
SOUTH SWP HYDROPOWER FERC PROJECT NO. 2426-227



Whitewater Boating Level 3 Controlled-Flow Boating Study

November 2019



**State of California
California Natural Resources Agency
DEPARTMENT OF WATER
RESOURCES
Hydropower License Planning and
Compliance Office**



**Los Angeles
DEPARTMENT OF
WATER AND POWER**

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COMMONLY USED TERMS, ACRONYMS AND ABBREVIATIONS

AF	acre-feet
AW	American Whitewater
cfs	cubic feet per second
DWR	California Department of Water Resources
FERC	Federal Energy Regulatory Commission
LADWP	Los Angeles Department of Water and Power
Licensees	California Department of Water Resources and Los Angeles Department of Water and Power
NPS	National Park Service
Project	South SWP Hydropower, Federal Energy Regulatory Commission Project Number 2426-227
RM	river mile
Study	Study 4.1.19, Whitewater Boating Study
SWP	State Water Project
USFS	U.S. Department of Agriculture, Forest Service
USFWS	U.S. Fish and Wildlife Service
USR	Updated Study Report
UWCD	United Water Conservation District

1.0 WHITEWATER BOATING LEVEL 3 CONTROLLED-FLOW BOATING STUDY

1.1 BACKGROUND

The California Department of Water Resources (DWR) and the Los Angeles Department of Water and Power (LADWP)(collectively Licensees) are in the process of relicensing the South SWP Hydropower, Federal Energy Regulatory Commission (FERC) Project Number 2426-227 (Project). In support of this effort and as directed by FERC's June 14, 2017 Study Plan Determination, the Licensees prepared a series of studies, including Study 4.1.19, Whitewater Boating Study (Study), for the Project.

The main objective of the Study was to gather information on river-based recreational activities and opportunities in "Pyramid reach," the approximately 18.1-mile-long reach from Pyramid Dam to Lake Piru in Ventura County, California. The Study, which was conducted in 2018 and 2019, identified the characteristics of the whitewater boating resource associated with the Project, particularly with regard to access in the upper reaches, and assessed what ranges of flow conditions are suitable and preferable for whitewater boaters. The Study consisted of four steps: (1) literature search and mapping; (2) hydrology assessment; (3) structured interviews; and (4) field reconnaissance and site visit, which included an on-land controlled-flow reconnaissance of Pyramid reach with boating experts.

1.2 STUDY RESULTS

On May 15, 2019, the Licensees filed with FERC an Updated Study Report (USR) that reported the results of the Study. A brief synopsis of the results of the Study is discussed below. The synopsis discusses how flows and water deliveries influence whitewater boating and the characterization of Pyramid reach as a whitewater boating resource.

1.2.1 Pyramid Reach Flows and Water Deliveries

As described in the Licensees' USR, whitewater boating opportunities are not influenced by Project operations, since the Project operates to pass all natural inflow as outflow; rather, whitewater boating opportunities are influenced by regional hydrology and the frequency of storm events.

In addition to natural flow boating opportunities, supplemental flows are released by DWR into Pyramid reach in some years as part of a State Water Project (SWP) water delivery release to United Water Conservation District (UWCD). UWCD schedules SWP water through releases via Pyramid reach. Annual water deliveries are based on the amount of SWP water available each year; water deliveries are determined based on a proportional share divided among all SWP water contractors up to the maximum amount specified in the contract. For the 10-year period from 2005 through 2014, an average of 1,809 AF was delivered annually to UWCD. In some years, no supplemental flows were released.

Since 2009, when the existing license Article 52 was amended, typical SWP water deliveries have been carried out between the first of November and the end of February to prevent releases from interfering with the breeding habits of the federally endangered arroyo toad (*Anaxyrus californicus*). During this timeframe, water deliveries may be made over a period of a few days, ramping flows up and down to simulate the hydrograph of a typical storm event, or they may be released more gradually over a longer period.

1.2.2 Characterization of Pyramid Reach

The Study found that Pyramid reach can be characterized as having extremely low whitewater boating use. Whitewater boating use would generally be limited to those years with higher than average precipitation and resulting higher river flows to support boating. The Study also found that the reach is a limited whitewater resource for kayakers due to: (1) the limited and infrequent higher flow regime that is needed to support boating; (2) the constricted nature of the channel; and (3) the lack of access out of the reach once a trip begins at Frenchman's Flat (a non-Project facility). Regarding the latter, once users enter the Pyramid reach canyon from Frenchman's Flat, there is no practical way out other than proceeding through the river canyon approximately 15 river miles (RM) to the closed U.S. Department of Agriculture, Forest Service (USFS) Blue Point Campground and Lake Piru Canyon Road (Figure 1). Blue Point Campground was closed by the USFS in 2000 to help protect the federally endangered arroyo toad and its habitat.

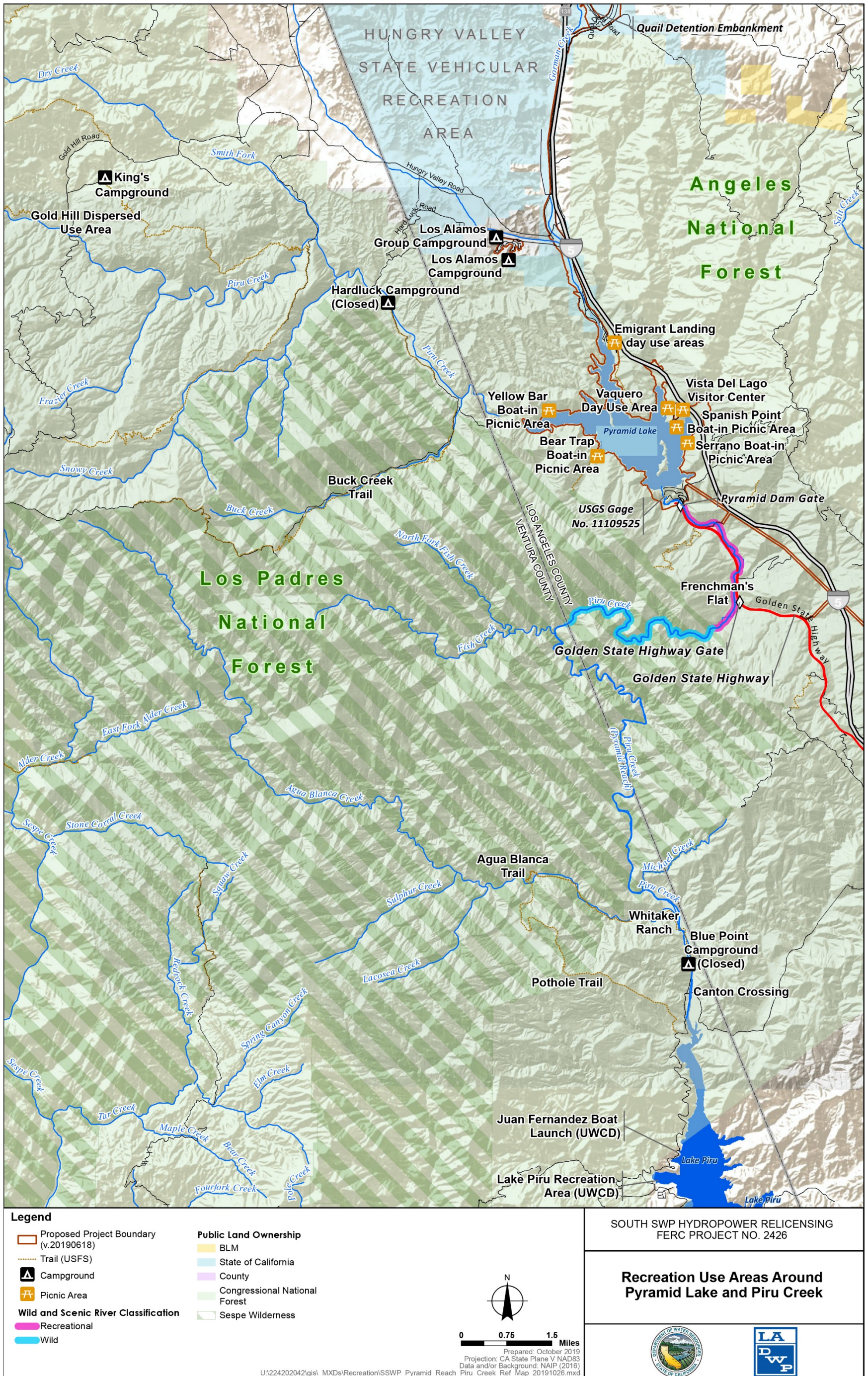


Figure 1. Recreation Use Areas Around Pyramid Lake and Piru Creek

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1.3 LEVEL 3 CONTROLLED-FLOW BOATING STUDY

In their July 11, 2019 comments on the Licensees' USR, the United States Department of the Interior, National Park Service (NPS) recommended that the Licensees conduct a controlled-flow boating study. American Whitewater (AW), in a letter dated July 12, 2019, also recommended the Licensees conduct an on-water boating flow evaluation to determine the acceptable boating flow range.

FERC issued its Study Plan Determination on September 11, 2019 (hereafter referred to as FERC's Determination) that adopted NPS's and AW's recommended study. FERC's Determination required the Licensees to plan and conduct a Level 3 controlled-flow boating study in accordance with the procedures described in the document, "Flows and Recreation: A Guide for River Professionals" (Whittaker, Shelby, and Gangemi 2005). As noted in FERC's Determination, the flows for this controlled-flow boating study are to be based on the scheduled supplemental flow releases for winter 2019-2020. Currently, the supplemental flow allocation for UWCD for this winter's annual delivery is 75 percent of full allocation, or 2,362 acre-feet (AF), which to comply with Article 52, must be provided in the period from November through February and be ramped up and down to simulate the hydrograph of a typical storm event.

