Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Lewis River Aquatic Technical Subgroup   Date: March 28, 2024

From: Larissa Rohrbach, ATS Coordinator, Anchor QEA

Re: Final Minutes of the March 28, 2024, Lewis River Aquatic Technical Subgroup Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held in person at Washington Department of Fish and Wildlife's (WDFW's) Region 5 Office—5525 South 11th Street, Ridgefield, Washington—on March 28, 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 create a document that details the benefits and disadvantages of the infrastructure alternatives considered for implementing the Coho Salmon transition plan at the Lewis River Hatchery.
- Kevin Young will work with Mike Chamberlain to evaluate a phased approach to adding additional Coho Salmon egg takes and bring this information forward to the ATS at the next meeting.
- Huff will ask Josua Holowatz and Andrew Claiborne for confirmation on steelhead scale samples analyzed.
- Chris Karchesky will coordinate with Levi Pienovi to determine whether it is feasible to collect 30 adult Chinook Salmon scale samples per week.
- Erik Lesko and Larissa Rohrbach will bring a draft of the ATS charter forward for review and discussion by the ATS.
- Rohrbach and Lesko will revise the Annual Operating Plan (AOP) for changes in sample collection.

Agreements or Recommendations

- None

Review Items

- Revised 2024 AOP and Data Responsibilities
- ATS Charter – to be sent after the meeting

Finalized Documents

- None

I. Welcome (Lesko)

A. Review Agenda

Kale Bentley requested extra time to review adult spring Chinook Salmon data collection effort and responsibilities in 2024.

Chris Karchesky added one agenda topic: an update on the 2-year feasibility study for estimating overall downstream survival (ODS), to be provided by Jason Shappart (Meridian Environmental).

II. ATS Meeting Topics

A. Adult Steelhead Broodstock Collection Schedule (Bentley)

Broodstock Collection Number, Timing, and Composition

Kale Bentley presented data analyses to support an update on potential steelhead broodstock collection numbers to meet the needs of the *Lewis Steelhead Hatchery Transition Plan* (Attachment A). Roughly 32 pairs of adult steelhead spawners are needed to reach the stepping-stone program's smolt release goal of 75,000. Data showing variability in run timing, collection timing, and spawn timing showed that approximately 40 to 50 pairs should be collected to ensure this goal is met within two to four additional spawning events. Bentley proposed that 52 males and 52 females be collected to generate a 95% chance of achieving the target of 32 actively spawning pairs by the first week of May. This would result in 13 males and 13 females collected per week across four weeks in April. To reduce the likelihood of lack of ripe males, extra males could be collected. May 7 is the ideal cutoff date for spawning.

Erik Lesko noted that the integrated program collects 25 pairs of adult steelhead; 52 pairs are a significant increase in collection if only 32 additional pairs are needed for the stepping-stone program. Bentley answered that collection of the 25 pairs for the integrated program results in 8 to 10 spawning events to spawn fish as they become ripe. The objective is to try to reduce that number of spawning events for the stepping-stone program. Infrastructure constraints leave room for 4 additional spawning events; there is not room in the hatchery for rearing offspring from 10 additional spawning events. To account for variability in when fish are ready for spawning, many more fish need to be collected.

Bentley proposed that after 32 pairs are spawned, that any extra fish collected be held until May 20, when the integrated program finishes spawning to gather information that will inform future program collection and holding strategies. Bentley proposed over-collecting for at most 3 years to provide insight into the collection target while considering variable fecundity.

Lesko asked whether the F1 returns (blank wire tag-hatchery-origin returns [BWT-HOR]) being held for the stepping-stone program would also be available for the integrated program if needed. Bentley answered that 13 natural-origin returns (NORs) and 7 BWTs have been collected for the integrated program so far. He noted that BWT-HOR are typically collected early, and NORs are likely to fill out the rest of the collection.

Bentley said this year is on track to be the largest run sizes, predicted to be about 2,000 returns, with a large proportion predicted to be male. Even if this year is the earliest returning year, based on early trends, they would expect to see almost 1,000 BWT-HORs. This is a substantial increase from past years where BWT-HORs have been between 200 and 600 fish.

