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REC 3 – WHITEWATER BOATING
TECHNICAL STUDY PLAN

Kern River No. 1 Hydroelectric Project
***FERC* Project No. 1930**



May 2023

TECHNICAL STUDY PLAN

REC 3 – Whitewater Boating

POTENTIAL RESOURCE ISSUE

- Whitewater boating opportunities.

PROJECT NEXUS

- Project operations modify the flow regime in the Kern River No. 1 bypass reach¹, potentially affecting whitewater boating opportunities (timing and/or duration).

RELEVANT INFORMATION

The following information is available regarding recreation in the vicinity of the Project. See Section 3.11, Recreation Resources Pre-Application Document (PAD) for a summary of relevant information:

- Sequoia National Forest Land and Resource Management Plan, Forest Plan (Forest Service 1988).
- Application for New License, Kern River No. 1 Hydroelectric Project, FERC Project No. 1930 (SCE 1994).
- Final Environmental Assessment for Hydropower License, Kern River No. 1 Hydroelectric Project, FERC Project No. 1930-014 (FERC 1998a).
- FERC Order Issuing New License (Major Project), FERC Project No. 1930-014 (FERC 1998b).
- Five-Year Recreation Use Report, Kern River No. 1 Hydroelectric Project – FERC No. 1930 (TCW 2005).
- Draft Land Management Plan for the Sequoia National Forest, Pre-Objection Version (Forest Service 2022a).
- The Best Whitewater in California (Holbeck, L. and Stanley, C. 1998).
- California Whitewater, A Guide to the Rivers (Cassady J. and Calhoun F. 1995).
- Various state and federal agency websites.
- Various whitewater boating websites.

¹ A bypass reach is a segment of a river downstream of a diversion facility where Project operations result in the diversion of a portion of the water from the river.

POTENTIAL INFORMATION GAPS

- Whitewater boating trends and future demand.
- Whitewater boating use associated with Democrat Raft Take-out Boating Site.

STUDY OBJECTIVES

- Characterize the whitewater boating run in the Kern River No. 1 bypass reach including the length, whitewater difficulty, name of key rapids, and typical access locations for put-in and take-out.
- Identify the range of flows (minimum acceptable and optimum) that would provide whitewater boating opportunities in bypass reach for a variety of watercraft including, kayaks, rafts, packrafts, stand-up paddleboards, and body boards.
- Quantify the annual and monthly frequency that minimum acceptable and optimum whitewater flows occur in the bypass reach under current Project operations and without Project diversion for each watercraft type.
- Describe existing mechanisms for dissemination flow information to the public.
- Document potential conflicts of whitewater boating flows with other recreation users.

EXTENT OF STUDY AREA

The study area includes the bypass reach between Democrat Dam and the Kern River No. 1 Powerhouse Tailrace.

STUDY APPROACH

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

LEVEL 1: DESKTOP REVIEW

The Level 1 Desktop Review will include the following elements:

- Literature review to augment information in PAD Section 11, Recreation Resources.
 - Literature review will include reviewing existing studies/publications, whitewater guidebooks, magazine publications, and online river information sites.

- A table summarizing whitewater opportunities in the Kern River Basin (including the study bypass reach) will be compiled including the name of the whitewater run, river name, put-in and take-out location, length, gradient (feet per mile), and whitewater difficulty for comparative purposes.
- Characterization of whitewater boating use in the study bypass reach, as available, using records from the Sequoia National Forest (SQF) and other sources.
- Hydrology Assessment
 - Utilizing existing gage data compiled as part of AQ-1 Hydrology Technical Study Plan, summarize hydrology in the bypass reach both with and without Project diversion.
 - The hydrology summary will include frequency, timing, duration, and magnitude of flows. Data will be reported using mean, median, interquartile, range, and exceedance metrics.
- Project Facility Capabilities
- Description of operational capabilities of Democrat Dam facilities, including the Project Intakes.
- Structured interviews:
 - Conduct structured interviews (not to exceed 10) with individuals nominated from the whitewater boating community representative of a range of watercraft, skill levels, and knowledge of the whitewater boating run in the bypass reach.
 - The interviews will focus on individual knowledge of the whitewater boating run between Democrat Dam and the Kern River No. 1 Powerhouse Tailrace to estimate range of preferred flows (minimum acceptable and optimum whitewater flows) for the bypass reach for respective watercraft; identify constraints, if any, for estimating range of preferred flows; flow information needs; and whitewater use patterns.

