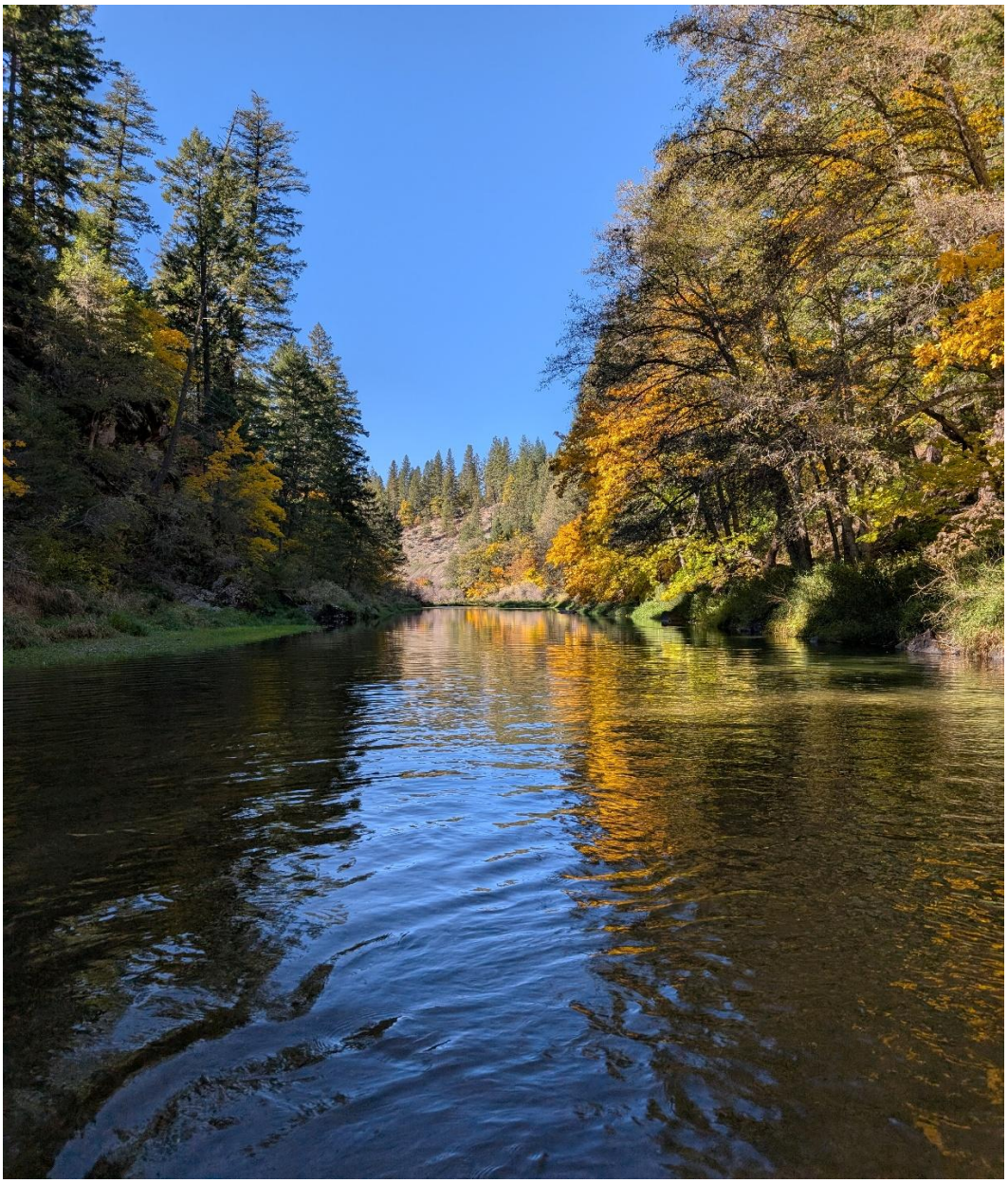
2025 SCOTT RIVER ADULT SALMON STUDIES

FINAL REPORT



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ABSTRACT

The California Department of Fish and Wildlife's (Department) Klamath River Project (KRP) operated the Scott River Fish Counting Facility (SRFCF) and conducted cooperative spawning ground surveys (carcass surveys) on the Scott River during the 2025 fall-run Chinook Salmon (*Oncorhynchus tshawytscha*) and Coho Salmon (*Oncorhynchus kisutch*) spawning season. The purpose of these surveys is to describe the run characteristics of adult Chinook Salmon and Coho Salmon into the Scott River. Fish counting operations began on September 23, 2025, and ended on December 16, 2025. Incidental monitoring of steelhead (*Oncorhynchus mykiss*) also occurs.

The total number of Chinook Salmon that entered the Scott River during the 2025 season is estimated to be **3,886** fish. Based on the proportion of male and female Chinook Salmon that were sampled during the spawning ground surveys, the run was comprised of approximately 2,565 (66%) males and 1,321 (34%) females. Based on scale age analysis, adults comprised approximately 59.85% (2,326 fish) and grilse comprised 40.15% (1,560 fish) of the run. Males ranged in fork length (FL) from 39 cm to 93 cm and averaged 60.1 cm. Females ranged in FL from 45 cm to 88 cm and averaged 72.6 cm. KRP staff estimated that none of the Chinook Salmon that returned were of hatchery origin.

The first adult Coho Salmon was observed at the SRFCF on October 25, 2025, and the last Coho Salmon was observed on December 16, 2025. A net total of **509** Coho Salmon were estimated in the Scott River during the season. Due to high flows, counting station efforts ended during typical Coho Salmon migration season, leading to a conservative estimate. Based on live Coho Salmon images observed during video monitoring, adults comprised approximately 93.5% and grilse comprised 6.5% of the run. Based on observed hatchery marks during the carcass survey and inspections of images during the video survey, none of the Coho Salmon were estimated to be of hatchery origin.

The first steelhead (>40.6 cm) was observed on September 27, 2025, and the last steelhead was observed on December 16, 2025. During this time there were a total of **557** steelhead (>40.6 cm) observations. The net upstream movement of 557 fish represents a minimum number of steelhead for the season. A large fraction of the adult steelhead migration occurs outside the operational window of the SRFCF. No steelhead were recovered during the spawning ground survey effort.

INTRODUCTION

STUDY LOCATION AND RUN TIMING

The Scott River is a major tributary of the Klamath River located in Siskiyou County and enters the Klamath River at river mile 143 (Figure 1). The SRFCF is located at river mile 18.2, (041º 38' 10.93" N; 123º 04' 3.08" W) 0.63 river miles downstream of the Jones Beach picnic area near the transition between the canyon and valley reaches. Chinook Salmon typically return to the Scott River to spawn from mid-September through late December. Coho Salmon typically return to spawn from mid-October through early January and steelhead from November through April.

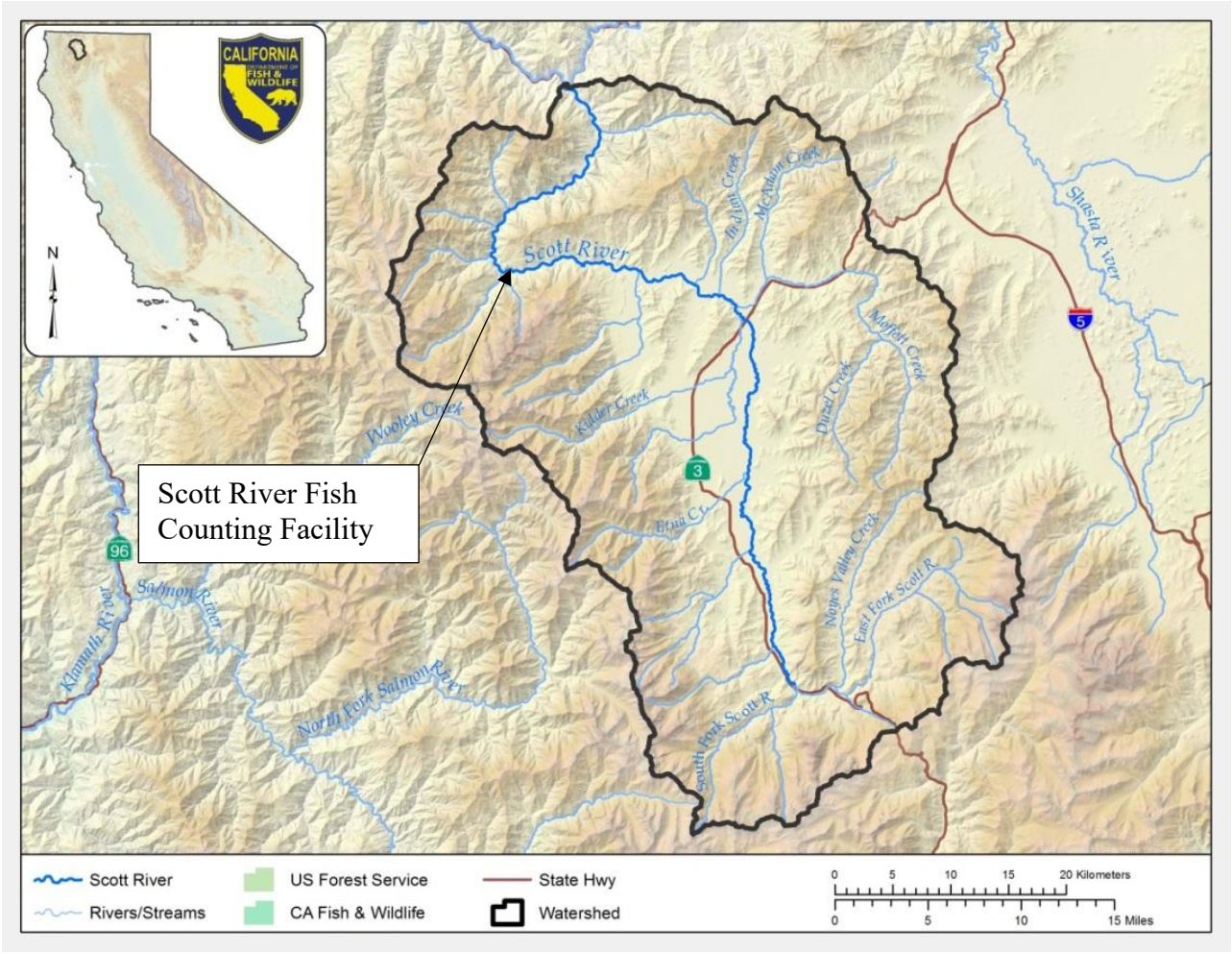

Figure 1. Location of the Scott River, tributary to the Klamath River, Siskiyou County, California.

KLAMATH RIVER PROJECT AND THE SCOTT RIVER STUDY

The Scott River study is one component of the KRP (initiated in 1978). The goals of the KRP include obtaining information on species composition, hatchery composition, run timing, age structure, spawning distribution, fork length (FL) frequency and sex ratios in various tributaries to the Klamath River including the Salmon, Scott, and Shasta rivers, as well as Bogus Creek and 22 other smaller tributaries. The Scott River is particularly important because it is a major salmon spawning tributary. In addition to providing valuable escapement estimates to the Pacific Fishery Management Council for the effective management and allocation of fall Chinook Salmon originating from the Klamath River Basin, the Scott River studies provide an opportunity to monitor an independent population of Coho Salmon (Williams et al. 2008) within the state and federally threatened Southern Oregon/Northern California Coast Coho (SONCC) range. The Scott River Coho Salmon population is currently believed to be the largest sub population of wild Coho Salmon within the Klamath watershed.

In the early years of the KRP, spawning ground surveys were conducted in the major spawning areas of the main stem Scott River which included an approximately 5.5-mile reach near Etna and a 4.75 mile reach downstream of the State Highway 3 Bridge crossing near Fort Jones. From 1989 through 1991 spawning ground surveys were limited to the lower river. In 1985 a temporary fish marking weir was installed on the lower river at river mile 1.6 and was operated during each spawning season until 1991 (Figure 2). Operation of the weir was often hampered by high flows and beginning in 1992 operation of the marking weir was dropped in favor of conducting more intensive mark recapture spawning ground surveys in cooperation with United States Forest Service (USFS) fisheries staff. Currently the spawning ground survey is a cooperative effort between the USFS, Quartz Valley Tribe, Karuk Tribe, Northern California Resource Center, Siskiyou Resource Conservation District, Siskiyou County Schools and the Department.

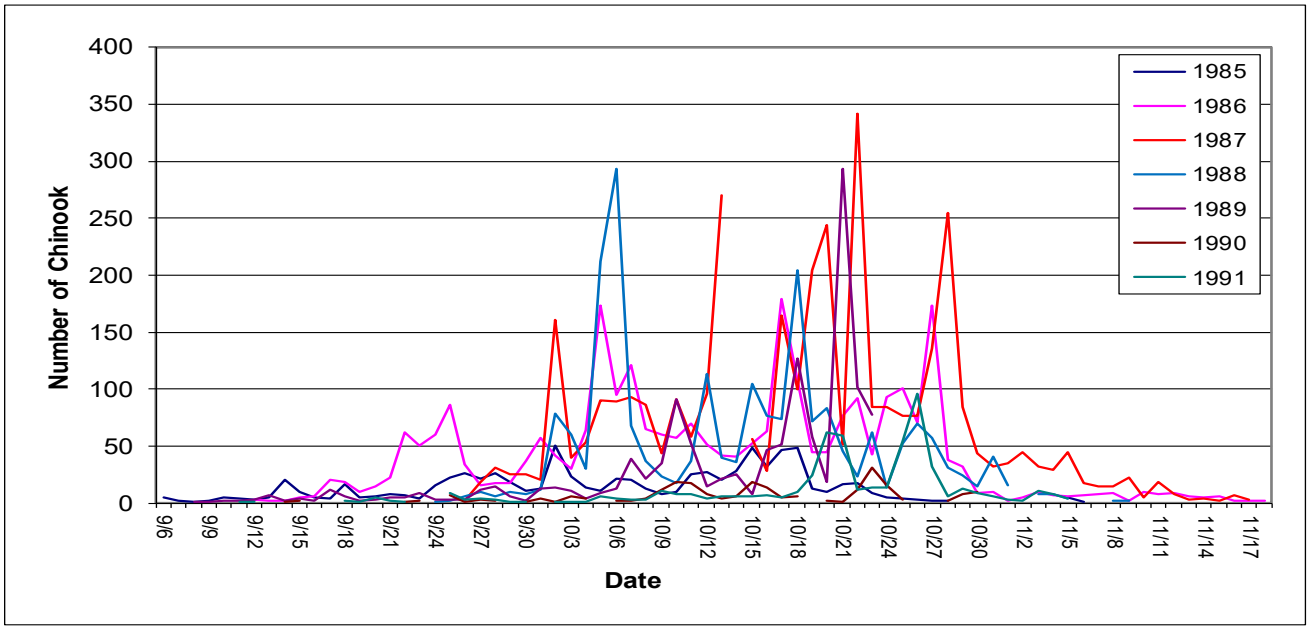

Figure 2. Chinook Salmon observed in the lower Scott River (river mile 1.6) during trapping efforts from 1985-1991.

