

LEWIS RIVER AQUATIC COORDINATION COMMITTEE

Facilitator: ERIK LESKO
503-412-8401

Location: TEAMS MEETING ONLY

Date: February 9, 2023

Time: 9:30 AM – 12:00 PM

AGENDA

9:30 AM	Welcome <ul style="list-style-type: none">➤ Review and Accept 02/09/2023 Agenda➤ Review and Accept 01/12/2023 Meeting Notes
9:45 AM	Public Comment Opportunity
10:00 AM	Aquatic Fund Project Selection (<i>Lesko</i>)
11:00 AM	ACC Meeting Process Check-in <ul style="list-style-type: none">➤ Anything we should stop, start or continue doing at our monthly meetings?➤ Summer 2023 Meeting Schedule
11:30 AM	Study/Work Product Updates <ul style="list-style-type: none">➤ Flows/Reservoir Conditions (<i>Lesko</i>)➤ Reservoir Shoreline Development Projects (<i>ACC</i>)➤ WSDOT - Cougar Creek/Beaver Bay updates (<i>ACC</i>)➤ ATS Update (<i>Lesko, Montgomery</i>)➤ FPS Update (<i>Glaser, Olson</i>)➤ Fish Passage/Operations Update (<i>Karchesky</i>)
11:45 AM	Public Comment Opportunity 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
February 9, 2023
TEAMS Meeting Only**

ACC Representatives and Affiliates Present (22)

Sarah Montgomery, Anchor QEA

Christina E. Donehower, Cowlitz Indian Tribe

Dalton Fry, Cowlitz Indian Tribe

Amanda Farrar, Cowlitz PUD

Anne Baxter, Ecology

Steve West, LCFRB

Melissa Jundt, NMFS

Jeremiah Doyle, PacifiCorp

Chris Karchesky, PacifiCorp

Mark Ferraiolo, PacifiCorp

Erik Lesko, PacifiCorp

Jim Byrne, Trout Unlimited

Greg Robertson, USFS

J.D. Jones, USFS

Jeffrey Garnett, USFWS

Josua Holowatz, WDFW

Peggy Miller, WDFW

Sam Gibbons, WDFW (joined late)

Bryce Glaser, WDFW

Aaron Roberts, WDFW

Bill Sharp, Yakama Nation

Keely Murdoch, Yakama Nation

Guests (0)

None

Calendar:

February 9, 2023	ACC Meeting	TEAMS Meeting
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Assignments from February 9, 2023	Status
Lesko: Check Aquatic Fund amounts and provide votes for 7-day ACC review.	Complete (2/21/2023)
Karchesky: Organize field visit for ACC and FPS to Clackamas River, with potential for a second day added on to visit Lewis River facilities.	Complete (Feb 21, 2023)

Assignments from December 8, 2022	Status
All: Provide comments on the Yale License Amendment to Beth Bendickson by March 8, 2023.	Complete (3/8/2023)

Assignments from November 10, 2022	Status
Karchesky: Discuss potential impacts of Merwin conveyance system work with the ATS to determine broodstock collection modifications.	Ongoing.

Assignments from April 14, 2022	Status
Erik Lesko: Coordinate with the TCC regarding the timing for WSDOT's Cougar Creek culvert project.	Ongoing.

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 reviewed the January 12, 2023, meeting notes. Editorial edits and comments were accepted, and Chris Karchesky clarified that PIT tags were used to verify passage of acoustic tagged fish both during the collection efficiency study as well as after. Lesko added two updates to the agenda: an update on nutrient enhancement projects in the Lewis River basin, and an update from Josua Holowatz on a potential site visit to a fish passage facility on the Clackamas River.

The January 12, 2023, minutes were accepted with minor edits.

Public Comment Opportunity

None.

Aquatic Fund Project Selection

Erik Lesko first reviewed the decision-making protocol from the ACC Ground Rules (June 2020). He reminded the ACC that decisions are made by consensus, and the process of dispute resolution is described in the Ground Rules document. The first step is to have an open discussion about each proposal. Any representative may speak, then once the group has decided enough discussion has occurred and all voices have been heard, the ACC will vote. If all votes are in alignment, the decision is finalized. If there are minority votes (not in alignment), they get the floor for the discussion first, then eventually the ACC will vote again. This will continue until those in the minority can say that they feel they have been heard. Ultimately, the minority can vote no but agree not to stand in the way or vote no and seek dispute resolution as described in the Settlement Agreement and ACC/TCC Ground Rules.

Lesko reviewed the available funds in 2022-2023, for a total of \$4.3 million available by April 2023. This includes annual payments (every April) until annual payments sunset in 2027. Annual interest will accrue monthly for both the general fund and the Bull Trout Fund for the life of these funds. Glaser asked if these values subtract out amounts that have been allocated to approved projects for which funds have not been disbursed. Lesko said he believes so and will confirm.

Lesko reviewed the Aquatic Fund project scores and comments (Attachment A).

Pine Creek Discussion and Voting

Lesko opened discussion on the Pine Creek Project and summarized components of the proposal. Steve West had provided a comment suggested funds for this project could come out of the Bull Trout Fund. Lesko said he also considered this and agrees. JD Jones said he is also in favor of using the Bull Trout Fund for this project because Pine Creek is one of few tributaries in the

Lewis River basin that has bull trout in it. Jeffrey Garnett said he has some hesitation about using only the Bull Trout Fund to fund this project, as it would not leave anything in that fund for future bull trout related work. That said, he does not have a strong opinion on the matter and would not oppose funding it using the Bull Trout Fund. Glaser said though it is a design only project, if the design did move forward to construction, future phases of the project could be funded using the general fund. Lesko agreed. Jim Byrne agreed.

Lesko said the Utilities support this project. The work would complement work that has been completed in the Muddy River system, and Pine Creek has not received as much focus as other tributaries. Though it is a flashy and high-energy system, which presents some risk, this was addressed in the proposal and there are opportunities to create habitat that help dissipate some of this energy.

JD Jones said USFS is supportive of this project. He said if the project did move ahead into a construction phase, it is important to consider that since there is no large wood for a long way, it could be costly project. He also noted concerns about the flashiness of the system and durability of proposed habitat features.

