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Report Period: June 1 to June 15, 2022

Report No.: 2022 Willamette RST Bi-Weekly Report 06/01 to 06/15 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
Big Cliff Dam Tailrace	Temporary Trap Removal and Install	05/06/2022	05/13/2022	7
Big Cliff Dam Tailrace	Trap Efficiency Release (1,000 Fish)	05/25/2022	05/25/2025	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
Green Peter Tailrace- Middle Santiam River RST	Trap Efficiency Release (521 Fish)	04/30/2022	04/30/2022	1
Green Peter Tailrace- Middle Santiam River RST	Temporary Trap Removal	05/12/2022	05/12/2022	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	Trap Efficiency Release (735 Fish, ~365 per route)	04/20/2022	4/20/2022	1
Cougar Dam	Trap Efficiency Release (993 Fish, RO route)	05/15/2022	05/15/2022	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
Cougar Dam Head of Reservoir	Trap Efficiency Release (500 Fish)	05/19/2022	05/19/2022	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	03/23/2022	03/23/2022	1

	(988 Fish)			
Dexter Dam Tailrace RST	Trap Efficiency Release (1000 Fish)	05/04/2022	05/04/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (1019 Fish)	05/24/2022	05/24/2022	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
Lookout Point Head of Reservoir RST	Trap Efficiency Release (1007 fish)	05/18/2022	05/18/2022	1
Fall Creek Dam Tailrace RST	Operation	03/15/2022	07/15/2022	123
Fall Creek Dam Tailrace RST	Trap Efficiency Release (518 fish)	06/08/2022	06/08/2022	1
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
Fall Creek Head of Reservoir RST	Removal	06/02/2022	06/02/2022	1
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 nine locations: Big Cliff Dam, Foster Dam Head of Reservoir- South Santiam, Cougar Dam, Cougar Dam Head of Reservoir, Fall Creek Dam Tailrace, Dexter Dam Tailrace, Lookout Dam Tailrace, and Lookout Point Head of Reservoir. The Green Peter Dam Tailrace- Middle Santiam trap was removed on May 12th due to damage incurred to the highline. The sampling period for the Fall Creek Head of Reservoir trap ended on May 31, 2022. The trap was removed from the site on June 2, 2022.

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 Big Cliff Dam, 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

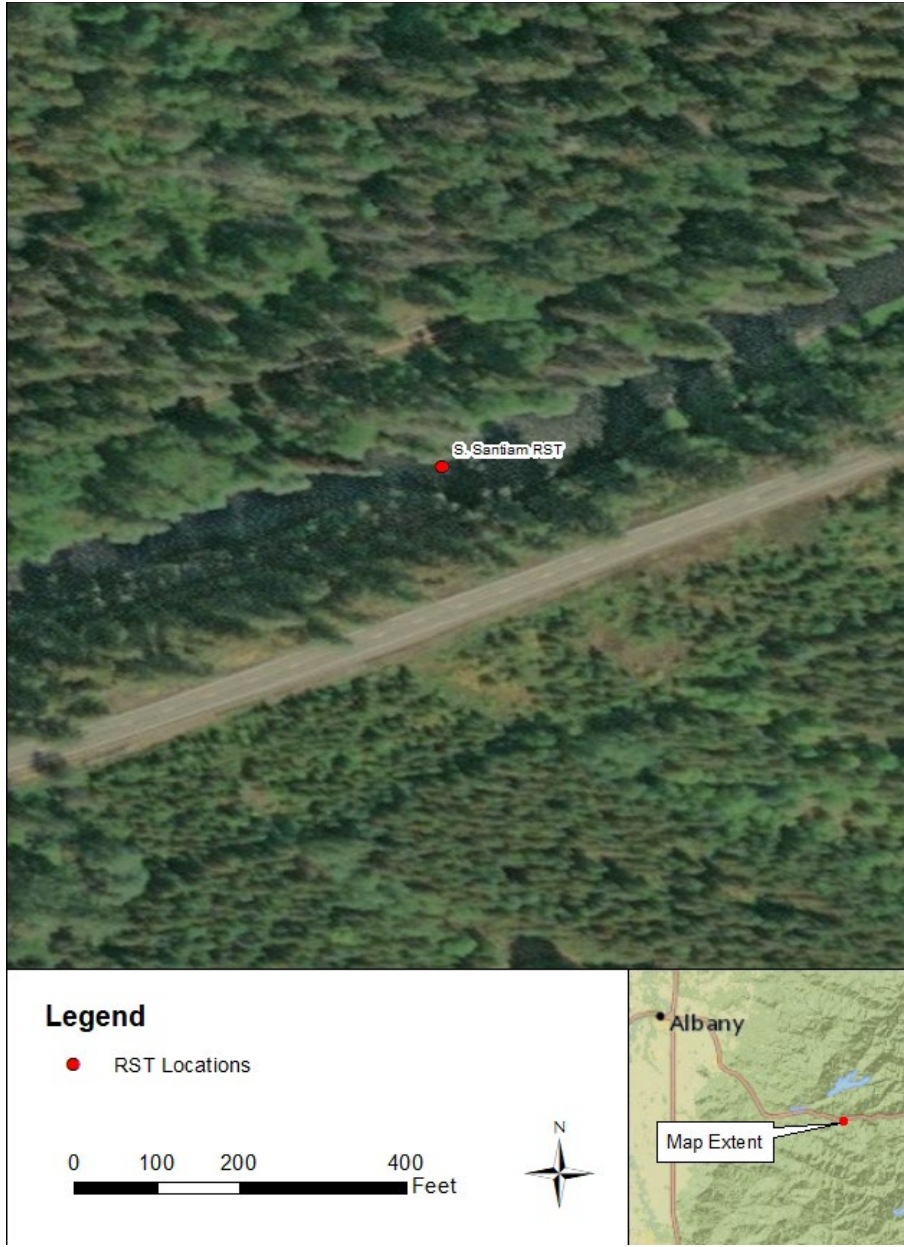


Figure 3. Foster Dam Head of Reservoir- South Santiam RST Location



Figure 4. Cougar Dam RST Locations



Figure 5. Cougar Dam Head of Reservoir RST Location



Figure 6. Fall Creek Dam Tailrace RST Location

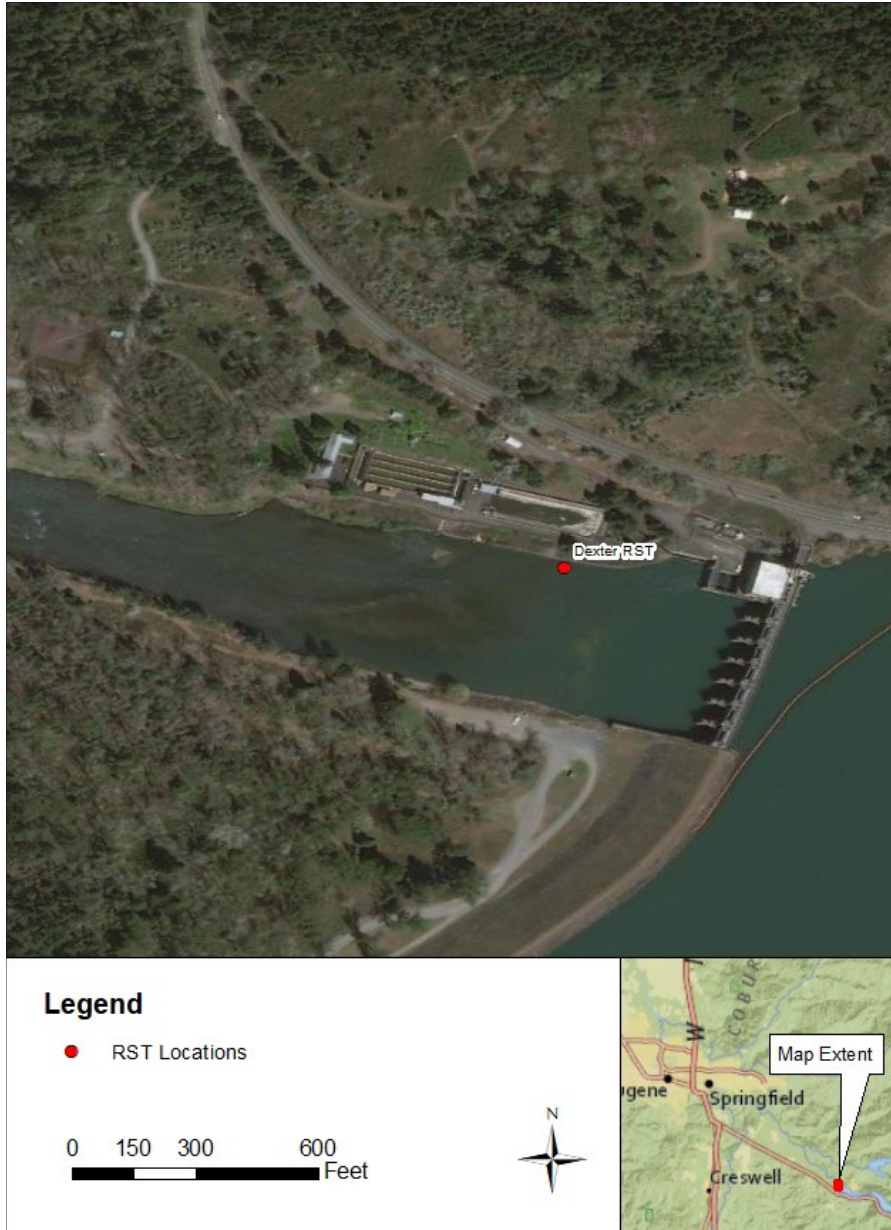


Figure 7. Dexter Dam RST Location

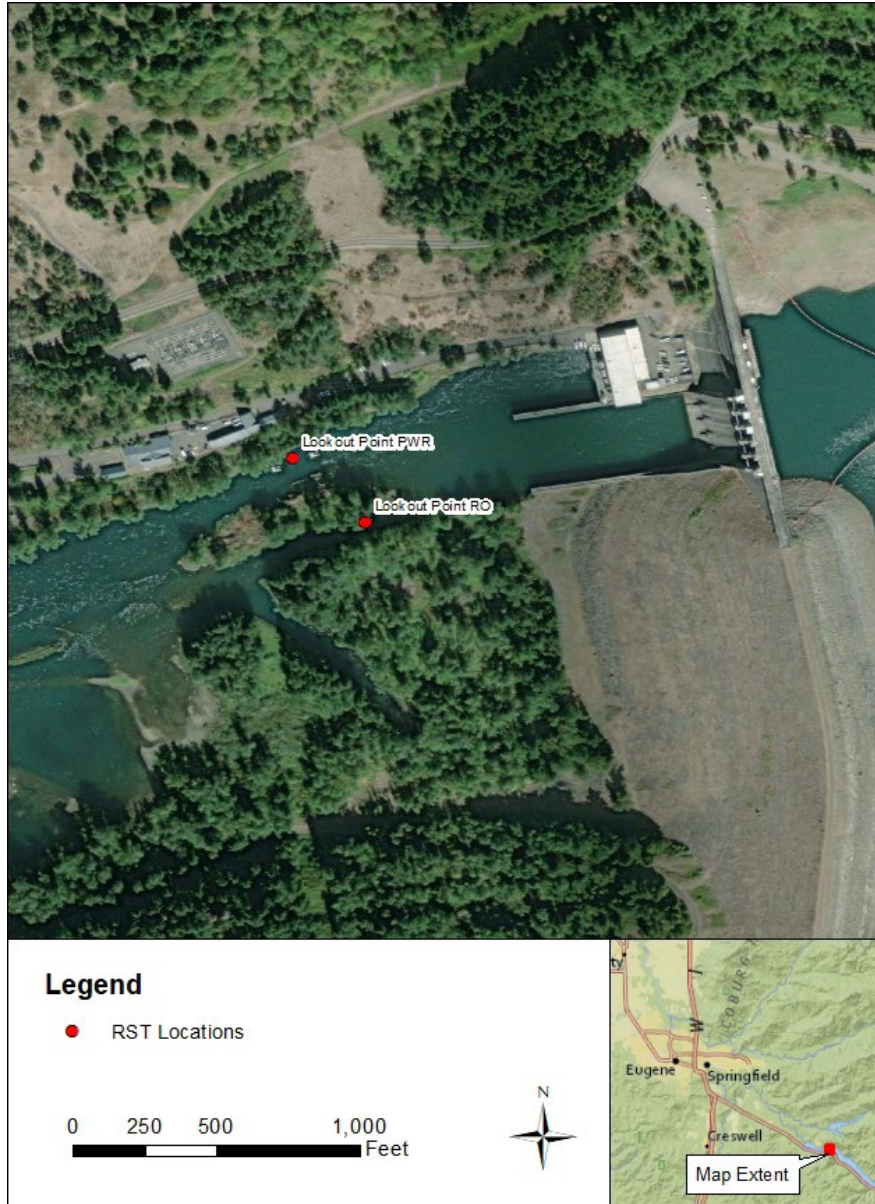


Figure 8. Lookout Point Dam Tailrace RST Location



Figure 9. 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	6/1/2022	6/15/2022	13	154
Green Peter Tailrace- Middle Santiam River	3/2/2022	6/1/2022	6/15/2022	0	67
Foster Dam Head of Reservoir- South Santiam	3/16/2022	6/1/2022	6/15/2022	13	85
Cougar Dam PH	12/1/2021	6/1/2022	6/15/2022	15	197
Cougar Dam RO	12/1/2021	6/1/2022	6/15/2022	15	196
Cougar Dam Head of Reservoir	3/7/2022	6/1/2022	6/15/2022	10	85
Fall Creek Dam Tailrace*	3/15/2022	6/1/2022	6/15/2022	15	93
Dexter Dam Tailrace	3/7/2022	6/1/2022	6/15/2022	15	100
Lookout Point Dam PH	3/15/2022	6/1/2022	6/15/2022	13	87
Lookout Point Dam Spill	3/15/2022	6/1/2022	6/15/2022	15	89
Lookout Point Head of Reservoir	3/10/2022	6/1/2022	6/15/2022	9	94

*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	28	0	474	61
Big Cliff Dam	STW	4	0	17	0
Green Peter Tailrace- Middle Santiam	CHS	0	0	0	13
Green Peter Tailrace- Middle Santiam	STW	0	0	6	0
Foster Dam Head of Reservoir- South Santiam	CHS	2	0	63	0
Foster Dam Head of Reservoir- South Santiam	STW	0	0	88	1
Cougar Dam	CHS	8	0	1182	215
Cougar Dam Head of Reservoir	CHS	38	0	460	64
Fall Creek Dam Tailrace	CHS	0	11	0	11
Dexter Dam Tailrace	CHS	13	0	38	112
Lookout Point Dam	CHS	14	0	42	2
Lookout Point Head of Reservoir	CHS	17	0	82	197

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. The RST had to be temporarily removed from 6 May 2022 to 13 May 2022 due to high flows at the site that could have damaged the trap.

Target Species

This reporting period began on June 1 and ended on June 15. There were a total of 28 Chinook salmon (CHS) and 4 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 10). Sampling duration was 87% for the RST. The trap was raised on the 11th due to a regionwide heavy precipitation event and resumed fishing on the 14th when flows decreased and allowed for safe sampling. 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 11 shows length frequency data to-date.

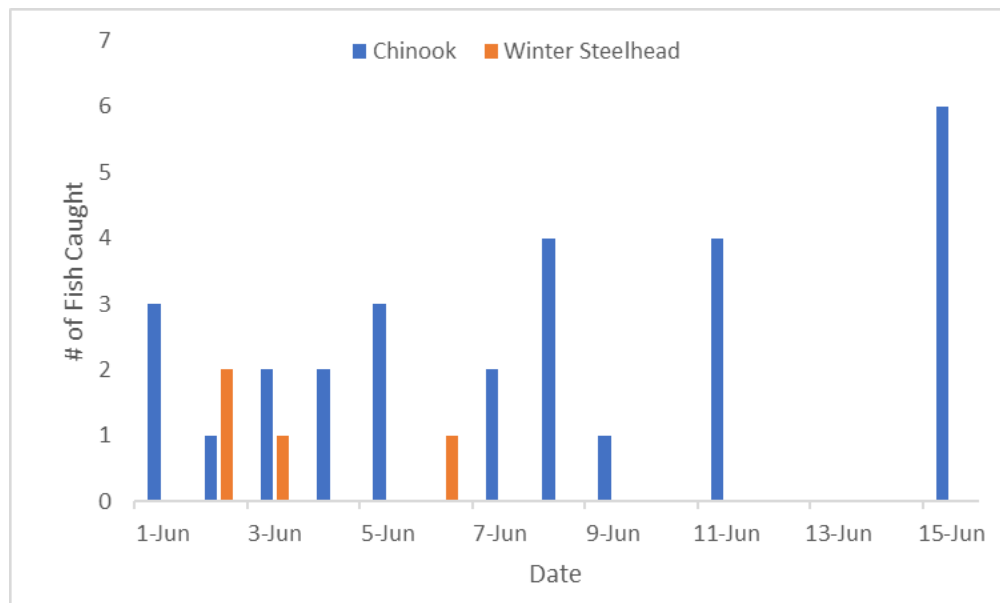
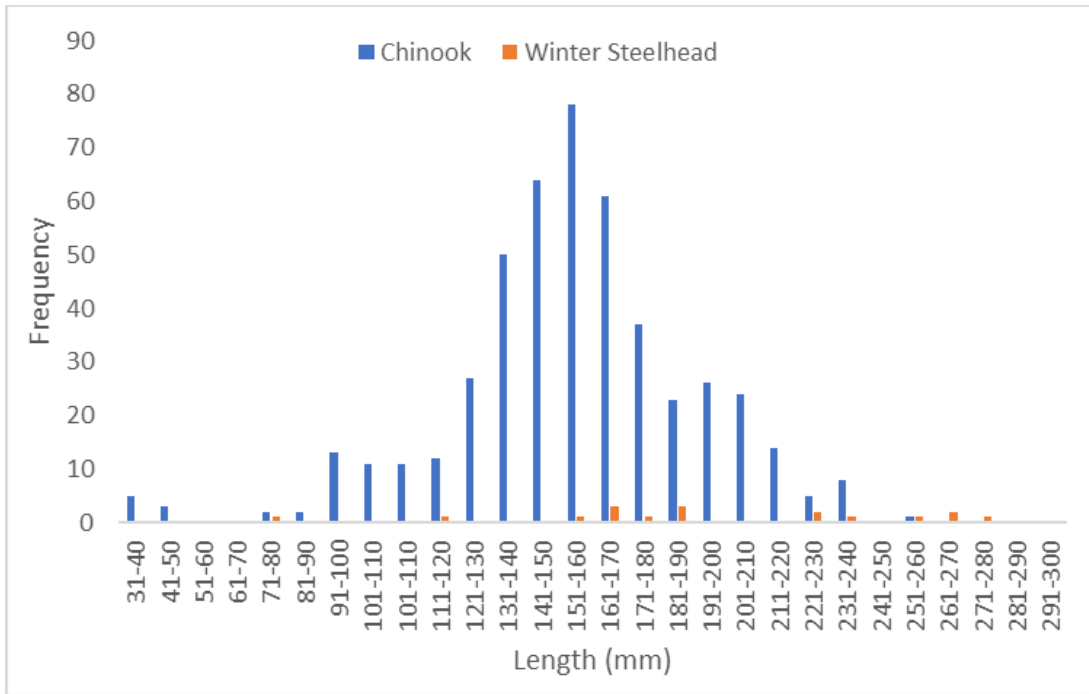


Figure 10. Chinook and Winter Steelhead Captured per day 06/01/2022 to 06/15/2022 (Big Cliff)



*Figure does not include fish without heads (8)

Figure 11. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Big Cliff)

Trapping Efficiency

A total of 1000 juvenile hatchery Chinook (parr) were bismarck brown dyed, adipose clipped and released on 05/25/2022 below Big Cliff Dam. A total of 21 fish were recaptured in the 8ft trap. Trapping efficiency was 2.1%.

Of the 21 fish recaptured, only 1 fish had injuries present. It displayed minor head injury. All other fish were unharmed.

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	1000	21	2.1% (21/1000)

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

To-Date (Since Dec. 01, 2021)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
		CHS	Fry	8	31	46	35.3	1.2	1.4	1.4

Big Cliff	PWR	CHS	Parr	20	78	130	101.2	4.8	20.1	11.9
		CHS	Smolt	444	91	260	161.8	8.9	180.6	44.8
		STW	Parr	2	75	75	93	5.2	14.3	9.8
		STW	Smolt	13	157	280	216.2	36.1	230.5	100.0

*Fish that were missing heads are not included in length and weight calculations (8).

June 1-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Big Cliff	PWR	CHS	Fry	2	46	48	47.0	1.2	1.2	1.2
		CHS	Parr	1	79	79	79	4.8	4.8	4.8
		CHS	Smolt	25	91	163	131	8.9	52.9	26.9
		STW	Parr	1	111	111	111	14.3	14.3	14.3
		STW	Smolt	3	157	173	164	36.1	50.1	41.3

*Fish that were missing heads are not included in length and weight calculations (1).

24-Hour Post Collection Holding Trial

22 Spring Chinook and 3 Winter Steelhead were captured during the current reporting period and held for 24 hours. 0 Chinook (0%) and 0 Winter Steelhead (0%) died in holding.

Injuries and Copepod Infection

Partial descaling <20% was observed in 17 of the 28 Chinook captured (60.7%), 7 displayed descaling >20% (25.0%), 22 displayed body injury (78.6%), 4 had eye injury (14.3%), 16 had copepods present in the branchial cavity (57.1%) and 11 had copepods on fins (39.3%). No Chinook displayed gas bubble disease (0.0%). There were 2 mortalities (7.1%).

Partial descaling <20% was observed in 2 of the 4 Winter Steelhead captured (50.0%) and 1 displayed descaling >20% (25.0%), 3 displayed body injury (75.0%), 0 had eye injury (0%), 0 had copepods present in the branchial cavity (0%) and 1 had copepods on fins (25.0%). One Winter Steelhead displayed gas bubble disease (25.0%) (level 1). There was 1 mortality (25.0%). 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	28	17	7	22	4	16	11	2
Big Cliff Dam	Winter Steelhead	4	2	1	3	0	0	1	1

Non-Target Species

40 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	15	4	39	9
Brook Lamprey	0	0	0	0
Bullhead	2	0	3	0
Crappie	0	0	0	0
Longnose Dace	0	0	0	0
Kokanee	2	0	110	39
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
Chinook (clipped)	4	0	8	0
<i>O. mykiss</i> (clipped)	1	1	3	2
Pumpkinseed	16	1	28	3
Unknown	0	0	2	0
Totals	40	6	192	53

Stream Statistics

Basic stream statistics at the Big Cliff Dam site were calculated from data downloaded from U.S. Geological Survey stream gage numbers 14181410 and 14181500. Gage height (feet) is the only metric provided at gage 14181410. Total dissolved gas (TDG) saturation data was received from gage 14181500, 1 rkm downstream of the trap. During the reporting period, daily maximum values for instantaneous gage height ranged from 1,111.5 feet to 1,116.6 feet (mean: 1,113.6 feet). Figure 12 shows instantaneous gage height.

Total dissolved gas saturation ranged from 102 to 127% during the reporting period (mean: 114.2%). Figure 13 shows total dissolved gas saturation.

