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SCOTT AND SHASTA RIVER JUVENILE CHINOOK SALMON OUT-MIGRANT STUDY: MULTIYEAR REPORT, 2000-2015

Prepared by

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Abstract: Since 2000, the Anadromous Fisheries Resource Assessment and Monitoring Program conducted by the Yreka office of the California Department of Fish and Wildlife has operated rotary screw traps in the Scott and Shasta Rivers of the greater mid-Klamath River basin for the purpose of generating population estimates for out-migrating juvenile salmon. The traps are installed in late winter (Julian week 5 – January 29) and operate until late spring (Julian week 26 – July 1), depending on conditions. Three species of salmonid are monitored, including Chinook salmon (*Onchorhynchus tshawytscha*), coho salmon (*O. kisutch*) and rainbow trout/steelhead (*O. mykiss*), as well as a variety of native and non-native fish species. This report is a summary of data collected regarding juvenile Chinook populations from 2000 to 2015. Seasonal population estimates at the Scott River trap site ranged from 17,000 in 2006 to a high of 1,190,000 fish in 2009. Production estimates from the Shasta River ranged from 90,000 in 2006 to 5,975,000 individuals in 2013. Out-migration timing, estimated trap efficiencies and fork length bio-data are provided. Water temperature and flow data collected since the inception of the project are also presented.

Introduction

The Scott and Shasta rivers have historically supported substantial runs of Chinook and coho salmon. However, a long history of habitat modifications, including dam construction, dredging and channel homogenization, coupled with the increased development of agricultural and livestock resources and their attendant surface water diversions for irrigation needs, have reduced both the quantity and quality of historic salmonid spawning and rearing habitat. Despite these changes that have occurred over many decades, fall-run Chinook salmon remain relatively abundant in the Scott and Shasta rivers. However, within the greater Klamath watershed, it was spring-run Chinook which once predominated (Snyder, 1931). Similar to the Klamath, the Shasta River historically supported large numbers of spring-run Chinook (Wales, 1951). At present, only fall-run fish persist while there remain numerous and significant threats to their continued survival within the Klamath River and its tributaries. In light of such threats, there exists a clear need to retain salmon population monitoring programs such as is described in this report.

The primary purpose of the current monitoring program has been to determine emigration abundance and timing for juvenile salmonids. Second, the project has aimed to investigate the

relationships of instream conditions, chiefly flow and temperature, with migration patterns of juvenile salmonids. The project has also collected valuable bio-data on not only salmonids, but all other fish species within the study area as well. Throughout its history, the program has collected a large and rich data set which is invaluable to other researchers studying conditions throughout the watershed. Since the sampling sites are located near the confluences of their respective river systems, they provide unique opportunities to supply information regarding upstream habitat conditions. They also have the potential, when operated in close conjunction with other sampling and research projects, to provide important data that can inform management personnel and policy makers on the efficacy of local restoration efforts. The purpose of this report therefore is meant to summarize and make more accessible the entire juvenile Chinook data set collected during sixteen years of rotary trap operations in the Scott and Shasta rivers.

Methods

Site selection and trapping gear

Two trapping locations have been utilized annually for out-migrant juvenile salmon population estimation since 2000. The first site is situated within the lower canyon reach of the Scott River at 041º 43' 34.87" N, 123º 00' 30.11" W (Fig. 2) approximately 4.75 miles from the confluence with the Klamath River. Site selection was initially difficult in this area due to limited access. The so-called Cabin Hole site was determined to be the best overall location for a trap site.

From 2000 to 2004 a single screw trap was operated. Since 2005, however, two traps are operated simultaneously. The typical trapping configuration consists of a rotary trap with a 5' diameter cone (Herein afterwards referred to as a 5' trap) operating on river right while a second trap with an 8' diameter cone (the 8' trap) was placed on river left approximately 50 yards downstream of the smaller trap. For the purposes of this report, the two Scott traps will be treated as a single sampling station. The trapping season on the Scott River usually begins on 12 February (Julian week 7) and continues until 1 July (Julian week 26) if flows permit.

The second trapping site is located in the Shasta River at 041º 49' 46.38" N, 122º 35' 35.38" W (Fig. 3) approximately 0.25 miles upstream from the confluence with the Klamath River. The Shasta site is also known as the Shasta River Fish Counting Facility and has been occupied by the California Department of Fish and Wildlife (CDFW) since the 1930's for the purpose of maintaining adult counting weirs. This location is near ideal for trap installation and operation for a number of reasons. The site is easily accessible by vehicle, there is a distinct thalweg which is easily fished throughout the sampling season, and a flow gauging station is located a short distance upstream. A single 5' trap is usually operated on river left, although in previous years two traps have been operated in tandem due to increased catches of juvenile salmonids. The sampling season on the Shasta River typically runs from 29 January (Julian week 5) through 1 July (Julian week 26).

All rotary screw traps have been built and specially modified for the project by EG Solutions (Corvallis, OR). Key modifications in recent years have included, most notably, enlarged live

cars, as well as lengthened pontoons for increased flotation. Trapping operations are similar between the two river locations. All traps are set on Sunday afternoon and fished until the following Saturday afternoon. Beginning Monday, traps are checked and cleared in the morning. If high debris loads are encountered, traps are checked again in the afternoon and, if necessary, throughout the night. Trapping has been suspended in the past due to excessive debris loads, inadequate flow conditions or high water events, with the latter being the most common interruption to trap operations.

Water temperature and flow monitoring

Hourly water temperatures were recorded by waterproof temperature loggers (Optic StowAway Temp (model WTA-08) or HOBO Water Temp Pro v2 (model U22-001), Onset Computer, Bourne, MA). Loggers were placed in metal or PVC enclosures and attached to the trap using stainless steel cables. They were downloaded at bi-weekly to monthly intervals during the trapping season. In previous years, water temperature monitoring was conducted only seasonally. However, since 2007, efforts have been made to monitor temperatures year-round at both sites.

Stream flow measurements were obtained from gauges maintained by the United States Geological Survey (USGS). Flow conditions on the Scott River are measured by USGS gauge 11519500 which is located approximately 19.5 miles upstream of the trap. Due to the inflow of small tributaries between the gauging site and the trap, the actual flow at the sampling location is not known. Flow conditions on the Shasta River are measured by USGS gauge 11517500 which is approximately 0.75 miles upstream from the screw trap.

The velocity of the water entering the cone was measured at the beginning and end of each trap set using a model 2030R flow meter manufactured by General Oceanics (Miami, FL). The total volume of water sampled by the trap was calculated for each set in million cubic feet. Additionally, crews measured the amount of time taken for the trap cone to undergo ten complete revolutions.

Biological sampling

All vertebrates caught in each trap were identified and counted. Non-salmonid fish were identified to life stage and released. Chinook, coho and steelhead were counted, identified to life stage and sampled for fork lengths, scales and tissues. For the purposes of this report, only age 0+ Chinook data will be presented. As such, only a brief mention of methods as they pertain to other species will be covered here. Up to 25 of each age class of steelhead and coho, 50 age 0+ Chinook and 15 age 1+ Chinook were sampled for fork lengths and life stage. Of these, a small number were sampled for scales, and if mortalities were present, sampled for otoliths. Due to the small numbers caught, which in turn prevented the development of seasonal production estimates, age 1+ Chinook data will not be reviewed in this report.

Age-length cutoffs were developed in 2007 in order to estimate the ages of salmonids in the catch throughout the sampling season. These cutoffs were determined by calculating the ages of scales from the 2001-2007 collections. Individual scale samples were visually examined and categorized into brood years using scale age-estimation methods (Van Oosten 1957, Chilton

and Beamish 1982, Casselman 1983). Fork length intervals for each age class were determined for appropriate time periods and updated throughout the season to create the age-length cutoffs used. These intervals are not absolutes and as a result of variable growth, some individuals may be older or younger than the cutoff fork lengths suggest.

Trap efficiency determination and population estimation

Five trap efficiency trap trials were conducted each week, from Monday to Saturday. These daily efficiency trials were used to determine mean weekly trap efficiencies for each age class of salmonid. A trial consisted of marking a known number of fish, releasing them upstream and recording the number of recaptured fish on the following day. All fish captured the following day were examined for the presence of marks. For each trial, up to 500 Chinook juveniles were dyed in a solution of Bismarck Brown Y (Alfa Aesar, Ward Hill, MA) (31 – 48 mg dye/L stream water). Fish selected for marking were retained in the dye solution for 40 to 60 minutes, depending on the degree of mark retention and visibility. The total number marked in any one trial depended on fish size, water temperature or other fish stress factors. Any sac fry or fry with incompletely absorbed yolk sacs were not subjected to dye marking. After marking, fish were transferred into fresh water and observed to ensure resumption of normal behavior. Thereafter fish were moved to upstream release locations. Since 2008, the project has utilized automatic release boxes which are set to release fish at dusk.

In every trial, the total number of fish captured, marked and released was recorded. An estimate of the total number of out-migrant Chinook per week was determined using a time-stratified mark and recapture technique (Carlson *et al*. 1998). Each week, the trap was operated for six days and five mark-recapture trials were completed. Thus in previous years, weekly estimates were derived from only six days of operation. In this report we reviewed the data and estimates collected over the past 16 years and attempted to generate complete seven-day estimates for all weeks of operation. To account for missing data, we used a Bayesian time-stratified spline-based method of population estimation to interpolate missing data.

Out-migrant Chinook population estimation was performed using R statistical software (R Development Core Team 2015) and R package 'BTSPAS' (Bonner and Schwarz 2014, Schwarz *et al.* 2009, Appendix C). In addition to the numbers of captured, marked and recaptured fish in each week, mean weekly flow and number of trapping days per week were used as inputs to generate population estimates. Weekly estimates were used with complete seasonal estimates to determine cumulative percentages and run timing of juveniles passing each trap site.

Results and Discussion

Water temperature and flow monitoring

Mean daily water temperatures and mean daily flows for the Scott River are displayed in figures four through 11. Water temperatures and flow conditions for the Shasta River are displayed in figures 12 through 19. In years prior, temperature loggers were frequently removed after the trapping season. Because of this, temperature records for some years may only exist for late winter through late spring/early summer. This is a greater problem during monitoring of the Scott

River. Generally, water temperatures there rise from an average daily temperature of 5° C in the beginning of the season to 20° C or more towards the end of trapping operations. More complete temperature records exist for the Shasta River trap site. Winter and spring temperatures are comparable to those found at the Scott River. Average daily temperatures towards the end of May and into July frequently exceed 20° C and may exceed 25° C. These temperatures occur after most of the estimated age 0+ Chinook have left the system.

Within the Shasta River, irrigation typically begins on or shortly after 1 April and continues until the end of September. During this time, base flows between 100 to 200 CFS are reduced to 10 to 20 CFS during the peak of irrigation season in some years. This might have effects upon rearing juvenile salmon, however, since the ocean-run type is the predominant life history strategy remaining within the Shasta River, most juvenile Chinook have departed the system before the river drops to such minimum flows. The Scott River displays a similar pattern, although with generally higher base flows in winter and spring. Decreasing snowpack and precipitation, coupled with increased user demands through the summer may reduce spring mean base flows by more than 99% in the summer (≤10 CFS). Daily flows less than 10% base flow (≤100 CFS) tend to interfere with proper trap operation at the Scott River.

High water events usually occur in winter, but may also occur in spring due to rain on snow events. High water events in the Shasta are typically less common and of lesser magnitude than those encountered on the Scott River. This is in part due to the presence of Dwinnell dam which tends to moderate high flows in downstream reaches. Therefore the Shasta River trap tends to be less affected by such events. However, low flow conditions towards the end of the season may reduce cone speed to the point where fish are more easily able to avoid capture. Aside from reducing cone rotations, very low flows may prevent trapping operations altogether.

Efficiency determination

Due to a number of factors, catch efficiencies tend to be higher at the Shasta trap. The narrow channel with well-defined thalweg combined with lower mean flows allow for higher recapture rates. Figures 20 and 21 display weekly catch efficiencies plotted against mean weekly flows on the Scott and Shasta Rivers, respectively. Recapture rates tend to be much lower on the Scott. Furthermore, high water events may compel field crews to temporarily suspend operations and as such, fewer mark-recapture trials are conducted overall at the Scott River. On the Shasta River, recapture rates of marked Chinook may approach 70%. Efficiencies begin to drop towards the end of the season as irrigation demands reduce flows.

Population estimates and migration timing in the Scott River

Estimates for age 0+ Chinook salmon on the Scott ranged from a low of 16,932 in 2006 to a high of 1,190,743 individuals in 2009 (Table 1, Figure 22). A high water event in December 2005, January 2006 likely scoured redds and destroyed much of the juvenile population for 2006 (Figure 6). There tend to be two peaks in migration each season (Tables 3-18, Figures 24-39), although there may be significant variation in timing and magnitude between seasons. Generally, the first peak is highest around 12 March to 22 April (Julian week 11 to the end of Julian week 16). In some years, a smaller second peak may also be seen, as in years 2003 (Figure 27), 2007 (Figure 31) and 2011 (Figure 35). The more common pattern displays a

noticeable and often larger peak later in the season, occurring from 11 June to 2 July (Julian week 24 to the end of Julian week 26). Since the traps are often removed when this increase in out-migration is occurring, there is a possibility of underestimating the true size of this group of Chinook. Unfortunately, no information is available regarding the natal origin of Chinook sampled at the Scott trap site. Neither is it known to what extent the various tributaries of the Scott River contribute to the overall juvenile population.

Using weekly estimates, cumulative percentage charts for the Scott River were generated (Figures 60 and 61). Cumulative percentages have also been developed for spawning adult salmon using data provided by the CDFW Klamath River Project which operates counting weirs on the Scott and Shasta Rivers. In the Scott River, Chinook migration to spawning ground usually begins in early October and ends in mid to late November. Juvenile out-migration past the trap site is less predictable, with median outmigration estimates (the point at which 50% of the total estimated seasonal catch has passed the trap) occurring as early as 9 April (Julian week 15) to 27 June (Julian week 26) (Figures 56 and 57). It should be noted however that these dates are approximate and may not represent the timing of the true population median if trapping was started late or ceased earlier than expected. Seasonal fork length data are presented in figures 56 and 57. These have been combined with cumulative catch percentile data in order to illustrate both the growth and migration timing of juveniles in a given season.

Population estimates and migration timing in the Shasta River

Yearly Chinook estimates for the Shasta River have been produced (Tables 19-34, Figures 40-55) Estimates for age 0+ Chinook in the Shasta River have ranged from 90,506 in 2006, to 5,975,335 in 2013 (Table 2, Figure 23). A high water event, as mentioned previously, likely reduced fry populations in 2006. The second lowest estimate for the Shasta occurred in 2012 when only 203,074 fish were estimated (Table 31, Figure 52). Likewise, that year was the third lowest estimate on the Scott River (Table 15, Figure 36). Interestingly, during the 2011 spawning season, 98% of the entire run in the Shasta was comprised of grilse (Chesney and Knecthle 2012). Basin wide, an estimated 45% of all returning fall Chinook in the Klamath River were two year old fish in 2011 (Klamath River Technical Team, 2012).

Similar to the Scott River, there are generally two peaks in weekly population estimates that are observed in most years. The first and largest peak occurs early in the season, usually from 12 February (Julian week 7) to 1 April (end of Julian week 13). In some years, two distinct peaks may be noted during this time period, as occurred for example in 2002 (Figure 42) and 2010 (Figure 50). These peaks tend to consist mostly of small fry (Figures 58 and 59) which most likely originate from within the canyon reach of the lower portion of the Shasta watershed.

A small yet distinct peak typically occurs later in the season, usually in mid to late May (Julian weeks 20 through 22). It is possible that some of these fish could have originated from the upper basin, which includes portions of the main stem river as well as Big Springs Creek. However, there is also the possibility that these fish originated from Iron Gate Hatchery as the peaks detected at the trap site tend to coincide with the hatchery release schedule. Twenty-five percent of these hatchery produced fish are marked with an adipose clip and given a coded-wire tag for later identification (California Hatchery Scientific Review Group, 2012). However, a

review of past data indicates that no such clipped fish have been identified at the trap. Still, it is recommended that field crews continue to examine juvenile Chinook for adipose clips during the time period coinciding with hatchery releases. However, given that crews are often faced with sorting thousands of fish in a set, there is the possibility that some adipose-clipped Chinook have been caught yet not recorded as such. In 2006, after a high water event eliminated most of the canyon origin juveniles, these late season individuals made up a significant part of the population estimate for that year (Table 25, Figure 46). In most years, this small second peak contributes a very small component of the overall estimated population. The highest occurred in 2014 when an estimated 249,787 fish emigrated the week ending 20 May (Julian week 20). Further work needs to be done to determine the exact origin of these fish given the lack of significant tributaries in the Shasta River. If hatchery-origin fish do indeed comprise some proportion of the late season catch, additional analyses will be needed to assess their effect upon the overall out-migrant population estimates.

Cumulative percentages based on weekly estimates were developed in order to understand run timing (Figures 62 and 63). This data was combined with adult run timing information collected by the Klamath River Project. Adult migration into the Shasta River begins in early September and concludes generally by mid-October. Unlike Scott River populations, there appears to be less variation in juvenile emigration timing, with most years progressing in a fairly similar manner. This is also reflected in the fork length charts (Figures 58 and 59) in which the 10^{th} and 50^{th} percentiles tend to occur early in the season.

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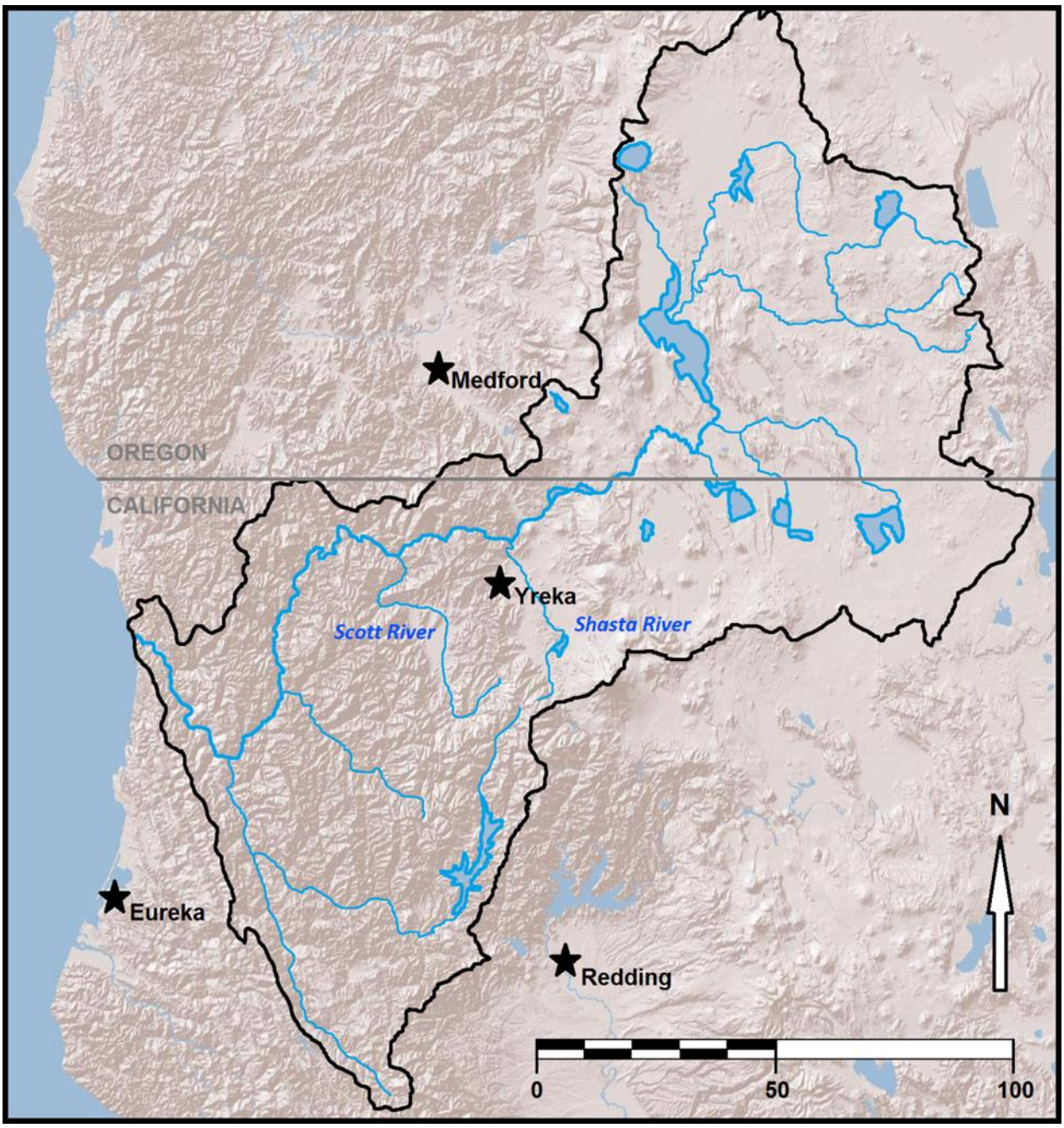

Figure 1: Klamath River watershed in northern California and southern Oregon. The Scott and Shasta Rivers (labelled) are two major tributaries located within the mid-Klamath watershed. Scale in miles. Map image is the intellectual property of Esri and is used herein under license. Copyright © 2014 Esri and its licensors. All rights reserved.

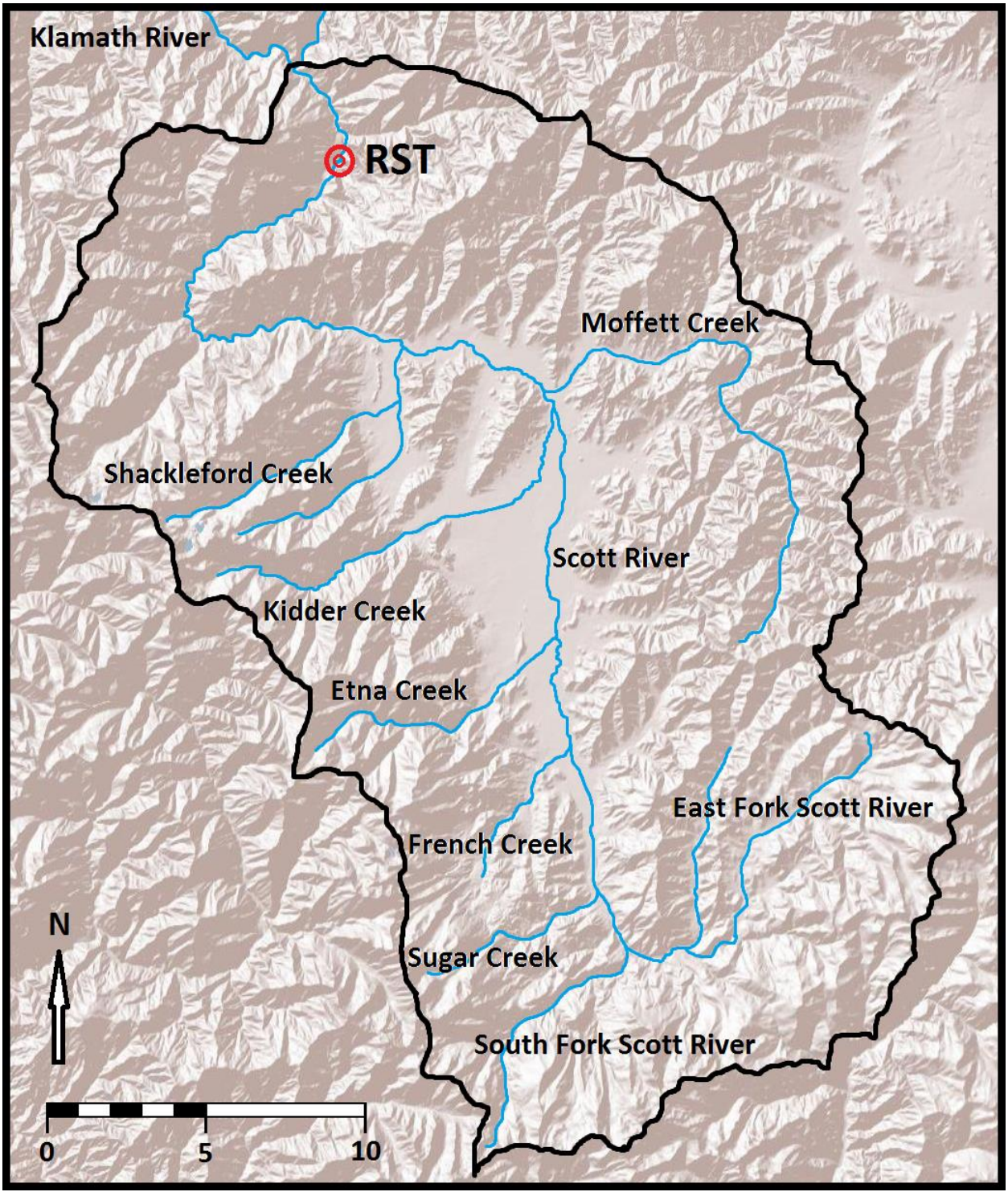

Figure 2: Scott River watershed including the river and some of its major tributaries. The red marker indicates the approximate location of the rotary screw trap site within the lower canyon reaches of the Scott River. Scale in miles. Map image is the intellectual property of Esri and is used herein under license. Copyright © 2014 Esri and its licensors. All rights reserved.

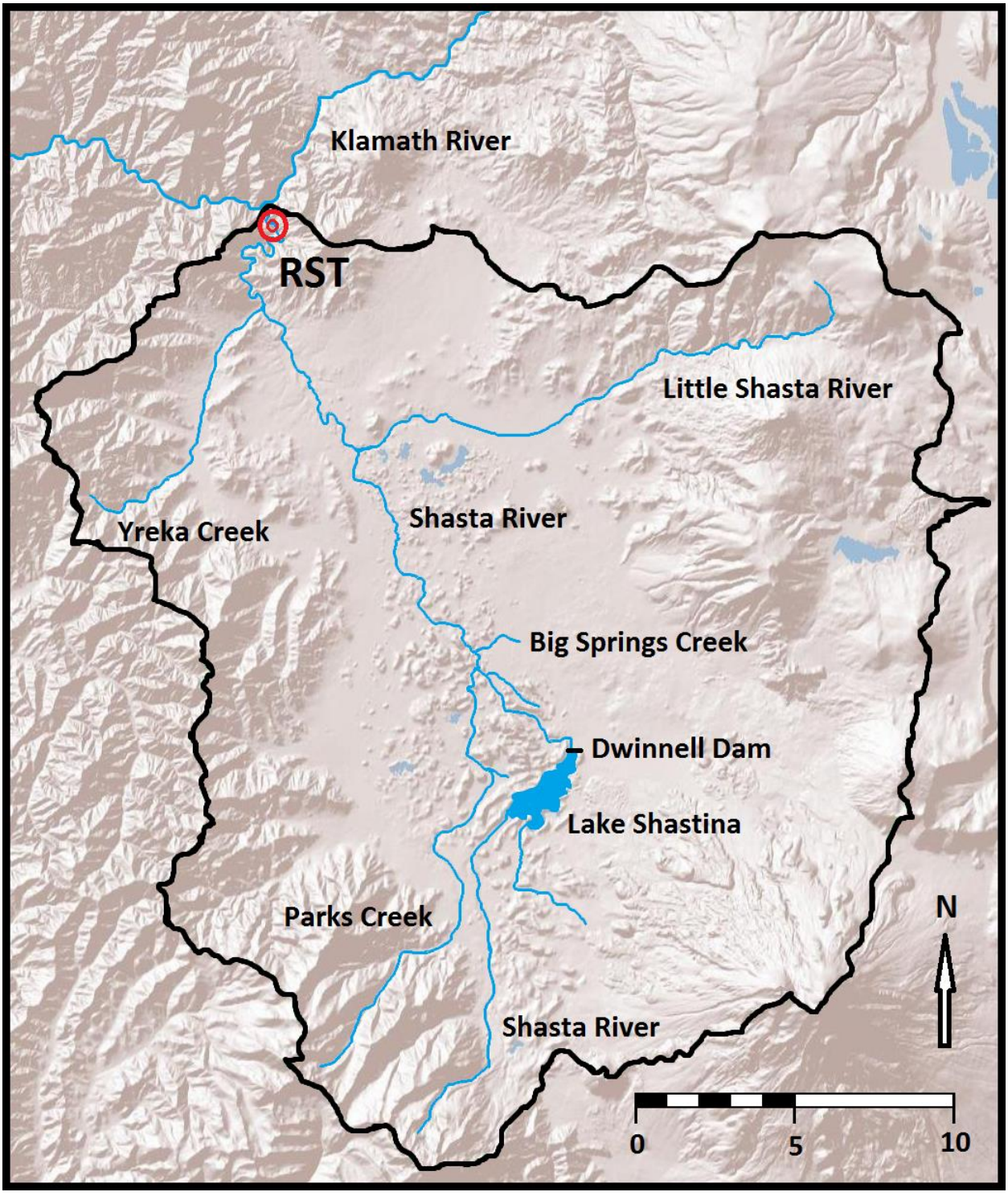

Figure 3: Shasta River watershed indicating the river and its major tributaries. The red marker indicates the location of the rotary screw trap near the confluence with the Klamath River. Scale in miles. Map image is the intellectual property of Esri and is used herein under license. Copyright © 2014 Esri and its licensors. All rights reserved.

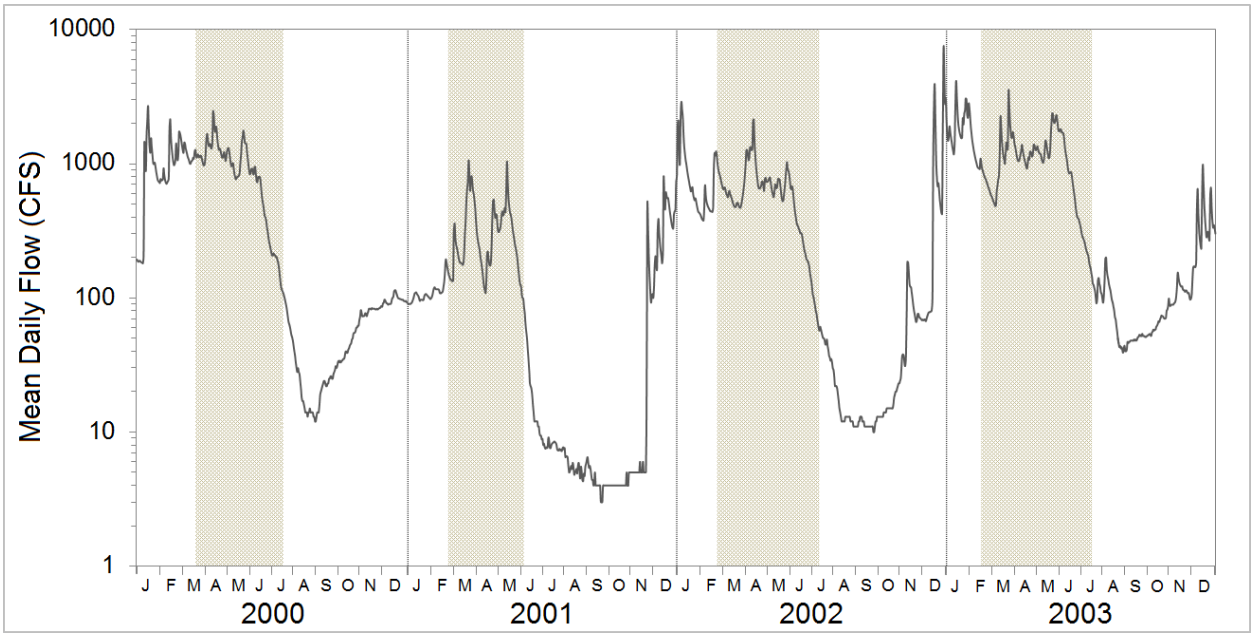

Figure 4: Mean daily flow (CFS) at the Scott River (USGS gauge 11519500), 2000-2003. Shaded regions delineate annual rotary trapping seasons.

