

sandy bottom. On rocky coasts and in deep water—and by that I mean, say, water of over 20 fathoms—it is not found at all. On the east coast, consequently, it is only found in the harbours and tidal estuaries, or in certain sandy bays, and these only constitute a small portion of the coast-line. On the west coast the mullet seems to be more generally distributed. But the heavy surf that is continually breaking on the open sandy beaches that form pretty nearly the whole of the west coast, makes it impossible to use the nets, except for a very few days in the year. So that, practically, on the west side of the island, the only mullet-fishing is in the harbours of Hokianga, Kaipara, the Manukau, Raglan, and Kawhia."

*But partially distributed.*

"Is there any reason for the mullet confining itself to such a limited area?—The reason of the partial distribution of the mullet is in the nature of its food, which consists of certain minute—in fact, microscopic—organisms, which we find on the surface of the mud, or sand, in shallow water, and nowhere else. The mullet works this about in its mouth, rejects all the large and rough pieces—in fact, all the coarse, indigestible matter—the remainder being strained through a peculiar filtering apparatus at the mouth, and swallowed. You will see from the facts I have stated that the mullet is only found in comparatively few localities—that it would be a very easy matter to reduce their number. I do not mean to say that I have any evidence that the mullet has already been seriously interfered with so far as numbers are concerned, because we have no statistics, but a short close season could do no harm."

*The Fishermen.*

"It is contended that a close season would throw a number of fishermen out of employment?—I do not think it would do them very much harm, and at the same time it would be a very wise precaution. There is no greater fallacy than the belief, which many people entertain, that because any fish, or any other animal, is found in large numbers that consequently there is no fear of those numbers being reduced. In fact, in other countries, it has frequently been that this belief has been acted upon until a species has gone some distance towards extermination. It is, perhaps, worth while mentioning the case of the American shad, a fish of the herring family, once common over the whole of the Atlantic coast of North America. It was particularly abundant in the Potomac, and was caught in enormous quantities. The number taken to market gradually increased until 1873, when nearly a million and a quarter were sold in Washington alone. The numbers then rapidly declined, until in 1878 only 170,000 were marketed. Scientists who were employed to investigate reported that this decrease was entirely due to over-fishing; and it was plain the species would soon be exterminated. The United States Government interposed, brought in legislation compelling the removal of fixed nets, which had prevented the fish from reaching their spawning-beds, and also established a hatchery for the artificial production of the fish. It has only been through very large expenditure that the Potomac has been, to some extent, restocked. In the same way cod has been almost exterminated along portions of the Atlantic coast of the United States, where it had once been very plentiful; and there again they have been compelled to attempt restocking. Of course the cod is still plentiful in other places. But I mention these two facts to show we must not believe that because the mullet is plentiful it is going to stand the very large and fixed trawls upon its numbers. We should rather attempt to anticipate matters, and, by means of a close season in spawning-time, effectually prevent the fish being disturbed when they visit their spawning-beds."

*Increasing Depletion.*

"With a growing population there will be a growing demand for fish year by year, and the depletion of number will increase constantly. That would appear to be the inevitable outcome of your reasoning?—Precisely. And in view of that, it would be very short-sighted policy, I think, to allow indiscriminate fishing. This point must be borne in mind: Most people, when thinking of our fisheries, think of the coast-line as being of so many hundred miles from north to south, and that being so, we have an inexhaustible fishery. They entirely forget that though the coast-line is so very extensive, the area of shallow water is very small indeed. We have only to go a very short distance from land to get several hundred fathoms, which is far too deep for our food-fishes. In Great Britain there is the whole of the North Sea, which stretches right across from England and Scotland to Norway, and the whole of which is shallow water; in fact, it is one immense fishing-ground. We have nothing whatever comparable to that in New Zealand, and have not such illimitable resources.

"And yet there has had to be protection there?—Yes; they have to adopt very stringent measures, although these matters have been very greatly neglected even there. Salmon-fishing only exists now in consequence of protective measures of a very severe kind indeed. If it were not for the exertions of the United States Fish Commission, there would be very little salmon left on the eastern side of North America. In the early gold days so many Tasmanian oysters were sent to Melbourne that the beds gave out, and a scientist had to be brought from England to do what he could. Now there is a prospect of things recovering themselves there. All this points to the fact that interest is best served by a limited amount of protection in time. People who fight against it, really, in my opinion, are fighting against their own interests.

"When would you suggest as a fitting close season?—About two or three months at spawning-time. That is at the hottest part of the year, when one would think, at any rate, the canning operations were rather risky. It is," said Mr. Cheeseman, in conclusion, "in my opinion very important that no fish or animal of any economic importance should be allowed to have its numbers greatly reduced, and it would be far better, even as a protective measure, to have a close season for our fish."

[Extract from the *New Zealand Herald*, 13th February, 1896.]

IS A CLOSE SEASON FOR MULLET WANTED?

*To the Editor.*

SIR,—I have read several letters in the *Herald* lately respecting the above. I would like to place a few facts before the public about fish when they are spawning. In the first place, I may say I do not know where there are laws in any country having a close season for any kind of sea-fish (shell-fish not included). Mr. Frederick M. Wallem, in his work on the fish-supply of Norway, says, "In these thousand years there has never been any fear that the enormous takes of spawning fishes should have any bad effect on the schools. The places where the fishing is carried on are exclusively spawning-places. Scarcely any shoals are found there during the rest of the year." The late Professor Huxley has described the coming in of the cod on the coast of Norway in the months of January and February as one of the most wonderful sights of its kind in the world. The fish then form what is called a cod's mountain of a depth of from 120 ft. to 180 ft., and the fishermen, when they let down their loaded lines, feel the lead knocking against the bodies of the fish for a long time before it gets to the bottom. A careful calculation has been made, with the result that there are about 120,000,000 cod to the square mile in such a shoal. At the Lafoten fisheries it is stated that about 26,000,000 cod are taken during the spawning season; but what is all this to the numbers remaining? And it has never been proved that the schools of cod-fish at Lafoten have decreased for the last thousand years; the facts, indeed, leading to the contrary conclusion. That the schools have increased very much in spite of large takes is more probable, as the cod-fish sometimes are thin and meagre owing to want of food procurable amongst such enormous numbers of fish. What is said of the cod is also applicable to herrings and other kinds of fish. Herrings have been known at the spawning season to come along the coast in such quantities that thousands have been driven ashore and picked up dead on the beach. And I never came across any one who wanted herrings but what they asked for either a soft or hard roe. And when the herrings had no roes there were but very few selling. (I may say I have sold thousands.) Are the herrings scarcer to-day than they were fifty years ago? I say most decidedly No, when we consider there are about from 14,000 to 20,000 spawn to each fish. The question is often asked, What is the cause of fish being scarce sometimes for two or three seasons? Let us turn to the blue-book on fisheries, published by the Imperial Government in 1878. Mr. Frank Buckland and Mr. Spencer Walpole, who were Inspectors of Fisheries at that time, say that, "So far from the stock of fish decreasing, we believe that the supply of fish taken on the whole is at least as great as it ever has been. Sometimes there are