In 1994, the California State Legislature passed the Leslie Amendment (SB 779). The passage

of SB 779 required Departmental staff to obtain landowner permission prior to accessing private lands to conduct biological investigations. As a result, since 1994, spawning ground surveys have been limited to those areas of the river on private land where landowner permission has been granted. The entire length of the Scott River within the Scott Valley passes through private ownership. The level of cooperation from local landowners has varied over the years. Controversies associated with the listing of SONCC Coho Salmon under the California Endangered Species Act (CESA) and other regulatory actions have reduced the amount of cooperation provided by local landowners to the extent that the Department has been denied permission to survey a large portion of the salmon spawning reaches present in Scott Valley. As a result of the limited landowner access to the valley reaches, since 2007 the Department has been operating the SRFCF at the upper end of the canyon. The addition of the SRFCF has allowed for an accurate estimation of salmonid migration to areas of spawning habitat in the valley reaches without having to conduct spawning ground surveys in these reaches. Since 2014, the Department has exercised its authority under the navigability statute to access the Scott River adjacent to private lands in the lower 18.2 river miles (downstream of the counting facility). The location of the fish counting station allows for monitoring fish abundance into the valley while Cormack-Jolly-Seber (CJS) mark recapture carcass-based or redd based estimates are conducted in the areas downstream of the counting station. The counting facility is also located upstream of several tributaries that can produce significant fall and winter stream flows, thereby reducing the probability of having the counting facility inoperable due to high flow events.

SCOTT RIVER STUDY OBJECTIVES SUMMARIZED:

- Determine the in-river run size (escapement) of Chinook Salmon and Coho Salmon returning to the Scott River.
- Determine run timing, length frequency (FL) distribution, and sex ratio for Chinook Salmon and Coho Salmon in the Scott River.
- Collect scale samples from carcasses and look for hatchery marks to determine age composition and hatchery contribution rates of the run.
- Collect biological data for all steelhead observed coincidentally during the Chinook Salmon and Coho Salmon spawning seasons.

METHODS

OPERATION OF THE SCOTT RIVER FISH COUNTING FACILITY

The video fish counting system was installed at the SRFCF on September 23, 2025, at 1500 hours Pacific Standard Time (PST). A temporary weir (Alaskan weir design) was installed to direct migrating fish into a flume where they pass in front of a video camera (Figure 3). The underwater video system consisted of a digital video camera, waterproof camera housing, viewing window, and counting flume which allowed for recording unimpeded fish passage through the facility. The facility was operated 24 hours a day, seven days a week during the Chinook Salmon and Coho Salmon migration. A Splash Cam digital video camera equipped with a 3.6mm wide angle lens with an auto iris was used to collect the video image and a

Speco Technologies Digital Video Recorder (Model D8VN) was used to record the image to hard drives. The time lapse DVR was set to record continuously, and data storage drive changes were made at least twice a week.

Figure 3. Scott River Fish Counting Facility located in Siskiyou County, California 2023.

All hard drives were immediately returned to the office where each was subsequently downloaded and reviewed by project staff in the video lab. During each review staff recorded the date, time (hour:min:sec), and species of each fish observed on each video image. Additionally, salmon are preliminarily classified as either adults or grilse based on observed length in the videography. During videography adult salmon are considered greater than and equal to 56 cm and salmon less than 56 cm are considered grilse. All rainbow trout (*Oncorhynchus mykiss)* observed during videography greater than 40.6 cm (16 inches) in length are considered adult steelhead. If the species could not be determined due to poor visibility or picture quality, staff recorded that observation as species unknown. Staff also noted any adipose fin-clipped or maxillary-clipped fish observed and recorded the presence of lamprey and any other distinguishable marks that were visible on the image. All data was then entered into computer files, and each data file was subjected to one independent review prior to commencement of data analysis. During periods of high flow when the video camera was inoperable an ARIS SONAR camera was installed to estimate the total number of adult salmonids. The ARIS SONAR camera is unable to determine species composition and as a result, species apportionment was estimated by averaging the known species composition observed from videography three days prior and three days after the ARIS total count was observed.

SPAWNING GROUND SURVEYS

Spawning ground surveys on the Scott River main stem were conducted twice a week on Mondays and Thursdays and opportunistically in main stem tributaries downstream of the counting facilities throughout the salmon spawning season starting October 13, 2025, and ending December 4, 2025. Additional surveys were conducted upstream of the counting facility in the main stem and select tributaries during the Coho Salmon period and are reported by the Siskiyou Resource Conservation District (SRCD). A total of 61 surveys were performed during the spawning season (Appendix 1). On the morning of each survey, crews of at least two people each were given daily instructions, data sheets, field equipment, vehicle assignments, and were assigned to a survey reach. Crews walked their assigned reach in a downstream direction looking for salmon carcasses and spawning redds. All new redd locations were flagged, mapped on USGS topographic maps, and geo referenced using GPS coordinates. This information was provided to the Klamath National Forest for use in their annual reporting. All carcasses recovered were identified to species and sex, checked for marks or tags, and measured (FL); a scale sample was collected for age composition analysis, and females were examined for spawning success.

For purposes of the mark recapture estimate, each carcass was categorized into one of four pathways (Path). Fresh carcasses, those with clear eyes and/or firm flesh were designated as Path 1. Individually numbered jaw tags were attached to the lower right jaw of all Path 1 carcasses and returned to the river for potential recapture during later surveys. Older carcasses, those with two cloudy eyes and/or mushy flesh, were categorized as Path 2. All Path 2 carcasses were cut in half and returned to the river after all biological data was collected. Path 3 carcasses included all the Path 1 carcasses (with jaw tag) that were recaptured during subsequent surveys. Path 3 carcasses were returned to the river for future recapture if the adipose fin clip determination could still be made with confidence. Therefore Path 3 carcasses could be recaptured multiple times. Once an adipose fin had deteriorated to the point that adipose fin clip determination could not be made with confidence, the survey tag was removed, and the carcass was chopped in half and removed from the mark recapture experiment. Any carcasses that could be observed by a survey crew but could not be retrieved for data collection, because they were located in inaccessible or unsafe locations, were designated as Path 4.

SURVEY REACHES

Survey reaches have remained fairly consistent since the beginning of the cooperative spawning ground survey in 1992. During the Chinook Salmon spawning season, decisions regarding which reaches should be surveyed were based on the known distribution of the Chinook Salmon run each week, the available labor force present during each survey, and reach specific stream conditions.

A total of 16 survey reaches, covering approximately 53.6 river miles, have been identified on the mainstem Scott River (Table 1, Figure 4). Historically, the highest observed densities of Chinook Salmon spawning areas within Scott Valley were located downstream of the State Highway 3 Bridge crossing (river mile 34.6) to the USGS gauging station located at river mile 21 (Reaches 8, 9, and 10), and in that part of the river located downstream of Young’s Dam, (river mile 46 to about river mile 42) located upstream of the Eller Lane Bridge crossing (Reaches 12-14).

Table 1. Description of cooperative spawning ground survey reach locations along the Scott River during the 2025 season.

Reach Number	Downstream Limit	RM	Upstream limit	RM	Length (miles)
1	Mouth	0.00	Mid Point	2.55	2.55
2	Mid Point	2.55	Pat Ford	5.14	2.59
3	Pat Ford	5.14	George Allen Gulch	8.51	3.37
4	George Allen Gulch	8.51	Gold Flat	11.38	2.87
5	Gold Flat	11.38	Bridge Flat	14.73	3.35
6	Bridge Flat	14.73	Counting Weir	18.20	3.47
7	Counting Weir	18.20	USGS Stream Gage	21.66	3.46
8	USGS Stream Gage	21.66	Meamber Bridge	25.36	3.70
9	Meamber Bridge	25.36	Dunlop	29.50	4.14
10	Dunlop	29.50	Highway 3 Bridge	35.60	6.10
11	Highway 3 Bridge	35.60	Eller Lane	41.10	5.50
12	Eller Lane	41.10	Sweezy Bridge	42.10	1.00
13	Sweezy Bridge	42.10	Horn Lane	43.90	1.80
14	Horn Lane	43.90	Young's Dam	46.00	2.10
15	Young's Dam	46.00	Fay Lane	49.60	3.60
16	Fay Lane	49.60	East Fork Confluence	53.60	4.00

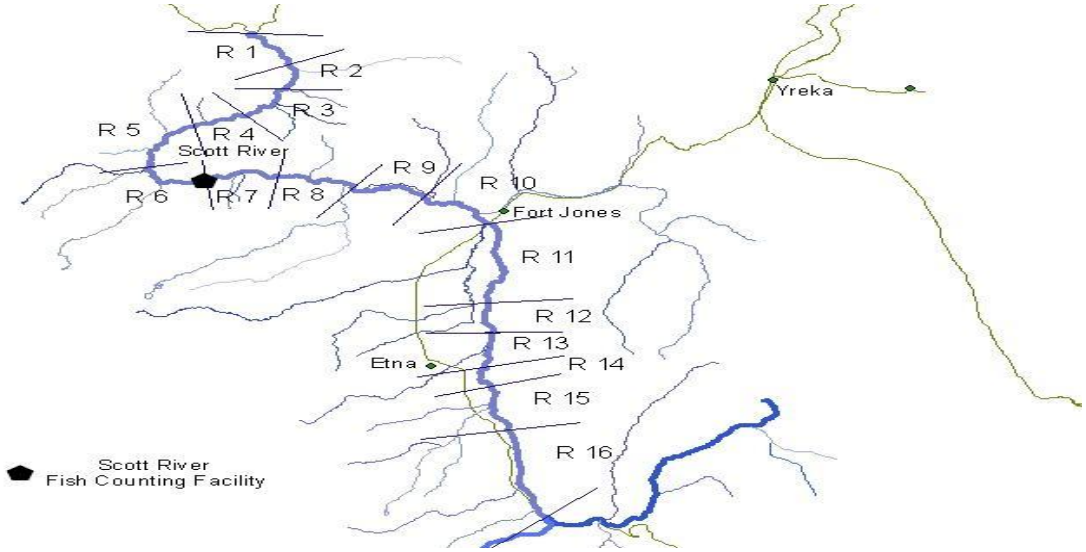

Figure 4. Location of the Scott River Fish Counting Facility and mainstem spawning ground survey reaches on the Scott River used during the 2025 field season.

To assist in developing stock identification baseline information, the KRP collected both genetic tissue and otolith samples during the season. Tissue samples were collected for future DNA analysis from 50 Chinook Salmon and 0 Coho Salmon. Tissue was collected from the first Chinook Salmon from each reach and each survey date and all Coho Salmon for which samples could be collected. All samples were collected following protocols provided by the National Oceanic Atmospheric Administration's (NOAA) Southwest Fisheries Science Center. Samples were sent to California Department of Fish and Wildlife's Central Valley Tissue Archive for archival and analysis. Otoliths were collected from 53 Chinook Salmon. Otoliths

were collected from the first Chinook Salmon from each reach and each survey date and all Coho Salmon for which samples could be collected. All otoliths collected were archived for future microchemistry analysis. All otolith samples were collected following standard protocols described by Stevenson (1992).

POPULATION ESTIMATES

During periods of high flow, the video monitoring station became inoperable, and an ARIS unit was deployed to continue recording fish passage estimates. Species composition derived from videography three days pre and post ARIS deployment was applied to ARIS passage estimates and was then combined with recorded observations from video review to give total spawner escapement upstream the counting facility.

The Chinook Salmon spawner escapement for the Scott River upstream of the counting facility was derived from a direct count of all Chinook Salmon observed at the counting facility (upstream minus downstream observations). To estimate total adult Chinook Salmon escapement in the Scott River, the number of observed Chinook Salmon redds downstream of the counting station (214) were multiplied by two to estimate the number of adult Chinook Salmon (assuming two unique individuals participated in the construction of each redd) and were added to the count of all Chinook Salmon observed passing through the SRFCF (utilizing data from Reach 1 through Reach 6 only). The grilse component below the counting facility was estimated using the following equation: total run=adults/(1-%grilse). To estimate total Chinook escapement, the number of Chinook estimated downstream of the counting facility was summed with the estimate from upstream of the counting station.

The Coho Salmon spawner escapement for the area of the Scott River upstream of the counting facility was also derived from a direct count of all Coho Salmon observed at the counting facility. Spawning ground surveys were conducted through January 21, 2026, in the main stem and tributaries (Tompkins Creek, Kelsey Creek, and Canyon Creek) below the counting facility. To estimate total adult Coho Salmon escapement in the Scott River, the number of observed Coho Salmon redds downstream of the counting station (zero in 2025) were multiplied by two in order to estimate the number of adult Coho Salmon (assuming two unique individuals participated in the construction of each redd) and were added to the count of all Coho Salmon observed passing through the SRFCF. The grilse component below the counting facility was estimated using the following equation: total run=adults/(1-%grilse). Zero Coho Salmon redds were identified downstream of the counting station during 2025. Therefore, no Coho Salmon were estimated downstream of the counting station.

HATCHERY CONTRIBUTION RATES

The hatchery contribution rates for Chinook Salmon and Coho Salmon have been estimated both through the recovery of carcasses and through reviewing live fish images observed at the fish counting facility. During the 2025 season hatchery contribution rates were based on observed clips on recovered carcasses for both Chinook Salmon and Coho Salmon. The hatchery contribution rate of Chinook Salmon was calculated by multiplying the number of Coded Wire Tags (CWT) observed for each CWT group by its production multiplier value (the inverse of the proportion of each group of juveniles that were tagged).