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

Flows through the Powerhouse and Spill during the reporting period averaged 3,336.3 and 1,301.2 cubic feet per second (cfs), respectively (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	28	4
Effort (hrs)	282.1	282.1
CPUE (fish/hr)	0.099	0.014

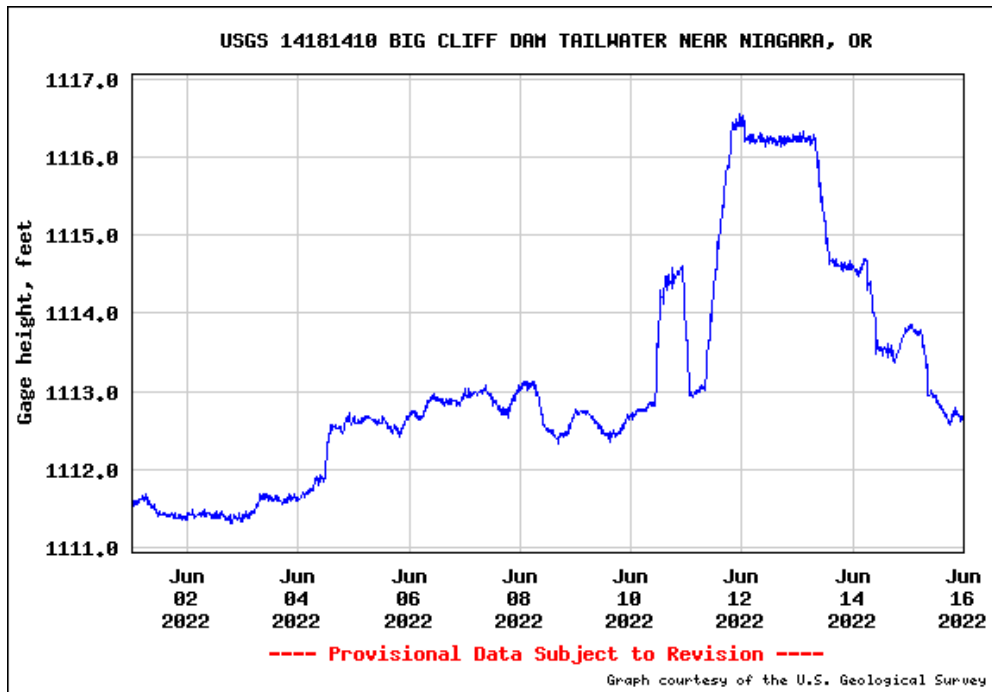


Figure 12. Gage height (ft); below Big Cliff Dam

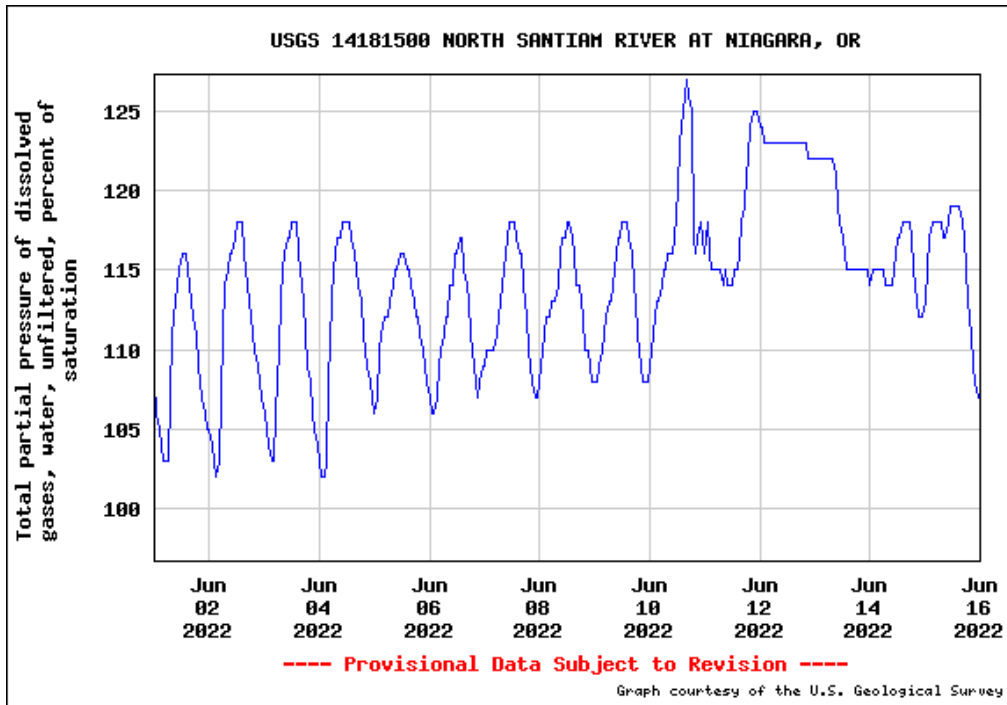


Figure 13. Total Dissolved Gas Saturation (%); below Big Cliff Dam

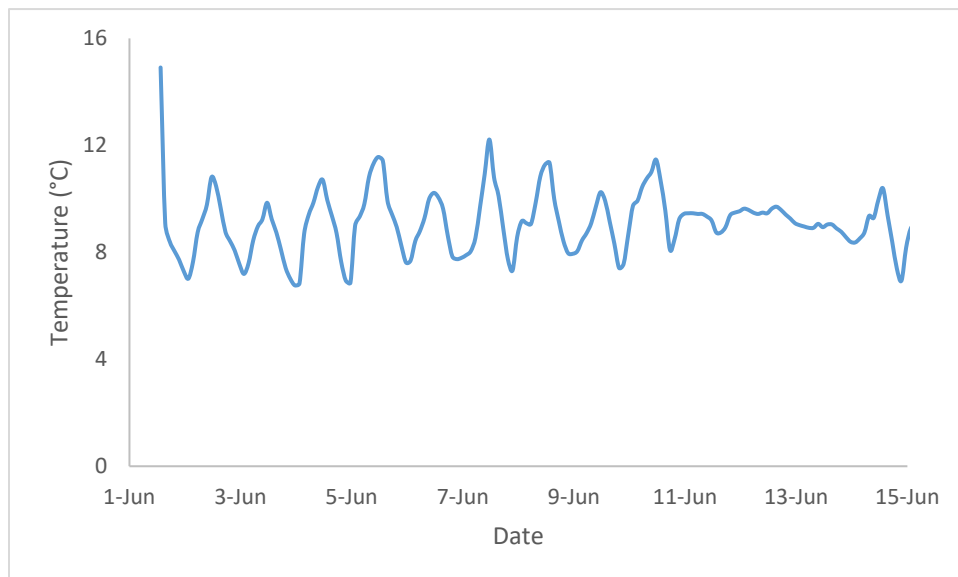


Figure 14. Temperature at RST (Big Cliff Dam)

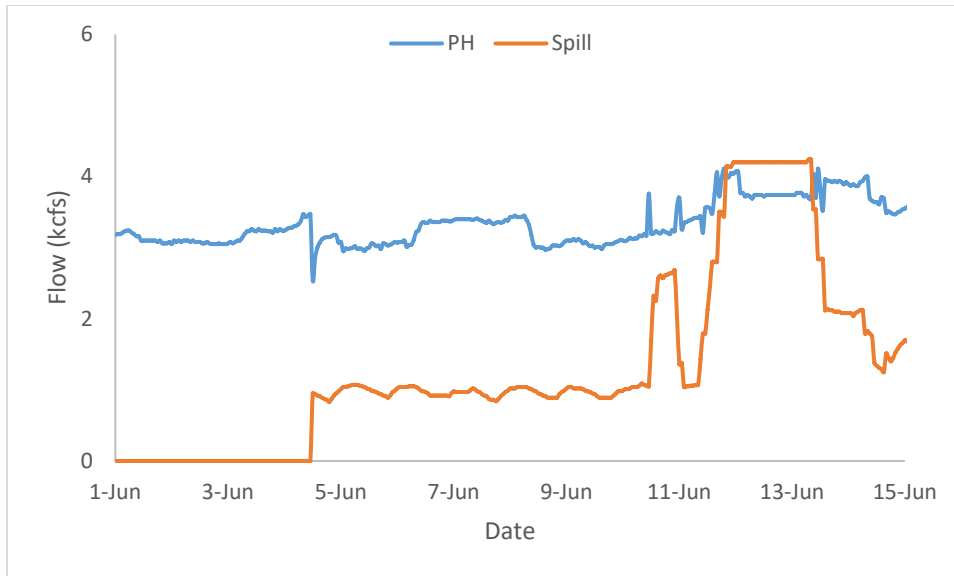
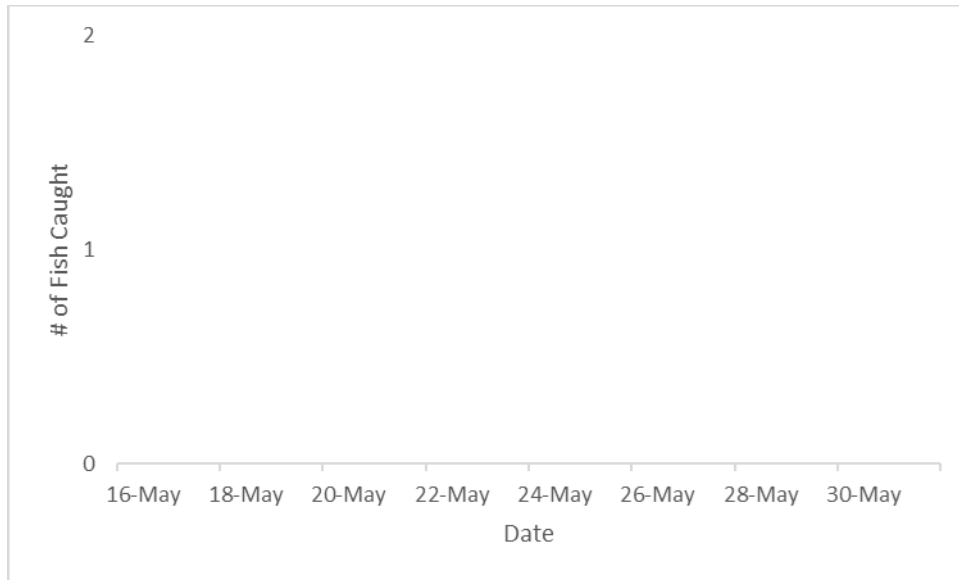


Figure 15. Hourly Flows PWR vs. RO (Big Cliff Dam)

Middle Fork Santiam– Green Peter Tailrace

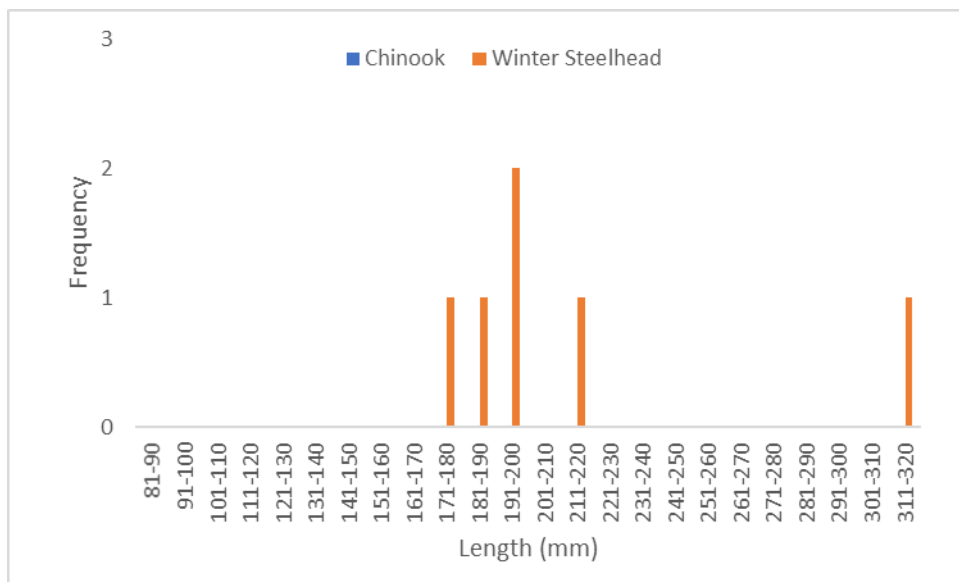
Target Species

This reporting period began on June 1 and ended on June 15. No Chinook Salmon (CHS) or Winter Steelhead (STW) were captured during the 15-day sampling period (Figure 16) as the trap was removed prior to this reporting period. The trap was raised to the non-sampling position on May 7th due to highline damage after flows were raised to ~4,000 cfs. The RST was removed on May 12th to prevent further damage from expected high flows. 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. 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 06/01/2022 to 06/15/2022 (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 518 juvenile hatchery Chinook (parr) were bismarck brown dyed, adipose clipped and released on 4/30/2022 below Green Peter Dam. A total of 9 fish were recaptured in the 8ft trap on 5/1/2022. Trapping efficiency was 1.74%.

Of the 9 fish recaptured, only 1 fish that was captured had injuries present. The injured fish displayed fin damage. 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	518	9	1.74% (9/518)

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

To-Date (Since March 01, 2022)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Green Peter Dam Tailrace-Middle Santiam	Spill	STW	Parr	0	0	0	0	0	0	0
		STW	Smolt	6	175	320	213.7	46.2	316.1	107.1

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

24-Hour Post Collection Holding Trial

No target species were captured during the current reporting period.

Injuries and Copepod Infection

No Spring Chinook were captured at Green Peter Dam. No Winter Steelhead were captured during this reporting period. A summary of injuries observed on Winter Steelhead 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 STW for Sampling Period. (Green Peter Tailrace- Middle Santiam River).

Site	Trap	# 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	0	0	0	0	0	0	0	0

*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

No non-target species were captured this reporting period. The season total data is summarized below in Table 10.

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

Species	Season Total Capture	Season Total Mortality
Bluegill	86	59
Brook Lamprey	0	0
Bullhead	0	0
Crappie	0	0
Longnose Dace	0	0
Kokanee	125	61
Red-Sided Shiner	0	0
Sculpin	0	0
Smallmouth Bass	1	0
Sucker	2	2
Whitefish	0	0
Cutthroat	0	0
<i>O. mykiss</i> (clipped)	4	2
Unknown	11	11
Totals	229	135

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 and 14186200. Gage height (feet) is the only metric provided at gage 14186110. Total dissolved gas saturation data was received from gage number 14186200, 50 meters upstream of the trap. During the reporting period, daily maximum values for instantaneous gage height ranged from 702.3 feet to 708.9 feet (mean: 705.7 feet). Figure 18 shows instantaneous gage height.

Total dissolved gas saturation ranged from 101 to 123% (mean: 108.8%) during the reporting period. Figure 19 shows the total dissolved gas saturation.

The trap and its HOBO logger were removed prior to this sampling period. Temperature data from USGS gauge 14186200 is provided in Figure 20.

Flows through the Powerhouse and Spillway during the reporting period averaged 2,154.6 and 967.4 cubic feet per second (cfs) respectively (Figure 21). 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.

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

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

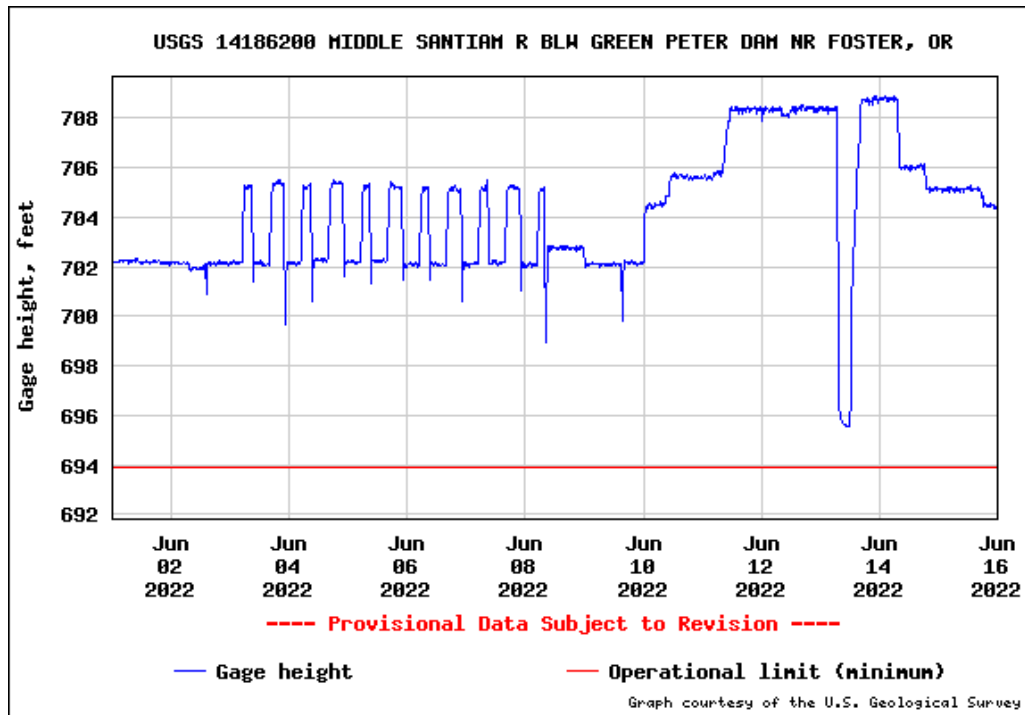


Figure 18. Gage Height (feet); below Green Peter Dam

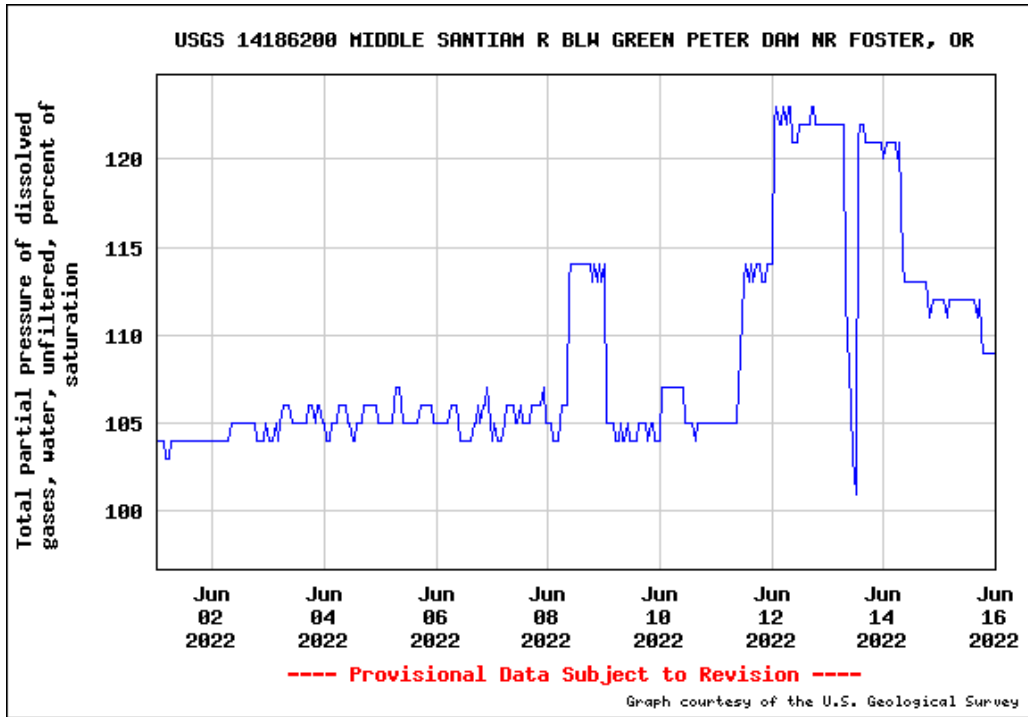
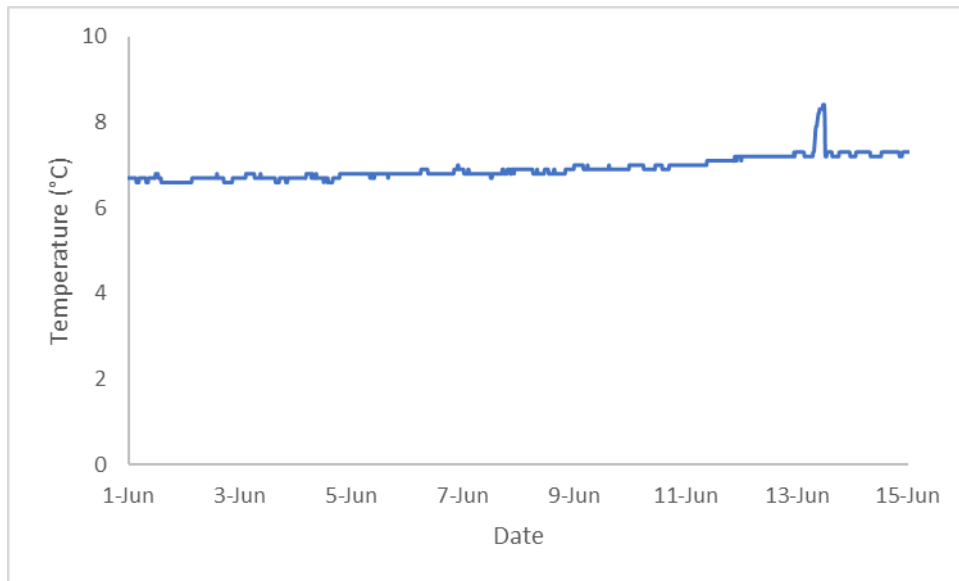


Figure 19. Total Dissolved Gas Saturation (%); below Green Peter Dam



Note: Hobo logger was removed with the trap during reporting period. Temperature from USGS stream gage number 14186200, at trap location.

Figure 20. Temperature at RST (Green Peter Tailrace- Middle Santiam River)

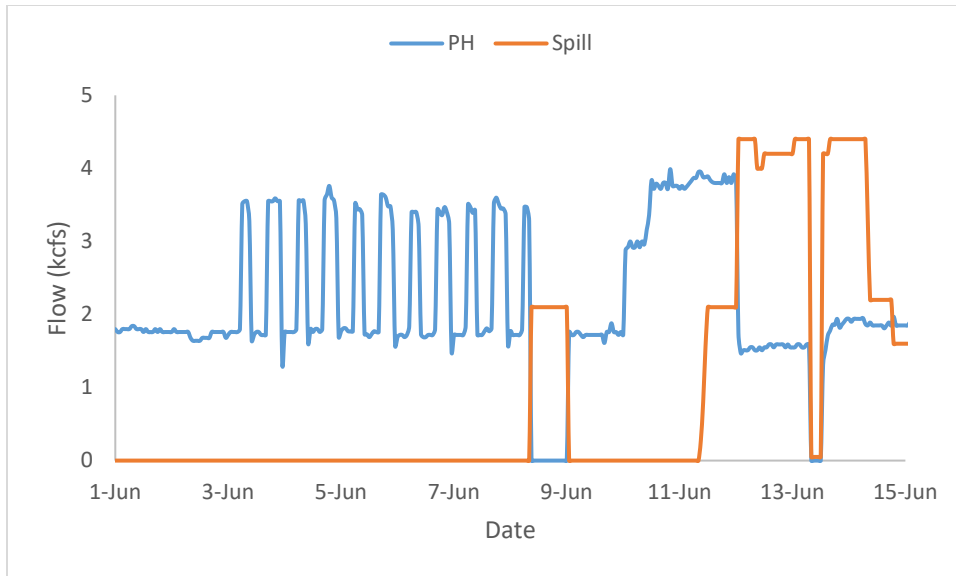


Figure 21. Hourly Flows PWR vs. Spill (Green Peter Dam)

South Fork Santiam– Foster Dam Head of Reservoir

Target Species

This reporting period began on June 1 and ended on June 15. There were 2 Chinook salmon (CHS) and 0 Winter Steelhead (STW) captured (Figure 22) during the 15-day sampling period. Sampling duration was 87% for the RST. The cone was raised on June 11th due to a high flow event and resumed fishing on June 14th. 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 23 shows the daily capture numbers for Chinook and Winter Steelhead and Figure 24 shows length frequency data to-date for both species.

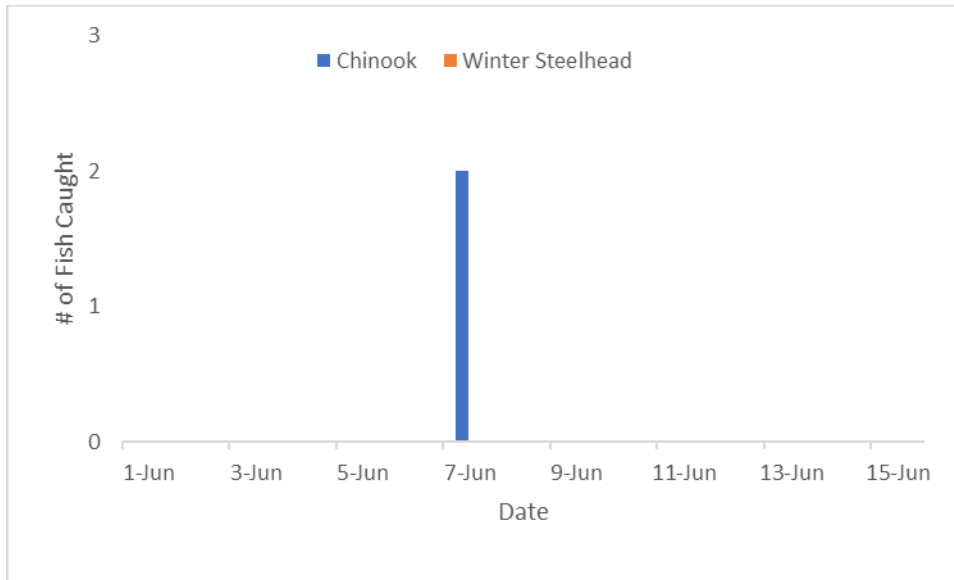


Figure 22. Chinook and Winter Steelhead Captured Per Day 06/01/2022 to 06/15/2022 (Foster Dam Head of Reservoir- South Santiam)

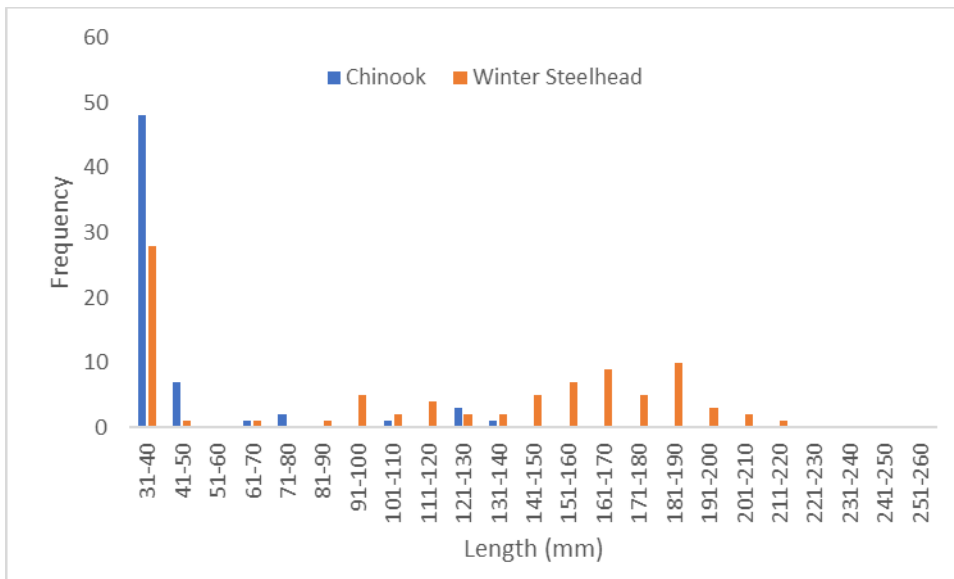


Figure 23. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Foster Dam Head of Reservoir- South Santiam)

Trapping Efficiency

12 Chinook and 60 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 1.7%. 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 (Since March 16, 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	55	32	49	35.9	N/A	N/A	N/A
		CHS	Parr	5	70	127	91.6	3.1	24.7	10.2
		CHS	Smolt	3	120	138	129	19.6	27.5	23.5
		STW	Fry	29	31	46	35.0	N/A	N/A	N/A
		STW	Parr	17	65	183	116.7	2.4	63.6	20.9
		STW	Smolt	42	112	213	168.7	11.2	75.3	47.4
June 1-15, 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	1	48	48	48	1.2	1.2	1.2
		CHS	Parr	1	70	70	70	4.2	4.2	4.2
		CHS	Smolt	0	0	0	0	0	0	0
		STW	Fry	0	0	0	0	N/A	N/A	N/A
		STW	Parr	0	0	0	0	0	0	0
		STW	Smolt	0	0	0	0	0	0	0

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

Injuries and Copepod Infection

Partial descaling <20% was observed on 0 of the 2 Spring Chinook captured (0%). Body injuries were present on 0 Spring Chinook (0%) and 0 displayed eye injury (0%). No copepods were present on any of the Spring Chinook captured (0%).