Jim Byrne noted some previous work has been done in Pine Creek, and asked if anyone has evaluated the durability of those habitat structures. Jones said parts of those log jams are still present, but he suspects they were not large enough to create the type of habitat that this proposal is targeting.

Lesko shared the budget for the project and asked for any further comments, which there were none. ACC representatives present voted as follows:

Voting Tally for Aquatic Fund Project Selection

February 9, 2023

	Organization	ACC Voting Representatives	Pine Creek Restoration Design	Pine Creek Restoration Design: funding from bull trout fund?
1	American Rivers	Bridget Moran	A	A
2	Cowlitz Indian Tribe	Christina Donehower	Y	Y
3	Fish First	Alex Maslov	NP	NP
4	Lewis River Community Council	Mariah Stoll-Smith Reese	NP	NP
5	Lower Columbia River Fish Recovery Board	Steve West	Y	Y
6	National Marine Fisheries Service	Melissa Jundt	Y	Y
7	Utilities	Erik Lesko	Y	Y
8	Trout Unlimited	Jim Byrne	A	Y
9	US Fish & Wildlife Service	Jeff Garnett	Y	Y
10	GPNF	JD Jones	Y	Y
11	Washington Dept. of Fish & Wildlife	Bryce Glaser	Y	Y
12	WA Recreation/Conservation Office	Adam Cole	NP	NP
13	Yakama Nation	Bill Sharp	Y	Y

Key

- A = abstain
- Y = approve
- N = oppose
- N1 = oppose, but won't stand in the way of approval
- NP = Not Present (7 day extension)

Y=8, A=2, NP=3

Y=9, A=1, NP=3

Clear and Clearwater creek proposal

- Y1 - Approve both clear and clearwater options
- Y2 = Approve only clear creek option (but wont stand in the way of approval for both options)

The Pine Creek Project was approved by the ACC (using Bull Trout Funds), pending a 7-day extension for non-present voting members to provide a vote via email. (One additional vote was received during the extension (NMFS) in favor of the project and the project was approved on February 21, 2023.)

Clear and Clearwater Creek Project

Erik summarized the project proposal and comments received during the review period. Many of the comments focused on cost, as approving Option 1 (both Clear and Clearwater Creeks) would mean using almost the entirety of the Aquatic Fund. He said he wants to make sure the cost matches the benefit. Lesko said he spoke with others working in the basin about Clear Creek and noted there is high quality habitat upstream of the bridge, which some consider as reference conditions. He also shared redd data for coho and Chinook surveys conducted between 2012 and 2019, which illustrates existing and widespread use of areas upstream of the Clear Creek bridge.

Glaser asked if there have been discussions about phasing the project or separating it into multiple projects. Could Clear Creek just be implemented below the bridge? JD Jones said USFS does not want to separate out part of Clear Creek as an option. The two options described include Clear Creek (Option 2), or both Clear and Clearwater Creeks (Option 1).

Lesko reviewed figures from the proposal and the alternatives presented. Jones described the cost savings of using a helicopter for the work. He said he disagrees that areas above the bridge in Clear Creek are reference-like conditions. The technical study completed by InterFluve confirms this and is the basis for these recommended restoration actions. Jones said USFS put a lot of effort into cost-savings on this project, which informs their preference for doing both reaches together. Separating the projects or phasing them increases the costs.

Glaser said WDFW's perspective is that they have some concerns about the total funding amount but see the benefit of the projects. WDFW is in favor of pursuing Option 2 (Clear Creek only) with the potential to fund more parts of the project later or seek outside funds for Clearwater Creek. This would also leave funds in the Aquatic Fund for future years.

Bill Sharp said he agrees with Glaser but does support approving both. Helicopters work well to restore hydraulic function and complexity as this project is intending. He would be amenable to Clearwater being phased later, but supports both projects now.

Jeffrey Garnett said he has similar concerns to what has been stated, mainly cost and stability of structures. He asked whether there is any benefit or disincentive to waiting to implement Clearwater Creek in a later phase, such as remobilization. Jones confirmed the mobilization costs for phasing construction would be significant.

Steve West noted the project would use up most of the Aquatic Funds. He said the money is not doing any good for salmon recovery sitting in the bank. He said LCFRB is in favor of approving the project in its entirety. He sees the value of the project over the entire 13.9 river miles and said the cost per river mile is a good value.

Glaser asked whether there could be other sources of funding to provide a cost-share, such as the Salmon Recovery Funding Board. Jones said he does not think this project would be competitive for SRFB grant funding. West agreed and said this would introduce a delay to the project too.

Garnett asked the ACC is anyone foresees a future opportunity cost of using the funds now. Are there other dire needs in the basin that should be targeted with these funds? No representatives identified any near-term opportunities.

Glaser said it is also important to consider that the annual contribution payments will be expiring, so there are only a few years left of additional funds being added. He agreed with West's comment about not letting the money sit in the bank. He noted, however, that there is an unresolved discussion about compensatory mitigation funding. He summarized WDFW's position: in favor of Clear Creek only (Option 2) and would not stand in the way of also adding Clearwater Creek (Option 1).

Jones said he knows the project is a big ask for a big project, and he noted USFS owns a lot of land in the basin and these are the highest priority areas where cost-savings are available.

ACC representatives finished providing initial comments on the proposal.

Lesko invited the ACC representatives present to vote. Of those present, both the Utilities and WDFW voted to approve only Option 2 as described in the proposal. These were in the minority and were encouraged to share additional concerns or feedback with the group, or try to convince others to change their votes. Lesko said he has stated his concerns about cost, existing habitat quality and feels that he has been heard. The Utilities will not stand in the way of approving this project. Glaser said he too feels as though his concerns have been heard and WDFW will not stand in the way of the majority.

