PART XI.

THE POUND-NET FISHERIES OF THE ATLANTIC STATES.

By FREDERICK W. TRUE.

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PART XI.

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1. IMPORTANCE AND LOCATION OF THE FISHERIES.

The pound-net fishery is an important one, both in view of the great quantities of fish taken and on account of the powerful influence it is supposed to exert in reducing the supply of shore-haunting species. Few forms of fishery apparatus are more effective in gathering in all kinds of fish, both large and small, whether swimming at the surface or along the bottom, than the great pound-nets of Massachusetts. Hook-and-line fisheries, and even the majority of seine fisheries, do not compare with the pound fisheries in the magnitude of their results. Again, while most forms of apparatus imply very considerable skill in the fisherman, the pound-net requires none. It operates by certain constant peculiarities of tides and fishes, which remain in force whether the fisherman be awake or asleep.

The distribution of pound-net fisheries along the sea-shore, as well as of the varieties of apparatus used, is modified largely by the configuration of the coast. Where it presents high cliffs looking directly seaward, the deep waters at whose base are lashed to foam in every storm, we shall look in vain for pound-nets. It would be folly to set them in such places. Those most stoutly built can scarcely withstand the violence of the open sea even on a sandy and gradually sloping shore. All other things being equal, the more sheltered a situation is the more suitable it is for the erection of these nets. For this reason we find them grouped together in bays and inlets and in the mouths of rivers. It is not to be supposed, however, that a soft, sandy, or muddy bottom is necessary for the establishment of nets. The ingenuity of the fishermen is sufficient to enable them to erect pounds on a bottom of solid rock, and in fact those in use in Maine are so built almost without exception.

The present distribution of pound-net fisheries on our Atlantic coast is in some respects a peculiar one, and will doubtless suffer many changes in coming years. Hundreds of miles of coast, especially southward, have never been appropriated for this fishery, although apparently eminently suitable for it. At present the most important pound-fisheries are those of Cape Cod, Massachusetts, and the adjacent islands. Nets are extensively in use both on the northern and southern shores of the cape, but, as I shall presently show, the fisheries of the two regions are quite distinct. Many nets are in use on the north shore of Martha's Vineyard, and a few about Nantucket and the Elizabeth Islands and in Buzzard's Bay. North of Cape Cod we find no pound-nets, if we except the very few employed at Cape Ann, until we reach Portland Bay, on the coast of Maine.

South of Cape Cod we find fisheries in Narragansett Bay, along the eastern half of the Connecticut shore, and at the eastern extremity of Long Island. A few nets are in use in New York

Harbor. From thence southward a long stretch of unemployed coast intervenes, the next fishery being in Delaware Bay. Albemarle Sound is the most southerly region in which pound-nets are in use. In importance the fisheries of Vineyard Sound and Massachusetts Bay rank first; those of Cape Ann are the least developed. Each of the more important fisheries has peculiarities as regards apparatus, methods, and ends, which I shall now briefly notice.*

2. THE POUND-NET FISHERIES OF MAINE.†

A discussion of the pound-net or weir fisheries on the coast of this State is given by Mr. Earll in the chapter on the herring fishery, and need not be repeated here. The fishery is quite different from that of any other portion of the coast.

The catch consists almost exclusively of herring. The high-flowing tides, numerous and irregular inlets, and prevailing rocky bottoms of the region have induced the use of a kind of brush weir, very simple in construction and readily adaptable to different situations. The quality, and consequently the cost, of these weirs has varied much within the last quarter-century, following the many new departures which have taken place in the fishery industry of the State within that period. A few years prior to the war of the rebellion the demand for smoked herring had become a very considerable one, and the weirs, particularly east of Penobscot Bay, were largely taxed to furnish the supply, from which it naturally resulted that they were built more substantially than before. With the close of the war the demand for smoked herring declined, and the products not being in request the weirs were suffered to deteriorate. This condition of affairs prevailed to such an extent that in 1875 less than one-fourth the number of weirs were in sound condition than had been employed in 1860. In the former year, however, the sardine industry began to assume importance, and since that time the demand for herring, especially for small herring, has been constantly on the increase. Well-built weirs have therefore been once more brought into operation, while at the same time the fishing season, which formerly extended from August to November, has been much protracted, and lasts from March to December. This last change will be looked upon with disfavor by those who believe that the pound-net fishery leads to the extermination of certain species of fishes.

In addition to these larger weirs, others, smaller and much inferior, have been constantly in use in supplying herring for bait, especially for the great lobster fishery of the State and other local fisheries, and sometimes, too, for the offshore fisheries. These have never varied much in quality or size.

Two or three heart-pounds have also been in use in Maine, a little to the eastward of the entrance to Portland Harbor, for a few years. They have practically formed the material of an experiment, and one which has been fairly successful. They resemble the brush weirs in nothing, but are closely allied to the pound-nets of Cape Cod. They cost at least $1,000 apiece, and serve in the capture of a variety of fish which are sent fresh to market. It is very doubtful whether any more of these nets will be introduced into Maine.

