

---

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

Report Period: November 1<sup>st</sup> to November 15<sup>th</sup>, 2023

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	Trap Install	6/16/2023	6/16/2023	1
Breitenbush River RST	Operation	6/16/2023	11/30/2023	167
Breitenbush River RST	Trapping Efficiency (749 fish)	6/21/2023	6/21/2023	1
Breitenbush River RST	Trapping Efficiency (763 fish)	7/6/2023	7/6/2023	1
Breitenbush River RST	Trapping Efficiency (791 fish)	8/2/2023	8/2/2023	1
Breitenbush River RST	Trapping Efficiency (756 fish)	9/20/2023	9/20/2023	1
Breitenbush River RST	Trapping Efficiency (789 fish)	10/5/2023	10/5/2023	1
Breitenbush River RST	Trapping Efficiency (750 fish)	10/25/2023	10/25/2023	1
Breitenbush River RST	Trapping Efficiency (750 fish)	11/10/2023	11/10/2023	1
Big Cliff Dam RST	Operation	10/15/2023	12/31/2023	78
Big Cliff Dam Tailrace	Trapping Efficiency (633 fish)	10/25/2023	10/25/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trap Install	4/19/2023	4/19/2023	1
Detroit Head of Reservoir- North Santiam River RST	Operation	5/4/2023	11/30/2023	210
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (539 fish)	6/6/2023	6/6/2023	1

Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (750 fish)	6/20/2023	6/20/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (750 fish)	7/6/2023	7/6/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (750 fish)	8/2/2023	8/2/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (700 fish)	9/6/2023	9/6/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (750 fish)	10/5/2023	10/5/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (757 fish)	10/25/2023	10/25/2023	1
Detroit Head of Reservoir- North Santiam River RST	Trapping Efficiency (813 fish)	11/10/2023	11/10/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Highline Install	4/25/2023	4/25/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trap Install	4/26/2023	4/26/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Operation	5/4/2023	11/30/2023	210
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (1000 dead, 750 alive)	6/7/2023	6/7/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (750 fish)	7/28/2023	7/28/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (749 fish)	8/30/2023	8/30/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (741 fish)	9/27/2023	9/27/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (750 fish)	10/11/2023	10/11/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (750 alive, 1,000 dead)	10/11/2023	10/11/2023	1
Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (750 alive, 1,000 dead)	10/31/2023	10/31/2023	1

Green Peter Head of Reservoir- Middle Santiam River RST	Trapping Efficiency (749 alive)	11/15/2023	11/15/2023	1
Fall Creek Dam Tailrace RST	Operation	10/1/2023	12/31/2023	92
Fall Creek Dam Tailrace RST	Trapping Efficiency (1,020 fish)	10/3/2023	10/3/2023	1
Fall Creek Dam Tailrace RST	Trapping Efficiency (1,011 fish)	10/17/2023	10/17/2023	1
Lookout Dam Tailrace RSTs	Operation	8/01/2023	12/31/2023	152
Lookout Dam Tailrace Spill	Trapping Efficiency (3,634 fish)	9/13/0223	9/13/0223	1
Lookout Dam Tailrace Spill	Trapping Efficiency (3,998 fish)	9/14/2023	9/14/2023	1
Lookout Dam Tailrace Spill	Trapping Efficiency (4,042 fish)	10/25/2023	10/25/2023	1
Hills Creek Dam RSTs	Operation	9/15/2023	12/31/2023	107
Hills Creek Dam Powerhouse	Trapping Efficiency (510 fish)	9/27/2023	9/27/2023	1
Hills Creek Dam Powerhouse	Trapping Efficiency (503 fish)	10/31/2023	10/31/2023	1
Hills Creek Head of Reservoir RST	Trap Install	5/9/2023	5/9/2023	1
Hills Creek Head of Reservoir RST	Operation	5/9/2023	6/30/2023	52
Hills Creek Head of Reservoir RST	Removal	6/30/2023	6/30/2023	1
Hills Creek Head of Reservoir RST	Trapping Efficiency (519 fish)	5/18/2023	5/18/2023	1
Hills Creek Head of Reservoir RST	Trapping Efficiency (760 fish)	6/19/2023	6/19/2023	1

**Table 2. Sampling Dates for Reporting Period**

Site	Total Sampling Period Start	Current Reporting Period Start	Current Reporting Period End	Days Sampled This Period	Total Days Sampled
Breitenbush River RST	6/16/2023	11/1/2023	11/15/2023	10	133
Big Cliff Dam	10/15/2023	11/1/2023	11/15/2023	15	31
Detroit Head of Reservoir- North Santiam River RST	5/4/2023	11/1/2023	11/15/2023	12	176
Green Peter Head of Reservoir- Middle Santiam River RST	5/4/2023	11/1/2023	11/15/2023	11	173
Fall Creek Dam Tailrace	10/1/2023	11/1/2023	11/15/2023	15	46
Lookout Point Dam PH	8/1/2023	11/1/2023	11/15/2023	15	88
Lookout Point Dam Spill	8/1/2023	11/1/2023	11/15/2023	15	88
Hills Creek Dam PH	9/15/2023	11/1/2023	11/15/2023	15	61
Hills Creek Dam RO	9/15/2023	11/1/2023	11/15/2023	15	61
Hills Creek Head of Reservoir RST	5/9/2023	N/A	N/A	N/A	52

**Table 3. Willamette Valley Rotary Screw Trap Monitoring Catch Summary**

Site	Species	Catch (Reporting Period)	Recaptures (Reporting Period)	Total Catch
Breitenbush River RST	CHS	17	152	373
Breitenbush River RST	STW	3	0	353
Big Cliff Dam Tailrace	CHS	24	0	665
Big Cliff Dam Tailrace	STW	0	0	248
Detroit Head of Reservoir- North Santiam River RST	CHS	320	102	10,197
Detroit Head of Reservoir- North Santiam River RST	STW	6	0	593
Green Peter Head of Reservoir- Middle Santiam River RST	CHS	3	0	24
Green Peter Head of Reservoir- Middle Santiam River RST	STW	0	0	0
Fall Creek Dam Tailrace	CHS	10	0	89
Lookout Point Dam	CHS	8	0	9
Hills Creek Dam	CHS	17	21	428
Hills Creek Head of Reservoir RST	CHS	0	0	93

### Summary of Rotary Screw Trap Data

For this reporting period, traps were operated at the following 7 locations: Big Cliff Dam Tailrace, Detroit Head of Reservoir – North Santiam River, Breitenbush River, Green Peter Head of Reservoir – Middle Santiam River, Fall Creek Dam Tailrace, Lookout Dam Tailrace and Hills Creek Dam Tailrace.

The RST in Big Cliff Dam Tailrace began sampling under contract W9127N19D0009 on October 16<sup>th</sup>, 2023. Sampling at Big Cliff Dam Tailrace prior to October 16<sup>th</sup>, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. This report reflects research conducted starting October 16<sup>th</sup> 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

The Detroit Head of Reservoir – North Santiam RST and Green Peter Head of Reservoir – Middle Santiam RST were installed on April 19<sup>th</sup> and 26<sup>th</sup>, respectively. The RSTs at Detroit Head of Reservoir – North Santiam and Green Peter Head of Reservoir – Middle Santiam rivers started sampling on May 4<sup>th</sup> once permits were received. The Hills Creek Head of Reservoir RST on the upper Middle Fork Willamette River was installed and began sampling on May 9<sup>th</sup>. Sampling concluded at the Hills Creek Head of Reservoir site on June 30<sup>th</sup> and was removed for the remainder of the year. The RST for the Breitenbush River was installed on June 16<sup>th</sup> and began sampling on the same day.

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<sup>st</sup>, 2023 was conducted by EAS for the USACE

under contract W9127N19D0007. This report reflects research conducted starting August 1<sup>st</sup>, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

The RSTs in the Hills Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 15<sup>th</sup>, 2023. Sampling at Hills Creek Dam Tailrace prior to September 15<sup>th</sup>, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. This report reflects research conducted starting September 15<sup>th</sup>, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

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. Sampling results will be on the next report. This report reflects research conducted starting September 30<sup>th</sup>, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward. Winter Steelhead may be present at the Big Cliff Dam, Breitenbush River, Detroit Head of Reservoir – North Santiam River, and Green Peter Head of Reservoir – Middle Santiam River sites. All natural origin juvenile *O. mykiss* captured at these sites will be treated and reported as Winter Steelhead.

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 8.



**FIGURE 1**  
Big Cliff Dam

● RST Locations

500 Feet





Imagery Source: 2022, ESRI.



**FIGURE 2**  
Breitenbush River

● RST Locations

500 Feet





Imagery Source: 2022, ESRI.



**FIGURE 3**  
North Santiam Above Detroit

● RST Locations

———— 500 Feet





**FIGURE 4**  
Green Peter Head of Reservoir-  
Middle Santiam River

● RST Locations

500 Feet





Imagery Source: 2021, ESRI.



**FIGURE 5**  
Fall Creek Dam Tailrace

● RST Locations

500 Feet





Imagery Source: 2021, ESRI.



**FIGURE 6**  
Lookout Dam Tailrace

● RST Locations

500 Feet





Imagery Source: 2019, ESRI.



**FIGURE 7**  
Middle Fork Willamette Above Hills Creek

● RST Locations

500 Feet





**FIGURE 8**  
Hills Creek Dam

● RST Locations

500 Feet

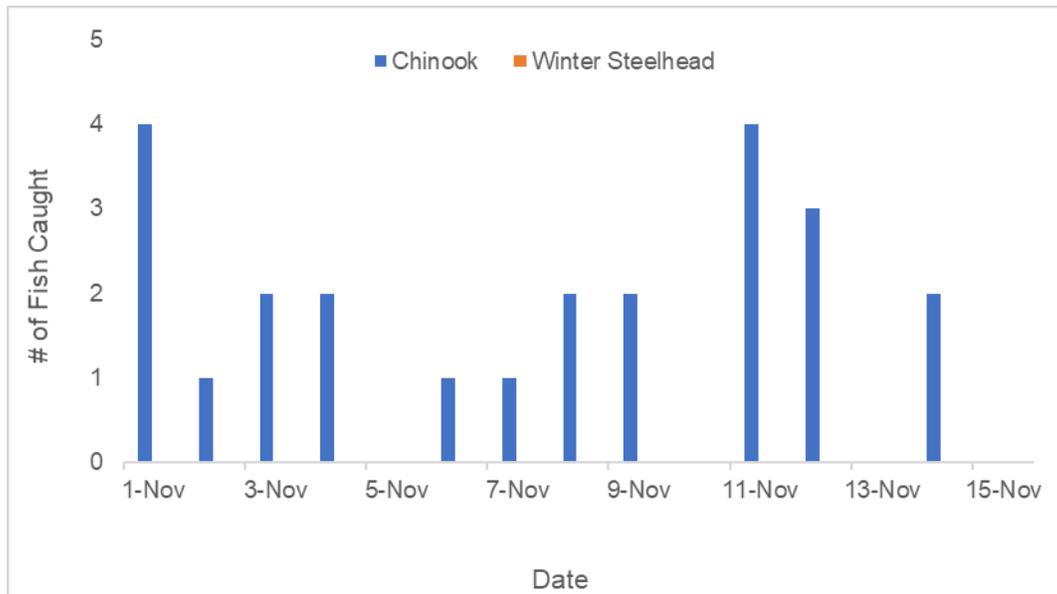


## North Santiam – Big Cliff Dam

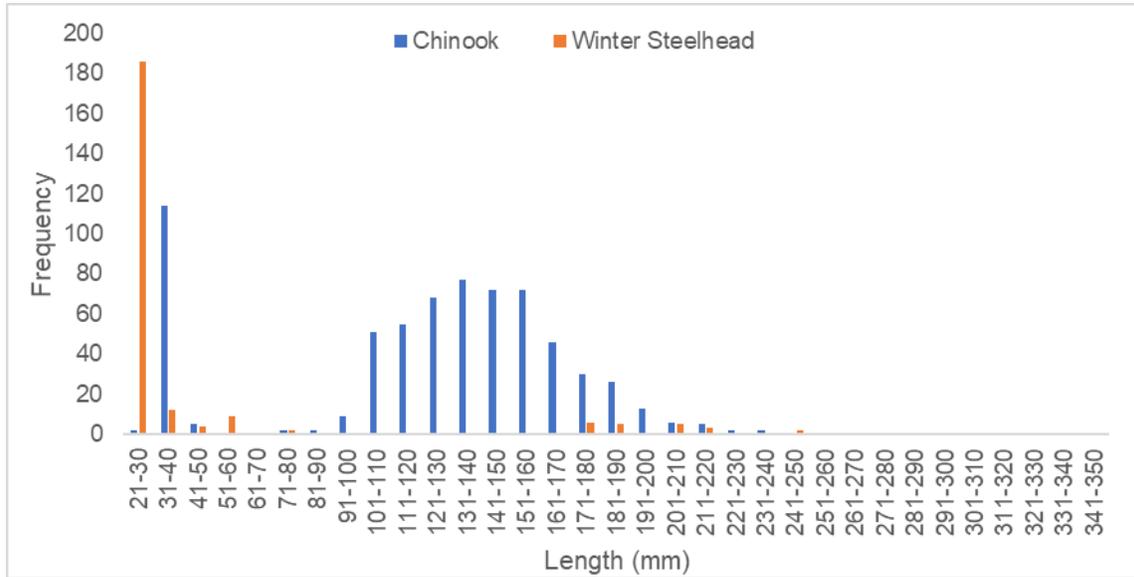
The RST in the Big Cliff Dam Tailrace began sampling under contract W9127N19D0009 on October 16th, 2023. Sampling at Big Cliff Dam Tailrace prior to October 16th, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. This report reflects research conducted starting October 16th, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

### Target Species

This reporting period began on November 1<sup>st</sup> and ended on November 15<sup>th</sup>. There were a total of 24 Chinook Salmon (CHS) and 0 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 9). Sampling duration was 100% for the RST. Table 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 10 shows length frequency data to-date. Table 4 provides life stage, length, and weight data for all Chinook Salmon and Winter Steelhead that have been caught at the Big Cliff Dam RST site to-date and for the reporting period.



**Figure 9. Chinook and Winter Steelhead Captured per day 11/1/2023 to 11/15/2023 (Big Cliff).**



\*Figure does not include fish without heads

**Figure 10. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled in 2023 (Big Cliff).**

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

To-Date (Since Jan. 1, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Big Cliff	PWR	CHS	Fry	120	29	47	36.2	N/A	N/A	N/A
		CHS	Parr	13	49	112	92.5	1.1	15.8	9.4
		CHS	Smolt	532	85	340	145.4	7.4	328.5	36.7
		STW	Fry	202	24	56	28.7	N/A	N/A	N/A
		STW	Parr	14	47	119	65.8	1.3	18.6	4.0
		STW	Smolt	32	145	335	210.7	21.5	254.4	92.1

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

November 1-15, 2023										
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	24	127	189	149.7	20.2	61.8	35.0
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Parr	0	57	57	57	1.7	1.7	1.7
		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

A total of 633 bismarck brown dyed and adipose clipped juvenile hatchery chinook were released on 10/25/2023 below Big Cliff Dam. 99 fish were recaptured in the 8 ft trap for a trapping efficiency of 15.6%.

Big Cliff Dam	Release #	Recapture #	Capture Efficiency
8ft Trap	633	99	15.6% (99/633)

## 24-Hour Post Collection Holding Trial

20 Spring Chinook and 0 Winter Steelhead were captured during the current reporting period and held for 24 hours. 4 Chinook (20.0%) and 0 Winter Steelhead (0.0%) died in holding.

## Injuries and Copepod Infection

Partial descaling <20% was observed in 13 of the 24 Chinook captured (54.2%), 10 displayed descaling >20% (41.7%), 18 displayed body injury (75.0%), 5 had eye injury (20.8%), 23 had copepods present in the branchial cavity (95.8%) and 8 had copepods on fins (33.3%). 1 Chinook displayed gas bubble disease (level 1) (4.2%). There were 4 mortalities (16.7%).

Partial descaling <20% was observed on 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%). Injury data is summarized in Table 5.

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

Site	Species	# Fish Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Big Cliff Dam	Chinook	24	13	10	18	5	23	8	4
	Winter Steelhead	0	0	0	0	0	0	0	0

## Collected DNA and Scale Samples

DNA was collected from 24 Spring Chinook and 0 Winter Steelhead for the reporting period. Scales were collected from 24 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

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

## Non-Target Species

43 non-targets were captured during this sampling period. A summary of non-target species catch and mortality numbers for 2023 are listed in Table 6.

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

Species	PWR Capture	PWR Mortality	Season Total	Season Total Mortality
Bluegill	34	26	78	42
Brown Bullhead	0	0	6	2
Dace	0	0	1	0
Chinook (Adult)	0	0	3	1
Chinook (clipped)	4	1	51	1
Cutthroat Trout	0	0	0	0
Kokanee	5	0	172	29
Kokanee (clipped)	0	0	11	3
<i>O. mykiss</i> (clipped)	0	0	6	2
Pumpkinseed	0	0	54	8
Unknown	0	0	1	1
Mountain Whitefish	0	0	6	1
Sculpin	0	0	0	0
<b>Totals</b>	<b>43</b>	<b>27</b>	<b>394</b>	<b>90</b>

### 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 1,109.7 to 1,113.6 feet (mean: 1,111.7 feet) during the reporting period. Figure 11 shows instantaneous gauge height.

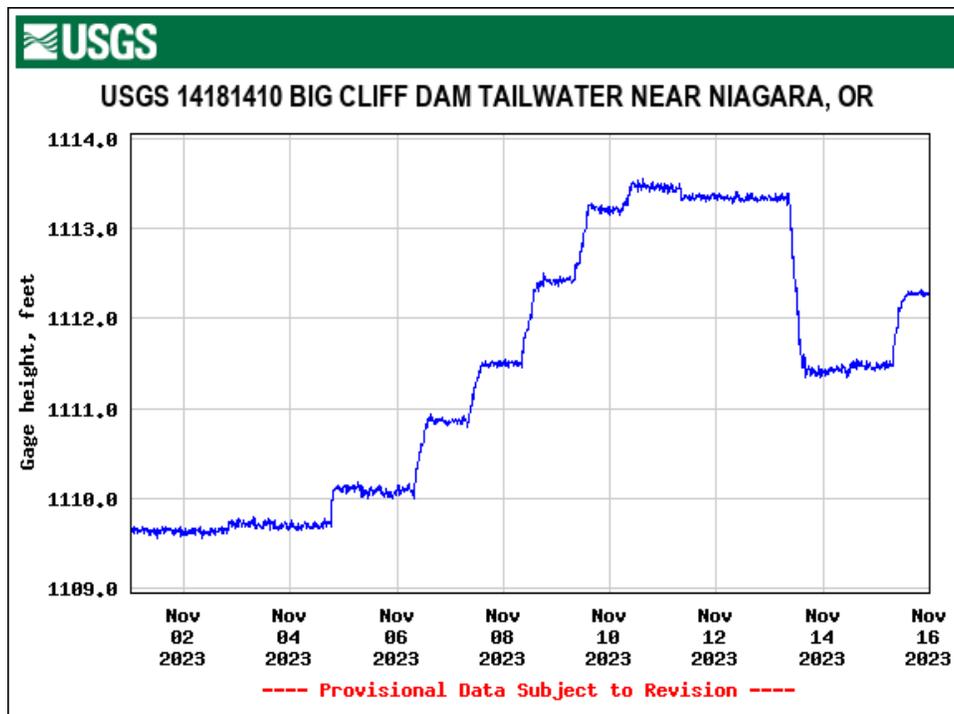
Total dissolved gas saturation ranged from 112 to 119% during the reporting period (mean: 115.1%). Figure 12 shows total dissolved gas saturation.

Stream temperatures were recorded every 2 hours for the length of the reporting period at the RST (Figure 13). The temperature probe for the trap operated normally throughout this reporting period.

