

LEWIS RIVER AQUATIC COORDINATION COMMITTEE

Facilitator: ERIK LESKO
503-412-8401

Location: TEAMS MEETING ONLY

Date: July 08 2021

Time: 9:30 AM – 11:15 AM

Agenda Items

9:30 a.m.

Welcome

- Review Agenda, ACC 6/10/21 Meeting Notes
- Comment & Accept Agenda, 6/10/21 Meeting Notes

10:00 a.m.

Public Comment Opportunity

10:15 a.m.

LCFEG Nutrient Enhancement; Carcass Allocation Discussion/Decision

10:45 a.m.

Study/Work Product Updates

- Flows/Reservoir Conditions Update
- ATS Update
- Fish Passage Update
- Cougar Creek WSDOT Project
- Northwood Fish Survey
- Swift Survey's at Northwoods Update

11:00 a.m.

- Next Meeting's Agenda
- Public Comment Opportunity

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

11:15 a.m.

Meeting adjourn

Microsoft Teams meeting

Join on your computer or mobile app

[Click here to join the meeting](#)

Or call in (audio only)

[+1 563-275-5003](tel:+15632755003).,86743835# United States, Davenport

Phone Conference ID: 867 438 35#

**FINAL Meeting Notes
Lewis River License Implementation
Aquatic Coordination Committee (ACC) Meeting
July 8, 2021
TEAMS Meeting Only**

ACC Representatives Present (17)

Bridget Moran, American Rivers
Eli Asher, Cowlitz Indian Tribe
Amanda Froberg, Cowlitz PUD
Alex Maslov, Fish First
Steve West, LCFRB
Scott Anderson, NMFS
Logan Negherbon, NMFS
Kim McCune, PacifiCorp
Chris Karchesky, PacifiCorp
Erik Lesko, PacifiCorp
Kate Day, USFS
Jeff Garnett, USFWS
Peggy Miller, WDFW
Sam Gibbons, WDFW
Josua Holowatz, WDFW
Bryce Glaser, WDFW
Aaron Roberts, WDFW

Guest (4)

Maurice Frank, LCFEG
Gary Loomis, Fish First
Janae Brock, Fish First
Mark Ferraiolo, PacifiCorp

Calendar:

August 12, 2021	ACC Meeting	TEAMS Meeting
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Assignments from July 8, 2021	Status
Fish First and LCFEG: Report back to the ACC regarding revised carcass distribution plan before the August 12, 2021 ACC Meeting.	Complete
Garnett: Look into if the WSDOT project is on the radar of another USFWS staff member and what consultation it did or did not go through and report back to the ACC.	Ongoing
Lesko: Forward utilities response to comments received regarding the proposed Northwoods fish surveys for 2021 to public commentors Kelley Jorgensen and Matt Harding.	Complete

Assignments from August 13, 2020	Status
Romanski: Jim Byrne (Trout Unlimited) requested Tim Romanski (USFWS) investigate why it was decided in 2005 and find out how and why the Merwin trap design was settled on and specified.	Ongoing

Opening, Review of Agenda and Meeting Notes

Erik Lesko (PacifiCorp) called the meeting to order at 9:33am and reviewed the agenda. Lesko also reviewed the June 10, 2021 meeting notes. The meeting notes were approved at 9:44am with clarifying edits from WDFW and housekeeping changes only.

Public Comment Opportunity

None

LFEG; Nutrient Enhancement; Carcass Allocation Discussion/Decision

On July 1, 2021 PacifiCorp distributed the following detail to the ACC via email regarding the assignment below:

Assignments from June 10, 2021	Status
Lesko: Discuss concern with Phil Roni of putting fish carcasses above Swift dam and would this bias his study then report back to the ACC at the July meeting.	Complete

Excerpt from **Attachment A**, July 1, 2021 email to the ACC:

In addition, at our June ACC meeting, Erik Lesko was asked to discuss with Dr. Phil Roni potential alternate sites for carcass placement (upstream of Swift Dam). Erik spoke with Phil to discuss the issues raised at the June ACC meeting. Phil indicated that Pine Creek and upper Muddy River, or smaller tributaries that are not part of the priority reaches (see Figure 6 below), are possible placement sites. To access the upper reaches of Pine Creek requires access permission from one or more timber companies. (Note: Placing large numbers of carcasses in one nutrient poor stream may provide measurable benefits or biological response as opposed to carcasses placement over a large geographical area).

Another option is to place the carcasses in tributaries of the lower North Fork Lewis River such as Cedar Creek, Houghton Creek, Johnson Creek, Hayes, Ross, etc. WDFW stated that the Lewis River supports large numbers of fall Chinook and coho salmon and that the addition of carcasses during the fall would not have substantial value. This is true of the mainstem (primarily from fall Chinook) but may not apply to all lower North Fork tributaries.

To finalize approval of the allocation, location and timing of carcass placement, we propose including this topic for discussion at the July ACC meeting so that the project sponsor is provided direction and expectations from the ACC as soon as practical.

