

1890

# Report of the Commissioner of Sea and Shore Fisheries of the State of Maine, 1889-90

Maine Department of Sea and Shore Fisheries

Follow this and additional works at: [https://digitalmaine.com/dmr\\_docs](https://digitalmaine.com/dmr_docs)

---

## Recommended Citation

Maine Department of Sea and Shore Fisheries, "Report of the Commissioner of Sea and Shore Fisheries of the State of Maine, 1889-90" (1890). *Marine Resources Documents*. 11.  
[https://digitalmaine.com/dmr\\_docs/11](https://digitalmaine.com/dmr_docs/11)

This Text is brought to you for free and open access by the Marine Resources at Digital Maine. It has been accepted for inclusion in Marine Resources Documents by an authorized administrator of Digital Maine. For more information, please contact [statedocs@maine.gov](mailto:statedocs@maine.gov).

REPORT  
OF THE  
Commissioner of Sea and Shore Fisheries  
OF THE  
STATE OF MAINE.

1889-90.





## REPORT.

---

*To His Excellency Gov. E. C. Burleigh:*

The Commissioner of Sea and Shore Fisheries has the honor to present his report for the biennial term of 1889 and 1890.

The coast of Maine being so wildly extended, it becomes quite difficult to protect its fishing interest, and it requires constant looking after to prevent its fish laws from being violated, and its fish becoming extinct.

On the whole the laws have been observed as well as could be expected with the limited means at our command. Not so much has been done, as would have been had the appropriation been more liberal. We have found it quite difficult to get good, efficient and reliable wardens to serve for the small pay.

### LOBSTERS.

If we wish to prevent our lobsters from being depleted, good and wholesome laws must be enacted and enforced. Section 6th, Laws of 1889 provided "that dealers may preserve in pickle or vinegar, such surplus stock as for good reasons cannot be disposed of otherwise."

This provision has been taken advantage of by many fishermen along the coast and islands, and they have pickled their entire catch without regard to size, and some have pickled what they call weak lobsters, (and it might be said to save their lives), or in other words the lobsters were about dead when boiled.

This kind of lobster has been sold at a low price and to the detriment of honest dealers and some amendment should



be made to this section to prevent this kind of pickling being done. As nearly as can be ascertained the whole catch of lobsters on the coast of Maine for 1890 is about 20,000,000. Some twenty per cent less than in 1888 when the catch was estimated at 25,000,000.

Lobsters seem to be getting less each year and should be better protected. No lobsters less than nine (9) inches in length should be used, as lobsters of this size seldom have any eggs. The U. S. Commission of Fish and Fisheries at Wood's Holl June 3d, 1890, counted the eggs on a lobster eleven inches in length that had 34,360 attached to it and one that was fourteen inches long had 36,540. Therefore it will readily be seen that the female lobsters should be carefully protected if we wish to propagate the lobster.

It may be necessary to do as they are now doing in Newfoundland as will be seen by the following article taken from the *Halifax Herald*:

#### LOBSTER AND COD CULTURE.

##### A NEW DEPARTURE IN THE PROPAGATION OF THE SHELLFISH.

It is very probable that unless we resort to artificial culture to replenish our lobster fisheries there will be a marked decline in Nova Scotia's output during the next few years. Already Newfoundland is ahead of us in this branch of fish culture, for under the management of Adolph Neilsen, a Norwegian expert, "the ancient colony" has taken a new departure in the propagation of cod and lobsters. In a recent article Rev. Moses Harvey writes that the fish hatchery on the shore of Trinity bay is the largest in the world for the propagation of codfish and lobsters, and capable of hatching 300,000,000 of cod and 200,000,000 lobsters in a single season.

A single mother lobster can stow away no less than 20,000 eggs, and she carries these about with her until they are ripened or hatched. The lobster trapper takes these mother fish and carries them to the factory, where they are thrown into boiling water, and of course the eggs are destroyed. The quantity of lobster ova that perish in this way is beyond all calculation, and is one great cause of depleted fisheries. Mr. Harvey thus describes Mr. Neilson's in-



genious methods: He gets the female lobsters at the factories before they are boiled, and with a sort of spoon constructed for the purpose he strips the eggs from the fibrals and returns the lobster uninjured. He takes the eggs, which are not nearly so delicate as those of the cod, and places them in the incubators, where the water is kept in constant motion.

After a time, longer or shorter according to the degree of ripeness they have reached before being removed from the mother, these ova are hatched. With some of them only two days are required; in the case of others less advanced a month or even two months may be needed to hatch them. Unlike the cod the young lobster must be fed, for it has no yolk sac to feed on when it breaks from the shell. Mussels chopped fine, with occasionally a few yolks of eggs, furnish food on which they grow rapidly, and in five or six days they have gone through their first shelling and are fit to be set free in the water to pick up their own living

Mr. Neilson has invented floating incubators to be placed in the water near the lobster factories which are scattered around the shore. In these incubators the eggs are placed and properly attended to by men properly instructed. He has 432 of these floating incubators distributed this year at thirteen different stations—thirty-six at each. They are reported to be working admirably. There would be no serious difficulty involved in making similar experiments upon our own coast, and we understand that the energetic minister of marine already has the project under consideration --*Halifax Herald*.

For a more particular account of how the lobster is propagated, I would call attention to the valuable letters from Mr. Adolph Neilson published in the appendix.

One of the strongest evidences of decrease of lobsters in this State is the average size of those now sent to market. The average length of lobsters in the market in 1889 and 1890 was about  $10\frac{1}{2}$  inches and would weigh about two pounds on an average against the average length of about 13 inches and would weigh three and one-half pounds to four pounds ten years ago. At that time there was an abundance of large lobsters and the small ones were regarded as of little account. Smacks that then carried 1,500 to 2,500 lobsters now carry 4,000 to 7,000.



I regret to have to refer to a most mischievous practice resorted to by some of the lobster fishermen on this coast, for if not efficiently checked, it will result in the decimation of this industry, in spite of the wise provisions already made for the perpetuation of the lobsters. The practices which I refer to are that being aware it is illegal to retain female lobsters with spawn, many fishermen knock the spawn off and thus defy detection. Another practice is to destroy all lobsters found in their traps less than the legal length, which by law should be cast back into the water. The killing and throwing away of small lobsters is perpetuated on the plea that if allowed to live they return again to the traps and thus keep on devouring the bait.

Anything more vicious than these practices or more certain to result in the total extinction of the lobsters would be difficult to imagine, and they certainly require that severe measures be used to stop this practice. At my request the United States Commissioner of Fish and Fisheries, Col. McDonald, has kindly furnished me with a statement and tables of the fisheries of Maine for 1887, 1888 and 1889 in advance of publication which will be found as an appendix to this report.

As the United States Fish Commissioner did not have the amount of lobsters and herring canned in 1890, I requested the canners to send a statement of the amount canned this season. Up to this time I have received returns from thirty-six, showing the amount they have canned. There are about forty lobster and sardine factories, and there are about four that have made no returns.

