
Prepared by: Jazmin Horvet, Cameron Blair & Rachel Ellison, Environmental Assessment Services, LLC

Report Period: January 1st to January 15th, 2024

Re: **CRAMER FISH SCIENCES – WILLAMETTE VALLEY FISH PASSAGE MONITORING VIA ROTARY SCREW TRAPS**

Project Schedule

Table 1. Project Schedule

Site	Task	Start	End	Days
Breitenbush River RST	Operation	6/16/2023	11/30/2024	470
Big Cliff Dam RST	Operation	10/15/2023	12/31/2024	443
Detroit Head of Reservoir- North Santiam River RST	Operation	5/4/2023	11/30/2024	513
Green Peter Head of Reservoir- Middle Santiam River RST	Operation	5/4/2023	11/30/2024	575
Green Peter Tailrace- Middle Santiam River RST	Operation	12/1/2023	12/31/2024	396
Green Peter Tailrace- Middle Santiam River RST	Trapping Efficiency (1,003)	1/9/2024	1/9/2024	1
Foster Dam Head of Reservoir- South Santiam River RST	Operation	12/1/2023	12/31/2023	0
Fall Creek Head of Reservoir RST	Operation	1/1/2024	6/30/2024	181
Fall Creek Head of Reservoir RST	Trapping Efficiency (755 fish)	1/2/2024	1/2/2024	1
Fall Creek Dam Tailrace RST	Operation	10/1/2023	12/31/2024	457
Dexter Dam Tailrace RST	Operation	12/16/2023	12/31/2024	381
Dexter Dam Powerhouse	Trapping Efficiency (4,004 fish)	1/9/2024	1/9/2024	1
Cougar Dam RST	Operation	12/1/2023	12/31/2023	396
Cougar Dam- Regulating Outlet	Trapping Efficiency (505 fish)	1/11/2024	1/11/2024	1
Cougar Dam Head of Reservoir	Operation	12/1/2023	12/31/2023	0
Lookout Point Head of Reservoir	Trapping Efficiency (1,505 fish)	1/3/2023	1/3/2024	1
Lookout Dam Tailrace RSTs	Operation	8/01/2023	12/31/2023	517
Lookout Dam Tailrace Powerhouse	Trapping Efficiency (17,553 fish)	1/10/2024	1/10/2024	1
Hills Creek Dam RSTs	Operation	9/15/2023	12/31/2024	472
Hills Creek Dam Regulating Outlet Route	Trapping Efficiency (503 fish)	1/4/2024	1/4/2024	1
Hills Creek Head of Reservoir RST	Operation	5/9/2023	6/30/2023	52

Table 2. Sampling Dates for Reporting Period

Site	Sampling Period Start	Current Reporting Period Start	Current Reporting Period End	Days Sampled This Period	Total Days Sampled
Breitenbush River	02/01/2024	N/A	N/A	N/A	0
Big Cliff Dam	01/01/2024	1/1/2024	1/15/2024	14	14
Detroit Head of Reservoir	02/01/2024	N/A	N/A	N/A	0
Green Peter Head of Reservoir	02/01/2024	N/A	N/A	N/A	0
Green Peter Tailrace	01/01/2024	1/1/2024	1/15/2024	15	15
Foster Dam Head of Reservoir	02/01/2024	N/A	N/A	N/A	0
Fall Creek Head of Reservoir	01/01/2024	1/1/2024	1/15/2024	8	8
Fall Creek Dam Tailrace	01/01/2024	1/1/2024	1/15/2024	4	4
Cougar Dam PH	01/01/2024	1/1/2024	1/15/2024	15	15
Cougar Dam RO	01/01/2024	1/1/2024	1/15/2024	15	15
Cougar Dam Head of Reservoir	02/01/2024	N/A	N/A	N/A	0
Dexter Dam Tailrace	01/01/2024	1/1/2024	1/15/2024	15	15
Lookout Point Dam PH	01/01/2024	1/1/2024	1/15/2024	15	15
Lookout Point Dam Spill	01/01/2024	1/1/2024	1/15/2024	15	15
Lookout Point Head of Reservoir	01/01/2024	1/1/2024	1/15/2024	13	13
Hills Creek Dam PH	01/01/2024	1/1/2024	1/15/2024	15	15
Hills Creek Dam RO	01/01/2024	1/1/2024	1/15/2024	15	15
Hills Creek Head of Reservoir RST	02/01/2024	N/A	N/A	N/A	0

Table 3. Willamette Valley Rotary Screw Trap Monitoring Catch Summary

Site	Species	Catch (Reporting Period)	Recaptures (Reporting Period)	Total Catch
Breitenbush River RST	CHS	N/A	N/A	N/A
Breitenbush River RST	STW	N/A	N/A	N/A
Big Cliff Dam Tailrace	CHS	17	0	17
Big Cliff Dam Tailrace	STW	1	0	1
Detroit Head of Reservoir- North Santiam River RST	CHS	N/A	N/A	N/A
Detroit Head of Reservoir- North Santiam River RST	STW	N/A	N/A	N/A
Green Peter Head of Reservoir- Middle Santiam River RST	CHS	N/A	N/A	N/A
Green Peter Head of Reservoir- Middle Santiam River RST	STW	N/A	N/A	N/A
Green Peter Tailrace	CHS	2	9	2
Green Peter Tailrace	STW	0	0	0
Foster Dam Head of Reservoir	CHS	N/A	N/A	N/A
Foster Dam Head of Reservoir	STW	N/A	N/A	N/A
Cougar Dam	CHS	14	56	14
Cougar Dam Head of Reservoir	CHS	N/A	N/A	N/A
Fall Creek Head of Reservoir	CHS	0	137	0
Fall Creek Dam Tailrace	CHS	0	0	0
Dexter Dam Tailrace	CHS	2	6	2
Lookout Point Dam	CHS	0	3	0
Lookout Point Head of Reservoir	CHS	1	2	1
Hills Creek Dam	CHS	34	5	34
Hills Creek Head of Reservoir RST	CHS	N/A	N/A	0

Summary of Rotary Screw Trap Data

For this contract, traps were operated at the following 13 locations: Big Cliff Dam Tailrace, Detroit Head of Reservoir – North Santiam River, Breitenbush River, Green Peter Dam Tailrace – Middle Santiam River, Green Peter Head of Reservoir – Middle Santiam River, Fall Creek Dam Tailrace, Fall Creek Head of Reservoir, Cougar Dam Tailrace, Dexter Dam Tailrace, Lookout Dam Tailrace, Lookout Point Head of Reservoir, Hills Creek Dam Tailrace, and Hills Creek Head of Reservoir.

The RST in Big Cliff Dam Tailrace began sampling under contract W9127N19D0009 on October 16th, 2023. Sampling at Big Cliff Dam Tailrace prior to October 16th, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. Reports for sampling at this location, and other sites, can be found online at the USACE Portland District website under the Willamette Fish Passage Operations and Maintenance (W-FPOM) Documents page.

The Detroit Head of Reservoir – North Santiam RST and Green Peter Head of Reservoir – Middle Santiam RST were installed on April 19, 2023 and 26, 2023, respectively. The RSTs at Detroit Head of Reservoir – North Santiam and Green Peter Head of Reservoir – Middle Santiam rivers started sampling on May 4, 2023 once permits were received. These traps sampled until November 30, 2023. The Hills Creek Head of Reservoir RST on the upper Middle Fork Willamette River was installed and began sampling on May 9, 2023. Sampling concluded at the Hills Creek Head of Reservoir site on June 30, 2023 and was removed for the remainder of the year. The RST for the Breitenbush River was installed on June 16, 2023 and began sampling on the same day. This trap sampled until November 30, 2023. The RSTs in the Breitenbush River, Detroit Head of Reservoir, Green Peter Dam Head of Reservoir, Foster Dam Head of Reservoir, and Cougar Dam Head of Reservoir will resume sampling on February 1, 2024.

The RSTs in the Lookout Dam Tailrace began sampling under contract W9127N19D0009 on August 1, 2023. Sampling at Lookout Dam Tailrace prior to August 1st, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

The RSTs in the Hills Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 15, 2023. Sampling at Hills Creek Dam Tailrace prior to September 15, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

The RST in the Fall Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 30, 2023. Sampling at Fall Creek Dam Tailrace prior to September 30, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

The RSTs in the Green Peter Dam Tailrace and Cougar Dam Tailrace began sampling under contract W9127N19D0009 on December 1, 2023. Sampling prior to December 1, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

The RSTs at Dexter Dam Tailrace and Lookout Point Head of Reservoir began sampling under contract W9127N19D0009 on December 16, 2023. Sampling at these sites prior to December 16, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

Winter Steelhead may be present at the Big Cliff Dam, Breitenbush River, Detroit Head of Reservoir – North Santiam River, Green Peter Dam Tailrace, Green Peter Head of Reservoir, and Foster Dam Head of Reservoir sites. All natural origin juvenile *O. mykiss* captured at these sites will be treated and reported as Winter Steelhead.

RST sampling was conducted by EAS for the USACE in 2023 under contract W9127N19D0007 at the following locations: Big Cliff Dam Tailrace, Green Peter Dam Tailrace, Foster Head of Reservoir- South Santiam, Cougar Dam Tailrace, Cougar Head of Reservoir, Fall Creek Dam Tailrace, Fall Creek Head of Reservoir, Dexter Dam Tailrace, Lookout Dam Tailrace, Lookout Point Head of Reservoir, and Hills Creek Dam Tailrace. Results from 2023 sampling at these sites under contract W9127N19D0007 were reported separately (EAS 2024).

This report was written by Environmental Assessment Services, LLC (EAS) for Cramer Fish Sciences under contract W9127N19D0009. It contains season totals from data starting on January 1st, 2024 but incorporates operations from previous years sampled.

Sampling start dates are included in Table 2, and season total collection numbers are displayed in Table 3. The locations of the RSTs are depicted in Figures 1 through 15.



Imagery Source: 2022, ESRI.



FIGURE 1
Breitenbush River

● RST Locations



EAS ENVIRONMENTAL ASSESSMENT SERVICES
 Wholly Owned Subsidiary of Natives of Kodiak



Imagery Source: 2021, ESRI.



FIGURE 2
Big Cliff Dam Tailrace

● RST Locations

500 Feet





Imagery Source: 2022, ESRI.



FIGURE 3
 Detroit Head of Reservoir -
 North Santiam Above Detroit

● RST Locations

500 Feet





FIGURE 4
Green Peter Head of Reservoir -
Middle Santiam River

● RST Locations

500 Feet





FIGURE 5
 Green Peter Tailrace -
 Middle Santiam River

● RST Locations

500 Feet





Imagery Source: 2021, ESRI.



FIGURE 6
 Foster Dam Head of Reservoir -
 South Santiam River

● RST Locations

500 Feet



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Imagery Source: 2020, NAIP.



FIGURE 7
Cougar Dam Tailrace

● RST Locations

500 Feet



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FIGURE 8
Cougar Dam Head of Reservoir

● RST Locations

500 Feet





FIGURE 9
Fall Creek Dam Tailrace

● RST Locations

500 Feet





FIGURE 10
Fall Creek Head of Reservoir

● RST Locations

500 Feet





Imagery Source: 2021, ESRI.



FIGURE 11
Dexter Dam Tailrace

● RST Locations

500 Feet





Imagery Source: 2021, ESRI.



FIGURE 12
Lookout Dam Tailrace

● RST Locations

500 Feet





FIGURE 13
 Lookout Point Head of Reservoir -
 Middle Fork Willamette

● RST Locations

500 Feet





FIGURE 14
Hills Creek Dam Tailrace

● RST Locations

500 Feet





Imagery Source: 2019, ESRI.



FIGURE 15
 Hills Creek Head of Reservoir -
 Middle Fork Willamette Above Hills Creek

● RST Locations ————— 500 Feet



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 Wholly Owned Subsidiary of Natives of Kodiak

Breitenbush River

The Breitenbush River RST was installed on June 16th, 2023 and began sampling the same day. All natural origin *O. mykiss* captured at this site will be reported as Winter Steelhead.

The Breitenbush River trap was raised to the non-sampling position on December 1st, 2023 at the end of Winter sampling. It will resume sampling on February 1st, 2024. Table 4 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Breitenbush River site to-date and Figure 16 shows length frequency data to-date.

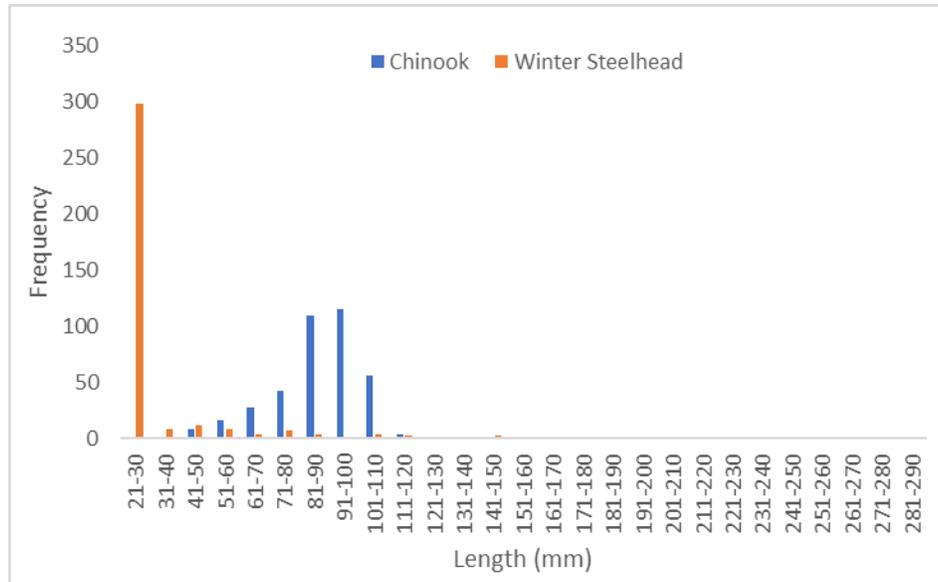


Figure 16. Length Frequency of Juvenile Chinook Sampled Season To-Date (Breitenbush River).

Table 4. Descriptive Statistics of Target Species Captured at the Breitenbush River in 2023.

To-Date (Since June 16, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Breitenbush River	5ft	CHS	Fry	10	44	57	48.8	N/A	N/A	N/A
		CHS	Parr	220	46	110	82.1	1.4	16.1	6.6
		CHS	Smolt	147	74	114	96.7	4.3	15.5	9.7
		STW	Fry	312	21	47	27.1	N/A	N/A	N/A
		STW	Parr	36	43	125	70.6	1.1	21.5	5.7
		STW	Smolt	8	118	199	148.6	15.2	92	36.8

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

Trapping Efficiency

Information regarding trapping efficiency trials at the Breitenbush River site is available in appendix C.

Run of River Trapping Efficiency

In 2023, 138 Spring Chinook and 2 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.

PIT Tags

1 Chinook PIT tagged at the Breitenbush River site on 6/21/2023 was recaptured at the Big Cliff Dam site on 1/1/2024. More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

Date Tagged	Species	Tag Location	VIE Color	# Tagged	# Recaptured to Date
6/16/2023-6/30/2023	Chinook	Head	Pink	23	0
7/1/2023-7/15/2023	Chinook	Head	Green	2	0
7/16/2023-7/31/2023	Chinook	Head	Green	2	0
7/16/2023-7/31/2023	<i>O. mykiss</i>	Head	Green	7	0
8/1/2023-8/15/2023	Chinook	Head	Yellow (2x)	1	0
8/1/2023-8/15/2023	<i>O. mykiss</i>	Head	Yellow (2x)	3	0
8/16/2023-8/31/2023	Chinook	Head	Yellow (2x)	2	0
8/16/2023-8/31/2023	<i>O. mykiss</i>	Head	Yellow (2x)	5	0
9/1/2023-9/15/2023	<i>O. mykiss</i>	Head	Red (2x)	2	0
9/16/2023-9/30-2023	Chinook	Head	Red (2x)	4	0
10/16/2023-10/31/2023	<i>O. mykiss</i>	Head	Blue (2x)	1	0
11/1/2023-11/15/2023	<i>O. mykiss</i>	Head	Orange (2x)	1	0

Non-Target Species

A summary of non-target fish capture is provided in Table 5.

Table 5. Summary of Non-target Species for 2023 (Breitenbush River).

Species	Season Total	Season Total Mortality
Kokanee	0	0
Chinook (clipped)	2	0
Cutthroat Trout	3	0
<i>O. mykiss</i> (clipped)	11	5
Sculpin	12	2
Dace	1	0
Totals	29	7

North Santiam – Big Cliff Dam

The RST in the Big Cliff Dam Tailrace began sampling under contract W9127N19D0009 on October 16th, 2023. Sampling at Big Cliff Dam Tailrace prior to October 16th, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

Target Species

This reporting period began on January 1st, 2023 and ended on January 15th, 2023. There were a total of 17 Chinook Salmon (CHS) and 1 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 17). The RST was raised to a non-sampling position on January 14th due to unsafe road and weather conditions. Sampling duration was 93.3% for the RST. Table 6 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 18 shows length frequency data to-date.

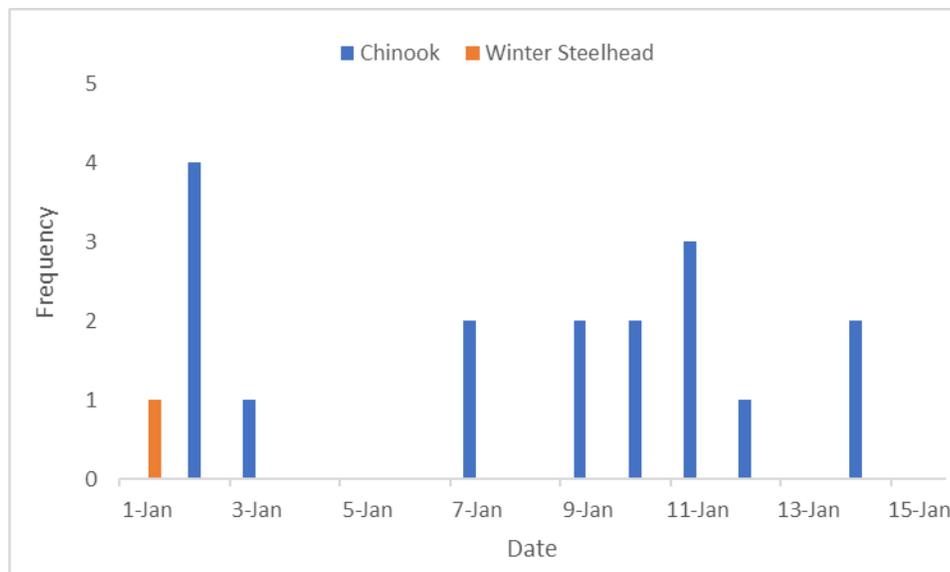
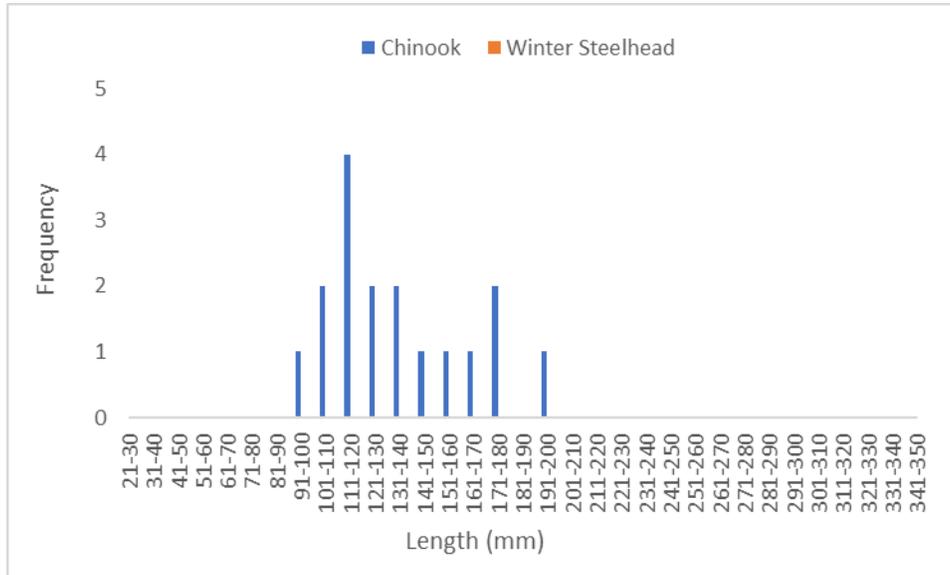


Figure 17. Chinook and Winter Steelhead Captured per day from 1/01/2024 to 1/15/2024 (Big Cliff).



*Figure does not include fish without heads

Figure 18. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled in 2024 (Big Cliff).

Table 6. Descriptive Statistics of Target Species Captured at Big Cliff Dam To-Date and for the reporting period.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Big Cliff	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	17	97	193	135.8	9.4	73.2	28.6
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Smolt	1	275	275	275.0	247.1	247.1	247.1

January 1-15, 2024										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Big Cliff	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	17	97	193	135.8	9.4	73.2	28.6
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Smolt	1	275	275	275.0	247.1	247.1	247.1

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

Trapping Efficiency

On 12/28/2023, 550 bismarck-brown dyed and adipose clipped juvenile hatchery Chinook were released below Big Cliff Dam. 56 fish were recaptured for an efficiency of 10.2%.

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	550	56	10.2% (56/550)

24-Hour Post Collection Holding Trial

10 Spring Chinook and 1 Winter Steelhead were captured during the current reporting period and held for ~24 hours. 2 Chinook (20.0%) and 1 Winter Steelhead (0.0%) died in holding. Due to the ice storm at the end of the reporting period, 1 Chinook was held for 48 hours. When crew were able to safely access the site, the Chinook was released alive.

Injuries and Copepod Infection

Partial descaling <20% was observed in 11 of the 17 Chinook captured (64.7%), 6 displayed descaling >20% (35.3%), 14 displayed body injury (82.4%), 2 had eye injury (11.8%), 15 had copepods present in the branchial cavity (88.2%) and 7 had copepods on fins (41.2%). 0 Chinook displayed gas bubble disease (0.0%). There were 5 mortalities (29.4%).

Partial descaling <20% was observed on 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%), 1 had copepods present in the branchial cavity (100.0%) and 1 had copepods on fins (100.0%). No Winter Steelhead displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). Injury data is further summarized in Table 7.

Table 7. 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	17	11	6	14	2	15	7	5
	Winter Steelhead	1	1	0	1	0	1	1	0

Collected DNA and Scale Samples

DNA was collected from 17 Spring Chinook and 1 Winter Steelhead for the reporting period. Scales were collected from 17 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

2 Spring Chinook and 0 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. 1 Chinook PIT tagged at the Breitenbush River site on 6/21/2023 was recaptured at the Big Cliff Dam site on 1/1/2024. More information regarding PIT tagged fish can be found in Appendix D.

Non-Target Species

101 non-targets were captured during this sampling period. A summary of non-target species catch and mortality numbers for 2024 are listed in Table 8. 3 of the clipped Chinook were PIT tagged fish from Bulk Mark releases above the dam, 3 of the clipped Chinook were only adipose clipped.

Table 8. Summary of Non-target Species (Big Cliff Dam).

Species	PWR Capture	PWR Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0
Brown Bullhead	0	0	0	0
Dace	0	0	0	0
Chinook (Adult)	0	0	0	0
Chinook (clipped)	6	0	6	0
Cutthroat Trout	0	0	0	0
Kokanee	77	24	77	24
Kokanee (clipped)	17	5	17	5
<i>O. mykiss</i> (clipped)	0	0	0	0
Pumpkinseed	0	0	0	0
Unknown	0	0	0	0
Mountain Whitefish	1	0	1	0
Sculpin	0	0	0	0
Totals	101	29	101	29

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 1,109.8 to 1,116.6 feet (mean: 1,111.1 feet) during the reporting period. Figure 19 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 100 to 116% during the reporting period (mean: 109.4%). Figure 20 shows total dissolved gas saturation.

Stream temperatures were recorded every 2 hours for the length of the reporting period at the RST (Figure 21). The temperature probe for the trap operated normally throughout this reporting period.

Flows through the Powerhouse and Spill during the reporting period averaged 2,321.7 and 232.0 cubic feet per second (cfs), respectively (Figure 22). Catch per unit of effort (CPUE) data are summarized in Table 9, Detroit and Big Cliff forebay elevations and TDG at Niagara are shown in Appendix B. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 9. Summary of salmonid CPUE, Big Cliff Dam.

Description	Chinook	Winter Steelhead
Catch	17	1
Effort (hrs)	341.4	341.4
CPUE (fish/hr)	0.050	0.003

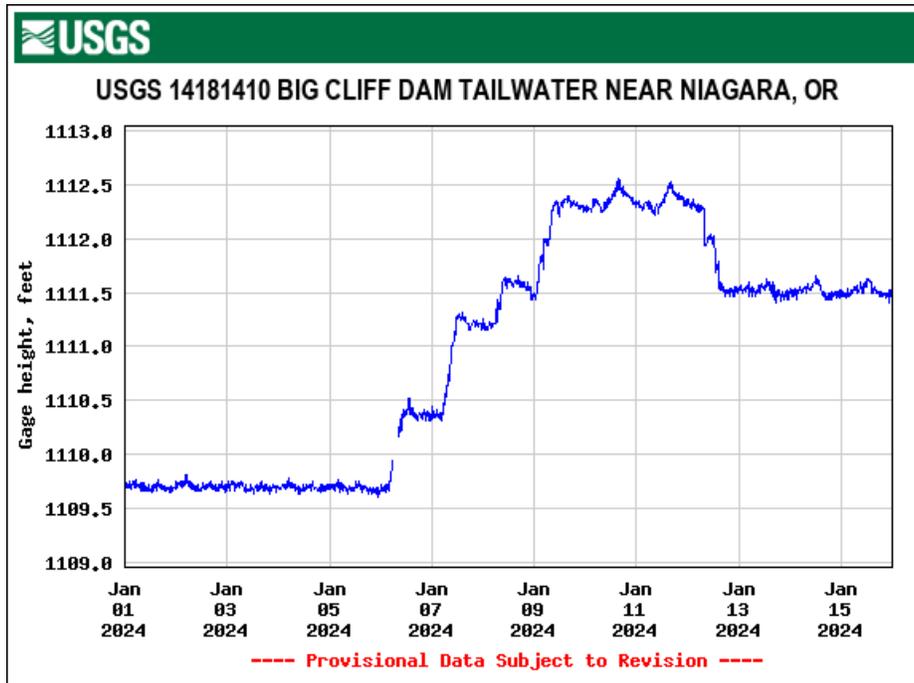


Figure 19. Gauge height (ft); below Big Cliff Dam.



USGS 14181500 NORTH SANTIAM RIVER AT NIAGARA, OR

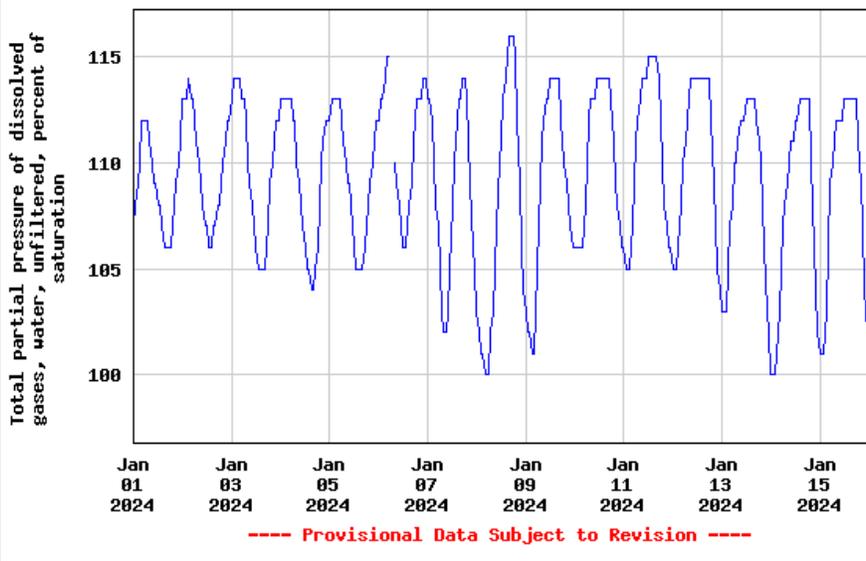


Figure 20. Total Dissolved Gas Saturation (%); below Big Cliff Dam.

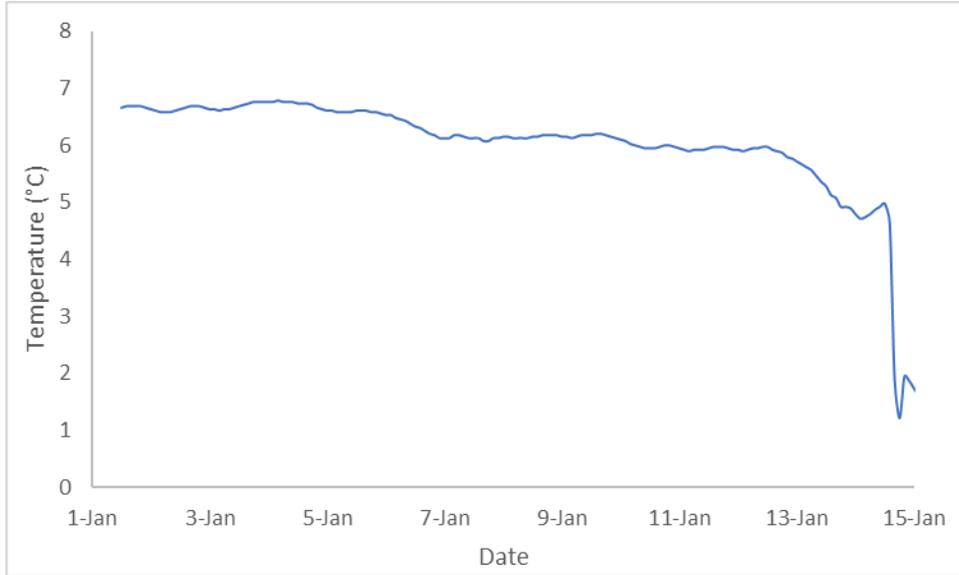


Figure 21. Temperature at RST (Big Cliff Dam).

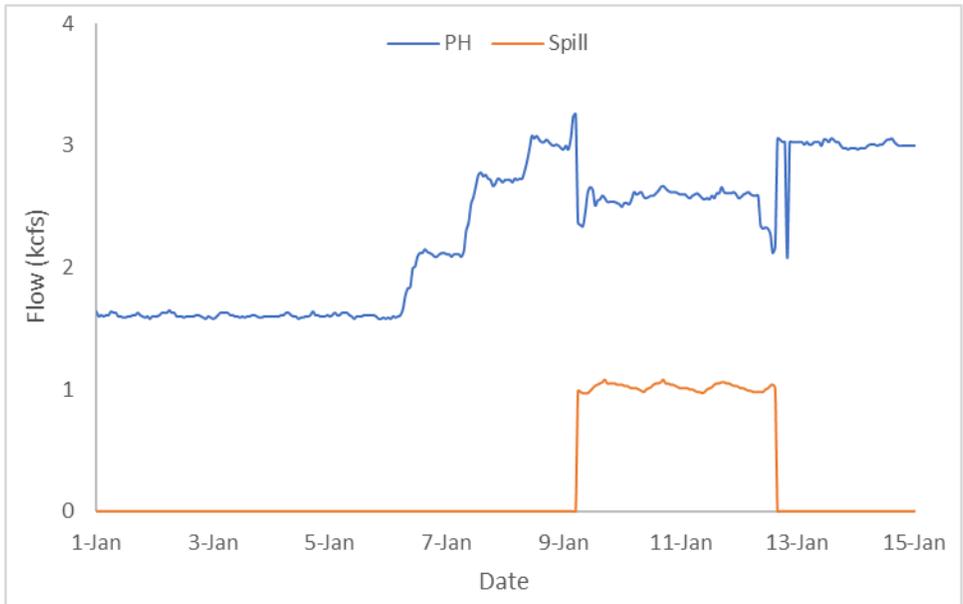


Figure 22. Hourly Flows PWR vs. Spill (Big Cliff Dam).

North Santiam River – Detroit Head of Reservoir

The Detroit Head of Reservoir- North Santiam River RST was installed on April 19th, 2023. This site started sampling on May 4, 2023.

Target Species

The Detroit Head of Reservoir trap was raised to the non-sampling position on December 1st, 2023 at the end of Winter sampling. It will resume sampling on February 1st, 2024. Table 10 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Detroit Head of Reservoir site to-date and Figure 23 shows length frequency data to-date.

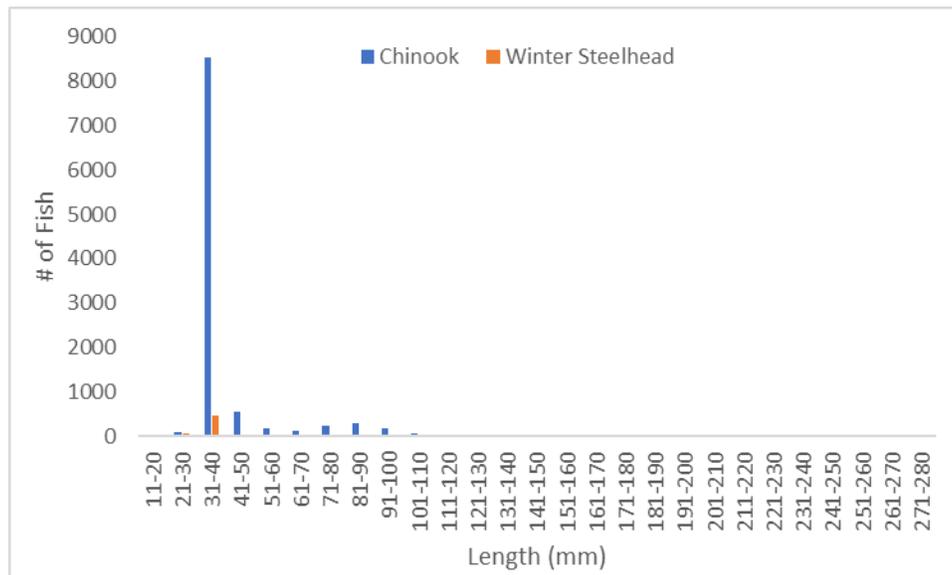


Figure 23. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled in 2023 (Detroit Head of Reservoir).

