

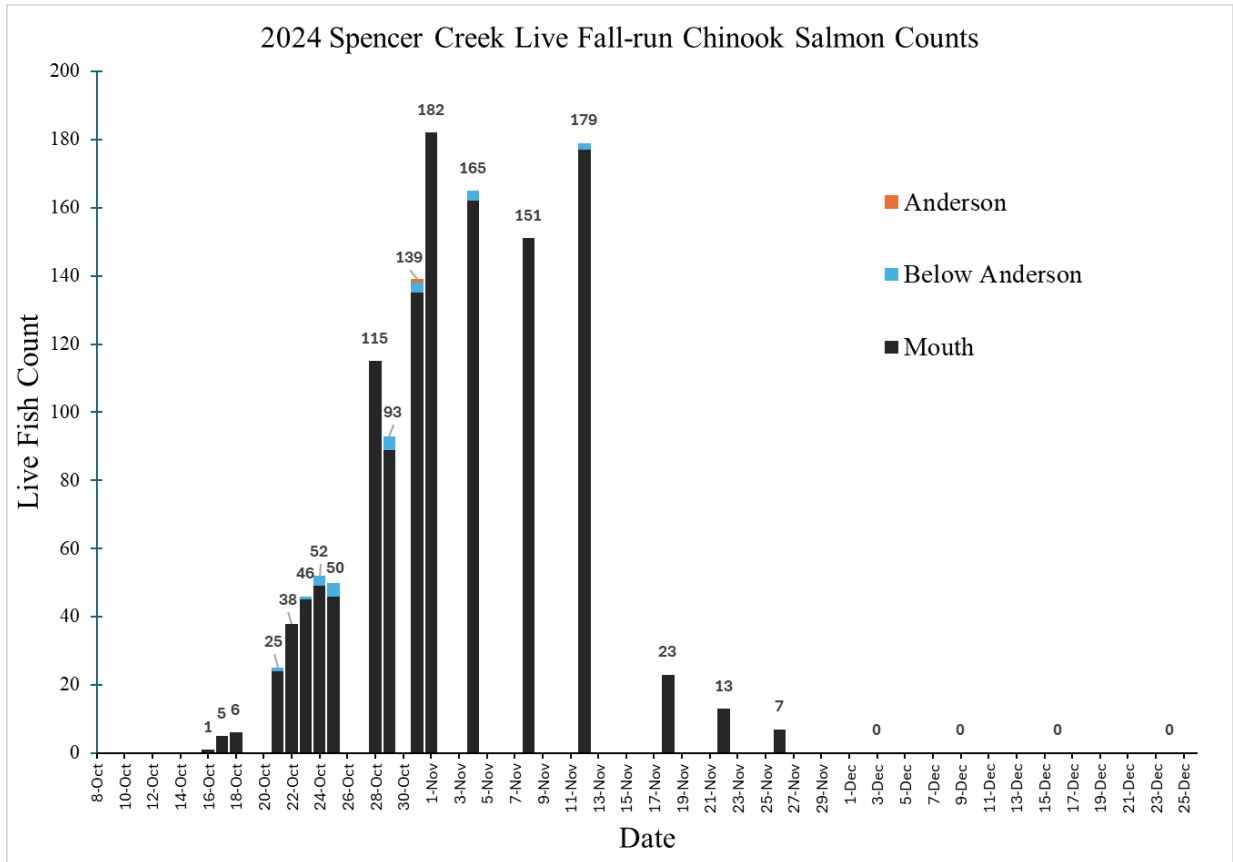
## **Summary of field data collection efforts for fall-run Chinook Salmon in Spencer Creek, Oregon during the 2024 Season**

Oregon Department of Fish and Wildlife, Klamath Anadromous Restoration Program,  
Klamath Falls, Oregon January 23, 2025

Oregon Department of Fish and Wildlife staff began weekly (and sometimes daily) foot-based spawning ground surveys for fall-run Chinook Salmon on Spencer Creek on October 16, 2024 after the first fall-run Chinook Salmon was observed and ended surveys on December 24<sup>th</sup>, 2024 following multiple weeks of zero new live fish or redds. Surveys consisted of walking multiple reaches beginning at the confluence with the Klamath River, working upstream to above the most upstream documented live fish or redd. Data collected included counts of live fish, counts of new redds, and all new carcasses encountered were sampled for sex, length, fin clips, and scales were collected on all carcasses for aging if the preferred collection area on body was present. Heads were removed from all ad-clipped carcasses encountered for CWT recovery. No fall-run Chinook Salmon were observed during periodic checks above a large beaver dam complex located in the reach above the most upstream reach where fall-run Chinook were encountered. On November 13<sup>th</sup>, 2024 ODFW lost access to a private property portion of Spencer Creek. Following the loss in access, ODFW was only able to continue surveys on Spencer Creek from the confluence with the Klamath River up to the property boundary, approximately 400 meters of stream.

### **Live Fish Summary and Run Size Estimate**

During weekly surveys of reaches in Spencer Creek all live fall-run Chinook Salmon were counted. Live fish were first observed in Spencer Creek on October 16<sup>th</sup>, 2024, and peaked at 182 live fish on November 1<sup>st</sup> (fig 1). **The summation of the maximum daily live fish counts (182, Nov 1<sup>st</sup>) plus total sampled carcasses up to that date (32) resulted in an estimated run size based on live fish observations of 214 fall-run Chinook Salmon (table 1).**



**Figure 1.** Counts of live fall-run Chinook Salmon in Spencer Creek, Oregon during the 2024 survey. On November 13<sup>th</sup> ODFW lost access to the majority of Spencer Creek and after that, surveys were only conducted on the lower 400 meters of stream. Zeros denote that a survey was completed that day, but no live fish were observed.

