
STATISTICS
OF THE
FISHERIES OF THE NEW ENGLAND STATES.

PREPARED IN THE DIVISION OF STATISTICS AND METHODS OF THE
FISHERIES, UNITED STATES FISH COMMISSION.

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INTRODUCTORY NOTE.

The report on the fisheries of the New England States presented herewith relates to the condition of the commercial fisheries in the year 1898, and is based on inquiries made in the field in 1899 by statistical agents of the U. S. Fish Commission.

The results of the investigation have already been published in condensed form as Statistical Bulletin No. 15, and in the report of the Commissioner for 1900.

The report has been prepared under the direction of Mr. C. H. Townsend, assistant in charge of the division of fisheries.

The agents of the division engaged in the investigations in the field were Messrs. C. H. Stevenson in Connecticut, W. A. Wilcox and T. M. Cogswell in Massachusetts and New Hampshire, Ansley Hall in Massachusetts, E. S. King in Rhode Island, and J. N. Cobb in Maine.

The assistant in charge visited some of the more important fisheries of the region, and Mr. J. B. Wilson was temporarily engaged in Massachusetts.

GEO. M. BOWERS,
Commissioner.

STATISTICS OF THE FISHERIES OF THE NEW ENGLAND STATES.

GENERAL NOTES AND STATISTICS.

The New England States having coast fisheries are Maine, New Hampshire, Massachusetts, Rhode Island, and Connecticut. The number of persons engaged in the fisheries of these States in 1898 was 35,631. Of this number 22,367 were fishermen and 13,264 were shoresmen employed in the various shore industries directly connected with the fisheries. Maine and Massachusetts maintain extensive fisheries, but the industry is considerably smaller in the other three States. Maine employed in its fisheries 16,954 persons, Massachusetts 14,363, New Hampshire only 154, Rhode Island 1,687, and Connecticut 2,473. Since the last general canvass of these States in 1889 there has been a decrease of 905 in the number of persons employed. In Maine there was an increase of 2,825 persons, while a decrease occurred in all of the other States, the largest number being 2,875 in Massachusetts, and the largest percentage, 57.80 per cent, in New Hampshire.

The amount of capital invested in the fisheries was \$19,637,036. The investment in Maine was \$4,013,053; in New Hampshire, \$52,648; in Massachusetts, \$13,372,902; in Rhode Island, \$957,142; and in Connecticut, \$1,241,291. As compared with 1889 the capital invested has decreased \$457,758. There has been an increase in Maine of \$1,123,160 and in Massachusetts of \$127,673. In New Hampshire there was a decrease of \$60,012, in Rhode Island of \$63,036, and in Connecticut of \$1,585,543. The decrease in Connecticut is due chiefly to the fact that the value of the oyster-grounds, included in 1889, was omitted in 1898, the actual decrease in the investment being about \$282,818.

The number of fishing and transporting vessels employed in the fisheries was 1,427, having a net tonnage of 43,821 tons, and a value of \$2,920,825. The value of their outfits was \$1,303,514. There has been a slight decrease since 1889 in the number of vessels and a large decrease in the tonnage. The vessels have increased in number in Maine, Massachusetts, and Rhode Island, but have decreased in the other States. The decrease in the total tonnage is due chiefly to many of the larger fishing vessels being sold for use in the coasting trade, and their places in the fisheries being supplied by smaller ones; and also to the transfer of a number of menhaden vessels from the New England region to the State of New York. The number of boats employed in the shore fisheries was 10,557, valued at \$621,670; the apparatus of capture used on vessels and boats was valued at \$1,218,898; the value of shore and

accessory property in the fisheries and fishery industries was \$7,115,030, and the cash capital amounted to \$6,457,099.

The products of the fisheries aggregated 393,457,906 pounds, valued at \$9,682,290. Maine produced 123,404,561 pounds, valued at \$2,654,919; New Hampshire, 3,020,715 pounds, valued at \$48,987; Massachusetts, 202,257,817 pounds, valued at \$4,463,727; Rhode Island, 32,854,396 pounds, valued at \$955,058; and Connecticut, 31,920,417 pounds, valued at \$1,559,599. Some of the more important species secured in the fisheries of these States were cod, cusk, haddock, hake, and pollock, valued at \$2,798,109, halibut at \$569,515, mackerel at \$481,933, herring at \$596,684, alewives at \$76,959, smelt at \$140,912, blue-fish at \$86,461, scup at \$93,353, squeteague at \$108,945, sword-fish at \$90,130, shad at \$44,018, eels at \$64,756, lobsters at \$1,276,967, clams and quahogs at \$578,455, and oysters at \$1,910,684. The products of the whale fisheries, consisting chiefly of whale, sperm, and sea-elephant oils, and whalebone, were valued at \$285,688.

There has been a decrease in the products of the fisheries since 1889 of 259,712,134 pounds, or 39.76 per cent, in quantity, and of \$868,351, or 8.23 per cent, in value. A decrease in quantity has occurred in all of the States in this section, varying from 4.75 per cent in Maine to 74.20 per cent in Rhode Island. The value in New Hampshire has also decreased \$39,524, or 44.65 per cent, and in Massachusetts \$1,394,547, or 23.80 per cent, but in Maine it has increased \$543,713, or 25.75 per cent, and to a small extent in Rhode Island and Connecticut.

The decrease in products in the various States, except in New Hampshire, where it relates to nearly all of the principal species, is due chiefly to a smaller quantity of algæ and to a decline in the catch of menhaden. The products of Maine in 1889 included 12,900,000 pounds of algæ, valued at \$6,315, whereas none appears in the statistics of that State in 1898. The products of Massachusetts included 117,993,900 pounds of algæ in 1889, valued at \$66,034, and only 700,000 pounds, valued at \$22,375, in 1898. If the algæ were eliminated from the statistics of these States in both years the result in Maine would be an increase in the more important products of 6,744,697 pounds in quantity and of \$550,028 in value, and in Massachusetts an increase of 20,334,048 pounds in quantity and a decrease of \$1,350,888 in value. The increase in the value of the products in Maine may be attributed principally to the high prices received for lobsters, but in Massachusetts the catch of lobsters was not large enough to materially offset the decrease in the value of products occasioned by the comparatively low prices received for fish. In Rhode Island the products have decreased in quantity, owing to a reduction of 109,440,000 pounds in the catch of menhaden. There has, however, been considerable increase in that State in the quantity of food species. The decrease in the products of Connecticut may be accounted for by the absence of

algæ, of which 18,000,000 pounds were included in 1889, and also by a falling off in the catch of cod, menhaden, and various other species.

The following publications of the United States Fish Commission may be consulted in studying the statistics of the fisheries of the New England States:

- The Fishery Industries of the United States. Section II. Geographical Review of the Fisheries for 1880. Parts I to V.
 The Fishery Industries of the United States. Section V. History and Methods of the Fisheries.
 Report on the Fisheries of the New England States, by J. W. Collins and Hugh M. Smith. Bull. U. S. Fish Com. 1890, pp. 73-176.
 Report on the Condition of the Sea Fisheries of the South Coast of New England in 1871 and 1872, by Spencer F. Baird. Rept. U. S. Fish Com. 1871-72, pp. I-XLI.
 The Sea Fisheries of Eastern North America, by Spencer F. Baird. Rept. U. S. Fish Com. 1886, pp. 3-224.
 Statistical Review of the Coast Fisheries of the United States, by J. W. Collins. Rept. U. S. Fish Com. 1888, pp. 271-378.
 The Herring Industry of the Passamaquoddy Region, Maine, by Ansley Hall. Rept. U. S. Fish Com. 1896, pp. 443-489.
 Notes on the Oyster Fishery of Connecticut, by J. W. Collins. Bull. U. S. Fish Com. 1889, pp. 461-497.
 The Lobster Fishery of Maine, by John N. Cobb. Bull. U. S. Fish Com. 1899, pp. 241-265.

The three tables which follow show in detail the number of persons employed, the amount of capital invested, and the quantity and value of the products of the fisheries of the New England States in 1898, and the table on page 321 presents a comparison of the extent of the fisheries in the years 1889 and 1898:

Table showing the number of persons engaged in the fisheries of the New England States in 1898.

States.	Fishermen.	Shoresmen.	Total.
Maine	8,717	8,237	16,954
New Hampshire	143	11	154
Massachusetts	10,341	4,022	14,363
Rhode Island	1,340	347	1,687
Connecticut	1,826	647	2,473
Total	22,967	13,264	35,631

318 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing the investment in the fisheries of the New England States in 1898.

Items.	Maine.		New Hampshire.		Massachusetts.	
	No.	Value.	No.	Value.	No.	Value.
Vessels.....	497	\$538,400	5	\$3,900	637	\$1,776,025
Tonnage.....	8,175		79		30,558	
Outfit.....		182,427		3,458		939,772
Boats.....	5,741	284,897	123	5,395	2,625	178,082
Seines.....	251	29,660	1	500	272	88,382
Bag nets.....	202	8,645				
Dip nets.....	182	637			213	272
Drag nets.....					27	1,610
Fyke nets.....	26	710			88	1,124
Gill nets.....	3,722	\$7,413	60	844	4,632	50,312
Pound nets.....	67	14,680	17	6,960	126	141,835
Snap nets.....	20	20				
Trap nets.....	33	14,125				
Weirs.....	557	111,618			4	900
Lines, hand and trawl.....		51,965		2,118		221,365
Pots, eel.....	333	188			1,290	2,376
Pots, lobster.....	155,978	156,777	1,675	1,666	26,264	31,481
Harpoons.....		1,155				1,200
Spears.....	145	127				
Dredges, tongs, rakes, hoes, and forks.....		2,032		32		15,199
Other apparatus.....						469
Shore and accessory property.....		1,193,478		12,775		5,125,248
Cash capital.....		1,385,099		15,000		4,797,250
Total.....		4,013,053		52,648		13,372,902

Items.	Rhode Island.		Connecticut.		Total.	
	No.	Value.	No.	Value.	No.	Value.
Vessels.....	93	\$167,850	195	\$434,650	1,427	\$2,920,825
Tonnage.....	1,464		3,655		43,821	
Outfit.....		46,597		131,260		1,803,514
Boats.....	854	72,381	1,214	80,915	10,567	621,670
Seines.....	49	7,243	67	6,355	640	132,140
Bag nets.....					202	8,645
Dip nets.....					395	909
Drag nets.....					27	1,610
Fyke nets.....	329	2,462	410	3,522	853	7,818
Gill nets.....	184	7,085	89	5,025	8,637	100,679
Pound nets.....	202	110,395	66	19,930	478	293,800
Snap nets.....	4	20			24	40
Trap nets.....					37	15,025
Weirs.....					557	111,618
Lines, hand and trawl.....		2,010		1,357		278,815
Pots, eel.....	3,139	1,987	1,313	1,197	6,075	5,748
Pots, lobster.....	10,312	12,716	10,830	17,405	205,049	219,045
Harpoons.....		109		177		2,641
Spears.....	29	46	56	37	230	210
Dredges, tongs, rakes, hoes, and forks.....		6,549		15,131		88,943
Other apparatus.....		43		700		1,212
Shore and accessory property.....		439,149		344,380		7,115,030
Cash capital.....		80,500		179,250		6,457,999
Total.....		957,142		1,241,291		19,637,036

Table showing the quantity and value of products taken in the fisheries of the New England States in 1898.

Species.	Maine.		New Hampshire.		Massachusetts.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Albacore					86,090	\$912
Alewives, fresh	925,325	\$8,016	25,000	\$250	1,877,061	22,268
Alewives, salted	986,600	8,437	200,000	2,500	586,700	6,790
Alewives, smoked	606,800	8,849			71,440	2,230
Blue-fish					832,849	38,089
Bonito					89,136	2,410
Butter-fish	14,800	740			30,620	818
Cat-fish	4,000	40			5,200	121
Cod, fresh	10,091,088	167,231	689,150	10,766	40,632,151	688,772
Cod, salted	5,232,622	147,024	2,000	70	30,682,827	718,318
Cunners	148,300	1,025			85,350	5,250
Cusk, fresh	1,138,201	12,545	97,500	995	5,825,173	61,308
Cusk, salted	86,667	1,210			128,863	2,206
Eels, fresh	160,611	12,622			425,846	17,635
Eels, salted	3,200	320				
Flounders and flat-fish	786,697	17,539			1,168,876	14,793
Haddock, fresh	7,274,909	119,982	1,379,750	14,552	35,451,294	418,526
Haddock, salted	956,667	12,369	4,000	100	130,230	1,292
Hake, fresh	18,329,899	110,558	115,400	1,379	21,099,428	161,495
Hake, salted	2,405,578	23,886	1,500	38	232,388	2,139
Halibut, fresh	304,890	22,075			8,663,443	487,714
Halibut, salted					1,859,854	59,726
Herring, fresh	37,017,814	174,813	65,000	650	16,562,398	266,335
Herring, salted	1,400,650	26,159			5,801,169	76,212
Herring, smoked	8,738,500	63,005				
Hickory shad					1,000	15
King-fish					245	22
Mackerel, fresh	1,441,157	85,344	58,750	3,207	3,791,233	197,339
Mackerel, salted	163,000	12,761			2,912,131	164,525
Menhaden, fresh	6,700,000	17,105			1,497,367	10,544
Menhaden, salted	539,900	3,601				
Perch			1,650	165	57,523	3,662
Pollock, fresh	1,126,746	8,468	180,200	1,559	6,566,388	38,256
Pollock, salted	1,002,704	10,901	1,200	24	517,649	4,789
Pompuno					150	15
Salmon	53,322	10,009			60	30
Scup					1,043,625	14,263
Sea bass					99,300	4,946
Shad, fresh	701,879	14,006			29,333	1,426
Shad, salted	160,000	5,746				
Smelt	1,608,045	139,345			7,079	515
Spanish mackerel					210	80
Squeteague					1,371,910	39,518
Striped bass	25,067	4,206	850	85	12,948	939
Sturgeon	12,075	367			8,490	402
Suckers	200	1				
Sword-fish, fresh	878,290	44,395			569,916	34,465
Sword-fish, salted					27,270	815
Tautog					289,505	7,567
Tomcod	310,083	6,158				
Whiting					37,200	492
Refuse fish	55,000	354				
Squid, fresh					1,064,425	14,570
Squid, salted					5,000	50
Lobsters	11,183,294	992,855	108,515	9,372	1,693,741	147,702
Shrimp					25,200	1,183
Quahogs or hard clams					510,536	50,724
Clams (soft), fresh	8,758,800	274,885	6,000	360	1,470,951	102,594
Clams (soft), salted	711,200	48,568				
Mussels					7,400	180
Oysters					708,575	156,235
Scallops	166,509	14,622			875,512	94,971
Winkles					9,500	475
Irish moss			70,000	2,450	700,000	22,375
Caviar	845	454				
Sounds and tongues	281,917	12,840			67,562	2,808
Haddock spawn					700	18
Halibut fins					21,900	384
Livers	672,800	5,497				
Oil, fish	167,920	4,591	14,250	475	358,927	13,963
Oil, sea-elephant					472,500	20,790
Oil, whale					3,119,450	199,023
Whalebone					27,100	65,875
Total	123,404,561	2,654,919	3,020,715	48,987	202,257,817	4,463,727

320 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Products taken in the fisheries of the New England States in 1898—Continued.

Species.	Rhode Island.		Connecticut.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Albacore					36,090	\$912
Alewives, fresh	628,132	\$6,621	868,400	\$7,346	4,323,918	44,501
Alewives, salted	74,100	940			1,847,400	18,667
Alewives, smoked	136,390	2,712			814,630	13,791
Blue-fish	330,290	15,521	963,285	32,851	2,126,424	86,461
Bonito	124,450	2,615			213,586	5,025
Bullheads	300	24	3,032	114	3,332	138
Butter-fish	207,000	5,615	60,280	2,370	312,700	9,643
Carp			910	46	910	46
Cat-fish					9,200	150
Cod, fresh	1,111,811	23,556	451,225	10,978	52,975,425	901,242
Cod, salted	315,101	13,154			36,232,550	878,566
Cunners	3,300	100			236,950	6,375
Cusk, fresh					7,060,874	74,848
Cusk, salted					215,530	3,416
Eels, fresh	443,374	20,030	206,970	14,149	1,236,801	64,436
Eels, salted					3,200	320
Flounders and flat-fish	1,710,057	27,576	443,864	13,383	4,109,494	73,291
Haddock, fresh	366,525	8,373	112,800	856	44,545,268	562,289
Haddock, salted					1,090,887	13,761
Hake, fresh					34,544,727	273,432
Hake, salted					2,639,466	26,063
Halibut, fresh					8,968,333	509,789
Halibut, salted					1,859,854	59,726
Herring, fresh	2,000	10			53,647,152	431,308
Herring, salted					7,201,809	102,371
Herring, smoked					3,738,500	63,005
Hickory shad	13,000	328			14,000	848
King-fish	1,970	128			2,215	150
Mackerel, fresh	359,900	15,004	40,913	1,753	5,691,953	302,647
Mackerel, salted			28,000	2,000	3,103,131	179,286
Menhaden, fresh	3,140,000	7,591	11,182,910	26,334	22,600,277	61,574
Menhaden, salted					539,900	8,601
Minnows	3,728	356			3,728	356
Perch	48,475	1,920	15,572	760	123,220	5,507
Pickarel	200	20	5,420	271	5,620	291
Pollock, fresh	50,000	500			7,923,334	48,778
Pollock, salted					1,521,553	15,714
Pompano					150	15
Salmon					53,382	10,039
Scup	6,890,225	75,596	101,040	3,504	7,534,890	93,353
Sea bass	440,950	11,935	247,789	12,182	788,039	29,063
Shad, fresh	25,112	1,625	499,325	21,215	1,255,649	38,272
Shad, salted					160,000	5,746
Smelt	4,100	215	5,600	837	1,624,824	140,912
Spanish mackerel	700	104	66	12	976	146
Squeteague	3,125,635	68,976	193,643	5,451	4,691,188	108,945
Striped bass	101,950	10,511	18,845	1,662	154,660	17,403
Sturgeon			700	33	21,265	802
Suckers			53,373	2,068	58,373	2,069
Sword-fish, fresh	55,875	2,935	85,980	7,520	1,590,061	89,315
Sword-fish, salted					27,270	815
Tautog	248,129	7,214	70,540	3,118	608,174	17,899
Tomcod	8,000	240	38,760	1,677	356,833	8,075
Whiting			3,850	185	41,050	677
Miscellaneous fish	245,750	5,522			245,750	5,522
Refuse fish	1,012,000	1,222			1,067,000	1,576
Squid, fresh	124,000	1,875	6,900	150	1,195,325	16,095
Squid, salted					5,000	50
Crabs, fiddler	128	78			128	78
Crabs, hard	7,875	575			7,875	575
Crabs, soft	5,020	1,675			5,020	1,675
Lobsters	578,066	43,290	1,098,192	83,748	14,661,808	1,276,967
Shrimp	2,250	750			27,450	1,933
Quahogs or hard clams	249,696	31,816	234,000	29,900	994,232	112,440
Clams (soft), fresh	150,150	20,569	199,800	19,039	10,585,701	417,447
Clams (soft), salted					711,200	48,568
Mussels	15,550	694			22,950	824
Oysters	3,201,646	505,878	14,633,283	1,249,071	18,543,504	1,910,684
Scallops	115,386	10,471	50,160	5,016	1,207,567	124,980
Winkles					9,503	475
Irish moss					770,000	24,825
Caviar					845	454
Sounds and tongues	2,100	630			351,579	16,273
Haddockspawn					700	18
Halibut fins					21,900	384
Livers					672,800	5,497
Oyster shells	7,674,000	3,968			7,674,000	3,968
Oil fish					531,097	19,029
Oil, sea-elephant					472,500	20,790
Oil, whale					3,119,450	199,023
Whalebone					27,100	65,875
Total	32,854,396	955,058	31,920,417	1,559,599	393,457,906	9,682,290

Comparative table showing the extent of the fisheries of the New England States in 1889 and 1898.

PERSONS ENGAGED.

States.	1889.	1898.	Increase or decrease in 1898 as compared with 1889.	Percentage of increase or decrease in 1898 as compared with 1889.
Maine.....	14, 129	16, 954	+2, 825	+19. 99
New Hampshire.....	365	154	- 211	-57. 80
Massachusetts.....	17, 238	14, 363	-2, 875	-16. 68
Rhode Island.....	1, 767	1, 687	- 70	- 3. 98
Connecticut.....	3, 047	2, 473	- 574	-18. 84
Total.....	36, 536	35, 631	- 905	- 2. 48

CAPITAL INVESTED.

States.	1889.	1898.	Increase or decrease in 1898 as compared with 1889.	Percentage of increase or decrease in 1898 as compared with 1889.
Maine.....	\$2, 889, 893	\$4, 013, 053	+\$1, 123, 160	+38. 87
New Hampshire.....	112, 660	52, 648	- 60, 012	-53. 27
Massachusetts.....	13, 245, 229	13, 372, 902	+ 127, 673	+ . 96
Rhode Island.....	1, 020, 178	957, 142	- 63, 036	- 6. 18
Connecticut.....	2, 826, 834	1, 241, 291	- 1, 585, 543	-56. 09
Total.....	20, 094, 794	19, 637, 036	- 457, 758	- 2. 28

PRODUCTS.

States.	Lbs.			Percentage of increase or decrease in 1898 as compared with 1889.
	1889.	1898.	Increase or decrease in 1898 as compared with 1889.	
Maine.....	129, 559, 864	123, 404, 561	- 6, 155, 303	- 4. 75
New Hampshire.....	4, 354, 563	3, 020, 715	- 1, 333, 853	-30. 63
Massachusetts.....	209, 217, 669	202, 257, 817	- 6, 959, 852	-32. 40
Rhode Island.....	127, 365, 475	32, 854, 396	- 94, 511, 079	-74. 20
Connecticut.....	92, 672, 464	31, 920, 417	- 60, 752, 047	-65. 56
Total.....	658, 170, 040	393, 457, 906	-259, 712, 134	-39. 76

States.	Value.			Percentage of increase or decrease in 1898 as compared with 1889.
	1889.	1898.	Increase or decrease in 1898 as compared with 1889.	
Maine.....	\$2, 111, 206	\$2, 654, 919	+ \$543, 713	+25. 75
New Hampshire.....	88, 511	48, 987	- 39, 524	-44. 65
Massachusetts.....	5, 868, 274	4, 463, 727	-1, 394, 547	-23. 80
Rhode Island.....	985, 144	956, 053	+ 29, 091	+ 2. 13
Connecticut.....	1, 567, 506	1, 559, 599	+ 7, 907	+ . 13
Total.....	10, 550, 641	9, 682, 290	- 868, 351	- 8. 23

FISHERIES OF MAINE.

Among the New England States Maine occupies second place in the extent of its fisheries, being surpassed only by Massachusetts. The lobster fishery is more important than in all the other New England States combined, and the alewife, herring, salmon, shad, smelt, swordfish, and clam fisheries are more extensive than in any other State in this region. There are also important cod and mackerel fisheries.

The persons engaged in fisheries in 1898 numbered 16,954, of whom 1,947 were employed on vessels, 6,770 in the shore fisheries, and 8,237 were shoresmen. The number of vessels fishing and transporting was 497, valued, with their outfits, at \$720,827. The number of boats was 5,741, worth \$284,897. The apparatus in the vessel fisheries was valued at \$65,777, and in the shore fisheries at \$362,975. The total investment, including shore property and cash capital, was \$4,013,053.

The fishery products amounted to 123,404,561 pounds, valued at \$2,654,919. The lobster fishery yielded 11,183,294 pounds, worth \$992,855; of clams, fresh and salted, there were 9,470,000 pounds, worth \$323,453; cod, fresh and salted, 15,323,710 pounds, worth \$314,255. The cusk, haddock, hake, and pollock, taken in the cod fisheries, aggregated 27,321,361 pounds, worth \$299,914. The herring fishery yielded 42,156,964 pounds of fresh, salted, and smoked products, worth \$263,477. The products of the alewife fishery, fresh, salted, and smoked, were 2,519,725 pounds, worth \$25,302.

The following tables show the number of persons employed, the capital invested, and the quantity and value of products for 1898:

Persons employed.

How engaged.	No.
On vessels fishing	1,784
On vessels transporting	213
In shore or boat fisheries	6,770
Shoresmen	8,237
Total	16,954

Table of apparatus and capital.

Items.	No.	Value.	Items.	No.	Value.
Vessels fishing	411	\$380,750	Apparatus—shore fisheries—		
Tonnage	6,791		continued.		
Outfit		151,621	Weirs	557	\$111,618
Vessels transporting	86	157,660	Gill nets	2,265	25,894
Tonnage	1,384		Fyke nets	26	710
Outfit		30,806	Dip nets	182	637
Boats	5,741	284,897	Bag nets	202	8,645
Apparatus—vessel fisheries:			Snap nets	20	20
Gill nets	1,467	11,519	Seines	208	15,165
Seines	43	14,495	Lines, hand and trawl		27,712
Lines, hand and trawl		24,253	Pots, eel	303	180
Pots, eel	30	8	Pots, lobster	141,740	141,539
Pots, lobster	14,238	14,238	Spears	145	127
Hoes	27	14	Hoes and rakes	2,107	1,180
Dredges	15	95	Dredges	183	743
Harpoons		1,155	Shore and accessory property		1,193,478
Apparatus—shore fisheries:			Cash capital		1,385,099
Pound nets	67	14,680			
Trap nets	33	14,125	Total		4,013,058

Table of products.

Species.	Vessel fisheries.		Shore fisheries.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alewives, fresh			925,325	\$8,016	925,325	\$8,016
Alewives, salted			980,600	8,437	980,600	8,437
Alewives, smoked			606,800	8,849	606,800	8,849
Butter-fish			14,800	740	14,800	740
Cat-fish			4,000	40	4,000	40
Cod, fresh	4,760,222	\$78,084	5,330,866	89,147	10,091,088	167,231
Cod, salted	3,938,808	116,096	1,294,314	30,928	5,232,622	147,024
Cunners			148,300	1,026	148,300	1,026
Cusk, fresh	836,604	9,069	801,597	3,476	1,138,201	12,545
Cusk, salted	48,469	695	88,198	615	86,667	1,210
Eels, fresh	7,700	347	162,911	12,275	160,611	12,622
Eels, salted			3,200	320	3,200	320
Flounders	48,929	890	737,768	16,649	786,697	17,539
Haddock, fresh	4,035,065	71,557	3,239,844	48,425	7,274,909	119,982
Haddock, salted	514,850	7,563	441,807	4,806	956,657	12,369
Hake, fresh	8,036,028	62,708	5,293,871	47,860	13,829,899	110,558
Hake, salted	1,271,908	11,916	1,133,675	11,970	2,405,578	23,886
Halibut	165,256	11,676	139,634	10,399	304,890	22,075
Herring, fresh	5,076,660	47,122	31,942,164	127,191	37,017,814	174,813
Herring, salted	553,650	18,602	847,000	12,557	1,400,660	26,159
Herring, smoked			3,738,500	63,005	3,738,500	63,005
Mackerel, fresh	410,860	40,127	1,030,297	45,217	1,441,167	85,344
Mackerel, salted	134,000	10,586	29,000	2,175	163,000	12,761
Menhaden, fresh	6,670,000	16,720	110,000	385	6,780,000	17,105
Menhaden, salted	48,400	726	491,500	2,875	539,900	8,601
Pollock, fresh	514,354	3,913	612,392	4,550	1,126,746	8,463
Pollock, salted	411,256	3,917	591,448	6,984	1,002,704	10,901
Salmon			63,322	10,009	63,322	10,009
Shad, fresh	100,000	1,800	601,879	12,206	701,879	14,006
Shad, salted	83,200	2,496	76,800	3,250	160,000	5,746
Smelt	36,168	2,170	1,571,882	187,175	1,608,045	139,345
Striped bass			25,067	4,206	25,067	4,206
Sturgeon			12,075	367	12,075	367
Suckers			200	1	200	1
Sword-fish	878,290	44,395			878,290	44,395
Tomcod	13,538	542	296,545	5,616	310,083	6,158
Refuse fish			55,000	354	55,000	354
Lobsters	907,831	91,924	10,275,463	900,931	11,183,294	992,855
Clams, fresh	58,000	1,370	8,705,800	273,515	*8,758,800	274,885
Clams, salted	83,000	1,660	628,200	46,908	†711,200	48,568
Scallops	16,238	1,396	150,271	13,126	‡166,509	14,522
Caviar			845	454	845	454
Livers	446,320	3,637	226,480	1,860	672,800	5,497
Sounds	159,158	7,175	114,884	5,469	274,042	12,644
Tongues	4,045	102	3,880	94	7,875	196
Oil	122,400	3,420	35,520	1,171	157,920	4,591
Total	40,384,687	669,401	83,019,874	1,985,518	123,404,561	2,654,919

* Represents 875,880 bushels.

