

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

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Bi-Weekly Report: July 16, 2023 – July 31, 2023



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## BULK MARKING SCHEDULE

Table 1. Tentative release schedule for brood year 2022. 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.

Release Year	Release Date (estimated)	Release Basin	Release Area	Release Location	Life stage	N
2023	February	North Santiam	Detroit Reservoir	Breitenbush River	fry	3750
2023	February	North Santiam	Detroit Reservoir	North Santiam River	fry	3750
2023	March	MF Willamette	Fall Creek Reservoir	Head of Reservoir	fry	5000
2023	March	MF Willamette	Lookout Point Reservoir	Head of Reservoir	fry	5000
2023	March	MF Willamette	Hills Creek Reservoir	Head of Reservoir	fry	5000
2023	March	SF McKenzie	Cougar Reservoir	Head of Reservoir	fry	5000
2023	March	SF McKenzie	Cougar Reservoir	Head of Reservoir	fry	5000
2023	March	MF Willamette	Fall Creek Reservoir	Head of Reservoir	fry	5000
2023	April	MF Willamette	Lookout Point Reservoir	Head of Reservoir	fry	5000
2023	April	North Santiam	Detroit Reservoir	Breitenbush River	fry	3750
2023	April	North Santiam	Detroit Reservoir	North Santiam River	fry	3750
2023	April	South Santiam	Green Peter Reservoir	Head of Middle Santiam Arm	fry	2500
2023	April	South Santiam	Green Peter Reservoir	Head of Quartzville Creek Arm	fry	2500
2023	April	MF Willamette	Hills Creek Reservoir	Head of Reservoir	fry	5000
2023	April	South Santiam	Green Peter Reservoir	Head of Middle Santiam Arm	fry	2500
2023	April	South Santiam	Green Peter Reservoir	Head of Quartzville Creek Arm	fry	2500
2023	August	South Santiam	Foster Reservoir	Tailrace	sub-yearling	1000
2023	August	South Santiam	Foster Reservoir	Head of Reservoir	sub-yearling	2000
2023	September	MF Willamette	Dexter Reservoir	Tailrace	sub-yearling	2000
2023	September	MF Willamette	Lookout Point Reservoir	Head of Reservoir	sub-yearling	5000
2023	September	MF Willamette	Lookout Point Reservoir	Forebay	sub-yearling	5000
2023	September	SF McKenzie	Cougar Reservoir	Head of Reservoir	sub-yearling	3000
2023	September	South Santiam	Green Peter Reservoir	Head of Middle Santiam Arm	sub-yearling	2500
2023	September	South Santiam	Green Peter Reservoir	Head of Quartzville Creek Arm	sub-yearling	2500
2023	October	North Santiam	Big Cliff Reservoir	Big Cliff Reservoir Tailrace	sub-yearling	8000
2023	October	North Santiam	Detroit Reservoir	Breitenbush River	sub-yearling	5000
2023	October	North Santiam	Detroit Reservoir	North Santiam River	sub-yearling	5000
2023	October	MF Willamette	Fall Creek Reservoir	Head of Reservoir	sub-yearling	5000
2023	October	MF Willamette	Fall Creek Reservoir	Tailrace	sub-yearling	1000
2023	October	SF McKenzie	Cougar Reservoir	Forebay	sub-yearling	5000
2023	October	SF McKenzie	Cougar Reservoir	Tailrace	sub-yearling	4000
2023	October	SF McKenzie	Cougar Reservoir	Head of Reservoir	sub-yearling	4000
2023	October	South Santiam	Green Peter Reservoir	Tailrace	sub-yearling	4000
2023	October	South Santiam	Green Peter Reservoir	Head of Middle Santiam Arm	sub-yearling	2500
2023	October	South Santiam	Green Peter Reservoir	Head of Quartzville Creek Arm	sub-yearling	2500
2023	October	South Santiam	Foster Reservoir	Tailrace	sub-yearling	4000
2023	October	South Santiam	Foster Reservoir	Head of Reservoir	sub-yearling	5000

