasonable confidence is questionable under the proposed schedule [section 5.9(b)(4)].

Further, with the exception of eDNA sampling, SCE does not explain how it would take the late-season study schedule, or the current extreme drought in southern California that is occurring during the 2022 study season "into consideration" when evaluating potential habitat and conducting surveys. Areas that may typically provide suitable habitat when more water is present, such as earlier in the FYLF breeding season (e.g., May to June) or during wetter years, could be completely or partially dry, making it more difficult to identify suitable habitat or accurately assess its relative rank (low, moderate, or highly suitable) under the proposed study schedule. As a result, potential habitat may not be identified or surveyed. The RSP provides no additional detail or methodology for how SCE plans to determine if such areas provide suitable habitat during wetter periods [section 5.9(b)(6)].

Based on the proposed schedule, field work would be completed in fall 2022 with analyses and preparation of the study report completed by August 2023, when the ISR is due. The study plan indicates that if surveys and eDNA do not detect FYLF presence, no data collection would occur during the 2023 study season. Should the study report indicate that more surveys are needed due to the low water year or survey schedule, SCE would need to remobilize for the 2024 study season.

For the reasons discussed above, we recommend that SCE modify the study plan to also conduct habitat suitability assessments and visual encounter surveys for FYLF in the 2023 study season, as requested by the Forest Service. Habitat suitability assessments and surveys in 2023 should be conducted earlier in the FYLF breeding season and account for areas with potential suitable habitat that may dry up by late summer or fall. We recommend SCE consult with FWS and Forest Service to ensure selection of appropriate sites and a schedule for surveys in 2023 that includes early periods of the breeding season. We estimate the additional habitat assessment and surveys would cost about \$15,000.

Regarding FWS' requested modification, it is unclear what an average water year would be when considering the FYLF's reproductive life cycle or when an average water year may occur within a reasonable timeframe to complete the study. FWS provided no additional detail or recommended methodology to develop an appropriate survey schedule [section 5.9(b)(6)]. Therefore, we do not recommend FWS' requested modification.

Study BIO-2: Special-status Salamanders

Applicant's Proposed Study

Continued project operation and maintenance activities potentially affect special-status salamanders.⁸ The proposed study (previously *Study BIO-2: Western Pond Turtle and Special-status Salamanders*) would consist of two phases, developing a habitat suitability assessment/model and conducting visual encounter field surveys. The RSP states the study area would include various riparian and wetland habitats (e.g., perennial streams, ephemeral creeks, dry ravines, and other areas) matching each species' habitat needs located within the project boundary, including a 50-foot buffer. The RSP also lists target survey locations including, but not limited to the following areas:

- Fairview Dam, including an upland gully adjacent to the dam;⁹
- Salmon Creek diversion, open flume, adit 8B-9A, and adjacent access roads;
- Gold Ledge Creek open flume, adit 13-14, and adjacent access road;

⁸ Potential special-status salamanders known to occur or potentially occurring in the project area include the Forest Service Sensitive Species Fairview salamander and Greenhorn Mountains slender salamander; the state-threatened Kern Canyon slender salamander; and two rare, range-restricted species, the Kern Plateau salamander, and Kern Canyon slender salamander.

⁹ The type locality for *B. bramei* is located in an upland gully adjacent to Fairview Dam and will be surveyed to provide the model for *B. bramei* habitat.

- Corral Creek diversion, open flume, and the access road;
- Cannell Creek, siphon, and access road; and
- the NFKR confluences with Salmon, Gold Ledge, Corral, and Cannell Creeks.

The habitat assessment (phase 1) would compile available information to define, identify, and map potential suitable habitat and compile records potentially documenting species presence in the study area, using data from the California Natural Diversity Database (CNDDDB)¹⁰, museum records, AmphibiaWeb, as well as crowdsourcing platforms (e.g., *iNaturalist*). Biologists would use the information and maps when conducting habitat assessment field surveys to verify suitable habitat types and establish sites in accessible locations for targeted visual encounter surveys (phase 2). In 2023, surveys would be conducted by foot during appropriate seasons and conditions to maximize the potential for observing salamanders (i.e., late-winter, early spring rainy seasons).

Comments on the Study

Neil Nikirk comments that the study area only includes areas within 50 feet of project facilities, which is too limited, as the entire bypassed reach is potentially affected by project operation (e.g., alteration of streamflows). He also notes that in response to comments in the RSP, SCE states the study “...includes perennial streams, ephemeral creeks, dry ravines, and other areas ... located within the FERC Project Boundary, including a 50-foot buffer. The habitat suitability assessment also includes the NFKR junction with Salmon Creek, Gold Ledge Creek, Corral Creek, and Cannell Creek.” He states that figure 4-1 in the RSP [Attachment 4, BIO-2, page 3] does not reflect this change and that the plan still indicates that only habitat around project facilities would be assessed. As such, he requests that the study area be updated accordingly and that the study area also include the Fairview Dam bypassed reach from the river’s edge to the outer edge of the riparian strip plus a 50-foot buffer, or to the edge of Mountain Highway 99, whichever is closer.

Discussion and Staff Recommendation

The study plan indicates that SCE based its selection of the study area primarily on the ecological literature, specifically “...*habitat descriptions provided by Jockusch et al. (2012) ... and Morey and Basey (1988) ... located within the FERC Project Boundary*”. Because the bypassed reaches downstream of project diversions are not located within the project boundary, staff assume the study, as proposed by SCE, would not assess potential

¹⁰ California DFW. 2020. California Natural Diversity Database. RareFind 5 - Version 5.1.1. Electronic database. Natural Heritage Division, California DFW, Sacramento, California.

salamander habitat in these areas. However, project operations also alter flows downstream of Fairview Dam, Salmon Creek, Corral Creek, and Cannell Creek, which may potentially affect downstream riparian and wetland habitat along the bypassed reaches. Based on similar comments filed by stakeholders, SCE revised the study areas for *Study BOT-1: General Botanical Resources* (discussed below), *Study BIO-3: General Wildlife Resources*, and *Study BIO-5: Western Pond Turtle* to include habitat assessments of terrestrial plant species and the semi-aquatic western pond turtle along the Fairview Dam bypassed reach, as Mr. Nikirk has requested for this study. Presumably SCE revised the studies as it agreed with stakeholders that riparian and wetland vegetation and wildlife habitat along the bypassed reach could also be affected by the project and thus it warranted inclusion [section 5.9(b)(5)]. Potential habitat for special-status salamanders may be present in riparian and wetland habitats downstream of project diversions and spillways and operation of the project affects flows that may potentially affect habitat along bypassed reaches. For these reasons, we recommend that the study area for *Study BIO-2: Special-status Salamanders* be modified to also include the bypassed reach downstream of Fairview Dam on the NFKR, and downstream of project facilities on Salmon Creek, Corral Creek, and Cannell Creek to their confluence with the NFKR. We estimate that expanding the study area to include about 2.5 miles of riparian habitat, as recommended, would cost an additional \$3,500.

Study BIO-3: General Wildlife Resources

Applicant's Proposed Study

The proposed study would primarily consist of two phases – a desktop habitat suitability assessment and field surveys for federally listed species, including the western distinct population segment (DPS) of yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, California condor, and Pacific fisher as well as Forest Service Species of Conservation Concern (FSCC), and other special-status wildlife species and their habitat potentially occurring in the project area. The study would include a desktop literature review/habitat suitability assessment to identify, and map known species occurrences and their breeding habitat (e.g., nesting, denning) within the study area. The habitat assessment would use aerial imagery and Forest Service vegetation alliances cross referenced with species-specific habitat characteristics and occurrences to map and select target areas for field surveys.

The study area would include a 50-foot buffer around aboveground project facilities, including: (1) Fairview Dam, intake, and sandbox; (2) the conveyance flowline, including the siphon; (3) Salmon Creek and Corral Creek Diversions; (4) the pressure flume, forebay, and penstocks; (5) project access roads; (6) the powerhouse and supporting maintenance buildings; and (7) the bypassed reach downstream of Fairview Dam from the river's edge to the outer edge of the riparian strip plus a 50-foot buffer, or to the edge of Mountain Highway 99, whichever is closer.

Surveys would be conducted during appropriate seasons (e.g., nesting season) to maximize the opportunity to observe the yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, California condor, and Pacific fisher and to ground truth habitat maps. Biologists would conduct species-specific surveys including playbacks of their vocalizations to improve detection of yellow-billed cuckoo and southwestern willow flycatcher. Because of seasonal variability, three replicate surveys are proposed between April and September.

The study plan would also include surveys for bats and recording incidental observations of other wildlife species. Biologists would search the project powerhouse and associated out buildings for signs of bat species (e.g., staining on walls, guano piles) and conduct acoustic surveys if there are any bats or signs that indicate bat presence. While performing field work, biologists would record any incidental observations of non-native invasive aquatic species (e.g., bullfrog) and other species of interest (e.g., special-status freshwater mussels, bald eagle, and American dipper), including their location and behavior, as applicable.

Comments on the Study

Use of Project Facilities by Bats

Forest Service comments that open-air segments of the project's water conveyance system (i.e., flumes) and tunnel adits attract/provide foraging and roosting habitat for bats as the flumes host invertebrate prey and the adits provide roosting sites. As such, Forest Service requests that SCE modify the study plan to also include bat surveys at the open-air segments of the project's conveyance system and tunnel adits.

In the RSP, SCE comments that the proposed bat surveys are intended to determine if bats are present in project buildings and at locations where bats are most likely to be potentially affected by project activities. SCE adds that biologists would also record incidental observations of bats during field work for *Study BIO-3: General Wildlife Resources*, including any use of project facilities throughout the study area.

Freshwater Mussels

Forest Service reiterated its request that SCE conduct eDNA sampling for two special-status, freshwater mussel species, the western ridge mussel (*Gonidea angulate*) and the western pearlshell mussel (*Margaritifera falcata*). Forest Service states that these mussels are known from the Kern River and are potentially present in the project area and affected by project operations that cause altered flows and may affect water temperature, DO, and sediment transport. Forest Service states that no comprehensive surveys have been conducted for the mussel species in the NFKR. Because the NFKR's rapids and

steep canyon walls create unsafe conditions and logistical challenges for conducting mussel surveys, Forest Service requests that SCE modify the study plan to include eDNA sampling for these mussel species. In the RSP, SCE did not respond to Forest Service's request regarding mussels.

Discussion and Staff Recommendation

Use of Project Facilities by Bats

Project operation and maintenance associated with the project's conveyance system could potentially affect any bats using these facilities. Forest Service comments suggest that at least it is aware of reports or incidental observations of bats using the open-air sections of the conveyance system that it could provide SCE. SCE states that it would also collect incidental observations of bats observed in the study area, which would include any observations of bats using the conveyance system. Regardless, because it is already known that bats use the open-air sections of the conveyance system and adits, it is unclear what additional information focused bat surveys would provide to inform staff's environmental analysis or evaluation of PM&E measures as potential license conditions. However, we recommend that SCE modify the study plan to compile existing information on bats using any project facilities, including available information SCE can obtain in consultation with the Forest Service. We estimate the additional cost to consult with Forest Service and compile the information would be about \$500.

Freshwater Mussels

Freshwater mussels are susceptible to altered streamflows and effects to water quality associated with hydroelectric projects. The western pearlshell mussel is a Forest Service Species of Conservation Concern. In the PAD, SCE states that western pearlshell mussels were [incidentally] observed during required fish monitoring at three fish survey sites in 2016, including two sites in the Fairview Dam bypassed reach (Goldledge and Roads End sites) and at the Johnsondale Bridge site upstream of the project. The PAD states that no monitoring data are available for the western pearlshell mussel and, as such, its population status in the project area is unclear. Historically, the western ridge mussel and western pearlshell were present downstream of the project on the lower Kern River below Isabella Lake, but the two species are no longer present (Howard, 2010).

