

NOTES: Fish Passage Working Group #3

Meeting Held: 06.07.18

Notes prepared by Consensus Building Institute

Next Meeting: Thursday, 8/16, 11:00-3:00 @ Ukiah Valley Conference Center

Meeting in Brief

The working group brainstormed a range of scenarios that it might further evaluate to provide fish passage above Scott Dam. In addition, several working group members provided a summary of fish passage technologies and a set of potential scenarios to stimulate discussion. Individual group members agreed to further explore the pros / cons of these options in preparation for its August 16 meeting. The working group is striving to narrow to two or three, possibly four, scenarios to evaluate. At its August meeting, the group will attempt to reduce the number of scenarios.

Brainstormed Scenarios Overview

Fish Passage	Trap & Haul	Partial Dam Removal	Remove Scott and Modify Cape Horn Dam
OPTIONS Fish Ladder (Mead & Hunt) Natural Channel Fish Surface Collector (downstream) Fish Elevator	Short Term (10-15 years) Pilot for learning Bridge measure Long Term Needs evaluation		Remove Scott and modify CHD Remove Scott and CHD Would need to explore having diversion Provides another baseline for flows and fish

Action Items (organized by person)

All	7/13	Send comments on existing scenarios and filtering criteria; send any new scenarios to Josh and Gina
Craig Scott	7/13	Explore version of scenario 1 with natural channel option, with pros/cons and forward to Josh and Gina
Darren	7/13	Explore scenario 4
Jon	7/13	Explore trap and haul scenario with pros/cons and forward to Josh and Gina

Joshua David	7/13	Explore partial dam removal pros/cons
Joshua Scott Allan R	?	Make fish passage hydrographs data from Van Arsdale available for posting
		POSTED: Share and post any Forest Service fish habitat studies above Lake Pillsbury (referenced in biological opinion)
Scott H	?	Investigate ladder outages and explanations for 6/6 meeting (PGE does not maintain data and information except for notations in nightly reports so CDFW probably a better source)

Fish Passage Scenarios

The group started by discussing a [set of scenarios](#) that some members put together to inform the conversation. The [draft filtering criteria](#) were too granular for the group to use at this stage.

Scenarios build in assumptions regarding the period of migration and associated flows. Working with the filtering criteria is too detailed to look at migration by species at this stage. Identifying the parameters of each scenario first and then evaluating migration period/species in a more detailed way might be possible once those scenarios are defined.

Below is a brief synopsis of the discussion for each scenario. Work group members agreed to take assignments to further advance the potential scenarios to advance the conversation at the next meeting.

The group also explored the idea of a full decommission of Scott Dam and Cape Horn Dam. Some expressed concern that this would not provide the two-basin solution that the Ad Hoc has requested. Working group members will look at the pros/cons of this scenario, including providing for a diversion and report back at the next meeting.

The group talked about whether it should evaluate the status quo. The working group will reconsider this at a subsequent session.

Fish Passage Scenario #1 - Fish Ladder

Scenario #1 is basically existing facilities /configuration with volitional fish passage via a fish ladder.

Cape Horn Dam: current condition has spillway coming over the dam. Spillway is not ideal. Could adapt by smoothing out the spillway or notching the dam.

Coho: If the ladder works for Chinook and steelhead and lamprey, it will work for Coho salmon. The notetaker was unclear if the fish passage work group is recommending to add Coho salmon to the target species.

Water storage dams: a big question is if adult salmon goes up a big ladder, will it then navigate through the reservoir to an upstream arm of the river? Similar to downstream issues, the scenario is unclear if the fish can navigate through safely.

Biological indicators will need to be thought about more - water quality (mostly temperature), different tributaries, difference species, etc.

Cohort replacement rate: how much is enough. Are one fish up and one back enough? Would fish passage technology realize cohort replacement?