2023	November	MF Willamette	Fall Creek Reservoir	Head of Reservoir	sub-yearling	5000
2023	November	MF Willamette	Fall Creek Reservoir	Tailrace	sub-yearling	1000
2023	November	North Santiam	Big Cliff Reservoir	Tailrace	sub-yearling	6000
2023	November	SF McKenzie	Cougar Reservoir	Forebay	sub-yearling	5000
2023	November	SF McKenzie	Cougar Reservoir	Tailrace	sub-yearling	4000
2023	November	SF McKenzie	Cougar Reservoir	Head of Reservoir	sub-yearling	4000
2023	November	MF Willamette	Hills Creek Reservoir	Head of Reservoir	sub-yearling	5000
2023	November	MF Willamette	Hills Creek Reservoir	Tailrace	sub-yearling	3000
2023	November	MF Willamette	Hills Creek Reservoir	Forebay or Mid Reservoir	sub-yearling	5000
2024	February	MF Willamette	Hills Creek Reservoir	Head of Reservoir	yearling	5000
2024	February	MF Willamette	Hills Creek Reservoir	Tailrace	yearling	3000
2024	February	MF Willamette	Hills Creek Reservoir	Forebay or Mid Reservoir	yearling	5000
2024	February	MF Willamette	Fall Creek Reservoir	Head of Reservoir	yearling	5000
2024	February	MF Willamette	Fall Creek Reservoir	Tailrace	yearling	1000
2024	March	MF Willamette	Lookout Point Reservoir	Head of Reservoir	yearling	5000
2024	March	MF Willamette	Dexter Reservoir	Tailrace	yearling	2000
2024	March	MF Willamette	Lookout Point Reservoir	Forebay	yearling	5000
2024	February	SF McKenzie	Cougar Reservoir	Forebay	yearling	2000
2024	February	SF McKenzie	Cougar Reservoir	Tailrace	yearling	1000
2024	February	SF McKenzie	Cougar Reservoir	Head of Reservoir	yearling	2000
2024	March	SF McKenzie	Cougar Reservoir	Forebay	yearling	2000
2024	March	SF McKenzie	Cougar Reservoir	Tailrace	yearling	1000
2024	March	SF McKenzie	Cougar Reservoir	Head of Reservoir	yearling	2000
2024	March	MF Willamette	Fall Creek Reservoir	Head of Reservoir	yearling	5000
2024	March	MF Willamette	Fall Creek Reservoir	Tailrace	yearling	1000
2024	March	MF Willamette	Lookout Point Reservoir	Head of Reservoir	yearling	5000
2024	March	MF Willamette	Dexter Reservoir	Tailrace	yearling	2000
2024	March	MF Willamette	Lookout Point Reservoir	Forebay	yearling	5000
2024	April	North Santiam	Big Cliff Reservoir	Tailrace	yearling	2000
2024	April	North Santiam	Detroit Reservoir	Breitenbush River	yearling	2000
2024	April	North Santiam	Detroit Reservoir	North Santiam River	yearling	2000

## BULK MARKING SUMMARY

During the last reporting period, we focused on the impact that a furunculosis outbreak had on our tagging operations in the North Santiam Basin. Thankfully, we were able to successfully resume tagging by treating the fish with medicated feed. A total of 30,680 juvenile Chinook salmon were tagged at the Marion Forks hatchery. These tagged fish will be held in an outdoor circular tank until their release in the upcoming fall and spring.

After completing the tagging operations at Marion Forks, we moved our venue back to the Willamette Hatchery in Oakridge, Oregon, and began tagging the fall release groups of Middle Fork Willamette stock Chinook salmon. During this reporting period, we tagged a total of 13,381 Middle Fork Willamette stock fish. Our plan is to continue tagging the remaining fall release groups for the Middle Fork Willamette, and then

switch to tagging all of the fall release groups for the South Santiam (which are also held at the Willamette hatchery). Once the Middle Fork Willamette and South Santiam fall release groups have been tagged, we will head to Leaburg and commence tagging the McKenzie fall releases.

## **Recaptures**

There were no new recaptures during this reporting period. There have been four recaptures of PIT tagged fish so far this year (Table 4). One recapture occurred at the Green Peter Tailrace rotary screw trap, one fish was recaptured in an Oneida net in Lookout Point Reservoir, and two fish were recaptured at the Detroit Head of Reservoir – North Santiam River RST.

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	Morts	Mort. %	Sheds	Shed %
Green Peter Head of Reservoir - Middle Santiam Arm	5,071	56.1		5/15/2023	5/16/2023	74	1.46	32	0.63
Green Peter Head of Reservoir - Quartzville Creek Arm	5,203	58.5		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	64.6	2.9	5/30/2023	6/1/2023	22	0.22	9	0.09
Fall Creek Head of Reservoir	10,040	67.3	3.2	6/1/2023	6/7/2023	68	0.68	30	0.30
Detroit Head of Reservoir - Breitenbush Arm	7,530	66.9	3.6	6/13/2023	6/14/2023	TBD	TBD	TBD	TBD
Detroit Head of Reservoir - North Santiam Arm	7,528	66.9	3.6	6/14/2023	6/15/2023	TBD	TBD	TBD	TBD
Cougar Head of Reservoir	3,553	67.7	3.5	6/20/2023	6/20/2023	TBD	TBD	TBD	TBD
North Santiam Basin – Fall 2023 and Spring 2024	30,680	67.3	3.5	6/26/2023	7/20/2023	TBD	TBD	TBD	TBD
Middle Fork Willamette – Fall 2023 and Spring 2024	13,381	NA	NA	7/26/2023	NA	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.

