THE OREGON PLAN for Salmon and Watersheds

Western Oregon Adult Coho Salmon,
2020 Spawning Survey Data Report

Report Number: OPSW-ODFW-2021-3

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SUMMARY

This report provides a summary of results from Coho Salmon spawning ground surveys conducted in Lower Columbia (Oregon side only) and Oregon Coast basins during the 2020 spawning season. For a discussion of the history, goals and methods of this long-term monitoring effort see prior reports (e.g., Sounhein et al. 2017). Results in this report are based on data from randomly selected spawning ground surveys as well as alternative methods in areas without random sampling. Results for Coho Salmon standard spawning ground surveys and spawning surveys for other species are covered in data summaries and reports posted on an Oregon Department of Fish and Wildlife (ODFW) web page (see: http://odfw.forestry.oregonstate.edu/spawn/index.htm).

In response to budget reductions and safety concerns resulting from the COVID-19 pandemic, there was a large reduction in the typical level of spawning survey effort for Oregon's Coho Salmon populations. With this level of reduced effort in the 2020 season we only reached 51% to 61% (respectively) of the goal for randomly selected Coho Salmon Spawning surveys in the Lower Columbia River (LCR) Coho Evolutionary Significant Unit (ESU) and the Oregon Coast (OC) Coho ESU. This level of effort was insufficient to produce reliable abundance estimates at the population scale, so only strata and ESU scale estimates are reported for 2020. There are five population scale abundance estimates reported for the 2020 season. These include the Clatskanie population (LCR Coho ESU - logistics), the three lakes populations (OC Coho ESU - calibrated standard surveys) and the North Umpqua population (OC Coho ESU – dam count).

There was a distinct geographic cline in 2020 wild adult Coho spawner abundance (as a percent of average); 231% of the 18-year average in the LCR Coho ESU, 88% of the 30-year average in the OC Coho ESU, and 21% of the 26-year average in the Southern Oregon/Northern California Coast (SONCC) Coho ESU. In the Oregon portion of the LCR Coho ESU survey effort was insufficient to meet the precision goal at any spatial scale. In the OC Coho ESU sufficient surveys were conducted to meet the precision goal for the ESU and 2 of 4 strata. Randomly selected Coho Salmon spawning surveys were not conducted in the SONCC Coho ESU, and abundance monitoring is based on the Huntley Park seining estimate.

INTRODUCTION AND METHODS

Monitoring of Western Oregon adult Coho Salmon typically occurs at three hierarchical spatial scales: Evolutionary Significant Unit; stratum; and population. There are three Coho Salmon ESUs located entirely or partially within the State of Oregon: the Lower Columbia River Coho ESU; the Oregon Coast Coho ESU; and the Southern Oregon/Northern California Coast Coho ESU. Boundaries and population structures of the Oregon Coho Salmon ESUs are presented in Figure 1. This report summarizes results for Coho Salmon populations in the portion of each ESU within Oregon.

A brief history of sampling designs is available in prior years ODFW status reports (Sounhein et al. 2017). Field methods for establishing and conducting salmon spawning ground

surveys are described in ODFW procedures manuals (ODFW 2019 and ODFW 2020, respectively). The trapezoidal Area-Under-the-Curve (AUC) technique is used to estimate the number of adult Coho Salmon spawning in each stream segment throughout the spawning season (Jacobs et al. 2002). Prior years status reports provide a more detailed description of how spawner estimates are derived (Jacobs et al 2002, Lewis et al. 2009), the criteria used for determining if sites are included in the estimate (Lewis et al. 2009, Sounhein et al 2015), methods for determining the proportion of hatchery origin spawners (pHOS) in naturally spawning populations (Lewis et al. 2009, Lewis et al. 2011), and the analysis methods for other metrics included in this report (Lewis et al. 2009, Lewis et al 2012).

In areas where surveys are not conducted, other sources of monitoring data are used to document the number of adult Coho Salmon spawners. These include dam counts, mark-recapture estimates, and regressions of standard survey data to abundance estimates. Historically, there have been five such locations in the LCR Coho ESU including: one dam (River Mill on the Clackamas River), three hatchery weirs (Big Creek, Klaskanine, and Sandy hatcheries), and one Oregon Plan for Salmon and Watersheds (OPSW) life-cycle monitoring site (Bonnie Falls Trap). In these locations, counts of adult Coho Salmon passed up-stream are added to the estimated abundance of Coho Salmon spawners below the facilities. However, in 2019 operations at the Bonnie Falls trap were discontinued, and a regression analysis was used to estimate the 2019 Bonnie Falls count. Starting in 2020 the area above the Bonnie Falls trap location has been included in the regular spawning survey effort.

In the OC Coho ESU, random spawning ground surveys are conducted in most areas, except for the North Umpqua River above Winchester Dam and above the Alsea Hatchery weir. Winchester Dam counts and results of surveys below the dam, are used to document the number of adult Coho Salmon spawners in the North Umpqua population. The Winchester Dam count is adjusted for Coho Salmon collected and retained at Rock Creek Hatchery, and for angler harvest of Coho Salmon in the North Umpqua River above Winchester Dam. The count of Coho Salmon passed above the Alsea Hatchery weir is added to the corresponding spawning survey estimates (Population, Stratum, and ESU) in the OC Coho ESU. Coho Salmon spawner abundances for the Lakes stratum are calculated using regressions of long-term standard surveys to historic mark-recapture studies and habitat measurements for those locations (Jacobs et.al. 2002).

Long-term monitoring of Coho Salmon spawners in the SONCC Coho ESU currently relies on a mark-recapture effort, based on adipose fin-clipped Coho Salmon. Details of this method are described in Jacobs et.al. (2002); the method provides an estimate of adult Coho Salmon escapement to the Rogue basin above Huntley Park (river mile 8). These estimates are adjusted for Coho Salmon collected and retained at Cole Rivers Hatchery, as well as angler harvest in the Rogue basin above Huntley Park.

In addition to the surveys used in the abundance estimates, “calibration” surveys are conducted in the Mill Creek, Yaquina (not done in 2020) and Mill Creek, Siletz sub-basins to test the accuracy of survey-based AUC estimates. The purpose of these surveys is to compare known passage or mark-recapture estimates, with survey-based AUC estimates using a Generalized Random Tessellation Stratified (GRTS) survey site selection methodology.

RESULTS

Results include data from random spawning ground surveys and data from other sources where random surveys are not conducted. Results are presented in Bullets, Tables and Figures. Results are summarized by Coho Salmon ESU, in four categories: Survey Effort, Spawner Abundance, Distribution and Timing, and Hatchery Proportion. Spatially, results are reported by ESU, stratum, and some constituent Coho Salmon populations. The individual components that comprise the results can be found in Appendices A, B, and C (by Coho Salmon ESU). Ancillary data is presented in Appendix D.

Stream flow levels in the 2020 season were generally below average from September through Mid-December, and above average after that in all three Oregon Coho ESU's. In all areas there was a flow peak in Mid-November, followed by several flow peaks from Mid-December through the end of the season. Temperatures over the course of the season went from, near normal to slightly above normal, with a transition in November. Precipitation was generally below average for most of the season, increasing to slightly above average. These weather patterns were generally conducive to conducting spawning ground surveys but did challenge survey methods in some areas. In 2020, the unsuccessful survey rate was greater than the previous 10-year average rate (plus one standard deviation) in the Salmon River, Coquille and all four Umpqua populations. Thus, relaxed inclusion criteria were used to determine which sites from those areas were used in abundance estimates. In some areas a high proportion of sites required application of relaxed criteria to provide adequate surveys for abundance estimates (Appendix Table D-4). Generally low adult coho carcass recoveries in 2020 resulted in small samples sizes for determining pHOS. Thus, standard criteria were used in only 10 of the 26 spatial scales (populations) at which sampling sites were selected (Appendix Table D-3).

Survey Effort

Lower Columbia River Coho ESU

- Survey effort was 51% that in recent years (Table 1).
- Percent of sites successfully surveyed was below the prior 6-year average (Table D-1).
- Surveys were not conducted in 4 of 8 populations (Youngs Bay, Big Creek, Lower Gorge and Hood River) in 2020.
- Survey conditions were generally amenable to project protocols, and relatively few surveys had to be excluded from the abundance estimates (No AUC rate in Table D-5).

Oregon Coast Coho ESU

- Survey effort was only 61% of than recent years (Table 4).
- Percent of sites successfully surveyed was below the 6-year average (Table D-2).
- No surveys in the Mid-South Coast Dependent population due to access restrictions.
- Survey conditions were difficult in some areas, and a large proportion of sites were included under relaxed criteria (Table D-4).

Southern Oregon/Northern California Coast Coho ESU

- No random survey effort in 2020.

Spawner Abundance

Lower Columbia River Coho ESU

- Total wild adult coho spawner abundance in 2020 (15,749) was 231% of the previous 18-year average (6,818 wild adults, Table 3 and Figure 2). The 2020 total abundance does not include 4 of 8 populations (Youngs Bay, Big Cr., Lower Gorge and Hood R.). The 18-year average does not include the Youngs Bay and Big Creek populations, which have not been samples since 2012.
- Only the Clatskanie population abundance is independently reported for 2020, and it was 151% of the prior 18-year average (Table 3).
- The 2020 wild adult Coho spawners abundance estimates set no new record lows or highs for the 19-year period of monitoring (2002 through 2020).

Oregon Coast Coho ESU

- Total wild adult coho spawner abundance in 2020 (109,932) was 88% of the previous 30-year average (124,621 wild adults, Table 6 and Figure 5).
- Wild adult coho spawner abundance is reported for only four populations in 2020. All three lake populations were below average in 2020 (57% to 77%) and the North Umpqua Population was 114% of the previous 30-year average (Table 6).
- Strata abundance of wild adult coho in 2020 ranged from 50% (Mid-South Coast Stratum) to 127% (Umpqua Stratum) of the previous 30-year average (Table 6).

Southern Oregon/Northern California Coast Coho ESU

- Total wild adult coho spawner abundance in 2020 (1,308) was 21% of the previous 26-year average (6,105 wild adults, Table 7 and Figure 9).

Calibration Sites

- In 2020 the Mill Creek (Siletz R.) AUC estimates was 136% of the mark recapture estimate, higher than the prior 6-year average (84%) at this site (Table 8).

Distribution and Timing

Lower Columbia River Coho ESU

- Spawn timing in 2020 was predominately from late October to early December, with a peak in late November. (Figure 4).
- Total coho and wild coho site occupancy results were very similar. Wild occupancy in 2020 was higher than the prior 6-year average at all spatial scales (Table 2).

Oregon Coast Coho ESU

- Spawn timing in 2020 was similar to the long term average, but with a slightly later peak (Late December) versus the typical Mid-December peak (Figure 8).

- Wild coho site occupancy results for 2020 are similar to coho occupancy results. Wild occupancy in 2020 was higher than the prior 6-year average at all spatial scales except for the Mid-Coast Stratum (Table 5).

Southern Oregon/Northern California Coast Coho ESU

- No distribution or timing data is available. There has been no random spawning survey effort for coho in this ESU since the 2008 spawning season.

Hatchery Proportion

Lower Columbia River Coho ESU

- Sample sizes for pHOS estimation at the population scale were insufficient in most areas.
- Observed LC Coho ESU pHOS was 2.4% in 2020, well below the 18-year average of 23.8% (Table 3). However, the 2020 results do not include two populations, Youngs Bay and Big Creek, which typically account for a large portion of the ESU's hatchery coho.
- In the LCR ESU, pHOS has generally been decreasing over time (Figure 2).

Oregon Coast Coho ESU

- Sample sizes for pHOS estimation at the population scale were insufficient in most areas.
- The 2020 proportion of hatchery coho on spawning grounds in the ESU was 0.8%, well below the 30-year average of 9.5% (Table 6).
- In 2020 pHOS is reported at only 10 of 30 spatial scales typically monitored. In all 10 cases pHOS was below the 30-year average and was less than 5% in 2020 (Table 6).
- In the OC ESU, pHOS has generally been decreasing over time, and has consistently been below 5% since 2008 (Figure 5).

Southern Oregon/Northern California Coast Coho ESU

- The 2020 proportion of hatchery fish on spawning grounds in the ESU was 4.0%, similar to the 26-year average of 5.2% (Table 7).

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Table 1. Lower Columbia River Coho ESU, GRTS spawning survey goals and results for number of surveys and 95% C.I., 2020 run year. Target response sites are reaches within Coho Salmon spawning habitat which were successfully surveyed.

Stratum	Population	Goal	Target response				95% CI as percent of point estimate (goal is +/- 30%)			
			2020	2014 to 2019			2020	2014 to 2019		
				Avg.	Min.	Max.		Avg.	Min.	Max.
Coast	Youngs Bay	0	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Big Creek	0	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Clatskanie	18	20	20	12	23	36%	42%	21%	74%
	Scappoose	20	8	15	13	18	*No Est*	62%	46%	103%
	Total	**38**	**28**	**35**	**27**	**40**	**48%**	**40%**	**24%**	**72%**
Cascade	Clackamas	30	16	25	18	30	*No Est*	73%	33%	110%
	Sandy	30	8	30	21	35	*No Est*	46%	37%	54%
	Total	**60**	**24**	**55**	**49**	**61**	**43%**	**37%**	**31%**	**42%**
Gorge	Lower Gorge	2	0	3	0	6	n.a.	81%	9%	119%
	Hood	2	0	2	0	5	n.a.	69%	0%	191%
	Total	**4**	**0**	**5**	**0**	**8**	**n.a.**	**58%**	**1%**	**88%**
ESU Total		**102**	**52**	**95**	**85**	**101**	**32%**	**27%**	**23%**	**34%**

n.a. = Not available (no surveys were selected in the population, less than 2 surveys stayed in rotation, or the abundance estimate was 0).
No Est = Survey effort was reduced (COVID19 budget cut) to a point so far below goal that no estimate was made in 2020.