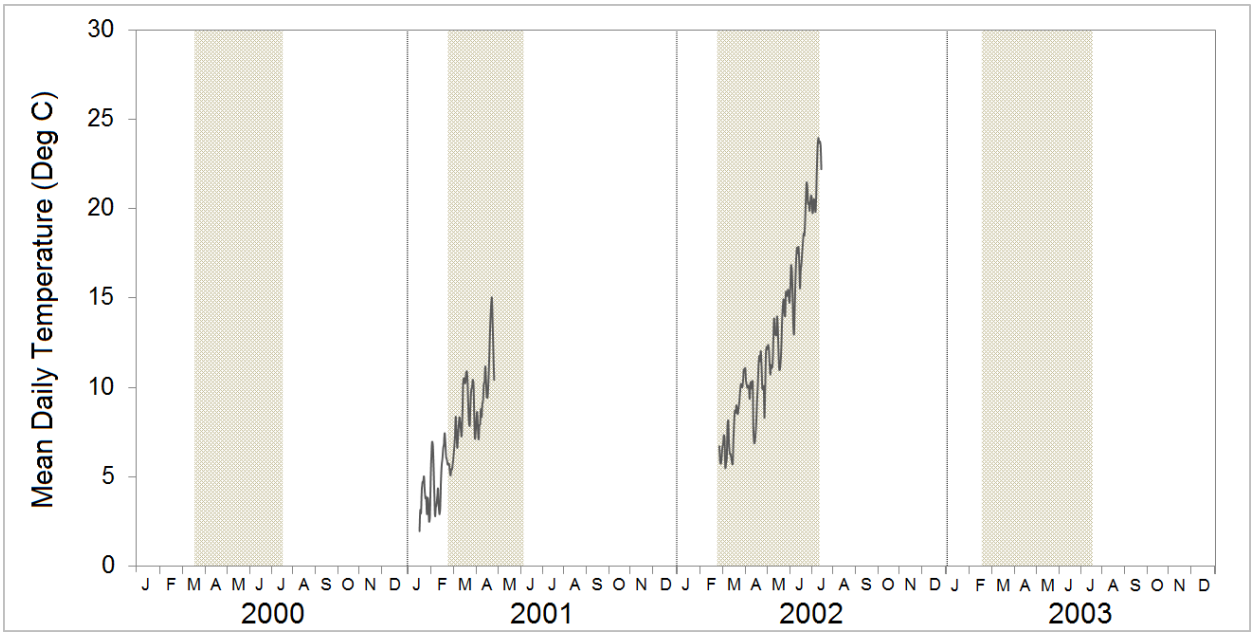

Figure 5: Mean daily water temperatures (Deg C) at the Scott River trap site, 2000-2003. Shaded regions delineate annual rotary trapping seasons. Temperature data was either lost or not recorded in 2000 and 2003.

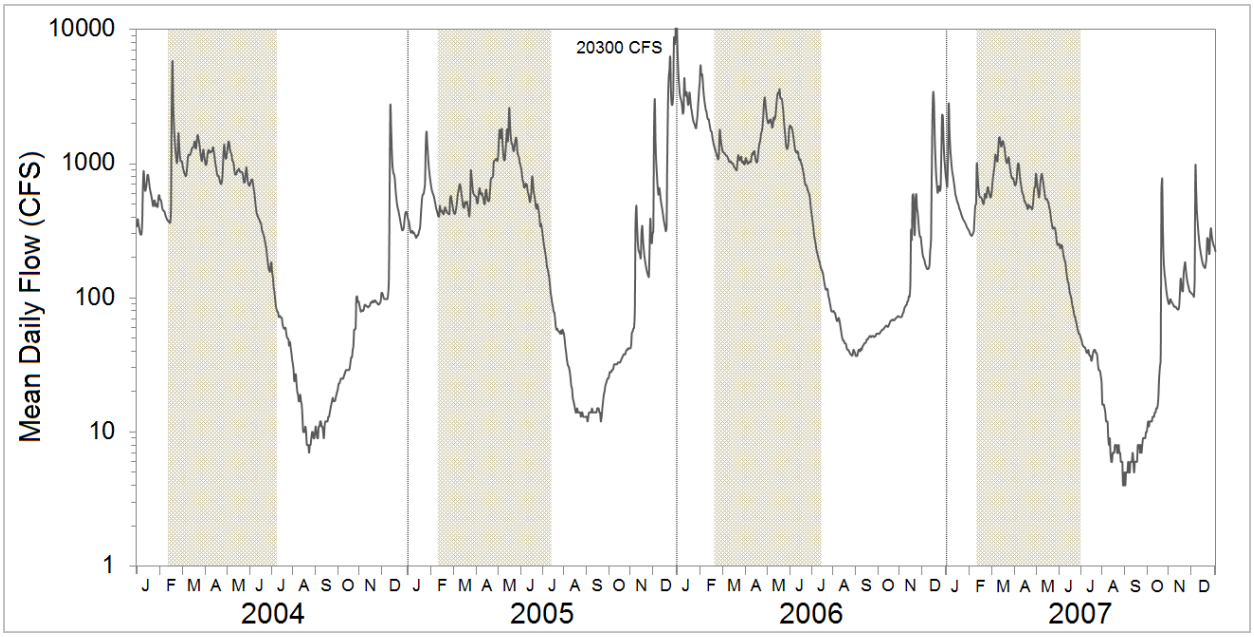

Figure 6: Mean daily flow (CFS) at the Scott River (USGS gauge 11519500), 2004-2007. Shaded regions delineate annual rotary trapping seasons. The labelled flow indicates a single large peak outside the chart space.

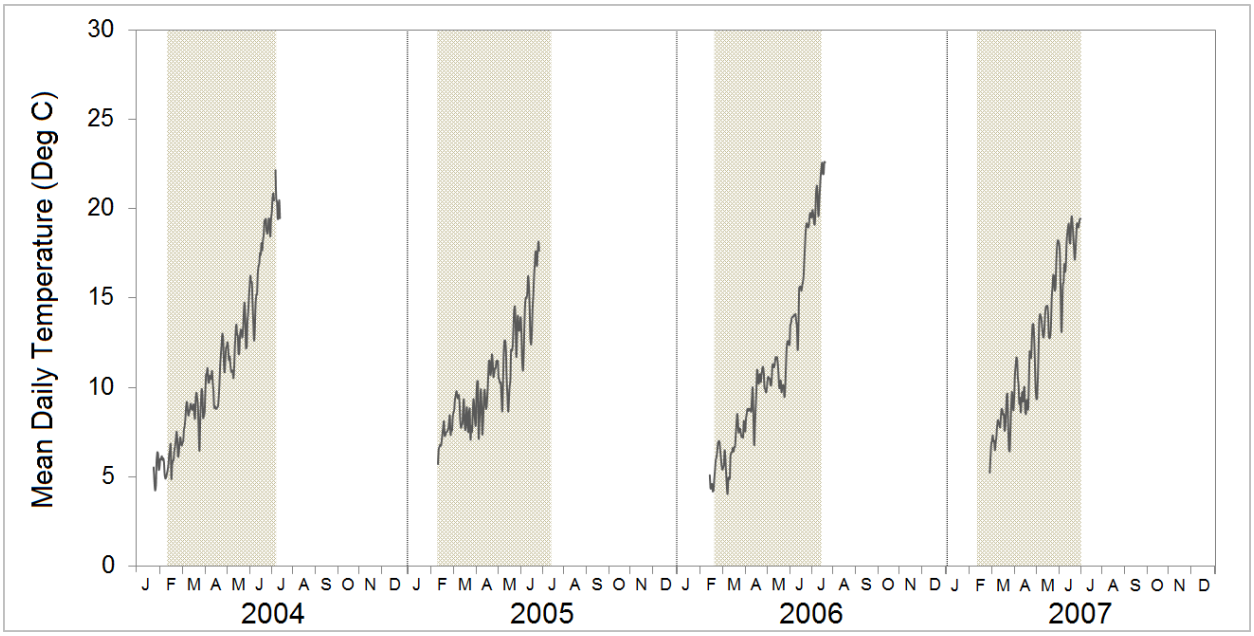

Figure 7: Mean daily water temperatures (Deg C) at the Scott River trap site, 2004-2007. Shaded regions delineate annual rotary trapping seasons. Temperature loggers were typically removed after the end of trapping season.

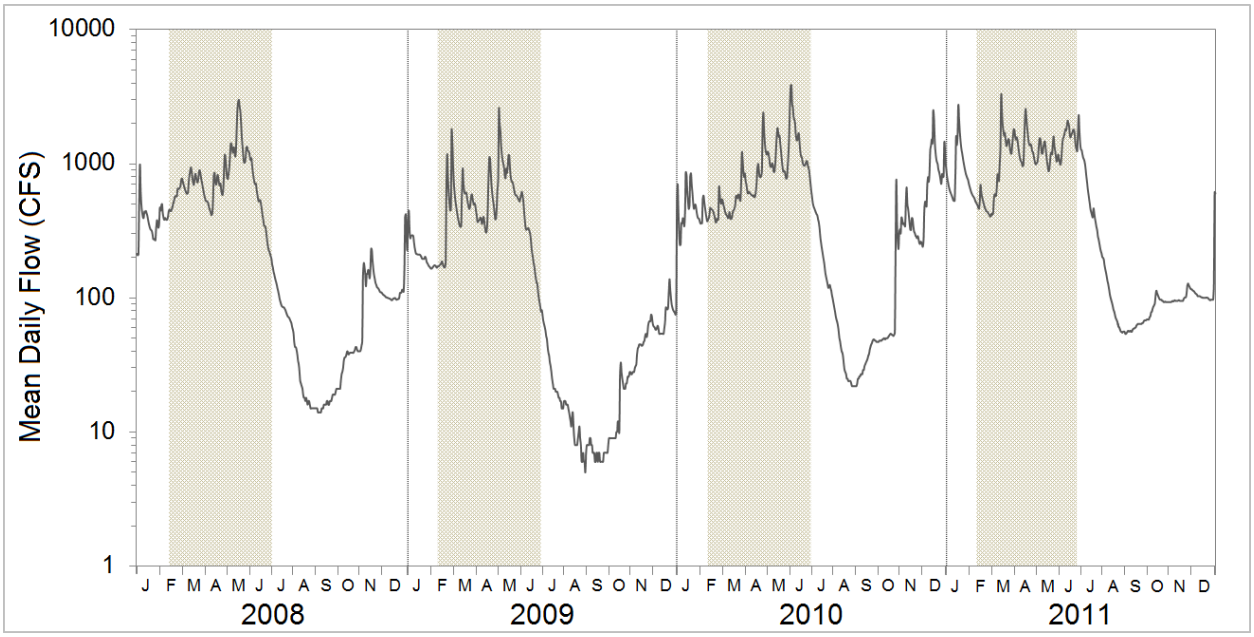

Figure 8: Mean daily flow (CFS) at the Scott River (USGS gauge 11519500), 2008-2011. Shaded regions delineate annual rotary trapping seasons.

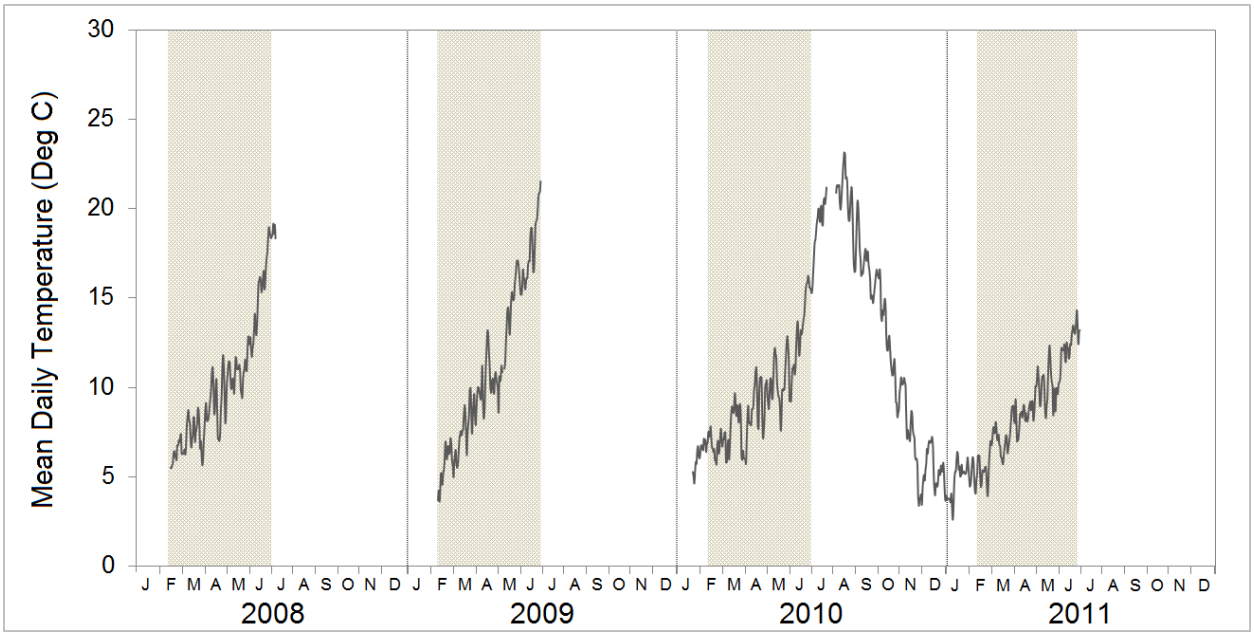

Figure 9: Mean daily water temperatures (Deg C) at the Scott River trap site, 2008-2011. Shaded regions delineate annual rotary trapping seasons.

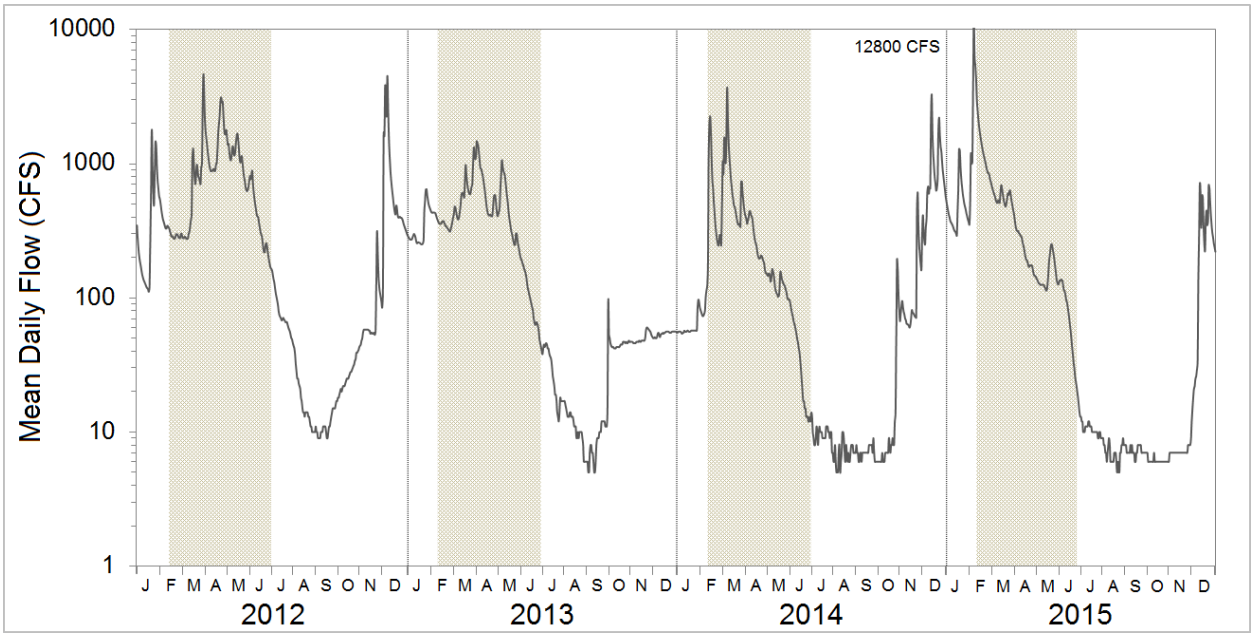

Figure 10: Mean daily flow (CFS) at the Scott River (USGS gauge 11519500), 2012-2015. Shaded regions delineate annual rotary trapping seasons. The labelled flow indicates a single large peak outside the chart space.

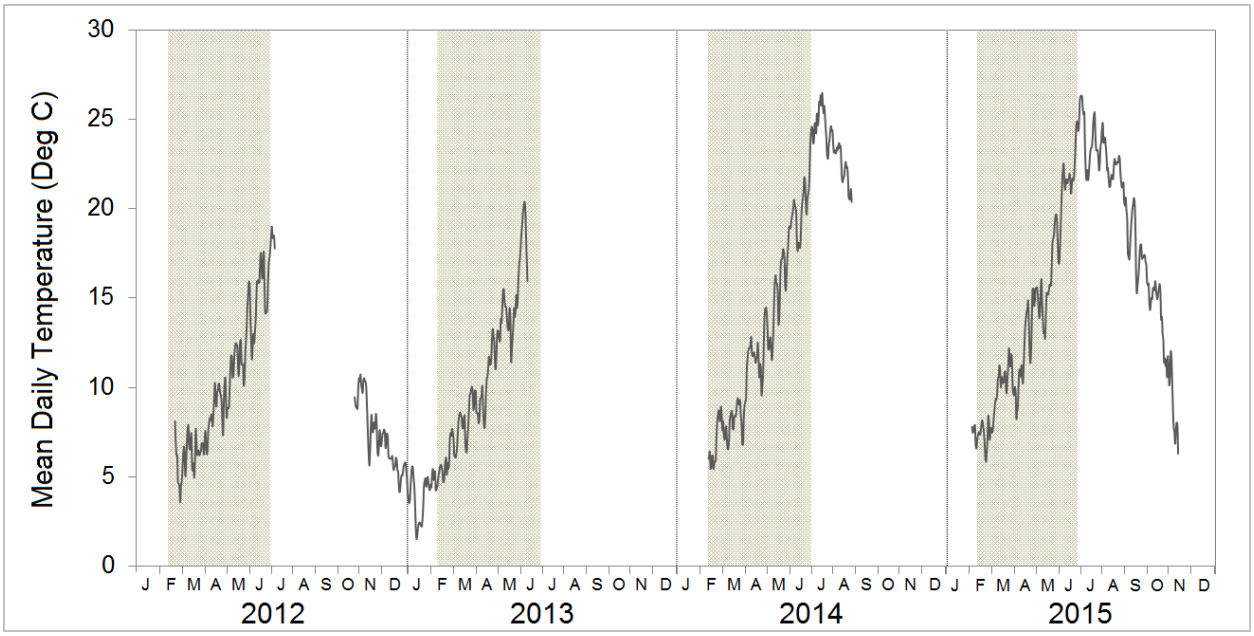

Figure 11: Mean daily water temperatures (Deg C) at the Scott River trap site, 2012-2015. Shaded regions delineate annual rotary trapping seasons. Temperature loggers are now retained at the Scott River trap site throughout the year.

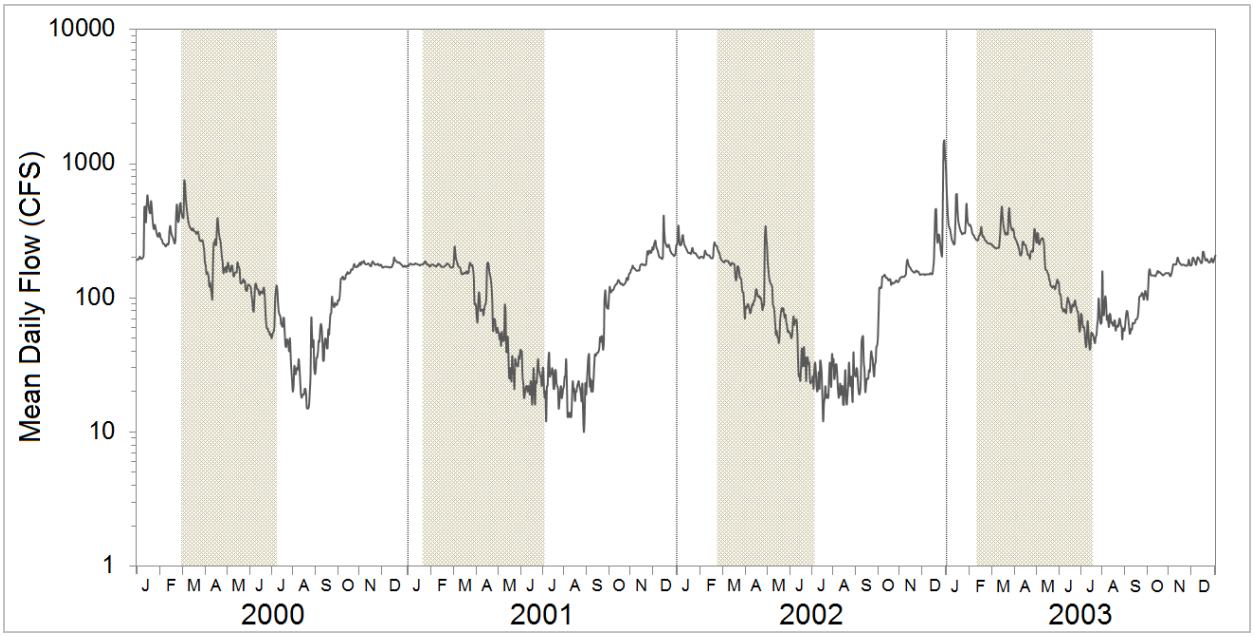

Figure 12: Mean daily flow (CFS) at the Shasta River (USGS gauge 11517500), 2000-2003. Shaded regions delineate annual rotary trapping seasons.

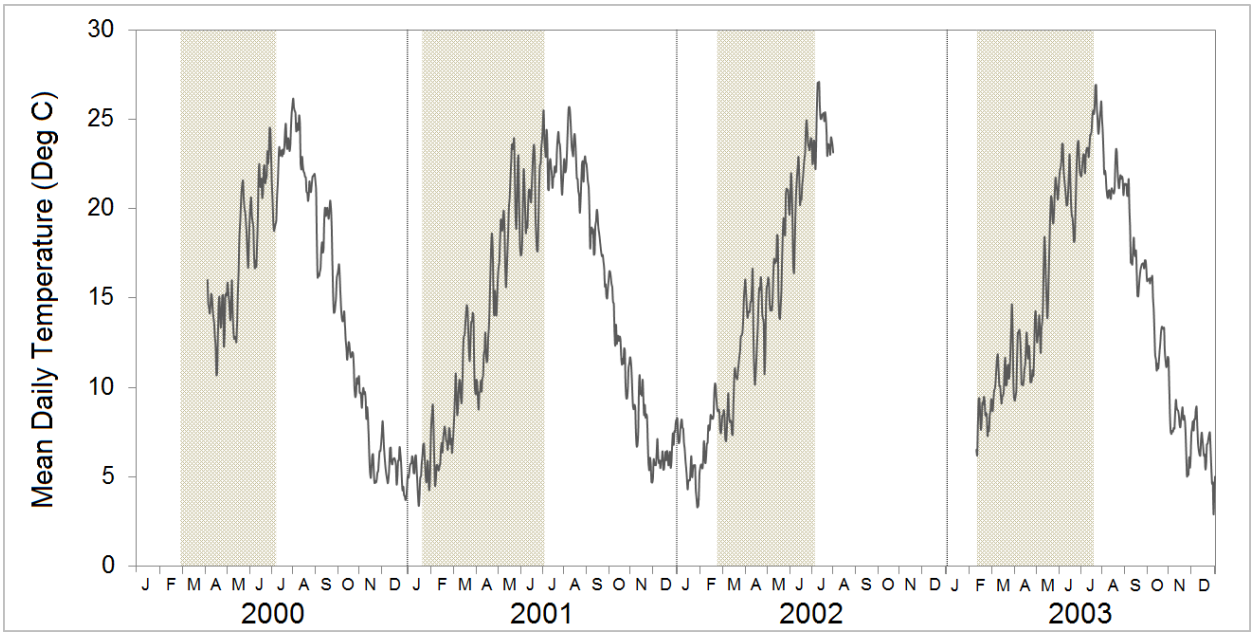

Figure 13: Mean daily water temperatures (Deg C) at the Shasta River trap site, 2000-2003. Shaded regions delineate annual rotary trapping seasons.

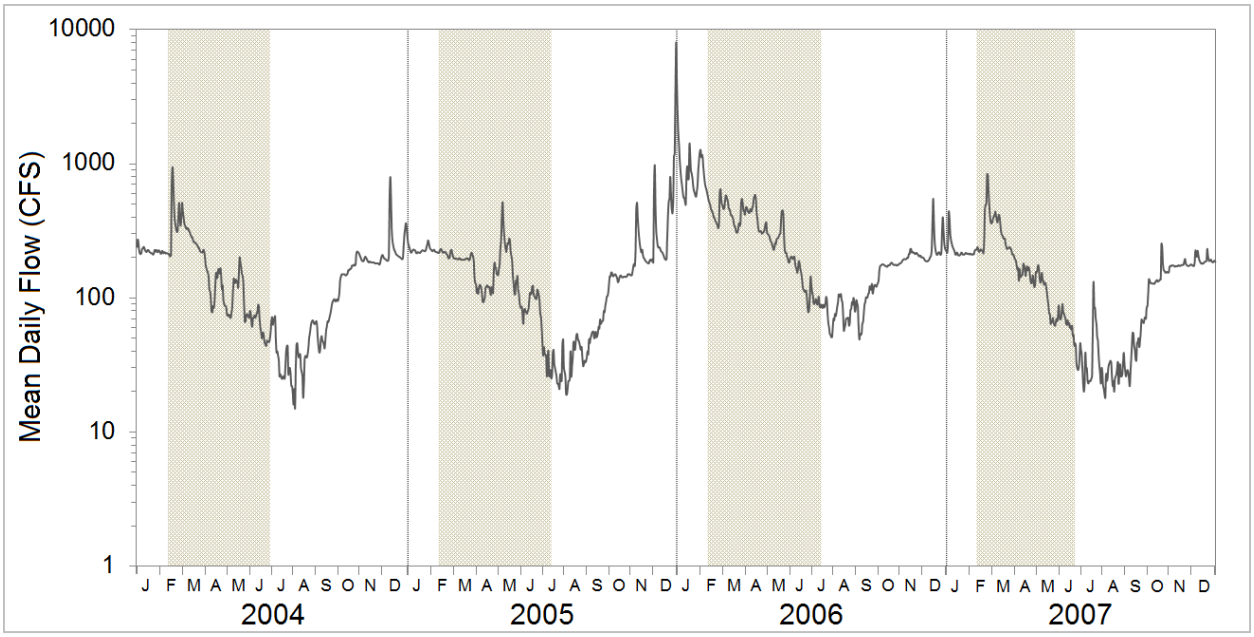

Figure 14: Mean daily flow (CFS) at the Shasta River (USGS gauge 11517500), 2004-2007. Shaded regions delineate annual rotary trapping seasons.

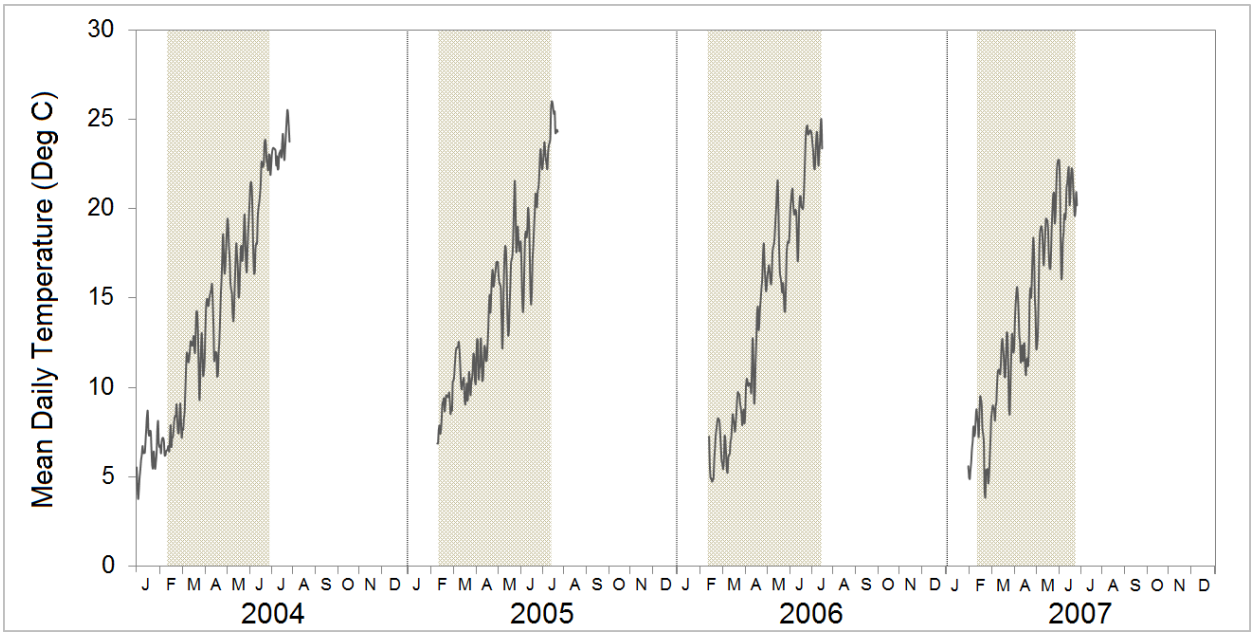

Figure 15: Mean daily water temperatures (Deg C) at the Shasta River trap site, 2004-2007. Shaded regions delineate annual rotary trapping seasons. In 2004 through 2007, the logger was removed after the end of the trapping season.

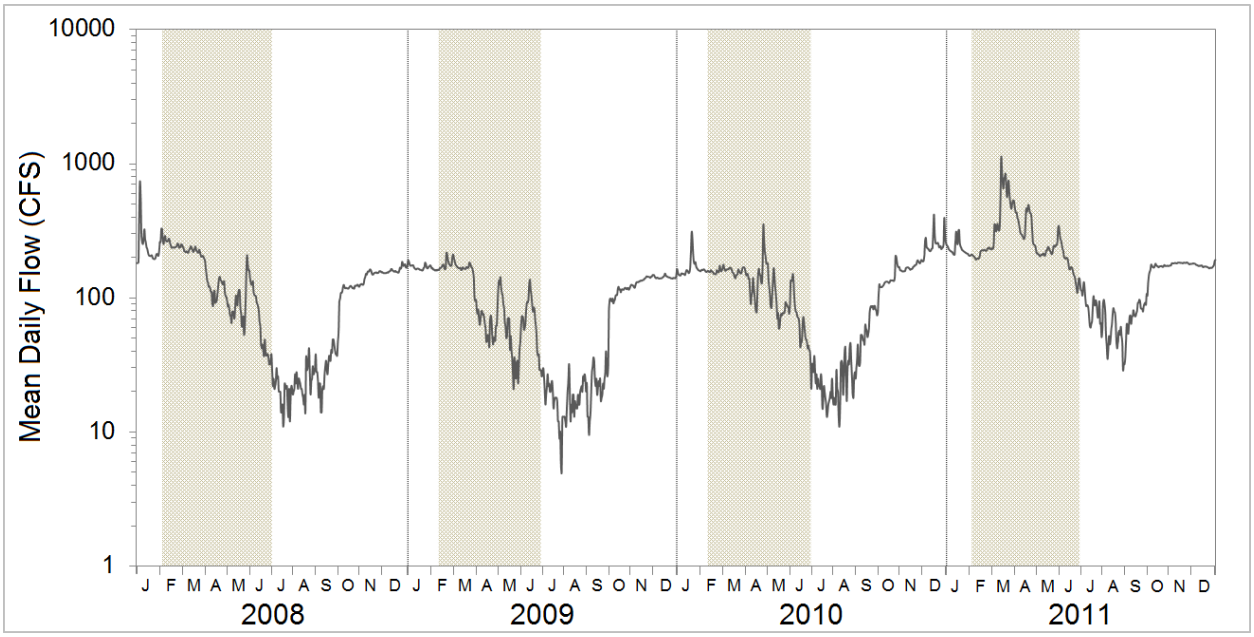

Figure 16: Mean daily flow (CFS) at the Shasta River (USGS gauge 11517500), 2008-2011. Shaded regions delineate annual rotary trapping seasons.