Release Location	Release Date	N	Transport Temp Start (C)	Transport Temp End (C)	Release Site Temp (C)
Green Peter Head of Reservoir - Quartzville Creek Arm	5/22/2023 14:35	5,167	12	13.2	18
Green Peter Head of Reservoir - Middle Santiam Arm	5/22/2023 20:35	4,965	11.9	12.9	18.3
Lookout Point Head of Reservoir - Black Canyon Boat Ramp	5/30/2023 10:35	9,651	11.9	12.5	13.2
Hills Creek Head of Reservoir - Bingham Boat Ramp	6/5/2023 10:35	9,817	12.9	13.2	11.4
Fall Creek Head of Reservoir	6/12/2023 15:00	9,642	16.5	17.4	19
Lookout Point Head of Reservoir - Black Canyon Boat Ramp	6/12/2023 10:20	300	13.6	13.9	14.8
Hills Creek Head of Reservoir - Bingham Boat Ramp	6/12/2023 12:00	288	14.4	15.1	15.1
North Santiam River - Marion Forks Hatchery Escapees	6/16/2023 - 7/13/2023	1,251	NA	NA	NA

North Santiam River - Pullout at Blowout Road Bridge	7/13/2023 11:35	6,638	11.5	13.1	13
Breitenbush River - Adult Release Facility	7/13/2023 9:45	7,002	11.5	11.8	12.5

Table 4. PIT tag recoveries.

PIT ID	Release Date	Release Location	Recapture Date	Recapture Location	Travel Time
3D6.15348025F1	5/22/2023	Green Peter Head of Reservoir - Middle Santiam Arm	5/28/2023	Green Peter Tailrace Rotary Screw Trap	6 days
3DD.003E4BA25E	NA	Marion Forks Hatchery Escape - Horn Creek	6/17/2023	North Santiam River Rotary Screw Trap	NA
3D6.15348010F9	5/30/2023	Lookout Point Head of Reservoir	6/27/2023	Lookout Point Reservoir Trap Net	28 days
3D6.15348426D4	NA	Marion Forks Hatchery Escape - Horn Creek	7/1/2023	North Santiam River Rotary Screw Trap	NA

## Reservoir Distribution Summary

Reservoir sampling did not occur during this reporting period as our crews transitioned from fishing trap nets to gill nets. It took longer than anticipated to acquire the gill nets, and we faced difficulties sourcing materials to assemble and test deploy the gill nets. We acquired and built out a total of 17 gill nets, allowing us to have a separate set of gill nets for each reservoir. Gill netting commenced on July 31<sup>st</sup> and will be discussed during the next reporting period.

Table 5. Start and end date by statistical week.

Week	Start	End	Reservoir	Net Type	Effort
24	6/11/2023	6/17/2023	Green Peter	oneida	47.7 hours
25	6/18/2023	6/24/2023	Green Peter	box minnow	746.5 hours
25	6/18/2023	6/24/2023	Green Peter	oneida	304.1 hours
26	6/25/2023	7/1/2023	Lookout Point	box minnow	682.7 hours
26	6/25/2023	7/1/2023	Lookout Point	oneida	217.1 hours
27	7/2/2023	7/8/2023	Green Peter	box minnow	689.1 hours
27	7/2/2023	7/8/2023	Green Peter	oneida	298.0 hours
28	7/9/2023	7/15/2023	Lookout Point	box minnow	642.5 hours
28	7/9/2023	7/15/2023	Lookout Point	oneida	210.6 hours
29	7/16/2023	7/22/2023	NA	NA	0 hours
30	7/23/2023	7/29/2023	NA	NA	0 hours

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

Week	Reservoir	Mean Water Surface Temperature °C
24	Green Peter	20.5
25	Green Peter	21.1
26	Lookout Point	21.7
27	Green Peter	24.1
28	Lookout Point	23.3

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.

