LEWIS RIVER AQUATIC COORDINATION COMMITTEE

Facilitator: ERIK LESKO
503-412-8401

Location: TEAMS MEETING ONLY

Date: April 14, 2022

Time: 9:30 AM – 12:00 PM

AGENDA ITEMS

9:30 AM	Welcome ➢ Review and Accept 4/14/2022 Agenda ➢ Review and Accept 3/10/2022 Meeting Notes
10:00 AM	Public Comment Opportunity
10:15 AM	Future Fish Passage status update and schedule – *Todd Olson*
11:15 AM	Study/Work Product Updates ➢ Flows/Reservoir Conditions Update ➢ Reservoir Shoreline Development Projects ➢ ATS Update ➢ FPS Update ➢ Fish Passage Update ➢ Annual Operations Report ➢ USFWS update on fish stranding above Swift (tentative)
11:45 AM	Next Meeting's Agenda • Review of aquatic fund scoring and evaluation questions • Review of monitoring proposal to evaluate fish stranding in Swift Reservoir Public Comment Opportunity
12:00 PM	Meeting Adjourn

Note: all meeting notes and the meeting schedule can be located at:
https://www.pacificorp.com/energy/hydro/lewis-river/acc-tcc.html

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Or call in (audio only)

+1 563-275-5003,,644857650# United States, Davenport

Phone Conference ID: 644 857 650#

FINAL Meeting Notes
Lewis River License Implementation
Aquatic Coordination Committee (ACC) Meeting
April 14, 2022
TEAMS Meeting Only

ACC Representatives and Affiliates Present (16)
Bridget Moran, American Rivers
Sarah Montgomery Anchor QEA
Eli Asher, Cowlitz Indian Tribe
Steve West, LCFRB
Bonnie Shorin, NMFS
Chris Karchesky, PacifiCorp
Erik Lesko, PacifiCorp
Todd Olson, PacifiCorp
Jim Byrne, Trout Unlimited
Kyle Wright, USFS
Jeff Garnett, USFWS
Aaron Roberts, WDFW
Bryce Glaser, WDFW
Peggy Miller, WDFW
Josua Holowatz, WDFW
Bill Sharp, Yakama Nation

Guests (0)
None

Calendar:

April 14, 2022	ACC Meeting	TEAMS Meeting

Assignments from April 14, 2022	**Status**
Chris Karchesky: Consider conducting public outreach or installing signs at Yale Park to notify anglers fishing Yale Reservoir of the ongoing telemetry study. (Acoustic-tagged coho should be reported as harvest and not as mortalities.)	**Ongoing.**
Erik Lesko: Coordinate with the TCC regarding the timing for WSDOT's Cougar Creek culvert project.	**Ongoing.**

Assignments from March 10, 2022	**Status**
Erik Lesko and Kate Day: Schedule a site visit to the USFS restoration projects in the Lewis River basin in summer 2022.	**Ongoing.**

Assignments from February 10, 2022	Status
Erik Lesko: Revise the questions in the Aquatic Fund Scoring Template to incorporate feedback from 2022 process and provide a revised template for the ACC to consider. Review process recommendations.	**Ongoing.**

Assignments from January 13, 2022	Status
Erik Lesko: Present monitoring strategies for fish stranding assessments in Swift Reservoir in 2022 with the ACC in April.	**Ongoing.**

Assignments from November 16, 2021	Status
Erik Lesko: Extend the Aquatic Fund period of performance for the Chum Channel Project.	**Completed 3/14/2022.**

Opening, Review of Agenda and Meeting Notes
Erik Lesko (PacifiCorp) called the meeting to order at 9:32 a.m. and reviewed the agenda. Lesko deferred the Aquatic Fund and Swift Stranding Plan updates to May.

Lesko reviewed the March 14, 2022, meeting notes. The meeting notes were approved at 9:42 a.m., with clarifying edits from Washington Department of Fish and Wildlife (WDFW) and PacifiCorp.

Public Comment Opportunity
None.

Future Fish Passage
Todd Olson provided an update on future fish passage activities proposed at Yale and Merwin dams. He said the Utilities have proposed a draft Fish Passage plan for how to meet USFWS' and NMFS' (the Services') directives for fish passage. The Utilities' draft plan came out in March 2022. Olson said he has previously discussed this item with the Fish Passage Subcommittee, and members of that committee asked him to provide an overview at this ACC meeting.

The presentation (Attachment A) included details on schedule, design milestones, and initial studies/actions already underway. ACC representatives provided questions and comments throughout, as summarized in the below slides and discussion points.

Lewis River Project

Overview of Draft Fish Passage Proposal

ACC Mtg
April, 2022

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Meeting Agenda

1. Discuss status and schedule for each of the additional Lewis River fish passage facilities:
   a) Yale Downstream
   b) Yale Upstream passage
   c) Swift Upstream passage
   d) Merwin Downstream passage
2. Discuss initial fish passage plan actions
   1. Yale smolt behavior study
   2. CFD modeling of Yale forebay
3. Discussion Items
4. Proposed Next steps

Yale Downstream Fish Passage

1. Collector facility will provide for collection and downstream transport of juvenile and adult fish.
2. Facility to be designed for estimated EDT maximum number of juveniles that could be expected from the Yale habitat (25,780 spring Chinook, 38,107 coho and 8,362 winter steelhead).
3. Facility will be designed to achieve SA annual smolt collection survival (CS) rate of 99.5%, annual fry CS rate of 98.0%, and not to exceed annual smolt injury rate of 2% per Section 4.1.4 of SA.
4. Downstream system in Yaleto be operational November through June each year, with exact operational period dependent on water quality conditions (temperature and DO)consistent with the present operations at the Swift FSC
5. Collected juvenile transport specieswill be uniquely marked and taken downstream to the Woodland Release Ponds
6. Operational by June 26, 2026.

Yale Downstream Fish Passage cont.

Project Manager: Eric Hansen Consultant Team: River Structures, Kleinschmidt

Current project status: Design team under contract. Consideration of design criteria, initiate pre-design studies (see next slide). Focus on location and orientation ofYale FSC.

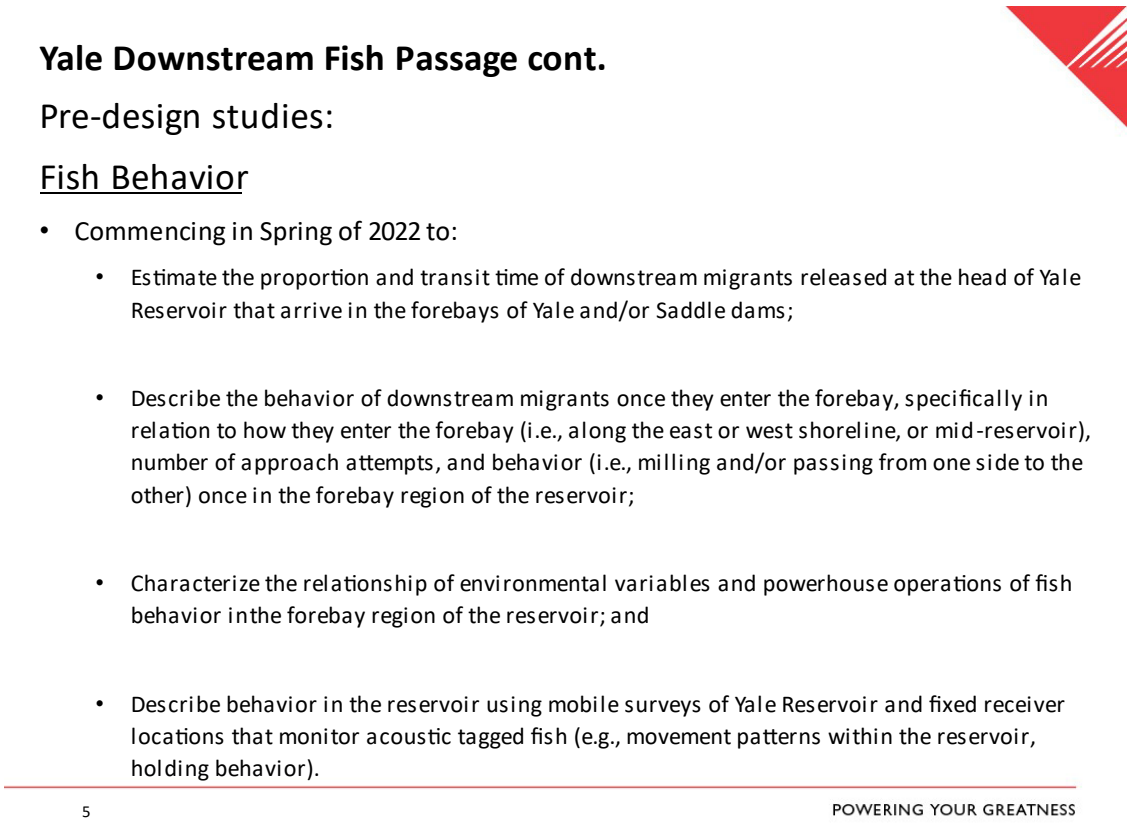
Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2022	SA 4.5: LR: YAL: Notify ACC design work has begun	Yale
12/31/2022	SA 4.5: LR: YAL: Provide 30% Downstream Passage Design to ACC	Yale
9/26/2023	SA 4.5: LR: YAL: Provide 60% Downstream Passage Design to ACC	Yale
12/26/2023	SA 4.5: LR: YAL: Provide 90% Downstream Passage Design to ACC	Yale
1/26/2024	SA 4.5: LR: YAL: Provide Final Downstream Passage Design to Services	Yale
3/26/2024	SA 4.5: LR: YAL: Provide Final Downstream Passage Design to FERC	Yale
6/26/2026	SA 4.5: LR: YAL: Downstream Passage Construction Complete	Yale

Olson said the assigned project manager, Eric Hansen, can participate at the next FPS meeting and answer any detailed questions. Olson said the consultant team includes many industry experts who also worked on the Swift FSC and Merwin upstream transport projects. The

schedule shown here is tentative, and there may be an opportunity to decrease the period between 30% and 60% design. The Utilities and the consultant team are still fine-tuning the schedule.

