

**FINAL Meeting Notes
Lewis River License Implementation
ACC Fish Passage Subcommittee Meeting
September 21, 2022
MS Teams Meeting**

Attendees

Christina Donehower – Cowlitz Indian Tribe
Amanda Froberg – Cowlitz PUD
Steve West – Lower Columbia Fish Recovery Board
Beth Bendickson – PacifiCorp
Eric Hansen – PacifiCorp
Nathan Higa – PacifiCorp
Chris Karchesky – PacifiCorp
Todd Olson – PacifiCorp
Danny Didricksen – WDFW
Sam Gibbons – WDFW
Bryce Glaser – WDFW
Josua Holowatz – WDFW
Erin Peterson – WDFW
Jeffrey Garnett – USFWS
Bill Sharp – Yakama Nation Fisheries

Introductions, Review Agenda and Meeting Notes

Todd Olson, PacifiCorp, briefly reviewed the meeting agenda. He would like to give a high level walk through of the draft fish passage plan (version 09192022 for ACC Fish Passage Subcommittee Review) after design team updates.

Updates

Eric Hansen, PacifiCorp, provided an update on the Yale downstream fish passage facility. There is interest in the alternative analysis. The design criteria technical memo which includes the 2022 NMFS criteria is nearly finished. The current challenge is with the marine mooring design and the fish offload transfer to shore. The team is trying to think of something bigger and better. The plan is to submit the 30% functional design slide deck to the subgroup and meet as a group during the week of December 14-18, 2022 to review the PowerPoint slides and to avoid the Christmas holiday week. He suggested a 4-hour meeting time. The PowerPoint will discuss criteria and show various plan sections, e.g., the floating surface collector, fish-handling, truck handling, fish attraction, fish guide net, etc.

Nathan Higa, PacifiCorp, provided an update on the Yale upstream fish passage facility. Things are plugging away similar to the downstream project. The draft CFD modelling report on alternatives for Yale is currently under review. He will forward it once the review is complete. The design team is also developing the hydraulic model for Swift. They have some ideas as only a few alternatives are viable. Currently, the team is working towards the 30% design.

Chris Karchesky, PacifiCorp, provided an update on the Yale Fish Behavior Study (Attachment A) and shared some slides from the preliminary study report. As noted by Eric, the design team is working on the technical memo and 30% design. The final study report that will be included in the 30% design will have more details on fish behavior and results from the spring 2022 study.

Comments

Bryce Glaser, WDFW, inquired if there would be additional work happening in the fall and winter. Chris said no; as the amount of time it takes to get data processed limits that as well as lead time for procuring additional acoustic tags. The other reason was that during the spring 2022 study, the research team was able to observe fish behavior under a wide range of operational conditions including multiple spill events and full powerhouse generation. The only reason to consider doing a follow-up study in the fall would be to capture these events, which typically occur more so in the fall. Currently, there are plans to conduct another study in spring 2023.

PacifiCorp Draft Fish Passage Plan

Proposal Review Elements

Todd said he appreciated all the comments he's received so far. In this draft, he tried to focus on the key elements we need to know about - design and operation. How are we going to work together over the next few years to design and build facilities that meet the intent of what we're trying to do? How do we build in adaptability?

- The introduction has changed. The drivers included removing reference to past process regarding new information and trying to focus on a forward-looking document. Hopefully, we can reach agreement on everything soon so we can provide it to FERC who can then accept the dates we've laid out. December is coming fast. He would like to get to a point in October to where we can agree on the plan.
- Section 2: Comment by Lower Columbia Fish Recovery Board.
- Section 3: Comment from WDFW regarding the need for information about studies and design review. (30/60/90 percent design submittals). Todd clarified that and then talked about different alternatives for fish transport. The last paragraph is the preferred alternative that came out of the preferred analysis.
- Section 4: Added the new proposal from the utilities to delay construction of the Merwin downstream fish passage date to June 26, 2032. PacifiCorp is looking at expanding the Merwin Dam spillway to achieve FERC's probable maximum flood passage requirements. This will likely result in adding spillway and would be completed in 2032. The proposal

timeline would sync up the dates. Utilities understand the delay and are willing to mitigate for it.