Table 2. Lower Columbia River Coho ESU adult Coho Salmon occupancy (total & wild) by population, stratum, and ESU for the 2020 run year and previous 6-year average (2014–19). Occupancy = a peak of 4 or more adult Coho Salmon per mile. Wild Occupied = occupied sites with at least one wild Coho Salmon. n.a = not available.

ESU, Stratum, and TRT Population	2020 No. sites surveyed	6 yr. avg. No. sites surveyed	Total Coho Salmon		Wild Coho Salmon	
			2020 % Occupied	6 yr. avg. % Occupied	2020 % Occupied	6 yr. avg. % Occupied
Lower Columbia R. ESU	**52**	**98**	**56%**	**41%**	**54%**	**39%**
Coast Stratum	**28**	**35**	**68%**	**44%**	**64%**	**42%**
Youngs Bay	0	0	n.a.	n.a.	n.a.	n.a.
Big Creek	0	0	n.a.	n.a.	n.a.	n.a.
Clatskanie River	20	20	80%	48%	75%	46%
Scappoose Creek	8	15	n.a.	41%	n.a.	40%
Cascade Stratum	**24**	**58**	**42%**	**35%**	**42%**	**34%**
Clackamas River	16	26	n.a.	27%	n.a.	27%
Sandy River	8	32	n.a.	41%	n.a.	40%
Gorge Stratum	**0**	**5**	**n.a.**	**77%**	**n.a.**	**70%**
Lower Gorge tribs.	0	3	n.a.	83%	n.a.	70%
Hood River	0	3	n.a.	79%	n.a.	79%

Table 3. Lower Columbia River Coho ESU estimated abundance of adult Coho Salmon spawning naturally by ESU, stratum, and population in the 2020 run year compared to the previous 18 years. No Est = No estimate was made in 2020 due to reduced effort (COVID19 budget cut).

Geographic scale ESU/Stratum/Population		Spawning year			
			2002 to 2019		
		2020	Avg.	Min.	Max.
Lower Columbia River ESU (Oregon Only)	**Wild**	**15,749 ***	**6,818 ***	**2,988 ***	**21,849 ***
	Hatchery	**389 ***	**2,120 ***	**285 ***	**11,836 ***
	% Hat.	**2.4% ***	**20.9% ***	**5.4% ***	**65.9% ***
Coast Stratum *	**Wild**	**n.a.**	**1,836**	**1,140**	**3,993**
	Hatchery	**n.a.**	**838**	**89**	**3,420**
	% Hat.	**n.a.**	**27.8%**	**4.9%**	**74.4%**
Youngs Bay *	Wild	n.a.	119	21	411
	Hatchery	n.a.	510	14	2,506
	% Hat.	n.a.	67.7%	21.9%	92.1%
Big Creek *	Wild	n.a.	300	98	792
	Hatchery	n.a.	317	66	936
	% Hat.	n.a.	46.0%	15.5%	89.8%
Clatskanie	Wild	1,233	818	25	3,246
	Hatchery	134	51	0	151
	% Hat.	9.8%	11.4%	0.0%	67.9%
Scappoose	Wild	No Est.	674	178	1,960
	Hatchery	No Est.	10	0	67
	% Hat.	No Est.	1.6%	0.0%	9.9%
Cascade Stratum	**Wild**	**13,480**	**4,933**	**2,157**	**16,612**
	Hatchery	**255**	**1,552**	**139**	**10,871**
	% Hat.	**1.9%**	**19.7%**	**3.5%**	**71.2%**
Clackamas	Wild	No Est.	3,878	1,301	10,670
	Hatchery	No Est.	1,393	50	10,871
	% Hat.	No Est.	22.9%	1.5%	75.8%
Sandy	Wild	No Est.	1,504	382	5,942
	Hatchery	No Est.	95	0	515
	% Hat.	No Est.	8.2%	0.0%	57.4%
Gorge Stratum	**Wild**	**n.a.**	**462**	**34**	**1,525**
	Hatchery	**n.a.**	**613**	**25**	**2,555**
	% Hat.	**n.a.**	**46.6%**	**11.9%**	**72.9%**
Lower Gorge Tribs.	Wild	n.a.	268	16	920
	Hatchery	n.a.	244	8	1,512
	% Hat.	n.a.	38.3%	4.2%	85.2%
Hood River	Wild	n.a.	226	4	1,262
	Hatchery	n.a.	369	0	1,298
	% Hat.	n.a.	51.6%	0.0%	85.3%

** = Does not include data for the Youngs Bay (YB) and Big Creek (BC) Populations. These populations were not sampled, 2013 through 2020 run years. Also, the Lower Gorge and Hood populations were not sampled in 2017 and 2020.*

Table 4. Oregon Coast Coho ESU, GRTS spawning survey goals, responses, and estimate precision by population, 2020 run year. Target response sites are reaches within Coho Salmon spawning habitat which were successfully surveyed.

Stratum	Population	Goal	Target response				95% CI as percent of point estimate (goal is +/- 30%)			
				2014 to 2019				2014 to 2019		
			2020	Avg.	Min.	Max.	2020	Avg.	Min.	Max.
North Coast	Necanicum	13	8	16	11	18	*No Est*	35%	22%	50%
	Nehalem	20	13	19	13	24	*No Est*	43%	37%	49%
	Tillamook	20	12	21	14	25	*No Est*	51%	36%	56%
	Nestucca	20	10	16	9	23	*No Est*	51%	42%	73%
	NC Depend.	7	7	7	6	9	*No Est*	92%	79%	104%
	Total	**80**	**50**	**79**	**59**	**92**	**28%**	**27%**	**22%**	**31%**
Mid-Coast	Salmon	9	5	11	7	17	*No Est*	63%	23%	92%
	Siletz	20	13	20	12	26	*No Est*	43%	35%	48%
	Yaquina	20	11	18	10	22	*No Est*	44%	35%	55%
	Beaver	3	4	4	3	5	*No Est*	64%	24%	130%
	Alsea	20	12	19	11	24	*No Est*	30%	26%	38%
	Siuslaw	20	12	18	12	23	*No Est*	38%	28%	52%
	MC Depend.	8	8	8	6	11	*No Est*	76%	43%	103%
	Total	**100**	**65**	**97**	**78**	**114**	**27%**	**19%**	**16%**	**22%**
Lakes	Siltcoos	0	0	0	0	0	n.a.	n.a.	n.a.	n.a.
	Tahkenitch	0	0	0	0	0	n.a.	n.a.	n.a.	n.a.
	Tenmile	0	0	0	0	0	n.a.	n.a.	n.a.	n.a.
	Total	**0**	**0**	**0**	**0**	**0**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
Umpqua	L. Umpqua	20	11	17	15	20	*No Est*	49%	24%	78%
	M. Umpqua	20	8	13	6	15	*No Est*	67%	50%	80%
	N. Umpqua	3	1	1	0	3	n.a.	n.a.	n.a.	n.a.
	S. Umpqua	20	11	16	9	20	*No Est*	67%	37%	92%
	Total	**63**	**31**	**48**	**30**	**55**	**39%**	**38%**	**22%**	**62%**
Mid-South Coast	Coos	20	12	20	18	22	*No Est*	50%	29%	69%
	Coquille	20	19	20	15	24	*No Est*	46%	33%	57%
	Floras	17	6	11	1	22	*No Est*	49%	21%	72%
	Sixes	8	8	8	3	15	*No Est*	65%	40%	101%
	MS Depend	3	0	2	0	6	n.a.	179%	163%	195%
	Total	**68**	**45**	**60**	**41**	**79**	**31%**	**32%**	**26%**	**37%**
ESU Total		**311**	**191**	**284**	**229**	**322**	**17%**	**15%**	**13%**	**18%**

n.a. = Not available (no surveys were selected in the population, less than 2 surveys stayed in rotation, or the abundance estimate was 0).
No Est = Survey effort was reduced (COVID19 budget cut) to a point so far below goal that no estimate was made in 2020.

Table 5. Oregon Coast Coho ESU adult Coho Salmon occupancy (total & wild) by population, stratum, and ESU for the 2020 run year and previous 6-year average (2014–19). Occupancy = a peak of 4 or more adult Coho Salmon per mile. Wild Occupied = occupied sites with at least one wild Coho Salmon. n.a = not available.

ESU, Stratum, and TRT Population	2020 No. sites surveyed	6 yr. avg. No. sites surveyed	Total Coho Salmon		Wild Coho Salmon	
			2020 % Occupied	6 yr. avg. % Occupied	2020 % Occupied	6 yr. avg. % Occupied
Oregon Coast ESU	**191**	**284**	**67.5%**	**65.4%**	**66.5%**	**63.7%**
North Coast Stratum	**50**	**79**	**74.0%**	**66.1%**	**74.0%**	**63.8%**
Necanicum River	8	16	n.a.	75.5%	n.a.	71.7%
Nehalem River	13	19	n.a.	65.9%	n.a.	65.9%
Tillamook Bay	12	21	n.a.	62.1%	n.a.	59.4%
Nestucca River	10	16	n.a.	72.1%	n.a.	68.6%
NC Dependents	7	7	n.a.	48.1%	n.a.	45.3%
Mid-Coast Stratum	**65**	**97**	**67.7%**	**74.1%**	**66.2%**	**72.8%**
Salmon River	5	11	n.a.	51.4%	n.a.	49.5%
Siletz River	13	20	n.a.	84.3%	n.a.	84.3%
Yaquina River	11	18	n.a.	82.8%	n.a.	82.0%
Beaver Creek	4	4	n.a.	94.5%	n.a.	88.9%
Alsea River	12	19	n.a.	85.3%	n.a.	85.3%
Siuslaw River	12	18	n.a.	68.8%	n.a.	66.8%
MC Dependents	8	8	n.a.	32.5%	n.a.	28.0%
Lakes Stratum	**0**	**0**	**n.a.**	**n.a.**	**n.a.**	**n.a.**
Siltcoos Lake	0	0	n.a.	n.a.	n.a.	n.a.
Tahkenitch Lake	0	0	n.a.	n.a.	n.a.	n.a.
Tenmile Lake	0	0	n.a.	n.a.	n.a.	n.a.
Umpqua Stratum	**31**	**48**	**58.1%**	**51.5%**	**54.8%**	**50.0%**
Lower Umpqua River	11	17	n.a.	70.4%	n.a.	68.7%
Mid. Umpqua River	8	13	n.a.	42.1%	n.a.	42.1%
North Umpqua River	1	1	n.a.	n.a.	n.a.	n.a.
South Umpqua River	11	16	n.a.	39.0%	n.a.	36.3%
Mid-South Stratum	**45**	**60**	**66.7%**	**60.9%**	**66.7%**	**58.9%**
Coos River	12	20	n.a.	71.7%	n.a.	70.0%
Coquille River	19	20	n.a.	67.5%	n.a.	66.7%
Floras Creek	6	11	n.a.	69.7%	n.a.	65.5%
Sixes River	8	8	n.a.	36.8%	n.a.	28.5%
MSC Dependents	0	2	n.a.	6.7%	n.a.	6.7%

Table 6. Oregon Coast Coho ESU estimated abundance of adult Coho Salmon spawning naturally by ESU, stratum, and population for the 2020 run year compared to the previous 30 years. No Est = No estimate was made in 2020 due to reduced effort (COVID19 budget cut).