1.4 STUDY GOALS AND OBJECTIVES

Per FERC's Determination, the controlled-flow boating study is to provide a "qualitative assessment of the potential whitewater boating experience across the range of flows." The main objective outlined by FERC is that the controlled-flow boating study "verify the boater opinions and determine the minimum, optimum, and maximum boating flows."

This Level 3 Controlled-Flow Boating Study will comprise the following elements:

- Consultation and planning, including development of controlled-flow boating study protocols, logistics, and schedules for the boating event
- Providing two scheduled consecutive days of boating flows at levels determined in consultation with AW and NPS within the framework of UWCD water delivery schedules and Article 52 ramping requirements
- Inviting whitewater boating experts through AW and NPS to boat and evaluate the river reach as requested by AW and NPS
- Surveying boaters on their experiences after boating runs and documentation of the boating event
- Data review, analysis, and reporting

1.5 STUDY METHODS

1.5.1 Study Area

The Level 3 Controlled-Flow Boating Study area includes Pyramid reach from Pyramid Dam to Lake Piru. AW has documented Pyramid reach as a navigable 18.1-mile stretch of Class IV waterway. The first 7.3 miles of Pyramid reach downstream of Pyramid Dam has been designated by the U.S. Congress as a Wild and Scenic River. The first 3 miles from just below the dam to just after Frenchman's Flat have been given a "recreation river" designation. Downstream of that segment, after entering the Sespe Wilderness, the reach is designated a "wild river" leading to the Ventura County line (16 United States Code § 1274[a]).

Pyramid reach is located in a deep incised canyon in the Sespe Wilderness to the confluence of Michael Creek, about 16 miles downstream of Pyramid Dam. The closed Blue Point Campground is about 18 miles downstream from Pyramid Dam where Piru Canyon Road terminates north of Lake Piru (Figure 1).

1.5.2 Methods

The FERC-required Level 3 Controlled-Flow Boating Study procedures, referenced by FERC from Whittaker, Shelby, and Gangemi (2005), represent "intensive study options for boating opportunities that are flow-dependent and where precise information about flow needs or project effects is needed" (Whittaker, Shelby, and Gangemi 2005).

The Level 3 Controlled-Flow Boating Study on-water test (Test) was originally scheduled to occur on November 21 and 22, 2019, however, prior to finalizing this plan it came to the Licensees attention that the proposed dates for conducting the study conflict with ongoing work at the Pyramid Dam Spillway. FERC's Division of Dam Safety and Inspections has been working with DWR regarding a Pyramid Dam spillway modernization project. Current work requires a scaffolding bridge across Pyramid reach near Pyramid Dam's low level outlet, the location where the water for this study will be released. For safety purposes and protection of scaffolding equipment, flow releases have been restricted to no more than 25 cubic feet per second (cfs) until December 16, 2019. Therefore, the Test has been rescheduled to occur on December 19 and 20, 2019. Given that this identified conflict prevents UWCD from receiving their water until the scaffolding is removed, UWCD has requested delivery of their SWP water for 2019 as soon as possible. The Licensees have worked with UWCD to accommodate this on-water test, have it fit within their requested delivery schedule, and to meet required ramping rates in Article 52. The Test will use two different flow levels (one flow level per day) on two study reaches, the 3-mile reach below Pyramid Dam and the 15-mile reach downstream of Frenchman's Flat. As noted above, because there is no practical way out of the Pyramid reach canyon downstream of Frenchman's Flat other than by proceeding approximately 15 RM through the river canyon, it could take a full day for boaters to run the reach. Therefore, only one controlled-flow level per day is proposed in the study design. Boaters will meet and put-in at Frenchman's Flat and take-out one half mile below Blue Point Campground at Canton Crossing, just north of Lake Piru,

which is about 41 road miles (approximately a one-hour drive) from the put-in at Frenchman's Flat. The Licensees will consult with boaters to determine needs for return transportation assistance for those who participate in the Frenchman's Flat to Canton Crossing boating run.

While the 15-mile reach below Frenchman's Flat is isolated and not easily accessible after boaters embark on their journey downstream, the first 3 miles of Pyramid reach downstream of Pyramid Dam offer the potential for multiple whitewater boating runs in one day. There are several suitable put-in and take-out sites alongside the old Golden State Highway in the upper 3-mile reach.

The Licensees, with assistance from AW and NPS will communicate the timing, location, duration, and test expectations with boaters who volunteer to participate in the study. Confirmation and the names of boaters should be provided to the Licensees by November 1, 2019. AW, NPS, and Licensee's will work together to identify boaters who are willing and available to participate. Licensees will communicate to the boaters the importance of having the necessary skills and possessing the appropriate equipment, supporting gear, and provisions to boat Pyramid reach. The Licensees have provided AW and NPS its lists of boaters interviewed as well as those who took part in the December 7, 2018 controlled-flow test event. AW performed the initial outreach to these prospective boaters. The Licensees will follow-up with those boaters to confirm a final list of participants and information about the test. The success of the controlled-flow boating study is dependent upon the participation of experienced boaters with appropriate equipment and adequate provisions to participate in the event. Photo-documentation of the Test in the remote canyon reaches, though optional, will be the responsibility of participating boaters and will be included in the Test documentation and reporting, as appropriate.

Boaters who choose to participate in the Test will be responsible for acknowledging and preparing for the challenges and risks associated with successfully boating this remote river reach including, but not limited to, their own access and egress logistics, and safety. *It cannot be stressed enough for those who choose to boat this reach as part of the Test that whitewater boating is inherently dangerous and participation in this controlled-flow boating study Test presents significant risks of bodily harm. Numerous hazards, both natural and man-made, may be present throughout Pyramid reach, some of which may be difficult to anticipate or detect.* The canyon through which Pyramid reach flows is remote with few access points, making emergency response, including search and rescue, extremely difficult, if not impossible. Furthermore, river conditions can change the creek channel and conditions may be dangerous to boaters. Therefore, boaters must have a firm understanding of the risks, be proficient in their whitewater boating skills and capabilities sufficient for the risks and hazards posed by participation in this Test, and take the appropriate safety precautions. The Licensees are not responsible for the safety or rescue of the boaters. All boaters that participate in this Test will be required to attend the pre-Test discussion, complete a Pre-Fieldwork Information Form, and sign a waiver and release of liability prior to participating in the Test. Further, for Test purposes, the Licensees request AW and NPS make it clear to the boating community that the flow releases are specific for the Test, and discourage

others boating the reach during the Test so that the boaters participating in the Test have unencumbered access to the reach during the Test.

Following the methods outlined by Whittaker, Shelby, and Gangemi (2005), the Whitewater Boating Study information documented to date indicates that a wide range of flows between 200 and possibly as high as 1,100 cubic feet per second (cfs), are potentially suitable flows for boating in Pyramid reach. Additionally, as found during the December 7, 2018, on-land controlled flow evaluation at 200 cfs, the quality and characteristics of the first 3 miles of Pyramid reach downstream of Pyramid Dam, including access, as determined by experienced boaters, is likely to be good at flows of 200 cfs and perhaps a bit higher.

Therefore, the first day of the Level 3 Controlled-Flow Boating Study release from Pyramid Dam is planned such that stable flows of approximately 300 cfs (as measured at Pyramid Dam) are experienced at Frenchman's Flat between 8:00 a.m. and 4:00 p.m. It should be noted that the approximate 300 cfs flow will extend beyond this window for compliance with Article 52. The 300 cfs release is a target flow that the Licensees will make a reasonable effort to provide and will be measured at the release point at the dam, and because there are no diversions or tributaries between the dam and Frenchman's Flat it is expected the flow will be approximately the same as that measured at the dam. It is anticipated the approximate 300 cfs flow would likely help boaters improve the accuracy of estimated minimum flow for whitewater boating in a reconnaissance-type outing as AW recommended in its July 12, 2019 comment letter.

On the second day of the Level 3 Controlled-Flow Boating Study, releases from Pyramid Dam will occur at the same eight-hour interval as day one and the release will be approximately 200 cfs (as measured at Pyramid Dam). The 200 cfs is a target release that the Licensees will make a reasonable effort to provide. It is anticipated that the approximate 200 cfs flow will allow boaters to better refine the suitability and quality of flow levels for boating opportunities in Pyramid reach.

Each day of the controlled-flow boating study Test can accommodate two groups of the Test's boaters in two evaluation runs; the full-day 15-mile run from Frenchman's Flat to Canton Crossing, and a run or series of runs in the upper 3-mile reach below Pyramid Dam. After Test boaters have made runs in the respective reaches, they will be asked to complete surveys and interviews to document their experiences and observations regarding the suitability of flows in boating the respective reaches. Boaters will be advised of safety concerns expressed by NPS regarding participation in both days of testing for the 15-mile run from Frenchman's Flat to Canton Crossing. However, it will be up to boaters to determine their abilities to safely boat on Pyramid reach for any duration. After the completion of the Test, boaters will be requested to complete a Close-Out Evaluation Form and participate in a comparative evaluation and focus group type interview to document the results and identify what is learned of the flow ranges and suitability for boating as well as other factors. The interviews and survey forms will solicit information about creek channel conditions, potential hazards and portages, and degrees of difficulty.

