

MARINE FISHERIES INVESTIGATION STATION.

SIR,—

I have the honour to submit the following report of the Board of the Marine Biological Station for the year ending 31st March, 1929.

EUROPEAN LOBSTERS.

At the date of the last annual report the stock of these crustaceans in the pond numbered thirty-nine—viz., seventeen males and twenty-two females—the majority of the latter egg-bearing. The animals moulted at intervals throughout the year, and the first lot of eggs were thus lost. This was no doubt due to the disturbance in their habits caused by the change of season. The majority moulted during the winter months, and they did not acclimatize quickly. Probably the low temperature of the ponds—lower than they were accustomed to in the English Channel from which they came—had a good deal to do with this, as of the four lobsters which were lost, three died in July, when the temperature of the pond-water was as low as 4° C.

The stock now stands at thirty-five—viz., sixteen males and nineteen females—and all appear to be thoroughly acclimatized and to be thriving well. Most of the females are carrying batches of eggs, so that when the hatching season is on, during the coming November and December, it is anticipated that there will be a liberation of numerous larvæ—probably from 250,000 to 300,000.

There has been no appearance of mature lobsters reported from any part of the New Zealand coast. Last July Mrs. Dougall, formerly of Quarantine Island, sent down the carapace of what was thought to be a large lobster from Motuihi Island, in Hauraki Gulf. It proved, however, to be that of a large crayfish—*Palinurus hugelli*—a species found occasionally in bays of the North Auckland region, and which is not uncommon on the shores of Tasmania and Australia.

BIOLOGICAL WORK.

During the year Dr. Harold Finlay has received from the station all tow-nettings, contents of fish-stomachs, fish-scales, and otoliths. As he has been working under Mr. Hefford's department, his reports are made direct to him. In regard to tow-nettings, the whole of the material has been returned to the station because there is no one in New Zealand at the present time who can work it up. This is disappointing but unavoidable. Much of the recently collected nettings is of an extremely interesting character, containing quantities of Cumaceans, Ostracods, and other groups of crustaceans. Unfortunately our position appears to be one common to all biological stations and museums throughout the world, as, from inquiries made by the Chairman of the Board, the British Museum, the Washington, Melbourne, and Sydney Museums all have immense stocks of similar material waiting to be worked up, while specialists in this group are few. The Board has hopes during the current year of securing the services of a senior student who has recently been specializing in this direction.

Trawling has been carried out throughout the year on all grounds in the vicinity of Otago Heads worked by the local trawlers. This work is done every week when weather permits, but a good deal of broken time occurred this past season on account of adverse weather conditions. The engine in the launch is only of 7½ horse-power, and it is not possible to trawl at a greater depth than 18 fathoms. But the Board is importing a new 15-horse-power engine, and this will enable the trawl to be worked to a depth of about 25 fathoms, which is approximately the limit of the trawling-ground off Otago Heads. It is probably much greater, but the local fishing fleet is not of sufficiently heavy craft to work in much deeper water. With larger and more powerfully equipped vessels it should be possible to test the sea-bottom down to 100 fathoms, which is about the limit of fishing in the Northern Hemisphere.

The spawning season for all flat fishes was later last year than in several previous seasons. The eggs of the common sole are usually ripe in July and August, but the first ripe ova were taken on the 27th August last, and it was well-nigh into September before spawning generally took place. The fish were by no means abundant, but those taken were large and in good condition. Only 1,200,000 eggs were hatched out, and the fry liberated in one of the outside ponds, where there were no fish to interfere with them, and from which they would gradually find their way to the bay at every high-water period.

Usually both common or sand flounders and lemon soles spawn in August, but both species of fish examined at the end of August were found this year to be unripe, showing the general lateness of the season. All flat fish taken in November were found to have spawned and to be in poor condition. In all species of flat fish examined the males were mature before the females were ripe for the extrusion of the ova.

The lateness of the season was further shown by the data of occurrence of kelp-fish (*Coridodax pullus*) and moki (*Latridopsis ciliaris*). These fish mostly leave the harbour on the approach of winter, returning in spring. In 1927 kelp-fish were taken in the set-nets in the channel between the station and Quarantine Island in the latter part of September. In 1928 they were first met with in the early part of November. Subsequently both species were plentiful during the summer months. Kelp-fish are not a common fish in the Dunedin market, but in Wellington they are abundant, and are sold under the name of "butterfish."

Whale-feed (*Munida gregaria*) have been scarcer in the harbour than for some years past. For a short time in November large quantities were on the surface outside and inside the harbour. From November to the end of March only small scattered schools of them appeared. It would seem that they had mostly gone to the bottom, for right through the season the stomachs of most fish caught, both inside and outside the harbour, contained large quantities of these crustaceans. The mature animal lives most of its life at the bottom of the sea, and the swimming stage, during which it is