An additional sample expansion (the inverse of the number of fish handled during spawning ground surveys divided by the total estimated) was applied. The Coho Salmon hatchery contribution rate was estimated by direct observation from Coho Salmon carcasses recovered during the spawning ground survey. The observed clip rate was then applied to the total estimated Coho Salmon run size.

RESULTS

OPERATION OF THE SCOTT RIVER FISH COUNTING FACILITY

The SRFCF began recording fish movement on September 23, 2025. The first Chinook Salmon was observed at the SRFCF on September 24, 2025, and the last Chinook Salmon was observed on December 9, 2025. The run peaked between October 10, 2025, and October 27, 2025, when 64.5% of the Chinook Salmon migration was observed (Figure 5). Unlike in previous years when over 90% of Chinook Salmon passed through the SRFCF during daylight hours, in 2019, 2020, 2021, 2022, 2023, 2024, and 2025, 55%, 64%, 63%,39%, 57%, 40%, and 48% of the Chinook Salmon were observed during daylight hours (Figure 6).

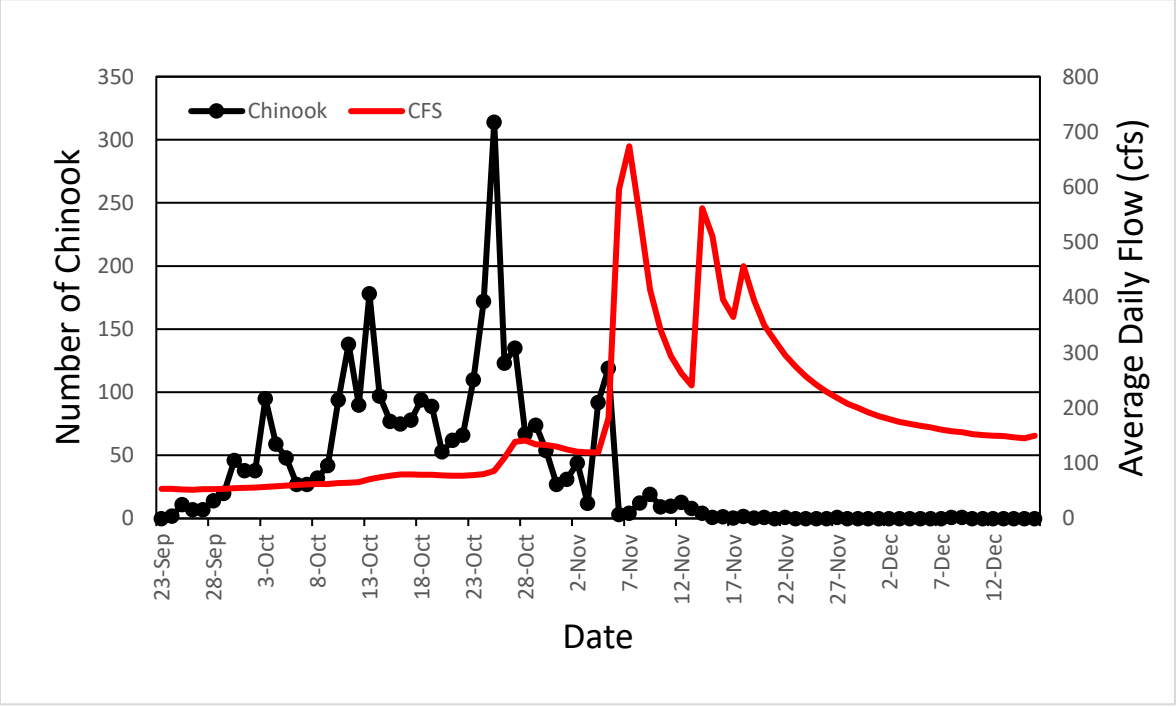

Figure 5. Run timing of Chinook Salmon through the Scott River Fish Counting Facility including sonar passage during the 2025 field season (N=3,171), and average daily flows observed at USGS Gauge No. 11519500.

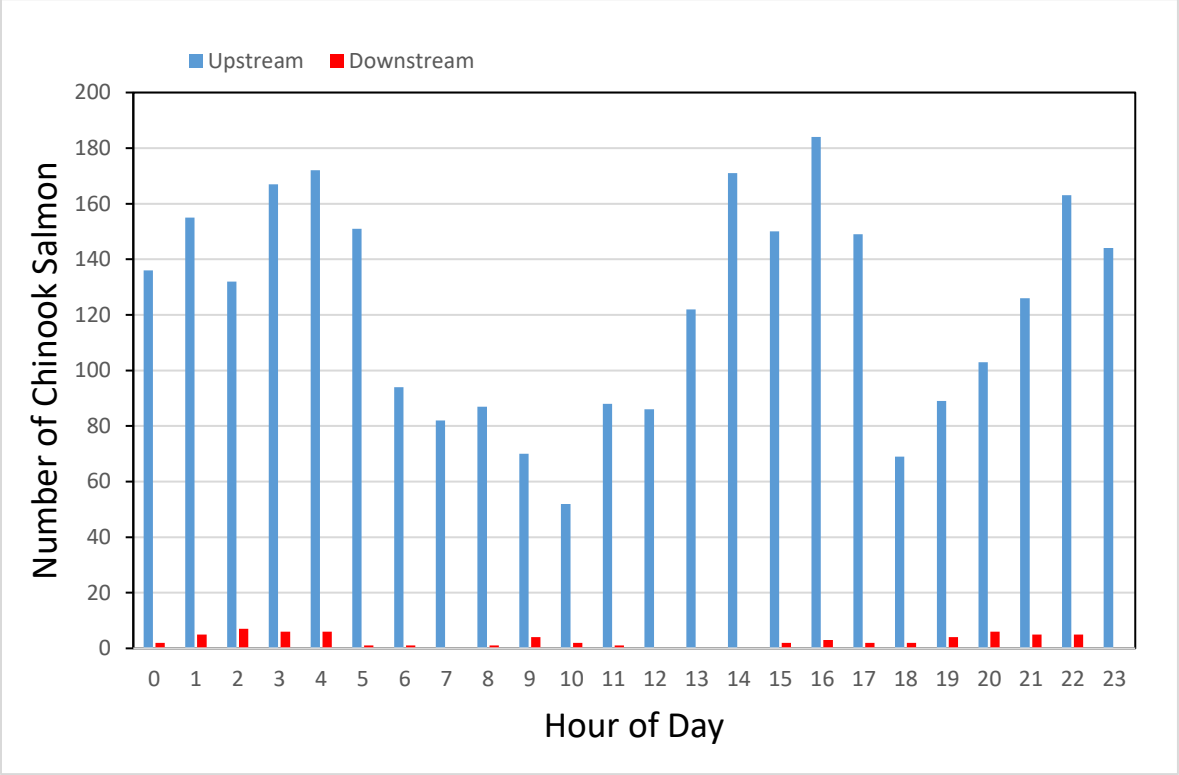

Figure 6. Summary of daily run timing of Chinook Salmon observed at the Scott River Fish Counting Facility not including sonar passage during the 2025 field season (N=3,007).

A net total of 2,877 Chinook Salmon were estimated to have passed upstream the SRFCF during the 2025 season (2,942 upstream and 65 downstream) when videography was employed. The video monitoring station was inoperable on 1 occasion (11/04/2025-11/19/2025) during the season. An ARIS unit was installed to continue monitoring during the outage. The ARIS sonar unit failed to record passage on two occasions, from (11/10/2025-11/11/2025) and (11/13/2025- 11/14/2025). The video station was offline for a total of 363.5 hours, and the ARIS sonar unit was offline for a total of 51.5 hours. During the 363.5 hours, the ARIS unit observed a total of 1,088 adult salmonids. The 1,088 adult species apportionment was estimated in conjunction to rising base flows. Species passage proportions from video monitoring for the 3 days before the outage were applied to the number of fish that passed the ARIS in the first 48 hours of ARIS counts to generate passage estimates by species. Species passage proportions from video monitoring for the 3 days after the outage were applied to the remaining 315.5 hours of ARIS counts to generate passage estimates by species. Beyond the first 2 days of ARIS footage, flows spiked and remained elevated for the remaining period of ARIS operation. Passage averages from video review 3 days post ARIS operation reflect a more accurate species apportionment for the duration of elevated flows. Passage counts during the ARIS outage were applied using migration averages from 6 sonar days. The ARIS sonar unit recorded 275 Chinook Salmon passage events. An additional 19 Chinook Salmon were added from offline passage, resulting in a total of 294 Chinook sonar fish (Table 2, Table 3).

Table 2. Specific dates and times during the 2025 season when videography was not functioning, the specific times recording started and stopped, the number of hours for each day, and the number of Chinook Salmon, Coho Salmon, and steelhead trout estimated during that time.

	Start of Outage	End of Outage	Length of outage (hours)	Chinook Estimate	Coho Estimate	Steelhead Estimate
Video Monitoring	11/4/2025 10:00	11/19/2025 13:30	363.5	294	371	423

Table 3. Specific dates and times during the 2025 season when ARIS sonar was not functioning, the specific times recording started and stopped, the number of hours for each day, and the number of Chinook Salmon, Coho Salmon, and steelhead trout estimated during that time.

	Start of Outage	End of Outage	Length of outage (hours)	Chinook Estimate	Coho Estimate	Steelhead Estimate
ARIS (sonar)	11/10/2025 09:00	11/11/2025 10:30	25.5	9	38	38
ARIS (sonar)	11/13/2025 13:00	11/14/2025 15:00	26	10	39	39
Total			51.5	19	77	77

SPAWNING GROUND SURVEYS

A total of 334 unique Chinook Salmon were encountered in all areas during the spawning ground survey. The sex of 332 Chinook Salmon carcasses was determined. Of these, 217 (65.36%) were male and 115 (34.64%) were female. Two of the 217 male carcasses had no length recorded. Males ranged in FL from 39 cm to 93 cm and averaged 60.1 cm (Figure 7). Females ranged in FL from 45 cm to 88 cm and averaged 72.6 cm (Figure 8). No ad-clipped Chinook were observed during the spawning ground survey effort. After examination of the length frequency distribution of Path 1 and Path 2 carcasses, a preliminary maximum grilse cut-off of 57 cm was established for Scott River Chinook Salmon. The preliminary grilse cut-off was supported by the final age determination which was derived from aged scales. Thirteen Chinook Salmon carcasses were recovered opportunistically by the SRCD and Jim Morris with Etna High School. Five carcasses were identified as male, and 6 carcasses were identified as female. The sex of 2 carcasses was not recorded. The fork length was recorded from all 7 carcasses. Carcasses containing both sex and fork length data were included in the above analysis.

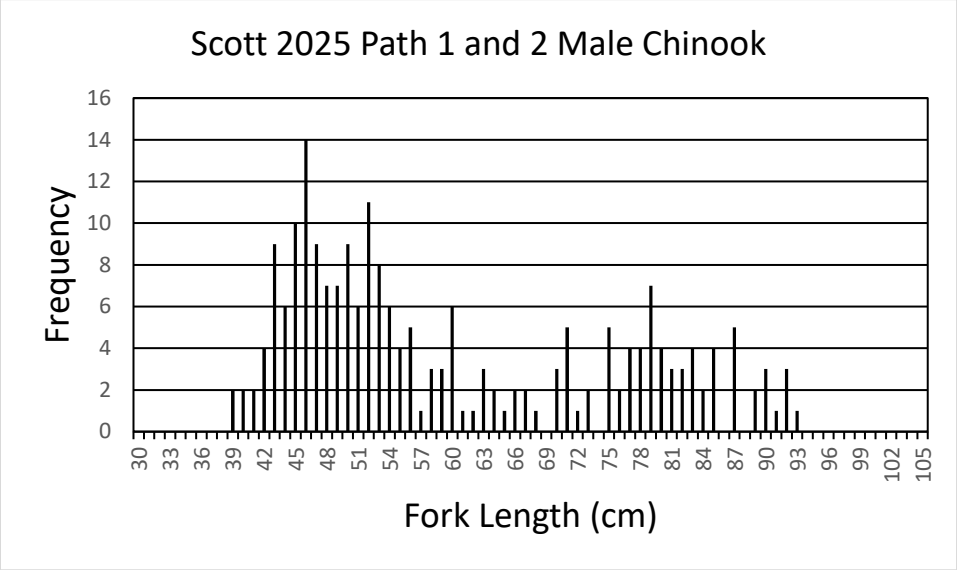

Figure 7. Length Frequency distribution of Path 1 and Path 2 male Chinook Salmon observed during spawning ground surveys in the Scott River, 2025 (N= 215).

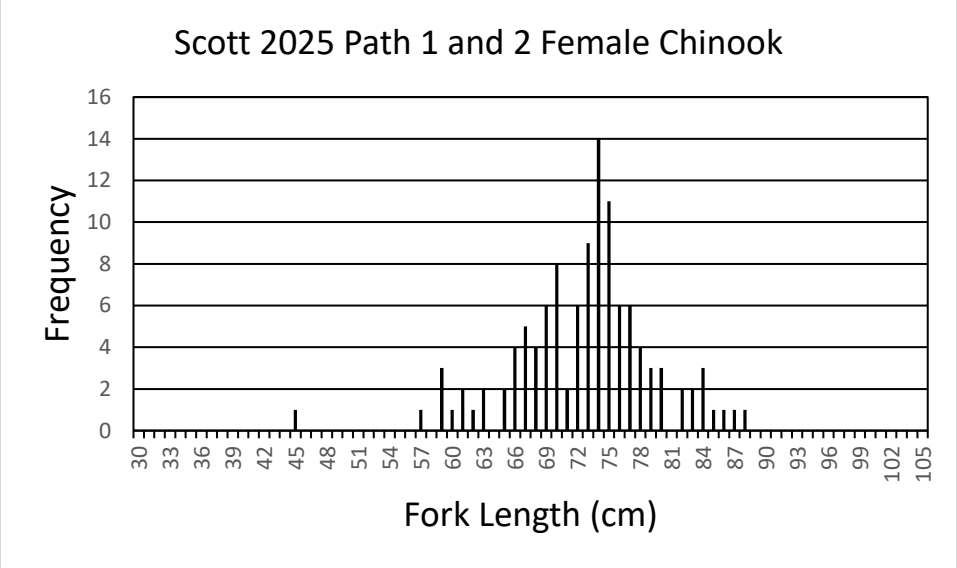

Figure 8. Length frequency distribution of Path 1 and Path 2 female Chinook Salmon observed during spawning ground surveys in the Scott River, 2025 (N= 115)

Each female carcass was examined to determine if it had successfully spawned prior to death. Spawning status was defined as un-spawned (many eggs remaining in the body) or spawned (few or no eggs remaining). Of the 112 female Chinook Salmon carcasses examined for spawning status, 110 females (98.2%) were found to have spawned, and 2 females (1.8%) were identified as un-spawned.