No. of factories.	Lobsters. No. of cans.	Sardines. No. of cases.	Herring. Barreled and smoked.	Mackerel. No. of cans.
2 .....	588,000 1 lb. cans.			
1 .....	125,000 1 lb. cans .....	35,000 cases...	7,000 bushels.	
2 .....	119,482 ten oz. cans.			
1 .....	62,122 1 lb. cans .....		20,924 large herring 1 lb. cans .....	
1 .....	28,800 1 lb. cans.			10,832 1 lb. cans.
1 .....	4,800 1 lb. cans.. .....	600 .....		4,800 1 lb. cans.
9 factories in Lubec....	.....	155,000 cases.		
15 factories in Eastport.	33,600 1 lb. cans.....	299,000 cases.		
1 .....	30,000 1 lb. cans.			
1 .....	24,000 1 lb. cans.....		52,800 1 lb. cans.....	2,880 1 lb. cans.
2 .....	110,240 1 lb. cans; 27,240 2 lb. cans; 3,744 $\frac{1}{2}$ lb. cans .....	2,000 cases.		
36				

Portland Packing Company did not run any lobster factory in Maine this season, but run twenty-seven (27) in the Provinces, and canned 32,000 cases, 4 dozen in each case.

Burnham & Morrill only run two lobster factories in this State and twenty in the Provinces.

It would seem from this that the canners find it more profitable to can in the Provinces than in this State, as lobsters are more plenty and are bought at a lower price. They were bought this season in the Provinces for about \$1.25 per hundred pounds, while the price in Maine was from \$1.30 to \$1.85 per hundred.

I would call attention to an article on "American Sardines," copied in the Appendix, which I think will be read with interest.

Various reasons are given why more lobsters were not caught and canned this season.



One canner writes: "On account of the stormy weather, we did very little business," and that he had been in the business for twenty-seven years, and he thought that this spring for the months of May and June the roughest he ever knew. Average price paid for lobsters, \$1.55 per cut. Another writes: "On account of the high price paid for lobsters this season, I did not can as many as I have in former years." Another says: "I think the pack of lobsters this season was much smaller than last. The lobsters were larger this year than for several years."

A lobster fisherman writes, November 17, 1890, that "the whole catch of lobsters for 1890 is about two-thirds of the catch of 1889, but prices have been better. The fishermen in this section sold lobsters in 1889 for three and one-half to four cents each, and from July to the present time they bring seven to eight cents. The fishermen find them scarce at the present time, and the average catch is about fifteen smack lobsters ( $10\frac{1}{2}$  inches long) out of forty-five lobster traps."

There are now three lobster pounds in the State, and about 200,000 lobsters are now stored in them for winter use.

#### MACKEREL.

This fish seems to be growing less and less each year as will be seen by the report of the Boston Fish Bureau up to November 21, 1890.

The total catch up to November 21, 1890 was 15,071 barrels; in 1889, 17,239 barrels; in 1888, 40,769 barrels; in 1887, 78,478 barrels; in 1886, 80,315 barrels; in 1885, 330,033 barrels, and in 1884, 422,187 barrels.

Most of the mackerel caught this year were quite small and will number about 3's. What large ones have been caught in the vicinity of Monhegan and Matinicus were quite large and some of them weighed two and one-half pounds. They do not seem disposed to school, but occasionally show up just to prove that they have not entirely deserted us then suddenly disappear again.

## PORGIES AND MENHADEN.

The sudden appearances of this fish last year and the present season after an absence of twelve years from our coast cannot be accounted for or, at least, it has not been.

Large numbers have been caught and made into oil this season. It is said that one steamer caught at one haul 2,200 barrels and that another had caught 25,000 barrels this season, and it is estimated that about 10,000,000 have been caught.

Four oil factories have operated this season and have used about 262,000 barrels porgies and made about 17,500 barrels of oil (fifty gallons to the barrel) worth twenty-one cents per gallon, also made about 8,000 tons scrap, worth \$20 per ton. About 400 men were employed at average wages of \$30 per month and board. About sixty of the men were foreigners and were employed at less wages.

Quite a number of steamers have been employed in the business, and some of them have been indited for violating the laws, and their cases are now pending. It has been quite difficult to catch these steamers, as most of them are from other states. They steam into our small bays and rivers and cast their seines, then steam out before a warden can board them or learn their names. The small fishermen along the coast want these fish for bait and complain that they are being used up in so large numbers that they fear they will be exhausted.

A fisherman stated that he can sail through a school of these fish and that they will take no notice of him, but just as soon as he casts his seine down they sink.

This fish is now canned for food under the name of "Sea Trout," "Ocean Mackerel" and "Blueback Mackerel" and are said to quite good eating.

Chapter 306, section 1, Laws of 1889, should be made more definite as it does not seem to be well understood.



## ALEWIVES.

The catch of this fish at Newcastle and Damariscotta this season is said to be about three-fourths of the number caught last year.

	1,155,675 were caught at Damariscotta Mills	
	worth .....	\$3,850
About	418,000 were caught in nineteen weirs and	
	smoked, worth .....	3,145
"	15,000 were caught in nets and hedges,	
	worth .....	225
"	20,000 were caught and given deserving	
	widows, worth .....	100
	<hr/> 1,608,675	<hr/> \$7,320

In 1889, the catch of these fish at Waldoboro was about 160,000 and were sold for thirty-three and one-third cents per hundred. The largest catch in one day was 37,000. Four men were employed nine days each.

It was not thought best to catch any of them in 1890, as the fishways were not in suitable order for the fish to run up.

Six weirs on the Georges river, at South Warren, caught 60,000 1889, and 145,000 in 1890, and sold for about one dollar per hundred.

I have not been able to get the number of alewives caught at Warren village in 1889, but learn that the net proceeds for that year was \$893.87, and for 1890 about the same as 1889.

## SMELTS.

In concluding I would call attention to the recommendation made by me two years since relating to smelts.

This little fish is caught in weirs and in large quantities in this State and shipped to Boston, New York and Philadelphia, at a profit in the fall and winter.

"Section 5th, Laws 1887, provides that no smelts caught in such weirs after the first day of April shall be sold or offered for sale in this State, nor shall smelts caught in any

manner between the first day of April and the first day of October following."

It will be seen by the above that no smelts can be sold in this State after April 1st, caught in any manner except by hook and line.

Many complaints have been made to me by people that could not get smelts to eat unless they were made liable to a fine, as the ice seldom leaves our bays and brooks in season for smelts to come up before April 25th, and it would seem that the time should be extended for taking smelts in the spring by dip-net to May 1st. It was formerly May 20th, but was changed to suit the weir men, and certainly it would look hard that the spring fishermen should be entirely shut off that the fall fishermen should gain.

Large quantities of smelts were caught in dip nets last spring and left to lay on the ground to rot, when they might have been sold for \$2.00 or more per bushel if allowed to be sold. Therefore I would recommend that dip-nets may be used up to May 1st, and that smelts caught in this State may be sold up to that time.

Respectfully submitted,

B. W. COUNCE.



## COMMISSIONERS OF FISHERIES.

---

The following list of the Commissioners of Fisheries of the United States, the several states and territories, and of the Canadian provinces, has been compiled from information recently obtained by the secretary from first hands, and is believed to be full and accurate:

*Dominion of Canada*—John Tilton, deputy minister of fisheries, Ottawa, Ont.

*Province of New Brunswick*—W. H. Venning, inspector of fisheries, St. John.