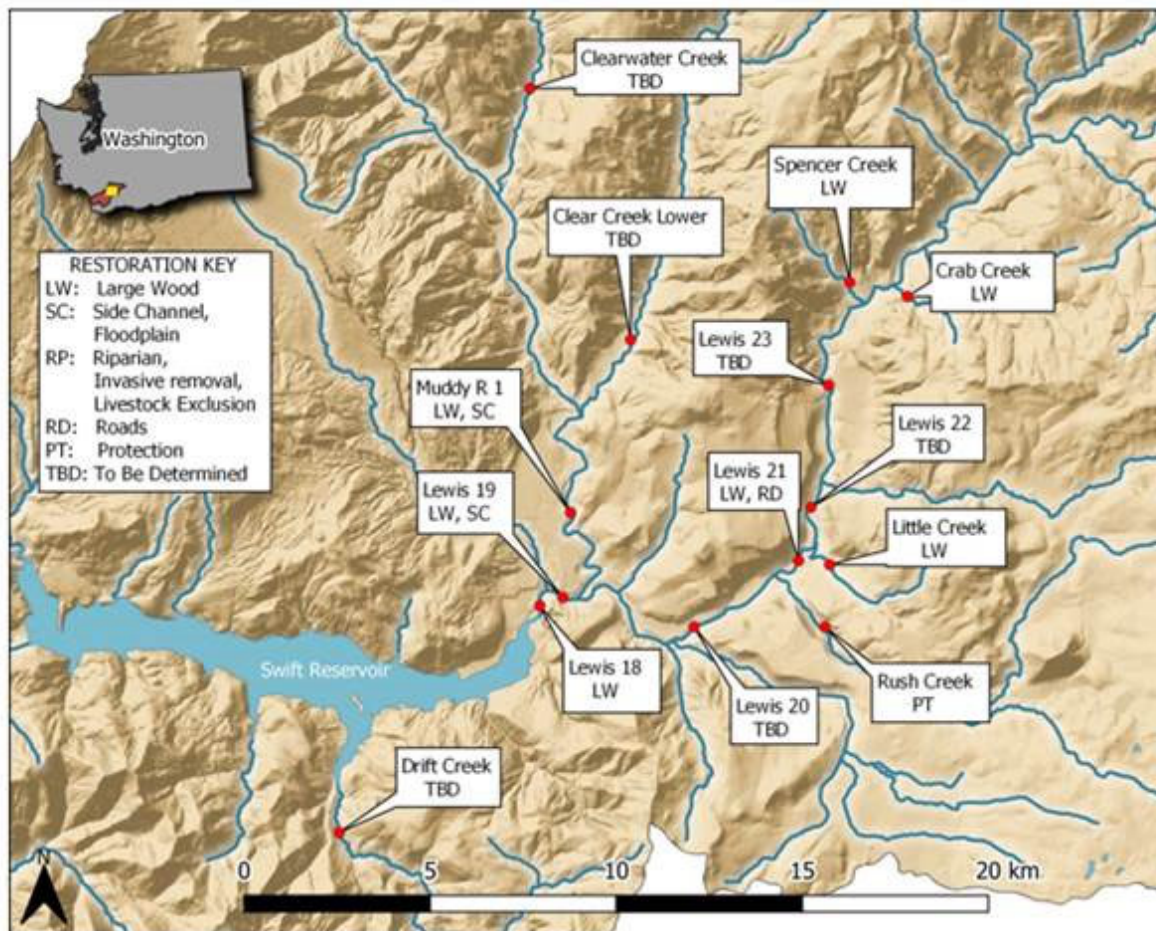


Figure 6. Map of the North Fork of the Lewis River upstream of Swift Dam showing initial priority EDT reaches and recommended restoration measures (PacifiCorp 2016). Reaches with TBD were identified by NMFS as a priority for the In Lieu Program and preliminary restoration measures still need to be identified.

<end>

The ACC discussed in detail the allocation they would like to see in the upper basin placement and options for the lower basin, mainstem tributaries. WDFW proposed that a revised distribution plan is sent back to the ACC for its review and approval at the August ACC meeting.

For the LCFEG Nutrient Enhancement project the ACC agreed as follows:

Year 1 only - Placement of fish carcasses upstream of Swift Reservoir (Pine and Muddy Creeks only) as well as tributaries of North Fork Lewis River downstream of Merwin Dam. The applicant (LCFEG) will coordinate with WDFW, Fish First, and interested parties to identify the site locations in those areas.

The ACC further agreed that the LCFEG will report back to the ACC regarding WDFW approved carcass distribution sites and planned allocations among all sites (both upstream and downstream) before the August 12, 2021 ACC Meeting. Allocations of carcasses among sites may be revised

In response to a question from the ACC if the East Fork is excluded, Amanda Froberg (Cowlitz PUD) confirmed by way of reading the following Settlement Agreement provision that the East Fork is not excluded; however, priority is to be given to the North Fork Lewis River.

7.5.3.1 Guidance for Resource Project Approval and Aquatics Fund Expenditures.

- c. *The Licensees shall evaluate Resource Projects using the following objectives:*
- (1) *benefit fish recovery throughout the North Fork Lewis River, with priority to federal ESA-listed species;*
 - (2) *support the reintroduction of anadromous fish throughout the Basin; and*
 - (3) *enhance fish habitat in the Lewis River Basin, **with priority given to the North Fork Lewis River.***

Study/Work Product Updates

Flows/Reservoir Conditions Update

Merwin Reservoir – currently down 4’
 Yale Reservoir – currently down 12’
 Swift Reservoir – currently down 9’
 Total current hole – 25’ (15’ when Yale limitation is included)

There is approximately 2,400 cfs outflow from Merwin Dam (minimum flow is 2,300). There is was no reported discharge from Swift or Yale Dams as of 8:00am this morning. Due to extreme dry weather conditions, natural inflows are very low. Calculation of natural inflows at the projects was not available at the time of the meeting.

Swift Survey’s at Northwoods Update

Lesko reminded the ACC attendees that the Utilities agreed to conduct surveys of the Northwoods area in 2020 in response to concerns raised by Northwoods resident Matt Harding in the winter of 2020. The Utilities reported on the results of two surveys completed in the summer of 2020 to the ACC in the fall of 2020. Based on these results, the ACC requested that the Utilities continue surveys in 2021 to collect additional data regarding potential stranding in the Northwoods area. The Utilities agreed to continue surveys in 2021 and provided a draft survey plan in June for ACC review. Since the survey plan (Table 1) was created, the Utilities received comments from interested public parties (Matt Harding private party Northwood Home Association, and Kelly Jorgensen of Wapato Valley Mitigation and Conservation Bank), requesting additional surveys or aerial photography (drones) to identify other potential stranding areas in Swift Reservoir and some general concerns relating to stranding along shoreline areas.

Table 1. Desired reservoir elevation and approximate survey date for each of the three proposed surveys in 2021.

Survey No.	Reservoir Elevation (ft, msl)	Approximate Survey Time
1	991-992	July 16, 2021
2	989-990	July 31, 2021
3	986-987	August 15, 2021

In response to these additional requests, the Utilities stated that the reservoirs on the North Fork Lewis River are working reservoirs, and requires a balance between power production, recreation,

aquatic resources and other uses. The Utilities operate the hydroelectric project and reservoirs in compliance with their FERC operating license requirements. The Utilities agreed to conduct surveys in 2020 and in 2021 to address concerns from the public in regard to potential stranding issues. The Utilities do not propose additional surveys beyond those provided in the 2021 plan (Table 1). The Utilities encourage and support others that are willing to participate in the proposed surveys, however, the Utilities do not have the resources to conduct additional surveys other than those already committed to in Table 1. Survey No. 1 will take place this Monday, July 12th at 10:00am. WDFW and Fish First expressed that they may be participating in this initial survey. Lesko said that he will provide an update to the ACC at the next ACC meeting and notify the ACC of future survey dates after the initial survey on July 12.