The final votes were recorded as follows:

Voting Tally for Aquatic Fund Project Selection

February 9, 2023

	Organization	ACC Voting Representatives	Clear/Clearwater Restoration Implementation
1	American Rivers	Bridget Moran	A
2	Cowlitz Indian Tribe	Christina Donehower	Y1
3	Fish First	Alex Maslov	NP
4	Lewis River Community Council	Mariah Stoll-Smith Reese	NP
5	Lower Columbia River Fish Recovery Board	Steve West	Y1
6	National Marine Fisheries Service	Melissa Jundt	Y1
7	Utilities	Erik Lesko	Y2
8	Trout Unlimited	Jim Byrne	A
9	US Fish & Wildlife Service	Jeff Garnett	Y1
10	GPNF	JD Jones	A
11	Washington Dept. of Fish & Wildlife	Bryce Glaser	Y2
12	WA Recreation/Conservation Office	Adam Cole	NP
13	Yakama Nation	Bill Sharp	Y1

Key

Y1=5, Y2=2, A=3, NP=3

A = abstain

Y = approve

N = oppose

N1 = oppose, but won't stand in the way of approval

NP = Not Present (7 day extension)

Clear and Clearwater creek proposal

Y1 - Approve both clear and clearwater options

Y2 = Approve only clear creek option (but wont stand in the way of approval for both options)

The Clear and Clearwater Creek Project (Option 1) was approved by the ACC, pending a 7-day extension for non-present voting members to provide a vote via email. (One additional vote was received by NMFS during the extension in favor of approving the project and the project was approved on February 21, 2023.)

Lesko said he will double-check the available funds before sending the projects for final approval via email.

JD Jones thanked the ACC for their thoughtful discussions.

Lesko thanked the ACC for their participation and said the votes and scores will be attached to the ACC notes, and will work with the project sponsors on funding arrangements.

ACC Process Check in

Erik Lesko asked the ACC for any feedback or comments on how the ACC meetings are being conducted. He said he wants to make sure the group is being efficient, staying engaged, and that the meetings are working for everyone and meeting expectations.

Glaser said he appreciates this topic being brought up as it is a challenge to determine the best use of everyone's time and decide whether to meet in person or virtual. He shared his perspective that in general the meetings are working well, as many representatives are able to engage, and virtual meetings reduce travel time. There are some disadvantages to not meeting in person, like not building relationships and not having informal sidebar conversations about program elements. He supports meeting in person once or more per year with a hybrid option that allows a virtual option. He also suggested that when voting is being tallied, votes should be received in the affirmative. He suggested asking each representative to speak up and say "yes" rather than asking "is anyone opposed".

Melissa Jundt said she appreciates meeting in person occasionally to help build collaboration. Jeffrey Garnett agreed and said quarterly to once per year would be a good target for in-person meetings for him personally.

Lesko also noted that PacifiCorp not supporting video conferencing is another challenge, as people tend to stay more engaged when on video. Glaser suggested reconsidering the in-person meeting location and offered WDFW's Ridgefield office as an option that might support video/hybrid. Lesko confirmed Merwin Hydro Control Center supports virtual meetings.

Lesko thanked the ACC representatives for their feedback and said he welcomes any additional feedback provided to him or Todd Olson. He said based on the feedback, he will tentatively plan on offering in-person options once in the spring and once in the fall (May and October).

Summer 2023 Meeting Schedule

Lesko noted that the meeting schedule for 2023 has been distributed to the ACC. He asked whether there are any months the ACC should plan in advance to take off due to summer vacation schedules generally making the summer meetings lighter. He noted for that he will be taking a large part of August off and unavailable for the August meeting. Peggy Miller said she thinks taking a one month break from having a meeting in the summer might make sense depending on the topics being discussed at the time, but was not in favor of taking multiple months off. She noted there will be a lot of work products and updates in 2023. Glaser agreed and said taking one month off is a good plan, but it is otherwise important to stay on track. One idea would be to offer a field trip or optional meeting instead with no real formal business. He also reminded ACC representatives that alternates can operate on their behalf. Jeffrey Garnett supported the continuity of monthly meetings with some flexibility to skip months if ACC business is light; he also supports field trips.

Lesko thanked everyone for the feedback and said they can revisit the plan for the August meeting in early summer. He encouraged ACC representatives to reach back out to him with any additional feedback or thoughts on this matter.