- Section 5: Todd added clarification that there would be a single facility for anadromous fish and for bull trout, and that we are designing to the new NMFS criteria. USFWS is still working on the bull trout criteria and he didn't know when it would be available. Ultimately, the Services will need to approve designs before they go to FERC for their review and approval.
- Section 6: An alternative analysis has been completed for the Yale downstream facility. Such an alternatives analysis has yet to be completed for Merwin downstream as the design teams are super busy and took time from advancing the design to develop the alternatives analysis table on the other three fish passage projects. Todd would like to get feedback on the level of analysis.
- Section 7: This section is reflective of what the subgroup has agreed to. To have facilities that can accommodate large numbers of fish as fish returns increase over time. Key things – initially Utilities proposed using EDT Abundance estimates, however we are now proposing using EDT Capacity estimates as a starting point and providing some buffer for increasing fish returns. Bryce thinks we are getting to a better place, maybe consider life cycle models to estimate capacity to help develop different levels of fish using thresholds. It may be a more robust effort than the EDT model. Todd added that part of this is timing in providing direction to the design team. This document is trying to do that. If there is a different way of coming to the quantity of fish numbers that we all agree on; that's fine. He just doesn't want to get all the way to the 60% design and then have to redesign at a higher cost to the project. He appreciated Bryce's comments and said the point here is how do we figure out what the quantity buffer is? Using EDT Capacity bumps up the quantity of fish numbers. He is open to looking at other ways, but in a timely manner. Using EDT Capacity increases from 1,100 to 1,800 for adult coho and 210 to 365 spring Chinook. Bryce added that as we all know, populations vary. In strong return years, we often receive many, many more than the capacity can accept. He wants to emphasize that there could be years when more natural fish come back. "Excess" above capacity. We need to think of what the highest quantity number would look like, and then design for those numbers. EDT Capacity may under estimate what is needed. Maybe more discussion is needed. Bryce said he understands the design team will need to know. You want to build to the quantity that may come in the future. Todd noted that right now, it's getting agreement on building the entrance and ladder size, we can add fish holding capacity at a later point in time if needed.
- Section 8: This section is pretty much the same. He clarified characterization.
- Section 8a: It's a decision process that the ACC would go through. They would make recommendations to the Services for approval.
- Section 9: This section hasn't really changed. He edited it for clarity.
- Section 10: This section hasn't really changed. He edited it for clarity.

- Section 11: He pointed this section back to SA 7.4 of the Settlement Agreement.
- Section 12: The final designation for bull trout, salmon, steelhead, etc. would be per the Transportation Plan.
- Section 13: This section points back to Settlement Agreement He added more information around what studies and monitoring activities will include.
- Section 14: The Utilities are interested in doing something in this arena to get resolution on all the issues. Pushing the downstream Merwin fish passage to 2032 would play into this. Once we get close to agreement on the previous sections, we can share our proposal.
- Regarding a Gant chart on the schedule, it has been added to each project schedule. The attached schedules identify high-level milestones to show FERC the process. The more detailed project schedules will be provided to the ACC at the December 30% design meeting.

Bryce appreciated Todd walking through the plan. He said WDFW will provide comments after reviewing it.

Todd then walked through one of the alternative documents (Exhibit A. Yale Upstream Fish Passage Alternatives Analysis). From Bryce's perspective, it hits the mark on what they had asked for at the last meeting (alternatives and pros/cons). One of the other items was, "were there any other prior analyses (historical documents) done on the Swift Downstream project?" Todd said he believed that early on there was something similar done to this level (fixed entrance vs. a floating surface collector, and how a fixed entrance wouldn't work because of flood control). He pointed out that there may be sub alternatives to the alternatives (For example, where do you put the fish entrance?). He encouraged folks to look at the documents that were sent out and said if there are additional pros/cons or things you don't agree with, please let him know.

