

2025 FALL CREEK ADULT SALMON STUDIES

Siskiyou County, CA



Prepared by:
Domenic Giudice and Jonathan Kang
California Department of Fish and Wildlife
Klamath River Project
1625 S. Main Street
Yreka, CA 96097
domenic.giudice@wildlife.ca.gov
August 11, 2026

2025 FALL CREEK ADULT SALMON STUDIES

Siskiyou County, CA

ABSTRACT

A minimum total of **97** fall run Chinook Salmon (*Oncorhynchus tshawytscha*) were estimated to have entered Fall Creek during the 2025 spawning season. The estimate was made from observed carcasses during spawning ground surveys.

Chinook Salmon carcasses that were collected during spawning ground surveys were used to describe characteristics of the run. Klamath River Project (KRP) staff processed 61 carcasses during spawning ground surveys for bio data and samples and counted and chopped another 36 Chinook Salmon carcasses which were too decayed to be processed. The run was comprised of 3 grilse (3.1%), and 94 adults (96.9%). Grilse were determined by scale-based aging. The sex composition of the run, based on 61 fish sampled, was 57.4% (35) female and 42.6% (26) male. 23 adipose fin clipped (AD) fish (indicating hatchery origin) were encountered, and an estimate of 47 (48.4%) hatchery origin fish entered Fall Creek.

Zero Coho Salmon (*Oncorhynchus kisutch*) were estimated to have returned to Fall Creek to spawn in 2025 because zero Coho Salmon carcasses were encountered during spawning ground surveys. Zero Coho Salmon carcasses were recovered; therefore, no age proportion, sex ratio or hatchery origin estimates were generated.

Zero steelhead trout (*Oncorhynchus mykiss*) were observed as live fish and no steelhead trout carcasses were recovered during the 2025 season in Fall Creek.

Introduction

The KRP of the California Department of Fish and Wildlife (Department) is responsible, in cooperation with other State, federal and tribal partners, for estimating the number of Chinook Salmon and Coho Salmon that return to the Klamath River Basin, excluding the Trinity River Basin, each year. In addition to escapement, objectives include the determination of run timing, spawning distribution, length frequency distribution, sex ratio, and spawn condition for Chinook Salmon and Coho Salmon in Fall Creek. Scales and coded wire tags (CWT) are collected to determine the age composition and hatchery contribution to each annual run.

To achieve these tasks the KRP employs several techniques which include a creel survey of sport fishing effort and harvest, recovery of fish returning to Fall Creek Hatchery (FCH), completion of cooperative spawning ground surveys in major tributary streams and rivers, and operation of video fish counting weirs on the Shasta River, Scott River, Bogus Creek, Jenny Creek and Shovel Creek. This report summarizes observations of salmonids spawning in natural areas of Fall Creek downstream of Fall Creek Hatchery.

In 2024 four dams were removed on the Klamath River restoring access for anadromous fish up to and beyond the California-Oregon state line. Fall Creek is a tributary to the Klamath River and is located approximately 13.94 river kilometers (rkm) upstream of the former Iron Gate Dam site. FCH is located on Fall Creek approximately 2.03 rkm upstream from the confluence with the Klamath River. Fall Creek continues much further upstream but an impassable waterfall and FCH trapping infrastructure blocks anadromy at this point and the river is not surveyed upstream of FCH. This is the second year of adult salmonid monitoring on Fall Creek.

