

2025-26 Lower Columbia Fall Chinook Survey Summary

This report provides a summary of results from Fall Chinook spawning ground surveys conducted in the Lower Columbia River Evolutionarily Significant Unit (ESU) during the 2025-26 spawning season. Site selection, as well as survey and analysis methods, mirrored those used for coho spawning ground surveys in the same area. This report covers results from spawning surveys selected using a Generalized Random Tessellation Stratified (GRTS) sampling design (Stevens 2002). Additional long-term index sites were also surveyed during the 2025-26 season; those results are not reported here. Plympton Creek, and the lower portion of Big Creek below the hatchery, are monitored and reported separately from their respective populations. This is due to the high density of hatchery fish present at these sites, which is uncharacteristic of their population areas.

Survey Effort

- 60 (75%) of the attempted 80 sites were successfully surveyed (Table 1).
- Sites with either an insufficient number of survey visits (< 4), or with gaps between survey visits of more than thirteen days are considered non-response. Poor survey conditions such as elevated turbidity and/or high flows are the most common reasons for site loss. Some non-response sites (4) were inaccessible due to landowner denials.
- In the Sandy population, 14 of 30 sites had one survey gap of 14 days, and therefore exclusion criteria were relaxed to allow these sites to be included in the estimate.
- Lower Gorge and Hood populations were not sampled in 2025 due to budget cuts.

Table 1. Lower Columbia Fall Chinook ESU site goals and results for the number of valid target responses, 2025 run year. Target Response sites are within spawning habitat and were successfully surveyed. Successful sites were defined as having no gaps of 13 or more days between valid survey dates and no more than one gap of 9 to 12 days, during the period when 75% of the live Chinook were observed for the population.

Population	Goal	Target Response 2025	Survey Points Attempted 2025
Youngs Bay	6	7	8
Big Creek	4	2	2
<i>Below Hatchery</i>	-	2	2
Clatskanie	5	4	4
<i>Plympton Creek</i>	-	2	2
Scappoose	4	1	6
Total	19	18	24
Clackamas	11	12	15
Sandy ¹	25	30	41
Total	36	42	56
ESU Total	55	60	80

1 – Relaxed criteria were used for 14 of 30 Sandy sites as they did not pass AUC checks due to a gap of 14 days during the critical period. These gaps were due to poor weather/survey conditions.

Distribution and Timing

- Across all survey populations live adult Chinook were observed in 50% of the selected sites that were successfully surveyed in 2025.
- In the Big Creek population, two of the four successfully surveyed sites were located directly downstream of the Big Creek hatchery. No Fall Chinook activity was observed in the remaining two sites.
- The number of live adult observations in each population varied considerably, ranging between 0 in the Scappoose population to 3,432 in the Plympton Creek survey (Clatskanie population). Of the 2,914 fish in Big Creek (*below Big Creek Hatchery*), some likely migrated to the hatchery and thus were not active spawners despite being included in counts/estimates.
- The number of live adults observed in the Clackamas and Sandy populations is likely underestimated due to difficulties associated with surveying large rivers (i.e. covering the entire width of river and lack of visibility in deep holes).
- The median peak count date ranged from 9/17/25 to 10/22/25 among Lower Columbia populations (Table 2). A spatial pattern is apparent, with relatively early peak dates in the Coastal stratum (with the exception: Youngs Bay), and later peak count dates in the Cascade strata. These timing signatures are consistent with rates of hatchery influence in these populations, with hatchery origin adults typically having an earlier spawn timing than wild/natural spawners.

Table 2. Total number of Chinook observed and peak count information by Lower Columbia population, 2025. Peak dates are from all sites attempted. All other data are from target response sites.

Population	No. of Random Survey Points	No. Random Survey Points w/ Live Adults	Total Live Adults Observed	Median Adult Peak Date	Avg. Peak/mile
Youngs Bay	7	4	56	10/18/2025	4
Big Creek ¹	2	0	0	-	0
<i>Big Creek Hatchery</i>	2	2	2050	9/25/2025	250
Clatskanie ¹	4	3	27	-	4
<i>Plympton Cr</i>	1	1	5960	9/17/2025	1125
Scappoose	1	0	0	-	0
Clackamas	12	6	193	10/7/2025	7
Sandy	30	13	763	10/22/2025	6

1 = Plympton Creek and Big Creek are within the Clatskanie and Big Creek Populations respectively, but the very high hatchery influence at these sites is not found in any other streams in their area. As a result, estimates and other reported statistics are shown separately.