The financial arrangements of the weir-fishery, like the weirs themselves, are quite simple. Each of the smaller weirs costing not more than $50, and frequently much less, is usually owned by a single fisherman. Quite commonly it is necessary to replace them annually, for the crush of

* The pound-net fishery of the Great Lakes is considered in the chapter on the Great Lakes. In this chapter pound-nets include the several kinds of fish traps locally known as brush weirs, weirs, traps, or pounds, the construction of which is described in another part of this report.

† The pound-net fisheries in the rivers of Maine are described by Mr. Atkins in the next chapter.

the winter's ice "leaves not a rack behind." Even in connection with the larger weirs there is no elaborate financial organization. Usually about four men contribute to buy the weir, and are themselves fishermen for themselves.

The results of Mr. Earll's investigations show that there were in Maine, in 1880, 132 weirs, valued at $27,500.

3. THE POUND-NET FISHERIES OF CAPE ANN.

Until the year 1874 no attempt had been made in the vicinity of Gloucester to capture fish by the use of traps, pounds, or weirs. In that year a floating trap was set at Milk Island, on the outside of the cape, and a successful trap fishery has been carried on there since that time. In 1880 there were fourteen traps along the shores of Cape Ann, from Manchester to Annisquam. Most of them were made of old seine-netting, and they were therefore of little value. The fish taken in 1880 were chiefly herring and mackerel, valued at $18,000. A description of the trap in use here is given in another part of this report.

4. TRAP FISHING ON THE NORTH SIDE OF CAPE COD.

LOCATION OF THE TRAPS.—The fisheries of Cape Cod and the adjacent islands are of much greater moment than those of Maine. As I have already implied, the pounds located in Massachusetts Bay are quite different from those in Vineyard Sound, and the fishing is differently prosecuted.

The restless waters of Massachusetts Bay have caused many changes in the configuration of the northern shore of Cape Cod. Moved by their power, the sand has spread itself in an even plain, extending from high-water mark a half mile seaward, and but little inclined to the plane of the horizon. Relentlessly it has filled the old-time harbors, and thereby stifled the activity of the north-shore fishing-towns of former days. But while the vessel fishery has forever disappeared from many of the towns, the weir fishery has taken its place to a considerable extent. We may, however, with the old fishermen, look somewhat regretfully upon a change which has taken the profits of labor from the many and bestowed them upon the few.

The north-shore weirs,* as I saw them in 1880, were set at intervals along the shore from Truro to Sandwich. With but two or three exceptions they are "shoal-water" weirs, built according to a single model, and varying only in dimensions or occasionally in the absence of one "wing." The leaders run out to the edge of the great shore-shoal, being in several cases not less than half a mile long.

The manner of working the weirs is somewhat peculiar, though very simple. As one passes along the north shore roads, running parallel to and a mile or more distant from the beach, one sees narrow trails leading off at right angles through the unfenced, pine-covered, and sandy fields.

If the curious traveler, desirous of knowing how these by-ways were made and whither they lead, turns into one of them when the tide in the bay be a little past the ebb, he will not long be in ignorance. At a sudden turn in the narrow lane he will come upon the fishermen, in their single-horse, two-wheeled carts, returning from the weirs with loads of fish. Twice between sunsets, during the height of the season, they drive from their houses through these lanes down to the shore, across the great wet beach and into the weirs. The fish are shoveled into the carts and carried back to the fishermen's houses, where they are packed for transportation by rail. In the upper part of the cape the towns lie near the shore, the pine barrens give place to extensive salt marshes, the water offshore is deeper, and one sees little of the odd lanes and two-wheeled carts.

* For description of these weirs see section on APPARATUS.

Boats are now generally employed in removing the fish. In pleasant weather and when the tides ebb very dry the use of carts does not involve unusual labor, but at the opening and closing of the fishing season, in May and November, when the chilly water is high in the outer part of the weirs even at lowest ebb, the work of removing the fish is most arduous. The fishermen must oftentimes wade to their waists or above in the cold water, the carts float and knock against the walls of the weirs, and the horses, half standing and half swimming, become restive and troublesome. The hearts of many men would doubtless be gladdened if the tides would henceforth ebb and flow at the same hours every day, and of none more than of the weir fishermen. At present they are forced to be at their posts at all hours, now in broad day, now in the darkness of midnight.

