MEETING SUMMARY*
LEE VINING, FERC PROJECT NO. 1388
AQUATICS TECHNICAL WORKING GROUP
FEBRUARY 22, 2021, 10AM -12:30PM

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

1.0 OBJECTIVE

- Develop comprehensive list of study plan titles and rationale to be further developed in advance of the next meeting

2.0 ATTENDEES

Relicensing Team Members
Seth Carr, SCE
Lyle Laven, SCE
Al Partridge, SCE
Matt Woodhall, SCE
Carissa Shoemaker, ERM
Finlay Anderson, Kleinschmidt
Kelly Larimer, Kleinschmidt
Shannon Luoma, Kleinschmidt
Heather Bowen Neff, Stillwater
Adam Cohen, Stillwater

Facilitation Team
Terra Alpaugh, Kearns & West
Mike Harty, Kearns & West
Mark Sebarrotin, Kearns & West

Technical Working Group Members
Nick Buckmaster, CDFW
Alyssa Marquez, CDFW
Chris Shutes, CSPA
Todd Ellsworth, USFS, Inyo National Forest
Nathan Sill, USFS, Inyo National Forest
Thomas Torres, USFS, Inyo National Forest
Monique Sanchez, USFS
Chad Mellison, USFWS
Claire Landowski, Mono Lake Committee
Greg Reis, Mono Lake Committee
Chase Hildeburn, State Water Resources Board
Paul Pau, LADWP

3.0 COMPILED ACTION ITEMS

1. Technical Working Group Members (TWG) to submit comments and feedback on meeting summary notes at earliest convenience.
2. Relicensing Team (Team) to post finalized notes from January TWG on the Relicensing Website.

3. Team to follow up with SCE staff and MLC to understand constraints around ramping, historical operations, and any concerns about ramping rates.
4. Team/TWG to assess the fish survey work planned for the upcoming summer to assess whether it can inform the study plan effort.
5. Nick Buckmaster to share study of lake with high nitrogen levels.
6. Greg Reis will provide a paper on *didymo.*
7. SCE to review Mono Lake Committee's proposed study request re: downstream restoration objectives/peak flows and come to next meeting ready to discuss.
8. MLC will send two additional study requests for hydropeaking and information sharing within the next few days.
9. The Team will continue to flesh out goals and objectives and rough methods for the studies discussed today and will plan to continue the conversation at the next meeting.

4.0 WELCOME & INTRODUCTIONS

Mike Harty, the facilitator, welcomed TWG members to the meeting and provided a review of the agenda. Mike asked participants to send any additional edits to the January TWG meeting notes, so that the Relicensing Team ("Team") can post them on the project website by the end of the week.

Finlay Anderson, the Team Lead, addressed questions he received from TWG members about the homework provided on February 5th. At the request of TWG participants, the homework provided the Bishop Creek Study Plan as a reference. The Team's intention in sharing the Study Plan was not that TWG participants should read the entire document but that because the Bishop Creek relicensing process is further along, there might be some study types or generic objectives in that study plan that would also be applicable to Lee Vining and would provide a framework and draft language to build upon. The Team did not intend to suggest that the projects were identical or that the exact studies or methods from Bishop were appropriate for Lee Vining. Finlay noted that if TWG members who have not been involved in the Bishop Creek process have questions about what has been completed to-date and next steps in that process, he would be happy to set up a separate call to address those questions.

Finlay also addressed the interest voiced at the last TWG meeting in having a separate work group to address operations and hydrology. The Team has decided to continue to incorporate operations and hydrology into the Aquatic Work Group for now but is open to dividing into separate work groups in the future if discussions are exceeding their allotted time. Their primary aim is to respect participants' time and to be as efficient as possible. CSPA thanked them for their explanation.

5.0 DISCUSSION OF RESOURCE OBJECTIVES

Finlay Anderson described the FERC criteria for study requests; he explained that studies are intended to inform operations and provide the natural resource agencies with the information they need to make management decisions about the resources in the project area. To that end, the TWG's three main objectives are to identify 1) desired future conditions, 2) data gaps, and 3) potential study requests to fill those gaps. The Team shared studies being considered by other TWGs, acknowledging that some of them will overlap with the aquatic studies under consideration (e.g., the botanical TWG is also interested in a study on invasive aquatic plants).

