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Report Period: April 1 to April 15, 2022

Report No.: 2022 Willamette RST Bi-Weekly Report 04/01 to 04/15 by EAS

Re: WILLAMETTE VALLEY FISH PASSAGE MONITORING VIA ROTARY SCREW TRAPS

Project Schedule

Table 1. Project Schedule

Site	Task	Start	End	Days
Big Cliff Dam RST	Operation	12/01/2021	2/15/2022	292
Big Cliff Dam RST	Operation	3/15/2022	10/15/2022	
Big Cliff Dam Tailrace	Trap Efficiency Release (1,000 Fish)	12/22/2021	12/22/2021	1
Green Peter Tailrace- Middle Santiam River RST	Trap Install	03/02/2022	03/02/2022	1
Green Peter Tailrace- Middle Santiam River RST	Operation	03/03/2022	06/30/2022	120
Green Peter Tailrace- Middle Santiam River RST	Trap Efficiency Release (643 Fish)	03/29/2022	03/29/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trap Install	03/16/2022	03/16/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Operation	03/10/2022	06/30/2022	113
Cougar Dam RST	Operation	11/30/2021	11/30/2022	366
Cougar Dam	Trap Efficiency Release (1,200 Fish, 600 per route)	01/19/2022	1/19/2022	1
Cougar Dam Head of Reservoir	Highline and Trap Install	03/7/2022	3/7/2022	1
Cougar Dam Head of Reservoir	Operation	03/8/2022	06/30/2022	115
Cougar Dam Head of Reservoir	Trap Efficiency Release (806 Fish)	03/18/2022	03/18/2022	1
Dexter Dam Tailrace RST	Highline Install	03/02/2022	03/02/2022	1
Dexter Dam Tailrace RST	Trap Install	03/03/2022	03/03/2022	1
Dexter Dam Tailrace RST	Operation	03/07/2022	12/16/2022	285

Dexter Dam Tailrace RST	Trap Efficiency Release (988 Fish)	03/23/2022	03/23/2022	1
Lookout Dam Tailrace RSTs	Operation	03/15/2022	07/31/2022	139
Lookout Dam Tailrace RSTs	Trap Efficiency Release (1,013 fish, PWR route)	04/13/2022	04/13/2022	1
Lookout Point Head of Reservoir RST	Trap Install	03/06/2022	03/06/2022	1
Lookout Point Head of Reservoir RST	Operation	03/07/2022	12/16/2022	285
Lookout Point Head of Reservoir RST	Trap Efficiency Release (993 fish)	04/05/2022	04/05/2022	1
Lookout Point Head of Reservoir RST	Trap Efficiency Release (989 fish)	04/14/2022	04/14/2022	1
Fall Creek Dam Tailrace RST	Operation	03/15/2022	07/15/2022	123
Fall Creek Head of Reservoir RST	Trap and Highline Install	01/11/2022	01/11/2022	1
Fall Creek Head of Reservoir RST	Operation	01/02/2022	05/31/2022	150
Hills Creek Dam RO and PWR	Deployment	10/12/2021	10/12/2021	1
Hills Creek Dam RO	Operation	10/15/2021	03/01/2022	138
Hills Creek Dam PWR	Operation	10/15/2021	03/01/2022	138
Hills Creek Dam	Trap Efficiency Release (1,200 fish, 600 per route)	01/6/2022	01/6/2022	1
Hills Creek Dam	Trap Efficiency Release (1,200 fish, 600 per route)	02/16/2022	02/16/2022	1
Hills Creek Dam	Trap Efficiency Release (1,200 fish, 600 per route)	02/23/2022	02/23/2022	1
Hills Creek Dam RSTs	Trap Removal	03/01/2022	03/01/2022	1

Summary of Rotary Screw Trap Data

Rotary screw traps (RSTs) have been operated at eleven locations in the southern Willamette River watershed. For this reporting period, traps were being operated at the following ten locations: Big Cliff Dam, Green Peter Tailrace- Middle Santiam, Foster Dam Head of Reservoir- South Santiam, Cougar Dam, Cougar Dam Head of Reservoir, Fall Creek Dam Tailrace, Fall Creek Head of Reservoir, Dexter Dam Tailrace, Lookout Dam Tailrace, and Lookout Point Head of Reservoir.

The RST's at Big Cliff Dam and Lookout Dam Tailrace started sampling on March 15th. On March 1st the Middle Fork Willamette River below Hills Creek Dam RST's were removed for the sampling season in conjunction with the end of RO spill and to prioritize the limited number of screw traps to other locations.

Below Dam sites that include both RO and PWR to monitor passage routes include South Fork McKenzie River below Cougar Dam and on the Middle Fork of the Willamette River in the Lookout Dam Tailrace. Below dam sites that include one RST to monitor passage include the Green Peter Tailrace- Middle Santiam, the Middle Fork of the Willamette River below Dexter Dam and Fall Creek Dam Tailrace which is

a tributary on the Middle Fork of the Willamette. At the Green Peter Dam Tailrace, the single RST is placed to sample fish passing through spillways, regulating outlets, and powerhouse outlets. The RST at Dexter Dam is placed to monitor fish passage through the spillways and powerhouse outlets. The RST in the Fall Creek Dam Tailrace is placed in a position to sample fish passing through the regulating outlet.

The RST on the North Santiam River below Big Cliff Dam was not sampled while fish passage measures were not being implemented from 16 February 2022 to 14 March 2022. Sampling resumed on 15 March 2022 in accordance with Task 2.2.

Above reservoir sites include Fall Creek Head of Reservoir, Lookout Point Head of Reservoir on the Middle Fork Willamette River, Foster Dam Head of Reservoir- South Santiam, and Cougar Dam Head of Reservoir on the South Fork McKenzie.

Sampling start dates are included in Table 2, and season total collection numbers are displayed in Table 3. The locations of the RST's are depicted in Figures 1 through 10.

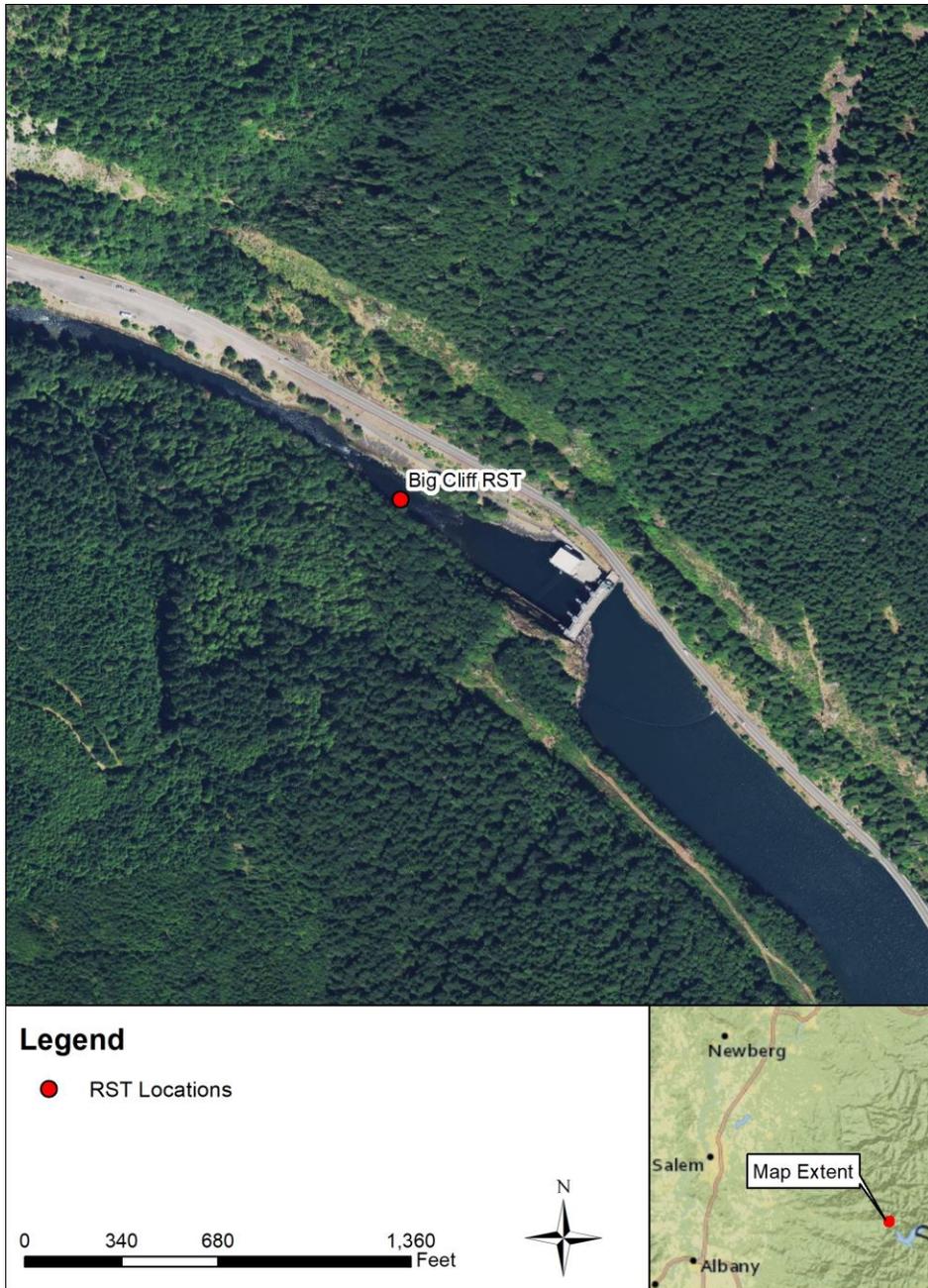


Figure 1. Big Cliff RST Location



Figure 2. Green Peter Tailrace- Middle Santiam River RST Location



Figure 3. Foster Dam Head of Reservoir- South Santiam RST Location



Figure 4. Cougar Dam RST Locations



Figure 5. Cougar Dam Head of Reservoir RST Location

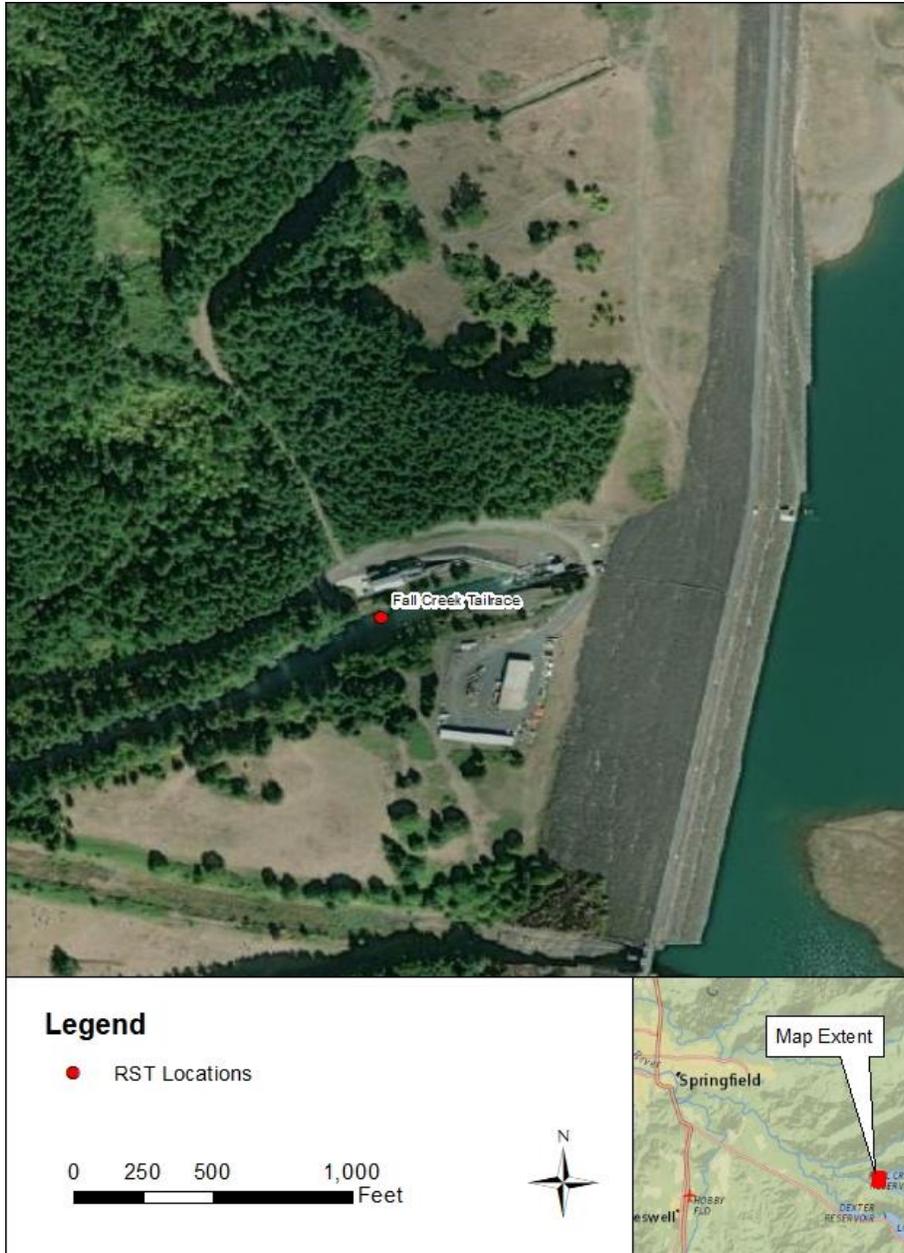


Figure 6. Fall Creek Dam Tailrace RST Location

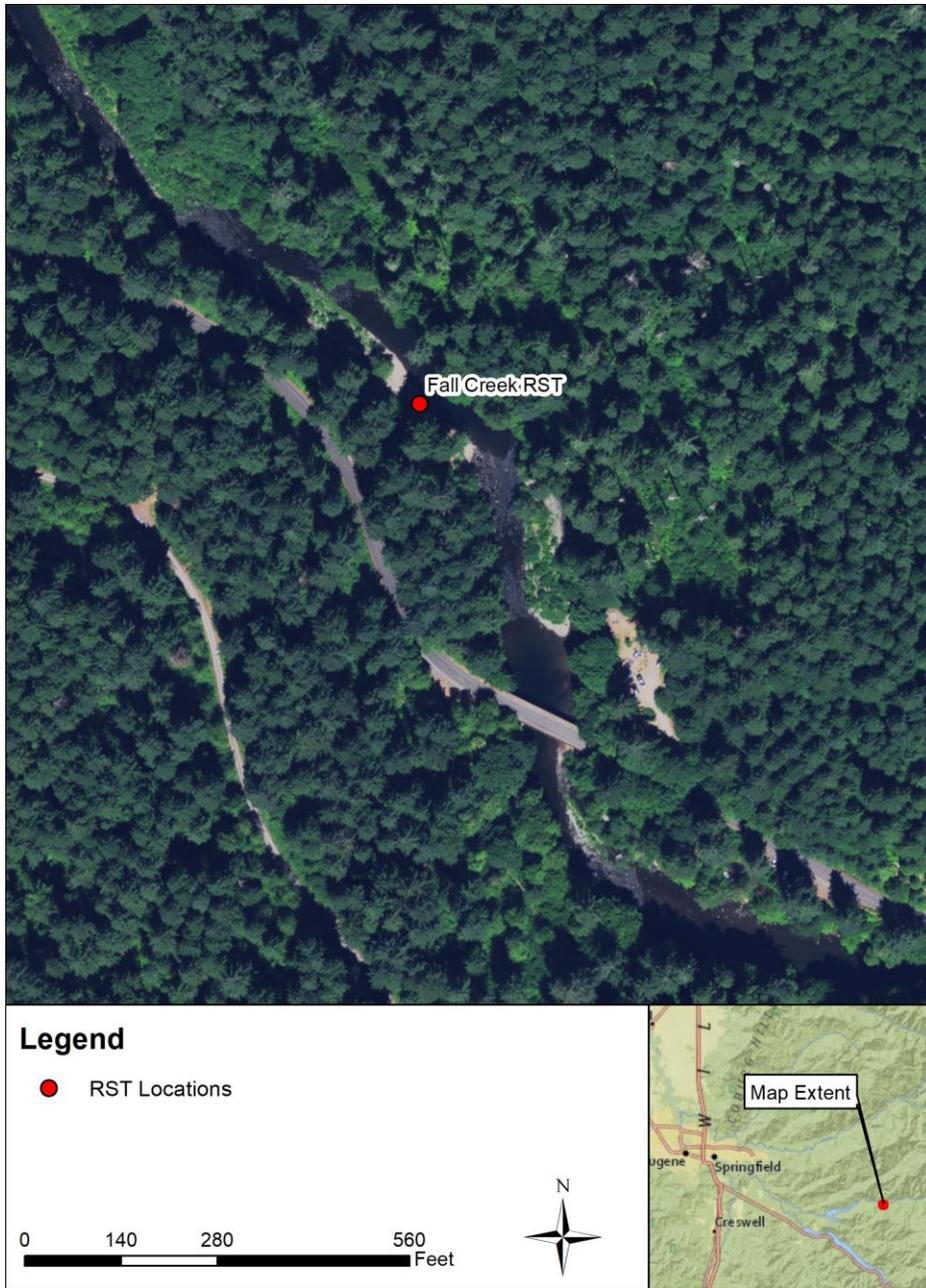


Figure 7. Fall Creek Head of Reservoir RST Location



Figure 8. Dexter Dam RST Location



Figure 9. Lookout Point Dam Tailrace RST Location



Figure 10. Lookout Point Head of Reservoir RST Location

Table 2. Sampling Dates for Reporting Period

Site	Total Sampling Period Start	Current Reporting Period Start	Current Reporting Period End	Days Sampled This Period	Total Days Sampled
Big Cliff Dam	12/1/2021	4/01/2022	4/15/2022	15	106
Green Peter Tailrace- Middle Santiam River	3/2/2022	4/01/2022	4/15/2022	15	45

Foster Dam Head of Reservoir- South Santiam	3/16/2022	4/01/2022	4/15/2022	15	31
Cougar Dam PH	12/1/2021	4/01/2022	4/15/2022	15	136
Cougar Dam RO	12/1/2021	4/01/2022	4/15/2022	15	136
Cougar Dam Head of Reservoir	3/7/2022	4/01/2022	4/15/2022	15	39
Fall Creek Dam Tailrace*	3/15/2022	4/01/2022	4/15/2022	15	32
Fall Creek Head of Reservoir	1/13/2022	4/01/2022	4/15/2022	15	93
Dexter Dam Tailrace	3/7/2022	4/01/2022	4/15/2022	15	40
Lookout Point Dam	3/15/2022	4/01/2022	4/15/2022	15	32
Lookout Point Head of Reservoir	3/10/2022	4/01/2022	4/15/2022	15	47

*Fall Creek Dam Tailrace trap was being operated by the Corps until EAS began sampling the site on March 15th per Task 7.1

Table 3. Willamette Valley Rotary Screw Trap Monitoring Catch Summary

Site	Species	Catch (Reporting Period)	Recaptures (Reporting Period)	Total Catch	Total Recaptures
Big Cliff Dam	CHS	49	0	106	40
Big Cliff Dam	STW	1	0	1	0
Green Peter Tailrace- Middle Santiam	CHS	0	0	0	4
Foster Dam Head of Reservoir- South Santiam	CHS	3	0	48	0
Foster Dam Head of Reservoir- South Santiam	STW	14	1	35	1
Cougar Dam	CHS	200	2	765	69
Cougar Dam Head of Reservoir	CHS	110	0	211	41
Fall Creek Dam Tailrace	CHS	0	0	0	0
Fall Creek Head of Reservoir	CHS	0	0	7	1
Dexter Dam Tailrace	CHS	1	0	1	2
Lookout Point Dam	CHS	0	0	0	0
Lookout Point Head of Reservoir	CHS	17	72	52	72

North Santiam – Big Cliff Dam

The RST on the North Santiam River below Big Cliff Dam was not sampled while fish passage measures were not being implemented from 16 February 2022 to 14 March 2022. Sampling resumed on 15 March 2022 in accordance with Task 2.2.

Target Species

This reporting period began on April 1 and ended on April 15. There was a total of 49 Chinook salmon (CHS) and 1 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 11). Sampling duration was 100% for the RST. Table 4 provides life stage, length, and weight data for all Chinook salmon and Winter Steelhead that have been caught at the Big Cliff Dam site to-date and for the reporting period. Figure 12 shows length frequency data to-date.

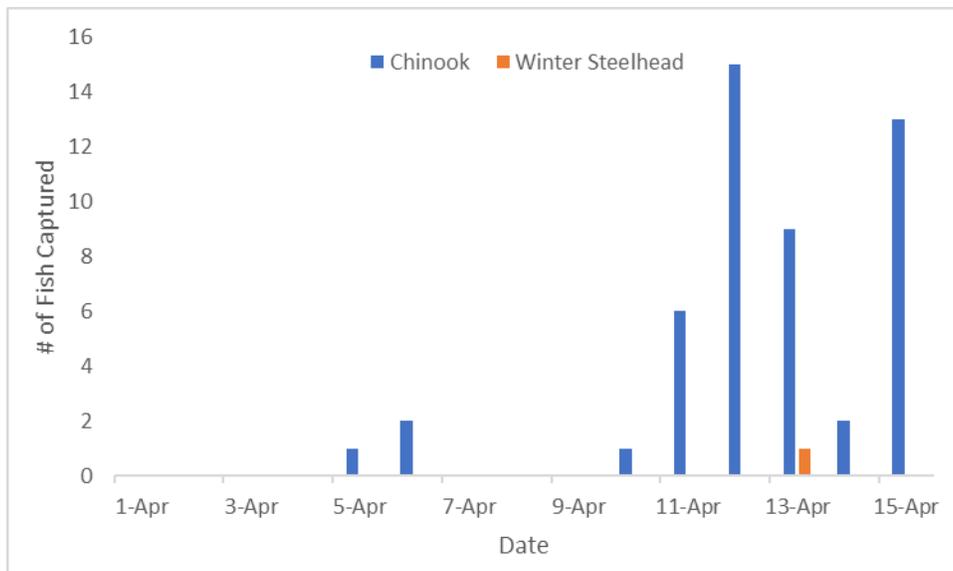
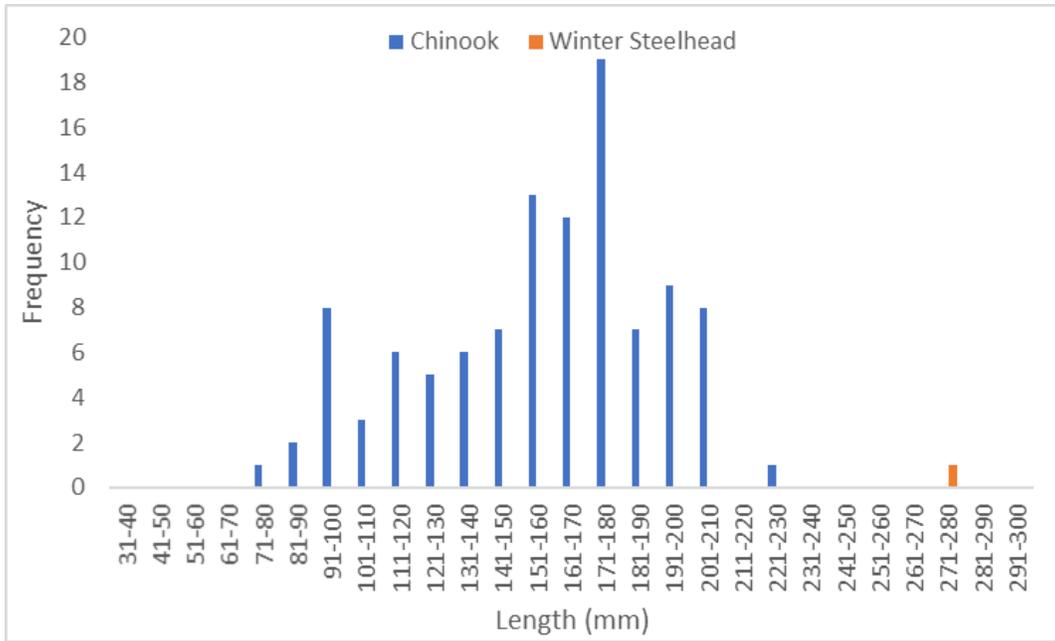


Figure 11. Chinook and Winter Steelhead Captured per day 04/01/2022 to 04/15/2022 (Big Cliff)



*Figure does not include fish without heads

Figure 12. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Big Cliff)

Trapping Efficiency

A total of 996 juvenile hatchery Chinook (parr) were bismark brown dyed, adipose clipped and released on 12/22/2021 below Big Cliff Dam. A total of 39 fish were recaptured in the 8ft trap 12/23/2021, with 1 more fish captured in the 8ft trap 02/15/2022 for a total of 40 recaptures. Trapping efficiency was 4.01%.

Of the 40 fish recaptured, only the 1 fish that was captured on 2/15/2022 had injuries present. The 39 fish recaptured on 12/23/2021 had no injuries present. The injured fish had copepods on its fins and in the branchial cavity. Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery.

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	996	40	4.01% (40/996)

Table 4. Descriptive Statistics of Target Species Captured at Big Cliff Dam Season To-Date

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Big Cliff	PWR	CHS	Parr	18	78.0	130.0	101.3	6.1	20.1	12.0
		CHS	Smolt	89	113.0	225.0	168.7	14.2	110.0	49.4
		STW	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Smolt	1	280	280	280	230.5	230.5	230.5

*Fish that were missing heads are not included in length and weight calculations.

April 01-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Big Cliff	PWR	CHS	Parr	2	115	130	122.5	16.8	20.1	18.5
		CHS	Smolt	47	115	225	168.2	16.8	110	48.1
		STW	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Smolt	1	280	280	280	230.5	230.5	230.5

*Fish that were missing heads are not included in length and weight calculations.

24-Hour Post Collection Holding Trial

40 Spring Chinook were captured during the current reporting period and held for 24 hours. 2 fish died in holding.

Injuries and Copepod Infection

Partial descaling <20% was observed in 25 of the 49 Chinook captured (51%) and 14 displayed descaling >20% (28.6%). 33 displayed body injury (67.3%) and 5 Chinook had eye injury (10.2%). 41 Chinook had copepods present in the branchial cavity (83.7%) and 12 had copepods on fins (24.5%). The 1 Winter Steelhead captured displayed descaling >20%, body injury, and branchial cavity copepods. A summary of injuries observed during the reporting period are provided in Table 5, and for the duration of the season are provided in Appendix A.

Table 5. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon and Winter Steelhead for Sampling Period. (Big Cliff Dam).