Todd proposed to move future fish passage subgroup meetings to the afternoon of the ACC meetings. It seemed to work for most folks. Beth Bendickson, PacifiCorp, will reschedule the meetings.

Bill Sharp, Yakama Nation Fisheries, asked about the Merwin spillway modifications on flood control. Todd said that FERC had us go back and remodel for the probable maximum flood level on the Lewis River as they've changed the level to a much larger flood event. PacifiCorp now needs to be able to pass that kind of flow for Swift, Merwin, and Yale. At Merwin, as the lowest dam on the river, it has the largest cumulative amount of water to pass. Todd has not heard of any updates regarding Yale or Swift spillway expansions. Right now the thought is Merwin doesn't have enough spill gate capacity. Looking upstream to the left towards the village, we could potentially add an additional spillway on that side. The amount hasn't been determined yet. Bill asked about the ability to pass fish over the spillway. Todd asked if he meant cracking a spillgate during outmigration was the suggested alternative. Bill said yes. Nathan said, according to his recollection, we currently have about one-half the spillway capacity we need. We don't have a completed analysis but most concepts call for a comprehensive rebuild or addition to the spillway. To get an increase in flow, you need to add gates or make the existing gates wider and taller or

deeper. It's a major project. From an engineering cost standpoint, it's not an efficient use of resources to build expensive structures like fish passage only to have to redo them later when their spillway structure has to be rebuilt. For reference, a similar completed spillway project would be the Ruskin Dam in Canada which has seven gates identical to Merwin. There they removed all seven Merwin style gates and replaced them with five larger more modern gates, increasing the overall spillway capacity. Regarding the compliance due date changes, Bryce said a lot of our comments are centered on Merwin downstream. If they were to agree to a delay, while not ideal, it would allow more time to work through the other Merwin alternatives. He suggested maybe having an additional presentation on what the modification would look like. The other piece we need to understand is the target date of when comments are requested. Their time is spread thin due to other projects.

Bryce said the last piece for discussion was the mitigation enhancement funding for ACC. He would like to start discussion at the next ACC meeting, if possible. Todd said if folks are finding the fish passage plan is something they can live with, then discussion can move to enhancement funding. The Utilities are in favor.

Regarding meeting notes, from a process standpoint Bryce said the group should review the notes from the past three months and provided comments, if any, to Beth. They will then be finalized.

Lastly, Eric asked about 30% design meeting date. The group agreed to a tentative date of December 14, 2022. Beth will schedule the Teams meeting for the subgroup.

Action Items from September 21, 2022	Status
Review new version of Draft Proposal and provide comments and/or suggested language on how to word things) to Beth or Todd by October 6, 2022.	
Review historical documents from original Swift Downstream construction.	
Reschedule ACC Fish Passage meetings to after ACC meetings (2:30-4:30).	Complete
Review June, July, and August meeting notes and provide comments to Beth.	
Schedule tentative 30% Design meeting for December 14, 2022 (12:30–4:30)	Complete

Next meeting: October 13, 2022

Meeting adjourned at 4:30 PM.