† Represents 42,672 bushels.

‡ Represents 27,752 bushels.

THE FISHERIES BY COUNTIES.

Commercial fishing is carried on from all of the coast counties and from two counties situated on the Penobscot River.

The number of persons employed in Washington County in 1898 was 7,322; of these, 5,863 were shoresmen engaged principally in the sardine and other branches of the herring industry. In Hancock County there were 3,173 persons, of whom 681 were employed on vessels. The vessel fisheries of this county are more important than those of any other county. The fisheries of Lincoln County employed 2,209 persons, those of Cumberland and Knox 1,662 and 1,421 respectively. The fisheries of the remaining four counties were less extensive, employing only 1,167 persons.

The counties having the largest amount of capital invested were Washington, Lincoln, Cumberland, and Hancock.

The investment in the fisheries of Washington County, owing to an extensive sardine industry, was nearly twice that of any other county, amounting to \$1,413,825. The investment in Lincoln County was \$750,622, in Cumberland \$733,041, and in Hancock \$552,491. The largest number of vessels, 178, valued at \$142,100, is in Hancock County. Knox County has 98, valued at \$90,000; Cumberland 73, valued at \$110,400; Lincoln 59, valued at \$102,650, and Washington 57, worth \$70,250. A comparatively small number is employed in each of the other counties. A number of the transporting vessels above included are steamers used in the lobster-carrying trade.

In the vessel fisheries gill nets are used extensively in three counties, and hand and trawl lines in four counties. Lobster pots are employed in all but two counties, the largest number being in Hancock and Knox, the former having 7,146 and the latter 4,140.

In the shore fisheries the largest number of boats are in Hancock County, being 1,419. Two other counties, Washington and Cumberland, each have nearly 1,000. The forms of apparatus most extensively used are weirs and gill nets in Washington County, weirs in Hancock, gill nets in Knox, weirs and gill nets in Sagadahoc, and gill nets in Cumberland and York counties. Lobster pots are the most numerous form of apparatus in all counties except Penobscot.

Lincoln County leads in the quantity of products secured, with 32,323,528 pounds, valued at \$521,186, but is exceeded in value by Hancock County with 20,775,195 pounds, valued at \$617,619. Washington County leads in the herring and pollock fisheries; Hancock County in the cod, flounder, salmon, scallop, and lobster fisheries; Knox County in the cusk and hake fisheries; Lincoln County in the alewife, mackerel, menhaden, shad, and smelt fisheries, and Cumberland County in the haddock, sword-fish, and clam fisheries.

In 1889 scallops were taken only in Hancock County, while they are now secured in Washington, Hancock, Waldo, Knox, Lincoln, and Cumberland counties. There may also be other grounds in various parts of the State which have not yet been discovered.

The three following tables show the extent of the fisheries in each county of Maine in 1898:

Table showing the number of persons employed in the fisheries of Maine in 1898.

Counties.	On vessels fishing.	On vessels transporting.	In shore or boat fisheries.	Shoresmen.	Total.
Washington	111	63	1,285	5,868	7,322
Hancock	649	32	1,669	823	8,173
Penobscot	8		13		16
Waldo	24		134		158
Knox	238	64	858	261	1,421
Lincoln	300	15	964	940	2,209
Sagadahoc	16	2	521	4	543
Cumberland	325	37	964	336	1,662
York	68		372	10	450
Total	1,784	213	6,770	8,237	16,954

Table showing, by counties, the vessels, boats, apparatus, and capital employed in the fisheries of Maine in 1898.

Items.	Washington.		Hancock.		Penobscot.		Waldo.		Knox.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	32	\$22,200	166	\$118,250	2	\$500	8	\$4,000	71	\$47,800
Tonnage	393		2,476		10		99		916	
Outfit		4,872		50,411		45		820		18,238
Vessels transporting	25	48,050	12	23,850					27	42,200
Tonnage	387		181						466	
Outfit		7,485		5,810						9,165
Boats	987	80,816	1,419	68,377	13	143	112	2,823	882	44,097
Apparatus—vessel fisheries:										
Gill nets	27	176	361	3,118			10	100	439	2,990
Seines			5	1,400					3	710
Lines, hand and trawl		998		3,975		29		163		3,934
Pots, eel			30	8						
Pots, lobster	1,710	1,710	7,146	7,146	82	82			4,140	4,140
Hoes			17	9			6	3	4	2
Dredges			13	81			2	14		
Harpoons				5						60
Apparatus—shore fisheries:										
Pound nets							38	1,900	7	380
Trap nets	3	75	5	650					3	2,450
Weirs	149	37,189	155	20,475	3	150	30	2,425	33	11,822
Gill nets	272	4,901	90	738	10	270			126	1,277
Fyke nets							4	60		
Dip nets	123	528	15	45					6	12
Bag nets	65	1,580	58	2,205	8	450	30	1,300		
Seines			74	3,595					19	1,400
Lines, hand and trawl		847		1,499				76		4,621
Pots, eel	70	18	70	35						
Pots, lobster	22,390	22,373	23,880	23,880			575	575	39,040	39,030
Spears			22	15					4	8
Hoes and rakes	280	246	774	899			45	23	217	109
Dredges	11	87	88	530			5	31	4	20
Shore and accessory property		467,824		126,561		100		477		90,694
Cash capital		711,900		89,424						94,600
Total		1,413,825		552,491		1,769		15,391		419,759

Items.	Lincoln.		Sagadahoc.		Cumberland.		York.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	53	\$91,250	6	\$2,600	58	\$78,400	15	\$15,150
Tonnage	1,040		58		1,671		229	
Outfit		30,439		1,068		38,318		7,410
Vessels transporting	6	11,400	1	150	15	32,000		
Tonnage	110		8		242			
Outfit		2,548		80		5,768		
Boats	758	28,881	332	6,704	946	47,596	292	10,460
Apparatus—vessel fisheries:								
Gill nets	178	1,328			387	3,367	55	440
Seines	22	8,825			13	3,560		
Lines, hand and trawl		8,805		466		8,613		2,280
Pots, eel								
Pots, lobster	510	510			400	400	250	250
Harpoons						987		103
Apparatus—shore fisheries:								
Pound nets			7	4,200	15	8,200		
Trap nets	1	1,000			15	6,950	6	3,000
Weirs	55	24,084	105	12,582	26	1,390	1	1,500
Gill nets	83	745	417	4,795	717	6,684	550	6,484
Fyke nets	2	80	10	450	10	120		
Dip nets	18	22	15	15			6	15
Bag nets	2	80	38	2,985	1	45		
Snap nets					20	20		
Seines	56	3,790	2	170	52	5,760	5	460
Lines, hand and trawl		6,856		686		9,515		3,612
Pots, eel			133	117				30
Pots, lobster	29,190	29,190	2,188	1,964	17,932	17,932	6,595	6,595
Spears	60	43	6	3	53	58		
Hoes and rakes	251	127	55	28	865	187	120	61
Dredges	12	60			18	65		
Shore and accessory property		299,559		7,629		190,016		10,618
Cash capital		211,000		1,000		267,100		10,076
Total		760,622		47,632		738,041		78,523

326 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the products of the fisheries of Maine in 1898.

Species.	Washington.		Hancock.		Penobscot.		Waldo.		Knox.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alwives, fresh	135,200	\$866	244,800	\$1,698	8,500	\$57	29,100	\$342	62,775	\$473
Alwives, salted	25,000	250							173,100	3,008
Alwives, smoked	38,000	750	129,100	1,291			32,000	448	137,500	2,150
Cat-fish									4,000	40
Cod, fresh	375,420	9,682	673,229	11,772	14,000	280	39,900	898	1,284,258	17,043
Cod, salted	619,215	14,303	3,559,307	99,182					41,700	728
Cusk, fresh			22,250	273					481,077	5,189
Cusk, salted	23,880	355	25,469	355					16,000	181
Eels	11,200	940	11,616	650					5,800	544
Flounders	12,800	123	611,563	12,880			10,534	220	42,919	938
Haddock, fresh	221,014	3,832	521,355	8,001	8,000	80	29,300	516	800,638	4,032
Haddock, salted	235,790	2,157	638,117	9,248					10,250	73
Hake, fresh	37,275	306	607,182	7,057	12,500	125	77,750	835	4,984,285	34,608
Hake, salted	446,180	4,168	1,620,906	14,245					89,100	707
Halibut	62,800	4,433	128,805	9,817			800	68	40,786	3,169
Herring, fresh	14,050,550	47,629	5,852,170	29,861			4,800	12	4,662,580	17,482
Herring, salted	416,000	8,520	60,000	1,350			25,250	473	472,600	5,262
Herring, smoked	3,738,500	63,005								
Mackerel, fresh	2,250	20	217,640	2,123			1,000	20	192,437	7,955
Mackerel, salted			15,800	1,225						
Menhaden, fresh									180,000	455
Pollock, fresh	93,300	1,057	90,055	875	5,300	53	11,000	92	202,402	869
Pollock, salted	485,845	5,809	474,714	4,794					6,700	50
Salmon	10,860	1,648	19,740	3,911	1,778	397	19,350	3,740	1,412	267
Shad	81,665	2,712	7,450	407					2,000	80
Smelt	208,996	23,202	353,409	42,818	6,400	832	46,900	6,034	46,674	3,601
Sword-fish			35,710	2,600					58,547	2,815
Tomcod	116,400	1,207	15,500	174	7,000	280	9,200	172	1,939	19
Refuse fish			16,900	169			6,100	25		
Lobsters	1,628,704	140,189	2,643,222	251,491	1,264	118	17,766	1,713	2,451,944	216,363
Clams, fresh	1,816,200	26,840	1,549,080	44,726			60,820	2,441	2,054,940	70,732
Clams, salted	108,000	2,160	264,600	38,880					17,000	340
Scallops	4,000	400	124,595	10,317			3,695	319	8,075	860
Livers	34,600	275	116,720	918			1,500	11	268,540	1,941
Sounds	10,490	435	34,775	1,661			930	45	91,704	3,936
Tongues	1,360	42	6,315	150					200	4
Oil			120,600	3,350						
Total	24,548,954	367,468	20,775,195	617,619	64,742	2,222	428,695	18,424	18,836,882	405,954

Species.	Lincoln.		Sagadahoc.		Cumberland.		York.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alwives, fresh	888,950	\$4,183	7,500	\$112	45,000	\$225	4,000	\$60
Alwives, salted	788,560	5,179						
Alwives, smoked	270,200	4,200						
Butter-fish					14,800	740		
Cod, fresh	2,011,969	30,479	417,929	7,925	3,871,654	63,264	1,402,729	25,888
Cod, salted	835,100	27,162			12,100	242	162,200	5,457
Cunners					148,300	1,025		
Cusk, fresh	263,808	2,970	14,448	194	311,876	3,266	45,247	653
Cusk, salted	12,618	187					6,300	99
Eels	37,900	3,078	39,275	2,967	52,420	4,193	5,600	560
Flounders	89,641	2,982			19,740	396		
Haddock, fresh	739,667	10,793	177,088	3,152	3,725,938	71,690	1,051,909	17,886
Haddock, salted	43,500	856			9,000	135	20,000	400
Hake, fresh	2,982,478	24,098	123,800	1,238	3,887,340	36,613	567,288	5,618
Hake, salted	226,192	1,909			10,200	82	113,000	2,715
Halibut	17,699	1,358			54,000	3,240		
Herring, fresh	11,632,270	72,833	119,000	850	601,800	4,004	194,644	1,642
Herring, salted	376,000	9,776			28,800	541	21,000	237
Mackerel, fresh	444,932	35,685	31,200	1,380	356,497	23,626	195,201	14,535
Mackerel, salted	123,000	9,225			24,200	2,311		
Menhaden, fresh	6,650,000	16,650						
Menhaden, salted			92,500	481	447,400	3,120		
Pollock, fresh	247,977	1,754	3,600	24	349,802	2,635	123,750	1,204
Pollock, salted	20,000	120			5,745	46	10,200	82
Salmon							182	46
Shad	339,900	6,798	303,764	6,722	125,200	2,983	2,000	50
Smelt	445,053	30,426	106,545	8,602	867,068	23,049	23,100	1,386
Striped bass	9,000	1,350	16,067	2,856				
Sturgeon			12,076	367				
Suckers			200	1				
Sword-fish					648,233	82,412	135,800	6,668
Tomcod	24,600	236	20,400	170	110,844	3,732	4,200	168
Refuse fish					82,000	160		
Lobsters	2,155,517	185,774	384,900	30,392	1,423,691	120,616	476,886	46,199
Clams, fresh	1,094,290	27,858	91,400	2,387	2,217,870	81,941	375,200	19,110
Clams, salted	32,000	670			289,600	6,518		
Scallops	5,529	466			20,615	2,170		
Caviar			845	454				
Livers	53,400	421	4,640	41	174,720	1,608	28,680	287
Sounds	48,638	2,850	1,783	83	74,043	3,476	11,679	608
Oil	10,800	300	12,600	420	10,080	330	3,840	125
Total	32,323,528	521,186	1,981,554	70,668	19,470,876	499,695	4,974,135	151,683

THE FISHERIES BY APPARATUS.

The products of the vessel fisheries aggregated 40,384,687 pounds, valued at \$669,401, and of the shore fisheries 83,019,874 pounds, valued at \$1,985,518. The more important forms of apparatus employed and the quantity and value of their catch were lobster and eel pots, 11,241,935 pounds, \$997,146; hand and trawl lines, 44,627,264 pounds; \$718,095; hoes, rakes, and dredges, 9,636,509 pounds, \$337,975; seines, 13,612,954 pounds, \$167,798; gill nets, 5,528,884 pounds, \$101,294; pound nets and trap nets, 1,619,513 pounds, \$18,354; weirs, 33,956,221 pounds, \$214,551, and harpoons in the vessel fishery for sword-fish, 878,290 pounds, \$44,395. The remainder of the products was taken with fyke nets, dip nets, bag nets, snap nets, and spears, and amounted to 2,302,991 pounds, valued at \$55,311.

The following tables show by counties and species the number of pounds and value of fishery products taken with each form of apparatus in the vessel and shore fisheries of Maine in 1898:

Table showing, by counties, the yield of the seine fisheries of Maine in 1898.

Species.	Knox.		Sagadahoc.		York.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Mackerel, fresh	40,200	\$2,950				
Shore fisheries:						
Alewives	6,000	120				
Flounders	42,919	938				
Herring	180,000	450			46,200	\$380
Mackerel, fresh	5,664	340				
Shad	2,000	80	19,200	\$384		
Smelt	19,917	1,190	1,500	90	23,100	1,386
Tomcod			800	8	4,200	168
Total	256,400	3,118	21,000	477	73,500	1,884
Total vessel and shore..	296,600	6,068	21,000	477	73,500	1,884

Species.	Hancock.		Lincoln.		Cumberland.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Flounders	12,000	\$300			800	\$4	12,800	\$304
Herring, fresh	520,000	750	3,675,200	\$28,046	82,000	507	4,277,200	29,303
Herring, salted			291,500	7,579			291,500	7,579
Mackerel, fresh			145,211	20,736	73,000	4,850	258,411	28,536
Mackerel, salted			94,000	7,050	24,200	2,311	118,200	9,361
Menhaden			6,650,000	16,650			6,650,000	16,650
Shad, fresh			80,000	1,600	20,000	200	100,000	1,800
Shad, salted					83,200	2,496	83,200	2,496
Smelt					36,168	2,170	36,168	2,170
Tomcod					13,538	542	13,538	542
Total	532,000	1,050	10,935,911	81,661	332,401	13,080	11,840,512	98,741
Shore fisheries:								
Alewives					45,000	225	51,000	345
Flounders	523,700	11,334	89,641	2,982	18,620	326	669,980	15,580
Herring	9,600	86			8,300	41	244,100	857
Mackerel, fresh			47,845	8,272			53,409	8,612
Mackerel, salted			29,000	2,175			29,000	2,175
Pollock	8,000	80	12,000	60			20,000	140
Shad							21,200	464
Smelt	38,775	3,984	219,389	13,850	288,022	17,281	590,703	37,731
Tomcod					86,650	2,962	90,150	3,123
Refuse fish	3,000	30					8,000	30
Total	583,075	15,414	397,875	27,339	440,592	20,825	1,772,442	69,057
Total vessel and shore..	1,115,075	16,464	11,333,786	109,000	772,993	33,905	13,612,954	167,798

328 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the yield of the gill-net fisheries of Maine in 1898.

Species.	Washington.		Hancock.		Penobscot.		Waldo.		Sagadahoc.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Herring, fresh.....	145,000	\$910	\$98,800	\$8,871						
Herring, salted.....							26,250	\$473		
Total.....	145,000	910	\$98,800	8,871			26,250	473		
Shore fisheries:										
Alewives.....			6,000	110						
Herring, fresh.....	2,059,750	11,263								
Herring, salted.....	206,000	4,635	60,000	1,350						
Menhaden, salted.....									92,500	\$481
Salmon.....	2,412	862			1,118	\$232				
Shad, fresh.....	19,000	286							238,964	5,343
Shad, salted.....	60,000	2,375	7,000	385					9,800	9,800
Smelt.....	12,000	1,440								
Striped bass.....									15,617	2,811
Sturgeon.....									10,875	863
Caviar.....									845	454
Total.....	2,359,162	20,861	73,000	1,845	1,118	232			368,601	9,942
Total vessel and shore.....	2,504,162	21,271	471,800	10,716	1,118	232	26,250	473	368,601	9,942

Species.	Knox.		Lincoln.		Cumberland.		York.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Herring, fresh.....			254,650	\$8,038					798,450	\$17,819
Herring, salted.....	122,000	\$2,812	84,500	2,197	28,800	\$541			282,150	6,023
Mackerel.....	38,723	2,474	28,321	3,427	59,892	4,333	3,313	\$265	130,249	10,499
Menhaden, fresh.....	20,000	70							20,000	70
Menhaden, salted.....					48,400	726			48,400	726
Total.....	181,323	5,356	367,471	13,662	137,092	5,600	3,313	265	1,259,249	35,137
Shore fisheries:										
Alewives.....	4,500	34	9,000	90					19,500	234
Cod, fresh.....							45,250	1,600	45,250	1,600
Cod, salted.....							30,000	1,050	30,000	1,050
Herring, fresh.....	10,800	41	6,300	62	93,000	575			2,260,850	12,621
Herring, salted.....	342,000	2,250					91,000	680	2,269,000	8,472
Mackerel.....	8,250	375			148,474	10,711	82,680	10,793	238,404	21,879
Menhaden, fresh.....	110,000	385							110,000	385
Menhaden, salted.....					399,000	2,394			491,500	2,875
Salmon.....									3,580	594
Shad, fresh.....			57,500	1,150					315,464	6,779
Shad, salted.....									76,800	3,250
Smelt.....									12,000	1,440
Striped bass.....			9,000	1,350					24,617	4,161
Sturgeon.....									10,875	863
Caviar.....									845	454
Total.....	475,550	3,085	81,800	2,652	640,474	13,680	269,980	14,360	4,269,635	68,157
Total vessel and shore.....	656,873	8,441	449,271	16,814	777,566	19,280	273,243	14,625	5,528,884	101,294

Table showing, by counties, the yield of the fyke-net fisheries of Maine in 1898.

Species.	Waldo.		Lincoln.		Sagadahoc.		Cumberland.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Flounders.....	6,400	\$128					5,400	\$54	11,800	\$182
Pollock.....	3,300	13							3,300	13
Smelt.....			2,000	\$120	2,237	\$187			4,237	307
Sturgeon.....					1,200	4			1,200	4
Tomcod.....	1,200	12	500	2	1,600	3			3,300	17
Refuse fish.....	4,200	10							4,200	10
Total.....	15,100	163	2,500	122	5,037	194	5,400	54	28,037	588

Table showing, by counties, the yield of the pound-net and trap-net fisheries of Maine in 1898.

Species.	Washington.		Hancock.		Waldo.		Knox.		Lincoln.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Eels	3,400	\$272								
Herring			80,000	\$300			400,080	\$1,500	240,000	\$1,200
Mackerel			8,000	100			4,800	28	40,000	200
Pollock									10,000	100
Salmon			765	115	9,492	\$1,852	1,400	205		
Smelt	6,196	682								
Total	9,596	954	88,765	515	9,492	1,852	406,280	1,793	290,000	1,500

Species.	Sagadahoc.		Cumberland.		York.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:								
Butter-fish			14,800	\$740			14,800	\$740
Eels							3,400	272
Herring	119,000	\$850	380,500	2,652	30,800	\$232	1,256,380	6,734
Mackerel	30,000	1,200	59,043	2,528	84,667	2,540	226,510	6,596
Pollock			31,000	165	3,200	40	44,200	295
Salmon					170	43	11,827	2,275
Shad	35,800	505	20,400	255			56,200	760
Smelt							6,196	682
Total	184,800	2,555	511,743	6,330	118,837	2,855	1,619,513	18,354

Table showing, by counties, the yield of the weir fisheries of Maine in 1898.

Species.	Hancock.		Penobscot.		Waldo.		Lincoln.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:								
Alewives, fresh	233,300	\$1,555	8,500	\$57	29,100	\$342	79,700	\$797
Alewives, smoked	123,100	1,231			32,000	448	270,200	4,200
Herring, fresh	4,843,770	19,904			4,800	12	7,356,120	35,487
Mackerel	200,940	1,849			1,000	20	169,920	962
Salmon	18,975	8,796	660	165	9,858	1,888		
Shad	450	22					202,400	4,048
Smelt	14,708	1,858					3,900	312
Tomcod	7,600	76						
Refuse fish	2,800	28						
Total	5,445,643	30,319	9,160	222	76,758	2,740	8,082,240	45,806

Species.	Washington.		Cumberland.		Knox.		York.		Total.	
	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.
Shore fisheries:										
Alewives, fresh	25,400	\$254			10,000	\$150			386,000	\$3,165
Alewives, salted					112,500	2,250			218,000	4,085
Alewives, smoked	7,000	140			77,500	1,650			509,800	7,569
Cod							50,000	\$625	50,000	625
Eels			620	\$49					620	49
Flounders			420	12					420	12
Herring, fresh	11,685,800	34,396	32,000	229	4,071,700	15,491	26,644	400	28,020,834	105,919
Herring, salted	210,000	3,885			8,000	200			218,000	4,085
Herring, smoked	3,738,500	63,005							3,738,500	63,005
Mackerel	2,250	20	4,600	184	82,000	942	19,066	572	479,776	4,549
Pollock							20,000	100	20,000	100
Salmon	8,448	1,256			12	2	12	3	87,965	7,140
Shad	2,565	51	1,600	32			2,000	50	209,015	4,203
Smelt	72,500	7,174	24,233	2,018					115,341	11,862
Tomcod	8,800	94	11,250	230					22,650	840
Refuse fish			32,000	160					34,800	188
Total	15,756,263	110,245	106,723	2,914	4,361,712	20,685	117,722	1,760	33,956,221	214,551

330 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the catch with dip nets, bag nets, and snup nets in Maine in 1898.

Species.	Washington.		Hancock.		Penobscot.		Waldo.		Knox.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Alewives, fresh...	109,800	\$612	5,000	\$33					42,275	\$169
Alewives, salted...	25,000	250							60,600	758
Alewives, smoked	31,000	620	6,000	60					60,000	600
Flounders.....			2,641	54			1,510	\$30		
Herring.....	160,000	1,000								
Smelt.....	118,300	13,906	76,726	9,830	6,400	\$832	40,600	5,278		
Tomcod.....	112,600	1,173	7,900	98	7,000	280	8,000	160		
Refuse fish.....			11,100	111			1,900	15		
Total.....	556,700	17,621	109,367	10,186	13,400	1,112	62,010	5,483	162,875	1,527

Species.	Lincoln.		Sagadahoc.		Cumberland.		York.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Alewives, fresh...	300,250	\$3,296	7,500	\$112			4,000	\$60	468,825	\$4,282
Alewives, salted...	788,500	5,179							874,100	6,187
Alewives, smoked									97,000	1,280
Cunners.....					148,300	\$1,025			148,300	1,025
Flounders.....									4,151	84
Herring.....									160,000	1,060
Smelt.....	3,500	210	19,946	1,596	800	80			266,272	31,732
Striped bass.....			450	45					454	45
Suckers.....			209	1					200	1
Tomcod.....	1,000	3	9,900	62	406	8			146,806	1,784
Refuse fish.....									13,000	126
Total.....	1,093,250	8,688	37,996	1,816	149,506	1,113	4,000	60	2,179,104	47,606

Table showing, by counties, the yield of the hand and trawl line fisheries of Maine in 1898.

Species.	Sagadahoc.		Penobscot.		Cumberland.		Waldo.		York.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Cod, fresh.....	221,929	\$4,005	14,000	\$280	2,123,187	\$36,142	34,400	\$798	369,575	\$7,331
Cusk, fresh.....	10,043	144			228,956	2,190			35,547	515
Flounders.....							2,624	62		
Haddock, fresh...	99,088	1,837	8,000	80	2,405,701	46,858	26,500	488	338,850	6,097
Hake, fresh.....	98,400	984	12,500	125	2,102,079	18,761	65,750	715	843,188	3,433
Halibut.....					54,000	3,240	600	48		
Mackerel, fresh...	1,200	180								
Pollock, fresh...	3,000	21	5,300	53	167,292	1,301	7,000	72	36,850	286
Livers.....	3,440	29			133,460	1,195	1,500	11	13,140	131
Sounds.....	1,383	63			41,029	1,846	930	45	6,760	317
Oil.....	3,600	120								
Total.....	442,683	7,383	39,800	538	7,255,704	111,533	139,304	2,239	1,143,410	18,710
Shore fisheries:										
Cod, fresh.....	196,000	3,920			1,748,467	27,122	5,500	100	937,904	16,832
Cod, salted.....					12,100	242			182,200	4,407
Cusk, fresh.....	3,800	60			82,920	1,076			9,700	138
Cusk, salted.....									6,300	99
Eels.....					9,600	768			5,600	560
Haddock, fresh...	78,000	1,315			1,320,237	24,832	2,800	28	713,059	11,189
Haddock salted...					9,000	135			20,000	400
Hake, fresh.....	25,400	254			1,785,261	17,852	12,000	120	214,160	2,185
Hake, salted.....					10,200	82			113,000	2,715
Halibut.....							200	20		
Mackerel.....					11,488	1,020			5,475	365
Pollock, fresh...	600	3			161,010	1,079	700	7	64,200	778
Pollock, salted...					5,745	46			10,200	82
Smelt.....	82,862	6,629			18,750	1,500	6,300	756		
Tomcod.....	8,600	102								
Livers.....	1,200	12			41,260	413			15,540	166
Sounds.....	400	20			83,014	1,630			4,919	291
Oil.....	9,000	300			10,080	336			8,840	125
Total.....	405,862	12,605			5,249,132	78,133	27,500	1,031	2,256,037	39,822
Total vessel and shore	848,545	19,988	39,800	538	12,504,836	189,666	166,804	3,270	8,399,447	58,532

Table showing the yield of the hand and trawl line fisheries of Maine in 1898—Continued.

