

Size of 1954 Fall Salmon Runs in the American,
Feather, Yuba, Cosumnes and Mokelumne Rivers

American River

A total of 2,579 dead salmon were recovered in the American River in 1954. This is the largest number of carcasses counted on this stream in any one season since 1946 and represents an increase of 602 over the number counted in 1953. No marked salmon were found in the American, but two fish which had been tagged at the Fremont Weir were recovered.

Salmon moving up the American River had no difficulty swimming through the openings in Nimbus Dam and there appeared to be a normal distribution of fish over the spawning beds. As usual, the bulk of the run spawned in the riffles upstream from the dam.

High water following heavy rains disrupted the river running schedule to some extent and as a result slightly more effort was expended on dead salmon recovery between Folsom and Nimbus than was devoted to the Nimbus to Sacramento section. It is estimated that the 2,067 carcasses recovered above Nimbus represented 10 percent of the salmon spawning in that area, and the 512 fish examined between the dam and Sacramento represented 7 percent of the salmon spawning in the lower river. On this basis the total number of fall salmon in the American River is calculated to be 29,000. In breaking down this total by stream section it is estimated that 21,000 salmon spawned upstream from Nimbus Dam and 8,000 used the riffles downstream.

While the total salmon population in the American River was above average in 1954, the effective spawning population was below normal. This was due to the presence of an unusually large number of jacks in the run and a scarcity of four year old fish. Slightly over half of the dead salmon recovered were males under 26 inches total length.

The question has been raised as to the number of eggs a hatchery at Nimbus would have handled had the dam blocked the salmon run in 1954. The records show that 384 dead female salmon were found upstream from Nimbus. Since it has been estimated that 10 percent of the salmon population in this section of the river was recovered during the creamer survey, approximately 3,840 female salmon would have been diverted into a hatchery in 1954. This figure multiplied by the average number of eggs per female (6,500) gives a total of 25,000,000 eggs.

It is of interest that a pair of spawned out chum salmon were found near a redd in a side channel about one-half mile upstream from the Fair Oaks highway bridge. The male was 720 mm. in length and the female measured 700 mm. The nest was located in an area which would not have attracted king salmon. The water current in the channel was very sluggish and the gravel was considerably finer than that utilized by kings. The appearance of the chums was so distinctive that members of the crew were certain that none of these fish had been mistaken for kings during creamer surveys in the past.

Feather River

Spring Run

The forks of the Feather River were patrolled in early October to obtain as much information as possible on the size and distribution of the spring salmon run. No spring fish were found in the South Fork or in the West Branch of the North Fork. Possibly a few spring salmon spawned in the swift, turbulent water of the North Fork. However, no spawning fish were seen either in the Big Bend section between the intake dam and the Los Plumas powerhouse, or between the powerhouse and the confluence of the North and Middle Forks. One dead salmon was recovered between Cresta Dam and the intake dam for Los Plumas, but the fish had died before spawning. Four live spring salmon were observed in this area earlier in October by R. S. Croker.

Spring run salmon were found in numbers in the rugged Middle Fork canyon. Although there are no extensive gravel riffles in this gorge every suitable patch of gravel was occupied by spawning fish. Recovery of dead salmon from the deep pools in this stretch of the river was almost impossible and the crew directed most of its efforts toward observing the numbers of live fish on the beds. From the live fish counts the spring run in the Middle Fork was estimated to number 3,000 salmon. One live tagged salmon was observed, but never recovered.

Fall Run

The 1954 fall salmon run in the Feather River was the best in recent years. The bulk of the run was concentrated in the area between Sutter Butte Dam and Gridley. All the riffles in this section were crowded with fish. The creamer crew recovered 3,082 dead salmon between the dam and a point about 2 miles downstream from the Gridley highway bridge.

The limited spawning area between Oroville and Sutter Butte Dam received moderate use. A total of 331 carcasses were examined in this section of river. It is estimated that the creamer count between Oroville and the downstream limits of the spawning grounds represented approximately 5 percent of the total number of salmon spawning in this area of the river.