Information obtained in the Level 1 investigation will be used to determine, in consultation with the resource agencies and whitewater boating community, whether Level 2 Limited Reconnaissance is necessary.

LEVEL 2: LIMITED RECONNAISSANCE

The Level 2 investigation will include a limited reconnaissance site visit with study participants consisting of agency staff and boaters. The elements of the Level 2 Limited Reconnaissance are described below.

Limited Reconnaissance

- Conduct a site visit for direct observation of the whitewater boating run with a group of study participants consisting of agency staff and boaters.
 - The boating community will nominate study participants for the Level 2 Limited Reconnaissance Site Visit. Study participant composition should be representative of a range of watercraft, skill levels and knowledge of the whitewater boating segments in study bypass reach. For logistical and safety reasons, the Level 2 Limited Reconnaissance will be limited to 12 individuals.
- Information collected during the Level 2 Limited Reconnaissance may include:
 - Review of information collected in Level 1 to confirm accuracy and revise based on input from Level 2 study participants and field observations.
 - Estimates of flow preferences (minimum acceptable and optimum whitewater flows) for respective watercraft types and potential knowledge gaps in flow preferences based on input from study participants.
 - Factors influencing flow preferences based on input from study participants.
 - Recreation use patterns in the bypass reach river for different watercrafts and timing of use (weekday, weekend, time of day);
 - Visits to formal and informal access locations; and
 - Flow information dissemination – currently available and additional needs

The Level 2 Limited Reconnaissance Site Visit coupled with input from the study participants will increase the precision of estimated boating flow ranges for the various watercraft types and knowledge of recreation use patterns. Information obtained in the Level 1 and Level 2 investigations will be used to determine, in consultation with the resource agencies and whitewater boating community, whether a Level 3 On-water Boating Assessment is necessary.

LEVEL 3: ON-WATER WHITEWATER BOATING ASSESSMENT

A Level 3 On-water Boating Assessment will only be conducted if results from the Level 1 Desktop Review and Level 2 Limited Reconnaissance are insufficient to characterize flow preferences over a variety of watercraft types. If necessary, the Level 3 On-water Boating Assessment will collect flow preference information directly from whitewater boaters for a variety of watercraft for the bypass reach using a single flow survey for individual trips. The single flow survey would be similar to other studies conducted by American Whitewater (AW) to collect flow preference information and recreation use patterns on rivers where a controlled flow study is not possible and/or have unpredictable flow conditions (AW, 2017 and 2021).

In the single flow study, whitewater boaters can provide input immediately after completing individual boating trips using the single flow survey. If the boater completes multiple trips over the study season or has past experiences over a wide range of water year types, the boater can fill out the flow comparison survey. The surveys will be available online to expand the pool of study participants, regardless of geographic location or schedule. SCE will provide the flow for each individual boating trip based on the data provided. The goal of the survey is to improve the precision for developing flow preferences for a variety of watercraft types.

SCE will make a good-faith effort to inform the boating community in advance when hydrologic conditions are within the boatable flow ranges identified in the Level 1 and/or Level 2 assessments. If flows are anticipated to be within the boatable flow ranges, SCE will reach out to Kern River Boaters, AW, Los Angeles Kayak Club, and Dreamflows. This is not a guarantee of a particular flow, just an indication that there may be the possibility for boating in the bypass reach. SCE will attempt (good faith effort) to give boaters advance notice to plan trips to the river using information on flow releases from Lake Isabella and forecasting technology available to SCE at the time of study. Ideally, boaters will be notified 2 to 3 days in advance to plan a trip.