Peggy Miller asked whether permitting after FERC approval is accounted for in the timeline, which is the process described in the Settlement Agreement. Olson said that has been an issue in the past that delayed projects, but the approach will be to engage with FERC earlier in the process, and submit permit applications at 90% design before FERC's approval is obtained. PacifiCorp's permitting agent will meet with the counties and initate the permit process earlier, which the Utilities expect the counties to be amenable to. The expectation is that small changes between 90% and final design are not of much concern to either the counties or FERC.

Bryce Glaser said this level of detail is very helpful. At the next FPS meeting, the FPS intends to discuss initial comments and concerns about the fish passage proposals. He asked whether the schedules shown here also include time to engage with the FPS in addition to the ACC, with any final reviews being conducted through the ACC. Olson agreed and said the process can be similar to when the Swift FSC was being developed, when an engineering subcommittee was established with monthly meetings to discuss the details of design and fish passage. As designs reached major milestones, they were shared with the ACC. The goal is to reach the ACC review periods with the FPS being fully engaged in the components and details of the projects so that reviews go smoothly. He noted the ACC has several review periods for the designs. He said engagement from the Services and WDFW fish passage engineers would be very helpful and welcome.



Olson said pre-design studies are underway now, which will inform the location and orientation of the floating surface collector in the forebay to maximize passage rates. He suggested that the

FPS discuss any detailed questions on the fish behavior or CFD (Computational Fluid Dynamic) studies.

Yale Downstream Fish Passage cont.

- Acoustic tag 300 juvenile coho from Swift Reservoir FSC and transport downstream to Yale Reservoir.
- Tagged fish will be released at two locations: 1) Head of Yale Reservoir; and 2) mid-point of reservoir. Approximately 2/3 of fish will be released at the head of the reservoir and 1/3 at mid-point.
- Twelve (12) fixed station, autonomous acoustic receivers will be stationed throughout the forebay to determine how fish approach the dams and assess behavior in the forebay.
- Semi-weekly (i.e., twice a week) mobile tracking surveys will be conducted throughout the reservoir to evaluate distribution, movement, and holding patterns of tagged smolts outside of the forebay.
- Fish tagging and associated field activities will be conducted in parallel with the ongoing acoustic telemetry study being conducted at the Swift FSC to assess Collection Efficiency:
- Study Duration: April – August 2022
  - Equipment Mobilization and Calibration – Week of April 25, 2022
  - Fish Tagging and Release – Week of May 2, 2022
  - Mobile Tracking Begins – Week of May 9, 2022
  - Equipment De-mobilization – Week of August 15, 2022
  - Preliminary Results Memorandum – August 2022
  - Final Technical Memorandum – November 2022

Chris Karchesky said a key piece of this behavior study is coordination with the ongoing telemetry study at the Swift FSC. The difference in this study is that equipment will be left in the water longer, and tags will be set with longer ping rates. This should provide more information throughout the season, and preliminary results should be available in August 2022.

Jim Byrne asked what fish will be used in the telemetry study. Karchesky said coho will be collected at the Swift FSC, so that actively smolting fish can be used in the study. Glaser asked why steelhead will not be used. Karchesky said the reason was largely attributed to fish and tag availability and the fact that with the ongoing Swift FSC collection efficiency and ODS studies, he thought that it would be a struggle to get enough fish tagged to make meaningful inference. Also, he noted that based on the results of previous smolt behavior studies in Swift Reservoir, there does not appear to be a significant difference in the guidance behavior between juvenile coho and steelhead. Fish seem consistent in their approach to the forebay and behavior within the FSC until they are in the collection channels, at which point the differences in behavior may even be attributable to size and not species.

Josua Holowatz noted that the telemetry study will be conducted during a popular kokanee fishery. He suggested placing signage so that anglers can report any radio-tagged coho caught as harvested fish instead of needing to assume these fish are natural mortalities in the reservoir. Karchesky said he had not made plans for that because it is so few fish and the probability of harvesting a tagged fish is low. The bigger concern is usually around the hydrophones because Yale Reservoir is popular with recreationists. For this reason and others, most of the hydrophones have been placed on existing log booms and structures instead of individual floats. Karchesky said harvest had not appeared to be an issue for the previous studies, but signage

might help in Yale Reservoir, although he questioned whether anglers would be able to distinguish between kokanee and coho smolts. Olson agreed that signage and/or public outreach, suggested by Glaser, is a good idea and he will consider it.

Karchesky emphasized that intensive mobile tracking for the telemetry study will help to inform how fish move through the reservoir even before they enter the forebay. This study also combines with the CFD study, discussed next, because flow and flow trajectories, including assessments of powerhouse generation and spill, largely affect fish behavior in the forebay.

Yale Downstream Fish Passage cont.

Pre-design studies:

Forebay Hydraulic Model

Develop a series of 3-Dimensional (3D) reservoir Computational Fluid Dynamics (CFD) model to document predicted flow circulation patterns during assumed flow regimes and pool levels. The models will be developed using the most recent release of the *FLOW-3D* computer modeling software developed by Flow Science.

Preliminary Schedule (2022)

April – May: Gather bathymetry and obtain shoreline survey

June – July: General model runs for siting the Yale FSC

August – Sept: Detailed model runs at final location of Yale FSC

Oct – Dec: Prepare memo and final concept presentation for Fish Passage Subgroup

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Karchesky noted the CFD model will incorporate bathymetric data to predict how flow in the forebay changes under different powerhouse conditions and reservoir operations. The results of the CFD modeling effort will be considered alongside the fish behavior study results to provide a full examination of flow, environmental variables, and fish behavior.

Bill Sharp asked if Kleinschmidt will be completing the CFD modeling work. Karchesky said yes, and noted the recent merger between R2 and Kleinschmidt brings more experts in the field onto the consultant team for this project.

Yale Upstream Fish Passage (out of Merwin)

1. Number of adult fish to be released into Merwin based on estimated EDT adult capacity of Merwin tributaries (600 coho; 75 winter steelhead; 0 spring Chinook).
2. Facility to be designed and sized for the estimated number of fish that could enter the facility considering size of Merwin bull trout population and expected straying rate of 10%.
3. Facility will be designed to achieve Upstream Passage Survival of 99.5% per Section 4.1.4 of the SA.
4. Facility to be operational during August through November, and April through May of each year consistent with migration timing.
5. All fish collected will be transported upstream and released into Yale Reservoir.
6. Operational by June 26, 2026

Yale Upstream Fish Passage cont.

Project Manager: Nathan Higa Consultant Team: River Structures, Kleinschmidt

Current project status Design team recently contracted.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2022	SA 4.7: LR: YAL: Notify ACC design work has begun	Yale
12/31/2022	SA 4.7: LR: YAL: Provide 30% Upstream Passage Design to ACC	Yale
7/26/2023	SA 4.7: LR: YAL: Provide 60% Upstream Passage Design to ACC	Yale
10/26/2023	SA 4.7: LR: YAL: Provide 90% Upstream Passage Design to ACC	Yale
12/26/2023	SA 4.7: LR: YAL: Provide Final Upstream Passage Design to Services	Yale
2/26/2024	SA 4.7: LR: YAL: Provide Final Upstream Passage Design to FERC	Yale
6/26/2026	SA 4.7: LR: YAL: Upstream Passage Construction Complete	Yale

Olson noted that designs for multiple projects will be coming to the ACC for review near the same time. He hopes the actual schedules see a slight offset in the review periods, and this upstream passage project may advance design sooner than the downstream projects.

Swift Upstream Fish Passage (out of Yale)

1. Number of adult fish to be released into Yale based on estimated EDT adult capacity of Yale tributaries (1,085 coho; 260 winter steelhead; 210 spring Chinook).
2. Facility to be designed and sized for the estimated number of fish that could enter the facility considering size of Yale bull trout population and expected straying rate of 10%.
3. Facility will be designed to achieve Upstream Passage Survival of 99.5% per Section 4.1.4 of the SA.
4. Facility to be operational during the period of August through November and April through May of each year in consideration of migration timing and impacts of potential high flow events to facility.
5. All fish collected will be transported upstream of Swift Dam.
6. Operational by June 26, 2026.

Glaser said without getting too far into the details, he suggests thinking about the long-term strategy for placing fish in the reservoirs. These initial targets based on the EDT estimates are a good starting point, but may not be the long-term strategy. If there was high adult collection efficiency, it might be the case that all fish should be moved above Merwin Dam and then the fish would distribute naturally. He suggested considering some of these questions before advancing the design too far. Eli Asher agreed and said the Cowlitz Tribe is concerned about constraining upstream capacity through the design of the facilities. Olson said he understands these concerns, and the Utilities are interested in better understanding at what point the goal should be shifted from the proposed numbers to a different goal (like for a swim-through reservoir). Outlining these decision points would be helpful to inform a design that has flexibility to increase the size of traps or holding capacity, and potential migration/operational timing. Bonnie Shorin noted that NMFS is also interested in the passage facility being designed to accommodate what ideally would be growing populations and returns.

Byrne asked where the fish will be released upstream. Olson said fish would probably be released at Eagle Cliff, but that is open to discussion. Consideration is needed, however, for the many challenges of finding a suitable release point due to reservoir elevations and logistics.