Partial descaling <20% was observed on 0 of the 0 Winter Steelhead captured (0%). Body injuries were present on 0 Winter Steelhead (0%) and 0 displayed eye injury (0%). 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	2	0	0	0	0	0	0	0
	Winter Steelhead	0	0	0	0	0	0	0	0

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 2 Spring Chinook and 0 Winter Steelhead.

Non-Target Species

2 non-target species fish was 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	5 ft Capture	5 ft 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
Dace	1	1	4	1
Kokanee	0	0	0	0
Red-Sided Shiner	0	0	0	0
Sculpin	1	1	2	1
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	4	0
Totals	2	2	41	2

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 1,080.0 cfs to 5,820.0 cfs (mean: 2,513.3 cfs). Figure 24 shows instantaneous discharge.

Stream temperatures were recorded every 2 hours for the length of the report period for the 5-foot RST (Figure 25). Temperature probes operated normally throughout this reporting period.

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	2	0
Effort (hrs)	287.8	287.8
CPUE (fish/hr)	0.007	0.000

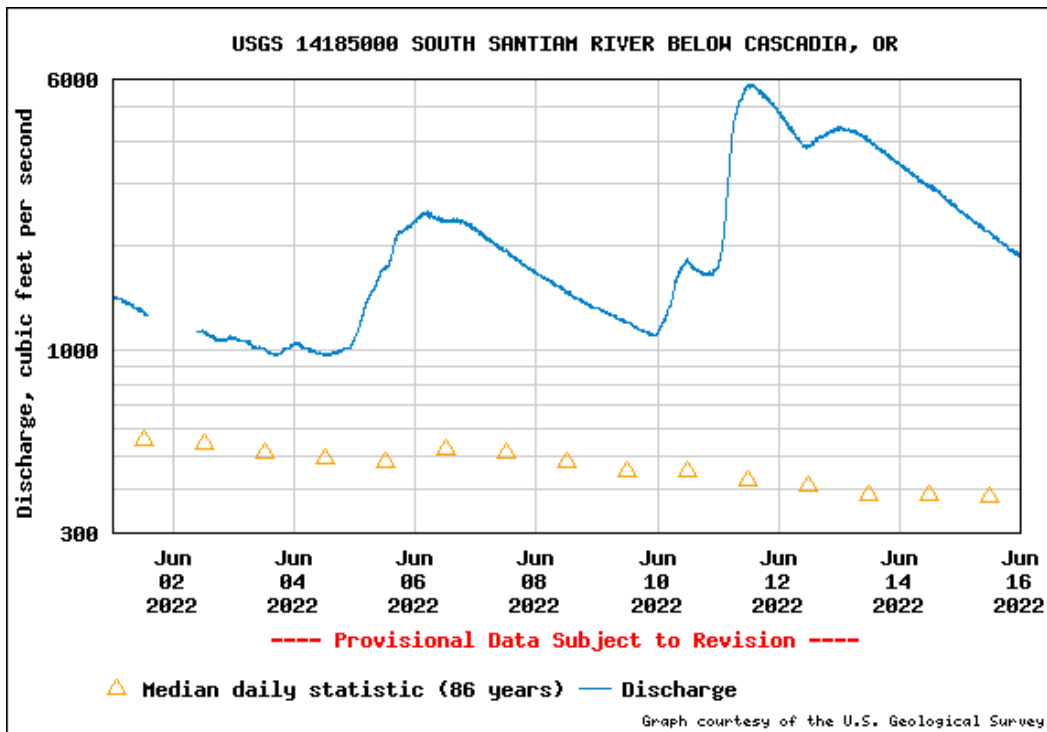


Figure 24. Discharge (cfs); Foster Dam Head of Reservoir – S. Santiam)

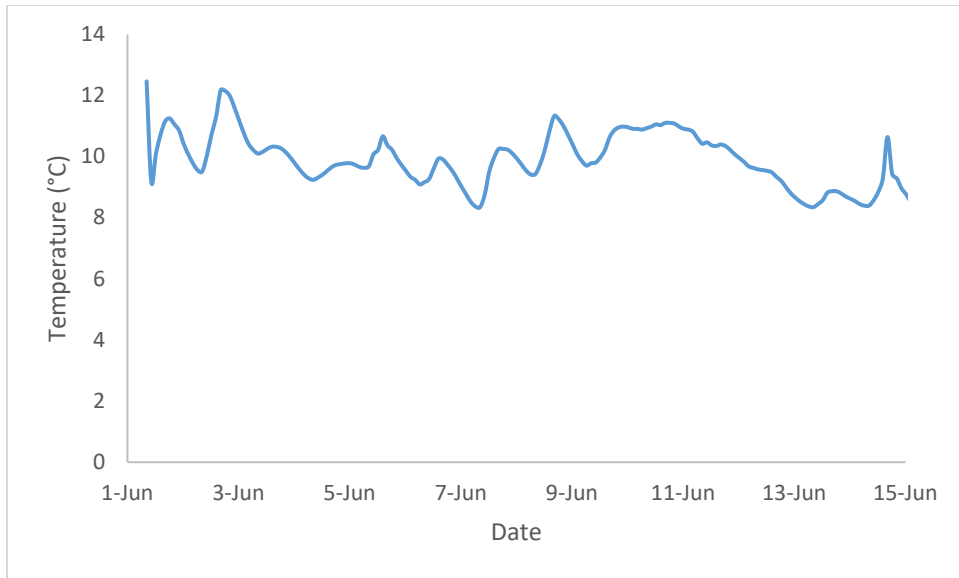
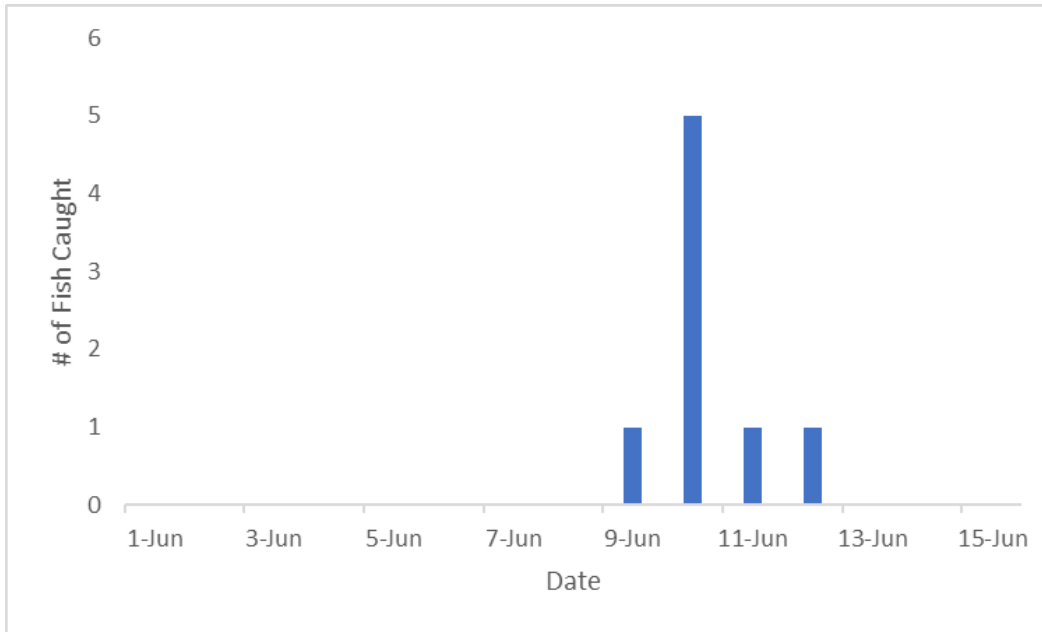


Figure 25. Temperature at RST (Foster Dam Head of Reservoir – S. Santiam)

South Fork McKenzie – Cougar Dam

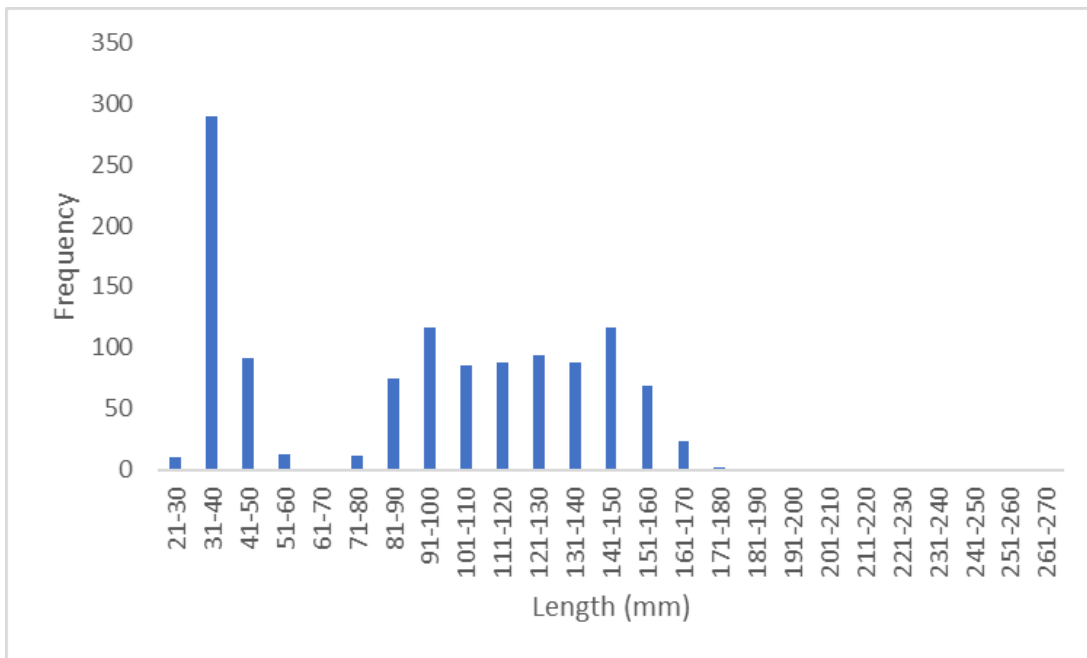
Target Species

This reporting period began on June 1 and ended on June 15. There was a total of 8 Chinook Salmon (CHS) captured during the 15-day sampling period (Figure 26). Sampling duration was 100% for both Powerhouse RST and RO RSTs. 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 26 shows the daily capture numbers for chinook and Figure 27 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 26. Chinook Captured Per Day 06/01/2022 to 06/15/2022 (Cougar Dam)



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

Figure 27. Length Frequency of Juvenile Chinook Sampled Season To-Date (Cougar Dam)

Trapping Efficiency

A total of 993 juvenile hatchery Chinook (sub-yearlings) were bismarck brown dyed, adipose clipped, left vent clipped and released on 05/15/2022. 63 fish were recaptured for an efficiency of 6.3%. 37 fish displayed injuries, primarily descaling and fin damage. 3 fish were dead displaying head injury. Mt. Hood staff noted that fish were in good condition at time of retrieval from the hatchery but displayed some fin damage and minor descaling.

Cougar Dam	Release #	Recapture #	Capture Efficiency
RO Route	993	63	5.56% (21/993)

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

To-Date (Since Dec. 01, 2021)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam	RO	CHS	Fry	21	34	48	40.8	N/A	N/A	N/A
		CHS	Parr	135	56	164	108.5	1.2	41.1	14.8
		CHS	Smolt	225	92	230	139.2	8.8	86.1	29.1
Cougar Dam	PWR	CHS	Fry	378	27	55	38.1	1.0	1.8	1.4
		CHS	Parr	231	54	165	100.5	1.6	41.0	11.0
		CHS	Smolt	190	76	167	133.9	4.2	45.6	24.9

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

June 1-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam	RO	CHS	Fry	0	0	0	0	N/A	N/A	N/A
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Smolt	0	0	0	0	0	0	0
Cougar Dam	PWR	CHS	Fry	7	41	55	46.7	1.0	1.8	1.4
		CHS	Parr	0	0	0	0	0	0	0
		CHS	Smolt	1	150	150	150	34.5	34.5	34.5

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

24-Hour Post Collection Holding Trial

A total of 8 Chinook captured in the RSTs, 8 fish from the PWR RST and 0 from the RO RST, were held for ~24 hours in holding tanks and then evaluated for survival rates. In total, 0 of the fish (0%) held during this period died during holding. 0 of the 8 PWR RST captured fish (0%) died during holding and no fish were held from the RO RST this reporting period.

Injuries and Copepod Infection

Partial descaling <20% was observed on 0 of the 0 Chinook collected at the RO RST (0.0%). Descaling >20% was observed on 0 of the 0 Chinook collected at the RO RST (0.0%). There were 0 RO RST fish with bodily injuries (0.0%) and 0 had eye injuries (0.0%). 0 fish from the RO RST had copepods present in the branchial cavity (0.0%) and 0 had copepods present on fins (0.0%). No fish displayed Gas Bubble Disease (0.0%).

Partial descaling <20% was observed on 0 of 8 Chinook collected at the PWR RST (0.0%), and descaling >20% was observed on 0 Chinook collected at the PWR RST (0.0%). Of the 8 Chinook captured in the PWR RST, 0 displayed body injuries (0.0%) and 0 had eye injuries (0.0%). 1 of the PWR RST Chinook had copepods present in the branchial cavity (12.5%) and 1 had copepods present on fins (12.5%). 0 PWR RST Chinook displayed Gas Bubble Disease (0.0%).

There were 0 chinook mortalities collected in the RO RST (0.0%) and 0 in the PWR RST (0.0%). 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	0	0	0	0	0	0	0	0
Cougar	PWR	8	0	0	0	0	1	1	0

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

Non-Target Species

A total of 215 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
Dace	0	0	191	0	203	1

Kokanee	0	0	0	0	0	0
Red-Sided Shiner	0	0	0	0	0	0
Sculpin	0	0	8	1	38	1
Spotted Bass	0	0	0	0	0	0
Smallmouth Bass	0	0	1	0	2	0
Sucker	0	0	0	0	1	0
Whitefish	0	0	4	0	5	0
Cutthroat	0	0	3	0	32	1
<i>O. mykiss</i>	0	0	8	0	93	1
Bull Trout	0	0	0	0	1	0
Unknown	0	0	0	0	20	1
Totals	0	0	215	1	396	5

Stream Statistics

Basic stream statistics at the Cougar Dam site were calculated from data downloaded from U.S. Geological Survey stream gage numbers 14159410 and 14181500. Gage height (feet) is the only metric provided at gage 14159410. Total dissolved gas saturation data was received from gage 14181500, 500 meters downstream of the trap. During the reporting period, daily maximum values for instantaneous gage height ranged from 1,252.7 feet to 1,252.8 feet (mean: 1,252.8 feet). Figure 28 shows instantaneous gage height.

Total dissolved gas saturation ranged from 101 to 105% (mean: 103.0%). Figure 29 shows total dissolved gas saturation.

Stream temperatures were recorded every 2 hours for the length of the report period for the RO and PWR RST's (Figure 30 and 31 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 0 and 570.0 cubic feet per second (cfs), respectively (Figure 32). 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	0	8
Effort (hrs)	361.9	723.6
CPUE (fish/hr)	0	0.011

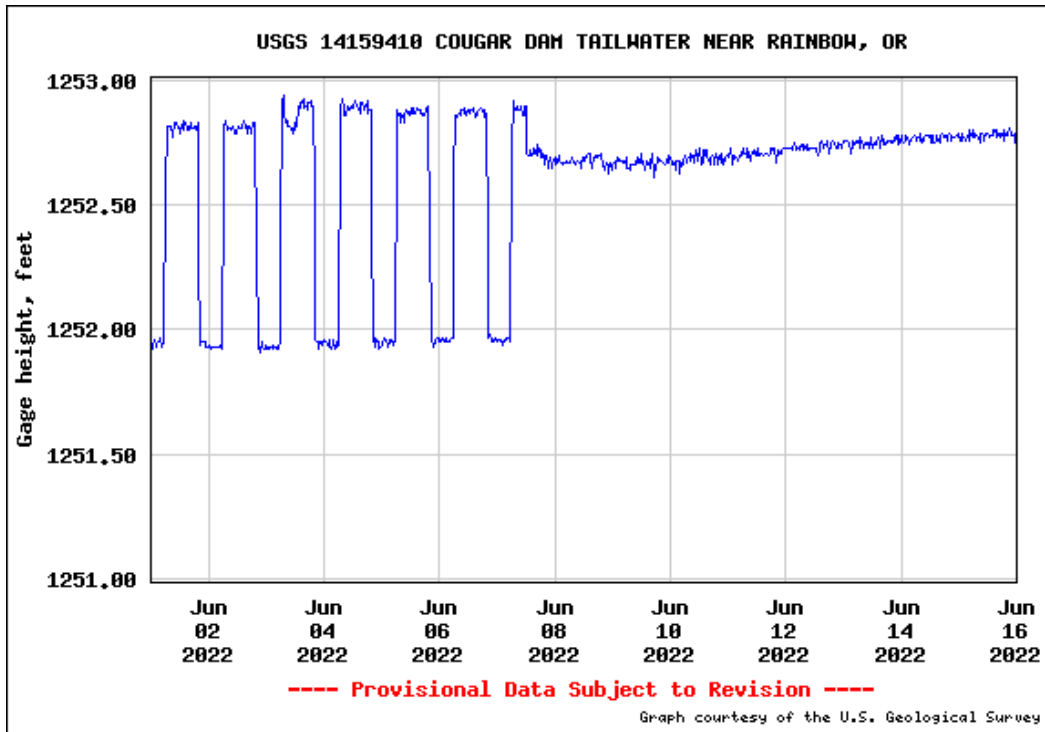


Figure 28. Gage Height (feet); below Cougar Dam, South Fork McKenzie River

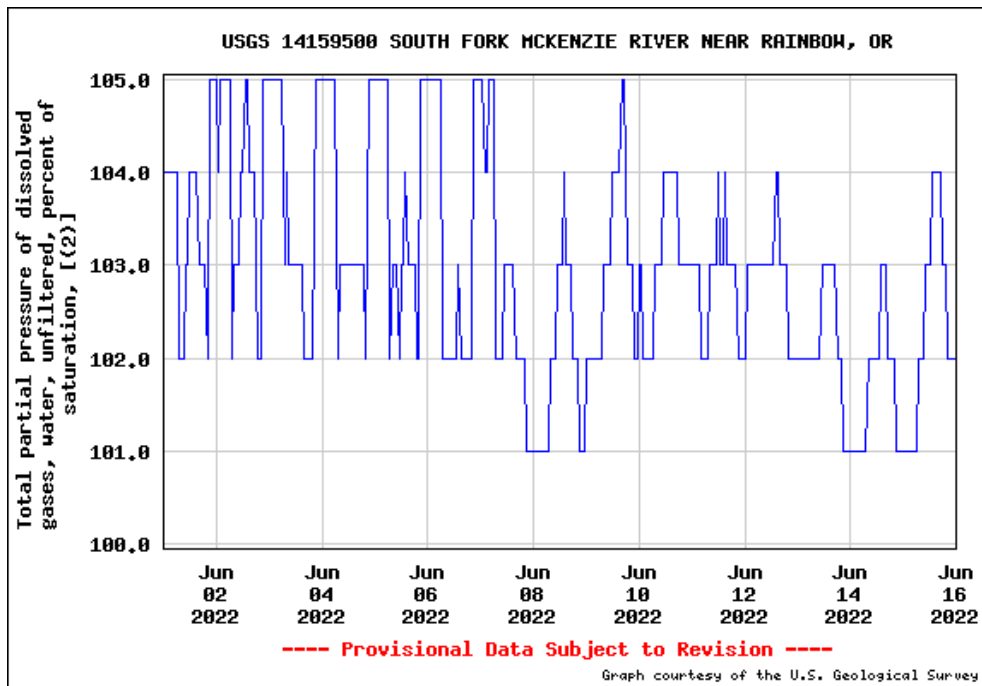


Figure 29. Total Dissolved Gas Saturation (%); below Cougar Dam, South Fork McKenzie River

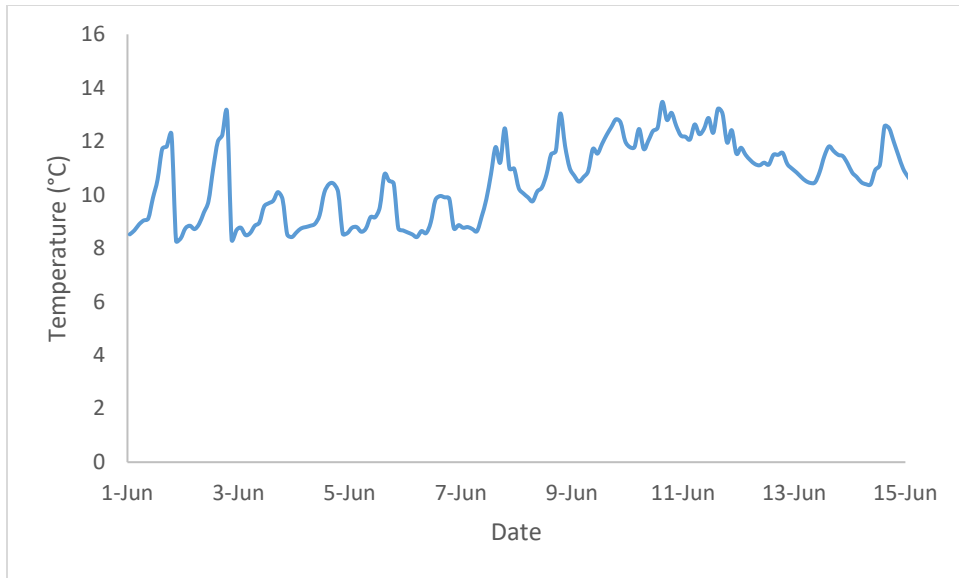


Figure 30. Temperature at RO RST (Cougar Dam)

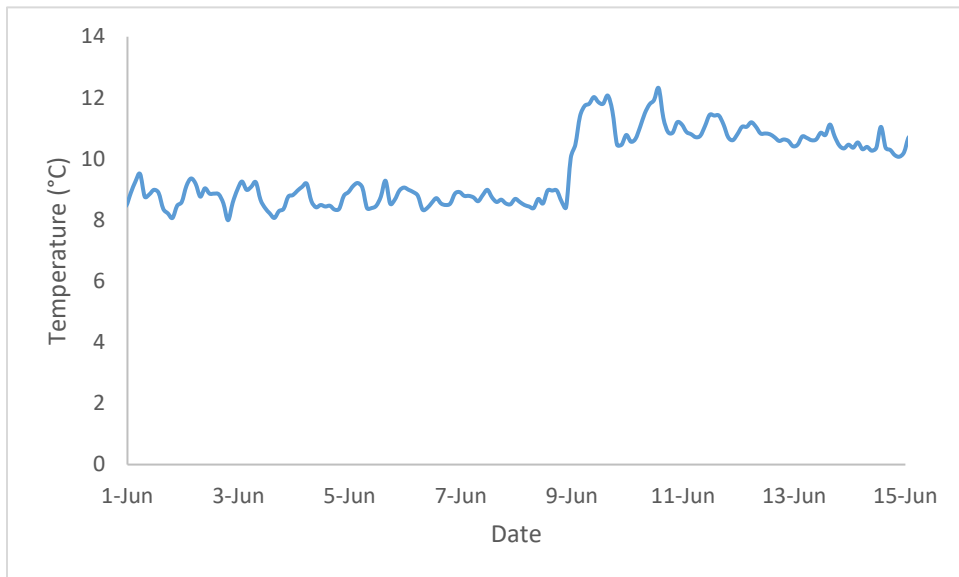


Figure 31. Temperature at PWR RST (Cougar Dam)

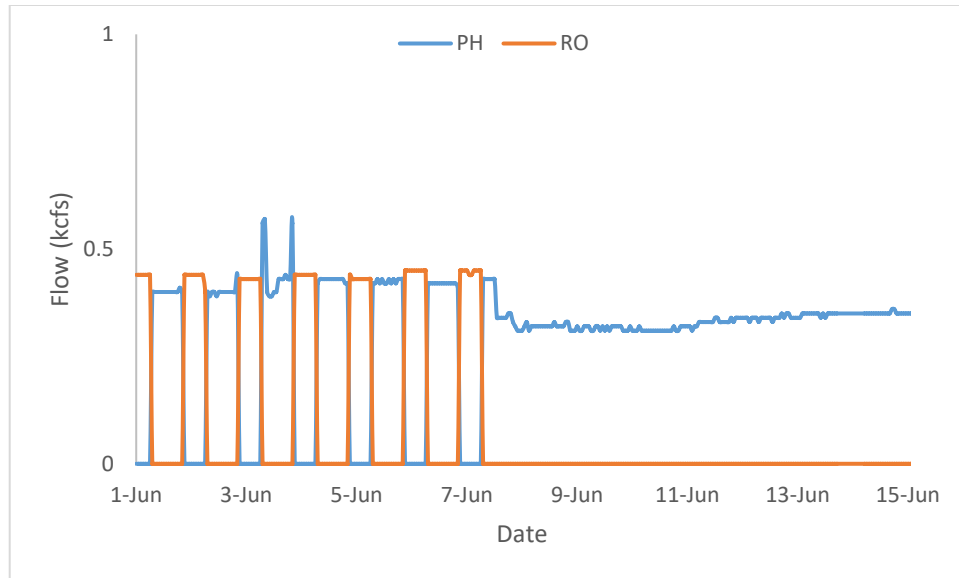


Figure 32. Hourly Flows PWR vs. RO (Cougar Dam)

South Fork of the McKenzie–Cougar Dam Head of Reservoir

Target Species

The reporting period began June 1 and ended June 15. There were 38 Chinook salmon captured during the 15-day sampling period (Figure 33). The trap was operated 87% 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 34 shows length frequency data to-date.

