
STATISTICS
OF THE
FISHERIES OF THE GREAT LAKES.

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

C. H. TOWNSEND, ASSISTANT IN CHARGE.

INTRODUCTORY NOTE.

The statistical report on the fisheries of the Great Lakes presented herewith is based upon original investigations by trained agents of this Commission. The inquiries were begun at the opening of the fishing season in 1900 and the information collected relates to the year 1899. Upon the completion of the field work the general results were made public in Statistical Bulletin No. 17, which was distributed among persons interested in the fisheries of the lake region. It was issued also in less condensed form in the report of the Commissioner for the year ending June 30, 1901. Since then the information has been further arranged in the office and the results are now given.

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

The field inquiries were conducted as follows: Mr. T. M. Cogswell canvassed Lake Superior; Messrs. C. H. Stevenson and E. S. King, Lake Michigan; Mr. W. A. Roberts, lakes Huron and St. Clair and the St. Clair and Detroit rivers; and Mr. J. N. Cobb, lakes Erie and Ontario.

Mr. J. B. Wilson collected information on the wholesale fishery trade of Lake Erie.

Most of the field agents have assisted in the office work and contributed notes relative to the fisheries.

The assistant in charge has had the constant aid of Mr. Ansley Hall and other persons in the office.

GEORGE M. BOWERS,
Commissioner.

STATISTICS OF THE FISHERIES OF THE GREAT LAKES.

GENERAL NOTES AND STATISTICS.

The number of persons engaged in the commercial fisheries of the Great Lakes in 1899 was 9,670. By far the greater proportion of these (6,657) were engaged in the shore or boat fisheries. There were employed on vessels fishing 1,156; on vessels transporting, 92; the remainder, 1,765, being shoresmen. The lakes whose fisheries employed the greatest numbers were Erie and Michigan, there being 3,728 engaged in the former and 3,255 in the latter. The numbers employed in the fisheries of other lakes were as follows: Huron, 1,241; Superior, 613; St. Clair, 442; Ontario, 391. Since the last general canvass of the fisheries of the Great Lakes, in 1893, there has been a decrease of 510 in the number of persons employed, the principal decrease in this respect being in Lake Michigan.

The amount of capital invested in the fisheries of these lakes was \$6,617,716. The investment in Lake Michigan was \$2,915,241; in Lake Erie, \$2,720,554; in Lake Huron, \$474,953; in Lake Superior, \$372,083; in Lake Ontario, \$80,350; and in Lake St. Clair, \$54,535. As compared with 1893 the capital invested has increased \$718,446. There has been an increase in the investment in Lake Michigan of \$851,744; in Lake Erie, \$213,712; and in Lake Ontario, \$24,219. The investment in the fisheries of the other lakes has decreased as follows: Lake Superior, \$156,941; Huron, \$28,747; St. Clair, \$185,541.

The number of fishing and transporting vessels employed was 208, having a value, exclusive of outfits, of \$659,650. These were employed chiefly in the fisheries of lakes Michigan and Erie, and in nearly equal numbers in each. The boats in the shore fisheries numbered 3,281, valued at \$227,766. The principal apparatus of capture used on vessels and boats was gill nets, valued at \$690,518, the next most important forms of apparatus being pound and trap nets, valued at \$660,408.

The value of shore and accessory property in the fisheries and fishery industries was \$2,225,503, and the cash capital amounted to \$1,933,600.

The products of the fisheries aggregated 113,727,240 pounds, valued at \$2,611,439. Lake Erie produced 58,393,864 pounds, valued at \$1,150,895; Lake Michigan, 34,499,996 pounds, valued at \$876,748; Huron, 12,418,327 pounds, valued at \$308,078; Superior, 5,429,654 pounds, valued at \$150,862; Ontario, and the St. Lawrence and Niagara rivers, 2,406,332 pounds, valued at \$100,997; and St. Clair, and the St. Clair and Detroit rivers, 579,067 pounds, valued at \$23,864.

Some of the more important species yielded by the fisheries were herring, 59,913,576 pounds, valued at \$941,067; lake trout, 10,611,588 pounds, valued at \$431,276; yellow perch, 9,584,802 pounds, valued at \$156,350; white-fish, 5,094,014 pounds, valued at \$297,023; blue pike,* 4,731,782 pounds, valued at \$148,740; wall-eyed pike,* 3,311,892 pounds, valued at \$156,503; sturgeon, 1,129,348 pounds, valued at \$81,085. Other species of less value, but taken in comparatively large quantities, were suckers, 4,043,987 pounds, valued at \$56,068, and carp, 3,674,346 pounds, valued at \$52,362.

The following reports relative to the fisheries of the Great Lakes may be consulted advantageously in the present connection.

The Fisheries of the Great Lakes, by Frederick W. True, elaborated from notes gathered by Mr. Ludwig Kumlein. <The Fishery Industries of the United States, 1887, Section II, pp. 631-673.

The Fisheries of the Great Lakes, by Ludwig Kumlein. <The Fishery Industries of the United States, 1887, Section V, vol. I, pp. 755-769.

Report on an Investigation of the Fisheries of Lake Ontario, by Hugh M. Smith, M. D. Bull. U. S. Fish Com. 1890, pp. 177-215.

Review of the Fisheries of the Great Lakes in 1885, compiled by Hugh M. Smith and Merwin-Marie Snell, with introduction and description of fishing vessels, by J. W. Collins. Rept. U. S. Fish Com. 1887, pp. 1-333.

The Fisheries of the Great Lakes, by Hugh M. Smith. Rept. U. S. Fish Com. 1892, pp. 361-462.

Fisheries of the Great Lakes, by Hugh M. Smith. Rept. U. S. Fish Com. 1895, pp. 93-103.

Report of the Joint Commission relative to the Preservation of the Fisheries in Waters contiguous to Canada and the United States, by Richard Rathbun and William Wakeham. House Ex. Doc. No. 315, Fifty-fourth Congress, second session, 1897, pp. 1-178.

Fisheries of Lake Ontario. < Rept. U. S. Fish Com. 1898, pp. CLII-CLVI.

Statistics of Certain Fisheries of the New England and Middle Atlantic States and the Great Lakes. < Rept. U. S. Fish Com. 1898, pp. CLXVI-CLXXV. In this report the figures presented relate to the fiscal year 1897.

STATISTICS.

In the present report of the fisheries of the Great Lakes for the year 1899 the statistics are first shown by lakes in a series of tables for the whole region. The fisheries of each lake are then considered in detail by States and counties, the products of the vessel and shore fisheries being shown by species for each form of apparatus.

The quantity and value of caviar prepared by the fishermen of the various lakes and extent of the wholesale fishery trade in some of the more important localities are given in separate statistical statements; but these data are not to be added to the totals of the regular tables.

Comparative statistics for certain years from 1880 to 1899, and a series of tables in which the fisheries are considered primarily by States, are also introduced.

In all tables relating to products the fresh fish are entered at round weight, as when taken from the water. With regard to the sturgeon, which is one of the species so treated, a part of the catch is sold round and the remainder dressed, while a considerable quantity of the eggs

*The wall-eyed pike (*Stizostedion vitreum*), the variety of wall-eyed pike known locally as blue pike, and the sauger (*Stizostedion canadense*), are classified in the accompanying statistics under the general term "pike perch."

of the females is salted and disposed of as caviar. The weight and value given for sturgeon, therefore, include both the meat and the caviar. The weight for smoked and salted fish represents the condition in which they are marketed.

Following are three general tables showing, by lakes, the number of persons employed, the apparatus and capital, and the quantity and value of the products.

Table showing the number of persons employed in the fisheries of the Great Lakes in 1899.

How employed.	Superior.	Michigan.	Huron.	* St. Clair.	Erie.	† Ontario.	Total.
On vessels fishing	67	433	62	.....	574	.....	1,156
On vessels transporting	5	10	7	.....	65	5	92
In shore or boat fisheries.....	478	2,045	986	374	2,401	373	6,657
Shoemen	63	747	186	68	688	13	1,765
Total	613	3,255	1,241	442	3,728	391	9,670

* Includes St. Clair and Detroit rivers.

† Includes St. Lawrence and Niagara rivers.

Table showing, by lakes, the apparatus and capital employed in the fisheries of the Great Lakes in 1899.

Items.	Superior.		Michigan.		Huron.	
	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	9	\$38,800	76	\$210,300	9	\$42,500
Tonnage	259	.....	1,214	.....	157	.....
Outfit .....	.....	8,504	.....	40,695	.....	7,715
Vessels transporting	1	3,000	4	3,700	3	4,250
Tonnage	18	.....	107	.....	99	.....
Outfit .....	.....	1,300	.....	210	.....	580
Boats	305	27,245	1,098	67,968	527	40,836
Apparatus—vessel fisheries:	.....	.....	.....	.....	.....	.....
Pound nets .....	.....	.....	10	2,040	35	525
Gill nets	3,273	42,364	28,940	202,862	2,266	27,720
Lines .....	.....	.....	.....	480	.....	.....
Apparatus—shore fisheries:	.....	.....	.....	.....	.....	.....
Pound nets and trap nets	162	25,820	795	184,309	961	111,314
Gill nets	3,956	50,919	20,917	85,533	3,410	26,664
Seines	1	50	11	510	9	673
Fyke nets	15	150	1,477	23,627	398	7,632
Lines .....	.....	588	.....	2,678	.....	346
Other apparatus .....	.....	320	.....	2,500	.....	210
Shore property .....	.....	111,023	.....	869,629	.....	148,489
Cash capital .....	.....	56,000	.....	1,218,200	.....	55,500
Total .....	.....	372,083	.....	2,915,241	.....	474,953

Items.	* St. Clair.		Erie.		† Ontario.		Total.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	85	\$281,400	.....	.....	179	\$573,000
Tonnage	1,247	.....	.....	.....	2,877	.....
Outfit	70,881	.....	.....	.....	127,795
Vessels transporting	19	74,700	2	\$1,000	29	86,650
Tonnage	418	.....	22	.....	664	.....
Outfit	12,996	.....	90	.....	16,176
Boats	188	\$3,770	876	79,466	287	8,482	3,281	227,766
Apparatus—vessel fisheries:
Pound nets	45	2,565
Gill nets	29,018	160,870	.....	.....	63,497	433,816
Lines	480
Apparatus—shore fisheries:
Pound nets and trap nets	5	1,050	1,724	329,500	145	5,850	3,792	657,843
Gill nets	60	600	12,660	68,312	1,187	18,674	42,190	256,702
Seines	13	1,255	104	8,300	24	420	162	11,298
Fyke nets	617	15,750	461	5,412	2,958	52,571
Lines	644	.....	3,470	.....	1,355	.....	9,081
Other apparatus	271	.....	142	.....	427	.....	3,870
Shore property	26,945	.....	1,050,977	.....	18,440	.....	2,225,503
Cash capital	20,000	.....	563,700	.....	20,200	.....	1,933,600
Total	54,635	.....	2,720,554	.....	80,350	.....	6,617,716

* Includes St. Clair and Detroit rivers.

