

It would, therefore, appear that while the river-fisheries have been depreciated or destroyed by means of dams or by exhaustive fishing, the cod-fish have disappeared in equal ratio. This is not, however, for the same reason, as they are taken only with the line, at a rate more than compensated by the natural fecundity of the fish. I am well satisfied, however, that there is a relation of cause and effect between the present and past condition of the two series of fish; and in this I am supported by the opinion of Capt. U. S. Treat, of Eastport, by whom, indeed, the idea was first suggested to me. Captain Treat is a successful fisherman, and dealer in fish on a very large scale, and at the same time a gentleman of very great intelligence and knowledge of the many details connected with the natural history of our coast-fishes, in this respect worthily representing Captain Atwood, of Provincetown. It is to Captain Treat that we owe many experiments on the reproduction of alewives in ponds, and the possibility of keeping salmon in fresh waters for a period of years. The general conclusions which have been reached as the result of repeated conversations with Captain Treat and other fishermen on the coast incline me to believe that the reduction in the cod and other fisheries, so as to become practically a failure, is due, to the decrease off our coast in the quantity, primarily, of alewives; and, secondarily, of shad and salmon, more than to any other cause.

It is well known to the old residents of Eastport that from thirty to fifty years ago cod could be taken in abundance in Passamaquoddy Bay and off Eastport, where only stragglers are now to be caught. The same is the case at the mouth of the Penobscot River and at other points along the coast, where once the fish came close in to the shore, and were readily captured with the hook throughout the greater part of the year. That period was before the multiplication of mill-dams, cutting off the ascent of the alewives, shad, and salmon, especially the former. The Saint Croix River was choked in the spring with the numbers of these fish, endeavoring to ascend; and the same may be said of the Little River, the outlet of Boynton's Lake, about seven miles above Eastport. The lake in question is one of considerable size, and was visited by

immense numbers of alewives, which could be dipped out, to any extent, on their passage upward, while the waters of the adjacent bay were alive with the young fish on their return.

The fish themselves enter the waters of the streams in May or June, and return almost immediately after spawning, to the sea. But they may be taken by the drift-nets along the shores as early as March and April; and, indeed, it is quite probable that the whole period of their abode in the salt-water is spent adjacent to the rivers in which they were born. The young come down from the ponds in which they are hatched, from August to October, keeping up a constant stream of the young fish. In this way a supply of alewives was to be met with throughout the greater part of the year, and nearer the coast they furnished every inducement for the cod and other ground fish to come in-shore in their pursuit.

It is true that the sea-herring is also an attraction to these fish, and probably but for their presence our pollack, haddock, and hake-fisheries would be greatly diminished. Nevertheless, the alewife appears to be more attractive as a bait, and furthermore the sea-herring are less constantly on the coast, especially in-shore, occurring as they do at stated intervals, when they come in from the deep sea to spawn. It is possible, too, that they are less easily captured by the cod, since they swim nearer the surface than the alewives. Corroboration of this idea is furnished in the testimony of Mr. W. B. McLaughlin, of Southern Head, Grand Manan. This gentleman informs me that the only stream in the island which ever furnished alewives to any extent was Seal Cove Creek, which discharges to the east of the southern extremity of Grand Manan, and into which these fish entered in immense numbers in the spring. At that time cod, haddock, and pollack, as well as halibut, were taken in great abundance in Seal Cove Sound, between Hardwood Cove, on Wood Island, and Indian or Parker's Point, on the main island. They were to be met with during the greater part of the year especially from May to January; and the fishery in the channel-way within a quarter of a mile of the shore was really more productive than on the banks much farther out to sea.

Although still a young man, Mr. McLaughlin recollects the capture of these fish; and, indeed, as a mere boy enjoyed the sport within a very short distance of his father's house. Soon after that time a dam was built across this stream about 200 yards above its mouth, cutting off entirely the upward passage of the alewives, and by a remarkable coincidence, if it be nothing more, the cod-fishery in question diminished very soon after, and in a few years ceased almost entirely, so that up to the present time there are not enough cod in those waters to repay the experiment of attempting to catch them. A few alewives still find their way up to the foot of the dam, but in such small numbers as to make it often doubtful whether there are any there or not.

The other fishing-grounds about Grand Manan are farther out to sea,

at the northern end of the island, where there are no alewives, and where herring appear to be the principal food, although the variation in the abundance of these in different seasons appears to have an important bearing upon the number of hake and cod.

If these conclusions be correct—and I am quite satisfied of their general validity—we have, for the efforts made to establish fish-ways in the rivers of Maine, New Hampshire, and Massachusetts, a much more weighty reason than that of merely enabling a few salmon to enter the streams in order to permit their capture while on their way.

Whatever may be the importance of increasing the supply of salmon, it is trifling compared with the restoration of our exhausted cod-fisheries; and should these be brought back to their original condition, we shall find, within a short time, an increase of wealth on our shores, the amount of which it would be difficult to calculate. Not only would the general prosperity of the adjacent States be enhanced, but in the increased number of vessels built, in the larger number of men induced to devote themselves to maritime pursuits, and in the general stimulus to everything connected with the business of the sea-faring profession, we should be recovering, in a great measure, from that loss which has been the source of so much lamentation to political economists and well-wishers of the country.