FINAL

Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Lewis River Aquatic Technical Subgroup (ATS) Date: April 7, 2025

From: Erik Lesko, ATS Facilitator, PacifiCorp

Cc: Larissa Rohrbach and Lincoln Baxter, ATS Administrative Support, Anchor QEA

Re: Final Minutes of the February 27, 2025, Lewis River ATS Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held virtually on February 27, 2025, on Microsoft Teams, from 9:30 a.m. to 1:00 p.m. Attendees are listed in Section VII of these meeting minutes.

Action Item Summary

I. Welcome (Rohrbach)

A. Review Agenda (Rohrbach; 10 min)

Larissa Rohrbach (Anchor QEA) reviewed the agenda and welcomed members of the Lewis River Bull Trout Recovery Team (LRBTRT) joining the call to participate in ongoing discussion of Bull Trout-Coho Salmon interactions.

II. Bull Trout-Coho Salmon Interactions (Lesko; 1 hour)

A. Feedback on Draft ATS/LRBTRT Task List

Erik Lesko (PacifiCorp) displayed the list of Science Actions to be considered by the ATS and LRBTRT that was sent via email on February 26, 2025. He explained that this is a list of actions listed in a draft decision document being developed by the Aquatic Coordinating Committee (ACC) and that it was being brought to this group for feedback. Lesko explained that the group should examine this list and determine whether any points are higher priority than others or whether any points are contingent on one another. He emphasized this is a working draft list and may change with revisions in the ACC.

Bryce Glaser (Washington Department of Fish and Wildlife [WDFW]) suggested that the order of actions should consider the order in which information is needed. Glaser also suggested examining whether any of the actions on the list could be grouped together or otherwise performed concurrently. He suggested that discussions on some topics on this list of actions could be bundled into one meeting or could be given to a subgroup to work on. He suggested that all points on this list should be addressed in the current year. The ACC will use the final version of this list to establish assignments for the ATS, including engaging members of the LRBTRT through participation through the ATS process.

Erik Lesko presented the following working draft list of actions, which were each discussed individually (actions as drafted in italics).

- *The ACC should determine whether it is prudent to modify the Yale Habitat Preparation Plan in accordance with Settlement Agreement Section 7.4 for 2025. It was said that the ACC would review the results from 2024 and engage with ATS as needed for technical recommendations.*
- *Review Bull Trout redd superimposition results from 2024 and prior years if available.*
- *Review existing methodology for redd superimposition monitoring.*
- *Review modeling analysis utilized by USFWS to estimate 2024 redd superimposition levels.*
- *Synthesize available literature to better understand ecological interactions between Bull Trout, Coho Salmon, and other salmonids, and identify both benefits and risks from the ecological literature.*
- *Determine whether redd superimposition is the appropriate metric for evaluation of Bull Trout/Coho interactions or if other metrics may be more appropriate.*
- *Develop a list of options and feasibility of evaluating Bull Trout population level impacts from redd superimposition including standardization of existing abundance data series.*
- *Develop a list of options for improved monitoring methods and analysis to estimate unbiased and precise estimates of Coho superimposition of Bull Trout redds, if this remains the appropriate metric.*
- *Develop a list of alternative superimposition monitoring sites. (Are Pine Cr. and Cougar Cr. the correct sites? How does P8 factor into the incidental take statement limit given that it is a tributary to Pine Cr.? Are there other tributaries that should be included?).*
- *Identify key gaps in understanding, including identifying benefits to Bull Trout from the Coho reintroduction program.*
- *Evaluate impacts of not providing upstream transport of all returning NOR Coho in 2024/25.*
- *Develop a summary report for assigned tasks to be provided to the ACC and the Services that includes information to support the Services' evaluation of Coho and Bull Trout interactions, including any recommendations identified by the ATS.*

Lesko said that data on redd superimposition is available but that he is not sure how far back in time it goes—only 1 year may be available—and that the methodology may have evolved a bit over time. He supported a review the data collection methodology and discussion of how to improve it.
Chris Karchesky (PacifiCorp) said that the observed number of Coho Salmon passed upstream annually has consistently been around 9,000 over the past several years.

Mike Hudson (U.S. Fish and Wildlife Service [USFWS]) clarified that the Bull Trout redd superimposition criteria is a parameter in the Incidental Take Statement (ITS) and the existing biological opinion (BiOp), so the existing superimposition threshold of 10% will remain in place until there is a reinitiation of consultation—there should be no discussion of whether it is appropriate. Jeffery Garnett (USFWS) voiced his agreement with the point made by Hudson and said that he sees the list as having short-term and long-term goals. He said that short-term goals should examine redd superimposition monitoring methodology, while long-term goals can involve discussing whether redd superimposition is the best metric to examine.

Glaser said that based on discussions from the latest ACC report on Bull Trout and information communicated at the last meeting, there would be no opportunities to introduce changes to methodology for this coming fall. He said that one of the goals of focusing discussions is to share information with everyone. He continued by saying he had not heard about any opportunities to reopen the ITS, so he can understand this discussion taking a lower priority, but it is still an important topic to evaluate at some point. Garnett agreed, and said that he did not intend to downplay the importance of the topic, but he did not want to give any impression that the ITS was going to change. He said that he is supportive of exploration of other metrics.

Kale Bentley (WDFW) said there is language in the ITS describing the ecological impacts of Coho Salmon on Bull Trout. He said that those metrics should continue to be evaluated, and posed the question of whether the 10% superimposition threshold is biologically meaningful. He wondered what the justification for the 10% threshold was and whether it was based on the best available information. Garnett said that while there is benefit in understanding impacts, we have to be mindful of the regulatory framework. Bentley noted that there are other listed species in the Lewis River basin, such as Coho Salmon and said it will be an issue if they are unable to transport natural run Coho Salmon.

