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Report Period:	March 16th to March 31st, 2023
Report No.:	2023 Willamette RST Bi-Weekly Report 03/16-03/31 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	02/15/2022	443
Big Cliff Dam RST	Operation	03/15/2022	10/15/2022	
Big Cliff Dam RST	Operation	10/15/2022	12/15/2022	
Big Cliff Dam RST	Operation	12/15/2022	3/15/2023	
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	8
Big Cliff Dam Tailrace	Trap Efficiency Release (1,000 Fish)	05/25/2022	05/25/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (1,000 Fish)	08/09/2022	08/09/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (1,000 Fish)	09/30/2022	09/30/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (500 Fish)	10/13/2022	10/13/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (535 Fish)	10/24/2022	10/24/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (549 Fish)	11/02/2022	11/02/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (510 Fish)	11/16/2022	11/16/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (502 Fish)	12/14/2022	12/14/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (1,010 Fish)	12/19/2022	12/19/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (1,014 Fish)	12/21/2022	12/21/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (704 Fish)	12/27/2022	12/27/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (452 Fish)	12/29/2022	12/29/2022	1
Big Cliff Dam Tailrace	Trap Efficiency Release (500 Fish)	01/25/2023	01/25/2023	1
Big Cliff Dam Tailrace	Trap Efficiency Release (500 Fish)	02/17/2023	02/17/2023	1
Big Cliff Dam Tailrace	Trap Efficiency Release (2,968 Fish)	03/07/2023	03/07/2023	1
Big Cliff Dam Tailrace	Trap Efficiency Release (541 Fish)	03/10/2023	03/10/2023	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	05/07/2022	66
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
Green Peter Tailrace- Middle Santiam River RST	Trap Install	03/14/2023	03/14/2023	1
Green Peter Tailrace- Middle Santiam River RST	Anchor Install	3/23/2023	3/31/2023	8
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	03/16/2022	06/30/2022	107
Foster Dam Head of Reservoir- South Santiam River RST	Trap Removal	07/01/2022	07/01/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trap Install	09/02/2022	09/02/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Operation	09/02/2022	11/30/2022	90
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (1000 fish)	09/29/2022	09/29/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (840 fish)	10/25/2022	10/25/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (1006 fish)	11/01/2022	11/01/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (1007 fish)	11/09/2022	11/09/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (1009 fish)	11/15/2022	11/15/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (933 fish)	11/22/2022	11/22/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trap Removal	12/06/2022	12/06/2022	1
Foster Dam Head of Reservoir- South Santiam River RST	Trap Install	1/31/2023	1/31/2023	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (1005 fish)	02/27/2023	02/27/2023	1
Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (995 fish)	03/09/2023	03/09/2023	1

Foster Dam Head of Reservoir- South Santiam River RST	Trapping Efficiency Release (1,025 fish)	03/15/2023	03/15/2023	1
Cougar Dam RST	Operation	11/30/2021	11/30/2022	730
Cougar Dam RST	Operation	11/30/2022	11/30/2023	
Cougar Dam	Trap Efficiency Release (1,200 Fish, 600 per route)	01/19/2022	01/19/2022	1
Cougar Dam	Trap Efficiency Release (735 Fish, ~365 per route)	04/20/2022	04/20/2022	1
Cougar Dam	Trap Efficiency Release (993 Fish, RO route)	05/15/2022	05/15/2022	1
Cougar Dam	Trap Efficiency Release (500 Fish, PH route)	07/19/2022	07/19/2022	1
Cougar Dam	Trap Efficiency Release (501 Fish, PH route)	08/11/2022	08/11/2022	1
Cougar Dam	Trap Efficiency Release (442 Fish, RO route)	10/14/2022	10/14/2022	1
Cougar Dam	Trap Efficiency Release (504 Fish, RO route)	11/22/2022	11/22/2022	1
Cougar Dam	Trap Efficiency Release (506 Fish, RO route)	12/13/2022	12/13/2022	1
Cougar Dam	Trap Efficiency Release (1,015 Fish, RO route)	12/15/2022	12/15/2022	1
Cougar Dam	Trap Efficiency Release (500 Fish, RO route)	12/20/2022	12/20/2022	1
Cougar Dam	Trap Efficiency Release (445 Fish, RO route)	12/28/2022	12/28/2022	1
Cougar Dam	Trap Efficiency Release (843 Fish, PH route)	01/12/2023	01/12/2023	1
Cougar Dam	Trap Efficiency Release (500 Fish, RO route)	01/30/2023	01/30/2023	1
Cougar Dam	Trap Efficiency Release (511 Fish, RO route)	3/23/2023	3/23/2023	1
Cougar Dam	Trap Efficiency Release (500 Fish, PH route)	3/23/2023	3/23/2023	1
Cougar Dam	Trap Efficiency Release (491 Fish, RO route)	3/30/2023	3/30/2023	1
Cougar Dam	Trap Efficiency Release (497 Fish, PH route)	3/30/2023	3/30/2023	1
Cougar Dam Head of Reservoir	Highline and Trap Install	03/07/2022	03/07/2022	1
Cougar Dam Head of Reservoir	Operation	03/08/2022	06/30/2022	115
Cougar Dam Head of Reservoir	Operation	09/16/2022	11/30/2022	76
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
Cougar Dam Head of Reservoir	Trap Efficiency Release (515 Fish)	06/23/2022	06/23/2022	1
Cougar Dam Head of Reservoir	Trap Removal	07/01/2022	07/01/2022	1
Cougar Dam Head of Reservoir	Highline Install	09/14/2022	09/14/2022	1
Cougar Dam Head of Reservoir	Trap Install	09/16/2022	09/16/2022	1
Cougar Dam Head of Reservoir	Trap Efficiency Release (551 Fish)	09/22/2022	09/22/2022	1

Cougar Dam Head of Reservoir	Trap Efficiency Release (608 Fish)	10/5/2022	10/5/2022	1
Cougar Dam Head of Reservoir	Trap Efficiency Release (721 Fish)	11/10/2022	11/10/2022	1
Cougar Dam Head of Reservoir	Trap Efficiency Release (719 Fish)	11/16/2022	11/16/2022	1
Cougar Dam Head of Reservoir	Trap Efficiency Release (752 Fish)	11/23/2022	11/23/2022	1
Cougar Dam Head of Reservoir	Trap Efficiency Release (620 Fish)	11/29/2022	11/29/2022	1
Cougar Dam Head of Reservoir	Trap Removal	11/30/2022	11/30/2022	1
Cougar Dam Head of Reservoir	Trap Install	1/31/2023	1/31/2023	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	649
Dexter Dam Tailrace RST	Operation	12/16/2022	12/16/2023	
Dexter Dam Tailrace RST	Trap Efficiency Release (988 Fish)	03/23/2022	03/23/2022	1
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
Dexter Dam Tailrace RST	Trap Efficiency Release (981 Fish)	07/21/2022	07/21/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (1007 Fish)	10/26/2022	10/26/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (775 Fish)	11/01/2022	11/01/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (991 Fish)	11/17/2022	11/17/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (1,010 Fish)	12/06/2022	12/06/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (1,025 Fish)	12/15/2022	12/15/2022	1
Dexter Dam Tailrace RST	Trap Efficiency Release (1,200 Fish)	3/16/2023	3/16/2023	1
Dexter Dam Tailrace RST	Trap Efficiency Release (1,199 Fish)	3/29/2023	3/29/2023	1
Lookout Dam Tailrace RSTs	Operation	03/15/2022	07/31/2022	366
Lookout Dam Tailrace RSTs	Operation	08/01/2022	10/17/2022	
Lookout Dam Tailrace RSTs	Operation	10/17/2022	3/15/2023	
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	651
Lookout Point Head of Reservoir RST	Operation	12/16/2022	12/16/2023	
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

Lookout Point Head of Reservoir RST	Trap Efficiency Release (1005 fish)	07/20/2022	07/20/2022	1
Lookout Point Head of Reservoir RST	Trap Efficiency Release (506 fish)	10/27/2022	10/27/2022	1
Lookout Point Head of Reservoir RST	Trap Efficiency Release (510 fish)	11/17/2022	11/17/2022	1
Lookout Point Head of Reservoir RST	Trap Efficiency Release (510 fish)	12/12/2022	12/12/2022	1
Lookout Point Head of Reservoir RST	Trap Efficiency Release (516 fish)	01/13/2023	01/13/2023	1
Fall Creek Dam Tailrace RST	Operation	03/15/2022	07/15/2022	123
Fall Creek Dam Tailrace RST	Operation	10/15/2023	03/15/2023	152
Fall Creek Dam Tailrace RST	Trap Efficiency Release (518 fish)	06/08/2022	06/08/2022	1
Fall Creek Dam Tailrace RST	Trap Efficiency Release (513 fish)	06/30/2022	06/30/2022	1
Fall Creek Dam Tailrace RST	Trap Efficiency Release (500 fish)	07/13/2022	07/13/2022	1
Fall Creek Dam Tailrace RST	Deployment	10/15/2022	10/15/2022	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
Fall Creek Head of Reservoir RST	Highline Install	1/17/2023	1/17/2023	1
Fall Creek Head of Reservoir RST	Trap Install	1/18/2023	1/18/2023	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
Hills Creek Dam RSTs	Trap Install	09/14/2022	09/14/2022	1
Hills Creek Dam RSTs	Deployment	9/15/2022	9/15/2022	1
Hills Creek Dam RO	Operation	09/15/2022	06/30/2023	289
Hills Creek Dam PWR	Operation	09/15/2022	06/30/2023	289
Hills Creek Dam	Trap Efficiency Release (514 fish, PWR Route)	12/07/2022	12/07/2022	1
Hills Creek Dam	Trap Efficiency Release (516 fish, RO Route)	12/13/2022	12/13/2022	1
Hills Creek Dam	Trap Efficiency Release (482 fish, RO Route)	02/25/2023	02/25/2023	1
Hills Creek Dam	Trap Efficiency Release (528 fish, PWR Route)	02/25/2023	02/25/2023	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 operated at the following seven locations: Big Cliff Dam, Cougar Dam, Fall Creek Dam, Dexter Dam Tailrace, Lookout Dam Tailrace, Lookout Point Head of Reservoir, and Hills Creek Dam. The trap in the Fall Creek Dam RO channel resumed sampling on October 15th. The Green Peter Dam Tailrace- Middle Santiam trap was removed on May 12th due to damage incurred to the highline.

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. Sampling at Hills Creek Dam resumed on September 15th.

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, and Hills Creek Dam. 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 11.

FIGURE 1
Big Cliff Dam

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 2 Green Peter Tailrace - Middle Santiam River

RST Locations

500 Feet

N

EAS ENVIRONMENTAL ASSESSMENT SERVICES

Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 3 Foster Dam Head of Reservoir - South Santiam River

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES

Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 4
Cougar Dam

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 5
Cougar Dam Head of Reservoir

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 6
Fall Creek Dam Tailrace

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 7
Fall Creek Head of Reservoir

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 8
Dexter Dam Tailrace

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 9
Lookout Dam Tailrace

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 10
Lookout Point Head of Reservoir

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

FIGURE 11
Hills Creek Dam

RST Locations

500 Feet

EAS ENVIRONMENTAL ASSESSMENT SERVICES
Wholly Owned Subsidiary of Natives of Kodiak

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	3/16/2023	3/31/2023	15	412
Green Peter Dam	3/14/2023	3/16/2023	3/31/2023	8	9
Foster Dam Head of Reservoir – South Santiam	2/1/2023	3/16/2023	3/31/2023	15	59
Cougar Dam PH	12/1/2021	3/16/2023	3/31/2023	15	376
Cougar Dam RO	12/1/2021	3/16/2023	3/31/2023	15	376
Cougar Dam Head of Reservoir	2/1/2023	3/16/2023	3/31/2023	15	36
Fall Creek Dam Tailrace*	3/15/2022	3/16/2023	3/31/2023	15	221
Fall Creek Head of Reservoir	1/18/2023	3/16/2023	3/31/2023	14	58
Dexter Dam Tailrace	3/7/2022	3/16/2023	3/31/2023	15	378
Lookout Point Dam PH	3/15/2022	3/16/2023	3/31/2023	15	350
Lookout Point Dam Spill	3/15/2022	3/16/2023	3/31/2023	15	350
Lookout Point Head of Reservoir	3/10/2022	3/16/2023	3/31/2023	1	330
Hills Creek Dam	9/16/2022	3/16/2023	3/31/2023	15	196

*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	8	0	1412	819
Big Cliff Dam	STW	1	0	116	0
Green Peter Tailrace- Middle Santiam	CHS	1	0	1	13
Green Peter Tailrace- Middle Santiam	STW	0	0	6	0
Foster Dam Head of Reservoir- South Santiam	CHS	204	0	609	742
Foster Dam Head of Reservoir- South Santiam	STW	6	0	232	7
Cougar Dam	CHS	27	0	3071	834
Cougar Dam Head of Reservoir	CHS	47	0	778	320
Fall Creek Dam Tailrace	CHS	10	0	45	11
Fall Creek Head of Reservoir	CHS	1	0	147	0
Dexter Dam Tailrace	CHS	0	0	101	128
Lookout Point Dam	CHS	2	0	92	2
Lookout Point Head of Reservoir	CHS	12	0	168	225
Hills Creek Dam	CHS	223	0	394	52

North Santiam – Big Cliff Dam

Target Species

This reporting period began on March 16th and ended on March 31st. There were a total of 8 Chinook Salmon (CHS) and 1 Winter Steelhead (STW) captured during the 15-day sampling period (Figure12). 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 13 shows length frequency data to-date.

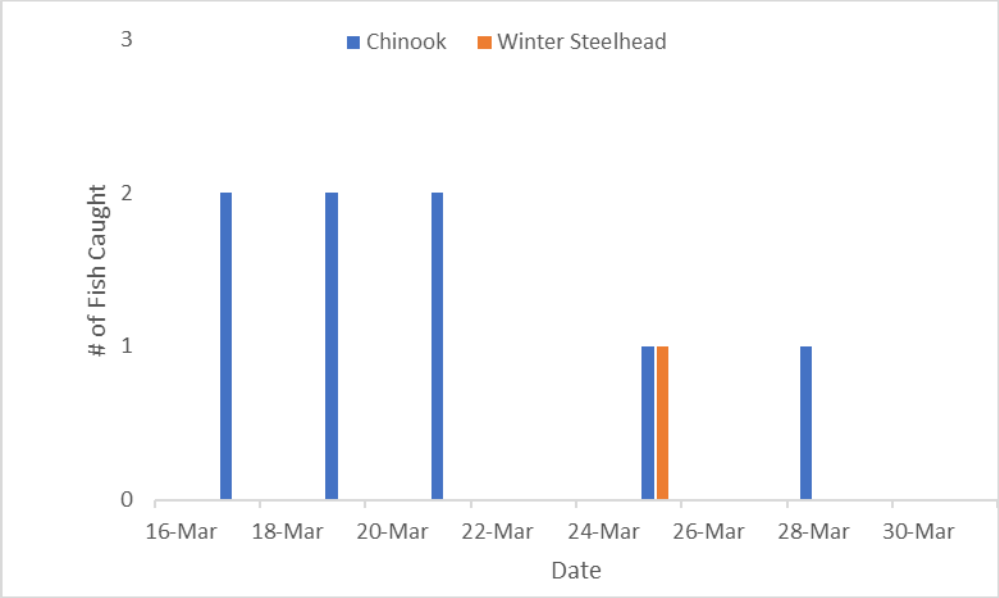


Figure 12. Chinook and Winter Steelhead Captured per day 03/16/2023 to 03/31/2023 (Big Cliff)

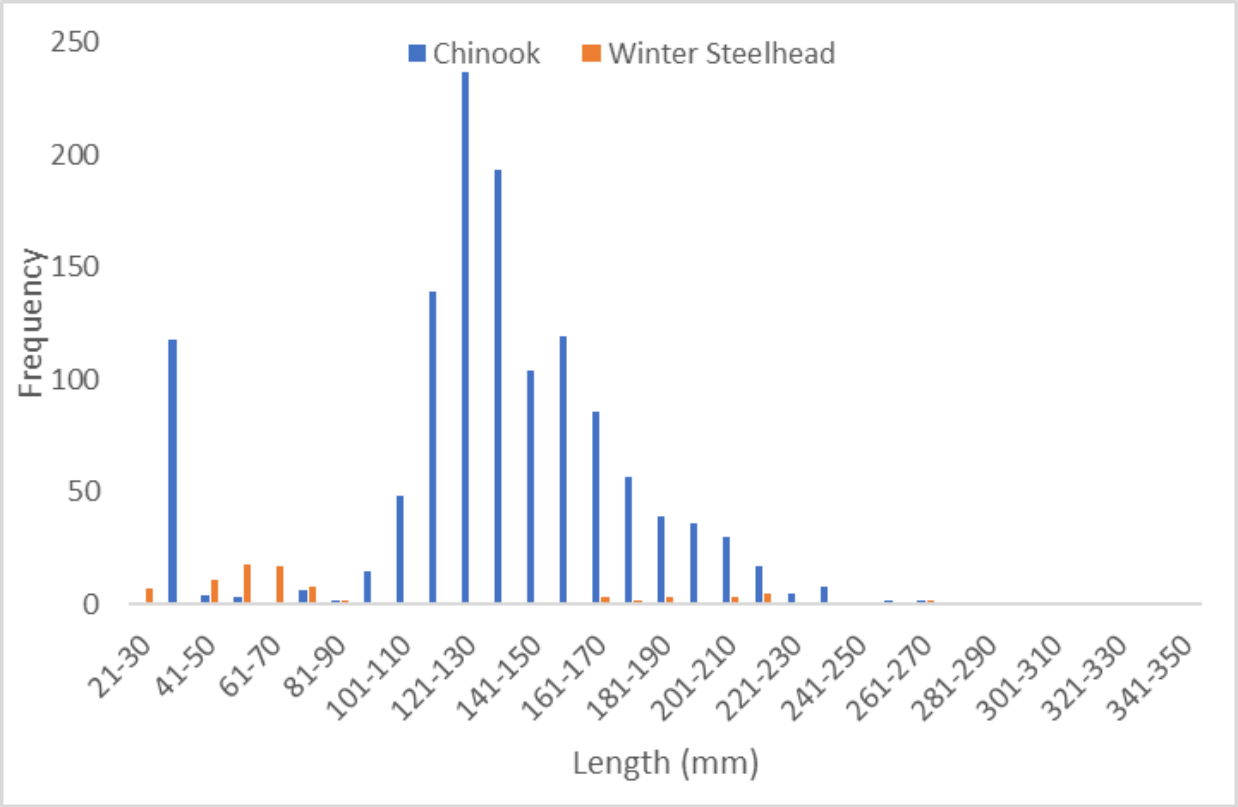


*Figure does not include fish without heads

Figure 13. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Big Cliff)

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	
Big Cliff	PWR	CHS	Fry	123	29	48	36.1	1.2	1.4	1.3	
		CHS	Parr	33	55	136	94.6	1.8	30.0	10.4	
		CHS	Smolt	1254	74	283	146.6	5.4	253.5	37.2	
		STW	Fry	31	21	69	40.3	1.1	3.4	1.7	
		STW	Parr	45	51	131	69.1	1.3	24.8	4.5	
		STW	Smolt	40	157	350	216.5	36.1	442.0	107.8	

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

March 16-31, 2023											
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*			
					Min	Max	Mean	Min	Max	Mean	
Big Cliff	PWR	CHS	Fry	6	36	40	37.8	N/A	N/A	N/A	
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Smolt	2	176	216	196.0	46.8	93.5	70.2	
		STW	Fry	1	56	56	56.0	2.1	2.1	2.1	
		STW	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		STW	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A	

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

Trapping Efficiency

ODFW released a total of 2,968 bismarck brown dyed juvenile hatchery Chinook (fry) on 3/7/2023 below Big Cliff Dam. A total of 60 fish were recaptured in the 8 ft trap. Trapping efficiency was 2.02%.

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	2,968	60	2.02% (60/2,968)

A total of 541 juvenile hatchery Chinook (yearlings) were AD clipped and Bismarck brown dyed and released on 3/10/2023 below Big Cliff Dam. A total of 112 fish were recaptured in the 8ft trap. Trapping efficiency was 20.7%.

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	541	112	20.7% (112/541)

Trapping efficiency fish displayed minor descaling and fin damage.

24-Hour Post Collection Holding Trial

7 Spring Chinook and 1 Winter Steelhead were captured during the current reporting period and held for 24 hours. 0 Chinook (0.0%) and 1 Winter Steelhead (100.0%) died in holding.

Injuries and Copepod Infection

Partial descaling <20% was observed in 2 of the 8 Chinook captured (25.0%), 1 displayed descaling >20% (12.5%), 4 displayed body injury (50.0%), 1 had eye injury (12.5%), 1 had copepods present in the branchial cavity (12.5%) and 1 had copepods on fins (12.5%). 0 Chinook displayed gas bubble disease (0.0%). There was 1 mortality (12.5%).

Partial descaling <20% was observed in 1 of the 1 Winter Steelhead captured (100.0%) and 0 displayed descaling >20% (0.0%), 1 displayed body injury (100.0%), 0 had eye injury (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Winter Steelhead displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). Injury data is summarized in Table 5.

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	8	2	1	4	1	1	1	1
	Winter Steelhead	1	1	0	1	0	0	0	0

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 2 Spring Chinook and 1 Winter Steelhead. The other targets captured did not meet length criteria for DNA sampling or were too descaled/damaged to collect samples.

PIT Tags

No Spring Chinook or Winter Steelhead were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

Non-Target Species

13 non-targets were captured during this sampling period. A summary of non-target species catch and mortality numbers for 2023 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	0	0	1	0
Brown Bullhead	0	0	0	0
Chinook (Adult)	0	0	0	0
Chinook (clipped)	0	0	2	1
Cutthroat Trout	0	0	0	0
Dace	0	0	0	0
Kokanee	13	0	63	8
Kokanee (clipped)	0	0	2	0
O. mykiss (clipped)	0	0	0	0
Pumpkinseed	0	0	1	0
Unknown	0	0	0	0
Mountain Whitefish	0	0	0	0
Sculpin	0	0	0	0
Totals	**13**	**0**	**69**	**9**

Stream Statistics

Basic stream statistics at the Big Cliff Dam site were calculated from data downloaded from U.S. Geological Survey stream gauge numbers 14181410 and 14181500. Gauge height (feet) is the only metric provided at gauge 14181410. Total dissolved gas (TDG) saturation data was received from gauge 14181500, 1 rkm downstream of the trap. During the reporting period, daily maximum values for instantaneous gauge height ranged from 1,109.1 to 1,109.7 feet (mean: 1,109.1 feet) during the reporting period. Figure 14 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 101 to 118% during the reporting period (mean: 105.9%). Figure 15 shows total dissolved gas saturation.

A new temperature probe was deployed for the reporting period, as the original probe had been malfunctioning. Stream temperatures were recorded every minute for the length of the reporting period at the RST (Figure 16). The temperature probe for the trap operated normally throughout this reporting period.

Flows through the Powerhouse and Spill during the reporting period averaged 1,266.6 and 15.1 cubic feet per second (cfs), respectively (Figure 17). 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.

Description	Chinook (8 ft)	Winter Steelhead (8 ft)
Catch	8	1
Effort (hrs)	377.6	377.6
CPUE (fish/hr)	0.021	0.003

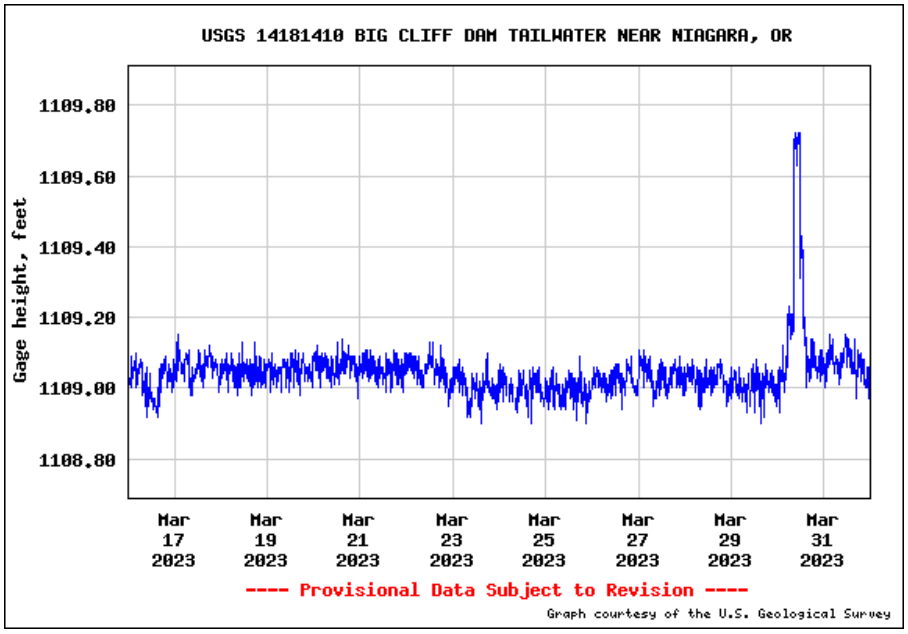


Figure 14. Gauge height (ft); below Big Cliff Dam

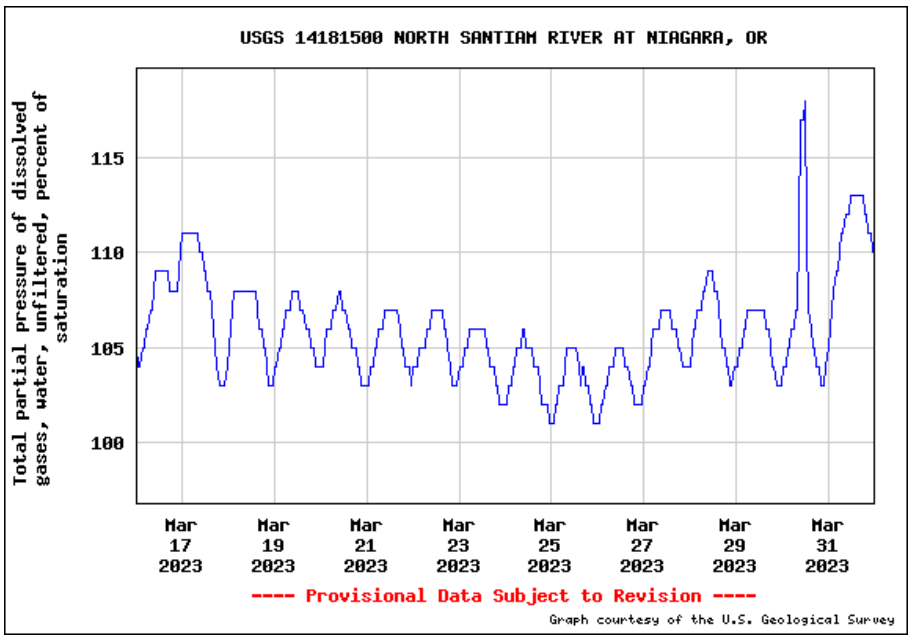


Figure 15. Total Dissolved Gas Saturation (%); below Big Cliff Dam

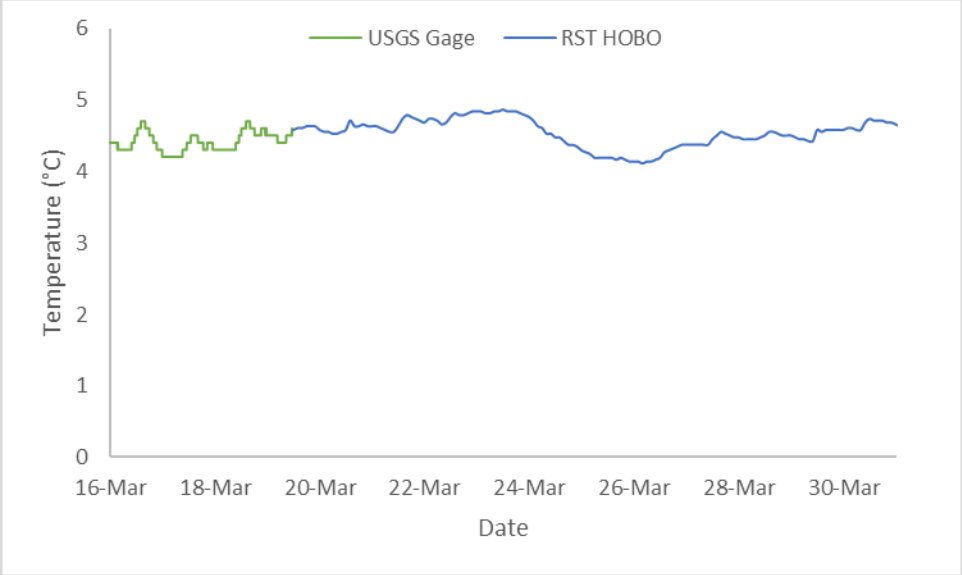


Figure 16. Temperature at RST (Big Cliff Dam)

Note: The Big Cliff temperature logger was deployed on March 3rd of the reporting period. The above supplemental temperature data was gathered from USGS gage 14181500.

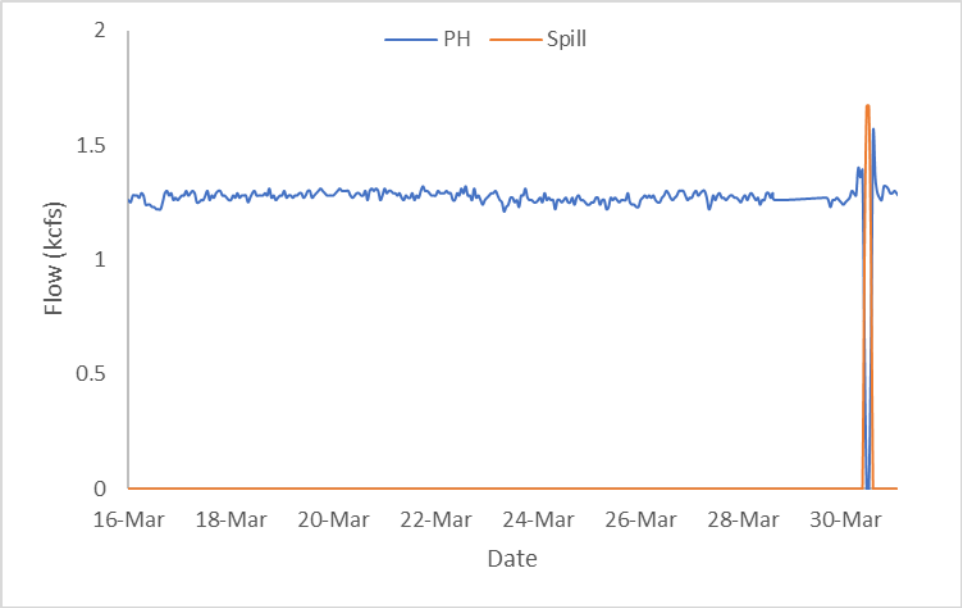
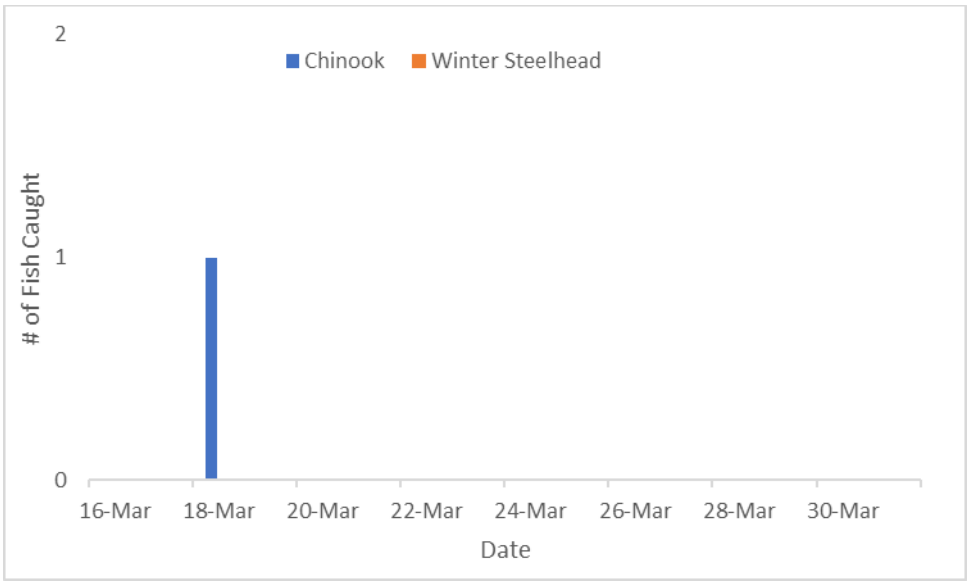


Figure 17. Hourly Flows PWR vs. Spill (Big Cliff Dam)

Middle Fork Santiam– Green Peter Tailrace

Target Species

This reporting period began on March 16 and ended on March 31. 1 Chinook Salmon (CHS) and 0 Winter Steelhead (STW) were captured during the 15-day sampling period. Sampling duration was 53.3% 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 18 shows the daily capture numbers for Chinook and Winter Steelhead and Figure 19 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 18. Chinook and Winter Steelhead Captured Per Day 03/16/2022 to 03/31/2022 (Green Peter Tailrace- Middle Santiam)

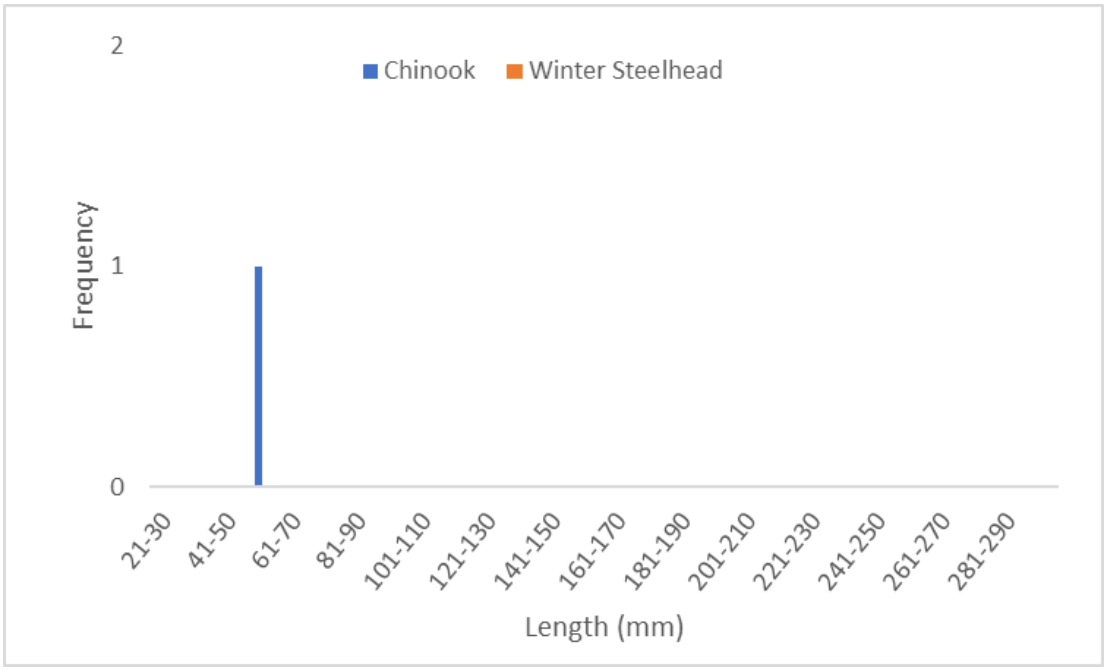


*Figure does not include fish without heads or fish used for trapping efficiency trials.