Geographic scale ESU/Stratum/Population	Coho salmon origin	Spawning year			
			1990 to 2019		
		2020	Avg.	Min.	Max.
Oregon Coast Coho ESU	**Wild**	**109,932**	**124,621**	**21,139**	**359,692**
	Hatchery	**916**	**8,270**	**386**	**26,128**
	% Hat.	**0.8%**	**9.5%**	**0.6%**	**31.4%**
North Coast Stratum	**Wild**	**21,480**	**20,569**	**1,524**	**67,370**
	Hatchery	**26**	**1,856**	**0**	**15,563**
	% Hat.	**0.1%**	**16.8%**	**0.0%**	**79.0%**
Necanicum River	Wild	No Est.	1,310	97	5,727
	Hatchery	No Est.	105	0	501
	% Hat.	No Est.	14.4%	0.0%	40.1%
Nehalem River	Wild	No Est.	10,737	527	32,517
	Hatchery	No Est.	1,366	0	14,014
	% Hat.	No Est.	18.6%	0.0%	87.7%
Tillamook Bay	Wild	No Est.	5,033	80	20,090
	Hatchery	No Est.	272	0	1,498
	% Hat.	No Est.	15.1%	0.0%	68.9%
Nestucca River	Wild	No Est.	2,907	160	16,698
	Hatchery	No Est.	46	0	274
	% Hat.	No Est.	5.2%	0.0%	15.3%
North Coast Dependents	Wild	No Est.	611	0	4,607
	Hatchery	No Est.	15	0	111
	% Hat.	No Est.	0.8%	0.0%	6.3%
Mid-Coast Stratum	**Wild**	**30,825**	**35,217**	**2,444**	**121,963**
	Hatchery	**12**	**1,831**	**0**	**9,633**
	% Hat.	**0.0%**	**12.1%**	**0.0%**	**50.1%**
Salmon River	Wild	No Est.	580	5	3,680
	Hatchery	No Est.	539	0	2,621
	% Hat.	No Est.	53.0%	0.0%	97.6%
Siletz River	Wild	No Est.	6,197	207	33,094
	Hatchery	No Est.	228	0	962
	% Hat.	No Est.	14.6%	0.0%	58.4%
Yaquina River	Wild	No Est.	5,958	317	25,582
	Hatchery	No Est.	154	0	1,526
	% Hat.	No Est.	6.4%	0.0%	25.0%
Beaver Creek	Wild	No Est.	1,704	90	6,564
	Hatchery	No Est.	43	0	405
	% Hat.	No Est.	3.3%	0.0%	23.8%
Alsea River	Wild	No Est.	6,636	108	28,337
	Hatchery	No Est.	282	0	2,214
	% Hat.	No Est.	14.1%	0.0%	93.8%
Siuslaw River	Wild	No Est.	12,552	501	55,445
	Hatchery	No Est.	514	0	4,136
	% Hat.	No Est.	9.3%	0.0%	37.6%
Mid Coast Dependents	Wild	No Est.	1,449	51	8,179
	Hatchery	No Est.	25	0	118
	% Hat.	No Est.	1.5%	0.0%	5.9%

Table 6. Continued

Geographic scale ESU/Stratum/Population	Coho salmon origin	Spawning year			
			1990 to 2019		
		2020	Avg.	Min.	Max.
Lakes Stratum	**Wild**	**9,722**	**13,520**	**1,302**	**38,744**
	Hatchery	**0**	**49**	**0**	**251**
	% Hat.	**0.0%**	**0.5%**	**0.0%**	**2.2%**
Siltcoos Lake	Wild	2,832	3,732	385	7,998
	Hatchery	0	22	0	124
	% Hat.	0.0%	0.9%	0.0%	8.7%
Tahkenitch Lake	Wild	1,526	2,659	269	10,681
	Hatchery	0	11	0	107
	% Hat.	0.0%	0.5%	0.0%	3.1%
Tenmile Lake	Wild	5,364	7,007	318	20,385
	Hatchery	0	13	0	123
	% Hat.	0.0%	0.2%	0.0%	3.4%
Umpqua Stratum	**Wild**	**33,644**	**26,581**	**3,334**	**94,655**
	Hatchery	**878**	**4,116**	**257**	**17,758**
	% Hat.	**2.5%**	**16.5%**	**1.1%**	**36.0%**
Lower Umpqua River	Wild	No Est.	9,824	1,257	36,942
	Hatchery	No Est.	236	0	1,484
	% Hat.	No Est.	2.9%	0.0%	15.7%
Middle Umpqua River	Wild	No Est.	6,169	563	19,962
	Hatchery	No Est.	197	0	1,259
	% Hat.	No Est.	4.0%	0.0%	20.6%
North Umpqua River	Wild	3,003	2,632	355	9,397
	Hatchery	149	2,809	50	14,094
	% Hat.	4.7%	45.2%	1.2%	84.3%
South Umpqua River	Wild	No Est.	8,183	435	49,958
	Hatchery	No Est.	769	0	7,040
	% Hat.	No Est.	12.8%	0.0%	57.2%
Mid-South Coast Stratum	**Wild**	**14,261**	**28,734**	**4,890**	**82,077**
	Hatchery	**0**	**419**	**0**	**2,766**
	% Hat.	**0.0%**	**2.0%**	**0.0%**	**23.8%**
Coos River	Wild	No Est.	13,066	1,112	38,880
	Hatchery	No Est.	185	0	1,387
	% Hat.	No Est.	2.1%	0.0%	36.4%
Coquille River	Wild	No Est.	12,920	2,033	55,667
	Hatchery	No Est.	155	0	1,832
	% Hat.	No Est.	1.7%	0.0%	15.4%
Floras Creek	Wild	No Est.	2,377	340	11,329
	Hatchery	No Est.	57	0	400
	% Hat.	No Est.	3.5%	0.0%	22.8%
Sixes River	Wild	No Est.	179	34	567
	Hatchery	No Est.	15	0	182
	% Hat.	No Est.	7.7%	0.0%	65.7%
Mid-South Coast Dependents	Wild	No Est.	83	0	484
	Hatchery	No Est.	1	0	9
	% Hat.	No Est.	0.9%	0.0%	4.6%

Table 7. Southern Oregon/Northern California Coasts Coho ESU estimated abundance of adult Coho Salmon spawning naturally in the 2020 run year compared to the previous 26 years. Rogue River Populations only. NA = Data not available at time of print.

Data component	Coho salmon origin	Spawning year			
			1994 to 2019		
		2020	Avg.	Min.	Max.
SONCC Coho ESU (Rogue Only)	**Wild**	**1,308**	**6,105**	**394**	**24,231**
	Hatchery	**55**	**358**	**0**	**1,230**
	% Hat.	**4.0%**	**5.2%**	**0.0%**	**19.2%**
Huntley Park Est. [1]	Total	1,445	10,731	572	33,601
	Wild	1,335	6,205	414	24,509
	Hatchery	110	4,526	158	14,013
Freshwater Catch [2] Excluding Rogue Bay	Total	*NA*	298	67	862
	Wild	0	0	0	0
	Hatchery	*NA*	298	67	862
Cole Rivers Hatchery [3]	Total	82	3,989	118	12,298
	Wild	27	100	0	370
	Hatchery	55	3,889	83	11,937

1 = Huntley Park mark-recapture estimate of Coho Salmon freshwater escapement to the Rogue Basin above Huntley Park (~ River Mile 8). This includes returns to Cole Rivers Hatchery, natural spawning grounds, freshwater harvest and mortality between Huntley and upriver areas.

2 = Estimated freshwater harvest of Coho Salmon in the Rouge basin (excluding the Rogue River Bay), based on Angler Harvest Cards (see: https://www.dfw.state.or.us/resources/fishing/sportcatch.asp). Selective harvest of only marked Coho Salmon since 2004.

3 = Number of adult Coho Salmon collected and retained at Cole Rivers Hatchery. These numbers do not include Coho Salmon collected and released alive back into the wild.

Table 8. Comparison of two independent coho abundance estimates at each of two life-cycle monitoring sites in the Oregon Coast Coho ESU. Estimate based on AUC protocol compared to a Mark–Recapture estimate (Mill Cr., Siletz R.) or a Dam Count (Mill Cr., Yaquina R.).

Spawning Year	Mill Creek (Siletz R.)			Mill Creek (Yaquina R.)		
	M-R Est.	AUC Est.	AUC/M-R	Dam Count	AUC Est.	AUC/Dam
2014	1,844	1,642	89%	1,471	1,677	114%
2015	316	196	62%	275	142	52%
2016	451	440	98%	760	607	80%
2017	518	471	91%	405	211	52%
2018	363	276	76%	382	298	78%
2019	674	611	91%	473	291	62%
2020	645	874	136%	*No comparison in 2020 (budget cuts).*		
Mean	**687**	**644**	**92%**	**628**	**538**	**73%**

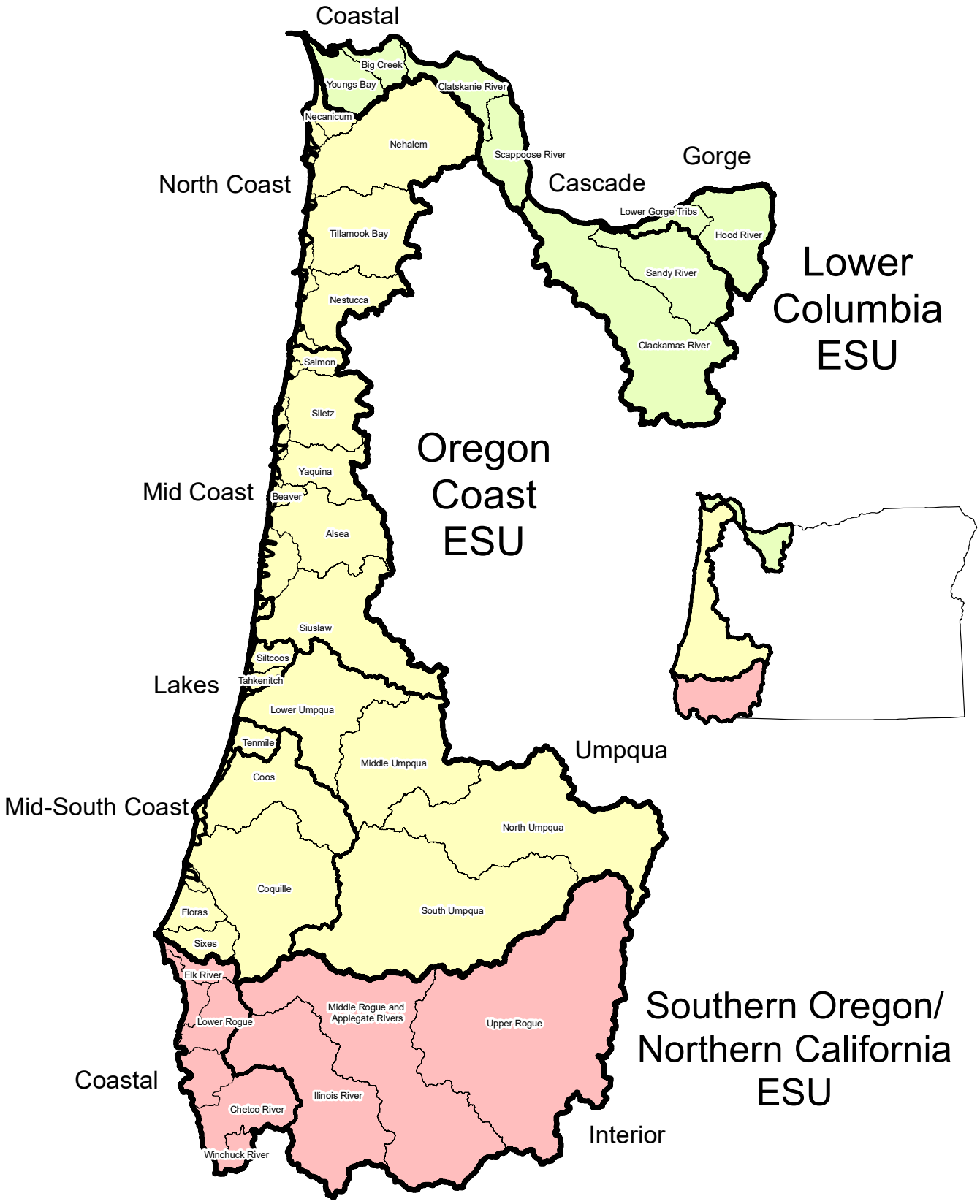
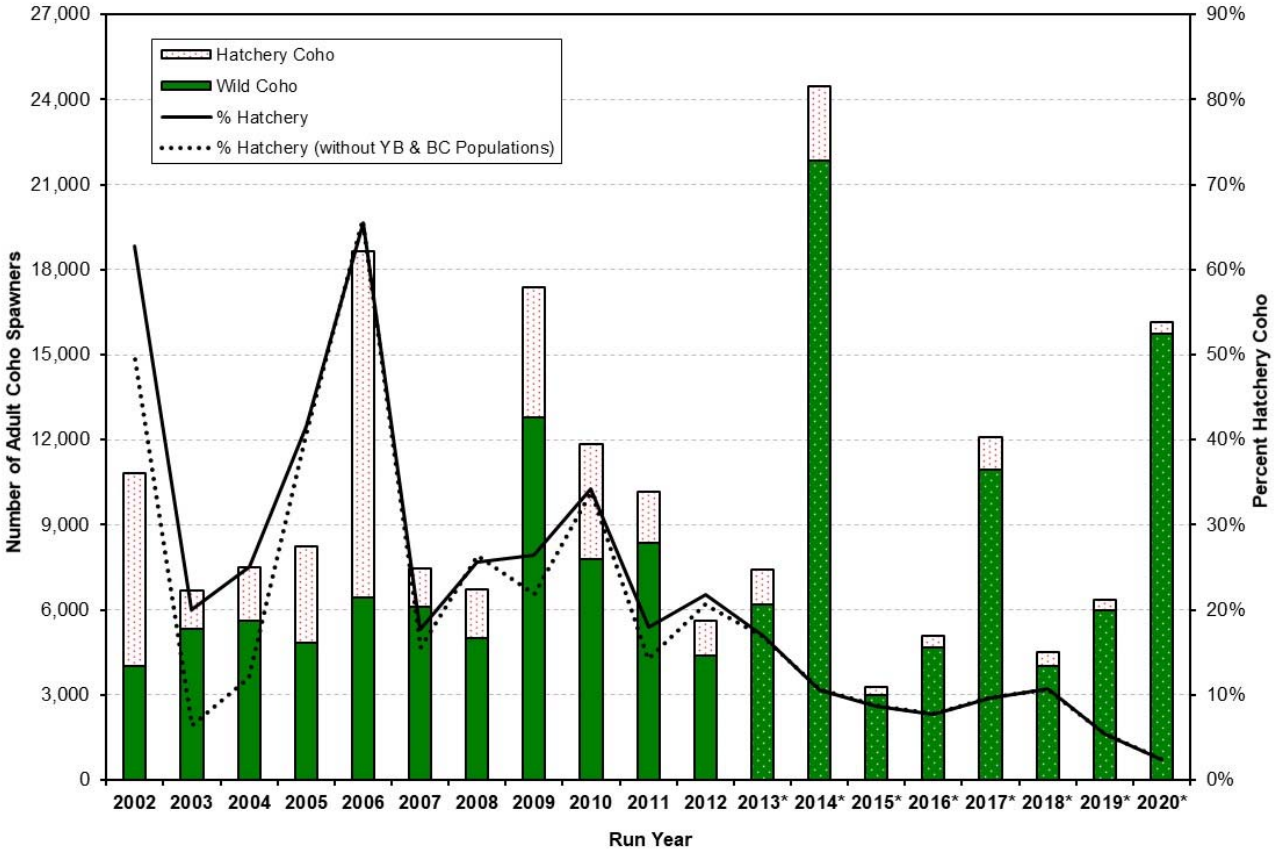


Figure 1. Coho salmon monitoring study area showing the populations, strata, and evoluntionarily significant units.