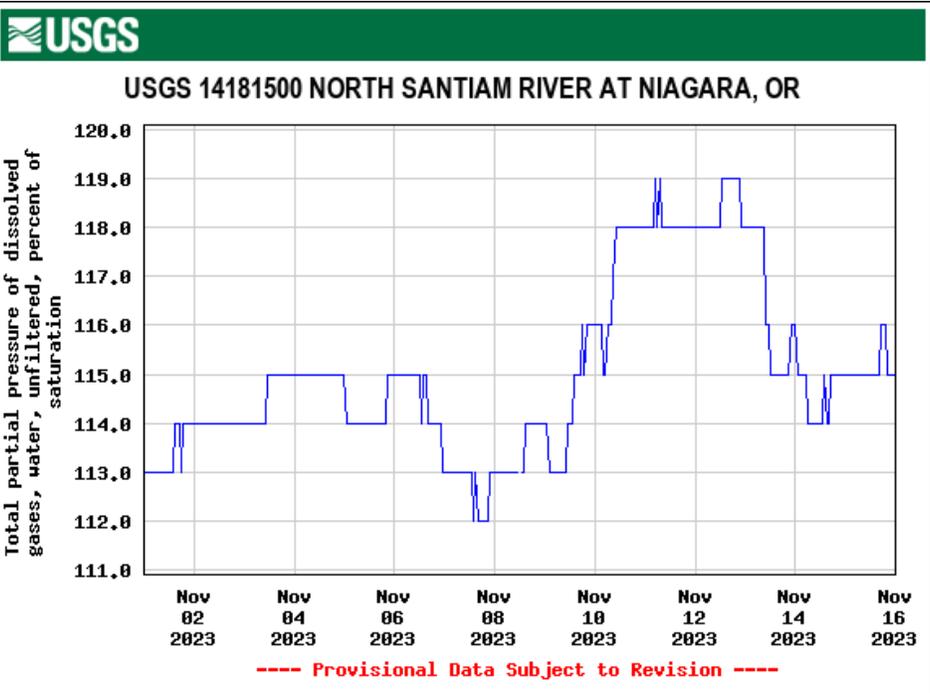
Flows through the Powerhouse and Spill during the reporting period averaged 2,482.3 and 567.6 cubic feet per second (cfs), respectively (Figure 14). Catch per unit of effort (CPUE) data are summarized in Table 7, Detroit and Big Cliff forebay elevations and TDG at Niagara are shown in Appendix B. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

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

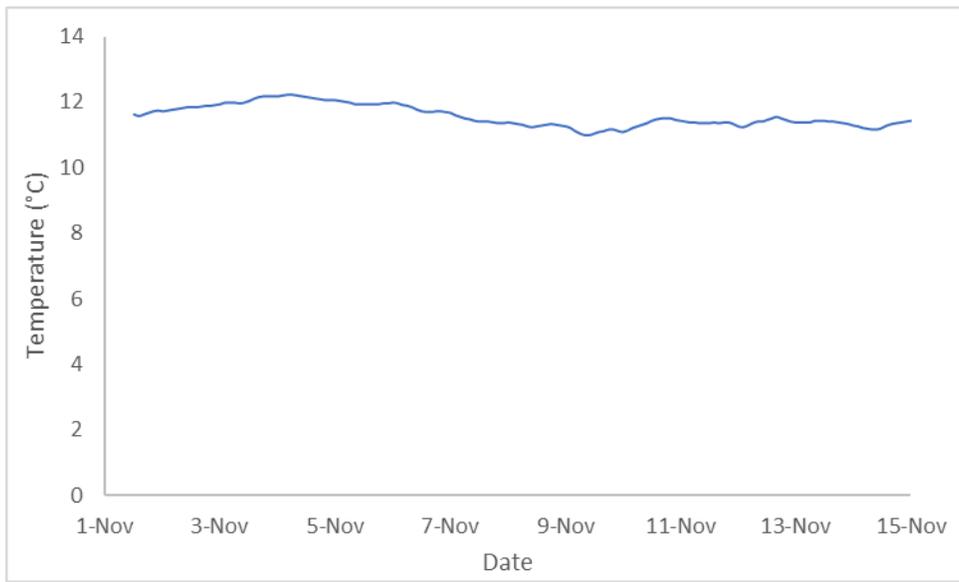
Description	Chinook	Winter Steelhead
Catch	24	0
Effort (hrs)	359.1	359.1
CPUE (fish/hr)	0.067	0



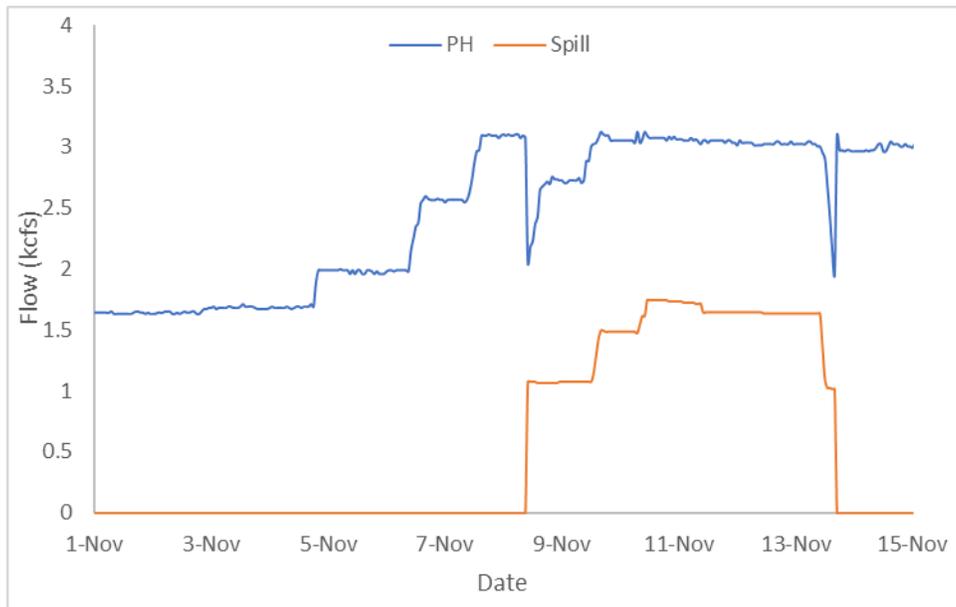
**Figure 11. Gauge height (ft); below Big Cliff Dam.**



**Figure 12. Total Dissolved Gas Saturation (%); below Big Cliff Dam.**



**Figure 13. Temperature at RST (Big Cliff Dam).**



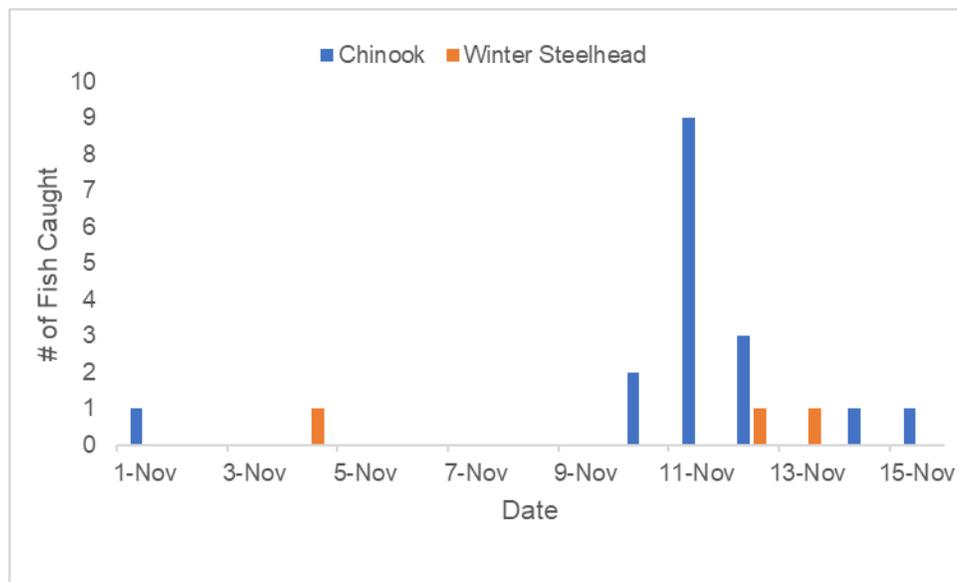
**Figure 14. Hourly Flows PWR vs. Spill (Big Cliff Dam).**

## Breitenbush River

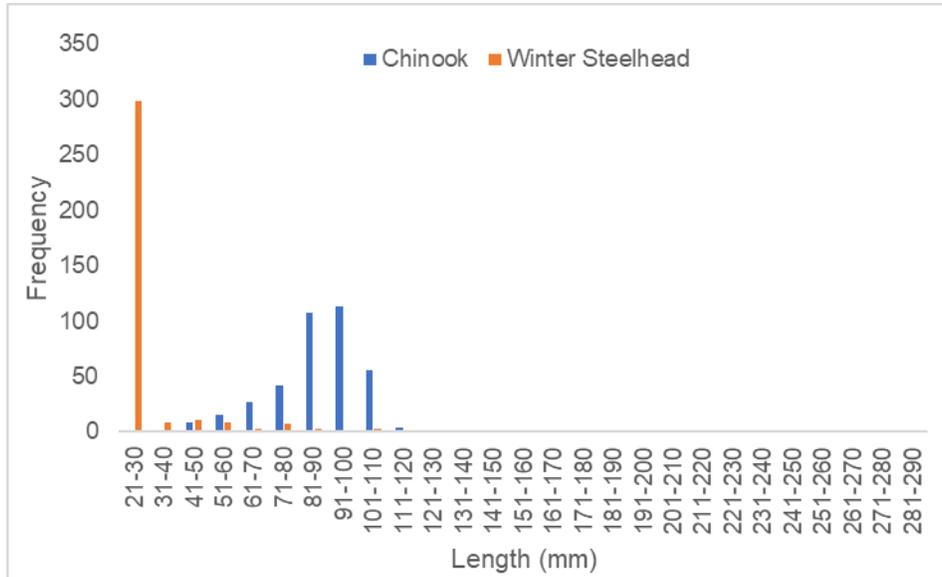
The Breitenbush River RST was installed on June 16<sup>th</sup>, 2023 and began sampling the same day. All natural origin *O. mykiss* captured at this site will be reported as Winter Steelhead.

### Target Species

This reporting period began on November 1<sup>st</sup> and ended on November 15<sup>th</sup>. There were a total of 17 Chinook Salmon (CHS) and 3 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 15). The RST was raised to the non-sampling position three times during this reporting period due to high flow and high debris causing fish mortality. It was raised on November 1<sup>st</sup>-3<sup>rd</sup>, 4<sup>th</sup>-5<sup>th</sup>, and 6<sup>th</sup>-9<sup>th</sup>. Sampling duration was 66.7% of the reporting period for the RST. Figure 16 shows length frequency data to-date. Table 8 provides life stage, length, and weight data for all Chinook Salmon and Winter Steelhead that have been caught at the Breitenbush River site to-date and for the reporting period.



**Figure 15. Chinook and Winter Steelhead Captured per day 11/1/2023 to 11/15/2023 (Breitenbush River).**



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

**Table 8. Descriptive Statistics of Target Species Captured at the Breitenbush River To-Date**

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	<1.0	1.9	1.2
		CHS	Parr	217	46	110	82.1	1.4	16.1	6.6
		CHS	Smolt	146	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	34	43	125	70.6	1.1	21.5	5.7
		STW	Smolt	7	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.

November 1-15, 2023										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Breitenbush River	5ft	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	2	67	98	82.5	2.0	2.0	2.0
		CHS	Smolt	15	83	107	94.6	5.1	13.4	9.0
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Parr	3	55	74	64.7	2.2	4.7	3.3
		STW	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A

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

## Trapping Efficiency

On 11/10/2023 750 adipose and right ventral fin clipped fish were released above the trap site to evaluate the trapping efficiency of the 5 ft RST. 152 fish were recaptured for an efficiency of 20.3%

Breitenbush River	Release #	Recapture #	Capture Efficiency
5ft Trap	750	152	20.3% (152/750)

## 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. This year, 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.

Breitenbush River	Release (Current Reporting Period) #	Recapture (Current Reporting Period) #
Chinook	0	0
Winter Steelhead	0	0

## Injuries and Copepod Infection

Partial descaling <20% was observed in 15 of the 17 Chinook captured (88.2%), 1 displayed descaling >20% (5.9%), 17 displayed body injury (100.0%), 0 had eye injuries (0.0%), 3 had copepods present in the branchial cavity (17.6%) and 5 had copepods on fins (29.4%). 0 Chinook displayed gas bubble disease (0.0%). There were 2 mortalities (11.8%).

Partial descaling <20% was observed on 0 of the 3 Winter Steelhead captured (0.0%) and 0 displayed descaling >20% (0.0%), 1 displayed body injury (33.3%), 0 had eye injury (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Winter Steelhead displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). Injury data is summarized in Table 9.

**Table 9. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon and Winter Steelhead for Sampling Period (Breitenbush River).**

Site	Species	# Fish Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Breitenbush River	Chinook	17	15	1	17	0	3	5	2
	Winter Steelhead	3	0	0	1	0	0	0	0

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

## Collected DNA and Scale Samples

DNA was collected from 17 Spring Chinook and 3 Winter Steelhead. Scale samples were collected from 17 Spring Chinook and 3 Winter Steelhead.

## PIT Tags

17 fish were PIT tagged during this reporting period, 15 Chinook and 2 Winter Steelhead. More information regarding PIT tagged fish can be found in Appendix D.

## VIE Marking

Visible Implant Elastomer (VIE) trials commenced on 6/16/2023. VIE tag color is changed every month to distinctly mark groups of fish by capture date. Since then, 34 Spring Chinook and 18 Winter Steelhead have been marked with fluorescent elastomer. No fish have been recaptured at downstream sites to date.

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

1 non-target species were captured during this reporting period. A summary of non-target fish capture is provided in Table 10.

**Table 10. Summary of Non-target Species (Breitenbush River).**

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

## Stream Statistics

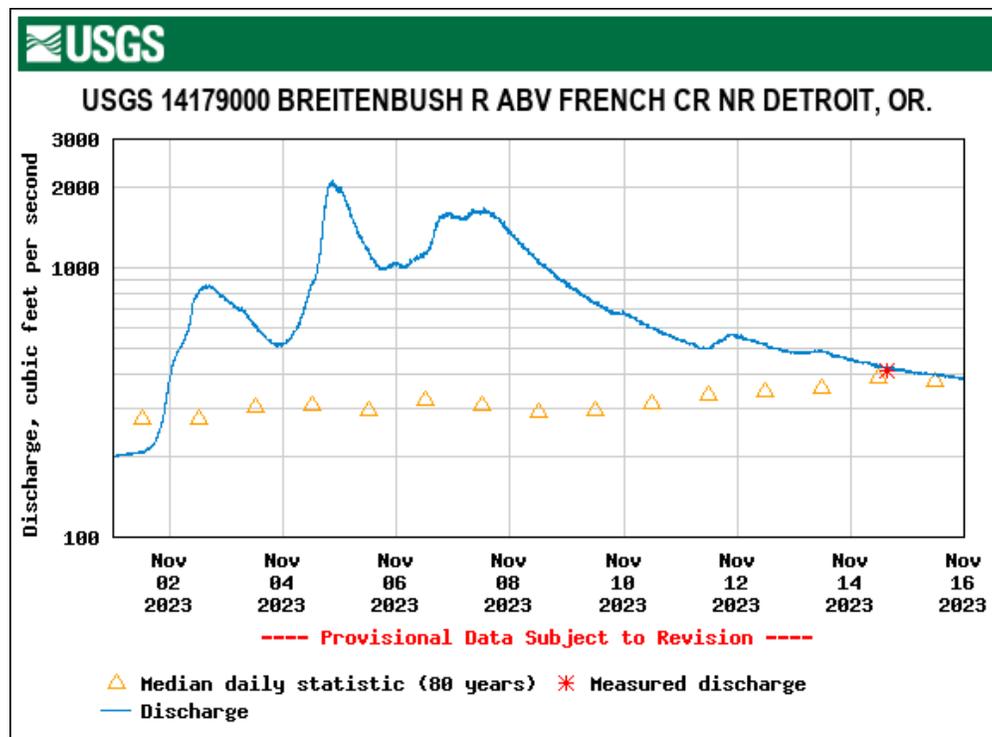
Basic stream statistics at the Breitenbush River RST site were calculated from data downloaded from the U.S. Geological Survey stream gauge number 14179000. Instantaneous discharge (cfs) and Gauge height (feet) flow metrics are available at this gauge. During the reporting period, daily maximum values for instantaneous discharge ranged from 392.0 cfs to 2,120.0 (mean: 1,013.5 cfs). Figure 17 shows instantaneous discharge.

Stream temperatures will be recorded every 2 hours for the length of the reporting period for the RST (Figure 18).

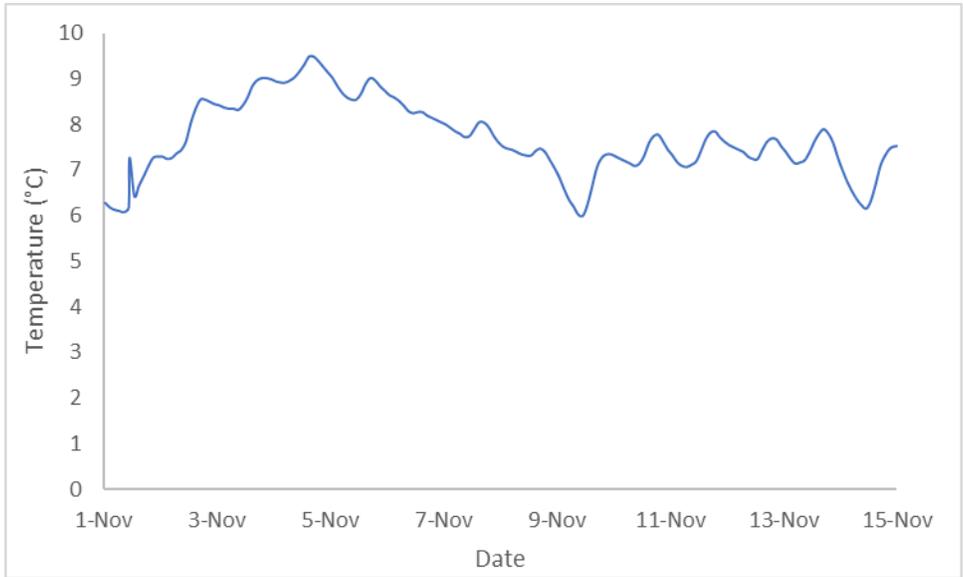
Catch per unit of effort (CPUE) data are summarized in Table 11. Gage height and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

**Table 11. Summary of salmonid CPUE, Breitenbush River.**

	Chinook	Winter Steelhead
Description	(5 ft)	(5 ft)
Catch	17	3
Effort (hrs)	209.2	209.2
CPUE (fish/hr)	0.081	0.014



**Figure 17. Discharge (cfs); Breitenbush River.**



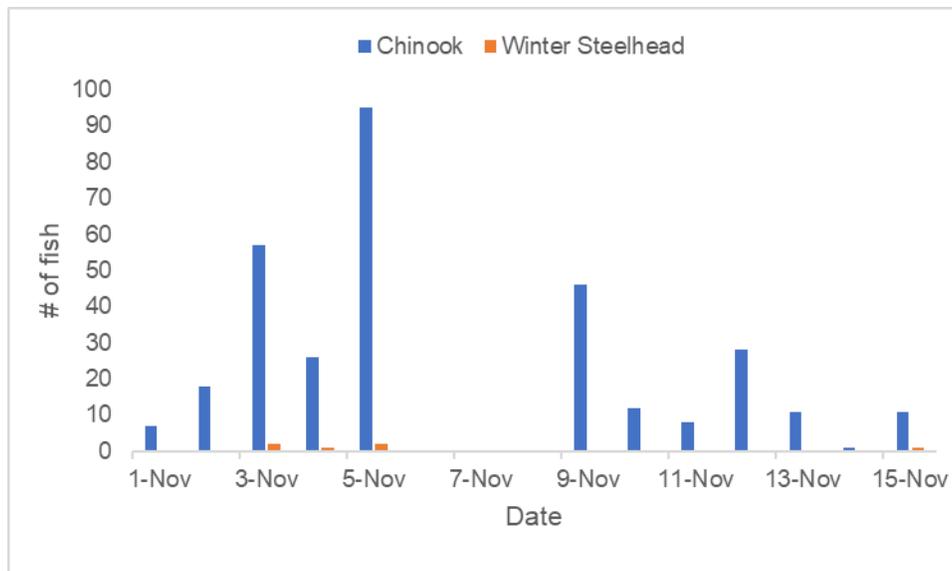
**Figure 18. Temperature at RST (Breitenbush River).**

## North Santiam River – Detroit Head of Reservoir

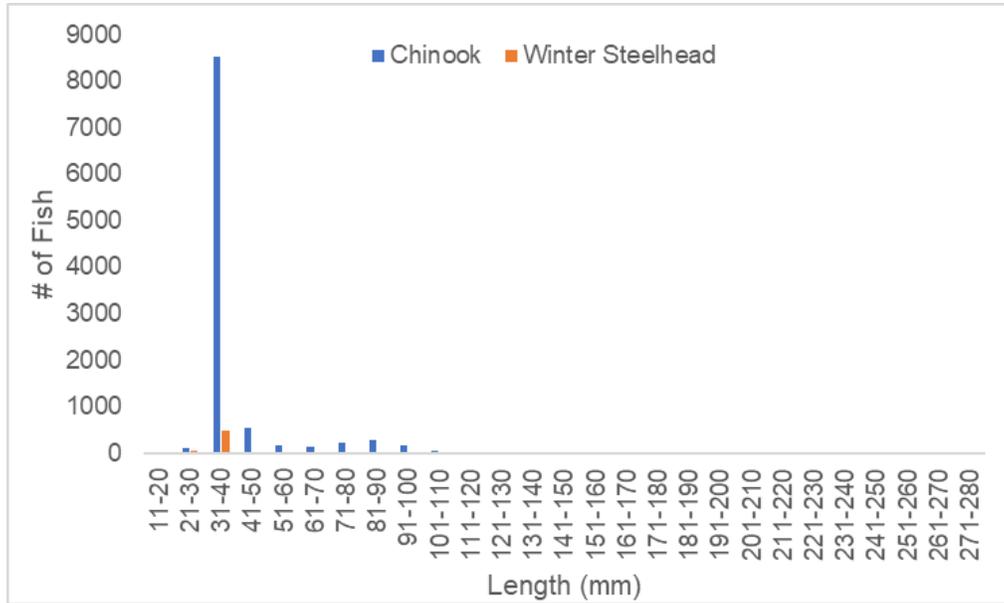
The Detroit Head of Reservoir- North Santiam River RST was installed on April 19<sup>th</sup>, 2023. This site started sampling on May 4, 2023. All natural origin *O. mykiss* captured at this site will be reported as Winter Steelhead.

### Target Species

This reporting period began on November 1<sup>st</sup> and ended on November 15<sup>th</sup>. There were a total of 320 Chinook Salmon (CHS) and 6 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 19). The RST was raised to the non-sampling position on November 5<sup>th</sup> due to high flow and high debris. It was lowered on November 8<sup>th</sup>. Sampling duration was 80.0% of the reporting period for the RST. Figure 20 shows length frequency data to-date. Table 12 provides life stage, length, and weight data for all Chinook Salmon and Winter Steelhead that have been caught at the Detroit Head of Reservoir site to-date and for the reporting period.



**Figure 19. Chinook and Winter Steelhead Captured per day 11/1/2023 to 11/15/2023 (Detroit Head of Reservoir).**



**Figure 20. Length Frequency of Juvenile Chinook and Winter Steelhead Sampled Season To-Date (Detroit Head of Reservoir).**

**Table 12. Descriptive Statistics of Target Species Captured at Detroit Head of Reservoir Season To-Date.**

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	9118	28	60	35.5	N/A	N/A	N/A
		CHS	Parr	859	41	110	72.5	1.0	12.8	4.5
		CHS	Smolt	220	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	3	169	408	255.0	53.4	66.5	60.0

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

November 1-15, 2023										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Detroit HOR	5ft	CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	237	60	103	81.6	2.0	11.0	5.6
		CHS	Smolt	83	73	117	93.5	3.5	12.2	8.1
		STW	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
		STW	Parr	6	53	90	66.8	1.7	6.6	3.3
		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 11/10/2023 813 adipose and left ventral fin clipped fish were released above the trap site to evaluate the trapping efficiency of the 5 ft RST. 91 fish were recaptured for an efficiency of 11.2%

Detroit Head of Reservoir	Release #	Recapture #	Capture Efficiency
5ft Trap	813	91	11.2% (91/813)

## 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. This year, 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. Release numbers and recaptures for this reporting period are summarized below.

Detroit Head of Reservoir	Release (Current Reporting Period) #	Recapture (Current Reporting Period) #
Chinook	198	11
Winter Steelhead	4	0

## Injuries and Copepod Infection

Partial descaling <20% was observed in 256 of the 320 Chinook captured (80.0%), 29 displayed descaling >20% (9.1%), 160 displayed body injury (50.0%), 1 had eye injuries (0.3%), 10 had copepods present in the branchial cavity (3.1%) and 14 had copepods on fins (4.4%). 0 Chinook displayed gas bubble disease (0.0%). There were 28 mortalities (8.8%).