**Table 1.** Maximum daily counts of live fall-run Chinook Salmon in Spencer Creek, Oregon during the 2024 survey.

2024 Spencer Creek, Oregon Estimated fall-run Chinook Salmon based on live fish counts				
Reach	Date	Daily maximum count	# Carcasses up to Max count date	Estimated run size (Daily max count plus carcasses to date)
All Reaches	11/1/2024	182	32	<b>214</b>

## Redd Count Summary and Run Size Estimate

During weekly surveys of Spencer Creek all new fall-run Chinook Salmon redds were enumerated and marked with flagging to prevent duplicate counting in subsequent surveys. A total of 81 redds were observed (fig 2). Mean daily discharge in Spencer Creek near the mouth fluctuated between 12 and 55 cfs during the survey period. Peaks of flow in early and mid-November, and again in late December were observed, each after rain events. However, visibility throughout the Spencer Creek reach was clear for the duration of surveys (fig 3).

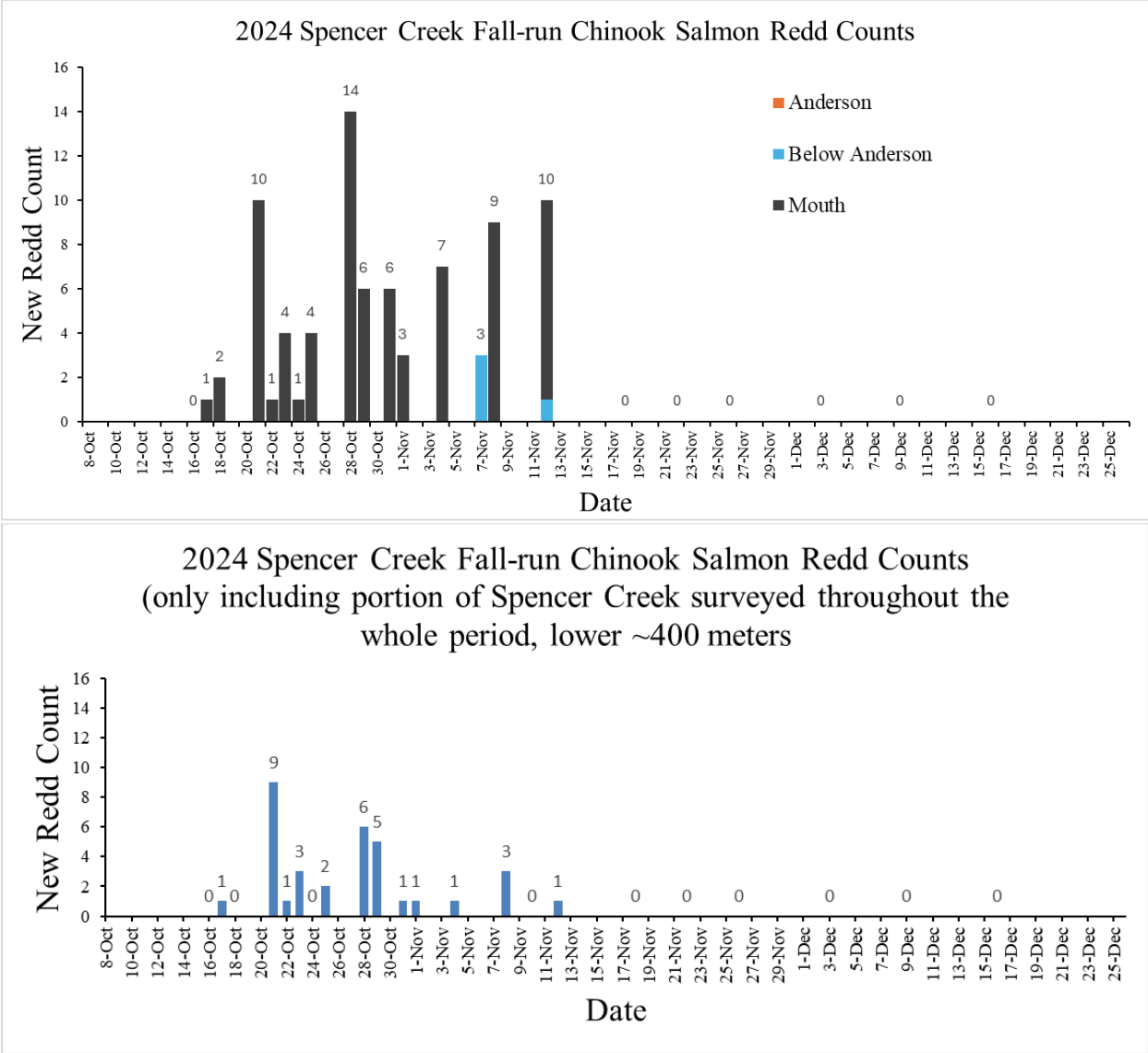
Assuming each redd represents one adult female and one adult male fall-run Chinook Salmon, redd counts were multiplied by two to estimate adult escapement. An estimated 162 adult fall-run Chinook Salmon spawned in Spencer Creek, Oregon in 2024.

