ANCHOR QEA

Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Lewis River Aquatic Technical Subgroup Date: January 19, 2024

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

Re: Final Minutes of the January 4, 2024, Lewis River Aquatic Technical Subgroup Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held virtually on January 4, 2024, from 9:00 a.m. to 12:00 p.m. Attendees are listed in Section IV of these meeting minutes.

Action Item Summary

- See Work Plan.
- Erik Lesko and Larissa Rohrbach will update Annual Operations Plan (AOP) Strategies A and B on adult steelhead abundance and composition monitoring for review and discussion by the ATS, including improvements to redd survey methods.
- Larissa Rohrbach will share out the H&S Data Responsibilities spreadsheet for review and revision.
- Erik Lesko will work toward finalizing the draft Genetics Monitoring plan by convening a meeting with consultants, to include Marc Johnson.
- Larissa Rohrbach will review the Annual Operations Report stoplight table to identify monitoring metrics that should be prioritized in the ATS Work Plan.
- Erik Lesko will work to adjust the scope for reporting juvenile smolt trap monitoring results to September.
- Erik Lesko will coordinate with Sean Roon on spring Chinook salmon pre-release sampling, to occur in late January.
- Larissa Rohrbach will prepare a suggested schedule for in-person ATS meetings.

Agreements or Recommendations

- None.

Review Items

- None.

Finalized Documents

- None.

I. Welcome (Rohrbach/Lesko)

A. Review Agenda

Larissa Rohrbach reviewed the agenda.

Kale Bentley added an update to introduce John Best, WFDW analyst, and simulations run with the lower Lewis River steelhead multi-state mark-recapture model.

Josua Holowatz asked for an update on scheduled repairs to the concrete void discovered in Pool No.1 of the Merwin Trap. Chris Karchesky said there was a failure in the concrete in first holding pool of Merwin trap. A gap was discovered during normal maintenance that is 4 to 5 feet long and 10 to 12 inches tall and allowed fish to escape into the diffusers. During spill events, due to high water levels, some fish escaped into the pump evacuation room. NOAA Fisheries and WDFW staff were notified and provided pictures of the concrete void. Erik Lesko provided a schedule update related to repairs. The trap can be run normally at full generation levels, which are approximately 11,000 cfs, without fish being able to escape into the pump evacuation room. If spilling is necessary, the trap will be turned off and the structure re-evaluated after any spill event. Repairs and structural evaluation will occur in mid-February and repairs will take 1 to 2 weeks to complete. The repair will include fastening a stainless steel plate over the void to permanently seal the concrete void. Lesko will provide an update to the ACC next week. Karchesky said the concrete void was discovered during inspection of the evacuation pumps. Holowatz said he hoped the trap will be running before the major winter steelhead (BWT) run (in March/April).

II. ATS Meeting Topics

A. ATS Work Plan Review

Larissa Rohrbach reviewed the ATS Work Plan to discuss upcoming work in 2024.

- Draft Genetics Plan – Marc Johnson asked if the latest version of the Genetics Plan can be shared and Erik Lesko agreed to share the draft plan again.
- Yale Behavior study – Chris Karchesky said a draft report was distributed for the 2023 work, WDFW provided comments, edits were made to the report and a discussion in the Fish Passage Subgroup (FPS) will be held next week on how to direct focus this year, especially regarding downstream passage. Bryce Glaser said the FPS recognized there could be crossover with the ATS around technical support for study design or sample size in the future.
- Juvenile in-river trapping – results haven't yet been provided for 2023. In 2024, Lesko will ask for the scope to be adjusted to provide results to the ATS in September to meet H&S needs.