*Province of Nova Scotia*—W. H. Rogers, inspector, Amherst; A. C. Bertram, assistant inspector, Amherst.

*Province of Prince Edward Island*—J. H. Duvar, inspector, Alberton.

*Province of Quebec*—W. Wakeham, inspector, Lower St. Lawrence and Gulf division, Gaspé basin.

*Province of British Columbia*—Thomas Mowat, inspector, New Westminster.

*Province of Manitoba and Northwest Territories*—Alex. McQueen, inspector, Winnipeg, Man.

*The United States*—Professor G. Brown Goode, Washington, D. C.; assistant commissioner, J. H. Kidder. Assistants in charge: fish culture, Marshall McDonald; scientific inquiry, Richard Rathbun; statistical inquiry, R. Edward Earle.

*Alabama*—Col. D. R. Huntley, Madison; Hon. Charles S. G. Doster, Prattville.

*Arkansas*—H. H. Rottaken, president; J. W. Calloway and W. B. Worthen, all of Little Rock.

*Arizona*—J. J. Gosper, Prescott; Richard Rule, Tombstone; J. H. Taggart, business manager, Yuma.

*California*—T. J. Sherwood, Marysville; Joseph D. Redding, San Francisco; J. D. Harvey, Los Angeles.

*Colorado*—G. F. Whitehead, Denver; E. V. Bogart, superintendent.

*Connecticut*—Dr. William M. Hudson, Hartford; Robert G. Pike, Middletown; James A. Bill, Lyme.

*Dakota*—No commission.

*Delaware*—Elwood R. Norny, Odessa; Dr. E. G. Shortlidge, assistant and superintendent of hatcheries, Wilmington.

*Florida*—No commission.

*Georgia*—Hon. J. T. Henderson, commissioner of agriculture, Atlanta; Dr. H. H. Cary, superintendent of fisheries, Lagrange.

*Illinois*—N. K. Fairbanks, president, Chicago; S. P. Bartlett, secretary, Quincy; Major George Brenning, Centralia.

*Indiana*—Enos B. Reed, Indianapolis.

*Iowa*—E. D. Carlton, Spirit Lake; Ole Bjorensen, superintendent of hatchery, Spirit Lake.

*Kansas*—S. Fee, Wamego.

*Kentucky*—William Griffith, president, Louisville; P. H. Darby, Princeton; John B. Walker, Madisonville; Hon. J. C. Walton, Munfordville; Hon. John A. Steele, Versailles; W. C. Prince, Dansville; Dr. W. Van Antwerp, Mt. Sterling; Hon. J. M. Chambers, Independence; A. H. Goble, Catlettsburg; J. H. Mallory, Bowling Green.

The commission has been without funds for about four years and consequently no work has been done.

*Maine*—E. M. Stilwell, Bangor; Henry O. Stanley, Dixfield, commissioners of fish and game. B. W. Counce, Thomaston, commissioner of sea and shore fisheries.

*Maryland*—G. W. Delawder, Oakland; Dr. E. W. Humphreys, Salisbury.

*Massachusetts*—Frederick W. Putnam, Cambridge; Edward A. Brackett, Winchester; Edward H. Lathrop, Springfield.

*Michigan*—John A. Bissell, Detroit, president; Dr. J. C. Parker, Grand Rapids, Herschel Whitaker, Detroit; W. D. Marks, superintendent, Paris; A. J. Kellogg, secretary, Detroit; William A. Butler, Jr., treasurer, Detroit.

*Minnesota*—Robert Ormsby Sweeny, St. Paul, president; Niles Carpenter, Rushford; William Bird, Fairmount; S. S. Watkins, superintendent.

*Mississippi*—No commission.



*Missouri*—H. M. Garlich, chairman, St. Joseph; J. L. Smith, Jefferson City; H. C. West, St. Louis; A. P. Campbell, secretary, St. Joseph; superintendents: Philip Kopplin, Jr., St. Louis; Elias Cottrill, St. Joseph.

*Montana*—No commission.

*Nebraska*—W. L. May, Fremont; R. R. Livingston, Plattsmouth, B. E. B. Kennedy, Omaha; M. E. O'Brien, South Bend, superintendent.

*Nevada*—W. M. Cary, Carson City.

*New Mexico*—Has no commission, but Governor Ross intends to have one established. Hon. E. S. Stover, Albuquerque, has given the subject much attention, and will impart information.

*New Hampshire*—George W. Riddle, Manchester, chairman; E. B. Hodge, Plymouth; John H. Kimball, Marlboro'; E. B. Hodge, superintendent.

*New Jersey*—Richard S. Jenkins, Camden; William Wright, Newark; F. M. Ward, Newton.

*New York*—Hon. R. B. Roosevelt, president, 120 Broadway, New York; General R. U. Sherman, New Hartford, Oneida county; E. G. Blackford, treasurer, Bedford bank, Brooklyn; William H. Bowman, Rochester, Monroe county; A. S. Joline, Tottenville, Richmond county; E. G. Blackford, shell-fish commissioner, Fulton market, New York; clerk of the board, Edward P. Doyle, Potter building, New York room 110; superintendents: Seth Green, Rochester; Fred Mather, Cold Spring Harbor; Monroe A. Green, Mumford; James A. Marks, Bloomingdale.

*North Carolina*—W. J. Griffin, Elizabeth City, chairman; R. B. Watson, Englehard; W. T. Caho, Bayborough.

*Ohio*—C. V. Osborn, Dayton, president; J. H. Laws, Cincinnati; John Hofer, Bellaire; A. C. Williams, Chagrin Falls, secretary; E. D. Poller, Toledo.

*Oregon*—F. C. Reed, Clackamas, president; R. C. Campbell, Ranier; E. P. Thompson, Astoria.

*Pennsylvania*—Henry C. Ford, president, 524 Walnut street, Philadelphia; James V. Long, 205 Ridge avenue, Allegheny City; H. C. Demuth, secretary, Lancaster; S. B. Stilwell, Scranton; A. S. Dickson, Meadville; W. L. Powell, Harrisburg.

*Rhode Island*—John H. Barden, president, Rockland; Henry T. Root, treasurer, Providence; Wm. P. Morton, secretary, Johnston—commissioners inland fisheries. James C. Collins, North Provi-

dence ; N. P. S. Thomas, North Kingstown ; James M. Wright, Foster—shell-fish commissioners.

*South Carolina*—Hon. A. P. Butler, Columbia, commissioner of agriculture, *ex-officio*, fish commissioner.

*Tennessee*—W. W. McDowell, Memphis ; H. H. Sneed, Chattanooga ; Edward D. Hicks, Nashville.

*Texas*—Commission abolished.

*Utah*—No commission. A. Milton Musser, acting fish commissioner, Salt Lake City.

*Vermont*—Frank Atherton, Waterbury ; Herbert Brainerd, St. Albans.

*Virginia*—Col. Marshall McDonald, Washington, D. C.

*West Virginia*—C. S. White, president, Romney ; F. J. Baxter, treasurer, Sutton ; J. H. Miller, secretary, Hinton.

*Wisconsin*—The Governor (*ex-officio*) ; Philo Dunning, president, Madison ; C. L. Valentine, secretary and treasurer, Janesville ; Mark Douglass, Melrose ; A. V. H. Carpenter, Milwaukee ; Calvert Spensley, Mineral Point ; E. S. Miner, Sturgeon Bay ; James Nevin, superintendent, Madison.