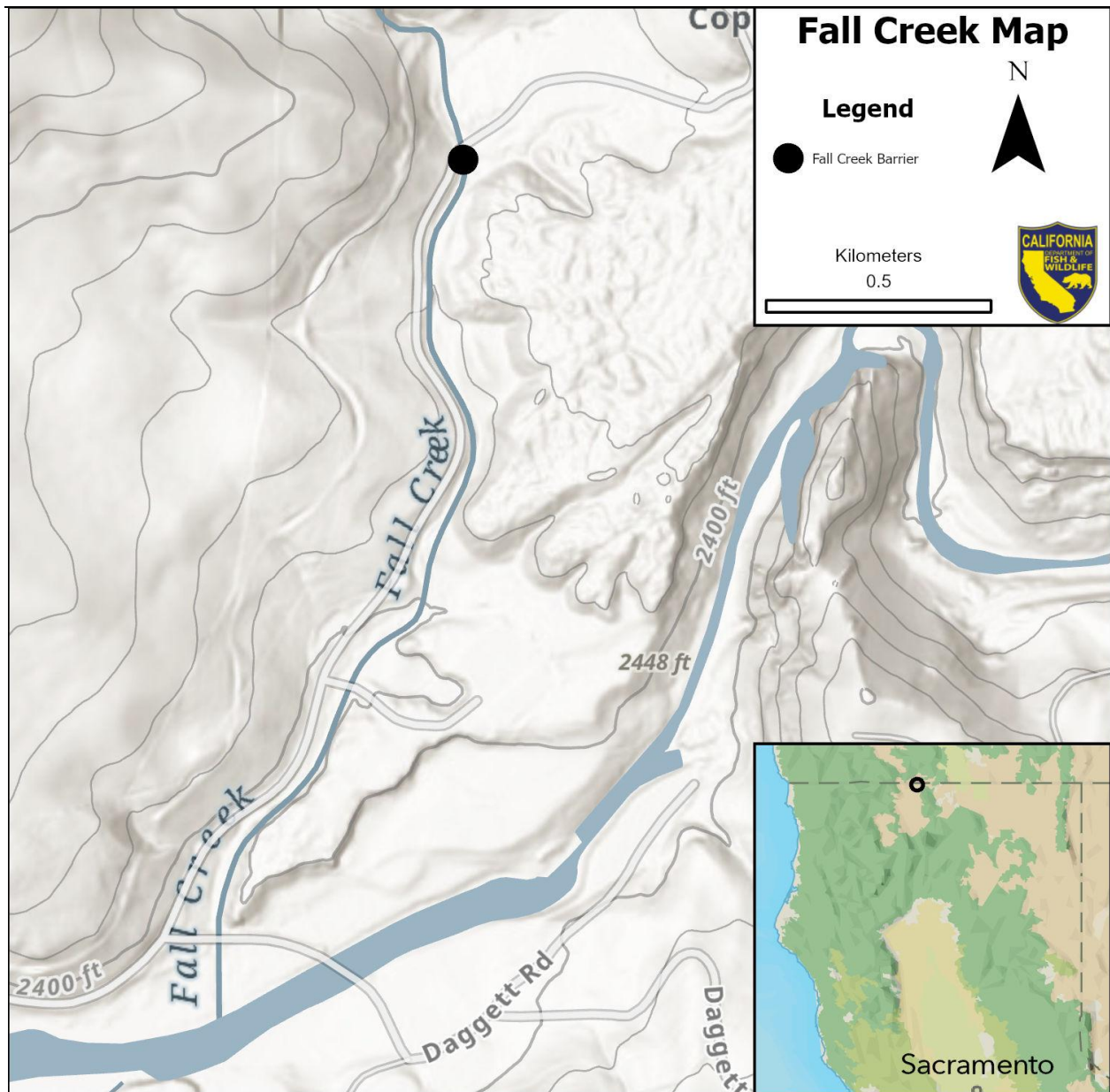


Figure 1. Map of Fall Creek and location of the end of anadromy near Fall Creek Hatchery.

METHODS

Monitoring of the salmon run within Fall Creek during the 2025 season was accomplished through collection of data from salmon carcasses during spawning ground surveys.

SPAWNING GROUND SURVEYS

Spawning ground surveys are conducted by a two-person team that walk upstream through a stretch of river. During the surveys crews are looking for and recording observations of live adult salmon and redds. Crews are also collecting all adult salmon carcasses to record sex and length information as well as acquire biologic samples including scales, tissue and otoliths. There was one reach for Fall Creek, beginning at the mouth and ending at the FCH fish ladder. This reach is approximately 2.03 rkm.

CHINOOK SALMON HATCHERY INFLUENCE

All carcasses handled were inspected for adipose fin clips (AD) denoting that those fish have CWT and were of hatchery origin. Hatchery influence was calculated by expanding the known CWT's by the production multiplier from RMPC (Regional Mark Processing Center which is a web-based portal that contains CWT mark and release information, [Regional Mark Processing Center](#) [hyperlink]).

