Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Lewis River Aquatic Technical Subgroup Date: December 5, 2023

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

Re: Final Minutes of the October 26, 2023, Lewis River Aquatic Technical Subgroup Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held virtually on October 26, 2023, from 9:00 a.m. to 12:00 p.m. Attendees are listed in Section IV of these meeting minutes.

Action Item Summary

- Erik Lesko will share a draft sampling framework for adult steelhead capture and tagging (related to proportion of hatchery-origin spawners [pHOS]) for review by the ATS.
- Kale Bentley will distribute the summary of comments and responses around the steelhead pHOS methodology memorandum since August. (These materials were distributed by Larissa Rohrbach on Friday October 28).
- Larissa Rohrbach will continue work to identify transition implementation plan details for documenting as a strategy and modifying the Annual Operating Plan (AOP).
- Washington Department of Fish and Wildlife [WDFW] and PacifiCorp staff will meet to discuss steelhead broodstock collection and transport targets and provide an update for the group in the next meeting.
- Erik Lesko revised the adult sampling plan to reflect sample rates recommended in the genetic monitoring plan for establishing the genetic baselines for all species.
- Chris Karchesky will obtain updates from the trapping staff and hatchery staff to accurately document sampling methods.
- Larissa Rohrbach or Erik Lesko will generate meeting invites for December/January and recurring invites for next year.
- Aaron Roberts will ask Mike Chamberlain about potential reasons for daily dissolved oxygen deficits in Lewis River Hatchery ponds.

Agreements or Recommendations

- The ATS agreed to meet in person for the regular November meeting.
- The ATS agreed tentatively to shift the December 28 meeting to January 4.

Review Items

- None.

Finalized Documents

- None.

I. Welcome (Rohrbach/Lesko)

A. Announcements and Agenda Review

- Larissa Rohrbach reviewed the agenda, and no changes were requested.

