

Meeting Minutes

Lewis River Aquatic Technical Subgroup

To: Aquatic Technical Subgroup

Date:

July 1, 2019

From: Sarah Montgomery, Anchor QEA, LLC, ATS Coordinator

Re: Final Minutes of the May 30, 2019 ATS Meeting

The Lewis River Aquatic Technical Subgroup (ATS) meeting was held at the Washington Department of Fish and Wildlife (WDFW) office in Ridgefield, Washington, on May 30, 2019, from 9:00 am to 1:30 pm. Attendees are listed in Section 5 of these meeting minutes.

Action Item Summary

Item #	Responsibility	Action Item	Status
1	Sam Gibbons, Bryce Glaser, Mike Chamberlain, and Kevin Young	Finalize Draft Hatchery and Genetic Management Plans (HGMPs) and provide to PacifiCorp for review.	<i>This item is ongoing.</i>
2	Erik Lesko	Develop a table to summarize monitoring results for each objective of the H&S program (integrate into M&E summary table).	<i>This item is ongoing.</i>
3	WDFW and PacifiCorp	Finalize Take Table and Take Table descriptions for submittal to NOAA.	<i>This item is ongoing.</i>
4	Erik Lesko	Check with potential groups to provide Comprehensive review of H&S Plan draft and provide update at next ACC meeting.	<i>This item is ongoing.</i>
5	Sarah Montgomery	Perform literature review on methods for estimating residualism in spring Chinook and coho.	
6	Erik Lesko	Update timeline for H&S Plan and AOPs.	<i>This item is complete; distributed on June 7, 2019.</i>

7	Kale Bentley and Bryce Glaser	Send known residualism literature to Sarah Montgomery.	<i>This item is complete and will be incorporated in the review.</i>
8	Erik Lesko	Revise the draft H&S Objectives to show how they are related to previous objectives; coordinate with Rich Turner regarding NOAA input.	
9	WDFW	Review the H&S Plan objectives, focusing on: <ul style="list-style-type: none"> - Wording - Potential additions or deletions - Consideration of two questionable objectives listed last - Consideration of necessary tasks associated with each objective to inform the description of the objective 	
10	Erik Lesko	Draft a protocol for estimating juvenile abundance using screw trapping prior to June meeting.	
11	Erik Lesko and Sarah Montgomery	Revise and finalize 2019 AOP for approval.	

Agreements or Recommendations

- None

Review Items

- The Draft H&S Plan Objectives were distributed for review on June 7, 2019 for review prior to the June 27 ATS meeting.

Finalized Documents

- None

1. Review Agenda, Review Last Meeting Action Items, and Approve Previous Meeting Minutes (Montgomery/Lesko)

A. Review Agenda

The ATS discussed the agenda and Erik Lesko added one item, an update to the study protocol template.

B. Review Last Meeting Action Items (April)

Item #	Responsibility	Action Item	Status
1	Sam Gibbons, Bryce Glaser, Mike Chamberlain, and Kevin Young	Revise Hatchery and Genetic Management Plans (HGMPs) to include new modeling information when available.	<i>This item is ongoing. Aaron Roberts said WDFW are currently reviewing final edits then the HGMPs will be provided to PacifiCorp for review before being sent to NOAA.</i>
2	Erik Lesko	Review report from Kale Bentley on abundance estimation of fall Chinook salmon.	<i>This item is complete. Lesko said he reviewed the report and has no further comments. Wadsworth said This report may be useful when discussing estimation of juvenile Chinook.</i>
3	Erik Lesko	Develop a table to summarize monitoring results for each objective of the H&S program (integrate into M&E summary table).	<i>This item is ongoing. Wadsworth provided input regarding this item via email on May 29.</i>
4	WDFW and PacifiCorp	Finalize Take Table and Take Table descriptions for submittal to NOAA.	<i>This item is ongoing. Wadsworth said the most recent update to the take table was regarding chum. Montgomery said the most recent version is posted to the PacifiCorp website for reference.</i>
5	Erik Lesko	Check with potential groups to provide Comprehensive review of H&S Plan draft.	<i>This item is ongoing. Lesko said he has contacted a few groups such as the Independent Scientific Review Panel (ISRP). He said the review will likely be completed by a consultant, and he will provide an update on this at the next ACC meeting.</i>
6	Erik Lesko	Post most recent version of Take Table and Take Table	<i>This item is complete.</i>