While surveys have not been conducted, it is reasonable to assume that if appropriate habitat and host species exist (Salmonids), mussels would be present in project-affected reaches and subject to altered flows associated with operation of the project [section 5.9(b)(4)]. Further, Forest Service's request does not provide sufficient detail for staff to evaluate and SCE to develop an additional study component for collecting water samples and analyzing eDNA of the two mussel species [section 5.9(b)(5)]. For example, it's unclear how many samples would be necessary along

project-affected reaches and what level of information would be needed on the mussels' distributions. We note that surveys and other in-water field work would be conducted in project-affected reaches for several proposed studies, during which SCE would collect incidental observations of species of interest, including special-status freshwater mussel species. Additionally, Forest Service does not estimate the cost and level of effort that would be required to implement its requested study modification [section 5.9(b)(7)]. For the reasons discussed above, we do not recommend Forest Service's requested modification to the study plan.

Study Area

As requested by stakeholders, SCE revised the study plan to include the bypassed reach on the NFKR downstream of Fairview Dam. Project operations also affect flows downstream of Salmon Creek, Corral Creek, and Cannell Creek, which may potentially affect riparian and wetland habitats used by federally listed and special-status species downstream of project diversions and spillways [section 5.9(b)(5)]. Therefore, we recommend that the study area be modified to include the bypassed reaches downstream of project diversions on Salmon Creek and Corral Creek and downstream of the Cannell Creek spillway to their confluence with the NFKR. We estimate that expanding the study area to include about 2.5 miles of riparian habitat, as recommended, would cost an additional \$4,000.

Habitat Suitability Assessment

As proposed, the habitat suitability assessment would be limited to identifying and mapping suitable breeding habitat used for nesting and denning periods by ESA-listed species. However, these listed species also potentially occur in the project area during non-breeding periods (e.g., post-reproduction dispersal of juveniles, migration), which may also be potentially affected by project operation and maintenance activities. For example, many bird species may use a broader range of habitat types during migration, including the western DPS of yellow-billed cuckoo that is known to use upland habitats prior to moving to riparian nesting habitat. Denning and foraging habitat used by the Pacific fisher can also differ.

The PAD does not include project-specific information on potential suitable habitat used during non-breeding periods. This information is also needed to assess potential project effects to species that occur in the project area outside of their respective breeding seasons, including habitat. Therefore, we recommend that SCE modify the habitat suitability assessment phase of the plan to also identify and map any non-breeding habitat potentially used by ESA-listed species within the study area. We estimate the cost of compiling and evaluating the additional habitat information would be about \$1,000.

Surveys for ESA-listed Species

The RSP states that field surveys will be conducted “*as determined by the literature review*” for the yellow-billed cuckoo, southwestern willow flycatcher, least Bell’s vireo, California condor, and Pacific fisher

We note that SCE should have already reviewed potential methodology to develop the study plan to provide adequate detail for staff, resource agencies, and other interested stakeholders to fully evaluate. In the RSP, SCE asserts that protocol-level bird surveys are outside the scope necessary to evaluate project-related effects. Although SCE’s assertion may not be off base, they do not sufficiently explain why or discuss whether they consulted with FWS or California DFW regarding what survey methods may be appropriate. The plan describes survey methods in limited detail for listed riparian bird species and no species-specific survey methods are described for the California condor or the Pacific fisher. Additionally, the plan proposes to conduct field surveys for special-status species (e.g., FSCC); however, it does not identify which species may be surveyed or describe how the surveys would be conducted. With few exceptions, the plan lacks the necessary detail and methodology for staff to fully understand how surveys for federally listed and special-status species would be conducted [section 5.9(b)(6)]. Therefore, we recommend that future study reports provide more specific information on survey methods for each listed species potentially occurring in the project area, including but not limited to, the information below.

- Describe the number of survey locations, points, and/or transects to be conducted within suitable breeding habitat, including if applicable, the aggregate length of surveyed transects.
- Provide, for each survey location, the duration of time that surveys are conducted, the frequency and duration of playbacks, and the total survey effort per species (e.g., total time per survey replicate).
- Describe survey methods in sufficient detail for the Pacific fisher, California condor, and any special-status species identified as potentially affected by continued and proposed operation of the project, including species-specific methodology, number of survey locations, survey effort (e.g., time, area), information collected (e.g., signs, habitat data), etc.

Additionally, the plan states that biologists would play species-specific songs/calls (playbacks) for yellow-billed cuckoo and southwestern willow flycatcher during surveys, but it does not indicate that playbacks would be conducted for the least Bell’s vireo. Playback surveys are typically used to increase detectability of rare or secretive species and in habitat where the structure and density of vegetation reduces the likelihood of visual detection. As with the cuckoo and flycatcher, the least Bell’s vireo also nests in dense riparian habitat, so it’s unclear why SCE would not also conduct playback surveys

for it. Therefore, we recommend SCE modify the study plan to also use playback surveys for the least Bell's vireo. Because the least Bell's vireo occurs in the same riparian habitat as the listed cuckoo and flycatcher and SCE also proposes playback surveys for these species, we estimate the cost of modifying the study plan, as recommended, would be negligible.

We estimate the total cost of the recommendations described above would be about \$5,000.

Study BIO-4: Benthic Macroinvertebrate

Applicant's Proposed Study

Benthic macroinvertebrates (BMI) are commonly used as indicators of aquatic ecosystem health due to their sensitivity to physical, chemical, and biological conditions in streams. SCE proposes to conduct an inventory and assessment of BMI in the bypassed reach using an aquatic ecosystem health index that would facilitate evaluation of water quality and aquatic habitat downstream of Fairview Dam in the NFKR. BMI sampling would be conducted at two locations in the bypassed reach using procedures described in the State of California's Surface Water Ambient Monitoring Program (Ode et al., 2016). In addition, SCE would collect BMI at a single site in the NFKR upstream of the influence of Fairview Dam that would serve as a reference site and to characterize nearby BMI assemblages outside of the project-affected area.

Comments on the Study

Neil Nikirk recommends that SCE include an additional BMI sampling site between the powerhouse and the town of Kernville to document BMI assemblages in this reach and evaluate how BMI are affected by changes in flow downstream of the powerhouse.

Discussion and Staff Recommendation

Project operation could affect flow, water temperature, DO, and aquatic biota in the NFKR downstream of Fairview Dam including the reach downstream of the KR3 powerhouse to Kernville [section 5.9(b)(5)]. SCE's proposal would not describe BMI or assess aquatic habitat conditions downstream of the KR3 powerhouse. The additional sample site between the KR3 powerhouse and Kernville would provide data on BMI and aquatic ecosystem health downstream of the powerhouse needed to inform staff's environmental analysis. Therefore, we recommend that SCE include an additional BMI sampling site downstream of the powerhouse. SCE should ensure that the additional sample site has similar physical habitat conditions (e.g., substrate) to the other BMI sampling sites and/or is representative of the reach between the KR3 powerhouse and

Kernville. We anticipate the cost to add an additional BMI sampling site, including labor and additional analysis, would be \$2,500.

Study BIO-6: Stream Habitat Typing

Applicant's Proposed Study

Project operation alters flow in the NFKR which could affect the availability and quality of aquatic habitat. SCE proposes to conduct a stream habitat typing study to identify and map habitat types in the Fairview Dam bypassed reach. Initial mapping of macrohabitats would use existing aerial imagery and video that would be verified with field surveys.

Comments on the Study

Neil Nikirk recommends that the study include Salmon and Corral Creeks as the bypassed portions of these streams are within the project area and contain habitat for fish and other aquatic species.

Discussion and Staff Recommendation

While SCE maintains seasonally variable minimum flows in the 0.4-mile-long Salmon Creek bypassed reach and the 1.1-mile-long Corral Creek bypassed reach, SCE diverts unknown quantities of water from Salmon and Corral Creeks into the water conveyance system, which reduces flows and affects aquatic habitat in the bypassed reaches of these creeks [section 5.9(b)(5)]. The PAD states that these streams support rainbow trout and are narrow and steep with gradients of 7 to 10 percent. However, there is no information in the PAD to describe the variety of aquatic habitats or evaluate the effects of flow diversions on aquatic habitats in these reaches.

Although Mr. Nikirk recommends that the proposed habitat typing and mapping include Salmon and Corral Creeks, this methodology is not applicable to the much narrower and less accessible Salmon and Corral Creeks because precise macrohabitat descriptions along the entire length of these bypassed reaches would be unnecessary and costly, riparian vegetation/canopy cover would limit interpretation of aerial images, and field surveys would not be possible in some areas due to the steep terrain. Therefore, we recommend SCE conduct visual aquatic habitat surveys with photographs to generally describe physical habitat (e.g., channel type, channel width, substrate, dominant macrohabitats, riparian vegetation, and natural barriers to fish) upstream and downstream of the diversions and along accessible areas of the bypassed reaches of Salmon and Corral Creeks. We anticipate that the additional habitat surveys in Salmon and Corral Creeks would cost \$3,500.

Study BOT-1: General Botanical Resources

Applicant's Proposed Study

SCE proposes a botanical resource study to augment existing information on special-status¹¹ and non-native, invasive plant species that are potentially affected by operation and maintenance of the project. The study area would include 50-foot buffers around all aboveground project facilities and the 16-mile-long bypassed reach from the NFKR's edge to the outer edge of the riparian corridor, plus a 50-foot buffer on the edge of Mountain Highway 99, whichever is closer. The proposed study would include: (1) reviewing literature and databases for documented species records and identifying suitable habitat for special-status species potentially occurring in the study area; (2) developing maps of potential suitable habitat in the study area using existing Forest Service vegetation alliance classifications and maps as well as aerial imagery to inform field surveys; and (3) conducting floristic field surveys by foot in spring, summer, and fall to document and map special-status and invasive plants, vegetation communities, and potential habitat to be summarized in a study report.

SCE notes that it already began conducting certain elements of the proposed study in March 2022, including: (1) visiting reference populations for several target plant species to confirm that known populations were identifiable at the time of the surveys; (2) performing spring floristic surveys in March and April 2022; and (3) completing summer surveys in June 2022. SCE anticipates conducting late summer/fall surveys from August 2022 to September 2022, including surveys along the Fairview Dam bypassed reach if potential suitable habitat for special-status plant species is identified. Spring (March through April) and summer (June through July) surveys along the bypassed reach would be conducted in 2023.

Comments on the Study

Neil Nikirk notes that while SCE revised the study area in the RSP to include the Fairview Dam bypassed reach, the description in *Section 6.2 Field Surveys* still pertains only to project facilities making it unclear if the entire bypassed reach, or only selected portions of it, would be surveyed. As such, he requests that SCE revise the study plan to clarify how the bypassed reach would be surveyed. Additionally, he requests that the study area also include all perennial streams, creeks, off-channel ponds, or wetlands within the project area, including the riparian zones along Salmon Creek and Corral Creek.

¹¹ Special-status plant species include species listed under the federal ESA, California ESA, designated as a Forest Service Species of Conservation Concern, or ranked as rare by the California Native Plant Society.

Discussion and Staff Recommendation

The RSP states that field surveys will be conducted by foot within the study area where potential suitable habitat for any special-status plants is identified (study phase 1), including any suitable habitat identified along the Fairview Dam bypassed reach. The proposed study area would also include a 50-foot-wide buffer surrounding the entire riparian habitat corridor of the bypassed reach, which should adequately encompass any perennial streams, creeks, wetlands, and off-channel ponds potentially affected by project operation. Therefore, staff do not recommend any additional modifications to the study area along the Fairview Dam bypassed reach. Except for the areas discussed below, it's unclear what, if any, additional water features Mr. Nikirk believes should be included in the study area and how the project may affect them [section 5.9(b)(5)].

Although, the RSP indicates that the study area includes 50-foot buffers around the Salmon Creek diversion, the Corral Creek diversion, and the siphon on Cannell Creek, it does not include the bypassed reaches on Salmon and Corral Creek, or the spillways and channel down to Cannell Creek to the confluence with the NFKR. Like the Fairview Dam bypassed reach, project operation also alters flows in the bypassed reaches downstream of these project diversions and the siphon, which potentially affects vegetation near the creeks including special-status plant species [section 5.9(b)(5)]. Therefore, we recommend that the study area also encompass a 50-foot buffer surrounding riparian habitat corridors along the 0.4-mile-long bypassed reach of Salmon Creek, the 1.1-mile-long bypassed reach of Corral Creek, and the approximately 1-mile-long reach of Cannell Creek from the spillway to the confluence with the NFKR. We estimate that expanding the study area to include about 2.5 miles of riparian habitat, as recommended, would cost an additional \$3,500.