Hudson said that they had identified the need to understand interactions between the listed anadromous species. He said that the group can try to understand where that information came from, but the ITS is a part of the 2006 BiOp, and this contains the redd superimposition threshold—this is a regulatory document that must be followed. He said that work on Bull Trout conservation has always been resource limited across their range and that more work has been done in the Lewis River basin than any other population in their range, save for the Upper Willamette. He said he does not want to spin wheels on priorities. Glaser said that he understands but that he thinks it is important to continue these discussions even if they are not acted upon right away.

Robert Al-Chokhachy (USFWS) said that examining redd superimposition is a direct measure of direct take. Garnett voiced his agreement and said he feels everyone is in concurrence on this issue.

Bentley said that Bull Trout and Coho Salmon evolved together in this habitat, and examining redd superimposition focuses on one just part of the interspecies interaction. He said that while Coho Salmon could inflict harm on Bull Trout from superimposition, interactions could be beneficial in other ways that we are not assessing. He said that we cannot ignore these other possible factors and settle with redd superimposition because it is the easiest parameter to collect data on.

Hudson agreed and said that USFWS and the LRBTRT are supportive of efforts to reintroduce anadromous species and support the renewed existence of Bull Trout, salmon, and steelhead, but the problem is that the Lewis River basin is now an altered system with Coho Salmon being reintroduced into a system with a dwindling Bull Trout population. He said that we have to respect the regulatory framework that is in place to protect the Bull Trout, or we may not be able to rebuild if we knock it back too far.

Glaser expressed that it is good to clarify everyone’s stance. He said that he is under the impression that there is currently no estimate of total Bull Trout population abundance and that studies only focus on spawner abundance. He wondered how spawner abundance correlates to the overall population viability.

Al-Chokhachy said that this could be a topic covered in a future meeting but that redd superimposition has been determined to be the best way to examine this metric, with many papers published on the subject. He said that estimates of other metrics have large confidence intervals that are not helpful. Glaser agreed but said this is why there are other points on the list of actions; a synthesis of information is key to gaining a complete understanding of these interactions.

Bentley asked about the relationship between redd counts and number of Coho Salmon transported, considering redd counts are the main area of data collection and numbers of Coho Salmon moved on an annual basis are stable. He asking whether they have ever gone over the 10% redd superimposition threshold before and what that subsequent impact on Bull Trout would be. Lesko responded by saying that this could be another topic for a future meeting, and he was not sure how many years redd superimposition had been monitored.

Glaser asked about the process for on modeling 2024 redd superimposition levels from USFWS. That work was done using a quick predictive model meant to fill in information gaps for the time period when they were not able to conduct surveys due to inclement weather conditions. USFWS needs to determine whether there are improvements needed.

Hudson said that model was not intended to be used going forward, but a task could be to review results, methods, and analysis. He suggested the team bring together information from previous years to have a robust discussion and come to an agreement.

Glaser said that there is concern that the actual collected data and the predicted impact differed and that they could have moved ahead with more Coho Salmon transport in 2024. He requested that the team gains a clear understanding of the methodology behind the Bull Trout redd data analysis.

Hudson said that Bull Trout biologists do not have the benefit of a robust population to use to build a model but that confidence in models will only improve over time. Al-Chokhachy said there is a need for information on weather conditions in the area and how to overcome that.

Lesko posed the question of whether this methodology review task should be considered long term. Glaser said that he thinks the information could be shared sooner. Garnett said that he sees the task as short term. He said it is part of the methods that the group wants to work toward for this year, and then a discussion about modeling total redd superimposition may extend beyond this year.

Lesko said that the assumption is that the ITS threshold will stay at 10% for this year and suggested discussion an approach to account for unexpected storm events that disrupt sampling.

Lesko moved the discussion onto the next bullet on the list, synthesizing information on ecological interactions to identify benefits and risks. He posed the question of whether this was short or long term. Bentley replied that there is the synthesis document (distributed following the January 23, 2025, meeting) and another document detailing a study plan to evaluate interactions. He had been meaning to reach out to Al-Chokhachy to determine that study plan's progress. Al-Chokhachy replied that the plan is not yet finished and that he had just received data back from the laboratory this past fall. He said that he could present this information, but it may take a while to be ready. Hudson asked about how much overlap there is in studies between Coho Salmon and Bull Trout. Al-Chokhachy replied that there is not much and that the most comprehensive study is in the Skagit basin. Hudson said that he wants to make sure the group is synthesizing relevant and current information; there is information that may not be relevant. Amelia Johnson (LCFRB) said that she wanted to ensure that the group considers information from outside the Lewis River basin and not only focus on this basin.

Lesko posed the topic of developing a list of alternate monitoring sites. Hudson said that he was confused on this point and that he is under the impression that the team is monitoring all existing Bull Trout spawning tributaries. Glaser said that the real issue here is that that BiOp is prescriptive to a couple of key index areas that the redd superimposition threshold applies to. This task brings into question whether that should be expanded to include more sites. Garnett said that he does not think the BiOp includes Rush Creek, which is one of the spawning tributaries being sampled.

Lesko moved the conversation on to identifying key gaps in understanding of the benefits to Bull Trout populations from Coho Salmon reintroduction and evaluating impacts of not providing upstream transport of all returning natural-origin return (NOR) Coho Salmon. He asked for clarification of this point. Glaser said that this is referencing a specific upstream passage metric; there is an equation for it, with one of the parameters being mortality. Natural-origin Coho Salmon that were not transported upstream were equated with mortalities because they were not able to spawn. Dave Price (NOAA Fisheries ACC Representative) is working on an approach to calculate this differently to avoid inflating the number of mortalities.

