The Lobster Fishery of Maine eBook

The Lobster Fishery of Maine

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THE LOBSTER FISHERY OF MAINE.

by

John N. *Cobb*,
Agent of the United States Fish Commission.

Bulletin of the United States Fish Commission, Vol. 19, Pages 241-265, 1899

[Illustration: The sailing smack *Bar Bel* of Rockland]

For some years past the condition of the lobster fishery of New England has excited the earnest attention of all interested in the preservation of one of the most valuable crustaceans of our country. In the State of Maine, particularly, where the industry is of the first importance, the steady decline from year to year has caused the gravest fears, and incessant efforts have been made by the United States Fish Commission, in conjunction with the State Fish Commission of Maine, to overcome this decline. This paper presents the results of an investigation by the writer in 1899. All statistics, when not otherwise stated, are for the calendar year 1898.

I am indebted to so many dealers, fishermen, and others for information given and courtesies extended that it is impossible to mention them by name; and I now extend to all my most sincere thanks for their many kindnesses.

[Illustration: The first steam smack to carry lobsters in a well]

NATURAL HISTORY OF THE LOBSTER.

Although the lobster has been of great value to the New England States and the British Provinces as a food commodity, but little was known of its life-history and habits until within the last few years. To this ignorance has been due quite largely peculiar (and in some instances useless) laws enacted by some States. The gradual enlightenment of the public on this subject has borne good fruit, however, and most of the present State laws are founded on substantial facts instead of theories. Prof. Francis H. Herrick has been one of the most prominent of the investigators, and his summary of the present knowledge on this subject is quoted below from the Fish Commission Bulletin for 1897:

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(1) The fishery is declining, and this decline is due to the persistence with which it has been conducted during the last twenty-five years. There is no evidence that the animal is being driven to the wall by any new or unusual disturbance of the forces of nature.(2) The lobster is migratory only to the extent of moving to and from the shore, and is, therefore, practically a sedentary animal. Its movements are governed chiefly by the abundance of food and the temperature of the water.(3) The female may be impregnated or provided with a supply of sperm for future use by the male at any time, and the sperm, which is deposited in an external pouch or sperm receptacle, has remarkable vitality. Copulation occurs commonly in spring, and the eggs are fertilized outside the body.(4) Female lobsters become sexually mature when from 8 to 12 inches long. The majority of all lobsters 10-1/2 inches long are mature. It is rare to find a female less than 8 inches long which has spawned or one over 12 inches in length which has never borne eggs.

(5) The spawning interval is a biennial one, two years elapsing between each period of egg-laying.

(6) The spawning period for the majority of lobsters is July and August. A few lay eggs at other seasons of the year—in the fall, winter, and probably in the spring.

(7) The period of spawning lasts about six weeks, and fluctuates slightly from year to year. The individual variation in the time of extrusion of ova is explained by the long period during which the eggs attain the limits of growth. Anything which affects the vital condition of the female during this period of two years may affect the time of spawning. (8) The spawning period in the middle and eastern districts of Maine is two weeks later than in Vineyard Sound, Massachusetts. In 1893 71 per cent of eggs examined from the coast of Maine were extruded in the first half of August.(9) The number of eggs laid varies with the size of the animal. The law of production may be arithmetically expressed as follows: *The number of eggs produced at each reproductive period varies in a geometrical series, while the length of lobsters producing these eggs varies in an arithmetical series.* According to this law an 8-inch lobster produces 5,000 eggs, a lobster 10 inches long 10,000, a 12-inch lobster 20,000. This high rate of production is not maintained beyond the length of 14 to 16 inches. The largest number of eggs recorded for a female is 97,440. A lobster 10-1/2 inches long produces, on the average, nearly 13,000 eggs.(10) The period of incubation of summer eggs at Woods Hole is about ten months, July 15-August 15 to May 15-June 15. The hatching of a single brood lasts about a week, owing to the slightly unequal rate of development of individual eggs.

(11) The hatching period varies also with the time of egg-laying, lobsters having rarely been known to hatch in November and February.

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(12) Taking all things into consideration, the sexes appear about equally divided, though the relative numbers caught in certain places at certain times of the year may be remarkably variable.

(13) Molting commonly occurs from June to September, but there is no month of the year in which soft lobsters may not be caught.

(14) The male probably molts oftener than the female.

(15) In the adult female the molting like the spawning period is a biennial one, but the two periods are one year apart. As a rule, the female lays her eggs in July, carries them until the following summer, when they hatch; then she molts. Possibly a second molt may occur in the fall, winter, or spring, but it is not probable, and molting just before the production of new eggs is rare.

(16) The egg-bearing female, with eggs removed, weighs less than the female of the same length without eggs.

(17) The new shell becomes thoroughly hard in the course of from six to eight weeks, the length of time requisite for this varying with the food and other conditions of the animal.

(18) The young, after hatching, cut loose from their mother, rise to the surface of the ocean, and, lead a free life as pelagic larvae. The first larva is about one-third of an inch long (7.84 mm). The swimming period lasts from six to eight weeks, or until the lobster has molted five or at most six times, and is three-fifths of an inch long, when it sinks to the bottom. It now travels toward the shore, and, if fortunate, establishes itself in the rock piles of inlets of harbors, where it remains until driven out by ice in the fall or early winter. The smallest, now from 1 to 3 inches long, go down among the loose stones which are often exposed at low tides. At a later period, when 3 to 4 inches long, they come out of their retreats and explore the bottom, occasionally hiding or burrowing under stones. Young lobsters have also been found in eelgrass and on sandy bottoms in shallow water.(19) The food of the larva consists of minute pelagic organisms. The food of the older and adult stages is largely of animal origin with but slight addition of vegetable material, consisting chiefly of fish and invertebrates of various kinds. The large and strong also prey upon the small and weak.(20) The increase in length at each molt is about 15.3 per cent. During the first year the lobster molts from 14 to 17 times. At 10-1/2 inches the lobster has molted 25 to 26 times and is about 5 years old.

As the purpose of this article is to deal more particularly with the commercial side of the lobster question all interested more particularly in the natural history of the animal are referred to the following works:

The Fisheries and Fishery Industries of the United States, sec. I, pp. 780-812.

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The American Lobster, by Francis H. Herrick. Bull. U. S. Fish Com. for 1895, pp. 1-252.

HISTORY OF THE FISHERY.

Ever since the early Puritan settlers first learned from the Indians how to utilize the lobster, it has been one of the most prized articles of food in the New England States. The early town records of Massachusetts contain frequent references to this valuable crustacean, and efforts were made at an early day to conserve the supply.

At first, as most settlers lived on or near the coast, each family could easily secure its own supply, but as the settlements gradually extended farther inland this became inconvenient, and it soon became customary for certain persons living on the coast to attend to supplying the wants of the inland settlers, and thus the commercial fishery was established.

The coast of Maine is very favorably situated for this fishery. In its eastern and middle sections the shore is bold and rocky, while it is cut up by large deep inlets and coves which are studded with numerous islands, large and small, and by bold rocky promontories. Groups of islands are also numerous farther off shore, like the Fox and Matinicus Islands, Deer and Mount Desert islands. Large and small fresh-water rivers are numerous and the granite bottoms of these channels and inlets form admirable breeding grounds. In the western end the shores are not so rocky, being broken frequently with sandy reaches, while the rivers are small and comparatively shallow. West of Casco Bay the islands are infrequent. As a result of this conformation of coast the best fishing grounds in Maine are between Cape Elizabeth and Quoddy Head.

As early as 1830 smacks from Boston and Connecticut visited Harpswell for fresh lobsters, and it is very probable that even before this time they had visited the points farther west in the State, as the history of the fishery, so far as known, shows that it gradually worked to the eastward. This was doubtless owing to the fact that the trend of settlement in the early part of the century was in that direction. It is also probable that, for some time before the people along the coast took up the fishery, the smackmen themselves did their own fishing. This is easily believed when the great abundance is considered. It is known that this was done in Massachusetts.

During summer the lobsters were very common close in shore and could easily be gaffed by boys at low water; but this could hardly be called a regular fishery.

The regular fishery began with the use of hoop-net pots, which were generally of very rude construction, and the facility with which the lobsters escaped from them led to their disuse soon after the lath pots began to be introduced. The lath pots were essentially

the same in construction as those now used on the coast of Maine, and each pair of fishermen then handled between 25 and 50.

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Up to about 1865 it was the custom to set the traps singly, and two men were usually employed in the fishery, one to haul up, empty the pot, rebait it, and drop it overboard, while the other handled the boat. In the latter year it was discovered that by setting the pots on trawls more pots could be set and only one man would be required to work them. This invention, which was claimed by several different persons, proved quite successful for a while, but after a time, when the supply of lobsters began to drop off, better results were secured by scattering the pots over a greater area and shifting their position each time they were fished, which was very easily done. As a result of this the use of trawls decreased very rapidly.