Study REC-1: Whitewater Boating

Applicant's Proposed Study

Project operation alters flow in the 16-mile bypassed reach of the NFKR, between Fairview Dam and the KR3 powerhouse tailrace, and the timing of flows in the river segment between the KR3 powerhouse and Kernville (i.e., the study reach), which affects river flows and could affect opportunities for whitewater boating and current license conditions.¹² The purpose of the study is to document current whitewater boating opportunities in the study reach and identify operational constraints on whitewater boating and public safety concerns.

¹² *Southern California Edison Company*, 166 FERC ¶ 62,049 (2019).

SCE's proposed study would generally follow the study methods summarized in "Flows and Recreation: A Guide to Studies for River Professionals" (Whittaker, Shelby, and Gangemi, 2005). This commonly used, accepted methodology typically involves a progression of increasing efforts beginning with a Level 1 desktop study, then moving to a Level 2 "limited reconnaissance" study, and culminating, if necessary, in a Level 3 study analyzing multiple controlled flows. A Level 3 study on this reach would likely consist of a panel of boaters evaluating multiple controlled flows to rate the quality of the whitewater experience at each flow. The RSP includes Level 1 and Level 2 studies but does not directly address the potential need for a Level 3 controlled flow study.

Comments on the Study

American Whitewater, Park Service, and Neil Nikirk express concern that SCE's proposed maximum number of participants, nominated by the boating community to participate in the Level 1 structured interviews (10 participants) and the Level 2 limited reconnaissance (12 participants), would likely exclude boaters of different skill levels and of various whitewater watercraft. Therefore, American Whitewater, Park Service, and Mr. Nikirk request the study be modified to remove the maximum number of participants allowed for each group. Instead, they request the study include a guaranteed (or, set) minimum number of participants for each group, and as American Whitewater suggests, allow the level of stakeholder involvement in each level of the study be a guide to set the minimum number for the following level. Park Service also requests that the boating community choose the most qualified individuals for the study. Mr. Norman requests on-water boating flow studies at various flow levels (i.e., controlled-flow study) and requests that SCE solicit KRB input on the flow study and protocols. American Whitewater also comments that a connection exists between the project cost of producing hydropower and SCE's ability to provide boating flows, and a Generation Value Assessment should be considered in the study.

Additionally, KRB filed a request for a new study (*Whitewater Flows Study*) that would modify SCE's proposed *Study REC-1: Whitewater Boating* and require SCE to perform a controlled-flow study consistent with Whittaker et al. (2005) to identify the lowest optimal and lowest enjoyable flow ranges that exist for each for each type of watercraft. KRB states that the modification would determine the number of days that whitewater boating is not possible because of low river flows caused by project operations. KRB also states that results of the modification would supplement existing information and provide new information on boating flows between 275 and 675 cfs, specifically by conducting the study at flows of 200, 300, 400, 500, and 700 cfs before peak snowmelt. KRB contends that project operations decrease flows in the river that limit whitewater boating opportunities.

In its response to stakeholder comments, SCE disputes the need for a controlled-flow study based on their assessment that there is insufficient storage upstream of

Fairview Dam to release flows for the study and that the snowmelt hydrograph in the NFKR is unpredictable, and asserts these factors are limitations to planning a controlled flow study. SCE also comments that KRB's request for the *Whitewater Flows Study* is unnecessary because *Study REC-1: Whitewater Boating* would provide the results sought by the requested new study. Additionally, SCE comments that it previously revised its study objectives for *Study REC-1: Whitewater Boating* to include identifying the frequency that minimum acceptable and optimal whitewater flows, for each watercraft, occur in each river segment of the bypassed reach during project operations and when the project does not impair flows.

Discussion and Staff Recommendation

The generally accepted methodology in Whittaker et al. (2005) does not suggest that the whitewater community should nominate participants for the Level 1 structured interviews. Rather, Whittaker et al. (2005) caution that too few participants and limited representation can limit the usefulness of the collected interview data. Additionally, if the number of boaters identified as qualified for participation in the interviews is above SCE's currently proposed maximum number of participants, nothing in the methodology exists to guide the boating community to determine who of the nominees to exclude from participation [section 5.9(b)(6)]. Therefore, the proposed maximum capacity on participation for the interviews is inconsistent with the accepted methodology for Level 1 interviews, and we recommend that the study be modified to remove the maximum capacity on participation for the interviews.

We recommend that, in order for SCE to reach the greatest number of interested stakeholders with whitewater boating experience on the NFKR for Level 1 interviews, SCE should: (1) work with the boating community, including outfitters, to identify participants for the interviews; (2) provide on its project website the structured interview questions, in the form of a questionnaire that participants can fill out and submit online to SCE, for the duration of the Level 1 assessment; (3) distribute that questionnaire (for participants to fill out and submit to SCE) and information about its availability on SCE's project website, to the boating community, outfitters (to provide the questionnaire at the outfitter businesses), and the Forest Service (to provide the questionnaire at the local Forest Service ranger district station); and (4) post information about the online questionnaire at each of the whitewater put-in and take-out locations along the project bypassed reach. Therefore, based on our recommendation to include an online questionnaire, we believe setting a minimum number of interview participants is unnecessary considering the high potential number of participants that can be included. We estimate that providing the online questionnaire on the project website for the duration of the Level 1 assessment, distributing the questionnaire to the boating community, outfitters, and Forest Service, and posting information about the online questionnaire at whitewater put-in and take-out locations along the project bypassed reach would cost approximately \$2,000.

The methodology in Whittaker et al. (2005) for Level 2 on-land reconnaissance of boating feasibility indicates that a “short list” of participants, including experienced boaters and agency representatives, should be chosen to participate. Therefore, American Whitewater, Park Service, and Mr. Nikirk’s request for a set minimum number of participants for the Level 2 reconnaissance, with no set maximum, is inconsistent with accepted methodology [section 5.9(b)(6)]. In addition, SCE’s proposed study specifies that the number of reconnaissance participants could be 6 to 12 individuals, which appears to also establish a minimum number of participants. Therefore, we recommend that the study be modified to require up to 12 participants nominated by the boating community, with no minimum participant requirement. We also suggest that the boating community nominate boaters that represent the different skill levels and users of various watercraft applicable to the project area. Additionally, we recommend SCE modify its study to indicate that, in addition to the group of 12 boating community representatives, it will allow any interested agency staff to participate in the reconnaissance. We estimate these recommendations would add no additional cost to the study [section 5.9(b)(7)].

The goals and objectives of American Whitewater’s requested Generation Value Assessment are unclear [section 5.9(b)(1)]. American Whitewater does not indicate how resource agencies could use the results of a Generation Value Assessment to manage for whitewater boating in the project-affected reach [section 5.9(b)(3)], nor does it explain how the results of the assessment could inform potential license conditions [section 5.9(b)(5)]. American Whitewater also acknowledges that this assessment is not part of the accepted methodology found in Whittaker et al. (2005) [section 5.9(b)(6)]. Further, American Whitewater provides no estimate of the number of hours or person-days required to implement the assessment [section 5.9(b)(7)]. Therefore, we do not recommend a modification to the study to include a Generation Value Assessment.

SCE conducted a whitewater flow suitability study in 1994 that included participant surveys, a video survey, field observations, and hydraulic analysis, but it did not include a Level 3 controlled flow study. In the RSP, SCE acknowledges that one of the goals of their proposed study is, “[to] identify the range of flows (minimum acceptable and optimum) that would provide whitewater boating opportunities in each whitewater segment.”¹³ A Level 3 controlled flow study could help to identify the minimum acceptable and optimal range of flows for whitewater boating within the study reach [section 5.9(b)(4)]. Therefore, the results of a Level 3 controlled flow study could inform potential license conditions on what, if any, whitewater boating flow releases should be required to enhance whitewater boating opportunities [section 5.9(b)(5)].

¹³ See RSP, Attachment 4, *Study REC-1: Whitewater Boating* plan, p. 1.

SCE contends that because there is insufficient storage upstream of Fairview Dam and an unpredictable snowmelt hydrograph for the NFKR, planning for logistics, safety, and data collection and convening study participants for a controlled flow study is difficult. However, it is premature to rule out the need for a Level 3 controlled flow study at this time. Therefore, we recommend that the study include the potential for a Level 3 controlled flow study unless the results of the Level 1 and Level 2 studies show that a Level 3 study is unnecessary. If SCE concludes that a Level 3 study is not necessary based on the Level 1 and 2 study results, then it must provide a detailed justification for its conclusion in the ISR. In addition, if the results of the Level 1 and 2 studies support the need for a Level 3 study but SCE continues to contend that a Level 3 study cannot be conducted, then SCE must provide a detailed justification for its conclusion in the ISR. The justification should include, at a minimum, historical data that supports its concerns regarding the effects of the unpredictable snowmelt hydrograph on the planning for logistics, safety, and data collection for a Level 3 study. Staff will review the ISR, as well as agency and stakeholder comments on it, to determine whether SCE will be required to conduct a Level 3 controlled flow study.

Study REC-2: Recreation Facility Use Assessment

Applicant's Proposed Study

Although the current project license does not require SCE to operate and maintain project recreation sites, project operation alters flow in the NFKR which could affect recreation use of non-project recreation sites along the project bypassed reach and within the project boundary upstream of Fairview Dam. The purpose of this study is to assess recreation use at 22 Upper Canyon and Lower Canyon recreation sites, including developed and dispersed campgrounds, day-use areas, river access points and trailheads, within the project boundary and along the project bypassed reach.¹⁴ SCE's objectives for the study are to: (1) evaluate existing data on recreation use; (2) collect recreation site

¹⁴ Upper Canyon recreation sites include 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, and Springhill Dispersed Camping. Lower Canyon recreation sites include Corral Creek Picnic Site and Whitewater Take-out, Corral Creek Dispersed Camping, Hospital Flat Campground, Chico Flat Dispersed Camping, 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, and KR3 Powerhouse Whitewater Put-in/Take-out.

visitor's perceptions and experiences at recreation sites through user surveys; (3) estimate future recreation demand and need; and (4) evaluate how current recreation opportunities conform to Forest Service policies and guidelines.

Comments on the Study

The Forest Service and Neil Nikirk contend that the survey length and type of questions could discourage participation and that providing the survey online could encourage participation by allowing respondents to complete the survey on their own time. Additionally, Forest Service and Mr. Nikirk comment that recreation users should be made aware of any online survey before entering the areas with no internet connection. Further, Forest Service and Mr. Nikirk suggest that SCE could increase participation in the survey with minimal effort by distributing the survey to outfitter contact groups. Forest Service and Mr. Nikirk also request that the study not rely exclusively on visitor intercept surveys to collect visitor information, and Forest Service, Mr. Nikirk, and American Whitewater request that SCE deploy surveyors fluent in both English and Spanish to administer onsite surveys and that participants receive an incentive for their participation. Forest Service also requests several modifications to the survey questionnaire to include specific questions regarding visitor demographics and recreation use information. American Whitewater recommends that SCE should provide a copy of the survey questionnaire to stakeholders for review if revisions to the survey are made because of the study plan determination.

KRB requests that the study area be expanded beyond the project boundary to include an additional 1.9 miles of river upstream to the Johnsondale Bridge because visitors may choose this reach to recreate due to project effects on flows in the bypassed reach. KRB also requests that the survey questionnaire be modified to include a question such as: "Do you ever visit or recreate above Fairview Dam, or choose not to recreate on the NFKR at all, due to impaired flow conditions below the dam, and if so, how frequently?".

Forest Service, Park Service, American Whitewater, KRB, and Mr. Nikirk request that the study be modified to conduct onsite surveys year-round, rather than only between the proposed time from April to September.

Discussion and Staff Recommendation

Study Area

SCE proposes to collect data on recreation use within the project boundary and bypassed reach. Data on recreation use above the dam, within the project boundary, could inform the development of license conditions for that reach of the NFKR. The reach of the NFKR upstream of Fairview Dam, beyond the project's boundary, does not

provide any project-related public access or recreation opportunities. However, KRB indicates in its request that recreation users might choose to visit sites upstream of the project because of the project's effects on flows in the bypassed reach. Data collected from the approximately 1.9-mile reach of the NFKR upstream of the project boundary would ensure staff has information to analyze potential project effects on recreation use and preference within the bypassed reach and the project area, and inform license conditions [sections 5.9(b)(4) and (5)]. For these reasons, we recommend that SCE modify its study area to include 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. SCE should administer onsite surveys, conduct spot count observations, and install trail cameras in the locations that would provide information on visitors accessing the river, and conduct the study in these locations in accordance with all staff-recommended modifications. We also recommend that SCE send, via e-mail, a list, map, and description of the proposed camera locations to Forest Service, Park Service, and KRB at least one month prior to installation of the cameras to receive feedback. The final locations and methods of data collection used at the recreation sites, consultation log, and responses to comments should be filed with the Commission as part of the ISR.

