

REPORT OF THE DIVISION OF STATISTICS AND METHODS OF  
THE FISHERIES.

By C. H. TOWNSEND, *Assistant in charge.*

The principal work of this division for the year ending June 30, 1899, was a canvass of the fisheries of Virginia, Delaware, Maryland, and Pennsylvania. The figures collected were for the calendar year 1897. The field work in these States was commenced about the close of the last fiscal year and continued during the summer and fall. It was resumed again in the spring of 1899 and was completed by the end of the fiscal year, at which time work was also begun in New York, New Jersey, and the New England States.

The agents of the division participating in the canvass were: Messrs. W. A. Wilcox, in Virginia; C. H. Stevenson, in Maryland and New York; Ansley Hall, in Virginia, Maryland, Delaware, and New Jersey; T. M. Cogswell, in Virginia and Maryland; E. S. King, in Maryland, Delaware, and Pennsylvania; J. N. Cobb, in Maryland, Delaware, Pennsylvania, and New Jersey; and W. A. Roberts, in Virginia, Maryland, and New Jersey. Mr. J. B. Wilson was temporarily employed in canvassing the fisheries of Virginia. The work in the New England States was begun in April, Messrs. Wilcox, Hall, and Cogswell canvassing Massachusetts; Messrs. Wilcox and Cogswell, New Hampshire; Mr. Cobb, Maine, and Mr. King, Rhode Island; the work is still in progress on June 30, 1899.

Mr. Stevenson, having for some time been engaged in preparing a paper on the preservation of fishery products, compiled largely from the records of the office, was sent in October and November to a number of places on the New England and Middle Atlantic coasts and the Great Lakes to procure additional information.

In the latter part of June Mr. Townsend was in the field with the statistical agents of the division engaged in canvassing the fisheries of New York, New Jersey, Rhode Island, Massachusetts, and Maine.

Mr. J. B. Wilson was employed for a time in making inquiries respecting the wholesale fishery trade of New York City, and at the close of the year was engaged in canvassing the wholesale fishery trade of Boston.

The publications appearing during the year which were wholly or in part the work of persons connected with this division were: Shad Fisheries of the Atlantic Coast of the United States, by C. H. Stevenson; Report of Fur Seal Investigations in 1896 and 1897 (Treasury document 2017, division of special agents), containing a chapter by C. H. Townsend on Pelagic Sealing; Statistics of Fisheries of the South Atlantic States; Statistics of Fisheries of the Gulf States; Notes on Foreign

Fishery Trade and Local Fisheries of Puerto Rico, by W. A. Wilcox; Preservation of Fishery Products for Food, by C. H. Stevenson.

The last contains full and detailed information respecting the various methods employed in smoking, salting, drying, canning, and otherwise preserving fish and other products of the fisheries for food. This publication will relieve the office of a vast amount of correspondence on this subject, and will be of great value to persons engaged in the fisheries.

The office continues to issue single-sheet statistical bulletins, which present in condensed form the results of the field work in advance of the regular publications of the Commission. These bulletins are widely distributed among persons engaged in the fisheries, and are also posted in custom-houses and other public offices. Those which have appeared during the year are:

- No. 8.—Fisheries of the Gulf States—1897.
- No. 9.—Fisheries of the South Atlantic States—1897.
- No. 10.—Statement of the quantity and value of certain fishery products landed at Boston and Gloucester by American vessels during the year 1898.
- No. 11.—Fisheries of Pennsylvania, Delaware, Maryland, and Virginia—1897.
- No. 12.—Statement of quantities and values of fishery products recorded as landed or prepared at San Francisco, Cal., during the year 1898.

The information transmitted to the office by agents of the Commission at Boston and Gloucester has been stated on single-sheet bulletins and distributed monthly to persons engaged in the fisheries of those ports.

#### FISHERIES OF PUERTO RICO.

In December, 1898, Mr. William A. Wilcox sailed for Puerto Rico on the Fish Commission steamer *Fish Hawk*, and was engaged during January and February in investigating the foreign fishery trade and local fisheries of that island. His report shows that in 1897 Puerto Rico imported 34,155,983 pounds of dry, pickled, canned, and other fish, valued at \$2,123,931. The value of imported fishery products was \$1,325,070 in 1893; \$1,649,601 in 1894; \$1,987,676 in 1895; \$1,815,010 in 1896. The supply of dry and pickled fish in Puerto Rico comes chiefly from Nova Scotia, with occasional cargoes from Newfoundland. The receipts of fishery products of this character in 1897 amounted to 33,449,422 pounds from the following localities: North American British possessions, 28,048,735 pounds; United States, 4,909,141 pounds; all other countries, 491,546 pounds. This amount approximated 85 per cent of dried fish and 15 per cent of pickled fish. The proportions of dried fish by species were 90 per cent cod, 7 per cent haddock, and 3 per cent hake. Ponce is the most important place on the island in connection with the foreign fishery trade, receiving nearly half of the imports.

The report contains information relative to the character of fishery products best adapted to the climate of Puerto Rico; the customary methods followed in importing and distributing the supply, and other information relative to the conditions affecting the trade on that island. Suggestions are made on many points calculated to effect the increase of the foreign fishery trade and the importation of American fishery

products as yet practically unknown there. It is believed that many of the lower-priced fishery products of the United States would find a market in Puerto Rico if cured and packed with reference to the climatic conditions prevailing there. The local fisheries were found to yield many species of edible fishes, but are not conducted very actively. The catch is mostly consumed fresh, almost no refrigeration or other methods of preservation being employed. Fishing for local use is conducted about most parts of the island.

The principal fishing appliances in use are haul seines, cast nets, trolling lines, and fish pots or traps. All appliances at present are home-made, but it is believed that there is a field for the introduction of manufactured netting. The boats in the home fisheries are all of the small size characteristic of shore fisheries. The total number of professional and semiprofessional fishermen appears to be about 800, the sail and row boats used in fishing numbering about 350. With better transportation and better facilities for refrigeration there would probably be considerable development of the local fisheries.

#### INSPECTION OF PRIBILOF SEAL ROOKERIES.

In July and August, 1898, Mr. Townsend made an inspection of the Pribilof Island seal rookeries, transportation having been furnished on the U. S. S. *Wheeling*, by direction of the Secretary of the Navy. It was found, by counting all of the seals born on certain rookeries during the season that the seal herd had decreased 22 per cent since 1897. Some of the smaller rookeries have been counted in this way for several years in succession, and the diminution of the herd—due to pelagic sealing—is thus quite accurately gauged. The decrease on St. George Island, where the rookeries average smaller than on St. Paul Island, was especially noticeable, and all of the seals born on that island were counted without difficulty. The total number of pup seals on St. George Island was found to be 17,826, and the number counted on six of the smaller rookeries of St. Paul Island was 13,601. As the larger rookeries diminish and become of such size that the young seals on them can be counted, they are added from time to time to the series of rookeries included in the annual counts of pups—the only class of seals readily available for enumeration.

The rate of diminution from season to season indicates that it will not be long before we shall be able to state the actual number of seals born each year. Such conditions indicate forcibly the reduced size of the herd. The number of surplus male seals killed on the Pribilof Islands under the supervision of the United States Government was 18,032. This surplus, available for killing without interfering with the breeding stock, grows smaller from year to year. For about twenty years, prior to the expansion of the pelagic sealing industry, the number of surplus males annually placed on the market was 100,000. The total pelagic catch from the American seal herd during the year was 28,142 seals. Pelagic sealing was engaged in by 35 Canadian vessels, 17,396 seals being killed in Bering Sea in waters adjacent to the

Pribilof Islands, and 10,746 in the Pacific Ocean during the northward migration of the herd.

The pelagic seal industry—based almost entirely upon the capture of breeding females—has been diminishing for several years. Although the present reduced fleet made a slightly larger catch in 1898, it was due to its having concentrated upon the American herd, the pursuit of the Asiatic herd having been practically abandoned. Upon the return of Mr. Townsend a report on the condition of the American herd as observed on the Pribilof Islands during the season was presented to the Secretary of the Treasury in compliance with the act of Congress requiring such investigations and reports by the Fish Commission.

