LEWIS RIVER AQUATIC COORDINATION COMMITTEE

Facilitator: ERIK LESKO
503-412-8401

Location: WDFW Region 5 Office
5525 S 11th St
Ridgefield WA, 98642 (in-person)
TEAMS (online)

Date: September 14, 2023

Time: 9:30 AM – 12:00 PM

AGENDA

9:30 AM	Welcome ➢ Review and Accept 09/14/2023 Agenda ➢ Review and Accept 08/10/2023 Meeting Notes
9:40 AM	Public Comment Opportunity
9:45 AM	Decision Template: Elements of Lewis River Future Fish Passage. Vote *(Lesko)*
10:15 AM	Decision Template: Proposed Revision to Ground Rules. Vote *(Lesko)*
10:45 AM	Finalize Yale Habitat Preparation Plan (*Lesko*)
11:15 AM	Nutrient Enhancement Update (*Barr, LCFEG*)
11:30 AM	Study/Work Product Updates ➢ Flows/Reservoir Conditions (*Lesko*) ➢ Reservoir Shoreline Development Projects (*ACC*) ➢ ATS (*Karchesky, ATS*) ➢ FPS (*Glaser, Karchesky*) ➢ Fish Passage/Operations *(Karchesky)* ➢ Swift FSC NTS Modification *(Karchesky)* ➢ In person meeting scheduling plan (*Lesko*, *Karchesky*) ➢ Next meeting agenda
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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Phone Conference ID: 214 435 300#

FINAL Meeting Notes
Lewis River License Implementation
Aquatic Coordination Committee (ACC) Meeting
September 14, 2023
TEAMS Meeting

ACC Representatives and Affiliates Present (13)
Nina Maas, Anchor QEA
Christina E. Donehower, Cowlitz Indian Tribe
Erik Lesko, PacifiCorp
Chris Karchesky, PacifiCorp
Jeremiah Doyle, PacifiCorp
Josua Holowatz, WDFW
Roberts Aaron, WDFW
Peggy Miller, WDFW
Keely Murdoch, Yakama Nation
Steve Manlow, LCFRB
Jeffrey Garnet, USFWS
Baxter, Anne, Ecology
Melissa Jundt, National Marine Fisheries Service

Public (1)
Miles Johnson (Legal Director, Columbia Riverkeeper)

Calendar:

September 14, 2023	ACC Meeting	TEAMS Meeting

Assignments:

Assignments from July 13, 2023	**Status**
ACC members to review Elements of Fish Passage Decision Template.	**Complete (9/14/23)**

Assignments from July 13, 2023	**Status**
ACC members to review Revision to Ground Rules Decision Template.	**Ongoing**

Opening, Review of Agenda and Meeting Notes
Due to an urgent matter within the Washington State Department of Fish and Wildlife (WDFW), Bryce Glaser was not able to attend, so Peggy Miller acted as the WDFW representative in today's meeting.

Erik Lesko (PacifiCorp) called the meeting to order at 9:33 a.m. and reviewed the agenda. Minor revisions to the agenda were made, Peggy Miller requested to defer the Proposed Revision to

Ground Rules vote until Bryce Glaser can attend because WDFW has some suggested changes. The ACC agreed and adjusted the agenda accordingly. Meeting note revisions from August 10, 2023, were reviewed; the notes were approved by representatives present.

Public Comment Opportunity
No comment.

Decision Template: Elements of Fish Passage. Vote (*Lesko*) (Attachment A)
Erik Lesko led the final discussion and vote to approve the Elements of Fish Passage document. Lesko presented the decision template for the Elements of Fish Passage document and stated that it would be finalized after the ACC votes to indicate approvals. He said that this document will be attached to the Elements of Fish Passage itself. He asked the ACC for any questions or feedback and stated that following discussion the ACC will have a formal vote.

Steve Manlow (LCFRB) asked whether the only voting options to vote are "yes", "no," or "abstain". Lesko presented the voting template, which displayed the voting options and also included options "no, without objection" and "not present." Lesko presented the voting template and called for individual votes.

Christina Donehower (Cowlitz Indian Tribe) stated that Tribal leadership had directed her to vote yes because leadership agreed with moving the document forward but would like to state that they do not necessarily agree with all assertions and assumptions made in the Elements of Fish Passage document.

Manlow stated that the Elements of Fish Passage document had been fully vetted with the Lower Columbia Fish Recovery Board (LCFRB) and voted yes.

Melissa Jundt stated that the National Marine Fisheries Service (NMFS) must approve the Elements of Fish Passage document after the ACC vote, and it is unlikely that there will be amendments to the prescriptions. Jundt asked whether PacifiCorp would be asking for approval following the ACC vote. Lesko stated that the documents (if approved today) will be attached to letters drafted by the Utilities that will be submitted to the Services asking for approval of Elements of Fish Passage document. Jundt stated that she was not sure how the Elements of Fish Passage document approval process would move forward with the Services, so it has been elevated to general counsel.

Jundt asked Jeffery Garnet (USFWS) whether he would like to talk offline to jointly discuss Services decisions moving forward. Garnet agreed.

DECISION: All representatives present voted to support submittal of the Elements of Fish Passage document to the Services for approval.

Lesko stated that he would accept all edits and make relevant updates to the decision template. He asked whether there is anything else the ACC would like to add or discuss regarding the decision template. He reminded the ACC that the final decision document along with the Services letters will be distributed to the ACC. Lesko thanked the group for the swift vote and asked for any final comments. No other comments were made by ACC members.

Finalize Yale Habitat Preparation Plan (*Lesko*) (Attachment B)
Erik Lesko presented the 2023 Yale Habitat Preparation Plan (HPP), including all comments and responses in a comment-response matrix. Lesko noted that he added text that was not related to a comment. Lesko presented a new Table 3 that proposes a release schedule of adult early Coho Salmon into Yale. Lesko asked whether the ACC had a chance to review the matrix. Josua Holowatz stated that WDFW had no additional comments on the matrix.

Holowatz also stated that there was one LCFRB comment about a fishing rule change text. He clarified that Coho Salmon over 15 inches cannot be retained—which is the same restriction as Swift Reservoir—which assists in enforcement. Size restriction goes into effect tomorrow (September 15) until further notice or December 31, whichever comes first. Steve Manlow thanked Holowatz for the clarification. Holowatz clarified that this size restriction rule will occur every year as long as the plan is in place. Lesko and Holowatz agreed that no edits to the text were necessary after the clarification.

Lesko asked whether there were any further comments on the HPP. Manlow stated that the LCFRB have gone through the comment-response matrix and there are still concerns about the HPP's biological outcomes and the efficacy of the program. Lesko stated that he was not planning on holding a formal vote. Manlow wanted the record to reflect that he would abstain if there were a vote.

Lesko stated that another HPP will be developed next year, and the development process will start earlier. Holowatz agreed that discussion should start in April; the brood year 2024 progeny will be available in 2026 when the new Yale Reservoir juvenile floating surface collector is operating. Lesko agreed and stated that discussions should begin in May 2024. He asked for any further questions. No members responded.

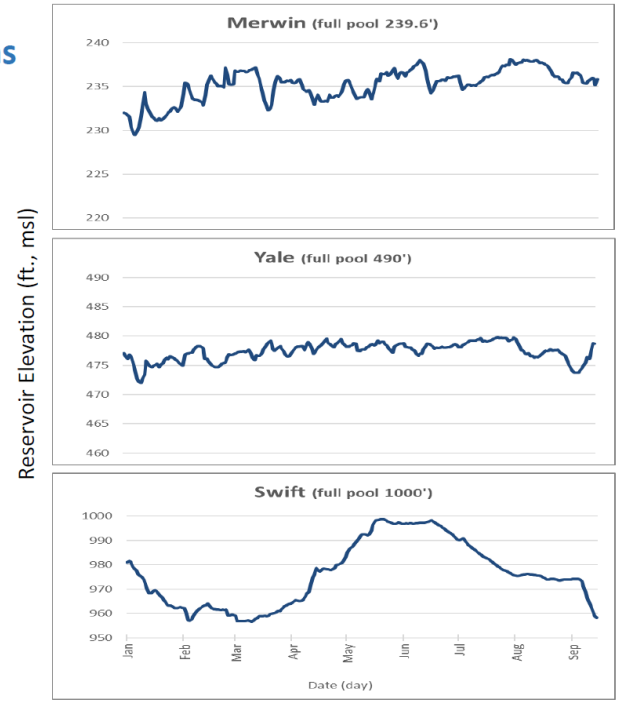
Lesko stated that the 2023 Yale HPP will be finalized and posted on our website, which will include the attached comment/response matrix.

Study/Work Product Updates
Flows/Reservoir Conditions Update (see Attachment C)
Erik Lesko presented the reservoir elevations. Together, all reservoirs have been drafted down 19 feet, with most water coming from Swift Reservoir. Lesko reminded the ACC that the Swift drawdown is necessary for the spill gate work. He stated that the target elevation of Swift Reservoir is 950 feet for the spill gate work to occur.

Reservoir Elevations

Jan 1 – Sep 14, 2023

Total Draft = - 56.93 feet
(-46.93 with Yale Restriction)
Δ since Aug 3= - 19.25



235.60 Elevation
-4.02 Draft
Δ = - 2.10

478.70 Elevation
-11.35 Draft
Δ = + 0.27

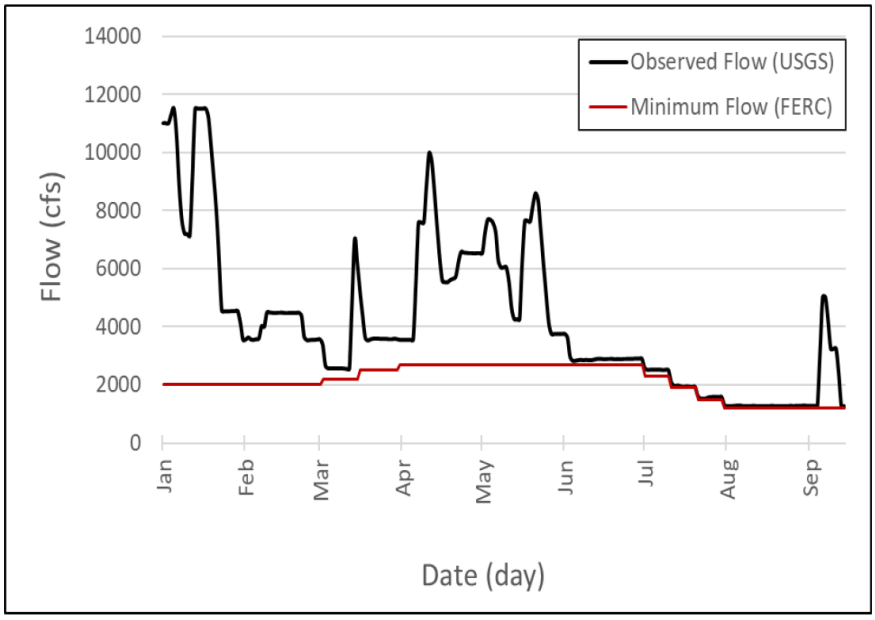
958.40 Elevation
-41.57 Draft
Δ = -17.39

Reservoir Elevation (ft., msl)

Lesko presented North Fork Lewis River downstream conditions. He stated that the river is in low-flow conditions, and a single raise to approximately 5,000 cubic feet per second (cfs) occurred in September, which was the result of the drawdown for spill gate work discussed earlier. Peggy Miller asked Lesko asked whether high flows will occur again during the final drop of Swift Reservoir to achieve the target goal of 950 feet. Lesko said that based on continued dry weather forecasted that there were no plans to increase flows downstream of Merwin to accommodate the spill gate work. He asked whether there were any further questions on flow or reservoir conditions, and there were none.

North Fork Lewis River Streamflow downstream of Merwin Dam

Jan 1 – Sep 14, 2023



Reservoir Shoreline Development Projects

Campers Hideaway

Steve Manlow stated that the shoreline development permit would eventually be delivered to the Washington State Department of Ecology (Ecology), but he was told recently that Ecology had yet to receive the permit. He was also unsure of whether the Hydraulic Project Approval had been delivered to WDFW. Peggy Miller stated that Josua Holowatz may have more information, but he was no longer present on the call. She was unsure and believed that WDFW may have to wait until Ecology approves. Anne Baxter (Ecology) asked who Manlow spoke to at Ecology. Manlow stated that Steve West made the call to Ecology, but he believes he spoke to someone in the shoreline management permitting department. Erik Lesko asked for any further updates, and no other updates were shared.