Finlay proposed that the group annotate the Bishop Creek template to reflect aquatic and hydrologic interests in the Lee Vining project area. Based on the TWG's input, the Team will solidify a list of study titles with goals and objectives for discussion at the next meeting.

Thus far, the Team has received study requests from CDFW and Mono Lake Committee.

The studies identified thus far are listed below, along with a summary of comments and questions made by the TWG members with respect to each study.

Study Title: Instream Habitat Assessment
The purpose of this study is to provide qualitative habitat mapping to better understand trout habitat suitability.

- Comment (C) (CDFW): The steep grade of the upper stream reaches might not be suitable for an IFIM study, though that methodology could be used in the lower reaches; however, the study does not need to be heavily quantitative. Qualitative habitat mapping might be more appropriate since an objective evaluation of trout habitat in lower reaches is needed. A look at other methods used at Bishop Creek for steeper reaches might be insightful.
- C (CDFW): CDFW is most interested in viability and spawning time, so that operations can avoid interrupting spawning with large releases. Suggested adding "assess habitat conditions/suitability for trout" and "determine operational constraints around trout spawning periods" as objectives.
- Question (Q) (Team): The Team has some WUA curves from the 1990s, which may still be relevant given the stability of the channel. Is CDFW interested in spawning habitat?
    - Response (R) (CDFW): CDFW is not focused on spawning habitat given the limited gravel.

Study Title: Operations Model
The purpose of this study and creation of an Operations Model to better forecast and plan water budget, allocation, and operations.

- C (Team): The Bishop Creek Operations model was complicated given the number of intakes and reservoirs. It would be helpful to understand what the goals and objectives are for a Lee Vining Model so that the Team can design it appropriately.
    - R (CSPA): A hydrology dataset is useful for understanding the frequency at which lakes/reservoirs fill to capacity, the frequency and duration of spills, and the ability to meet instream flow requirements. A rough operations model could provide clarity on how much water is moving through system on monthly basis, what operations might look like on a daily basis, and the balance between the volume of instream flows and hydropower production. Understanding SCE's operational priorities for the project (e.g., What do seasonal and daily power needs look like? Is the project crucial as a power source for areas on the eastside or in Yosemite?) will help stakeholders better understand the tradeoffs of their requests. For instance, stakeholders have expressed interest in peaking operations downstream but need an operations model to understand the consequences of those operations on SCE's power production. The model does not need to complex; a spreadsheet tool would be sufficient.
- C (Team): Understanding regulatory, contractual, and physical constraints of the system will be useful. There are also agency interests related to reservoir levels for recreation.
- Q (SCE): CSPA mentioned concerns about current ramping rates. It would be helpful to have those in writing.
    - R (CSPA): Will defer to MLC staff to provide more detail. Concerns are related to whether the speed of ramping could create a public safety concern.

    - R (Team): The Team will follow up to better understand any constraints around ramping and how the project has been operated historically.
- C (MLC): An operations model seems like a good idea and ties into the study plan request submitted by MLC this morning. The model could be used to evaluate how difficult it would be to achieve downstream goals.

Study Title: Fish Distribution Baseline Study
The purpose of this study is to evaluate species composition, size distribution, and abundance of fish populations in Project reservoirs and Project-affect stream reaches; the study provides a snapshot of current conditions.