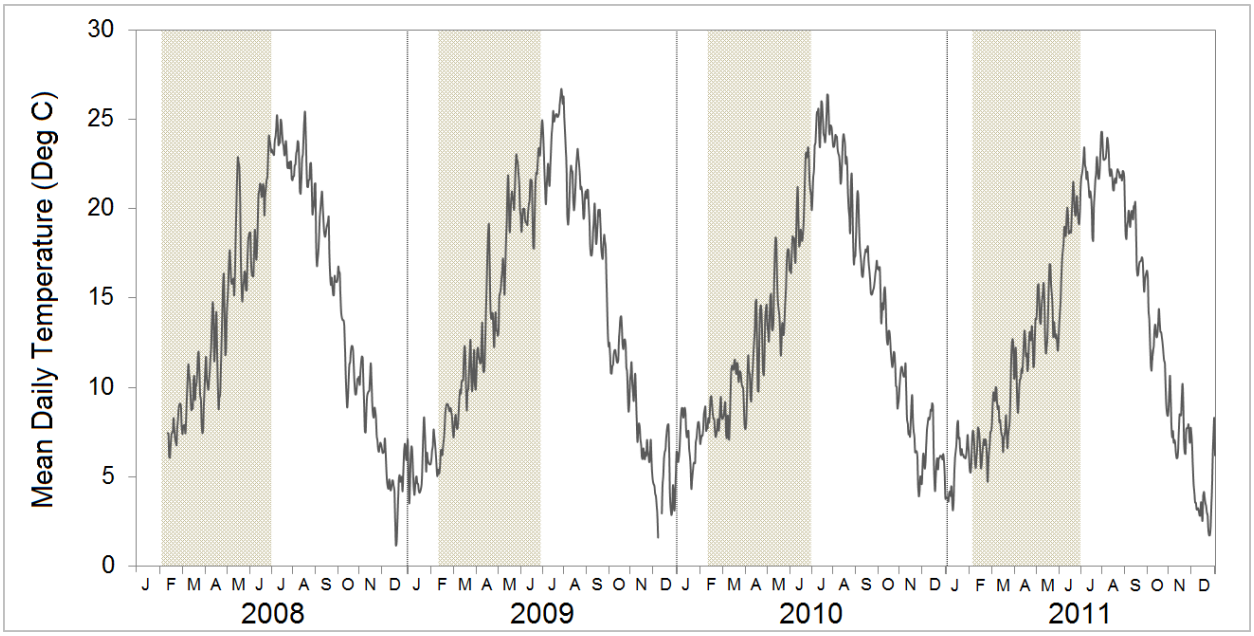

Figure 17: Mean daily water temperatures (Deg C) at the Shasta River trap site, 2008-2011. Shaded regions delineate annual rotary trapping seasons.

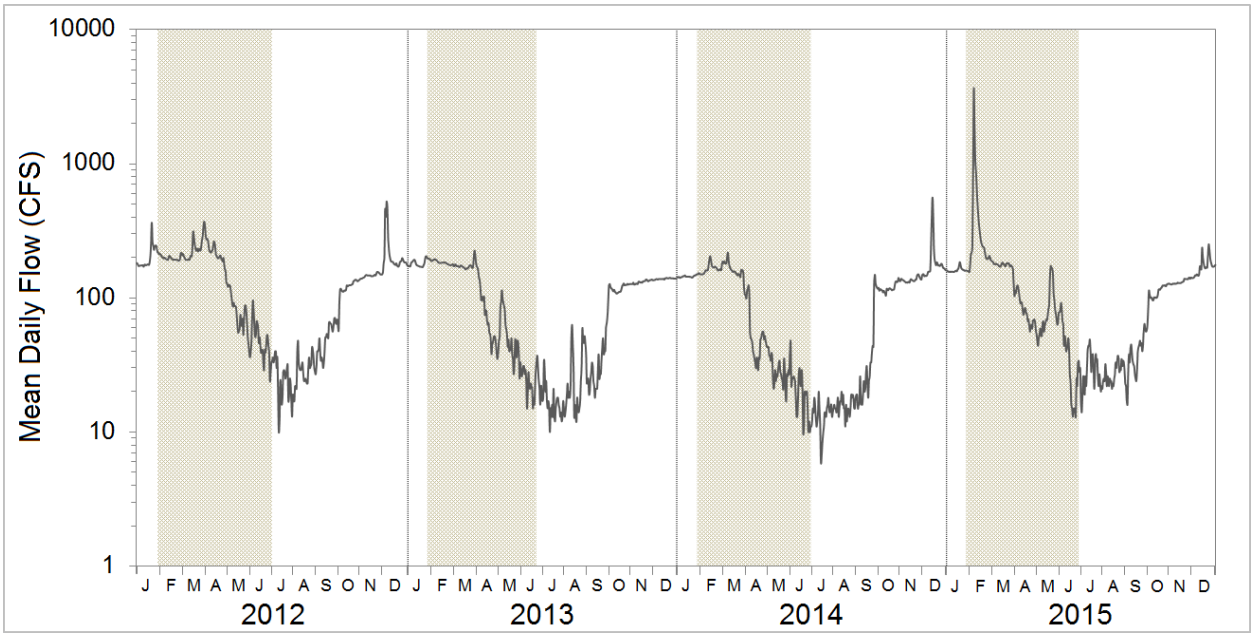

Figure 18: Mean daily flow (CFS) at the Shasta River (USGS gauge 11517500), 2012-2015. Shaded regions delineate annual rotary trapping seasons.

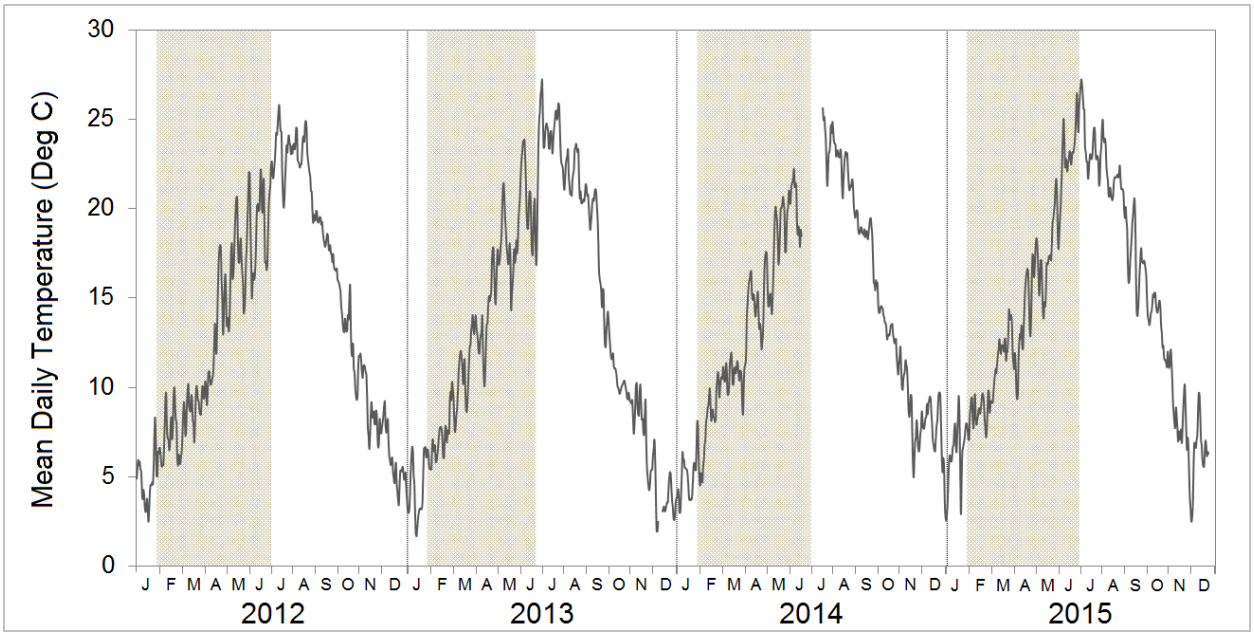

Figure 19: Mean daily water temperatures (Deg C) at the Shasta River trap site, 2012-2015. Shaded regions delineate annual rotary trapping seasons.

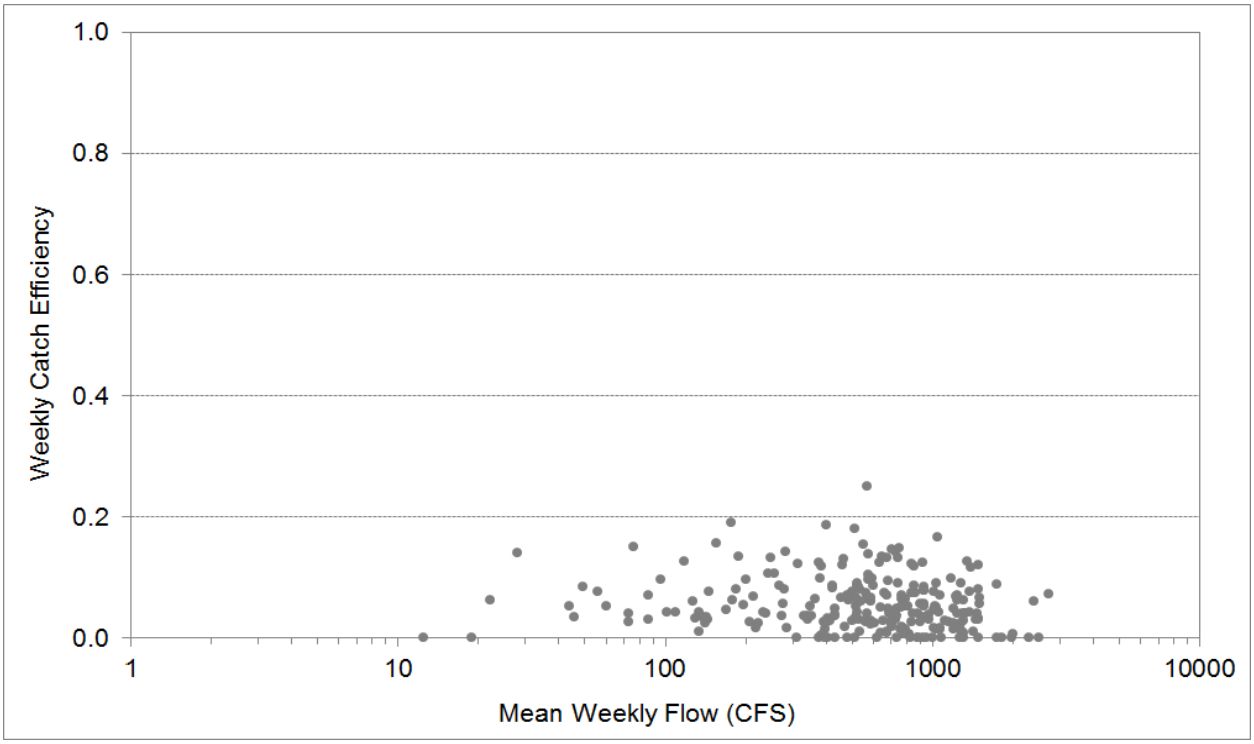

Figure 20: Weekly trap efficiency for juvenile Chinook salmon compared against mean weekly flow for all years of sampling at the Scott River.

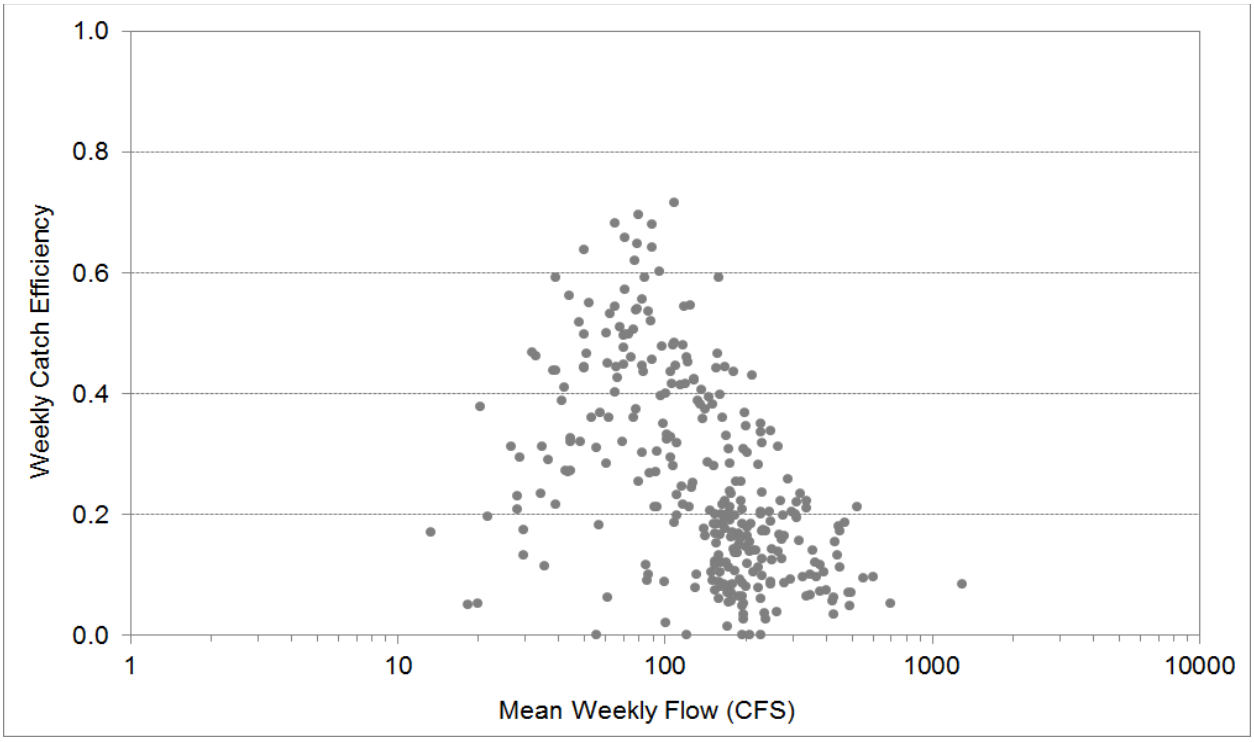

Figure 21: Weekly trap efficiency for juvenile Chinook salmon compared against mean weekly flow for all years of sampling at the Shasta River.

Table 1: Scott River yearly trap catch summaries for age 0+ Chinook salmon, 2000-2015.

Year	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
2000	69	10,224	462	12	638,274	242,293	343,743	1,209,335
2001	74	33,863	4,520	254	854,460	74,634	732,771	1,026,911
2002	115	11,737	1,432	20	986,083	255,866	600,731	1,606,576
2003	118	7,511	958	38	347,047	153,750	194,587	756,691
2004	121	36,404	8,535	358	1,169,497	77,306	1,028,667	1,333,214
2005	127	15,797	7,787	803	198,270	10,162	180,374	220,287
2006	118	784	567	30	16,932	7,884	9,945	39,359
2007	119	41,501	15,020	1,820	509,687	23,190	469,009	560,812
2008	109	32,266	16,620	1,114	658,475	27,424	610,124	715,823
2009	111	75,814	17,924	1,351	1,190,743	42,782	1,113,398	1,281,211
2010	94	30,660	15,427	866	1,081,276	74,067	956,265	1,243,927
2011	103	8,986	6,266	362	221,145	19,198	188,898	262,211
2012	110	15,161	5,226	446	229,014	17,207	198,529	266,367
2013	113	72,759	14,886	1,459	794,493	30,949	737,022	857,849
2014	116	23,610	10,381	708	510,689	34,580	449,714	585,696
2015	119	9,531	6,592	267	295,235	20,930	257,553	339,767

Table 2: Shasta River yearly trap catch summaries for age 0+ Chinook salmon, 2000-2015.

Year	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
2000	110	32,080	767	76	326,849	46,598	247,932	430,802
2001	122	261,859	6,102	686	5,481,160	580,463	4,578,719	6,818,969
2002	103	522,490	8,559	1,518	4,358,265	387,942	3,846,509	5,303,679
2003	134	212,969	10,428	2,641	1,276,801	44,148	1,196,330	1,369,680
2004	113	244,559	10,597	1,958	3,245,136	188,407	2,905,878	3,653,332
2005	128	81,763	16,529	5,611	343,587	7,859	328,991	360,075
2006	139	17,112	4,828	1,025	90,506	4,002	83,229	99,101
2007	113	136,014	19,679	5,425	699,366	14,262	672,461	728,331
2008	117	123,715	27,371	5,127	1,098,392	38,108	1,030,014	1,178,420
2009	119	180,102	26,309	7,480	854,333	18,064	822,624	892,385
2010	115	426,736	28,427	6,341	2,835,426	49,975	2,741,879	2,938,851
2011	120	101,418	31,288	5,803	810,307	15,054	781,145	840,928
2012	127	33,105	17,666	4,015	203,074	4,600	194,451	212,398
2013	124	580,142	26,640	4,724	5,975,335	172,661	5,648,421	6,326,485
2014	127	1,008,580	22,676	5,000	5,607,862	92,618	5,427,636	5,792,626
2015	126	550,637	31,154	9,724	3,813,547	330,523	3,381,848	4,598,032

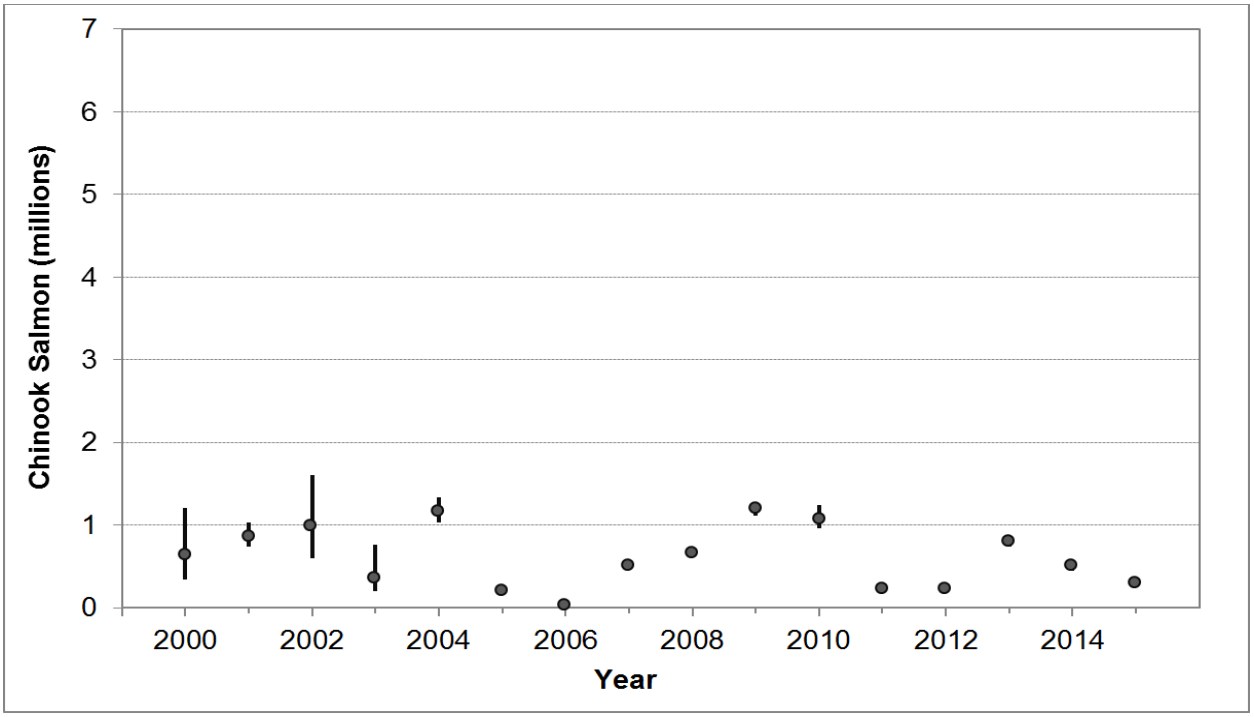

Figure 22: Scott River yearly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2000-2015. High flows in 2006 reduced catches that year.

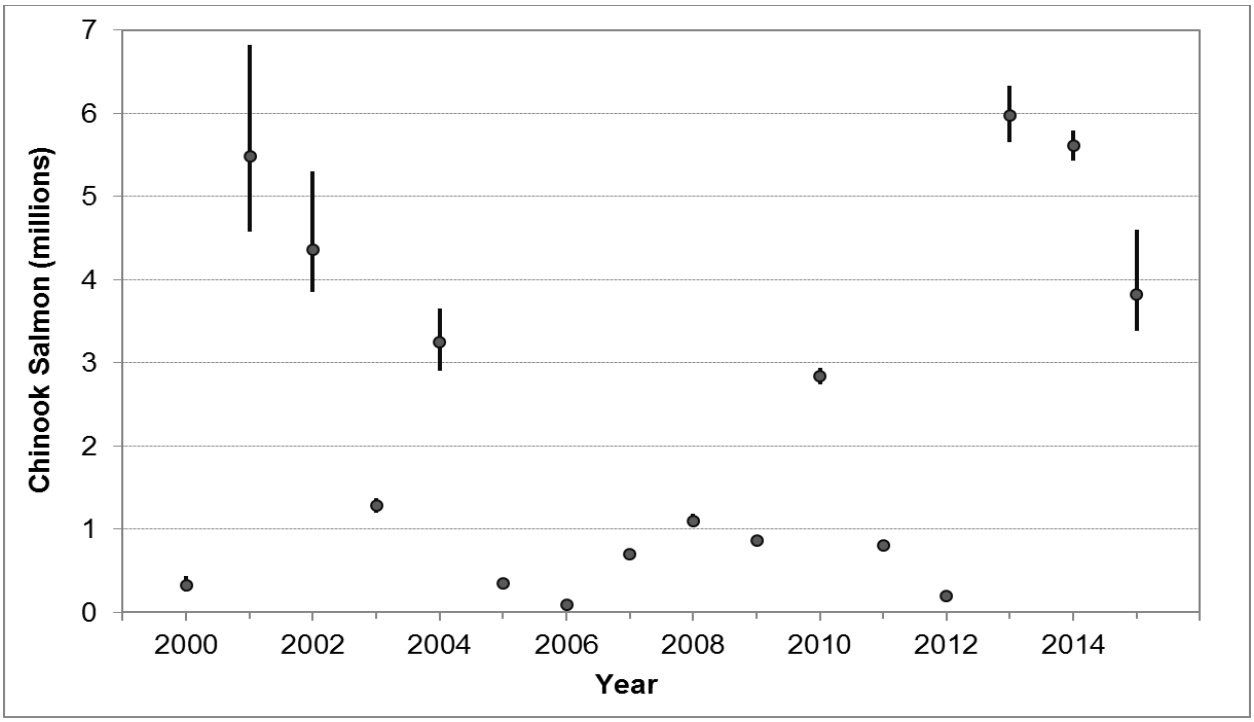

Figure 23: Shasta River yearly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2000-2015. Similar to the Scott, high flows in 2006 reduced catches.

Table 3: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2000.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
12	3/19	5	352	0	0	13,484	8,580	3,498	34,960
13	3/26	5	412	0	0	14,040	7,773	3,717	32,300
14	4/02	5	168	0	0	7,860	5,118	2,643	20,710
15	4/09	4	47	0	0	4,598	3,996	1,123	15,454
16	4/16	1	12	0	0	4,533	3,947	1,178	14,680
17	4/23	4	137	0	0	7,485	4,108	2,727	17,948
18	4/30	5	229	0	0	8,819	4,434	3,122	20,377
19	5/07	5	610	0	0	17,133	9,611	4,358	40,173
20	5/14	5	116	33	3	5,388	2,865	2,113	12,842
21	5/21	2	18	0	0	4,067	3,436	918	13,158
22	5/28	4	245	103	4	11,005	4,287	5,193	21,299
23	6/04	5	135	54	0	7,029	4,010	2,647	17,179
24	6/11	5	307	108	0	11,548	5,466	4,528	25,230
25	6/18	4	157	63	1	9,975	5,339	4,341	23,882
26	6/25	3	6,759	101	4	465,411	201,646	228,964	922,576
27	7/02	3	406	0	0	37,263	20,933	14,874	92,306
28	7/09	3	111	0	0	7,864	3,927	2,746	17,637
29	7/16	1	3	0	0	772	600	218	2,280
Totals:		69	10,224	462	12	638,274	242,293	343,743	1,209,335

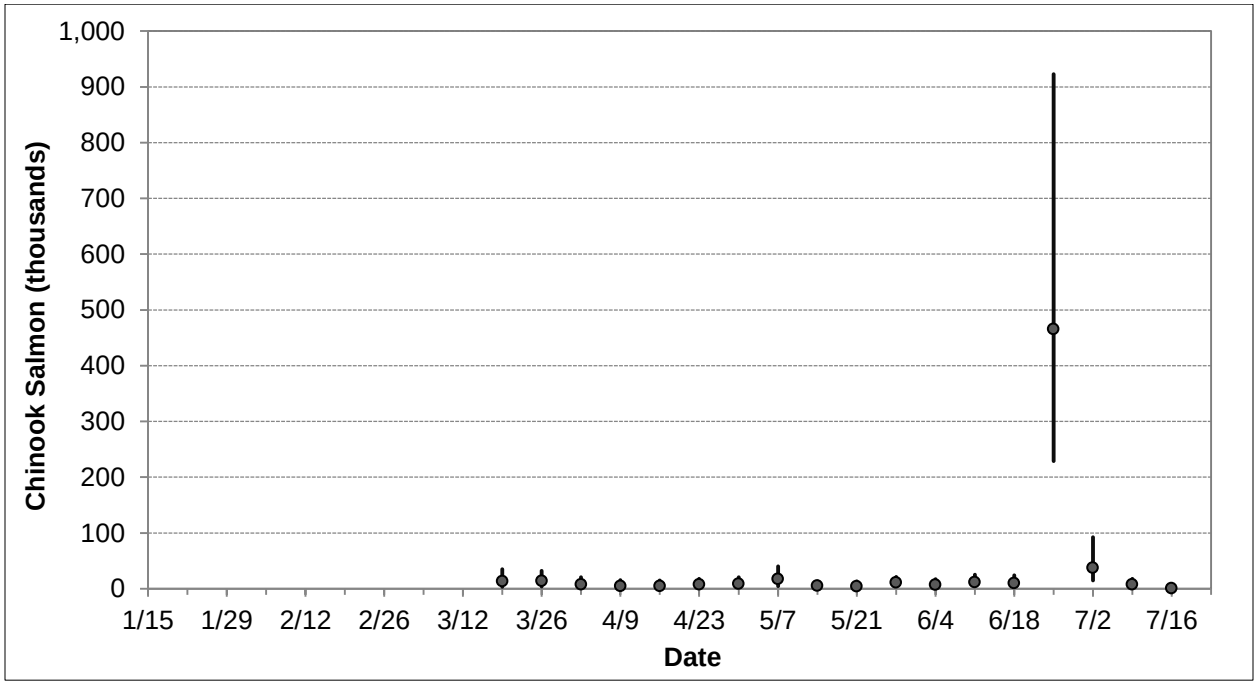

Figure 24: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2000. The estimate for week 26 (6/25/00) is highly uncertain due to the greater numbers caught and the low recapture rate.

Table 4: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2001.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
9	2/26	5	165	0	0	4,742	2,356	2,463	10,155
10	3/05	5	71	0	0	2,697	2,508	1,262	7,906
11	3/12	6	429	28	1	10,487	4,197	5,822	22,122
12	3/19	6	2,871	323	14	66,115	12,450	46,894	95,511
13	3/26	4	353	68	0	14,030	7,113	7,447	31,566
14	4/02	5	819	390	18	23,730	4,747	16,894	35,337
15	4/09	5	2,486	303	26	49,150	8,387	34,185	65,994
16	4/16	5	6,855	396	37	122,034	21,301	86,282	167,892
17	4/23	5	3,947	793	54	86,128	10,547	66,943	108,460
18	4/30	5	2,701	885	48	69,848	8,746	55,111	89,356
19	5/07	5	788	226	9	25,488	7,336	16,306	44,077
20	5/14	5	687	148	0	24,468	14,521	11,963	62,828
21	5/21	5	6,881	793	37	193,735	27,710	148,761	256,073
22	5/28	4	1,933	0	0	70,067	29,056	38,717	142,669
23	6/04	4	2,877	167	10	91,743	20,899	60,890	142,299
Totals:		74	33,863	4,520	254	854,460	74,634	732,771	1,026,911

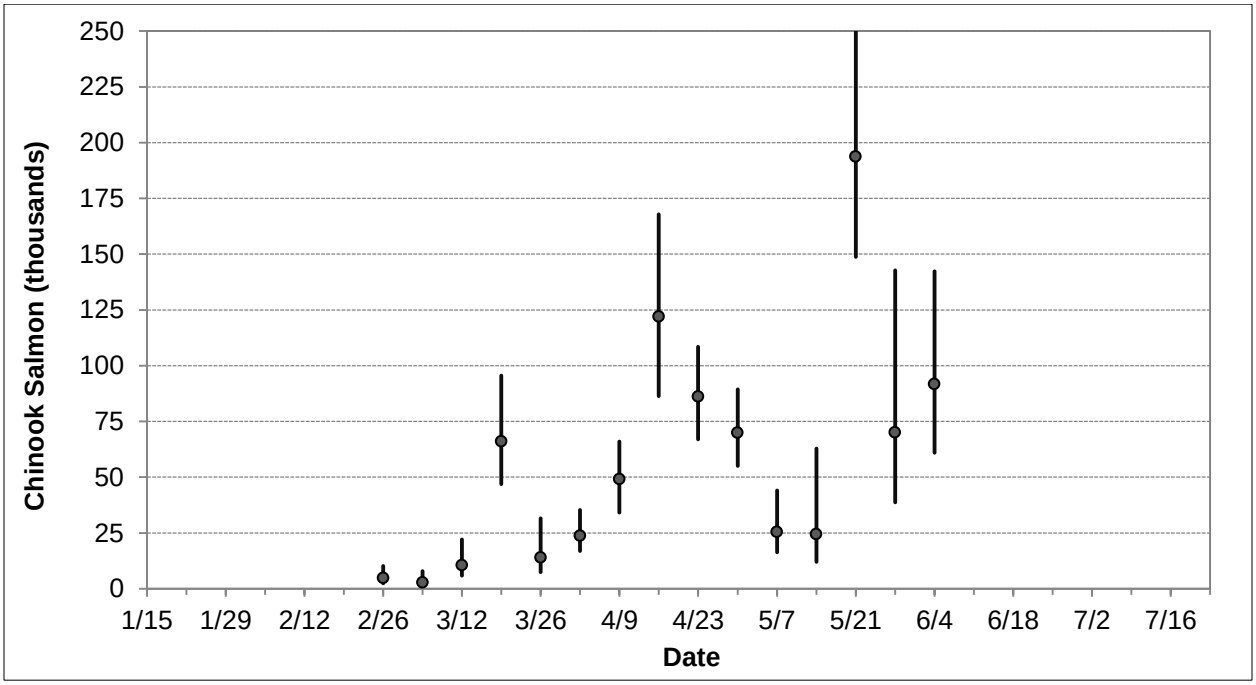

Figure 25: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2001.