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Attachment A

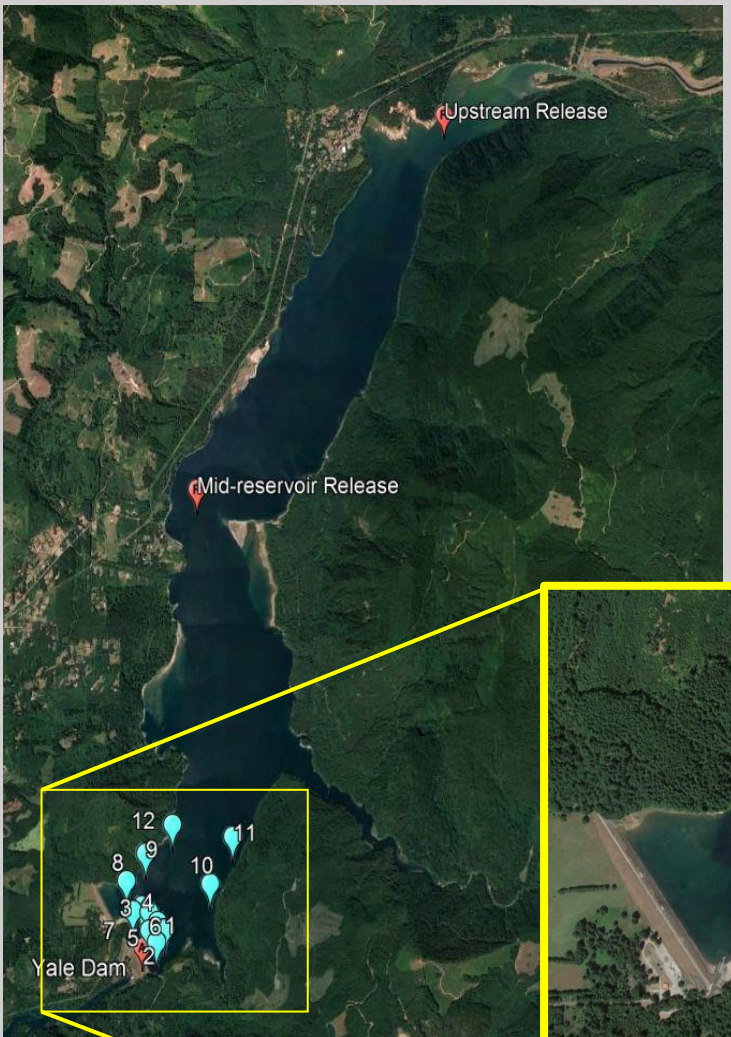
Yale Fish Behavior Study – Spring 2022

Yale Fish Behavior Study – Spring 2022

Release Point	Study Goal (Coho Smolt)	Releases Completed 5/27/22
Upper	195	195
Mid-Reservoir	105	105
	300	300

Study Update

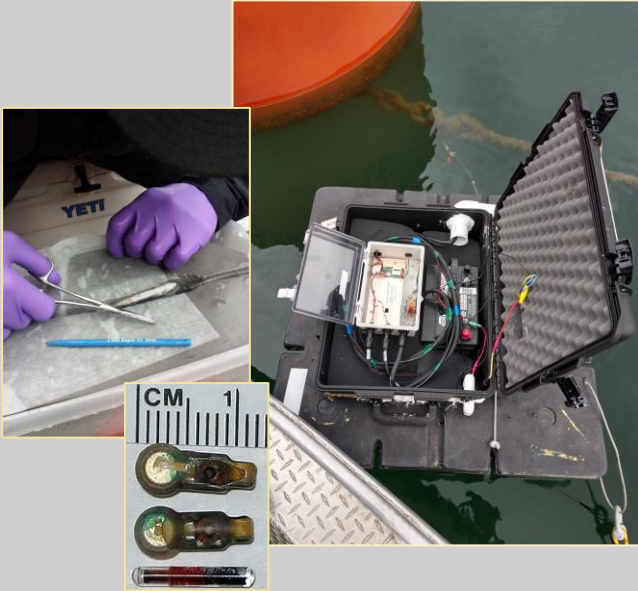
- Field work complete. Acoustic receivers were pulled August 15, 2022.
- Staff are continuing to compile data and prepare TM due later this fall.



Yale Fish Behavior Study – Spring 2022

Reservoir Passage Success

- High transit rate regardless of release location or timing.
- 300 coho smolts tagged with acoustic transmitters and released at each site on 5 separate occasions.
- 266 (89%) individually tagged coho were detected at fixed stations near the dam.
 - 95 (91%) smolts from Mid-Reservoir (DS)
 - 171 (88%) smolts from Upper Reservoir (US)