Table 10. Descriptive Statistics of Target Species Captured at Detroit Head of Reservoir Season in 2023.

To-Date (Since May 04, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Detroit HOR	5ft	CHS	Fry	9119	28	60	35.5	N/A	N/A	N/A
		CHS	Parr	906	41	110	72.5	1.0	12.8	4.5
		CHS	Smolt	227	61	117	93.3	2.4	18.2	9.0
		STW	Fry	550	17	54	34.4	N/A	N/A	N/A
		STW	Parr	40	45	112	65.7	1.0	15.4	3.9
		STW	Smolt	4	169	408	248.8	53.4	95.6	71.8

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

Trapping Efficiency

Information regarding trapping efficiency trials at the Detroit Head of Reservoir site to-date is available in appendix C.

Run of River Trapping Efficiency

In 2023, 300 Spring Chinook and 6 Winter Steelhead have been caudal clipped and released upstream for the purpose of conducting run of river trapping efficiency trials.

PIT Tags

More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

Visible Implant Elastomer (VIE) trials commenced at the Detroit Head of Reservoir – North Santiam River site on 5/5/2023. Since then, 5,434 Chinook and 334 Winter Steelhead have been VIE marked with fluorescent elastomer. No fish with VIE marks have been detected at downstream RST sites to date.

Date Tagged	Species	Tag Location	VIE Color	# Tagged	# Recaptured to Date
5/01/2023-5/15/2023	Chinook	Right Dorsal	Orange	889	0
5/01/2023-5/15/2023	<i>O. mykiss</i>	Right Dorsal	Orange	60	0
5/16/2023- 5/31/2023	Chinook	Right Dorsal	Orange	2,700	0
5/16/2023- 5/31/2023	<i>O. mykiss</i>	Right Dorsal	Orange	237	0
6/1/2023-6/15/2023	Chinook	Right Dorsal	Pink	1048	0
6/1/2023-6/15/2023	<i>O. mykiss</i>	Right Dorsal	Pink	21	0
6/16/2023-6/30/2023	Chinook	Right Dorsal	Pink	539	0
7/1/2023-7/15/2023	Chinook	Right Dorsal	Green	110	0
7/16/2023-7/31/2023	Chinook	Right Dorsal	Green	74	0
7/16/2023-7/31/2023	<i>O. mykiss</i>	Right Dorsal	Green	1	0
8/1/2023-8/15/2023	Chinook	Right Dorsal	Yellow (2x)	25	0
8/1/2023-8/15/2023	<i>O. mykiss</i>	Right Dorsal	Yellow (2x)	7	0
8/16/2023-8/31/2023	Chinook	Right Dorsal	Yellow (2x)	21	0
8/16/2023-8/31/2023	<i>O. mykiss</i>	Right Dorsal	Yellow (2x)	3	0
9/1/2023-9/15/2023	Chinook	Right Dorsal	Red (2x)	20	0
9/16/2023-9/30/2023	Chinook	Right Dorsal	Red (2x)	4	0
9/16/2023-9/30/2023	<i>O. mykiss</i>	Right Dorsal	Red (2x)	2	0
10/1/2023-10/15/2023	Chinook	Right Dorsal	Blue (2x)	1	0
10/16/2023-10/31/2023	<i>O. mykiss</i>	Right Dorsal	Blue (2x)	2	0
10/16/2023-10/31/2023	Chinook	Right Dorsal	Blue (2x)	2	0
11/1/2023-11/15/2023	<i>O. mykiss</i>	Right Dorsal	Orange (2x)	3	0
11/16/2023-11/30/2023	Chinook	Right Dorsal	Orange (2x)	3	0

Non-Target Species

To-date non-target data is summarized below in Table 11.

Table 11. Summary of Non-target Species for 2023 (Detroit Head of Reservoir).

Species	Season Total	Season Total Mortality
Kokanee	81	1
Chinook (clipped)	31	0
Cutthroat Trout	4	1
Sculpin	16	3
Mountain Whitefish	5	0
<i>O. mykiss</i> (clipped)	9	2
Dace	3	0
Northern Pikeminnow	1	0
Unknown	2	1
Totals	152	8

Middle Santiam River– Green Peter Head of Reservoir

The Green Peter Head of Reservoir- Middle Santiam River RST was installed on April 26th, 2023. This site started sampling on May 4th, 2023.

The Green Peter Head of Reservoir trap was raised to the non-sampling position on December 1st, 2023 at the end of Winter sampling. It will resume sampling on February 1st, 2024. Table 12 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Green Peter Head of Reservoir site to-date and figure 24 shows length frequency data to-date.

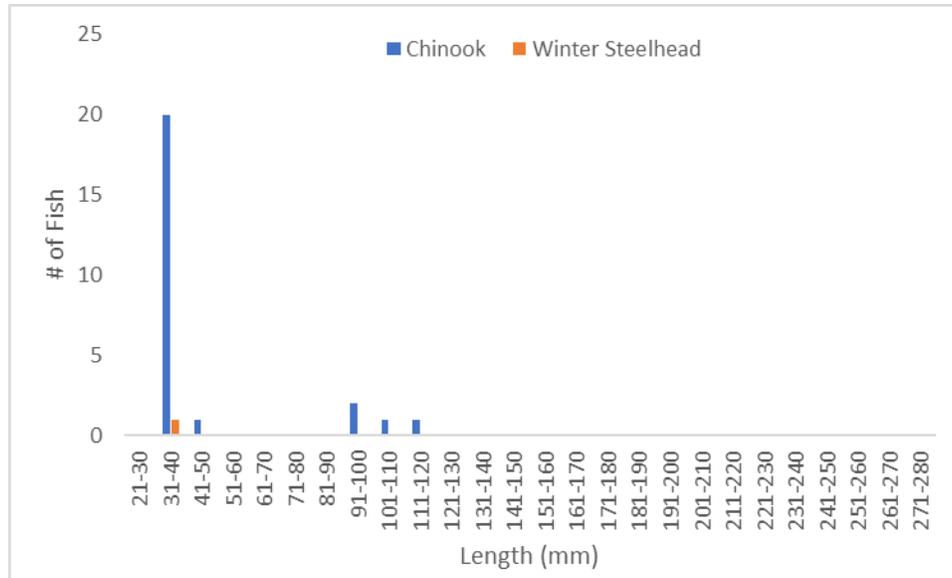


Figure 24. Length Frequency of Juvenile Chinook Sampled in 2023 (Green Peter Head of Reservoir – Middle Santiam River).

Table 12. Descriptive Statistics of Target Species Captured at Green Peter Head of Reservoir – Middle Santiam River for 2023.

To-date (since May 04, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Green Peter Head of Reservoir -Middle Santiam	5ft	CHS	Fry	21	33	45	36.4	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	4	98	114	105.5	11.3	18.0	13.9
		STW	Fry	1	36	36	36	N/A	N/A	N/A
		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

Information regarding trapping efficiency trials at the Detroit Head of Reservoir site to-date is available in appendix C.

PIT Tags

More information regarding PIT tagged fish can be found in Appendix D.

VIE Marking

Visible Implant Elastomer (VIE) trials commenced at the Green Peter Head of Reservoir – Middle Santiam River site on 5/5/2023. VIE tag color and locations are changed every month to distinctly mark groups of fish by capture date. Since then, 15 Chinook and 1 Winter Steelhead 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	Species	Tag Location	VIE Color	# Tagged	# Recaptured to Date
5/01/2023-5/15/2023	Chinook	Right Dorsal	Orange	14	0
5/01/2023-5/15/2023	<i>O. mykiss</i>	Right Dorsal	Orange	1	0
5/16/2023-5/31/2023	Chinook	Right Dorsal	Orange	1	0

Non-Target Species

To-date non-target data is summarized below in Table 13.

Table 13. Summary of Non-target Species in 2023 (Green Peter Head of Reservoir – Middle Santiam River).

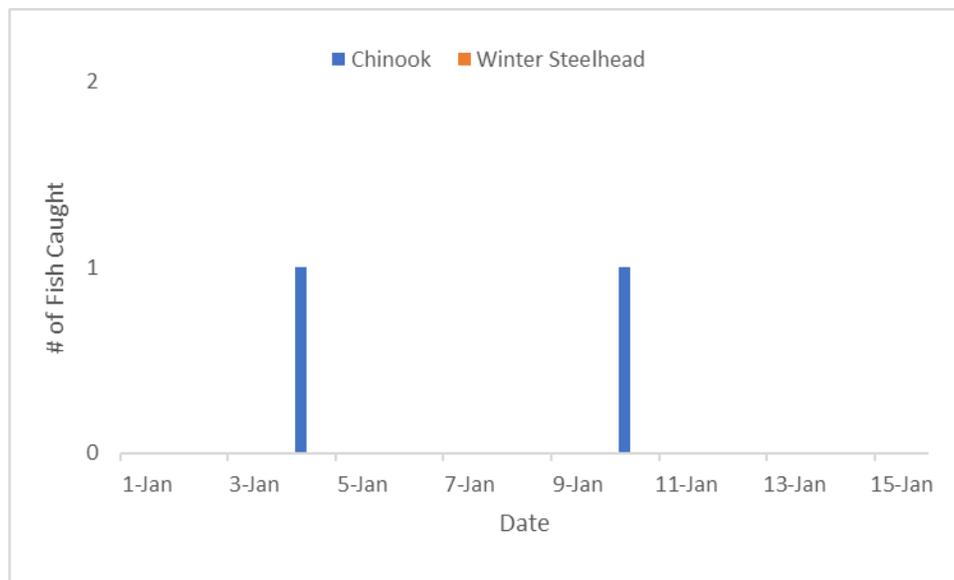
Species	Season Total	Season Total Mortality
Kokanee	5	0
Cutthroat Trout	0	0
Chinook (clipped)	0	0
Dace	21	0
Largescale Sucker	1	0
Sculpin	10	0
Totals	37	0

Middle Fork Santiam– Green Peter Tailrace

The RST in the Green Peter dam Tailrace began sampling under contract W9127N19D0009 on December 1st, 2023. Sampling at Green Peter Dam Tailrace prior to December 1st, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

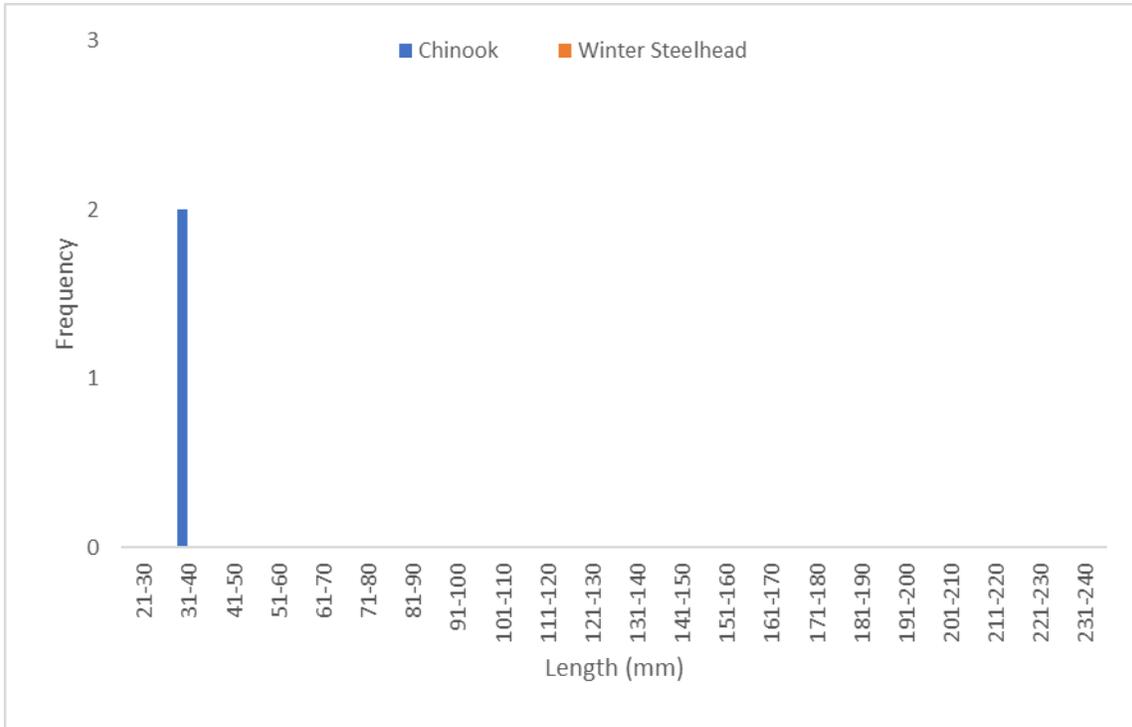
Target Species

This reporting period began on January 1st, 2024 and ended on January 15th, 2024. 2 Chinook Salmon (CHS) and 0 Winter Steelhead (STW) were captured during the 15-day sampling period. An ice storm came on earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked from January 13th through 17th. The trap was not damaged when crews were able to reach it on January 17th. Sampling duration was 100% for the 8ft RST. Table 14 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 25 shows the daily capture numbers for Chinook and Winter Steelhead and Figure 26 shows length frequency data to date.



**Recaptured fish for trapping efficiency trials not included.*

Figure 25. Chinook and Winter Steelhead Captured per day 1/01/2024 to 1/15/2024 (Green Peter Tailrace- Middle Santiam).



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

Figure 26. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled in 2024 (Green Peter Tailrace- Middle Santiam River).

Table 14. Descriptive Statistics of Target Species Captured at the Green Peter Tailrace-Middle Santiam River Season To-Date.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Green Peter Dam Tailrace	Spill	CHS	Fry	2	36	36	36	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		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
January 1-15, 2024										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Green Peter Dam Tailrace	Spill	CHS	Fry	2	36	36	36	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		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

On 1/9/2024, 1,003 juvenile hatchery Chinook (yearlings) were adipose fin clipped, upper caudal clipped, and released for fish trapping efficiency below Green Peter Dam. 9 Chinook were recaptured for a trap efficiency of 0.9%.

Green Peter Dam Tailrace	Release #	Recapture #	Capture Efficiency
8 ft Trap	1,003	9	0.9% (1/1003)

24-Hour Post Collection Holding Trial

2 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 2 Spring Chinook captured (0.0%) and 0 displayed descaling >20% (0.0%), 1 displayed body injury (50.0%), 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 Spring 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 15, and target species injuries for the duration of the season are provided in Appendix A.

Table 15. 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 Tailrace	CHS	2	0	0	1	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

DNA was collected from 0 Spring Chinook and 0 Winter Steelhead for the reporting period. Scales were collected from 0 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

1 non-targets were captured during this sampling period. A summary of non-target species catch and mortality numbers for 2024 are listed in Table 16.

Table 16. Summary of Non-target Species (Green Peter Tailrace- Middle Santiam River).

Species	Capture	Mortality	Season Total Capture	Season Total Mortality
Bass Unknown	0	0	0	0
Bluegill	1	1	1	1
Brown Bullhead	0	0	0	0
Chinook (clipped)	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	0	0	0	0
Dace	0	0	0	0
Kokanee	0	0	0	0
Kokanee (clipped)	0	0	0	0
Largemouth Bass	0	0	0	0
Largescale Sucker	0	0	0	0
Mountain Whitefish	0	0	0	0
Northern Pikeminnow	0	0	0	0
<i>O. mykiss</i> (adults)	0	0	0	0
<i>O. mykiss</i> (clipped)	0	0	0	0
Sculpin	0	0	0	0
Smallmouth Bass	0	0	0	0
Spotted Bass	0	0	0	0
Unknown	0	0	0	0
Walleye	0	0	0	0
Totals	1	1	1	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 698.7 feet to 702.3 feet (mean: 700.8 feet). Figure 27 shows instantaneous gage height.

Total dissolved gas saturation ranged from 102 to 108% (mean: 103.4%) during the reporting period. Figure 28 shows the total dissolved gas saturation.

Stream temperatures were recorded every 2 hours for the length of the report period for the RST (Figure 29). Temperature probes operated normally throughout this reporting period.

Flows through the Powerhouse and Spillway during the reporting period averaged 2,107.4 and 22.4 cubic feet per second (cfs) respectively (Figure 30). Catch per unit of effort (CPUE) data are summarized in Table 17. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 17. Summary of salmonid CPUE, Green Peter Tailrace- Middle Santiam River.

Description	Chinook	Winter Steelhead
Catch	2	0
Effort (hrs)	287.7	287.7
CPUE (fish/hr)	0.007	0

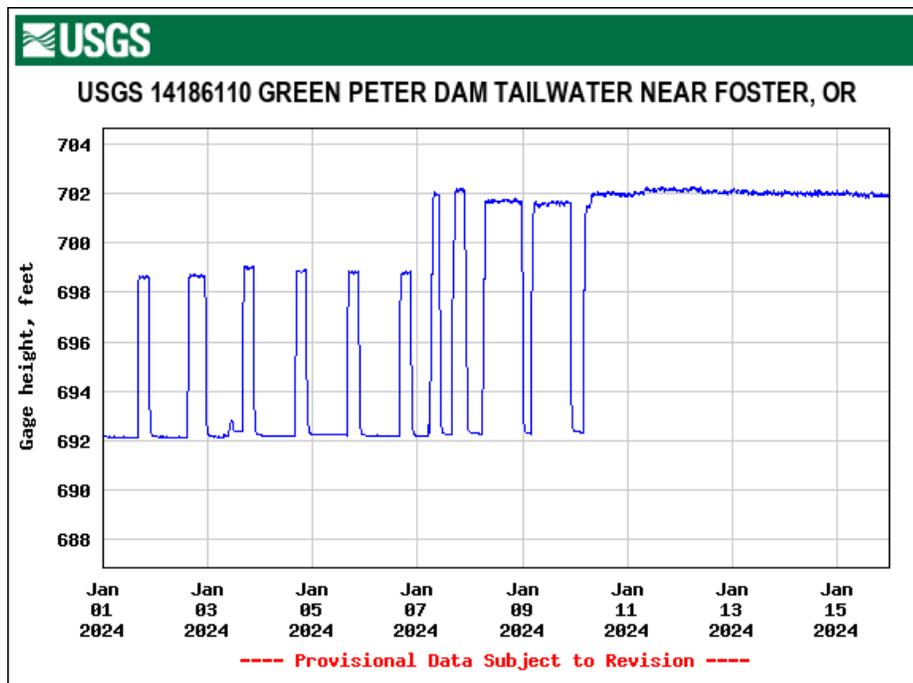


Figure 27. Gage Height (feet); below Green Peter Dam.

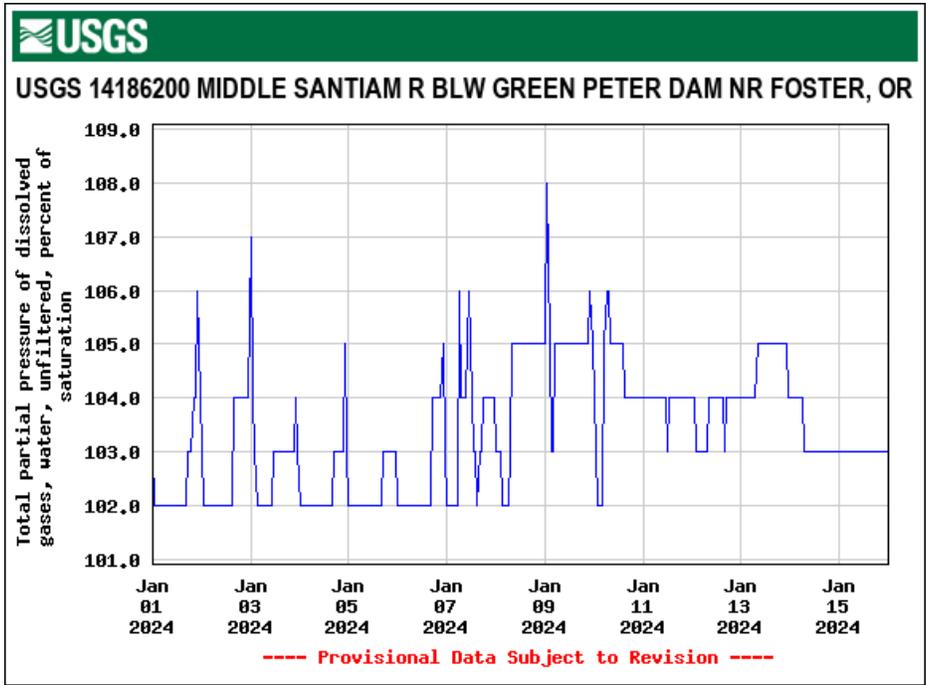


Figure 28. Total Dissolved Gas Saturation (%); below Green Peter Dam.

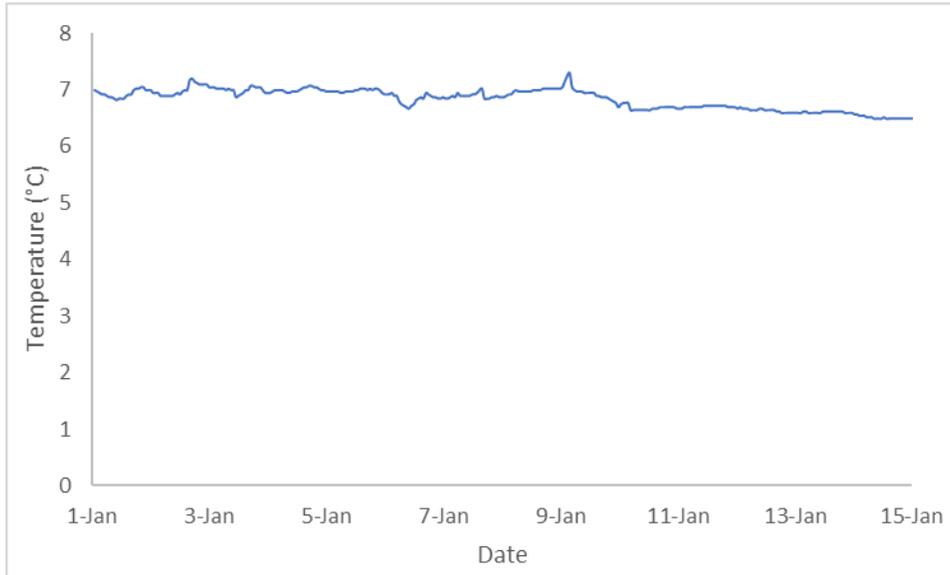


Figure 29. Temperature at RST (Green Peter Tailrace- Middle Santiam River).

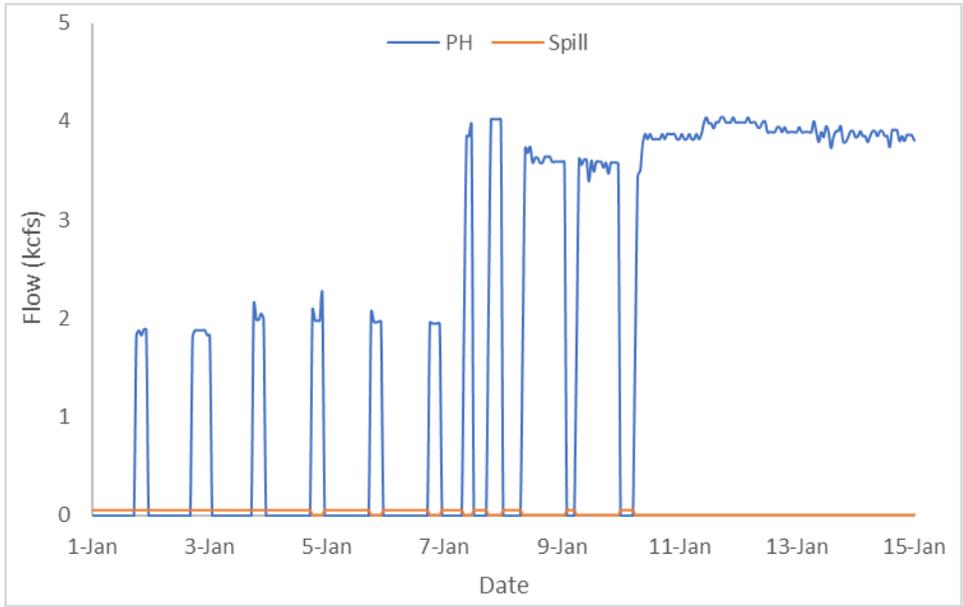


Figure 30. Hourly Flows PWR vs. Spill (Green Peter Dam).

South Fork Santiam– Foster Dam Head of Reservoir

The Foster Dam Head of Reservoir trap was raised to the non-sampling position on December 1st, 2023 at the end of Winter sampling. It will resume sampling on February 1st, 2023. Table 18 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Foster Dam Head of Reservoir site in 2023 and figure 31 shows length frequency data for catch in 2023.

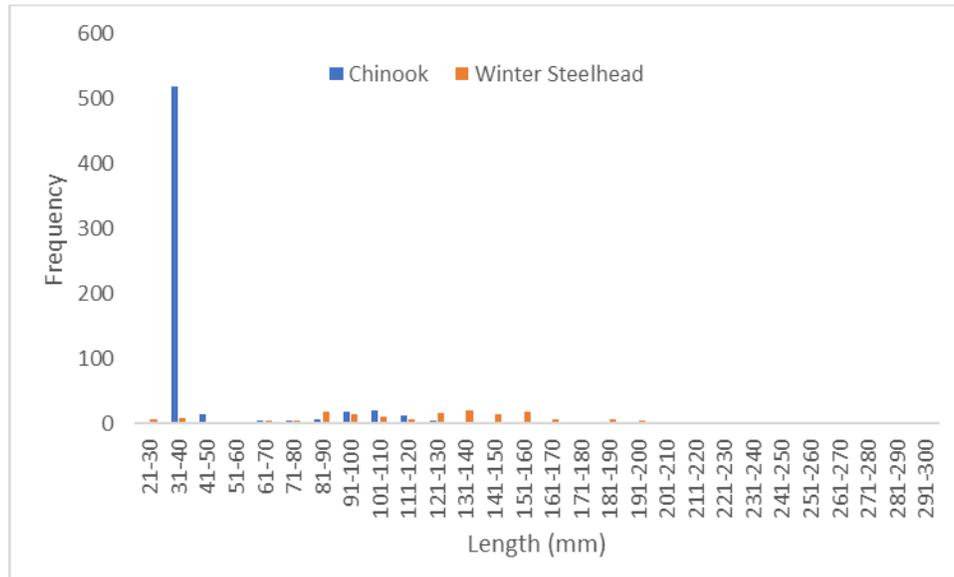


Figure 31. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled in 2023 (Foster Dam Head of Reservoir- Santiam River).

Table 18. Descriptive Statistics of Target Species Captured at Foster Dam Head of Reservoir-South Santiam Season for 2023.

To-Date (Since Jan. 1, 2023)										
Site	Trap	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Foster Dam Head of Reservoir	5 ft	CHS	Fry	535	30	50	36.1	N/A	N/A	N/A
		CHS	Parr	29	56	110	84.9	1.4	16.0	8.0
		CHS	Smolt	45	87	134	108.3	7.4	24.3	13.9
		STW	Fry	15	22	37	31.5	N/A	N/A	N/A
		STW	Parr	56	51	134	91.1	1.4	28.0	10.4
		STW	Smolt	91	87	199	145.1	6.8	91.0	33.0

Trapping Efficiency

More information regarding trapping efficiency trials can be located in appendix C.

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, 48 Spring Chinook and 70 Winter Steelhead have been marked and released upstream for the purpose of conducting run of river trapping efficiency trials.

PIT Tags

More information regarding PIT tagged fish can be found in Appendix D.

Non-Target Species

Non-target data is summarized below in Table 19.

Table 19. Summary of Non-target Species (Foster Dam Head of Reservoir).

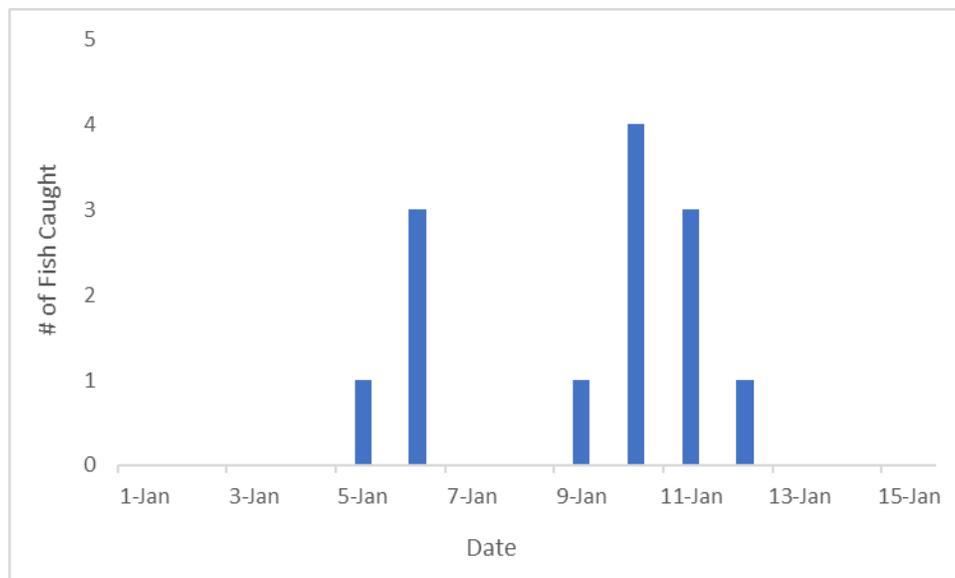
Species	Season Total	Season Total Mortality
Brook Lamprey	0	0
Cutthroat Trout	2	0
<i>O.mykiss</i> (clipped)	1	0
Dace	220	11
Largescale Sucker	33	20
Northern Pikeminnow	75	2
Sculpin	12	1
Unknown	4	3
Totals	347	37

South Fork McKenzie – Cougar Dam

The RSTs in the Cougar Dam began sampling under contract W9127N19D0009 on December 1st, 2023. Sampling at Cougar Dam prior to December 1st, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

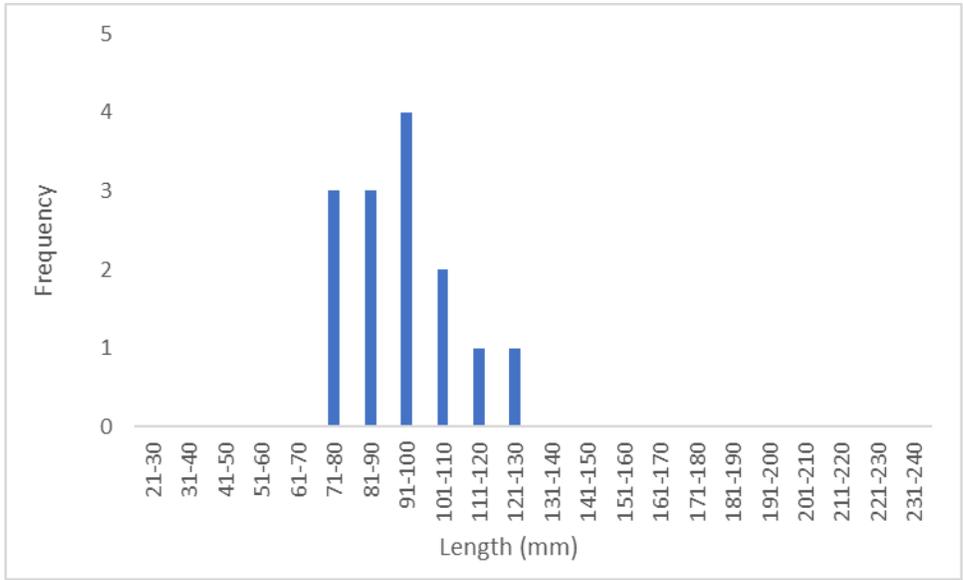
Target Species

This reporting period began on January 1st, 2024 and ended on January 15th, 2024. There were a total of 14 Chinook Salmon (CHS) captured during the 15-day sampling period. An ice storm came on earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked from January 13th through 17th. The trap was not damaged when crews were able to reach it on the 17th. High debris due to multiple trees falling on the regulating outlet chute resulted in some hatchery Chinook TE fish mortalities. Sampling duration was 100% for the RO RST and 100% for the Powerhouse RSTs. Table 20 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 32 shows the daily capture numbers for chinook and Figure 33 shows length frequency data to-date.



**Recaptured fish for trapping efficiency trials not included.*

Figure 32. Chinook Captured per day 1/01/2024 to 1/15/2024 (Cougar Dam).



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

Figure 33. Length Frequency of Juvenile Chinook Sampled in 2024 (Cougar Dam).

Table 20. Descriptive Statistics of Target Species Captured at Cougar Dam To-Date.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam	RO	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	7	77	97	85.6	5.1	10.2	8.0
		CHS	Smolt	5	98	122	108.6	9.8	19.4	13.4
	PH 1	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
	PH 2	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	2	84	93	88.5	6.4	7.6	7.0

January 1-15, 2024										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam	RO	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	7	77	97	85.6	5.1	10.2	8.0
		CHS	Smolt	5	98	122	108.6	9.8	19.4	13.4
	PH 1	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
	PH 2	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	2	84	93	88.5	6.4	7.6	7.0

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

Trapping Efficiency

On 1/11/2024, 505 juvenile hatchery Chinook (yearlings) were adipose clipped, left vent clipped and released in the RO channel for a trapping efficiency trial. 56 fish were recaptured in the RO RST for an efficiency of 11.1%.

Cougar Dam	Release #	Recapture #	Capture Efficiency
PH 1 Trap	N/A	N/A	N/A
PH 2 Trap	N/A	N/A	N/A
RO Trap	505	56	11.1% (56/505)

Run of River Trapping Efficiency

Run of river fish were captured, caudal clipped or PIT tagged 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.

Run of river trapping efficiency trials have been discontinued at this site until daily catch rates increase.

Cougar Dam	Release (Current Reporting Period) #	Recapture (Current Reporting Period) #
RO	0	0
PH 1	0	0
PH 2	0	0

24-Hour Post Collection Holding Trial

A total of 10 Chinook captured in the RSTs, 1 fish from the PH 2 RST and 9 from the RO RST, were held for ~24 hours in holding tanks and then evaluated for survival rates. In total, 0 of the 10 fish (0.0%) held during this period died during holding. 0 of the 1 PWR RST captured fish (0.0%) died during holding and 0 of the 9 RO RST captured fish (0.0%) died during holding.