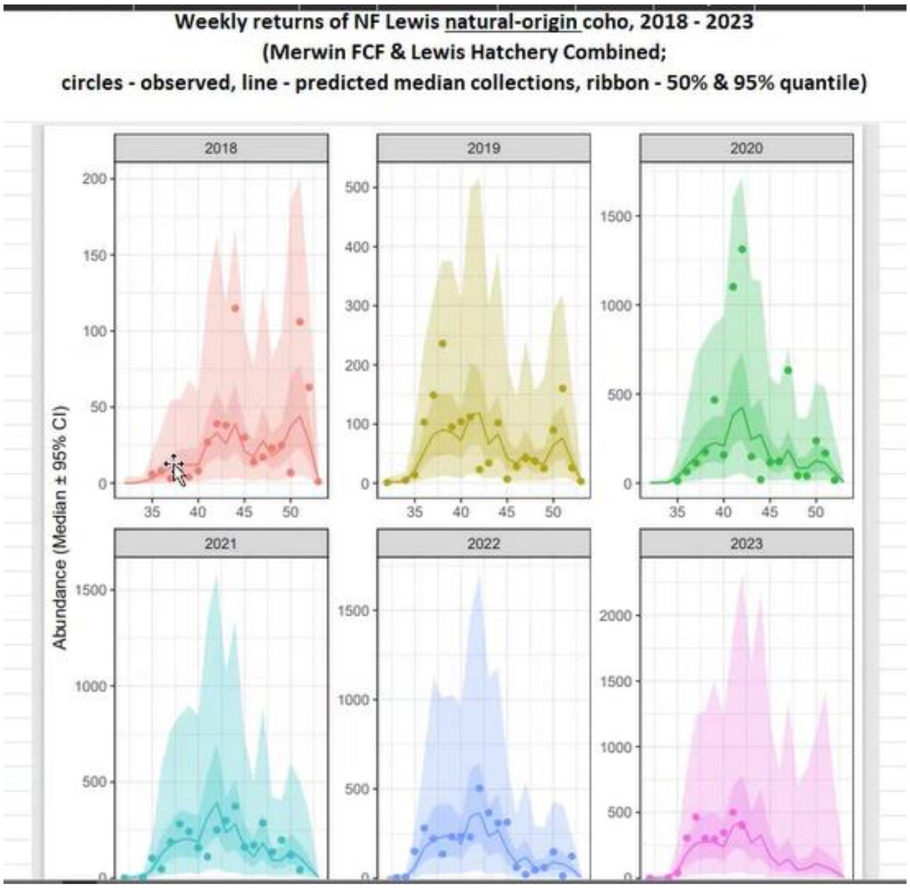
II. ATS Meeting Topics

A. Follow-up Discussion: Coho Upstream Transport Targets for 2023

Higher-than-average numbers of Coho Salmon are starting to return to the Lower Columbia tributaries and Lewis River Basin. During the September 28 presentation of the U.S. Geological Survey's Integrated Population Model (IPM) of Lewis River salmon and steelhead, the ATS discussed the benefit of moving larger numbers of Coho Salmon than current targets to the upper basin during the recolonization period to test the upper bounds of the habitat capacity. The Aquatic Coordination Committee (ACC) has supported a recommendation to include an additional 2,000 Coho Salmon for transport into Yale Reservoir, for a total of 11,500 adults in 2023.

Bryce Glaser said some lessons were learned in how best to communicate recommendations like this to the ACC. He recommended in the future preparing a more formal decision document to capture the logic and rationale to best present that to the ACC. Jeff Garnett worked to gather details regarding compatibility with Bull Trout programs on a short turnaround. Garnett said he appreciated the time allowed for this discussion again today.

Agreement was sought from the ATS to support the decision, and discussion was opened up about uncertainty around run size for the remainder of the season. Kale Bentley and his staff have been working with Kevin Young on an approach to determine how to implement collection of additional adults evenly over the reminder of the collection curve. WDFW have various models to retrospectively predict run size and forecast into the future. One is at census weirs to predict the remainder of the run for hatchery-origin return (HOR) and natural-origin return (NOR) Coho Salmon separately. Assuming a total target of 11,500 fish, the model was used to predict the remaining number of NOR to collect each week for broodstock. The remainder of NOR and HOR not needed for broodstock was shown as a transport curve. Bentley showed the modeled abundance for the past 5 years and 2023. Dots are the actual observations; lines are model-predicted returns.



Garnett asked whether WDFW will be able to adaptively manage and adjust those numbers week to week using the model, and Bentley agreed that the schedule can be adjusted if more or fewer fish return than predicted by the model. Garnett thanked Bentley for the effort.

Chris Karchesky and Bentley followed up after the meeting to verify that numbers of fish transported were accurate to date for 2023, including fish transported to meet the obligations of the Habitat Preparation Plan.

Karchesky said the reservoir levels are down 50 feet this year, lower than usual. Based on past observations, fish that arrive late in the run and are transported in December are in a more deteriorated condition, tend not to use tributaries, and tend to fall back to the area at the margins of the reservoir. Karchesky suggested frontloading the broodstock collection curve in November to take advantage of better-quality-habitat and better-quality fish, though not necessarily to end transport by the end of November. In the last 5 years, typically 55% to 65% of the run is complete by this time.

All NORs would be moved upstream, and additional bright HOR could be transported in November. Glaser said the area of the reservoir that is exposed does have some spawning habitat that fish are using but asked if there is a benefit of fish spawning in those exposed reaches, whether any productivity come from those areas. He suggested that it may not be a bad thing for fish to use that habitat—that may not be known yet. He said that a few years ago there was concern about fish not distributing into tributaries, and other release locations were identified. Karchesky agreed, mainly for winter steelhead; however, this was discontinued because of difficulty accessing the upper basin in winter because of snow.

Glaser said he is not opposed to frontloading the upstream transport curve, but this could create a challenge if NORs arrive in large numbers at the end of the season, causing the program to exceed 11,500 fish. However this is probably a small risk. Karchesky said there are typically not many NORs in late December.

Karchesky noted that the proportion of returns arriving after December 1 is one of the covariates in the IPM for each brood year because it may be a significant driver for spawners in Yale. There is concern that fry from later spawners will not emerge in time to escape inundation with reservoir level increases in February; late-spawners may have lower productivity. Bentley said this describes an ecological trap, and asked how common the low reservoir levels are, in order to inform future years of planning. Karchesky said following the new Monitoring and Evaluation Plan, the program is in year 2 of drawdown surveys. Coho Salmon spawner surveys are difficult due to high flows and high-water conditions. In years when those data exist, fish are seen at the Eagle Cliff area, and redd superimposition occurs; they spawn in the area where they were released. There has been some truncation of the spawning for the earliest and the latest fish because of low water in August, then dramatic water events into December, then filling in late-February through March, and potentially all redds in the drawdown zone become inundated. There is a need to start examining the effect of run timing on NOR production from the upper basin, less so for the HOR fish. Glaser said he is less concerned with inundation with reservoir water and more concern with sedimentation.