The steps planned for the on-water controlled-flow boating study Test are as follows:

- Schedule the release to ramp flows culminating in the target releases at 8:00am on December 19 and 20 in conformance with Article 52 provisions per prior releases (i.e., ramping flows up and down to simulate the hydrograph of a typical storm event).
- Notify the Los Angeles County Sheriff's department of the scheduled on-water controlled-flow boating study Test event.
- Work with AW and NPS to identify, schedule, and confirm 5 to 10 experienced boaters to participate (and RSVP) in the Test by November 1, 2019.
- Coordinate with UWCD and USFS to place notices of the scheduled flow release event for public safety purposes at key locations downstream (e.g., Frenchman's Flat and Lake Piru Recreation Area entrance kiosk).
- Coordinate with UWCD to notify land owners along Pyramid reach and upstream of Lake Piru of the high flow, controlled-release event. (Flows for this study may be high enough to prevent private land owners from crossing the creek to access their property).
- In advance of the controlled-flow boating study Test, prepare and disseminate information packages to the boaters who will participate in the Test. These packages may include: directions, preparatory information, maps, and stream reach profiles.
- Prepare flow study evaluation forms and conduct and oversee documentation efforts of findings. Undertake geo-referenced photo documentation of staging to accompany written and oral findings.
- Conduct the on-water Test beginning at Frenchman's Flat at 8:00 a.m. on each of the two scheduled days.
- Convene post-field reconnaissance summary meetings to obtain completed surveys and gather other relevant information, data, and observations.
- After the controlled-flow boating study Test has been completed and subsidence of flows, remove the posted stream side notification information.
- Prepare study documentation and results for report due to FERC no later than April 3, 2020.

Consistent with the procedures outlined by Whittaker, Shelby, and Gangemi (2005), a liability waiver will be required to be signed by each boating participant.

Participating boaters will also be requested to complete an evaluation form after each reach boated and a Close-Out Evaluation after the end of the second test day (see

Attachment 1). The Licensees will lead and record a post-evaluation discussion with the participants at the end of each day to discuss the Test and to gather additional feedback from the participants.

Participating boaters will be passing through designated Critical Habitat for the federally endangered arroyo toad. Boaters will be provided with information in advance of the test, including the precautionary measures recommend by the U.S. Department of the Interior, Fish and Wildlife Service (USFWS) for arroyo toad and its critical habitat. These include the following:

1. Use the following best management practices to reduce the spread of Chytridiomycosis:
 - Prior to floating the Pyramid reach, clean all boats, equipment, and water clothing (e.g. water-shoes, sandals, wetsuits, drytops, etc.) with a 5 percent bleach-water solution
 - Avoid cleaning equipment on site at put-in locations. Residue from any cleaning agents that remain on boats or equipment should also be rinsed with clean water offsite
 - Participants should avoid handling any amphibians while floating either segment of Pyramid reach
2. Avoid modification of arroyo toad critical habitat, which includes a large portion of the Pyramid reach. The Piru Creek Unit (Unit 5) runs the length of Piru Creek starting near the confluence of Fish Creek until Lake Piru. Arroyo toad critical habitat includes, but is not limited to the following:
 - Pools in low gradient stream segments with sandy substrates
 - Riparian vegetation
 - Upland benches adjacent to stream segments

In summary, the Licensees will be responsible for:

- Scheduling, releasing and monitoring flow and communicating the flow information to the potential boating team
- Inviting 5 to 10 boaters, identified by AW and NPS, to participate in the test
- Providing the liability waivers and Test information to participants prior to the on-water Test
- Management of on-land logistics including post-run transportation assistance for participants boating to Canton Crossing

- Conducting pre-and post-boating discussions
- Requesting participants to complete pre- and post-boating survey forms, and
- Test documentation and reporting

AW, NPS, and the boating community will be responsible for:

- Identifying 5 to 10 experienced boaters
- Providing to the Licensees signed liability waivers that will be sent by Licensees to boaters in advance of the test
- Providing their own water access, egress, and safety logistics
- Providing all necessary equipment, supporting gear, and provisions
- Photo-documentation of the controlled-flow boating study Test in the remote canyon reaches (optional)
- Participating in pre- and post-run discussions
- Completing the controlled-flow boating study Test Pre-Fieldwork Information Form, Post-Run Evaluation Form, and Close-Out Evaluation Form (boaters).

Although it is not anticipated, in the event that flows are not available during the scheduled Test for reasons beyond the control of the Licensees, AW and NPS will be notified. It will be the responsibility of AW and NPS to notify the participating boaters if this situation occurs.

1.5.3 Analysis and Reporting

The results of the Level 3 Controlled-Flow Boating Study will be documented in a study report and considered in relation to Project operations. The analysis will include: an assessment of the study participants' evaluations of the potential quality and characteristics of the boating opportunities; access opportunities and constraints; and a summarization of what is known or estimated about difficulty, type of run, and the type of craft suitable for the run. The analysis will also describe potential flow ranges and obvious hazards that were observed during the Level 3 Controlled-Flow Boating Study Test.

1.6 SCHEDULE

The Level 3 Controlled-Flow Boating Study began with preparation of a draft study plan submitted to AW, NPS, USFWS, and USFS on September 30, 2019. Comments were received from those entities between October 18, and October 22, 2019. The following provides a schedule for completion of the study.

Study Plan, with documentation of consultation, filed with FERC for approval	November 1, 2019
FERC approves Study Plan	Target date of November 20, 2019
Streamside high flow warning signs posted	December 11, 2019
On-water boating Test	December 19 and 20, 2019
Data analysis and reporting	Completed and filed with FERC by April 3, 2020

1.7 REFERENCES

Whittaker, D., Shelby, B., & Gangemi, J. 2005. Flows and Recreation: A Guide to Studies for River Professionals.

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Attachment 1

***Pre-Fieldwork Information Form, Post-Run Evaluation
Form, and Close-Out Evaluation Form***

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Whitewater Boating Level 3 Controlled-Flow Boating Study

South SWP Hydropower, FERC Project No. 2426-227

Pre-Fieldwork Information Form

Date: ____/____/____ Your name: _____

1. For the following types of whitewater craft, please indicate 1) the frequency you use each compared to other craft, 2) the years of experience you have with each, and 3) your skill level with that craft.

Craft		Frequency of use (circle one for each craft)			Years of experience	Skill level (circle one class)			
		No	Rare	Occasional		Frequent	II	III	IV
Hard shell kayak	No	Rare	Occasional	Frequent		II	III	IV	V
Inflatable kayak	No	Rare	Occasional	Frequent		II	III	IV	V
Raft/cataraft (length:____)	No	Rare	Occasional	Frequent		II	III	IV	V
Other: _____	No	Rare	Occasional	Frequent		II	III	IV	V

2. In general, how many days per year do you spend whitewater boating? _____ days per year
3. What is your age? _____ years
4. Are you male or female?
5. Have you previously boated Piru Creek? _____. If so, when and where did you boat? _____

6. How far from your residence is Frenchman's Flat? _____ miles

7. Please respond to each of the following statements about your river-running preferences.

	Strongly disagree	Moderately disagree	Slightly disagree	No Opinion	Slightly agree	Moderately agree	Strongly agree
Running challenging whitewater is the most important part of my boating trips	1	2	3	4	5	6	7
I am willing to tolerate difficult put-ins and portages in order to run interesting reaches of whitewater	1	2	3	4	5	6	7
Good whitewater play areas are more important than challenging rapids	1	2	3	4	5	6	7
I prefer boating steep, technical rivers	1	2	3	4	5	6	7

Whitewater Boating Level 3 Controlled-Flow Boating Study
 South SWP Hydropower, FERC Project No. 2426-227
 Post-Run Evaluation Form

1. Name: _____
2. Date of Run: _____
3. Which Study Reach are you evaluating? (circle one)
 - a. 3-mile reach above Frenchman's Flat
 - b. 15-mile reach below Frenchman's Flat
4. Please identify the put-in and take-out locations used and your estimate of the time you put-in and took out on this run.
 - a. Put-in location: _____ ▶ Time: _____
 - b. Take-out location: _____ ▶ Time: _____
5. What was the target flow (flow you are evaluating) on this run? _____ cfs ▶
6. What type of craft did you use for this run? (circle one)
 - a. Hardshell kayak
 - b. Inflatable kayak
 - c. Cataract (length: _____ ft.)
 - d. R2 (length: _____ ft.)
 - e. Raft (length: _____ ft.)
 - f. Other (specify) _____ (length: _____ ft.)
 - g. No craft: I road/trail-scouted this run
7. In general, how would you rate the whitewater difficulty at this flow (Class I to Class VI)? _____ .
8. What is the class of the most challenging rapid encountered? (circle one) Class I II III IV V.
9. Are you likely to return for future boating if the flow you are evaluating were to be provided and scheduled? (circle one)
 - a. Definitely No
 - b. Possibly
 - c. Probably
 - d. Definitely Yes
10. Would you prefer a flow that was higher or lower or the same as this flow? (circle one)
 - a. Much Lower Flow
 - b. Lower
 - c. About the same (this is close to optimum)
 - d. Higher
 - e. Much Higher
11. Please respond to each of the following statements about the characteristics of this run at the flow you are evaluating.