#### THE WHALE FISHERY.

The American whale fishery has been declining for many years. The yield of whale products for 1898 was, however, larger than usual, the importations amounting to 12,520 barrels of sperm oil, 5,295 barrels of whale oil, and 246,120 pounds of whalebone. About 56 vessels now comprise the American fleet, 23 of which are engaged in the Pacific Ocean and 33 in the Atlantic Ocean. The fleet is credited as follows: New Bedford, 25; Provincetown, 10; Boston, 4, and San Francisco, 17.

The increase in the value of the catch in 1898 was due chiefly to the large catch of bone made by the Pacific fleet in the Arctic Ocean, where 140 bowhead whales were taken. The vessels engaged in taking sperm whales number about 17 in the Atlantic and 4 in the Pacific.

An interesting fact in connection with the yield of oil was the taking of 1,700 barrels of sea-elephant oil by the bark *Swallow*, of Boston. This vessel arrived at Kerguelen Island in December, 1897, and in three months secured about 4,000 sea elephants. The Kerguelen Island seal fishery has not been regularly prosecuted for many years, the only other vessel which has taken seals there being the *Francis Allen*, of New London, which visited the island four years prior to the *Swallow*. The larger animals taken by the *Swallow* yielded about 8 barrels of oil apiece. It is proposed to send this vessel to Kerguelen again during the coming winter.

#### FISHERIES OF SAN FRANCISCO.

Mr. A. B. Alexander, fishery expert of the steamer *Albatross*, was engaged during the year 1898 and for some time in 1899, in collecting monthly statistics of the yield and value of the fisheries of San Francisco. The fisheries conducted from this port yielded 39,549,639 pounds of products, valued at \$7,333,244. In addition to important local fisheries, the whale fishery and most of the fisheries of Alaska are conducted from San Francisco, together with certain fisheries of Oregon and Washington.

Salmon is the leading feature of the fisheries centered at this port, the quantity landed there in 1898 from Alaska Territory, the Sacramento and other rivers being valued at \$5,249,866. The products of the whale fishery were valued at \$705,107. The oyster industry of San Fran-

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cisco Bay, based on transplanted eastern oysters, has the third place, the quantity marketed being worth \$482,604. Fur-seal pelts from the Pribilof Islands are stated at \$350,000. The Chinese shrimp fishery of San Francisco Bay yielded \$93,623 worth of products, and the cod fishery was worth \$66,058. The sea-otter catch landed at San Francisco was valued at \$30,000; this fishery, conducted off the coast of Alaska, is declining rapidly, only 154 skins being entered at the custom-house, as prescribed by law, during the year. Other important items are based on the numerous species abundant in local waters. Such species, while of very moderate value, are taken in large quantities and comprise the greater part of the fish-food supply of the city and region. Prominent among these are the introduced shad and striped bass, the catch of the former amounting to 435,718 pounds, worth only \$7,841, and the latter 421,663 pounds, worth \$19,707.

The following table shows by months the quantities and values of fishery products recorded as landed at San Francisco during the year, these figures not including large amounts of which no records could be found:

*Statement of quantities and values of fishery products recorded as landed or prepared at San Francisco in 1898.*

[Pacific coast products only. Information derived from all available sources. Large sales of products are made, of which no records are kept, and which therefore can not be enumerated.]

Species.	January.		February.		March.		April.		May.	
	Pounds.	Val.	Pounds.	Val.	Pounds.	Val.	Pounds.	Val.	Pounds.	Val.
Barracuda.....			21,959	\$769	24,200	\$887	35,200	\$1,056	10,582	\$532
Cat-fish.....	3,705	\$188	6,452	280	5,490	241	7,240	354	9,433	283
Carp and chubs.....	29,288	205	44,397	333	46,000	375	46,758	468	2,200	17
Cultus-cod.....	5,806	235	5,145	180	6,820	240	5,000	150	6,574	164
Flounders.....	173,600	2,315	162,400	2,430	185,000	2,775	175,000	2,625	200,931	4,139
Hallbut.....	35,340	1,274	56,400	1,316	68,400	2,400	20,400	408	40,088	802
Herring.....	375,500	4,224	325,500	4,383	205,000	3,075	10,000	150		
King-fish.....	1,020	65	1,225	49					6,726	135
Mackerel.....									1,804	63
Perch.....	10,801	194	7,418	212	6,200	186	9,624	264	13,222	264
Rock-fish.....	32,373	906	53,133	1,275	90,000	1,984	82,460	1,649	43,508	1,523
Salmon, fresh.....	312,881	9,529	78,348	5,641	85,000	6,211	332,072	9,962	513,631	12,841
Sea bass.....			143	2					2,528	51
Shad.....	16,006	314	48,745	548	62,780	1,255	115,175	2,151	65,343	980
Smelt.....	49,627	794	17,223	723	24,629	1,046	31,840	1,273	21,467	859
Striped bass.....	18,206	1,520	21,000	1,770	31,215	2,559	101,400	4,410	69,752	1,793
Sturgeon.....	22,291	1,263	37,381	2,087	1,679	67				
Tomcod.....	3,185	27	968	34	2,072	93	4,620	138	6,852	206
Trout.....									6,420	538
Oysters, native.....	122,500	4,375	124,500	4,625	122,000	4,066	130,000	4,876	121,200	4,545
Oysters, eastern, transplanted.....	1,334,000	55,025	1,329,000	49,837	1,077,000	40,387	1,024,000	38,400	816,000	30,600
Clams.....	111,700	2,234	119,200	2,384	102,300	2,046	108,674	2,173	101,422	2,020
Abalone, meat and shells.....	50,400	1,723	2,400	69	10,800	313	9,000	261	35,000	1,015
Crabs.....	32,520	1,788	31,260	1,720	24,560	1,351	18,724	1,123	79,920	4,795
Spiny lobster.....	26,775	723	16,824	505	14,874	446	20,970	629	4,330	130
Shrimp and prawn, fresh.....	94,000	4,700	93,250	4,662	96,600	4,830	91,842	4,592	93,000	4,050
Shrimp and prawn, dried.....	23,300	1,570	41,600	2,831	68,000	4,079	50,500	3,854	30,000	2,690
Terrapin.....									710	84
Green turtle.....	5,280	120	770	18	7,920	180	5,940	135	10,230	232
Miscellaneous.....	13,642	1,167	8,881	608	10,458	238	5,850	106	15,434	469
<b>Total.....</b>	<b>2,913,102</b>	<b>96,487</b>	<b>2,655,582</b>	<b>89,797</b>	<b>2,379,597</b>	<b>81,930</b>	<b>2,448,289</b>	<b>81,213</b>	<b>2,339,307</b>	<b>76,400</b>

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Quantities and values of fishery products at San Francisco in 1898—Continued.

Species.	June.		July.		August.		September.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Barracuda	10,102	\$203	15,502	\$310	64,960	\$984	21,536	\$215
Cat-fish	6,917	208	5,089	228	2,000	69	1,457	58
Carp and chubs	1,800	14	020	6				
Cultus-cod	5,780	135	8,179	104	16,616	250	11,000	220
Flounders	169,814	3,396	280,812	4,212	364,000	5,460	412,000	8,240
Halibut	46,828	1,171	52,220	1,561	37,263	1,118	35,246	793
King-fish	19,003	299	10,467	314	8,490	221	7,322	113
Mackerel	589	24	14,006	280	33,014	660	18,882	282
Perch	0,839	107	13,185	464	14,787	290	2,437	24
Rock-fish	29,854	1,504	46,546	1,629	43,552	871	47,703	1,182
Salmon, fresh	303,395	7,585	182,772	9,130	369,393	14,776	188,242	2,823
Sea bass	33,080	827	131,518	3,283	178,962	3,570	191,014	3,342
Shad	23,186	405	1,900	88	1,642	57	309	12
Smelt	9,079	454	32,078	962	29,025	1,161	40,907	1,036
Striped bass	31,511	1,163	17,707	708	7,612	304	18,764	750
Sturgeon							10,708	478
Tomcod	4,406	146	10,702	585	21,613	751	13,822	226
Trout	6,771	532	8,473	1,271	4,123	1,048	2,807	702
Oysters, native	112,000	4,100	116,000	4,350	120,000	4,500	140,000	5,250
Oysters, eastern, transpl'd	736,000	27,600	743,000	27,862	789,000	27,712	1,072,300	40,211
Clams	72,210	1,445	75,355	1,570	63,110	1,322	95,000	1,800
Abalone, meat and shells			9,000	261	18,200	383	62,600	1,815
Crabs	83,667	3,765	132,080	5,943	118,610	6,528	90,630	4,078
Spiny lobster			23,137	810	37,065	1,112	22,900	687
Shrimp and prawn, fresh	67,750	3,387	64,250	3,212	66,500	3,325	98,000	4,900
Shrimp and prawn, dried	89,200	6,042			112,000	7,750	158,100	6,227
Terrapin	510	40	2,125	191	2,725	340	2,325	415
Green turtle	8,800	200	4,950	113	5,940	135	6,380	145
Miscellaneous	20,362	444	14,511	657	17,679	756	35,242	1,005
Total	1,903,452	65,382	2,022,784	70,123	2,492,881	85,465	2,807,122	87,789

