



MEETING SUMMARY*
BISHOP CREEK HYDROELECTRIC PROJECT
TECHNICAL WORKING GROUP UPDATES
FERC PROJECT NO. 1394

DATE: March 1, 2022, 9:00 a.m. - 1:00 p.m.
LOCATION: Conference Call/Webinar
TOPICS: Aquatic, Sediment-Geomorphology

**These meeting notes are documentation of general discussions from the meeting held on the above-noted date. These notes are not a verbatim account of proceedings, are not meeting minutes, and do not represent any final decisions or official documentation for the Project or participating agencies.*

1. OBJECTIVES

- Identify flow scenarios that could address TWG management objectives
- Confirm understanding of infrastructure limitations and mechanisms for implementation of sediment management measures
- Discuss desired conditions for riparian communities in the context of flow and sediment discussions

2. ATTENDEES

Relicensing Team Members

Martin Ostendorf, SCE
Seth Carr, SCE
Matthew Woodhall, SCE
Lyle Laven, SCE
Calvin Rossi, SCE
Finlay Anderson, Kleinschmidt
Brandon Kulik, Kleinschmidt
Shannon Luoma, Kleinschmidt
Bret Hoffman, Kleinschmidt
Tyler Kreider, Kleinschmidt
Kelly Larimer, Kleinschmidt
Gabriel Martin, Kleinschmidt
Edith Read, E Read and Associates, Inc.
Brad Blood, Psomas
Michael Donovan, Psomas

Technical Working Group Members & Interested Parties

Beth Lawson, CDFW
Alyssa Marquez, CDFW
Nick Buckmaster, CDFW
Sheila Irons, USFS
Kary Schlick, USFS
Todd Ellsworth, USFS
Blake Engelhardt, USFS
Tristan Leong, USFS
Nathan Sill, USFS
Andy Starostka, USFWS
Evan Standifer, BLM
Danelle Gutierrez, Big Pine Paiute Tribe of Owens Valley
Monty Bengochia, Bishop Paiute Tribe

Facilitation Team

3. COMPILED ACTION ITEMS

- **Relicensing Team** (Edith) will check the monitoring data to understand where black cottonwood is found and report back to the resource agencies.
- **CDFW** will distribute its PowerPoint presentation to the group after the meeting.
 - **USFS** requested to add details that clarify native fish species by name.
- **Relicensing Team** will distribute the water rights documents for Green Creek to the resource agencies.
- **Relicensing Team** (Bret) will model the entire watershed at 10 cfs as a baseline to analyze the potential habitat impacts.
- **SCE** and **USFS** will consider meeting offline to discuss the management of non-native species in all reaches.
- **SCE** will meet internally to conduct a feasibility study to analyze CDFW's proposals presented in their PowerPoint presentation.

4. INTRODUCTION

The Protection, Mitigation, and Enhancement (PM&E) Measures meeting provided an opportunity to continue the conversation on the Federal Regulatory Energy Commission (FERC) Scoping Document (SD1) and subsequent Technical Working Group (TWG) discussions. Also, the PM&E meetings provided a review of Southern California Edison's (SCE) Draft License Application (DLA) and identified any key areas of uncertainty among interested parties. This PM&E meeting discussed Aquatic and Sediment-Geomorphology resource areas; the relevant Bishop Creek Relicensing Team ("Team") resource-area leads addressed the scoping questions related to each resource area.

Finlay Anderson, the Team Lead, provided an overview of the proposed approach to discussing PM&Es and the timeline. Finlay explained that the DLA was filed at the end of January 2022. The FERC regulatory deadline for comments through the Integrated Licensing Process (ILP) is May 2, which is roughly 60 days before the FLA is due. The relicensing effort is in the comment phase, and SCE wants to be proactive in receiving and responding to comments before the comment period ends. Thus, SCE encouraged Technical Working Group (TWG) members to submit any comments now.

The presentation slides are available on the project website and are not summarized here. The summary below identifies the resource goals of each study as identified by the Team resource-area lead and focuses on questions and comments from participants, followed by any action items that resulted from the conversation (all of which are compiled in Section 3.0 above).