Hatchery & Wild Information

- The percentage of marked carcasses recovered on the spawning grounds in each population varied from 2% to 98% (Table 3).
- Of the carcasses recovered in the Sandy population, 4% were of hatchery origin, the lowest of any population with at least 10 carcasses recovered.
- Only one carcass (unmarked) was recovered in the Clackamas, and because of this small sample size PHOS was not calculated. Small sample sizes are an ongoing issue in the Clackamas population, and sample sizes have been in the single digits since 2020. The 2009 – 2020 average is 39% hatchery origin, and while the ratio of wild fish has increased since 2018, only 2018 and 2019 had at least 10 recovered carcasses. The sample size in 2019 was 60 fish, and 95% of Chinook carcasses observed were wild fish.
- All Chinook carcasses recovered throughout the ESU are checked electronically for the presence of a coded wire tag (CWT). In Plympton Creek for 2025 CWT tags were detected in 3% of unmarked and 17% of marked fish (Table 4).
- During 2025 Fall Chinook spawning surveys, all CWT recoveries were from Fall Chinook, and none recovered were Spring Chinook.

Table 3. The percentage of hatchery origin Chinook carcasses observed on GRTS spawning ground surveys. Null cells indicate less than 10 carcasses were collected during the spawning season, and therefore no PHOS was calculated.

Spawning Year	Big Cr (below hatchery)	Big Creek	Clackamas River ²	Clatskanie River	Plympton Cr	Sandy River ¹	Scappoose River	Youngs Bay
2009	41%		52%		44%	0%		
2010	91%		80%		90%	32%		0%
2011	95%		71%		92%	10%		29%
2012	90%	93%	81%		92%			96%
2013	92%		9%		94%	2%		80%
2014	92%	87%	32%		93%	0%		71%
2015	92%		38%		95%			63%
2016	94%		20%		95%	1%		54%
2017	99%				97%	0%		89%
2018	99%		5%		99%	1%		96%
2019	98%		5%		99%	0%		
2020	98%				97%	0%		
2021	95%				97%	3%		43%
2022	68%				97%	3%		95%
2023	90%				95%	0%		91%
2024	95%				97%	0%		
2025	96%				98%	2%		
Average	90%	90%	39%		92%	4%		67%

1 = Cut off dates to differentiate Spring/Fall ChK in Sandy weren't used in annual reports until 2023, so Sandy population hatchery/wild numbers shown here won't match annual reports published before 2023. Figures shown here are considered to be more accurate than reporting before 2023.

2 = Clackamas survey seasons started September 1st until 2017, when the start date switched to October 1st. Spring Chinook carcasses were likely sampled as Fall Chinook during this time.

Table 4. The percentage of marked and unmarked carcasses with CWT from each population in the Lower Columbia, 2025. Electronic detection was used on all carcasses to identify the presence of a CWT.

Population Name	% Unmarked fish with CWT tags	% Marked fish with CWT
Youngs Bay (n=7)	0%	20%
Big Creek (n=0)		
<i>Big Creek (Below Hatcher, n= 280)</i>	0%	5%
Clatskanie River (n=3)	0%	0%
<i>Plympton Creek (n=2918)</i>	3%	17%
Scappoose River (n=0)		
Clackamas River (n=1)		
Sandy River (n=81)	0%	0%

Null cells = the number of carcasses collected in these areas was insufficient for calculation.

Abundance Estimates

- The Clackamas estimate of 537 fish is considerably higher than the 5-year average of 154 fish. As discussed above, the sample size for this estimate was very small, and thus the wild estimate is not available (Table 5).
- Estimates at the stratum scale may be negatively biased due to difficult survey conditions in the Clatskanie and Clackamas populations.