Table 5: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2002.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
9	2/26	5	76	0	0	8,129	4,598	3,539	17,816
10	3/05	6	215	0	0	20,448	9,308	9,766	42,022
11	3/12	6	420	0	0	39,928	17,399	19,360	84,763
12	3/19	6	1,110	0	0	83,717	29,575	39,913	152,987
13	3/26	6	1,380	0	0	102,664	36,664	47,956	191,178
14	4/02	6	880	90	0	79,986	31,664	38,479	159,366
15	4/09	5	359	92	0	51,834	26,462	20,609	119,908
16	4/16	5	459	111	1	54,232	20,850	26,877	106,113
17	4/23	6	591	281	7	44,768	13,342	25,379	77,809
18	4/30	6	611	265	4	43,090	13,192	23,366	74,421
19	5/07	6	318	0	0	23,437	7,993	11,866	42,300
20	5/14	6	113	23	1	10,904	4,627	5,269	21,970
21	5/21	6	118	87	1	11,427	4,774	5,705	23,041
22	5/28	6	109	31	0	13,267	6,940	5,449	30,982
23	6/04	6	569	145	4	42,033	12,755	22,820	72,304
24	6/11	6	637	108	1	60,646	22,482	31,928	116,364
25	6/18	6	1,824	199	1	143,792	43,413	81,162	252,124
26	6/25	6	1,707	0	0	125,097	41,859	60,743	223,814
27	7/02	5	229	0	0	25,277	11,078	11,822	55,113
28	7/09	5	12	0	0	1,406	2,100	482	3,456
Totals:		115	11,737	1,432	20	986,083	255,866	600,731	1,606,576

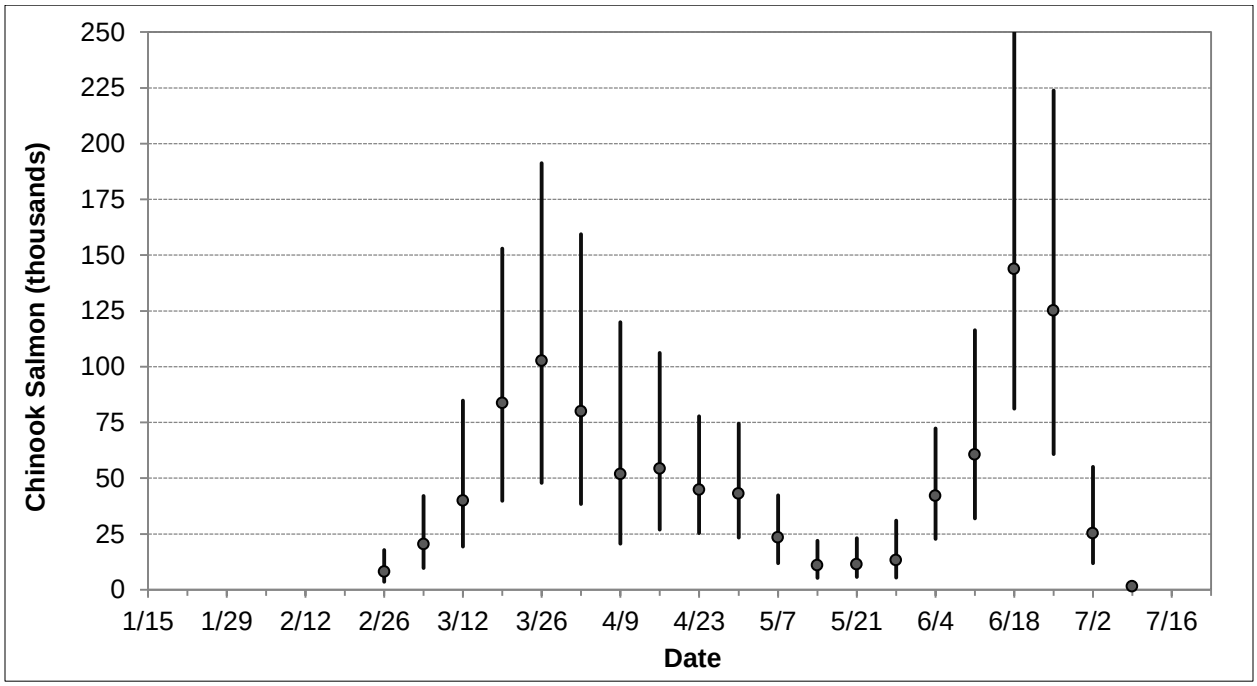

Figure 26: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2002.

Table 6: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2003.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
8	2/19	6	16	0	0	2,939	7,928	280	20,216
9	2/26	6	89	0	0	5,414	7,205	1,633	23,517
10	3/05	6	281	0	0	10,614	7,195	4,187	28,846
11	3/12	4	225	0	0	12,659	7,939	5,065	32,928
12	3/19	6	147	0	0	8,350	7,798	2,752	29,146
13	3/26	4	41	0	0	6,326	8,029	1,168	27,774
14	4/02	6	248	0	0	11,152	7,491	4,620	31,223
15	4/09	6	669	271	11	19,911	4,790	12,212	31,035
16	4/16	6	524	182	7	16,538	4,386	10,147	27,053
17	4/23	6	299	208	11	9,188	2,631	5,421	15,784
18	4/30	6	53	0	0	5,290	6,798	1,036	23,790
19	5/07	6	57	0	0	5,331	7,105	1,078	25,843
20	5/14	6	121	0	0	7,076	7,637	1,814	29,169
21	5/21	3	45	0	0	6,580	8,625	1,331	31,438
22	5/28	5	9	0	0	4,365	8,569	201	30,182
23	6/04	6	20	0	0	5,396	10,036	356	34,671
24	6/11	6	36	0	0	6,844	11,610	695	41,047
25	6/18	6	464	0	0	19,663	13,583	7,504	57,435
26	6/25	6	843	0	0	32,724	18,864	14,796	81,637
27	7/02	5	1,635	197	6	65,492	19,110	39,864	115,554
28	7/09	5	1,669	100	3	67,031	22,781	37,868	125,295
29	7/16	2	20	0	0	18,166	41,075	1,222	131,584
Totals:		118	7,511	958	38	347,047	153,750	194,587	756,691

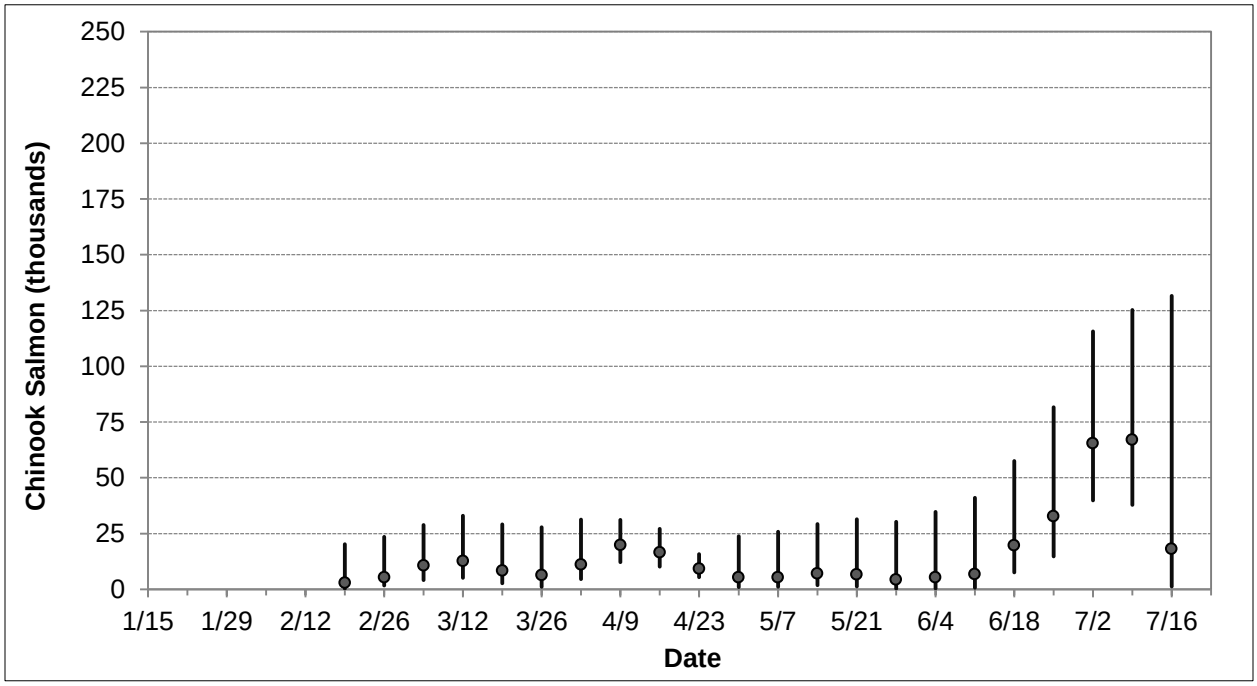

Figure 27: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2003.

Table 7: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2004.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	4	261	62	2	12,441	4,202	6,518	22,773
8	2/19	5	273	0	0	11,035	3,518	5,985	19,241
9	2/26	5	349	72	1	17,484	5,475	9,625	30,766
10	3/05	6	979	240	4	40,646	9,516	26,285	63,144
11	3/12	6	2,458	762	22	88,451	13,916	65,186	119,550
12	3/19	6	3,756	836	34	115,919	16,572	87,521	151,433
13	3/26	6	3,797	687	18	148,529	23,462	109,179	202,927
14	4/02	6	4,681	744	32	130,868	17,765	100,420	170,473
15	4/09	6	4,568	707	34	109,991	15,096	84,684	143,474
16	4/16	6	3,082	745	55	56,308	6,841	44,079	70,837
17	4/23	6	1,092	405	16	34,809	5,863	24,742	47,795
18	4/30	6	348	83	2	17,830	4,644	10,135	28,083
19	5/07	6	906	486	25	19,050	3,000	14,113	25,982
20	5/14	6	469	263	15	11,054	1,928	7,847	15,414
21	5/21	6	372	323	16	9,884	1,720	7,002	13,687
22	5/28	6	350	112	6	11,379	2,452	7,348	16,975
23	6/04	6	1,156	493	37	22,262	3,295	16,598	29,669
24	6/11	5	1,800	244	9	68,145	13,079	47,231	97,690
25	6/18	6	4,020	744	12	172,375	32,022	122,697	246,228
26	6/25	6	1,469	414	11	65,334	14,762	41,863	99,788
27	7/02	6	218	113	7	5,705	1,641	3,165	9,455
Totals:		121	36,404	8,535	358	1,169,497	77,306	1,028,667	1,333,214

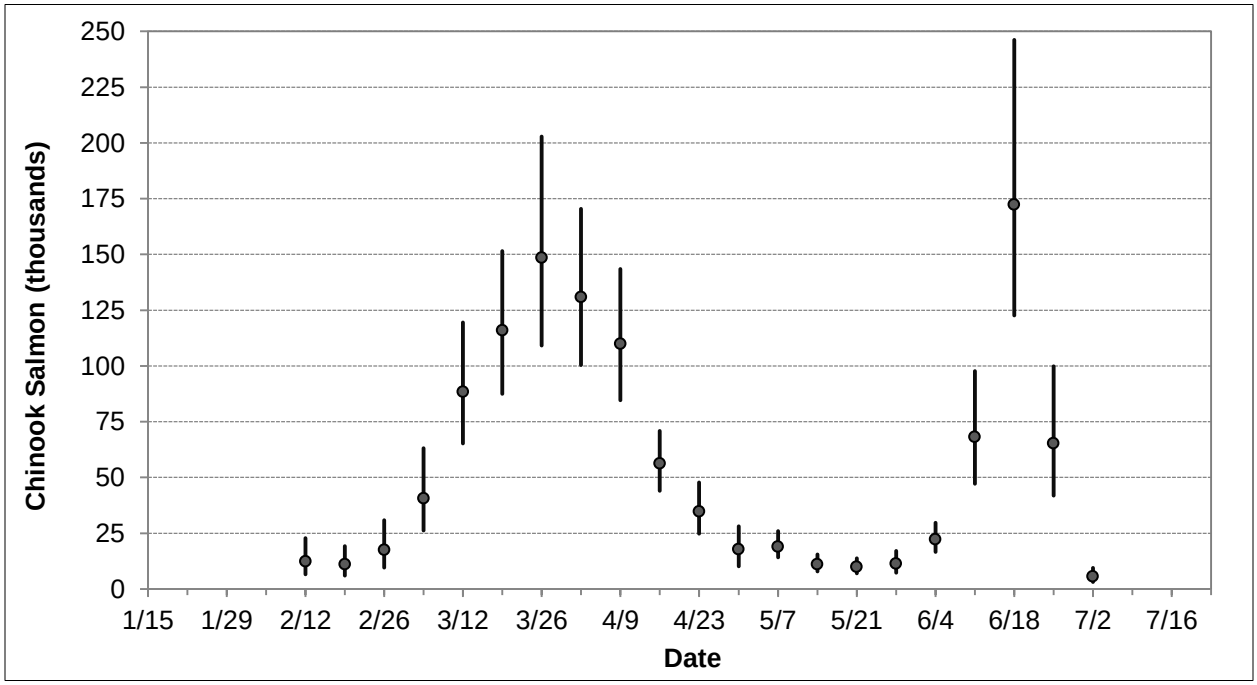

Figure 28: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2004.

Table 8: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2005.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	1	0	0	8	7	1	27
8	2/19	6	1	0	0	33	18	9	78
9	2/26	6	40	0	0	481	124	281	770
10	3/05	6	152	79	5	2,017	433	1,363	3,041
11	3/12	6	370	106	3	5,710	1,312	3,856	8,982
12	3/19	6	887	615	44	12,991	1,652	10,218	16,660
13	3/26	5	539	313	42	6,570	873	5,063	8,487
14	4/02	6	2,099	1,189	116	24,903	2,066	21,215	29,391
15	4/09	6	1,458	1,153	114	17,204	1,418	14,693	20,264
16	4/16	6	1,036	810	113	9,340	861	7,789	11,155
17	4/23	6	522	462	55	5,557	646	4,402	6,896
18	4/30	5	288	254	23	4,427	692	3,304	5,982
19	5/07	5	479	307	36	6,131	804	4,726	7,887
20	5/14	4	389	192	17	7,114	1,169	5,189	9,787
21	5/21	6	412	262	33	4,308	612	3,233	5,611
22	5/28	6	602	438	43	7,094	880	5,567	8,988
23	6/04	6	1,517	518	74	13,428	1,450	10,890	16,495
24	6/11	6	354	208	18	4,725	793	3,479	6,572
25	6/18	6	321	128	16	3,803	684	2,675	5,382
26	6/25	6	866	267	13	14,138	2,677	10,088	20,579
27	7/02	6	2,799	259	16	39,661	6,457	29,328	54,406
28	7/09	6	665	227	22	8,628	1,389	6,341	11,813
Totals:		127	15,797	7,787	803	198,270	10,162	180,374	220,287

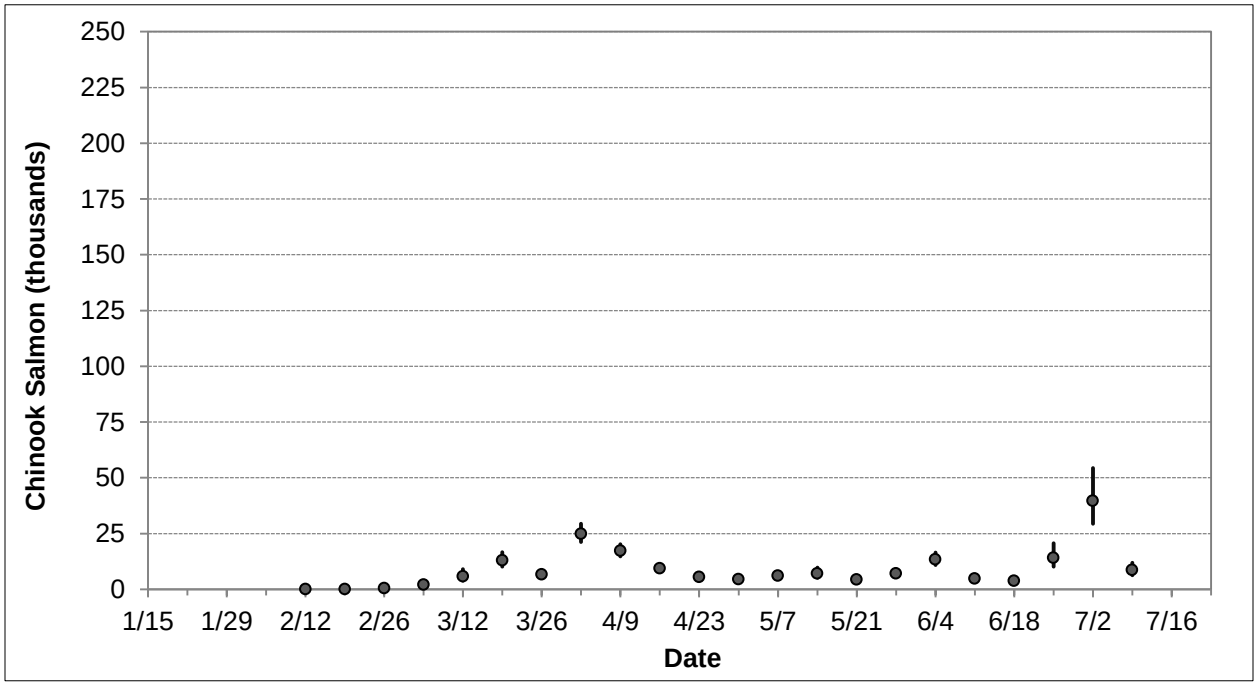

Figure 29: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2005.

Table 9: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2006.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
8	2/19	4	1	0	0	142	389	11	1,020
9	2/26	6	15	0	0	383	337	110	1,356
10	3/05	6	78	71	5	1,364	488	670	2,592
11	3/12	6	12	8	1	291	253	92	1,014
12	3/19	6	13	9	0	316	320	92	1,052
13	3/26	6	11	5	0	271	238	81	901
14	4/02	6	11	6	0	260	223	78	836
15	4/09	6	9	6	1	192	160	55	605
16	4/16	6	12	6	0	262	223	75	765
17	4/23	5	0	0	0	59	144	2	374
18	4/30	4	2	1	0	115	183	18	501
19	5/07	6	10	6	0	234	263	57	762
20	5/14	3	1	0	0	89	160	9	478
21	5/21	6	6	2	0	172	239	33	669
22	5/28	6	9	2	0	219	254	53	831
23	6/04	6	0	0	0	81	211	3	558
24	6/11	6	12	3	2	258	261	68	795
25	6/18	6	7	2	0	277	428	54	1,483
26	6/25	6	99	52	1	2,251	1,180	1,117	5,409
27	7/02	6	358	290	20	6,139	1,269	4,175	9,082
28	7/09	6	118	98	0	3,558	5,212	1,025	16,809
Totals:		118	784	567	30	16,932	7,884	9,945	39,359

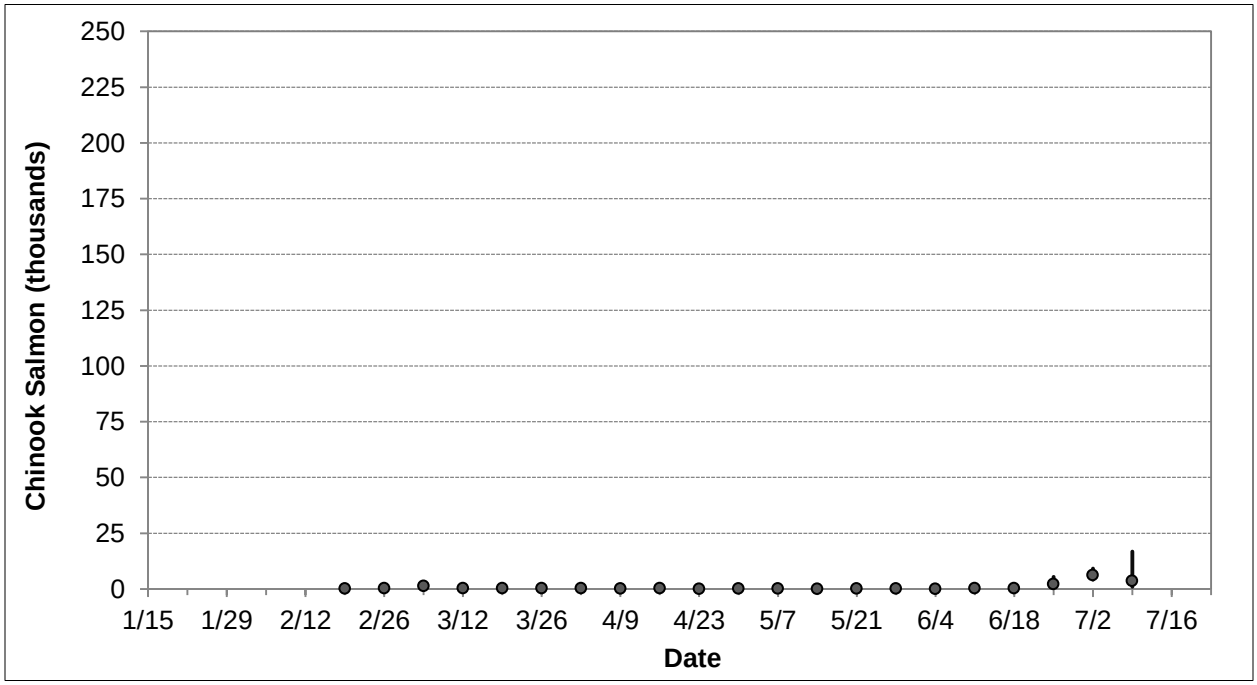

Figure 30: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2006.

Table 10: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2007.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	55	32	3	654	217	349	1,185
8	2/19	6	81	40	1	972	378	462	1,865
9	2/26	5	108	45	6	1,386	393	824	2,338
10	3/05	6	158	66	1	1,957	802	934	3,813
11	3/12	4	103	6	0	2,030	848	952	4,147
12	3/19	6	598	201	8	11,157	2,800	7,009	17,827
13	3/26	6	927	541	46	12,223	1,592	9,478	15,685
14	4/02	6	1,303	747	91	12,599	1,221	10,453	15,187
15	4/09	6	3,495	1,633	215	31,112	1,983	27,416	35,303
16	4/16	6	5,004	1,389	117	67,326	5,835	57,141	79,629
17	4/23	6	2,213	1,674	301	14,594	805	13,098	16,252
18	4/30	6	2,077	1,186	174	16,791	1,195	14,639	19,266
19	5/07	6	771	507	75	6,452	706	5,193	7,994
20	5/14	6	1,973	896	138	15,352	1,210	13,195	17,959
21	5/21	6	2,767	1,293	241	17,710	1,066	15,784	19,999
22	5/28	6	482	375	47	4,906	680	3,755	6,430
23	6/04	6	1,957	776	68	25,888	2,925	20,859	32,431
24	6/11	6	4,188	1,206	98	58,885	5,468	48,909	70,421
25	6/18	7	8,360	999	70	113,589	12,501	92,192	140,459
26	6/25	6	4,481	1,408	120	60,892	5,218	51,377	72,062
27	7/02	1	400	0	0	33,215	13,204	15,474	66,190
Totals:		119	41,501	15,020	1,820	509,687	23,190	469,009	560,812

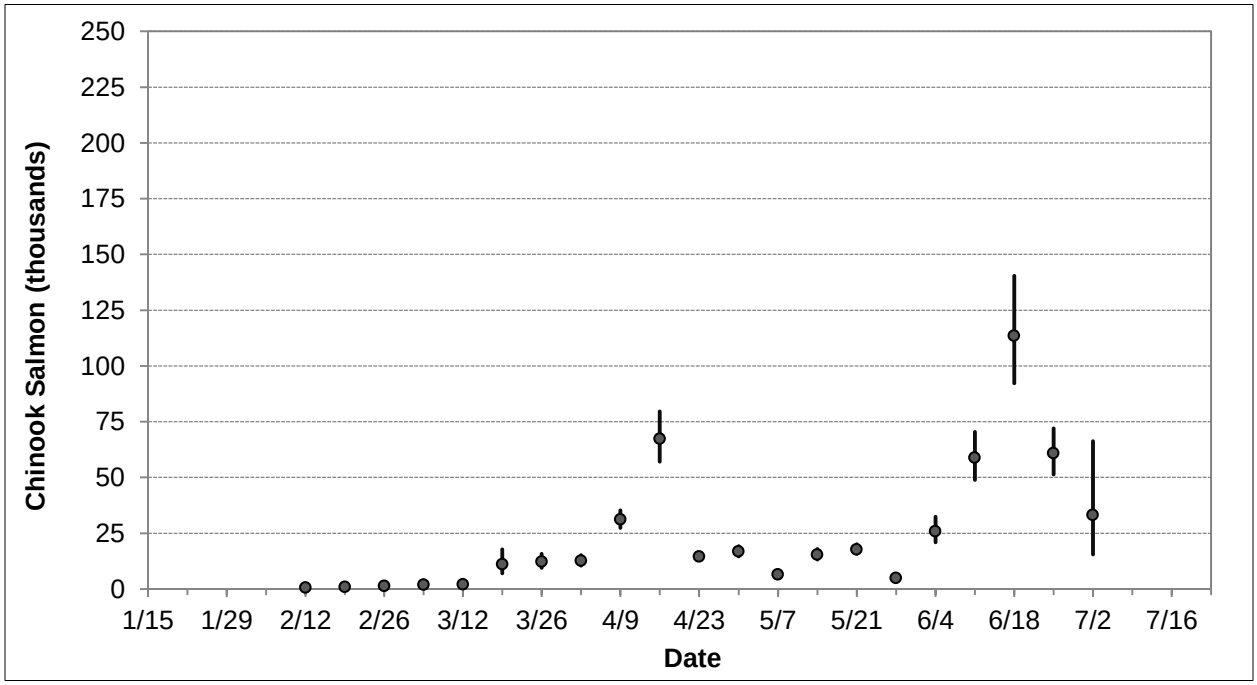

Figure 31: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2007.

Table 11: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2008.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	5	35	11	0	712	307	289	1,451
8	2/19	6	42	24	6	691	238	331	1,257
9	2/26	7	122	56	1	2,561	942	1,258	4,807
10	3/05	6	449	215	2	7,426	2,552	3,641	13,541
11	3/12	5	139	152	1	5,079	1,996	2,347	9,931
12	3/19	6	834	355	23	15,367	2,743	10,887	21,565
13	3/26	6	1,004	391	12	29,354	6,150	19,836	43,823
14	4/02	6	2,182	1,189	68	43,424	4,823	35,061	54,033
15	4/09	6	3,318	2,207	91	88,143	8,629	73,139	106,863
16	4/16	6	1,330	655	60	18,822	2,371	14,756	24,029
17	4/23	6	2,143	1,497	97	39,143	3,812	32,359	47,205
18	4/30	6	2,043	670	38	42,395	6,136	31,748	56,293
19	5/07	2	337	240	3	41,313	12,258	24,026	70,890
20	5/14	2	340	213	13	23,678	5,614	15,144	36,729
21	5/21	4	1,928	757	48	53,732	6,896	42,019	68,847
22	5/28	6	3,708	2,025	142	61,996	4,911	53,268	72,447
23	6/04	6	2,866	1,537	134	39,586	3,318	33,641	46,469
24	6/11	6	3,469	1,562	163	40,051	2,957	34,607	46,186
25	6/18	6	3,630	1,593	157	44,212	3,362	38,038	51,099
26	6/25	6	2,347	1,271	55	60,788	7,695	47,531	77,624
Totals:		109	32,266	16,620	1,114	658,475	27,424	610,124	715,823

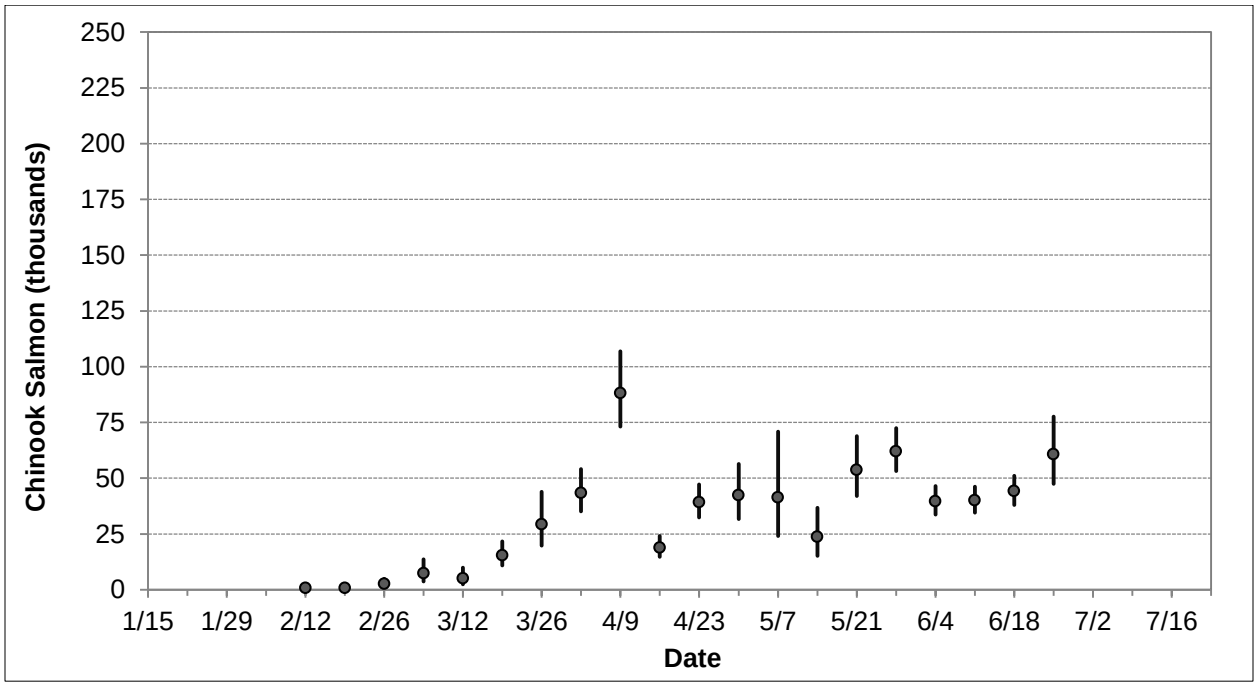

Figure 32: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2008.