5. AQUATIC RESOURCES

SCE invited Alyssa Marquez, CDFW, to provide a presentation on resource agencies' aquatics goals and PM&E proposals for the following stream reaches: Reach 10 (South Fork Bishop Creek below South Lake), Reach 9 (Below South Fork Diversion), Reach 8 (Bishop Creek below Lake Sabrina), Reaches 7 & 6 (Below Intake 2 to Powerhouse 2), Reach 5 (Bishop Creek below Intake Number 3 Reservoir), Reach 4 &

3 (Between Intake 4 (Powerhouse 3) and Intake 5 (Powerhouse 4)), Reach 3 (between Intake 5 (Powerhouse 4) and Intake 6 (Powerhouse 5), and Reach 1 (between Intake 6 (Powerhouse 5) and Powerhouse 6), Reach 1 (below Powerhouse 6), Birch Creek, McGee Creek, and below Green Creek Diversion.

Please reference CDFW's presentation slides for greater detail. The summary below identifies the resource agencies' goals and proposals by reach and documents questions and comments from participants, followed by any action items that resulted from the conversation (all of which are compiled in Section 3.0 above).

Reach 10 - South Fork Bishop Creek below South Lake

Goals:

- Manage as a stocked fishery and improve the size of fish in this reach.

3/1/2022 Proposal:

- Provide more stable flows through winter to prevent anchor ice formation and reduce fish bioenergetics.
- Increased summer base flows.
- Increase stocking.

Questions and comments from participants included:

- Question (Q) (Team): Could CDFW clarify if the agency is asking for two different goals? It sounds like CDFW is asking SCE to manage a stocked fishery as well as manage the natural fish population. Is that correct?
 - Response (R) (CDFW): CDFW's goal is geared toward recreation. In the hierarchy of priorities, CDFW wants SCE to manage the stocked fishery, but the secondary goal would be to improve naturalized fish through some minor flow modifications.
 - (C) (CDFW): CDFW can continue to revise these goals and offer brief presentations at subsequent PM&E meetings if needed.

Reach 9 – below South Fork Diversion

Goals:

- Manage a stocked fishery and improve the size of fish in this reach.

3/1/2022 Proposal:

- Provide more stable flows through winter to prevent anchor ice formation and reduce fish bioenergetics.
- Increased summer base flows.
- Increase stocking.

Questions and comments from participants included:

- (C) (Bishop Paiute Tribe): SCE should be careful about using words like "native" and "naturalized" as these words carry sociological meaning as well as biological.

- (R) (Team): Thank you for raising this important comment. It is a good reminder that language holds power. The terms "naturalized" and "native" are used in a limited, scientific sense.

Reach 8 – Bishop Creek below Lake Sabrina

Goals:

- Manage this reach as a stocked fishery (rainbow trout).
- Improve existing stocked fishery (fish size and available habitat).
- Improve existing wild trout fishery.
- Maintain riparian vegetation and associated riparian-dependent wildlife, including the interconnection of meadow systems.

3/1/2022 Proposal:

- Provide higher summer (June 1-Sept 15) base flows in all water year types to increase available habitat.
- Provide more stable flows through winter to prevent anchor ice formation and reduce fish bioenergetics.

There were no questions or comments from participants.

Reach 6 & 7 – below intake 2 and to powerhouse 2

Goals:

- Manage as a stocked fishery.
- Increase overwinter fish survivorship.

3/1/2022 Proposal:

- Increased stocking within 100 yards of campgrounds.
- Provide more stable flows through winter to prevent anchor ice formation and reduce fish bioenergetics.
- Provide higher summer (June 1-Sept 15) base flows in all water year types.

There were no questions or comments from participants.

Reach 5 – Bishop Creek below Intake Number 3 Reservoir

Goals:

- Manage as a recreational fishery.
- Implement measures to promote cottonwood recruitment.

3/1/2022 Proposal:

- Geomorphic flows and/or ramping rates (currently none in the existing license).
- Movement of sediment into this reach by either sluicing or mechanical movement.
- Discuss increasing stocking allotment in this reach.