Aquatic Technical Subcommittee Update

Chris Karchesky (PacifiCorp) stated that the last meeting was in person and the U.S. Geological Survey was in attendance to present progress and information on their Integrated Population Model for the Lewis Basin, which is being used to understand factors that are affecting salmon and steelhead populations. Erik Lesko added that current priorities are focused on determining methods for estimating proportion of hatchery-origin spawners (pHOS) for late winter steelhead, and that he is discussing options with others to determine appropriate methods to collect adults for input into the pHOS model (tangle netting versus hook and line). He also stated that Kale Bentley is involved in these discussions. Lesko also mentioned that he is continuing to work on the genetic monitoring strategy, where methods are being finalized with the assistance of Cramer Sciences and WDFW.

Fish Passage Subcommittee Update

Chris Karchesky stated that the next meeting for this group is at 1:00 p.m. today (September 14). Karchesky said that there has been progress on the 60% design, and the goal for the upcoming meeting is to set a date for the joint Fish Passage Subcommittee (FPS) and ACC 60% design presentation and meeting timeline. He proposed December 14th after the ACC meeting. He stated that key modifications to design for Yale upstream and downstream passage will also be discussed.

Peggy Miller said that she agreed with the summary of the agenda for today. She stated that the last meeting was approximately 10 minutes long, and discussed agenda items for today's FPS meeting. She proposed that the document comment period for the 60% designs begin after the new year rather than start on December 14 to avoid conflicts with the holidays. Karchesky stated that this issue occurred last year, and he did not remember whether the review period was extended. Karchesky stated that it should be discussed in the FPS meeting today, although a decision will likely not be made.

Lewis River Fish Passage (Attachment D)

Chris Karchesky stated that Coho Salmon season is beginning, and collection targets are being achieved. He stated that many natural-origin return (NOR) fish are being collected, and that a wave of NORs during early part of the run is typical. He stated that the release site has worked well, and the floating surface collector (FSC) is in the outage period (it will turn back on in early October).

Swift Floating Surface Collector NTS Modification (Attachment G)
Chris Karchesky shared a brief presentation on the FSC modification progress. He stated that in 2019, the FSC was essentially cut in half by building a false floor inside, and as a result, the flow velocity doubled. The change in velocity resulted in a positive increase in collection numbers. Karchesky stated that fish were still rejecting collection; the fish would enter and turn around. He stated that it is believed to be the result of the 2019 modifications because new areas of deceleration were created. New sidewalls are being constructed to reduce flow from 800 cfs to 790 cfs with the intent to eliminate areas of deceleration. He stated that work should be completed in the upcoming weeks.

Karchesky presented photos of construction. He explained that initially the entrance to the FSC was 30 feet wide, and 5 feet were being removed from each side. He stated that sidewall frames will be sheeted off and bull-nose shaped. Due to the structural nature of the sidewalls, ballast tanks were also added. He explained that divers are required to complete the construction. He stated that one side of the wall had been attached, and he hoped all structural pieces would be installed by next week, with a project completion date the following week. Karchesky remined the ACC that the new FSC modifications will be tested next spring. Karchesky asked for questions; none were raised.

Nutrient Enhancement Update (Barr, LCFEG) (Attachment H)
Jesse Barr introduced himself to the ACC as the restoration coordinator of Lower Columbia River Fisheries Enhancement Group (LCFEG). He explained that he was part of the nutrient enhancement project funded by the Lewis River Aquatics Fund. From last October to January, approximately 4,600 Coho Salmon carcasses were dispersed in the upper and lower Lewis River. Barr hoped to discuss the details of new placement sites on Cedar Creek and the North Lewis River. Barr presented a map of proposed nutrient enhancement sites.

Barr explained that all placement sites are evaluated on safety, access, and benefit to wild salmon. He stated that new placement sites are needed to avoid overloading current placement areas and degrading water quality conditions. He explained that Cedar Creek has multiple sites that are approved, but many run along Cedar Creek Road, and due to high-speed (50 miles per hour) limits and access, LCFEG is not comfortable bringing staff or volunteers as a safety concern. Site additions would include private landowner sites and some sites owned by the U.S. Forest Service (USFS), for which Barr stated he had tentative approval. He explained that he needed ACC approval, but he is unsure of how the approval process works. Barr clarified that carcass placement will start between October 15 to late October.

Peggy Miller asked whether Barr had presented the proposed sites to the nutrient enhancement team at WDFW. He stated that he had sent to the proposed sites to multiple people including Lisa Brown, and that he was hopeful placement would not interfere with WDFW because the LCFEG cuts tails off carcasses so the placed fish can be easily identified. Miller thought there may be another group within WDFW that Barr should speak with. She suggested contacting Bryce Glaser or Josua Holowatz for further information.

Miller stated there was an in-depth conversation last year about placement sites, and she suggested reviewing the notes to understand why sites were limited to Muddy Creek and Pine Creek. Miller wondered whether the USFS had information on placement sites, and she would like more information before any decisions are made. Barr stated that he was not involved in last

year's discussions. Erik Lesko stated that the Utilities would defer approval to WDFW, and the Utilities are not prepared to approve or disapprove.

Steve Manlow noted that even if there is no official approval, LCFRB supports the nutrient enhancement team on these new sites and fully supports the work of the nutrient enhancement team.

Lesko asked for further questions. None were stated. He stated that Barr should work with the WDFW and USFS to gain approval of the proposed sites. Peggy Miller asked for Barr's presentation so that she could forward to Bryce Glaser. Lesko agreed to send it and reminded the ACC that the presentation would be part of the meeting notes.

Lewis River Aquatic Project Fund
Erik Lesko mentioned that proposals for Aquatics Fund are due in late October, and no submittals had been received. He did receive an update from Phil Roni in regard to the Pine Creek project—which received Lewis River Aquatic Project funding in 2022—which he may ask Phil to provide a status update to the ACC next month.

Administrative Updates
Erik Lesko asked for feedback on the frequency of in-person/hybrid meetings. Specifically, whether the ACC would like to move towards monthly hybrid meetings or maintain these as quarterly meetings. He reminded the ACC that the ATS is moving to monthly hybrid meetings.

Keely Murdoch (Yakama Nation) stated that she liked the quarterly meetings, but if the ACC moved to monthly hybrid meetings, she would likely continue to attend only quarterly due to travel frequency concerns. Jeff Garnet stated that he felt similarly to Murdoch and that quarterly is more of an achievable travel schedule for him. Lesko stated that based on those comments, the quarterly hybrid schedule will stay in place.

Lesko asked for final comments. He reminded the attendees that Todd Olson is out of office until October 2, so questions should be sent to Lesko until then.

Public Comment Opportunity
None present.

Agenda Items for October 12, 2023
- Decision Document: Proposed Revisions to Ground Rules
- Pine Creek Update Habitat Assessment (Aquatic Fund Project)
- Study/Work Product Updates

Adjourn 10:50 pm

Next Scheduled Meeting

October 12, 2023
Teams Call
9:30 a.m.–12:00 p.m.

Meeting Handouts & Attachments

- Agenda from 9/14/2023
- **Attachment A –** Decision Document: Elements of Fish Passage
- **Attachment B –** Final Yale Habitat Preparation Plan
- **Attachment C –** Flow/Reservoir Conditions (August 2023)
- **Attachment D –** Lewis River Fish Passage Report (August 2023)
- **Attachment E –** Merwin Adult Trap Collection Report (August 2023)
- **Attachment F –** Swift FSC Facility Collection Report (August 2023)
- **Attachment G –** Swift FSC NTS Modification Presentation
- **Attachment H –** Nutrient Enhancement Update Presentation

ACC VOTING TEMPLATE

	Organization	ACC Voting Representatives	*Elements of Lewis River Fish Passage*
1	American Rivers	Bridget Moran	NP
2	Cowlitz Indian Tribe	Christina Donehower	Y
		Dalton Fry	
3	Fish First	Alex Maslov	NP
		Janae Brock	
4	Lewis River Community Council	Mariah Stoll-Smith Reese	NP
5	Lower Columbia River Fish Recovery Board	Steve Manlow	Y
		Steve West	
6	National Marine Fisheries Service	Emi Melton	
		Bonnie Shorin	
		Melissa Jundt	Y
7	Utilities	Erik Lesko	Y
		Chris Karchesky	
		Amanda Farrar	
8	Trout Unlimited	Jim Byrne	NP
		Jonathan Stumpf	
9	US Fish & Wildlife Service	Jeff Garnett	Y
10	USDA Forest Service	Josh Chapman	NP
		JD Jones	
		Kyle Wright	
11	Washington Dept. of Fish & Wildlife	Bryce Glaser	
		Peggy Miller	Y
		Josua Holowatz	
		Aaron Roberts	
12	WA Recreation/Conservation Office	Adam Cole	NP
13	Yakama Nation	Bill Sharp	
		Keely Murdoch	Y

Version Date: 09/14/2023

Revisions to ACC/TCC Ground Rules

VOTING CODES

Y	Yes
N	No
N(wo)	No, without objection to majority vote
A	Abstain
NP	Not Present

FINAL

2023 Yale Habitat Preparation Plan

Yale Reservoir, North Fork Lewis River

September 14, 2023

I. Introduction

The purpose of this plan is to provide the necessary logistics and methods necessary to collect, transport, and distribute hatchery origin coho beyond those needed for Lewis River hatchery programs and above Swift Reservoir supplementation and reintroduction needs into Yale Reservoir (Figure 1). Coho salmon above hatchery and reintroduction needs are referred to as "excess hatchery coho" in this plan. This plan proposes to transport and release excess hatchery coho into Yale Reservoir as part of the Habitat Preparation Plan (HPP) specified under Section 7.4 of the Lewis River Settlement Agreement.

7.4 Habitat Preparation Plan. Within six months after the Effective Date, PacifiCorp shall develop a plan (the "Habitat Preparation Plan") in Consultation with the ACC to release live adult hatchery anadromous salmonids into Swift Reservoir, Yale Lake, and Lake Merwin for the purpose of preparing the habitat in those locations for the reintroduction of anadromous salmonids. The objective of the Habitat Preparation Plan will be to make possible (1) nutrient enrichment in the waters through decay of the adult hatchery fish and, (2) tilling of the gravel by the released hatchery adults as they attempt to spawn. The number, sex, and species of hatchery adult salmonids shall be determined as part of the Habitat Preparation Plan. PacifiCorp's performance obligation under the Habitat Preparation Plan shall be limited to placing live adult hatchery anadromous salmonids for a period of five years in each of Swift Reservoir, Yale Lake, and Lake Merwin, commencing in each case five years prior to expected completion of the downstream fish passage facility from that reservoir. PacifiCorp shall implement the Habitat Preparation Plan at Swift Reservoir beginning as soon as practicable after the Habitat Preparation Plan is finalized and at the other reservoirs as provided in the Habitat Preparation Plan. PacifiCorp shall implement this program only to the extent there are excess hatchery fish available beyond those required for the Hatchery and supplementation Plan described in Section 8. PacifiCorp shall not be required to pass or collect the progeny of hatchery adult anadromous salmonids introduced under the Habitat Preparation Plan unless and until collection and transport facilities for such progeny are constructed in accordance with Section 4. For the Merwin and Yale Projects, PacifiCorp's obligations under this Section 7.4 shall cease if the Yale Downstream Facility or Merwin Downstream Facility, respectively, will not be constructed pursuant to Section 4.1.9.

This is the second year of releases of surplus hatchery adult coho into Yale Reservoir as part of the Hatchery Preparation Plan outline in Section 7.4. The inintal plan was developed in 2022 and implemented that year. A copy of the 2022 Yale Habitat Preparation Plan is provided in the Lewis River Fish Passage Program 2022 Annual Report which is an appendix to the Lewis River Monitoring and Evaluation Program 2022 Annual Report.

II. Summary of past adult releases into Merwin and Yale reservoirs

Merwin and Yale dams were completed in 1931 and 1953, respectively. Soon after completion of each of the dams, efforts were initiated to move primarily coho salmon upstream of each dam. For Merwin, efforts were intended to increase juvenile production in response to precipitous declines in adult returns. After completion of the Yale Dam, coho were released at preselected locations to gain a better understanding of spawning site selection and distribution upstream of Yale.

