

WILLAMETTE VALLEY FISH PASSAGE MONITORING – BULK MARKING PROJECT

Bi-Weekly Report: April 1 – April 15, 2025



Prepared for: United States Army Corps of Engineers

Prepared by: Cramer Fish Sciences

April 22, 2025

BULK MARKING SCHEDULE

Table 1. Tentative release schedule for brood years 2022, 2023, and fry for brood year 2024. Green rows highlight the release groups that have been tagged and released. 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.

Date Estimate	Release Location	Target	Life Stage	#	Tag
2023					
MF Willamette					
Spring 2023	Head of Fall Creek Dam reservoir	Prior to reaching target elevation of 728 feet	fry	1000 0	8 mm PIT
Spring 2023	Head of Lookout Point Dam reservoir	30 day spill operations	fry	1000 0	8 mm PIT
Spring 2023	Head of Hills Creek Dam reservoir	Observed fry migration and RO operations	fry	1000 0	8 mm PIT
9/15/2023	Dexter Dam Tailrace	Fall deep drawdown	subyearling	2000	12 mm PIT
9/15/2023	Head of Lookout Point Dam reservoir	Fall deep drawdown	subyearling	5000	12 mm PIT
9/15/2023	Lookout Point Dam Forebay	Fall deep drawdown	subyearling	5000	12 mm PIT
10/15/2023	Fall Creek Dam Head of Reservoir	2-3 weeks prior to drawdown	subyearling	5000	12 mm PIT
10/15/2023	Fall Creek Dam tailrace	2-3 weeks prior to drawdown	subyearling	1000	12 mm PIT
11/15/2023	Fall Creek Dam Head of Reservoir	Midway between start of drawdown and streambed elevation	subyearling	5000	12 mm PIT
11/15/2023	Fall Creek Dam tailrace	Midway between start of drawdown and streambed elevation	subyearling	1000	12 mm PIT
11/16/2023	Hills Creek Dam Head of Reservoir	Prior to start of fall/winter RO operations	subyearling	5000	12 mm PIT
11/16/2023	Hills Creek Dam tailrace	Prior to start of fall/winter RO operations	subyearling	3000	12 mm PIT
11/16/2023	Hills Creek forebay or mid-reservoir	Prior to start of fall/winter RO operations	subyearling	5000	12 mm PIT

North Santiam					
Spring 2023	Breitenbush River	Prior to beginning of spill	fry	7500	8 mm PIT
Spring 2023	North Santiam River	Prior to beginning of spill	fry	7500	8 mm PIT
10/1/2023	Big Cliff Dam Tailrace	Prior to Detroit Reservoir reaching 1520 feet	subyearling	8000	12 mm PIT
10/1/2023	Breitenbush River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm PIT
10/1/2023	North Santiam River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm PIT
11/15/2023	Big Cliff Dam Tailrace	When Detroit reaches 1465 feet	subyearling	6000	12 mm PIT
SF McKenzie					
Spring 2023	Cougar Dam Head of Reservoir	Prior to start of spring drawdown	fry	5000	8 mm PIT
Spring 2023	Cougar Dam Head of Reservoir	After start of drawdown but prior to reaching 1520 feet	fry	5000	8 mm PIT
9/15/2023	Cougar Dam Head of Reservoir	Prior to start of drawdown	subyearling	3000	12 mm PIT
10/15/2023	Cougar Dam Forebay	Prior to reaching target elevation of 1505 feet	subyearling	5000	12 mm PIT
10/15/2023	Cougar Dam Tailrace	Prior to reaching target elevation of 1505 feet	subyearling	4000	12 mm PIT
10/15/2023	Cougar Head of Reservoir	Prior to reaching target elevation of 1505 feet	subyearling	4000	12 mm PIT
11/15/2023	Cougar Dam Forebay	At 1532 feet when RO is prioritized for day and night spill	subyearling	5000	12 mm PIT
11/15/2023	Cougar Dam Tailrace	At 1532 feet when RO is prioritized for day and night spill	subyearling	4000	12 mm PIT
11/15/2023	Cougar Head of Reservoir	At 1532 feet when RO is prioritized for day and night spill	subyearling	4000	12 mm PIT
South Santiam					
Spring 2023	Green Peter Head of Reservoir in Middle Santiam River	Spill operation block	fry	5000	8 mm PIT
Spring 2023	Green Peter Head of Reservoir in Quartzville Creek	Spill operation block	fry	5000	8 mm PIT

8/30/2023	South Santiam River - Foster Dam Tailrace	Undefined - Late August	subyearling	1000	12 mm PIT
8/30/2023	South Santiam River above Foster Dam	Undefined - Late August	subyearling	2000	12 mm PIT
9/15/2023	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Fall Operations at Green Peter Dam	subyearling	2500	12 mm PIT
9/15/2023	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Fall Operations at Green Peter Dam	subyearling	2500	12 mm PIT
10/15/2023	Green Peter Dam Tailrace	Prior to Green Peter reaching 887 feet.	subyearling	4000	12 mm PIT
10/15/2023	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm PIT
10/15/2023	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm PIT
10/15/2023	South Santiam River - Foster Dam Tailrace	Fall operations at Foster Dam	subyearling	4000	12 mm PIT
10/15/2023	South Santiam River above Foster Dam	Fall operations at Foster Dam	subyearling	5000	12 mm PIT
2024					
MF Willamette					
2/1/2024	Hills Creek Dam Head of Reservoir	Prior to end of fall/winter RO operations	yearling	5000	12 mm PIT
2/1/2024	Hills Creek Dam tailrace	Prior to end of fall/winter RO operations	yearling	3000	12 mm PIT
2/1/2024	Hills Creek forebay or mid-reservoir	Prior to end of fall/winter RO operations	yearling	5000	12 mm PIT
2/28/2024	Fall Creek Dam Head of Reservoir	Prior to beginning of refill	yearling	5000	12 mm PIT
2/28/2024	Fall Creek Dam Tailrace	Prior to beginning of refill	yearling	1000	12 mm PIT
2/28/2024	Head of Lookout Point Dam reservoir	Prior to 30-day spill	yearling	5000	12 mm PIT
2/28/2024	Dexter Dam Tailrace	Prior to 30-day spill	yearling	2000	12 mm PIT
2/28/2024	Lookout Point Dam Forebay	Prior to 30-day spill	yearling	5000	12 mm PIT

