

# WILLAMETTE VALLEY FISH PASSAGE MONITORING – BULK MARKING & RESERVOIR DISTRIBUTION

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Bi-Weekly Report: April 16, 2024 – April 30, 2024



*Prepared for: United States Army Corps of Engineers*

*Prepared by: Cramer Fish Sciences*

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## BULK MARKING SCHEDULE

Table 1. Tentative release schedule for brood years 2022 and 2023. Green rows highlight the release groups that have been tagged and released so far this year. Orange rows highlight release groups that have been tagged but have not yet been released. Date estimate is a rough estimate of when fish should be released to meet the intended target.

2023					
MF Willamette					
Date Estimate	Release Location	Target	Lifestage	#	Tag
Spring 2023	Head of Fall Creek Dam reservoir	Prior to reaching target elevation of 728 feet	fry	10000	8 mm
Spring 2023	Head of Lookout Point Dam reservoir	30 day spill operations	fry	10000	8 mm
Spring 2023	Head of Hills Creek Dam reservoir	Observed fry migration and RO operations	fry	10000	8 mm
9/15/2023	Dexter Dam Tailrace	Fall deep drawdown	subyearling	2000	12 mm
9/15/2023	Head of Lookout Point Dam reservoir	Fall deep drawdown	subyearling	5000	12 mm
9/15/2023	Lookout Point Dam Forebay	Fall deep drawdown	subyearling	5000	12 mm
10/15/2023	Fall Creek Dam Head of Reservoir	2-3 weeks prior to drawdown	subyearling	5000	12 mm
10/15/2023	Fall Creek Dam tailrace	2-3 weeks prior to drawdown	subyearling	1000	12 mm
11/15/2023	Fall Creek Dam Head of Reservoir	Midway between start of drawdown and streambed elevation	subyearling	5000	12 mm
11/15/2023	Fall Creek Dam tailrace	Midway between start of drawdown and streambed elevation	subyearling	1000	12 mm
11/16/2023	Hills Creek Dam Head of Reservoir	Prior to start of fall/winter RO operations	subyearling	5000	12 mm
11/16/2023	Hills Creek Dam tailrace	Prior to start of fall/winter RO operations	subyearling	3000	12 mm
11/16/2023	Hills Creek forebay or mid-reservoir	Prior to start of fall/winter RO operations	subyearling	5000	12 mm
North Santiam					
Spring 2023	Breitenbush River	Prior to beginning of spill	fry	7500	8 mm
Spring 2023	North Santiam River	Prior to beginning of spill	fry	7500	8 mm
10/1/2023	Big Cliff Dam Tailrace	Prior to Detroit Reservoir reaching 1520 feet	subyearling	8000	12 mm

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10/1/2023	Breitenbush River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm
10/1/2023	North Santiam River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm
11/15/2023	Big Cliff Dam Tailrace	When Detroit reaches 1465 feet	subyearling	6000	12 mm
<b>SF McKenzie</b>					
Spring 2023	Cougar Dam Head of Reservoir	Prior to start of spring drawdown	fry	5000	8 mm
Spring 2023	Cougar Dam Head of Reservoir	After start of drawdown but prior to reaching 1520 feet	fry	5000	8 mm
9/15/2023	Cougar Dam Head of Reservoir	Prior to start of drawdown	subyearling	3000	12 mm
10/15/2023	Cougar Dam Forebay	Prior to reaching target elevation of 1505 feet	subyearling	5000	12 mm
10/15/2023	Cougar Dam Tailrace	Prior to reaching target elevation of 1505 feet	subyearling	4000	12 mm
10/15/2023	Cougar Head of Reservoir	Prior to reaching target elevation of 1505 feet	subyearling	4000	12 mm
11/15/2023	Cougar Dam Forebay	At 1532 feet when RO is prioritized for day and night spill	subyearling	5000	12 mm
11/15/2023	Cougar Dam Tailrace	At 1532 feet when RO is prioritized for day and night spill	subyearling	4000	12 mm
11/15/2023	Cougar Head of Reservoir	At 1532 feet when RO is prioritized for day and night spill	subyearling	4000	12 mm
<b>South Santiam</b>					
Spring 2023	Green Peter Head of Reservoir in Middle Santiam River	Spill operation block	fry	5000	8 mm
Spring 2023	Green Peter Head of Reservoir in Quartzville Creek	Spill operation block	fry	5000	8 mm
8/30/2023	South Santiam River - Foster Dam Tailrace	Undefined - Late August	subyearling	1000	12 mm
8/30/2023	South Santiam River above Foster Dam	Undefined - Late August	subyearling	2000	12 mm
9/15/2023	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Fall Operations at Green Peter Dam	subyearling	2500	12 mm
9/15/2023	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Fall Operations at Green Peter Dam	subyearling	2500	12 mm
10/15/2023	Green Peter Dam Tailrace	Prior to Green Peter reaching 887 feet.	subyearling	4000	12 mm
10/15/2023	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm

10/15/2023	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm
10/15/2023	South Santiam River - Foster Dam Tailrace	Fall operations at Foster Dam	subyearling	4000	12 mm
10/15/2023	South Santiam River above Foster Dam	Fall operations at Foster Dam	subyearling	5000	12 mm
<b>2024</b>					
<b>MF Willamette</b>					
2/1/2024	Hills Creek Dam Head of Reservoir	Prior to end of fall/winter RO operations	yearling	5000	12 mm
2/1/2024	Hills Creek Dam tailrace	Prior to end of fall/winter RO operations	yearling	3000	12 mm
2/1/2024	Hills Creek forebay or mid-reservoir	Prior to end of fall/winter RO operations	yearling	5000	12 mm
2/28/2024	Fall Creek Dam Head of Reservoir	Prior to beginning of refill	yearling	5000	12 mm
2/28/2024	Fall Creek Dam Tailrace	Prior to beginning of refill	yearling	1000	12 mm
2/28/2024	Head of Lookout Point Dam reservoir	Prior to 30-day spill	yearling	5000	12 mm
2/28/2024	Dexter Dam Tailrace	Prior to 30-day spill	yearling	2000	12 mm
2/28/2024	Lookout Point Dam Forebay	Prior to 30-day spill	yearling	5000	12 mm
3/31/2024	Fall Creek Dam Head of Reservoir	After refill is completed	yearling	5000	12 mm
3/31/2024	Fall Creek Dam Tailrace	After refill is completed	yearling	1000	12 mm
4/1/2024	Head of Lookout Point Dam reservoir	After 30-day spill/beginning of nighttime spill	yearling	5000	12 mm
4/1/2024	Dexter Dam Tailrace	After 30-day spill/beginning of nighttime spill	yearling	2000	12 mm
4/1/2024	Lookout Point Dam Forebay	After 30-day spill/beginning of nighttime spill	yearling	5000	12 mm
<b>North Santiam</b>					
2/1/2024	North Santiam River	Prior to start of Detroit refill	fry	3750	8 mm
2/1/2024	Breitenbush River	Prior to start of Detroit refill	fry	3750	8 mm
4/1/2024	Breitenbush River	Prior to start of Detroit spill	fry	3750	8 mm
4/1/2024	North Santiam River	Prior to start of Detroit spill	fry	3750	8 mm
4/1/2024	Big Cliff Dam Tailrace	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm
4/1/2024	Breitenbush River	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm

4/1/2024	North Santiam River	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm
10/1/2024	Big Cliff Dam Tailrace	Prior to Detroit Reservoir reaching 1520 feet	subyearling	8000	12 mm
10/1/2024	Breitenbush River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm
10/1/2024	North Santiam River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm
11/15/2024	Big Cliff Dam Tailrace	When Detroit reaches 1465 feet	subyearling	6000	12 mm
<b>SF McKenzie</b>					
2/28/2024	Cougar Dam Forebay	Prior to beginning of spring drawdown	yearling	2000	12 mm
2/28/2024	Cougar Dam Tailrace	Prior to beginning of spring drawdown	yearling	1000	12 mm
2/28/2024	Cougar Head of Reservoir	Prior to beginning of spring drawdown	yearling	2000	12 mm
3/30/2024	Cougar Dam Forebay	After start of drawdown but prior to reaching 1520 feet	yearling	2000	12 mm
3/30/2024	Cougar Dam Tailrace	After start of drawdown but prior to reaching 1520 feet	yearling	1000	12 mm
3/30/2024	Cougar Head of Reservoir	After start of drawdown but prior to reaching 1520 feet	yearling	2000	12 mm
<b>South Santiam</b>					
4/1/2024	Green Peter Head of Reservoir in Middle Santiam River	At the start of the first spring spill block	fry	2500	8 mm
4/1/2024	Green Peter Head of Reservoir in Quartzville Creek	At the start of the first spring spill block	fry	2500	8 mm
4/1/2024	Green Peter Dam Tailrace	At the start of Green Peter spring spill	yearling	1000	12 mm
4/1/2024	Green Peter Reservoir - Forebay	At the start of Green Peter spring spill	yearling	2000	12 mm
4/1/2024	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	At the start of Green Peter spring spill	yearling	1000	12 mm
4/1/2024	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	At the start of Green Peter spring spill	yearling	1000	12 mm
4/1/2024	Green Peter Reservoir - mid reservoir	At the start of Green Peter spring spill	yearling	2000	12 mm
4/1/2024	South Santiam River - Foster Dam Tailrace	Prior to start of Foster refill	yearling	4000	12 mm
4/1/2024	South Santiam River above Foster Dam	Prior to start of Foster refill	yearling	5000	12 mm
4/20/2024	South Santiam River - Foster Dam Tailrace	Post refill operations	yearling	2000	12 mm