Glaser said WDFW recognizes EDT modeling as a valuable tool that can be used to compare habitat capacity, but it is not intended to inform the actual predicted number of fish that could seed an area. He said WDFW will provide some comments on the draft plan around buffering those estimates or planning for uncertainty. He said he fully understands the license requirements around transport species; however, opening up passage and upstream habitat will introduce more uncertainty. It is possible that populations not currently in the license will establish, such as sockeye or other life histories of steelhead. Anticipating this uncertainty and planning around what local adaptation might result in could be important. Olson said these are both good points to

continue discussing. He said he understands building the facilities just to achieve the EDT estimates may not be appropriate. He hopes the FPS will provide input on the buffer to use around those estimates, and the best operational or design approaches (cleaning out traps more frequently, increasing holding capacity, etc.) to address this uncertainty.

Swift Upstream Fish Passage cont.

Project Manager: Nathan Higa Consultant Team: River Structures, Kleinschmidt

Current project status Design team recently contracted.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2022	SA 4.8: LR: SW1: Notify ACC design work has begun	Swift 1
12/31/2022	SA 4.8: LR: SW1: Provide 30% Upstream Passage Design to ACC	Swift 1
7/26/2023	SA 4.8: LR: SW1: Provide 60% Upstream Passage Design to ACC	Swift 1
10/26/2023	SA 4.8: LR: SW1 : Provide 90% Upstream Passage Design to ACC	Swift 1
12/26/2023	SA 4.8: LR: SW1: Provide Final Upstream Passage Design to Services	Swift 1
2/26/2024	SA 4.8: LR: SW1: Provide Final Upstream Passage Design to FERC	Swift 1
6/26/2026	SA 4.8: LR: SW1: Upstream Passage Construction Complete	Swift 1

Merwin Downstream Fish Passage

1. Facility will be a corner collector/bypass system. It will be located in the existing sluiceway spill gate area and associated spillway. A guide net will be installed to move smolts to the bypass.
2. Facility to be designed for estimated EDT maximum number of juveniles that could be expected from the Merwin habitat (14,407 coho and 2,365 winter steelhead).
3. Facility will be designed to achieve SA annual smolt survival rate of 99.5%, annual fry survival rate of 98.0%, and not to exceed annual smolt injury rate of 2% per Section 4.1.4 of the SA.
4. Downstream system to be operational for the period of March through June each year during smolt outmigration.
5. All fish regardless of species to be bypassed downstream of Merwin dam; no unique marking/tagging of any bypassed fish.
6. Operational by June 26, 2028.

Olson said, as a bypass facility, this project may include cameras or other mechanisms to better understand fish that pass through the system. Glaser said he understands the proposed bypass design is intended to be less complex than collectors in the upper river; however, a discussion is needed about collecting and handling at least some fish, for either future monitoring and evaluation activities or marking. It will be important to differentiate fish from Merwin and Swift reservoirs if they are both unmarked. And, survival and collection efficiency will also likely need to be understood throughout the system. The kokanee program could also be affected by a bypass system. Overall, he said collection and handling of fish in some capacity is likely going to be needed as part of the design and is an item for further discussion. Shorin and Asher agreed with Glaser. Asher noted particular importance to marking fish (as needed) in the early reintroduction phases. Olson asked for clarification that the request is to discuss subsampling a portion of the fish, not sampling and handling all fish passing through the system. Glaser said sometimes subsampling can be problematic, and it would be best to have the flexibility to handle as many fish as are needed. For example, the license discusses ocean recruitment analyses. The facility should be designed to address whatever monitoring and evaluation needs will be required. He suggested at least discussing sampling needs to inform the design. Byrne noted that a sampling design would need to be robust enough to study the effects of passage on the large kokanee population. Asher said he is not as concerned about the kokanee population, because if fish given the opportunity to continue through Merwin Dam choose to do so, that is their choice to migrate. For sizing the facility though, kokanee should definitely be a consideration. He said a simple bypass does not give enough capacity for adaptive management in general. Holowatz also shared concerns about passage of pikeminnow. Invasive species or species detrimental to lower river populations are another reason to consider fish screening needs.

Merwin Downstream Fish Passage cont.

Project Manager: Ian McGrath Consultant Team: TBD

Current project status Seeking internal approvals and then procurement of consultant team.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2024	SA 4.6: LR: MER: Notify ACC design work has begun	Merwin
12/31/2024	SA 4.6: LR: MER: Provide 30% Downstream Passage Design to ACC	Merwin
9/26/2025	SA 4.6: LR: MER: Provide 60% Downstream Passage Design to ACC	Merwin
12/26/2025	SA 4.6: LR: Mer: Provide 90% Downstream Passage Design to ACC	Merwin
1/26/2026	SA 4.6: LR: MER: Provide Final Downstream Passage Design to Services	Merwin
3/26/2026	SA 4.6: LR: MER: Provide Final Downstream Passage Design to FERC	Merwin
6/26/2028	SA 4.6: LR: MER: Downstream Passage Construction Complete	Merwin

Discussion Items:

1. Construction schedules (driver =Confirmation of schedules for filing with FERC)
2. Yale smolt behavior study, CFD modeling, other? (driver = Yale Downstream design)
3. Number of adults to be released into Yale and Merwin Reservoirs (driver = Yale and Merwin Upstream design)
4. Other mitigation

Olson said because the timeline for this project is to be operational by 2028, pre-design studies are still being identified. With time available in the schedule to plan for these studies, the Utilities will be looking for input on the studies, which could include a fish passage behavior study, CFD modeling, or others.

Asher asked to confirm that the Utilities are proposing an additional 2-year delay beyond the Settlement Agreement timeline. Olson confirmed the schedule is to complete fish passage at Merwin Dam by June 2028. He said the Utilities would like to proceed with the ACC's agreement on these proposed schedules so the schedules can be filed with FERC. Asher said the schedules seem suitably aggressive and anticipates that hitting those design milestones will be tight. He said he is happy to see the Utilities proceeding with fish passage, and in order to support the proposed schedules, he looks forward to discussing mitigation for the delay in passage. Shorin said NMFS would also like to discuss measures being considered to account for the temporal loss of function that was anticipated to be gained, now that these projects are off the timeline described in the Settlement Agreement.

Glaser said he is curious about any cost or informational efficiencies that could be gained by doing the fish behavior (telemetry) studies in both reservoirs at the same time, or completing the modeling sooner. Olson said the logistics of implementing a telemetry study are very challenging, including acquiring the hydrophones and tags, and it would not be feasible to conduct that study at Merwin Dam this year. The goal is to conduct the study in Yale Reservoir this year, and move the equipment down to Merwin next year. Karchesky agreed and said ideally, the entire reservoir could be evaluated at once, but that is just not feasible.

Olson asked for feedback on any additional studies or information needs. One item previously brought up by NMFS staff was to gather water quality data in the forebay, which is currently being collected. Olson said he understands input provided about adding a buffer around the number of fish that the facility should be designed for and that can be discussed with the FPS.

Glaser asked about the progress on the Yale Habitat Preparation Plan, which includes putting coho on the spawning grounds early. Because that could have impacts to fisheries management or fish transport, he asked that the plan be provided soon for discussion. Olson said it will be available soon for the ATS to discuss.

Proposed Next Steps

- ACC Fish Passage subgroup April 20, 2022 meeting:
  - Introduction of Hansen
  - Yale downstream status and near-term design activities (Hansen and Karchesky)
    - ID major considerations
    - Status of studies
    - Key design decisions
  - Development of Yale Habitat Preparation Plan (Lesko)

Olson said he understands ACC representatives are interested in discussing compensatory mitigation. One item to consider is that increased hatchery production of kokanee may be requested in order to compensate for kokanee that choose to leave the reservoir. He suggested an increase in production of around 30% might appropriately compensate for this loss. Glaser said he appreciates the concern for the kokanee fishery and agrees that additional hatchery production may be appropriate. However, WDFW is currently working through fisheries management approaches that might be needed to address programs in these reservoirs as a result of future fish passage and suggested that additional monitoring of the resident fishery itself would be informative to the effects of fish passage. WDFW has already initiated some of this work due to the popularity of the fishery. It is important to understand the contribution of hatchery production to the fishery vs. natural-origin. Studies such as these could inform the mitigation number and the contribution of hatchery fish to the kokanee fishery. He said it is important to evaluate the fishery better before deciding on more production. Olson agreed and said monitoring the fishery makes sense before deciding on increased production. Asher also agreed with this approach and suggested evaluating angler satisfaction and feedback regarding desired size and quality of fish. Glaser thanked Asher for his attention to angler interests.

Olson said another aspect of compensatory mitigation is related to the schedule, which Steve Manlow initially brought up. Asher said this discussion hinges on the Utilities' avoidance of making progress on fish passage requirements. As a result, there will be years of no production from habitats in Merwin and Yale reservoirs, and it makes sense to discuss mitigation for this delay. Steve West agreed with Asher and said the five years or more of lost production is an entire generation or more of fish. Olson described the Utilities' approach to implementing the license requirements, which was consistent with the Settlement Agreement's allowance for conducting studies to inform additional fish passage or doing in lieu mitigation. He reviewed the timeline that the Utilities followed and how the Utilities were acting under the Services directions during the period in which in lieu was being evaluated. Asher said Olson's timeline left out key information that should be considered alongside the timeline. For instance, he said materials provided to the scientific workgroup were corrupted by special interests and technical issues, which affected how decision makers approached the issues. He said another issue was lobbying to try to turn the preliminary determinations around. He said while the delay may ultimately be traceable to timelines that hinged on Services' decisions, the responsibility for the delay is still with the Utilities. He said the Cowlitz Tribe would like an acknowledgment of the delay, and he personally does not favor the messaging from PacifiCorp legal staff on this issue. Olson said he is not in a position to respond to many of Asher's comments, but he is interested in moving these discussions forward and agreeing on next steps. He said he appreciates the engagement from the ACC and the FPS on these discussions and understands there is interest in compensatory mitigation.