3/31/2024	Fall Creek Dam Head of Reservoir	After refill is completed	yearling	5000	12 mm PIT
3/31/2024	Fall Creek Dam Tailrace	After refill is completed	yearling	1000	12 mm PIT
4/1/2024	Head of Lookout Point Dam reservoir	After 30-day spill/beginning of nighttime spill	yearling	5000	12 mm PIT
4/1/2024	Dexter Dam Tailrace	After 30-day spill/beginning of nighttime spill	yearling	2000	12 mm PIT
4/1/2024	Lookout Point Dam Forebay	After 30-day spill/beginning of nighttime spill	yearling	5000	12 mm PIT
North Santiam					
2/1/2024	North Santiam River	Prior to start of Detroit refill	fry	3750	8 mm PIT
2/1/2024	Breitenbush River	Prior to start of Detroit refill	fry	3750	8 mm PIT
4/1/2024	Breitenbush River	Prior to start of Detroit spill	fry	3750	8 mm PIT
4/1/2024	North Santiam River	Prior to start of Detroit spill	fry	3750	8 mm PIT
4/1/2024	Big Cliff Dam Tailrace	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm PIT
4/1/2024	Breitenbush River	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm PIT
4/1/2024	North Santiam River	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm PIT
10/1/2024	Big Cliff Dam Tailrace	Prior to Detroit Reservoir reaching 1520 feet	subyearling	8000	12 mm PIT
10/1/2024	Breitenbush River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm PIT
10/1/2024	North Santiam River	Prior to Detroit Reservoir reaching 1520 feet	subyearling	5000	12 mm PIT
11/15/2024	Big Cliff Dam Tailrace	When Detroit reaches 1465 feet	subyearling	6000	12 mm PIT
SF McKenzie					
2/28/2024	Cougar Dam Forebay	Prior to beginning of spring drawdown	yearling	2000	12 mm PIT

2/28/2024	Cougar Dam Tailrace	Prior to beginning of spring drawdown	yearling	1000	12 mm PIT
2/28/2024	Cougar Head of Reservoir	Prior to beginning of spring drawdown	yearling	2000	12 mm PIT
3/30/2024	Cougar Dam Forebay	After start of drawdown but prior to reaching 1520 feet	yearling	2000	12 mm PIT
3/30/2024	Cougar Dam Tailrace	After start of drawdown but prior to reaching 1520 feet	yearling	1000	12 mm PIT
3/30/2024	Cougar Head of Reservoir	After start of drawdown but prior to reaching 1520 feet	yearling	2000	12 mm PIT
South Santiam					
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 PIT
4/1/2024	Green Peter Head of Reservoir in Quartzville Creek	At the start of the first spring spill block	fry	2500	8 mm PIT
4/1/2024	Green Peter Dam Tailrace	At the start of Green Peter spring spill	yearling	1000	12 mm PIT
4/1/2024	Green Peter Reservoir - Forebay	At the start of Green Peter spring spill	yearling	2000	12 mm PIT
4/1/2024	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	At the start of Green Peter spring spill	yearling	1000	12 mm PIT
4/1/2024	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	At the start of Green Peter spring spill	yearling	1000	12 mm PIT
4/1/2024	Green Peter Reservoir - mid reservoir	At the start of Green Peter spring spill	yearling	2000	12 mm PIT
4/1/2024	South Santiam River - Foster Dam Tailrace	Prior to start of Foster refill	yearling	4000	12 mm PIT
4/1/2024	South Santiam River above Foster Dam	Prior to start of Foster refill	yearling	5000	12 mm PIT
4/20/2024	South Santiam River - Foster Dam Tailrace	Post refill operations	yearling	2000	12 mm PIT
4/20/2024	South Santiam River above Foster Dam	Post refill operations	yearling	1000	12 mm PIT
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 PIT
4/15/2024	Green Peter Head of Reservoir in Quartzville Creek	At the start of the second spring spill block	fry	2500	8 mm PIT

8/30/2024	South Santiam River - Foster Dam Tailrace	Undefined - Late August	subyearling	1000	12 mm PIT
8/30/2024	South Santiam River above Foster Dam	Undefined - Late August	subyearling	2000	12 mm PIT
9/15/2024	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Fall Operations at Green Peter Dam	subyearling	2500	12 mm PIT
9/15/2024	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Fall Operations at Green Peter Dam	subyearling	2500	12 mm PIT
10/15/2024	Green Peter Dam Tailrace	Prior to Green Peter reaching 887 feet.	subyearling	4000	12 mm PIT
10/15/2024	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm PIT
10/15/2024	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	Prior to Green Peter reaching 887 feet.	subyearling	2500	12 mm PIT
10/15/2024	South Santiam River - Foster Dam Tailrace	Fall operations at Foster Dam	subyearling	4000	12 mm PIT
10/15/2024	South Santiam River above Foster Dam	Fall operations at Foster Dam	subyearling	5000	12 mm PIT
2025					
North Santiam					
2/1/2025	Breitenbush River	Prior to start of Detroit refill	fry	3750	8 mm PIT
2/1/2025	North Santiam River	Prior to start of Detroit refill	fry	3750	8 mm PIT
4/1/2025	Breitenbush River	Prior to start of Detroit spill	fry	3750	8 mm PIT
4/1/2025	North Santiam River	Prior to start of Detroit spill	fry	3750	8 mm PIT
4/1/2025	Big Cliff Dam Tailrace	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm PIT
4/1/2025	Breitenbush River	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm PIT
4/1/2025	North Santiam River	Prior to Detroit reaching 1541 feet (spillway crest elevation)	yearling	2000	12 mm PIT
South Santiam					
4/1/2025	Green Peter Head of Reservoir in Middle Santiam River	At the start of the first spring spill block	fry	2500	8 mm PIT

4/1/2025	Green Peter Head of Reservoir in Quartzville Creek	At the start of the first spring spill block	fry	2500	8 mm PIT
4/1/2025	Green Peter Dam Tailrace	At the start of Green Peter spring spill	yearling	1000	12 mm PIT
4/1/2025	Green Peter Reservoir - Forebay	At the start of Green Peter spring spill	yearling	2000	12 mm PIT
4/1/2025	Green Peter Reservoir - Head of Reservoir, Middle Santiam River	At the start of Green Peter spring spill	yearling	1000	12 mm PIT
4/1/2025	Green Peter Reservoir - Head of Reservoir, Quartzville Creek	At the start of Green Peter spring spill	yearling	1000	12 mm PIT
4/1/2025	Green Peter Reservoir - mid reservoir	At the start of Green Peter spring spill	yearling	2000	12 mm PIT
4/1/2025	South Santiam River - Foster Dam Tailrace	Prior to start of Foster refill	yearling	1000	12 mm PIT
4/1/2025	South Santiam River - Foster Dam Head of Reservoir	Prior to start of Foster refill	yearling	4000	12 mm PIT
4/15/2025	Green Peter Head of Reservoir in Middle Santiam River	At the start of the second spring spill block	fry	2500	8 mm PIT
4/15/2025	Green Peter Head of Reservoir in Quartzville Creek	At the start of the second spring spill block	fry	2500	8 mm PIT
4/20/2025	South Santiam River – Foster Head of Reservoir	Post refill operations	yearling	5000	12 mm PIT
4/20/2025	South Santiam River – Foster Tailrace	Post refill operations	yearling	2000	12 mm PIT