Lesko will respond via email to the public comments that were received. USFWS may respond to the comments independently.

ATS Update

The development and implementation of the H&S Program has become more complicated than it ever has been making it more difficult to develop and plan implementation tasks internally or withing the ATS. As a result, the Utilities have been exploring contractual options to help support development and planning of specific tasks allowing the ATS to have more of an advisory role as opposed to developing implementation tasks. Work on developing the 2022 AOP continues and is currently being modified to be consistent with the new H&S Plan submitted to the FERC in December 2020.

Fish Passage Update

Chris Karchesky (PacifiCorp) informed the ACC that the Merwin Adult Collection Facility sorting building was unable to process fish on June 27th due to extreme air temperatures that resulted in the presort pond crowder overheating. The lift and conveyance system continued to operate, and all fish captured were processed the following day. Karchesky indicated that the adult spring Chinook run was winding down, and that WDFW reported that Lewis River brood stock collection goals had been met for the year. All remaining spring Chinook (HOR and NOR) coming into the Merwin Trap are currently being transported and released upstream of Swift Dam (except HOR fish containing a CWT). Karchesky reported that to date, about 820 spring Chinook had been taken upstream so far this season, with only about 10% of the fish being female and 200 or so of these were NOR. The vast majority of adults currently coming into the Merwin Trap are hatchery summery steelhead. A portion of these fish are currently being recycled back downstream as part of WDFWs recreational fishery program. PacifiCorp plans to move to a 5-day a week (Monday through Friday) fish processing schedule later this month, although the fish lift and conveyance system will continue to operate continuously (7-day per week). This schedule will continue until early run coho begin arriving in the fall.

The Swift Reservoir FSC is currently in operation, however Karchesky indicated that with the extreme warm air temperatures that occurred in late-June, fish numbers have declined considerably. Karchesky said "...we are about a month ahead where we are typically at this time of year." The FSC lost station service a number of times during the extreme heat and had to be restarted. Fish numbers during this period had already dropped off and have remained low ever since. Karchesky informed the ACC that he expected that they would be turning the FSC off next week to begin the summer outage season. He reminded the ACC that they had a number of projects that they will be undertaking and that are requiring the vessel to be de-ballasted (raised to non-fishing position) this year. The largest of these projects is an overhaul of the facility's large fish

holding tank, which will incorporate a new debris removing traveling screen and pump. This project will be similar in scope to the one that PacifiCorp completed a few years ago designed to improve the facility's small fish holding tank. It is anticipated that all work will be completed and the FSC will return to service in October 2021. Karchesky informed the ACC that he will update the group if that scheduled changes.

Following Karchesky's fish passage update, Eli Asher (Cowlitz Tribe) asked if Karchesky could provide an update on the Yale Fish Passage design. Karchesky indicated that he had not been a part of process and did not have any information to provide. Asher requested that this topic be put on the August ACC Meeting agenda.

Karchesky had planned to provide a brief update on the collection efficiency study currently ongoing but deferred this update until the August ACC meeting.

Cougar Creek WSDOT Project

McCune provided the WSDOT project update below to all ACC Representatives via email on July 8, 2021 at 11:45am:

Attn: ACC Representatives

In response to a July 8, 2021 ACC agenda item please see the following WSDOT project update that the Utilities provided to the TCC on June 9, 2021 (the TCC meeting notes are draft at this time until approved by the TCC). This excerpt below will be included in the July 8, 2021 ACC Meeting Notes.

