

MUSSELS.

Although in various places considerable quantities of mussels are gathered for private consumption, and Maoris more especially regularly make use of this nutritious sea food where it is obtainable, the only venue of any considerable commercial fishery is the Hauraki Gulf, where a few boats are regularly engaged in dredging deep-water mussels. These are of large size and fine flavour, and the best are to be obtained in the vicinity of Coromandel Harbour and along that coast as far as Tapu. The retail shops of Auckland are supplied largely from these beds; also a small cannery at Coromandel. From time to time mussels have been preserved by drying and smoking, and marketed in this form, but this trade has never been very considerable. The most recent process of mussel-utilization, and one which seems certain to be developed considerably in future, is the production of a shell-fish soup-powder by the desiccation of these bivalves. The commodity, possessing the two important advantages of being imperishable and concentrated, is in demand as an export. If the people of this Dominion sought the kinds of food which are requisite for healthy body-building there would be a demand for all the shell-fish supplies that can be obtained—either fresh or in a preserved state. These shell-fish contain adequate amounts of the element iodine, in which New Zealand foodstuffs generally are very deficient. This deficiency has been correlated with the prevalence of goitre and is now authoritatively regarded as the prime cause of that disease.

In view of the increasing utilization of these shell-fish, it is very desirable to extend our knowledge of their natural distribution and to take steps to keep in close touch with their industrial exploitation, which can best be achieved by enacting that such exploitation should be done under license.

QUINNAT SALMON.

Hatchery operations at Hakataramea, for the first time in charge of Mr. J. S. Main, were commenced early in March, 1930, the rack in the Hakataramea River being completed on the 8th of that month. It was kept in the river till the 10th July. As mentioned in last year's report in describing the 1930 fishing season, the river conditions were quite exceptional, and the salmon run was apparently considerably affected thereby. The numbers of fish which came up from the sea were abnormally few, and the majority of them kept to the main stream, which remained at a very low level and, with the exception of light temporary freshes in the middle of April and again in May, continued to fall throughout the spawning season.

The Hakataramea River was unusually low and foul with blanket-weed. Its confluence with the north branch of the Waitaki did not provide a very good "lead" for the running salmon, but the outflow channel was improved early in April by banking the shingle.

The first salmon was taken on the 22nd April and the last on the 25th June. The catches were as follow :—

				Males.	Females.	Total.
April	..	..	..	34	9	43
May	..	..	..	237	110	347
June	..	..	..	18	10	28
Totals	..	..	..	289	129	418

Several fish, some of which were half-spent females, were taken by netting the river below the rack. A remarkable feature of the run was the exceptional number of small males. The number of quinnat ova laid down in the hatchery was 577,000, of which 500,000 were sent to the Maori Creek Hatchery for the liberation of fry in the Wairau River and its tributaries; 20,000 were sent to New South Wales, and from the remainder 50,000 fry were hatched out and liberated in the Hakataramea River and about 7,000 fry were kept in a pond to the yearling stage.

The poor yield from the hatchery operations was matched, so far as our observations went, by the scarcity of spawners in the tributaries usually visited by quinnat salmon. The Ahuriri River and the Otamatakau (Otamatata) Rivers, two important spawning tributaries of the Waitaki, were visited by Mr. Main on the 24th April. In the former very few fish, mostly males, were observed, and no spawners were seen in the latter, although a few were seen lying off its mouth in the main river. Deep Creek, a tributary of the Rangitata in the Mesopotamia country, which is usually thronged with quinnat salmon in winter, was visited by Mr. Main on the 1st May. He reported that the run was the poorest he had ever seen there in an experience of many years—"half-dozens where there used to be hundreds" on the redds. On the other hand, it seems highly probable that, at least in the Waitaki, a larger proportion than usual spawned in the main river. It is certain, however, that the runs of quinnat from the sea were, on the whole, well below the average abundance of recent years, and the propagation of the 1930 year group may be expected to be proportionately deficient. It may be mentioned that a "big run" of quinnat was reported on good authority to have entered the Rangitata in the second week in June, by which time the spawning is practically over in normal years.

This year's quinnat-fishing season presented a complete contrast to that of 1930. Last year after the summer floods subsided in February the rivers remained low. Although the fishing-conditions were for the most part favourable, anglers were generally less successful than usual, with the exception of those who fished the lower Waitaki. This year the four best quinnat rivers have been almost continuously high and discoloured owing to the effects of the prevalent north-western winds in the mountains. There was good fishing in April in the Rakaia and Rangitata Rivers while the water was in good order,