Species.	Washington.		Hancock.		Knox.		Lincoln.		Total.		
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	
Vessel fisheries:											
Cod, fresh	75,480	\$1,891	339,249	\$6,351	677,433	\$8,611	904,969	\$12,675	4,760,222	\$78,084	
Cod, salted	143,615	3,292	3,028,693	86,990	24,000	314	742,000	25,500	3,938,308	116,096	
Cusk, fresh	20,000	340	21,450	261	339,929	3,778	200,079	2,181	836,604	9,669	
Cusk, salted	3,200	32	80,805	492					46,469	695	
Flounders	59,314	995	207,620	3,835	333,035	1,747	557,057	9,020	4,095,065	71,567	
Haddock, fresh	72,365	682	442,485	6,881					514,850	7,563	
Haddock, salted	37,275	866	335,240	3,604	3,339,886	22,942	1,701,710	11,778	8,036,028	62,708	
Hake, fresh	147,215	1,677	1,124,588	10,239					1,271,903	11,916	
Hake, salted	24,710	1,746	77,225	5,945					165,256	11,676	
Hallbut			8,700	174	10,500	630	531	2,085	166	22,200	1,092
Mackerel, fresh			15,800	1,225					15,800	1,225	
Mackerel, salted	43,760	633	39,841	363	92,738	409	119,073	775	514,354	3,913	
Pollock, fresh	112,645	1,314	298,611	2,608					411,266	3,917	
Pollock, salted	10,000	82	78,320	607	176,560	1,338	29,900	244	446,320	3,687	
Livers	2,450	98	20,155	1,075	59,719	2,585	26,732	1,146	169,158	7,176	
Sounds	100	3	3,945	99					4,045	3,102	
Tongues			118,800	3,300					122,400	3,420	
Oil											
Total	762,129	13,161	6,219,996	134,399	6,060,436	42,885	4,285,405	63,593	25,338,867	394,431	
Shore fisheries:											
Cat-fish					4,000	40			4,000	40	
Cod, fresh	299,940	7,791	333,980	5,421	606,825	8,452	1,107,000	17,804	5,235,616	86,922	
Cod, salted	475,600	11,011	530,614	12,142	20,700	414	93,100	1,682	1,284,314	29,378	
Cusk, fresh			800	12	141,148	1,411	63,229	789	301,597	3,476	
Cusk, salted	3,380	48			16,000	181	12,618	187	38,198	615	
Eels									16,200	1,328	
Flounders	9,100	91	32,617	530					41,617	621	
Haddock, fresh	161,700	2,837	313,835	4,166	467,603	2,285	182,610	1,773	3,239,844	48,425	
Haddock, salted	163,425	1,476	195,632	2,307	10,250	79	43,600	356	441,807	4,806	
Hake, fresh			331,943	8,453	1,644,399	11,666	1,280,768	12,320	5,293,871	47,850	
Hake, salted	238,965	2,491	396,218	4,006	89,100	767	228,192	1,909	1,133,675	11,970	
Hallbut	38,090	2,637	51,680	3,872	34,160	2,628	15,614	1,192	139,634	10,399	
Mackerel					2,400	216	11,335	1,980	31,198	3,681	
Pollock, fresh	49,600	424	42,214	432	109,664	460	106,904	819	524,892	4,002	
Pollock, salted	372,700	4,495	176,103	2,191	6,700	50	20,000	120	691,448	6,984	
Smelet			223,200	26,691	26,757	2,411	219,264	15,984	677,133	53,921	
Tomcod					1,939	19	23,100	231	88,639	352	
Livers	24,600	193	38,400	306	81,980	603	23,500	177	226,480	1,860	
Sounds	3,040	387	14,620	586	31,985	1,361	21,906	1,204	114,884	6,469	
Tongues	1,260	39	2,370	51	200	4			3,830	94	
Oil			1,800	60			10,800	360	35,520	1,171	
Total	1,906,400	33,969	2,685,826	66,276	3,295,800	33,011	3,461,840	58,817	19,288,397	323,664	
Total vessel and shore	2,658,629	47,120	8,905,822	200,676	8,356,236	75,896	7,747,245	122,410	44,627,264	718,095	

Table showing the catch with spears in Maine in 1898.

Counties.	Eels.		Flounders.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:						
Hancock	1,600	\$128	9,900	\$170	11,500	\$298
Knox	4,000	400			4,000	400
Lincoln	37,900	3,078			37,900	3,078
Sagadahoc	250	20			250	20
Cumberland	42,200	3,376			42,200	3,376
Total	85,950	7,002	9,900	170	95,850	7,172

332 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the catch with hoes, rakes, and dredges in Maine in 1898.

Species.	Washington.		Lincoln.		Sagadahoc.		Cumberland.		York.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Clams, fresh.....	1,315,200	\$26,840	1,094,290	\$27,358	91,400	\$2,337	2,217,870	\$81,841	375,200	\$19,110
Clams, salted.....	108,000	2,160	32,000	670	.....	.....	289,600	6,518	.....	.....
Scallops.....	4,000	400	5,529	466	.....	.....	20,615	2,170	.....	.....
Total.....	1,427,200	29,400	1,131,819	28,494	91,400	2,337	2,528,085	90,029	375,200	19,110

Species.	Hancock.		Waldo.		Knox.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Clams, fresh.....	47,000	\$1,175	3,000	\$120	3,000	\$75	53,000	\$1,370
Clams, salted.....	83,000	1,660	.....	.....	.....	.....	83,000	1,660
Scallops.....	15,250	1,318	988	78	.....	.....	16,238	1,396
Total.....	145,250	4,153	3,988	198	3,000	75	162,238	4,426
Shore fisheries:								
Clams, fresh.....	1,502,080	43,551	57,820	2,321	2,051,940	70,657	8,705,809	273,515
Clams, salted.....	181,600	37,220	.....	.....	17,000	340	628,200	46,908
Scallops.....	109,345	8,999	2,707	241	8,075	850	150,271	13,126
Total.....	1,793,025	89,770	60,527	2,562	2,077,015	71,847	9,484,271	333,549
Total vessel and shore.....	1,938,275	93,923	64,515	2,760	2,080,015	71,922	9,636,509	337,975

Table showing, by counties, the catch of eels and lobsters with pots in Maine in 1898.

Species.	Penobscot.		Waldo.		Knox.		Lincoln.		Sagadahoc.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Lobsters.....	1,264	\$118	.....	.....	280,688	\$29,395	48,872	\$4,157	.....	.....
Shore fisheries:										
Eels, fresh.....	.....	.....	.....	.....	1,800	144	.....	.....	39,025	\$2,947
Lobsters.....	.....	.....	17,766	\$1,713	2,165,256	186,968	2,106,645	181,617	384,900	30,392
Total.....	.....	.....	17,766	1,713	2,167,056	187,112	2,106,645	181,617	423,925	33,339
Total vessel and shore.....	1,264	118	17,766	1,713	2,463,744	216,507	2,156,517	185,774	423,925	33,339

Species.	Washington.		Hancock.		Cumberland.		York.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Eels.....	.....	.....	7,700	\$347	.....	.....	.....	.....	7,700	\$347
Lobsters.....	82,809	\$7,312	444,704	47,101	22,253	\$2,000	21,241	\$1,841	907,831	91,924
Total.....	82,809	7,312	452,404	47,448	22,253	2,000	21,241	1,841	915,531	92,271
Shore fisheries:										
Eels, fresh.....	4,600	348	2,316	185	.....	.....	.....	.....	47,741	3,624
Eels, salted.....	3,200	320	.....	.....	.....	.....	.....	.....	3,200	320
Lobsters.....	1,546,895	132,877	2,198,518	204,390	1,401,338	118,616	455,145	44,358	10,275,463	900,931
Total.....	1,553,695	133,545	2,200,834	204,575	1,401,338	118,616	455,145	44,358	10,326,404	904,875
Total vessel and shore.....	1,636,504	140,857	2,653,238	252,023	1,423,591	120,616	470,386	46,199	11,241,935	997,146

Table showing, by counties, the catch of sword-fish with harpoons in the vessel fisheries of Maine in 1898.

Counties.	Lbs.	Value.
Hancock.....	35,710	\$2,500
Knox.....	58,547	2,815
Cumberland.....	648,233	\$2,412
York.....	185,800	6,668
Total.....	878,290	44,395

THE SALMON FISHERY OF THE PENOBSCOT RIVER AND BAY.

The principal salmon fishery on the Atlantic seaboard is centered upon the Penobscot River and bay. During the progress of the last canvass data were secured to show the condition of the fishery during the years 1897, 1898, and 1899. As data for the years 1895 and 1896 had been secured previously, the whole has been combined in the three following tables in order to show in a condensed form, by townships, the status of the fishery during each of the years named. As the fishery has been prosecuted on the river for a number of years by people owning the shore line, naturally but slight changes are noted in the number of persons employed and the weirs and traps used. In 1895, 133 persons were employed, while 102 were engaged in 1899. In 1895, 193 weirs and traps were used, while 167 were employed in 1899. Gill nets occupy a very insignificant position in this fishery, only 12 being used in 1899. The total investment in the fishery in 1895 was \$16,268, while in 1899 it was \$14,392. The catch from year to year has fluctuated considerably. In 1895, 4,395 salmon were taken, while 3,515 were secured in 1899. The highest catch was in 1896, when 6,403 salmon were secured.

Persons employed in the salmon fishery of Penobscot River and Bay.

Towns.	1895.	1896.	1897.	1898.	1899.
Brooksville (Cape Rosier).....	4	2	2	2	2
Bucksport.....	10	9	9	9	9
Camden.....	2	2	3	3	1
Castine.....	3	2	4	4	4
Hampden.....	1	1	1	1	1
Islesboro.....	7	6	3	4	4
Lincolnville.....	7	7	4	4	5
Matineus and Ragged Islands.....	4	8	4	2	2
Northport.....	7	6	4	2	2
Orland.....	17	22	11	12	12
Orrington.....	5	5	3	3	3
Penobscot.....	16	15	15	15	17
Searsport.....	3	2	2	2	1
South Brewer.....	2	2	1	1	3
Stockton and Prospect.....	17	15	15	15	15
Verona.....	21	21	18	19	19
Winterport.....	7	8	2	2	2
Bangor.....			2	2	
Total.....	133	133	103	102	102

334 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Apparatus, boats, etc., employed in the salmon fishery of Penobscot River and Bay.

Apparatus and towns.	1895.		1896.		1897.		1898.		1899.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
<i>Weirs and traps.</i>										
Brooksville (Cape Rosier)	7	\$420	4	\$240	4	\$300	4	\$300	4	\$300
Bucksport	13	511	11	455	11	490	13	640	11	490
Camden	5	200	5	200	7	380	7	380	3	165
Castine	4	252	3	201	6	525	5	425	5	425
Islesboro	17	925	16	875	12	600	16	800	18	900
Lincolntonville	12	650	14	700	14	700	14	700	18	900
Matinicus and Ragged Islands	1	1,000	2	2,500	2	1,600	1	800	1	800
Northport	15	1,155	12	1,005	9	475	8	400	8	400
Orland	19	664	26	888	13	780	15	930	15	930
Orrington	2	99	2	99	8	150	3	150	3	150
Penobscot	24	1,587	22	1,421	19	1,350	18	1,290	20	1,390
Searsport	4	213	3	152	4	400	4	400	3	300
Stockton and Prospect	26	1,530	20	1,183	20	1,590	21	1,730	22	1,750
Verona	37	2,801	37	2,760	37	2,365	37	2,455	34	2,210
Winterport	7	467	7	467	3	200	3	200	2	150
Total	193	12,474	184	13,146	164	11,905	169	11,600	167	11,260
<i>Gill nets.</i>										
Hampden	2	26	2	26	2	60	2	60	2	60
Orrington	5	58	5	58	4	60	4	60	4	60
South Brewer	3	105	3	105	3	115	3	115	6	235
Winterport			1	10						
Bangor					3	90	3	90		
Total	10	189	11	199	12	325	12	325	12	355
<i>Boats, scows, and rafts.</i>										
Brooksville (Cape Rosier)	3	30	2	20	2	30	2	30	2	30
Bucksport	16	270	14	238	16	232	16	232	16	232
Camden	2	45	2	45	3	85	3	35	1	15
Castine	6	25	4	20	10	76	10	76	10	86
Hampden	1	12	1	12	1	8	1	8	1	8
Islesboro	7	94	6	79	3	55	4	85	5	100
Lincolntonville	7	132	7	117	4	100	4	100	5	122
Matinicus and Ragged Islands	2	75	5	195	4	100	2	80	2	80
Northport	8	163	7	138	4	90	2	50	2	50
Orland	25	467	32	535	13	121	14	131	14	131
Orrington	2	11	2	11	5	85	5	85	5	85
Penobscot	30	436	28	413	33	589	33	589	37	654
Searsport	6	145	4	125	4	95	4	95	3	75
South Brewer	1	6	1	6	1	5	1	5	2	10
Stockton and Prospect	33	413	31	383	25	366	23	441	27	426
Verona	35	1,100	36	1,110	31	503	35	608	35	608
Winterport	10	181	11	189	6	65	6	65	6	65
Bangor					1	5	1	5		
Total	193	3,605	193	3,636	166	2,560	171	2,720	178	2,777

Towns.	Total investment.				
	1895.	1896.	1897.	1898.	1899.
Brooksville (Cape Rosier)	\$450	\$260	\$330	\$330	\$330
Bucksport	781	693	722	872	722
Camden	245	245	415	415	180
Castine	277	221	601	601	511
Hampden	38	38	68	68	68
Islesboro	1,019	954	655	885	1,000
Lincolntonville	782	817	800	800	1,022
Matinicus and Ragged Islands	1,075	2,695	1,700	880	880
Northport	1,318	1,143	565	450	450
Orland	1,131	1,423	901	1,061	1,061
Orrington	168	168	295	295	295
Penobscot	2,023	1,834	1,939	1,879	2,044
Searsport	358	277	495	495	375
South Brewer	111	111	120	120	245
Stockton and Prospect	1,943	1,566	1,956	2,171	2,176
Verona	3,901	3,870	2,868	3,063	2,818
Winterport	648	666	265	265	215
Bangor			95	95	
Total	16,268	16,981	14,790	14,645	14,392

NOTE.—The value of accessories is included with that of apparatus.

Catch of salmon in the Penobscot River and Bay.

Towns.	1895.			1896.			1897.		
	No.	Lbs.	Value.	No.	Lbs.	Value.	No.	Lbs.	Value.
Brooksville (Cape Rosier).....	163	2,092	\$283	146	1,626	\$190	24	360	\$72
Bucksport.....	205	2,885	448	245	2,729	471	179	2,327	349
Camden.....	64	964	136	71	990	139	151	1,963	204
Castine.....	77	1,150	207	93	1,166	156	120	1,440	288
Hampden.....	30	510	102	32	448	90	21	270	49
Islesboro.....	474	6,561	1,042	643	8,265	1,313	295	4,720	944
Lincolnton.....	205	3,240	583	297	3,503	525	302	3,926	589
Matinicus and Ragged Islands.....	65	780	109	182	1,627	175	174	1,740	174
Northport.....	286	4,066	697	418	5,401	810	164	2,002	310
Orland.....	78	1,077	202	152	1,802	306	88	1,144	194
Orrington.....	65	1,101	165	82	1,160	161	74	1,062	160
Penobscot.....	485	7,270	1,313	959	12,483	1,992	536	6,968	1,185
Searsport.....	458	7,278	1,456	426	5,112	818	239	2,868	373
South Brewer.....	63	1,071	161	170	2,380	909	89	390	70
Stockton and Prospect.....	629	10,067	1,713	829	10,471	1,590	570	7,289	915
Verona.....	908	12,555	2,337	1,421	17,761	3,172	889	11,557	1,734
Winterport.....	140	2,354	402	237	3,311	499	98	1,176	153
Bangor.....							32	320	58
Total.....	4,395	65,011	11,366	6,403	80,225	12,716	3,985	51,522	7,911

Towns.	1898.			1899.		
	No.	Lbs.	Value.	No.	Lbs.	Value.
Brooksville (Cape Rosier).....	45	765	\$115	39	585	\$129
Bucksport.....	158	2,054	411	153	1,989	498
Camden.....	111	1,388	263	67	871	174
Castine.....	122	1,464	293	146	1,898	380
Hampden.....	24	312	62	4	52	13
Islesboro.....	326	4,890	978	269	4,035	1,009
Lincolnton.....	229	2,977	566	454	5,902	1,180
Matinicus and Ragged Islands.....	28	280	28	38	380	88
Northport.....	130	1,625	309	188	2,444	489
Orland.....	65	845	169	62	806	202
Orrington.....	59	855	204	50	724	181
Penobscot.....	468	6,084	1,217	534	6,942	1,736
Searsport.....	197	2,627	565	221	2,707	698
South Brewer.....	36	860	72	61	610	153
Stockton and Prospect.....	452	6,016	1,089	512	6,456	1,344
Verona.....	656	8,528	1,706	672	8,736	2,184
Winterport.....	90	1,200	228	45	551	121
Bangor.....	20	290	67			
Total.....	8,225	42,560	8,342	8,515	45,688	10,424

THE CANNING INDUSTRY.

The canning of herring and other species is the most important shore industry connected with the fisheries of Maine. The principal feature of the business in most of the canneries is the preparation of small herring as sardines. Clams are canned extensively, and plain herring, mackerel, and menhaden in limited quantities incidentally. In a few instances smoked and pickled herring also form a part of the output. When not preparing fishery products a number of the canneries engage in canning fruit and vegetables in their season. The canning of lobsters was formerly an important part of the business, but in 1895 the State enacted a law prohibiting the catching of lobsters under 10½ inches in length. The large lobsters being too expensive for canning purposes, that branch of the industry was discontinued. The number of lobster canneries had, however, been gradually decreasing for years, the packers finding it more profitable to locate their canneries in the British provinces, where the supply of lobsters was more constant and labor much cheaper than in Maine.

In 1889 there were 49 sardine and other canneries in operation,

336 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

employing 4,017 persons, while in 1898 there were 78 canneries, with 6,829 employees. There has been a considerable increase in the pack of sardines. In 1889 the sardines packed were valued at \$1,676,105, and in 1898 the value of the pack was \$3,103,723. There were no mackerel canned in 1889, but in 1898 the pack of canned mackerel was valued at \$44,848. There has also been an increase in the value of the pack of canned clams from \$43,050 in 1889 to \$206,087 in 1898.

There has recently been considerable change in the management of the sardine industry. In 1899 two companies were formed which included a large majority of the sardine canneries of the State, and the result has apparently been favorable to the interests of the business.

Table showing, by counties, the canneries, cash capital, cost of materials, wages paid, and number of persons employed in the canning industry of Maine in 1898.

Counties.	Canneries.		Cash capital.	Cost of materials.	Wages paid.	Persons employed.
	No.	Value.				
Washington.....	51	\$397,000	\$669,850	\$1,322,865	\$813,251	6,435
Hancock.....	10	64,200	100,000	111,696	82,922	727
Knox.....	4	6,800	18,500	11,792	7,489	113
Lincoln.....	5	58,800	105,000	96,756	62,974	407
Cumberland.....	8	39,500	21,500	18,650	21,080	147
Total.....	78	566,300	914,850	1,561,759	987,707	6,829

Table showing, by counties, the products of the canning industry of Maine in 1898.

Products.	Knox.		Lincoln.		Cumberland.	
	No.	Value.	No.	Value.	No.	Value.
Raw products:						
Herring.....pounds.....			4,188,000	\$14,040	273,700	\$1,869
Mackerel.....do.....			45,900	230	10,000	50
Menhaden.....do.....	202,200	\$708				
Clams.....bushels.....	58,890	17,862	24,855	6,490	54,257	18,260
Total.....		18,570		20,760		19,679
Manufactured products:						
Sardines in oil—						
Quarters.....cases.....			24,400	64,080		
Halves.....do.....			6,500	25,800		
Sardines in mustard—						
Quarters.....do.....			5,100	16,775		
Three-quarters.....do.....			23,700	68,050		
Sardines in spices—						
Three-quarters.....do.....			750	2,063		
Plain herring—						
One pound.....do.....			500	1,125	3,405	10,595
Mackerel—						
Three-quarters.....do.....			610	2,440		
One pound.....do.....			100	550	100	280
Menhaden—						
One pound.....do.....	1,896	4,929				
Clams—						
One pound.....do.....	8,871	23,255	6,060	15,383	12,334	35,710
Two pound.....do.....	7,992	15,185	200	400	1,781	8,562
Clam juice—						
One pound.....do.....						600
Two pound.....do.....	7,917	15,834			200	1,880
Clam chowder—						
Three pound.....do.....	200	500	300	840	9,070	24,956
Total.....		59,703		197,506		76,803
Secondary products:						
Oil.....gallons.....			2,784	725		
Pomace.....tons.....			184	1,104		
Total.....				1,829		
Total of manufactured and secondary products.....		59,703		199,335		76,803

Table showing the products of the canning industry of Maine in 1898—Continued.

Products.	Washington.		Hancock.		Total.	
	No.	Value.	No.	Value.	No.	Value.
Raw products:						
Herring.....pounds..	57,570,100	\$269,009	3,690,300	\$14,736	65,722,100	\$299,154
Mackerel.....do.....	45,070	160	471,200	3,158	572,170	3,598
Menhaden.....do.....					202,200	708
Clams.....bushels..	3,543	711	37,386	9,205	178,931	52,528
Total.....		269,880		27,099		355,988
Manufactured products:						
Sardines in oil—						
Quarters.....cases..	810,988	2,072,714	23,573	80,581	858,961	2,217,375
Halves.....do.....	140	560	194	970	6,834	27,330
Sardines in mustard—						
Quarters.....do.....	30,476	82,386	4,768	18,140	40,344	117,901
Three-quarters.....do.....	232,195	555,596	34,654	99,127	290,549	722,773
Sardines in spices—						
Quarters.....do.....	1,000	4,188	108	351	1,108	4,539
Three-quarters.....do.....	800	2,600	873	2,307	2,423	6,970
Sardines in tomato sauce—						
Quarters.....do.....			438	1,435	438	1,435
Three-quarters.....do.....	1,000	3,000			1,000	3,000
Sardines soured—						
Three-quarters.....do.....	1,000	3,000			1,000	3,000
Brook trout (herring)—						
One pound.....do.....			857	1,428	357	1,428
Two pound.....do.....			71	249	71	249
Three pound.....do.....			71	284	71	284
Plain herring—						
One pound.....do.....	1,100	3,080			5,005	14,800
Mackerel—						
Three-quarters.....do.....	740	2,060	1,057	7,871	3,307	12,771
One pound.....do.....	13	42	5,192	28,566	5,405	29,428
Two pound.....do.....			460	2,025	460	2,025
Three pound.....do.....			104	624	104	624
Menhaden—						
One pound.....do.....					1,896	4,929
Russian sardines.....barrels.	200	750	2,000	7,000	2,200	7,750
Pickled herring.....do.....	4,850	16,995			4,850	16,995
Smoked herring—						
Bloaters.....boxes..	23,753	9,588			23,753	9,588
Medium, etc.....do.....	363,919	82,753			363,919	82,753
Clams—						
One pound.....cases..	4,650	15,892	12,301	37,560	44,216	127,800
Two pound.....do.....			2,400	6,000	12,373	25,147
Clam juice—						
One-quarter-pint.....do.....	250	1,000			250	1,000
One pound.....do.....	1,000	3,000			1,600	4,380
Two pound.....do.....					8,117	16,154
One gallon.....do.....	100	300			100	300
Clam chowder—						
Three pound.....do.....			1,550	4,610	11,120	30,906
Clam extract—						
Eight ounce.....do.....			200	400	200	400
Total.....		2,810,404		299,018		8,443,434
Secondary products:						
Oil.....gallons..	9,888	1,391			12,672	2,116
Pomace.....tons.....	601	4,806			785	5,910
Scrap.....barrels..	31,214	2,328			31,214	2,328
Total.....		8,525				10,354
Total of manufactured and secondary products.....		2,818,929		299,018		3,453,788

Number of canneries engaged in each branch of canning in Maine in 1898.

Counties.	Sardine.	Herring.	Mackerel.	Menhaden.	Clam.	Total.*
Washington.....	50	1	9		2	51
Hancock.....	7	1	4		4	10
Knox.....				1	3	4
Lincoln.....	4	1	3		3	5
Cumberland.....		3	1		7	8
Total.....	61	6	17	1	19	78

* Number of canneries in each county without duplication.

WHOLESALE FISH TRADE AND SMOKED-FISH INDUSTRY.

The wholesale trade in fishery products, and the preparation of smoked herring and haddock, the latter being known as "Finnan haddie," are of considerable importance in many of the fishing localities on the coast of Maine. The fishery trade, though widely distributed, is centered chiefly at Portland, in Cumberland County, and at Rockland and Vinal Haven, in Knox County. The fish sold in a salted condition are purchased from fishermen fresh, and afterwards cured by dealers, or salted on board vessels before landing. Fresh fish, lobsters, clams, scallops, and a variety of secondary products are also handled extensively. The greater part of the pack of "Finnan haddie" is prepared at Portland, while the smoking of herring is carried on principally at Eastport and Lubec, in Washington County.

In 1898, exclusive of fishermen and sardine canners who prepare considerable quantities of smoked and pickled herring and Russian sardines, there were 124 firms, employing 748 persons in these two branches of industry. Their shore property was valued at \$271,570. The cost of materials utilized in the preparation of fishery products was \$89,645. The wages paid to employees aggregated \$112,449, and the cash capital employed in the business amounted to \$410,625. The products of the wholesale trade were valued at \$1,899,191, and those prepared in connection with the smoked-fish industry at \$154,992.

Table showing the number of firms, investment, wages, and persons employed in the wholesale fishery trade and smoked-fish industry of Maine in 1898.

Counties.	No. of firms.	Value of shore property.	*Cost of materials.	Cash capital.	Wages.	Persons employed.
Washington.....	53	\$35,815	\$34,166	\$39,650	\$20,937	324
Hancock.....	12	14,160	8,875	32,200	6,502	60
Knox.....	14	73,425	16,421	76,100	22,966	128
Lincoln and Sagadahoc.....	8	8,200	4,445	7,000	5,840	48
Cumberland.....	34	136,570	25,358	245,600	54,765	178
York.....	3	3,400	385	10,075	1,439	10
Total.....	124	271,570	89,645	410,625	112,449	748

*Includes salt, ice, wood, etc.

Table showing the products of the smoked-fish industry of Maine in 1898.

Products.	Washington.		Knox.		Lincoln.		Cumberland.		Total.	
	No.	Value.	No.	Val.	No.	Val.	No.	Value.	No.	Value.
Raw products:										
Haddock.....lbs.....			2,500	\$25			1,285,000	\$22,113	1,287,500	\$22,138
Herring.....do.....	7,668,500	\$25,987			912,000	\$3,625			8,580,500	29,612
Total.....	7,668,500	25,987	2,500	25	912,000	3,625	1,285,000	22,113	9,868,000	51,750
Manufactured products:										
Smoked haddock—										
Finnan haddie.....lbs.....			2,000	80			800,000	36,000	802,000	36,080
Smoked herring—										
Bloaters.....boxes.....	6,900	3,450							6,900	3,450
Medium, etc.....do.....	748,150	67,344			121,200	9,696			869,350	77,040
Pickled herring.....bbls.....	9,150	35,572							9,150	35,572
Russian sardines.....do.....	950	2,850							950	2,850
Total value.....		109,216		80		9,696		36,000		154,992

Table showing the quantity and selling value of the products handled in the wholesale fishery trade of Maine in 1898.

Products.	Washington.		Hancock.		Sagadahoc.		Lincoln.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Fish, fresh			210,915	\$4,999				
Fish, salted	870,800	\$19,915	2,214,751	59,659	100,000	\$3,000	792,800	\$12,160
Fish, pickled	37,000	861						
Smoked herring, boneless			63,750	5,626				
Sounds, green							10,000	440
Sounds, dried	1,134	243	12,014	2,581				
Tongues, dried	1,200	41	4,685	187			1,200	48
Oil, galls	4,584	1,127	10,058	2,967			8,400	2,450
Clam meat, fresh, barrels			375	2,063				
Clam meat, salted, barrels	440	2,310	3,190	15,960				
Total		24,497		94,032		3,000		15,098

Products.	Knox.		Cumberland.		York.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Fish, fresh	960,510	\$32,921	16,208,343	\$341,868	900,000	\$27,000	18,279,768	\$406,788
Fish, salted	6,175,002	\$46,574	5,976,673	208,117	720,000	28,800	16,849,926	478,225
Fish, pickled	2,786	279	652,000	14,600			691,786	15,740
Smoked herring, boneless							63,750	5,626
Sounds, green	67,969	3,543					77,969	3,963
Sounds, dried			10,725	2,464			23,873	5,288
Tongues, dried	2,000	40	2,360	96			11,445	2,412
Livers	255,200	2,321					265,200	2,321
Oil, galls	13,192	3,926	12,960	3,240	3,756	1,182	52,950	14,842
Fishskins, tons	44	1,848	6	210			60	2,058
Scrap, do.	181	1,629	37	334			218	1,963
Lobsters, live	847,859	97,135	5,356,477	696,344			6,204,326	793,479
Lobsters, boiled	197,815	26,705	615,518	82,483			713,333	109,188
Scallops, galls	651	419					551	419
Clams, fresh, bush	20,385	11,286	19,128	14,580			39,513	25,866
Clam meat, fresh, barrels	80	550	200	1,000			655	3,613
Clam meat, salted, barrels	65	890	1,880	10,730			5,575	29,380
Total		\$29,566		1,376,066		56,982		1,899,191

SMOKED HERRING.

The smoked herring prepared by the fishermen are shown as such in the general-products table for the State. The American-caught herring smoked by the canners and regular smokers are included in the statistics relating to the canning and smoked-fish industries, but are shown as fresh herring in the general-products table, that being the condition in which they were sold by the fishermen. It is customary for many of the fishermen to smoke a part of their own catch, but other classes of smokers utilize both American and Canadian caught herring for smoking purposes.