Study Period and Trail Cameras

SCE proposes to conduct onsite surveys, twice monthly (1 weekday and 1 weekend day) and on 1 day of each holiday weekend, from April 2023 to September 2023 (for a total of 15 days throughout the study period). Similarly, SCE proposes to conduct spot count observations, twice monthly (1 weekday and 1 weekend day) and on 1 day of each holiday weekend, from April 2023 to March 2024 (for a total of 27 days throughout the study period).¹⁵ Although SCE indicates that surveys would take about 10 to 15 minutes to administer, the RSP does not specify the duration of time that spot count observations would be made at each site. The RSP is also unclear whether onsite surveys and spot counts would occur on the same day, what duration the surveyor and spot count observer must be at each site, and whether the surveyor would also perform the spot count.

SCE states that onsite surveys would be conducted during three 4-hour shifts, during which one circuit of the Upper Canyon recreation sites and one circuit of the Lower Canyon recreation sites would be completed within each shift. SCE anticipates each circuit would last about 2 hours but provides no indication of the travel time required between each site. As proposed, onsite surveys would have to be administered for only 10 minutes per site at each Upper Canyon site and for only 12 minutes per site at each Lower Canyon site. If travel times between sites or the time needed to administer

¹⁵ SCE does not include the holiday weekend of Juneteenth National Independence Day (June 17 to 19, 2023) in its count of holiday weekends.

onsite surveys would impact the time needed to complete other onsite surveys and spot counts at other sites, a significant amount of data that would otherwise help inform the development of license requirements would go uncollected [section 5.9(b)(4)].

Additionally, although spot count observers can record the number of visitors and use types during the time that they are onsite, the finite length of time the observer can be onsite is a limitation to the amount of study data that can be collected. Collecting study data from only 15 days of onsite surveys and 27 days of spot counts, as proposed by SCE, may not be comprehensive enough to ensure staff has adequate information to analyze environmental effects and inform license conditions [sections 5.9(b)(4) and (5)]. For these reasons, we recommend that SCE install trail cameras to collect recreation use data at each of the 22 recreation sites described above. We also recommend that SCE send, via e-mail, a list, map, and description of the proposed camera locations, to Forest Service, Park Service, and KRB at least one month prior to installation of the cameras to receive feedback. The final locations and methods of data collection used at the recreation sites, consultation log, and responses to comments should be filed with the Commission as part of the ISR. We estimate that installing trail cameras at each recreation site in the study area, as recommended, would cost an additional \$5,000.

Trail cameras can 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. However, cameras cannot collect visitor demographics or qualitative information such as recreation user preferences. Because of this, and because SCE only proposes to conduct onsite surveys for 15 days out of the year, we recommend that SCE modify its study to conduct onsite surveys twice monthly (1 weekday and 1 weekend day) and 1 day of each holiday weekend from January 2023 through March 2023,¹⁶ 1 day of the Juneteenth National Independence Day holiday weekend (June 17 to 19, 2023), and twice monthly (1 weekday and 1 weekend day) and 1 day of each holiday weekend from October 2023 through December 2023.¹⁷ This modification will increase the number of onsite survey days to 35 days and will ensure that study data related to demographics and recreation user preferences will be collected year-round and will result in additional data that can be used to inform the development of license conditions [section 5.9(b)(4) and (5)]. We estimate that conducting onsite surveys year-round, as recommended, would cost an additional \$4,500.

¹⁶ To include the holiday weekends of New Year's Day (January 1 to 2, 2023), the Birthday of Martin Luther King, Jr. (January 14 to 16, 2023), and Washington's Birthday (February 18 to 20, 2023).

¹⁷ To include the holiday weekends of Thanksgiving (November 24 to 26, 2023) and Christmas (December 23 to 25, 2023).

Bilingual Surveyors

The Forest Service indicates that its staff regularly interacts with members of the public whose primary language is Spanish, and we believe that recreation use data collected from this population is important for staff analysis of potential project effects on recreation use and could inform the development of license requirements [section 5.9(b)(5)]. Therefore, we recommend that SCE modify its proposed study to recruit and deploy bilingual English and Spanish-speaking surveyors.

Survey Questionnaire and Methods

The Forest Service contends that other methods, such as digital tools and working with local businesses and outfitters, could be used to collect data. However, in its request, Forest Service does not describe these methods that they suggest SCE should use, including the goals and objectives of the methods and tools [section 5.9(b)(1)], does not describe the proposed methodology [section 5.9(b)(6)], and does not explain the level of cost and effort associated with its request [section 5.9(b)(7)]. We note that SCE currently proposes to provide an online survey, and post information about the survey at each of the 22 recreation sites, and on the project's relicensing website, and that survey respondents will be able to access the online survey from anywhere they choose that has a connection to the internet. Therefore, we do not recommend SCE modify its proposed study to conform to Forest Service's request. However, we recommend that in addition to posting information at each recreation site, SCE should also provide that information to Forest Service to post at the local Forest Service ranger district station. Similarly, we recommend SCE should modify its study to contact local outfitters to post the survey information materials at the outfitter businesses, to reach more potential survey respondents. The level of cost and effort for providing survey information materials to Forest Service and local outfitters would be minimal and cost approximately \$100 or less to print and distribute additional survey information materials.

Forest Service did not describe the level of cost and effort associated with its request to distribute survey participation incentives [section 5.9(b)(7)], and it did not describe commonly accepted methodology that uses incentives in exchange for participation in a study [section 5.9(b)(6)]. Therefore, we do not recommend SCE modify its study to provide incentives to survey participants.

Forest Service's requested edits to the survey questionnaire would improve recreation use data collected by the study and ensure that SCE's proposal will result in data that could inform the development of license requirements [section 5.9(b)(5)].¹⁸

¹⁸ The NFKR National Wild and Scenic River stretches from the Kern/Tulare County line to the NFKR headwaters in Sequoia National Park and includes a 0.25-mile

Therefore, we recommend Forest Service's requested modifications to the survey questionnaire. Additionally, while the recreation user survey questions proposed by SCE should be adequate to determine user perceptions, we recommend several modifications to the survey detailed below at the end of this discussion, including the survey question requested by KRB as modified by staff, to clarify the survey and provide more robust results. Further, regarding KRB's and the Fishing Groups' requested Enjoyable Angling Flows Study, which is discussed below under *Studies Requested but Not Adopted by SCE*, data collected on anglers' perceptions would provide staff with additional information to analyze potential project effects on angling and the preferences of anglers within the bypassed reach [section 5.9(b)(4)]. Although SCE revised its visitor intercept survey questionnaire to include some questions regarding angling experience, we recommend SCE modify its survey questionnaire to include the additional angling-specific questions detailed below, to collect data on project effects on angling and angler preferences within the bypassed reach.

As we mention below under *Aesthetic Flows Study*, staff believe the survey questionnaire is an appropriate and likely more effective method of collecting data on visitors' preferences and satisfaction regarding aesthetics in the bypassed reach. Specifically, because of our recommendations to make the questionnaire widely available, there is an increased potential to reach a greater number of respondents, who live locally but also who live in other areas of California, that are familiar with the visual character and flows of the bypassed reach. Although SCE revised the questionnaire to include some questions regarding visitors' perceptions of and their satisfaction with aesthetics in the bypassed reach, we recommend SCE modify the questionnaire to include additional questions related to aesthetics, detailed below, to provide more robust results on project effects on aesthetics and visitors' perceptions and satisfaction with aesthetics within the bypassed reach.

The level of cost and effort to modify the questionnaire to include the following additional questions would add little to no additional cost [section 5.9(b)(7)] and the modifications would improve data on recreation use and angling collected by the study that could inform the development of license conditions [section 5.9(b)(5)]. Because the period for comments and requests for study modifications is closed, and no further determinations regarding the RSP will be made, we do not recommend that SCE distribute the user intercept survey for stakeholder input before SCE conducts the surveys.

buffer. The project's Fairview Dam, dam intake, flume/sandbox, bypassed reach, SCE gage No. 401, and some portions of the project's water conveyance system and access roads are located within the buffer.

1. Include a brief introduction at the beginning of the survey explaining its purpose regarding the relicensing proceeding and how the various information collected on recreation use and angling activities will be used.
2. Because some users would complete the survey online, and likely after they have visited the recreation site(s), the language throughout the online survey should be in past tense.
3. An additional question should be added to Section 2 of the survey that reads:

“In the last 12 months, have you visited the area between Fairview Dam and the Johnsondale Bridge? If yes, please indicate below the number of times you visited during each season, and for what reason.”

- a. I have never visited the area ___
- b. Spring (March-May) #___
- c. Summer (June-August) #___
- d. Fall (September-November) #___
- e. Winter (December-February) #___

What was the primary reason for your visit? _____

4. The following additional questions about angling should be added to Section 2 that read:

“Have river flows affected your angling experience between the Fairview Dam and the Kern River No. 3 Powerhouse? If yes, please indicate in which season your experience has been affected.”

- a. Spring (March-May) ___
- b. Summer (June-August) ___
- c. Fall (September-November) ___
- d. Winter (December-February) ___

“On a scale of 1 to 10, with 1 being barely any flow and 10 being too fast of a flow to fish safely/successfully, please indicate your opinion of the river flow speed today or on the day of your most recent angling experience between the Fairview Dam and the Kern River No. 3 Powerhouse.”

“On a scale of 1 to 5, with 1 being very poor and 5 being very good, how would you rate the quality of your fishing experience today or on the day of your most recent angling experience between the Fairview Dam and the Kern River No. 3 Powerhouse?”

If you selected 1 or 2, please explain: _____

5. The following additional questions for aesthetics should be added to Section 2 that read:

“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. Additionally, please indicate about how much time you typically spent at the site using minutes or hours.” Below is an example table heading and row for this question.

Recreation Site	Spring - Number of Visits	Summer - Number of Visits	Fall - Number of Visits	Winter - Number of Visits	Total Number of Visits	Approximate Time Onsite
Name of Site						

“If you visited other sites between the Fairview Dam and the Kern River No. 3 Powerhouse, other than the above-listed recreation sites, please identify the site(s), the location, the number of times you visited during each season, and the approximate length of time you spent at that location. Additionally, please indicate the primary reason for your visit to the site(s).”

6. The instruction to ask questions 16 through 18 only if respondents select the activities of photography, scenic driving, viewing scenery, or wildlife viewing should be removed.
7. Question 16 should read “What are the scenic features that most attracted you to the general area of the NFRK? Please provide the top 3 features. What are the scenic features that most attracted you to the area between Fairview Dam and the Kern River No. 3 Powerhouse? Please provide the top 3 features.”
8. Question 17 should read “Over the past 12 months, how often have you visited the area to partake in photography, scenic driving, viewing scenery, and/or viewing wildlife?” Retain items 17f. through 17j.
9. Question 18 should read “On a scale of 1 to 5, with 1 being very poor and 5 being very good, how would you rate the scenic quality of the NFRK area in general? On a scale of 1 to 5, with 1 being very poor and 5 being very good, how would you rate the scenic quality of the area between Fairview Dam and the Kern River No. 3 Powerhouse?”
10. Question 19 should include the following modifications:
 - a. Item 8 should read “Adequacy of site access for persons with disabilities”.
 - b. Item 10 should read “Maintenance (physical condition) of facilities”.

- c. Item 13 should read “Informational/educational opportunities”.
 - d. Item 19.a. should read “If you marked Very Dissatisfied or Dissatisfied for any of the items listed above, please explain”.
11. Question 22 should read: “Do you believe that additional recreation facilities are needed in the area between the Fairview Dam and the Kern River No. 3 powerhouse?”