From examination of length frequency distributions of carcasses and known-age fall-run Chinook Salmon that were determined from CWT analysis, a preliminary jack cut off of  $\leq 51$  cm was established for Spencer Creek. Based on this determination **ODFW estimates that the 2024 fall-run Chinook Salmon run in Spencer Creek based on redd counts was comprised of 30 jacks (15.6%) and 162 (84.4%) adults for a total run size estimate of 192 (table 2).**

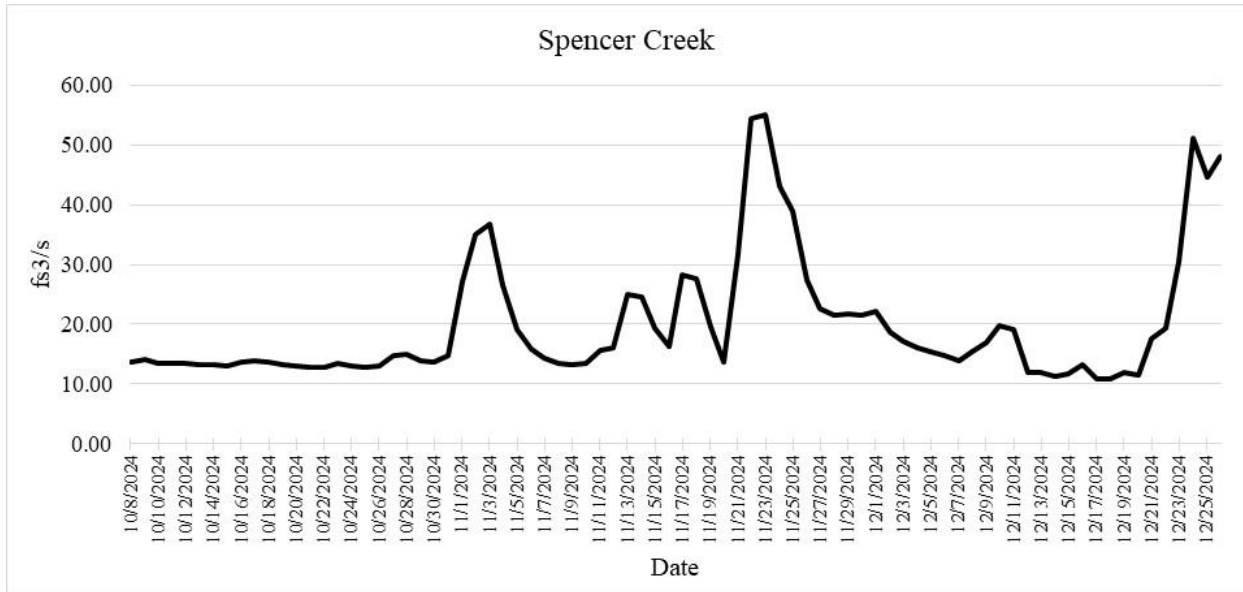
**\*While no new redds were observed in the portion of Spencer Creek that could be surveyed after November 13<sup>th</sup>, due to loss of access to much of Spencer Creek after November 13<sup>th</sup>, it is possible that some new redds may not have been included in this estimate.**

**Table 2.** Estimated fall-run Chinook Salmon run size in 2024 in Spencer Creek, Oregon based on redd count and estimated jack fraction.

2024 Spencer Creek, Oregon Estimated fall-run Chinook Salmon based on redd counts						
Total Redds counted	Redd Multiplier	Adult estimated run size (total redds*multiplier)	Jacks ( $\leq 51$ FL cm)	Estimated jack fraction (Pjack) (jack carcasses measured/total male carcasses measured)	Estimated Total run size including jacks (Est. adult run size/(1-Pjack))	Estimated number of jacks (Est. total run - Est. adult run)
81	2	162	11	0.15	<b>192</b>	30



**Figure 2.** Counts of new fall-run Chinook Salmon redds in Spencer Creek, Oregon during the 2024 survey up to November 13<sup>th</sup> (top), and counts of new fall-run Chinook Salmon redds in the lower 400 meters of Spencer Creek to the confluence with the Klamath River (bottom). Zeros denote that a survey was completed that day, but no new redds were observed. On November 13<sup>th</sup> ODFW lost access to most of the private property surrounding much of Spencer Creek and access was only available to the lower 400 meters for the remainder of the survey period.