† Includes St. Lawrence and Niagara rivers.

580 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by lakes and species, the yield of the fisheries of the Great Lakes in 1899.

Species.	Superior.		Michigan.		Huron.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass			8,505	\$644	5,659	\$396
Cat-fish and bullheads	7,600	\$304	62,162	1,632	574,406	16,627
Eels			484	40	861	49
Fresh-water drum			55,372	722	160,646	1,009
German carp			25,280	492	6,369	143
Herring, fresh	886,018	6,954	10,225,653	221,764	1,073,357	10,686
Herring, salted	239,460	4,816	11,848,063	212,245	2,628,850	49,722
Ling or lawyers			122,339	886	20,880	167
Pike and pickerel	15,602	316	87,316	4,400	191,751	6,995
Pike perch (wall-eyed)	13,679	495	173,733	7,555	1,110,516	49,294
Rock bass	934	28	4,161	43	83,344	1,612
Sturgeon	4,435	176	108,279	7,187	30,497	1,268
Suckers, fresh	5,447	57	934,642	10,143	980,695	18,502
Suckers, salted	6,200	114	109,136	1,931	126,795	1,818
Sun-fish					61,062	739
Trout, fresh	2,664,838	85,572	5,407,110	241,015	1,879,411	80,077
Trout, salted	453,331	15,127	81,837	3,666	7,690	346
White bass			4,380	146		
White-fish, fresh	647,670	23,710	1,407,142	68,025	584,168	31,525
White-fish, salted	45,521	1,837	103,222	5,467	8,140	385
White-fish (bluefin)	435,060	11,317	498,318	12,794		
White-fish (Menominee), fresh			375,053	9,747	112,417	2,667
White-fish (Menominee), salted			144,030	4,560	24,060	810
Yellow perch	3,879	39	3,077,741	57,972	2,740,669	82,600
Other fish			117	9	484	21
Crawfish			135,861	3,498		
Frogs					8,000	520
Total	5,429,654	150,862	34,499,996	876,743	12,418,327	308,078

Species	*St. Clair.		Eric.		†Ontario.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	200	\$14	133,746	\$9,866	48,046	\$3,133	196,216	\$14,053
Cat-fish and bullheads	17,505	629	1,002,704	30,451	518,423	18,834	2,182,800	68,527
Crappie			60,000	1,800			60,000	1,800
Eels			849	61	123,840	6,163	126,034	6,313
Fresh-water drum	17,050	131	1,147,122	7,651			1,380,190	9,513
German carp	8,000	221	3,633,697	51,456	1,000	50	3,674,346	52,362
Herring, fresh			33,427,797	431,037	61,178	2,789	45,674,603	673,260
Herring, salted					25,600	1,024	14,238,973	267,807
Ling or lawyers							143,219	1,063
Mooneye			43,836	867			43,836	867
Pike and pickerel	42,365	1,795	19,625	1,241	100,365	5,861	457,024	20,698
Rock bass	3,700	217	5,296	91	102,968	2,323	200,403	4,314
Sturgeon	7,600	1,352	789,402	58,392	189,156	17,710	1,129,348	81,085
Suckers, fresh	33,600	325	1,668,734	18,077	278,738	5,101	3,801,856	52,205
Suckers, salted							242,131	5,863
Sun-fish	250	4	175,440	4,362	148,449	2,099	385,201	7,204
Trout, fresh	69,915	2,891	32,024	1,736	15,432	853	10,068,730	412,137
Trout, salted							542,858	19,139
Pike perch (wall-eyed)	268,350	11,877	1,735,174	86,455	10,440	827	3,311,892	156,503
Pike perch (blue pike)			4,544,786	139,301	186,996	9,439	4,731,782	148,740
Pike perch (sauger)			3,026,565	75,313			3,026,565	75,313
White bass			1,696,524	30,603	2,300	92	1,693,204	30,841
White-fish, fresh	69,902	3,087	2,066,314	152,009	161,935	10,078	4,937,131	289,334
White-fish, salted							156,893	7,689
White-fish (bluefin)							933,878	24,111
White-fish (Menominee), fresh							487,470	12,414
White-fish (Menominee), salted							168,090	5,370
Yellow perch	40,000	1,202	3,315,496	52,625	407,017	11,822	9,584,802	156,350
Other fish	630	126	540	5	22,700	1,593	24,471	1,754
Crawfish			982	172	1,750	306	135,861	3,498
Frogs							10,732	998
Turtles			67,211	2,324			67,211	2,324
Total	579,067	23,864	58,393,864	1,150,895	2,406,332	100,997	113,727,240	2,611,439

*Includes St. Clair and Detroit rivers.

†Includes St. Lawrence and Niagara rivers.

CAVIAR.

Caviar is manufactured to some extent by the fishermen of all the Great Lakes except Lake Superior, where sturgeon are not sufficiently abundant to supply the necessary eggs. This product is also prepared by wholesale fish-dealers, especially in the State of New York on Lake Erie, who either buy the eggs fresh from fishermen or obtain them from sturgeon purchased in a round condition and dressed before being sold. In the early days of the fisheries of this region the value of the sturgeon was apparently unknown to the fishermen, and large quantities of these fish were allowed to go to waste without even being converted into fertilizer; but in 1880 this fishery had reached large proportions and 230,160 pounds of caviar were produced, valued at \$34,315.

In 1885 the catch of sturgeon was considerably less than in 1880, but the quantity of caviar had increased to 477,020 pounds, with an approximate value of \$57,242, or about 12 cents per pound. The constant decline in the fishery since that time has naturally resulted in a material reduction in the yield of caviar. The greater portion of the output in 1899, including a large percentage of that made by the fishermen, was handled in the wholesale trade of Lake Erie, and amounted to 97,555 pounds, valued at \$73,201. The caviar prepared by the fishermen of the various lakes in 1899 amounted to 47,470 pounds, valued at \$30,510. About 70 per cent of this was the product of the fisheries of Lake Erie, and nearly 50 per cent, or 20,317 pounds, valued at \$12,850, was prepared in Erie County, N. Y. The yield, by States, was as follows: Michigan, 6,569 pounds, \$3,435; New York, 31,287 pounds, \$20,424; Pennsylvania, 6,274 pounds, \$3,992; and Ohio, 3,340 pounds, \$2,659.

The quantity and value of caviar prepared by the fishermen of the Great Lakes in 1899 is shown, by lakes, in the following table:

Lakes.	Lbs.	Value.
Michigan	5,044	\$2,264
Huron	300	195
St. Clair	960	768
Erie	32,365	21,122
Ontario	*8,801	6,161
Total	47,470	30,510

* Includes for the St. Lawrence River 4,320 pounds, value \$2,610, and for the Niagara River 140 pounds, value \$70.

COMPARATIVE STATISTICS.

Statistics of the fisheries of the Great Lakes are presented in the following tables for the years 1880, 1885, 1890, 1893, and 1899. The period of greatest development in the fisheries of this region, as indicated by the statistics under comparison, was from 1880 to 1885. In those years the number of persons employed increased from 5,050 to 10,355, the investment from \$1,345,975 to \$4,520,081, and the products from 68,742,000 pounds, valued at \$1,652,900, to 99,842,076 pounds,

582 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

valued at \$2,691,866. Since then there has been some decrease in the number of persons employed, but a steady increase in the number of pound nets and gill nets, the two most important forms of fishing apparatus used, and also in the total amount of capital invested. The yield of products, except in 1893, has greatly increased in quantity, but has not in any of the years named equaled that of 1885 in value. In 1899 it was slightly exceeded in quantity by that of 1890, but was next in value to that of 1885.

A noteworthy feature of these fisheries is the change that has taken place in the abundance of the different species of fish. In 1880 the white-fish was more abundant than any other species and constituted nearly a third of the products, but in 1899 the catch had decreased to 5,094,014 pounds. In the same period sturgeon decreased from 7,557,383 pounds to 1,129,348 pounds. The yield of trout was larger in 1899 than in 1880, but it has decreased considerably as compared with 1885, 1890, and 1893. Offsetting these decreases, herring has increased from 15,967,517 pounds to 59,913,576 pounds, while the aggregate quantity of several other species, not shown separately in the statistics, increased from 16,948,600 pounds to 36,978,714 pounds. The decline in the abundance of some of the more valuable species is therefore being compensated for by an increase in the cheaper varieties.

Comparative table showing the number of persons employed in the fisheries of the Great Lakes in 1880, 1885, 1890, 1893, and 1899.

Lakes.	1880.	1885.	1890.	1893.	1899.
Superior.....	414	914	653	916	613
Michigan.....	1,578	3,379	2,877	3,928	3,255
Huron.....	470	892	726	944	1,241
St. Clair*.....	356	272	611	529	442
Eric.....	1,620	4,238	4,482	3,622	3,728
Ontario.....	612	600	389	241	391
Total.....	5,050	10,355	9,738	10,180	9,670

*Includes St. Clair and Detroit rivers.

Comparative table showing the apparatus and capital employed in the fisheries of the Great Lakes in 1880, 1885, 1890, 1893, and 1899.