Merwin Dam (Smith 1943)

Between 1933 and 1942, over 50,000 adult coho were transported and released upstream of Merwin Dam. In 1939, a total of 18,591 adult coho were released upstream of Merwin Dam. Following this release (prior to completion of Yale and Swift dams), Smith observed adult coho in several tributaries of the upper watershed. An estimated 2,000 coho salmon were observed in a large clear pool at the mouth of Clearwater Creek; 464 coho were observed in the Muddy River about one mile upstream from the confluence of Clear Creek; 48 coho salmon were observed in Siouxon Creek and smaller numbers were observed in Speelyai Creek and the mainstem Lewis River upstream of Merwin reservoir. In 1940, a total of 7,155 adult spring Chinook were released upstream of Merwin Dam; however, no observations were made regarding the distribution of these fish.

Cougar Creek holding ponds

To improve hatchery survival and provide additional support, Milo Bell, an engineer for the Washington Department of Game, designed and constructed hatchery holding ponds using source water from Cougar Creek. The holding ponds were completed in 1938 and were used primarily as a holding facility for adult coho and spring Chinook. In 1939, 256 spring Chinook adults from the holding ponds were released into Cougar Creek. A majority of the released adults successfully spawned in Cougar Creek and it was thought, at the time, that it may be possible to develop a natural spawning population of Cougar Creek spring Chinook (Smith 1942). For unknown reasons, the Cougar Creek holding ponds were abandoned in 1942.

Yale Dam (Chambers 1957)

In 1956 (prior to completion of Swift Dam in 1958), John Chambers of the Washington Department of Fisheries and J. Hamilton of Pacific Power and Light conducted a mark-resight study of adult coho released upstream of the Yale Dam. A total of 1,386 adult coho were released upstream of Yale Dam. Of these, 374 were tagged with numbered Peterson discs for later visual recovery (Chambers 1957). Table 1 shows the dates, release locations and recoveries of coho tags during the recovery surveys. Of all tributaries surveyed, Cougar Creek showed the highest incidence of spawning coho salmon. On November 14, 1956, a foot survey of Cougar Creek noted 46 redds, 28 lives, 13 carcasses and 4 tags recovered. Observations of live untagged coho and redds were also reported from both the researchers and anglers in Smith, Muddy, Clear and Clearwater creeks. Reports of redds and tag recoveries were also

observed in the mainstem Lewis River upstream of Pine Creek. No redds or salmon were observed downstream of the Pine Creek confluence; however, spawning was observed in Range Creek.

Table 1. Date, release location, release numbers, and tag recovery location of adult coho released upstream of Yale Dam in 1956.

Date	Release Location	Total Release Number	Released with tags	Recovery Location	No. of tags recovered
Sep 4 - 21, 1956	Lewis River above Swift Creek	618	156	Muddy	1
				Cougar Creek*	2
				Smith Creek	1
				LR upstream of Eagle Cliff	2
Sep 23 – Oct 8, 1956	Cougar Creek	589	108	Cougar Creek	2
Oct 9 - 22, 1956	Lewis River above Swift Creek	129	60	Cougar Creek*	1
Oct 22, 1956	Lewis River below Swift Cr.	50	50	Cougar Creek	1
		1,386	374		

* *NOTE: While Swift Dam had not been completed at the time of this evaluation (completed in 1958), the bypass tunnel was completed and in operation. Therefore, tag recoveries in Cougar Creek from coho released above Swift Creek passed downstream through the bypass tunnel to spawn in Cougar Creek (total = 3). No tagged coho released downstream of the bypass tunnel were recovered upstream of bypass tunnel.*

2022 Yale Reservoir HPP

Releases of adult coho into Yale Reservoir began in early-Sepember and continued through mid-October 2022. In total, 1,801 adult coho were released with slightly more females being released than males (Table 2). Approximately half (900) of all Yale HPP released coho in 2022 were tagged with a full-duplex Passive Integrated Transponder (PIT) tag in the dorsal sinus. Coho were tagged over the course of the run, and balanced equally between the two release sites of Saddle Dam and Yale Park. In 2022 only Cougar Creek in Yale Resevoir was monitored for HPP coho usage. From August-October, six wagon wheel PIT antennas measuring five feet in diameter were deployed near the mouth of the stream and its confluence with the reservoir. Along with the wagon wheel PIT antennas, weekly foot surveys of Cougar Creek in its entirety were performed from September-November to enumerate coho redds, lives, and carcasses. Nineteen percent (169) of the released tagged group of coho (900) were later detected moving past a PIT antenna in Cougar Creek, while 75 total coho redds were identified and marked during the weekly foot surveys (Figures 1 and 2).

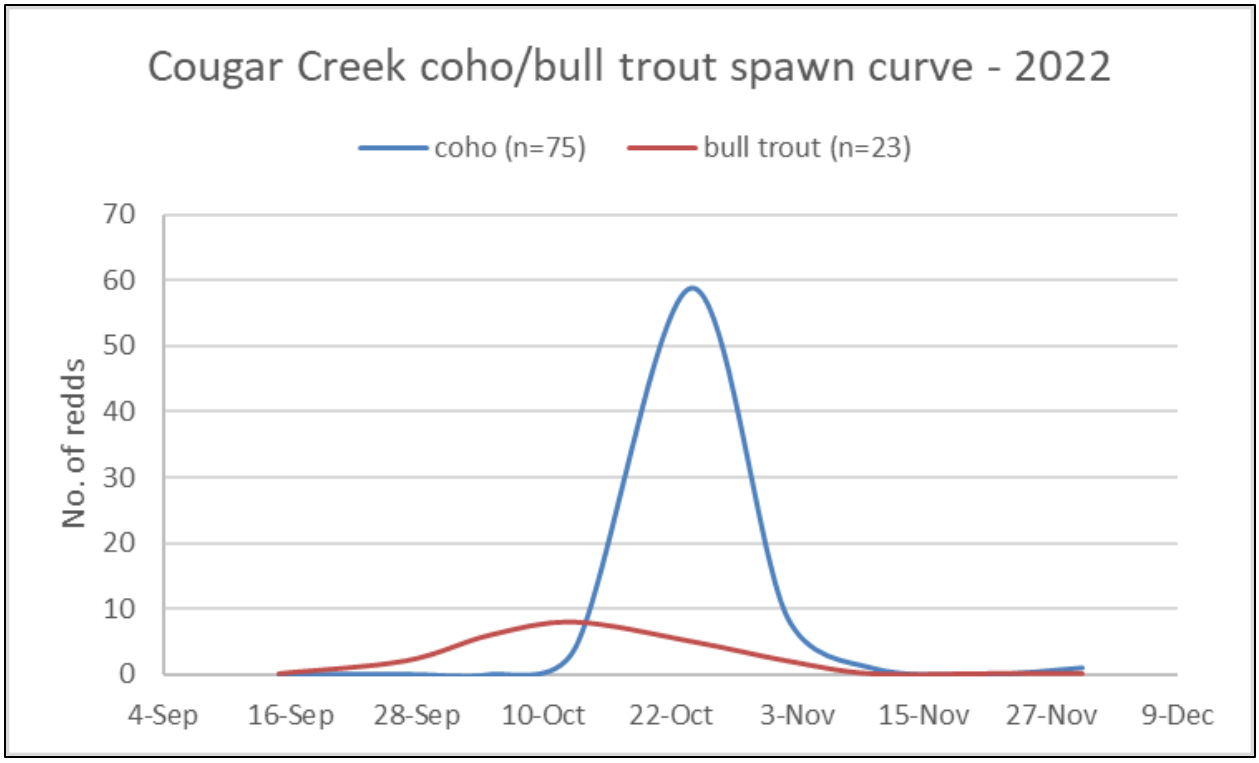


Figure 1. Detection timing of PIT tagged coho and bull trout in Cougar Creek – 2022.

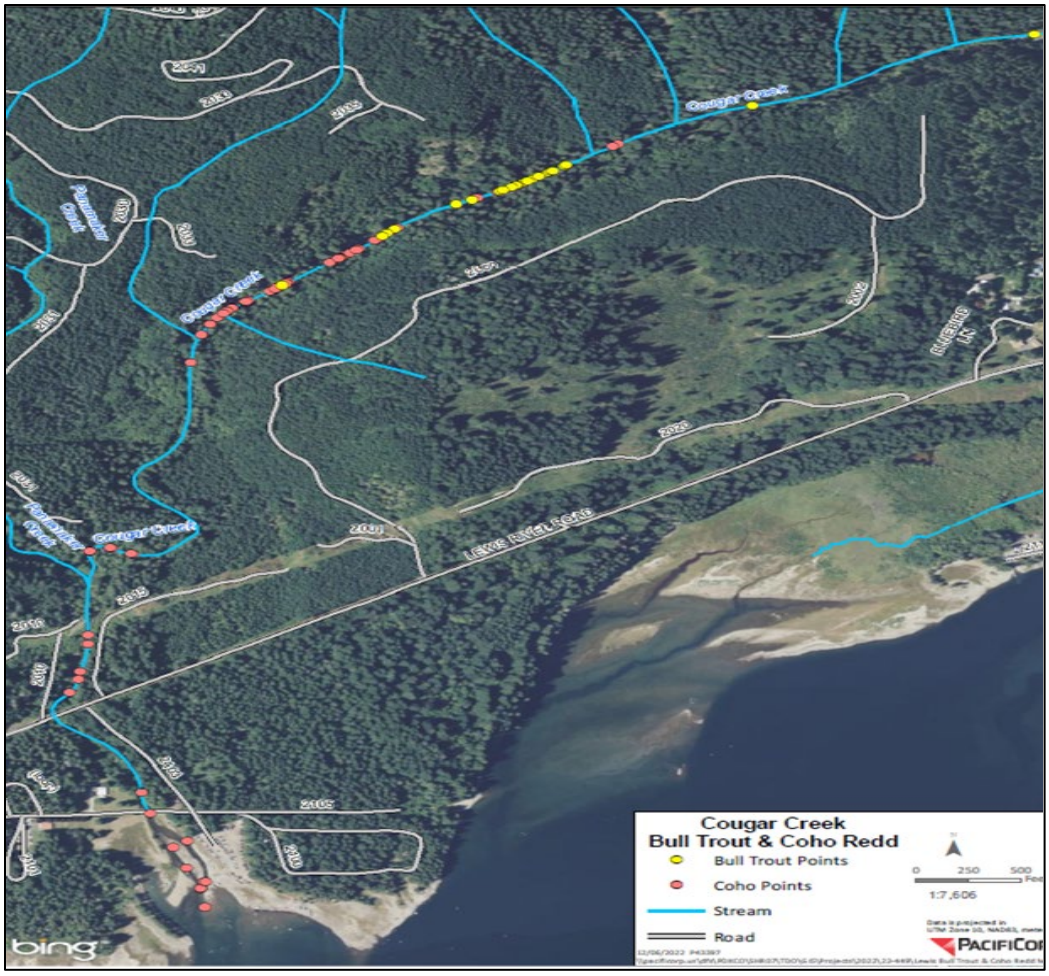


Figure 2. Locations of coho and bull trout redds observed in Cougar Creek during foot surveys conducted in 2022.

Table 2. Summary of the actual number of adult coho released into Yale Reservoir by location, day and sex as part of the the Yale HPP in 2022.

Date	Male	Female	Total	Release Location
9/12/2022	55	40	95	Saddle Dam
9/13/2022	43	54	97	Yale Park
9/19/2022	63	42	105	Saddle Dam
9/20/2022	56	47	103	Yale Park
9/26/2022	61	39	100	Saddle Dam
9/27/2022	67	34	101	Yale Park
9/29/2022	56	44	100	Saddle Dam
9/30/2022	57	42	99	Yale Park
10/3/2022	53	47	100	Saddle Dam
10/4/2022	45	35	80	Yale Park
10/5/2022	30	70	100	Saddle Dam
10/6/2022	44	77	121	Yale Park
10/10/2022	48	52	100	Saddle Dam
10/11/2022	48	52	100	Yale Park
10/12/2022	36	64	100	Saddle Dam
10/14/2022	31	69	100	Yale Park
10/17/2022	38	62	100	Saddle Dam
10/18/2022	49	51	100	Yale Park
TOTAL	**880**	**921**	**1,801**	

III. Objectives

The transportation of adult hatchery fish into Yale Reservoir is intended to prepare and till Yale tributary stream gravels (through redd construction) and provide marine derived nutrient enhancement to spawning and rearing areas. Under section 7.4, the HPP should be initiated 5-years prior to the expected completion of the Yale downstream fish passage facility.