4/20/2024	South Santiam River above Foster Dam	Post refill operations	yearling	1000	12 mm
4/15/2024	Green Peter Head of Reservoir in Middle Santiam River	At the start of the second spring spill block	fry	2500	8 mm
4/15/2024	Green Peter Head of Reservoir in Quartzville Creek	At the start of the second spring spill block	fry	2500	8 mm
8/30/2024	South Santiam River - Foster Dam Tailrace	Undefined - Late August	subyearling	1000	12 mm
8/30/2024	South Santiam River above Foster Dam	Undefined - Late August	subyearling	2000	12 mm
9/15/2024	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Fall Operations at Green Peter Dam	subyearling	2500	12 mm
9/15/2024	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Fall Operations at Green Peter Dam	subyearling	2500	12 mm
10/15/2024	Green Peter Dam Tailrace	Prior to Green Peter reaching 887 feet.	subyearling	4000	12 mm
10/15/2024	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm
10/15/2024	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm
10/15/2024	South Santiam River - Foster Dam Tailrace	Fall operations at Foster Dam	subyearling	4000	12 mm
10/15/2024	South Santiam River above Foster Dam	Fall operations at Foster Dam	subyearling	5000	12 mm

## **BULK MARKING SUMMARY**

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Cramer Fish Sciences spent the last reporting period working on repairs to our tagging trailer as we waited for North Santiam Stock to grow to 45 millimeters. We anticipate that those fish will be ready to tag beginning the week of May 13<sup>th</sup>.

### **Recaptures**

A total of 204 fish from this project were both detected and uploaded to PTAGIS during the most reporting period. Notably, 69 fish were observed at the Columbia Pile Dike Array 5, 60 were observed at Pile Dike Array 6, 33 in the Columbia River Trawl, and 26 at Pile Dike Array 8. We estimate that a total of 4,430 PIT tags from this project have been detected since we began releasing fish in May of 2023 (Table 4).

Table 2. Bulk marking summary statistics. Total number of fish marked (N), mean fork length (FL), mean weight, start date of marking, end date of marking, total mortalities from start of tagging to release, mortality percentage, total shed tags from start of tagging to release, and shed tag percentage.

Mark Group	N	Mean FL (mm)	Mean Weight (g)	Date Start	Date End	Mort	Mort. %	Sheds	Shed %
Green Peter Head of Reservoir - Middle Santiam	5,071	56.2	NA	5/15/2023	5/16/2023	74	1.46	32	0.63
Green Peter Head of Reservoir - Quartzville Creek	5,203	58.5	NA	5/17/2023	5/18/2023	18	0.35	19	0.37
Lookout Point Head of Reservoir	10,041	63.1	2.9	5/22/2023	5/24/2023	39	0.39	53	0.53
Hills Creek Head of Reservoir	10,117	64.7	2.9	5/30/2023	6/1/2023	22	0.22	9	0.09
Fall Creek Head of Reservoir	10,040	67.4	3.2	6/1/2023	6/7/2023	68	0.68	30	0.3
Detroit Head of Reservoir Breitenbush Arm	7,530	66.9	3.6	6/13/2023	6/14/2023	82	1.09	24	0.32
Detroit Head of Reservoir - North Santiam Arm	7,528	66.9	3.6	6/14/2023	6/15/2023	83	1.10	25	0.32
Cougar Head of Reservoir	5,626	67.7	3.5	6/20/2023	6/20/2023	475	8.40	44	0.78
North Santiam – Fall 23 & Spring 24 Bulk Group	30,680	67.3	3.5	6/26/2023	7/20/2023	3,437	10.6	99	0.32
M.F. Willamette – Fall 23 & Spring 24 Bulk Group	85,233	NA	NA	7/26/2023	12/7/2023	380	0.45	340	0.40
South Santiam – Fall 23 & Spring 2024 Bulk Group	43,407	NA	NA	8/14/2023	12/20/2023	128	0.29	101	0.23
McKenzie– Fall 23 & Spring 24 Bulk Group	45,210	NA	NA	8/30/2023	2/14/2024	987	2.18	60	0.13
M.F. Willamette – Additional 51,000 Group	51,000	145.1	35.9	1/1/2024	1/31/2021	TBD	TBD	TBD	TBD
Green Peter Head of Reservoir	5,006	50.1	1.4	3/1/2024	3/3/2024	TBD	TBD	TBD	TBD
Green Peter Head of Reservoir	5,000	54.9	1.7	3/18/2024	3/19/2024	TBD	TBD	TBD	TBD

Table 3. Release summary statistics. Date of release, number of marked fish released, transport tank water temperature and the beginning and end of the transport, and water temperature at the release location.

Basin	Release Location	Release Date	Fish	Mean FL	Mean Weight	Lifestage
MFW	Hills Creek Head of Reservoir	5/18/2023 15:50	509	55.8	1.9	fry
SST	Green Peter Head of Reservoir - Quartzville Creek Arm	5/22/2023 13:00	5,171	58.5		fry
SST	Green Peter Head of Reservoir - Middle Santiam Arm	5/22/2023 20:30	4,961	56.2		fry



Basin	Release Location	Release Date	Fish	Mean FL	Mean Weight	Lifestage
MFW	LOP Head of Reservoir - Black Canyon	5/30/2023 10:30	9,647	63.1	2.9	fry
MFW	Hills Creek Head of Reservoir	6/5/2023 10:30	9,784	64.7	2.8	fry
MFW	Fall Creek Head of Reservoir - Old Boat Ramp	6/12/2023 15:00	9,649	67.4	3.2	fry
NST	Marion Forks Hatchery Escape	6/16/2023 12:00	1,247	66.5	3.4	fry
NST	Detroit Head of Reservoir - Breitenbush River	7/13/2023 8:45	7,000	66.8	3.6	fry
NST	Detroit Head of Reservoir - North Santiam River	7/13/2023 11:35	6,638	67	3.6	fry
SST	Foster Tailrace - South Santiam Hatchery	8/23/2023 16:30	1,030	115.7	18.2	subyearling
SST	Foster Reservoir Head of Reservoir - Cascadia Covered Bridge	8/24/2023 10:00	2,059	105.6	14.5	subyearling
MCK	Cougar Head of Reservoir - Cougar Crossing Bridge	8/29/2023 11:30	5,200	67.9	3.6	fry
MFW	LOP Head of Reservoir - Black Canyon	9/18/2023 8:15	4,998	122.9	23.8	subyearling
MFW	LOP Forebay - Signal Point	9/18/2023 17:00	5,002	128.3	25.1	subyearling
MFW	LOP Tailrace - Pengra	9/19/2023 11:30	2,011	128.4	25.2	subyearling
SST	Green Peter Head of Reservoir - Quartzville Creek Arm	9/20/2023 14:00	2,518	113.5	19.5	subyearling
SST	Green Peter Head of Reservoir - Middle Santiam Arm	9/21/2023 13:40	2,508	117.1	20.7	subyearling
NST	Detroit Head of Reservoir - Breitenbush River	9/26/2023 10:45	5,002	106.5	11.8	subyearling
NST	Detroit Head of Reservoir - North Santiam River	9/26/2023 16:00	4,997	102.6	10.4	subyearling
NST	Big Cliff Tailrace - Packsaddle Boat Ramp	9/27/2023 15:30	8,009	106.5	11.9	subyearling
MFW	Fall Creek Head of Reservoir - Old Boat Ramp	9/28/2023 14:45	5,006	133.5	29.1	subyearling
MFW	Fall Creek Tailrace	9/28/2023 19:15	1,001	134.8	29.8	subyearling
MCK	Cougar Head of Reservoir - Cougar Crossing Bridge	10/2/2023 14:20	5,006	117.2	18.9	subyearling
MCK	Cougar Head of Reservoir - Cougar Crossing Bridge	10/2/2023 19:05	3,006	116.7	19	subyearling
SST	Green Peter Head of Reservoir - Quartzville Creek Arm	10/3/2023 12:45	2,502	122.8	25.1	subyearling
SST	Green Peter Head of Reservoir - Middle Santiam Arm	10/4/2023 14:40	2,516	119.6	23.8	subyearling
SST	Green Peter Tailrace - Sunnyside Boat Ramp	10/9/2023 16:05	4,002	125.9	26.4	subyearling
SST	Foster Reservoir Head of Reservoir - Cascadia Covered Bridge	10/10/2023 14:20	5,000	125.8	24.5	subyearling
SST	Foster Tailrace - South Santiam Hatchery	10/11/2023 15:20	4,000	135.2	31.8	subyearling