- Kale Bentley suggested that the annual report stoplight table be used to identify metrics currently in "red" that should be reported on with more rigid timelines at end of year, allowing the ATS to quickly respond to make changes for the following year. Juvenile trapping is an example of a monitoring method where those adjustments should be made. He asked what the strategy is for metrics that are not meeting targets year after year; what to try before moving away from a given sampling method? Lesko and Rohrbach agreed to linking that AOR stoplight table to the ATS work plan.
- Integrated Population Model (IPM) – Karchesky said there have been challenges in looking at historical adult age structure from hatchery data, and historical PIT tag data, that slowed down work over the past couple of months. USGS will start populating the IPM model now, and will bring an update to the group in March, then move forward with evaluating covariates.
- Fish transport plan – Karchesky will continue work with FPS and bring updates back to ATS in March or later. Glaser said the fish transport work should be ongoing and captured in the AOP for now. The broader plan will be developed with future plans and facilities.

B. Adult Steelhead Abundance and Composition Monitoring (Lesko)

<u>Abundance approaches (Lesko)</u>

Larissa Rohrbach reviewed information shared with the group in May 2023 about the challenges with estimating winter steelhead in-river spawner abundance with redd surveys in the Lewis River (Attachment A). In the November 30 meeting, the ATS supported the plan to use the existing multi-state mark-recapture model (mark-recapture model) to estimate the composition of the winter steelhead in-river spawning population. The mark-recapture model will also be used to estimate in-river spawner abundance, which can be further stratified by origin and sex which can not be reliably done with redd surveys. Redd surveys during peak spawning (peak counts) are also done to observe spatial distribution.

Erik Lesko posed the question to the ATS, why redds surveys should continue to be implemented for estimating abundance if the mark-recapture model can be used to estimated abundance? Kale Bentley answered that the redds surveys provide a timeseries that is 15 years long, and there is only 1 year in which an abundance estimate is available for both redd and the mark-recapture approaches was done. Lesko agreed that because the mark-recapture modeling is relying on a new method of capture, that redd surveys could be used to provide spawner abundance estimates in the event that the new collection method does not meet expectations. However, Lesko stated that he does not support implementing two simultaneous abundance studies in perpetuity, and that if the hook and line capture method is shown to be a viable strategy, the redd-based abundance surveys would be replaced by the mark-recapture method. In the lower Cowlitz River, a mark-recapture approach was reinitiated where historically helicopter flights were done to observe redds. Data are already showing in the third year of evaluation that abundance estimates with redds are 30% to 50% lower than with the mark-recapture approach.

Keely Murdoch added that there are ways to improve redd surveys in the field and statistics around redd surveys. Some of the limitations could be addressed by an observer efficiency model, and that should be discussed further if continuing with redd surveys. This would provide confidence intervals, and potentially could be used to correct past data.

Bryce Glaser said the number of years both methods would need to be repeated depends on how the estimates correlate. He said there are also questions about how the mark-recapture approach is being implemented, and the redd survey methods could be used as the fallback in case the mark-recapture approach does not work out. This duplication of methods is something that is done is other places when shifting from one method to another.

Amelia Johnson asked how this approach would fit in with the proposed region-wide review of population estimation methods, which was funded by Salmon Recovery Fund (SRF) board grant. She asked if it would be a benefit to have consistent methods across the region. Glaser said yes, WDFW is being funded to do that work to improve and standardize other redd-based estimates throughout the basin, and there is overlap. Bentley said surveys now have been counting new redds; a new model is being developed by WDFW staff using SRF board funds which could be applicable as a better estimator of uncertainty.

Bentley noted that for marking fish, if PacifiCorp is going forward with hook and line methods to capture fish without tangle netting, WDFW would like to see an updated study proposal. Lesko agreed and he is working with Larissa Rohrbach on incorporating the methods shared with the ATS in November into strategy A and B. The hook and line survey effort to capture and mark adult steelhead will occur weekly from February through May. Bentley and if there will be options for increasing surveys if anglers are not reaching stated targets. Lesko said adding more effort is possible in the event that capture rates do not meet expectations (~50 winter steelhead). PacifiCorp can propose additional effort (e.g., PacifiCorp boat) as an in-season adaptive management modification.