RESULTS

CHINOOK SALMON SPAWNING GROUND SURVEY DATA

A total minimum escapement of 97 Chinook Salmon was estimated to have entered and spawned in Fall Creek during the 2025 season. Because mark-recapture estimation was not used, this sum of recovered carcasses represents a minimum count. Spawning ground surveys were strategically timed to capture peak carcass availability across the spawning season while balancing basin-wide monitoring operations. Surveys were conducted on November 14, November 24, and December 2, 2025. Given the relatively short survey reach (2.03rkm) and physical characteristics of Fall Creek, these targeted intervals allowed for efficient carcass detection and high overall recovery relative to total escapement. Ninety-seven Chinook Salmon carcasses were recovered during the spawning ground surveys. Sixty-one of those carcasses were deemed intact enough to be sampled and 36 carcasses, although identifiable as Chinook Salmon, were too decayed to be sampled. Thirty-five (57.4%) of the sampled carcasses were female and have an average fork length (fl) of 63.8 centimeters (cm). Twenty-six (42.6%) of the sampled carcasses were male and had an average fl of 67.2 cm. Throughout the spawning ground surveys a total of 31 redds were observed, all 31 of which were believed to be from Chinook Salmon. Redds are assumed to be from Chinook Salmon and are recorded as such unless a different species of fish is observed near a redd or if the redd is observed outside the typical Chinook Salmon run timing.

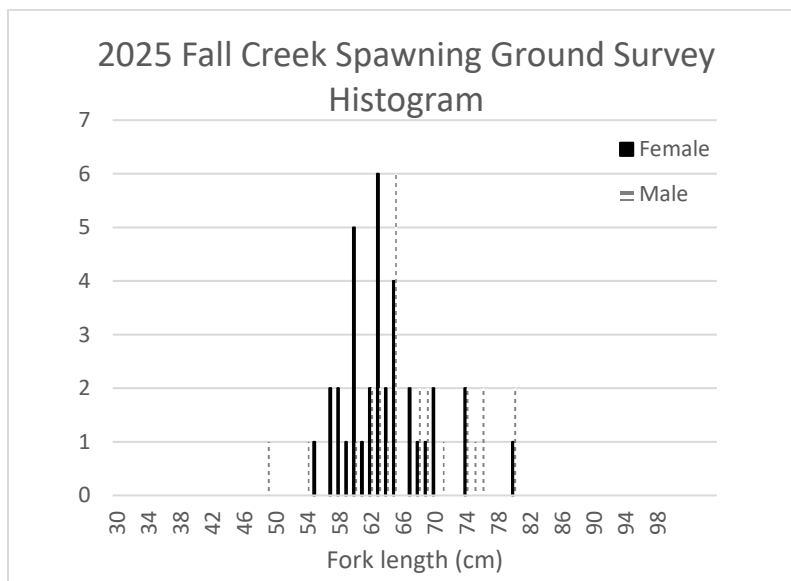


Figure 2. 2025 Fall Creek Chinook Salmon spawning ground survey fork length histogram n=61.

CHINOOK SALMON AGE COMPOSITION

A preliminary length cutoff separating grilse from adults was estimated to be 56 cm; all Chinook Salmon less than 56 cm were considered grilse and yielded a preliminary estimate of 3 (3.3%) grilse and 94 (96.7%) adults. These estimates were made based on length frequency analysis of spawning ground survey data. Final estimates of the age composition of the 2025 run in the Fall Creek were finalized by the Klamath River Technical Team (KRTT, 2026) using scale age analysis conducted by the Yurok Tribe and U.S. Fish and Wildlife Service (Table 1). The final age estimate was 3 (3.3%) grilse, and 94 (96.7%) adults.

Table 1. Age composition of the Chinook Salmon run to Fall Creek, 2024-2025.

Year	Age 2	Age 3	Age 4	Age 5	Total Adults	Total Run
2024	1	64	62	12	138	139
2025	3	59	35	0	94	97
Average	2.00	61.50	48.50	6.00	116.00	118.00

CHINOOK SALMON HATCHERY INFLUENCE

In the 2025 season, 23 AD fish were recovered from spawning ground surveys. CWTs were recovered from 12 heads collected from spawning ground surveys. Eleven heads had no CWT's and were likely misidentified as AD fish due to decayed adipose fins. All 12 of the tags recovered were Iron Gate Hatchery (IGH) origin fish, five from brood year 2021, six from brood year 2022, and one from brood year 2023.

Hatchery composition was calculated by multiplying the number of tags recovered by the production multiplier (from RMIS, equals the number of fish released divided by the number marked for each tag code). This product was then multiplied by the sample expansion (the number of Chinook Salmon estimated to have returned to Fall Creek divided by the number of carcasses inspected for AD). Resulting in an estimate of 47 Chinook Salmon (48.36%) of hatchery origin that returned to Fall Creek in 2025 (Table 2).

Table 2. Estimated Hatchery Contribution in Fall Creek during the 2025 season.