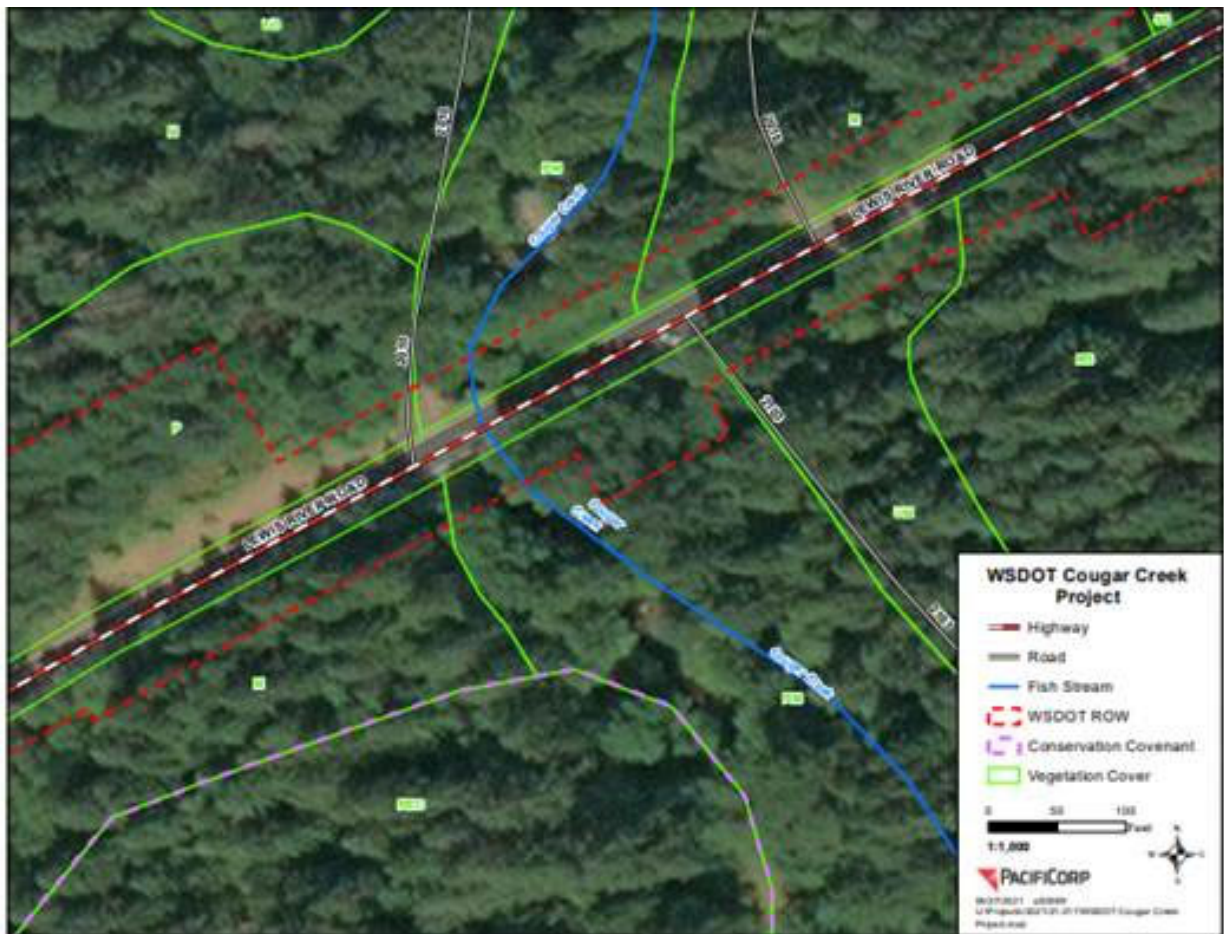
Study Work Product Updates

Cougar Creek WSDOT Project – As a heads up Kendel Emmerson [PacifiCorp TCC Co-chair] met with WSDOT last September to discuss issues they are having with Cougar Creek and how it's flowing into an east channel and eroding the highway fill slope. Cougar Creek is just east of the town of Cougar and it flows into Yale Reservoir at Cougar Campground. Cougar Creek is spring fed, as such is about 2-miles of super pure water. PacifiCorp has a conservation covenant surrounding Cougar Creek because it is occupied with bull trout, an ESA listed fish, and a kokanee run. WSDOT was unaware that Cougar Creek had a bull trout population, so their plans in September had to be deferred to 2021 and 2022. The red dash line shown in the figure below is WSDOT's right-of-way to maintain Highway 503 on WHMP lands. There is a tree that goes across the entire channel and it's directing the flow into the east channel and then it runs adjacent to the highway and into the culvert. This month WSDOT is going to slide the tree with a crane from the highway all the way to the east bank then cut off that which is affecting the west channel. They will try to retain as much of the tree in the channel as possible. Hopefully that will deflect the flow into the correct channel (west channel). To complete the bank armoring, WSDOT will work on obtaining the appropriate permits to construct a bank revetment on the east bank using root wads and to reduce the gravel island upstream of the channel division to redirect the flow to the west channel. This may require WSDOT accessing WHMP lands and the conservation covenant area to get their equipment in on the west side. WSDOT will provide PacifiCorp the permit applications for approval in early winter 2022 (January) and PacifiCorp will share with the TCC at that time. WDFW expressed concern for fish habitat when hearing about armoring the bank, root wads, etc. and wants input from the ACC. WSDOT has programmatic biological opinions with both NMFS and USFWS but will need to obtain the Army Corp Permit. The typical in-water work window for the area is July 15 – August 15, but since bull trout are known to be in the creek in July, the work will likely occur in June 2022 and require approximately 1-2

weeks. PacifiCorp has a tremendous amount of data on Cougar Creek to assist in make quality management decisions. Peggy Miller (WDFW) will contact her folks that are on the bull trout team and see if they are aware of this.

Peggy Miller (WDFW) also noted that in addition to the June update above, WSDOT is addressing a channel that split and water is going toward the highway, so WSDOT needs to do something to protect the highway. WSDOT is going to be moving gravel from one side of the stream to the other to try and keep the channel in the original location and not split.

Froberg noted that WSDOT has the programmatic with NMFS and USFWS and an approval needs to go through them so we believe this approval will also go through WDFW as well. The Utilities are unclear what is to be presented to the ACC as this is a WSDOT project, PacifiCorp has a conservation covenant so that's why WSDOT approached PacifiCorp. The concern for adversely affecting rearing of bull trout and potentially spawning of kokanee is addressed in the programmatic agreement with NMFS and USFWS. Miller indicated that a programmatic approval does not require consultation with the Services but asked Garnett for confirmation. She also noted that even though this is not a PacifiCorp project, there are species in Cougar Creek that are of concern to the ACC. Jeffrey Garnett (USFWS) expressed that he is not familiar with the WSDOT project but typically USFWS are not going to consult on a programmatic, but he will look into if it's on the radar of another USFWS staff member and what consultation it did or did not go through.