** Estimates for 2013 to 2020 do not include Big Creek and, Youngs Bay populations, and are therefore incomplete. These populations combined account for an average of 12% of the total estimate for the ESU (about 7% of the wild, and 27% of the hatchery components). Note: The Hood River and Lower Gorge populations were not sampled in 2017 due to safety concerns from wildfires; and 2020 due to budget cuts.*

Figure 2. Lower Columbia River Coho ESU estimated abundance of adult Coho Salmon spawning naturally by rearing origin for the 2002 through 2020 run years.

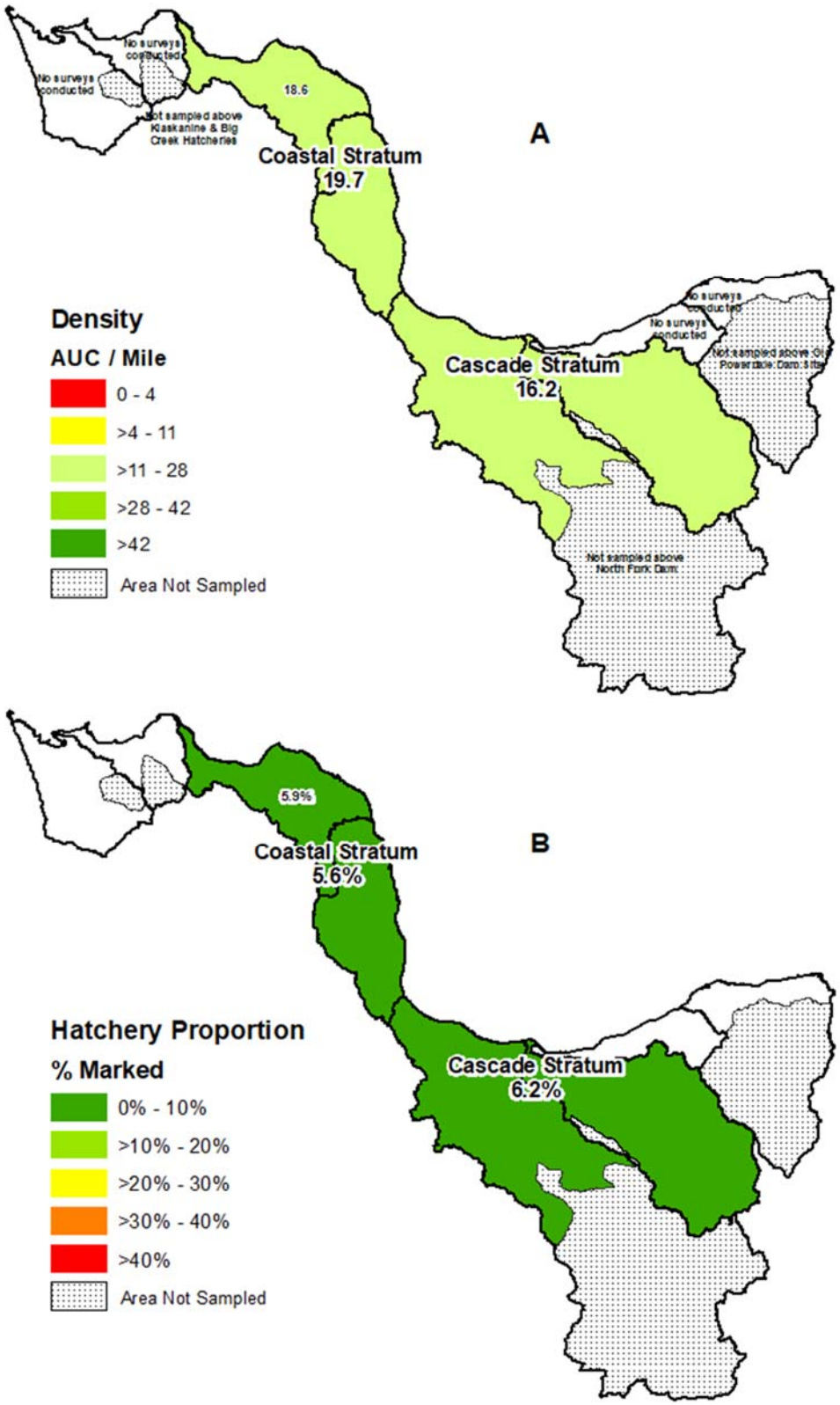


Figure 3. A) Coho salmon density (AUC/mile) in GRTS surveys by lower Columbia River Strata and Clatskanie population, 2020. B) Percentage of marked adult coho salmon in GRTS surveys by lower Columbia River Strata and Clatskanie population, 2020.

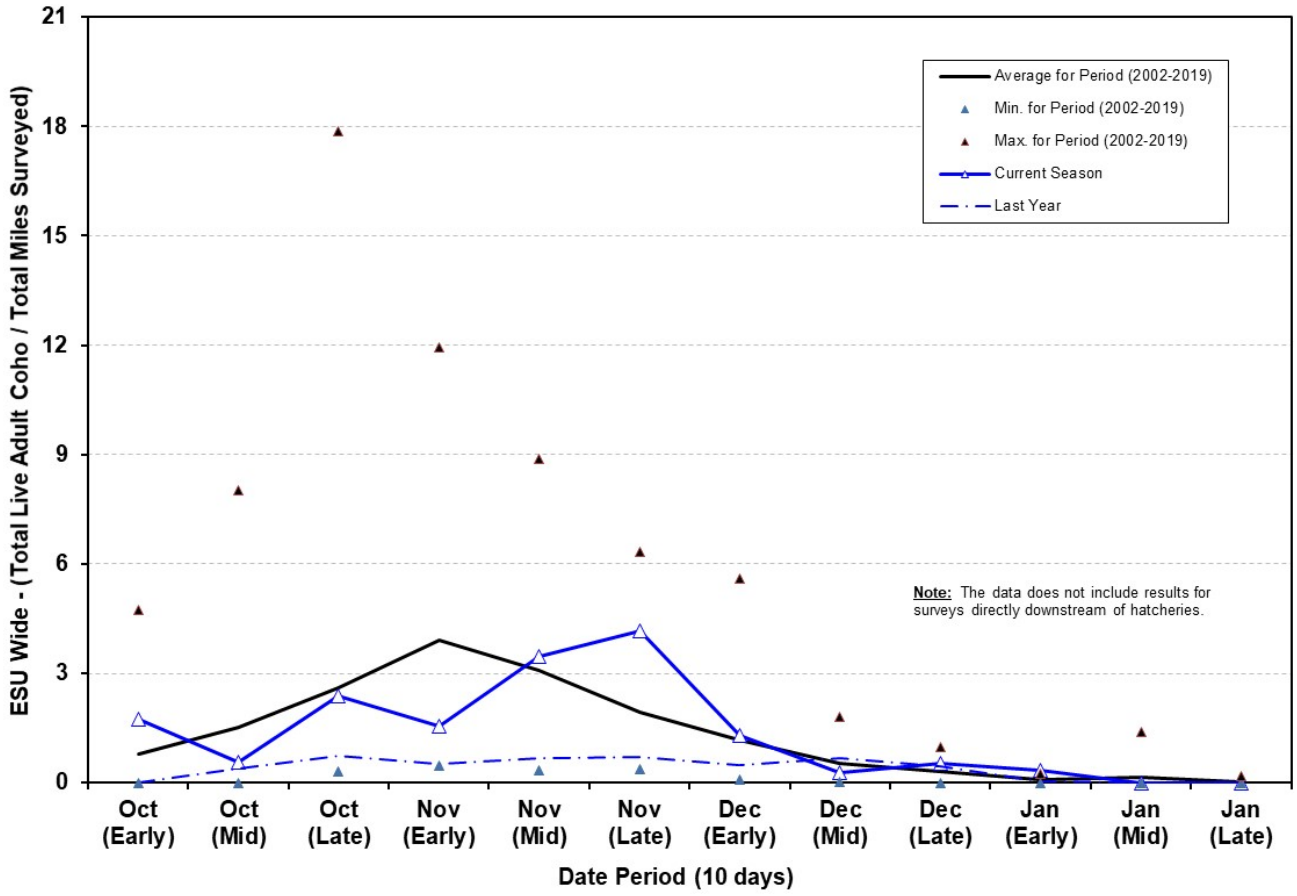


Figure 4. Spawn timing of live adult Coho Salmon in 2020 on GRTS spawning ground surveys in the Lower Columbia River Coho ESU.

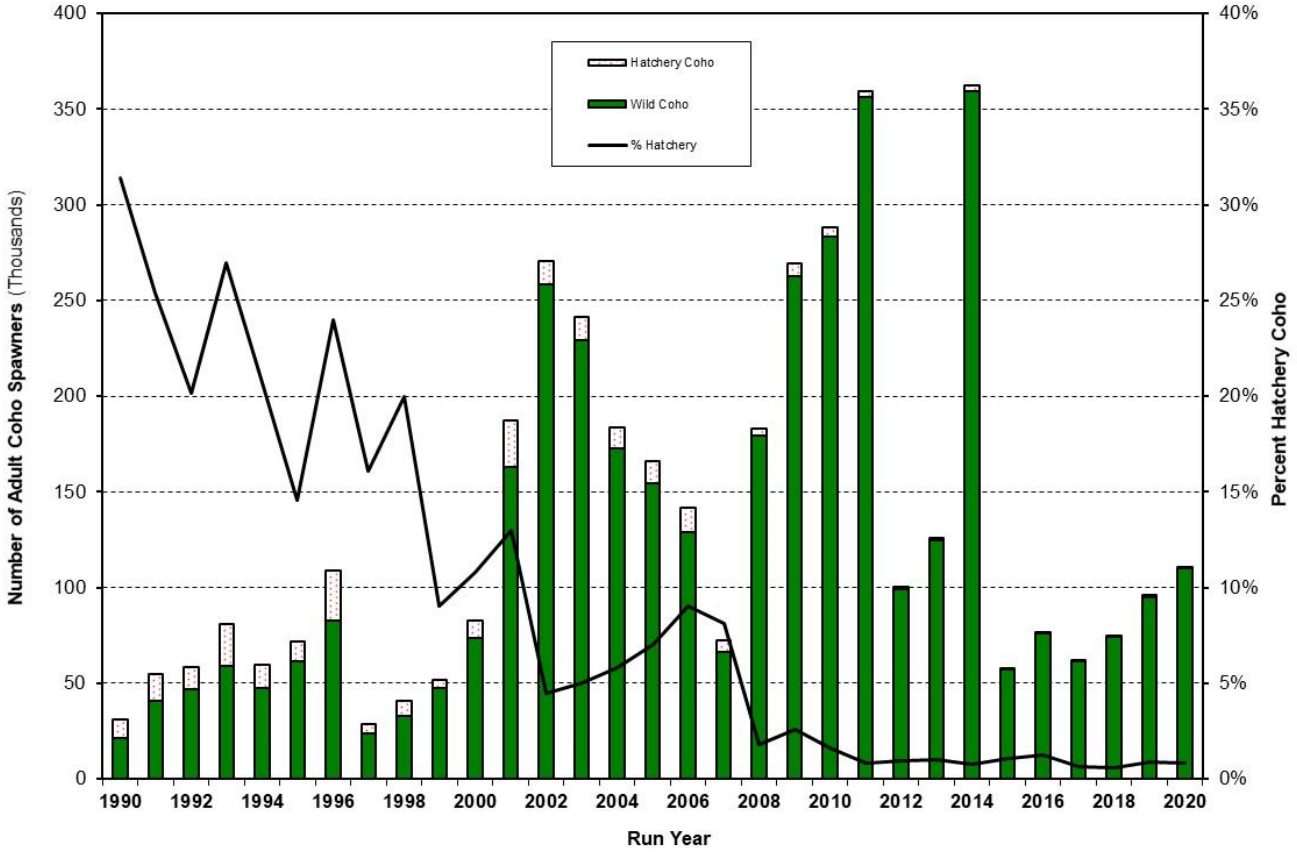


Figure 5. Oregon Coast Coho ESU estimated abundance of adult Coho Salmon spawning naturally by rearing origin for the 1990 through 2020 run years.