The CJS mark recapture method was used to estimate carcass abundance in the area downstream of the counting station. A total of 203 (+/- 90%CI) Chinook Salmon carcasses were estimated (Table 4) below the counting facility utilizing the CJS method (31 carcasses encountered; 14 carcasses marked and released; 3 recapture events from 3 carcasses).

Table 4. Chinook Salmon grilse, adult and total estimates for upstream and downstream of the counting station and total estimates for the Scott River 2025.

	Estimated Chinook Upstream of Counting Station	Estimated Chinook Downstream of Counting Station			Total Chinook Estimate for Entire River	
	Video + ARIS	CJS		Redds	CJS + Video + ARIS	Redds + Video + ARIS
Grilse	1,273	82		287	1,355	1,560
Adult	1,898	121		428	2,019	2,326
Total	**3,171**	**203**		**715**	**3,374**	**3,886**

Alternatively, Chinook Salmon abundance downstream of the counting station was estimated through expanding the seasonal total redd count of 214 redds. Multiplying the seasonal total redd count by 2 generates an adult estimate of 428. 287 grilse were added to the adult estimate utilizing the following equation: total run= adults/(1-%jacks estimated). A scale-based grilse estimate of 40.15% was used from recovered carcasses during the spawning ground survey. Utilizing the redd estimate with the grilse proportion yields an estimated total of 715 Chinook Salmon downstream of the counting station.

There is a discrepancy between the CJS (203) and redd based (715) estimate downstream of the counting station of 512 Chinook Salmon (Table 4). The seasonal redd total expansion model was used to estimate the Chinook population downstream of the counting station. The CJS estimate is the preferred method to estimate this sector and the redd estimate is only used when there is a gross disagreement between the two estimates as was this season.

To estimate the total Chinook Salmon run for the entire river, the redd based estimate from downstream of the counting station (715) was added to the counting station estimate (3,171) to yield a total basin run size estimate of **3,886**. Based on scale age analysis, adults comprised approximately 59.85% (2,326) and grilse comprised 40.15% (1,560) of the run (KRTAT 2025).

COHO SALMON

The first adult Coho Salmon was observed at the counting facility on October 25, 2025, and the last Coho Salmon was observed on December 16, 2025 (Figure 9). The counting station was removed for the season on December 16, 2025, due to high flows. During videography, a net total of 138 Coho Salmon were estimated to have passed upstream the SRFCF in the 2025 season (141 upstream and 3 downstream). Passage counts during the ARIS outages were applied using migration averages from 6 sonar days. The ARIS sonar unit recorded 294 Coho Salmon upstream passage events. An additional 77 Coho Salmon were added from offline passage, resulting in a total of 371 Coho sonar fish (Table 2, Table 3).

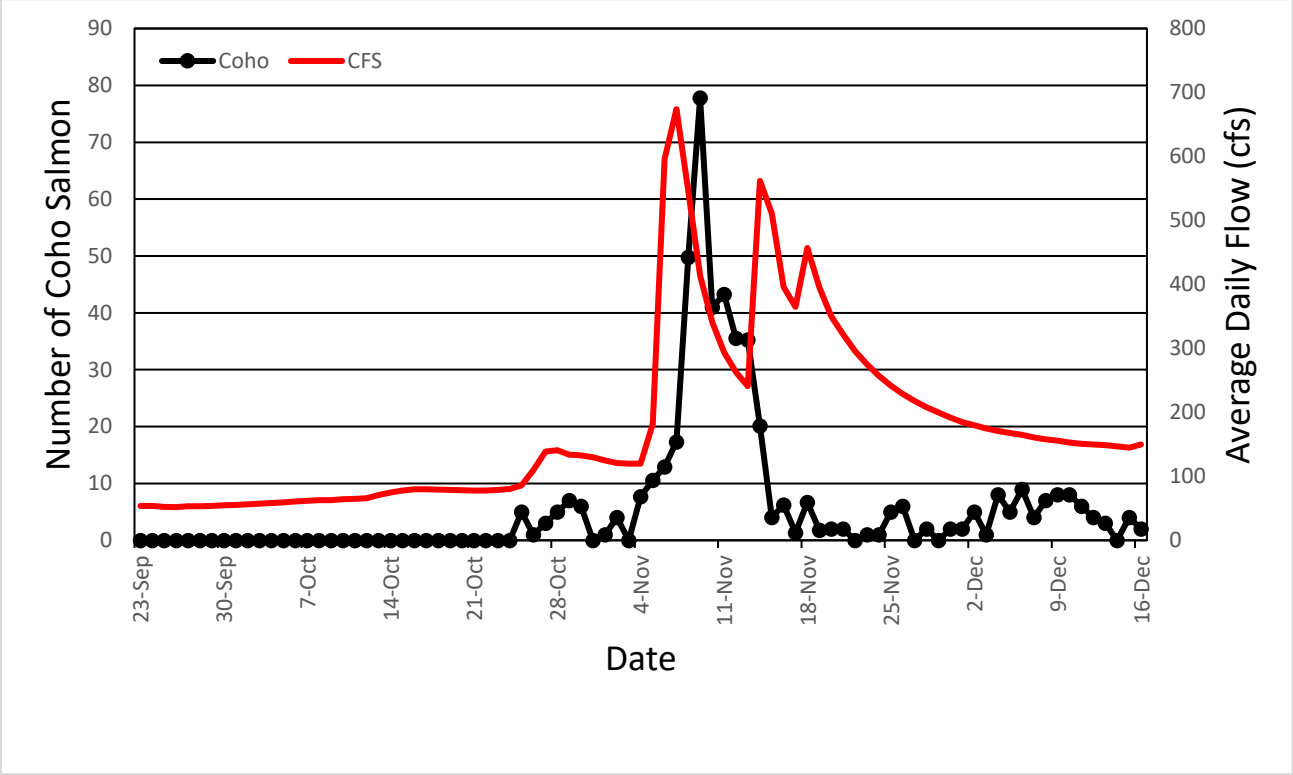

Figure 9. Run timing of Coho Salmon observed passing through the Scott River Fish Counting Facility including sonar passage during the 2025 field season (N= 509), and average daily flows observed at USGS Gauge No. 11519500.

Coho Salmon migration peaked on one occasion during the 2025 season. The pulse of migration was aligned with an increase in base flow. This period of migration was observed from November 8, 2025, through November 14, 2025 (Figure 9). During these four days 59.5% of the Coho Salmon (303) were observed. During the 2025 season KRP staff estimated the number of grilse in the Scott River by enumerating the number of Coho Salmon observed in the video flume that were shorter or longer than 56 cm. Utilizing this method KRP staff identified 93.5% adults and 6.5% grilse (see below for further information on seasonal estimates of age proportions).

Diel movements of Coho Salmon through the SRFCF were consistent throughout the darkest hours of the day and early morning, with fewer observations from 6:00 am and 2:00 pm (Figure 10). In recent years of Coho Salmon monitoring, migrations were generally low during the day and increased from the late afternoon through early morning.

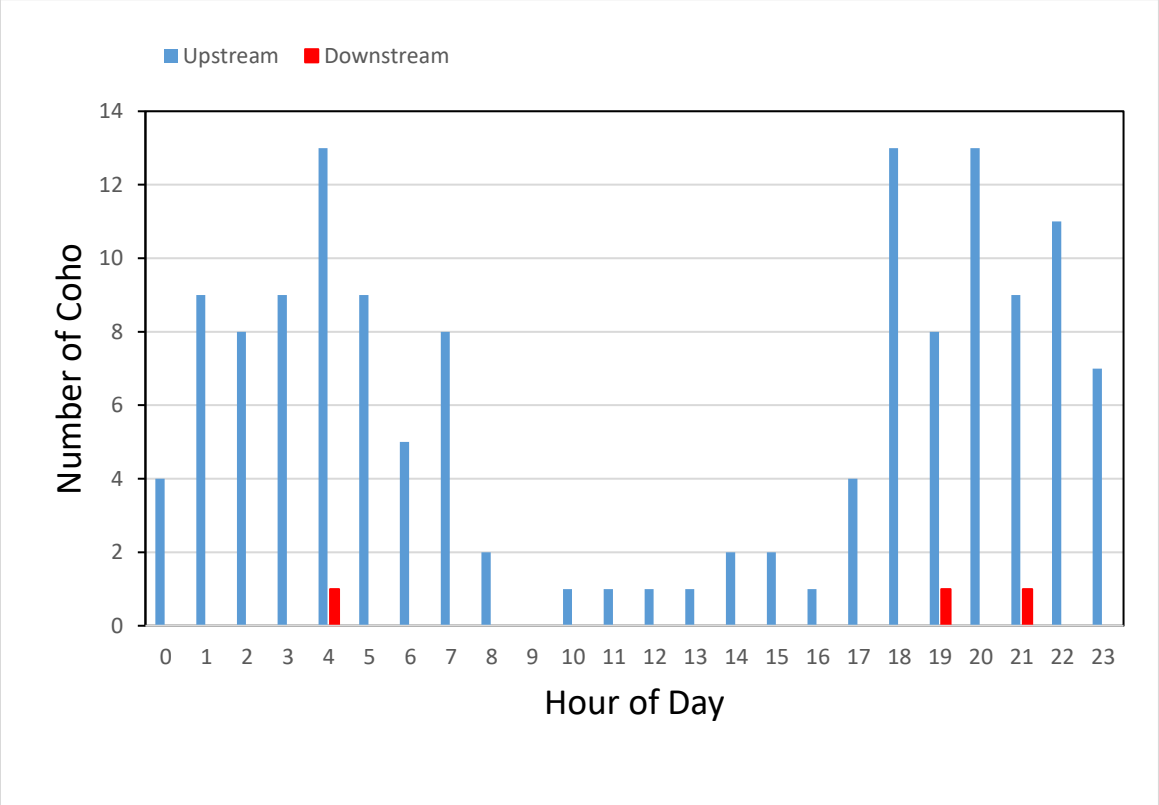

Figure 10. Diel migration patterns of Coho Salmon observed moving through the Scott River Fish Counting Facility not including sonar passage during the 2025 field season (N=144).

SPAWNING GROUND SURVEYS

No Coho Salmon carcasses were observed during the cooperative spawning ground surveys on the lower mainstem Scott River (Reaches 1-8). Zero Coho Salmon redds and 0 Coho Salmon carcasses were observed during surveys at Kelsey Creek, Canyon Creek, or Tompkins Creek. No additional Coho Salmon carcasses were observed in the select tributaries above the counting station.

To estimate the total Coho Salmon run for the entire river; the following method was used: net counts from videography (138) + net counts from ARIS sonar passage recordings (294) + total ARIS offline coho passage (77) + estimated Coho Salmon below counting station (0). Utilizing the method described above, a total of **509** Coho Salmon were estimated to have entered the Scott River during the monitoring period. Age two proportions generated from videography and recovered carcasses were 6.5% and 0%, respectively. Due to the larger sample size available to estimate the age two proportion in the videography (138) verses measured carcass recoveries (0), the final age two proportion was determined using the videography data. Therefore, the resulting number of age two and three Coho Salmon are 33 (6.5%) and 476 (93.5%), respectively.

STEELHEAD

The first steelhead (>40.64 cm) was observed at the counting facility on September 27, 2025, and the last steelhead (>40.64 cm) was observed on December 16, 2025. During videography, a net total of 134 steelhead (>40.64 cm) were estimated to have passed upstream the SRFCF in the 2025 season (134 upstream and 0 downstream). In 2025, a net total of **557** adult (>40.64 cm) steelhead (Figure 11) were estimated to have entered and remained in the Scott River during the counting station season from September 23, 2025, to December 16, 2025. Lines on the back of the video flume were set at 40.64 cm (16 inches) to delineate sub-adults versus adults. Passage counts during the ARIS outages were applied using migration averages from 6 sonar days. The ARIS sonar unit recorded 346 steelhead upstream passage events. An additional 77 steelhead were added from offline passage, resulting in a total of 423 steelhead sonar fish (Table 2, Table 3).