Glaser said the broodstock collection and transport curves may need to be adjusted in the AOP. Would it be possible to just change the end date for transport of HOR fish? Bentley said the model tends to follow the weekly transport curve proportions given in the AOP, which sums to transporting roughly 15% of the fish in December. Glaser recommended changing the end date to December 7, and Bentley agreed. Bentley noted that as part of the updated implementation of the Coho Salmon transition plan, the ATS should simultaneously update the transport plans for NOR and HOR, informed by most recent run-timing statistics for NORs. Glaser agreed that the run timing is shifting, and he agreed to using the NOR run timing for transport.

Garnett said he supports the ATS's decision on how to distribute the extra 2,000 fish. He said he understands concerns about the late fish being less productive; however, the understanding is that this would help build out the IPM model. Karchesky said there will still be some representation of fish moved up after December as inputs for the model; in 2017-2016, almost 50% or more were taken upstream in some of the first years of transport. Low outmigration numbers were observed from those brood years. Karchesky said PacifiCorp will do their best to complete monitoring surveys through December and keep lines of communication open with U.S. Fish and Wildlife Service (USFWS).

Glaser asked how to communicate this decision with ACC. There was good support in general, and they provided Garnet the time he requested to consider alternatives as a result of the ACC's decision. Lesko agreed to distribute an email with this information brought into a decision document to show what was done will be documented. Garnett supported that plan and suggested identifying in the email a specific cutoff date for any responses or objections. (*Lesko sent an email to the ACC following the meeting.*)

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

Erik Lesko provided an update on a framework for monitoring adult steelhead abundance and pHOS as a metric of population composition. Lesko said he has had discussions with PacifiCorp staff and with Dalton Hance (USGS; Lewis Steelhead pHOS model developer) on comparing hook-and-line sampling and tangle netting as the approaches for capturing adults in the river and would like to schedule a meeting with interested ATS parties, and include Hance, to talk through the scope, logistics, and details. Sampling would begin around February 1, and Lesko would like to work toward sharing a sampling framework with the ATS ahead of the November meeting to provide a more complete plan.

Bryce Glaser said he has concerns that PacifiCorp is planning to bring a different sampling proposal to the table in November; however, WDFW brought an approach to the table earlier this year that they thought was good. The next step should be to bring back comments or criticisms to the proposal that is on the table now; there is a need for a structured discussion in November to work through which alternative is best. Lesko agreed that WDFW provided a draft proposal, and PacifiCorp provided comments to that proposal in August. Specifically, the instream adult collection method using tangle netting is being reconsidered; everything else in the plan PacifiCorp supports.

Glaser said another concern is that discussions were held about the methods offline without the ATS; the purpose of the ATS is to evaluate technical considerations. Glaser said the comments should be shared with the ATS, and a proposed change to the approach needs to be an open conversation. The collection method proposed was a major part of the study design, and tangle netting was proposed because of the sample sizes needed. Glaser said he wants to make sure there is time for everybody to weigh in on the alternatives being proposed and understand why PacifiCorp believes an alternative approach is the same or better than what has already been proposed. Moving toward implementation without allowing this ATS to recommend the best approach feels like that is not being true to the intent of the ATS. Lesko agreed, and said his intent is to provide a proposal that has enough details in it to allow the ATS to make a decision. The intent is to make the time with the ATS as valuable as possible; it is not PacifiCorp's intent to circumvent the ATS process. Glaser said he appreciates that; however, if there needs to be a decision point at the November meeting, materials needs to be shared in time for review before Thanksgiving, by mid-November.