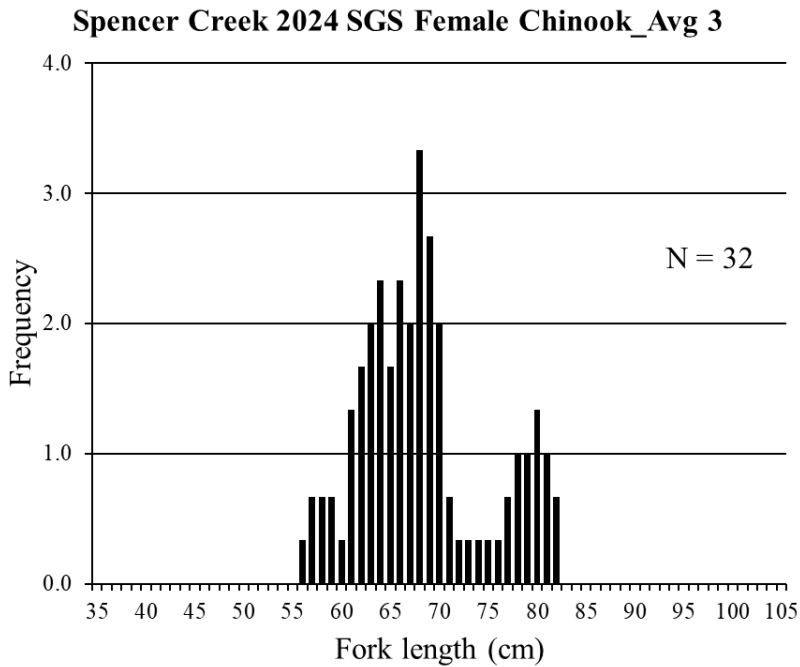
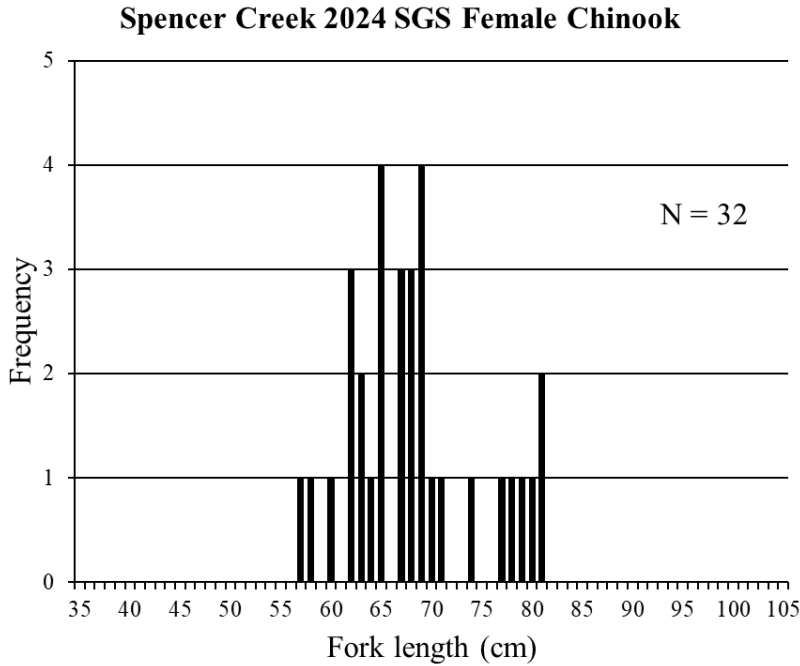


**Figure 3.** Daily mean discharge (cfs) in Spencer Creek, OR (Oregon Water Resources Department Gaging Station 11510000) during the 2024 fall-run Chinook Salmon redd surveys (<https://apps.wrd.state.or.us>; January 16, 2025).

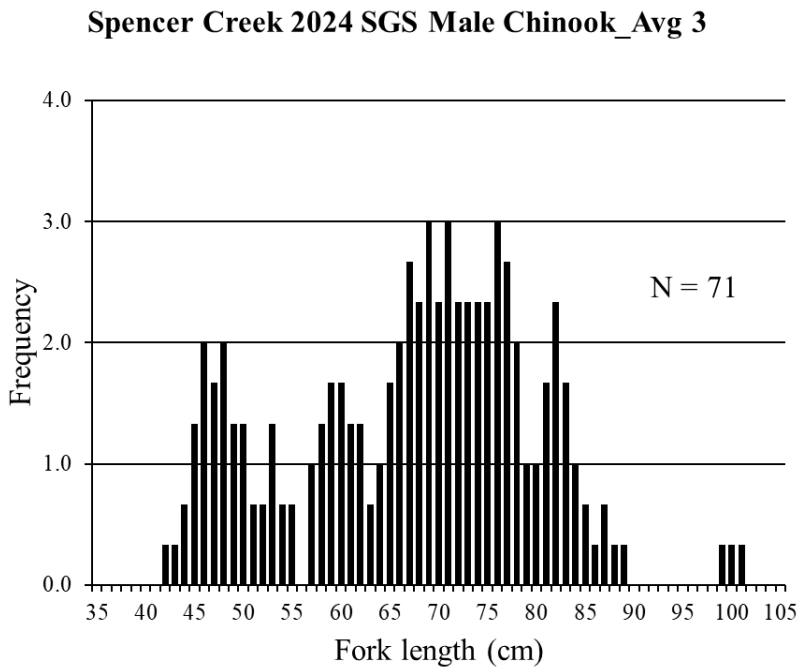
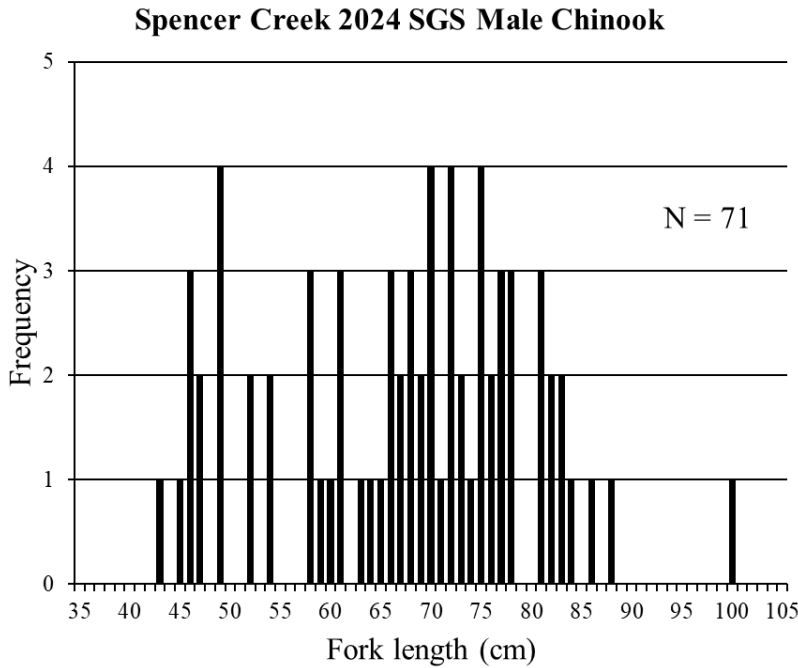
### Carcass Survey Summary

