

**NOTES ON THE HERRING FISHERY OF MASSACHUSETTS BAY IN THE AUTUMN OF 1882.****By CAPT. J. W. COLLINS.**

The herring fishery prosecuted in Massachusetts Bay and contiguous waters during the fall of 1882 has presented some phases which are of special interest. The peculiarities exhibited are :

I. The apparent disinclination of the fish to approach as close to the shore as was formerly their custom.

II. The accidental capture of many schools of herring, in the night, by the purse-seiners, at various distances from land.

Before entering into a discussion of these topics I shall allude, briefly, to the arrival of spawning sea-herring in several distinct schools on the coast of Maine, during the spring and summer ; and to the marked degree of consistency and regularity which these fish exhibit in making their annual visits to certain localities. I designate them as *sea-herring* in contradistinction to the smaller fish which frequent the shores during the greater part of the year. The large herring come inshore apparently only for the purpose of reproduction, for I have never known any of them to make their appearance on the coast except when they were in a gravid condition. At other times they are usually found only on or near the outer fishing-banks from 30 to 150 miles from the coast.

In the spring, during April and May, the schools of herring, which are found in the vicinity of Eastport, generally come to deposit their ova. In the latter part of July and beginning of August, spawning herring are abundant about Boisbubert Island, near Millbridge, on the coast of Maine, and many small vessels resort to that locality and obtain their fares with gill-nets. I have been told by several of the old residents of Isle au Haut that for many years previous to 1850, two distinct schools of large spawn-herring visited the shores of that island with an almost undeviating regularity. One of these schools made its appearance about the middle of July, and remained one month ; the other came in about two months later, staying about the same length of time. A remarkable circumstance, in this connection, was that these bodies of fish occupied different spawning grounds which were distant from each other about four or five miles. The summer fish visited the western part of the island, and those which came later struck in at the eastern end. Since 1850 the appearance of these herring has been very uncertain. Sometimes they would come in great abundance, but more frequently would not be seen at all, yet within the past ten years vessels have occasionally obtained full fares of these large spawn-herring at Head Harbor on the western part of the island. For the last few years schools of spawn-herring have been found in Castine Harbor, and also at Crabtree Point, the southernmost extremity of North Haven,

in Penobscot Bay. The fish have usually been found at the latter locality some two weeks after they occurred at Castine, at which place the school struck in two or three weeks after the height of the fishing at Boisbubert was over. The next school of herring of importance that visits the coast of Maine is the one which has for a number of years regularly been found at Wood Island, and the vicinity, on the coast of Western Maine. These fish approach the shore usually from the 10th to the 15th of September, some two weeks, or more, after the herring have left the waters of Penobscot Bay. So regular has been the appearance of herring at Wood Island for a number of years, and so great is their abundance during a period of two or three weeks, that large numbers of small vessels with gill-nets resort to that harbor about the middle of September, to engage in the capture of these fish. The next school which visits our coast for the purpose of spawning is that which strikes the northern shores of Massachusetts Bay and adjacent waters a short time after the first appearance at Wood Island. This latter body is the one which is now especially under consideration. The foregoing remarks in regard to other schools of this species are intended merely to give a general idea of the several bodies of herring which spawn on our shores during the spring and summer.

Whether the herring that visit Massachusetts Bay are the same or a portion of the same school that strike in at Wood Island, is, perhaps, an open question; but it seems probable that while they may possibly not be the same school they are nevertheless the left wing, so to speak, of the great army which approaches the coast at that season, the right wing reaching Wood Island, where, after the act of reproduction is consummated, they leave the coast. Ordinarily the herring which come in for the purpose of spawning move with regularity and precision directly for the shores, where they deposit their eggs. There is no doubt but that their movements, at this particular time, are dependent, for the most part, on the temperature of the water, and their close approach to the coast may be accelerated or retarded by an unusual variation of the temperature from its normal condition. From the observations which have been made it appears that they prefer to spawn along the coast when the temperature of the sea-water has fallen to about 35° or 40° F. Captain Martin tells me that for the three years previous to 1882, the fall school of herring did not approach the shore at Cape Ann until the temperature was down to 35° F.; but that during the present fall (1882) the fish came in on the 18th of September, at which time the temperature was 50°. It is worthy of remark, however, in this connection, that notwithstanding the fact that a few schools of herring came in close to the shores, the greater part of the main body of the fish appeared to keep off at a distance of several miles from the coast. According to Capt. William B. Parsons, of Rockport, Mass., the herring-catchers began fishing in Ipswich Bay, near Rockport, about the first of October, but the catch was very small for the first week, and the few fish taken were sold principally for bait. Captain

