Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Lewis River Aquatic Technical Subgroup Date: October 13, 2023

From: Larissa Rohrbach, ATS Coordinator, Anchor QEA, LLC

Re: Final Minutes of the September 28, 2023, Lewis River Aquatic Technical Subgroup Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held virtually on September 28, 2023, from 9:00 a.m. to 10:45 a.m. Attendees are listed in Section IV of these meeting minutes.

Action Item Summary

- See Work Plan.
- Erik Lesko will share a framework for adult steelhead capture and tagging (related to pHOS) with the ATS for discussion in the October meeting.
- Erik Lesko will provide an update on the potential use of parentage-based tagging sampling and analysis with the ATS for discussion in the October meeting, and consider inviting scientists from Cramer Fish Sciences to present the proposed approach.
- Erik Lesko and Josua Holowatz will determine logistics and capacity for surveying coho salmon in Yale Reservoir tributaries.
- Larissa Rohrbach will reach out to Anja Huff and Kale Bentley to identify transition implementation plan details for documenting as a strategy in the AOP.
- Aaron Roberts will ask Mike Chamberlain about potential reasons for daily dissolved oxygen deficits in Lewis River Hatchery ponds.

Agreements or Recommendations

- None.

Review Items

- None.

Finalized Documents

- None.

I. Welcome (Rohrbach/Lesko)

A. Announcements

- Emi Melton made an announcement regarding the potential government shutdown. Congress will need to pass a budget by 9pm Sunday (midnight, East Coast Time) to avoid a shutdown. If a shutdown occurs, Melton would not be able to respond until next business day following reopening.

B. Review Agenda

- Rohrbach reviewed the agenda and no changes were requested.

II. ATS Meeting Topics

A. Update: Adult Steelhead Abundance and Composition Monitoring (Lesko)

Erik Lesko updated the group on outreach to review approaches for evaluating steelhead proportion of hatchery origin spawners (pHOS) in the lower Lewis River.

At the last meeting, options for capturing and marking (PIT-tagging) adult fish in the lower river were discussed for use in pHOS model. Two options have been discussed: tangle-netting, which has been used in the past but concerns have been raised about biases and impacts on spawning fish; and hook-and-line capture proposed by PacifiCorp as an alternative.

Lesko said PacifiCorp has settled on an approach that incorporates hook-and-line capture. PacifiCorp staff are working on a framework that describes details like the level of effort, dates, and sampling locations and methods that will be provided for review by the ATS prior to the October meeting. PacifiCorp will seek agreement around the most practical method by November, for implementation in early 2024.

Separately, Lesko has also discussed opportunities to incorporating parentage analysis (parentage based tagging; PBT) as an approach for determining pHOS with Cramer Fish Sciences. PBT has the potential to monitor actual gene flow between the different stocks of late winter steelhead spawners as opposed to a census based pHOS estimate which relies on proportion of hatchery and natural origin spawners to assess potential risks Understanding actual gene flow between the hatchery and the natural populations is a more appropriate metric for recovery and conservation. Genetic samples may be collected form adults caught in river, in the trap, and from juveniles caught in the screw trap, and staff are likely to add additional juvenile sampling by seining.

Emi Melton said PBT may be used for monitoring in Idaho and consultations were done on these programs. Lesko said he would mention this to the scientists at Cramer Fish Scientists to ask their interest in that resource.

Bryce Glaser said WDFW would want to discuss approaches with Cramer Fish Sciences. Thomas Buerhens (WDFW) is developing a pHOS monitoring program for steelhead in other lower Columbia tributaries. Glaser also asked how the proposed genetic work fits within the current version of the Genetic Monitoring Plan, noting that WDFW has done PBT on the Kalama River and could share some of the pitfalls that were encountered there. Lesko said the genetic monitoring strategy is not complete yet, but PBT for late winter steelhead would be incorporated into sampling that has already been planned. The metrics we are seeking to obtain from the PBT are certainly part of the monitoring in the H&S Plan. Glaser said WDFW would look forward to engaging once a proposed approach is available for discussion. Lesko suggested Cramer Fish Sciences may present their approach in October.