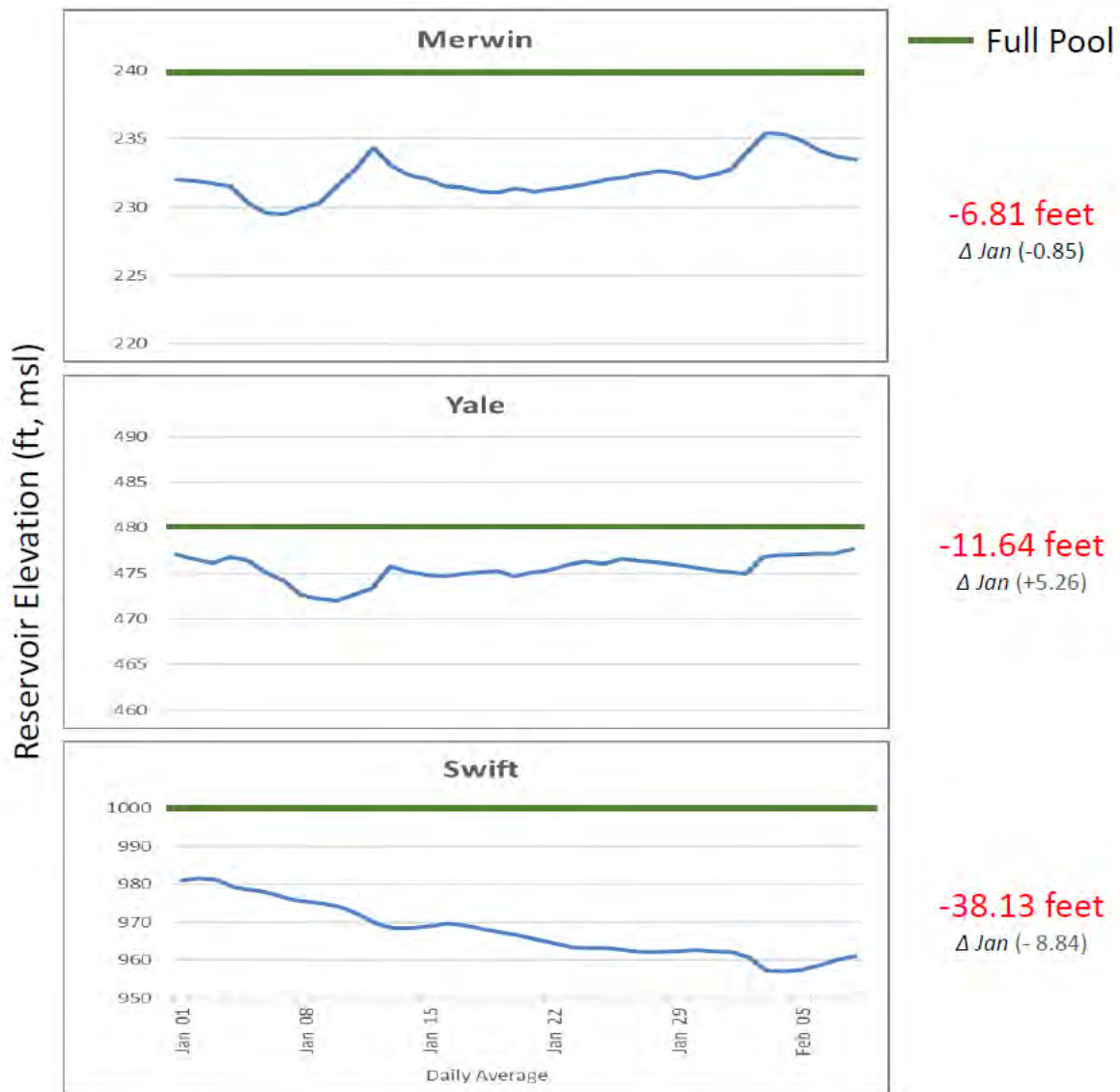
Study/Work Product Updates

Flows/Reservoir Conditions Update

Erik Lesko shared the flows and reservoir conditions update:

He said the effect of the large rainstorms in December that increased the reservoir elevations has mostly stabilized now. Swift Reservoir is down 38 feet, which is 8 feet below the same time in January. Yale Reservoir has gained 5 feet from the last meeting (total 11 feet down). Saddle Dam

is at full pool of 480 feet due to the Saddle Dan restrictions. FERC minimum flows downstream of Merwin Dam will continue to be met.



Reservoir Shoreline Development Project Update

There were no major updates on known shoreline development projects within the project limits. Lesko asked the ACC if anyone has other updates on shoreline development projects, and there were none.

ATS Update

Erik Lesko said one of the most challenging things the ATS has been working on is completing each year's Annual Operating Plan (AOP) before the year starts. In 2022, the ATS made major revisions to the AOP to bring it in line with the current monitoring and evaluation framework in the Hatchery and Supplementation Plan. The 2022 AOP which was completed in late 2022. For 2023, the ATS is planning on using the recently updated AOP as a "working version," and focusing their time and energy on evaluating changes to programs that would be implemented in

2024. The ATS is working through a priority list of actions including transition plans, evaluating current strategies for data collection and evaluation, and other items.

FPS Update

Bryce Glaser said the FPS has been reviewing the 30% designs for fish passage, and are working through next steps for the alternatives analysis. This afternoon, they will also discuss capacity estimates and some of the technical memos that have been provided for review. Peggy Miller added that the FPS is interested in a tour of the Lewis River facilities and also Clackamas River facilities.

Glaser said the FPS is also focused on finalizing the Elements of Fish Passage document, though there are several topics that require further discussion.

Karchesky added that PacifiCorp is working on the fish behavioral study at Yale, and that study will be implemented again in 2023. He discussed this with the ATS and will also provide an update to the FPS. There are no major changes to the study design. Additions include evaluating multiple species and evaluating depth.

Lesko asked if the FPS will be providing anything to the ACC soon for review or approval. Miller suggested checking the License to see if study plans need approval by the ACC. She added that the “Elements” document will need approval by the ACC in the next few months, as it is due to FERC on April 30. Lesko and Karchesky will confirm the study plans do not need ACC approval.

Merwin Fish Passage Update (see also Attachment B)

Chris Karchesky (PacifiCorp) informed the ACC fish passage at Merwin Dam is still in a quiet period. During last week’s cold weather, the conveyance system and collector were turned off for a few days due to inclement weather. Passage has been low at both facilities, with only a few last coho and hatchery winter steelhead. He noted about 50 late-winter steelhead have been passed upstream, of which about half are natural-origin returns and half are blank-wire-tagged (BWT) program fish.

Swift Floating Surface Collector (see also Attachment C)

Chris Karchesky said numbers coming through the Swift FSC remain well below average. They are seeing some coho and expect to start collecting spring Chinook juveniles in late February – temperature and weather dependent. Some of those fish will be used for the behavioral study in Yale Reservoir this spring. Lesko noted 2023 showed the second-highest abundance of coho in the beginning of the year (January) in the last ten years. Karchesky noted that fish collection numbers fluctuate week to week according to parr and juvenile outmigrant behavior and weather conditions.

Lewis River Fish Passage

See Attachment D.

Update on LCFEG Nutrient Enhancement Project

Lesko said the ACC approved an Aquatic Funds project for nutrient enhancement activities in the Lewis River basin, and he recently asked the project manager at Lower Columbia Fish Recovery Board for a project update. In 2022, coho carcasses have been distributed throughout the North Fork Lewis River, including 4,579 carcasses into Muddy, Pine, and Cedar creeks.

Local flyfishers have volunteered with this effort. The funding provided will last for another four years and he will continue sharing information as it is available.

Potential Visit to Clackamas River Fish Passage Facility

Chris Karchesky said some ACC and FPS representatives have recently expressed interest in a visit to one of Portland General Electric's (PGE) fish passage facilities on the Clackamas River. Josua Holowatz noted his support for this visit and said it would provide insight to design choices for downstream collection at Yale Dam, since the current design is similar. Melissa Jundt also noted her support for a field visit, with interest in the no-touch sorter, and offered to help coordinate. Many ACC representatives present indicated their interest in a site visit, and logistics were discussed. Chris Karchesky will reach out to staff at PGE to begin organizing availability. Ideally, it would be a two-day site visit with visits to the Clackamas and Lewis rivers.