Lakes and years.	Vessels and boats.		Pound nets and trap nets.		Gill nets.		Seine.		Other apparatus, value.	Shore property and cash capital.	Total investment.
	No.	Value.	No.	Value.	No.	Value.	No.	Value.			
Superior:											
1880.....	161	\$25,240	43	\$14,950	4,630	\$25,280	32	\$2,010	\$200	\$12,700	\$81,380
1885.....	519	100,735	230	67,520	7,557	78,082	43	2,920	1,155	177,621	427,933
1890.....	328	85,275	140	34,435	5,974	63,476	19	955	2,763	173,778	366,682
1893.....	447	139,035	276	63,415	8,899	87,680	14	500	1,565	209,512	529,024
1899.....	315	69,045	162	25,820	7,229	99,283	1	50	1,058	167,023	372,083
Michigan:											
1880.....	836	133,375	476	185,425	24,599	124,740	19	2,040	1,455	104,100	551,135
1885.....	1,402	368,326	715	253,840	58,516	325,902	87	6,950	13,457	788,366	1,757,831
1890.....	1,102	266,331	844	244,880	40,896	215,914	30	3,480	13,460	693,159	1,437,224
1893.....	1,549	357,987	785	181,385	54,232	352,084	28	2,520	27,863	1,092,219	2,063,497
1899.....	1,178	294,968	805	186,349	49,857	268,395	11	510	29,285	2,087,829	2,915,241
Huron:											
1880.....	111	20,965	189	49,425	8,360	20,600	28	5,600	3,500	3,700	108,730
1885.....	561	72,946	890	113,350	3,444	35,333	3	.....	23,100	140,620	885,349
1890.....	417	36,898	561	88,515	2,206	21,665	6	600	7,185	254,025	408,858
1893.....	520	87,645	731	108,508	4,923	53,071	1	75	3,807	236,286	503,700
1899.....	539	87,585	906	111,839	5,676	54,384	9	673	8,188	203,989	474,963

Comparative table showing the apparatus and capital employed in the fisheries of the Great Lakes in 1880, 1885, 1890, 1893, and 1899—Continued.

Lakes and years.	Vessels and boats.		Pound nets and trap nets.		Gill nets.		Scines.		Other apparatus, value.	Shore property and cash capital.	Total investment.
	No.	Value.	No.	Value.	No.	Value.	No.	Value.			
St. Clair:											
1880.....	52	\$8,000			180	\$1,080	42	\$6,000	\$1,500.	\$24,000	\$40,580
1885.....	215	7,467	57	\$12,550	23	160	34	8,825	3,819	218,270	251,081
1890.....	166	28,776	34	9,450	814	9,418	28	6,240	5,580	150,682	210,145
1893.....	211	13,728	91	7,400	380	4,260	20	3,025	2,346	206,672	240,076
1899.....	188	3,770	6	1,050	60	600	13	1,255	915	46,945	54,635
Erie:											
1880.....	602	83,880	758	233,600	5,775	22,500	18	2,800	8,645	163,675	515,100
1885.....	1,536	298,757	1,028	259,785	22,644	75,507	71	8,320	72,205	847,561	1,562,138
1890.....	1,449	520,033	1,893	548,100	49,320	169,513	44	5,305	70,601	1,502,750	2,816,302
1893.....	1,146	424,227	1,783	439,060	35,369	164,683	47	4,440	23,339	1,423,017	2,506,842
1899.....	980	435,666	1,721	329,500	41,678	229,182	104	8,390	19,362	1,614,677	2,720,554
Ontario:											
1880.....	167	13,100	34	14,000	6,000	20,000	9	1,950		5,000	54,050
1885.....	467	20,448	359	19,445	4,722	23,952	69	3,177	12,627	56,100	135,749
1890.....	376	31,162	288	21,577	2,345	18,110	27	656	10,361	38,667	123,533
1893.....	177	9,619	77	2,310	1,185	8,794	7	175	2,240	32,250	56,131
1899.....	289	9,482	145	5,850	1,187	18,674	24	420	7,194	38,640	80,350
All lakes:											
1880.....	1,929	285,500	1,600	497,400	44,544	214,200	148	20,400	15,300	313,175	1,845,976
1885.....	4,700	868,669	2,966	726,490	96,906	539,936	304	30,192	126,963	2,228,431	4,520,081
1890.....	3,838	968,474	3,750	949,957	101,555	498,096	154	17,230	109,920	2,819,061	5,362,774
1893.....	4,050	1,032,241	3,743	802,078	104,988	670,572	117	10,735	61,160	3,199,955	6,899,270
1899.....	3,489	887,416	3,837	660,408	105,687	690,618	162	11,298	66,002	4,169,103	6,617,716

Comparative table showing the products of the fisheries of the Great Lakes in 1880, 1885, 1890, 1893, and 1899.

Lakes and years.	White-fish.		Trout.		Herring.		Sturgeon.		All others.		Total.	
	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Lbs.	Value.	
Superior:												
1880.....	2,257,000	1,464,750		34,000					60,875	3,816,625	\$118,370	
1885.....	4,571,947	3,488,177		324,680		182,760			258,416	8,823,980	291,523	
1890.....	3,213,176	2,613,378		199,121		47,482			42,835	6,115,992	220,968	
1893.....	2,732,270	4,342,122		660,272		62,052			300,211	8,096,927	252,107	
1899.....	693,191	3,118,169		1,125,478		4,415			483,401	5,429,654	150,862	
Michigan:												
1880.....	12,030,400	2,659,450	3,050,400		3,839,600				1,562,025	23,141,875	668,400	
1885.....	8,682,986	6,431,208	3,312,493		1,406,678				3,681,693	23,518,148	878,788	
1890.....	5,465,973	9,361,167	6,082,682		946,837				5,586,041	26,434,266	880,465	
1893.....	2,330,060	8,216,926	11,580,895		311,780				8,308,100	30,747,755	828,611	
1899.....	1,610,364	5,488,917	21,573,716		108,279				6,818,690	34,499,996	876,743	
Huron:												
1880.....	2,700,778	2,084,500	246,800		201,000				1,969,195	7,205,273	195,277	
1885.....	1,425,380	2,639,780	1,265,650		215,500				6,010,860	11,457,170	276,397	
1890.....	1,004,094	1,605,619	2,514,551		365,718				4,666,399	10,056,381	221,067	
1893.....	1,178,271	3,439,575	2,758,628		79,553				4,608,311	12,064,338	306,861	
1899.....	592,308	1,887,101	3,699,807		30,497				6,208,614	12,418,327	308,078	
St. Clair:												
1880.....	77,922		250,700		998,500				523,805	1,850,927	36,273	
1885.....	41,125		1,208,150		227,780				798,740	2,185,795	40,193	
1890.....	238,764	244,847	490,334		309,003				1,711,623	2,994,571	73,577	
1893.....	50,950	72,030	140,112		54,106				1,497,143	1,814,311	46,030	
1899.....	69,902	69,915			7,600				431,650	579,067	23,864	
Erie:												
1880.....	3,333,800	26,200	11,774,400		1,970,000				11,982,900	29,087,300	474,880	
1885.....	3,531,855	106,900	19,354,900		4,727,950				23,734,912	51,456,177	1,109,096	
1890.....	2,341,461	121,420	38,868,283		2,078,907				21,440,812	64,560,873	1,000,905	
1893.....	1,292,410	203,132	20,931,076		793,800				19,747,907	42,968,325	805,979	
1899.....	2,066,314	32,024	33,427,797		789,402				22,078,327	58,393,864	1,150,895	
Ontario:												
1880.....	1,064,000	569,700	611,217		545,283				849,800	3,640,000	159,700	
1885.....	90,711	20,510	403,585		386,974				1,496,686	2,398,466	95,869	
1890.....	148,771	41,010	698,978		541,752				2,115,937	3,446,448	124,786	
1893.....	45,380	6,204	164,998		125,293				586,140	928,015	31,510	
1899.....	161,935	15,432	86,778		189,155				1,953,032	2,406,332	100,997	
All lakes:												
1880.....	21,463,900	6,804,600	16,967,517		7,557,383				16,948,600	68,742,000	1,652,900	
1885.....	18,344,004	12,586,665	26,869,458		7,147,612				35,894,307	99,812,076	2,691,866	
1890.....	12,401,335	12,890,441	48,763,349		4,289,750				35,563,647	113,898,531	2,471,618	
1893.....	7,629,341	16,279,963	36,235,981		1,426,584				35,047,812	96,619,671	2,270,678	
1899.....	6,094,014	10,611,588	59,913,676		1,120,348				36,978,714	113,727,240	2,611,439	

NOTE.—In the above table caviar and other secondary products are omitted except for 1893 and 1899. In 1880, 1885, and 1890 bluefin, longjaw, and Menominee in Lake Michigan and Menominee in Lake Huron are included with white-fish. In 1893 and 1899 bluefin in Lake Superior, bluefin and Menominee in Lake Michigan, and Menominee in Lake Huron are included with "All others," and longjaw in Lake Michigan with herring.

FISHERIES OF LAKE SUPERIOR.

Although Lake Superior is larger and has a greater depth of water than any of the other Great Lakes, its fisheries are not extensive as compared with those of Lake Erie or Lake Michigan, and even less important than those of Lake Huron. The States bordering this lake are Michigan, Wisconsin, and Minnesota, all of which are more or less interested in the fisheries.

The number of persons employed in the fisheries of Lake Superior in 1899 was 613. There were 72 in the vessel fisheries, 478 in the shore or boat fisheries, and 63 in the wholesale fishery trade and various occupations on shore connected with the fisheries.

The amount of capital invested was \$372,083. The number of vessels fishing and transporting fishery products was 10, valued with their outfits at \$51,604, and the number of boats used in the shore fisheries was 305, valued at \$27,245. The principal forms of fishing apparatus were gill nets, pound nets, and trap nets. The number of gill nets used on vessels was 3,273, worth \$42,364, and on boats 3,956, worth \$56,919; a total in both branches of the fisheries of 7,229, having a value of \$99,283. The number of pound nets and trap nets operated was 162, valued at \$25,820. Seines, fyke nets, dip nets, spears, and lines were also employed to a limited extent.