Chris Karchesky stated that with the condensed broodstock timing, a larger portion of the fish selected for brood would be collected during the peak of the run that would otherwise have been transferred upstream for supplementation, so the peak of the bell curve would be lopped off. Karchesky agreed that holding fish in the hatchery (until May 20) would be beneficial if it helps to collect fewer pairs in future years. Bentley responded that collecting more than 32 pairs may still be necessary unless the programs change their prioritization for use of the adults, but the goal should not always be to over-collect by double.

Endangered Species Act Coverage

Lesko asked whether an F1 (BWT-HOR) fish produced in a hatchery as part of the integrated program would be considered an Endangered Species Act (ESA)-protected fish by NOAA Fisheries. Emi Melton answered that F1 fish from the integrated program should be listed and protected; they are hatchery-origin fish, but they are genetically one generation removed from natural-origin fish. Melton said she is comfortable allowing more take on the ESA-listed fish that are from a hatchery program if data are being collected to ensure appropriate management practices for the basin. Lesko asked for clarification on any ramifications for holding a protected fish in the hatchery. Melton responded that taking holding F1s for broodstock would be treated the same as holding NORs broodstock. At this time, the stepping-stone program does not have ESA coverage, and she can ensure there is proper coverage for holding those fish in calculating take and writing the Biological Opinion for that program. Fish from hatchery programs can be added to ESA listings every 5 years during the 5-year status review.

Disposition After Holding or Spawning

Karchesky asked whether BWT-HOR kelts would be released back into the river after spawning rather than being euthanized at the hatchery. Bentley answered that decision could be reviewed each year, depending on annual conditions.

Bentley asked whether fish held and handled at the hatchery but not spawned should be taken upstream for release as part of the supplementation program. Holding in the hatchery leads to uncertainty about whether these fish would spawn after release, which could add noise to productivity numbers.

Karchesky said his concern is reducing the peak of fish transported during early or late run times such that changing collection times could potentially alter run timing in the future. Bentley replied that this is the reason for starting in March with two to four additional egg takes over 5.5 weeks. The primary concern is not when the spawn events occur, but that there are two to four additional events. Bentley said that if there are not enough NORs, weekly collection numbers have been supplemented with HOR-BWTs to meet collection curve goals to prioritize collecting fish early over meeting proportion of natural-origin brood goals. Karchesky said this raises the question of what is more important: maintaining spawn timing distributions or parentage? He noted that it would be worth continuing this discussion and using NORs as parents exclusively. Bentley responded that those NORs would also be passed to the upper basin if not used in the broodstock. Melton asked if proportionate natural influence modeling would be helpful; Bentley said at this time more information is needed build the plan further and test assumptions.

Sex Ratios

Bentley noted that the sex ratio is uncommonly skewed toward males this year; currently it is 75% males. Males are appearing to return earlier than females, with the sex ratio evening out more this week. Bentley asked whether there is difficulty identifying sex at the traps, and Karchesky confirmed that sex is currently easy to determine. Kevin Young said that this skewed ratio is not common. He said he has considered using more BWT-HOR females in the broodstock to match the high number of males. Young said the trend this year may be for more males to arrive early and more females to arrive later.

Tagging, Tracking and Genetic Sample Collection

Bentley proposed that all fish collected for brood for the stepping-stone program be passive integrated transponder (PIT) tagged so they may be identified in the hatchery and their specific arrival versus spawn dates can be tracked. Tag records need to be updated (and submitted to PIT

Tag Information Systems [PTAGIS]) to determine where the fish was tagged and whether it was euthanized or released after spawning.

Anja Huff asked why BWT-HORs should not be released and whether the hatchery should cull fish that are ESA protected. Melton said culling those fish would be okay because the fish are released to the lower river release, and the purpose of the stepping-stone program is to populate the lower river (for harvest).

(*Note: A BWT (F1) is a listed species and therefore should not be culled. Returns from the stepping-stone program (F2s) can be culled because they are not a listed species. Review and input from the ATS on clarifying these definitions will be sought during the next meeting.*)

Young said he will coordinate with Levi Pienovi (PacifiCorp) and hatchery staff to ensure that BWT-HORs are recorded as mortalities in PTAGIS if brought into the hatchery for either the integrated or stepping-stone program.