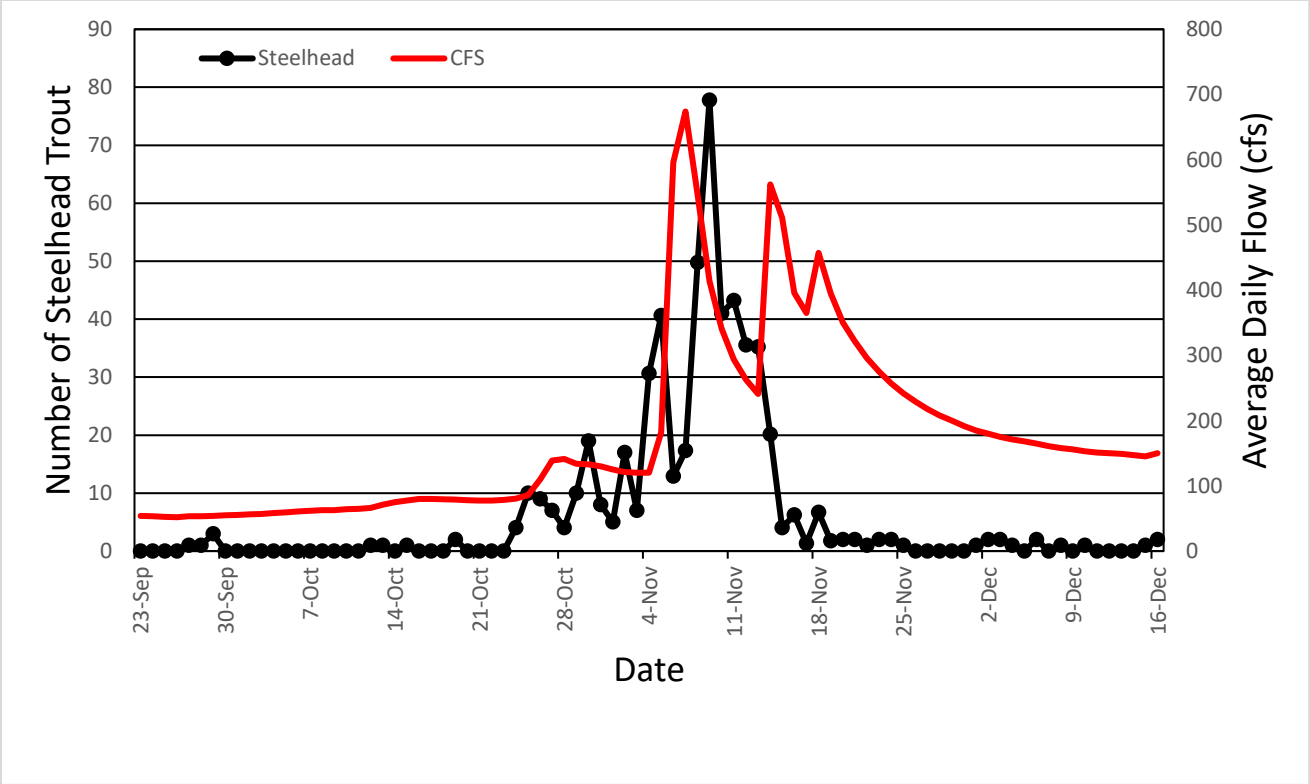

Figure 11. Run timing of steelhead trout (>40.64 cm) observed passing through the Scott River Fish Counting Facility including sonar passage during the 2025 field season (N=557), and average daily flows observed at USGS Gauge No. 11519500.

DISCUSSION

CHINOOK SALMON RUNS

In the 2025 season, the ARIS unit recorded 1,088 adult salmonids during the absence of the video monitoring station. Species apportionment was directly influenced by base flow fluctuation. After the first 2 days of ARIS deployment, base flows spiked and remained in an elevated state for the remainder of ARIS operation. Species passage proportions from video monitoring 3 days post ARIS operation reflect a more accurate distribution for the duration of

the elevated flows. Utilizing other proportion methods which did not account for flow variation resulted in the suggestion of a highly unlikely later-secondary Chinook Salmon run peak, and a complete absence of an initial Coho Salmon run peak for the season.

Since 1978, the Chinook Salmon run in the Scott River has ranged from 14,477 fish (1995) to 467 fish (2004) and has averaged 4,659 fish (Figure 12). The 2025 Chinook Salmon run in the Scott River ranks 25th (3,886 fish) out of 48 years of monitoring. The 2025 run was 16.6% lower than the 48-year average of 4,659 Chinook Salmon. Chinook Salmon escapement to the Scott River from 2015 to 2025 averaged 1,823 fish, a 60.9% reduction from the historical average (4,659).

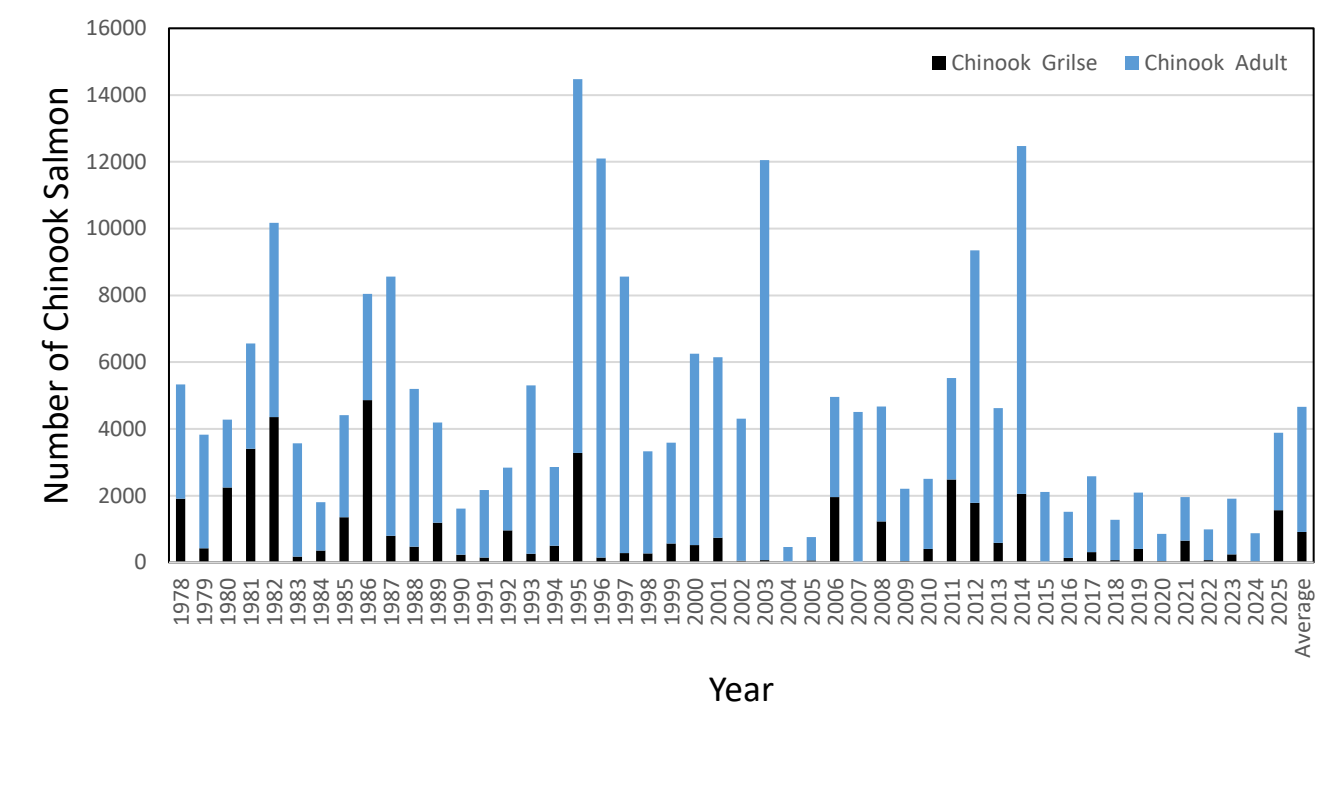

Figure 12. Estimated escapement of Chinook Salmon returning to the Scott River from 1978 to 2025.

The various proportions of the Chinook Salmon distribution for years 2008-2025 are detailed in Table 9 and identifies the importance of the entire Scott River watershed to Chinook Salmon. From 2008 through 2025 an average of 62% of the Chinook Salmon run spawned upstream of the counting station. It is important to track this metric as it helps describe the spatial distribution of annual spawning. There is a lower risk of catastrophic loss due to potential redd scour when eggs are deposited throughout the watershed. Due to low fall flows more than 50% of the Chinook Salmon spawning occurred in canyon reaches in the 2015, 2018, 2020, and 2022 spawning seasons.

Table 5. Scott River Chinook Salmon abundance estimates by area and percentages of the total above and below the Counting Station during the 2008-2025 seasons.

Year	Downstream of Counting Station	Upstream of Counting Station	% Downstream of Counting Station	% Upstream of Counting Station	Total Basin Estimate
2008	1,439	3,234	31%	69%	4,673
2009	1,014	1,197	46%	54%	2,211
2010	280	2,228	11%	89%	2,508
2011	983	4,538	18%	82%	5,521
2012	1,208	8,144	13%	87%	9,352
2013	1,252	3,372	27%	73%	4,624
2014	2,995	9,476	24%	76%	12,471
2015	1,741	372	82%	18%	2,113
2016	363	1,152	24%	76%	1,515
2017	297	2,279	12%	88%	2,576
2018	875	404	68%	32%	1,279
2019	537	1,553	26%	74%	2,090
2020	586	269	69%	31%	855
2021	561	1,400	29%	71%	1,961
2022	920	74	93%	7%	994
2023	832	1,074	44%	56%	1,906
2024	251	625	29%	71%	876
2025	715	3,171	18%	82%	3,886
Average	936	2,476	37%	63%	3,412

The timing of Chinook Salmon passage through the SRFCF has consistently started in early October. However, the 2025 monitoring season uniquely recorded Chinook Salmon passage starting in September. Aside from 2020 and 2025, the Chinook Salmon run has migrated through the SRFCF almost entirely during October. During 2025, 64.5% of the cumulative annual migration occurred in a narrow 17-day period between October 10 and October 27 (Figure 13). The years 2015, 2018, 2020 and 2022 were the four driest falls during the period of monitoring at the counting facility. The proportion of Chinook Salmon that spawned downstream of the counting station in 2015, 2018, 2020, and 2022 were 82%, 68%, 69%, and 93% respectively which corresponded with the four lowest average October flow years (CDFW 2021). While the ability of Chinook Salmon to migrate does not appear to be limited by flow, the proportion of fish migrating upstream of SRFCF does appear to depend on flow.

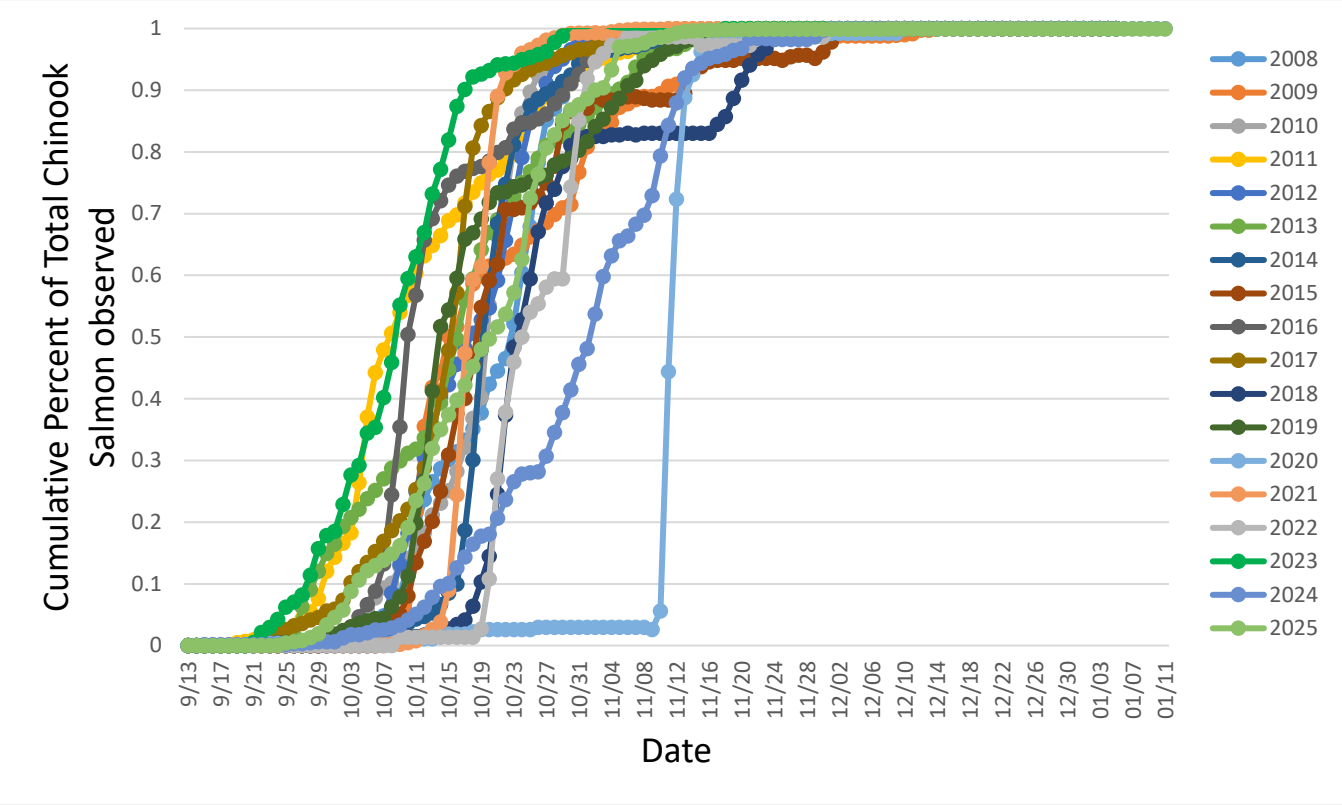

Figure 13. Cumulative percent of total Chinook Salmon observations by day at the Scott River Fish Counting Facility annually from 2008-2025.

The Scott River is an important component of the Klamath Basin Chinook Salmon runs. The Scott River has contributed an average of 8.8% of the basin-wide (including Trinity River) natural spawning escapement to the Klamath River basin during the period from 1978 to 2025 (Table 6). In most years the Scott River Chinook Salmon population tracks very similarly to the total Klamath Basin population, indicating that environmental factors outside the Scott River watershed play an important role in influencing abundance of this population (Figure 14). While this relationship is significant over the period of record the relationship in the most recent 8 years is less consistent.

Table 6. Klamath Basin and Scott River Chinook Salmon natural spawner escapements (age 2-5), 1978-2025.

