

net were made, and 300 soundings taken. The depth of water in which the hauls of the trawl-net were made varied from 4 to 105 fathoms; and the time occupied by each haul varied from three-quarters of an hour to two hours and a half.

The total quantity of fish brought in and delivered to the owners of the "Nora Niven" was 48,625 lb. Besides this there were large quantities of red-cod and other fish not included in the list of fish which they were to take, which had to be returned to the water again.

The greatest quantity and variety of market-fish were taken inside of the 30-fathom line. In this respect this cruise corresponded with the other trawling experiments made round the coast of New Zealand.

Tasman and Golden Bays were carefully prospected in order to ascertain whether they had quite recovered from the wholesale destruction of fish which took place there in 1901. Very good results were obtained as regards the extent of good trawling-bottom which was found, and the quantity and the variety of market-fish taken.

On the west coast of the South Island splendid trawling-bottom was found all along the range of coast which was prospected—i.e., from off the Heaphy River, south of Kahurangi Light, to Hokitika, a distance of about 130 miles. No rough bottom was encountered anywhere. A good variety of market-fish was taken, but the hauls were generally poor as regards quantity. Judging from the nature of the bottom and other indications, I form the opinion that at some season of the year fish would be found in large quantities from close inshore out to 20 or 30 fathoms. Brill (*Pseudorhombus scaphus*) were taken all along this coast, and in proportion to the quantity of other flatfish caught they were taken in larger quantities than on any other fishing-grounds that I know of in New Zealand.

Good trawling-bottom was found all along the west coast of the North Island, and at several points along this section of coast large hauls of fish were made. The results obtained show that extensive and prolific fishing-grounds exist along this range of coast. These grounds will no doubt in time be systematically worked from Onehunga, Kaipara, Kawhia, and New Plymouth.

For some distance outside the trawling limits in the Hauraki Gulf good bottom was found, and some large hauls of fish made. From outside of Flat Rock to the North Cape the bottom proved unreliable. In places considerable areas of sand bottom were found, then, unexpectedly, rocky bottom would be encountered. In working this section the nets and gear were frequently damaged. From Tiri Tiri Island to the North Cape fish-life is abundant, and, notwithstanding the uncertain nature of the bottom and damage to the gear, some very good hauls of fish were made.

Bad weather at the commencement of the cruise interfered with the work to the west of Cook Strait, and the completion of this had to be postponed until the vessel returned down the west coast of the North Island, when we were again unfortunate as regards weather, and consequently this section was not tested as thoroughly as intended. The work done, however, showed that to the south, from off Jackson's Head to Stephens Island, the bottom is rough in places, and in the deeper water towards the middle of the strait it is generally soft with ledges of clay, which makes it dangerous for trawling. From Kapiti Island to Wanganui there is a large stretch of good bottom, and a good supply of fish.

The two cruises of the "Nora Niven" have revealed the fact that off the coast of New Zealand there exist immense areas of even sand and mud bottom suitable for trawling. On account of the very large extent of coast-line which had to be gone over during each charter-period it was impossible to thoroughly work these areas, but in many places large hauls of the best market-fish were taken, giving a good indication of the value of the areas as fishing-grounds. To prove their actual value it is, however, necessary that they should be systematically worked at different seasons of the year. Valuable preliminary work has been accomplished by the discovery of these areas, and this should be followed up by the systematic seasonal working of the grounds in order to prove their value.

The following statement made in the report on the first three months' cruise applies to the whole six months' work done by the "Nora Niven": viz., "The practical results and information obtained during this cruise will undoubtedly prove of great value to the fishing industry, while the very large areas of splendid trawling-bottom which were discovered off various parts of the coast and at the Chatham Islands; the extensive trawling-grounds discovered in the Bay of Plenty, teeming with schnapper, tarakihi, and other fish; and the very satisfactory results obtained in line-fishing at the Chatham Islands more than justify the expenditure on the expedition. The negative results obtained in certain localities have also considerable value, as they will prevent owners of fishing-vessels from spending time and money in trying grounds which have been proved during this cruise to be either unsafe or unprofitable."

- (a.) A general account of the cruise.
- (b.) A general report by Mr. Stephenson on the work done while he was on board.
- (c.) A summarised report on the extension of the cruise of the "Nora Niven."
- (d.) A detailed account of each day's work and haul of the trawl-net.
- (e.) Particulars of the locality, depth, and nature of the bottom in respect of each haul of the trawl-net.
- (f.) Record of fish taken in the trawl-net.
- (g.) A list of the fish taken in the trawl-net and stations where they were obtained.
- (h.) Table of distances steamed and trawled during the cruise.
- (i.) Weather and temperature observations made during the cruise.
- (j.) Charts (seven) marked M.D. 3252, showing in thick red lines where trawl-net worked, and in red figures soundings in fathoms, and steaming-courses in thin red lines.

I have, &c.,

L. F. AYSON,

Chief Inspector of Fisheries.

The Secretary, marine Department, Wellington.