Statement	No -Totally unacceptable	No - Slightly unacceptable	Marginal	Yes - Slightly acceptable	Yes - Totally acceptable
This reach is boatable at these flows.	1	2	3	4	5
This reach offers challenging and technical boating.	1	2	3	4	5
This reach has nice water features such as waves and holes.	1	2	3	4	5
This reach has good play spots.	1	2	3	4	5
This run offers good overall whitewater challenge.	1	2	3	4	5
This is an aesthetically pleasing run.	1	2	3	4	5
This run is a good length.	1	2	3	4	5
The portages on this run are not a problem.	1	2	3	4	5
There are enough places to take a break or have lunch on this run.	1	2	3	4	5

12. Please estimate the number of **hits, stops, boat drags, and portages** you had on this run.
 - a. I **hit** rocks or other obstacles (but did not stop) about _____ times.
 - b. I was **stopped** after hitting rocks or other obstacles about _____ times (but did not have to get out of my boat to continue downstream).
 - c. I had to get out to **drag or pull my boat** off rocks or other obstacles about _____ times.
 - d. I had to **portage** around un-runnable rapids, log jams, or other sections about _____ times.

Whitewater Boating Level 3 Controlled-Flow Boating Study

South SWP Hydropower, FERC Project No. 2426-227

Post-Run Evaluation Form

13. Did you observe or experience any significant safety hazards on this run at the flow you are evaluating – such as swims, pins, wrapped boats, man-made or natural river features etc.? Please identify the location of hazards below, rate them as “High”, “Medium”, or “Low”, and include if they are flow specific or would be present only at a certain flow range.

14. Using the scale below, please rate the overall quality of the flow you boated for each reach
(Circle one number for each column).

Totally unacceptable	1	1
Slightly unacceptable	2	2
Marginal	3	3
Slightly acceptable	4	4
Totally acceptable	5	5

Whitewater Boating Level 3 Controlled-Flow Boating Study

South SWP Hydropower, FERC Project No. 2426-227

Close-Out Evaluation Form

- Name: _____
- Date: _____
- Reach boated: (3-mile reach above Frenchman's Flat) _____ Date _____
(15-mile reach below Frenchman' Flat) _____ Date _____
- Given what you know about the quality of whitewater and other features of middle Piru Creek, please tell us maximum number of **stops** and **portages** that are tolerable for a high quality trip in your craft on each reach?
If you "don't care" about the number of stops and portages, place an X in the space provided.

Number of **stops** I will tolerate after hitting rocks: 3-mile run _____ 15-mile run _____

Number of **portages** I will tolerate around unrunnable rapids/logs: 3-mile run _____ 15-mile run _____

- Please evaluate the middle Piru Creek reach(s) compared to other rivers within two hours and within California.
(Circle one number for each, if you are unsure, leave that item blank).

Other Rivers in the Area (within 2 hours) <i>Reach compared:</i> 3-mile _____ 15-mile _____	Worse than average
	Average
	Better than average
	Excellent
	Among the very best

Other Rivers in California <i>Reach compared:</i> 3-mile _____ 15-mile _____	Worse than average
	Average
	Better than average
	Excellent
	Among the very best

- What is the lowest flow that provides an acceptable trip? 3-mile run _____ 15-mile run _____
What is the lowest flow that provides for an optimal trip? 3-mile run _____ 15-mile run _____

- What months of the year would you prefer to boat on middle Piru Creek? _____
Please rate your interest in boating flow releases on weekdays vs. weekends (Circle choices).

WEEKDAYS	Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested
WEEKENDS	Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested

- In general, how far in advance would you need to know about releases in order to plan trips on the reach? _____
- Please circle overall evaluations of flows on the two whitewater reaches. Please consider all flow-dependent characteristics that contribute to high quality trips (e.g. boatability, whitewater challenge, safety, availability of play areas, aesthetics, and rate of travel). *If you do not feel comfortable evaluating a flow you have not seen, don't circle a number for that flow and place an "X" in the "I don't know" column.*

3-mile run:

FLOW	Totally unacceptable	Moderately unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Moderately acceptable	Totally acceptable	I don't know
200 cfs	1	2	3	4	5	6	7	
300 cfs	1	2	3	4	5	6	7	
400 cfs	1	2	3	4	5	6	7	
600 cfs	1	2	3	4	5	6	7	
1000 cfs	1	2	3	4	5	6	7	

15-mile run:

FLOW	Totally unacceptable	Moderately unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Moderately acceptable	Totally acceptable	I don't know
200 cfs	1	2	3	4	5	6	7	
300 cfs	1	2	3	4	5	6	7	
400 cfs	1	2	3	4	5	6	7	
600 cfs	1	2	3	4	5	6	7	
1000 cfs	1	2	3	4	5	6	7	

Attachment 2

***Agency Comment Letters and Emails on Draft Study
Plan***

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From: [Brandt, Joseph](#)
To: [Lieske, Patrick D -FS](#)
Cc: [Gilbert, Kirby](#); [Taylor, Robert G -FS](#)
Subject: Fwd: [EXTERNAL] White-water kayaking/ rafting on Piru Creek
Date: Friday, October 18, 2019 3:57:18 PM

Patrick,

Robert might be able to get you up to speed he just was on a call today. Sounds like you could provide some good input.

Cheers

Joseph Brandt

Wildlife Biologist

Ventura Fish and Wildlife Office

USFWS Ecological Services

direct phone: (805)677-3324

office: (805)644-1766 ext 53324

DOI Regions 8 &10

----- Forwarded message -----

From: **Lieske, Patrick D -FS** <patrick.lieske@usda.gov>
Date: Fri, Oct 18, 2019 at 3:47 PM
Subject: [EXTERNAL] White-water kayaking/ rafting on Piru Creek
To: Brandt, Joseph <joseph.brandt@fws.gov>

Joseph,

I had heard discussion regarding white-water boating on Piru Creek, but we (LPNF staff) have never been formally brought in the loop considering this proposed action. It is worth noting that Los Padres NF de-commissioned and removed Blue Point CG in late FY18- early FY19 and that using this location as a pull out for kayakers or rafters would be considered an unsuitable alternative, as it is contrary to the reasoning for why we removed the campground infrastructure and low-water crossing at the site. There is currently no longer any infrastructure (bathrooms, picnic tables etc.) at Blue Point, and the crossing is currently in the process of natural recovery. Both arroyo toad and least Bell's vireo breed in very close proximity to the old Blue Point crossing, so any actions increasing human activity in this area would be likely to result in incidental take to both species, as well as resulting in potential adverse modification of critical habitat. Canton Crossing (about 1 mile downstream) still has some use conflicts, but would be a better option as a haul out location. Please keep me advised of future discussion regarding actions at this location. It sounds like some of these discussions are occurring under the FERC umbrella without full disclosure to LPNF staff regarding possible implications.

Patrick



Patrick Lieske, M.S.
Forest Wildlife Biologist, Wildlife and Botany Program Manager
Forest Service

Los Padres National Forest, Supervisor's Office

p: 805-961-5746

c: 805-699-1054

f: 805-961-5729

patrick.lieske@usda.gov

6750 Navigator Way, Suite 150

Goleta, CA 93117

www.fs.fed.us



Caring for the land and serving people

From: Brandt, Joseph [mailto:joseph_brandt@fws.gov]

Sent: Friday, October 18, 2019 3:24 PM

To: Lieske, Patrick D -FS <patrick.lieske@usda.gov>

Subject: Re: [EXTERNAL] RE: Target shooting areas on LPNF

Will do.

On a different note. How familiar are you with the whitewater boating study being conducted in Piru Creek. We are providing comments to FERC on how to avoid impacts on Arroyo Toad and least Bell's vireo. They plan on using Blue Point Campground as a haul out location.

Cheers

Joseph Brandt

Wildlife Biologist

Ventura Fish and Wildlife Office

USFWS Ecological Services

direct phone: (805)677-3324

office: (805)644-1766 ext 53324

DOI Regions 8 &10

**UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**California Department of Water
Resources
Los Angeles Department of Water and
Power
South SWP Hydroelectric Project

Piru Creek**

FERC Project No. P-2426 -227

CERTIFICATE OF SERVICE

Pursuant to Rule 2010 of the Commission's Rules of Practice and Procedure, I hereby certify that I have this day caused the foregoing AMERICAN WHITEWATER'S COMMENTS ON CALIFORNIA DEPARTMENT OF WATER RESOURCES AND THE LOS ANGELES DEPARTMENT OF WATER AND POWER WHITEWATER BOATING LEVEL 3 CONTROLLED-FLOW BOATING STUDY to be served upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated this 21th day of October 2019.



Theresa L. Simsiman
American Whitewater

**UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION**

**California Department of Water Resources
Los Angeles Department of Water and
Power
South SWP Hydroelectric Project**

Piru Creek

Docket No. P-2426-227

**AMERICAN WHITEWATER'S COMMENTS ON CALIFORNIA DEPARTMENT OF
WATER RESOURCES AND THE LOS ANGELES DEPARTMENT OF WATER AND
POWER WHITEWATER BOATING LEVEL 3 CONTROLLED-FLOW BOATING STUDY
(FERC PROJECT NUMBER 2426-227)**

(Submitted October 21, 2019)

I. Introduction

As outlined in the FERC *Determination on Requests for Study Modifications and New Studies – South SWP Hydropower Project* on September 11, 2019, the co-licensees must consult with American Whitewater and National Park Service to develop a draft plan to implement a Level 3 Controlled-Flow Boating Study.¹ Subsequently, on September 30, 2019 the co-licensees provided the *California Department of Water Resources (DWR) and the Los Angeles Department of Water and Power (LADWP) Whitewater Boating Level 3 Controlled-Flow Boating Study* for our review. A follow-up conference call to discuss concerns and logistics between the co-licensees, American Whitewater, the National Park Service and other agencies took place on October 15, 2019. American Whitewater provides the following comments and recommendations regarding study responsibilities, dates, flow and surveys.