IV. Stock Selection

Similar to 2022, the 2023 habitat preparation program proposes to use early coho salmon for transport and release into Yale Reservoir to take advantage of ongoing bull trout monitoring in Cougar Creek (see Planned Monitoring section). Late or transitional coho salmon may also be used if insufficient early run coho are available for the Yale habitat preparation program. This will be an in-season decision by the ATS once early coho begin returning to the Lewis River traps in September 2023. Adult coho transport to Yale under this plan should be of high quality to facilitate distribution of released coho. Coho salmon showing external signs of trauma (e.g.,

puncture wounds, lacerations, fungus, etc.) should not be transported upstream whenever possible.

The availability of adults for the Yale Reservoir HPP depends on the extent of hatchery fish available beyond those required for hatchery production (broodstock) programs and existing supplementation (reintroduction) activities upstream of Swift Dam. Based on adult hatchery origin returns over the past 6 years, coho salmon are the only stock that consistently exceeds these needs (Figure 3). The 2023 preseason forecast for Lewis hatchery coho is over 42,000 adults including 29,000 early (Type S) and 12,000 late (Type N) coho. Therefore, this plan will rely on hatchery-origin trap returns of early coho salmon for transportation into Yale Reservoir.

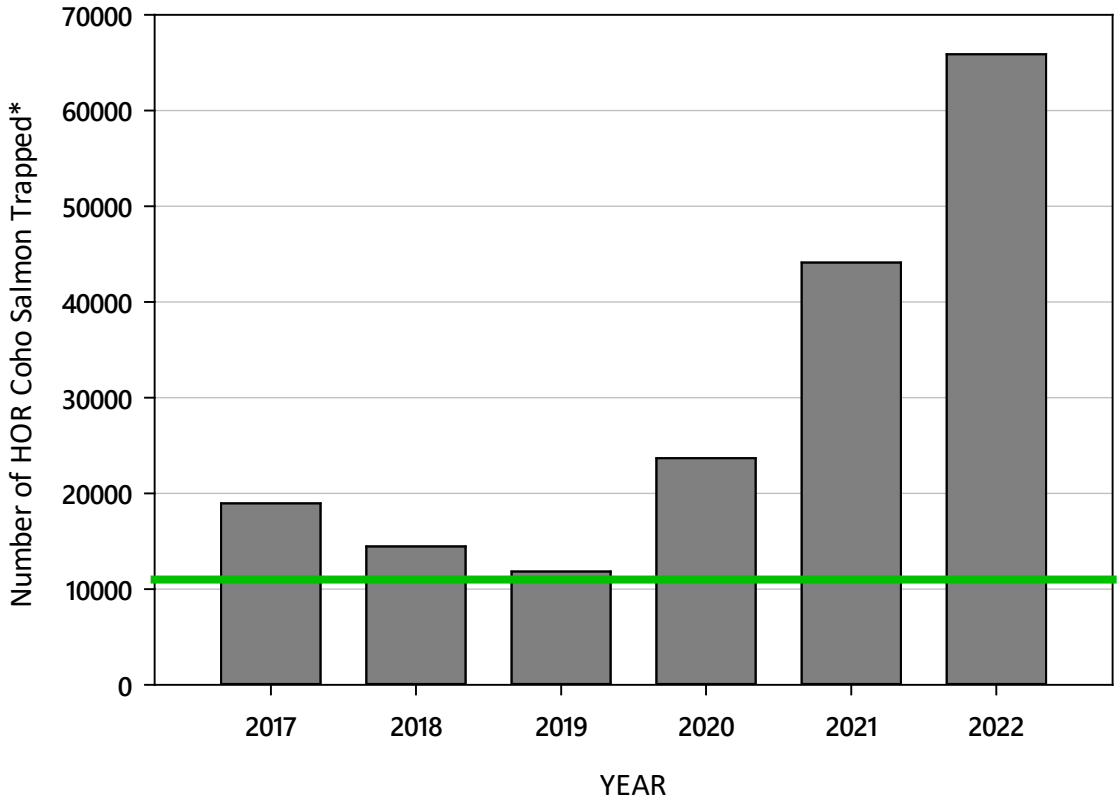


Figure 3. Total number of adult hatchery origin (HOR) coho collected at Lewis River trapping facilities by year: 2017 – 2022. Green line represents the total number of adults needed for existing hatchery broodstock and H&S program needs (green line = 11,000). Program needs are based on the number of adults needed to satisfy both hatchery production and reintroduction targets. *totals exclude jacks.

V. Transport Number

The proposed number of adult coho transported to the Yale basin is based on Ecosystem, Diagnostic and Treatment (EDT) modeling conducted in 2018 and as revised using model runs by NOAA in 2019.

EDT is a habitat-based model that is best used to assist planners in prioritizing restoration activities. However, the model does produce estimates of spawner capacity that can be used for coarse-level planning. For purposes of the Yale HPP, the Yale adult transport target relies on capacity estimates derived from EDT modeling.

"Capacity" represents the estimated number of spawning adults the available habitat can support given the quantity and quality of that habitat for a specific reach or waterbody (e.g., Yale Reservoir).

"Abundance" differs from capacity in that abundance represents the potential contribution (expressed as adult returns) of each waterbody. Unlike capacity, abundance estimates are influenced by factors such as overall downstream survival (ODS), harvest, predation, etc.

EDT modelling identified several Yale tributaries that support coho spawning (Figure 2). EDT estimates the current quality and quantity of available spawning habitat in Yale tributaries would support (capacity) up to 1,842 spawning adults (Table 3). Thus, the maximum number of adult coho proposed for transport into Yale Reservoir each year is 1,840 adults (i.e., transport target).

The transport target represents the number of coho adults needed to fully seed available spawning habitat. However, factors such as predation, poaching, and transport survival may reduce the actual number of adults available to spawn. Therefore, the initial transport target may be modified during the term of the program.

Male to Female Ratio

The number of females and males transported should generally strive to achieve a 1 to 1 ratio to maximize potential spawning activity (redd construction). Using this ratio, a maximum 920 adult females and 920 adult males should be selected for transportation to Yale Reservoir.

Table 3. Proposed weekly release schedule of excess hatchery adult early coho into Yale Reservoir as part of the Habitat Preparation Program in 2023. ***Note: releases to be equally distributed between males and females and by release site to the extent possible***

Week Beginning	Release Site	Early Coho released	Early Coho tagged
9/11/2023	Saddle Dam	100	50
	Yale Park	100	50
9/18/2023	Saddle Dam	100	50
	Yale Park	100	50
9/25/2023	Saddle Dam	210	105
	Yale Park	210	105
10/2/2023	Saddle Dam	210	105
	Yale Park	210	105
10/9/2023	Saddle Dam	200	100
	Yale Park	200	100
10/16/2023	Saddle Dam	100	50
	Yale Park	100	50
	Total	**1840**	**920**

VI. Collection Methods

Similar to 2022, collection of adult coho will take place at both the Lewis River hatchery ladder and the Merwin Dam Upstream Collection Facility.

The timing and number of early coho available for release into Yale Reservoir depends first on satisfying priority adult targets for both the hatchery broodstock and Swift reintroduction programs. That is, early coho will only be available for Yale transport once these priority needs are met on a periodic basis throughout the run. As adult coho begin returning to the traps, in-season management decisions will be required. The ATS will provide recommended distribution protocols to trapping staff prior to the collection period. The ATS will modify these protocols as necessary to ensure that the priority goals of the hatchery broodstock and Swift reintroduction programs are met first while also trying to achieve the adult release targets into Yale Reservoir proposed in this plan.

VII. Transport Vehicles

PacifiCorp and WDFW fish trucks will be used to transport adults to Yale Reservoir. The number of trips depends on the number of available coho during the transport period. That is, it is unlikely that fish trucks will be loaded to capacity (180 adult coho) for each trip.

VIII. Release Locations

The Yale Park and Saddle Dam boat ramps will be used as release locations for transported adults (Figure 2). The goal will be to release approximately half of all transported adults at each

location and distributed equally throughout the transport window. Approximately half of all released coho will be PIT tagged into the dorsal sinus (see planned monitoring section).

IX. Schedule and Timing

2023: September through early October (early coho). *Note: If late coho are needed to meet transport targets, the release period will be extended to December 31.*

2024 – 2025: The HPP for Yale begins transitioning to a reintroduction program. That is, progeny from adults transported in 2024 (as part of the HPP) will be available for collection at the completed Yale downstream collection facility in 2026. During this transition, adaptive management of transport protocols related to adult transport numbers and composition may be necessary beginning in 2024. Adaptive management recommendations will be developed by the ATS for approval by the ACC prior to 2024 HPP operations.

2026: HPP program ends and is replaced by the reintroduction program.

X. Pathology Screening

All fish transported and released into Yale will be sourced from either the Lewis River hatchery ladder or Merwin Fish Collection Facility. In-basin transfers do not require additional pathogen screening, beyond the annual surveillance of adult stocks at the minimum 5% assumed pathogen prevalence level (APPL) as required by the Co-Managers Salmonid Disease Policy. In the event out of basin transfers are planned, any additional screening will be conducted according to the disease policy requirements.

XI. Harvest Restrictions

To help ensure the goals of the HPP are met, sportfishing regulations will be reviewed and modified by WDFW through emergency rule changes. Harvest rules will be evaluated and modified annually, if necessary, by WDFW. Prior to transport activities, signage should be posted on the PacifiCorp website and at Yale Reservoir boat ramps providing current regulations and program information. WDFW enforcement will be informed of the HPP actions and if necessary, may provide enhanced patrols to reduce the potential for poaching activities.

XII. Planned Monitoring

Coho transported and released into the Yale Reservoir will be allowed to self-sort and select tributaries in which to migrate into and spawn naturally. Based on previous fish distribution evaluations after construction of Merwin and Yale dams (Section II), it was shown that Cougar Creek is a preferred spawning tributary for coho salmon (Table 1). From monitoring in Cougar Creek in 2022, it was shown that only 19 percent of PIT tag released coho were detected in Cougar Creek. Of the 169 PIT tagged coho that entered Cougar Creek, 59 percent were released at Yale Park and 41percent were released at Saddle Dam.

To improve our understanding of the potential spawning selection of coho into Cougar Creek and because Cougar Creek represents the only known Yale tributary that supports bull trout spawning, PacifiCorp proposes the following monitoring in 2023:

1. Estimate of the number and timing of early coho that enter Cougar Creek

PacifiCorp proposes deploying a combination of PIT tag detection systems within Cougar Creek in 2023. One 5-foot diameter wagon wheel antenna will be deployed just downstream of the 503 road crossing, with two more stream-width swim over-type PIT antennas deployed just downstream from the wagon wheel antenna. These three antennas will be located just upstream from Cougar Park, near the confluence of Cougar Creek with the reservoir, below the majority of available spawning habitat. PacifiCorp will PIT tag (into the dorsal sinus) approximately half of the adult coho released into Yale Reservoir. Fish will be tagged over the course of the run and balanced equally between the release sites of Saddle Dam and Yale Park, and, as available, equally between males and females.

Metadata including sex, time of capture (at Merwin or Lewis River hatchery), time of release (into Yale Reservoir) and release location (Saddle Dam or Yale Park) will be recorded for each coho salmon tagged. PIT tag detections will provide the proportion of total coho released that enter Cougar Creek and may show spatial or temporal migration patterns or differences between the two release locations.

PacifiCorp will also conduct foot surveys in Cougar Creek as part of ongoing bull trout and kokanee surveys beginning in September and continuing through November. Cougar Creek will be surveyed over its entire length to document the number and location (use of handheld GPS) of all new coho redds, lives and carcasses. All carcasses recovered will be scanned for PIT tags.