- Implement ramping/recession rates during period of cottonwood recruitment and seed root growth.
- Provide higher summer (June 1-Sept 15) base flows in all water year types.

Questions and comments from participants included:

- (Q) (Team): Can you clarify CDFW's concerns, objectives, and/or goals with particle size?
 - (R) (CDFW): CDFW is concerned about the sediment that is stuck behind dams. The particle size should reflect the particle size needed to pass through the intake.

Reach 4 & 3 – Between Intake 4 (Powerhouse 3) and Intake 5 (Powerhouse 4)

Goals:

- Utilize this reach as a control reach due to low recreational fishery use.
- Native fish management.
- Implement measures to promote cottonwood recruitment.

3/1/2022 Proposal:

- Discuss physical movement of sediment into this reach by either sluicing or mechanical movement.
- Spring pulse flow to encourage spawning.
- November pulse flows to discourage brown trout redds.
- Discuss black cottonwood range with edith.

Questions and comments from participants included:

- (C) (Team): As I recall, the Team found black cottonwood sporadically below and above Powerhouse 4, further upstream. So, managing black cottonwood might not be practical or desirable.
 - (R) (CDFW): Management for cottonwood is practical and frequently done throughout the Pacific Northwest.
- (C) (Team): Can you clarify what kind of native-specific management CDFW is considering?
 - (R) (CDFW): The native-specific management would predominantly be for brown trout and suckers -- mostly suckers.
 - (R) (Team): The Team does not have useful data on suckers. What does CDFW plan to use as a model for managing suckers?
 - (R) (CDFW): One possibility would be for SCE to keep brown trout from going upstream by implementing scour holes during spawning season. Then, SCE can manage to maintain the sucker population.

Reach 2 – Between Intake 5 (Powerhouse 4) and Intake 6 (Powerhouse 6)

Goals:

- Native fish management.

3/1/2022 Proposal:

- Spring pulse flows to encourage spawning.
- November pulse flows to discourage brown trout redds.

There were no questions or comments from participants.

Reach 1 – between intake 6 (powerhouse 5) and powerhouse 6

Goals:

- Water management system that supports native fish.

3/1/2022 Proposal:

- Discuss appropriate minimum instream flow.

There were no questions or comments from participants.

Reach 1 – Below Powerhouse 6

Goals:

- Water management system that supports native fish.

3/1/2022 Proposal:

- Implement a minimum instream flow below plant 6 (currently only the Chandler decree).
- Discuss appropriate minimum instream flows when Chandler Decree is not governing the flows.

There were no questions or comments from participants.

Birch Creek

Goals:

- Native fish management.
 - Native fish introductions of Owens Speckled Dace (mostly on BLM).

3/1/2022 Proposal:

- Increase instream flows (current is 0.25 cfs) and seasonal flows.
- Discuss shut down diversion and allowing spill flow.
- Increased and consistent winter flows to reduce anchor ice.

There were no questions or comments from participants.

McGee Creek

Goals:

- Native fish management.
 - Introduction of Owens Speckled Dace on USFS land.

3/1/2022 Proposal:

- Increased minimum instream flows.

- Increased and consistent winter flows to reduce anchor ice.
- Increased summer flows.

Questions and comments from participants included:

- (Q) (Team): At Birch-McGee, there are non-native brook trout. Is CDFW trying to manage non-native populations there as well, or is CDFW not as concerned in this location?
 - (R) (CDFW): This is not as much of a concern, because the brook trout population is not as large. Also, we anticipate that the native populations can coexist with the brook trout.
 - (C) (USFS): Do you see a high density of brook trout?
 - (R) (Team): It is less likely to see a high density of brook trout below 8,000 feet.

Below Green Creek Diversion

Goals:

- Implement minimum Instream flow.

Questions:

- How will this be operated?
- What is the capacity of the pipe?
- Will the replaced structure be substantially similar to the existing structure?