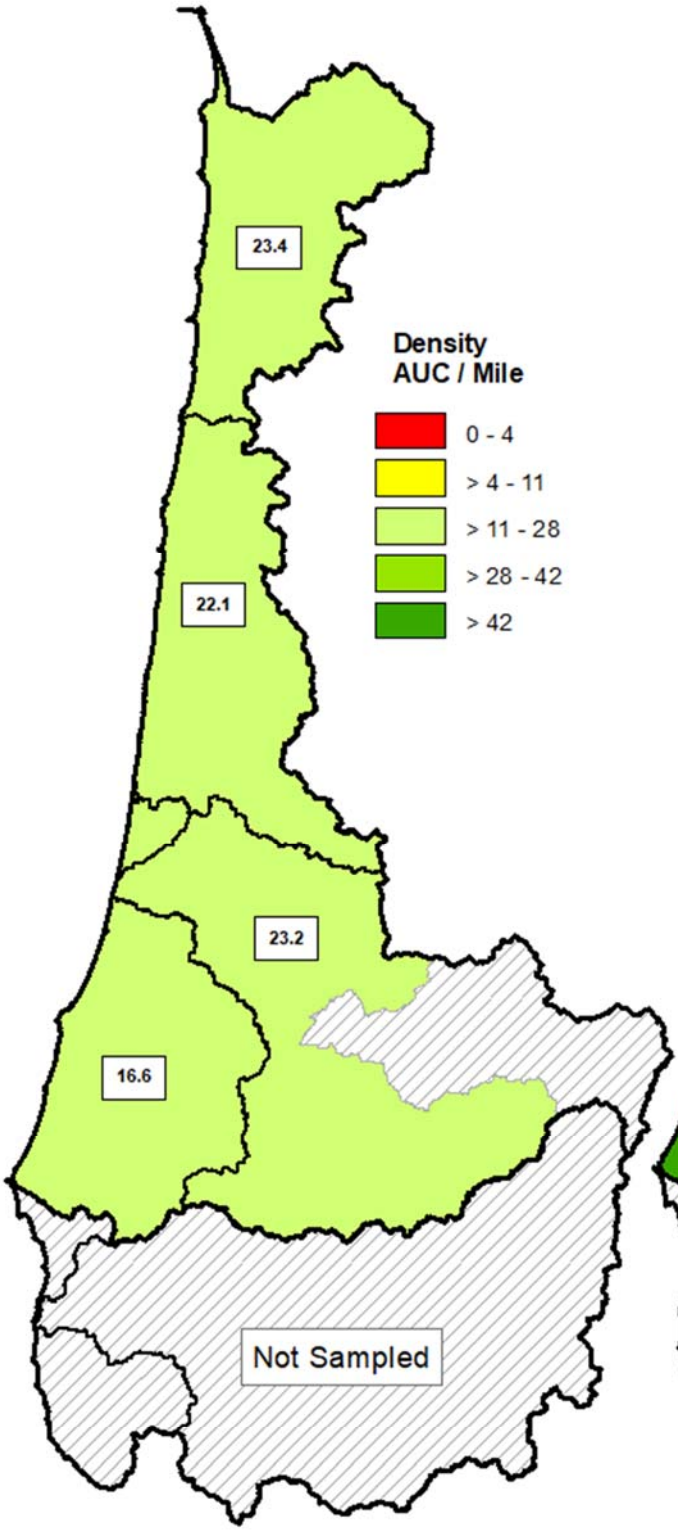


Figure 6. Coho salmon density (AUC/mile) in GRTS surveys by strata in the Oregon Coast Coho ESU, 2020.

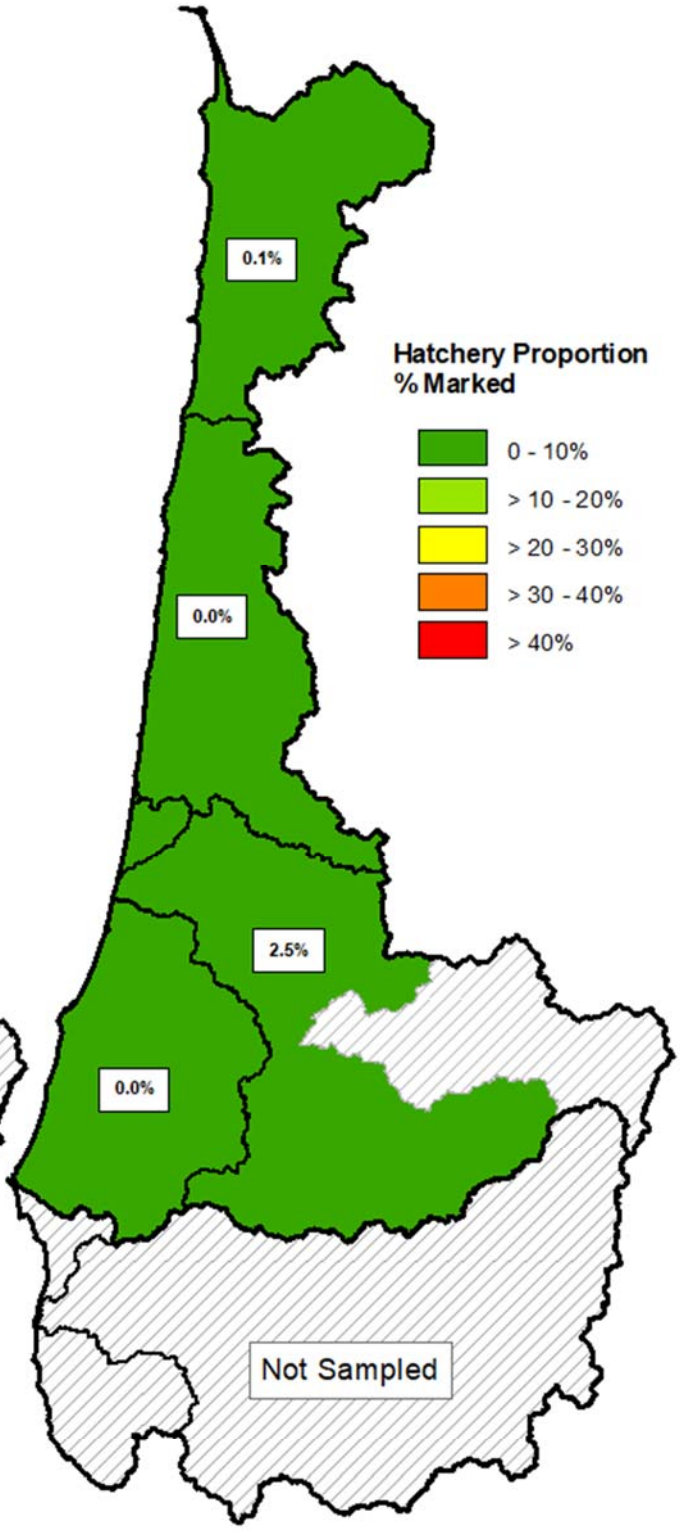


Figure 7. Percentage of marked adult coho salmon in GRTS surveys by strata in the Oregon Coast Coho ESU, 2020.

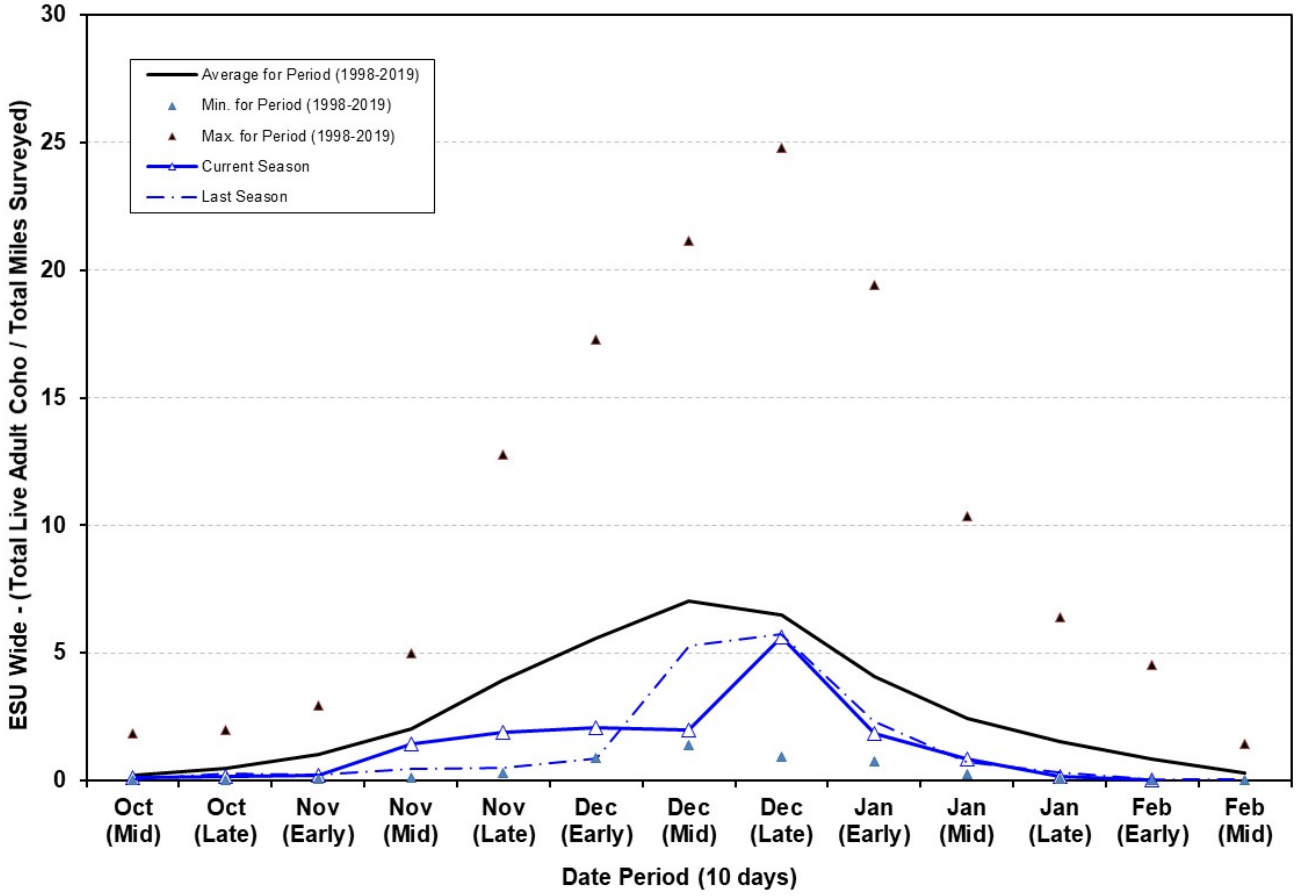


Figure 8. Spawn timing of live adult Coho Salmon in 2020 on GRTS spawning ground surveys in the Oregon Coast Coho ESU.

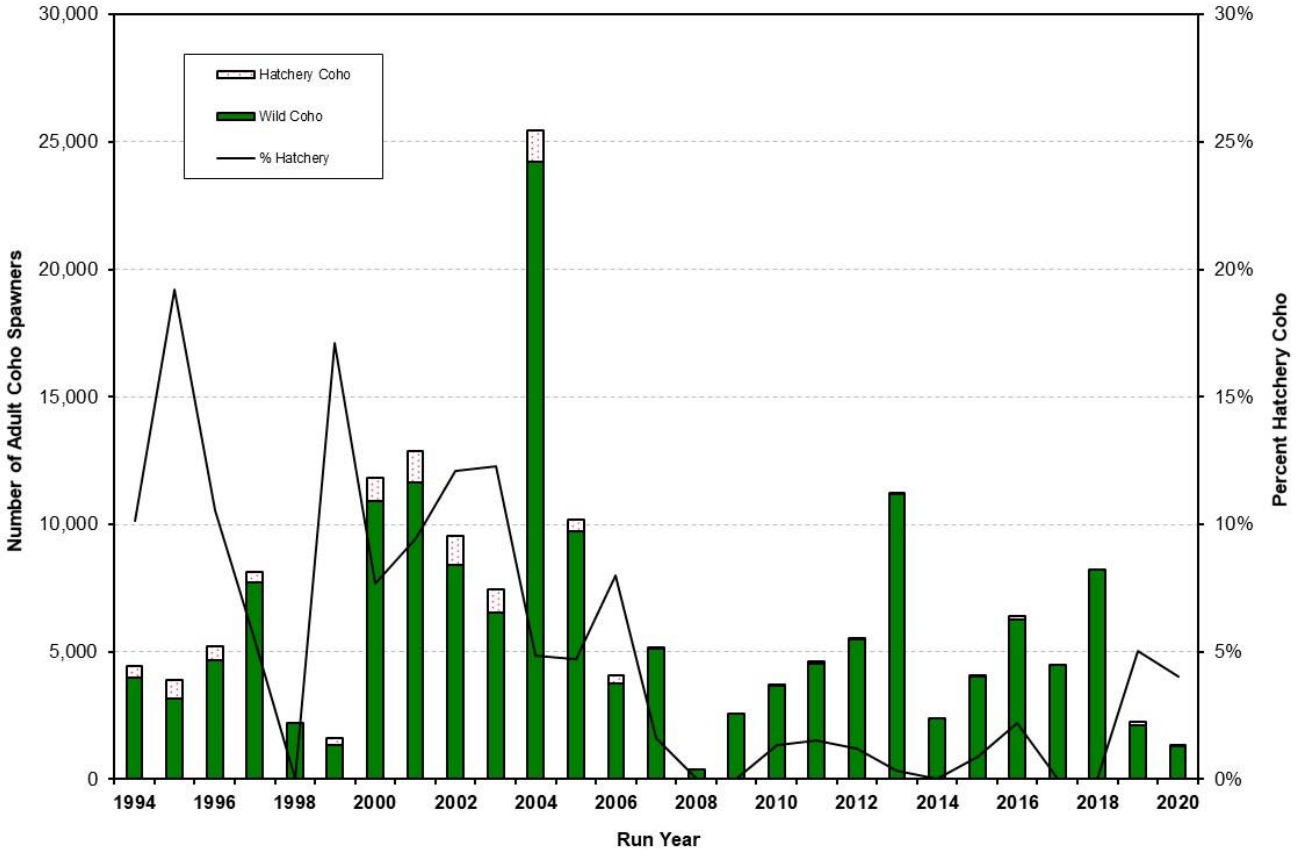


Figure 9. Southern Oregon/Northern California Coasts Coho ESU estimated abundance of adult Coho Salmon spawning naturally by rearing origin for the 1994 through 2020 run years. Abundance based on Huntley seining mark-recapture method.