Site	Species	# Fish Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Big Cliff Dam	Chinook	49	25	14	33	5	41	12	8
Big Cliff Dam	Winter Steelhead	1	0	1	1	0	1	0	0

Non-Target Species

11 non-targets were captured during this sampling period. A summary of to-date non-target species catch and mortality numbers are listed in Table 6.

Table 6. Summary of Non-target Species (Big Cliff Dam)

Species	PWR Capture	PWR Mortality	Season Total	Season Total Mortality
Bluegill	4	0	10	2
Brook Lamprey	0	0	0	0
Bullhead	0	0	1	0
Crappie	0	0	0	0
Longnose Dace	0	0	0	0
Kokanee	6	0	98	37
Red-Sided Shiner	0	0	0	0
Sculpin	0	0	0	0
Spotted Bass	0	0	0	0
Sucker	0	0	0	0
Whitefish	0	0	4	0
Cutthroat	0	0	3	0
<i>O. mykiss</i> (clipped)	0	0	1	0
Pumpkinseed	0	0	1	1
Unknown	1	0	2	0
Totals	11	0	120	40

Stream Statistics

Basic stream statistics at the Big Cliff Dam site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14181410. Gage height (feet) is the only metric provided at this gage. During the reporting period, daily maximum values for instantaneous gage height ranged from 1,109.49 feet to 1,109.54 feet (mean: 1,109.52 feet). Figure 13 shows instantaneous gage height.

Stream temperatures were recorded every 2 hours for the length of the report period for the RO and PWR RST's (Figure 14). Temperature probes operated normally throughout this reporting period.

Flows through the Powerhouse and RO during the reporting period averaged 1,564.8 and 0 cubic feet per second (cfs) (Figure 15). Catch per unit of effort (CPUE) data are summarized in Table 7. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 7. Summary of salmonid CPUE, Big Cliff Dam.

	Chinook	Winter Steelhead
Description	(8 ft)	(8 ft)
Catch	49	1
Effort (hrs)	361.1	361.1
CPUE (fish/hr)	0.136	0.003

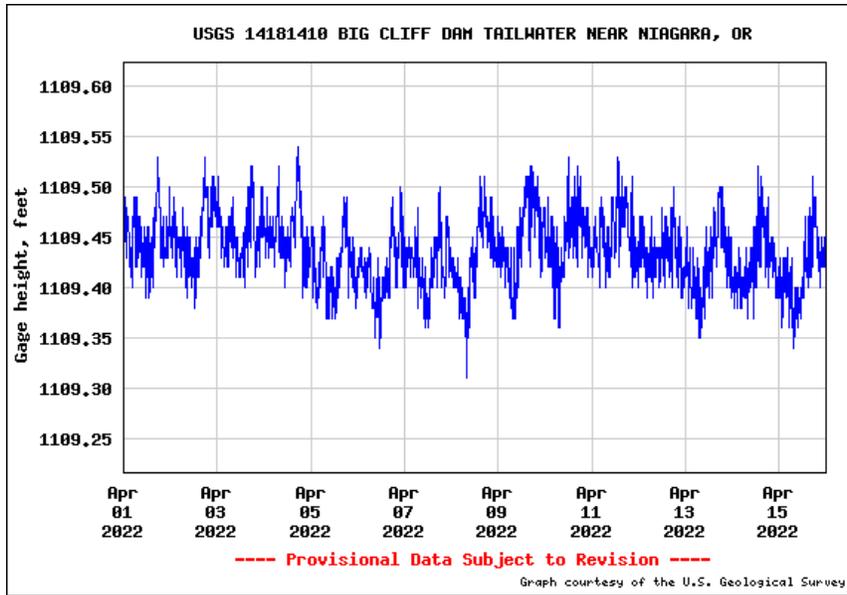


Figure 13. Gage height (ft); below Big Cliff Dam

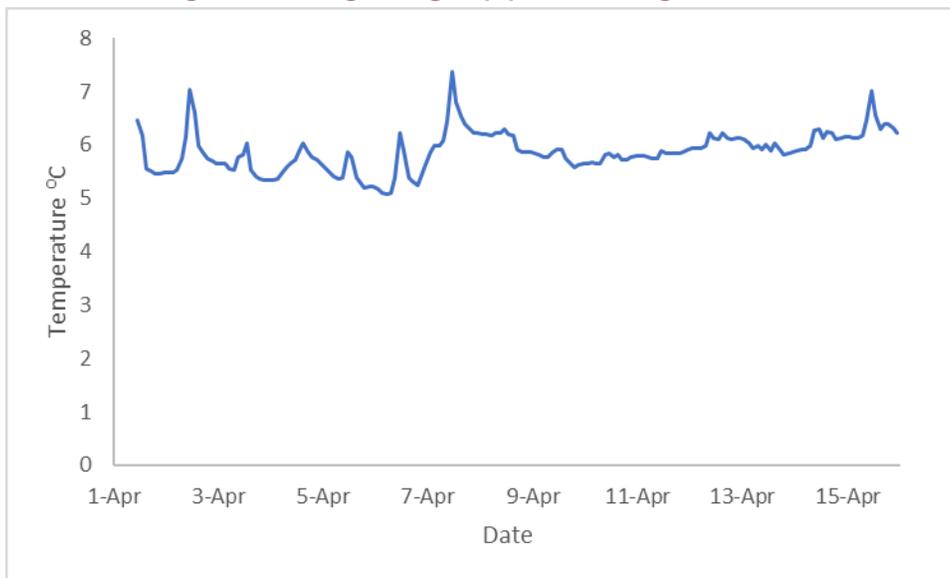


Figure 14. Temperature at RST (Big Cliff Dam)

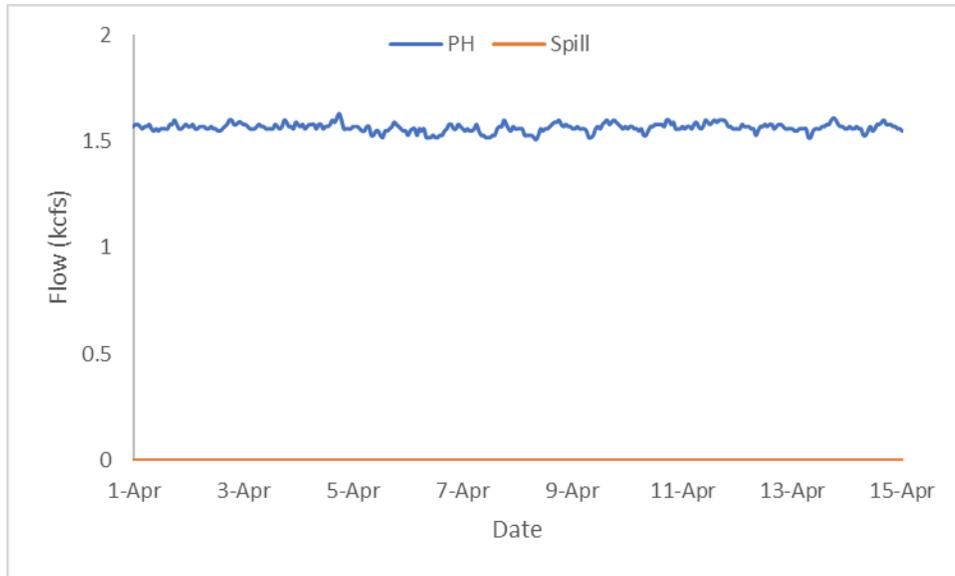


Figure 15. Hourly Flows PWR vs. RO (Big Cliff Dam)

Middle Fork Santiam– Green Peter Tailrace

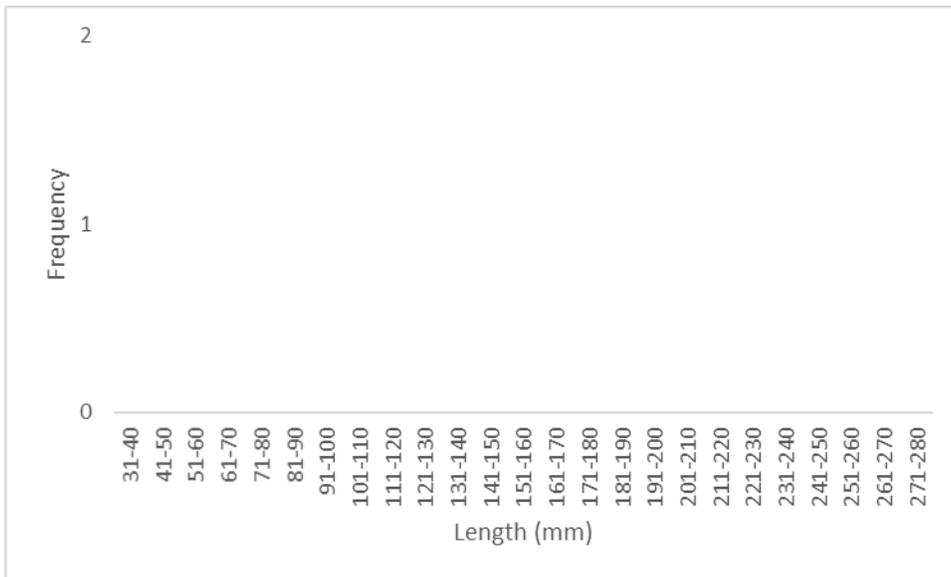
Target Species

This reporting period began on April 1 and ended on April 15. No Chinook Salmon (CHS) or Winter Steelhead (STW) were captured during the 15-day sampling period (Figure 16). The cone was raised into the non-sampling position on April 2nd due to trap safety concerns resulting from continued high debris load and spill increase to over 2000 cfs. Spill and debris loads were monitored by EAS crew until debris levels decreased to the point where it was deemed safe to resume sampling on April 13th. Sampling duration was 33.3% for the RST. Table 8 provides life stage, length, and weight data for all target species that have been caught at the Green Peter Dam site to-date and for the reporting period. Figure 16 shows the daily capture numbers for chinook and Figure 17 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 16. Chinook and Winter Steelhead Captured Per Day 04/01/2022 to 04/15/2022 (Green Peter Tailrace- Middle Santiam)



*Figure does not include fish without heads or fish used for trapping efficiency trials.

Figure 17. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Green Peter Tailrace- Middle Santiam River)

Trapping Efficiency

A total of 643 juvenile hatchery Chinook (parr) were bismark brown dyed, adipose clipped and released on 03/29/2022 below Green Peter Dam. 214 dyed and adipose clipped fish were released below the PWR and 429 dyed and adipose clipped fish were released below the Spillway to evaluate the efficiency of the screw trap in the tailrace. A total of 4 fish were recaptured in the 8ft trap on 03/30/2022. Route-specific trapping efficiency was 0.62%

Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery.

Green Peter Dam Tailrace- Middle Santiam	Release #	Recapture #	Capture Efficiency
8ft Trap	643	4	0.62% (4/643)

Table 8. Descriptive Statistics of Target Species Captured at the Green Peter Tailrace-Middle Santiam River Season To-Date

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Green Peter Dam Tailrace-Middle Santiam	RO	CHS	Parr	0	0	0	0	0	0	0
		CHS	Smolt	0	0	0	0	0	0	0

April 01-15,2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Green Peter Dam Tailrace-Middle Santiam	RO	CHS	Parr	0	0	0	0	0	0	0
		CHS	Smolt	0	0	0	0	0	0	0

*Fish that were missing heads are not included in length and weight calculations.

24-Hour Post Collection Holding Trial

No Spring Chinook or Winter Steelhead were captured during the current reporting period; therefore, no fish were in holding.

Injuries and Copepod Infection

No Spring Chinook or Winter Steelhead were captured at Green Peter Dam; therefore, no injuries are reported for target species. As a surrogate, we are providing injury data for Kokanee at the Green Peter

Dam Tailrace- Middle Santiam site. 4 of the 11 (36.4%) Kokanee captured during this period showed partial descaling <20% and 6 showed descaling >20% (54.5%). 9 of the fish showed body injuries (81.8%) and 5 had eye injury (45.5%). 0 fish had copepods (0%) and 5 displayed gas bubble disease (45.5%, 2 at level 1, 2 at level 2, 1 at level 4). A summary of injuries observed on Kokanee during the reporting period is provided in Table 9, and target species injuries for the duration of the season are provided in Appendix A.

Table 9. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Green Peter Tailrace- Middle Santiam River).

Site	Trap	# Koke Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Green Peter	8 ft	11	4	6	9	5	0	0	5

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Collected DNA and Scale Samples

No target fish were captured for the reporting period and thus, no scale or DNA samples were collected.

Non-Target Species

A total of 12 non-target species fish were captured during the reporting period; the data is summarized below in Table 10.

Table 10. Summary of Non-target Species (Green Peter Tailrace- Middle Santiam River).

Species	Capture	Mortality	Season Total Capture	Season Total Mortality
Bluegill	0	0	5	4
Brook Lamprey	0	0	0	0
Bullhead	0	0	0	0
Crappie	0	0	0	0
Longnose Dace	0	0	0	0
Kokanee	11	5	16	7
Red-Sided Shiner	0	0	0	0
Sculpin	0	0	0	0
Smallmouth Bass	1	0	1	0
Sucker	0	0	1	1
Whitefish	0	0	0	0
Cutthroat	0	0	0	0
<i>O. mykiss</i> (clipped)	0	0	1	0
Totals	12	5	24	12

Stream Statistics

Basic stream statistics at the Green Peter Dam Tailrace- Middle Santiam site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14186110. Gage height (feet) is the only metric provided at this gage. During the reporting period, daily maximum values for instantaneous

gage height ranged from 696.63 feet to 702.00 feet (mean: 699.42 feet). Figure 18 shows instantaneous gage height.

Stream temperatures were recorded every 2 hours for the length of the report period for the RST (Figure 19). Temperature probes operated normally throughout this reporting period.

Flows through the Powerhouse and RO during the reporting period averaged 0 and 1,101.6 cubic feet per second (cfs) respectively (Figure 20). Catch per unit of effort (CPUE) data are summarized in Table 11. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Large amounts of woody debris were passing through the spillway during this sampling period. Debris was large enough to prevent the trap from rotating on multiple occasions. Observations from the area above the dam suggest that debris load may be problematic for some time.

Table 11. Summary of salmonid CPUE, Green Peter Tailrace- Middle Santiam River.

	Chinook
Description	8ft
Catch	0
Effort (hrs)	73.4
CPUE (fish/hr)	0

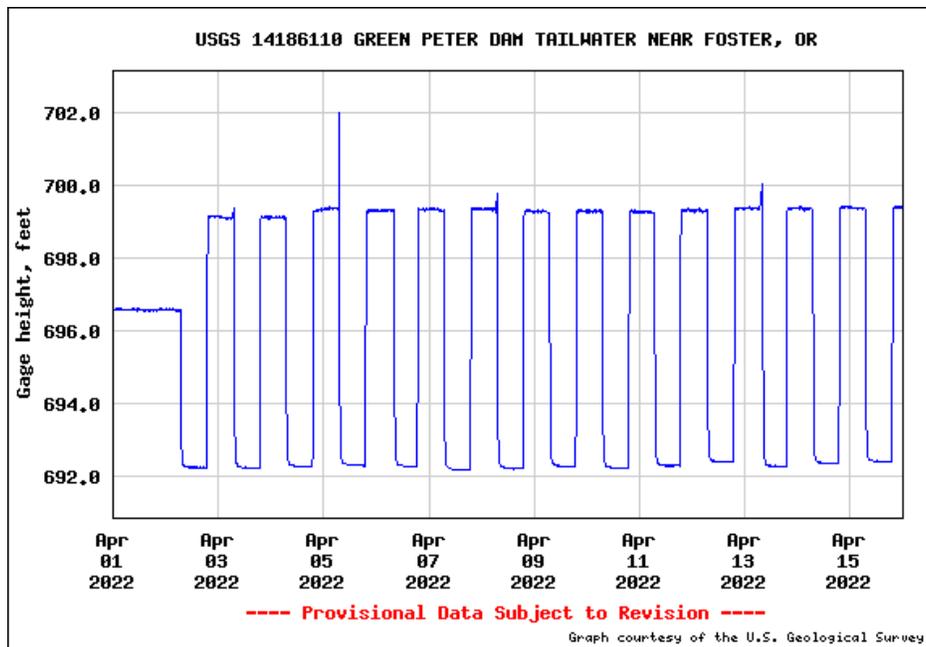


Figure 18. Gage Height (feet); below Green Peter Dam

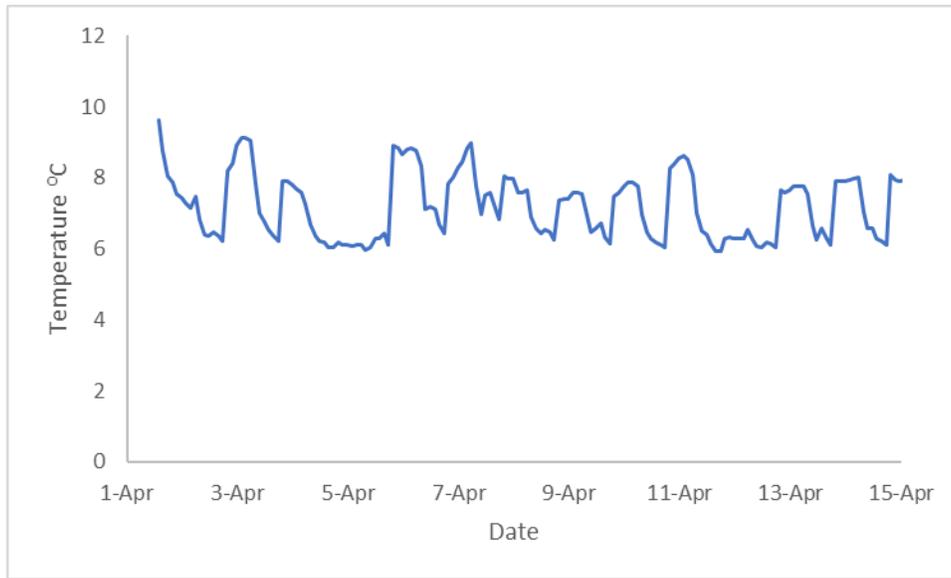


Figure 19. Temperature at RST (Green Peter Tailrace- Middle Santiam River)

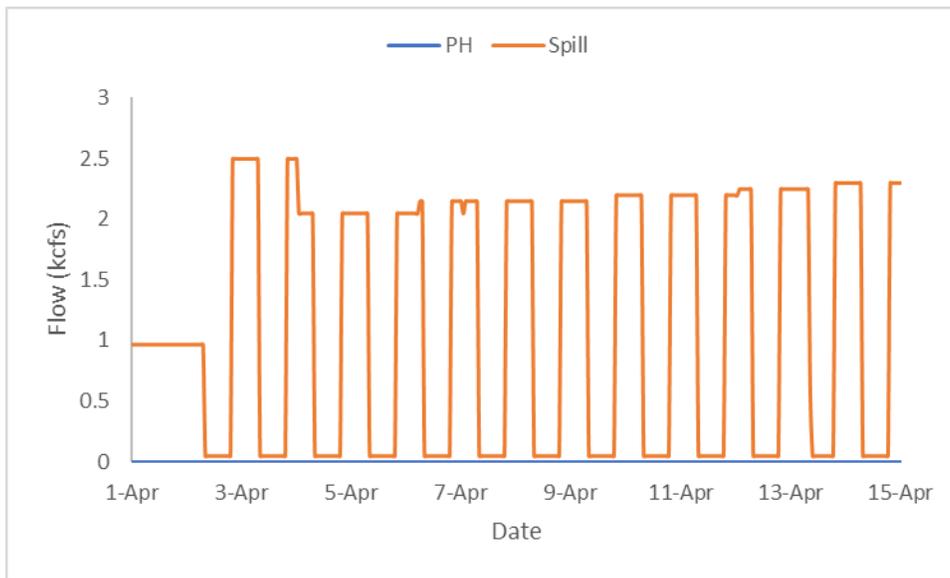


Figure 20. Hourly Flows PWR vs. RO (Green Peter Dam)

South Fork Santiam– Foster Dam Head of Reservoir

Target Species

This reporting period began on April 1 and ended on April 15. There was a total of 3 Chinook salmon (CHS) and 14 Winter Steelhead captured (Figure 21) during the 15-day sampling period. Sampling duration was 100% for the RST. Table 12 provides life stage, length, and weight data for all Chinook

Salmon and Winter Steelhead that have been caught at the Foster Dam Head of Reservoir- South Santiam site to-date and for the reporting period. Figure 21 shows the daily capture numbers for Chinook and Winter Steelhead and Figure 22 shows length frequency data to-date for both species.

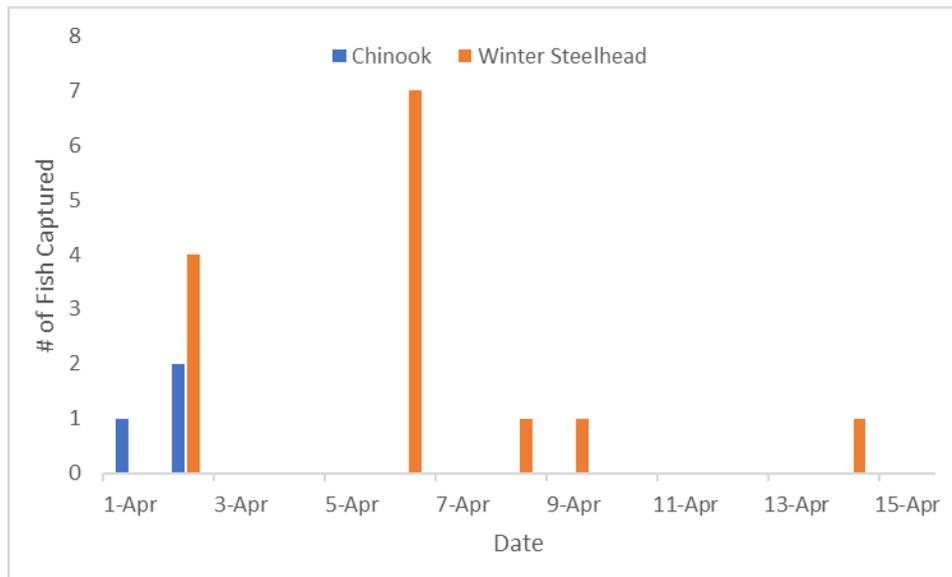


Figure 21. Chinook and Winter Steelhead Captured Per Day 04/01/2022 to 04/15/2022 (Foster Dam Head of Reservoir- South Santiam)

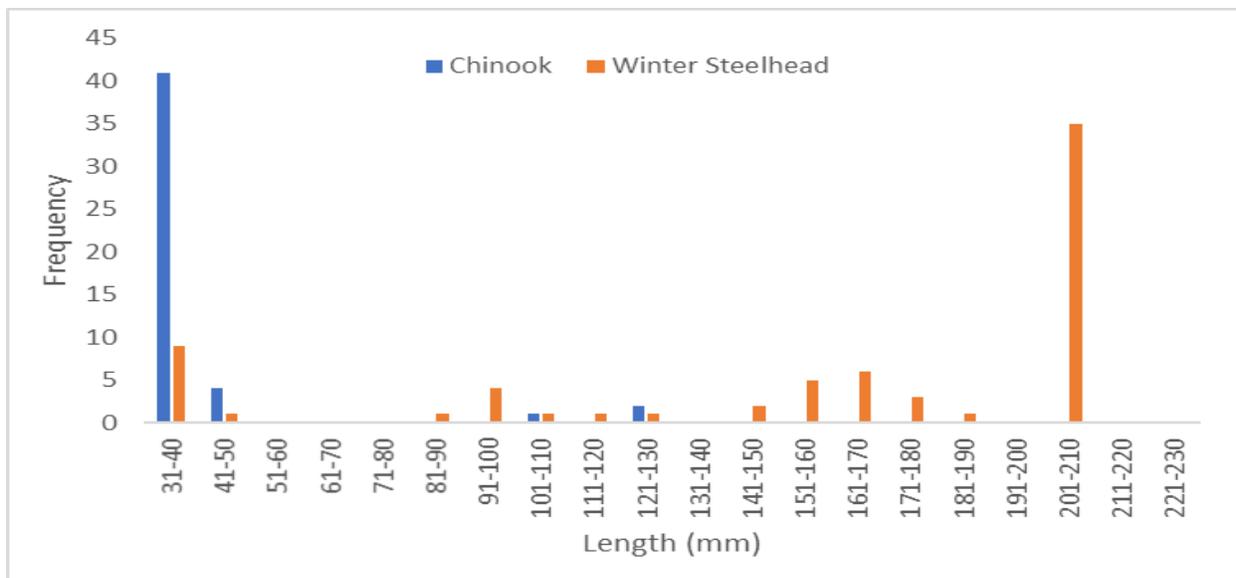


Figure 22. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Foster Dam Head of Reservoir- South Santiam)

Trapping Efficiency

6 Chinook and 27 Winter Steelhead have been caudal clipped and released upstream for the purpose of conducting run of river trapping efficiency trials. To date, one of the released Winter Steelhead has been recaptured. Currently, trapping efficiency for Winter Steelhead is 3.7%. Only fish large enough to be safely caudal clipped have been used for efficiency trials.

Table 12. Descriptive Statistics of Target Species Captured at the Foster Dam Head of Reservoir- South Santiam Site Season To-Date

To-Date										
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Foster Dam Head of Reservoir-South Santiam	5 ft	CHS	Fry	45	32	49	35.2	N/A	N/A	N/A
		CHS	Parr	1	108	108	108	14.2	14.2	14.2
		CHS	Smolt	2	120	129	124.5	19.6	23.5	21.6
		STW	Fry	10	31	46	34.9	N/A	N/A	N/A
		STW	Parr	9	88	157	111.7	7.7	44.1	17.3
		STW	Smolt	16	129	192	163.3	21.1	71.3	44.7
April 01-15, 2022										
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Foster Dam Head of Reservoir-South Santiam	5 ft	CHS	Fry	3	33	39	36.0	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Fry	5	33	46	36.4	N/A	N/A	N/A
		STW	Parr	3	97	100	98.3	7.9	11.7	9.6
		STW	Smolt	6	129	178	161.3	21.1	63.0	43.6

*Most fry are too small to collect accurate weight measurements in the field.

Injuries and Copepod Infection

Partial descaling <20% was observed in 0 of the 3 Chinook captured (0%) and 0 displayed body injury (0%). No Chinook had eye injuries or copepods present. Partial descaling <20% was observed on 7 of the 14 Winter Steelhead captured (50%). Body injuries were present on 3 Winter Steelhead (21.4%) and 0 displayed eye injury. No copepods were present on any of the Winter Steelhead captured (0%). A summary of injuries observed during the reporting period are provided in Table 13, and for the duration of the season are provided in Appendix A.

Table 13. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon and Winter Steelhead for Sampling Period. (Foster Dam Head of Reservoir- South Santiam).