Questions and comments from participants included:

- (C) (Team): At this time, the Team is not prepared to speak about the quantity of water that is normally diverted.
 - (R) (USFS): Assuming SCE replaces the water as a replacement in kind, then it would not enlarge the capacity. If it was in service, how would the system be operated? Is there a bypass structure? Is there a specific volume of release that allows SCE to release water into the bypass section?
 - (R) (Team): There are multiple diversions that are collected at the top. However, some diversions below Green Creek have been inoperable.
- (C) (USFS): Does the reservoir become dry at some point?
 - (R) (Team): The reservoir does become dry at a predetermined date every year, but Green Creek is always running. SCE can distribute the water rights documents for Green Creek.

CDFW invited participants to ask any remaining questions from the presentation. Questions and comments from participants included:

- (Q) (Team): How is the management and stocking of non-native fish consistent with overall fish ecosystem? It seems contradictory to manage non-native fish that prey on native fish.
 - (R) (USFS): USFS faces several management goals that can be multidimensional. One management goal that USFS must manage is recreation, and people want to fish the non-native species. USFS is tasked with providing a balanced and healthy ecosystem for both goals (recreation and ecology).

- (Q) (Team): Some of the CDFW's proposals suggest mechanisms that were not identified as study objectives; thus, we will need to determine the relationship between these objectives and the proposals and study objectives.
 - (R) (USFS): We do not need to invent new complicated tools. USFS is interested in hearing the constraints of the project that SCE faces. USFS is also interested in introducing a more natural sediment regime to meet ecological goals while recognizing that there will be limitations to this. Hopefully, the model can help us explain these constraints.

Finlay Anderson, Team Lead, displayed the "Operations and Flows PME Meeting Planning IMF-Meeting approach" document. This document addresses habitat in 10 bypass reaches of Bishop Creek, Birch Creek, and McGee Creek (see Appendix A).

Questions and comments from participants included:

- (Q) (CDFW): Regarding the percent of max weighted useable-area (WUA), CDFW suggests considering seasonality within hydrographs to avoid flatlining the system. Also, CDFW suggests focusing on adult Owns Suckers to maintain a healthy adult population.
- (C) (USFS): There were likely tradeoffs during the first relicensing, which has created some discontinuity in this effort. USFS would like flow patterns to follow a natural flow. For example, USFS suggests that SCE should model 10 cfs flow for the entire stream to analyze the impacts. Then, SCE could make a continuum for flow and look at seasonal patterns to prioritize certain regions as a baseline modeling exercise.
 - (R) (Team): Yes, SCE can model a 10 cfs baseline to see what the habitat effects would entail. However, it is worth noting that this could have a significantly different impact on generation potential.
- (C) (Team): It may be more productive to release fry during low flows, since fry are not strong swimmers.
- (Q) (Team): Why would the agencies want reproducing non-native species in any of these reaches?
 - (R) (USFS): USFS can follow up offline to discuss differing management perspectives.
 - (C) (CDFW): Additionally, CDFW can be flexible around the timeline of the flows to accommodate fish management.
 - (R) (CDFW): To answer the Team's original question, the State Fishing Commission wants the agencies to manage for non-native species if they are commonly fished.
 - (R) (Team): It is not very practical to manage for non-native species in some areas and manage against them in other places.
 - (C) (CDFW): Because the streams are disjointed, the agencies are interested in understanding if the infrastructure is capable of managing non-native species in addition to other management priorities to accommodate multiple objectives.

Sediment and Geomorphology

Tyler Kreider, Relicensing Team Sediment and Geomorphology Lead, provided a presentation on sediment and geomorphology.

As understood by the Team, sediment flushing goals include the following:

1. Minimize impacts to generation by taking advantage of high-water years (when available).
 - a. Set expectations for frequency (depending on snowpack).
 - i. No more than once per year (other than maintenance allowance).
 - ii. No greater than 10 years between sediment flushes at any intake.
 - iii. Consider less frequent flushing for Intake 2 flushing (due to generation impact); no greater than every 20 years.
 - iv. First occurrence: first available wet year after license issuance.
2. Allowance for targeted impoundment maintenance work.
 - a. Take only one impoundment down to flush sediment/expose intakes as needed for maintenance outside sediment flushing period.