Week	Reservoir	Species	Catch
24	Green Peter	BLC	1
24	Green Peter	BLG	128
24	Green Peter	SMB	2
25	Green Peter	BLC	1
25	Green Peter	BLG	220
25	Green Peter	CUT	1
25	Green Peter	LMB	52

25	Green Peter	NPM	1
25	Green Peter	SMB	6
26	Lookout Point	BLG	8,587
26	Lookout Point	CHS	9
26	Lookout Point	LMB	1
26	Lookout Point	LSS	1
26	Lookout Point	SMB	283
26	Lookout Point	WAL	19
27	Green Peter	BLC	1
27	Green Peter	BLG	253
27	Green Peter	CUT	2
27	Green Peter	LMB	2
27	Green Peter	NPM	2
27	Green Peter	SMB	25

Table 8. Detailed catch summary of target species.

Week	Reservoir	Zone	Species	Catch	length_min	length_mean	length_max
26	Lookout Point	MIDDLE	CHS	4	80	87.2	92
26	Lookout Point	UPPER	CHS	5	73	83.6	95
28	Lookout Point	UPPER	CHS	8	77	84.8	100

## Appendix A. Release Site Maps

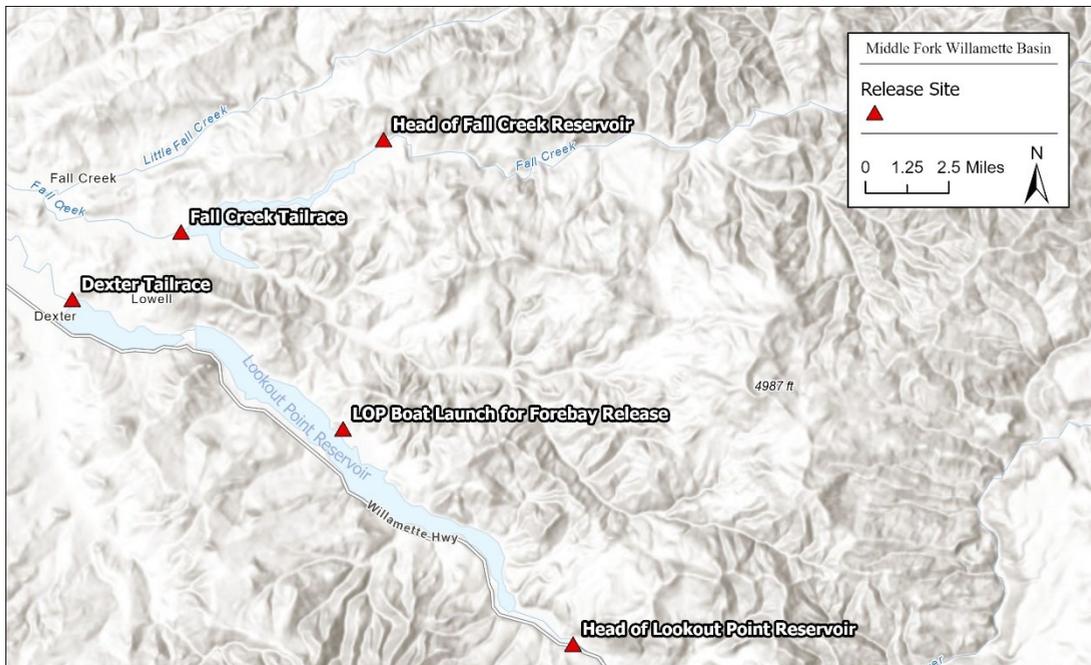


Figure 1. Map of Lookout Point, Dexter tailrace and Fall Creek release locations within the Middle Fork Willamette Basin.