Figure 19. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Green Peter Tailrace- Middle Santiam River)

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	Spill	CHS	Fry	1	54	54	54.0	3.6	3.6	3.6	
		STW	Parr	0	0	0	0	0	0	0	
		STW	Smolt	0	0	0	0	0	0	0	

March 16-31, 20223											
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*			
					Min	Max	Mean	Min	Max	Mean	
Green Peter Dam Tailrace-Middle Santiam	Spill	CHS	Fry	1	54	54	54.0	3.6	3.6	3.6	
		STW	Parr	0	0	0	0	0	0	0	
		STW	Smolt	0	0	0	0	0	0	0	

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

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)

24-Hour Post Collection Holding Trial

1 Spring Chinook and 0 Winter Steelhead were captured during the current reporting period and held for 24 hours. 0 Chinook (0.0%) and 0 Winter Steelhead (0.0%) died in holding.

Injuries and Copepod Infection

Partial descaling <20% was observed in 0 of the 1 Chinook captured (0.0%), 0 displayed descaling >20% (0.0%), 0 displayed body injury (0.0%), 0 had eye injury (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Chinook displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%).

Partial descaling <20% was observed in 0 of the 0 Winter Steelhead captured (0.0%) and 0 displayed descaling >20% (0.0%), 0 displayed body injury (0.0%), 0 had eye injury (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Winter Steelhead displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%).

A summary of injuries observed on Chinook Salmon and 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 Chinook Salmon and Winter Steelhead for Sampling Period. (Green Peter Tailrace- Middle Santiam River).

Site	Species	# Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Green Peter	CHS	1	0	0	0	0	0	0	0
	STW	0	0	0	0	0	0	0	0

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

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 1 Spring Chinook and 0 Winter Steelhead. The other targets captured did not meet length criteria for DNA sampling or were too descaled/damaged to collect samples.

PIT Tags

No Spring Chinook or Winter Steelhead were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

Non-Target Species

8 non-targets were captured during this sampling period. A summary of non-target species catch and mortality numbers for 2023 are listed in 10.

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

Species	Capture	Mortality	Season Total Capture	Season Total Mortality
Bluegill	6	0	6	0
Kokanee	2	1	2	1
O. mykiss (clipped)	0	0	0	0
Totals	**8**	**1**	**8**	**1**

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 692.3 feet to 699.2 feet (mean: 694.5 feet). Figure 20 shows instantaneous gage height.

Total dissolved gas saturation ranged from 101 to 113% (mean: 104.4%) during the reporting period. Figure 21 shows the total dissolved gas saturation.

Stream temperatures were recorded every 2 hours for the length of the report period for the RST (Figure 22). Temperature probes operated normally throughout this reporting period.

Flows through the Powerhouse and Spillway during the reporting period averaged 189.6 and 47.7 cubic feet per second (cfs) respectively (Figure 23). 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	1	0
Effort (hrs)	188.3	188.3
CPUE (fish/hr)	0.005	0

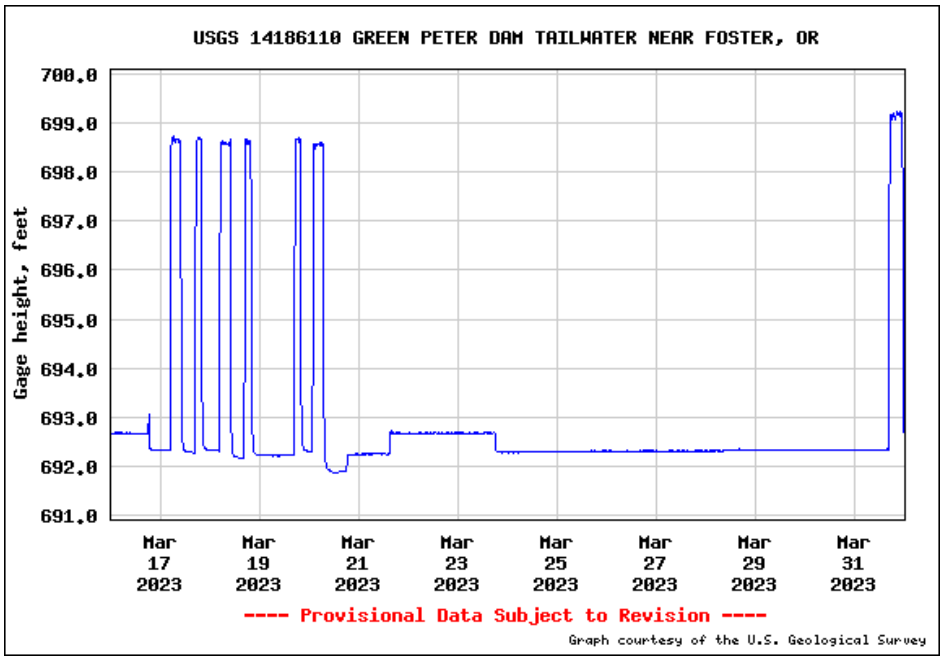


Figure 20. Gage Height (feet); below Green Peter Dam

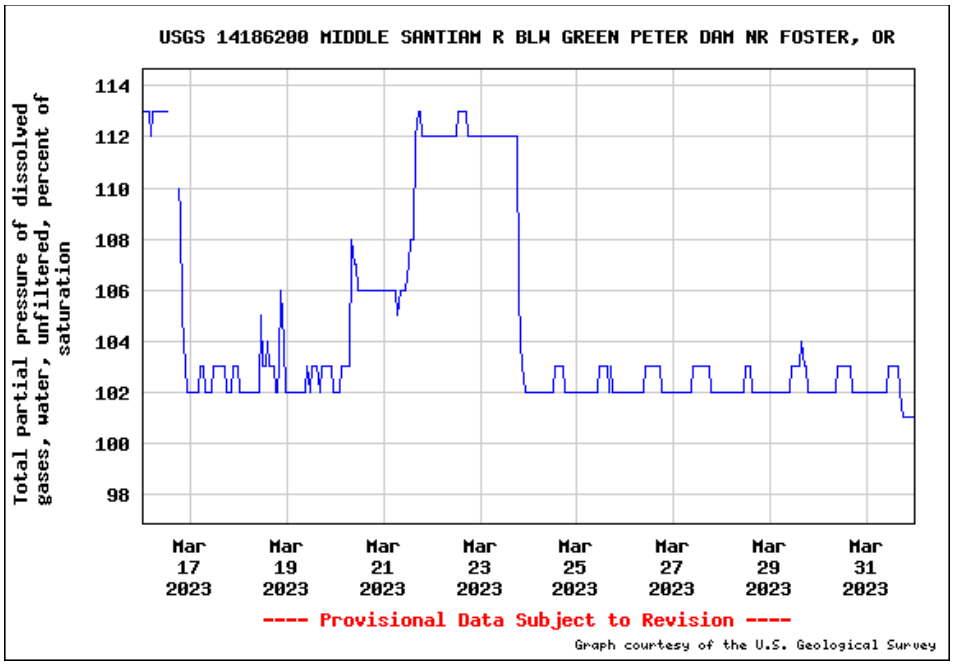
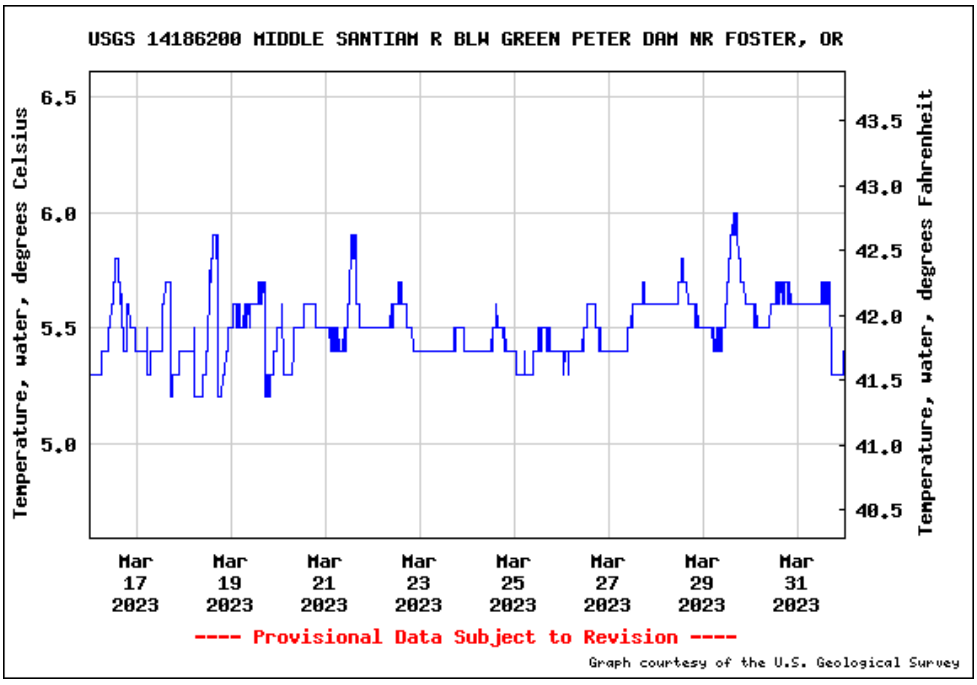


Figure 21. Total Dissolved Gas Saturation (%); below Green Peter Dam



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

Figure 22. Temperature at RST (Green Peter Tailrace- Middle Santiam River)

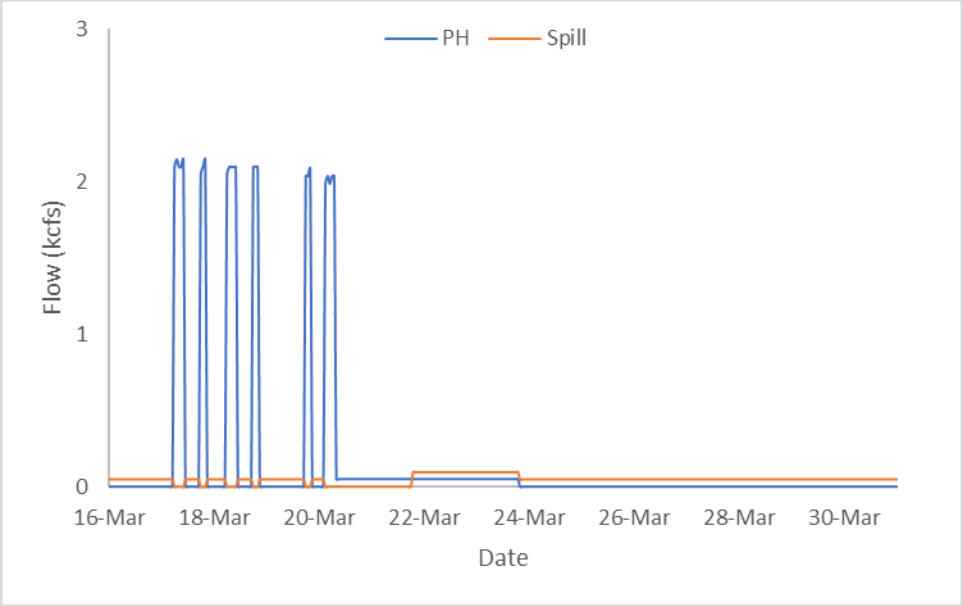


Figure 23. Hourly Flows PWR vs. Spill (Green Peter Dam)

South Fork Santiam– Foster Dam Head of Reservoir

Target Species

This reporting period began on March 16th and ended on March 31st. There were 204 Chinook salmon (CHS) and 6 Winter Steelhead (STW) captured during the 15-day sampling period. Sampling duration was 100.0% 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 24 shows the daily capture numbers for Chinook and Winter Steelhead and Figure 25 shows length frequency data to-date for both species.

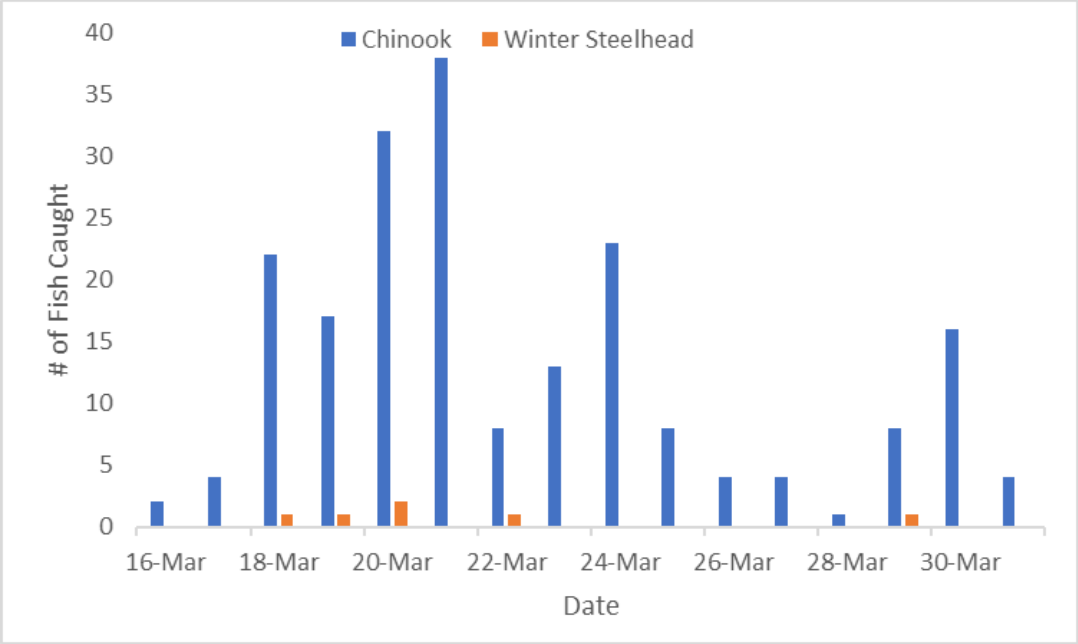


Figure 24. Chinook and Winter Steelhead Captured Per Day 03/16/2023 to 03/31/2023 (Foster Dam Head of Reservoir- South Santiam)

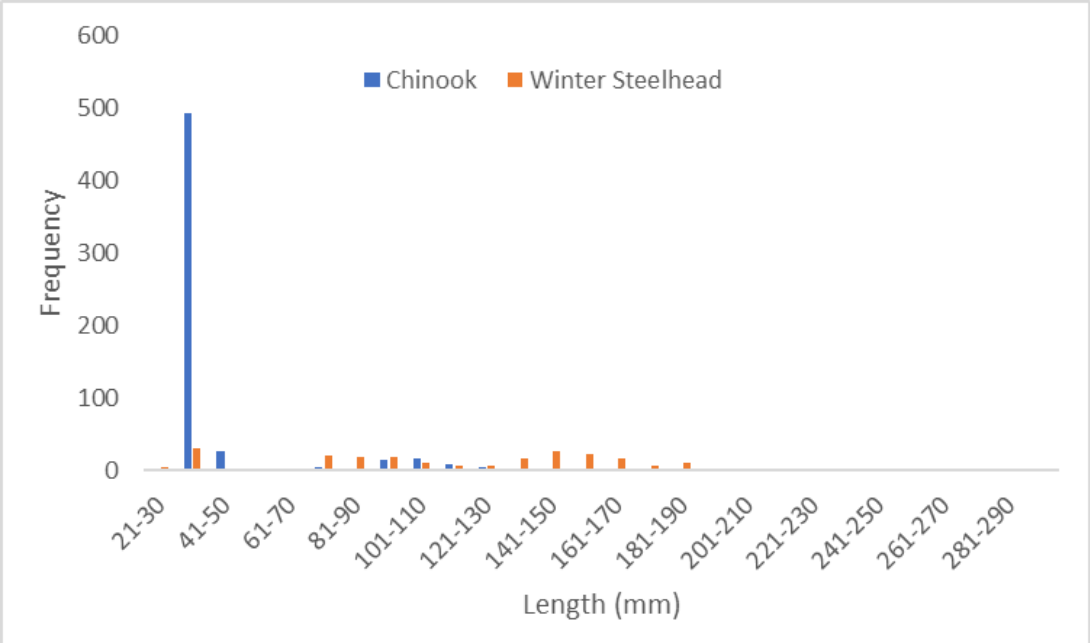


Figure 25. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Foster Dam Head of Reservoir- South Santiam)

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

To-Date (Since Dec. 01, 2021)											
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	520	30	49	36.1	N/A	N/A	N/A	
		CHS	Parr	46	70	161	98.2	3.1	44.3	12.6	
		CHS	Smolt	41	93	146	111.2	7.3	34.9	14.9	
		STW	Fry	36	28	46	34.2	N/A	N/A	N/A	
		STW	Parr	110	65	183	107.4	2.4	63.6	17.3	
		STW	Smolt	86	100	213	160.5	11.2	164.0	43.5	

March 16-31, 2023											
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	196	31	45	35.7	1.5	1.7	1.6	
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Smolt	8	93	123	108.8	8.6	20.0	13.9	
		STW	Fry	3	31	36	34.0	N/A	N/A	N/A	
		STW	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		STW	Smolt	3	139	185	160.0	29.2	38.9	34.5	

Trapping Efficiency

A total of 995 juvenile hatchery Chinook (yearlings) were bismarck brown dyed, adipose clipped and released on 03/09/2023 at Cascadia Park above the Foster Dam Head of Reservoir- South Santiam trap. 62 fish were recaptured in the 5ft trap. Trapping efficiency was 6.23%.

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #	Capture Efficiency
5 ft Trap	995	62	6.23% (62/995)

Run of River Trapping Efficiency

Run of river fish captured in the RST have been caudal clipped and released upstream to perform run of river trapping efficiency trials. Only fish large enough to be safely caudal clipped have been used for run of river efficiency trials. This year, 21 Spring Chinook and 3 Winter Steelhead have been caudal clipped and released upstream for the purpose of conducting run of river trapping efficiency trials. Release numbers and recaptures for this reporting period are summarized below.

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #
Chinook	10	0
Winter Steelhead	3	0

Injuries and Copepod Infection

Partial descaling <20% was observed on 6 of the 204 Spring Chinook captured (2.9%). Body injuries were present on 19 Spring Chinook (9.3%) and 1 displayed eye injury (0.5%). No copepods were present in the branchial cavity (0.0%) and 0 fish displayed copepods on the fins (0.0%). There were no mortalities.

Partial descaling <20% was observed on 3 of the 6 Winter Steelhead captured (50.0%). Body injuries were present on 3 Winter Steelhead (50.0%) and 0 displayed eye injury (0.0%). No copepods were found in the branchial cavity (0.0%) and 0 fish displayed copepods on the fins (0.0%). There was 1 mortality (16.7%). 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	204	6	4	19	1	0	0	7
	Winter Steelhead	6	3	0	3	0	0	0	1

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 10 Spring Chinook and 3 Winter Steelhead. The other targets captured did not meet length criteria for DNA sampling or were too descaled/damaged to collect samples.

PIT Tags

8 Spring Chinook and 3Winter Steelhead were PIT tagged during this reporting period. More information regarding PIT tagged fish can be found in Appendix D.

Non-Target Species

7 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	5 ft Capture	5 ft Mortality	Season Total	Season Total Mortality
Brook Lamprey	0	0	0	0
Cutthroat Trout	0	0	0	0
Dace	6	0	7	0
Largescale Sucker	0	0	1	0
Northern Pikeminnow	0	0	0	0
Sculpin	1	0	1	0
Unknown	1	0	1	0
Totals	**8**	**0**	**10**	**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 gauge number 14185000. Discharge (cfs) and Gauge height (feet) are available at this gauge. During the reporting period, daily maximum values for instantaneous discharge ranged from 759.0 cfs to 1,470.0 cfs (mean: 1,052.9 cfs). Figure 26 shows instantaneous discharge.

Stream temperatures were recorded every 2 hours for the length of the report period for the RST (Figure 27). Temperature probes for the trap 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	204	6
Effort (hrs)	384.1	384.1
CPUE (fish/hr)	0.531	0.016

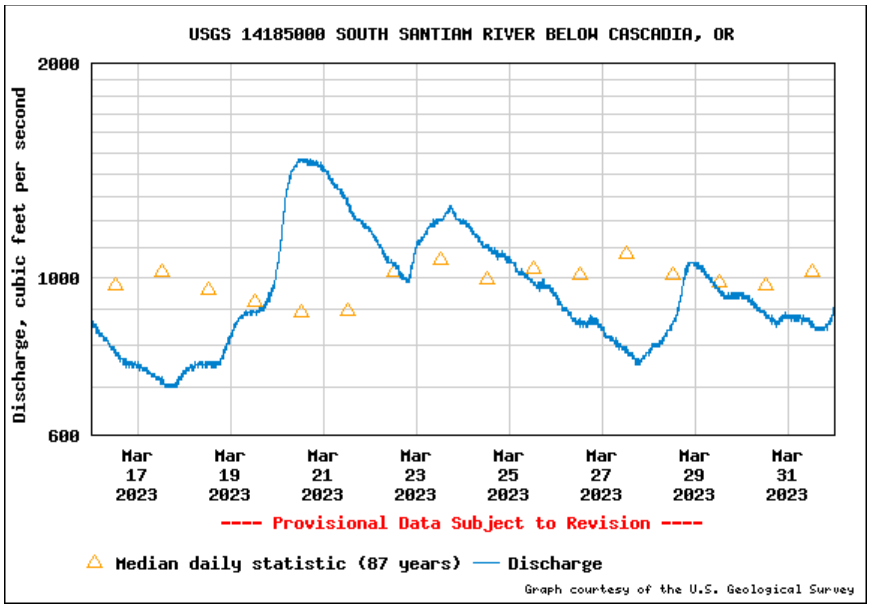


Figure 26. Discharge (cfs); Foster Dam Head of Reservoir – S. Santiam)

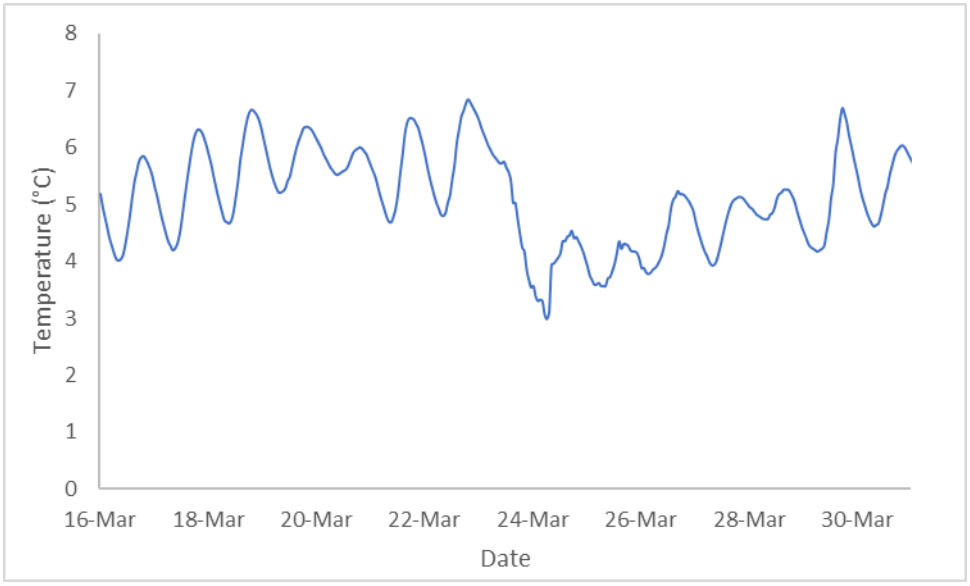
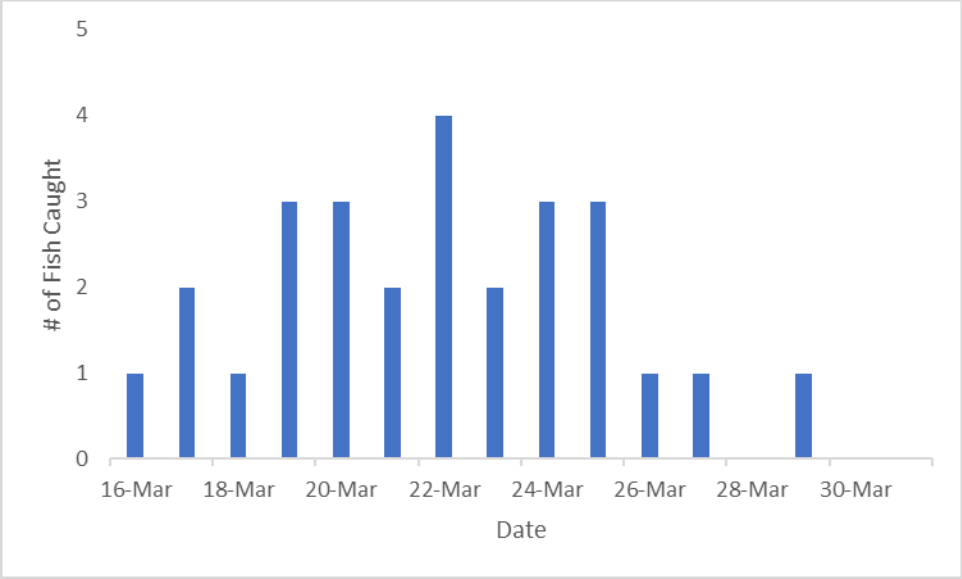


Figure 27. Temperature at RST (Foster Dam Head of Reservoir – S. Santiam)

South Fork McKenzie – Cougar Dam

Target Species

This reporting period began on March 16th and ended on March 31st. There were a total of 27 Chinook Salmon (CHS) captured during the 15-day sampling period. Sampling duration was 100.0% for the RO RST and 100.0% for the Powerhouse 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 28 shows the daily capture numbers for chinook and Figure 29 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 28. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Cougar Dam)

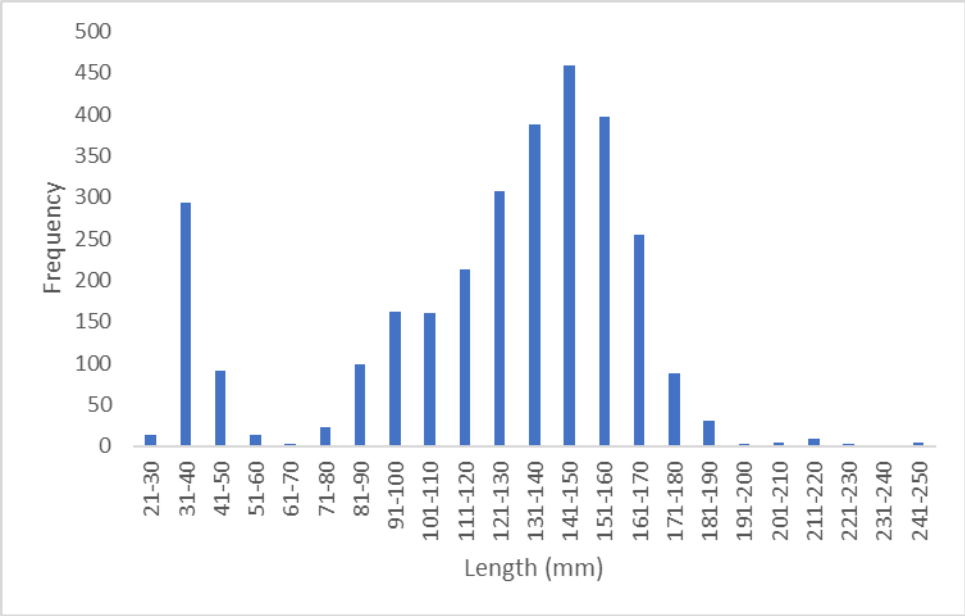


*Figure does not include fish without heads or fish used for trapping efficiency trials.

Figure 29. Length Frequency of Juvenile Chinook Sampled Season To-Date (Cougar Dam)

Table 16. Descriptive Statistics of Target Species Captured at 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	24	33	48	40.1	N/A	N/A	N/A	
		CHS	Parr	209	56	164	107.0	1.2	41.1	14.3	
		CHS	Smolt	1627	92	247	145.2	4.7	142.4	34.6	
Cougar Dam	PWR	CHS	Fry	382	25	55	38.0	1.0	1.8	1.2	
		CHS	Parr	271	54	165	99.0	1.6	41.0	10.6	
		CHS	Smolt	556	76	223	138.6	4.2	113.5	29.8	

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

March 16-31, 2023											
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*			
					Min	Max	Mean	Min	Max	Mean	
Cougar Dam	RO	CHS	Fry	3	33	37	35.3	N/A	N/A	N/A	
		CHS	Parr	3	86	99	91.7	6.5	10.7	9.3	
		CHS	Smolt	21	111	170	144.0	12.1	50.0	30.8	
Cougar Dam	PWR	CHS	Fry	0	N/A	N/A	N/A	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	

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

Trapping Efficiency

A total of 491 juvenile hatchery Chinook (yearlings) were adipose clipped, left vent clipped, bismark brown dyed and released in the RO channel and 497 adipose clipped, left vent clipped, bismark brown dyed and released in the PWR channel on 3/30/23. 30 fish were recaptured in the RO RST for an efficiency of 6.1% and 83 fish were captured in the PWR RST's for an efficiency of 16.7%.

Cougar Dam (03/30/2023)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	491	30	6.1% (30/491)
PWR Route	497	83	16.7% (83/497)

A total of 511 juvenile hatchery Chinook (yearlings) were adipose clipped, left vent clipped, and released in the RO channel and 500 adipose clipped, right vent clipped and released in the PWR channel on

03/23/2023. 3 fish were recaptured in the RO RST for an efficiency of 0.6% and 49 fish were captured in the PWR RST's for an efficiency of 9.8%.

Cougar Dam (03/23/2023)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	511	3	0.6% (3/511)
PWR Route	500	49	9.8% (49/500)

Run of River Trapping Efficiency

Run of river fish were captured, caudal clipped and released for the purpose of conducting run of river trapping efficiency trials at Cougar Dam. Numbers of fish released and recaptured by route for the reporting period are listed below.

Cougar Dam	**Release #**	**Recapture #**
PH	0	0
RO	0	0

24-Hour Post Collection Holding Trial

A total of 24 Chinook captured in the RSTs, 0 fish from the PWR RST and 24 from the RO RST, were held for ~24 hours in holding tanks and then evaluated for survival rates. In total, 1 of the 24 fish (4.2%) held during this period died during holding. 0 of the 0 PWR RST captured fish (0.0%) died during holding and 1 of the 24 RO RST captured fish (4.2%) died during holding.

Injuries and Copepod Infection

Partial descaling <20% was observed on 0 of the 0 Chinook collected at the PWR RST (0.0%). Descaling >20% was observed on 0 of the Chinook (0.0%). There were 0 fish with bodily injuries (0.0%) and 0 had eye injuries (0.0%). 0 fish had copepods present in the branchial cavity (0.0%) and 0 had copepods present on fins (0.0%). 0 fish displayed Gas Bubble Disease (0.0%). There were 0 chinook mortalities collected in the PWR RST (0.0%).