The yield of the fisheries of this lake, including all species, aggregated 5,429,654 pounds, valued at \$150,862. The vessel fisheries produced 2,024,022 pounds, valued at \$63,459, and the shore fisheries 3,405,632 pounds, valued at \$87,403. In the vessel fisheries the catch was taken wholly with gill nets, and in the shore fisheries 2,464,842 pounds, \$56,595, were obtained with gill nets, and 768,291 pounds, \$25,478, in pound nets and trap nets, and 172,499 pounds, \$5,330, with other forms of apparatus. The most important species taken in these fisheries were trout, 3,118,169 pounds, \$100,699; white-fish, 693,191 pounds, \$25,547; herring, 1,125,478 pounds, \$11,770, and bluefin white-fish, 435,060 pounds, \$11,317. Wall-eyed pike, pickerel, yellow perch, rock bass, sturgeon, suckers, and bullheads were taken in smaller quantities. The catch of trout in both the vessel and shore fisheries was larger than that of any other species. The quantity taken by vessels was 1,563,799 pounds, valued at \$49,887, and by boats in the shore fisheries 1,554,370 pounds, valued at \$50,812.

A comparison of the statistics for 1899 with those for 1893 shows a decrease of 303 in the number of persons employed, \$156,941 in the amount of capital invested, and 2,667,273 pounds in the quantity and \$101,245 in the value of the products. A scarcity of fish is reported from all the best fishing-grounds, and is most noticeable in those parts

of the lake heretofore depended upon for an unfailing supply. Whitefish Bay, at the eastern end of Lake Superior, has always been noted for the large quantities of white-fish and trout taken in its waters, but the catch is becoming smaller each succeeding year. At Whitefish Point, in this bay, in the year 1893 five steamers, fishing 1,360 gill nets, and 52 pound nets operated by small boats, took 833,068 pounds of white-fish and 1,074,541 pounds of trout. In 1899 there was but one vessel, with 360 gill nets, and the number of pound nets had been reduced to 16; the catch was only 204,718 pounds of white-fish and 260,689 pounds of trout; a decrease between the years mentioned of 628,350 pounds of white-fish and 813,852 pounds of trout. Other localities on the lake show a falling off in products, although to a smaller extent usually than the one cited, but there are very few instances in which any increase has occurred.

Protective legislation.—An effort has been made by the States having a frontage on Lake Superior to arrest the decline in the fisheries. The State of Michigan has followed Wisconsin by enacting a close season on the Great Lakes. The law of Michigan provides for a cessation of fishing from October 30 to December 15 in each year, and that of Wisconsin from November 1 to December 15. These laws, it is claimed, will afford greater protection to the fish during the spawning period. Furthermore, Wisconsin has a law prohibiting the fishing of pound nets from the mainland in Chequamegon or Ashland bay, and no gill nets are allowed to be fished within 1 mile of the shore. These laws do not apply to the islands in the body of water mentioned, which are also owned by the State of Wisconsin.

The principal fishes.—The fisheries of Lake Superior depend largely upon the catch of trout and white-fish, and when a scarcity in these species occurs the season is considered a poor one by the fishermen. The white-fish has always been the more important species, and has constituted the greater part of the products, but in 1893 the catch of this fish had fallen off considerably and was exceeded by that of trout. Since that time the trout has been as prominent as the white-fish formerly was, and the catch of trout in 1899 represented over half the entire yield of the lake. In the meantime the catch of white-fish has decreased from 2,732,270 pounds, valued at \$93,672 in 1893, to 693,191 pounds, valued at \$25,547 in 1899. White-fish and trout do not run together to any great extent until a few weeks before and during the spawning season. At other times of the year they are found separate, and the catch from different grounds is either all white-fish or all trout, as the case may be. The fishermen have also noticed that the fishing-grounds from which a large catch of these species has been taken in the fall yield a much smaller quantity of fish when visited again the following spring.

The herring is abundant in all parts of the lake. It is caught prin-

cipally in gill nets, although small quantities are also caught in pound nets and with other forms of apparatus. Within the past few years there has been a greater demand for this species than formerly, and consequently a large increase in the quantity taken. The catch in 1899 was nearly twice as large as in any previous year for which statistics are available. It is probable that the abundance of other more valuable species has heretofore had a tendency to deter the fishermen from the capture of herring.

The pike perches are not abundant in this lake, and the annual catch has never exceeded a few thousand pounds. The wall-eyed pike, which is the principal member of this group of fishes in Lake Superior, was caught chiefly in pound nets in Chippewa and Ontonagon counties, Michigan. A small quantity was also caught in Wisconsin, but none in Minnesota.

The sturgeon has never been found in large quantities in this lake, and is apparently becoming less plentiful every year. The catch in 1899 was nearly all taken in pound nets in Chippewa, Houghton, and Ontonagon counties, Michigan, and amounted to only 4,415 pounds, valued at \$176.

In the section of the St. Marys River between Sault Ste. Marie and Sailors Encampment, the fisheries of which are included in the present statistics with those of Lake Superior, a number of species are taken in small quantities which do not occur in the lake proper. The more important of these are pickerel or grass pike, yellow perch, bullheads, and rock bass. The apparatus in which they are caught consists of trap nets, gill nets, and fyke nets. During the winter the gill nets are fished under the ice. The catch from this part of the river is marketed at Sault Ste. Marie.

Bluefin white-fish.—The bluefin white-fish (*Argyrosomus nigripinnis*) has within recent years become important in the fisheries of Lake Superior. It was first noticed in Whitefish Bay in 1893, and a catch of 36,818 pounds, valued at \$1,326, was secured. Since that time it has increased in abundance and has become quite generally distributed, but the catch is greater in the southern and western than in the northern and eastern parts of the lake. It was formerly regarded with little favor by the fishermen, but now that the white-fish is becoming scarce the bluefin is caught in larger quantities. It finds a ready market, and being a prolific species may in some measure compensate for the falling off in the catch of white-fish.

The bluefin is said by Mr. John Hawley, of Ontonagon, to have made its first appearance in the western part of the lake in the spring of 1894. In 1897 Mr. Hawley's catch with one steamer equipped with gill nets was 230,000 pounds, and in 1899 it was 200,200 pounds, while the quantity of white-fish taken by this steamer in the last-named year was only 13,900 pounds. In some parts of the lake the bluefin occurs only in deep water, but in others it is frequently caught in June in

30 to 35 fathoms. In August, which is considered the best month for catching this species, it is usually found in depths varying from 65 to 70 fathoms.

Steelhead and rainbow trout.—The steelhead trout (*Salmo gairdneri*) and the rainbow trout (*Salmo irideus*), two species from the Pacific coast, which were planted in streams entering Lake Superior, have begun to make their appearance in the open waters of the lake and are taken in the nets of the fishermen. They were formerly confined to the streams where the original plants of fry were made. Regarding the capture of steelhead trout, the report of this Commission for the year 1899 contains the following statement:

Particularly gratifying reports have been received from Minnesota with reference to the introduction of steelhead trout in Lake Superior. Mr. L. E. Baldrige, foreman of Duluth station, Minnesota, reports, under date of March 13, 1899, that large numbers of steelhead trout, varying in length from 7 to 28 inches, were caught during the summer and fall of 1898 along the north shore of Lake Superior, between Duluth, Minn., and Rosspport, Ontario. Mr. D. J. Greensword, treasurer of the Duluth Fly-Casting Club, informed him that a number of members of his club took over 400 steelhead trout from Sucker River in two days' fishing with hook and line, and that he had captured 85 in a single day. He further states that not less than 2,200 steelheads were taken in the same manner from the French and Sucker rivers, and that they take the fly as readily as do the brook trout. The fishermen operating gill nets along the north shore for lake trout have also captured a number, varying from 14 to 18 inches in length. It appears that the steelheads caught in nets had slipped through the nets until the twine was just forward of the dorsal fin, which would indicate that they were too small to be taken in very large numbers in the large-mesh nets used for the capture of lake trout. The steelheads are probably as plentiful in other rivers along the north shore, which are not visited on account of their remoteness from Duluth.

The fish above alluded to, it will be noticed, were all taken in localities at the western end of the lake, but during a statistical investigation of the fisheries of Lake Superior in 1900 it was learned that the fishermen at the eastern end of the lake had secured a number of fish which they reported as rainbow trout. In the summer of 1899 three of these fish were caught at Whitefish Point. It was also reported at Marquette that specimens had been taken off Grand Island and in Huron Bay. On July 9, 1900, a fine specimen, weighing 7 pounds and measuring 27 inches in length, was caught in a net at Whitefish Point by the A. Booth Company. On July 10 of the same year another one, weighing 6½ pounds and measuring 23 inches in length, was caught in an inshore pound net off Lizard Island, Canada, in about 40 feet of water. In the same month two other specimens, weighing about 4 pounds each, were taken in nets at Indian Harbor, Canada.

Apparatus and methods.—Gill nets are used in every county on the lake, and pound nets in all of the counties except Gogebic and Marquette counties in Michigan, Iron County in Wisconsin, and Lake and St. Louis counties in Minnesota. As compared with the statistics for 1893 there has been a decrease of 1,670 gill nets and 151 pound nets.

Trap nets, fyke nets, dip nets, and spears occur in the fisheries of this lake only in the St. Mary River, in Chippewa County. Trap nets were not operated in 1893, but in 1899 the number employed was 37, valued at \$960.

In the vessel fisheries gill nets are used for catching white-fish and trout, and since the bluefin white-fish has become abundant in the lake many of the steamers are also equipped with a separate rig of gill nets for the capture of that species. The principal difference in the various kinds of nets is in the size of the mesh. The size of the mesh in white-fish and trout nets is ordinarily $4\frac{1}{2}$ to $4\frac{1}{2}$ inches, and in bluefin nets it is about $3\frac{3}{4}$ inches, stretched measure. The gill nets at Whitefish Point and Grand Marais are 810 feet in length and are termed "90-lead nets" by the fishermen, for the reason that each net is rigged with 90 leads placed 9 feet apart. The nets in use on steamers fishing from Marquette average 650 feet in length with a mesh of $4\frac{1}{2}$ inches, but in the fall of the year nets having a mesh of $5\frac{1}{2}$ inches are used for taking large trout which visit the spawning-grounds in September and October. At Bayfield the length of gill nets used on vessels is about 675 feet each, and at Ontonagon it is about 800 feet. At Houghton a steamer fishes 290 nets of 1,800 feet in length each, or a total length of 522,000 feet. The custom there is to join two nets together, each of which has 100 leads and is 900 feet long.

The nets are always set at the bottom of the lake, and frequently in depths of 700 feet, 35 to 45 pounds of lead being used on a net 650 to 800 feet long. The only satisfactory floats so far used are made of cedar. Glass floats have been tried, but the great pressure at the depth in which these nets are fished caused the water to penetrate the glass, and when the floats were brought to the surface the water still remained in them. An experiment was also made with tin floats, but they were too easily crushed out of their proper shape. To overcome this difficulty they were strongly braced, but were then found to admit water.