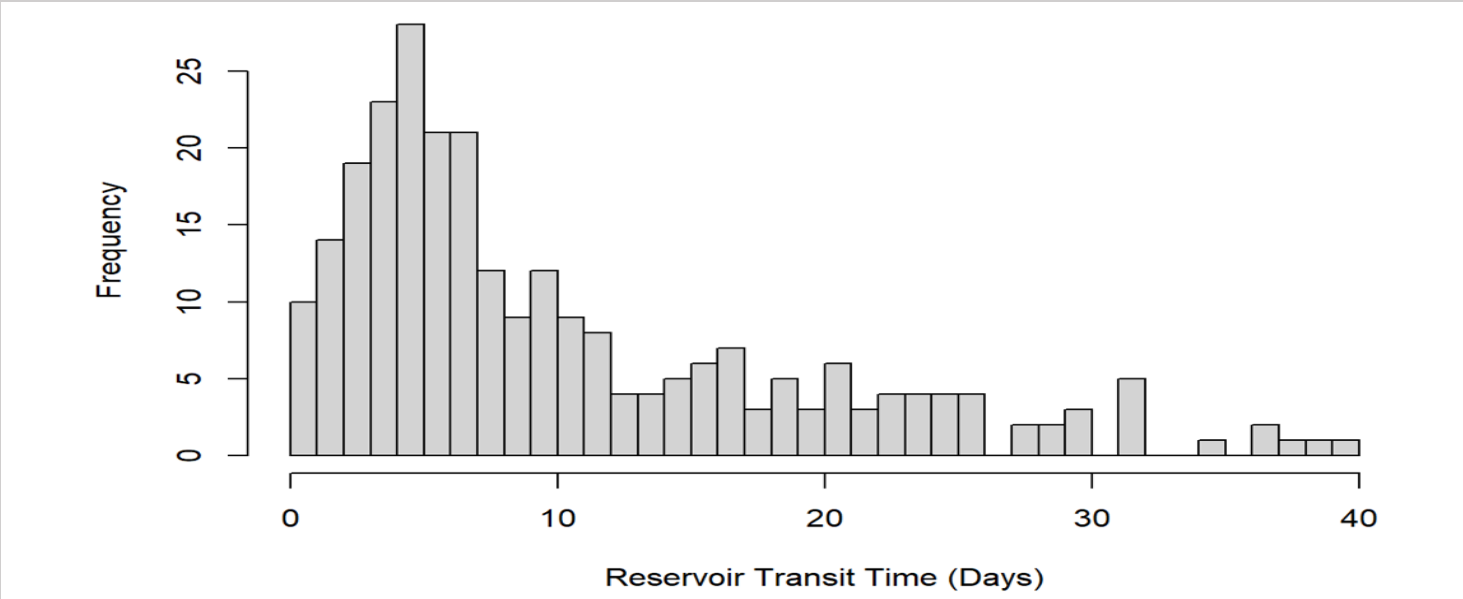
Release Date	Release Location	Released	Detected in Forebay	Cohort P _{PASS}	90% CI
5/5/2022	Downstream	20	20	1.00	0.88, 1.00
5/5/2022	Upstream	40	38	0.95	0.86, 0.98
5/12/2022	Downstream	20	18	0.90	0.74, 0.97
5/12/2022	Upstream	39	31	0.80	0.67, 0.88
5/19/2022	Downstream	20	17	0.85	0.68, 0.94
5/19/2022	Upstream	40	36	0.90	0.80, 0.95
5/25/2022	Downstream	19	18	0.95	0.80, 0.99
5/25/2022	Upstream	40	35	0.88	0.76, 0.94
6/1/2022	Downstream	26	22	0.85	0.70, 0.93
6/1/2022	Upstream	36	31	0.86	0.74, 0.93
Totals	Downstream	105	95	0.91	0.85, 0.94
	Upstream	195	171	0.88	0.83, 0.91
	All	300	266	0.89	0.85, 0.91

Yale Fish Behavior Study – Spring 2022

Reservoir Transit Time

- Study fish moved from their release location to the forebay region relatively quickly.
- Median transit time: ~ 6 days
 - Most fish moved through in 10 days
 - Minimum time less than a day
 - Maximum time about 40 days
- Transit time generally consistent across release locations and groups.
 - 5/12/2022 Upstream outlier