Partial descaling <20% was observed on 18 of the 27 Chinook collected at the RO RST (66.7%). Descaling >20% was observed on 6 of the Chinook (22.2%). There were 23 fish with bodily injuries (85.2%) and 4 had eye injuries (14.8%). 20 fish had copepods present in the branchial cavity (74.1%) and 15 had copepods present on fins (55.6%). 6 fish displayed Gas Bubble Disease (one level 1, two level 2, three level 3) (22.2%). There were 3 chinook mortalities collected in the RO RST (11.1%).

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 Dam	RO	27	18	6	23	4	20	15	3
Cougar Dam	PWR	0	0	0	0	0	0	0	0

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

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 24 Spring Chinook. The other targets captured did not meet length criteria for DNA sampling or were too damaged to remove scales.

PIT Tags

No Spring Chinook were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

No VIE marked Spring Chinook have been detected at this site to date.

Non-Target Species

7 non-target 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
Brook Lamprey	0	0	0	0	0	0
Bluegill	0	0	0	0	0	0
Bull Trout	0	0	0	0	0	0
Chinook (clipped)	2	0	1	0	8	1
Chinook (Adult)	0	0	0	0	0	0
Crappie	0	0	0	0	0	0
Cutthroat Trout	0	0	0	0	0	0
Dace	1	0	1	0	3	1
Largescale Sucker	0	0	0	0	0	0
Mountain Whitefish	0	0	0	0	3	0
Northern Pikeminnow	0	0	0	0	0	0
O. mykiss	1	0	0	0	3	0
Sculpin	0	0	1	0	5	1

Smallmouth Bass	0	0	0	0	0	0
Spotted Bass	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Totals	4	0	3	0	22	3

Stream Statistics

Basic stream statistics at the Cougar Dam site were calculated from data downloaded from U.S. Geological Survey stream gauge numbers 14159410 and 14181500. Gauge height (feet) is the only metric provided at gauge 14159410. Total dissolved gas saturation data was received from gauge 14181500, 500 meters downstream of the trap. During the reporting period, daily maximum values for instantaneous gauge height ranged from 1,252.9 to 1,253.0 feet (mean: 1,252.9 feet). Figure 30 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 100 to 110% (mean: 105.9%). Figure 31 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 32 and Figure 33 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 256.2 and 537.7 cubic feet per second (cfs) respectively (Figure 34). 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.

	Chinook	
Description	**RO (5ft)**	**PWR (8ft)**
Catch	27	0
Effort (hrs)	380.4	764.7
CPUE (fish/hr)	0.071	0

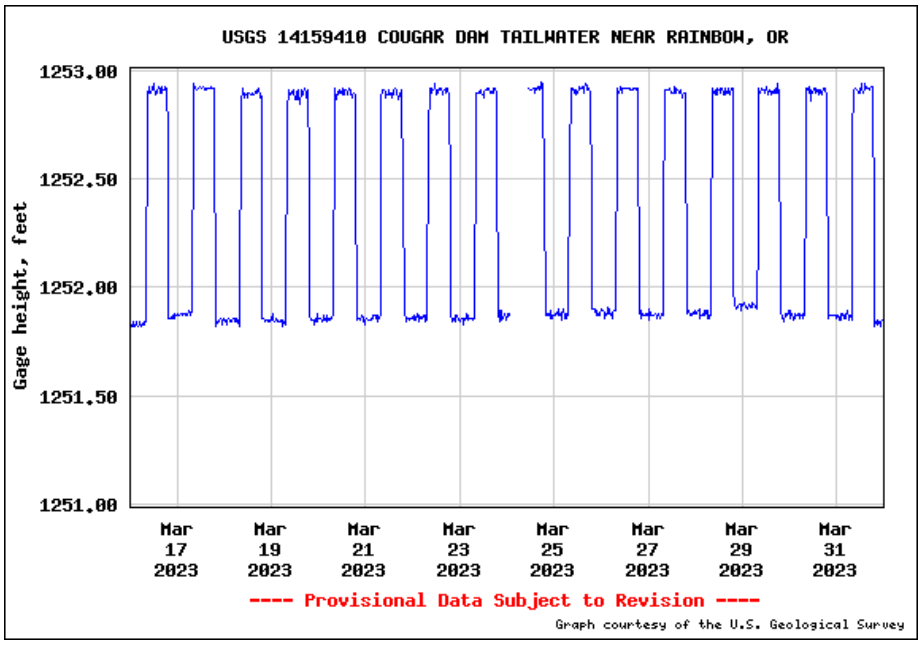


Figure 30. Gauge Height (feet); below Cougar Dam, South Fork McKenzie River

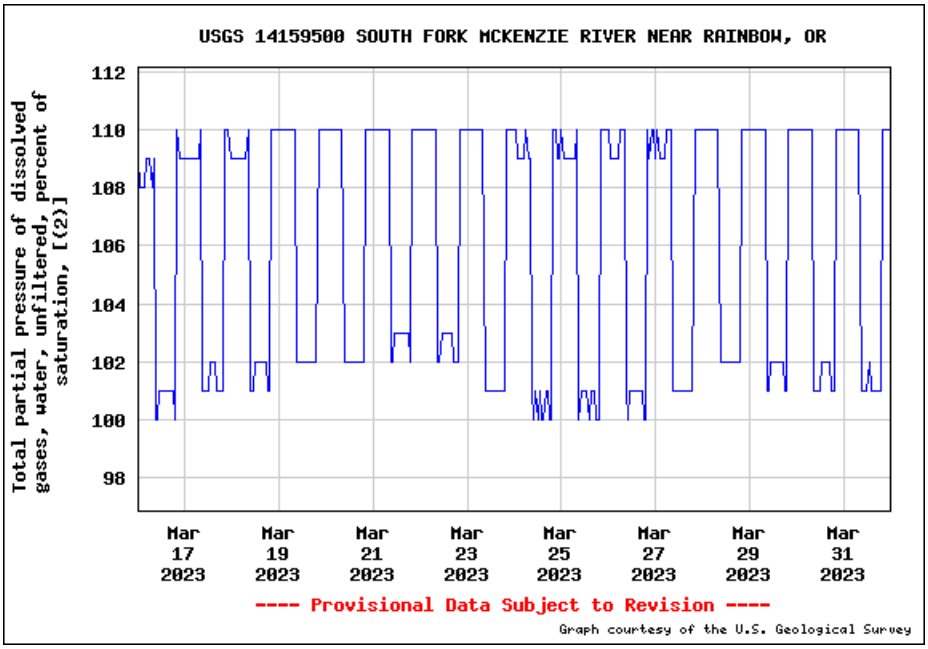


Figure 31. Total Dissolved Gas Saturation (%); below Cougar Dam, South Fork McKenzie River

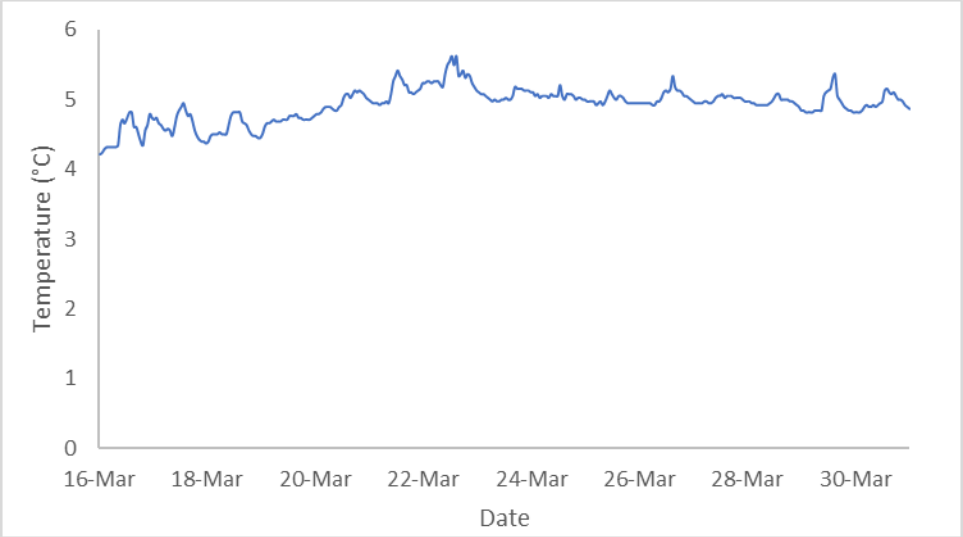


Figure 32. Temperature at RO RST (Cougar Dam)

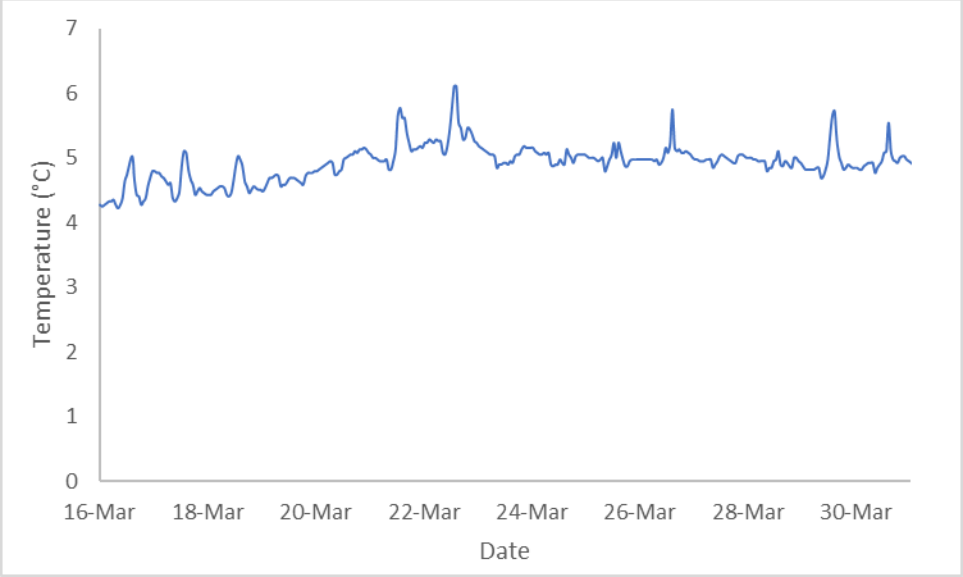


Figure 33. Temperature at PWR RST (Cougar Dam)

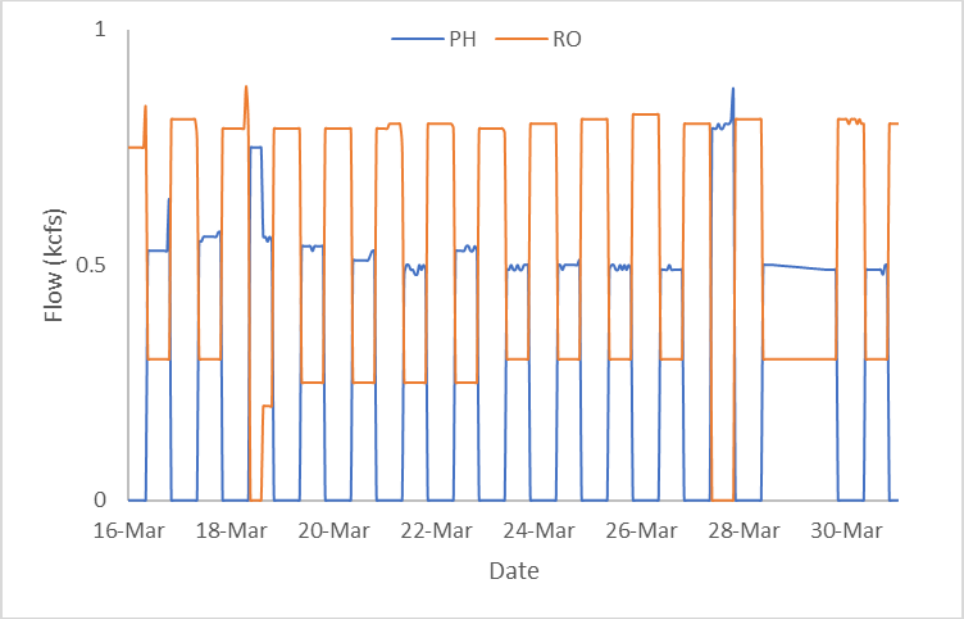


Figure 34. Hourly Flows PWR vs. RO (Cougar Dam)

South Fork of the McKenzie–Cougar Dam Head of Reservoir

Target Species

The reporting period began March 16th and ended on March 31st. There were 47 Chinook salmon captured during the 15-day sampling period (Figure 35). The trap was operated 100% 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 36 shows length frequency data to-date.

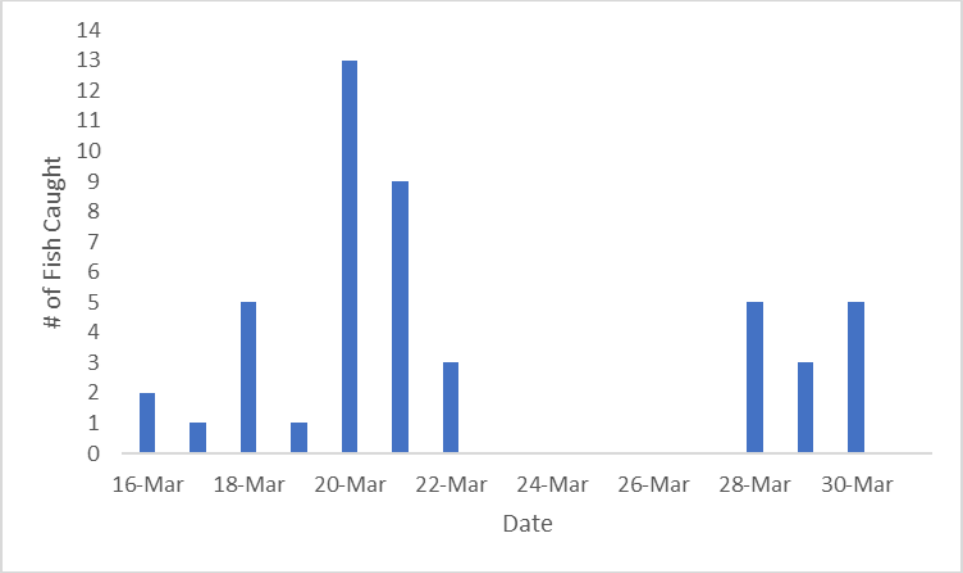


Figure 35. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Cougar Dam Head of Reservoir)

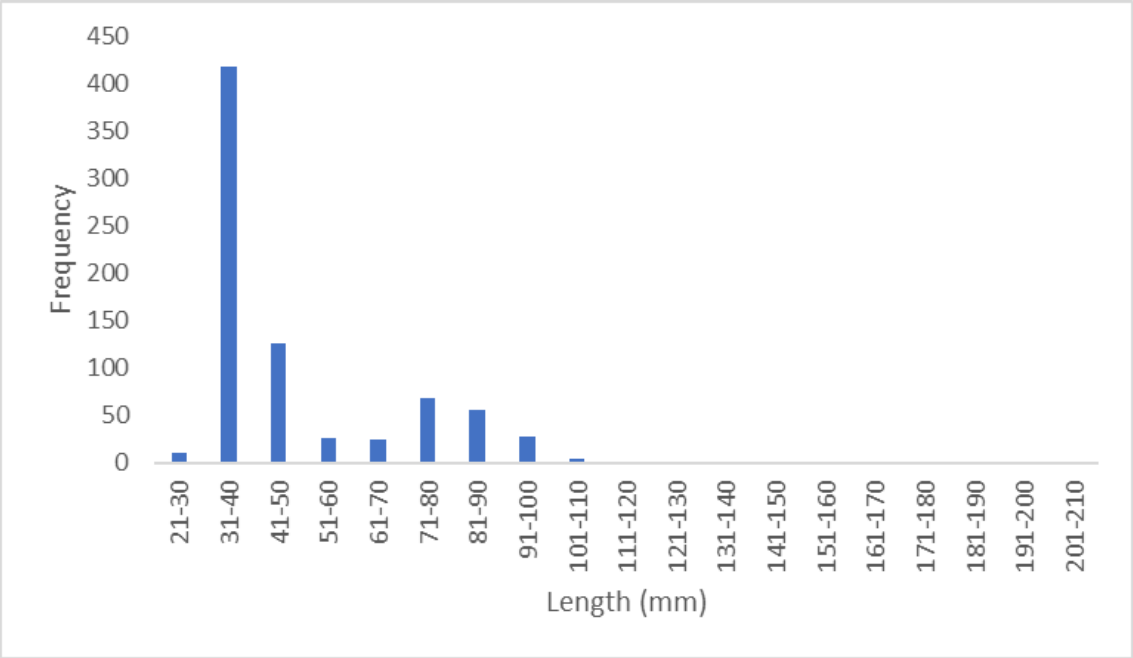


Figure 36. Length Frequency of Juvenile Chinook Sampled Season To-Date (Cougar Dam Head of Reservoir)

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	7	70	94	85.9	3.3	9.4	6.6
		CHS	Parr	204	43	150	80.1	1.0	13.7	5.7
		CHS	Fry	567	27	63	38.3	0.6	2.8	1.3

March 16-31, 2023										
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	3	86	94	91.0	6.7	7.7	7.2
		CHS	Parr	10	73	90	84.8	5.1	13.7	7.2
		CHS	Fry	34	31	39	34.5	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 719 juvenile hatchery Chinook were adipose clipped, PIT tagged, and released on 11/16/2022 upstream of the Cougar Head of Reservoir trap site. A total of 29 fish were recaptured in the 5 ft trap. Trapping efficiency was 4.0%.

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	719	29	4.0% (29/719)

A total of 752 juvenile hatchery Chinook were adipose clipped, PIT tagged, and released on 11/23/2022 upstream of the Cougar Head of Reservoir trap site. A total of 51 fish were recaptured in the 5 ft trap. Trapping efficiency was 6.8%.

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	752	51	6.8% (51/752)

A total of 620 juvenile hatchery Chinook were adipose clipped, PIT tagged, and released on 11/29/2022 upstream of the Cougar Head of Reservoir trap site. A total of 48 fish were recaptured in the 5 ft trap. Trapping efficiency was 7.7%.

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	620	48	7.7% (48/620)

Injuries and Copepod Infection

47 Chinook were captured for the reporting period. Of the fish captured, partial descaling <20% was observed on 4 fish (8.5%) and descaling >20% was observed on 2 fish (4.3%). 8 fish had bodily injury (17.0%). 0 had copepods in the branchial cavity (0.0%), 3 had copepods on fins (6.4%). There were 0 mortalities for this reporting period (0.0%). 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	47	4	2	8	0	0	3	0

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

Collected DNA and Scale Samples

Scales and DNA were collected from 12 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).

PIT Tags

12 Spring Chinook were PIT tagged during this reporting period. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

Visual Implant Elastomer (VIE) trials commenced at the Cougar Dam Head of Reservoir site on 6/25/2022. VIE tag color and locations are changed every month to distinctly mark groups of fish by capture date. Since then, 44 Chinook have been VIE marked with fluorescent elastomer. No fish with VIE marks have been detected at downstream RST sites to date.

Fish still showing an egg sac are not VIE marked.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
6/25/2022-7/15/2022	Left Dorsal	Yellow	30	0
9/15/2022-9/30/2022	Left Dorsal	Orange	1	0
10/1/2022-10/15/2022	Left Dorsal	Pink	1	0
11/1/2022-11/15/2022	Left Dorsal	Green	1	0
2/16/2023-2/28/2023	Right Dorsal	Yellow	1	0
3/1/2023-3/15/2023	Right Dorsal	Red	1	0

3/16/2023-3/31/2023	Right Dorsal	Red	9	0

Non-Target Species

0 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
Bull Trout	0	0	0	0
Cutthroat Trout	0	0	0	0
Dace	0	0	0	0
Mountain Whitefish	0	0	1	0
Northern Pikeminnow	0	0	0	0
O. mykiss	1	0	1	0
Sculpin	0	0	0	0
Unknown	0	0	0	0
Totals	1	0	2	0

Stream Statistics

Basic stream statistics at the site were calculated from data downloaded from the U.S. Geological Survey stream gauge number 14159200. During the reporting period, daily maximum values for instantaneous discharge ranged from 431.0 cfs to 716.0 cfs (mean: 538.1 cfs). Figure 37 shows instantaneous discharge.

Stream temperatures were recorded every two hours using a temperature probe at the Cougar Dam Head of Reservoir RST site during this reporting period. The temperature probe operated normally, and the data is shown below in Figure 38.

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	47
Effort (hrs)	288.9
CPUE (fish/hr)	0.163

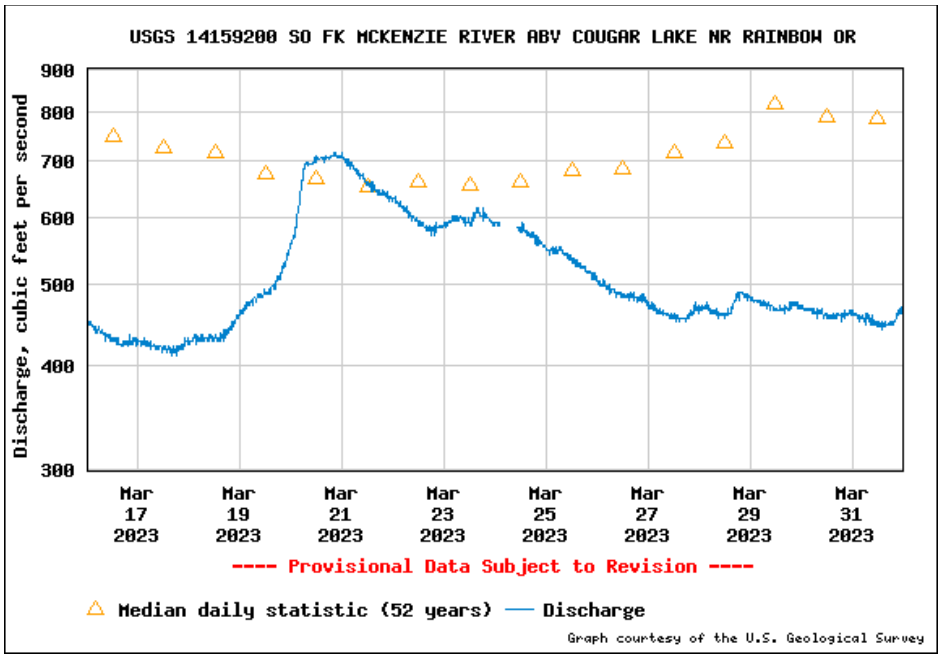


Figure 37. Discharge (cfs); South Fork McKenzie above Cougar Dam

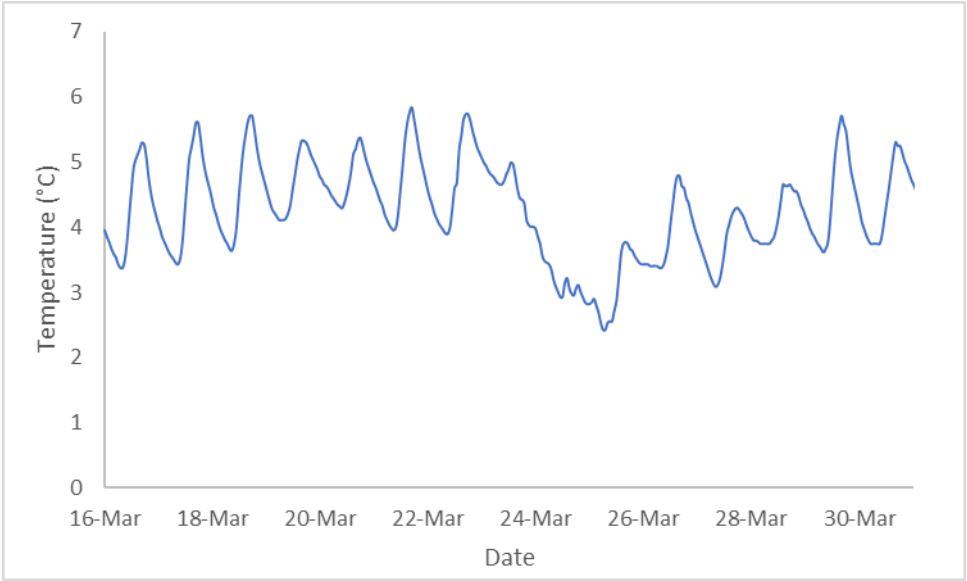


Figure 38. Temperature at RST (Cougar Dam Head of Reservoir)

Fall Creek Dam Tailrace

The reporting period began March 16th and ended March 31st. 10 Chinook salmon were captured during the 15-day sampling period (Figure 39). The trap sampled 100.0% of the days during this 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 40 shows length frequency data to-date.

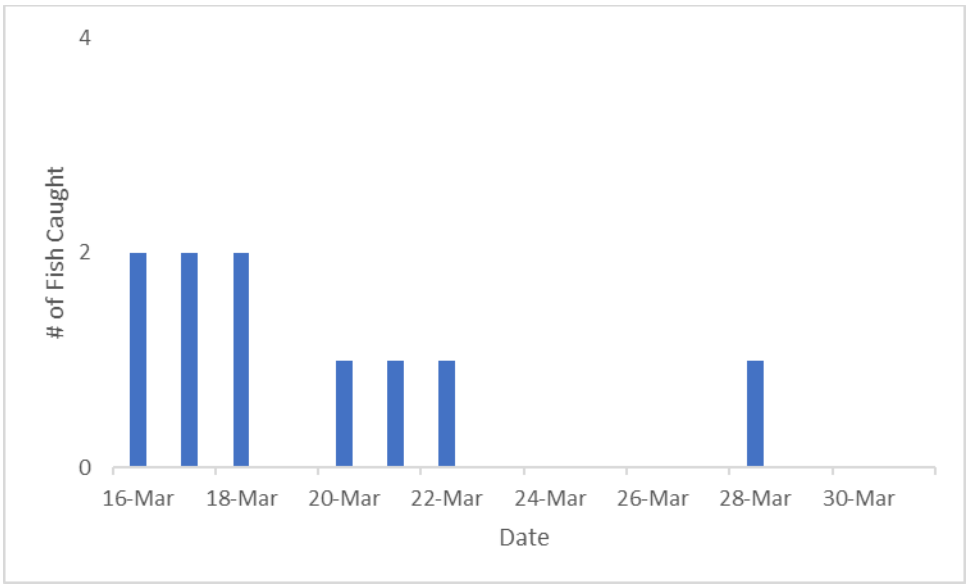


Figure 39. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Fall Creek Dam Tailrace)

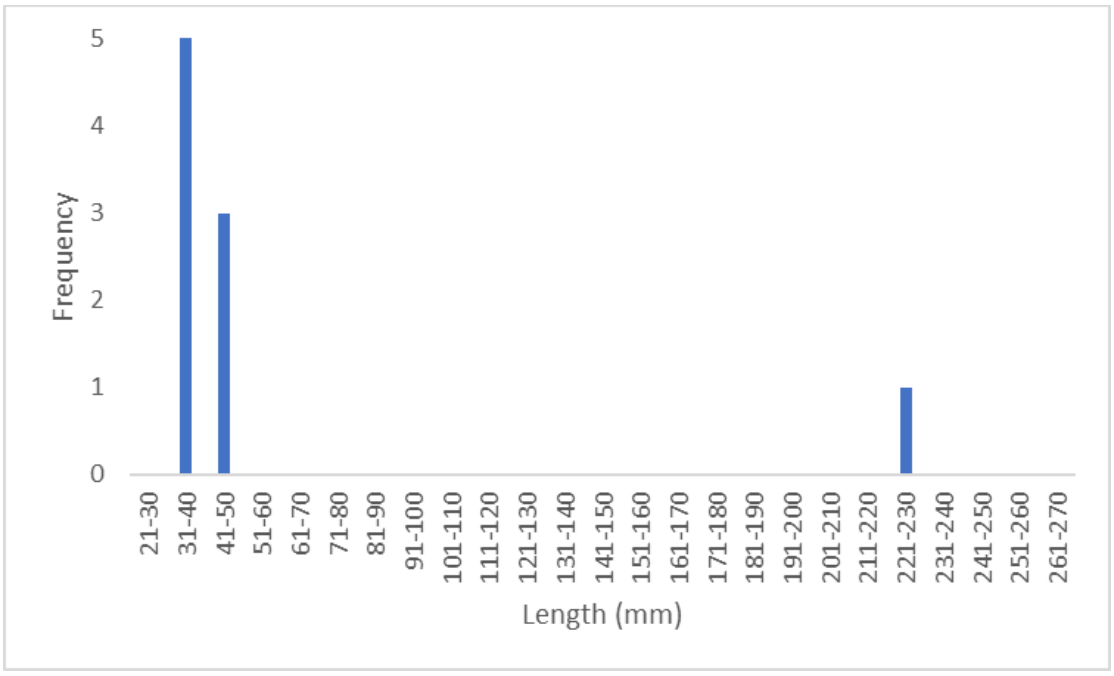


Figure 40. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Dam Tailrace)

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	1	230	230	230.0	141.1	141.1	141.1	
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Fry	44	33	45	36.8	N/A	N/A	N/A	
March 16-31, 2023											
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*			
					Min	Max	Mean	Min	Max	Mean	
Fall Creek Dam	RO	CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Fry	10	35	45	37.8	1.3	1.3	1.3	

24-Hour Post Collection Holding Trial

9 Spring Chinook was captured during the current reporting period and held for 24 hours. 0 Chinook (0.0%) died in holding.

Injuries and Copepod Infection

10 Chinook were captured during this reporting period. 2 fish displayed descaling >20% (20.0%) and 0 fish had bodily injuries (0.0%). 1 fish displayed eye injuries (20.0%). 0 fish had copepods in the branchial cavity (0.0%). There was 1 mortality (20.0%). 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	10	2	0	0	1	0	0	1

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

Collected DNA and Scale Samples

Scales and DNA were collected from 1 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).

PIT Tags

No Spring Chinook were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

No VIE marked Spring Chinook have been detected at this site to date.

Trapping Efficiency

A total of 500 juvenile hatchery Chinook (sub yearlings) were adipose clipped, Bismarck Brown dyed, and released on 07/13/2022 upstream of the Fall Creek Dam Tailrace RO channel trap site. A total of 0 fish were recaptured in the 8 ft trap. Trapping efficiency was 0%.

Fall Creek Dam	Release #	Recapture #	Capture Efficiency
RO	500	0	0% (0/500)

Non-Target Species

44 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
Brook Lamprey	0	0	11	0
Brown Bullhead	13	3	21	6
Bull Trout	0	0	0	0
Chinook (clipped)	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	6	0	12	0
Dace	8	0	94	3
Largescale Sucker	1	0	3	0
Mosquitofish	0	0	0	0
Mountain Whitefish	0	0	0	0
Northern Pikeminnow	0	0	1	0
O. mykiss	14	0	31	0
Pacific Lamprey	0	0	1	0
Peamouth	0	0	0	0
Redside Shiner	0	0	0	0
Sculpin	2	0	6	0
Spotted Bass	0	0	0	0

Unknown	0	0	0	0
Totals	**44**	**3**	**180**	**9**

Stream Statistics

Basic stream statistics at the site were calculated from data downloaded from U.S. Geological Survey stream gage numbers 14151000 and 1415000. Instantaneous discharge (cfs) data was collected from gage 1415100. Dissolved oxygen (mg/L) concentration data was received from gage 1415000, 1.2 rkms downstream of the trap. During the reporting period, daily maximum values for instantaneous discharge ranged from 518.0 cfs to 920.0 cfs (mean: 714.0 cfs). Figure 41 shows instantaneous discharge.

Dissolved oxygen concentrations were not available for the duration of the reporting period. No data has been recorded from the stream gage after October 19, 2022 at 12:00.

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 42).

Flows In and Out of reservoir during the reporting period averaged 842.4 cfs and 679.5 cfs respectively (Figure 43).