The gill nets employed by boats in the shore fisheries are similar to those used on vessels, except that on the average they are not quite so long. The white-fish and trout nets are generally from 425 to 720 feet in length, but along the north shore and around Isle Royal they are about 1,200 feet long. The size of mesh varies from $4\frac{1}{2}$ to 7 inches, the large-meshed nets being used for trout in shallow water in the autumn. Herring nets are from 250 to 300 feet long, and the size of the mesh is about $3\frac{1}{2}$ inches.

In fishing gill nets with steamers the practice is to set them in gangs of 45 nets or more. About half the nets in each gang are lifted each day and carried home to be dried and repaired. These are replaced with a similar quantity of dry nets.

The steamers are nearly all equipped with a patent net lifter which

enables the crews to handle a larger number of nets than could be operated by hand. Nets are lifted with this device by being carried over a drum or cylinder worked by steam. While the nets are being lifted a careful watch is kept for the fish, and when they are seen to approach within 2 or 3 feet of the surface of the water the larger ones are helped over the side of the vessel with a gaff hook, otherwise the fish might be lost or the nets damaged by their weight. The gaff hook used has a handle about 7 feet in length.

Preservation of gill nets.—The fishermen of Lake Superior, in order to preserve their gill nets, tan them with hemlock bark or the extract of hemlock, generally the latter. A pint of extract is sufficient for tanning 25 nets, and 5 gallons will last an entire season for a rig of 350 nets, 1 pint of extract being used to 50 gallons of water. The mixture is boiled in a large kettle, after which the nets are placed in it and allowed to remain an hour. The nets require this treatment about once in every two months, and in warm weather it is necessary to tan them more frequently.

Introduction of naphtha engines.—An innovation in shore fisheries is the introduction of naphtha engines as an auxiliary means of propelling sailboats. They are said to have been introduced by Messrs. Peter Anderson & Sons, a fishing firm at Marquette, who fitted a sailboat in this manner in 1899. The engine used was of 12 horsepower, and the boat has a speed of $7\frac{1}{2}$ miles an hour. This boat can make much longer fishing trips than when it was propelled exclusively by sails, and the number of nets fished has been more than doubled. It is probable that the use of naphtha engines will in a few years become quite general in these fisheries. A number of boats were equipped with them in 1900.

Fishing season.—The gill-net fishing begins as soon as the ice breaks up in the spring, which is generally sometime in April. The nets are then fished in 20 to 40 fathoms of water, and the catch consists chiefly of trout. The white-fish run comes later in the season, the greater part of the catch being taken in July and August. This is also the time of year in which the bluefin white-fish are taken in greatest abundance. The fishing for trout continues all through the summer and fall. In midsummer the nets are fished in 70 to 100 fathoms of water, but in the fall they are again set in shallow water. About September 1 the large trout come into shallow water to spawn and are caught there in considerable quantities during the months of September and October. Pound nets are set as soon as practicable after the ice breaks up in the spring and are fished until about the first of November.

590. REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Statistics.—The extent of the fisheries of Lake Superior in 1899 is shown by States and counties in the following series of five tables:

Table showing, by States and counties, the number of persons employed in the fisheries of Lake Superior in 1899.

States and counties.	On ves- sels fish- ing.	On ves- sels trans- porting.	In shore fisheries.	On shore, in fish houses, etc.	Total.
Michigan:					
Alger	16		28	3	47
Baraga			15		15
Chippewa	8		35	14	57
Gogebic			2		2
Houghton	7		24	3	34
Keweenaw			78		78
Marquette	13		13	9	35
Ontonagon	7		15	4	26
Total	51		210	33	294
Minnesota:					
Cook			61		61
Lake			41		41
St. Louis			25	24	49
Total			127	24	151
Wisconsin:					
Ashland			111		111
Bayfield	16	5	28	6	55
Iron			2		2
Total	16	5	141	6	168
Grand total	67	5	478	63	613

Table showing, by States and counties, the apparatus and capital employed in the fisheries of Lake Superior in 1899.

States and counties.	Vessels fishing.				Vessels transporting.				Boats.		Apparatus of capture—vessel fisheries.	
	No.	Ton- nage.	Value.	Value of outfit.	No.	Ton- nage.	Value.	Value of outfit.	No.	Value.	Gill nets.	
											No.	Value.
Michigan:												
Alger	2	69	\$11,500	\$1,200					22	\$1,850	720	\$9,360
Baraga									11	710		
Chippewa	1	58	4,000	600					17	1,195	360	4,680
Gogebic									1	100		
Houghton	1	26	6,000	700					11	550	290	7,250
Keweenaw									60	5,440		
Marquette	2	22	8,300	2,150					9	1,579	690	8,944
Ontonagon	1	25	3,000	1,200					7	665	413	4,130
Total	7	200	32,800	5,850					138	12,080	2,473	34,361
Wisconsin:												
Ashland									60	5,000		
Bayfield	2	59	6,000	2,654	1	18	\$3,000	\$1,300	15	2,135	800	8,000
Iron									1	100		
Total	2	59	6,000	2,654	1	18	3,000	1,300	76	7,235	800	8,000
Minnesota:												
Cook									54	5,085		
Lake									24	1,970		
St. Louis									13	875		
Total									91	7,930		
Grand total	9	259	38,800	8,504	1	18	3,000	1,300	305	27,245	3,273	42,364

Table showing, by States and counties, the apparatus and capital employed in the fisheries of Lake Superior in 1899—Continued.

States and counties.	Apparatus of capture—shore fisheries.												
	Pound nets and trap nets.		Gill nets.		Fyke nets.		Dip nets.		Spears.		Haul seines.		Set lines and hand lines.
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.	
Michigan:													
Alger	18	\$2,525	240	\$2,312									
Baraga	12	2,250	97	824									
Chippewa	53	6,735	19	152	15	\$150	30	\$300	20	\$20			
Gogebie			40	400									
Houghton	7	1,575	552	4,326									
Keweenaw	20	3,375	726	18,765									\$107
Marquette			515	6,081							1	\$50	
Ontonagon	4	2,035	71	550									
Total	124	18,495	2,260	33,410	15	150	30	300	20	20	1	50	107
Wisconsin:													
Ashland	16	2,500	691	6,465									314
Bayfield	16	3,825	220	2,280									12
Iron			10	90									
Total	32	6,325	921	8,835									326
Minnesota:													
Cook	6	1,000	392	9,472									130
Lake			292	4,407									25
St. Louis			91	795									
Total	6	1,000	775	14,674									155
Grand total	162	25,820	3,956	56,919	15	150	30	300	20	20	1	50	588

States and counties.	Shore property and accessories.	Cash capital.	Total investment.	States and counties.	Shore property and accessories.	Cash capital.	Total investment.
Michigan:				Wisconsin:			
Alger	\$5,700		\$34,447	Ashland	\$3,800		\$18,079
Baraga	560		4,344	Bayfield	10,425	\$7,000	46,631
Chippewa	39,175	\$20,000	77,007	Iron	40		230
Gogebie	40		510	Total	14,265	7,000	61,940
Houghton	4,770	4,000	29,171	Minnesota:			
Keweenaw	2,675		30,362	Cook	2,770		18,457
Marquette	5,255	10,000	42,350	Lake	1,150		7,552
Ontonagon	1,335		12,915	St. Louis	33,328	15,000	49,998
Total	59,510	34,000	231,136	Total	37,248	15,000	76,007
				Grand total	111,023	56,000	372,083

Table showing, by States, counties, and species, the yield of the fisheries of Lake Superior in 1899.

States and counties.	Cut-fish and bullheads.		Herring, fresh.		Herring, salted.		Yellow perch.		Pike and pickerel.		Rock bass.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:												
Alger					460	\$9						
Baraga			1,600	\$30								
Chippewa	7,600	\$304	8,000	120	100	2	3,879	\$39	15,602	\$316	934	\$28
Houghton			50,900	1,018	5,000	175						
Keweenaw			7,811	117	17,140	343						
Total	7,600	304	68,211	1,285	22,700	629	3,879	39	15,602	316	934	28
Minnesota:												
Cook			9,973	150	102,670	2,053						
Lake			74,935	1,128	109,240	2,185						
St. Louis			40,790	816								
Total			125,698	2,094	211,910	4,238						
Wisconsin:												
Ashland			669,324	3,317	1,200	12						
Bayfield			22,785	228	3,650	37						
Total			692,109	3,575	4,850	49						
Grand total	7,600	304	886,018	6,954	233,460	4,816	3,879	39	15,602	316	934	28

592 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, and species, the yield of the fisheries of Lake Superior in 1899—Continued:

States and counties.	Sturgeon.		Suckers, fresh.		Suckers, salted.		Trout, fresh.		Trout, salted.		Pike perch (wall eyed).	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Michigan:												
Alger.....					5,200	\$104	444,353	\$13,360	47,200	\$1,888		
Baraga.....							33,955	1,408				
Chippewa.....	711	\$34	3,000	\$15			256,067	7,408	36,605	1,414	8,338	\$251
Gogebic.....							10,583	366				
Houghton.....	600	25					205,470	7,817	17,000		765	
Keweenaw.....							203,329	6,661	158,148		4,902	
Marquette.....			2,200	40			531,059	17,948	33,800	1,415		
Ontonagon.....	3,074	116					183,893	6,369			4,131	207
Total.....	4,385	175	5,200	55	5,200	104	1,868,709	61,337	292,753	10,384	12,469	458
Minnesota:												
Cook.....							121,828	3,524	52,062	1,516		
Lake.....							35,352	1,023	19,645	589		
St. Louis.....							13,098	461	4,410	132		
Total.....							170,278	5,008	77,017	2,237		
Wisconsin:												
Ashland.....	30	1					262,677	8,058	22,290	669	1,210	37
Bayfield.....			247	2	1,000	10	362,624	11,149	60,031	1,800		
Iron.....							550	20	1,240	37		
Total.....	30	1	247	2	1,000	10	625,851	19,227	83,561	2,506	1,210	37
Grand total.....	4,415	176	5,447	57	6,200	114	2,664,838	85,572	458,331	15,127	13,679	495