APPENDIX A (LCR COHO ESU)

Table A-1. Results of randomly selected spawning ground surveys for Coho Salmon in the Oregon portion of the LCR Coho ESU, run year 2020. Estimates derived using GRTS protocol. Estimates of wild spawners derived through application of fin-mark observations. Missing values for populations indicate inadequate samples for determining total and/or wild abundance.

ESU, Stratum, and TRT Population	Survey effort number of		Adult Coho Salmon spawner abundance			
			Total		Wild	
	Surveys	Miles	Estimate	*95% CI*	Estimate	*95% CI*
Lower Columbia River ESU	**52**	**43.8**	**6,525**	***2,114***	**6,136**	***2,060***
Coast Stratum	**28**	**23.1**	**2,403**	***1,162***	**2,269**	***1,152***
Youngs Bay	0					
Big Creek	0					
Clatskanie River (ex. Plympton)	18	14.8	1,297	*467*	1,220	*440*
Plympton Cr. (Clatskanie R.)	2	2.1	70	*0*	13	*0*
Scappoose River	8	6.2	*No Est.*			
Cascade Stratum	**24**	**20.7**	**4,122**	***1,766***	**3,867**	***1,708***
Clackamas River (ex. Eagle Cr.)	12	9.1	*No Est.*			
Eagle Creek (Clackamas R.)	4	4.3	*No Est.*			
Sandy River	8	7.3	*No Est.*			
Gorge Stratum	**0**					
Lower Gorge	0					
Hood River	0					

No Est = Survey effort was reduced (COVID19 budget cut) to a point so far below goal that no estimate was made in 2020.

Table A-2. Number of unmarked adult Coho Salmon passed upstream of counting stations into areas without GRTS spawning surveys. Oregon portion of the LCR Coho ESU, run year 2020.

ESU, Stratum, and TRT Population	Counting station	Spawning year			
			2002 to 2019		
		2020	Avg.	Min.	Max.
Lower Columbia River ESU					
Coast Stratum					
Youngs Bay	Klaskanine Hatchery	4	22	2	68
Big Creek	Big Creek Hatchery	425	237	46	606
Scappoose River	Bonnie Falls Trap	n.a. [a]	47	2	136
Cascade Stratum					
Clackamas River	N Fk Clackamas Dam	9,012	2,774	835	8,230
Sandy River	Sandy Hatchery [b]	601	179	36	539
	Marmot Dam	n.a. [c]	809	310	1,173
Gorge Stratum					
Hood River	Powerdale Dam	n.a. [c]	52	27	126

a = Not Applicable. Trap count discontinued after 2018 season, and area above trap included in GRTS sampling starting in 2020.
b = Sandy Hatchery count through 2009 is number released above Marmot Dam, which was removed in 2006. Beginning in 2010, Sandy Hatchery switched the release site for these fish to above the hatchery weir on Cedar Creek.
c = Not Applicable. Marmot dam was removed in 2006 and Powerdale Dam was removed in 2010, so there are no longer any dam counts.

Table A-3. Annual abundance estimates of naturally spawning wild adult Coho Salmon in the Oregon portion of the LCR Coho ESU, run years 2002 through 2020. n.a. = not available.

Return Year	Youngs Bay	Big Creek	Clatskanie*	Scappoose	Clackamas*	Sandy	Lower Gorge	Hood River
2002	411	98	167	500	1,985	382	338	147
2003	113	435	563	336	2,495	1,348	n.a.	41
2004	149	111	398	755	2,733	1,213	n.a.	126
2005	79	219	494	348	1,301	856	263	1,262
2006	74	225	421	719	3,464	923	226	373
2007	25	212	927	375	3,438	687	126	170
2008	82	360	995	294	1,800	1,277	223	69
2009	28	792	1,195	778	8,642	1,493	468	65
2010	68	279	1,686	1,960	4,009	901	920	223
2011	161	160	1,546	297	2,253	3,494	216	232
2012	129	409	619	210	1,663	1,165	96	169
2013	n.a.	n.a.	611	979	4,012	667	151	561
2014	n.a.	n.a.	3,246	1,587	10,672	5,942	362	42
2015	n.a.	n.a.	240	487	1,784	443	30	4
2016	n.a.	n.a.	464	1,200	1,628	939	395	57
2017	n.a.	n.a.	566	387	7,598	2,384	n.a.	n.a.
2018	n.a.	n.a.	25	178	3,159	537	16	107
2019	n.a.	n.a.	146	384	4,044	1,052	184	193
2020	n.a.	n.a.	1,233	n.a.	n.a.	n.a.	n.a.	n.a.

** = Stratified abundance estimation. Plympton Creek estimated separately from the rest of the Clatskanie population and Eagle Creek estimated separately from the rest of the Clackamas population.*

APPENDIX B (OC COHO ESU)

Table B-1. Results of randomly selected spawning ground surveys for Coho Salmon in the OC Coho ESU, run year 2020. Estimates derived using GRTS protocol. Estimates of wild spawners derived through application of fin-mark observations. Missing values for populations indicate inadequate samples for determining total and/or wild abundance.

ESU, Stratum, and TRT Population	Survey effort number of		Adult Coho Salmon spawner abundance			
			Total		Wild	
	Surveys	Miles	Estimate	*95% CI*	Estimate	*95% CI*
Oregon Coast ESU	**191**	**142.7**	**97,915**	***16,594***	**96,308**	***16,414***
North Coast Stratum	**50**	**37.9**	**21,506**	***6,108***	**21,480**	***6,107***
Necanicum River	8	5.6	*No Est.*			
Nehalem River	13	11.0	*No Est.*			
Tillamook Bay	12	9.6	*No Est.*			
Nestucca River	10	7.6	*No Est.*			
NC Dependents	7	4.1	*No Est.*			
Mid-Coast Stratum	**65**	**48.5**	**30,777**	***8,413***	**29,925**	***8,386***
Salmon River	5	3.9	*No Est.*			
Siletz River	13	10.4	*No Est.*			
Yaquina River	11	6.7	*No Est.*			
Beaver Creek	4	2.1	*No Est.*			
Alsea River	12	9.3	*No Est.*			
Siuslaw River	12	8.3	*No Est.*			
MC Dependents	8	7.8	*No Est.*			
Umpqua Stratum	**31**	**23.4**	**31,370**	***12,174***	**30,641**	***11,948***
Lower Umpqua River	11	6.5	*No Est.*			
Middle Umpqua River	8	6.8	*No Est.*			
North Umpqua River	1	0.7	*No Est.*			
South Umpqua River	11	9.3	*No Est.*			
Mid-South Coast Stratum	**45**	**32.9**	**14,261**	***4,364***	**14,261**	***4,364***
Coos River	12	9.6	*No Est.*			
Coquille River	19	13.9	*No Est.*			
Floras Creek	6	3.8	*No Est.*			
Sixes River	8	5.7	*No Est.*			
MSC Dependents	0					

No Est = Survey effort was reduced (COVID19 budget cut) to a point so far below goal that no estimate was made in 2020.

Table B-2. Coho Salmon spawners in the Oregon Coastal Lakes populations based on calibrated standard surveys, 2020.

ESU, Stratum, & TRT Population	Survey goal	Survey effort number of		Adult Coho Salmon spawner abundance			
				Total		Wild	
		Surveys	Miles	Estimate	*95% CI*	Estimate	*95% CI*
Standard Surveys							
Lakes Strata	**14**	**9**	**8.7**	**9,722**		**9,722**	
Siltcoos	5	2	2.5	2,832		2,832	
Tahkenitch	2	2	1.6	1,526		1,526	
Tenmile	7	5	4.6	5,364		5,364	

Table B-3. Coho passage above the Alsea Hatchery into an area without GRTS surveys (Alsea Population) and estimates of adult Coho Salmon run size in the North Umpqua Population derived through adjustment of Winchester Dam count. Dam count adjusted for adult Coho Salmon retained by hatchery operations and harvest above Winchester Dam, 2020 compared to the previous 6 years.

Data component	Coho salmon origin	Spawning year			
			2014 to 2019		
		2020	Avg.	Min.	Max.
Alsea Population Passed above Alsea Hatchery	**Wild**	60	60	9	122
North Umpqua Population	**Wild**	**3,003**	**2,693**	**1,148**	**3,979**
	Hatchery	**149**	**178**	**50**	**407**
	% Hat.	**4.7%**	**6.6%**	**1.2%**	**11.0%**
GRTS Estimate below Winchester Dam [1]	Total	0	50	0	298
	Wild	0	50	0	298
	Hatchery	0	0	0	0
Winchester Dam [2]	Total	3,152	2,847	1,252	3,786
	Wild	3,003	2,643	1,148	3,681
	Hatchery	149	205	104	407
Freshwater Catch [3] Above Winchester Dam	Total	n.a.	30	6	60
	Wild	n.a.	0	0	0
	Hatchery	n.a.	30	6	60
Rock Creek Hatchery [4]	Total	0	2	0	10
	Wild	0	0	0	0
	Hatchery	0	2	0	10

1 = Estimate of adult Coho Salmon observed in GRTS surveys below Winchester Dam (i.e., Sutherlin Creek and tributaries).

2 = Counts of adult Coho Salmon by mark type (marked =hatchery, unmarked = wild) at Winchester Dam on the North Umpqua River.

3 = Estimated freshwater harvest of Coho Salmon in the North Umpqua basin above Winchester Dam based on Angler Harvest Cards (see: http://www.dfw.state.or.us/resources/fishing/sportcatch.asp). Selective harvest of mark Coho Salmon began in 2004.

4 = Number of adult Coho Salmon collected from the North Umpqua population (at Rock Creek and at Winchester Dam) and retained at Rock Creek Hatchery. These numbers do not include Coho Salmon collected and released alive back into the wild.

Table B-4. Annual abundance estimates of naturally spawning wild adult Coho Salmon in the Oregon Coast Coho ESU, run years 1990 through 2020. n.a. = not available. *Numbers in italics are partial estimates of spawners in dependent populations*.

Stratum and Population	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
North Coast											
Necanicum River	126	752	133	512	269	181	416	97	575	351	359
Nehalem River	1,158	6,837	1,392	3,049	2,844	1,700	527	1,187	1,206	3,555	14,462
Tillamook Bay	80	1,577	176	571	1,105	341	733	437	358	1,831	2,178
Nestucca River	160	618	604	340	266	1,537	440	230	202	2,357	1,219
NC Dependents	*0*	*444*	*24*	*41*	*77*	*108*	*275*	*61*	*0*	*47*	*0*
Mid-Coast											
Salmon River	19	5	11	13	91	105	82	16	86	14	179
Siletz River	228	410	2,386	207	621	314	395	298	316	1,209	3,387
Yaquina River	318	317	528	458	2,040	4,723	4,578	419	510	2,563	637
Beaver Creek	90	484	618	275	675	308	1,296	497	401	1,511	1,464
Alsea River	775	1,011	6,273	694	828	441	1,060	601	108	1,341	3,363
Siuslaw River	2,269	2,808	3,554	4,600	3,159	6,161	7,234	501	1,020	2,980	6,532
MC Dependents	*487*	*51*	*1,037*	*467*	*317*	*348*	*1,364*	*112*	*173*	*150*	*91*
Umpqua											
Lower Umpqua River	1,678	3,123	1,797	7,877	2,762	10,854	7,985	1,257	4,552	2,623	5,781
Middle Umpqua River	1,222	4,546	5,275	2,947	2,162	3,250	5,086	563	1,257	1,748	4,555
North Umpqua River	355	1,301	1,579	906	899	1,293	1,069	577	765	1,194	1,677
South Umpqua River	2,934	2,233	435	3,723	1,081	4,715	7,040	937	3,177	3,011	2,581
Lakes											
Siltcoos	1,578	2,868	385	3,569	1,302	4,415	4,707	2,653	3,122	2,756	3,835
Tahkenitch	1,085	1,215	317	954	1,056	1,577	1,627	1,842	2,817	3,664	634
Tenmile	1,687	3,033	1,271	5,544	3,354	5,092	7,092	4,092	5,169	6,123	8,278
Mid-South Coast											
Coos River	2,243	2,426	16,722	14,932	14,500	10,302	12,128	1,112	2,985	4,818	4,704
Coquille River	2,589	4,782	2,033	7,291	5,119	2,034	15,814	5,720	2,412	2,667	6,253
Floras Creek	n.a	n.a	n.a.	n.a.	2,653	1,351	1,519	482	879	670	1,477
Sixes River	58	35	92	253	238	77	194	143	558	56	136
MSC Dependents	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table B-4. Continued.