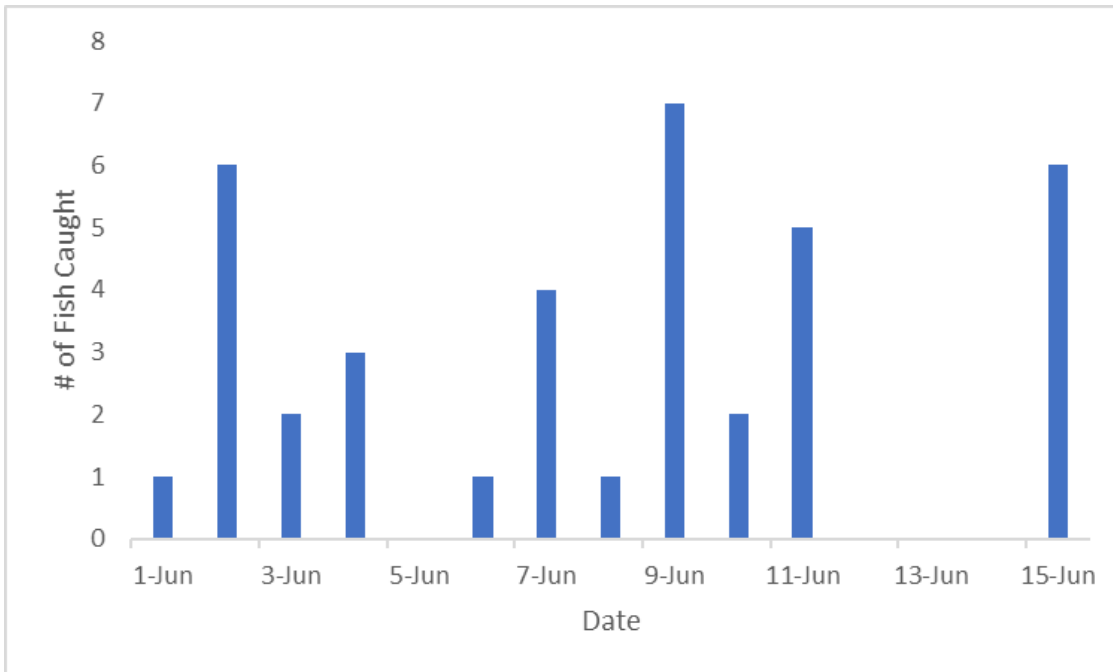


Figure 33. Chinook Captured Per Day 06/01/2022 to 06/15/2022 (Cougar Dam Head of Reservoir)

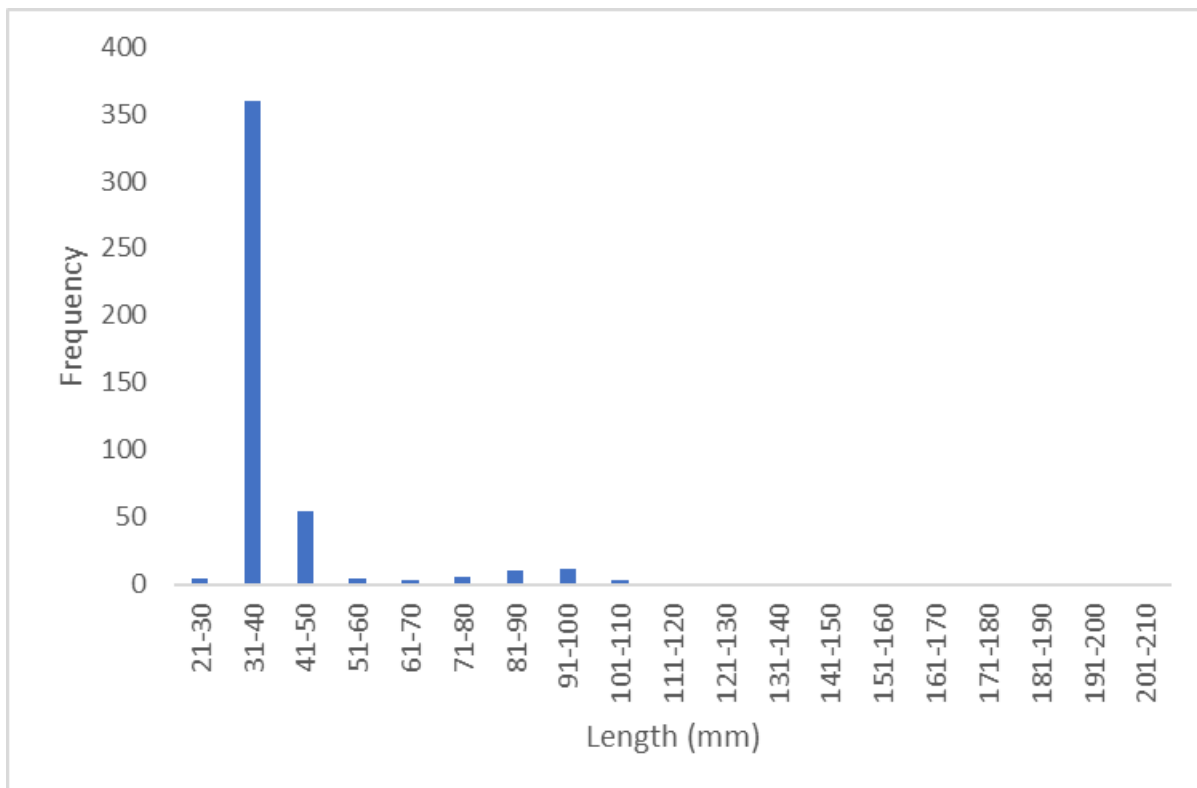


Figure 34. Length Frequency of Juvenile Chinook Sampled Season To-Date (Cougar Dam Head of Reservoir)

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

To-Date (Since March 07, 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	36	58	150	90.3	2.3	11.2	7.4
		CHS	Fry	424	27	61	37.1	N/A	N/A	N/A

June 1-15, 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	0	0	0	0	0	0	0
		CHS	Fry	38	31	54	41.8	1.0	1.8	1.3

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

Trapping Efficiency

A total of 500 juvenile hatchery Chinook (smolt) were adipose clipped, left or right ventrally clipped and released on 05/19/2022 upstream of the Cougar Head of Reservoir trap site. A total of 23 fish were recaptured in the 5 ft trap. Trapping efficiency was 4.6%.

Of the 23 fish recaptured, 6 were dead and displayed body injuries. This was likely caused by a branch that got stuck in the throat of the trap. None of the other fish captured displayed injuries.

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	500	23	4.6% (23/500)

Injuries and Copepod Infection

There were 38 Chinook were captured for the reporting period. Of the fish captured, partial descaling <20% was observed on 0 fish (0%), 0 had copepods (0%), and 2 had bodily injury (5.3%). There was 1 mortality for this reporting period (2.6%). 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
Cougar Dam Head of Reservoir	38	0	0	2	0	0	0	1

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

Collected DNA and Scale Samples

Scales and DNA were collected from 11 of the Chinook captured. 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 16 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	2	0
Crappie	0	0	0	0
Cutthroat Trout	0	0	41	1
Longnose Dace	1	0	5	0
Speckled Dace	0	0	1	0
Red-Sided Shiner	0	0	0	0
Sculpin	0	0	2	1
Spotted Bass	0	0	0	0
Sucker	0	0	0	0
Whitefish	0	0	0	0
<i>O. mykiss</i>	14	0	299	2
Unknown	1	0	9	0
Totals	16	0	359	4

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 1,090.0 cfs to 3,100.0 cfs (mean: 1,711.3 cfs). Figure 35 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 36).

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	38
Effort (hrs)	261.0
CPUE (fish/hr)	0.146

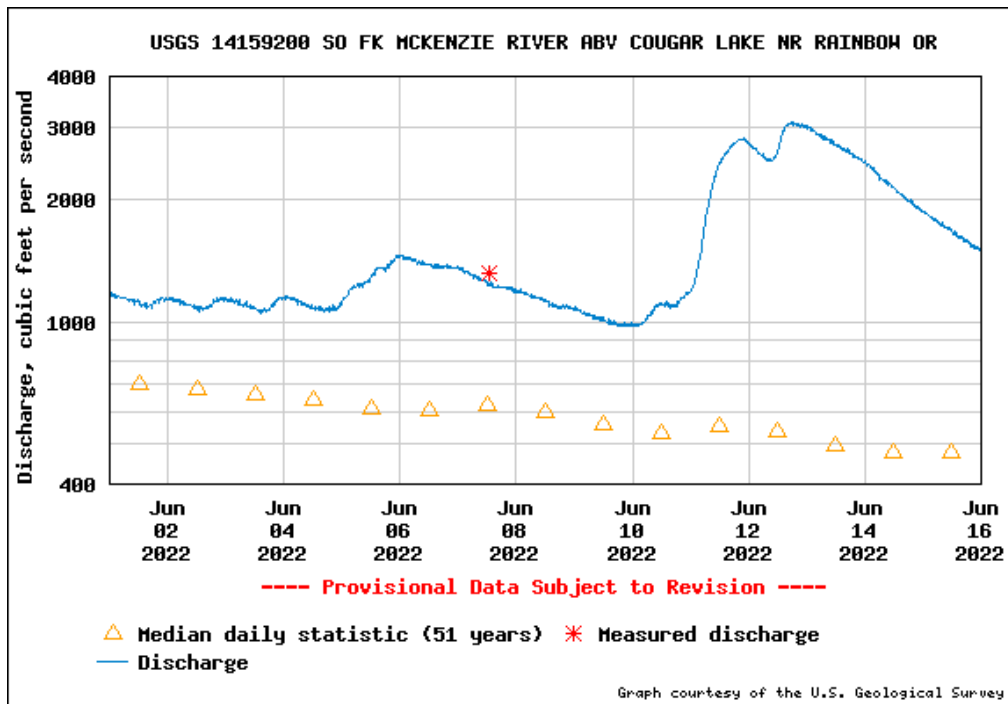


Figure 35. Gage Height (feet); South Fork McKenzie above Cougar Dam

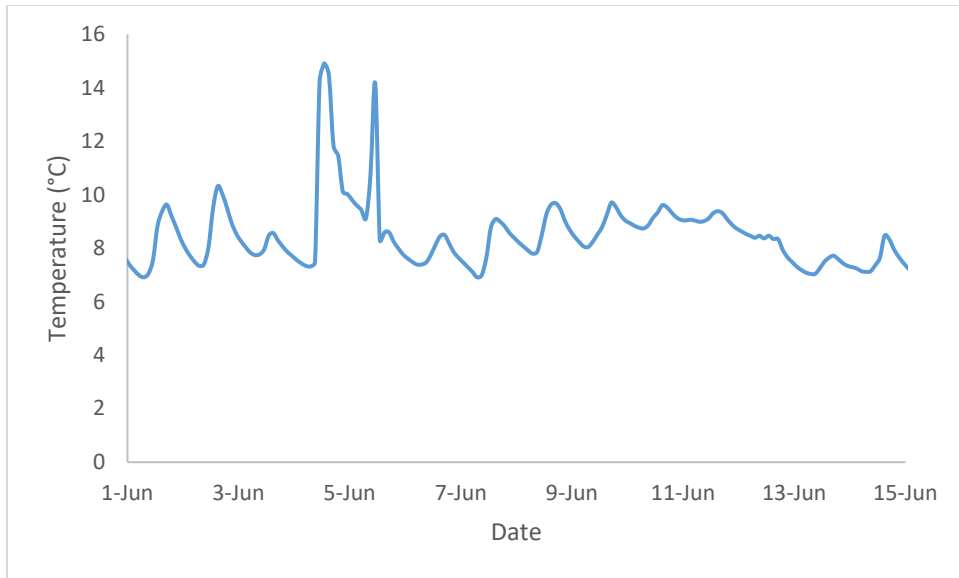


Figure 36. Temperature at RST (Cougar Dam Head of Reservoir)

Middle Fork Willamette – Fall Creek Dam Tailrace

Target Species

The reporting period began June 1 and ended June 15. No Chinook salmon were captured during the 15-day sampling period (Figure 37). 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 38 shows length frequency data to-date.



Figure 37. Chinook Captured Per Day 06/01/2022 to 06/15/2022 (Fall Creek Dam Tailrace)

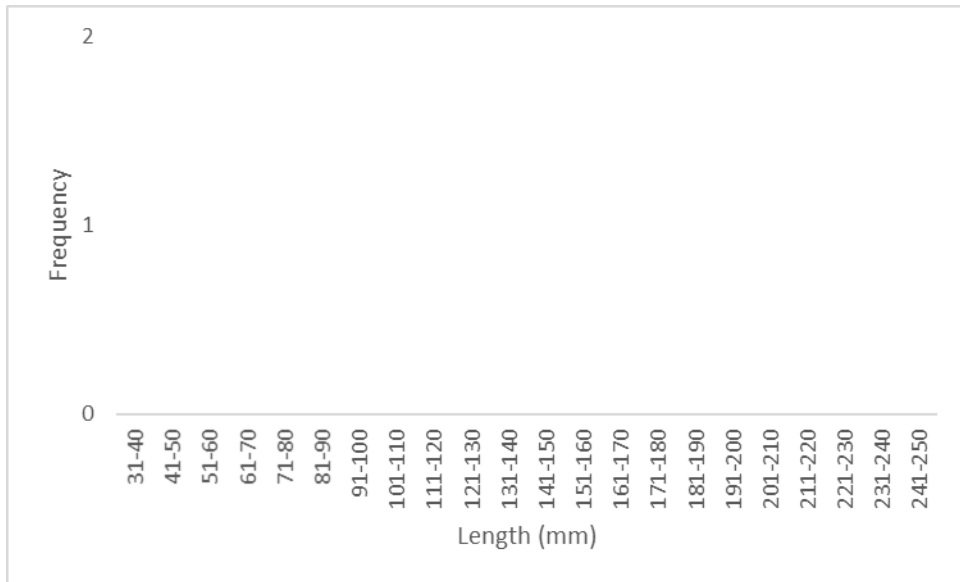


Figure 38. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Dam Tailrace)

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

To-Date (Since March 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

June 1-15, 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

A total of 518 juvenile hatchery Chinook (sub yearlings) were adipose clipped, Bismarck Brown dyed, and released on 06/8/2022 upstream of the Fall Creek Dam Tailrace RO channel trap site. A total of 11 fish were recaptured in the 8 ft trap. Trapping efficiency was 2.1%.

Of the 11 fish recaptured, 1 fish displayed fin damage. None of the other fish captured displayed injuries.

Fall Creek Dam	Release #	Recapture #	Capture Efficiency
RO	518	11	2.1% (11/518)

Non-Target Species

9 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	2	0	2	0
Bullhead	1	0	1	0
Bull Trout	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	0	0	4	0
Dace	3	0	95	0
Red-Sided Shiner	1	0	4	0
Sculpin	1	0	2	0
Spotted Bass	0	0	0	0
Sucker	1	0	4	0
Whitefish	0	0	0	0
<i>O. mykiss</i>	0	0	5	1
Totals	9	0	117	1

Stream Statistics

Basic stream statistics at the site were calculated from data downloaded from U.S. Geological Survey stream gage numbers 14151000. Instantaneous discharge (cfs) and dissolved oxygen concentration (mg/L) data was collected from the gage. During the reporting period, daily maximum values for instantaneous discharge ranged from 235.0 cfs to 3,610.0 cfs (mean: 1,572.9 cfs). Figure 39 shows instantaneous discharge.

Dissolved oxygen concentrations ranged from 10.7 to 12.8 mg/L (mean: 11.9 mg/L) during the reporting period. Figure 40 shows dissolved oxygen concentrations.

Stream temperatures were not recorded using temperature probes for the Fall Creek Dam Tailrace RST site during this reporting period. The temperature probe was ripped off the trap during the latest weather event. In place of the Hobo logger temperature probe, data from USGS gage number 1415000 was used (Figure 41).

Flows In and Out of reservoir during the reporting period averaged 1,577.1 cfs and 1,364.8 cfs respectively (Figure 42).

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

	Chinook
Description	(8 ft)
Catch	0
Effort (hrs)	352.7
CPUE (fish/hr)	0

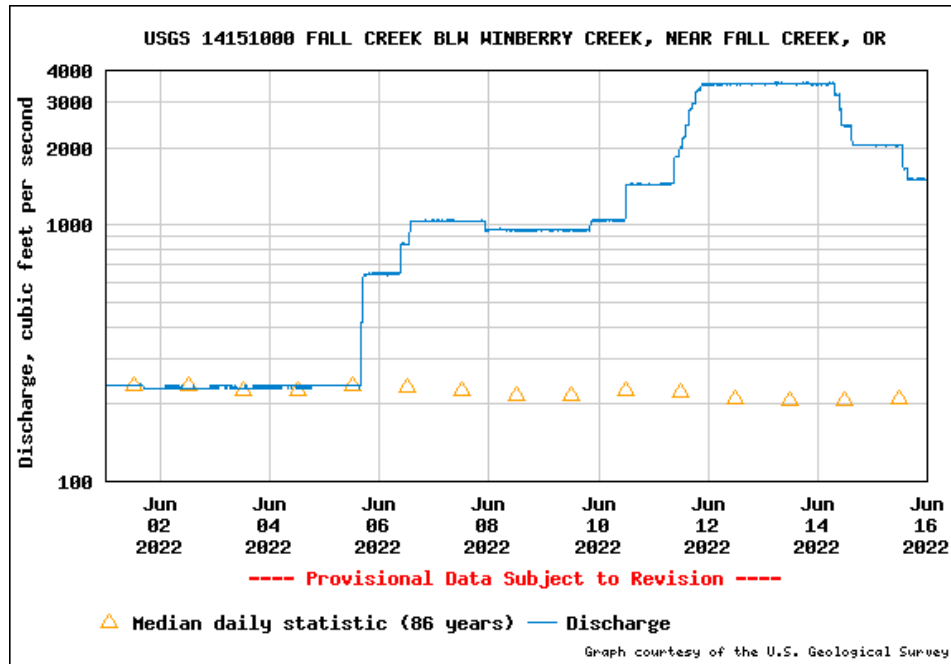


Figure 39. Discharge (cfs); Fall Creek Below Winberry Creek, Near Fall Creek, OR

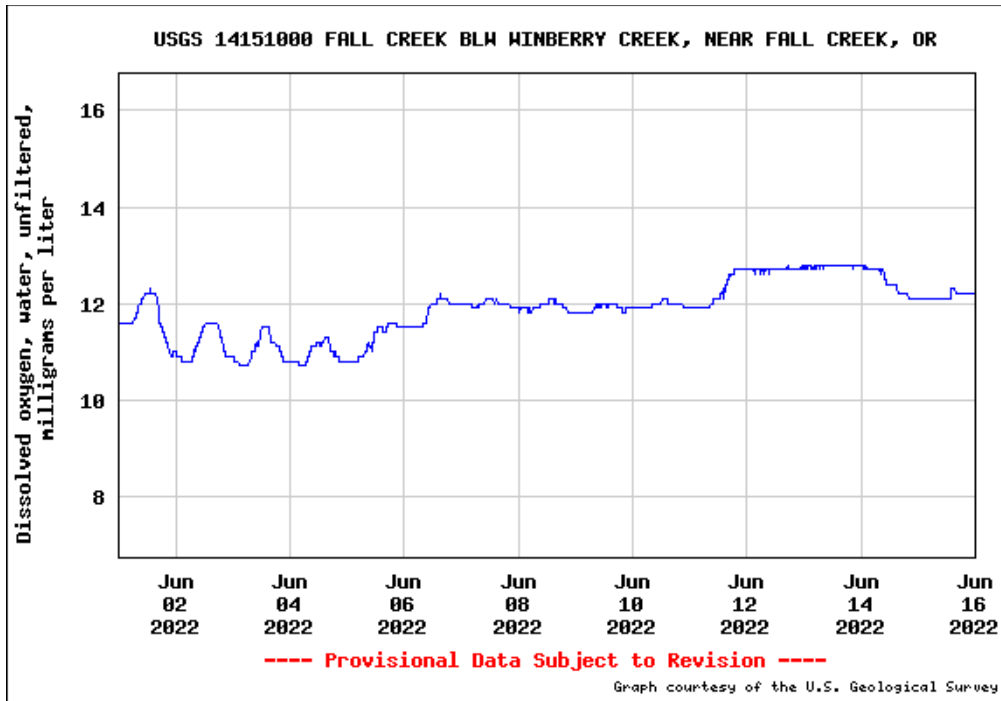


Figure 40. Dissolved Oxygen (mg/L); Fall Creek below Winberry Creek, Near Fall Creek, OR

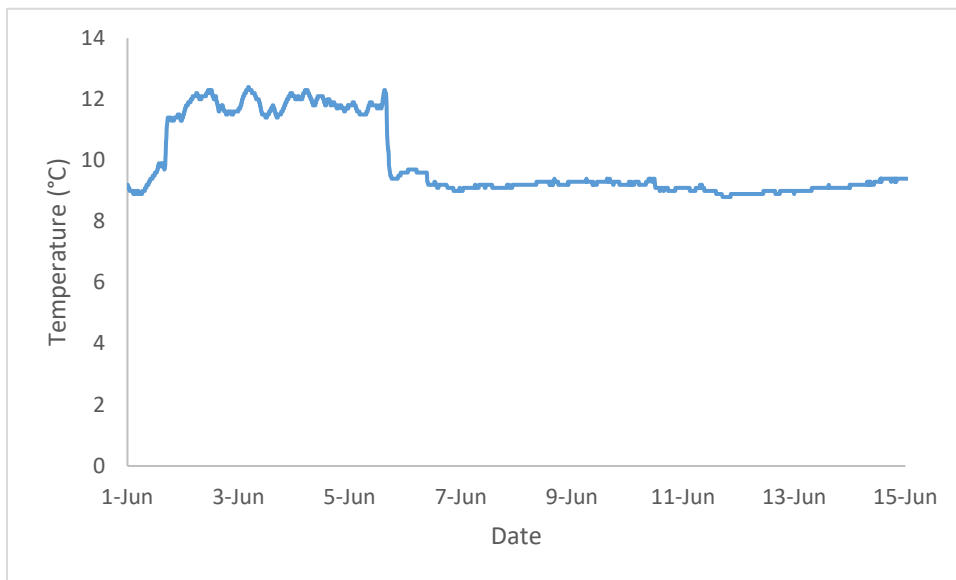


Figure 41. Temperature (°C); Fall Creek below Winberry Creek, Near Fall Creek, OR

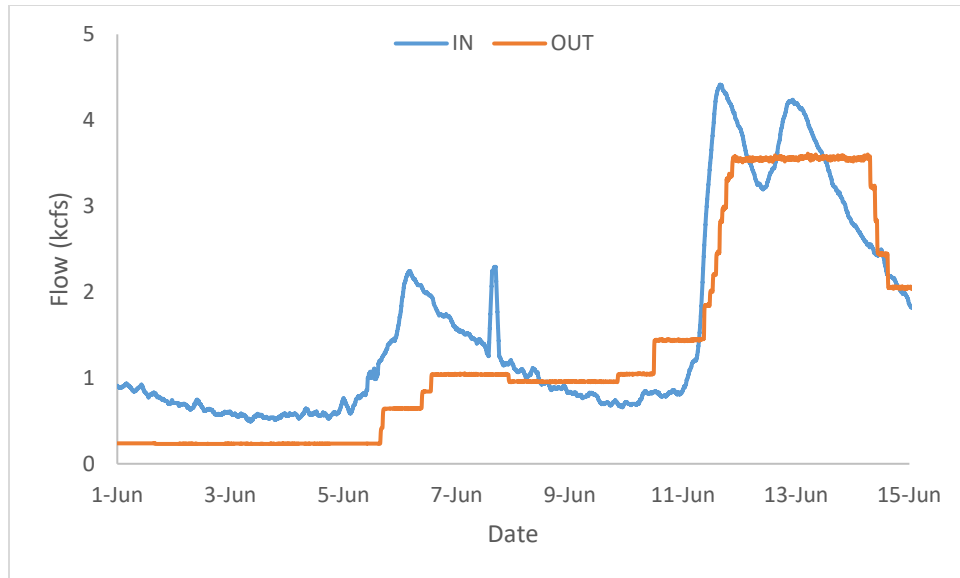
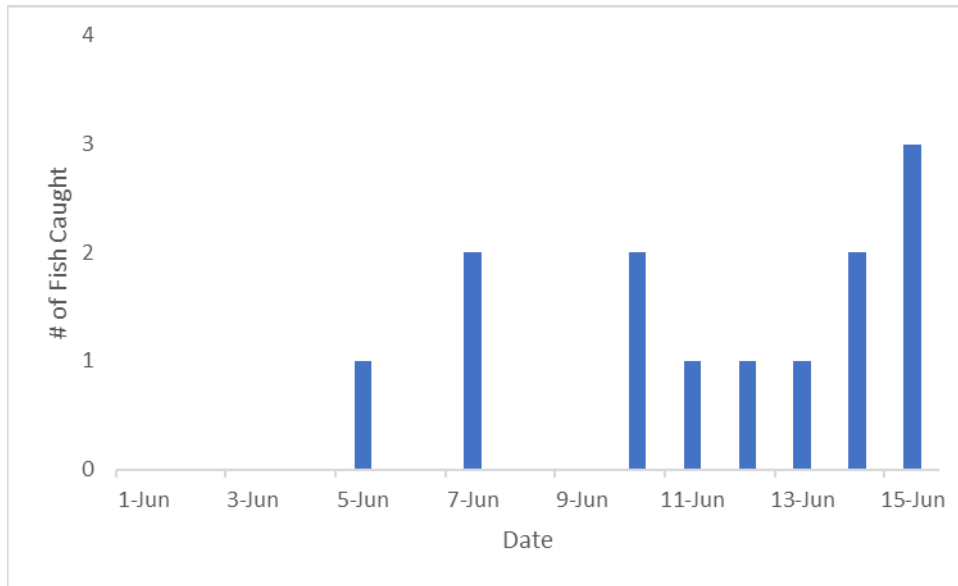


Figure 42. Hourly Flows PWR vs. RO (Fall Creek Tailrace)

Middle Fork Willamette– Dexter Dam

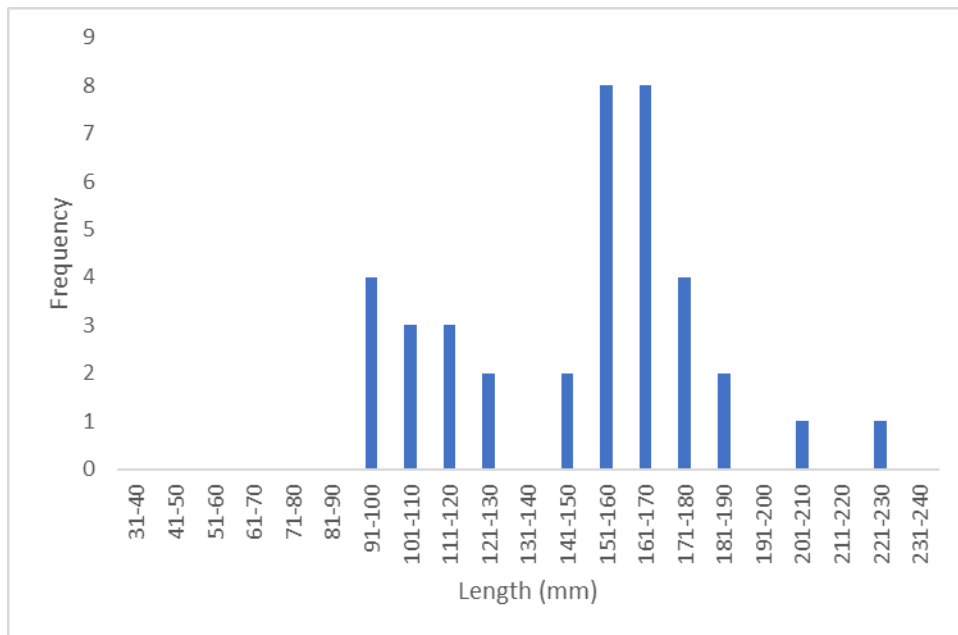
Target Species

This reporting period began on June 1 and ended on June 15. There were 13 Chinook salmon (CHS) captured during the 15-day sampling period (Figure 48). 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 43 shows the daily capture numbers for Chinook and Figure 44 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 43. Chinook Captured Per Day 06/01/2022 to 06/15/2022 (Dexter Dam)



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

Figure 44. 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 (Since March 07, 2022)

Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Dexter Dam	5 ft	CHS	Parr	5	96	159	115.6	8.5	48.3	21.3
		CHS	Smolt	33	98	224	155.1	9.3	118.4	37.9

June 1-15, 2022										
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Dexter Dam	5 ft	CHS	Parr	4	96	123	104.8	8.5	24.8	14.5
		CHS	Smolt	9	98	169	118.4	9.3	54.2	19.8

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

Trapping Efficiency

A total of 1019 juvenile hatchery Chinook (parr) were bismarck brown dyed, adipose clipped, upper caudal clipped and released on 05/24/2022 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. 67 fish were recaptured in the 5-foot RST for an efficiency of 6.6%.