2. Describe the relative use and spawning of coho salmon in Yale tributaries (other than Cougar Creek.

PacifiCorp and the WDFW will conduct informal foot surveys (as resources allow) of other potential Yale tributaries to document the number of lives, redds and carcasses observed. Potential spawning tributaries include the Swift bypass reach, Siouxon Creek, Speelyai Creek and Dog Creek (Figure 4, Table 4). Surveys will be conducted during the peak spawning period for early coho. Specific methods of peak count surveys shall be developed by the ATS prior to implementation.

Foot surveys are intended to be a qualitative indicator of relative use by released coho into Yale Reservoir. Results from foot surveys should not be used as an indicator of spawning site preference. Variables such as weather and stream flows may increase or decrease the presence of coho observed on any given survey. Therefore, the presence or absence of coho

should not be perceived as preference or avoidance by hatchery released coho into Yale Reservoir.

However, the information obtained from these surveys may assist the ACC in determining whether the current transport target (1,840 adults) is appropriate or needs adjustment in future years.

In addition to PIT tag detection antennas (wagon wheels) placed in Cougar Creek, a PIT detection detection antenna will also be placed at the upstream end of the Swift bypass at the proposed location of adult upstream passage for Yale. Information obtained from placement of this wagon wheel may inform on the relative abundance of coho salmon migrating to the proposed upper release sites from releases at both Yale Park and Saddle Dam.

Figure 4. Adult coho spawning capacity estimates for potential spawning tributaries of Yale Reservoir, including proposed release sites. Source: EDT modeling, 2019.

Table 4. Summary of adult coho capacity estimates for Yale Reservoir tributaries based on EDT modeling in 2019.

Tributary	Length (km)	Adult Capacity	Adult Capacity per km
Cougar and Panamaker creeks	3.08	114	38
Dog Creek	2.25	285	126
Bypass Reaches	3.21	318	99
Siouxon Creek	9.01	587	65
Speelyai Creek	9.89	537	54
TOTAL	**27.44**	**1,842**	**67**

XIII. Plan Modifications

Components of the plan may be modified annually by the Aquatics Coordination Committee (ACC) based on forecasted run sizes (after release by WDFW), hatchery and reintroduction needs, availability of excess hatchery coho and completion schedule of the Yale downstream collection facility. In-season modifications to the plan may also be required to address emergent issues (e.g., actual abundance vs. predicted run size). Proposed modifictions will be brought forward to the ATS and ACC as needed to initiate in-season modifications to this plan. Plan modifications shall be reflected and updated on the PacifiCorp website on an annual basis.

Merwin Habitat Preparation Plan

According to Section 7.4 of the Settlement Agreement, transportation of adults into Merwin Reservoir should begin 5 years prior to the completion of downstream passage facility. Once the completion date for downstream passage at Merwin is confirmed, the HPP will be modified to include transport of adults into Merwin Reservoir consistent with Section 7.4.

Other transport species

In 2023, only hatchery origin coho salmon are available for transportation (Figure 1). As run forecasts become available for the other transport species - spring Chinook and late winter steelhead - the habitat preparation program may include these species in annual planning to the extent that fish are available after hatchery broodstock and reintroduction targets are met.

XIV. References

Chambers, John. 1957. Report on the 1956 survey of the North Fork of the Lewi River above Yale Dam. State of Washington, Department of Fisheries, April 1957.

Smith, Richard, T. 1943. Report on the Lewis River Salmon Conservation Program.

Attachment A: Response matrix for comments received by the ATS and ACC (September 5, 2023)

No.	Commenter	Comment	Utilities Response
1	Steve manlow, LCFRB	We understand that the settlement agreement calls for development and implementation of the HPP. However, the biological and ecological basis for this approach is unclear. If nutrient enhancement is one of the goals, could this be accomplished through direct carcass placement through existing and funded programs? What are the relative costs and benefits of the two approaches? Regarding the stated objective of gravel tilling, has efficacy of this approach at improving future spawning success been evaluated and documented in the literature? Are gravels in a condition that warrant tilling, and how long are benefits expected to last? Most importantly, what are the ecological risks of introducing hatchery fish to the existing ecosystem and future natural-origin reintroduced fish, and how do you propose to address these risks?	The HPP has two goals: 1) nutrient enhancement which could be accomplished by direct carcass placement and 2) gravel preparation through active spawning (gravel tilling) which requires live spawning adults. This however does not preclude the direct placement of carcasses into Yale tributaries through ACC consultation. The use of live adults is stipulated in Section 7.4 which is why the HPP specifies the transport of live adults to Yale. The risks identified in the comment should be addressed through either the AMEP as part of new and ongoing fish passage evaluations to meet specific AMEP objective(s).

No.	Commenter	Comment	Utilities Response
2	Steve manlow, LCFRB	The number of excess hatchery coho salmon displayed in Figure 1 is substantial and raises questions regarding risk to recovery of natural-origin salmon. We understand that hatchery coho are being used to support reintroduction in the upper Lewis basin, and during the early recovery phases pHOS is not a major concern. However, pHOS rates in the lower Lewis basin are approximately 58% based on 2010-18 data, which is well above the target of 10% - 30% for this Contributing population. This raises questions regarding whether the size of the hatchery coho program is misaligned with ability to effectively manage pHOS through existing tools. While hatchery production levels are not directly related to the HPP, information on what adaptive management steps WDFW is proposing to align coho hatchery program size with recovery targets and both tributary and cumulative estuary carrying capacity would be helpful. We acknowledge this may more appropriately be a side conversation.	During recolonization, pHOS is expected to be high and remain high as HOR adults are the primary transport species. The Utilities agree that once Coho achieve the local adaptation phase, that pHOS becomes a key metric to ensure that the program continue to progess towards local adaptation. Ultimately, this is a question for WDFW and the Services with respect to the effects of hatchery production on recovery and any decision modifying hatchery production should be identified in the HS plan and AOP. Note: the Settlement Agreement, provides for the reduction of hatchery produced Coho when Ocean Recruits achieve targets.

No.	Commenter	Comment	Utilities Response
3	Steve manlow, LCFRB	Page 7 indicates that the HPP for Yale begins transitioning to a reintroduction program, and that progeny from 2024 releases will be available for collection at the downstream juvenile collector in 2026. In light of this, relying solely on hatchery coho for the HPP releases could exacerbate pHOS levels within the basin. Achieving collection efficiencies in Swift remains a primary recovery bottleneck and the proposed Yale collector is designed to address known problems. Would it be feasible and beneficial to integrate some level of natural-origin fish into the Yale HPP program at the appropriate time to potentially improve reintroduction success, if numbers are sufficient and outmigration aligns with initiation of collection?	This has been discussed and remains a possibly depending on the availability of NOR returns to the traps after brood stock needs are met. Moving a portion of available NOR returns (after broodstock needs are met) to Yale is a decision that the ACC should make prior to the 2024 HPP.
4	Steve manlow, LCFRB	The monitoring program identifies a rate of around 50% for PIT tagging released excess hatchery coho salmon but does not provide a statistically based study design rationale on why this rate is expected to support monitoring goals. More details on how a rate of 50% was identified would increase certainty of success in the proposed monitoring program.	The 50% tagging rate was selected based on existing PIT tag inventory and sample size that would provide a reasonable and representative sample of adult coho released into Yale.

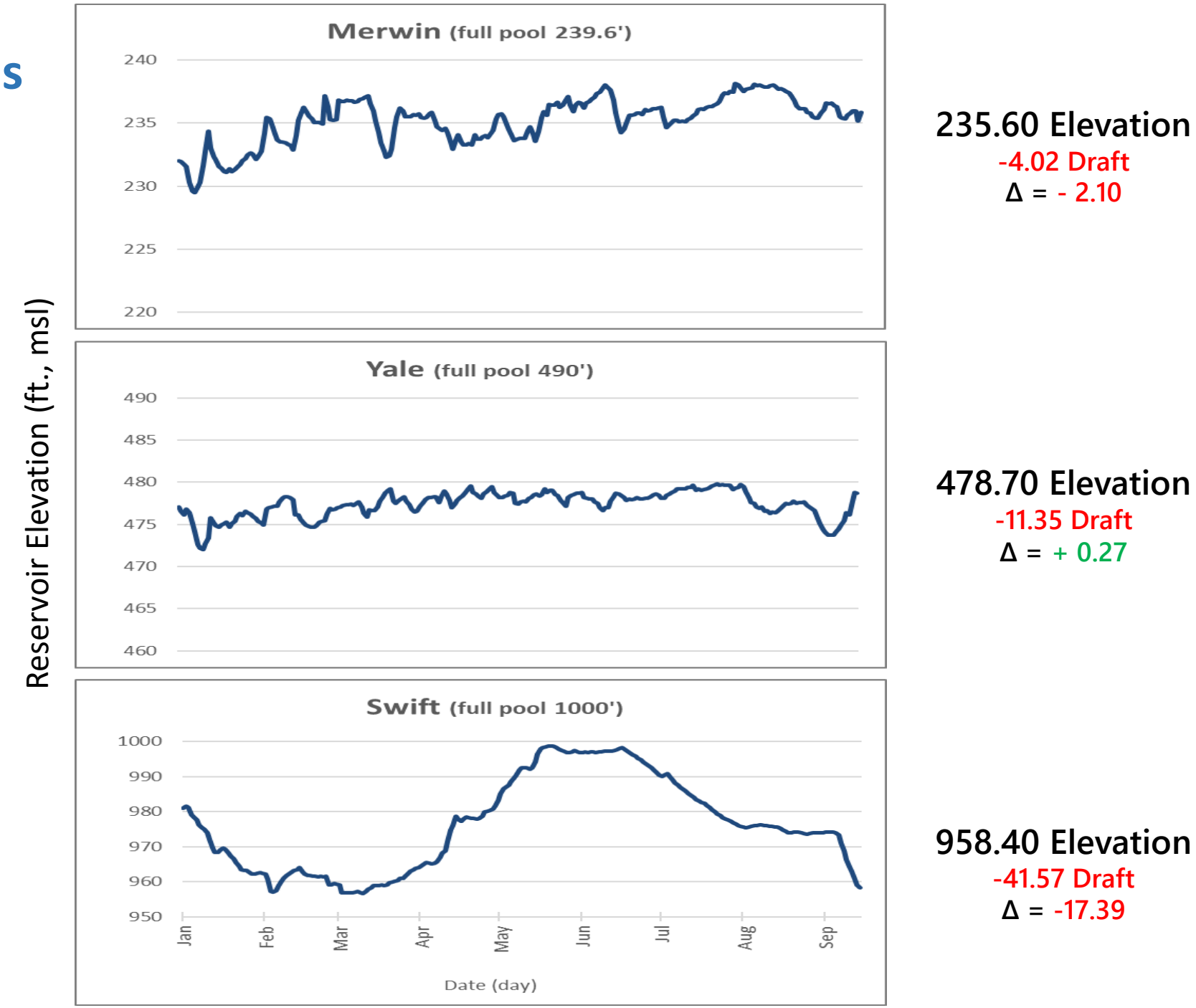
No.	Commenter	Comment	Utilities Response
5	Steve manlow, LCFRB	Field surveys are currently worded as being "informal foot surveys (as resources allow)". Survey methods should be specific and tied to monitoring goals, such as testing assumptions about potential fish distribution and capacity in the Yale Reservoir tributaries. Peak season early run coho surveys may not capture the full extent of spawning and migrating fish, especially if not all tributaries are included in surveys or if late run coho are released as well.	Additional monitoring was added to take advantage of existing monitoring occurring in Cougar Creek and from requests to gain an understanding of the number of coho that migrate to the proposed location of the adult upstream passage facility at the upstream end of the Swift bypass reach. It is important to note that these monitoring proposals are not required as part of the HPP, but the Utilities realize that some monitoring may be useful as part of ongoing studies to inform fish passage into Yale.
6	Steve manlow, LCFRB	The document does not clearly describe how harvest management will support successful implementation of the HPP program. Instead, numbers of released fish appear to be determined based on assumed tributary habitat capacity. Given this program is based solely on achieving two desired outcomes, and augmenting harvest is not one of them, harvest on released fish should not be allowed, nor should release of extra fish to support fisheries. This could undermine and delay achievement of program goals.	The Utiliites agree with this statement.