Species.	October.		November.		December.		Total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Barracuda	18,384	\$183	5,085	\$127			233,570	\$5,260
Cat-fish	4,432	177	3,465	138	0,419	\$256	62,759	2,477
Carp and chubs	1,652	16	9,920	99	19,090	190	201,725	1,723
Cod, salted, from Alaska							1,984,600	66,058
Cultus-cod	12,000	240	8,185	245	12,641	252	103,808	2,475
Flounders	342,000	6,840	324,000	8,100	301,000	7,525	3,096,597	58,063
Halibut <sup>a</sup>	42,765	1,069	60,883	1,520	32,255	907	528,092	14,405
Herring	5,350	100	23,717	474	139,189	2,435	1,084,242	15,401
King-fish	6,236	93	1,545	30	2,052	42	66,486	1,361
Mackerel	624	12					68,919	1,321
Perch	4,724	118	6,104	183	8,203	205	106,544	2,607
Rock-fish	63,186	1,579	51,971	1,559	29,861	907	614,147	16,668
Salmon, fresh	76,722	1,150	238,507	9,540	802,233	12,138	2,983,197	101,835
Salmon, salted <sup>b</sup>							4,709,200	164,822
Salmon, smoked							45,600	922
Salmon, canned <sup>c</sup>								4,970,787
Sea bass	165,572	2,483	15,007	397	1,318	39	720,042	14,003
Shad	9,656	866	88,861	777	52,484	918	435,718	7,841
Smelt	74,388	2,975	33,598	2,182	9,660	676	873,521	14,741
Striped bass	39,885	1,595	56,069	2,242	18,482	878	421,663	19,707
Sturgeon	17,006	704	19,468	858	16,195	809	125,324	6,296
Tomcod	6,987	139	8,880	266	10,000	350	100,297	2,961
Trout	6,187	1,113	4,120	1,020			88,901	6,224
Oysters, native <sup>d</sup>	180,500	5,118	140,000	5,200	147,000	5,512	1,531,700	56,517
Oysters, eastern, transpl'd	1,184,000	44,320	1,340,000	50,250	1,344,000	50,400	12,738,800	482,604
Clams	109,000	2,180	125,537	2,511	126,948	2,540	1,210,456	24,325
Abalone, meat and shells	27,800	806	31,800	916	65,600	1,902	328,400	9,464
Crabs	119,552	4,782	148,385	5,934	150,000	6,000	1,020,908	47,807
Spiny lobster	20,907	827	18,000	504	14,640	475	220,422	8,708
Shrimp and prawn, fresh	99,000	4,950	94,000	4,760	95,500	4,775	1,053,692	52,663
Shrimp and prawn, dried <sup>e</sup>	53,900	1,568	12,000	773	43,200	2,956	696,800	40,940
Terrapin	2,025	897	940	232	765	202	12,125	1,887
Green turtle	7,810	178	5,720	130	8,080	76	72,820	1,656
Walrus ivory							9,510	5,281
Whalebone							200,918	620,754
Whale oil							1,003,613	26,768
Sperm oil							1,079,818	57,590
Fur-seal pelts							( <sup>b</sup> )	350,000
Sea-otter pelts							( <sup>c</sup> )	30,800
Miscellaneous	58,830	1,206	81,191	711	20,672	684	282,252	8,051
Total	2,717,166	87,164	2,857,656	101,714	2,973,367	104,103	39,549,639	7,338,244

<sup>a</sup>Includes true halibut from northern waters.

<sup>b</sup>Includes 3,658,600 pounds from Alaska.

<sup>c</sup>904,216 cases from Alaska, 20,903 from Sacramento River, and 278,902 from other sources.

<sup>d</sup>From Willapa Bay, Washington.

<sup>e</sup>Includes shrimp shells prepared for fertilizer.

<sup>f</sup>133,855 gallons.

<sup>g</sup>143,975 gallons.

<sup>h</sup>18,032 skins. From Pribilof Islands.

<sup>i</sup>154 skins. From Alaskan waters.

FISHERIES OF BOSTON AND GLOUCESTER.

The agents of the Commission stationed at these ports have made reports which show a general increase in the quantity and value of fishery products landed, the increase as compared with 1897 being 16,542,142 pounds worth \$110,453. The quantity of products landed by American vessels during the year was 143,407,740 pounds, valued at \$2,989,088. The total number of fares was 6,932.

The total number of fares landed at Boston was 3,491, of which 3,381 were from grounds off the New England coast and 110 from the eastern banks. The total quantity of fish landed at Boston was 54,679,570 pounds, 53,493,670 pounds being fresh and 1,185,900 pounds salted. The value of this catch was \$1,041,640. There has been a decrease in the fisheries of Boston of 8,223,988 pounds and \$188,404 since 1897.

Quantities and values of certain fishery products landed at Boston by American fishing vessels during 1898.

Fishing-grounds.	No. of trips.	Cod, fresh.		Cod, salted.		Cusk, fresh.		Haddock, fresh.	
		Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:									
La Have Bank	32	311,500	\$0,688			122,000	\$1,321	142,000	\$3,178
Western Bank	27	395,000	6,827	25,000	\$500	113,000	1,183	11,300	185
Quereau Bank	2	35,000	1,050						
Grand Bank	2								
Off Newfoundland	21								
Cape Shore	26	304,000	6,220			80,000	1,103	235,000	4,725
Total	110	1,045,500	20,785	25,000	500	321,000	3,607	388,300	8,088
West of 66° W. long.:									
Browne Bank	24	390,500	8,351			135,000	1,778	587,500	7,933
Georges Bank	238	2,004,700	37,485	45,000	1,050	224,700	2,488	4,250,800	56,657
Cashes Bank	10	94,500	2,010			31,000	350	73,000	1,176
Clark Bank	3	22,000	555					90,000	1,007
Tillies Bank	1	3,000	60					4,000	80
Middle Bank	394	675,750	16,302			260,600	5,930	1,711,500	33,167
Jeffreys Ledge	211	404,500	9,556			127,100	1,744	888,900	19,266
Ipswich Bay	1	4,000	80						
South Channel	509	4,106,800	88,068			178,200	1,831	7,480,800	128,262
Nantucket Shoals	120	1,729,400	29,340			99,600	1,222	249,550	4,676
Off Highland Light	146	424,900	9,710			147,000	2,060	936,400	16,622
Off Chatham	83	391,700	8,480			84,400	1,045	788,000	15,218
Off Race Point	47	143,400	3,408			25,200	295	145,300	2,725
Block Island	16	68,500	1,417					230,100	3,040
Shore, general	1,608	3,373,350	81,460			180,300	1,791	3,980,150	81,023
Total	3,381	13,837,000	296,294	45,000	1,050	1,433,100	20,534	21,381,000	370,856
Grand total	3,491	14,882,500	317,079	70,000	1,550	1,754,100	24,141	21,769,300	378,944

Fishing-grounds.	Hake, fresh.		Pollock, fresh.		Halibut, fresh.		Halibut, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:								
La Have Bank	208,000	\$1,703	13,500	\$130	187,900	\$14,192		
Western Bank	120,000	941	7,000	93	267,700	22,917		
Quereau Bank					5,000	600	250,000	\$7,650
Grand Bank								
Cape Shore	97,000	877	14,300	112	45,800	4,714		
Total	425,000	3,521	34,800	335	508,400	42,423	250,000	7,650

CLIV REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Quantities and values of certain fishery products landed at Boston by American fishing vessels during 1898—Continued.