Basin	Release Location	Release Date	Fish	Mean FL	Mean Weight	Lifestage
MCK	Cougar Head of Reservoir - Cougar Crossing Bridge	10/18/2023 11:50	3,979	118.4	19.8	subyearling
MCK	Cougar Forebay	10/18/2023 18:00	5,010	120.8	21	subyearling
MCK	Cougar Tailrace - USGS	10/19/2023 12:40	3,997	112.5	16.8	subyearling
MFW	Fall Creek Head of Reservoir - Old Boat Ramp	11/6/2023 15:40	5,000	139.4	32.2	subyearling
MFW	Fall Creek Tailrace	11/6/2023 19:00	1,000	134.9	30.2	subyearling
MFW	Hills Creek Head of Reservoir	11/7/2023 15:45	5,000	135.2	28.6	subyearling
MFW	Hills Creek Mid Reservoir - Packard Creek Boat Ramp	11/8/2023 15:15	4,999	145.3	36.9	subyearling
MFW	Hills Creek Dam Tailrace	11/9/2023 14:35	2,999	129.4	26.9	subyearling
MCK	Cougar Head of Reservoir - Cougar Crossing Bridge	11/13/2023 13:15	3,999	121.3	23	subyearling
MCK	Cougar Forebay	11/14/2023 15:15	4,995	124.6	23.8	subyearling
MCK	Cougar Tailrace - USGS	11/15/2023 11:45	2,412	120.1	21.5	subyearling
NST	Big Cliff Tailrace - Packsaddle Boat Ramp	11/20/2023 16:50	5,998	112.4	16.6	subyearling
MFW	LOP Head of Reservoir - Black Canyon	1/3/2024 16:45	4,634	143.3	33.7	yearling
MFW	LOP Head of Reservoir - Black Canyon	1/4/2024 16:30	4,828	143.3	33.7	yearling
MFW	LOP Head of Reservoir - Black Canyon	1/8/2024 15:40	3,790	143.3	33.7	yearling
MFW	LOP Head of Reservoir - Black Canyon	1/9/2024 16:15	5,115	143.3	33.7	yearling
MFW	LOP Head of Reservoir - Black Canyon	1/25/2024 11:30	7,632	143.6	34.3	yearling
MFW	Hills Creek Dam Tailrace	1/31/2024 14:05	25,001	141.7	34.9	yearling
MFW	Hills Creek Head of Reservoir	2/6/2024 11:15	4,997	153.8	40.9	yearling
MFW	Hills Creek Mid Reservoir - Packard Creek Boat Ramp	2/7/2024 10:10	4,995	155.9	41.7	yearling
MFW	Hills Creek Dam Tailrace	2/7/2024 15:20	2,997	151.7	43	yearling
MFW	Fall Creek Head of Reservoir - Old Boat Ramp	2/20/2024 12:45	4,989	148.4	38.9	yearling
MFW	Fall Creek Tailrace	2/20/2024 16:05	1,000	150.5	39.9	yearling
SST	Green Peter Head of Reservoir - Middle Santiam Arm	2/21/2024 12:00	1,005	164.4	51.6	yearling

Basin	Release Location	Release Date	Fish	Mean FL	Mean Weight	Lifestage
SST	Green Peter Head of Reservoir - Quartzville Creek Arm	2/22/2024 11:45	1,014	150.8	40.2	yearling
SST	Green Peter Mid Reservoir - Thistle Boat Ramp	2/22/2024 17:45	2,006	153.8	42.9	yearling
SST	Green Peter Mid Reservoir - Thistle Boat Ramp	2/23/2024 10:40	2,005	159.4	46.5	yearling
SST	Green Peter Tailrace - Sunnyside Boat Ramp	2/23/2024 14:15	1,014	163.4	50.1	yearling
MFW	LOP Head of Reservoir - Black Canyon	2/28/2024 11:30	4,987	141.6	34.3	yearling
MFW	LOP Forebay - Signal Point	2/28/2024 16:30	4,979	144.2	35.9	yearling
MFW	LOP Tailrace - Pengra	2/29/2024 11:00	1,997	149.7	39.2	yearling
SST	Green Peter Head of Reservoir - Middle Santiam Arm	3/6/2024 15:30	2,506	50.1	1.4	fry
SST	Green Peter Head of Reservoir - Quartzville Creek Arm	3/6/2024 17:30	2,500	50.1	1.4	fry
MCK	Cougar Head of Reservoir - Cougar Crossing Bridge	3/8/2024 11:20	4,799	136.9	31	yearling
MCK	Cougar Forebay	3/11/2024 11:25	4,800	136.5	29.5	yearling
MCK	Cougar Tailrace - USGS	3/11/2024 15:10	2,081	129.5	25.4	yearling
NST	Detroit Head of Reservoir - North Santiam River	3/20/2024 14:45	2,000	128.4	25.5	yearling
NST	Detroit Head of Reservoir - Breitenbush River	3/21/2024 11:15	2,000	124	21.3	yearling
NST	Big Cliff Tailrace - Packsaddle Boat Ramp	3/21/2024 16:30	1,998	129.4	24.1	yearling
SST	Foster Reservoir Head of Reservoir - Cascadia Covered Bridge	3/26/2024 13:30	2,998	156.3	44.1	yearling
SST	Foster Reservoir Head of Reservoir - Cascadia Covered Bridge	3/27/2024 11:00	3,002	145.3	38	yearling
SST	Foster Tailrace - South Santiam Hatchery	3/28/2024 13:30	3,005	154.6	43.8	yearling
SST	Foster Tailrace - South Santiam Hatchery	4/1/2024 12:55	2,992	156	44.3	yearling
MFW	Fall Creek Head of Reservoir - Old Boat Ramp	4/2/2024 11:00	2,500	146	37.1	yearling
MFW	Fall Creek Head of Reservoir - Old Boat Ramp	4/3/2024 10:55	2,497	154.6	43.2	yearling
MFW	Fall Creek Tailrace	4/3/2024 14:05	1,000	159.5	44.5	yearling
SST	Foster Reservoir Head of Reservoir - Cascadia Covered Bridge	4/4/2024 13:15	1,908	145.4	37.2	yearling
MFW	LOP Head of Reservoir - Black Canyon	4/9/2024 10:35	2,493	150.9	41.2	yearling
MFW	LOP Head of Reservoir - Black Canyon	4/9/2024 13:00	2,496	150.9	41.2	yearling
MFW	LOP Forebay - Signal Point	4/10/2024 11:00	2,492	150.7	39.7	yearling

Basin	Release Location	Release Date	Fish	Mean FL	Mean Weight	Lifestage
MFW	LOP Forebay - Signal Point	4/11/2024 11:55	2,492	150.7	39.7	yearling
MFW	LOP Tailrace - Pengra	4/11/2024 15:25	1,989	149	38.9	yearling
SST	Green Peter Head of Reservoir - Middle Santiam Arm	4/12/2024 11:50	2,350	52.4	1.5	fry
SST	Green Peter Head of Reservoir - Quartzville Creek Arm	4/12/2024 13:15	2,500	54.9	1.7	fry

Table 4. PIT tag recovery summary at established interrogation sites, rotary screw traps (RST), and reservoir sampling locations. Recoveries during screw trap efficiency testing that were recaptured during the test (i.e., within one week of release) are not included in this table.