SPECIES CAPTURED.—The weir fishery of the north shore of Cape Cod is practically a bluefish fishery; at least it is principally upon this species that the owners depend for profits. In spring and fall great quantities of mackerel, alewives, and sea-herring are taken. Many pounds of flounders and eels are also caught, and in some seasons tautog, shad, and striped bass. Menhaden were formerly an important factor of the catch. An occasional salmon is taken. Sometimes a "delicate monster," in the form of a loggerhead, or leather turtle, or a white whale, strays into a weir, and is offered at the shrine of science by the not ungenerous fisherman. An important article on the products of the weir fishery of the north shore was published in the Yarmouth Register in June, 1870. It is so entertaining that I may be pardoned for quoting it in full:

"We have noticed many cart-loads of that not very inviting-looking fish known as the 'skate' passing our office during the past week, and understand that the entire catch of this fish in the Independent Weir has been purchased by Mr. Wilson Reyder, of Barnstable, who uses them for manure. That of the Yarmouth Weir has been purchased by Mr. Enoch F. Reyder, who finds it remunerative to boil them down and convert them into 'fish guano,' while the livers yield considerable oil. The catch is large at this season of the year, as many as 7 or 8 tons being sometimes taken in a single weir at a tide. More than 30 tons were taken from the Yarmouth Weir last month. A visit to the interior of a fish-weir, when the ebbing of the tide has left it nearly or quite dry, is interesting. More varieties of fish find their way into these 'traps' than most people imagine are found so near inshore—codfish, mackerel, squid (sometimes in immense numbers), porgies, herring, dogfish, salmon (occasionally), bluefish, bass (generally the striped bass), skate, lobster, flatfish, shad, now and then a shark, and a great variety of smaller fry, horseshoe crabs, &c. Bass and bluefish are the staple catch in the weirs off Yarmouth, though all the above varieties are taken.

"For some years past the first bluefish of the season in the Yarmouth Weir has been taken on the 2d day of June, so that now the skirmishers of this finny army are regularly looked for and confidently expected at that date. From that time until the season closes this voracious fish is a regular visitant, the catch varying from a dozen or two to several hundred at a tide. A 'pound,' as the interior trap of a weir is called, filled with these fish, presents an exciting and animated spectacle when the tide has ebbed so far that they are only partially covered with water. The ferocity and strength of the species is then shown by their frantic efforts to avoid their certain fate, their darting and snapping and fighting; and the looker-on is impressed with the idea that a company of sharks would not fight more desperately than they if occasion offered.

"Porgies are generally taken, if taken at all, in immense numbers, though their visits are not frequent in our weirs. Until within a few years the weirmen have not cared to find their pounds filled with these fish, but now the case is different, as the very fact of their coming in such numbers makes them a more valuable catch, and they are used for their oil and the manufacture of guano.

"All the edible varieties of fish taken in our weirs find a ready market in New York, where they are sent, packed in ice, every day. The weirs are visited every tide, and all of value brought to the shore, while the 'trash' is thrown outside, to be carried off by the next tide."

DISTRIBUTION OF THE CATCH.—Most of the pounds on the north shore are in direct communication with the markets by rail. The Cape Cod branch of the Old Colony line threads its way along the entire cape from Sandwich to Provincetown, and during the height of the fishing season special trains are frequently run in the interests of the fisheries. The favorite market is Boston, as being nearest, but great quantities of fish are sent to New York and Philadelphia, and occasionally as far south as Baltimore.

The mass of the products is shipped fresh, packed in ice. Almost all the weir companies are in the habit of buying boards cut in suitable lengths for shipping-boxes, the latter being put together as fast as they are needed. The weight of a full box ready for shipment is about 300 pounds. About the packing-houses of the more important weir companies, such as Philip Smith's, at Eastham, one sees great piles of these boards, which give the premises the appearance of small lumber-yards.

THE WEIR COMPANIES.—The business organization of the north-shore weir companies is not complicated. Usually four or five men own the weir, two or three of whom act as fishermen and one as bookkeeper. In the larger companies, however, the number of stockholders is often not less than ten or twelve, and the majority do not take an active part in the real work of the company, but simply invest their money here as they would in any other enterprise. The stock frequently amounts to several thousand dollars, and covers the cost of the weir, ice-houses, horses and carts, boats, tools, boxes, and other necessary apparatus and accessories of the business. In favorable years the investment is a profitable one. The more impecunious fishermen look with envy upon the wealthy weir-owners, and many regard them as at once the destroyers of their financial prosperity and of the fishes from which it might be derived. The Nobscussett Weir Company of Dennis, in 1872, declared a dividend of 20 per cent.* The interest on the capital is usually not less than 10 per cent.

Nearly every company has an agent at the markets, who sells the fish and forwards the money obtained to the bookkeeper, after deducting his commission. The agents have almost unlimited powers in many cases, and seem to be implicitly trusted by the fishermen.

The running expenses of the companies are made up of items for packing-boxes, ice, transportation, commission fees, and for repairs on the weirs. The last is an important item, for it frequently happens that the weirs are kept in the water too late in the fall, and, encountering the violence of an autumnal gale, are torn to pieces and thrown upon the shore.