Table showing the quantity and value of smoked herring prepared in Maine in 1898.

Designation.	Lbs.	Value.
Smoked by fishermen	3,798,500	\$63,005
Smoked by canners	2,413,420	42,341
Smoked by regular smokers	4,519,250	80,490
Total	10,671,170	185,836

Table showing the quantity and value of smoked herring prepared in Maine in various years from 1880 to 1898.

Years.	Lbs.	Value.
1880.....	4,434,111	\$99,973
1887.....	3,419,485	100,488
1888.....	4,360,435	140,164
1889.....	5,090,425	159,330
1892.....	10,151,695	232,036
1898.....	10,671,170	185,836

THE MENHADEN INDUSTRY.

There has been considerable increase in the menhaden industry since 1889. In that year there were three factories, valued at \$22,200, while in 1898 there were four factories, valued at \$190,000. The products have increased from 282,465 gallons of oil, valued at \$62,405, and 2,305 tons of scrap, valued at \$24,735 in 1889, to 765,000 gallons of oil, valued at \$191,250, and 9,120 tons of scrap, valued at \$91,200 in 1898. In 1899, however, the factories were not operated, as no menhaden appeared along the coast of Maine during that year.

With the exception of the preparation of menhaden for bait by fishermen and dealers, the following table shows the extent of the menhaden industry of Maine in 1898:

Table showing the extent of the menhaden industry of Maine in 1898.

Items.	No.	Value.
Factories in operation.....	4	\$190,000
Cash capital.....		100,000
Wages paid factory employees.....		75,000
Employees in factories.....	446	
Fishermen on vessels.....	41	
Steam vessels employed.....	3	21,000
Net tonnage of vessels..... tons..	76	
Outfits of vessels.....		6,010
Menhaden utilized..... pounds..	* 52,392,400	
Oil made..... gallons..	765,000	191,250
Scrap prepared..... tons..	9,120	91,200

*A considerable quantity of the menhaden utilized were caught by vessels owned in other States.

FISHERIES OF NEW HAMPSHIRE.

The commercial fisheries of New Hampshire are confined to Rockingham County, that being the only one in the State touching the Atlantic seaboard.

In 1898 the number of persons employed was 154. There were 5 vessels employed, valued with their outfits at \$7,358, and 123 boats valued at \$5,395. The value of the fishing apparatus was \$12,120. The value of the pound nets and weirs represented more than half of this amount, being \$6,960. The shore property and cash capital aggregated \$27,775, the total investment being \$52,648. The fisheries of this State have decreased in the amount of capital invested and in the value of the products about 50 per cent since 1889.

The products in 1898 were worth \$48,987. The greater part of this value was derived from the yield of cod, hake, haddock, cusk, and pollock, which were worth \$29,473. The yield of the lobster fishery was valued at \$9,372 and that of the mackerel fishery at \$3,207. The remaining products had a value of \$6,935.

The three tables which follow show the extent of the fisheries in detail for the year 1898.

Persons employed.

How engaged.	No.
On vessels fishing	28
In shore or boat fisheries	116
Shoreshmen	11
Total	154

Table of products.

Species.	Vessel fisheries.		Shore fisheries.		Totals	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alewives, fresh			25,000	\$250	25,000	\$250
Alewives, salted			200,000	2,500	200,000	2,500
Cod, fresh	129,800	\$1,958	559,850	8,798	689,150	10,756
Cod, salted			2,000	70	2,000	70
Cusk	62,000	620	35,500	375	97,500	995
Haddock, fresh	308,000	3,045	1,076,750	11,507	1,379,750	14,552
Haddock, salted			4,000	100	4,000	100
Hake, fresh	2,500	13	112,900	1,366	115,400	1,379
Hake, salted			1,500	38	1,500	38
Herring			65,000	650	65,000	650
Mackerel	42,000	2,220	16,750	987	58,750	3,207
Perch, white			1,650	165	1,650	165
Pollock, fresh	88,700	444	91,500	1,115	180,200	1,559
Pollock, salted			1,200	24	1,200	24
Striped bass			850	85	850	85
Lobsters			108,515	9,372	108,515	9,372
Clams, soft			6,000	360	* 6,000	360
Irish moss			70,000	2,450	70,000	2,450
Oil	8,250	275	6,000	200	† 14,250	475
Total	635,750	8,575	2,384,965	40,412	3,020,715	48,987

* 600 bushels.

† 1,900 gallons.

Table of apparatus and capital.

Items.	No.	Value.	Items.	No.	Value.
Vessels fishing	5	\$3,900	Apparatus—shore fisheries:		
Tonnage	79		Pound nets and weirs	17	6,960
Outfit		3,458	Gill nets	20	244
Boats	123	5,395	Lines, hand and trawl		1,393
Apparatus—vessel fisheries:			Pots, lobster	1,675	1,666
Seines	1	500	Rakes	10	32
Gill nets	40	600	Shore property		12,775
Lines, trawl		725	Cash capital		15,000
			Total		52,648

PRODUCTS WITH EACH APPARATUS.

The yield of the vessel fisheries by seines, gill nets, and hand and trawl lines was valued at \$8,575. In the shore fisheries the yield of the gill nets was valued at \$537; that of pound nets and weirs, \$4,550; of trawl and hand lines, \$23,143; and of all other apparatus, \$12,182; the total value being \$40,412.

Table showing the yield of the vessel fisheries of New Hampshire in 1898.

Apparatus.	Species.	Lbs.	Value.
Seines	Mackerel	30,000	\$1,500
Gill nets	do	12,000	720
Lines, trawl	Cod	129,300	1,958
Do	Cusk	62,000	620
Do	Haddock	303,000	3,045
Do	Huke	2,500	13
Do	Pollock	88,700	444
Do	Oil	8,250	275
Total		693,750	6,355
Grand total		635,750	8,575

Table showing the yield of the shore fisheries of New Hampshire in 1898.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Gill nets:			Lines, trawl and hand:		
Herring	5,000	\$50	Cod, fresh	529,850	\$8,348
Mackerel	6,750	487	Cod, salted	2,000	70
Total	11,750	537	Cusk	35,500	375
Pound nets and weirs:			Haddock, fresh	1,076,750	11,507
Alewives, fresh	25,000	250	Haddock, salted	4,000	100
Alewives, salted	200,000	2,500	Hake, fresh	112,900	1,366
Cod	30,000	450	Hake, salted	1,500	88
Herring	60,000	600	Pollock, fresh	91,500	1,115
Mackerel	10,000	500	Pollock, salted	1,200	24
Perch, white	1,650	165	Oil	6,000	200
Striped bass	850	85	Total	1,861,200	23,143
Total	327,500	4,550	Rakes:		
Pots:			Clams, soft	6,000	360
Lobsters	108,515	9,372	Irish moss	70,000	2,450
			Total	76,000	2,810
			Grand total	2,384,965	40,412

FISHERIES OF MASSACHUSETTS.

Massachusetts has over two-thirds of the investment, more than half of the quantity, and nearly half of the value of the products of the coast fisheries of New England. It is the leading fishing State of New England, and in the items of investment and value of products it surpasses any other State. It had until recent years more persons employed in the fishing industry than any other New England State, but is now exceeded by Maine in this respect. The most important branches of fishing prosecuted by vessels are the offshore bank fisheries for cod, haddock, hake, halibut, and other ground species; the mackerel fishery, and the whale fishery. The shore, or boat, fisheries embrace a large number of species, but yield only about 20 per cent of the total value of the fishery products of the State, a smaller percentage than any other New England State except Connecticut.

The principal fishing ports, where the largest fleets of vessels are owned and operated, are Gloucester, Boston, Provincetown, and New Bedford. A considerable number of vessels, mostly of small size, are owned in various other localities, while the shore or boat fisheries are prosecuted to a greater or less extent along the entire coast. The whale fishery was engaged in by vessels from Boston and Provincetown, but is centered principally at New Bedford. Some of the whaling vessels owned at New Bedford have headquarters at San Francisco, Cal., but are included in the statistics for Massachusetts.

The products of the fisheries of this State are derived chiefly from the numerous offshore fishing banks extending along the North American coast from Nantucket Shoals, Massachusetts, to the Grand Banks of Newfoundland. The products taken by boats in the shore fisheries and by the smallest class of vessels represent practically all that are obtained from jurisdictional waters. A very large percentage of the principal species taken by vessels in the cod fisheries is from offshore grounds. The mackerel fishery is also prosecuted along the coast, to a greater or less extent, from Florida to the Gulf of St. Lawrence.

The halibut supply has for many years been obtained mainly from the banks off the New England coast, and from La Have, Banquereau, Western, Grand, and other eastern banks. Since about 1895 large quantities of halibut have been secured on grounds located to the north-east of Newfoundland, in latitude 48° to 50° N. and longitude 50° to 51° W. The great demand for halibut in 1898 induced a Boston firm to send a steam vessel on a voyage to the halibut grounds in the North Pacific Ocean. These grounds are principally in latitude 50° to 55° N. and longitude 135° to 140° W. This vessel had a crew of 28 men, and during October, November, and December secured 411,011 pounds of fresh halibut which, after being landed, was packed in refrigerator cars and shipped to Boston by railroad, where it arrived in good condition. It is interesting to note that the fishing-grounds in the North Atlantic

and Pacific oceans on which halibut have been found to be abundant in the past few years are in approximately the same latitude.

In the whale fishery one bark from Boston took 400 barrels of sperm oil in the Okotsk Sea, north of Japan; one brig made a similar catch in West Indian waters; one bark, the *Swallow*, visited Kerguelen, or Desolation Island, to obtain sea-elephant oil, and one schooner was at the close of the year in those waters on a sealing voyage. There were also four vessels from Provincetown fishing in the South Atlantic Ocean, and the whaling fleet from New Bedford fished in the North and South Atlantic, North and South Pacific, and Arctic oceans.

The bark *Swallow*, of 310 tons, above referred to, with a crew of 34 men, sailed from Boston in July and arrived at Kerguelen Island in December, 1897. This island is in the Southern Ocean in latitude 49° S. and longitude 69° E. Within three months about 4,000 sea-elephants were secured, which yielded 63,000 gallons of oil having a value of \$20,790. It being summer in that locality, no difficulty was experienced from ice, but heavy fogs prevailed the greater part of the time. The younger sea-elephants were taken in December, the larger ones later in the season. They were all killed on shore by the use of rifles, lances, and harpoons. Only the oil from the animals was saved. It is used chiefly in tanning morocco and other leather. The vessel left the island in March and returned to Massachusetts on July 20, 1898, after an absence of about a year. The captain reports that at Kerguelen Island the young sea-elephants are chiefly produced in November, as very few were born after his arrival there, and that they shed their hair in December. The voyage of the *Swallow* is noteworthy, as the Kerguelen Island sea-elephant fishery has not been regularly prosecuted for a long period, the only other vessel visiting the island in recent years being the *Francis Allen*, of New London, Conn., in about 1894.

The herring fisheries furnish another instance in which the products are derived largely from waters outside of State jurisdiction, the Newfoundland herring fishery alone yielding about half of the entire catch of this species. This fishery is apparently increasing in importance. In 1896 it was engaged in by 43 vessels from Gloucester, 3 from Beverly, and 1 from Provincetown; a total of 47 vessels, with a net tonnage of 4,981 tons and a value of \$239,316; the value of their outfit, seines and gill nets, was \$29,123 and the number of fishermen was 440. The quantity of fresh frozen herring secured was 8,441,842 pounds, valued at \$117,649, and of salted herring 1,807,575 pounds, valued at \$18,150. In 1898 the Newfoundland herring fleet had increased to 56 vessels, valued at \$281,028. Of these, 51 were from Gloucester, 2 from Beverly, and 3 from Boston; their net tonnage was 4,542 tons, the value of their outfit, seines and gill nets, \$48,650, and the number of fishermen 450. The quantity of fresh frozen herring obtained was 9,398,872 pounds, valued at \$197,490, and of salted herring 5,545,199 pounds, valued at \$72,862; a total of 14,944,071 pounds, valued at \$270,352.

GENERAL STATISTICS.

In 1898 14,363 persons were employed in the coast fisheries of Massachusetts—on vessels fishing, 6,962; on vessels transporting fishery products, 14; in the shore or boat fisheries, 3,365; and as shoresmen in the various branches of fishery industry, 4,022.

The vessels engaged in fishing and transporting numbered 637, worth \$1,776,025. Their net tonnage was 30,558 tons, and the value of their outfits \$939,772. The number of boats used in the shore fisheries was 2,625, valued at \$178,082. The apparatus of capture, consisting of seines, gill nets, pound nets, trap nets, fyke nets, drag nets, dip nets, hand and trawl lines, lobster and eel pots, harpoons, dredges, tongs, rakes, and various minor apparatus, was valued at \$556,525. Of this amount \$337,082 belong to the vessel and \$219,443 to shore fisheries. This is exclusive of harpoons, guns, and other means of capture used in the whale fisheries, the value of which is included in the outfits of vessels. The shore and accessory property employed in the fisheries and fishery industries was valued at \$5,125,248, and the cash capital amounted to \$4,797,250, the total investment being \$13,372,902.

The products of the fisheries aggregated 202,257,817 pounds, valued at \$4,463,727. About 70 per cent of this quantity and nearly 50 per cent of the value were comprised of the five principal species obtained in the cod fisheries. These, combining the fresh and the salted of each species, were cod, 71,314,978 pounds, \$1,407,039; cusk, 5,954,036 pounds, \$63,514; haddock, 35,581,514 pounds, \$419,818; hake, 21,331,816 pounds, \$163,634; and pollock, 7,084,037 pounds, \$43,045; the five species totalizing 141,266,381 pounds, and having a value of \$2,097,050. Other important species, with the quantity and value of fresh and salted, were halibut, 10,523,297 pounds, \$547,440; mackerel, 6,703,364 pounds, \$361,864; herring, 22,363,497 pounds, \$332,547; sword-fish, 597,186 pounds, \$35,280, and alewives, fresh, salted, and smoked, 2,535,201 pounds, \$31,288. The principal species disposed of wholly in a fresh condition were blue-fish, 832,849 pounds, \$38,089; eels, 425,846 pounds, \$17,635; flounders, 1,168,876 pounds, \$14,793; menhaden, 1,497,367 pounds, \$10,544; scup, 1,043,625 pounds, \$14,253, and squeteague, 1,371,910 pounds, \$39,518. Lobsters yielded 1,693,741 pounds, worth \$147,702. The more important mollusks were oysters, 101,225 bushels, \$156,235; clams, hard and soft, 210,912 bushels, \$153,318, and scallops, 145,919 bushels, \$94,971. The yield of the whale fisheries, consisting of whale, sperm, and sea-elephant oil, and whalebone, was valued at \$285,688.

A comparison of the statistics for 1898 with those for 1889 shows that there has been a decrease of 2,875 in the number of persons employed. The decrease in the number of vessel fishermen is 3,875, and in shore or boat fishermen, 383. This has been partly offset by an increase of 1,383 in the number of shoresmen.

The vessels have decreased 199, or nearly 24 per cent, in number,

and \$1,332,320, or 43 per cent, in value. The net tonnage has also decreased about 48 per cent. An instance of the gradual decrease in vessels during the past nine years is furnished by the fishing fleet at Gloucester, Mass. From July 1, 1897, to November 15, 1898, 27 vessels were sold and 24 lost; in the same period 11 vessels were purchased and 7 built; the net decrease in the fleet in the 17½ months being 33 vessels. The vessels sold and lost have generally been larger in size than those taking their places and the percentage of decrease in number has therefore not been so large as in value and tonnage. The decrease in boats is nearly 25 per cent in number and 30 per cent in value, and in the value of the apparatus of capture about 44 per cent. In the meantime there has been an increase of \$2,067,041 in the value of shore and accessory property, and of \$513,050 in the cash capital; resulting in an increase in the total investment of \$127,673.

The products in 1898 as compared with 1889, if the various species of algae gathered by fishermen are included, have decreased 96,959,852 pounds in quantity and \$1,394,547 in value. In 1889 the algae consisted of seaweed and Irish moss, and amounted to 117,993,900 pounds, valued at \$66,034, and in 1898 of 700,000 pounds of Irish moss, worth \$22,375. Eliminating these items for both years, the fishery products proper in 1898 show an increase of 20,334,048 pounds in quantity and a decrease of \$1,350,888 in value.

The following tables show the persons employed, the number and value of vessels, boats, and apparatus of capture, the value of shore and accessory property, the amount of cash capital, and the quantity and value of the products of the fisheries of Massachusetts in 1898.

Persons employed.

	How engaged.	No.
On vessels fishing	6,962
On vessels transporting	14
In shore or boat fisheries	3,865
Shoremen	4,022
Total	14,363

Table of apparatus and capital.

Items.	No.	Value.	Items.	No.	Value.
Vessels fishing	629	\$1,772,725	Apparatus—shore fisheries:		
Tonnage	30,494		Selnes	52	\$3,386
Outfit		939,369	Gill nets	1,671	18,291
Vessels transporting	8	3,300	Pound nets and trap nets	126	141,835
Tonnage	64		Dip nets	213	272
Outfit		403	Fyke nets	88	1,124
Boats	2,625	178,082	Drag nets	21	1,260
Apparatus—vessel fisheries:			Lines, hand and trawl		7,403
Selnes	220	84,996	Pots, lobster	24,462	29,387
Gill nets	2,961	82,021	Pots, eel	1,260	2,336
Trap nets	4	900	Dredges	2,263	7,638
Drag nets	6	350	Tongs, rakes, and forks		6,147
Lines, hand and trawl		213,962	Minor apparatus		364
Pots, lobster	1,792	2,094	Shore and accessory property		5,125,248
Pots, eel	40	40	Cash capital		4,797,250
Harpoons ^a	338	1,200			
Dredges	350	1,414	Total		18,872,902
Minor apparatus		105			

^aThe harpoons, guns, etc., used on whaling vessels are included with the "outfit" of vessels fishing.

Table of products.

Species.	Vessel fisheries.		Shore fisheries.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Albacore.....			36,090	\$912	36,090	\$912
Alewives, fresh.....	2,000	\$20	1,875,061	22,248	1,877,061	22,268
Alewives, salted.....			586,700	6,790	586,700	6,790
Alewives, smoked.....			71,440	2,230	71,440	2,230
Blue-fish.....	455,615	22,227	377,234	15,862	832,849	38,089
Bonito.....	18,000	520	71,136	1,890	89,136	2,410
Butter-fish.....	100	5	30,520	813	30,620	818
Cat-fish.....	5,200	110			5,200	110
Cod, fresh.....	38,046,353	637,747	2,585,798	50,974	40,632,151	688,721
Cod, salted.....	29,573,631	684,186	1,109,196	34,132	30,682,827	718,318
Gunners.....	100	5	85,250	5,245	85,350	5,250
Cusk, fresh.....	5,766,173	60,708	59,000	600	5,825,173	61,308
Cusk, salted.....	128,863	2,206			128,863	2,206
Eels.....	76,667	1,900	349,179	15,735	425,846	17,635
Flounders.....	289,225	4,490	879,651	10,303	1,168,876	14,798
Haddock, fresh.....	34,450,284	403,999	1,001,000	14,527	35,451,284	418,526
Haddock, salted.....	128,886	1,268	1,344	24	130,230	1,292
Hake, fresh.....	20,738,753	158,668	360,675	2,827	21,099,428	161,495
Hake, salted.....	232,388	2,139			232,388	2,139
Hullbut, fresh.....	8,663,443	487,714			8,663,443	487,714
Hullbut, salted.....	1,859,854	59,726			1,859,854	59,726
Herring, fresh.....	10,348,422	206,956	6,213,916	49,379	16,562,338	256,335
Herring, salted.....	5,801,159	76,212			5,801,159	76,212
Hickory shad.....			1,000	15	1,000	15
King-fish.....			245	22	245	22
Mackerel, fresh.....	2,501,360	144,672	1,289,873	52,667	3,791,233	197,339
Mackerel, salted.....	2,905,681	164,150	6,450	375	2,912,131	164,525
Menhaden.....	919,887	5,992	577,480	4,552	1,497,367	10,544
Perch.....			57,523	3,662	57,523	3,662
Pollock, fresh.....	5,160,198	29,137	1,406,190	9,119	6,566,388	38,256
Pollock, salted.....	486,617	4,231	31,082	558	517,699	4,789
Pompano.....			150	15	150	15
Salmon.....			60	30	60	30
Scup.....	21,700	364	1,021,925	13,889	1,043,625	14,253
Sea bass.....	24,700	746	74,600	4,200	99,300	4,946
Shad.....			29,333	1,426	29,333	1,426
Smelt.....			7,079	515	7,079	515
Spanish mackerel.....			210	30	210	30
Squeteague.....	56,800	642	1,315,110	38,876	1,371,910	39,518
Striped bass.....	3,649	349	9,299	590	12,948	939
Sturgeon.....			8,490	402	8,490	402
Sword-fish, fresh.....	569,916	34,465			569,916	34,465
Sword-fish, salted.....	27,270	815			27,270	815
Tautog.....	29,430	879	260,075	6,688	289,505	7,567
Whiting or silver hake.....			37,200	492	37,200	492
Squid, fresh.....	300,275	9,008	764,150	5,562	1,064,425	14,570
Squid, salted.....	5,000	50			5,000	50
Lobsters.....	70,941	6,552	1,622,800	141,150	1,693,741	147,702
Shrimp.....			25,200	1,183	25,200	1,183
Clams, hard.....			510,536	50,724	a 510,536	50,724
Clams, soft.....			1,470,951	102,594	b 1,470,951	102,594
Mussels.....			7,400	130	c 7,400	130
Oysters.....	210	50	708,365	156,185	d 708,575	156,235
Scallops.....	110,984	12,866	764,528	82,105	e 875,512	94,971
Irish moss.....			700,000	22,375	700,000	22,375
Winkles.....	9,500	475			f 9,500	475
Cod sounds and tongues.....	34,855	889			34,855	889
Hake sounds.....	32,707	1,914			32,707	1,914
Haddock spawn.....	700	18			700	18
Hullbut fins.....	21,900	384			21,900	384
Oil, fish.....	354,427	13,843	4,600	120	g 358,927	13,963
Oil, sea-elephant.....	472,500	20,790			h 472,500	20,790
Oil, whale.....	3,119,450	199,023			i 3,119,450	199,023
Whalebone.....	27,100	65,875			27,100	65,875
Total.....	173,852,873	3,528,985	28,404,944	934,742	202,257,817	4,463,727

a 63,817 bushels.
 b 147,095 bushels.
 c 700 bushels.

d 101,225 bushels.
 e 145,919 bushels.
 f 950 bushels.

g 47,857 gallons.
 h 63,000 gallons.
 i 415,927 gallons.

THE FISHERIES BY COUNTIES.

There are eight counties on the coast of this State, all of which are interested in the fishing industry. These are Essex, Suffolk, Norfolk, Plymouth, Barnstable, Nantucket, Dukes, and Bristol. The fisheries of Essex County are the most extensive. The number of persons employed in this county was 7,025. There were 4,853 in the vessel fisheries, 740 in the shore or boat fisheries, and 1,432 in the wholesale trade in fishery products and other shore industries connected with the fisheries. The number of vessels fishing was 352, valued at \$1,220,420, and their outfits at \$655,893; the number of boats was 451, valued at \$18,051; the fishing apparatus was valued at \$262,403, the shore and accessory property at \$1,758,311, and the cash capital at \$2,346,000, the total investment being \$6,261,078. The products amounted to 134,744,667 pounds, having a value of \$2,578,806. The extent of the fisheries of this county will be better appreciated when it is stated that they represent practically one-half the fishery interests of the State and are nearly equal in value to the fisheries of Maine, while they exceed those of either of the other New England States.

The county next in importance is Suffolk. Its fisheries center at Boston and gave employment to 3,027 persons, of whom 963 were vessel fishermen, 129 shore or boat fishermen, and 1,935 shoresmen. The number of vessels fishing was 60, valued at \$313,300, their outfits having a value of \$188,275. There were 99 boats used in the shore fisheries, worth \$5,590. The fishing apparatus was valued at \$62,372, the shore and accessory property at \$3,160,910, and the cash capital at \$2,251,750, a total investment of \$5,982,197. The quantity of products obtained was 27,780,143 pounds, valued at \$529,835.

In addition to considerable quantities of other species, the fisheries of these two counties produced 87 per cent of the quantity and 85 per cent of the value of the fresh and salted cod, cusk, haddock, hake, and pollock; 94 per cent of the quantity and 91 per cent of the value of the halibut; 60 per cent of the quantity and 72 per cent of the value of the mackerel, and 85 per cent of the quantity and 91 per cent of the value of the herring taken in the fisheries of the entire State. The products in both of these counties are derived mainly from the vessel fisheries. The investment is also exceptionally large, especially in the items of shore property and cash capital, which is due chiefly to the extensive wholesale trade in fishery products at Gloucester and Boston.

Barnstable County had 2,307 persons engaged in the fisheries. Of these 905 were on vessels fishing and transporting, 1,126 in the shore fisheries, and 276 were shoresmen. The number of vessels employed was 157, valued at \$186,755; and of boats in the shore fisheries, 929, valued at \$61,242. The fishing apparatus was valued at \$177,318. Of this amount \$132,683 is the value of the apparatus in the shore fisheries,

which are more extensive than in any other county in the State. The more important forms of apparatus used were seines, gill nets, and lines in the vessel fisheries, and pound nets in the shore fisheries. The total investment, including outfits of vessels, shore property, and cash capital, was \$608,158; and the products amounted to 26,761,104 pounds, valued at \$741,826.

Provincetown is the principal fishing port in this county. It had 62 vessels engaged in the food fisheries and 4 in the whale fishery, a total of 66 vessels, valued at \$134,950. The greater part of the fleet in the food fisheries fished on Georges and other banks off the New England coast, and six of the largest vessels made trips to the Grand Banks of Newfoundland. The catch was marketed chiefly at Boston. There were also 205 boats of various classes used in the shore fisheries. The persons employed numbered 912, of whom 650 were vessel fishermen, 149 shore fishermen, and 113 shoresmen. The total investment was \$376,020, and the value of the products obtained by vessels and boats was \$355,907.

Besides the usual branches of fishing by vessels and boats, a fishery for flounders is carried on in the harbor during the winter by boats and by the smaller class of vessels with drag nets. These nets are similar in construction to a beam trawl. They are 30 feet wide at the mouth, 5 feet wide at the extreme end, and the length is 35 feet. The method of operating them is to throw them overboard and drag them on the bottom like a dredge, drawing them up at intervals to empty the catch on the deck of the boat or vessel. They have been used in this locality only a few years, and seldom take any other species than flounders.

In each of the five remaining counties the fisheries are less extensive. The aggregate number of persons employed was 2,004; the investment, \$521,469; and the quantity of the products, 12,971,903 pounds, valued at \$613,260.

The following statistical statements of the value of the fishing apparatus, and the quantity and value of the products of the vessel and the shore fisheries will serve to illustrate the importance of each of these branches of fishing in the various counties:

Value of fishing apparatus in the vessel and shore fisheries.

Counties.	Vessel fisheries.	Shore fisheries.
Essex	\$232,963	\$29,440
Suffolk	50,845	11,527
Norfolk .....	.....	2,480
Plymouth	3,739	12,863
Barnstable	44,635	132,683
Nantucket	3,240	3,990
Dukes	706	17,963
Bristol	954	8,497

Quantity and value of products of the vessel and shore fisheries.

Counties.	Vessel fisheries.		Shore fisheries.	
	Lbs.	Value.	Lbs.	Value.
Essex	127, 013, 794	\$2, 383, 054	7, 780, 873	\$195, 752
Suffolk	26, 096, 218	470, 285	1, 683, 925	59, 550
Norfolk			298, 000	10, 800
Plymouth	1, 064, 050	21, 044	1, 809, 950	103, 670
Barnstable	15, 708, 541	884, 980	11, 052, 563	356, 846
Nantucket	364, 587	15, 802	1, 213, 795	44, 247
Dukes	186, 580	6, 063	3, 298, 505	102, 432
Bristol	3, 419, 103	247, 157	1, 317, 333	61, 425

The three tables which follow show in detail the extent of the fisheries in each county of Massachusetts in 1898:

Number of persons employed in the fisheries of Massachusetts in 1898.