Observation Location	Capture Method	Total	Reporting Period
CGR - Cougar Dam	Screw Trap	1,637	0
CGRTAL - CGR - Release into the Tailrace within 0.5 km downstream of Dam	Screw Trap	502	0
FAL - Fall Creek Dam (USACE), MF Willamette River	Screw Trap	434	0
HCR - Hills Creek Dam, Middle Fork Willamette River	Screw Trap	239	0
FALTAL - FAL - Release into the Tailrace within 0.5 km downstream of Dam	Screw Trap	213	0
LOP - Lookout Point Dam (USACE), MF Willamette River	Screw Trap	171	0
PD6 - Columbia River Estuary rkm 68	Passive	137	60
MCKESF - South Fork McKenzie River	Screw Trap	134	0
LD3 - Lebanon Dam Diversion Bypass	Passive	123	0
PD5 - Columbia River Estuary rkm 62	Passive	99	69
GPD - Green Peter Dam	Screw Trap	74	4
LD1 - Lebanon Dam South Ladder	Passive	70	2
PD7 - Columbia River Estuary rkm 70	Passive	70	0
HCDTAL - HCD - Release into the Tailrace within 0.5 km downstream of Dam	Screw Trap	61	0
LD2 - Lebanon Dam North Ladder	Passive	59	0
TWX - Estuary Towed Array (Exp.)	Passive	59	33
LD4 - Lebanon Dam Spillway	Passive	51	10
DEX - Dexter Dam (USACE), Middle Fork Willamette River	Screw Trap	42	0
WILRMF - Middle Fork Willamette River	Screw Trap	42	0

DEXTAL - DEX - Release into the Tailrace within 0.5km downstream of Dam	Screw Trap	41	0
PD8 - Columbia River Estuary rkm 82	Passive	26	26
SSANTR - South Santiam River, Oregon	Screw Trap	26	0
SID - Sauvie Island Dairy Creek	Passive	25	0
NSANTR - North Santiam River, Oregon	Bypass Sub-Sample	24	0
MSANTR - Middle Santiam River, Oregon	Screw Trap	21	0
LOPTAL - LOP - Release into the Tailrace within 0.5 km downstream of Dam	Screw Trap	18	0
BCLTAL - BCL - Release into the Tailrace within 0.5 km downstream of Dam	Screw Trap	10	0
BCL - Big Cliff Dam - North Santiam River	Screw Trap	9	0
LOP - Lookout Point Dam (USACE), MF Willamette River	Gillnet Fishery or Research	6	0
NSANTR - North Santiam River, Oregon	Screw Trap	3	0
HCRTUR - HCR - Release into the Turbine Channel of the Tailrace within 0.5 km of Dam	Screw Trap	2	0
LOP - Lookout Point Dam (USACE), MF Willamette River	Fyke Net	1	0
ML1 - Lower Mill Creek (MILL4C)	Passive	1	0

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## RESERVOIR DISTRIBUTION SUMMARY

Reservoir sampling during the reporting period was conducted in the nearshore of Lookout Point and Green Peter reservoirs using Oneida lake traps and box minnow traps (Table 5). Each reservoir was sampled every other week. A weekly sampling event consisted of three days of 24-hour trap sets and required four days on the water. One Oneida trap and 3 box minnow traps were set in each reservoir longitudinal zone per day.

Lookout Point Reservoir was sampled 4/15/2024 – 4/18/2024 (Table 5). Surface temperatures at trap locations that week averaged 11.7 C (Table 6, Figure 1). Traps were set at the surface in each reservoir zone (Lower, Middle, Upper). Over three days of sampling (n=9 Oneida sets, n=27 box minnow sets), 2 yearling Chinook salmon (one hatchery and one natural origin), 2 cutthroat trout, one largescale sucker and 2 juvenile *O. mykiss* were captured (Tables 7-9). The Chinook salmon hatchery fish was a recapture from the bulk marking project, and the unmarked Chinook salmon yearling was implanted with a PIT tag. One of the captured *O. mykiss* was implanted with a PIT tag. The other was not tagged as it was captured prior to CFS receiving a permit modification allowing for tagging of unmarked *O. mykiss*. Lookout Point reservoir was also sampled 4/29/2024-5/2/2024 (Table 5), which falls partially within this reporting period. During week 18, surface temperatures at trap locations averaged 13.6 C (Table 6). One juvenile largescale sucker and 5 yearling *O. mykiss* (all unmarked) were captured from n=27 box minnow and n=9 oneida trap sets (Tables 5 and 7). All 5 yearling *O. mykiss* were implanted with PIT tags (Table 9).

Green Peter Reservoir was sampled 4/22/2024 – 4/25/2024 (Table 5). Surface temperatures at trap locations averaged 13.6 C (Table 6, Figure 2). Traps were set at the surface in each reservoir zone (Lower, Middle, Upper, Quartzville). Over three days of sampling (n=12 Oneida sets, n=30 box minnow sets), 6 bluegill, 3 juvenile northern pikeminnow, 2 juvenile cutthroat trout, and one adult hatchery *O. mykiss* were captured (Tables 7-9).

Table 5. Start and end date by statistical week.

Week	Start	End	Reservoir	Net Type	Effort (# sets)	Effort (hrs)
6	2/5/2024	2/8/2024	Lookout	Box minnow	21	501
6	2/5/2024	2/8/2024	Lookout	Oneida	7	166
7	2/12/2024	2/15/2024	Green	Box minnow	30	710
7	2/12/2024	2/15/2024	Green	Oneida	12	283
8	2/19/2024	2/22/2024	Lookout	Box minnow	27	608
8	2/19/2024	2/22/2024	Lookout	Oneida	9	203
9	2/26/2024	3/4/2024	Green Peter	Box minnow	30	1680
9	2/26/2024	3/4/2024	Green Peter	Oneida	12	670
10	3/5/2024	3/7/2024	Lookout	Box minnow	18	422
10	3/5/2024	3/7/2024	Lookout	Oneida	6	138
11	3/11/2024	3/14/2024	Green Peter	Box minnow	30	715
11	3/11/2024	3/14/2024	Green Peter	Oneida	12	283
12	3/18/2024	3/21/2024	Lookout	Box minnow	27	621

Week	Start	End	Reservoir	Net Type	Effort (# sets)	Effort (hrs)
12	3/18/2024	3/21/2024	Lookout	Oneida	9	206
13	3/25/2024	3/28/2024	Green Peter	Box minnow	30	700
13	3/25/2024	3/28/2024	Green Peter	Oneida	12	280
14	4/1/2024	4/4/2024	Lookout	box minnow	27	629
14	4/1/2024	4/4/2024	Lookout	oneida	9	208
15	4/8/2024	4/11/2024	Green Peter	box minnow	30	711
15	4/8/2024	4/11/2024	Green Peter	oneida	12	283
16	4/15/2024	4/18/2024	Lookout	box minnow	27	632
16	4/15/2024	4/18/2024	Lookout	oneida	9	209
17	4/22/2024	4/25/2024	Green Peter	box minnow	30	708
17	4/22/2024	4/25/2024	Green Peter	oneida	12	280
18	4/29/2024	5/2/2024	Lookout	box minnow	27	657
18	4/29/2024	5/2/2024	Lookout	oneida	9	217

Table 6. Mean surface water temperature measure during each trap net deployment.

Week	Reservoir	Mean Water Surface Temperature °C
6	Lookout Point	8.0
7	Green Peter	8.2
8	Lookout Point	8.9
9	Green Peter	8.4
10	Lookout Point	8.3
11	Green Peter	8.5
12	Lookout Point	9.6
13	Green Peter	9.7
14	Lookout Point	10.6
15	Green Peter	12.2
16	Lookout Point	11.7
17	Green Peter	13.6
18	Lookout Point	13.6

Table 7. Summary of catch by reservoir. BLC - Black Crappie, BLG - Bluegill, CHS – Chinook salmon, CUT - Cutthroat trout, LMB - Largemouth bass, LSS - Large-scale sucker, NPM - Northern Pike Minnow, SMB - Smallmouth Bass, WAL – Walleye, LRY - Lamprey.

Week	Reservoir	Species	Catch
6	Lookout Point	CHS	4
6	Lookout Point	CUT	2
6	Lookout Point	NPM	1

<b>Week</b>	<b>Reservoir</b>	<b>Species</b>	<b>Catch</b>
6	Lookout Point	RBT	2
6	Lookout Point	SCU	1
7	Green Peter	BLG	8
7	Green Peter	CHS	7
7	Green Peter	CUT	2
7	Green Peter	LRY	1
7	Green Peter	NPM	1
7	Green Peter	RBT	6
8	Lookout Point	BLG	1
8	Lookout Point	CHS	6
8	Lookout Point	CUT	1
8	Lookout Point	NPM	1
8	Lookout Point	RBT	9
9	Green Peter	BLG	11
9	Green Peter	CHS	12
9	Green Peter	RBT	3
10	Lookout Point	CHS	1
10	Lookout Point	NPM	1
10	Lookout Point	RBT	2
11	Green Peter	BLG	9
11	Green Peter	CHS	19
12	Lookout Point	CHS	2
12	Lookout Point	NPM	2
12	Lookout Point	RBT	2
13	Green Peter	BLG	6
13	Green Peter	CHS	1
13	Green Peter	RBT	1
14	Lookout Point	BBH	9
14	Lookout Point	CHS	1
14	Lookout Point	LSS	3
14	Lookout Point	NPM	3
14	Lookout Point	RBT	7
15	Green Peter	BLG	5
15	Green Peter	CHS	9
15	Green Peter	CUT	4
15	Green Peter	RBT	2
15	Green Peter	SMB	2
16	Lookout Point	CHS	2
16	Lookout Point	CUT	2
16	Lookout Point	LSS	1
16	Lookout Point	RBT	2
17	Green Peter	BLG	6



Week	Reservoir	Species	Catch
17	Green Peter	CUT	2
17	Green Peter	NPM	3
17	Green Peter	RBT	1
18	Lookout Point	LSS	1
18	Lookout Point	RBT	5

Table 8. Catch summary of target species by reservoir zone. CHS-AD = ad clipped Chinook salmon, CHS-natural = natural origin Chinook salmon, RBT-AD = ad clipped *O. mykiss*, RBT-natural = natural origin *O. mykiss*.