Fishing-grounds.	Hake, fresh.		Pollock, fresh.		Halibut, fresh.		Halibut, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
West of 66° W. long.:								
Browns Bank	58,000	\$672	10,000	\$143	54,200	\$3,296		
Georges Bank	758,000	9,296	40,300	490	115,075	10,332		
Cashes Bank	78,000	835	2,800	26	1,800	164		
Clark Bank	29,000	315	1,000	15	200	12		
Tillies Bank	2,000	10						
Middle Bank	490,730	4,490	88,400	889	800	113		
Jeffreys Ledge	611,700	5,508	106,400	1,115	3,960	326		
South Channel	2,749,000	23,592	197,400	1,682	71,810	6,830		
Nantucket Shoals	18,700	187	47,400	290	700	87		
Off Highland Light	189,400	1,560	13,700	210	1,400	187		
Off Chatham	203,900	1,454	29,000	354	1,300	195		
Off Race Point	400	6						
Block Island	60,300	483						
Shore, general	1,701,700	18,626	866,900	6,107	11,000	1,189		
Total	6,957,430	67,014	1,377,300	11,320	262,185	22,710		
Grand total	7,382,430	70,535	1,412,100	11,855	768,585	65,133	250,000	\$7,050

Fishing-grounds.	Mackerel, fresh.		Mackerel, salted.		Miscellaneous, fresh.		Miscellaneous, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:								
La Have Bank					7,350	\$295	21,000	\$400
Western Bank					4,000	100		
Off Newfoundland					3,775,000	64,389	400,000	5,800
Cape Shore			86,200	\$4,586			5,000	100
Total			86,200	4,586	3,786,350	64,784	426,000	6,300
West of 66° W. long.:								
Georges Bank	26,000	\$2,904	130,800	4,286	618,200	26,560	23,000	460
Middle Bank					500	10		
Jeffreys Ledge					400	23		
South Channel	2,100	128	30,000	1,275	46,200	3,020		
Block Island					2,800	242		
Shore, general	410,756	23,248	167,900	8,188	630,450	18,894	2,000	45
Total	439,756	26,280	328,700	13,740	1,298,550	48,749	25,000	505
Grand total	439,755	26,280	414,900	18,385	5,084,900	113,533	451,000	6,805

Fishing-grounds.	Total fresh.		Total salted.		Grand total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. longitude:						
La Have Bank	992,250	\$27,507	21,000	\$400	1,013,250	\$27,907
Western Bank	918,000	32,246	25,000	500	943,000	32,746
Quereau Bank	40,000	1,650			40,000	1,650
Grand Bank			250,000	7,650	250,000	7,650
Off Newfoundland	3,775,000	64,389	400,000	5,800	4,175,000	70,189
Cape Shore	782,100	17,751	91,200	4,686	873,300	22,437
Total	6,607,350	143,543	787,200	19,036	7,294,550	162,579
West of 66° W. longitude:						
Browns Bank	1,185,200	22,172			1,185,200	22,172
Georges Bank	8,039,275	146,212	198,800	5,796	8,238,075	152,008
Cashes Bank	281,100	4,567			281,100	4,567
Clark Bank	148,200	1,904			148,200	1,904
Tillies Bank	9,000	150			9,000	150
Middle Bank	3,208,280	60,901			3,208,280	60,901
Jeffreys Ledge	2,142,600	37,538			2,142,600	37,538
Ipswich Bay	4,000	80			4,000	80
South Channel	14,832,310	258,413	30,000	1,275	14,862,310	254,688
Nantucket Shoals	2,085,350	85,782			2,085,350	85,782
Off Highland Light	1,712,800	30,329			1,712,800	30,329
Off Chatham	1,498,300	26,741			1,498,300	26,741
Off Race Point	814,300	6,434			814,300	6,434
Block Island	376,700	5,191			376,700	5,191
Shore, general	11,148,605	232,343	169,900	8,233	11,818,505	240,576
Total	46,986,820	803,757	398,700	15,804	47,385,020	819,061
Grand total	53,493,670	1,007,300	1,185,900	34,840	54,679,570	1,041,640



REPORT OF COMMISSIONER OF FISH AND FISHERIES. CLV

The fish landed at Gloucester amounted to 88,724,170 pounds, valued at \$1,947,448. Of the total quantity, 54,386,779 pounds were fresh and 34,337,371 pounds salted. 3,441 trips were landed at Gloucester, an increase of 1,050 trips since 1897. 2,588 trips were landed from grounds off the New England coast and 853 from the eastern grounds. There has been an increase in the fisheries of this port of 24,762,130 pounds, and an increase in value of \$298,857. During the year the fresh-fish industry of Gloucester increased 21,426,538 pounds over the amount landed in 1897, the increase in value amounting to \$249,101.

Quantities and values of certain fishery products landed at Gloucester by American fishing vessels during 1898.

Fishing-grounds.	No. of trips	Cod, fresh.		Cod, salted.		Cusk, fresh.		Cusk, salted.	
		Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:									
La Have Bank	281	5,337,544	\$81,880	458,086	\$13,451	1,174,271	\$12,898		
Western Bank	188	5,195,269	75,197	4,150,583	113,704	187,540	2,167	2,000	\$45
Quereau Bank	103			344,085	9,727				
Green Bank	14			25,000	813				
Grand Bank	64			11,232,940	220,346				
St. Peters Bank	6			27,000	878				
Bacalieu Bank	80			25,000	750				
Off Newfoundland	48			53,207	1,698				
Cape North	7			287,960	6,861				
Cape Shore	51	349,505	5,463	118,800	3,486	2,760	32	11,000	248
Gulf of St. Lawrence	11								
Total	853	10,882,978	162,540	16,722,601	371,714	1,364,571	15,097	13,000	293
West of 66° W. long.:									
Browns Bank	5	31,069	395	20,500	709	75,890	974	14,000	310
Georges Bank	579	1,659,210	36,156	6,949,420	225,379	153,426	1,863	80,190	1,792
Cashes Bank	178	1,894,440	27,447	25,000	788	1,278,951	14,827		
Middle Bank	31	104,756	2,556			42,733	474		
Jeffreys Ledge	98	382,704	8,302			117,349	1,304		
Ipswich Bay	8	51,255	843						
South Channel	1								
Nantucket Shoals	81	110,578	1,380	2,616,484	66,021				
Off Chatham	10	7,655	94						
Block Island	44								
Shore, general	1,553	1,667,300	40,459	82,000	2,208	131,013	1,531		
Total	2,588	6,909,027	117,332	9,693,360	295,105	1,799,362	20,973	94,190	2,102
Grand total	3,441	16,792,005	279,872	26,416,021	666,819	3,163,933	36,070	107,190	2,395

Fishing-grounds.	Pollock, fresh.		Pollock, salted.		Halibut, fresh.		Halibut, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:								
La Have Bank	111,243	\$711			666,611	\$47,571		
Western Bank	72,615	445			238,085	10,798	4,000	\$140
Quereau Bank					2,078,908	148,604		
Green Bank					241,239	18,702		
Grand Bank					147,827	8,139	90,165	3,215
St. Peters Bank					140,105	6,055		
Bacalieu Bank					2,930,274	134,799	1,650,000	52,875
Off Newfoundland					316,495	14,115		
Cape North					173,633	6,807		
Cape Shore	230	2			1,600	144		
Total	184,138	1,158			6,934,777	399,234	1,744,165	56,230
West of 66° W. long.:								
Browns Bank	3,004	22			24,172	1,591		
Georges Bank	49,586	349			647,182	47,857	3,000	105
Cashes Bank	108,530	901			6,200	573		
Middle Bank	4,830	38						
Jeffreys Ledge	8,149	65			100	9		
Ipswich Bay	1,200	7						
Nantucket Shoals	6,356	31						
Off Chatham	877,985	2,349	20,000	\$250				
Shore, general	2,252,961	13,358						
Total	2,808,001	17,120	20,000	250	677,654	50,030	3,000	105
Grand total	3,052,139	18,278	20,000	250	7,612,431	449,264	1,747,165	56,335

CLVI REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Quantities and values of certain fishery products landed at Gloucester, etc.—Continued.

