

It is estimated that more salmon ran into the Hakataramea this season, and the fish were on an average considerably larger than those that have come up during the previous spawning season. One spent male fish which met with an accident at the hatchery measured 34 in. in length and 25 in. girth, and weighed about 30 lb. This fish was sent to Mr. Jennings, taxidermist for the Dunedin Museum, to be mounted. Another mutilated specimen found dead at the mouth of the Haldane Creek measured from the root \* of the tail-fin to the snout 36 in. Considering that these salmon lose fully one-third in weight during spawning, the specimens I have mentioned must have been splendid fish when they entered the Waitaki from the sea.

While at Hakataramea reports came to hand from the Mackenzie Country that a large number of fish had been seen spawning in streams flowing into the Te Kapo River since the end of April, and the description given indicating that they were salmon, I considered it important that inquiry should be made into the matter. I left Hakataramea for Te Kapo on the morning of the 1st instant. Going by way of Fairlie I hired a buggy there, and drove on to Burke's Pass that night. Leaving Burke's Pass early next morning, I reached Gray's Hills Station by midday. The manager, Mr. Grant, kindly supplied me with a riding-horse, and sent his head shepherd to guide me to the streams where fish had been seen. We first went on to Haldane Creek, ten miles from Gray's Hills. Commencing where this stream joins the Waitaki, we followed it up for about two miles to where it branches out into four streams. Along these two miles I counted twenty-five large spawning-beds, some of them being nearly a chain in length. We saw several salmon in the pools, found seven dead fish, and caught one male fish in a very emaciated condition. This fish I took to the Christchurch Museum, in order to have its identification confirmed by Mr. Waite.

From the appearance of the spawning-beds in Haldane Creek, and the information obtained from the shepherds on Haldane Station, it would seem that from the time the first salmon appeared—about the end of April—to the date of my visit several hundred large fish must have spawned in this creek.

In Gray's Hills Creek the conditions were found to be similar to Haldane Creek. A number of live and dead fish and numerous spawning-beds were seen from where the creek enters the Te Kapo River to where it comes out of the swamp—a distance of about two miles and a half.

The shepherds at Gray's Hills and Haldane Stations stated that there were a lot of similar fish in the Mary Burn across the Te Kapo River, and two sheep-musterers from the Mistake Run, at the head of Lake Te Kapo, said that during May the rivers at the head of the lake were full of large fish in poor condition. This information clearly points to these fish being salmon; but, as the Te Kapo Bridge was closed for repairs, I was unable to go up and verify this interesting information.

Asked as to how many seasons they had seen these fish, the shepherds stated that they first noticed them in Haldane and Gray's Hills Creeks and the Mary Burn in April and May two years ago. At the same season last year they again made their appearance in the same streams, and a large number were also seen in the Ohau River above where it joins the Waitaki. It was observed that the fish were spawning, and a number were seen dead about the end of May each season. This season it was stated more fish were seen in all these streams than any of the previous years.

To summarise the evidence we have with regard to the run of spawning salmon in the Waitaki River and its tributaries during the last two seasons: Last season (1907) a large number of fish were seen in the Hakataramea River, and a number were caught, and 30,000 salmon-eggs were taken, hatched out, and the progeny are now being reared at the salmon station. Numbers of salmon were seen spawning in the side streams of the Waitaki from Station Peak to some distance above Kurow, and also in the Ahuriri River higher up, and now we have clear evidence that they were at the same time in the Ohau, Haldane, and Gray's Hills Creeks, and Mary Burn.

This season more and larger fish have run into the Hakataramea, and over 50,000 salmon-eggs have been taken to date, and salmon have been seen spawning from Station Peak in the side streams of the Waitaki River and tributary streams, right up to the Ohau, and Te Kapo Lake.

From the observations I have made of the spawning habits of the quinnat salmon in his native home on the Pacific Coast of America, I am convinced that most of the fish which run up the Waitaki from the sea would spawn in side streams of the main river, and in the larger tributaries, such as the Ahuriri, Ohau, and Te Kapo, and that only a comparatively small number would run into the smaller streams such as the Hakataramea, Haldane Creek, and others.

The identification of quinnat salmon from brown trout or Atlantic salmon is at any season not such a very difficult matter, as the principal points of difference are easily recognised, while in the spawning season they are so changed in appearance that any one who has ever seen them could not well mistake them for either of the other species mentioned.

Both the quinnat and sockeye salmon are in such an emaciated condition by the time they have finished spawning that large numbers die, and, as the fish reported as being in the Ohau and rivers at the head of Te Kapo Lake were described as being in this condition, it would pretty clearly indicate that they were quinnat salmon.

Quinnat salmon are much more difficult to capture for spawning than brown trout, and the wire-netting pound nets which are so successfully used in catching spawning brown trout have not been nearly so successful with the salmon. Next spawning season, with your approval, I purpose working some of the streams in the Mackenzie Country which are close together, and in which a lot of salmon spawned this season, and also adopt the American system of capturing spawning salmon by means of a "rack" placed across the Hakataramea River near the mouth of the Gorge. With the same run of salmon as came up this season, there is every possibility of collecting over a quarter of a million eggs next season.

I attach herewith Mr. Waite's report on the specimen sent him for identification.

I have, &c.,  
L. F. AYSON.

The Secretary, Marine Department, Wellington.

\* The tail-fin was worn off in spawning.