Injuries and Copepod Infection

Partial descaling <20% was observed on 10 of the 12 Chinook collected at the RO RST (83.3%). Descaling >20% was observed on 1 of the Chinook (8.3%). There were 9 fish with bodily injuries (75.0%) and 2 had eye injuries (16.7%). 2 fish had copepods present in the branchial cavity (16.7%) and 4 had copepods present on fins (33.3%). 4 fish displayed Gas Bubble Disease (3 level 1, 1 level 2) (33.3%). There were 3 Chinook mortalities collected in the RO RST (25.0%).

Partial descaling <20% was observed on 1 of the 2 Chinook collected at the PWR RST (50.0%). Descaling >20% was observed on 0 of the Chinook (0.0%). There was 1 fish with bodily injuries (50.0%) and 0 had eye injuries (0.0%). 2 fish had copepods present in the branchial cavity (100.0%) and 1 had copepods present on fins (50.0%). 1 fish displayed Gas Bubble Disease (1 at level 2) (50.0%). There were 1 Chinook mortalities collected in the PWR RST (50.0%).

Data is summarized below in Table 21. A summary of injuries observed during the reporting period, and for the duration of the season are provided in Appendix A.

Table 21. 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	12	10	1	9	2	2	4	3
	PWR	0	0	0	0	0	0	0	0

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

Collected DNA and Scale Samples

DNA was collected from 14 Spring Chinook for the reporting period. Scales were collected from 14 Spring Chinook. The other targets captured did not meet length criteria for DNA sampling or were too damaged to remove scales.

PIT Tags

0 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

5 VIE marked Spring Chinook have been detected at this site to date. Recaptures are displayed below.

Site	Trap	Mark	Month Marked	Date Re-Captured	Species
Cougar Dam	RO	VIE RDO	May 2023	11/7/2023	Chinook
Cougar Dam	RO	VIE RDO	May 2023	11/5/2023	Chinook
Cougar Dam	RO	VIE RDO	May 2023	11/5/2023	Chinook
Cougar Dam	RO	VIE RDO	May 2023	11/6/2023	Chinook
Cougar Dam	RO	VIE RDO	May 2023	11/11/2023	Chinook

Non-Target Species

13 non-target fish were captured during the reporting period; the data is summarized below in Table 22. Of the 7 clipped Chinook captured, 5 were PIT tagged fish from Bulk Mark releases above the dam, and 1 was a fish released above the dam for trapping efficiency trials at the Cougar Head of Reservoir RST site.

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

Species	RO Capture	RO Mortality	PWR Capture	PWR Mortality	Season Total Capture	Season Total Mortality
Bluegill	0	0	0	0	0	0
Brook Lamprey	0	0	0	0	0	0
Bull Trout	0	0	0	0	0	0
Chinook (clipped)	6	0	1	0	7	0
Chinook (Adult)	0	0	0	0	0	0
Cutthroat Trout	0	0	0	0	0	0
Dace	0	0	0	0	0	0
Largescale Sucker	0	0	0	0	0	0
Mountain Whitefish	0	0	6	0	6	0
Northern Pikeminnow	0	0	0	0	0	0
<i>O. mykiss</i>	0	0	0	0	0	0
Pacific Lamprey	0	0	0	0	0	0
Sculpin	0	0	0	0	0	0
Smallmouth Bass	0	0	0	0	0	0
Spotted Bass	0	0	0	0	0	0
Unknown Bass	0	0	0	0	0	0
Totals	6	0	7	0	13	0

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. 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 gage height ranged from 1,252.0 to 1,254.0 feet (mean: 1,253.1 feet). Figure 34 shows instantaneous discharge.

Total dissolved gas saturation ranged from 98 to 108% (mean: 101.9%). Figure 35 shows total dissolved gas saturation.

Stream temperatures were recorded using HOBO temperature loggers. The RO and PH temperature loggers recorded data every two hours and operated normally during this period (Figure 36 and Figure 37). Flow through the PWR and RO during the reporting period averaged 149.8 and 510.6 cubic feet per second (cfs) respectively (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 salmonid CPUE, Cougar Dam.

Description	RO (5ft)	PWR (8ft)
Catch	12	2
Effort (hrs)	291.2	555.2
CPUE (fish/hr)	0.041	0.004

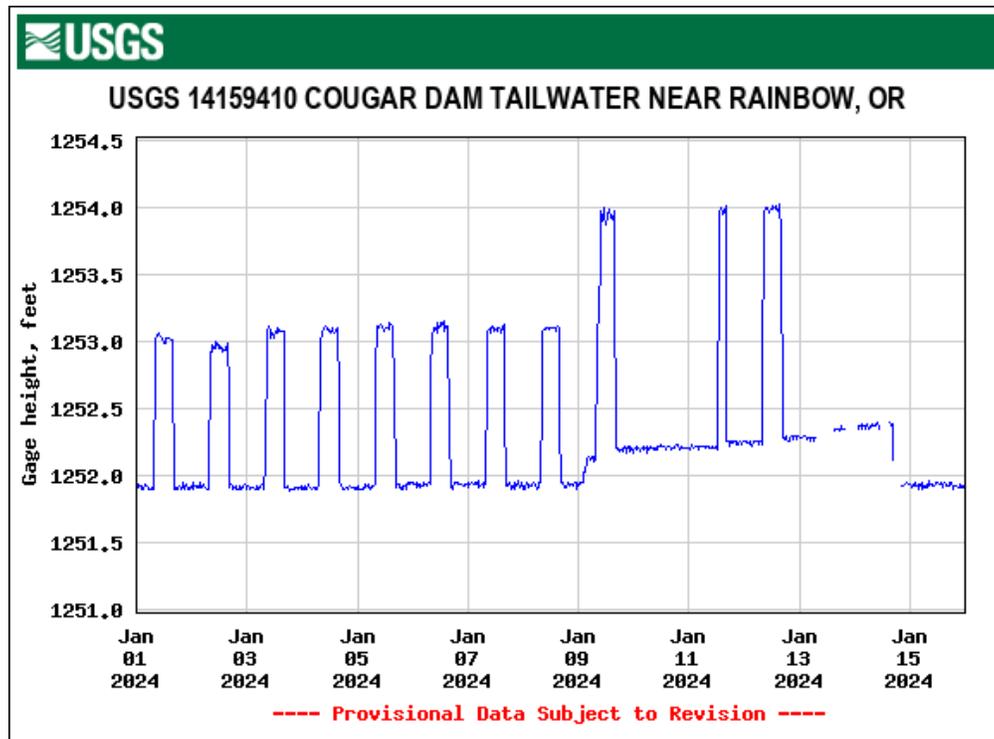


Figure 34. Gauge Height (feet); below Cougar Dam, South Fork McKenzie River.

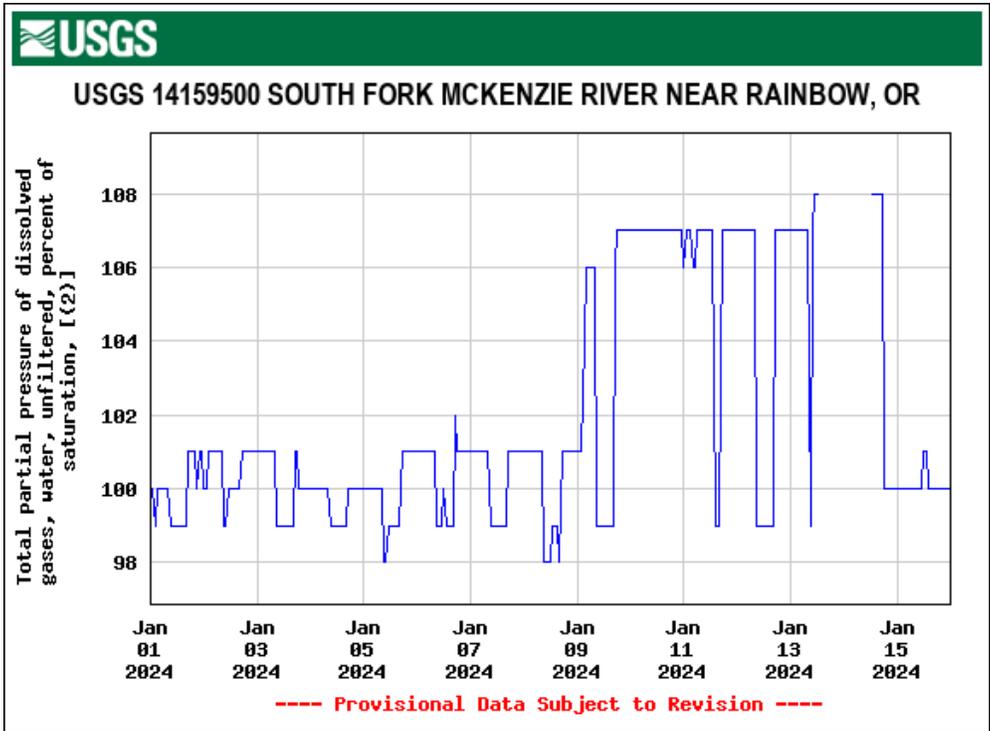


Figure 35. Total Dissolved Gas Saturation (%); below Cougar Dam, South Fork McKenzie River.

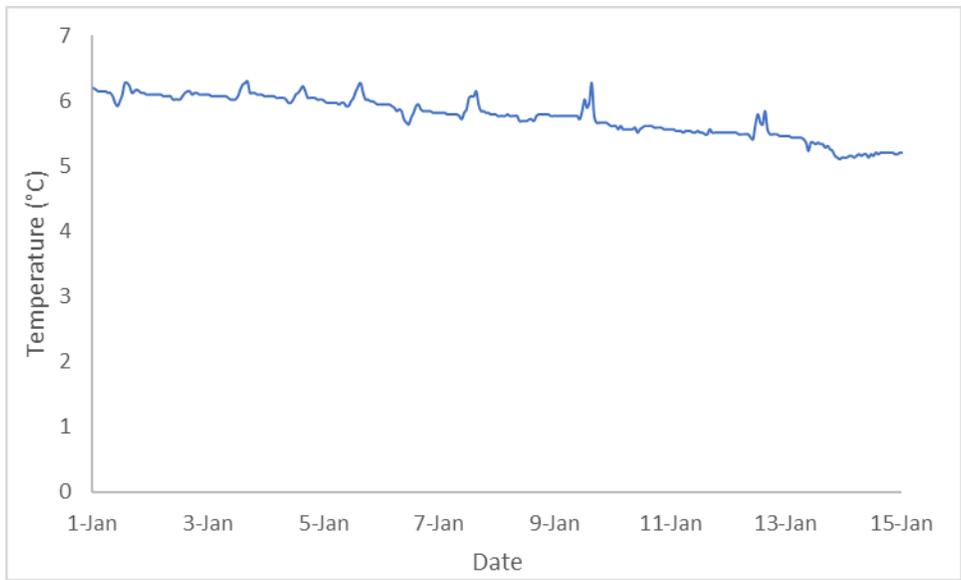


Figure 36. Temperature at RO RST (Cougar Dam).

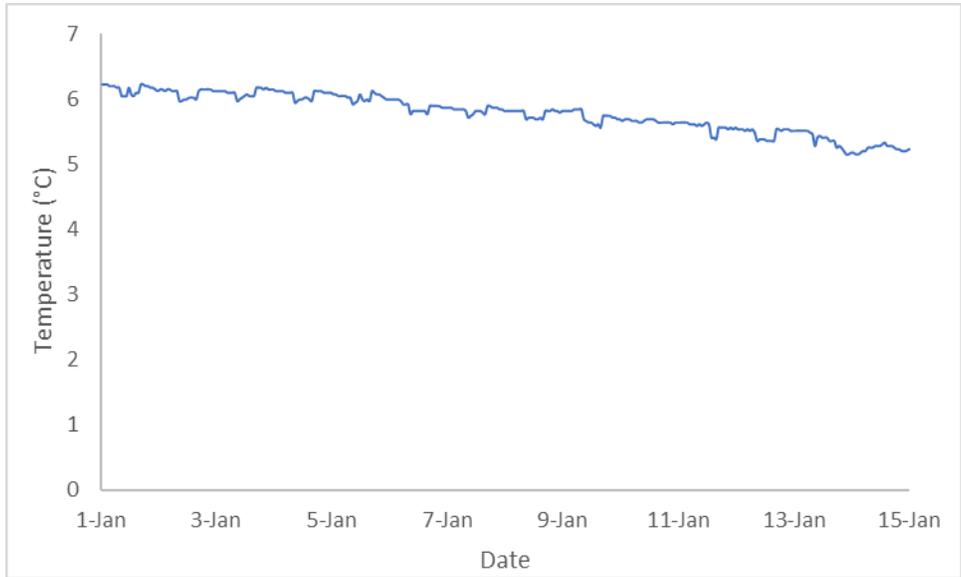


Figure 37. Temperature at PWR RST (Cougar Dam).

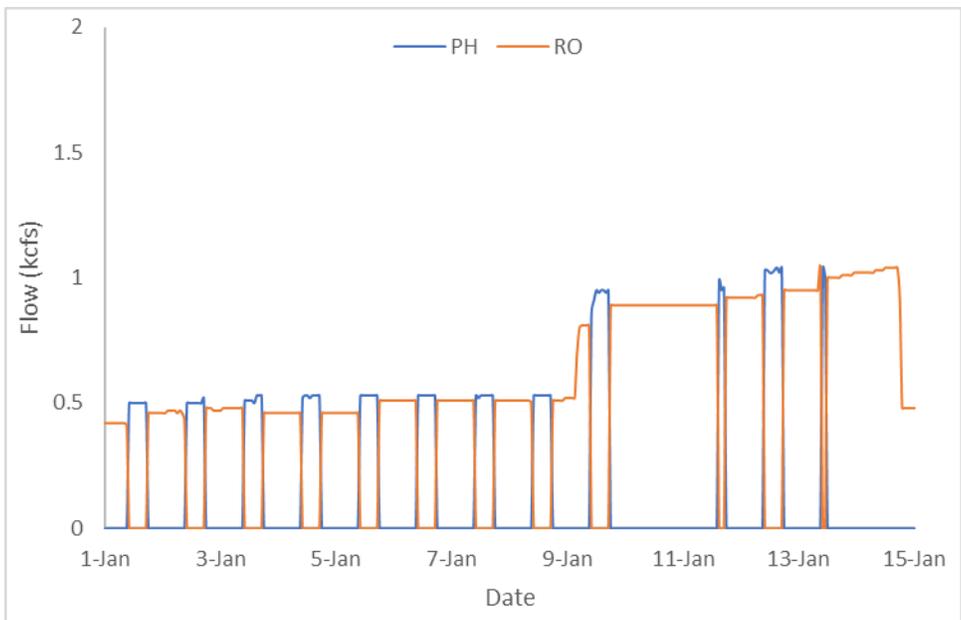


Figure 38. Hourly Flows PWR vs. RO (Cougar Dam).

South Fork of the McKenzie–Cougar Dam Head of Reservoir

The Cougar Dam Head of Reservoir trap was raised to the non-sampling position on December 1st, 2023 at the end of Winter sampling. It will resume sampling on February 1st, 2024. Table 24 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Cougar Dam Head of Reservoir site to-date and Figure 39 shows length frequency data to-date.

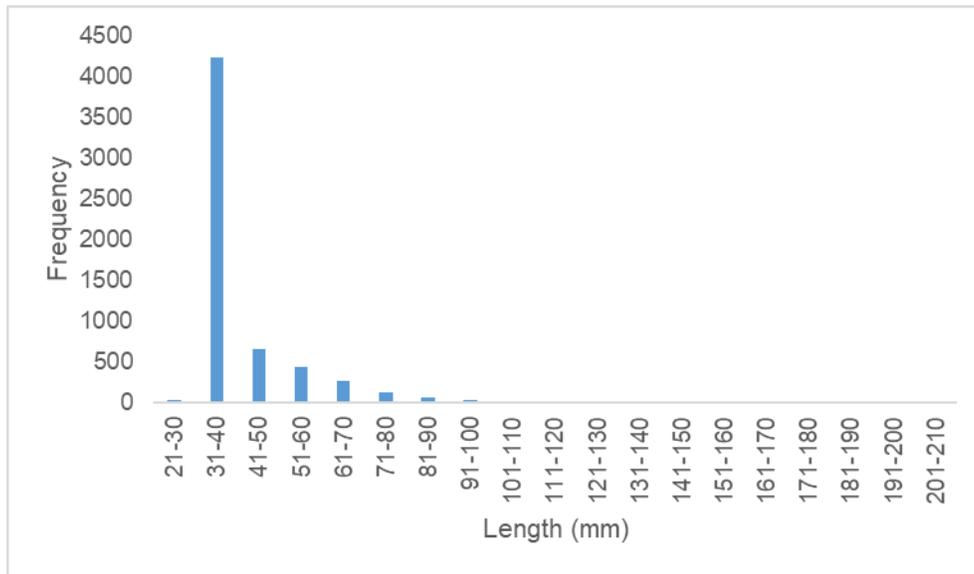


Figure 39. Length Frequency of Juvenile Chinook Sampled in 2023 (Cougar Dam Head of Reservoir).

Table 24. Descriptive Statistics of Target Species Captured at Cougar Dam Head of Reservoir, for 2023.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm) ¹			Weight (g) ¹		
					Min	Max	Mean	Min	Max	Mean
Cougar Dam Head of Reservoir	5 ft	CHS	Fry	4770	25	64	36.6	N/A	N/A	N/A
		CHS	Parr	996	40	106	59.9	1.0	13.7	2.8
		CHS	Smolt	87	51	100	78.1	1.7	12.3	5.8

¹Most fry are too small to collect accurate weights and thus some metrics are not available for them.

Trapping Efficiency

More information regarding trapping efficiency trials can be located in appendix C.

Run of River Trapping Efficiency

Run of river fish captured in the RST have been caudal clipped, PIT tagged or VIE tagged, 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. In 2023, 75 Spring Chinook have been caudal clipped and released upstream for the purpose of conducting run of river trapping efficiency trials.

PIT Tags

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, 3,879 Chinook have been VIE marked with fluorescent elastomer. Fish still showing an egg sac are not VIE marked.

To date, 5 Chinook smolt with a right dorsal orange VIE mark were captured below Cougar Dam in the Regulating Outlet RST. These fish were tagged in May of 2023 by EAS staff.

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
4/1/2023-4/15/2023	Right Dorsal	Blue	85	0
4/16/2023-4/30/2023	Right Dorsal	Blue	288	0
5/1/2023-5/15/2023	Right Dorsal	Orange	496	0
5/16/2023-5/31/2023	Right Dorsal	Orange	1397	5
6/1/2023-6/15/2023	Right Dorsal	Pink	487	0
6/16/2023-6/30/2023	Right Dorsal	Pink	234	0
7/1/2023-7/15/2023	Right Dorsal	Green	207	0
7/16/2023-7/31/2023	Right Dorsal	Green	356	0
8/1/2023-8/15/2023	Right Dorsal	Yellow (2x)	170	0
8/16/2023-8/31/2023	Right Dorsal	Yellow (2x)	63	0
9/1/2023-9/15/2023	Right Dorsal	Red (2x)	31	0
9/16/2023-9/30/2023	Right Dorsal	Red (2x)	11	0
10/1/2023-10/15/2023	Right Dorsal	Blue (2x)	7	0
10/16/2023-10/31/2023	Right Dorsal	Blue (2x)	3	0

Non-Target Species

Non-target fish data is summarized below in Table 25.

Table 25. Summary of Non-target Species in 2023 (Cougar Dam Head of Reservoir).

Species	Season Total	Season Total Mortality
Bull Trout	14	0
Cutthroat Trout	7	0
Chinook (Adult)	1	0
Chinook (clipped)	11	0
Dace	4	0
Mountain Whitefish	4	1
Northern Pikeminnow	0	0
<i>O. mykiss</i>	531	3
Sculpin	18	1
Unknown	1	1
Totals	594	6

Middle Fork Willamette – Fall Creek Head of Reservoir

Target Species

This reporting period began on January 1st and ended on January 15th. There were a total of 0 Chinook Salmon (CHS) captured during the 15-day sampling period. The RST was raised into the non-sampling position on January 9th due to dangerously high flows and significant woody debris coming through the system. Sampling duration was 60.0% for the 8ft RST. Table 26 provides life stage, length, and weight data for all Chinook salmon that have been caught at the site to-date and for the reporting period. Figure 40 shows the daily capture numbers for chinook and Figure 41 shows length frequency data to-date.



Figure 40. Chinook captured per day 1/15/2024 to 1/15/2024.

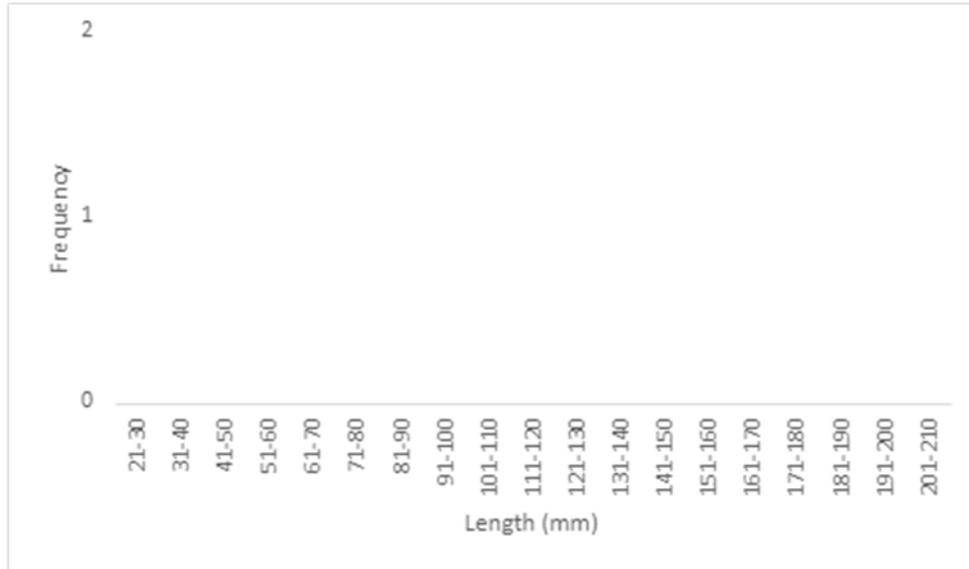


Figure 41. Length Frequency of Juvenile Chinook Sampled in 2024 (Fall Creek Head of Reservoir).

Table 26. Descriptive Statistics of Target Species Captured at Fall Creek Head of Reservoir 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	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
January 1, 2024-January 15, 2024										
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	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

Trapping Efficiency

On 1/2/24, 755 juvenile hatchery Chinook (yearlings) were released on the river right bank upstream of Dolley Varden bridge. Of the 755 Chinook released, 137 were recaptured for and efficiency of 18.1%.

Fall Creek Head of Reservoir	Release #	Recapture #	Capture Efficiency
8ft	755	137	18.1%

Collected DNA and Scale Samples

Scales were collected from 0 Spring Chinook and DNA was collected from 0 Spring Chinook this reporting period.

PIT Tags

A total of 0 Spring Chinook were PIT tagged during sampling in 2023. Refer to Appendix D for further information regarding PIT tags.

VIE Marking

Visual Implant Elastomer (VIE) trials commenced at Fall Creek Head of Reservoir site on 1/18/2023. A summary of VIE marked fish is shown in Table 27.

Fish still showing an egg sac are not VIE marked.

Table 27. Summary of VIE marked fish at the Fall Creek Head of Reservoir site in 2024.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
N/A	Left Dorsal	Green	0	0

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%). There were 0 mortalities this reporting period (0.0%). Injuries are displayed in Table 28. To date injury data can be found in Appendix A.

Table 28. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (Fall Creek Head of Reservoir).

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

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

Non-Target Species

16 non target fish were captured at Fall Creek Head of Reservoir this reporting period; the data is summarized below in Table 29.

Table 29. Summary of Non-target Species (Fall Creek Head of Reservoir).

Species	Capture	Mortality	Season Total	Season Total Mortality
Brook Lamprey	5	0	5	0
Brown Bullhead	0	0	0	0
Cutthroat Trout	5	0	5	0
Dace	0	0	0	0
Largescale Sucker	1	0	1	0
<i>O. mykiss</i>	5	0	5	0
<i>O. mykiss (clipped)</i>	0	0	0	0
Pacific Lamprey	0	0	0	0
Redside Shiner	0	0	0	0
Sculpin	0	0	0	0
Unknown Lamprey	0	0	0	0
Totals	16	0	16	0

Stream Statistics

Basic stream statistics at the Fall Creek site were calculated from data downloaded from the U.S. Geological Survey stream gage number 14150290. During the reporting period, daily maximum values for instantaneous gage height ranged from 3.8 feet to 8.3 feet (mean 5.3 feet). Figure 42 shows instantaneous gage height.

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

Catch per unit of effort (CPUE) data are summarized in Table 30. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 30. Summary of Chinook CPUE, Fall Creek Head of Reservoir.

Description	Chinook
Catch	0
Effort (hrs)	193.0
CPUE (fish/hr)	0

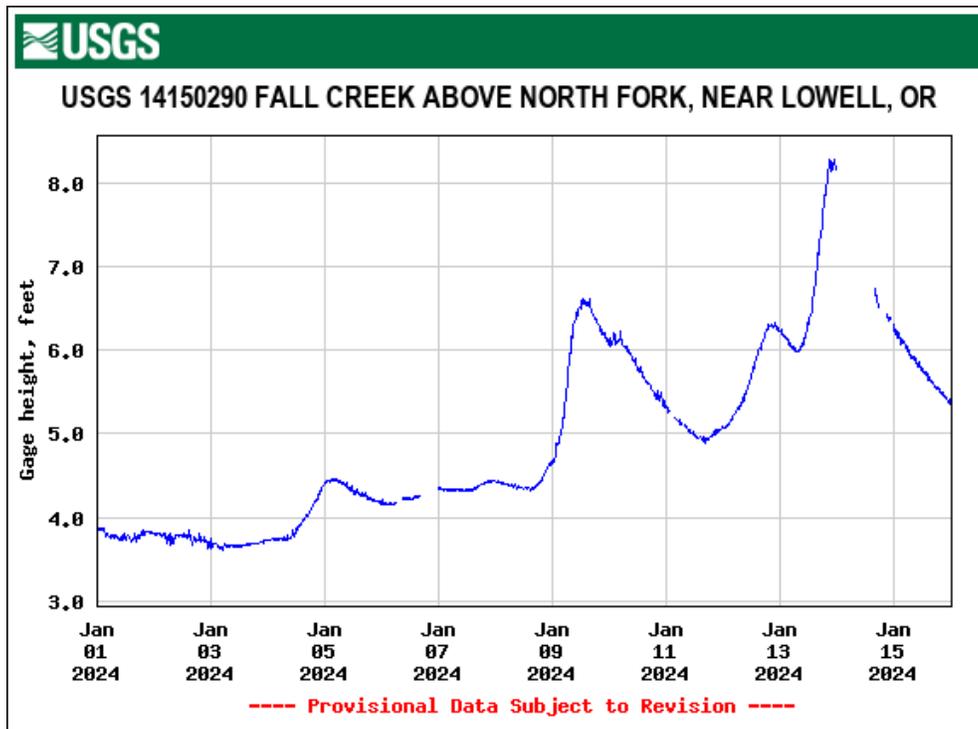


Figure 42. Gage Height (feet); Fall Creek Above North Fork, Near Lowell OR

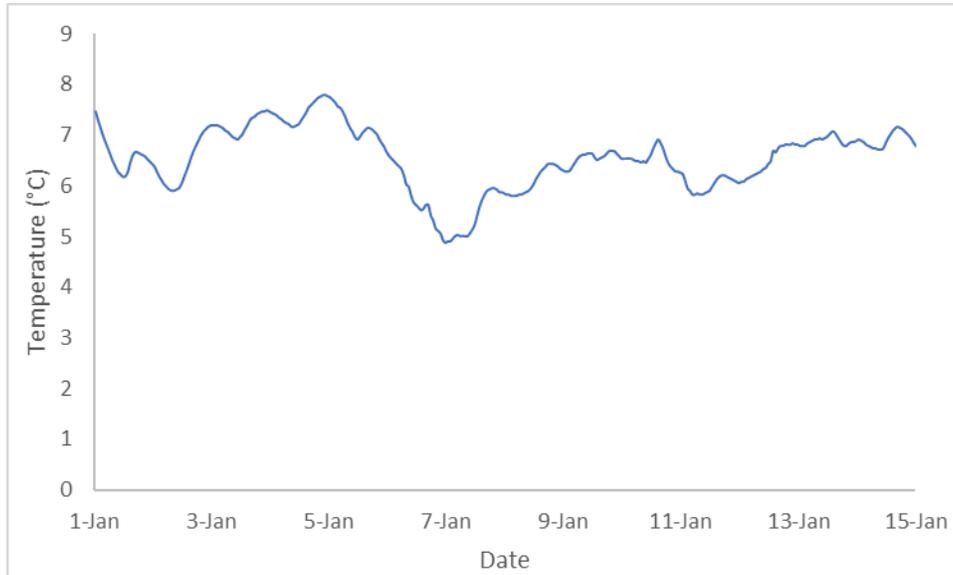


Figure 43. Temperature at RST (Fall Creek Head of Reservoir)

Fall Creek Dam Tailrace

The RST in the Fall Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 30th, 2023. Sampling at Fall Creek Dam Tailrace prior to September 30th, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

Target Species

The reporting period began January 1st, 2024 and ended January 15th, 2024. 0 Chinook salmon were captured during the 15-day sampling period (Figure 44). The RST was raised to the non-sampling position on December 1st due to high sediment load clogging the trap. The RST was lowered into the sampling position on January 12th. An ice storm came on earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked from January 13th through 17th. The trap was not damaged when crews were able to reach it on the 17th. The trap sampled 26.7% of the days during this reporting period. Figure 45 shows length frequency data to-date and Table 31 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Fall Creek Dam Tailrace site to-date.

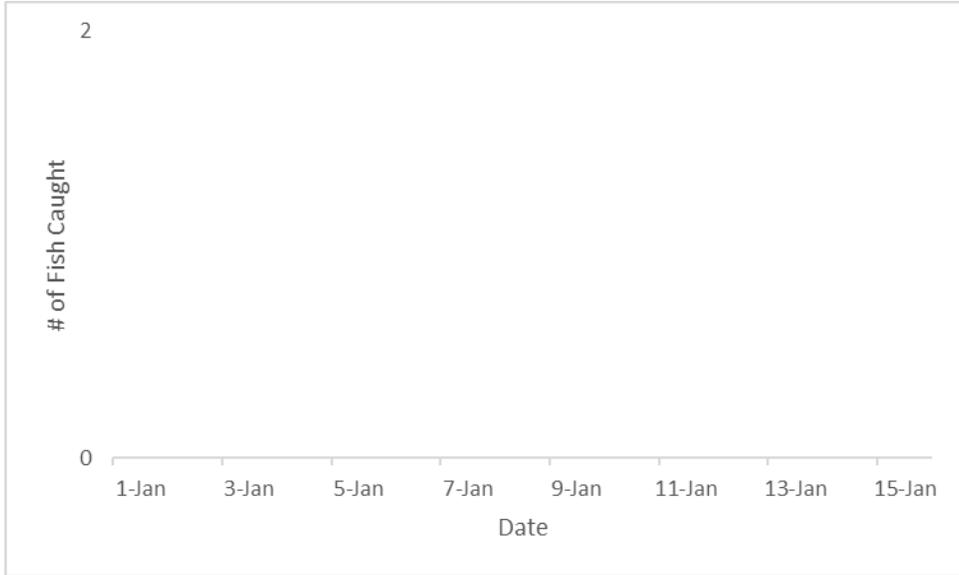


Figure 44. Chinook captured per day 1/01/2024 to 1/15/2024.

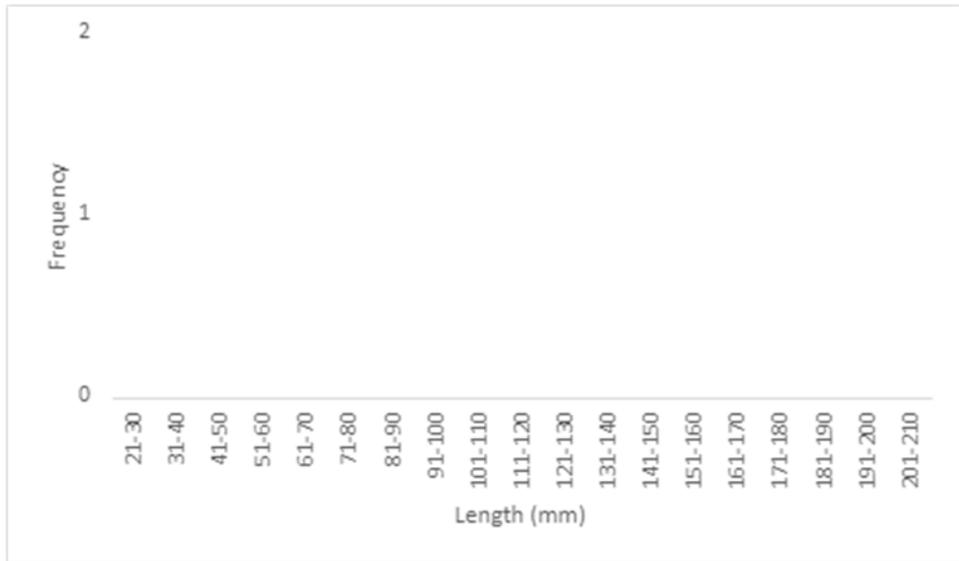


Figure 45. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Dam Tailrace).

Table 31. Descriptive Statistics of Target Species Captured at Fall Creek Dam Tailrace To-Date and for the Reporting Period.

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

January 1-15, 2024										
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	0	N/A	N/A	N/A	N/A	N/A	N/A

Trapping Efficiency

A total of 1,011 juvenile hatchery Chinook (sub yearlings) were adipose clipped, upper caudal clipped, and released on 10/17/2023 upstream of the Fall Creek Dam Tailrace RO channel trap site. A total of 14 fish were recaptured in the 8 ft trap. Trapping efficiency was 1.4%.

Fall Creek Dam	Release #	Recapture #	Capture Efficiency
RO	1011	14	1.4% (14/1011)

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

Partial descaling <20% was observed in 0 of the 0 Chinook captured (0.0%), 0 displayed descaling >20% (0.0%), 0 displayed body injury (0.0%), 0 displayed eye injuries (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 fish had copepods on fins (0.0%). 0 Chinook displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). The data is summarized in Table 32. To date injury data is listed in Appendix A.