II. Interest of American Whitewater

American Whitewater is a national non-profit 501 (c)(3) river conservation organization founded in 1954 with over 5,500 members and 100 locally-based affiliate clubs, representing whitewater enthusiasts across the nation. American Whitewater's mission is to conserve and restore America's whitewater resources and to enhance opportunities to enjoy them safely. A significant percentage of our members reside in and travel to California for its whitewater resources. Piru Creek is a rare waterway for the region that provides opportunity for a Class IV multiday boating

¹ *Determination on Requests for Study Modifications and New Studies – South SWP Hydropower Project* available on the Commission's website from the eLibrary feature at <http://www.ferc.gov/docs-filing/elibrary.asp>. Accession number 20190911-3000(33780726) Appendix B page 6.

run on a designated Wild and Scenic River less than an hour drive from downtown Los Angeles. As an organization that represents the conservation interests of whitewater enthusiasts, American Whitewater has an interest in the impacts of the South SWP Hydroelectric Project on Piru Creek.

III. Comments and Recommendations

STUDY RESPONSIBILITIES

The implementation of the study remains the responsibility of DWR and the LADWP. This includes but is not limited to the following:

- Finding and engaging qualified boating participants.
- Logistics for take-out access at Blue Point Campground solely for the purpose of the two-day flow study including mitigation for site specific concerns regarding the Arroyo Toad.
- Transportation from the take-out for all participants boating from Frenchman's Flat to Piru Lake.
- Developing and distributing Boating Flow Study waivers for the participants.
- Developing and Administering Boating Flow Surveys

American Whitewater will continue to engage and provide assistance for the Whitewater Boating Study process,

DATES

American Whitewater understands the constraints the co-licensees have regarding the chosen weekday dates to provide the needed boating flow levels. However, following accepted flow study methodology you need at least 5-10 participants to accurately determine a boating flow range. We note that weekday dates will limit the participation of qualified boaters who need to make job and schedule arrangements to get the time needed to take part in the flow studies. We appreciate the co-licensee's effort to change the Wednesday/Thursday dates to Thursday November 21, 2019 and Friday November 22, 2019.

Additionally, as was discussed in the follow-up conference call, scheduling back to back flow studies may compromise boating ability of the Frenchman's Flat to Piru Lake participants who will feel the fatigue of a 15-mile wilderness trip. We recommend an evaluation upon completion of the first trip to ascertain the ability of paddlers to safely participate in the second day of boating flows. If only one flow day is completed on Frenchman's Flat to Piru Lake, recognizing that the resulting information may or may not give us the needed boating flow range for Piru Creek, we ask the co-licensees to consider another flow date to complete the study if needed.

FLOW

When boating flow study participants identified 200 cfs on Frenchman's Flat to Piru Lake during the level 1 and level 2 studies, that flow was reported below Pyramid Dam during Spring runoff when side tributaries contributed to the overall flows boated on Piru Creek. Therefore, American Whitewater expressed concerns during the conference call about the lack of flow accretion during the Fall and recommended starting with 300 cfs on the first flow day. We thank the co-licensees for making plans to accommodate that request.

SURVEYS

American Whitewater attaches the Survey Instrument Form from the Sultan River flow study for the Henry Jackson FERC Project #2157. Study methodology authors Doug Whittaker and Bo Shelby helped implement these surveys for the study themselves. Comparing this survey and the draft Piru Creek survey we recommend the following:

- The survey instrument should have three distinct components including; a pre-survey to gather boater information and ability; a post run survey to capture river conditions immediately following the participants run; and a close-out survey immediately following completion of both flow days that will capture flow range perceptions.
- Pre-Survey questions should include river-running preferences as detailed in question 6 of the Sultan Survey. Since Piru Creek is a unique resource located an hour away from LA we also recommend including a question asking how far the participants have travelled.
- Post Run Survey questions will need to be tailored and we note there is no need to evaluate the type of boating on Piru Creek which is already identified as technical boating. However, we feel it is important to follow-up on rating the classification of the river with other qualifying questions. For instance, we believe question 2 of the Sultan Post-Survey asking participants to compare their reach experience with other rivers is an important data point.
- We believe the question found on the draft Piru Creek Survey asking participants to rate whether they believe the "run is safe" should be removed. In general boaters accept the risks associated with whitewater paddling and are properly equipped/experienced to mitigate safety concerns. Therefore, we believe there is better value in asking paddlers to rate or identify the location of specific hazards on the rivers. Specially, in relevance to flow levels.
- Close Out Survey questions should include a mechanism for participants to consider different flow levels like the last question on the Sultan Survey. We recommend having participants evaluate a flow range in this format from 150 cfs to 1500 cfs.

- We recommend conducting an on-site boating flow debrief upon completion of the flow study to allow participants to discuss results in a round table fashion. Comments expressed during the roundtable should be noted and included with the final study report.

IV. Conclusion

Overall, American Whitewater approves of the *California Department of Water Resources (DWR) and the Los Angeles Department of Water and Power (LADWP) Whitewater Boating Level 3 Controlled-Flow Boating Study*, provided the above comments are considered and incorporated into the final draft. All information gleaned from these recommended endeavors will help stakeholders and agencies make proper recommendations, terms and conditions during the relicensing process. We look forward to participating in the controlled-flow boating study.

Respectfully submitted,

A handwritten signature in cursive script that reads "Theresa L. Simsiman".

Theresa L. Simsiman
California Stewardship Director
American Whitewater
916-835-1460

6.2 Flow Study Survey Instruments

SULTAN RIVER PRE-FIELDWORK INFORMATION FORM

Date: ____ / ____ / ____ Your name: _____

1. For the following types of whitewater craft, please indicate 1) the frequency you use each compared to other craft, 2) the years of experience you have with each, and 3) your skill level with that craft.

Craft	Frequency of use (circle one for each craft)				Years of experience	Skill level (circle one class)			
	No	Rare	Occasional	Frequent		II	III	IV	V
Hard shell kayak	No	Rare	Occasional	Frequent		II	III	IV	V
Inflatable kayak	No	Rare	Occasional	Frequent		II	III	IV	V
Raft/catacraft (length: ____)	No	Rare	Occasional	Frequent		II	III	IV	V
Other: _____	No	Rare	Occasional	Frequent		II	III	IV	V

2. In general, how many days per year do you spend whitewater boating? ____ days per year

3. What is your age? ____ years

4. Are you male or female?

5. Please estimate the number of trips you have taken on each reach of the Sultan River?

____ trips on Segment 2 (from Culmback Dam/6122 River Access site to Diversion Dam)

____ trips on Segment 3 (Diversion Dam to Powerhouse)

____ trips on Segment 4 (Powerhouse to Trout Farm Road)

____ trips on Segment 5 (Trout Farm Road to the Skykomish)

6. Please respond to each of the following statements about your river-running preferences.

	Strongly disagree	Moderately disagree	Slightly disagree	No Opinion	Slightly agree	Moderately agree	Strongly agree
Running challenging whitewater is the most important part of my boating trips.	1	2	3	4	5	6	7
I am willing to tolerate difficult put-ins and portages in order to run interesting reaches of whitewater.	1	2	3	4	5	6	7
Good whitewater play areas are more important than challenging rapids.	1	2	3	4	5	6	7
I prefer boating steep, technical rivers.	1	2	3	4	5	6	7

SULTAN RIVER POST-RUN FORM

Date: ____ / ____ / ____ Your name: _____

1. What type of boat did you use today? Hard shell kayak Inflatable kayak Other _____

	Segment 2	Segment 3
2. Please check the reaches you boated today...	<input type="checkbox"/>	<input type="checkbox"/>

3. Please estimate the general class of whitewater on each reach (I to VI)		
--	--	--

4. Please estimate the class of the hardest rapid on this reach at this flow (I to VI)		
--	--	--

5. Please estimate the number of stops and portages you had on each reach.		
<i>Number of times I was stopped after hitting rocks</i>		
<i>Number of times I had to portage around unrunnable rapids/logs</i>		

6. Using the scale below, please rate the overall quality of the flow you boated for each reach (*Circle one number for each column*).

<i>Totally unacceptable</i>	1	1
<i>Slightly unacceptable</i>	2	2
<i>Marginal</i>	3	3
<i>Slightly acceptable</i>	4	4
<i>Totally acceptable</i>	5	5

7. Please indicate the type of boating opportunity provided at this flow for each reach. (*Circle one number for each column*).

Technical boating: <i>Lower flow trips with technical routes through rapids, fewer route options, less powerful hydraulics, and occasional boatability problems (hitting or becoming stuck on rocks in the channel).</i>	1	1
<i>Transition between technical and standard boating.</i>	2	2
Standard boating: <i>Medium flow trips with less technical whitewater, more route options, stronger hydraulics, larger waves, and infrequent boatability problems.</i>	3	3
<i>Transition between standard and big water boating.</i>	4	4
Big water boating: <i>Higher flow trips with powerful hydraulics, larger waves, and no boatability problems.</i>	5	5

8. In general, would you prefer a flow that was higher, lower, or about the same as this flow? (*Circle one number for each column*).