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

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spill	1019	67	6.6% (67/1000)
Powerhouse	N/A	N/A	N/A

24-Hour Post Collection Holding Trial

9 Chinook captured were held for 24 hours. 2 fish died in holding (22.2%) during this reporting period.

Injuries and Copepod Infection

13 Chinook were captured during this reporting period. Partial descaling <20% was observed in 5 of the 13 Chinook captured (38.5%) and 6 displayed descaling >20% (46.2%). 6 displayed body injury (46.2%) and 2 Chinook had eye injury (15.4%). 1 Chinook had copepods present in the branchial cavity (7.7%) and 1 had copepods on fins (7.7%). 8 displayed gas bubble disease (61.5%) (five at level 1, one level 3, and two level 4). There were 3 mortalities this reporting period (23.1%). Injuries are displayed in Table 33. To date injury data can be found in Appendix A.

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	13	5	6	6	2	1	1	3

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

Non-Target Species

A total of 108 non-target species fish were captured during the reporting period; the data is summarized below in Table 34. Dexter Fish Facility previously released adipose clipped Chinook near our trapping site. During this reporting period, Dexter Fish Facility also received adipose clipped juvenile Chinook salmon for their holding ponds. At this time, we noticed an increased catch of juvenile adipose clipped Chinook. After discussion with the Hatchery Manager, it appears that these fish have escaped the facility holding ponds and will be reported as non-targets.

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

Species	Capture	Mortality	Season Total	Season Total Mortality
Bluegill	0	0	1	0
Brook Lamprey	0	0	0	0
Bullhead	0	0	0	0
Crappie	2	1	9	3
Longnose Dace	1	0	29	5
Speckled Dace	0	0	1	0
Kokanee	0	0	0	0
Red-Sided Shiner	0	0	1	0
Sculpin	8	3	180	13
Spotted Bass	0	0	0	0
Sucker	0	0	2	0
Whitefish	0	0	0	0
Cutthroat	0	0	2	0
<i>O. mykiss</i>	1	0	7	0
<i>O. mykiss (clipped)</i>	14	1	30	1
Chinook (AD Clipped)	82	7	100	7
Totals	108	12	362	29

Stream Statistics

Basic stream statistics at the Dexter Dam site were calculated from data downloaded from the U.S. Geological Survey stream gage numbers 14149510 and 14150000. Gage height (feet) is the only metric provided at gage 14149510. Total dissolved gas saturation data was received from gage 14150000, 4.75 rkms downstream of the trap. During the reporting period, daily maximum values for instantaneous gage

height ranged from 637.4 feet to 641.3 feet (mean: 639.0 feet). Figure 45 shows instantaneous gage height.

Total dissolved gas saturation ranged from 107 to 120% (mean: 113.0%) during the reporting period. Figure 46 shows total dissolved gas saturation.

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 Spill during the reporting period averaged 0 and 4,951.2 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	13
Effort (hrs)	361.1
CPUE (fish/hr)	0.036

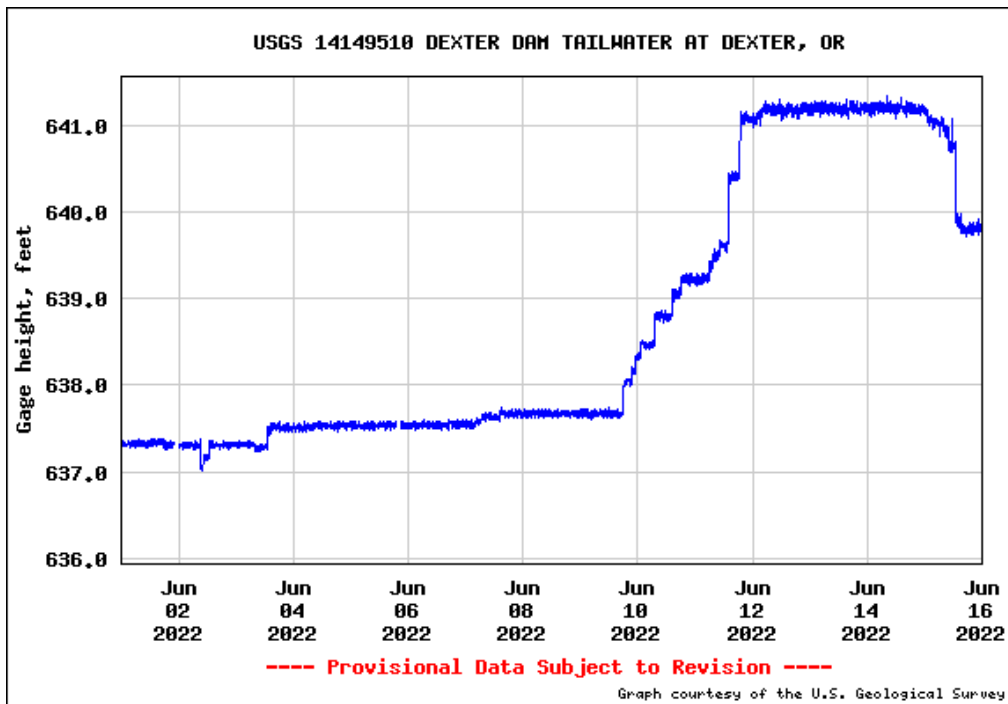


Figure 45. Gage Height (feet); below Dexter Dam, Middle Fork Willamette

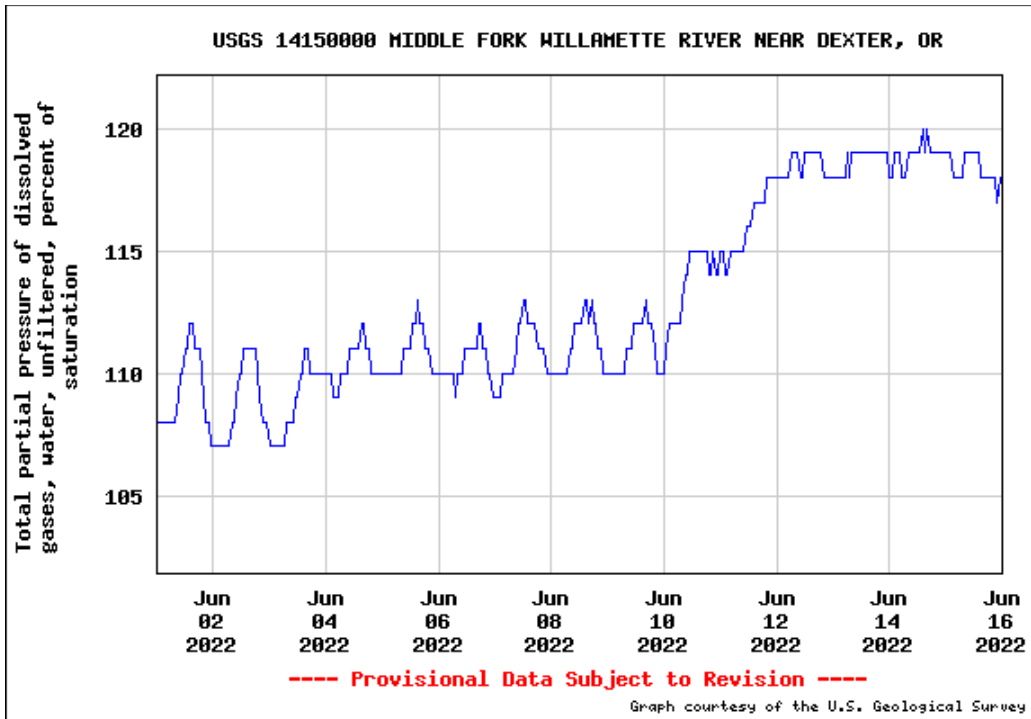
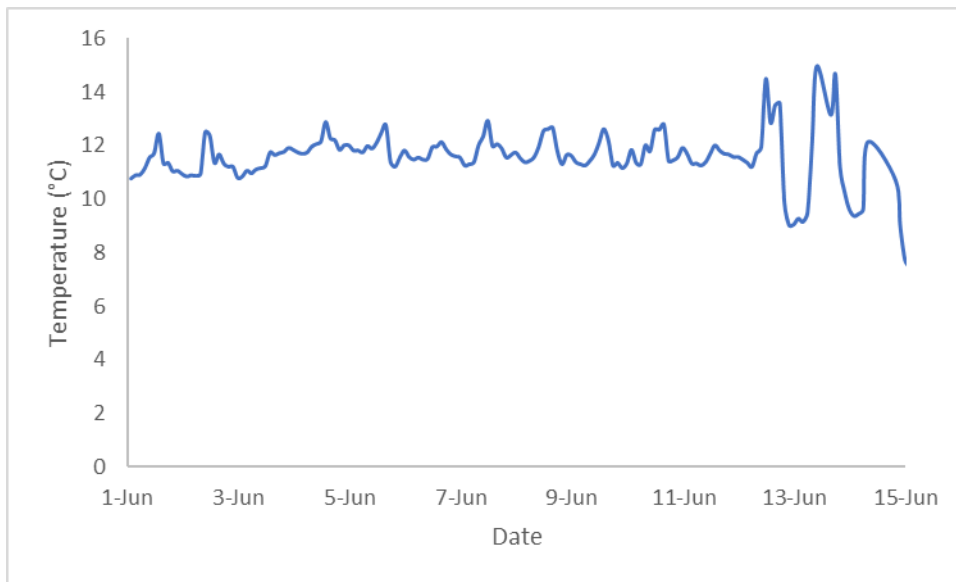


Figure 46. Total Dissolved Gas Saturation (%); Middle Fork Willamette River, Near Dexter, OR



Note: Flows kept flipping temperature probe onto pontoon, the higher temperature outlier data represents the probe being out of the water.

Figure 47. Temperature at RST (Dexter Dam)

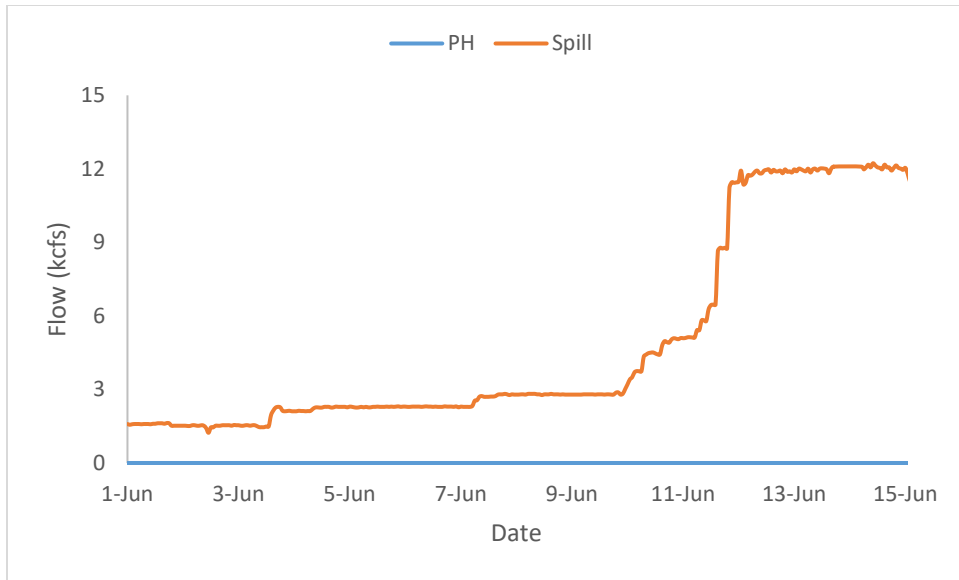


Figure 48. Hourly Flows PWR vs. Spill (Dexter Dam)

Middle Fork Willamette – Lookout Dam Tailrace

Target Species

The reporting period began June 1 and ended June 15. 14 Chinook salmon were captured during the 15-day sampling period (Figure 49). The PWR traps were operated 80% of the reporting period and the Spill trap was operated 100% of the reporting period. High flows late in the day on June 12th necessitated placing traps in the non-sampling position. Crews raised the PWR traps but could not raise the Spill trap due to conditions. The spill trap continued sampling and crews collected fish throughout the high flows. 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.

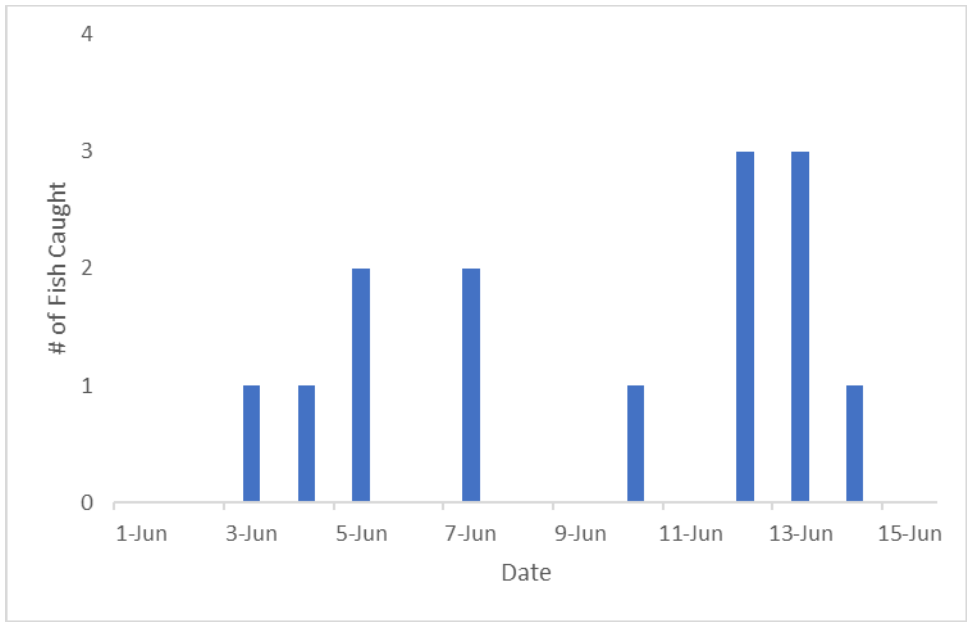


Figure 49. Chinook Captured Per Day 06/01/2022 to 06/15/2022 (Lookout Point Dam Tailrace)

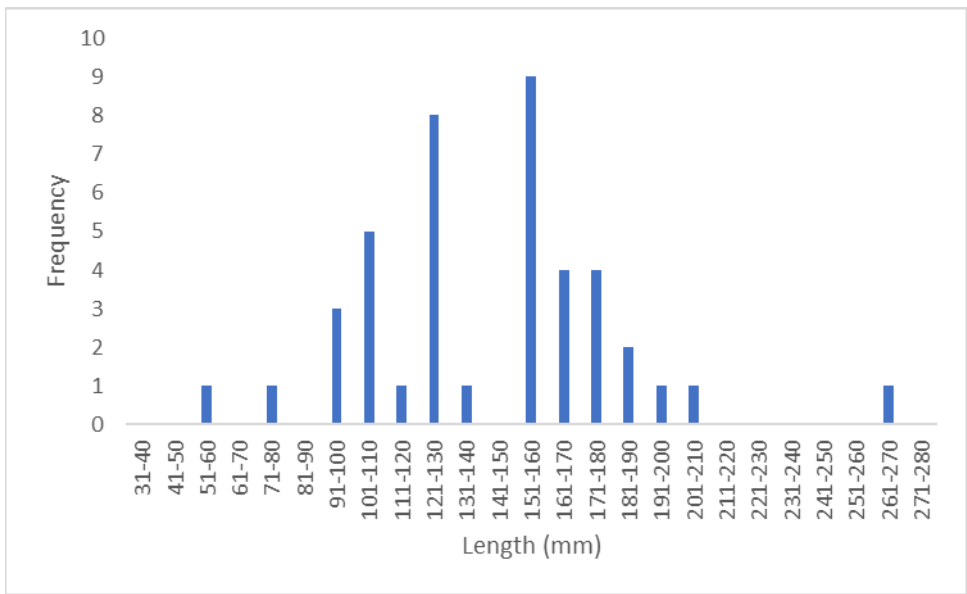


Figure 50. Length Frequency of Juvenile Chinook Sampled Season To-Date (Lookout Point Dam Tailrace)

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

To-Date (Since March 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	15	121	266	169.7	20.7	108.9	56.4
		CHS	Parr	2	92	107	107	5.3	10.5	5.3
		CHS	Fry	0	0	0	0	0	0	0
	PH 2	CHS	Smolt	0	0	0	0	0	0	0
		CHS	Parr	2	58	108	83.0	2.2	13.4	7.8
		CHS	Fry	0	0	0	0	0	0	0
	Spill	CHS	Smolt	19	94	194	141.8	7.6	63.0	41.9
		CHS	Parr	4	77	126	104.3	5.4	26.1	14.7
		CHS	Fry	0	0	0	0	0	0	0

June 1-15, 2022										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	CHS	Smolt	3	121	128	125.0	20.7	27.3	24.3
		CHS	Parr	1	92	92	92.0	10.5	10.5	10.5
		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	7	94	137	115.1	7.6	23.4	17.6
		CHS	Parr	3	77	126	104.3	5.4	26.1	15.1
		CHS	Fry	0	0	0	0	0	0	0

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

24-Hour Post Collection Holding Trial

A total of 7 Chinook captured in the RSTs were held during this reporting period. 1 fish was held from the PWR RST and 6 fish were held from the Spill RST. 1 hold fish died from the PWR RSTs (PH 1) (100%). 0 of the fish from Spill RST died during holding (0%).

Trapping Efficiency

A total of 1,013 juvenile hatchery Chinook (parr) were bismarck 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. 2 fish were recaptured in the PH 1 RST for an efficiency of 0.2%. 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	2	0.2% (2/1,013)

Injuries and Copepod Infection

There were 10 Chinook captured in the Spill Channel RST. Partial descaling <20% was observed on 2 of 10 Chinook collected at the Spill RST (20.0%), and descaling >20% was observed on 7 Chinook collected at the Spill RST (70.0%). 3 displayed body injuries (30.0%) and 1 had eye injuries (10.0%). None of the Spill RST Chinook had copepods present in the branchial cavity (0%) and 1 had copepods present on fins (10.0%). 1 of the fish captured in the Spill RST displayed Gas Bubble Disease (10.0%) (level 1).

There were 4 Chinook captured in the Powerhouse channel RST. Partial descaling <20% was observed on 2 of the 4 Chinook collected at the PWR RST (50.0%). Descaling >20% was observed on 2 Chinook collected at the PWR RST (50.0%). All 4 PWR RST fish had bodily injury (100%) and 1 had eye injuries (25%). None of the fish had copepods present in the branchial cavity (0%) and none had copepods present on fins (0%). No fish displayed Gas Bubble Disease (0%).

There were no chinook mortalities collected in the Spill RST (0.0%) and 1 in the PWR RST (25.0%). Injuries are displayed in Table 37. To date injury data can be found in Appendix A.

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

Site	Route	# 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	PWR	4	2	2	4	1	0	0	1
	Spill	10	2	7	3	1	0	1	0

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

Non-Target Species

22 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	0	0	0	0	1	0
Bull Trout	0	0	0	0	0	0
Crappie	0	0	0	0	4	1
Cutthroat Trout	0	0	0	0	1	0
Longnose Dace	0	0	0	0	0	0
Northern Pikeminnow	0	0	1	0	1	0
Red-Sided Shiner	0	0	0	0	0	0
Sculpin	2	0	0	0	13	1
Smallmouth Bass	3	0	3	0	47	11
Sucker	6	6	2	1	22	12
Walleye	2	2	1	0	3	2
Whitefish	0	0	0	0	0	0
<i>O. mykiss</i>	1	0	1	0	5	1
<i>O. mykiss</i> (clipped)	0	0	0	0	1	1
Chinook (clipped)	0	0	0	0	4	0
Totals	14	8	8	1	103	29

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. Total dissolved gas saturation or dissolved oxygen concentration measurements are not available at this stream gage site, or any nearby stream gages. Gage height (feet) is the only metric provided at this gage. During the reporting period, daily maximum values for instantaneous gage height ranged from 692.6 feet to 694.1 feet (mean: 693.3 feet). Figure 51 shows instantaneous gage height.

Stream temperatures were recorded every two hours using temperature probes at the Lookout Dam Tailrace RST sites during this reporting period. Temperature probes operated normally, and the data is shown below in Figures 52 and 53.