*Wyoming Territory*—Otto Gramm, Laramie. (Dr. W. N. Hunt, Cheyenne, is commissioner for Laramie county and B. F. Northington, Rawlins, is commissioner for Carbon county.)





## APPENDIX.

---

### U. S. Commission of Fish and Fisheries.

---

WASHINGTON, D. C., November 4, 1889.

*Hon. B. W. Oounce, Commissioner of Sea and Shore Fisheries,  
Thomaston, Maine:*

DEAR SIR: I send you, herewith, several tables relating to the fisheries of Maine, which, with one exception, I think, will furnish you with all the information you ask for. The compilation of the statistics of the fisheries for 1889 is not completed; the figures can be sent you, if you require them, at a later date, but probably not during the present calendar year.

I will say that the tables are intended to include only the sea fisheries; the inquiries have been extended up the rivers generally only so far as tide water. They include the fisheries of the St. Croix river to Calais; the Penobscot to Bangor; the Sheepscot to Wiscasset, and the Kennebec to Woolwich, five miles above Bath. All the other streams, which are of minor importance to those above mentioned, have been investigated and all the fisheries are included. The tables, as you will see, contain statistics for 1887 and 1888; the tables relating to the lobster fishery, including the canning of lobsters, however, are complete for the three years, 1887, 1888 and 1889.

I enclose explanations of the tables which you will probably find it expedient to publish in connection with them.

Yours, very respectfully,

J. W. COLLINS,

*Assistant in Charge of Division of Fisheries.*



### Explanations of Tables Relating to the Statistics of the Fisheries of the State of Maine.

Table I shows the number of persons employed in various capacities, as vessel fishermen, shore fishermen, factory hands, curers, packers, etc., in the fisheries of Maine in 1887 and 1888. The special feature of this table is the division of the men employed on boats and vessels, whereby those engaged in fishing proper and those employed on freighters or "running boats" are shown separately.

A comparison of the fishery statistics of Maine for 1880 and 1888 shows an increase in the number of persons employed of 4,100. This increase is found wholly in the shore fishermen, factory hands, curers, packers, etc., since there has been a decrease in the number of vessel fishermen amounting to 649 persons.

Table II presents an exhibit of the apparatus and capital employed in the fisheries of Maine in 1887 and 1888. It shows the number, tonnage and value of vessels; the number and value of boats, and the number and value of the various forms of apparatus of capture in the vessel and shore fisheries; also the value of shore property and amount of cash capital. The total for 1887 amounted to \$3,170,243, and for 1888 to \$3,022,957. There appears to have been a considerable decrease in the valuation of property employed since 1880, at which time it amounted to \$3,375,994. This difference is due almost entirely to the marked decrease in the fleet of vessels employed in the fisheries; the amount and value of apparatus employed in the shore fisheries showing a considerable increase over the returns for 1880. The fleet of vessels has decreased from 606, in 1880, to 410 in 1888, and is one of the most striking features connected with the fisheries of the State.

Table III presents in detail by species, and the condition in which the products were marketed, the quantities and values of fish and other fishery products taken by fishermen of Maine in 1887 and 1888. In the quantity and value of products there has been a decrease amounting to upwards of a million dollars from 1880 to 1888, which is entirely due to the decrease in the vessel fisheries,

since the shore fisheries, and particularly the lobster fishery, show an increase in recent years. The catch in 1880 amounted to 202,048,449 pounds, valued at \$3,614,178; in 1888 the catch was 132,929,594 pounds with a value, at prices paid the fishermen of \$2,292,043.

Table IV shows by towns the shore lobster fishery of Maine for 1887, 1888, and 1889. The products as compared with 1880 show a large increase in the three years mentioned which is partially attributable to the greater number of persons employed in the fishery as noticed in Table 1.

In addition to the lobsters taken in the shore fishery, mention should be made and additional credit given for the amounts taken by vessels. In 1887 the vessel lobster catch amounted to 508,828 pounds worth \$16,401, and in 1888 to 424,912 pounds, valued at \$12,360.

The importance of the lobster fishery on the coast of Maine and the marked attention which has been given to it by the Fish Commissioners and legislature of the State have been considered sufficient to warrant the presentation of the facts relating to this industry in the fullest detail.

Table V shows by counties the extent of the lobster canning industry in Maine during 1887, 1888 and 1889. The table shows the quantities and values of fresh lobsters utilized, the number of cans of lobsters packed and the value of the canned products, together with the number of canneries in operation during each year, the number of employes in same, and the amount of investment.

It should be borne in mind that but in few cases are canneries devoted entirely to the lobster industry. In many instances the canning of lobsters is only incidental to the preparation of sardines, etc. In the preparation of this table an estimate has been made of the value of the property and number of persons devoted exclusively to the canning of lobsters. This estimate is believed to be as accurate as it is possible to make it, since the information from which it has been compiled is very complete and detailed.



**Table I**—*Table showing the number of persons employed in various capacities in the fisheries of Maine during the years 1887 and 1888.*

*Prepared by the United States Fish Commission.*

HOW ENGAGED.	1887.	1888.
On fishing vessels.....	3,293	2,878
On vessels transporting.....	76	103
On boats transporting.....	143	149
In shore fisheries.....	6,089	6,140
On shore—in canneries, factories, etc.....	5,722	5,901
Total.....	15,323	15,171

**Table II—Showing the apparatus and capital invested in the fisheries of Maine in the years 1887 and 1888.**

*Prepared by the United States Fish Commission.*

DESIGNATION.	1887.		1888.	
	No.	Value.	No.	Value.
Vessels fishing (14,834.41 tons '87 13,851.99 tons '88) .....	386	793,715	371	629,915
Outfit .....	-	218,525	-	192,569
Vessels transporting (5747.76 tons '87 6053.65 tons '88) .....	32	39,350	39	59,500
Outfit .....	-	6,480	-	7,885
Boats* .....	5,537	201,112	5,810	209,117
Boats transporting only .....	87	23,170	97	25,920
Vessel fisheries:				
Seines .....	139	69,500	80	40,000
Gill-nets .....	897	9,025	1,057	10,636
Trawls .....	1,076	78,132	1,090	77,420
Lines .....	4,203	13,824	4,118	14,102
Pots .....	4,750	4,750	5,150	5,150
Dredges .....	14	168	7	84
Harpoons .....	27	810	28	840
Rakes .....	34	21	28	17
Shore fisheries:				
Weirs .....	238	43,280	287	55,772
Trap-nets .....	344	34,045	343	33,720
Pound-nets .....	27	13,125	32	14,855
Gill-nets .....	2,926	27,796	3,271	29,929
Seines .....	70	5,795	93	7,025
Eel-pots .....	136	153	135	148
Eel and flounder spears .....	313	327	283	294
Lobster-pots .....	108,549	98,061	107,482	96,294
Fyke-nets .....	135	580	135	580
Bag-nets .....	257	10,720	280	11,760
Hand-lines and trawl-lines .....	-	13,590	-	13,698
Clamming apparatus .....	-	1,693	-	1,671
Miscellaneous nets .....	123	408	106	357
Dredges .....	87	1,131	102	1,297
Shore property .....	-	779,852	-	766,716
Cash capital .....	-	690,100	-	716,600
Total .....	-	3,179,233	-	3,023,921

\* Not including those on vessels.



