

there has been a noteworthy improvement in the abundance of toheroa (locally called *tohemunga*) on the beaches in the neighbourhood of Levin, Otaki, and Waikanae, on the west coast of the Wellington Province. These beds have previously been regarded as not containing sufficient stock to warrant being leased or otherwise made available for commercial exploitation. However, if the improvement continues, it seems reasonable to entertain hopes of their becoming a commercial asset as well as a source of food for the natives of the district. It is desirable that these and other toheroa-beds should be made the object of a systematic survey and more thorough investigation made of their biology, and especially of the conditions which determine their distribution and abundance. Over all the North Island beds, so far as can be ascertained, the present stock of full-grown toheroa is well up to average abundance, except where exploitation has been excessive. The Southland beds, on the other hand, appear to have deteriorated. On the Ninety-mile Beach a considerable mortality of toheroas from some unknown natural cause took place in February, 1932. The beds were very heavily stocked. The scavenging operations of sea-birds and the effects of high spring tides quickly disposed of the danger of pollution to the beach which it was feared might be a serious matter, and it is understood that no very considerable harm has been done to the beds, although the losses were reported to be very heavy.

To obviate the depletion which of recent years has been increasing in the more accessible toheroa-beds, owing both to commercial exploitation and unrestricted picking by motor-car parties, the regulations foreshadowed in my report of last year were gazetted on the 10th September, 1931. By these regulations a size limit of 3 in. has been prescribed, and a "bag" limit of fifty toheroas per person per day: the use of spades and shovels has been prohibited, and the months of October and November (during which most of the spawning takes place) have been declared a close season. The taking of toheroa for sale is forbidden except under license, and is confined to certain prescribed areas with a limit of not more than 3 bushels per day. Several honorary Inspectors have been appointed to see that the regulations are observed. No commercial licenses have been taken out, doubtless owing to the unpromising prospects for this sort of trade under the prevailing conditions, and also possibly because the beds open to commercial picking are limited to restricted portions of the North Kaipara Beach. The well-stocked condition of some of the other beaches would appear to warrant their being opened for licensed diggers, but while our knowledge of the absolute abundance of these bivalves and of their reproductive capacity is incomplete, and our powers of surveillance so limited, a policy of conservation, rather than exploitation, seems to be preferable.

MUSSELS.

No mussels were canned during this year's season and, with the general decline in retail trade also, the landings dropped to 4,242 sacks, valued at £1,294, compared with last year's total of 6,224 sacks, valued at £2,039. However, the new dehydrated products industry, which uses these molluscs for the manufacture of soup-powder, has made promising progress; 76 cwt. of soup-powder, consisting partly of dehydrated mussels, were produced in Auckland during the year. Representations have been made to the Department with the object of getting definite mussel-bearing areas, which extend from between tide-marks to depths of 10 fathoms or more, set aside for exploitation by lease-holders only. There is statutory provision for the establishment of such a system, but both practical and administrative difficulties stand in the way of its adoption at least so long as the stocks of mussels on the open-sea grounds are as well maintained as they appear to be at present.

QUINNAT SALMON.

The usual rack used for the trapping of salmon in the Hakataramea River for hatchery operations was completed on 6th April and the first salmon taken on the 18th of that month. The first run was helped by a rise of $3\frac{1}{2}$ in. in the river-level, which provided a satisfactory stream into a side channel of the main river. As the Hakataramea went down, a groyne was built to conduct all the tributary water into the Waitaki in one channel. By the 14th May, 184 males and 237 females had been trapped, and over 1,102,000 eggs laid down in the hatchery. This was sufficient for the stocking programme to be undertaken. The rack was left in position for the capture of trout, and later running salmon were lifted over the rack to pursue their journey up the Hakataramea and spawn naturally. The number so lifted over was 334, making a total of 755 salmon, of which 758 were taken in the month of May. The rack was taken out on the 24th June, but a pound-net was still kept in the river for trout till the 13th July. The last salmon came into it on the 6th July.

Six hundred thousand eyed ova were sent to the Maori Creek Hatchery for the continuation of stocking the Wairau River with this species, and 200,000 were sent to Hokitika; 302,000 were hatched out at Hakataramea, and of the resultant fry 294,000 were liberated in the local river, and 8,000 kept for pond rearing to be marked and liberated as yearlings, and to supply material for scale investigations.

The fishing season immediately preceding the spawning season, as was mentioned in last year's report, was spoilt by the prevalence of floods, and it was not possible to judge the abundance of fish from the numbers taken by angling. So far as could be judged by the run of spawners into the Hakataramea, the 1931 season was better than average, both in point of numbers, and also as regards the size and condition of the salmon. The majority of the fish ranged between 14 lb. and 24 lb. It is reported that considerably more fish were seen in the other tributary streams of the Waitaki in the 1931 winter than in the previous year, but the big run was rather later than usual. Similarly in the Rangitata River the bulk of the fish came up late in the 1931 fishing season, and though the anglers got little satisfaction out of them, the spawning-grounds were generally well attended.