Flows through the Powerhouse and Spill during the reporting period averaged 1,957.0 and 2,717.3 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	4	0	10
Effort (hrs)	283.8	283.4	359.1
CPUE (fish/hr)	0.014	0	0.028

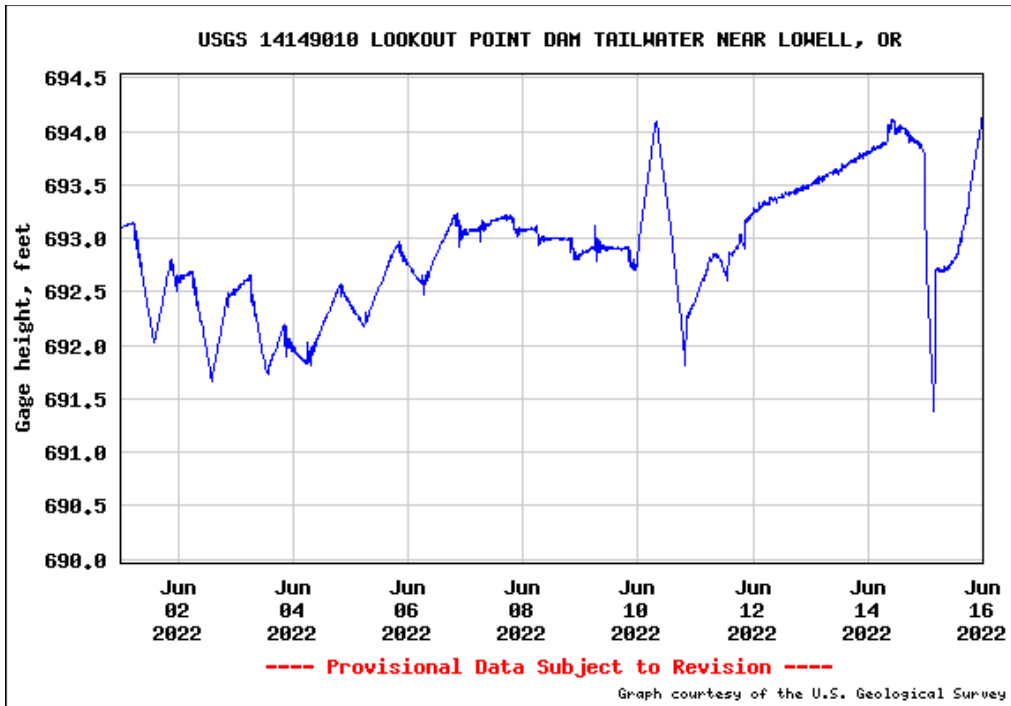


Figure 51. Gage Height (feet); below Lookout Dam

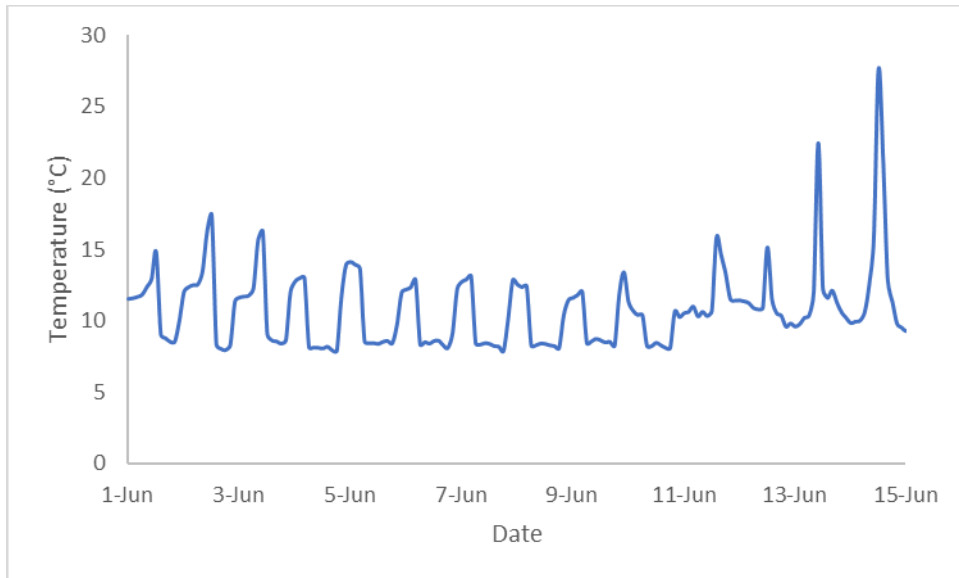


Figure 52. Temperature at RST (Lookout Dam PWR)

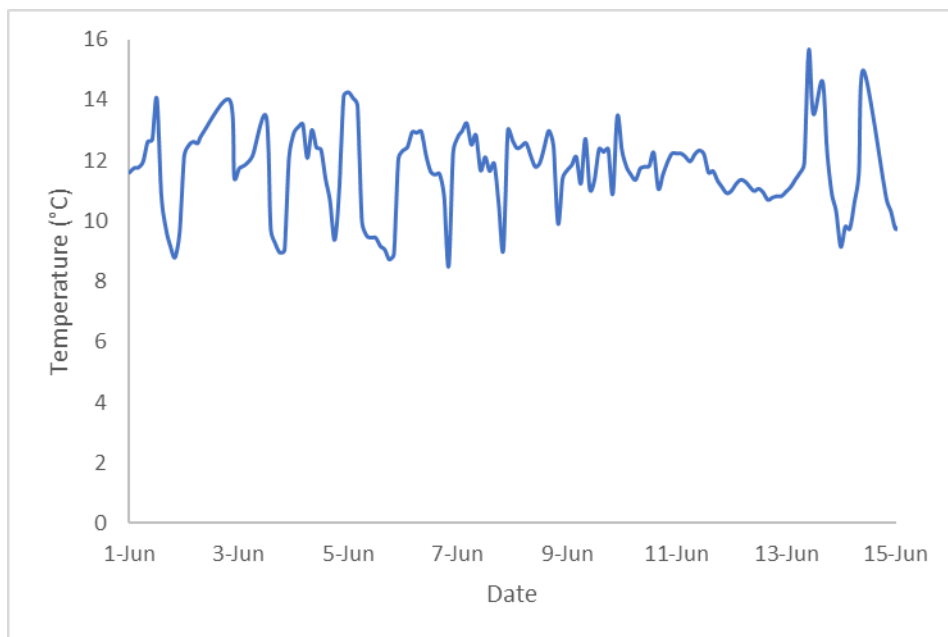


Figure 53. Temperature at RST (Lookout Dam Spill)

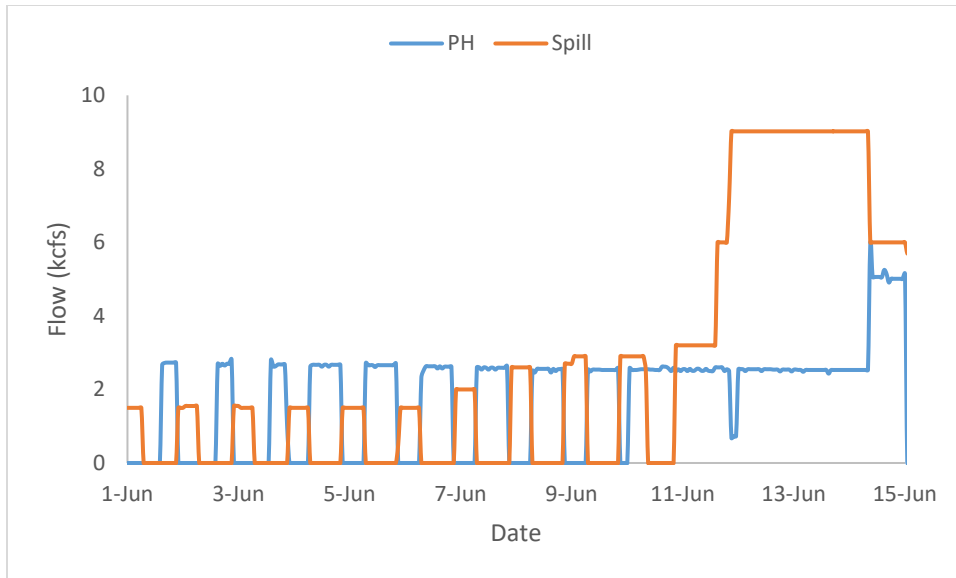


Figure 54. Hourly Flows PWR vs. Spill (Lookout Dam Tailrace)

Middle Fork Willamette – Lookout Point Head of Reservoir

Target Species

The reporting period began June 1 and ended June 15. 17 Chinook salmon were captured during the 15-day sampling period (Figure 55). The trap was put into the non-sampling position from the 4th to the 7th and the 11th to the end of the reporting period due to high flows and debris load causing trap and fish safety concerns. The trap was operated 60% 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 - Lookout Point Head of Reservoir site to-date and Figure 56 shows length frequency data to-date.

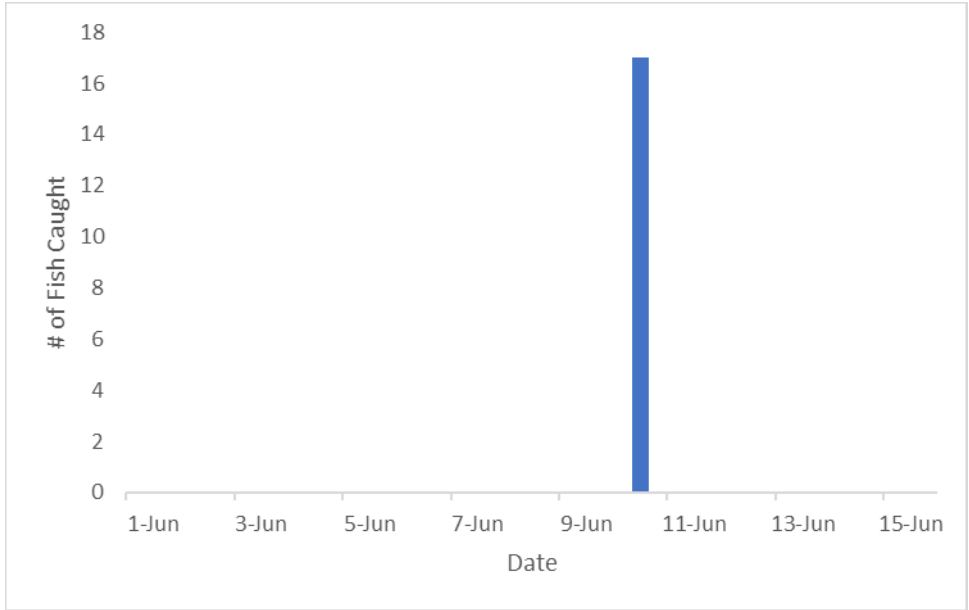


Figure 55. Chinook Captured Per Day 06/01/2022 to 06/15/2022 (Lookout Point Head of Reservoir)

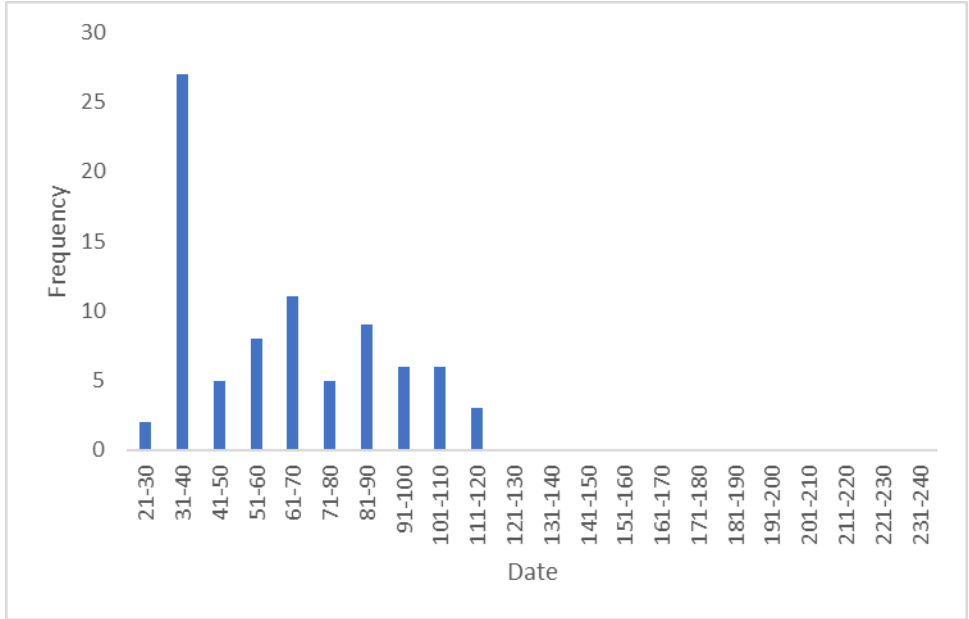


Figure 56. Length Frequency of Juvenile Chinook Sampled Season To-Date (Lookout Point Head of Reservoir)

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

To-Date (Since March 10, 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	46	51	115	81.5	1.0	19.8	6.1
		CHS	Fry	36	28	69	37.7	N/A	N/A	N/A
June 1-15, 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	15	58	81	68.8	2.3	4.9	3.5
		CHS	Fry	2	39	44	41.5	0.8	3.0	1.9

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

Trapping Efficiency

A total of 1007 juvenile hatchery Chinook (parr) were bismarck brown dyed and adipose clipped and released on 05/24/2022 above the Lookout Point Head of Reservoir trap. Fish were released in small groups to evaluate the traps efficiency capturing fish migrating downstream. 125 fish were recaptured in the 5-foot RST for an efficiency of 12.4%.

Of the 125 fish recaptured, 2 were dead. Injuries were descaling, body injury, and fin damage.

Lookout Point Head of Reservoir	Release #	Recapture #	Capture Efficiency
05/24/2022	1007	125	12.4% (125/1007)

Injuries and Copepod Infection

There were 17 Chinook captured during this reporting period. Of these 17 fish, 13 had partial descaling <20% (76.5%) and 2 had body injuries (11.8%). No other injuries were observed. 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	17	13	0	2	0	0	0	0

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

Collected DNA and Scale Samples

Scales and DNA were collected from 16 Chinook captured for the reporting period. All other target fish were under sampling minimum thresholds (45 mm FL for DNA and 50 mm FL for scales).

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	0	0	7	0
Longnose Dace	8	0	17	0
Red-Sided Shiner	0	0	2	0
Sculpin	0	0	5	2
Smallmouth Bass	0	0	6	0
Sucker	0	0	9	1
Whitefish	0	0	0	0
Pikeminnow	1	0	2	0
<i>O. mykiss</i>	3	0	42	1
<i>O. mykiss</i> (clipped)	1	0	2	0
Totals	13	0	93	4

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 4,650.0 cfs to 13,800.0 cfs (mean: 7,738.7 cfs). Figure 57 shows instantaneous discharge.

Stream temperatures were not recorded using a temperature probe at the Lookout Point Head of Reservoir RST site during this reporting period. The probe was ripped off the trap during a previous weather event. Temperature data from the local gage station is being supplemented (Figure 58).

Flows into Lookout Point Reservoir averaged 6,998.2 cfs (Figure 59). 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)	162.3
CPUE (fish/hr)	0.105

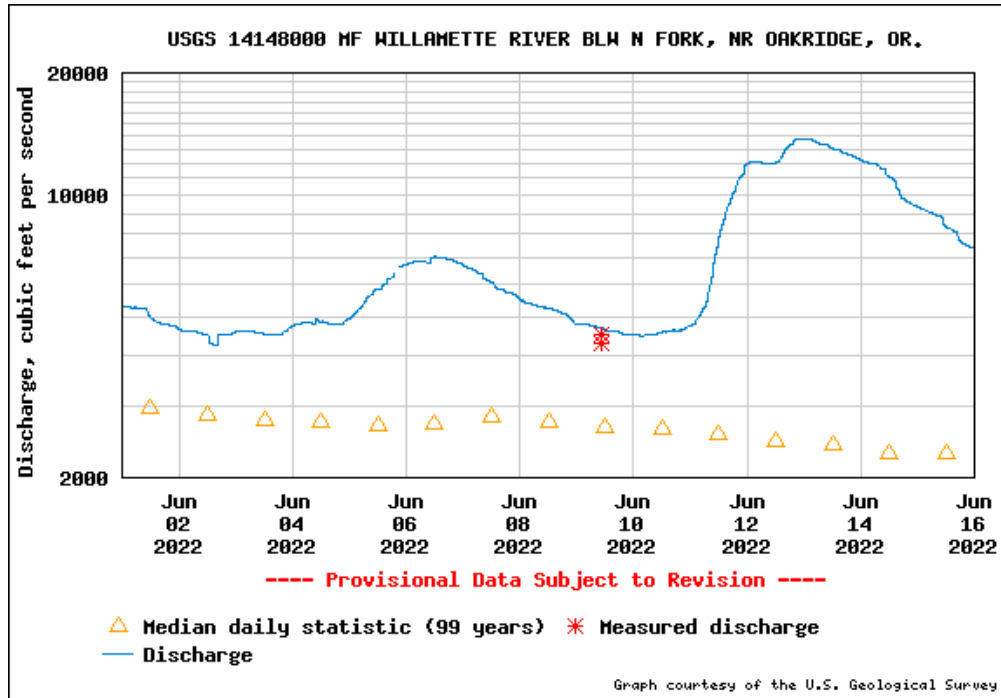
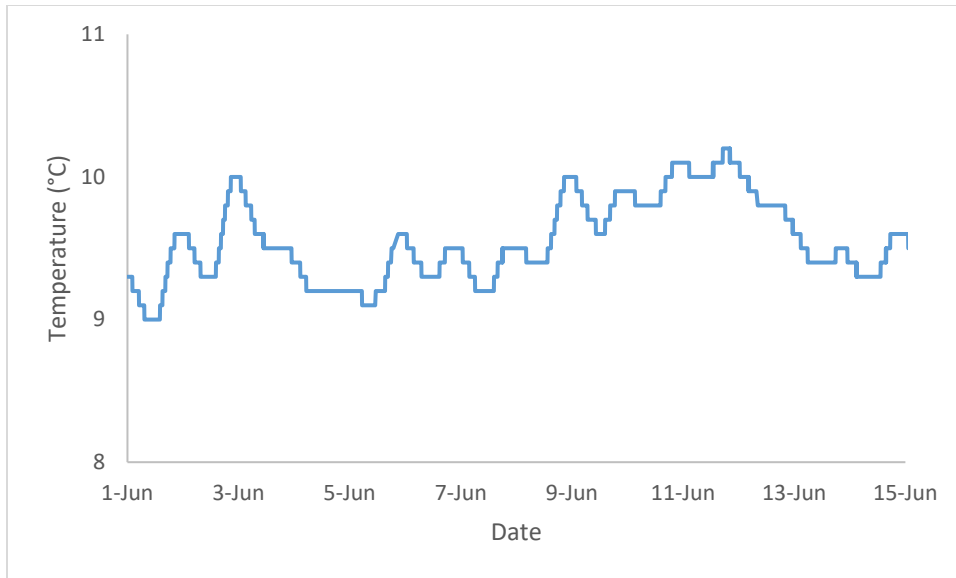


Figure 57. Discharge (cfs); above Lookout Point Reservoir, Below Oakridge, OR



Note: Hobo logger was ripped off trap during reporting period. Temperature supplemented with USGS stream gage number 14148000, 5.4 rkms downstream.

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

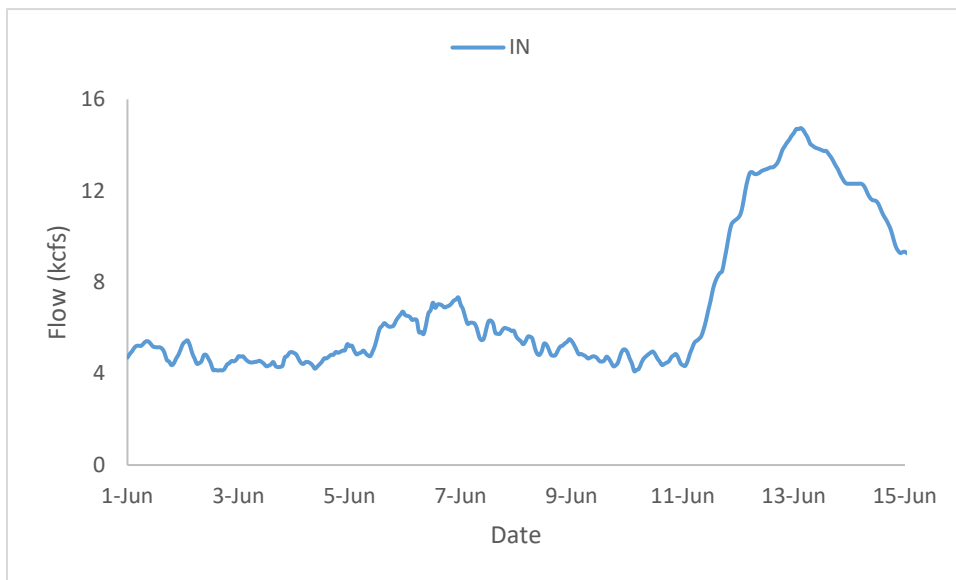


Figure 59. Hourly Flows (Lookout Point Head of Reservoir site)

Issues Encountered

Significant rain events resulted in very high flows at most sites that resulted in sampling outages. The late onset of the storm resulted in crews having short notice and led to traps sampling in higher flows than we normally sample at. The Lookout Dam Tailrace Spill trap was not able to be raised due to minor damage incurred during the high flow events. The trap has been repaired and no damage to fish was observed.

Upcoming USACE Support Services

None at this time.

Appendix A

Chinook (CHS)

Chinook Injuries During Reporting Period (6-1-2022 to 6-15-2022)																								
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	28		17		4		1	18	7		19							2	1	8	4	1	2	
8 ft	28		17		4		1	18	7		19							2	1	8	4	1	2	
Parr	1		1		1						1													
Smolt	25		16		3			18	6		17						1	1	7	3	1	2		
Fry	2						1		1		1						1		1	1				
Cougar Dam HOR	38										1								1	1		1		
5 ft	38										1								1	1		1		
Fry	38										1								1	1		1		
Cougar Dam	8							1																
RO	8							1																
Parr	1							1																
Smolt	7																							
Dexter Dam Tail.	13		5		2			1	6		5				1			2	3	1			8	
5 ft	13		5		2			1	6		5				1			2	3	1			8	
Parr	4				2				3		2							2	2	1			4	
Smolt	9		5					1	3		3			1					1				4	
Lookout Dam Tail.	14		4		2	1		1	9		6					1	2		2	1	1		1	
PH 1	4		2		1				2		4					1	2		1	1	1			
Parr	1				1				1		1					1	1		1					
Smolt	3		2						1		3						1				1	1		
Spill	10		2		1	1		1	7		2								1				1	
Parr	3		1						2		1													
Smolt	7		1		1	1		1	5		1								1				1	
Lookout Point HOR	17		13								2													
5 ft	17		13								2													
Parr	15		12								1													
Fry	2		1								1													

Chinook (CHS)

		Chinook 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		474	267	1	65	2	1	397	127	1	251	5	10	2	21	5	41	15	66	46	18	12	14	
8 ft		474	267	1	65	2	1	397	127	1	251	5	10	2	21	5	41	15	66	46	18	12	14	
Parr		20	6		1	1		13	1		4					2			1					
Smolt		444	261	1	63	1		384	125	1	246	5	10		21	3	40	15	64	45	18	11	14	
Unknown		2												2								1		
Fry		8			1		1		1		1						1		1	1				
Foster Dam HOR		61	6		1						1													
5 ft		61	6		1						1													
Parr		4	2																					
Smolt		3	3								1													
Fry		54	1		1																			
Cougar Dam		1182	10	464	3	81	5	3	487	129	3	256	2	4	2	17	2	32	25	66	39	21	7	24
RO		381		212	2	60	2	3	252	79	3	151	2			6	2	19	9	42	25	9	3	21
Parr		135		70		23			77	25		48				1		5	2	11	7			6
Smolt		225		142	2	34	2	3	175	53	3	102	2			5	2	13	7	30	16	9	3	15
Fry		21				3				1		1						1		1	2			
PH		801	10	252	1	21	3		235	50		105		4	2	11		13	16	24	14	12	4	3
Parr		231		127		11	1		96	19		51		1		5		3	3	10	5	5		
Smolt		190		123	1	6	2		139	25		49		3		5		8	6	11	6	7	1	3
Unknown		2													2									
Fry		378	10	2		4			6		5				1		2	7	3	3			3	
Cougar Dam HOR		460		22					3		12									6	5	1	1	
5 ft		460		22					3		12									6	5	1	1	
Parr		36		21					3		6											1		
Fry		424		1							6									6	5		1	
Fall Creek HOR		7		3					2		1													
8 ft		7		3					2		1													
Parr		2		2					1		1													
Smolt		5		1					1															
Dexter Dam Tail.		38		22		5			5	14		23				1		3	4	6	4	3		13
5 ft		38		22		5			5	14		23				1		3	4	6	4	3		13
Parr		5				2			1	4		3							2	3	2			4
Smolt		33		22		3			4	10		20				1		3	2	3	2	3		9
Lookout Dam Tail.		42		16	1	9	1		7	23		25				2	2	8	1	6	3	3		4
PH 1		17		5	1	5			5	11		14				2	2	6		5	1	1		
Parr		2				1				1		1					1	1		1				
Smolt		15		5	1	4			5	10		13				2	1	5		4	1	1		
PH 2		2		2		1				1		2						1	1		1			
Parr		2		2		1				1		2						1	1		1			
Spill		23		9		3	1		2	11		9						1		1	1	2		4
Parr		4		1						3		1												
Smolt		19		8		3	1		2	8		8						1		1	1	2		4
Lookout Point HOR		82		27					1			8						1						
5 ft		82		27					1			8						1						
Parr		46		26					1			7						1						
Fry		36		1								1												

Steelhead (O. mykiss)

O. mykiss Injuries During Reporting Period (6-1-2022 to 6-15-2022)																							
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	4		2					1	1		2								1	2			1
8 ft	4		2					1	1		2								1	2			1
Adult	1								1		1								1	1			
Parr	1																			1			
Smolt	2		2					1			1												1

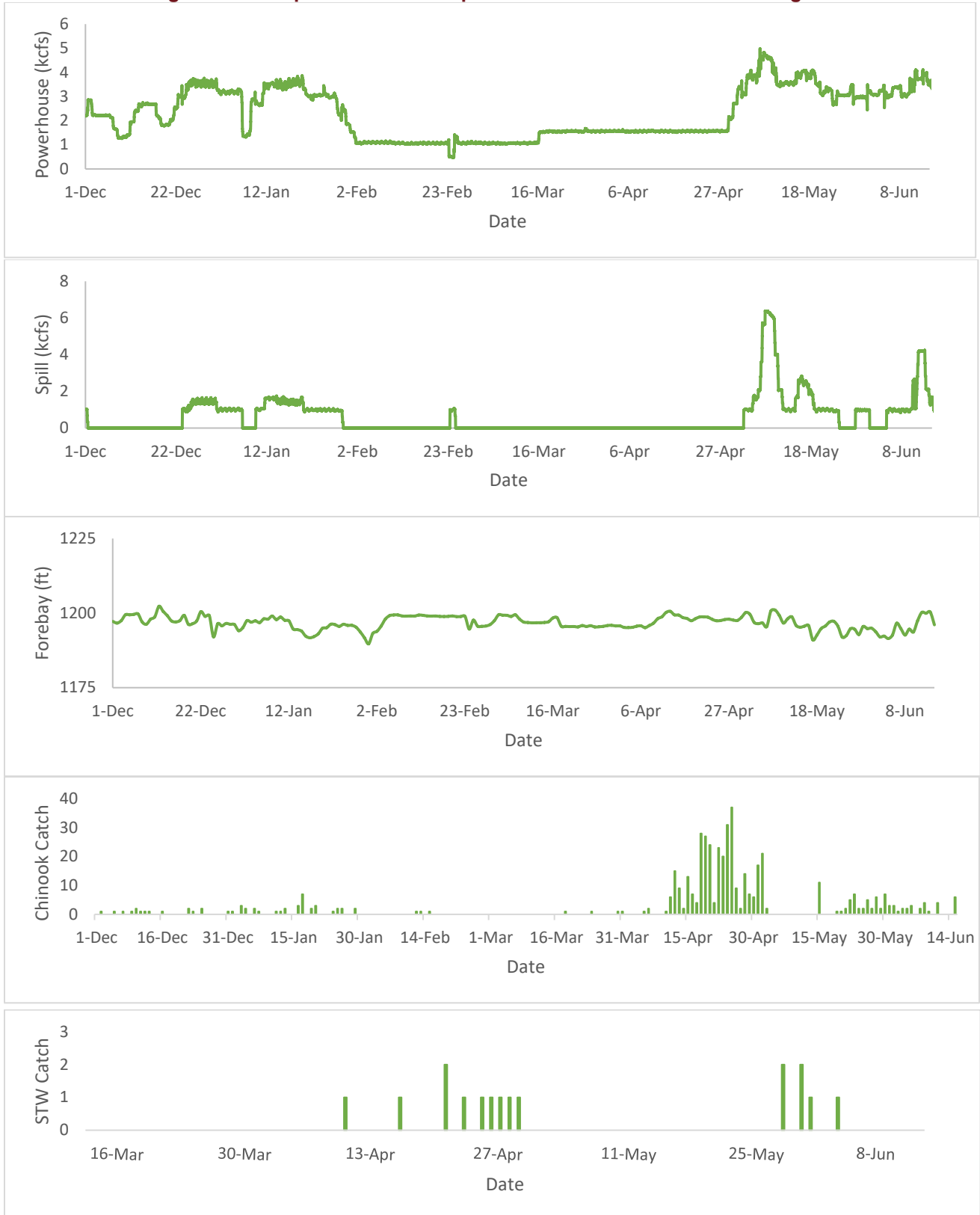
Steelhead (O. mykiss)