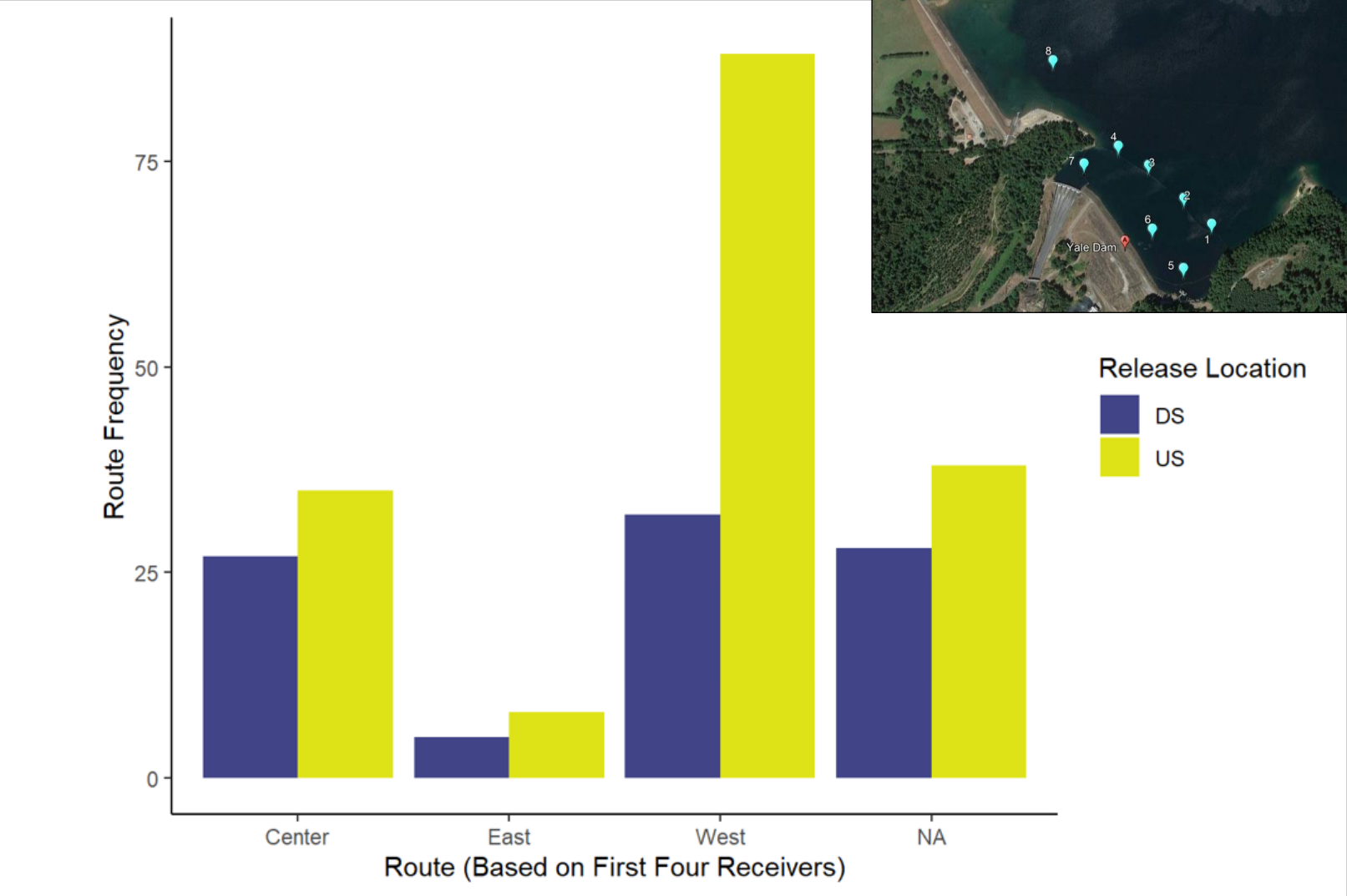
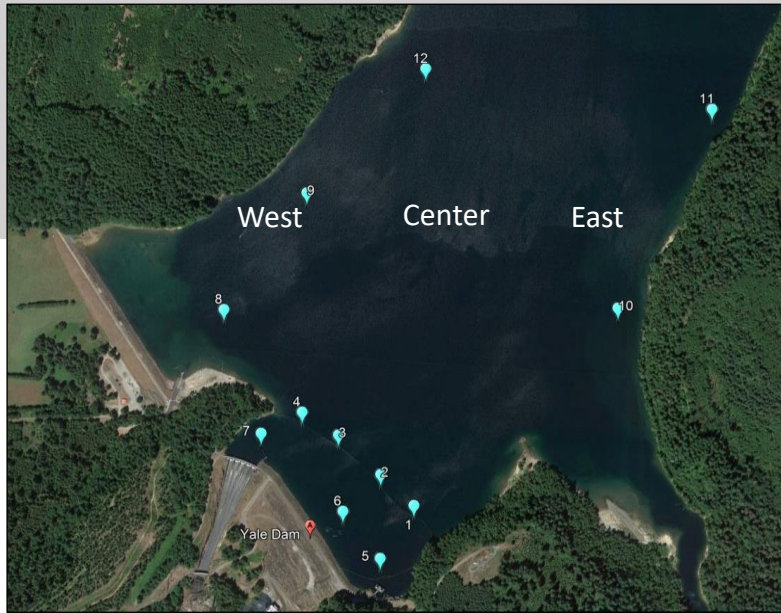
Release Date	Release Location	Minimum Transit Time	Median Transit Time	Maximum Transit Time
5/5/2022	Downstream	1.39 days	9.19 days	31.70 days
5/5/2022	Upstream	1.66 days	5.96 days	39.51 days
5/12/2022	Downstream	0.67 days	8.31 days	34.88 days
5/12/2022	Upstream	1.42 days	13.66 days	37.86 days
5/19/2022	Downstream	1.36 days	6.61 days	25.60 days
5/19/2022	Upstream	0.61 days	6.68 days	22.53 days
5/25/2022	Downstream	0.08 days	6.17 days	28.77 days
5/25/2022	Upstream	0.71 days	4.64 days	29.00 days
6/1/2022	Downstream	3.69 days	8.71 days	36.74 days
6/1/2022	Upstream	1.49 days	5.59 days	38.27 days