Questions and comments from participants included:

- (Q) (USFS): Hypothetically, if the watershed experiences multiple, successive high-water years in a 10-year span, could SCE move excess sediment in coordination with the high-water year(s)? In other words, SCE should not limit themselves to only moving sediment once every ten years.
 - (R) (Team): This example characterizes dry years. So, yes, SCE would seek to move sediment during each high-water year. SCE seeks to maintain its infrastructure.
- (C) (Team): SCE seeks to maintain the Chandler Decree flows.
 - (Q) (USFS): Can SCE include the low-level output sizes in the displayed table? Specifically, USFS would like to understand the physical capacity of low-level output sizes.
 - (R) (Team): Yes, this will be in the PowerPoint.

The Relicensing Team invited participants to comment on the drawdown and initial sediment scouring.

Questions and comments from participants included:

- (Q) (USFS): What is the plan for sediment drawdown during low flows?
 - (R) (Team): The flows will allow sediment drawdown even while the powerhouse is offline. The water year is based on snowpack, and once the upper reservoirs begin to spill, SCE does not have much control over the system.
- (Q) (USFS): Would it be possible to do everything up until Phase 4 in the fall?
 - (R) (Team): SCE could consider this option; however, there is high electricity demand in late summer and fall, so SCE would not bring the powerplants offline. SCE can evaluate these tradeoffs moving forward. Is there a preference on the tradeoffs for the resource agencies? For example, do the agencies have a preference for the timing before or after natural runoff?
- (C) (Bishop Paiute Tribe): There are several locations on the Reservation that are very shallow, so adding sediment during the warmest months could increase e. Coli, which is a concern for the Tribe. SCE should consider the e. Coli risk, which may be exacerbated with sediment flows during the warmest months.
 - (R) (Team): Thank you for raising this concern. Do you know if the sediment drawdown occurs during a time with additional diversions?
 - (R) (Bishop Paiute Tribe): The graph shows a sediment drawdown from the end of July through August, and irrigation occurs from April 1 through October 1. The Reservation experiences very high e. Coli during this time.

- (C) (CDFW): Perhaps SCE could look into the LADWP diversions between Plant 6 and the Reservation to address remaining management issues.
 - (R) (Bishop Paiute Tribe): Yes, and it may be helpful to bring LADWP and Lahontan into this conversation as well.
- (C) (Team): SCE's preference is to duplicate natural sediment flows wherever possible, and SCE would prefer to move sediment through water management rather than through dredging.
 - (R) (Bishop Paiute Tribe): Incorporating the sediment with the flow releases could help with natural sediment flows.

Finlay Anderson provided an overview of next steps for refining sediment PM&Es, which include:

1. Discuss conceptual phases with TWG (today).
2. Develop updated concept of phases for sediment flushing based on TWG input on timing/frequency.
3. SCE to evaluate water requirements/impacts on generation.
4. Create first draft of sediment management plan for TWG review.

The Team will review the presentation that CDFW provided today and then update the discussion as needed. Then, the Team will create a feasibility assessment to analyze what can be done to meet as many of these objectives as possible. Additionally, the Team will confer with subject matter experts to confirm the approaches.

SCE thanked TWG members for the productive meeting and expressed appreciation for CDFW's presentation.

MEMORANDUM

TO: Bishop Creek Technical Work Group (TWG) Members
FROM: Bishop Creek Relicensing Team
DATE: February 16, 2022
RE: Operations and Flows PME Meeting Planning

Background As discussed in the previous meeting, and in the SCE's recent Draft License Application, SCE has proposed no changes to instream flows throughout the bypassed reaches of the Bishop Creek Project Area. At our March 1 TWG meeting, SCE and TWG members will have an opportunity to discuss flows as they relate to management objectives.

SCE believes the current flows are generally reflective of fishery management priorities as we understand them, but appreciates there may be some refinements that may provide a more refined balance of habitat protection and project operation. In principle, there may be reaches where flows could be incrementally lowered and still support management objectives.