CKL Factsheet

Josua Holowatz said the Cowlitz-Kalama-Lewis Factsheet was distributed to the ACC prior to the meeting (Attachment E). He said the factsheet provides forecasts for these three tributaries and discusses program sizes and hatchery releases. He reviewed the forecasted returns in 2023 and the NOAA Fisheries "stoplight" chart showing the status of ocean ecosystem indicators. He summarized that improved collection out of Swift Reservoir and implementing new rearing strategies for hatchery-origin-returns appears to be improving returns to the Lewis River overall. Even though there have been some issues in collecting brood, it is encouraging to see improved survival in these programs. He said permanent fishery rules are currently being implemented until April 30, and the fishery will be adaptively managed after that. Lesko summarized that 1,380 fish are needed for brood, plus the transport goal. He asked if WDFW expects to meet these goals given the 2023 run forecasts. Holowatz said the hatchery program need is included in the table – the data would show a surplus of 2,600 fish. Glaser added that WDFW in coordination with the ATS is working towards additional life cycle modeling that could inform minimum seeding targets for upper basin areas. Then, a hard management target could potentially be implemented. Currently, there are no specific upstream targets used to constrain fisheries.

Holowatz added that WDFW continues to evaluate different fishery and policy levers. Options include opening one part of the river to bank-only fishing, which provides some harvest opportunities but keeps boat traffic to a minimum and provides more fish for brood and upstream transport. Holowatz said the purpose of this factsheet is to provide a consistent and transparent status update on these fisheries and populations, and he noted it is available to the public.

Administrative Updates

None.

Public Comment Opportunity

None present.

Agenda Items for March 9, 2023

- Yale License Amendment – Potential Discussion on Questions/Comments
- Future Fish Passage "Elements" Document and Mitigation
- Study/Work Product Updates

Adjourn 12:20 pm

Next Scheduled Meeting

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

Meeting Handouts & Attachments

- Meeting Notes from 1/12/2023
- Agenda from 2/9/2023
- **Attachment A** – Aquatic Fund Scores
- **Attachment B** – Merwin Adult Trap Collection Report (January 2023)
- **Attachment C** – Swift FSC Facility Collection Report (January 2023)
- **Attachment D** – Lewis River Fish Passage Report (January 2023)
- **Attachment E** – CKL Factsheet

**Cowlitz, Kalama, and Lewis River
Spring Chinook Fact Sheet
January 2023**

2023 Spring Chinook Forecasts to Columbia River Mouth

- Cowlitz River= 8,972 adult spring Chinook
- Kalama River= 2,405 adult spring Chinook
- Lewis River= 4,708 adult spring Chinook

Spring Chinook forecasts are commonly based on average brood year relationships, where: age-3 fish (jacks) predict age-4 fish, age-4 fish predict age-5 fish.

The above forecasts are developed by using a suite of sibling regression, cohort ratio, and average return models to estimate runsize.

Hatchery Releases

- Hatchery spring Chinook releases from Cowlitz, Kalama, and Lewis facilities for 2011-2021 are shown in Table 1.
- Adults (age 4-6) returning in 2023 were released in 2018-2021.
- Cowlitz release goals increased in 2013-2014 as a result of changes in release strategies.
- Cowlitz releases in 2014-2020 were near or above goal.
- Cowlitz 2019 included an additional June release of 118,000 subyearling smolts as a result of surplus production.
- Kalama releases in 2011-2021 have been near or above goal.

Table 1. Spring Chinook hatchery releases from Cowlitz, Kalama, and Lewis facilities in 2011-2021. Highlighted rows correspond to releases contributing to the 2023 adult return.

Release Year	COWLITZ			KALAMA			LEWIS		
	Goal	Plant	% Of Goal	Goal	Plant	% Of Goal	Goal	Plant	% Of Goal
2011	1,260,226	1,076,945	85%	500,000	501,556	100%	1,050,000	1,057,833	101%
2012	942,369	881,337	94%	500,000	559,575	112%	1,350,000	1,410,270	104%
2013	1,464,849	1,601,472	109%	500,000	521,462	104%	1,250,000	1,286,170	103%
2014	1,797,115	2,051,598	114%	500,000	515,038	103%	1,675,000	1,516,940	91%
2015	1,793,529	1,958,471	109%	500,000	549,558	110%	1,925,000	1,814,469	94%
2016	1,793,529	1,874,482	105%	500,000	481,624	96%	1,250,000	717,742	57%
2017	1,741,899	1,852,960	106%	500,000	533,954	107%	1,250,000	402,224	32%
2018	1,741,899	1,844,162	106%	500,000	509,425	102%	1,250,000	710,708	57%
2019	1,741,899	2,011,018	115%	500,000	509,909	102%	1,350,000	2,294,425	170%
2020	1,741,899	1,968,336	113%	500,000	479,961	96%	1,350,000	1,760,485	130%
2021	1,741,899	1,290,014	74%	500,000	496,431	99%	1,350,000	1,739,959	129%

- Lewis releases in 2014-2018 were below goal due to a combination of reduced in-hatchery survival and subsequent low adult returns for use as hatchery broodstock.
- Changes in release size and timing strategies have been made at Lewis Hatchery to address the challenges with in-hatchery survival that have occurred in recent years. A program has been implemented to evaluate this change, including subyearling smolt

releases in June and October. The release goals and release numbers in Table 1 include all strategies.

- 2019-2021 Lewis releases included additional subyearling smolts released in June to supplement forage for Southern Resident Killer Whales.

Hatchery Escapement Goals

- Hatchery escapement needs for Cowlitz, Kalama, and Lewis rivers are shown in Table 2.
- The on-station escapement needs at each hatchery in Table 2 are the number of adults needed to meet broodstock needs for the in-basin hatchery release goals and harvest programs.
- On-station hatchery escapement needs for the Cowlitz and Lewis are defined in the *U.S. v. Oregon* Biological Opinion (BIOP) issued by NOAA Fisheries. Available at: https://media.fisheries.noaa.gov/dam-migration/s7- usvoregon_2018-2027_mgmagmnt_final_signed.pdf
- Based on preseason forecasts for 2023, the Cowlitz, Kalama, and Lewis River spring Chinook fisheries will begin under the permanent rules outlined in the 2022-2023 Sport Fishing Rules pamphlet. Fishery managers will closely monitor in-season return information and notify anglers through emergency rule making procedures in the event that changes are warranted.
- ESA obligations (MA Biological Opinion) guide hatchery-origin adult escapement goals so that conservation objectives can be met to continue efforts to re-introduce fish into the upper basins in the Cowlitz and Lewis rivers.