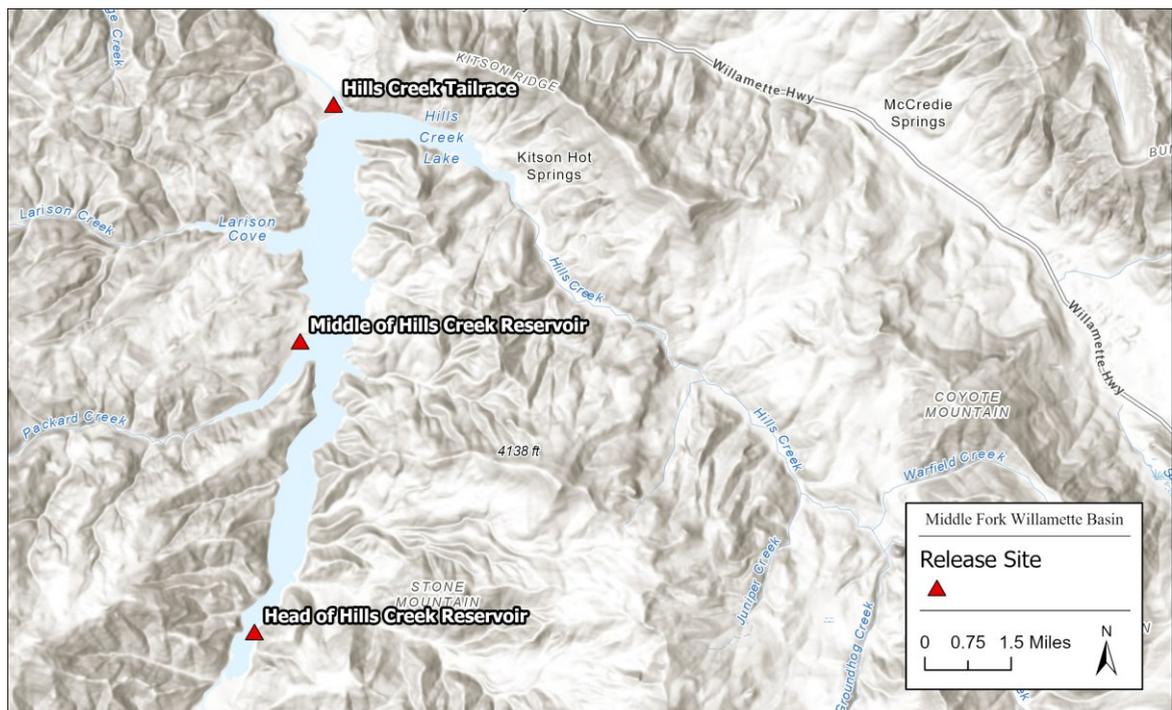


Figure 2. Map of Hills Creek Reservoir release locations within the Middle Fork Willamette Basin.

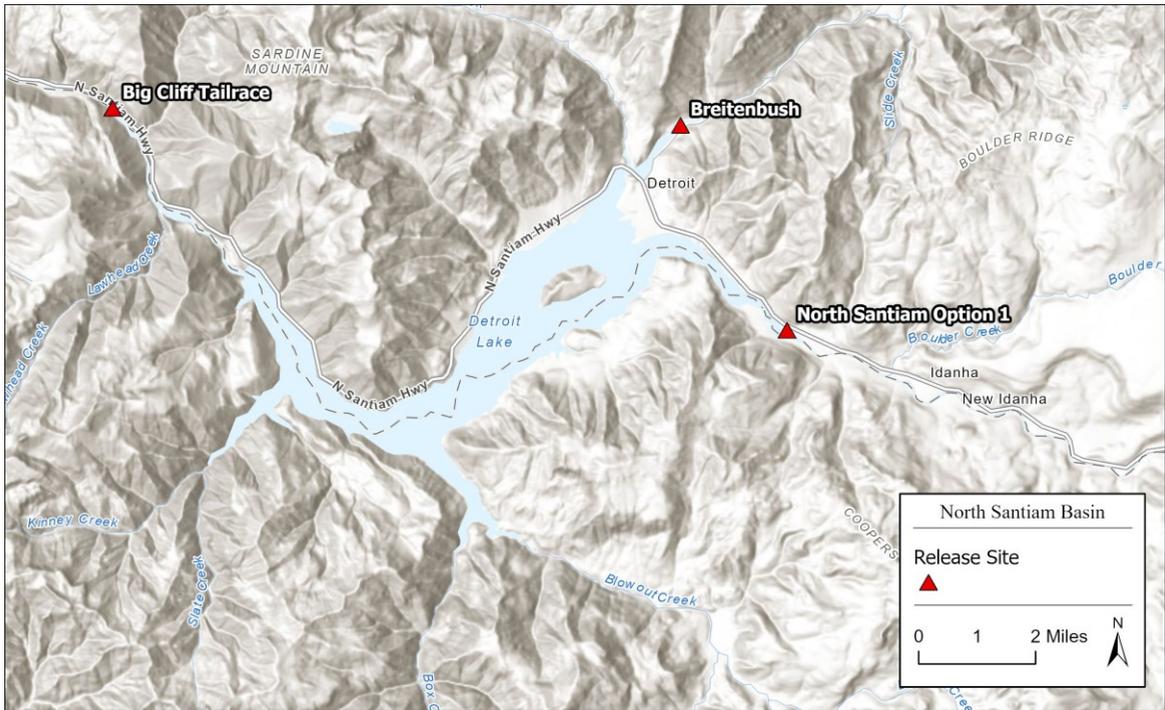


Figure 3. Map of release locations within the North Santiam Basin.