6. TRAP FISHING ON THE SOUTH SIDE OF CAPE COD AND IN VINEYARD SOUND.

LOCATION OF THE POUNDS.—On the shores of Vineyard Sound we find quite a different pound fishery from that existing on the north side of the cape. The pound-nets here employed are "pounds," properly so called, being constructed entirely of netting. The huge seas which roll through the sound in stormy weather would make quick work of the destruction of lath pound-nets if the fishermen were foolish enough to attempt to employ them. The ordinary form of "heart-seine" is the net most employed,† but at Waquoit and some other places "square pounds,"

* See Provincetown Advertiser, January 10, 1872.

† See section on APPARATUS for description of these pounds.

or pounds without curved lines, are successfully operated. The Monomoy pounds are double—that is, they have two leaders and two hearts and bowls, the second leader extending outward from the first bowl.

The most important fisheries are at Chatham, off Monomoy Point, and along the western portion of the north shore of Martha's Vineyard. Other stations exist, however, at intervals from Chatham to Wood's Holl, on the south shore of Cape Cod, among the Elizabeth Islands, about Nantucket, and the eastern portion of the north shore of Martha's Vineyard. The fishery seems most completely organized at Monomoy. The nets are set westward from the shore on the great flats that extend off the point in that direction, and at but short distances from one another. Along the south shore of the cape they are placed in the shallow bays and inlets; westward, about Falmouth, at the outlets of the curious fiords of that region. The nets about the Elizabeth Islands are not of great importance, if I may exclude the Rhode Island traps which have been introduced there, to which I shall allude when treating of the fisheries of that state. Along the Vineyard shore the pounds are placed in the inlets, such as Lombard's Cove, Menemsha Bight, and others.

Unlike the fisheries of the north shore, the stations in Vineyard Sound are remote from the villages. This is notably the case at Monomoy. The fishermen establish a colony there at the opening of the fishing season, and remain until it is past. Each party, consisting of about ten or twelve men, is accompanied by two cooks, that there may be no lack of digestible and strength-giving food, and a bookkeeper, that the accounts may be in order. One or more fish-houses, in which the fishermen live, stand opposite each pound-net. The arrangements are not so elaborate on Vineyard Sound, and at the west end of the cape the pound nets lie comparatively near the dwellings of the fishermen.

The season at Monomoy extends from the 10th or middle of April to the last of May or 1st of June. It extends over a much longer period on the Vineyard, but the pounds are usually up during the heated term in the summer.

CARE AND DISPOSITION OF THE CATCH.—The catch of the Vineyard Sound pounds includes a great variety of species of fish, the number and size of each kind varying, of course, greatly in different parts of the season. The most important factors in the product of the fishery are mackerel, sea-herring, menhaden, alewives, flounders, and shad. Scup are not usually taken to any considerable extent. Some of the pounds on the north shore of Martha's Vineyard catch great quantities of squid, which are sold to the vessel fishermen for bait, as is also the major portion of the menhaden and alewives taken in all the pounds.

It is not unusual for the Martha's Vineyard companies to secure considerable quantities of bonito and Spanish mackerel. I remember that while at Menemsha Bight in 1879, at the fish-house of one of the pounds a flag was flying in order to signal to the smacks, which were lying at a distance, that the pockets of the net were full of bonito. This fish and Spanish mackerel seem to vary greatly in abundance from day to day, the hauls of the pounds for a week at a time perhaps containing not a single specimen of either species. The arrangements for disposing of the products of the weir are quite different from those employed by the north-shore companies. From the pounds of Monomoy Point the products are conveyed to market by way of Dennisport. They are carried from the nets to that place in small sloops, which are pressed into service at the beginning of the season and are kept constantly employed. The fish are, of course, taken from the pounds fresh, and are simply stowed in the boats. When they arrive at Dennisport they are taken out and packed with ice in barrels and other receptacles. Thence they go directly by rail to Boston and New York. Along the western portion of the south shore of the cape, as I have already stated,

the nets are located near the villages and in close proximity to the railroad stations, so that the fish can be immediately transferred to the cars. On the north shore of Martha's Vineyard it is customary, to a certain extent, to send the fish by smacks to New York. Several of the pound companies have, however, made an agreement with certain parties at Wood's Holl—the terminus of one of the branches of the Old Colony Railroad—for the shipment of the products through their agency to the markets. They are taken by boat from the Vineyard to Wood's Holl, and, as in the case of Monomoy, the fish are then packed in ice and shipped by rail. The use of pockets in connection with pounds enables the fishermen to hold the catch until the smacks can arrive from New York; nevertheless, those who are able to do so seem much to prefer sending by the more direct route by rail. The latter arrangement, of course, produces much more regularity in the hours of work in connection with the nets—a matter of very considerable interest to the fishermen. The practice of shipping fish in boxes, so prevalent on the north shore of the cape, is not so extensively in force here. Many fish are sent in barrels, the majority of which are sugar and flour barrels purchased from the local grocers.