The following facts regarding the early lobster fishery of Maine are from the Fishery Industries of the United States, section v, vol. II, pp. 700, 701:

In 1841 Capt. E. M. Oakes began to carry lobsters from Cundy's Harbor and Horse Island Harbor, Harpswell, to Mr. Eben Weeks, at East Boston. He was then running a well-smack, named the *Swampscott*, of 41 tons, old measurement. The season extended from the 1st of March until about the 4th of July, after which time the lobsters were supposed to be unfit for eating; the black lobsters, or shedders, were even considered poisonous. During this season of four months Captain Oakes made ten trips, carrying in all 35,000, by count. He continued in this trade about six years, taking the combined catch of about five or six fishermen. At this same period the smack *Hulda B. Hall*, 50 tons, of New London, Conn., Captain Chapell, was carrying lobsters from Cape Porpoise, Gloucester, Ipswich Bay, and occasionally Provincetown, to Boston, making 15 trips in the season of four months, and taking about 3,500 lobsters each trip. Captain Chapell was supplied with lobsters by four men at Cape Porpoise, and by the same number at both Gloucester and Ipswich Bay. For four months following the close of the lobster season on the Maine coast, or from July 4 until November, Captain Chapell ran his smack with lobsters to New York, obtaining most of his supplies at Provincetown.In 1847 Captain Oakes purchased the smack *Josephine*, with which he began running to Johnson & Young's establishment, at Boston, in 1848, buying a portion of his lobsters in the Penobscot Bay region, where this fishery had just been started. The quantity of lobsters carried by him that year was 40,000. The prices paid to the fishermen for smack lobsters was as follows: During March, 3 cents each; April, 2-1/2 cents; May and June, 2 cents. In 1850, he began to obtain supplies from the Muscle Ridges, leaving Harpswell entirely, on account of the small size of the lobsters then being caught there. At this time the average weight of the lobsters marketed was about 3 pounds, and all under 10-1/2 inches in length were rejected. The traps were made of the same size as at present,

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but were constructed of round oak sticks, and with four hoops or bows to support the upper framework. A string of bait, consisting mainly of flounders and sculpins, was tied into each trap. About 50 traps were used by each fisherman, and they were hauled once a day. The warps or buoy lines, by which the traps were lowered and hauled, were cut in 12-fathom lengths. Lobsters were so abundant at the Muscle Ridges, at this period, that four men could fully supply Captain Oakes with lobsters every trip. In the course of ten days each man would obtain between 1,200 and 1,500 marketable lobsters. In Captain Oakes' opinion, the Muscle Ridges have furnished the most extensive lobster fishery of the Maine coast. He ran to this locality until 1874.Capt. S. S. Davis, of South Saint George, states that about 1864, when he first began buying lobsters at the Muscle Ridges, three men, tending 40 to 50 pots each, caught all the count lobsters he could carry to market in his smack. He could load 5,000 lobsters at a time, and averaged a trip in 7 to 9 days. This traffic continued for six or seven years. In 1879, Captain Davis bought from 15 men In the same locality, and at times was obliged to buy also of others in order to make up a load.

The fishery at North Haven began in 1848, but did not increase so rapidly at first as in sections farther west, as the smacks would only take the medium-sized lobsters, fearing that the largest would not be able to stand the trip. At Matinicus Island the fishing began in 1868. In 1852 the people on Deer Island began the fishery, and as the smackmen made frequent visits the business rapidly increased. The establishment of a cannery at Oceanville, about 1860, also caused a considerable development of the fishery. The fishery was started at Isle an Haute about 1855, and at Swan Island in the early fifties.

The canning of lobsters was first carried on at Eastport in 1842, but the fishery was not taken up until about 1853, as it was supposed there were no lobsters in the neighborhood. The supplies for these canneries previous to the inception of the fishery were obtained by smacks running to the westward.

For some years the fishery was only prosecuted in the late spring, summer, and early fall months. Just when winter fishing began in the State is doubtful; but according to Capt. Charles Black, of Orr Island, it began in that region in 1845 at Harpswell. Previously the fishermen had the impression that lobsters could not be successfully caught earlier than March 20.

During the summer of 1845 the captains of the well-smacks of New London, Conn., who bought most of the lobsters in that vicinity, induced Charles E. Clay, Samuel Orr, and a few others to fish during the winter, and they set their traps about the same distance from the shore that the fishermen do at present, and in almost the same depth of water. The smackmen paid them $4 for 100 lobsters. The next winter the fishermen refused to sell by number and wanted $1.25 per 100 pounds. The smackmen had no objection to buy them by weight, but refused to pay more than $1.12 per 100 pounds. This was accepted, and for several years the prices were from $1.12 to $1.25 per 100 pounds.

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Comparatively few traps were necessary then, as when the weather would permit the fishermen to tend their traps they would catch from 20 to 30 lobsters daily, and frequently, when the traps were hauled, they would find several lobsters clinging to some part of the pots. The bait was very plentiful and caught with spears.

The lobsters were placed in cars at that time, after having been “plugged” to keep them from injuring each other. The plugs were almost 1-1/2 inches long, flat on one side, round on the other, and with a sharp point. Plugging has since been discontinued, as the trifling injury the lobsters did each other was nothing compared to the value of cans of meat spoiled by one of these pine plugs being boiled with it.

[Illustration: The steam smack *Mina and Lizzie* landing her cargo at Portland]

[Illustration: Fleet of lobster boats in harbor at York Island]

THE FISHING-GROUNDS.

It is difficult to estimate the comparative value of the grounds in the State, owing to the movements of the lobsters. In the early spring, in April or May, as the waters in the bays and rivers warm up, the lobsters come into the comparatively shallow waters. They remain here until late in the fall, going back to the ocean or deep waters of the bays in either October or November. They love to congregate on rocky bottom, and pots set on such bottom will frequently make large catches, while those on sandy or muddy ground will catch almost nothing. In the early years of the fishery they came in very close in great numbers, and could frequently be taken at low water in dip nets or by gaffs; but they are now found in summer in depths of from 3 to 15 fathoms in the numerous passages between the islands and the mainland, and the lower reaches of the bays and rivers. For a number of years winter fishing was not prosecuted, but now it is a very important business. In winter the pots are generally set in the ocean at depths of from 15 to 50 fathoms.

As the greatest part of the coast line is cut up by numerous bays and rivers, and these are dotted with large and small islands, they form admirable breeding grounds for the lobster. Some of the best locations are in Little Machias, Machias, Englishman, Pleasant Point, Chandler, Narragaugus, Muscongus, Linekin, Sheepscot, and Casco bays, while the fishing is especially good around the numerous islands in the lower Penobscot and Blue Hill bays, and at Monhegan and the Matinicus islands in the ocean. The Sheepscot River is also a favorite resort for lobsters during the warm months, while in the winter they retire to the waters of the bay, where the fishing can be carried on very easily. At most of the other grounds the winter fishing is carried on in the ocean, as the lobsters do not usually remain in the bays. Most of the fishing in Casco Bay is carried on at the eastern end among the numerous islands. The earliest fishing of which we have any definite record was carried on from the township of

Harpswell on this bay. This region has held its own remarkably well, as in 1898 more than twice as many lobsters were taken by fishermen from this township than from any other town in the State.

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The upper portions of Frenchman, Blue Hill, and Penobscot bays were formerly very important grounds, but are now almost exhausted. These regions were especially noted for large lobsters. In August, 1891, Mr. F. W. Collins, a Rockland dealer, had 50 lobsters in his establishment which weighed from 10 to 18-1/2 pounds apiece. About half of these came from Castine, in upper Penobscot Bay, and the remainder from Blue Hill Falls, in the upper Blue Hill Bay.

The grounds in York County, at the western end of the State, were formerly quite prolific, but the excessive fishing of the last thirty years has very badly depleted them.

THE FISHING SEASON.

In the early days of the fishery it was customary to fish only during the spring and fall. When the canneries went into operation they usually worked during the spring, early summer, and fall, and as they furnished a ready market for all the lobsters that could be caught this came to be the principal season. At that time it was not thought possible to do any winter fishing, owing to the cold and stormy weather and the fact that the fishing had to be carried on generally in the open sea.

In 1878 a law was passed limiting the canning season to the period between April 1 and August 1. This season was frequently changed by subsequent enactments, but rarely covered a longer period than that fixed in the first law. As at certain places on the coast the canneries were the only market for lobsters the fishery would cease as soon as the canneries stopped. At other places, which were visited by the smacks, some of the fishermen would continue fishing after the canneries closed, selling to the smackmen. At various times a closed season was in force, but at present there is no limitation as to season. The canning industry in the State practically ceased to exist in 1895, and since then the whole catch has had to be marketed in a live or boiled condition. The smack fleet had been gradually increasing as the live-lobster trade extended, and by the time the canneries closed permanently they had extended their visits to every point where lobsters could be had in any number.

At present the majority of the fishermen usually haul out their traps during July and August and put them in good order for the fall fishing. During the excessively cold portion of the winter most of the pots are taken out, but some fishing is done during every month of the year.

The fishermen on Monhegan Island, about 12 miles southeast of Pemaquid Point, agree among themselves to put no lobster pots in the water until about the 1st of January. There is then no restriction on fishing until about May 15, when all pots are hauled out and no more fishing is done until the season begins again. During this season the law in regard to short lobsters is rigidly enforced by the fishermen themselves. Should any outsider visit this island during the close

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time established by the fishermen, and attempt to fish, he is quietly informed of the agreement and requested to conform to it. Should he persist in working after this warning, his pots are apt to mysteriously disappear. As lobsters bring a much higher price in winter than in summer, the Monhegan fishermen reap a rich reward, as the lobsters are very numerous, owing to the 7-1/2 months close time. On the first day the fishermen hauled in 1900 one man secured 293, for which he received 19 cents apiece. The smallest number secured by anyone was 135.

FISHING APPLIANCES.

In most large fisheries for certain species numerous changes occur at intervals in the apparatus used, owing to changed conditions, *etc*., but in the lobster industry changes have been few, and at an early period the fishermen fixed upon a uniform apparatus, which has been in use ever since with but slight modifications, and these generally only temporary.

The earliest form of apparatus used to any considerable extent was the hoop net. This consisted generally of a hoop or ring of about 1/2-inch round iron, or a wooden hogshead hoop, from 2-1/2 to 3 feet or more in diameter. To this hoop was attached a net bag with a depth of 18 to 24 inches as a bottom, while two wooden half hoops were bent above it, crossing at right angles in the center about 12 or 15 inches above the plane of the hoop. Sometimes these half hoops were replaced by short cords. The bait was suspended from the point of crossing of the two wooden hoops and the line for raising and lowering the pots was attached at the same place. As there was no way of closing the mouth of the pot after a lobster had entered, these nets had to be constantly watched, the lobster being in the habit of retiring after he had finished his repast. In using these the fisherman would generally go out in the evening and at short intervals he would haul in his nets and remove whatever lobsters they might contain. The constant attention necessary in attending to these hoop nets led the fishermen to devise an apparatus which would hold the lobsters after once entering and would require only occasional visits, and “lath pots” were found to fulfill all requirements. They acquire the name from the use of common laths in their construction. They are usually about 4 feet in length, with a width of about 2 feet, a height of 18 inches, and in Maine are usually of semicylindrical form.