No.	Commenter	Comment	Utilities Response
7	Steve manlow, LCFRB	The document emphasizes survey work in Cougar Creek, ostensibly because of the presence of bull trout. However, Siouxon Creek, Dog Creek, and Speelyai Creek each have far greater habitat capacity than Cougar Creek. If the broader intent is to better understand fish recolonization and inform decisions on future transport targets, a more defined survey protocol for these streams should be provided.	The intent of the HPP is to provide nutrients and gravel tilling to spawning areas to prepare the gravels for reintroduction (SA 7.4). If additional monitoring is requested, this should be brought to the ACC or FPS for consideration beyond the monitoring that the Utilities have identified in the 2023 HPP. As the HPP transitions (e.g., use of NOR adults) to accomodate juvenile collection at Yale (in 2026), the ACC or ATS may recommend additional monitoring to evaluate metrics beyond presence (e.g., relative abundance in Yale tributaries, transport targets, recoloniation success).
8	Erin Peterson, WDFW, Page 3	Do you have a figure(s) showing the temporal distribution of detections and redds? I think that would be a really interesting addition, and would get at the timing piece that you mention below.	Added both temporal and spatial figures to Draft indicating timing and spatial distribution for bull trout and coho salmon
9	WDFW	Is it known, which fish, via PIT tag detection were most likely to use Cougar Creek? Those released from Yale Park or Saddle Dam. Was there no difference?	Following statement was added: Of the Cougar Creek coho interrogations, 59% were Yale Park released fish and 41% released at Saddle Dam.
10	WDFW, Page 8	Will there be equal tagging of males and females? If so, please specify	Added that tagging will be balanced between males and females
11	WDFW, Page 9	Has there been thought of repositioning the acoustic telemetry arrays that were used for the juvenile behavior study and tagging a number of adults with acoustic tags to see how adults behave, where they go and if they stay in a certain trib? this would be especially useful in the Swift 2/Bypass Reach confluence area.	These arrays are owned and operated by our consultant specific to the juveneile behavioral study. The use and operation of acoustic arrays for adult coho releases into Yale would require a change in scope of the original juvenileevaluation including the relocation of arrays and purchase of additional acoustic tags. Both of which are beyond the scope of Section 7.4 of the Agreement.

Reservoir Elevations

Jan 1 – Sep 14, 2023

Total Draft = - 56.93 feet
(-46.93 with Yale Restriction)
Δ since Aug 3= - 19.25



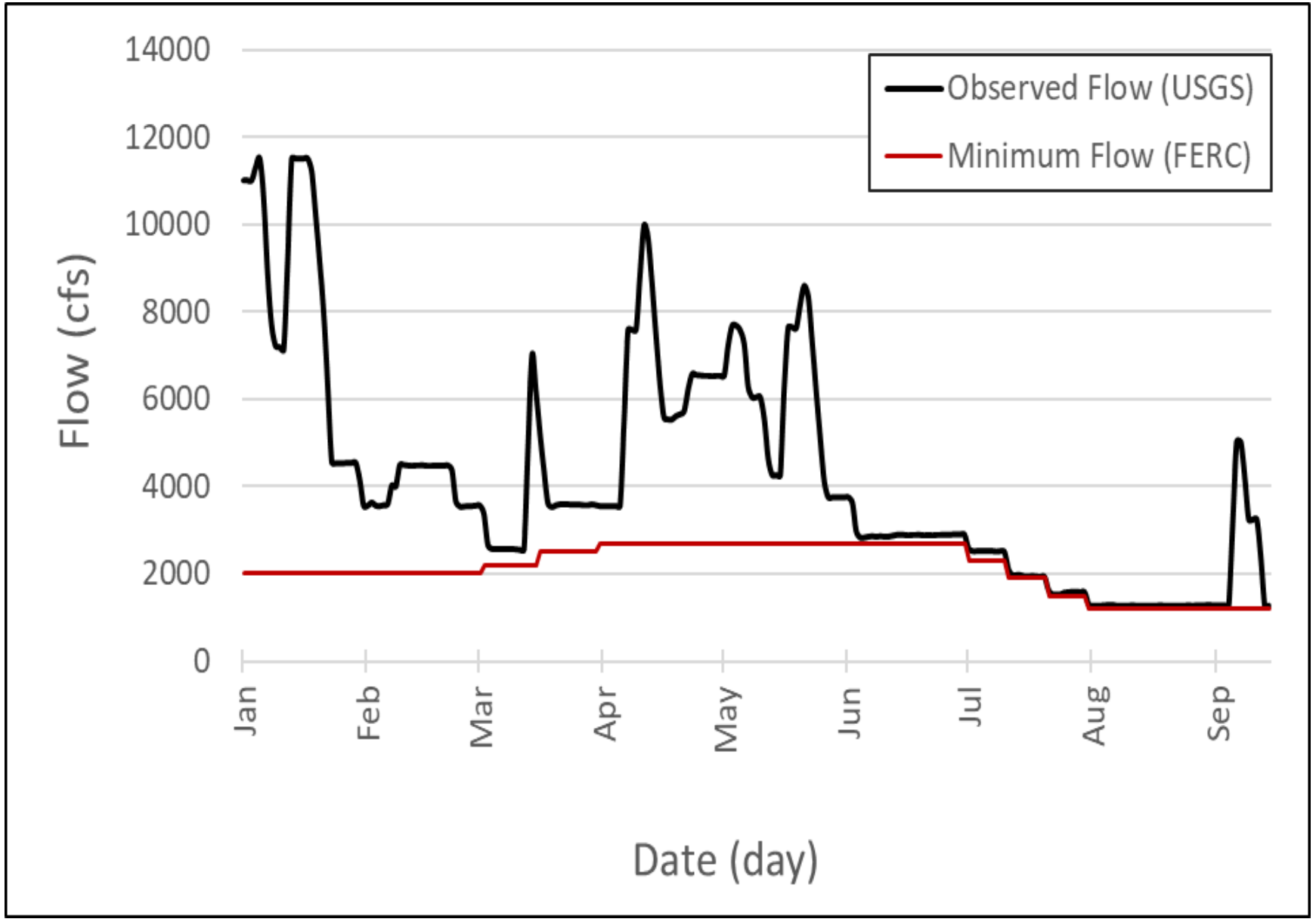
235.60 Elevation
-4.02 Draft
Δ = - 2.10

478.70 Elevation
-11.35 Draft
Δ = + 0.27

958.40 Elevation
-41.57 Draft
Δ = -17.39

North Fork Lewis River Streamflow downstream of Merwin Dam

Jan 1 – Sep 14, 2023



Lewis River Fish Passage Report

August 2023

Merwin Upstream Collection and Transport Facility and General Operations

During the month of August, 2,107 fish were collected at the Merwin Upstream Collection and Transport Facility (MUCTF), which was a considerable increase from July's total of 190. Summer steelhead (n= 1,803) were the primary species collected, followed by fall Chinook (n= 186), early coho (n= 77), sockeye (n= 21), spring Chinook (n= 15), and Cutthroat (n= 5). Of note was the return of the first early coho of the 2023 - 2024 season, collected on August 7th. This is the earliest that a coho has been collected at the facility since it was commissioned in 2014.

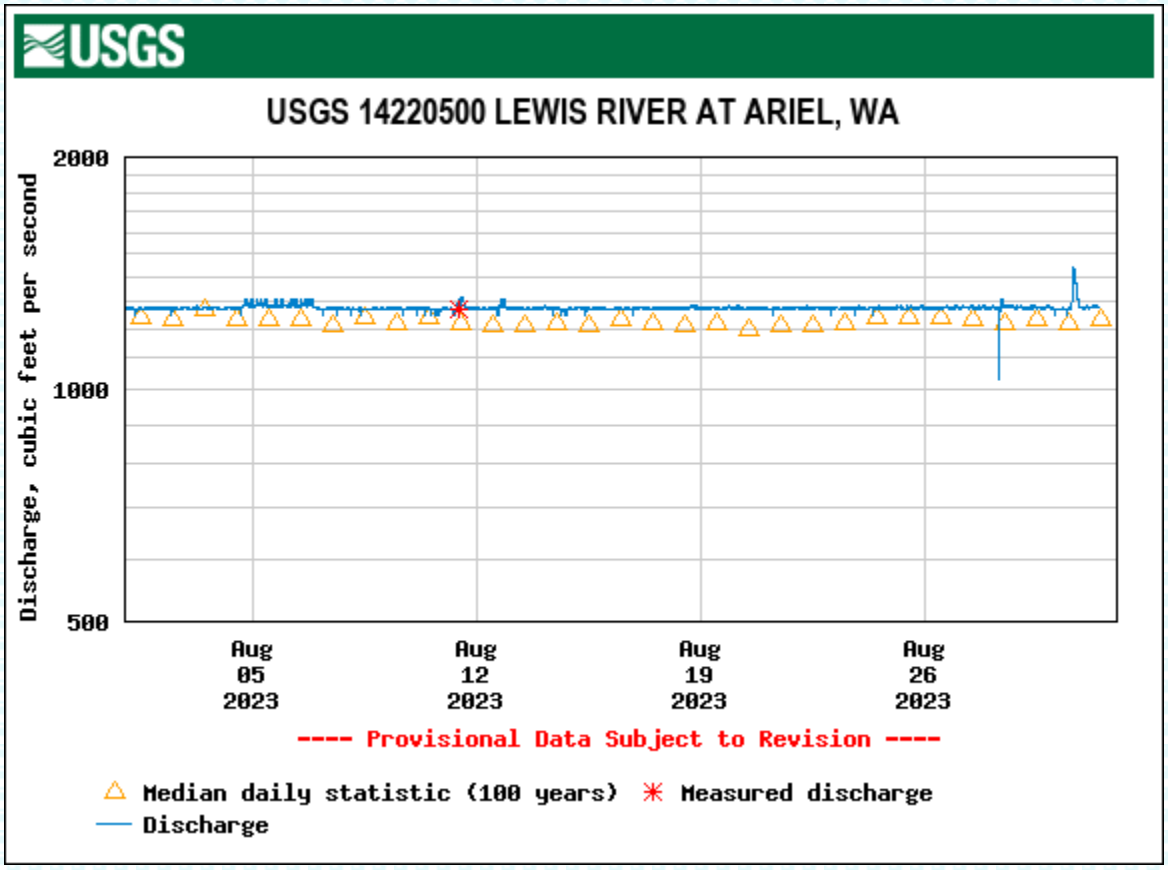


Figure 1. Flow in cubic feet per second recorded at the USGS Ariel, WA gauge (14220500) located immediately downstream of Merwin Dam.

The MUCTF ran continuously for during the month of August. Because the overwhelming majority of fish collected at the MUCTF in August are of hatchery origin, PacifiCorp implemented the summer operations schedule on August 4th. Under this operation schedule, the fish lift and conveyance system are operational 7 days per week, with fish sorting and transport taking place during the Monday-Friday work week. Flows below Merwin Dam were flat in August, hovering just above the minimum required flow of 1,200 cubic feet per second (Figure 1).

One of the cutthroat collected at the MUCTF in August had been previously PIT tagged. This fish was tagged as an adult at the MUCTF in October 2022, transported above Swift Dam, recaptured at the Swift FSC in May 2023, and is on its second trip upstream of Swift Dam. For calendar year 2023 to-date, a total of 39 previously PIT tagged fish have been collected at the MUCTF (32 winter steelhead, four cutthroat trout, two spring Chinook, and one natural origin coho). Tagging history and detections of PIT tagged fish passing through the Lewis River Fish Passage Facilities are available through Columbia Basin PIT Tag Information System (PTAGIS).

Upstream Transport

A total of 88 adult fish were transported upstream in August, which coincidentally, is the same number transported upstream in July. Coho accounted for the majority of the fish transported upstream 9N= 68), followed by spring Chinook (n= 5), and cutthroat (n= 5). Year-to-date in 2023, a total of 1,855 spring Chinook (1,594 HOR and 261 NOR), 808 winter steelhead (631 BWT and 177 NOR), 68 early run coho, 38 late run coho, and 34 cutthroat trout have been transported upstream of Swift Dam.

Swift Floating Surface Collector (FSC)

The Swift Floating Surface Collector (FSC) was taken out of service on July 13th, 2023 for scheduled summer maintenance. It will return to service in early October.

