Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Lewis River Aquatic Technical Subgroup — Date: May 23, 2024

From: Larissa Rohrbach, ATS Coordinator, Anchor QEA

Re: Final Minutes of the May 2, 2024, Lewis River Aquatic Technical Subgroup Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held virtually on May 2, 2024, from 9:00 a.m. to 12:00 p.m. Attendees are listed in Section IV of these meeting minutes.

Action Item Summary

- Anja Huff will send the documentation of alternative Coho Salmon rearing options under the transition plan to Erik Lesko.
- Kale Bentley will send the Bradford et al. (2000) paper to the ATS.
- Lesko will coordinate with Kevin Young to establish the correct spring Chinook Salmon broodstock collection curve.
- Lesko and Larissa Rohrbach will revise broodstock collection curves in the Annual Operating Plan (AOP).

Agreements or Recommendations

- None

Review Items

- The ATS will review the draft ATS Charter sent on April 26, 2024, to provide comments and suggestions for discussion at the next meeting.
- The ATS will review the Yale Habitat Preparation Plan (HPP), with comments due to Chris Karchesky by May 21, 2024.

Finalized Documents

- None

I. Welcome (Lesko)

A. Review Agenda

Erik Lesko added the topic of Spring Chinook Salmon Broodstock Collection (B) to this meeting's agenda. The agenda was rearranged so that Adult Coho Salmon Transition Plan Implementation became the first topic to be discussed (A).

II. ATS Meeting Topics

A. Adult Coho Salmon Transition Plan Implementation (Lesko)

<u>Hatchery Implementation Alternatives (Huff)</u>

Anja Huff, Mike Chamberlain, and Kevin Young conducted a site visit at Lewis River Hatchery to compare the costs of installing water chillers versus implementing raceway dividers to accommodate additional egg takes taken over a longer period of time needed to implement the Lewis Coho Hatchery Transition Plan (Transition Plan) while still achieving a uniform juvenile body size at tagging. Juvenile Coho Salmon from multiple egg takes could be ponded at similar times with the installation of water chillers to better control the incubation times for the different egg takes. Raceway dividers would allow the hatchery to pond the different egg takes taken over a longer period so they can be grown to uniform sizes with different feeding rates. The current cost estimate of rearing, marking, and tagging fish were generated and compared with the estimated cost after installing water chillers or raceway dividers.

Young quoted approximately $500,000 for the front-end cost of water chillers; $240,000 would go toward the chiller unit. Electric and plumbing into the Lewis facility would compose the remainder of the cost. Raceway dividers could have an upfront cost of approximately $250,000; an additional cost of $300,000 would be needed yearly for operation expenses such as incubation, feed, medicated treatments, vacuuming, maintenance of the marking and tagging trailer, and staff expenditures.

Estimated costs for each alternative will be the documented by Huff and Bryce Glaser, to be sent to Erik Lesko today.

<u>Proposed Upstream Transport Target in 2024 (Karchesky)</u>

Chris Karchesky gave updates to follow up on the discussion from last meeting on Coho Salmon upstream transportation targets. The initial iteration of Coho Salmon Integrated Population Model (IPM) has been completed. An overview of the initial output will be presented at the next meeting and will serve to inform both short-term and long-term conversations about numbers of Coho

Salmon to transport upstream for supplementation. Determining an upstream transport target relies on feedback from the Bull Trout Working Group. Last year, the target goal of 9,000 Coho Salmon transported upstream was not met. Adding an additional 5,000 Coho Salmon to the upstream transport goal was suggested for 2024. Transport of adult Coho Salmon upstream beyond the target of 9,000 would aid in estimating carrying capacity of habitat above Swift Dam using the IPM.

Increasing transport numbers for 2024 is a short-term suggestion. Factors that are being considered when making this decision for the longer term include the following: ensuring that the needs of broodstock, upstream transport, and the Yale HPP are met; potential ramifications of increased numbers of Coho upstream; and how transport will be timed with respect to the run curve. Jeff Garnett's input will be valuable when deciding how many Coho Salmon to transport upstream. Karchesky will send an updated version of the Yale HPP next week. Larissa Rohrbach asked whether the IPM output will refine the 2024 upstream transport target, and if so, whether it may be beneficial to slow this conversation until it is clear how the model will be used to inform these numbers in the long term. Karchesky confirmed that long-term goals and the transport of early versus late Coho Salmon will be among the factors that will be informed by the IPM.