The following description of this apparatus is from the Fishery Industries of the United States, sec. v, vol. 11, p. 666:

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The framework of the bottom consists of three strips of wood, either hemlock, spruce, or pine (the first mentioned being the most durable), a little longer than the width of the pot, about 2-3/4 inches wide and 1 inch thick. In the ends of each of the outer strips a hole is bored to receive the ends of a small branch of pliable wood, which is bent into a regular semicircular curve. These hoops are made of branches of spruce or hemlock, or of hardwood saplings, such as maple, birch, or ash, generally retaining the bark. Three of these similar frames, straight below and curved above, constitute the framework of each pot, one to stand at each end and one in the center. The narrow strips of wood, generally ordinary house laths of spruce or pine, which form the covering, are nailed lengthwise to them, with interspaces between about equal to the width of the lathe. On the bottom the laths are sometimes nailed on the outside and sometimes on the inside of the cross pieces. The door is formed by three or four of the laths running the entire length near the top. The door is hinged on by means of small leather strips, and is fastened by a single wooden button in the center, or by two buttons, one at each end. The openings into the pot . . . are two in number, one at each end, are generally knit of coarse twine and have a mesh between three-fourths of an inch and 1 inch square. They are funnel-shaped, with one side shorter than the other, and at the larger end have the same diameter as the framework. The smaller and inner end measures about 6 inches in diameter and is held open by means of a wire ring or wooden hoop. The funnels are fastened by the larger ends to the end frames of the pot, with the shorter side uppermost, so that when they are in place they lead obliquely upward into the pot instead of horizontally. The inner ends are secured in position by one or two cords extending to the center frame. The funnels are about 11 or 12 inches deep, and therefore extend about halfway to the center of the pot. They taper rapidly and form a strongly inclined plane, up which the lobsters must climb in their search for the bait. A two-strand manila twine is most commonly used for the funnels. Cotton is also used, but is more expensive and less durable.

[Illustration: Lobster pots]

A change in the shape of the funnel was first made at Matinicus shortly before 1890. This has been called the “patent head.” Large lobsters are said to always go to the top and small ones to the bottom of the pots. By going to the top in the “old-head” pot large lobsters made their escape through the hole, but in the pots with “patent heads” instead of finding their way through the hole the big lobsters slide over it. The “patent head” has not been used to any extent, however. The sketch shown on the following page gives a good idea of the difference in shape.

[Illustration: Old style of head (in general use) and “patent” head]

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In the center of the ordinary pot is a sort of spearhead of wood or iron from 8 to 12 inches long. This has one large barb and is set upright in the middle of the center frame. The bait is placed on this spearhead. Several large stones or bricks are lashed to the bottom of the pot, on the inside, in order to furnish weight enough to hold the pot at the bottom.

As it was noticed that a lobster generally crawled over a pot before entering by the end, some pots of a square form and with the opening at the top were constructed, but they were not successful.

Another variation had a length of 7-1/2 feet and five supporting frames inside instead of three, as in the old pot. These were set at equal distances apart, and had two more funnels than the other, one funnel being attached to each of the frames except the center one, and all pointing inward. In order to reach the bait the lobster had to pass through two funnels, and its chances of escape were thereby lessened. This style is rarely seen now.

Still another variety in vogue for a short time had a trapdoor, on which the lobster had to climb in order to reach the bait; the door then gave way and precipitated the lobster into a secure inclosure.

A few pots are made with a funnel of laths in place of the net funnels. They are the same as the ordinary pot in every other particular.

The ordinary pots cost about $1 to construct.

During certain seasons the pots are badly eaten by “worms,” the shipworm (Teredo) or one of the species of small boring crustaceans. Pots are also frequently lost during stormy weather, and the fishermen therefore have a reserve stock on hand in order to replace those lost or temporarily disabled.

METHODS OF FISHING.

In fishing the traps are either set on single warps or on trawls of 8 to 40 and 50 pots. At first all pots were set singly. The line by which they were lowered and hauled up, and which also served as a buoy line, was fastened to one of the end frames of the bottom or sill, as it is called, at the intersection of the hoop. The buoys generally consist of a tapering piece of cedar or spruce, wedge-shaped, or nearly spindle shaped, and about 18 inches long. They are usually painted in distinctive colors, so that each fisherman may easily recognize his own. Small kegs are also used as buoys.

In the warm season the pots are frequently set on trawls or “ground lines,” as lobsters are quite thick then on the rocky bottom near shore. If the bottom is sandy they are set farther from shore. Lobsters are most numerous on a rocky bottom. In the trawl

method the pots are usually set about 30 feet apart, depending on the depth of water, so that when one pot is in the boat the next will be on the bottom. The ground lines have large anchors at each end and a floating buoy tied to a strong line, which is fastened to the ground line almost 25 fathoms from the anchors. When the last pot is hauled the anchor is far enough away to hold the boat in position. The pots are set at distances from the shore ranging from 100 yards to 5 or 6 miles. This method of setting pots was first used about the year 1865 in Sagadahoc County. The traps are set in from 3 to 10 fathoms in the warm season.

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In winter fishing the pots are generally set singly, as the lobsters are more scattered then and the best results are attained by shifting the position of the pots slightly each time they are fished. This is caused by the drift of the boat while the fisherman is hauling in the pot, emptying and rebaiting it, and then dropping it overboard again. The winter fishing is generally carried on in the open sea, although in a few places, like Sheepscot Bay, the lobsters in winter retire to the deep waters of the bays and can there be caught. The pots are generally set in from 20 to 50 fathoms of water at this season.

Certain fishermen claim that when pots are set on a trawl placed across the tide the catch is greater than when the trawl is set in the direction of the current. In the former case, it is asserted, the scent or fine particles coming from the bait is more widely diffused and more apt to attract the lobsters. In entering, after first reconnoitering around and over the pot, the lobster always backs in, primarily that he may be prepared to meet any foe following him, also because his large claws would be apt to catch in the net funnel should he enter head first. After discovering that he is imprisoned, which he does very speedily, he seems to lose all desire for the bait, and spends his time roaming around the pot hunting for a means of escape.

The pots are generally hauled once a day, but sometimes twice a day in good weather. As the tide along the Maine coast is quite strong, the fishermen usually haul their pots at or about slack water, low tide generally being preferred when they are worked once a day. The number used by a fisherman varies greatly on different sections of the coast. According to the investigations of this Commission, the average number of pots to the man in certain years was as follows: Fifty-six pots in 1880, 59 in 1887 and 1888, 58 in 1889 and 1892, and 50 in 1898. This average, however, is somewhat misleading, as quite a number of persons along the coast take up lobstering for only a few months in the year, and then return to their regular occupations. As these persons use but few pots, the average per man throughout the whole State is very considerably reduced. The regular lobster fishermen have been steadily increasing the number of their pots for several years past. They have found this an absolute necessity in order to catch as many lobsters now as they caught twenty or thirty years ago. It is not unusual now to find one of the regular fishermen handling as high as 100 pots, and sometimes even 125, when a few years ago 25 and 50 pots was a large number. This does not take into account his reserve stock of pots, which it is necessary to have on hand in order to replace those damaged or lost.

[Illustration: Fishermen operating their pots]

BAIT.

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Cod, hake, and halibut heads are quite generally used as bait. Halibut heads are said to be the best, as they are tougher than the cod or hake heads, and thus last much longer. Sculpins, flounders, in fact almost any kind of fish, can be used. In the vicinity of sardine canneries the heads of herring are used. Sometimes the bait is slightly salted, at other times it is used fresh. Small herring are lightly salted, and then allowed to remain until partly decayed, when they are inclosed in small bags, and these put into the pots. The oil from this bait forms a “slick” in the water, and when the smell from it is strong the fishermen consider it at its best. The bait is generally secured by small haul-seines and spears in sections where offal can not be bought.

FISHING VESSELS AND BOATS.

The fishing vessels are either sloop or schooner rigged, with an average net tonnage of slightly over 8 tons (new measurement) and an average value of about $475. There has been a great increase in the number of these vessels during recent years. Eight vessels were used in 1880, 29 in 1889, and 130 in 1898. Quite a number of these vessels are used in other fisheries during their seasons. Two men usually form a crew, although three, and sometimes four, are occasionally used.

The other vessels comprise sailboats under 5 tons and rowboats. The sailboats are generally small square-sterned sloops, open in the afterpart, but with a cuddy forward. They are all built with centerboards, and some are lapstreak while others are “set work.” Around the afterpart of the standing room is a seat, the ballast is floored over, and two little bunks and a stove generally help to furnish the cuddy. They vary in length from 16 to 26 feet and in width from 6 to 9 feet; they average about 2 tons. They are especially adapted to the winter fishery, as they are good sailers and ride out the storms easily.

Dories are in quite general use in the lobster fishery, as are also the double-enders, or peapods. This latter is a small canoe-shaped boat of an average length of 15-1/2 feet, 4-1/2 feet breadth, and 1-1/2 feet depth. They are mainly built lapstreak, but a few are “set work.” Both ends are exactly alike; the sides are rounded and the bottom is flat, being, however, only 4 or 5 inches wide in the center and tapering toward each end, at the same time bending slightly upward, so as to make the boat shallower at the ends than in the middle. This kind of bottom is called a “rocker bottom.” They are usually rowed, but are sometimes furnished with a sprit sail and centerboard.

TRANSPORTING VESSELS OR SMACKS.