BULK MARKING SUMMARY

During the reporting period, Cramer Fish Sciences conducted six release events to evaluate springtime dam operations at Green Peter and Foster Dams (Table 3). On April 1, 2025, 5,000 PIT-tagged brood year 2024 (BY24) Chinook salmon fry (mean fork length: 50.1 mm; mean weight: 1.4 g) were released at the head of Green Peter Reservoir to assess travel time and passage rates during continuous surface spill operations. These fry were divided equally, with 2,500 released into the Middle Santiam River and 2,500 into Quartzville Creek. On April 10, 2025, 5,000 PIT-tagged brood year 2023 (BY23) yearling Chinook salmon (mean fork length: 170 mm; mean weight: 53 g) were released at the head of Foster Reservoir, and on April 14, 2025, 2,000 BY23 yearlings (mean fork length: 163 mm; mean weight: 44 g) were released in the Foster Dam tailrace. These Foster Reservoir and tailrace releases were designed to evaluate travel times and passage rates of yearlings during spring operations, which included both powerhouse and surface spill passage routes.

North Santiam Chinook salmon fry remain below the threshold for tagging (45 mm FL). Water temperatures this year have been colder than last year, and hatchery staff estimate that these fry will be of size in late May or early June.

Recaptures

During the reporting period, 96 PIT-tagged juvenile Chinook salmon released by this project were detected and uploaded to the PIT Tag Information System (PTAGIS). Of these, 71 detections were from fish released in the South Santiam Basin, and 25 were from fish released in the North Santiam Basin. The majority of detections (85) occurred at various Pile Dike arrays and the Towed array in the Columbia River estuary. Additionally, 10 detections were recorded at the Lebanon Dam array in the South Santiam Basin, and one detection was noted at the Deschutes River Mouth instream array. The single detection at the Deschutes River Mouth array warrants further investigation to determine if it may be associated with bird predation, a potential factor at this site. Since releases began in May 2023, a cumulative total of 6,211 unique detections of PIT-tagged fish have been recorded across multiple sites (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	NA	NA	NA	NA
Green Peter Head of Reservoir	5,006	50.1	1.4	3/1/2024	3/3/2024	17	0.33	13	0.25
Green Peter Head of Reservoir	5,000	54.9	1.7	3/18/2024	3/19/2024	12	0.23	20	0.39
Detroit Head of Reservoir North Santiam Arm	7,500	46.7	1.2	5/13/2024	5/15/2024	58	0.77	70	0.93
Detroit Head of Reservoir Breitenbush Arm	7,500	46.7	1.2	5/15/2024	5/17/2024	58	0.77	63	0.84
South Santiam – Fall 24 and Spring 25 Bulk Group	45,000	NA	NA	6/26/2024	7/11/2024	62	0.14	108	0.24
North Santiam – Fall 24 and Spring 25 Bulk Group	18,000	NA	NA	7/15/2024	11/6/2024	47	0.15	196	0.63
Green Peter Head of Reservoir	5,002	46.5	1	3/03/2025	3/10/2025	TBD	TBD	TBD	TBD

Table 3. PIT tagged juvenile Chinook salmon release group summary statistics.

Basin	Release Location	Release Date	N	Mean Length	Mean Weight	Lifestage
MFW	Hills Creek Head of Reservoir	5/18/2023 15:50	509	55.8	1.9	Fry

MFW	LOP Head of Reservoir	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	6/12/2023 15:00	9,638	67.4	3.2	Fry
MFW	LOP Head of Reservoir	9/18/2023 8:15	4,998	122.9	23.8	Subyearling
MFW	LOP Forebay	9/18/2023 17:00	5,002	128.3	25.1	Subyearling
MFW	LOP Tailrace	9/19/2023 11:30	2,011	128.4	25.2	Subyearling
MFW	Fall Creek Head of Reservoir	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
MFW	Fall Creek Head of Reservoir	11/6/2023 15:40	4,999	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	4,997	135.2	28.6	Subyearling
MFW	Hills Creek Mid Reservoir	11/8/2023 15:15	4,998	145.3	36.9	Subyearling
MFW	Hills Creek Dam Tailrace	11/9/2023 14:35	2,969	129.6	27	Subyearling
MFW	LOP Head of Reservoir	1/3/2024 16:45	4,634	143.3	33.7	Yearling
MFW	LOP Head of Reservoir	1/4/2024 16:30	4,828	143.3	33.7	Yearling
MFW	LOP Head of Reservoir	1/8/2024 15:40	3,789	143.3	33.7	Yearling
MFW	LOP Head of Reservoir	1/9/2024 16:15	5,115	143.3	33.7	Yearling
MFW	LOP Head of Reservoir	1/25/2024 11:30	7,617	143.6	34.3	Yearling
MFW	Hills Creek Dam Tailrace	1/31/2024 14:05	24,861	141.6	34.7	Yearling
MFW	Hills Creek Head of Reservoir	2/6/2024 11:15	4,963	153.8	40.9	Yearling
MFW	Hills Creek Mid Reservoir	2/7/2024 10:10	5,000	155.9	41.7	Yearling
MFW	Hills Creek Dam Tailrace	2/7/2024 15:20	2,998	151.3	42.8	Yearling
MFW	Fall Creek Head of Reservoir	2/20/2024 12:45	4,993	148.4	38.9	Yearling
MFW	Fall Creek Tailrace	2/20/2024 16:05	1,002	150.5	39.9	Yearling
MFW	LOP Head of Reservoir	2/28/2024 11:30	4,994	141.5	34.2	Yearling
MFW	LOP Forebay	2/28/2024 16:30	4,988	144.2	35.9	Yearling
MFW	LOP Tailrace	2/29/2024 11:00	1,998	149.7	39.2	Yearling
MFW	Fall Creek Head of Reservoir	4/2/2024 11:00	2,500	146	37.1	Yearling
MFW	Fall Creek Head of Reservoir	4/3/2024 10:55	2,497	154.6	43.2	Yearling
MFW	Fall Creek Tailrace	4/3/2024 14:05	999	159.5	44.5	Yearling
MFW	LOP Head of Reservoir	4/9/2024 10:35	2,499	150.9	41.2	Yearling
MFW	LOP Head of Reservoir	4/9/2024 13:00	2,499	150.9	41.2	Yearling