Murdoch said the YN have been using PBT through the CRITFC genetics lab in Hagerman, Idaho to monitor hatchery populations as part of reintroduction in the upper Columbia River tributaries. Samples are collected from coho salmon carcasses, which would not be possible for steelhead. She offered to inquire with staff on how it has been working and challenges. Lesko agreed that could be helpful. He is interested in logistics on juvenile and adult collection and sampling, and welcomes any feedback on the pros and cons of PBT.

Lesko noted that the problem for both pHOS strategies remains capturing and sampling or tagging the adults, which is the focus for this strategy development.

Lesko will distribute an adult steelhead sampling framework to the ATS in the next few weeks and will consider asking Cramer Fish Sciences staff to join the meeting in October.

B. Yale Habitat Preparation Plan – Coho Salmon Surveys (Lesko/Holowatz)

Erik Lesko said a component of the Yale Habitat Preparation Plan calls for informally surveying some of the tributaries for presence of spawning coho salmon. This is relevant to streams that are not already being monitored as part of the bull trout monitoring program. These include Siouxon Creek and Speelyai Creek. There was no opportunity to survey last year due to weather. Transport of coho salmon into Yale Reservoir began two weeks ago up to 1,800 fish in total.

Jeremiah Doyle said surveys in Cougar Creek for Bull Trout are done on two-week rotations. No coho salmon have been observed yet; last year the first coho salmon was observed on October 5, with peak numbers observed on October 20. There are two PIT-tag detection arrays; a wagon wheel

upstream of a channel spanning antenna in Cougar Creek, and 2 wagon wheels in the Yale Bypass Reach.

Lekso noted that the ATS may decide on moving a different mix of hatchery-origin returns (HOR) and natural-origin returns (NOR) in 2024, in coordination with the scheduled completion of the Yale juvenile downstream collector in 2026.

Lesko reminded the group that in the August meeting, there was some discussion about increasing the number of coho salmon to be moved upstream of Swift Dam. Glaser said from a general perspective, WDFW is comfortable with a proposal to move up to 9,000 fish upstream plus any additional NOR, however the composition of that 9,000 has not been clearly decided. Glaser suggested additional discussion in the October meeting whether to increase the number of HOR fish to be moved upstream based on the number of fish that are arriving.

Lesko suggested that this issue could be a topic for discussion at the October ACC meeting as there is no ATS objection to increasing the adult transport target. A first step could be to ensure the ACC agrees with increasing numbers transported, because there may be concerns from USFWS and USFS about impacts to Bull Trout. Then adjust the transport curves soon. Glaser will inquire with WDFW staff on a transport plan and Lesko will work with Chris Karchesky to prepare the topic for ACC to review.

C. Anticipated Annual Operating Plan Updates (Lesko/Rohrbach)

Larissa Rohrbach described the potential needs for updating the Annual Operating Plan (AOP) for 2024. This includes updates to strategies that show the juvenile and adult sampling plans, updates to the genetics and pHOS monitoring plans, and incorporating the program changes laid out in transition plans for coho salmon and steelhead.

Bryce Glaser said there's a need for an implementation approach for the transition plans that could be documented in the AOP, perhaps as an implementation strategy that describes the multi-year, multi-phased approach. There are specific needs for this year, such as new collection and transport curves, which would be updated in the appropriate sections. The introductions of those transition plans describe that phased approach, then more detail can be added to describe what actually needs to happen.

Glaser suggested reaching out to Kale Bentley and Anja Huff to start the implementation approach. Glaser suggested that the transition plans, as finalized by the ACC be attachments to the H&S Plan or appended to the AOP. PacifiCorp agreed with this approach.