<u>Mark-recapture simulation (Bentley/Best)</u>

Kale Bentley introduced John Best (WDFW), a biometrician hired in May 2023 to address dam-related and salmon survival topics, specifically on high-head dam projects (Cowlitz, Skagit, and likely to increase participation with Lewis ATS in future). Best has been asked to build an understanding of the details of the model and evaluate how it is accommodating biases to have more definitive answers to questions about what type of precision would be expected given the number of captures and recaptures anticipated. They are working to help document targets for accuracy and precision.

Best said he plans to simulate a season's worth of captures and recaptures, fit to the existing mark-recapture model, re-run many times to look at how precision varies based on changes in capture efficiency. Simulations may help answer questions about whether capture efficiency is different between males and females, for example, and test how much that matters to the end result. Best said they are open to suggestions to help steer the questions to answer; if in the range of 50 to 66 fish (as observed in 2016), he is hopeful that precision will be adequate to answer the questions the program is interested. Lesko asked if Best will be testing the effect of overall capture efficiency, or stratifying by origin or sex; Best answered that a rough first pass will test capture efficiency overall, then stratification can be tested.

Marc Johnson said he is encouraged to hear an interest and support for maintaining two kinds of analytical approaches at the same time to avoid changing the capture technique while at the same time changing the analytical method. Changing both at the same time would be potentially confounding. As much overlap as is possible between methodologies is better.

Bentley said this work will help answer the question whether a new covariate could influence the precision or usefulness of the results.

Bentley said there have been some indexes of composition from fish captured at the traps, but there are limitations, such as expecting more hatchery-origin returns (HOR) to recruit to the traps.

Lesko asked if what is being presented today duplicates efforts being undertaken by Mount Hood Environmental/Dalton Hance (PacifiCorp's contractors) to use the mark-recapture model to generate estimates in 2024? Bentley said no, WDFW is proposing is to use the model to run scenarios to guide the sampling effort this year, but Mount Hood Environmental and Hance can lead the data collection and analysis. It's understood that Hance had not tried a before-season simulation to ensure the data collection efforts would be adequate.

Bentley asked what the next steps are for moving the evaluation of this objective forward, and documenting where redd surveys need improvement. Lesko and Rohrbach are outlining this in Strategy A.

C. Steelhead Transition Plan Implementation in 2024 (All ATS)

<u>Infrastructure</u>

Kevin Young screen dividers have been built by PacifiCorp which allows for rearing groups to be divided based on egg-take goals for both programs to optimize rearing space. Additional intermediate rearing troughs are needed; some are available at Washougal Hatchery (these need work and may be a harder fix), Grays River Hatchery (these are structurally sound, stored indoors, but the access road is currently closed and not likely to be repaired until summer). Young said the program can move forward this year and hit targets for the modified spawn timing window to achieve the 3 to 4 egg takes using the current infrastructure. There are unknowns about how the natural origin returns (NORs) will spawn, so there may still be a need for one or two additional intermediate rearing troughs after piloting the new approach this year.

Bentley outlined two possible collection approaches for this year. The first is to over-collect adults to provide more options at spawning and limit the number of egg takes, but this comes at a cost to the number of fish available for upstream passage. Those fish could be passed upstream eventually if not spawned, but should be considered “lost fish” because their success spawning after holding would be unknown (and others agreed). The second option is to follow the original broodstock collection plan, but acknowledge the broodstock goal may not by achieved due to infrastructure constraints.

Chris Karchesky asked for clarification on the number of broodstock needed. Bentley answered the number is 40 to 50 pairs based on relationships in collection time and spawn time to achieve the 2 to 4 egg takes; some fish would be collected but would not be ready to spawn until after the established cutoffs. Bentley said he plans to refine the collection timing and numbers. There are several moving pieces and unknowns for the first year. If there is a large run, there will be less of an impact on number available for upstream transport, and all the other metrics being tracked with upstream transports.