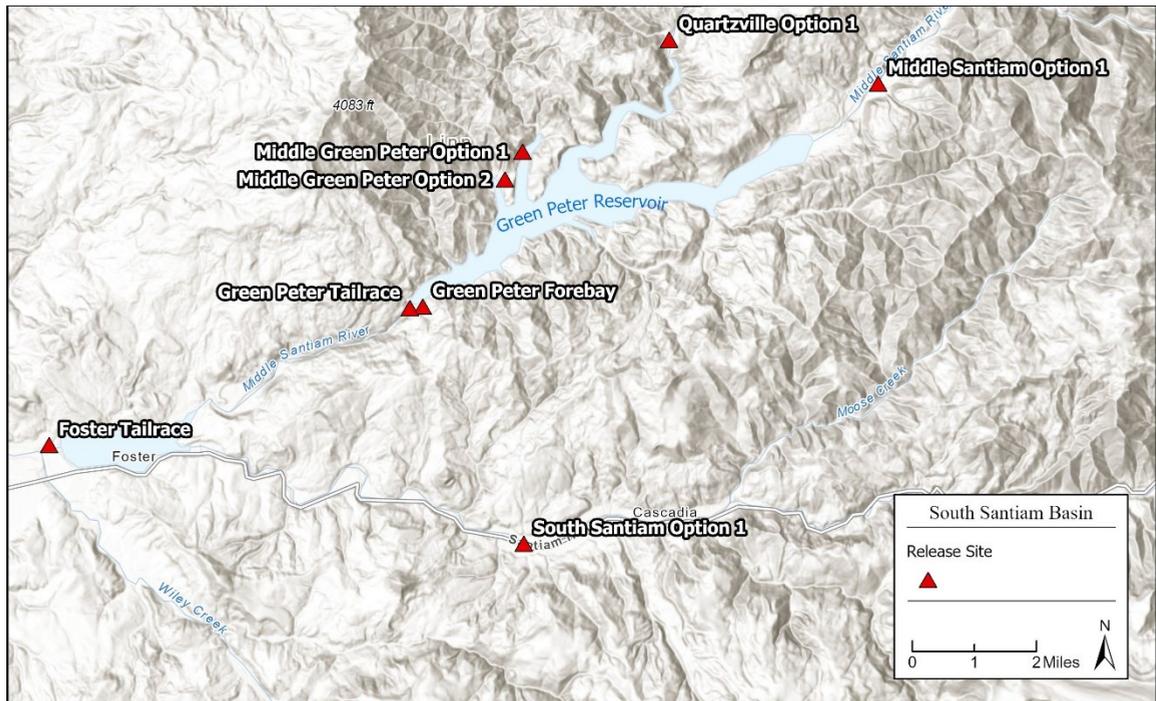


Figure 4. Map of release locations in the Middle/South Santiam basin including Green Peter Reservoir.