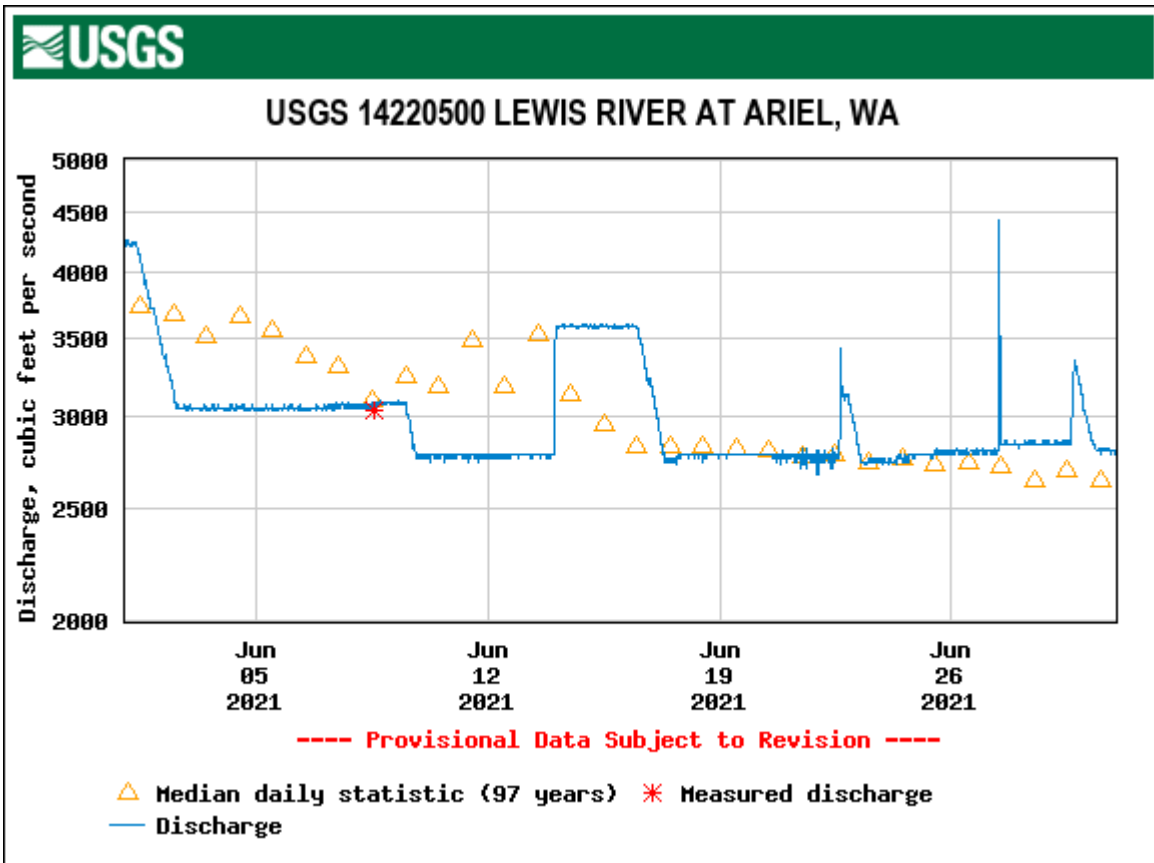


Figure 1. Discharge in cubic feet per second recorded at the USGS Ariel, WA gauge (14220500) located immediately downstream of Merwin Dam.

Upstream Transport ([Attachment B](#))

A total of total of 532 adult fish were transported upstream in June, which was an 80% increase over May’s transport total of 295. Of the fish transported upstream in June, a total of 330 came from the MFCF, and 202 were supplied by Lewis River Hatchery. Nearly all fish transported upstream in June were spring Chinook (n=529). After brood stock collection goals for spring Chinook were met on June 28th, all HOR adults were transported upstream (aside from fish containing CWT). Spring Chinook collection totals at the MFCF remain above the 2014-2020 average (Figure 2).

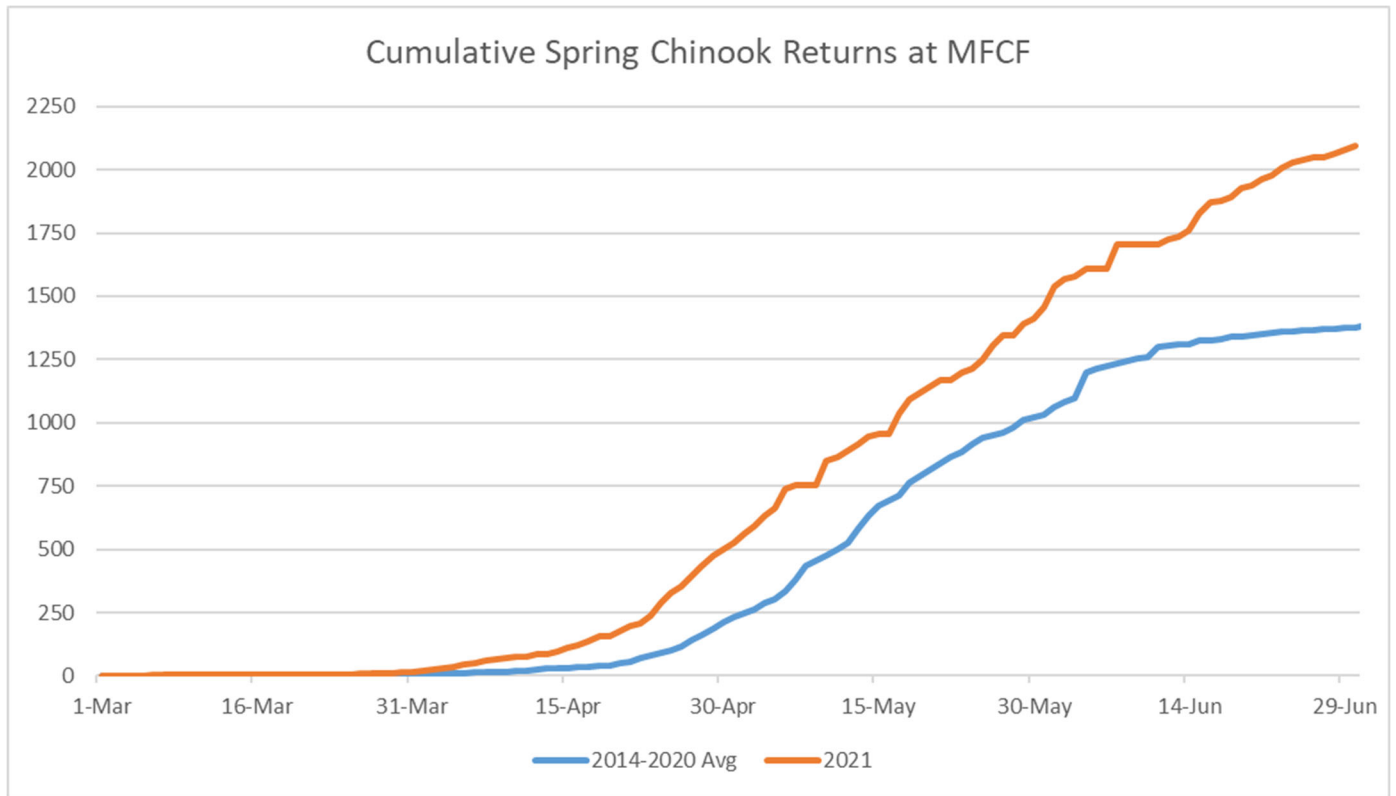


Figure 2. Cumulative number of Spring Chinook collected at Merwin Adult Fish Collection Facility in 2021, relative to the 2014-2020 average.

By the end of June, 794 spring Chinook (219 NOR/575 HOR), 311 winter steelhead (207 BWT/104 NOR), 83 coho (from 2020 run year), and 33 cutthroat trout have been transported upstream of Swift Dam.

Floating Surface Collector (FSC) (Attachment B)

The Swift Reservoir Floating Surface Collector (FSC) lost power the morning of June 15th and again on June 17th due to blown fuses on the power feed coming from Cowlitz PUD supply line. The blown fuses were replaced by Cowlitz PUD personnel, and the FSC returned to service the afternoon of June 17th. The FSC remained operational for the remainder of the month. A total of 21,940 fish were collected in June, which was similar to May’s total of 24,910. The majority (87.7%) of the fish collected in June were juvenile coho (n=19,278), followed by planted rainbow trout (n=1,695), spring Chinook (n=503), steelhead (n=390), and cutthroat trout (n=75). No bull trout were collected in June. Collection totals in June 2021 were higher than all other years since the commissioning of the FSC, with the exception of 2019. (Table 2).