FINANCIAL ARRANGEMENTS.—The financial arrangements differ but little from those already described as existing on the north shore of Cape Cod. The net pounds are quite expensive, and it is therefore necessary either that a few men invest a considerable sum or that many invest small sums. It is difficult to obtain a notion of the profits of the companies. The fishermen are quite reticent on this topic, and it would hardly be just to publish what information was actually gathered. It is well known, however, that the profits vary considerably in different years; sometimes they are so great as to make the fishermen feel wealthy at the end of a single season; but, unfortunately, at the close of a succeeding year they may feel correspondingly impecunious. In each company there are many silent partners. Usually only four or five men are actually engaged in fishing the nets. As on the north shore of the cape, one man directs the work, and is styled "captain of the pound." At the Monomoy pounds, as I have already stated, two cooks and a bookkeeper are joined to the force. The wages of the fishermen are about $50 per month.

WEIRS IN BUZZARD'S BAY.—At Fairhaven and at some other points near the head of Buzzard's Bay there are from 25 to 30 pound-nets for the capture of alewives, tautog, scup, squeteague, bluefish, and eels, also menhaden and other species used for oil or manure. The pounds, locally called weirs, are made of twine fastened to poles, and cost from $400 to $500 each. They have leaders 400 to 500 feet long. The average depth of bowl is 18 feet, with a diameter of 50 feet. They are fished from March 15 to July 15, and again from August 15 to November or December. The fishermen pay a land-lease for their weirs of from $5 to $75 a season, according to the location. The catch is marketed at New Bedford and the nearer cities, Boston, New York, and Philadelphia.

Mr. D. W. Deane, who for more than twenty-five years has been engaged in fishing with weirs in Buzzard's Bay, gives the following dates of the first appearance of each species of fish in 1880:

"March 24, caught the first menhaden, alewife, smelt, tomcod, flatfish; April 1, tautog, skate, perch; April 6, sea-herring, eel; April 14, shad; April 15, striped bass; April 17, scup; April 24, dogfish, mackerel; April 26, rock bass; April 27, sea-robin; April 28, squid; May 8, butterfish, kingfish; May 11, squeteague; May 12, flounder; May 13, bluefish; June 8, stinging ray; June 7, sand shark; June 10, shark; June 25, bonito. On July 10 the weirs were taken up, and put down again August 26, on which day the first seres was taken. This is a gold-colored fish about the size of the scup, a very palatable fish. It is quite common some seasons during August and September. August 30, first Spanish mackerel; September 6, first razor-fish; September 6, first goose-fish."

6. STATISTICS OF THE MASSACHUSETTS POUND-NET FISHERIES.

The statistics gathered by the special agents in Massachusetts in the census year show that the number and value of pound-nets in the State in 1880 were as follows:

	District.	Pounds, weirs, &c.	
		Number.	Value.
1	Newburyport	0	.....
2	Gloucester	14	$6,500
3	Salem	2	600
4	Marblehead	0	.....
5	Boston	1	500
6	Plymouth	0	.....
7	Barnstable	44	52,650
8	Nantucket	1	200
9	Edgartown	9	4,000
10	New Bedford	29	11,100
11	Fall River	6	325
	Total	106	76,875

The amount of the products of the fishery in 1880 must be set down as not less than 9,275,000 pounds as taken from the water, the first valuation of which was not less than $210,000.

7. THE POUND-NET FISHERIES OF RHODE ISLAND.

The pound-net fisheries of Rhode Island have certain peculiarities which are not possessed by those of any other region on our coast. We find no weirs here corresponding to those of Maine or Cape Cod. The coast is too much exposed to permit the use of such a frail apparatus. Pounds similar to those employed in Vineyard Sound are quite extensively in use, and very successfully. The characteristic form of net, however, one which seems to have originated in Rhode Island and has never been extensively employed elsewhere, is the trap.* It is a very simple apparatus, but one which demands the constant care of the fisherman.

As even the tyro in geography and fishery lore would at once suspect, the principal fishing-grounds are in and about Narragansett Bay. A favorite locality is at the mouth of the Saughkonnet River. As I have already stated in another place, a few traps have been introduced by the Rhode Island and Connecticut fishermen among the Elizabeth Islands, but of late years they have not been very profitable.

THE FISHING SEASON.—The fishing season for pounds extends from April to October, although but few fish are taken during the warmest days in summer; a great many pounds, however, are taken up at the end of spring. Traps are not generally in use except in spring, usually from the latter part of April to the middle or last of June. According to Mr. D. T. Church, of Tiverton, the majority of the fishermen of that place go to Seaconnet in spring and fish with their traps for about a month. At the end of that time they dry their nets and use them no more till spring again returns.

