

information (to be acquired from books, journals, and reports relating to the fisheries of other countries) which may be of service for the guidance of those interested in the development of the fishery industry of New Zealand.

Mr. Hefford, who arrived in New Zealand in May, 1925, has been engaged in acquiring a knowledge of local conditions and fisheries, and has made special investigation into snapper fisheries in the Hauraki Gulf, rock-oyster fisheries, toheroa fisheries, and has directed investigations into Foveaux Strait oyster fisheries. These latter have been carried out from time to time by Mr. W. M. Young. From what has already been stated it will be realized that in most cases investigations must extend over a considerable period of time before any positive conclusions can be drawn.

SALMON FISHERIES.

During the past year Dr. C. H. Gilbert, Special Assistant to the United States Bureau of Fisheries, and Mr. J. P. Babcock, Chairman of the International Fisheries Commission, visited New Zealand in private capacity, but were good enough to give special attention to our salmon fisheries, and during their visit to the salmon waters were accompanied by Mr. L. F. Ayson.

The following extract from a brief report furnished by Dr. Gilbert is of utmost importance:—

“The initial stages of your experiment have met with unqualified success. Self-perpetuating colonies have been established, and are flourishing and increasing in numbers. Their future would seem to depend on success in administration. If handled cautiously and conservatively, without undue haste to ‘realize on the investment,’ there should be a steady increase, and the final establishment of runs of distinct commercial importance.

“But such a consummation can easily be delayed, if not wholly prevented, by premature attempts to establish a salmon fishery and to place these fish on the market. Their rate of natural increase in their new home has not been determined. They are living in a new environment, subject to the attacks of a wholly new set of enemies. If these are more efficient than their old enemies in America—and there is good reason to fear this may be the case—fewer will escape in each generation to form the spawning reserve, and the natural increase will be correspondingly diminished. For this reason, among others, it will demand constant watchfulness and utmost caution not to endanger the success of an experiment so advantageously begun.

“Our own experiences in Alaska have brought home to us the constant dangers of overfishing. Such serious encroachments have been made thus on our salmon supplies that we have been compelled to close all rivers to fishing of any description, and compel our fishermen to reap their harvest in the open sea and on coasts away from the mouths of rivers. With such experiences behind us it is perhaps inevitable that we should regard with some degree of apprehension the opening of your rivers to the netting of salmon at a time when you are endeavouring to build up your runs to their maximum efficiency. Certainly the results should be most carefully inspected, and the extent of the fishing held to very modest dimensions. I venture to suggest the importance of obtaining reliable statistics each year of the captures in each stream by the different methods. There should also be an inspection annually of all the spawning-beds, to determine as accurately as possible the size of the spawning colonies. If these facts are placed permanently on record year by year, it will result in building up a body of knowledge of the utmost value to the future administration of the fisheries.”

The reference to “the attacks of a wholly new set of enemies” draws experienced attention to the remarkable percentage of quinnat salmon caught in the rivers which are deeply gashed by some sea-enemy. The warning from such authorities cannot be ignored, and it is obvious that, instead of extending the present commercial operations, we will, in the meantime, have to restrict them. To this end it is proposed to strictly limit the amount of netting for sale permitted in rivers.

In the June issue of the *Canadian Fisherman* Mr. Babcock is reported as saying, “The future of the Pacific salmon fishery of New Zealand would seem to depend on administration. If handled conservatively the self-perpetuating runs of the quinnat should steadily increase, and result in final establishment of runs of great commercial importance. Their rate of increase has not yet been determined in so short a time. If I were asked to make the salmon-fishing regulations of New Zealand—and I have not been—the catching of quinnat would be prohibited for a considerable period, as time will have to demonstrate the maximum of production their great rivers are capable of. With adequate measures of protection, runs of great commercial importance may be developed.”

Atlantic Salmon.

The collection of salmon-eggs this season has been the most successful since the establishment of Atlantic salmon in these waters. This is partly due to the increasing annual run of fish, and to the very favourable weather conditions prevailing throughout the spawning season. With the exception of two floods of a few days' duration, the nets continued catching from the date of commencement, 13th April, to the 21st August, the date when the men ceased operations. Our experience in collecting eggs shows that these fish, so far, are not conforming to a definite spawning-season period, as they do in their native habitats in the Northern Hemisphere. While the main runs of ripe fish come into the rivers in May, June, and July, yet we find individuals spawning from the beginning of April to well on in September—a period of over five months. This season we caught quite a number of salmon which were making their second return to the river for spawning.

The Waiau River was inspected from the outlet of Lake Te Anau to Horseshoe Bend, a distance, by river, of eight miles, and salmon spawning-beds were found over the whole distance. This is an important discovery, as, from the size of the beds, they were undoubtedly made by large sea-run fish.

The total number of salmon caught during the spawning season was 527—283 females and 244 males. The number of eggs collected was 936,500, and the average yield per female fish was 3,500.