Kale Bentley said concerns about tangle netting were shared in the August ATS meeting and WDFW did ask PacifiCorp to prepare an alternative approach for consideration. Yesterday PacifiCorp and WDFW staff met to talk through the alternative hook-and-line sampling method and tangle-netting concerns. For next steps, there is a need some structured decision-making framework to compare the pros and cons of the two methodological approaches, for instance, the quality of the dataset; ability to meet model assumptions; and separately, the logistical differences between the two approaches and cost. It was not clear after yesterday's discussion who should prepare this material. It does feels like there is an impasse; based on the information available for WDFW has to evaluate, the tangle netting looks like a great approach, and PacifiCorp then brought reasons that that may not be the case. There is a need to get those on paper to compare to an alternative approach to the entire group can review and decide how to move forward.

Glaser agreed and reiterated concerns about timing. Steve Manlow concurred with those concerns and that path forward in the comments.

Lesko agreed that draft comments and responses to the original memorandum should be provided to the ATS in an organized manner; he is working through as many of the comments as possible and supported bringing the disagreements between the methods to the ATS for consideration. He said work to finalize the approach could occur in December, or even early January.

Lesko said he is also talking with Cramer Fish Sciences about a parentage-based tagging (PBT) analysis, which would also rely on collecting samples from adult fish captured in the river but would not affect the sample collection method. Lesko said he would also like to present that plan in the November and would bring in other attendees like Scott Blankenship to present that information. Kathryn Blair said that National Marine Fisheries Service (NMFS) could request Craig Busack to attend an ATS meeting on PBT. Kale said there is some confusion; WDFW and PacifiCorp are aligned that mark-recapture is the preferred approach for modeling pHOS, and he said he does not understand the utility of discussing PBT right now. Lesko said PBT provides estimates of those same metrics, provides them as a metric of geneflow, and provides a population estimate of effective population size, which may be even better than a census approach. Lesko said it is not definite that PacifiCorp will rely on PBT for pHOS estimates; it is an approach to consider as part of the Hatchery and Supplementation (H&S) Plan. Bentley said this would be another approach that needs to be compared side by side with the previously proposed methods; the metrics are not exactly the same, and there would not be direct comparisons for population metrics between the upper river, lower river, and tributaries. It may be too much to add to the list of options at this time. Glaser said other methods and alternatives can be discussed, but those are not producing the exact same estimates, and we have to be cognizant of the big picture to bring population-level estimates for evaluation at subwatershed and population scales. He reiterated concern about the timeline for implementing in 2024. Lesko agreed.

Lesko agreed to prepare a draft sampling framework for evaluating steelhead pHOS in 2024 to be reviewed by the ATS. Bentley will distribute the summary of comments and responses around the steelhead pHOS methodology memo shared in August.

C. Steelhead Transition Plan Implementation in 2024 (ATS)

Larissa Rohrbach presented the current contents in the AOP for steelhead programs compared to what is described in the transition plan and what will need to be incorporated into the 2024 AOP. The group reviewed the key information and provided the following feedback:

- Collection for the late-winter integrated program typically occurs from mid-February to early May. Run timing between the two programs (late-winter integrated and new "stepping-stone" program) should match. If more NOR are coming back earlier, collection could be shifted earlier to start in January.
- Condensing the collection period of the hatchery-origin (blank wire tag) returns may be needed to truncate the stepping-stone program to lessen the number of egg takes. However, there is a concern that fewer egg takes from a relatively small program may require larger takes from the middle of the run at the same time fish are targeted to be passed to the upper basin.
- Young noted that in 2023, the program change for the summer steelhead was not initiated yet to collect enough eggs to support the increase releases. The increase in brood collection will be implemented in summer 2024.
- Kevin Young noted there is a need for some infrastructure changes to support a larger number of egg takes. If six to eight egg takes are planned for the stepping-stone program, there would be a need for two additional intermediate raceways for grow-out because these two programs will be grown out at the same time. There are 10 to 12 egg takes for the for late-integrated program; the stepping-stone program may require 5 to 7 egg takes.