Partial descaling <20% was observed on 2 of the 6 Winter Steelhead captured (33.3.0%) and 0 displayed descaling >20% (0.0%), 0 displayed body injury (0.0%), 0 had eye injuries (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Winter Steelhead displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). Injury data is summarized in Table 13.

**Table 13. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon and Winter Steelhead for Sampling Period (Detroit Head of Reservoir).**

Site	Species	# Fish Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
	Chinook	320	256	29	160	1	10	14	28

Detroit HOR	Winter Steelhead	6	2	0	0	0	0	0	0
-------------	------------------	---	---	---	---	---	---	---	---

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

## Collected DNA and Scale Samples

For the reporting period, DNA was collected from 320 Spring Chinook and 6 Winter Steelhead. Scale samples were collected from 307 Spring Chinook and 6 Winter Steelhead. The other targets captured did not meet length criteria for DNA sampling or were too descaled/damaged to collect samples.

## PIT Tags

288 Spring Chinook and 3 Winter Steelhead were PIT tagged during this reporting period. 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. VIE tag color is changed every month to distinctly mark groups of fish by capture date. 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. 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	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
11/1/2023-11/15/2023	Chinook	Right Dorsal	Orange (2x)	3	0

## Non-Target Species

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

**Table 14. Summary of Non-target Species (Detroit Head of Reservoir).**

Species	5 ft Capture	5 ft Mortality	Season Total	Season Total Mortality
Kokanee	0	0	81	1
Chinook (clipped)	17	0	27	0
Cutthroat Trout	1	1	4	1
Sculpin	1	1	16	3
Mountain Whitefish	1	0	5	0
<i>O. mykiss</i> (clipped)	0	0	8	1
Dace	0	0	3	0
Unknown	0	0	2	1
<b>Totals</b>	<b>20</b>	<b>2</b>	<b>146</b>	<b>7</b>

## Stream Statistics

Basic stream statistics at the Detroit Head of Reservoir site were calculated from data downloaded from U.S. Geological Survey stream gauge number 14178000. Gauge height (feet) and Discharge (cfs) metrics are provided at gauge 14178000. During the reporting period, daily maximum values for instantaneous discharge ranged from 491.0 cfs to 1,820.0 cfs (mean: 987.3 cfs) during the reporting period. Figure 21 shows instantaneous discharge.

Stream temperatures were recorded every 2 hours for the length of the reporting period at the Detroit Head of Reservoir RST site. Figure 22 shows temperature during the reporting period.

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

**Table 15. Summary of salmonid CPUE, Detroit Head of Reservoir – North Santiam River.**

	Chinook	Winter Steelhead
Description	(5 ft)	(5 ft)
Catch	320	6
Effort (hrs)	295.5	295.5
CPUE (fish/hr)	0.923	0.020

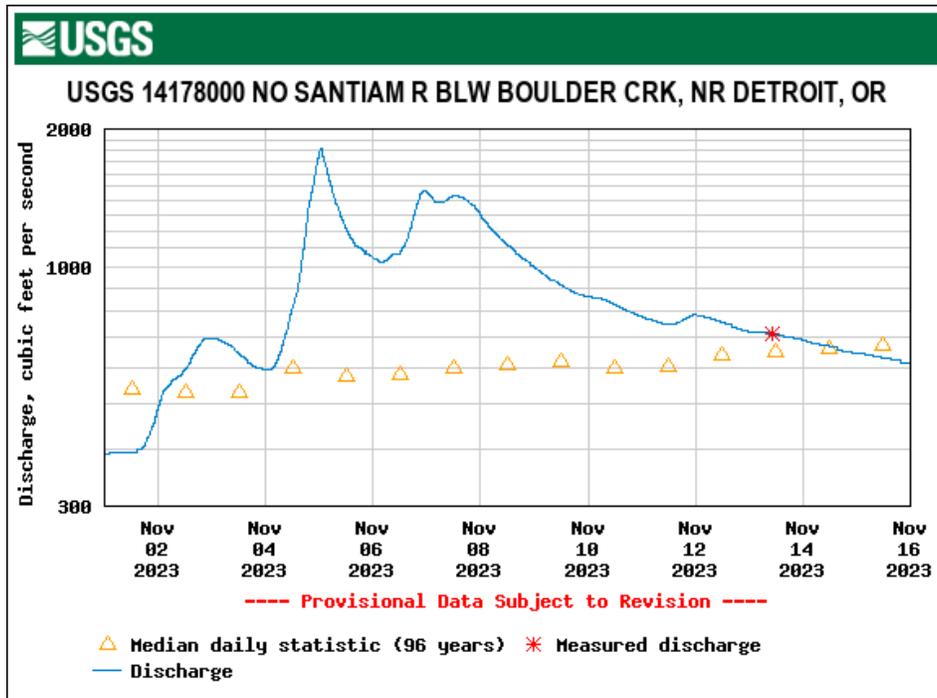


Figure 21. Discharge (cfs); Detroit Head of Reservoir – North Santiam River.

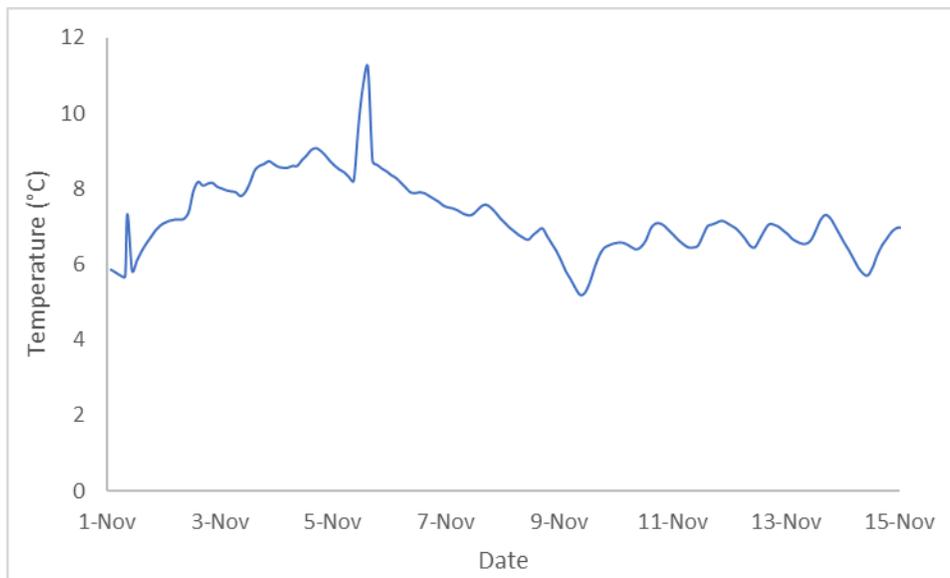


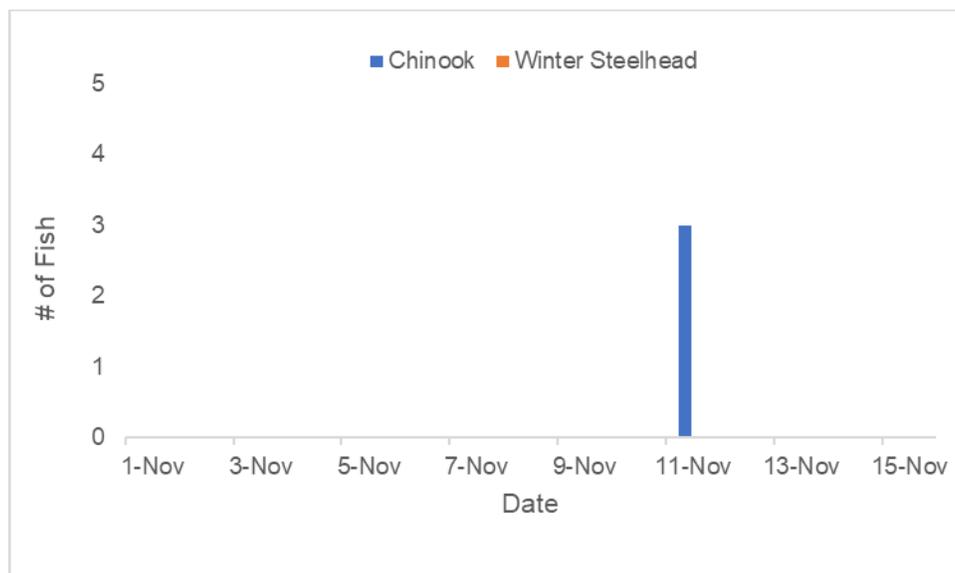
Figure 22. Temperature at RST (Detroit Head of Reservoir – North Santiam River).

## Middle Santiam River– Green Peter Head of Reservoir

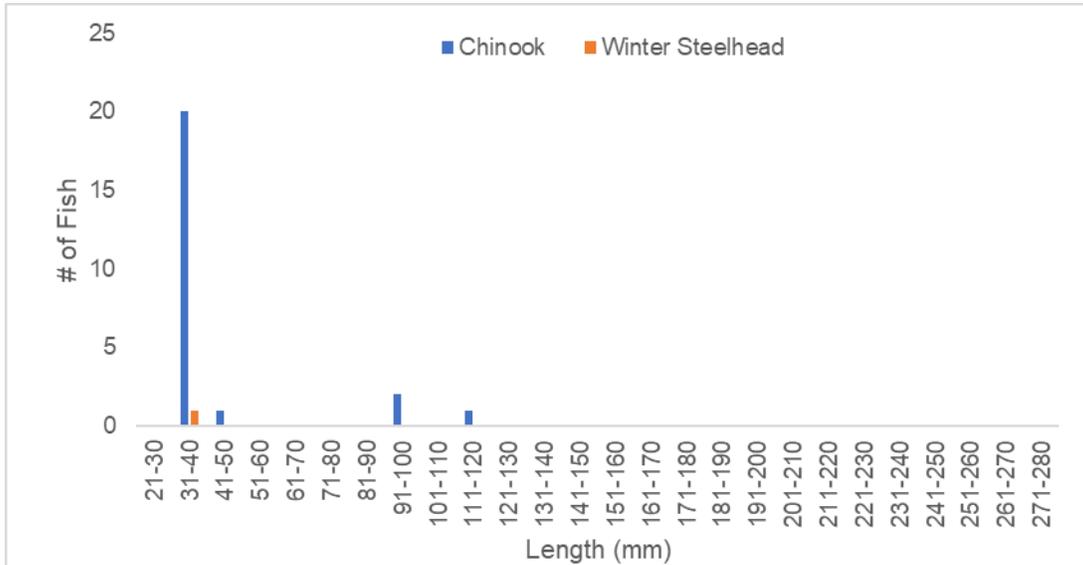
The Green Peter Head of Reservoir- Middle Santiam River RST was installed on April 26<sup>th</sup>, 2023. This site started sampling on May 4<sup>th</sup>, 2023. All natural origin *O. mykiss* captured at this site will be reported as Winter Steelhead.

### Target Species

This reporting period began on November 1<sup>st</sup> and ended on November 15<sup>th</sup>. There were a total of 3 Chinook Salmon (CHS) and 0 Winter Steelhead (STW) captured during the 15-day sampling period (Figure 23). The RST was raised to the non-sampling position twice this reporting period due to high flow and high debris. It was raised November 1<sup>st</sup>-2<sup>nd</sup> and the 4<sup>th</sup>-8<sup>th</sup>. Sampling duration was 73.3% of the reporting period for the RST. Figure 24 shows length frequency data to-date. Table 16 provides life stage, length, and weight data for all Chinook Salmon and Winter Steelhead that have been caught at the Middle Santiam River- Green Peter Head of Reservoir site to-date and for the reporting period.



**Figure 23. Chinook Captured per day 11/1/2023 to 11/15/2023 (Green Peter Head of Reservoir – Middle Santiam River).**



**Figure 24. Length Frequency of Juvenile Chinook Sampled Season To-Date (Green Peter Head of Reservoir – Middle Santiam River).**

**Table 16. Descriptive Statistics of Target Species Captured at Green Peter Head of Reservoir – Middle Santiam River Season To-Date.**

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	3	98	114	104.0	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.

November 1-15, 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	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	3	98	114	104.0	11.3	18.0	13.9
		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 11/14/2023, 1,000 adipose and left ventral clipped fish were released above the trap site to evaluate the trapping efficiency of the 5 ft RST. 7 fish was recaptured for an efficiency of 0.7%.

Green Peter Head of Reservoir- Middle Santiam River	Release #	Recapture #	Capture Efficiency
5ft Trap	Alive (1,000)	7	0.7% (7/1000)
	Dead (0)	N/A	N/A

## Injuries and Copepod Infection

Partial descaling <20% was observed in 3 of the 3 Chinook captured (100.0%), 0 displayed descaling >20% (0.0%), 2 displayed body injury (66.7%), 0 had eye injuries (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Chinook displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%).

Partial descaling <20% was observed on 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 injuries (0.0%), 0 had copepods present in the branchial cavity (0.0%) and 0 had copepods on fins (0.0%). 0 Winter Steelhead displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). Injury data is summarized in Table 17.

**Table 17. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon and Winter Steelhead for Sampling Period (Green Peter Head of Reservoir-Middle Santiam River).**

Site	Species	# Fish Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Green Peter Head of Reservoir- Middle Santiam	Chinook	3	3	0	2	0	0	0	0
	Winter Steelhead	0	0	0	0	0	0	0	0

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

## Collected DNA and Scale Samples

For the reporting period, DNA was collected from 3 Spring Chinook and 0 Winter Steelhead. Scale samples were collected from 3 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

3 Spring Chinook and 0 Winter Steelhead were PIT tagged during this reporting period. All fish captured did not meet the size criteria for PIT tagging. 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

0 non-target fish were collected during the reporting period; the data is summarized below in Table 18.

**Table 18. Summary of Non-target Species (Green Peter Head of Reservoir – Middle Santiam River).**

Species	5 ft Capture	5 ft Mortality	Season Total	Season Total Mortality
Kokanee	0	0	5	0
Cutthroat Trout	0	0	0	0
Dace	0	0	21	0
Largescale Sucker	0	0	1	0
Sculpin	0	0	10	0
<b>Totals</b>	<b>0</b>	<b>0</b>	<b>37</b>	<b>0</b>

## Stream Statistics

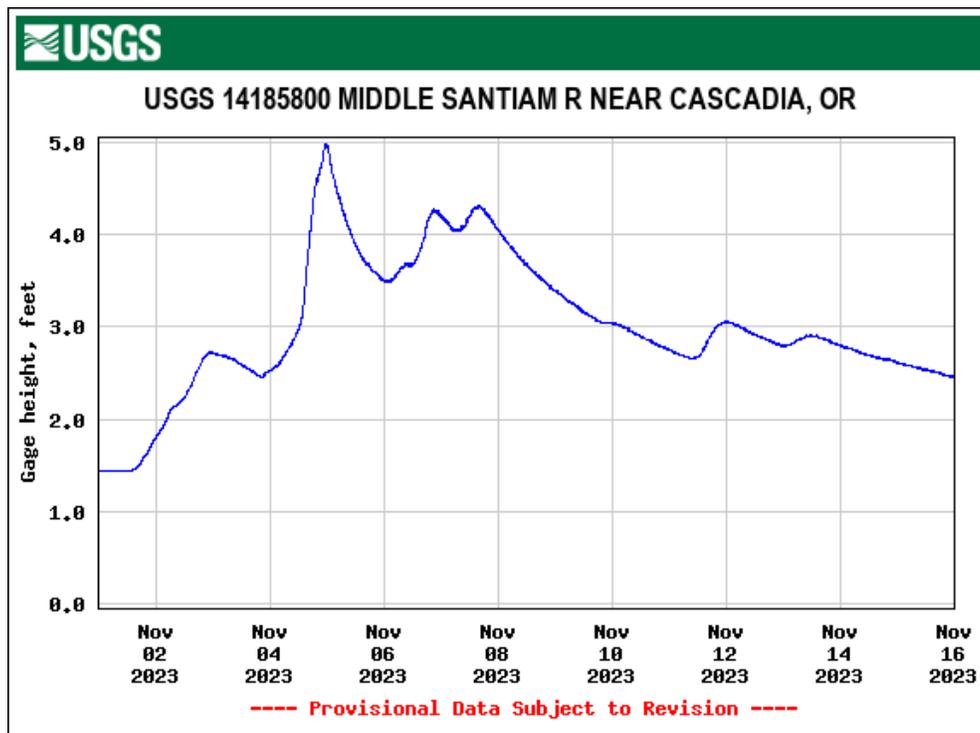
Basic stream statistics at the Green Peter Head of Reservoir – Middle Santiam River site were calculated from data downloaded from the U.S. Geological Survey stream gauge number 14185800. Gauge height (feet) is the only flow metric available at this gauge. During the reporting period, daily maximum values for gage height ranged from 1.8 ft to 5.0 ft (mean: 3.4 ft). Figure 25 shows gage height.

Stream temperatures were recorded every 2 hours for the length of the report period for the RST (Figure 26). Temperature probes for the trap operated normally throughout this reporting period.

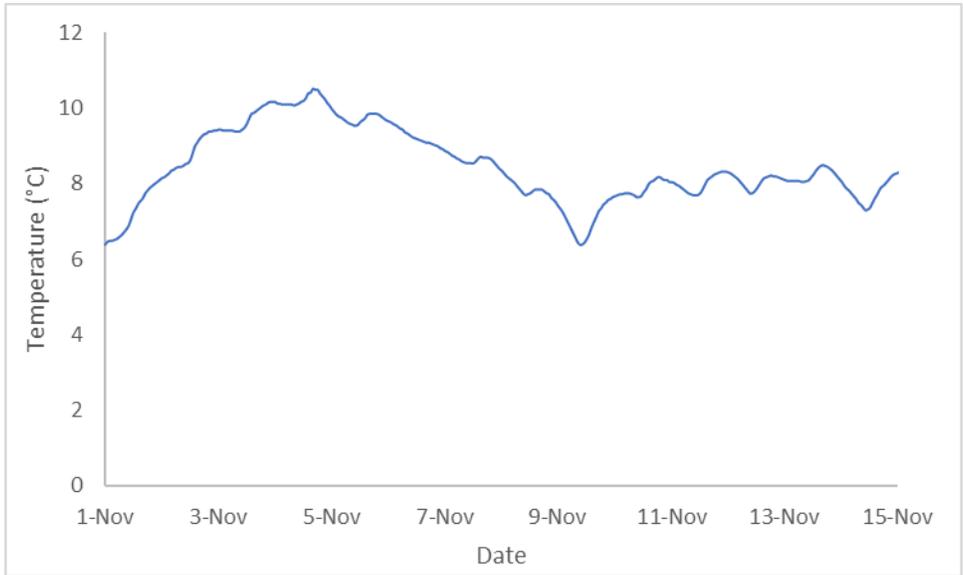
Catch per unit of effort (CPUE) data are summarized in Table 19. Gage height and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

**Table 19. Summary of salmonid CPUE, Green Peter Head of Reservoir – Middle Santiam River.**

	Chinook	Winter Steelhead
Description	(5 ft)	(5 ft)
Catch	3	0
Effort (hrs)	247.0	247.0
CPUE (fish/hr)	0.012	0



**Figure 25. Gage Height (feet); Green Peter Head of Reservoir – Middle Santiam River.**



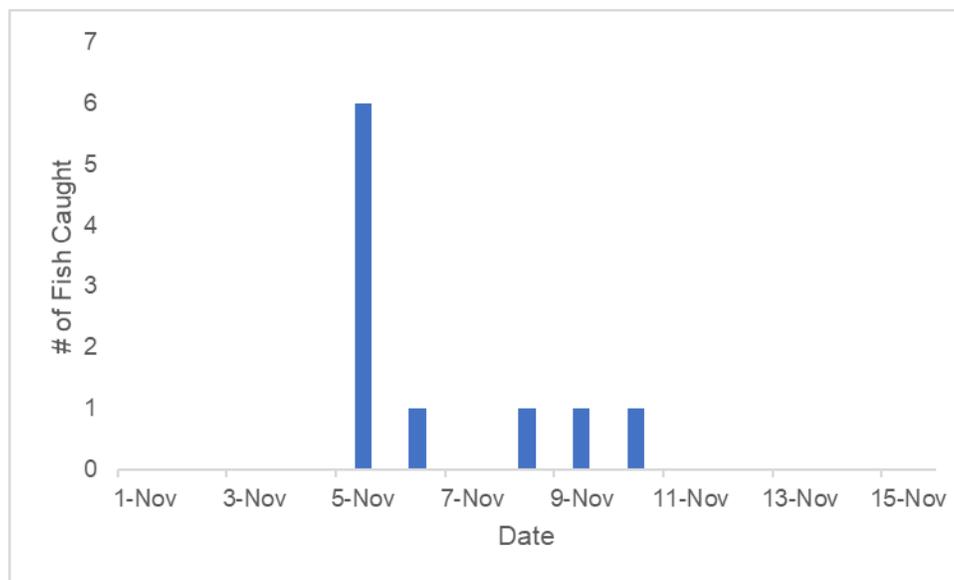
**Figure 26. Temperature at RST (Green Peter Head of Reservoir – Middle Santiam River).**

## Fall Creek Dam Tailrace

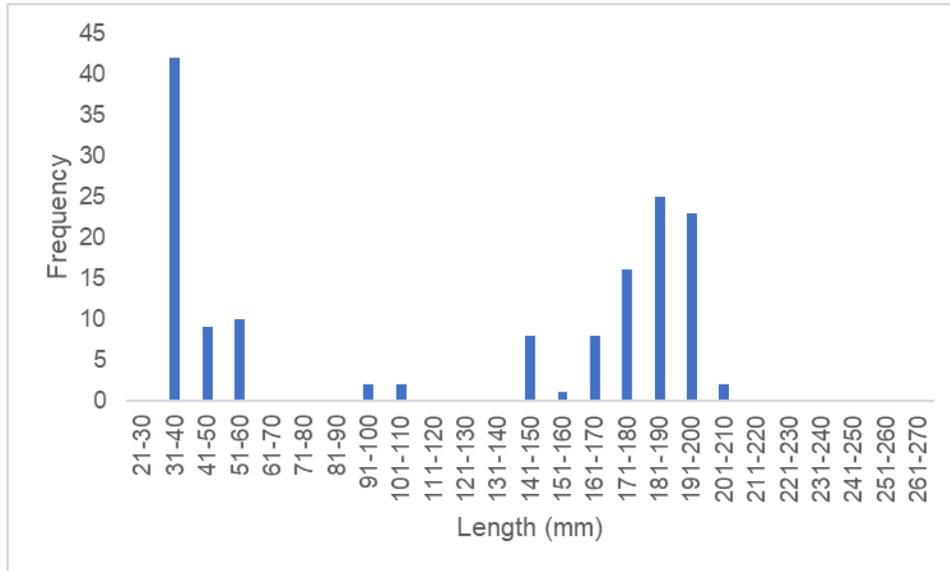
The RST in the Fall Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 30<sup>th</sup>, 2023. Sampling at Fall Creek Dam Tailrace prior to September 30<sup>th</sup>, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. This report reflects research conducted starting October 1<sup>st</sup>, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

### Target Species

The reporting period began November 1<sup>st</sup> and ended November 15<sup>th</sup>. 10 Chinook salmon were captured during the 15-day sampling period (Figure 27). The trap sampled 100% of the days during this reporting period. Figure 28 shows length frequency data to-date and Table 20 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 27. Chinook captured per day 11/1/2023 to 11/15/2023.**



**Figure 28. Length Frequency of Juvenile Chinook Sampled Season To-Date (Fall Creek Dam Tailrace).**

**Table 20. Descriptive Statistics of Target Species Captured at Fall Creek Dam Tailrace, Season To-Date and for the Reporting Period.**

To-Date										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Fall Creek Dam	RO	CHS	Smolt	88	94	203	178.3	8.8	109.3	71.3
		CHS	Parr	8	40	95	59.0	2.1	9.1	4.1
		CHS	Fry	54	33	55	39.2	1.2	3.2	1.8
November 1-15, 2023										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Fall Creek Dam	RO	CHS	Smolt	9	94	190	145.8	8.8	85.4	44.0
		CHS	Parr	1	95	95	95	9.1	9.1	9.1
		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

10 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 10 of the 10 Chinook captured (100.0%), 0 displayed descaling >20% (0.0%), 9 displayed body injury (90.0%), 0 displayed eye injuries (0.0%), 3 had copepods present in the branchial cavity (30.0%) and 1 fish had copepods on fins (10.0%). 0 Chinook displayed gas bubble disease (0.0%). There were 0 mortalities (0.0%). The data is summarized in Table 21. To date injury data is listed in Appendix A.