Yale Fish Behavior Study – Spring 2022

Forebay Approach

- During their initial approach to the forebay, study fish appear to generally from the western shoreline (river right).
- Study fish generally display milling behavior once in the forebay and are being detected on multiple occasion on all receivers.
- Focus of current analysis is refining signal detection location and creating time synchronized tracks of each fish within the forebay.



Yale Fish Behavior Study – Spring 2022

Characterizing Fish Behavior

- Characterize fish behavior in the forebay region in relation to environmental variables - powerhouse operations and spill events - *Ongoing*
- Forebay conditions varied **a lot** during the study – particularly in May and June.
 - Four multi-day spill events 3-5K cfs
 - Wide range of generation flows (0 – 9,640 cfs)
- Confirmed that fish do orient to surface flow in the forebay and confirmed passage through both spillway and powerhouse.



Event Type	Event Start	Event End	Number of Fish Passed
Generation	2022-05-10 07:00:00	2022-05-11 19:00:00	2
Generation	2022-05-15 07:00:00	2022-05-16 19:00:00	3
Spill	2022-05-19 09:15:00	2022-05-22 14:15:00	1
Spill	2022-05-28 16:00:00	2022-05-30 10:00:00	4
Generation	2022-05-31 07:00:00	2022-06-01 19:00:00	2
Generation	2022-06-02 07:00:00	2022-06-03 19:00:00	3
Generation	2022-06-04 07:00:00	2022-06-09 07:00:00	36
Generation + Spill	2022-06-10 14:15:00	2022-06-15 07:00:00	16
Generation + Spill	2022-06-16 07:00:00	2022-06-20 10:15:00	11
Generation	2022-06-24 07:00:00	2022-06-25 19:00:00	4
Generation	2022-06-26 07:00:00	2022-06-27 19:00:00	0
<i>Total</i>			82