- A separate April release period for the stepping-stone program may be challenging; the release period may be more like the late-integrated program from April to June depending on how the collection curve is condensed, spawn timing, and grow-out to optimal size and smolt timing. The target size at release statewide is 5.5 fish per pound (FPP) for steelhead. The late-integrated size range includes more latitude because of the range in spawn takes. It is unknown if the 5.5 FPP target can be met at this time; there may be a need to adaptively manage release dates on that release size.
- Young asked whether all stepping-stone would be released downstream near Pekins Ferry. The late-integrated steelhead active migrants are all planted below Merwin Hatchery; force-outs are trucked to lower river.
- Chambers early steelhead were an out-of-basin stock that were released in the lower river to avoid ecological interactions with native species. In-river predation may be lower by planting force-outs lower in the river. No concerns were raised about logistics of planting stepping-stone program fish at the hatchery or at Pekins Ferry.
- Next steps are to prepare a draft collection curve, in the context of meeting transport goals, to identify the collection approach. Young, Kale Bentley, Erik Lesko, Chris Karchesky, and Josua Holowatz will meet to discuss broodstock collection and transport targets and provide and update for the group in the next meeting.

Glaser suggested the new implementation details be captured in an appendix of the AOP as a one- to two-page strategy; a similar approach for Coho Salmon may require a phased approach. A summer steelhead collection curves should also be documented because it will be a change to the H&S Plan.

Lesko asked how the change in production and ecological risk will be covered for the Endangered Species Act—whether coverage needed to go forward or not. Glaser said WDFW's perspective is that consultation with NMFS will be needed; a hatchery genetic management plan (HGMP) has not been submitted on the steelhead programs. WDFW did submit HGMPs for portions of the programs that meet WDFW's objectives for Coho and spring Chinook Salmon. The mechanism for how program changes are consulted on is not resolved. Kathryn Blair said conversations have been opened up between PacifiCorp and NMFS. Emi Melton has been involved in those conversations, and the understanding is that HGMPs will be needed for those program changes. NMFS is supportive of going forward prior to development of the HGMPs. The intent is for the HGMP to allow flexibility; to analyze and cover all options with a biological opinion.

A meeting next week is being held on November 1 with PacifiCorp leadership on how to develop HGMPs and an approach to consultation with NMFS and USFWS.

D. Adult Sampling Strategy for 2024 (Lesko)

One of the strategies attached to the AOP summarizes which adults are sampled at Merwin and Lewis hatchery traps and needs to be updated in the 2024 AOP. The crew at Merwin Trap will be needing this updated information soon.

Erik Lesko walked through the sampling plan from 2023 and asked for any questions on what this might change for 2024.

For Coho Salmon, Lesko said he needs to circle back on the genetic sampling plan to update this table. The plan may change for steelhead in 2024, pending choices for PBT implementation.

Kale Bentley will verify whether the 3-year sampling effort is complete to establish the genetic baseline. Lesko said the genetic sampling plan should be revisited to determine whether there is a need to reinitiate annual sampling or to sample every few years. Samples should be taken at Merwin Trap for spring Chinook Salmon. There may be a need to prepare a separate table for the different programs under the transition plans.

Bentley recommended that, if feasible, sampling should aim to collect all data from the same fish (genetics, scales, and lengths), even if one of the metrics is done at a slightly lower rate. It is useful when applying the data for census statistics to account for variables better in modeling when paired data are collected from the same fish. There are pros and cons for determining the sample rate; for instance, sampling 1 in 10 fish might not be manageable at certain times of the run, and establishing a count per week is more predictable. It will be up to PacifiCorp to think about feasibility. It is difficult to predict the best sampling rate without looking at how we are using the data to determine whether they are adequate or not.

Lesko will work to ensure the adult sampling plan is reflecting what is documented in the genetic monitoring plan and to define sample rates for developing the baselines for all species. Chris Karchesky will obtain updates from the trapping crew and from Kevin Young for the hatchery sampling methods to document this accurately.

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

<u>Yale Habitat Preparation Plan Coho Salmon Surveys (Lesko/Holowatz)</u>

Josua Holowatz said that on October 24, he participated in some exploratory walks through approximately 100 meters of major spawning tributaries to Yale Reservoir. Areas included Speelyai Canal, Siouxon Creek, a no-name creek just above Yale Dam, Dog Creek, the constructed channel, and Cougar Creek. Evidence of spawning fish was observed in all those tributaries, including no-name tributaries that are really small. Dog Creek was completely dry in that reach, but there was evidence of water recently, desiccated redds were observed, and there were carcasses in all tributaries. Washington State Department of Transportation is planning to replace a blown-out culvert on Dog Creek, which may improve connectivity of flow. The constructed channel had the highest density of spawning; flow comes off the siphon from the power canal, so there is constant flow. There was some spill at Swift Dam, and fish could have been attracted to the area. Reservoir visibility was good; in Speelyai Canal there were many fish holding in the inundation area but not spawning; as flows fluctuate they may move up-reservoir. Jeremiah Doyle will be operating wagon-wheel passive integrated transponder (PIT)-tag detectors, and USFWS operates PIT-tag arrays in Cougar Creek, which may detect fish moving into the tributaries.