Bryce Glaser said he is comfortable going forward with the transition plan while continuing to resolve infrastructure needs. He favors collecting broodstock more aggressively for 2 reasons: if making a change to the program, the public perception should be that WDFW is working to make the program as successful as possible for the fishery; and balancing the decision with current status of juvenile collection efficiency in downstream collectors. Bentley reminded the ATS that the overall juvenile release target has been reduced by 25,000 for winter steelhead and if the program doesn’t meet brood or the desired number of egg takes, that juvenile release number would be reduced even further.

Karchesky said improving collection efficiency is the top goal of the fish passage program at this time, however without enough individuals moved upstream there are challenges making inferences about upper basin productivity. Karchesky recommended thinking through a minimum number for upstream transport; he is understands the brood prioritization but reminded the group that upstream transport should be maintained as a priority. Bentley responded, starting with last month’s discussion, he is planning to create a reconstruction using previous years’ return numbers to evaluate what would have happened in past years with different return size, and can provide an update to this group when that retrospective look is finished. There may be some information on run size by the time broodstock collection starts.

Glaser said there is a decision needed on whether or not to go forward with the stepping-stone and terminate the Chambers Creek steelhead program. All participants in the meeting supported going forward with that plan while continuing to work out details on collection numbers and prioritization of brood for upstream transport. Emi Melton and Marc Johnson also supported prioritizing broodstock collection at a level to meet egg take needs and juvenile release targets. Erik Lesko will inform the ACC of this progress on transition plan implementation.

Hatchery staff will need confirmation on collection curves by mid- to late February.

Kale Bentley shared preliminary results from broodstock collection and transport scenarios on the screen. The 2020-21 return year was the lowest return year for BWTs since 2013, and the 2022-23 return year was "average" over the past 10 years (and the 3rd highest in the past 5 years). In both of these scenarios, broodstock for both the integrated and stepping-stone programs were met (and the stepping-stone program collected about 50 pairs).

The first table is for the 2020-21 return year (which saw a total return to Merwin FCF of 210 BWTs & 168 NORs).

NOR spawners (Upriver)	-	128
HORs spawners (Upriver)	-	107
Effective Spawners (Upriver)	-	182
% seeding (Upriver)	-	33%

The second table is for the 2022-23 return year (which saw a total return to Merwin FCF of 683 BWTs & 197 NORs).

NOR spawners (Upriver)	-	157
HORs spawners (Upriver)	-	566
Effective Spawners (Upriver)	-	440
% seeding (Upriver)	-	55%

D. Data Management

Lesko said improving data management and sharing is a high priority for him. It has been challenging to obtain funding for a centralized data management system, and difficult to identify a method that is accessible to everyone. Development of a system also became a major time-commitment for all staff involved.

Glaser said, absent the ability to create a centralized system, a data responsibilities spreadsheet used in the past by the ATS was an attempt to identify where those data are being collected and stored. It also helps to identify where there is duplication; in those cases there is a need to identify what is the primary/official record to know where to go back to when there are discrepancies. In situations where data do need to be shared, the parties can decide on some methods, formats, or agreements for sharing data.

Mark Johnson asked what the current plan for storing and tracking genetic data especially parental based tagging. Lesko said there is currently no PBT data at this time; however, if a PBT approach is initiated in the future, the consultant would be responsible for storing the data, record keeping and archiving samples. This discussion is in reference to data being collected now, e.g. steelhead abundance data being stored in spreadsheets.

Glaser said WDFW is working on developing an organization-wide database for spawning ground survey data from around the state and Fishbooks is currently undergoing an update; these could be repositories for capturing data. There is a coordinated assessments database on the Columbia River for high-level indicators that communicates with NOAAs databases for status reviews. There is a lot of work being done around the basin that may be leveraged.