The On-water Whitewater Boating Assessment described above will include the following elements:

- A whitewater single flow survey available online.
 - Information collected in Levels 1 and 2 will be used to develop an online single flow survey form.
 - The single flow survey form will allow respondents to evaluate individual flows shortly after experiencing them. Respondents will be asked name, zip code, date, time, watercraft type, and to rate the acceptability of the flow using scale in Whittaker et al. (2005). Single flow survey questions will be formatted for viewing on smart phone screens.
 - Posters containing the link to the single flow survey including a QR code will be installed at river access locations and distributed to local retailers in Kernville as well as local, regional, and national whitewater boating groups, and will be accessible on the Kern River No. 1 Hydroelectric Project relicensing website.
- A whitewater flow comparison survey available online.
 - Information collected in Levels 1 and 2 will be used to develop an online whitewater flow comparison survey.
 - The online whitewater flow comparison survey form will be designed to obtain information on flow preferences on the bypass reach. Survey questions will ask respondents to rate the acceptability of a range of flows for each watercraft type, timing of use, preferred whitewater segments, river access locations, flow information needs, and comparison with other whitewater opportunities in the

Kern River Basin. The range of flows presented in comparative flow questions will be based on information gathered in Levels 1 and 2.

- Posters containing the link to the whitewater flow comparison survey including a QR code will be installed at river access locations and distributed to local retailers in Kernville as well as local, regional, and national whitewater boating groups, and will be accessible on the Kern River No. 1 Hydroelectric Project relicensing website.
- Whitewater focus group
 - The Level 3 On-water Boating Assessment Intensive Study will include a focus group designed to additionally gather information from boaters with direct experience on the bypass reach. Focus group questions will prompt discussion on suitable range of flows for a variety of watercraft; navigability and whitewater difficulty across a range of flows; daily, weekly, and seasonal use patterns; flow information needs; river access; safety; other areas of concern; and uniqueness of the whitewater river segments compared to other opportunities in the region.
 - Focus group participants will be identified in advance and nominated collaboratively with the whitewater community. Selection will be based in part on knowledge of whitewater boating opportunities in the Kern River Basin and direct experience on the bypass reach. The focus group will include representation across watercraft types.

PUBLIC SAFETY AND USE CONFLICTS

Public safety concerns associated with whitewater boating in the bypass reach will be documented using available information such as the Kernville Chamber of Commerce, SQF, California Department of Boating and Waterways, AW accident database, Federal Energy Regulatory Commission (FERC) incident reports, focused interviews (Level 1) and whitewater boating focused group discussions (Level 3).

Potential recreation-use conflicts associated with whitewater boating flows will be identified where possible.

REPORTING

- Study methods and results will be documented in a REC 3 – Whitewater Boating Technical Study Report (TSR). The TSR will include summary tables and figures, as appropriate, to ensure results can be easily understood. Stakeholder review and comment period for the TSR is identified below in the Schedule.
- All data collected during the study (existing records and data from surveys) will be entered into a data base (excel or similar) by the technical staff, under the supervision of the task lead.
- Upon request, data will be provided to resource agencies and interested stakeholders in an Excel spreadsheet (electronic format).

SCHEDULE

This is a one-year study to be conducted during the first year of the study period with the study results reported in the Initial Study Report (ISR).

Date	Activity
April 2024–August 2024	Conduct Level 1 Desktop Study
August 2024–September 2024	Complete Level 2 Limited Reconnaissance
October 2024–January 2025	Analyze data and prepare draft technical memo (Level 1 and Level 2)
February 2025	Distribute draft technical memo to stakeholders
February 2025–April 2025	Stakeholders review and provide comments on draft technical memo (90 days)
April 2025	Determine in consultation with resource agencies and whitewater community whether a Level 3 On-water Boating Assessment is needed
May 2025–June 2025	Resolve comments and prepare draft final technical memo (Level 1 and Level 2)
May 2025–September 2025	If necessary, conduct Level 3 On-water Boating Assessment
October 2025–November 2025	Incorporate results from the Level 3 Assessment into final technical memo
December 2025	Distribute final technical memo in the Draft License Application for stakeholder review

REFERENCES

- AW (American Whitewater). 2017. *Dolores River Boating Survey*. Accessed: February 17, 2022. Retrieved from: https://www.americanwhitewater.org/content/Article/view/article_id/33759/.
- . 2021. *South Platte Recreational Flow Study*. Accessed: February 17, 2022. Retrieved from: https://www.americanwhitewater.org/content/Article/view/article_id/jAtde6mnf7fU PZoVvAvD9/.
- Whittaker, D., B. Shelby, and J. Gangemi. 2005. *Flows and Recreation: A Guide to Studies for River Professionals*. Washington, DC: Hydropower Reform Coalition and National Park Service Hydropower Recreation Assistance Program.

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