During weekly surveys of Spencer Creek all carcasses encountered were counted and sampled. Depending on the condition of the carcass, length, sex, and fin clips were recorded. If they could be obtained, scales were collected from carcasses. Heads were collected from ad-clipped fish for detection of CWTs. A total of 134 carcasses were counted in all sampled reaches of Spencer Creek during the spawning ground survey. Of the carcasses that were able to be identified by sex and could be measured (FL, cm) 71 were male (68.93%) and 32 were female (31.07%) (fig 4). Twenty-six carcasses of the total counted could not be identified by sex, usually due to scavenging from wildlife prior to encountering them. Scales were collected from 119 fall-run Chinook Salmon carcasses.

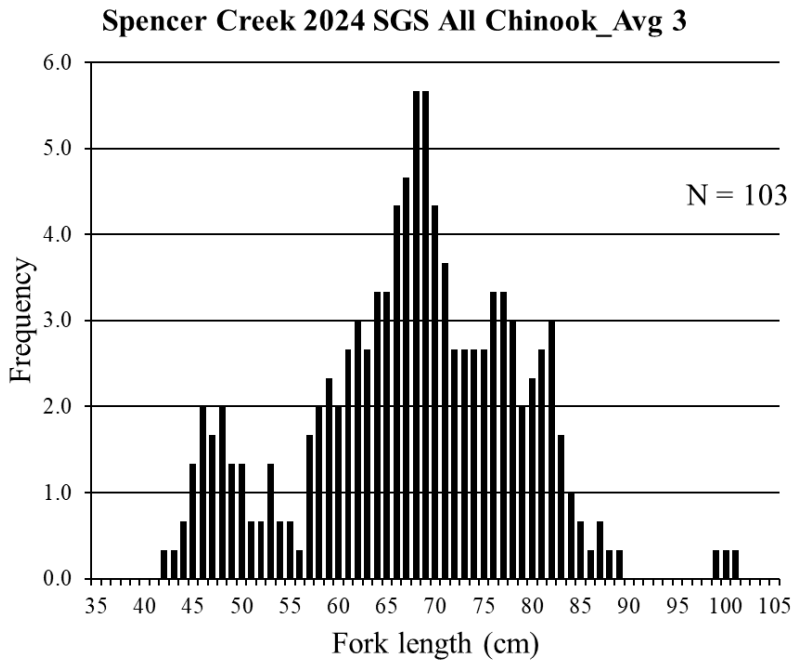
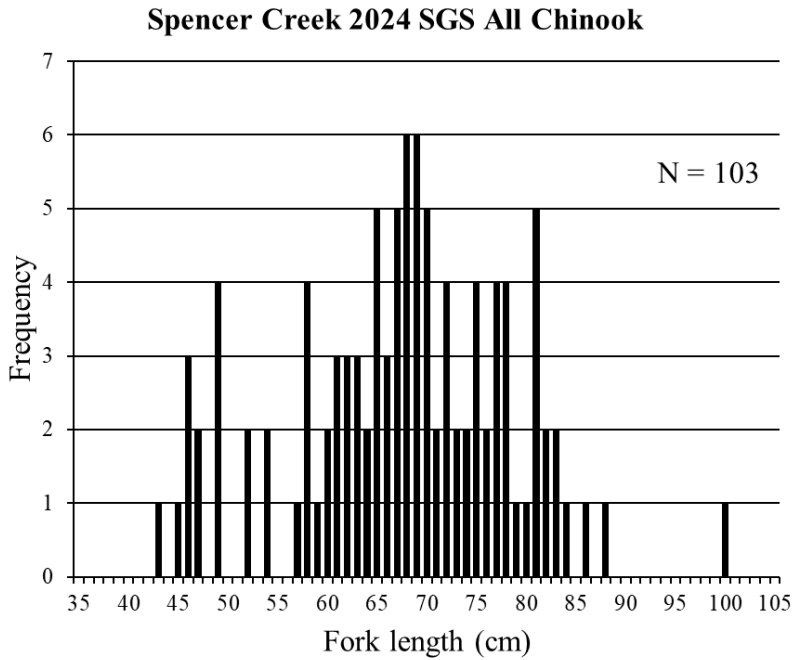
Positive CWT codes were obtained from the 15 heads collected from ad-clipped carcasses. Known age fish along with their lengths are summarized in figure 5. CWT recoveries were expanded by their production multiplier (estimated at the time of juvenile release, obtained from hatchery records). 134 carcasses were sampled, and the run estimate was 192 which results in a sample expansion of 1.4382. **The estimated number of hatchery fall-run Chinook Salmon in Spencer Creek was 30 fish (15.6% of total estimated run derived from live fish counts) (table 3) (updated on 1/22/2026; previous reports were 27 hatchery fish and 7.6% due to not expanding the sample).**