Shorin said NMFS would be interested in mitigation that helps address the species for which passage will be provided and would have been provided at an earlier date if the delay had not occurred. As an example, she noted there is hatchery water intake diversion on lower Speelyai Creek. Its removal could open up additional miles of functional habitat, which would make the success of passage more robust when it is completed in exchange for the temporal loss.

Bridget Moran said American Rivers concurs with Asher's assessment and said any delays because of the Services' decision-making timeframe do not overwrite license requirements. Any

temporal delays would be out of compliance with the FERC license, and she said American Rivers appreciates discussions around concrete ways to compensate for this.

Glaser said WDFW also supports discussing compensatory mitigation. Olson thanked the ACC representatives for their input and engagement on concrete ways to move forward. He said the Utilities want to know the ACC's potential ideas that can benefit the species for which fish passage will be provided.

Asher said he appreciates Olson's response and supports moving forward with these ambitious schedules, understanding the complications around hatchery mitigation and compensatory mitigation. He suggested that in order to move forward quickly, one option would be to agree to a reasonable amount to spend on mitigation and put it into the ACC fund so that it can be spent on projects in the tributaries to Merwin and Yale reservoirs. Asher said it is important not to feel that the delay is a total loss, due to the effort that all parties have spent on engaging on this topic and enforcing the requirements of the Settlement Agreement. Olson said that agreeing to an amount rather than a specific suite of actions is certainly another option to pursue.

Steve West said from his and Steve Manlow's regulatory background, he agrees with the comments that have been made by other ACC representatives and wants to emphasize that mitigation is not meant to be punitive. Mitigation would be provided to account for additional impacts to populations, and mitigation is additive to reintroduction and recovery.

Shorin suggested using the amount that was proposed in the in-lieu fund as a starting point to a quantitative assessment of how the mitigation value for the delay could be calculated. Olson said that fund is no longer available but adding funds to the Aquatic Fund is an option. He suggested avoiding the term "in lieu" moving forward, so that stakeholders do not get confused about future fish passage.

Glaser said he is in general agreement with the overall approach being discussed, and WDFW will also discuss this more internally. He noted that WDFW is not in alignment with viewing the entire watershed as having separate populations in Yale and Merwin reservoirs – he said WDFW views it as one population. He said actions taken to any of the reservoirs should aim to advance recovery of each population as a whole.

Olson said the ACC can continue to discuss this item and assign certain technical topics to the FPS. Glaser agreed and said the FPS should focus on technical aspects like schedules, designs, and studies. Discussions about mitigation should occur at the ACC level. Olson said this topic will remain on the ACC agenda for May and he may be in touch with representatives sooner regarding schedules.

Study/Work Product Updates

Swift 1 Maintenance

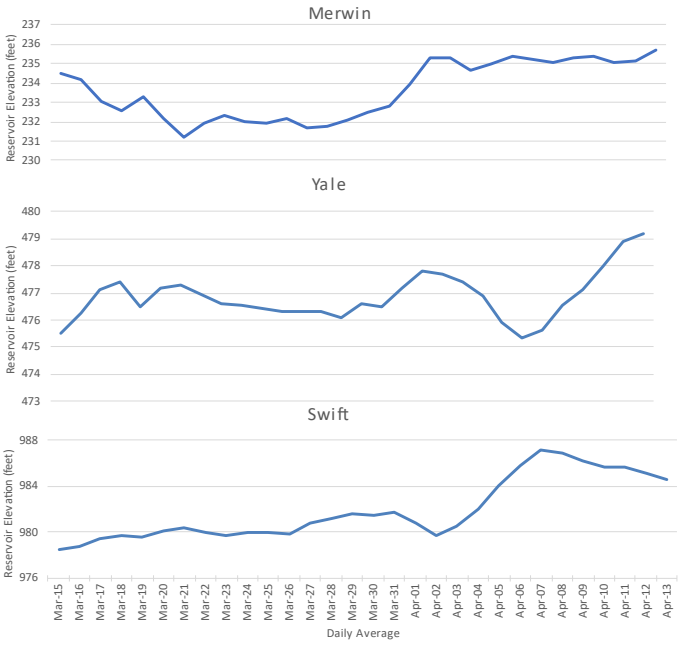
Erik Lesko said this topic is a follow-up to an email he sent to the ACC on April 1, 2022, regarding dewatering of the penstock at Swift 1 for maintenance. He shared slides showing the Swift Dam and power canal locations, and said the bypass has a minimum flow requirement described in the Settlement Agreement. Flows in the bypass reach are provided by a siphon, so if the Swift 1 turbines are not generating, the spillgates need to be cracked open in order to generate flow. Lesko said a fish salvage crew was on hand throughout the maintenance period (April 2 to April 8) to check for fish and conduct salvage if necessary. There were no issues with

fish during the maintenance closure and flows remained above the minimum flow requirement. ACC representatives had no questions for Lesko.

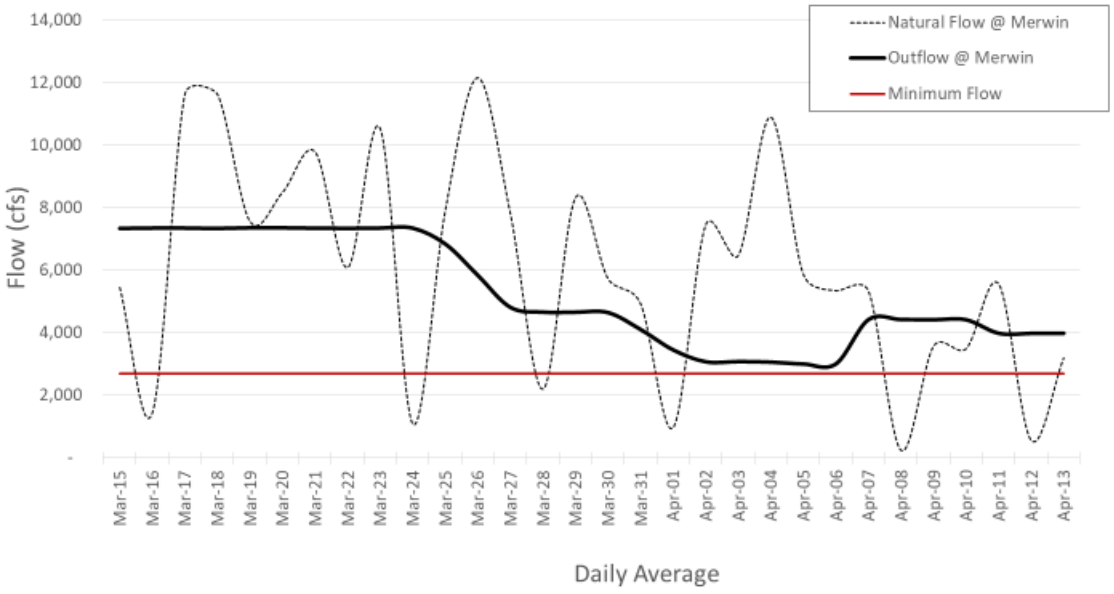
Flows/Reservoir Conditions Update

Daily Average Reservoir Elevations – past 30 days

Total Reservoir draft 29.88 feet



Natural Flows and Actual outflow from Merwin – past 30 days



Shoreline Development Update
Lesko provided an update on various shoreline development and other projects (Attachment B).

Shoreline Development Project Update

1. Yale IP road/trail plan
   - PacifiCorp filed an extension of time request to submit a proposal of a multi-use trail network. EOT request in to 12/31/2022

2. Cougar Creek culvert improvements WSDOT – June 2022

- *Tom Kohl (WSDOT) – "Cougar Creek has been depositing sediment in the reach immediately upstream of the culvert for some time. This aggradation is forcing the creek gradually to the east, causing pressure on the highway embankment. Eventually the creek will entrain along the roadway before entering the culvert".*
  - *Recommended Actions*
    - *Cut (1) tree that has fallen over creek upstream of culvert*
    - *Excavation of a portion of gravel bar upstream of culvert*
    - *Rebuild bank immediately upstream of culvert using rocks, logs with rootwads and geotex tiles*

Q. Timing of fish use?
Q. Consistent with terms of Cougar Creek Covenant?

For the Yale road and trail plan project, Lesko said PacifiCorp filed an extension of time request (for another year), to implement this multi-use trail network described in the Settlement Agreement. In the extension period, PacifiCorp will work to submit a proposal for the trail network to FERC.

Lesko said WSDOT's Cougar Creek culvert improvement project is ongoing, and he received an update from the TCC. This project includes rebuilding the bank upstream of the culvert crossing and was originally planned for June 2022. The current timeline for the project is not known. Peggy Miller said excavation of gravel is a particular concern in this area because of potential turbidity effects to bull trout. There are no anticipated impacts to Wildlife Habitat Management Plan (WHMP) lands because most of the work, like geotechnical exploration, will happen within WSDOT's right of way. Lesko asked if the timing of the project is appropriate given the concerns about bull trout. Byrne said June is probably an acceptable time for bull trout because peak spawning occurs in September to October, but if USFWS is going to operate the photographic weir in Cougar Creek on behalf of PacifiCorp, this project may have an effect on that. Lesko said he will coordinate with the TCC to better understand the status of the project and proposed timing.

