

In the Picton Sounds four oil-engined chasers and a recently acquired parent steamship were engaged. The industry employed eight men at sea and eleven men ashore. The total catch for the season was forty-nine humpbacks, which produced 240 tons of oil, valued at £4,800.

Off Whangamumu the first whale of the season was taken on 12th June and the last on 18th November. In the Picton Sound operations the corresponding dates were the 15th June and the 15th August.

SCIENTIFIC INVESTIGATIONS.

The task of collating data of a statistical nature obtained from fishermen's log-books, records of the operations of the Auckland trawlers, and returns of catches sent to Wellington market, has occupied a great deal of the attention of the Marine Biologist, which, if the necessary clerical assistance had been available, might have been devoted to purely investigational pursuits. It is advantageous to have such work dealt with by one who has had a scientific training and who is possessed of as sound a technical knowledge of fishery matters as is Mr. Young; but, nevertheless, it would have been better if the more mechanical and routine part of this work could have been dealt with by a clerical assistant. Such tasks up to the present have been voluntarily undertaken, because we are haunted by the expectation of the recurrence of the kind of controversial problem which has arisen before, more particularly in connection with the Hauraki Gulf fisheries, and which can only be tackled satisfactorily on the ground of concrete facts. To avoid a repetition of those sterile inquiries and conferences, where opposing partisan statements and opinions are taken as the only available evidence on which to base administrative measures, is one of the objects of our endeavours to bring systematically ascertained facts and scientific knowledge to bear upon fishery problems.

We have much uphill work to undertake and carry out before we can bring about this desired state of affairs. The fisheries staff is doing the best it can under the circumstances, but its functions are too many-sided and too much concerned with matters of casual occurrence for the highest efficiency or for real economy. We need a more specialized organization which at present is lacking. In Captain L. Hayes, at present attached to the fisheries staff in a temporary clerical capacity, whose discoveries in connection with the natural history of the whitebait will be referred to later on, the Department possesses an exceptionally keen and capable naturalist who has been a very valuable asset to the Fisheries Branch. But his employment as a field naturalist involves complications in connection with routine office-work.

OYSTERS.

The greater part of the Marine Biologist's "field" work has been concerned with systematic inspections and biological observations on the rock-oyster beds, with a view to finding out the relation between certain factors in the environment and the growth and reproduction of these molluscs. Experiments in oyster-culture on the tray system and by other methods have been continued and extended to fresh localities. The results of the tray experiments so far go to show that the removal of high-water rock or mangrove oysters to trays at lower levels (nearer low-water mark) results in great improvement in shell-growth. We have found, however, that fattening does not take place with the same rapidity as with oysters on the natural rock at a similar tide-level. Our tray oysters have not come to good edible condition till the summer months, which is too late for our oyster season. The rapid fattening of oysters cultivated by this method in such localities as the Hawkesbury River, New South Wales, is of considerable value to the oyster-farmer. The longer period which has been found necessary for fattening in our experiments is obviously an economic drawback. If late oysters in sufficient quantities could be marketed by utilizing tray cultivation on a commercial scale, however, it might be an advantage to the trade in prolonging the marketing-season. It should be noted that the summer weather in the North has been so unseasonable during the period of our experiments that, as Mr. Young says, one hesitates to use data collected under such abnormal conditions. The different factors affecting the growth of oysters on our trays have not yet been conclusively elucidated. It is probable that temperature is the dominant factor; and it may yet prove that different results might be obtained under the genial climatic conditions which one is told used to be experienced in Auckland in the past, but which have been the exception and not the rule of late years.

Under the Marine Biologist's supervision a series of standard slabs of concrete have been fixed at selected positions in the different oyster areas in order that definite observations may be made periodically on the oysters and associated fauna at these various "stations." Each station consists of three pairs of slabs placed at upper, middle, and lower levels in the oyster zone. Of each pair one slab is to be left in its natural state as a control, the other being subject to various methods of cultivation, such as cleaning (from algæ), removal of pests, thinning out of excess oysters, &c. From periodic observations of these slabs it is hoped to obtain data on the incidence of spatting and on the growth, condition, and pests of the oyster and also on those factors which influence their growth—observations which it is impossible to make on the natural reefs in the quantitative way which is necessary.

Systematic notes are also being made on the habits of the borer (*Thais scobina*) with a view to finding the most effective manner of dealing with this pest.

Daily records of water temperatures and other meteorological conditions are being kept by the Inspectors in charge of launches in the Hauraki Gulf, the Coromandel district, the Bay of Islands, and Kaipara Harbour.

As a result of considerable research upon oysters in Europe and America, it is already known that these molluscs can only ripen their sexual products and spawn when the temperature of the water has reached a certain level. The required temperature varies for different species of oysters. One of our immediate aims is to ascertain what this is for the Auckland rock-oysters. So far, we only know