Genetic Sample Collection

The group discussed whether genetic samples should be taken from all adults this year (NOR and BWT-HOR). Lesko said data from the BWT-HOR tissue samples were previously analyzed in season as a screening tool, which is no longer the utility of the sampling; however, that data can be useful to the genetics monitoring strategy. Young confirmed that samples were sent to the laboratory last year, but it is uncertain whether they were analyzed. He said the hatchery is collecting samples on BWT-HOR fish this year. Bentley proposed that samples be collected this year, but an immediate decision whether to analyze the samples is not necessary and can be discussed with the group working on the genetics strategy. Lewis steelhead should eventually be one genetic pool of fish.

Larissa Rohrbach said, based on today's discussion, the broodstock collection information and sample collection should be updated in the AOP. Rohrbach asked for clarification regarding sample location; HOR and NOR samples are not collected at Merwin Fish Collection Facility, but they will be collected at the hatchery.

Huff asked whether genetic markers for run timing versus spawn timing have been evaluated. Lesko answered that this has not been discussed, and Bentley replied that he is unsure whether there are any markers for early or late run timing within a season, other than markers for summer- and winter-run species.

B. Adult Coho in 2024 (Lesko)

There are three program needs requiring changes to the allocation of adult Coho Salmon returns in 2024: supplementation into Swift Reservoir, the Yale Reservoir Habitat Preparation Plan (HPP), and new broodstock collection targets under the Lewis Coho Transition Plan.

Karchesky said he is nearly finished updating the HPP for 2024. A decision is also needed by July on adding more fish for upstream supplementation and implementing the transition plan. Rohrbach suggested the ATS come to a consensus in June before the Aquatic Coordination Committee (ACC) decision in July. Bryce Glaser asked whether a decision document is needed. Lesko answered that the ACC ground rules do not require a decision document because the transition plans have already been approved and the HPP is already a requirement of the Settlement Agreement.

Coho Salmon Broodstock Transition Implementation Status (Huff)

Huff said WDFW and PacifiCorp had a meeting in early March to discuss fully implementing the Coho Salmon broodstock transition plan at Lewis River Hatchery. Two needs were identified: the water-to-water transfer tank must be upgraded to working status, and a chiller or a proper alternative system must be installed. The action items from this meeting included creating alternative short-term interim plans while water-to-water transfer tanks are being upgraded and conducting a cost-benefit analysis for a water chiller. Glaser said that the approval for funding water-to-water transfer systems with PacifiCorp is already in the approval process, and Lesko said the hope is that the water-to-water transfer system will be cleared by PacifiCorp this year. However, obtaining funds for the chiller is not a likely outcome for this year.

Young said he met with Mike Chamberlain and Aaron Roberts to determine the needs of the program; approximately 80 gallons of water a minute needs to be chilled. Young said that an informal quote for a chiller estimated a cost of $200,000; additional estimates on electrical work, pipelines, and incubation room plumbing will be needed. There would be a 3-to-6-month lead time for the chiller based on the availability of items. Lesko said before PacifiCorp can move forward on a request for funding, it must be decided whether a chiller is needed at the hatchery.

Karchesky asked whether a chiller is integral to hatchery operation or whether it would be possible for the facility to function without one. Huff answered that alternatives to a chiller were discussed but are not ideal. The next best alternative is to fully remodel the large raceways. This would involve cutting concrete in addition to other construction activities to make raceway dividers. Construction would change the hydrology of the raceways and create potential water quality issues.

Melton asked whether it is feasible to ask for that large amount and whether a phased approach should be taken and the funding be broken down into smaller pieces. Priorities could be identified based on what should be paid off first. Lesko answered that PacifiCorp typically would need to estimate funding as total project costs rather than segmented costs.

Lesko proposed that a planned site visit next week will be helpful to inform justification for funding. Bentley suggested that the methodology for comparing alternatives should be refined following the site visit; the ATS can then agree upon how the alternatives will be compared.

Huff expressed concerns that alterations to hatchery infrastructure will have ramifications on fish survival. Monitoring must be implemented. If mortality increases, more egg takes must occur. She advised that a chiller be added in the long term.