MFW	LOP Forebay	4/10/2024 11:00	2,500	150.7	39.7	Yearling
MFW	LOP Forebay	4/11/2024 11:55	2,500	150.7	39.7	Yearling
MFW	LOP Tailrace	4/11/2024 15:25	2,000	149	38.9	Yearling
MCK	Cougar Head of Reservoir	8/29/2023 11:30	5,198	67.9	3.6	Fry
MCK	Cougar Head of Reservoir	10/2/2023 14:20	5,005	117.2	18.9	Subyearling
MCK	Cougar Head of Reservoir	10/2/2023 19:05	3,006	116.7	19	Subyearling
MCK	Cougar Head of Reservoir	10/18/2023 11:50	3,977	118.4	19.8	Subyearling
MCK	Cougar Forebay	10/18/2023 18:00	5,010	120.8	21	Subyearling
MCK	Cougar Tailrace	10/19/2023 12:40	4,000	112.5	16.8	Subyearling
MCK	Cougar Head of Reservoir	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	11/15/2023 11:45	2,411	120.1	21.5	Subyearling
MCK	Cougar Head of Reservoir	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	3/11/2024 15:10	2,081	129.5	25.4	Yearling
SST	Green Peter HOR Quartzville	5/22/2023 13:00	5,171	58.5	25.4	Fry
SST	Green Peter HOR Middle Santiam	5/22/2023 20:30	4,961	56.2	25.4	Fry
SST	Foster Tailrace	8/23/2023 16:30	1,030	115.7	18.2	Subyearling
SST	Foster Head of Reservoir	8/24/2023 10:00	2,059	105.6	14.5	Subyearling
SST	Green Peter HOR Quartzville	9/20/2023 14:00	2,518	113.5	19.5	Subyearling
SST	Green Peter HOR Middle Santiam	9/21/2023 13:40	2,508	117.1	20.7	Subyearling
SST	Green Peter HOR Quartzville	10/3/2023 12:45	2,502	122.8	25.1	Subyearling
SST	Green Peter HOR Middle Santiam	10/4/2023 14:40	2,516	119.6	23.8	Subyearling
SST	Green Peter Tailrace	10/9/2023 16:05	4,002	125.9	26.4	Subyearling
SST	Foster Head of Reservoir	10/10/2023 14:20	5,000	125.8	24.5	Subyearling
SST	Foster Tailrace	10/11/2023 15:20	4,000	135.2	31.8	Subyearling
SST	Green Peter HOR Middle Santiam	2/21/2024 12:00	1,004	164.4	51.6	Yearling
SST	Green Peter HOR Quartzville	2/22/2024 11:45	1,014	150.8	40.2	Yearling
SST	Green Peter Mid Reservoir	2/22/2024 17:45	2,006	153.8	42.9	Yearling
SST	Green Peter Mid Reservoir	2/23/2024 10:40	2,003	159.4	46.5	Yearling
SST	Green Peter Tailrace	2/23/2024 14:15	1,014	163.4	50.1	Yearling
SST	Green Peter HOR Middle Santiam	3/6/2024 15:30	2,506	50.1	1.4	Fry

SST	Green Peter HOR Quartzville	3/6/2024 17:30	2,500	51.3	1.4	Fry
SST	Foster Head of Reservoir	3/26/2024 13:30	2,997	156.3	44.1	Yearling
SST	Foster Head of Reservoir	3/27/2024 11:00	3,001	145.3	38	Yearling
SST	Foster Tailrace	3/28/2024 13:30	3,005	154.6	43.8	Yearling
SST	Foster Tailrace	4/1/2024 12:55	2,991	156	44.3	Yearling
SST	Foster Head of Reservoir	4/4/2024 13:15	1,908	145.4	37.2	Yearling
SST	Green Peter HOR Middle Santiam	4/12/2024 11:50	2,350	52.4	1.5	Fry
SST	Green Peter HOR Quartzville	4/12/2024 13:15	2,500	54.9	1.7	Fry
SST	Foster Head of Reservoir	8/27/2024 13:40	2,000	119.5	17.5	Subyearling
SST	Foster Tailrace	8/27/2024 18:55	934	120	18	Subyearling
SST	Green Peter HOR Quartzville	9/9/2024 17:55	2,492	120.5	18.4	Subyearling
SST	Green Peter HOR Middle Santiam	9/10/2024 16:35	2,496	122.4	19.7	Subyearling
SST	Green Peter HOR Middle Santiam	10/8/2024 16:00	2,500	130.4	23	Subyearling
SST	Green Peter HOR Quartzville	10/9/2024 15:30	2,450	131.5	24.6	Subyearling
SST	Green Peter Tailrace	10/10/2024 15:30	3,999	133.2	26.3	Subyearling
SST	Foster Head of Reservoir	10/15/2024 13:45	4,994	137.5	28.6	Subyearling
SST	Foster Tailrace	10/15/2024 19:45	3,998	136.9	28.7	Subyearling
SST	Green Peter HOR Quartzville	2/27/2025 11:45	987	146.4	32.7	Yearling
SST	Green Peter HOR Middle Santiam	2/27/2025 17:20	984	153.6	41	Yearling
SST	Green Peter Mid Reservoir	2/28/2025 10:27	1,974	158.4	41.8	Yearling
SST	Green Peter Mid Reservoir	2/28/2025 14:54	1,979	156.9	39.1	Yearling
SST	Green Peter Tailrace	2/28/2025 20:16	986	160	41.8	Yearling
SST	Green Peter HOR Quartzville	3/12/2025 11:47	2,500	45.9	0.9	Fry
SST	Green Peter HOR Middle Santiam	3/12/2025 18:00	2,502	47	1	Fry
SST	Foster Head of Reservoir	3/25/2025 14:45	2,000	153.5	38.7	Yearling
SST	Foster Head of Reservoir	3/25/2025 20:10	2,000	163.6	45.5	Yearling
SST	Foster Tailrace	3/26/2025 13:20	1,000	159	46	Yearling
SST	Green Peter HOR Quartzville	4/1/2025 12:20	2,500	50	1.4	Fry
SST	Green Peter HOR Middle Santiam	4/1/2025 20:30	2,500	50	1.4	Fry
SST	Foster Head of Reservoir	4/10/2025 12:30	2,500	170	53	Yearling
SST	Foster Head of Reservoir	4/10/2025 19:25	2,500	170	53	Yearling
SST	Foster Tailrace	4/12/2025 15:30	2,000	163	44	Yearling