Stratum and Population	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
North Coast											
Necanicum River	4,832	2,047	2,377	2,198	1,218	750	431	1,055	3,827	4,445	2,120
Nehalem River	21,928	17,164	32,517	18,736	10,451	11,614	14,033	17,205	21,753	32,215	15,322
Tillamook Bay	1,944	13,334	13,008	2,532	1,995	8,774	2,295	4,828	16,251	14,890	19,250
Nestucca River	4,164	16,698	10,194	4,695	686	1,876	394	1,844	4,252	1,947	7,857
NC Dependents	*71*	*16*	*0*	661	2,116	1,121	376	639	2,052	1,473	1,341
Mid-Coast											
Salmon River	225	543	42	1,642	79	513	59	652	753	1,382	3,636
Siletz River	1,595	2,129	8,038	8,179	14,567	5,205	2,197	20,634	24,070	6,283	33,094
Yaquina River	3,589	23,800	16,484	5,539	3,441	4,247	3,158	10,913	11,182	8,589	19,074
Beaver Creek	1,832	3,217	5,552	4,569	2,264	1,950	611	1,218	3,575	2,072	2,389
Alsea River	3,228	9,073	10,281	5,233	13,907	1,972	2,146	13,320	14,638	9,688	28,337
Siuslaw River	10,606	55,445	29,003	8,729	16,907	5,869	3,552	17,491	30,607	25,983	28,082
MC Dependents	*816*	*5,308*	*1,852*	8,179	246	1,468	546	3,910	1,610	2,548	4,487
Umpqua											
Lower Umpqua River	11,639	18,881	16,494	8,989	18,591	7,994	4,237	9,023	19,245	17,516	18,715
Middle Umpqua River	8,940	10,738	11,090	6,375	7,608	4,852	1,587	4,472	15,075	18,123	19,962
North Umpqua River	2,634	3,368	2,862	3,559	1,969	3,000	1,410	3,438	7,720	9,397	6,020
South Umpqua River	11,871	10,517	4,337	10,997	14,364	2,246	4,549	20,935	15,944	24,983	49,958
Lakes											
Siltcoos	5,104	4,636	6,628	7,998	4,364	5,452	1,447	3,873	5,197	7,678	6,354
Tahkenitch	3,510	3,480	3,188	3,496	1,897	3,611	3,551	2,604	2,977	10,681	6,644
Tenmile	10,990	13,861	6,260	7,148	8,464	15,064	3,957	17,131	9,175	20,385	7,284
Mid-South Coast											
Coos River	33,595	33,120	25,761	23,337	17,048	11,266	1,329	14,881	26,979	27,658	10,999
Coquille River	13,833	7,676	22,403	22,138	11,806	28,577	13,968	8,791	22,286	23,564	55,667
Floras Creek	5,664	3,272	952	7,446	506	1,104	340	786	3,203	11,329	9,217
Sixes River	95	95	86	403	105	294	97	43	176	92	334
MSC Dependents	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0	188	484	100

Table B-4. Concluded.

Stratum and Population	2012	2013	2014	2015	2016	2017	2018	2019	2020 [a]
North Coast									
Necanicum River	902	798	5,727	847	936	529	393	698	n.a.
Nehalem River	2,963	4,539	30,577	3,079	7,549	5,486	4,190	12,383	n.a.
Tillamook Bay	1,686	4,402	20,090	1,345	7,102	2,927	2,035	3,961	n.a.
Nestucca River	1,751	946	6,369	1,029	2,412	4,495	1,072	4,602	n.a.
NC Dependents	218	271	4,607	440	699	206	262	616	n.a.
Mid-Coast									
Salmon River	297	1,165	3,680	332	1,054	450	103	215	n.a.
Siletz River	4,495	7,660	19,496	2,216	3,015	5,202	4,064	4,509	n.a.
Yaquina River	6,268	3,553	25,582	2,400	3,730	2,491	4,672	3,452	n.a.
Beaver Creek	1,878	2,015	6,564	332	1,709	1,553	494	814	n.a.
Alsea River	8,470	9,283	25,855	6,185	7,375	4,377	5,112	4,915	n.a.
Siuslaw River	11,946	14,118	38,896	10,352	9,141	7,129	6,635	5,881	n.a.
MC Dependents	492	1,929	1,890	856	464	1,646	958	289	n.a.
Umpqua									
Lower Umpqua River	3,731	7,792	36,942	3,725	4,422	10,848	14,080	9,152	n.a.
Middle Umpqua River	2,447	4,272	13,939	2,245	1,159	1,788	3,888	3,104	n.a.
North Umpqua River	3,134	2,774	3,979	3,012	1,148	1,772	2,481	3,302	3,003
South Umpqua River	11,636	12,178	11,412	5,878	765	1,084	3,125	3,600	n.a.
Lakes									
Siltcoos	3,945	3,797	7,178	1,558	2,421	715	2,256	1,065	2,832
Tahkenitch	5,675	3,413	3,691	1,085	1,249	269	1,678	1,405	1,526
Tenmile	9,302	6,449	11,141	2,086	4,374	318	2,770	4,963	5,364
Mid-South Coast									
Coos River	9,414	6,884	38,880	3,030	4,624	2,689	7,292	13,289	n.a.
Coquille River	5,911	23,637	41,660	3,357	9,494	4,641	5,688	11,841	n.a.
Floras Creek	2,502	1,936	1,022	1,585	942	693	628	904	n.a.
Sixes River	34	567	410	168	120	69	174	155	n.a.
MSC Dependents	48	32	105	0	0	0	10	23	n.a.

n.a. = Survey effort was reduced (COVID19 budget cut) to a point so far below goal that no estimate was made in 2020.

APPENDIX C (SONCC COHO ESU)

Table C-1. Estimates of adult Coho Salmon run size in the Rogue River derived from Huntley Park seining and returns to Cole Rivers Hatchery, 1990 through 2020.

	Huntley Park seine		Cole Rivers Hatchery		Adult Coho Salmon run size			
	Fin-marks	Total	Adult	Adult fin-	Total		Wild	
Year	(*R*)	(*C*)	returns	marks (*M*)	Estimate	95% CI	Estimate	95% CI
1990	1	58	452	103	3,363	4,581	3,109	4,404
1991	11	106	2,209	277	2,729	1,455	471	604
1992	4	91	1,338	168	3,422	2,917	2,224	2,352
1993	3	34	756	106	1,033	953	383	580
1994	91	173	6,590	5,564	11,577	1,624	4,364	997
1995	139	211	8,714	7,757	12,923	1,248	3,359	636
1996	204	362	7,921	6,940	13,520	1,221	4,824	729
1997	213	424	8,001	7,571	16,541	1,562	7,760	1,070
1998	79	165	2,921	2,387	5,451	860	2,257	553
1999	108	163	4,381	3,742	6,194	673	1,389	319
2000	194	505	9,224	7,389	21,094	2,321	10,978	1,675
2001	352	848	12,759	9,837	26,028	2,075	12,015	1,410
2002	323	706	11,599	8,831	21,199	1,699	8,460	1,073
2003	169	449	6,656	4,842	14,101	1,672	6,805	1,162
2004	259	1,260	8,289	6,297	33,601	3,639	24,509	3,108
2005	146	519	4,876	3,930	15,296	2,094	9,957	1,690
2006	175	458	3,188	2,581	7,407	859	3,911	624
2007	87	345	2,085	1,713	7,411	1,337	5,136	1,113
2008	19	107	148	95	572	226	414	192
2009	12	80	503	449	3,084	1,536	2,566	1,401
2010	13	142	730	393	4,423	2,201	3,671	2,005
2011	25	172	1,086	778	5,702	2,020	4,545	1,804
2012	36	202	1,322	1,142	6,897	2,010	5,474	1,790
2013	17	154	1,911	1,394	13,209	5,737	11,210	5,285
2014	19	91	784	639	3,238	1,255	2,409	1,083
2015	16	65	1,540	1,332	5,692	2,331	4,072	1,972
2016	6	51	1,248	917	7,503	5,171	6,302	4,739
2017	22	147	836	764	5,412	2,033	4,526	1,859
2018	9	354	326	219	8,591	5,249	8,266	5,149
2019	5	163	208	77	2,351	1,846	2,156	1,768
2020	3	122	130	42	1,445	1,393	1,335	1.339

APPENDIX D

Table D-1. Site status of 2020 GRTS samples in the Lower Columbia River Coho ESU by TRT population. Target sites fell within Coho Salmon spawning habitat; response sites were successfully surveyed, and non-response sites were not surveyed because of issues such as lack of landowner permission, site inaccessibility, or gaps in survey effort usually from stream turbidity. Non-target sites are outside of Coho Salmon spawning habitat. Average is for 2014 to 2019.

		Target response				Target non-response				Non-target			
Stratum	Population	2020	Avg.	Min	Max	2020	Avg.	Min	Max	2020	Avg.	Min	Max
Coast	Youngs Bay	0	0	0	0	0	0	0	0	0	0	0	0
	Big Creek	0	0	0	0	0	0	0	0	0	0	0	0
	Clatskanie	18	20	11	22	6	7	0	16	0	2	1	3
	*Plympton **	*2*	*1*	*1*	*2*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*
	Scappoose	8	15	13	18	28	17	10	23	0	1	0	2
	Total	**28**	**35**	**27**	**40**	**34**	**24**	**15**	**39**	**0**	**2**	**1**	**3**
Cascade	Clackamas	12	21	15	30	25	17	11	28	1	0	0	1
	*Eagle Cr **	*4*	*7*	*3*	*9*	*12*	*3*	*0*	*5*	*0*	*0*	*0*	*0*
	Sandy	8	30	21	35	46	15	14	17	0	1	1	2
	Total	**24**	**58**	**49**	**64**	**83**	**36**	**27**	**47**	**1**	**2**	**1**	**3**
Gorge	Lower Gorge	0	3	0	6	0	4	2	6	0	0	0	1
	Hood	0	2	0	5	0	2	0	5	0	1	0	2
	Total	**0**	**5**	**0**	**8**	**12**	**6**	**2**	**11**	**0**	**1**	**0**	**2**
ESU Total		**52**	**98**	**85**	**105**	**129**	**66**	**46**	**86**	**1**	**5**	**2**	**8**

** = Stratified abundance estimation. Plympton Creek estimated separately from the rest of the Clatskanie population and Eagle Creek estimated separately from the rest of the Clackamas population.*

Table D-2. Site status of 2020 GRTS samples in the Oregon Coast Coho ESU by TRT population. Target sites fell within Coho Salmon spawning habitat; response sites were successfully surveyed, and non-response sites were not surveyed because of issues such as lack of landowner permission, site inaccessibility, or gaps in survey effort usually from stream turbidity. Non-target sites are outside of Coho Salmon spawning habitat. Average is for 2014 to 2019.

		Target response				Target non-response				Non-target			
Stratum	Population	2020	Avg.	Min	Max	2020	Avg.	Min	Max	2020	Avg.	Min	Max
North Coast	Necanicum	8	16	11	18	3	5	1	11	2	1	0	2
	Nehalem	13	19	13	24	5	7	1	10	3	4	2	8
	Tillamook	12	21	14	25	6	6	3	10	0	2	0	5
	Nestucca	10	16	9	23	5	10	4	18	3	5	4	9
	NC Depend.	7	7	6	9	1	1	1	2	3	3	3	4
	Total	**50**	**79**	**59**	**92**	**20**	**29**	**22**	**49**	**11**	**16**	**11**	**24**
Mid-Coast	Salmon	5	11	7	17	8	11	8	14	0	0	0	1
	Siletz	13	20	12	26	6	5	1	12	4	6	3	9
	Yaquina	11	18	10	22	4	6	3	9	1	4	1	6
	Beaver	4	4	3	5	0	1	0	3	0	1	0	1
	Alsea	12	19	11	24	3	7	3	10	1	1	1	2
	Siuslaw	12	18	12	23	3	8	3	14	1	3	2	4
	MC Depend.	8	8	6	11	2	3	2	6	0	0	0	1
	Total	**65**	**97**	**78**	**114**	**26**	**41**	**28**	**54**	**7**	**15**	**9**	**20**
Lakes	Siltcoos	0	0	0	0	0	0	0	0	0	0	0	0
	Tahkenitch	0	0	0	0	0	0	0	0	0	0	0	0
	Tenmile	0	0	0	0	0	0	0	0	0	0	0	0
	Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Umpqua	L. Umpqua	11	17	15	20	8	9	7	12	0	1	0	3
	M. Umpqua	8	13	6	15	15	16	11	22	2	2	1	4
	N. Umpqua	1	1	0	3	7	6	4	9	1	1	0	1
	S. Umpqua	11	16	9	20	12	13	8	17	0	3	1	5
	Total	**31**	**48**	**30**	**55**	**42**	**43**	**33**	**54**	**3**	**6**	**3**	**12**
Mid-South Coast	Coos	12	20	18	22	5	5	2	7	1	2	1	4
	Coquille	19	20	15	24	9	15	10	20	2	2	0	3
	Floras	6	11	1	22	18	19	8	27	5	2	1	4
	Sixes	8	8	3	15	3	9	2	16	0	1	0	1
	MS Depend.	0	2	0	6	9	10	4	18	3	5	2	7
	Total	**45**	**60**	**41**	**79**	**44**	**58**	**48**	**69**	**11**	**11**	**5**	**18**
ESU Total		**191**	**284**	**229**	**322**	**132**	**171**	**155**	**221**	**32**	**48**	**33**	**63**

Table D-3. Adult Coho Salmon counts, density (AUC/mile), and marked proportion information for valid GRTS surveys by population in the Lower Columbia River and Oregon Coast Coho ESUs during the 2020 spawning year. Averages in *italics* do not include data for all years.

No Est = No estimate was made in 2020 due to reduced effort (COVID19 budget cut).