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	10
Effort (hrs)	382.2
CPUE (fish/hr)	0.026

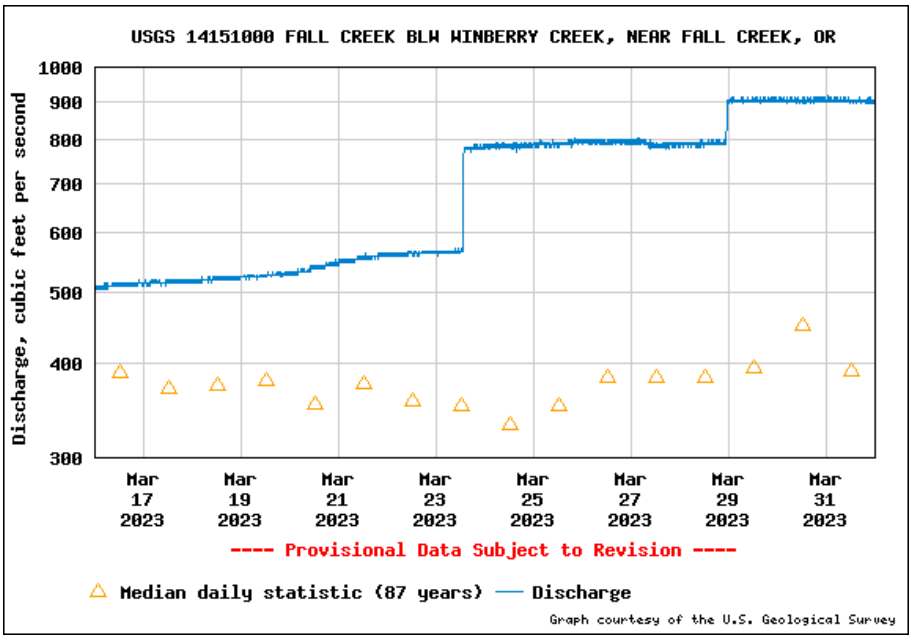


Figure 41. Discharge (cfs); Fall Creek Below Winberry Creek, Near Fall Creek, OR

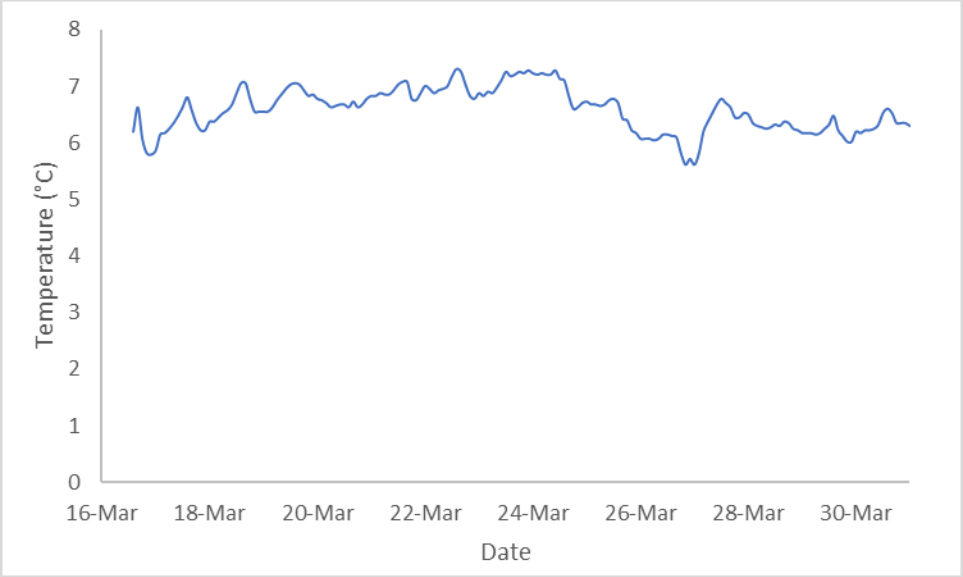


Figure 42. Temperature at RST (Fall Creek Dam Tailrace)

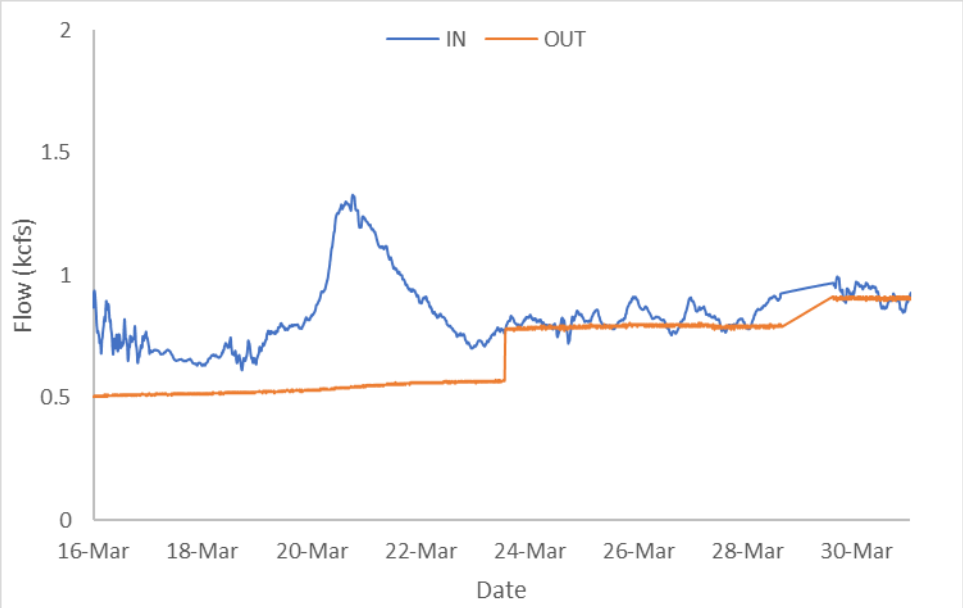


Figure 43. Hourly Flows Inflow vs. Outflow (RO) (Fall Creek Tailrace)

Middle Fork Willamette – Fall Creek Head of Reservoir

Target Species

The reporting period began March 16th and ended March 31st. 1 Chinook salmon was captured during the 15-day sampling period (Figure 44). The trap was operated 93.3% 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 45 shows length frequency data to-date.

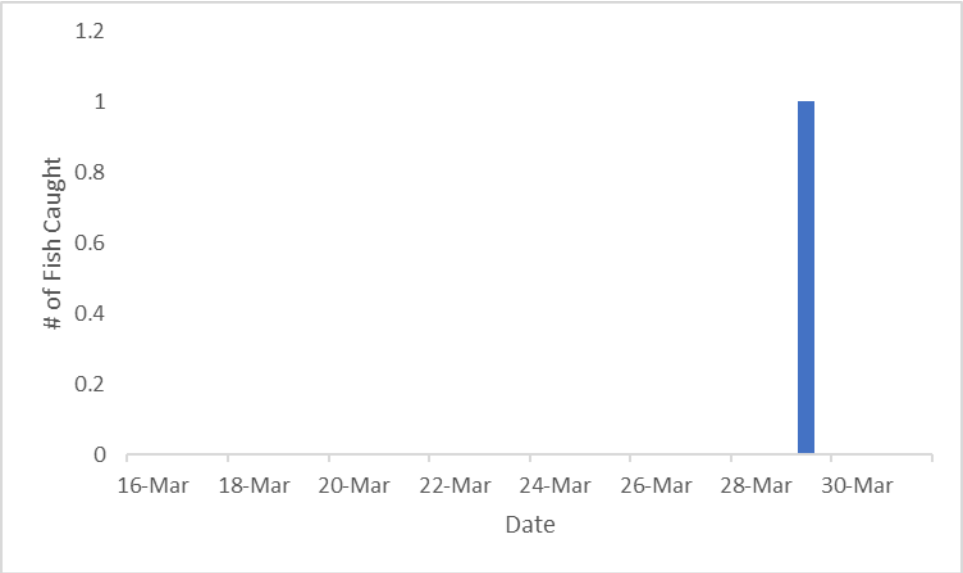


Figure 44. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Fall Creek Head of Reservoir)

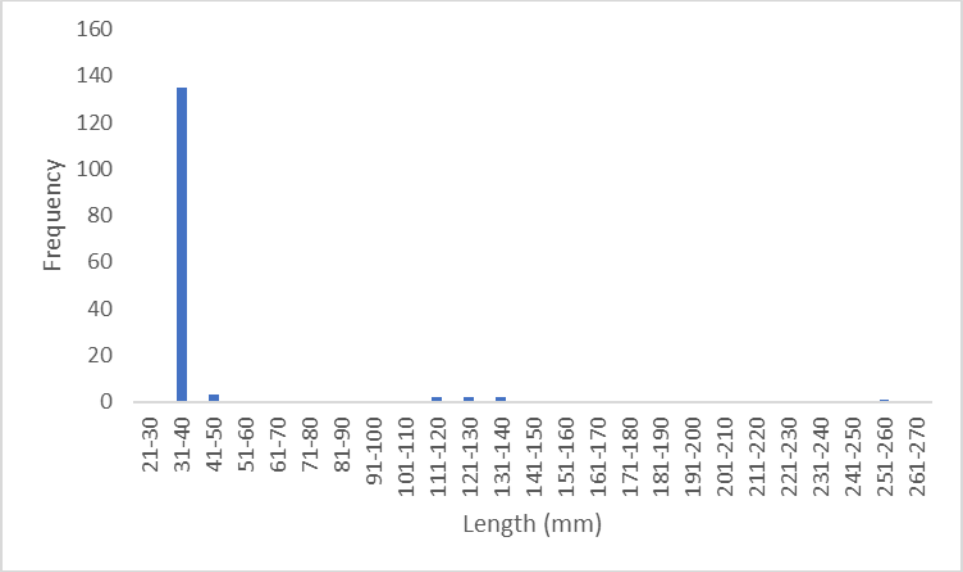


Figure 45. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Head of Reservoir)

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
		CHS	Fry	140	31	42	34.7	N/A	N/A	N/A

March 16-31, 2023										
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
		CHS	Fry	1	34	34	34.0	N/A	N/A	N/A

Injuries and Copepod Infection

1 Chinook was captured during this reporting period. Partial descaling <20% was observed in 0 of the 1 Chinook captured (0.0%) and 0 displayed descaling >20% (0.0%). 0 displayed body injury (0.0%) and 0 Chinook had eye injury (0.0%). 0 Chinook had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). There was 0 mortality this reporting period (0.0%). Injuries are displayed in Table 29. To date injury data can be found in Appendix A.

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	1	0	0	0	0	0	0	0

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

Trapping Efficiency

0 Chinook were VIE marked and released upstream to conduct a run of river trapping efficiency trial during this period. 0 VIE marked fish were recaptured.

Collected DNA and Scale Samples

No scales and DNA were collected from Chinook captured for the reporting period. The targets were below the sampling threshold.

PIT Tags

No Spring Chinook were PIT tagged during this reporting period. Refer to Appendix D for further information regarding PIT tags during this reporting period.

VIE Marking

Visual Implant Elastomer (VIE) trials commenced at Fall Creek Head of Reservoir site on 1/18/2023. VIE tag color and locations are changed every month to distinctly mark groups of fish by capture date. Since then, 45 Chinook have been VIE marked with fluorescent elastomer. 1 fish with VIE marks Has been recaptured at the head of reservoir trap site to date. This was a VIE marked fish released above the trap for trapping efficiency trials.

Fish still showing an egg sac are not VIE marked.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
1/16/2023-1/31/2023	Left Dorsal	Blue	9	0
2/1/2023-2/15/2023	Right Dorsal	Yellow	2	0
2/16/2023-2/28/2023	Right Dorsal	Yellow	1	0
3/1/2023-3/15/2023	Right Dorsal	Red	33	1

Non-Target Species

148 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
Brook Lamprey	17	1	38	1
Brown Bullhead	0	0	0	0
Cutthroat Trout	16	0	27	0
Dace	0	0	5	1
O. mykiss	108	0	193	0
O. mykiss (clipped)	0	0	0	0
Pacific Lamprey	7	0	7	0
Redside Shiner	0	0	0	0
Sculpin	0	0	0	0
Totals	**148**	**1**	**270**	**2**

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 4.1 feet to 5.0 feet (mean 4.4 feet). Figure 46 shows instantaneous gage height.

Stream temperatures were recorded every 2 hours for the Fall Creek RST (Figure 47). 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	1
Effort (hrs)	360.9
CPUE (fish/hr)	0.003

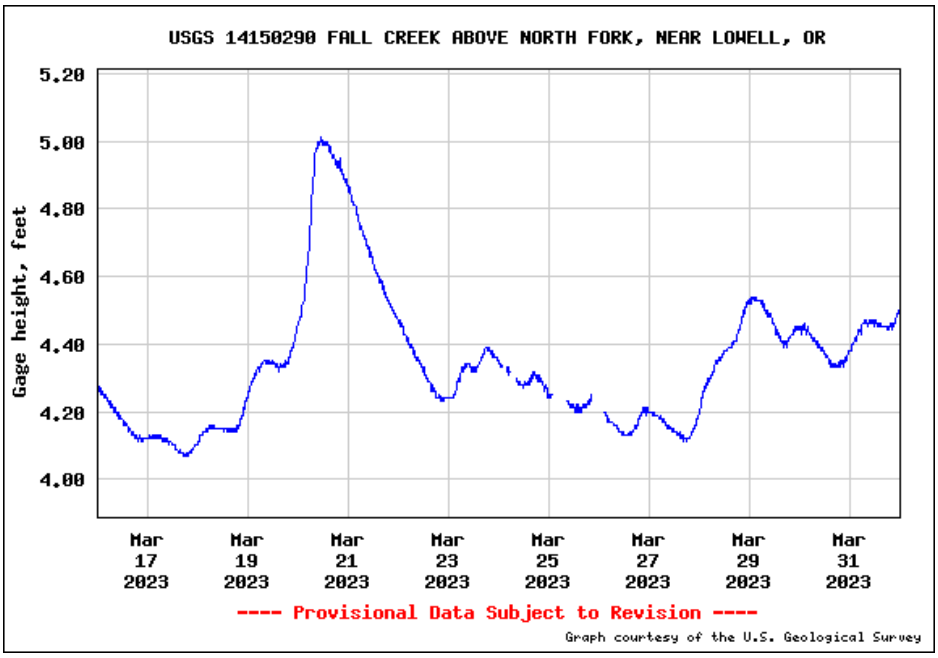


Figure 46. Gage Height (feet); Fall Creek Above North Fork, Near Lowell OR

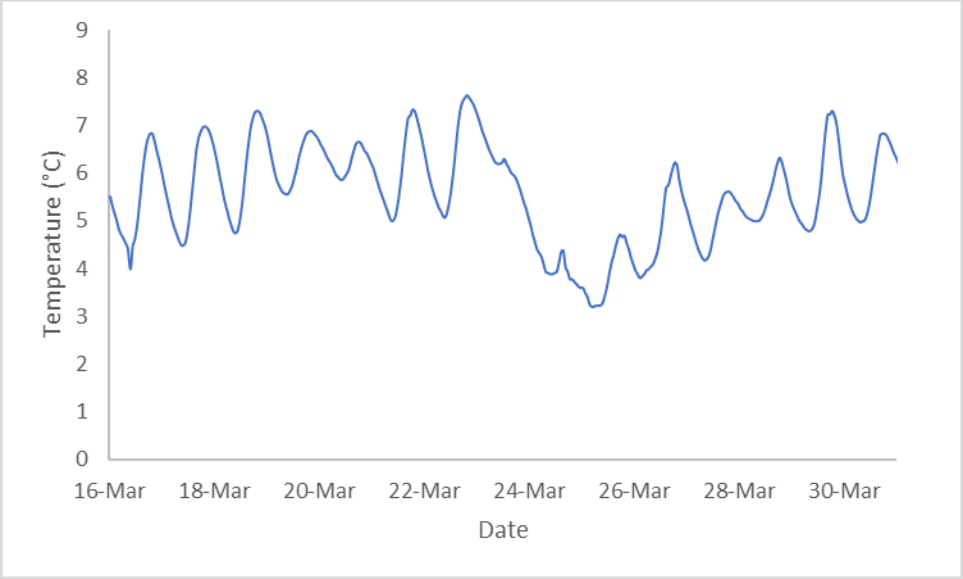
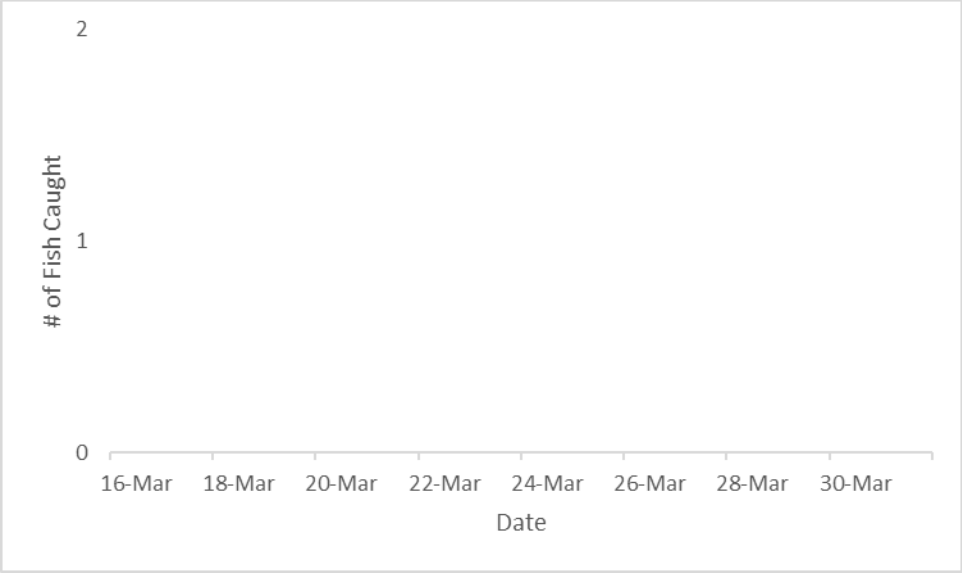


Figure 47. Temperature at RST (Fall Creek Head of Reservoir)

Middle Fork Willamette– Dexter Dam

Target Species

This reporting period began on March 16th and ended on March 31st. There were 0 Chinook salmon (CHS) captured during the 15-day sampling period. 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 48 shows the daily capture numbers for Chinook and Figure 49 shows length frequency data to-date.



*Recaptured fish for trapping efficiency trials not included.

Figure 48. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Dexter Dam)

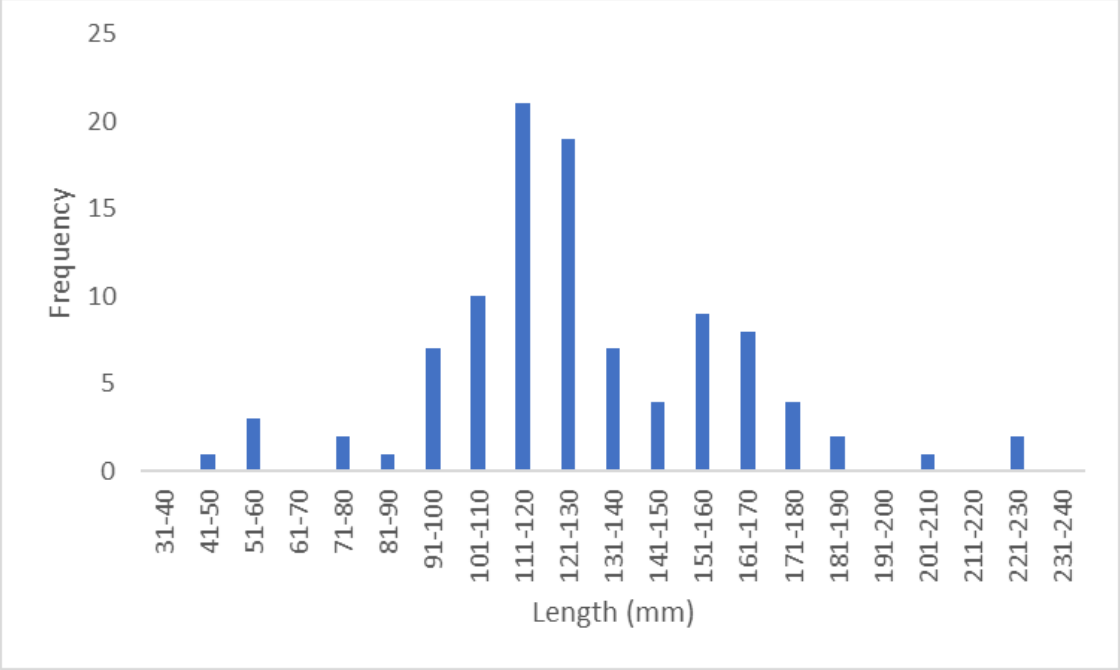


*Figure does not include fish without heads or fish used for trapping efficiency trials.

Figure 49. 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	Fry	3	46	55	51.3	1.4	1.4	1.4	
		CHS	Parr	19	51	159	101.4	2.1	48.3	12.8	
		CHS	Smolt	79	95	226	138.0	9.3	162.3	29.2	

March 16-31, 2023											
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*			
					Min	Max	Mean	Min	Max	Mean	
Dexter Dam	5 ft	CHS	Fry	0	N/A	N/A	N/A	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	

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

Trapping Efficiency

A total of 1,199 juvenile hatchery Chinook (yearlings) adipose clipped, upper caudal clipped, Bismarck brown dyed and released on 03/29/23 below Dexter Dam. Fish were released in small groups into the spillway flow to evaluate the traps efficiency capturing fish passing over the spillway. 5 fish were recaptured in the 5-foot RST for an efficiency of 1.0%.

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spill	1,199	5	0.4% (5/1,199)
Powerhouse	N/A	N/A	N/A

24-Hour Post Collection Holding Trial

0 Spring Chinook was captured during the current reporting period and held for 24 hours. 0 Chinook (0.0%) died in holding.

Injuries and Copepod Infection

0 Chinook was captured during this reporting period. Partial descaling <20% was observed in 0 of the 0 Chinook captured (0.0%) and 0 displayed descaling >20% (0.0%). 0 displayed body injury (0.0%) and 0 Chinook had eye injury (0.0%). 0 Chinook had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 displayed gas bubble disease (0.0%). There were 0 mortalities this reporting period (0.0%). 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	0	0	0	0	0	0	0	0

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

Collected DNA and Scale Samples

For the reporting period, no scales and DNA were collected from Spring Chinook. The other targets captured did not meet length criteria for DNA sampling.

PIT Tags

No Spring Chinook were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

No VIE marked Spring Chinook have been detected at this site to date.

Non-Target Species

28 non-target 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.

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

Species	Capture	Mortality	Season Total	Season Total Mortality
Bass	0	0	0	0
Bluegill	1	0	2	0
Chinook (adult)	0	0	0	0
Chinook (clipped)	1	0	16	0
Crappie	7	1	281	16
Cutthroat Throat	0	0	0	0
Dace	0	0	0	0
Largescale Sucker	0	0	0	0
O. mykiss	0	0	3	0
O. mykiss (clipped)	0	0	0	0
Pikeminnow	0	0	0	0
Redside Shiner	0	0	1	0
Sculpin	19	0	80	2
Totals	**28**	**1**	**383**	**18**

Stream Statistics

Basic stream statistics at the Dexter Dam site were calculated from data downloaded from the U.S. Geological Survey stream gauge numbers 14149510 and 14150000. Gauge height (feet) is the only metric provided at gauge 14149510. Total dissolved gas saturation data was received from gauge 14150000, 4.75 rkms downstream of the trap. During the reporting period, daily maximum values for instantaneous gauge height ranged from 637.1 feet to 637.5 feet (mean: 637.4 feet). Figure 50 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 99 to 111% (mean: 102.7%) during the reporting period. Figure 51 shows total dissolved gas saturation.

Stream temperatures were recorded every 2 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 52.

Flows through the Powerhouse and Spill during the reporting period averaged 1,290.3 and 197.7 cubic feet per second (cfs) respectively (Figure 53). 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	0
Effort (hrs)	379.4
CPUE (fish/hr)	0

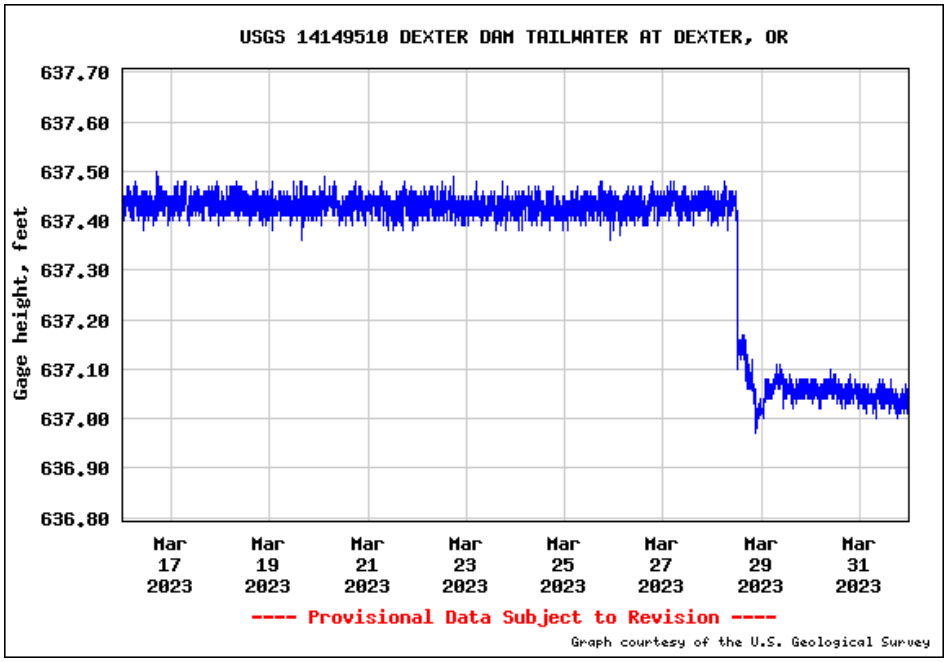


Figure 50. Gauge Height (feet); below Dexter Dam, Middle Fork Willamette

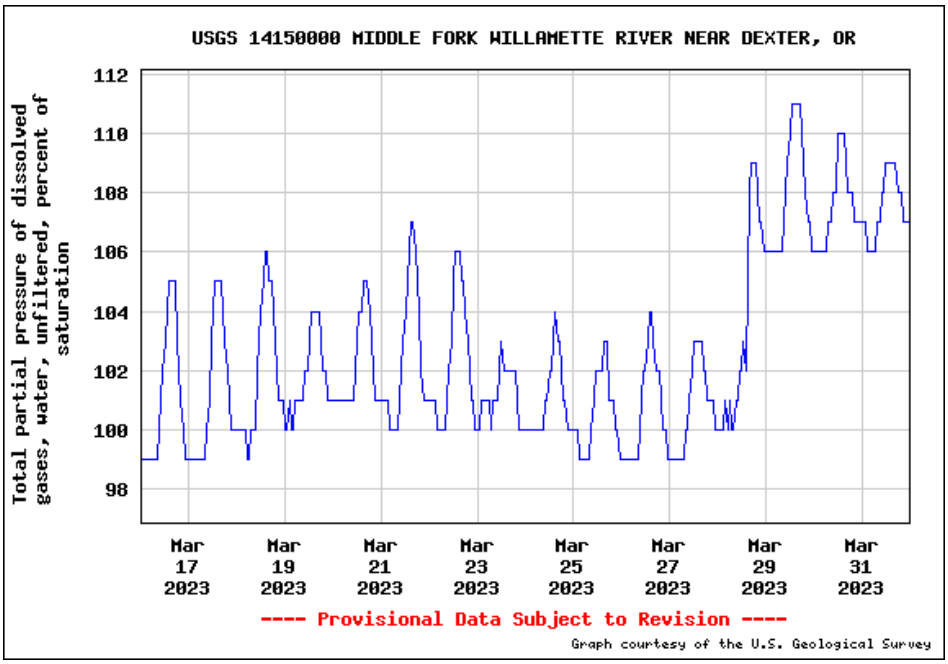


Figure 51. Total Dissolved Gas Saturation (%); Middle Fork Willamette River, Near Dexter, OR

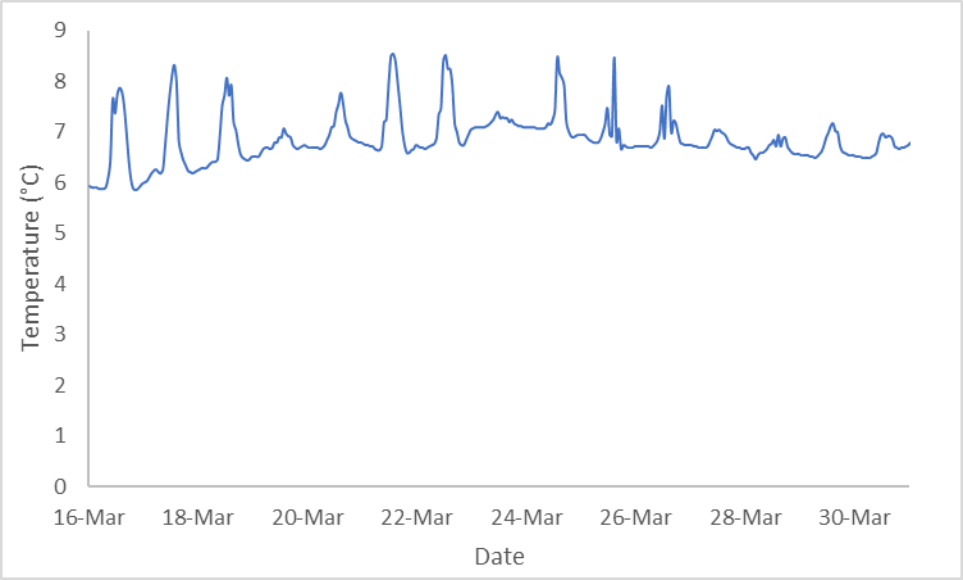


Figure 52. Temperature at RST (Dexter Dam)

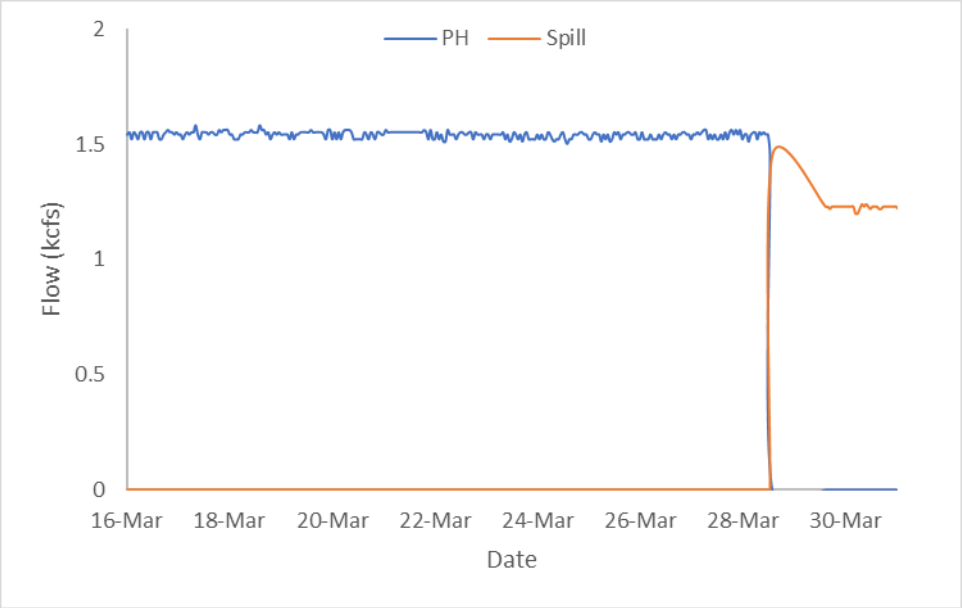


Figure 53. Hourly Flows PWR vs. Spill (Dexter Dam)

Middle Fork Willamette – Lookout Dam Tailrace

Target Species

The reporting period began March 16th and ended on March 31st. 2 Chinook salmon were captured during the 15-day sampling period (Figure 54). The traps were operated 100.0% 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 55 shows length frequency data to-date.

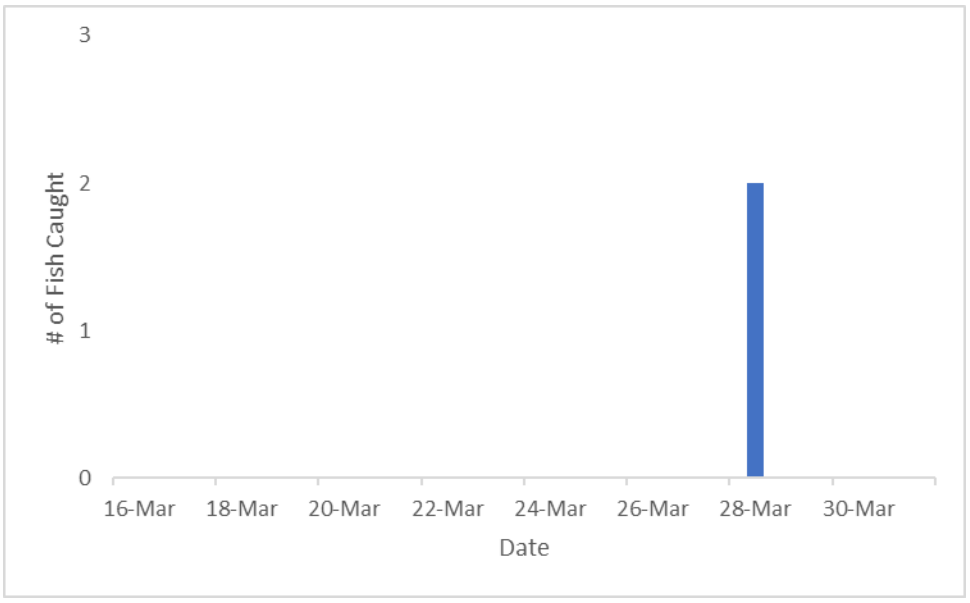


Figure 54. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Lookout Point Dam Tailrace)

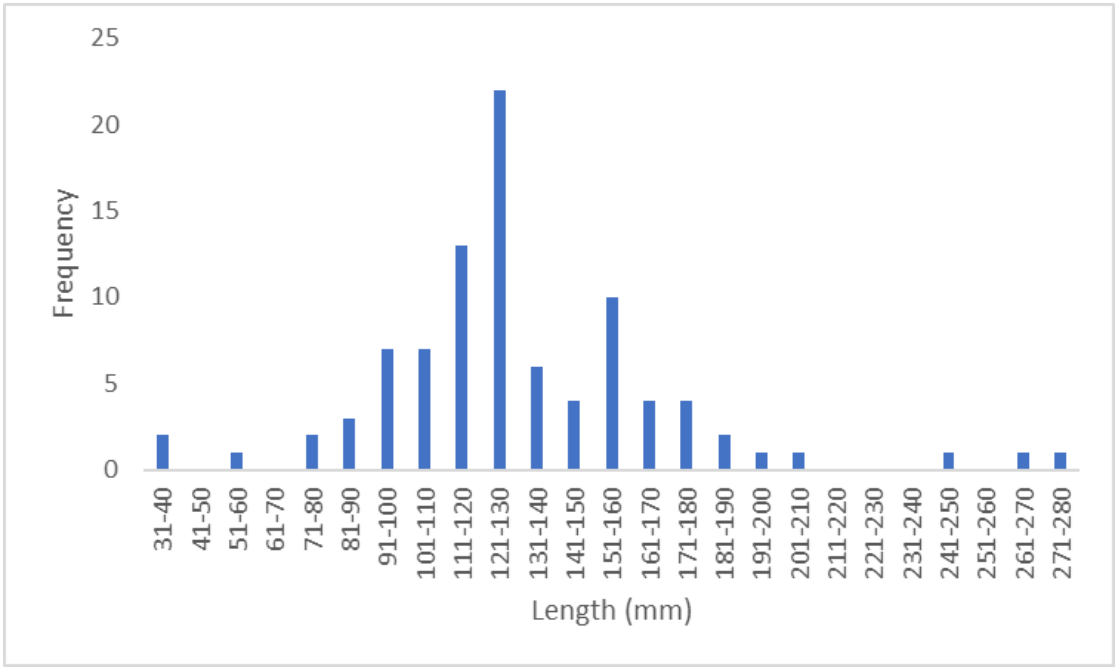


Figure 55. Length Frequency of Juvenile Chinook Sampled Season To-Date (Lookout Point Dam Tailrace)

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	30	112	275	152.2	15.0	269.0	46.9
		CHS	Parr	4	84	107	94.8	3.8	10.5	7.3
		CHS	Fry	0	0	0	0	0	0	0
	PH 2	CHS	Smolt	11	95	250	133.6	8.4	194.6	133.6
		CHS	Parr	4	58	108	86.0	2.2	13.4	6.7
		CHS	Fry	2	33	34	33.5	N/A	N/A	N/A
	Spill	CHS	Smolt	34	94	194	133.9	7.6	63.0	27.4
		CHS	Parr	7	77	126	100.6	5.4	26.1	12.9
		CHS	Fry	0	0	0	0	0	0	0
March 16-31, 2023										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
	PH 2	CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Fry	2	33	34	33.5	N/A	N/A	N/A
	Spill	CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A

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

24-Hour Post Collection Holding Trial

2 Spring Chinook were captured during the current reporting period and held for 24 hours. 2 fish were held from the PWR RST and 0 fish were held from the Spill RST. 0 hold fish died from the PWR RSTs (0 from PH 1 and 0 from PH 2) (0.0%). 0 of the fish from Spill RST died during holding (0.0%).