NST	Marion Forks Hatchery Escape	6/16/2023 12:00	1,247	66.5	3.4	Fry
NST	Detroit HOR - Breitenbush	7/13/2023 8:45	7,000	66.8	3.6	Fry
NST	Detroit HOR - North Santiam	7/13/2023 11:35	6,638	67	3.6	Fry
NST	Detroit HOR - Breitenbush	9/26/2023 10:45	5,002	106.5	11.8	Subyearling
NST	Detroit HOR - North Santiam	9/26/2023 16:00	4,997	102.6	10.4	Subyearling
NST	Big Cliff Tailrace	9/27/2023 15:30	8,009	106.5	11.9	Subyearling
NST	Big Cliff Tailrace	11/20/2023 16:50	5,998	112.4	16.6	Subyearling
NST	Detroit HOR - North Santiam	3/20/2024 14:45	2,000	128.4	25.5	Yearling
NST	Detroit HOR - Breitenbush	3/21/2024 11:15	2,000	124	21.3	Yearling
NST	Big Cliff Tailrace	3/21/2024 16:30	1,998	129.4	24.1	Yearling
NST	Detroit HOR - North Santiam	5/20/2024 12:00	7,530	47	1.2	Fry
NST	Detroit HOR - Breitenbush	5/20/2024 18:00	7,491	47	1.2	Fry
NST	Detroit HOR - Breitenbush	9/24/2024 15:45	5,004	103.2	12.9	Subyearling
NST	Detroit HOR - North Santiam	9/24/2024 17:35	4,997	104.2	13	Subyearling
NST	Big Cliff Tailrace	9/25/2024 16:20	7,998	101.3	12.1	Subyearling
NST	Big Cliff Tailrace	12/4/2024 18:15	2,458	101.3	12.1	Subyearling
NST	Big Cliff Tailrace	12/5/2024 18:00	3,539	110.6	15.3	Subyearling

Table 4. Summary of Unique PIT-Tag Detections Across Observation Locations in the Willamette and Columbia River Basins (May 2023–March 2025). Basins are abbreviated as MCK (McKenzie), MFW (Middle Fork Willamette), NST (North Santiam), and SST (South Santiam). Observation locations are abbreviated as follows: MCKESF (South Fork McKenzie, head of Cougar Reservoir), SFM (South Fork McKenzie above Cougar Reservoir), SFC (South Fork McKenzie below Cougar Dam), SID (Sauvie Island, Columbia River), Columbia (Columbia River mainstem), RICEIS (Rice Island, Columbia River), ASMEBR-Astoria (Astoria-Megler Bridge, Columbia River), WILRMF (Middle Fork Willamette River below Oakridge), CRESIS (Crescent Island, Columbia River), TTOWER (Transmission Towers near Troutdale, Columbia River), HANIS (Islands in the Hanford Reach, Columbia River), ML1 (Lower Mill Creek), ESANIS (East Sand Island, Columbia River), COLR1 (Columbia River, mouth to Three Tree Point, WA, km 0), COLR2 (Columbia River, Three Tree Point, WA to Lewis River, km 49), NSANTR (North Santiam River), MSANTR (Middle Santiam River), SSANTR (South Santiam River), QUARTC (Quartzville Creek), PIER3 (Pier 3, Columbia River).

Basin	Observation Location	Detection Method	Total	Reporting Period
MCK	ASMEBR - Astoria-Megler Bridge	Predation Mark Recovery	11	0
MCK	COLR1 - Columbia River - mouth to Three Tree Point, WA (km 0-49)	Predation Mark Recovery	1	0
MCK	COLR2 - Columbia River - Three Tree Point, WA to Lewis River (km 49-140)	Predation Mark Recovery	3	0
MCK	Cougar Dam Powerhouse	Screw Trap	155	0

MCK	Cougar Dam Regulating Outlet	Screw Trap	2,089	0
MCK	MCKESF - South Fork McKenzie River	Screw Trap	139	0
MCK	PD5 - Columbia River Estuary rkm 62	Instream Array	15	0
MCK	PD6 - Columbia River Estuary rkm 68	Instream Array	24	0
MCK	PD7 - Columbia River Estuary rkm 70	Instream Array	9	0
MCK	PD8 - Columbia River Estuary rkm 82	Instream Array	6	0
MCK	RICEIS - Rice Island	Predation Mark Recovery	1	0
MCK	SFC - Cougar Dam Tailrace SF McKenzie	Instream Array	254	0
MCK	SFM - South Fork McKenzie River	Instream Array	15	0
MCK	SID - Sauvie Island Dairy Creek	Instream Array	2	0
MCK	TWX - Estuary Towed Array (Exp.)	Towed Array	12	0
MFW	ASMEBR - Astoria-Megler Bridge	Predation Mark Recovery	29	0
MFW	COLR1 - Columbia River - mouth to Three Tree Point, WA (km 0-49)	Predation Mark Recovery	3	0
MFW	COLR2 - Columbia River - Three Tree Point, WA to Lewis River (km 49-140)	Predation Mark Recovery	5	0
MFW	CRESIS - Crescent Island, Columbia River	Predation Mark Recovery	1	0
MFW	Dexter Dam	Screw Trap	93	0
MFW	ESANIS - East Sand Island, Columbia River	Predation Mark Recovery	8	0
MFW	Fall Creek Dam	Screw Trap	711	0
MFW	Hills Creek Dam Powerhouse	Screw Trap	181	0
MFW	Hills Creek Dam Tailrace	Screw Trap	139	0
MFW	Lookout Point Dam	Fyke Net	1	0
MFW	Lookout Point Dam	Gillnet Fishery or Research	6	0
MFW	Lookout Point Dam	Screw Trap	254	0
MFW	MCKESF - South Fork McKenzie River	Screw Trap	1	0
MFW	PD5 - Columbia River Estuary rkm 62	Instream Array	42	0
MFW	PD6 - Columbia River Estuary rkm 68	Instream Array	91	0
MFW	PD7 - Columbia River Estuary rkm 70	Instream Array	43	0
MFW	PD8 - Columbia River Estuary rkm 82	Instream Array	21	0
MFW	RICEIS - Rice Island	Predation Mark Recovery	3	0
MFW	TTOWER - Transmission towers near Troutdale, OR	Predation Mark Recovery	3	0
MFW	TWX - Estuary Towed Array (Exp.)	Towed Array	74	0
MFW	WILRMF - Middle Fork Willamette River	Fyke Net	3	0