**Table 21. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period (Fall Creek).**

Site	# CHS Collected	# DSC* <20%	# DSC* >20%	# with Body Injuries	# with Eye Injuries	# with COP* In B.C.	# with COP* on Fins	Mortalities
Fall Creek Dam	10	10	0	9	0	3	1	0

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

## Collected DNA and Scale Samples

Scales were collected from 10 Spring Chinook and DNA was collected from 10 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

1,548 non-target fish were captured at the Fall Creek Dam Tailrace site during the reporting period; the data is summarized below in Table 22.

**Table 22. 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	16	0
Brown Bullhead	11	3	51	18
Cutthroat Trout	27	2	53	2
Dace	13	1	151	6
Largescale Sucker	1088	122	1455	159
Mosquitofish	0	0	0	0
Peamouth	0	0	4	2
Redsided Shiner	3	0	12	0
Northern Pikeminnow	1	0	2	0
Chinook (clipped)	309	24	437	66
<i>O. mykiss</i>	89	5	155	8
<i>O. mykiss</i> (clipped)	3	0	19	3
Pacific Lamprey	2	0	3	0
Sculpin	2	0	8	0
<b>Totals</b>	<b>1548</b>	<b>157</b>	<b>2366</b>	<b>264</b>

\*Season totals include sampling completed on the RST project in 2023.

### 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 77.7 cfs to 1,330.0 cfs (mean: 511.3 cfs). Figure 21 shows instantaneous discharge.

Dissolved oxygen concentrations ranged from 11.0 mg/L to 12.0 mg/L (mean: 10.64 mg/L). Figure 22 shows Dissolved Oxygen.

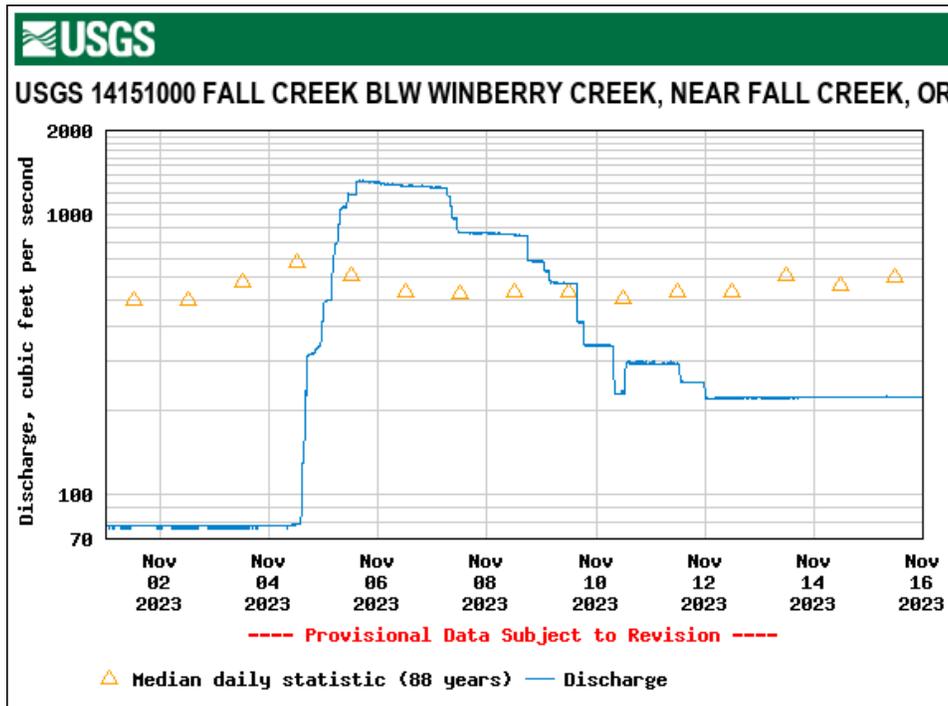
Stream temperatures were recorded every 2 hours using temperature probes for the Fall Creek Dam Tailrace RST site during this reporting period. The temperature probe operated normally during this period. (Figure 23).

Flows In and Out of reservoir during the reporting period averaged 437.5 cfs and 436.0 cfs respectively (Figure 24).

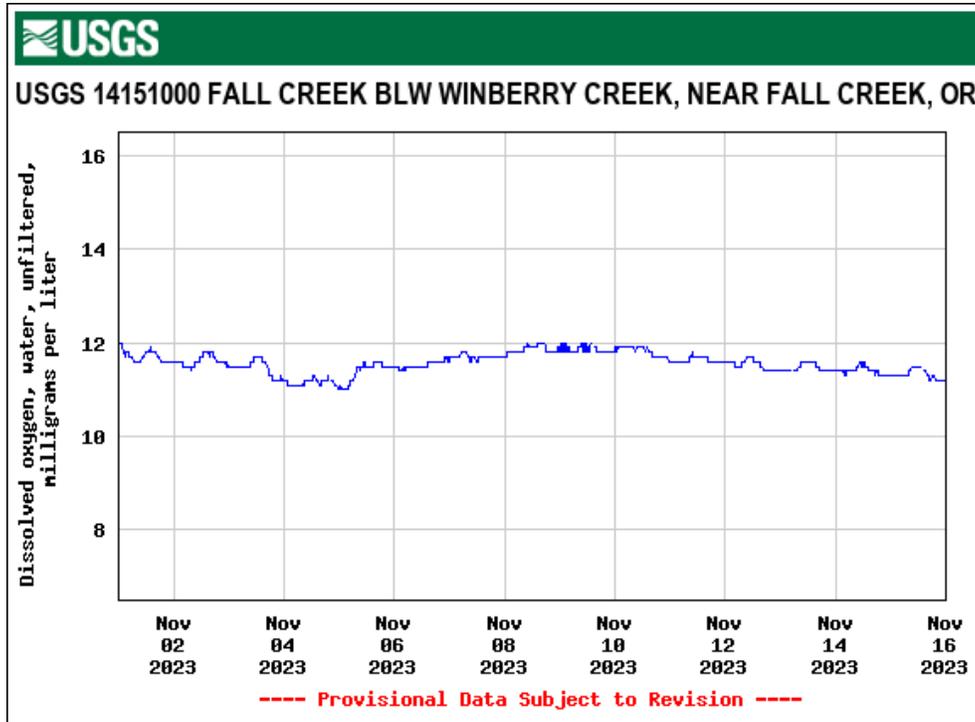
Catch per unit of effort (CPUE) data are summarized in Table 23. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B

**Table 23. Summary of Chinook CPUE, Fall Creek Dam Tailrace.**

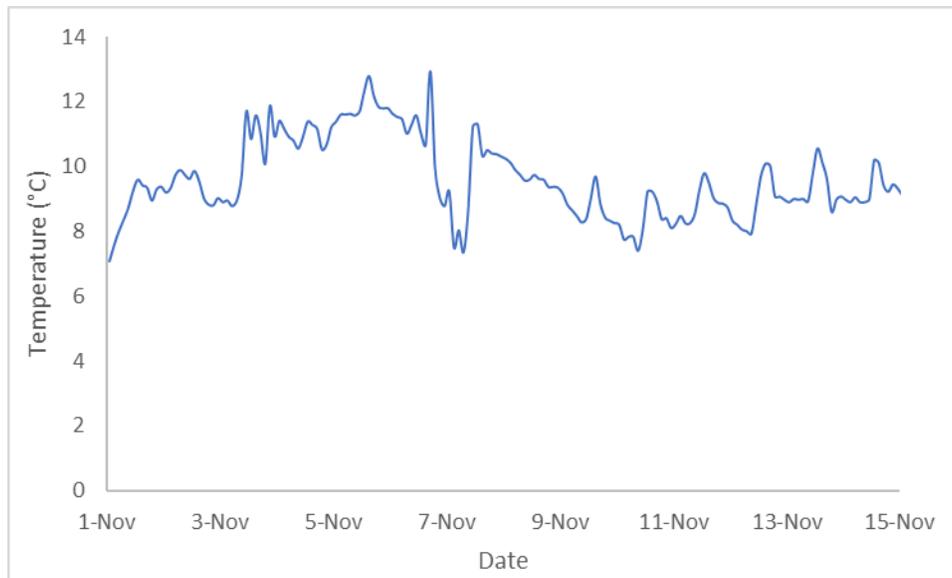
Description	Chinook
Catch	10
Effort (hrs)	363.3
CPUE (fish/hr)	0.028



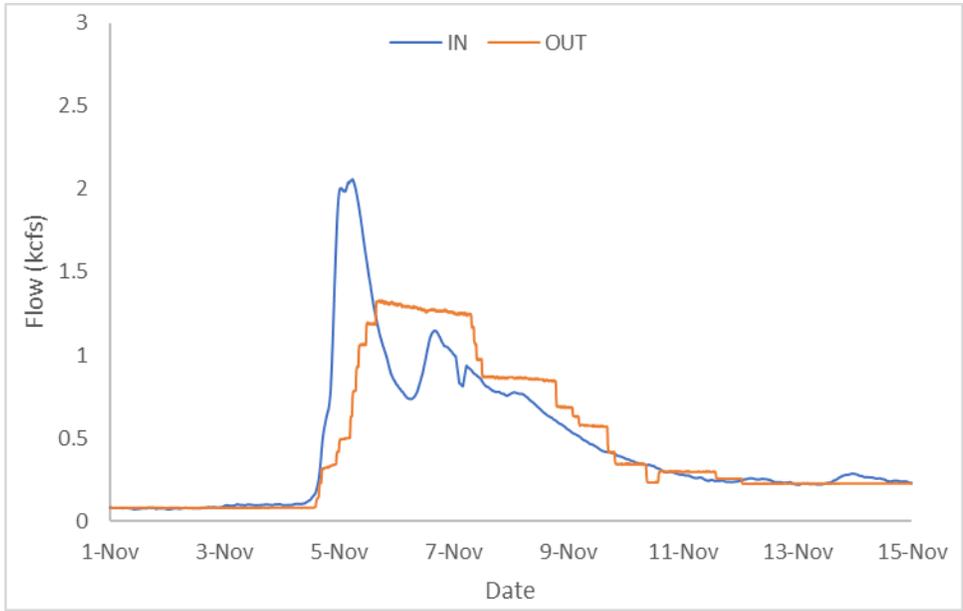
**Figure 29. Discharge (cfs); Fall Creek Below Winberry Creek, Near Fall Creek, OR**



**Figure 30. Dissolved Oxygen (mg/L), Fall Creek below Winberry Creek, Near fall Creek, OR**



**Figure 31. Temperature at RST (Fall Creek Dam Tailrace).**



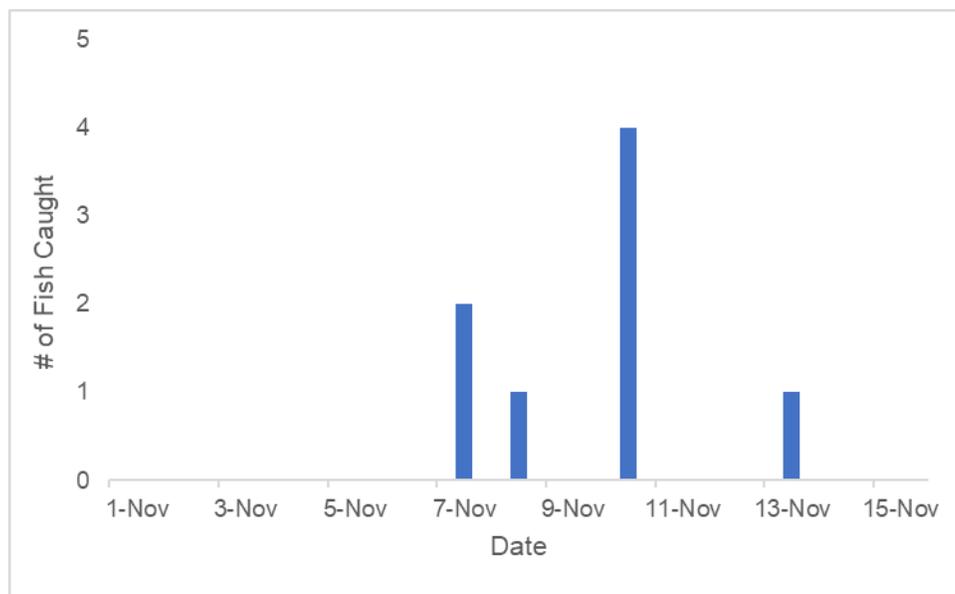
**Figure 32. Hourly Flows Inflow vs. Outflow (RO) (Fall Creek Tailrace)**

## Middle Fork Willamette – Lookout Dam Tailrace

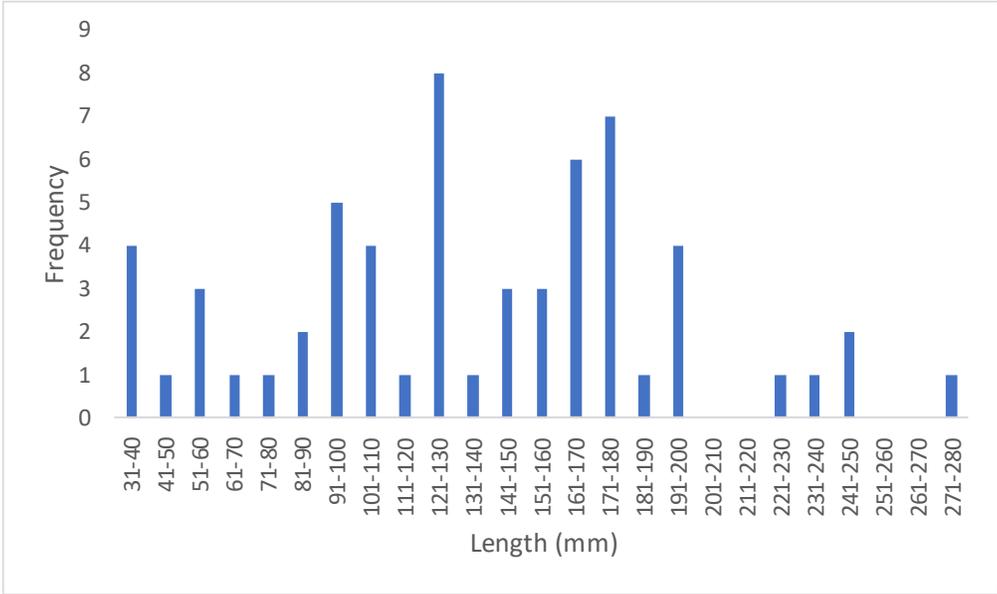
The RSTs in the Lookout Dam Tailrace began sampling under contract W9127N19D0009 on August 1, 2023. Sampling at Lookout Dam Tailrace prior to August 1, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. This report reflects research conducted starting August 1<sup>st</sup>, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

### Target Species

The reporting period began November 1<sup>st</sup> and ended on November 15<sup>th</sup>. There were a total of 8 Chinook salmon captured during the 15-day sampling period (Figure 33). The traps were operated 100% of the reporting period. Table 24 provides life stage, length, and weight data for all Chinook salmon that have been caught at the Lookout Point Dam Tailrace site to-date and Figure 34 shows length frequency data to-date.



**Figure 33. Chinook Captured Per Day 11/1/2023 to 11/15/2023 (Lookout Point Dam Tailrace).**



**Figure 34. Length Frequency of Juvenile Chinook Sampled in 2023 (Lookout Point Dam Tailrace).**

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

To-Date (Since Jan. 1, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	CHS	Smolt	15	100	275	163.3	12.1	269.0	62.9
		CHS	Parr	1	96	96	96	9.4	9.4	9.4
		CHS	Fry	1	52	52	52	3.0	3.0	3.0
	PH 2	CHS	Smolt	4	113	250	160.3	16.5	194.6	69.9
		CHS	Parr	5	57	95	75.8	1.8	10.3	6.3
		CHS	Fry	4	33	37	34.8	N/A	N/A	N/A
	Spill	CHS	Smolt	27	90	247	156.2	8.7	161.4	49.1
		CHS	Parr	2	94	125	109.5	9.7	17.6	13.7
		CHS	Fry	2	44	55	49.5	1.0	1.6	1.3
November 1-15, 2023										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Lookout Point Dam	PH 1	CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
	PH 2	CHS	Smolt	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Parr	1	95	95	95	10.3	10.3	10.3
		CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A
	Spill	CHS	Smolt	6	90	125	105.7	8.7	20.0	13.03
		CHS	Parr	1	94	94	94	9.7	9.7	9.7
		CHS	Fry	0	N/A	N/A	N/A	N/A	N/A	N/A

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

\*\*Season totals include sampling completed on the RST project in 2023.

## Trapping Efficiency

A total of 4,042 juvenile hatchery Chinook (parr) were adipose clipped and released in the spillway this reporting period.

Fish were released in small groups directly into spillway flow. A total of 0 fish were recaptured in the traps for an efficiency of 0.0%. Trap specific efficiencies are as follows: 0 recaptured at the PH 1 RST for an efficiency of 0%, 0 recaptured at PH 2 for an efficiency of 0%, and 0 recaptured at the Spill RST for an efficiency of 0.0%.

Lookout Dam Spillway	Release #	Recapture #	Capture Efficiency
10/25/2023	4042	0	0.0% (0/4042)

## 24-Hour Post Collection Holding Trial

7 Spring Chinook were captured during the current reporting period and held for 24 hours. 1 fish was held from the PWR RST and 6 fish were held from the Spill RST. 1 hold fish died from the PWR RSTs (100.0%). 4 of the fish from Spill RST died during holding (66.7%).

## Injuries and Copepod Infection

There were 7 Chinook captured in the Spill Channel RST. Partial descaling <20% was observed on 5 of 7 Chinook collected at the Spill RST (71.4%), and descaling >20% was observed on 2 of the Chinook collected (28.6%). 5 displayed body injuries (71.4%) and 0 had eye injuries (0.0%). 1 of the Spill RST Chinook had copepods present in the branchial cavity (14.3%) and 1 had copepods present on fins (14.3%). 1 of the fish captured in the Spill RST displayed Gas Bubble Disease (14.3%).

There was 1 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 1 of the Chinook collected (100.0%). 1 PWR RST fish had bodily injury (100.0%) 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 was 1 chinook mortality collected in the Spill RST (14.3%) and 0 in the PWR RSTs (0.0%). Injuries are displayed in Table 25. To date injury data can be found in Appendix A.

**Table 25. 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	7	5	2	5	0	1	1	1
	PWR	1	0	1	1	0	0	0	0

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

## Collected DNA and Scale Samples

DNA was collected from 8 Spring Chinook for the reporting period. Scales were collected from 8 Spring Chinook.

## 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

5,587 non-target species were captured during the reporting period; the data is summarized below in Table 26.

**Table 26. 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	121	73	230	195	25925	24021
Bluegill	2	0	6	1	79	17
Brown Bullhead	0	0	0	0	4	1
Chinook (clipped)	4	0	3	0	18	5
Crappie	3667	2252	1251	735	170287	117918
Largemouth Bass	0	0	0	0	23	23
Mountain Whitefish	0	0	0	0	1	0
Largescale Sucker	0	0	6	0	12	4
Northern Pikeminnow	0	0	3	0	57	5
<i>O. mykiss</i>	2	0	5	0	15	1
<i>O. mykiss</i> (clipped)	2	0	2	0	5	1
Pumpkinseed	0	0	0	0	1	0
Redside Shiner	0	0	0	0	1	0
Sculpin	0	0	9	1	153	11
Smallmouth Bass	100	73	156	113	398	320
Spotted Bass	0	0	0	0	2	0
Unknown	0	0	0	0	7	0
Walleye	9	5	9	3	90	40
<b>Totals</b>	<b>3907</b>	<b>2403</b>	<b>1680</b>	<b>1048</b>	<b>197078</b>	<b>142367</b>

\*Season totals include sampling completed on the RST project in 2023.