Bentley identified the need to estimate the cost of other alternatives to weigh against fish health and growth considerations. More specific metrics for clearly comparing the alternatives need to be identified; stating that fish health is a concern may not be specific enough.

Bentley identified a need to know the implementation timeline for the transition plan for consultation if it is not feasible to implement it this year. Melton answered that a consultation would need to be done if an alternative requires ESA coverage and clarified that more than one alternative could be included in the consultation, but there is no ESA coverage if an alternative is not in the proposed action. Melton added that the consultation would be integral for allowing for more egg takes.

Huff agreed to start documentation of the pros and cons of the alternatives. This document will highlight the parameters to evaluate each alternative and to be used at the site visit as a road map for the budget. The document will then be brought back forward to the ATS. Lesko said he will need to have an answer about the preferred alternative by the end of April, possibly May at the latest, to include major costs in his 10-year budget planning.

Glaser asked that the ATS consider whether a partial program could be implemented while hatchery infrastructure is improved.

Bentley said the new integrated program plan is to collect many more eggs earlier in the season, nearly doubling the number of egg takes. He asked whether it would be possible to increase by one or two egg takes this year. Glaser suggested that egg takes be started earlier and phased into the earlier component of the run. Karchesky agreed with implementing earlier egg takes if the hatchery can accommodate them. Young stressed that the timing of egg takes not be moved more than 2 weeks earlier without discussing with Chamberlain.

Young will work with Chamberlain to look at a phase approach to adding egg takes and bring this information back to the group for the next meeting.

<u>Upstream Supplementation (Karchesky/Doyle)</u>

Karchesky stated that the additional upstream supplementation target is 9,000. This target is generally based on the ecosystem diagnosis and treatment (EDT) model. The integrated population model (IPM) has been moving forward, and there are hopes to have U.S. Geological Service staff at an upcoming meeting to demonstrate their preliminary findings. Karchesky reminded the ATS that varying number of adults passed upstream to get an estimate of carrying capacity would inform the IPM. Discussions are moving forward regarding adding an additional 5,000 fish to the 9,000 target for upstream supplementation. Last year the target was to transport 2,000 additional fish supplemented upstream; however, that goal was not met.

Karchesky stated that in more recent years 40% to 50% of fish in the upstream supplementation program are NORs. Bentley asked whether a collection and transport strategy could be developed like the one in place for steelhead. Karchesky replied that at this time, 9,000 fish is the cap for all Coho Salmon going upstream, including hatchery fish, but that was the ultimate goal. In the last 4 years, 3,000 to 5,000 NORs were supplemented upstream with hatchery fish to reach around 9,000 adults upstream. Fish supplemented after the NORs currently come from either the segregated early-Coho Salmon or integrated late-Coho Salmon hatchery programs.

Young gave the latest 2024 forecast for early and late-Coho Salmon returns; 9,326 for early Coho Salmon and 10,841 for late Coho Salmon.

Karchesky said that there was concern last year that too many Coho Salmon upstream may negatively impact the spawning success of Bull Trout. To minimize effects, supplementation of early Coho Salmon upstream would place Coho Salmon and Bull Trout spawning windows at different times. Karchesky was told by Jeremiah Doyle (PacifiCorp) that the Bull Trout group was considering recommending only transporting 2,000 additional fish this year (2024) rather than 5,000 additional fish to the 9,000 fish supplementation target. Additionally, they highlighted prioritizing the use of fish for brood, the HPP, and including additional Bull Trout monitoring.

Bentley said the transition plan is moving toward aligning the early-Coho Salmon strategy with the framework of the steelhead strategy. Bentley suggested developing prioritization for use of Coho Salmon to do no harm to NORs based on a mining rate and demographic prioritization. Karchesky said this is the long-term plan, but the short-term goal is to bulk up Coho Salmon numbers upstream over the next couple years to help inform the IPM. At this time, there are more segregated program fish for supplementation than may be available in the future. When the transition plan takes effect, segregated fish will not be available to be taken upstream.

Melton asked whether modeling takes into account the reproductive success of fish from different origins (HOR or NOR). Karchesky answered that the parameters used is proportion of males to females, proportions of early-run to late-run fish, and the distribution of early-run versus late-run fish over time. Melton expressed that there are some downsides to putting large amounts of fish upstream and that putting hatchery fish upstream may not be beneficial.