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Even before the lobster fishery had been taken up to any extent, the coast of Maine was visited by well-smacks from Connecticut and New York, most of which had been engaged in the transportation of live fish before engaging in the carrying of lobsters. These vessels sometimes carried pots, and caught their own lobsters; but as this method was not very convenient, the people living along the coast took up the fishery, and sold the lobsters to the smackmen. About 1860 the canneries began to absorb a considerable part of the catch, and they employed vessels to ply along the coast and buy lobsters. As these vessels would only be out a few days at a time, wells were not necessary, and the lobsters were packed in the hold. In the summer great numbers of them were killed by the heat in the hold. After 1885 the canneries rapidly dropped out of the business, the last one closing in 1895. In 1853 there were but 6 smacks, 4 of them from New London, Conn. In 1880 there were 58, of which 21 were dry smacks, while in 1898 there were 76, of which 17 were steamers and launches and 59 sailing vessels. These were all well-smacks. A few sailing smacks also engaged in other fishery pursuits during the dull summer months. In 1879 a steamer which had no well was used to run lobsters to the cannery at Castine. The first steamer fitted with a well to engage in the business was the *Grace Morgan*, owned by Mr. F. W. Collins, a lobster dealer of Rockland, who describes the steamer as follows:

The steam and well smack *Grace Morgan* was built in 1890, by Robert Palmer & Son, of Noank, Conn. At that time she was a dry boat, but the following year, 1891, the Palmers built a small well in her as an experiment, but I am of the opinion that it did not prove very satisfactory or profitable; consequently they offered her for sale and wrote to me in relation to buying her. I went to Noank and looked her over and came to the conclusion that by enlarging the well and making other needed changes she could be made not only a good boat to carry lobsters alive, but also to do it profitably; consequently I bought her and brought her to Rockland, had the well enlarged on ideas of my own, and differently constructed, so as to give it better circulation of water, and also made other needed improvements throughout the boat to adapt her especially for carrying lobsters alive. The changes I made in her proved so successful in keeping lobsters alive, while it increased the capacity for carrying, that I have since adapted the same principles on all my boats. The well I had put into the *Grace Morgan* is what is termed a “box well,” that is, without any well deck. The well is built from the sides of the steamer directly to the hatch on the main deck, with bulkheads forward and aft and tops running directly to the deck. . . . You will see at once that this well has many advantages over the old style with flat well decks, like those of sailing vessels: (1) It affords a much

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larger carrying capacity in same space of vessel. (2) The priming-out pieces are much higher up on sides of vessel, giving more room for boring hull, which affords much better circulation of water in well, which is a great advantage in keeping lobsters alive while on long trips. (3) Every lobster can be easily bailed out of the well without grounding the vessel, which is necessary with all vessels having the old-style well. (4) In all steam and well smacks the after part of the ship is always steadiest, consequently the well being located aft, as in my smacks, the lobsters contained in them are not subjected to the hard pounding while running in seaway that they are in the old-style wells, where there is no chance to relieve themselves other than to be forced against the well decks by the upward force of the water when the vessel settles into the sea, and which results in killing many of them.Both of my steamers have box wells aft, and from my experience, compared with all other steam and well smacks afloat, I am convinced that this well, for all practical purposes, is the best that has yet been adapted to steam smacks. So far as the *Grace Morgan* is concerned, she has been a perfect success in carrying her lobsters in all kinds of weather since I put her into commission October 27, 1892, during which time she has had a wonderful career, as well as carrying millions of lobsters. Probably no boat of her size has ever had such an experience, as she has run steadily the year around in all kinds of weather during the past eight years. . . . Previous to buying the *Grace Morgan* I had run steamers in the lobster business, but they had no well, and being so hot in their holds, particularly in the summer months, the lobsters died so fast that the business in dry steamers could not be made profitable. This is what prompted me to construct a well in mine, as I have done.

The *Grace Morgan* has a length of 49 feet, a breadth of 13.9 feet, and a depth of 5.7 feet, a gross tonnage of 21 tons, and a net tonnage of 10 tons.

The steam smacks now used average about 14 tons. They are usually built low in the water, and have a small pilot-house forward, with an open space between it and the engine-house, and living quarters aft. The boat has also one or two short masts. Some of them also have the pilot-house and engine-house joined together. In those with a space between the pilot-house and engine-house the well is usually placed in this open space. Where the pilot-house and engine-house are together the well is either located forward or aft. These wells are generally capable of bolding from 3,000 to 10,000 live lobsters. Small holes in the bottom of the well keep it filled with fresh sea water. Should the weather be clear the proportion of dead and injured lobsters will be small, but in bad weather many are apt to be killed by the pitching and rolling to which they are subjected.

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These smacks make regular trips up and down the coast, landing their cargoes either at Rockland, Portland, or at one of the lobster pounds scattered along the coast. They not only stop at the villages, but also drop anchor off the little camps of the lobstermen, and should the smacks of two rival dealers arrive at a place simultaneously, which frequently happens, the bidding between the captains for the fishermen's catch gladdens the latter's heart and greatly enriches his pocketbook. Most of the captains have regular places of call where they know the fishermen are holding their lobsters for them, and they follow a rude sort of schedule, which will not often vary more than a day or two. The lobsters are bought of the fishermen by count, and cash is paid for them. Should the smack belong to a dealer this practically ends the financial side of the transaction so far as the captain is concerned, as the crew are paid wages. Should the smack belong to a person other than the dealer, which is frequently the case, he either makes an agreement with some dealer to run for him exclusively at a certain price or commission, or else buys from the fishermen and then sells at either Rockland or Portland. This method of buying lobsters is somewhat hazardous, as the market price sometimes changes sharply when the smack is out of reach of telegraphic communication.

LOBSTER CARS.

Lobsters must be marketed in a live or boiled condition; and as fishermen can get better prices for them alive than boiled, each fisherman generally has a live-car in which to hold them until they can be sold. These cars are usually oblong, rectangular boxes, with open seams or numerous small holes to permit the free circulation of the water. They are of various sizes, according to the needs of the fisherman, a good average being about 6 feet long by 4 feet wide and about 2 feet deep. The door is placed on the top. They are usually moored close to the shore during the fishing season, the rest of the time being hauled up on the beach.

[Illustration: Fishermen's lobster cars]

The dealers cars are very similar to those used by the fishermen, only much larger. They generally average about 30 feet in length, 12 feet in width; and 3 feet in depth, with capacity for from 2,000 to 3,000 lobsters. The inner part of this car is usually divided off into five transverse compartments by means of a framework inside. Each compartment is provided with two large doors entering from the top, one door on each side of the middle line of the car. These cars cost the dealers about $70 each. The life of one of these cars is about five or six years, although at the end of about three years it is generally necessary to replace the sides of the car on account of the ravages of a dock worm which is quite abundant along the Maine coast. When new the top of the car is usually about a foot above the water, but as it gets water-soaked it sinks down until it is even with the water, and some of the older cars have to be buoyed up with kegs at each end, placed inside, to prevent them from sinking below the surface. These cars

are moored alongside the docks of the dealers at Portland and Rockland and other points.

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[Illustration: Lobster cars used in the wholesale trade at Portland]

Mr. J. R. Burns, of Friendship, has invented and patented a new style of car. The inside is divided into a series of compartments by horizontal and vertical partitions of slats, wire netting, or any material which will permit the free circulation of the water. Each compartment has a chute extending down into it from the top, by means of which the lobsters can be put in and their food given them. There are also conveniently arranged openings, with doors, through which the lobsters may be removed when desired. These cars usually average about 35 feet in length, 18 feet in width, and 6 feet in depth, and have a capacity for about 5,000 lobsters each. They are in use at Rockland, Friendship, Tremont, and Jonesport. They prevent the lobsters from huddling together and thus killing each other by their own weight.

METHODS OF SHIPPING, WHOLESALE TRADE, ETC.

As lobsters can not be shipped or preserved in a frozen state they must be shipped either alive or boiled. About nine-tenths of the lobsters caught in Maine waters are shipped in the live state. The principal shipping centers are Portland, Rockland, and Eastport, which have good railroad and steamship facilities with points outside of the State. Those shipped from the latter point are mainly from the British Provinces, the fishermen near Eastport bringing them in in their own boats. A number also come in from the Provinces on the regular steamship lines. The other places get their supply from the smacks and also from the fishermen in their vicinity, who run in their own catch. Portland is very favorably situated in this regard, as Casco Bay is a noted fishing center for lobsters.

As soon as a smack arrives it is moored directly alongside one of the cars. The lobsters are then dipped out of the well by means of long-handled scoop nets and thrown on the deck of the vessel. The doors of the car are then opened, and men on the vessel pick over the lobsters lying on the deck and toss them two by two into the different compartments, those dead and badly mutilated being thrown to one side for the time being. All vigorous lobsters above a certain size are placed in compartments of the car by themselves, while the weak and small are put in separate compartments. The dead lobsters and those which have had their shells broken or have been so injured that they are very sure to die are either thrown overboard or on the dump. A lobster which has lost one or even both claws is not thrown away, as such an injury would have very little effect on its health.

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When an order is received for live lobsters, those which have been longest in the cars are usually shipped. Flour barrels holding about 140 pounds or sugar barrels holding about 185 pounds, with small holes bored in the bottoms for drainage, are used for the shipment. Formerly the lobsters were packed close together in the barrel, and a large piece of ice was put in at the top, but this was found to kill a number of them. The present method is to split off about one-third of a 100-pound cake of ice the long way, and place it upright about half way of the length of the barrel, the lobsters then being packed snugly on all sides of the ice. In handling them the packer seizes the lobster by the carapace with his right hand, bends the tail up under the body with his left hand, and quickly deposits it in the barrel. The packer usually has his right hand covered with a woolen mitt or wrapped in a long piece of linen, for protection from the claws of the lobster.

When the barrel is nearly full the lobsters are covered with a little seaweed or large-leaved marine plants, and the rest of the space is filled with cracked ice. The top is then covered with a piece of sacking, which is secured under the upper hoop of the barrel. Packed in this way, lobsters have easily survived a trip as far west as St. Louis.