2025 Fall Creek CWT Estimates											
CWT	Release Location	Brood Year	Age	Release Type*	Number Recovered	Production Multiplier**	Production Estimate	Sample Expansion***	Expanded estimate	Estimate by age	Percent by age
061545	IGH	2021	4	F	1	1.000199409	1.00	1.590163934	1.59		
062079	IGH	2021	4	AF	2	1.018124511	2.04	1.590163934	3.24		
060478	IGH	2021	4	AF	2	1.010099783	2.02	1.590163934	3.21	8.04	17.1417
062014	IGH	2022	3	F	1	4.102050662	4.10	1.590163934	6.52		
060033	IGH	2022	3	F	2	4.115682573	8.23	1.590163934	13.09		
060032	IGH	2022	3	AF	3	4.036336788	12.11	1.590163934	19.26	38.87	82.85828237
062239	IGH	2023	2	F	1	4.094539607	4.09	1.590163934	6.51	6.51	13.8802309
Total Run	97			Number Recovered Subtotal	12				Expanded Estimate Subtotal	46.91	
Estimated Contribution of Unknown CWTs											
200000	CWT Lost				0						
300000	Head Lost				0						
400000	CWT Unreadable				0						
Subtotal					0	Unknown Estimate:	0.00				
Total Estimated Hatchery Contribution							46.91			Total Hatchery Proportion	0.4836
Release type is based on weight at release. Fingerlings (F) are <7.55 grams per fish, Advanced fingerlings (AF) are between 7.55 grams per fish and 22.62 grams per fish, Yearlings (Y) are >22.62 grams per fish.											
** Production Multiplier value is the proportion of IGH/FCH total release for the code to the # of fish effectively tagged											
*** Sample expansion is total carcass collected (97) divided by the number of carcasses inspected for ad clips											

COHO SALMON

Zero Coho Salmon live or carcasses were observed during 2025 spawning ground surveys.

STEELHEAD TROUT

Zero steelhead trout live or carcasses were observed during 2025 spawning ground surveys.

DISCUSSION

CHINOOK SALMON

In 2025 an estimate of 97 Chinook Salmon returned to Fall Creek. In 2024 the Fall Creek Chinook Salmon estimate was 139. These are minimum estimates since they are based on observations of carcasses and it's possible that crews missed carcasses and that some were taken away by predators before crews could count them. FCH saw an increase in returns between 2024 (317) and 2025 (1,245); this may partially explain why less Chinook Salmon spawners were observed in Fall Creek (Table 3). 2026 will be the first year that naturally produced Chinook Salmon may return to Fall Creek (grilse from brood year 2024). Continued monitoring is important to assess natural recruitment to Fall Creek. To better characterize the full temporal distribution of returning adult salmonids, including early Chinook Salmon arrivals and potential Coho Salmon activity, expanding survey coverage to begin in late October and maintaining a weekly survey frequency through mid-December will be key goals for future monitoring seasons.

Table 3: Fall Creek and FCH adult Chinook Salmon estimates.

Year	Fall Creek Chinook Salmon Estimate	FCH Chinook Salmon Estimate
2024	139	317
2025	97	1,245

Hatchery origin Chinook Salmon were estimated to make up 48.36% (47) of the Chinook Salmon spawning in Fall Creek in 2025, an increase from the 2024 estimate of 38.85% (54) (Table 4). This increase may be partially explained by the fact that brood year 2023 Chinook Salmon (returning as 2-year-olds in 2025) from IGH were partially reared at FCH and may have imprinted on the Fall Creek water signatures. With an increase in spawning at FCH, it is anticipated that some of these fish will spawn in Fall Creek and may lead to an increase in natural area spawners in Fall Creek in 2026 and beyond.

Table 4: Fall Creek Chinook Salmon hatchery origin percentages.

Year	Fall Creek Chinook Salmon Estimate	Hatchery Stray Estimate	Percent Hatchery
2024	139	54	38.85%
2025	97	47	48.36%
Average			43.60%

In 2024, an estimated 139 adult Chinook Salmon returned to Fall Creek, of those, 92 were estimated to be females. In 2025 CDFW estimated 68,485 0+ Chinook Salmon outmigrated from Fall Creek (King and Romero 2026) yielding approximately 744 0+ Chinook Salmon produced by each adult female Chinook Salmon in Fall Creek (Table 5). Brood year 2025 estimates are not yet available and will be included in later reports. Investigating the number of 0+ Chinook Salmon produced per female in Fall Creek will help track trends in habitat productivity, carrying capacity, and population dynamics.