Study CUL-1: Cultural Resources

Applicant’s Proposed Study

SCE proposes a cultural resources study to identify archaeological resources, built-environment resources, and traditional cultural properties within the project’s area of potential effects (APE), and determine which cultural resources are historic properties eligible for the National Register of Historic Places (National Register). SCE would then develop a historic properties management plan (HPMP) based on the results of the study. The HPMP would ensure that SCE would effectively manage, protect, and resolve any potential project-related adverse effects to National Register-eligible cultural resources over the term of any new license.

Comments on the Study

The Forest Service contends that SCE’s proposed APE for the cultural resources study is too narrowly defined to encompass large-scale resources and indirect effects to cultural resources, and is only limited to the extent of the FERC project boundary.¹⁹ Forest Service notes that the entire FERC project boundary is located within the National Register’s eligible KR-3 historic district and that, per its discussions with the California State Historic Preservation Office (California SHPO), the APE of an undertaking within a National Register eligible historic district should include the entire district. As such, Forest Service recommends that the APE be modified to be consistent with the boundary of the KR-3 historic district. Furthermore, Forest Service gives other examples of the APE being too narrowly defined for the project such as the physical right-of-way boundary for roads. As an example, Forest Service comments that water discharged from road waterbars or overside drains may potentially affect archaeological sites located well beyond the narrow road buffer described by SCE as well as indirect effects, such as dust from grading potentially affecting rock-art sites located away from roads.

¹⁹ Forest Service’s comments involve the same issues raised in its June 3, 2022 filing involving both the Cultural Resources and Tribal Resources studies described in the PSP.

Discussion and Staff Recommendation

In the RSP, SCE notes that the study area would extend 0.5-mile beyond the project's APE, taking into account any cultural resources that may be directly or indirectly affected by the project. This would include any such cultural resource that could possibly be affected by road maintenance activities or other project-related actions. Additionally, SCE recognizes the KR-3 historic district in the proposed study and that it is within the project's APE, including associated cultural resources as contributing elements to the district (see discussion, pages 5 and 18 of the study plan). In addition, SCE developed the study plan in consultation with the California SHPO, Forest Service, and interested Indian tribes, with the California SHPO concurring with the project's APE in a letter filed March 24, 2022. As a result, staff does not recommend that the project's APE be more broadly defined. However, the project's APE may be expanded or modified based on the results of the relicensing studies, or other new information.

Study TRI-1: Tribal Resources

Applicant's Proposed Study

SCE proposes a tribal resources study to identify tribal-related activities that may exist within the project's APE and any effects to them caused by the project, identify project-related effects on tribal resources, and recognize existing agreements with other entities (e.g., Sequoia National Forest) regarding access to tribal resources, including the protocols related to the gathering of natural resources, fishing, hunting, camping, ceremonial, or other special uses. SCE would incorporate the results of the study into the HPMP. The HPMP would ensure that SCE would effectively manage, protect, and resolve any potential project-related adverse effects to tribal resources and/or related practices over the term of any new license.

Comments on the Study

Forest Service contends that the project's APE for the tribal resources study is too narrowly defined to encompass large-scale resources and indirect effects to tribal resources, and that it is only limited to the extent of the FERC project boundary. The Forest Service adds that the project's APE does not adequately capture the space involving direct and indirect effects to account for all tribal resources including sacred sites, traditional cultural properties, and traditional cultural landscapes. Forest Service gives examples such as visual and auditory effects, land use changes, traffic patterns, and public access, that are, in turn, created or caused by project-related activities, which could induce adverse indirect effects to traditional gathering areas located outside the presently defined APE.

Discussion and Staff Recommendation

In the RSP, SCE notes that the study area for the proposed tribal resources study would extend 5 miles beyond the project's APE, taking into account other tribal resources located within the larger study area that may extend into the project's APE, or that may be indirectly affected by the project. Therefore, if any tribal resource is identified within the 5-mile study area, such potential project-related adverse effects to them would be evaluated and appropriately resolved. In addition, SCE developed the study plan in consultation with the California SHPO, Forest Service, and interested Indian tribes, with the California SHPO concurring with the project's APE in a letter filed March 24, 2022. Therefore, we do not recommend that the project's APE be more broadly defined. As discussed above with the cultural resources study, the project's APE may be expanded or modified based on the results of the relicensing studies, or any other new information.

Study GEO-1: Erosion and Sedimentation

Applicant's Proposed Study

SCE proposes to study potential erosion and sedimentation related to project operations and runoff from project facilities. The proposed study would conduct a desktop review of existing erosion information, including an analysis of aerial imagery, and field surveys to identify areas of past and active erosion. Overall, SCE would develop an inventory and assessment of spillways, diversions, buildings, parking areas, and other project facilities to characterize project effects on erosion and sedimentation.

Comments on the Study

In its comments on the RSP, Forest Service asserts that a sediment transport model is needed to determine if the modified sandbox flushing procedure, which flushes sediment from the sandbox once every 2 weeks when flows in the bypassed reach are 350 cfs or greater, is sufficient to transport excess sediment and debris that was deposited in the bypassed reach after the 2002 McNally Fire (McNally Fire) and heavy rainstorms that occurred soon after the wildfire. The Forest Service states that SCE has not monitored sediment in the bypassed reach since 2001, and therefore, Forest Service asserts SCE does not have data to determine if the 350-cfs flow is sufficient to move excess post-McNally fire sediment or other future events in the bypassed reach.

Discussion and Staff Recommendation

In the RSP, SCE cites numerous sediment studies and habitat surveys that have occurred within the bypassed reach before and after the McNally Fire. The 2001 sediment monitoring that occurred before the McNally Fire was repeated in 2007 and 2009 at a site about 200 feet downstream of Fairview Dam in an area that is sensitive to

sandbox flushing and aggradation. This study includes quantitative analyses of channel cross section profiles and particle size distribution as well as a qualitative evaluation of channel morphology (Entrix 2009). The 2009 study found that 350 cfs is sufficient to transport fine-grained material released from the sandbox through the bypassed reach and that the channel was still adjusting to fine sediment deposits following the McNally Fire. SCE states that the minimum 350 cfs flushing flows were not intended to mobilize and transport excess sediment deposits from the McNally Fire; however, the 2009 study indicates that naturally occurring high flows in 2005 and 2006 did scour much of the post-fire sediment from the bypassed reach.

In addition to pre- and post-fire sediment studies, SCE conducts fish population monitoring pursuant to Article 411 of the existing license, which includes habitat surveys within the bypassed reach. Comparison of channel characteristics measured in 1998, 2006, 2011, and 2016 indicate a relatively stable channel morphology with minimal changes in channel size, channel shape, and substrate characteristics of the surveyed reaches. Specifically related to sediment, minimal changes to substrate composition were observed at three sites downstream of Fairview Dam (Roads End, Gold Ledge, and Hospital Flat) between 1998 and 2016. Following the McNally Fire, the percentage of sand (substrate 2 to 8 millimeters) at these sampling sites increased by 10 percent, 2 percent, and 33 percent, respectively; however, by 2016, the percentage of sand had returned to at or below pre-fire levels at the Roads End and Gold Ledge sites and decreased from 48 percent to 30 percent at the Hospital Flat site.

Additionally, SCE proposes to conduct *Study BIO-6: Stream Habitat Typing* (discussed above) that would identify and map macrohabitats²⁰ along the entirety of the bypassed reach. During this study, SCE would further describe current sediment conditions by recording the dominant and subdominant substrates in each macrohabitat unit and would compare existing habitats to pre-fire conditions.

The existing sediment data including multiple evaluations of the 350-cfs minimum flow for sandbox flushing, the proposed *Stream Habitat Typing Study*, and the proposed assessment of project facilities to identify areas of past and active erosion (*Study GEO-1: Erosion and Sedimentation*) should provide sufficient information to inform staff's analysis of project effects (section 5.9(b)(4)). Therefore, we do not recommend that SCE modify its proposed study to include the requested sediment transport model.

²⁰ Macrohabitats are larger, visually distinct habitats defined in the 1991 license application and the RSP as riffles, runs, deep and shallow pools, cascades, boulder runs, and boulder pocket waters.

Study OPS-1: Water Conveyance Assessment

Applicant's Proposed Study

The project's 13-mile-long water conveyance system is potentially affected by rapid flow cycling (i.e., decreases or increases in flow rates and corresponding decreases or increases in water levels in the conveyance), which may affect the integrity of the conveyance system. Article 422 (amended January 30, 2019) of the current license for the project requires, in part, that:

“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.”²¹

The proposed study (previously, *Study OPS-1: Tunnel Assessment*) would use a two-phased approach to complete a desktop engineering review and evaluation of current conveyance flowline conditions. Phase 1 would include a summary of existing information on the project conveyance and a review of any readily available industry guidance on flow cycling and effects to tunnel integrity. Phase 2 would utilize the information obtained during Phase 1 to further describe the existing conditions within the project conveyance flowline during operations and would include an initial hydraulic assessment for various flows, and a preliminary structural integrity assessment. The study results would be used to compile a list of guidelines and considerations for use when evaluating long-term project operations. The study would primarily assess 24 tunnel segments, approximately 60,270 feet long in total.

Comments on the Study

American Whitewater comments that the proposed study goals and objectives do not thoroughly describe the engineering review of current conditions. Therefore, American Whitewater requests that SCE modify the proposed study to include specific operational parameters, such as the timing, magnitude, and frequency of changes to diversion flows. American Whitewater also comments that the proposed study is too focused on evaluating the safety of the current project operations and flow constraint, rather than evaluating the physical limitations of the conveyance system and possibilities for operational modifications in the future. Therefore, American Whitewater requests that the study clearly separate the impacts of the current operation of the conveyance system from the impacts of potential changes to that flow regime, including addressing

²¹ 166 FERC 62,049.

how often the tunnel can be safely dewatered, what minimum maintenance flow must be maintained, and how quickly flow in the tunnel can be safely ramped up and down.

KRB reiterates its request for a new *Tunnel Maintenance Flows Study* that it filed in response to the PSP. The requested study would evaluate the effects on the conveyance system infrastructure of potentially increasing and decreasing project flow diversions into the conveyance system for the purposes of providing whitewater boating flows in the bypassed reach. Specifically, the study results would describe the additional effects of these flow changes on the conveyance system in comparison to the effects that may already be occurring under current operations. Because the objectives of KRB's requested new study are very similar to that of *Study OPS-1: Water Conveyance Assessment*, we discuss it here as a modification to the proposed study. In response to KRB's initial request, SCE revised the study plan to evaluate the entire water conveyance system (tunnel, flume, siphon, and penstock) under varying flow conditions to help identify guidelines to consider for operation of the water conveyance system. However, KRB asserts that SCE's inclusion of "varying flow conditions" lacks specificity to determine what additional damage could occur under various flow regimes. Therefore, KRB comments that the study should evaluate specific flows, including one that would provide for full natural flows (i.e., a complete cycling that empties the conveyance), one that reflects the current 300-cfs minimum (i.e., cycling of all but 300 cfs from the tunnels), and other maintenance flow levels in between (e.g., the cycling of all but 50, 100, 150, 200, and 250 cfs from the tunnels).

Lastly, KRB references a tunnel rehabilitation project that SCE conducted from 2013 to 2014 to improve the structural integrity of project tunnels. KRB asserts that SCE filed its entire application as Critical Energy Infrastructure Information (CEII), so the public was unable to review what materials were used to improve tunnel integrity. Therefore, KRB requests that the study also describe what steps SCE took during its tunnel rehabilitation project.

Discussion and Staff Recommendation

The modifications requested by American Whitewater generally lack sufficient information and methods that would enable SCE to modify the study plan [section 5.9(b)(6)]. Regarding American Whitewater's request that the study include specific operational parameters, we understand that Phase 1 of the study would identify and refine specific operational parameters. We note that the proposed study is designed to evaluate current conditions of the water conveyance system, which establishes the baseline for comparison with potential operational alternatives that will be discussed in SCE's license application and staff's NEPA document. As a result, studying the impacts of potential changes to the flow regime, as requested by American Whitewater, is premature and the goal of the proposed study would adequately evaluate any necessary maintenance flows.

Further, we are unaware of any safety concerns regarding the effects of ramping rates on the tunnel.