Garnett said that based on discussions held in 2023, the U.S. Forest Service (USFS), U.S. Fish and Wildlife Service, and the Bull Trout Working Group are supportive of the use of the IPM. However, the target of 5,000 additional Coho Salmon transported upstream exceeded the amount the Bull Trout Working Group is comfortable with. They came to a consensus that up to 11,500 Coho Salmon transported upstream is an acceptable goal for 2024. This year, it would be beneficial to monitor for the impacts of redd superimposition. Analysis of that data would help assess goals for 2025.

Kale Bentley reviewed the AOP and the Lewis River Hatchery and Supplementation (H&S) Plan to gain insight into the current upstream transport targets. These targets seem to be based on Ecosystem Diagnosis and Treatment (EDT) modeling that was conducted in the past. The most recent version of the H&S Plan states the adult Coho Salmon upstream transport target is 6,800 fish. This target was increased later to 9,000 fish. This target was implemented with a weekly transport target partitioned across the season on biweekly bends. All natural-origin returns (NORs), apart from those needed for broodstock, were passed upstream and backfilled with hatchery-origin returns (HORs). Large anticipated Coho Salmon returns in 2024 and 2025 support the ability to continue to reach for 9,000 fish transported upstream yearly.

Bentley continued that because targets have been met consistently in recent years, it is worth revisiting this cap. EDT is a deterministic model based on assumptions and is useful when there is no empirical information. However, now there is a dataset from the Lewis Basin spanning approximately 10 years that can be used for modeling carrying capacity and productivity. Bentley shared a paper by

Bradford et al. (2000) titled *Reference Points for Coho Salmon (*Oncorhynchus kisutch*) Harvest Rates and Escapement Goals Based on Freshwater Production.* The meta-analysis used in this paper estimated productivity for adults and smolts to generate estimates of carrying capacity. Bradford evaluated each population for the capacity limit (N*). N* is the estimated minimum female spawner density that maximizes smolt production. This value ranged from the single digits up to 44 Coho Salmon females. This analysis can be put in the context of the Lewis Basin to roughly estimate carrying capacity and inform an updated upstream transportation target. It is assumed that available Coho Salmon habitat in the Swift Reservoir is approximately 100 miles/186 kilometers. If the upper Lewis River is equal to the average population in the dataset, it would take approximately 7,500 (3,500 female) Coho Salmon to fully seed the upper Lewis River with 100% NORs. Several years of varying upstream transport numbers would generate variation in the data and help to inform the model. In recent years, 3,000 to 9,000 Coho Salmon have been transported upstream. These numbers range from 2,000 to 7,000 when discounting for assumed lower relative reproductive success of HORs.

Karchesky thanked Bentley for the information and proposed saving this discussion for the next meeting when the IPM modelers from USGS will attend. Bentley will send the Bradford et al. (2000) paper to the ATS.

Bentley said that, based on knowledge of existing literature, salmon subsidies such as eggs, carcasses, fry, and parr support resident Bull Trout and provide a net benefit to those populations, especially in a lake system. Coho Salmon and Bull Trout have coevolved to coexist over thousands of years. Bentley said he is unaware of any concern whether egg-to-fry survival is limiting this Bull Trout population. Micro-partitioning of the habitat because of fluctuating water levels or temperature-mediated partitioning of the habitat could result in less species overlap on a spatial scale. Conversely, redd superimposition would be a negative effect of increased Coho Salmon presence upstream.

Glaser clarified that the Washington Department of Fish and Wildlife is focused on multi-species recovery and does not prioritize limiting the recovery of one species in lieu of another. There are multiple species to consider with this discussion. If there are major concerns about effects on Bull Trout, priorities must be established on how to approach this topic.