Melton asked whether putting segregated fish upstream could result in errors if the IPM results are based on segregated fish that will no longer be part of the program. Karchesky answered that it could, but they are heavily reliant on hatchery fish to build up the upstream population, so that effect is already built in. With transitioning to exclusively only using integrated fish for supplementation in the future in the next 4 to 5 years, the number of Coho Salmon available for transport upstream could be lower in the coming years. Now is a good time to get some numbers beyond 9,000 fish upstream.

Bentley asked for clarification on the factors that go into generating the target number of 9,000 fish using EDT and that it is worth revisiting the origin of the total cap. Karchesky answered that the EDT number is based on a NOR fish at a sex ratio of 50:50 males to females. Karchesky said the cap is a legacy number that was implemented for initial targets in the past. Due to past success of reaching this goal, the target of 9,000 fish has not changed, and there is no variation within the model. Jason ~~-~~Shappart added the EDT does not consider when upstream habitat is available relative to when fish are supplemented upstream. Late-run Coho Salmon have more habitat to use for spawning after the heavy rain starts.

Shappart said that in Pine Creek, Coho Salmon, including early-run Coho Salmon, are not starting to spawn until Bull Trout are finished spawning. Bull Trout spawn in river margins earlier than Coho Salmon during low baseflow. Coho Salmon also spawn in river margins; however, the margins are at a different location later in the season when the flow has increased. Shappart suggested transporting more late-run Coho Salmon upstream in December or January to avoid conflict with spawning Bull Trout. Karchesky said that in general, the most successful fish are intermediate spawners that spawn between the early and late groups.

Bentley highlighted it would be beneficial to have a framework for handling Coho Salmon effects on Bull Trout. Karchesky agreed that discourse with the Bull Trout group would fill in missing components of this discussion. Bentley suggested that it could be beneficial for the ATS and the Bull Trout group to come together with concerns and considerations toward upstream supplementation.

Bentley said he would like to discuss the cap on the number of Coho Salmon to transport between now and early summer. Karchesky said the ongoing IPM work will help inform questions regarding Coho Salmon transport, but for the short-term, discussions should focus on plans for fall 2024, dictated by Bull Trout concerns and proposed additional upstream supplementation numbers.

Further discussions in the next few years should consider taking all NORs and integrated fish upstream in the next 2 to 3 years and whether more than 9,000 fish should be transported.

Rohrbach proposed that a more informed discussion happen in the next few months. Before going back to the Bull Trout group, the ATS can use the steelhead framework as a starting point for formulating a similar plan for Coho Salmon. The Bull Trout group should be notified when the ATS is ready for that discussion. Karchesky suggested that May would be a good time to revisit this discussion, and he will coordinate with Doyle (PacifiCorp), Jeff Garnett (USFW), and Josua ~~-~~Holowatz (WDFW). A recommendation on the number of additional fish for upstream supplementation could occur in June or July.

Steve Manlow agreed that a structured process for decision-making is needed to allocate adult Coho Salmon~~,~~ and that the goals and interests of the Bull Trout group need to be taken into consideration. Glaser agreed that the intersection of Bull Trout management must be clearly defined to inform the structure of the Coho Salmon upstream supplementation framework. Bentley would like to see more reasoning and clarity on Coho Salmon threats to Bull Trout to justify changing the capping number. Karchesky responded that the number of 9,000 can be challenged with new results from the IPM results, but that will take time.

C. Feasibility of Overall Downstream Survival Study (Jason)

Shappart presented preliminary data from a 2-year study to evaluate the feasibility of using fish collected and PIT-tagged at the Swift Reservoir Floating Surface Collector (FSC) to help estimate ODS (Attachment B). ODS derived from estimating the number of fish entering the reservoir and their survival through the reservoir and fish passage system. The study aims to address the differences in recapture probability of similarly sized fish at the Swift Reservoir FSC. Additionally, the study explores the feasibility of using fish captured at the FSC as surrogates for naïve fish emigrating from the upper basin to bolster sample sizes. The study was recommended to be extended for a third year of tagging and release based on information collected during the first 2 years. Fish are captured and PIT-tagged at the FSC and screw trap (located at the headwaters of Swift Reservoir just upstream of the Eagle Cliff bridge on the North Fork Lewis River), and some fish were captured in other tributary locations as a pilot test of this approach. Fish are then released back into the tributaries~~,~~ and recaptured at the FSC. The PIT-tag size is 12 millimeters. The majority of the Coho Salmon and steelhead that are of a taggable size are parr and transitional smolts. More Coho Salmon have been tagged than steelhead.