We agree that the proposed study should evaluate a range of flows, including intermediate levels, as requested by KRB. Although the study plan does not specify values, we expect that intermediate flow levels would also be assessed and that they would be consistent with the intent of KRB's request. Regardless, the Commission's Division of Dam Safety and Inspections (D2SI) has also reviewed the proposed study and recommends that the study evaluate flows ranging from a no-flow condition (e.g., a dewatered tunnel) to a full operational flow with the goal of determining what flows are necessary for maintaining project safety and tunnel integrity. D2SI also recommends that the study plan include a review of pre-construction and construction documents such as plans and specifications, construction reports, investigation records (e.g., boring logs), and testing reports in Phase 1 of the study. D2SI notes that a Supporting Design Report must be filed with the FLA in accordance with section 4.41(g)(3) to address any safety concerns and recommends that the Technical Memorandum that SCE proposes to append to either the ISR or Updated Study Report (USR) be submitted with the ISR to allow for more time for any potential comments to be addressed. The maps and drawings showing project location information and details of project structures must be filed in accordance with section 4.39(e) of the Commission's regulations regarding the submission of privileged materials and CEII. We expect that any relevant information from the tunnel rehabilitation project, as requested by KRB, would also be included in SCE's Phase 1 review of construction reports and records.

As summarized above, we conclude that the requested modifications filed by American Whitewater and KRB are unnecessary and, therefore, we do not recommend that SCE modify the proposed study to incorporate them.

NEW STUDY RECOMMENDED BY STAFF

Environmental Justice Study

Commission staff have identified information needed to assess project effects that is not included in the PAD or proposed in SCE's RSP. As required in section 5.9(b)(1)-(7) of the Commission's regulations, we have addressed the required criteria in the study request that follows.

Goals and Objectives

Section 5.9(b)(1) – Describe the goals and objectives of each study proposal and the information to be obtained.

The study has five objectives: (1) to identify the presence of environmental justice communities that may be affected by the relicensing of the KR3 Project and identify outreach strategies to engage the identified environmental justice communities in the relicensing process, if present; (2) to 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; (3) to discuss effects of relicensing the project on any identified environmental justice communities and identify any effects that are disproportionately high and adverse; (4) to identify mitigation measures to avoid or minimize project effects on environmental-justice communities; and (5) to identify sensitive receptor locations within the project area and identify potential effects and measures taken to avoid or minimize the effects to such locations, if they are present.

Relevant Resource Management Goals and Public Interest Considerations

Section 5.9(b)(2) – If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.

Not applicable.

Section 5.9(b)(3) – If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*,²² and Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low Income Populations*,²³ as amended, requires federal agencies to consider if impacts on human health or the environment would be disproportionately high and adverse for minority and low-income populations (i.e., environmental justice communities) in the surrounding community resulting from the programs, policies, or activities of federal agencies. If environmental justice communities do exist near the KR3 Project, Commission staff will need to assess potential effects from relicensing the project on those communities. Since the pre-filing process for the KR3 Project began, the Commission has been developing an approach to completing the required assessment and comply with both Executive Orders. We are now ready to better direct our applicants to provide us with the information to complete that assessment.

Further, Sections 4(e) and 10(a) of the Federal Power Act require the Commission to give equal consideration to all uses of the waterway on which a project is located, and what conditions should be placed on any license that may be issued. In making its

²² 86 Fed. Reg. 7, 619-7, 633 (January 27, 2021).

²³ 59 Fed. Reg. 7, 629-7, 633 (February 16, 1994).

license decision, the Commission must equally consider the environmental, recreational, fish and wildlife, and other non-developmental values of the project, as well as power and developmental values.

Existing Information and Need for Additional Information

Section 5.9(b)(4) – Describe existing information concerning the subject of the study proposal, and the need for additional information

Although SCE's PAD provides an overview of socioeconomic resources near the project, it does not identify any potential environmental justice communities, nor determine any potential project effects to those communities. Also, no studies proposed by SCE would collect the necessary information.

The information necessary to conduct an identification of environmental justice communities near the project is available through the U.S. Census Bureau's American Community Survey (Census 2020); however, such information must be aggregated and compared in order to make determinations about the presence of environmental justice communities within the project area. The nature of effects of the project on any communities present would need to be determined through consultation with the communities, and are dependent on the applicant's relicensing proposal.

Project Nexus

Section 5.9(b)(5) – Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Continued operation and maintenance of the KR3 Project has the potential to affect human health or the environment in environmental justice communities. Examples of resource impacts may include, but are not necessarily limited to, project-related effects on: erosion or sedimentation of private properties; groundwater or other drinking water sources; subsistence fishing, hunting, or plant gathering; access for recreation; housing or industries of importance to environmental justice communities; and operation-related effects on air quality, noise, and traffic.

Proposed Methodology

Section 5.9(b)(6) – Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Below, we provide the methodology that Commission staff has adopted for collecting environmental justice data for hydroelectric projects. This methodology has been successfully employed on a number of projects in the licensing process and is consistent with guidance from the Environmental Protection Agency's *Promising Practices for Environmental Justice Methodologies in NEPA Reviews* (2016). Please prepare a study report that provides the following:

- (a) A table of racial, ethnic, and poverty statistics for each state, county, and census block group within the geographic scope of analysis. For the project, the geographic scope of analysis is all areas within 1 mile of the project boundary. The table should include the following information from the U.S. Census Bureau's most recently available *American Community Survey 5-Year Estimates* (Census 2020) for each state, county, and block group (wholly or partially) within the geographic scope of analysis:
 - i. total population;
 - ii. total population of each racial and ethnic group (i.e., White Alone Not Hispanic, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, some other race, two or more races, Hispanic or Latino origin [of any race]) (count for each group);
 - iii. minority population including individuals of Hispanic or Latino origin as a percentage of total population;²⁴ and
 - iv. total population below poverty level as a percentage.²⁵

The data should be collected from the most recent *American Community Survey* files available, using table #B03002 for race and ethnicity data and table #B17017 for low-income households (Census 2020). A table template is provided below.

- (b) Identification of environmental justice populations by block group, using the data obtained in response to part (a) above, by applying the following methods included in EPA's *Promising Practices for Environmental Justice Methodologies in NEPA Reviews* (2016).

²⁴ To calculate the percent total minority population, subtract the percentage of "White Alone Not Hispanic" from 100 percent for any given area.

²⁵ To calculate percentage of total population below poverty level, divide the total households below the poverty level by the total number of households and multiply by 100.

- i. To identify environmental justice communities based on the presence of minority populations, use the “50-percent” and the “meaningfully greater” analysis methods. To use the “50-percent” analysis method, determine whether the total percent minority population of any block group in the affected area exceeds 50-percent. To use the “meaningfully greater” analysis, determine whether any affected block group affected is 10-percent greater than the minority population percent in the county using the following process:
 1. calculate the percent minority in the reference population (county);
 2. to the reference population’s percent minority, add 10-percent (i.e., multiply the percent minority in the reference population by 1.1); and
 3. this new percentage is the threshold that a block group’s percent minority would need to exceed to qualify as an environmental justice community under the meaningfully greater analysis method.
 - ii. To identify environmental justice communities based on the presence of low-income populations, use the “low-income threshold criteria” method. To use the “low-income threshold criteria,” the percent of the population below the poverty level in the identified block group must be equal to or greater than that of the reference population (county).
- (c) A map showing the project boundary and location(s) of any proposed project-related construction in relation to any identified environmental justice communities within the geographic scope. Denote on the map if the block group is identified as an environmental justice community based on the presence of minority population, low-income population, or both.
- (d) A discussion of anticipated project-related effects on any environmental justice communities for all resources where there is a potential nexus between the effect and the environmental justice community. For any identified effects, please also describe whether or not any of the effects would be disproportionately high and adverse.
- (e) If environmental justice communities are present, please provide a description of your public outreach efforts regarding your project, including:

- i. a summary of any outreach to environmental justice communities conducted prior to filing the application (include the date, time, and location of any public meetings beyond those required by the regulations);
 - ii. a summary of comments received from members of environmental justice communities or organizations representing the communities;
 - iii. a description of information provided to environmental justice communities; and
 - iv. planned future outreach activities and methods specific to working with the identified communities.
- (f) A description of any mitigation measures proposed to avoid and/or minimize project effects on environmental justice communities.
- (g) Identification of any non-English speaking groups, within the geographic scope of analysis, that would be affected by the project (regardless of whether the group is part of an identified environmental justice community). Please describe your previous or planned efforts to identify and communicate with these non-English speaking groups, and identify and describe any measures that you propose to avoid and minimize any project-related effects to non-English speaking groups.
- (h) If new construction is proposed, identification of sensitive receptor locations (e.g., schools, day care centers, hospitals, etc.) within the geographic scope of analysis. Show these locations on the map generated in step (c). Provide a table that includes their distances from project facilities and any project-related effects on these locations, including measures taken to avoid or minimize project-related effects.

This study should be conducted in consultation with other relicensing stakeholders who express interest. The final study report should include documentation of any consultation you conducted with entities that expressed interest in environmental justice, copies of their comments, and an explanation of how you have addressed their comments in your final response.

Level of Effort and Cost

Section 5.9(b)(7) – Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The estimated cost of all efforts to complete this study is \$50,000 and can be completed in a single study season. As stated previously, there is currently no approved

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study that would achieve the goals and objectives of the requested Environmental Justice Study.

Template for Environmental Justice Table

	RACE AND ETHNICITY DATA										LOW-INCOME DATA
Geography	Total Population (count)	White Alone Not Hispanic (count)	African American (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority (%)	Below Poverty Level (%)
State											
County or Parish											
Census Tract X, Block Group X											

III. PROPOSED STUDIES NOT RECOMMENDED BY STAFF

Study SOCIO-1: Socioeconomic Analysis

Applicant's Proposed Study

The objectives of the proposed desktop study are to: (1) evaluate expenditures associated with recreation in the Fairview Dam bypassed reach; (2) qualify outdoor recreation expenditures in the surrounding area outside of the bypassed reach using publicly available data; and (3) assess the contribution of the recreation in the bypassed reach relative to overall recreation in the greater surrounding area of the project. The study area would include the Fairview Dam bypassed reach, nearby towns (Kernville, Woodford Heights, Lake Isabella), and areas within Sequoia National Forest including the NFKR upstream of the project, Isabella Lake, and the main stem of the Kern River.

To meet the study objectives, SCE would analyze information collected from the visitor intercept survey proposed in *Study REC-2: Recreation Facilities Use Assessment*, informal interviews with commercial boating outfitters regarding the number of people served and prices, concessionaire data and National Visitor Use Monitoring (NVUM) recreation and expenditure data for Sequoia National Forest, Isabella Lake recreation and expenditure data, existing studies and government reports, available information on general land use patterns, population patterns, and sources of employment in the project vicinity (e.g., PAD, section 5.12), census data, and IMPLAN input-output modeling software.

Comments on the Study

Park Service requests that the study goals and objectives should be refined to be similar to the socioeconomic study request it filed in response to the PAD, which stated that: *“the purposes of this study are to 1) quantify the baseline economic values and socioeconomic benefits supported by water-based recreation, 2) evaluate various flow regimes on economic contributions, and 3) evaluate any long-term socioeconomic effects due to Project operations and potential changes in visitor use and expenditures due to proposed flow regimes. The objective of this study is to estimate changes in employment or income associated with any anticipated modifications to recreation use in the project area, such as whitewater rafting, boating, or fishing.”*

Park Service also comments that it is unclear if the study would analyze information collected from the visitor intercept survey proposed in *Study REC-2: Recreation Facilities Use Assessment*, the interviews with commercial boating outfitters, and *Study REC-1: Whitewater Boating* to quantify the potential effects of diversions on flow-related recreation on the economy of local communities in the project-affected area.

American Whitewater requests that SCE modify the proposed study to: (1) characterize and quantify the rural economic value of river-related recreation and how it is currently affected or could be affected by changes to project operations; and (2) incorporate quantitative elements from the current license term to equate them to hydrologic conditions in the river.

Forest Service filed general comments regarding the user intercept survey that would also be used to inform the socioeconomic analysis, which we discuss above under *Study REC-2: Recreation Facility Use Assessment*.

Discussion and Staff Recommendation

Section 5.18(b)(5)(ii) of the Commission's regulations requires that applicants for new licenses provide a description of the affected environment and an analysis of the project proposal on socioeconomic resources. Specifically, Section 5.6(d)(3)(xi) of the Commission's regulations requires that applicants provide a general description of socioeconomic conditions in the vicinity of the project including general land use patterns (e.g., urban, agricultural, forested), population patterns, and sources of employment in the project vicinity. Section 5.18(b)(5)(ii)(B) also requires that the final license application contain an analysis of how the project proposal would affect these socioeconomic conditions.