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

There were 2 Chinook captured in the Powerhouse channel RSTs. Partial descaling <20% was observed on 0 of the 0 Chinook collected at the PWR RSTs (0.0%). Descaling >20% was observed on 0 of the Chinook collected (0.0%). 1 PWR RST fish had bodily injury (50.0%) and 0 had eye injuries (0.0%). 0 of the fish had copepods present in the branchial cavity (0.0%) and 0 had copepods present on fins (0.0%). 0 fish displayed Gas Bubble Disease (0.0%). There were 0 chinook mortality collected in the Spill RST (0.0%) and 0 in the PWR RST (0.0%). 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	2	0	0	1	0	0	0	0
	Spill	0	0	0	0	0	0	0	0

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

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 0 Spring Chinook. The other targets captured did not meet length criteria for DNA sampling.

PIT Tags

No Spring Chinook were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

No VIE marked Spring Chinook have been detected at this site to date.

Non-Target Species

2,912 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
Bass Unknown	0	0	0	0	0	0
Bluegill	1	0	0	0	46	8
Brown Bullhead	0	0	0	0	1	0
Chinook (clipped)	0	0	0	0	3	0
Crappie	2881	1879	19	0	152474	108498
Cutthroat Trout	0	0	0	0	0	0
Dace	0	0	0	0	0	0
Largemouth Bass	0	0	0	0	0	0
Largescale Sucker	0	0	0	0	2	1
Northern Pikeminnow	0	0	0	0	2	1
O. mykiss	0	0	0	0	4	0
O. mykiss (clipped)	0	0	0	0	1	1
Pumpkinseed	0	0	0	0	1	0
Redside Shiner	0	0	0	0	0	0
Sculpin	5	0	5	0	72	3
Smallmouth Bass	0	0	0	0	58	57
Spotted Bass	0	0	0	0	1	0
Unknown	0	0	0	0	7	0
Walleye	1	0	0	0	23	4
Totals	**2888**	**1879**	**24**	**0**	**152695**	**108573**

Stream Statistics

Basic stream statistics at Lookout Dam Tailrace site were calculated from data downloaded from the U.S. Geological Survey stream gauge number 14149010. Total dissolved gas saturation or dissolved oxygen concentration measurements are not available at this stream gauge site, or any nearby stream gauges. Gauge height (feet) is the only metric provided at this gauge. During the reporting period, daily maximum

values for instantaneous gauge height ranged from 691.4 feet to 692.8 feet (mean: 692.2 feet). Figure 56 shows instantaneous gauge height.

Stream temperatures were recorded every two hours using temperature probes at the PWR and Spill Lookout Dam RST's during this reporting period. Temperature probes operated normally, and the data is shown below in (Figure 57 and Figure 58).

Flows through the Powerhouse and Spill during the reporting period averaged 1,344.8 and 0 cubic feet per second (cfs) respectively (Figure 59). 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.

	Chinook		
Description	**PH 1**	**PH 2**	**Spill**
Catch	0	2	0
Effort (hrs)	384.3	384.3	384.5
CPUE (fish/hr)	0	0.005	0

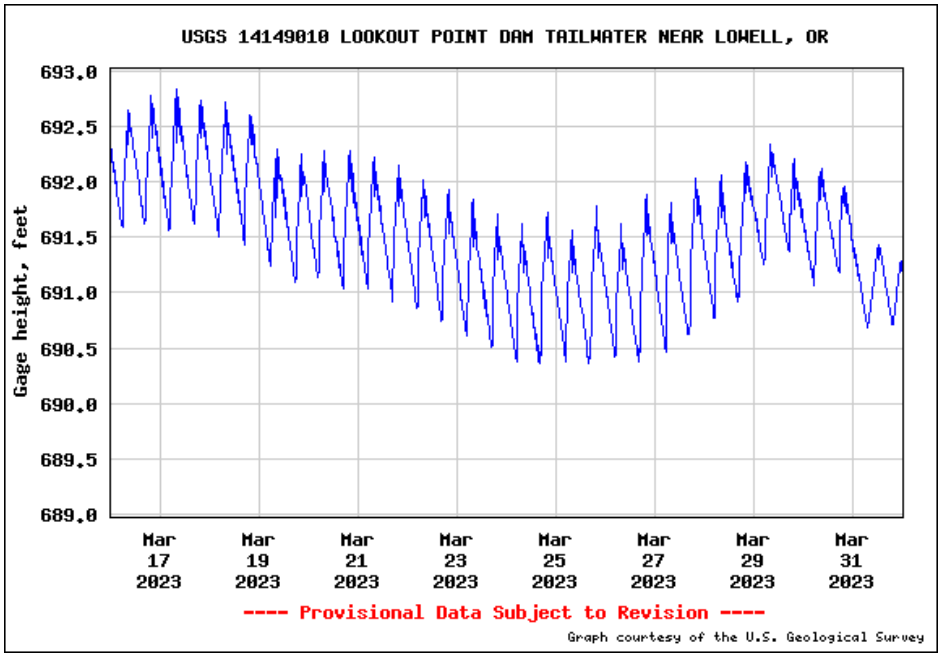


Figure 56. Gauge Height (feet); below Lookout Dam

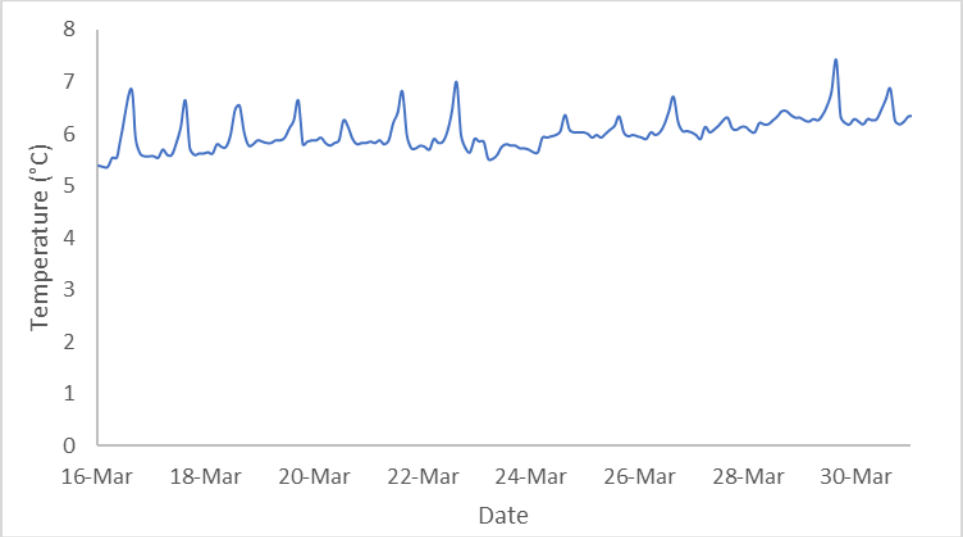


Figure 57. Temperature at RST (Lookout Dam PWR)

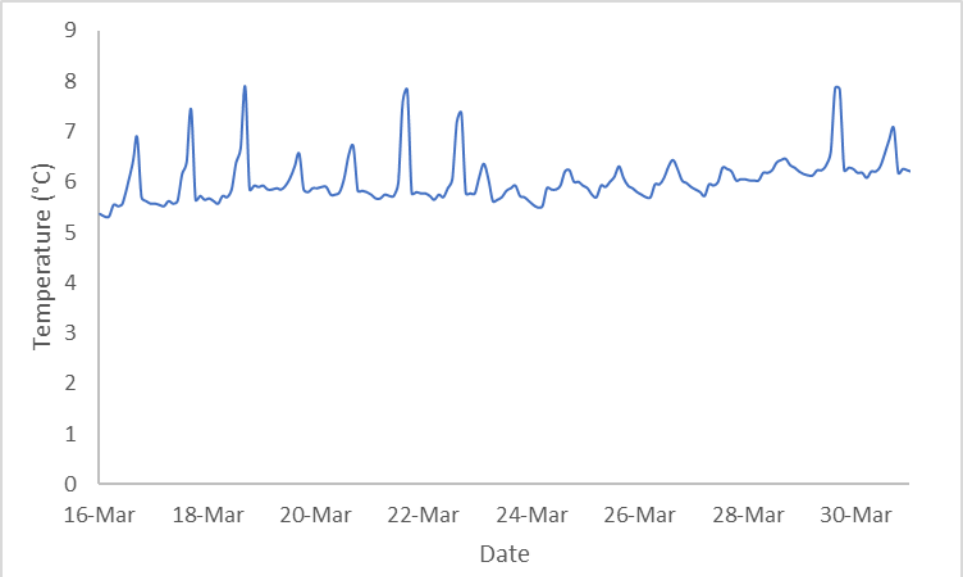


Figure 58. Temperature at RST (Lookout Dam Spill)

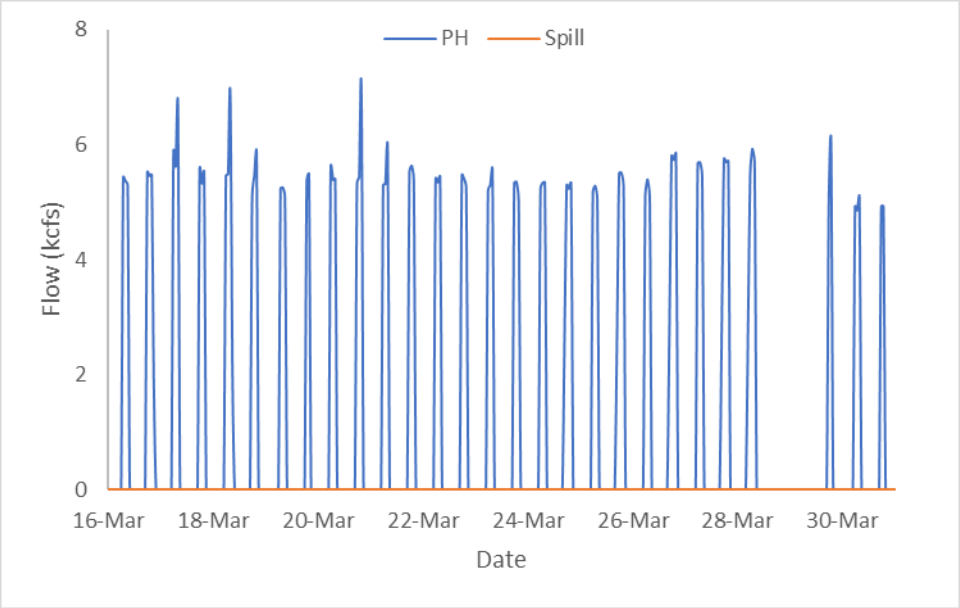


Figure 59. Hourly Flows PWR vs. Spill (Lookout Dam Tailrace)

Middle Fork Willamette – Lookout Point Head of Reservoir

Target Species

The reporting period began March 16th and ended on March 31st. 12 Chinook salmon were captured during the 15-day sampling period (Figure 60). A security risk was determined after an incident with theft and confrontation with the railroad crew near the Lookout Point Head of Reservoir site. Our crew was escorted by an OSP Fish and Wildlife officer on 3/16/2023 to raise the 5 foot trap to the non-sampling position. We are working on a path forward with the USACE at this site that adequately addresses the safety concerns before resuming sampling. The trap was operated 6.7% 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 61 shows length frequency data to-date.

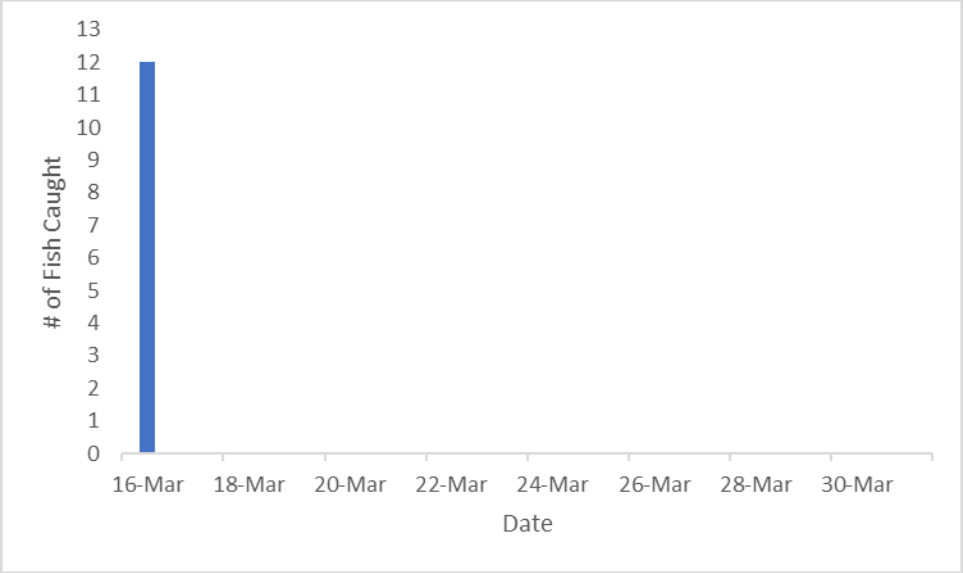


Figure 60. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Lookout Point Head of Reservoir)

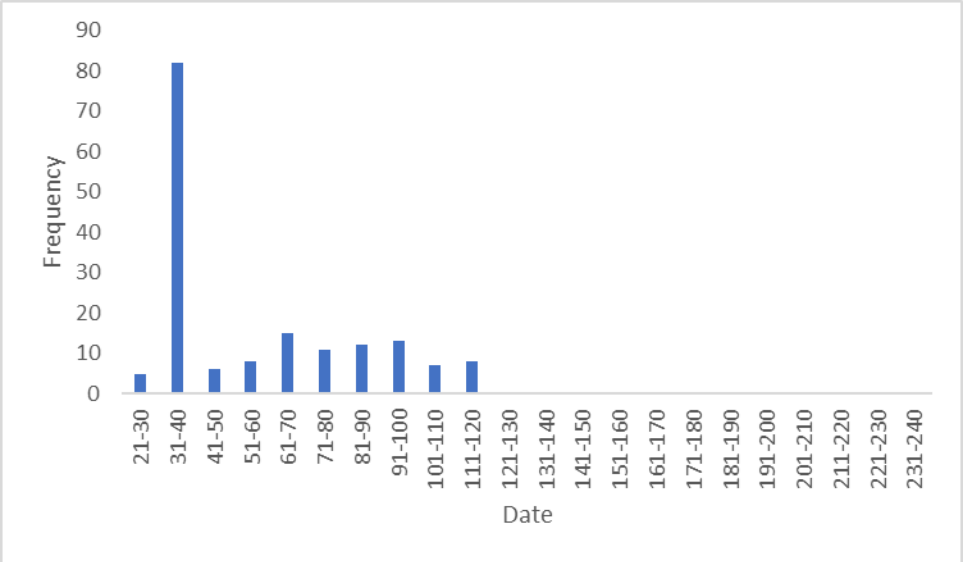


Figure 61. Length Frequency of Juvenile Chinook Sampled Season To-Date (Lookout Point Head of Reservoir)

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	9	94	118	105.8	7.7	18.2	13.8	
		CHS	Parr	64	59	119	81.8	1.0	19.8	6.4	
		CHS	Fry	95	28	69	35.7	N/A	N/A	N/A	
March 16-31, 2023											
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	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A	
		CHS	Fry	12	33	37	34.4	N/A	N/A	N/A	

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

Trapping Efficiency

A total of 513 juvenile hatchery Chinook (sub-yearlings) were bismarck brown dyed and adipose clipped and released on 01/13/2023 above the Lookout Point Head of Reservoir trap. Fish were released in small groups to evaluate the traps' efficiency capturing fish migrating downstream. 10 fish were recaptured in the 5-ft RST for an efficiency of 1.9%.

Lookout Point Head of Reservoir	Release #	Recapture #	Capture Efficiency
01/13/2022	513	10	1.9% (10/513)

Injuries and Copepod Infection

There were 12 Chinook captured during this reporting period. 0 had partial descaling <20% (0.0%) and 0 had descaling <20% (0.0%). 1 had body injuries (8.3%) and 0 fish displayed eye injuries (0.0%). There were 1 mortalities (8.3%). 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	12	0	0	1	0	0	0	1

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

Collected DNA and Scale Samples

Scales and DNA were collected from 0 Chinook captured for the reporting period. The other targets were below the sampling threshold.

PIT Tags

0 Spring Chinook was PIT tagged during this reporting period. Refer to Appendix D for further information regarding PIT tags during this reporting period.

VIE Marking

Visual Implant Elastomer (VIE) trials commenced at the Lookout Point Head of Reservoir site on 6/25/2022. VIE tag color and locations are changed every month to distinctly mark groups of fish by capture date. Since then, 17 Chinook have been VIE marked with fluorescent elastomer. No fish with VIE marks have been detected at downstream RST sites to date. Fish still showing an egg sac are not VIE marked.

Two fry were not VIE marked this reporting period due to safety concerns at this site.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
6/25/2022-7/15/2022	Left Dorsal	Yellow	3	0
7/16/2022-7/31/2022	Left Dorsal	Red	1	0
1/1/2023-1/31/2023	Left Dorsal	Blue	7	0
2/1/2023-2/15/2023	Right Dorsal	Yellow	2	0
2/16/2023-2/28/2023	Right Dorsal	Yellow	1	0
3/1/2023-3/15/2023	Right Dorsal	Red	3	0

Non-Target Species

0 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	5ft Capture	5ft Mortality	Season Total	Season Total Mortality
Bass Unknown	0	0	0	0
Bluegill	0	0	0	0
Chinook (clipped)	0	0	0	0
Crappie	0	0	2	2
Cutthroat Trout	0	0	4	0
Dace	0	0	4	0
Lamprey	0	0	0	0
Largescale Sucker	0	0	2	0
Mountain Whitefish	0	0	0	0
Northern Pikeminnow	0	0	0	0
O. mykiss	0	0	9	0
O. mykiss (clipped)	0	0	0	0
Peamouth	0	0	0	0
Pumpkinseed	0	0	0	0
Redside Shiner	0	0	1	0
Sculpin	0	0	2	0

Spotted Bass	0	0	0	0
Smallmouth Bass	0	0	0	0
Unknown	0	0	0	0
Totals	**0**	**0**	**24**	**2**

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 gauge number 14148000. During the reporting period, daily maximum values for instantaneous discharge ranged from 2,450.0 cfs to 3,260.0 cfs (mean: 2,896.3 cfs). Figure 62 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. Due to extenuating safety circumstances, the temperature probe data was not available for this report. Data from USGS gage 14145500 was used to supplement the temperature data for the reporting period (Figure 63).

Flows into Lookout Point Reservoir averaged 2,792.9 cfs (Figure 64). 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	12
Effort (hrs)	30.8
CPUE (fish/hr)	0.390

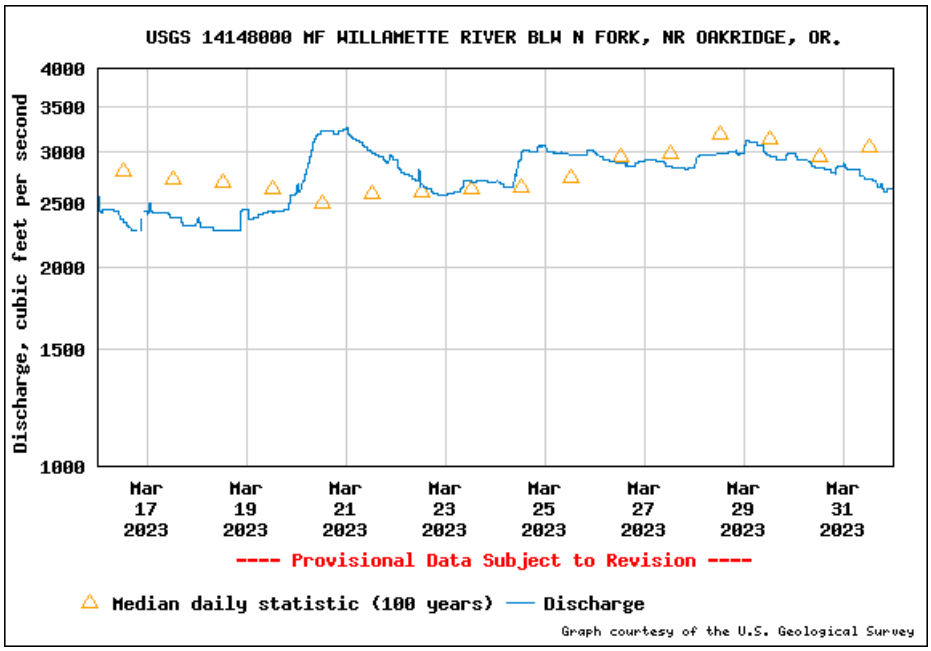


Figure 62. Discharge (cfs); above Lookout Point Reservoir, Below Oakridge, OR

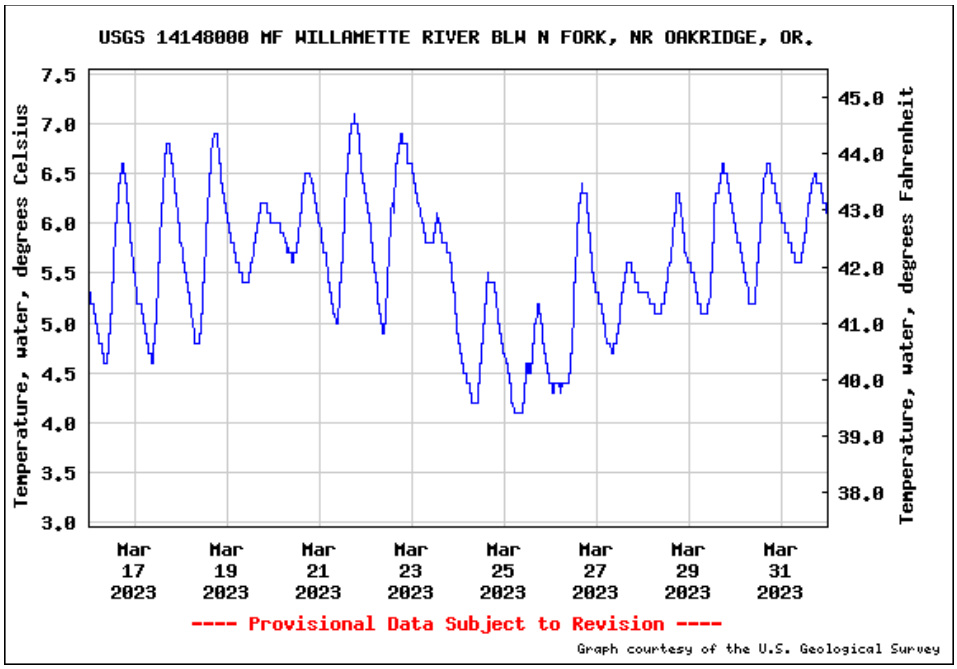


Figure 63. Temperature at RST (Lookout Point Head of Reservoir)

Note: Data from USGS stream gage 14148000 was used to supplement the temperature data for the reporting period.

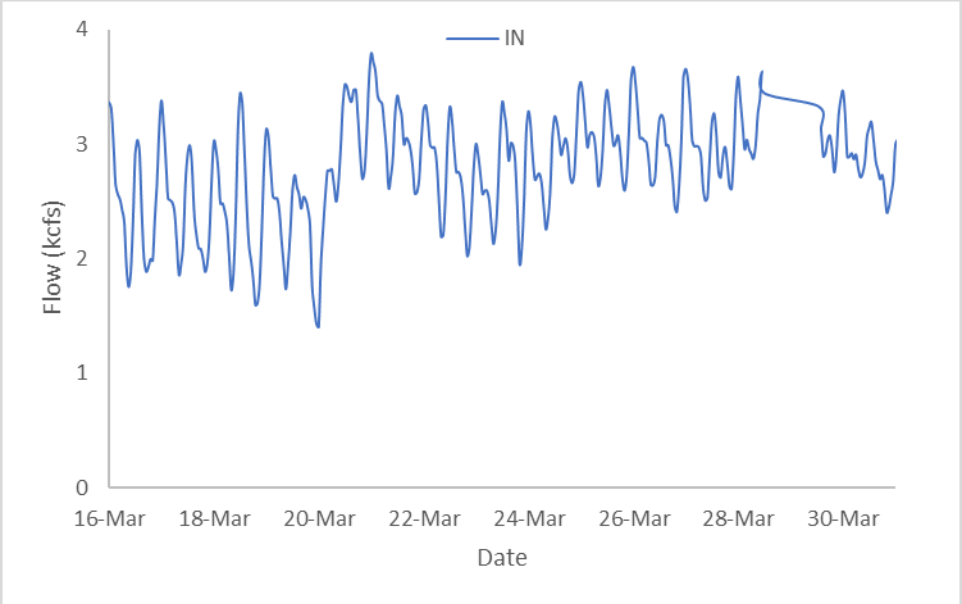


Figure 64. Hourly Flows (Lookout Point Head of Reservoir site)

Middle Fork Willamette – Hills Creek Dam

Target Species

This reporting period began on March 16th and ended on March 31st. There were 223 Chinook salmon (CHS) captured during the 15-day sampling period (Figure 65). Sampling durations were 100% for both the RO RST and Powerhouse RST. Table 44 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Hills Creek Dam site to-date and Figure 66 shows length frequency data to-date.

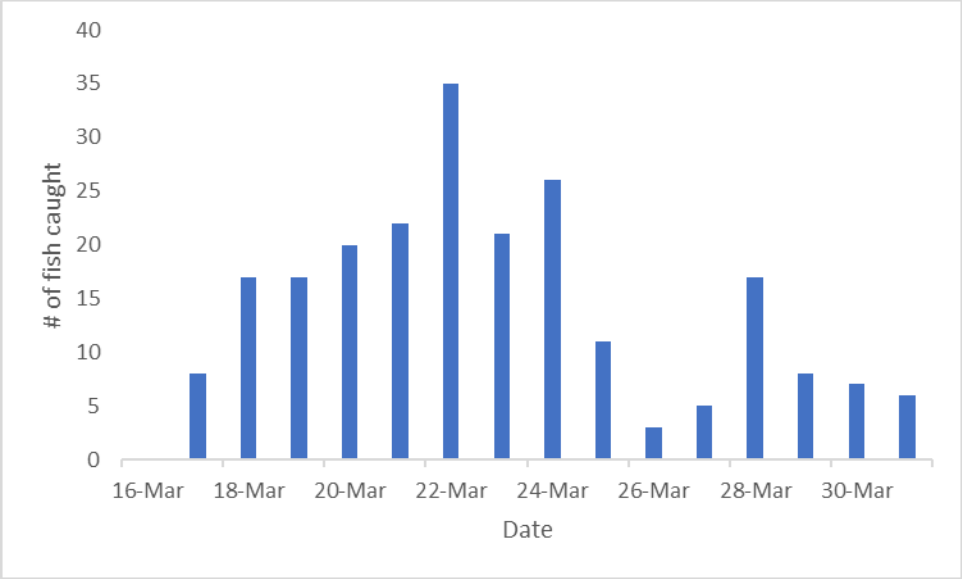


Figure 65. Chinook Captured Per Day 03/16/2023 to 03/31/2023 (Hills Creek Dam)

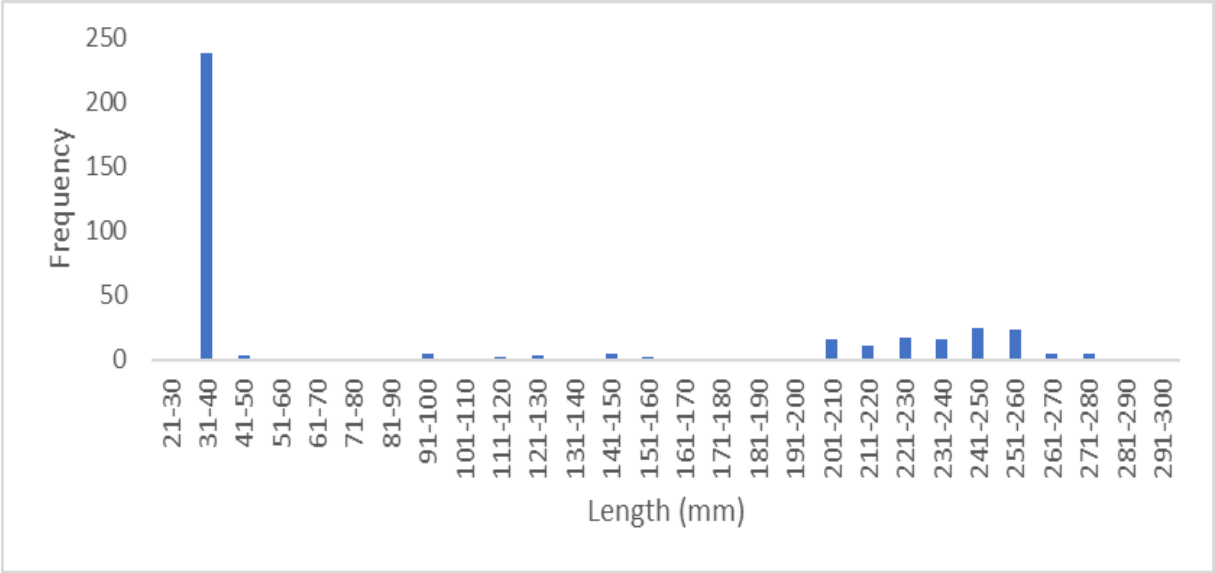


*Figure does not include fish without heads or fish used for trapping efficiency

Figure 66. Length Frequency of Juvenile Chinook Sampled Season To-Date (Hills Creek Dam)

Table 44. Descriptive Statistics of Target Species Captured at Hills Creek Dam 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
Hills Creek	RO	CHS	Fry	98	31	55	35.4	N/A	N/A	N/A
		CHS	Parr	6	90.0	141.0	110.7	7.4	23.4	13.3
		CHS	Smolt	84	137.0	275.0	233.6	27.4	196.3	144.0
Hills Creek	PWR	CHS	Fry	144	31	48	35.5	N/A	N/A	N/A
		CHS	Parr	7	69.0	127.0	98.1	3.7	24.5	11.2
		CHS	Smolt	55	128.0	285.0	228.1	26.2	245.5	138.7

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

March 16-31, 2023										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Hills Creek	RO	CHS	Fry	89	31	55	35.3	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	2	261	261	261.0	182.6	182.6	182.6
Hills Creek	PWR	CHS	Fry	129	31	48	35.5	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	3	240	245	242.5	144.4	172.9	158.7

Trapping Efficiency

A total of 528 juvenile Chinook (parr) were dyed, clipped and released on 02/25/2023 below Hills Creek PWR to evaluate the efficiency of the screw traps. A total of 15 fish were recaptured in the 8 ft PWR trap. A total of 0 chinook released in the PWR route were captured in the 5ft RO trap. Trapping efficiency was 5.6% for the PWR RST and 0.6% for the RO RST.