MFW	WILRMF - Middle Fork Willamette River	Screw Trap	42	0
NST	ASMEBR - Astoria-Megler Bridge	Predation Mark Recovery	11	0
NST	Big Cliff Dam	Screw Trap	125	0
NST	COLR2 - Columbia River - Three Tree Point, WA to Lewis River (km 49-140)	Predation Mark Recovery	5	0
NST	Cougar Dam Regulating Outlet	Screw Trap	1	0
NST	ESANIS - East Sand Island, Columbia River	Predation Mark Recovery	2	0
NST	HANIS - Islands in the Hanford Reach of the Middle Columbia River	Predation Mark Recovery	1	0
NST	ML1 - Lower Mill Creek (MILL4C)	Instream Array	1	0
NST	NSANTR - North Santiam River, Oregon	Bypass Sub-Sample	25	0
NST	NSANTR - North Santiam River, Oregon	Screw Trap	6	0
NST	PD5 - Columbia River Estuary rkm 62	Instream Array	39	4
NST	PD6 - Columbia River Estuary rkm 68	Instream Array	56	8
NST	PD7 - Columbia River Estuary rkm 70	Instream Array	16	0
NST	PD8 - Columbia River Estuary rkm 82	Instream Array	18	7
NST	RICEIS - Rice Island	Predation Mark Recovery	1	0
NST	SID - Sauvie Island Dairy Creek	Instream Array	32	0
NST	TTOWER - Transmission towers near Troutdale, OR	Predation Mark Recovery	3	0
NST	TWX - Estuary Towed Array (Exp.)	Towed Array	62	6
SST	ASMEBR - Astoria-Megler Bridge	Predation Mark Recovery	45	0
SST	COLR2 - Columbia River - Three Tree Point, WA to Lewis River (km 49-140)	Predation Mark Recovery	4	0
SST	DRM - Deschutes River mouth	Instream Array	1	1
SST	ESANIS - East Sand Island, Columbia River	Predation Mark Recovery	4	0
SST	Green Peter Dam	Screw Trap	129	0
SST	Lebanon Dam	Instream Array	535	10
SST	MSANTR - Middle Santiam River, Oregon	Fyke Net	5	0
SST	MSANTR - Middle Santiam River, Oregon	Gillnet Fishery or Research	76	0
SST	MSANTR - Middle Santiam River, Oregon	Screw Trap	169	0
SST	PD5 - Columbia River Estuary rkm 62	Instream Array	80	12
SST	PD6 - Columbia River Estuary rkm 68	Instream Array	87	17
SST	PD7 - Columbia River Estuary rkm 70	Instream Array	20	0
SST	PD8 - Columbia River Estuary rkm 82	Instream Array	52	24
SST	PIER3 - Pier 3 boat yard, Port of Astoria, OR	Predation Mark Recovery	1	0

SST	QUARTC - Quartzville Creek, tributary to Middle Santiam River	Fyke Net	3	0
SST	QUARTC - Quartzville Creek, tributary to Middle Santiam River	Gillnet Fishery or Research	5	0
SST	RICEIS - Rice Island	Predation Mark Recovery	1	0
SST	SSANTR - South Santiam River, Oregon	Screw Trap	26	0
SST	TTOWER - Transmission towers near Troutdale, OR	Predation Mark Recovery	1	0
SST	TWX - Estuary Towed Array (Exp.)	Towed Array	73	7

APPENDIX A. RELEASE SITE MAPS

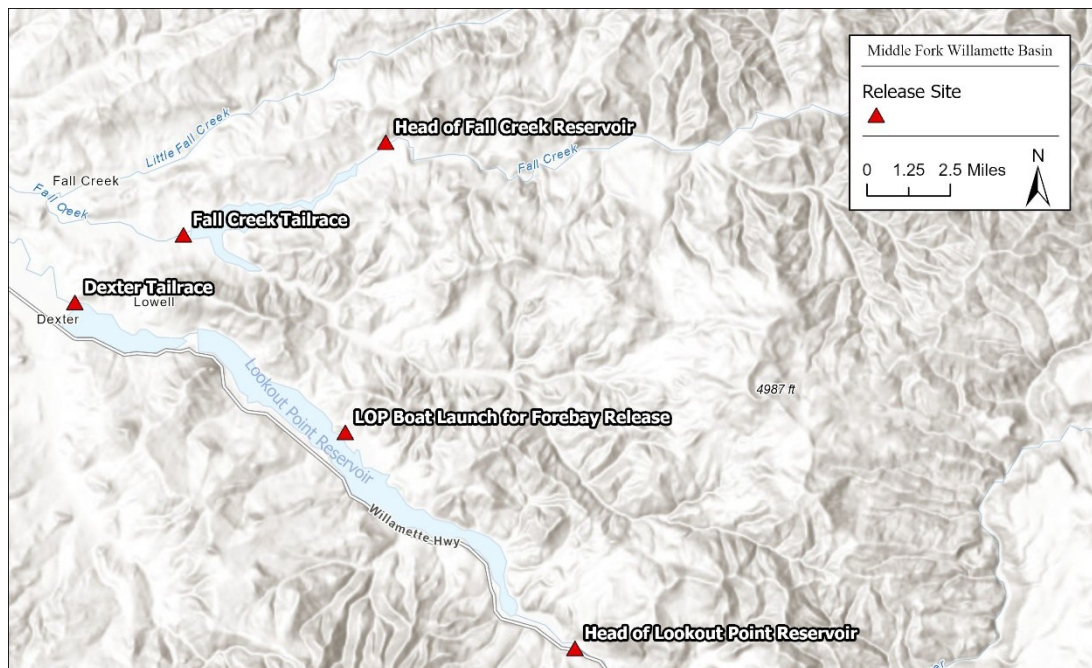


Figure A1. Map of LOP, Dexter tailrace and Fall Creek release locations within the Middle Fork Willamette Basin.