## 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

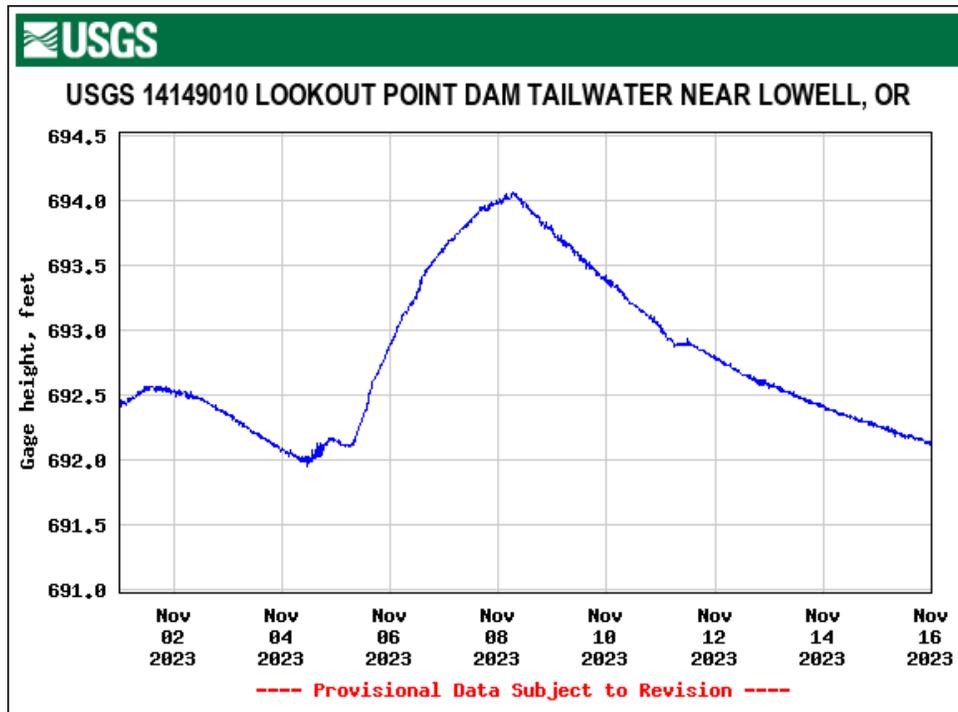
values for instantaneous gauge height ranged from 692.2 feet to 694.1 feet (mean: 693.0 feet). Figure 35 shows instantaneous gauge height.

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 36 and Figure 37).

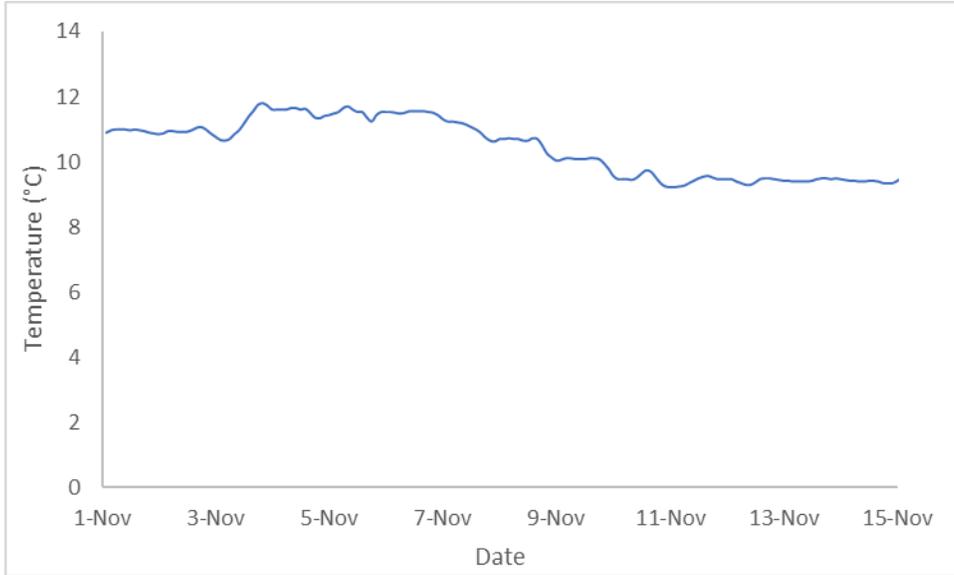
Flows through the Powerhouse and Spill during the reporting period averaged 0 to 1,972.1 cubic feet per second (cfs) (Figure 38). Catch per unit of effort (CPUE) data are summarized in Table 27. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

**Table 27. Summary of Chinook CPUE at Lookout Point Dam Tailrace.**

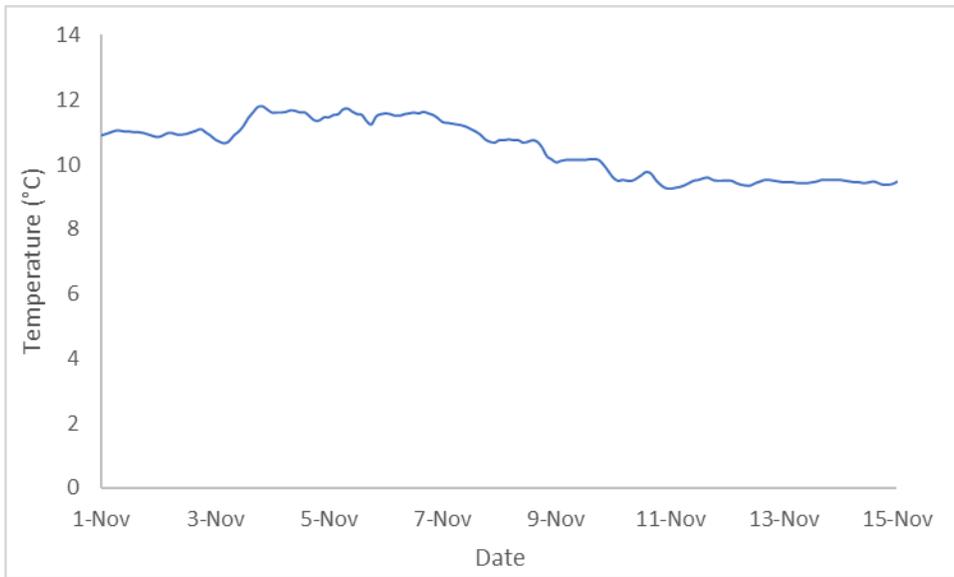
Description	Chinook		
	PH 1	PH 2	Spill
Catch	0	1	7
Effort (hrs)	361.0	361.0	360.6
CPUE (fish/hr)	0	0.003	0.019



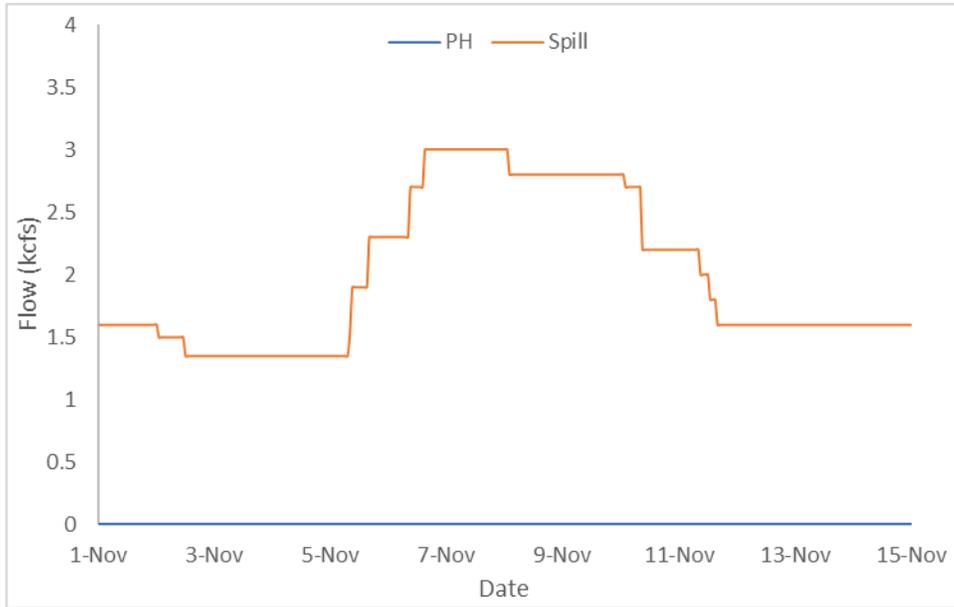
**Figure 35. Gauge Height (feet); below Lookout Dam.**



**Figure 36. Temperature at RST (Lookout Dam PWR).**



**Figure 37. Temperature at RST (Lookout Dam Spill).**



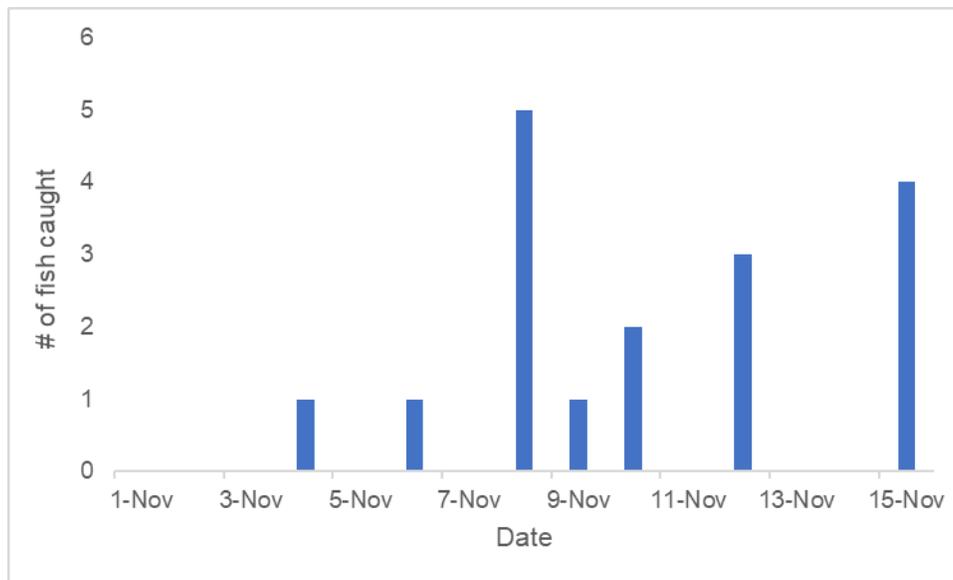
**Figure 38. Hourly Flows PWR vs. Spill (Lookout Dam Tailrace).**

## Middle Fork Willamette – Hills Creek Dam

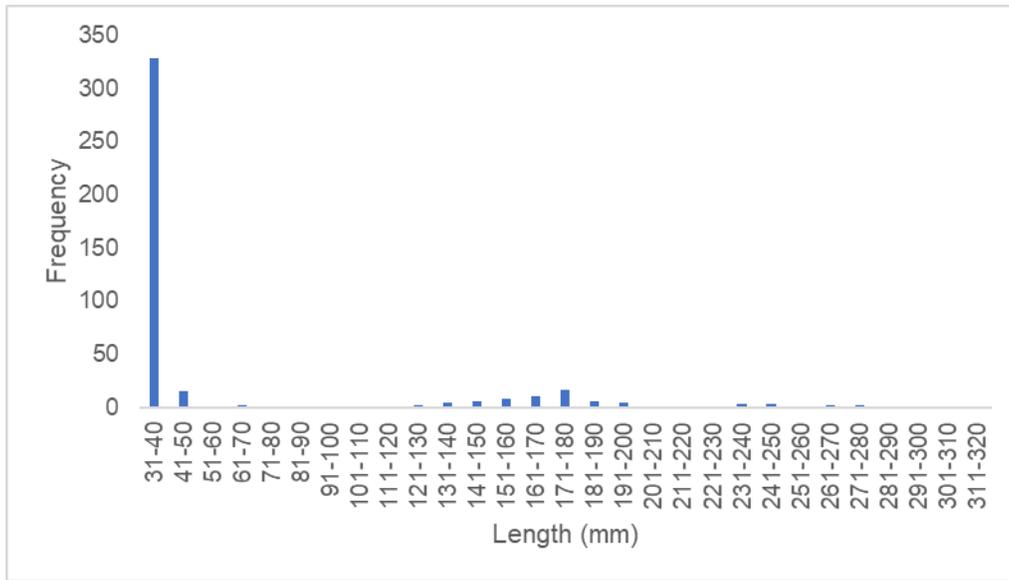
The RSTs in the Hills Creek Dam Tailrace began sampling under contract W9127N19D0009 on September 15, 2023. Sampling at Hills Creek Dam Tailrace prior to September 15, 2023 was conducted by EAS for the USACE under contract W9127N19D0007. This report reflects research conducted starting September 15<sup>th</sup>, 2023 but will include season totals from January 1<sup>st</sup>, 2023 onward.

### Target Species

The reporting period began November 1<sup>st</sup> and ended on November 15<sup>th</sup>. There were a total of 17 Chinook salmon captured during the 15-day sampling period (Figure 39). Sampling duration was 100% of the reporting period for the RSTs. Table 28 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 40 shows length frequency data to-date.



**Figure 39. Chinook Captured Per Day 11/1/2023 to 11/15/2023 (Hills Creek Dam Tailrace).**



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

**Figure 40. Length Frequency of Juvenile Chinook Sampled in 2023 (Hills Creek Dam).**

**Table 28. Descriptive Statistics of Target Species Captured at Hills Creek Dam Season To-Date and for the Reporting Period.**

To-Date (Since Jan. 1, 2023)										
Site	Route	Species	Life stage	Collected	Length (mm)*			Weight (g)*		
					Min	Max	Mean	Min	Max	Mean
Hills Creek	RO	CHS	Fry	126	31	55	35.6	N/A	N/A	N/A
		CHS	Parr	1	61	61	61	2.5	2.5	2.5
		CHS	Smolt	12	142	273	227.3	34.5	196.3	130.9
Hills Creek	PWR	CHS	Fry	220	31	48	36.1	N/A	N/A	N/A
		CHS	Parr	1	69	69	69	4.7	4.7	4.7
		CHS	Smolt	68	96	314	174.3	7.1	290.2	68.3
November 1-15, 2023										
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	0	N/A	N/A	N/A	N/A	N/A	N/A
		CHS	Smolt	2	200	211	205.5	67.4	77.4	72.4
Hills Creek	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	15	96	210	173.8	7.1	104.6	66.8

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

## Trapping Efficiency

A total of 503 juvenile Chinook were adipose clipped, left vent clipped and upper caudal clipped and released on 10/31/23 below Hills Creek PWR to evaluate the efficiency of the screw trap. A total of 8 fish were recaptured in the traps for an efficiency of 1.6%. 8 fish were recaptured at the 8 ft PWR trap for a trapping efficiency of 1.6% and 0 were captured in the RO trap for an efficiency of 0.0%.

Hills Creek Dam	Release #	Recapture #	Capture Efficiency
PWR Trap	503	8	1.6% (8/503)
RO Trap	503 (PWR Release)	0	0.0% (0/510)

## 24-Hour Post Collection Holding Trial

12 Chinook captured in the RSTs were held during this reporting period. 11 fish were held from the PWR RST and 1 fish was held from the RO RST. 1 hold fish died from the PWR RST (9.1%). 1 of the fish from RO RST died during holding (100.0%).

## Injuries and Copepod Infection

There were 2 Chinook captured in the RO RST. Partial descaling <20% was observed on 0 of 2 Chinook collected at the RO RST (0.0%), and descaling >20% was observed on 2 of 2 Chinook collected (100.0%). 2 displayed body injuries (100.0%) and 2 had eye injuries (100.0%). 2 of the RO RST Chinook had copepods present in the branchial cavity (100.0%) and 1 had copepods present on fins (50.0%). There was 1 mortality (50.0%). 1 of the fish captured in the RO RST displayed Gas Bubble Disease (50.0%).

There were 15 Chinook captured in the Powerhouse channel RST. Partial descaling <20% was observed on 10 of the 15 Chinook collected at the PWR RSTs (66.7%). Descaling >20% was observed on 5 of the Chinook collected (33.3%). 7 PWR RST fish had bodily injury (46.7%) and 1 had eye injuries (6.7%). 11 of the fish had copepods present in the branchial cavity (86.7%) and 4 had copepods present on fins (26.7%). 2 fish displayed Gas Bubble Disease (13.3%). There were 4 chinook mortalities collected in the PWR RST (26.7%).

Injuries are displayed in Table 29. To date injury data can be found in Appendix A.

**Table 29. Number of Descaled, Bodily/Eye Injured, Copepod Infected and Dead Chinook Salmon for Sampling Period. (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	2	0	2	2	2	2	1	1
Hills Creek	PWR	15	10	5	7	1	13	4	4

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

## Collected DNA and Scale Samples

For the reporting period, scales and DNA were collected from 17 Spring Chinook. The other targets captured did not meet length criteria for DNA sampling or did not have a body.

## 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. 39 Chinook have been VIE marked with fluorescent elastomer. More information regarding VIE marked fish can be found in Appendix D.

Fish still showing an egg sac are not VIE marked.

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

## Non-Target Species

190 non-target fish were captured at Hills Creek during the reporting period; the data is summarized below in Table 30.

**Table 30. Summary of Non-target Species (Hills Creek Dam).**

Species	RO Capture	RO Mortality	PWR Capture	PWR Mortality	Season Total*	Season Total Mortality*
Bass Unknown	1	1	0	0	15	11
Bluegill	3	2	9	7	223	110
Brook Lamprey	1	0	0	0	2	0
Brown Bullhead	0	0	1	0	8	1
Chinook (clipped)	5	0	62	19	396	237
Crappie	61	44	12	8	1125	805
Cutthroat	0	0	1	0	3	0
Dace	0	0	0	0	36	2
Largemouth Bass	0	0	0	0	7	23
Largescale Sucker	5	2	0	0	40	6
Northern Pikeminnow	0	0	0	0	1	0
<i>O. mykiss</i>	0	0	7	0	73	20
<i>O. mykiss (clipped)</i>	0	0	0	0	19	45
Pumpkinseed	0	0	0	0	2	2
Redside Shiner	2	0	0	0	5	1
Sculpin	11	1	3	1	266	1
Smallmouth Bass	5	5	0	0	15	12
Spotted Bass	0	0	1	0	104	52
Unknown	0	0	0	0	1	1
Walleye	0	0	0	0	1	1
<b>Totals</b>	<b>94</b>	<b>55</b>	<b>96</b>	<b>35</b>	<b>2342</b>	<b>1330</b>

\*Season totals include sampling completed on the RST project in 2023.

## 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 1,223.9 feet to 1,224.5 feet (mean: 1,224.1 feet). Figure 41 shows instantaneous gauge height.

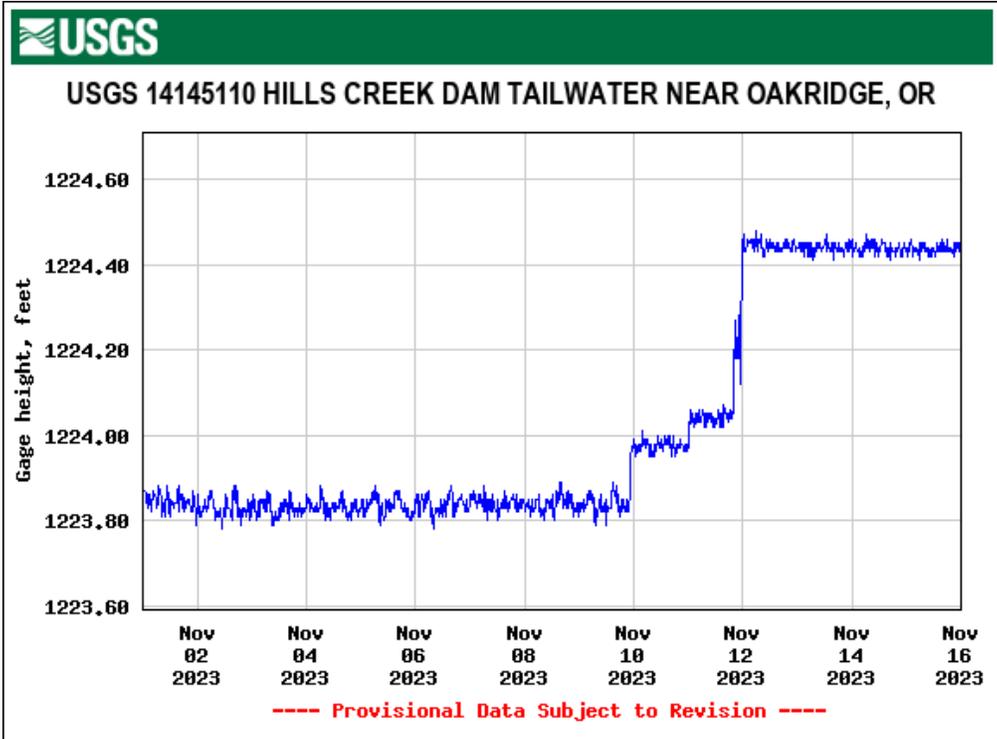
Total dissolved gas saturation ranged from 97 to 101% (mean: 98.2%) during the reporting period. Figure 42 shows total dissolved gas saturation.

Stream temperatures were recorded every two hours using temperature probes at the Hills Creek Dam RST's during this reporting period (Figure 43 and 44).

Flows through the PWR and RO during the reporting period averaged 524.4 and 0 cfs respectively (Figure 45). Catch per unit of effort (CPUE) data are summarized in Table 31. Discharge and capture data for the duration of monitoring efforts at this location are provided in Appendix B.

**Table 31. Summary of Chinook CPUE, Hills Creek Dam.**

	Chinook	
Description	RO (5ft)	PWR (8ft)
Catch	15	2
Effort (hrs)	360.1	360.3
CPUE (fish/hr)	0.042	0.006



**Figure 41. Gauge Height (feet); below Hills Creek Dam PWR - Middle Fork Willamette River.**

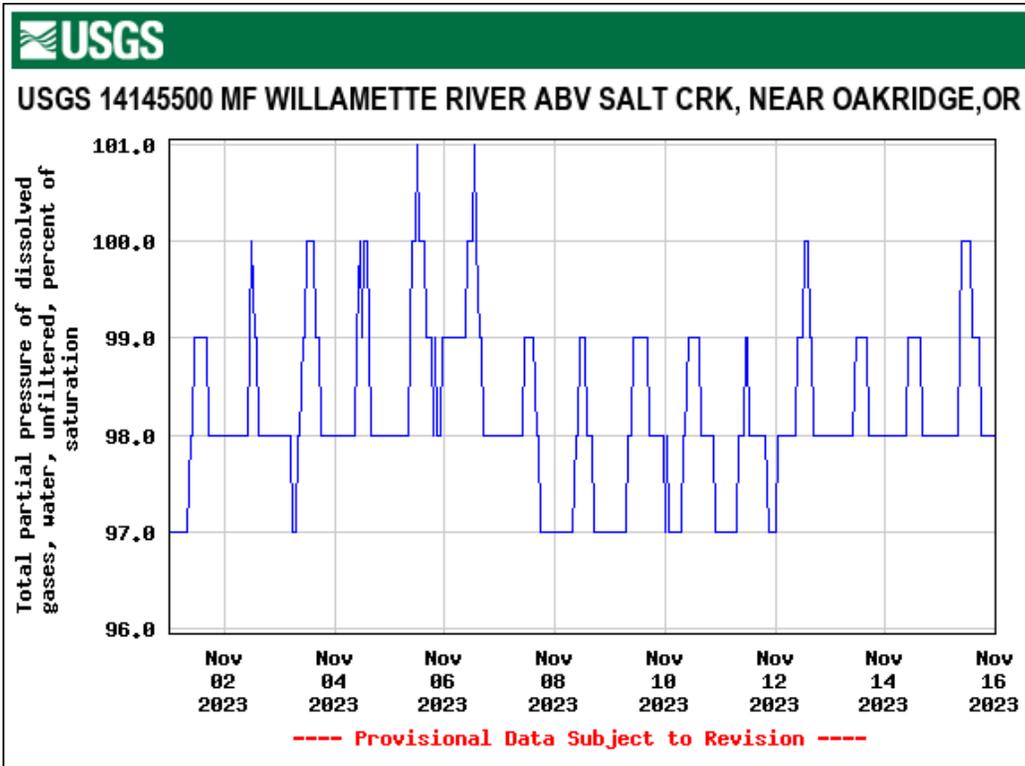


Figure 42. Total Dissolved Gas Saturation (%); below Hills Creek Dam – Middle Fork Willamette River.

