else the control may be exercised the wrong way. That is the basis of my advocacy for a licensing system for whitebait fishing—in order that we may get into closer touch with its operatives, and also that we may acquire funds to provide for investigational work besides doing more to ensure that every whitebaiter fishes fairly in competition with other fishermen. The question of the better regulation of these fisheries has for some time been a matter of concern to fishermen, to local Inspectors and rangers, and to the Department, and it is hoped that by the time the next fishing season arrives there will be in operation a revised set of regulations that will be clearer, as well as more comprehensive, than the regulations issued at intervals over the past quarter of a century. Ideal regulations will never be possible, because the fishing conditions vary so much not only for each different river but from place to place in the same river.

Scientific Investigations.

Not only the hoped-for extension of investigational work, which is quite necessary for the rational control and prudent development of our fisheries, but also the modest undertakings we had in hand have suffered a set-back owing to the necessity to effect considerable reduction in expenditure.

Oysters.

The Marine Biologist, Mr. M. W. Young, has devoted most of his attention to rock-oysters, continuing his work on various methods of experimental oyster-culture and systematic observation of the condition of the natural oysters and their environment. Owing to the fact that the growth of the rock-oysters to marketable size requires at least four years, it is not possible to arrive at definite results in any shorter time. Periodical inspections have been made of the experimental trays, stakes, and concrete slabs mentioned in previous reports. New tray experiments have also been started in the Kaipara and in Manaia (Coromandel) to test various materials with regard to their resistance to erosion. A careful record is being kept of the cost of the various methods and materials used in these cultivation experiments. Some hundred stakes on which young oysters have been collected in Bon Accord and Mahurangi waters, which are consistently favourable to abundant reproduction of oysters, but are not very satisfactory for growth and fattening, were transplanted to Manaia, an environment which has been found to be very satisfactory for fattening but not for natural propagation, to see if the results would justify the transference of poor oysters in bulk so that they would attain marketable size and condition within a reasonable period. Having been informed by "practical" oyster-pickers that it was fatal to remove rock-oysters from their natural location between high- and low-water marks to a position below the low-tide level, the experiment of putting such oysters in wire cages and keeping them permanently below water was tried. After six months (December to June) of submergence no appreciable mortality had been noticed, and the oysters were in excellent condition.

Continuing preliminary attempts made by Mr. Young, the possibility of artificially impregnating the ova of rock-oysters, which are unisexual, has been demonstrated by Captain Daniel, Inspector of Fisheries, Auckland, who found that a water temperature of 19·8° C. (67½° F.) was favourable for this operation. Free-swimming larvæ were obtained, but the "fixed spat" stage was not achieved in the small vessels in which these larvæ were confined, possibly through lack of suitable food. Such observations as these are made by Captain Daniel as a side-line to his normal duties. If a trained biologist, suitably equipped, could be enabled to concentrate on this work and follow up these experiments, there is no doubt but that results not only of scientific interest but also of value to the improvement of oyster-cultural methods would be obtained.

An oyster-washing machine, designed by Mr. Young, has been made use of in the Kaipara with very satisfactory results. The muddy condition of many of the Kaipara oysters had previously been a serious drawback in marketing them.

Marine Fishes.

In addition to making continuous notes on the operations of the Auckland fishing-fleet and on the market conditions, Captain Daniel has made a special observation upon the propagation of snapper, dabs, and flounder by means of frequent examination of the sexual condition of the fish and by tow-netting for the pelagic eggs of these species, identifying the same by comparison with artificially fertilized ova taken from ripe parent fish. With regard to snapper, large quantities of eggs were taken in a tow-net two or three miles north of Tiri, and smaller quantities to the south-south-east, on the 3rd December, 1931. Pelagic eggs were also found in abundance on the 28th of that month and on the 28th January, 1932. Indications pointed to a long and intensive spawning of snapper in the Gulf. A contemporary scarcity of snapper off Mercury Bay and Tauranga was noted as possibly indicating a spawning migration from this part of the Bay of Plenty to the Hauraki Gulf. Tagging experiments would doubtless throw light on this point.

Considerable quantities of anchovy eggs were again found in the same area and at the same time as snapper eggs.

Observations were again made on the incidence of spawning of flounders and dabs. Dabs appeared to precede flounders in their spawning. During August and early in September both species were spawning in the middle of the Gulf between Ponui and Coromandel and also off the western shore. Spent individuals of both species were taken on the 3rd September off Big Bay and by the end of October the spawning appeared to be over, and only spent dabs and flounders were seen in the catches examined.

Further examinations of the stomach contents of snapper have been made and otoliths of dabs and flounders have been collected as the opportunity occurred and sent to the Marine Biologist for examination with a view to age determination.