Year	Chinook Natural Spawner Escapement		% Scott
	Klamath Basin	Scott River	
1978	74,906	5,332	7%
1979	37,398	3,824	10%
1980	48,465	4,277	9%
1981	50,364	6,556	13%
1982	50,597	10,176	20%
1983	33,310	3,568	11%
1984	21,349	1,801	8%
1985	61,628	4,408	7%
1986	142,302	8,041	6%
1987	110,489	8,566	8%
1988	91,930	5,200	6%

1989	49,377	4,188	8%
1990	16,946	1,615	10%
1991	12,367	2,165	18%
1992	17,171	2,838	17%
1993	25,683	5,300	21%
1994	38,578	2,863	7%
1995	179,118	14,477	8%
1996	87,500	12,097	14%
1997	50,369	8,561	17%
1998	45,343	3,327	7%
1999	28,904	3,584	12%
2000	89,122	6,253	7%
2001	85,581	6,142	7%
2002	69,502	4,308	6%
2003	89,744	12,053	13%
2004	28,516	467	2%
2005	27,931	756	3%
2006	45,002	4,960	11%
2007	61,741	4,505	7%
2008	48,073	4,673	10%
2009	52,702	2,211	4%
2010	49,027	2,508	5%
2011	110,554	5,521	5%
2012	137,724	9,352	7%
2013	69,986	4,624	7%
2014	112,599	12,470	11%
2015	31,607	2,113	7%
2016	15,818	1,515	10%
2017	35,036	2,576	7%
2018	61,561	1,279	2%
2019	26,412	2,090	8%
2020	31,138	855	3%
2021	36,564	1,961	5%
2022	26,201	994	4%
2023	42,303	1,906	5%
2024	29,915	876	3%
2025	**54,373**	**3,886**	**7%**
Average	**57,142**	**4,659**	**8.5%**

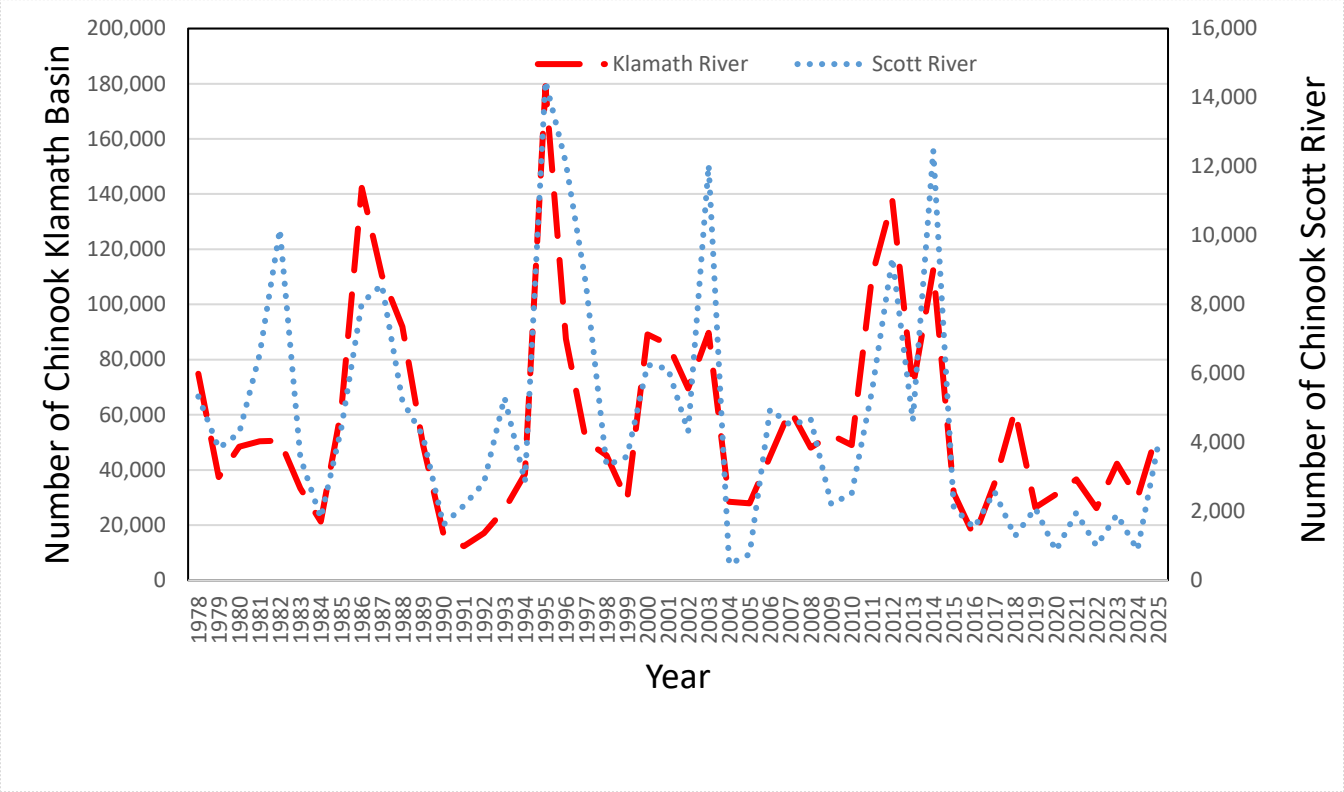

Figure 14. Chinook Salmon Klamath Basin natural spawner escapement (primary y-axis) and the Scott River natural spawner escapement (secondary y-axis) from 1978 through 2025.

To evaluate freshwater productivity, the production of emigrating 0+ Chinook Salmon has been estimated in the Scott River since Brood Year 1999 (Nuñez-Guttierrez and Romero 2025). The number of 0+ Chinook Salmon produced per adult has been calculated for Brood Years 1999-2015, 2017-2021, 2023 and 2024. It has ranged from a low of 17.6 to a high of 453.6 and averaged 137.3 (Figure 15). There were no estimates for 0+ Chinook Salmon recruits per adult for Brood Year 2022 due to insufficient data to calculate a population estimate. It is theorized that the extremely low production of offspring from the 2005 brood year was the result of egg scour when a significantly high proportion of the Chinook redds were constructed in the canyon reaches and stream flows during incubation exceeded 23,000 cfs on December 31, 2005. It is also theorized that a large fraction of the 2005 Chinook cohort was destroyed during these storms.

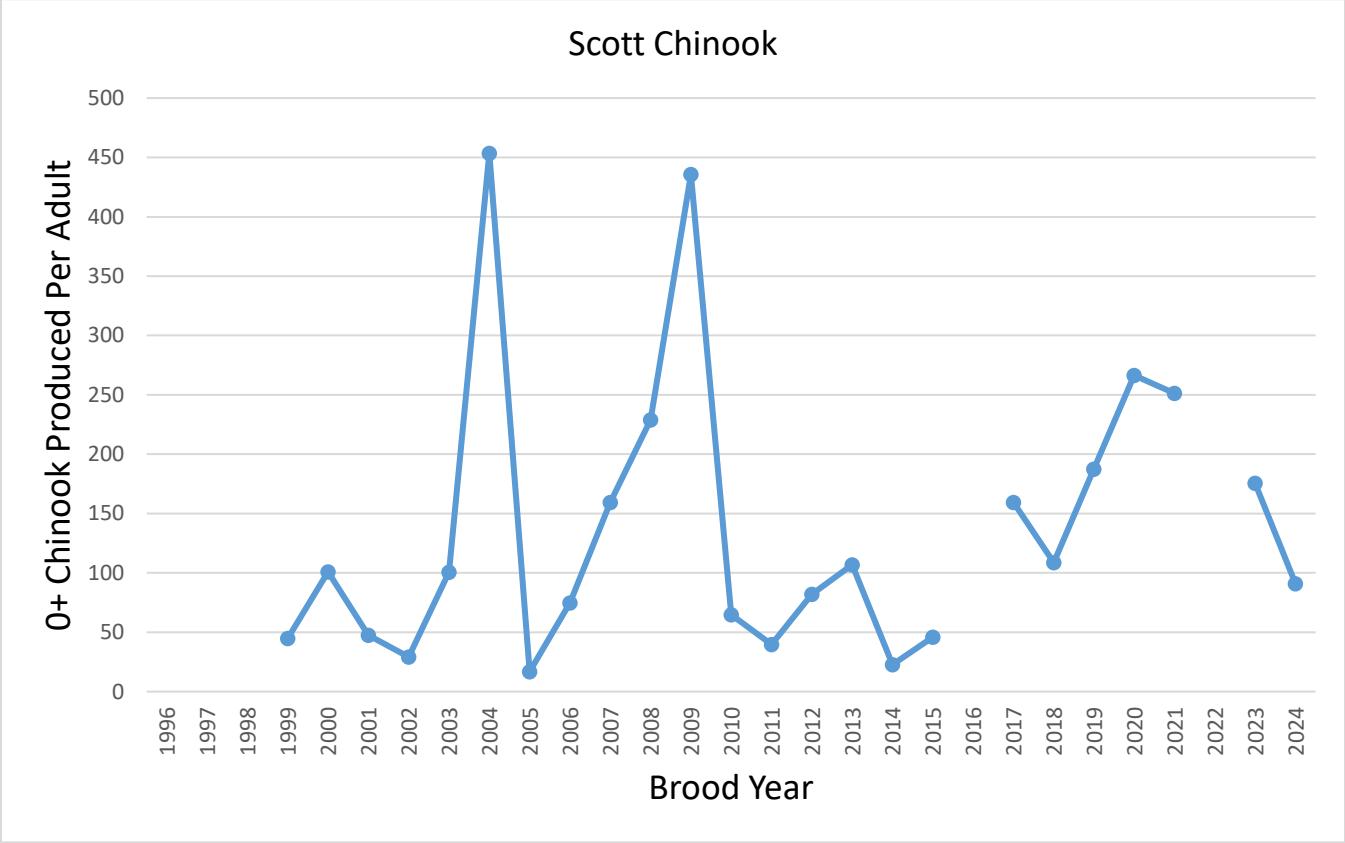

Figure 15. Number of 0+ Chinook Salmon produced per adult spawner in the Scott River by brood year, for Brood Years 1999-2015, 2017-2021, and 2023-2024.

Due to funding constraints, the Department was unable to operate the Scott River Rotary Screw Trap during the 2017 season preventing the analysis for brood year 2016. As the watershed approaches carrying capacity the number of 0+ Chinook Salmon produced per adult is a direct measure of in-river productivity, and as habitat conditions improve or diminish, this measure will reflect those conditions (Figure 16).

Table 7. Number of Chinook Salmon produced per adult spawner in the Scott River by brood year, survival %, and % survival to age 2. /a no production estimates generated for 0+ produced Chinook Salmon.

Estimated River Return Age by Brood Year Production								
Brood Year	**0+ Produced (Brood Year +1)**	**2**	**3**	**4**	**5**	**Total**	**% Survival**	**% survival to age 2**
1999	160,906	744	2,479	7,599	249	11,071	6.88	0.4624
2000	630,151	47	4,399	154	52	4,652	0.74	0.0075
2001	291,207	65	42	0	1	108	0.04	0.0223
2002	125,909	22	646	1,247	0	1,915	1.52	0.0175
2003	1,211,604	58	1,759	1,097	51	2,965	0.24	0.0048
2004	211,847	1,953	3,397	3,227	267	8,844	4.17	0.9219
2005	12,707	11	167	106	0	284	2.23	0.0866
2006	370,622	1,228	1,794	1,714	0	4,736	1.28	0.3313
2007	717,948	44	399	2,038	23	2,504	0.35	0.0061
2008	1,070,520	394	978	1,938	36	3,346	0.31	0.0368
2009	963,392	2,499	5,608	2,483	283	10,873	1.13	0.2594

2010	162,706	1,783	1,517	7,159	210	10,669	6.56	1.0958
2011	219,304	588	2,977	829	0	4,394	2.00	0.2681
2012	782,804	2,051	1,053	1,375	257	4,736	0.61	0.2620
2013	493,721	21	1	79	8	109	0.02	0.0043
2014	284,329	139	1,933	115	0	2,187	0.77	0.0489
2015	97,027	307	1,085	85	0	1,477	1.52	0.3164
2016/a		71	1,596	248	0	1,915		
2017	410,688	409	564	962	0	1,935	0.47	0.0996
2018	138,947	43	344	88	8	483	0.35	0.0309
2019	391,643	655	839	1,436	29	2,959	0.76	0.1672
2020	227,716	67	220	197	83	567	0.25	0.0294
2021	493,084	243	620	1,891			0.56	0.0493
2022/a		29	352					
2023	334,626	1,561					0.47	1.9576
Average	**426,235**	**601.2**	**1,514.1**	**1,600.6**	**69.5**	**3,597.6**	**1.44%**	**0.2820%**

Due to unsuccessful mark recapture during the 2023 season, the Department was unable to produce 0+ Chinook Salmon production estimates for brood year 2022. Between the brood years of 1999 to 2020, Chinook Salmon survivability has averaged 1.44%. Survivability to age 2 between brood years 1999- 2023 has averaged 0.2820% (Table 7).

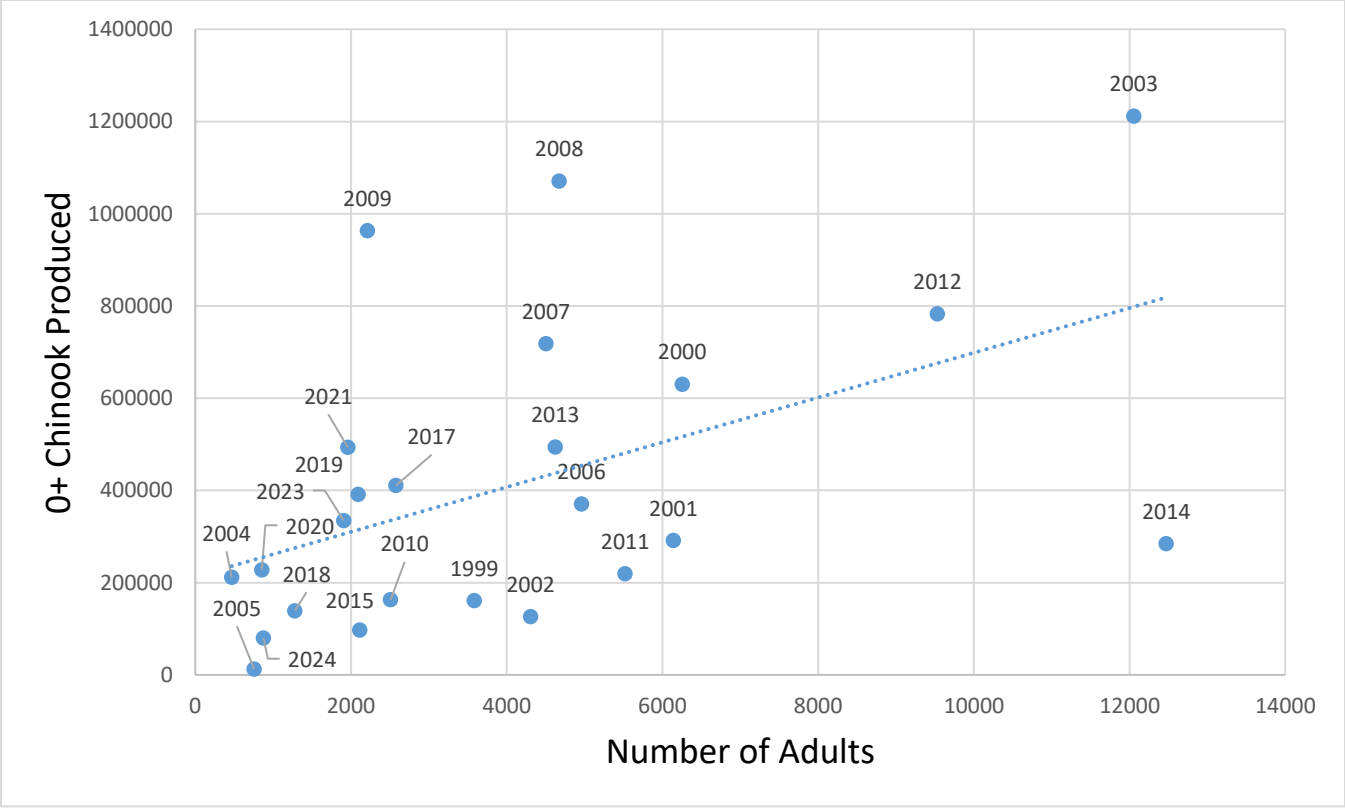

Figure 16. Number of returning adults and corresponding number of 0+ Chinook Salmon produced by year in the Scott River by brood year, for Brood Years 1999-2015, 2017-2021, and 2023-2024.