Table 5: Fall Creek Adult and Juvenile Chinook Salmon estimates.

Brood year	Chinook Salmon adult estimate	Chinook Salmon adult female estimate	0+ Chinook Salmon Outmigration year	Chinook Salmon 0+ estimate	0+ Chinook Salmon produced per female
2024	139	92	2025	68,485	744.4021739

COHO SALMON

Zero Coho Salmon carcasses or live observations were recorded during the 2025 spawning ground surveys; this is less than the 2024 adult Coho Salmon estimate for Fall Creek (6). In 2025, 26 adult Coho Salmon returned to FCH, meanwhile in 2024 45 adult Coho Salmon returned to FCH (Table 6). The majority of the Klamath Basin from state line down to the Shasta River saw decreased Coho Salmon returns in 2025.

Table 6: Coho returns to Fall Creek and FCH.

Year	Fall Creek Coho Salmon Estimate	FCH Coho Salmon Estimate
2024	6	45
2025	0	26

Due to a lack of Coho Salmon observations during the 2025 spawning ground survey, no hatchery origin Coho Salmon estimate was made. In 2024, 6 Coho Salmon carcasses were recovered and none of them had a left maxillary clip (denoting FCH origin) (Table 7). Starting with brood year 2023, Coho Salmon produced at FCH were marked with an AD and are implanted with a CWT which will make hatchery origin identification easier in video weirs and will allow direct tracking of brood years through CWT analysis.

Table 7: Fall Creek Coho Salmon hatchery origin estimates.

Year	Fall Creek Coho Salmon Estimate	Fall Creek Coho Salmon Hatchery Origin Estimate	% Hatchery
2024	6	0	0%
2025	0	0	0%
Average	3	Average	0%

In 2024 an estimated 6 adult Coho Salmon returned to Fall Creek, of those, 2 were estimated to be females. In 2025 CDFW estimated 35,947 0+ Coho Salmon out migrated from Fall Creek (King and Romero 2026) yielding approximately 17,974 0+ Coho Salmon produced by each adult female Coho Salmon in Fall Creek (Table 5). This number is unrealistic and highlights that the adult Coho Salmon estimate likely underrepresents the number of Coho that spawned in Fall Creek in 2024 (Table 8). Brood year 2025 estimates are not yet available and will be included in later reports. Coho Salmon life histories are different than Chinook Salmon and most Coho Salmon out-migrate after one year in freshwater. Continued monitoring of adult and juvenile Coho Salmon in Fall Creek is needed to assess productivity of the watershed.

Table 8: Fall Creek Coho Salmon adult and juvenile production estimates.

Brood year	Coho Salmon adult estimate	Coho Salmon adult female estimate	0+ Coho Salmon Outmigration year	Coho Salmon 0+ estimate	0+ Coho Salmon produced per female
2024	6	2	2025	35,947	17973.5

STEELHEAD TROUT

Objectives of the KRP have traditionally focused on monitoring the escapement of Chinook Salmon, and more recently Coho Salmon. Steelhead trout are still of interest, and crews are trained in identification of steelhead trout and are asked to document any live or carcass steelhead trout observations as incidental data. Zero steelhead trout live or carcass observations have been made in Fall Creek in 2024 or 2025. Crews should continue to look for steelhead trout during all surveys and any data collected on steelhead trout in Fall Creek will be shared in future reports.

ACKNOWLEDGEMENTS

The California Department of Fish and Wildlife would like to thank all field staff who helped contribute to the collection of the annual field data during the 2025 season. KRP would also like to extend their gratitude to the Klamath Watershed Program for sharing juvenile trapping data.

LITERATURE CITED

California Department of Fish and Wildlife, 2013. Hatchery and Genetic Management Plan for Iron Gate Hatchery Coho Salmon V 10. Prepared for National Oceanic and Atmospheric Administration, National Marine Fisheries Service.

King, B. and R. Romero. 2026. 2025 California Upper Klamath River Tributaries Juvenile Salmonid Outmigrant Study. California Department of Fish and Wildlife, Klamath Watershed Program.

KRTAT (Klamath River Technical Advisory Team). 2026. Klamath River Fall Chinook Age-Specific Escapement, 2023 Run. Available from U.S. Fish and Wildlife Service, 1829 South Oregon Street, Yreka, CA, 96097.

Moyle, Peter, Joshua A. Israel and Sabra E. Purdy. 2008. Salmon, Steelhead and Trout in California. Center for Watershed Sciences, University of California, Davis, CA. 95616