Hills Creek Dam (02/25/2023)	Release #	Recapture #	Capture Efficiency
PWR Route	528	15	2.8% (15/528)
RO Trap	528 in PWR	0	0.0% (0/528)

*Live fish captured at the PWR trap are released just downstream of the PWR 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 PWR trap are excluded from the RO trap capture efficiency estimate as they are not alive at time of re-release.

A total of 482 juvenile Chinook (parr) were dyed, clipped and released on 02/25/2023 below Hills Creek RO to evaluate the efficiency of the screw trap. A total of 4 fish were recaptured in the 5 ft RO trap.

Hills Creek Dam (02/25/2023)	Release #	Recapture #	Capture Efficiency
RO Trap	482	4	0.83% (4/482)

24-Hour Post Collection Holding Trial

129 Chinook captured in the RSTs were held during this reporting period. 75 fish were held from the PWR RST and 54 fish were held from the RO RST. 0 hold fish died from the PWR RST (0.0%). 0 of the fish from RO RST died during holding (0.0%).

Injuries and Copepod Infection

There was 91 Chinook captured in the RO RST. Partial descaling <20% was observed on 3 of 91 Chinook collected at the RO RST (3.3%), and descaling >20% was observed on 1 of the Chinook collected (1.1%). 8 displayed body injuries (8.8%) and 1 had eye injuries (1.1%). 2 of the RO RST Chinook had copepods present in the branchial cavity (2.2%) and 2 had copepods present on fins (2.2%). There was 1 mortality (1.1%). 1 of the fish captured in the RO RST displayed Gas Bubble Disease (level 1) (0.0%).

There were 132 Chinook captured in the Powerhouse channel RST. Partial descaling <20% was observed on 4 of the 132 Chinook collected at the PWR RSTs (3.0%). Descaling >20% was observed on 2 of the Chinook collected (1.5%). 19 PWR RST fish had bodily injury (14.4%) and 4 had eye injuries (3.0%). 2 of the fish had copepods present in the branchial cavity (1.5%) and 2 had copepods present on

fins (1.5%). 0 fish displayed Gas Bubble Disease (0.0%). There were 7 chinook mortalities collected in the PWR RST (5.3%).

Injuries are displayed in Table 45. To date injury data can be found in Appendix A.

Table 45. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Hills Creek 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
Hills Creek	RO	91	3	1	8	1	2	2	1
Hills Creek	PWR	132	4	2	19	4	2	2	7

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

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 6 Spring Chinook. The other targets captured did not meet length criteria for DNA sampling or did not have a body.

PIT Tags

1 Spring Chinook were PIT tagged during this reporting period. The first 60 target fish per week are prioritized for the 24-Hour Post Collection Holding Study. These fish are not tagged to not bias the results of the holding study. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

VIE tag color and locations are changed every month to distinctly mark groups of fish by capture date. Since then, 39 Chinook have been VIE marked with fluorescent elastomer. More information regarding VIE marked fish can be found in Appendix D.

Fish still showing an egg sac are not VIE marked.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
3/16/2023-3/31/2023	Head	Red	39	0

Non-Target Species

97 non-target fish were captured at Hills Creek during the reporting period; the data is summarized below in Table 46.

Table 46. Summary of Non-target Species (Hills Creek Dam).

Species	RO Capture	RO Mortality	PWR Capture	PWR Mortality	Season Total	Season Total Mortality
Bass Unknown	0	0	0	0	4	0
Bluegill	7	2	18	7	123	50

Species	RO Capture	RO Mortality	PWR Capture	PWR Mortality	Season Total	Season Total Mortality
Brook Lamprey	0	0	0	0	0	0
Brown Bullhead	0	0	0	0	2	0
Crappie	6	1	33	11	186	100
Dace	0	0	4	0	4	0
Redside Shiner	0	0	0	0	1	1
Sculpin	0	0	1	0	11	0
Largemouth Bass	0	0	0	0	6	2
Spotted Bass	2	0	4	0	90	46
Smallmouth Bass	0	0	0	0	1	1
Largescale Sucker	1	0	0	0	7	2
O. mykiss	5	1	7	0	54	19
O. mykiss (clipped)	1	0	7	4	9	4
Unknown	0	0	1	1	1	1
Totals	**22**	**4**	**75**	**23**	**499**	**226**

Stream Statistics

Basic stream statistics at the Hills Creek site were calculated from data downloaded from the U.S. Geological Survey stream gauge numbers 14145110 and 14145500. Gauge height (feet) is the only metric provided at this gauge. Total dissolved gas saturation data was received from gauge 14145500, 1.4 rkms downstream of the trap. During the reporting period, daily maximum values for instantaneous gauge height ranged from 1,224.6 feet to 1,225.6 feet (mean: 1,225.0 feet). Figure 67 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 97 to 104% (mean: 101.5%) during the reporting period. Figure 68 shows total dissolved gas saturation.

Stream temperatures were recorded every two hours using temperature probes at the Hills Creek Dam RST's during this reporting period (Figure 69 and 70).

Flows through the PWR and RO during the reporting period averaged 657.7 and 315.0 cfs respectively (Figure 71). Catch per unit of effort (CPUE) data are summarized in Table 47. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 47. Summary of Chinook CPUE, Hills Creek Dam.

	Chinook	
Description	RO (5ft)	PWR (8ft)
Catch	132	91

Effort (hrs)	386.3	385.9
CPUE (fish/hr)	0.342	0.236

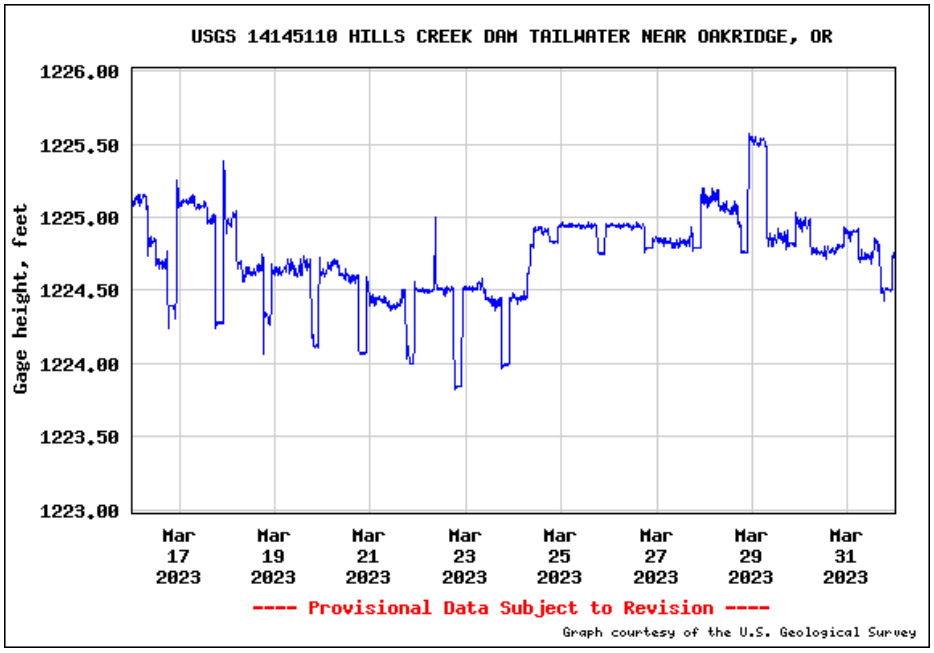


Figure 67. Gauge Height (feet); below Hills Creek Dam PWR - Middle Fork Willamette River

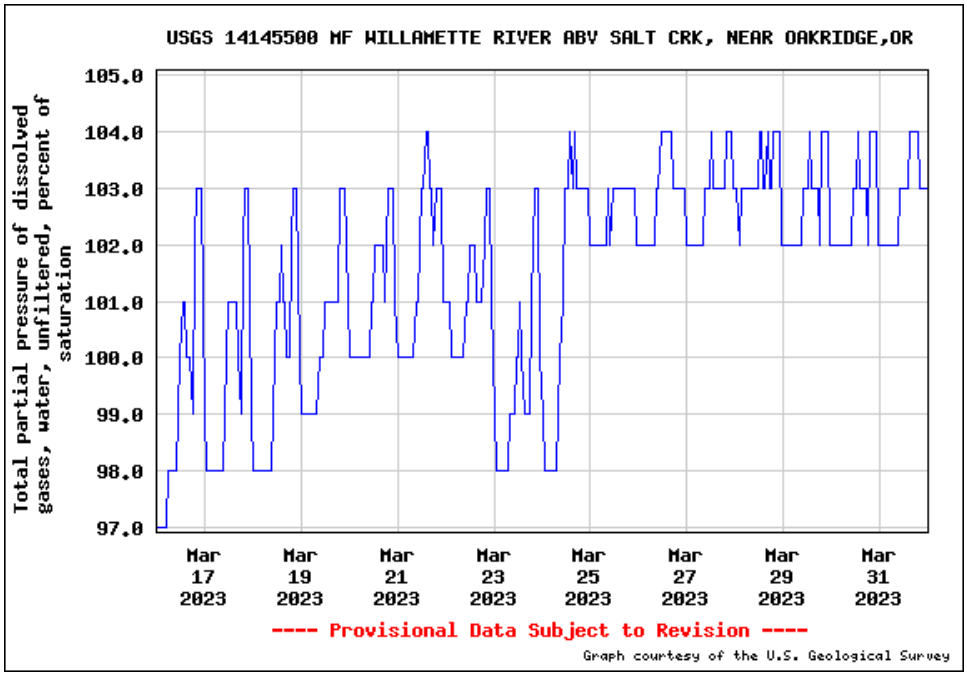


Figure 68. Total Dissolved Gas Saturation (%); below Hills Creek Dam – Middle Fork Willamette River

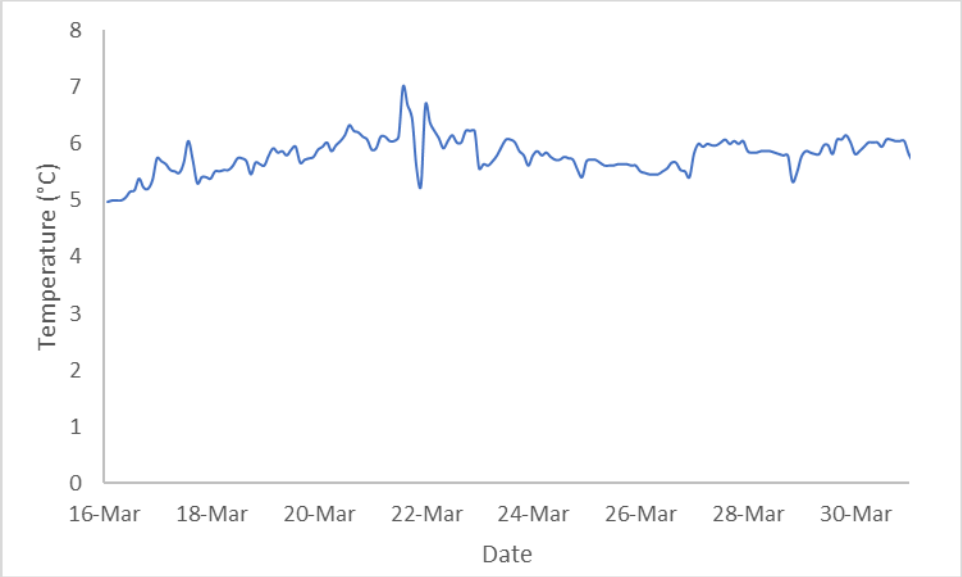


Figure 69. Temperature at Hills Creek RST PWR (Hills Creek Dam)

Note: Data was supplemeted from USGS gage 14145500, 1.4rkms downstream from the RO RST.

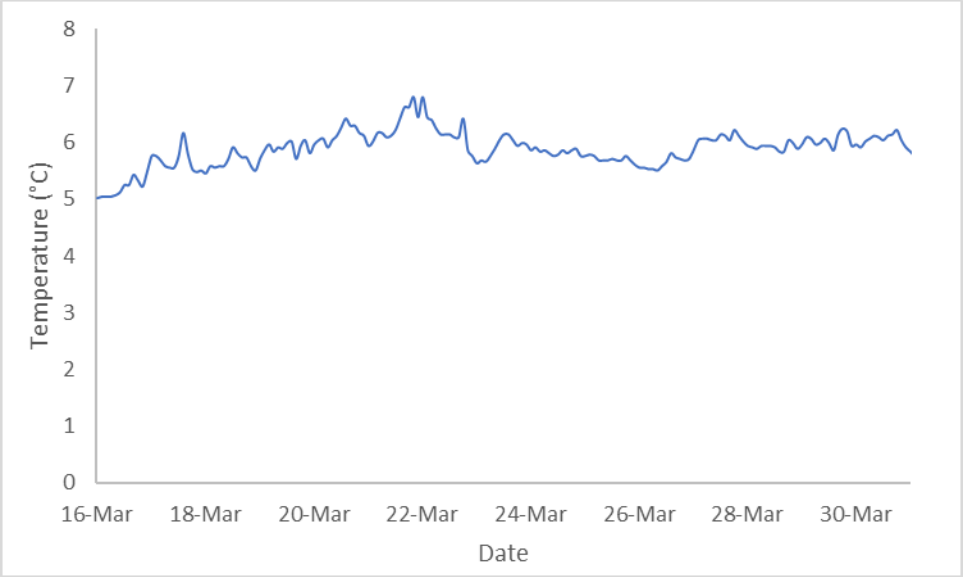


Figure 70. Temperature at Hills Creek RO RST (Hills Creek Dam)

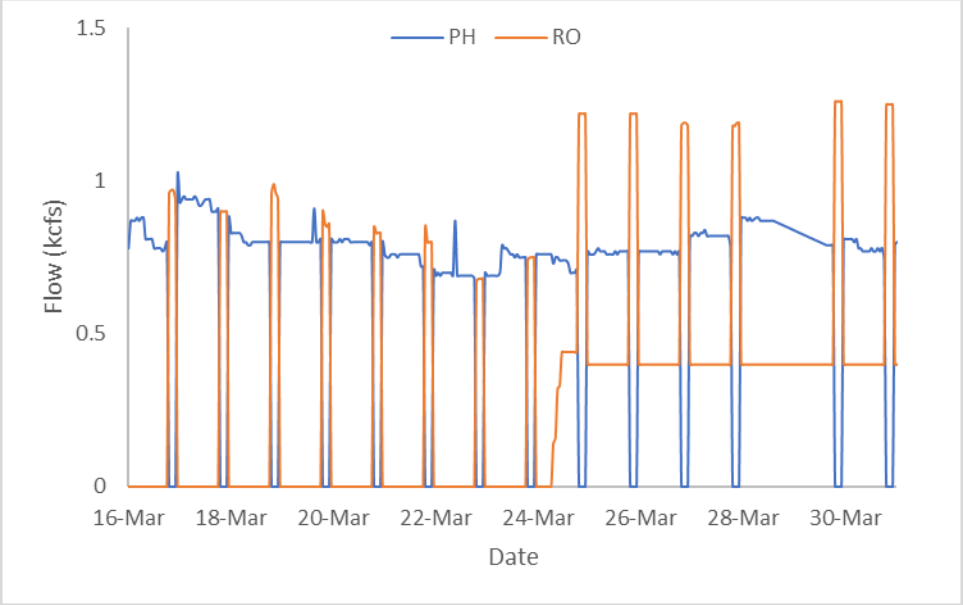


Figure 71. Hourly Flows PWR vs. RO (Hills Creek Dam)

Issues Encountered

A security risk was determined at the Lookout Point Head of Reservoir site after a theft from the local railroad crew. This incident was reported to USACE and USFS. And OSP officer escorted our crew into the site on 3/16/2023 to raise the cone to a non-sampling position. We are working on a path forward with the USACE at this site that adequately addresses the safety concerns before we resume sampling.

Upcoming USACE Support Services

None at this time.

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

GBT Rank	Description
Rank 0 / N/A	No bubbles
Rank 1	1 – 5% of fin or eye is covered in bubbles.
Rank 2	6 – 25% of fin or eye is covered in bubbles.
Rank 3	26 – 50% of fin or eye is covered in bubbles.
Rank 4	Greater than 50% of fin or eye is covered in bubbles.

Appendix A

Chinook (CHS) To Date

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	1413		826	11	94	7	1	1008	293	4	700	5	12	5	43	8	88	45	169	82	86	18	55
8 ft	1413		826	11	94	7	1	1008	293	4	700	5	12	5	43	8	88	45	169	82	86	18	55
Adult	1		1								1						1	1	1		1		
Parr	33		10	1	4	2		18	3		10					2			1			1	
Smolt	1254		810	10	88	5		990	289	4	686	5	12	3	42	6	84	43	166	79	85	14	53
Unknown	2													2								1	
Fry	123		5		2		1		1		3				1		3	1	1	3		2	2
Green Peter Tail.	1																						
8 ft	1																						
Fry	1																						
Foster Dam HOR	609		62		2			2	4		44				2		1	5	2	8	1		
5 ft	609		62		2			2	4		44				2		1	5	2	8	1		
Parr	48		32					2			12												
Smolt	41		29								20						1			2			
Fry	520		1		2				4		12				2			5	2	6	1		
Cougar Dam	3069	10	1647	36	283	17	3	2255	702	3	1552	3	7	2	91	33	157	73	311	106	224	19	463
RO	1859		1113	30	250	13	3	1667	581	3	1230	3	2		57	31	129	41	257	85	160	15	458
Parr	209		112	5	33	3		132	51		107				4	1	9	2	15	12	5	2	23
Smolt	1626		1001	25	214	10	3	1535	529	3	1122	3	2		53	30	119	39	241	71	155	13	435
Fry	24				3				1		1						1		1	2			
PH	1210	10	534	6	33	4		588	121		322		5	2	34	2	28	32	54	21	64	4	5
Parr	270		151		11	1		107	25		71		1		5		3	6	11	6	5		
Smolt	556		381	6	18	3		481	90		246		4		28	2	23	19	40	12	59	1	5
Unknown	2													2									
Fry	382	10	2		4				6		5				1		2	7	3	3		3	
Cougar Dam HOR	778	3	110			1		14	6	3	66						2	6	10	7	1	1	
5 ft	778	3	110			1		14	6	3	66						2	6	10	7	1	1	
Parr	204		106			1		14	6	2	56						1	6	1	1	1		
Smolt	7		2								1												
Fry	567	3	2							1	9						1		9	6		1	
Fall Creek Dam Tail.	45		3		1				1		2						2		1	1			
8 ft	45		3		1				1		2						2		1	1			
Smolt	1								1		1						1						
Fry	44		3		1						1						1		1	1			
Fall Creek HOR	147		4	1				2	2		3	1					1	3		2		1	
8 ft	147		4	1				2	2		3	1					1	3		2		1	
Parr	2		2					1			1												
Smolt	5		1					1															
Fry	140		1	1					2		2	1					1	3		2		1	
Dexter Dam Tail.	101		62		6			12	23		48				1		3	4	6	6	5		21
5 ft	101		62		6			12	23		48				1		3	4	6	6	5		21
Parr	19		7		3			2	6		9							2	3	2			6
Smolt	79		55		3			10	17		38				1		3	2	3	4	5		15
Fry	3										1												

Chinook (CHS) To Date - Continued

Chinook Injuries to-date (Cont.)

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
Lookout Dam Tail.	92		49	1	17	1		18	29		54				3	2	10	3	15	10	9		9
PH 1	34		15	1	8			9	14		23				3	2	6	1	8	3	2		3
Parr	4		1		1				2		2					1	1		1				
Smolt	30		14	1	7			9	12		21				3	1	5	1	7	3	2		3
PH 2	17		12		4			3	3		12						2	2	2	4	2		
Parr	4		4		3				1		4						1	1	1	3			
Smolt	11		8		1			3	2		8						1		1	1	1		
Fry	2																	1			1		
Spill	41		22		5	1		6	12		19						2		5	3	5		6
Parr	7		2						3		2												
Smolt	34		20		5	1		6	9		17						2		5	3	5		6
Lookout Point HOR	156		40		3			2	2		19						2	1	2				
5 ft	156		40		3			2	2		19						2	1	2				
Parr	64		32					1			10						1		1				
Smolt	9		7					1			5												
Fry	83		1		3				2		4						1	1	1				
Hills Creek Dam	394	1	78	1	25			125	66		76	1	12	3	52	8	22	10	29	14	15	7	19
RO	188	1	47		9			75	36		40		7		28	6	9	2	17	8	6	4	7
Parr	6		1					1									1						
Smolt	84	1	44		8			74	36		39		7		28	6	7	2	16	6	5	2	7
Fry	98		2		1						1						1		1	2	1	2	
PH	206		31	1	16			50	30		36	1	5	3	24	2	13	8	12	6	9	3	12
Parr	7		4					1	1							1				1			
Smolt	55		23	1	13			49	29		32	1	5	3	19	1	8	4	8	3	9		12
Fry	144		4		3						4				5		5	4	4	2		3	

Chinook (CHS) During Reporting Period

Chinook Injuries During Reporting Period (03-16-2023 to 03-31-2023)																								
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	8		2	1	1			1	1		2				1		2		2	1			
8 ft	8		2	1	1			1	1		2				1		2		2	1			
Fry	6		1												1		1			1			
Smolt	2		1	1	1			1	1		2						1		2				
Green Peter Tailrace- N	1																						
8 ft	1																						
Parr	1																						
Foster Dam HOR	204		6		1				4		13				2			5	2	8	1		
5 ft	204		6		1				4		13				2			5	2	8	1		
Fry	196				1				4		9				2			5	2	6	1		
Smolt	8		6								4									2			
Cougar Dam	27		18		4	1		20	6		20						2	3	6	2	1		6
RO	27		18		4	1		20	6		20						2	3	6	2	1		6
Fry	3																						
Parr	3		3					1			3								1				1
Smolt	21		15		4	1		19	6		17						2	3	5	2	1		5
Cougar Dam HOR	47		4					3	2		5						1		2				
5 ft	47		4					3	2		5						1		2				
Fry	34										1						1		2				
Parr	10		3					3	2		3												
Smolt	3		1								1												
Fall Creek Dam Tail.	10		2		1																		
8 ft	10		2		1																		
Fry	9		2		1																		
Parr	1																						
Fall Creek HOR	1																						
8 ft	1																						
Fry	1																						
Lookout Dam Tailrace	2																	1			1		
PH 2	2																	1			1		
Fry	2																	1			1		
Hills Creek Dam	223		7		5			4	3		9		1	1	7		6	4	5	4	2	5	1
PH	132		4		4			2	2		6			1	6		5	4	4	2	1	3	
Fry	129		4		3						4				5		4	4	4	2		3	
Smolt	3				1			2	2		2			1	1		1				1		
RO	91		3		1			2	1		3		1		1		1		1	2	1	2	1
Fry	88		2		1												1			2	1	2	
Parr	1										1								1				
Smolt	2		1					2	1		2		1		1								1

Steelhead (O. mykiss) To Date

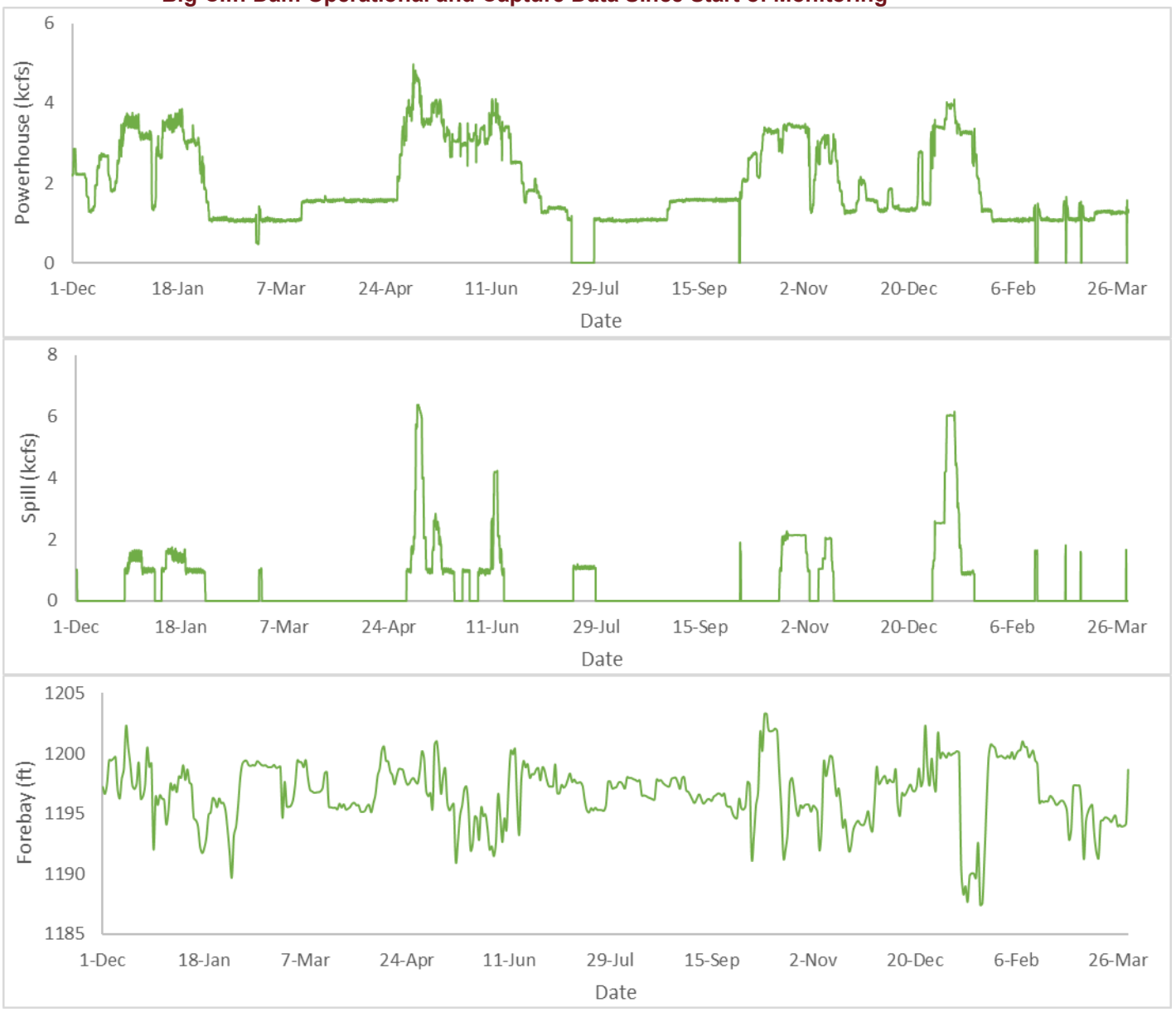
O. mykiss Injuries to-Date																						
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	116	1	40	4	3	4		32	10		44		1		2		10	4	12	11	4	1	8
8 ft	116	1	40	4	3	4		32	10		44		1		2		10	4	12	11	4	1	8
Adult	1								1		1		1										
Parr	45	1	11	4	1	1					14						2		1	1	1		1
Smolt	39		25		2	3		32	9		27				2		6	3	11	10	3	1	6
Fry	31		4								2						2	1					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	232		72		1	2		2		2	67						3	2	3	3	1	1	
5 ft	232		72		1	2		2		2	67						3	2	3	3	1	1	
Adult	7		1								2												
Parr	110		32		1	2		1			36						3		2		1	1	
Smolt	79		39					1		2	28							1	1	2			
Fry	36										1							1		1			

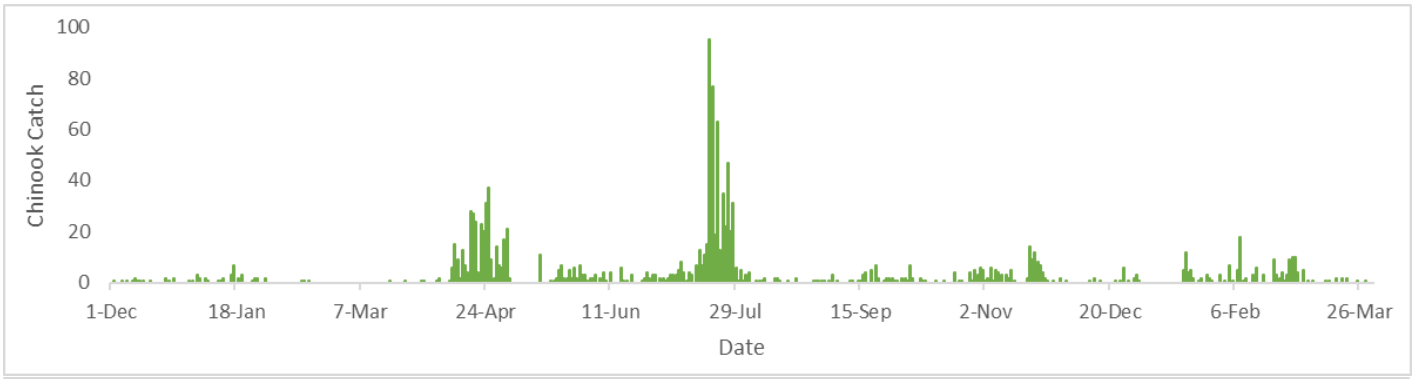
Steelhead (O. mykiss) During Reporting Period

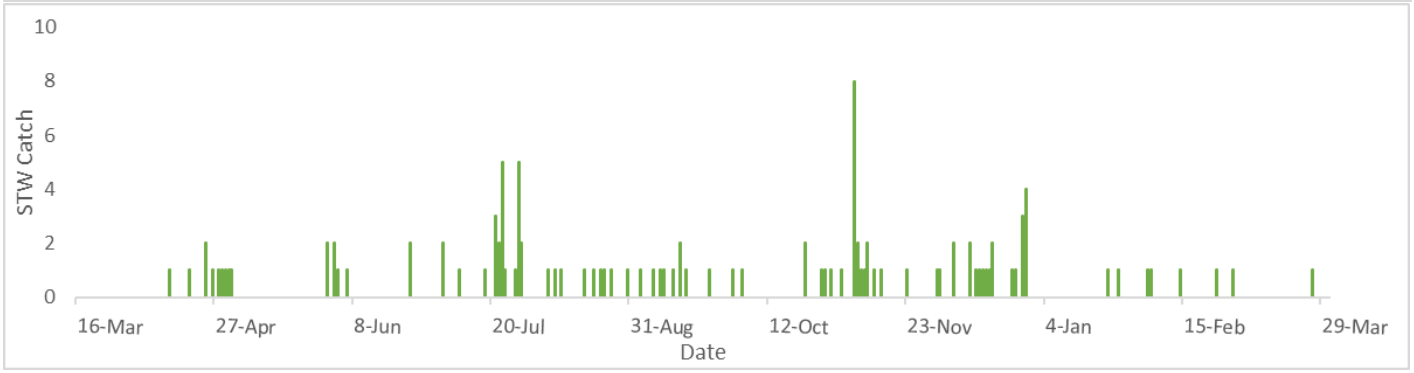
O. mykiss Injuries During Reporting Period (03-16-2023 to 03-31-2023)																						
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	1		1								1						1	1					
8 ft	1		1								1						1	1					
Parr	1		1								1						1	1					
Foster Dam HOR	6		3								3							1	1	2			
5 ft	6		3								3							1	1	2			
Fry	3										1							1		1			
Smolt	3		3								2								1	1			

Appendix B

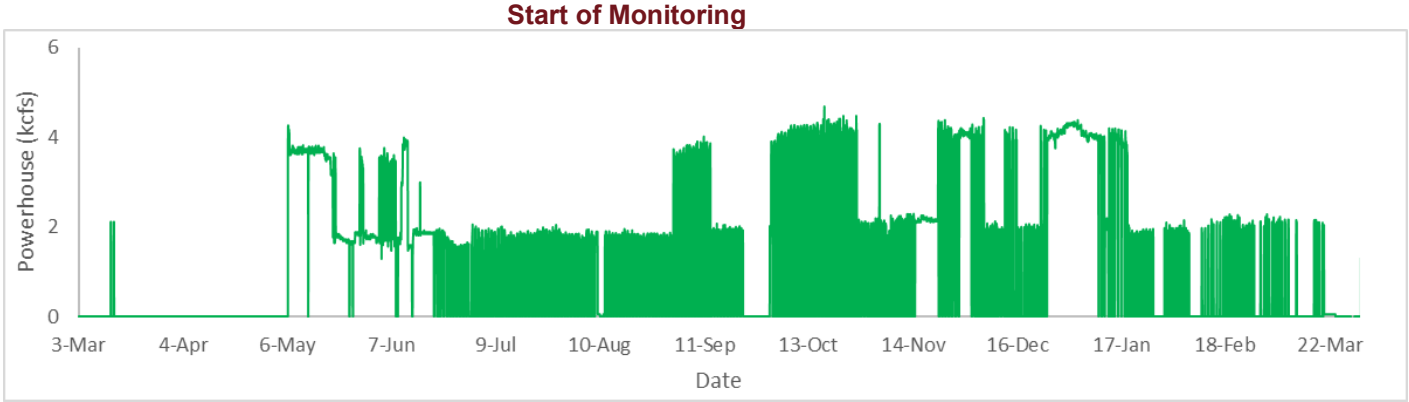
Big Cliff Dam Operational and Capture Data Since Start of Monitoring