D. Updates: Hatchery Practices and Pathology (Hatchery and Fish Health Staff)

Coho Salmon, Steelhead Transition Plan Implementation (Young/Glaser)

Byrce Glaser said in the last meeting he agreed to determine whether there were any immediate actions that could be taken in the short term for the coho transition plans. He suggested carrying out the status quo for this year's broodstock collection, with the exception of increasing numbers for upstream transport and all agreed.

Glaser said the next step will be to set up discussions with PacifiCorp on infrastructure needs. Anja Huff has started discussions with hatchery staff; there are high-level concerns that need to be discussed with PacifiCorp to be implemented as smoothly as possible. These include the need for more, smaller collections, and bringing fish to a uniform size for rearing. WDFW will reach out to Erik Lesko to coordinate a time for a meeting on suggested infrastructure changes and to ensure no other issues are overlooked, and discuss opportunities and approach to fund infrastructure changes. Lesko said he and Mark Ferraiolo would participate in those discussions.

Glaser said there some obvious changes are also needed for steelhead, to shift some production between summer and winter-run stocks, causing changes to broodstock collection curves that should be determined fairly soon.

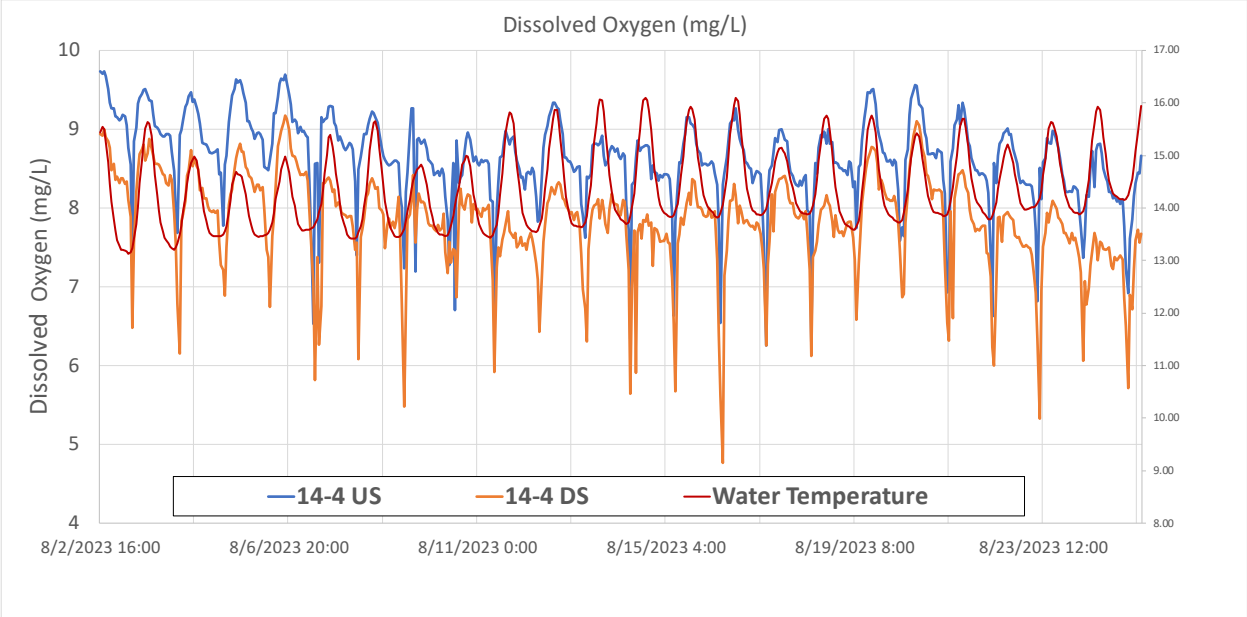
Broodstock Collection In-season Updates (Hatchery Staff)

Aaron Roberts said coho broodstock collection has gone well. Approximately 10,000 fish have returned to the Lewis River Hatchery. There have been a lot of jacks suggesting next year will be another strong run.