Karchesky said the metric is meant to examine how many fish died as a result of the transport process. They monitor this metric on an annual basis and relate it back to the settlement agreement to make adjustments or modifications to the facilities or operations to prevent fish injury and mortality. Karchesky provided the example of work previously done at the Swift floating surface collector for debris management to reduce mortality of juveniles.

Work is ongoing to consider different ways to calculate this adult transport mortality metric for understanding what number of fish would be lost from the upper basin as a result of stopping transport. Lesko moved onto the next topic of summary report development. This is a document that is meant to report on recommendations to be compiled by ATS, with LRBTRT participation, and then is provided to the ACC and the services, tentatively this August. Larissa Rohrbach said that this timing would support decisions for this year’s transport season. Hudson asked whether there is a plan on how that document will be developed and said that this could vary in complexity depending on their approach. Lesko replied that there has not been any discussion on how to format this document and that complexity level would be a good topic to discuss. Larissa Rohrbach said that this was a topic of discussion at the last meeting but the group did not come to a conclusion. She suggested that the document be kept terse and direct. She asked the group whether they would support creating a compendium of notes that includes an executive summary of each point made on the document. Glaser agreed that he thinks the group should avoid developing a document that is so cumbersome that it prevents itself from getting completed and agreed with the suggestion posed by Rohrbach. No others objected to Rohrbach’s suggested approach.

III. Updates

A. Hatchery Practices and Pathology (Hatchery and Fish Health Staff; 15 min)

Sean Roon offered updates to hatchery practices and fish pathology activities at hatcheries within the basin. He said that they experienced some early rearing issues with Coho Salmon stocks at Lewis Hatchery. He said they are scheduled to release kokanee salmon next week and that they will be undergoing prerelease sampling tomorrow. Roon spoke about some raceways experiencing loss due to an open diagnosis. He said this diagnosis was due to some neurological symptoms, but no histological anomalies were observed except for low adipose reserves. He went on to say that the stock had been treated for *Acostia* and the treatment seems to have resolved the issue for the time being. He said that all other stocks appear healthy.

Michael Chamberlain (WDFW) said that his early Coho Salmon stocks are now out of incubation, with one tank of late Coho Salmon ponded and four more to go, all looking good so far. He went on to say that things are business as usual around his facility, with work being done on grounds and general maintenance. US Crane had been on site recently to provide maintenance on a raceway crowder that was having a problem.

Kevin Young (WDFW) gave an update on Speelyai hatchery, stating that they too are planning to release kokanee salmon next week, and their spring Chinook Salmon have been ponded. Staff at Merwin Hatchery have begun broodstock collection for their wild winter steelhead program. He said that summer steelhead are scheduled to be transferred to net pens next week and they are gearing up for the rest of the releases in mid-April. Young also announced to the group that Aaron Roberts is retiring, with his last working day being the day after this meeting.

B. Winter Steelhead Mark-Recapture

Chris Karchesky said that there is not much to report on this topic. The sampling group has been mobilized three times, capturing a number of residuals. He said that the team has yet to catch any actual sea-run winter steelhead as part of the program, but they are conducting another sampling event soon. He said that fish are arriving in larger numbers at the Merwin Trap, so hook-and-line sampling will begin to pick up those fish in the next couple of trips.

C. Winter Steelhead Broodstock Collection Status

Larissa Rohrbach opened this topic by stating that collection curves for winter steelhead broodstock had been provided for the Annual Operating Plan, which was the result of some adjustments to the curve from last year’s preliminary year of collection under the winter steelhead transition program.

Kale Bentley gave a presentation entitled *Overview of Hatchery Broodstock Collection for NF Lewis Winter Steelhead, 2025* (slides inserted below) and started by providing a broad overview of the topic. He explained there are two hatchery programs in the groups discussion, and he provided a table that summarizes these programs. The first program is the stepping stone, which was implemented last year. The second program is the integrated program and requires fewer adult pairs for spawning.

Overview of NF Lewis winter steelhead hatchery programs

Attribute	Program #1	Program #2
Objective	Harvest augmentation	Conservation/ reintroduction
Program type	Segregated*	Integrated
Run-timing	TBD (like BWTs?)	Broad (Jan-May)
Origin of broodstock	NF Lewis	NF Lewis
Smolt Plant Size (goal)	75,000	50,000
Adults to Spawn	30-35 pair	25-30 pair
Marking	100% AD clipped	100% AD intact + BWT
Referred to as	Stepping-stone	integrated; BWTs; ~~late~~

He said that the stepping stone program was newly introduced and from initial discussions on how many spawning pairs were needed to be collected; WDFW settled on 52 pairs in 2024. WDFW wants to have this collection completed in two to four sampling events by early May. Bentley presented a summary of data based on this collection approach, stating that 52 spawning pairs spread evenly over 4 weeks ends up being 26 fish total per week. Bentley mentioned that in 2024, a discussion was had on how to handle fish that were not spawned, and it was decided that they would be held and observed to determine whether they eventually become ripe. All but one fish was ripe by May 7. Bently said that questions for 2025 include how many spawners are needed to collect for this year and what the relationship between collection date and spawn date is.