Week	Reservoir	Species	Lifestage	LOWER	MIDDLE	UPPER	QUARTZVILLE
6	Lookout Point	RBT-natural	yearling	1	1	0	0
6	Lookout Point	CHS-AD	yearling	0	1	0	0
6	Lookout Point	CHS-natural	yearling	0	2	1	0
7	Green Peter	CHS-natural	fry	1	5	1	0
7	Green Peter	RBT-natural	adult	1	0	0	0
7	Green Peter	RBT-natural	yearling	1	0	0	1
7	Green Peter	RBT-natural	fry	0	0	3	0
8	Lookout Point	RBT-natural	yearling	2	4	3	0
8	Lookout Point	CHS-AD	yearling	0	1	0	0
8	Lookout Point	CHS-natural	yearling	0	1	4	0
9	Green Peter	CHS-AD	yearling	1	0	0	1
9	Green Peter	CHS-natural	fry	0	2	5	1
9	Green Peter	CHS-natural	yearling	0	1	1	0
9	Green Peter	RBT-natural	fry	0	0	1	1
9	Green Peter	RBT-natural	yearling	0	0	1	0
10	Lookout Point	RBT-natural	yearling	0	1	0	0
10	Lookout Point	CHS-natural	fry	0	0	1	0
10	Lookout Point	RBT-natural	Adult	0	0	1	0
11	Green Peter	CHS-AD	fry	1	3	11	3
11	Green Peter	CHS-natural	fry	0	0	1	0
12	Lookout Point	CHS-natural	fry	0	1	0	0
12	Lookout Point	CHS-natural	yearling	0	1	0	0
12	Lookout Point	RBT-natural	yearling	0	1	1	0
13	Green Peter	RBT-natural	yearling	1	0	0	0
13	Green Peter	CHS-AD	parr	0	0	0	1
14	Lookout Point	RBT-natural	yearling	4	1	2	0
14	Lookout Point	CHS-natural	yearling	0	0	1	0
15	Green Peter	CHS-natural	fry	0	0	0	3
15	Green Peter	CHS-natural	parr	0	1	5	0
15	Green Peter	RBT-AD	adult	0	1	0	0
15	Green Peter	RBT-natural	yearling	0	0	1	0

Week	Reservoir	Species	Lifestage	LOWER	MIDDLE	UPPER	QUARTZVILLE
16	Lookout Point	CHS-AD	yearling	1	0	0	0
16	Lookout Point	CHS-natural	yearling	0	1	0	0
16	Lookout Point	RBT-natural	yearling	0	1	1	0
17	Green Peter	RBT-AD	adult	1	0	0	0
18	Lookout Point	RBT-natural	yearling	1	1	3	0

Table 9. Summary of target species lengths, tags implanted and recaptures.

Week	Reservoir	Species	Lifestage	Catch	length_min	length_mean	length_max	# VIE tagged	# PIT tagged	# recap
6	Lookout Point	CHS-AD	yearling	1	117	117	117	0	0	1
6	Lookout Point	CHS-natural	yearling	3	80	84	88	0	3	0
6	Lookout Point	RBT-natural	yearling	2	79	88	97	0	1	0
7	Green Peter	CHS-natural	fry	7	37	40.6	46	7	0	0
7	Green Peter	RBT-natural	adult	1	305	305	305	0	1	0
7	Green Peter	RBT-natural	fry	3	35	36.7	38	3	0	0
7	Green Peter	RBT-natural	yearling	2	149	168.5	188	0	2	0
8	Lookout Point	CHS-AD	yearling	1	174	174	174	0	0	1
8	Lookout Point	CHS-natural	yearling	5	73	87.6	101	0	4	0
8	Lookout Point	RBT-natural	yearling	9	103	153.2	206	0	9	0
9	Green Peter	CHS-AD	yearling	2	83	89	95	0	1*	2
9	Green Peter	CHS-natural	fry/parr	8	36	41.6	51	8	0	0
9	Green Peter	CHS-natural	yearling	2	117	118.5	120	0	2	0
9	Green Peter	RBT-natural	fry	2	34	35	36	1	0	0
9	Green Peter	RBT-natural	yearling	1	169	169	169	0	1	0
10	Lookout Point	CHS-natural	fry/parr	1	47	47.0	47	1	0	0
10	Lookout Point	RBT-natural	adult	1	296	296.0	296	0	1	0
10	Lookout Point	RBT-natural	yearling	1	108	108.0	108	0	1	0
11	Green Peter	CHS-AD	fry/parr	1	56	56.0	56	0	0	1
11	Green Peter	CHS-natural	fry/parr	18	34	41.7	58	11	4	0
12	Lookout Point	CHS-natural	fry	1	38	38	38	1	0	0
12	Lookout Point	CHS-natural	yearling	1	97	97	97	0	1	0
12	Lookout Point	RBT-natural	yearling	2**	107	126.5	146	0	0	0
13	Green Peter	CHS-AD	fry/parr	1	58	58	58	0	0	1
13	Green Peter	RBT-natural	yearling	1**	157	157	157	0	0	0
14	Lookout Point	CHS-natural	yearling	1	93	93	93	0	1	0
14	Lookout Point	RBT-natural	yearling	7**	96	148	174	0	0	0
15	Green Peter	CHS-natural	fry	3	32	37.7	42	2	0	0
15	Green Peter	CHS-natural	parr	6	51	59.8	74	0	6	0
15	Green Peter	RBT-AD	adult	1	229	229	229	0	0	0
15	Green Peter	RBT-natural	yearling	1**	149	149	149	0	0	0

Week	Reservoir	Species	Lifestage	Catch	length_min	length_mean	length_max	# VIE		
								tagged	# PIT tagged	# recap
16	Lookout Point	CHS-AD	yearling	1	119	119	119	0	0	1
16	Lookout Point	CHS-natural	yearling	1	73	73	73	0	1	0
16	Lookout Point	RBT-natural	yearling	2	145	165.5	186	0	1	0
17	Green Peter	RBT-AD	adult	1	290	290	290	0	0	0
18	Lookout Point	RBT-natural	yearling	5	135	143.8	157	1	5	0

\*One recaptured fish was inadvertently tagged with a 2<sup>nd</sup> PIT tag. \*\* Not tagged, awaiting permit modification to allow for tagging RBT (modification has since been granted effective 4/16/2024).