Table 32. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period (Fall Creek).

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

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

Collected DNA and Scale Samples

Scales were collected from 0 Spring Chinook and DNA was collected from 0 Spring Chinook this reporting period.

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

0 non-target fish were captured at the Fall Creek Dam Tailrace site during the reporting period; the data is summarized below in Table 33.

Table 33. Summary of Non-target Species (Fall Creek Dam Tailrace).

Species	Capture	Mortality	Season Total	Season Total Mortality
Bluegill	0	0	0	0
Brook Lamprey	0	0	0	0
Brown Bullhead	0	0	0	0
Cutthroat Trout	0	0	0	0
Dace	0	0	0	0
Largescale Sucker	0	0	0	0
Mosquitofish	0	0	0	0
Peamouth	0	0	0	0
Redsided Shiner	0	0	0	0
Northern Pikeminnow	0	0	0	0
Chinook (clipped)	0	0	0	0
<i>O. mykiss</i>	0	0	0	0
<i>O. mykiss</i> (clipped)	0	0	0	0
Pacific Lamprey	0	0	0	0
Sculpin	0	0	0	0
Totals	0	0	0	0

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 324.0 cfs to 3,430.0 cfs (mean: 1,426.1 cfs). Figure 46 shows instantaneous discharge.

Dissolved oxygen concentrations ranged from 11.9 mg/L to 13.8 mg/L (mean: 12.62 mg/L). Figure 47 shows Dissolved Oxygen.

Stream temperature data was collected by utilizing the USGS Fall Creek Blw. Winberry Creek, Near Fall Creek, OR – 14151000 gage, collecting documenting water temperature in degrees Celsius. (Figure 48).

Flows In and Out of reservoir during the reporting period averaged 1,728.1 cfs and 1,191.3 cfs respectively (Figure 49).

Catch per unit of effort (CPUE) data are summarized in Table 34. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B

Table 34. Summary of Chinook CPUE, Fall Creek Dam Tailrace.

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

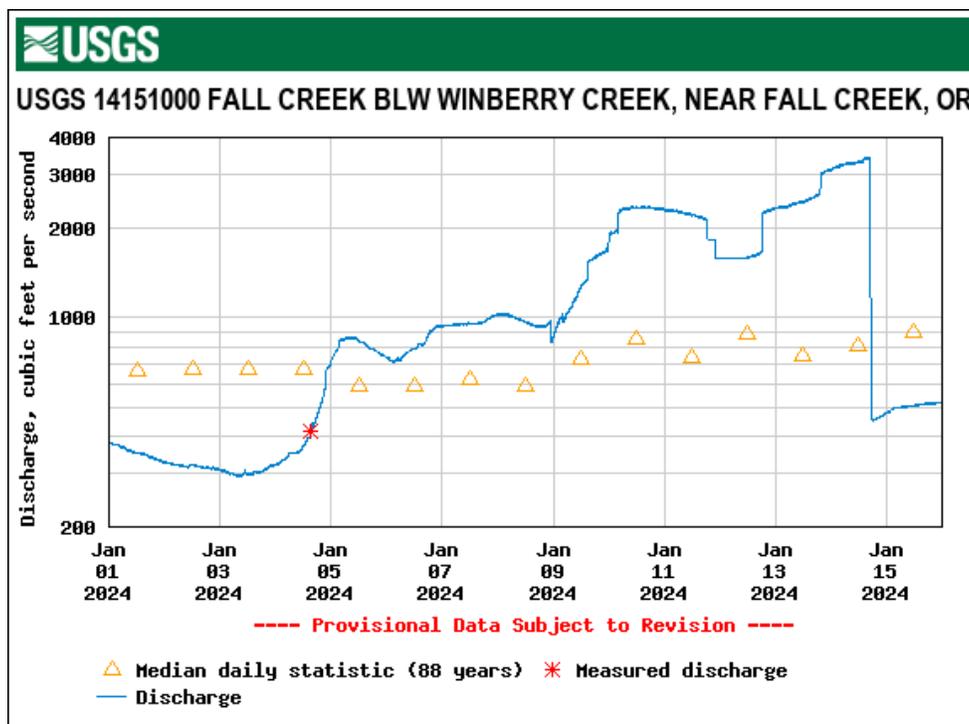


Figure 46. Discharge (cfs); Fall Creek Below Winberry Creek, Near Fall Creek, OR

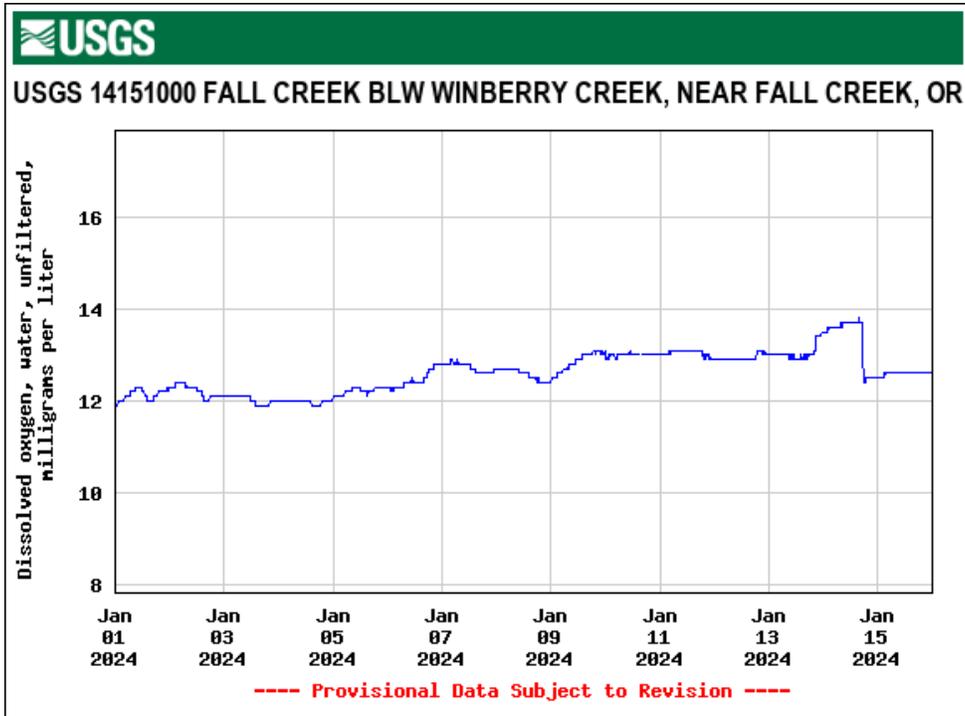


Figure 47. Dissolved Oxygen (mg/L), Fall Creek below Winberry Creek, Near fall Creek, OR

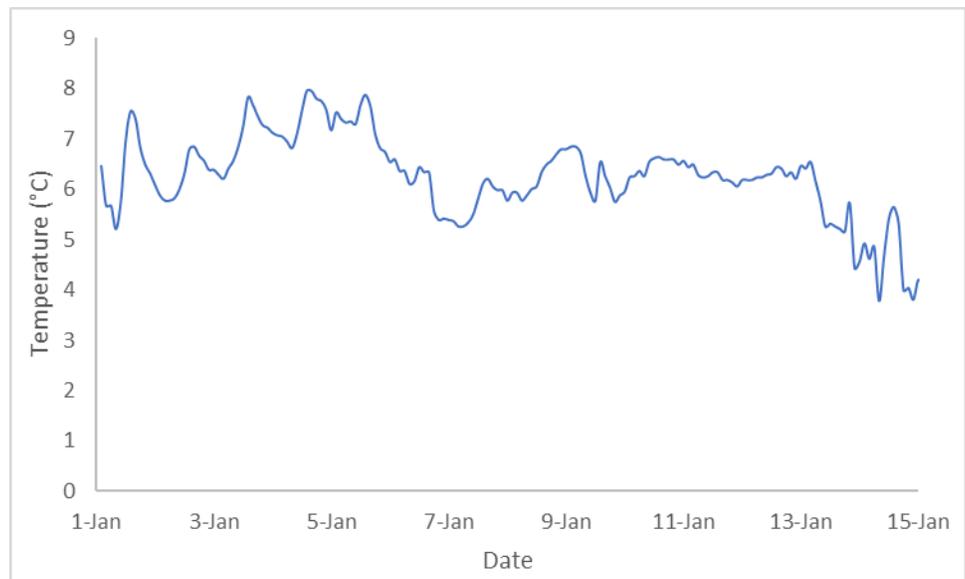


Figure 48. Temperature at RST (Fall Creek Dam Tailrace).

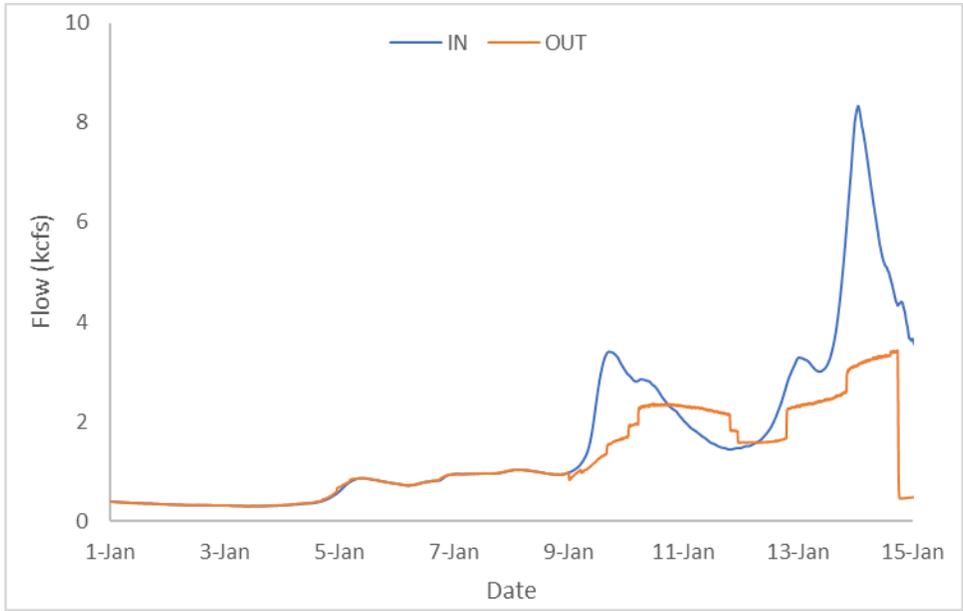


Figure 49. Hourly Flows Inflow vs. Outflow (RO) (Fall Creek Tailrace)

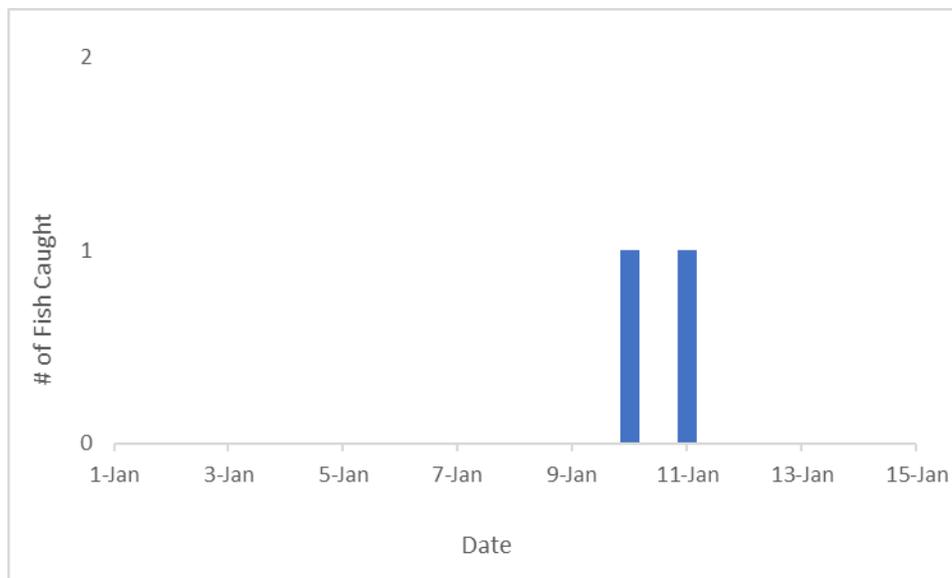
Middle Fork Willamette– Dexter Dam

The RST in the Dexter Dam Tailrace began sampling under contract W9127N19D0009 on December 16th, 2023. Sampling at Dexter Dam Tailrace prior to December 16th, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

On November 7th, 2023 the Dexter Dam Tailrace RST was moved to a new sampling site further downstream to allow construction crews to perform work at the Dexter Fish Facility. The trap will sample at this location until construction activities at the facility are completed.

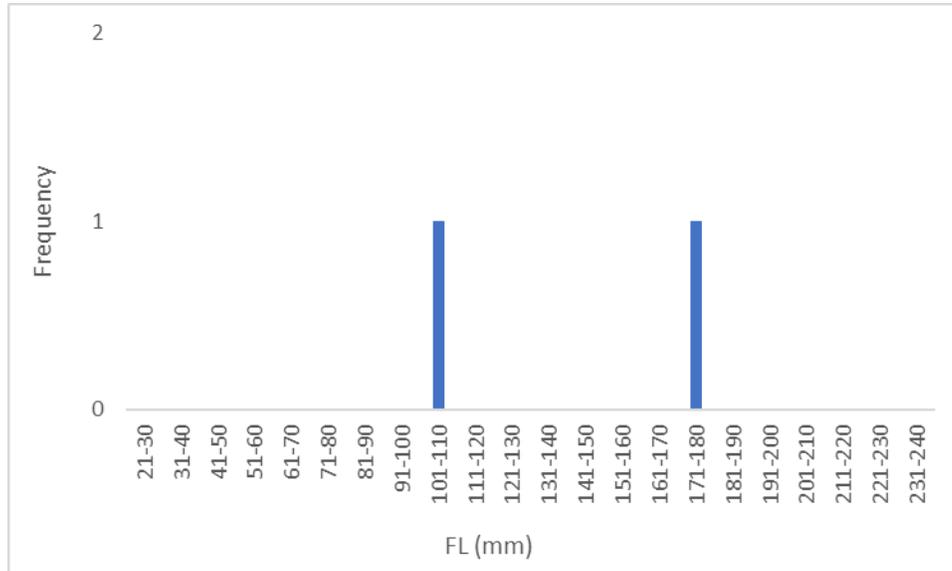
Target Species

This reporting period began on January 1st, 2024 and ended on January 15th, 2024. There were 2 Chinook salmon (CHS) captured during the 15-day sampling period. An ice storm came earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked from January 13th through 14th as well as January 15th through 16th. The trap was not damaged when crews were able to reach it on the 17th. Sampling duration was 100% for the 5 ft RST. Table 35 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 50 shows the daily capture numbers for Chinook and Figure 51 shows length frequency data to-date.



**Recaptured fish for trapping efficiency trials not included.*

Figure 50. Chinook Captured per day 1/01/2024 to 1/15/2024 (Dexter Dam)



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

Figure 51. Length Frequency of Juvenile Chinook Sampled in 2024 (Dexter Dam).

Table 35. Descriptive Statistics of Target Species Captured at the Dexter Dam RST To-Date.

To-Date (Since Jan. 1, 2024)										
Site	Trap	Species	Life stage	Collected	Length (mm) ¹			Weight (g) ¹		
					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	1	101	101	101.0	10.5	10.5	10.5
		CHS	Smolt	1	177	177	177.0	56.3	56.3	56.3

January 1-15, 2024										
Site	Trap	Species	Life stage	Collected	Length (mm) ¹			Weight (g) ¹		
					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	1	101	101	101.0	10.5	10.5	10.5
		CHS	Smolt	1	177	177	177.0	56.3	56.3	56.3

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

Trapping Efficiency

There were no TE trials at Dexter Spillway this reporting period.

Dexter Dam	Release #	Recapture #	Capture Efficiency
Spillway	N/A	N/A	N/A

A total of 4,004 juvenile hatchery Chinook (yearlings) were adipose clipped, lower caudal clipped, and released on 1/9/2024 below Dexter Dam. Fish were released in small groups into the powerhouse flow to evaluate the traps efficiency capturing fish passing through the powerhouse. 6 fish were recaptured in the 5-foot RST for an efficiency of 0.15%

Dexter Dam	Release #	Recapture #	Capture Efficiency
Powerhouse	4,004	6	0.15% (6/4,004)

24-Hour Post Collection Holding Trial

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

Injuries and Copepod Infection

2 Chinook were captured during this reporting period. Partial descaling <20% was observed in 2 of the 2 Chinook captured (100.0%) and 0 displayed descaling >20% (0.0%). 1 displayed body injury (50.0%) and 1 Chinook had eye injury (50.0%). 1 Chinook had copepods present in the branchial cavity (50.0%) and 1 had copepods on fins (50.0%). 0 displayed gas bubble disease (0.0%). There were 0 mortalities in this reporting period (0.0%). Injuries are displayed in Table 36. To date injury data can be found in Appendix A.

Table 36. 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	2	2	0	1	1	1	1	0

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

Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 2 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

189 non-target fish were captured during the reporting period; the data is summarized below in Table 37. Of the 53 clipped Chinook captured, 8 were PIT tagged fish from bulk mark releases at upstream sites, and 45 were fish released for trapping efficiency trials at upstream RST sites.

Table 37. Summary of Non-target Species (Dexter Dam).

Species	Capture	Mortality	Season Total*	Season Total Mortality
Bass Unknown	0	0	0	0
Bluegill	20	2	20	2
Chinook (adult)	0	0	0	0
Chinook (clipped)	53	1	52	1
Crappie	88	5	88	5
Cutthroat Trout	0	0	0	0
Dace	0	0	0	0
Brown Bullhead Catfish	0	0	0	0
Largescale Sucker	1	0	1	0
Largemouth Bass	0	0	0	0
Mountain Whitefish	0	0	0	0
<i>O. mykiss</i>	2	0	2	0
<i>O. mykiss</i> (clipped)	1	0	1	0
Northern Pikeminnow	0	0	0	0
Redside Shiner	0	0	0	0
Sculpin	12	0	12	0
Smallmouth Bass	0	0	0	0
Walleye	11	3	11	3
Unknown Salmonid	1	1	1	1
Totals	189	12	189	12

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 637.7 feet to 639.0 feet (mean: 638.3 feet). Figure 52 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 99 to 114% (mean: 102.6%) during the reporting period. Figure 53 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. The temperature probe operated normally throughout the reporting period and can be seen in Figure 54.

Flows through the Powerhouse and Spill during the reporting period averaged 1,563.1 and 1,770.3 cubic feet per second (cfs) respectively (Figure 55). Catch per unit of effort (CPUE) data are summarized in Table 38. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 38. Summary of salmonid CPUE, Dexter Dam.

Description	Chinook
Catch	2
Effort (hrs)	337.0
CPUE (fish/hr)	0.006

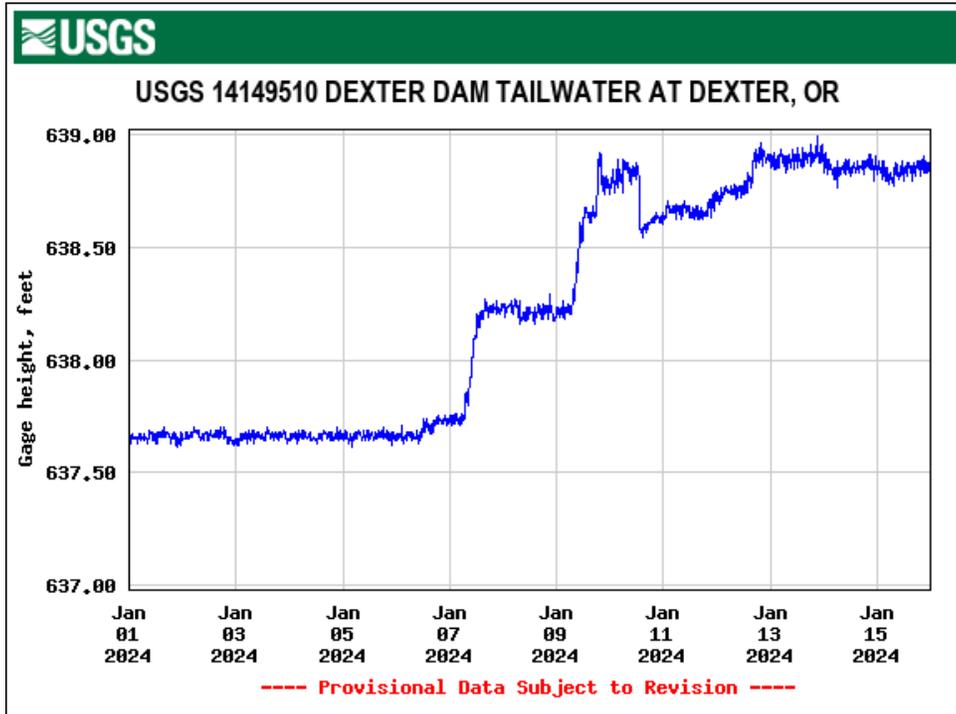


Figure 52. Gauge Height (feet); below Dexter Dam, Middle Fork Willamette.

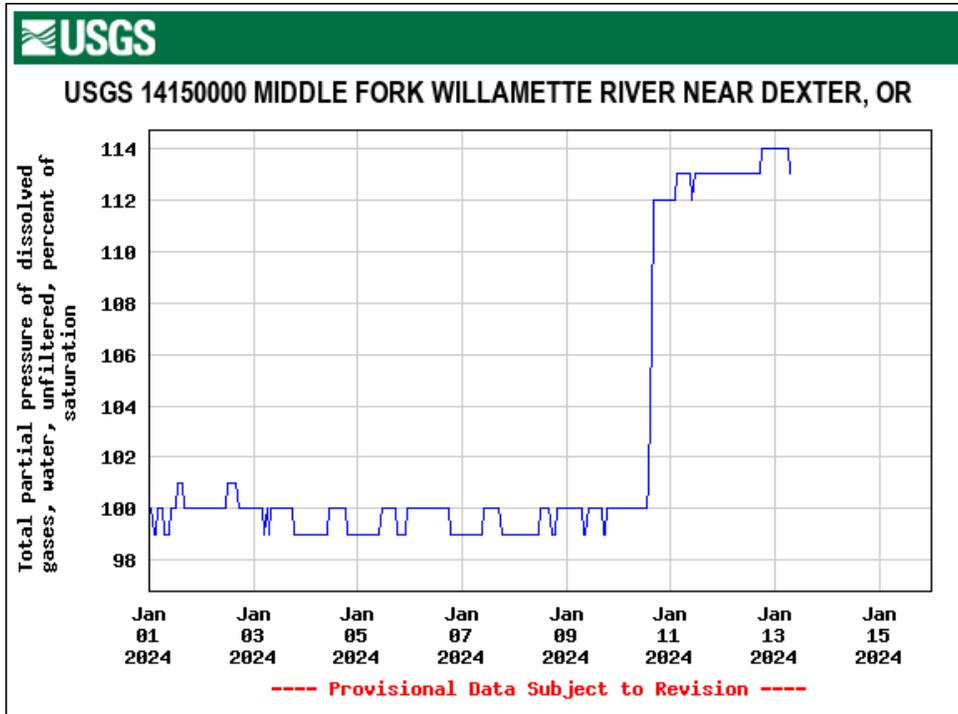


Figure 53. Total Dissolved Gas Saturation (%); Middle Fork Willamette River, Near Dexter, OR.

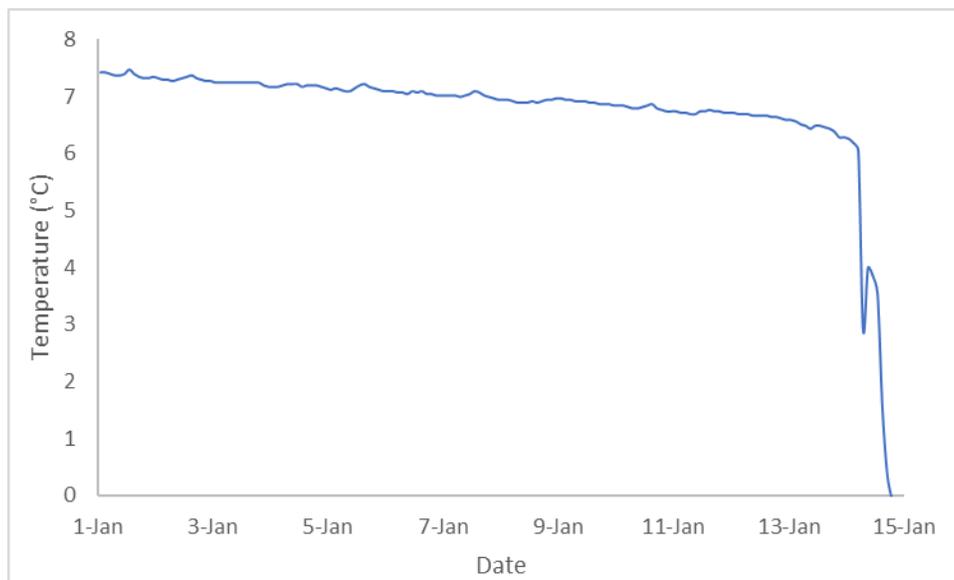


Figure 54. Temperature at RST (Dexter Dam).

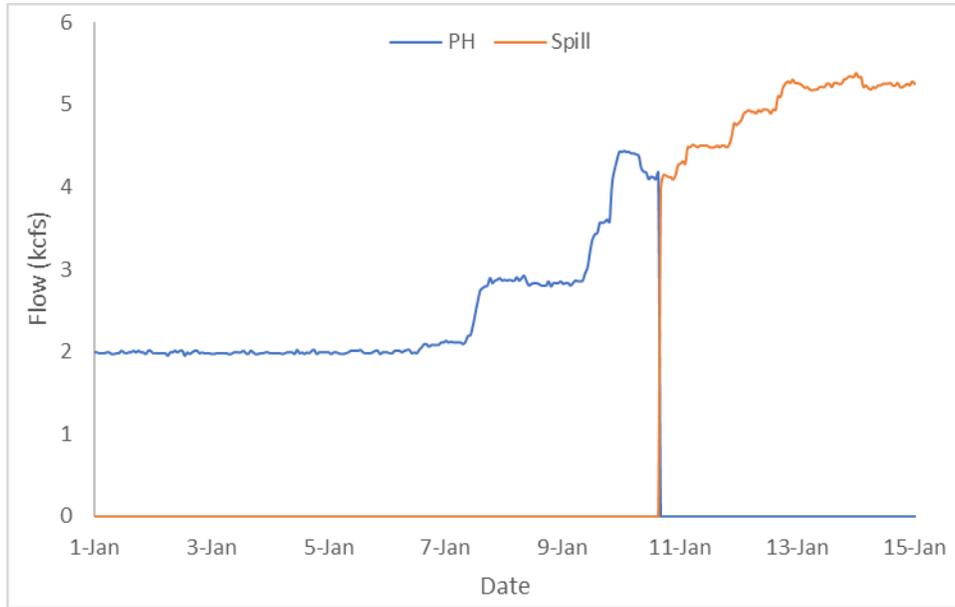


Figure 55. Hourly Flows PWR vs. Spill (Dexter Dam).

Middle Fork Willamette – Lookout Dam Tailrace

The RSTs in the Lookout Dam Tailrace began sampling under contract W9127N19D0009 on August 1, 2023. Sampling at Lookout Dam Tailrace prior to August 1, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

Target Species

The reporting period began January 1st, 2024 and ended on January 15th, 2024. There were a total of 0 Chinook salmon captured during the 15-day sampling period (Figure 56). An ice storm came earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked from January 13th through 17th. The trap was not damaged when crews were able to reach it on the 17th. The traps were operated 100% of the reporting period. Table 39 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 57 shows length frequency data to-date.

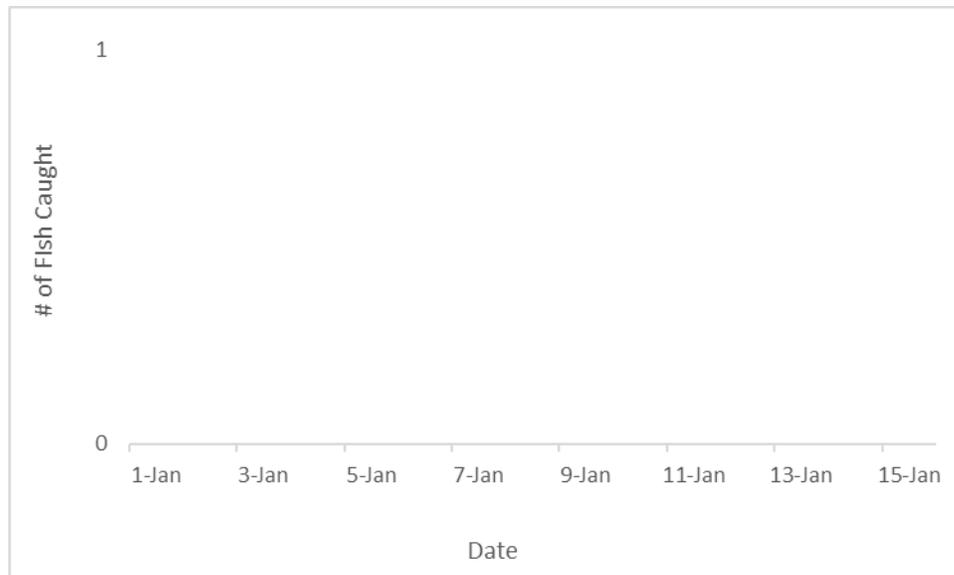


Figure 56. Chinook Captured per day 1/01/2024 to 1/15/2024 (Lookout Point Dam Tailrace).

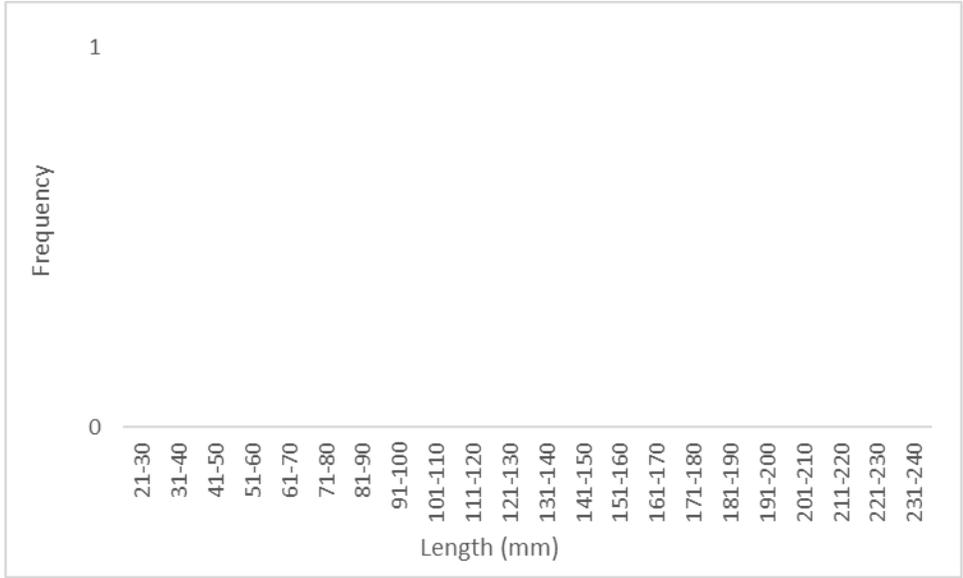


Figure 57. Length Frequency of Juvenile Chinook Sampled in 2024 (Lookout Point Dam Tailrace).

Table 39. Descriptive Statistics of Target Species Captured at Lookout Point Dam Tailrace To-Date and for the Reporting Period.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	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
	PH 2	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
	Spill	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
January 1-15, 2024										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	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
	PH 2	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
	Spill	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

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

Trapping Efficiency

On 1/10/2024, 17,553 juvenile hatchery Chinook were released in small groups directly into powerhouse flow. A total of 3 fish were recaptured in the traps for an efficiency of 0.02%. Trap specific efficiencies are as follows: 1 recaptured at the PH 1 RST for an efficiency of 0.006%, 1 recaptured at PH 2 for an efficiency of 0.006%, and 1 recaptured at the Spill RST for an efficiency of 0.006%.

Lookout Dam Powerhouse	Release #	Recapture #	Capture Efficiency
1/10/2024	17,553	3	0.02% (3/17,553)

24-Hour Post Collection Holding Trial

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

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 0 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%). 0 PWR RST fish had bodily injury (0.0%) 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 mortalities collected in the Spill RST (0.0%) and 0 in the PWR RSTs (0.0%). Injuries are displayed in Table 40. To date injury data can be found in Appendix A.

Table 40. 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	Spill	0	0	0	0	0	0	0	0
	PWR	0	0	0	0	0	0	0	0

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

Collected DNA and Scale Samples

DNA was collected from 0 Spring Chinook for the reporting period. Scales were collected from 0 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

24 non-target species were captured during the reporting period; the data is summarized below in Table 41. Of the 14 clipped Chinook captured, 11 were PIT tagged fish from bulk marked releases above the dam and 3 were fish released above the dam for trapping efficiency trials.

Table 41. 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	0	0	0	0	0	0
Brown Bullhead	0	0	0	0	0	0
Chinook (clipped)	13	0	1	0	14	0
Crappie	5	1	0	0	5	1
Largemouth Bass	0	0	0	0	0	0
Mountain Whitefish	0	0	0	0	0	0
Largescale Sucker	0	0	0	0	0	0
Northern Pikeminnow	0	0	0	0	0	0
<i>O. mykiss</i>	0	0	0	0	0	0
<i>O. mykiss</i> (clipped)	0	0	0	0	0	0
Pumpkinseed	0	0	0	0	0	0
Redside Shiner	0	0	0	0	0	0
Sculpin	0	0	0	0	0	0
Smallmouth Bass	0	0	0	0	0	0
Spotted Bass	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Walleye	5	0	0	0	5	0
Totals	23	1	1	0	24	1

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 692.7 feet to 694.6 feet (mean: 693.5 feet). Figure 58 shows instantaneous gauge height.

Stream temperatures were recorded every 2 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 59 and Figure 60).

Flows through the Powerhouse and Spill during the reporting period averaged 3,307.9 to 0 cubic feet per second (cfs) (Figure 61). Catch per unit of effort (CPUE) data are summarized in Table 42. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 42. Summary of Chinook CPUE at Lookout Point Dam Tailrace.