Owing to the high prices realized in England for live lobsters, attempts have been made to ship live American lobsters to that market, generally from Canadian ports. In 1877 Messrs. John Marston & Sons, of Portland, made a trial shipment of 250. They were placed in a large tank 20 feet long by 8 feet wide and 3 feet deep, and constantly supplied with fresh seawater through six faucets by means of a donkey engine, a waste-pipe preventing any overflow. The trip was fairly successful, as only 50 died, and the balance brought from 60 to 75 cents per pound.

The smacks and dealers buy lobsters by count, as the fishermen generally have no facilities for weighing them; but the dealers always sell by weight. The mortality among the lobsters from the time they are put aboard the smacks until they are barreled for shipment is estimated at about 5 per cent.

BOILING.

Live lobsters are much preferred by the trade throughout the country, and only those that can not be marketed in such condition are boiled. The number boiled fluctuates considerably, owing to the condition of the markets. When the fresh markets of Boston and New York are overstocked, the lobster dealers of Rockland and Portland, where most of the Maine lobsters are boiled, proceed to boil their surplus stock.

The following description of the boiling is from The Fisheries and Fishery Industries of the United States, section v, vol. II, p. 684:

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The boilers are rectangular wooden tanks or vats of about 60 gallons capacity, lined with zinc and furnished with a cover. Heat is applied by the introduction of steam through a series of perforated pipes arranged in the bottom of the tank. The steam is generated in an ordinary boiler standing close at hand. The lobsters are not thrown directly into the vat, as the operation of removing them after cooking would in such an event be an exceedingly tedious one; but an iron framework basket, of rather slender bars is made to fit the tank loosely, and is lowered and raised by means of a small derrick placed over the tank. This frame, which holds about 300 pounds, is filled with lobsters at the edge of the wharf from the floating cars, and is then carried to the tank and lowered into it after the water it contains has reached the desired temperature, that of boiling. The water is first supplied to the tank, which is filled to about one-third or two-thirds its capacity, about a peck of salt is added, and then the steam is turned on. The same water suffices for several successive boilings, about 2 quarts of salt being added each time. The lobsters are allowed to remain in about half an hour, or until the proper red color indicates they are sufficiently cooked.

[Illustration: Boiling live lobsters preparatory to shipping on ice, showing boiler, steam tank, cage, *etc*.]

After cooling, they are packed in barrels for shipment, just as live lobsters are. When well iced they will keep a week or longer. Only live lobsters are boiled, as the meat of those which die prior to boiling deteriorates rapidly.

The fishermen and small dealers use various kinds of boilers, from an ordinary washboiler to a smaller form of the regular boiler used by the large dealers. The product prepared by these people is generally picked from the shell and sold locally in that condition. This opens a way for the fisherman to evade the 10-1/2 inch limit law. They frequently take lobsters under the minimum legal size and, after boiling them, pick the flesh. It is then impossible for anybody to tell what sized lobster the meat had come from. Quite a local trade in the picking of lobsters has been established in a number of small coast towns, the meat generally being sold in the immediate vicinity.

The following table shows the extent of the wholesale lobster trade in Rockland and Portland during 1898, including everything connected with the business except the smacks and pounds, which are shown elsewhere. There are a few other dealers scattered along the coast, but most of the business is concentrated at these cities. An idea of the extent of the increase in the lobster trade of Portland can be gained when it is stated that in 1880 about 1,900,000 pounds of lobsters, valued at $70,000, were handled here, while 6,145,821 pounds, valued at $611,955, were handled in 1898.

Extent of the wholesale lobster trade of Rockland and Portland
in 1898.

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	Rockland	Portland
Value of property, capital, and wages		
Property, etc	$14,338	$44,770
Cars	850	6,800
Cash Capital	22,000	110,500
Wages	4,676	18,198
Number of persons engaged		
Firms	2	10*
Proprietors	3	13
Clerks	2	2
Other Employees	7	31

Lobsters bought and sold	Rockland No.	Rockland Value	Portland No.	Portland Value
Bought, No.	692,188		4,097,214	
Bought, lbs.	1,038,282	$89,984	6,145,821	$611,955
Sold, lbs.	795,934	91,532	5,308,027	690,045
Sold, lbs.	347,815	26,705	515,518	82,483

Several of these firms also handle other fishery products.

LOBSTER POUNDS

For a number of years the catch of lobsters was sold by the fishermen to the dealers and by the latter to the trade as rapidly as possible. In doing this the markets would be flooded at certain times, when the price would drop to a very low figure, while at other times they would be very scarce, which would enhance the price materially. The dealers were the first to see the necessity for devising some method by which lobsters could be secured when they were plentiful and cheap and retained in captivity until they became scarce and high in price: Inclosures of various kinds had for some years been in use in the fisheries in various parts of the country for the purpose of keeping certain species alive until the time came to utilize them. In 1875 Johnson & Young, of Boston, established an inclosure or pound near Vinal Haven, on one of the Fox Islands. A cove covering about 500 acres, with an average depth of about 90 feet, was selected. A section of about 9 acres, separated from the main portion of the cove by a natural shoal

and with a bottom of soft grayish mud, was selected for the pound. In order to make it proof against the efforts of the lobsters to escape and as a protection from enemies without, a wire fence was built over the shoal part. This section had a depth of from 15 to 60 feet, and a capacity of about 300,000, although there were rarely that many in the pound at one time.

[Illustration: Inclosure for live lobsters at Vinal Haven, Maine]

The lobsters are bought from smacks and from fishermen in the vicinity during the height of the fishing season, when the price is low, and are retained in the pound until the price becomes high, which is generally during the winter season. They are fed with fish offal, which can usually be bought at Vinal Haven for $1 per barrel.

Oily fish are not fed to them, as it is said that the lobsters decrease in weight on such a diet. Experience has shown that the quantity of food required depends largely on the temperature of the water, as lobsters do not eat as freely when the water is cold as in water of a higher temperature. When wanted for shipment they are usually secured by means of pots, seines, or beam trawls.

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Even with such a successful example before them, other dealers were chary about going into the business, and in 1890 there were only three pounds in the whole State. They increased more rapidly after that, however, and in 1898 there were nine pounds in the State, with a total valuation of $18,700. These were located at Dyer Bay, Sunset, Vinal Haven, Long Island, South Bristol, Pemaquid Beach, Southport, and House Island, in Portland Harbor. It is very probable that there will be a greater increase in the near future.

THE CANNING INDUSTRY.

Maine is the only State in the Union in which lobsters have been canned. The following account of the inception and early history of the industry, taken from “The Fisheries and Fishery Industries of the United States,” is very complete:

Lobster canning was first attempted in the United States at Eastport, Me., shortly after 1840, and was made successful in 1843, the methods finally employed having been borrowed from Scotland, which country is said to have learned the process from France. For the successful introduction of the process into the United States we are indebted to Mr. Charles Mitchell, now of Charlestown, Mass., a practical canner of Scotland, who had learned his trade of John Moir & Son, of Aberdeen, the first Scotch firm, it is claimed, to put up hermetically sealed preparations of meat, game, and salmon, their enterprise dating back to 1824. Mr. U. S. Treat, a native of Maine, appears, however, to have been most active and influential in starting the enterprise and in introducing canned goods into the markets of the United States. Mr. Treat was, at an early period, engaged in the preparation of smoked salmon on the Penobscot River, and in 1839 removed to Calais, Me., where he continued in the same business. About 1840 he associated with him a Mr. Noble, of Calais, and a Mr. Holliday, a native of Scotland, who had also been employed in the salmon fisheries of the Penobscot River, under the firm name of Treat, Noble & Holliday. This firm moved to Eastport in 1842, for the purpose of starting the manufacture of hermetically sealed goods, and began experiments with lobsters, salmon, and haddock. Their capital was limited, their appliances crude, and many discouraging difficulties were encountered. The quality of the cans furnished them was poor, causing them often to burst while in the bath, and the proper methods of bathing and of expelling the air from the cans were not understood. The experiments were continued for two years with varying success, and in secret, no outsiders being allowed to enter their bathing room. Though fairly successful in some of their results, they could not always depend upon their goods keeping well.In 1843 they secured the services of Mr. Charles Mitchell, who was then residing at Halifax, and who was not only well acquainted with the methods of bathing practiced in his own country,

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but was also a practical tinsmith. He had been employed in the canning of hermetically sealed goods in Scotland for ten years, and came over to Halifax in 1841, where he continued for two years in the same occupation, exporting his goods to England. After Mr. Mitchell's arrival at Eastport, no further difficulty was experienced in the bathing or other preparation of the lobsters, and a desirable grade of goods was put up, but they found no sale, as canned preparations were comparatively unknown in the markets of the United States. Mr. Treat visited each of the larger cities with samples of the goods, and endeavored to establish agencies for them, but he was generally obliged to send on consignment, as few firms were willing to take the responsibility of buying on their own account. A patent was also applied for, but the claim was not pressed and the patent was never received.

The success at Eastport led to a rapid extension of the business in other parts of the State. The second cannery was located at Harpswell about the year 1849. A cannery was started at Carver Harbor, Fox Islands, in 1851, and another at Southwest Harbor in 1853. In 1857 a cannery was started at North Haven, and at Gouldsboro two were started in 1863 and 1870, respectively. From this time the number increased rapidly for several years. After 1880 the number operated fluctuated considerably, depending on the abundance of lobsters. Some canneries had to suspend operations at an early stage, owing to the exhaustion of the grounds in their vicinity. At most canneries lobsters formed only a part of the pack, sardines, clams, fish, and various vegetables and fruits being packed in their season. Most of the canneries were built and operated by Boston and Portland firms.

At first the lobsters used for canning ranged in weight from 3 to 10 pounds. Gradually the average weight was reduced, until at last it reached as low as 3/4 pound, or even less. This was caused principally by the high prices paid for large lobsters for the fresh trade, with which the canneries could not compete.