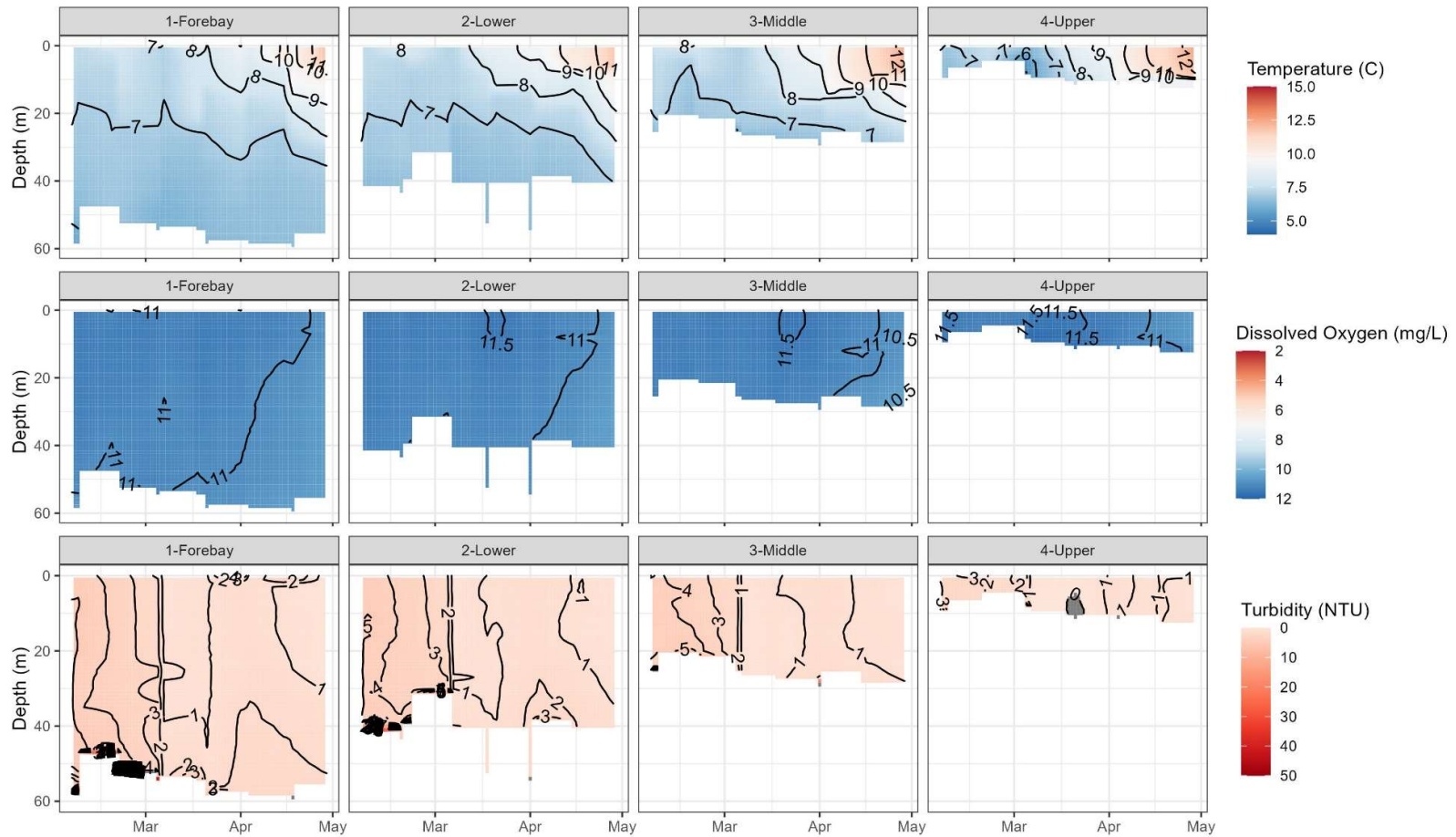


Figure 1. Lookout Point 2024 limnology data. Note that turbidity data in gray are suspect due to a sensor malfunction/calibration issue. Readings in gray were slightly negative (erroneous) but secchi measurements taken that week support that turbidity was near zero. The sensor has since been recalibrated.

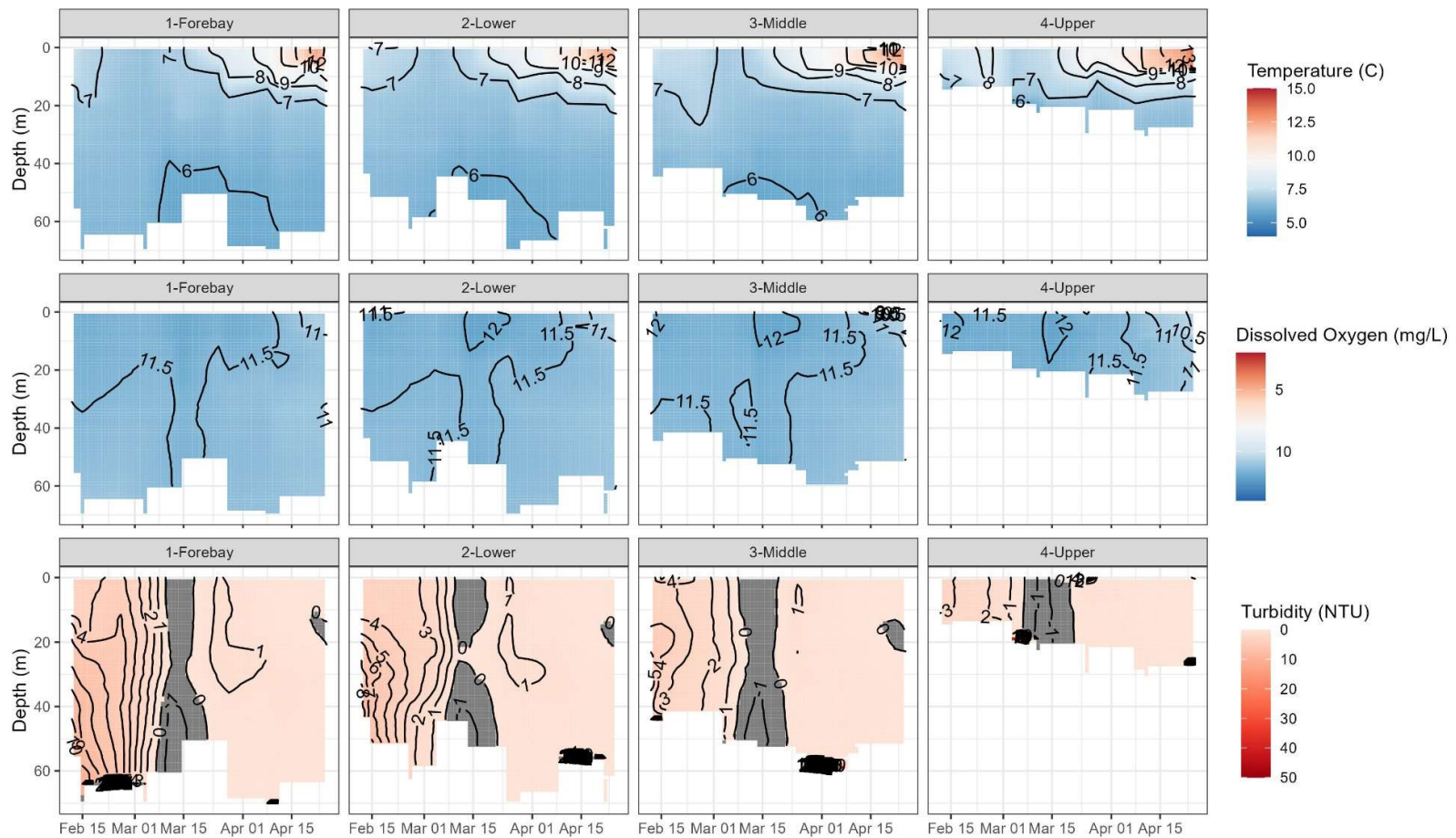


Figure 2. Green Peter 2024 limnology data. Note that turbidity data in gray (data collected week 11: March 11-14) are suspect due to a sensor malfunction/calibration issue. Readings in gray were slightly negative (erroneous) but secchi measurements taken those dates support that turbidity was near zero. The sensor has since been recalibrated

## Appendix A. Release Site Maps

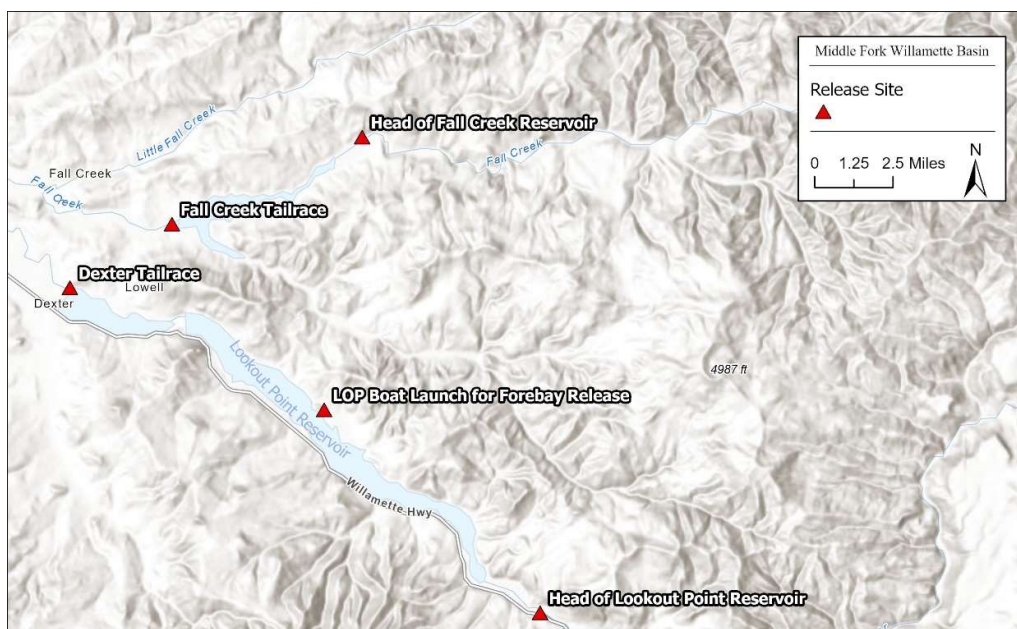


Figure 1. Map of Lookout Point, Dexter tailrace and Fall Creek release locations within the Middle Fork Willamette Basin.