States and counties.	White-fish, fresh.		White-fish, salted.		White-fish (blue-fn), fresh.		White-fish (blue-fn), salted.		White-fish (blue-fn), smoked.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:										
Alger.....	109,037	\$3,679	400	\$16	71,431	\$1,273	1,600	\$32		
Baraga.....	20,551	979								
Chippewa.....	204,718	6,143	20,000	800	6,004	109				
Gogebic.....	622	26								
Houghton.....	111,768	4,708	3,000	135	50,976	1,622				
Keweenaw.....	51,455	2,074	8,400	336	75,156	2,077	175	4		
Marquette.....	51,737	2,237			2,882	79				
Ontonagon.....	36,869	1,569			200,200	5,460				
Total.....	586,757	21,415	31,800	1,287	406,649	10,620	1,775	36		
Minnesota:										
Cook.....	6,422	239	6,455	258	2,594	48	3,550	89		
Lake.....					1,468	27	2,245	56	320	\$16
St. Louis.....			195	8	787	14				
Total.....	6,422	239	6,650	266	4,849	89	5,795	145	320	16
Wisconsin:										
Ashland.....	32,453	1,203	5,589	224	1,490	33	455	9		
Bayfield.....	21,818	844	1,462	59	11,525	300	1,685	43	517	26
Iron.....	220	9	20	1						
Total.....	54,491	2,056	7,071	284	13,015	333	2,140	52	517	26
Grand total.....	647,670	23,710	45,521	1,837	424,513	11,042	9,710	233	837	42

Summary of the yield of the fisheries of Lake Superior in 1899.

States and counties.	Lbs.	Value.	States and counties.	Lbs.	Value.
Michigan:			Minnesota:		
Alger.....	679,681	\$20,361	Cook.....	306,454	\$7,877
Baraga.....	56,006	2,417	Lake.....	243,205	5,024
Chippewa.....	571,558	16,983	St. Louis.....	59,280	1,431
Gogebic.....	11,205	392	Total.....	608,939	14,332
Houghton.....	444,714	16,265	Wisconsin:		
Keweenaw.....	521,614	16,514	Ashland.....	996,718	18,593
Marquette.....	621,678	21,719	Bayfield.....	487,344	14,493
Ontonagon.....	428,167	13,721	Iron.....	2,050	67
Total.....	3,334,623	108,372	Total.....	1,486,092	28,158
			Grand total.....	5,429,654	150,662

Table showing, by States, counties, and species, the yield of vessel gill-net fisheries of Lake Superior in 1899.

States and counties.	White-fish, fresh.		White-fish, salted.		White-fish (blue-fin), fresh.		White-fish (blue-fin), salted.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:								
Alger	16, 147	\$467			68, 226	\$1, 241	1, 600	\$32
Chippewa	19, 335	559			6, 004	109		
Houghton	28, 036	1, 159			50, 976	1, 622		
Marquette	34, 487	1, 525			2, 882	79		
Ontonagon	13, 915	690			200, 200	5, 460		
Total	111, 920	4, 400			328, 288	8, 511	1, 600	32
Wisconsin:								
Bayfield	8, 264	340	270	\$11	8, 981	246	695	21
Grand total	120, 184	4, 740	270	11	337, 269	8, 757	2, 295	53

States and counties.	Trout, fresh.		Trout, salted.		Pike perch (wall-eyed).		Sturgeon.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:										
Alger	348, 811	\$10, 090	47, 200	\$1, 888					481, 984	\$13, 718
Chippewa	197, 409	5, 710	31, 605	1, 264					254, 353	7, 642
Houghton	84, 112	3, 128	12, 000	540					175, 124	6, 449
Marquette	369, 791	12, 168	12, 500	663					419, 660	14, 335
Ontonagon	123, 420	4, 080			131	\$7	74	\$1	337, 740	10, 241
Total	1, 123, 543	35, 176	103, 305	4, 255	131	7	74	4	1, 668, 861	52, 385
Wisconsin:										
Bayfield	280, 471	8, 763	56, 480	1, 693					355, 161	11, 074
Grand total	1, 404, 014	43, 939	159, 785	5, 948	131	7	74	4	2, 024, 022	63, 459

Table showing, by States, counties, species, and apparatus of capture, the yield of the shore fisheries of Lake Superior in 1899.

Apparatus and species.	Michigan.							
	Alger.		Baraga.		Chippewa.		Gogebie.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets and trap nets:								
Cat-fish and bullheads					6, 200	\$248		
Herring, salted	460	\$9			100	2		
Pike and pickerel					8, 358	109		
Pike perch (wall-eyed)					6, 698	202		
Rock bass					784	22		
Sturgeon					711	34		
Suckers, salted	5, 200	104						
Trout, fresh	35, 126	1, 272	21, 195	\$815	31, 675	917		
White-fish, fresh	57, 988	2, 069	12, 685	575	165, 383	4, 784		
White-fish, salted	400	16			20, 000	800		
Yellow perch					3, 035	30		
Total	99, 174	3, 470	33, 880	1, 390	212, 894	7, 148		
Gill nets:								
Herring, fresh			1, 500	30				
Pike and pickerel					5, 125	154		
Trout, fresh	60, 416	1, 998	12, 760	593			10, 583	\$366
White-fish, fresh	34, 902	1, 143	7, 866	404			622	26
White-fish (bluefin), fresh	3, 205	82						
Total	98, 523	3, 173	22, 126	1, 027	5, 125	154	11, 205	392
Fyke nets:								
Cat-fish and bullheads					1, 400	56		
Pike and pickerel					2, 119	53		
Pike perch (wall-eyed)					1, 640	49		
Rock bass					200	6		
Yellow perch					844	9		
Total					6, 203	173		

594 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, species, and apparatus of capture, the yield of the shore fisheries of Lake Superior in 1899—Continued.

Apparatus and species.	Michigan—continued.							
	Alger.		Baraga.		Chippewa.		Gogebic.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Dip nets and spears:								
Herring.....					8,000	\$120		
Suckers.....					3,000	15		
White-fish.....					20,000	800		
Total.....					31,000	935		
Lines:								
Trout, fresh.....					26,983	781		
Trout, salted.....					5,000	150		
Total.....					31,983	931		
Grand total.....	197,697	\$6,643	56,006	\$2,417	317,205	9,341	11,205	\$392

Apparatus and species.	Michigan—continued.									
	Houghton.		Keweenaw.		Marquette.		Ontonagon.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Pound nets and trap nets:										
Cat-fish and bullheads.....									6,200	\$248
Herring, salted.....									560	11
Pike and pickerel.....									8,358	109
Pike perch (wall-eyed).....							4,000	\$200	10,698	402
Rock bass.....									734	22
Sturgeon.....	600	\$25					3,000	112	4,311	171
Suckers, salted.....									5,200	104
Trout, fresh.....	34,423	1,330	82,134	\$3,045			30,420	1,169	234,973	8,518
Trout, salted.....				1,900	80				1,900	80
White-fish, fresh.....	27,637	1,256	33,024	1,340			22,954	879	319,671	10,903
White-fish, salted.....									20,400	816
White-fish (bluefin).....			49,044	1,561					49,044	1,561
Yellow perch.....									3,035	30
Total.....	62,660	2,611	166,102	6,026			60,374	2,360	665,084	23,005
Gill nets:										
Herring, fresh.....	50,900	1,018	7,811	117					60,211	1,165
Herring, salted.....	5,000	176	17,140	343					22,140	618
Pike and pickerel.....									5,125	154
Suckers.....					2,200	\$40			2,200	40
Trout, fresh.....	86,935	3,359	121,195	3,616	161,268	5,780	30,053	1,120	483,210	16,832
Trout, salted.....	5,000	225	156,248	4,822	21,300	852			182,548	5,899
White-fish, fresh.....	56,095	2,293	18,431	734	14,610	602			182,526	5,202
White-fish, salted.....	3,000	135	8,400	336					11,400	471
White-fish (bluefin), fresh.....			26,112	516					29,317	548
White-fish (bluefin), salted.....			175	4					175	4
Total.....	206,930	7,205	355,512	10,488	199,378	7,274	30,053	1,120	928,852	30,833
Fyke nets:										
Cat-fish and bullheads.....									1,400	56
Pike and pickerel.....									2,119	63
Pike perch (wall-eyed).....									1,640	49
Rock bass.....									200	6
Yellow perch.....									814	9
Total.....									6,203	173
Seines:										
White-fish.....					2,610	110			2,640	110
Dip nets and spears:										
Herring.....									8,000	120
Suckers.....									8,000	15
White-fish.....									20,000	800
Total.....									31,000	935
Lines:										
Trout, fresh.....									26,983	781
Trout, salted.....									5,000	150
Total.....									31,983	931
Grand total.....	260,590	9,816	521,614	16,514	202,018	7,384	90,427	3,480	1,665,762	56,987

Table showing, by States, counties, species, and apparatus of capture, the yield of the shore fisheries of Lake Superior in 1899.