- Q (Team): What metrics are CDFW interested in? Sustainability of brook and brown trout?
    - R (CDFW): The goal of this study will be to evaluate the current trout population in the river – e.g., size, distribution, and density, and maybe growth of representative members of each size class. All these metrics are related to instream habitat conditions and the bioenergetics of system. We have 2014/2015 data that showed trout densities and a significant species switch, which we are interested in.
    - R (Team): The Team has data from 1998-2016; suggest repeating existing survey methodology to assist comparability of the results.
    - R (CDFW): There is some monitoring being done this year; should refresh ourselves on its scope.
- C (CDFW): CDFW wants to include the reservoirs as part of monitoring; they were not monitored as part of the license but should be assessed given angling pressure. Doing a mark-recapture study to assess density is probably not worth it, but the other metrics would be useful.
    - Q (Team): Given that the system is heavily stocked, it could be difficult to differentiate between the impacts of the stocking efforts versus project operations on the population. What would the specific goals and objectives of the study be?
    - R (CDFW): While most fish are from the hatchery, there is no data to show whether wild self-sustaining fish are present and what their conditions are. Wild populations are present alongside hatchery fish in other lakes at similar altitudes. This data will provide the CDFW and USFS management teams a baseline from which to reassess their objectives. For instance, if a wild population is present, it could shift agency focus from hatchery operations to maintaining habitat for the wild population.
    - R (SCE): Would a creel survey and fishermen interviews provide adequate information?
    - R (CDFW): CDFW wants an actual fish survey. Stocked trout are very susceptible to angling; therefore, creel surveys will disproportionately pick-up hatchery fish. Creel surveys also target peak hours, whereas the big brown trout of interest tend to be caught in stormy weather and at dawn or dusk. Even in places where we know wild brown trout are present (e.g., Twin Lakes), they do not show up in the creel surveys. Fishermen are not always a good indication of the fishery.
    - C (Team): Our goals is to make sure the scope and methods are commensurate with the expressed interest and goals. The Team will propose some methods (e.g., gill nets) and continue the discussion at the next meeting.
- Q: Does CDFW or USFS have any plans to change the species composition of the fish populations in the project?
    - R (CDFW): CDFW is not planning on changing the species composition.

Study Title: Water Quality
The purpose of this study is to provide information for the 401 certification and the NEPA/CEQA analysis and provide SCE flexibility to operate as a project and adequately maintain its facilities. Ideas for metrics

include: E. Coli monitoring, water temperature, turbidity, dissolved oxygen, and other standard water quality metrics.

- Q (Team): Is there anything unique about the Lee Vining system or Lahontan plan that we need to be aware of for specific goals and objectives, or specific parameters we need to reference? A water quality study is being discussed in the Recreation TWG in relation to recreation use, but water quality issues need to be addressed here. The Team is anticipating a simple water quality exploration, given that they do not have a reason to expect water quality issues in the project area.
    - R (CDFW): Interested in looking at profiles in the reservoir, given the problems with invasive algae in the project area. All these lakes are nitrogen limited, but one nearby lake nearby ended up with five times as much nitrogen as expected; if released downstream, that level of nitrogen could cause algal blooms. Data from profiles would be an important metric to consider alongside hypothetical nitrogen loading from recreational uses. CDFW will look up the relevant data set and share it with the Team.
    - C (Team): You could be referring to Adam Cohen's dataset, which includes nitrogen and phosphorus data for all three project reservoirs. If there is another dataset, that would be helpful.
    - C (CDFW): If there is existing data on those metrics, then there is no need to additional collection.
    - R (Water Board): Agree with that sentiment. The Board is more concerned with any flagged water quality issues in the watershed as well as establishing baseline conditions. The Board noted that Bishop Creek's water quality study plan included a recreation component, but they are not familiar with the recreation levels along Lee Vining.
        - R (Team): It would be worth identifying recreation needs in the approach.
- C (Team): We need to ensure that whatever is certified allows regular O&M activities.
- C (Team): At the last meeting, heard an interest in monitoring for *E.coli* rather than fecal coliform. Fecal coliform is a parameter that is a part of a lot of basin plans, but the water quality study could diverge from that standard or monitor for both.
- C (Team): We anticipate including a *didymo* survey in the water quality study plan.
    - R (MLC): MLC will provide a paper on *didymo.*

Study Title: Sediment and Geomorphology

Purpose: The purpose of this study is to determine sediment flux to inform alluvial reach. The study can deepen understanding of sediment loss, movement and distribution.