Fishing-grounds.	Haddock, fresh.		Haddock, salted.		Hake, fresh.		Hake, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:								
La Have Bank	4,216,192	\$39,438			2,798,368	\$20,267		
Western Bank	353,475	4,227	22,000	\$275	859,261	6,138		
Cape Shore	60,512	1,374			81,510	252	16,000	\$200
Total	4,630,179	45,039	22,000	275	3,669,139	26,657	16,000	200
West of 66° W. long.:								
Browns Bank	5,723	33			23,733	196		
Georges Bank	4,039,335	53,887			200,712	2,876		
Cashes Bank	882,304	6,098			4,918,783	33,270		
Middle Bank	172,293	2,657			53,629	617		
Jeffreys Ledge	423,918	5,785			329,205	2,888		
Ipswich Bay	850	9						
Nantucket Shoals	3,764	21	14,820	164	550	3	2,800	30
Shore, general	554,167	10,911			923,392	7,474		
Total	6,082,444	79,351	14,820	164	6,450,004	47,824	2,800	30
Grand total	10,712,623	124,390	36,820	439	10,119,143	73,981	18,800	230

Fishing-grounds.	Mackerel, fresh.		Mackerel, salted.		Other fish, fresh.		Other fish, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:								
La Have Bank					1,027	\$26		
Off Newfoundland					2,382,875	40,531	4,023,975	\$61,519
Cape Shore	3,600	\$220	610,200	\$36,440				
Gulf of St. Lawrence			77,400	9,870				
Total	3,600	220	687,600	46,316	2,383,902	40,557	4,023,975	61,519
West of 66° W. long.:								
Georges Bank	172,800	10,490	317,600	16,017	79,906	2,184		
Cashes Bank					29,480	2,358		
Jeffreys Ledge					5,237	419		
South Channel					2,000	100		
Block Island	21,600	1,258	283,000	16,722				
Shore, general	236,000	15,090	518,600	22,062			160,000	2,907
Total	480,400	26,844	1,119,200	55,701	116,623	5,061	160,000	2,907
Grand total	434,000	27,064	1,806,800	102,017	2,500,525	45,618	4,184,975	64,426

Fishing-grounds.	Total, fresh.		Total, salted.		Grand total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
East of 66° W. long.:						
La Have Bank	14,305,256	\$202,791	458,080	\$13,451	14,763,342	\$216,242
Western Bank	6,886,245	107,972	4,178,583	114,164	11,064,828	222,136
Quereau Bank	2,078,908	148,604	344,085	9,727	2,422,993	158,331
Green Bank	241,239	13,702	35,000	613	266,239	14,615
Grand Bank	147,827	8,139	11,323,105	223,561	11,470,932	231,700
St. Peters Bank	140,105	6,055	27,000	878	167,105	6,933
Bacalieu Bank	2,930,274	134,799	1,075,000	53,625	4,005,274	188,424
Off Newfoundland	2,699,370	54,646	4,077,182	63,217	6,776,552	117,863
Cape North	173,633	6,307	287,900	6,861	461,593	13,168
Cape Shore	449,827	7,487	756,000	40,380	1,205,827	47,867
Gulf of St. Lawrence			77,400	9,870	77,400	9,870
Total	30,052,684	690,502	23,229,401	536,547	53,282,085	1,227,049
West of 66° W. long.:						
Browns Bank	164,791	3,211	34,500	1,019	199,291	4,230
Georges Bank	7,002,157	155,668	7,350,216	243,293	14,352,373	398,961
Cashes Bank	9,173,778	85,474	25,000	788	9,198,778	86,262
Middle Bank	878,041	6,342			878,041	6,342
Jeffreys Ledge	1,266,722	18,422			1,266,722	18,422
Ipswich Bay	53,305	859			53,305	859
South Channel	2,000	100			2,000	100
Nantucket Shoals	121,248	1,435	2,634,054	66,215	2,755,302	67,650
Off Chatham	385,640	2,443	20,000	250	405,640	2,693
Block Island	21,600	1,258	283,000	16,722	304,600	17,980
Shore, general	5,764,833	88,823	761,200	28,077	6,526,033	116,900
Total	24,334,115	364,035	11,107,970	356,384	35,442,085	720,399
Grand total	54,386,799	1,054,537	34,337,371	892,911	88,724,170	1,947,448

REPORT OF COMMISSIONER OF FISH AND FISHERIES. CLVII

The following table shows, by months, the quantity and value of fish landed at Boston and Gloucester during the year 1898, and is chiefly interesting as showing the regularity with which the great fishery based on halibut and species of the cod family is conducted during the different seasons of the year:

Statement by months of quantities and values of certain fishery products landed at Boston and Gloucester by American fishing vessels during 1898.

Months.	No. of trips.	Cod, fresh.		Cod, salted.		Cusk, fresh.		Cusk, salted.		Haddock, fresh.	
		Pounds.	Value.	Pounds.	Value.	Pounds.	Vnl.	Lbs.	Val.	Pounds.	Value.
<b>Boston:</b>											
January	205	601,200	\$13,292			20,000	\$250			1,464,500	\$22,707
February	257	880,400	23,484			64,000	710			2,445,200	39,888
March	309	1,921,500	36,028			127,400	1,437			4,073,600	47,590
April	296	1,110,700	22,181			201,000	2,045			1,608,800	32,091
May	338	1,301,100	20,354			573,000	6,309			1,200,350	15,400
June	252	1,314,050	30,097			291,600	8,050			1,031,300	21,101
July	275	1,763,800	29,793			34,500	350			1,802,050	24,423
August	291	1,630,500	30,702	25,000	\$500	25,000	290			2,281,400	34,069
September	244	1,282,600	32,855			125,400	1,270			1,890,300	37,516
October	352	1,440,100	30,390			98,400	1,051			1,905,300	41,708
November	368	988,850	21,150			128,800	1,306			1,431,400	37,107
December	214	638,700	20,788	45,000	1,050	64,100	1,055			634,500	25,295
Total	3,491	14,882,500	317,079	70,000	1,550	1,754,100	24,141			21,769,900	378,944
<b>Gloucester:</b>											
January	377	1,204,155	28,510	298,100	9,701	231,700	2,543			2,571,500	28,636
February	350	1,172,511	26,324	490,120	15,950	259,800	2,818			2,088,000	24,046
March	331	2,821,413	40,822	1,260,975	41,480	295,385	3,200			3,100,106	24,820
April	194	2,801,133	32,733	464,329	14,383	238,718	2,597	12,000	\$270	391,507	2,804
May	226	1,130,385	17,013	1,312,609	39,817	478,613	5,951	11,000	234	395,823	3,349
June	309	906,867	14,552	2,713,712	73,346	603,653	7,011	16,000	356	255,231	1,763
July	302	806,478	10,725	6,364,560	130,318	382,518	4,178	35,600	803	284,417	1,447
August	228	1,433,248	19,205	2,714,236	65,856	127,019	1,271	21,500	484	105,772	708
September	205	1,347,413	21,280	2,497,717	68,810	123,592	1,407			115,911	817
October	317	1,175,632	23,501	2,704,931	72,022	175,304	2,017	11,000	248	223,276	3,601
November	391	1,164,446	21,995	5,021,480	117,807	167,396	1,947			440,516	8,670
December	211	708,324	23,212	567,192	17,271	80,235	1,130			710,784	24,368
Total	3,441	16,792,005	270,872	26,416,021	660,819	3,163,933	36,070	107,190	2,305	10,749,443	124,829
Grand total	6,932	31,674,505	590,951	26,480,021	668,360	4,918,033	60,211	107,190	2,395	32,518,743	503,773