Apparatus and species.	Minnesota.							
	Cook.		Lake.		St. Louis.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets and trap nets:								
Herring, salted	100	\$2					100	\$2
Trout	12,100	350					12,100	350
White-fish, fresh	2,130	79					2,130	79
White-fish, salted	325	13					325	13
White-fish (bluefin)	587	11					587	11
Total	15,242	455					15,242	455
Gill nets:								
Herring, fresh	9,973	150	74,935	\$1,128	40,790	\$816	125,698	2,094
Herring, salted	102,570	2,051	109,240	2,185			211,810	4,236
Trout, fresh	82,695	2,392	24,341	704	13,098	461	120,134	3,557
Trout, salted	51,667	1,477	19,645	589	4,410	132	75,722	2,198
White-fish, fresh	4,292	160					4,292	160
White-fish, salted	6,130	245			195	8	6,325	253
White-fish (bluefin), fresh	2,007	37	1,468	27	787	14	4,262	78
White-fish (bluefin), salted	3,550	89	2,245	56			5,795	145
White-fish (bluefin), smoked			320	16			320	16
Total	262,884	6,601	232,194	4,705	59,280	1,431	554,358	12,737
Lines:								
Trout, fresh	27,038	782	11,011	319			38,044	1,101
Trout, salted	1,295	39					1,295	39
Total	28,328	821	11,011	319			39,339	1,140
Grand total	306,454	7,877	243,205	5,024	59,280	1,431	608,939	14,332

Apparatus and species.	Wisconsin.							
	Ashland.		Bayfield.		Iron.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.
Pound nets and trap nets:								
Herring, fresh	24,095	\$121	2,410	\$24			26,505	\$145
Herring, salted			1,950	20			1,950	20
Suckers, fresh			247	2			247	2
Suckers, salted			900	9			900	9
Trout, fresh	8,948	259	29,231	846			38,179	1,105
Trout, salted	435	13	590	18			1,025	31
Pike perch (wall-eyed)	1,153	35					1,153	35
White-fish, fresh	6,305	235	11,514	428			17,819	663
White-fish, salted			187	8			187	8
Total	40,936	663	47,029	1,355			87,965	2,018
Gill nets:								
Herring, fresh	645,220	3,226	20,375	204			665,604	3,430
Herring, salted	1,200	12	1,700	17			2,900	29
Sturgeon	30	1					30	1
Suckers, salted			100	1			100	1
Trout, fresh	199,441	5,975	49,671	1,437	550	\$20	249,662	7,482
Trout, salted	18,060	542	2,961	89	1,240	37	22,261	668
Pike perch (wall-eyed)	57	2					57	2
White-fish, fresh	26,148	968	2,010	76	220	9	28,408	1,053
White-fish, salted	5,589	224	1,065	40	20	1	6,614	265
White-fish (bluefin), fresh	1,490	33	2,514	54			4,034	87
White-fish (bluefin), salted	455	9	990	22			1,445	31
White-fish (bluefin), smoked			517	26			517	26
Total	897,699	10,992	81,903	1,966	2,030	67	981,632	13,025
Lines:								
Trout, fresh	54,288	1,824	3,251	103			57,539	1,927
Trout, salted	3,795	114					3,795	114
Total	58,083	1,938	3,251	103			61,334	2,041
Grand total	996,718	13,693	132,183	3,424	2,030	67	1,130,931	17,084

596 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Summary of the yield of the shore fisheries of Lake Superior in 1899.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Pound nets and trap nets:			Gill nets:		
Cat-fish and bullheads.....	6,200	\$248	Herring, fresh.....	851,513	\$6,689
Herring, fresh.....	26,505	145	Herring, salted.....	236,850	4,783
Herring, salted.....	2,610	33	Pike and pickerel.....	6,125	154
Pike and pickerel.....	8,358	109	Pike perch (wall-eyed).....	57	2
Pike perch (wall-eyed).....	11,851	437	Sturgeon.....	30	1
Rock bass.....	734	22	Suckers, fresh.....	2,200	40
Sturgeon.....	4,311	171	Suckers, salted.....	100	1
Suckers, fresh.....	247	2	Trout, fresh.....	853,006	27,821
Suckers, salted.....	6,100	113	Trout, salted.....	230,531	8,765
Trout, fresh.....	285,252	10,003	White-fish, fresh.....	165,226	6,415
Trout, salted.....	2,925	111	White-fish, salted.....	24,339	989
White fish, fresh.....	339,620	11,645	White-fish (bluefin), fresh.....	37,613	713
White-fish, salted.....	20,912	837	White-fish (bluefin), salted.....	7,415	180
White-fish (bluefin).....	49,631	1,572	White-fish (bluefin), smoked.....	837	42
Yellow perch.....	3,035	30	Total.....	2,464,842	56,555
Total.....	768,291	25,478	Dip nets and spears:		
Fyke nets:			Herring.....	8,000	120
Bullheads.....	1,400	56	Suckers.....	3,000	15
Pike and pickerel.....	2,119	53	White-fish.....	20,000	800
Pike perch (wall-eyed).....	1,640	49	Total.....	31,000	935
Rock bass.....	200	6	Lines:		
Yellow perch.....	844	9	Trout, fresh.....	122,566	3,809
Total.....	6,203	173	Trout, salted.....	10,090	303
Seines:			Total.....	132,656	4,112
White-fish.....	2,640	110	Grand total.....	3,405,632	87,403

WHOLESALE FISHERY TRADE.

The wholesale fishery trade of Lake Superior was carried on by six establishments, located as follows: One at Sault Ste. Marie, two at Marquette, one at Houghton, one at Bayfield, and one at Duluth. The number of persons employed in the trade was 50; the investment in shore property was \$56,853; the cash capital utilized was \$56,000; the amount of wages paid during the year was \$29,425, and the products handled aggregated 5,818,183 pounds, the selling value of which was \$237,231.

The following table shows the products handled in the wholesale trade of Lake Superior in 1899:

Table showing products handled in the wholesale fishery trade of Lake Superior in 1899.

Products handled.	Lbs.	Value.	Products handled.	Lbs.	Value.
Cat-fish and bullheads.....	5,863	\$205	Trout, salted.....	666,702	\$29,221
Herring, fresh.....	36,219	724	White-fish, fresh.....	613,141	31,263
Herring, salted.....	209,390	5,211	White-fish, salted.....	26,931	1,316
Herring, frozen.....	827,109	16,542	White-fish (bluefin), fresh.....	224,907	7,040
Pike and pickerel.....	17,253	245	White-fish (bluefin), salt- ed.....	2,345	68
Pike perch (wall-eyed).....	10,753	395	White-fish (bluefin), smoked.....	320	20
Rock bass.....	804	12	Yellow perch.....	4,113	62
Sturgeon.....	3,311	133	Total.....	6,518,183	237,231
Suckers, fresh.....	225	2			
Suckers, salted.....	1,000	10			
Trout, fresh.....	3,035,797	138,762			
Trout, frozen.....	100,000	6,000			

FISHERIES OF LAKE MICHIGAN.

The persons engaged in the fisheries of Lake Michigan in 1899 numbered 3,255, of whom 463 were employed on vessels, 2,045 in the shore fisheries, and 747 were shoresmen. 1,330 are credited to the State of Michigan, 1,184 to Wisconsin, 685 to Illinois, and 56 to Indiana.

The total investment in the fisheries of this lake was \$2,915,241. The number of vessels fishing and transporting was 80, valued with their outfits at \$254,905. The number of boats was 1,098, worth \$67,968. The apparatus in the vessel fisheries was valued at \$205,382, and in the shore fisheries at \$299,157. Shore and accessory property was valued at \$869,629 and cash capital at \$1,218,200. The greater part of the investment, \$1,871,341, is credited to Illinois, \$554,399 to Wisconsin; \$456,287 to Michigan, and \$33,214 to Indiana.

The fishery products of this lake amounted to 34,499,996 pounds, valued at \$876,743. The largest item is that of herring, of which 21,573,716 pounds were taken, worth \$434,029. The trout fishery yielded 5,488,947 pounds, worth \$244,681; white-fish, 1,510,364 pounds, worth \$73,492; yellow perch, 3,077,741 pounds, worth \$57,972. Other important items were Menominee worth \$14,307, and bluefin worth \$12,794, all other products being represented by lower values.

To the vessel fisheries are credited 10,383,011 pounds of products, valued at \$351,199, and to the shore fisheries, 24,116,985 pounds, valued at \$525,544.

More than 90 per cent of the catch in Lake Michigan is taken in pound nets and gill nets, the yield of the former being 16,947,029 pounds, valued at \$338,862, and of the latter, 14,517,998 pounds, valued at \$470,573.

As compared with 1893, the year when these fisheries were last canvassed, it appears that a decrease of 673 has occurred in the number of persons employed, a falling off having taken place in the number engaged in the shore fisheries. During the same period there has been an increase in the investment in the fisheries of this lake amounting to \$851,744, owing principally to the large amount of capital now invested in the wholesale fish trade of Chicago.

In comparing the yield of the fisheries it may be noted that the quantity of fish taken is now greater than in any other year for which statistics are available. With the exception of the year 1885 the same is true of the value of the catch.

Since 1893 there has been a slight increase in number and value of pound nets, and a corresponding decrease in number and value of gill nets. While the vessels employed in the fisheries have increased slightly in number there has been a noteworthy decrease in their value.

Since 1893 the products of this lake have increased 3,752,241 pounds in quantity and \$48,132 in value, owing to an increase in the catch of herring. During this period, however, there has been a falling off in the catch of practically all other species. With respect to white-fish and trout, which have always been important species in the fisheries of this lake, there has been a diminution of 819,696 pounds of the former and 2,727,973 pounds of the latter.

It appears that the choice species of fish entering into the yield of Lake Michigan are much less in quantity than in earlier years, while a very large increase has occurred in the catch of cheaper varieties.

Statistics.—The following tables exhibit by States and counties the extent of the fisheries of Lake Michigan in 1899:

Table showing, by States and counties, the number of persons employed in the fisheries of Lake Michigan in 1899.

States and counties.	On ves- sels fish- ing.	On ves- sels trans- porting.	In shore fisheries.	Shores- men.	Total.
Michigan:					
Allegan			30		30
Antrim			6		6
Benzie	16		14		30
Berrien	41		42	12	95
Charlevoix	70		142	21	233
Delta			96	5	101
Emmet	12		60	15	87
Grand Traverse			20		20
Leelanaw			95		95
Mackinac			139	1	140
Manistee			28		28
Mason	14		10	5	29
Menominee			163	12	175
Muskegon			29		29
Oceana			9		9
Ottawa	34		28	82	144
Schoolcraft	21		39	17	77
Van Buren			2		2
Total	208		952	170	1,330
Indiana:					
Lake			11		11
Laporte	8		19	6	33
Porter			12		12
Total	8		42	6	56
Illinois:					
Cook	13		270	376	659
Lake	7		16	3	26
Total	20		286	379	685
Wisconsin:					
Brown		2	108	67	202
Door	25	8	324	33	365
Kenosha	7		2	2	11
Kewaunee	6		8	5	19
Manitowoc	43		41	24	108
Marinette			92	2	94
Milwaukee	60		49	22	131
Oconto			111	7	118
Ozaukee	23		7	10	40
Racine	5		8	3	16
Sheboygan	48		15	17	80
Total	217	10	765	192	1,184
Grand total	463	10	2,045	747	3,255

Table showing, by States and counties, the apparatus and capital employed in the fisheries of Lake Michigan in 1899.