Fish Passage Subcommittee Update

Olson said PacifiCorp staff will attend the FPS meeting next week and can discuss some of the following items in more detail:

- Proposed schedules
- Telemetry studies
- Upcoming key design decisions
- Strategies for implementing the Yale Habitat Preparation Plan

Glaser said he favors the schedule being the highest priority item for the FPS to discuss. He said as the FPS gets into more details, it would be helpful to have more support to effectively capture notes and discussions. Asher has been doing this in the short term. Glaser asked whether this is something PacifiCorp could support in the long term to make sure the FPS has the administrative resources it needs to be successful. Olson said PacifiCorp is working to fill the current vacant position that could support this work and hopes to have someone on board soon. He suggested that PacifiCorp take on this responsibility starting in June if not sooner. Asher and Glaser thanked him and said they will continue the organizational and note-taking duties in the meantime.

ATS Update

Lesko reported that FERC approved the 2020 H&S Plan. The ATS is currently working to finish the 2022 AOP. This version includes a significant rewrite of the monitoring and evaluation sections and makes a lot of progress in addressing the key questions included in the H&S Plan. The ATS has been discussing the smolt-to-adult return rate calculations, total dissolved gas monitoring at Lewis River Hatchery, and overall rearing considerations for spring Chinook salmon at the hatcheries. Lesko reported that both screw traps are in operation in the Lewis River and so far, collections have been going well this year. Crews noticed a large number of chum come through the lower river trap and asked whether there have been chum releases in the basin. Holowatz responded no, but WDFW staff have also observed a large number of spawning chum and chum carcasses during spawning ground surveys. Lesko said it is good to hear that naturally produced chum are doing well in the basin and the ATS can further discuss how to handle the large numbers in the trap. Lesko said late winter steelhead broodstock collection and collections for upstream transport are going well so far. Redd surveys are ongoing through June.

Lesko said PacifiCorp is working to produce the draft Annual Operations Report and plans to make it available for a 30-day ACC review around May 1. FERC has been made aware of the extension for the report until June 30, but FERC has not responded yet with final approval for this timeline. Nevertheless, the target submittal date is June 30 to FERC.

Merwin Fish Passage Update (see also Attachment C)

Chris Karchesky reported that the Merwin Trap was currently in operation. He said winter steelhead are returning, and spring Chinook adults are starting to return. So far, the returns for winter steelhead are below average, and program fish and natural-origin returns continue to be passed upstream. So far, about twenty-four steelhead have been taken to Merwin Hatchery for broodstock. For spring Chinook, so far about 150 have been collected, with 134 allocated to broodstock and twenty-five natural-origin returns passed upstream. He anticipates that collections for spring Chinook will increase as the month continues. Aaron Roberts agreed and said collections for spring Chinook are about on par with the 20-year average, and slightly higher than the previous three to four years. Karchesky asked if the fishery below Merwin Dam is still ongoing. Holowatz replied yes, and the limit is one spring Chinook per day until April 30.

Swift Floating Surface Collector (see also Attachment D)
Chris Karchesky reported that the Swift Reservoir FSC was currently in operation. Passage studies through the FSC are underway, including both telemetry (collection efficiency) and overall downstream survival studies. He said monitoring and evaluation field work is also moving forward.

Lewis River Fish Passage
See Attachment E.

Services Update on Fish Stranding Above Swift Dam
No update was available.

Public Comment Opportunity
None present.

Agenda Items for May 12, 2022
- Review April 14, 2022, Meeting Notes
- Monitoring Proposal to evaluate fish stranding in Swift Reservoir (Update)
- Habitat Preparation Plan (Update)
- Future Fish Passage Update
- Decision Item (Potential): Approve Schedules for Fish Passage
- Aquatic Fund Scoring Template Updates
- Study/Work Product Updates

Adjourn 11:30 am

Next Scheduled Meeting

April 14, 2022
Teams Call Only
9:30 a.m. – 12:00 p.m.

Meeting Handouts & Attachments
- Meeting Notes from 3/10/2022
- Agenda from 4/14/2022
- **Attachment A –** Overview of Draft Fish Passage Proposal
- **Attachment B –** Shoreline Development Project Updates
- **Attachment C –** Merwin Adult Trap Collection Report (March 2022)

- **Attachment D –** Swift FSC Facility Collection Report (March 2022)
- **Attachment E –** Lewis River Fish Passage Report (March 2022)

Lewis River Project

Overview of Draft Fish Passage Proposal

ACC Mtg
April, 2022





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Meeting Agenda

1. Discuss status and schedule for each of the additional Lewis River fish passage facilities:
    a) Yale Downstream
    b) Yale Upstream passage
    c) Swift Upstream passage
    d) Merwin Downstream passage
2. Discuss initial fish passage plan actions
    1. Yale smolt behavior study
    2. CFD modeling of Yale forebay
3. Discussion Items
4. Proposed Next steps

Yale Downstream Fish Passage

1. Collector facility will provide for collection and downstream transport of juvenile and adult fish.
2. Facility to be designed for estimated EDT maximum number of juveniles that could be expected from the Yale habitat (25,780 spring Chinook, 38,107 coho and 8,362 winter steelhead).
3. Facility will be designed to achieve SA annual smolt collection survival (CS) rate of 99.5%, annual fry CS rate of 98.0%, and not to exceed annual smolt injury rate of 2% per Section 4.1.4 of SA.
4. Downstream system in Yale to be operational November through June each year, with exact operational period dependent on water quality conditions (temperature and DO) consistent with the present operations at the Swift FSC.
5. Collected juvenile transport species will be uniquely marked and taken downstream to the Woodland Release Ponds.
6. Operational by June 26, 2026.

Yale Downstream Fish Passage cont.

Project Manager: Eric Hansen Consultant Team: River Structures, Kleinschmidt

Current project status: Design team under contract. Consideration of design criteria, initiate pre-design studies (see next slide). Focus on location and orientation of Yale FSC.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2022	SA 4.5: LR: YAL: Notify ACC design work has begun	Yale
12/31/2022	SA 4.5: LR: YAL: Provide 30% Downstream Passage Design to ACC	Yale
9/26/2023	SA 4.5: LR: YAL: Provide 60% Downstream Passage Design to ACC	Yale
12/26/2023	SA 4.5: LR: YAL: Provide 90% Downstream Passage Design to ACC	Yale
1/26/2024	SA 4.5: LR: YAL: Provide Final Downstream Passage Design to Services	Yale
3/26/2024	SA 4.5: LR: YAL: Provide Final Downstream Passage Design to FERC	Yale
6/26/2026	SA 4.5: LR: YAL: Downstream Passage Construction Complete	Yale

Yale Downstream Fish Passage cont.

Pre-design studies:

Fish Behavior

- Commencing in Spring of 2022 to:
  - Estimate the proportion and transit time of downstream migrants released at the head of Yale Reservoir that arrive in the forebays of Yale and/or Saddle dams;
  - Describe the behavior of downstream migrants once they enter the forebay, specifically in relation to how they enter the forebay (i.e., along the east or west shoreline, or mid-reservoir), number of approach attempts, and behavior (i.e., milling and/or passing from one side to the other) once in the forebay region of the reservoir;
  - Characterize the relationship of environmental variables and powerhouse operations of fish behavior in the forebay region of the reservoir; and
  - Describe behavior in the reservoir using mobile surveys of Yale Reservoir and fixed receiver locations that monitor acoustic tagged fish (e.g., movement patterns within the reservoir, holding behavior).

Yale Downstream Fish Passage cont.

- Acoustic tag 300 juvenile coho from Swift Reservoir FSC and transport downstream to Yale Reservoir.
- Tagged fish will be released at two locations: 1) Head of Yale Reservoir; and 2) mid-point of reservoir. Approximately 2/3 of fish will be released at the head of the reservoir and 1/3 at mid-point.
- Twelve (12) fixed station, autonomous acoustic receivers will be stationed throughout the forebay to determine how fish approach the dams and assess behavior in the forebay.
- Semi-weekly (i.e., twice a week) mobile tracking surveys will be conducted throughout the reservoir to evaluate distribution, movement, and holding patterns of tagged smolts outside of the forebay.
- Fish tagging and associated field activities will be conducted in parallel with the ongoing acoustic telemetry study being conducted at the Swift FSC to assess Collection Efficiency:
- Study Duration: April – August 2022
  - Equipment Mobilization and Calibration – Week of April 25, 2022
  - Fish Tagging and Release – Week of May 2, 2022
  - Mobile Tracking Begins – Week of May 9, 2022
  - Equipment De-mobilization – Week of August 15, 2022
  - Preliminary Results Memorandum – August 2022
  - Final Technical Memorandum – November 2022

Yale Downstream Fish Passage cont.

Pre-design studies:

Forebay Hydraulic Model

Develop a series of 3-Dimensional (3D) reservoir Computational Fluid Dynamics (CFD) model to document predicted flow circulation patterns during assumed flow regimes and pool levels. The models will be developed using the most recent release of the *FLOW-3D* computer modeling software developed by Flow Science.

Preliminary Schedule (2022):

April – May: Gather bathymetry and obtain shoreline survey

June – July: General model runs for siting the Yale FSC

August – Sept: Detailed model runs at final location of Yale FSC

Oct – Dec: Prepare memo and final concept presentation for Fish Passage Subgroup

Yale Upstream Fish Passage (out of Merwin)

1. Number of adult fish to be released into Merwin based on estimated EDT adult capacity of Merwin tributaries (600 coho; 75 winter steelhead; 0 spring Chinook).
2. Facility to be designed and sized for the estimated number of fish that could enter the facility considering size of Merwin bull trout population and expected straying rate of 10%.
3. Facility will be designed to achieve Upstream Passage Survival of 99.5% per Section 4.1.4 of the SA.
4. Facility to be operational during August through November, and April through May of each year consistent with migration timing.
5. All fish collected will be transported upstream and released into Yale Reservoir.
6. Operational by June 26, 2026.