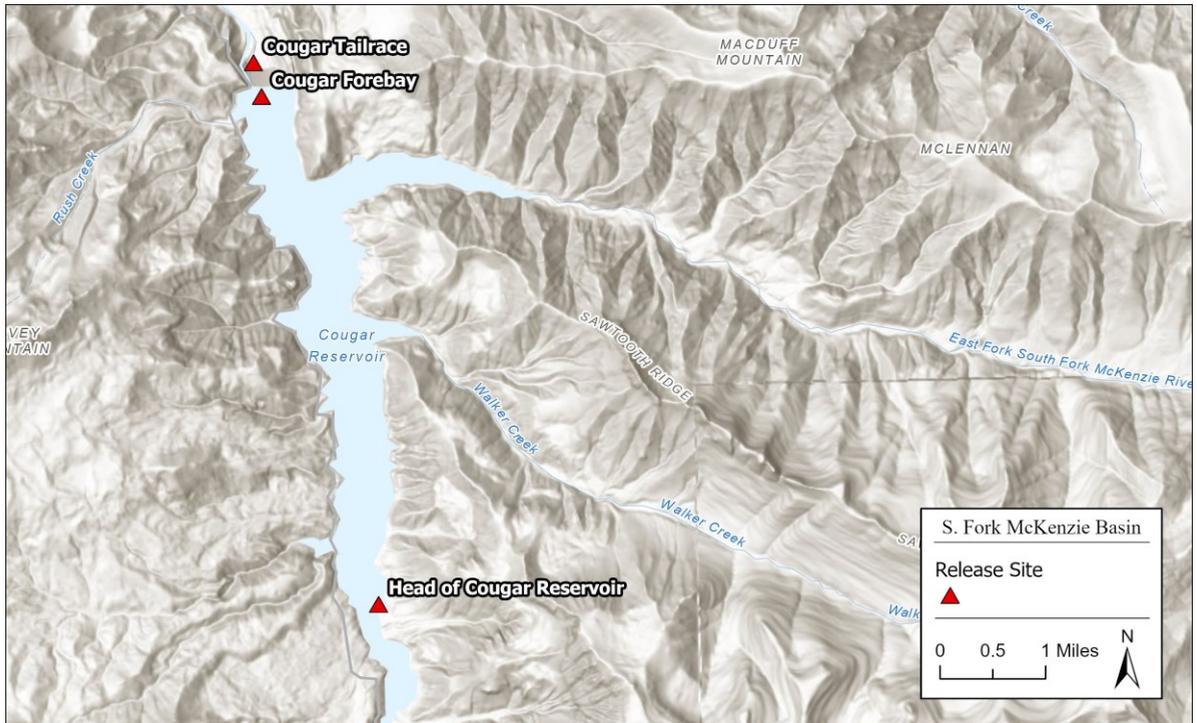


Figure 5. Map of release locations at Cougar Reservoir.

## Appendix B. Reservoir Sampling Zones

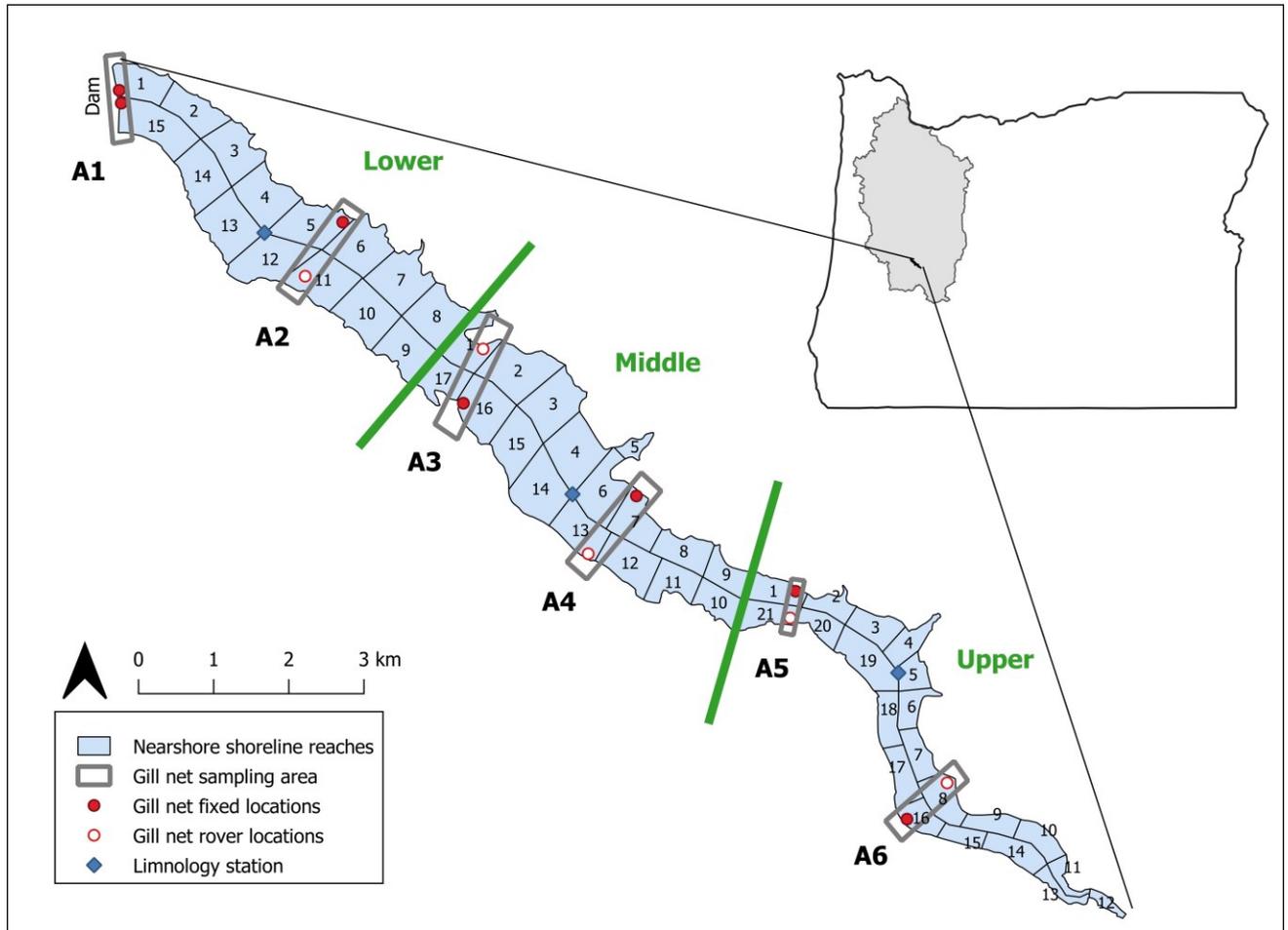


Figure 6. Map of Lookout Point Reservoir nearshore shoreline reaches, reservoir zones (lower, middle and upper), gill netting sampling areas and limnological stations.