Site	Species	# Fish Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Foster Dam Head of Reservoir- South Santiam	Chinook	0	0	0	0	0	0	0	0
	Winter Steelhead	14	7	0	3	0	0	0	0

Collected DNA and Scale Samples

For the reporting period, DNA were collected from 10 Winter Steelhead and 0 Spring Chinook. Scale samples were collected from 9 Winter Steelhead. All other target fish were too small to sample (less than 45 mm fork length for DNA and less than 50 mm fork length for scales).

Non-Target Species

A total of 1 non-target species fish were captured during the reporting period; the data is summarized below in Table 14.

Table 14. Summary of Non-target Species (Foster Dam Head of Reservoir).

Species	PWR Capture	PWR Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0
Brook Lamprey	0	0	0	0
Bullhead	0	0	0	0
Crappie	0	0	0	0
Longnose Dace	1	0	1	0
Kokanee	0	0	0	0
Red-Sided Shiner	0	0	0	0
Sculpin	0	0	0	0
Spotted Bass	0	0	0	0
Sucker	0	0	3	0
Whitefish	0	0	0	0
Cutthroat	0	0	28	0
<i>O. mykiss</i>	0	0	0	0
Pumpkinseed	0	0	0	0
Unknown	0	0	0	0
Totals	1	0	32	0

Stream Statistics

Basic stream statistics at the Foster Dam Head of Reservoir- South Santiam site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14185000. Discharge (cfs) and

Gage height (feet) are available at this gage. During the reporting period, daily maximum values for instantaneous discharge ranged from 481.00 cfs to 1,950.00 cfs (mean: 934.73 cfs). Figure 23 shows instantaneous discharge.

Stream temperatures were recorded every 2 hours for the length of the report period for the 5 foot RST (Figure 24). Temperature probes operated normally throughout this reporting period. The temperature spike in the data is likely due to a reading from the probe while being out of the water while adjustments to its connection to the trap was being made.

Catch per unit of effort (CPUE) data are summarized in Table 15. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 15. Summary of salmonid CPUE, Foster Dam Head of Reservoir- South Santiam.

	Chinook	Winter Steelhead
Description	(5 ft)	
Catch	3	14
Effort (hrs)	360.3	360.3
CPUE (fish/hr)	0.008	0.039

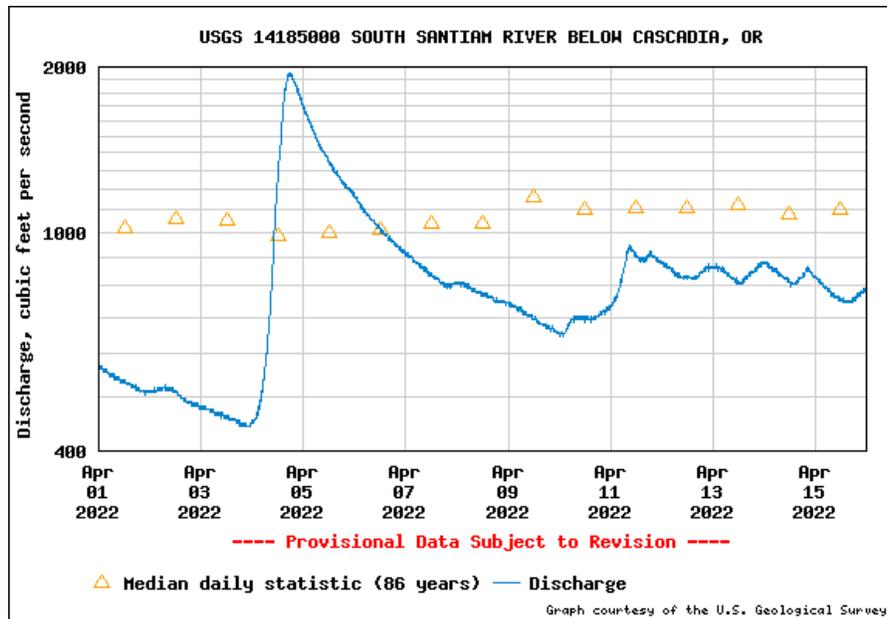


Figure 23. Discharge (cfs); Foster Dam Head of Reservoir – S. Santiam)

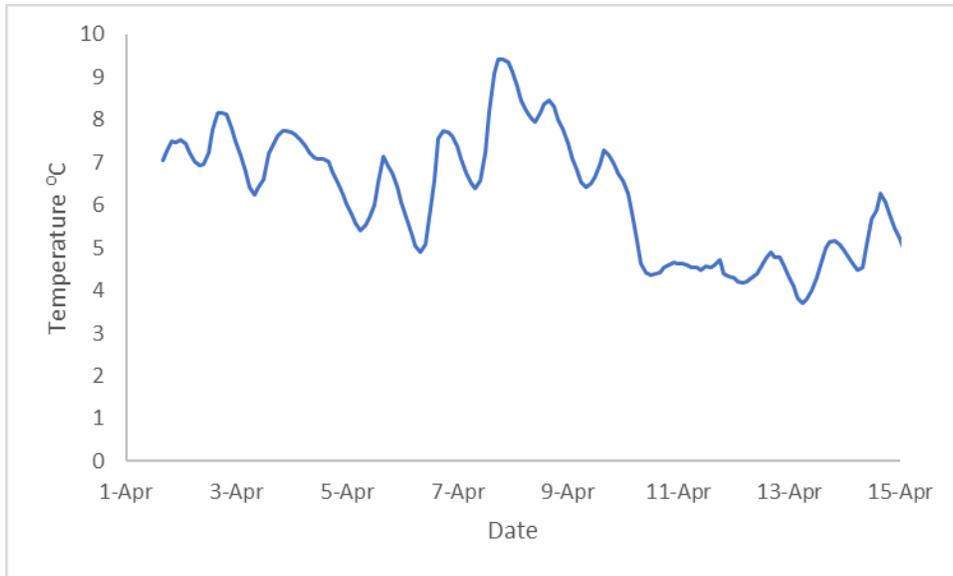
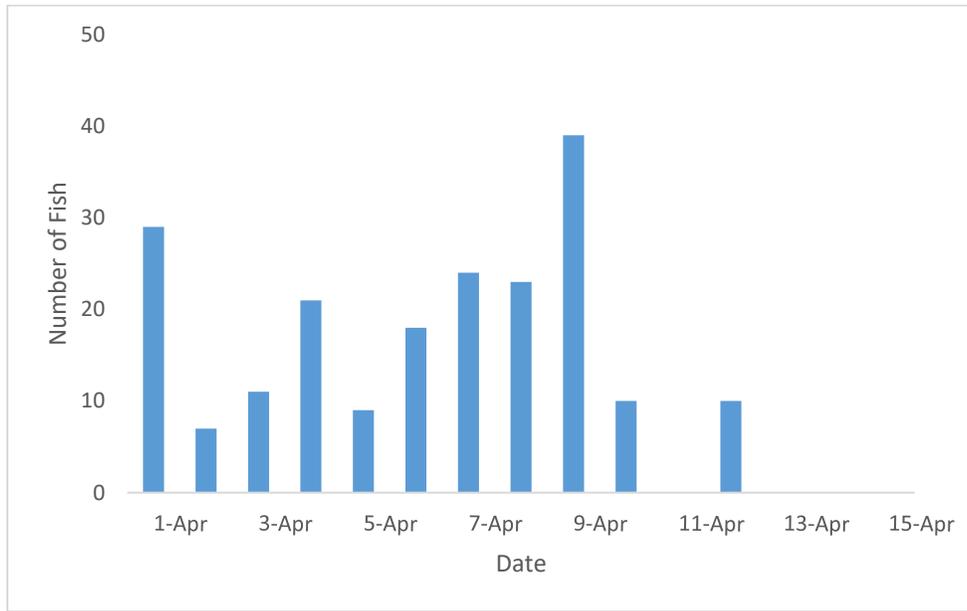


Figure 24. Temperature at RST (Foster Dam Head of Reservoir – S. Santiam)

South Fork McKenzie – Cougar Dam

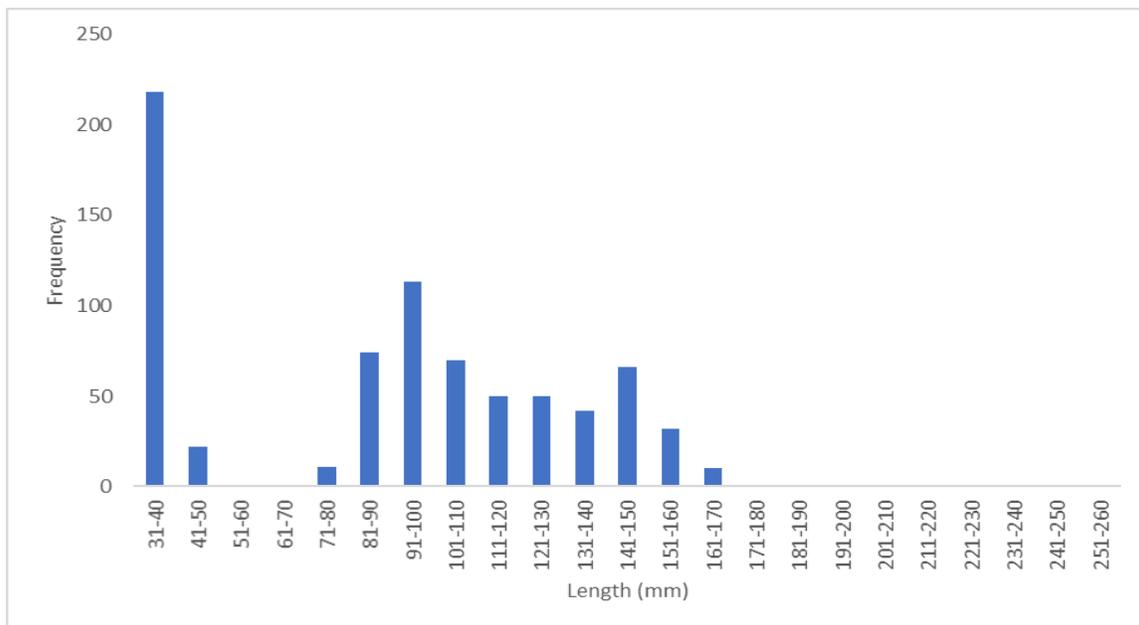
Target Species

This reporting period began on April 1 and ended on April 15. There was a total of 201 Chinook Salmon (CHS) captured during the 15-day sampling period (Figure 25). Sampling duration was 100% for both RO RST and Powerhouse RST. Table 16 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Cougar Dam site to-date and for the reporting period. Figure 25 shows the daily capture numbers for chinook and Figure 26 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 25. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Cougar Dam)



*Figure does not include fish without heads or fish used for trapping efficiency trials.

Figure 26. Length Frequency of Juvenile Chinook Sampled Season To-Date (Cougar Dam)

Trapping Efficiency

A total of 815 juvenile hatchery Chinook (parr) were bismark brown dyed, adipose clipped, left and right ventrally clipped and released on 01/19/2022 below Cougar Dam. 405 dyed, adipose, and left ventrally

clipped fish were released below the PWR and 410 dyed, adipose, and right ventrally clipped fish were released below the RO to evaluate the efficiency of the screw trap at those locations. A total of 37 fish were recaptured in the 8ft PH traps and 25 in the 5ft RO trap on 01/20/2022, with 3 more fish captured in the PH traps and 1 more fish in the RO trap on 01/21/2022 for a total of 40 recaptures in the PH traps and 26 in the RO trap. 2 additional RO released fish were recaptured this period in the RO trap on 04/10/2022 and 04/12/2022. Route-specific trapping efficiency was 9.88% at the PH traps and 6.83% at the RO.

Of the 68 fish recaptured, 2 were dead and an additional 52 were injured. Injuries were primarily descaling (25) and fin damage (46). Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery.

Cougar Dam	Release #	Recapture #	Capture Efficiency
PH Route	405	40	9.88% (40/405)
RO Route	410	28	6.83% (28/410)

Table 16. Descriptive Statistics of Target Species Captured at the Cougar Dam Season To-Date

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam	RO	CHS	Fry	10	34	44	38.0	N/A	N/A	N/A
		CHS	Parr	101	72	152	102.1	4.2	34.1	11.9
		CHS	Smolt	122	92	230	137.9	8.8	86.1	28.3
Cougar Dam	PWR	CHS	Fry	230	27	47	36.3	N/A	N/A	N/A
		CHS	Parr	214	74	165	100.5	4.1	41.0	10.8
		CHS	Smolt	86	76	167	134.6	4.2	44.3	25.3

April 01-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam	RO	CHS	Fry	6	36	44	39.2	N/A	N/A	N/A
		CHS	Parr	7	86	149	113.3	7.0	31	18.1
		CHS	Smolt	28	116	169	141.7	16.7	48.4	30.5
Cougar Dam	PWR	CHS	Fry	142	22	47	36.1	N/A	N/A	N/A
		CHS	Parr	7	85	165	107.9	7.4	41.0	16.4
		CHS	Smolt	11	106	154	133.5	12.9	37.0	26.6

*Fish that were missing heads are not included in length and weight calculations.

24-Hour Post Collection Holding Trial

A total of 93 Chinook captured in the RSTs, 60 fish from the PWR RST and 33 from the RO RST, were held for ~24 hours in holding tanks and then evaluated for survival rates. In total, 92 of the fish (98.9%) held during this period were released alive. 0 of the 60 PWR RST captured fish died during holding and 1 of the 33 RO RST captured fish (3.0%) died during holding.

Injuries and Copepod Infection

Partial descaling <20% was observed on 19 of 41 Chinook collected at the RO RST (46.3%), and descaling >20% was observed on 9 of 41 Chinook collected at the RO RST (22.0%). Of the 41 Chinook captured in the RO RST 18 displayed body injuries (43.9%) and 3 had eye injuries (7.3%). 1 RO RST Chinook displayed Gas Bubble Disease (level 1) (2.4%). 24 of the RO RST Chinook had copepods present in the branchial cavity (58.5%) and 14 had copepods present on fins (34.1%). Partial descaling <20% was observed on 12 of the 159 Chinook collected at the PWR RST (7.5%). Partial descaling >20% was observed on 9 of the 159 Chinook collected at the PWR RST (5.7%). 18 PWR RST fish had bodily injury (11.3%) and 2 had eye injuries (1.3%). 7 fish had copepods present in the branchial cavity (4.4%) and 2 had copepods present on fins (1.3%). There were 3 chinook mortalities collected in the RO RST (7.3%) and 7 in the PWR RST (4.4%). Data is summarized below in Table 17. A summary of injuries observed during the reporting period, and for the duration of the season are provided in Appendix A.

Table 17. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Cougar Dam).

Site	Route	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Cougar	RO	41	19	9	18	3	24	14	3
Cougar	PWR	159	12	5	14	2	7	2	10

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Non-Target Species

A total of 36 non-target species fish were captured during the reporting period; the data is summarized below in Table 18.

Table 18. Summary of Non-target Species (Cougar Dam).

Species	RO Capture	RO Mortality	PWR Capture	PWR Mortality	Season Total Capture	Season Total Mortality
Bluegill	0	0	0	0	0	0
Lamprey	0	0	0	0	1	0
Bullhead	0	0	0	0	0	0
Crappie	0	0	0	0	0	0
Longnose Dace	0	0	2	0	2	0
Kokanee	0	0	0	0	0	0
Red-Sided Shiner	0	0	0	0	0	0
Sculpin	0	0	9	0	21	0
Spotted Bass	0	0	0	0	0	0

Sucker	0	0	0	0	0	0
Whitefish	0	0	0	0	1	0
Cutthroat	0	0	3	0	27	1
<i>O. mykiss</i>	3	0	16	0	77	1
Bull Trout	0	0	0	0	1	0
Unknown	0	0	3	0	21	1
Totals	3	0	33	0	151	3

Stream Statistics

Basic stream statistics at the Cougar Dam site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14159410. Gage height (feet) is the only metric provided at this gage. During the reporting period, daily maximum values for instantaneous gage height ranged from 1,253.92 feet to 1,254.11 feet (mean: 1,254.01 feet). Figure 27 shows instantaneous gage height.

Stream temperatures were recorded every 2 hours for the length of the report period for the RO and PWR RST's (Figure 28 and 29 respectively). Temperature probes for the RO and PWR RST operated normally throughout this reporting period.

Flows through the Powerhouse and RO during the reporting period averaged 698.9 and 300.0 cubic feet per second (cfs) respectively (Figure 30). Catch per unit of effort (CPUE) data are summarized in Table 19. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 19. Summary of salmonid CPUE, Cougar Dam.

Description	Chinook	
	RO (5ft)	PWR(8ft)
Catch	41	113
Effort (hrs)	360.6	721.1
CPUE (fish/hr)	0.114	0.157

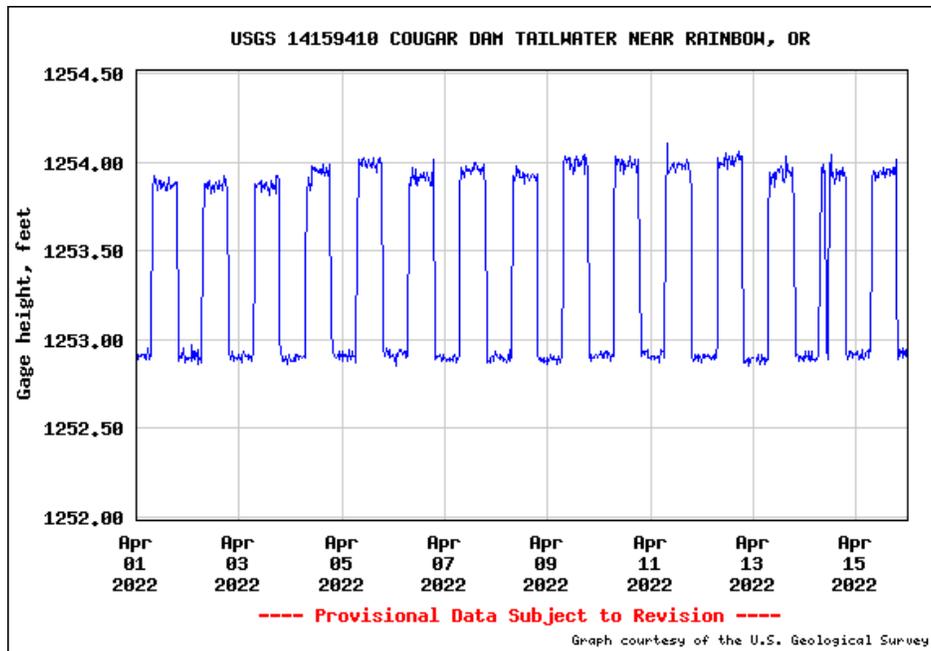


Figure 27. Gage Height (feet); below Cougar Dam, South Fork McKenzie River

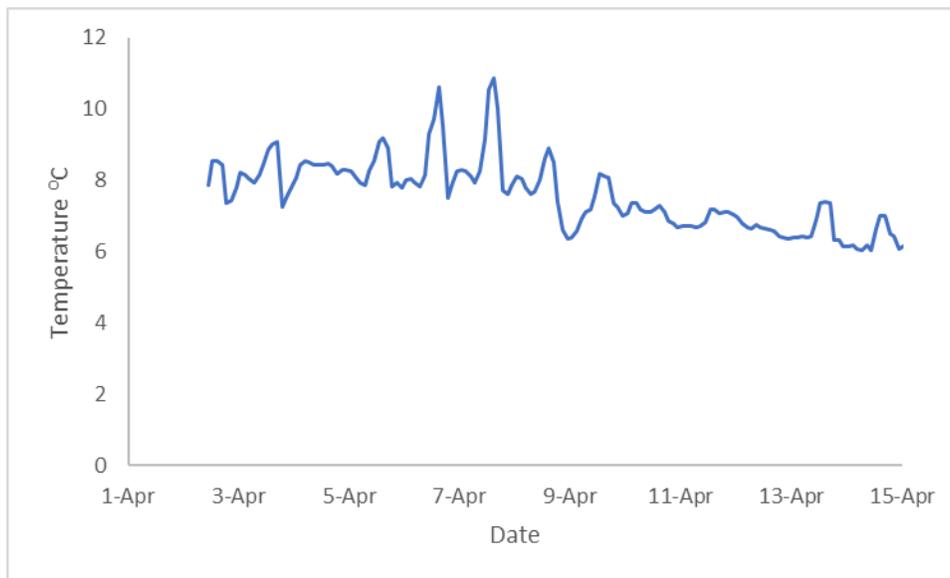


Figure 28. Temperature at RO RST (Cougar Dam)

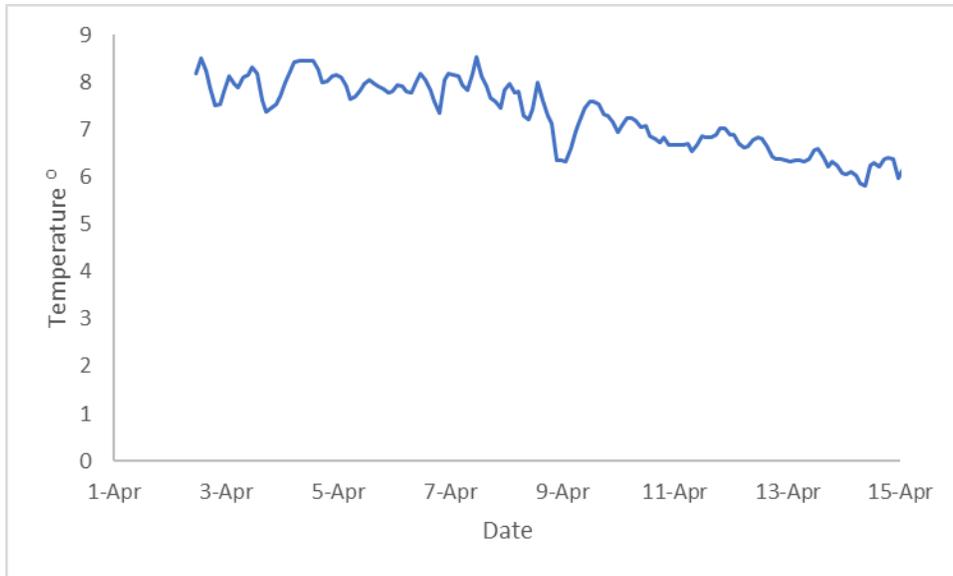


Figure 29. Temperature at PWR RST (Cougar Dam)

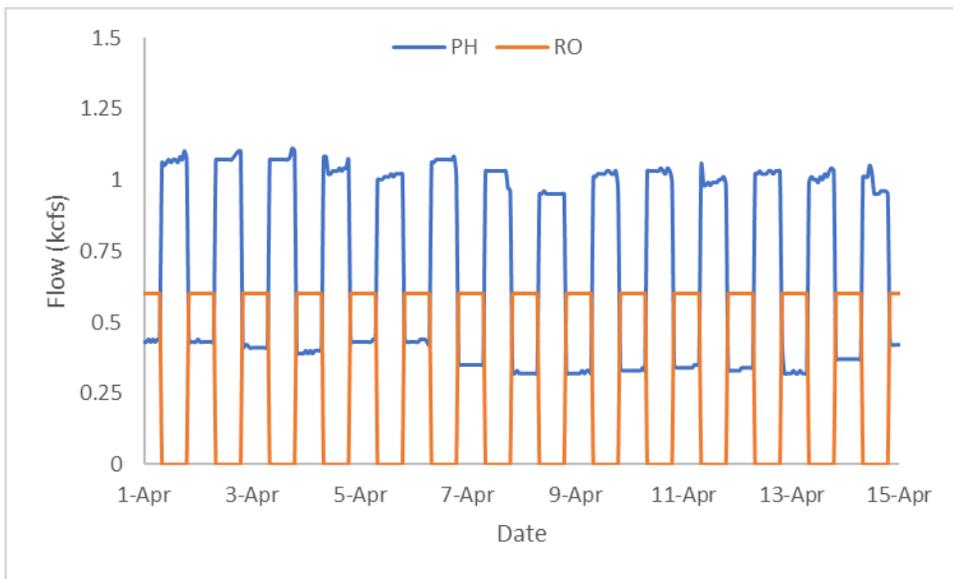


Figure 30. Hourly Flows PWR vs. RO (Cougar Dam)

South Fork of the McKenzie–Cougar Dam Head of Reservoir

Target Species

The reporting period began April 1 and ended April 15. 110 Chinook salmon were captured during the 15-day sampling period (Figure 31). The cone was raised into the non-sampling position on April 8th due to access concerns. A snowstorm restricted access to the site from April 9th through the end of the reporting period (April 15th). Access road conditions were checked daily by RST crews during the sampling period.

The trap was operated 53% of the reporting period. Table 20 provides life stage, length, and weight data for all Chinook salmon that have been caught at the site to-date and Figure 32 shows length frequency data to-date.