Counties.	On vessels fishing.	On vessels transporting.	In shore or boat fisheries.	Shoresmen.	Total.
Essex	4, 853		740	1, 432	7, 025
Suffolk	963		129	1, 935	3, 027
Norfolk			37		37
Plymouth	62		495	193	760
Barnstable	899	6	1, 126	276	2, 307
Nantucket	43		136	50	229
Dukes	25	1	295	46	367
Bristol	117	7	407	90	621
Total	6, 962	14	3, 365	4, 022	14, 363

Table showing, by counties, the vessels, boats, apparatus, and capital employed in the fisheries of Massachusetts in 1898.

Items.	Essex.		Suffolk.		Norfolk.		Plymouth.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	352	\$1, 220, 420	60	\$313, 300			9	\$18, 250
Tonnage	21, 812		4, 199				155	
Outfit		655, 893		188, 275				6, 080
Boats	451	18, 051	99	5, 590	31	\$1, 500	399	40, 122
Apparatus—vessel fisheries:								
Selnes	168	65, 150	13	6, 100			2	800
Gill nets	1, 145	12, 433	40	400			70	700
Trap nets	4	900						
Lines, hand and trawl		153, 692		43, 950				2, 078
Pots, lobster	300	300						
Harpoons	147	423	79	395			11	76
Dredges							24	85
Minor apparatus		65						
Apparatus—shore fisheries:								
Selnes							1	17
Gill nets	567	6, 480	25	250	50	900	38	380
Pound nets and trap nets	16	12, 920	3	6, 000				
Dip nets	83	95					29	36
Lines, hand and trawl		3, 812						37
Pots, lobster	5, 375	6, 495	4, 055	5, 187	1, 200	1, 500	6, 813	8, 662
Pots, eel	140	280						
Dredges							667	2, 333
Tongs, rakes, and forks		328		50		80		1, 398
Minor apparatus		30		40				
Shore and accessory property						600		13, 010
Cash capital		1, 758, 311		3, 160, 910				
		2, 346, 000		2, 251, 750				
Total		6, 261, 078		5, 982, 197		4, 580		94, 064

Table showing, by counties, the vessels, boats, apparatus, and capital employed in the fisheries of Massachusetts in 1898—Continued.

Items.	Barnstable.		Nantucket.		Dukes.		Bristol.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	154	\$186,005	17	\$14,000	12	56,000	25	\$14,750
Tonnage	3,746		130		75		377	
Outfit		78,502		1,218		769		8,632
Vessels transporting	3	750			1	1,500	4	1,050
Tonnage	15				6		43	
Outfit		68				110		225
Boats	929	61,242	154	5,270	240	18,872	822	27,435
Apparatus—vessel fisheries:								
Seines	32	12,300	3	450	2	196		
Gill nets	1,563	16,183	142	2,260	1	45		
Drag nets	6	350						
Lines, hand and trawl		13,499		107		120		516
Pots, lobster	1,122	1,359	210	210	60	75	100	150
Pots, eel					40	40		
Harpoons	39	174	4	10	13	32	45	90
Dredges	123	742	78	191	61	198	59	198
Minor apparatus		28		12				
Apparatus—shore fisheries:								
Seines	15	780	3	520	12	489	21	1,580
Gill nets	863	7,965	138	2,316				
Pound nets and trap nets	81	109,940			26	12,975		
Dip nets	97	134			4	7		
Fyke nets	88	1,124						
Drag nets	21	1,260						
Lines, hand and trawl		2,905		279		139		231
Pots, lobster	3,167	3,763	488	488	1,714	2,089	1,650	2,203
Pots, eel	310	410			520	1,234	280	420
Dredges	413	949	122	305	201	603	860	3,448
Tongs, rakes, and forks		3,289		60		327		615
Minor apparatus		172		22		100		
Shore and accessory property		71,273		5,905		9,586		105,653
Cash capital		33,000						166,500
Total		608,158		33,623		55,506		838,696

a The harpoons, guns, etc., used on whaling vessels are included under "outfit."

Table showing, by counties, the products of the fisheries of Massachusetts in 1898.

Species.	Nantucket.		Suffolk.		Norfolk.		Plymouth.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alewives, fresh							122,495	\$1,357
Alewives, salted							133,000	1,638
Blue-fish	317,760	\$12,630						
Bonito	20,600	598						
Butter-fish			2,000	\$100				
Cod, fresh	123,100	2,412	6,387,900	111,406			418,950	8,053
Cod, salted	765,490	20,668	48,000	1,555			28,000	1,240
Cunners			72,000	4,800			6,000	200
Cusk, fresh			559,300	7,004			7,800	98
Cusk, salted			6,000	150				
Eels	40,001	1,720						
Flounders	12,000	360	1,500	15				
Haddock, fresh	80,000	2,160	11,904,800	148,628			355,250	5,142
Haddock, salted	500	6						
Hake, fresh			3,954,827	39,502			85,500	885
Halibut, fresh			694,966	80,396				
Halibut, salted			250,000	10,000				
Herring, fresh			984,400	11,122	100,000	\$1,500	170,800	1,706
Herring, salted			843,600	9,300				
Mackerel, fresh	13,175	586	143,500	9,080			28,150	1,080
Mackerel, salted			128,800	9,660				
Menhaden			138,000	1,040				
Pollock, fresh			297,700	2,301			97,300	5,015
Pollock, salted	11,400	228						
Pompano	150	15						
Scup	7,300	396						
Squeteague	2,800	84						
Sword-fish, fresh	1,800	140	142,400	11,192			35,500	1,715
Lobsters	37,100	3,782	346,625	80,355	48,000	4,800	498,610	39,991
Clams, hard	6,400	640					24,000	2,600
Clams, soft			210,600	10,530			62,500	4,125
Mussels							7,400	180
Oysters							48,545	9,844
Scallops	188,816	13,659					195,200	22,120
Irish moss					150,000	4,500	550,000	17,875
Oil, sea-elephant			472,500	20,790				
Oil, whale			190,725	11,010				
Total	1,578,882	60,069	27,780,143	629,885	298,000	10,800	2,874,000	124,714

352 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the products of the fisheries of Massachusetts in 1898—Cont'd.

Species.	Essex.		Dukes.		Bristol.		Barnstable.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Albacore.....							86,090	\$912
Alewives, fresh.....	106,600	\$1,013	392,561	\$5,690	853,744	\$4,338	901,661	9,870
Alewives, salted.....			10,000	150	170,000	1,975	273,700	3,127
Alewives, smoked.....			30,000	750			41,440	1,480
Blue-fish.....	15	1	24,660	1,239			490,424	24,219
Bonito.....			49,811	1,874			18,725	438
Butter-fish.....	2,300	83	4,600	84			21,720	561
Cut-fish.....	2,000	40					3,200	70
Cod, fresh.....	28,517,742	449,174	53,140	1,176	105,231	3,021	5,026,088	113,480
Cod, salted.....	27,274,654	619,035	28,000	1,400	491,321	9,926	2,047,362	64,499
Cunners.....	8,350	250						
Cusk, fresh.....	4,948,673	51,112					809,400	3,094
Cusk, salted.....	122,863	2,056						
Zels.....	57,000	2,850		3,016		330	250,055	9,719
Flounders.....	16,875	258	130,649	2,011	4,000	80	1,003,852	12,069
Haddock, fresh.....	19,351,974	207,893	1,000	50	2,500	75	3,914,771	63,635
Haddock, salted.....	75,386	722			61,000	510	3,344	54
Hake, fresh.....	15,625,101	110,000			500	15	1,433,500	11,093
Hake, salted.....	140,914	1,224			91,474	915		
Halibut, fresh.....	7,413,265	362,191					556,212	46,127
Halibut, salted.....	1,609,864	49,726						
Herring, fresh.....	12,641,438	220,512	9,400	87			2,656,300	21,408
Herring, salted.....	4,702,199	63,552					255,360	3,360
Hickory shad.....							1,000	15
King-fish.....			245	22				
Mackerel, fresh.....	1,848,839	107,792	65,060	3,941	147,000	6,057	1,326,498	63,056
Mackerel, salted.....	2,403,131	134,091			6,000	300	374,150	20,474
Menhaden.....	551,517	4,373	6,350	40			801,500	5,091
Perch.....	14,500	725	34,273	2,499	8,750	438		
Pollock, fresh.....	4,382,758	25,289	200	4	1,000	30	1,847,480	10,417
Pollock, salted.....	373,113	2,906			25,500	255	107,636	1,400
Salmon.....							60	80
Scup.....			887,175	11,504	17,000	315	182,150	2,038
Sea bass.....			86,300	4,366			13,000	530
Shad.....	3,000	225	445	30	16,188	818	9,700	363
Smelt.....			2,479	211	4,200	254	400	50
Spanish mackerel.....			110	20			100	10
Squeteague.....			1,209,530	36,195	24,000	960	135,580	2,279
Striped bass.....	149	9	420	48	2,500	112	9,879	769
Sturgeon.....							8,490	402
Sword-fish, fresh.....	278,341	15,555	9,318	467	16,760	1,006	85,797	4,390
Sword-fish, salted.....	27,000	810	270	5				
Tautog.....	1,600	58	36,118	1,091	170,300	4,895	81,592	1,523
Whiting.....	8,200	87					29,000	435
Squid, fresh.....	312,275	9,102	11,000	153			741,150	6,315
Squid, salted.....	5,000	50						
Lobsters.....	336,207	33,646	147,634	10,649	95,812	8,909	188,753	15,570
Shrimp.....							25,200	1,183
Clams, hard.....			110,400	11,295	151,280	14,791	218,466	21,398
Clams, soft.....	1,186,240	87,242					11,611	697
Oysters.....					28,000	2,000	632,030	144,891
Scallops.....			76,152	9,528	198,440	19,844	266,904	29,820
Winkles.....							9,500	475
Cod sounds and tongues.....	34,855	889						
Hake sounds.....	32,707	1,914						
Haddock spawn.....	700	18						
Halibut fins.....	21,900	384						
Oil, fish.....	305,482	11,979					53,445	1,964
Oil, whale.....					2,515,836	160,537	412,889	27,476
Whalebone.....					27,100	65,875		
Total.....	134,744,667	2,578,806	3,485,085	109,095	4,736,486	308,582	26,761,104	741,826

THE FISHERIES BY APPARATUS.

The quantity of products secured in the vessel fisheries of Massachusetts in 1898 was 173,852,873 pounds, valued at \$3,528,985; and by boats in the shore fisheries, 28,404,944 pounds, valued at \$934,742. The forms of apparatus of capture, exclusive of those employed in the whale fisheries, in which the greatest amount of capital is invested and with which the largest quantity and value of products were taken were seines, gill nets, pound nets, and trap nets, hand and trawl lines, lobster and eel pots, and the group including dredges, tongs, rakes, etc.

The following table shows in a condensed manner the pounds and value of products obtained with each form or group of apparatus:

Apparatus.	Vessel fisheries.		Shore fisheries.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Seines.....	20,795,080	\$521,644	1,434,307	\$27,413	22,229,387	\$549,057
Gill nets.....	2,927,435	87,548	897,030	17,712	3,824,465	105,260
Pound nets and trap nets.....	124,701	4,105	10,294,637	164,223	10,419,338	168,328
Dip nets.....			2,947,635	23,747	2,947,635	23,747
Fyke nets.....			59,984	2,892	59,984	2,892
Drag nets.....	272,500	4,256	494,350	4,308	766,850	8,564
Minor apparatus.....	316,667	9,500	168,201	9,210	484,868	18,710
Lines.....	145,003,619	2,560,871	6,149,280	121,842	151,152,899	2,682,713
Pots.....	85,441	7,177	1,797,740	149,282	1,883,181	156,459
Harpoons.....	597,186	35,280			597,186	35,280
Dredges, tongs, etc.....	111,194	12,916	4,161,780	414,113	4,272,974	427,029
Whaling apparatus.....	3,619,050	285,688			3,619,050	285,688
Total.....	173,862,873	3,528,985	28,404,944	934,742	202,267,817	4,463,727

Seines were used chiefly in the capture of herring and mackerel, and to some extent for other species. The entire catch was 22,229,387 pounds, valued at \$549,057, of which 20,795,080 pounds, valued at \$521,644, represent the catch by vessels, and 1,434,307 pounds, valued at \$27,413, the catch by boats in the shore fisheries. The catch of herring by vessels with seines was 9,279,397 pounds fresh, valued at \$187,545, and 5,581,559 pounds salted, valued at \$72,747; and of mackerel, 1,650,373 pounds fresh, valued at \$96,480, and 2,633,381 pounds salted, valued at \$147,525. The catch of blue-fish was 137,750 pounds, \$6,564; menhaden, 918,900 pounds, \$5,962; and pollock, 458,860 pounds, \$2,295. The most important species secured with seines in the shore fisheries were alewives, 967,127 pounds fresh, \$12,214, and 234,300 pounds salted, \$3,072; and blue-fish, 122,752 pounds, \$6,138.

Gill nets took 2,927,435 pounds of fish, valued at \$87,548, in the vessel fisheries, and 897,030 pounds, valued at \$17,712, in the shore fisheries; a total of 3,824,465 pounds, valued at \$105,260. The species caught in largest quantities by vessels were blue-fish, 301,950 pounds, \$15,058; cod, 673,900 pounds, \$12,374; herring, 1,012,175 pounds fresh, \$18,691, and 219,600 pounds salted, \$3,465; mackerel, 472,260 pounds fresh, \$27,036, and 167,300 pounds salted, \$9,571. In the shore fisheries the catch consisted principally of blue-fish, 137,190 pounds, \$3,691; herring, 635,000 pounds, \$7,675, and mackerel, 104,840 pounds, \$5,932.

Pound nets and trap nets are set in only four counties, Essex, Suffolk, Barnstable, and Dukes, but the catch consisted of a large variety of species and amounted to 10,419,338 pounds, valued at \$168,328. These apparatus are fished chiefly by the use of small boats, but some of the trap nets were operated by vessels and secured 124,701 pounds of fish, valued at \$4,105. The more prominent species obtained by boats in this fishery were alewives, 204,139 pounds, \$2,110; cod, fresh and salted, 367,662 pounds, \$6,945; flounders, 196,213 pounds, \$3,029; mackerel, fresh and salted, 1,070,973 pounds, \$41,476; herring, 3,758,916 pounds, \$31,829; menhaden, 577,480 pounds, \$4,552; pollock,

fresh and salted, 697,390 pounds, \$4,172; scup, 957,225 pounds, \$12,104; squeteague, 1,277,760 pounds, \$37,595, and squid, 764,150 pounds, \$5,562. The menhaden, squid, and a large part of the herring are utilized for bait by vessels in the cod fisheries.

Hand and trawl lines are by far the most important apparatus used in the fisheries of this State, the yield being larger both in quantity and value than that of all the other means of capture combined. The products of the vessels with lines were 145,003,619 pounds, valued at \$2,560,871, and by boats 6,149,280 pounds, valued at \$121,842, a total of 151,152,899 pounds, valued at \$2,682,713, as compared with 51,104,918 pounds, valued at \$1,781,014, with all other kinds of apparatus. The leading species in the vessel fisheries were cod, 37,349,753 pounds fresh, \$624,924, and 29,573,631 pounds salted, \$684,186; cusk, 5,766,173 pounds fresh, \$60,708, and 128,863 pounds salted, \$2,206; haddock, 34,405,684 pounds fresh, \$403,503, and 128,886 pounds salted, \$1,268; hake, 20,738,703 pounds fresh, \$158,667, and 232,388 pounds salted, \$2,139; halibut, 8,663,428 pounds fresh, \$487,713, and 1,859,854 pounds salted, \$59,726; mackerel, fresh and salted, 420,807 pounds, \$24,925; and pollock, 4,701,338 pounds fresh, \$26,842, and 486,617 pounds salted, \$4,231. In the shore fisheries the same species predominate, in smaller quantities. The most important were cod, 2,234,358 pounds fresh, \$44,501, and 1,090,474 pounds salted, \$33,597; cusk, fresh, 59,000 pounds, \$600; mackerel, fresh, 120,510 pounds, \$5,634; hake, fresh, 351,250 pounds, \$2,733; and pollock, 710,800 pounds fresh, \$4,967, and 29,032 pounds salted, \$538.

Lobster pots were employed in every county having fisheries, while eel pots were less widely distributed. The catch of lobsters by vessels was 70,941 pounds, worth \$6,552, and by boats 1,622,800 pounds, worth \$141,150. There were also secured in lobster pots at Chatham, in Barnstable County, 9,500 pounds (the weight being exclusive of shells), or 950 bushels of winkles, valued at \$475. These are used by the fishermen as bait for cod, and are said to be very good for that purpose. The catch of eels in pots by vessels was 5,000 pounds, valued at \$150, and by boats 174,940 pounds, valued at \$8,132; the total catch with pots being 1,883,181 pounds, valued at \$156,459.

Dredges, tongs, rakes, etc., constituted the means of capture in the molluscan fisheries. About 18,498 bushels of scallops, valued at \$12,866, and oysters to the value of \$50 were obtained by vessels. In the shore or boat fisheries the products secured were scallops, 127,421 bushels, \$82,105; clams, hard, 63,817 bushels, \$50,724; clams, soft, 147,095 bushels, \$102,594; mussels, 700 bushels, \$130; oysters, 101,195 bushels, \$156,185, and Irish moss, 700,000 pounds, \$22,375, the total quantity in pounds, by vessels and boats, being 4,272,974, valued at \$427,029. The mussels and part of the scallops and soft clams were disposed of for bait in the line fisheries.

Large quantities of products were also taken with other forms of

apparatus. Dip nets were used extensively in the alewife and herring fisheries, the yield being 1,127,635 pounds of alewives, fresh, salted, and smoked, valued at \$13,872, and 1,820,000 pounds of herring, fresh, valued at \$9,875. Fyke nets for eels caught 59,984 pounds of that species, worth \$2,892. The catch of minor apparatus of various kinds by vessels was 316,667 pounds of eels and squid, \$9,500, and by boats 168,201 pounds of cunners, eels, flounders, and perch, \$9,210. Drag nets for flounders were fished only in Barnstable County, the catch by vessels being 272,500 pounds, \$4,256, and by boats 494,350 pounds, \$4,308. The catch of sword-fish by vessels with harpoons was 597,186 pounds, \$35,280. The products secured by guns, harpoons, etc., in the whale fisheries consisted of whale oil, including sperm and black-fish oils, 415,927 gallons, \$199,023; sea-elephant oil, 63,000 gallons, \$20,790; and whalebone, 27,100 pounds, \$65,875, a total of 3,619,050 pounds, worth \$285,688. Included in this are the products of vessels from New Bedford, Mass., which sail from San Francisco, Cal.

The following series of tables shows, by counties, species, and apparatus, the quantity and value of the products taken in the vessel and shore fisheries of Massachusetts in 1898:

Table showing, by counties, the yield of the seine fisheries of Massachusetts in 1898.

Species.	Essex.		Suffolk.		Plymouth.		Nantucket.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Blue-fish							65,000	\$3,412
Herring, fresh	8,958,397	\$183,539	164,400	\$2,676	69,800	\$696		
Herring, salted	4,482,699	60,087	848,600	9,300				
Mackerel, fresh	1,891,978	78,654	68,600	5,080	60,000	4,800		
Mackerel, salted	2,220,781	122,672	128,800	9,660				
Menhaden	840,900	2,360						
Pollock	20,520	103						
Oil, fish	450	18						
Total	17,410,625	447,423	1,200,300	26,716	129,800	5,496	65,000	3,412
Shore fisheries:								
Alewives, fresh					50,000	600		
Alewives, salted					5,600	70		
Blue-fish							110,000	5,500
Scup								30
Squeteague							1,600	48
Total					55,600	670	112,600	5,578
Total vessel and shore	17,410,625	447,423	1,200,300	26,716	185,400	6,166	177,600	8,990

Species.	Barnstable.		Dukes.		Bristol.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Blue-fish	71,750	\$3,092	1,000	\$60			137,750	\$6,564
Cod	21,660	433					21,660	433
Eels	60,000	1,300					60,000	1,300
Flounders			10,000	125			10,000	125
Herring, fresh	91,800	684					9,279,897	187,645
Herring, salted	255,360	3,360					5,581,559	72,747
Mackerel, fresh	134,895	7,946					1,650,373	96,480
Mackerel, salted	283,800	15,193					2,638,881	147,525
Menhaden	578,000	3,612					918,900	5,962
Pollock	438,340	2,192					458,860	2,295
Squeteague			40,000	400			40,000	400
Striped bass	2,750	250					2,750	250
Oil, fish							450	18
Total	1,938,856	38,012	51,000	585			20,795,080	521,644

356 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the yield of the seine fisheries of Massachusetts in 1898—Cont'd.

Species.	Barnstable.		Dukes.		Bristol.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:								
Alewives, fresh	273,000	\$3,111	290,383	\$4,165	353,744	\$4,338	967,127	\$12,214
Alewives, salted	48,700	877	10,000	150	170,000	1,975	234,300	3,072
Blue-fish	12,752	638					122,762	6,138
Cod					2,500	63	2,500	63
Perch			34,273	2,499	8,750	438	43,023	2,937
Scup							1,000	30
Shad					16,188	818	16,188	818
Smelt			2,479	211	4,200	254	6,679	465
Squeteague	6,300	126					7,900	174
Striped bass	3,000	240					3,000	240
Tautog	3,000	46	1,638	84			4,638	79
Shrimp	25,200	1,188					25,200	1,188
Total	371,952	6,220	338,773	7,059	555,382	7,886	1,434,307	27,413
Total vessel and shore	2,310,307	44,232	389,773	7,644	555,382	7,886	22,229,387	549,057

Table showing, by counties, the yield of the gill-net fisheries of Massachusetts in 1898.

Species.	Essex.		Suffolk.		Norfolk.		Plymouth.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Cod	631,300	\$11,667	17,500	\$305				
Haddock			9,400	141				
Herring, fresh	924,575	17,781					81,000	\$810
Herring, salted	219,600	3,465						
Mackerel, fresh	101,080	11,246					14,400	576
Mackerel, salted	97,000	5,391						
Total	1,973,555	49,450	26,900	446			95,400	1,386
Shore fisheries:								
Herring	175,000	1,575	300,000	4,000	100,000	\$1,500	20,000	200
Mackerel	34,850	2,550					5,200	260
Total	209,850	4,125	300,000	4,000	100,000	1,500	25,200	460
Total vessel and shore	2,183,405	53,575	326,900	4,446	100,000	1,500	120,600	1,846

Species.	Barnstable.		Nantucket.		Dukes.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Blue-fish	263,350	\$13,056	38,600	\$2,002			301,950	\$15,058
Bonito			18,000	620			18,000	520
Cod	25,100	502					678,900	12,374
Haddock	35,200	355					44,600	496
Herring, fresh	6,600	100					1,012,175	18,691
Herring, salted							219,600	3,465
Mackerel, fresh	345,280	14,824	11,500	390			472,260	27,036
Mackerel, salted	70,300	4,180					167,300	9,571
Squeteague	4,800	122			12,000	\$120	16,800	242
Striped bass	850	95					850	95
Total	751,480	33,234	68,100	2,912	12,000	120	2,927,435	87,548
Shore fisheries:								
Blue-fish	47,240	2,489	89,950	1,202			137,190	3,691
Bonito			2,600	78			2,600	78
Herring	40,000	400					635,000	7,675
Mackerel	63,915	2,982	875	140			104,840	5,932
Pompano			150	15			150	15
Squeteague	4,050	105	1,200	36			5,250	141
Tautog	12,000	180					12,000	180
Total	167,205	6,156	94,775	1,471			897,030	17,712
Total vessel and shore	918,685	39,390	162,875	4,383	12,000	120	3,824,465	105,260

Table showing, by counties, the yield of the pound-net and trap-net fisheries of Massachusetts in 1898.

Species.	Essex.		Suffolk.		Barnstable.		Dukes.		Total.	
	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Alewives.....	2,000	\$20							2,000	\$20
Butter-fish.....	100	5							100	5
Cod.....	1,040	16							1,040	16
Cunners.....	100	5							100	5
Flounders.....	300	9							300	9
Herring.....	56,850	720							56,850	720
Mackerel.....	62,920	3,285							62,920	3,285
Menhaden.....	987	30							987	30
Other fish.....	129	7							129	7
Squid.....	275	8							275	8
Total.....	124,701	4,105							124,701	4,105
Shore fisheries:										
Albacore.....					36,090	\$912			36,090	912
Alewives.....	104,600	995			77,161	784	22,378	\$333	204,139	2,110
Blue-fish.....					82,920	4,286	8,160	149	86,080	4,435
Bonito.....					18,725	498	49,811	1,374	68,536	1,812
Butter-fish.....	2,200	78	2,000	\$100	21,720	551	4,600	84	30,520	813
Cod, fresh.....	18,550	338	13,200	264	817,050	5,802	140	6	348,940	6,410
Cod, salted.....					18,722	535			18,722	535
Cunners.....	4,000	117							4,000	117
Eels.....					37,034	1,167	2,020	119	39,054	1,286
Flounders.....	10,650	113	1,500	15	120,914	1,878	63,149	1,023	196,213	3,029
Hake.....	9,425	94							9,425	94
Herring.....	711,618	7,022	520,000	4,446	2,617,900	20,274	9,400	87	3,768,916	31,829
Hickory shad.....					1,000	15			1,000	15
King-fish.....									245	22
Mackerel, fresh.....	196,955	9,569	80,000	4,000	776,348	26,770	11,220	762	1,064,523	41,101
Mackerel, salted.....					6,450	375			6,450	375
Menhaden.....	208,630	1,993	138,000	1,040	223,500	1,479	6,350	40	577,480	4,552
Pollock, fresh.....	10,200	130			685,190	4,022			695,390	4,152
Pollock, salted.....					2,000	20			2,000	20
Salmon.....					60	30			60	30
Scup.....					108,350	1,324	848,876	10,780	957,225	12,104
Sea bass.....							44,750	2,941	44,750	2,941
Shad.....	3,000	225			9,700	353	445	80	13,145	608
Smelt.....					400	50			400	50
Spanish mackerel.....					100	10	110	20	210	30
Squeteague.....					120,430	1,926	1,167,330	35,669	1,277,760	37,595
Striped bass.....	100	5			1,279	84	420	48	1,799	137
Sturgeon.....					8,490	402			8,490	402
Tautog.....	1,500	58			38,250	538	1,975	57	41,725	553
Whiting.....	8,200	57			29,000	435			37,200	492
Squid.....	12,000	94			741,150	5,315	11,000	153	764,150	5,562
Total.....	1,302,626	20,886	754,700	9,865	6,999,933	79,775	2,237,378	53,697	10,294,637	164,223
Total vessel and shore.....	1,427,327	24,991	754,700	9,865	5,999,933	79,775	2,237,378	53,697	10,419,338	168,328

Table showing, by counties, the catch by dip nets and fyke nets in Massachusetts in 1898.

Species.	Essex.		Plymouth.		Barnstable.		Dukes.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Shore fisheries:										
Dip nets—										
Alewives, fresh.....			72,495	\$757	551,500	\$5,975	79,800	\$1,192	703,795	\$7,924
Alewives, salted.....			127,400	1,468	225,000	2,250			352,400	3,718
Alewives, smoked.....					41,440	1,480	30,000	750	71,440	2,230
Herring.....	1,820,000	\$9,875							1,820,000	9,875
Total.....	1,820,000	9,875	199,895	2,225	817,940	9,705	109,800	1,942	2,947,635	23,747
Fyke nets—										
Eels.....					59,984	2,892			59,984	2,892
Grand total.....	1,820,000	9,875	199,895	2,225	877,924	12,597	109,800	1,942	3,007,619	26,639

358 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the catch by minor apparatus in Massachusetts in 1898.

Species.	Suffolk.		Plymouth.		Barnstable.		Dukes.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:								
Cunners.....	72,000	\$4,800	5,000	\$200				
Eels.....					33,867	\$1,745	12,000	\$360
Species.	Essex.		Nantucket.		Total.			
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.		
Vessel fisheries:								
Eels.....	1,000	\$50	10,667	\$400	11,667	\$450		
Squid, fresh.....	300,000	9,000			300,000	9,000		
Squid, salted.....	5,000	50			5,000	50		
Total.....	306,000	9,100	10,667	400	316,667	9,500		
Shore fisheries:								
Cunners.....					77,000	5,000		
Eels.....			29,334	1,320	75,201	3,425		
Flounders.....	1,600	60			1,500	60		
Perch.....	14,500	725			14,500	725		
Total.....	16,000	785	29,334	1,320	168,201	9,210		
Total vessel and shore.....	322,000	9,885	40,001	1,720	484,868	18,710		

Table showing the yield of the hand and trawl line fisheries of Massachusetts in 1898.