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	16		9					9	4		8				1		3	2	4	6			1
8 ft	16		9					9	4		8				1		3	2	4	6			1
Adult	1								1		1								1	1			
Parr	2																				1		
Smolt	13		9					9	3		7				1		3	2	3	4			1
Green Peter Tail.	6		3		1			1	2		4						4		1	1			5
8 ft	6		3		1			1	2		4						4		1	1			5
Smolt	6		3		1			1	2		4						4		1	1			5
Foster Dam HOR	88		25					1			11								1				
5 ft	88		25					1			11								1				
Adult	7		1								2												
Parr	17		7					1			2												
Smolt	35		17								7							1					
Fry	29																						

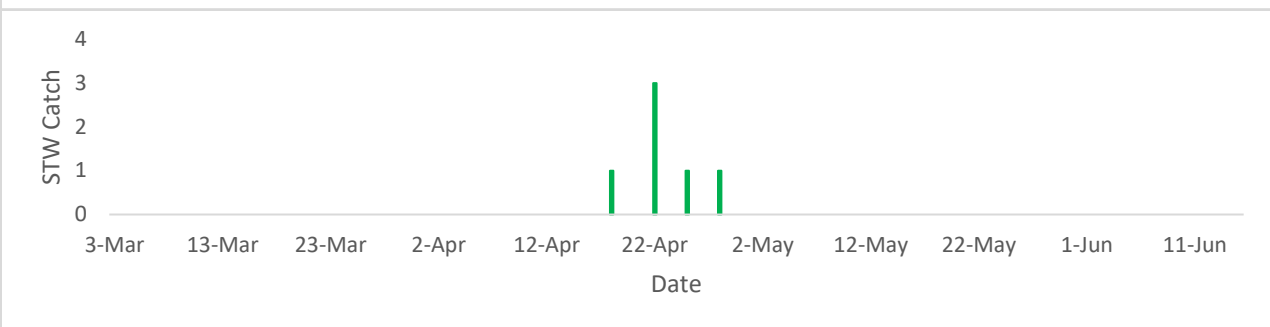
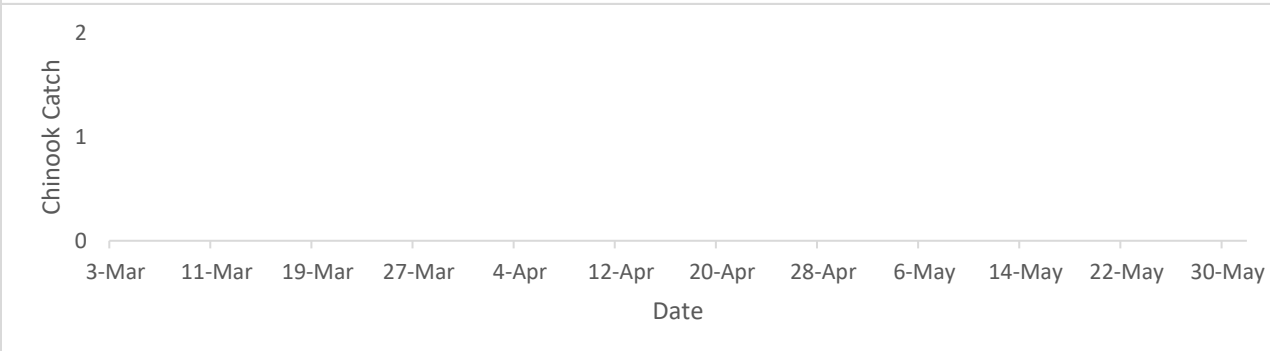
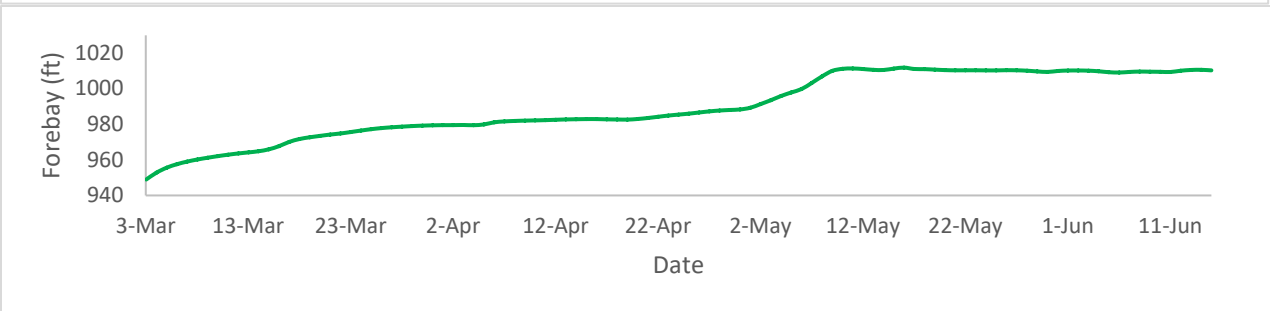
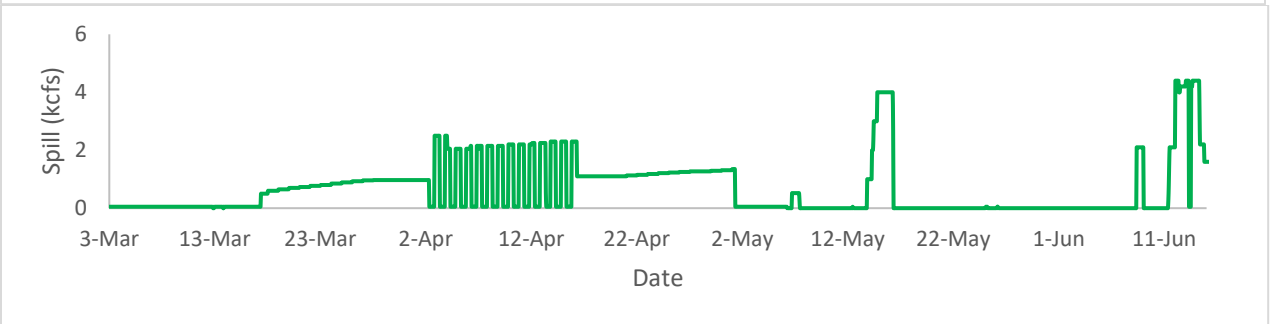
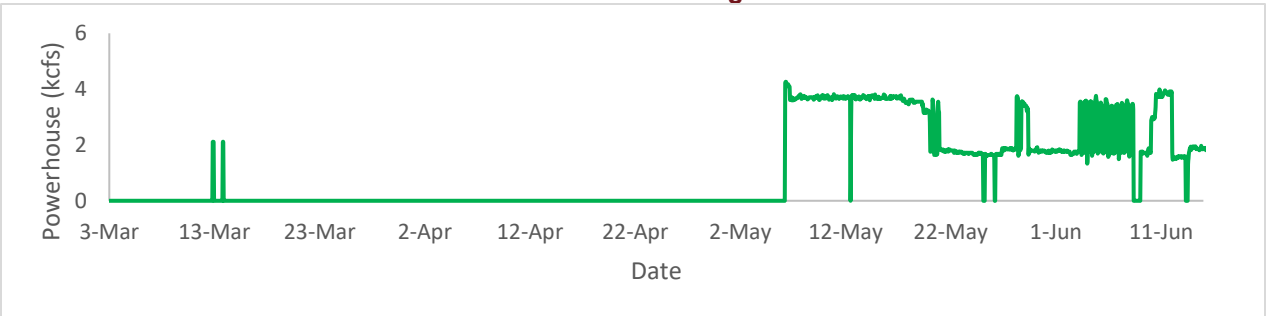
Injury Code	Description of Injury/Condition
NXI	Live fish with no external injuries
MUNK	Mortality with no external injuries
DS<2	Descaling <20%
BLO	Bloated
EYB	Bloody Eye (hemorrhage)
BVT	Bleeding from Vent
FVB	Fin Blood Vessels Broken
GBD	Gas Bubble Disease (fin ray/eye inclusions)
POP	Pop Eye (eye 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

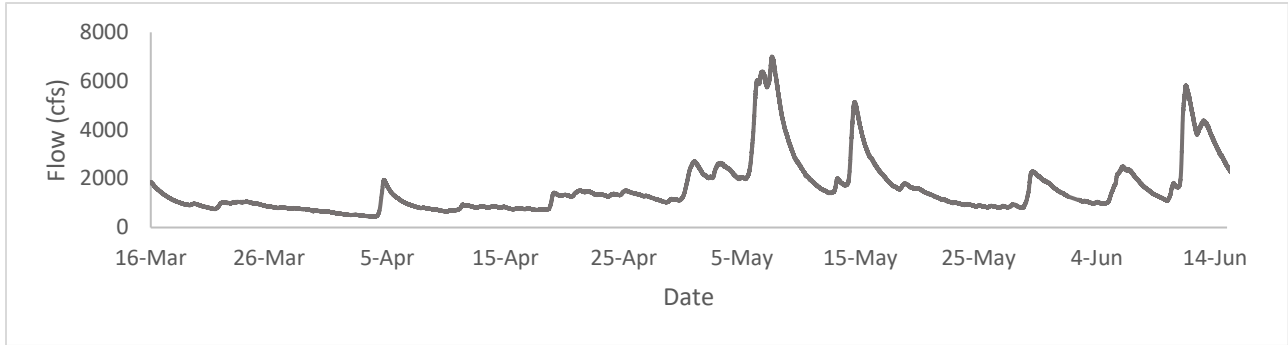
Big Cliff Dam Operational and Capture Data Since Start of Monitoring



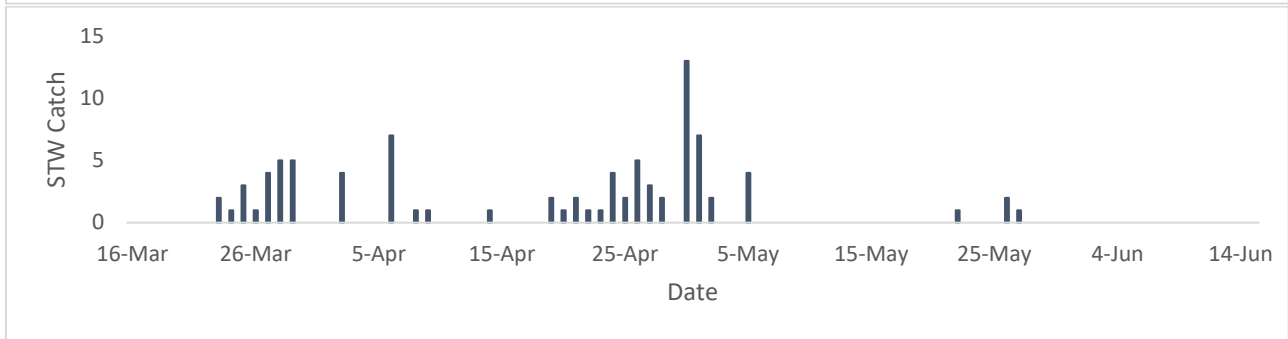
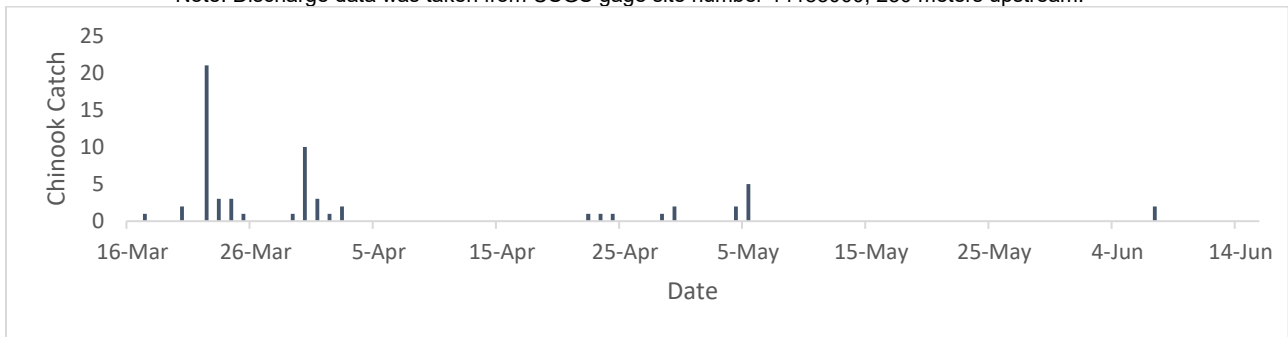
Green Peter Dam Operational and Green Peter Tailrace- Middle Santiam River Capture Data Since Start of Monitoring



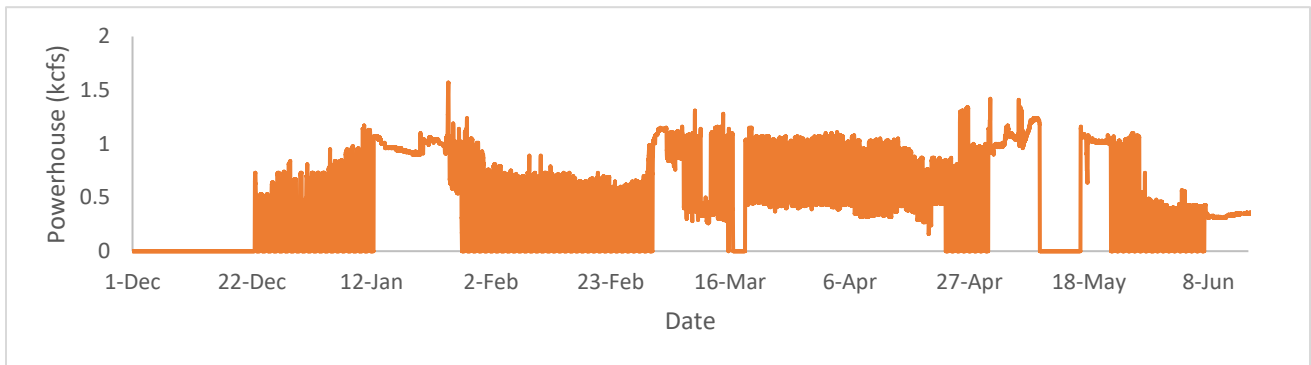
South Santiam River Above Foster Dam Discharge and Foster Dam Head of Reservoir Capture Data

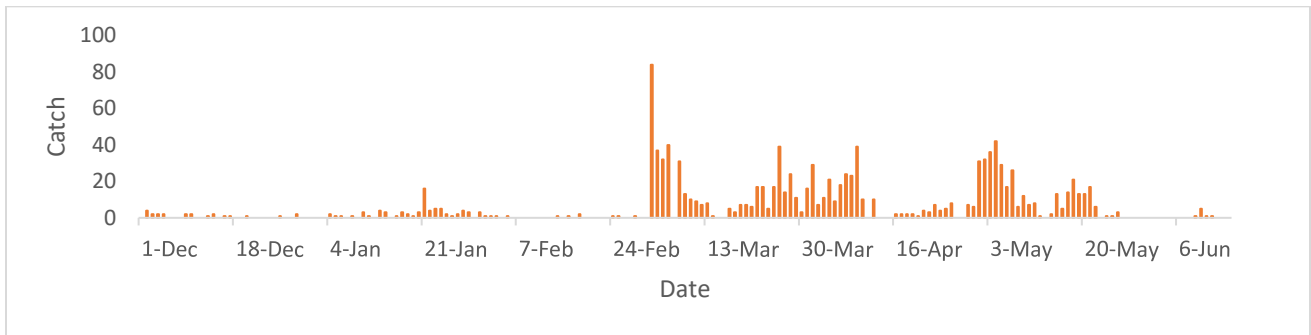
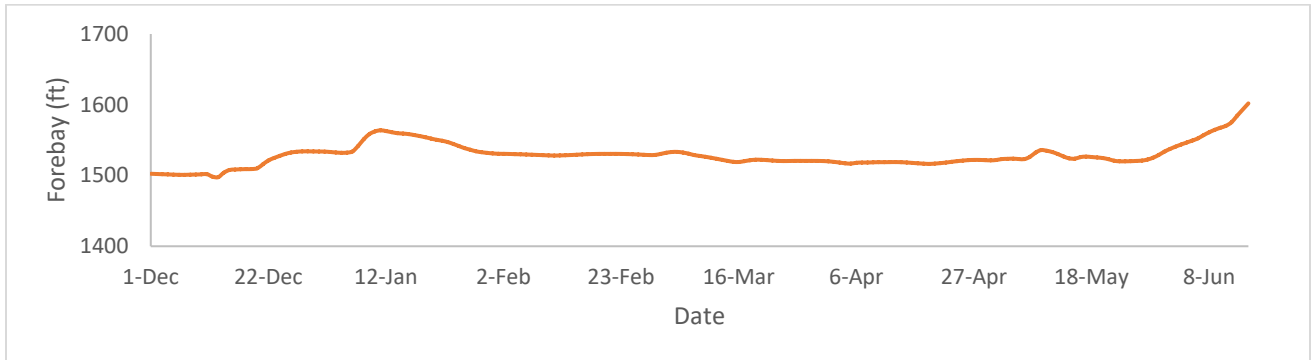
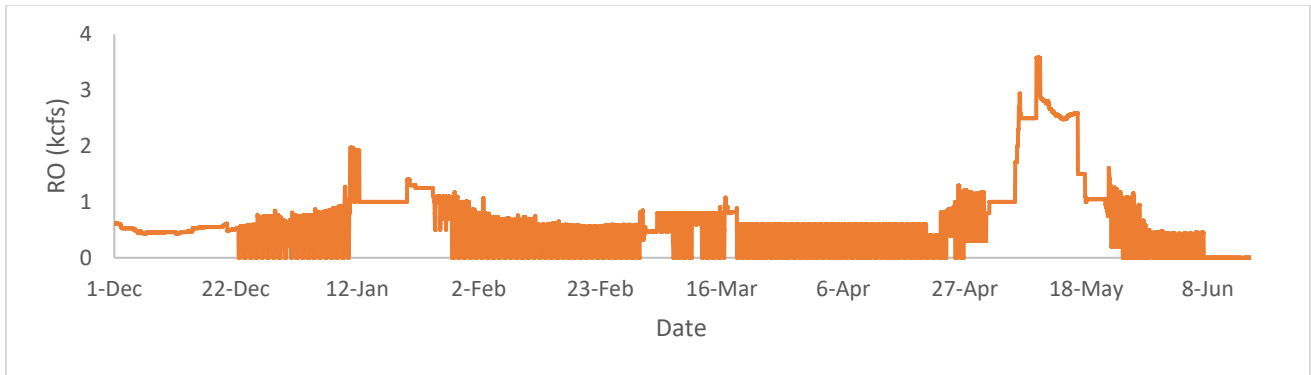


Note: Discharge data was taken from USGS gage site number 14185000, 250 meters upstream.

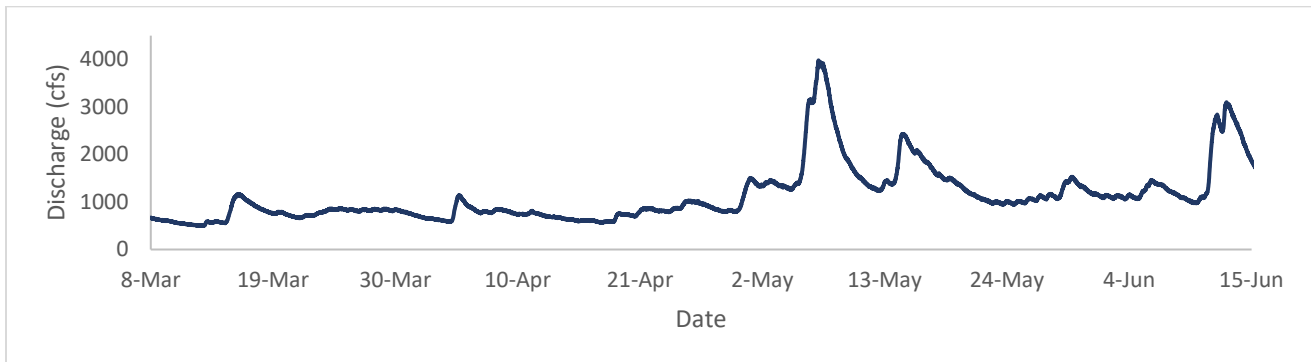


Cougar Dam Operational and Capture Data Since Start of Monitoring

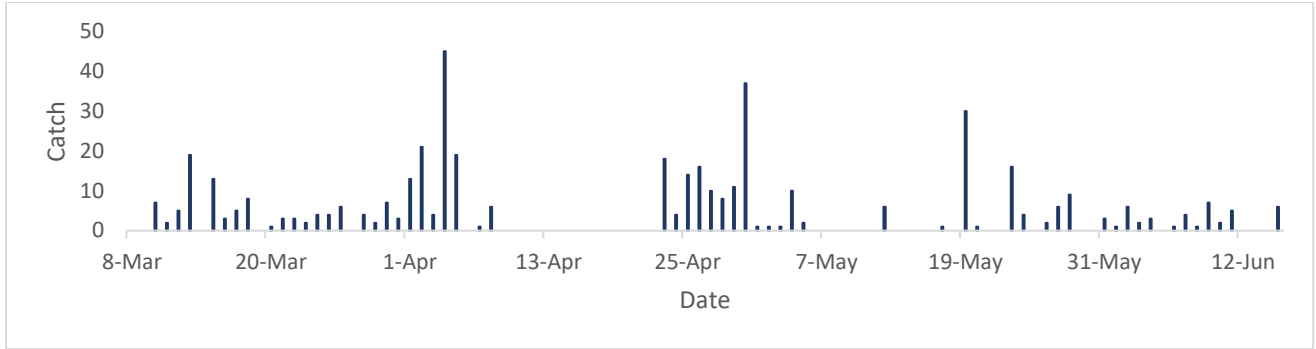




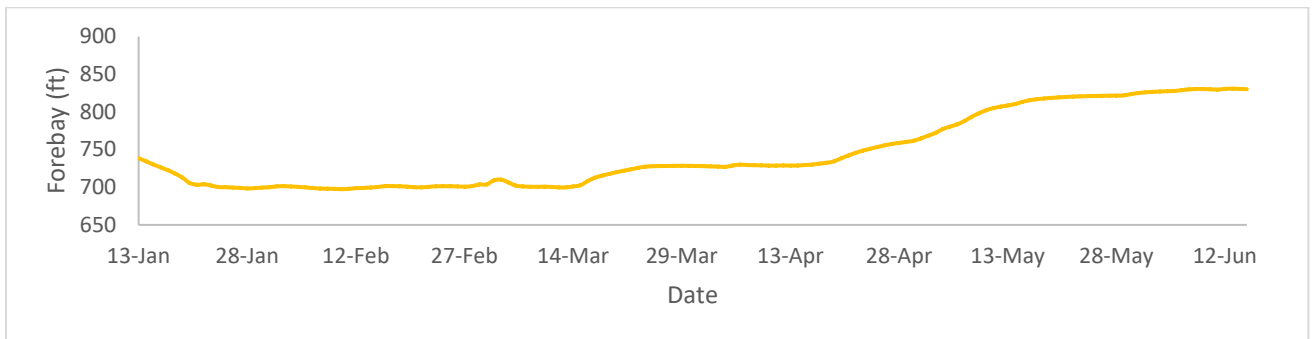
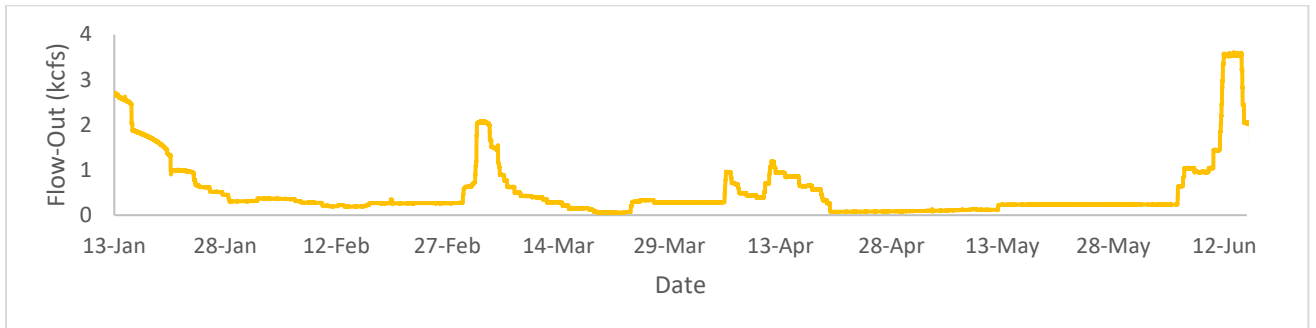
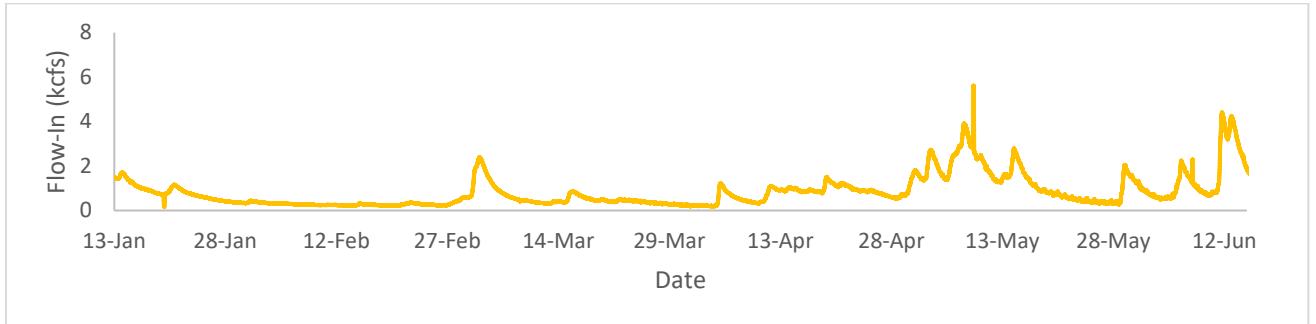
South Fork McKenzie above Cougar Dam Discharge and Cougar Dam Head of Reservoir Capture Data Since Start of Monitoring



Note: Discharge data was taken from USGS gage site number 14159200, 250 meters upstream.