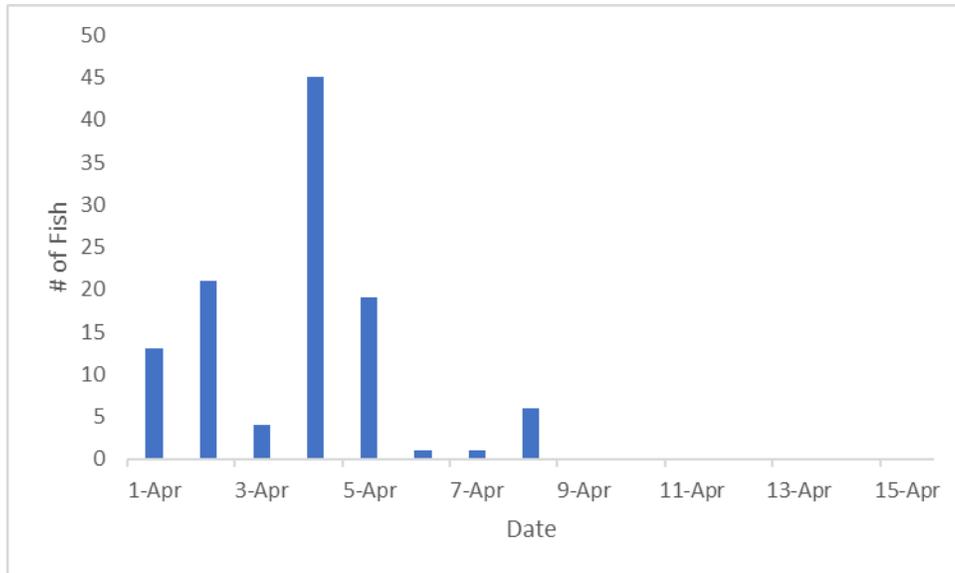


Figure 31. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Cougar Dam Head of Reservoir)

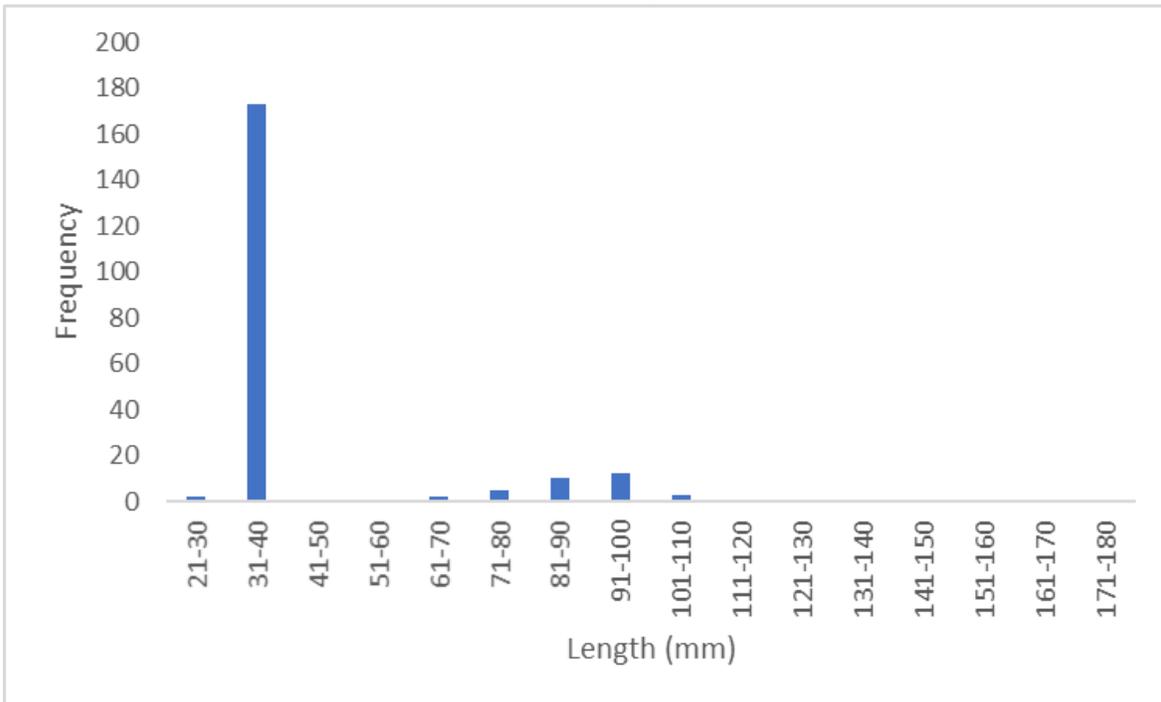


Figure 32. Length Frequency of Juvenile Chinook Sampled Season To-Date (Cougar Dam Head of Reservoir)

Table 20. Descriptive Statistics of Target Species Captured at Cougar Dam Head of Reservoir, Season To-Date and for the Reporting Period

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam Head of Reservoir	5 ft	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	35	58	150	90.6	2.3	11.2	7.5
		CHS	Fry	176	28	41	35.6	N/A	N/A	N/A

April 01-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam Head of Reservoir	5 ft	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	4	64	98	85.3	3.2	10.1	6.9
		CHS	Fry	106	28	40	35.7	N/A	N/A	N/A

*Most fry are too small to collect accurate weights and thus some metrics are not available for them.

Trapping Efficiency

A total of 806 juvenile hatchery Chinook (smolt) were adipose clipped, left or right ventrally clipped and released on 03/18/2022 upstream of the Cougar Head of Reservoir trap site. A total of 41 fish were recaptured in the 5 ft trap between March 19th and March 25th. Trapping efficiency was 5.1%.

Of the 41 fish recaptured, 26 showed minor descaling and 32 had fin damage. Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery, only noting descaling and fin damage which is common in hatchery raised fish.

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	806	41	5.1% (41/806)

Injuries and Copepod Infection

110 Chinook were captured for the reporting period. Of the fish captured, partial descaling <20% was observed on 2 fish (1.8%), 0 had copepods (0%), and 4 had bodily injury (3.6%). Injury data for the reporting period is summarized in Table 21. To date injury data can be found in Appendix A.

Table 21. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Cougar Dam Head of Reservoir)

Site	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Above Cougar	110	2	0	4	0	0	0	1

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Collected DNA and Scale Samples

Scales and DNA were collected from 3 of the 110 Chinook captured (2.7%). The rest of the captured fish were under the minimum fork length threshold and samples were not collected (less than 45 mm fork length for DNA and less than 50 mm fork length for scales).

Non-Target Species

A total of 58 non-target fish were captured at the Cougar Dam Head of Reservoir RST during the reporting period; the data is summarized below in Table 22.

Table 22. Summary of Non-target Species (Cougar Dam Head of Reservoir)

Species	5ft Capture	5ft Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0
Lamprey	0	0	0	0
Bullhead	0	0	0	0
Bull Trout	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	17	0	37	1
Longnose Dace	1	0	2	0
Speckled Dace	1	0	1	0
Red-Sided Shiner	0	0	0	0
Sculpin	0	0	1	0
Spotted Bass	0	0	0	0
Sucker	0	0	0	0
Whitefish	0	0	0	0
<i>O. mykiss</i>	38	0	99	0
Unknown	1	0	1	0
Totals	58	0	141	1

Stream Statistics

Basic stream statistics at the site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14159200. During the reporting period, daily maximum values for instantaneous discharge ranged from 623 cfs to 1,140 cfs (mean: 792.67 cfs). Figure 33 shows instantaneous discharge.

Stream temperature was recorded every two hours with a temperature probe at the trap. The temperature probe operated normally during this period. Due to the restricted access above Cougar Dam from heavy snow, data from the temperature probe was not downloaded (Figure 34).

Catch per unit of effort (CPUE) data are summarized in Table 23. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 23. Summary of Chinook CPUE, Cougar Dam Head of Reservoir

	Chinook
Description	5 ft
Catch	110
Effort (hrs)	190.5
CPUE (fish/hr)	0.577

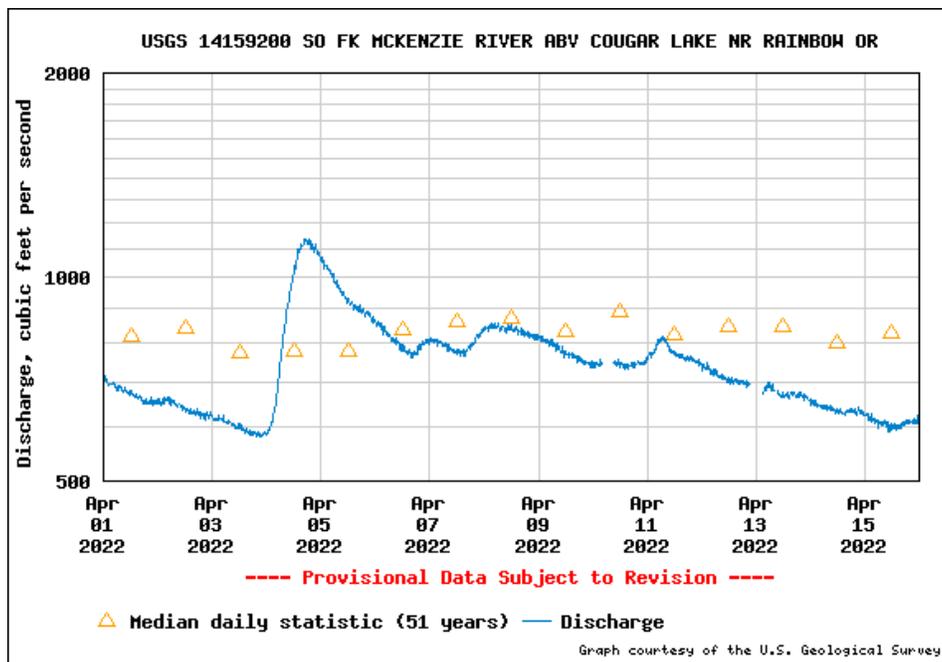


Figure 33. Gage Height (feet); South Fork McKenzie above Cougar Dam

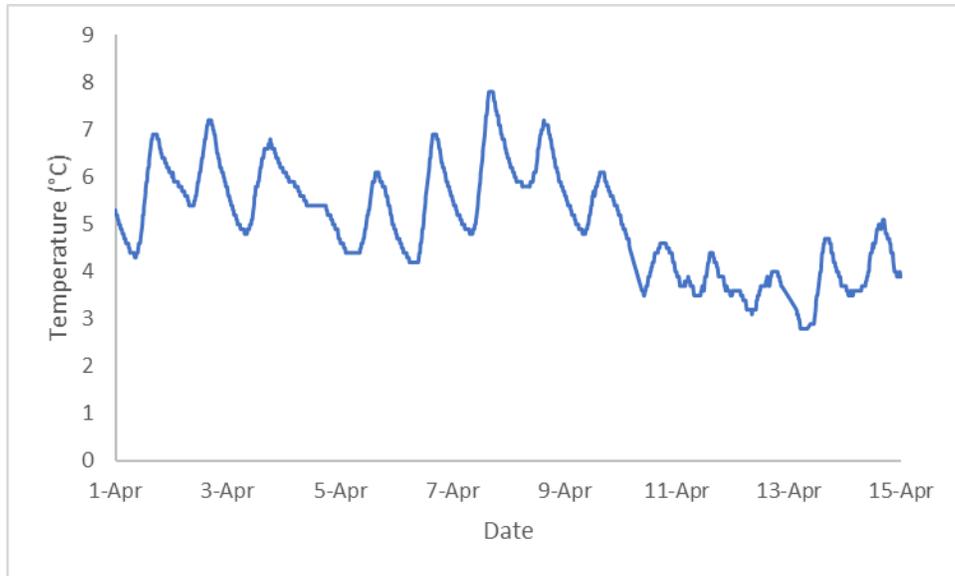


Figure 34. Temperature at RST (Cougar Dam Head of Reservoir)

Middle Fork Willamette – Fall Creek Dam Tailrace

Target Species

The reporting period began April 1 and ended April 15. No Chinook salmon were captured during the 15-day sampling period (Figure 35). The trap was operated 100% of the reporting period. Table 24 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Fall Creek Dam Tailrace site to-date and Figure 36 shows length frequency data to-date.

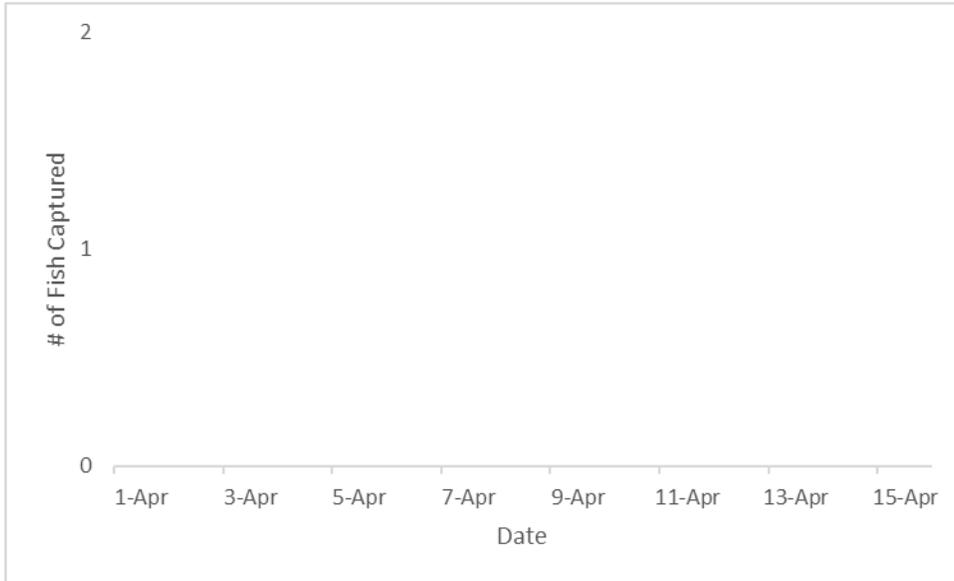


Figure 35. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Fall Creek Dam Tailrace)

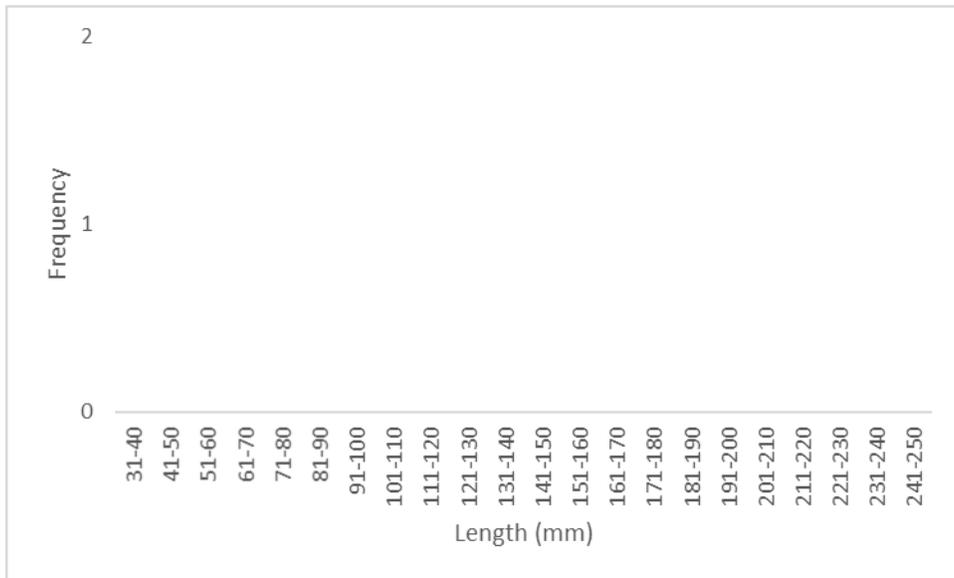


Figure 36. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Dam Tailrace)

Table 24. Descriptive Statistics of Target Species Captured at Fall Creek Dam Tailrace, Season To-Date and for the Reporting Period

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Fall Creek Dam	RO	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0

April 01-15,2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Fall Creek Dam	RO	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0

Injuries and Copepod Infection

No Chinook were captured during this reporting period. The data is summarized in Table 25. To date injury data is listed in Appendix A.

Table 25. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Fall Creek)

Site	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Fall Creek Dam	0	0	0	0	0	0	0	0

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Trapping Efficiency

Trapping efficiency trials have not been conducted at the Fall Creek Dam Tailrace site to date.

Non-Target Species

A total of 73 non-target fish were captured at the Fall Creek Dam Tailrace site during the reporting period; the data is summarized below in Table 26.

Table 26. Summary of Non-target Species (Fall Creek Dam Tailrace)

Species	8ft Capture	8ft Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0
Lamprey	0	0	0	0
Bullhead	0	0	0	0
Bull Trout	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	3	0	4	0
Dace	64	0	83	0
Red-Sided Shiner	0	0	3	0
Sculpin	0	0	0	0
Spotted Bass	0	0	0	0
Sucker	3	0	3	0
Whitefish	0	0	0	0
<i>O. mykiss</i>	3	0	4	0
Totals	73	0	97	0

Stream Statistics

Basic stream statistics at the site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14151000. During the reporting period, daily maximum values for instantaneous discharge ranged from 284 cfs to 1,190 cfs (mean: 696.87 cfs). Figure 37 shows instantaneous discharge.

Stream temperatures were recorded using temperature probes for the Fall Creek Dam Tailrace RST site during this reporting period. The temperature probe operated normally during this period (Figure 38).

Flows In and Out of reservoir during the reporting period averaged 615.5 cfs and 582.6 cfs respectively (Figure 39).

Catch per unit of effort (CPUE) data are summarized in Table 27. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B

Table 27. Summary of Chinook CPUE, Fall Creek Dam Tailrace

Description	Chinook
	(8 ft)
Catch	0
Effort (hrs)	363.0
CPUE (fish/hr)	0

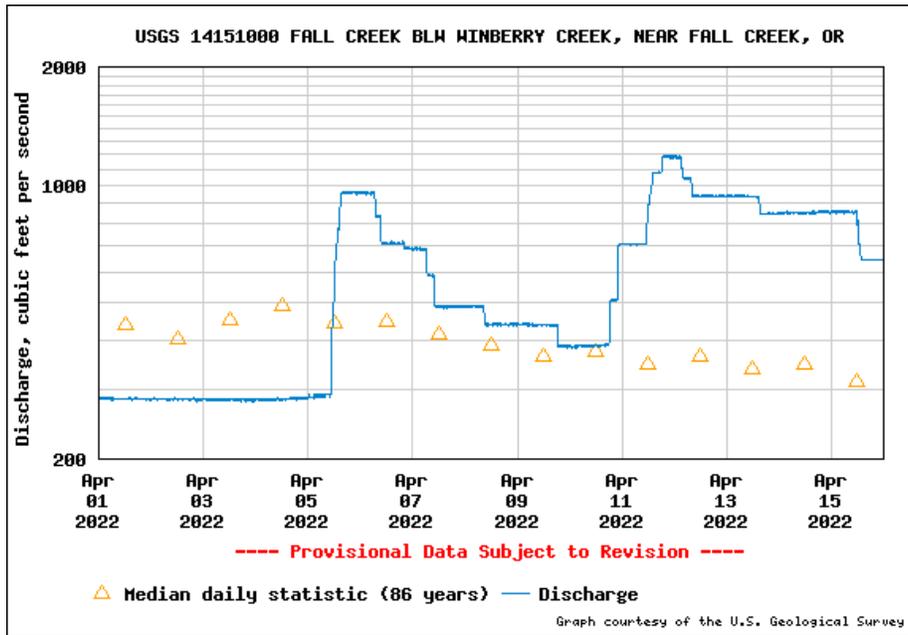


Figure 37. Discharge (cfs); Fall Creek Below Winberry Creek, Near Fall Creek, OR

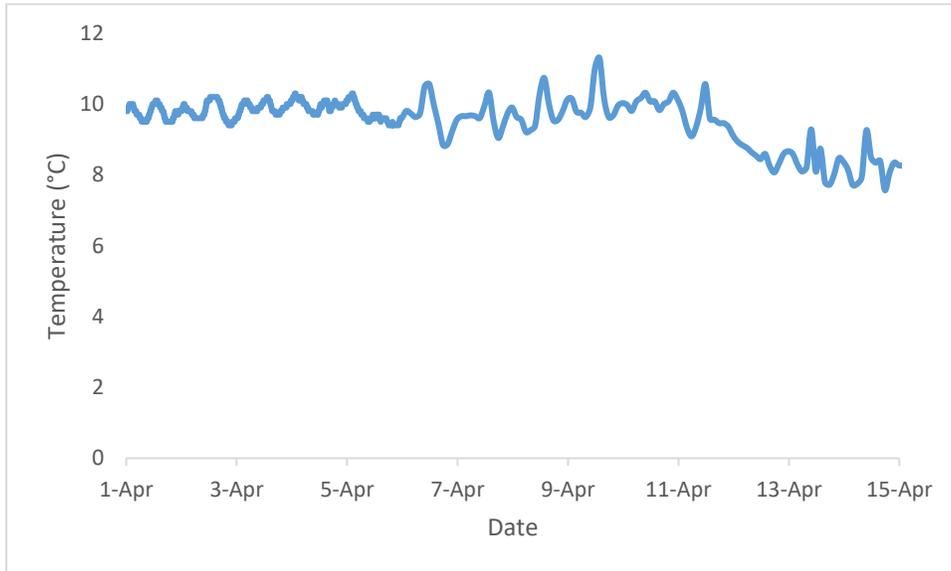


Figure 38. Temperature at RST (Fall Creek Dam Tailrace)

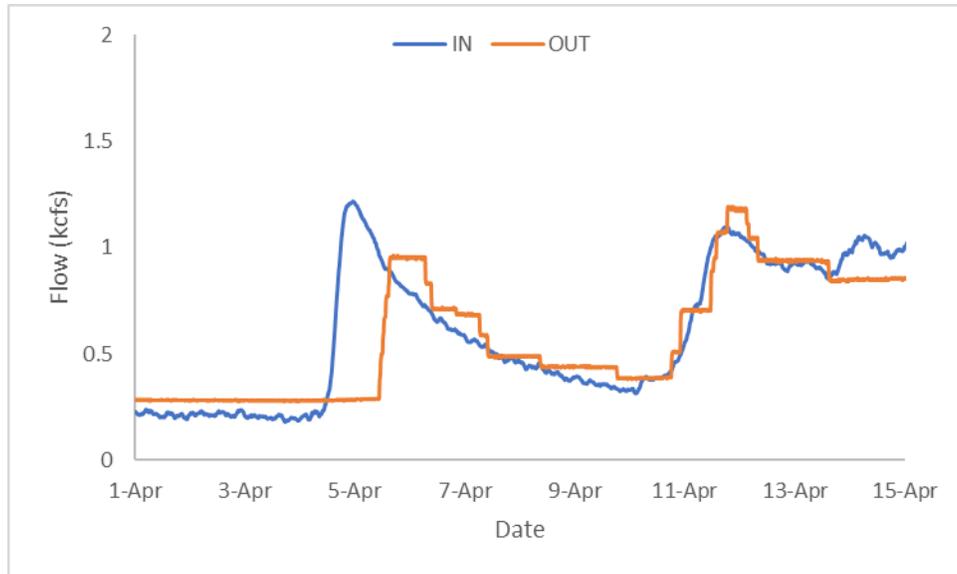


Figure 39. Hourly Flows PWR vs. RO (Fall Creek Tailrace)

Middle Fork Willamette – Fall Creek Head of Reservoir

Target Species

The reporting period began April 1 and ended April 15. 0 Chinook salmon was captured during the 15-day sampling period (Figure 40). The trap was operated 100% of the reporting period. Table 28 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Fall Creek Head of Reservoir site to-date and Figure 41 shows length frequency data to-date.

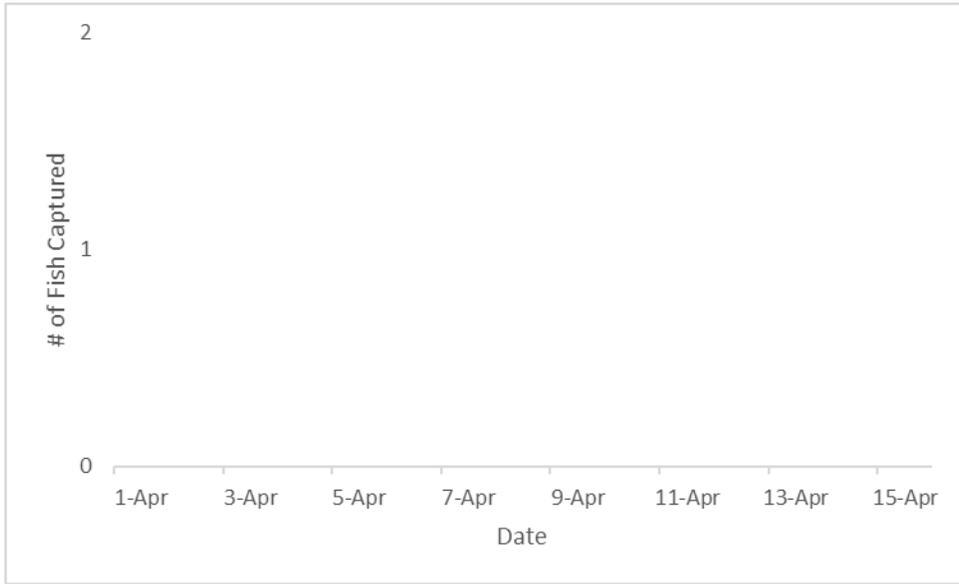


Figure 40. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Fall Creek Head of Reservoir)

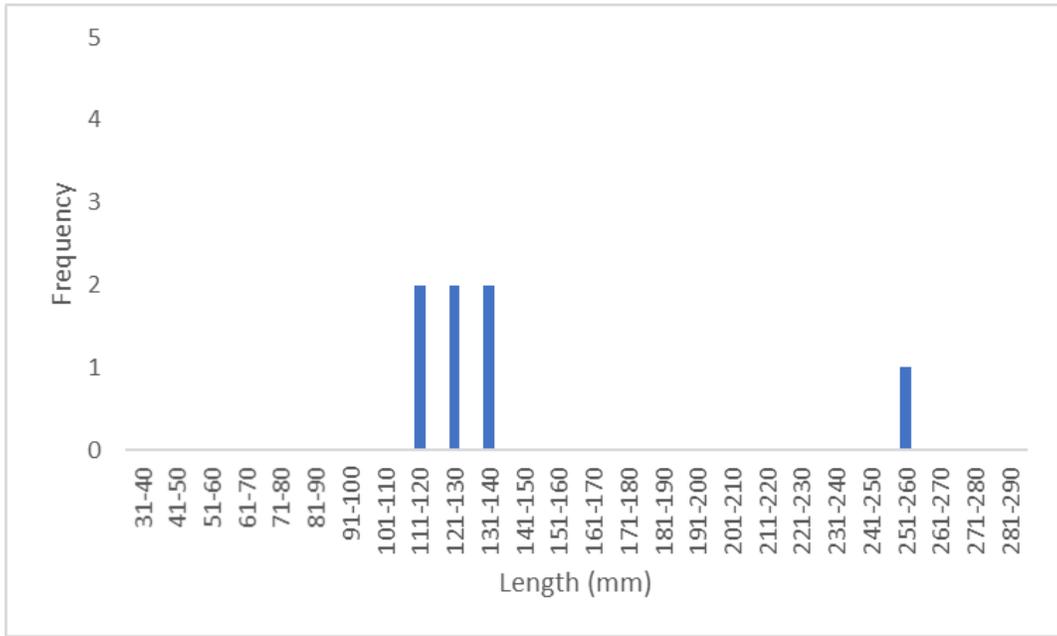


Figure 41. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Head of Reservoir)

Table 28. Descriptive Statistics of Target Species Captured at Fall Creek Head of Reservoir, Season To-Date and for the Reporting Period

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Fall Creek Head of Reservoir	8 ft	CHS	Smolt	5	127	255	157.2	21.5	108.5	214.3
		CHS	Parr	2	119	120	119.5	16.1	19.8	18.0

April 01-15,2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Fall Creek Head of Reservoir	8 ft	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0

Injuries and Copepod Infection

No Chinook were captured during this reporting period.

Table 29. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Fall Creek Head of Reservoir)

Site	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Fall Creek Head of Reservoir	0	0	0	0	0	0	0	0

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Trapping Efficiency

0 Chinook were caudal clipped and released upstream to conduct a run of river trapping efficiency trial during this period. 7 fish have been released for efficiency testing to date. 1 fish was recaptured during a previous reporting period (released March 18 and recaptured March 22) for an efficiency of 14.3%.

Collected DNA and Scale Samples

No Chinook were captured during this reporting period.

Non-Target Species

A total of 265 non-target fish were captured at the Fall Creek Head of Reservoir site during the reporting period; the data is summarized below in Table 30.