Species.	Essex.		Suffolk.		Plymouth.		Nantucket.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.
Vessel fisheries:								
Blue-fish.....							14,200	\$514
Cat-fish.....	2,000	\$40						
Cod, fresh.....	26,522,752	414,371	6,357,200	\$110,836	343,950	\$6,403	118,100	2,312
Cod, salted.....	27,274,654	619,035	48,000	1,555			10,740	315
Cusk, fresh.....	4,889,673	50,512	559,300	7,004	7,800	98		
Cusk, salted.....	122,863	2,056	6,000	150				
Flounders.....	925	6						
Haddock, fresh.....	18,823,974	201,106	11,895,400	148,387	338,250	4,852	30,000	900
Haddock, salted.....	75,386	722					500	6
Hake, fresh.....	15,347,376	107,672	3,954,827	39,502	85,600	885		
Hake, salted.....	140,914	1,224						
Halibut, fresh.....	7,413,250	362,190	694,966	80,396				
Halibut, salted.....	1,609,854	49,726	250,000	10,000				
Mackerel, fresh.....	54,806	1,988			550	44	300	56
Mackerel, salted.....	85,400	6,028						
Pollock, fresh.....	3,751,238	20,639	297,700	2,301	27,300	165		
Pollock, salted.....	373,113	2,906					400	8
Scup.....							300	6
Cod sounds and tongues.....	34,855	889						
Hake sounds.....	32,707	1,914						
Haddock spawn.....	700	18						
Halibut fins.....	21,900	384						
Oil, fish.....	805,032	11,961						
Total.....	106,883,372	1,855,387	24,063,393	400,131	803,350	12,447	175,040	4,117
Shore fisheries:								
Cod, fresh.....	1,344,100	22,882			75,000	1,650	5,000	100
Cod, salted.....					28,000	1,240	754,750	20,348
Cunners.....	4,250	128						
Cusk.....	59,000	600						
Flounders.....	8,500	70					12,000	360
Haddock, fresh.....	528,000	6,787			17,000	290	50,000	1,250
Hake.....	268,250	2,233						
Mackerel.....	6,250	500			8,000	200		
Pollock, fresh.....	609,800	4,417			10,000	50		
Pollock, salted.....							11,000	220
Scup.....							6,000	860
Total.....	2,814,150	37,617			138,000	3,430	838,750	22,638
Vessel and shore.....	109,697,522	1,893,004	24,063,393	400,131	941,350	15,877	1,013,790	26,755

Table showing yield of hand and trawl line fisheries of Massachusetts in 1898—Continued.

Species.	Barnstable.		Dukes.		Bristol.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Blue-fish	1,200	\$60	500	\$30			15,900	\$604
Cat-fish	3,200	70					5,200	110
Cod, fresh	3,904,420	87,922	28,000	670	75,331	\$2,410	37,349,753	624,924
Cod, salted	1,746,916	53,245	7,000	310	486,321	9,726	29,573,631	684,186
Cusk, fresh	309,400	3,094					5,766,173	60,708
Cusk, salted							128,863	2,206
Flounders	4,800	80			700	14	6,425	100
Haddock, fresh	3,314,560	48,133	1,000	50	2,500	75	34,405,684	403,503
Haddock, salted	2,000	30			51,000	510	128,886	1,268
Hake, fresh	1,350,500	10,593			500	15	20,738,703	158,667
Hake, salted					91,474	915	232,388	2,139
Halibut, fresh	555,212	45,127					8,663,428	487,713
Halibut, salted							1,859,854	59,726
Mackerel, fresh	159,011	10,947	28,640	1,779	72,000	3,057	315,807	17,871
Mackerel, salted	13,600	726			6,000	300	105,000	7,054
Pollock, fresh	623,900	3,703	200	4	1,000	30	4,701,338	26,842
Pollock, salted	87,604	1,062			25,500	255	486,617	4,231
Scup	7,100	174	9,300	109	5,000	75	21,700	364
Sea bass	6,500	250	18,200	496			24,700	746
Tautog	6,930	154			22,500	725	29,430	879
Cod sounds and tongues							34,855	889
Hake sounds							32,707	1,914
Haddock spawn							700	18
Halibut fins							21,900	384
Oil, fish	48,945	1,864					353,977	13,825
Total	12,145,798	267,234	92,840	3,448	839,826	18,107	145,003,619	2,560,871
Shore fisheries:								
Blue-fish	11,212	598	20,000	1,000			31,212	1,598
Cod, fresh	757,858	18,821	25,000	500	27,400	548	2,234,358	44,501
Cod, salted	281,724	10,719	21,000	1,090	5,000	200	1,090,474	33,597
Cunners							4,250	128
Cusk							59,000	600
Flounders	111,288	1,547	57,500	863	3,300	66	187,588	2,906
Haddock, fresh	406,000	6,200					1,001,000	14,527
Haddock, salted	1,344	24					1,344	24
Hake	83,000	500					351,250	2,733
Mackerel	6,060	534	25,200	1,400	75,000	3,000	120,510	5,634
Pollock, fresh	100,000	500					710,800	4,967
Pollock, salted	18,032	318					29,032	638
Scup	16,700	540	29,000	615	12,000	240	63,700	1,765
Sea bass	6,500	330	23,850	929			29,850	1,259
Squeteague			200	6	24,000	960	24,200	966
Striped bass	2,000	100			2,500	113	4,500	213
Tautog	21,412	606	32,500	1,000	147,800	4,170	201,712	5,776
Oil, fish	4,500	120					4,500	120
Total	1,827,630	41,457	233,750	7,403	297,000	9,297	6,149,280	121,842
Total vessel and shore	13,973,428	308,691	326,590	10,851	1,136,826	27,404	151,152,899	2,682,713

Table showing the catch of flounders by drag nets in Barnstable County in 1898.

	Fisheries.	
	Lbs.	Value.
Vessel	272,500	\$4,256
Shore	494,350	4,308
Total	766,850	8,564

360 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the catch by lobster and eel pots in Massachusetts in 1898.

Species.	Essex.		Suffolk.		Norfolk.		Plymouth.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Lobsters	10,200	\$1,224						
Shore fisheries:								
Eels	56,000	2,800						
Lobsters	326,007	32,422	346,625	\$30,355	48,000	\$4,800	498,610	\$39,991
Total	382,007	35,222	346,625	30,355	48,000	4,800	498,610	39,991
Total vessel and shore	392,207	36,446	346,625	30,355	48,000	4,800	498,610	39,991

Species.	Barnstable.		Nantucket.		Dukes.		Bristol.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Eels					5,000	\$150			5,000	\$150
Lobsters	41,100	\$3,730	7,500	\$750	4,000	360	8,141	\$488	70,941	6,562
Winkles	9,500	475							9,500	475
Total	50,600	4,205	7,500	750	9,000	510	8,141	488	85,441	7,177
Shore fisheries:										
Eels	59,170	2,615			48,770	2,387	11,000	330	174,940	8,132
Lobsters	142,653	11,840	29,600	3,032	143,634	10,289	87,671	8,421	1,622,800	141,150
Total	201,823	14,455	29,600	3,032	192,404	12,676	98,671	8,751	1,797,740	149,282
Total vessel and shore	252,423	18,660	37,100	3,782	201,404	13,186	106,812	9,239	1,883,181	156,495

Table showing, by counties, the catch by dredges, tongs, rakes, and forks in Massachusetts in 1898.

Species.	Essex.		Suffolk.		Norfolk.		Plymouth.		
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	
Shore fisheries:									
Clams, hard							24,000	\$2,600	
Clams, soft	1,186,240	\$87,242	210,600	\$10,630			62,500	4,125	
Mussels							7,400	130	
Oysters							48,545	9,844	
Scallops							195,200	22,120	
Irish moss						150,000	\$4,500	550,000	17,875
Total	1,186,240	87,242	210,600	10,530	150,000	4,500	887,645	56,694	

Species.	Barnstable.		Nantucket.		Dukes.		Bristol.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Oysters	210	\$50							210	\$50
Scallops	50,912	6,123	36,480	\$4,071	12,162	\$1,528	11,440	\$1,144	110,984	12,866
Total	51,122	6,173	36,480	4,071	12,162	1,528	11,440	1,144	111,194	12,916
Shore fisheries:										
Clams, hard	218,456	21,398	6,400	640	110,400	11,295	161,280	14,791	510,536	60,724
Clams, soft	11,611	697							1,470,951	102,694
Mussels									7,400	130
Oysters	631,820	144,341					28,000	2,000	708,365	156,185
Scallops	215,992	23,697	102,336	9,688	64,000	8,000	187,000	18,700	764,528	82,105
Irish moss									700,000	22,375
Total	1,077,879	190,133	108,736	10,228	174,400	19,295	366,280	35,491	4,161,780	414,113
Total vessel and shore	1,129,001	196,306	145,216	14,299	186,552	20,823	377,720	36,685	4,272,974	427,029

Table showing, by counties, the products of the whale fisheries of Massachusetts in 1898.

Species.	Suffolk.		Barnstable.		Bristol.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:								
Oil, whale.....	190,725	\$11,010	412,889	\$27,476	2,515,836	\$160,537	3,119,450	\$199,023
Oil, sea-elephant.....	472,500	20,790	.....	.....	.....	.....	472,500	20,790
Whalbone.....	.....	.....	.....	.....	27,100	65,875	27,100	65,875
Total.....	668,225	31,800	412,889	27,476	2,542,936	226,412	3,619,050	285,688

Table showing, by counties, the catch of sword-fish by harpoons in the vessel fisheries of Massachusetts in 1898.

Counties.	Fresh.		Salted.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Essex.....	278,341	\$15,555	27,000	\$810	305,341	\$16,365
Suffolk.....	142,400	11,192	.....	.....	142,400	11,192
Plymouth.....	35,500	1,715	.....	.....	35,500	1,715
Barnstable.....	85,797	4,390	.....	.....	85,797	4,390
Nantucket.....	1,800	140	.....	.....	1,800	140
Dukes.....	9,318	467	270	5	9,588	472
Bristol.....	16,760	1,006	.....	.....	16,760	1,006
Total.....	569,916	34,465	27,270	815	597,186	35,280

WHOLESALE FISHERY TRADE OF BOSTON AND GLOUCESTER.

The wholesale trade in fishery products in Massachusetts centers chiefly at Boston and Gloucester. These two cities are also the principal receiving and distributing points for fishery products in the New England States.

Boston is especially important as a fresh-fish market, but large quantities of salted, smoked, and canned fish, oysters, lobsters, and other products are also handled. The supply is derived from a variety of sources. The ocean species, disposed of in a fresh and salted condition, and as otherwise prepared, are caught and landed chiefly by the fleet of vessels owned at Boston, and by vessels from Gloucester and Provincetown, Mass., and from Portland, Me., and other localities on the New England coast. Large quantities of fish are received from other sections of the Atlantic coast, and from the Great Lakes, the Gulf of Mexico, and the Pacific coast. There is also a considerable quantity of fishery products of various kinds imported from the British provinces and from a number of European countries.

The number of firms in the various branches of the wholesale fishery trade of Boston in 1898 was 93; the number of persons engaged as proprietors, managers, and employees, 1,086; the amount of wages paid, \$601,593; and the investment in shore property and cash capital, \$4,029,060. The products sold consisted of fresh fish, 111,212,669 pounds, \$4,118,922; salted fish, including boneless, 25,926,505 pounds, \$1,150,185; smoked fish, 3,659,750 pounds, \$235,614; lobsters, fresh, cooked, and pickled, 9,096,572 pounds, \$1,239,210; canned fish, 105,669 cases, \$442,205; and a large quantity of other products, including oys-

ters, clams, quahogs, scallops, fish oil, glue, etc., valued at \$1,764,518; the total value of the trade being \$8,951,653.

In comparing the statistics of this trade for 1889 and 1898, so far as such a comparison is practicable, it should be remembered that the business done by firms handling fish on commission was included in the former year, but not in the latter. The data for 1898 show a considerable increase in the quantity and value of fresh fish, but a decrease in some of the other products; the total value of the trade being \$2,148,606 less than in 1889.

Gloucester is one of the most important fish-producing centers in the United States, but its wholesale fishery trade is much less extensive than that of Boston. It consists principally in the preparation and distribution of salted and smoked fish and a large variety of secondary products, such as fish oil, glue, isinglass, and fertilizer. In December, 1897, the fresh-fish business, which has now become an important feature of the fishery trade at Gloucester, was established and carried on by a company known as "The Gloucester Fresh Fish Company." Prior to that time halibut was almost the only food species handled extensively in a fresh condition. The greater part of the fish utilized in all branches of the fishery trade at Gloucester is caught and landed by vessels owned there. A limited quantity is also obtained from other sources.

The number of firms in the wholesale trade in 1898 was 59. There were 4 firms in the fresh-fish business, 39 in the salted, smoked, and boneless fish trades, 10 in the manufacturing of fish oil, glue, isinglass, and fertilizer, and 6 in box-making and other related industries. The number of persons engaged in the trade, as proprietors and employees, was 1,425; the amount of wages paid, \$574,342; and the investment in shore property and cash capital, \$3,055,776. The products embraced fresh fish, 28,229,677 pounds, \$793,505; salted fish 26,131,752 pounds, \$1,011,177; boneless fish prepared from the salted fish and stated separately on account of the importance of the quantity and value, 24,680,404 pounds, \$1,356,796; smoked fish, 4,796,794 pounds, \$220,047; and other products, including canned fish, fish oil, glue, isinglass, fertilizer, etc., 19,176,774 pounds, \$705,456; the total quantity of products handled in all branches of the trade being 103,015,401 pounds, having a value of \$4,086,981.

There was a decrease in the total products of the trade in 1898, as compared with 1889, of 15,160,990 pounds in quantity and \$1,534,175 in value. The fresh, smoked, and canned fish, glue, isinglass, and fertilizer products have increased, but the quantity of salted and boneless fish decreased 42,021,835 pounds and the value \$1,825,311. There was also a slight decrease in the quantity and value of fish oil.

The extent of the wholesale fishery trade of Boston and Gloucester is presented in the following tables for the year 1898.

Extent of the wholesale fishery trade of Boston in 1898.

Branches of trade.	No. of firms.	Persons engaged.				Wages paid.	Shore property.	Cash capital.
		Proprietors, etc.	Clerks.	Other employees.	Total.			
Fresh fish	41	71	62	203	336	\$232, 270	\$930, 000	\$928, 900
Salted, canned, and smoked fish	17	19	67	299	385	159, 220	547, 360	322, 600
Oyster	18	24	21	106	151	75, 660	325, 300	252, 650
Lobster	11	15	12	42	69	45, 606	170, 450	98, 000
Fish oil and glue.....	6	9	29	107	145	88, 837	254, 200	205, 500
Total.....	93	138	191	757	1, 086	601, 593	2, 227, 310	1, 801, 750

Products sold.	Quantity.	Value.	Products sold.	Quantity.	Value.
Fresh fish pounds.	111, 212, 669	\$4, 118, 922	Oysters..... bush.	160, 858	\$264, 698
Salted fish..... do.	25, 199, 005	1, 077, 585	Oysters..... galls.	627, 627	660, 759
Smoked fish..... do.	9, 459, 750	235, 614	Clams..... bush.	73, 047	81, 548
Boneless fish..... do.	727, 500	72, 600	Clams..... galls.	99, 506	50, 053
Lobsters, fresh..... do.	5, 425, 205	688, 505	Quahogs..... bush.	8, 567	12, 294
Lobsters, cooked..... do.	3, 634, 701	545, 205	Fish oils and glue..... galls.	1, 546, 562	547, 980
Lobsters, pickled..... do.	36, 866	5, 500	Other products.....		97, 064
Canned fish..... cases.	105, 669	442, 205	Total.....		8, 951, 653
Scallops..... galls.	51, 443	61, 121			

Extent of the wholesale fishery trade and related industries of Gloucester in 1898.

Branches of trade.	Number of firms.	Persons engaged.				Wages paid.	Shore property.	Cash capital.
		Proprietors.	Clerks.	All others.	Total.			
Fresh fish	4	7	20	87	114	\$49, 241	\$147, 674	\$112, 000
Salted, smoked, and boneless	39	66	90	801	957	400, 766	1, 019, 502	804, 500
Oil, glue, and isinglass a	10	20	17	234	271	80, 035	238, 900	363, 500
Related industries	6	10	6	67	83	44, 300	258, 700	66, 000
Total.....	59	103	133	1, 189	1, 425	574, 342	1, 709, 776	1, 346, 000

Products sold.	Lbs.	Value.	Products sold.	Lbs.	Value.
Fresh:			Salted:		
Blue fish.....	20, 153	\$1, 008	Cod.....	10, 068, 936	356, 146
Cat-fish.....	62, 151	1, 392	Cusk.....	616, 603	20, 893
Cod.....	4, 928, 327	147, 850	Eels.....	10, 000	550
Cusk.....	349, 771	5, 306	Haddock.....	946, 514	29, 025
Flounders.....	31, 828	339	Hake.....	3, 170, 961	64, 062
Haddock.....	6, 328, 684	80, 805	Herring.....	4, 382, 535	93, 008
Hake.....	2, 854, 450	43, 930	Mackerel.....	5, 251, 190	396, 994
Halibut.....	4, 309, 345	271, 253	Pollock.....	1, 353, 312	32, 535
Herring.....	6, 123, 571	147, 774	Salmon.....	210, 200	11, 831
Mackerel.....	667, 218	48, 943	Sword-fish.....	31, 588	1, 679
Pollock.....	2, 340, 890	31, 551	Trout.....	54, 200	2, 302
Rose fish or Norway haddock.....	40, 100	602	Halibut fins.....	30, 813	1, 527
Shad.....	3, 120	250	Squid.....	5, 000	125
Sword-fish.....	160, 152	11, 452	Total.....	26, 131, 752	1, 011, 177
Lobsters.....	9, 917	1, 041			
Total.....	28, 229, 677	793, 505			
Boneless:			Other products:		
Cod.....	17, 185, 142	1, 070, 174	Canned fish.....	132, 104	9, 438
Cusk.....	1, 070, 628	65, 478	Herring spiced.....	5, 000	425
Hake.....	3, 600, 680	120, 716	Tongues and sounds.....	209, 946	9, 179
Haddock.....	1, 952, 349	74, 105	Cod checks.....	21, 557	773
Pollock.....	871, 607	26, 328	Isinglass.....	271, 824	135, 912
Total.....	24, 680, 404	1, 856, 796	Fish fertilizer.....	10, 862, 000	103, 513
Smoked:			Fish glue, dry.....	1, 926	914
Finnan haddie.....	207, 164	10, 766	Fish glue, liquid.....	b 2, 294, 865	232, 121
Halibut.....	1, 869, 270	134, 352	Fish oil.....	c 5, 377, 652	213, 181
Herring.....	2, 720, 300	74, 929	Total.....	19, 176, 774	705, 456
Total.....	4, 796, 794	220, 047	Grand total.....	103, 015, 401	4, 086, 981

a Included in these figures are two firms at Rockport, Mass. b Gallons, 235,371. c Gallons, 717,007.

FISHERIES OF RHODE ISLAND.

The fisheries of Rhode Island in 1898 gave employment to 1,687 persons, of whom 444 were on vessels, 896 in the boat or shore fisheries, and 347 were shoresmen. The investment in vessels, boats, fishing apparatus, shore property, and cash capital amounted to \$957,142. The products aggregated 32,854,396 pounds, valued at \$955,058.

The number of fishing and transporting vessels employed was 93, having a net tonnage of 1,454 tons and a value of \$167,850. The value of their outfits was \$46,597. There were 854 boats in the shore fisheries, valued at \$72,381. The apparatus of capture in the vessel fisheries was valued at \$50,763, and in the shore fisheries at \$99,902. The value of shore and accessory property was \$439,149 and the cash capital amounted to \$80,500.

The products consisted of 20,728,529 pounds of fish, including food species, refuse fish, and menhaden, valued at \$333,789; 457,378 bushels of oysters, valued at \$505,378; 46,227 bushels of clams and quahogs, valued at \$52,385; 19,231 bushels of scallops, valued at \$10,471; 578,066 pounds of lobsters, valued at \$43,290, and a variety of other species and secondary products having a value of \$9,745.

Since 1889, the year covered by the last general canvass, there has been a slight decrease in the number of persons employed and of \$63,036 in the investment. The products have also decreased 94,511,079 pounds in quantity, but have increased \$19,914 in value. There has been a large increase in both the quantity and value of food species, while the menhaden catch has decreased from 112,580,000 pounds, valued at \$281,450, to 3,140,000 pounds, valued at \$7,591.

There has been a tendency toward decline in the menhaden fishery for a number of years. In 1892, for which a special canvass of some of the important species was made, the catch of menhaden had decreased to 34,045,230 pounds, valued at \$115,992. The great falling off in the catch in 1898 is due principally to the fact that in the early part of that year the menhaden industry was consolidated under the control of a company having headquarters in New York City, and most of the vessels which had formerly been engaged in the menhaden fisheries of Rhode Island were transferred to New York and have therefore been credited with their crews and catch to that State. This also accounts for the decrease in the number of persons employed and the amount of capital invested. The fish utilized by the menhaden factories in Rhode Island were practically all supplied by vessels owned by the company above referred to.

The scallop and clam fisheries have both declined as compared with the statistics for the year 1892, the catch of the former in 1898 being 19,231 bushels, valued at \$10,471, and of the latter 15,015 bushels, valued at \$20,569, while in 1892 the yield of scallops was 52,690 bushels and of clams 33,950 bushels. Quahogs were more abundant during 1898

than either scallops or clams, the yield amounting to 31,212 bushels, valued at \$31,816, against 19,950 bushels in 1892. The supply of clams in 1898 was not equal to the local demand, a large proportion of the yield being used for clambakes.

The lobster fishery, as compared with 1892, shows a decrease in products, but an increase in the quantity of apparatus employed. The catch of lobsters in 1892 was 774,100 pounds, valued at \$53,762, and in 1898 it was 578,066 pounds, valued at \$43,290. The number of pots used in the former year was 6,341 and in the latter 10,312. The season for catching lobsters is principally from May to August, inclusive, but more or less fishing is carried on throughout the year. While the law prohibits the capture of lobsters under 9 inches in length, little attention is paid to this provision. The cost of bait used in lobster pots is not very great, as the lobstermen utilize all kinds of fish refuse, which is often obtained from the trap-net fishermen and the local fish markets without cost.

Scup is the most important species, next to oysters, obtained in the fisheries of the State. The catch of scup in 1898 was 6,390,225 pounds, valued at \$75,596, all of which, except 2,300 pounds, worth \$68, taken with hand lines, was secured with trap nets and pound nets. It is said that this fish has been phenomenally abundant every season since 1894. Some years ago about 7,000 barrels of scup were held in a large pound for several months pending a rise in prices. They were fed chiefly on ground menhaden and mussels. It was found that they greatly preferred the menhaden to anything else, the quantity fed to them a day being 100 barrels. When sold they were in good condition, and the experiment proved a success, although a good many of the fish escaped through a break in the pound. They will live, it is said, an entire summer in a pound without being fed, but will become poorer than when first impounded.

Squeteague or weak-fish are also very plentiful, and appear to be getting more so each year. The catch in 1898 amounted to 3,125,635 pounds, valued at \$63,976. At Wickford the sounds, or swim-bladders, are taken from the squeteague, and after being dried are sold as a secondary product. It requires about 35 of these, when prepared for market, to make a pound, the average selling price of which was 30 cents, the total quantity sold being 2,100 pounds, valued at \$630.

Alewives are taken in Point Judith Pond and other waters of the State, but the catch was not so large as in former years. In 1889 the product of fresh, salted, and smoked alewives aggregated 1,046,250 pounds, valued at \$18,138; in 1892 it was 1,189,593 pounds, valued at \$18,216, and in 1898, 838,622 pounds, valued at \$10,273. The trade in salted alewives was very much injured in 1898 by the Spanish-American war, the West Indies being the principal market for this product. Shipments were made by only two persons, and amounted to 368 barrels. In 1899 3,000 barrels were shipped and prices were considerably better.

The fishery for hard and soft shell crabs is carried on by several persons to a limited extent in Narrow River, between Wickford and Narragansett Pier, the season being from about the middle of June to the last of August. Soft crabs were the more valuable, the price received in 1898 being \$1 a dozen, while the hard crabs brought only about 25 cents a dozen. The catch of hard and soft crabs was 12,895 pounds, valued at \$2,250.

The sword-fish fishery, which centers at Block Island, appears to have declined during recent years, owing, it is said, to the scarcity of fish. In former years 15 fish have been caught in a day by one vessel, but a vessel is now considered lucky if she brings in 3 or 4, the chances being that the result of her day's cruise will be only 1 or 2 fish, and possibly none. In 1898 the total catch amounted to 55,875 pounds, valued at \$2,935. Their average weight, dressed, is about 200 pounds. It is said that the largest specimen ever taken by the fishermen of Block Island weighed 618 pounds and was captured about five years ago. The fishery is carried on chiefly by 5 schooners, ranging from 13 to 25 tons net register. The season is from the middle of June to about the 10th of August. In suitable weather the vessels leave the harbor in the morning about 4 o'clock, returning in the afternoon about 5 or 6 o'clock. Before being shipped (and generally before the vessel returns to port) the fish are dressed by removing the head, viscera, and fins, including the caudal, the ventral cavity being washed out with sea water and the carcass wrapped in bagging. Boston and Providence are the principal markets for this product.

The oyster industry is the most important branch of fisheries in the State, its products at the present time having a greater value than all the other fishery products combined. There has been a substantial increase in this industry during the past few years, the yield in 1898 being larger than in any previous year, except 1879, for which data are available. The quantity of market and seed oysters taken from the private and public grounds in 1889 was 203,450 bushels, valued at \$271,939; in 1892 it was 174,446 bushels, valued at \$259,242, and in 1898, 457,378 bushels, valued at \$505,378.

The three tables which follow show the number of persons engaged, the number and value of vessels and boats, the quantity and value of fishing apparatus, the value of shore and accessory property and the amount of cash capital employed, and the quantity and value of the products of the fisheries of Rhode Island in 1898:

Persons employed.

How engaged.	No.
On vessels fishing	865
On vessels transporting	79
Boat or shore fishermen	896
Shoresmen	847
Total	1,687

Table of apparatus and capital.

Items.	No.	Value.	Items.	No.	Value.
Vessels fishing.....	69	\$121,600	Apparatus—shore fisheries:		
Tonnage.....	894		Found nets and trap nets....	175	\$68,495
Outfit.....		43,441	Seines.....	42	8,243
Vessels transporting.....	24	46,250	Gill nets.....	134	7,085
Tonnage.....	560		Fyke nets.....	329	2,462
Outfit.....		3,156	Lines, hand and trawl.....		875
Boats.....	864	72,381	Pots, lobster.....	8,692	10,677
Apparatus—vessel fisheries:			Pots, eel.....	2,942	1,888
Found nets and trap nets....	27	41,900	Spears, eel.....	29	46
Purse seines.....	7	4,000	Minor apparatus.....		43
Snap nets.....	4	20	Dredges, tongs, diggers, hoes, etc.....		5,088
Lines, hand and trawl.....		1,135	Shore and accessory property.....		439,149
Pots, lobster.....	1,620	2,039	Cash capital.....		80,500
Pots, eel.....	197	99			
Harpoons.....		109	Total.....		957,142
Dredges, tongs, diggers, hoes, etc.....		1,461			

Table of products.