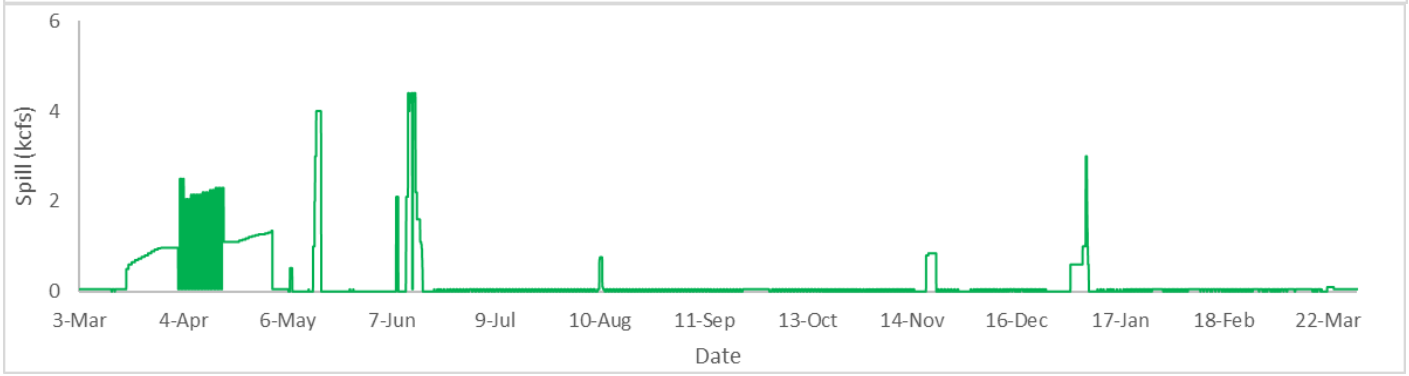


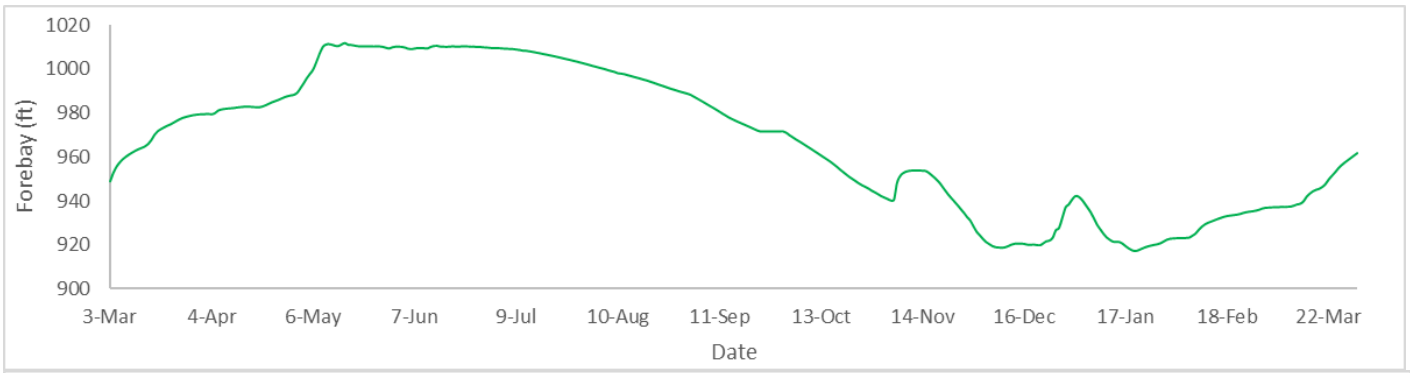


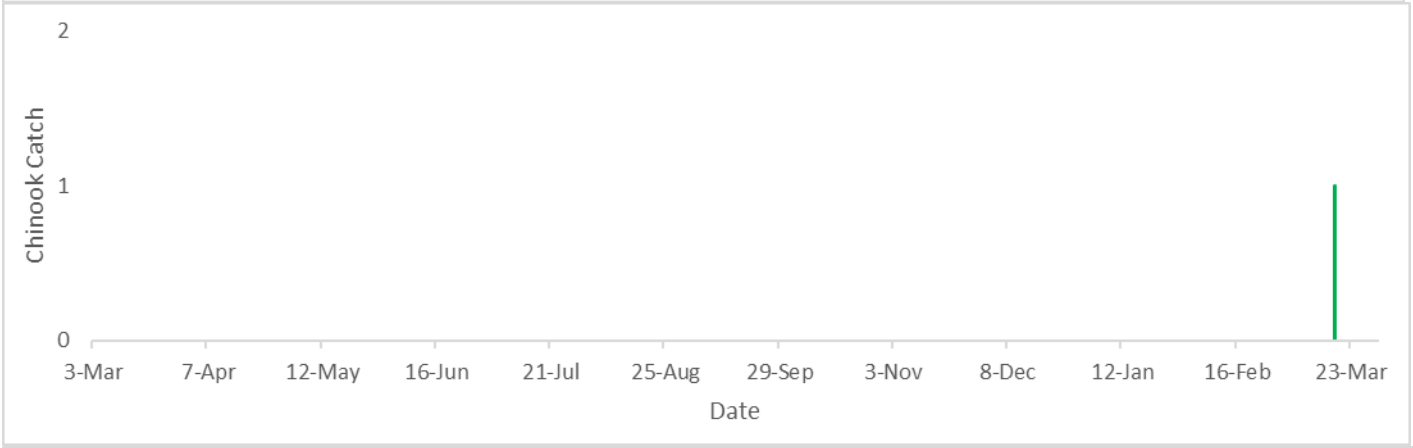


Green Peter Dam Operational and Green Peter Tailrace- Middle Santiam River Capture Data Since Start of Monitoring

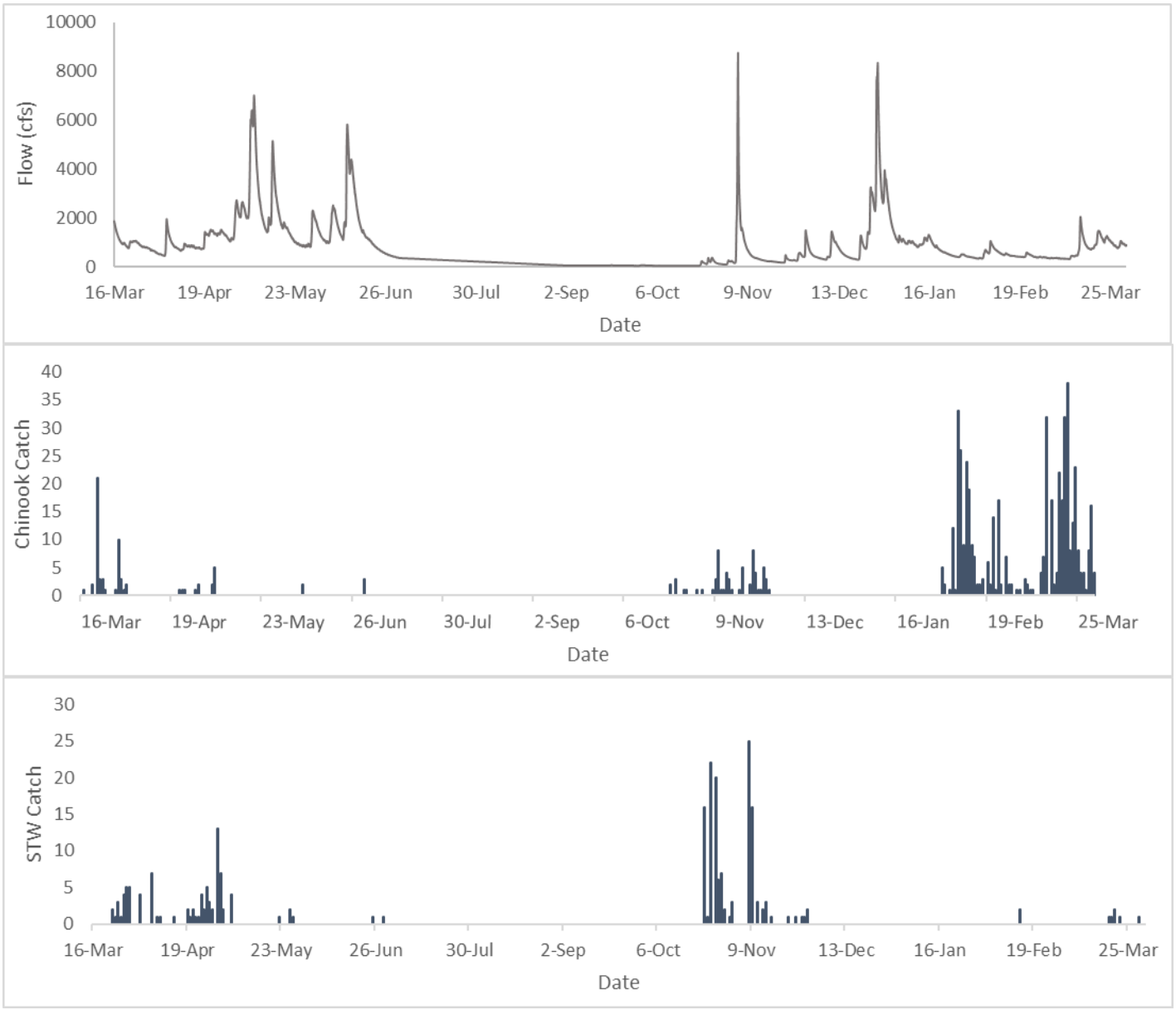




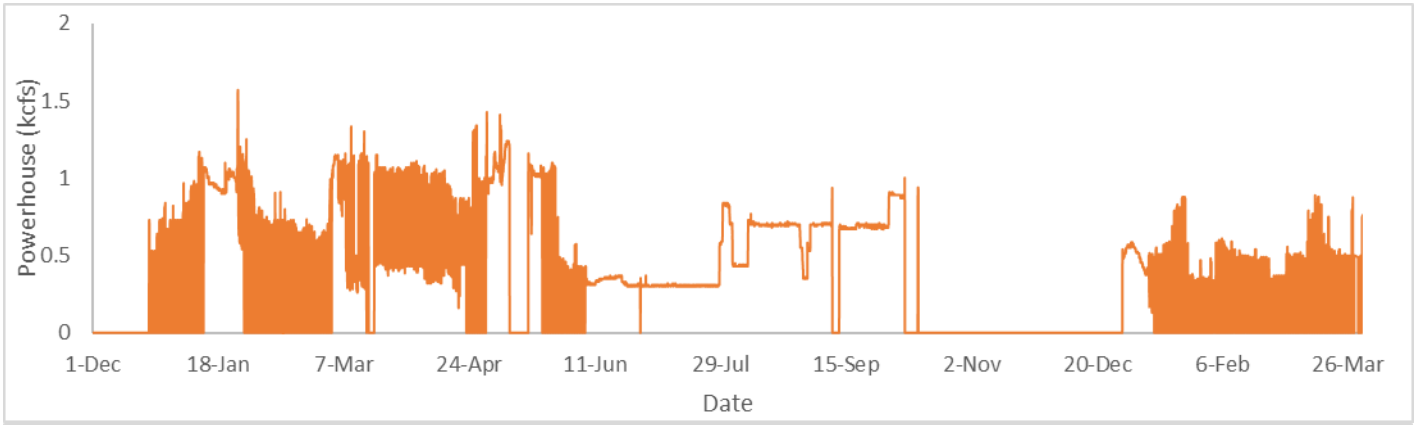


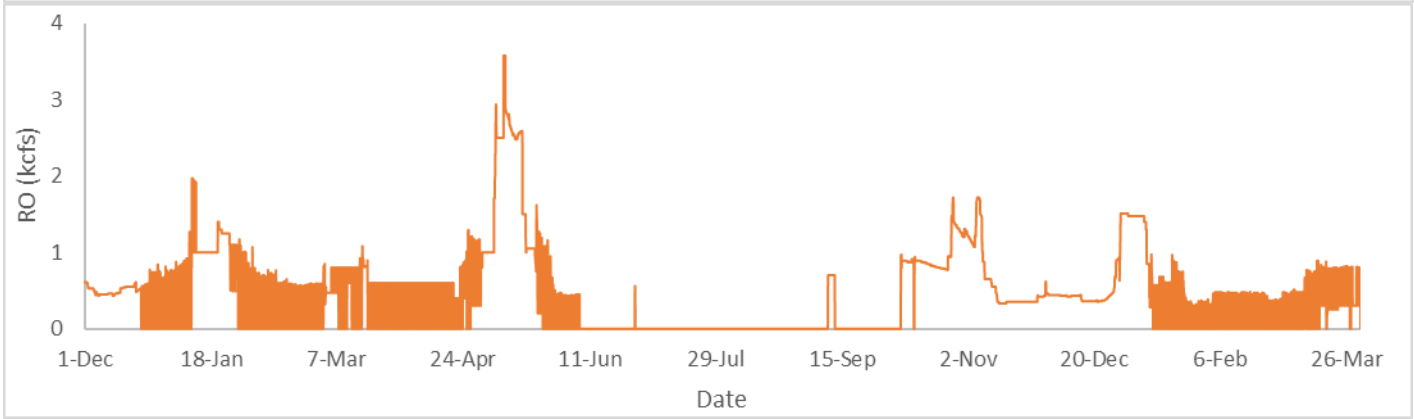


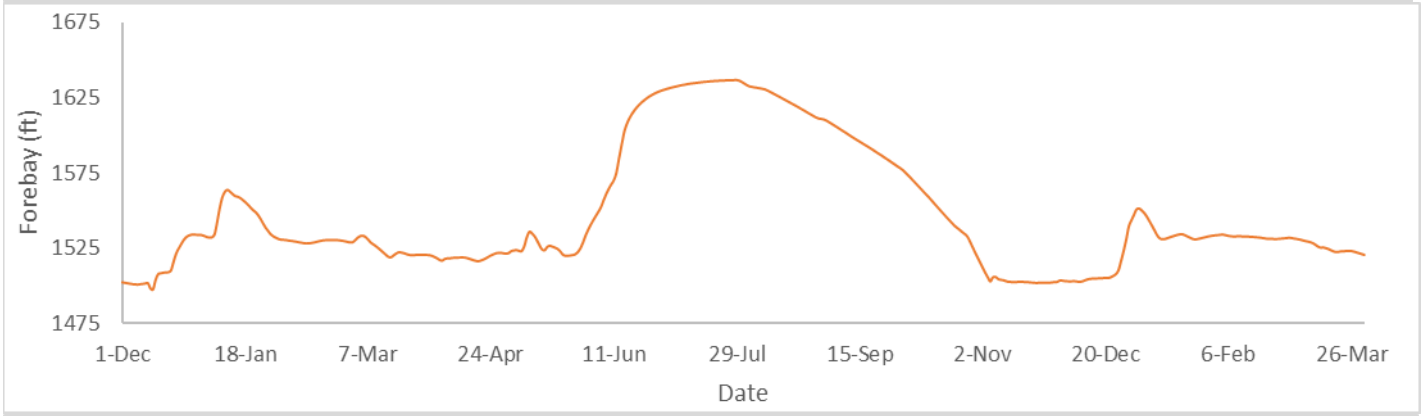
South Santiam River Above Foster Dam Discharge and Foster Dam Head of Reservoir Capture Data

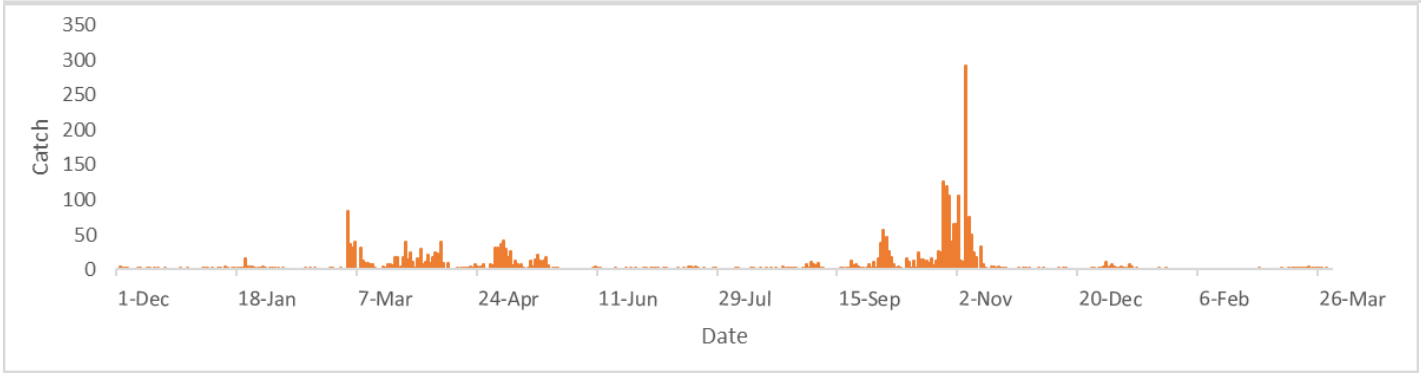


Cougar Dam Operational and Capture Data Since Start of Monitoring

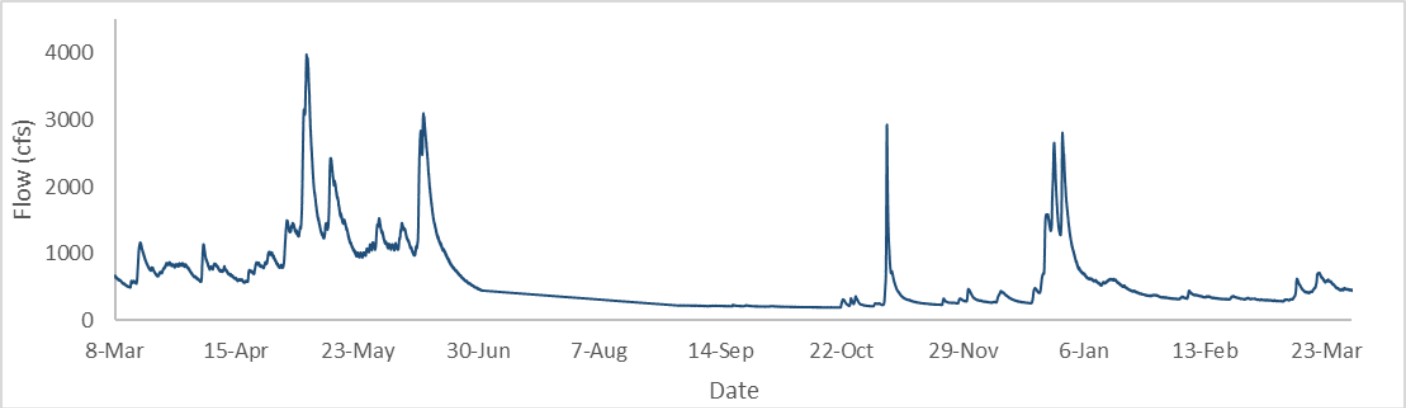

Powerhouse (kcfs)
2
1.5
1
0.5
0
1-Dec
18-Jan
7-Mar
24-Apr
11-Jun
29-Jul
15-Sep
2-Nov
20-Dec
6-Feb
26-Mar
Date


RO (kcfs)
4
3
2
1
0
1-Dec
18-Jan
7-Mar
24-Apr
11-Jun
29-Jul
15-Sep
2-Nov
20-Dec
6-Feb
26-Mar
Date

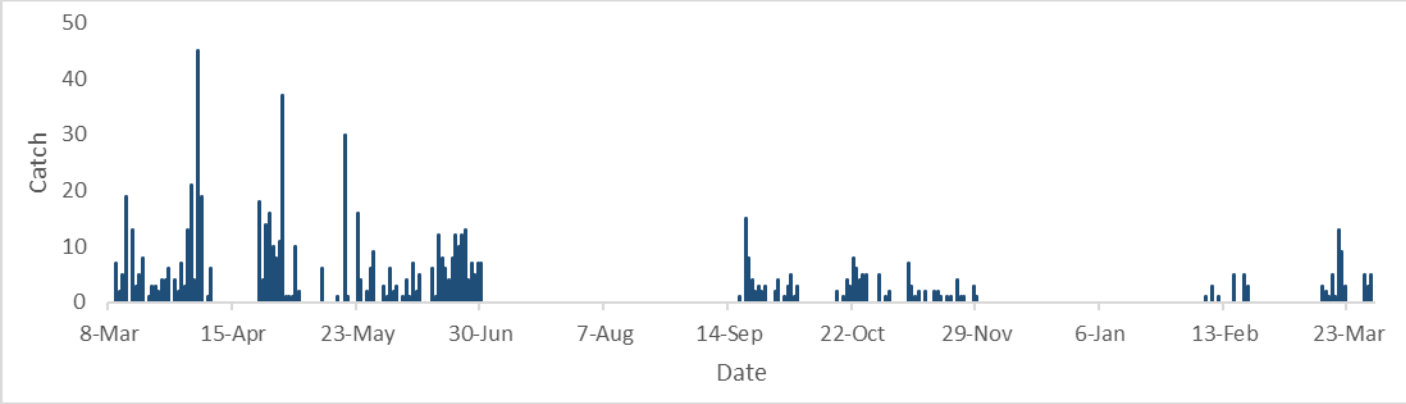

Forebay (ft)
1675
1625
1575
1525
1475
1-Dec
18-Jan
7-Mar
24-Apr
11-Jun
29-Jul
15-Sep
2-Nov
20-Dec
6-Feb
26-Mar
Date


Catch
350
300
250
200
150
100
50
0
1-Dec
18-Jan
7-Mar
24-Apr
11-Jun
29-Jul
15-Sep
2-Nov
20-Dec
6-Feb
26-Mar
Date

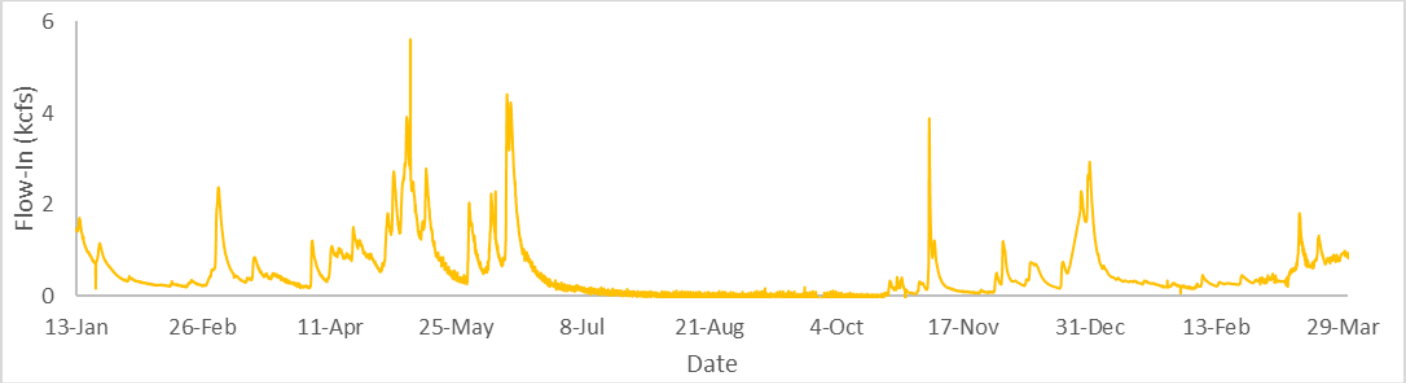
South Fork McKenzie above Cougar Dam Discharge and Cougar Dam Head of Reservoir Capture Data Since Start of Monitoring

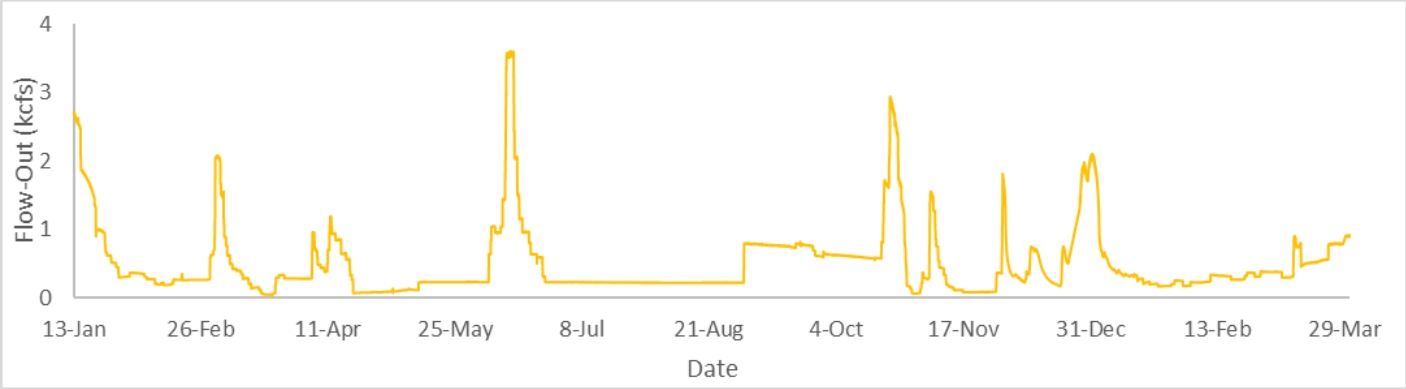


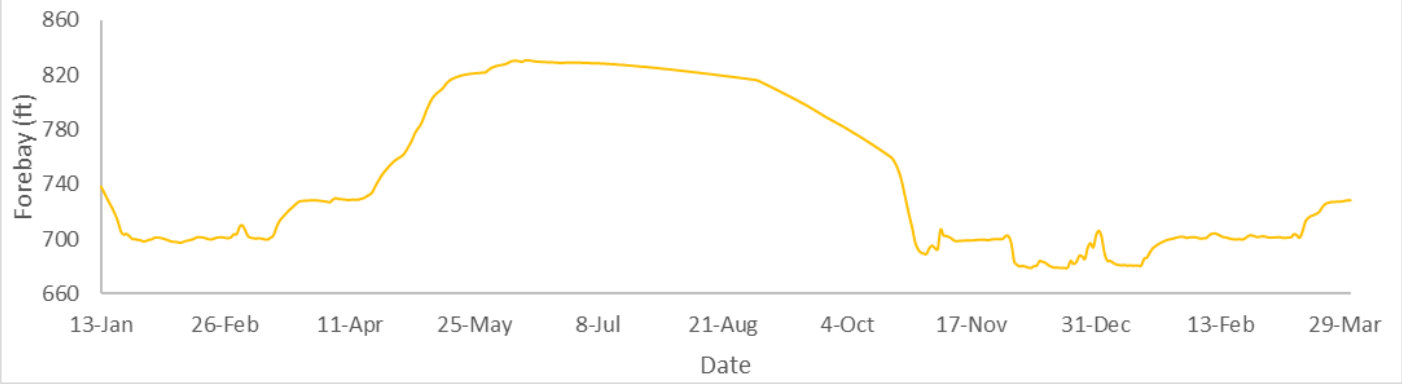
Note: Discharge data was taken from USGS gauge site number 14159200, 250 meters upstream.



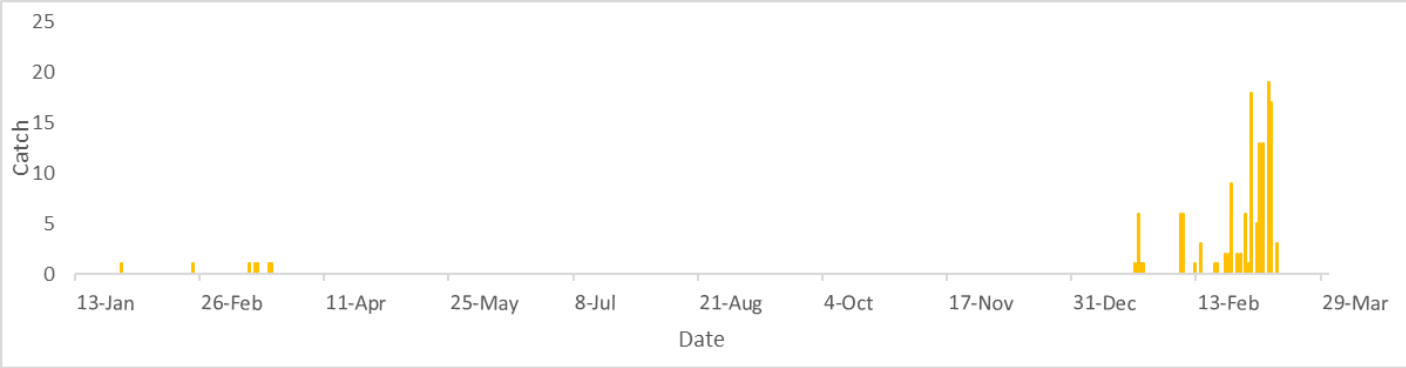
Fall Creek Dam Tailrace Operational and Capture Data Since Start of Monitoring



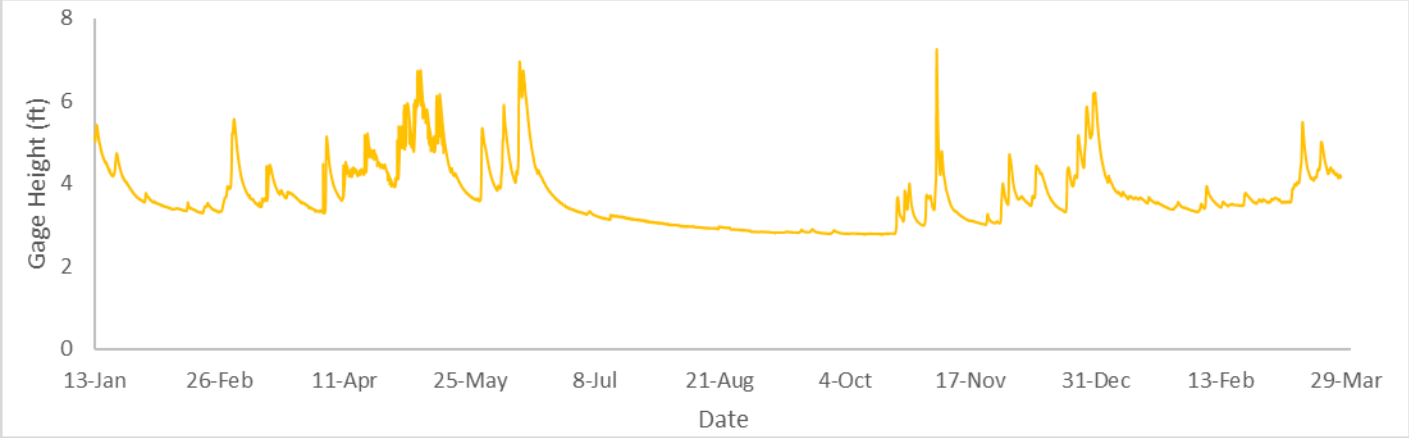




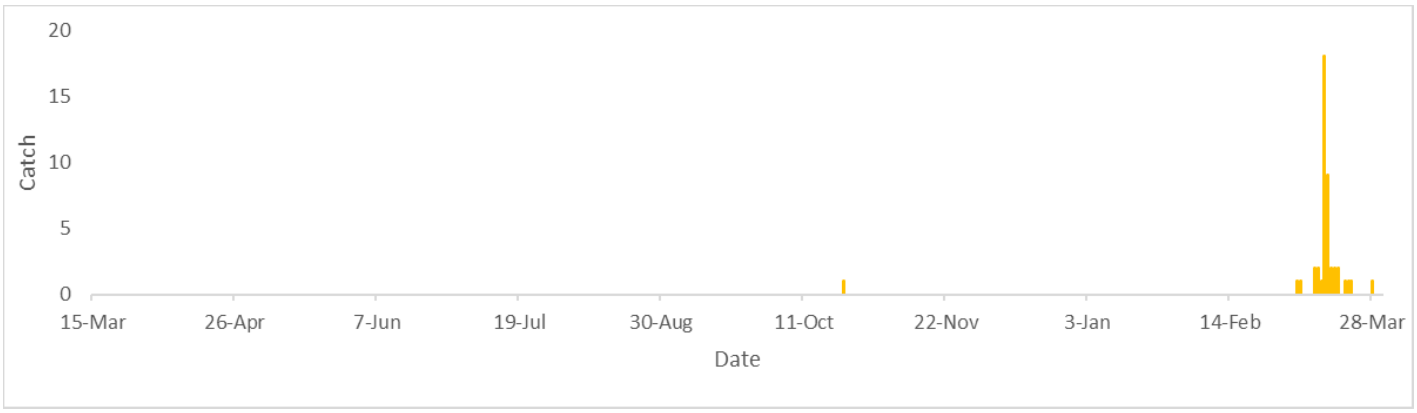
Note: Operational data was being tracked for Fall Creek Head of Reservoir site prior to initiation of Fall Creek Dam monitoring.