As the supply of lobsters on the Maine coast began to decrease shortly before 1870, while the demand for canned lobsters increased at an enormous rate, the dealers began to establish canneries on the coasts of the British provinces. As the decline in the supply was attributed to the canneries, a sentiment against them was gradually formed, and laws were enacted regulating the time in which they could operate and the size of the lobsters they could put up. Prior to 1879 they were permitted to pack lobsters at any season of the year, but they usually operated only between April 1 and August 1, and again between the 10th or middle of September and the 1st of December, the length of the season depending very largely upon the weather and the abundance of lobsters. In 1879 it was enacted that no canning of lobsters should be allowed from August 1 to April 1 following.

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In 1883 it was made illegal to can lobsters less than 9 inches in length. In 1885 the canning season was fixed from April 1 to July 15. In 1889 the season was fixed from May 1 to July 1, and the minimum length of lobsters to be canned placed at 9 inches. In 1891 this act was so amended as to make the season from April 20 to June 1. After 1880 the number of canneries gradually declined, until in 1895 the last one suspended the canning, of lobsters, owing to the passage of a law fixing the minimum size at 10-1/2 inches. This law went into effect July 1, 1895. As they could not afford to pay the high price demanded for this size they were compelled to give up the business.

The following table shows the number of factories in operation, the quantity and value of fresh lobsters used, and the number and value of cans of lobsters put up, in the years 1880, 1889, and 1892:

	1880		1889		1892	
	No.	Value	No.	Value	No.	Value
Number of canneries	23		20		11	
Lobsters used, fresh lbs.	9,494,284	$95,000	5,752,654	$72,092	9,494,284	$95,000
Canned						
One-lb cans	1,542,696	999,521	126,577	1,228,944	195,114	
Two-lb cans	148,704	85,520	16,036	3,096	839	
Other sizes	139,801					
Total cans	1,831,201	238,280	1,085,041	142,613	1,232,040	195,953

Part of the lobsters used in the Eastport factories come from New Brunswick. It is impossible to separate them.

ABUNDANCE, ETC.

There are no accurate figures showing the catch of lobsters in Maine previous to 1880. It is therefore difficult to make comparisons, and one is compelled to depend largely upon the memory of the fishermen and the statements of the canners and dealers, which the lapse of time, *etc*., makes rather unreliable. The numerous petitions sent to the legislature asking for restrictive laws, while possibly exaggerated at times, indicate

that there were fears of the exhaustion of the fishery for some years back. It is positively known, however, that certain grounds have been almost or totally exhausted through overfishing for a number of years, while on other grounds the supply of lobsters has seriously decreased. There was a time when no lobster under 2 pounds in weight was saved by the fishermen. In later years, before there was a restriction fixing the minimum size of lobsters that could be canned, the canneries frequently used half-pound lobsters. The fixing of the minimum length of the lobsters caught at 10-1/2 inches, and the consequent closing up of the canneries, has been of incalculable benefit to the fishermen, as the young lobsters now have an opportunity to reach maturity.

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The table given below shows for certain years the number of pots used, the quantity of lobsters taken, with their value, also the average catch and value per man, the average catch per pot, and the average price per pound:

Year	Fisher-men	Pots	Catch Pounds	Value	Average catch per man pounds	Average stock per man pounds	Average catch per pot	Average price per pound cents
1880	1,843	104,456	14,234,182	$268,739	7,723	$146	136	1.9
1887	1,906	113,299	22,916,642	512,044	12,023	269	202	2.2
1888	1,967	112,632	21,694,731	515,880	11,029	267	193	2.4
1889	2,080	121,140	25,001,351	574,165	12,020	276	206	2.3
1892	2,628	153,043	17,642,677	663,043	6,713	252	117	3.8
1898	3,099	155,978	11,183,294	992,855	3,609	320	78	8.9

While the catch increased up to 1889 and then decreased until in 1898 it was lower than in 1880, the number of fisherman and pots and the value of the catch steadily increased. The average stock per man fluctuated somewhat from year to year, but in 1898 shows a considerable increase over every other year. The most interesting point however, is the average price per pound. In 1880 this was 1.9 cents, while in 1898 it was 8.9 cents per pound. With one exception, each year shows a progressive increase in value per pound. The great increase of 1898 over 1892, 5.1 cents per pound, was caused by the closing up of the canneries in 1895, and the consequent dropping out of the cheap product they had been buying from the fishermen.

WEIGHT OF LOBSTERS.

The figures given below show the average weight of lobsters at certain given lengths. These weights are made up from the results obtained by investigators of the United States Fish Commission, particularly those of Prof. Francis H. Herrick. Males in nearly every instance weigh slightly more than females of the same length.

Length	Weight in pounds.
9 inches	1.16
l0 inches	1.50

10-1/2 inches	1.75
11 inches	2
12 inches	2.50
13 inches	2.75
15 inches	4.25

CHEMICAL COMPOSITION OF LOBSTERS.

The nutritive value of a fishery product is of considerable interest to the consumer. Some years ago, Prof. W. O. Atwater, of Middletown, Connecticut, made a series of careful analyses of the composition of the flesh of three lobsters from the coasts of Maine and Massachusetts, and the figures given below represent the results:

Per cent.

Proportions of edible portion and shell:

Total edible portion	39.77
Shell	57.47
Loss in cleaning	2.76

Proportions of water and dry substance in edible portion:

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Water	82.73
Dry substance	17.27

Chemical analysis calculated on dry substance:

Nitrogen	12.54
Albuminoids (nitrogen x 6.25)	78.37
Fat	11.43
Crude ash	10.06
Phosphorus (calculated as P2 O6)	2.24
Sulfur (calculated as SO3)	2.47
Chlorine	3.46

Chemical analysis calculated on fresh substance in flesh:

Water	82.73
Nitrogen	2.17
Albuminoids (nitrogen x 6.25)	13.57
Fat	1.97
Crude ash	1.74
Phosphorus (calculated as P2 06)	.39
Sulphur (calculated as SO3)	.43
Chlorine	.59

Nutritive value of flesh of lobsters compared with beef as a standard and reckoned at 100. 61.97

ARTIFICIAL PROPAGATION OF THE LOBSTER.

The rapid increase in the catch of this crustacean during the past ten years has drawn upon it the most earnest attention of all interested in the preservation of this valuable fishery. If the “berried” or female lobster bearing eggs, and the young and immature, were let alone by the fishermen there would be no necessity for a resort to artificial lobster culture. Maine has a most stringent law forbidding the taking and selling of “berried” lobsters, and of any lobster under 10-1/2 inches in length, but this law is

evaded by numerous fishermen whenever possible. An idea of the extent to which short lobsters are marketed in the State may be gathered from the statement of Mr. A. R. Nickerson, commissioner of sea and shore fisheries for the State, that in 1899 over 50,000 short lobsters were seized and liberated by the State wardens. As these wardens only discover a small proportion of the short lobsters handled by the fishermen and dealers it is easy to see what a terrible drain this is on the future hope of the fishery —the young and immature. Large numbers of “berried” lobsters are also captured, the eggs brushed off, and the lobsters sold as ordinary female lobsters.

The Report of the U. S. Fish Commission for 1897, on pages 235 and 236, contains the following account of the artificial propagation of lobsters:

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Prior to 1885 experiments had been conducted at various points looking to the artificial propagation of the lobster. The only practical attempts of this nature previous to those made by the Fish Commission were by means of “parking,” that is, holding in large naturally inclosed basins lobsters that had been injured, soft-shelled ones, and those below marketable size. Occasionally females with spawn were placed in the same inclosures. One of these parks was established in Massachusetts in 1872, but was afterwards abandoned; another was established on the coast of Maine about 1875. It was soon demonstrated, however, that the results from inclosures of this character, so far as the rearing of the lobsters from the young were concerned, would not be sufficient to materially affect the general supply. The completion of the new marine laboratory and hatchery at Woods Hole in 1885, with its complete system of salt-water circulation, permitted the commencement of experiments in artificial hatching on a large scale which had not been practicable theretofore, although small quantities of lobster eggs, as well as those of other crustaceans, had been successfully hatched. In 1886 the experiments had progressed so successfully that several million eggs were collected and hatched at Woods Hole, the fry being deposited in Vineyard Sound and adjacent waters. From 1887 to 1890, inclusive, the number of eggs collected was 17,821,000.

During the above years the average production of fry was about 54 per cent. By the use of more improved apparatus the average was brought up to 90 per cent in 1897, when the collections amounted to 150,000,000 eggs, of which 135,000,000 were hatched. As the commissioner of sea and shore fisheries of Maine objected to the taking of female lobsters in that State and the planting of part, at least, of the resulting fry in other waters, an arrangement was made in 1898 by which all female lobsters and the fry hatched out from the eggs secured from these would be returned to the State waters. Under this arrangement 2,365 “berried” lobsters were bought from the Maine fishermen by the U. S. Fish Commission. From these 25,207,000 eggs were taken and 22,875,000 fry were hatched. Of these, 21,500,000 were deposited in Maine waters at various points. In 1899, 36,925,000 fry were planted in Maine waters by the Commission. In order that the female lobsters may be secured the authorities of Maine permit the fishermen to catch and sell “berried” lobsters to the Commission.

The collection of eggs in Maine is usually made by the Commission during the months of April, May, June, and to about the middle of July, depending upon the supply to be had. During the season of 1899 a small steam smack was chartered for collecting the lobsters, starting from Gloucester, where the hatching of Maine lobster eggs is now carried on, and running to Eastport, returning over the same route. The Fish Commission schooner *Grampus* was also used in this work. The lobsters are purchased from fishermen, who receive the market price for ordinary lobsters, and as they are not allowed to sell these lobsters legally for consumption the sale to the Commission materially increases their financial returns.