Species.	Vessel fisheries.		Shore fisheries.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alewives, fresh.....	8,500	\$68	619,632	\$6,553	628,132	\$6,621
Alewives, salted.....			74,100	940	74,100	940
Alewives, smoked.....			136,390	2,712	136,390	2,712
Blue-fish.....	65,800	3,280	264,490	12,241	330,290	15,521
Bonito.....	1,250	25	123,200	2,690	124,450	2,615
Bullheads.....			800	24	800	24
Butter-fish.....	89,200	2,405	117,800	3,210	207,000	5,615
Cod, fresh.....	705,486	15,447	406,325	8,109	1,111,811	23,556
Cod, salted.....	181,376	7,544	183,725	5,610	315,101	13,154
Cunners.....	3,300	100			3,300	100
Eels.....	23,200	1,318	420,174	18,712	443,374	20,030
Flounders and flat-fish.....	736,950	10,503	973,107	17,073	1,710,057	27,576
Haddock.....	316,800	7,319	49,725	1,054	366,525	8,373
Herring.....			2,000	10	2,000	10
Hickory shad.....			13,000	328	13,000	328
King-fish.....	120	18	1,850	110	1,970	128
Mackerel.....	184,900	8,359	175,000	6,645	359,900	15,004
Menhaden.....	3,100,000	7,350	40,000	241	3,140,000	7,591
Minnows.....			3,728	356	3,728	356
Perch.....			48,475	1,920	48,475	1,920
Pickarel.....			200	20	200	20
Pollock.....			50,000	500	50,000	500
Scup.....	3,859,500	89,635	2,530,725	35,961	6,390,225	75,596
Sea bass.....	236,450	6,489	204,500	5,446	440,950	11,935
Shad.....	124	8	24,988	1,617	25,112	1,625
Smelt.....			4,100	215	4,100	215
Spanish mackerel.....			700	104	700	104
Squeteague.....	570,000	11,290	2,546,635	52,686	3,125,635	63,976
Squid.....			124,000	1,376	124,000	1,376
Striped bass.....	6,900	633	95,050	9,978	101,950	10,511
Sword-fish.....	55,875	2,985			55,875	2,935
Tautog.....	37,700	1,110	210,429	6,104	248,129	7,214
Tomcod.....			8,000	240	8,000	240
Miscellaneous fish.....	70,450	1,379	176,300	4,143	246,750	5,522
Refuse fish.....	166,000	195	856,000	1,027	1,012,000	1,222
Shrimp.....			2,250	750	2,250	750
Lobsters.....	92,333	6,683	485,733	36,607	578,066	43,290
Crabs, hard.....			7,875	675	7,875	675
Crabs, soft.....			5,020	1,675	5,020	1,675
Crabs, fiddler.....			123	78	123	78
Clams.....	9,060	1,256	141,090	19,313	a 150,150	20,569
Quahogs.....	16,040	1,905	233,656	29,911	b 249,696	31,816
Mussels.....	300	24	15,250	670	c 15,550	694
Scallops.....	11,520	1,349	103,866	9,122	d 115,386	10,471
Oysters, market.....	2,467,500	394,700	624,596	105,448	e 3,092,096	500,148
Oysters, seed.....			109,550	5,230	f 109,550	5,230
Oyster shells.....	5,370,000	2,810	2,304,000	1,158	g 7,674,000	3,968
Squeteague sounds.....			2,100	630	2,100	630
Total.....	18,385,634	536,037	14,468,762	419,021	32,854,396	955,058

a 15,015 bushels.
b 31,212 bushels.

c 1,555 bushels.
d 19,231 bushels.

e 441,728 bushels (season of 1898-99).
f 15,650 bushels.

g 127,900 bushels.

THE FISHERIES BY COUNTIES.

The five counties having fishery interests are Newport, Bristol, Providence, Kent, and Washington, the first named taking precedence over all others in the number of persons employed and in the quantity and value of fish proper, although Bristol County ranks first in the total value of products, owing to the large oyster yield, this fishery being conducted chiefly in Bristol, Providence, and Kent counties.

The molluscan fisheries of Newport County are mainly for quahogs, clams, and mussels, most of the quahogs in 1898 being from Coddington Cove, near Newport, where 2,640 bushels were secured, valued at \$3,080. The price received for them was \$1 per bushel in summer and \$1.25 in the winter. Of the clams shown for this county 1,500 bushels were obtained from "Salt Pond," on Block Island.

In the lobster fishery Newport County ranks first and Washington second, the entire lobster catch of the State being taken in these two counties, except 2,500 pounds, valued at \$188, in Bristol County,

Newport County is also prominent in the number of vessels employed and in the trap-net and pound-net fisheries. The number of vessels in its fisheries was 53, valued at \$70,550, and the number of trap nets and pound nets was 111, valued at \$83,550; being over half the number of vessels and of trap nets and pound nets in the State. The catch of trap nets and pound nets in this county aggregated 10,561,019 pounds, valued at \$151,729, or about 73 per cent of the total catch for the State by these apparatus.

Block Island, in Newport County, is the principal center of the line and sword-fish fisheries. The products in 1898 aggregated 2,327,026 pounds, valued at \$64,399, consisting chiefly of cod, haddock, blue-fish, mackerel, and sword-fish in the vessel fisheries, and of squeteague, flat-fish and flounders, bonito, pollock, alewives, sea bass, and scup in the shore fisheries.

In the vessel fisheries there were 8 schooners, of from 13 to 25 tons net register, valued at \$19,100, and 13 smaller vessels, valued at \$8,000; a total of 21 vessels, valued at \$27,100, with 239 net tons.

Besides quite a number of small rowboats, there were in the shore fisheries 25 sailboats, valued at \$7,850. The principal apparatus in the shore fisheries were pound nets, gill nets, lobster pots, and lines.

The vessel fisheries of Block Island have undergone some change during recent years with respect to types of vessels. The old style "pinky" or "Block Island boat" is no longer built, being superseded by the "catboat." Five old pinky boats still remain in the business, but no vessels of this type have been built during the past 18 or 20 years. The "Block Island boat" was especially well adapted for withstanding a heavy sea, being deep and double-ended; they are easily managed and fast sailers, but somewhat lacking in accommodations; 23 of these vessels were employed in the fisheries at Block Island in 1879.

Kent County has smaller fishery interests than any of the others, the most valuable products being oysters, quahogs, and scallops, in the order named. Practically the entire catch of scallops is credited to this county. The catch of Bristol and Providence counties, like that of Kent County, consists chiefly of shellfish.

Washington County ranks second in the yield of products, exclusive of the molluscan fisheries. In this county 76 pound nets, valued at \$25,120, are used. Quite a number of these are set in the salt-water ponds that fringe the coast between Point Judith and Watch Hill. Some of them are of comparatively small value and are used for catching eels and other fish that enter these ponds from the sea.

Table showing the number of persons employed in the fisheries of Rhode Island in 1898.

Counties.	On vessels fishing.	On vessels transporting.	Boat or shore fishermen.	Shoresmen.	Total.
Newport.....	275	21	350	218	859
Bristol.....	22	18	181	36	202
Providence.....	52	4	86	96	238
Kent.....	14	9	111	1	135
Washington.....	2	32	218	1	253
Total.....	365	79	896	347	1,667

Table showing, by counties, the vessels, boats, apparatus, and capital employed in the fisheries of Rhode Island in 1898.

Items.	Newport.		Bristol.		Providence.		Kent.		Washington.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing.....	45	\$61,800	4	\$18,200	13	\$36,350	6	\$4,450	1	\$800
Tonnage.....	544		73		210		60		7	
Outfit.....		83,287		1,949		7,635		570		
Vessels transporting.....	8	8,750	4	16,000	2	7,000	3	10,000	7	4,500
Tonnage.....	81		174		62		171		72	
Outfit.....		1,650		672		190		125		519
Boats.....	346	81,010	122	14,885	74	3,910	122	13,721	190	9,355
Apparatus—vessel fisheries:										
Found nets and trap nets.....	27	41,900								
Purse seines.....	7	4,000								
Snap nets.....	4	20								
Lines, hand and trawl.....		1,184								1
Pots, lobsters.....	1,600	1,999							20	40
Pots, eel.....					100	50	97	49		
Harpoons.....		109								
Dredges, tongs, diggers, hoes, etc.....				280		939		292		
Apparatus—shore fisheries:										
Found nets and trap nets.....	84	41,650	10	1,175			5	550	76	25,120
Seine.....					11	538	4	250	27	2,455
Gill nets.....	57	3,725	1	20			10	510	66	2,830
Fyke nets.....	117	602	3	40			140	1,072	69	748
Lines, hand and trawl.....		587		15		19		1		253
Pots, lobsters.....	6,667	8,374	100	100					1,725	2,203
Pots, eel.....	383	351	237	119	792	396	474	237	1,106	785
Spears, eel.....	8	8	1		2	10	22	4	6	8
Minor apparatus.....							27	7		9
Dredges, tongs, diggers, hoes, etc.....		261		1,396		903		2,241		227
Shore and accessory property.....		358,660		16,475		48,700		4,535		12,779
Cash capital.....		65,000				15,500				
Total.....		662,877		70,778		122,239		38,616		62,682

370 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the products of the fisheries of Rhode Island in 1898.

Species.	Newport.		Bristol.		Providence.		Kent.		Washington.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.
Alewives, fresh	342,000	\$3,767	30,000	\$430	17,000	\$295	1,000	\$25	238,132	\$2,104
Alewives, salted			500	20					73,600	920
Alewives, smoked									136,390	2,712
Blue-fish	261,400	12,733					25,500	840	43,390	1,948
Bonito	124,450	2,615								
Bullheads									300	24
Butter-fish	165,000	4,520	6,500	248					35,600	847
Cod, fresh	1,056,486	22,432							59,325	1,124
Cod, salted	233,876	9,644							81,225	3,510
Cunners	3,300	100								
Eels	42,000	1,806	50,066	1,992	178,201	10,272	43,632	2,040	123,576	3,920
Flounders and flat-fish	1,232,050	18,258	65,000	1,200			59,554	1,037	353,453	7,081
Haddock	336,800	7,869							29,725	504
Herring	2,000	10								
Hickory shad	6,000	180							7,000	148
King-fish	570	58							1,400	70
Mackerel	251,300	11,974							108,100	3,030
Menhaden	3,100,000	7,350			28,000	220	12,000	21		
Minnows					3,600	340		128	16	
Perch									48,475	1,920
Pickarel									200	20
Pollock	50,000	500								
Scup	4,802,800	52,078	1,500	40					1,585,925	28,478
Sea bass	379,100	10,384							61,850	1,551
Shad	3,124	195	12,800	800	48	6			9,140	624
Smelt									4,100	215
Spanish mackerel	700	104								
Squeteague	2,148,575	44,111	159,900	3,641	1,300	62	41,875	1,592	773,985	14,570
Squid	64,000	575							60,000	800
Striped bass	36,900	2,427							65,050	8,084
Sword-fish	55,875	2,835								
Tautog	161,300	4,032	17,600	680	1,000	50	13,875	467	54,354	1,985
Tomcod									8,000	240
Miscellaneous fish	221,050	5,003							24,700	519
Refuse fish	748,000	958							264,000	264
Shrimp					2,010	670	240	80		
Lobsters	461,033	33,991	2,500	188					114,533	9,111
Crabs, hard									7,875	575
Crabs, soft									5,020	1,675
Crabs, fddler					53	40	75	88		
Clams	25,750	2,605	24,760	3,095	78,000	11,825	15,490	1,886	6,150	1,208
Quahogs	32,120	4,495	52,240	6,625	48,800	6,075	114,480	14,260	2,066	861
Mussels	10,000	360	1,500	30	750	50	3,300	264		
Scallops			1,650	247	3,600	300	110,136	9,924		
Oysters, market			1,932,336	310,688	969,600	151,775	164,500	33,300	25,760	4,387
Oysters, seed			86,450	4,815	19,600	715	3,500	200		
Oyster shells			4,236,000	2,143	3,000,000	1,600	402,000	219	36,000	6
Squeteague sounds									2,100	630
Total	16,358,059	268,059	6,681,302	336,380	4,351,462	184,295	1,011,185	66,159	4,462,388	100,165

THE VESSEL AND SHORE FISHERIES.

The number of vessels fishing was 69, valued at \$121,600; their net tonnage being 894 tons and the value of their outfits \$43,441. The number engaged in transporting, comprised almost wholly of sail vessels, was 24, valued at \$46,250, their net tonnage being 560 tons and the value of their outfits \$3,156.

The vessels included 20 steamers, 14 of which were engaged in the oyster and 6 in the trap-net fisheries. A number of vessels employed in the fisheries of this State during a part of the year have been credited to other States where they were owned and used in the fisheries. The products of the vessel fisheries aggregated 18,385,634 pounds, valued at \$536,037, the more important species being oysters, scup, cod, squeteague, flat-fish and flounders, mackerel, menhaden, haddock,

lobsters, and sea bass. The yield of the shore fisheries was 14,468,762 pounds, valued at \$419,021, the principal species, in the order of their importance, being oysters, squeteague, lobsters, scup, quahogs, clams, eels, flat-fish and flounders, blue-fish, striped bass, cod, scallops, alewives, mackerel, and tautog.

The most valuable and effective forms of apparatus employed for the capture of fish proper in the vessel and shore fisheries were trap nets and pound nets. In the vessel fisheries 27 trap nets were operated, having a value of \$41,900. The value of all other forms of apparatus used by the vessels, including purse seines, snap nets, lines, pots, harpoons, dredges, tongs, etc., was \$8,863. In the shore fisheries there were 175 trap nets and pound nets used, valued at \$68,495; all other apparatus, consisting of seines, gill nets, fyke nets, lines, pots, spears, dredges, tongs, etc., being valued at \$31,407.

Some of the ocean trap nets have a weight, including the leader but exclusive of anchors, of about 3,000 pounds. The construction of one of these trap nets requires about 2,000 pounds of rope, varying from 2-inch to the large cable size, and costing 7 cents a pound, and 8,000 corks or floats worth \$3 a hundred. About eighteen anchors, weighing from 200 to 700 pounds each, are also necessary for setting one of these nets. The names "trap" and "pound" are often used interchangeably by the fishermen, but the former relates more properly to the floating trap net held in place by anchors, and the latter to the pound net set with stakes.

The trap-net fishery centering at Sakonnet Point and in the vicinity of Newport is of considerable importance. In addition to the small boats ordinarily used in the fishery, there were nine steamboats (some of them not owned in the State) engaged in tending the nets and transporting the fish. Three steamboats not owned in the State were employed in the pound-net fishery between Point Judith and Watch Hill, in Washington County. The trap nets, with perhaps a few exceptions, were set in deep water.

The season for fishing trap nets and pound nets extends from the latter part of April to about the 15th of July, the best fishing being from May 1 to June 15. There is also more or less pound-net fishing carried on in different parts of the State in the summer and fall, but the catch is not so large as it is in the spring. The spring fishing is often called "scup fishing," on account of the predominance of that species in May and the early part of June. A large deep-water trap net is capable of holding thousands of barrels of fish at one time; but the scup were so abundant in 1898 that some of the nets were closed at times to allow them to pass by. When the fish are so plentiful prices are very low and shipments can not be made with profit. The products secured with trap nets and pound nets in 1898 aggregated 14,385,126 pounds, valued at \$220,791. Of this quantity 6,387,925 pounds, valued at \$75,528, were scup, and 7,997,201 pounds, valued at \$145,263,

consisted of flat-fish and flounders, squeteague, sea bass, butter-fish, and various other species.

The most important group of apparatus employed in the fisheries of the State, as determined by the value of the catch, was comprised of dredges, tongs, clam diggers, and hoes. The products obtained with these consisted of oysters and oyster shells, clams, quahogs, and scallops, and were valued at \$572,896. A considerable quantity of products was also taken with other forms of apparatus. The yield of seines amounted to 3,630,143 pounds, valued at \$21,978, the more important species being mackerel, menhaden, and alewives. Gill nets secured 330,770 pounds, valued at \$11,828, consisting principally of blue-fish and squeteague. The catch of fyke nets was 141,645 pounds, valued at \$3,385, the greater part of which was flat-fish. The hand and trawl line catch was 1,972,116 pounds, valued at \$60,076, the more abundant species being cod, haddock, mackerel, tautog, and blue-fish. The catch with lobster and eel pots consisted of 578,066 pounds of lobsters, valued at \$43,290, and 291,225 pounds of eels, valued at \$13,271. In the vessel fisheries harpoons were used for the capture of sword-fish, the catch being 55,875 pounds, valued at \$2,935. The remainder of the products was taken with spears, snap nets, and minor apparatus, and was valued at \$4,608.

The following series of tables shows by counties, species, and apparatus the quantity and value of products obtained in the vessel and shore fisheries of Rhode Island in 1898:

Table showing, by counties, the yield of the seine fisheries of Rhode Island in 1898.

Species.	Newport.		Providence.		Kent.		Washington.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Value.
Vessel fisheries:										
Mackerel	80,000	\$2,848							80,000	\$2,848
Menhaden	3,100,000	7,850							3,100,000	7,850
Total.....	3,180,000	10,193							3,180,000	10,193
Shore fisheries:										
Alewives, fresh			2,000	\$70	1,000	\$25	83,282	\$408	86,282	503
Alewives, salted							78,600	920	78,600	920
Alewives, smoked							93,790	1,860	93,790	1,860
Blue-fish					5,000	200			5,000	200
Bullheads							800	24	800	24
Cod							1,500	45	1,500	45
Eels			36,593	2,172			2,700	136	39,293	2,307
Flounders							19,375	748	19,375	748
Mackerel							8,800	120	8,800	120
Menhaden			28,000	220	12,000	21			40,000	241
Minnows			8,000	280	128	16			8,128	276
Perch							47,475	1,801	47,475	1,801
Pickarel							200	20	200	20
Smelt							1,100	110	1,100	110
Squeteague			1,000	50	17,260	510			18,260	560
Striped bass							11,500	1,298	11,500	1,298
Tautog					4,875	167			4,875	167
Shrimp			1,785	595					1,785	595
Total.....			72,318	3,887	39,753	929	338,072	7,489	450,143	11,785
Total vessel and shore.....	3,180,000	10,193	72,318	3,887	39,753	929	338,072	7,489	3,680,143	21,978

Table showing, by counties, the yield of the gill-net fisheries of Rhode Island in 1898.

Species.	Newport.		Bristol.		Kent.		Washington.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Value.
Shore fisheries:										
Blue-fish	119,600	\$5,653			20,500	\$640	32,890	\$1,368	172,990	\$7,661
Bonito	1,000	20							1,000	20
Spanish mackerel	400	80							400	80
Squeteague	82,400	2,832	400	\$16	8,760	82	69,830	1,637	156,380	4,067
Total	203,400	8,085	400	16	24,260	722	102,720	3,005	330,770	11,823

Table showing the yield of the pound-net and trap-net fisheries of Rhode Island in 1898.

Species.	Newport.		Bristol.		Kent.		Washington.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Value.
Vessel fisheries:										
Alewives	8,600	\$68							8,600	\$68
Blue-fish	8,600	420							8,600	420
Bonito	1,250	25							1,250	25
Butter-fish	89,200	2,405							89,200	2,405
Cod	218,000	3,620							218,000	3,620
Flounders and flat-fish	709,000	10,060							709,000	10,060
King-fish	120	18							120	18
Mackerel	13,600	1,020							13,600	1,020
Scup	8,859,500	39,635							8,859,500	39,635
Sea bass	218,800	5,575							218,800	5,575
Shad	124	8							124	8
Squeteague	579,000	11,290							579,000	11,290
Striped bass	6,900	583							6,900	583
Tautog	10,500	253							10,500	253
Miscellaneous fish	70,450	1,379							70,450	1,379
Refuse fish	166,000	195							166,000	195
Total	5,949,544	76,504							5,949,544	76,504
Shore fisheries:										
Alewives, fresh	333,500	3,699	30,000	\$480			154,900	\$1,696	518,400	5,825
Alewives, salted			500	20					500	20
Alewives, smoked							42,600	852	42,600	852
Blue-fish	47,000	2,350					8,000	465	55,000	2,805
Bonito	122,200	2,570							122,200	2,570
Butter-fish	75,800	2,115	6,500	248			85,500	847	117,800	3,210
Cod, fresh	18,000	450					24,600	458	40,600	908
Cod, salted							5,000	230	5,000	230
Eels	8,000	400	800	24	1,338	\$50	58,150	1,496	66,283	1,970
Flounders and flat-fish	465,800	6,918	65,000	1,000	8,384	250	278,900	4,425	807,584	12,593
Haddock							9,000	90	9,000	90
Herring	2,000	10							2,000	10
Hickory shad	6,000	180					7,000	148	13,000	328
King-fish	450	40					1,400	70	1,850	110
Mackerel	21,000	1,035					99,000	2,380	120,000	3,415
Perch							1,000	119	1,000	119
Pollock	50,000	500							50,000	500
Scup	943,800	12,443	500	10			1,584,625	23,440	2,528,425	85,893
Sea bass	137,650	3,745					60,800	1,453	197,950	5,195
Shad	8,000	187	12,800	800			9,140	624	24,940	1,611
Smelt							8,000	105	8,000	105
Spanish mackerel	800	24							800	24
Squeteague	1,470,375	29,985	169,500	3,625	20,875	1,000	700,850	12,778	2,351,600	47,886
Squid	64,000	575					60,000	800	124,000	1,375
Striped bass	80,000	1,894					58,550	6,786	83,550	6,680
Tautog	78,000	1,718	6,600	240	8,300	250	27,750	452	115,550	2,660
Miscellaneous fish	450,600	3,624					24,700	519	175,300	4,143
Refuse fish	592,000	768					284,000	294	856,000	1,027
Squeteague sounds							2,100	630	2,100	630
Total	4,611,475	75,225	272,200	6,397	33,842	1,550	3,513,065	61,115	8,435,582	144,287
Vessel and shore	10,561,019	151,729	272,200	6,397	33,842	1,550	8,518,065	61,115	14,386,126	220,791

Table showing, by counties, the yield of the fyke-net fisheries of Rhode Island in 1898.

Species.	Newport.		Bristol.		Kent.		Washington.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Eels			8,000	\$120					8,000	\$120
Flat-fish	27,500	\$335	10,000	200	61,220	\$787	41,925	\$1,209	180,645	\$3,025
Tomcod							8,000	240	8,000	240
Total	27,500	385	18,000	320	61,220	787	49,925	1,448	141,645	3,385

374 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the yield of the hand and trawl line fisheries of Rhode Island in 1898.

Species.	Bristol.		Providence.		Kent.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:						
Eels.....	6,400	\$288	6,667	\$360		
Scup.....	1,000	30				
Squeteague.....			800	12		
Tautog.....	11,000	440	1,000	50	1,200	\$60
Total.....	18,400	758	7,967	422	1,200	60

Species.	Newport.		Washington.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Blue-fish.....	57,200	\$2,860			57,200	\$2,860
Cod, fresh.....	487,486	11,827			487,486	11,827
Cod, salted.....	181,376	7,544			181,376	7,544
Flounders.....	27,250	415	700	\$28	27,950	443
Haddock.....	316,800	7,319			316,800	7,319
Mackerel.....	91,300	4,496			91,300	4,496
Sea bass.....	17,650	914			17,650	914
Tautog.....	26,800	887	400	20	27,200	867
Total.....	1,205,862	36,212	1,100	48	1,206,962	36,260
Shore fisheries:						
Blue-fish.....	29,000	1,450	2,500	125	31,500	1,575
Cod, fresh.....	335,000	6,535	29,225	621	364,225	7,156
Cod, salted.....	52,500	2,100	76,225	3,280	128,725	6,880
Eels.....					18,067	648
Flounders and flat-fish.....	3,000	30	12,553	677	15,553	707
Haddock.....	20,000	550	20,725	414	40,725	964
Mackerel.....	45,900	2,580	5,800	530	51,700	3,110
Scup.....			1,300	38	2,300	68
Sea bass.....	5,000	160	1,550	98	6,550	248
Squeteague.....	16,800	504	3,305	157	20,405	673
Tautog.....	51,000	1,224	26,204	1,613	90,404	3,287
Total.....	558,200	15,123	179,387	7,453	765,154	28,816
Total vessel and shore.....	1,764,062	51,335	180,487	7,601	1,972,116	60,076

Table showing, by counties, the catch of eels and lobsters by pots in Rhode Island in 1898.

Species.	Newport.		Bristol.		Washington.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Lobsters.....	90,333	\$6,523			2,000	\$160
Shore fisheries:						
Eels.....	28,700	1,116	89,200	\$1,520	70,125	2,265
Lobsters.....	370,700	27,468	2,500	188	112,533	8,961
Total.....	399,400	28,584	41,700	1,708	182,658	11,216
Total vessel and shore.....	489,733	35,107	41,700	1,708	184,658	11,876

Species.	Providence.		Kent.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Eels.....	13,334	\$800	9,866	\$518	23,200	\$1,818
Lobsters.....					92,333	6,638
Total.....	13,334	800	9,866	518	115,533	8,001
Shore fisheries:						
Eels.....	103,000	5,820	27,000	1,232	268,025	11,953
Lobsters.....					485,733	86,607
Total.....	103,000	5,820	27,000	1,232	753,758	48,560
Total vessel and shore.....	116,334	6,620	36,866	1,750	869,291	56,561

Table showing, by counties, the catch by dredges, tongs, etc., in Rhode Island in 1898.

Species.	Newport.		Bristol.		Providence.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Clams					5,000	\$750
Quahogs			400	\$50	10,400	1,200
Scallops					600	50
Oysters, market			1,491,000	241,000	934,500	146,050
Oyster shells			2,370,000	1,210	3,000,000	1,600
Total			3,861,400	242,260	3,950,500	149,650
Shore fisheries:						
Clams	25,750	\$2,605	24,760	3,095	73,000	11,075
Quahogs	32,120	4,495	51,840	6,575	38,400	4,875
Mussels	10,000	850	1,500	30	750	50
Scallops			1,650	247	3,000	250
Oysters, market			441,336	69,686	35,000	5,725
Oysters, seed			86,450	4,315	19,600	715
Oyster shells			1,866,000	933		
Total	67,870	7,450	2,473,536	84,881	169,750	22,690
Total vessel and shore	67,870	7,450	6,334,936	327,141	4,120,250	172,340

Species.	Kent.		Washington.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Clams	4,060	\$506			9,060	\$1,256
Quahogs	5,240	655			16,040	1,905
Mussels	300	24			300	24
Scallops	10,920	1,299			11,520	1,349
Oysters, market	42,000	7,650			2,467,500	394,700
Oysters, shell					5,370,000	2,810
Total	62,520	10,134			7,874,420	402,044
Shore fisheries:						
Clams	11,430	1,330	6,150	\$1,208	141,090	19,313
Quahogs	109,240	13,605	2,056	361	233,656	29,911
Mussels	3,000	240			15,250	670
Scallops	99,216	8,625			103,866	9,122
Oysters, market	122,500	25,650	25,760	4,387	624,696	105,448
Oysters, seed	3,500	200			109,550	5,230
Oyster shells	402,000	219	86,000	6	2,304,000	1,158
Total	750,386	49,869	69,966	5,962	3,532,008	170,852
Total vessel and shore	818,406	60,003	69,966	5,962	11,406,428	572,896

Table showing, by counties, the catch of eels by spears in Rhode Island in 1898.

Counties.	Lbs.	Value.
Newport	5,300	\$290
Bristol	666	40
Providence	18,667	1,120
Kent	5,333	240
Washington	600	24
Total	30,566	1,714

Table showing the catch by harpoons and snap nets in Rhode Island in 1898.

Apparatus.	County.	Species.	Lbs.	Value.
Vessel fisheries:				
Harpoons	Newport	Sword-fish	55,875	\$2,935
Snap nets	do	Cunners	3,300	100

Table showing the catch by minor apparatus in the fisheries of Rhode Island in 1898.

Species.	Providence.		Kent.		Washington.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:								
Alewives.....	15,000	\$225					15,000	\$225
Minnows.....	600	80					600	80
Shad.....	48	6					48	6
Shrimp.....	225	75	240	\$80			465	155
Crabs, hard.....					7,875	\$575	7,875	575
Crabs, soft.....					6,020	1,675	6,020	1,675
Crabs, addler.....	53	40	75	38			128	78
Total.....	15,926	426	315	118	12,895	2,250	29,136	2,794

THE OYSTER INDUSTRY.

The private cultivation of oysters is carried on under the general supervision of the State, represented by a shellfish commission, from which leases of oyster-grounds are secured. The rental depends upon the depth of water. For a depth of 12 feet and over at mean low tide it is \$5 an acre; under 12 feet, \$10 an acre. In determining the depth of water a Government chart is used and the acreage is measured by the State surveyor. The revenue accruing to the State from this source during the year 1898 amounted to \$7,690.07, and it was estimated that the receipts for the following year would be \$20,000 or more. Leases are not granted to persons outside of the State, but a large percentage of the total acreage is planted and controlled by oyster planters living in other States, who obtain leases through the medium of their foremen or other residents. In 1898 the total area held by lessees was 1,922.3 acres, most of which rented for \$10 an acre.

The total yield of the private beds was 439,148 bushels of marketable oysters, valued at \$497,360, and of the public oyster-grounds 2,580 bushels, valued at \$2,788, while 15,650 bushels of native seed were obtained and planted, the value of which was \$5,230. In 1892 the total area under cultivation was 700 acres. The yield of marketable oysters from the cultivated areas was about 157,581 bushels, valued at \$251,384, and from the public grounds it was approximately 2,000 bushels, valued at \$2,075. There were also 14,865 bushels of native seed oysters used for planting purposes, having a value of \$5,783.

In the upper waters of Narragansett Bay considerable difficulty is sometimes experienced by the planters in connection with the greening of the oysters. A good deal of the ground formerly occupied in this section has therefore been abandoned, the disposition being to take up land farther down the bay. A considerable area has recently been leased in Mount Hope Bay, most of which rents for \$5 an acre, and large plants were made there in 1899.