Table 2. Number of coho, Chinook, and steelhead juveniles transported downstream from the Swift Floating Surface Collector by run-year.

Run Year	June Collection Numbers by Run Year at Swift FSC				
	Coho	Chinook	Steelhead	Cutthroat	TOTAL
2013	5,415	297	52	3	5,767

2014	2,353	419	117	108	2,997
2015	7,192	300	152	68	7,712
2016	10,118	75	131	89	10,413
2017	6,947	44	467	149	7,607
2018	13,844	365	306	184	14,699
2019	30,603	2,064	341	214	33,222
2020	11,125	678	355	53	12,211
2021	19,278	503	390	75	20,246

Agenda items for August 12, 2021

- Review July 8, 2021 Meeting Notes (**ACC COMMENTS DUE August 3, 2021**)
- LCFEG Nutrient Enhancement; Carcass Allocation Discussion/Decision
- Study/Work Product Updates

Adjourn 11:45am

Next Scheduled Meeting:

August 12, 2021
TEAMS Call Only
9:30 a.m. – 11:30 a.m.

Meeting Handouts & Attachments:

- Meeting Notes from 6/10/2021
- Agenda from 7/8/2021
- **Attachment A** – July 1, 2021 email to ACC regarding nutrient enhancement fish carcass allocation
- **Attachment B** - Lewis River Fish Passage Report (June 2021)

McCune, Kimberly (PacifiCorp)

From: McCune, Kimberly (PacifiCorp)
Sent: Thursday, July 1, 2021 6:31 AM
To: Alex Maslov; Amanda Froberg; Amelia Johnson; Asher, Eli; Bill Sharp; Bridget Moran; Bryce Glaser; Carol Serdar; David Howe; Day, Kate; Denise Smee; Doyle, Jeremiah (PacifiCorp); Ferraiolo, Mark (PacifiCorp); Gary Loomis; Greg Robertson; Hudson, Michael; James Byrne; Janae Brock; Jeffrey Garnett; Jonathan Stumpf; Joshua Jones; Josua Holowatz; Kale Bentley; Karchesky, Chris (PacifiCorp); Katie Pruit; Kelley Jorgensen; Lesko, Erik (PacifiCorp); Logan Negherbon; Mariah Stoll-Smith Reese; Matt Harding; Morgan, David; Olson, Todd (PacifiCorp); Peggy Miller; Pienovi, Levi (PacifiCorp); Rhidian Morgan; Roberts, Aaron; Sam Gibbons; Samuel Kolb; Scott Anderson; Steve Manlow; Steve West; Taylor Aalvik; Tim Romanski; Tom Sinclair; Weatherly, Briana (PacifiCorp); Wendy McDermott; Whitesel, Timothy
Subject: 7/8/21 ACC Agenda, ACC DRAFT 6/8/21 MN and Nutrient Enhancement Response
Attachments: 07082021 LR - ACC Agenda.pdf; 06102021 ACC DRAFT Meeting Notes for ACC Review WDFW.docx

Attn: ACC Representatives

Please find attached the 7/8/21 ACC Agenda and the 6/10/21 Draft ACC Meeting Notes for your review.

In addition, at our June ACC meeting, Erik Lesko was asked to discuss with Dr. Phil Roni potential alternate sites for carcass placement (upstream of Swift Dam). Erik spoke with Phil to discuss the issues raised at the June ACC meeting. Phil indicated that Pine Creek and upper Muddy River, or smaller tributaries that are not part of the priority reaches (see Figure 6 below), are possible placement sites. To access the upper reaches of Pine Creek requires access permission from one or more timber companies. *(Note: Placing large numbers of carcasses in one nutrient poor stream may provide measurable benefits or biological response as opposed to carcasses placement over a large geographical area).*

Another option is to place the carcasses in tributaries of the lower North Fork Lewis River such as Cedar Creek, Houghton Creek, Johnson Creek, Hayes, Ross, etc. WDFW stated that the Lewis River supports large numbers of fall Chinook and coho salmon and that the addition of carcasses during the fall would not have substantial value. This is true of the mainstem (primarily from fall Chinook), but may not apply to all lower North Fork tributaries.

To finalize approval of the allocation, location and timing of carcass placement, we propose including this topic for discussion at the July ACC meeting so that the project sponsor is provided direction and expectations from the ACC as soon as practical.