2024 Spencer Creek SGS Female Chinook				
Length	Frequency	Avg 3	% at FL	% ≤FL
35	0	0.0000	0.0000	0.0000
36	0	0.0000	0.0000	0.0000
37	0	0.0000	0.0000	0.0000
38	0	0.0000	0.0000	0.0000
39	0	0.0000	0.0000	0.0000
40	0	0.0000	0.0000	0.0000
41	0	0.0000	0.0000	0.0000
42	0	0.0000	0.0000	0.0000
43	0	0.0000	0.0000	0.0000
44	0	0.0000	0.0000	0.0000
45	0	0.0000	0.0000	0.0000
46	0	0.0000	0.0000	0.0000
47	0	0.0000	0.0000	0.0000
48	0	0.0000	0.0000	0.0000
49	0	0.0000	0.0000	0.0000
50	0	0.0000	0.0000	0.0000
51	0	0.0000	0.0000	0.0000
52	0	0.0000	0.0000	0.0000
53	0	0.0000	0.0000	0.0000
54	0	0.0000	0.0000	0.0000
55	0	0.0000	0.0000	0.0000
56	0	0.3333	0.0000	0.0000
57	1	0.6667	0.0313	0.0313
58	1	0.6667	0.0313	0.0625
59	0	0.6667	0.0000	0.0625
60	1	0.3333	0.0313	0.0938
61	0	1.3333	0.0000	0.0938
62	3	1.6667	0.0938	0.1875
63	2	2.0000	0.0625	0.2500
64	1	2.3333	0.0313	0.2813
65	4	1.6667	0.1250	0.4063
66	0	2.3333	0.0000	0.4063
67	3	2.0000	0.0938	0.5000
68	3	3.3333	0.0938	0.5938
69	4	2.6667	0.1250	0.7188
70	1	2.0000	0.0313	0.7500
71	1	0.6667	0.0313	0.7813
72	0	0.3333	0.0000	0.7813
73	0	0.3333	0.0000	0.7813
74	1	0.3333	0.0313	0.8125
75	0	0.3333	0.0000	0.8125
76	0	0.3333	0.0000	0.8125
77	1	0.6667	0.0313	0.8438
78	1	1.0000	0.0313	0.8750
79	1	1.0000	0.0313	0.9063
80	1	1.3333	0.0313	0.9375
81	2	1.0000	0.0625	1.0000
82	0	0.6667	0.0000	1.0000
83	0	0.0000	0.0000	1.0000
84	0	0.0000	0.0000	1.0000
85	0	0.0000	0.0000	1.0000
86	0	0.0000	0.0000	1.0000
87	0	0.0000	0.0000	1.0000
88	0	0.0000	0.0000	1.0000
89	0	0.0000	0.0000	1.0000
90	0	0.0000	0.0000	1.0000
91	0	0.0000	0.0000	1.0000
92	0	0.0000	0.0000	1.0000
93	0	0.0000	0.0000	1.0000
94	0	0.0000	0.0000	1.0000
95	0	0.0000	0.0000	1.0000
96	0	0.0000	0.0000	1.0000
97	0	0.0000	0.0000	1.0000
98	0	0.0000	0.0000	1.0000
99	0	0.0000	0.0000	1.0000
100	0	0.0000	0.0000	1.0000
101	0	0.0000	0.0000	1.0000
102	0	0.0000	0.0000	1.0000
103	0	0.0000	0.0000	1.0000
104	0	0.0000	0.0000	1.0000
105	0	0.0000	0.0000	1.0000
N	32			
Avg FL	68.22			
%f	31.07			