<i>Much lower flow</i>	1	1
<i>Slightly lower flow</i>	2	2
<i>About the same; this was close to an optimum flow</i>	3	3
<i>Slightly higher flow</i>	4	4
<i>Much higher flow</i>	5	5

SULTAN RIVER “CLOSE-OUT” FORM

Date: ____ / ____ / ____

Your name: _____

1. Given what you know about the quality of whitewater and other features on the Sultan River, please tell us maximum number of **stops** and **portages** that are tolerable for a high quality trip in your craft on each reach? *If you “don’t care” about the number of stops and portages, place an X in the space provided.*

	Segment 2	Segment 3	Segment 4
Number of stops I will tolerate after hitting rocks			
Number of portages I will tolerate around unrunnable rapids/logs			

2. Compared to other rivers, how would you rate boating opportunities on these reaches? *(Circle one number for each; if you are unsure, leave that item blank).*

...other rivers in the area (within 2 hours)	<i>Worse than average</i>	1	1	1
	<i>Average</i>	2	2	2
	<i>Better than average</i>	3	3	3
	<i>Excellent</i>	4	4	4
	<i>Among the very best</i>	5	5	5
... other rivers in Washington	<i>Worse than average</i>	1	1	1
	<i>Average</i>	2	2	2
	<i>Better than average</i>	3	3	3
	<i>Excellent</i>	4	4	4
	<i>Among the very best</i>	5	5	5

3. Based on your boating trips on the Sultan River, please specify the flows that provide the following types of experiences. *(Note: If you are comfortable doing so, it is okay to specify flows you have not seen).*

Think of the river as a **waterway used for transportation**.

	Segment 2	Segment 3	Segment 4
What is the lowest flow you need to simply get down each reach in your craft?			

Some people are interested in a “technical” whitewater trip at lower flows. Think of this “**technical trip**” in your craft for each reach.

<i>What is the lowest flow that provides an acceptable technical trip?</i>			
<i>What is the lowest flow that provides an optimal technical trip?</i>			

Some people are interested in taking trips at somewhat higher flows that feature stronger hydraulics but may offer less technical routes through rapids. Think of this “**standard trip**” in your craft for each reach.

<i>What is the lowest flow that provides an acceptable standard trip?</i>			
<i>What is the lowest flow that provides an optimal standard trip?</i>			

What flow defines the **transition between technical and standard trips**?

--	--	--

Some people are interested in taking trips at much higher flows that feature more powerful hydraulics and large waves. Think of this “**big water trip**” in your craft.

<i>What is the lowest flow that provides an acceptable big water trip?</i>			
<i>What is the lowest flow that provides an optimal big water trip?</i>			

	Segment 2	Segment 3	Segment 4
What flow defines the transition between standard and big water trips ?			
What is the highest safe flow for your craft and skill level?			
If only one flow was to be provided in a reach, what flow would you prefer?			
If two flows were to be provided in a reach on different days, what two flows would you prefer?			

4. Please rate your interest in boating flow releases in different months (assume optimal flows; consider each month as if flows would be provided only in that month).

	Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested
Jan	1	2	3	4	5
Feb	1	2	3	4	5
Mar	1	2	3	4	5
Apr	1	2	3	4	5
May	1	2	3	4	5
Jun	1	2	3	4	5
Jul	1	2	3	4	5
Aug	1	2	3	4	5
Sep	1	2	3	4	5
Oct	1	2	3	4	5
Nov	1	2	3	4	5
Dec	1	2	3	4	5

4. Please rate your interest in boating flow releases on weekdays vs. weekends.

	Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested
Weekdays	1	2	3	4	5
Weekends	1	2	3	4	5

5. If water for boating releases were limited, would you prefer... (Circle one number)

1. ...one day with an optimal flow all day.
2. ...two days with acceptable but not optimal flows.
3. ...two days with optimal flows but for fewer hours each day.

6. If water for boating releases were limited, would you prefer ... (Circle one number)

1. ...acceptable but not optimal flows provided on both Segments 2 and 3.
2. ...optimal flows provided only on Segment 3 (below the Diversion Dam).

7. How far in advance do you need to know about releases in order to plan trips on Sultan River?

About _____ days in advance or...

About _____ weeks in advance, or...

About _____ months in advance.

Please provide overall evaluations of flows for **technical and standard trips** on the two whitewater reaches above the powerhouse. Please consider all the flow-dependent characteristics that contribute to high quality trips (e.g., boatability, whitewater challenge, safety, availability of play areas, aesthetics, and rate of travel).

If you do not feel comfortable evaluating a flow you have not seen, don't circle a number for that flow.

	Totally unacceptable	Moderately unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Moderately acceptable	Totally acceptable
Segment 2: Technical trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

Segment 2: Standard trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

	Totally unacceptable	Moderately unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Moderately acceptable	Totally acceptable
Segment 3: Technical trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

Segment 3: Standard trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7



United States Department of the Interior



NATIONAL PARK SERVICE
Interior Regions 8, 9, 10, and 12
333 Bush Street, Suite 500
San Francisco, CA 94104-2828

IN REPLY REFER TO:

October 17, 2019

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

Electronic Filing

RE: National Park Service's (NPS) comments on the Whitewater Boating Level 3 Controlled-Flow Boating Study South SWP Hydropower Project (P-2426)

Dear Ms. Bose:

The NPS's Hydropower Assistance Program, Pacific West Region offers the following comments on the Whitewater Boating Level 3 Controlled Flow Study Plan for the South SWP Hydropower Project (P-2426).

The NPS has authority to consult with FERC and applicants concerning a project's effects on outdoor recreation resources under the Federal Power Act (18 CFR 4.38(a), 5.41(f)(4)-(6), and 16.8(a)); the Outdoor Recreation Act (Public Law [PL] 88-29), the NPS Organic Act (39 Stat. 535), and the Wild and Scenic Rivers Act (PL 90-542). It is the policy of the NPS to represent the national interest regarding recreation, and to assure that hydroelectric projects subject to relicensing recognize the full potential for meeting present and future public outdoor recreation demands, while maintaining and enhancing a quality environmental setting for those projects. Investigating opportunities to improve the recreation experience is consistent with the NPS policy and FERC guidelines to identify future potential recreation needs.

Piru creek, a 7.3 mile designated Wild and Scenic River, is an important national resource and provides recreation opportunities unlike any other available to the greater Los Angeles area. The lower segment of Piru Creek starts one-half mile below Pyramid Lake Dam and continues downstream into the Sespe Wilderness. Along the designated stretch of the river, geological values were determined to be outstandingly remarkable, including scenic tilted layers of sedimentary rocks as well as faults and rock formations with features crucial to the understanding of the geological formation of the West Coast of North America.

INTERIOR REGION 8 • LOWER COLORADO BASIN*
INTERIOR REGION 9 • COLUMBIA—PACIFIC NORTHWEST*
INTERIOR REGION 10 • CALIFORNIA—GREAT BASIN
INTERIOR REGION 12 • PACIFIC ISLANDS

AMERICAN SAMOA, ARIZONA*, CALIFORNIA, GUAM, HAWAII, IDAHO, MONTANA*,
NEVADA, NORTHERN MARIANA ISLANDS, OREGON, WASHINGTON

*PARTIAL

Phase 3 Flow study

The NPS is pleased that DWR is conducting a phase 3 flow study as outlined by “Flows and Recreation: A Guide to Studies for River Professionals” (Whittaker, Shelby and Gangemi 2005).

The NPS participated in discussions with DWR and StanTec to help resolve questions and issues regarding the draft study plan. The NPS wants to make sure that the phase 3 flow study meets the objective of determining the boatable flow range. We understand that the study plan will be modified to reflect the stakeholder discussions. The NPS recommends the following changes be made to the study plan.

Logistics and Liability

Please modify the study plan to reflect that DWR and StanTec will be responsible for inviting the boaters to the study, providing a liability waiver, and managing all logistics, including access and transportation for the participants. DWR will also coordinate with the United States Forest Service to see if access to the campground can be accommodated during the flow study.

Timing of the Study

The licensee will study two reaches:

- Pyramid Dam to Frenchman's Flat (3 miles)
- Frenchman's Flat to Lake Piru (15 miles) – wilderness reach

The 3-mile run and the 15-mile wilderness run will likely have different boaters. DWR has selected two back-to-back weekdays for the flow study. To ensure adequate recruitment of boaters, the NPS recommends that DWR conduct the study on weekend days since most boaters are working during the week. Also, the wilderness run is 15 miles, and having the same boaters run this reach two days in a row is a safety concern. The NPS understands that DWR has selected these days to coincide with a commitment for water delivery. If DWR cannot recruit enough boaters to participate in the study, the flow study will need to be conducted on different days. The purpose of the study is to identify a boatable flow range, including the optimal flow. If this cannot be achieved due to only being able to boat the river at one flow level or not having enough participation from boaters, the NPS recommends that the study be conducted on additional days to meet the objective of determining a boatable flow range.

Flow Levels and Accretion

The lowest boatable flow is unknown. Given this, the first flow day should start with the higher proposed flow of 300 cfs. In the final report, please describe the amount and timing of accretion flows into the river from the tributaries to help inform potential future recreation releases.

Arroyo Toad

Resource agencies have expressed concerns about the potential impacts to arroyo toad. DWR should coordinate with the United States Fish and Wildlife Service and the United States Forest Service to address these concerns in the study process.

Methods

The NPS recommends that the study plan include a pre, post-run, and close-out survey along with focus group discussions at the end of each run/day. Please see the attached Henry Jackson, p-2157 survey instrument as an example.