Description	Chinook		
	PH 1	PH 2	Spill
Catch	0	0	0
Effort (hrs)	289.6	289.5	290.2
CPUE (fish/hr)	0	0	0

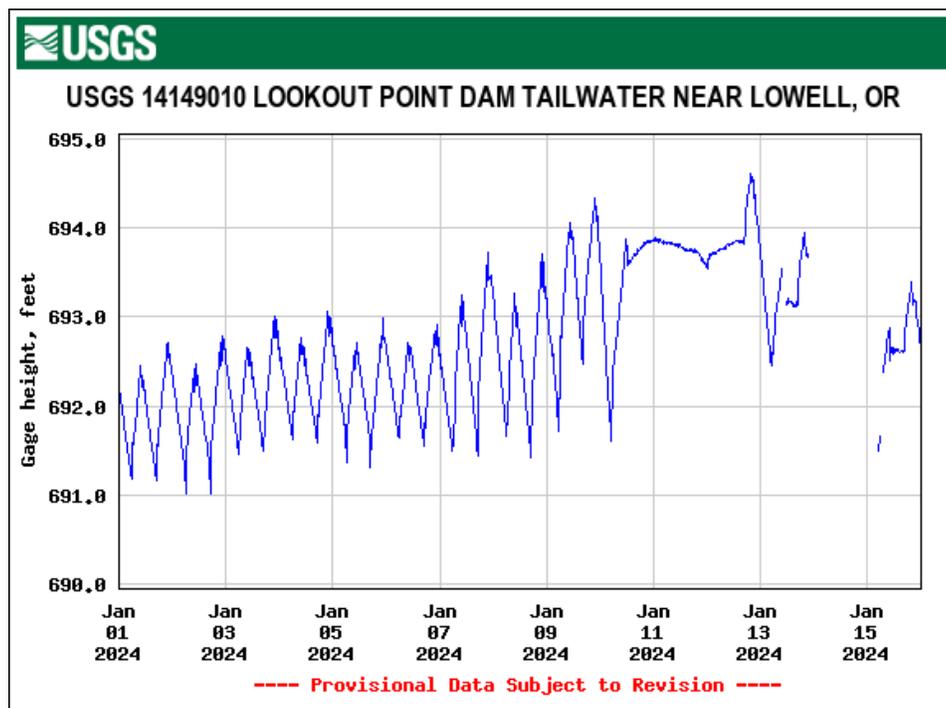


Figure 58. Gauge Height (feet); below Lookout Dam.

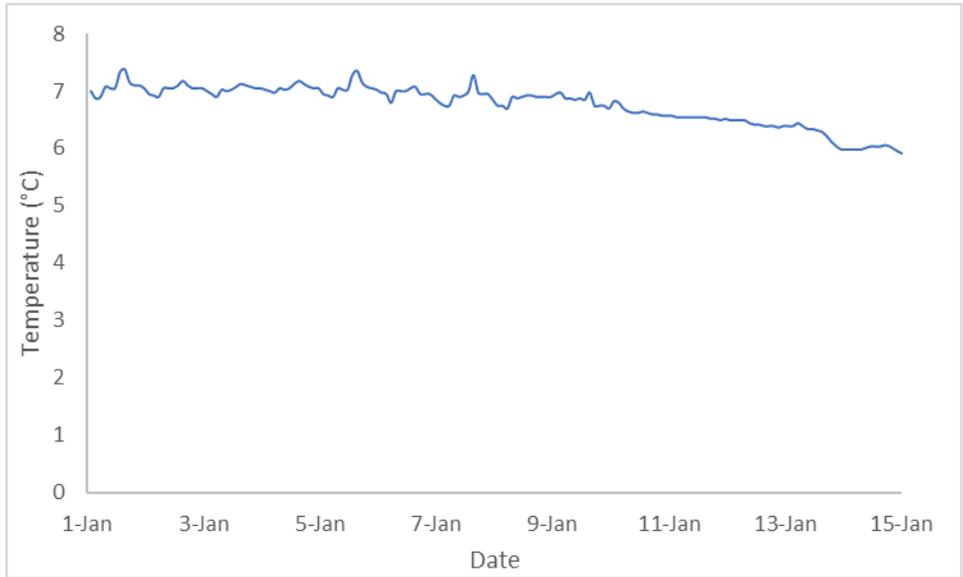


Figure 59. Temperature at RST (Lookout Dam PWR).

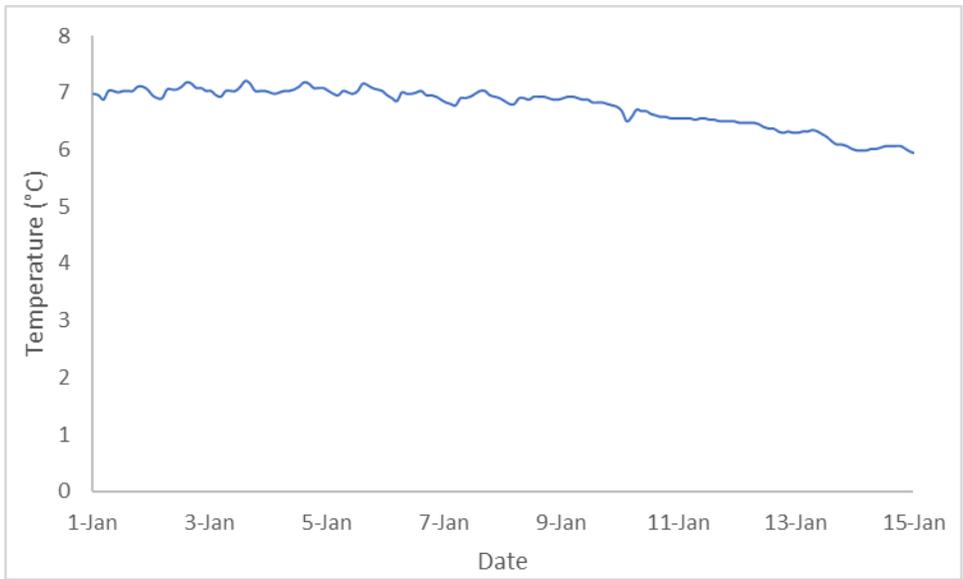


Figure 60. Temperature at RST (Lookout Dam Spill).

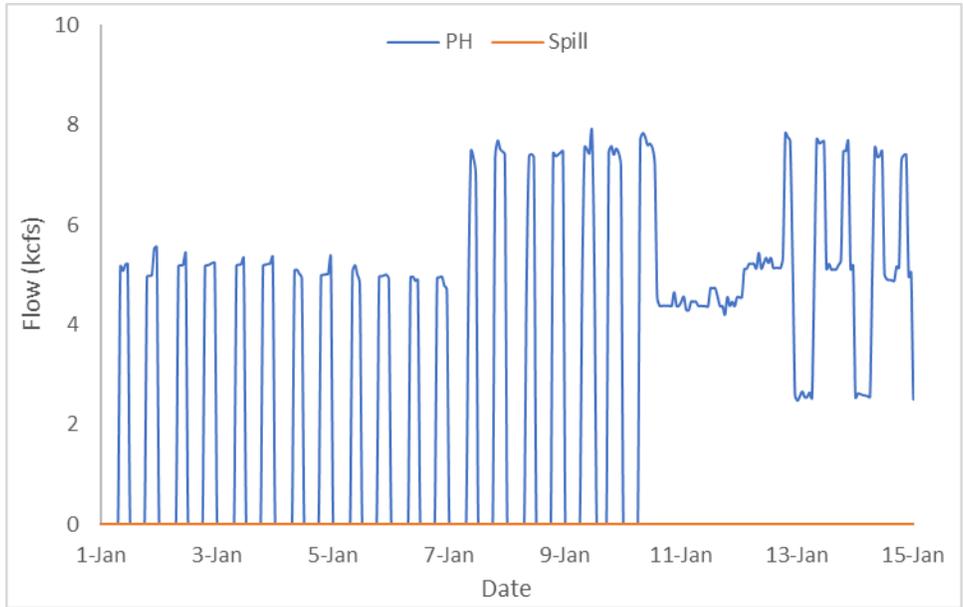


Figure 61. Hourly Flows PWR vs. Spill (Lookout Dam Tailrace).

Middle Fork Willamette – Lookout Point Head of Reservoir

The RST at Lookout Point Head of Reservoir began sampling under contract W9127N19D0009 on December 16, 2023. Sampling at Lookout Point Head of Reservoir prior to December 16, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

Target Species

The reporting period began January 1st, 2024 and ended on January 15th, 2024. 1 Chinook salmon was captured during the 15-day sampling period (Figure 62). The RST was raised to the non-sampling position on January 9th due to increased flows and high debris. The RST was lowered into the sampling position on January 11th. An ice storm came earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked on January 13th as well as January 15th through 16th. The trap was still functioning when crews were able to reach it on the 17th but damage to the winch had occurred which prevented them from being able to raise it to the non-sampling position. Sampling duration was 93.3% for the 5 ft RST. Table 43 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 63 shows length frequency data to-date.

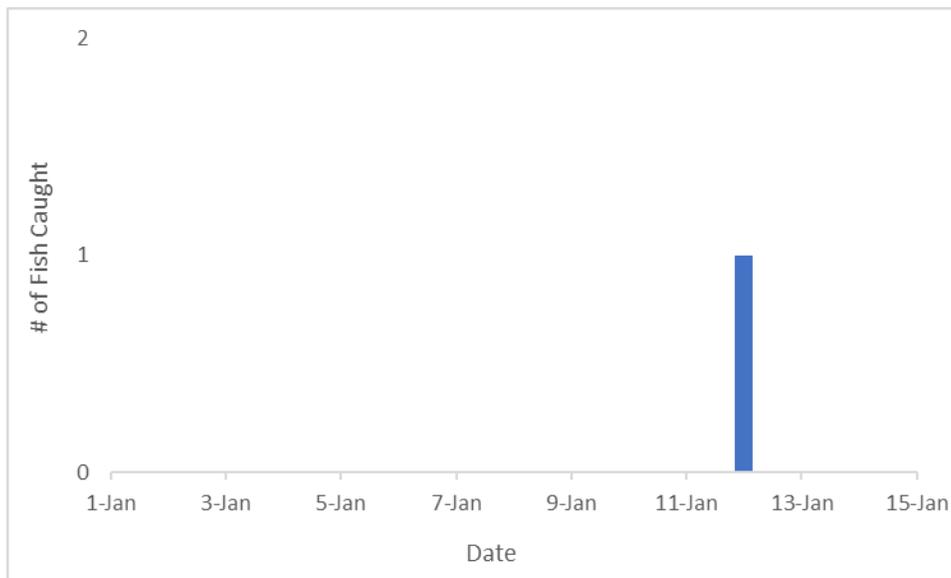


Figure 62. Chinook Captured per day 1/01/2024 to 1/15/2024 (Lookout Point Head of Reservoir).

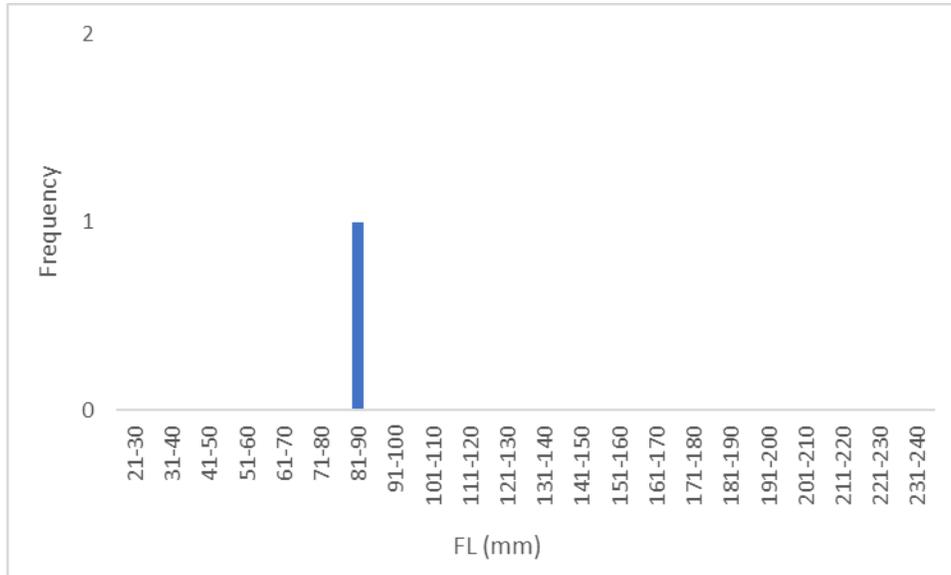


Figure 63. Length Frequency of Juvenile Chinook Sampled in 2024 (Lookout Point Head of Reservoir).

Table 43. Descriptive Statistics of Target Species Captured at Lookout Point Head of Reservoir To-Date and for the Reporting Period.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Head of Reservoir	5 ft	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	87	87	87.0	6.6	6.6	6.6
		CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
January 1-15, 2024										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Head of Reservoir	5 ft	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	87	87	87.0	6.6	6.6	6.6
		CHS	Smolt	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.

Trapping Efficiency

On 1/3/2024, 1,505 juvenile hatchery Chinook (yearlings) were adipose and upper caudal clipped and released upstream of the Lookout Point Head of Reservoir trap. Fish were released in small groups to evaluate the traps' efficiency. 2 fish were recaptured in the 5-ft RST for an efficiency of 0.1%.

Lookout Point Head of Reservoir	Release #	Recapture #	Capture Efficiency
5 ft	1,505	2	0.1% (2/1,505)

Injuries and Copepod Infection

There was 1 Chinook captured during this reporting period. 1 had partial descaling <20% (100.0%) and 0 had descaling >20% (0.0%). 1 had body injuries (100.0%) and 0 fish displayed eye injuries (0.0%). 0 fish had copepods in the branchial cavity (0.0%). There were 0 mortalities (0.0%). Injury data for the reporting period is shown in Table 44. To date data can be found in Appendix A.

Table 44. 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	1	1	0	1	0	0	0	0

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

Collected DNA and Scale Samples

Scales and DNA were collected from 1 Chinook captured for the reporting period.

PIT Tags

1 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. Fish still showing an egg sac are not VIE marked. A summary of VIE marked fish at the Lookout Point Head of Reservoir site is available in Table 45.

Table 45. Summary of VIE Marked Chinook at the Lookout Point Head of Reservoir site.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
N/A	Left Dorsal	Green	0	0

Non-Target Species

3 non-target species were captured during the reporting period; the data is summarized below in Table 46.

Table 46. Summary of Non-target Species (Lookout Point Head of Reservoir).

Species	5ft Capture	5ft Mortality	Season Total	Season Total Mortality
Chinook (clipped)	0	0	0	0
Crappie	0	0	0	0
Cutthroat Trout	0	0	0	0
Bluegill	0	0	0	0
Spotted Bass	0	0	0	0
Dace	0	0	0	0
Lamprey	0	0	0	0
Largescale Sucker	1	0	1	0
Mountain Whitefish	0	0	0	0
Northern Pikeminnow	0	0	0	0
<i>O. mykiss</i>	1	0	1	0
<i>O. mykiss</i> (clipped)	0	0	0	0
Redside Shiner	0	0	0	0
Sculpin	1	0	1	0
Unknown	0	0	0	0
Totals	3	0	3	0

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 2,080.0 cfs to 11,200.0 cfs (mean: 4,874.7 cfs). Figure 64 shows instantaneous discharge.

Stream temperatures were recorded every 2 hours using a temperature probe at the Lookout Point Head of Reservoir RST site during this reporting period. Temperature probe at the RST operated normally throughout the reporting period (Figure 65).

Flows into Lookout Point Reservoir averaged 4,092.6 cfs (Figure 66). 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 at Lookout Point Head of Reservoir.

Description	Chinook
Catch	1
Effort (hrs)	298.6
CPUE (fish/hr)	0.003

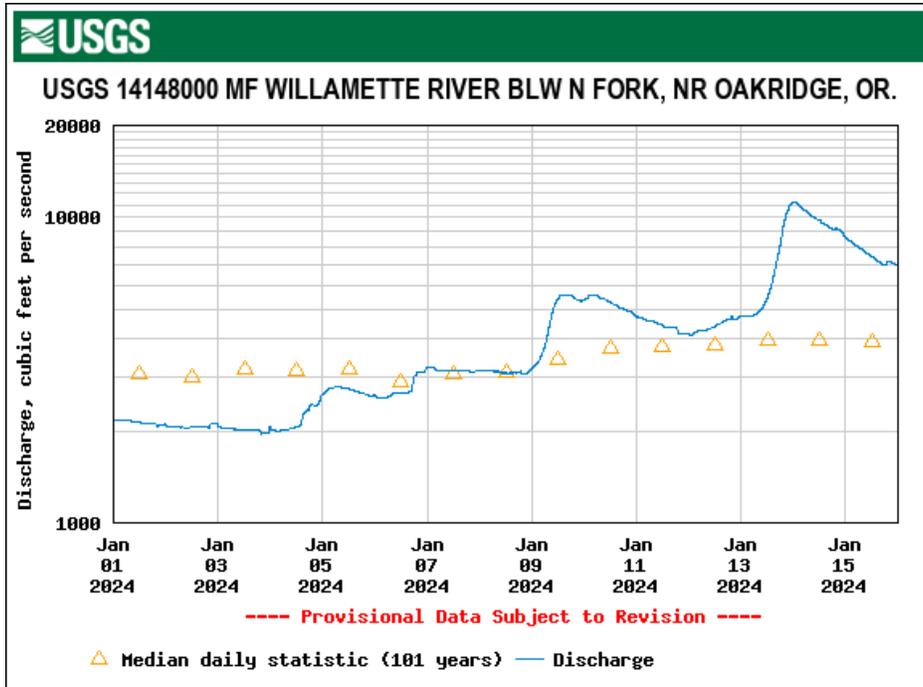


Figure 64. Discharge (cfs); above Lookout Point Reservoir, Below Oakridge, OR.

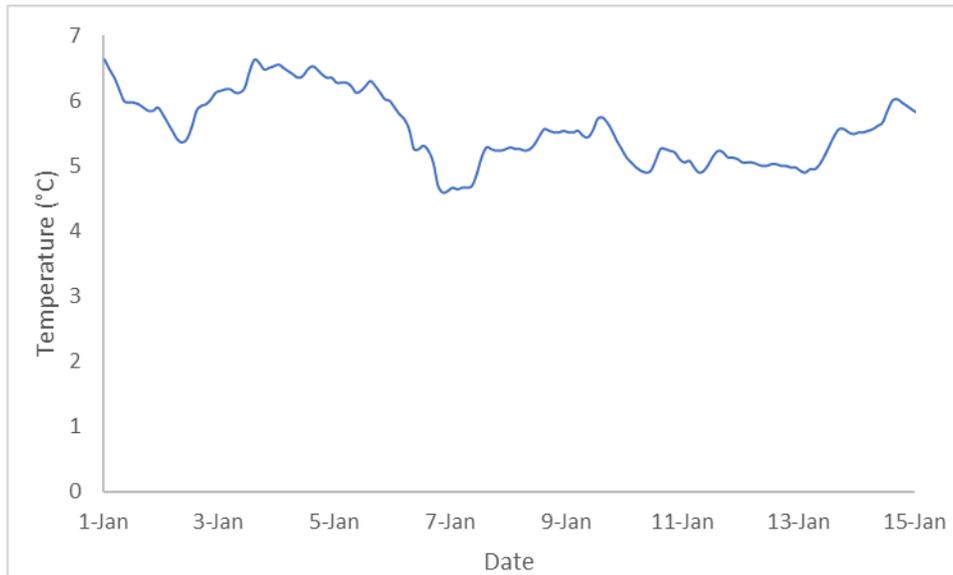


Figure 65. Temperature at RST (Lookout Point Head of Reservoir).

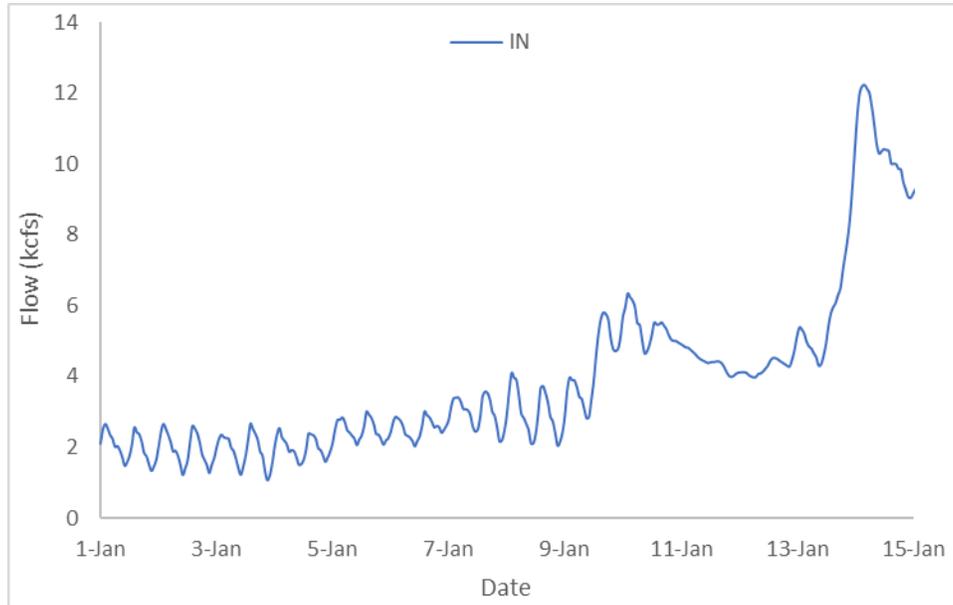


Figure 66. Hourly Flows (Lookout Point Head of Reservoir site).

Middle Fork Willamette River– Hills Creek Head of Reservoir

The Hills Creek Head of Reservoir RST was installed and began sampling on May 9, 2023. Sampling concluded at this site on June 30, 2023 and the RST was removed. This trap will resume sampling on February 1, 2024.

Target Species

A total of 93 Spring Chinook were captured during sampling in 2023. Figure 67 shows length frequency data of captured Chinook for sampling in 2023. Table 48 provides life stage, length, and weight data for all Chinook Salmon that have been caught at the Middle Fork Willamette River- Hills Creek Head of Reservoir site to-date and for the reporting period.

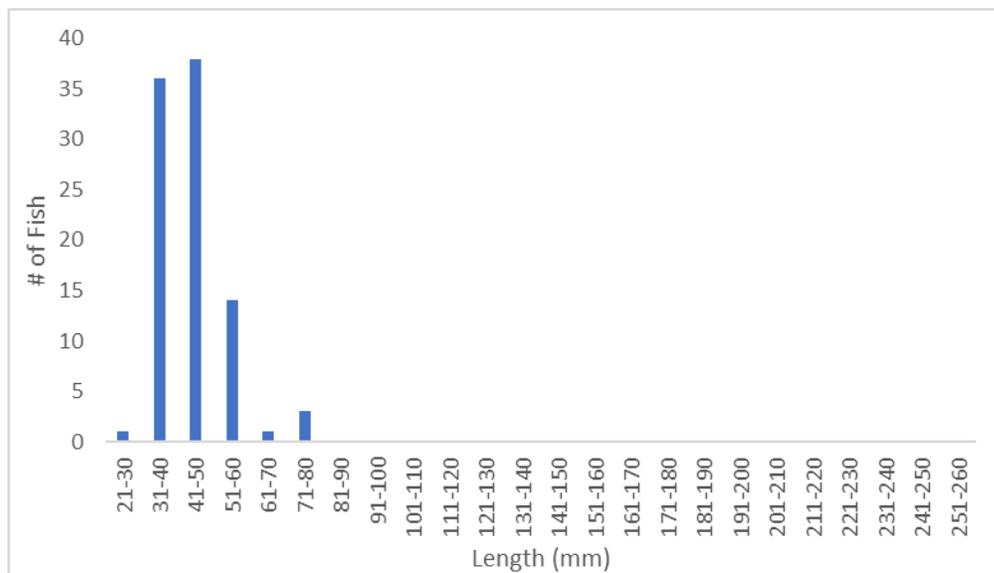


Figure 67. Length Frequency of Juvenile Chinook Sampled in 2023 (Hills Creek Head of Reservoir).

Table 48. Descriptive Statistics of Target Species Captured at Hills Creek Head of Reservoir in 2023.

To-Date (Since May 09, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)			Weight (g)		
					Min	Max	Mean	Min	Max	Mean
Hills Creek Head of Reservoir	5 ft	CHS	Fry	60	30	50	38.9	N/A	N/A	N/A
		CHS	Parr	33	38	76	52.6	1.0	6.0	2.1
		CHS	Smolt	0	N/A	N/A	N/A	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

On May 18, 2023, 519 adipose clipped and PIT Tagged fish were released for a trapping efficiency trial at the Hills Creek Head of Reservoir site. 44 fish were recaptured in the RST for a trapping efficiency of 8.5%

Hills Creek Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft Trap	519	44	8.5% (44/519)

On June 19, 2023 760 adipose clipped and PIT Tagged fish were released for a trapping efficiency trial at the Hills Creek Head of Reservoir site. 6 fish were recaptured in the RST for a trapping efficiency of 0.79%.

Hills Creek Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft Trap	760	6	0.8% (6/760)

PIT Tags and VIE Marking

A total of 3 fish were PIT tagged and 71 fish were VIE marked at the Hills Creek Head of Reservoir- Middle Fork Willamette site in 2023. No tagged or VIE marked fish were redetected downstream. Table 49 provides a summary of VIE marked fish at the Hills Creek Head of Reservoir- Middle Fork Willamette River site.

Table 49. Summary of VIE marked Chinook at the Hills Creek Head of Reservoir- Middle Fork Willamette site in 2023.

Date Tagged	Species	Tag Location	VIE Color	# Tagged	# Recaptured to Date
5/1/2023-5/30/2023	Chinook	Left Dorsal	Orange	19	0
5/1/2023-5/30/2023	Chinook	Right Dorsal	Orange	11	0
6/1/2023-6/30/2023	Chinook	Left Dorsal	Pink	37	0
6/1/2023-6/30/2023	Chinook	Right Dorsal	Pink	4	0

Non-Target Species

A total of 232 non-target species fish were captured during sampling in 2023; the data is summarized below in Table 50.

Table 50. Summary of Non-target Species in 2023 (Hills Creek Head of Reservoir).

Species	Season Total	Season Total Mortality
Dace	87	1
Cutthroat Trout	2	0
<i>O. mykiss</i>	26	0
Bull Trout	1	0
Brook Lamprey	18	2
Sculpin	20	1
Largescale Sucker	64	1
Mountain Whitefish	2	0
Redside Shiner	12	0
Totals	232	5

Middle Fork Willamette – Hills Creek Dam

The RSTs in the Hills Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 15, 2023. Sampling at Hills Creek Dam Tailrace prior to September 15, 2023 was conducted by EAS for the USACE under contract W9127N19D0007.

Target Species

The reporting period began January 1st, 2024 and ended on January 15th, 2024. There were a total of 34 Chinook salmon captured during the 15-day sampling period (Figure 68). An ice storm came earlier than expected in the Willamette Valley. Crews were not able to reach the RST to raise it in time. The trap sampled unchecked from January 13th through 16th. The trap was not damaged when crews were able to reach it on the 17th. Sampling duration for the RO RST was 100% and 100% for the PH RST for the reporting period. Table 51 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 69 shows length frequency data to-date.

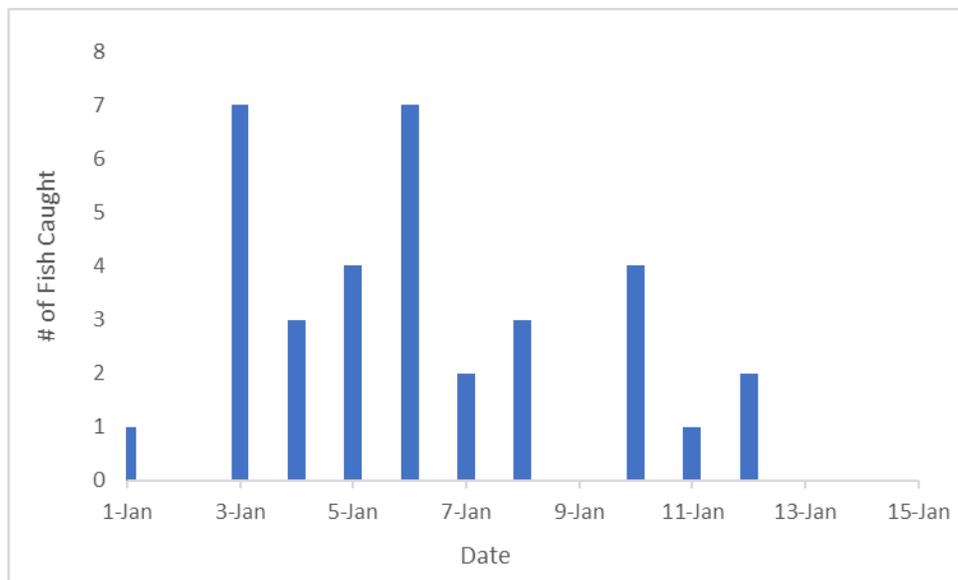
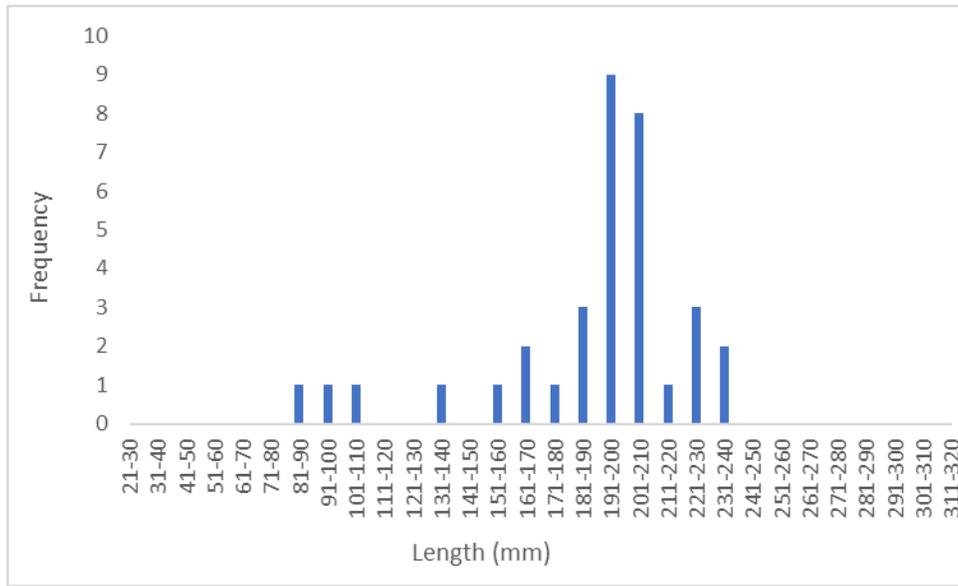


Figure 68. Chinook Captured per day 1/01/2024 to 1/15/2024 (Hills Creek Dam Tailrace).



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

Figure 69. Length Frequency of Juvenile Chinook Sampled in 2024 (Hills Creek Dam).

Table 51. Descriptive Statistics of Target Species Captured at Hills Creek Dam To-Date and for the Reporting Period.

To-Date (Since Jan. 1, 2024)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Hills Creek	RO	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	93	93	93.0	8.4	8.4	8.4
		CHS	Smolt	10	106	209	181.9	11.2	109.1	74.6
Hills Creek	PWR	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	90	90	90.0	6.5	6.5	6.5
		CHS	Smolt	22	138	237	200.9	28.1	136.9	92.6
January 1-15, 2024										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Hills Creek	RO	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	93	93	93.0	8.4	8.4	8.4
		CHS	Smolt	10	106	209	181.9	11.2	109.1	74.6
Hills Creek	PWR	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	90	90	90.0	6.5	6.5	6.5
		CHS	Smolt	22	138	237	200.9	28.1	136.9	92.6

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

Trapping Efficiency

A total of 503 juvenile Chinook were adipose clipped, right vent clipped and upper caudal clipped and released on 1/4/24 below Hills Creek RO to evaluate the efficiency of the screw trap. A total of 5 fish were recaptured in the traps for an efficiency of 1.00%. 0 fish were recaptured at the 8 ft PWR trap for a trapping efficiency of 0.0% and 5 were captured in the RO trap for an efficiency of 1.00%.

Hills Creek Dam	Release #	Recapture #	Capture Efficiency
PWR Trap	N/A	N/A	0.0% (0/0)
RO Trap	503 (RO Release)	10	1.00% (5/505)

24-Hour Post Collection Holding Trial

22 Chinook captured in the RSTs were held during this reporting period. 15 fish were held from the PWR RST and 7 fish were held from the RO RST. 0 hold fish died from the PWR RST (0.0%). 1 of the fish from RO RST died during holding (14.3%). Due to the recent ice storms, one Chinook was held from December 12th to December 17th when crews were able to safely access the site. This fish survived a delayed hold.

Injuries and Copepod Infection

There were 11 Chinook captured in the RO RST. Partial descaling <20% was observed on 9 of 11 Chinook collected at the RO RST (81.8%), and descaling >20% was observed on 2 Chinook collected (18.2%). 11 displayed body injuries (100.0%) and 3 had eye injuries (27.3%). 9 of the RO RST Chinook had copepods present in the branchial cavity (81.8%) and 5 had copepods present on fins (45.5%). There were 4 mortalities (36.4%). 1 of the fish captured in the RO RST displayed Gas Bubble Disease (1 at Level 1) (9.1%).

There were 23 Chinook captured in the Powerhouse channel RST. Partial descaling <20% was observed on 14 of the 23 Chinook collected at the PWR RSTs (60.9%). Descaling >20% was observed on 9 of the Chinook collected (39.1%). 22 PWR RST fish had bodily injury (95.7%) and 6 had eye injuries (26.1%). 22 of the fish had copepods present in the branchial cavity (95.7%) and 10 had copepods present on fins (43.5%). 0 fish displayed Gas Bubble Disease (0.0%). There were 8 chinook mortalities collected in the PWR RST (34.8%).

Injuries are displayed in Table 52. To date injury data can be found in Appendix A.

