

Arrangements are now being made whereby not only the biological condition of the oysters may be kept under frequent observation, but also the physical conditions, such as temperature of water, sunshine, and water-movements, which are factors affecting the growth, fattening, and reproduction of these molluscs.

TOHEROAS.

In August, at the request of the local acclimatization society, about one thousand toheroas of various sizes were successfully transplanted from the Muriwai Beach to the Papamoa Beach, near Tauranga. The fact that a larger number was not transferred was due to a wash-out on the road to Muriwai Beach, which prevented access by car to the beach. It is by no means certain that this part of the Bay of Plenty is suitable for toheroas, and it is open to question whether the place where the toheroas were liberated was the most promising habitat in the neighbourhood of Tauranga. Until more is known about the habits and vital requirements of this species it is doubtful whether there is anything to be gained from further plantings. While on this tour a visit was paid to Whakatane, where the toheroa species (*Mesodesma ventricosa*) was found naturally occurring, though not in very considerable quantities. These shell-fish have been utilized for food by local residents, but have been generally regarded as a different species of bivalve from the toheroa.

As the opportunity occurred samples of toheroas from different beds have been measured with a view to obtaining a census of the relative abundance of the different size groups (which may be regarded as approximately representing age groups). In this way it is sought to obtain a picture of the relative abundance of the different generations comprising the stock, and hence an idea of the natural productivity (or survival) of the species in different years. What it has been possible to do so far in this direction must be regarded as preliminary and tentative. The method requires to be applied on a larger scale to produce conclusive results. If and when facilities and staff can be provided to extend this work, and to combine with it a scientific survey of the principal toheroa-beds, we shall obtain the knowledge which is essential as a basis for the rational conservation and development of these valuable natural resources. Up to the present the north Kaipara beds have received most attention. From observations made at the beginning of 1925, and again in the past year, it appears probable that these molluscs grow approximately 1 in. every year. The preponderant age-group in 1926 was the three-year-old (averaging 3 in.). This year the same group shows a marked preponderance, being now four years old and averaging 4 in. in length. Consequently on these beds there is an abundance of toheroas of the best marketable size. The younger age-groups are not so well represented, and this finding may be correlated with the prolific "setting" of young toheroas which took place four years ago, and was remarked upon by local observers, who report that nothing like so good a spawning season has been noticed since that year. All indications tend to show that the propagation of toheroas is subject to very considerable variation, but that it is possible to anticipate fat and lean harvest seasons for three or four years in advance, and to regulate exploitation accordingly.

WHITEBAIT.

The fisheries which are carried on for the capture of the ascending shoals of young *Galaxias attenuatus* in numerous rivers of both Islands have hitherto received very little departmental attention, except in those places where whitebaiting occupies an important position among other industrial fisheries. Even for such places the annual quantities landed in past years are not on record, the value of the statistics having been nullified by the practice of combining all sorts of fish into one total weight. There is therefore no statistical evidence as to whether the abundance of whitebait is being maintained or not; but from what can be gathered in a general way it is evident that, except in rivers which are remote from populated areas, there has been a considerable diminution in the abundance of these fish of recent years. In some rivers which are now in close proximity to urban populations it would appear that the whitebait-fisheries have been reduced to a mere vestige of what they were in former times. Attention has been drawn to the necessity for measures of conservation by acclimatization-society officials, who from their local knowledge are in the best position to observe the conditions and to judge the significance of their trend. At the 1926 conference of the New Zealand Acclimatization Societies' Association, the following remit was passed: "That the time has arrived to restrict the period wherein whitebait can be taken to two and a half months per season." The chief difficulty about carrying out this recommendation is that the season when whitebait run is subject to variation in different rivers, and in the same river it may be early one year and late another year. It must be recognized, however, that it is time to pay special attention to the conservation of this most important of all native fresh-water fishes. It provides a much appreciated article of food—though nowadays frequently more of the nature of a luxury than a food for the people—and affords the means of earning a livelihood to a considerable number of people. Preserved in cans, it constitutes an article for export for which there is an increasing demand; and, finally, *Galaxias attenuatus*, both in its fry stage as whitebait and in its adult form, "minnow" (or inanga), provides an important element in the food of acclimatized trout. The view has been put forward that the rapid growth and fine condition of the trout in New Zealand rivers have been very largely due to this item in their food-supplies, and that the superiority in size and abundance of the brown trout of a generation ago was in consequence of the abundance of whitebait and inanga food which was then to be found in all the rivers. This reasoning doubtless holds good to a considerable degree, especially in certain of our rivers, but it does not cover the whole of the problem. The subject of the relation of acclimatized fish to their indigenous food-supplies is one of great importance, but in New Zealand it has scarcely been touched upon up to the present time although two biologists have made brief essays in this field of research. Problems of this sort, however, cannot be solved by investigations of brief duration, but require a more comprehensive and continuous scheme of work than has hitherto been possible.