Fish Facility Report
Merwin Adult Trap
August 2023

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-Aug																					
2-Aug	1		1																		
3-Aug	2	2																			
4-Aug	1			2																	
5-Aug																					
6-Aug																					
7-Aug	1	1														1					
8-Aug																					
9-Aug	1	3																			
10-Aug																					
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21-Aug											1										
22-Aug																					
23-Aug																					
24-Aug										2							1				
25-Aug										1	3										
26-Aug																					
27-Aug																					
28-Aug										6	6	2	1			3	4				
29-Aug										2	3					3	4				
30-Aug										3	4	2				3	2	1			
31-Aug										4	2	3	1			5	4				
Monthly	**6**	**6**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**18**	**19**	**7**	**2**	**0**	**0**	**15**	**15**	**1**	**0**	**0**	**0**
Annual	**1204**	**1036**	**528**	**135**	**111**	**12**	**0**	**0**	**0**	**18**	**19**	**7**	**2**	**0**	**0**	**15**	**15**	**1**	**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-Aug																		
2-Aug													127	239	9	34		
3-Aug													44	163				
4-Aug													23	52	2	3		
5-Aug																		
6-Aug																		
7-Aug													54	63	26	63		
8-Aug													26	28	28	25		
9-Aug													8	11	8	36		
10-Aug													11	15	8	31		
11-Aug													18	32	19	35		
12-Aug																		
13-Aug																		
14-Aug													19	52	21	47		
15-Aug													2	8	4	7		
16-Aug													2	10	3	16		
17-Aug													11	7	8	12		
18-Aug													11	10	17	15		
19-Aug																		
20-Aug																		
21-Aug													6	9	14	16		
22-Aug													4	5	3	6		
23-Aug													8	6	6	6		
24-Aug													6	5	6	4		
25-Aug													7	7	3	9		
26-Aug																		
27-Aug																		
28-Aug													17	20	17	26		
29-Aug													4	2	2	5		
30-Aug													6	3	8	4		
31-Aug													6	9	9	6		
Monthly	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**420**	**756**	**221**	**406**	**0**	**0**
Annual	**57**	**48**	**6**	**12**	**15**	**0**	**19**	**15**	**4**	**0**	**0**	**0**	**611**	**1176**	**223**	**435**	**0**	**6**

Reporting Date	W. Steelhead								Fall Chinook									Sockeye		Chum		Pink		Cutthroat	Rainbow (< 20 inches)	Bull Trout	Daily Total
	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	M	F	M	F	M	F				
1-Aug																											
2-Aug									1	2								3	3								**420**
3-Aug									1	3																	**215**
4-Aug									2		2													1			**88**
5-Aug																											
6-Aug																											
7-Aug									9	8		3	6					5									**240**
8-Aug									4	5		1	2														**119**
9-Aug											4	1	3					1	2								**78**
10-Aug									3		2	3															**73**
11-Aug									7	3	2	5	3					3	2								**129**
12-Aug																											
13-Aug																											
14-Aug									6	2	3	4												1			**155**
15-Aug									1			1	1														**24**
16-Aug										1	5	1															**38**
17-Aug									2		2							1									**43**
18-Aug										1	2	1						1									**58**
19-Aug																											
20-Aug																											
21-Aug									1		4	1															**52**
22-Aug												1															**19**
23-Aug									3	4	4	2	1											1			**41**
24-Aug									1			2		3													**30**
25-Aug									1	1	1													2			**35**
26-Aug																											
27-Aug																											
28-Aug									1	3		2	2														**110**
29-Aug									4			2	2														**33**
30-Aug									4	3		1	3														**47**
31-Aug									1	2		6	2														**60**
Monthly	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**38**	**31**	**37**	**25**	**3**	**0**	**0**	**0**	**14**	**7**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**2107**
Annual	**205**	**351**	**343**	**310**	**0**	**0**	**112**	**100**	**52**	**38**	**31**	**38**	**27**	**3**	**0**	**0**	**0**	**15**	**8**	**0**	**0**	**0**	**0**	**34**	**0**	**0**	**7397**

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

August 2023

Day	Coho			Chinook			Steelhead				Cutthroat			Bull Trout	Planted Rainbow	Total
	fry	parr	smolt	fry	parr	smolt	fry	parr	smolt	kelt	fry	<13 in	> 13 in			
1																
2																
3																
4																
5																
6																
7																
8																
9																
10																
11																
12																
13																
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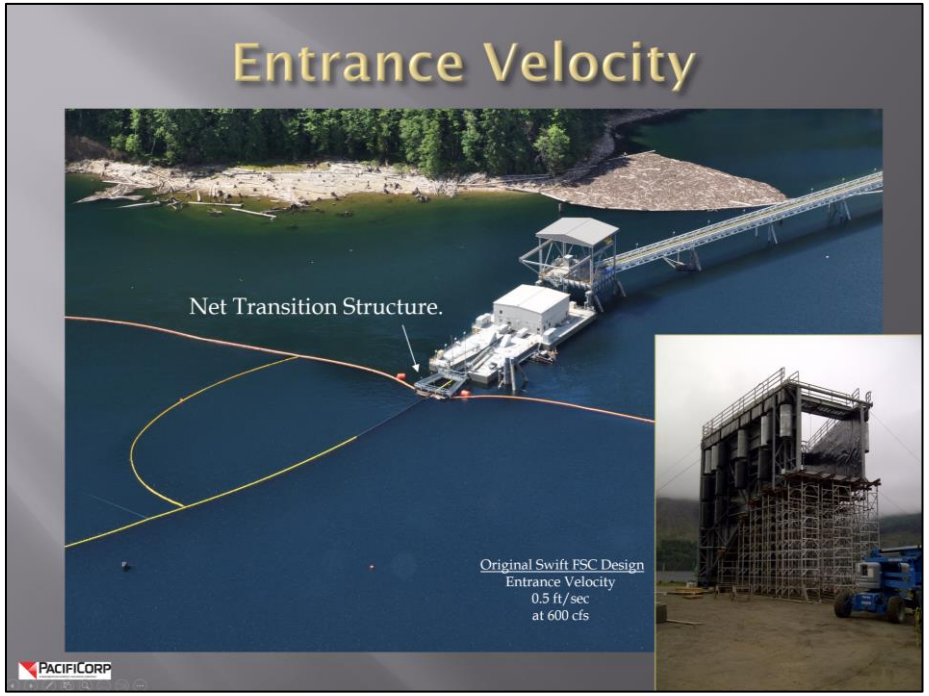
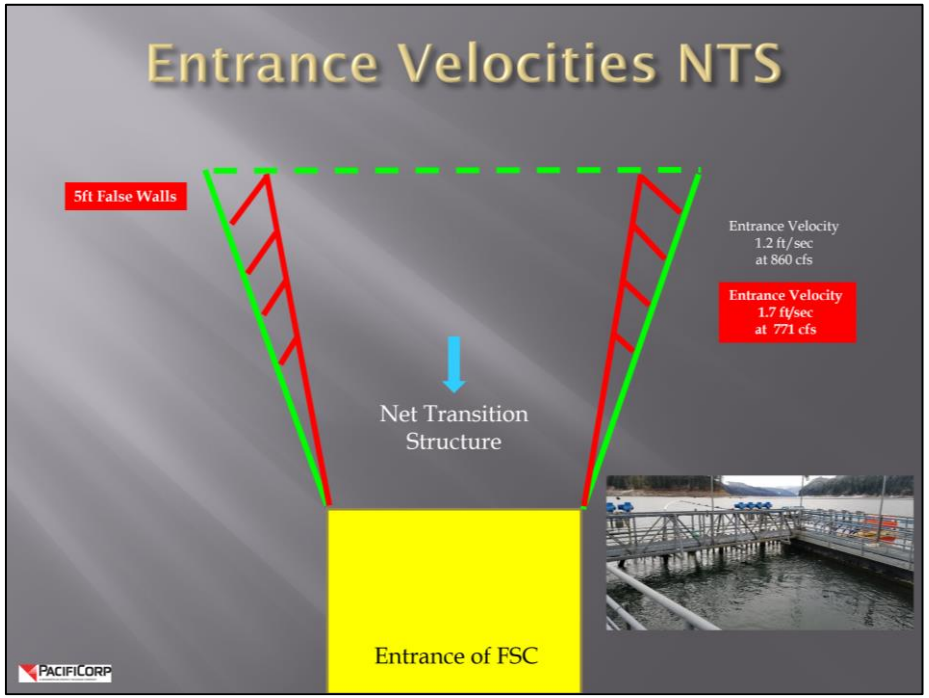
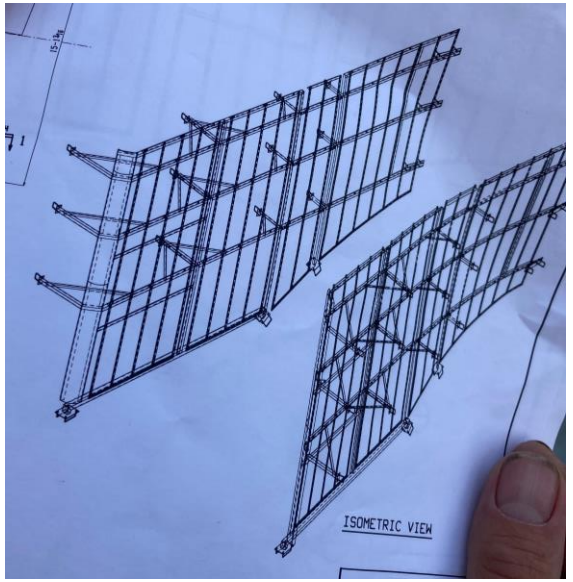
21																
22																
23																
24																
25																
26																
27																
28																
29																
30																
31																
Monthly	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	333	5140	63714	233	217	2587	3	43	4323	31	0	511	48	11	2035	**79229**

Swift Floating Surface Collector

- Making adjustment to the NTS to eliminate areas of hydraulic deceleration within the fish channel.
- This adjustment will allow for evaluation of passage success through the collection channel without the areas of deceleration at higher entrances velocities.
- Side wall adjustments to be completed during the 2023 summer outage season. Work starting August 14, 2023.
- Determine if areas of hydraulic deceleration are contributing to high rates of rejection in the fish channel.
- No acoustic telemetry study conducted in spring 2023; will resume in spring 2024 to evaluate fish passage metrics and behavior under the new conditions.
- End goal is to use information as we consider more permanent modifications to the entrance of the Swift FSC to improve collection efficiency.