Garnett agreed that there is evidence for spatial separation of spawning habitat. However, USFS considers the Lewis Basin to be an altered system and thus there is a desire to meter out Coho Salmon reintroduction and continue to monitor species interactions. Lesko agreed that reviewing example datasets, such as data from the Clackamas Basin, would be beneficial. Last year, the decision to pass 14,000 Coho Salmon was made quickly and based on a smaller-scale data analysis. This year there is more time to think critically and further analyze available data.

Glaser noted that the original purpose of the EDT model was not to establish upstream transport targets. EDT modeling is used to prioritize habitat restoration needs with supplemental uses for estimating carrying capacity. The Transition Plan does not clearly state the composition of the 9,000 upstream transport target, and there is uncertainty whether this should be a combination of NOR and HOR fish. Glaser called for further discussion on this topic. Bentley responded that the Transition Plan references total number, but assumptions were made about the relative reproductive success of HOR relative to NOR. If around 9,000 fish was the true capacity, there is some discount for hatchery fish.

Glaser noted there will be crossover with the Yale HPP. Transferring a portion of late-arriving fish to the HPP may affect the proportion of early versus late arrivals in the total fish transported to Swift Reservoir but would not affect overall numbers. Karchesky will send the latest version of the HPP to the ATS for review prior to the next meeting. It would be ideal for the HPP to be brought forward to the Aquatic Coordination Committee (ACC) in June.

Rohrbach said that this discussion will continue in the late May meeting, with the intent to arrive at a consensus on composition and number of Coho Salmon transported upstream by June to present a proposal to the ACC in their July meeting. Karchesky confirmed this schedule fits within the timeline of updating the HPP and preparing for upstream transport. Bentley proposed to establish a Coho Salmon implementation plan based on the framework of the Hatchery Transition Plan for North Fork Lewis (Winter) Steelhead.

Rohrbach noted that the three focus areas that need to continue to move forward are the HPP, 2024 upstream transport targets (with assumptions of composition), and the broodstock collection to support the Coho Salmon transition plan. Bentley proposed that the Transition Plan should be the highest priority because it provides structure for situations where there may be limited fish available for upstream transport; the implementation plan for that could be put together in fairly short order. Karchesky responded that the HPP discusses priorities for broodstock management and upstream transport for 2024.

B. Spring Chinook Broodstock Collection (Lesko)

Lesko shared data comparing the planned adult Spring Chinook Salmon broodstock collection and upstream transport collection curve from the AOP to actual collection values for this year through April 28, 2024. Adults were captured at Merwin Trap and are being transported to Speelyai Hatchery. As of April 28, Speelyai Hatchery is holding more brood than specified by the curve. Of the approximately 420 spring Chinook Salmon captured at the Merwin Fish Collection Facility (MFCF), only 14 spring Chinook Salmon (all jacks) have been transported upstream; remaining captures have been transferred to Speelyai or Lewis River hatcheries. Currently, broodstock transported to Speelyai and Lewis River is 415, and the brood curve specifies only 161 brood needed—a difference of over 250 spring Chinook Salmon over the broodstock collection curve. Lesko asked the ATS to provide feedback on this divergence from the broodstock collection and transport curves.

Glaser responded that the current priority is holding fish to ensure broodstock collection goals are met. Glaser said the spring Chinook run is brief and difficult to estimate the total escapement until the peak is observed. Fish will be transported upstream once 50% of the run has occurred. This prioritization was agreed upon and written in the AOP several years ago to ensure broodstock collection has occurred. Lesko supported prioritizing broodstock collection. However, it is uncertain why the hatchery has one third of the estimated broodstock collected so early in the run rather than collecting over the course of the run.

Glaser responded that those fish are being held separately until a pending management decision at the end of April. Young noted that the number for actual broodstock collected (415) in the figure is inaccurate; the actual number is 309. The 309 fish are being held at Speelyai Hatchery and would not be available for upstream transport because they have been inoculated. As of yesterday, Speelyai Hatchery had 372 fish on hand. These fish were beginning to be transported to Lewis River Hatchery the week of April 22. Males were taken for holding because collection of females was behind schedule. Young monitors broodstock collection and makes necessary adjustments on a weekly basis. Young does not believe that any collection has gone outside of the plans of the AOP or ATS.