Table III—Showing by species and condition in which sold the quantities and values of fish and other fishery products credited to the State of Maine in 1887 and 1888.

Prepared by the United States Fish Commission.

SPECIES.	Pounds.		Value	
	1887.	1888.	1887.	1888.
Mackerel, fresh.....	1,486,934	573,509	\$ 79,100	\$40,703
Mackerel, salted.....	3,023,000	1,121,000	159,784	73,900
Cod, fresh.....	7,790,221	7,473,431	151,630	146,141
Cod, salted .....	18,614,702	16,359,434	475,863	450,950
Halibut, fresh.....	626,807	549,347	39,243	34,025
Halibut, salted.....		1,000	-	50
Haddock, fresh.....	5,567,168	5,693,979	84,192	94,422
Haddock, salted .....	1,666,748	1,482,498	22,644	21,556
Hake, fresh.....	3,104,258	2,993,637	28,480	26,251
Hake, salted.....	5,478,072	5,977,041	62,545	74,904
Pollock, fresh.....	692,843	922,303	7,043	9,474
Pollock, salted.....	995,395	1,226,570	10,413	12,943
Cusk, fresh.....	456,047	442,582	5,288	5,372
Cusk, salted.....	110,041	136,059	1,099	1,412
Red Snappers, fresh.....	129,500	188,809	4,069	5,238
Groupers, fresh.....	8,400	16,500	231	462
Herring, fresh.....	23,946,855	28,994,454	96,239	112,008
Herring, salted.....	3,731,900	4,928,000	37,346	54,626
Herring, smoked.....	2,012,800	2,207,745	47,030	73,315
Alewives, fresh.....	897,042	974,399	7,435	8,343
Alewives, salted.....	779,960	715,450	13,581	14,319
Alewives, smoked.....	229,279	244,140	7,140	7,441
Menhaden, fresh.....	702,000	3,121,200	1,765	14,001
Menhaden, salted.....		2,000	-	18
Shad, fresh.....	1,087,720	807,256	27,010	22,868
Shad, salted.....	8,000	32,000	320	1,500
Cunners, fresh.....	52,200	71,647	1,665	2,058
Flounders, fresh.....	658,525	828,995	11,778	15,590
Eels, fresh.....	107,285	127,140	9,105	10,090
Swordfish, fresh.....	234,721	440,523	10,879	18,691
Salmon, fresh.....	185,637	205,149	36,398	41,209
Smelt, fresh.....	1,205,150	1,279,550	87,977	94,927
Tom-cod, or frost fish, fresh.....	477,300	474,560	3,809	3,772
Butterfish, fresh.....	5,000	22,000	75	360
Bream ( <i>Sebastes Marimex</i> ), fresh.....	25,000	26,000	255	270
Catfish ( <i>Anarrhicas</i> ), fresh.....	6,000	6,200	120	124
Wastedfish, fresh.....	484,000	446,200	1,782	1,785
Clams (soft), fresh.....	1,886,540	1,863,980	75,536	76,665
Clams (soft), salted.....	4,201,260	4,142,800	152,954	151,000
Quobaugs, fresh.....	800	800	100	100
Scallops, fresh.....	221,132	180,006	13,994	11,278
Mussels, fresh.....	6,450	6,540	189	193
Lobsters, fresh.....	22,916,642	21,694,731	512,044	515,880
Sea-weed.....	14,500,000	12,700,000	7,115	6,215
Cod tongues.....	267,630	232,812	6,022	4,646
Cod and hake sounds, green.....	113,618	118,941	22,733	9,516
Oil (fish, whale, porpoise and seal).....	679,110	676,707	21,586	21,432
Total.....	131,379,591	132,929,594	2,344,906	2,292,043

NOTE.—This table does not include the quantity and value of canned goods and other products of canneries and factories, as oil, fish scrap, etc.

Table IV—Showing by Townships the Extent and Value of the Lobster Fishery of Maine in 1887, 1888 and 1889.  
Prepared by the United States Fish Commissioner.

Locality.	Number of Fishermen			Number of Boats.			Value of Boats			Number of Traps			Value of Traps.		
	1887.	1888	1889	1887	1888.	1889.	1887.	1888	1889.	1887.	1888	1889	1887.	1888	1889.
Robbinston .....	6	6	5	4	4	4	\$110	\$105	\$100	170	170	200	\$170	\$170	\$200
Perry .....	3	3	3	3	3	3	60	60	60	160	120	150	160	120	150
Eastport .....	6	8	9	7	8	9	170	185	200	240	325	375	141	195	225
Pembroke .....	5	3	5	5	3	5	60	36	60	200	120	205	150	90	154
Lubec .....	16	17	17	14	15	15	440	510	510	988	1,028	1,045	973	1,013	1,030
Trescott .....	12	12	12	12	12	12	300	300	300	570	540	570	570	540	570
Cutler .....	22	16	18	15	9	18	293	176	353	1,096	505	1,054	1,090	500	1,014
Machiasport .....	20	15	23	15	11	16	340	220	320	900	600	980	1,050	750	1,150
Jonesboro' .....	12	18	19	14	18	22	650	400	945	710	840	1,135	710	840	1,135
Jonesport .....	75	73	95	78	73	98	5,170	4,335	6,280	5,200	3,886	6,990	5,200	3,886	6,990
Addison .....	32	31	43	29	28	42	1,125	1,090	1,580	2,240	1,240	2,270	1,790	990	1,916
Harrington .....	17	15	15	17	15	15	595	525	525	1,090	680	960	98	612	864
Millbridge .....	25	26	42	27	29	45	1,950	2,000	2,800	2,000	2,080	3,360	1,400	1,456	2,352
Steuben .....	26	25	32	27	26	33	700	675	850	1,955	1,870	2,400	1,212	1,159	1,488
Gouldsboro' .....	104	99	106	92	87	93	2,900	2,730	2,335	8,345	7,527	8,415	6,753	6,016	6,759
Sullivan .....	5	5	8	5	5	8	125	125	200	450	475	613	450	475	613
Hancock .....	2	3	2	2	3	2	70	95	70	150	190	200	150	190	200
Lamoine .....	3	2	7	4	3	7	75	65	115	230	110	290	230	110	290
Eden .....	8	12	12	8	12	12	160	240	240	525	735	825	525	735	825
Mt Desert .....	10	9	11	7	6	8	111	96	121	590	480	610	529	434	534
Tremont .....	23	26	29	22	23	30	1,280	1,385	1,880	1,595	1,735	1,890	1,557	1,697	1,810
Cranberry Isles .....	11	12	9	10	12	9	350	400	310	1,540	1,680	1,270	1,500	1,650	1,250
Blue Hill .....	4	3	10	4	3	10	160	120	386	300	250	660	300	250	660
Brooklin .....	21	26	36	19	24	33	805	1,015	1,250	1,455	1,785	2,354	1,455	1,785	2,354



Table IV—Continued.