Table 2. Cowlitz, Kalama, and Lewis River spring Chinook run-size forecasts for 2023 and hatchery escapement needs. Actual annual hatchery escapement needs may vary slightly to account for changes in fecundity, sex ratios, pre-spawn loss, etc.

2023 Expectations			
Details	Cowlitz	Kalama	Lewis
Forecasted return to Col. R. Mouth	8,972	2,405	4,708
Expected CR mainstem harvest for 2023	261	72	141
Forecasted return to tributary mouth	8,711	2,333	4,567
Avg. % natural-origin return	12.2%	4.6%	5.1%
Natural-origin return	1,062	107	233
Hatchery-origin return	7,649	2,226	4,334
Hatchery-origin escapement need to trib. mouth*	1,949	710	1,648
Est. lower river hatchery-origin spawners	612	110	268
Total Broodstock need at hatchery (from MA BIOP when applicable)	1,337	600	1,380
Upstream	TBD**	NA	TBD**
Harvestable hatchery-origin surplus	5,700	1,516	2,686

*Includes fish spawning in the wild outside the hatchery

**Fish above hatchery program needs are transported and released above dams for population recovery; exact numbers 'To Be Determined' (TBD) through in-season management

Ocean Conditions

- Ocean conditions have been identified as a leading contributor to adult salmon returns along the Pacific coast of the U.S. and Canada.
- Table 3 presents NOAA’s Northwest Fisheries Science Center “stoplight” chart of ocean ecosystem indicators that are measured and collectively provide a gauge of the “ocean conditions” experienced by some salmonids during their marine residence.

Table 3. NOAA Fisheries – Northwest Fisheries Science Center Ecosystem Indicator “Stoplight” chart, available at: <https://www.fisheries.noaa.gov/west-coast/science-data/ocean-conditions-indicators-trends>

Ecosystem Indicators	Year																										
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022		
PDO (Sum Dec-March)	22	8	4	16	9	24	15	20	17	12	6	1	19	5	3	10	13	25	23	21	14	18	11	7	2		
PDO (Sum May-Sept)	13	6	8	7	14	20	19	21	15	17	3	12	9	5	2	10	23	25	24	18	16	22	11	4	1		
ONI (Average Jan-June)	24	1	1	9	16	18	17	20	10	14	3	13	21	6	8	10	12	22	25	15	7	23	19	5	4		
SST NDBC buoys (°C, May-Sept)	20	7	9	5	6	13	25	14	2	16	1	12	3	8	10	18	23	22	21	15	17	24	11	4	19		
Upper 20 m T (°C, Nov-Mar)	24	13	10	12	7	18	19	16	15	6	1	11	21	5	4	9	3	25	23	22	17	20	2	8	14		
Upper 20 m T (°C, May-Sept)	16	11	13	5	1	3	25	20	9	10	2	6	17	8	7	18	23	19	14	12	15	24	22	4	21		
Deep temperature (°C, May-Sept)	24	7	9	5	1	11	13	17	12	6	2	8	15	10	4	16	23	21	14	19	20	18	25	3	22		
Deep salinity (May-Sept)	24	4	12	5	6	19	20	13	8	2	3	17	22	15	16	14	25	18	10	9	7	11	23	1	21		
Copepod richness anom. (no. species; May-Sept)	23	3	1	10	9	18	17	22	19	13	11	12	21	6	8	4	14	24	25	20	16	15	7	5	2		
N. copepod biomass anom. (mg C m ⁻³ ; May-Sept)	23	18	13	14	6	20	17	24	19	15	9	12	11	3	5	7	8	21	25	22	10	4	2	1	16		
S. copepod biomass anom. (mg C m ⁻³ ; May-Sept)	25	2	7	4	3	17	19	24	16	13	1	9	20	12	10	8	14	22	23	21	15	18	11	5	6		
Biological transition (day of year)	22	14	9	3	12	18	15	23	17	4	1	2	20	5	13	7	7	24	24	21	16	18	9	11	6		
Nearshore Ichthyoplankton Log(mg C 1,000 m ⁻³ ; Jan-Mar)	20	4	13	7	1	24	25	19	10	21	3	16	2	9	5	12	22	17	18	15	11	23	8	6	14		
Nearshore & offshore Ichthyoplankton community index (PCO axis 1 scores; Jan-Mar)	11	6	5	8	10	13	19	23	1	16	3	12	17	4	2	7	9	21	24	25	20	22	18	15	14		
Chinook salmon juvenile catches Log(no. km ⁻² ; June)	22	2	7	19	6	10	18	24	14	12	1	8	5	16	3	4	9	17	21	25	20	15	23	13	11		
Coho salmon juvenile catches Log(no. km ⁻² ; June)	23	12	20	5	7	6	22	24	18	2	4	9	10	19	14	1	11	17	16	25	3	15	21	13	8		
Mean of ranks	21.0	7.4	8.8	8.4	7.1	15.8	19.1	20.3	12.6	11.2	3.4	10.0	14.6	8.5	7.1	9.7	14.9	21.3	20.6	19.1	14.0	18.1	13.9	6.6	11.3		
Rank of the mean rank	24	5	8	6	3	18	20	22	13	11	1	10	16	7	3	9	17	25	23	20	15	19	14	2	12		
<i>Ecosystem indicators not included in the mean of ranks or statistical analyses</i>																											
Physical Spring Trans. UI based (day of year)	4	8	23	20	5	15	18	24	15	1	7	3	10	13	21	11	22	12	6	19	13	15	9	2	25		
Physical Spring Trans. Hydrographic (day of year)	24	4	14	9	6	13	16	25	7	10	1	10	20	4	12	2	18	8	19	23	16	15	21	2	21		
Upwelling Anomaly (April-May)	12	4	20	8	11	17	15	24	12	6	9	10	18	20	18	14	22	1	3	23	7	5	15	2	25		
Length of Upwelling Season UI based (days)	6	2	22	14	1	16	12	25	5	3	9	3	18	21	18	17	23	13	8	15	7	10	20	10	23		
Copepod Community Index (MDS axis 1 scores; May-Sept)	24	5	7	10	4	19	17	23	20	12	1	9	16	11	8	6	14	22	25	21	15	18	13	3	2		