Table 12: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2009.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	6	0	0	203	161	45	603
8	2/19	6	61	9	0	912	477	318	2,145
9	2/26	5	85	0	0	2,422	1,143	927	5,280
10	3/05	6	57	8	0	4,457	2,208	1,486	9,832
11	3/12	6	456	116	5	14,044	4,462	7,609	24,563
12	3/19	6	1,814	751	48	34,245	4,598	26,393	44,297
13	3/26	6	6,468	2,437	211	87,403	5,805	76,477	99,559
14	4/02	6	7,267	2,499	205	105,170	7,130	91,980	119,509
15	4/09	6	20,810	2,588	309	204,746	10,943	184,556	227,497
16	4/16	6	24,987	2,614	236	320,447	19,787	284,853	361,966
17	4/23	6	5,857	1,497	105	101,791	9,729	84,520	122,506
18	4/30	4	2,751	1,681	88	93,552	9,372	76,791	113,781
19	5/07	1	150	0	0	53,233	22,006	21,255	105,660
20	5/14	6	1,217	932	29	44,721	7,439	32,271	61,470
21	5/21	6	1,143	997	26	44,414	7,646	31,921	61,297
22	5/28	6	930	605	45	15,819	2,307	11,849	21,040
23	6/04	5	485	247	19	11,139	2,387	7,253	16,598
24	6/11	6	451	321	12	14,177	3,367	9,081	22,207
25	6/18	6	572	420	11	20,405	4,889	12,997	31,897
26	6/25	6	247	202	2	17,443	8,490	7,467	39,085
Totals:		111	75,814	17,924	1,351	1,190,743	42,782	1,113,398	1,281,211

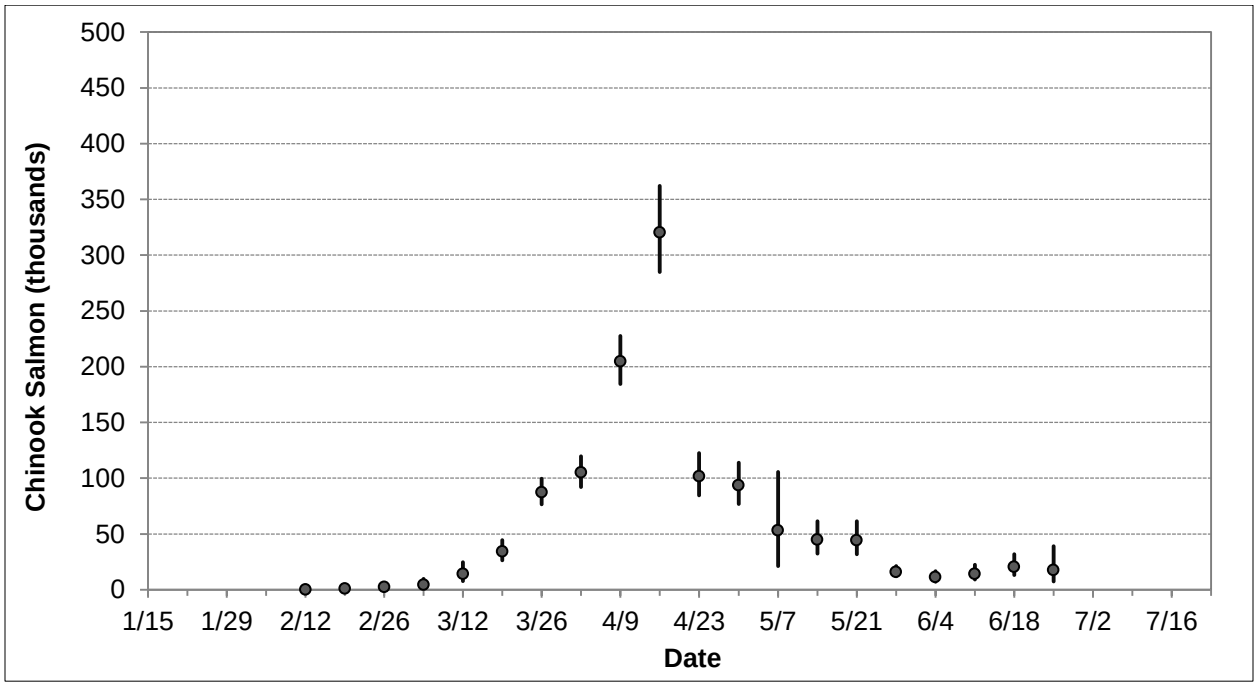

Figure 33: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2009.

Table 13: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2010.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	108	22	0	3,275	2,050	1,195	7,989
8	2/19	6	148	40	0	5,822	2,996	2,414	12,937
9	2/26	5	245	93	1	11,428	5,077	5,014	23,368
10	3/05	6	713	315	12	22,378	5,265	14,369	34,493
11	3/12	5	1,661	953	25	74,323	12,773	53,808	103,192
12	3/19	6	2,136	1,536	80	48,856	5,192	39,703	59,983
13	3/26	4	637	270	2	61,587	19,924	33,156	109,599
14	4/02	5	1,281	543	20	52,862	10,570	35,820	77,031
15	4/09	6	4,294	2,638	161	83,370	6,375	71,940	97,048
16	4/16	4	3,916	1,500	76	133,491	14,095	107,869	163,809
17	4/23	3	1,532	748	30	87,847	14,395	64,148	119,981
18	4/30	4	333	224	4	31,275	13,810	14,864	67,575
19	5/07	5	4,519	227	12	134,943	33,348	84,574	214,469
20	5/14	2	1,466	500	15	140,697	28,924	95,239	207,403
21	5/21	5	1,156	876	40	37,802	5,678	28,102	50,528
22	5/28	5	1,017	882	55	25,036	3,363	19,279	32,233
23	6/04	0	0	0	0	38,864	27,258	11,668	104,524
24	6/11	5	1,291	787	52	28,753	3,708	22,241	36,799
25	6/18	6	2,617	1,941	176	34,249	2,541	29,644	39,629
26	6/25	6	1,590	1,332	105	24,417	2,366	20,158	29,508
Totals:		94	30,660	15,427	866	1,081,276	74,067	956,265	1,243,927

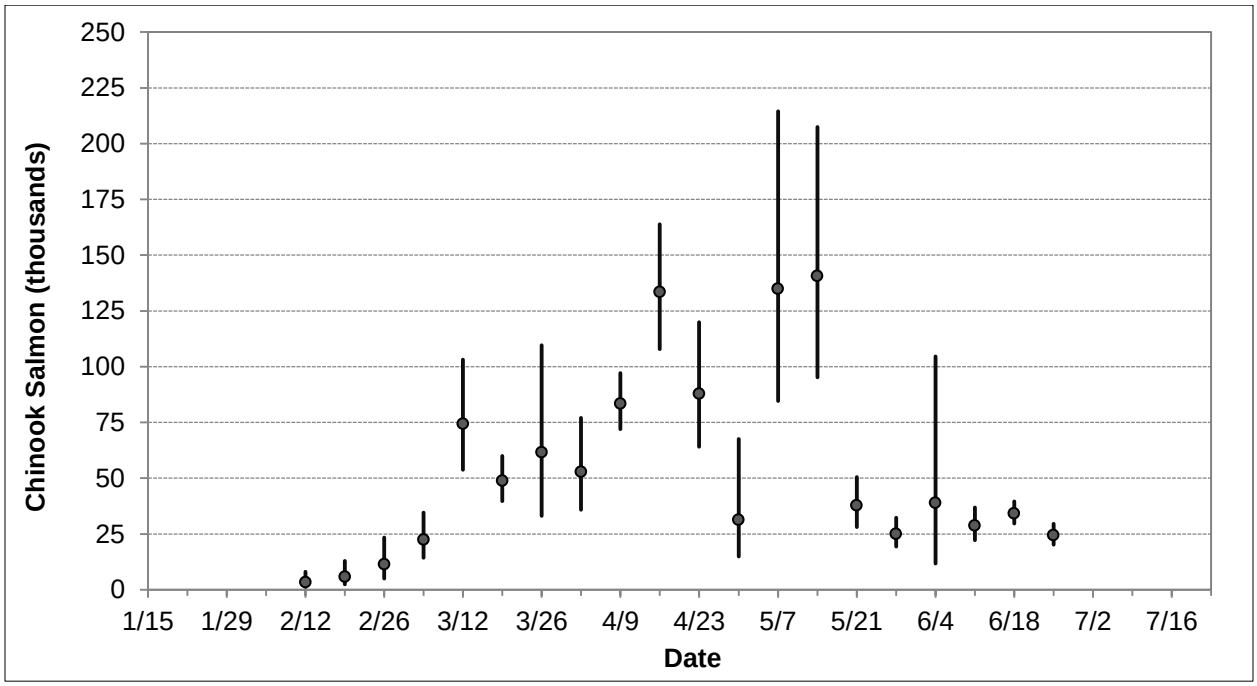

Figure 34: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2010.

Table 14: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2011.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	5	27	0	0	1,284	903	460	3,840
8	2/19	6	201	123	3	5,570	1,604	3,330	9,458
9	2/26	6	733	538	43	11,590	1,639	8,770	15,186
10	3/05	6	680	538	20	18,032	3,209	12,815	25,486
11	3/12	2	112	17	0	12,547	5,431	5,711	25,281
12	3/19	5	196	142	5	11,260	5,568	4,589	24,339
13	3/26	6	1,126	745	39	24,750	3,359	19,194	32,298
14	4/02	6	930	736	35	22,755	3,343	17,069	30,040
15	4/09	6	1,684	1,103	74	29,500	3,258	23,844	36,388
16	4/16	5	548	373	19	16,542	3,170	11,436	23,835
17	4/23	6	613	420	17	16,261	2,948	11,565	23,005
18	4/30	6	567	412	28	10,971	1,708	7,969	14,689
19	5/07	6	389	280	22	7,179	1,255	5,018	9,931
20	5/14	6	422	382	31	6,627	1,147	4,704	9,095
21	5/21	5	220	182	14	4,468	946	2,945	6,601
22	5/28	5	133	49	4	2,993	783	1,742	4,794
23	6/04	5	42	41	3	1,550	633	762	3,160
24	6/11	2	7	0	0	1,247	849	378	3,513
25	6/18	6	106	70	1	3,226	1,267	1,709	6,535
26	6/25	3	250	115	4	12,792	4,284	7,146	23,642
Totals:		103	8,986	6,266	362	221,145	19,198	188,898	262,211

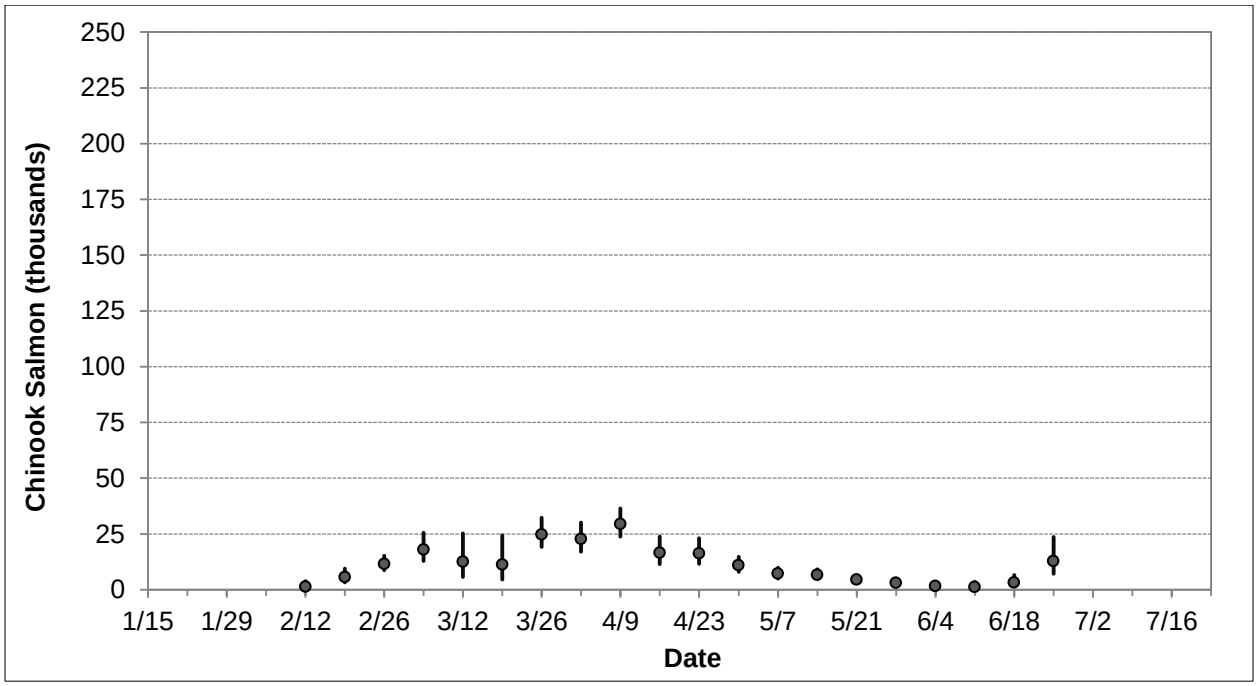

Figure 35: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2011.

Table 15: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2012.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	37	23	0	1,179	706	391	2,923
8	2/19	6	98	61	1	2,718	1,148	1,288	5,687
9	2/26	7	155	111	9	2,620	744	1,537	4,408
10	3/05	6	94	80	3	2,902	1,071	1,408	5,566
11	3/12	5	164	146	6	5,185	1,527	2,976	8,901
12	3/19	6	103	66	0	4,031	1,966	1,474	8,818
13	3/26	4	197	159	1	7,752	3,384	3,142	15,863
14	4/02	4	149	93	1	7,200	3,222	2,724	14,938
15	4/09	6	280	173	7	8,379	2,523	4,649	14,412
16	4/16	5	612	445	14	21,898	4,877	14,544	33,512
17	4/23	1	74	0	0	11,570	4,971	4,594	23,765
18	4/30	6	611	538	30	12,909	2,178	9,368	17,882
19	5/07	6	305	158	4	10,728	3,384	5,962	18,832
20	5/14	6	176	92	4	6,252	2,234	3,105	11,743
21	5/21	6	146	113	3	6,288	2,413	3,100	12,290
22	5/28	6	115	102	5	4,458	1,702	2,094	8,708
23	6/04	6	354	219	11	9,016	2,293	5,549	14,432
24	6/11	6	979	611	76	9,889	1,115	7,948	12,334
25	6/18	6	4,654	1,023	135	41,676	3,396	35,528	48,941
26	6/25	6	5,858	1,013	136	52,366	4,232	44,710	61,147
Totals:		110	15,161	5,226	446	229,014	17,207	198,529	266,367

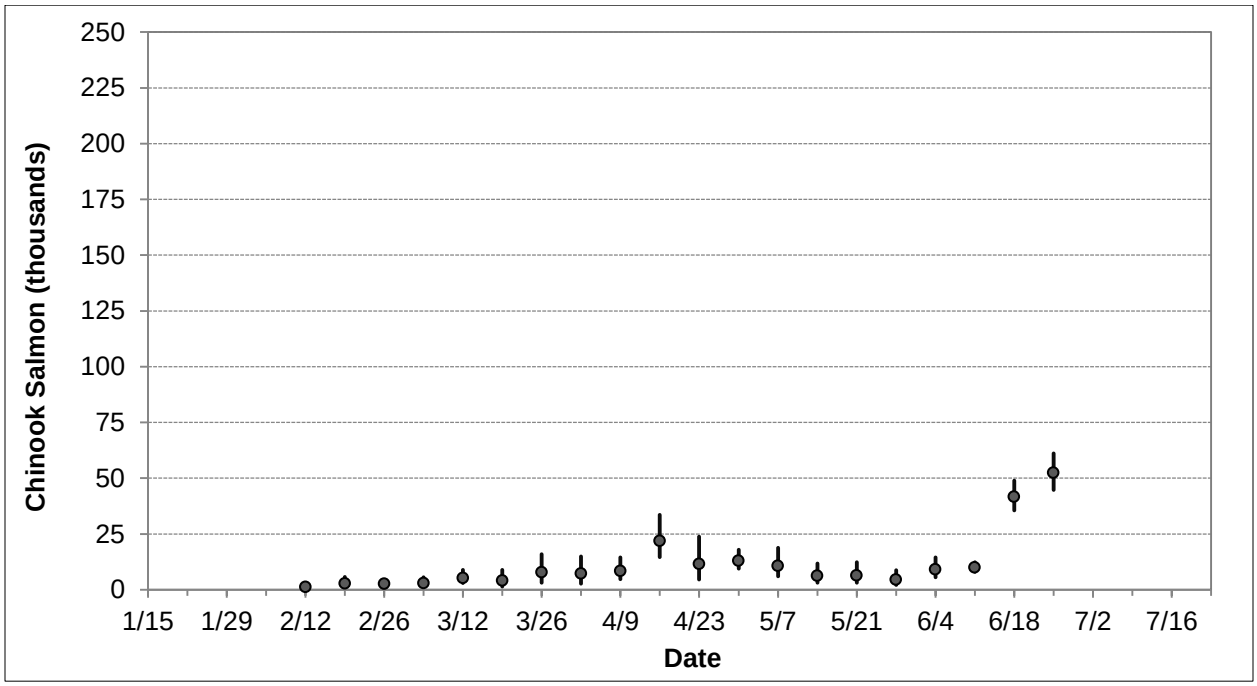

Figure 36: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2012.

Table 16: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2013.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	316	123	8	6,349	1,965	3,502	11,063
8	2/19	6	164	58	3	4,900	2,227	2,122	10,535
9	2/26	6	825	229	7	24,099	7,049	14,195	41,010
10	3/05	6	1,699	902	78	23,131	2,492	18,706	28,536
11	3/12	6	1,758	858	52	33,408	4,353	25,949	43,133
12	3/19	4	498	449	13	26,515	6,341	16,824	41,679
13	3/26	5	464	347	5	29,147	9,242	16,291	51,706
14	4/02	2	52	14	0	8,719	5,668	2,518	23,476
15	4/09	6	874	478	19	25,161	5,155	16,811	37,113
16	4/16	6	1,833	1,634	108	32,518	3,094	27,000	39,029
17	4/23	6	1,553	1,108	132	15,675	1,355	13,208	18,583
18	4/30	6	3,688	1,604	210	33,330	2,160	29,391	37,844
19	5/07	6	2,138	1,027	73	35,775	4,124	28,654	44,622
20	5/14	6	1,694	711	48	30,161	4,125	23,000	39,111
21	5/21	6	2,006	1,523	218	16,699	1,096	14,691	18,983
22	5/28	6	4,686	1,335	143	51,752	4,148	44,206	60,370
23	6/04	6	18,043	598	85	149,339	14,797	123,386	181,576
24	6/11	6	24,162	747	114	185,892	16,108	157,437	220,205
25	6/18	6	4,868	749	113	38,718	3,424	32,739	46,104
26	6/25	6	1,438	392	30	23,205	4,025	16,546	32,437
Totals:		113	72,759	14,886	1,459	794,493	30,949	737,022	857,849

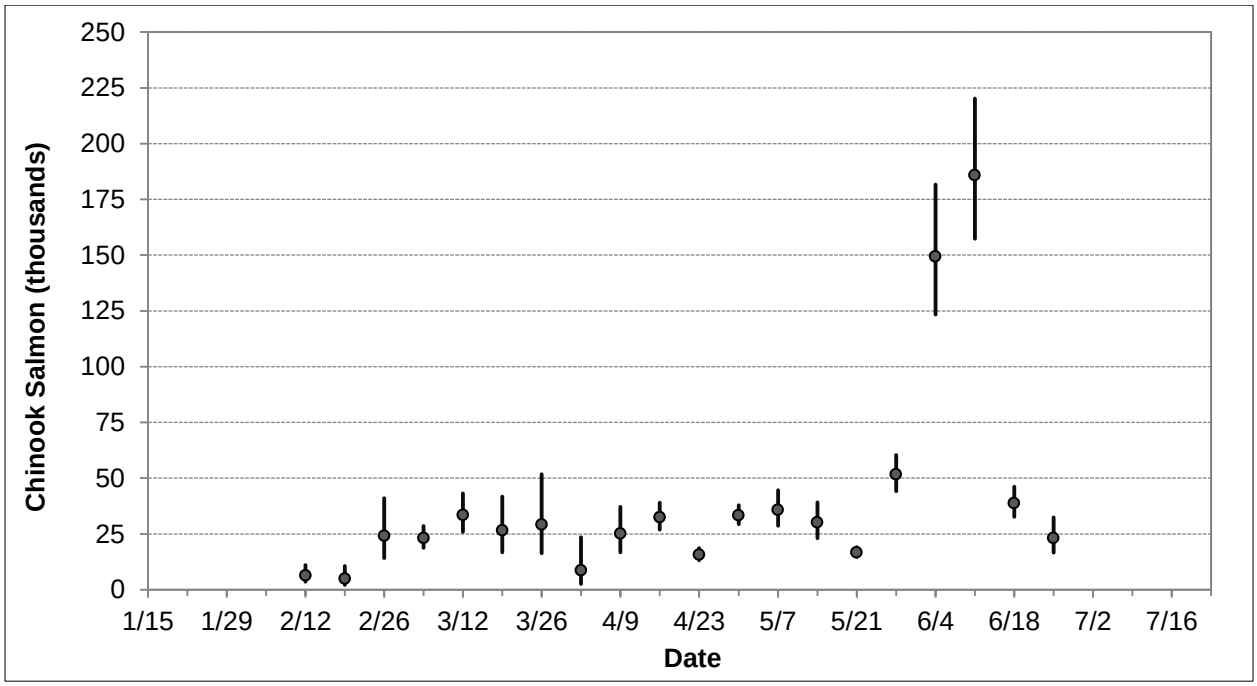

Figure 37: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2013.

Table 17: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2014.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	3	1	0	0	261	338	32	1,014
8	2/19	6	22	7	0	1,037	792	260	2,911
9	2/26	6	178	61	2	4,440	1,946	2,053	9,160
10	3/05	5	29	3	0	5,164	3,324	1,249	13,649
11	3/12	6	59	7	0	9,158	5,718	2,200	23,475
12	3/19	6	332	69	2	18,241	8,070	7,392	37,426
13	3/26	6	1,075	720	21	41,229	8,024	28,427	59,913
14	4/02	6	1,488	929	14	87,706	19,631	57,729	132,894
15	4/09	6	1,024	629	17	45,970	10,158	29,893	70,033
16	4/16	6	2,849	1,501	162	31,913	2,446	27,404	37,089
17	4/23	6	5,598	1,249	122	67,546	5,822	57,081	79,888
18	4/30	6	4,022	1,073	171	30,462	2,187	26,498	35,074
19	5/07	6	2,162	851	66	34,125	4,009	27,176	42,937
20	5/14	6	1,137	624	28	31,428	5,579	22,208	44,126
21	5/21	6	1,755	1,001	42	47,112	6,730	35,770	61,801
22	5/28	6	1,025	880	37	28,049	4,321	20,849	37,775
23	6/04	6	411	365	15	12,744	3,013	8,052	19,818
24	6/11	6	285	260	9	9,224	2,584	5,471	15,422
25	6/18	6	117	115	0	3,608	2,259	1,106	9,298
26	6/25	6	41	37	0	1,274	1,306	256	4,220
Totals:		116	23,610	10,381	708	510,689	34,580	449,714	585,696

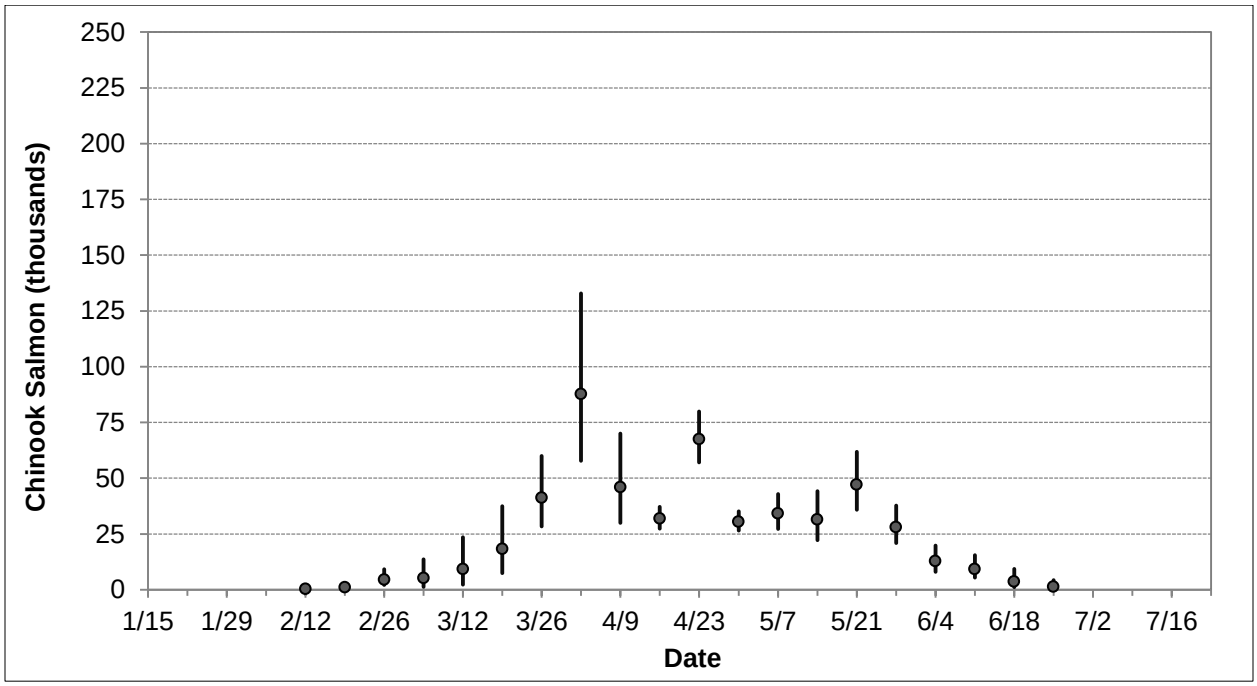

Figure 38: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2014.

Table 18: Scott River weekly trap catch summary for age 0+ Chinook salmon, 2015.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	5	116	8	0	5,788	1,678	3,231	9,721
8	2/19	6	144	58	1	5,949	1,598	3,689	9,793
9	2/26	6	70	52	1	3,189	1,052	1,872	5,789
10	3/05	6	254	113	3	9,418	2,094	6,273	14,499
11	3/12	6	597	309	7	21,965	4,147	15,508	31,684
12	3/19	6	607	486	15	21,324	3,557	15,383	29,401
13	3/26	6	197	211	6	7,814	1,790	5,241	12,273
14	4/02	6	257	134	5	9,180	1,995	6,215	14,171
15	4/09	6	360	283	16	10,653	1,773	7,369	14,382
16	4/16	6	507	422	23	14,054	2,131	10,027	18,421
17	4/23	6	1,197	855	40	32,343	4,112	24,806	40,775
18	4/30	6	584	439	11	20,156	3,856	14,706	29,536
19	5/07	6	1,308	844	51	30,412	4,253	22,717	38,875
20	5/14	6	754	617	21	23,818	3,707	17,992	32,631
21	5/21	6	275	198	5	10,316	2,573	7,078	16,923
22	5/28	6	550	350	12	17,360	3,068	12,641	24,684
23	6/04	6	889	439	14	27,151	4,329	20,277	37,249
24	6/11	6	577	453	14	17,315	2,902	12,844	24,045
25	6/18	6	246	264	14	6,058	1,071	4,270	8,488
26	6/25	6	42	57	8	971	259	549	1,558
Totals:		119	9,531	6,592	267	295,235	20,930	257,553	339,767

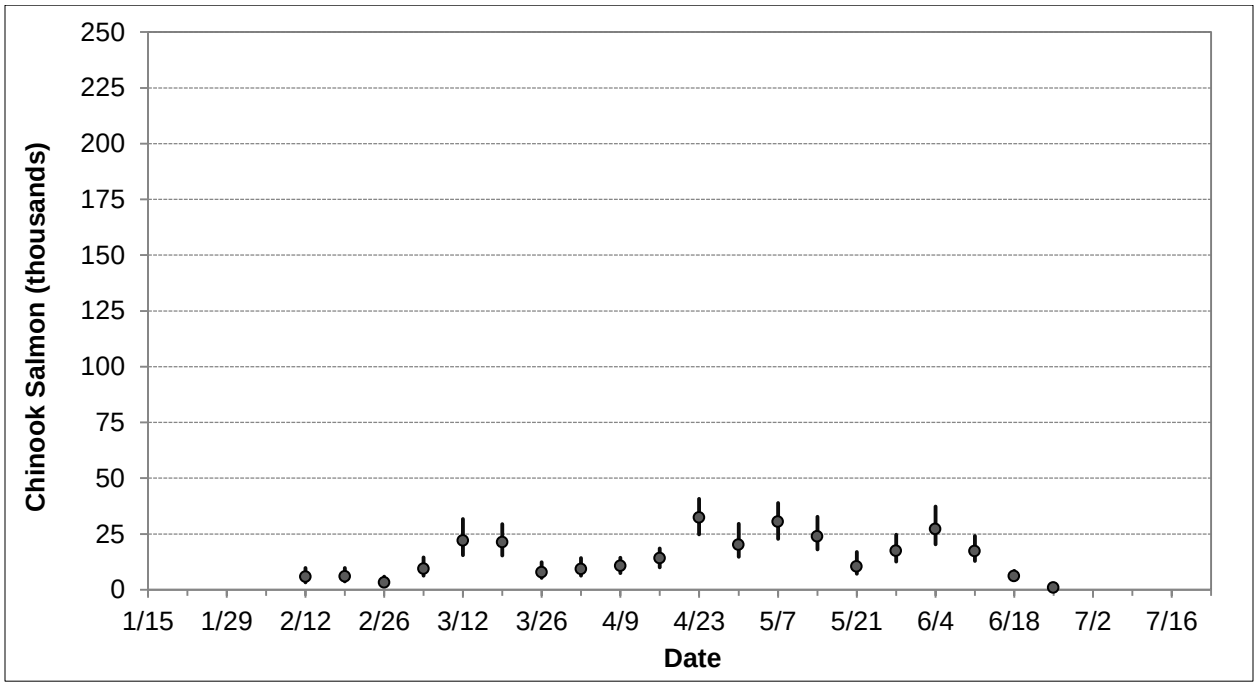

Figure 39: Scott River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2015.

Table 19: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2000.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
9	2/26	3	200	0	0	5,228	2,546	2,225	11,806
10	3/05	5	801	0	0	10,540	4,786	4,693	22,671
11	3/12	6	2,412	0	0	22,958	8,280	10,870	42,391
12	3/19	6	2,645	0	0	26,318	9,334	12,419	48,205
13	3/26	6	3,340	0	0	31,622	9,813	16,017	54,579
14	4/02	6	5,012	45	9	38,455	9,610	22,584	58,774
15	4/09	6	2,685	102	22	19,925	4,248	12,967	29,359
16	4/16	6	1,321	5	1	14,977	4,983	7,839	26,752
17	4/23	6	1,346	81	7	16,438	4,313	10,616	27,134
18	4/30	6	1,533	9	4	14,717	4,313	7,543	25,209
19	5/07	6	1,977	101	9	23,143	5,269	15,531	35,845
20	5/14	6	2,345	100	8	27,767	6,473	18,531	43,364
21	5/21	6	4,520	204	16	51,098	9,322	36,927	73,349
22	5/28	6	835	120	0	11,281	5,227	5,341	25,588
23	6/04	6	488	0	0	6,397	2,830	3,102	13,900
24	6/11	6	487	0	0	4,588	1,461	2,274	7,909
25	6/18	6	124	0	0	1,236	422	594	2,253
26	6/25	6	6	0	0	128	74	44	313
27	7/02	6	3	0	0	32	20	8	83
Totals:		110	32,080	767	76	326,849	46,598	247,932	430,802

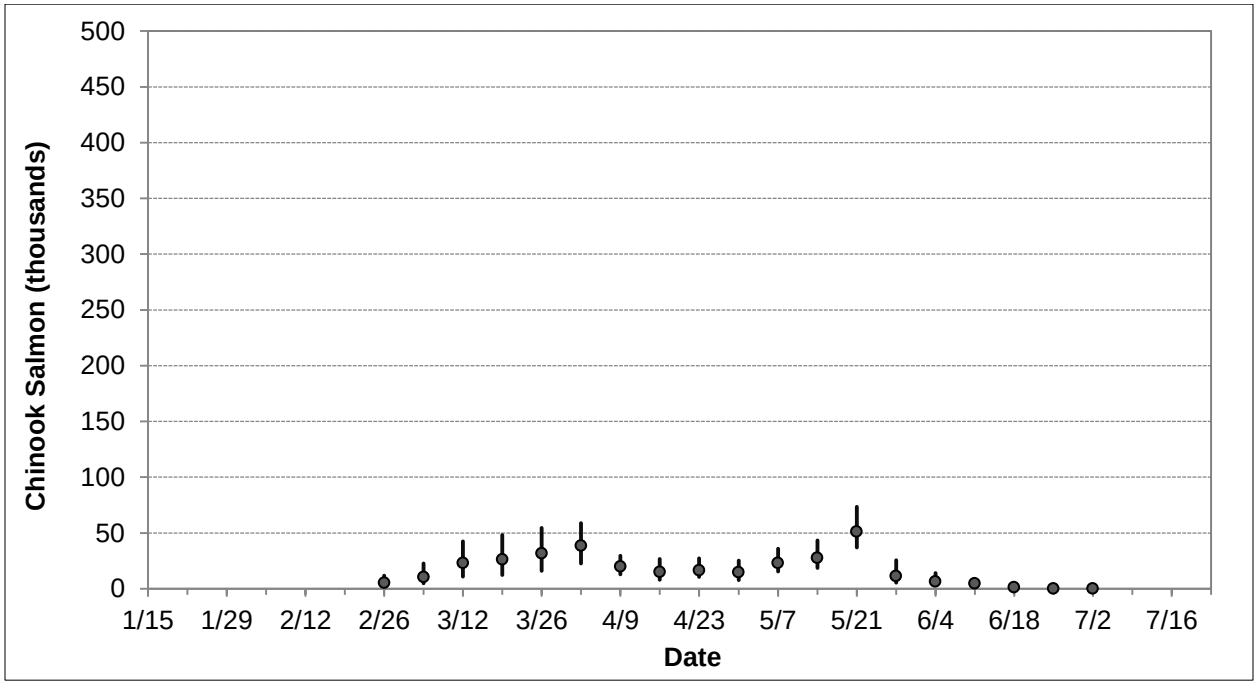

Figure 40: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2000.