Lesko said he would like to establish a broodstock collection curve in the AOP that mirrors reality. If the curve significantly diverges from the actual run, broodstock collection becomes frontloaded and therefore not representative of the entire run, which is a monitoring metric in the H&S Plan. Young said he provides a collection curve to Levi Pienovi (PacifiCorp) annually prior to the collection season. This is to create an understanding of the goals for the current collecting week and the week ahead. Weekly conversations are had to adjust collection goals and report broodstock collection numbers.

Glaser added that guidance for broodstock collection can be found in the AOP. Glaser said there were challenges meeting spring Chinook Salmon broodstock collection goals for many years. It is important to balance broodstock collection with upstream transport to ensure enough fish are passed to later be able to effectively evaluate downstream collection efficiencies. In addition, a rearing and release study has been initiated with multiple variables and is in the final years of data collection. Glaser feels that the plan they have in place is working and that the ATS should follow through in the direction that has been set.

Lesko said if broodstock collection numbers are consistently two weeks ahead of the collection curve, this should be reflected in the AOP. Glaser and Young expressed that they are unsure whether that is true; Young believes that collection is falling within the 1 week ahead target, which is explained in the AOP, with the total goal to have 480 fish on hand.

Bentley said that due to the reoccurrence of this conversation, it would be worthwhile to revisit the AOP and annual report and ensure everything is consistent. Language can be added to refresh members' memories for next year. There is a need for all members to have access to and refer to the same information. Lesko will coordinate with Young to establish the correct broodstock collection dataset. Lesko and Rohrbach will review the AOP to clarify information on the collection curve.

Lesko asked whether spring Chinook Salmon are collected at Lewis Hatchery Trap or whether they solely come from MFCF. Young replied that spring Chinook Salmon are coming from MFCF. Chamberlain added that the Lewis Hatchery Trap is open, and juveniles have been transported to Lewis River Hatchery this week, and this tends to attract the adults into the trap; it may take a week or two to see adults within the trap after juveniles are transported to the hatchery.

C. Adult Steelhead Transition (Bentley and Young)

<u>Steelhead Broodstock Collection Updates (Bentley and Young)</u>

Young reported that broodstock collection was started for the stepping-stone program on April 1 and collected for 4 weeks. Fifty-two pairs of HOR-BWTs, 52 males, and 54 females were collected. Thirteen pairs were spawned on April 15 and April 23. Ten pairs were spawned on May 1. Seven additional ripe females were not spawned on May 1. The egg takes of 136,000 eggs have exceeded the collection goal of 120,000 eggs. All went according to plan to achieve targets in under four egg takes. Eighty percent of females were spawned. Next week, the remaining 24 fish will be checked for maturity and then euthanized. The conservation program spawned 16 females and has collected 60,000 eggs. The rearing status of both the conservation and stepping-stone programs is good.

Bentley said that the HOR-BWT return to MFCF is approximately 1,700 fish. The run timing is on track and 85% of the way through. The total predicted run is 2,000 fish. The NOR return to MFCF through Sunday is approximately 200 fish. The return timing seems to be later than predicted and is 75% of the way through. The total predicted NOR run is just shy of 300 fish. The NOR sex ratio is 50:50 males to females, and the BWT ratio is at 65% males.

<u>Kelt Disposition (Lesko)</u>

Rohrbach brought forward a question from the previous meeting regarding brood disposition. There needs to be clarity regarding whether HOR-BWT females collected as brood in the stepping-stone program but are not spawned are euthanized. Young said that a small number of HOR-BWTs in conservation programs and all HOR-BWTs in the stepping-stone program are euthanized.

Emi Melton said there are generally no take prohibitions on BWT kelts utilized in hatchery programs and that although live-spawning of hatchery-origin broodstock is not being suggested, the National Marine Fisheries Service (NMFS) is not opposed to it. Kill-spawning results in more viable egg takes. Young noted that NORs are live spawned and returned to the river in the Lewis River Hatchery programs.