Stepping-stone program

Question from a year ago:
How many pairs of (BWT) spawners do we want/need to collect and when (i.e., how many per week, start/end dates) for stepping-stone program in 2024

Answer (Strategy for 2024):
Collect 52 pairs to ensure spawning is completed in 2-4 events by early May

2024 Observed

Collection Date (Monday)	Collection Goal	Number Collected	Number Eventually Spawned	Number Not Spawned	% Spawned
4/1/2024	26	26	22	4	85%
4/8/2024	26	26	18	8	69%
4/15/2024	26	26	20	6	77%
4/22/2024	26	26	13	13	50%
TOTAL	104	104	73	31	70%

- Ultimately, 36 pairs (73 adults) were spawned across three events (4/16, 4/23, 5/1)
- The 31 adults that weren't spawned were held until May 7th to evaluate their condition and if they could have successfully spawned by the last target spawn date (if a 4th event was needed); all but one fish was ripe by May 7th

Updated question:
How many pairs of (BWT) spawners do we want/need to collect for stepping-stone program in 2025

Repeat slide from last year w/ updates

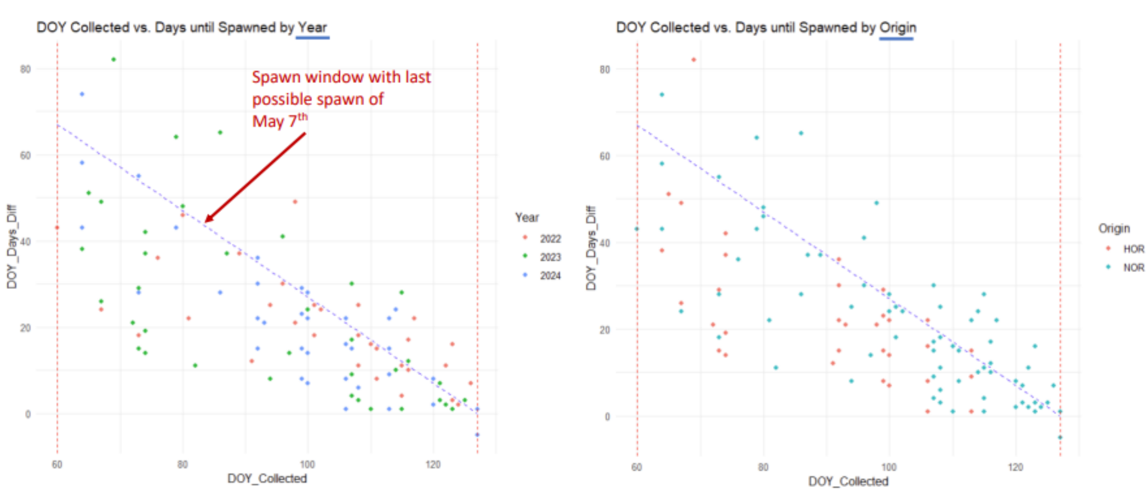
Planning a brood collection schedule

- **Ultimate Question:** How many pairs of (BWT) spawners do we want/need to collect and when (i.e., how many per week, start/end dates) to meet spawn target for stepping-stone program in ~~2024~~ 2025?
- **Related Question**: What's the relationship between collection date and spawn date for NF Lewis winter steelhead?
- **Data to Answer Question:** Broodstock collections for Lewis integrated winter steelhead program from the last ~~two~~ three return/brood years (2021-22, 2022-23, & 2023-24) & Stepping-stone program (2023-24)
- **Objective:** Evaluate/predict the proportion of adults that will spawn by a specific (cut-off) date given their collection week, origin, & sex so that we can determine the number of adults we'd need to collect to meet total spawners within target collection/spawn windows.

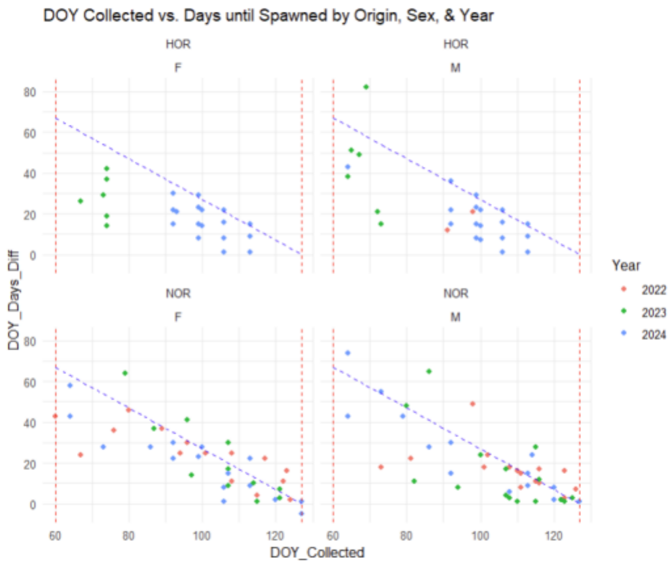
Karchesky said he was curious about the truncated collection curve for the stepping stone program and whether truncating the curve would impact the transport curve. Bentley responded by saying this is a great question, and that it should not be too difficult to develop a figure that answers the question. Bentley said he can qualitatively answer that they would not be collecting the early-run or late-run fish, but instead fish more concentrated at the peak of the run. He understood Karchesky's concern about this reduction of fish around the peak, and he said he could easily contextualize that relative number.

Bentley then showed relationships between collection date vs. spawn date, updated with data from 2024.

Observed Collection Date (DOY) vs. Spawned



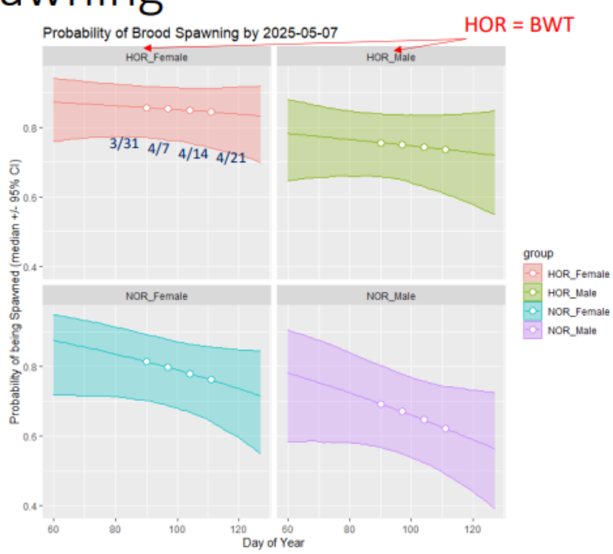
Observed Collection Date (DOY) vs. Spawned



Bentley used this information to develop a logistic regression model to predict spawn success by target date. High-level takeaways from this analysis were that fish collected earlier in the season had a higher probability of spawning, and this observation is more pronounced in NOR fish.

