

MARINE FISH HATCHERY AND BIOLOGICAL STATION, PORTOBELLO.

SIR,—

I have the honour to present the report of the Portobello Marine Biological Station for the year ending March, 1936.

The regular routine of work has been steadily carried on at the Portobello Marine Station. Daily records of water temperature have been made and weather records kept. The tanks have been constantly cleaned and well supplied with an attractive variety of fish and other marine life, the outer ponds freed from weed and the valves and screens painted and renewed when necessary. The buildings, paths, grass plots, and fences have been kept in order. Large numbers of visitors have been received and shown over the hatchery. The launch and dinghy were placed on the slip and painted, and repaired when necessary. The small launch "Oi" with which we replaced the "Karoro" has needed a lot of adjustment, but is now in quite good order and is running satisfactorily. Where necessary, ropes and nets have been replaced, but sea conditions are hard on such gear, and replacements are again due in this connection.

The set-net has been used occasionally, and a few greenbone and moki have been secured by its use. Dogfish were numerous in December, and, as usual, severely damaged the set net. Setting the seine net for mullet has been only moderately successful, large mullet being rather scarce this year. Using the seine net on the sandbanks was not very productive, the harbour in the vicinity of the station appearing to be depleted of its normal supply of flatfish. Fish-life has not been abundant, and the red cod, which is so useful as a food-supply for the hatchery fish, has not been obtainable in any numbers either in 1935 or 1936: we have only secured odd specimens.

We have made and constantly used fish-traps, and these have proved most valuable. Set either off the jetty on a sandy bottom or amongst weed between the rocks below the station, they have provided a steady supply of fish, and the spotty (*Pseudolabrus celidotus*), wrasse (*Pseudolabrus coccineus*), pigfish (*Congiopodus leucopoecilus*), and an occasional red cod (*Physiculus bachus*) secured in this way have helped to maintain the food-supply, especially in rough weather, when the nets could not be used. They have also produced a really interesting list of specimen fish, including greenbone (*Coridodax pullus*); kelpfish (*Odx vittatus*); weedfish (*Tripterygion*), two species; taumaka (*Acanthoclinus quadridactylus*); rock-cod (*Lotella rachinus*); and one rockling (*Motella novae-zelandiae*), which is new to our records; mullet (*Agonostomus forsteri*); small tarakihi (*Dactylopagrus macropterus*), bullies (*Gobiomorphus gobioides*); and a variety of crabs; also sea-horses (*Hippocampus abdominalis*); and one large sea-hare; flathead (*Kathetostoma giganteum*); thornfish (*Bovichthys variegatus*); suckerfish (*Diplocrepis puniceus*); triggerfish (*Cantherinus scaber*).

Using a 200 c.p. light off the jetty close to the hatchery has produced some interesting results. Suitable nights are not usual, the ideal conditions being a cloudy calm night with a rising tide. In the late spring months shoals of garfish (*Hemirhamphus intermedius*) came to the light, swimming along the top of the water, stopping, and then swimming again to stop and start again. They formed an interesting sight when they arrived in numbers, each fish at an interval from its neighbour. They occasionally swam up against some obstacle and this invariably led to a wild flurry in which they often jumped clear of the water, and when one was alarmed the whole shoal went into a panic. We used a large net like a whitebait net on a long pole, and often if this was dropped into the water ahead of the garfish their frightened leap carried them right into it, but, unless the net was quickly raised, they leapt as instantaneously out again. A large number were from 4 in. to 6 in. long, but large gravid females 12 in. to 14 in. were also taken; the mature males were 8 in. to 9 in. long. When placed in the glass-sided observation-tanks they soon died, never learning to avoid dashing themselves against the glass, this being soon fatal on account of the projecting under jaw. We found they survived in the outer ponds and in a large inside concrete tank. The large females when first taken had a strong peculiar smell—almost as powerful as that of the cucumber smelt. Garfish, whilst most plentiful in November and December, still come to the light, but recently only small specimens have been seen.

We also get shoals of cucumber smelt (*Retropinna retropinna*), pilchards (*Sardinia neopilcharda*), and mullet (*Agonostomus forsteri*), at all times of the year. Occasional red cod (*Physiculus bachus*), tarakihi (*Dactylopagrus macropterus*), and moki (*Latridopsis ciliaris*), have been attracted, and two small species of squid and an unidentified sand-eel (*Gonorhynchus* species). This last was rather extraordinary in colouring, the body being amber-coloured, the pectoral and anal fins saxe blue, and the dorsal and tail fins barred black and white. Quite a number of pipe-fish (*Stigmatophora longirostris*), Idotea, prawns, shrimps, fish-lice, crab zooë, swimming-crabs, and various fish-fry, as well as a variety of sea-worms, commonly appeared. A resident research worker would find this gathering of sea life to the light a fascinating field of work.

When the whalefeed (*Munida gregaria*) were in the harbour they simply swarmed to the light and made collecting impossible, as they formed a churning mass below the light extending for many yards and effectively shutting out all other life. Attempts to clear them away were futile, as additional thousands arrived every minute. Whalefeed were present over a long period—from November to March. One large *Squilla* was taken from amongst the swimming whalefeed.

The clear shrimp (*Nyctiphanes*) was not as common as in former years, only appearing on the surface in October. Shore collecting was carried on during suitable tides, although frequently these were spoiled by unsuitable weather.