		descriptions to PacifiCorp website.	
7	WDFW	Review format of executive summary table of Fish Passage Report and make suggestions about content for the H&S Plan version of a summary table.	<i>This item is complete.</i>
8	Erik Lesko	Present TDG information at an upcoming ATS meeting (May, tentatively).	<i>This item will be discussed today.</i>
9	Erik Lesko	Check with the ACC regarding their preference for reviewing the H&S Plan (before or after independent review).	<i>This item is complete. Lesko said the comprehensive review will be completed first, then the ACC will have a 60-day review period. After the ACC review period, it will be submitted to FERC around April 2020.</i>
10	Erik Lesko and Sarah Montgomery	Revise AOP based on discussions today and distribute a version for the ATS to review before the May meeting, with pending items (screw trap) flagged.	<i>This item is complete.</i>
11	WDFW	Review the AOP (Phase 2) and provide edits and comments.	<i>This item is complete.</i>
12	Erik Lesko and Sarah Montgomery	Determine level of effort for literature review on methods for estimating residualism in spring Chinook and Coho; perform review.	<i>Lesko said he identified this as a lesser priority than Anchor QEA staff working on the H&S Plan, so a literature review has not been initiated. The ATS discussed funding responsibilities, capacity for completing the review, and the importance of understanding methods for studying or addressing residualism. This item was further discussed below under "H&S Plan Objectives."</i>
13	Tom Wadsworth	Distribute Kale Bentley's results from monitoring of the forced-release (fall)	<i>This item is complete.</i>

		group of spring Chinook salmon.	
14	Sarah Montgomery	Revise and distribute Parking Lot.	<i>This item is complete.</i>
15	Sarah Montgomery	Regarding the H&S Plan Objectives: <ul style="list-style-type: none"> • Revise with column for how each applies to the settlement agreement. • Distribute old objectives for comparison. • Also include a tracking table for settlement agreement requirements and pertinent sections of the H&S Plan 	<i>First two items distributed on April 30; last item will be distributed with the H&S Plan after first round of edits are complete.</i>

C. April 25, 2019 Meeting Minutes

The ATS is still reviewing the draft April meeting notes; they will be approved in June.

2. Meeting Topics

A. 2020 Screw Trapping

Erik Lesko said WDFW and PacifiCorp have had some discussions about the screw trapping plan for 2019 and 2020. It was previously decided that no trapping would occur in 2019, and the ATS would discuss the plan for 2020.

Lesko said one topic that keeps coming up is assumptions. On the Lewis River, there are many assumptions that haven't been tested. One concern is that increasing the screw trapping effort or making major modifications would not substantially increase the quality or amount of data received from the screw trap. Trap downtime also needs to be considered.

Lesko asked if the ATS suggests using what was done in the Cowlitz River in 2018 with screw trapping for the Lewis River in 2020 (and noted this would require modifications to the trap). He said it would be difficult to move the trap due to permitting.

Glaser suggested that the ATS develop a protocol in 2019 that describes changes for 2020 including any permitting constraints. He said the first step should be to write a protocol that includes at least the following pieces:

- Assumptions (whether tested or untested)
- Purpose and outcome/deliverable
- Statistical rigor
- Site analysis (is it adequate? Does it need to be moved later?)