COHO SALMON

Since video operations began in 2007 the estimated escapement of Coho Salmon in the Scott River has ranged from a low of 63 to a high of 2,752 and averaged 723 (Figure 17). The adult run size of Coho Salmon prior to 2007 is unknown, and with the addition of the counting facility, the ability to monitor this ESA listed run has greatly improved. Although recent adult run size data is sparse on the Scott River, monitoring of the yearling juvenile emigration has taken place since 2003. The emigration data generated from 2003 through 2025 indicates significant interannual variation (Nuñez-Guttierrez and Romero 2025). Results of the adult monitoring at the SRFCF support this observation. The brood year that returned in 2025 (age 3 in 2025 and age 2 in 2024) in one generation increased in total numbers by 283 fish to 521, an increase of 54.32% percent, from returns in 2022 (Figure 18). In 6 generations, this brood year has decreased from an estimated 1,622 in 2007 to 521 in 2025.

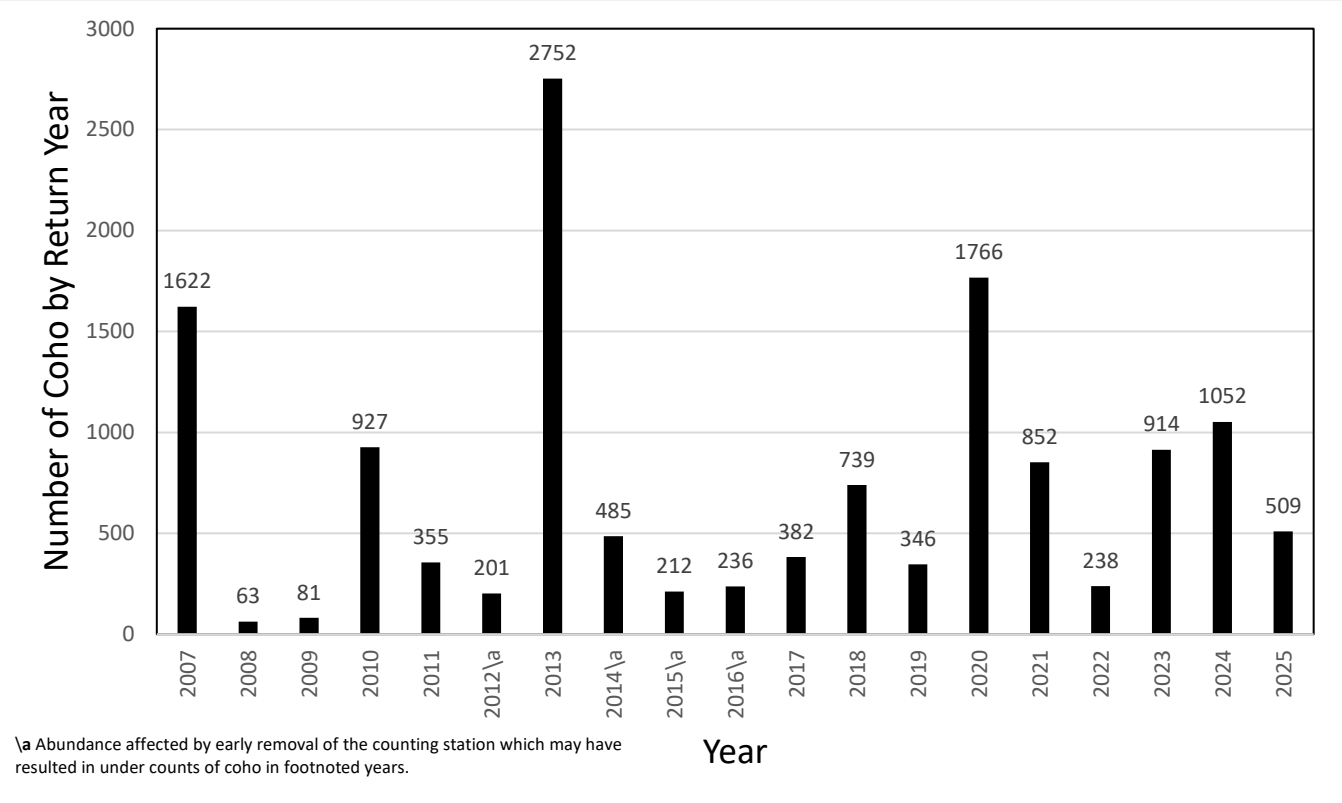

Figure 17. Estimated escapement by return year of adult and grilse Coho Salmon (age 2 and age 3) returning to the Scott River from 2007 to 2025.

The 2025 monitoring season extended to December 16th prior to what is considered the normal end of the Coho Salmon migration. The counting facility was removed during active Coho Salmon movement, and it is unknown how many fish were missed after the counting station was removed. To evaluate the accuracy of the 2025 estimate, the proportion of the total annual run that has been observed by December 16th for each season for the period of record (Figure 19) has been averaged. For the years 2007-2021, an average of 96.8% of the annual Coho Salmon run has been observed by December 16th. This analysis provides evidence that if adults were missed at the end of the migratory window due to removing the counting facility it was likely a small fraction.

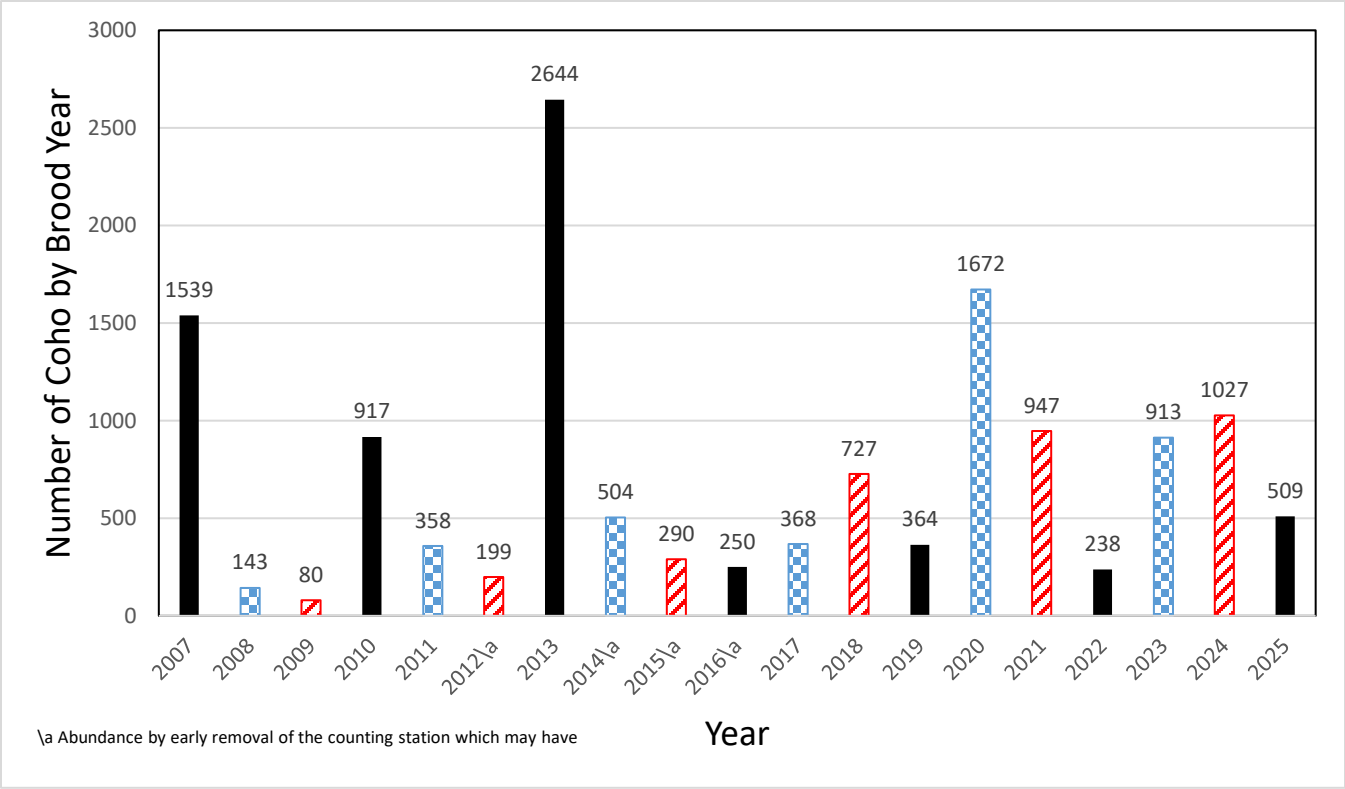

Figure 18. Estimated escapement by Brood Year of adult and grilse Coho Salmon (age 2 [year-1] and age 3 [year]) salmon returning to the Scott River from 2007 to 2025. Individual brood years are represented by different colors.

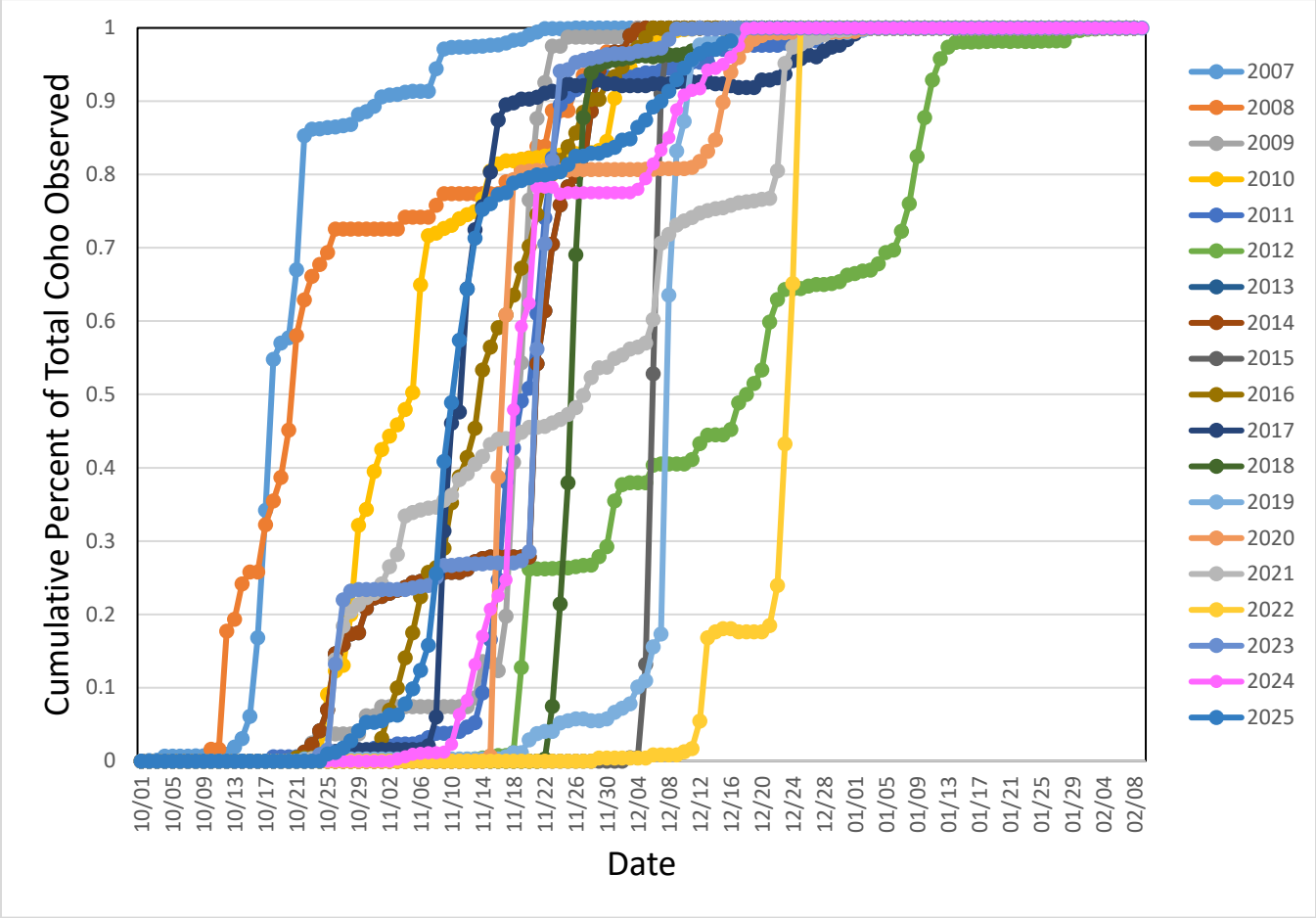

Figure 19. Cumulative percent of total Coho Salmon observations by day at the Scott River Fish Counting Facility annually from 2007-2025.