Yale Upstream Fish Passage cont.

Project Manager: Nathan Higa

Consultant Team: River Structures, Kleinschmidt

Current project status: Design team recently contracted.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2022	SA 4.7: LR: YAL: Notify ACC design work has begun	Yale
12/31/2022	SA 4.7: LR: YAL: Provide 30% Upstream Passage Design to ACC	Yale
7/26/2023	SA 4.7: LR: YAL: Provide 60% Upstream Passage Design to ACC	Yale
10/26/2023	SA 4.7: LR: YAL: Provide 90% Upstream Passage Design to ACC	Yale
12/26/2023	SA 4.7: LR: YAL: Provide Final Upstream Passage Design to Services	Yale
2/26/2024	SA 4.7: LR: YAL: Provide Final Upstream Passage Design to FERC	Yale
6/26/2026	SA 4.7: LR: YAL: Upstream Passage Construction Complete	Yale

Swift Upstream Fish Passage (out of Yale)

1. Number of adult fish to be released into Yale based on estimated EDT adult capacity of Yale tributaries (1,085 coho; 260 winter steelhead; 210 spring Chinook).
2. Facility to be designed and sized for the estimated number of fish that could enter the facility considering size of Yale bull trout population and expected straying rate of 10%.
3. Facility will be designed to achieve Upstream Passage Survival of 99.5% per Section 4.1.4 of the SA.
4. Facility to be operational during the period of August through November and April through May of each year in consideration of migration timing and impacts of potential high flow events to facility.
5. All fish collected will be transported upstream of Swift Dam.
6. Operational by June 26, 2026.

Swift Upstream Fish Passage cont.

Project Manager: Nathan Higa

Consultant Team: River Structures, Kleinschmidt

Current project status: Design team recently contracted.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2022	SA 4.8: LR: SW1: Notify ACC design work has begun	Swift 1
12/31/2022	SA 4.8: LR: SW1: Provide 30% Upstream Passage Design to ACC	Swift 1
7/26/2023	SA 4.8: LR: SW1: Provide 60% Upstream Passage Design to ACC	Swift 1
10/26/2023	SA 4.8: LR: SW1 : Provide 90% Upstream Passage Design to ACC	Swift 1
12/26/2023	SA 4.8: LR: SW1: Provide Final Upstream Passage Design to Services	Swift 1
2/26/2024	SA 4.8: LR: SW1: Provide Final Upstream Passage Design to FERC	Swift 1
6/26/2026	SA 4.8: LR: SW1: Upstream Passage Construction Complete	Swift 1

Merwin Downstream Fish Passage

1. Facility will be a corner collector/bypass system. It will be located in the existing sluiceway spill gate area and associated spillway. A guide net will be installed to move smolts to the bypass.
2. Facility to be designed for estimated EDT maximum number of juveniles that could be expected from the Merwin habitat (14,407 coho and 2,365 winter steelhead).
3. Facility will be designed to achieve SA annual smolt survival rate of 99.5%, annual fry survival rate of 98.0%, and not to exceed annual smolt injury rate of 2% per Section 4.1.4 of the SA.
4. Downstream system to be operational for the period of March through June each year during smolt outmigration.
5. All fish regardless of species to be bypassed downstream of Merwin dam; no unique marking/tagging of any bypassed fish.
6. Operational by June 26, 2028.

Merwin Downstream Fish Passage cont.

Project Manager: Ian McGrath Consultant Team: TBD

Current project status: Seeking internal approvals and then procurement of consultant team.

Tentative Project Schedule		
Due Date	**Name**	**Facilities**
6/1/2024	SA 4.6: LR: MER: Notify ACC design work has begun	Merwin
12/31/2024	SA 4.6: LR: MER: Provide 30% Downstream Passage Design to ACC	Merwin
9/26/2025	SA 4.6: LR: MER: Provide 60% Downstream Passage Design to ACC	Merwin
12/26/2025	SA 4.6: LR: Mer: Provide 90% Downstream Passage Design to ACC	Merwin
1/26/2026	SA 4.6: LR: MER: Provide Final Downstream Passage Design to Services	Merwin
3/26/2026	SA 4.6: LR: MER: Provide Final Downstream Passage Design to FERC	Merwin
6/26/2028	SA 4.6: LR: MER: Downstream Passage Construction Complete	Merwin

Discussion Items:

1. Construction schedules (driver = Confirmation of schedules for filing with FERC)
2. Yale smolt behavior study, CFD modeling, other? (driver = Yale Downstream design)
3. Number of adults to be released into Yale and Merwin Reservoirs (driver = Yale and Merwin Upstream design)
4. Other mitigation

Proposed Next Steps

- ACC Fish Passage subgroup April 20, 2022 meeting:
  - Introduction of Hansen
  - Yale downstream status and near-term design activities (Hansen and Karchesky)
    - ID major considerations
    - Status of studies
    - Key design decisions
  - Development of Yale Habitat Preparation Plan (Lesko)

Shoreline Development Project Update

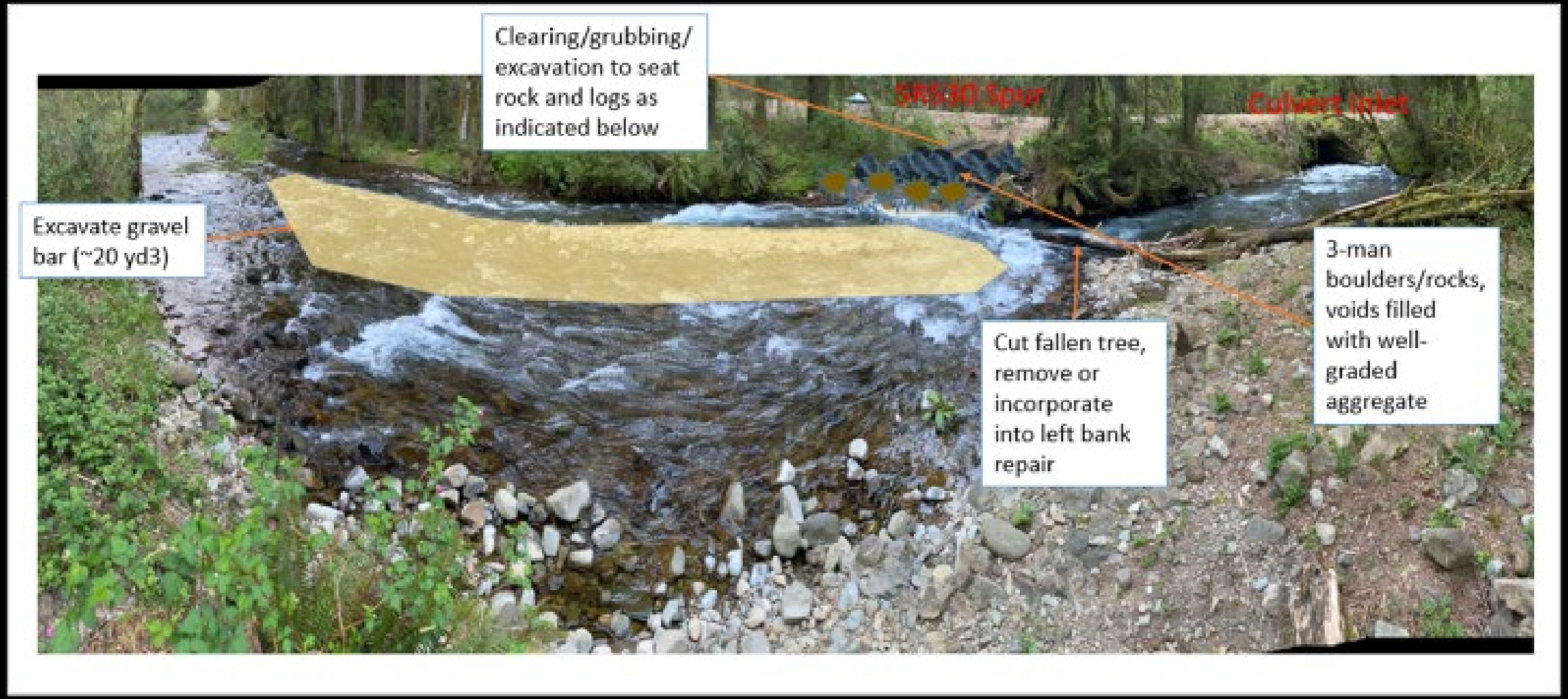
1. Yale IP road/trail plan
   - PacifiCorp filed an extension of time request to submit a proposal of a multi-use trail network. EOT request in to 12/31/2022

2. Cougar Creek culvert improvements WSDOT – June 2022

- *Tom Kohl (WSDOT) – "Cougar Creek has been depositing sediment in the reach immediately upstream of the culvert for some time. This aggradation is forcing the creek gradually to the east, causing pressure on the highway embankment. Eventually the creek will entrain along the roadway before entering the culvert".*
  - *Recommended Actions*
    - *Cut (1) tree that has fallen over creek upstream of culvert*
    - *Excavation of a portion of gravel bar upstream of culvert*
    - *Rebuild bank immediately upstream of culvert using rocks, logs with rootwads and geotex tiles*