In addition to the stock already on the beds, there were planted by the cultivators in 1898 420,200 bushels of seed oysters, valued at \$268,730 when delivered. The bulk of this supply was from Connecticut waters, sailing vessels being chiefly used as transporters. At one

time seed oysters from Virginia were cultivated by the planters of Narragansett Bay, but the climate has been found to be too severe for the southern product.

The seed supply of 1898 was from the following sources:

States.	Bushels.	Value.
Connecticut.....	398,050	\$257,175
Massachusetts.....	*11,500	6,325
Native.....	15,650	5,230
Total.....	425,200	268,730

* Including a few seed from Greenport, N. Y.

The price for Connecticut seed ranged from 50 cents to 95 cents a bushel, according to age, but the usual cost was 65 cents, including freight, which was generally 5 cents a bushel. Native seed brought from 25 to 40 cents a bushel. Some of these were picked up by hand at low tide along the shores. The Seakonk River is one of the chief sources of native seed supply. These oysters, as well as the seed from Somerset, Mass., are green when first taken from the water, and are only used for planting purposes, but the green color disappears in a short time after they have been transplanted. Some of the oyster-planters from Connecticut raise their own seed oysters and transplant them to the Rhode Island beds in the spring.

Quite a number of oyster-planters sold shells during 1898, which were used on roads, in gas works, and for planting purposes, the total quantity sold by them being 127,900 bushels, worth \$3,968. Others did not sell any shells, having need for them on their own beds, and one cultivator found it necessary to buy 80,000 bushels.

Starfish do not appear to be so destructive as formerly, owing to the systematic and persistent manner in which they are destroyed by the oyster-planters, tangles being used for catching them. It would seem that isolated beds suffer most from this enemy. Of 1,200 bushels of seed planted in 1897 at Wickford only 300 bushels of marketable oysters were secured, the remainder being destroyed by starfish. In 1898 27,362 bushels of starfish were caught by the oyster-growers of Narragansett Bay, chiefly by those of Bristol and Providence counties.

The mussel is another source of annoyance to the oyster-planter. The usual method of destroying them is by exposing the oysters to the sun until the mussels which are attached to them die and fall off. The oysters are then returned to the water. This process is effective, but is supposed to be more or less injurious to the oysters. If the mussels are not removed, the oysters become poor and are also very troublesome to open.

The following table shows the extent of the oyster industry of Rhode Island in 1898.

Table showing the extent of the oyster industry of Rhode Island in 1898.

Items.	No.	Value.	Items.	No.	Value.
Persons engaged	* 312		Shore and accessory property		\$41,800.00
Vessels fishing (steam)	13	\$54,900	Oyster ground held by lessees (acres)	1,922.3	
Tonnage	276		Amount of rental paid		7,690.07
Output		9,789	Oysters, market, from planted grounds (bushels)	†439,148	497,360.00
Vessels fishing (sail)	1	800	Oysters, market, from natural grounds (bushels)	†2,580	2,788.00
Tonnage	11		Oysters, native seed planted (bushels)	15,650	5,230.00
Vessels transporting (steam)	1	4,000	Oysters, seed from other States, planted (bushels)	404,550	263,500.00
Tonnage	18		Oyster shells sold (bushels)	127,900	3,968.00
Output		360	Starfish caught and destroyed (bushels)	27,362	
Vessels transporting (sail)	8	29,000			
Tonnage	394				
Output		637			
Boats	111	13,836			
Apparatus on vessels:					
Tongs	46	279			
Dredges	35	910			
Apparatus on boats:					
Tongs	154	798			
Dredges	61	759			

* On vessels fishing, 69; on vessels transporting, 26; on boats, 107; on shore, 110.
† Oyster season of 1898-99.

THE MENHADEN INDUSTRY.

In 1898 there were two menhaden factories in Rhode Island, one of which was in operation only six weeks. 106,838 barrels of menhaden, equivalent to about 35,612,667 fish, were handled at these factories, and the resulting products were 306,960 gallons of oil, valued at \$61,407, and 3,576 tons of scrap, valued at \$34,982. The largest catches of menhaden are made in June, July, August, and September. The yield of oil varies from $\frac{1}{2}$ to 4 gallons for each barrel of fish, according to their condition, which depends somewhat on where they are obtained and the time of the season in which they are caught.

The following table shows the important features of the menhaden industry in Rhode Island for 1898:

Table showing the extent of the menhaden industry of Rhode Island in 1898.

Items.	Number.	Value.
Factories	2	\$328,000
Cash capital		60,000
Wages paid		27,680
Persons employed	206	
Menhaden pressed	35,612,667	53,419
Tons of acidulated scrap prepared	3,576	34,982
Gallons of oil made	306,960	61,407

THE WHOLESALE FISHERY TRADE.

The wholesale trade was conducted by three firms in Providence and one in Newport, the principal products being fresh fish and lobsters. The greater part of the lobsters were handled at Newport. The value of the four establishments was \$28,025. The amount of cash capital was \$20,500, while \$13,180 were paid out in wages, the number of employees being 28. The value of the products as sold amounted to nearly \$200,000.

Table showing the extent of the wholesale fishery trade of Rhode Island in 1898.

Items.	No.	Value.
Establishments	4	\$28,025
Cash capital		20,500
Wages paid		13,180
Persons engaged	28	
Products:		
Fresh fish	pounds.. 3,850,000	97,125
Smoked haddock	do... 6,000	420
Sword-fish	do... 116,400	11,640
Lobsters	do... 689,375	71,906
Clams	bushels.. 720	900
Quahogs	do... 3,900	4,825
Scallops	gallons.. 4,800	5,250
Oysters	do... 2,440	3,500

FISHERIES OF CONNECTICUT.

In 1898 there were 2,473 persons employed in the fishery industries of Connecticut. The investment in vessels, apparatus, etc., amounted to \$1,241,291, and the products amounted to 31,920,417 pounds, for which the fishermen received \$1,559,599.

Compared with 1889, the fisheries were fairly prosperous, and comparatively few changes of importance occurred. A decrease appears in the number of the fishermen, due principally to the use of better equipment both in vessels and apparatus of capture. The value of the capital invested, as shown by the returns, decreased from \$2,826,834 in 1889 to \$1,241,291 in 1898. This is not due so much to a decrease in the investment as to a change in the manner of reporting it. In the former year the value of the oyster-grounds was included with the item of shore property, whereas in 1898 it was omitted entirely. If that item be excluded from the returns for each year, the decrease in the investment appears to be only \$282,818 instead of \$1,585,543, as in the tables. The total value of the product shows a fractional increase over that of 1889, when it was \$1,557,506, whereas in 1898 it was \$1,559,599.

The two principal items in the products, as in 1889, were oysters and lobsters, the yield of the former being valued at \$1,249,071, or 80 per cent of the total, and of the latter \$83,748, or 5 per cent of the total. In 1889 the oyster yield was valued at \$1,055,807 and the lobster product at \$83,099. The yield of menhaden and cod, which were respectively third and fourth in rank in 1889, have decreased in value, the former from \$100,569 to \$26,334 and the latter from \$50,018 to \$10,978 in the two years under comparison. The yield of blue-fish, flounders, sea bass, squeteague, hard clams, and soft clams shows little change in value, but the fisheries for halibut and red snappers are no longer prosecuted by vessels from this State.

The three tables which follow show the number of persons employed, the amount of capital invested, and the quantity and value of products secured in the fisheries of Connecticut in 1898.

380 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Persons employed.

	How engaged.	No.
On vessels fishing.....		779
On vessels transporting.....		17
In shore or boat fisheries.....		1,080
Shoremen.....		647
Total.....		2,478

Table of apparatus and capital.

Items.	No.	Value.	Items.	No.	Value.
Vessels fishing.....	187	\$428,950	Apparatus—shore fisheries:		
Tonnage.....	3,438		Seinees.....	63	\$4,855
Outfit.....		130,542	Gill nets.....	89	5,025
Vessels transporting.....	8	5,700	Pound nets.....	66	19,930
Tonnage.....	117		Fyke nets.....	410	8,522
Outfit.....		718	Eel pots and spears.....	1,369	1,234
Boats.....	1,214	80,915	Lobster pots.....	6,250	10,266
Apparatus—vessel fisheries:			Lines.....		124
Seines.....	4	1,500	Dredges.....	250	2,010
Lobster pots.....	4,580	7,189	Tongs, rakes, and hoes.....	767	4,498
Lines.....		1,233	Minor apparatus.....		700
Harpoons.....		177	Shore and accessory property.....		\$44,880
Dredges.....	536	8,623	Cash capital.....		179,250
			Total.....		1,241,291

Table of products.

Species.	Vessel fisheries.		Shore fisheries.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alewives.....			868,400	\$7,846	868,400	\$7,846
Blue-fish.....			72,250	3,704	963,285	\$2,851
Bullheads.....	891,085	\$29,147	8,082	114	8,082	114
Butter-fish.....			60,280	2,870	60,280	2,370
Carp.....				46	910	46
Cod.....	446,980	10,764	5,245	214	451,225	10,978
Eels.....			206,970	14,149	206,970	14,149
Flounders.....	26,250	978	417,644	12,410	443,864	13,383
Haddock.....	112,800	856			112,800	856
Mackerel, fresh.....	7,850	673	33,063	1,180	40,913	1,753
Mackerel, salted.....	28,000	2,000			28,000	2,000
Menhaden.....	6,428,010	16,947	4,754,900	9,387	11,182,910	26,334
Perch, white.....			13,822	671	13,822	671
Perch, yellow.....			1,750	89	1,750	89
Pickarel.....			5,420	271	5,420	271
Scup.....	5,020	216	96,020	8,238	101,040	8,504
Sea bass.....	217,019	10,554	30,770	1,628	247,789	12,182
Shad.....			499,325	21,215	499,325	21,215
Smelt.....			5,600	837	5,600	837
Spanish mackerel.....			66	12	66	12
Squeteague.....	500	15	193,143	5,466	193,643	5,451
Striped bass.....			13,845	1,662	13,845	1,662
Sturgeon.....			700	33	700	33
Suckers.....			53,873	2,068	53,873	2,068
Sword-fish.....	85,980	7,520			85,980	7,520
Tautog.....	15,500	620	55,040	2,498	70,540	3,118
Tomcod or frost-fish.....			38,750	1,677	38,750	1,677
Whiting.....			3,850	185	3,850	185
Squid.....			6,900	150	6,900	150
Lobsters.....	421,627	80,282	676,565	53,466	1,098,192	83,745
Oysters.....	18,277,668	1,140,958	1,855,620	108,118	a14,633,283	1,249,071
Clams, hard.....			234,000	29,900	b234,000	29,900
Clams, soft.....			199,800	19,039	c199,800	19,039
Scallops.....			50,160	5,016	d50,160	5,016
Total.....	21,963,234	1,251,420	9,957,183	308,179	31,920,417	1,559,599

a 2,090,469 bushels.

b 29,250 bushels.

c 19,980 bushels.

d 3,360 bushels.

THE FISHERIES BY COUNTIES.

Five counties in Connecticut have commercial fisheries, viz, Fairfield, New Haven, Middlesex, New London, and Hartford. All of these except Middlesex border Long Island Sound, and Middlesex, Hartford, and New London border the Connecticut River. The following tables indicate the extent to which each of these was interested in the fishing industries in 1898. New Haven and Fairfield counties, with their important oyster industries, rank first and second, respectively, in the items of persons employed, investment, and value of products, but of fish proper New London yields far more than all other counties combined:

Table showing, by counties, the number of persons employed in the fisheries of Connecticut in 1898.

Counties.	On vessels fishing.	On vessels transporting.	In shore or boat fisheries.	Shoresmen.	Total.
Fairfield.....	360	3	291	68	722
New Haven.....	180	6	222	557	965
Middlesex.....			208		208
Hartford.....			89		89
New London.....	289	8	220	22	489
Total.....	779	17	1,030	647	2,473

Table showing, by counties, the vessels, boats, apparatus, and capital employed in the fisheries of Connecticut in 1898.

Items.	Fairfield.		New Haven.		Middlesex.		Hartford.		New London.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing.....	108	\$207,570	28	\$149,025					56	\$72,355
Tonnage.....	1,491		1,025						922	
Outfit.....		49,975		54,425						26,142
Vessels transporting.....	1	800	3	2,050					4	2,850
Tonnage.....	16		40						61	
Outfit.....		50		180						488
Boats.....	429	28,020	295	15,005	207	\$9,112	47	\$1,050	236	27,728
Apparatus—vessel fisheries:										
Seine.....			1	500					3	1,000
Lobster pots.....	105	200							4,475	0,989
Lines.....										1,233
Harpoons.....										177
Dredges.....	428	5,937	108	2,686						
Apparatus—shore fisheries:										
Seine.....	13	765	1	40	18	990	30	2,990	1	70
Gill nets.....	2	110			54	3,200	14	330	19	1,335
Pound nets.....			16	8,680	6	2,990			44	8,260
Fyke nets.....	13	885	14	133	17	207	5	60	361	2,737
Eel pots and spears.....	318	449	433	891	182	103			436	291
Lobster pots.....	345	755	950	1,644	736	1,204			4,219	6,663
Lines.....		82		10		52				80
Dredges.....	217	1,715	83	295						
Tongs, rakes, and hoes.....	400	3,016	250	1,041	85	327			32	114
Minor apparatus.....		700								
Shore and accessory property.....		110,150		217,250		1,625		655		14,700
Cash capital.....		20,000		151,250						8,000
Total.....		430,629		604,605		19,810		5,135		181,112

Table showing, by counties, the products of the fisheries of Connecticut in 1898.

Species.	Fairfield.		New Haven.		Middlesex.		Hartford.		New London.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Alewives			12,300	\$161	227,455	\$2,193	583,945	\$4,690	44,700	\$302
Blue-fish	4,000	\$300	1,750	87	61,300	3,055			896,235	29,409
Bullheads					610	27	1,422	57	1,000	80
Butter-fish			6,910	202	2,000	68			51,370	2,100
Carp					530	27	380	19		
Cod	4,000	160	445	16	620	31			446,160	10,771
Eels	53,100	4,615	33,800	2,682	46,520	2,501	100	7	73,450	4,844
Flounders	5,900	299	46,850	1,596	12,150	406			378,964	11,082
Haddock									112,800	1,856
Mackerel, fresh			100	10					40,813	1,743
Mackerel, salted									28,000	2,000
Menhaden			5,983,410	12,159	510,000	1,110			4,689,500	13,065
Perch, white					3,135	157	7,964	398	2,723	116
Perch, yellow					1,750	89				
Pickrel					1,500	80	1,230	65	2,690	126
Scup									101,040	3,504
Sea bass	300	30	1,100	58	1,800	108			244,589	11,986
Shad			4,784	349	304,037	12,707	67,568	2,902	122,936	6,257
Smelt	5,500	825	100	12						
Spanish mackerel			30	6						
Squeteague	10,250	618	36,700	929	10,600	287			136,093	3,617
Striped bass	4,700	672	2,950	332	4,200	425	180	24	1,815	209
Sturgeon			500	25					200	8
Suckers					23,250	920	19,503	777	10,620	871
Sword-fish									85,980	7,520
Tautog	11,800	944	5,600	289	2,250	112			50,890	1,773
Tomcod or frost-fish	36,250	1,585	1,300	52					1,200	40
Whiting									3,850	185
Squid									6,900	150
Lobsters	45,260	4,741	36,120	4,253	31,980	3,804			984,832	70,950
Oysters	4,902,142	456,334	9,606,541	783,037	89,600	4,850			35,000	4,850
Clams, hard	204,800	25,865	27,200	3,785	2,000	250				
Clams, soft	44,300	5,224	138,500	11,870	14,500	1,695			2,500	250
Scallops	50,160	5,010								
Total	5,382,462	507,228	15,946,990	821,910	1,351,787	34,902	682,292	8,939	8,556,886	186,620

THE PRODUCTS BY APPARATUS OF CAPTURE.

As regards the value of the products, the principal forms of apparatus employed in the fisheries of Connecticut are those used in the molluscan fisheries, viz, dredges, tongs, etc. The yield of these in 1898 amounted to \$1,303,026, or 83 per cent of the total value. The items entering into this value are oysters, \$1,249,071; hard clams, \$29,900; soft clams, \$19,039, and scallops, \$5,016. Pots and spears rank next in importance in this particular, with a yield valued at \$98,000, consisting of \$83,748 worth of lobsters, \$14,004 of eels, and \$248 of flounders.

Of the forms of apparatus employed in the capture of fish proper, lines yielded the largest value, viz, \$60,574, comprised principally of blue-fish, sea bass, and cod, the catch of each being valued at \$32,087, \$12,152, and \$10,924, respectively. The value of other species taken by lines was \$5,411, of which \$2,164 represented the value of tautog or black-fish. The seine fishery was second in importance, yielding 7,437,144 pounds, valued at \$33,855. Menhaden was the most important item in this product, with a yield of 6,428,010 pounds, worth \$16,947. Alewives and shad ranked next, with a return of 810,300 and 94,120 pounds, worth \$6,891 and \$4,064, respectively.

The pound-net fishery, which is prosecuted only in New Haven, Middlesex, and New London counties, yielded 5,486,670 pounds of fish, for which the fishermen received \$32,374—a decrease from 1889,

when the product was 7,556,665 pounds, worth \$43,288. The principal items in the returns for 1898 were menhaden, 4,706,900 pounds, worth \$9,287; flounders, 277,654 pounds, worth \$7,843; squeteague, 179,893 pounds, worth \$4,728; scup, 96,020 pounds, worth \$3,288; and butterfish, 60,280 pounds, worth \$2,370.

The gill-net fishery yielded 401,511 pounds of fish in 1898, valued at \$17,074, of which 375,561 pounds, worth \$15,680, represented the shad yield. The remaining species taken by means of gill nets were blue-fish, squeteague, striped bass, and alewives.

Although fyke nets are used in every county in the State in which fisheries are prosecuted, the fishery is of comparatively little importance, the total yield amounting to only 213,083 pounds, worth \$6,096. The principal item in this total was flounders, the yield of which amounted to 131,760 pounds, worth \$4,206.

The following series of eight tables shows, by counties and species, the quantity and value of products taken with each form of apparatus in the vessel and shore fisheries of Connecticut in 1898:

Table showing, by counties, the yield of the seine fisheries of Connecticut in 1898.

Species.	Fairfield.		Middlesex.		Hartford.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:						
Alewives.....			205,855	\$1,881	583,645	\$4,685
Blue-fish.....	300	\$30				
Bullheads.....			390	18	1,422	57
Carp.....			480	24	880	19
Eels.....			300	18	100	7
Perch, white.....			2,535	127	7,464	373
Perch, yellow.....			150	9		
Pickeral.....			1,100	60	1,280	66
Shad.....			35,866	1,517	57,624	2,479
Smelt.....	5,500	825				
Squeteague.....	3,600	182				
Striped bass.....	1,100	132	80	10	180	24
Suckers.....			17,150	688	16,603	657
Tomcod or frost-fish.....	10,760	430				
Total.....	21,260	1,599	263,896	4,352	668,548	8,366

Species.	New Haven.		New London.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:						
Mackerel, salted.....			28,000	\$2,000	28,000	\$2,000
Menhaden.....	1,753,410	\$4,091	4,674,600	12,856	6,428,010	16,947
Scup.....			800	24	800	24
Total.....	1,753,410	4,091	4,703,400	14,880	6,456,810	18,971
Shore fisheries:						
Alewives.....	12,000	155	8,800	170	810,300	6,891
Blue-fish.....					300	30
Bullheads.....			1,000	30	2,812	105
Carp.....					860	43
Eels.....					400	25
Perch, white.....			1,000	40	10,999	540
Perch, yellow.....					150	9
Pickeral.....			800	32	3,130	157
Shad.....	640	68			94,120	4,064
Smelt.....					5,500	825
Squeteague.....					3,600	182
Striped bass.....					1,360	106
Suckers.....			2,400	72	36,053	1,417
Tomcod or frost-fish.....					10,760	430
Total.....	12,640	223	14,000	344	980,384	14,884
Total vessel and shore.....	1,766,050	4,314	4,717,400	15,224	7,437,144	33,855

384 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the yield of the gill-net fisheries of Connecticut in 1898.

Species.	Fairfield.		Middlesex.		Hartford.		New London.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:										
Alewives.....			4,000	\$48					4,000	\$48
Blue-fish.....	700	\$70	10,600	530					11,300	600
Shad.....			243,021	10,027	9,944	\$423	122,596	\$5,230	375,561	15,680
Squeteague.....	3,650	256	3,000	90					6,650	346
Striped bass.....			4,000	400					4,000	400
Total.....	4,350	326	264,621	11,095	9,944	423	122,596	5,230	401,511	17,074

Table showing, by counties, the yield of the pound-net fisheries of Connecticut in 1898.

Species.	New Haven.		Middlesex.		New London.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Shore fisheries:								
Alewives.....	300	\$6	17,600	\$264	35,900	\$132	53,800	\$402
Blue-fish.....	1,750	87			900	47	2,650	134
Butter-fish.....	6,910	202	2,000	68	51,370	2,100	60,280	2,870
Cod.....	445	16	620	31	180	7	1,245	54
Eels.....	450	36			1,030	66	1,480	102
Flounders.....	41,850	1,494	10,950	358	224,854	6,051	277,054	7,843
Mackerel.....	100	10			31,963	1,050	32,063	1,060
Menhaden.....	4,182,000	7,968	510,000	1,110	14,900	209	4,706,900	9,287
Scup.....					96,020	3,288	96,020	3,288
Sea bass.....	100	8			370	22	470	30
Shad.....	4,144	281	25,160	1,163	340	27	29,644	1,471
Smelt.....	100	12					100	12
Squeteague.....	36,700	929	7,600	197	135,593	3,602	179,893	4,723
Spanish mackerel.....	30	6			36	6	66	12
Striped bass.....	600	67			1,815	209	2,415	276
Sturgeon.....	500	25			200	8	700	33
Tautog.....	3,100	164	1,050	52	25,090	669	29,240	885
Tomcod or frost-fish.....	1,300	52					1,300	52
Whiting.....					3,850	135	3,850	135
Squid.....					6,900	150	6,900	150
Total.....	4,280,379	11,303	574,980	3,243	631,311	17,823	5,486,670	32,374

Table showing, by counties, the yield of the fyke-net fisheries of Connecticut in 1898.

Species.	Fairfield.		New Haven.		Middlesex.		Hartford.		New London.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Shore fisheries:												
Alewives.....							300	\$5			300	\$5
Bullheads.....					220	\$9					220	9
Carp.....					50	3					50	3
Eels.....									350	\$13	350	18
Flounders.....	900	\$54	5,000	\$162					125,860	3,990	131,760	4,205
Menhaden.....			48,000	100							48,000	100
Perch, white.....					600	30	500	25	1,723	76	2,823	131
Perch, yellow.....					1,600	80					1,600	80
Pickarel.....					400	20			1,690	94	2,290	114
Striped bass.....	3,600	540	650	65	120	15					4,370	620
Suckers.....					6,100	232	3,000	120	8,220	299	17,320	651
Tautog.....									1,800	69	1,800	69
Tomcod or frost-fish.....	1,000	50							1,200	40	2,200	90
Total.....	5,500	644	53,650	327	9,090	339	3,800	150	141,043	4,586	213,033	6,096

Table showing, by counties, the yield of the line fisheries of Connecticut in 1898.

Species.	Fairfield.		New Haven.		Middlesex.		New London.		Total:	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Blue-fish							891,035	\$29,147	891,035	\$29,147
Cod							445,980	10,764	445,980	10,764
Flounders							26,250	973	26,250	973
Haddock							112,800	856	112,800	856
Mackerel							7,850	573	7,850	573
Scup							4,220	192	4,220	192
Sea bass							217,019	10,551	217,019	10,551
Squeteague							500	15	500	15
Tautog							15,500	620	15,500	620
Total							1,721,154	53,694	1,721,154	53,694
Shore fisheries:										
Blue-fish	3,000	\$200			50,700	\$2,525	4,300	215	58,000	2,940
Cod	4,000	160							4,000	160
Flounders	1,000	45					2,000	68	3,000	113
Mackerel							1,000	120	1,000	120
Sea bass	300	30	1,000	\$50	1,800	108	27,200	1,410	30,300	1,598
Squeteague	3,000	180							3,000	180
Striped bass			1,700	200					1,700	200
Tautog	11,800	944	2,500	125	1,200	60	8,500	415	24,000	1,544
Tomcod or frost-fish	500	25							500	25
Total	23,600	1,584	5,200	375	53,700	2,693	43,000	2,228	125,500	6,880
Total vessel and shore	23,600	1,584	5,200	375	53,700	2,693	1,764,154	55,922	1,846,654	60,574

Table showing, by counties, the catch by pots and spears in the fisheries of Connecticut in 1898.

Species.	Fairfield.		New Haven.		Middlesex.		New London.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Lobsters	8,320	\$926					413,307	\$29,356	421,627	\$30,282
Shore fisheries:										
Eels	53,100	4,615	33,350	\$2,646	46,220	\$2,483	72,070	4,260	204,740	14,004
Flounders	4,000	200			1,200	48			5,200	248
Lobsters	36,940	3,815	36,120	4,253	31,980	3,804	571,525	41,594	676,565	53,466
Total	94,040	8,630	69,470	6,899	79,400	6,335	613,595	45,854	886,505	67,718
Total vessel and shore	102,360	9,556	69,470	6,899	79,400	6,335	1,056,902	75,210	1,303,132	98,000

NOTE.—The flounders and part of the eels shown in the above table were caught by spears.

Table showing, by counties, the catch by dredges, tongs, rakes, etc., in Connecticut in 1898.

Species.	Fairfield.		New Haven.		Middlesex.		New London.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Vessel fisheries:										
Oysters	4,356,002	\$409,194	8,921,661	\$731,759					13,277,663	\$1,140,953
Shore fisheries:										
Oysters	546,140	47,140	681,880	51,278	80,600	\$4,850	\$5,000	\$4,850	1,335,620	108,113
Clams, hard	204,800	25,865	27,200	3,785	2,000	250			234,000	29,900
Clams, soft	44,300	5,224	138,500	11,870	14,500	1,695	2,500	250	199,800	19,039
Scallops	50,160	5,016							50,160	5,016
Total	845,400	83,245	850,580	66,933	106,100	6,795	37,500	5,100	1,839,580	162,073
Total vessel and shore	5,201,402	492,439	9,772,241	798,692	106,100	6,795	37,500	5,100	15,117,243	1,303,026

Table showing, by counties, the catch of sword-fish by harpoons and of tomcod by minor apparatus in Connecticut in 1898.

Fisheries.	Species.	Fairfield.		New London.	
		Lbs.	Value.	Lbs.	Value.
Vessel.....	Sword-fish.....			85,980	\$7,520
Shore.....	Tomcod.....	24,000	\$1,080		

THE MENHADEN INDUSTRY.

There were three menhaden factories in Connecticut in 1898 as compared with four in 1889; but the value of those three was only \$24,000 and they employed 52 men, whereas the four factories in 1889 were valued at \$83,200, and the factory employees numbered 82. A greater decrease has occurred in the number of steamers employed, of which there were six worth \$61,500 in 1889, and in 1898 there were but two, valued at \$14,000. The quantity of fish utilized at the factories in the latter year was 13,259,350 in number, from which \$39,763 worth of oil and scrap was prepared.

Table showing the extent of the menhaden industry of Connecticut in 1898.

Item.	No.	Value.
Factories in operation.....	3	\$24,000
Cash capital.....		12,500
Wages paid factory employees.....		5,750
Factory employees.....	52	
Men on vessels.....	38	
Steam vessels fishing.....	2	14,000
Tonnage.....	183	
Outfit.....		5,225
Seines used on vessels.....	2	1,000
Menhaden utilized.....	13,259,350	19,597
Products prepared:		
Oil.....gallons.....	104,916	21,813
Dry scrap.....tons.....	445	9,790
Acidulated scrap.....do.....	636	8,160
Value of products.....		39,763

THE WHOLESALE TRADE IN OPENED OYSTERS.

The shucking of oysters is the most extensive of the industries of Connecticut dependent on the fisheries. In 1898 this gave employment to 575 persons, and the quantity of oysters handled in the 39 establishments aggregated 509,326 gallons, worth \$487,327.

Table showing the wholesale trade in opened oysters in Connecticut in 1898.

Items.	No.	Value.
Establishments.....	39	\$204,500
Cash capital.....		166,750
Wages paid.....		66,750
Employees.....	575	
Oysters sold, opened.....gallons.....	509,326	487,327