Utilizing the number of Coho Salmon smolts produced in the Scott River (Nuñez-Guttierrez and Romero 2025) and the results of the adult abundance estimates allow for analysis of Scott River freshwater production and out of basin survival by brood year. For Brood Years 2004-2008, 2010-2014, and 2016-2020, the out of basin survival averaged 5.7% and ranged from a low of 1.25% to a high of 13.51% (Table 8). Due to the extremely high observed percent smolt survival of 55.81 for Brood Year 2009, data from this brood year has been omitted from this analysis. It is possible that the smolt estimate generated for Brood Year 2009 underestimated the actual number of out migrants. It is also possible that out of basin adult strays positively biased the adult estimate in 2012. Although the proportion of smolts that survive outside the Scott River watershed is largely driven by uncontrollable factors, it is important to track this survival metric as it provides a deeper understanding of adult return trend information.

Table 8. Coho Salmon smolt outmigrant abundance point estimates, age 2 and age 3 Coho Salmon abundance estimates, and proportion of outmigrant smolts that returned by brood year for the Scott River, Brood Years 2004-2022.

Brood Year	Smolt Year	Smolt point Estimate	Age 3 Return Year	Age 2 Return	Age 3 Return	Age 2 and 3 Return	Percent smolt survival
2004	2006	95,815	2007	0	1,539	1,539	1.61
2005	2007	3,931	2008	83	60	143	3.64
2006	2008	1,142	2009	3	77	80	7.01

2007	2009	73,232	2010	4	913	917	1.25
2008	2010	3,257	2011	14	344	358	10.99
2009	2011	353	2012	11	188	199	56.37
2010	2012	63,135	2013	13	2,631	2,644	4.19
2011	2013	9,283	2014	121	383	504	5.43
2012	2014	6,734	2015	102	188	290	4.31
2013	2015	8,758	2016	24	226	250	2.85
2014	2016	3,372	2017	0	368	368	10.91
2015	2017	N/A	2018	14	713	727	N/A
2016	2018	14,628	2019	26	338	364	2.49
2017	2019	15,707	2020	8	1,664	1,672	10.64
2018	2020	14,628	2021	102	845	947	6.47
2019	2021	1,762	2022	7	231	238	13.51
2020	2022	68,616	2023	7	906	913	1.33
2021	2023	4,014	2024	8	1,019	1,027	25.59
2022	2024	10,202	2025	33	476	509	4.99

Analyzing comparisons of Coho Salmon smolt production estimates to estimated female adult Coho Salmon returns produces freshwater survival estimates in the form of Coho Salmon smolts produced per adult female return. For Brood Years 2007 through 2022, the number of Coho Salmon smolts produced per returning adult female has ranged from a low of 5.78 to a high of 101.78 and has averaged 56.57 (Table 9). Utilizing the average out of basin survival for yearling Coho Salmon of 6.1%, it requires a minimum of 32.8 yearlings to be produced per returning adult female to have zero population growth or decline. Due to the difficulty in estimating abundance of adults and out-migrants at low abundance levels it is unclear if the smolts produced per adult female ratio generated for Brood Year 2009 is a result of decreased freshwater productivity or a result of sampling difficulty. As additional years of data become available the freshwater production of Coho Salmon in the Scott River can be further evaluated. The number of smolts produced per returning adult female by brood year is a direct measure of freshwater survival. For levels below carrying capacity, it can be stated that as the number of smolts produced per returning adult female increases it can be inferred that in-river conditions for Coho Salmon are improving. Conversely as the number of smolts produced per returning adult female decreases, it can be inferred that in-river conditions for Coho Salmon are getting worse.

Table 9. Adult Coho Salmon estimate, Coho Salmon smolt production point estimate, and ratio of Coho Salmon smolts produced per adult female return for the Scott River, Brood Years 2007-2015, 2016-2023.

Adult Year Brood Year	Adult Estimate	Adult Female Estimate	Smolt Year	Smolt point Estimate	Smolts produced per Female
2007	1,622	860	2009	73,232	85.15
2008	63	32	2010	3,257	101.78
2009	81	41	2011	353	8.61
2010	927	640	2012	63,135	98.65
2011	355	170	2013	9,283	54.61
2012	201	86	2014	6,734	78.30
2013	2,752	1,514	2015	8,758	5.78
2014	485	179	2016	3,372	18.84
2015	212	170	2017	N/D	N/D
2016	226	175	2018	14,628	83.59

2017	382	174	2019	15,707	90.27
2018	739	422	2020	14,628	34.66
2019	346	195	2021	1,762	9.04
2020	1,766	883	2022	68,616	77.71
2021	852	426	2023	4,014	9.42
2022	238	119	2024	10,202	85.73
2023	914	457	2025	28,764	**62.94**
				Average	**56.57**

When the number of returning adults is plotted against the number of Y+ Coho Salmon produced by brood year a positive relationship is generated (Figure 20). This positive relationship indicates that as adult spawners increase so do the resulting number of offspring. It is theorized that the extremely low production of offspring from the 2013 and 2019 brood years was the result of extreme drought conditions in the Scott River.

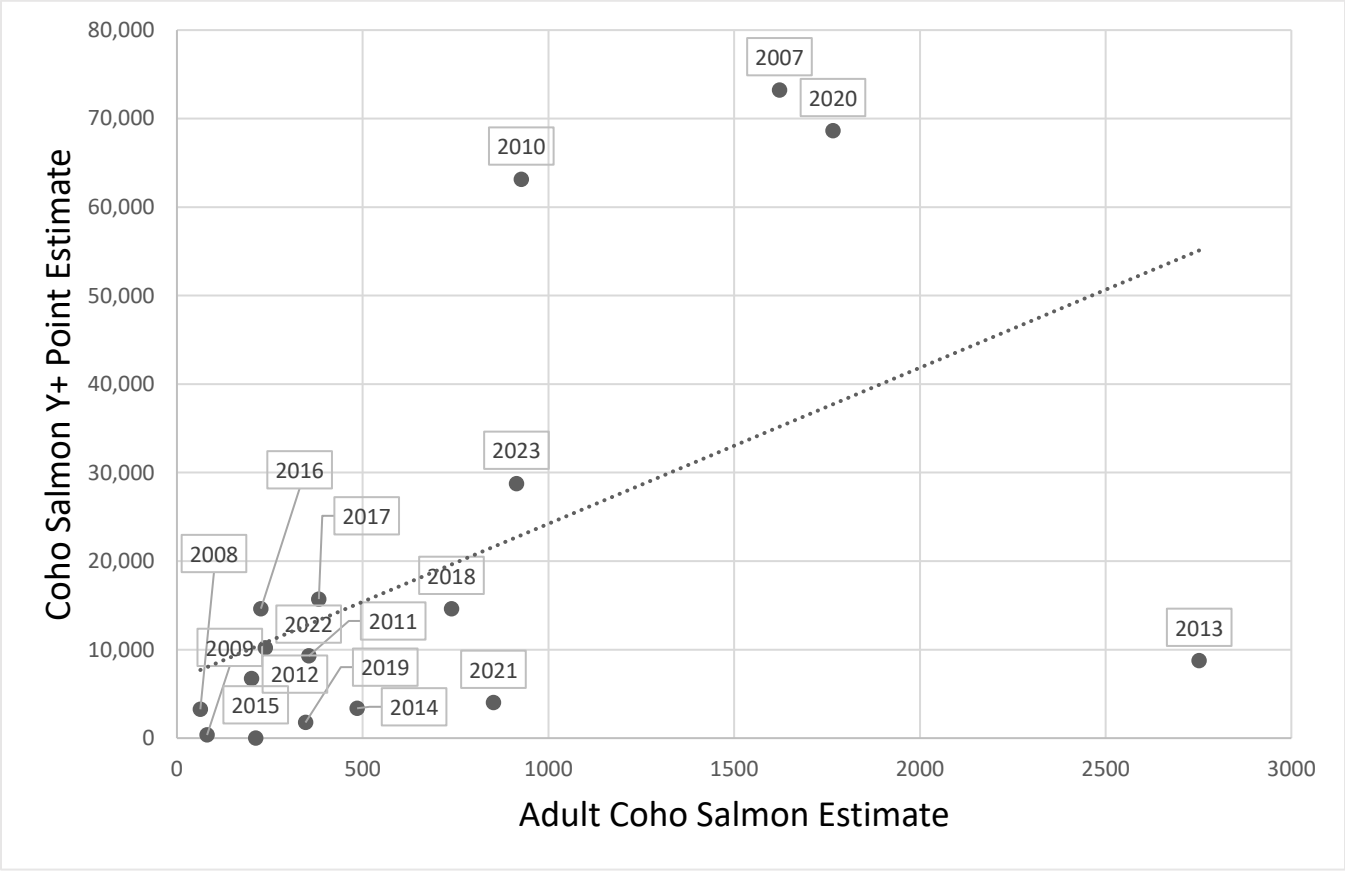

Figure 20. Number of returning adults and corresponding number of Y+ Coho Salmon produced by brood year in the Scott River, for Brood Years 2007-2014 and 2016-2023.

STEELHEAD

The number of returning adult steelhead has been monitored at the SRFCF since 2007. During the 2007 through 2009 seasons an unknown number of sub-adult steelhead may have been counted as adults. Starting in 2010, lines on the back of the video flume were set 16 inches (40.64 cm) apart to delineate sub-adults versus adults. From 2007 to 2025 the number of observed adult steelhead have ranged from a high of 917 to a low of 8 with an average of 235

(Figure 21). The run size of adult steelhead prior to 2007 is unknown, and with the addition of the counting facility, the ability to monitor this run has greatly improved. Although recent adult run size data is sparse on the Scott River, monitoring of the juvenile emigration has taken place since 2003. A large fraction of the adult steelhead migration occurs outside the operational window of the SRFCF. Therefore, the number of observed steelhead should be considered minimum number of returns and not basin estimates.

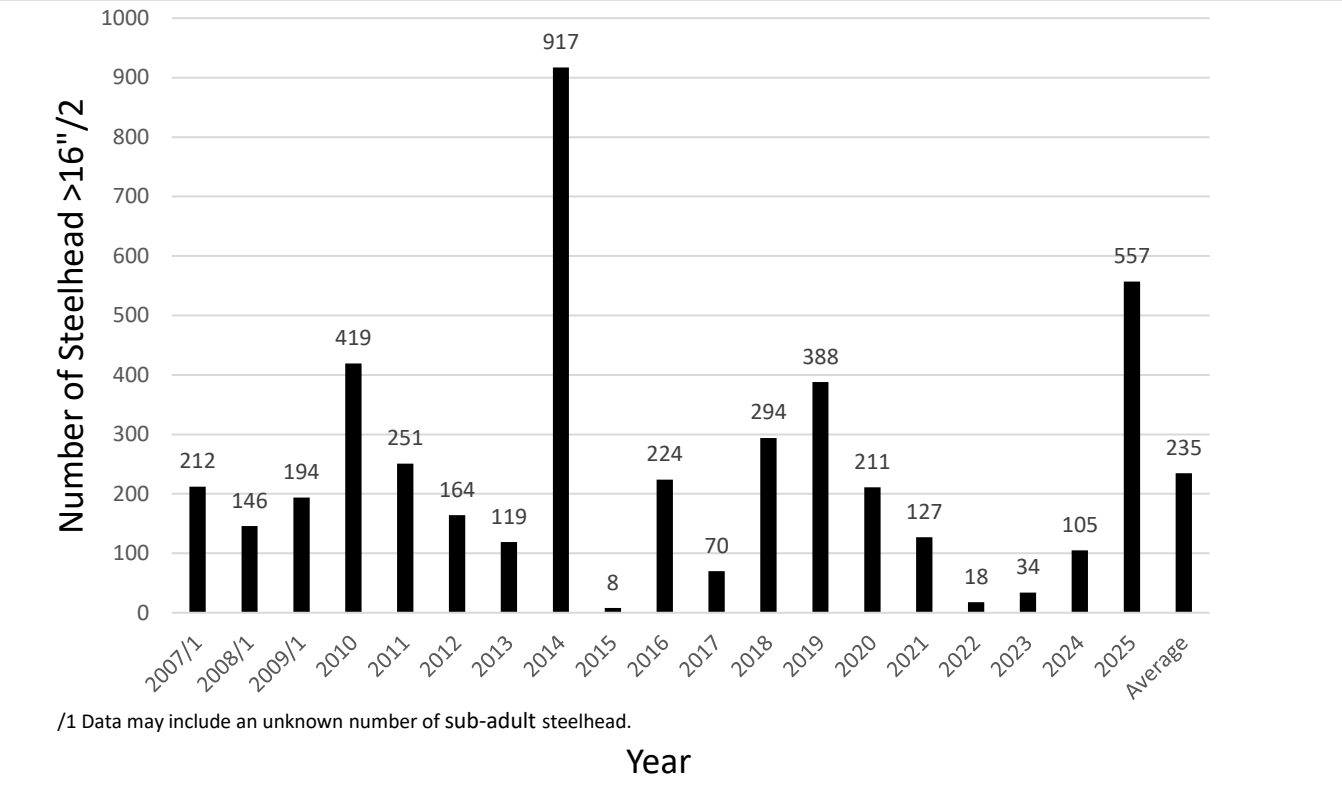

Figure 21. Number of observed steelhead >40.6 cm at the Scott River Fish Counting Facility from 2007 to 2025.

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Appendix 1. Summary of surveys conducted in the Scott River watershed during the 2025 spawning season by date and reach.

Reach																	
	CDFW	CDFW	CDFW	CDFW	CDFW	CDFW	CDFW	CDFW	SRCD	SRCD	SRCD	SRCD	SRCD	SRCD	CDFW	CDFW	CDFW
Survey Date	1	2	3	4	5	6	7	8	9	12	13	14	15	16	Tompkins Creek	Canyon Creek	Kelsey Creek
10/13	1	1	1	1													
10/16	1	1						1									
10/20	1	1						1									
10/23		1			1	1		1									
10/27	1	1						1									
10/30			1	1				1			1						
11/3	1	1						1									
11/6											1						
11/10				1	1	1		1									
11/13	1	1						1									
11/17				1	1			1									
11/20	1	1						1									
11/24		1	1					1									
12/1	1	1						1									
12/4	1	1	1					1									
12/8				1	1	1		1									
1/7															1	1	1
1/13															1	1	1
1/21															1	1	1