  Q. Timing of fish use?

  Q. Consistent with terms of Cougar Creek Covenant?



Conceptual Recommended Action

Fish Facility Report
Merwin Adult Trap
March 2022

Reporting Date	Spring Chinook (1)									Early Coho											
	AD-Clip			Wild			Recap			AD-Clip			CWT			Wild			Recap		
	M	F	JK	M	F	JK	M	F	JK	M	F	JK	M	F	JK	M	F	JK	M	F	JK
1-Mar																					
2-Mar																					
3-Mar																					
4-Mar																					
5-Mar																					
6-Mar																					
7-Mar																					
8-Mar																					
9-Mar																					
10-Mar																					
11-Mar																					
12-Mar		1																			
13-Mar																					
14-Mar																					
15-Mar																					
16-Mar				1																	
17-Mar	1																				
18-Mar	2																				
19-Mar			1																		
20-Mar																					
21-Mar																					
22-Mar																					
23-Mar	3	2																			
24-Mar	1																				
25-Mar																					
26-Mar	1																				
27-Mar		1																			
28-Mar	2	1																			
29-Mar																					
30-Mar	2	3																			
31-Mar	1	1		2																	
Monthly	13	9	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual	13	10	1	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Reporting Date	Late Coho												S. Steelhead					
	AD-Clip			CWT			Wild			Recap			Fresh		Recap		Wild	
	M	F	JK	M	F	JK	M	F	JK	M	F	JK	M	F	M	F	M	F
1-Mar																		
2-Mar																		
3-Mar																		
4-Mar																		
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25-Mar																		
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27-Mar																		
28-Mar																		
29-Mar																		
30-Mar																		
31-Mar																		
Monthly	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Annual	1	0	1	0	0	0	5	1	3	0	0	0	0	0	0	0	0	0

Reporting Date	W. Steelhead								Fall Chinook								
	AD-Clip		BWT		Recap		Wild		AD-Clip			Wild			Recap		
	M	F	M	F	M	F	M	F	M	F	JK	M	F	JK	M	F	JK
1-Mar		1	2					1									
2-Mar	0																
3-Mar																	
4-Mar	3		9														
5-Mar			6														
6-Mar			1				1	1									
7-Mar	1		5				5	1									
8-Mar	8	1	6	1				2									
9-Mar	3	1	6	2			3	1									
10-Mar	1		1	1			1										
11-Mar	2		3	1			5	7									
12-Mar	2		2	2			2										
13-Mar			6	1			2										
14-Mar		1	4	1			1										
15-Mar			3				1										
16-Mar			1	1													
17-Mar	1		3					1									
18-Mar	1		4	2			2										
19-Mar	1		4	1													
20-Mar		1	1	1													
21-Mar			1					1									
22-Mar				1			1										
23-Mar			1	1			1										
24-Mar			4	1													
25-Mar			4					1									
26-Mar			2				1										
27-Mar	1	1	1	2			1										
28-Mar		1	3	2				1									
29-Mar		1	1														
30-Mar	2	3	3	1				1									
31-Mar		1	1														
Monthly	26	12	88	22	0	0	27	18	0	0	0	0	0	0	0	0	0
Annual	370	278	115	34	0	0	37	28	0	0	0	5	2	0	0	0	0

Reporting Date	Sockeye		Chum		Pink		Cutthroat	Rainbow (< 20 inches)	Bull Trout	Daily Total
	M	F	M	F	M	F				
1-Mar										4
2-Mar										
3-Mar										
4-Mar							1			13
5-Mar										6
6-Mar										3
7-Mar										12
8-Mar										18
9-Mar										16
10-Mar										4
11-Mar							4			22
12-Mar										9
13-Mar										9
14-Mar										7
15-Mar										4
16-Mar										3
17-Mar										6
18-Mar										11
19-Mar										7
20-Mar										3
21-Mar										2
22-Mar										2
23-Mar										8
24-Mar										6
25-Mar										5
26-Mar										4
27-Mar										7
28-Mar										10
29-Mar										2
30-Mar										15
31-Mar										6
Monthly	0	0	0	0	0	0	5	0	0	224
Annual	0	0	0	0	0	0	6	0	0	915

1 Only hatchery verses wild distinctions are currently being made. All hatchery fish are labeled as "AD-Clip".
2 Total counts do not include recaptured salmon.

Fish Facility Report

Swift Floating Surface Collector

March 2022

	Coho			Chinook			Steelhead				Cutthroat			Bull	Planted	
Day	**fry**	**parr**	**smolt**	**fry**	**parr**	**smolt**	**fry**	**parr**	**smolt**	**kelt**	**fry**	**<13 in**	**> 13 in**	**Trout**	**Rainbow**	**Total**
1	2	155	11		5	3			0					0	1	**177**
2		303	90		1	5			2			5		0	4	**410**
3	2	190	138		1	7			2			1		0	1	**342**
4		184	323		1	8			2			2		0	3	**523**
5	3	225	138			9			3			4		0	16	**398**
6	6	266	117			27			1			3		1	11	**432**
7	5	420	208	5		23			4			7		0	4	**676**
8	1	265	115			10			1			10		0	5	**407**
9	20	192	39		1	5			0			1		0	0	**258**
10	24	450	70		4	30			0			8		0	12	**598**
11	30	219	46	16	4	24			1			5		0	8	**353**
12	16	369	32			16			8					0	13	**454**
13	12	164	4			4			5					0	0	**189**
14	1	123	17			16			0			1		0	8	**166**
15	4	96	14			21			0					1	8	**144**
16																
17																
18		36	6	1		5			0			2		0	12	**62**
19	4	44	32	8	1	13			0			4		0	16	**122**
20	4	34	27	4		13		5	1			1		0	7	**96**
21		50	36			0			0					0	17	**103**
22		94	94			8			4					1	37	**238**
23	1	138	122			19			11			10		0	56	**357**
24	1	91	115		1	14			1			1		0	40	**264**
25	2	138	93			40			1			1		0	61	**336**
26	23	102	50			13			2			2		0	27	**219**
27	23	55	117			46			4					0	43	**288**
28	4	62	117			25			2			1	1	0	26	**238**
29	1	79	103			16			1					0	38	**238**
30		79	144			14			1			1		1	46	**286**
31		62	88		1	11			4			3		0	35	**204**
Monthly	189	4685	2506	34	20	445	0	5	61	0	0	73	1	4	555	**8578**
Total	241	13617	3399	34	138	1177	5	9	116	0	2	112	6	6	610	**19472**

Lewis River Fish Passage Report

March 2022

Merwin Fish Collection Facility and General Operations

During the month of March, a total of 224 fish were captured at the Merwin Dam Adult Fish Collection Facility (MFCF). Similar to January and February, winter steelhead were the most prevalent species collected this month (n= 193), followed by Spring Chinook (n= 26) and cutthroat trout (n= 5). All natural-origin Spring Chinook were transported upstream of Swift Dam, while all hatchery-origin Spring Chinook were given to Washington Department of Fish and Wildlife for broodstock.

The MFCF was taken out of service March 2nd through March 3rd due to high flows below Merwin Dam, which exceeded the operational parameters of the facility. Otherwise, the MFCF was operational for the remainder of the month. Flows below Merwin Dam were generally decreasing as the month progressed (Figure 1).

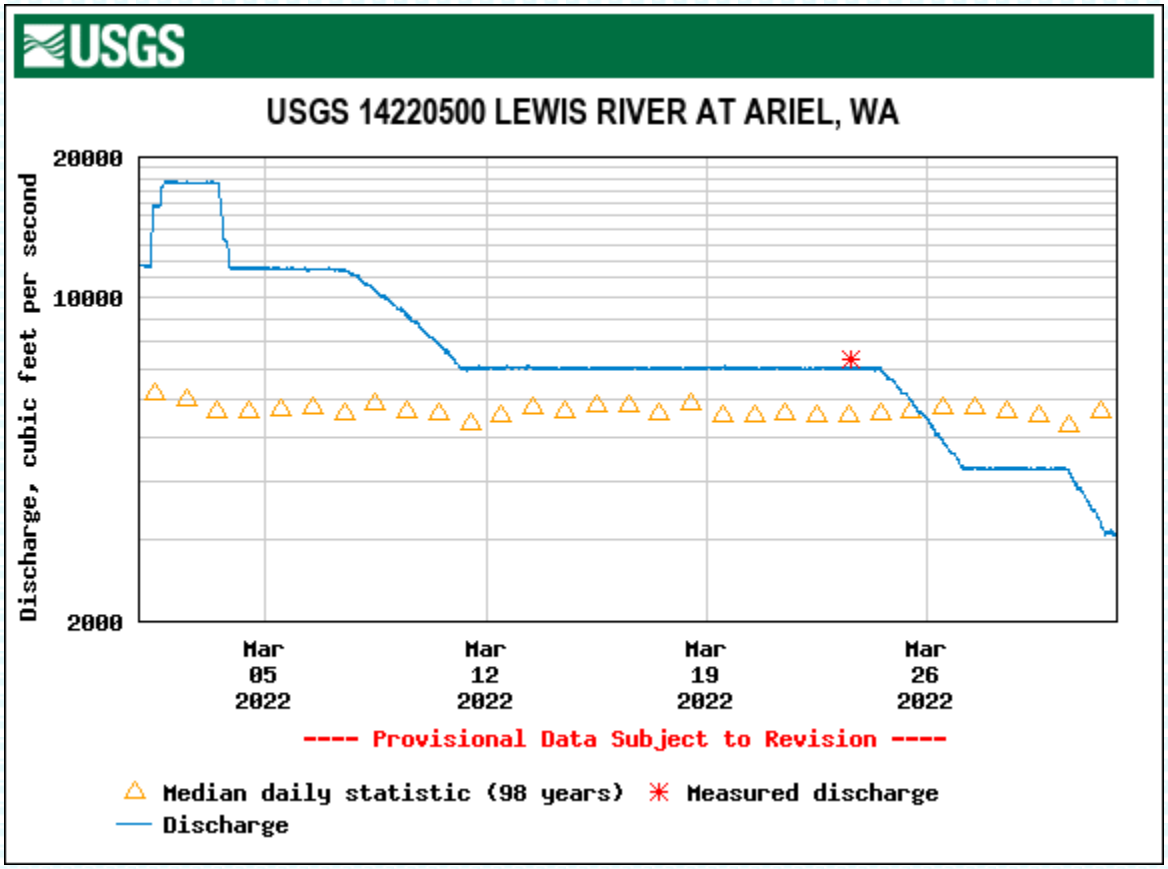

Figure 1. Discharge in cubic feet per second recorded at the USGS Ariel, WA gauge (14220500) located immediately downstream of Merwin Dam.