2024 Annual Operating Plan Updates (Rohrbach)

Rohrbach briefly summarized that anticipated revisions for the AOP will be centered around topics already discussed today, to reflect changes with transition plans and update strategies for adult collection and steelhead pHOS and abundance monitoring.

Pathology (Roon)

Sean Roon provided an update on potential causes of daily dips in total dissolved gas and dissolved oxygen deficits. Dissolved oxygen deficits were observed during August of the past year, and the timing occurred at 9:00 to 10:00 a.m. daily; the most likely explanation is that the timing is aligned with feeding; however, he is still verifying the feeding schedule on the exact dates of the observations. The WDFW Fish Health unit concurred that it could be a stressor; even intermittent drops between 4 to 6 milligrams per liter are connected to lower growth and lower activity rates. One path going forward would be to verify it is connected to feeding, and if so, the staff could consider adjusting the feeding time to the afternoon during times when dissolved oxygen seems higher. There are infrastructure modifications that could be considered like aeration, but Roon recommended starting by evaluating the feeding strategy.

Roon provided an update on spring Chinook Salmon rearing. There was very good survival, and the program is above the 110% of target release numbers, so one unit is being held back. Fish were being held on a maintenance diet in preparation for release; however, fish were showing signs of external fungus, which may be causing some increase in fish losses. WDFW Fish Health recommends that if the fish cannot be released, to start feeding them on the trajectory as if they would be held longer. Kevin Young confirmed these fish have been approved for release on Monday.

Roon said that at Speelyai Hatchery, bloated fish were observed at crowding and split, which is indicative of bacterial kidney disease. There has been a higher-than-typical load of *Ichthyophthirius* than is typical for salmon; fish were flashing, and a spot treatment was done.

Broodstock Collection In-Season Updates (Hatchery Staff)

- Spring Chinook Salmon spawning ended in September. Eggs are incubating, waiting to be picked for mortalities.
- The early Coho Salmon program is in its last week of broodstock collection; two spawning events have been completed with two more to go.
- Summer steelhead spawning starts Thanksgiving week at Merwin Hatchery.
- Coho Salmon are being sorted at Lewis River Hatchery. Some NOR are being held for broodstock, to continue through the remainder of the year. Late Coho Salmon spawning starts the second or third week of November.

III. ATS Administration (Rohrbach)

A. Review Next Meeting Topics (Rohrbach)

The next meeting will be November 30, in person at WDFW Region 5 headquarters. The group decided to tentatively shift the December 28 meeting to January 4. Larissa Rohrbach or Erik Lesko will generate a recurring invite for next year.

The ATS identified the following potential items to discuss at the next meeting:

- Steelhead pHOS – continued discussion
- Transition planning – continued discussion
- Anticipated updates for the AOP for 2024
  - Address the Habitat Preparation Plan fish in the AOP
- Updates on the Fish Transport Plan to track how revisions influence H&S Plan and AOP. The Fish Passage Subgroup and design teams are working toward 60% design by December. The Fish Passage Plan will be drafted next year.

IV. List of Attendees

Name	Affiliation
Larissa Rohrbach	Anchor QEA
Jeremiah Doyle	PacifiCorp
Chris Karcheskly	PacifiCorp
Erik Lesko	PacifiCorp
Amanda Farrar	Cowlitz PUD
Christina Donehower	Cowlitz Tribe
Steve Manlow	LCFRB
Amelia Johnson	LCFRB
Kathryn Blair	NMFS
Kale Bentley	WDFW
Bryce Glaser	WDFW
Josua Holowatz	WDFW
Anja Huff	WDFW
Aaron Roberts	WDFW
Sean Roon	WDFW
Kevin Young	WDFW
Jeff Garnett	USFWS