Predict probability of spawning

- Bayesian Logistic Regression model to predict spawn success (yes/no) by target date (May 7th) as a function of collection date (day of year), origin (NOR, BWT), sex (male, female), and interaction of origin & sex
- Using model w/ DOY, Origin, Sex, DOY:Origin, we see spawn success for:
  - Fish collected earlier is higher but more so for NORs vs. BWTs
  - BWTs is a little higher than NORs
  - Females is greater than males
  - 50% probability that ~85% of BWT females & ~75% of BWT males spawn by May 7th
  - 95% probability that ~75-90% of BWT females & ~65-85% of BWT males spawn by May 7th



Proposed brood collection schedule, 2025

Week Starting	Week Ending	Brood Adults	Males	Females	Percent Brood
3/31/2025	4/6/2025	13	13	13	15.38%
4/7/2025	4/13/2025	22	11	11	25.60%
4/14/2025	4/20/2025	29	10	10	35.00%
4/21/2025	4/27/2025	20	8	8	24.02%
Total		**84**	**42**	**42**	**100.0%**

Overall, 10 fewer pairs in 2025 vs. 2024

Proposed brood collection schedule, 2025

Week Starting	Week Ending	Brood Adults	Males	Females	Percent Brood	Males	Females
3/31/2025	4/6/2025	13	13	13	15.38%	9	10
4/7/2025	4/13/2025	22	11	11	25.60%	7	8
4/14/2025	4/20/2025	29	10	10	35.00%	6	8
4/21/2025	4/27/2025	20	8	8	24.02%	5	6
Total		**84**	**42**	**42**	**100.0%**	**27**	**32**

95% probability that at least this many collected adults spawn

Overall, 10 fewer pairs in 2025 vs. 2024

Reminder: 36 pairs spawned in 2024

Thus, 42 pairs would not given us a 95% chance of meeting brood BUT high threshold and could collect a few extra (ripe) fish towards the end of April if needed

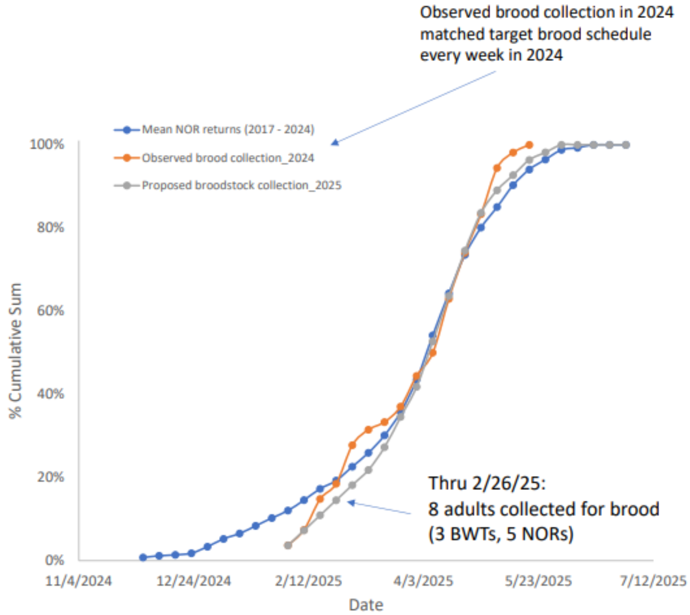
The discussion moved to the integrated program. Bentley said that there are no proposed changes from last year. They proposed collecting 30 males and 25 females. He discussed some slight tweaks made to the weekly collection timing based on data about NORs' timing to Merwin.

The presentation moved on to discuss in-season tracking of NOR and blank wire tag hatchery-origin returns (HORs). Karchesky said that he thinks it looks good and that he appreciates the effort.

Rohrbach reminded the group that there will be time in the upcoming ATS meetings for simple updates on any in-season adjustments to broodstock management after the first fish come in.

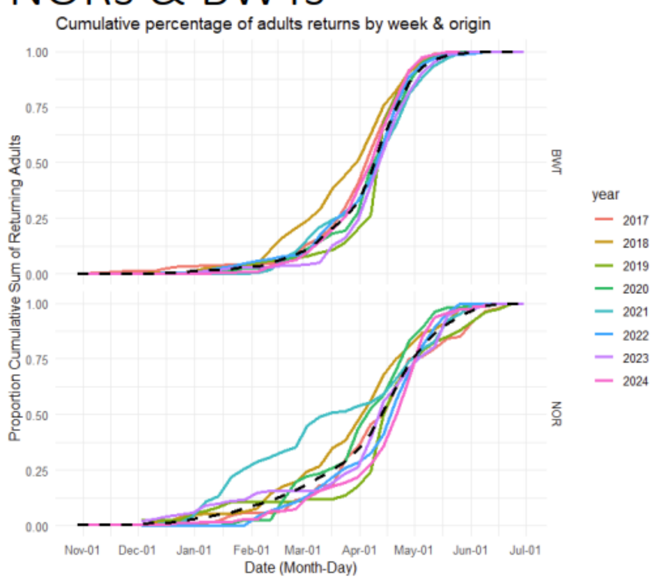
Updates for 2025

- Total broodstock collection goal (no change)
  - 30 males
  - 25 females
- Slightly tweaked weekly collection timing based on updated NOR return timing to Merwin FCF from 2017 – 2024