Table 20: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2001.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
4	1/22	4	128	0	0	3,411	14,083	422	13,286
5	1/29	1	27	0	0	6,294	9,612	826	26,427
6	2/05	2	606	0	0	35,780	36,993	6,012	128,546
7	2/12	3	1,910	0	0	87,577	83,611	12,894	293,531
8	2/19	1	3,180	0	0	288,055	243,089	49,913	906,767
9	2/26	6	21,094	618	9	1,313,933	383,454	755,592	2,245,140
10	3/05	6	14,027	407	21	332,464	71,807	221,070	500,690
11	3/12	6	63,165	882	53	1,212,996	156,958	939,685	1,559,877
12	3/19	5	89,736	1,095	81	1,669,868	174,402	1,364,630	2,048,857
13	3/26	6	23,893	982	118	233,895	19,971	197,527	276,098
14	4/02	6	4,136	496	50	49,761	6,683	38,273	64,157
15	4/09	6	6,867	495	150	26,951	1,873	23,572	30,903
16	4/16	6	4,337	235	84	14,795	1,341	12,498	17,675
17	4/23	6	3,636	353	31	48,396	8,256	34,992	67,651
18	4/30	6	5,842	226	41	38,527	5,543	29,197	50,832
19	5/07	7	8,216	163	0	50,483	40,028	12,982	146,320
20	5/14	6	6,378	150	48	24,237	3,006	19,214	31,118
21	5/21	6	3,204	0	0	24,225	19,310	6,241	73,737
22	5/28	5	632	0	0	9,253	8,128	1,924	29,582
23	6/04	6	110	0	0	2,931	3,146	442	10,499
24	6/11	6	111	0	0	2,262	2,508	340	8,761
25	6/18	6	265	0	0	2,604	2,448	574	9,253
26	6/25	6	330	0	0	2,463	2,493	599	8,120
27	7/02	4	29	0	0	737	1,974	98	3,028
Totals:		122	261,859	6,102	686	5,481,897	580,463	4,578,719	6,818,969

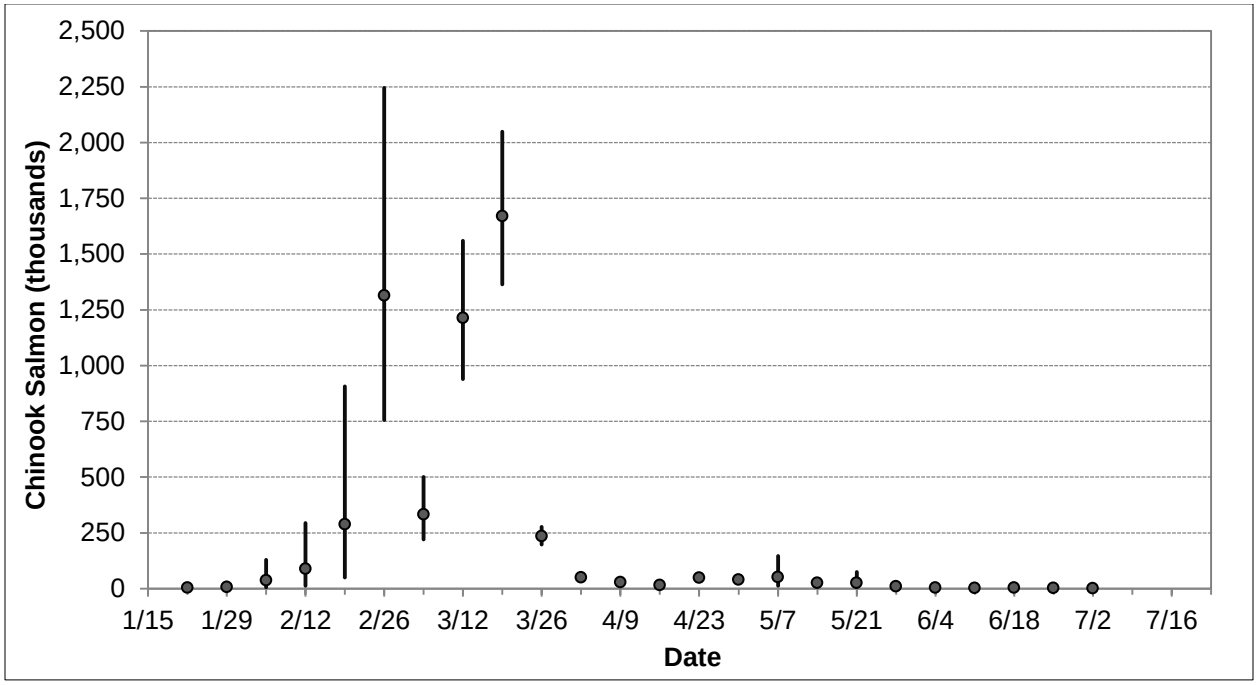

Figure 41: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2001.

Table 21: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2002.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
9	2/26	6	48,482	500	0	547,178	350,190	173,648	1,439,729
10	3/05	6	84,006	500	68	718,112	77,780	582,819	887,080
11	3/12	6	74,883	1,064	151	616,435	46,380	531,805	712,877
12	3/19	6	70,512	1,055	176	496,217	33,467	435,149	566,519
13	3/26	6	39,200	979	98	452,015	43,184	374,236	543,392
14	4/02	6	80,015	690	80	778,986	78,716	644,600	949,661
15	4/09	5	13,769	496	45	209,057	28,744	160,850	273,070
16	4/16	6	49,232	498	164	177,469	11,491	156,383	201,128
17	4/23	6	6,255	481	130	28,213	2,166	24,366	32,884
18	4/30	3	5,674	0	0	94,407	43,627	39,866	205,537
19	5/07	6	14,031	496	92	88,522	8,111	73,957	105,509
20	5/14	6	22,593	493	178	73,974	4,392	66,018	83,378
21	5/21	5	8,473	499	187	32,127	1,860	28,745	36,081
22	5/28	5	3,711	498	111	23,451	1,969	19,988	27,638
23	6/04	5	1,060	225	15	18,056	3,975	11,952	27,565
24	6/11	5	349	85	23	2,071	380	1,449	2,950
25	6/18	5	208	0	0	1,613	812	645	3,654
26	6/25	6	33	0	0	306	189	105	800
27	7/02	4	4	0	0	56	49	14	181
Totals:		103	522,490	8,559	1,518	4,358,265	387,942	3,846,509	5,303,679

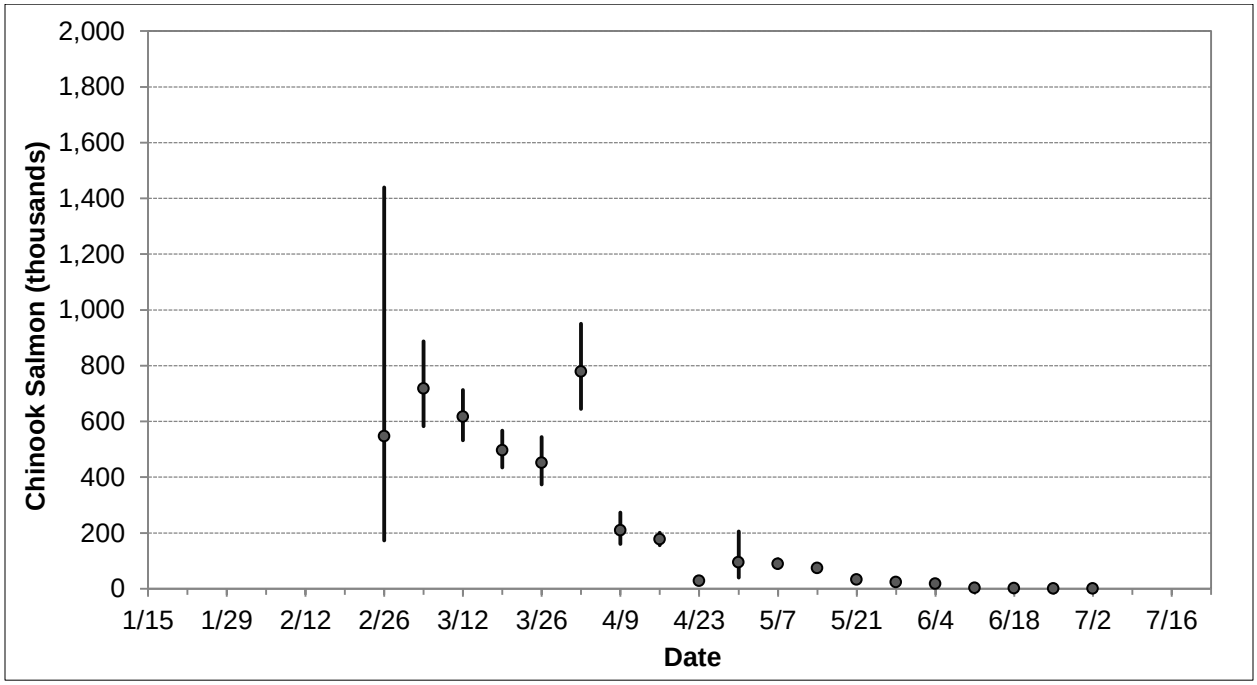

Figure 42: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2002.

Table 22: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2003.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	5	2,775	270	55	19,600	2,388	15,596	24,869
8	2/19	6	15,491	995	157	114,127	8,354	99,015	131,812
9	2/26	6	20,797	735	108	163,692	14,473	138,016	194,686
10	3/05	6	24,856	745	129	166,807	13,220	142,775	194,987
11	3/12	5	19,392	492	110	121,877	10,199	103,785	143,704
12	3/19	6	19,661	746	144	118,722	8,881	102,718	137,195
13	3/26	6	16,779	728	51	263,240	34,700	204,752	341,021
14	4/02	6	12,369	736	168	63,366	4,332	55,574	72,479
15	4/09	6	6,234	725	125	42,228	3,402	36,232	49,473
16	4/16	6	4,164	613	145	20,702	1,498	18,026	23,863
17	4/23	6	5,033	748	211	20,948	1,251	18,698	23,573
18	4/30	6	2,203	744	192	10,049	652	8,861	11,429
19	5/07	6	2,055	518	162	7,781	528	6,841	8,876
20	5/14	6	15,575	719	426	30,833	974	29,065	32,843
21	5/21	6	29,712	388	175	77,173	4,244	69,286	86,119
22	5/28	6	12,179	198	109	26,218	1,731	23,239	29,938
23	6/04	6	2,932	294	153	6,655	380	5,975	7,480
24	6/11	6	373	25	17	781	136	583	1,107
25	6/18	6	192	0	0	1,017	659	371	2,685
26	6/25	6	98	0	0	509	353	180	1,348
27	7/02	6	55	0	0	271	184	100	724
28	7/09	6	19	9	4	71	31	34	150
29	7/16	4	25	0	0	134	84	57	346
Totals:		134	212,969	10,428	2,641	1,276,801	44,148	1,196,330	1,369,680

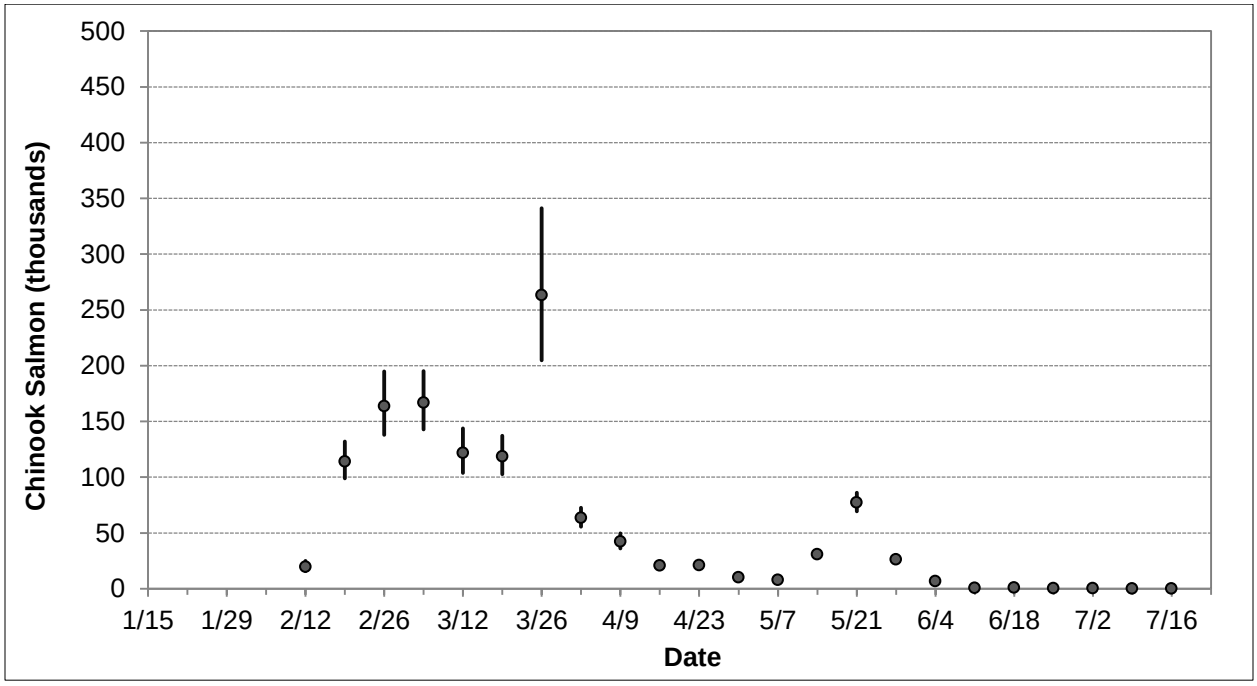

Figure 43: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2003.

Table 23: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2004.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	4	14,963	500	29	460,171	81,481	327,599	640,515
8	2/19	5	23,362	498	28	564,014	96,864	408,647	784,354
9	2/26	7	25,070	996	62	453,065	54,046	359,669	571,382
10	3/05	6	57,155	748	51	915,463	118,346	715,142	1,177,089
11	3/12	6	23,305	749	73	276,224	29,674	225,365	340,014
12	3/19	6	13,499	741	93	126,499	12,043	105,494	151,947
13	3/26	6	3,641	743	58	55,287	6,847	43,575	70,419
14	4/02	6	3,060	735	91	29,612	2,968	24,462	36,053
15	4/09	6	13,908	491	78	100,925	10,290	83,009	123,603
16	4/16	6	9,135	933	206	48,641	2,994	43,123	54,824
17	4/23	6	6,423	453	177	19,655	1,173	17,506	22,134
18	4/30	6	12,401	627	151	59,918	4,162	52,283	68,743
19	5/07	6	8,112	757	195	36,868	2,304	32,653	41,687
20	5/14	4	2,649	350	100	16,635	1,434	14,101	19,774
21	5/21	5	9,875	335	130	36,112	2,469	31,720	41,286
22	5/28	6	11,201	438	218	26,492	1,280	24,131	29,126
23	6/04	6	4,412	216	101	11,242	823	9,802	13,015
24	6/11	5	1,255	83	34	4,621	615	3,612	6,019
25	6/18	6	758	120	56	2,000	205	1,653	2,445
26	6/25	5	375	84	27	1,694	268	1,265	2,300
Totals:		113	244,559	10,597	1,958	3,245,136	188,407	2,905,878	3,653,332

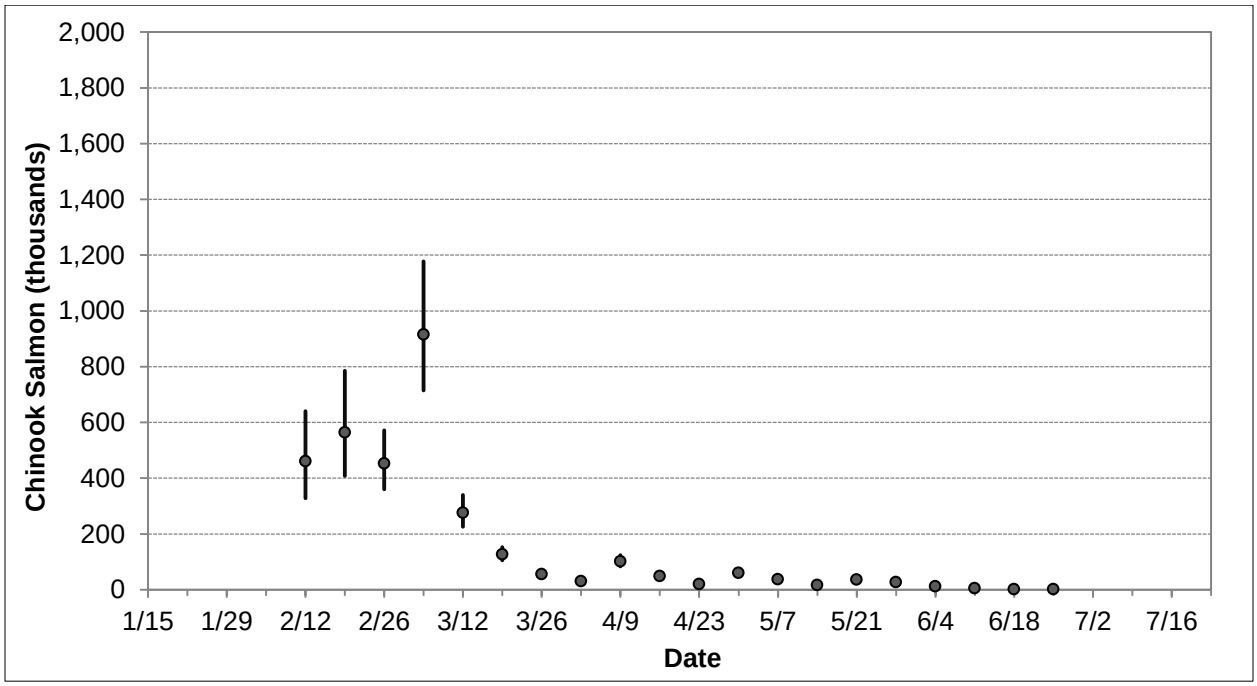

Figure 44: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2004.

Table 24: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2005.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	1,639	874	99	16,959	1,643	14,023	20,451
8	2/19	6	1,965	1043	147	16,412	1,296	14,082	19,192
9	2/26	6	4,909	1,280	235	31,162	1,853	27,790	34,962
10	3/05	6	10,647	1,019	214	58,483	3,529	52,131	65,944
11	3/12	6	2,054	1,378	123	26,720	2,314	22,594	31,593
12	3/19	6	1,253	500	24	28,539	5,227	20,126	40,498
13	3/26	6	4,450	1,032	312	17,271	844	15,712	19,013
14	4/02	7	14,369	1,721	792	31,233	828	29,699	32,944
15	4/09	6	11,208	1,226	594	27,012	816	25,440	28,660
16	4/16	6	6,203	1,201	653	13,345	369	12,635	14,076
17	4/23	5	2,833	945	400	9,429	383	8,720	10,221
18	4/30	5	2,541	937	373	8,980	384	8,262	9,771
19	5/07	3	658	281	59	7,508	872	6,048	9,455
20	5/14	6	3,298	472	160	11,348	746	9,987	12,920
21	5/21	6	8,305	474	161	27,953	1,771	24,788	31,647
22	5/28	6	1,845	537	272	4,272	197	3,913	4,670
23	6/04	6	1,273	486	315	2,308	85	2,153	2,486
24	6/11	6	1,205	472	303	2,202	83	2,051	2,371
25	6/18	6	693	377	270	1,139	43	1,063	1,227
26	6/25	6	335	220	87	987	90	831	1,184
27	7/02	6	62	39	16	202	45	134	309
28	7/09	6	18	15	2	124	62	51	280
Totals:		128	81,763	16,529	5,611	343,587	7,859	328,991	360,075

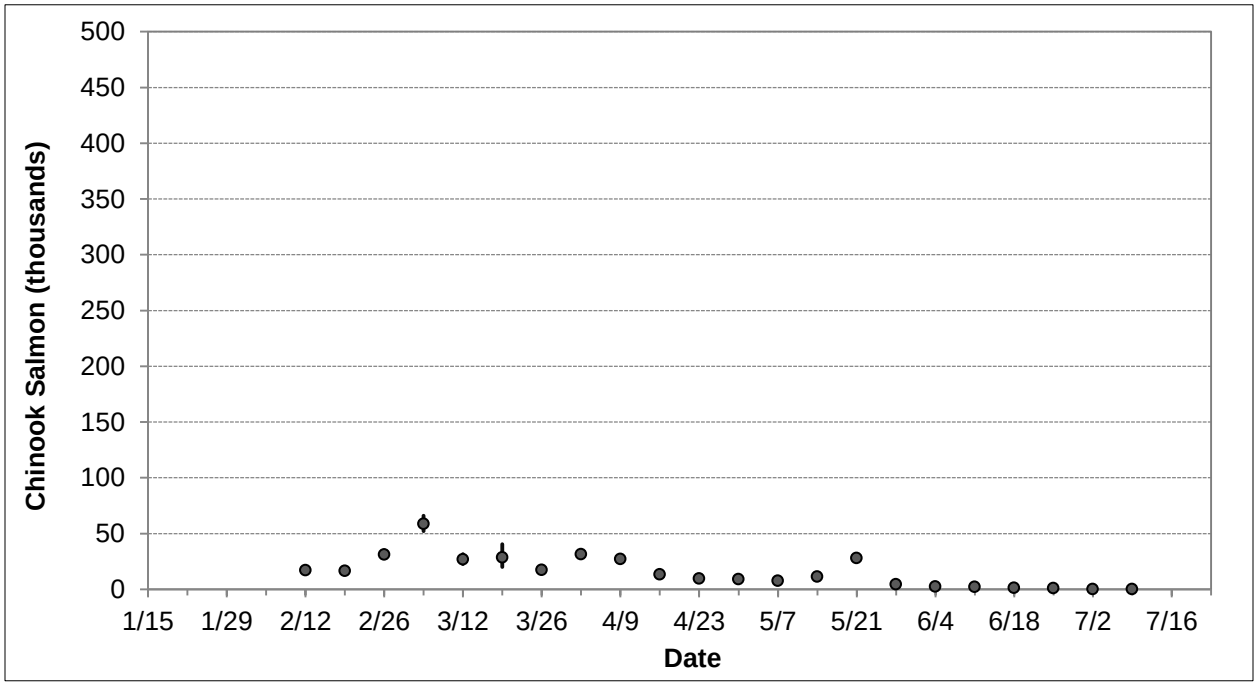

Figure 45: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2005.

Table 25: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2006.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	97	41	2	1,778	936	739	4,189
8	2/19	6	202	125	9	2,859	823	1,681	4,824
9	2/26	5	113	100	7	1,987	621	1,118	3,486
10	3/05	6	38	22	0	755	514	203	2,147
11	3/12	6	122	86	3	2,333	877	1,170	4,569
12	3/19	6	165	132	12	1,953	499	1,214	3,122
13	3/26	6	73	38	5	819	320	404	1,623
14	4/02	7	175	117	21	1,069	218	722	1,574
15	4/09	7	207	188	35	1,189	197	863	1,634
16	4/16	7	607	414	71	3,575	402	2,877	4,471
17	4/23	7	421	214	47	2,028	277	1,556	2,626
18	4/30	7	998	658	154	4,320	328	3,738	5,009
19	5/07	6	1,851	860	162	11,476	836	9,962	13,285
20	5/14	7	6,520	589	117	32,554	2,709	27,707	38,325
21	5/21	7	239	71	10	2,226	708	1,233	3,977
22	5/28	7	1,969	488	180	5,433	333	4,829	6,141
23	6/04	6	1,914	302	93	7,400	632	6,295	8,753
24	6/11	6	758	169	56	2,805	327	2,253	3,524
25	6/18	6	575	159	39	2,797	396	2,137	3,722
26	6/25	6	61	51	1	1,058	507	462	2,358
27	7/02	6	5	3	1	73	56	18	217
28	7/09	6	2	1	0	19	22	3	74
Totals:		139	17,112	4,828	1,025	90,506	4,002	83,229	99,101

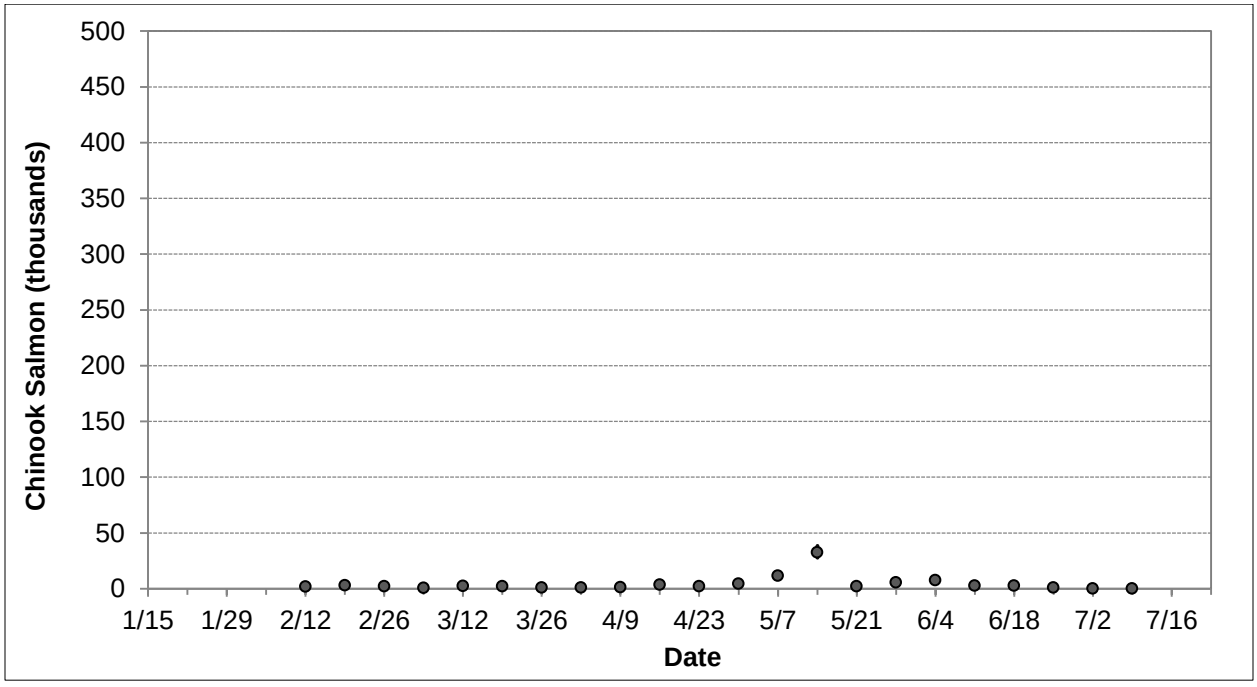

Figure 46: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2006. A high water event early in the year likely reduced fry populations.

Table 26: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2007.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	7,360	1,249	256	41,942	2,352	37,549	46,734
8	2/19	6	6,243	821	126	47,663	3,928	40,486	56,080
9	2/26	5	1,502	795	56	30,244	3,899	23,449	38,919
10	3/05	6	4,289	1,170	86	66,198	6,751	54,489	80,841
11	3/12	6	9,373	1,494	149	106,909	8,143	92,555	123,898
12	3/19	6	11,944	1,623	269	83,454	4,629	74,838	92,989
13	3/26	6	7,053	1,882	376	41,328	1,946	37,794	45,400
14	4/02	6	6,647	1,640	416	30,712	1,334	28,191	33,474
15	4/09	6	11,667	1,510	304	67,185	3,463	60,862	74,327
16	4/16	6	7,514	1,450	522	24,498	891	22,794	26,289
17	4/23	6	7,111	1,334	499	22,305	816	20,758	23,950
18	4/30	6	11,083	914	350	33,943	1,444	31,224	36,958
19	5/07	6	10,090	905	368	29,046	1,165	26,920	31,425
20	5/14	6	14,436	719	321	37,710	1,587	34,813	41,053
21	5/21	6	11,852	681	449	21,072	593	19,986	22,297
22	5/28	6	6,307	678	420	11,933	365	11,252	12,681
23	6/04	6	810	390	231	1,626	79	1,484	1,790
24	6/11	6	581	293	168	1,201	67	1,078	1,340
25	6/18	6	152	131	59	396	44	322	491
Totals:		113	136,014	19,679	5,425	699,366	14,262	672,461	728,331

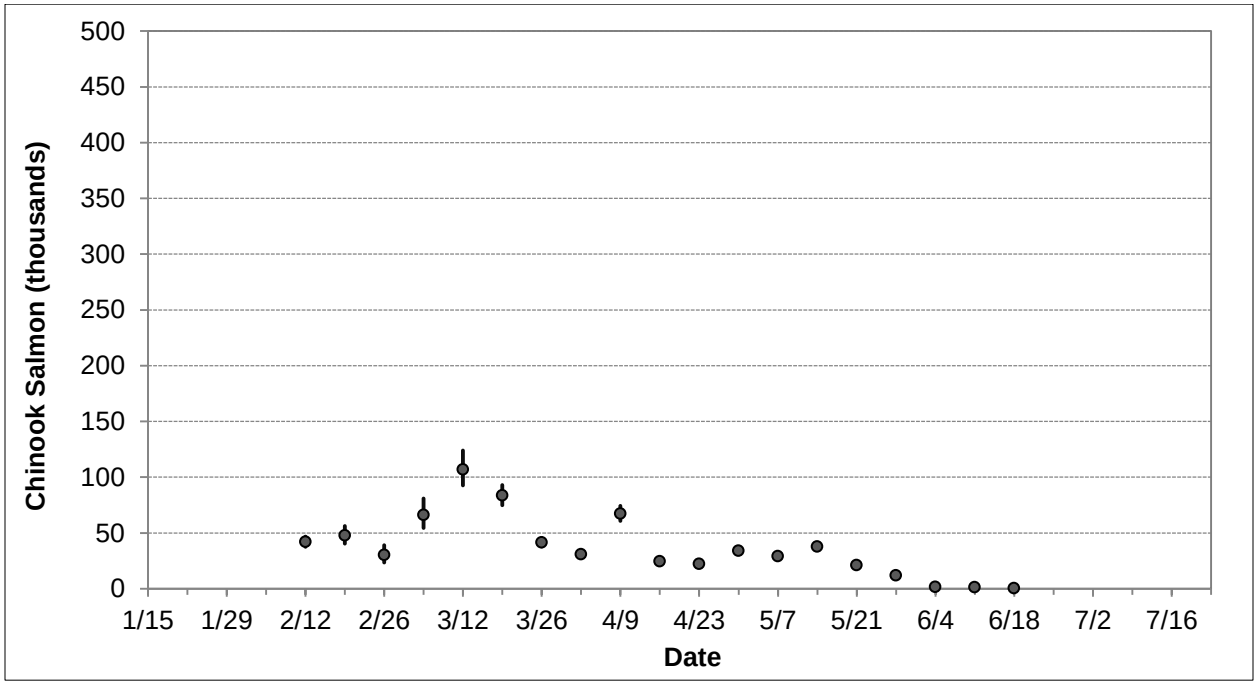

Figure 47: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2007.