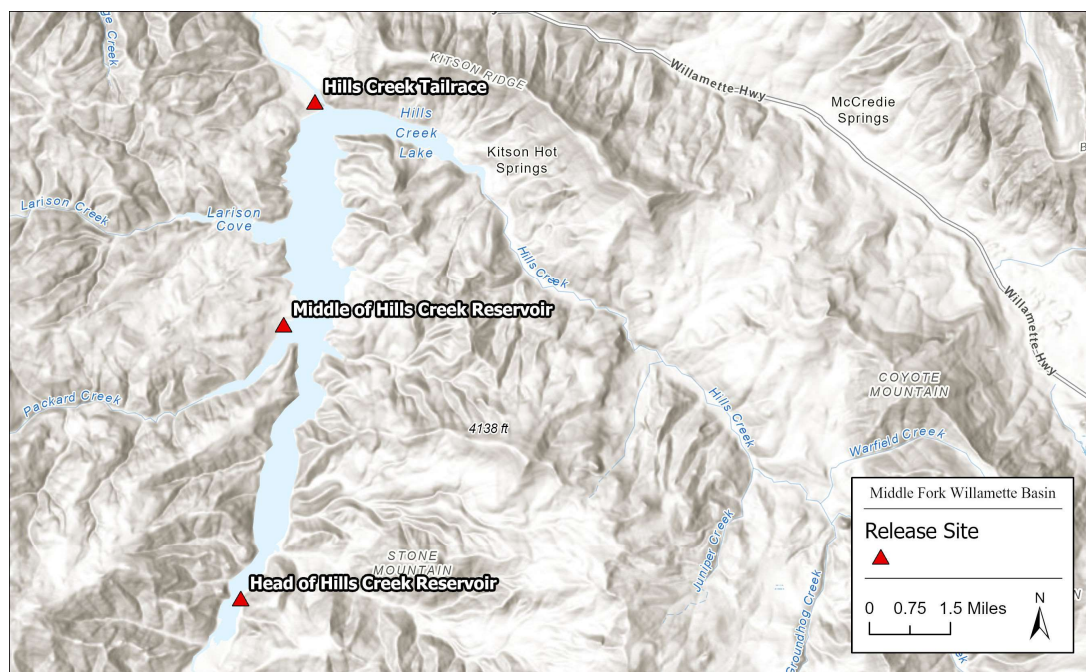


Figure 2. Map of Hills Creek Reservoir release locations within the Middle Fork Willamette Basin.

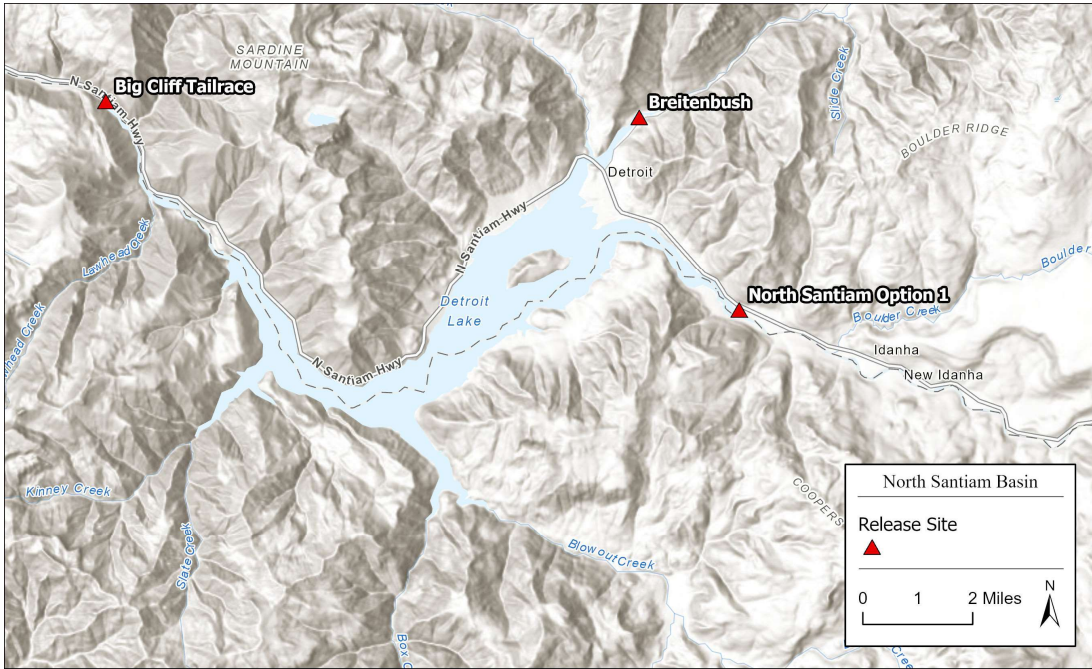


Figure 3. Map of release locations within the North Santiam Basin.

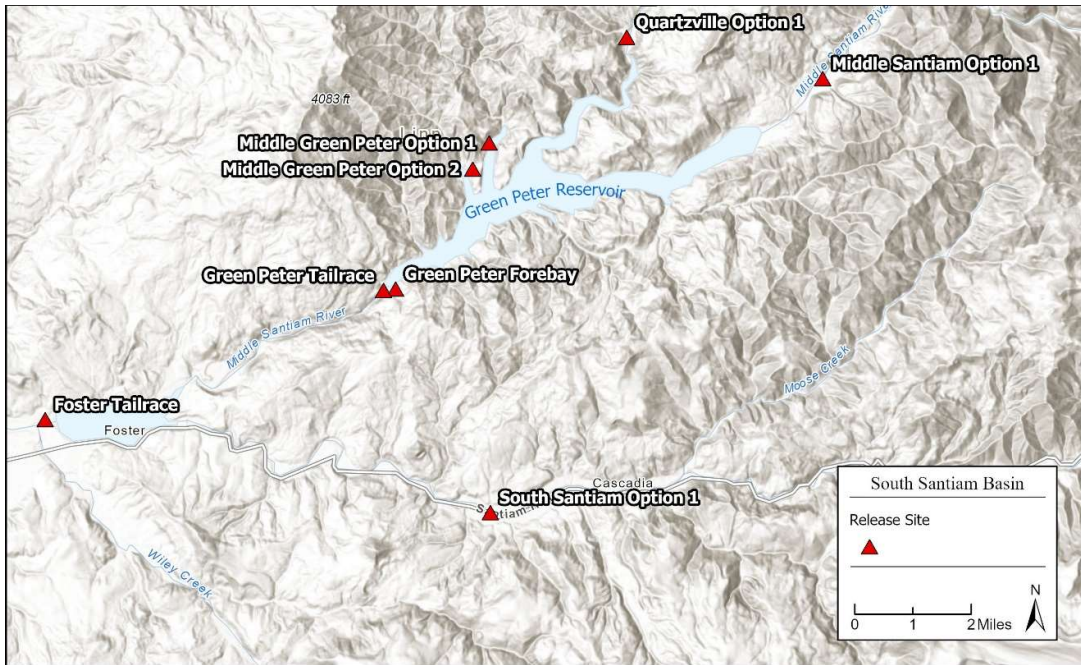


Figure 4. Map of release locations in the Middle/South Santiam basin including Green Peter Reservoir.

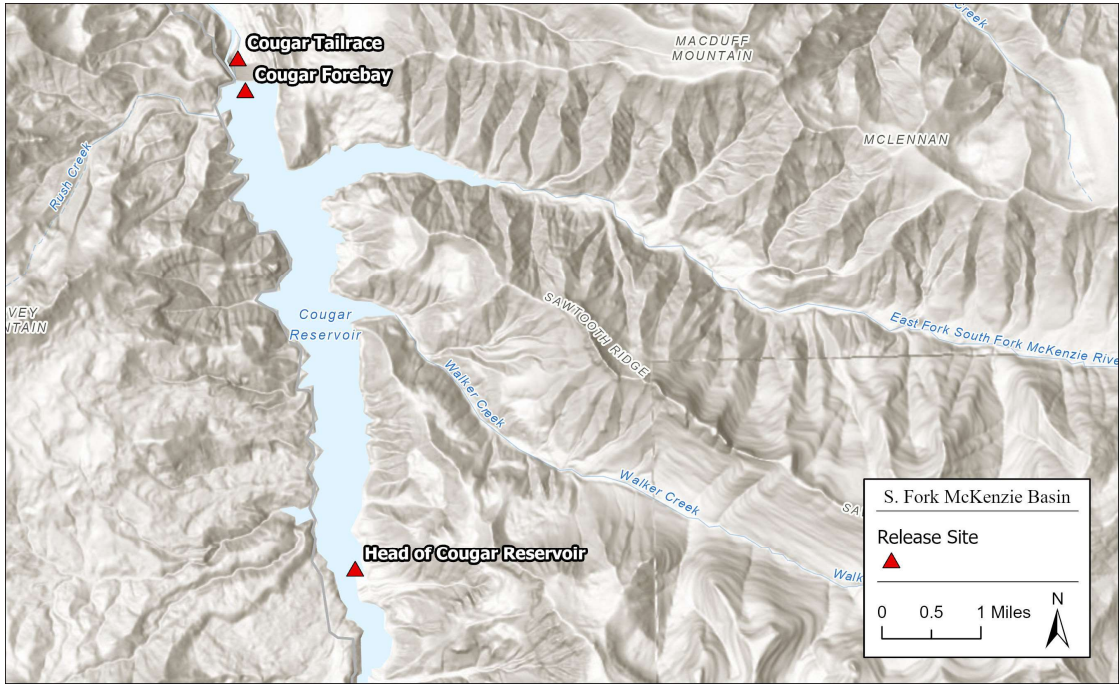


Figure 5. Map of release locations at Cougar Reservoir.