Outcomes: Develop a small set of flow scenarios that the TWG is interested in exploring. SCE can use the time between this meeting and our next discussion to explore operational impacts and constraints and to refine or propose alternative configurations.

Approach: Our proposed approach is to get information from you about life-stage and species-specific priorities for each of the 10 reaches, and explore the range of flows meeting these objectives. We intend to have a tool that will allow us to quickly assess flows and the resulting values of Weighted Usable Area (WUA) and percent suitability for each species/life stage of interest. As a reminder, there are a few reaches where WUA curves were not determined using standard PHABSIM methods because of their gradient or extreme low flows that prevented multiple flow measurements. For these, some interpolations have been made from the flow measurements that were made. In advance of the meeting, if agencies can review Table 1 below and be prepared to answer the following questions, we should be in a position to evaluate our WUA targets.

1. A term used in previous discussions is "adequate habitat", which would benefit from some quantitative side-boards. SCE distinguishes "adequate" from "optimal" or "maximum" and for purposes of launching this discussion, views WUA greater than 50% of maximum to meet this need.
 - a. Please be prepared to discuss your definitions
 - b. If these vary by species/life stage it would be helpful to understand this and the rationale as to why?
2. Please be prepared to confirm or discuss the Fishery Management priority, by reach.

Table 1. Relative Habitat Suitability of Existing Minimum Flows in 10 Bypass Reaches of Bishop Creek, and in Birch and McGee Creeks

Location	Fishery Management Priority	Species	Life stage	Current Min. Flow	Percent Of Max WUA
Intake 6 bypass (IFM Reach 1)	indigenous species	speckled Dace	adult	1 CFS	unavailable ¹
		Owens sucker	juvenile		
		Owens sucker	adult		
		brown trout	juvenile		
		brown trout	adult		
Intake 5 bypass (IFM Reach 2)	indigenous species	speckled Dace	adult	12 CFS	47%
		Owens sucker	juvenile		86%
		Owens sucker	adult		28%
		brown trout	juvenile		88%
		brown trout	adult		23%
Intake 4 bypass (below Coyote Creek) (IFM reach 3)	self-sustaining brown trout	brown trout	juvenile	5 CFS ²	~99%
		brown trout	adult		~55%
Intake 4 bypass (above Coyote Creek) (IMF reach 4)	self-sustaining brown trout	brown trout	juvenile	5 CFS	98%
		brown trout	adult		85%
Intake 3 bypass (IMF reach 5)	self-sustaining brown trout	brown trout	juvenile	13 CFS	~76%
		brown trout	adult		~16%
Intake 2 bypass (below south and middle forks) (IMF reach 6)	self-sustaining brown trout	brown trout	juvenile	14 CFS	~90%
		brown trout	adult		~97 %
Intake 2 bypass (Middle Fork above South Fork) (IMF reach 7)	self-sustaining brown trout	brown trout	juvenile	7 CFS	80%
		brown trout	adult		11%
Middle Fork (below Lake Sabrina) (IMF reach 8)	self-sustaining brown trout	brown trout	juvenile	13 CFS	93%
		brown trout	adult		23%
		brown trout	juvenile	7 CFS	~99%

¹ This PHABSIM model was not accurate at flows less than 4 cfs.

² Exclusive of flow contributed by Coyote Creek, which can be conservatively estimated to provide 2+ cfs in most years

Location	Fishery Management Priority	Species	Life stage	Current Min. Flow	Percent Of Max WUA
South Fork (below Intake 2 diversion) (IMF reach 9)	self-sustaining brown trout	brown trout	adult		~36%
South Fork (below South Lake) (IMF reach 10)	self-sustaining brown trout	brown trout	juvenile	13 CFS	90%
		brown trout	adult		~44%
Birch Creek	indigenous species	speckled Dace	adult	0.25 CFS	90%
McGee Creek	indigenous species	speckled dace	adult	1 CFS	100%
		brook trout	adult		87%