Table 27: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2008.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
6	2/05	1	159	0	0	4,391	4,278	726	15,785
7	2/12	6	546	560	21	16,341	3,447	10,908	24,398
8	2/19	6	1,685	479	40	24,895	3,832	18,442	33,365
9	2/26	7	6,743	2,273	201	86,947	5,807	76,151	98,923
10	3/05	6	6,570	1,928	116	126,157	11,195	106,223	150,088
11	3/12	6	4,935	2,353	60	212,716	26,224	167,441	270,777
12	3/19	6	4,782	1,110	41	144,561	21,110	109,946	192,866
13	3/26	6	6,933	2,350	245	78,012	4,804	69,043	87,727
14	4/02	6	10,071	2,383	490	57,406	2,315	53,090	62,192
15	4/09	6	5,719	2,504	496	33,947	1,425	31,325	36,837
16	4/16	6	9,823	2,296	488	54,094	2,226	49,895	58,644
17	4/23	6	7,866	2,018	331	56,003	2,870	50,656	62,017
18	4/30	6	11,806	2,042	600	46,953	1,631	43,825	50,253
19	5/07	6	15,316	1,468	670	39,246	1,146	37,123	41,576
20	5/14	6	19,496	1045	340	69,644	3,133	63,877	76,025
21	5/21	6	3,956	897	457	9,137	314	8,547	9,772
22	5/28	1	136	95	10	10,385	2,867	6,074	17,252
23	6/04	6	1,684	328	81	8,159	804	6,749	9,896
24	6/11	6	3573	504	232	9,121	452	8,296	10,061
25	6/18	6	1,256	451	175	3,839	242	3,391	4,347
26	6/25	6	660	287	33	6,437	1,029	4,752	8,722
Totals:		117	123,715	27,371	5,127	1,098,392	38,108	1,030,014	1,178,420

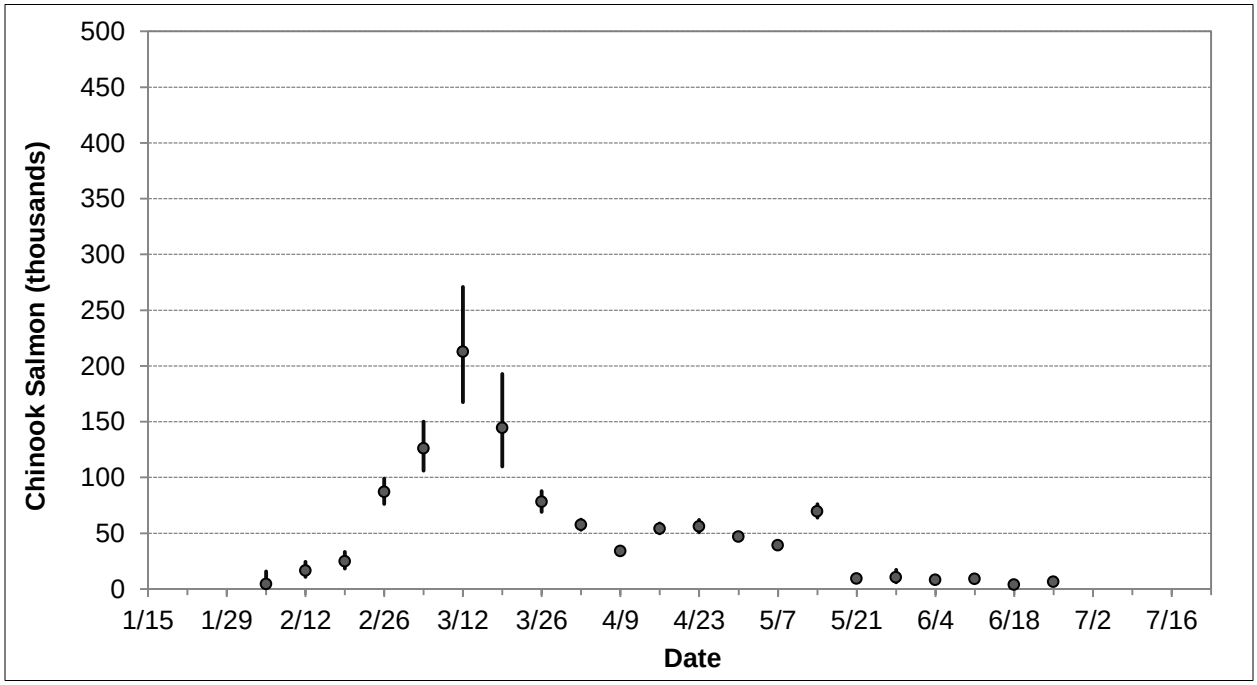

Figure 48: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2008.

Table 28: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2009.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	379	193	16	5,794	1,473	3,587	9,353
8	2/19	6	1,396	726	19	54,466	11,357	36,633	80,090
9	2/26	6	2,719	2,033	70	88,696	10,441	70,647	111,501
10	3/05	6	524	353	23	9,895	2,160	6,605	15,056
11	3/12	6	11,794	2,183	441	68,429	2,973	62,950	74,481
12	3/19	6	26,953	2,494	595	132,101	4,714	123,208	141,635
13	3/26	6	13,876	2,369	453	84,827	3,632	78,159	92,359
14	4/02	6	12,772	2,397	643	55,629	1,944	51,958	59,627
15	4/09	6	25,212	2,003	1013	58,262	1,303	55,741	60,835
16	4/16	5	22,944	1,995	846	75,776	1,990	71,942	79,725
17	4/23	6	27,106	1,799	603	94,389	3,159	88,333	100,813
18	4/30	6	4,182	1,209	484	12,245	448	11,424	13,182
19	5/07	6	3,896	731	319	10,482	458	9,633	11,419
20	5/14	6	16,948	1458	416	69,142	2,880	63,684	74,974
21	5/21	6	4,913	1397	437	18,339	753	16,936	19,902
22	5/28	6	1,603	917	215	7,977	497	7,065	9,013
23	6/04	6	994	661	282	2,743	139	2,488	3,034
24	6/11	6	899	745	358	2,199	97	2,016	2,400
25	6/18	6	762	380	170	2,009	124	1,787	2,272
26	6/25	6	230	266	77	935	102	758	1,153
Totals:		119	180,102	26,309	7,480	854,333	18,064	822,624	892,385

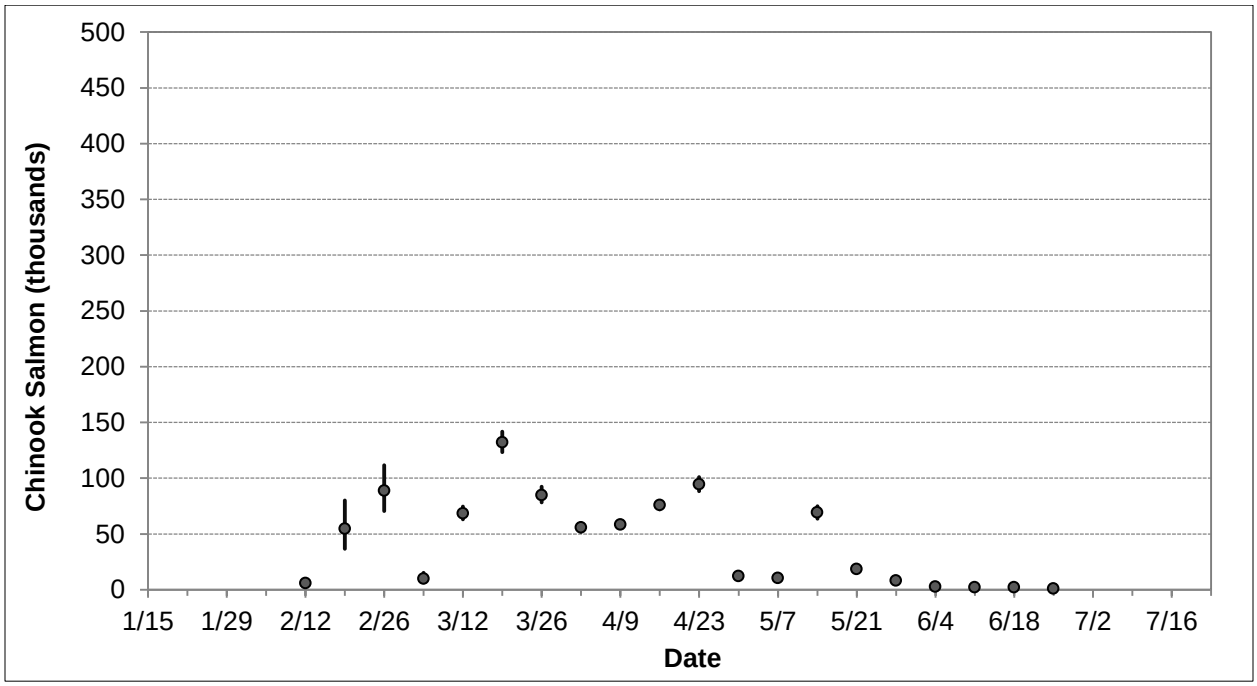

Figure 49: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2009.

Table 29: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2010.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
7	2/12	6	81,185	1,696	311	518,644	26,675	468,810	572,461
8	2/19	6	46,363	2,495	307	439,660	23,415	396,388	488,079
9	2/26	6	47,641	2,491	501	277,109	11,202	256,131	299,310
10	3/05	6	57,392	2,491	458	363,011	15,425	333,595	393,938
11	3/12	6	43,503	2,497	299	417,499	22,504	375,663	463,168
12	3/19	6	24,321	2,499	262	267,124	15,688	237,944	299,400
13	3/26	6	4,873	1,653	152	63,296	4,924	54,547	73,623
14	4/02	5	6,841	2,192	255	82,680	4,900	73,735	93,055
15	4/09	6	9,455	1,912	415	51,234	2,304	46,834	55,950
16	4/16	6	16,266	1,698	541	59,809	2,125	55,759	64,121
17	4/23	4	7,776	1,047	190	74,532	4,783	65,674	84,640
18	4/30	5	10,570	796	226	52,236	2,938	46,845	58,168
19	5/07	6	15,901	998	415	44,759	1,701	41,636	48,324
20	5/14	6	19,580	999	536	42,702	1,258	40,364	45,345
21	5/21	6	12,674	998	555	26,676	772	25,234	28,253
22	5/28	6	8,220	500	301	16,088	611	14,969	17,377
23	6/04	5	4,223	391	166	14,056	829	12,533	15,769
24	6/11	6	8,119	494	266	17,602	733	16,265	19,147
25	6/18	6	1,235	302	109	4,096	329	3,514	4,786
26	6/25	6	598	278	76	2,614	270	2,151	3,223
Totals:		115	426,736	28,427	6,341	2,835,426	49,975	2,741,879	2,938,851

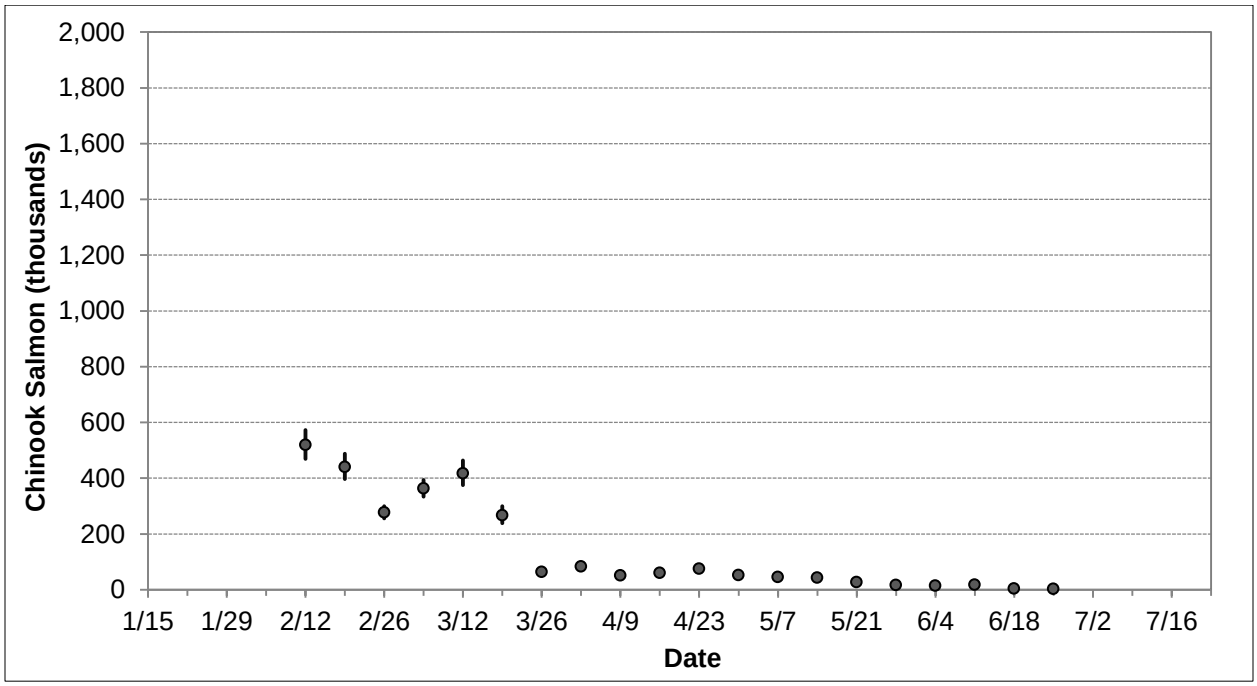

Figure 50: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2010.

Table 30: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2011.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
6	2/05	6	3,985	1,996	277	33,501	1,929	29,989	37,496
7	2/12	6	3,848	2,198	321	30,830	1,623	27,823	34,177
8	2/19	6	6,334	2,115	325	48,104	2,479	43,438	53,340
9	2/26	6	9,831	2,498	445	64,415	2,797	59,065	70,085
10	3/05	4	5,930	997	139	74,120	5,845	63,802	86,530
11	3/12	3	1,303	922	89	32,017	3,283	26,213	39,167
12	3/19	5	1,092	675	35	30,036	4,946	21,975	41,230
13	3/26	6	10,083	2,020	190	123,109	8,555	107,334	140,743
14	4/02	6	10,170	2,515	282	104,908	5,904	94,160	117,119
15	4/09	6	8,283	2,499	390	61,858	2,904	56,432	67,965
16	4/16	6	3,732	2,396	252	41,315	2,528	36,742	46,616
17	4/23	6	5,116	2,159	260	49,418	2,904	44,065	55,471
18	4/30	6	7,403	2,500	840	25,771	759	24,345	27,329
19	5/07	6	4,479	1,250	537	14,538	533	13,526	15,627
20	5/14	6	4,465	1,234	432	12,171	462	11,316	13,135
21	5/21	6	2,763	1,200	383	10,184	454	9,339	11,097
22	5/28	6	1,682	600	99	11,986	1,109	10,035	14,398
23	6/04	6	3,097	500	102	17,652	1,527	14,963	20,870
24	6/11	6	4,748	500	173	16,043	981	14,302	18,141
25	6/18	6	2,755	250	109	7,496	553	6,508	8,680
26	6/25	6	319	264	123	834	64	719	968
Totals:		120	101,418	31,288	5,803	810,307	15,054	781,145	840,928

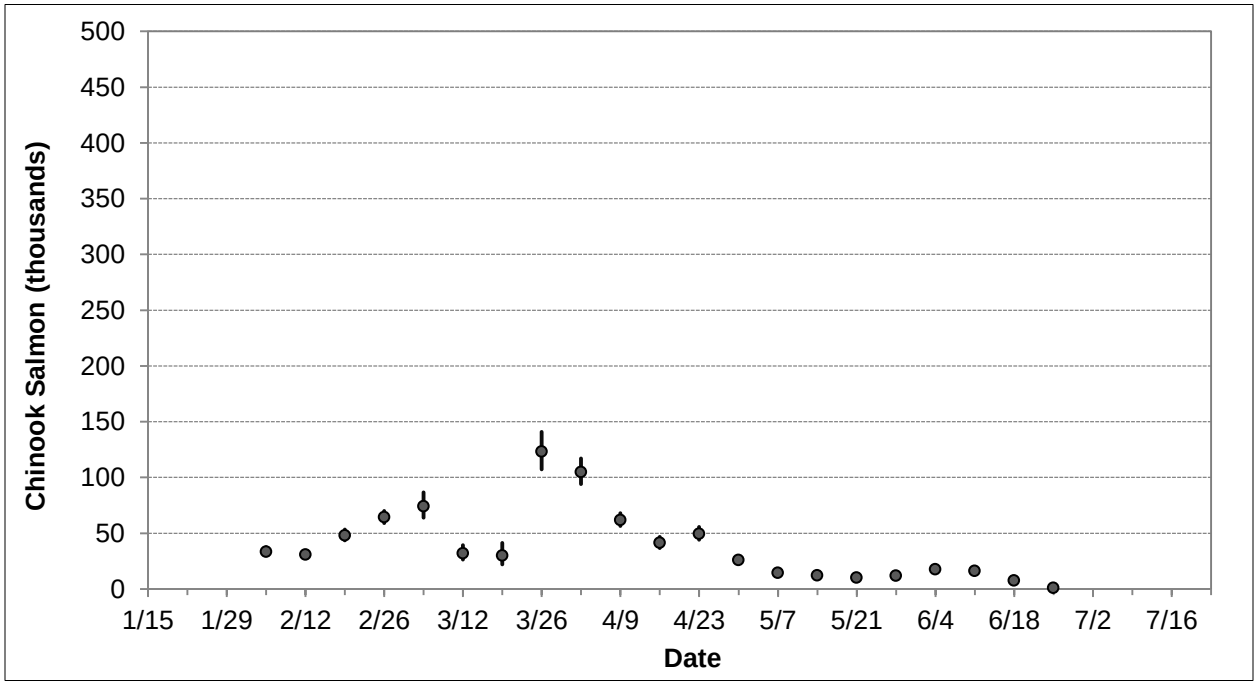

Figure 51: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2011.

Table 31: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2012.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
5	1/29	5	26	8	0	413	324	134	1,225
6	2/05	5	21	5	0	685	535	192	2,070
7	2/12	6	212	126	15	2,160	506	1,390	3,348
8	2/19	6	1,571	1,116	165	12,172	893	10,509	14,105
9	2/26	6	726	455	37	11,206	1,663	8,435	14,827
10	3/05	6	1,198	885	81	14,908	1,571	12,102	18,297
11	3/12	5	764	585	74	8,717	966	7,037	10,856
12	3/19	6	1,123	797	78	13,420	1,446	10,938	16,563
13	3/26	4	648	503	43	13,435	1,915	10,205	17,651
14	4/02	6	1,883	1,504	190	17,486	1,231	15,244	20,043
15	4/09	6	2,962	2,311	402	19,907	955	18,090	21,858
16	4/16	6	4,528	2,482	410	31,841	1,468	29,116	34,838
17	4/23	6	2,559	1,977	334	17,668	929	15,961	19,611
18	4/30	6	1,819	1,491	569	5,611	212	5,208	6,048
19	5/07	6	1,842	953	396	5,223	217	4,821	5,661
20	5/14	6	5,687	500	222	14,946	751	13,559	16,491
21	5/21	6	1,462	500	248	3,490	168	3,178	3,832
22	5/28	6	1,857	400	177	4,914	291	4,388	5,529
23	6/04	6	1,275	453	247	2,757	127	2,521	3,021
24	6/11	6	665	392	216	1,423	74	1,290	1,576
25	6/18	6	183	137	60	500	53	407	615
26	6/25	6	94	86	51	194	22	158	241
Totals:		127	33,105	17,666	4,015	203,074	4,600	194,451	212,398

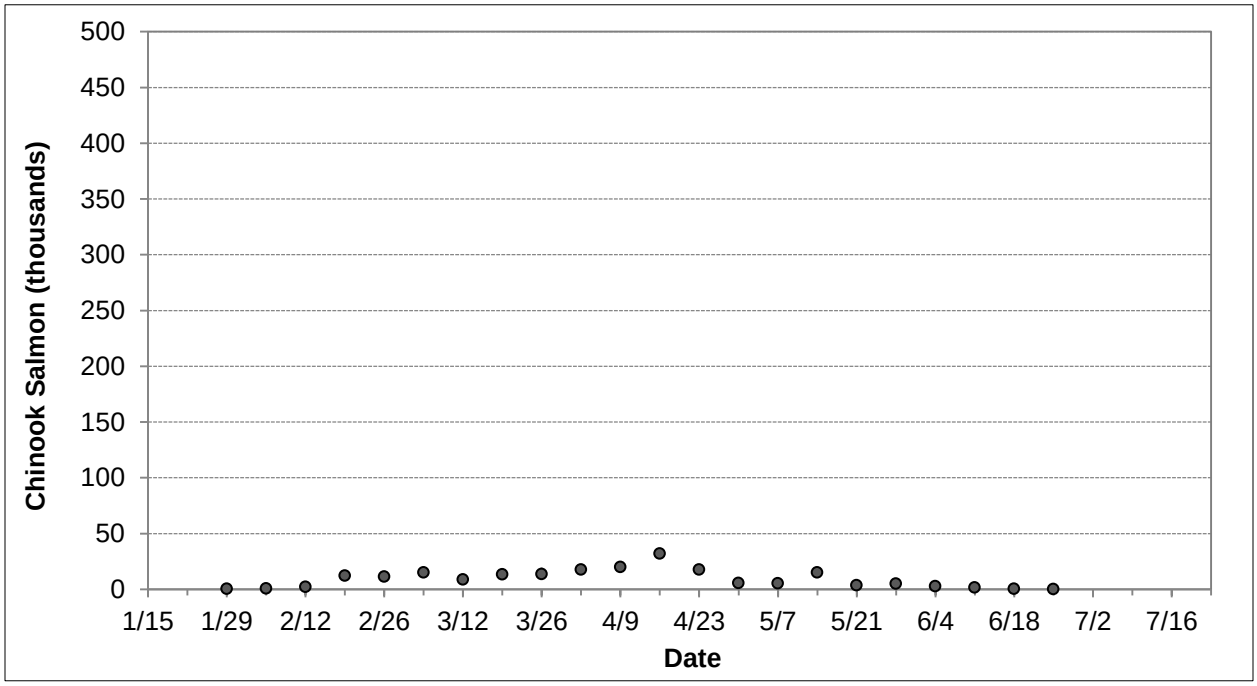

Figure 52: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2012.

Table 32: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2013.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
5	1/29	6	5,647	198	32	42,607	6,961	31,321	58,371
6	2/05	6	26,863	497	111	142,488	11,903	121,261	167,723
7	2/12	6	73,633	1,696	335	435,357	20,959	396,264	478,509
8	2/19	6	20,052	2,495	264	222,938	12,937	199,178	249,874
9	2/26	6	33,120	2,493	176	546,272	39,662	474,173	627,478
10	3/05	6	62,024	2,492	134	1,321,977	110,177	1,122,914	1,548,342
11	3/12	6	99,322	2,498	187	1,527,917	106,599	1,333,472	1,752,945
12	3/19	6	22,683	2,487	210	315,523	21,073	276,907	359,078
13	3/26	6	26,279	2,467	141	531,488	43,466	453,274	623,414
14	4/02	6	19,621	1,687	155	248,805	19,240	214,102	289,471
15	4/09	6	57,130	1,482	416	238,971	9,886	220,700	259,429
16	4/16	6	18,872	1,473	473	68,744	2,649	63,849	74,195
17	4/23	6	20,811	1,399	726	47,015	1,227	44,710	49,502
18	4/30	6	47,075	730	411	99,668	3,264	93,603	106,350
19	5/07	4	17,788	418	127	99,821	7,318	86,576	115,283
20	5/14	6	13,505	497	317	24,962	878	23,339	26,774
21	5/21	6	6,580	493	216	17,913	940	16,196	19,885
22	5/28	6	5,066	429	93	26,609	2,393	22,318	31,732
23	6/04	6	3,858	500	147	15,197	1,045	13,303	17,441
24	6/11	6	118	143	28	757	146	519	1,092
25	6/18	6	95	66	25	307	54	223	431
Totals:		124	580,142	26,640	4,724	5,975,335	172,661	5,648,421	6,326,485

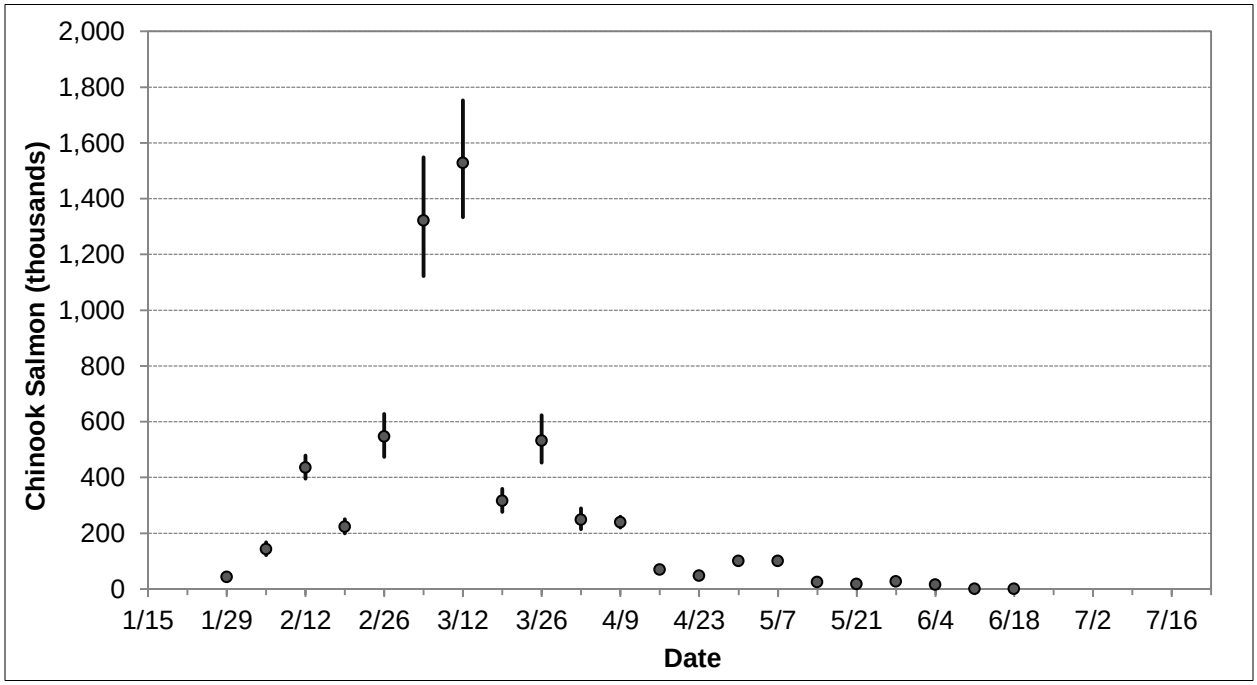

Figure 53: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2013.

Table 33: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2014.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
5	1/29	6	110	11	1	829	436	345	1,911
6	2/05	6	194	92	14	1,649	414	1,031	2,618
7	2/12	6	1,185	427	58	10,389	1,305	8,157	13,262
8	2/19	6	25,300	2,443	470	153,259	6,484	141,224	166,550
9	2/26	6	163,632	2,498	556	856,832	32,127	796,674	921,758
10	3/05	6	159,514	2,494	396	1,170,348	52,809	1,069,787	1,278,442
11	3/12	6	80,504	2,488	439	533,083	23,035	489,685	579,921
12	3/19	6	196,389	2,451	452	1,242,682	52,960	1,142,571	1,352,037
13	3/26	6	48,555	2,481	419	336,025	14,785	308,293	366,711
14	4/02	6	55,903	1,683	392	280,773	12,295	257,790	306,016
15	4/09	6	31,351	1,298	404	118,427	4,953	109,211	128,856
16	4/16	6	53,321	899	416	135,681	4,925	126,418	145,927
17	4/23	6	83,482	498	248	197,768	9,019	181,417	216,605
18	4/30	6	27,201	499	163	98,338	6,318	86,885	111,966
19	5/07	6	29,178	499	234	73,471	3,559	67,079	80,902
20	5/14	5	31,501	489	85	249,787	24,403	207,093	301,753
21	5/21	5	11,734	344	72	78,666	8,148	64,533	96,346
22	5/28	6	5,695	250	78	22,280	2,122	18,555	26,758
23	6/04	5	1,982	247	57	11,834	1,398	9,431	15,005
24	6/11	6	653	250	13	12,786	3,170	8,065	20,395
25	6/18	5	1,082	200	10	21,970	5,672	13,646	35,748
26	6/25	5	114	135	23	986	203	668	1,454
Totals:		127	1,008,580	22,676	5,000	5,607,862	92,618	5,427,636	5,792,626

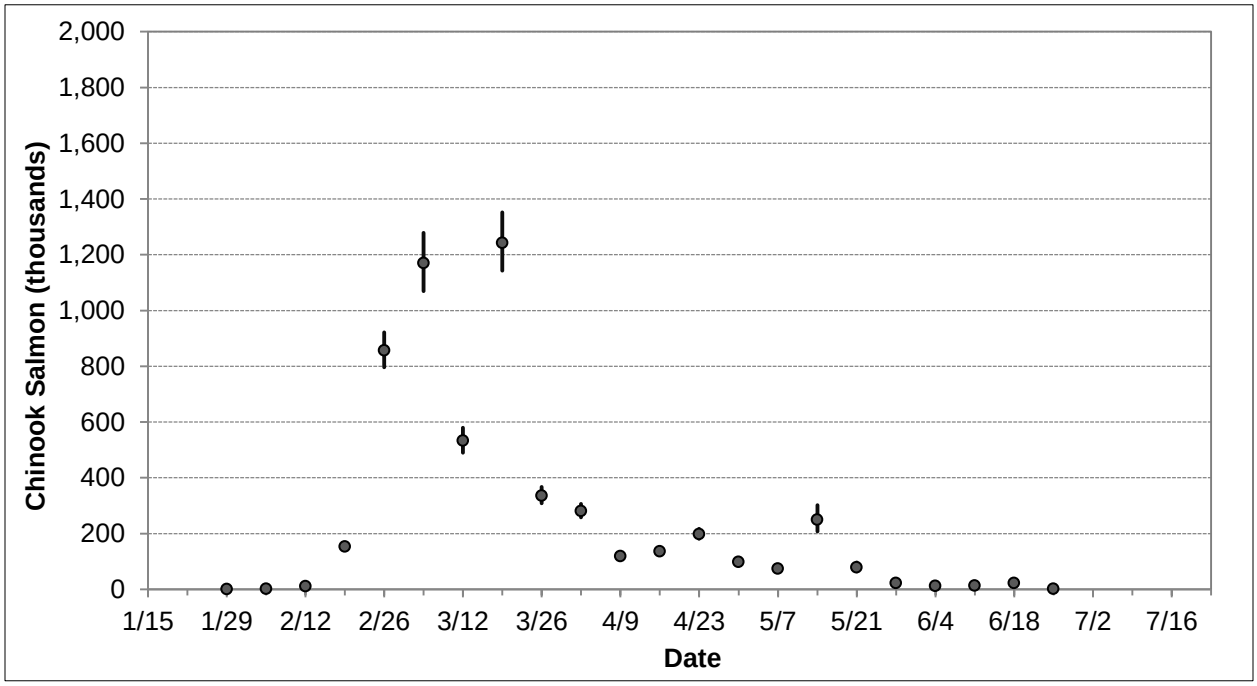

Figure 54: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2014.