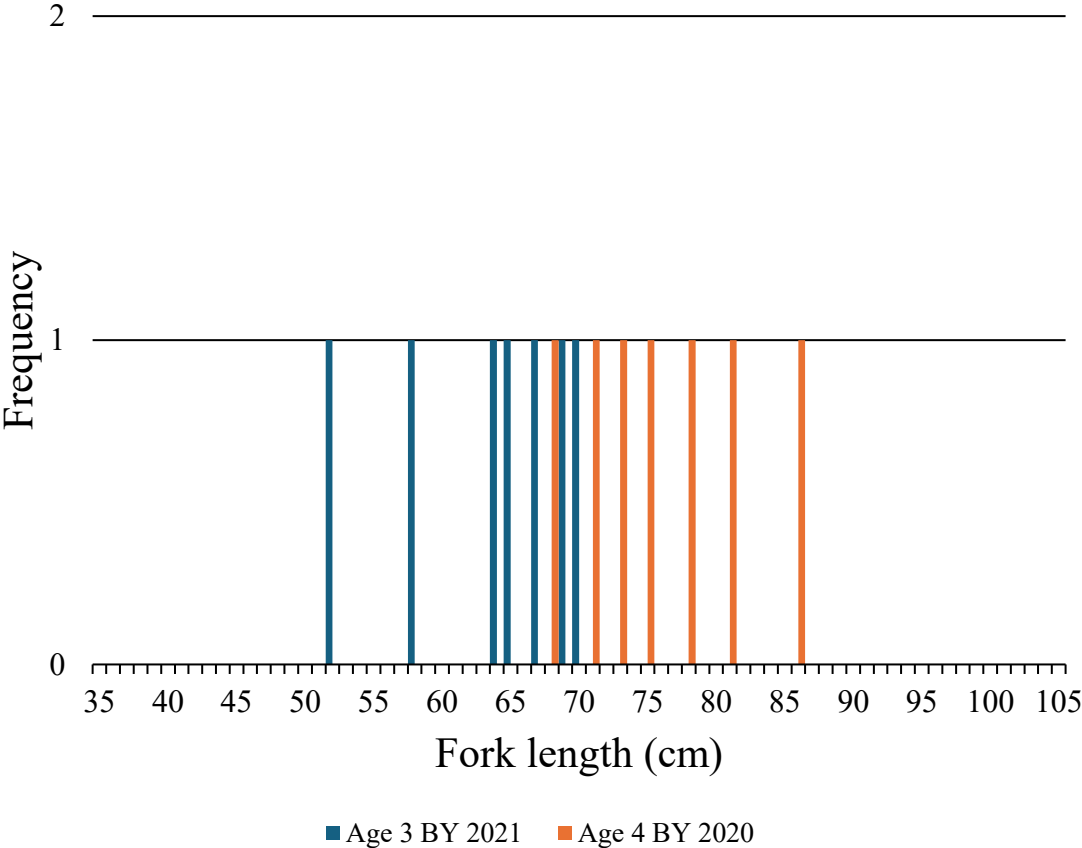
2024 Spencer Creek SGS Male Chinook				
Length	Frequency	Avg 3	% at FL	% ≤FL
35	0	0.0000	0.0000	0.0000
36	0	0.0000	0.0000	0.0000
37	0	0.0000	0.0000	0.0000
38	0	0.0000	0.0000	0.0000
39	0	0.0000	0.0000	0.0000
40	0	0.0000	0.0000	0.0000
41	0	0.0000	0.0000	0.0000
42	0	0.3333	0.0000	0.0000
43	1	0.3333	0.0141	0.0141
44	0	0.6667	0.0000	0.0141
45	1	1.3333	0.0141	0.0282
46	3	2.0000	0.0423	0.0704
47	2	1.6667	0.0282	0.0986
48	0	2.0000	0.0000	0.0986
49	4	1.3333	0.0563	0.1549
50	0	1.3333	0.0000	0.1549
51	0	0.6667	0.0000	0.1549
52	2	0.6667	0.0282	0.1831
53	0	1.3333	0.0000	0.1831
54	2	0.6667	0.0282	0.2113
55	0	0.6667	0.0000	0.2113
56	0	0.0000	0.0000	0.2113
57	0	1.0000	0.0000	0.2113
58	3	1.3333	0.0423	0.2535
59	1	1.6667	0.0141	0.2676
60	1	1.6667	0.0141	0.2817
61	3	1.3333	0.0423	0.3239
62	0	1.3333	0.0000	0.3239
63	1	0.6667	0.0141	0.3380
64	1	1.0000	0.0141	0.3521
65	1	1.6667	0.0141	0.3662
66	3	2.0000	0.0423	0.4085
67	2	2.6667	0.0282	0.4366
68	3	2.3333	0.0423	0.4789
69	2	3.0000	0.0282	0.5070
70	4	2.3333	0.0563	0.5634
71	1	3.0000	0.0141	0.5775
72	4	2.3333	0.0563	0.6338
73	2	2.3333	0.0282	0.6620
74	1	2.3333	0.0141	0.6761
75	4	2.3333	0.0563	0.7324
76	2	3.0000	0.0282	0.7606
77	3	2.6667	0.0423	0.8028
78	3	2.0000	0.0423	0.8451
79	0	1.0000	0.0000	0.8451
80	0	1.0000	0.0000	0.8451
81	3	1.6667	0.0423	0.8873
82	2	2.3333	0.0282	0.9155
83	2	1.6667	0.0282	0.9437
84	1	1.0000	0.0141	0.9577
85	0	0.6667	0.0000	0.9577
86	1	0.3333	0.0141	0.9718
87	0	0.6667	0.0000	0.9718
88	1	0.3333	0.0141	0.9859
89	0	0.3333	0.0000	0.9859
90	0	0.0000	0.0000	0.9859
91	0	0.0000	0.0000	0.9859
92	0	0.0000	0.0000	0.9859
93	0	0.0000	0.0000	0.9859
94	0	0.0000	0.0000	0.9859
95	0	0.0000	0.0000	0.9859
96	0	0.0000	0.0000	0.9859
97	0	0.0000	0.0000	0.9859
98	0	0.0000	0.0000	0.9859
99	0	0.3333	0.0000	0.9859
100	1	0.3333	0.0141	1.0000
101	0	0.3333	0.0000	1.0000
102	0	0.0000	0.0000	1.0000
103	0	0.0000	0.0000	1.0000
104	0	0.0000	0.0000	1.0000
105	0	0.0000	0.0000	1.0000
N	71			
Avg FL	67.28			
%m	68.93			



**Figure 4.** Fork length (cm) histograms and moving average of 3 (Avg 3) histograms of fall-run Chinook Salmon carcasses sampled in Spencer Creek, Oregon during spawning ground surveys (SGS) in 2024.