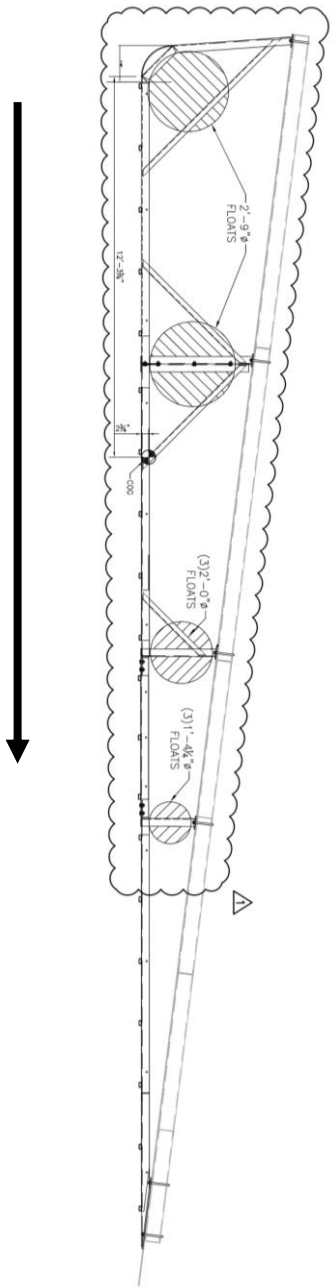




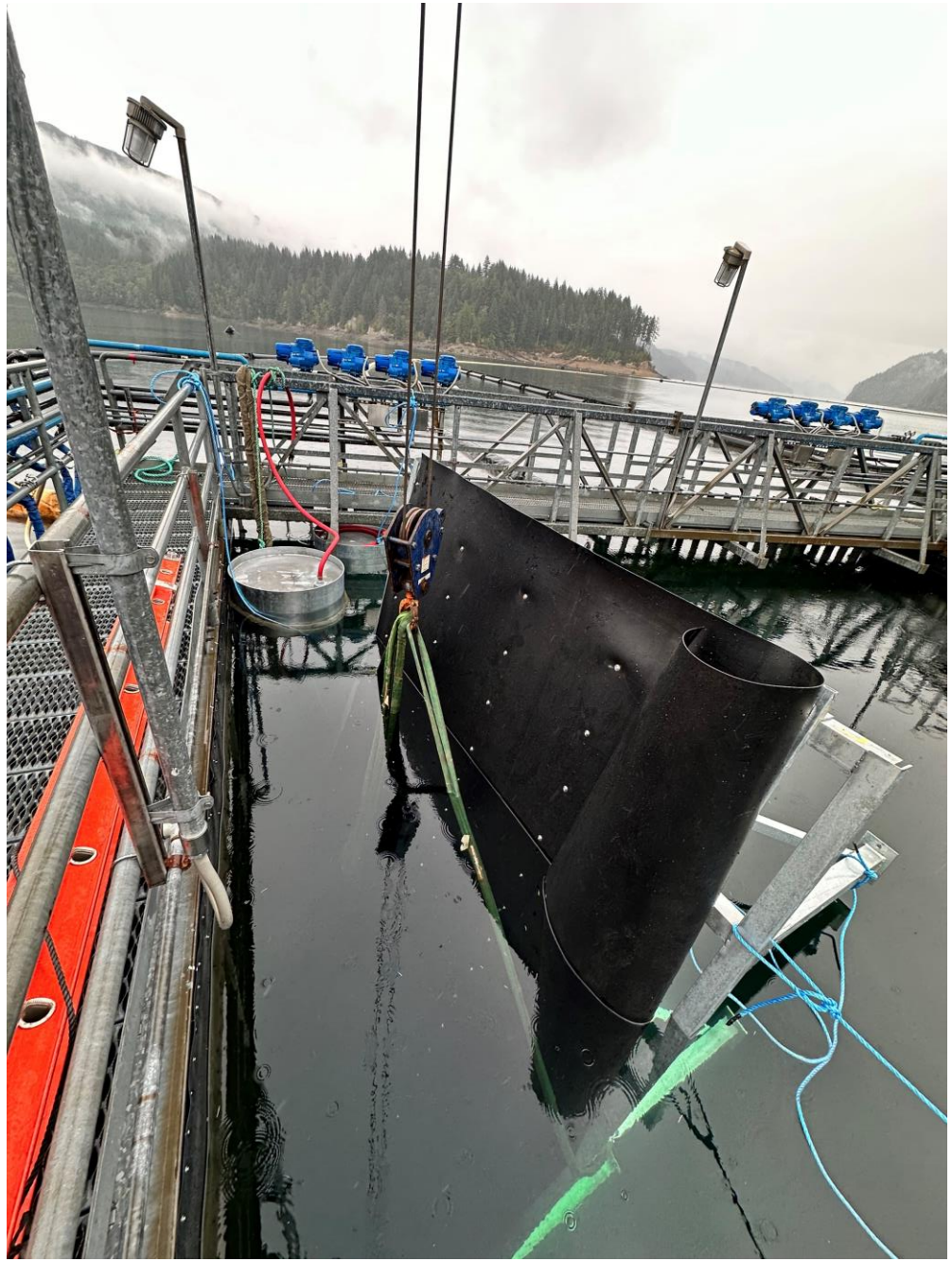

ISOMETRIC VIEW

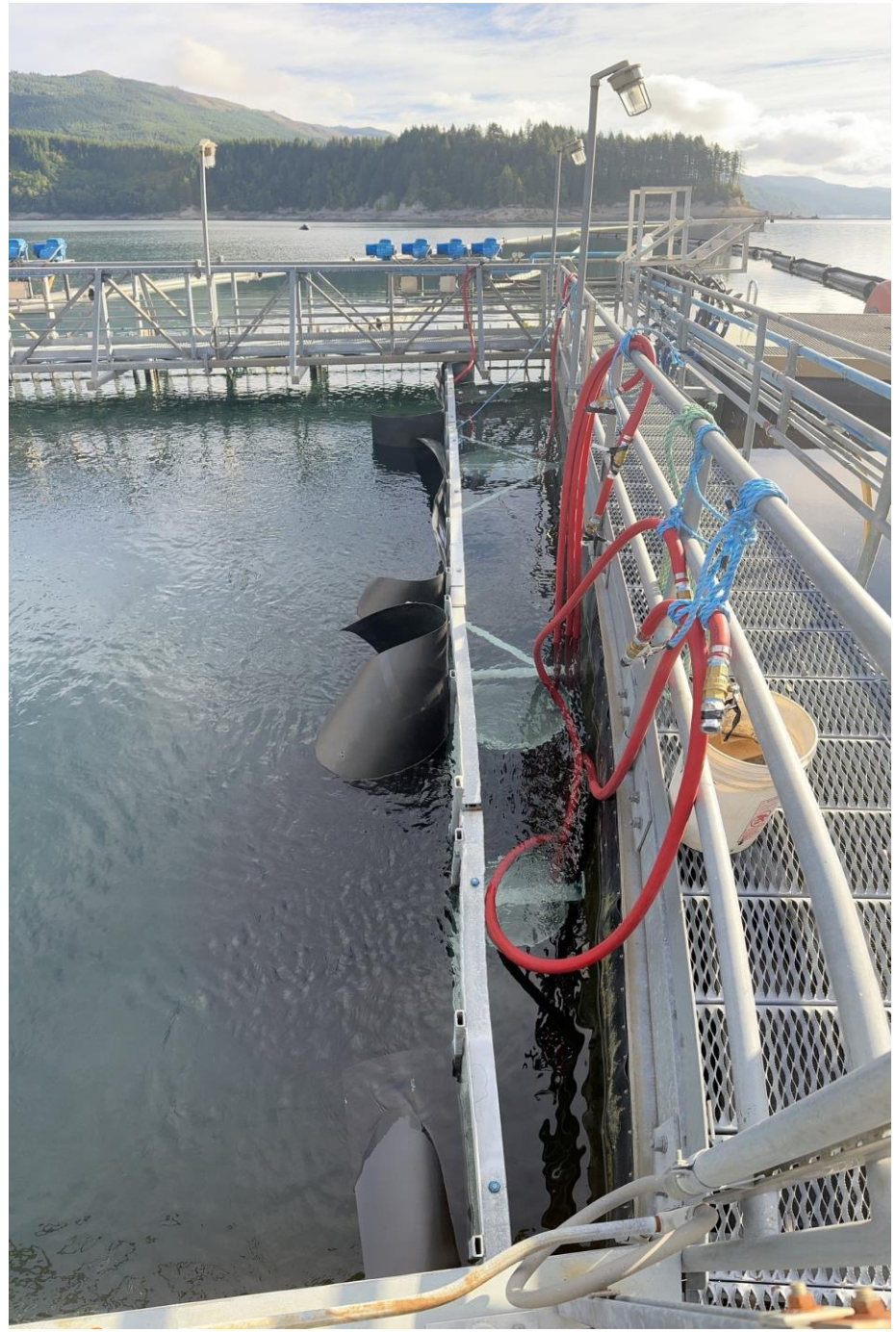

KIRKLAND
purified water


PORT
STARB'D


2'-9"ø
FLOATS
12'-3½"
2½"
CGC
(3)2'-0"ø
FLOATS
(3)1'-4½"ø
FLOATS
A


LORAIN
LCD-150





Upper Lewis Nutrient Enhancement Sites

- Pine Creek @NF-25
- Muddy River @NF-25

1. **Clear Creek @ NF-93 Bridge**: 46.127738, -121.990024

2. **Pepper Creek @ NF-9039 Bridge**: 46.07520705228576, -121.98694469168397

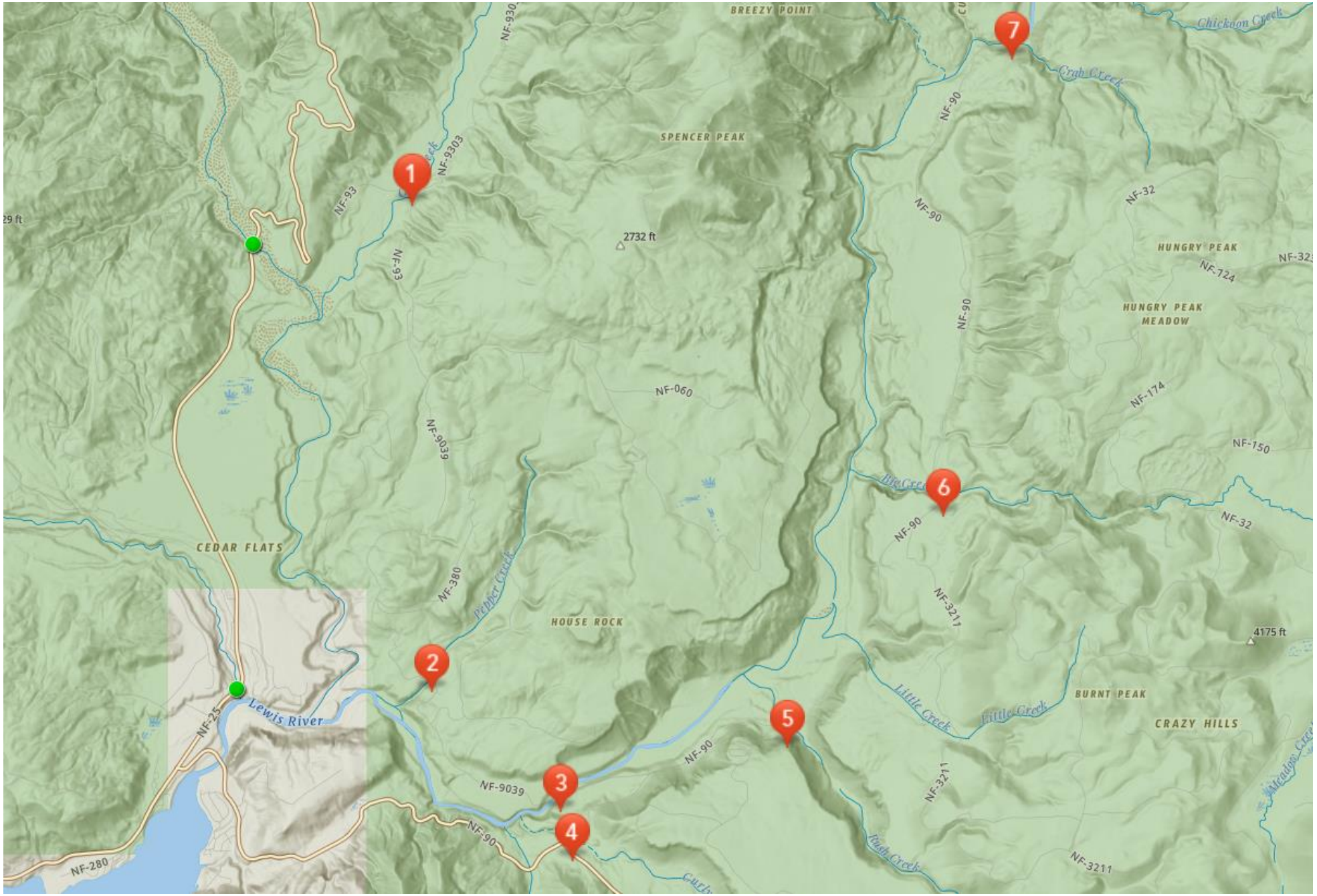
3. **NF Lewis @ NF-9039 Bridge**: 46.06224468989998, -121.96672799974594

4. **Curly Creek @ NF-90 Bridge**: 46.056708060873696, -121.9650768469077

5. **Rush Creek @ NF-90 Bridge**: 46.06922641816277, -121.9310882516612

6. **Big Creek @ NF-90 Bridge**: 46.09443888077449, -121.90658738186231

7. **NF Lewis @ NF-90 Bridge**: 46.14443711394049, -121.89573210084377



Cedar Creek Nutrient Enhancement Sites

1. **Cedar Creek @ Doty Property**: 45.92563212593462, -122.50241799061348
2. **Cedar Creek @Cedar Ridge Drive**: 45.92584701790758, -122.47273478753254
3. **Cedar Creek @ 226th Ave**: 45.90509933768023, -122.43853516976043
4. **Chelatchie Creek @ MSH Monument headquarters**: 45.92675393584188, -122.38210332557749