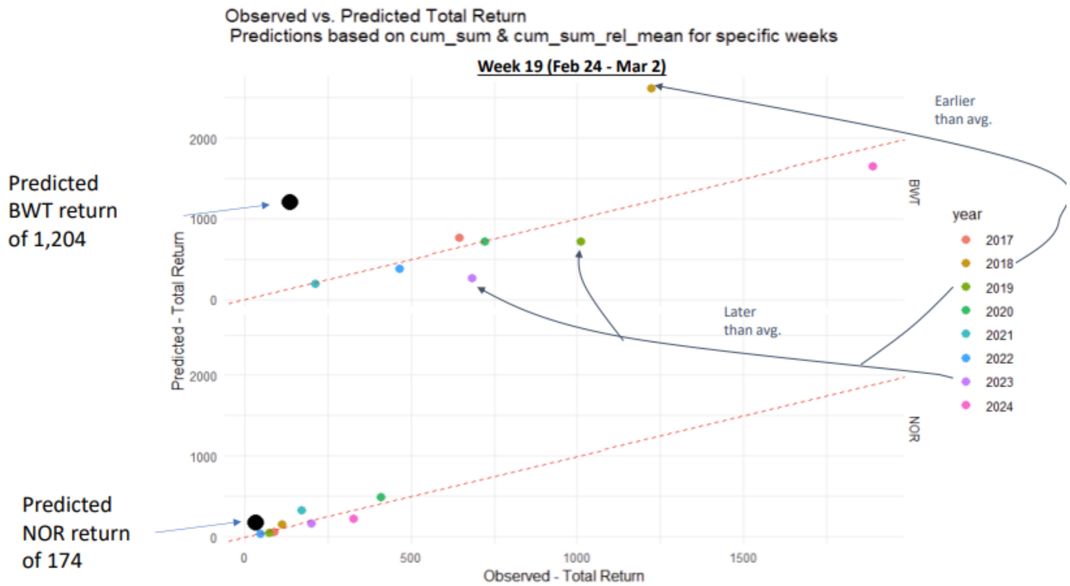


In-season tracking of NORs & BWTs

- In season update (as of Feb. 26th)
  - 134 BWTs & 32 NORs at Merwin FCF
- On average, by the end of this week (Mar 2nd), the total cum. return is at:
  - ~11% BWTs returns
  - ~18% NORs returns
- By roughly this time last year
  - 182 BWTs & 40 NORs
  - End of year – 1,892 BWTs & 324 NORs
    - Highest BWTs in 13 years of (2nd: ~1.3K)
    - 2nd highest NOR return (1st: 410 in 2020)

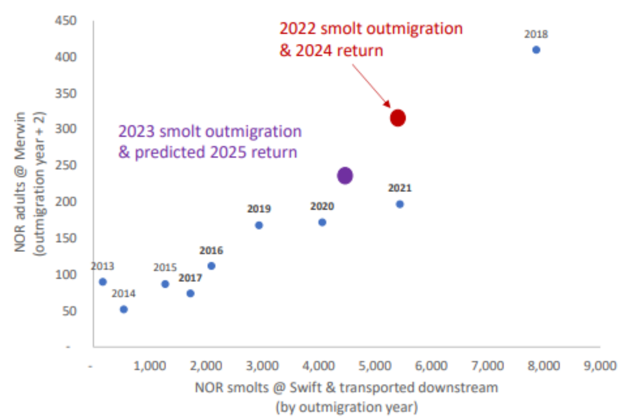


Predicting total returns based on **average** relative timing



Upper Basin outmigrants & Natural-origin returns

- “Strong” linear relationship between the number of natural-origin winter steelhead juvenile outmigrants collected & transport downstream from above Swift Reservoir and the number of returning natural-origin adults two-year later
- Assuming similar SARs & age-structure as in recent years, the 2023 smolt outmigration of ~4,400 should result in ~200-250 returning NOR adults in the spring of 2024 which would be the one of highest adult return in the past 12 years



Broodstock collection

- Broodstock Source
  - Integrated conservation program: NORs & returning hatchery adults (F1s) from integrated program (see prioritization)
  - Stepping-stone harvest program: F1s from integrated program
- Use & prioritization of returning adults (re-introduction vs. broodstock)
  - In 2022, the ATS developed criteria for the integrated program during the Recolonization Phase
    1. **Demographic replacement** (after harvest) of NORs used for brood for upper basin integrated programs
       - Ensures hatchery has "no net harm" (not operating as a demographic sink that results in fewer fish than if no hatchery)
       - Currently, two hatchery adults (F1s) must be passed upstream for 1 NOR to be collected (assumes 50% RRS for hatchery fish)
    2. **Mining rate** cap on NORS (below cap of 30%; fixed rate for ease of broodstock management)
       - Prioritizes NORs spawning naturally; avoids converting all NORs to HORs and delaying recovery
    3. **Meet (integrated) hatchery brood** take goals for upper basin conservation programs
       - Backfill with hatchery adults (F1s) when #1 or #2 aren't met or to achieve weekly collection targets
    4. **Effective Number of Spawners/X% of full seeding** achieved in upper basin populations (agree on what X is)
       - Demographic boost priorization over minimizing (all) genetic risks associated with hatcheries
    5. **pNOB/pHOS/PNI** targets (TBD)
  - Updates for 2023?
    - #1-3 – no change (covers upstream passage and broodstock collection of NORs)
    - #4 – Broodstock (F1s) for stepping stone hatchery program
    - #5 – Upstream passage of BWTs for re-introduction
    - Other considerations: see next slide

Evaluation #1a – Number of adults in recent years

- Hatchery Origin
  - Avg. ~600 BWTs over the past 5 years (range 200 – 1,000)
    - Have seen a low, med-low, and med/avg-ish adult return the past three years, respectively.
  - If the updated winter steelhead programs would have been implemented over the past five years (and thus ~90-115 BWT adults would have been collected each year*) then:
    - On average, there will be ~500 adults available for upstream transport (range: ~100 – 900)
    - Overall, ~50 – 90% of BWTs would have been transported upstream
    - See next two slides for more detailed run reconstruction
- Natural Origin
  - Avg. ~190 BWTs over the past 5 years (range 70 – 400)
    - Largest adult return (410) in 2020 came 2-years after largest smolt outmigration from the upper basin
    - Similar total adult returns over the past three years
  - Collection prioritization/strategy ensures mining & demographic replacement goals are met (see slide #6)

Table 1. Total number of adult winter steelhead at Merwin FCF by return/brood year & origin.