2024 Spencer Creek SGS All Chinook				
Length	Frequency	Avg 3	% at FL	% ≤FL
35	0	0.0000	0.0000	0.0000
36	0	0.0000	0.0000	0.0000
37	0	0.0000	0.0000	0.0000
38	0	0.0000	0.0000	0.0000
39	0	0.0000	0.0000	0.0000
40	0	0.0000	0.0000	0.0000
41	0	0.0000	0.0000	0.0000
42	0	0.3333	0.0000	0.0000
43	1	0.3333	0.0097	0.0097
44	0	0.6667	0.0000	0.0097
45	1	1.3333	0.0097	0.0194
46	3	2.0000	0.0291	0.0485
47	2	1.6667	0.0194	0.0680
48	0	2.0000	0.0000	0.0680
49	4	1.3333	0.0388	0.1068
50	0	1.3333	0.0000	0.1068
51	0	0.6667	0.0000	0.1068
52	2	0.6667	0.0194	0.1262
53	0	1.3333	0.0000	0.1262
54	2	0.6667	0.0194	0.1456
55	0	0.6667	0.0000	0.1456
56	0	0.3333	0.0000	0.1456
57	1	1.6667	0.0097	0.1553
58	4	2.0000	0.0388	0.1942
59	1	2.3333	0.0097	0.2039
60	2	2.0000	0.0194	0.2233
61	3	2.6667	0.0291	0.2524
62	3	3.0000	0.0291	0.2816
63	3	2.6667	0.0291	0.3107
64	2	3.3333	0.0194	0.3301
65	5	3.3333	0.0485	0.3786
66	3	4.3333	0.0291	0.4078
67	5	4.6667	0.0485	0.4563
68	6	5.6667	0.0583	0.5146
69	6	5.6667	0.0583	0.5728
70	5	4.3333	0.0485	0.6214
71	2	3.6667	0.0194	0.6408
72	4	2.6667	0.0388	0.6796
73	2	2.6667	0.0194	0.6990
74	2	2.6667	0.0194	0.7184
75	4	2.6667	0.0388	0.7573
76	2	3.3333	0.0194	0.7767
77	4	3.3333	0.0388	0.8155
78	4	3.0000	0.0388	0.8544
79	1	2.0000	0.0097	0.8641
80	1	2.3333	0.0097	0.8738
81	5	2.6667	0.0485	0.9223
82	2	3.0000	0.0194	0.9417
83	2	1.6667	0.0194	0.9612
84	1	1.0000	0.0097	0.9709
85	0	0.6667	0.0000	0.9709
86	1	0.3333	0.0097	0.9806
87	0	0.6667	0.0000	0.9806
88	1	0.3333	0.0097	0.9903
89	0	0.3333	0.0000	0.9903
90	0	0.0000	0.0000	0.9903
91	0	0.0000	0.0000	0.9903
92	0	0.0000	0.0000	0.9903
93	0	0.0000	0.0000	0.9903
94	0	0.0000	0.0000	0.9903
95	0	0.0000	0.0000	0.9903
96	0	0.0000	0.0000	0.9903
97	0	0.0000	0.0000	0.9903
98	0	0.0000	0.0000	0.9903
99	0	0.3333	0.0000	0.9903
100	1	0.3333	0.0097	1.0000
101	0	0.3333	0.0000	1.0000
102	0	0.0000	0.0000	1.0000
103	0	0.0000	0.0000	1.0000
104	0	0.0000	0.0000	1.0000
105	0	0.0000	0.0000	1.0000
N	103			
Avg FL	67.57			

# Spencer Creek 2024 - Known age



**Figure 5.** Fork length (cm) histogram of known age and brood year (BY) fall-run Chinook Salmon carcasses with coded-wire-tags (CWT) sampled in Spencer Creek, Oregon during spawning ground surveys in 2024.

**Table 3.** Summary of Spencer Creek, Oregon fall-run Chinook Salmon hatchery contribution derived from CWT recovered during spawning ground surveys in 2024.

2024 Spencer Creek Spawning Ground Survey CWT and Hatchery contributions								
CWT	Location	Release type a/	Brood year	Sample number	Production multiplier b/	production estimate	Sample expansion d/	Expanded estimate e/
60788	IGH	AF	2021	1	1.0157	1.0157	1.4328	1.4553
61546	IGH	F	2021	3	1.0146	3.0438	1.4328	4.3612
61551	IGH	F	2021	1	1.0067	1.0067	1.4328	1.4424
61570	IGH	AF	2020	1	4.0057	4.0057	1.4328	5.7394
61582	IGH	Y	2020	3	1.0112	3.0336	1.4328	4.3465
61608	IGH	AF	2020	1	4.0075	4.0075	1.4328	5.7419
61977	IGH	AF	2020	2	1.0044	2.0088	1.4328	2.8782
62270	IGH	F	2021	2	1.0079	2.0158	1.4328	2.8882
62986	IGH	F	2021	1	1.0038	1.0038	1.4328	1.4382
<b>CWT sample subtotal =</b>				<b>15</b>				
<b>Hatchery contribution of carcasses sampled subtotal =</b>						<b>21</b>		
<b>Total of estimated hatchery contributions</b>								<b>30</b>
a/	Release type; F=fingerling, Y=yearling, AF=advanced fingerling							
b/	Production multiplier is the ratio of # of fish released/fish marked							
c/	Production estimate is the sample number multiplied by the production multiplier							
d/	Sample expansion is the ratio of the estimated total run size and the number of carcasses sampled							
e/	Expanded estimate is the production estimate multiplied by the sample expansion							

**Age composition and age-specific run-size from scale analysis**

Scales were collected from every carcass encountered during the survey and analyzed by the Yurok Tribe Fisheries Department. This data is incorporated in the Klamath River Technical Team (KRTT) estimate for age-specific escapement of fall-run Chinook Salmon for the entire Klamath River Basin. The age proportions for Spencer Creek are shown in Table 4. **The ages from the scale analysis were used to estimate an age-specific run-size from redd count data resulting in an age-specific run size of 199 fall-run Chinook Salmon (table 4).**

**Table 4.** Age composition and age-specific run size estimated from scales collected from fall-run Chinook Salmon carcasses sampled in Spencer Creek, Oregon in 2024.

Spencer Creek, Oregon fall-run Chinook Salmon scale-based age analysis					
	Age				Total
	2	3	4	5	
Proportion	0.1863	0.5911	0.2073	0.0153	1.0000
Age-specific run Est.	34	117	45	3	199

## **Aknowledgement**

Oregon Department of Fish and Wildlife thanks Green Diamond Resource Company, Pacific Power, Klamath River Renewal Corporation, and other private landowners for allowing access to conduct surveys. The Klamath Tribes AMBODAT program provided assistance with some surveys.