Locality.	Number of Fishermen.			Number of Boats			Value of Boats.			Number of Traps.			Value of Traps		
	1887.	1888.	1889.	1887.	1888.	1889.	1887.	1888.	1889.	1887.	1888.	1889.	1887.	1888.	1889.
Deer Isle.....	174	181	191	189	192	204	\$16,284	\$16,380	\$18,190	12,840	13,390	14,105	\$12,815	\$13,315	\$14,080
Isle au Haut.....	50	51	56	55	58	59	4,650	4,860	5,130	3,050	3,075	3,350	3,050	3,075	3,350
Swan's Island..	70	70	86	68	68	82	7,855	8,150	9,750	6,790	6,820	8,220	6,790	6,820	8,220
Sedgwick.....	1	1	2	1	1	2	100	100	120	65	65	90	65	65	90
Brooksville..	7	9	8	7	9	8	195	382	392	365	415	365	365	415	365
Castine.....	3	6	7	3	6	7	75	150	175	65	110	133	65	110	133
Penobscot.....	1	2	3	1	2	3	25	40	50	50	65	87	50	65	87
Verona.....	-	-	1	-	-	1	-	-	10	-	-	20	-	-	20
Stockton.....	5	5	5	5	5	5	100	100	100	100	100	100	50	50	50
Searsport.....	5	5	5	5	5	5	100	100	100	200	200	300	100	100	150
Belfast.....	12	6	14	6	3	7	150	75	175	300	150	345	150	75	173
Islesboro'.....	23	23	23	24	24	24	360	360	360	805	805	805	805	805	805
Northport.....	10	10	13	7	7	10	105	105	150	200	200	256	200	200	256
Lincolnville..	1	1	1	1	1	1	15	15	15	50	50	50	50	50	50
Camden.....	4	5	4	4	5	4	105	135	105	300	300	275	175	175	160
Rockland.....	20	20	20	20	20	20	600	600	600	1,000	1,000	1,000	1,000	1,000	1,000
Matinicus.....	40	44	43	31	33	32	2,130	2,150	2,130	2,560	2,800	2,700	2,560	2,800	2,700
Vinalhaven.....	75	75	80	121	121	127	4,583	4,583	4,753	5,300	5,300	5,775	3,975	3,975	4,331
North Haven.....	35	35	35	36	36	36	1,000	1,000	1,000	2,000	2,000	2,000	1,000	1,000	1,000
South Thomaston.....	25	35	35	50	70	70	1,250	1,750	1,750	1,000	1,500	1,500	1,000	1,500	1,500
St. George.....	70	70	70	41	42	42	2,755	2,770	2,770	2,445	2,590	2,630	2,423	2,495	2,540
Cushing.....	9	9	9	9	9	9	160	160	160	450	485	485	450	485	485
Friendship.....	50	50	46	47	47	43	3,500	3,500	3,150	2,400	2,500	2,850	2,400	2,500	2,850
Waldoboro'.....	19	19	19	19	19	19	190	190	190	950	950	950	950	950	950
Bremen.....	28	28	28	40	40	35	1,715	1,715	945	1,650	1,650	1,650	1,650	1,650	1,650
Bristol.....	126	126	126	126	126	125	5,825	5,825	4,875	4,560	4,560	4,325	4,560	4,560	4,325

Monhegan .....	30	30	30	50	50	50	3,585	3,585	3,585	1,200	1,200	1,200	1,200	1,200	1,200
Wiscasset .....	1	2	3	1	2	3	20	40	50	35	50	50	30	40	40
Newcastle and Edgecomb ..	10	10	10	10	10	10	200	200	200	150	150	150	120	120	120
Boothbay .....	49	60	61	50	60	62	2,500	3,000	3,200	2,500	3,000	3,310	2,000	2,400	2,640
Southport .....	26	25	24	30	30	31	1,400	1,400	1,425	1,200	1,200	1,240	960	960	1,012
Georgetown .....	32	32	37	32	32	37	960	960	1,110	1,280	1,280	1,485	1,024	1,024	1,187
Phippsburg .....	27	27	27	24	24	24	720	720	720	1,080	1,080	1,080	864	864	864
Harpwell .....	113	114	114	105	107	106	2,340	2,420	2,405	4,380	4,420	4,406	3,464	3,516	3,498
Islands in Casco Bay† .....	121	114	114	104	101	102	2,575	2,425	2,445	4,600	4,320	4,440	3,680	3,458	3,516
Brunswick .....	10	10	10	10	10	10	250	250	250	380	380	380	304	304	304
Freeport .....	16	14	12	14	12	10	420	360	300	600	560	450	480	448	360
Portland .....	6	6	6	6	6	6	90	90	90	240	231	246	192	186	197
Cape Elizabeth .....	16	16	16	16	16	16	240	240	248	460	460	472	216	216	224
Biddeford .....	34	33	33	34	33	33	1,360	1,320	1,320	3,800	3,700	3,680	3,040	2,960	2,942
Kennebunkport .....	44	43	43	29	28	28	520	500	500	3,480	3,460	3,384	2,784	2,720	2,716
Wells .....	9	9	11	9	9	11	180	180	220	510	510	560	408	408	448
York .....	19	19	19	16	16	16	320	320	320	810	840	770	648	672	617
Kittery .....	12	12	12	12	12	12	240	240	240	650	650	650	900	900	900
Totals.....	1,906	1,967	2,080	1,909	1,939	2,096	\$89,756	\$90,333	\$97,563	109,549	107,482	121,140	98,061	96,294	108,668



Table IV—Continued.

Locality.	Value of Accessories and Shore Property.			Pounds of Lobsters.*			Value of Lobsters.		
	1887.	1888.	1889.	1887.	1888.	1889.	1887.	1888.	1889.
Robbinston .....	\$42	\$42	\$24	6,000	6,050	7,500	\$200	\$202	\$250
Perry .....	18	18	15	25,250	17,200	22,500	465	330	450
Eastport .....	-	-	-	28,800	18,000	29,025	430	300	585
Pembroke .....	60	40	60	33,450	18,600	27,495	540	300	550
Lubec .....	95	105	105	221,300	208,908	215,800	2,692	2,615	2,675
Tresecott .....	130	130	130	156,000	148,000	150,000	5,460	5,180	5,250
Cutler .....	243	212	265	155,575	121,890	230,000	2,031	2,083	3,312
Machiasport .....	215	90	225	120,000	67,500	115,000	2,487	1,350	2,300
Jonesboro' .....	180	245	260	174,880	239,908	279,033	2,334	3,051	3,748
Jonesport .....	415	536	518	2,951,364	3,144,330	3,736,660	33,513	41,463	56,016
Addison .....	350	350	460	656,640	444,166	563,300	7,223	5,330	7,323
Harrington .....	200	180	180	313,084	136,700	248,077	3,757	2,734	3,225
Millbridge .....	312	322	724	648,000	303,846	1,012,000	8,700	3,950	15,400
Steuben .....	166	160	204	686,400	602,100	615,400	8,580	7,500	8,000
Gouldsboro' .....	587	562	593	* 1,150,481	984,879	1,203,440	29,929	29,290	33,188
Sullivan .....	40	40	90	41,100	45,960	85,270	1,032	1,150	1,960
Hancock .....	25	38	25	10,500	13,200	20,665	300	330	500
Lamoine .....	38	15	38	25,200	13,480	35,467	540	288	830
Eden .....	235	285	305	48,825	70,250	78,583	2,010	2,690	3,600
Mount Desert .....	36	32	42	33,150	33,950	43,840	1,180	1,200	1,590
Tremont .....	770	805	1,435	178,430	219,487	338,885	4,685	5,635	8,960
Cranberry Isles .....	90	100	75	66,000	73,500	58,500	2,200	2,450	1,950
Blue Hill .....	28	20	65	51,800	41,625	153,750	1,036	832	3,075
Brooklin .....	227	274	348	299,375	178,273	333,375	4,790	2,995	5,369