Only a few fall salmon ascended the forks of the Feather in 1954. No salmon were seen in the South Fork, although several pairs were spawning on a riffle at the confluence of the South and Middle Forks. A small number of fish spawned in the North Fork near the Los Plumas powerhouse, but none were observed elsewhere in this stream. Because of low flows only a few salmon entered the West Branch of the North Fork and these spawned within a half mile of the mouth of the stream. The population of fall salmon in the Middle Fork was well below the 1953 run in this area.

The following salmon population estimates are submitted for the various sections of the Feather River:

Main Stem, Sutter Butte Dam to Live Oak	61,000
Main Stem, Oroville to Sutter Butte Dam	6,000
Main Stem above Oroville	no estimate
North Fork	no estimate
West Branch North Fork	200
South Fork	none
Middle Fork	500

Twelve salmon bearing Fremont Weir tags were recovered in the Feather River. In addition, two salmon were found from which tags had been cut out. Missing adipose fins indicated that these two fish had also been tagged at the Fremont Weir.

An estimated 200 to 300 salmon entered the overflow channel of the Great Western Canal during a period of high water in early November. These fish perished when the river dropped and there was no longer a spill into the wasteway. Steps will be taken by Region II personnel to prevent fish from entering this channel in the future.

Yuba River

The low summer flow in the Yuba River was increased slightly by early fall rains and salmon arrived below Daguerre Point Dam on November 8. Neither of the fish ladders at the dam was operating since the Hallwood Canal continued to divert most of the flow in the river to supply the needs of a number of gun clubs.

By digging a trench through a gravel bar the creamer crew was able to direct a small flow down the fish ladder on the north side of the dam. Salmon started moving up the ladder at once. Although many of the fish had difficulty negotiating the jumps because of the small flow, 314 salmon were counted through the ladder in a two hour period. Three steelhead were also observed.

Most of the salmon in the Yuba spawned upstream from Daguerre Point in 1954. Although the survey crew was able to spend only a limited amount of time on this river, 222 dead salmon were recovered. This figure was estimated to be approximately 5 percent of the total run. A population estimate of 5,000 salmon is submitted for the Yuba River.

Cosumnes River

The run-off from fall rains opened up the Cosumnes River channel earlier than usual and salmon had arrived in numbers in the Michigan Bar area by November 11, 1954. The salmon run was the best in recent years and appeared to be more than twice the size of the 1953 run.

A total of 536 dead salmon were recovered on the Cosumnes. It is estimated that this number represents approximately 10 percent of the run and the total population is thus calculated to be 5,000 salmon.

Mokelumne River

The annual census of Mokelumne River salmon was conducted again in 1954 at Woodbridge Dam. Counting was carried on at the old ladder from the time the first salmon arrived on October 12, until November 16, when the boards were removed from the dam. From then until the station was closed on December 16, salmon were tallied as they moved through the ladder on the south bank of the river. The total count for 1954 was 3,941 salmon--an increase of 1,502 over the 1953 run.

As usual, salmon experienced great difficulty in negotiating the old ladder. The first jump into the ladder gets higher year by year as the stream bed below the dam is eroded away. Once in the ladder, the short pools and high jumps stymie many fish, particularly the large females. On the best day of the season when 611 salmon were counted, over 100 of these fish had to be removed from the lower pools in the ladder and carried over the dam in a dip net.

A total of 34 steelhead were counted at Woodbridge during the 1954 season. Most of these fish averaged 14 or 15 inches in length and it is possible that they were returns from a plant of fingerling steelhead made in the Mokelumne in 1953. Two of the steelhead counted were only 8 inches long. It is believed that these fish were from a release made in the spring of 1954. There is a possibility that additional small steelhead made their way up the old fish ladder where the water was so turbulent that it would have been difficult for the counter to see a fish of this size.

Bear River

A salmon run of unknown proportions entered the Bear River in 1954. Apparently the run-off from early fall rains opened up the channel soon enough to attract Feather River fish. Wardens Hooker and Waggoner both reported that they had observed a large number of salmon spawning in the Bear.

On December 8, an attempt was made to check on the size of the Bear River salmon run. High muddy water on this occasion prevented any observations on the numbers of live fish in the river. However, three dead spawned out salmon were recovered several miles upstream from the 99E highway bridge at Wheatland. One of these fish had been tagged at the Fremont Weir.

George H. Warner
Assistant Fisheries Manager

1/12/55