BY	NOR	BWTs
2012	9	185
2013	23	724
2014	9	1,054
2015	90	1,273
2016	52	834
2017	87	645
2018	112	1,223
2019	**74**	**1,010**
2020	**410**	**726**
2021	**168**	**210**
2022	**172**	**464**
2023	**197**	**683**

* Avg. ~14 BWTs BWTs used for integrated program in 2022 & 2023; 80 – 100 adults needed for stepping-stone programs)

D. Spring Chinook Broodstock Collection

Kevin Young led this discussion and reminded the ATS that February was the time identified to update the collection curve for spring Chinook Salmon. He presented slides entitled *Lewis River Spring Chinook HOR Broodstock* (inserted below), reminding the ATS of the Prioritized Goals for Management of Hatchery-Origin Spring Chinook.

Overview of HOR Spring Chinook Broodstock

- AOP guidance
- In Hatchery metrics to establish annual broodstock needs
- Broodstock collection process
- In-hatchery survival data
- 2025 options

Prioritized Goals for Management of Hatchery Origin Spring Chinook

- Purpose of the spring Chinook Hatchery program is for harvest and upstream adult supplementation. Below are prioritized goals that are listed in the Annual Operating Plan in Section B.

1. Lewis River Hatchery broodstock
2. Upstream transport to support target of 3000 adults
3. A lower Lewis River fishery to all for #1 and #2 to be achieved
4. Out-of-basin programs (Southern Resident Killer Whale Programs)

Broodstock Selection (General guidance from AOP)

- Approximately 1300 adults collected for brood (egg take goal of 1,755,000)
- If weekly goals are NOT met, then all fish will be collected on subsequent weeks allocated for brood until the quota meets the broodstock collection curve
- All HOR fish collected prior to May 24th designated as adult supplementation will be temporarily held at Lewis River Hatchery until approximately half-way (50%) point in the run. The ATS will determine whether to transport all or a portion of the spring Chinook being held based on the current adult returns that are monitored weekly.
- All Coded Wire Tag fish will be allocated to hatchery broodstock

Discussion moved to the topic of hatchery-origin spring Chinook Salmon broodstock survival and fecundity. Young said that in-hatchery mortality in this group for this past season was significant and unanticipated. Estimates of in-hatchery mortality and fecundity are used to project the number of adults to collect and typically rely on a 5-year average from past years, but mortality rates nearly doubled what was anticipated in 2024. Young said that a main contributor to high mortality rates was *Ceratomyxa shasta (C. shasta)* which is a parasitic infection for which there is no treatment and that cannot be inoculated for. He said that other fish were compromised with bacterial kidney disease and infectious haematopoietic necrosis. He continued by stating that no inoculations occurred in 2024; however, there was no observed difference in mortality between uninjected groups and injected groups. He said that fecundity issues included 2023 being the lowest on record and 2024 was lower still, which is a big deal.

Erik Lesko asked about *C. shasta* and whether that is a new development for the basin. Roon replied by saying that it is not new and that it is a perpetual issue to varying degrees.

Hatchery Metrics to Establishing Annual Broodstock Collection Goals

- Annual review of in-hatchery survival on adults
  - ✓ Adult mortality
  - ✓ Female fecundity

- Annual review of in-hatchery survival on eggs and juveniles
  - ✓ ELISA culling – BKD levels (BL, L, M, H) when possible, culling of M and H occasionally Low's
  - ✓ Green egg to eyed egg and eyed egg to fry
  - ✓ Fry stage to smolt (release)

- Monitor weekly adult returns for in-season tracking and post season
  - ✓ Monitor in-season return timing based on forecast and actual
  - ✓ Provides ability to look at average weekly returns across multiple years
  - ✓ Creates an average percent for weekly collection based off run history

Broodstock Collection

- Target weekly collection numbers established in the annual collection curve.

- Prioritize CWT adults for brood.

- Adaptive management to collect a week ahead if needed
  - ✓ Once weekly goals are met using all adults available. Continue to collect CWT adults for Brood. These numbers would be taken off the following weeks collection.
  - ✓ AD only adults not needed for brood prior to May 24th will be held at Lewis River Hatchery.
  - ✓ TBD if the run is showing projections lower than anticipated as we are monitoring weekly. If so, we would implement to collect one week ahead using all adults (AD only and CWT's) until these goals are met.