Deer Isle .....	\$1,610	\$1,680	\$1,780	3,838,957	4,494,312	4,068,816	67,765	71,170	77,665
Ile au Haut .....	1,050	1,075	1,170	785,714	947,142	1,213,320	26,900	32,550	35,800
Swan's Island .....	1,600	1,595	1,824	618,325	570,150	658,060	16,950	16,050	20,036
Sedgwick .....	10	10	15	16,250	19,500	22,750	325	390	485
Brooksville .....	156	172	164	31,675	39,715	30,250	1,267	1,390	1,210
Castine .....	18	36	42	5,050	10,600	10,800	170	350	360
Penobscot .....	5	5	10	11,140	13,600	16,600	279	340	415
Verona .....	-	-	2	-	-	2,400	-	-	96
Stockton .....	25	25	25	9,000	10,000	9,000	450	500	450
Searsport .....	25	25	25	20,000	20,000	24,000	1,000	1,000	1,200
Belfast .....	110	80	120	40,000	23,500	47,000	2,000	1,175	2,350
Islesboro' .....	125	125	70	297,000	200,000	205,000	11,312	10,000	6,875
Northport .....	50	50	63	22,000	15,000	24,000	500	750	465
Lincolnville .....	10	10	10	6,100	2,500	8,000	117	125	212
Camden .....	30	30	30	88,000	64,000	46,800	1,925	1,800	946
Rockland .....	220	220	220	500,000	400,000	375,000	13,250	12,000	11,250
Matinicus .....	120	120	115	268,000	188,000	344,000	11,400	8,600	11,025
Vinalhaven .....	250	250	250	845,000	600,000	950,000	25,000	24,000	28,375
North Haven .....	700	700	700	800,000	350,000	550,000	18,250	14,000	13,750
South Thomaston .....	250	250	250	410,000	500,000	450,000	9,675	15,000	11,925
St George .....	1,260	1,260	1,260	508,000	616,000	727,000	17,740	18,560	18,338
Cushing .....	50	50	50	40,000	60,000	72,000	1,200	1,800	1,912
Friendship .....	250	250	250	195,000	300,000	265,000	5,812	10,500	7,507
Waldoboro' .....	1,000	1,000	1,000	190,000	150,000	190,000	5,300	5,250	5,300
Bremen .....	80	80	80	250,000	180,000	264,000	6,725	6,300	7,080
Bristol .....	1,800	1,800	1,800	865,000	768,000	785,000	25,797	26,880	22,187
Monhegan .....	240	240	240	140,000	140,000	120,000	5,600	7,000	6,000
Wiscasset .....	10	10	10	12,000	11,000	11,000	320	320	340
Newcastle and Edgecomb .....	60	60	60	18,000	18,500	18,850	720	740	754
Boothbay .....	450	480	480	240,000	239,400	236,300	7,985	7,980	7,877
Southport .....	250	250	250	55,000	68,000	68,000	2,000	2,500	2,600
Georgetown .....	300	300	300	125,000	125,000	153,000	3,600	3,600	4,910
Phippsburg .....	250	250	250	122,000	120,000	117,500	3,200	3,200	3,500
Harpwell .....	1,750	1,750	1,750	988,000	953,000	930,000	21,900	21,700	21,785
Islands in Casco Bay† .....	1,830	1,960	1,940	1,003,000	932,000	889,100	23,880	22,740	21,572
Brunswick .....	100	100	100	70,000	67,000	62,000	2,000	1,917	1,860
Freeport .....	150	150	125	75,000	70,000	57,000	2,300	2,200	1,900
Portland .....	50	50	50	35,000	34,000	32,500	1,200	1,200	1,200
Cape Elizabeth .....	200	200	200	185,000	180,000	173,000	5,550	5,400	6,190



Table IV—*Concluded.*

Locality.	Value of Accessories and Shore Property.			Pounds of Lobsters.*			Value of Lobsters		
	1887.	1888.	1889.	1887.	1888	1899.	1887.	1888.	1889.
Biddeford..	\$1,000	\$1,000	\$1,000	230,000	245,000	258,000	\$7,800	\$8,400	9,060
Kennebunkport	800	660	660	178,000	175,000	176,000	4,925	5,005	5,015
Wells.	125	125	125	39,000	38,200	41,000	1,090	1,190	1,240
York.	145	135	135	96,000	103,000	88,000	2,600	2,900	2,580
Kittery	200	200	200	55,000	55,000	58,000	1,800	1,800	1,900
Totals	23,216	23,419	25,886	22,407,814	21,269,819	24,452,111	495,643	503,520	556,733

\* The quantities given represent the weight of the lobsters as taken from the water.

† Including Great Chebeag, Long. Peak's and Cousin's Islands.

NOTE.—In addition to the above figures, which represent exclusively the shore fishery, a number of vessels engaged in the industry to a greater or less extent. These in 1887 carried 4,690 traps, valued at \$4,675, and caught 508,828 pounds of lobsters, valued at \$16,401; and in 1888 employed 4,970 traps, worth \$4,925, and took 424 912 pounds of lobsters, valued at \$12,360.

Table V—Showing, by counties, the extent of the lobster canning industry in the State of Maine in the years 1887, 1888 and 1889. Prepared by the United States Fish Commission.

County.	No of canneries in operation.			No. of factory hands.			Investment.					
							Value of buildings, machinery, etc.			Cash capital.		
	1887.	1888.	1889.	1887.	1888.	1889.	1887.	1888.	1889.	1887.	1888.	1889.
Washington .....	7	2	7	190	65	177	\$20,450	\$7,500	\$18,100	\$31,200	\$ 9,500	\$24,400
Hancock .....	5	3	5	159	119	157	6,450	2,950	9,200	21,050	13,250	25,500
Knox .....	2	—	4	109	—	149	8,250	—	12,750	8,000	—	16,750
Lincoln .....	2	1	3	64	28	94	6,750	5,000	9,150	7,800	4,800	9,300
Total .....	16	6	19	522	212	577	41,900	15,450	49,200	68,050	27,550	75,950

County.	Pounds of lobsters bought from fishermen.			Value to fishermen.			No. of one and two pound cans of lobsters prepared.			Value of canned goods to canners.		
	1887.	1888	1889.	1887.	1888.	1889	1887.	1888.	1889.	1887.	1888.	1889.
Washington .....	*3,155,562	*341,053	*2,451,303	\$35,496	\$5,116	\$30,988	†384,456	†64,800	†167,000	\$55,648	\$ 8,775	\$60,654
Hancock .....	1,676,802	327,825	1,073,323	20,035	5,006	13,258	351,077	80,335	227,009	43,884	10,862	29,320
Knox .....	931,320	1,772,620	11,176	—	—	22,158	152,060	—	275,571	21,566	—	40,087
Lincoln .....	394,524	195,000	455,408	4,932	2,430	5,688	77,713	33,360	76,951	9,453	4,150	10,424
Total .....	6,158,208	863,878	5,752,654	71,639	12,552	72,092	1,165,806	178,495	1,046,531	130,551	23,787	140,485

\*Of these quantities, 1,100,211 pounds, 151,578 pounds and 386,526 pounds, respectively, were purchased from fishermen of New Brunswick.