Table 5. Final results of randomly selected spawning ground surveys for Fall Chinook salmon in the Oregon portion of the Lower Columbia River ESU, run year 2025. Final estimates are based on sites that passed inclusion criteria. Qualifying sites were defined as having no gaps of 13 or more days between valid survey dates, and no more than one gap of 9 to 12 days during the period when 75% of the live Chinook were observed. Estimates of wild spawners were derived through application of fin-mark observations. Missing values indicate inadequate samples for determining total and/or wild abundance.

Monitoring Area	Population	Survey Effort		Adult Chinook Spawner Abundance			
		Number of Surveys	Miles	Total		Wild	
				2025	5-Yr Avg	2025	5-Yr Avg
Coast Strata	Youngs Bay	7	8.1	163	629	34	81
	Big Cr	2	1.6	0	6	0	0
	<i>Below Big Creek Hatchery</i>	2	2.4	2,914	2,500	131	186
	Clatskanie	4	3.6	103	37	7	-
	<i>Plympton Creek</i>	2	2.1	3,432	2,525	83	81
	Scappoose	1	0.9	0	0	0	0
	Coastal Stratum Total	18	18.7	6,611	5,696	255	376
Cascade Strata	Clackamas	12	17.0	537	154		45
	Sandy ¹	30	44.0	2,062	3,180	1,986	3,117
	Cascade Stratum Total	42	61.0	2,599	3,335	1,986	3,163
ESU	Lower Columbia ESU Total	60	80	9,210	9,031	2,240	3,538

1 – Due to difficult survey conditions most mainstem Sandy R sites failed criteria tests, and as a result relaxed criteria were used for Sandy River site inclusion.

Future Monitoring Concerns

- Fall vs Spring Chinook:** Genetic samples collected from both Spring and Fall run Chinook carcasses during the 2015 through 2018 spawning years were analyzed. Results of this analysis indicated that there were spatial-temporal patterns in the distribution of these runs within the Sandy Basin. The spatial-temporal pattern is as follows: Almost all Chinook recovered in the lower Sandy (mouth up to the Revenue Bridge) through October 15th and in the Upper Sandy through October 31st were Spring Chinook. Chinook recovered in the lower river after October 15th and in the upper river after October 31st, were almost all Fall Chinook. Based on these results, our analysis of Fall Chinook in the Sandy excluded all data collected before the dates identified within this spatial-temporal pattern. In the Clackamas population evidence of spatial-temporal patterns is less clear, and so a monitoring approach similar to that used in the Sandy population is not possible.
- Survey effort:** Hatchery influenced sites such as Plympton Creek and Big Creek require nearly full-time attention by multiple crews to maintain sampling schedules due to the high volume of carcass recoveries. These surveys draw crews away from other sites and dilute the ability to detect spawning activity in other surveys around the area. Additional effort is typically provided by crews not funded under this project to assist in conducting these sites during peaks.

- **Main stem float surveys:** Since the introduction of this Lower Columbia Chinook monitoring in 2009, mainstem sites in the Sandy population have been notoriously difficult to keep in a consistent survey rotation. This difficulty in attaining consistent rotations has led to a low level of confidence in Chinook estimates given that chronically turbid surveys on the Lower Sandy are often excluded from the final estimates. To give broader consideration to sites that have Chinook data but are not normally used in estimates under the original screening process, sites within the Sandy Population have been included if they have more than 4 valid survey dates. In 2018, this relaxed criterion resulted in a 52% increase in the number of sites utilized in the estimate. Furthermore, 1,140 out of the total 1,193 Chinook observed in the Sandy Population came from surveys exclusively included in the estimation process under these relaxed criteria. In 2025, 16 of 30 sites surveyed met baselevel survey gap criteria for the Sandy population, thus requiring relaxed criteria to be implemented, resulting in an additional 14 sites being included.
- **Spawning residence time:** A brief review of the Fall Chinook literature suggests that spawning residence time ranges from 5 to 8 days (Rawding et al. 2006 and Parken et al. 2003). Our crews surveyed under the Coho Salmon criteria of conducting a survey at least once every 10 days. Anecdotal evidence of spawn timing on Plympton Creek suggests that residence times are likely higher than those specified by Rawding, but these patterns remain untested.

Literature Cited

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