Months.	Hake, fresh.		Pollock, fresh.		Halibut, fresh.		Halibut, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Boston:</b>								
January	291,300	\$3,233	33,500	\$688	5,125	\$721		
February	416,430	5,891	25,500	479	19,100	2,068		
March	304,000	3,942	36,000	550	139,700	9,480		
April	333,200	3,810	84,300	619	149,900	14,128		
May	190,700	1,905	377,700	1,953	170,100	12,423		
June	593,100	4,932	188,000	1,021	83,200	6,285		
July	393,100	3,063	62,900	421	78,300	5,507		
August	474,000	4,326	128,000	1,207	22,780	1,849		
September	828,400	8,231	143,100	1,699	22,060	3,019	250,000	\$7,650
October	1,817,700	11,851	108,600	1,838	24,500	3,623		
November	1,401,300	9,627	147,000	1,385	11,850	1,591		
December	429,200	0,724	17,500	295	41,970	5,379		
Total	7,382,430	70,535	1,412,100	11,656	768,585	65,133	250,000	7,650
<b>Gloucester:</b>								
January	320,000	3,139			545,891	40,690		
February	225,000	2,355			657,905	47,771		
March	259,717	2,633	60,369	510	970,293	55,142		
April	474,170	4,213	58,550	374	601,190	44,825		
May	1,045,234	8,619	356,428	3,432	505,135	31,055		
June	1,913,437	14,383	208,712	1,372	577,952	22,893	7,000	245
July	1,929,894	10,452	104,622	541	1,147,138	49,100	48,630	1,755
August	748,394	3,765	32,809	182	944,528	47,741	8,465	280
September	1,173,197	7,799	80,581	485	766,548	35,037	1,652,000	52,940
October	1,223,638	8,674	892,151	5,348	392,156	31,220	4,500	146
November	605,286	4,708	1,044,019	5,895	859,331	30,610	26,570	938
December	153,976	3,171	33,838	283	143,765	13,150		
Total	10,187,043	74,211	3,072,139	18,528	7,012,431	449,264	1,747,165	50,335
Grand total	17,520,373	144,746	4,484,239	30,183	8,381,016	514,397	1,997,165	63,985

CLVIII REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Statement by months of quantities and values of certain fishery products landed at Boston and Gloucester—Continued.

Months.	Mackerel, fresh.		Mackerel, salted.		Other fish, fresh.*		Other fish, salted.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Boston:</b>								
January					1,635,000	\$29,475		
February					2,020,000	33,114		
March					121,000	1,820		
April							8,000	\$160
May	500	\$60					21,000	430
June	238,187	12,500	208,000	\$10,404	21,750	503		
July	92,081	8,024	166,000	5,776	438,050	15,971	201,000	2,900
August	20,067	1,482	31,600	1,672	353,700	15,538		
September	53,050	3,758	500	60	148,600	12,473		
October	18,620	226	3,600	108	138,950	2,070		
November	17,250	230	4,200	315	207,850	2,569	1,000	15
December							220,000	3,300
<b>Total</b>	<b>439,755</b>	<b>26,280</b>	<b>414,900</b>	<b>18,335</b>	<b>5,084,900</b>	<b>113,533</b>	<b>451,000</b>	<b>6,805</b>
<b>Gloucester:</b>								
January					994,500	9,441	761,625	10,150
February					510,750	10,227	15,750	210
March					337,025	3,763	324,000	4,320
June	180,320	11,246	1,076,000	53,282				
July	189,000	11,310	496,000	25,118	61,532	1,230		
August	57,420	4,420	40,200	2,621	47,118	3,137		
September	1,260	88	48,800	4,631	0,000	720	52,000	813
October			80,200	9,551			98,600	1,944
November			57,800	6,580	300,000	8,700	1,910,000	31,025
December			1,800	225	240,000	8,400	1,022,600	15,064
<b>Total</b>	<b>434,000</b>	<b>27,064</b>	<b>1,806,800</b>	<b>102,017</b>	<b>2,500,525</b>	<b>45,618</b>	<b>4,184,675</b>	<b>64,420</b>
<b>Grand total</b>	<b>873,755</b>	<b>53,344</b>	<b>2,221,700</b>	<b>120,352</b>	<b>7,585,425</b>	<b>169,151</b>	<b>4,685,575</b>	<b>71,231</b>

Months.	Total, fresh.		Total, salted.		Grand total.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
<b>Boston:</b>						
January	4,050,625	\$70,372			4,050,625	\$70,372
February	5,870,630	105,614			5,870,630	105,614
March	6,723,200	100,842			6,723,200	100,842
April	3,496,900	74,874	8,000	\$180	3,504,900	75,034
May	3,814,350	60,173	21,000	430	3,835,350	60,603
June	8,671,187	81,789	209,000	10,404	8,880,187	92,193
July	4,665,381	87,618	367,000	8,076	5,032,381	96,294
August	4,935,447	89,463	56,600	2,172	4,992,047	91,635
September	4,493,510	100,827	250,500	7,710	4,744,010	108,537
October	5,612,170	98,227	3,600	108	5,615,770	98,335
November	4,334,300	74,965	5,200	330	4,339,500	75,295
December	1,825,970	62,536	265,000	4,350	2,090,970	66,886
<b>Total</b>	<b>53,493,670</b>	<b>1,007,300</b>	<b>1,185,900</b>	<b>34,340</b>	<b>54,679,570</b>	<b>1,041,640</b>
<b>Gloucester:</b>						
January	5,993,746	112,965	1,059,725	19,911	6,993,471	132,876
February	4,914,656	113,541	505,870	16,160	5,420,526	129,701
March	7,910,908	130,096	1,690,975	45,800	9,501,883	176,496
April	4,565,277	87,546	476,329	14,053	5,041,606	102,199
May	4,111,618	69,419	1,323,069	40,051	5,435,287	109,470
June	4,652,172	73,220	3,812,712	127,229	8,464,884	200,449
July	3,065,599	88,989	6,944,880	157,992	11,010,479	246,981
August	3,496,368	80,429	2,784,401	69,247	6,280,769	149,670
September	3,017,502	67,633	4,450,517	127,194	7,898,019	194,827
October	4,082,167	74,661	2,905,231	83,911	6,987,388	158,572
November	4,141,494	82,534	7,015,850	156,384	11,167,344	238,918
December	2,070,922	73,823	1,591,592	33,400	3,662,514	107,283
<b>Total</b>	<b>45,462,419</b>	<b>1,055,456</b>	<b>34,261,751</b>	<b>801,992</b>	<b>88,724,170</b>	<b>1,947,448</b>
<b>Grand total</b>	<b>107,956,089</b>	<b>2,062,756</b>	<b>35,447,651</b>	<b>928,332</b>	<b>143,407,740</b>	<b>2,989,088</b>

\* Includes herring from Newfoundland; 6,137,875 pounds frozen, \$101,420, and 4,243,975 pounds salted, \$64,519.  
 † Includes 75,620 pounds salted haddock, hake, and pollock, \$919.

## THE FISHERIES OF THE MIDDLE ATLANTIC STATES.

The fishery canvass of Pennsylvania, Delaware, Maryland, and Virginia having been completed in advance of the other States of the Middle Atlantic region, a condensed statement respecting their fisheries in 1897 was prepared and distributed as Statistical Bulletin No. 11.

There were employed in the fisheries of New York 7,443 persons; in those of New Jersey, 12,494; Pennsylvania, 1,898; Delaware, 2,392; Maryland, 42,812, and Virginia, 28,277. The fisheries of Pennsylvania in the present canvass include, however, only those of the Delaware and Susquehanna rivers.

The total investment in the fisheries of all these States was \$15,188,614. The total number of vessels employed was 3,874, valued with their outfits at \$4,167,469.

Gill nets were the most extensively used among the different forms of apparatus, with the exception of oyster tongs, 26,242 being the total number.

The total number of pound and trap nets was 2,491, valued at \$499,115.