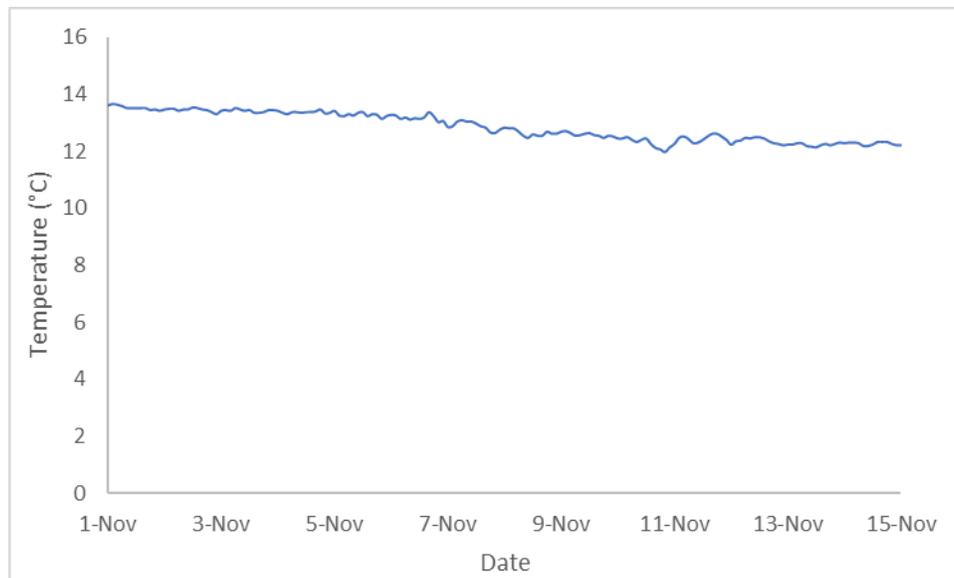
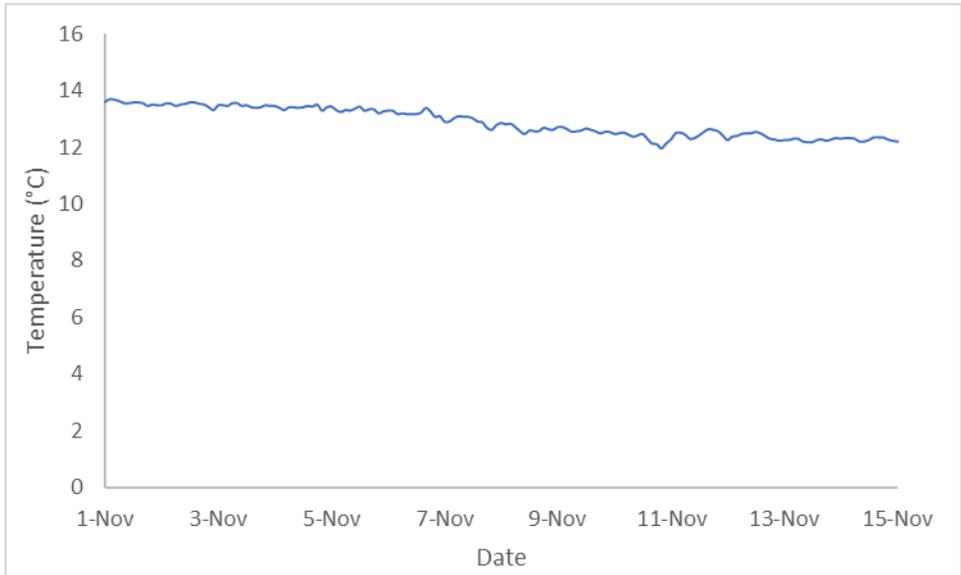
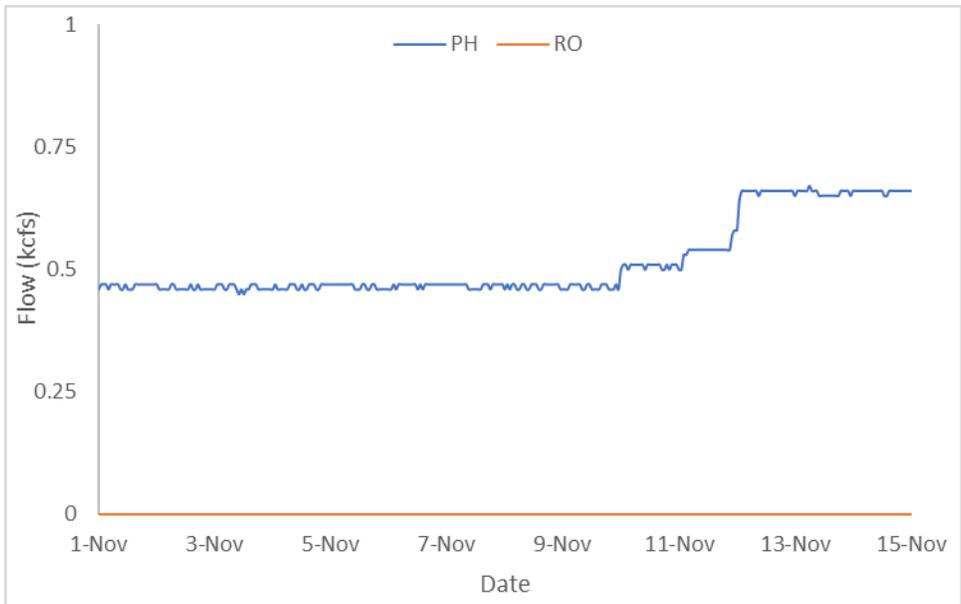


Figure 43. Temperature at Hills Creek RST PWR (Hills Creek Dam).



**Figure 44. Temperature at Hills Creek RO RST (Hills Creek Dam).**



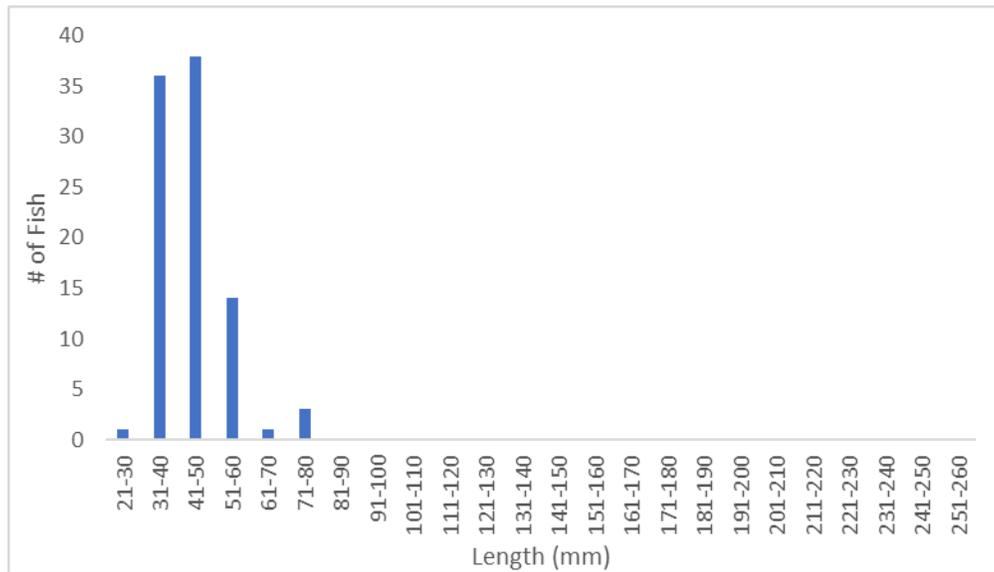
**Figure 45. Hourly Flows PWR vs. RO (Hills Creek Dam).**

## Middle Fork Willamette River– Hills Creek Head of Reservoir

The Hills Creek Head of Reservoir RST was installed and began sampling on May 9<sup>th</sup>, 2023. Sampling concluded at this site on June 30, 2023 and the RST was removed.

### Target Species

A total of 93 Spring Chinook were captured during sampling in 2023. Figure 46 shows length frequency data of captured Chinook for sampling in 2023. Table 32 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 46. Length Frequency of Juvenile Chinook Sampled Season To-Date (Hills Creek Head of Reservoir).**

**Table 32. Descriptive Statistics of Target Species Captured at Hills Creek Head of Reservoir Season To-Date.**

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	<1	2.5	1.4
		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<sup>th</sup>, 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<sup>th</sup>, 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 33 provides a summary of VIE marked fish at the Hills Creek Head of Reservoir- Middle Fork Willamette River site.

**Table 33. 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 34.

**Table 34. Summary of Non-target Species (Hills Creek Head of Reservoir).**

<b>Species</b>	<b>Season Total</b>	<b>Season Total Mortality</b>
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
<b>Totals</b>	<b>232</b>	<b>5</b>

**Issues Encountered**

A rainstorm resulted in high flows and significant amounts of debris. Crews performed multiple trap checks per day at sites but still observed some mortalities resulting from high debris loads in traps. This resulted in sampling outages at some sites while debris flushed and returned to a level that allowed for safe sampling of fish.

**Upcoming USACE Support Services**

None at this time.

## 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		1916	1173	16	134	19	16	1442	430	7	1083	6	16	5	65	12	141	76	237	110	124	25	82
8 ft		1916	1173	16	134	19	16	1442	430	7	1083	6	16	5	65	12	141	76	237	110	124	25	82
Adult	1	1									1						1	1	1		1		
Parr	40	14	1	4	2			20	5		14					2			1	1		1	
Smolt	1744	1153	15	128	17	15	1422	424	7	1065	6	16	3	64	10	137	72	234	106	123	21	80	
Unknown	2													2								1	
Fry	129	5		2			1		1		3				1		3	3	1	3		2	2
Breitenbush River		373	301	1	1	9		65	9	3	179				1	11	10			2	4	1	
5 ft		373	301	1	1	9		65	9	3	179				1	11	10			2	4	1	
Parr	217	168	1		7			38	6	2	95						7	8			1	1	
Smolt	146	133			1	2		27	3	1	81				1		4	2		2	3		
Fry	10										3												
Detroit HOR		10086	1	665	8	13	9	48	43	16	442	2		1	30		67	49	44	35	48	19	
5 ft		10086	1	665	8	13	9	48	43	16	442	2		1	30		67	49	44	35	48	19	
Parr	764	456	7	2	8			27	30	4	291	2			12		8	20	5	9	5	10	
Smolt	203	182	1		1			21	5	3	102				1		4	2	1	1			
Fry	9119	1	27		11			8	9	9	49			1	17		55	27	38	25	43	9	
Green Peter HOR		24		3							3										1		
5 ft		24		3							3										1		
Smolt	3		3								2												
Fry	21										1									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			
Lookout Dam Tail.		140		68	1	21	2	5	35	54	93				7	2	14	9	22	19	23	3	17
PH 1		45		19	1	8	1	1	15	20	33				5	2	9	4	9	7	5		5
Parr	4		1		1				2		2						1	1	1				
Smolt	40		18	1	7	1	1	15	18		31				5	1	8	4	8	7	5		5
Fry	1																						
PH 2		26		14		6		1	3	8	17				1		2	3	2	5	3		
Parr	9		6		4				3		7						1	1	1	3			
Smolt	13		8		2		1	3	4		10				1		1	1	1	1	2		
Fry	4								1									2		1	1		
Spill		69		35		7	1	3	17	26	43				1		3	2	11	7	15	3	12
Parr	8		2						4		3												
Smolt	59		32		6	1	3	17	22		39				1		3	2	11	7	15	3	12
Fry	2		1		1						1												
Hills Creek Dam		568	2	110	1	35		187	104		143	2	13	3	73	11	43	12	46	25	40	8	30
RO		223	2	50		11		81	40		47		7		30	6	13	2	19	10	10	4	9
Parr	7		2					1															
Smolt	90	1	46		10			80	40		45		7		30	6	9	2	17	7	9	2	9
Fry	126	1	2		1						2						3		2	3	1	2	
PH		345		60	1	24		106	64		96	2	6	3	43	5	30	10	27	15	30	4	21
Parr	8		5					2	1		1									1	1		
Smolt	117		50	1	20			104	63		90	2	6	3	38	4	24	5	23	12	29	1	21
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 11-01-2023 to 11-15-2023																							
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	24		13	1	5	2		23	10		18		1		4		4	4	3	1	1		1
8 ft	24		13	1	5	2		23	10		18		1		4		4	4	3	1	1		1
Smolt	24		13	1	5	2		23	10		18		1		4		4	4	3	1	1		1
Breitenbush River	17		15					7	1		17				1		2						2
5 ft	17		15					7	1		17				1		2						2
Parr	2		1					1			2												
Smolt	15		14					6	1		15				1		2						2
Detroit HOR	320		256	8	1	2		23	29	5	161	2			13		6	13	5	9	4		10
5 ft	320		256	8	1	2		23	29	5	161	2			13		6	13	5	9	4		10
Parr	237		182	7	1	2		13	27	2	121	2			12		3	11	5	9	4		10
Smolt	83		74	1				10	2	3	40				1		3	2					
Fall Creek Dam Tail.	10		10			1		3			9						1		2	1	1		
8 ft	10		10			1		3			9						1		2	1	1		
Parr	1		1								1												
Smolt	9		9			1		3			8						1		2	1	1		
Lookout Dam Tailrace	8		5					2	3		6												1
PH 2	1								1		1												
Parr	1								1		1												
Spill	7		5					2	2		5												1
Parr	1								1		1												
Smolt	6		5					2	1		4												1
Hills Creek Dam	17		10		3			15	7		17		1		1		4		4	1	6		3
PH	15		10		1			13	5		15		1				3		3	1	4		2
Smolt	15		10		1			13	5		15		1				3		3	1	4		2
RO	2				2			2	2		2				1		1		1		2		1
Smolt	2				2			2	2		2				1		1		1		2		1

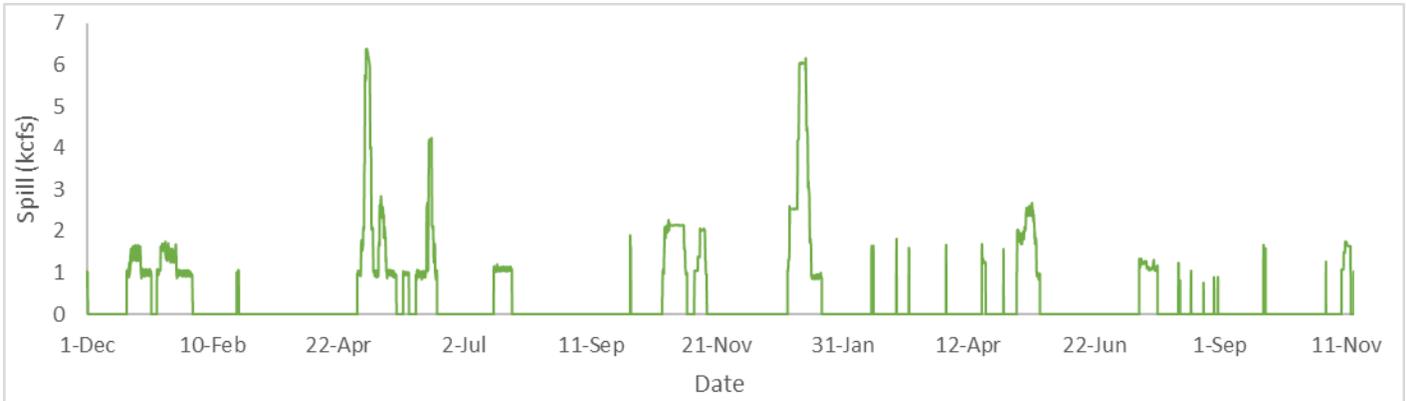
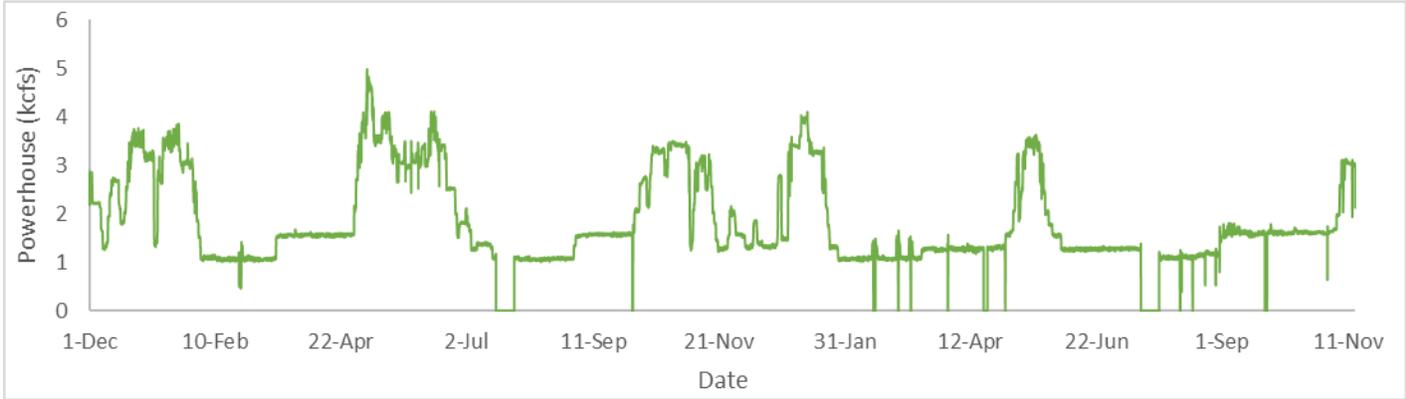
### Steelhead (*O. mykiss*) To Date

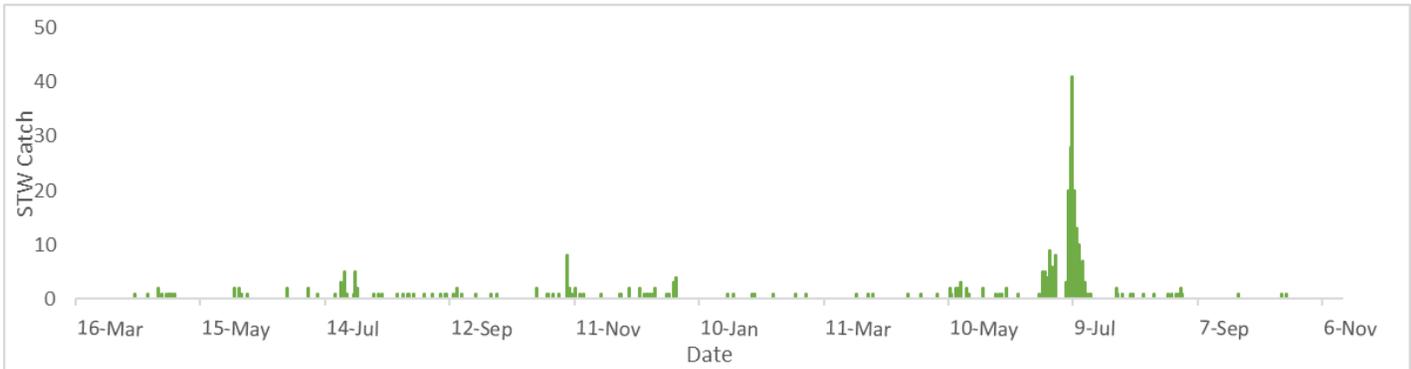
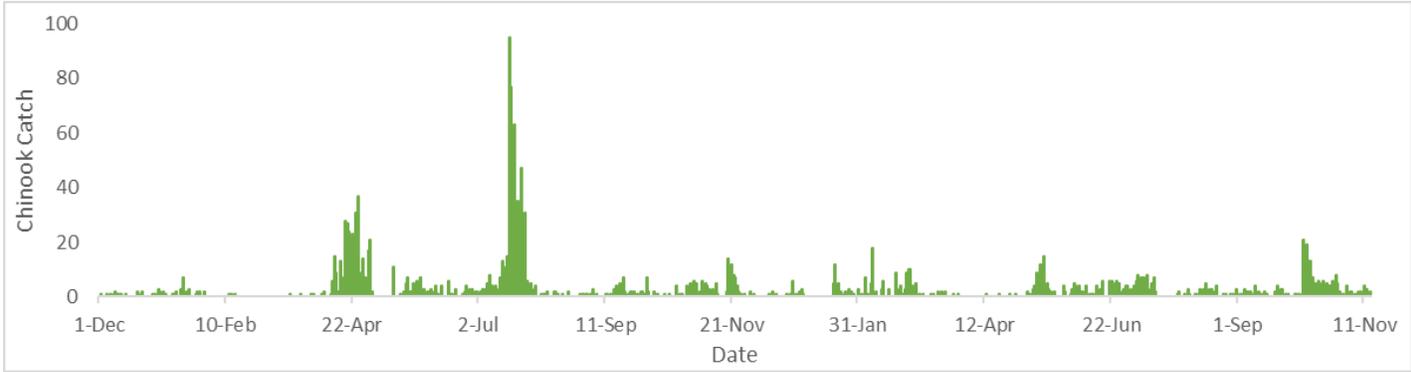
O. mykiss Injuries to-date																							
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Big Cliff Dam	355	1	57	4	7	4	6	52	22	1	75	1	1		6		15	7	17	16	12	3	13
8 ft	355	1	57	4	7	4	6	52	22	1	75	1	1		6		15	7	17	16	12	3	13
Adult	1								1		1		1										
Parr	59	1	13	4	1	1	1	1			18						2	1	1	1	1		1
Smolt	65		39		6	3	5	51	21		51	1			6		10	5	15	15	11	3	11
Fry	230		5							1	5						3	1	1				1
Breitenbush River	358	1	12					1	3		14				1		2	2	2	1	1		
5 ft	358	1	12					1	3		14				1		2	2	2	1	1		
Parr	35		7					1	2		9						2	2					1
Smolt	7		5						1		4				1				1				
Fry	316	1									1								1	1			
Detroit HOR	588	2	12	1	5	1		1	5	2	16				1		6	3	4	6	2	2	1
5 ft	588	2	12	1	5	1		1	5	2	16				1		6	3	4	6	2	2	1
Parr	34		8	1					1		8						1	1		1			
Smolt	3		2			1		1	1	1	2							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																						