Hatchery Origin Spring Chinook Broodstock Survival and Fecundity

- Adult broodstock mortality at Speelyai Hatchery
  - ✓ 2018 – 2022 average mortality was 7.3% (Males 7.0%, Females 7.7%)
  - ✓ 2023 average mortality was 8.6% (Males 7.1%, Females 10.1%)
  - ✓ 2024 average mortality was 22.2% (Males 20.9%, Females 23.4%)
    - ▪ 44% of mortality was prior to spawning & handling on August 27th (132/296)
    - ▪ 55% of mortality during spawning & handling increased (164/296)

- Female fecundity
  - ✓ 2018 – 2022 average fecundity was 3,235
  - ✓ 2023 average fecundity was 2,911 (324 eggs/female difference from 5yr average)
  - ✓ 2024 average fecundity was 2,810 (101 eggs/female difference from 2023 average)

FINAL

Issues / results in 2023

- 2023 – Adults collected for brood 1,120
  - ✓ Egg take was 1,505,000 and short of egg take goal of 1,755,000
  - ✓ Using 5yr average fecundity of 3,235 (short 324 eggs/female)
  - ✓ Mortality rates were consistent with 5yr average in males at 7.1%
  - ✓ Mortality rates on females was slightly higher than 5yr average at 10.1%.
  - ✓ Released 1,246,089 of program goal 1,350,000.

Issues / results in 2024

- 2024 – adults collected for brood 1,320
  - ✓ Egg take was 1,495,000 and short of egg take goal of 1,755,000
  - ✓ Using 2023 fecundity of 2,911 (short 101 eggs/female)
  - ✓ High mortality rates in both male and female determined that egg goal would not be met
    - The main contributor to this increase in mortality was Ceratomyxa Shasta which has no treatment. Also, some fish were also compromised with BKD and IHN.
    - No inoculations of LA-200 occurred – No signs of Furunculosis recent years
    - Prior years we have had un-injected groups and have not seen a difference in mortality versus the groups that have been injected.
  - ✓ Releases will start June 2025.

The conversation moved on to brood stock collection options for 2025. The 2024 data on its own would call for 1,537 adults to be collected in 2025. Using a 2-year average would call for around 1,400 adults. Using a 5-year average, as has been done in the past, would call for around 1,200 adults, which would be a major risk of not meeting the egg take goal for the third year in a row. For 2025, inoculations will only occur in one raceway for approximately 450 adults to continue to test for any benefit of inoculation.

2025 spring Chinook Collection Curve

Week Starting Monday	Week Ending Sunday	Brood Adults	Males	Females	Percent Brood	< 24" or 59cm Total Length Jacks
** 1-Mar	31-Mar	*Prior to Curve*				
31-Mar	6-Apr	13	6	7	0.85%	1
7-Apr	13-Apr	17	8	9	1.11%	1
14-Apr	20-Apr	40	19	21	2.60%	2
21-Apr	27-Apr	123	58	65	8.00%	5
28-Apr	4-May	176	83	93	11.45%	7
5-May	11-May	212	100	112	13.79%	8
12-May	18-May	219	103	116	14.25%	9
19-May	25-May	267	126	141	17.37%	10
26-May	1-Jun	180	85	95	11.71%	7
2-Jun	8-Jun	100	47	53	6.51%	4
9-Jun	15-Jun	56	26	30	3.64%	2
16-Jun	22-Jun	42	20	22	2.73%	2
23-Jun	29-Jun	32	15	17	2.08%	1
30-Jun	6-Jul	17	8	9	1.11%	1
7-Jul	13-Jul	15	7	8	0.98%	1
14-Jul	20-Jul	19	9	10	1.24%	1
21-Jul	27-Jul	9	4	5	0.59%	
Total		**1537**	**724**	**813**	**100.0%**	**62**

Adult Collection Options for 2025

- Use 2024 data only adult collection would be 1,537
  - ✓ Average mortality rate 22.2%
  - ✓ Fecundity of 2,810

- Use 2yr average (2023-2024) adult collection would be 1,389
  - ✓ 2yr Average mortality rate 15.4%
  - ✓ Fecundity of 2,861
  - ✓ *2024 Fecundity w/2yr avg mortality – 1,414 adults*

- Use 5yr average (2020-2024) adult collection would be 1,209
  - ✓ Average mortality rate 9.2%
  - ✓ Fecundity of 3,063
  - ✓ *2024 fecundity w/5yr avg mortality – 1,317 adults*

- Inoculations in 2025 will only occur in one raceway approximately 450 adults.

Karchesky asked whether the other half of the broodstock collected could be allocated to upstream transport. Would this change be carving off a few additional fish from the total run? To have justification for making an adjustment, we want to also be able to make targets for upstream transport. Young responded yes, a decision can be made at the mid-point in the run (approximately May 24) whether to adjust the allocation.

Bentley asked about the size threshold for inclusion of jacks and whether there is any summary of sizes of fish passed upstream that were just slightly below the size threshold. Karchesky said they follow the size threshold of less than 24 inches to identify a Chinook Salmon as a jack, but they do not collect the size data on all the fish that were below that threshold.

IV. Administrative Items

E. ATS Priorities – Status and Next Steps (Lesko; 15 min)

Larissa Rohrbach reviewed the ATS priorities list (latest version attached).

Erik Lesko said that the Coho Salmon transport discussion should take highest priority for the next meeting.

Lesko added an update that staff attempted to install screw traps recently but were unsuccessful due to heightened flows. Another attempt is set to be made next week. Chris Karchesky replied by saying they plan to get the Eagle Cliff trap installed on March 13.

The next meeting will be held on March 27, 2025.

V. List of Attendees

Name	Affiliation
Lincoln Baxter	Anchor QEA
Larissa Rohrbach	Anchor QEA
Amelia Johnson	LCFRB
Amanda Farrar	Cowlitz PUD
Mark Ferraiolo	PacifiCorp
Chris Karchesky	PacifiCorp
Erik Lesko	PacifiCorp
Jonathan Stumpf	Trout Unlimited
Robert Al-Chokhachy	USFWS
Jeff Garnett	USFWS
Mike Hudson	USFWS
Kale Bentley	WDFW
Mike Chamberlain	WDFW
Bryce Glaser	WDFW
Anja Huff	WDFW
Christopher Kopack	WDFW
Kevin Young	WDFW
Gary Marston	USFWS