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In 1883 a radical advance along the line of artificial propagation was made, so far as the legislature was concerned, when the act incorporating the Samoset Island Association, of Boothbay, was passed. Section 4 of the charter reads as follows:

In order to secure a sufficient and regular supply of lobsters for domestic consumption on any land or islands under the control of said corporation, it may increase the number of lobsters within said limits by artificial propagation, or other appropriate acts and methods, under the direction of the fishery commission, and shall not be interfered with by other parties, but be protected therein, as said fishery commission may determine, and shall have the right, by its agents and tenants, to take and catch lobsters within 300 yards of the low-water line of the islands and lands owned or leased by said corporation, during each and every month, for domestic use.

In 1887 the legislature passed an act granting R. T. Carver the sole right to propagate lobsters in Carver's pond, Vinalhaven. Mr. Carver's experiment was a failure, as he says the mud in the pond was so filthy that nearly all the spawn was killed.

LARGE AND PECULIAR LOBSTERS.

Since the inception of the fishery, stories of the capture of lobsters weighing 30, 40, and even 50 pounds have been common, but have rarely been well authenticated. Especially is this the case in the early years of the fishery. It is probable that in the transmission of the stories from person to person the lobsters gained rather than lost in size. Among the most authentic cases in Maine are the following:

On May 6, 1891, a male lobster weighing slightly over 23 pounds was taken in Penobscot Bay, southeast of Moose Point, in line with Brigadier Island, in about 3-1/2 fathoms of water, by Mr. John Condon. The lobster had tried to back into the trap, but after getting his tail through the funnel he was unable to get either in or out and was thus captured.

According to Mr. F. W. Collins, a dealer of Rockland, in August, 1891, a lobster weighing 18-1/2 pounds was taken at Blue Hill Falls, in upper Blue Hill Bay, while in November, 1892, a female lobster weighing 18 pounds was taken at Green Island.

In January, 1893, Mr. N. F. Trefethen, of Portland, received a lobster from Vinal Haven which weighed 18 pounds.

According to R. F. Crie & Sons, of Criehaven, on September 7,1898, a male lobster weighing 25 pounds and measuring 25 inches from the end of the nose to the tip of tail, and 45 inches including the claws, was caught on a hake trawl by Peter Mitchell, a fisherman. The trawl was set about 2 miles southeast from Matinicus Rock Light Station in 60 fathoms of water.

In August, 1899, the writer saw a live male lobster at Peak Island which measured 44 inches in length and weighed 25 pounds, according to the statement of the owner. It had been caught near Monhegan Island, and the owner was carrying it from town to town in a small car, which he had built for it, and charging a small fee to look at it.

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In April, 1874, a female lobster weighing about 2 pounds was caught off Hurricane Island. Her color was a rich indigo along the middle of the upper part of the body, shading off into a brighter and clearer tint on the sides and extremities. The upper surface of the large claws was blue and purple, faintly mottled with darker shades, while underneath was a delicate cream tint. The under parts of the body tended also to melt into a light cream color, and this was also true of the spines and tubercles of the shell and appendages.

In 1893 a Peak Island fisherman caught a lobster about 11 inches in length whose back was of an indigo blue, and which toward the extremities and under parts was shaded off into a pure white. The under part of the claw was also of a pure white.

Mr. Lewis McDonald, of Portland, has a pure white lobster preserved in alcohol. It was caught in 1887.

A lobster was caught at Beal Island, near West Jonesport, which was about 6 or 7 inches in length and almost jet black.

A few bright-red lobsters, looking as though they had been boiled, have also been taken along the coast at various times.

A lobster was caught near Long Island, Casco Bay, about the year 1886, in which half of the body was light-yellow up to the middle line of the back, while the other half was bright-red. There were no spots on the shell.

In September, 1898, Mr. R. T. Carver, of Vinal Haven, had in his possession a female lobster, about 11 inches long, of a bright-red color all over, except the forward half of the right side of the carapace and the feeler on this side, which were of the usual color.

LAWS REGULATING THE FISHERY.

In 1897 the legislature revised and consolidated the laws relating to the sea and shore fisheries of Maine, and below are given the sections relating to the lobster fishery adopted that year, together with the amendments to the act adopted in 1899, which are incorporated herewith:

SEC. 39. It is unlawful to catch, buy or sell, or expose for sale, or possess for any purpose, any lobsters less than 10-1/2 inches in length, alive or dead, cooked or uncooked, measured in manner as follows: Taking the length of the back of the lobster, measured from the bone of the nose to the end of the bone of the middle of the flipper of the tail, the length to be taken in a gauge with a cleat upon each end of the same, measuring 10-1/2 inches between said cleats, with the lobster laid upon its back and extended upon its back upon the gauge, without stretching or pulling, to the end of the bone of the middle flipper of the tail, its natural length, and any lobster shorter than the

prescribed length when caught, shall be liberated alive at the risk and cost of the parties taking them, under a penalty of $1 for each lobster so caught, bought, sold, exposed for sale, or in the possession not so liberated. The possession

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of mutilated, uncooked lobsters shall be prima facie evidence that they are not of the required length.SEC. 40. It is unlawful to destroy, buy, sell, expose for sale, or possess any female lobsters in spawn or with eggs attached at any season of the year, under a penalty of $10 for each lobster so destroyed, caught, bought, sold, exposed for sale, or possessed: *Provided, however*, If it appears that it was intended to liberate them in accordance with the provisions of this act, the persons having such lobsters in possession shall not be liable to any of the penalties herein provided for, though he may have failed, for any cause not within his control, to so liberate them.SEC. 41. It shall be unlawful to can, preserve, or pickle lobsters less than 10-1/2 inches in length, alive or dead, measured as aforesaid; and for every lobster canned, preserved, or pickled contrary to the provisions of this section every person, firm, association, or corporation so canning, preserving, or pickling shall be liable to a penalty of $1 for every lobster so canned, preserved, or pickled contrary to the provisions of this section, and a further penalty of $300 for every day on which such unlawful canning, preserving, or pickling is carried on.SEC. 42. All barrels, boxes, or other packages in transit containing lobsters shall be marked with the word lobsters in capital letters, at least 1 inch in length, together with the full name of the shipper. Said marking shall be placed in a plain and legible manner on the outside of such barrel, boxes, or other packages; and in case of seizure by any duly authorized officer of any barrels, boxes, or other packages in transit, containing lobsters, which are not so marked, or in case of seizure by such officer of barrels, boxes, or other packages in transit containing lobsters less than the prescribed length, such lobsters as are alive and less than the prescribed length shall be liberated and all such lobsters as are of the prescribed length found in such barrels, boxes, or packages, together with such barrels, boxes, and packages, shall be forfeited and disposed of under the provisions of section 47 of this act.SEC. 43. Every person, firm, association, or corporation who ships lobsters without having the barrels, boxes, or other packages in which the same are contained marked as prescribed in the previous section shall upon conviction be punished by a fine of $25, and upon subsequent conviction thereof by a fine of $50; and any person or corporation in the business of a common carrier of merchandise who shall carry or transport from place to place lobsters in barrels, boxes, or other packages not so marked shall be liable to a penalty of $50 upon such conviction thereof.SEC. 44. All cars in which lobsters are kept, and all lobster cars while in the water, shall have the name of the owner or owners thereof

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on the top of the car, where it may plainly be seen, in letters not less than three-fourths of an inch in length, plainly carved or branded thereon, and all traps, cars, or other devices for the catching of lobsters shall have, while in the water, the owner's name carved or branded in like manner on all the buoys attached to said traps or other devices, under a penalty of $10 for each car and $5 for each trap or device not so marked; and if sufficient proof to establish the ownership of such cars or traps can not be readily obtained, they may be declared forfeited, subject to the provisions of section 47 of this act.

SEC. 45. All persons are hereby prohibited from setting any lobster traps within 300 feet of the mouth or outer end of the leaders of any fish weir, under a penalty of $10 for each offense.

SEC. 46. Whoever takes up, or attempts to take up, or in any way knowingly and willfully interferes with any lobster trap while set for use, without the authority of the owner thereof, shall be punished by a fine of not less than $20, nor more than $50; *Provided, however*, That no action, complaint, or indictment shall be maintained under this section unless the name of the owner of all such traps shall be carved or branded in legible letters, not less than three-fourths of an inch in length, on all the buoys connected with such traps.SEC. 47. When any lobsters are seized by virtue of the provisions of this act, it shall be the duty of the officer making such seizure to cause such lobsters, so seized, as he is not required by law to liberate, together with the cars, traps, barrels, boxes, or other packages in which they are contained, to be appraised within 24 hours after the time of such seizures by three disinterested men residing in the county where such seizure is made, to be selected by him, and the lobsters, cars, traps, barrels, boxes, or other packages so seized and appraised shall thereupon be sold by the officer making the seizure thereof, at such time and in such manner as shall by him be deemed proper. The officer making such seizure and sale shall within ten days after the time of such seizure file a libel in behalf of the State before a trial justice, or a judge of a police or municipal court of the county in which such seizure was made, setting forth the fact of such seizure, appraisal, and sale, the time and place of the seizure, the number of lobsters, cars, traps, barrels, boxes, or other packages so seized and sold, and the amount of the proceeds of such sale; and such trial justice or judge shall appoint a time and place for the hearing of such libel, and shall issue a notice of the same to all persons interested to appear at the time and place appointed, and show cause why the lobsters, cars, traps, barrels, boxes, or other packages so seized and sold, and the proceeds of such sale, should not be declared forfeited, which notice shall be served upon the owner, if known, and by causing