†Of these quantities, 209,040 cans, 28,800 cans and 73,440 cans, respectively, were prepared from lobsters obtained in New Brunswick.



OFFICE OF THE SUPERINTENDENT OF FISHERIES, }  
St. John's, N'l'd, November 17, 1890. }

*Sir:*—Yours of 27th to hand. In reply I have the pleasure of informing you that the apparatus I use for propagation of codfish is the automatic siphon system on the one side of the hatching room, and an improved system of Clark's apparatus on the other side. I have also a few of McDonald's boxes, but these I don't approve of on account of the surface water cannot be diverted. The glass jars 9x15 inches which I use for incubators on one side of the hatching room is better. These are the same as is used in Wood's Holl which I suppose you are acquainted with. The Clark system which consist of a long box  $13 \times 2\frac{1}{2} \times 1$  feet, I have divided into 24 compartments, and two inlet and two outlet rooms for the water. It has a slope of one-fourth inch to a foot. In each compartment is placed a box  $12 \times 12 \times 9$  inch, with a bottom covered with brass wire cloth. These boxes or incubators are fastened to the partitions in the one end with hinges. When the water is turned on, the free end of the incubators floats up about four inches above the level of the box. In order to get these incubators to work up and down for the purpose of getting a vertical as well as a horizontal motion in the water and for in this way to get rid of the dead corner, I have invented a mechanism which consist of a long wooden bar or lever, in which I have iron bolts fastened across that catches the end of the incubators and presses them down regularly every two minutes. This lever I work automatically with the overflow water from the same apparatus. I consider these to be the best for codfish propagation. The stripping of the fish, fertilization of the ova etc., I anticipate you know all about. In fertilizing the ova I always use to mix the milt with a very little water first and immediately afterwards put the ova in along with the milt. The lobsters I hatch from the ova stripped from the lobsters brought to the canning establishments before they are thrown into the boiler. I generally have to collect them from factories a long way from the hatchery and carry them from five to eight miles over land and from eight to twenty miles by water afterwards, as the few factories in the vicinity of the hatchery cannot supply me with all I can work. The ova is scraped off the swimmerets of the lobsters with a spoon made for that purpose, or the handle of a teaspoon will also do. The ova I

convey on crates (fifteen inch square and one inch high on which the bottom is covered with cotton cloth) to the hatchery. They are hatched in the same glass incubators as the codfish, and wants to be cleaned every day. This season we have up to this time hatched 17,100,000 codfish and 15,070,800 lobsters at the Dildo hatchery. In connection with the hatchery I have invented floating incubators for hatching lobsters in which this season has been hatched and planted 390,934,500 lobsters, making the grand hatch including the hatchery 406,005,300. These incubators are placed in the vicinity of the lobster canning establishment and thirty-six of those are worked by two men in two months. In each incubator I put one and one-half million of ova, and the loss of eggs when properly worked do not exceed twenty per cent, whereas in the apparatus used in the hatchery, we lose about thirty per cent and more, according to the distance I have to convey the ova. The floating incubators I have patented.

Any further information in regard to the propagation of cod or lobsters in the hatching at Dildo I shall only be glad to furnish you with, in case you should desire some information on certain points.

Yours respectfully,

AD. NIELSEN.

B. W. COUNCE, ESQ., THOMASTON.



## AMERICAN SARDINES.

Maine's Great Industry of Packing Young Herring in Oil.

—Processes of Preparing Fish for the Table.—The Various Oils Used.

The canning of small fish, that are sold as sardines has only been carried on in America about twelve years, but it has attained proper magnitude. The idea seems to have originated in France, where for a long time the people have been in the habit of packing small fish that would be virtually worthless for any other use, in oil. It is only, however, in quite recent time that the business in that country has amounted to much. In 1850 France produced 3,000,000 cans or boxes of sardines, while there are now seventy-two establishments there, the least of which turn out several millions of boxes annually. Other European countries also do considerable at it now, but France leads.

In 1865 a start was made in this country, a Maine man conceiving the belief that the almost countless number of small herring caught every year off that coast would make an admirable substitute for the real sardines. In 1867 an attempt to this end was made, but was eventually abandoned, it being impossible to get the herring flavor out of the would-be sardines. New York parties took it up later, and 1879 organized a company and began operations. Success attended the venture, and to-day the "sardine" canning industry is not the least important of "down East" enterprises.

The different processes gone through in fitting young herring for the table are can or box making, catching the fish, transporting to factory, cutting and dressing, salting, flaking, drying, frying, sorting and packing, can soldering, venting, cleaning and boxing. The bulk of the herring is caught by brush weirs although some fishermen adhere to the old way of torching, or "driving," as it is often called. The brush weir is built on a principal similar to all the weir traps, and pounds along the shore, the plan being to direct the fish toward the "bowl" by the use of long "leaders" and funnel-shaped



openings, and to prevent them from escaping by means of projecting curves or hooks, which carry them beyond the opening, or by stretching the net across the mouth of the weir after the fish have entered. Several kinds of weirs are employed in the fisheries at Eastport. These have names depending largely on their shape and the character of the shore and adjoining bottom on which they are built.

A "bar" weir is one that is located near a rock, ledge or bar that is usually exposed at half tide. It is so arranged that the fish shall pass over the bar and into the pocket at high water, and be effectually prevented from escaping by its exposure as the tide falls. The "shore" weir is usually built very near the land which answers as one side. It has a long leader running obliquely out from the shore, which directs the fish to the entrance of the bowl or pocket. A "channel" weir is built between two ledges or islands in such a way that all the herring passing between them are obliged to enter it. A patent weir has found much favor with the herring fishermen, for by its peculiar construction the fish may enter regardless of the direction in which they are moving. The brush weir, as its name implies, is built exclusively of brush and poles, carefully, ingeniously interwoven, and is very efficient. The cost of building weirs run from \$40 to \$900, according to kind, size and location.

The Maine law allows packers of sardines to resume operations April 15, from which time weir fishing is prosecuted to the following January. The fish are taken from the weirs by means of boat-seining; and is most successfully done in the night. Compacted in the seine, they are dipped out into boats with nets, while another way is to roll them into the boat at low water. They are taken to the canneries in sailboats or steamers. These canneries are located on some convenient wharf; are wooden structures, with large open platform, and cost from \$2500 to \$15,000, the average cost being about \$4,000. Cutting and dressing is done chiefly by boys and girls from eight to fifteen years of age, who dexterously sever the head and tail, remove the intestines, and wash the body. A child cuts three to four barrels of ordinary-sized fish in a day. The price paid for cutting is about five cents a box. As it is desirable to have the fish cut as soon as possible, a large force is employed and the work is completed in a few hours when the children return home. The next process is salting. As soon as the fish are dressed they are taken in a small car into the salting room, where they