### Steelhead (*O. mykiss*) During Reporting Period

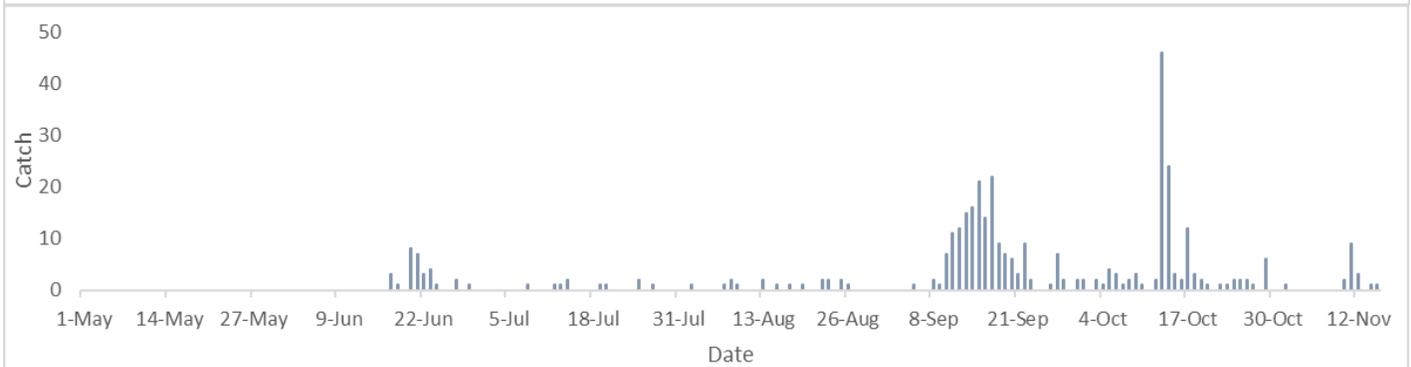
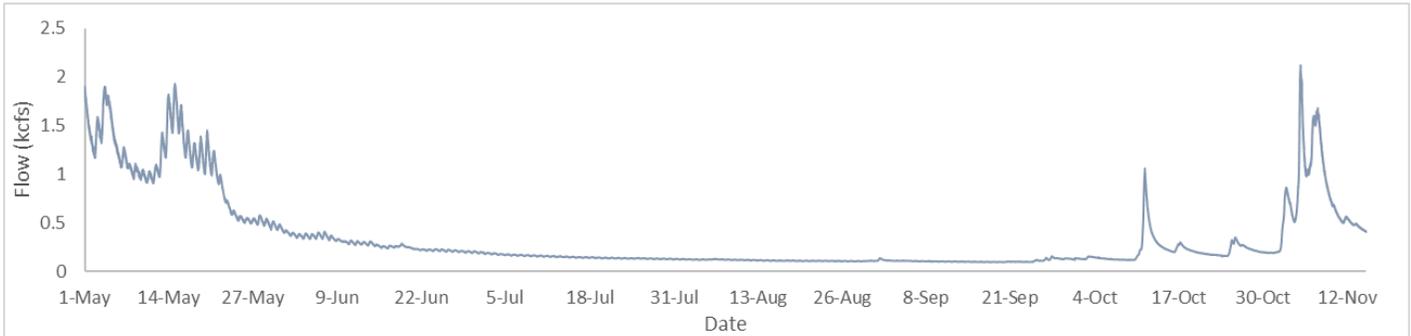
		O. mykiss Injuries During Reporting Period 11-01-2023 to 11-15-2023																					
Site/Trap/Life Stage	Total Fish	MUNK	DS<2	BLO	EYB	FUN	BKD	COP	DS>2	PRD	FID	HBO	BO	HO	BVT	HBP	BRU	TEA	OPD	HIN	FVB	POP	GBD
Breitenbush River	3										1												
5 ft	3										1												
Parr	3										1												
Detroit HOR	6		2																				
5 ft	6		2																				
Parr	6		2																				

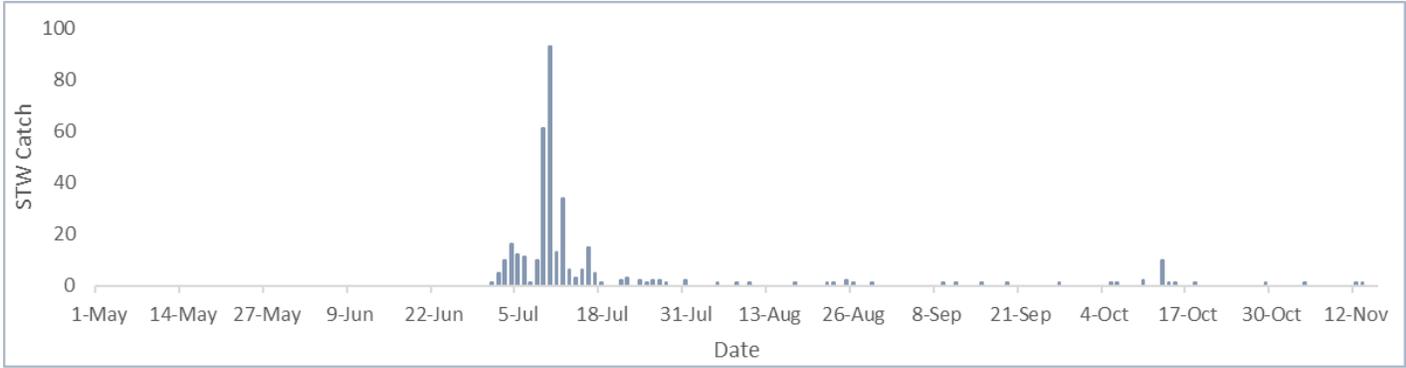
**Appendix B**  
**Big Cliff Dam Operational and Capture Data Since Start of Monitoring**



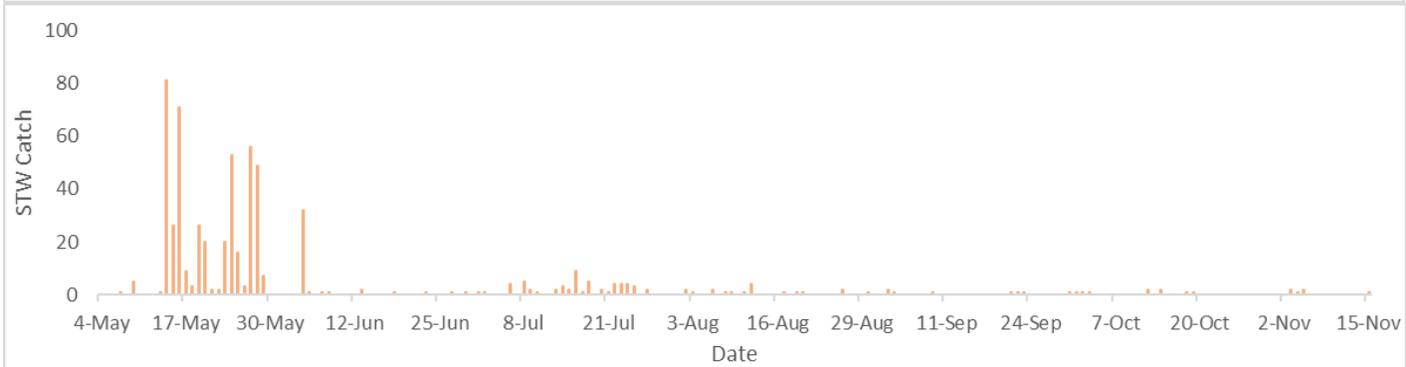
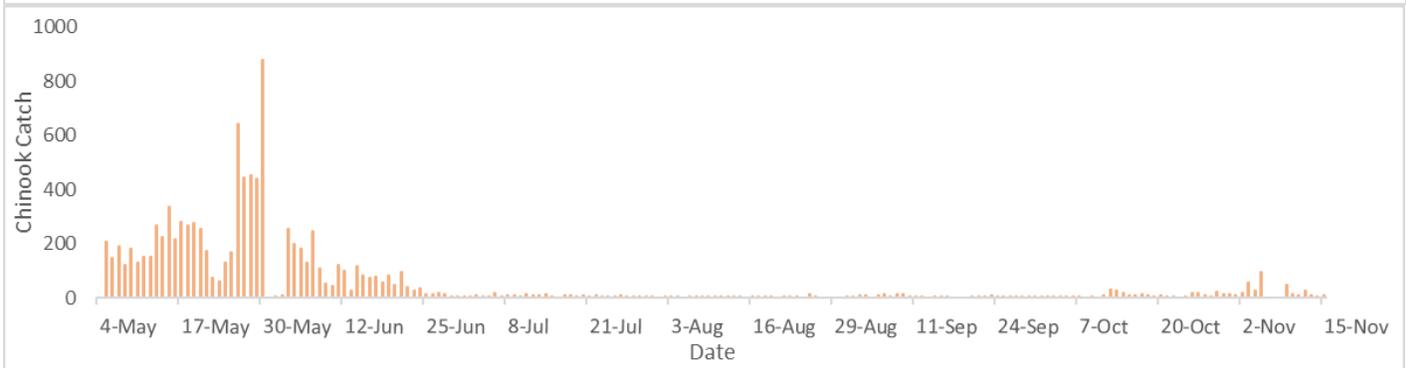
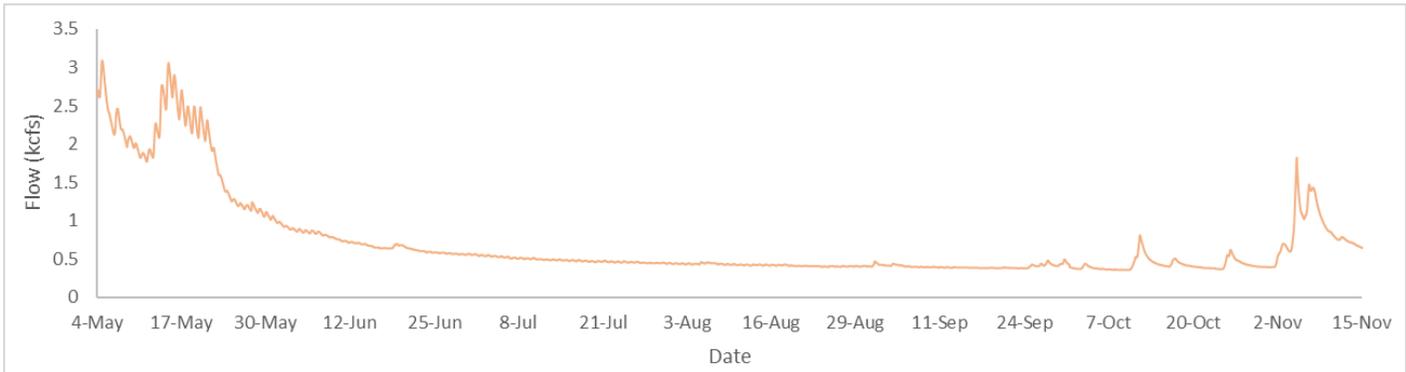


**Breitenbush River Operational and Capture Data Since Start of Monitoring**

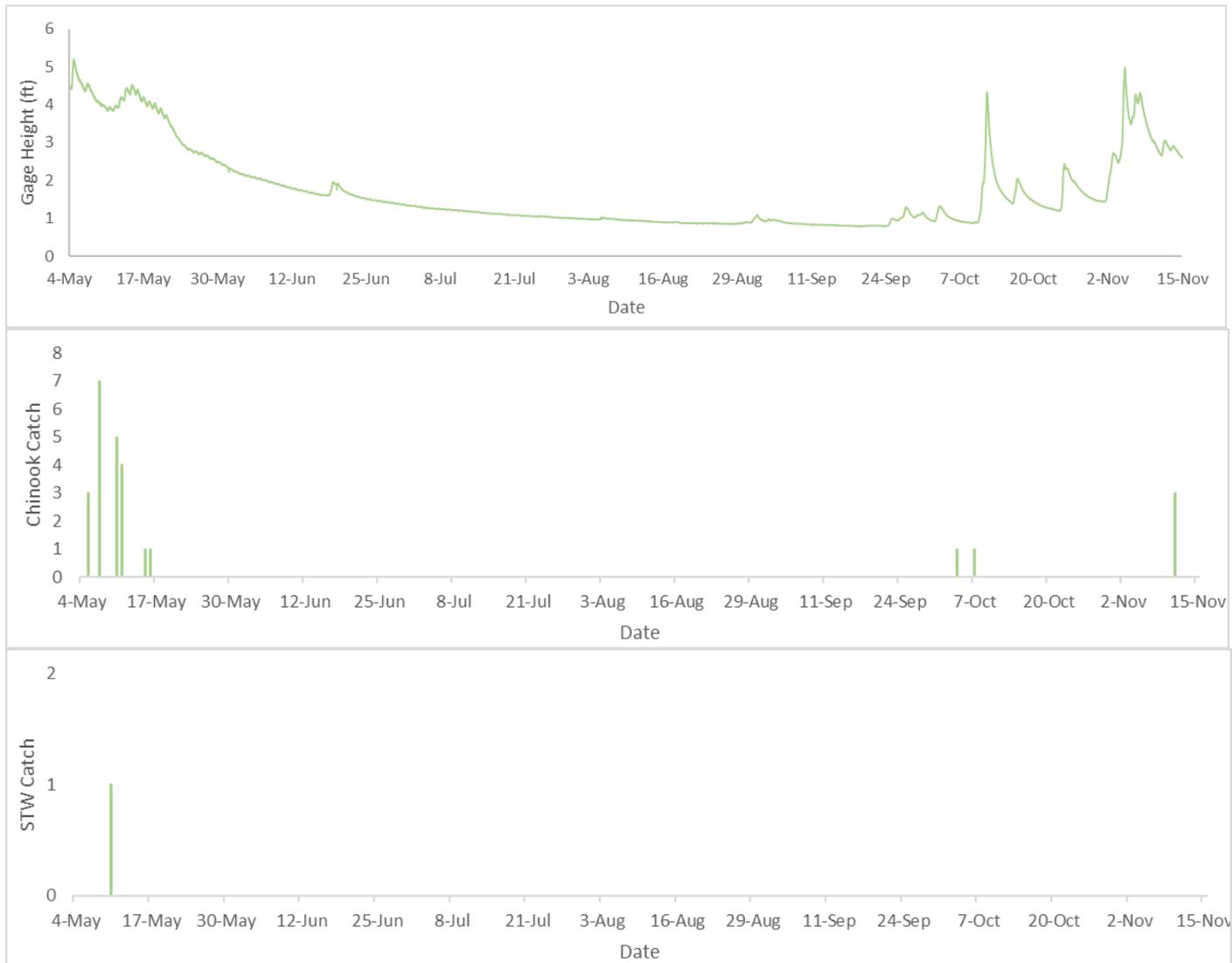




**Detroit Head of Reservoir-North Santiam River Operational and Capture Data Since Start of Monitoring**



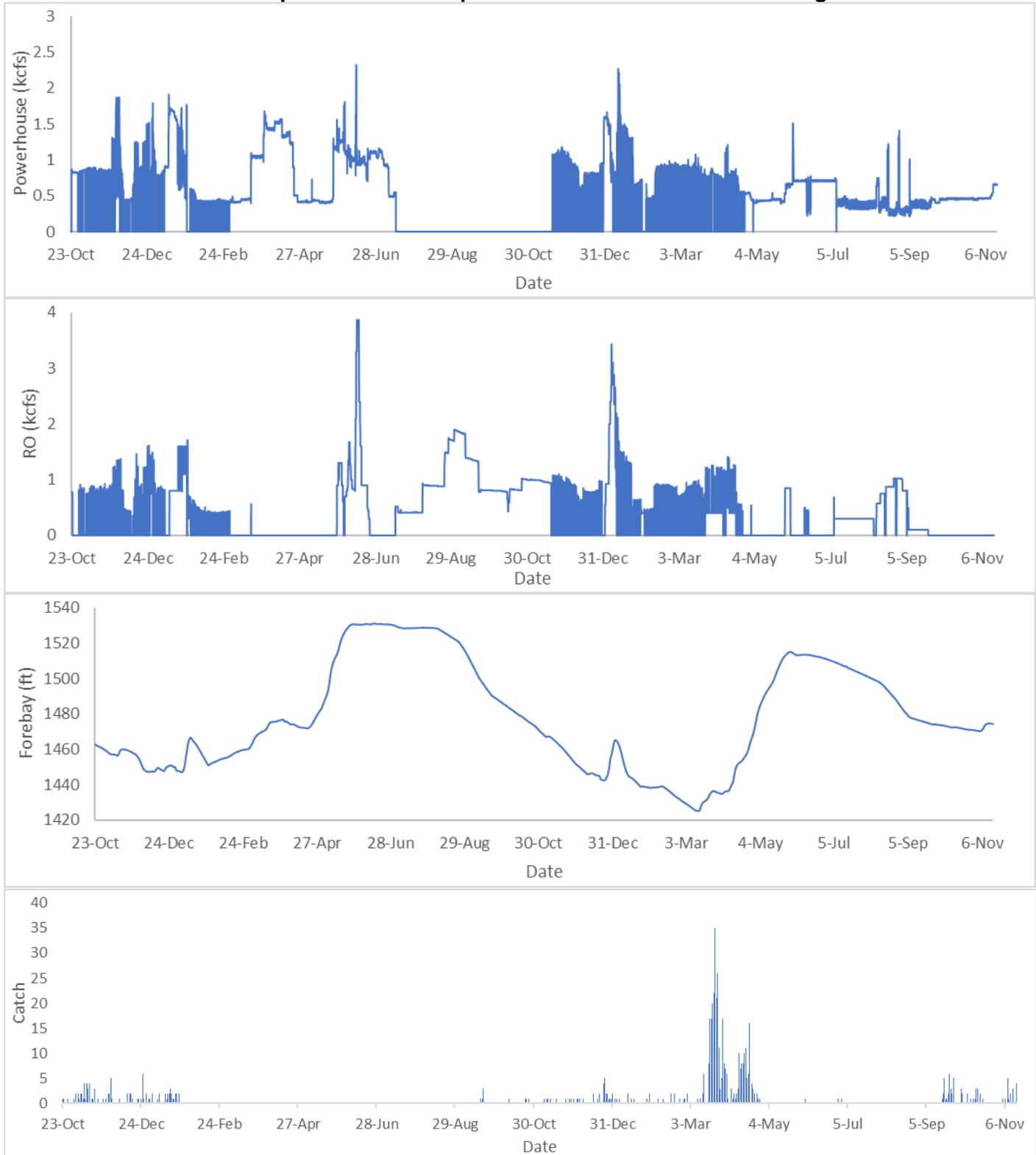
### Green Peter Head of Reservoir-Middle Santiam River Operational and Capture Data Since Start of Monitoring



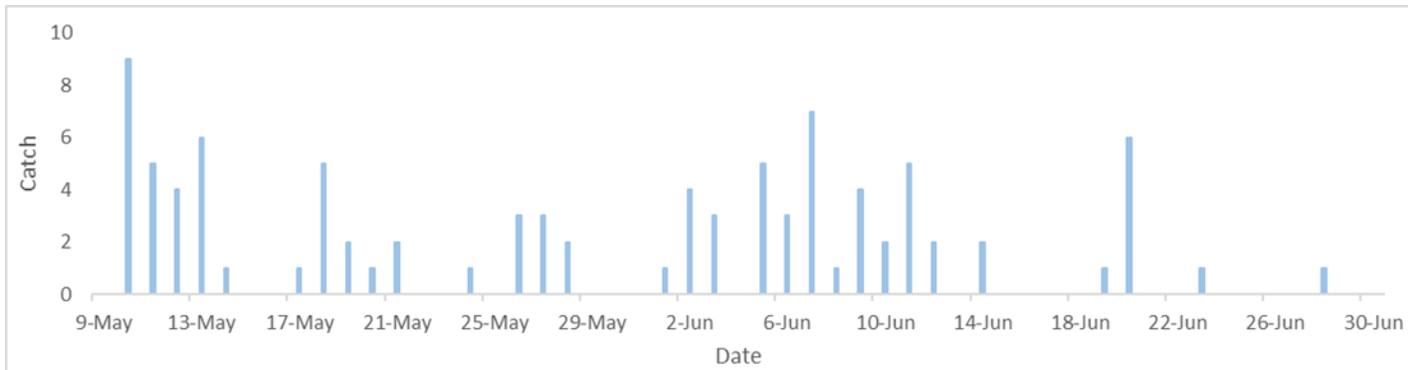
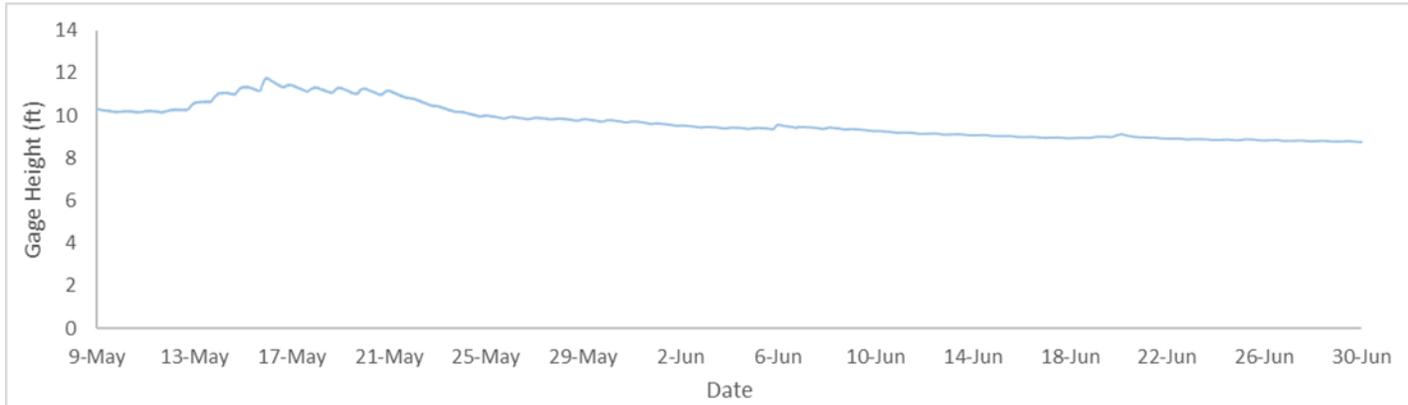
### Lookout Dam Operational and Capture Data Since Start of Monitoring