One natural-origin steelhead collected at the MFCF in March had been previously PIT tagged. For 2022, two wild winter steelhead and one cutthroat trout captured by Merwin Trap were previously PIT tagged. Both steelhead were tagged as juveniles at the Swift FSC in May of 2020, while the cutthroat was tagged at the Merwin Trap in 2021.

Upstream Transport

Upstream transport totals increased in the month of March, when compared to February. A total of total of 155 adult fish were transported above Swift Dam this month, the majority of which were Blank Wire Tag Winter steelhead (n=110). NOR winter steelhead (n= 37), cutthroat trout (n=5), and Spring Chinook (n= 3) made up the balance of the fish transported upstream in March. For calendar year 2022 to-date, 198 winter steelhead (146 BWT/52 NOR), eight NOR coho, six cutthroat trout, and five NOR spring Chinook have been transported upstream of Swift Dam.

Floating Surface Collector (FSC)

The Swift Reservoir Floating Surface Collector (FSC) was taken out of operation March 16 – 17, 2022, in order to accommodate the installation of a V-fyke in the fish channel. Other than this planned outage, the Swift FSC ran continuously throughout the month. A total of 8,578 fish were collected during the month, representing a roughly 27 percent increase over February's total. Coho were the most predominant species collected in March (n= 7,380), followed by hatchery rainbow trout (n= 555), spring Chinook (n= 499), cutthroat trout (n= 74), steelhead (n= 66), and Bull Trout (n=4). All Bull Trout were returned to Swift Reservoir. More coho were collected in March 2022 than any previous March since the commissioning of the facility in 2013 (Table 1).

Table 1: Total number of out-migrating juvenile salmonids (by species) collected at the Swift FSC during the month of March since 2013.

	March Collection Totals by Run Year at the Swift FSC				
Run Year	**Coho**	**Chinook**	**Steelhead**	**Cutthroat**	**TOTAL**
2013	586	28	3	21	**638**
2014*	-	-	-	-	**-**
2015	3,644	588	25	36	**4,293**
2016	2,469	264	28	63	**2,824**
2017	2,415	98	28	60	**2,601**
2018	1,093	1,751	31	46	**2,921**
2019	647	151	5	13	**816**
2020	3,223	7,146	74	44	**10,487**
2021	1,309	438	31	27	**1,805**
2022	7,380	499	66	74	**8,019**

***Swift FSC was not operational**

The observed length frequency distributions for coho indicate that two Brood Years (2019 and 2020) were represented, with the majority of the fish collected being composed of the younger, 2020 Brood

Year. Spring Chinook length frequencies were distributed across a broad range (81 – 220 mm), indicating multiple brood years were collected (Figure 3). Too few juvenile steelhead were collected in March to make a meaningful inference on their length frequency distribution.

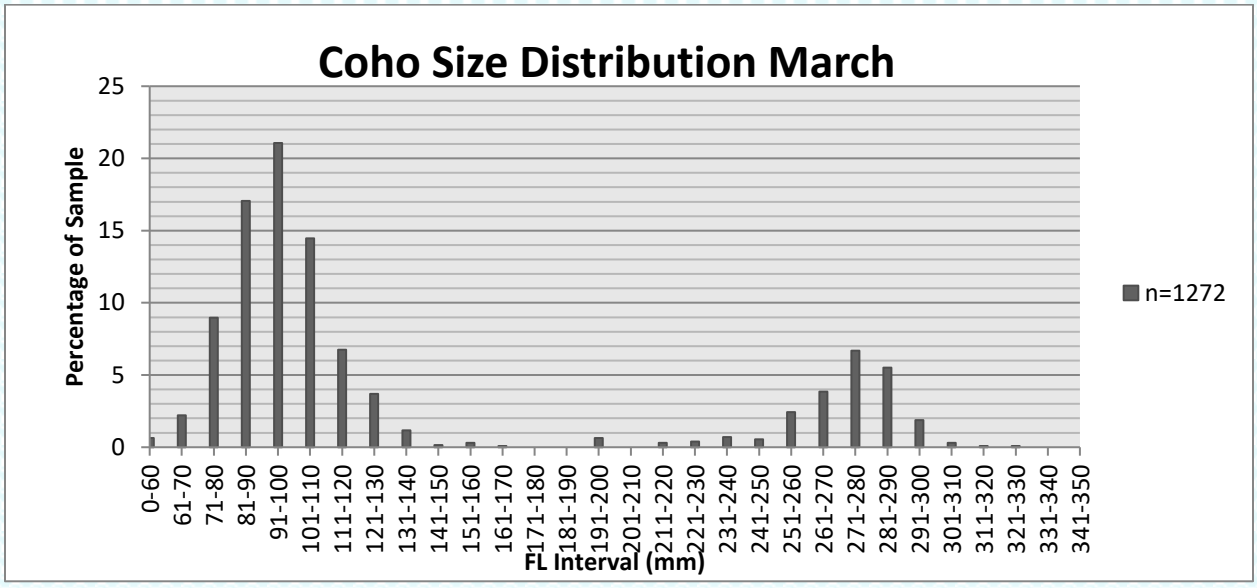

Figure 2. Observed length frequency distribution of coho collected at the Swift FSC during the month of March, 2022.

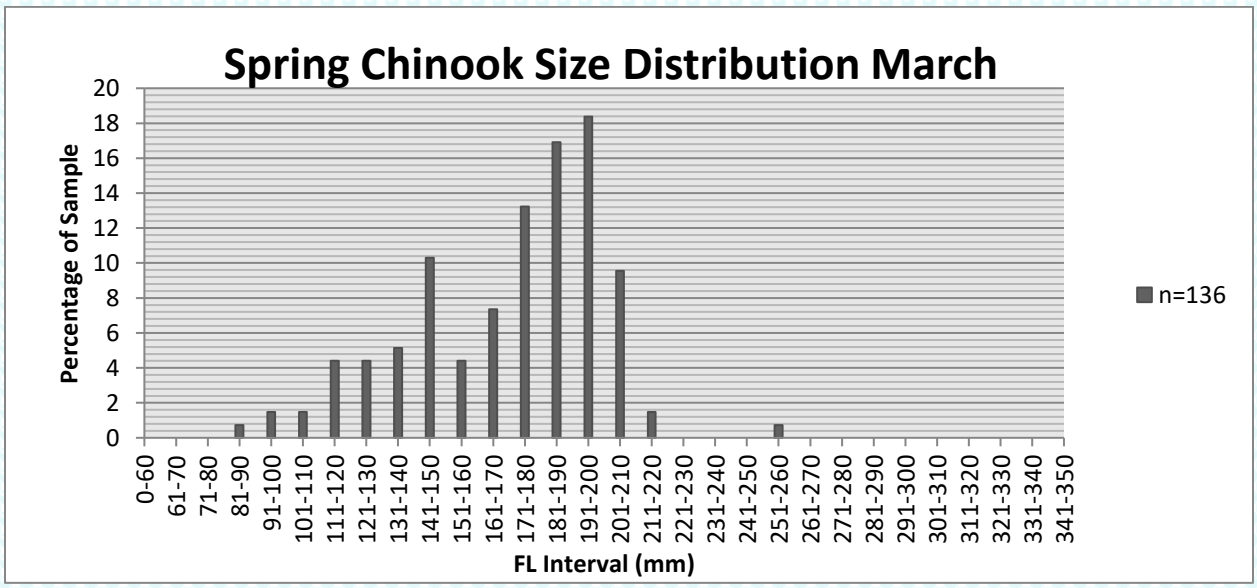

Figure 3. Observed length frequency distribution of Chinook collected at the Swift FSC during the month of March, 2022.

Among the fish collected at the Swift FSC in March, a total of 40 juvenile coho, 2 juvenile steelhead, 7 cutthroat and 10 adult winter steelhead had been previously PIT tagged. Of the 40 coho, 22 were tagged at the FSC in spring of 2021 and released at the head of Swift Reservoir for ODS, 16 were tagged at the Eagle Cliff Screw Trap in 2021, and 2 were tagged at the Eagle Cliff Screw Trap in 2020. The two juvenile steelhead were tagged at the Eagle Cliff Screw Trap in 2021. Six of the seven cutthroat detected were previously tagged at Merwin Trap in 2021. The 10 adult winter

steelhead detected were all blank wire tagged (BWT) fish tagged at Merwin Trap in 2022. So far in 2022, a total of 54 juvenile coho, 4 juvenile steelhead, 12 adult winter steelhead, and 9 cutthroat that had been previously PIT tagged have been captured at the Swift FSC. All 10 adult winter steelhead were considered ‘fall backs’ and were returned to Swift Reservoir. All other PIT tagged fish were transported and released into the Woodland Release Ponds.