In respect to products of the fisheries, Maryland leads, the value being \$3,617,306. The fishery products of New Jersey were worth \$3,614,434; those of New York, \$3,391,595; those of Virginia, \$3,167,863; those of Pennsylvania, \$269,507, and those of Delaware, \$252,123. The products of the fisheries of all these States amounted to 593,992,516 pounds, valued at \$14,312,828.

Taking these States as a whole, the oyster fishery leads all others in importance, being valued at \$8,866,829. The shad fishery ranks next, with a value of \$980,748. The products of the clam fishery were valued at \$937,872. Other important fisheries are for blue-fish and menhaden, the former being worth \$581,560 and the latter \$473,359.

The value of the fisheries in general for 1897 when compared with that for 1891—the year of the last preceding investigation—shows a decrease of \$4,710,646, due chiefly to a falling off in the oyster industry in Maryland, Virginia, and New York, but principally in Maryland.

There has been an important increase in the yield of the shad fishery in general, accompanied by a noticeable decrease in value. Virginia is the only State in which an increase in value is shown.

In the menhaden fishery there is shown an increase in the yield and a decrease in value.

The sturgeon fishery has decreased somewhat in yield, while the value has materially increased.

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Fisheries of the Middle Atlantic States in 1897.

Items.	New York.		New Jersey.		Pennsylvania.		Delaware.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Persons employed	7,443		12,494		1,898		2,392	
Vessels and outfits	843	\$1,011,650	675	\$768,844	40	\$91,755	42	\$37,854
Boats	4,119	274,341	6,365	485,059	504	21,485	953	39,349
Seines	179	26,810	604	45,072	125	12,921	176	8,076
Gill nets	3,169	65,187	4,142	124,158	177	9,711	983	31,037
Pound nets, trap nets, and weirs	197	53,780	180	98,905			8	025
Dredges	2,536	14,926	1,587	33,759	83	2,500	72	2,880
Tongs and rakes	3,634	17,732	8,815	50,819			117	845
Other apparatus		35,613		29,154		2,480		1,979
Shore property		437,930		563,902		828,576		196,374
Cash capital		157,600		173,400		632,100		88,200
Total investment.		2,094,869		2,371,252		1,601,528		407,819

Products.	New York.		New Jersey.		Pennsylvania.		Delaware.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives	955,000	\$11,367	2,053,802	\$9,520	422,335	\$2,883	1,924,607	\$11,910
Black bass			150	12	4,103	418		
Blue-fish	11,146,424	391,027	5,164,173	148,257	12,800	321		
Ronito	42,823	2,103	358,700	9,605				
Butter-fish	728,616	26,125	217,037	5,867				
Carp	205,560	8,318	785,409	39,370	114,950	6,695	111,300	5,192
Cat-fish	90,090	5,656	221,985	11,114	120,096	6,985	98,290	3,847
Cod	2,116,316	69,879	3,481,890	71,208				
Croakers			280,800	5,021			297,600	2,654
Eels	420,730	20,226	749,405	35,862	51,794	4,273	128,810	6,352
Flounders	1,108,057	35,174	1,225,725	29,018	31,545	792	2,000	85
Haddock	153,320	4,904	167,375	3,060				
Hake	24,300	608	69,785	1,538				
King-fish	10,440	872	43,027	3,766				
Mackerel	140,812	6,978	24,300	1,628				
Menhaden	60,605,712	147,697	30,552,825	70,056				
Mullet			22,075	537			37,700	844
Perch	65,590	3,365	602,877	38,221			399,300	19,128
Pike			2,770	152			41,250	2,027
Pompano			40	10				
Scup	746,373	16,911	757,450	13,816	29,150	719		
Sea bass	354,441	16,245	2,131,480	74,281	900,000	36,000	1,900	95
Shad	1,884,228	62,953	13,000,783	342,931	2,007,325	63,587	1,020,364	47,062
Sheepshead	4,900	252	49,835	8,565				
Snappers, red	92,000	3,680						
Spanish mackerel	11,360	1,825	108,030	11,539				
Spots			20,700	682				
Squeteague	2,561,527	69,474	8,679,132	180,989			1,440,880	25,140
Striped bass	116,465	14,177	287,189	31,978	9,556	991	128,770	12,033
Sturgeon	427,547	20,248	818,449	26,404	9,945	260	487,250	9,014
Suckers	16,050	635	142,130	0,720	26,250	1,244	35,200	1,543
Tautog	49,181	1,534	239,400	5,513			4,800	240
Other fish	1,200,200	3,638	125,841	2,026	1,952	173		
Caviar			200,155	67,592			69,479	25,786
Crabs	413,180	5,975	795,301	40,069			168,800	5,389
King crabs			1,124,800	4,495			975,000	2,025
Lobsters	381,020	31,458	99,230	8,573			5,985	459
Clams	2,219,304	253,883	5,475,177	607,520			6,800	1,530
Oysters	14,887,040	2,050,058	21,035,341	1,682,015	1,861,538	143,974	1,146,390	63,897
Scallops	885,960	80,122		72,000				
Terrapin			13,528	6,096	825	98	8,322	2,556
Turtles			14,550	999	1,021	78	44,570	2,396
Other products	5,491,000	9,228	2,522,896	3,140	78	16	320	160
Total	109,555,566	3,391,595	103,782,517	3,614,434	5,604,263	269,507	8,834,797	252,123

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Fisheries of the Middle Atlantic States in 1897—Continued.

Items.	Maryland.		Virginia.		Total for Middle Atlantic States.	
	No.	Value.	No.	Value.	No.	Value.
Persons employed	42,812		28,277		95,316	
Vessels and outfits	1,419	\$1,344,542	1,055	\$914,824	3,874	\$4,167,469
Boats	10,077	562,455	10,302	483,276	32,320	1,875,965
Saimes	330	39,282	145	54,012	1,659	186,773
Gill nets	8,464	77,264	9,307	46,235	26,242	253,592
Found nets, trap nets, and weirs	856	81,115	1,250	264,600	2,491	490,115
Dredges	8,520	99,111	1,816	22,707	14,614	175,943
Tongs and rakes	11,191	66,647	13,552	55,100	37,309	191,143
Other apparatus		32,240		8,290		109,150
Shore property		1,878,069		607,082		4,513,223
Cash capital		1,640,285		424,750		3,116,235
Total investment		5,821,610		2,891,536		15,188,614

Products.	Maryland.		Virginia.		Total for Middle Atlantic States.	
	Pounds.	Value.	Pounds.	Value.	Pounds.	Value.
Alewives	17,130,459	\$123,453	13,675,585	\$70,653	36,170,788	\$220,795
Black bass	6,765	613	13,600	630	24,618	1,673
Blue-fish	186,708	7,156	1,505,128	34,799	18,015,233	581,500
Bonito	1,000	50	25,350	798	427,873	12,556
Butter-fish	87,040	2,348	465,823	10,624	1,498,541	44,964
Carp	110,925	3,825	3,194	108	1,331,338	63,508
Cat-fish	578,021	19,644	381,392	10,526	1,459,874	57,772
Cod			800	40	5,599,006	141,127
Croakers	236,295	2,880	4,111,929	27,208	4,926,624	37,672
Eels	406,744	14,684	76,565	2,529	1,834,048	92,926
Flounders	27,357	1,097	230,440	6,552	2,625,124	72,718
Haddock					320,695	7,964
Hake					94,035	2,146
King-fish	1,000	35	120,075	4,970	174,542	6,643
Mackerel			309	18	163,412	8,634
Menhaden	353,100	365	178,650,362	255,241	270,167,099	473,359
Mullet	1,500	60	54,521	1,190	115,796	2,637
Perch	1,321,280	62,246	337,629	14,672	2,726,670	137,932
Pike	114,770	8,919	29,625	2,300	188,355	13,458
Pompano	310	35	70,135	5,515	70,485	6,560
Scup			4,000	120	1,536,973	31,566
Sea bass	16,200	690	1,765	40	3,405,780	127,351
Shad	5,799,563	159,365	11,513,994	303,950	35,820,257	980,748
Sheepshead	200	12	28,818	1,894	83,753	10,723
Snappers, red					92,000	3,680
Spanish mackerel	9,762	833	503,106	39,911	632,258	54,108
Spots	2,928	139	1,079,492	26,467	1,103,120	27,288
Squeteague	597,179	14,782	6,474,046	88,901	19,753,664	379,305
Striped bass	955,347	70,045	544,237	32,429	2,021,564	161,053
Sturgeon	145,569	5,008	631,610	16,563	2,495,370	83,557
Suckers	83,030	1,801	51,250	1,762	352,910	13,705
Tautog					343,381	7,287
Other fish	51,752	641	494,020	0,050	1,873,765	10,128
Caviar	1,594	644	63,960	19,023	335,188	112,995
Crabs	9,440,195	217,586	6,399,514	68,245	17,226,090	837,264
King crabs					1,799,800	6,520
Lobsters					485,345	40,490
Clams	122,288	8,842	841,568	66,097	8,065,137	937,872
Oysters	50,784,538	2,885,202	49,166,936	2,041,683	138,881,783	8,896,829
Scallops					957,060	84,122
Terrapin	7,266	3,226	11,822	2,104	41,763	14,080
Turtles	6,465	289	56,825	1,077	122,481	4,939
Other products	3,928	772	1,025	108	8,019,247	13,424
Total	88,588,018	3,617,306	277,627,355	3,167,868	593,992,516	14,312,828