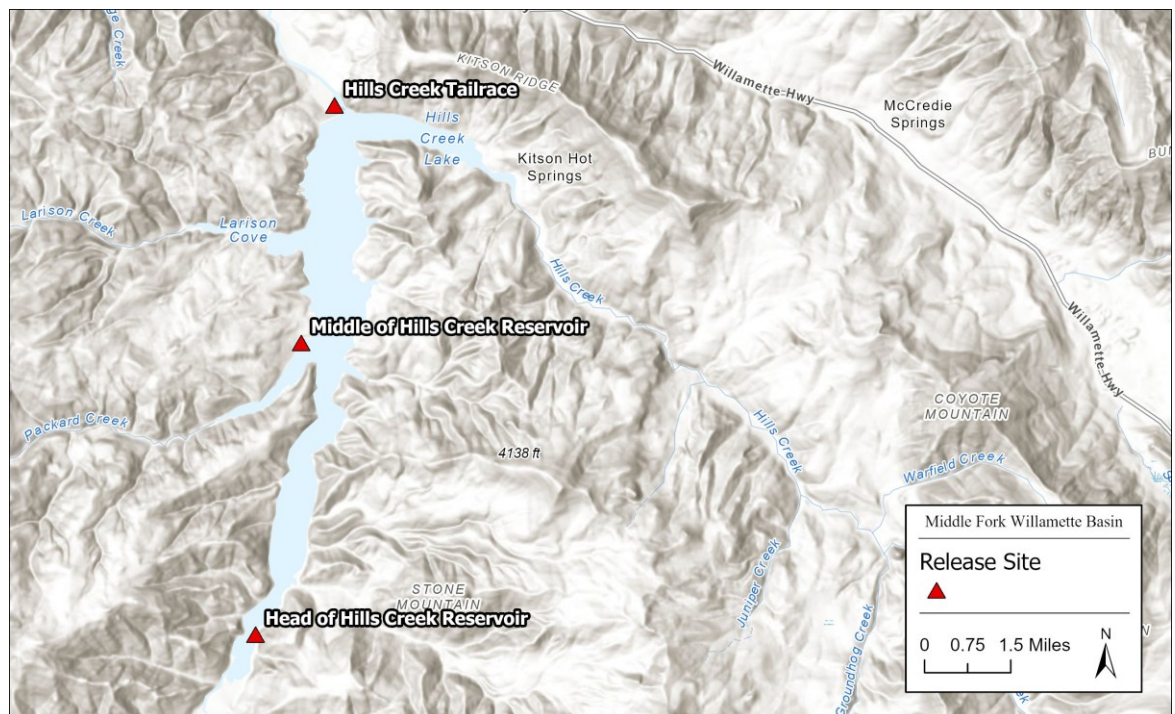


Figure A2. Map of Hills Creek Reservoir release locations within the Middle Fork Willamette Basin.

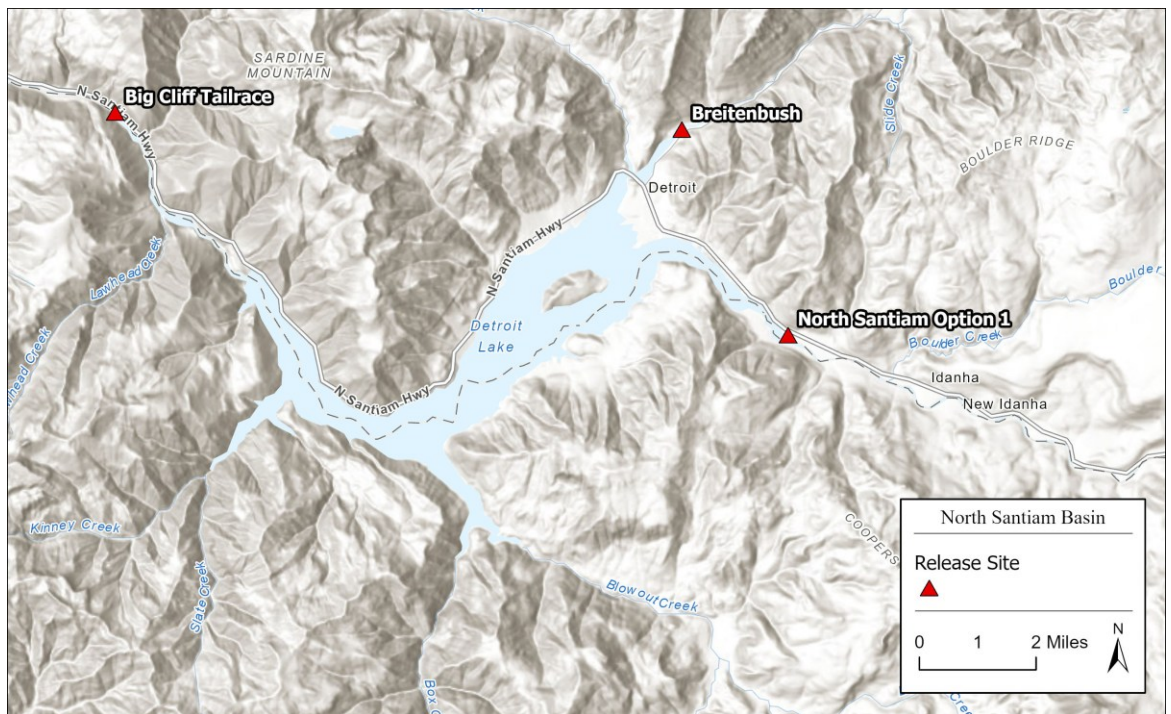


Figure A3. Map of release locations within the North Santiam Basin.