Next steps:

- Refresh the "Data Responsibilities" spreadsheet to document current status and planned updates for databases. Rohrbach will send that spreadsheet to key ATS members for them to review and revise.
- Identify higher priority groups of data for sharing. There is a better system for upstream transport now, and the parties should work toward better outputs for reconciling between PacifiCorp and Fishbooks records.

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

<u>Broodstock Collection/ In-season Updates (Hatchery Staff)</u>

Mike Chamberlain provided an update on Lewis River Hatchery activities, which are proceeding according to plans. They have finished late-coho spawning, collected co-op and US v. Oregon eggs. Temperatures have gone down; ponding the first take of early coho next week, about a week later than usual. Planning for the February 1 release of spring Chinook.

Spring Chinook precocity monitoring was not done last year prior to the February 1 release. Erik Lesko will coordinate with Sean Roon to plan for this. Roon is tentatively planning to visit the hatchery the last week of January (26 or 29) to sample fish. Glaser noted there are additional M&E staff that have been hired to help with M&E work. Anja Huff can also help coordinate some help too.

Kevin Young provided an update on activities at Speelyai and Merwin Hatcheries. They are ponding spring Chinook salmon fry, and shifting into kokanee. The hatchery is winterizing mode, getting ready for marking/tagging season starting in March. Merwin Hatchery is in the middle of summer steelhead egg picking. Late winters steelhead were tagged with CWTs in late December. They are getting equipment ready for spring. Chambers Creek broodstock collection is complete, though they will not be used.

Glaser announced that Kevin Young will move into new Regional Hatchery Operations manager (Sam Gibbons former role), to start mid-month to oversee all 14 hatcheries in Region 5. The ATS congratulated Young on his new position.

<u>Pathology</u>

Sean Roon provided an update on spring Chinook salmon pathology issues. As described in the last meeting, *Ichthyophthirius* (Ich) at Speelyai hatchery has cleared up, but the need to treat fish delayed moving the 12 fpp group by one week. The 8 fpp group was moved on time. There was also some bacterial kidney disease (BKD), and some chronic loss occurring in that 12 fpp group. The spring Chinook salmon yearlings in the 8 fpp group (pond 14-4) have increasing losses and more fungal infection, and increasing incidence of BKD in that group as well. Roon said they will treat those fish with formalin soon to clear up fish in the initial stages of infection. He will coordinate a pre-release check before the end of January.

Other species are doing well. Prophalactic treatments are being done on juveniles from the early takes of Coho salmon. Merwin juveniles are doing well.

III. ATS Administration (Rohrbach)

A. Meeting Schedule

The ATS decided to hold in-person meetings quarterly. As the ACC ground rules become finalized in the coming month, there is a need to develop a formal charter for this subgroup in which the meeting schedule can be documented.

Larissa Rohrbach will prepare a suggested schedule for in-person ATS meetings for review and agreement.

B. Review Next Meeting Topics (Rohrbach)

Discussion topics for the next meeting include the following:

- Final Documentation of Adult Steelhead Abundance and Composition Monitoring (AOP Strategies A and B)
- Steelhead, Coho transition planning updates
- In-season data management
- Pre-post release Chinook size and smolting evaluation
- Genetics plan update
- Spring Chinook return forecast and fishery update (Josua)
- 2024 AOP Updates

IV. List of Attendees

Name	Affiliation
Larissa Rohrbach	Anchor QEA
Chris Karchesky	PacifiCorp
Erik Lesko	PacifiCorp
Amelia Johnson	LCFRB
Kathryn Blair	NMFS
Marc Johnson	NMFS
Emi Melton	NMFS
John Best	WDFW
Kale Bentley	WDFW
Mike Chamberlain	WDFW
Bryce Glaser	WDFW
Josua Holowatz	WDFW
Anja Huff	WDFW
Sean Roon	WDFW
Kevin Young	WDFW
Keely Murdoch	YN