He said an RFP for operating the trap could include this protocol as a work in progress. Lesko said decisions needed for 2020 include where the trap will be located, how many staff are needed, whether to sample at night, how long it will be installed and when, and whether to sample for spring Chinook released in the fall. The ATS discussed some of the decisions that will affect protocol development, as follows:

- When it is installed
 - Trapping through the entire outmigration may not be possible at the current location.
- Where it is installed
 - Consider potential permitting constraints.
 - Consider whether fish need to be marked and put back upstream for recapture—can enough fish be collected at the location?
 - At current location, there are issues operating the trap at flows below 1200 cfs unless it is in the middle of the channel (where it becomes a navigation hazard). Flows increase in mid-October and are usually not a problem until spill begins.
 - There are tradeoffs between moving the trap, running the trap for longer, and tagging more fish.
- How often it is checked
 - Should it be checked twice daily (day and night)? Debris was an issue on the Cowlitz River but may not be an issue on the Lewis River.
 - Collecting more fish may help better understand life history.
- Alternatives to screw trapping include seining and other methods.

Another consideration is biased estimates of abundance. Lesko asked how important is it to achieve totally unbiased estimates? Kale Bentley said quantifying the bias would be helpful but until that is possible, methods to reduce bias can be discussed (such as evaluating the release location). Using the JMX protocols may help with this.

Lesko said he will draft a formal protocol for estimating juvenile abundance using screw-trapping and provide it to the ATS for discussion.

B. AOP Phase 2

Tom Wadsworth said WDFW provided edits to the 2019 AOP Phase 2. He said many changes had to do with sections about screw-trapping. The ATS reviewed the comments in the document during the meeting and resolved all major comments and edits. (Edits were made in-text and are not summarized here.) Some minor comments and edits remained, which Lesko said he and Montgomery will resolve before finalizing the AOP for approval next month.

C. Residualism

The ATS reviewed the most recent version of the Parking Lot, focusing on residualism. Kale Bentley summarized that the first step in this discussion is to understand what are the main concerns with residualism for each species (i.e. competition, predation, and genetic introgression, listed from highest to lowest concern)? He said the ATS should consider what is already known for each species and whether there are procedural or rearing changes that could reduce residualism. It would then be important to consider what is not known about residualism for each species, how important the unknown is to understand, and whether that can be determined with a study.

Bentley said WDFW has done some work to understand this for steelhead, which he will provide as an example for what could be done for other species.

The ATS drafted a table of questions to be filled out during the literature review. The ATS filled out what is known for each species in the table and listed priority concerns. For example, Spring Chinook residualism and predation were identified as particularly high priority issues due to the incidence of precocious males and known minijack problems in the Lewis River system. Bryce Glaser suggested the table could further be divided by stocks or programs (as needed) because integrated stocks tend to residualize at a higher rate.

Another question raised was about what is a residualism rate. Glaser noted that the current H&S Plan has two primary metrics—residency time or emigration rate; and “juvenile release behavior after release” which would include a measure of the distribution of smolts. Both are potentially addressed in the literature and should be distinguished between.

Lesko committed one day for Anchor QEA staff to research residualism and fill out the draft table.

D. H&S Plan Objectives

Erik Lesko shared the document, Proposed H&S Plan Monitoring Objectives. He said he reviewed Viable Salmonid Population (VSP) metrics, Hatchery Scientific Review Group (HSRG) metrics, and the existing objectives to compile the proposed 2019 H&S Plan objectives. He asked for input on the objectives as soon as possible, especially regarding the following:

- Wording
- Adding or removing objectives, specifically the last two objectives (assessing recovery plan compliance and harvest threats to NOR or supplementation goals)
- Any considerations related to the objectives, such as type or frequency of monitoring

Lesko said he tentatively added proposed objective 12, assessing recovery plan compliance, because it is important to understand whether state and federal regulators are following recovery plan recommendations. He added proposed objective 13, harvest threats to NOR or supplementation goals, because overharvest and harvest levels are high risk in this system according to VSP. He said these are tracked in the M&E Plan with ocean recruit modeling, so it may not belong in the H&S Plan, but he wanted to check with the ATS.

The ATS requested that Lesko crosswalk the proposed objectives against the old objectives to show where changes have been made and objectives deleted or combined.