THE SPECIES TAKEN.—The principal species of fish taken are scup, bluefish, squeteague, sea-bass, flounders, striped bass, and herring. The herring are usually the fish earliest caught, and are followed by menhaden and squeteague.

* See section on Apparatus for description of this net and the manner of working it.

In the remarks of Mr. E. W. Whalley, of Narragansett Pier, before Professor Baird, in 1871, we find a statement of the usual sequence of fish at Point Judith, and are presented at the same time with a most charming fragment of folk-lore. In reply to the inquiry as to whether fish were not earlier arrived at that point than usual, he replied: "About the same. They expected them in February and got the seines ready. They had them in the water in March. I always judge by the dandelions. When I see the first dandelion, scup come in; I watch the buds, and when the buds are swelled full then our traps go in; when the dandelion goes out of bloom and goes to seed, the scup are gone. That is true one year with another, though they vary with the season. I am guided by the blossoms of other kinds of plants for other fish. When high blackberries are in bloom we catch striped bass that weigh from 12 to 20 pounds. When the blue violets are in blossom—they come early—you can catch the small scoot-bass. That has always been my rule; that has been handed down by my forefathers." *

The fish appear to be moving eastward when taken in Narragansett Bay. This is particularly the case with scup.

DISPOSITION OF THE CATCH.—The facilities for shipping fish from Narragansett Bay by rail are excellent. No difficulty is found in getting the catch safely to market in a very fresh state. They are usually packed, as in other places, with ice in barrels. Good prices are generally obtained.

FINANCIAL ARRANGEMENTS.—The financial organization of most of the trap companies in Rhode Island does not differ from that of the pound-net companies in other regions already described. At Little Compton, according to Mr. Kumlien, the shore suitable for the pound fishery is divided into twenty-one "sets" or sections, of 65 fathoms each. As some sets are better than others, all are drawn for by lot. No one can draw unless he has all the gear required for fishing. A man may have nearly all the necessary apparatus and yet be excluded from the lottery. That the poor man, however, may not be unfairly pushed aside, he is allowed to ally himself with some man richer than himself, thereby forming a firm. A rich fitter often enters into partnership with a poor fisherman, the former furnishing the lacking apparatus, while the latter does the fishing. The nets must be 65 fathoms apart. When three sets exist in one bay the parties occupying the middle one are allowed to use leaders of sufficient length to bring their net in a line with the remaining two. In this same locality, before the Sunday close-time was enforced, the fishermen had the rule that those who were not at their posts on that day got nothing of the profits from the fish taken.

The fishing is usually carried on on shares, the fitter receiving one-third of the gross receipts and the fishermen the remainder, after the expenses of board are subtracted. Usually a fishing-gang consists of six men and a cook. Frequently it occurs, however, that one cook is able to prepare food for two or three gangs of fishermen.

An average trap is worth $350. This amount includes the cost of boats, extra twine, and all other minor appurtenances incidental to the active prosecution of the industry. These traps are seldom owned by a single man, but usually by three or four, the majority of whom are part owners. Many pound-nets are made of condemned menhaden-seine netting, and have therefore no great value.

According to the data collected in Rhode Island in 1880, the number and value of pound-nets in use in the State were as follows:

Traps.	Number.	Value.
Pounds and weirs	166	$56,633

* Report U. S. Fish Commission, I, 1873, pp. 24–25.

This is a marked increase over the number existing in 1877, which has been set down by Professor Goode as thirty.

No difficulty is usually found in securing good prices for the fish in New York and Philadelphia. The markets of Providence and Newport also absorb a very considerable proportion of the products of the fishery.

STATISTICS FOR 1880.—The amount of the catch in 1880, according to the information obtained by Messrs. Kumlien, Wilcox, and others, was about 8,300,000 pounds.

In 1877 the yield of three traps was as follows:

	Pounds.
Flounders	17,225
Tautog	15,675
Scup	112,750
Weakfish	29,325
Sea-bass	10,500
Bluefish	23,625
Total	209,100
Average to the trap	69,700
Estimated yield of the 30 traps in use in 1877	2,091,000

In 1876 the three traps of Messrs. Edward Gladding & Co. and Mr. H. M. Merritt yielded 248,400 pounds of fish, or about 82,800 pounds to the trap.

In 1867 Mr. Benjamin Tallman, of Portsmouth, caught in six traps in nine days $18,000 worth of fish. Estimating the value of the fish at $5 per box, which is not too great a sum, the number of boxes secured was about 3,600, representing 1,260,000 pounds of fish. The average catch to a trap each day was about 23,300 pounds.

8. THE POUND-NET FISHERIES OF CONNECTICUT.

CONNECTICUT RIVER SHAD-POUNDS.—The pound-net fishery in Connecticut for the capture of shad is carried on chiefly at the mouth of the Connecticut River and to the westward. The nets are in every respect similar to those fished on Vineyard Sound, and it is therefore unnecessary for me to do more than allude to them. Full information on this topic will be found in the chapter on the river fisheries of the Atlantic States.