- Ocean conditions deteriorated in 2014, leading to 2015 ranking as the worst year during the period of record; the subsequent years of 2016 and 2017 also ranked among the worst.
- Adult spring Chinook returns are primarily composed of age-4 and 5 adults that encountered ocean conditions as juveniles and sub-adults during the preceding two to three years.
- The likely impact of poor ocean conditions from 2015 through 2017, is reflected in lower returns of adult spring Chinook to lower Columbia River tributaries in subsequent years (Figure 1).
- The majority of spring Chinook returning to these rivers in 2023 have experienced the suite of ocean conditions documented from 2020 through 2022. During these years, ocean conditions ranged between moderate to good, with 2021 ranking among the best years during the 25 years of study.

- The 2023 forecast returns of spring Chinook to the Cowlitz, Kalama, and Lewis Rivers are improved over recent years, likely due to some improvement in ocean conditions between 2020 and 2022.

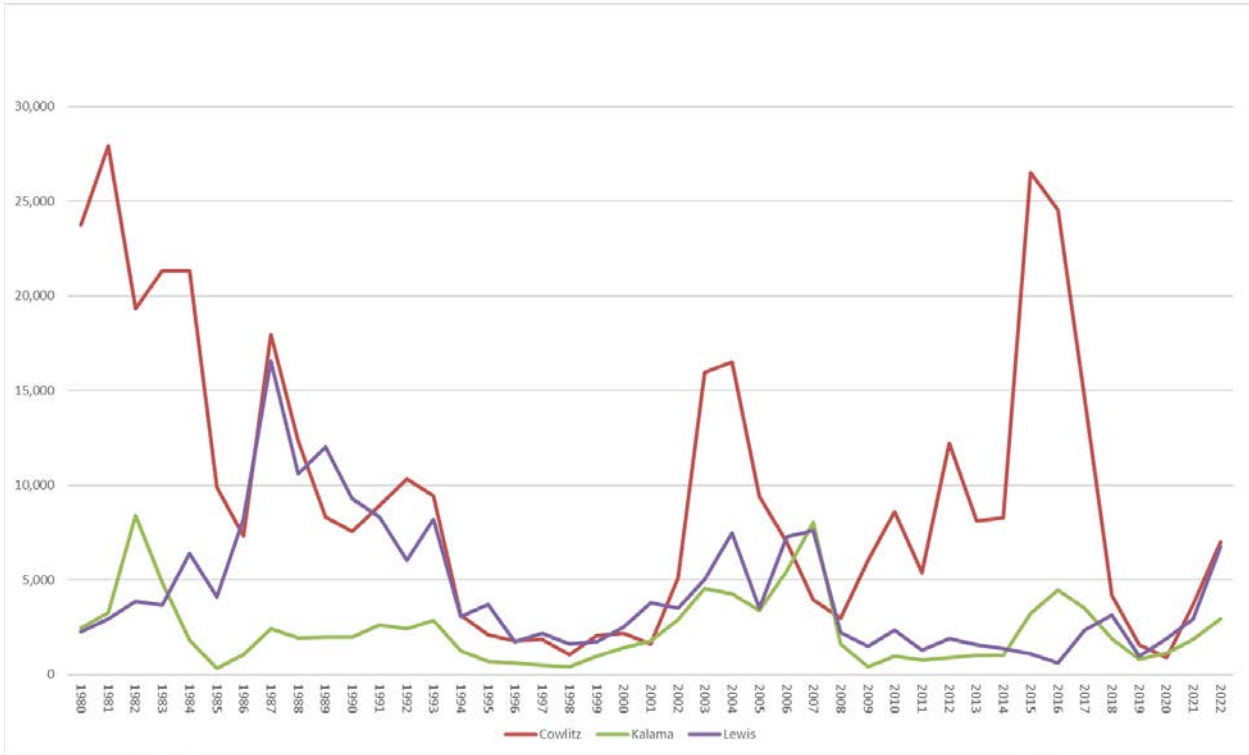


Figure 1. Adult spring Chinook returns to the Cowlitz, Kalama, and Lewis rivers by return year.

Lewis River Fish Passage Report

January 2023

Merwin Fish Collection Facility and General Operations

During the month of January, a total of 686 fish were captured at the Merwin Dam Adult Fish Collection Facility (MFCF). As is typical this time of year, winter steelhead were the most prevalent species collected this month (n= 501), followed by late run coho (n= 176), cutthroat trout (n= 7), and Fall Chinook (n= 2). All BWT and NOR winter steelhead were transported upstream, while all hatchery origin steelhead were given to WDFW.