Shappart presented data that showed the size range for Coho Salmon and steelhead tagged at the screw trap is significantly smaller than those fish tagged at the FSC. The smaller Coho Salmon at the FSC are still larger than those tagged at the screw trap. Fish captured in tributaries are closer in size range to those tagged at the screw trap. The study is approaching 1,500 recaptures of steelhead and Coho Salmon combined at the FSC.

Karchesky clarified that this study relates to Objective 1 of the Aquatic Monitoring and Evaluation Plan (AMEP), which pertains to the probability of reservoir survival and probability of collection, as well as Objective 7, which pertains to the timing and abundance of fish entering the reservoir. Glaser asked whether there is a reason there is not a fourth group consisting of large FSC active migrants. Karchesky replied that was being tested through Objective 2 of the AMEP, which deals with testing collection efficiency. Karchesky noted that because the screw trap only operates over a portion of the year, there is a gap in the data for monitoring reservoir entry time.

Shappart added that reservoir survival numbers can help inform the IPM. The recapture rate of tagged fish informs facility performance and reservoir survival. Additionally, survival in the tributary environment before fish arrive in the reservoir can be examined.

Shappart said fish were tagged in tributaries in July 2024 and began to be caught at the FSC in mid-February 2024. Smaller tagged fish have been observed rearing in the reservoir until they are captured at the FSC months later. The FSC is currently recapturing those fish; therefore, the complete recapture data for fish tagged in the tributaries were not available to be presented to the ATS yet. In 2026, all data will be available to run detailed analyses on comparisons between tagging location, size, and recapture probability. The ATS did not object over an additional year (2024) of fish being tagged as a part of the two-feasibility study, which began in 2022.

D. ATS Charter (Lesko)

This topic was not discussed due to lack of time. Rohrbach and Lesko will distribute a draft charter for ATS consideration and discussion in the next meeting.

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

<u>Adult Sample Collection</u>

Bentley asked to review spring Chinook Salmon tissue sample collection plans shown in the sampling table developed for the AOP. Bentley said that if partitioning the samples by age is desired, robust weekly data would be needed. There are potentially five age classes of Chinook Salmon but only 10 scale samples proposed for collection, which would not yield many scales per age category. He suggested at minimum increasing collection up to 30 scales per week: 10 scales from small males (jacks), 10 from larger males, and 10 from females. Bentley acknowledged that there are many changes going on and sampling and monitoring must be revisited throughout this process.

Karchesky and Lesko agreed with increasing the sample rate and will follow-up with Pienovi to determine whether collecting 30 samples per week is feasible. Karchesky noted that PIT-tag data has been used for determining age of Coho Salmon in the IPM, and a similar PIT-tag dataset exists for Chinook Salmon.

Uncertainty was expressed on whether some steelhead scale samples from the past had been sent to the laboratory to be read and whether the data are available. Huff responded that Holowatz sends the scale samples to Andrew Claiborne's (WDFW) lab, and confirmed the samples are being read but it is unknown whether the results are being reported back. Fresher scale samples are needed because there are many scales that are unreadable, causing discrepancies in age, and Huff asked whether fresher scales from hatchery-origin fish could be collected. Huff will ask Holowatz and Claiborne for confirmation on steelhead sampling rates.

Rohrbach consider how documentation in the AOP can better direct how scales should be passed from PacifiCorp staff to WDFW, with timelines for obtaining those data.

It was agreed that additional data collection should be done with purpose and should be used to improve reporting of age composition.

III. ATS Administration (Rohrbach)

The next meeting will be on May 2 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

Name	Affiliation
Jason Shappart	Meridian Environmental Inc