9. THE POUND-NET FISHERIES OF NEW YORK.

LOCATION AND IMPORTANCE OF THE POUND-NET FISHERIES OF LONG ISLAND.—In New York the pound fisheries are confined to Long Island, and are not so extensively carried on as formerly. The height of the prosperity of the fishery seems to have been reached in 1875. The investigations of Mr. Fred. Mather show that there are nets scattered along both shores of Long Island at considerable intervals. They are moved quite frequently, to the end that more fish may be taken.

The nets employed correspond to those in use in Vineyard Sound. Some, however, have no "heart," but merely a funnel leading into the bowl, which may be circular or square. Such nets are known in common parlance as "traps." All the nets have leaders.

The fish most sought for are shad and striped bass. Some of the traps are employed for the capture of the latter species alone. A few Spanish mackerel are taken in many of the nets.

According to the information obtained by Mr. Goode from Captain Ashby in 1877, it appears that certain pounds at Napeague in 1876 caught nothing but squid. Each pound took an average of 15 tons every morning during six weeks. This was during the last of May and through the month of June.

Between Orient and Oyster Bay, on the sound shore, the fishermen are mostly the farmers of that district. To the eastward, however, many nets are owned by non-resident citizens, who purchase the fishing privileges from the resident owners.

About Orient and some other regions the season lasts from May to October, but in Flushing Bay and elsewhere, where the nets are only employed for shad and menhaden, the fishing times *occur only in spring.*

New York market absorbs the greater portion of the products of the Long Island pound-nets. The fish are commonly sent by rail in ice. Many menhaden are used for manure.

The total catch of the pounds in 1880 was not less than 1,566,000 pounds.

Mr. Mather gives the following interesting statistics of two pounds owned by Capt. Henry Ballort at East Marion, and regularly in use for nine years. The owner shipped his fish to New York market in boxes containing 225 pounds. His shipments for nine years were the following:

Year.	Boxes.	Pounds.
1871	272	61,000
1872	321	72,225
1873	363	81,675
1874	320	72,000
1875	251	56,475
1876	146	32,850
1877	236	53,175
1878	241	54,225
1879	113	25,425
Total		515,050

Captain Ballort had kept no record of the separate amounts of various species taken, but recollected the annual catch of Spanish mackerel to be about as follows: 1871, 6,000; 1872, 2,500; 1873, 1,000; 1874–'78, 500; 1879, 10 fish. He says that in 1871 Spanish mackerel were plenty.

The number of pound-nets in use in New York State in 1880 was 87, valued at $43,500.

10. POUND-NET FISHERIES OF NEW JERSEY AND DELAWARE BAY.

We find the main body of the fisheries occupying but two localities, namely, the west shore of New York Harbor to Sandy Hook, and Delaware Bay between Cape May and Dyer's Creek. Some nets are also set about Barnegat Inlet. Pound nets were introduced into New Jersey in 1855, but did not come into general use till 1873. In 1879 there were six pound-nets between Long Branch and Sandy Hook, stocking an average of $10,000 each, and clearing fully $7,000 apiece on fish taken during the season. In 1880 there were eleven pound-nets in the same section and two smaller ones in Sandy Hook Bay. These outer pounds averaged about $8,000 each, and cleared $5,500. The best one stocked about $12,000.

The nets employed in Delaware Bay are peculiar in having two compartments in the bowl, one for fish, and one for king-crabs. The king-crab compartment has stakes at the bottom, netting not being suited to hold these animals. The other pounds are of the ordinary type. These pounds are

much inferior to those at Sandy Hook, being valued at only about $90 each. They were introduced here about 1870. On account of the difficulty of finding a market for their catch they stock on an average only about $400 a season.

The fishing season about Sandy Hook extends from May to November if the weather permits, and in Delaware Bay from March 1 to the middle of June.

The chief varieties of fish taken are weakfish, or squeteague, Spanish mackerel, butterfish, bluefish, sheepshead, bonitos, and shad. In Delaware Bay, as I have just stated, great quantities of king-crabs are caught.

The financial arrangements present no especial peculiarities. The products of the nets go mainly to New York and Philadelphia. The prices are frequently so low that the fishermen cannot dispose of the fish to any advantage, and often let them loose in the water. This is more especially the case southward.

The number of nets in use in the State in 1880 was twenty-seven, valued at $19,800.

Regarding the introduction of pound-fisheries into New Jersey, Mr. Earll says that the first pounds fished there were very small, and were placed along the inner shore of Sandy Hook. The same style of pounds were fished until about 1873, when larger ones were placed along the ocean shore, and their importance in connection with the Spanish mackerel fishery was then discovered. The majority of the mackerel secured about Sandy Hook are now taken in this way. One hundred fish in number was considered an average daily catch for the fishing season of 1879, and 100 to 140 for 1880, though much larger catches were occasionally secured. The best day's fishing for a pound-net in that locality occurred in the summer of 1879 when Mr. Robert Potter took 3,500 pounds, valued at $700, at a single lift.