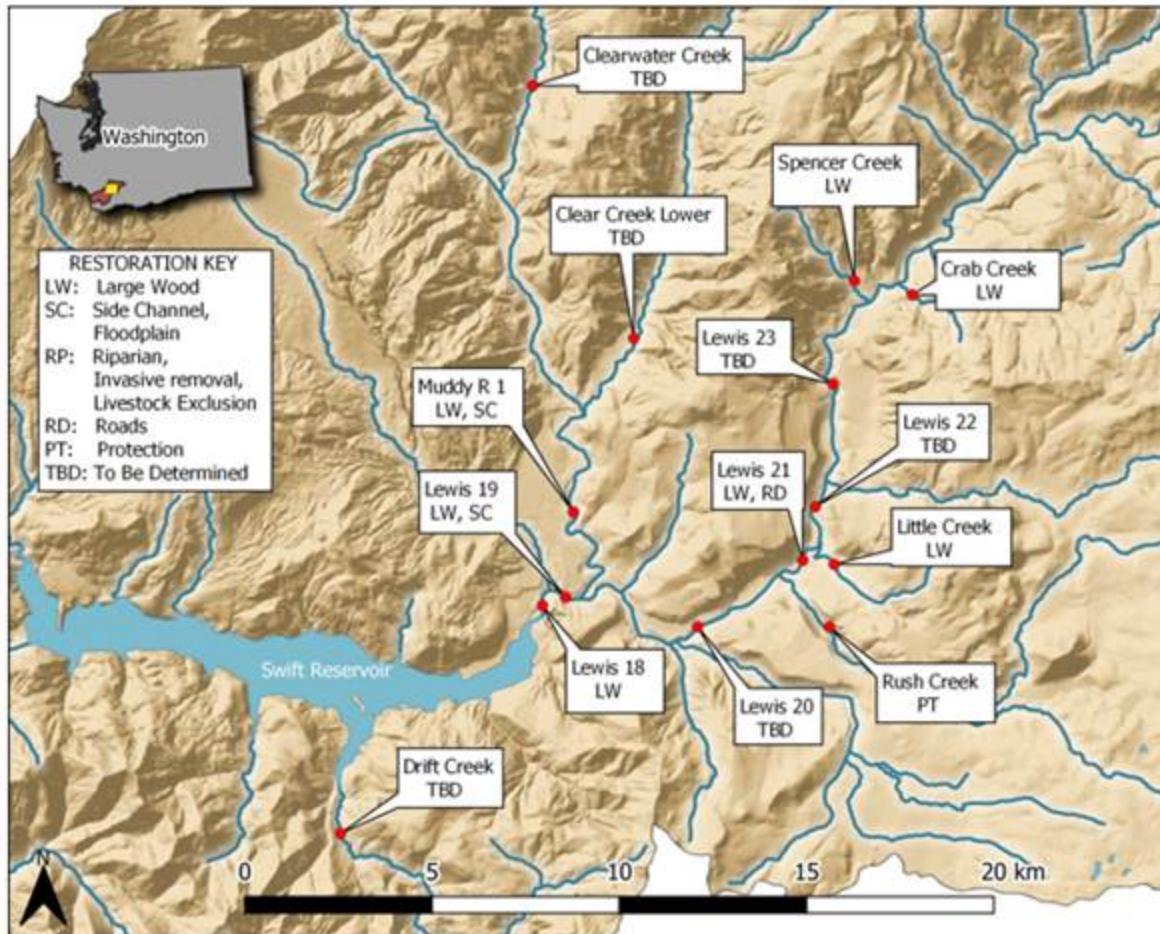


Figure 6. Map of the North Fork of the Lewis River upstream of Swift Dam showing initial priority EDT reaches and recommended restoration measures (PacifiCorp 2016). Reaches with TBD were identified by NMFS as a priority for the In Lieu Program and preliminary restoration measures still need to be identified.

Thank you.

Kimberly McCune

Sr. Project Coordinator

PacifiCorp – Hydro Resources

825 NE Multnomah St., Suite 1800

Portland, OR 97232

Lewis River Fish Passage Report

June 2021

Merwin Fish Collection Facility and General Operations

During the month of June, a total of 777 fish were captured at the Merwin Dam Adult Fish Collection Facility (MFCF). Spring Chinook were the most prevalent species collected this month (n=633), followed by summer steelhead (n=134). All summer steelhead returning to the MFCF for the first time are either used for brood stock or returned downstream as part of Washington Department of Fish and Wildlife's recycling program to provide additional recreational angling opportunity. All summer steelhead returning to MFCF a second time (after being recycled) are sent to surplus. The summer steelhead recycling program began on June 25th.

The MFCF lift and conveyance system was taken out of operation on June 7th so that scheduled maintenance could be performed. The system was returned to service on June 11th. Fish sorting and transport did not take place on June 27th as the electric drive for the pre-sort pond crowder overheated due to the record-setting heat wave that occurred throughout the region. However, the fish lift and conveyance system remained operational and all fish collected over that 48-hour period were processed on June 28th. Flows below Merwin Dam fluctuated between 2,700 and 4,200 cfs during the month of June (Figure 1).