## Appendix B. Reservoir Sampling Zones

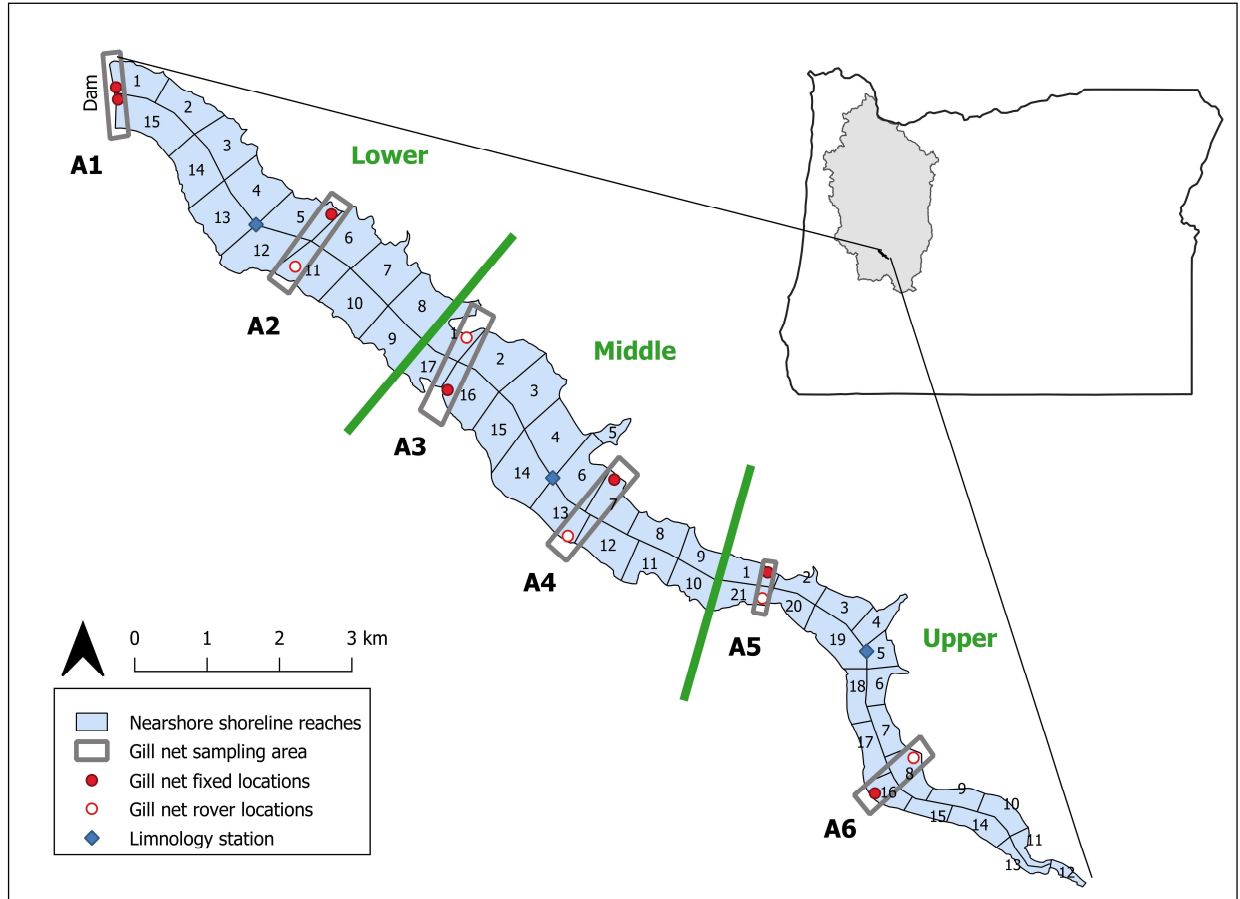


Figure 6. Map of Lookout Point Reservoir nearshore shoreline reaches, reservoir zones (lower, middle and upper), gill netting sampling areas and limnological stations.

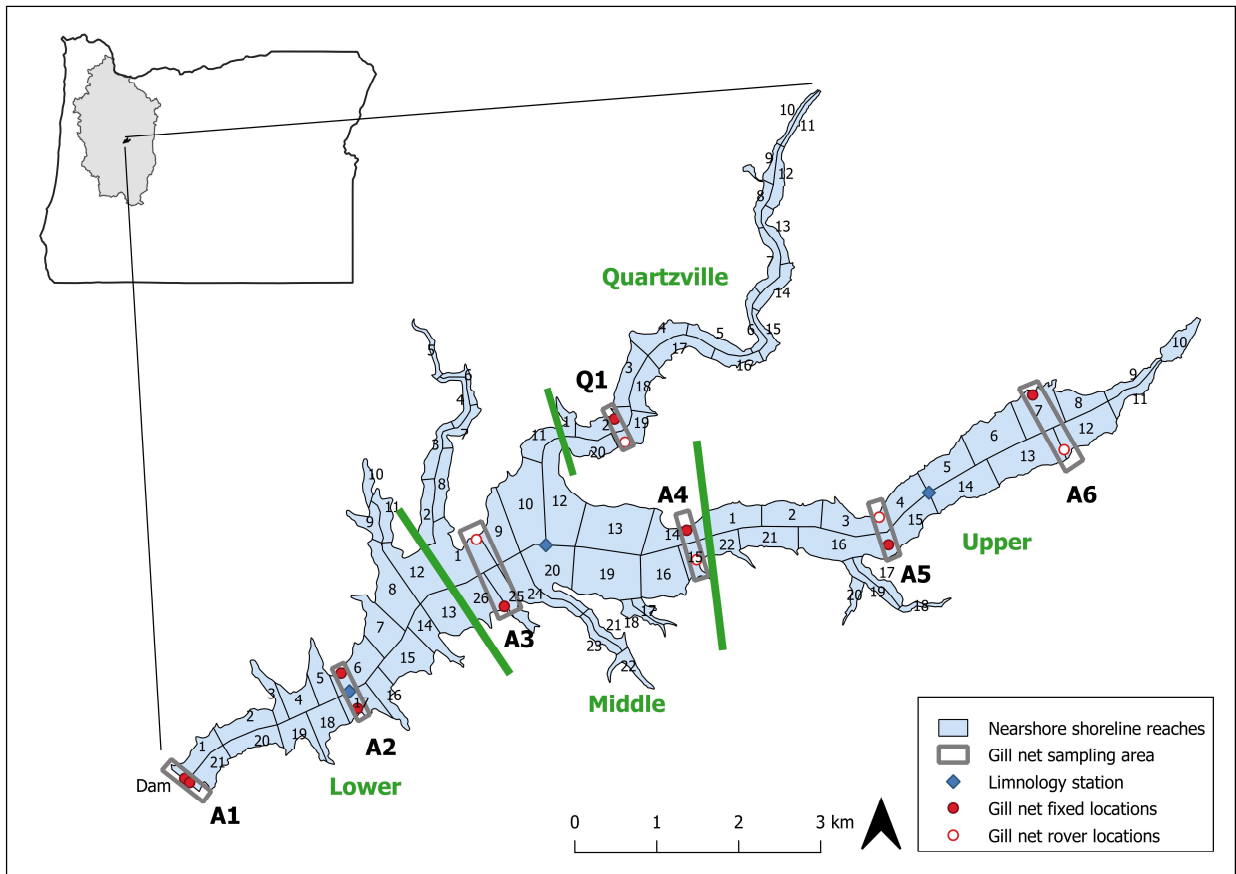


Figure 7. Map of Green Peter Reservoir nearshore shoreline reaches, reservoir zones (lower, middle and upper), gill netting sampling areas and limnological stations.