Parsons thinks that there were not more than 500 barrels of herring caught during the first seven or eight days, and after that little or nothing was done, the school evidently having passed by Rockport on its way to the westward. Notwithstanding the fact that so few herring were taken at Rockport, Mr. Parsons is of the opinion that there has rarely been seen such a heavy body of this species on our coast. He says that the fish did not seem inclined to come inshore, but kept off too far to be taken in the gill-nets which are usually set near the land. The herring, after passing to the westward of Thatcher's Island and entering Massachusetts Bay, apparently still kept at some distance from the land (at least the greater part of the schools), and many of the fish deposited their spawn on rocky "spots" of bottom several miles from the shore. Many of the Gloucester boat fishermen report that their anchors and anchor-lines would frequently be covered with herring spawn in twenty-five fathoms of water on the codfishing grounds off-shore. In consequence of this disinclination of the herring to approach the coast the fleet of small vessels (numbering from 75 to 100 sail, or more, which engage in gill-netting at this season and make their headquarters at Gloucester Harbor) met with poor success. In regard to this matter the Boston fish bureau reports on October 20 as follows: "Our offshore catch of herring is proving a failure; not much has been received from it, and few, if any, more fish are now looked for."

The following notices of arrivals at Gloucester of herring vessels, and of the captures of herring in gill-nets by the small vessels which make their rendezvous at that port, are taken from Captain Martin's journal of the Gloucester fisheries, and may, perhaps, give an idea of the fishery of this fall:

*October 5.*—Schooner Wave, gill-netter, arrived from Wood Island with 150 barrels.

*October 6.*—Fifty barrels of large spawn-herring were caught in Gloucester harbor by the fleet of boats and small-vessels. Seventy-five barrels of smaller fish were taken on the same day off Milk Island.

*October 7.*—Schooner Mary Elizabeth, gill-netter, arrived from Wood Island with 140 barrels of herring. On the same date 25 barrels were caught in gill-nets in Gloucester harbor, and 20 barrels in a fish-trap off Milk Island.

*October 9.*—Two hundred and twenty barrels of herring were landed, part of which were taken with seines off-shore.

*October 10.*—Fifty barrels of herring were caught in gill-nets in Gloucester harbor.\*

*October 11.*—Captain Martin reports that 75 small vessels were lying in the outer harbor of Gloucester engaged in fishing for herring with gill-nets. He also says there were 450 nets set at that date off Norman's Woe and Eastern Point, in which 75 barrels of herring were caught.

\*The gill-nets, as a rule, are set near Eastern Point, Norman's Woe, and westerly to Kettle Island.

While these exceedingly poor returns were being obtained by the gill-net fishermen near the shore, herring occurred, as has been previously mentioned, in extraordinary abundance in the deeper waters at some distance from the land, and many were captured in purse-seines at night; the schools of these fish having been mistaken for mackerel. These captures of herring in purse-seines, though not especially important in themselves, are nevertheless interesting in so far as they demonstrate the adaptability of purse-seines to the capture of herring as well as other species which school at the surface, and suggest the feasibility of their profitable employment in European waters. It is well known that one of the most important as well as the most valuable fishery of Europe is that for herring, which have heretofore been taken at sea exclusively by the use of gill-nets; but the advantage of using purse-seines in the European herring fishery cannot be doubted when we take into consideration the large catches made by our mackerel fishermen during the present fall, and this, too, without any special effort having been made. Indeed, it is a fact that whenever the fishermen were assured that the fish they saw at night were herring, they invariably desisted from the pursuit.

The following are a few of the many captures of herring in purse-seines:

*October 1.*—The schooner A. R. Crittenden, arrived in Gloucester with 150 barrels of large spawn-herring which she caught in a purse-seine, the night before, eight miles southeast of Thatcher's Island.

According to the report of the Boston Fish Bureau, one of the mackerel fleet arrived at Boston on Thursday, October 5, with 200 barrels of fresh herring, caught in a purse-seine between Boston and Minot's Ledge light-house.

On October 6, the following vessels arrived at Gloucester with fresh herring caught with purse-seines the previous night:

The Florence E. Nightingale, of Swampscott, with 50 barrels; the A. C. Newhall, of Gloucester, with 60 barrels; Magellan Cloud, of Gloucester, with 120 barrels. October 7, the schooner Rushlight, of Gloucester, arrived with 80 barrels of herring caught the previous night five miles east of Thatcher's Island.

More instances might be cited of the capture of herring by mackerel-schooners; but this, doubtless, is sufficient to show what might be accomplished in the herring fishery by the use of purse-seines.

The price of herring in our markets, however, is rarely high enough to offer any inducement for the purse-seiners to engage in this branch of the fishery; and, as previously stated, no attempt would be made to surround the schools if the fishermen knew they were composed of herring. I have been assured that in some instances, herring, after having been inclosed in the seine, have been allowed to escape, in order that the fishermen might not lose their time, which would, perhaps, be more profitably employed.