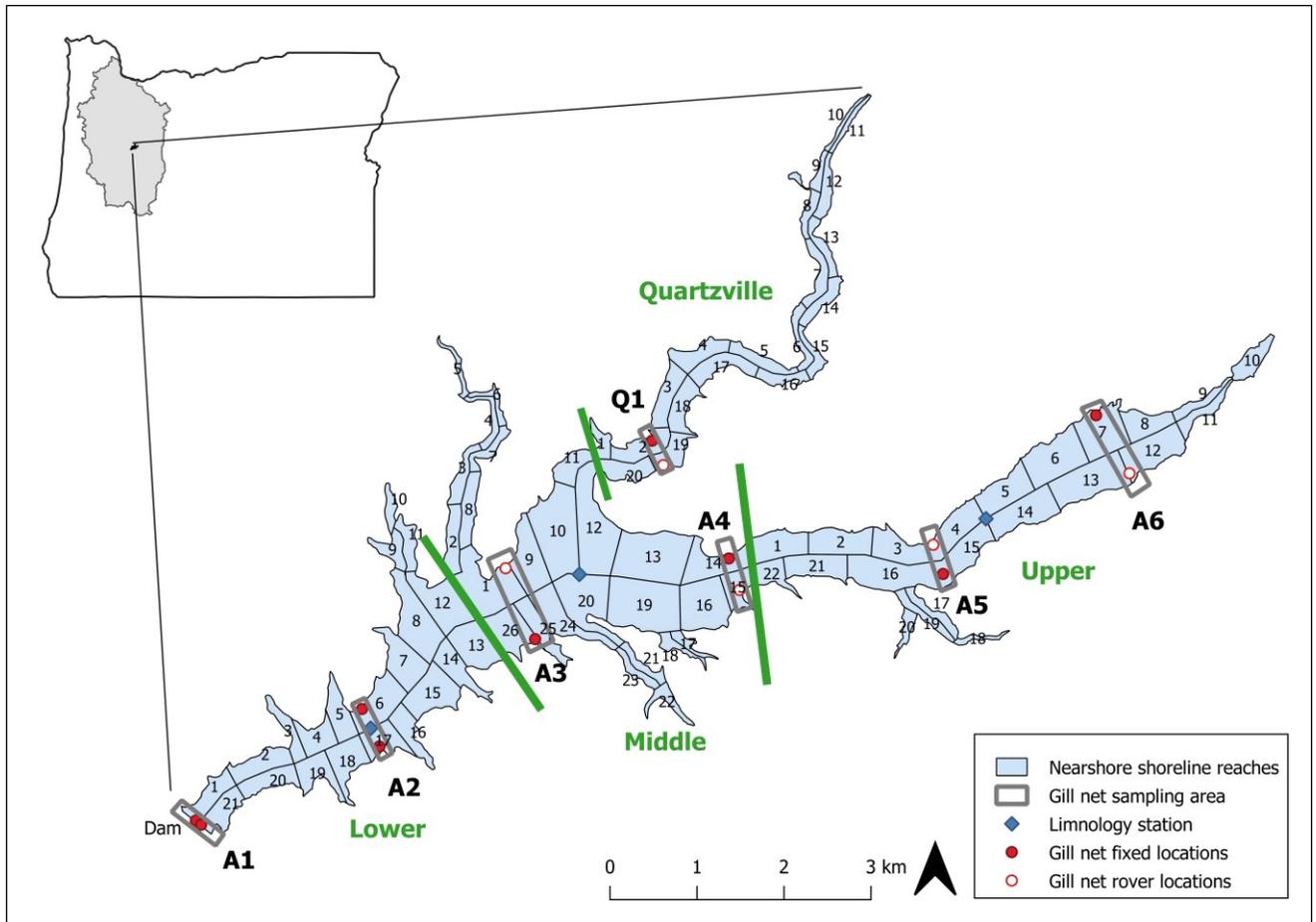


Figure 7. Map of Green Peter Reservoir nearshore shoreline reaches, reservoir zones (lower, middle and upper), gill netting sampling areas and limnological stations.