- Q (Team): There are some existing data and studies available to reference. According to the operators, SCE has not had to remove much sediment from the project area, so the Team's operating assumption is that not much sediment is impaired by the project. Existing information suggests there is coarse sediment movement in the downstream reaches. CDFW voiced interest in alluvial fan management in that area – is that within the project area or further downstream?
    - R (CDFW): The need for sediment management will be limited given the steepness of the stream. Any fines present would be a limiting resource. Interest in sediment management would be focused on the downstream alluvial reach (not actually an alluvial fan), where erosion and deposition need to be carefully balanced.
    - R (MLC): MLC offered to provide studies on this topic; many are hard copy. In 2005, the LADWP diversion dam was modified to include a sediment diversion.
        - R (Team): We have the R2 Study done in 2002.
        - R (MLC): That should have all the pertinent information.

- Q (Team): Are you interested in a spawning gravel availability assessment? If so, using what methods?
    - R (CDFW): CDFW is interested in what sediment is present, the D_{50} values for various stream reaches, and whether project operations are resulting in the loss of fines over time. Is there an efficient way of moving sediment from reservoirs downstream to make it available for geomorphic processes?
        - R (Team): It is not clear how much sediment is currently being trapped in the reservoir. Sounds like CDFW's interest is in understanding how fines are moving though the system and if there is the potential to move them more intentionally. The Team is still trying to understand where there is a project nexus versus where these questions relate to broader basin priorities.
        - R (CDFW): Sediment trapping is a reservoir impact in most systems. MLC can provide more information about stream incision concerns.
        - C (MLC): My impression is that the diversion dam does not trap fines; the larger sizes do settle out, so that is what the sediment bypass focuses on moving. We assume CalTrans cut slopes produce more sediment than would usually be eroded, but we are not aware of studies on that, though it could be addressed in the R2 report. It would be useful to know what fines might be trapped in reservoirs and if it is significant, should be considered for mitigation.
        - C (CDFW): We do not know if loss of sediment over time and stream incision are problems but would like to check.

Study Title: Mono Lake Committee-proposed study on downstream peak flow objectives

Greg Reis provided a brief description of the restoration efforts below the downstream LADWP diversion dam. In addition to the mechanical restoration work already underway, scientists recommended higher peak flows than currently reach the diversion dam in order to mimic the geomorphic impacts of natural flows as much as possible. Greg provided a PowerPoint with information on how flows are currently impaired and what their goal flows might be; they are not sure whether releasing peak flows could be operationalized given the constraints of the system. The intent of MLC's requested study would be to assess whether those peak flows could be achieved and what the impacts would be on project operations and competing objectives (e.g., reservoir levels for recreation). Greg noted that releases above 250 cfs would likely not be a hydropower generation issue in wet years because the water would be spilled anyway; instead, it would be a question of the timing of the spills. An operation model might help to identify the years when implementing these flows for downstream objectives would have less impact on generation.

- C (SCE): SCE asked for time to review MLC's full request and suggested discussing it in more detail at the next meeting.
- C (CSPA): This sounds like a request for spill management in order to achieve geomorphic goals downstream of the diversion dam. Ideally, the group could determine how to achieve these goals with minimal impacts to generation and recreation values. It could be a nice example of cooperation.
- C (MLC): Changing the spill timing on Tioga in wetter years might be low hanging fruit. The PowerPoint suggests releasing 40 cfs out of Saddlebag as a way to get most of the way to the needed volume; MLC would like to focus on whether that is feasible.

6.0 SCHEDULE & NEXT STEPS

MLC will send two additional study requests for hydropeaking and information sharing within the next few days. The Team will continue to flesh out goals and objectives and rough methods for the studies discussed today and will plan to continue the conversation at the next meeting.

7.0 UPCOMING TWG MEETINGS

Aquatics 3	**March 29, 2021 10am**
Terrestrial 3	March 31, 2021 10am
Cultural and Tribal 3	March 31, 2021 1:30pm
Recreation and Land Use 3	April 1, 2021 10am