11. POUND-NET FISHERIES OF THE CHESAPEAKE BAY.

Between New Jersey and Chesapeake Bay there are no pound-net fisheries. In the latter locality the fishery has been engaged in since 1858, having been introduced from New Jersey in that year. Mr. Earll, in his account of the Spanish mackerel fisheries on a preceding page, says that the pound-net was introduced into the Chesapeake against the prejudice of the fishermen, but has revolutionized the fisheries of Virginia. Prior to 1870 the fisheries of the region were of little importance, being carried on with hand-lines and drag-seines for a few weeks in the spring and fall, while to-day the Chesapeake is the center of one of the most important shore fisheries in the United States. The pound-net has not only more than doubled the catch of ordinary fishes, but it has brought to the notice of the fishermen many valuable species that were previously almost unknown to them. In 1880, 162 pounds were fished in Virginia waters, with two others located at Crisfield, Maryland, just above the Virginia line.

In general make-up the net employed in Chesapeake Bay corresponds closely to that in use in Vineyard Sound. Each costs about $1,000, a second set of netting being used when the first is taken out to be dried and repaired. In the warm waters of this region the netting cannot remain down more than two or three weeks without b[illegible]riously injured.

The hauling of the pounds is c[illegible] three or four men from a boat. When there is a large run of "scrap fish," or wher[illegible]arge, a signal is given and a flat boat or scow is sent out from the shore to rece[illegible] It is taken to the point on the outside of the net, and the worthless fish are thr[illegible]st as the marketable ones are sorted out. Frequently both boats are loaded and [illegible]d after reaching the shore.

The average stock for marketable fish during the season for this locality is about $4,200 per net, the marine species named in order of value being Spanish mackerel, taylors, trout, sheepshead, porgies, and mixed fish. If the value be neglected, and the number of individuals be considered, the order should be changed so as to read: Trout, taylors, mackerel, mixed fish, porgies, and sheepshead, with the addition of refuse fish, which are either thrown away or used for fertilizing purposes.

According to the best-informed fishermen, 100,000 trout, 40,000 bluefish, locally known as "taylors," 30,000 Spanish mackerel, 10,000 mixed fish, 3,000 porgies, and 1,000 sheepshead represent the catch of the average pound for 1879. The money value of the catch is divided among the species as follows: Mackerel, 36 per cent.; taylors, 24 per cent.; trout, 21 per cent.; sheepshead, 6 per cent.; porgies, 5 per cent.; mixed fish, 8 per cent.

On the west shore of the Chesapeake the pounds are much smaller and the catch is proportionally less, while the fishing season is also different. Here the pounds are put out in time for the run of shad, which begins early in March and continues until the last of May. After the shad season is over many of the nets are taken up. Almost none remain down through the summer, though a number are fished in the fall for trout and other species. On the eastern shore the law allows pounds to be fished only between the 25th of June and the 1st of October, during which time they are lifted regularly every day when the weather will permit.

12. POUND-NET FISHERIES OF ALBEMARLE SOUND.

In Albemarle Sound, the southern limit of the pound-net fishery, this branch of the industry is not so important as some others which are prosecuted there. Col. Marshall McDonald, who visited this region in behalf of the census, gathered information on pound fisheries, and has given me a summary of his observations.

It appears that pound-nets were introduced here in 1870 by a German, Mr. Hettrick, who still controls some of the more important stations. The nets employed are similar to the Rhode Island traps, but are so constructed as to prevent the escape of the fish. They are located almost without exception at the head of the sound, on the north side.

The fishing season lasts from the middle of March to June. The principal fish taken are white perch, rockfish, herring, and alewives. Considerable numbers of shad are also taken.

The business arrangements of the fishermen are somewhat different from those of other regions. Usually several nets are owned by a single man, who furnishes the netting and buys the fish. The products are shipped to commission agents in the principal cities to which they are sent.

At least half the products supply the local demand, the remainder being sent to Norfolk, Richmond, and Baltimore, from which points, of course, they are again distributed. The fish are taken from the nets to Edenton in six or seven small schooners and sloops of 11 to 15 tons burden; thence they are shipped to the centers, fresh, in ice, in boxes of about 300 pounds each. The majority of the herring, however, are smoked or "struck," and sold to the farmers in the immediate vicinity of the fisheries. It is only in spring that the fishermen find it profitable to send their herring fresh to the larger markets, Philadelphia and Baltimore. In 1880 about 104 nets were in use, worth at an average $400.

A small number of brush weirs are also in use in the sound, but the fishery is not important

In 1880 pound-nets were introduced into the Ogeechee River. Their use is at present experimental. Two or three nets are also in use in the Neuse River.