The pre-survey should ask the boaters about their experience levels in various boating craft, how often they boat, demographic information, experience with the Piru River, and their river-running preferences.

Specific comments on the draft post-run survey instrument include:

- Add a question regarding estimating the class of the hardest rapid on this reach at this flow.
- Add a question to “please rate the overall quality of the flow you boated’ using the scale totally unacceptable to totally acceptable.
- Modify question 9 to “would you prefer a flow that was higher, lower, or about the same as this flow?” using a scale of much lower flow, lower, about the same this is close to optimum, higher, and much higher flow.
- Modify the other rated statements in question 10 to be neutral statements with acceptable unacceptable ratings.
- Please remove the rating of “This is a safe run”.
- For question 12, please reword safety issues to safety hazards. Also ask the boaters to identify the location of any hazards and if they felt the hazards were flow specific or would be present only at a certain flow range.

The close-out survey should be conducted at the end and include questions such as:

- Maximum number of stops and portages that are tolerable for a high quality trip on the Piru river.
- Evaluation of the Piru reach(s) compared to other rivers within two hours and within California.
- Identification of the lowest flow that provides for an acceptable and optimal trip
- Rate interest in boating the reach in different months of the year and weekdays vs. weekends.
- Information on how far in advance would boaters need to know about releases in order to plan trips on the reach.
- Overall evaluation of flows using a seven-point scale from totally unacceptable to totally acceptable for a range of flows from 200 cfs to 1500 cfs. Include an option for “I don’t know” in case a participant does not feel they can rate flows they have not experienced.

At the end of each day, the consultants should also lead a facilitated discussion that talks about the advantages and disadvantages of the flow provided, what the participants think the river would be like at higher and lower flows, access issues, and any safety hazards.

Thank you for the opportunity to comment. If you have any further questions, please contact Steve Bowes at 415-623-2321 or Barbara Rice at 415-623-2320.

Sincerely,

A handwritten signature in black ink that reads "Barbara Rice". The signature is written in a cursive, flowing style.

Barbara Rice
Program Manager
Rivers, Trails and Conservation and Hydropower Assistance Programs
National Park Service
333 Bush Street
San Francisco, CA 94104

Attachment 1: Henry Jackson, Sultan River, p-2157

6.2 Flow Study Survey Instruments

SULTAN RIVER PRE-FIELDWORK INFORMATION FORM

Date: ____ / ____ / ____ Your name: _____

1. For the following types of whitewater craft, please indicate 1) the frequency you use each compared to other craft, 2) the years of experience you have with each, and 3) your skill level with that craft.

Craft	Frequency of use (circle one for each craft)				Years of experience	Skill level (circle one class)			
	No	Rare	Occasional	Frequent		II	III	IV	V
Hard shell kayak	No	Rare	Occasional	Frequent		II	III	IV	V
Inflatable kayak	No	Rare	Occasional	Frequent		II	III	IV	V
Raft/catacraft (length: ____)	No	Rare	Occasional	Frequent		II	III	IV	V
Other: _____	No	Rare	Occasional	Frequent		II	III	IV	V

2. In general, how many days per year do you spend whitewater boating? ____ days per year

3. What is your age? ____ years

4. Are you male or female?

5. Please estimate the number of trips you have taken on each reach of the Sultan River?

____ trips on Segment 2 (from Culmback Dam/6122 River Access site to Diversion Dam)

____ trips on Segment 3 (Diversion Dam to Powerhouse)

____ trips on Segment 4 (Powerhouse to Trout Farm Road)

____ trips on Segment 5 (Trout Farm Road to the Skykomish)

6. Please respond to each of the following statements about your river-running preferences.

	Strongly disagree	Moderately disagree	Slightly disagree	No Opinion	Slightly agree	Moderately agree	Strongly agree
Running challenging whitewater is the most important part of my boating trips.	1	2	3	4	5	6	7
I am willing to tolerate difficult put-ins and portages in order to run interesting reaches of whitewater.	1	2	3	4	5	6	7
Good whitewater play areas are more important than challenging rapids.	1	2	3	4	5	6	7
I prefer boating steep, technical rivers.	1	2	3	4	5	6	7

SULTAN RIVER POST-RUN FORM

Date: ____ / ____ / ____ Your name: _____

1. What type of boat did you use today? Hard shell kayak Inflatable kayak Other _____

	Segment 2	Segment 3
2. Please check the reaches you boated today...	<input type="checkbox"/>	<input type="checkbox"/>

3. Please estimate the general class of whitewater on each reach (I to VI)		
--	--	--

4. Please estimate the class of the hardest rapid on this reach at this flow (I to VI)		
--	--	--

5. Please estimate the number of stops and portages you had on each reach.		
<i>Number of times I was stopped after hitting rocks</i>		
<i>Number of times I had to portage around unrunnable rapids/logs</i>		

6. Using the scale below, please rate the overall quality of the flow you boated for each reach (*Circle one number for each column*).

<i>Totally unacceptable</i>	1	1
<i>Slightly unacceptable</i>	2	2
<i>Marginal</i>	3	3
<i>Slightly acceptable</i>	4	4
<i>Totally acceptable</i>	5	5

7. Please indicate the type of boating opportunity provided at this flow for each reach. (*Circle one number for each column*).

<i>Technical boating: Lower flow trips with technical routes through rapids, fewer route options, less powerful hydraulics, and occasional boatability problems (hitting or becoming stuck on rocks in the channel).</i>	1	1
<i>Transition between technical and standard boating.</i>	2	2
<i>Standard boating: Medium flow trips with less technical whitewater, more route options, stronger hydraulics, larger waves, and infrequent boatability problems.</i>	3	3
<i>Transition between standard and big water boating.</i>	4	4
<i>Big water boating: Higher flow trips with powerful hydraulics, larger waves, and no boatability problems.</i>	5	5

8. In general, would you prefer a flow that was higher, lower, or about the same as this flow? (*Circle one number for each column*).

<i>Much lower flow</i>	1	1
<i>Slightly lower flow</i>	2	2
<i>About the same; this was close to an optimum flow</i>	3	3
<i>Slightly higher flow</i>	4	4
<i>Much higher flow</i>	5	5

SULTAN RIVER "CLOSE-OUT" FORM

Date: ____ / ____ / ____

Your name: _____

1. Given what you know about the quality of whitewater and other features on the Sultan River, please tell us maximum number of **stops** and **portages** that are tolerable for a high quality trip in your craft on each reach? *If you "don't care" about the number of stops and portages, place an X in the space provided.*

	Segment 2	Segment 3	Segment 4
<i>Number of stops I will tolerate after hitting rocks</i>			
<i>Number of portages I will tolerate around unrunnable rapids/logs</i>			

2. Compared to other rivers, how would you rate boating opportunities on these reaches? *(Circle one number for each; if you are unsure, leave that item blank).*

...other rivers in the area (within 2 hours)	<i>Worse than average</i>	1	1	1
	<i>Average</i>	2	2	2
	<i>Better than average</i>	3	3	3
	<i>Excellent</i>	4	4	4
	<i>Among the very best</i>	5	5	5

... other rivers in Washington	<i>Worse than average</i>	1	1	1
	<i>Average</i>	2	2	2
	<i>Better than average</i>	3	3	3
	<i>Excellent</i>	4	4	4
	<i>Among the very best</i>	5	5	5

3. Based on your boating trips on the Sultan River, please specify the flows that provide the following types of experiences. *(Note: If you are comfortable doing so, it is okay to specify flows you have not seen).*

Think of the river as a *waterway used for transportation*.

What is the **lowest flow** you need to simply get down each reach in your craft?

Segment 2	Segment 3	Segment 4

Some people are interested in a "technical" whitewater trip at lower flows. Think of this "**technical trip**" in your craft for each reach.

What is the lowest flow that provides an acceptable technical trip?

What is the lowest flow that provides an optimal technical trip?

Some people are interested in taking trips at somewhat higher flows that feature stronger hydraulics but may offer less technical routes through rapids. Think of this "**standard trip**" in your craft for each reach.

What is the lowest flow that provides an acceptable standard trip?

What is the lowest flow that provides an optimal standard trip?

What flow defines the **transition between technical and standard trips**?

--	--	--

Some people are interested in taking trips at much higher flows that feature more powerful hydraulics and large waves. Think of this "**big water trip**" in your craft.

What is the lowest flow that provides an acceptable big water trip?

What is the lowest flow that provides an optimal big water trip?

	Segment 2	Segment 3	Segment 4
What flow defines the <i>transition between standard and big water trips</i> ?			
What is the <i>highest safe flow</i> for your craft and skill level?			
If only <i>one</i> flow was to be provided in a reach, what flow would you prefer?			
If <i>two flows</i> were to be provided in a reach on different days, what two flows would you prefer?			

4. Please rate your interest in boating flow releases in different months (assume optimal flows; consider each month as if flows would be provided only in that month).

	Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested
Jan	1	2	3	4	5
Feb	1	2	3	4	5
Mar	1	2	3	4	5
Apr	1	2	3	4	5
May	1	2	3	4	5
Jun	1	2	3	4	5
Jul	1	2	3	4	5
Aug	1	2	3	4	5
Sep	1	2	3	4	5
Oct	1	2	3	4	5
Nov	1	2	3	4	5
Dec	1	2	3	4	5

4. Please rate your interest in boating flow releases on weekdays vs. weekends.

	Not at all interested	Slightly interested	Moderately interested	Very interested	Extremely interested
Weekdays	1	2	3	4	5
Weekends	1	2	3	4	5

5. If water for boating releases were limited, would you prefer... (Circle one number)

1. ...one day with an optimal flow all day.
2. ...two days with acceptable but not optimal flows.
3. ...two days with optimal flows but for fewer hours each day.