Table 30. Summary of Non-target Species (Fall Creek Head of Reservoir)

Species	8ft Capture	8ft Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0
Lamprey	67	2	179	2
Bullhead	0	0	0	0
Bull Trout	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	12	0	69	0
Longnose Dace	1	0	15	0
Speckled Dace	3	0	3	0
Red-Sided Shiner	0	0	1	0
Sculpin	1	1	2	1
Spotted Bass	0	0	0	0
Sucker	0	0	3	0
Whitefish	0	0	0	0
<i>O. mykiss</i>	181	1	265	1
Totals	265	4	537	4

Stream Statistics

Basic stream statistics at the Fall Creek site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14150290. During the reporting period, daily maximum values for instantaneous gage height ranged from 3.34 feet to 5.14 feet (mean: 4.24 feet). Figure 42 shows instantaneous gage height.

Stream temperatures were recorded every 2 hours for the Fall Creek RST (Figure 43). Temperature probes for the Fall Creek RST operated normally throughout this reporting period.

Catch per unit of effort (CPUE) data are summarized in Table 31. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 31. Summary of Chinook CPUE, Fall Creek Head of Reservoir

	Chinook
Description	8 ft
Catch	0
Effort (hrs)	357.4
CPUE (fish/hr)	0

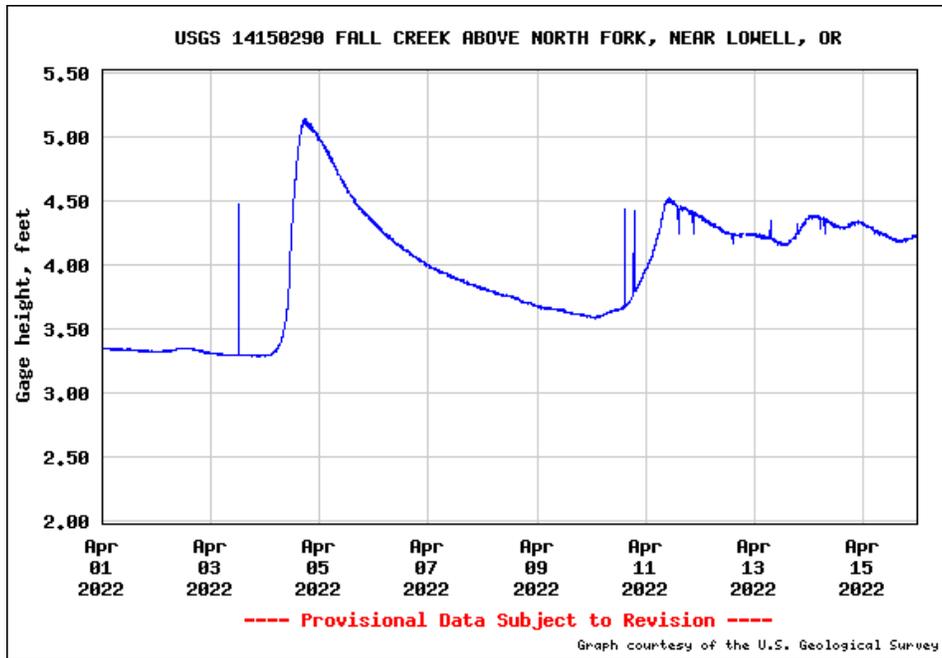


Figure 42. Gage Height (feet); Fall Creek Above North Fork, Near Lowell OR

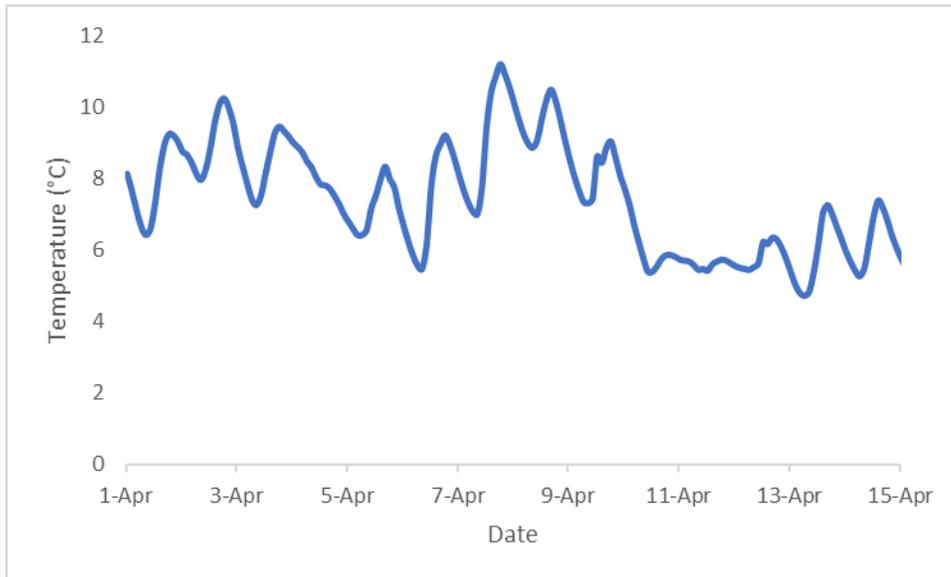
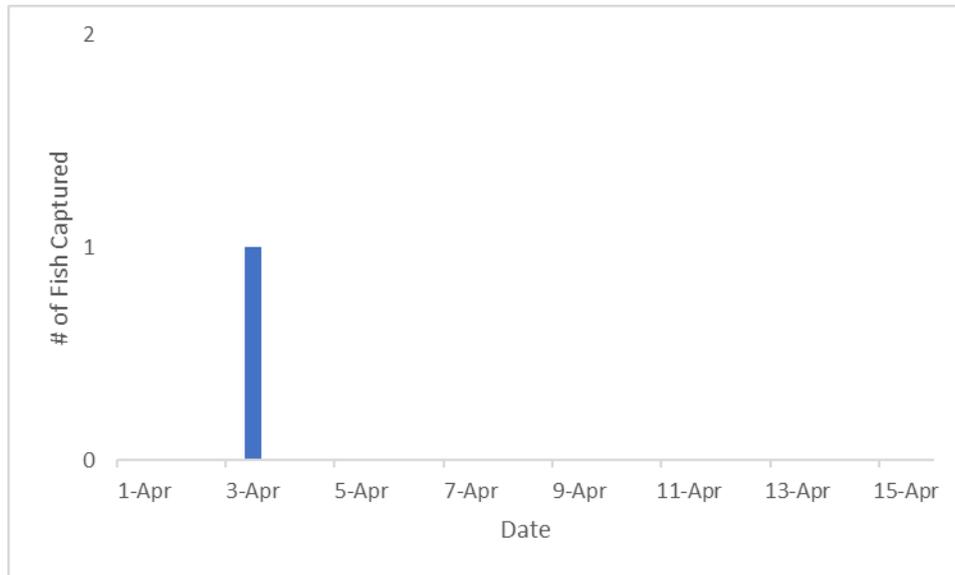


Figure 43. Temperature at RST (Fall Creek Head of Reservoir)

Middle Fork Willamette– Dexter Dam

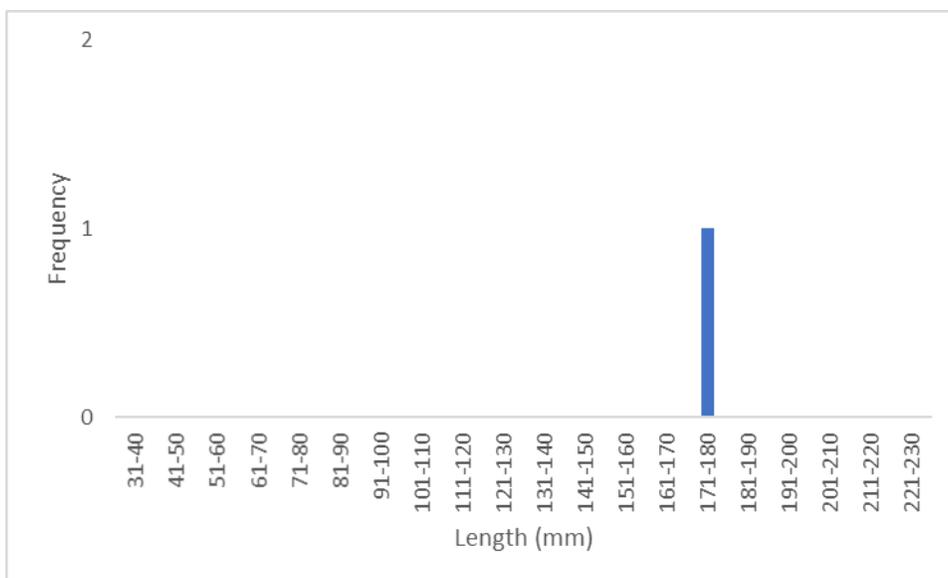
Target Species

This reporting period began on April 1 and ended on April 15. There was 1 Chinook salmon (CHS) captured during the 15-day sampling period (Figure 44). Sampling duration was 100% for the 5 ft RST. Table 32 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Dexter Dam site to-date and for the reporting period. Figure 44 shows the daily capture numbers for Chinook and Figure 45 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 44. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Dexter Dam)



*Figure does not include fish without heads or fish used for trapping efficiency trials.

Figure 45. Length Frequency of Juvenile Chinook Sampled Season To-Date (Dexter Dam)

Table 32. Descriptive Statistics of Target Species Captured at the Dexter Dam RST Season To-Date

To-Date										
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Dexter Dam	5 ft	CHS	Parr	0	0	0	0	0	0	0
		CHS	Smolt	1	179	179	179	61.4	61.4	61.4

April 01-15,2022										
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Dexter Dam	5 ft	CHS	Parr	0	0	0	0	0	0	0
		CHS	Smolt	1	179	179	179	61.4	61.4	61.4

*Fish that were missing heads are not included in length and weight calculations.

Trapping Efficiency

A total of 988 juvenile hatchery Chinook (parr) were bismark brown dyed, adipose clipped, upper caudal clipped and released on 03/23/2022 below Dexter Dam. Fish were released in small groups into different locations in the spillway flow to evaluate the traps efficiency capturing fish passing through spill. 2 fish were recaptured in the 5 foot RST for an efficiency of 0.2%.

Both fish recaptured were injured. Injuries were descaling and fin damage. Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery but did note some descaling and fin damage present as is common among hatchery fish of this age.

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spill	988	2	0.2% (2/988)
Powerhouse	N/A	N/A	N/A

24-Hour Post Collection Holding Trial

The one Chinook captured was held for 24 hours. All fish survived holding (100%) during this reporting period.

Injuries and Copepod Infection

1 Chinook was captured during this reporting period. It displayed descaling less than 20% and fin damage.

Table 33. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Dexter Dam).

Site	Route	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Dexter Dam	PWR	1	1	0	1	0	0	0	0

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Non-Target Species

A total of 52 non-target species fish were captured during the reporting period; the data is summarized below in Table 34. Dexter Fish Facility releases adipose clipped Chinook near our trapping site. Adipose clipped Chinook caught in our trap are being counted as non-target fish to provide better clarity on data concerning run of river Chinook. 2 Longnose Dace, 1 Crappie, and 1 sculpin captured during this period displayed gas bubble disease (Longnose Dace: 1 level 2, 1 level 3; Crappie: 1 level 3; Sculpin: 1 level 3).

Table 34. Summary of Non-target Species (Dexter Dam).

Species	Capture	Mortality	Season Total	Season Total Mortality
Bluegill	1	0	1	0
Brook Lamprey	0	0	0	0
Bullhead	0	0	0	0
Crappie	1	1	4	1
Longnose Dace	6	1	7	1
Speckled Dace	1	0	1	0
Kokanee	0	0	0	0
Red-Sided Shiner	0	0	0	0
Sculpin	36	1	93	3
Spotted Bass	0	0	0	0

Sucker	1	0	1	0
Whitefish	0	0	0	0
Cutthroat	0	0	0	0
<i>O. mykiss</i>	5	0	5	0
Chinook (AD Clipped)	1	0	5	0
Totals	52	3	117	5

Stream Statistics

Basic stream statistics at the Dexter Dam site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14149510. Gage height (feet) is the only metric provided at this gage. During the reporting period, daily maximum values for instantaneous gage height ranged from 637.02 feet to 637.06 feet (mean: 637.04 feet). Figure 46 shows instantaneous gage height.

Stream temperatures were recorded every two hours using a temperature probe at the Dexter Dam RST site during this reporting period. Temperature probes operated normally, and the data is shown below in figure 47.

Flows through the Powerhouse and RO during the reporting period averaged 0 and 1,182.3 cubic feet per second (cfs) respectively (Figure 48). Catch per unit of effort (CPUE) data are summarized in Table 35. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 35. Summary of salmonid CPUE, Dexter Dam.

	Chinook
Description	8 ft
Catch	1
Effort (hrs)	356.7
CPUE (fish/hr)	0.003

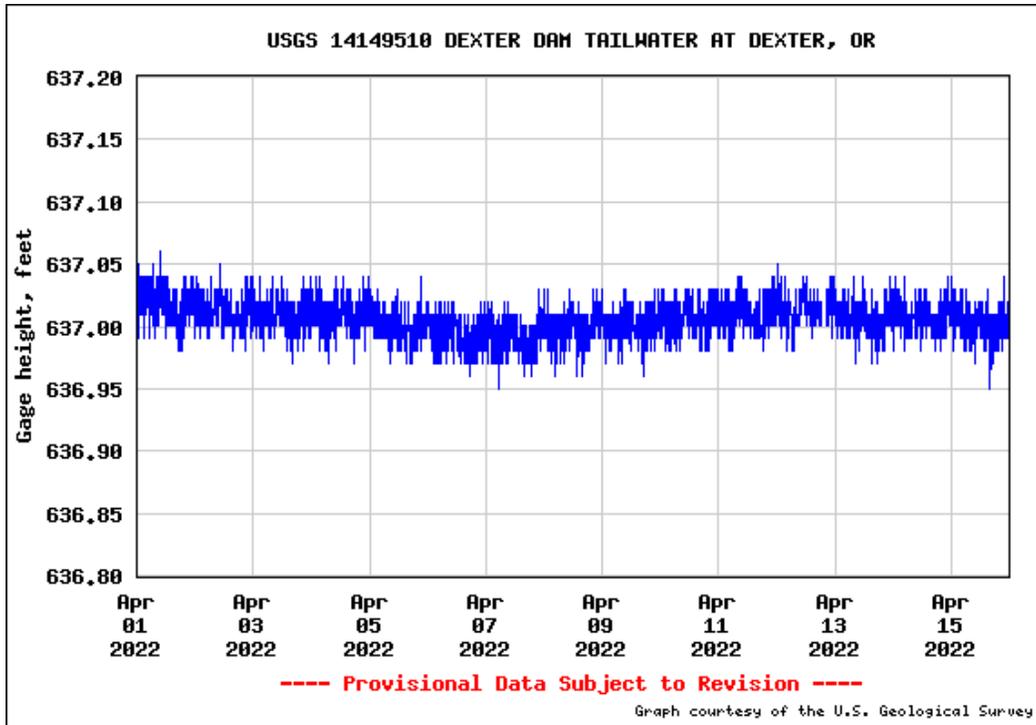


Figure 46. Gage Height (feet); below Dexter Dam, Middle Fork Willamette

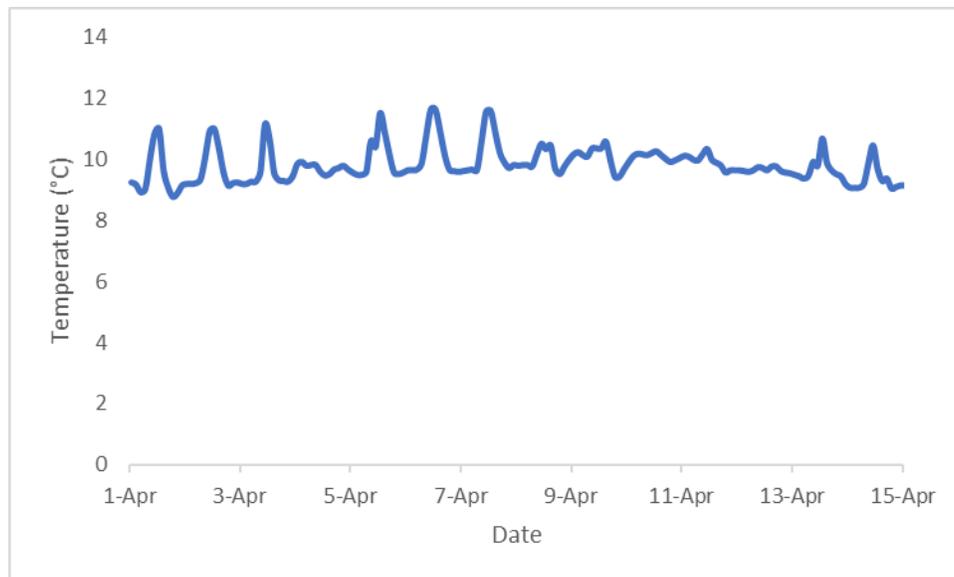


Figure 47. Temperature at RST (Dexter Dam)

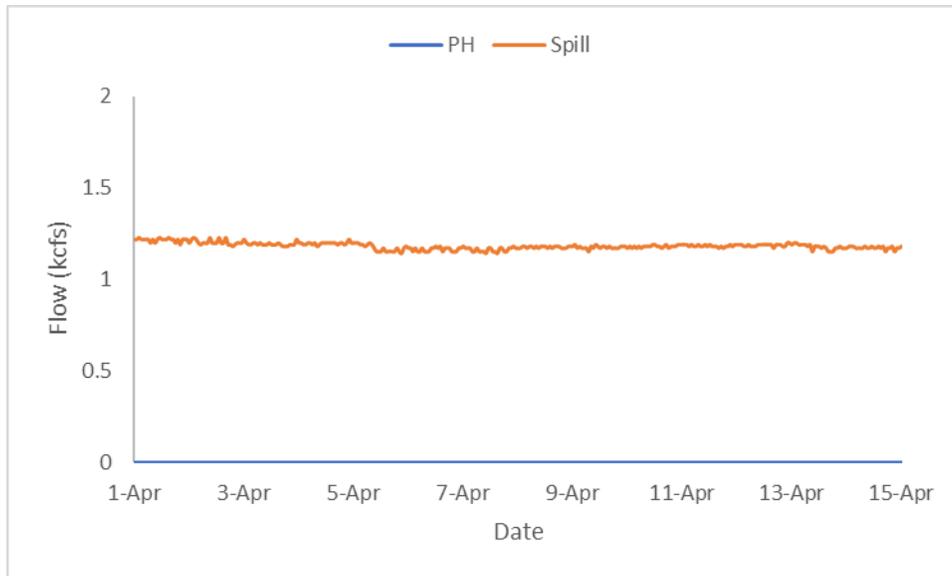


Figure 48. Hourly Flows PWR vs. RO (Dexter Dam)

Middle Fork Willamette – Lookout Dam Tailrace

Target Species

The reporting period began April 1 and ended April 15. 0 Chinook salmon were captured during the 15-day sampling period (Figure 49). The traps were operated 100% of the reporting period. Table 36 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Lookout Point Dam Tailrace site to-date and Figure 50 shows length frequency data to-date.

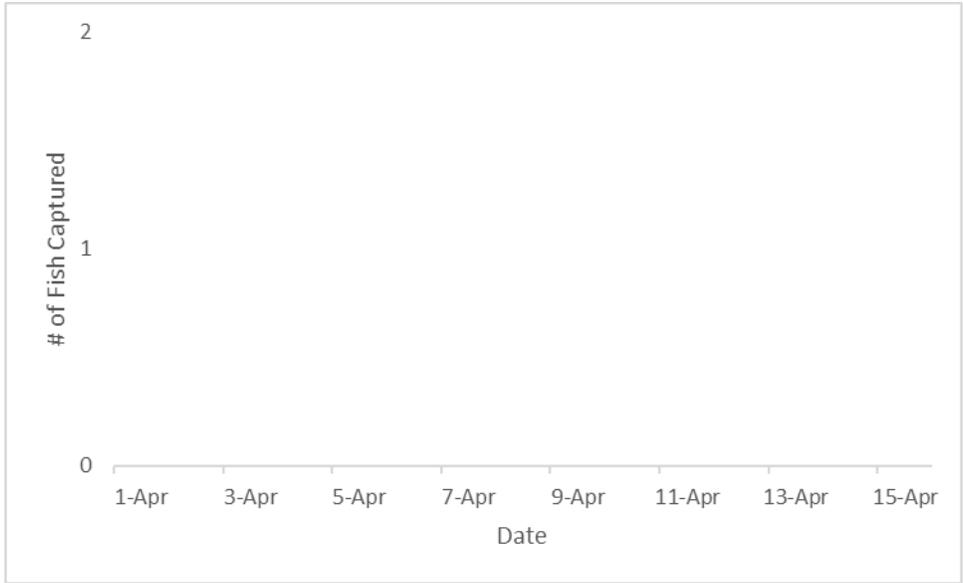


Figure 49. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Lookout Point Dam Tailrace)

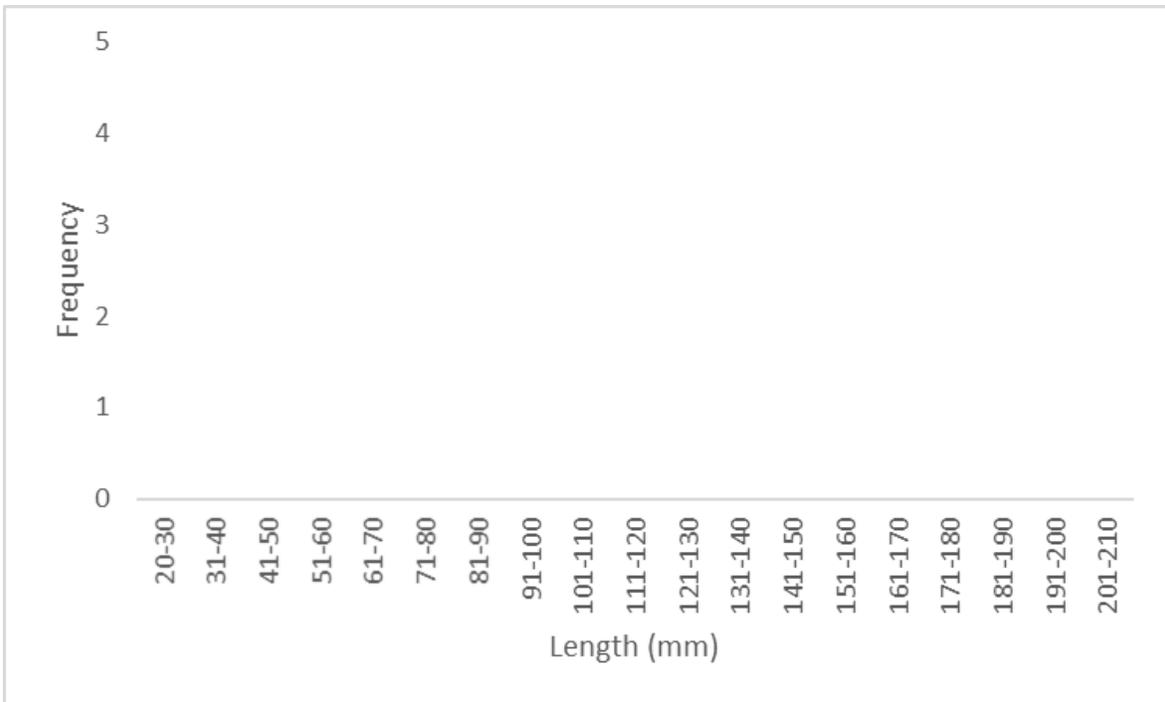


Figure 50. Length Frequency of Juvenile Chinook Sampled Season To-Date (Lookout Point Dam Tailrace)

Table 36. Descriptive Statistics of Target Species Captured at Lookout Point Dam Tailrace, Season To-Date and for the Reporting Period

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Fry	0	0	0	0	0	0	0
	PH 2	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Fry	0	0	0	0	0	0	0
	Spill	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Fry	0	0	0	0	0	0	0

April 01-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Fry	0	0	0	0	0	0	0
	PH 2	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Fry	0	0	0	0	0	0	0
	Spill	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Fry	0	0	0	0	0	0	0

*Some fry are too small to accurately weigh and are omitted from the above tables.

Trapping Efficiency

A total of 1,013 juvenile hatchery Chinook (parr) were bismark brown dyed and adipose clipped, right ventral fin clipped and released on 04/13/2022 below Lookout Point Dam. Fish were released in small groups directly into powerhouse flow at 17:00 to 19:00. 0 fish were recaptured in either of the 8 foot RSTs

for an efficiency of 0.0%. 1 Lookout Point Dam trap efficiency fish was captured downstream in the Dexter RST on 4/15/2022.

Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery but did note some descaling and fin damage present as is common among hatchery fish of this age.

Lookout Dam	Release #	Recapture #	Capture Efficiency
Powerhouse	1,013	0	0.0%

Injuries and Copepod Infection

No Chinook were captured for the reporting period.

Table 37. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period (Lookout Point Dam Tailrace).

Site	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Lookout Point Dam Tailrace	0	0	0	0	0	0	0	0

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Non-Target Species

20 non-target species were captured during the reporting period; the data is summarized below in Table 38.

Table 38. Summary of Non-target Species (Lookout Point Dam Tailrace).

Species	PWR Capture	PWR Mortality	Spill Capture	Spill Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0	1	0
Lamprey	0	0	0	0	0	0
Bullhead	1	0	0	0	1	0
Bull Trout	0	0	0	0	0	0
Crappie	0	0	0	0	1	0
Cutthroat Trout	0	0	0	0	0	0
Longnose Dace	0	0	0	0	0	0
Red-Sided Shiner	0	0	0	0	0	0
Sculpin	0	0	0	0	0	0
Smallmouth Bass	19	4	0	0	34	9

Sucker	0	0	0	0	0	0
Whitefish	0	0	0	0	0	0
<i>O. mykiss</i>	0	0	0	0	0	0
Totals	20	4	0	0	37	9

Stream Statistics

Basic stream statistics at Lookout Dam Tailrace site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14149010. Gage height (feet) is the only metric provided at this gage. During the reporting period, daily maximum values for instantaneous gage height ranged from 691.60 feet to 692.56 feet (mean: 692.1 feet). Figure 51 shows instantaneous gage height.

Stream temperatures were not recorded using temperature probes for the Lookout Dam Tailrace RST site during this reporting period. The stream gage nearby also does not record temperature. Until we receive more temperature probes, temperature taken during daily site visits will be used to formulate figure data for PWR and Spill, figures 52 and 53 respectively.