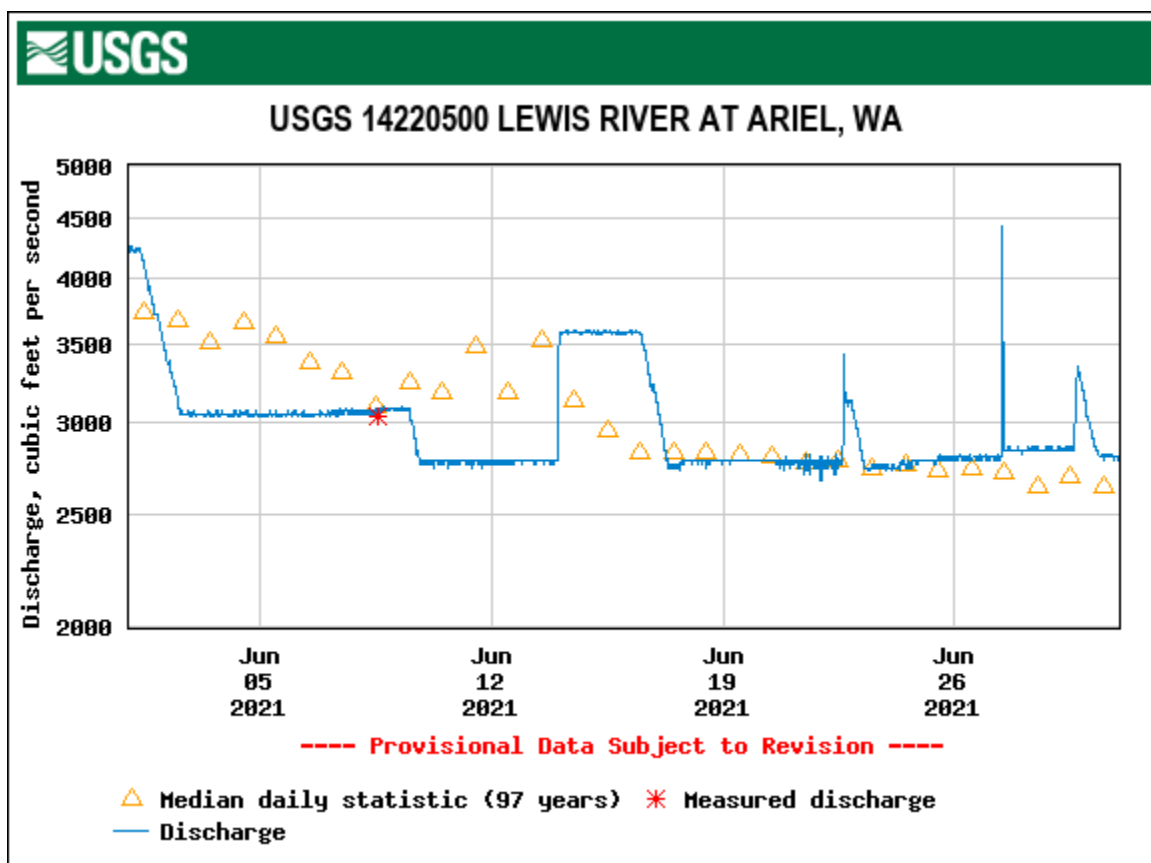


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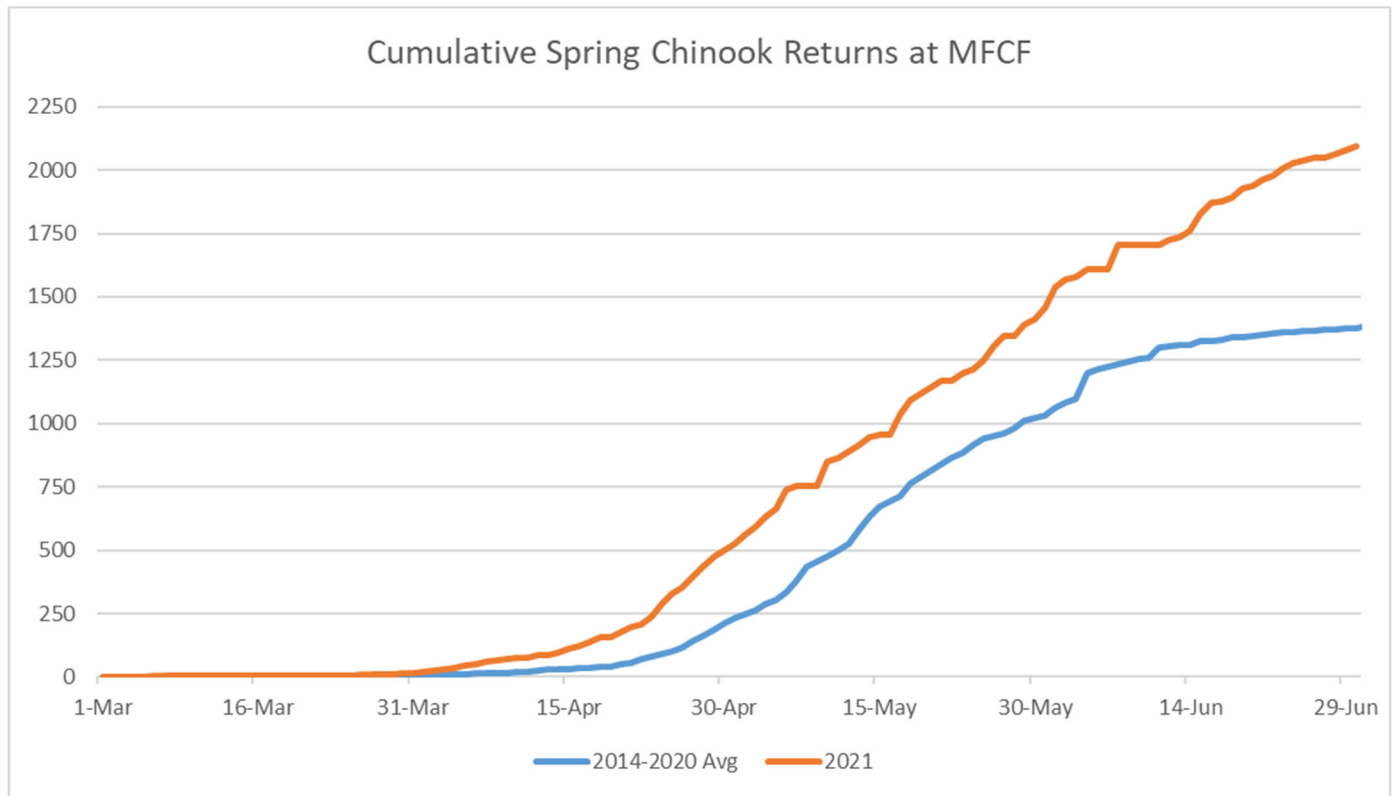


Figure 2. Cumulative number of Spring Chinook collected at Merwin Adult Fish Collection Facility in 2021, relative to the 2014-2020 average.

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Table 2. Number of coho, Chinook, and steelhead juveniles transported downstream from the Swift Floating Surface Collector by run-year.

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2021	19,278	503	390	75	20,246

Fish Facility Report
Swift Floating Surface Collector
June 2021

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			391		1	0			12			9		0	76	489
2			287		2	0			25					0	60	374
3			648		9	0			32	1		2		0	142	834
4			1588		19	1		4	22			9		0	190	1833
5		37	3370		1	9			88	2		12		0	535	4054
6		12	763		4	0	2		13					0	151	945
7		3	416		5	4			20			5		0	48	501
8			366			0			8			4		0	46	424
9		3	223		6	0		1	1					0	39	273
10		2	287		5	0		4	8					0	43	349
11			338		5	0		1	8			4		0	60	416
12		8	506		10	0		1	24	3				0	41	593
13	4		816		2	1			7					0	30	860
14		3	358		16	0			9	1		4		0	92	483
15		8	4		6	0		1	0					0	0	19
16			1324		8	0			16			20		0	32	1400
17																
18	45	20	2562	11	50	8			12					0	19	2727
19	8	14	1635	1	36	55			18					0	39	1806
20	7	7	1493		67	0			18					0	38	1630
21		24	389		38	0			4					0	0	455
22		31	330		16	20		12	0			4		0	0	413
23	9	4	344		13	0			4					0	1	375
24		10	187		28	0			0			2		0	3	230
25	1	11	149		14	0			0					0	6	181
26		4	49		18	0			0					0	0	71
27	4	3	66	2	1	3			0					0	0	79
28	4	1	7		5	0			0					0	0	17
29	9		20		2	0			0					0	0	31
30	4		62		1	0			8					0	4	79
Monthly	95	205	18978	14	388	101	2	24	357	7	0	75	0	0	1695	21941
Total	385	4178	39018	25	453	1931	10	146	5385	34	3	640	16	6	4122	56352

2021 FSC Collection Efficiency Evaluation -Update

- 3D Acoustic Telemetry Study – using JSAT positional tags.
 - Acoustic Receivers used to monitor tagged fish movement within the forebay and as they pass through the FSC
 - Additional receivers within the fish channel to provide high resolution tracking of where fish are rejecting.

- 443 smolts tagged:
 - Acoustic/PIT Tags
 - Coho (n = 212)
 - Chinook (n = 39)
 - Steelhead (n = 192)

- Comparable to 2019 & 2020 efforts
 - Emphasis on variables effecting passage success within the fish channel

- Schedule
 - Field Study - March – July
 - Data Processing/ Analysis – August – November
 - ACC Presentation – December?
 - Report will be included as an appendix in the ACC/TCC Annual Report

- Next Steps?