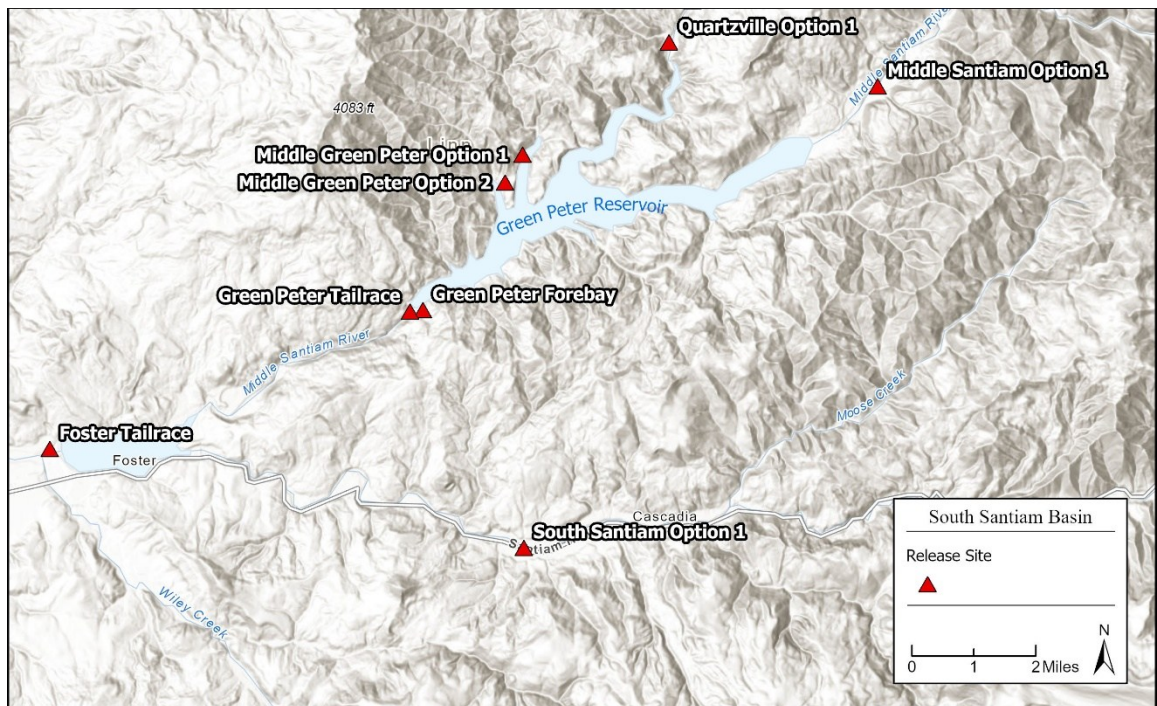


Figure A4. Map of release locations in the Middle/South Santiam basin including Green Peter Reservoir.

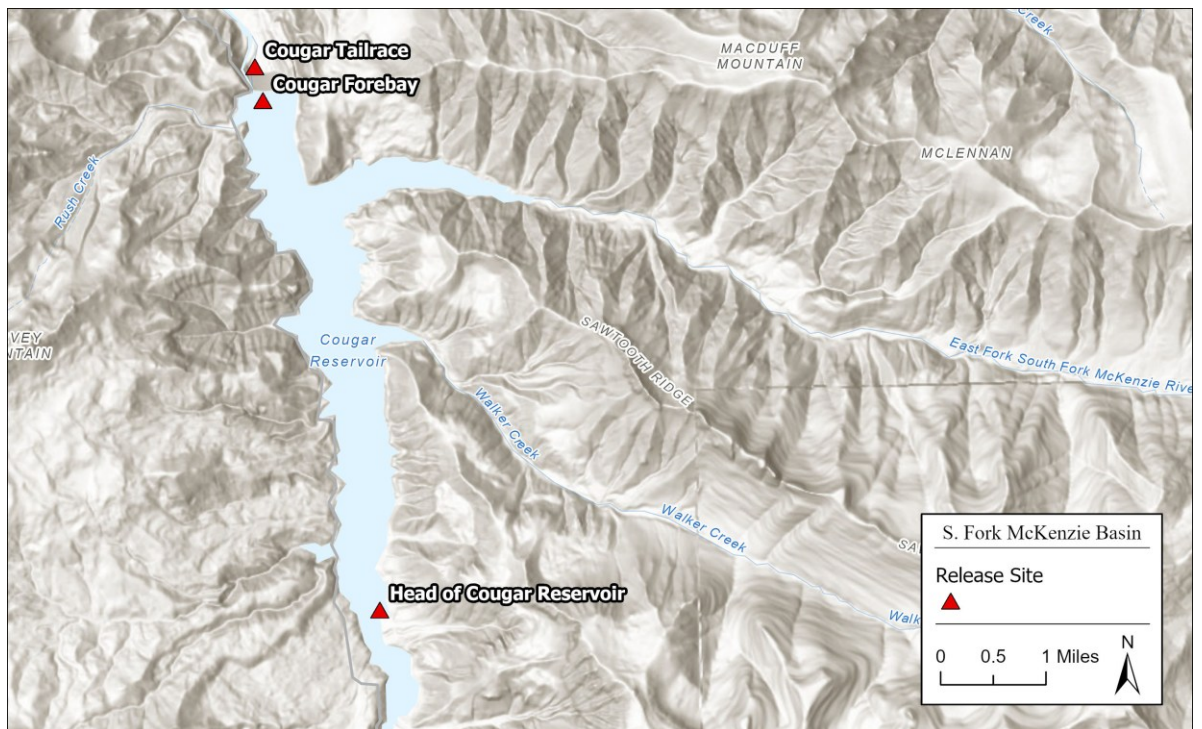


Figure A5. Map of release locations at Cougar Reservoir.

APPENDIX B. HATCHERY FISH SOURCED FROM ODFW HATCHERIES

Table B1. Total brood year 2023 ODFW hatchery fish released for rotary screw trap efficiency tests (EAS) and for the bulk marking project (CFS) through March 31, 2025.

Brood Year 2023 - Juvenile Chinook for RM&E							
Subbasin	Life Stage	Pickup Timing Bulk Releases ¹	Total Allocation ²	Total Used (EAS)	Total Used (CFS)	Total Used	Total Remaining
North Santiam (21H)	Fry	Late February - April 2024	16,500	-	15,021	15,021	1,479
	Subyearling	September - November 2024	47,000	15,580	23,996	39,576	7,424
	Yearling	Feb-25	17,000	13,691	6,000	19,691	(2,691)
	All	NA	80,500	29,271	45,017	74,288	6,212
South Santiam (24H)	Fry	Late February - April 2024	11,000	-	9,856	9,856	1,144
	Subyearling	August - October 2024	70,000	24,750	25,863	50,613	19,387
	Yearling	Feb-25	40,000	26,759	12,002	38,761	1,239
	All	NA	121,000	51,509	47,721	99,230	21,770
McKenzie (23H)	Fry	February-April 2024	1,900	-	-	-	1,900
	Subyearling	September-November 2024	4,500	6,250	-	6,250	(1,750)
	Yearling	February-March 2025	-	-	-	-	-
	All	NA	6,400	6,250	-	6,250	150
M. Fork Willamette (22H)	Fry	February-May 2024	-	-	-	-	-
	Subyearling	August-November 2024	8,000	8,000	-	8,000	-
	Yearling	January-February 2025	-	-	-	-	-
	All	NA	8,000	8,000	-	8,000	-

1 - Stated pickup timing is for bulk release groups. Fish will be picked up at least once per month year-round for screw trap efficiency trials.

2 - Total numbers includes all fish needed for RM&E purposes per Brood Year (i.e., annual basis) and will come from a combination of 'routine production' and 'additional production for RM&E'. Numbers have been rounded up for general planning purposes as 'extra' fish are needed to account for tagging and holding studies.