Melton replied that although they are Endangered Species Act listed, releasing them to the lower river would contribute to high proportion of hatchery-origin spawners (pHOS) in the lower river, which is not desirable; the goal is to have more fish populated above the dam. If there is not a biological need to pass HOR-BWT females upriver, it is justified to euthanize them.

Lesko asked whether BWTs that are spawned in the broodstock should be euthanized or should be considered kelts and returned to the lower river because they have already spawned in the hatchery and will not spawn again in the river. Karchesky noted that a number of BWT kelts that come downstream to the Swift collector get transported to the lower river. These fish could potentially return for additional spawning in subsequent years. Karchesky asked for clarification on what makes this group different from BWTs that return to the lower river as kelt after spawning in the upper basin.

Glaser said that there may be differentiation between males and females because males could still spawn in the same year. Bentley said fish that are actively kelting and are coming into the lower river from Swift Reservoir should be passed downstream regardless of sex. Karchesky asked whether kelts should be treated similarly within the hatchery programs.

Karchesky noted that there is a history of NOR kelts returning to Merwin Trap for a second year of spawning. Glaser said that fish that are live spawned should not be considered kelts; they are not necessarily exhibiting kelt-type behavior. Lesko proposed updating the AOP to clarify the justification for the release of kelts from the upper river to lower river and euthanasia of late-winter steelhead broodstock spawned at Merwin Hatchery.

Melton said that pHOS informs the proportionate natural influence (PNI) model. The proportion of natural origin broodstock (pNOB) contributes to broodstock composition and the spawner aggregate ratio, while pHOS plays a bigger role in the population as a whole. There is currently no PNI target for the programs due to the uncompleted consultation. If it is a contributing population, PNI goals should be 0.5. Goals differ depending on how the population plays into the role of recovery.

Glaser said he would like strong rationale if changes were made to the hatchery program. The program is not struggling to meet broodstock goals and kill-spawning creates a more viable egg take. Karchesky agreed and responded that this discussion is primarily centered around understanding the thought processes on current downstream transportation of BWT kelts.

D. ATS Charter (Lesko, Rohrbach)

Rohrbach shared a draft ATS charter in the meeting that was distributed on April 26, 2024. Lesko said he would like to hear feedback on the draft charter that will be distributed to the ATS. It would be ideal to be able to send this charter to the ACC for their approval in June.

Rohrbach walked through the key points of the draft charter. The purpose of the charter is to create clarity on the roles of the ATS relative to the ACC and other subgroups. Rohrbach said the preliminary draft serves to inform the ATS on what each member's tasks and roles are within the subgroup. The document clearly distinguishes the directives of the ATS and the Fish Passage Subcommittee (FPS). The charter outlines a process for plans to originate at the ATS level, be shared with the FPS, and passed on to the ACC. The charter additionally highlights the importance of distinguishing between the ATS and FPS as recommending bodies when proposing plans to the ACC.

The scope of work section is intended to identify what is in the jurisdiction of the ATS and key documents that this subcommittee finds itself working on. Key checkpoints, milestones, and review measures will be formalized in this document. The document includes a list of ATS members to create open communication between newer members and those who have been a part of this subcommittee for longer period of time.

In reference to the scope of work section, Marc Johnson asked whether the ATS is restricted to discussing juvenile fish passage upstream. Lesko said that there is cross over with the FPS regarding the H&S Plan, thus discussion topics may overlap between the two subcommittees. The FPS deals with Sections 4 and 9.2 of the Lewis River Settlement Agreement, and the ATS deals with all other sections. Melton said that the fish passage discussions held in the ATS include the number and composition of hatchery fish passed upstream, which is cited in the transport plan. Lesko affirmed that this is an ATS topic as stated in the H&S annual report. Glaser said that topics such as facility construction and design reviews are solely FPS topics. Johnson said that the phrasing of "fish passage" could generate confusion and conflict between the ATS and FPS. Glaser suggested adding wording such as "except for topics where the Fish Passage Subgroup is primary" or "fish passage issues will be coordinated with the Fish Passage Subgroup," and Lesko agreed that language can be revised.