Fish Passage Scenario #1a Mead & Hunt Fish Ladder

- Designed for adult salmon and steelhead.
- Has a range for the reservoir elevation via gates.
- It may cut off adult summer-run steelhead because of the gates opening up and shifting to downstream. It works within a range. Adding more gates is a possibility.
- It includes guide nets as an option to guide fish toward the inlet. Range of cost for guide nets is \$4+ million.
- Need to further evaluate whether fish will be able to find or be attracted to the inlet. You need adequate flow to draw them in. Flows are essential to optimize helping the target species toward the inlet.
- Mead & Hunt was conceptual. Scenario 1 is general. Mead & Hunt provides an opportunity to look at scenario 1 more specifically.
- Mead & Hunt seemed to suggest that passage downstream might not work. Jon Mann thinks that it is possible, but it needs more design to determine functionality and performance.

Fish Passage Scenario #2: Collect and Transport

- Collect and transport is a way to get started on the system and to have a pilot to learn and confirm that habitat has value, and fish will be able to survive.
- Many of the other passage scenarios will take a long time to implement so collect and transport could serve as a bridge measure.
- Some are unclear what is happening upstream for habitat. Most of the steelhead habitat is above Bloody Rock / Roughts. Some would like to confirm that fish move upstream beyond there. Timing of flows is really challenging to each stage.
- Another factor would be the mortality for juveniles coming out.
- When looking at trap and haul, lake levels are a big factor.

Considerations

- Could shift the scenario by changing the expectations on the number of fish and types of species.

Long-Term Considerations

- Other areas are using collect and transport as a long-term solution.
- Collect and transport is evaluated on a case-by-case basis.
- Technical feasibility is likely; however, it may trigger other filtering criteria, including cost, etc.

Fish Passage Scenario #4 - Decommission Scott Dam

- Sediment management would provide stabilization and require potential restoration activities. It would likely be more than a one-time set of actions. FERC would require that it meet the Forest Service restoration requirements.
- 20,000 acre-feet of sedimentation is anticipated given the reduced capacity of the reservoir. A bathymetric survey is done every 10 years. The bathymetry shows a little bit of streambed remaining.
- This scenario would leave Cape Horn in, but rebuild it.
- A significant limitation or change is no longer having stored water for releases.
- Cal Trout study is a preliminary evaluation of removing Cape Horn and Scott Dam.
- Building in and phasing is important. It will take a long time to remove Scott Dam so a choice would be what to do over time.

Fish Passage Scenario #6 - Partial Removal of Scott Dam

- Partial removal may shorten the dam if the ladder isn't feasible. This would change the reservoir conditions and change temperature. It would allow for more spillover events.
- This option could manage water flow and sediment.
- This would require a specific recommendation on height. 10-feet of dam removal knocks off 20,000 acre-feet of storage in Lake Pillsbury. A lot of the storage is in the reservoir is with the higher elevations.

Process Suggestions

The group is evaluating the scenarios. It would be helpful to consider, during the evaluation:

- Limitations -- Consider adding a few notes on limitations.
- Risks, uncertainties and benefits of each
- Issues - Track issues that would need to be managed, (e.g. sedimentation); Vulnerability to invasive species.
- Predation
- Water supply will need operational assumptions on flows, at least some thresholds. Timing will also be an issue.

General Information / Questions

Pike minnow: unclear how well pike minnow fare at Cape Horn Dam.

Guide net life span is about 10 years. They are mesh so maintenance cost would likely be high.

Pilot studies are essential part of planning.

“Blow and go” - removing dam without any sediment management. It has worked some places. This was done at Marmot, 2 years ago. At Alwah, it loaded the system. US EPA under CERCLA has to reach a determination on the sediment. There are lots of indications of mercury here.

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These are important items that the group was unable to fully address.

COSTS: This group does not have the expertise to develop costs. To develop specific costs requires more specificity in the design. Some think that we have to develop at least a minimum cost to provide to policy makers.

LAMPREY and TRAP/HAUL: Very little information and data on trap and haul and lamprey