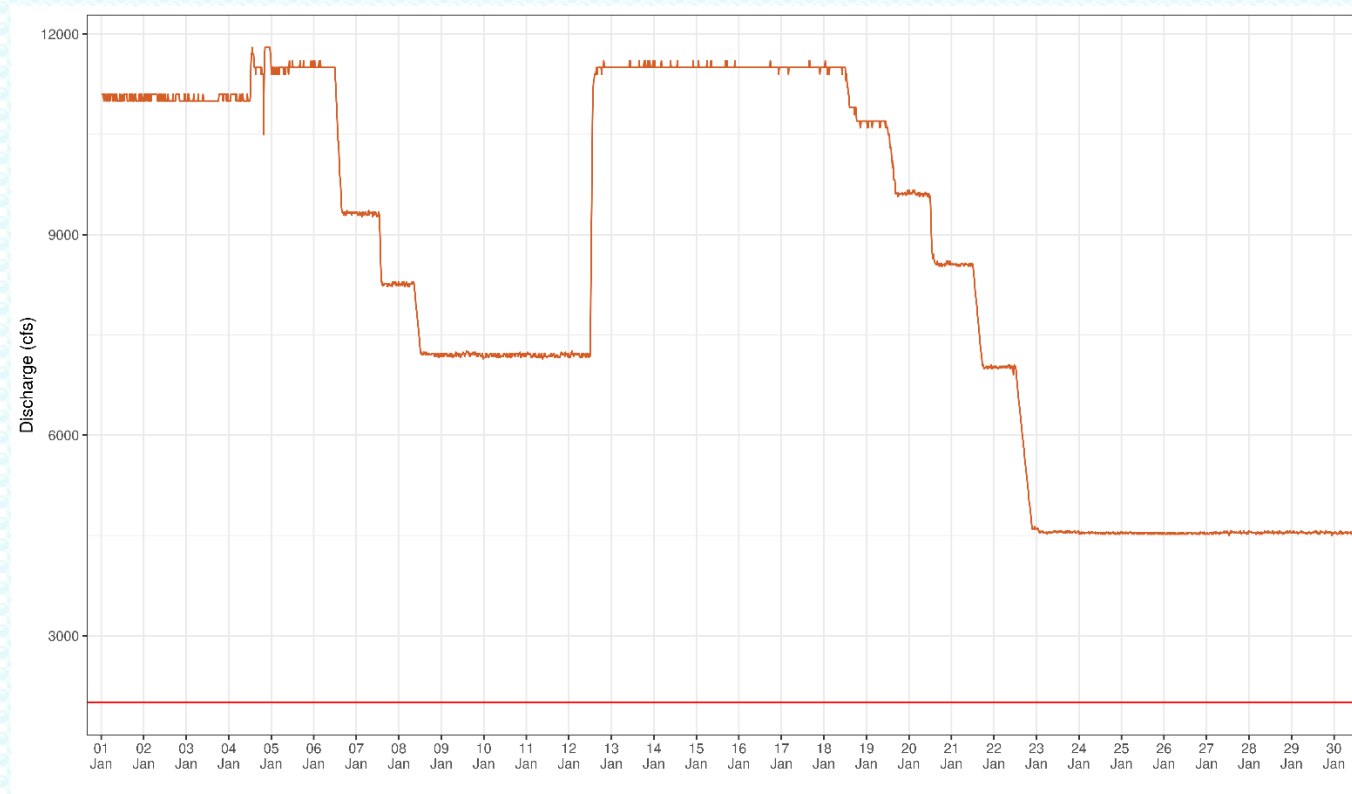


Figure 1. Discharge in cubic feet per second recorded at the USGS Ariel, WA gauge (14220500) located immediately downstream of Merwin Dam.

The MFCF lift and conveyance system was taken out of service on January 27 through January 31 due to unsafe operating conditions caused by severe winter weather. Flows below Merwin Dam ranged from approximately 3,500 to 11,500 cubic feet per second in January (Figure 1).

One natural-origin winter steelhead and one coho containing PIT tags were detected at the Merwin facility in January. Both fish had been previously tagged at the Swift FSC in the spring of 2021. 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 total of 72 adult fish were transported upstream in January. Natural-origin late run coho composed the majority of the fish transported upstream (n= 38), followed by blank wire tag winter steelhead (n= 14), NOR winter steelhead (n= 13), and cutthroat trout (n= 7).

Floating Surface Collector (FSC)

The Swift Reservoir Floating Surface Collector (FSC) was taken out of service from January 27 through January 31, to repair an attraction pump within the secondary portion of the fish channel. Inclement weather also played a role in the outage and delayed repairs slightly.

Overall, a total of 4,875 fish were collected during the month of January. The majority of the fish collected were juvenile coho (n= 4,646), followed by spring Chinook (n= 132), steelhead (n= 41), cutthroat trout (n= 39), and hatchery rainbow trout (n= 16). One adult Bull Trout (550 mm fork length) was collected in January and returned to the reservoir. This month's collection totals are the second highest of any January 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 January since 2013.

Run Year	January Collection Totals by Run Year at the Swift FSC				
	Coho	Chinook	Steelhead	Cutthroat	TOTAL
2013	186	49	0	17	252
2014	0	0	0	0	0
2015	796	501	6	45	1,348
2016	5,993	1,537	42	89	7,661
2017	173	55	5	8	241
2018	1,359	508	30	49	1,946
2019	591	16	2	0	609
2020	0	0	0	0	0
2021	2,515	223	60	80	2,878
2022	3,633	416	46	34	4,129
2023	4,646	132	41	39	4,858

Fish Facility Report
Swift Floating Surface Collector
January 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		50	0			0			0					0	0	50
2		42	5			0			0			1		0	0	48
3		79	1			1		1	0					0	0	82
4		186	21			7			4			5		0	0	223
5		46	0			2			0					0	0	48
6	4	135	19		1	5			0			1		0	4	169
7	3	213	49			2			0					0	1	268
8	1	283	45			0			1			3		0	0	333
9		148	140			4		1	0					0	2	295
10		177	35			3			0			4		0	1	220
11		263	45			2			1			3		0	1	315
12		324	54			5	2		2					0	2	389
13	12	591	16		1	0			1			3		0	0	624
14	9	128	24			7			0			1		0	0	169
15		242	22			7			0			2		0	0	273
16		3	111	1		11		1	3			1		0	0	131
17		76	11		3	8			3			3		0	0	104
18		47	16			3			0			1		0	0	67
19		46	19			2			1					1	0	69
20	12	126	27		1	6		1	4			2		0	0	179
21	2	163	34			6		1	1			5		0	0	212
22		134	13		1	6			2			1		0	3	160
23		103	10	1		4		2	2					0	0	122
24		71	5		1	1		2	1					0	1	82
25		27	4			0			0					0	0	31
26		89	6			20		3	0			2		0	1	121
27		53	26			10			1			1		0	0	91
28																
29																
30																
31																
Monthly	43	3845	758	2	8	122	2	12	27	0	0	39	0	1	16	4875
Total	43	3845	758	2	8	122	2	12	27	0	0	39	0	1	16	4875