As part of our environmental analysis, we intend to evaluate, to the extent feasible, the effects of licensing the project, including effects on river-related recreation in project-affected reaches of the NFKR. Any effects of SCE's proposal that can be reasonably quantified (e.g., lost generation) will be evaluated by staff. For non-power resources, as has been our practice, our analysis will be qualitative in nature. We do not typically require studies that attempt to quantify the economic value of environmental or recreation resources. Rather, potential impacts or benefits to any resource should be reasonably identified in SCE's proposed studies (e.g., *Study REC-1: Whitewater Boating*, *Study REC-2: Recreation Facility Use Assessment*). The results of these studies could be used to develop PM&E measures, as necessary.

Other than the visitor intercept survey, the plan under *Section 6.0 Study Approach* indicates that several broad data sources (e.g., NVUM, expenditure, census) would be evaluated. However, the plan does not describe how SCE would specifically analyze the data or what specific metrics/expenditures would be summarized. Therefore, the plan lacks the necessary detail and methodology for staff to fully understand what information would be included in any study report. Aside from the socioeconomic information that is required by our regulations that the desktop study may compile, we do not recommend adopting the socioeconomic study proposed by SCE. The modifications requested by the commenters, as summarized above, do not recommend methodology and lack adequate detail to clearly understand how SCE would modify the study plan [section 5.9(b)(6)].

Additionally, the requested modifications do not clearly indicate what specific information would be obtained to inform staff's environmental analysis [section 5.9(b)(4)]. Therefore, we do not recommend the modifications requested by Park Service and American Whitewater.

Additionally, should SCE conduct any additional analyses to assess the economic impacts of the licensing proposal on individual businesses (e.g., commercial boating outfitters), we note that the Commission does not have authority to adjudicate claims for, or to require through license requirements or any other means, payment of damages for project-induced effects to private property [section 5.9(b)(5)].²⁶

IV. STUDIES REQUESTED BUT NOT ADOPTED BY SCE

The Tunnel Maintenance Flow Study and Whitewater Flows Study requested by KRB are discussed above under SCE's proposed *Study OPS-1: Water Conveyance Assessment* and *Study REC-1: Whitewater Boating*, respectively, as staff determined the requested and proposed studies' goals are consistent.

Aesthetic Flows Study

KRB's Requested Study

KRB requests that SCE be required to perform a study to evaluate aesthetic flows following the methods outlined in *Flows and Aesthetics: A Guideline to Concepts and Methods* (Whittaker and Shelby, 2017). KRB states that the study would: (1) document the current aesthetic character of the bypassed reach; (2) identify key observation points (KOP); (3) gather photos and videos of various river flows during controlled flow releases; (4) assess various flows from KOP with a focus group of individuals from as far away as Los Angeles and San Diego; and (5) determine the feasibility, effects, and cost of providing specific flow releases to enhance aesthetics in the bypassed reach. KRB also states that the study would provide data to evaluate effects of potential aesthetic flow releases on other resources such as recreation, aquatic resources and water quality, and

²⁶ See, e.g., *Ohio Power Co.*, 71 FERC ¶ 61,092, at 61,312 (1995) (citing to *South Carolina Public Service Authority v. FERC*, 850 F.2d 788, 795 (D.C. Cir. 1988)). Such property owners would need to seek redress with the licensee. See *PacifiCorp*, 133 FERC ¶ 61,232, at P 163 (2010), order on reh'g, 135 FERC ¶ 61,064 (2011); *Portland General Electric Company*, 107 FERC ¶ 61,158, at PP 27-33 (2004); *FPL Energy Maine Hydro, LLC*, 106 FERC ¶ 61,038, at PP 53-55 (2004). Moreover, Section 10(c) of the FPA makes clear that a licensee of a hydropower project "shall be liable for all damages occasioned to the property of others by the construction, maintenance, or operation of the project works...16 U.S.C. § 803."

project operations, and that the study results would inform potential minimum flow requirements. KRB does not indicate a range or specific set of flows for analysis. KRB contends that project effects on aesthetics have the potential to affect public use and enjoyment of the bypassed reach of the NFKR.

Comments on the Study

SCE contends that the study request is unnecessary because existing resource information in combination with the results of its proposed *Study REC-2 Recreation Facilities Use Assessment*, would be used to assess project effects. SCE asserts that the requested controlled-flow study is not feasible for the same reasons a controlled-flow study cannot be conducted for *Study REC-1 Whitewater Boating* and other new studies requested by KRB (i.e., insufficient storage, unpredictable snowmelt hydrograph in the NFKR). SCE states that it revised its REC-2 visitor intercept survey questionnaire to ask respondents about their perceptions of, and their satisfaction with, aesthetics in the bypassed reach.

Discussion and Staff Recommendation

Although KRB requests that SCE follow the generally accepted methods outlined in Whittaker and Shelby (2017) for this study, KRB's requested study does not conform to the phased approach outlined in Whittaker and Shelby [section 5.9(b)(6)]. Whittaker and Shelby recommend a phased study, like that of Whittaker et al. (2005), where the outcomes from preceding levels of the study determine whether to proceed to the next level of the study. Whittaker and Shelby suggest that: (1) the Level 1 assessment include desktop analysis and interviews of people familiar with the visual character and flows of the river; (2) the Level 2 assessment should include a mixture of limited reconnaissance, additional interviews, and a more intensive desktop analysis; and (3) the Level 3 assessment could include multiple-flow reconnaissance, flow-comparison surveys, or a controlled-flow study.

KRB's request deviates from the accepted methodology because it requests the use of reconnaissance during Level 1 without allowing the results of desktop analysis and interviews to determine the need for reconnaissance. Additionally, KRB's request for a Level 1 focus group to identify KOP is inconsistent with the methodology because the methodology indicates focus groups could be used to evaluate flow ranges from various KOP during a Level 3 controlled-flow study. Therefore, we do not recommend SCE implement reconnaissance during Level 1, and only recommend reconnaissance during Level 2 if results from Level 1 indicate that progression to Level 2 is necessary. If results of Level 1 indicate the need for Level 2, we recommend that SCE evaluate the results of the REC-2 visitor intercept survey related to aesthetics to compile a list of the most visited KOP and gather a group of interested stakeholders (no more than 12) and any interested agency staff for Level 2 reconnaissance of the identified KOP. We also

recommend that the reconnaissance effort for aesthetics coincide with the reconnaissance for *Study REC-1: Whitewater Boating* and that the reconnaissance team members be the same for both studies. Additionally, we recommend that SCE use the members of the reconnaissance group, excluding agency staff, as participants for the Level 2 intensive interviews. However, we do not recommend that SCE convene a focus group to identify KOP during Level 1, and only recommend the use of a focus group in conformance with the accepted methodology if results of Level 2 determine that progression to Level 3 is necessary.

As mentioned above, KRB states that results of the aesthetic flows study would provide data to evaluate effects of potential aesthetic flow releases on other resources and inform potential license conditions for required minimum flows. However, because of the range of flows for which information will be gathered in *Study WR-2: Hydrology*, staff would not need the results from the aesthetic flows study, as KRB states, to analyze potential effects of aesthetic flows on other resources or inform potential license conditions [sections 5.9(b)(4) and (5)]. Rather, in addition to existing resource information on various flows, results from *Study WR-2: Hydrology*, specifically on flows including minimum bypassed reach flows of 40 to 130 cfs up to the existing maximum whitewater flow release target of 1,400 cfs, will provide adequate additional data on a variety of flow conditions. This data will be used to analyze the potential effects of various flows on other resources and will inform staff analysis for potential minimum flow requirements.

An appropriate and potentially more effective substitute for Level 1 interviews for this study is the REC-2 visitor intercept survey questionnaire. The level of effort and cost to use the REC-2 questionnaire to collect data for this study will be less than otherwise conducting Level 1 interviews specifically for this study [section 5.9(b)(7)]. Therefore, we do not recommend SCE conduct interviews for Level 1. Rather, as we discuss above under *Study REC-2: Recreation Facilities Use Assessment*, we recommend that SCE modify its REC-2 questionnaire.

As we discuss above under *Study REC-1: Whitewater Boating*, SCE contends that implementing a controlled-flow study is difficult; however, we believe it is currently premature to rule out the need for a controlled-flow study to evaluate aesthetic flows. Therefore, we recommend that the study include the potential for a Level 3 controlled-flow study for aesthetics unless the results of Level 2 studies show that progression to Level 3 is unnecessary. If SCE concludes that progression to Level 3 is not necessary based on the results of the Level 2 studies, then it must provide a detailed justification for its conclusion in the ISR. In addition, if the results of the Level 2 studies support the need for a Level 3 controlled-flow study, but SCE continues to contend that a such a study cannot be conducted, then SCE must provide a detailed justification for its conclusion in the ISR. The justification should include, at a minimum, historical data that supports its concerns regarding the effects of the unpredictable snowmelt hydrograph

on the planning for logistics, safety, and data collection for a controlled-flow study for aesthetics. In conclusion, we recommend SCE modify the study plan to include KRB's requested Aesthetic Flows Study with staff's recommended modifications discussed above.

Water Quality Flows Study

Study Request

KRB requests that SCE conduct a new study to assess concentrations of arsenic and fecal coliform in the bypassed reach at different flows. KRB asserts that project-related flow changes in the bypassed reach could affect the concentration of arsenic and fecal coliform and that there is no recent information available to describe fecal coliform or arsenic concentrations nor the relationship between these parameters and flow changes associated with operation of the project. KRB requests that the study proceed in phases including a literature review to identify times of the year arsenic and fecal coliform concentrations could be elevated as well as sampling locations in the bypassed reach and manipulating flows over several days to determine if flow changes could increase or decrease the concentration of fecal coliform or arsenic in the NFKR.

Discussion and Staff Recommendation

Arsenic is a known carcinogen and can pose a risk to public health, especially when found in drinking water supplies. The federal and California state standard for arsenic concentration in drinking water is 10 micrograms per liter ($\mu\text{g/L}$), meaning that drinking water is considered safe if arsenic concentrations are less than 10 $\mu\text{g/L}$. The KR3 Project does not divert flows to supply drinking water. However, potential arsenic exposure to recreation users using the bypassed reach is a potential public health and/or public use concern, and there is little information available regarding water contact recreation and acceptable arsenic levels (the state of California has no standards for arsenic concentration for water contact recreation). However, guidance available from the Massachusetts Department of Environmental Protection states that arsenic levels of 500 $\mu\text{g/L}$ or less are acceptable for showering and bathing (Massachusetts DEP, 2022).²⁷ The existing information in the PAD and the 1991 final license application²⁸ show that arsenic concentrations vary from undetectable concentrations to 16 $\mu\text{g/L}$ in the vicinity of the project including the bypassed reach, regardless of project effects on flows in the

²⁷ Available at <https://www.mass.gov/info-details/arsenic-in-private-well-water-faqs>.

²⁸ Available at https://www.sce.com/sites/default/files/inline-files/KR3_KernFLA_1991Volumes1-3.pdf.

NFKR. There is no reason to expect arsenic concentrations would approach unsafe levels for water contact recreation in the NFKR; thus, additional information on arsenic at the KR3 Project is not needed for our environmental analysis, would not inform the development of license conditions, and we do not recommend sampling for arsenic [section 5.9(b)(4)].

SCE adopted fecal coliform sampling in its proposed *Study WR-1: Water Quality* as described in the RSP. In addition, SCE has already performed a literature review of fecal coliform information specific to the project, presented known information in the PAD and RSP, and identified 5 sites and a timeframe to collect fecal coliform samples in *Study WR-1: Water Quality*. SCE would not manipulate flows over several days to determine project effects on fecal coliform concentrations but would collect fecal coliform samples on 10 days during the recreation season, as recommended by staff in the previous section (*II. Required Studies, Study WR-1: Water Quality*) which would include a variety of flows in the NFKR. While KRB's request would closely examine the relationship between flow and fecal coliform concentration in the bypassed reach, the methodology would only examine this relationship over a short period (i.e., several days). Considering that fecal coliform concentrations could be affected by inputs from cattle grazing upstream of the project area, intensity of recreational use in or upstream of the project area, distance from the fecal coliform source, nutrients and/or water temperature, as well as flow in the bypassed reach, a broader study period as recommended by staff is necessary to describe fecal coliform concentrations throughout the recreation season [section 5.9(b)(6)]. SCE would still collect samples at different flow levels; thus, effects of flow would still be assessed similar to KRB's request. Therefore, we do not recommend manipulating flows to sample fecal coliform as recommended by KRB.