Table 52. 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	11	9	2	11	3	9	5	4
Hills Creek	PWR	23	14	9	22	6	22	10	8

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

Collected DNA and Scale Samples

For the reporting period, DNA was collected from 33 Spring Chinook. Scales were collected from 33 Spring Chinook. The other targets captured did not meet length criteria for DNA sampling or were too damaged.

PIT Tags

0 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. 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. Fish still showing an egg sac are not VIE marked. A summary of VIE marked fish at the Hills Creek Dam site is available in Table 53. More information regarding VIE marked fish can be found in Appendix D.

Table 53. Summary of VIE marked Chinook at the Hills Creek Dam site in 2024.

Date Tagged	Tag Location	VIE Color	# Tagged	# Recaptured to Date
N/A	Head	Green	0	0

Non-Target Species

143 non-target fish were captured at Hills Creek during the reporting period; the data is summarized below in Table 54. Of the 118 clipped Chinook captured, 30 were PIT tagged fish from bulk marked releases, 88 were adipose clipped fish that are likely from ODFW releases in Hills Creek Reservoir.

Table 54. 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	0	0
Bluegill	0	0	6	2	6	2
Brook Lamprey	0	0	0	0	0	0
Brown Bullhead	0	0	0	0	0	0
Chinook (clipped)	35	20	83	33	118	53
Crappie	2	1	1	1	3	2
Cutthroat	0	0	1	0	1	0
Dace	1	0	0	0	1	0
Largemouth Bass	0	0	0	0	0	0
Largescale Sucker	1	1	2	0	3	1
Northern Pikeminnow	0	0	0	0	0	0
<i>O. mykiss</i>	0	0	6	1	6	1
<i>O. mykiss (clipped)</i>	2	0	1	0	3	0
Pumpkinseed	0	0	0	0	0	0
Redside Shiner	0	0	0	0	0	0
Sculpin	0	0	1	1	1	1
Smallmouth Bass	0	0	0	0	0	0
Spotted Bass	1	0	0	0	1	0
Unknown	0	0	0	0	0	0
Walleye	0	0	0	0	0	0
Totals	42	22	101	38	143	60

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 1,224.7 feet to 1,226.1 feet (mean: 1,225.5 feet). Figure 70 shows instantaneous gauge height.

Total dissolved gas saturation ranged from 97 to 104% (mean: 99.7%) during the reporting period. Figure 71 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 72 and 73).

Flows through the PWR and RO during the reporting period averaged 829.5 and 265.9 cfs respectively (Figure 74). Catch per unit of effort (CPUE) data are summarized in Table 55. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

Table 55. Summary of Chinook CPUE, Hills Creek Dam.

	Chinook	
Description	RO (5ft)	PWR (8ft)
Catch	11	23
Effort (hrs)	289.1	289.0
CPUE (fish/hr)	0.038	0.080

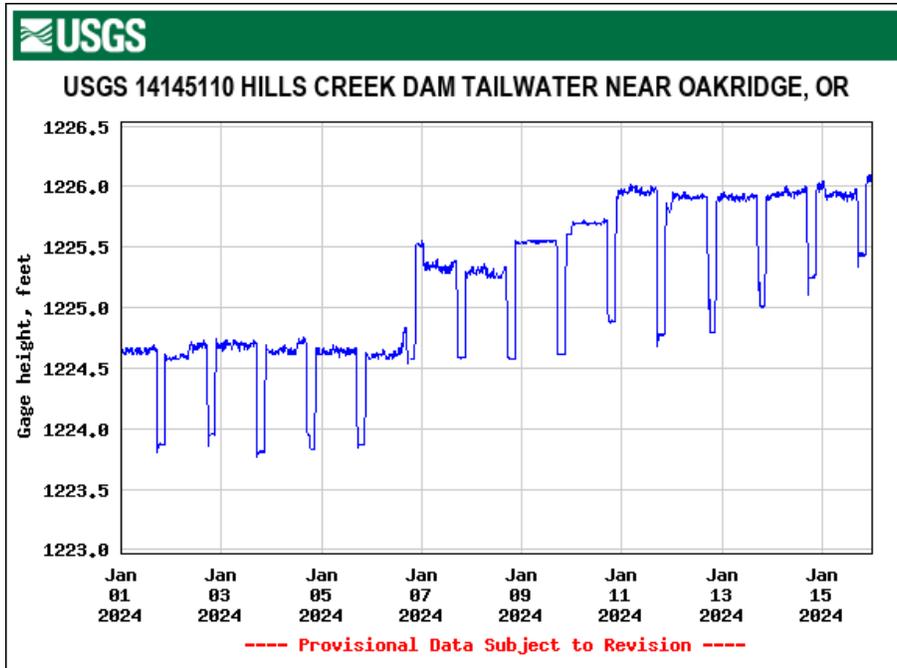


Figure 70. Gauge Height (feet); below Hills Creek Dam PWR - Middle Fork Willamette River.

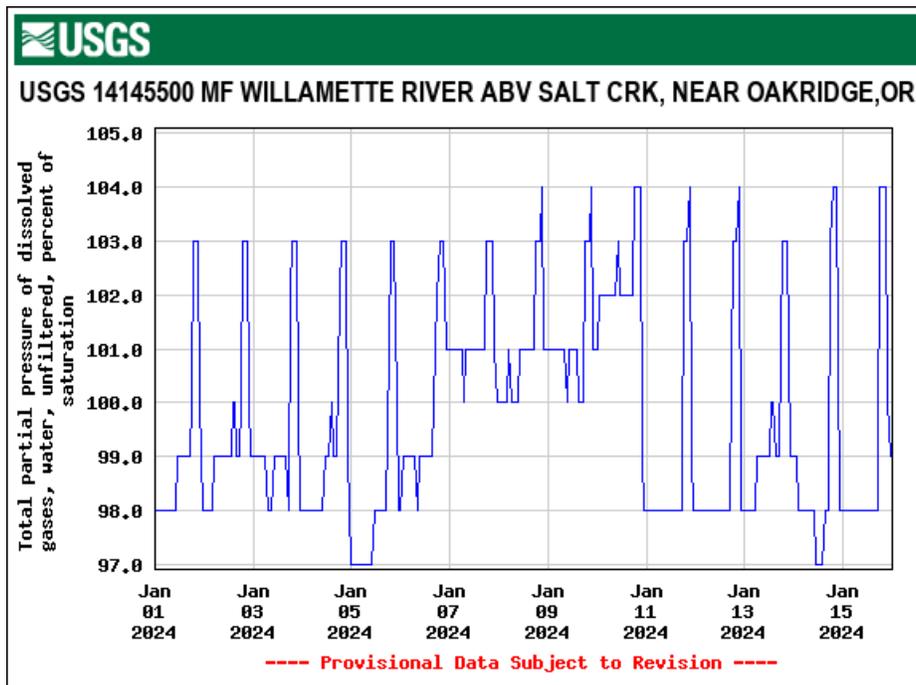


Figure 71. Total Dissolved Gas Saturation (%); below Hills Creek Dam – Middle Fork Willamette River.

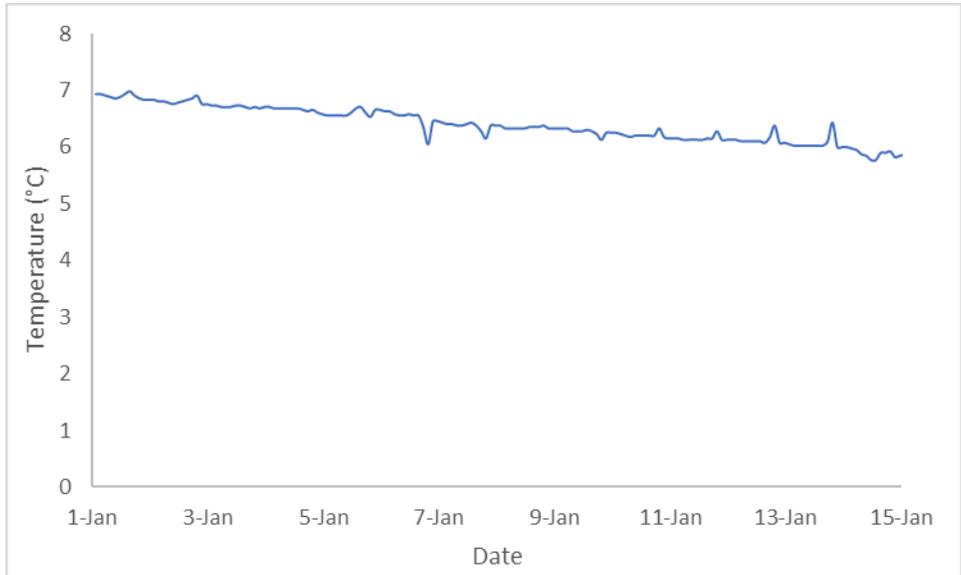


Figure 72. Temperature at Hills Creek RST PWR (Hills Creek Dam).

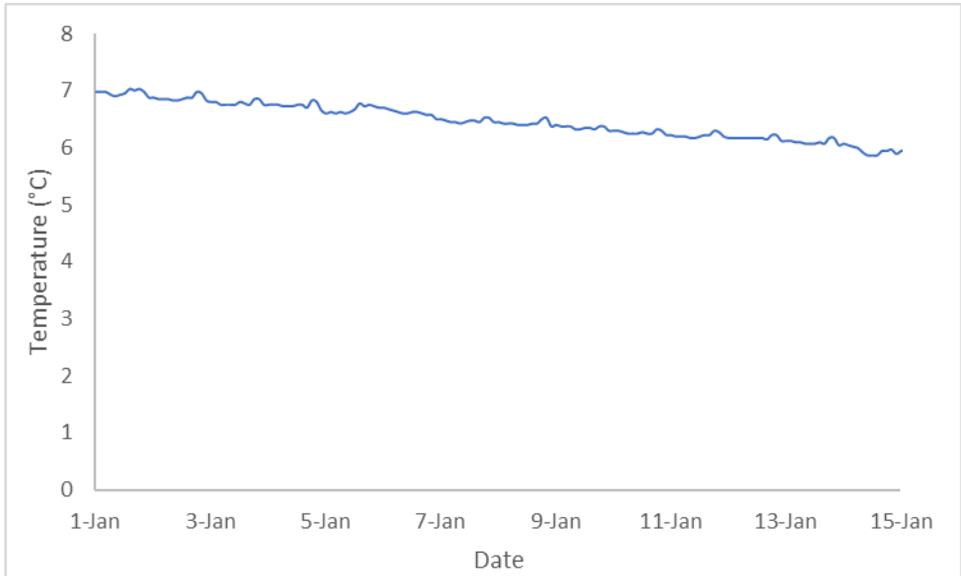


Figure 73. Temperature at Hills Creek RO RST (Hills Creek Dam).

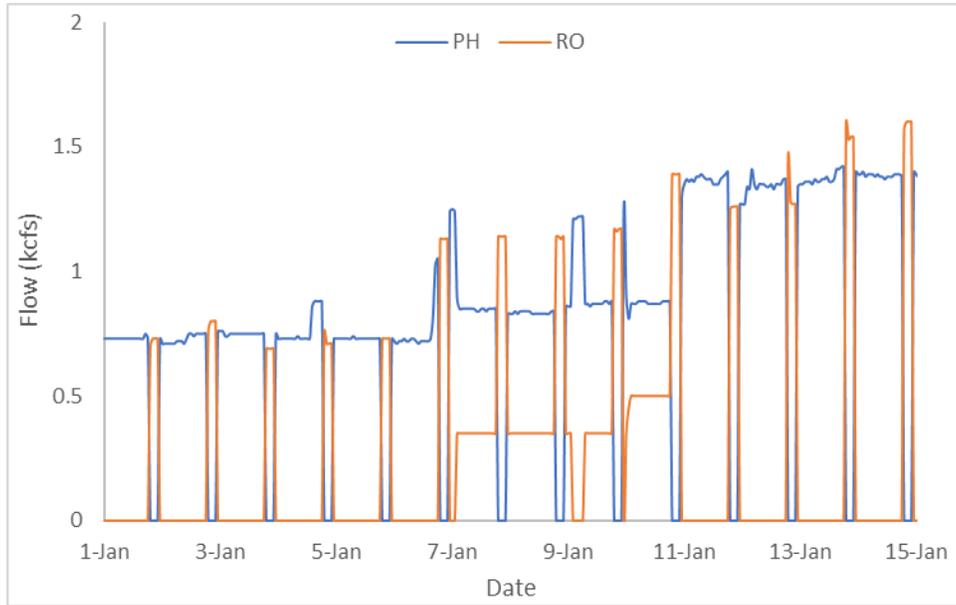


Figure 74. Hourly Flows PWR vs. RO (Hills Creek Dam).

Issues Encountered

A severe ice storm impacted the Willamette Valley overnight on January 12, 2023. Due to extremely icy road conditions and the overwhelming risk to crew safety, EAS crews were not able to access any RST sites on January 13th. EAS personnel predominantly reside in Corvallis, Albany, and Eugene. Each of these areas had a significant buildup of ice and subsequent debris, which led to increased travel and safety concerns over the course of the following week.

Crews were able to safely reach the Big Cliff Dam, Dexter Dam, and Lookout Point Head of Reservoir RSTs on January 14th. The Big Cliff Dam RST was covered in ice and sustained damage to the rotation counter arms and throat guard. No damage to the cone was observed. Due to the need for repairs and uncertainty of increased freezing temperatures overnight, the RST was raised to the non-sampling position. The Lookout Point Head of Reservoir trap was full of large woody debris and sustained severe damage to the winch. Our crew were able to clear out much of the debris but were unable to safely raise the cone to the non-sampling position. The RST at Dexter Dam was checked for fish but was not raised due to concern over road conditions and crew safety as time ran short. No additional sites were accessed January 14th due to unsafe road conditions and limited daylight hours to safely work in.

An EAS crew was able to reach the Green Peter Dam Tailrace trap on January 15th. There were multiple trees, rocks, and power lines down on the dam road access points, which severely delayed travel. Our crew was able to get a visual assessment of the trap but were unable to safely access the trap itself. This trap remained fishing. No additional sites were accessed January 15th due to unsafe road conditions and limited daylight hours to safely work in.

Due to ongoing deteriorated road conditions and the significant risk to crew safety, as well as an imminent second ice storm, scheduled to start within the Willamette Valley in the early afternoon and carry on throughout the night, our crew were not able to access any RST sites on January 16th.

EAS crews were able to reach all RST sites on January 17th, except for the Big Cliff Dam Tailrace RST. Additionally, fallen trees and downed power lines delayed the crew attempting to reach Green Peter Dam Tailrace. Traps were checked and subsequent fish were sampled per normal operating protocol. Target fish were not held on January 17th for the delayed mortality study, as we could not confirm which day these fish entered the trap. More information on these fish will be in our next bi-weekly report.

On Thursday January 18th, Governor Tina Kotek declared a state of emergency over the fatal storm that had impacted the region over the previous week. In addition to unsafe roads and access points around the state of Oregon, widespread power outages had occurred, affecting hundreds of thousands of residents.

Upcoming USACE Support Services

EAS may have to request USACE crane assistance for the Big Cliff Dam RST if flood water evacuations exceed 10,000 cfs. We do not have confirmed flow data at the time of this report.

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	1972		1210	17	138	21	16	1490	448	7	1128	6	17	5	70	12	144	80	257	113	125	26	86	
8 ft	1972		1210	17	138	21	16	1490	448	7	1128	6	17	5	70	12	144	80	257	113	125	26	86	
Adult	1		1								1						1	1	1		1			
Parr	40		14	1	4	2		20	5		14					2			1	1		1		
Smolt	1800		1190	16	132	19	15	1470	442	7	1110	6	17	3	69	10	140	76	254	109	124	22	84	
Unknown	2													2								1		
Fry	129		5		2		1		1		3				1		3	3	1	3		2	2	
Breitenbush River	377		304	1	1	9		66	9	3	181				1		11	10		2	4	1		
5 ft	377		304	1	1	9		66	9	3	181				1		11	10		2	4	1		
Parr	220		171	1		7		39	6	2	97						7	8			1	1		
Smolt	147		133		1	2		27	3	1	81				1		4	2		2	3			
Fry	10										3													
Detroit HOR	10141	1	710	10	15	9		51	47	16	461	2		1	33		67	52	46	38	48	19		
5 ft	10141	1	710	10	15	9		51	47	16	461	2		1	33		67	52	46	38	48	19		
Parr	811		494	9	4	8		30	34	4	309	2			15		8	22	7	12	5	10		
Smolt	210		189	1		1		21	5	3	102				1		4	3	1	1				
Fry	9120	1	27		11			8	9	50				1	17		55	27	38	25	43	9		
Green Peter HOR	25		3						1	1	4						1	1		1				
5 ft	25		3						1	1	4						1	1		1				
Smolt	4		3						1	1	3						1	1						
Fry	21										1										1			
Green Peter Tail.	109	3	56	2	15	2		7	28		70				8		9	5	15	15	11	2	33	
8 ft	109	3	56	2	15	2		7	28		70				8		9	5	15	15	11	2	33	
Parr	84	3	45		9	2		5	21		54				4		6	3	11	10	11	2	26	
Smot	8		6	1	1			1	2		6									1	1		3	
Fry	17		5	1	5			1	5		10				4		3	2	3	4			4	
Foster Dam HOR	744		112		3			3	5	1	82		1	1	3		5	12	4	16	1	6		
5 ft	744		112		3			3	5	1	82		1	1	3		5	12	4	16	1	6		
Parr	73		50					3			22				1				1					
Smolt	74		59							1	40						1				3			
Fry	597		3		3				5		20		1	1	2		4	12	3	13	1	6		
Cougar Dam	8706	12	5789	75	872	562	12	7235	1736	19	6167	4	10	2	258	230	482	396	1153	353	1006	87	2042	
RO	7085	1	4940	62	822	550	12	6402	1573	17	5623	3	3		205	209	429	340	1080	319	912	78	2031	
Parr	476		309	6	70	24	1	276	101	4	318				14	11	21	23	33	29	15	9	73	
Smolt	6568	1	4629	56	749	526	11	6126	1471	13	5301	3	3		191	198	406	317	1046	288	895	69	1957	
Fry	41		2		3				1		4						2		1	2	2		1	
PH	1621	11	849	13	50	12		833	163	2	544	1	7	2	53	21	53	56	73	34	94	9	11	
Parr	427	1	257	4	15	7		155	43	2	134		1		13	6	10	18	18	10	14	2	3	
Smolt	803		588	9	29	5		677	113		404	1	6		39	15	40	31	51	21	80	4	8	
Unknown	2													2										
Fry	389	10	4		6			1	7		6				1		3	7	4	3		3		
Cougar Dam HOR	6611	9	427	7	19	9		45	62	25	355	2	1		10		53	65	67	53	16	32		
5 ft	6611	9	427	7	19	9		45	62	25	355	2	1		10		53	65	67	53	16	32		
Parr	1174		365	7	6	8		39	24	14	255				5		16	35	11	11	6	8		
Smolt	91		37		2			4	17	2	30				3		7	2	5	2		3		
Fry	5346	9	25		11	1		2	21	9	70	2	1		2		30	28	51	40	10	21		
Fall Creek HOR	155		5	1				2	4		5	1					2	3		2		1		
8 ft	155		5	1				2	4		5	1					2	3		2		1		
Parr	10		3					1	2		3						1							
Smolt	5		1					1																
Fry	140		1	1					2		2	1					1	3		2		1		
Fall Creek Dam Tail.	151		43	1	5	1		63	51		87		1		13	1	11	6	13	11	17		9	
8 ft	151		43	1	5	1		63	51		87		1		13	1	11	6	13	11	17		9	
Parr	8		2		1						2				1		1	1	1	1			2	
Smolt	89		38	1	3	1		63	51		82		1		12	1	10	5	11	8	17		7	
Fry	54		3		1						3						1		1	2				

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
Dexter Dam Tail.	158		94		14			25	45		92				2		6	10	15	11	9	3	34
5 ft	158		94		14			25	45		92				2		6	10	15	11	9	3	34
Parr	30		12		4			2	9		15							3	5	4			10
Smolt	125		82		10			23	36		76				2		6	7	10	7	9	3	24
Fry	3										1												
Lookout Dam Tail.	218		108	3	27	2	5	58	89		164	2			10	2	15	11	35	26	33	5	63
PH 1	53		22	1	8	1	1	19	24		41				5	2	10	4	12	7	7		11
Parr	6		3		1				2		4					1	1		1				2
Smolt	46		19	1	7	1	1	19	22		37				5	1	9	4	11	7	7		9
Fry	1																						
PH 2	56		32	1	8		1	10	19		45				3		2	4	8	8	8		13
Parr	22		15		4			1	6		19				1		1	1	3	5	2		6
Smolt	30		17	1	4		1	9	12		26				2		1	1	5	2	5		7
Fry	4								1									2		1	1		
Spill	109		54	1	11	1	3	29	46		78	2			2		3	3	15	11	18	5	39
Parr	18		7		1				9		13	1			1				1		1		7
Smolt	88		46	1	8	1	3	29	37		64	1			1		3	2	14	9	17	5	32
Fry	3		1		2						1								1	1			
Lookout Point HOR	252	1	66	1	4			3	5		41						5	3	5	1	2	1	
5 ft	252	1	66	1	4			3	5		41						5	3	5	1	2	1	
Parr	104		49					1	1		21						1		2				
Smolt	20		15	1	1			1	2		11						1		1	1	1		
Fry	128	1	2		3			1	2		9						3	3	2		1		
Hills Creek Dam	818	2	236	8	71	9		415	228	1	379	4	20	3	119	19	84	28	113	74	113	16	51
RO	342	2	109	3	29	1		183	100	1	158	1	9		48	9	34	7	53	36	43	5	23
Parr	16		10					1	1		6						1		1				
Smolt	200	1	97	3	28	1		182	99	1	150	1	9		48	9	30	7	50	33	42	3	23
Fry	126	1	2		1						2						3		2	3	1	2	
PH	476		127	5	42	8		232	128		221	3	11	3	71	10	50	21	60	38	70	11	28
Parr	11		8		1			3	1		4					1				1	1	1	
Smolt	245		114	5	37	8		229	127		212	3	11	3	66	9	44	16	56	35	69	7	28
Fry	220		5		4						5				5		6	5	4	2		3	
Hills Creek HOR	93		6							1	2												
5 ft	93		6							1	2												
Parr	33		4							1	2												
Fry	60		2																				

Chinook (CHS) During Reporting Period

Chinook Injuries During Reporting Period 01-01-2024 to 01-15-2024																							
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	17		11	1	2	1		15	6		12				3		1	1	7	1	1		
8 ft	17		11	1	2	1		15	6		12				3		1	1	7	1	1		
Smolt	17		11	1	2	1		15	6		12				3		1	1	7	1	1		
Green Peter Tail.	2																		1				
8 ft	2																		1				
Fry	2																		1				
Cougar Dam	14		11	1	2			6	1		9						2	1	2	1			5
PH 2	2		1					2			1							1					1
Parr	2		1					2			1							1					1
RO	12		10	1	2			4	1		8						2		2	1			4
Parr	7		7	1	1			1			3						1			1			2
Smolt	5		3		1			3	1		5						1		2				2
Dexter Dam Tail.	2		2		1			1			1								1				
5 ft	2		2		1			1			1								1				
Parr	1		1																				
Smolt	1		1		1			1			1								1				
Lookout Point HOR	1		1								1												
5 ft	1		1								1												
Parr	1		1								1												
Hills Creek Dam	34		23		9	1		31	11		33				2	1	7	1	6	5	11	1	1
PH	23		14		6	1		22	9		22				1		5	1	3	4	5		
Parr	1		1								1												
Smolt	22		13		6	1		22	9		21			1		5	1		3	4	5		
RO	11		9		3			9	2		11			1	1	2			3	1	6	1	1
Parr	1		1								1												
Smolt	10		8		3			9	2		10			1	1	2			3	1	6	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	359	1	61	4	7	5	6	54	22	1	78	1	1		6		15	7	18	17	13	3	14
8 ft	359	1	61	4	7	5	6	54	22	1	78	1	1		6		15	7	18	17	13	3	14
Adult	1								1		1		1										
Parr	61	1	15	4	1	1	1	1			19						2	1	2	1	1		1
Smolt	67		41		6	4	5	53	21		53	1			6		10	5	15	16	12	3	12
Fry	230		5							1	5						3	1	1				1
Breitenbush River	361	1	14					3	3		16				1		2	2	3	1	1		
5 ft	361	1	14					3	3		16				1		2	2	3	1	1		
Parr	37		8					2	2		10						2	2			1		
Smolt	8		6					1	1		5				1				2				
Fry	316	1									1								1	1			
Detroit HOR	589	2	13	1	5	1		1	5	2	17				1		6	3	4	6	2	2	1
5 ft	589	2	13	1	5	1		1	5	2	17				1		6	3	4	6	2	2	1
Parr	34		8	1					1		8						1	1		1			
Smolt	4		3			1		1	1	1	3							1		1	1	1	
Fry	551	2	2		5				3	1	6				1		5	1	4	4	1	1	1
Green Peter HOR	1																						
5 ft	1																						
Fry	1																						
Green Peter Tailrace - I	18		8		3			4	8		14				1		4		5	3	1	5	12
8 ft	18		8		3			4	8		14				1		4		5	3	1	5	12
Adult	1		1								1												1
Smolt	16		7		3			4	8		13				1		4		5	3	1	5	11
Fry	1																						
Foster Dam HOR	25		24							1	14										1		
5 ft	25		24							1	14										1		
Parr	2		2																				
Smolt	23		22							1	14										1		

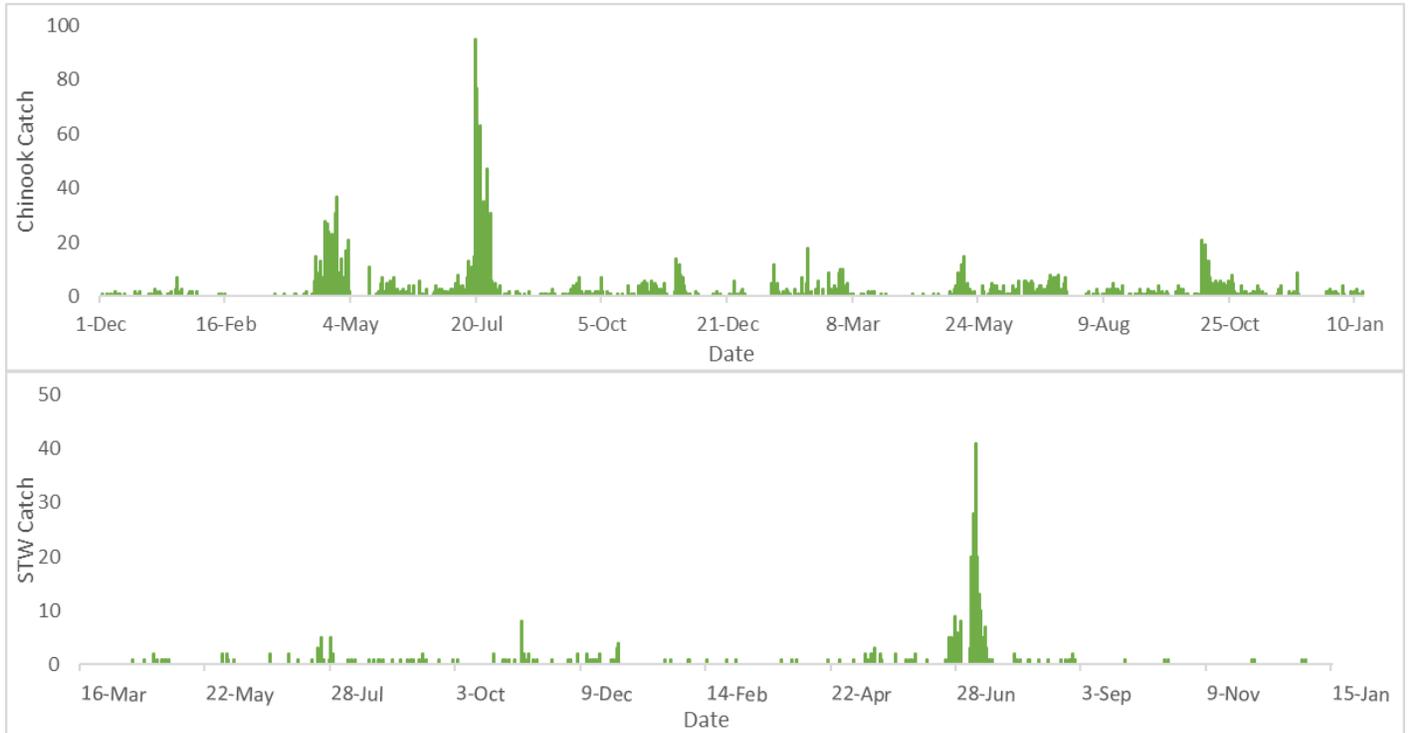
Steelhead (*O. mykiss*) During Reporting Period

		O. mykiss Injuries During Reporting Period 01-01-2024 to 01-15-2024																					
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		
Smolt	1		1					1			1										1		

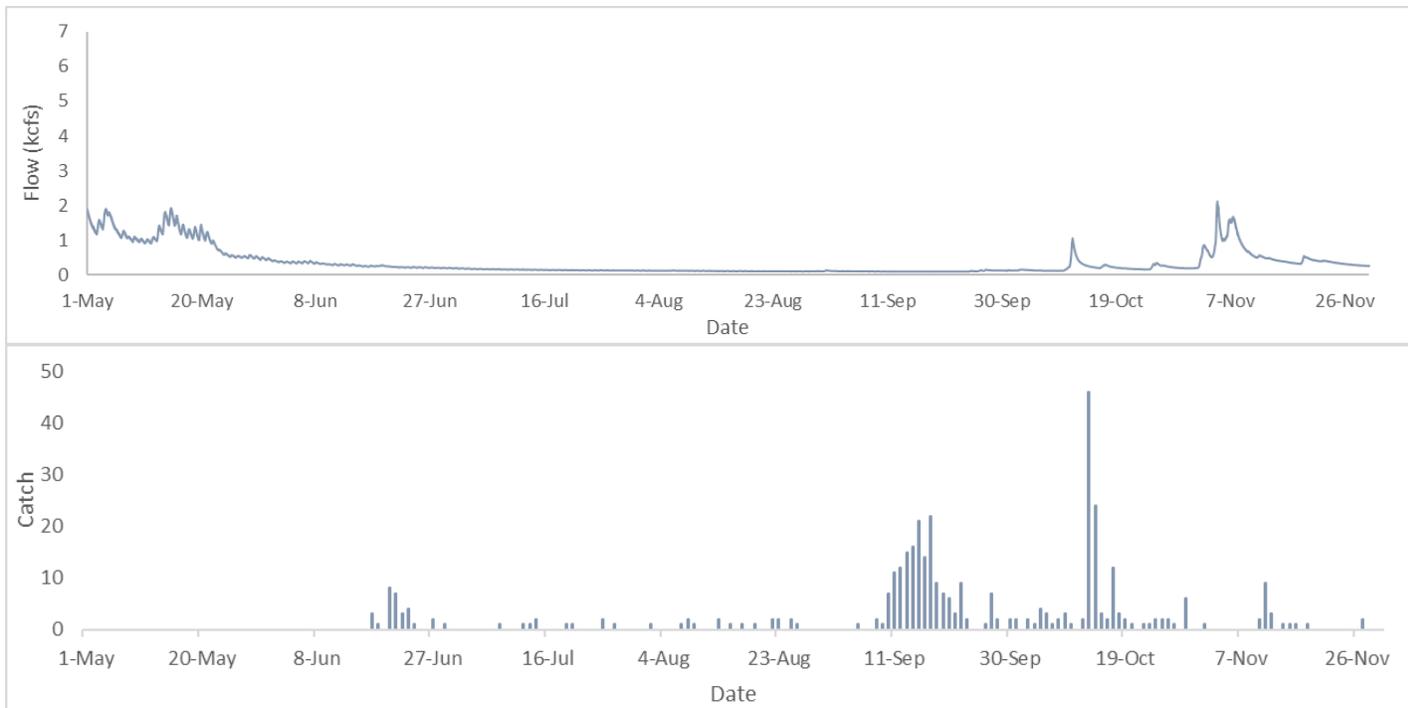
Appendix B

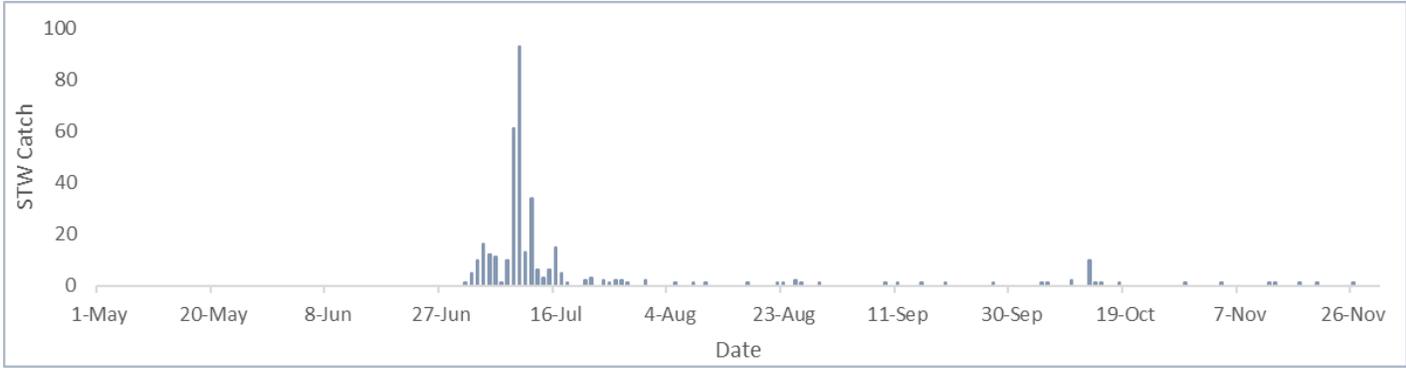
Big Cliff Dam Operational and Capture Data Since Start of Monitoring