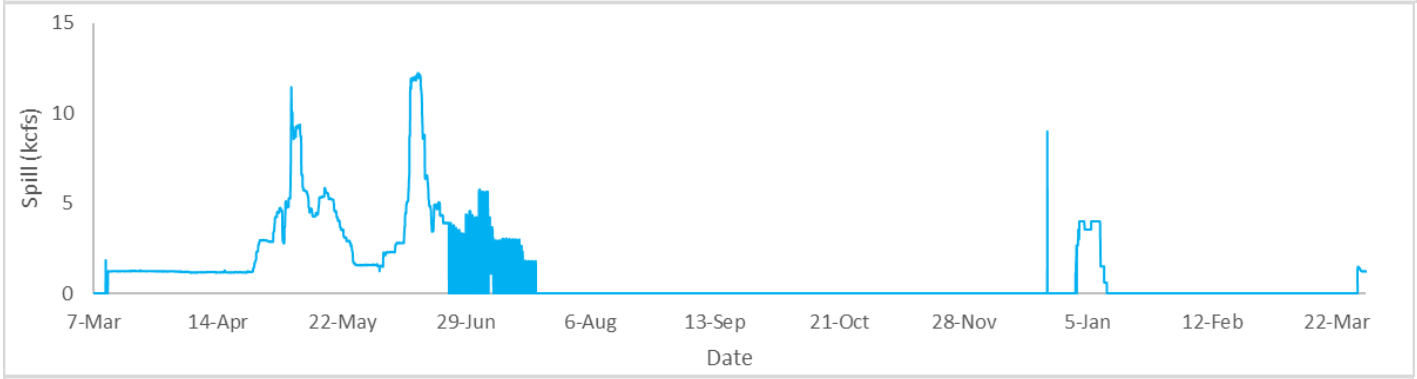
Fall Creek Head of Reservoir Operational and Capture Data Since Start of Monitoring

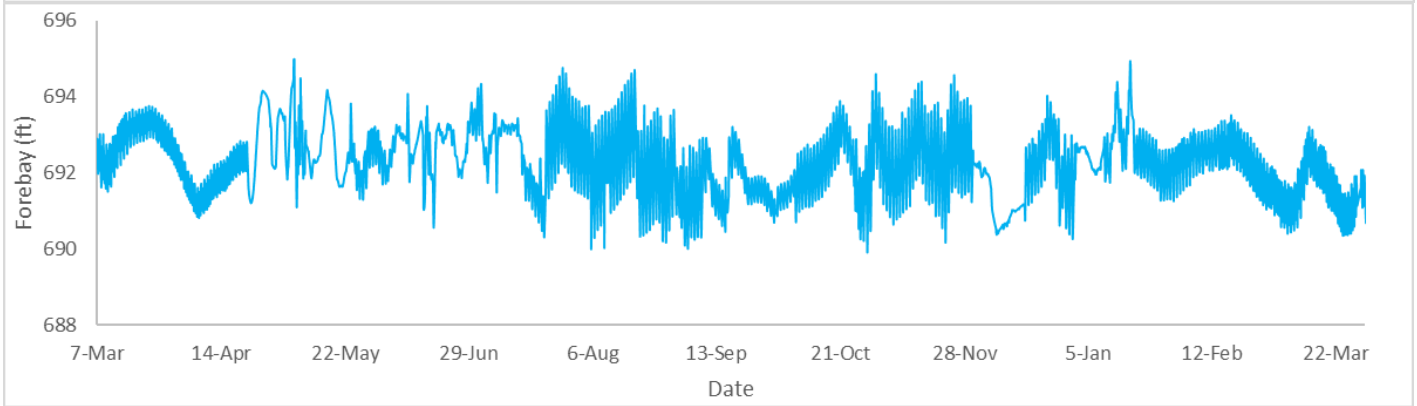


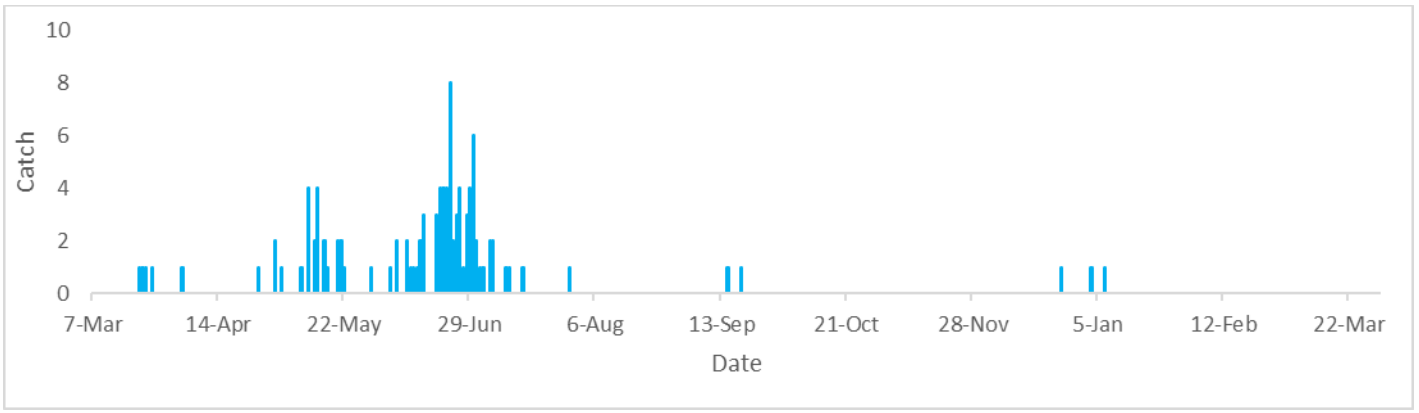
Note: Gauge height data was taken from USGS stream gauge number 14150290, 1.2 rkms downstream.



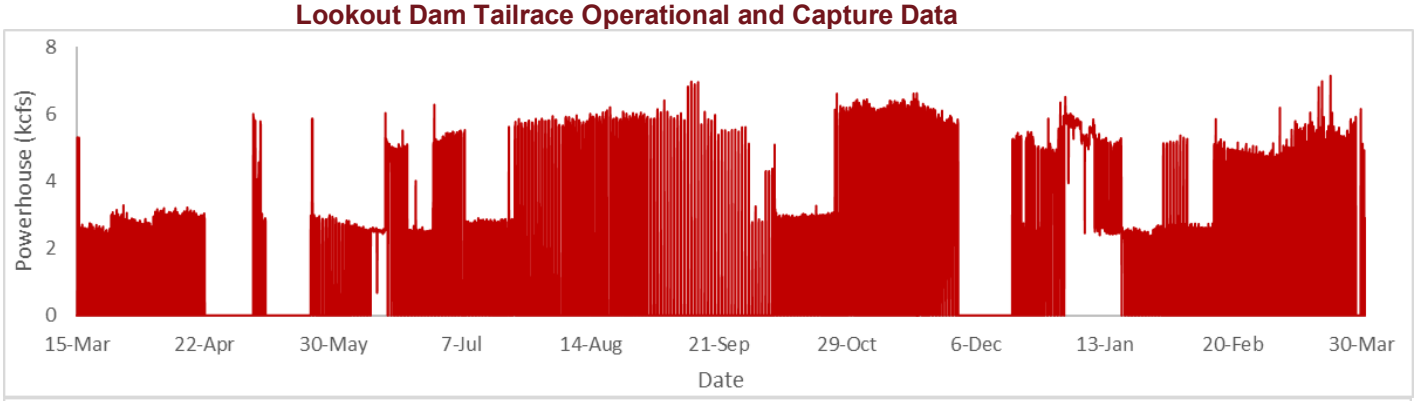
Dexter Dam Operational and Capture Data Since Start of Monitoring

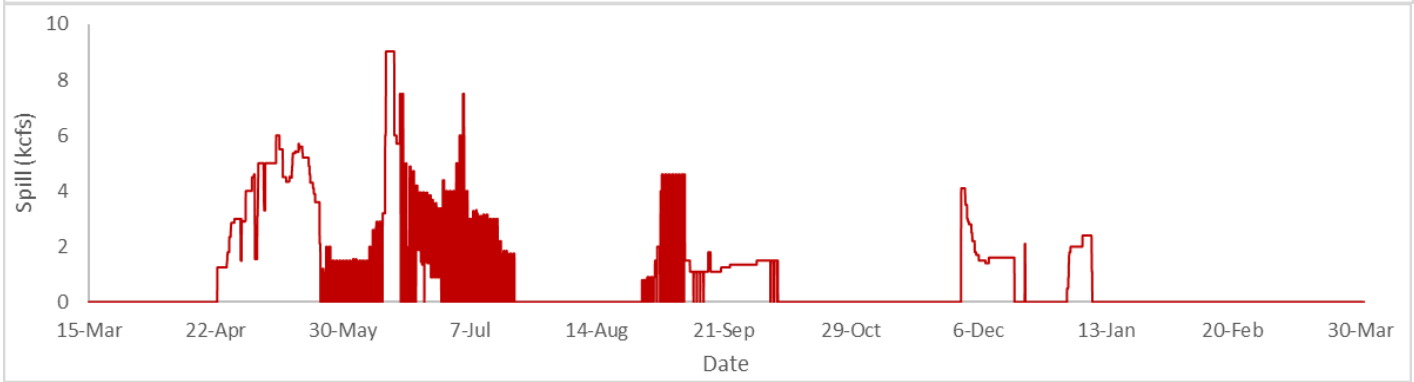


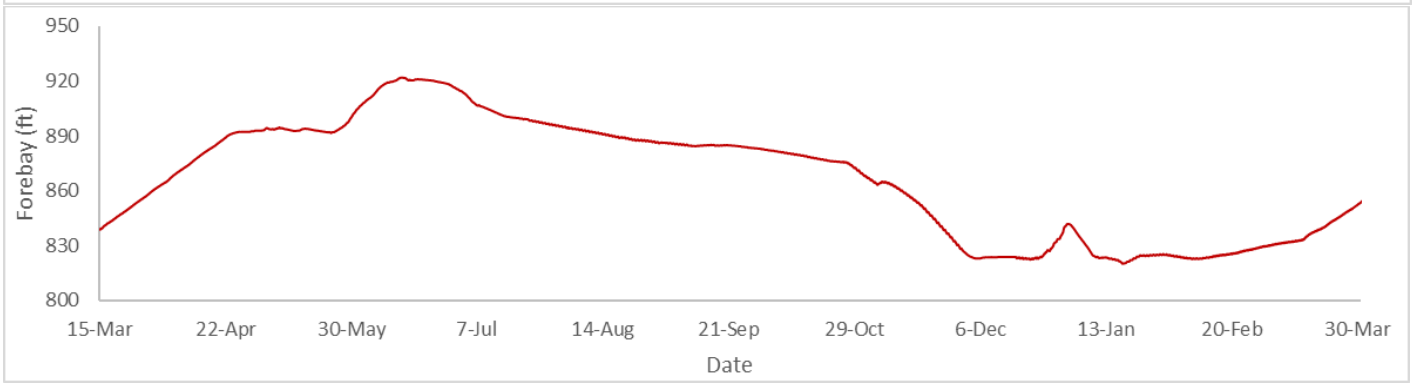


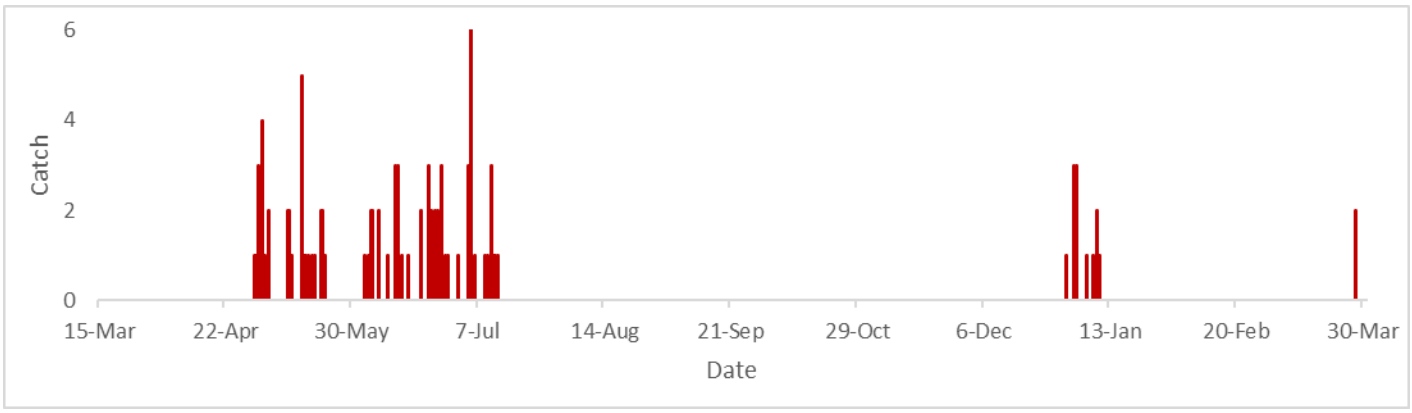


Lookout Dam Tailrace Operational and Capture Data

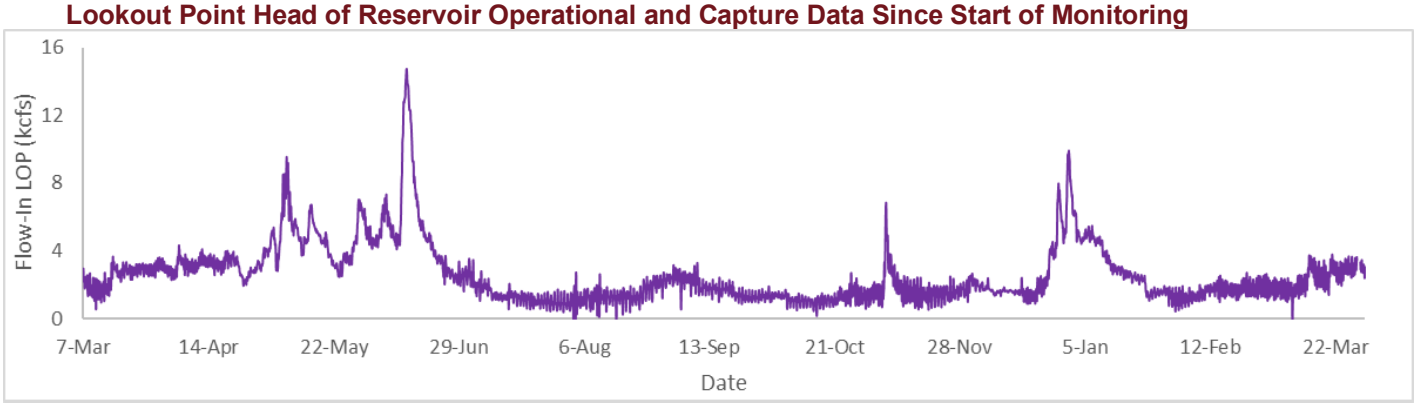


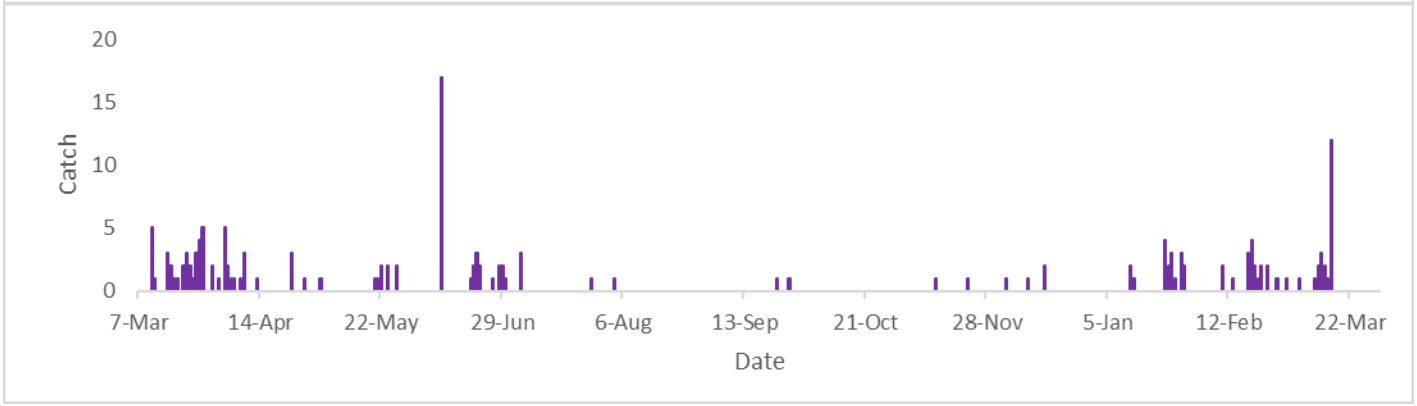




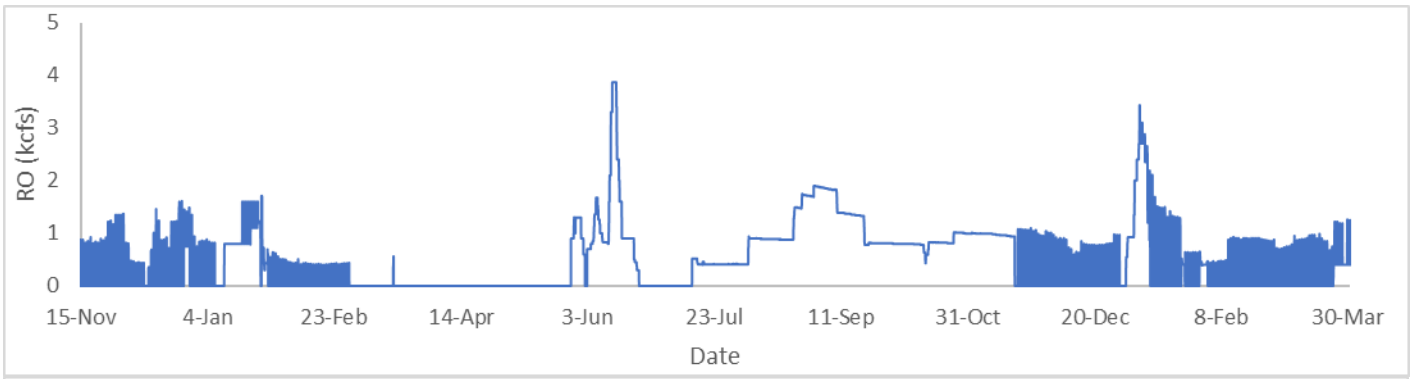


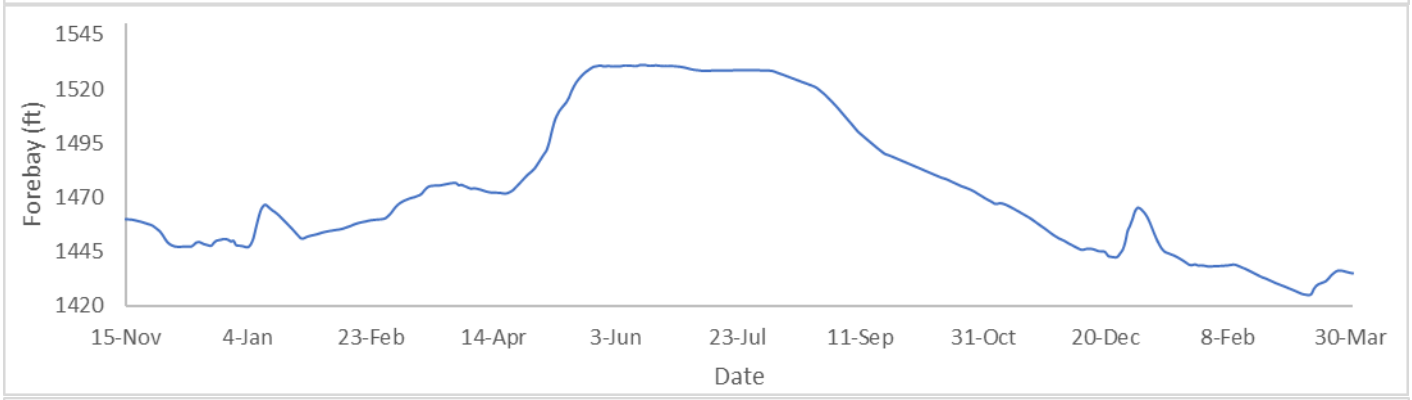
Lookout Point Head of Reservoir Operational and Capture Data Since Start of Monitoring

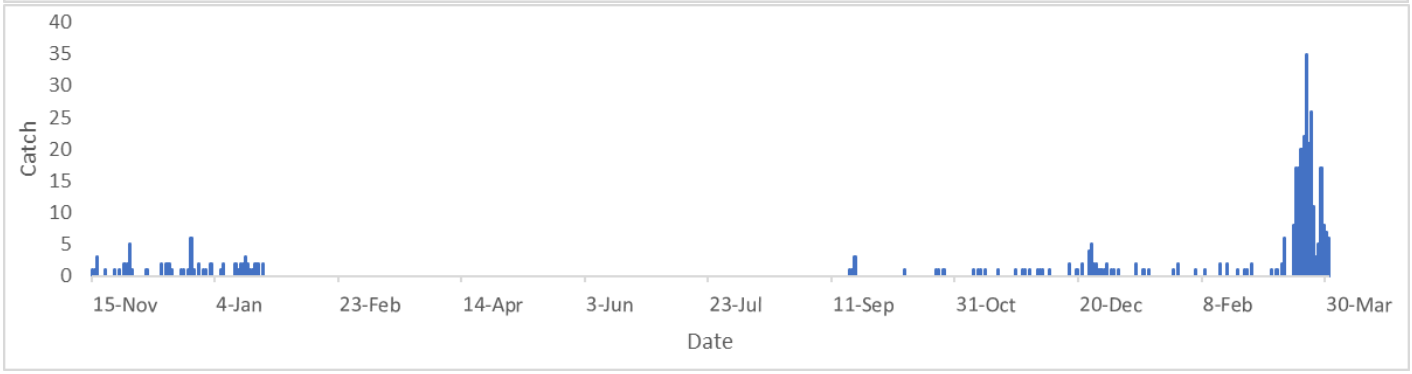




Hills Creek Dam Operational and Capture Data Since Start of Monitoring


RO (kcfs)
5
4
3
2
1
0
15-Nov
4-Jan
23-Feb
14-Apr
3-Jun
23-Jul
11-Sep
31-Oct
20-Dec
8-Feb
30-Mar
Date


Forebay (ft)
1545
1520
1495
1470
1445
1420
15-Nov
4-Jan
23-Feb
14-Apr
3-Jun
23-Jul
11-Sep
31-Oct
20-Dec
8-Feb
30-Mar
Date


Catch
40
35
30
25
20
15
10
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0
15-Nov
4-Jan
23-Feb
14-Apr
3-Jun
23-Jul
11-Sep
31-Oct
20-Dec
8-Feb
30-Mar
Date

Appendix C

Cougar Dam (01/30/2023)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	500	6	1.2% (6/500)

Dexter Dam (12/15/23)	**Release #**	**Recapture #**	**Capture Efficiency**
Spill	N/A	N/A	N/A
Powerhouse	1010	10	1.0% (10/1010)

Big Cliff Dam 12/14/2022	**Release #**	**Recapture #**	**Capture Efficiency**
8ft Trap	502	54	10.8% (54/502)

Cougar Dam (12/13/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	506	42	8.3% (42/506)

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)

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

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	Release #	Recapture #	Capture Efficiency
8ft Trap	643	4	0.62% (4/643)

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

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

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	515	7	1.4% (7/515)

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

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	Release #	Recapture #	Capture Efficiency
04/05/2022	993	53	5.3% (53/993)
04/14/2022	989	19	1.9% (19/989)

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

Fall Creek Dam	Release #	Recapture #	Capture Efficiency
RO	513	0	0% (0/513)

Cougar Dam	Release #	Recapture #	Capture Efficiency
RO Route	993	63	6.34% (63/993)

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spill	1019	67	6.6% (67/1,019)
Powerhouse	N/A	N/A	N/A

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

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

Cougar Dam	Release #	Recapture #	Capture Efficiency
PH Route	500	148	29.6% (148/500)

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	551	56	10.2% (56/551)

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	1000	92	9.2% (92/1000)

Cougar Dam	Release #	Recapture #	Capture Efficiency
PH Route	501	31	6.2% (31/501)

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8 ft Trap	500	14	2.8% (14/500)

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #	Capture Efficiency
5 ft Trap	1063	0	0% (0/1063)

Dexter Dam	Release #	Recapture #	Capture Efficiency

Spill	N/A	N/A	N/A
Powerhouse	981	1	0.1% (1/981)

Lookout Point Head of Reservoir	Release #	Recapture #	Capture Efficiency
07/20/2022	1005	9	0.9% (9/1005)

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	549	40	7.3% (40/549)

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #	Capture Efficiency
5 ft Trap	1006	263	26.1% (263/1006)

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #	Capture Efficiency
5 ft Trap	1007	68	6.8% (68/1007)

Cougar Dam Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft trap	721	33	4.6% (33/721)

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spill	N/A	N/A	N/A
Powerhouse	775	1	0.1% (1/775)

Lookout Point Head of Reservoir	Release #	Recapture #	Capture Efficiency
10/27/2022	506	9	1.8% (9/506)

Cougar Dam (10/14/2022)	Release #	Recapture #	Capture Efficiency
RO Route	442	48	10.9% (48/442)

Big Cliff Dam (11/16/2022)	Release #	Recapture #	Capture Efficiency
8ft Trap	509	15	2.9% (15/509)

Foster Dam Head of Reservoir- South Santiam (11/15/2022)	Release #	Recapture #	Capture Efficiency
5 ft Trap	1009	55	5.5% (55/1009)

Foster Dam Head of Reservoir- South Santiam (11/22/2022)	Release #	Recapture #	Capture Efficiency
5 ft Trap	933	163	17.5% (163/933)

Cougar Dam Head of Reservoir (11/16/2022)	Release #	Recapture #	Capture Efficiency
5ft trap	719	29	4.0% (29/719)

Cougar Dam Head of Reservoir 11/23/2022	Release #	Recapture #	Capture Efficiency
5ft trap	752	51	6.8% (51/752)

Cougar Dam Head of Reservoir (11/29/2022)	Release #	Recapture #	Capture Efficiency
5ft trap	620	48	7.7% (48/620)

Cougar Dam (11/22/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	504	24	4.8% (24/504)

Dexter Dam (11/17/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
Spill	N/A	N/A	N/A
Powerhouse	991	4	0.4% (4/991)

Lookout Point Head of Reservoir	**Release #**	**Recapture #**	**Capture Efficiency**
11/17/2022	510	0	0.0% (0/510)

Hills Creek Dam (2/16/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
PWR Route	600	12	2.0% (12/600)
RO Trap	593	19	3.2% (19/593)

*Live fish captured at the PWR trap are released just downstream of the PWR 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 PWR trap are excluded from the RO trap capture efficiency estimate as they are not alive at time of re-release.

Hills Creek Dam (2/25/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
PWR Route	604	6	0.99% (6/604)
RO Trap	625	7	1.12% (7/625)

*Live fish captured at the PWR trap are released just downstream of the PWR 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 PWR trap are excluded from the RO trap capture efficiency estimate as they are not alive at time of re-release.

Cougar Dam (12/15/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	1015	56	5.5% (56/1015)

Cougar Dam (12/20/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	500	65	13.0% (65/500)

Cougar Dam (12/28/2022)	**Release #**	**Recapture #**	**Capture Efficiency**
RO Route	445	15	3.4% (15/445)

Lookout Point Head of Reservoir	**Release #**	**Recapture #**	**Capture Efficiency**
12/12/2022	510	0	0.0% (0/510)

Big Cliff Dam	**Release #**	**Recapture #**	**Capture Efficiency**
8ft Trap	1,010	92	9.1% (92/1,010)

Big Cliff Dam	**Release #**	**Recapture #**	**Capture Efficiency**
8ft Trap	1,014	32	3.2% (32/1,014)

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	704	47	6.68% (47/704)

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	452	22	4.87% (22/452)

Cougar Dam (01/12/2023)	Release #	Recapture #	Capture Efficiency
PH Route	843	159	18.9% (159/843)

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	500	56	11.2% (56/500)

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #	Capture Efficiency
5 ft Trap	1009	55	5.5% (55/1009)

Foster Dam Head of Reservoir- South Santiam	Release #	Recapture #	Capture Efficiency
5 ft Trap	933	163	17.5% (163/933)

Hills Creek Dam (12/07/2022)	Release #	Recapture #	Capture Efficiency
PWR Route	514	29	5.6% (29/514)
RO Trap	514 in PWR	3	0.6% (3/514)

Hills Creek Dam (12/13/2022)	Release #	Recapture #	Capture Efficiency
RO Route	516	1	0.2% (1/516)

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	11
Cougar Dam	PWR	0
Cougar Dam	RO	0
Cougar Dam Head of Reservoir	5 ft	12
Green Peter Tailrace- Middle Santiam	8 ft	0
Dexter Dam Tailrace	5 ft	0
Lookout Point Head of Reservoir	5 ft	0
Lookout Dam Tailrace	Spill	0
Lookout Dam Tailrace	PWR	0
Hills Creek Dam Tailrace	PWR	0
Hills Creek Dam Tailrace	RO	1

Summary of Captured Fish Containing PIT Tags This Season

Site	Trap	PIT Tag #	Date	Species
Cougar Dam	RO	3DD.003BEE14EC	1/1/2023	Chinook
Cougar Dam	RO	3DD.003BEE1565	1/2/2023	Chinook
Cougar Dam	RO	3DD.003BEE0B3B	1/4/2023	Chinook
Cougar Dam	RO	3DD.003BEE0F24	1/5/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B78	1/14/2023	Chinook
Cougar Dam	PH	3DD.003BEE19BF	1/14/2023	Chinook
Cougar Dam	PH	3DD.003BEE29B1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE23CE	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE23AF	1/13/2023	Chinook

Cougar Dam	PH	3DD.003BEE19C3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19A0	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17CA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17A5	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C21	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2748	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C16	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B5C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BC9	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19AE	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BE3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BA3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BF3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27B4	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D74	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2DB5	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B8C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B8B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D68	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B92	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D86	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27A5	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B1B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C26	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27A3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19B9	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17BA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B75	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B42	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D88	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2DAF	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C28	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2DAD	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D6B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE25BA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2DAG	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C0E	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE177C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BAB	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE279D	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BA4	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE23BC	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B84	1/13/2023	Chinook

Cougar Dam	PH	3DD.003BEE27BF	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B91	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19C7	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BCA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BE1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE25C1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE272B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B23	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE25A7	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE25B1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27CD	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE29C5	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19BD	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19C2	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BA7	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE23A1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE199A	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17C7	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2997	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE25B3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2991	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17C3	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BA6	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27CB	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B6C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2755	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B90	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE25DC	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BD2	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE299F	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BB1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE29AA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27BC	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2766	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE27BD	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C06	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B8B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE271E	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B92	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C22	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE29C1	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1B85	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2753	1/13/2023	Chinook

Cougar Dam	PH	3DD.003BEE25CB	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1794	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D76	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2D6C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17AD	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE17A2	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE179E	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BAA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2BC0	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1C1D	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B24	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1986	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE23FA	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B55	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE271C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE19BD	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE275B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1995	1/13/2023	Chinook
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Cougar Dam	PH	3DD.003BEE1BC7	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE29D4	1/13/2023	Chinook
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Cougar Dam	PH	3DD.003BEE2D7C	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE277A	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B8A	1/13/2023	Chinook
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Cougar Dam	PH	3DD.003BEE179B	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE259A	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE278E	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BF0	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2758	1/13/2023	Chinook
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Cougar Dam	PH	3DD.003BEE1972	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE1BE2	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2590	1/13/2023	Chinook
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Cougar Dam	PH	3DD.003BEE2730	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B62	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE2B36	1/13/2023	Chinook
Cougar Dam	PH	3DD.003BEE274C	1/13/2023	Chinook
Cougar Dam	RO	3DD.003BEE2C16	1/22/2023	Chinook
Cougar Dam	RO	3DD.003BEE0966	1/20/2023	Chinook
Cougar Dam	RO	3DD.003BEE2345	1/21/2023	Chinook
Cougar Dam	PH	3DD.003BEE23A2	3/14/2023	Chinook
Cougar Dam	RO	3DD.003BEE16B9	3/17/2023	Chinook
Cougar Dam	RO	3DD.0077CF7449	3/20/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD2275C	3/22/2023	Chinook

List of EAS PIT Tagged Fish for Reporting Period

Site	Trap	PIT Tag #	Date	Species
Cougar Dam Head of Reservoir	5 ft	3DD.003BD395F8	3/16/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD395DA	3/16/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD395DE	3/17/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD39638	3/18/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD395F4	3/18/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD3963C	3/18/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD395F0	3/18/2023	Chinook

Cougar Dam Head of Reservoir	5 ft	3DD.003BD395E7	3/18/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD39620	3/20/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD2275C	3/21/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD396C7	3/29/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	3DD.003BD2278A	3/30/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD2272E	3/18/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD22718	3/18/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD2273C	3/18/2023	O. mykiss
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD226F3	3/19/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD22743	3/19/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD226FB	3/19/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD22748	3/20/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD22726	3/20/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD2270C	3/20/2023	Chinook
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD22732	3/20/2023	O. mykiss
Foster Dam Head of Reservoir- South Santiam River	5 ft	3DD.003BD227A2	3/29/2023	O. mykiss
Hills Creek Dam	RO	3DD.003BD227C9	3/24/2023	Chinook

List of EAS VIE Marked Fish for Reporting Period

Site	Trap	VIE Mark	Date	Species
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/20/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/21/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/21/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/28/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/29/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/30/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/30/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/30/2023	Chinook
Cougar Dam Head of Reservoir	5 ft	VIE RDR	3/30/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/22/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/22/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/22/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/22/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook

Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/23/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/24/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/25/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/25/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/25/2023	Chinook
Hills Creek Dam	PH	VIE HR	3/25/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/22/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/22/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/24/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/24/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/24/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/24/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/24/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/24/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/25/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/25/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/25/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/25/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/25/2023	Chinook
Hills Creek Dam	RO	VIE HR	3/25/2023	Chinook

*RDR and HR denote location and color (Right Dorsal Red, Head Red)