Bryce Glaser said an older version of the H&S Plan included language about base assumptions, unbiased estimates, and precision targets based on VSP guidance from NOAA. He said details about the quality of data are important to include as sub-parts to these objectives. He also suggested engaging with Rich Turner during the revision process. He said portions of the HGMPs for the Lewis River programs discuss monitoring the effects of the programs, so the HGMPs point to the H&S Plan and other existing plans for this information. For this reason, Glaser said Turner has indicated that the HGMP consultation process for these FERC-related programs is more straightforward because monitoring requirements are already established. Glaser anticipated that Turner will review the HGMPs and H&S Plan concurrently.

Lesko said he will revise the proposed objectives and distribute them for review. Montgomery discussed the timeline for reviewing the objectives, and the ATS determined that they would review the objectives and discuss them again at the June meeting, then seek input from NOAA.

E. Study Protocol Template Review

Lesko said he revised the study protocol template and posted it to the PacifiCorp website.

F. TDG Results

Erik Lesko shared the presentation, Total Dissolved Gas and Temperature Assessment at Lewis River Hatchery, which accompanies the April 12, 2019 report that Lesko sent to the ATS. The study was completed in August and September 2017 during warm temperatures when there is a higher chance of exceeding TDG thresholds.

The main takeaways of the presentation were as follows:

- The upwelling system does not raise TDG significantly.
- Aeration towers appears to reduce TDG levels (which is helpful in summer months).
- In-river TDG can be high and contributes to high TDG in the hatchery environment.
- There is some concern about low dissolved oxygen levels in the downstream end of Pond 14 (spring Chinook and coho)—if this is a stressor, the reuse wall could be modified. (Hatchery staff indicated there are few dissolved oxygen problems at the hatchery, however.)
- There are daily drops in TDG around 7-9 am.
 - This is likely not related to feeding because feeding does not occur every day.
 - ATS members thought perhaps this could be related to photoperiods or temperature changes and were curious to find out more.

Questions and comments followed Lesko's presentation. From a fish health perspective, Sean Roon said Lewis River Hatchery occasionally sees small mortality events, where fish have signs of emboli that indicate potential gas bubble trauma. He said he has not observed explicit critical signs of gas bubble trauma but expects the fish might be experiencing a stress response. He said fish show critical signs of GBT at 110% saturation, but the hatchery response may be stronger because the fish are unable to regulate depth in the relatively shallow rearing environments. Aaron Roberts said hatchery staff historically observed emboli in gills and eyes, and bacterial kidney disease (BKD) was also very high when gas levels were high. But, with the fish being reared in raceways now that are larger than their previous rearing environments, it appears this is less of an issue now. Roon said he has also observed higher BKD levels in groups with different rearing strategies so incidences of BKD may or may not be related to gas levels.

Chamberlain noted that running the towers all of the time would significantly reduce head pressure (by 30%), which means that it is not feasible to continually run. Roberts noted that TDG becomes entrained at Merwin Power Plant and does not release by the time water reaches Lewis River Hatchery. The ATS thanked Lesko for the presentation and observed that degassing towers can be effective to reduce over saturation but need to be used selectively. There is also a dip in TDG in the early morning that the ATS was curious to determine the cause and potential effects of.

3. Review June Meeting Topics (Montgomery)

The ATS discussed the following topics which should be added to the June agenda:

- 2020 screw trapping protocols
- Approve the 2019 AOP
- H&S Plan Objectives review/finalize (get Rich on the phone!)
- Reschedule of July meeting

4. Aquatic Technical Subgroup Administration (Montgomery)

The next meeting will be on August 1, 2019, at the WDFW Ridgefield, Washington, office.

5. List of Attendees

Name	Affiliation
Erik Lesko	PacifiCorp
Tom Wadsworth	WDFW
Kevin Young	WDFW
Kale Bentley	WDFW
Aaron Roberts	WDFW
Mike Chamberlain	WDFW
Sean Roon	WDFW
Bryce Glaser	WDFW
Greg Robertson*	USFS
Amanda Froberg*	Cowlitz PUD
Sarah Montgomery	Anchor QEA
Peggy Miller*	WDFW

Note:

* Joined by phone