CLXII REPORT OF COMMISSIONER OF FISH AND FISHERIES.

THE FISHERIES OF NEW YORK AND NEW JERSEY.

In addition to the data presented in the foregoing tables for 1897, the following statistics on the fisheries of New York and New Jersey have also been secured:

*Fisheries of New York and New Jersey in 1898.*

Items.	New York.		New Jersey.	
	Number.	Value.	Number.	Value.
Persons employed .....	9,185		12,270	
Vessels, fishing .....	501	\$940,415	531	\$465,875
Tonnage .....	9,258		5,564	
Outfit .....		256,486		92,161
Vessels, transporting .....	166	143,395	117	168,775
Tonnage .....	2,365		2,019	
Outfit .....		9,749		19,784
Boats, scows, and floats .....	3,098	264,792	6,424	483,889
Saibes .....	220	48,090	610	43,730
Gill nets .....	2,039	61,889	4,304	127,742
Pound nets and weirs .....	195	55,385	172	88,895
Fyke nets .....	3,531	16,016	2,835	18,470
Lines .....		7,012		7,439
Pots, lobster and eel .....	9,720	12,092	4,700	5,362
Dredges, tongs, and rakes .....	5,343	30,948	10,544	87,745
Other apparatus .....		457		747
Shore property .....		2,760,421		561,048
Cash capital .....		2,980,800		165,800
Total investment .....		7,580,787		2,337,422

Species.	New York.		New Jersey.	
	Pounds.	Value.	Pounds.	Value.
Alewives .....	1,028,110	\$12,052	1,809,947	\$8,707
Blue fish .....	11,214,433	387,167	5,077,085	163,620
Bonito .....	63,244	1,718	876,822	9,943
Butter-fish .....	470,836	15,488	262,627	8,080
Carp .....	288,400	11,543	245,963	13,884
Cat fish .....	102,340	6,151	229,648	11,688
Cod .....	2,040,137	69,032	2,582,900	82,374
Eels .....	396,945	27,517	799,488	38,309
Flounders .....	876,683	28,455	1,333,735	32,659
Haddock .....	172,883	5,548	240,050	7,806
Hake .....	32,021	684	98,042	2,359
King-fish .....	11,854	978	44,002	3,935
Mackerel .....	84,458	6,208	16,480	1,322
Menhaden .....	103,280,345	405,488	22,198,530	53,726
Perch, white .....	60,310	3,245	631,522	39,381
Perch, yellow .....	3,040	117	4,810	239
Scup .....	645,397	14,102	622,165	13,572
Sea bass .....	311,181	13,990	2,189,533	79,889
Shad .....	1,828,977	62,745	12,844,432	293,173
Sheepshead .....	3,150	174	42,785	7,273
Snappers, red .....	78,000	3,040		
Spanish mackerel .....	13,007	2,061	83,125	9,720
Squeteague .....	2,076,930	53,706	9,401,203	203,419
Striped bass .....	81,795	9,765	274,353	28,096
Sturgeon .....	391,055	34,581	719,024	21,273
Snokers .....	17,550	758	155,511	7,383
Tautog .....	51,260	1,607	314,748	6,029
Cavlar .....	17,250	11,992	149,302	79,668
Crabs, hard .....	1246,633	1,793	2614,785	15,826
Crabs, soft .....	100,823	3,894	2269,078	25,805
King crabs .....			1,082,190	4,843
Lobsters .....	322,378	30,285	123,876	11,097
Clams, hard .....	1,503,192	205,952	4,495,073	524,339
Clams, soft .....	817,800	60,707	9795,000	66,345
Oysters, market .....	12,823,237	1,863,607	19,394,147	1,309,411
Oysters, seed .....	1,612,278	121,422	7,970,592	359,913
Scallops .....	653,175	53,430	55,800	3,100
Turtles .....			12,850	878
Shells .....	5,469,690	4,550		
Other products .....	1,309,663	9,497	2,960,835	14,552
Total .....	210,497,378	8,545,189	90,297,118	3,668,766

<sup>1</sup>739,899 in number.  
<sup>2</sup>1,844,355 in number.  
<sup>3</sup>302,469 in number.  
<sup>4</sup>807,234 in number.

<sup>5</sup>531,095 in number.  
<sup>6</sup>187,899 bushels.  
<sup>7</sup>561,884 bushels.  
<sup>8</sup>81,780 bushels.

<sup>9</sup>79,500 bushels.  
<sup>10</sup>1,831,891 bushels.  
<sup>11</sup>1,342,021 bushels.  
<sup>12</sup>230,325 bushels.

<sup>13</sup>1,188,656 bushels.  
<sup>14</sup>108,863 bushels.  
<sup>15</sup>9,860 bushels.  
<sup>16</sup>91,000 bushels.



The number of persons employed in the fisheries of these States in 1898 was 9,185 for New York, and 12,270 for New Jersey; the capital invested amounted to \$7,589,787 for New York and \$2,337,422 for New Jersey; the value of the products was \$3,545,189 and \$3,563,766 respectively.

The large increase in the number of persons employed and in the capital invested in the fisheries of New York in 1898 as compared with 1897, is due mainly to the fact that the statistics for 1898 include the persons and capital in the wholesale fishery trade of New York City, and also to the transfer of the location of the menhaden industry, which has been consolidated to an important extent and is controlled chiefly in New York.

#### ARTIFICIAL DRIERS IN CURING CODFISH.

Several fish-driers have been in use in the British Provinces during the past few years. There are at present but four driers in use in the United States—namely, at Boston and Gloucester, Mass.; Rockland, Me., and San Francisco, Cal. The fish-drier seems to be destined to become a valuable adjunct to the outfit of the cod-curing establishment. It is not, as yet, intended to supplant open-air fish-drying, but will probably come into general use as an accessory. Any desired temperature and air current may be maintained continuously, and the kiln may be constructed to accommodate large quantities of fish. It permits of fish being dried quickly when it is necessary to do so, and is useful in drying export fish for climates where well-cured fish are desired. When fish, drying out of doors, are endangered by bad weather, they can be saved by being placed in the drier.

Two forms of drier are in use, one—Whitman's patent—in which the kiln is fitted throughout with steam pipes for maintaining the desired temperature, while an air current is forced through the compartments by a blower; the other—devised by Charles E. Weeks—in which the kiln is supplied with a current of warm air without the introduction of heating pipes into the kiln. The kilns in both driers consist of a number of connected booths, each holding about 12 sliding trays, upon which the fish are placed. The trays are about 10 feet long by 4½ wide, with bottoms of galvanized wire netting. The salted fish are laid on the trays either side up and appear to require no turning. Small fish dry in about 12 hours; slack-salted fish in 36 to 48 hours. The temperature is maintained at about 80° during the drying of heavy salted fish. The kiln of the Weeks drier at Rockland, Me., carries about 150 quintals at one time. The Whitman drier at Boston is much larger.