Table 34: Shasta River weekly trap catch summary for age 0+ Chinook salmon, 2015.

Julian Week	Start Date	Days Fished	Total Captured	Marks	Recaps	Mean Estimate	Standard Deviation	2.5% Interval	97.5% Interval
5	1/29	6	51,682	1,999	324	372,890	18,685	338,166	411,316
6	2/05	1	10,924	500	42	579,121	316,319	198,036	1,357,099
7	2/12	6	43,022	1,998	130	760,536	63,032	648,723	893,911
8	2/19	6	90,612	2,489	348	752,020	37,803	681,932	831,228
9	2/26	6	54,779	2,494	458	348,258	14,705	320,352	378,144
10	3/05	6	37,977	2,499	426	259,378	11,389	238,053	282,858
11	3/12	6	25,281	2,498	530	139,135	5,454	129,026	150,062
12	3/19	6	9,846	2,298	540	49,205	1,881	45,680	53,010
13	3/26	6	10,539	1,999	615	40,170	1,374	37,575	42,986
14	4/02	6	32,508	1,998	961	78,903	1,845	75,391	82,672
15	4/09	6	30,758	1,997	956	75,008	1,787	71,637	78,593
16	4/16	6	28,934	1,499	655	77,270	2,276	73,068	81,869
17	4/23	6	34,847	1,498	671	90,790	2,592	85,847	96,040
18	4/30	6	18,979	1,498	798	41,683	1,036	39,705	43,782
19	5/07	6	24,768	1,200	819	42,447	860	40,835	44,209
20	5/14	6	13,562	999	696	22,801	483	21,896	23,787
21	5/21	6	16,222	500	197	47,794	2,611	43,072	53,327
22	5/28	6	10,671	500	270	23,127	986	21,326	25,196
23	6/04	6	3,906	442	220	9,187	450	8,369	10,102
24	6/11	6	798	249	68	3,383	360	2,774	4,164
25	6/18	6	13	0	0	386	293	68	1,134
26	6/25	5	9	0	0	54	81	15	214
Totals:		126	550,637	31,154	9,724	3,813,547	330,523	3,381,848	4,598,032

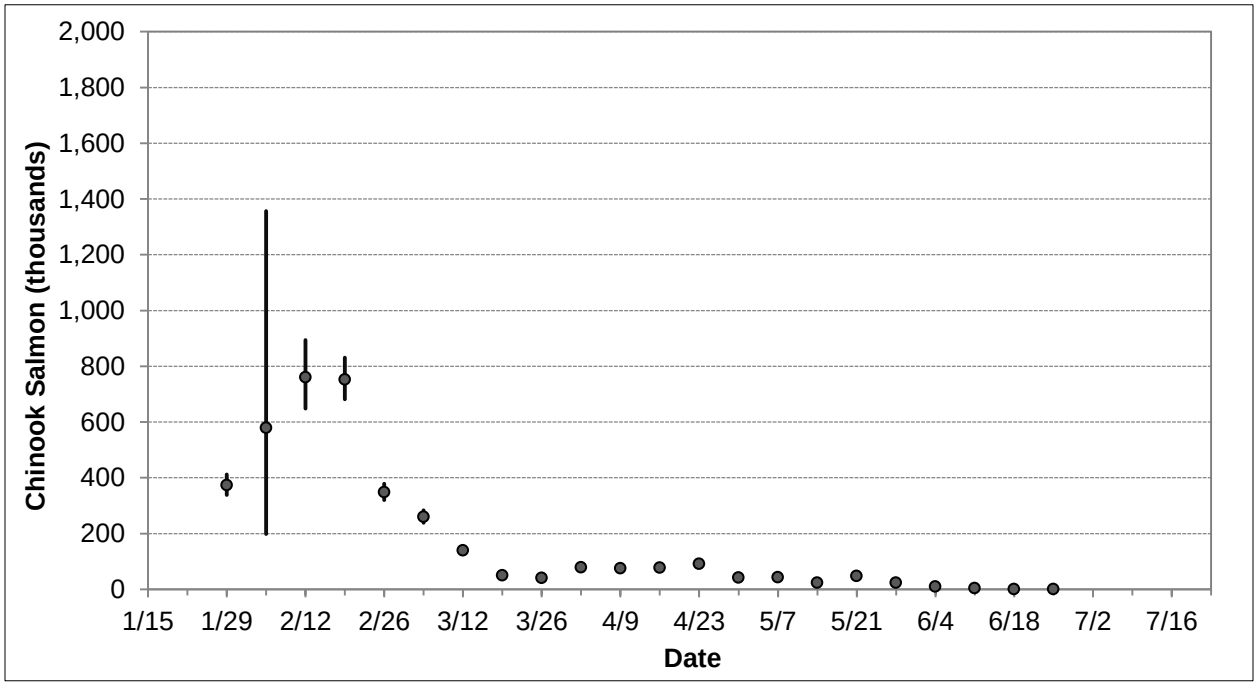

Figure 55: Shasta River weekly mean estimates with 2.5% and 97.5% credible intervals for age 0+ Chinook salmon, 2015.

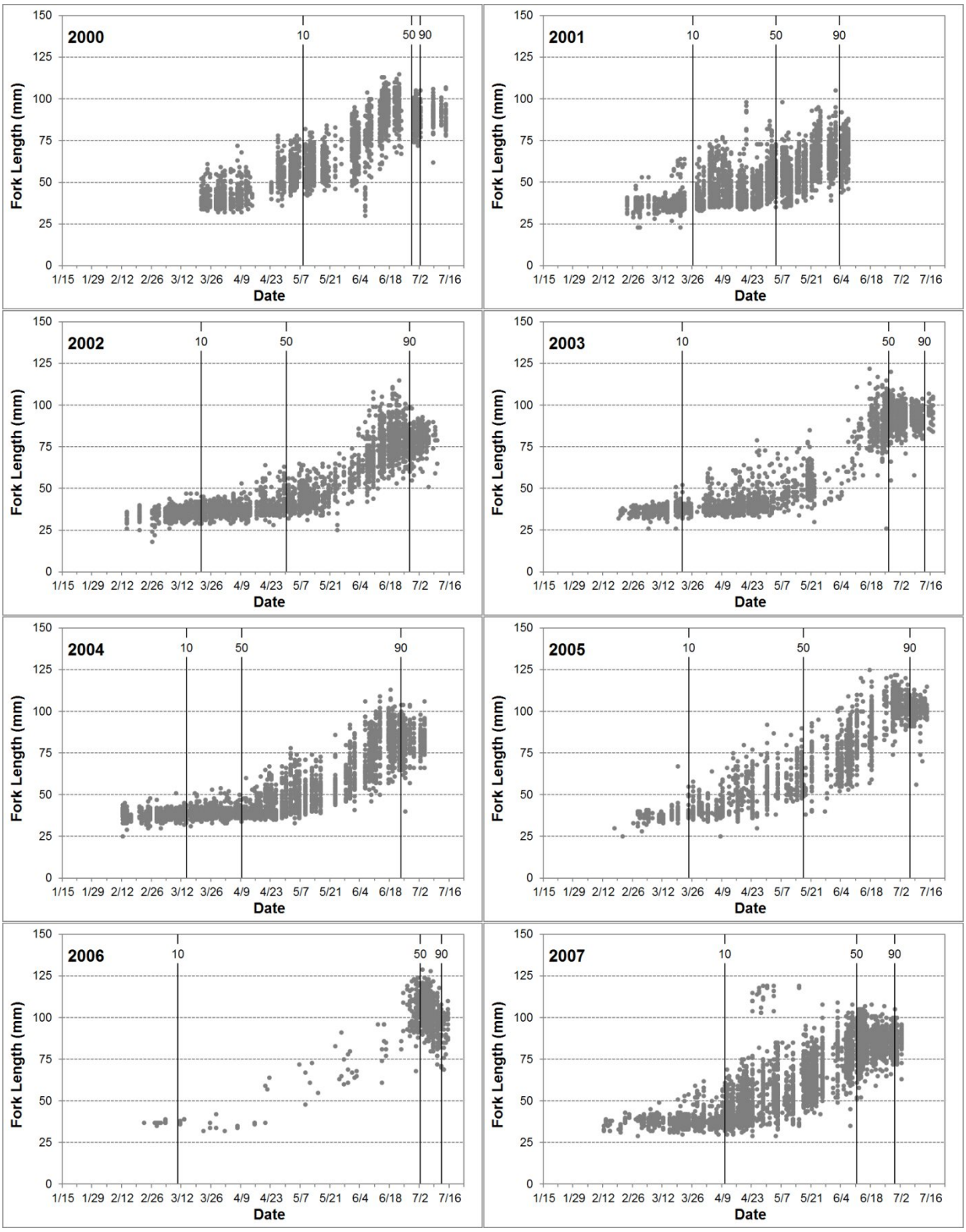

Figure 56: Juvenile Chinook daily fork lengths for years 2000 to 2007 on the Scott River. Vertical lines indicate approximate dates for the 10th, 50th and 90th percentiles of the estimated total catch.

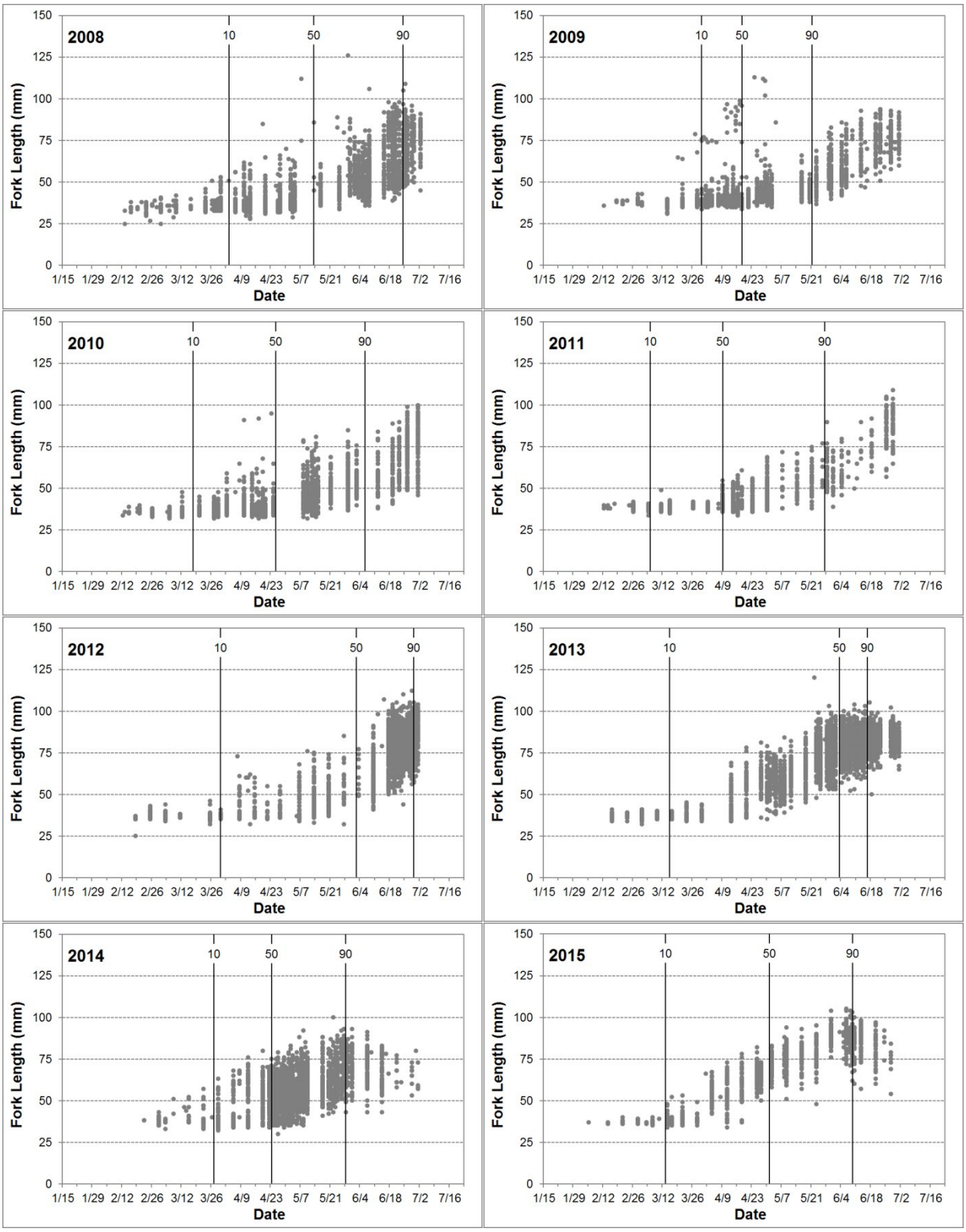

Figure 57: Juvenile Chinook daily fork lengths for years 2008 to 2015 on the Scott River. Vertical lines indicate approximate dates for the 10th, 50th and 90th percentiles of the estimated total catch.

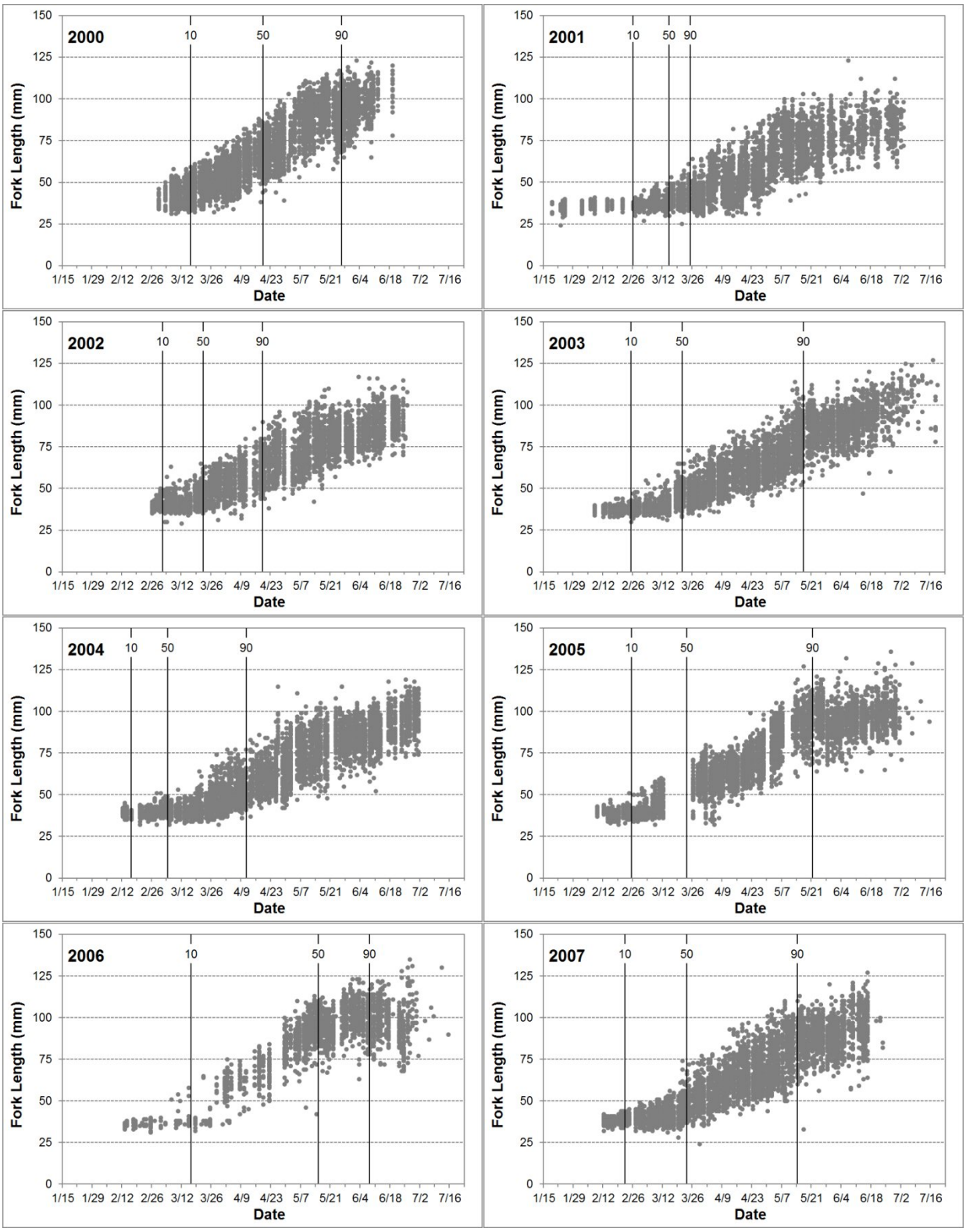

Figure 58: Juvenile Chinook daily fork lengths for years 2000 to 2007 on the Shasta River. Vertical lines indicate approximate dates for the 10th, 50th and 90th percentiles of the estimated total catch.

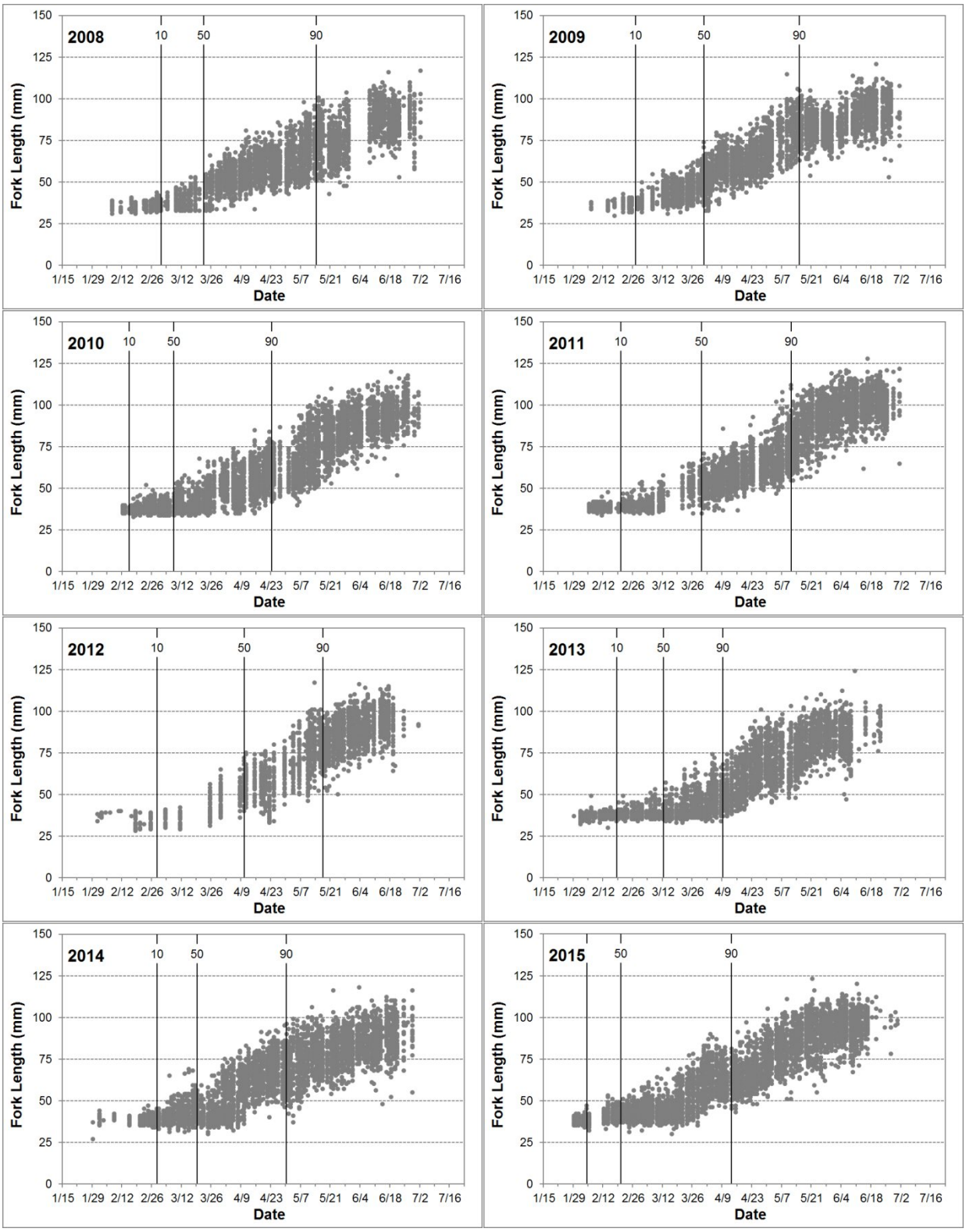

Figure 59: Juvenile Chinook daily fork lengths for years 2008 to 2015 on the Shasta River. Vertical lines indicate approximate dates for the 10th, 50th and 90th percentiles of the estimated total catch.

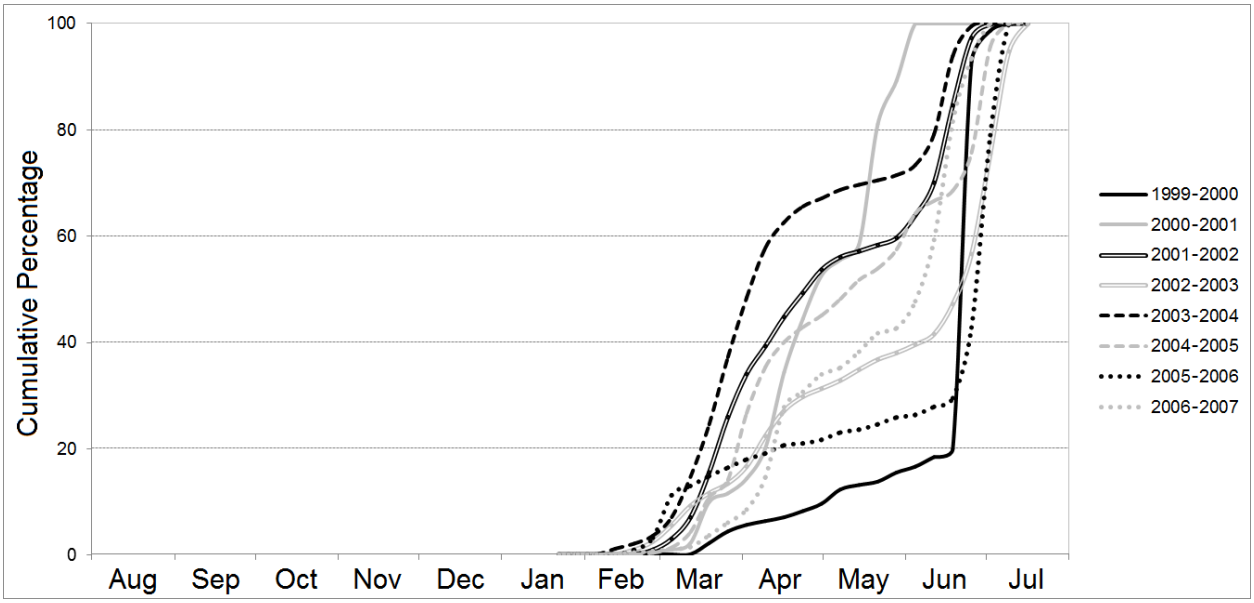

Figure 60: Cumulative proportions of estimated juvenile Chinook salmon catches in the Scott River for brood years 1999-2006 and emergence years 2000-2007. No adult weir count data is available for brood years 1999-2006.

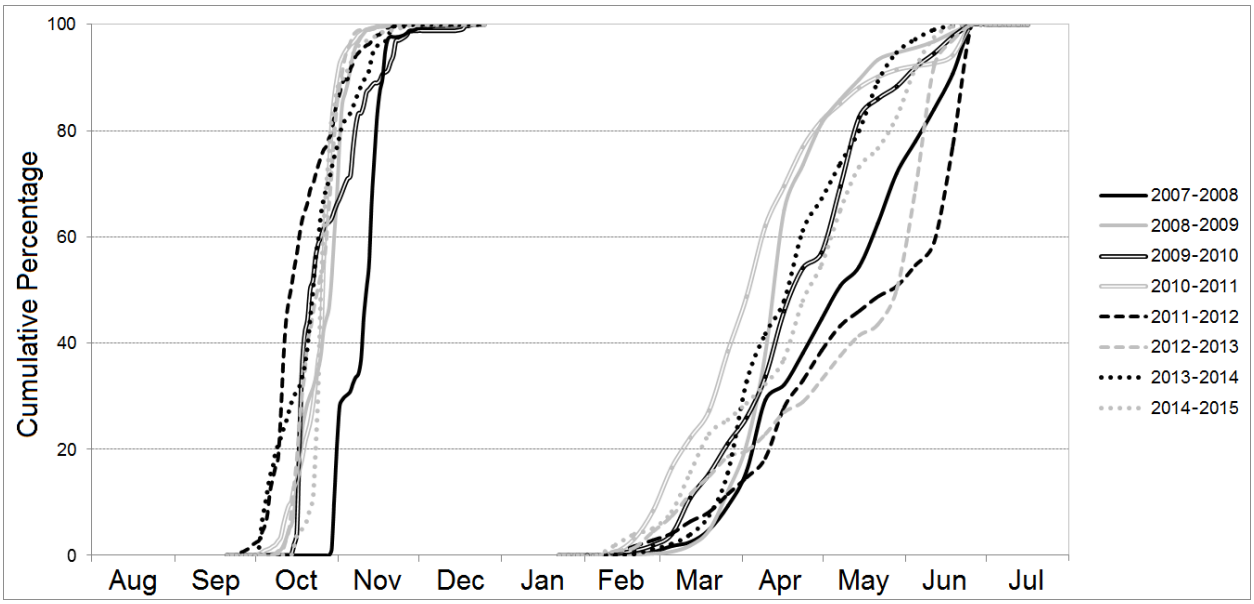

Figure 61: Cumulative proportions of spawning adult (left) and estimated juvenile (right) Chinook salmon catches in the Scott River for brood years 2007-2014 and emergence years 2008-2015. Adult weir count data courtesy of CDFW, Klamath River Project.

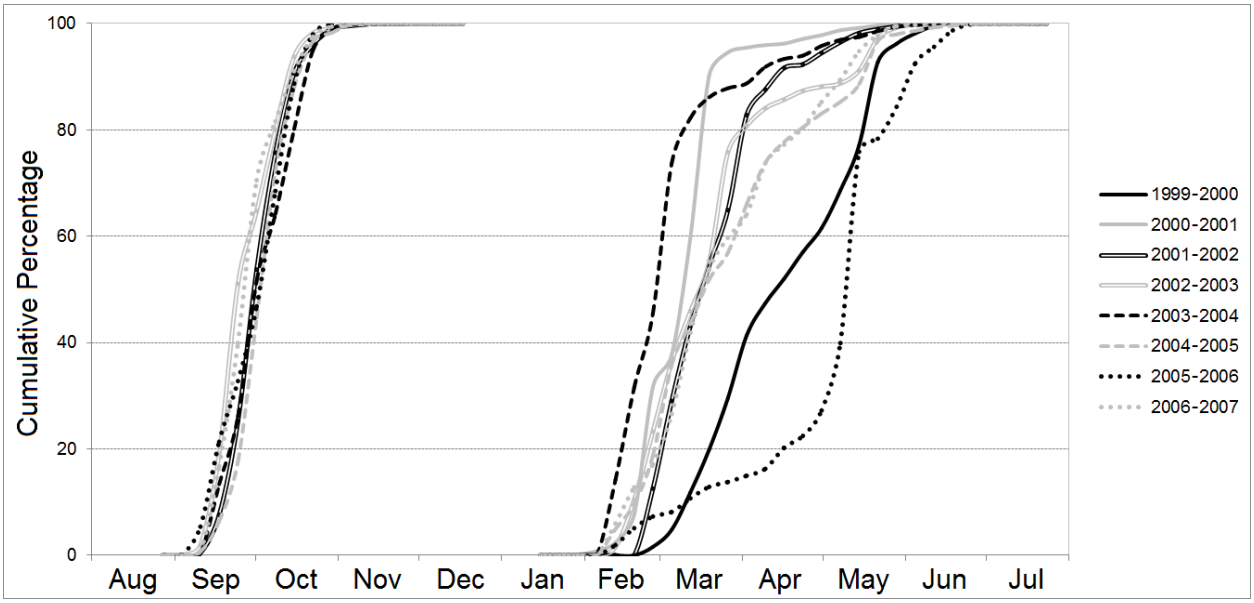

Figure 62: Cumulative proportions of spawning adult (left) and estimated juvenile (right) Chinook salmon catches in the Shasta River for brood years 1999-2006 and emergence years 2000-2007. Adult weir count data courtesy of CDFW, Klamath River Project.

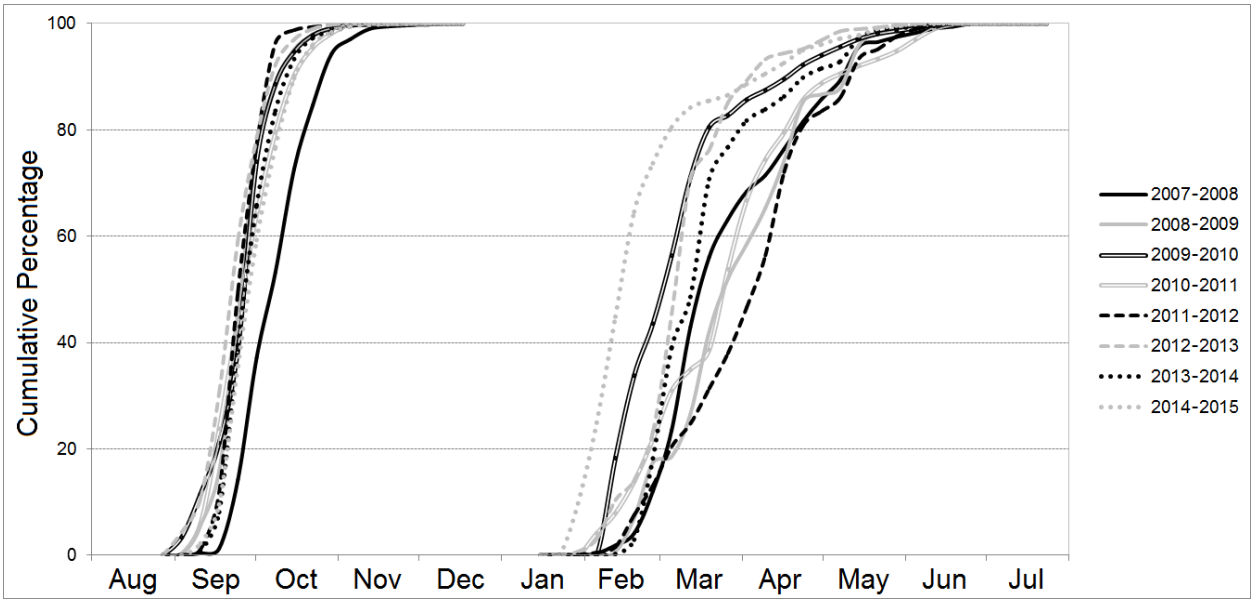

Figure 63: Cumulative proportions of spawning adult (left) and estimated juvenile (right) Chinook salmon catches in the Shasta River for brood years 2007-2014 and emergence years 2008-2015. Adult weir count data courtesy of CDFW, Klamath River Project.