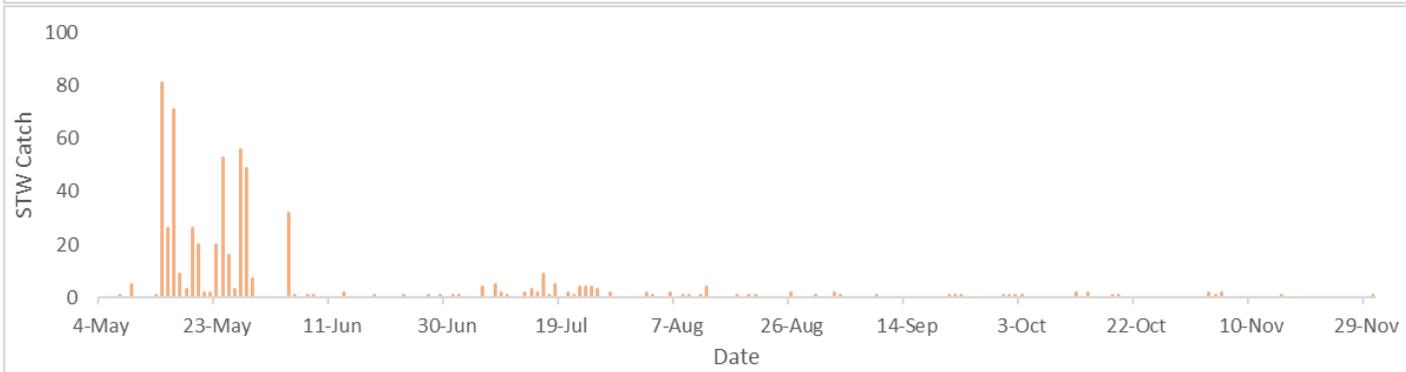
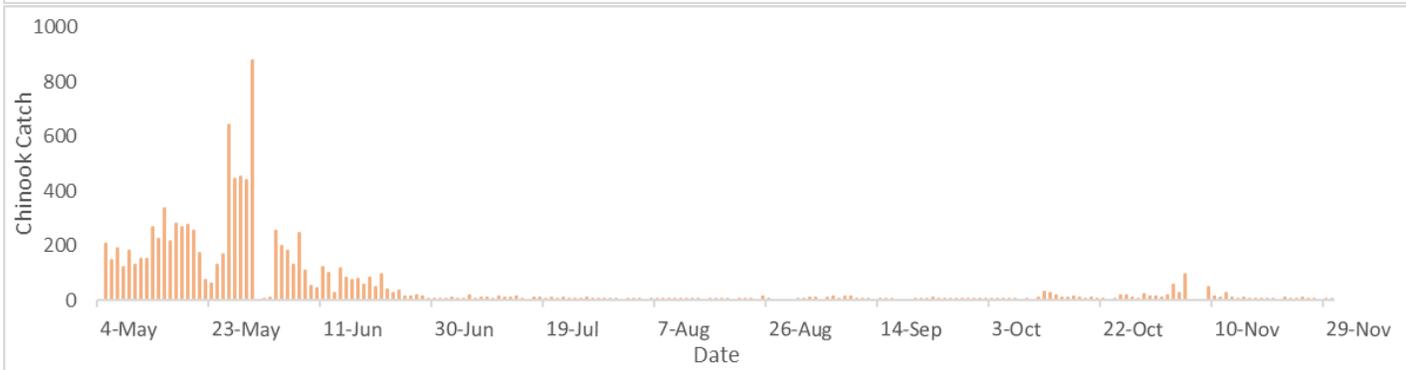
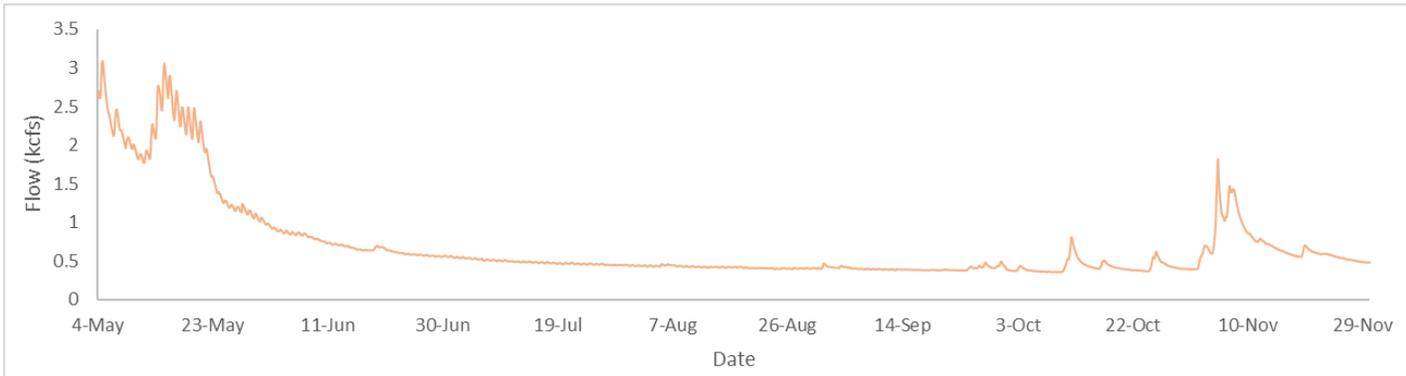


Breitenbush River Operational and Capture Data Since Start of Monitoring



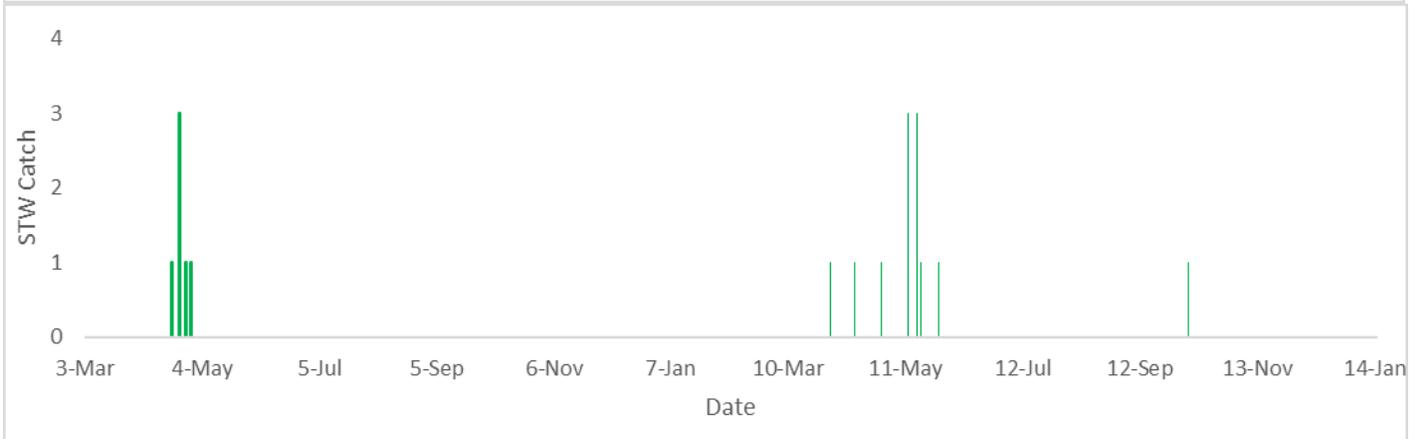
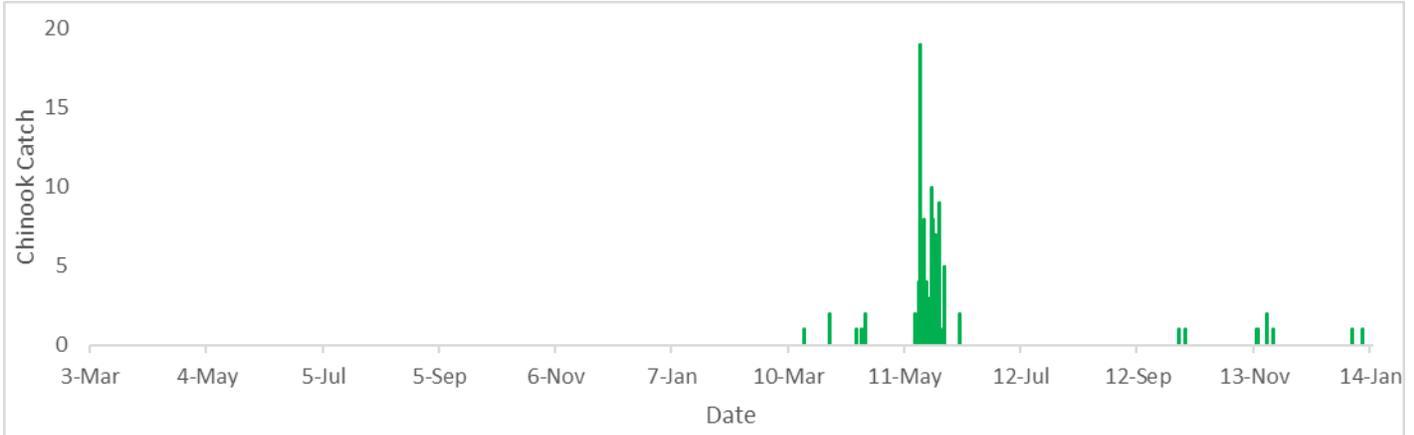


Detroit Head of Reservoir-North Santiam River Operational and Capture Data Since Start of Monitoring

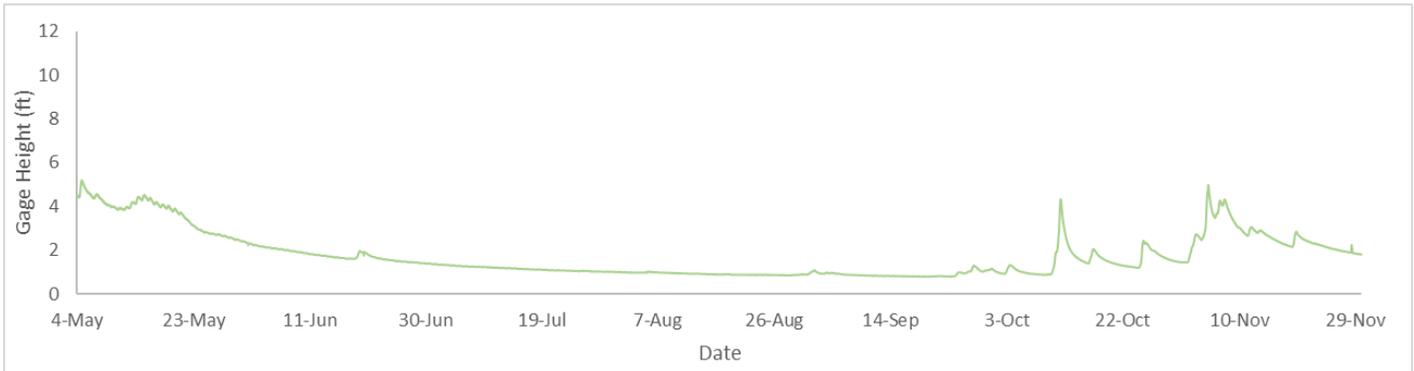


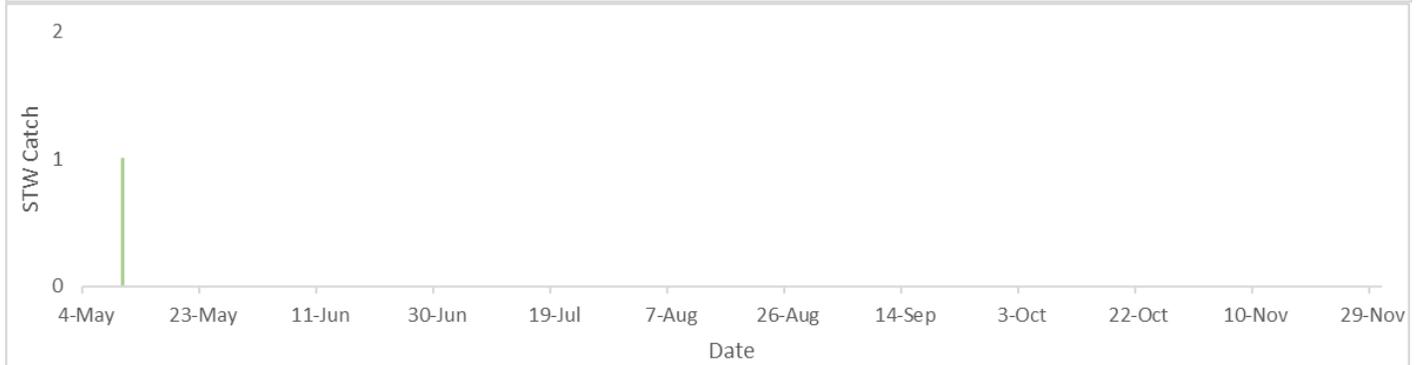
Green Peter Dam Operational and Green Peter Tailrace- Middle Santiam River Capture Data Since Start of Monitoring



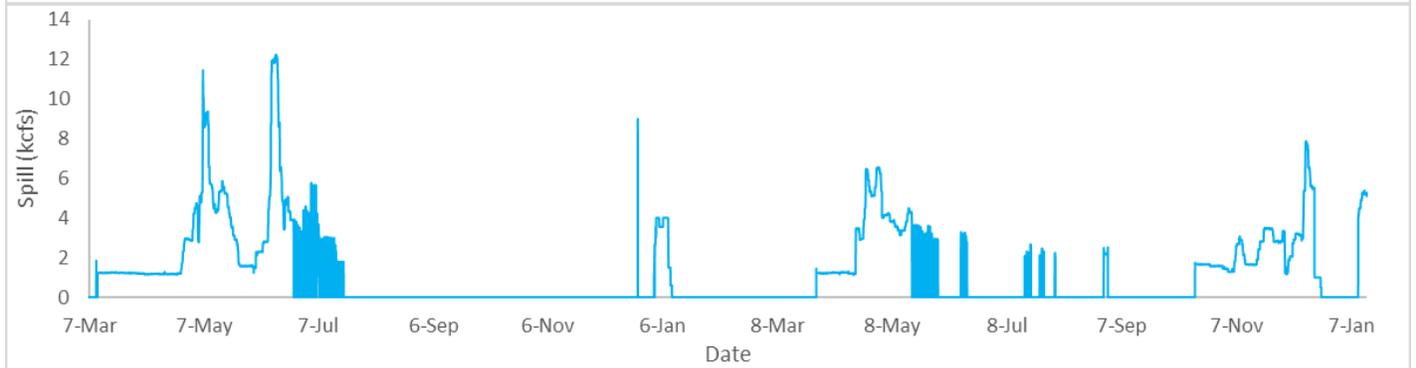
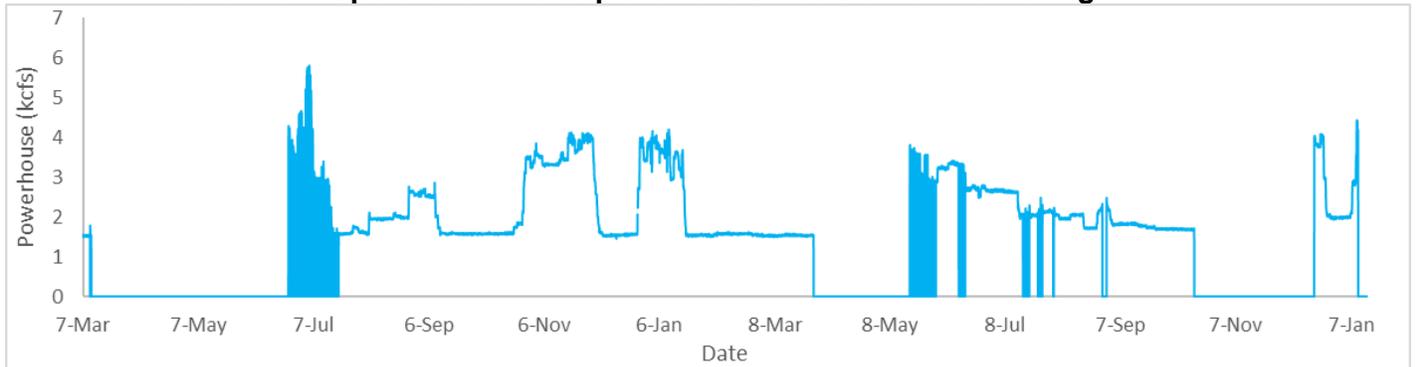


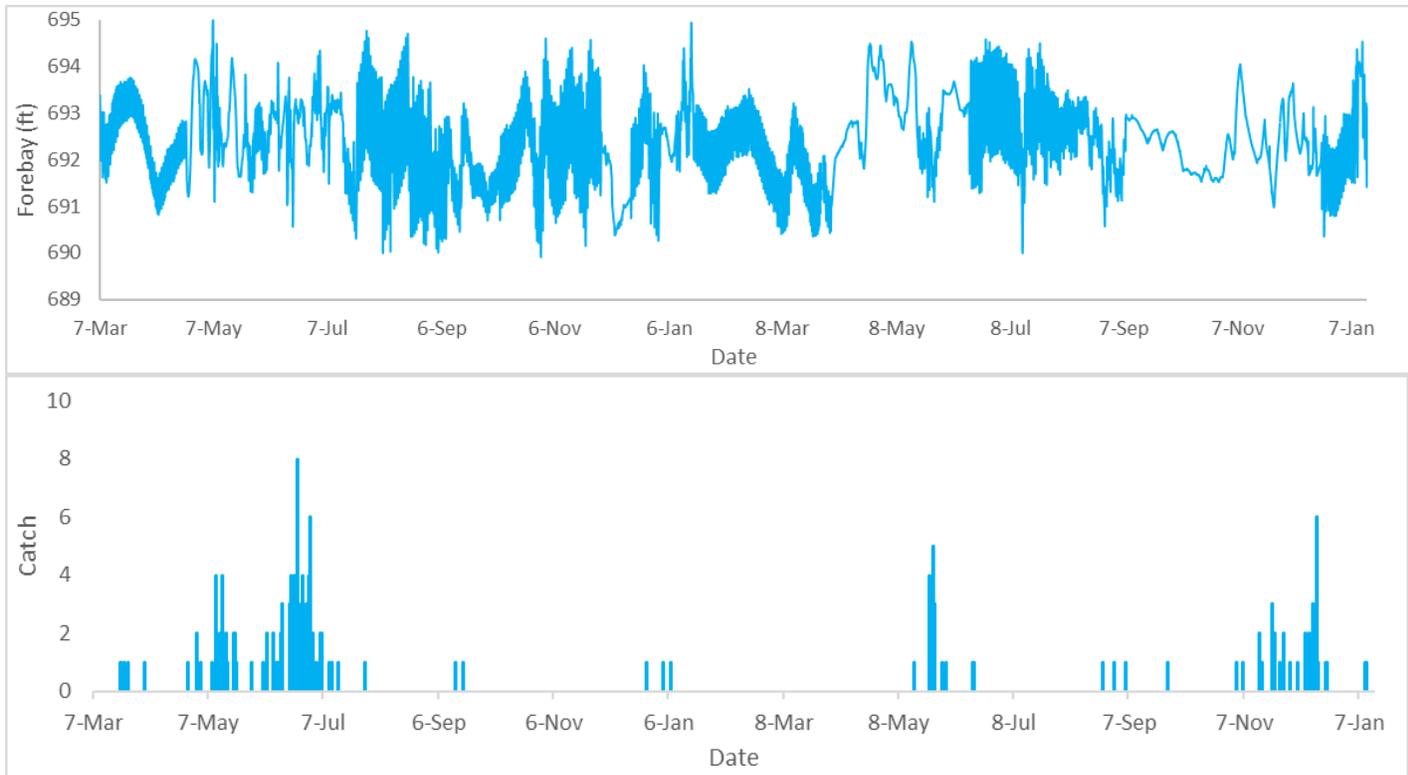
Green Peter Head of Reservoir-Middle Santiam River Operational and Capture Data Since Start of Monitoring



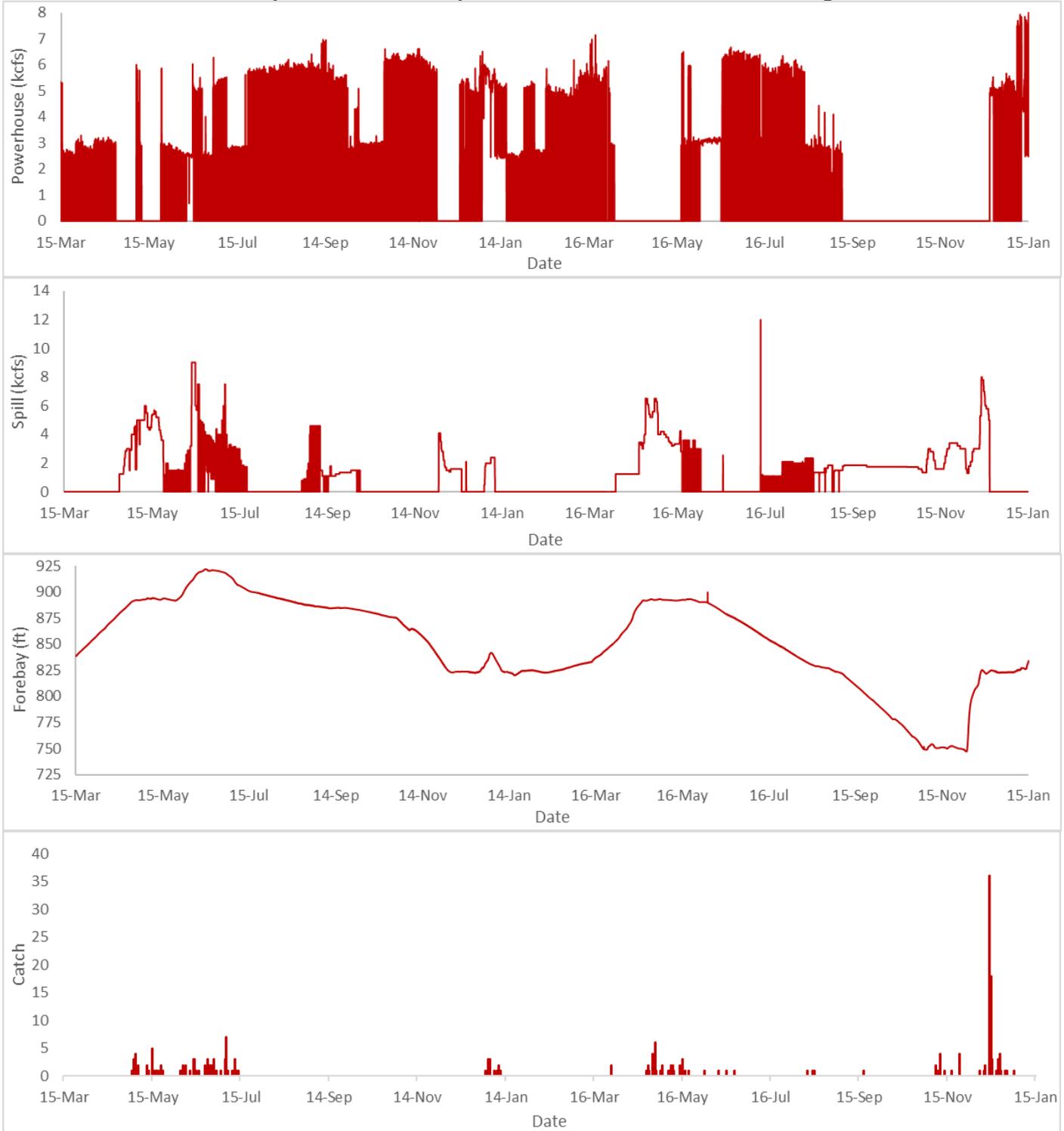


Dexter Dam Operational and Capture Data Since Start of Monitoring

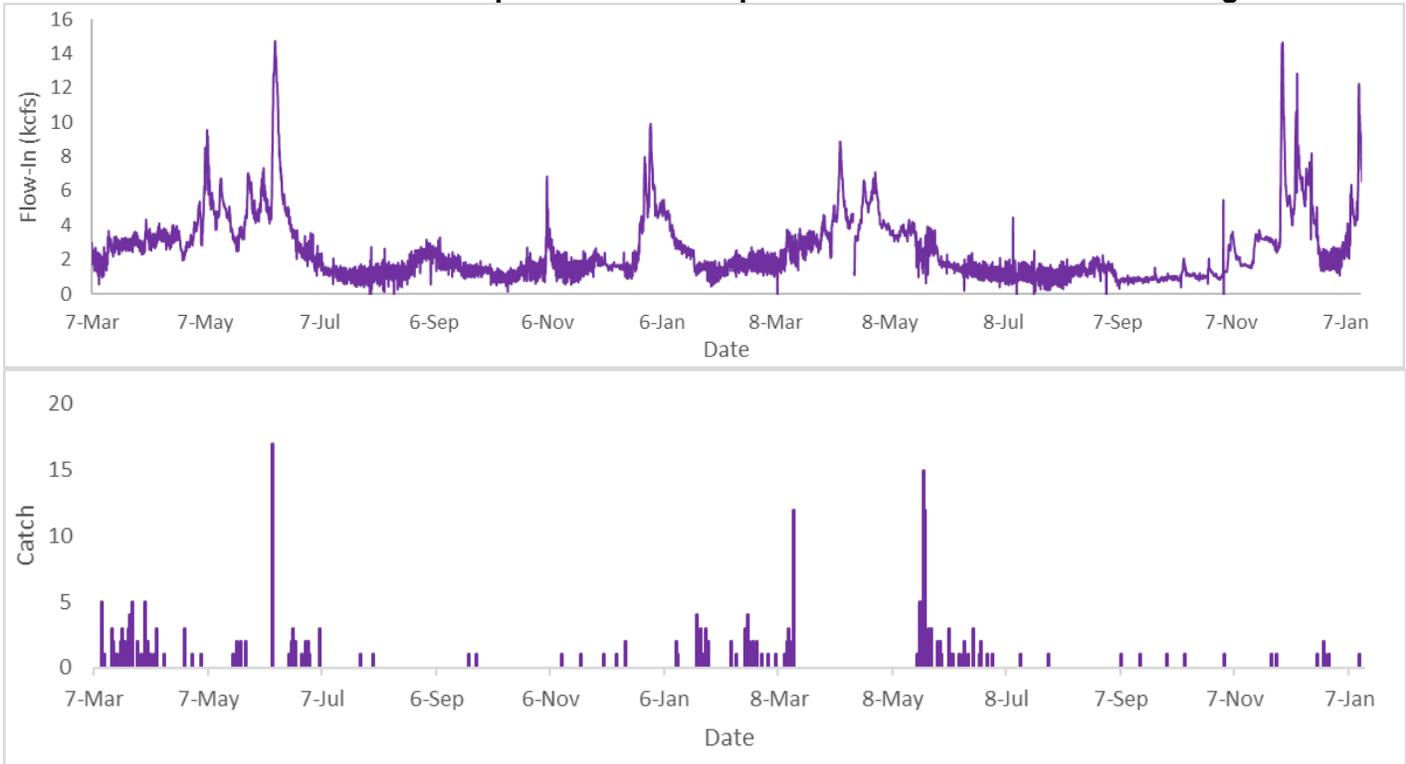




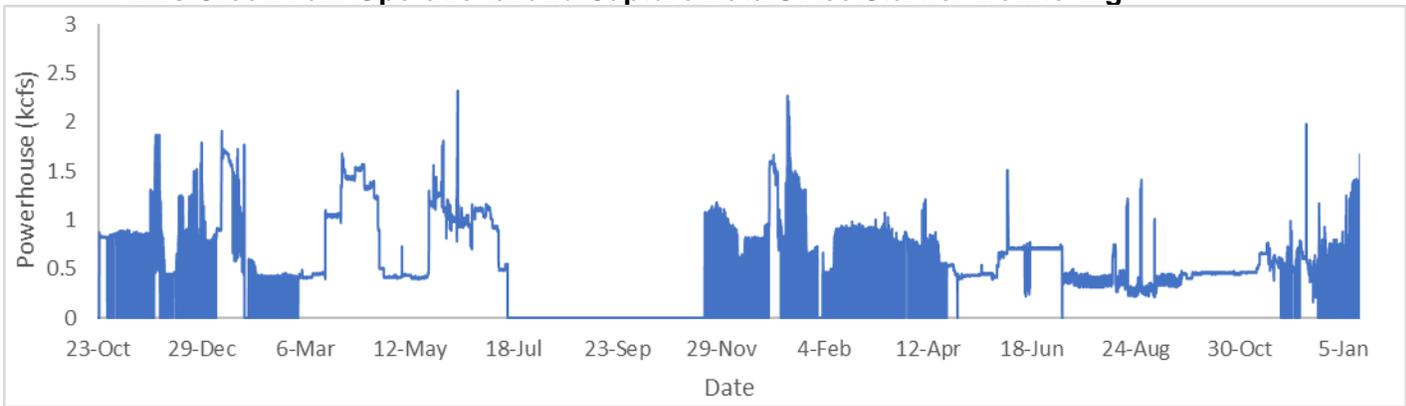
Lookout Dam Operational and Capture Data Since Start of Monitoring

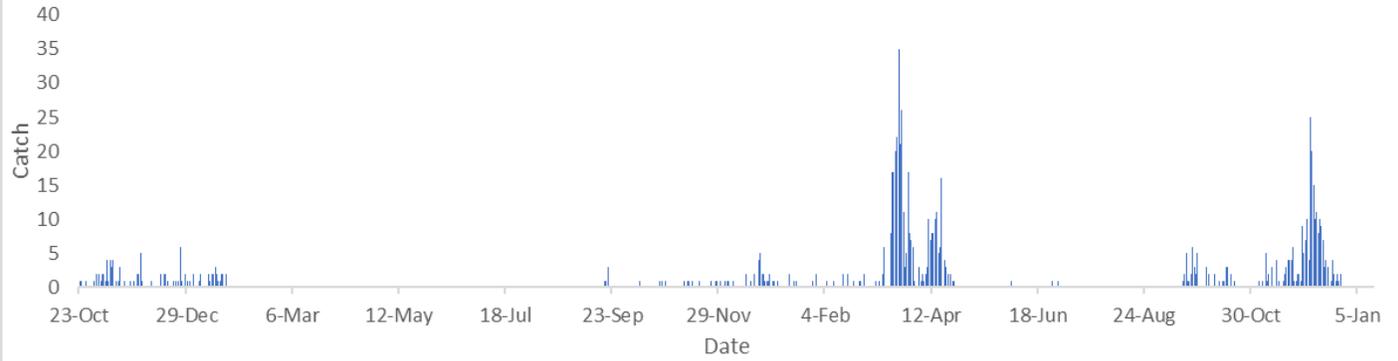
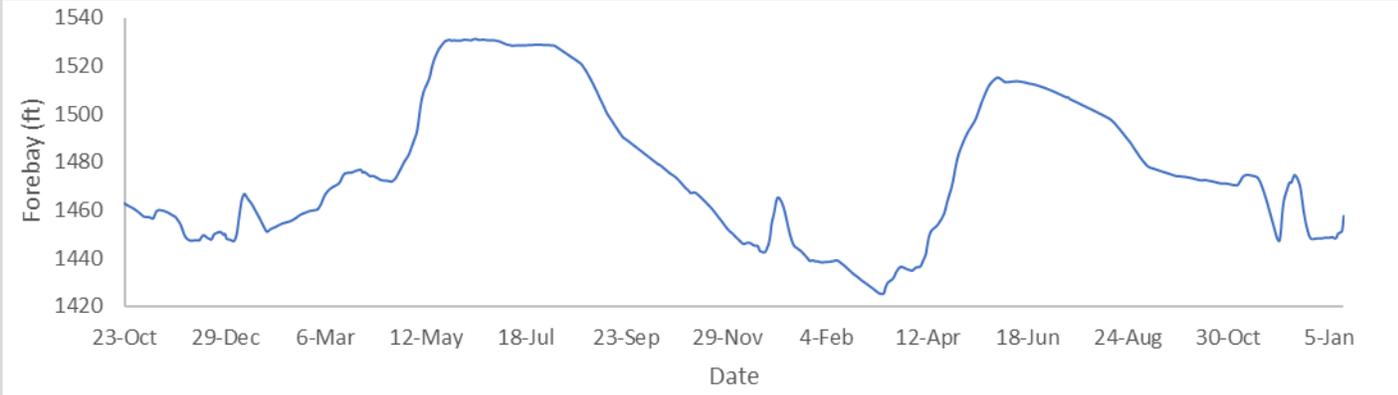
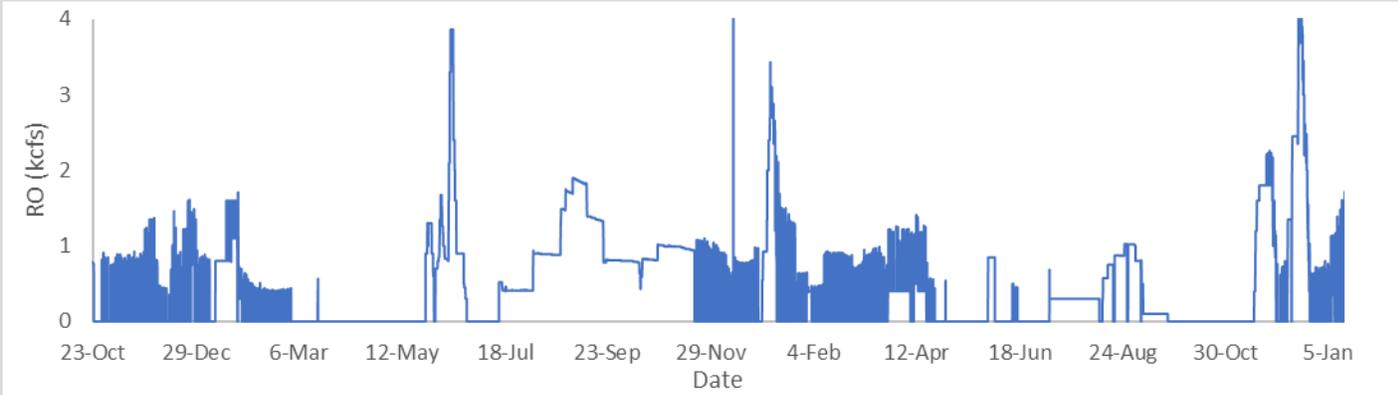


Lookout Point Head of Reservoir Operational and Capture Data Since Start of Monitoring