Location **ESU** / ***Stratum*** / Population	Total Surveys	Survey Miles	Sample of marks * dead (live)	2020 Density	2014-19 Avg. Density	2020 % Marked	2014-19 Avg. % Marked
Lower Columbia River ESU							
Coastal Stratum							
Youngs Bay	0	--	--	--	--	--	--
Big Creek	0	--	--	--	--	--	--
Clatskanie River [a]	18	14.8	51	18.6	13.8	5.9%	16.4%
Plympton Creek	2	2.1	6 (164)	67.3	45.5	82.0%	76.8%
Scappoose Creek	8	6.2	1 (37)	*No Est.*	9.8	*No Est.*	1.0%
Cascade Stratum							
Clackamas River [a]	12	9.1	2 (47)	*No Est.*	5.4	*No Est.*	16.7%
Eagle Creek	4	4.3	12	*No Est.*	13.2	*No Est.*	75.8%
Sandy River	8	7.3	45	*No Est.*	16.8	*No Est.*	3.6%
Gorge Stratum							
Lower Gorge	0	--	--	--	*61.5*	--	*18.7%*
Hood River	0	--	--	--	*43.2*	--	*50.1%*
Oregon Coast ESU							
North Coast Stratum							
Necanicum River	8	5.6	9 (75)	*No Est.*	27.9	*No Est.*	1.1%
Nehalem River	13	11.0	34	*No Est.*	24.0	*No Est.*	1.0%
Tillamook Bay	12	9.6	9 (155)	*No Est.*	29.8	*No Est.*	0.6%
Nestucca River	10	7.6	15	*No Est.*	24.4	*No Est.*	0.0%
NC Dependents	7	4.1	4 (36)	*No Est.*	28.7	*No Est.*	0.4%
Mid-Coast Stratum							
Salmon River	5	3.9	9 (40)	*No Est.*	21.6	*No Est.*	2.8%
Siletz River	13	10.4	17	*No Est.*	43.4	*No Est.*	0.1%
Yaquina River	11	6.7	18	*No Est.*	49.6	*No Est.*	0.6%
Beaver Creek	4	2.1	10	*No Est.*	159.0	*No Est.*	0.1%
Alsea River	12	9.3	14	*No Est.*	35.1	*No Est.*	0.0%
Siuslaw River	12	8.3	4 (66)	*No Est.*	21.4	*No Est.*	0.0%
MC Dependents	8	7.8	0 (29)	*No Est.*	5.9	*No Est.*	1.5%
Lakes Stratum							
Siltcoos Lake	0	--	--	--	--	--	--
Tahkenitch Lake	0	--	--	--	--	--	--
Tenmile Lake	0	--	--	--	--	--	--
Mid-South Coast Str.							
Coos Bay	12	9.6	21	*No Est.*	48.7	*No Est.*	0.2%
Coquille River	19	13.9	6 (168)	*No Est.*	45.0	*No Est.*	0.0%
Floras Creek	6	3.8	1 (66)	*No Est.*	11.9	*No Est.*	0.0%
Sixes River	8	5.7	1 (14)	*No Est.*	6.0	*No Est.*	0.0%
MS Dependents	0	--	--	*No Est.*	0.7	*No Est.*	*0.6%*
Umpqua Stratum							
Lower Umpqua	11	6.5	1 (170)	*No Est.*	38.4	*No Est.*	0.1%
Middle Umpqua	8	6.8	8 (126)	*No Est.*	10.1	*No Est.*	0.0%
North Umpqua	1	0.7	0 (0)	*No Est.*	2.7	*No Est.*	*4.5%*
South Umpqua	11	9.3	2 (25)	*No Est.*	8.1	*No Est.*	11.5%

a = Stratified sampling. Results for population excluding the sub-area listed below.

* = Used carcass (i.e., dead) sample only if greater than 10, otherwise use both live and dead sample.

Table D-4. Percent of selected GRTS sites classified "Target Response" that were included in abundance estimates based on non-standard criteria (i.e., some level of relaxed criteria). Average, Minimum and Maximum are for 2014 to 2019. n.a. = not available.

Stratum	Population	Percent by Relaxed Criteria			
		2020	Avg.	Min	Max
Coast	Youngs Bay	n.a.	n.a.	n.a.	n.a.
	Big Creek	n.a.	n.a.	n.a.	n.a.
	Clatskanie	0.0%	0.0%	0.0%	0.0%
	Scappoose	0.0%	0.0%	0.0%	0.0%
	Total	**0.0%**	**0.0%**	**0.0%**	**0.0%**
Cascade	Clackamas	0.0%	0.0%	0.0%	0.0%
	Sandy	0.0%	7.9%	0.0%	47.6%
	Total	**0.0%**	**2.9%**	**0.0%**	**17.2%**
Gorge	Lower Gorge	n.a.	0.0%	0.0%	0.0%
	Hood	n.a.	0.0%	0.0%	0.0%
	Total	**n.a.**	**0.0%**	**0.0%**	**0.0%**
ESU Total		**0.0%**	**1.7%**	**0.0%**	**10.0%**
North Coast	Necanicum	0.0%	1.9%	0.0%	11.1%
	Nehalem	0.0%	6.7%	0.0%	40.0%
	Tillamook	0.0%	10.6%	0.0%	63.6%
	Nestucca	0.0%	6.9%	0.0%	41.7%
	NC Depend.	0.0%	0.0%	0.0%	0.0%
	Total	**0.0%**	**6.2%**	**0.0%**	**37.0%**
Mid-Coast	Salmon	20.0%	16.7%	0.0%	100.0%
	Siletz	0.0%	8.3%	0.0%	50.0%
	Yaquina	0.0%	6.2%	0.0%	31.6%
	Beaver	0.0%	17.8%	0.0%	40.0%
	Alsea	0.0%	4.6%	0.0%	27.8%
	Siuslaw	0.0%	5.7%	0.0%	27.3%
	MC Depend.	0.0%	11.3%	0.0%	42.9%
	Total	**1.5%**	**8.7%**	**0.0%**	**20.2%**
Lakes	Siltcoos	n.a.	n.a.	n.a.	n.a.
	Tahkenitch	n.a.	n.a.	n.a.	n.a.
	Tenmile	n.a.	n.a.	n.a.	n.a.
	Total	**n.a.**	**n.a.**	**n.a.**	**n.a.**
Umpqua	L. Umpqua	27.3%	5.6%	0.0%	33.3%
	M. Umpqua	75.0%	17.8%	0.0%	66.7%
	N. Umpqua	100.0%	20.0%	0.0%	100.0%
	S. Umpqua	27.3%	11.4%	0.0%	68.4%
	Total	**41.9%**	**11.7%**	**0.0%**	**58.2%**
Mid-South Coast	Coos	0.0%	11.1%	0.0%	66.7%
	Coquille	68.4%	15.3%	0.0%	91.7%
	Floras	0.0%	14.4%	0.0%	86.4%
	Sixes	0.0%	16.7%	0.0%	100.0%
	MS Depend.	n.a.	30.0%	0.0%	100.0%
	Total	**28.9%**	**15.2%**	**0.0%**	**77.8%**
ESU Total		**14.1%**	**10.4%**	**0.0%**	**45.5%**

Table D-5. Percent of selected GRTS sites classified "Target Non-Response" in three main categories. No AUC - Site surveyed but did not meet inclusion criteria for estimates. Denied - Sites not surveyed, lacked access permission. Inaccessible - Sites not surveyed, safety concerns or time required (greater than 3 hours). Average, minimum and maximum are for the period 2008 through 2019.

No Est = No estimate was made in 2020 due to reduced effort (COVID19 budget cut). n.a. = Not Applicable (no surveys conducted).

			No AUC				Denied				Inaccessible			
ESU	Strata	Population	2020	**Avg.**	Min.	Max.	2020	**Avg.**	Min.	Max.	2020	**Avg.**	Min.	Max.
LCR	Coastal	Youngs Bay	n.a.	8.2%	0.0%	24.1%	n.a.	3.2%	0.0%	8.7%	n.a.	1.7%	0.0%	8.7%
LCR	Coastal	Big Creek	n.a.	22.0%	0.0%	37.5%	n.a.	3.3%	0.0%	8.3%	n.a.	0.0%	0.0%	0.0%
LCR	Coastal	Clatskanie River	0.0%	15.4%	0.0%	42.3%	23.1%	6.4%	0.0%	22.6%	0.0%	1.3%	0.0%	4.5%
LCR	Coastal	Scappoose Creek	No Est.	8.6%	0.0%	13.8%	No Est.	23.2%	10.3%	45.2%	No Est.	0.9%	0.0%	5.7%
LCR	Cascade	Clackamas River	No Est.	20.8%	5.5%	37.8%	No Est.	12.6%	2.9%	26.0%	No Est.	1.4%	0.0%	7.5%
LCR	Cascade	Sandy River	No Est.	7.8%	0.0%	28.2%	No Est.	3.2%	0.0%	11.5%	No Est.	10.6%	4.8%	21.4%
LCR	Gorge	Lower Gorge	n.a.	2.8%	0.0%	33.3%	n.a.	0.0%	0.0%	0.0%	n.a.	9.7%	0.0%	100.0%
LCR	Gorge	Hood River	n.a.	0.0%	0.0%	0.0%	n.a.	3.5%	0.0%	16.7%	n.a.	12.3%	0.0%	100.0%
OC	N Coast	Necanicum River	No Est.	5.7%	0.0%	25.8%	No Est.	4.1%	0.0%	14.3%	No Est.	8.9%	0.0%	19.2%
OC	N Coast	Nehalem River	No Est.	19.7%	0.0%	66.7%	No Est.	1.4%	0.0%	5.1%	No Est.	3.4%	0.0%	8.3%
OC	N Coast	Tillamook Bay	No Est.	11.5%	0.0%	47.7%	No Est.	5.9%	2.0%	13.3%	No Est.	6.0%	0.0%	15.6%
OC	N Coast	Nestucca River	No Est.	18.0%	2.9%	41.9%	No Est.	6.8%	2.1%	12.5%	No Est.	6.2%	0.0%	17.1%
OC	N Coast	NC Dependents	No Est.	3.3%	0.0%	15.4%	No Est.	7.1%	2.6%	13.3%	No Est.	0.7%	0.0%	3.2%
OC	Mid-Coast	Salmon River	No Est.	21.4%	0.0%	47.6%	No Est.	6.0%	0.0%	11.5%	No Est.	17.5%	0.0%	31.0%
OC	Mid-Coast	Siletz River	No Est.	11.2%	0.0%	36.6%	No Est.	0.9%	0.0%	4.9%	No Est.	4.7%	2.1%	9.1%
OC	Mid-Coast	Yaquina River	No Est.	11.5%	0.0%	26.8%	No Est.	10.5%	6.5%	18.0%	No Est.	2.8%	0.0%	10.5%
OC	Mid-Coast	Beaver Creek	No Est.	12.6%	0.0%	35.7%	No Est.	4.5%	0.0%	16.7%	No Est.	0.0%	0.0%	0.0%
OC	Mid-Coast	Alsea River	No Est.	6.8%	0.0%	15.0%	No Est.	15.0%	8.5%	27.6%	No Est.	1.4%	0.0%	6.9%
OC	Mid-Coast	Siuslaw River	No Est.	14.8%	0.0%	51.3%	No Est.	6.8%	2.4%	13.3%	No Est.	5.7%	3.2%	9.5%
OC	Mid-Coast	MC Dependents	No Est.	10.8%	0.0%	21.8%	No Est.	13.2%	3.6%	22.2%	No Est.	2.0%	0.0%	6.1%
OC	Lakes	Siltcoos Lake	n.a.	3.8%	0.0%	20.0%	n.a.	19.2%	11.1%	36.4%	n.a.	6.5%	3.0%	11.1%
OC	Lakes	Tahkenitch Lake	n.a.	6.3%	0.0%	30.8%	n.a.	5.5%	0.0%	15.4%	n.a.	0.0%	0.0%	0.0%
OC	Lakes	Tenmile Lake	n.a.	3.3%	0.0%	13.3%	n.a.	28.9%	18.2%	43.3%	n.a.	7.7%	2.6%	15.2%
OC	Mid-S Coast	Coos Bay	No Est.	11.3%	0.0%	62.2%	No Est.	9.8%	4.7%	16.1%	No Est.	2.1%	0.0%	6.7%
OC	Mid-S Coast	Coquille River	No Est.	9.6%	0.0%	36.7%	No Est.	22.1%	14.8%	28.3%	No Est.	8.1%	1.9%	15.0%
OC	Mid-S Coast	Floras Creek	No Est.	22.9%	0.0%	51.9%	No Est.	24.8%	8.6%	31.3%	No Est.	5.5%	2.9%	11.8%
OC	Mid-S Coast	Sixes River	No Est.	26.3%	0.0%	63.2%	No Est.	16.1%	5.0%	26.7%	No Est.	7.2%	0.0%	11.8%
OC	Mid-S Coast	MS Dependents	No Est.	4.1%	0.0%	13.0%	No Est.	54.3%	35.0%	90.0%	No Est.	0.7%	0.0%	4.5%
OC	Umpqua	Lower Umpqua	No Est.	13.7%	3.6%	40.5%	No Est.	7.8%	2.4%	14.3%	No Est.	10.8%	7.1%	14.8%
OC	Umpqua	Middle Umpqua	No Est.	21.3%	7.7%	41.4%	No Est.	18.2%	7.7%	31.0%	No Est.	2.9%	0.0%	13.8%
OC	Umpqua	North Umpqua	No Est.	27.7%	0.0%	80.0%	No Est.	16.0%	0.0%	40.0%	No Est.	2.6%	0.0%	12.2%
OC	Umpqua	South Umpqua	No Est.	12.2%	0.0%	39.3%	No Est.	16.4%	8.5%	25.8%	No Est.	5.4%	0.0%	9.1%