Water Quality Monitoring at Lewis River Hatchery (Dissolved Oxygen)

Lesko reminded the group he has monitored total dissolved gas (TDG) at Lewis River Hatchery to monitor rearing conditions for spring Chinook salmon, specifically. The data suggested there could be low dissolved oxygen (DO), especially in summer when water temperatures are highest and DO would be at its lowest.

DO monitoring was done both at upstream and downstream locations in pond 14-4, the pond with the greatest effect because bank 14 receives both first pass and second pass water from bank 13. From the data, there is notable downward spike of dissolved oxygen observed on a daily basis every morning at approximately 9 to 10am. These spikes are acute, but short term as dissolved oxygen recovers very quickly to normal and healthy levels. Deficits happen at the upstream location but are more pronounced at the downstream location.



Lesko discussed whether this could be a potential stressor with Shawn Roon. Roon said DO as low as 5 mg/L may be a concern, however the acute DO deficit may not be a large stressor at 6 to 8 mg/L.

Lesko is asked if any of the hatchery staff have ideas about what may be causing the deficits (i.e., feeding time). Aaron Roberts said he would have to think about this and that Mike Chamberlain may have ideas about a consistent activity at the hatchery between 9am to 10am.

Lesko will identify some key questions for WDFW to address.

Pathology (Sean Roon)

Sean Roon gave an update on the pathology monitoring associated with the TDG monitoring. He said in histology samples there was no sign of actual pathology in the fish. During August 2022, Roon monitored weekly, however a bacterial kidney disease (BKD) outbreak created a complicating factor. Because of the BKD outbreak, Roon sampled 10 healthy fish and 10 moribund fish to look for any signs of gas bubble trauma (GBT). He found two cases of bubbles in fish that had exopthlalmia, however this was potentially a result of the BKD rather than high TDG. No histology samples showed pathology consistent with GBT. There is a paper on an opportunistic study where high TDG was observed, showing that high TDG seemed of make BKD more severe, however the TDG saturation was 120%. There may be subclinical effects in the range observed at Lewis Hatchery between 103% to 115% TDG. The effect of intermittent exposures has not been tested, except at very high levels

Roon said he is treating *Ichthyophthirius* (Ich) in the steelhead at Merwin Hatchery.

Roon said new liners were installed in the big ponds at Merwin Hatchery and there was initially concern about algae growth, with lower DO in the morning. There have been no major mortality events. Since the sun has diminished the algae growth seems to have slowed.

Tomorrow Roon will conduct a pre-release survey on spring Chinook salmon to be released October 1.

III. ATS Administration (Rohrbach)

A. Review ATS Work Plan Priorities

Rohrbach noted that ATS Work Plan priorities are being met.

B. Review Next Meeting Topics (Rohrbach)

The next meeting will be October 26. Virtual or in-person is to be determined; Larissa will check in with PacifiCorp and WDFW on their preference in the next 2 weeks. The ATS identified the following potential items to discuss at the next meeting:

- Steelhead pHOS – continued discussion
- Transition planning – continued discussion
- Anticipated updates for the AOP for 2024
- Updating the Fish Transport Plan – identify how revisions influence H&S Plan, AOP. Fish Passage Subgroup and design teams working toward 60% design by December.

IV. List of Attendees

Name	Affiliation
Larissa Rohrbach	Anchor QEA
Jeremiah Doyle	PacifiCorp
Erik Lesko	PacifiCorp
Amanda Farrar	Cowlitz PUD
Christina Donehower	Cowlitz Tribe
Steve Manlow	LCFRB
Kathryn Blair	NMFS
Emi Melton	NMFS
Bryce Glaser	WDFW
Anja Huff	WDFW
Aaron Roberts	WDFW

Name	Affiliation
Sean Roon	WDFW
Keely Murdoch	YN