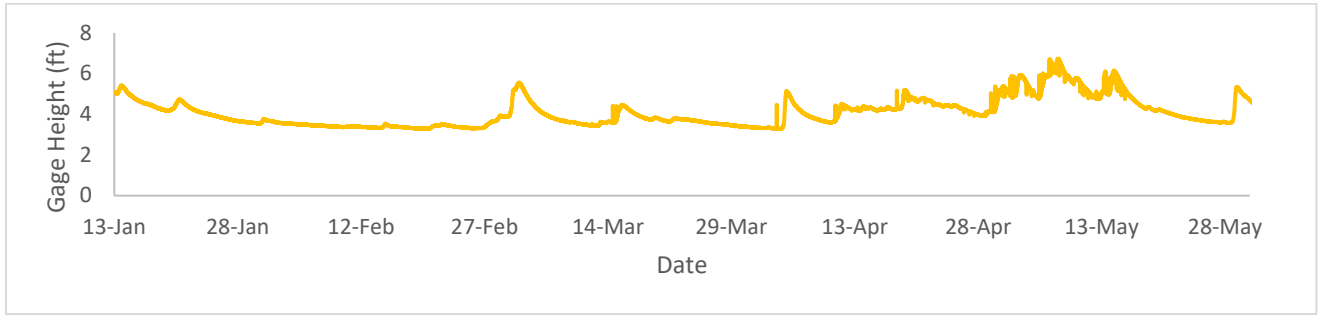


Fall Creek Dam Tailrace Operational and Capture Data Since Start of Monitoring

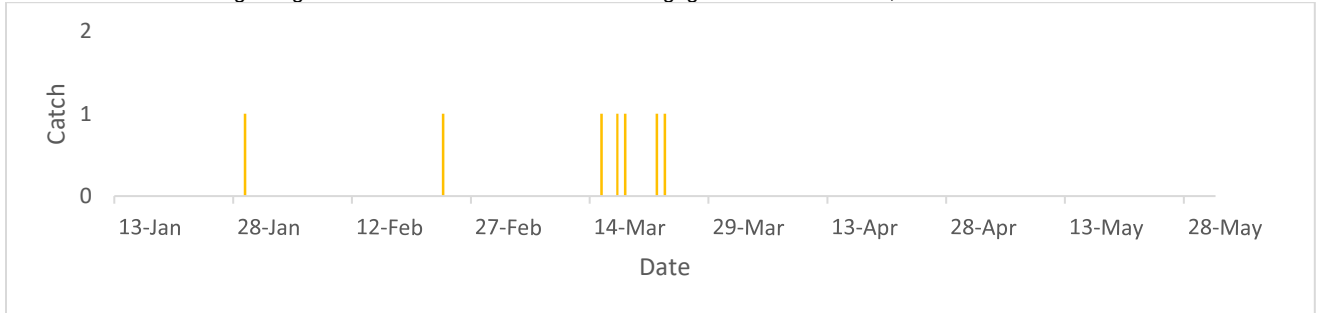


Note: Operational data was being tracked for Fall Creek Head of Reservoir site prior to initiation of Fall Creek Dam monitoring.

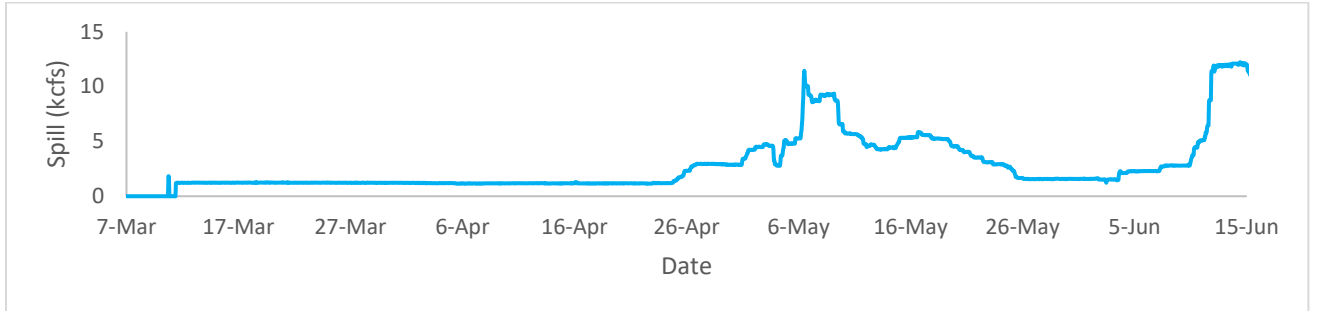
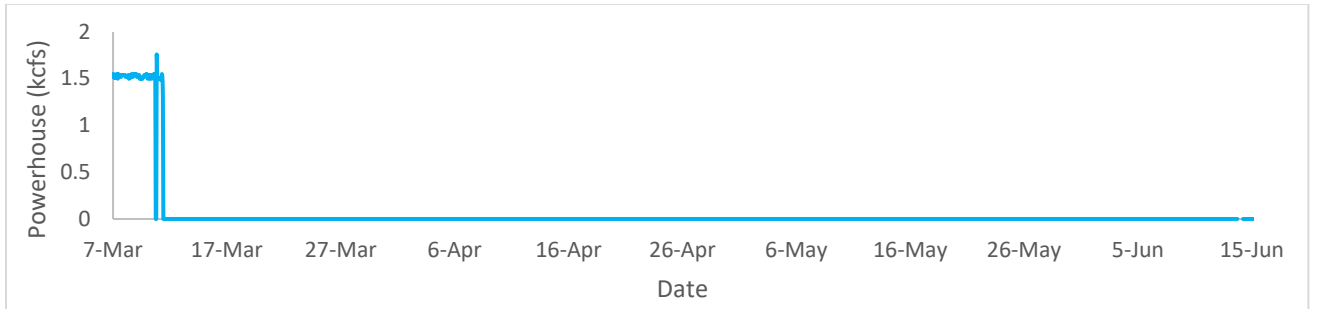
Fall Creek Head of Reservoir Operational and Capture Data Since Start of Monitoring

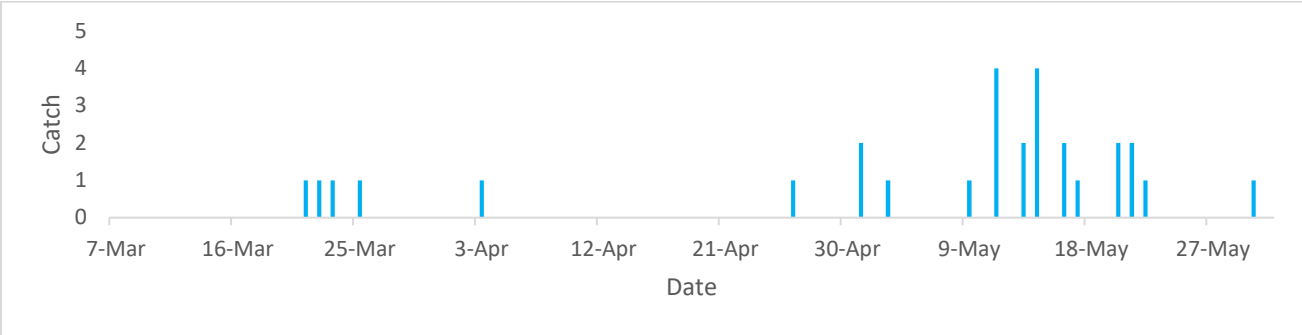
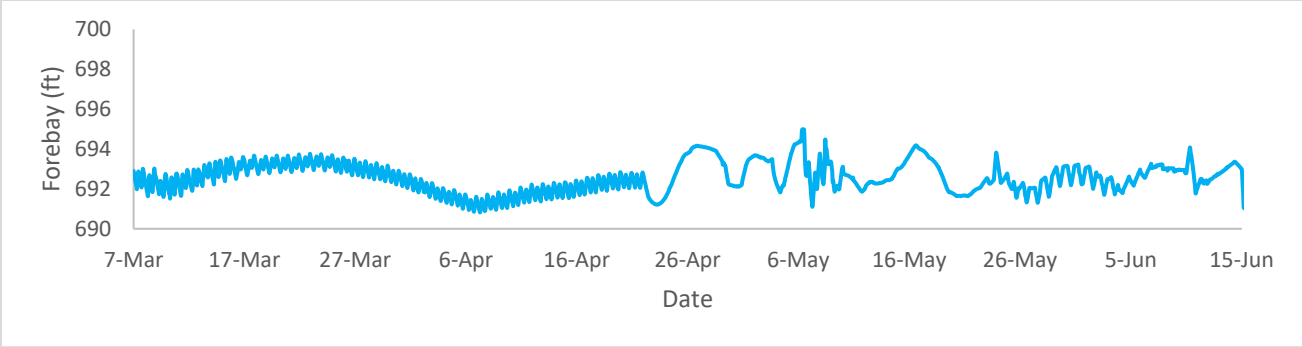


Note: Gage height data was taken from USGS stream gage number 14150290, 1.2 rkms downstream.

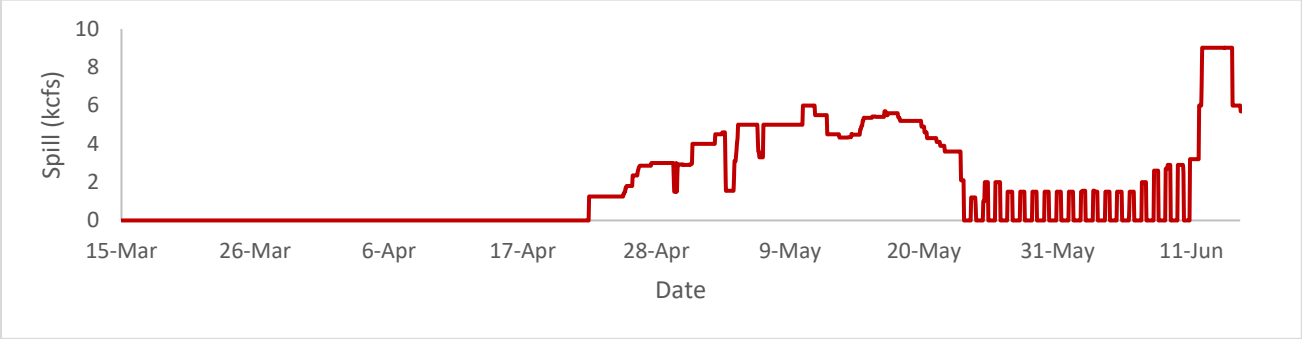
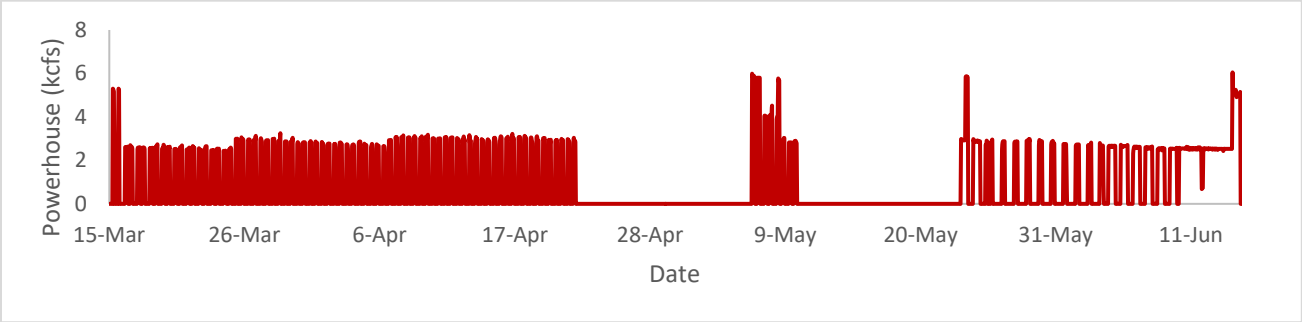


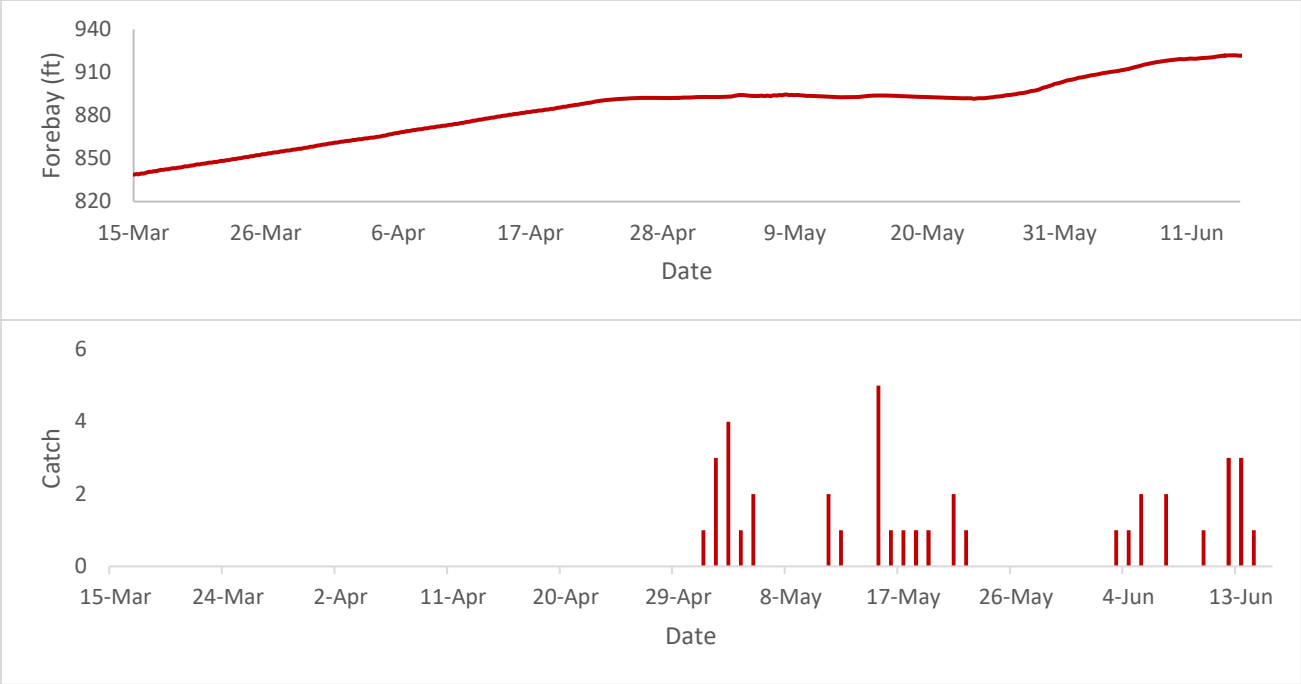
Dexter Dam Operational and Capture Data Since Start of Monitoring



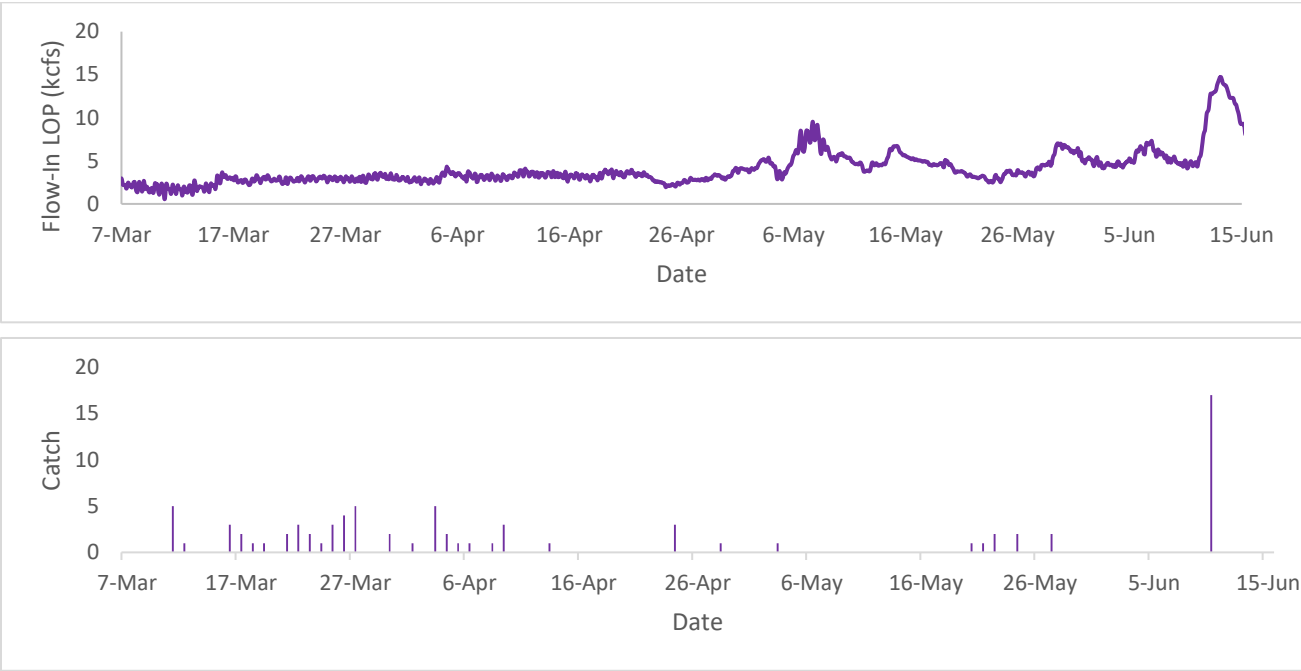


Lookout Dam Tailrace Operational and Capture Data

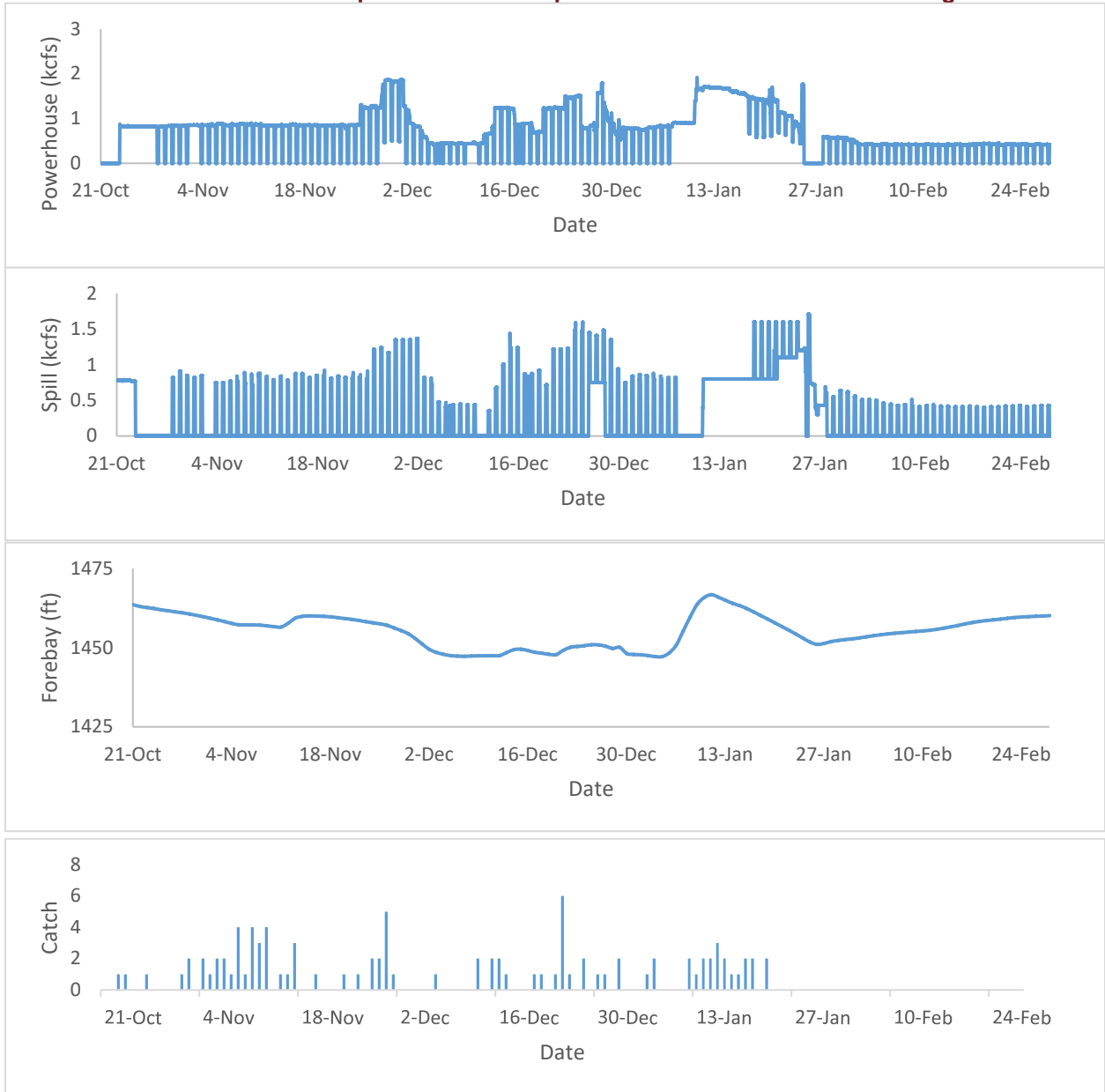




Lookout Point Head of Reservoir Operational and Capture Data Since Start of Monitoring



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.

Cougar Dam Trapping Efficiency (01/19/22)

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

Dexter Dam Tailrace Trapping Efficiency (03/23/2022)

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

Green Peter Dam Tailrace- Middle Santiam Trapping Efficiency (03/29/22)

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

Big Cliff Dam Trapping Efficiency (12/23/2021)

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

Cougar Dam Head of Reservoir Trapping Efficiency (03/18/2022)

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

Cougar Dam Trapping Efficiency (04/20/2022)

Cougar Dam	Release #	Recapture #	Capture Efficiency
PH Route	357	62	17.37% (62/357)
RO Route	378	21	5.56% (21/378)

Dexter Dam Tailrace Trapping Efficiency (05/04/2022)

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spill	1000	43	4.3% (43/1000)
Powerhouse	N/A	N/A	N/A

Lookout Point Head of Reservoir Trapping Efficiency Releases

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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Appendix D

Summary of Project PIT Tagged Fish for Reporting Period

Site	Trap	# of PIT Tagged Fish
Big Cliff Dam	8 ft	0
Foster Dam Head of Reservoir- South Santiam	5 ft	1
Cougar Dam	PWR	0
Cougar Dam	RO	0
Green Peter Tailrace- Middle Santiam	8 ft	0
Dexter Dam Tailrace	5 ft	0
Lookout Point Head of Reservoir	5 ft	10
Lookout Dam Tailrace	Spill	4
Lookout Dam Tailrace	PH 1	2

To Date Summary of Captured Fish Containing PIT Tags

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

Site	Date	Trap	Species	PIT Tag #
Foster Dam Head of Reservoir- South Santiam River	6/7/2022	5 ft	Chinook	3DD.003BEE29E0
Lookout Dam Tailrace	6/12/2022	PH 1	Chinook	3DD.003E1BC7BC
Lookout Dam Tailrace	6/12/2022	PH 1	Chinook	3DD.003E1BC3BA
Lookout Dam Tailrace	6/13/2022	Spill	Chinook	3DD.003BEE1A41
Lookout Dam Tailrace	6/13/2022	Spill	Chinook	3DD.003BEE1A45
Lookout Dam Tailrace	6/13/2022	Spill	Chinook	3DD.003BEE1A48
Lookout Dam Tailrace	6/14/2022	Spill	Chinook	3DD.003E1BC7E2
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE2605
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE264A
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE25FE
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE2601
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE25F5
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE260E
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE25EF
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE264F
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE261E
Lookout Point Head of Reservoir	6/10/2022	5 ft	Chinook	3DD.003BEE2625