Flows through the Powerhouse and Spill during the reporting period averaged 1,081.5 and 0 cubic feet per second (cfs) respectively (Figure 54). Catch per unit of effort (CPUE) data are summarized in Table 39. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 39. Summary of Chinook CPUE at Lookout Point Dam Tailrace.

Description	Chinook		
	PH 1	PH 2	Spill
Catch	0	0	0
Effort (hrs)	361.4	361.3	360.0
CPUE (fish/hr)	0	0	0

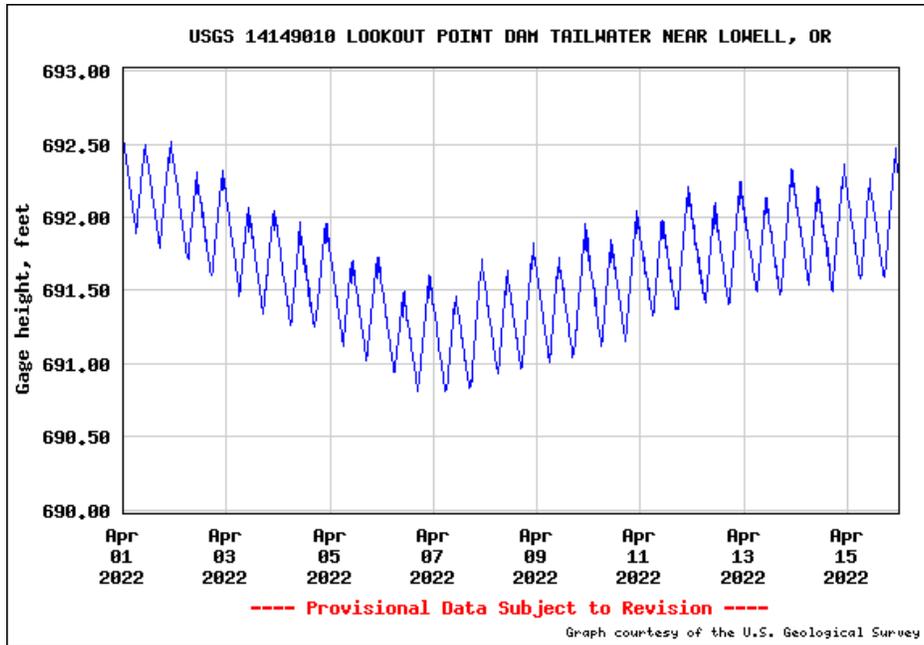


Figure 51. Gage Height (feet); below Lookout Dam

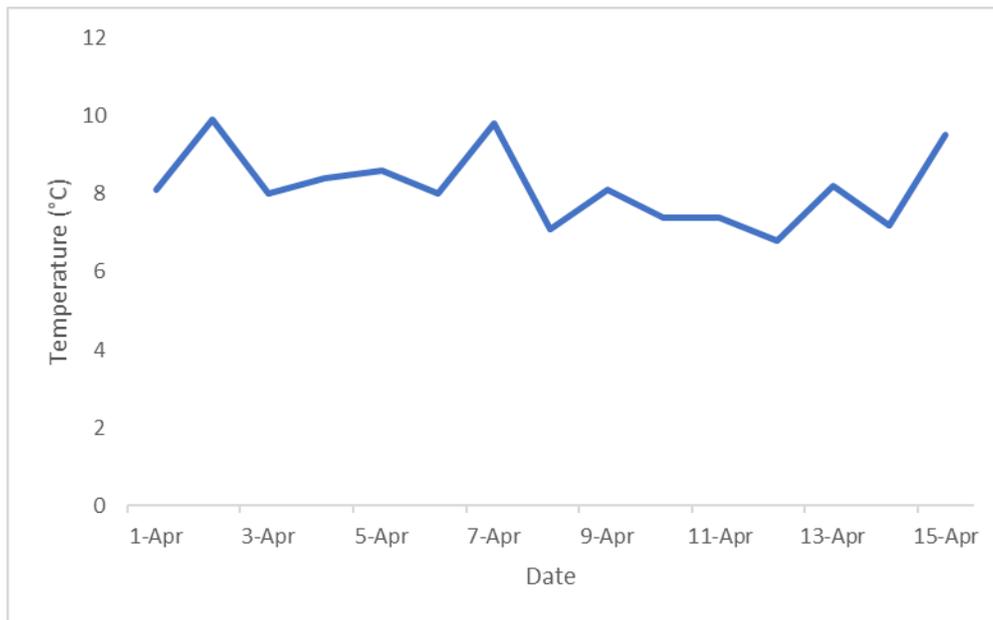


Figure 52. Temperature at RST (Lookout Dam PWR)

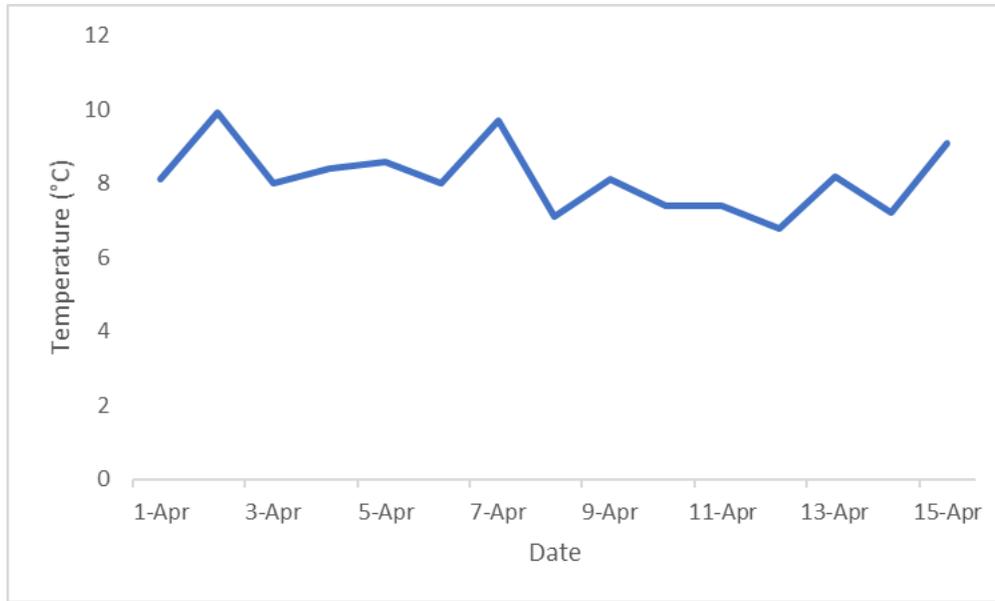


Figure 53. Temperature at RST (Lookout Dam Spill)

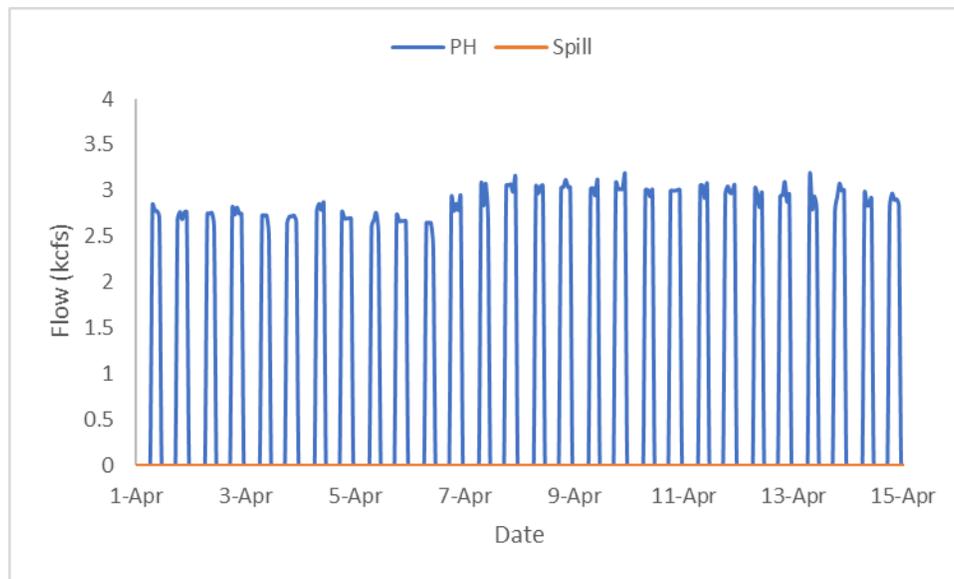


Figure 54. Hourly Flows PWR vs. Spill (Lookout Dam Tailrace)

Middle Fork Willamette – Lookout Point Head of Reservoir

Target Species

The reporting period began April 1 and ended April 15. 17 Chinook salmon were captured during the 15-day sampling period (Figure 55). The trap was operated 100% of the reporting period. Table 40 provides

life stage, length, and weight data for all Chinook salmon that have been caught at the Middle Fork Willamette Above Lookout Point site to-date and Figure 56 shows length frequency data to-date.

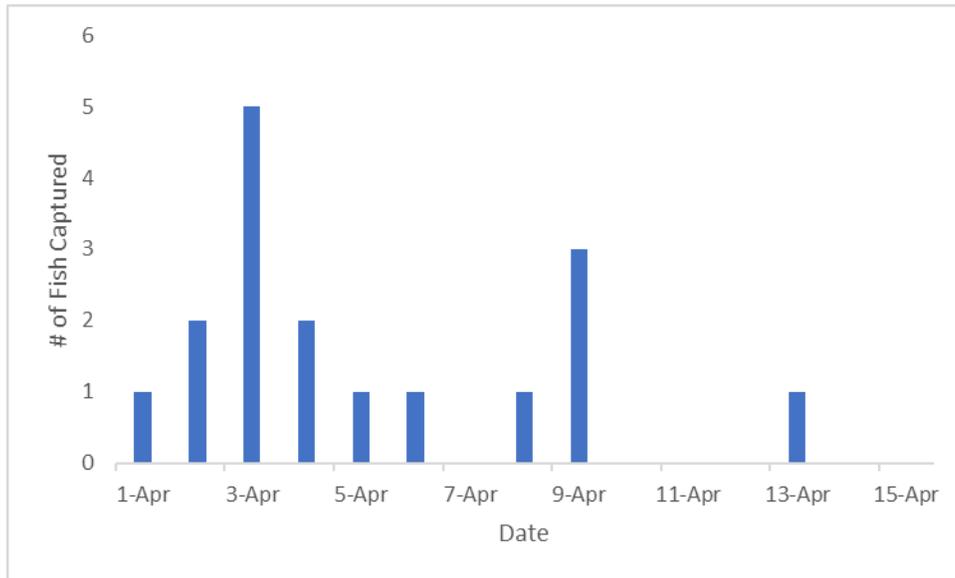


Figure 55. Chinook Captured Per Day 04/01/2022 to 04/15/2022 (Lookout Point Head of Reservoir)

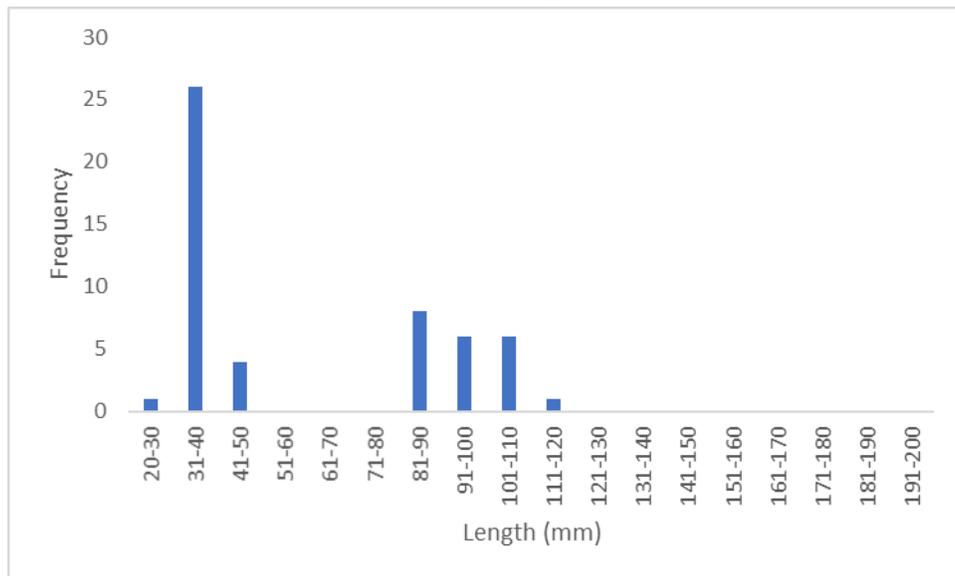


Figure 56. Length Frequency of Juvenile Chinook Sampled Season To-Date (Lookout Point Head of Reservoir)

Table 40. Descriptive Statistics of Target Species Captured at Lookout Point Head of Reservoir, Season To-Date and for the Reporting Period

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Head of Reservoir	5 ft	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	21	86	115	96.0	4.1	12.6	7.9
		CHS	Fry	31	28	49	35.7	N/A	N/A	N/A

April 01-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Head of Reservoir	5 ft	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	7	86	109	94	7.1	11.1	9.2
		CHS	Fry	10	33	49	38.4	N/A	N/A	N/A

*Some fry are too small to accurately weigh and are omitted from the above tables.

Trapping Efficiency

Two trapping efficiency trials were conducted during this period, one on April 5th and one on April 14th.

A total of 993 juvenile hatchery Chinook (parr) were bismark brown dyed and adipose clipped and released on 04/05/2022 above the Lookout Point Head of Reservoir trap. Fish were released in small groups to evaluate the traps efficiency capturing fish migrating downstream. 53 fish were recaptured in the 5 foot RST for an efficiency of 5.3%.

A total of 989 juvenile hatchery Chinook (parr) were bismark brown dyed and adipose clipped and released on 04/14/2022 above the Lookout Point Head of Reservoir trap. Fish were released in small groups to evaluate the traps efficiency capturing fish migrating downstream. 19 fish were recaptured in the 5 foot RST for an efficiency of 1.9%.

Of the 53 fish recaptured from the April 5th release, 6 were dead and the rest were injured. Injuries were descaling and fin damage. Of the 19 fish recaptured from the April 14th release, all 19 were injured. Injuries were descaling and fin damage. Mt. Hood Environmental staff noted that fish appeared to be in good condition upon retrieval from the hatchery but did note some descaling and fin damage present as is common among hatchery fish of this age.

Lookout Point Head of Reservoir	Release #	Recapture #	Capture Efficiency
04/05/2022	993	53	5.3% (53/993)

04/14/2022	989	19	1.9% (19/989)
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Injuries and Copepod Infection

Partial descaling <20% was observed on 3 of the 17 Chinook captured (17.6%). 1 Chinook displayed bodily injuries (5.9%) and 0 had eye injury. 1 Chinook had copepods present on its fins (5.9%). Injury data for the reporting period is shown in table 41. To date data can be found in Appendix A.

Table 41. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period (Lookout Point Head of Reservoir).

Site	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Lookout Point Head of Reservoir	17	3	0	1	0	0	1	0

*DSC=Descaled, COP=Copepods, B.C.=Branchial Cavity

Collected DNA and Scale Samples

Scales were collected for 7 of the Chinook captured for the reporting period. DNA was collected for 9 of the Chinook captured. The rest of the Chinook captured were under the minimum fork length thresholds for collecting samples (less than 50 mm fork length for scales and less than 45 mm fork length for DNA).

Non-Target Species

13 non-target species were captured during the reporting period; the data is summarized below in Table 42.

Table 42. Summary of Non-target Species (Lookout Point Head of Reservoir).

Species	8ft Capture	8ft Mortality	Season Total	Season Total Mortality
Bluegill	0	0	1	0
Lamprey	0	0	0	0
Bullhead	0	0	0	0
Bull Trout	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	1	0	5	0
Longnose Dace	1	0	1	0
Red-Sided Shiner	0	0	1	0
Sculpin	0	0	0	0
Smallmouth Bass	0	0	1	0
Sucker	1	0	4	0
Whitefish	0	0	0	0
<i>O. mykiss</i>	10	0	27	0

Totals	13	0	40	0
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Stream Statistics

Basic stream statistics for the Lookout Point Head of Reservoir RST site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14148000. During the reporting period, daily maximum values for instantaneous discharge ranged from 2,770 cfs to 3,790 cfs (mean: 3,308 cfs). Figure 57 shows instantaneous discharge.

Stream temperatures were recorded every two hours using a temperature probe at the Lookout Point Head of Reservoir RST site during this reporting period. The probe operated normally during this period. (Figure 58)

Catch per unit of effort (CPUE) data are summarized in Table 43. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 43. Summary of Chinook CPUE at Lookout Point Head of Reservoir.

	Chinook
Description	5 ft
Catch	17
Effort (hrs)	355.6
CPUE (fish/hr)	0.048

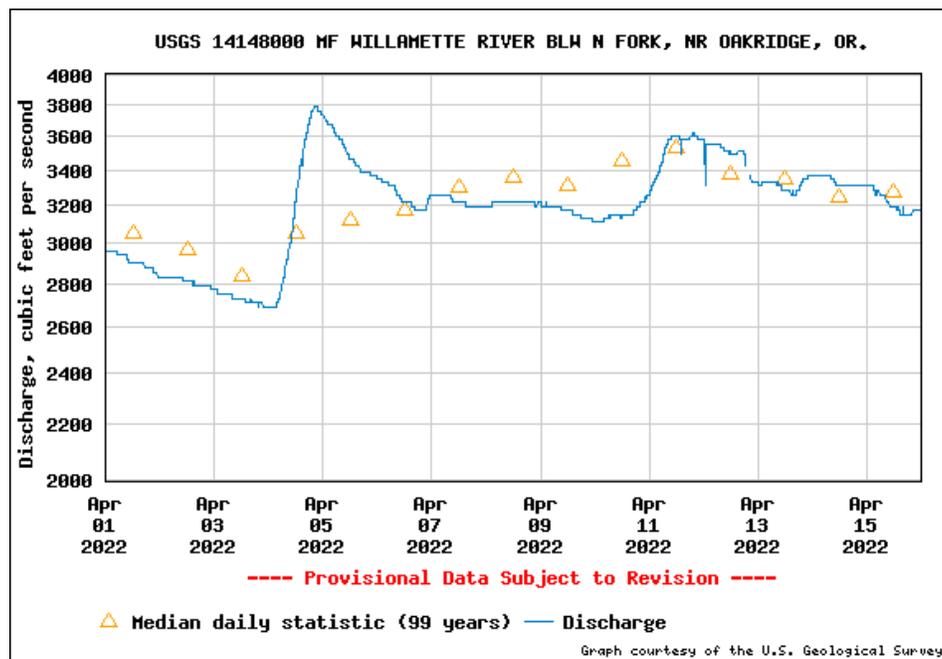


Figure 57. Discharge (cfs); above Lookout Point Reservoir, Below Oakridge, OR

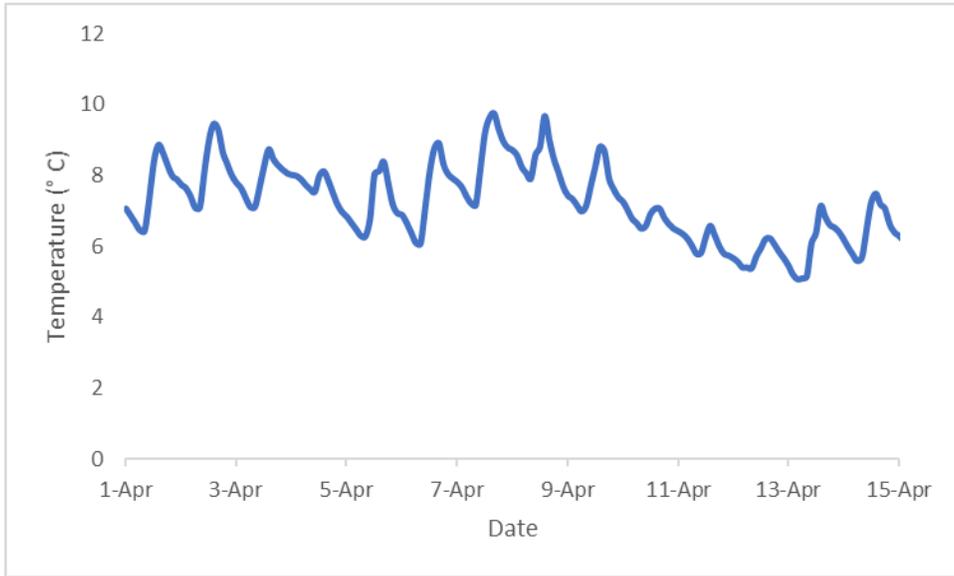


Figure 58. Temperature at RST (Lookout Point Head of Reservoir)

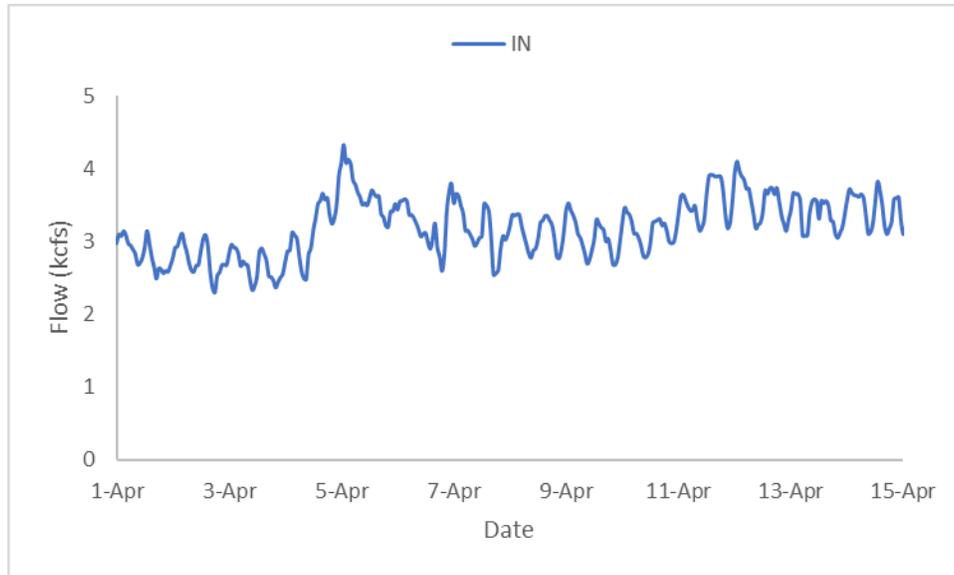


Figure 59. Hourly Flows (Lookout Point Head of Reservoir site)

Issues Encountered

A storm dropped several inches of snow in the Cougar Dam area on April 9th. In preparation for access restriction, we raised the cone at the Cougar Dam Head of Reservoir site until access to the trap is

unrestricted. Road conditions are being checked daily by crews. Large debris loads at Green Peter and an increase in spill to ~2,000 cfs raised trap and crew safety concerns. The cone was raised on April 2nd and debris load was monitored until it was deemed safe to return the trap to a sampling position on April 13th.

