

Our fund of information about this subject—the extent of the existing stocks and the variations in propagation, the demands made by exploitation upon the stock, and the essential facts of its life-history—is still too small to serve as a basis for ideal administration or for rational exploitation. More extensive as well as more intensive surveys are desirable, but cannot be carried out with our available staff. Apart from the taking of toheroas for canning by the licensed lease-holders, there is a certain amount of intermittent commercial exploitation about which we know little or nothing in quantitative terms. The prescription of a licensing system for all who take toheroas for purposes of sale and the requirement of returns of quantities taken by licensees would be a desirable measure.

MUSSELS.

A similar system should, I consider, be applied to the commercial exploitation of mussels, which is a profitable and expanding branch of the fishing industry in some districts. In certain localities mussel-beds have already been worked out by commercial operations about which the Department had received no information until complaints were made regarding the depletion of the stocks.

The returns show that 9,037 sacks of mussels valued at £2,833 were marketed during the year. The returns on which the figures were based are by no means exhaustive, and the total figure must be considerably higher.

CRAYFISH.

Among the returns of fish-landings are included records of the marketing of 2,047 cwt. of crayfish, valued at £4,096. This fishery is carried on at many different and in some cases rather remote localities. Owing to this fact and to the lack of means for collecting proper fishery statistics, these figures are by no means exhaustive. Up to the present the catching of crayfish has been carried on without any administrative control whatever. There is no legal size-limit, or close season, or prescription of gear which may be used for fishing. In most places the fishing is not continuous, however, and it is not carried on with any great degree of intensity except in close proximity to the markets of the larger cities. It is therefore probable that the lack of regulation does no harm. These shell-fish are canned occasionally, but as yet there are no established canneries for crayfish alone, although adumbrations of such enterprises are occasionally brought to our notice. From the commercial point of view the chief difficulty appears to be the lack of certainty about getting steady supplies of raw material at a price that would ensure profitable working. From the administrative aspect—and this has an important commercial significance too, although prospective crayfish-canners do not seem fully to appreciate the point—it is necessary to recognize that there is a doubt as to how long a local stock of crayfish would stand continuous exploitation before it became depleted. Too little is known as to the density of distribution, the rate of propagation and the growth-rate of this species to enable one to express any definite views on this point. The sooner statistical and biological data on this subject are available the sooner we shall be in a position to advise with due insight on questions of industrial development. Under present conditions we can only gather information which is second-hand and unconfirmed.

QUINNAT SALMON.

Mr. C. L. Ayson, in charge of the hatchery at Hakataramea, reported that the first salmon taken in the trap on the Hakataramea River in the 1929 spawning season was obtained on the 24th April, about a week after the construction of the rack. The last fish was obtained on the 11th June when, owing to a high flood in the river, it was considered advisable to remove the rack. The outlet of the Hakataramea River was, as during the previous season, unfavourable for attracting big runs of salmon, as it entered a small branch of the Waitaki River which itself flowed down the river-bed for at least a mile before entering the main stream. Notwithstanding this, the number of ova collected was up to the average; and Mr. Ayson expressed his conviction that a record run of salmon would have been seen in the Hakataramea but for the unfavourable conditions above mentioned. He states that the run of salmon in the Waitaki River and its upper tributaries was greater than ever before. The fish were of a larger size than in the previous season and in good condition. The eggs and alevins hatched from them were particularly strong and healthy. The total number of eggs collected was 1,378,500; 600,000 were sent to the Maori Creek hatchery for liberation in the waters of the Wairau River (Marlborough), 225,000 were sent to the Westland Acclimatization Society for liberation in Hokitika waters, 250,000 were sent to the Government of Tasmania. The balance were hatched out and liberated in the Hakataramea River, with the exception of 19,000, which were kept for rearing in the ponds.

It would appear that the run of spawning fish in the Waitaki and its tributaries was more impressive in point of numbers than might have been anticipated from the numbers of fish observed in the Canterbury Rivers (which are the favourite angling-waters) during the fishing-season preceding. Both anglers' reports (as noted in last year's report) and the observations on fish taken in the hatchery trap agreed as to the predominance of large and well-conditioned fish.

The run of quinnat salmon for the 1930 season has taken place under quite exceptional climatic conditions and doubtless these have had their effects both on the catches made by anglers and on the movements of the fish and the consequent location of spawning beds. With regard to both these points, however, our information is not so complete as one would desire.

The rivers most frequented by anglers—namely, the Rangitata, Rakaia, and Waimakariri—have not produced very good catches this year compared with what has been the case for the previous three or four years. The exceptional floods of this summer, which lasted until February, tended to prevent both observation of fish and successful fishing of the earliest runs. Then came the long drought which, broken only by a few days of spate at the end of February, prevailed for the rest of the season. With the clearing and falling of the rivers in March there were some good runs of fish