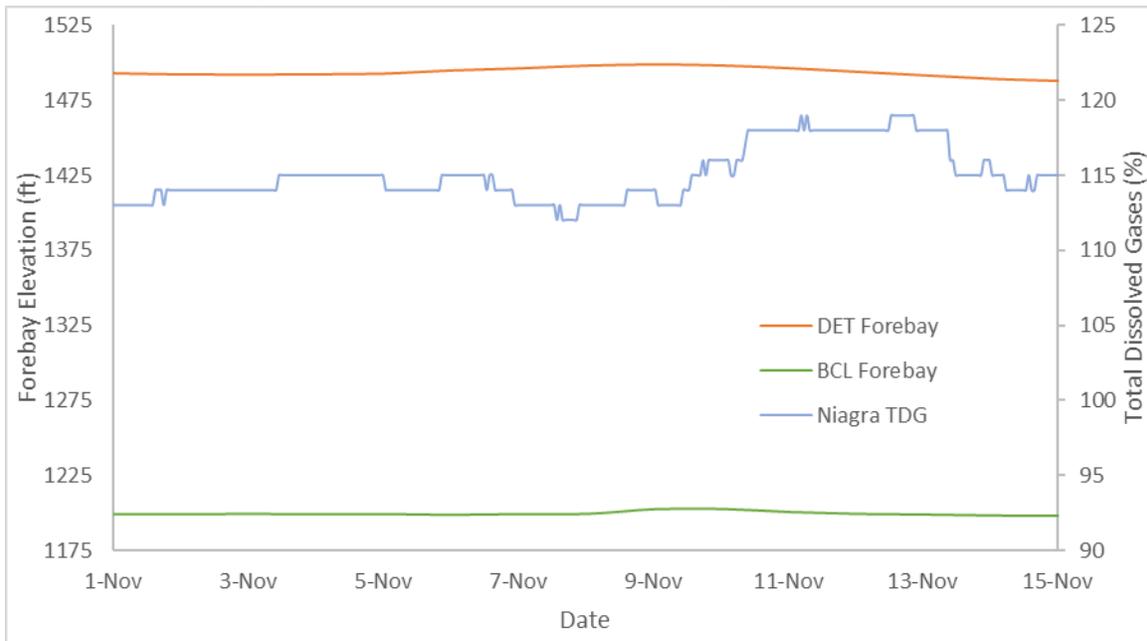
### Hills Creek Dam Operational and Capture Data Since Start of Monitoring



### 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	7.10%
Breitenbush River	7/6/2023	763	25	3.30%
Breitenbush River	8/2/2023	791	12	1.50%
Breitenbush River	9/20/2023	756	7	0.90%
Breitenbush River	10/5/2023	789	18	2.30%
Breitenbush River	10/25/2023	750	51	6.80%
Breitenbush River	11/10/2023	750	152	20.3%
Big Cliff Dam Tailrace*	12/22/2021	997	39	3.90%
Big Cliff Dam Tailrace*	5/25/2022	995	21	2.10%
Big Cliff Dam Tailrace*	8/9/2022	1000	92	9.20%
Big Cliff Dam Tailrace*	9/30/2022	995	48	4.80%
Big Cliff Dam Tailrace*	10/13/2022	500	15	3.00%
Big Cliff Dam Tailrace*	10/24/2022	535	25	4.70%
Big Cliff Dam Tailrace*	11/2/2022	949	40	4.20%
Big Cliff Dam Tailrace*	11/16/2022	509	15	2.90%
Big Cliff Dam Tailrace*	12/14/2022	502	60	12.00%
Big Cliff Dam Tailrace*	12/19/2022	1010	92	9.10%
Big Cliff Dam Tailrace*	12/21/2022	1014	33	3.30%
Big Cliff Dam Tailrace*	12/27/2022	704	47	6.70%
Big Cliff Dam Tailrace*	12/29/2022	452	22	4.90%
Big Cliff Dam Tailrace*	1/25/2023	500	56	11.20%
Big Cliff Dam Tailrace*	2/17/2023	499	37	7.40%
Big Cliff Dam Tailrace*	3/7/2023	2,968	61	2.10%
Big Cliff Dam Tailrace*	3/10/2023	541	112	20.70%
Big Cliff Dam Tailrace*	4/28/2023	498	34	6.80%
Big Cliff Dam Tailrace*	5/23/2023	500	6	1.20%
Big Cliff Dam Tailrace*	6/21/2023	500	8	1.60%
Big Cliff Dam Tailrace*	7/5/2023	500	33	6.60%
Big Cliff Dam Tailrace*	8/3/2023	474	42	8.90%
Big Cliff Dam Tailrace*	9/19/2023	424	64	15.1
Big Cliff Dam Tailrace*	10/6/2023	500	56	11.20%
Big Cliff Dam Tailrace	10/25/2023	633	99	15.60%
Detroit Head of Reservoir- North Santiam River	6/6/2023	540	28	5.00%
Detroit Head of Reservoir- North Santiam River	6/20/2023	750	61	4.60%
Detroit Head of Reservoir- North Santiam River	7/6/2023	750	13	1.70%
Detroit Head of Reservoir- North Santiam River	8/2/2023	750	19	2.50%
Detroit Head of Reservoir- North Santiam River	9/6/2023	700	19	2.70%
Detroit Head of Reservoir- North Santiam River	10/5/2023	750	24	3.20%
Detroit Head of Reservoir- North Santiam River	10/25/2023	757	72	9.50%
Detroit Head of Reservoir- North Santiam River	11/10/2023	813	91	11.2%
Green Peter Head of Reservoir- Middle Santiam	6/7/2023	1,000 (dead fish)	0	0%
Green Peter Head of Reservoir- Middle Santiam	6/7/2023	750	1	0.10%
Green Peter Head of Reservoir- Middle Santiam	7/28/2023	750	0	0%
Green Peter Head of Reservoir- Middle Santiam	8/30/2023	749	0	0%
Green Peter Head of Reservoir- Middle Santiam	9/27/2023	741	0	0%
Green Peter Head of Reservoir- Middle Santiam	10/11/2023	750	0	0%
Green Peter Head of Reservoir- Middle Santiam	10/31/2023	750	0	0%
Green Peter Head of Reservoir- Middle Santiam	10/31/2023	1,000 (dead fish)	0	0%
Green Peter Head of Reservoir- Middle Santiam	11/15/2023	749	N/A	N/A
Fall Creek Dam Regulating Outlet*	6/8/2022	517	11	2.10%
Fall Creek Dam Regulating Outlet*	6/30/2022	513	0	0%
Fall Creek Dam Regulating Outlet*	7/13/2022	498	0	0%
Fall Creek Dam Regulating Outlet*	5/11/2023	998	0	0%
Fall Creek Dam Regulating Outlet*	6/28/2023	992	0	0%
Fall Creek Dam Regulating Outlet	10/3/2023	1,020	0	0%
Fall Creek Dam Regulating Outlet	10/17/2023	1,011	14	13.80%
Lookout Dam Powerhouse*	4/13/2022	998	0	0%
Lookout Dam Powerhouse*	5/23/2023	3,999	32	0.80%
Lookout Dam Powerhouse*	6/1/2023	4,011	6	0.10%
Lookout Dam Powerhouse*	6/14/2023	4,010	4	0.10%

Lookout Dam Powerhouse*	6/28/2023	4,010	3	0.10%
Lookout Dam Powerhouse*	7/18/2023	4,012	1	0.02%
Lookout Dam Spillway	9/13/2023	3,636	0	0.00%
Lookout Dam Spillway	9/14/2003	3,998	0	0.00%
Lookout Dam Spillway	10/25/2023	4,042	0	0.00%
Hills Creek Dam Powerhouse*	1/6/2022	596	20	3.40%
Hills Creek Dam Regulating Outlet*	1/6/2022	605	13	2.10%
Hills Creek Dam Powerhouse*	2/16/2022	600	12	2.00%
Hills Creek Dam Regulating Outlet*	2/16/2022	593	19	3.20%
Hills Creek Dam Powerhouse*	2/25/2022	604	6	1.00%
Hills Creek Dam Regulating Outlet*	2/25/2022	625	6	1.00%
Hills Creek Dam Powerhouse*	12/7/2022	514	29	5.60%
Hills Creek Dam Regulating Outlet*	12/13/2022	516	1	0.20%
Hills Creek Dam Powerhouse- RO Trial*	1/6/2022	596	5	0.80%
Hills Creek Dam Powerhouse- RO Trial*	2/16/2022	600	0	0%
Hills Creek Dam Powerhouse- RO Trial*	2/25/2022	604	1	0.20%
Hills Creek Dam Powerhouse- RO Trial*	12/7/2022	514	3	0.60%
Hills Creek Dam Powerhouse*	2/25/2023	519	15	2.90%
Hills Creek Dam Powerhouse- RO Trial*	2/25/2023	519	0	0%
Hills Creek Dam Regulating Outlet*	2/25/2023	478	0	0%
Hills Creek Dam Powerhouse*	4/26/2023	506	62	12.30%
Hills Creek Dam Powerhouse- RO Trial*	4/26/2023	506	12	2.40%
Hills Creek Dam Powerhouse*	5/17/2023	505	57	11.30%
Hills Creek Dam Powerhouse- RO Trial*	5/17/2023	505	2	0.40%
Hills Creek Dam Powerhouse*	6/3/2023	508	36	7.10%
Hills Creek Dam Powerhouse- RO*	6/3/2023	508	2	0.40%
Hills Creek Dam Regulating Outlet*	6/13/2023	760	0	0%
Hills Creek Dam Powerhouse*	6/27/2023	507	22	4.30%
Hills Creek Dam Powerhouse- RO Trial*	6/27/2023	507	0	0%
Hills Creek Dam Powerhouse	9/27/2023	510	10	2.00%
Hills Creek Dam Powerhouse	10/31/2023	503	8	1.6%
Hills Creek Dam Powerhouse	11/15/2023	500	N/A	N/A
Hills Creek Head of Reservoir- MF Willamette	5/18/2023	519	44	8.50%
Hills Creek Head of Reservoir- MF Willamette	6/19/2023	760	7	0.90%

\*Releases performed under the USACE RST contract

## Appendix D

### Summary of PIT Tagged Fish for Reporting Period

Site	Trap	Species	# of PIT Tagged Fish
Breitenbush River	5 ft	Chinook	15
Breitenbush River	5 ft	<i>O. mykiss</i>	2
Detroit Head of Reservoir – North Santiam River	5 ft	Chinook	288
Detroit Head of Reservoir – North Santiam River	5 ft	<i>O. mykiss</i>	3
Green Peter Head of Reservoir – Middle Santiam River	5 ft	Chinook	3
Green Peter Head of Reservoir – Middle Santiam River	5 ft	<i>O. mykiss</i>	0
Fall Creek Dam Tailrace	8 ft	Chinook	0
Lookout Dam Tailrace	Spill	Chinook	0
Lookout Dam Tailrace	PWR	Chinook	0
Hills Creek Dam	RO	Chinook	0
Hills Creek Dam	PWR	Chinook	0
Hills Creek Head of Reservoir	5 ft	Chinook	0

### Summary of EAS VIE Marked Fish for Reporting Period

Site	Trap	VIE Mark Code	Species	# VIE
Breitenbush River	5 ft	HOO	Chinook	0
Breitenbush River	5 ft	HOO	<i>O. mykiss</i>	1
Detroit Head of Reservoir – North Santiam River	5 ft	RDOO	Chinook	3
Detroit Head of Reservoir – North Santiam River	5 ft	RDOO	<i>O. mykiss</i>	3
Green Peter Head of Reservoir – Middle Santiam River	5 ft	RDOO	Chinook	0
Green Peter Head of Reservoir – Middle Santiam River	5 ft	RDOO	<i>O. mykiss</i>	0
Lookout Dam Tailrace	Spill	POO	Chinook	0
Lookout Dam Tailrace	PWR	POO	Chinook	0
Hills Creek Dam	RO	HOO	Chinook	0
Hills Creek Dam	PWR	HOO	Chinook	0
Hills Creek Head of Reservoir	5 ft	LDOO	Chinook	0

*RDOO denotes location and color (Right Dorsal Orange (two stripes))*

### List of Captured Fish Containing PIT Tags This Season

Site	Trap	PIT Tag	Date	Species
Detroit Head of Reservoir- North Santiam River	5 ft	3D6.15348426D4	7/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E55AB07	7/19/2023	Chinook
Breitenbush River	5 ft	3DD.003BD22BF1	9/15/2023	Chinook
Breitenbush River	5 ft	3DD.003BEE1A9E	9/15/2023	Chinook
Breitenbush River	5 ft	3DD.003BD22BF3	9/15/2023	Chinook
Hills Creek Dam	PH	3D6.1534831A94	9/16/2023	Chinook
Hills Creek Dam	PH	3D6.153484353B	9/20/2023	Chinook
Hills Creek Dam	RO	3D6.1534803019	9/21/2023	Chinook
Hills Creek Dam	PH	3D6.1534831FE7	9/23/2023	Chinook
Hills Creek Dam	PH	3D6.1534843B57	9/25/2023	Chinook
Hills Creek Dam	PH	3D6.15347FF81F	9/25/2023	Chinook

Hills Creek Dam	PH	3D6.15347FE8E5	9/25/2023	Chinook
Hills Creek Dam	PH	3D6.15347FEC09	9/25/2023	Chinook
Hills Creek Dam	PH	3D6.15347FEDD1	9/25/2023	Chinook
Hills Creek Dam	PH	3D6.1534802DEB	9/25/2023	Chinook
Hills Creek Dam	PH	3D6.15347FEAD8	9/26/2023	Chinook
Hills Creek Dam	PH	3D6.1534801912	9/26/2023	Chinook
Hills Creek Dam	PH	3D6.1534843157	10/2/2023	Chinook
Hills Creek Dam	PH	3D6.15347FE7D3	10/3/2023	Chinook
Hills Creek Dam	PH	3D6.15348436D8	10/7/2023	Chinook
Hills Creek Dam	PH	3D6.153484327C	10/8/2023	Chinook
Hills Creek Dam	PH	3D6.1534801D95	10/11/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D505	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A70B	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABAF5	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA9F7	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC83B	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC1D1	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55E742	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABD24	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5709C9	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A3F3	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E571517	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CB3D	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACD84	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A6DD	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55CD06	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1028	11/8/2023	Chinook
Big Cliff Dam	8 ft	3DD.003E4B7697	11/1/2023	Chinook
Hills Creek Dam	RO	3D6.1534831225	11/12/2023	Chinook
Hills Creek Dam	PH	3DD.003E561305	11/12/2023	Chinook
Hills Creek Dam	PH	3DD.003E560FCF	11/12/2023	Chinook
Hills Creek Dam	PH	3DD.003E56D38C	11/12/2023	Chinook
Hills Creek Dam	PH	3DD.003E4C2FB6	11/12/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55CC0F	11/12/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E561590	11/12/2023	Chinook
Hills Creek Dam	PH	3D6.1534832028	11/14/2023	Chinook
Hills Creek Dam	PH	3DD.003E56D3D1	11/14/2023	Chinook
Hills Creek Dam	PH	3DD.003E56CBFB	11/14/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D9EA	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570FA2	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1F04	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A322	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D61B	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5618BA	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C32EA	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C37F0	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A8F0	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1149	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAAAF3	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC075	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB7C0	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB25C	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACC85	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABED4	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB7DD	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560D96	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C07AF	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5675D4	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570C75	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C32CC	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56AB78	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C2D42	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E571846	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C19B3	11/7/2023	Chinook

Fall Creek Dam Tailrace	8 ft	3DD.003E560653	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4FE360	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56DC1F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CA5F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55EBB0	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABD4E	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACDA9	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC2E2	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB7FF	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB11F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC1EE	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C197A	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A57E	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAAE4F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAAE3F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB58A	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC847	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C11B1	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABF7F	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5607BA	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0B70	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB8EF	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D174	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA8FC	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5668B6	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C10AD	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC2D1	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5610BD	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB11A	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0CB3	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4FB050	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56ADEC	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACC8F	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D11F	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570D34	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3D6.1534844186	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C03F2	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACA6E	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC5A4	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB8DF	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E566C8A	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3D6.15348461BE	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC5D6	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB354	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C3CCD	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5613D7	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC402	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5675BA	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA98F	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAACEA	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56B33D	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB610	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABE70	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC4F7	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA831	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC668	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55EA8F	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E57160E	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E567343	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570137	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0C6B	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C3699	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55CD9A	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4FD6C4	11/8/2023	Chinook

Fall Creek Dam Tailrace	8 ft	3DD.003E56FB54	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570FFD	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56F9AB	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5617C9	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1800	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55E473	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0635	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C199A	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC872	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56FB67	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56DBB3	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D132	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5715AA	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560F91	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0915	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56DA13	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55EB40	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C08D9	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560802	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55CC8D	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACCC8	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAACBB	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55E91D	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5615E7	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB260	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABB7E	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C209C	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55E63E	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC519	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC33B	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C3A58	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560CBB	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56702E	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5594DB	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560CA5	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56C9C6	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC534	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB97A	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570EF6	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB627	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C3B16	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABF08	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56C96B	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C3553	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560FC6	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E567764	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C17C1	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D292	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C02A0	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB63A	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB5D8	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5712F1	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56B4BF	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55EA8E	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C11A0	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E566B7C	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C20D3	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5595A3	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E567AFC	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E57087E	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABA25	11/8/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACD76	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56FAB2	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E57045F	11/7/2023	Chinook

Fall Creek Dam Tailrace	8 ft	3DD.003E55BF4D	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB808	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D8CC	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB9EF	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D137	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E559746	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CDC6	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56FAA7	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55E8D8	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB800	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACDD	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C272D	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56AB33	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55F087	11/7/2023	Chinook
Hills Creek Dam	PH	3D6.153484365C	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CB66	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56FE73	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56112C	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560A87	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E566E76	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56794D	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560CC8	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5670CD	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E566E5C	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA970	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC760	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABCEC	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55CD01	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1AEA	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABACE	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570E4A	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0280	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570F70	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC0A3	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C2629	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC9FE	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5607A6	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A58C	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CD95	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56B533	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5677FF	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E561579	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C325D	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0DFF	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAAB31	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55EE31	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACA19	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C12A5	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC4E6	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1014	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56794E	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB248	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55ECA6	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C36C5	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C179B	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C3471	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560A8B	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C27F4	11/9/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5614B2	11/11/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABC4A	11/11/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C216D	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C20C5	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACBA5	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55DE1D	11/10/2023	Chinook

Fall Creek Dam Tailrace	8 ft	3DD.003E55CCFD	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55EE4C	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC605	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E567528	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E566996	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E567127	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56690A	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A6CD	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E566AAD	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0E18	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C35E4	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C30E8	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C1E94	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D559	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3D6.1534841A6D	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56F9EB	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56767E	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACA96	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC3D3	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0523	11/10/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E571893	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56138C	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C37C0	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D6B9	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D456	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C08BD	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55E62D	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C10E4	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560B49	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CE9E	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560CF5	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A3ED	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D0D4	11/6/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570A1B	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D664	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56B0FB	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E559570	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E57034B	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C15A0	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0B8E	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAADCC	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E560E01	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A5C6	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55949D	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E55D2A8	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E561838	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C2C35	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C263E	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A6D5	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C115F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56A9ED	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56CF9B	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0CA8	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA96F	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAB374	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAC143	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DABFEA	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAAEF1	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAAEBC	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DACB88	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAA8FF	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.0078DAACA8	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56DCBE	11/7/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E5713A4	11/5/2023	Chinook

Fall Creek Dam Tailrace	8 ft	3DD.003E56D7B9	11/5/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E570B68	11/5/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E561550	11/5/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C2767	11/5/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E4C0ACD	11/5/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E56D951	11/5/2023	Chinook
Fall Creek Dam Tailrace	8 ft	3DD.003E559665	11/7/2023	Chinook
Lookout Dam Tailrace	Spill	3DD.003E55DE30	11/13/2023	Chinook
Lookout Dam Tailrace	PH 1	3DD.003E4C37AA	11/13/2023	Chinook
Lookout Dam Tailrace	PH 1	3DD.0078DAA7B5	11/13/2023	Chinook
Dexter Dam Tailrace	5 ft	3DD.003E56A3C5	11/14/2023	Chinook
Dexter Dam Tailrace	5 ft	3DD.003E4C249E	11/1/2023	Chinook

**List of EAS PIT Tagged Fish for Reporting Period**

Site	Trap	PIT Tag	Date	Species
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225D8	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225C7	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225EC	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22620	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225FF	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD2260F	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225E5	11/1/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22602	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22614	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22603	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225E8	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22610	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22600	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225C1	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225C2	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD2260A	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225ED	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225F1	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225C3	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225D3	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225EE	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225E9	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225C6	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD22615	11/2/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BD225F9	11/2/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B39	11/13/2023	O. mykiss
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B06	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B3B	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B07	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B57	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B14	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B22	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527AF6	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B0B	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B30	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527AFE	11/13/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B21	11/13/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B24	11/12/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B43	11/12/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B23	11/12/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B0C	11/12/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B50	11/12/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B45	11/12/2023	Chinook









Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B4F	11/9/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B16	11/9/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B32	11/9/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B37	11/9/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527AF7	11/9/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B12	11/10/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B01	11/10/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B20	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B2B	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B3D	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B4C	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527AFF	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B27	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B35	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B2F	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527AF5	11/11/2023	Chinook
Breitenbush River	5 ft	3DD.003E527B5D	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06D2	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06AF	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06CA	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06BD	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06E7	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06CB	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE0700	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06C0	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06CD	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06CE	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003BEE06AE	11/15/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B56	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B1B	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527AFB	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B54	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527AFD	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527AFC	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B34	11/11/2023	Chinook
Detroit Head of Reservoir- North Santiam River	5 ft	3DD.003E527B84	11/15/2023	O. mykiss