Upcoming USACE Support Services

None

Appendix A

Chinook (CHS)

		Injuries During Reporting Period (4-1-2022 to 4-15-2022)																					
Site/Trap/Life Stage	Total Fish	MJNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	49		25		5			41	14		30				1		7		4	8			1
8 ft	49		25		5			41	14		30				1		7		4	8			1
Parr	2		1					1			1												
Smolt	47		24		5			40	14		29				1		7		4	8			1
Foster Dam HOR	3																						
5 ft	3																						
Fry	3																						
Cougar Dam	203		31		4			35	14		23	1					3	6	7	1	2	2	1
RO	41		19		3			28	9		15	1						1	4			1	1
Parr	7		2					6	2		3												
Smolt	28		17		2			22	7		12	1						1	4			1	1
Fry	6				1																		
PH	162		12		1			7	5		8						3	5	3	1	1	1	2
Parr	7		6					1	1		2												
Smolt	11		6					6	2		2						1	1	1			1	
Fry	142				1				2		4						2	4	2	1			2
Cougar Dam HOR	110		2								2									3			
5 ft	110		2								2									3			
Parr	4		1								1												
Fry	106		1								1									3			
Dexter Dam Tailrace	1		1								1												
5 ft	1		1								1												
Smolt	1		1								1												
Lookout Point HOR	17		3					1			1												
5 ft	17		3					1			1												
Parr	7		3					1			1												
Fry	10																						

Chinook (CHS)

Site/Trap/Life Stage	Total Fish	Injuries to-date																					
		MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	107		49		11	1		93	21	1	43	1			6	2	9	2	12	9			1
8 ft	107		49		11	1		93	21	1	43	1			6	2	9	2	12	9			1
Parr	18		5			1		12	1		3					1			1				
Smolt	89		44		11			81	20	1	40	1		6	1	9	2	11	9			1	
Foster Dam HOR	48		4		1						1												
5 ft	48		4		1						1												
Parr	1		1																				
Smolt	2		2								1												
Fry	45		1		1																		
Cougar Dam	765	1	307		53	2		292	65	2	##	1	3	2	10	1	19	10	34	19	12	2	9
RO	233		133		36	1		150	35	2	77	1			3	1	12	3	21	11	6		9
Parr	101		52		21			53	14		25				1		4	1	5	5			5
Smolt	122		81		14	1		97	21	2	52	1		2	1	8	2	16	6	6			4
Fry	10				1																		
PH	532	1	174		17	1		142	30		68		3	2	7		7	7	13	8	6		2
Parr	214		120		10	1		85	14		44	1		4		2	2	5	3	4			
Smolt	86		54		5			57	14		20	2		3		3	1	6	3	2			
Fry	230	1			2				2		4					2	4	2	2				2
Unk	2												2										
Cougar Dam HOR	211		21					3			7									3			
5 ft	211		21					3			7									3			
Parr	35		20					3			6												
Fry	176		1								1									3			
Fall Creek HOR	7		3					2			1												
8 ft	7		3					2			1												
Parr	2		2					1			1												
Smolt	5		1					1															
Dexter Dam Tailrace	1		1								1												
5 ft	1		1								1												
Smolt	1		1								1												
Lookout Point HOR	52		12					1			5												
5 ft	52		12					1			5												
Parr	21		12					1			5												
Fry	31																						
Hills Creek	95		53		10			70	32		20		8	1	24	8	3	3	5	3			4
RO	63		35		4			49	21		13		6		18	6	2	2	4	1			1
Parr	6		1					1															
Smolt	57		34		4			48	21		13		6		18	6	1	2	4	1			1
PH	32		18		6			21	11		7		2	1	6	2	1	1	1	2			3
Parr	7		4					1	1											1			
Smolt	25		14		6			20	10		7		2	1	6	1	1	1	1	1			3

Steelhead (O. mykiss)

		Injuries to-date																					
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	1							1	1		1									1	1		
8 ft	1							1	1		1									1	1		
Smolt	1							1	1		1									1	1		
Foster Dam HOR	35		12					1			3								1				
5 ft	35		12					1			3								1				
Parr	9		3					1															
Smolt	16		9								3								1				
Fry	10																						

Steelhead (O. mykiss)

		Injuries During Reporting Period (4-1-2022 to 4-15-2022)																					
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	1							1	1		1									1	1		
8 ft	1							1	1		1									1	1		
Smolt	1							1	1		1									1	1		
Foster Dam HOR	14		7								2								1				
5 ft	14		7								2								1				
Parr	3		1																				
Smolt	6		6								2								1				
Fry	5																						

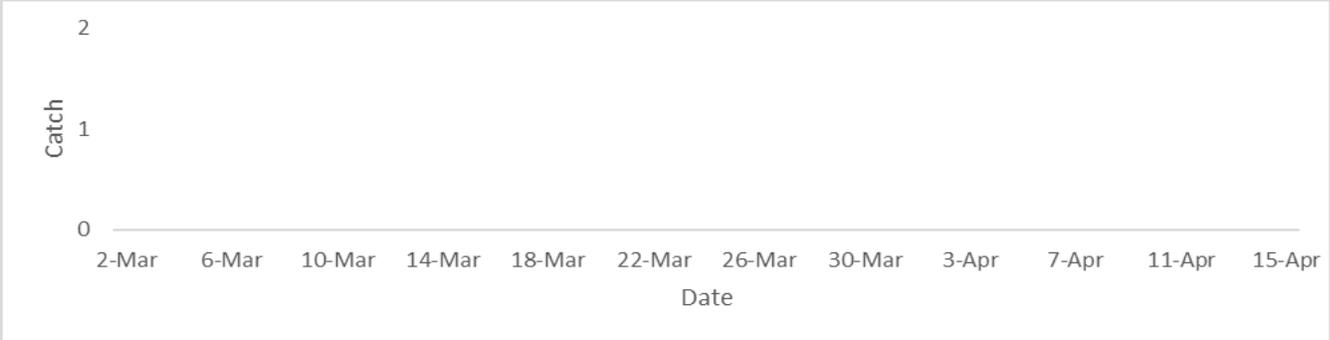
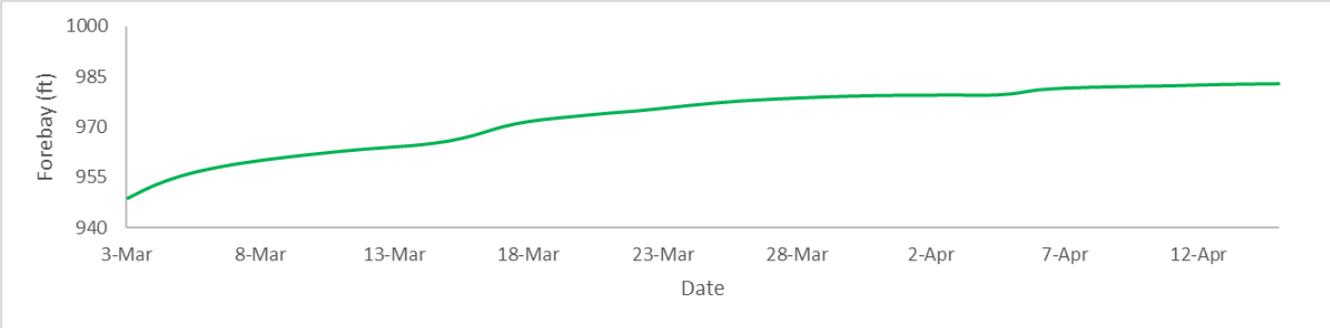
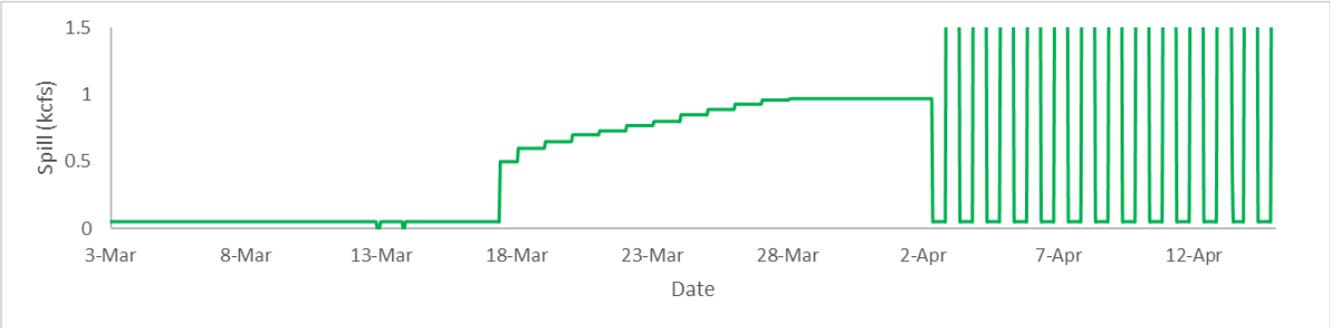
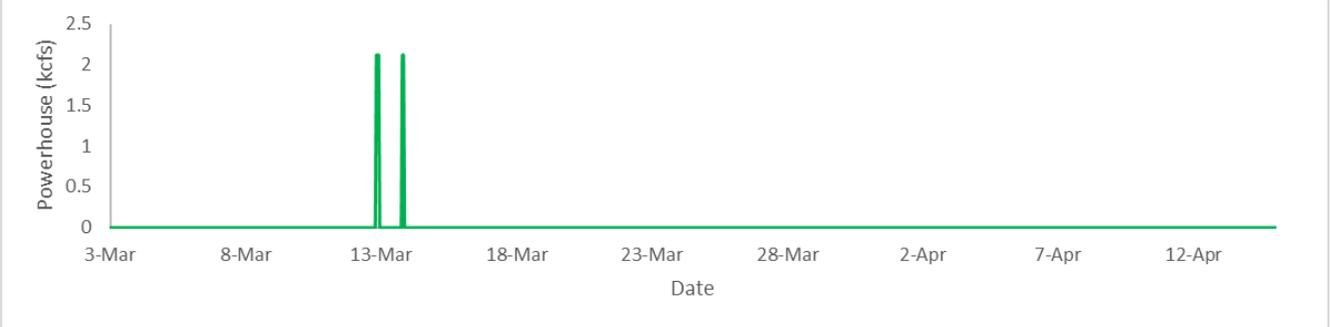
Injury Code	Description of Injury/Condition
NXI	Live fish with no external injuries
MUNK	Mortality with no external injuries
DS<2	Descaling <20%
BLO	Bloated
EYB	Bloody Eye (hemorrhage)
BVT	Bleeding from Vent
FVB	Fin Blood Vessels Broken
GBD	Gas Bubble Disease (fin ray/eye inclusions)
POP	Pop Eye (eye popping out of head)
HIN	Head Injury
OPD	Opercle Damage
TEA	Body Injury (tears, scrapes, mechanical damage)
BRU	Bruising (any part of the body)
HBP	Hole Behind Pectoral Fin
DS>2	Descaling > 20%
HO	Head Only
BO	Body Only
HBO	Head Barely Connected
FID	Fin Damage
PRD	Predation Marks (vert. claw or teeth marks)
COP	Copepods (on gills or fins)
BKD	BKD (distended abdomen)
FUN	Fungus

Appendix B

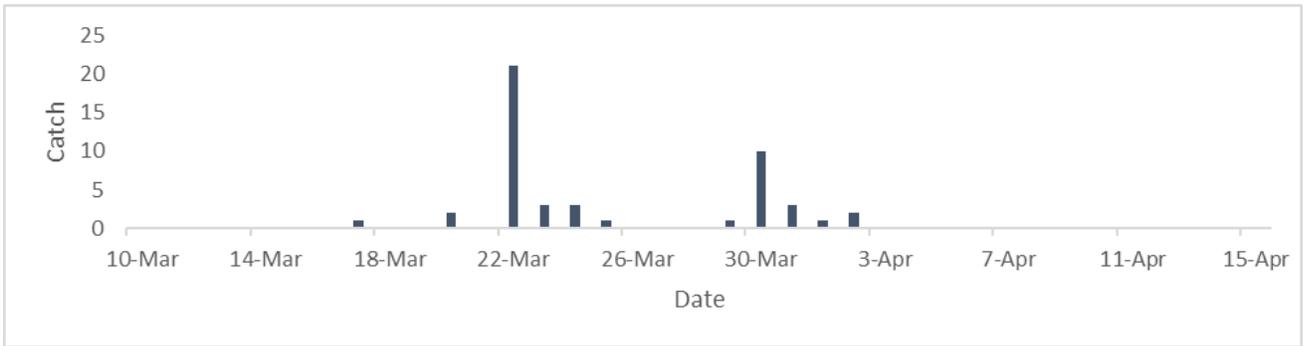
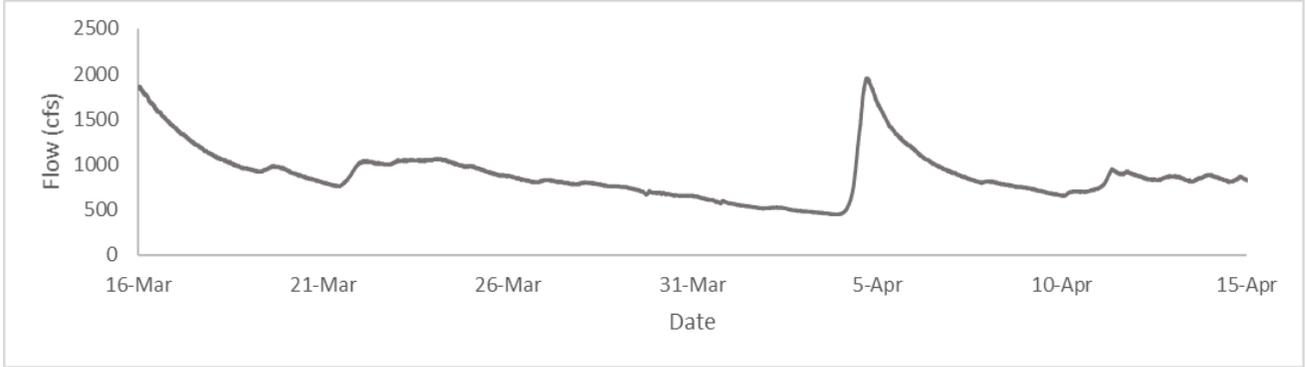
Big Cliff Dam Operational and Capture Data Since Start of Monitoring



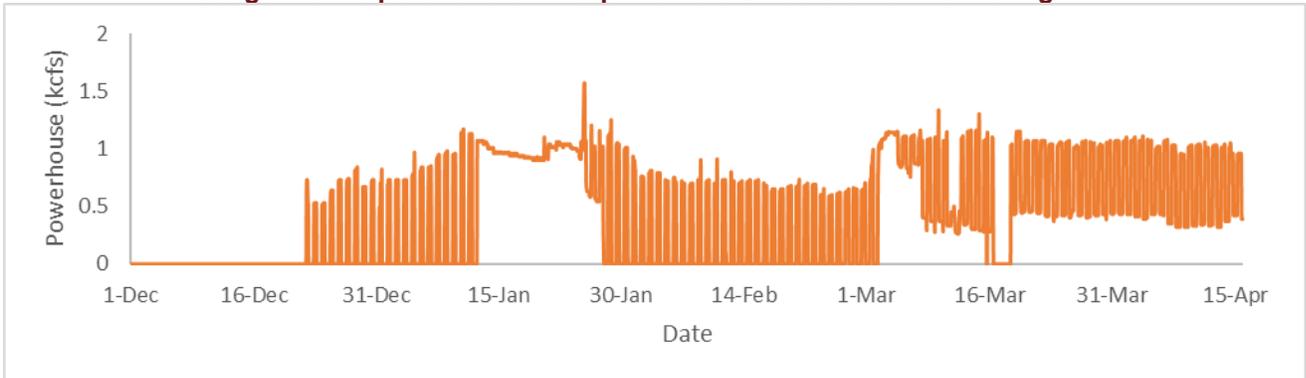
Green Peter Dam Operational and Green Peter Tailrace- Middle Santiam River Capture Data Since Start of Monitoring

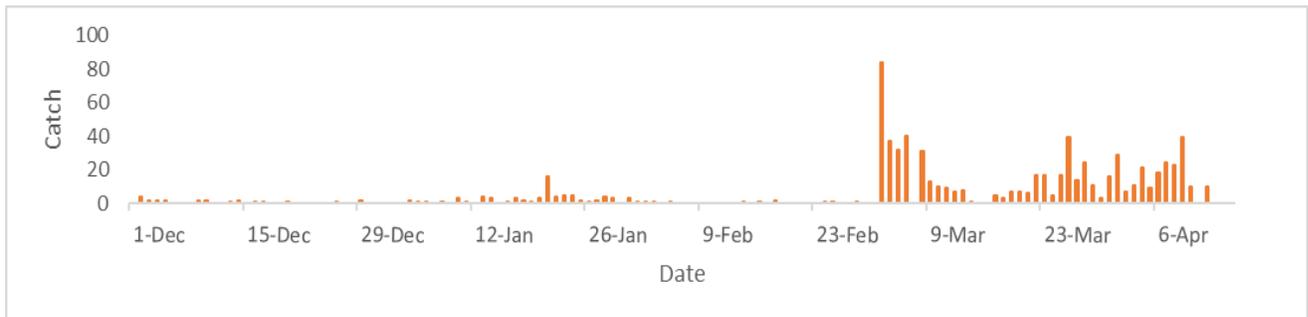
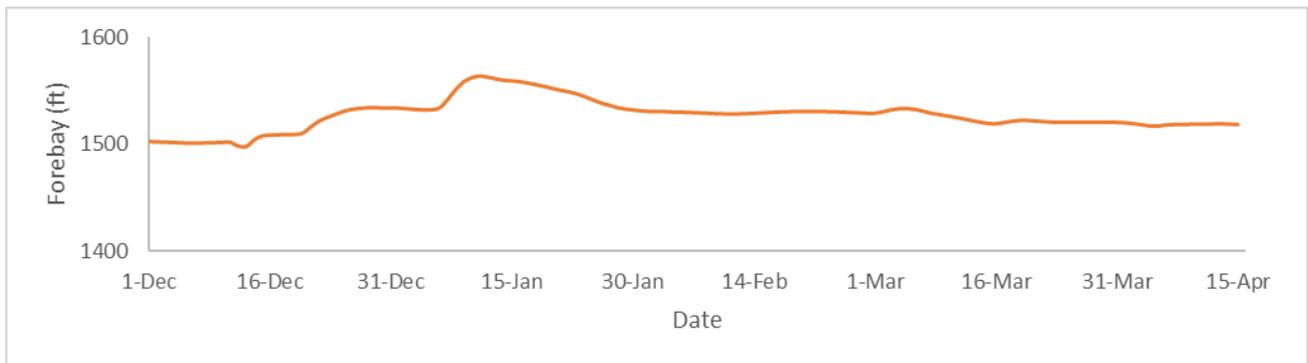
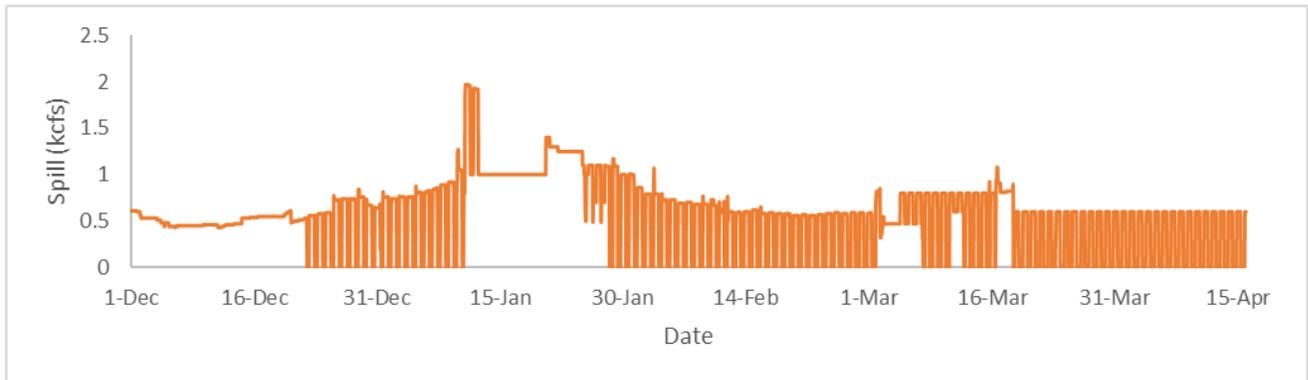


South Santiam River Above Foster Dam Discharge and Foster Dam Head of Reservoir Capture Data

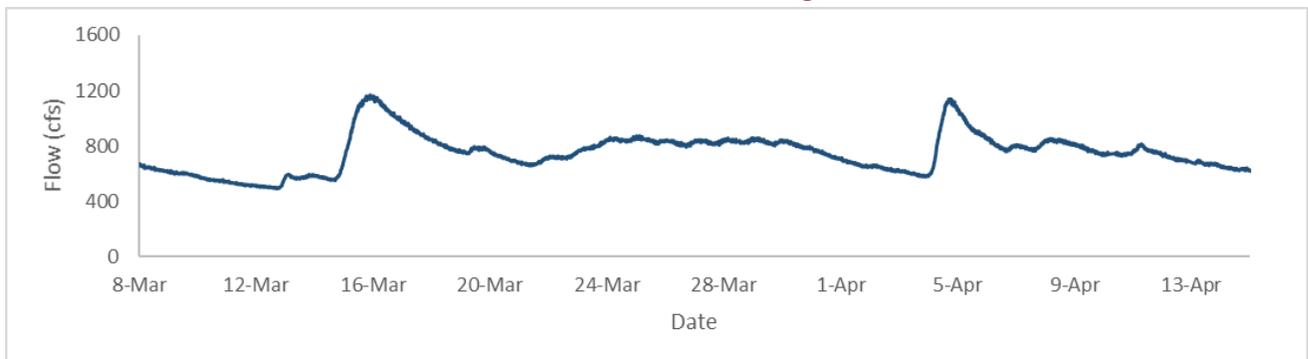


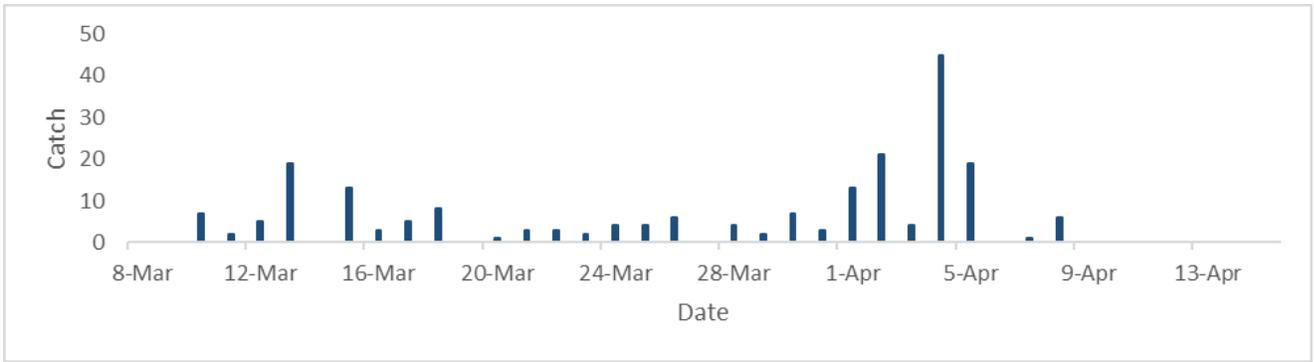
Cougar Dam Operational and Capture Data Since Start of Monitoring



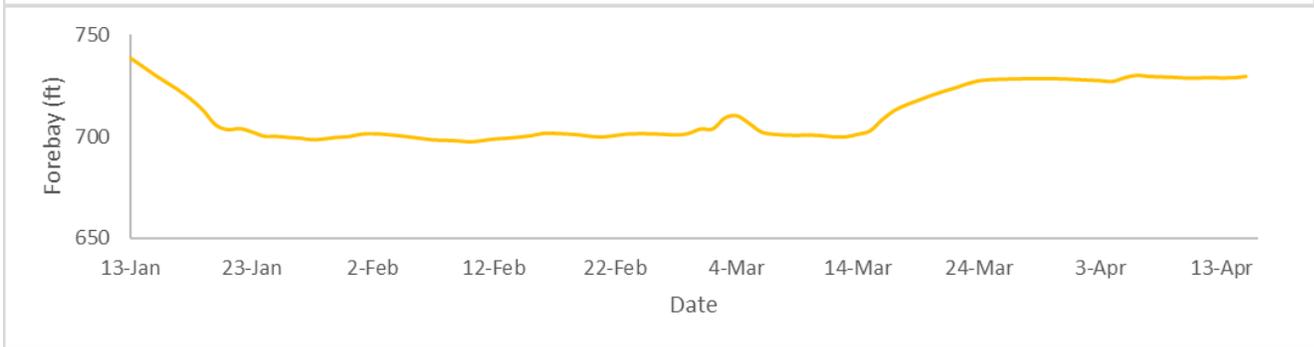
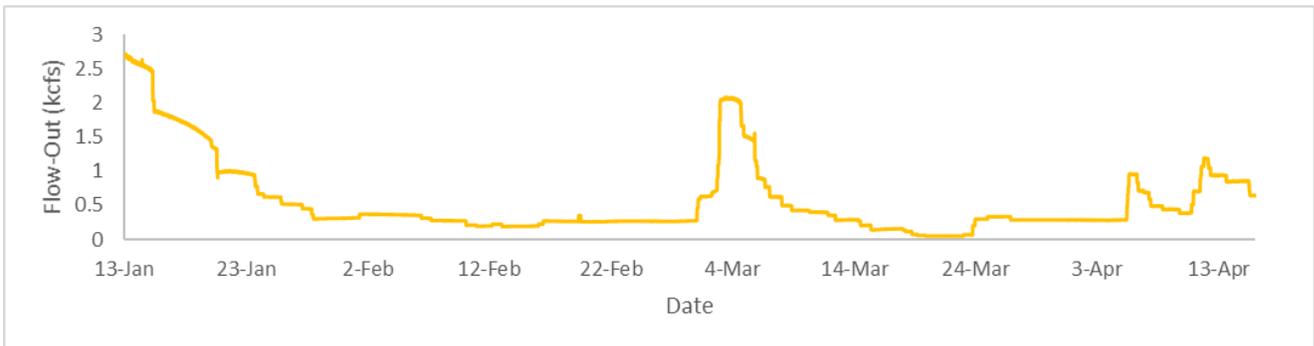
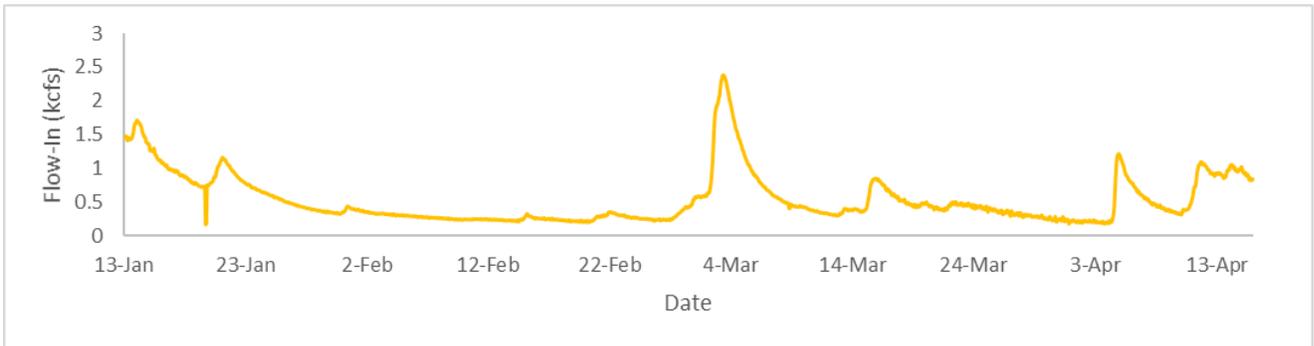


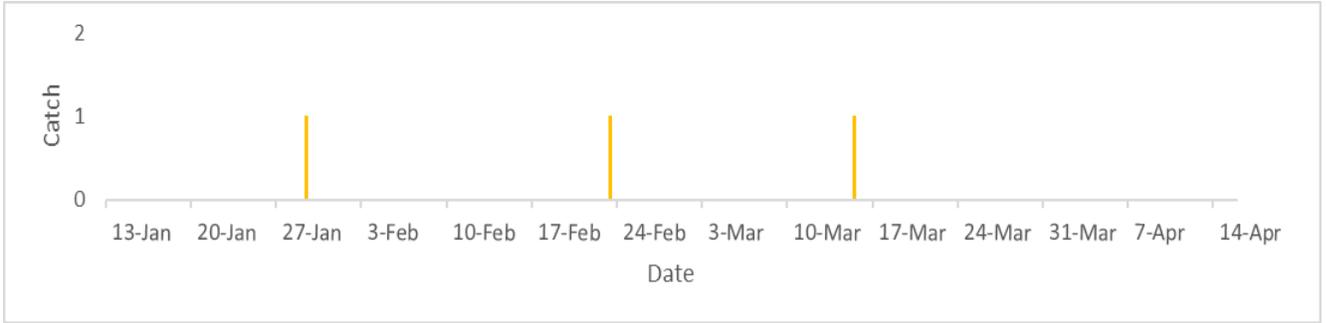
South Fork McKenzie above Cougar Dam Discharge and Cougar Dam Head of Reservoir Capture Data Since Start of Monitoring