Glaser said it is important that the ATS has the ability to weigh in on discussions that overlap between the FPS and ATS. A role of the ATS is to inform transport plans prepared by the FPS. Glaser noted that, as the chair of the FPS, there was never any intent to convey exclusivity between the two subgroups. Rohrbach said a goal of the charter is to avoid inefficiency by having repetitive discussions in both the FPS and ATS. Glaser suggested that, where joint review is necessary, there could be joint meetings between the ATS and FPS. Rohrbach agreed that joint meetings, as well as joint recommendations, create an opportunity to streamline the ACC approval process. Lesko said that due to overlap in attendance and discussions, language should be added that describes the interactions of the ATS and FPS.

Melton expressed that she appreciates how the charter is framed. It can be difficult for agency representatives to be present at all meetings of the ATS, FPS, and ACC. Increased coordination between the FPS and ATS would bring more efficiency for NMFS.

Rohrbach asked the ATS to review this draft charter to provide comments and suggestions for discussion at the next meeting.

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

Sean Roon gave an update on an increase in mortality of juvenile Chinook Salmon at Speelyai Hatchery from the end of February through March. Test results showed that the fish were experiencing gut inflammation, and externally, they showed signs of neurological impairment. The fish were treated with medicated feed; however, that did not seem to help. A similar case at Cowlitz Hatchery occurred where the use of BioPro starter feed had resulted in fish presenting similar symptoms. Switching to a different feed at Speelyai Hatchery helped the affected individuals recover. There is no answer to what happened because analyses on the BioPro feed did not suggest rancidity. Presently, the juvenile Chinook Salmon are not showing signs of disease ,and loss has been low since the event in March. Roon will now recommend using BioVita feed instead of BioPro.

Roon said yearling steelhead at Merwin Hatchery are doing well and have no parasites. Yearling Coho Salmon at Lewis River Hatchery experienced a healthy release. Raceway 13-2 had external cold-water bacterial disease issues that were not treated. The rest of the cohort was healthy. Early-run and late-run juvenile Coho Salmon have been receiving weekly topical treatments of potassium permanganate to prevent cold-water bacterial issues. Cold-water bacterial issues occur due to the bottlenecking of flow and capacity prior to marking and moving fish into larger raceways.

F. Other Updates

Revised 2024 AOP and Data Responsibilities (Rohrbach)

Rohrbach has created a SharePoint site hosted by Anchor QEA. This site will serve as a common location where documents discussed and shared with the ATS will be filed. Members will be receiving invites to SharePoint from Anchor QEA. Rohrbach will send a link for members to access the SharePoint. Members will also receive an automated message once added.

Steelhead Abundance and Composition Monitoring (Lesko)

Lesko said that 40 late-winter adult steelhead have been captured and marked with passive integrated transponder tags through April 30 of this year. The average catch per unit effort for the period through April 30 is 0.16 per rod per hour and is dependent on seasonal flows, which is similar to what was anticipated. The hook-and-line sampling is going as expected with another month to go. Over 50 fish are estimated to be marked by the end of the sampling period (May 31). Bentley asked who is doing the analysis of the mark recapture work and whether there is an approximate timeline for when that analysis will be conducted. Lesko replied that Mount Hood Environmental will perform the analysis but had not yet identified a timeline.

III. ATS Administration (Rohrbach)

A. Review Next Meeting (May 23) Topics (Rohrbach)

The next meeting will be held on May 23, 2024, and will be virtual only.

IV. List of Attendees

Name	Affiliation
Larissa Rohrbach	Anchor QEA
Caitlin Burd	Anchor QEA
Erik Lesko	PacifiCorp
Chris Karchesky	PacifiCorp
Jeremiah Doyle	PacifiCorp
Kale Bentley	WDFW
Bryce Glaser	WDFW
Mike Chamberlain	WDFW
Anja Huff	WDFW
Kevin Young	WDFW
Sean Roon	WDFW
Emi Melton	NMFS
Steve Manlow	LCFRB
Jeff Garnett	USFWS
Amanda Farrar	Cowlitz PUD
Marc Johnson	NMFS