6. If water for boating releases were limited, would you prefer ... (Circle one number)

1. ...acceptable but not optimal flows provided on both Segments 2 and 3.
2. ...optimal flows provided only on Segment 3 (below the Diversion Dam).

7. How far in advance do you need to know about releases in order to plan trips on Sultan River?

About _____ days in advance or...

About _____ weeks in advance, or...

About _____ months in advance.

Jackson Hydroelectric Project

Please provide overall evaluations of flows for *technical and standard trips* on the two whitewater reaches above the powerhouse. Please consider all the flow-dependent characteristics that contribute to high quality trips (e.g., boatability, whitewater challenge, safety, availability of play areas, aesthetics, and rate of travel).

If you do not feel comfortable evaluating a flow you have not seen, don't circle a number for that flow.

	Totally unacceptable	Moderately unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Moderately acceptable	Totally acceptable
Segment 2: Technical trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

Segment 2: Standard trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

	Totally unacceptable	Moderately unacceptable	Slightly unacceptable	Marginal	Slightly acceptable	Moderately acceptable	Totally acceptable
Segment 3: Technical trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

Segment 3: Standard trips							
200 cfs	1	2	3	4	5	6	7
300 cfs	1	2	3	4	5	6	7
400 cfs	1	2	3	4	5	6	7
500 cfs	1	2	3	4	5	6	7
600 cfs	1	2	3	4	5	6	7
800 cfs	1	2	3	4	5	6	7
1,000 cfs	1	2	3	4	5	6	7
1,200 cfs	1	2	3	4	5	6	7
1,500 cfs	1	2	3	4	5	6	7
2,000 cfs	1	2	3	4	5	6	7

From: [Brandt, Joseph](#)
To: [Burr, Douglas](#); [McNeil, Jeremiah@DWR](#)
Cc: [Taylor, Robert G -FS](#); [Lieske, Patrick D -FS](#); [Christopher Diel](#)
Subject: Comments on the Whitewater Boating Study (study 19) associated with Project No. 2426-227—California South SWP Hydropower Project
Date: Tuesday, October 22, 2019 1:27:02 PM

To whom it may concern,

We have reviewed the Whitewater Boating Level 3 Controlled-Flow Boating Study dated September 2019 to provide informal comments regarding the federally listed species and designated critical habitat which occur in the Study area.

There are two listed species and on one unit of critical habitat in the study area:

<u>Common Name</u>	<u>Scientific Name</u>	<u>Threatened or Endangered</u>
Arroyo Toad	<i>Anaxyrus californicus</i>	Endangered
Least Bells Vireo	<i>Vireo bellii pusillus</i>	Endangered

CriticalHabitat

Arroyo Toad (Unit 5: Piru Creek)

We offer the following comments with regard to the protection of the aforementioned federally listed species and critical habitat for which the Service is responsible:

Recommended Precautions for arroyo toad and its critical habitat:

- 1) Avoid seasons when arroyo toads are active in the uplands and breeding in stream flows.

Arroyo Toads are typically become active and during warm rainy conditions which start in late January and will remain active until about early July. Female toads lay their eggs strands along the margins of open more slowly flowing streams and avoid sites with deep or swift water, 'tree canopy cover, or steeply incised banks. Toad larvae occupy shallow areas of open streambeds on substrates ranging from silt to cobble, with preferences for sand or gravel. Newly metamorphosed arroyo toads and juveniles remain on sparsely vegetated sand and gravel bars bordering the natal pool for three to five weeks. Older toads are found upland habitats with substrate that consists primarily of sand, fine gravel, or pliable soil, with varying amounts of large gravel, cobble, and boulders. Areas that are damp and have less than 10 percent vegetation cover provide the best conditions for juvenile survival and rapid growth of the arroyo toad (Campbell et al. 1996; Sweet 1992 in Service 1999). From late-July to mid-January the arroyo toad will remain in aestivation underground within the soil or clay-like sand to prevent dehydration.

Recreational activities often associated with whitewater rafting such as camping, fishing, hiking, swimming, wading, and water play may harm eggs, tadpoles, and breeding toads. Excess sedimentation from people swimming and wading in the creek increases the turbidity of water and can bury eggs or suffocate larvae. Toads may be injured or killed directly through crushing, trampling, vehicle strikes, and entombment. To avoid these adverse effects to toads or their egg strands we recommend that whitewater recreation activities occur during periods of aestivation for the toad, August to January

(Service1992).

2) Use best management practices to reduce the spread of Chytridiomycosis.

Chytridiomycosis, an infectious disease in amphibians caused by chytrid fungi *Batrachochytrium dendrobatidis* and *Batrachochytrium salamandrivorans*, is linked to declines in amphibian populations in western North America and other parts of the world (Briggs et al. 2010). The fungus is capable of causing sporadic deaths in some amphibian populations and 100 percent mortality in others. We recommend that boaters participating in the study take the following precautions to reduce the spread of virulent strains of Chytridiomycosis.

- Prior to floating the pyramid reach clean all boats, equipment, and water clothing (e.g. water-shoes, sandals, wetsuits, drytops, etc.) with a 5 percent bleach-water solution.
- Avoid cleaning equipment on site at put-in locations. Residue from any cleaning agents that remain on boats or equipment should also be rinsed with clean water offsite.
- Study team members should avoid handling any amphibians while floating either segment of the Pyramid Reach.

3) Avoid modification of critical habitat

A large portion of the Pyramid Reach is designated critical habitat for the arroyo toad. The Piru Creek Unit (Unit 5) ruins the length of Piru Creek starting near the confluence of Fish Creek until Lake Piru. This critical habitat contains the following physical or biological features (PBFs) essential to the conservation of the arroyo toad: breeding pools in low-gradient stream segments with sandy substrates, seasonal flood flows, and riparian habitat and upland benches for foraging and dispersal, and soil and clay like sand for aestivation. Suitable habitat for the arroyo toad is created and maintained by the fluctuating hydrological, geological, and ecological processes that naturally occur in riparian ecosystems and adjacent uplands (Campbell et al. 1996; Sweet 1992 and 1993 in Service 1999). Periodic flooding that modifies stream channels, redistributes channel sediments, and alters pool location and form, coupled with upper terrace stabilization by vegetation, is required to keep a stream segment suitable for all life stages of the arroyo toad (Campbell et al. 1996; Sweet 1992 and 1993 in Service 1999).

Disturbances created by human recreation may also favor the germination, establishment, and growth of nonnative plant species, substantially altering food availability within a habitat. Concentrated streamside activities around put-in and haul outs may reduce riparian vegetation and increase soil erosion and sedimentation that can cover and kill algae, bacteria, and fungi on the surface of rocks, which are what arroyo toad tadpoles feed on. Activities associated with whitewater rafting can also cause stream bottom and bank modification and sedimentation. Effects from the proposed should be insignificant but increased frequency of boater use may be of concern.

Flow alterations caused by dams and water diversions affect arroyo toad habitat from unseasonal sudden water releases or enhancement of summer flows can affect toads and their habitat. Sudden excessive releases of water from dams during the breeding season can destroy sand bars and reconfigure or destroy suitable breeding pools, thus disrupting clutch and larval development (Ramirez 2003, p. 7). Conversely, the steady release of water creates entrenched channels with increased vegetation encroachment and reduces arroyo toad breeding habitat. Prior to 1992, the California Department of Water Resources (DWR), which operates Pyramid Dam on Piru Creek in the Los Padres and Angeles National Forests, frequently discharged excess flows from the reservoir resulting in the depressed population of arroyo toads on lower Piru Creek (Sweet 1992). Recent coordination among the DWR, Forest Service, and Fish and Wildlife Service have resulted in releases from the dam that more closely mimic natural flows, benefitting the arroyo toad (Service 2009). To the extent that whitewater boating considerations may change water release schedules we recommend continued simulation of natural flows.

Recommended Precautions for least Bell's vireo:

1) Avoid nesting season for least Bell's vireo

Least Bell's vireos generally arrive in southern California breeding areas by mid-March to early April, with males arriving before females and older birds arriving before first-year breeders (Service 1998). Least Bell's vireos generally remain on the breeding grounds until late September, although some post-breeding migration may begin as early as late July (Service 1998). Nests are typically suspended in forked branches within 3 feet above the ground with no clear preference for any particular plant species as the nest host (Nolan 1960; Barlow 1962; Gray and Greaves 1984; Service 1998).

Whitewater boating and its associated recreational activities may disturb nesting activity by destroying nests and eggs, causing parents to abandon nests, or causing young fledglings to be flushed from nest areas. Human activity may also attract predators (such as corvids) increasing the likelihood of nest predation. To avoid these effects, we recommend conducting any whitewater boating activities outside of least Bell's vireo nesting seasons and ensure that all activities practice leave no trace principles while boating.

We appreciate the opportunity to comment on the proposed study and whitewater boating in the Pyramid Reach in general, and look forward to working with you to find ways to minimize and avoid impacts to listed species. If you have any questions or if you would like the list of citations referenced in this email please contact me by replying to this email or by phone (805)677-3324.

Sincerely,
Joseph Brandt
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DOI Regions 8 &10