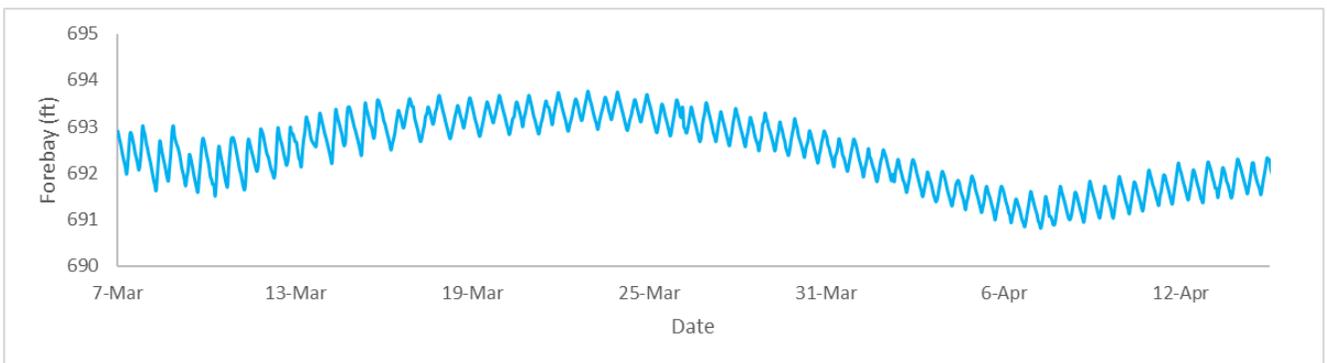
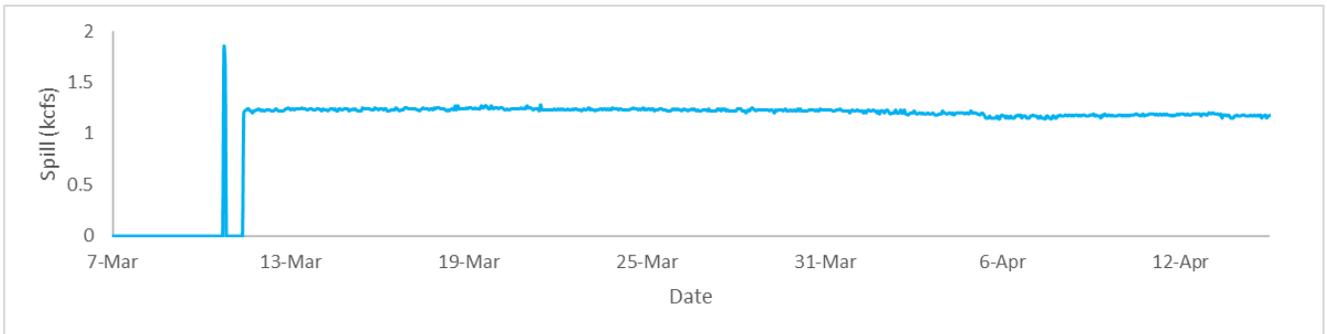
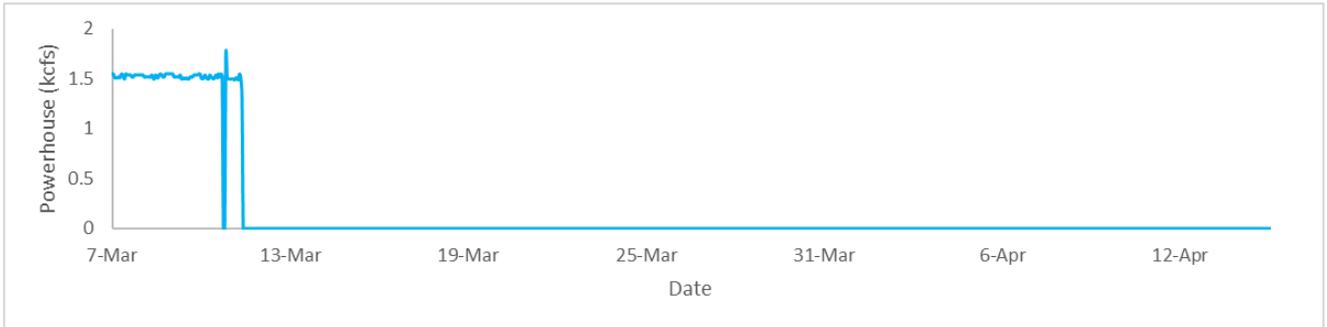


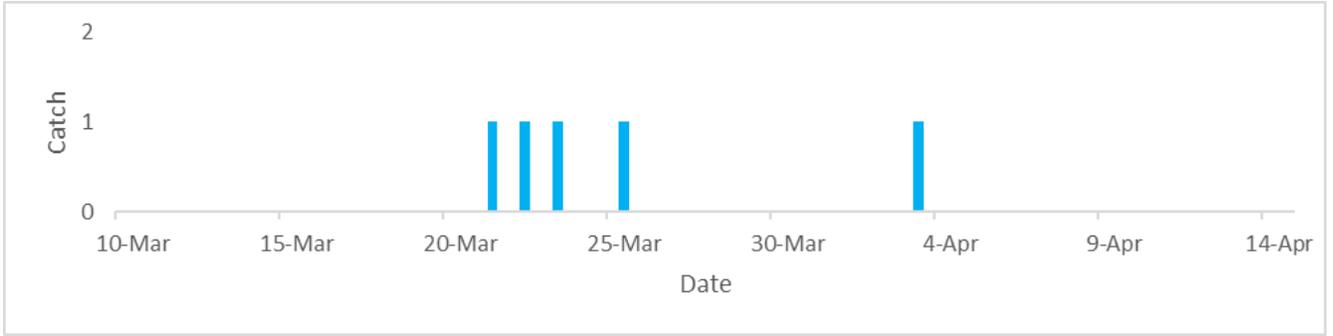
Fall Creek Dam Operational and Fall Creek Head of Reservoir Capture Data Since Start of Monitoring



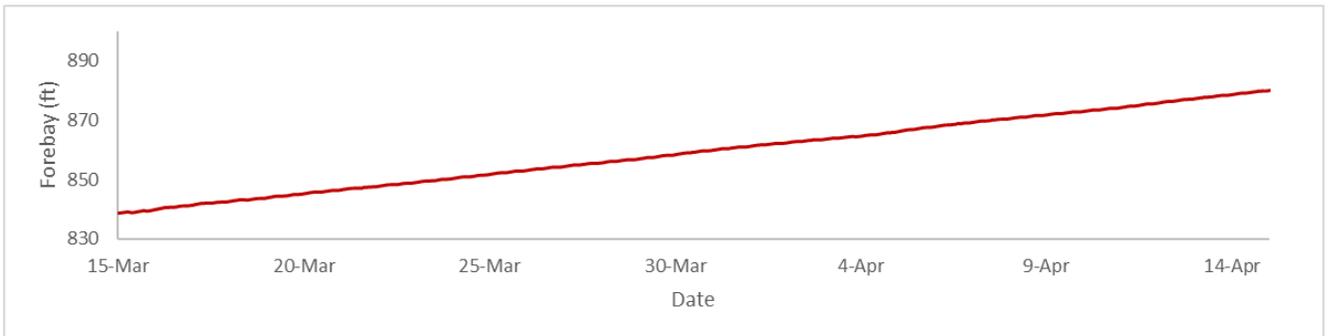
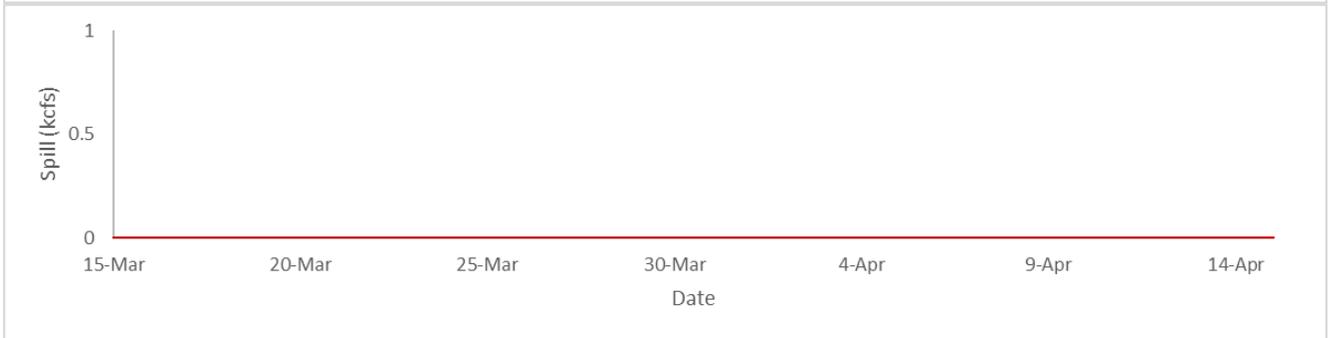
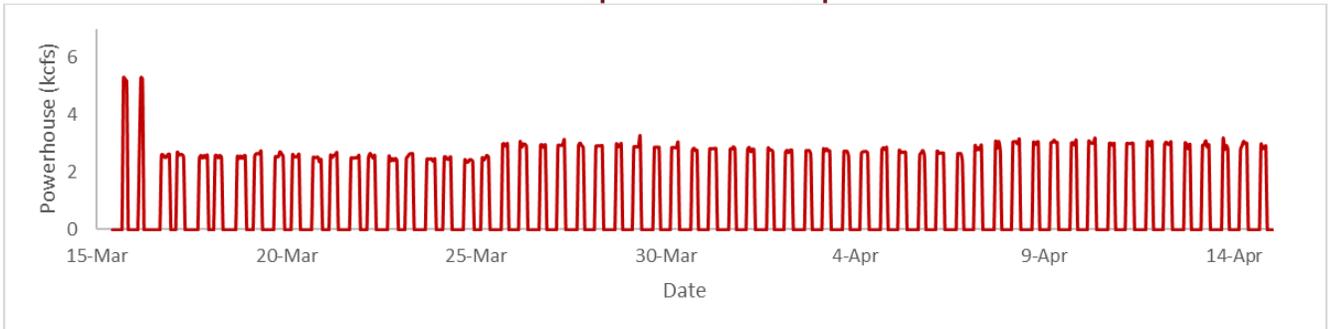


Dexter Dam Operational and Capture Data Since Start of Monitoring



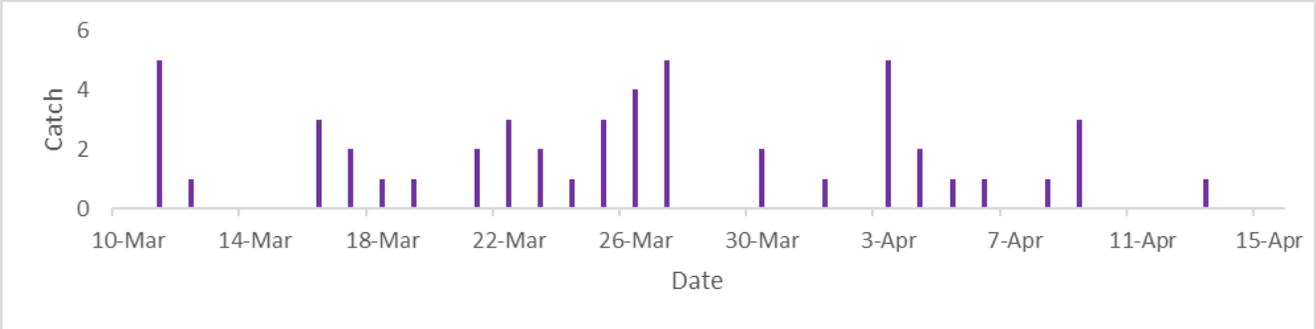
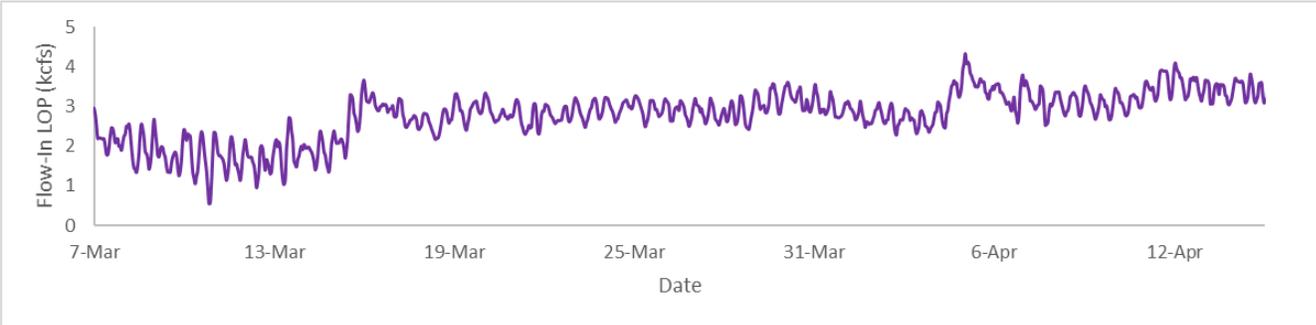


Lookout Dam Tailrace Operational and Capture Data

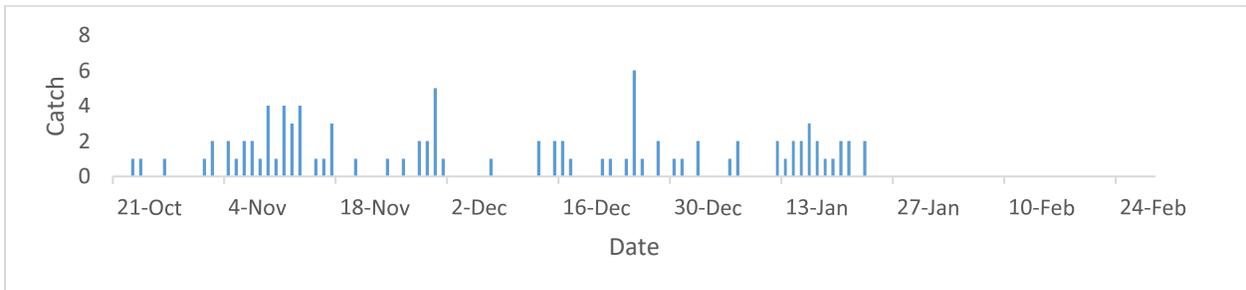
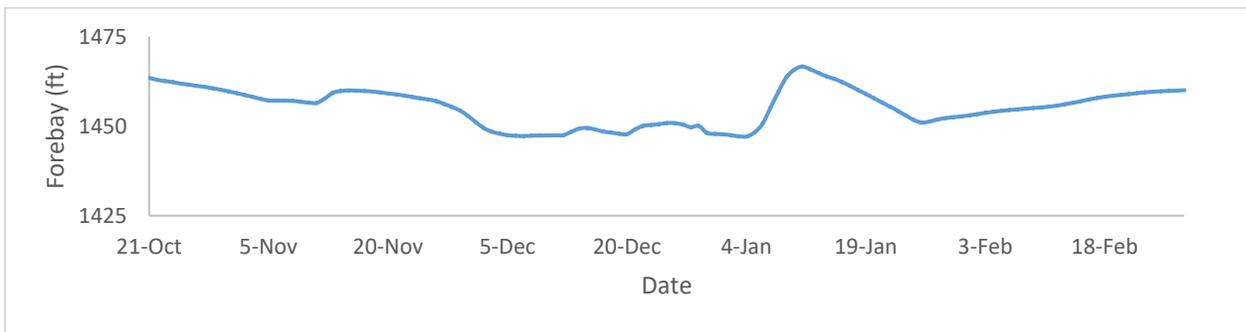
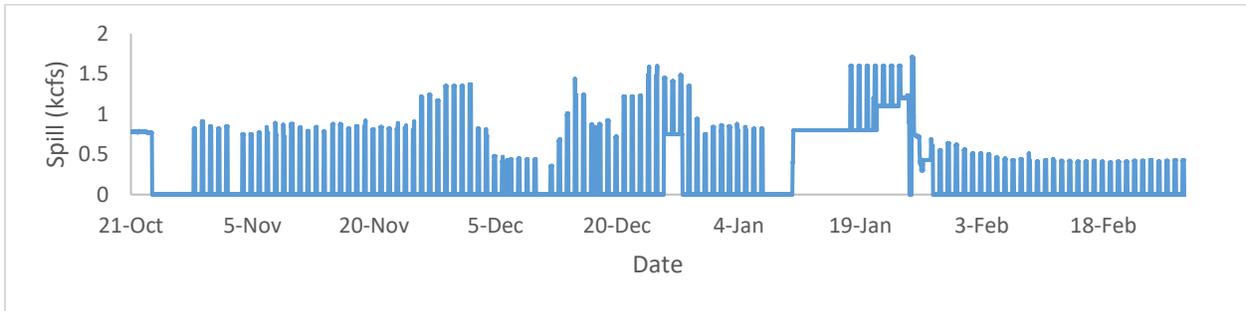
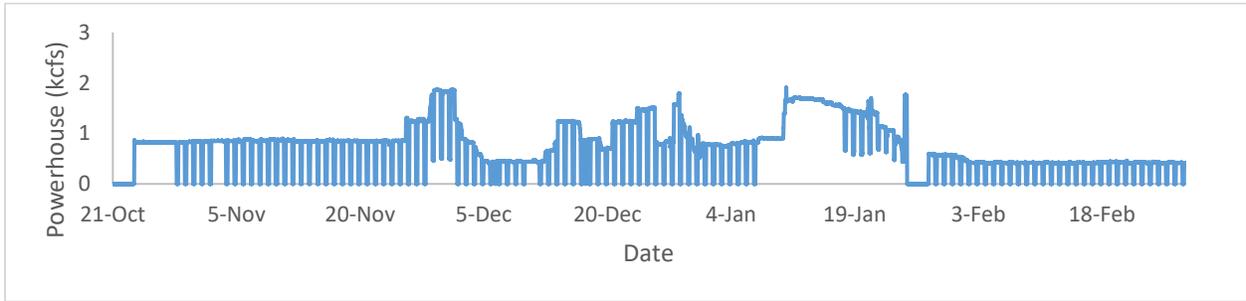




Lookout Point Head of Reservoir Operational and Capture Data Since Start of Monitoring



Hills Creek Dam Operational and Capture Data Since Start of Monitoring



Appendix C

Hills Creek Trapping Efficiency 1/6/2022

Hills Creek Dam	Release #	Recapture #	Capture Efficiency
PH Route	596	20	3.36% (20/596)
RO Trap	RO Route- 605	13	2.15% (13/605)
	PH Route- 592	5	0.84% (5/592)

*Live fish captured at the PH trap are released just downstream of the PH trap, upstream of the RO trap and therefore retained in the capture efficiency estimates for the RO Trap if they arrive in the lower trap.

*Any dead fish captured at the PH trap are excluded from the RO trap capture efficiency estimate as they are not alive at time of re-release.

Appendix D

Summary of Project PIT Tagged Fish for Reporting Period

Site	Trap	# of PIT Tagged Fish
Big Cliff Dam	8 foot	42
Foster Dam Head of Reservoir- South Santiam	5 foot	10
Cougar Dam	PWR	16
Cougar Dam	RO	33
Cougar Dam Head of Reservoir	5 foot	4
Dexter Dam Tailrace	5 foot	1
Lookout Point Head of Reservoir	5 foot	7

Summary of ODFW PIT Tagged fish Encountered to Date

Site	Date	Trap	Species	PIT Tag #
Cougar Dam	4/7/2022	RO	Chinook	3DD.003BD59645
Cougar Dam	3/3/2022	PH	Chinook	3DD.003DA4DC74
Cougar Dam	3/4/2022	PH	Chinook	3DD.003E14CA70
Cougar Dam	3/4/2022	PH	Chinook	384.36F2B2C5D2
Cougar Dam	3/5/2022	PH	Chinook	3DD.003E14CC20
Cougar Dam	3/8/2022	PH	Chinook	3DD.003E14CD8D
Cougar Dam	3/6/2022	RO	Chinook	3DD.003E14C9D6
Cougar Dam	1/8/2022	RO	Chinook	3DD.0077780789
Cougar Dam	1/14/2022	RO	Chinook	384.36F2B2C55F

List of Project PIT Tagged Fish for Reporting Period with site, tagging date, trap, species, and PIT Tag #

Site	Date	Trap	Species	PIT Tag #
Big Cliff Dam Tailrace	4/10/2002	8 ft	Chinook	3DD.003E1BC72A
Big Cliff Dam Tailrace	4/5/2022	8 ft	Chinook	3DD.003BD94B16
Big Cliff Dam Tailrace	4/6/2022	8 ft	Chinook	3DD.003E1BC739
Big Cliff Dam Tailrace	4/6/2022	8 ft	Chinook	3DD.003E1BC72D
Big Cliff Dam Tailrace	4/11/2022	8 ft	Chinook	3DD.003E1BC872
Big Cliff Dam Tailrace	4/11/2022	8 ft	Chinook	3DD.003E1BC870
Big Cliff Dam Tailrace	4/11/2022	8 ft	Chinook	3DD.003E1BC8A0
Big Cliff Dam Tailrace	4/11/2022	8 ft	Chinook	3DD.003E1BC84D
Big Cliff Dam Tailrace	4/11/2022	8 ft	Chinook	3DD.003E1BC855
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC879
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC88D
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC897
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC898
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC856
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC848
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC89F
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC869
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC8A4
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC882
Big Cliff Dam Tailrace	4/12/2022	8 ft	Chinook	3DD.003E1BC865
Big Cliff Dam Tailrace	4/13/2022	8 ft	O. mykiss	3DD.003E1BC725
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC76E
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC735
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC726
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC756
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC727
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC73F
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC755
Big Cliff Dam Tailrace	4/13/2022	8 ft	Chinook	3DD.003E1BC76B
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC734
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC71C
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC751
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC753
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC737
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC736
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC74F

Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC730
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC74D
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC71D
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC73E
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC768
Big Cliff Dam Tailrace	4/15/2022	8 ft	Chinook	3DD.003E1BC724
Cougar Dam Tailrace	4/1/2022	PH	Chinook	3DD.003BD2184D
Cougar Dam Tailrace	4/2/2022	PH	Chinook	3DD.003BD2185A
Cougar Dam Tailrace	4/2/2022	PH	Chinook	3DD.003BD2183B
Cougar Dam Tailrace	4/2/2022	PH	Chinook	3DD.003BD2181F
Cougar Dam Tailrace	4/4/2022	PH	Chinook	3DD.003BD21829
Cougar Dam Tailrace	4/4/2022	PH	Chinook	3DD.003BD2186D
Cougar Dam Tailrace	4/4/2022	PH	Chinook	3DD.003BD21835
Cougar Dam Tailrace	4/4/2022	PH	Chinook	3DD.003BD2181E
Cougar Dam Tailrace	4/4/2022	PH	Chinook	3DD.003BDA9DFB
Cougar Dam Tailrace	4/5/2022	PH	Chinook	3DD.003BD94BAD
Cougar Dam Tailrace	4/6/2022	PH	Chinook	3DD.003BDA9E16
Cougar Dam Tailrace	4/6/2022	PH	Chinook	3DD.003BDA9E01
Cougar Dam Tailrace	4/9/2022	PH	Chinook	3DD.003E1BC795
Cougar Dam Tailrace	4/9/2022	PH	Chinook	3DD.003E1BC7AF
Cougar Dam Tailrace	4/9/2022	PH	Chinook	3DD.003E1BC79D
Cougar Dam Tailrace	4/1/2022	RO	Chinook	3DD.003BD21874
Cougar Dam Tailrace	4/1/2022	RO	Chinook	3DD.003BD21870
Cougar Dam Tailrace	4/1/2022	RO	Chinook	3DD.003BD21869
Cougar Dam Tailrace	4/1/2022	RO	Chinook	3DD.003BD21839
Cougar Dam Tailrace	4/1/2022	RO	Chinook	3DD.003BD21837
Cougar Dam Tailrace	4/2/2022	RO	Chinook	3DD.003BD2184B
Cougar Dam Tailrace	4/3/2022	RO	Chinook	3DD.003BD94AB7
Cougar Dam Tailrace	4/3/2022	RO	Chinook	3DD.003BD94AB1
Cougar Dam Tailrace	4/3/2022	RO	Chinook	3DD.003BD2183F
Cougar Dam Tailrace	4/4/2022	RO	Chinook	3DD.003BD2185E
Cougar Dam Tailrace	4/4/2022	RO	Chinook	3DD.003BDA9E23
Cougar Dam Tailrace	4/4/2022	RO	Chinook	3DD.003BDA9E20
Cougar Dam Tailrace	4/4/2022	RO	Chinook	3DD.003BDA9E1A
Cougar Dam Tailrace	4/4/2022	RO	Chinook	3DD.003BDA9E21
Cougar Dam Tailrace	4/4/2022	RO	Chinook	3DD.003BDA9E1F
Cougar Dam Tailrace	4/5/2022	RO	Chinook	3DD.003BD94BD2
Cougar Dam Tailrace	4/5/2022	RO	Chinook	3DD.003BD94BAF
Cougar Dam Tailrace	4/5/2022	RO	Chinook	3DD.003BD94BA8
Cougar Dam Tailrace	4/6/2022	RO	Chinook	3DD.003BDA9E15
Cougar Dam Tailrace	4/6/2022	RO	Chinook	3DD.003BDA9E17
Cougar Dam Tailrace	4/6/2022	RO	Chinook	3DD.003BDA9E12
Cougar Dam Tailrace	4/6/2022	RO	Chinook	3DD.003BDA9DC2

Cougar Dam Tailrace	4/6/2022	RO	Chinook	3DD.003BDA9E0C
Cougar Dam Tailrace	4/6/2022	RO	Chinook	3DD.003BDA9DF8
Cougar Dam Tailrace	4/7/2022	RO	Chinook	3DD.003BD59345
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC7BF
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC7C7
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC7CD
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC7AB
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC79E
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC7BB
Cougar Dam Tailrace	4/9/2022	RO	Chinook	3DD.003E1BC7DB
Cougar Head of Reservoir	4/5/2022	5 ft	Chinook	3DD.003BDA9E0A
Cougar Head of Reservoir	4/7/2022	5 ft	Chinook	3DD.003BDA9E0A
Cougar Head of Reservoir	4/7/2022	5 ft	Chinook	3DD.003BD21824
Cougar Head of Reservoir	4/8/2022	5 ft	Chinook	3DD.003BD2185F
Dexter Dam Tailrace	4/3/2022	5 ft	Chinook	3DD.003BD21826
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94B92
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94B84
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94B9D
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94B82
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94BB1
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94B9B
Foster Dam Head of Reservoir - South Santiam	4/6/2022	5 ft	O. mykiss	3DD.003BD94BAB
Foster Dam Head of Reservoir - South Santiam	4/7/2022	5 ft	O. mykiss	3DD.003BD94B82
Foster Dam Head of Reservoir - South Santiam	4/8/2022	5 ft	O. mykiss	3DD.003E1BC752
Foster Dam Head of Reservoir - South Santiam	4/9/2022	5 ft	O. mykiss	3DD.003E1BC864
Lookout Point Head of Reservoir	4/1/2022	5 ft	Chinook	3DD.003BD2185B
Lookout Point Head of Reservoir	4/3/2022	5 ft	Chinook	3DD.003BD2184A
Lookout Point Head of Reservoir	4/4/2022	5 ft	Chinook	3DD.003BD21838
Lookout Point Head of Reservoir	4/6/2022	5 ft	Chinook	3DD.003BD2182D
Lookout Point Head of Reservoir	4/8/2022	5 ft	Chinook	3DD.003BD94A7
Lookout Point Head of Reservoir	4/9/2022	5 ft	Chinook	3DD.003E1BC78B
Lookout Point Head of Reservoir	4/9/2022	5 ft	Chinook	3DD.003E1BC797
Cougar Dam Tailrace	4/10/2022	PH	Chinook	3DD.003E1BC7D6
Cougar Dam Tailrace	4/10/2022	RO	Chinook	3DD.003E1BC7D2