Enjoyable Angling Flows Study

Requested Study

KRB and the Fishing Groups request that SCE be required to perform a study to determine the amount of river flow necessary to provide an enjoyable angling experience. The study would require SCE to first perform a desktop analysis, then a controlled flow study consistent with the generally accepted methodology in Whittaker et al. (2005) [section 5.9(b)(6)]. The Fishing Groups state the study would determine what anglers perceive is a "comfortable flow of water" for fish and anglers.

The Fishing Groups and KRB are concerned about project effects on fisheries resources in the project-affected reach of the NFKR, specifically when flows downstream of Fairview Dam drop below 100 cfs. KRB states that no information exists that describes the quality of angling experiences during periods when river flow is at the minimum instream flow level and that no angling study has been conducted to determine potential project effects. KRB asserts that its study request would provide new data

regarding anglers' perceptions of when flows are too low for an enjoyable angling experience and what level of enjoyment exists at different flow levels [section 5.9(b)(4)]. However, KRB states only that the cost of the requested study would be "commensurate with the protected status of the [NFKR] and the public interest in it as a source of angling" and it would be justified "by the statutory duty of the managing agencies to balance and adapt the proposed license to mitigate the effects of the project on this outstanding recreational public resource" without providing at minimum an estimate of the number of hours or person-days required to implement the study [section 5.9(b)(7)]. The Fishing Groups state the study request is related to the necessity for minimum flows that should be required in the river for angling and other recreational uses [section 5.9(b)(5)].

Comments on the Study

SCE contends that the study request is unnecessary because existing information in combination with results of other studies (specifically, WR-2, BIO-6, and REC-2) and ongoing fish population monitoring studies conducted as required by Article 411 of the current license can be used to assess project effects on angling and fisheries resources that influence angling experiences. SCE asserts that the requested controlled flow study is not feasible for the same reasons a controlled flow study cannot be conducted for *Study REC-1 Whitewater Boating* (i.e., insufficient storage, unpredictable snowmelt hydrograph in the NFKR). SCE states that it revised its REC-2 visitor intercept survey questionnaire to ask respondents (i.e., anglers) to rate their angling experience in addition to other questions about their angling experience.

Discussion and Staff Recommendation

Data collected on anglers' perceptions of comfortable flows for angling would ensure staff has adequate information to analyze potential project effects on angling, and the preferences of anglers within the bypassed reach, and would inform the development of license conditions [sections 5.9(b)(4) and (5)]. However, data collected on what anglers perceive is a comfortable flow for fish would be based on assumptions of what fish would want an acceptable flow to be. In our discussion above under *Study REC-2: Recreation Facility Use Assessment* regarding the visitor intercept survey questionnaire, we recommend SCE modify the questionnaire to collect data on project effects on angling and angler preferences within the bypassed reach. However, we do not recommend that it include questions to gauge anglers' perceptions of what flows are comfortable for fish.

As discussed above under *Study REC 1: Whitewater Boating*, SCE contends that implementing a controlled flow study is difficult; however, we believe it is currently premature to rule out the need for a controlled flow study. Therefore, we recommend that the study include the potential for a controlled flow study for enjoyable angling flows

unless results of the REC-2 visitor intercept survey, related to angling, show that such a study is unnecessary. If SCE concludes that a controlled flow study is not necessary based on the survey results, then it must provide a detailed justification for its conclusion in the ISR. In addition, if the results of the survey support the need for an enjoyable angling controlled flow study but SCE continues to contend that a such a study cannot be conducted, then SCE must provide a detailed justification for its conclusion in the ISR. The justification should include, at a minimum, historical data that supports its concerns regarding the effects of the unpredictable snowmelt hydrograph on the planning for logistics, safety, and data collection for an enjoyable angling controlled flow study.

Conveyance, Forebay, and Penstock Safety Study

KRB's Requested Study

KRB comments that it is concerned about potential safety risks to life, property, and infrastructure in the area that lies below [downhill] of the project's penstocks, forebay, and elevated conveyance near the project powerhouse. KRB comments that the Kern River No. 1 Hydroelectric Project (KR1 Project), located on the Kern River downstream from the KR3 Project, has a similar configuration and was also classified as "low hazard" before its conveyance system failed during a storm in August 2013, which caused landslides and resulted in a 10-day closure of Highway 178.²⁹ Additionally, KRB provides several photos showing cracks and leaks in the project's siphon and sections of the conveyance system.

Therefore, KRB requests a new *Conveyance, Forebay, and Penstock Safety Study* that includes obtaining an independent engineering consulting firm to re-evaluate the current hazard rating for KR3 Project, taking into consideration the 2013 failure of the KR1 Project due to similar risk factors, including that the project also conveys a large volume of moving water at an elevation above Mountain Highway 99 and that the project facilities are less than 2 miles from a major fault. KRB states that the study results would be used to inform the terms of any new license, including potential measures to minimize risk, and assuage public concerns. KRB estimates the cost of the study would be \$20,000 to \$30,000.

Comments on the Study

²⁹ The existing 26.3-MW Kern River No. 1 Hydroelectric Project (FERC No. 1930) is owned by SCE and the license expires on May 31, 2028. The project is located on the Kern River about 15 miles east of the City of Bakersfield in Kern County, California.

In the RSP, SCE comments that the safety of project facilities is an ongoing process addressed outside the Commission's relicensing process, and any changes related to project safety would be addressed as they occur. SCE adds that the Commission has regularly reviewed and confirmed that the KR3 Project has a rating of "low hazard." SCE adds that, per the Commission's regulations, project infrastructure is subject to inspections and FERC safety reviews, the most recent of which was July 24, 2017, and notes that "the project features inspected and described herein were observed to be in satisfactory condition for continued operation."

Discussion and Staff Recommendation

As part of the relicensing process, staff will evaluate the continued adequacy of the existing and proposed project facilities under a new license. Special articles would be included in any license issued for the project, as appropriate. The Commission's Division of Dam Safety and Inspections (D2SI) will continue to inspect the project during the new license term to ensure continued safety of structures and adherence to Commission-approved plans and specifications, special license articles relating to construction (if any), operation and maintenance, and accepted engineering practices and procedures.

As discussed in Scoping Document 2, the dam safety program at the KR3 Project and other Commission projects is set forth in Part 12 of the Commission's regulations and is ongoing regardless of whether the project is in relicensing.³⁰ Because the project's dams are all considered to be "low hazard" structures, D2SI conducts inspections every 3 years (Salmon Creek and Corral Creek diversions) or 5 years (Fairview Dam), which depends, in part, on the height of the dam. Further, section 12.10(a) requires licensees to report to the Commission's regional engineer any condition affecting the safety of a project or projects works, as defined in section 12.3(b)(4), as soon as practicable after that condition is discovered. Accordingly, we expect SCE to report any potential safety issues it is aware of to the regional engineer at the Commission's D2SI-San Francisco Regional Office (D2SI-SFRO). Therefore, we do not recommend KRB's requested study. However, we have shared KRB's safety concerns and comments regarding the conveyance system with D2SI-SFRO. D2SI engineers plan to review the information prior to the next dam safety inspection scheduled for Fall 2022 and will follow up with SCE on any project safety issues that are noted.

Flow Travel Times Study

³⁰ We note that section 4.6.1.1 of SCE's PAD incorrectly states operation inspections for the project are conducted annually by the Commission.

Study Request

KRB requests a study that would estimate flow travel-times by using existing flow sensors at penstocks or installing new loggers where needed. The goal of this study is to evaluate how long changes in flow take to transmit from the project's diversion point to its powerhouse, both through its conveyance and through the Fairview Dam bypassed reach. The study would require SCE to release flows at regular intervals (e.g., 100 cfs) up to 600 cfs to determine the time required for the water to pass through the bypassed reach and the conveyance reach.

Discussion and Staff Recommendation

Identifying flow travel times in the bypassed reach for flows at regular intervals would allow staff to precisely evaluate project effects on flows and other resources in the bypassed reach. As discussed above, we recommend modifying *Study WR-2: Hydrology* to include the installation of a water level logger upstream of the powerhouse to measure changes in flows in the bypassed reach. In that study, as modified by staff, SCE would collect and assess flow data throughout the recreation season and during low flow periods to describe travel times at a variety of flows consistent with KRB's request. Therefore, we do not recommend a controlled flow study because SCE would collect sufficient data to describe project effects on flow travel times as part of *Study WR-2: Hydrology*.

Comparative Whitewater Opportunities Study

KRB's Requested Study

KRB requests that SCE perform a study to compare available whitewater recreation opportunities for people from Southern California with those from Northern California. The study would determine the inventory of whitewater opportunities available to boaters in each area and whether differences between opportunities in the two areas are caused by natural or resource management effects. KRB asserts that there is no information available in the project record that provides data on the difference in perspectives of whitewater recreation from residents of Southern California and Northern California. The study would require SCE to perform a desktop analysis and solicit written public input.

Comments on the Study

SCE comments that the results of this study request would not provide useful information to understand potential project effects on the NFKR and that study results would not help inform the development of potential license conditions.

Discussion and Staff Recommendation

KRB states that the results of its requested study would provide data to resource agencies to “further” agency goals, but it does not indicate how resource agencies could use any study results to manage for whitewater boating in the project-affected reach [section 5.9(b)(3)]. Likewise, KRB does not explain how study results could inform potential license conditions [section 5.9(b)(5)]. Except for the project-affected reach of the NFKR, presumably situated in the proposed Southern California study area, KRB does not identify what constitutes project-related use or project-induced recreation in the remainder of the recommended areas for study, nor where that use occurs. Therefore, KRB does not establish a clear nexus between the project and whitewater boating that occurs outside of the project-affected area [section 5.9(b)(5)]. KRB also provides no detailed description of the methods SCE would need to implement the study and KRB does not reference any approved or established study protocols or methodologies for guidance [section 5.9(b)(6)]. Further, KRB states only that the cost of the requested study would be “low-to-low-moderate” and that the level of effort would be “justified”, without providing at minimum an estimate of the number of hours or person-days required to implement the study [section 5.9(b)(7)]. Therefore, for the reasons discussed above, we do not recommend KRB’s requested comparative whitewater opportunities study.

Kern River Rainbow Trout Study

Requested Study

The Fishing Groups request that SCE perform a study on the Kern River rainbow trout (KRR) upstream and downstream of Fairview Dam. The study would determine the presence, distribution, and population size of KRR. The Fishing Groups assert that there is no current information available on the status of the KRR and data collection is necessary to inform environmental analysis because of its status as a candidate species for listing as threatened or endangered under the ESA and a Species of Special Concern by California DFW.

Discussion and Staff Recommendation

California DFW considers the KRR extirpated from the Fairview Dam bypassed reach.³¹ The stated likely cause of extirpation includes the introduction of and hybridization with hatchery-raised rainbow trout and competition from non-native brown

³¹ California DFW. 2015. California Fish Species of Special Concern; Kern River rainbow trout. 3rd Edition. Sacramento, California. Aug 10.

trout introduced in the 1930s and 1940s. In addition, in its report, California DFW states that KRR populations are currently restricted to the Kern River and its tributaries upstream of Johnsondale Bridge, 5.5 miles above the project area.

Further, in the RSP, SCE states that the current license requires ongoing electrofishing or snorkeling surveys (KR3 Project Fish Monitoring Plan) to monitor fish populations. Results of SCE's past four monitoring efforts, spanning 19 years (occurring approximately every 5 years), have never detected KRR in the project area. While KRR is not the target species during these surveys, it is expected that any KRR present would be documented.

Because California DFW believes that KRR are extirpated in the project area and SCE has not documented KRR in the project area during its routine fish monitoring, additional surveys for KRR are not needed for our analysis of project effects [section 5.9(b)(4)]. Therefore, we do not recommend this study.

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