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an attested copy of such libel and notice to be posted in two public and conspicuous places in the town in which the seizure was made, seven days at least before the time of hearing.If any person appears at the time and place of hearing, and claims that the lobsters, cars, traps, barrels, boxes, or other packages so seized and sold were not liable to forfeiture at the time of seizure, and that he was entitled thereto, the trial justice or judge shall hear and determine the cause, and if he shall decide that such lobsters, cars, traps, barrels, boxes, or other packages, at the time of seizure, were not liable to forfeiture, and that the claimant was entitled thereto, he shall order the proceeds of such sale to be paid to the claimant; if no claimant shall appear, or if such trial justice or judge shall decide that such lobsters, traps, cars, barrels, boxes, or other packages, at the time of the seizure, were liable to forfeiture, or that the claimant was not entitled thereto, he shall decree a forfeiture of such lobsters, cars, traps, barrels, boxes, or other packages, and of the proceeds of sale, and shall order the proceeds of sale, after deducting all lawful charges, to be paid to the county treasurer, and by him to the State treasurer, to be used as directed in section 48 of this act, and shall render judgment against the claimant for costs to be taxed as in civil suits, and issue execution therefor against him in favor of the State, which costs, when collected, shall be paid in to the treasurer of the county, and by him to the treasurer of the State, to be added and made a part of the appropriation for sea and shore fisheries. The claimant shall have the right of appeal to the next supreme judicial court or superior court in the county, upon recognizing and paying the fees for copies and entry as in cases of appeal in criminal cases. The fees and costs of seizure, appraisal, and sale, and in all other proceedings in the case, shall be as provided by law in criminal cases, and in case a forfeiture shall be declared, shall be paid out of the proceeds of the sale, otherwise shall be paid by the county, as in criminal cases.SEC. 48. All fines and penalties under this act may be recovered by complaint, indictment, or action of debt brought in the county where the offense is committed. The action of debt shall be brought in the name of the commissioner of sea and shore fisheries, and all offenses under or violations of the provisions of this statute may be settled by the commissioner of sea and shore fisheries, upon such terms and conditions as he deems advisable. All fines, penalties, and collections under this act shall be paid into the treasury of the county where the offense is committed, and by such treasurer to the State treasurer, to be added to and made a part of the appropriation for sea and shore fisheries.SEC. 49. The commissioner of sea and shore fisheries may take fish of any kind,

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when, where, and in such manner as he chooses, for the purposes of science, of cultivation, and of dissemination, and he may grant written permits to other persons to take fish for the same purposes, and may introduce or permit to be introduced any kind of fish into any waters.

The following special act was passed at the 1899 session of the legislature:

SEC. 1. No person shall take, catch, kill, or destroy any lobsters between the 1st day of July and the 1st day of September in each year, under a penalty of $1 for each lobster so taken, caught, killed, or destroyed, in the waters of Pigeon Hill Bay, so called, in the towns of Millbridge and Steuben, within the following points, namely: Commencing at Woods Pond Point, on the west side of Pigeon Hill Bay; thence easterly to the Nubble, on Little Bois Bubert Island; thence by the shore to the head of Bois Bubert Island; thence northerly to Joe Dyers Point, so called; thence by the shore around Long Cove and the creek; thence to the head of Pigeon Hill Bay aforesaid; thence by the shore to the first-mentioned bound.

SEC. 2. All fines and penalties under this act may be recovered as provided in section 48 of chapter 285 of the Public Laws of 1897.

IMPORTATIONS OF LIVE LOBSTERS.

For some years there have been considerable importations of live lobsters into Maine from the British Provinces, particularly from New Brunswick; previous to the closing up of the canning industry they were more numerous than at present, as considerable numbers were brought in by boat fishermen for the canneries at or near Eastport. The importations are now made by the dealers, who frequently send their own smacks into the Provinces for a supply when lobsters are scarce in the State.

The following table shows the importations into the State, by customs districts, for the fiscal year 1898:

1898

Customs districts.	Pounds	Value
Aroostook	150	$12
Bangor.	246,991	43,507
Machias	700	91
Passamaquoddy	327,481	35,373
Portland and Falmouth	214,075	13,037

Waldoboro	43,264	3,211
Wiscasset	28,000	1,120

STATISTICAL SUMMARY OF THE LOBSTER INDUSTRY IN MAINE IN 1898.

The following tables show the statistical data relating to the fishery for 1898; except the wholesale trade of Rockland and Portland, which is shown elsewhere.

While Hancock County leads in the number of vessel fishermen with 173, Knox County has the largest number of persons transporting, 78. In the boat fishermen, Washington County leads with 639, followed closely by Knox County with 606. In the total number of persons employed Knox County leads with 749, while Washington and Hancock counties have very nearly the same number, 695 and 683, respectively. The total number of persons employed was 3,304.

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Hancock County leads in the number of vessels fishing, 78, valued at $33,000, while Knox County leads in the number of transporting vessels, 33, valued at $51,900, and is also second in the number of fishing vessels. Cumberland County is second in the number of transporting vessels. This county has more steam transporting vessels than all the other counties combined, 8, valued at $31,200. In the matter of boats engaged in the shore fishery Knox County also has the preeminence, with 696 boats, valued at $37,175. Lincoln, Hancock, and Washington counties follow in the order named, and are all three very close to each other.

Hancock County leads in the number of pots used in the vessel fishery, 7,146, while Knox County is second. Knox County leads in the number of pots used in shore fisheries with 39,040, valued at $39,030, and is followed by Lincoln County with 29,190 pots, valued at $29,190.

In the matter of shore property Lincoln County leads with $16,917, although if the property used in the wholesale trade had been included in this table Cumberland County would lead. In the total investment Knox County leads with $169,056. Hancock County comes second, with $136,651, followed by Washington and Cumberland counties, respectively. The total investment for the whole State is $616,668.

In vessel catch Hancock County leads with 444,704 pounds, valued at $47,101. Knox County is second with 286,688 pounds, valued at $29,395. In the boat catch Hancock County also leads with 2,198,518 pounds, valued at $204,390, while Knox County is a close second with 2,165,256 pounds, valued at $186,968. Lincoln County is third and Washington County fourth. The total catch for the State is 11,183,294 pounds, valued at $992,855.

Table showing by counties the number of persons employed
in the lobster fishery of Maine in 1898.

County	Vessel men	Boat fisher- porters	Trans- men	fisher- men	Shores- Total
Washington	30	19	639	7	695
Hancock	173	27	480	3	683
Penobscot	2		2		
Waldo	19		19		
Knox	55	78	606	10	749
Lincoln	12	11	447	4	474
Sagadahoc.	2		98		100
Cumberland	10	45	379	6	440
York	4	3	135		142

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Total 280 185 2,803 30 3,304

Table showing by counties the vessels, boats, apparatus, and shore property employed in the lobster fishery of Maine in 1898.

	Washington		Hancock		Penobscot		Waldo	
Items.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	10	$5,850	78	$33,000	1	$350		
Tonnage	76	593	5					
Outfit.	1,169	4,995	15					

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Vessels trans-
porting—steam 1 8,350 2 6,500
Tonnage 34 26
Outfit 1,835 1,950

Vessels trans-
porting—sail 5 8,500 8 9,900
Tonnage 94 99
Outfit 790 885

Boats trans-
porting
(steamers and
launches under
5 tons) 1 1,100 1 4,950

Sailboats
fishing 259 56,170 225 34,290

Rowboats
fishing 209 2,390 250 3,285 17 $255

Pots used in
vessel
fisheries 1,710 1,710 7,146 7,146 82 82

Pots used in
shore
fisheries 22,390 22,373 23,880 23,880 575 575

Shore
property 4,015 5,870 102
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Total 114.252 136,651 447 932

	Knox		Lincoln		Sagadahoc		Cumberland	
Items.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	28	$13,250	6	$4,200	5	$1,950		
Tonnage	184		42		30			
Outfit.	3,923		619		335			

Vessels trans-
porting—steam 3 18,000 8 31,200
Tonnage 31 109
Outfit 5,175 5,484

Vessels trans-
porting—sail 30 33,900 4 6,200 10 11,800
Tonnage 574 73 173
Outfit 4,881 877 1,814

Boats trans-
porting
(steamers and
launches under
5 tons) 1 1,100 1 $1,100

Sailboats
fishing 212 31,760 132 12,975 1 125 154 13,635

Rowboats
fishing 484 5,415 351 3,571 90 1,185 186 3,571

Pots used in
vessel
fisheries 4,140 4,140 510 510 400 400

Pots used in
shore
fisheries 39,040 39,030 29,190 29,190 2,138 1,964 17,932 17,932

Shore
property 9,582 16,917 730 9,416

Total 169,056 76,159 5,104 97,537

York		Total	
Items.	No. Value.	No.	Value

Vessels fishing 2 $1,600 130 $60,200
Tonnage 16 946
Outfit. 225 11,281

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Vessels trans-
porting—steam 14 64,050
Tonnage 200
Outfit 14,444

Vessels trans-
porting—sail 2 550 59 70,850
Tonnage 14 1,027
Outfit 65 9,312

Boats trans-
porting
(steamers and
launches under
5 tons) 4 8,250

Sailboats
fishing 47 2,085 1,030 151,040

Rowboats
fishing 81 1,860 1,668 21,532

Pots used in
vessel
fisheries 250 250 14,238 14,238

Pots used in
shore
fisheries 6,595 6,595 141,740 141,530

Shore
property 3,300 49,932
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Total 16,530 616,668*

The property, cash capital, etc., in the wholesale trade of Rockland and Portland is shown elsewhere.

Table showing by counties, vessels, and boats the yield in the lobster fishery of Maine in 1898.

Vessel catch	Boat catch	Total

Counties	Pounds	Value	Pounds	Value	Pounds	Value
Washington	82,809	$7,312	1,545,895	$132,877	1,628,704	$140,189
Hancock	444,704	47,101	2,198,518	204,390	2,643,222	251,491
Penobscot	1,264	118			1,264	118
Waldo			17,766	1,713	17,766	1,713
Knox	286,688	29,395	2,165,256	186,968	2,451,944	216,363
Lincoln	48,872	4,157	2,106,645	181,617	2,155,517	185,774
Sagadahoc			384,900	30,392	384,900	30,392
Cumberland	22,253	2,000	1,401,338	118,616	1,423,591	120,616
York	21,241	1,841	455,145	44,358	476,386	46,199
Total	907,831	91,924	10,275,463	900,931	11,183,294	992,855