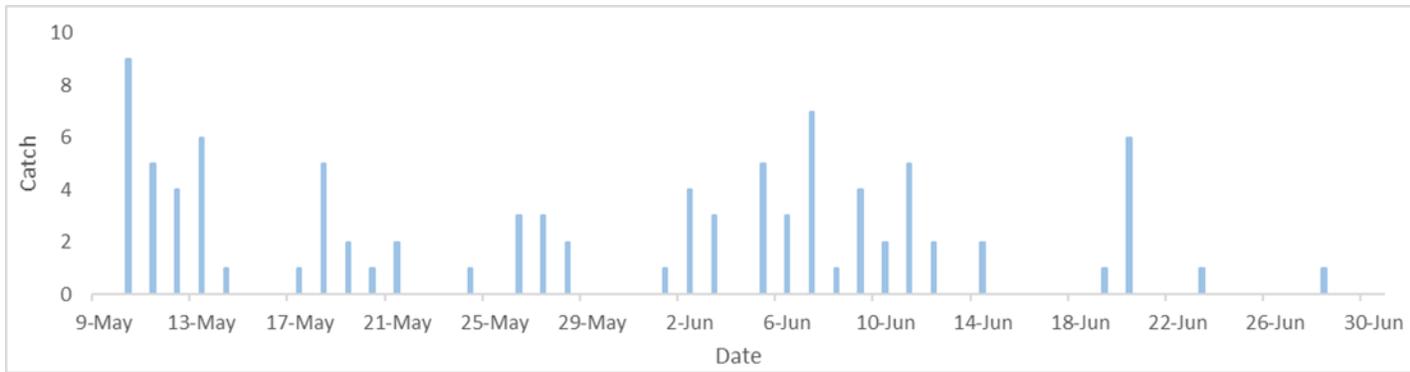
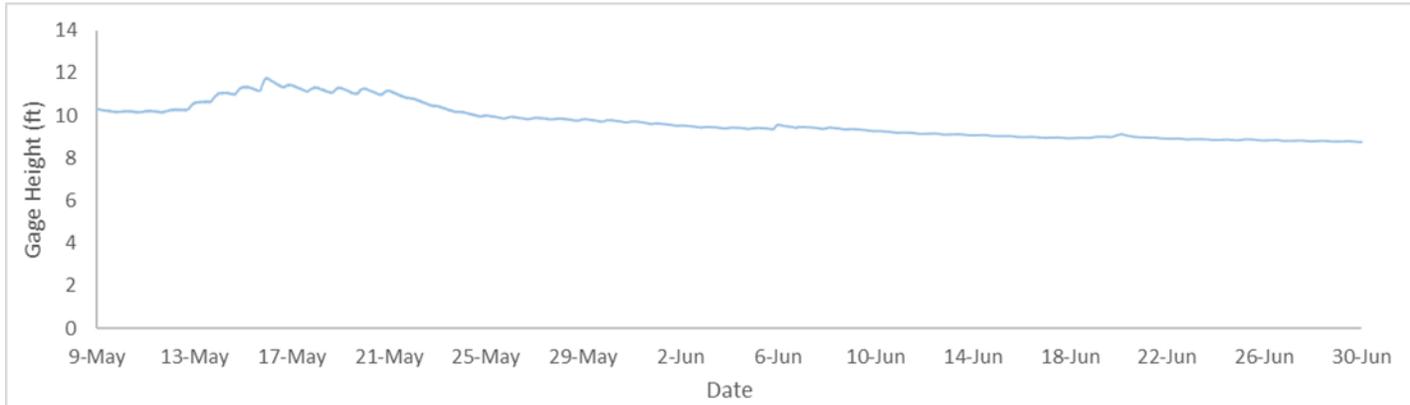


Hills Creek Dam Operational and Capture Data Since Start of Monitoring

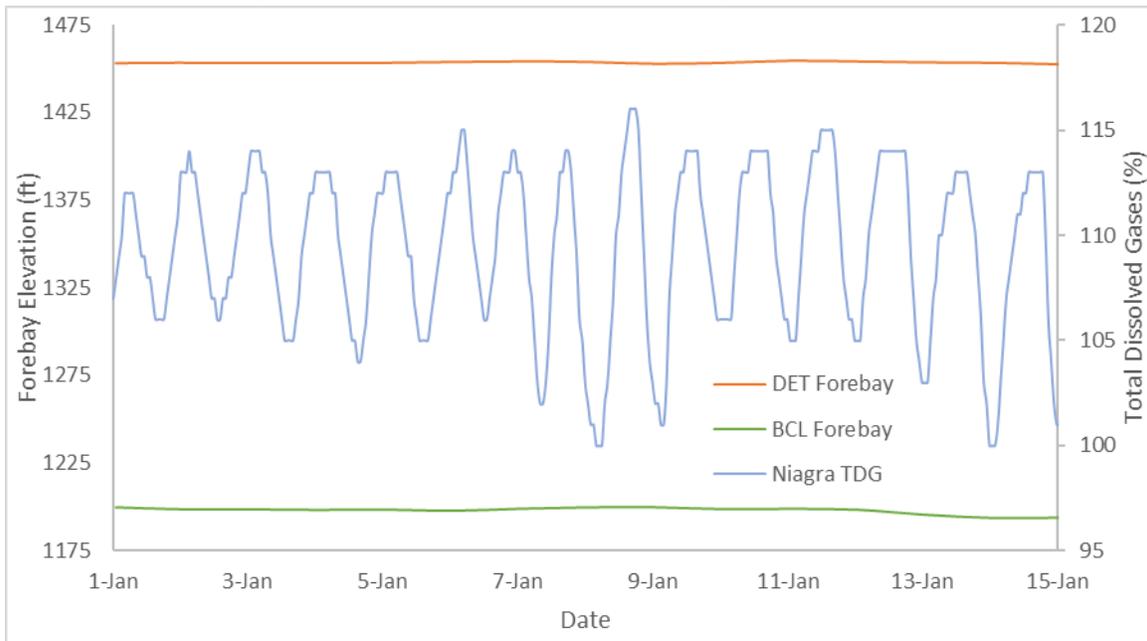




Hills Creek Head of Reservoir-Middle Fork Willamette River Operational and Capture Data Since Start of Monitoring



Detroit and Big Cliff Forebay Elevations vs. Niagara Total Dissolved Gases



Appendix C

Release Location	Date of Release	# of Fish Released	# of Fish Recaptured	% Efficiency
Breitenbush River	6/21/2023	749	53	7.1%
Breitenbush River	7/6/2023	763	25	3.3%
Breitenbush River	8/2/2023	791	12	1.5%
Breitenbush River	9/20/2023	756	7	0.9%
Breitenbush River	10/5/2023	789	18	2.3%
Breitenbush River	10/25/2023	750	51	6.8%
Breitenbush River	11/10/2023	750	152	20.3%
Breitenbush River	11/21/2023	900	55	6.1%
Big Cliff Dam Tailrace*	12/22/2021	997	39	3.9%
Big Cliff Dam Tailrace*	5/25/2022	995	21	2.1%
Big Cliff Dam Tailrace*	8/9/2022	1000	92	9.2%
Big Cliff Dam Tailrace*	9/30/2022	995	48	4.8%
Big Cliff Dam Tailrace*	10/13/2022	500	15	3.0%
Big Cliff Dam Tailrace*	10/24/2022	535	25	4.7%
Big Cliff Dam Tailrace*	11/2/2022	949	40	4.2%
Big Cliff Dam Tailrace*	11/16/2022	509	15	2.9%
Big Cliff Dam Tailrace*	12/14/2022	502	60	12.0%
Big Cliff Dam Tailrace*	12/19/2022	1010	92	9.1%
Big Cliff Dam Tailrace*	12/21/2022	1014	33	3.3%
Big Cliff Dam Tailrace*	12/27/2022	704	47	6.7%
Big Cliff Dam Tailrace*	12/29/2022	452	22	4.9%
Big Cliff Dam Tailrace*	1/25/2023	500	56	11.2%
Big Cliff Dam Tailrace*	2/17/2023	499	38	7.6%
Big Cliff Dam Tailrace**	3/7/2023	2,968	61	2.1%
Big Cliff Dam Tailrace*	3/10/2023	541	112	20.7%
Big Cliff Dam Tailrace*	4/28/2023	498	34	6.8%
Big Cliff Dam Tailrace*	5/23/2023	500	6	1.2%
Big Cliff Dam Tailrace*	6/21/2023	500	8	1.6%
Big Cliff Dam Tailrace*	7/5/2023	500	33	6.6%
Big Cliff Dam Tailrace*	8/3/2023	474	42	8.9%
Big Cliff Dam Tailrace*	9/19/2023	424	64	15.1%
Big Cliff Dam Tailrace*	10/6/2023	500	56	11.2%
Big Cliff Dam Tailrace	10/25/2023	633	99	15.6%
Big Cliff Dam Tailrace	11/16/2023	527	0	0.0%
Big Cliff Dam Tailrace	11/21/2023	500	30	6.0%
Big Cliff Dam Tailrace	12/28/2023	550	56	10.2%
Detroit Head of Reservoir- North Santiam River	6/6/2023	540	28	5.2%
Detroit Head of Reservoir- North Santiam River	6/20/2023	750	61	8.1%
Detroit Head of Reservoir- North Santiam River	7/6/2023	750	13	1.7%
Detroit Head of Reservoir- North Santiam River	8/2/2023	750	19	2.5%
Detroit Head of Reservoir- North Santiam River	9/6/2023	700	19	2.7%
Detroit Head of Reservoir- North Santiam River	10/5/2023	750	24	3.2%
Detroit Head of Reservoir- North Santiam River	10/25/2023	757	72	9.5%
Detroit Head of Reservoir- North Santiam River	11/10/2023	813	91	11.2%
Detroit Head of Reservoir- North Santiam River	11/21/2023	1,014	111	10.9%
Green Peter Head of Reservoir- Middle Santiam (dead fish)	6/7/2023	1,000	0	0.0%
Green Peter Head of Reservoir- Middle Santiam	6/7/2023	750	1	0.1%
Green Peter Head of Reservoir- Middle Santiam	7/28/2023	750	0	0.0%
Green Peter Head of Reservoir- Middle Santiam	8/30/2023	749	0	0.0%
Green Peter Head of Reservoir- Middle Santiam	9/27/2023	741	0	0.0%
Green Peter Head of Reservoir- Middle Santiam	10/11/2023	750	0	0.0%
Green Peter Head of Reservoir- Middle Santiam	10/31/2023	750	0	0.0%
Green Peter Head of Reservoir- Middle Santiam (dead fish)	10/31/2023	1,000	0	0.0%
Green Peter Head of Reservoir- Middle Santiam	11/15/2023	749	1	0.1%
Green Peter Dam Tailrace- Spill*	3/29/2022	643	4	0.6%
Green Peter Dam Tailrace- Spill*	4/30/2022	518	9	1.7%
Green Peter Dam Tailrace- Spill*	5/11/2023	999	9	0.9%
Green Peter Dam Tailrace- Spill (dead Fish)*	5/11/2023	1,001	0	0.0%
Green Peter Dam Tailrace- PWR*	5/25/2023	1,000	10	1.0%
Green Peter Dam Tailrace- PWR*	6/30/2023	1,000*	9	0.90%
Green Peter Dam Tailrace- PWR*	6/30/2023	1,000	10	1.00%

Green Peter Dam Tailrace- PWR*	7/27/2023	1,009	13	1.3%
Green Peter Dam Tailrace- PWR*	8/16/2023	1,008	7	0.7%
Green Peter Dam Tailrace- PWR*	8/31/2023	1,000	8	0.8%
Green Peter Dam Tailrace- PWR*	10/4/2023	1,005	0	0.0%
Green Peter Dam Tailrace*	11/1/2023	1,000	22	2.2%
Green Peter Dam Tailrace*	11/14/2023	1,000	7	0.7%
Green Peter Dam Tailrace- Spill*	11/29/2023	1,000	28	2.8%
Green Peter Dam Tailrace- Spill (dead Fish)*	11/29/2023	3,999	11	0.3%
Green Peter Dam Tailrace*	12/8/2023	1,000	25	2.5%
Green Peter Dam Tailrace- Spill*	12/19/2023	1,000	3	0.3%
Green Peter Dam Tailrace- PWR	1/9/2024	1,003	9	0.9%
Foster Dam Head of Reservoir*	9/29/2022	1,063	0	0.0%
Foster Dam Head of Reservoir*	10/25/2022	821	116	14.1%
Foster Dam Head of Reservoir*	11/1/2022	1006	263	26.1%
Foster Dam Head of Reservoir*	11/9/2022	1007	68	6.8%
Foster Dam Head of Reservoir*	11/15/2022	1009	55	5.5%
Foster Dam Head of Reservoir*	11/22/2022	933	163	17.5%
Foster Dam Head of Reservoir*	2/27/2023	1,002	21	2.1%
Foster Dam Head of Reservoir*	3/9/2023	995	62	6.2%
Foster Dam Head of Reservoir*	3/15/2023	1,025	0	0.0%
Foster Dam Head of Reservoir*	5/11/2023	985	20	2.0%
Foster Dam Head of Reservoir*	6/2/2023	1,003	79 ^a	7.9%
Foster Dam Head of Reservoir*	6/29/2023	1,000	22	2.2%
Foster Dam Head of Reservoir*	7/27/2023	989	0	0.0%
Foster Dam Head of Reservoir*	8/31/2023	1,000	0	0.0%
Foster Dam Head of Reservoir*	9/27/2023	1,000	6	0.6%
Foster Dam Head of Reservoir*	10/10/2023	1,016	55	5.4%
Foster Dam Head of Reservoir*	11/14/2023	1,000	102	10.2%
Foster Dam Head of Reservoir*	11/22/2023	1,001	79	7.9%
Cougar Dam Powerhouse Channel*	1/19/2022	997	37	3.7%
Cougar Dam Powerhouse Channel*	4/20/2022	1000	67	6.7%
Cougar Dam Powerhouse Channel*	7/19/2022	535	148	27.7%
Cougar Dam Powerhouse Channel*	8/11/2022	949	29	3.1%
Cougar Dam Powerhouse Channel*	1/12/2023	843	159	18.9%
Cougar Dam Powerhouse Channel*	3/23/2023	500	49	9.8%
Cougar Dam Powerhouse Channel*	3/30/2023	497	95	19.1%
Cougar Dam Powerhouse Channel*	4/18/2023	297	14	4.7%
Cougar Dam Powerhouse Channel*	5/10/2023	499	5	1.0%
Cougar Dam Powerhouse Channel*	6/6/2023	507	65	12.8%
Cougar Dam Powerhouse Channel*	7/26/2023	510	63	12.4%
Cougar Dam Powerhouse Channel*	9/21/2023	500	53	10.6%
Cougar Dam Powerhouse Channel*	10/11/2023	500	83	16.6%
Cougar Dam Regulating Outlet Channel*	1/19/2022	995	26	2.6%
Cougar Dam Regulating Outlet Channel*	4/20/2022	995	16	1.6%
Cougar Dam Regulating Outlet Channel*	5/15/2022	500	64	12.8%
Cougar Dam Regulating Outlet Channel*	10/14/2022	509	49	9.6%
Cougar Dam Regulating Outlet Channel*	11/22/2022	504	24	4.8%
Cougar Dam Regulating Outlet Channel*	12/13/2022	502	42	8.4%
Cougar Dam Regulating Outlet Channel*	12/15/2022	1010	56	5.5%
Cougar Dam Regulating Outlet Channel*	12/20/2022	1014	61	6.0%
Cougar Dam Regulating Outlet Channel*	12/28/2022	704	14	2.0%
Cougar Dam Regulating Outlet Channel*	1/30/2023	509	6	1.2%
Cougar Dam Regulating Outlet Channel*	3/23/2023	511	3	0.6%
Cougar Dam Regulating Outlet Channel*	3/30/2023	491	31	6.3%
Cougar Dam Regulating Outlet Channel*	4/18/2023	501	2	0.4%
Cougar Dam Regulating Outlet Channel*	5/10/2023	499	0	0.0%
Cougar Dam Regulating Outlet Channel*	10/11/2023	518	14	2.7%
Cougar Dam Regulating Outlet Channel*	11/8/2023	508	43	8.5%
Cougar Dam Regulating Outlet Channel*	11/30/2023	505	26	5.1%
Cougar Dam Regulating Outlet Channel	12/18/2023	505	2	0.4%
Cougar Dam Regulating Outlet Channel	1/11/2024	505	56	11.1%
Cougar Dam Head of Reservoir*	5/19/2022	498	23	4.6%
Cougar Dam Head of Reservoir*	6/23/2022	486	7	1.4%
Cougar Dam Head of Reservoir*	9/22/2022	551	56	10.2%

Cougar Dam Head of Reservoir*	10/5/2022	608	47	7.7%
Cougar Dam Head of Reservoir*	11/10/2022	704	33	4.7%
Cougar Dam Head of Reservoir*	11/16/2022	719	28	3.9%
Cougar Dam Head of Reservoir*	11/23/2022	752	48	6.4%
Cougar Dam Head of Reservoir*	11/29/2022	620	48	7.7%
Cougar Dam Head of Reservoir*	4/14/2023	506	10	2.0%
Cougar Dam Head of Reservoir*	5/10/2023	508	7	1.4%
Cougar Dam Head of Reservoir*	5/16/2023	497	23	4.6%
Cougar Dam Head of Reservoir*	6/8/2023	510	23	4.5%
Cougar Dam Head of Reservoir*	7/27/2023	758	27	3.6%
Cougar Dam Head of Reservoir**	8/30/2023	5,151	127	2.5%
Cougar Dam Head of Reservoir*	9/21/2023	745	41	5.5%
Cougar Dam Head of Reservoir*	10/19/2023	750	42	5.6%
Cougar Dam Head of Reservoir*	11/14/2023	756	21	2.8%
Cougar Dam Head of Reservoir*	11/28/2023	760	67	8.8%
Fall Creek Dam Regulating Outlet*	6/8/2022	517	11	2.1%
Fall Creek Dam Regulating Outlet*	6/30/2022	513	0	0.0%
Fall Creek Dam Regulating Outlet*	7/13/2022	498	0	0.0%
Fall Creek Dam Regulating Outlet*	5/11/2023	998	0	0.0%
Fall Creek Dam Regulating Outlet*	6/28/2023	992	0	0.0%
Fall Creek Dam Regulating Outlet	10/3/2023	1,020	0	0.0%
Fall Creek Dam Regulating Outlet	10/17/2023	1,011	14	1.4%
Fall Creek Dam Regulating Outlet	7/11/2023	1,006	0	0.0%
Fall Creek Head of Reservoir*	5/5/2023	756	15	2.0%
Fall Creek Head of Reservoir*	5/10/2023	750	23	3.1%
Fall Creek Head of Reservoir*	5/18/2023	511	7	1.4%
Fall Creek Head of Reservoir*	5/24/2023	760	4	0.5%
Fall Creek Head of Reservoir	1/2/2024	755	137	18.1%
Dexter Dam Powerhouse*	7/21/2022	976	2	0.2%
Dexter Dam Powerhouse*	10/26/2022	1007	1	0.1%
Dexter Dam Powerhouse*	11/1/2022	755	1	0.1%
Dexter Dam Powerhouse*	11/17/2022	991	4	0.4%
Dexter Dam Powerhouse*	12/6/2022	1010	10	1.0%
Dexter Dam Powerhouse*	12/15/2022	1025	1	0.1%
Dexter Dam Powerhouse*	3/16/2023	1,200	2	0.2%
Dexter Dam Powerhouse*	5/25/2023	4,003	14	0.3%
Dexter Dam Powerhouse*	6/7/2023	4,010	4	0.1%
Dexter Dam Powerhouse*	6/21/2023	4,028	15	0.4%
Dexter Dam Powerhouse*	7/6/2023	4,000	5	0.1%
Dexter Dam Powerhouse*	8/2/2023	1,505	3	0.2%
Dexter Dam Powerhouse*	8/23/2023	4,012	14	0.3%
Dexter Dam Powerhouse*	9/6/2023	4,037	13	0.3%
Dexter Dam Powerhouse*	10/4/2023	4,001	5	0.1%
Dexter Dam Powerhouse	12/28/2023	8,032	46	0.6%
Dexter Dam Powerhouse	1/9/2024	4,004	6	0.15%
Dexter Dam Spillway*	3/23/2022	988	2	0.2%
Dexter Dam Spillway*	5/4/2022	995	43	4.3%
Dexter Dam Spillway*	5/24/2022	1018	67	6.6%
Dexter Dam Spillway*	3/29/2023	1,199	5	0.4%
Dexter Dam Spillway*	10/24/2023	1,514	18	1.2%
Dexter Dam Spillway*	11/1/2023	1,506	9	0.6%
Dexter Dam Spillway*	11/22/2023	1,516	0	0.0%
Dexter Dam Spillway*	12/5/2023	4,006	10	0.2%
Dexter Dam Spillway*	12/12/2023	4,001	13	0.3%
Dexter Dam Spillway-Powerhouse	12/21/2023	4,005	3	0.1%
Lookout Dam Powerhouse*	4/13/2022	998	0	0.0%
Lookout Dam Powerhouse*	5/23/2023	3,999	32	0.8%
Lookout Dam Powerhouse*	6/1/2023	4,011	6	0.1%
Lookout Dam Powerhouse*	6/14/2023	4,010	4	0.1%
Lookout Dam Powerhouse*	6/28/2023	4,010	3	0.1%
Lookout Dam Powerhouse*	7/18/2023	4,012	9	0.2%
Lookout Dam Powerhouse	12/20/2023	16,007	29	0.2%
Lookout Dam Powerhouse	1/10/2024	17,553	3	0.02%
Lookout Dam Spillway	9/13/2023	3,636	0	0.0%

Lookout Dam Spillway	9/14/2023	3,998	0	0.0%
Lookout Dam Spillway	10/25/2023	4,042	0	0.0%
Lookout Dam Spillway	11/16/2023	4,005	12	0.3%
Lookout Dam Spillway	12/6/2023	8,007	18	0.2%
Lookout Dam Spillway	12/13/2023	8,011	148	1.8%
Lookout Point Head of Reservoir*	4/5/2022	993	53	5.3%
Lookout Point Head of Reservoir*	4/14/2022	987	19	1.9%
Lookout Point Head of Reservoir*	5/18/2022	1004	125	12.5%
Lookout Point Head of Reservoir*	7/20/2022	1005	9	0.9%
Lookout Point Head of Reservoir*	10/27/2022	506	9	1.8%
Lookout Point Head of Reservoir*	11/17/2022	510	0	0.0%
Lookout Point Head of Reservoir*	12/12/2022	510	0	0.0%
Lookout Point Head of Reservoir*	1/13/2023	516	10	1.9%
Lookout Point Head of Reservoir*	6/2/2023	760	15	2.0%
Lookout Point Head of Reservoir*	6/15/2023	765	6	0.8%
Lookout Point Head of Reservoir*	6/29/2023	769	2	0.3%
Lookout Point Head of Reservoir*	7/19/2023	765	0	0.0%
Lookout Point Head of Reservoir*	8/22/2023	677	13	1.9%
Lookout Point Head of Reservoir*	8/31/2023	751	0	0.0%
Lookout Point Head of Reservoir*	9/20/2023	787	1	0.1%
Lookout Point Head of Reservoir*	10/26/2023	755	0	0.0%
Lookout Point Head of Reservoir*	11/15/2023	755	3	0.4%
Lookout Point Head of Reservoir*	11/29/2023	760	2	0.3%
Lookout Point Head of Reservoir	12/19/2023	1,504	9	0.6%
Lookout Point Head of Reservoir	1/3/2023	1,505	2	0.1%
Hills Creek Dam Powerhouse*	1/6/2022	596	20	3.4%
Hills Creek Dam Powerhouse*	2/16/2022	600	12	2.0%
Hills Creek Dam Powerhouse*	2/25/2022	604	6	1.0%
Hills Creek Dam Powerhouse*	12/7/2022	514	29	5.6%
Hills Creek Dam Powerhouse*	2/25/2023	519	15	2.9%
Hills Creek Dam Powerhouse*	4/26/2023	506	62	12.3%
Hills Creek Dam Powerhouse*	5/17/2023	505	57	11.3%
Hills Creek Dam Powerhouse*	6/3/2023	508	36	7.1%
Hills Creek Dam Powerhouse*	6/27/2023	507	22	4.3%
Hills Creek Dam Powerhouse	9/27/2023	510	9	1.8%
Hills Creek Dam Powerhouse	10/17/2023	509	8	1.6%
Hills Creek Dam Powerhouse	10/31/2023	503	8	1.6%
Hills Creek Dam Powerhouse	11/15/2023	500	46	9.2%
Hills Creek Dam Powerhouse- RO Trial*	1/6/2022	596	5	0.8%
Hills Creek Dam Powerhouse- RO Trial*	2/16/2022	600	0	0.0%
Hills Creek Dam Powerhouse- RO Trial*	2/25/2022	604	1	0.2%
Hills Creek Dam Powerhouse- RO Trial*	12/7/2022	514	3	0.6%
Hills Creek Dam Powerhouse- RO Trial*	2/25/2023	519	0	0.0%
Hills Creek Dam Powerhouse- RO Trial*	4/26/2023	506	12	2.4%
Hills Creek Dam Powerhouse- RO Trial*	5/17/2023	505	2	0.4%
Hills Creek Dam Powerhouse- RO Trial*	6/3/2023	508	2	0.4%
Hills Creek Dam Powerhouse- RO Trial*	6/27/2023	507	0	0.0%
Hills Creek Dam Powerhouse - RO Trial	9/27/2023	510	1	0.2%
Hills Creek Dam Powerhouse - RO Trial	10/17/2023	509	0	0.0%
Hills Creek Dam Powerhouse - RO Trial	10/31/2023	503	2	0.4%
Hills Creek Dam Powerhouse - RO Trial	11/15/2023	500	1	0.2%
Hills Creek Dam Regulating Outlet*	1/6/2022	605	13	2.1%
Hills Creek Dam Regulating Outlet*	2/16/2022	593	19	3.2%
Hills Creek Dam Regulating Outlet*	2/25/2022	625	6	1.0%
Hills Creek Dam Regulating Outlet*	12/13/2022	516	1	0.2%
Hills Creek Dam Regulating Outlet*	2/25/2023	478	0	0.0%
Hills Creek Dam Regulating Outlet*	6/13/2023	760	0	0.0%
Hills Creek Dam Regulating Outlet	11/21/2023	503	3	0.6%
Hills Creek Dam Regulating Outlet	11/29/2023	504	2	0.4%
Hills Creek Dam Regulating Outlet	12/26/2023	505	10	2.0%
Hills Creek Dam Regulating Outlet	1/4/2024	503	5	1.0%
Hills Creek Head of Reservoir	5/18/2023	519	44	8.5%
Hills Creek Head of Reservoir	6/19/2023	760	6	0.8%

*Releases performed under the USACE RST contract, ** Trapping efficiency release performed by Cramer Fish Sciences

Appendix D

Summary of PIT Tagged Fish for Reporting Period

Site	Trap	Species	# of PIT Tagged Fish
Breitenbush River	5 ft	Chinook	N/A
Breitenbush River	5 ft	<i>O. mykiss</i>	N/A
Big Cliff Dam	8 ft	Chinook	2
Big Cliff Dam	8 ft	<i>O. mykiss</i>	0
Detroit Head of Reservoir – North Santiam	5 ft	Chinook	N/A
Detroit Head of Reservoir – North Santiam	5 ft	<i>O. mykiss</i>	N/A
Green Peter Head of Reservoir – Middle Santiam	5 ft	Chinook	N/A
Green Peter Head of Reservoir – Middle Santiam	5 ft	<i>O. mykiss</i>	N/A
Green Peter Tailrace- Middle Santiam	8 ft	Chinook	0
Green Peter Tailrace- Middle Santiam	8 ft	<i>O. mykiss</i>	0
Foster Head of Reservoir – South Santiam	5 ft	Chinook	N/A
Foster Head of Reservoir – South Santiam	5 ft	<i>O. mykiss</i>	N/A
Cougar Dam	PWR	Chinook	0
Cougar Dam	RO	Chinook	0
Cougar Dam Head of Reservoir	5 ft	Chinook	N/A
Fall Creek Head of Reservoir	8 ft	Chinook	0
Fall Creek Dam Tailrace	8 ft	Chinook	0
Dexter Dam Tailrace	5 ft	Chinook	0
Lookout Dam Tailrace	Spill	Chinook	0
Lookout Dam Tailrace	PWR	Chinook	0
Lookout Point Head of Reservoir	5 ft	Chinook	1
Hills Creek Head of Reservoir	5 ft	Chinook	N/A
Hills Creek Dam	RO	Chinook	0
Hills Creek Dam	PWR	Chinook	0

Summary of EAS VIE Marked Fish for Reporting Period

Site	Trap	VIE Mark Code	Species	# VIE
Breitenbush River	5 ft	HG	Chinook	N/A
Breitenbush River	5 ft	HG	<i>O. mykiss</i>	N/A
Detroit Head of Reservoir – North Santiam River	5 ft	RDG	Chinook	N/A
Detroit Head of Reservoir – North Santiam River	5 ft	RDG	<i>O. mykiss</i>	N/A
Green Peter Head of Reservoir – Middle Santiam River	5 ft	RDG	Chinook	N/A
Green Peter Head of Reservoir – Middle Santiam River	5 ft	RDG	<i>O. mykiss</i>	N/A
Cougar Dam Head of Reservoir	5 ft	RDG	Chinook	N/A
Fall Creek Head of Reservoir	8 ft	RDG	Chinook	0
Lookout Dam Tailrace	Spill	PG	Chinook	0
Lookout Dam Tailrace	PWR	PG	Chinook	0
Lookout Point Head of Reservoir	5 ft	RDG	Chinook	0
Hills Creek Head of Reservoir	5 ft	LDG	Chinook	N/A
Hills Creek Dam	RO	HG	Chinook	N/A
Hills Creek Dam	PWR	HG	Chinook	N/A

RDG denotes location and color (Right Dorsal Green)

List of Captured Fish Containing PIT Tags This Year

Site	Trap	PIT Tag	Date	Species
Big Cliff Dam	8 ft	3DD.003E4BA0C8	1/1/2024	Chinook
Big Cliff Dam	8 ft	3DD.003BEE0FF3	1/1/2024	Chinook
Hills Creek Dam	PH	3DD.003E4C0438	1/1/2024	Chinook
Hills Creek Dam	PH	3D6.15347FEE8D	1/2/2024	Chinook
Hills Creek Dam	PH	3D6.15347FF1E5	1/2/2024	Chinook
Hills Creek Dam	PH	3DD.003E4C2BC0	1/3/2024	Chinook
Hills Creek Dam	PH	3D6.1534843279	1/3/2024	Chinook
Hills Creek Dam	PH	3DD.003E55D20F	1/3/2024	Chinook
Hills Creek Dam	PH	3D6.1534831DCD	1/4/2024	Chinook
Hills Creek Dam	PH	3D6.15347FE844	1/4/2024	Chinook
Hills Creek Dam	RO	3DD.003E56706F	1/4/2024	Chinook
Big Cliff Dam	8 ft	3DD.003E560325	1/5/2024	Chinook
Hills Creek Dam	PH	3DD.0078DAAA91	1/5/2024	Chinook
Hills Creek Dam	PH	3DD.0078DACDEF	1/5/2024	Chinook

Hills Creek Dam	PH	3DD.003E4C30C3	1/5/2024	Chinook
Hills Creek Dam	PH	3D6.1534843712	1/5/2024	Chinook
Hills Creek Dam	PH	3DD.0078DAA800	1/6/2024	Chinook
Lookout Dam Tailrace	Spill	3DD.0078DCE9F6	1/6/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DCE73B	1/7/2024	Chinook
Hills Creek Dam	PH	3DD.0078DAB9E5	1/7/2024	Chinook
Hills Creek Dam	PH	3DD.003E55DDF4	1/7/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DCEF6E	1/7/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DCB07B	1/7/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DCB609	1/7/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DCB611	1/7/2024	Chinook
Lookout Dam Tailrace	PH 2	3DD.0078DCB312	1/7/2024	Chinook
Lookout Dam Tailrace	PH 2	3DD.0078DCEA1D	1/7/2024	Chinook
Lookout Dam Tailrace	PH 2	3DD.0078DCB64D	1/7/2024	Chinook
Hills Creek Dam	PH	3DD.003E4C245C	1/8/2024	Chinook
Hills Creek Dam	PH	3D6.1534843517	1/8/2024	Chinook
Hills Creek Dam	PH	3DD.003E559503	1/8/2024	Chinook
Hills Creek Dam	RO	3DD.003E4C12A3	1/8/2024	Chinook
Cougar Dam	RO	3DD.003E50D42F	1/9/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.003E4C1A3C	1/9/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DCEA78	1/9/2024	Chinook
Cougar Dam	RO	3DD.003E4FE1FC	1/10/2024	Chinook
Cougar Dam	RO	3DD.003E4FCB9F	1/10/2024	Chinook
Cougar Dam	RO	3DD.003E4FA012	1/10/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.003E5716DF	1/10/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DCE9A6	1/10/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DCA483	1/10/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DCE1E4	1/10/2024	Chinook
Hills Creek Dam	PH	3DD.003E4C2167	1/10/2024	Chinook
Hills Creek Dam	RO	3DD.003E4C1729	1/10/2024	Chinook
Hills Creek Dam	RO	3D6.15347FFAB2	1/10/2024	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DCF140	1/10/2024	Chinook
Cougar Dam	RO	3DD.003E4DD85B	1/11/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DCDF3A	1/11/2024	Chinook
Hills Creek Dam	PH	3DD.0078DACB99	1/11/2024	Chinook
Hills Creek Dam	PH	3D6.15347FF3E7	1/11/2024	Chinook
Hills Creek Dam	RO	3DD.0078DAAE5B	1/11/2024	Chinook
Hills Creek Dam	RO	3DD.003E55DE58	1/11/2024	Chinook
Big Cliff Dam	8 ft	3DD.003E55C44B	1/12/2024	Chinook
Hills Creek Dam	PH	3DD.003E55D6F2	1/12/2024	Chinook
Hills Creek Dam	PH	3DD.0078DACE83	1/12/2024	Chinook
Hills Creek Dam	PH	3DD.0078DAA850	1/12/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DC5B44	1/14/2024	Chinook
Dexter Dam Tailrace	5 ft	3DD.0078DCE323	1/14/2024	Chinook

List of EAS PIT Tagged Fish for Reporting Period

Site	Trap	PIT Tag	Date	Species
Lookout Point Head of Reservoir	5 ft	3DD.003E52822E	1/12/2024	Chinook
Big Cliff Dam	8 ft	3DD.00BD22E3D	1/14/2024	Chinook
Big Cliff Dam	8 ft	3DD.00BD22E38	1/14/2024	Chinook