States and counties.	Vessels fishing.				Vessels transporting.				Boats.	
	No.	Tonnage.	Value.	Value of outfit.	No.	Tonnage.	Value.	Value of outfit.	No.	Value.
Michigan:										
Allegan									11	\$601
Antrim									3	130
Benzie	3	28	\$2,400	\$1,221					8	785
Berrien	7	108	12,200	3,768					13	692
Charlevoix	12	181	29,600	7,426					49	3,425
Delta									84	6,186
Emmet	2	52	6,000	1,634					27	2,090
Grand Traverse									7	155
Leelanaw									47	2,370
Mackinac									74	5,348
Manistee									12	906
Mason	2	47	5,500	1,550					5	425
Menominee									130	5,644
Muskegon									10	325
Oceana									4	160
Ottawa	5	83	15,000	5,011					10	456
Schoolcraft	2	60	7,500	1,170					35	1,957
Van Buren									2	20
Total	33	559	78,200	21,780					531	31,625
Indiana:										
Lake									11	445
Laporte	1	53	6,000	450					13	305
Porter									10	445
Total	1	53	6,000	450					34	1,195
Illinois:										
Cook	3	39	8,000	435					28	1,740
Lake	1	19	2,500	1,500					9	405
Total	4	58	10,500	1,935					37	2,145
Wisconsin:										
Brown					1	18	\$800	\$10	114	4,682
Door	5	46	7,950	1,570	3	89	2,900	170	184	12,533
Kenosha	1	14	3,000	500					2	140
Kewaunee	1	5	1,000	135					5	490
Munitowoc	7	86	19,400	3,290					30	3,532
Marinette									33	1,977
Milwaukee	10	174	31,550	4,455					25	1,960
Oconto									80	5,206
Ozaukee	4	57	14,450	2,100					4	1,028
Racine	1	14	3,000	600					4	620
Sheboygan	9	148	35,250	3,880					15	845
Total	38	644	115,600	16,530	4	107	3,700	210	496	33,003
Grand total	76	1,214	210,300	40,695	4	107	3,700	210	1,098	67,968

States and counties.	Apparatus of capture—vessel fisheries.				Apparatus of capture—shore fisheries.				
	Pound nets.		Gill nets.		Value of lines.	Pound nets.		Gill nets.	
	No.	Value.	No.	Value.		No.	Value.	No.	Value.
Michigan:									
Allegan						8	\$1,000	237	\$1,135
Antrim								49	210
Benzie			614	\$2,800		6	1,359	475	1,700
Berrien			4,972	19,642	\$70	8	1,525	106	444
Charlevoix	7	\$1,400	4,168	26,545		49	6,825	1,332	8,704
Delta						84	15,695	890	3,958
Emmet						19	3,600	716	3,938
Grand Traverse			720	5,397		6	675	53	185
Leelanaw						29	3,430	1,027	4,488
Mackinac						67	12,860	666	2,885
Manistee						2	325	1,167	3,887
Mason			364	3,876				636	2,980
Menominee						93	30,840	208	688
Muskegon						6	750	161	267
Oceana						4	600	100	300
Ottawa			2,496	12,067		5	515	616	2,145
Schoolcraft	3	640	2,130	20,825		30	7,660	259	1,206
Van Buren								7	28
Total	10	2,040	15,461	91,152	70	416	87,639	8,728	39,098

600 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States and counties, the apparatus and capital employed in the fisheries of Lake Michigan in 1899—Continued.

States and counties.	Apparatus of capture—vessel fisheries.				Apparatus of capture—shore fisheries.				
	Pound nets.		Gill nets.		Value of lines.	Pound nets.		Gill nets.	
	No.	Value.	No.	Value.		No.	Value.	No.	Value.
Indiana:									
Lake									
Laporte			750	\$5,250	5	\$1,380	30		\$150
Porter					7	2,375	80		450
Total			750	5,250	3	920	25		125
Illinois:									
Cook			295	2,260			548		2,270
Lake			1,074	6,520	5	1,385	165		940
Total			1,369	8,780	5	1,385	713		3,210
Wisconsin:									
Brown					8	1,560	*390		2,013
Door			2,490	11,910	118	31,545	5,757		21,007
Kenosha			300	1,400			18		70
Kewaunee			122	1,405	\$85	2	350	439	2,396
Manitowoc			605	20,865	27	10,200	1,460		7,510
Marinette					36	7,665	1,017		2,925
Milwaukee			5,638	28,010			748		3,060
Oconto					145	26,815	946		1,612
Ozaukee			1,321	12,770	5	2,600	12		85
Racine			252	1,460			654		1,820
Sheboygan			609	19,860	325	18	9,875		
Total			11,357	97,680	410	859	90,610	11,341	42,500
Grand total	10	\$2,040	*28,940	202,862	480	795	184,309	*20,917	85,533

States and counties.	Apparatus of capture—shore fisheries—continued.										
	Fyke nets.		Seines.		Dip nets.		Value of lines.	Crawfish pots.		Spears.	
	No.	Value.	No.	Value.	No.	Value.		No.	Value.	No.	Value.
Michigan:											
Allegan							\$64				
Berrien							29				
Charlevoix			5	\$250							
Delta	60	\$840	4	205			900				
Grand Traverse			1	15							
Leelanaw							7				
Mackinac							15		15	\$6	
Menominee							5				
Schoolcraft			1	49			60				
Total	60	840	11	510			1,140			15	6
Indiana:											
Lake							16				
Laporte							80				
Porter							48				
Total							144				
Illinois:											
Cook					220	\$1,710	256				
Lake	12	180					40				
Total	12	180			220	1,710	296				
Wisconsin:											
Brown	1,047	13,855						2,870	\$784		
Door							840				
Kewaunee							48				
Marinette	28	380									
Milwaukee							210				
Oconto	330	8,372									
Total	1,405	22,607					1,098	2,870	784		
Grand total	1,477	23,627	11	510	220	1,710	2,678	2,870	784	15	6

* Length of gill nets, 5,603,064 yards.

Table showing, by States and counties, the apparatus and capital employed in the fisheries of Lake Michigan in 1899—Continued.

States and counties.	Shore and accessory property.	Cash capital.	Total investment.	States and counties.	Shore and accessory property.	Cash capital.	Total investment.
Michigan:				Indiana:			
Allegan.....	\$585		\$3,385	Lake.....	\$575		\$2,566
Antrim.....	95		435	Laporte.....	8,800	\$5,000	28,710
Benzle.....	3,963		14,178	Porter.....	400		1,938
Berrien.....	19,852		58,232	Total.....	9,775	5,000	33,214
Charlevoix.....	10,340		94,515	Wisconsin:			
Delta.....	7,380	\$2,500	37,724	Brown.....	32,906	44,000	100,640
Emmet.....	8,185		30,844	Door.....	15,840	8,000	114,265
Grand Traverse.....	785		1,815	Kenosha.....	850		5,460
Leelanaw.....	4,046		14,291	Kewaunee.....	680		6,579
Mackinac.....	4,505		25,619	Manitowoc.....	5,510	200	70,507
Manistee.....	869		5,987	Marinette.....	2,261		15,209
Mason.....	2,773		17,104	Milwaukee.....	4,000		73,245
Menominee.....	5,665		42,842	Oconto.....	7,470		49,475
Muskegon.....	285		1,607	Ozaukee.....	3,700		36,734
Oceana.....	200		1,260	Racine.....	400		7,900
Ottawa.....	12,419	10,000	57,613	Sheboygan.....	4,350		74,385
Schoolcraft.....	6,720	1,000	48,778	Total.....	77,467	52,200	564,399
Van Buren.....	20		68	Grand total.....	869,629	1,218,200	2,915,241
Total.....	88,687	13,500	456,287				
Illinois:							
Cook.....	693,000	1,147,500	1,857,171				
Lake.....	700		14,170				
Total.....	693,700	1,147,500	1,871,341				

Table showing, by States and counties, the yield of the fisheries of Lake Michigan in 1899.

States and counties.	Black bass.		German carp.		Cat-fish and bullheads.		Eels.		Ling or h-wyers.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:										
Allegan.....			4,757	\$48					485	\$5
Berrien.....			3,089	62			100	\$10		
Delta.....	3,378	\$261			98	\$3				
Emmet.....	500	40								
Mackinac.....	1,082	81								
Muskegon.....			284	6					236	8
Ottawa.....			680	10						
Total.....	4,960	382	8,810	126	98	3	100	10	721	13
Indiana:										
Lake.....			520	7					100	1
Laporte.....	250	18	845	12			84	6	1,362	14
Porter.....			350	5					600	6
Total.....	250	18	1,715	24			84	6	2,062	21
Illinois:										
Cook.....			3,150	110			300	24	9,200	92
Lake.....									25,156	252
Total.....			3,150	110			300	24	34,356	344
Wisconsin:										
Brown.....	2,595	193	10,675	157	51,654	1,361				
Door.....	560	37			2,680	93				
Kenosha.....									8,000	80
Marinette.....					60	3				
Milwaukee.....			450	12					72,500	404
Oconto.....	200	14	480	63	7,670	222			1,200	12
Ozaukee.....									3,500	12
Racine.....										
Total.....	3,355	244	11,605	232	62,064	1,679			85,200	508
Grand total.....	8,565	644	25,280	492	62,162	1,682	484	40	122,339	886

602 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States and counties, the yield of the fisheries of Lake Michigan in 1899—Continued.

States and counties.	Herring, fresh.		Herring, salted.		Trout, fresh.		Trout, salted.		Yellow perch.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.
Michigan:										
Allegan	8,437	\$128			2,802	\$89	44	\$2	101,702	\$2,172
Antrim					8,750	498				
Benzie	11,190	286			181,750	7,628				
Berrien	532,596	12,353	9,000	\$640	259,650	11,753			39,255	1,156
Charlevoix	426,178	9,057	16,263	843	800,339	27,747	37,892	1,544	47,497	700
Delta	43,682	873	213,700	4,144	139,042	6,914	1,600	74	19,422	371
Grand	3,968	69	300	11	203,589	8,074			14,000	320
Grand Traverse	2,000	59			6,408	291			300	6
Leelanaw	600	23	300	15	97,378	3,283	26,701	1,254		
Mackinac	192,710	2,255			169,715	7,976			14,053	253
Manistee	18,880	480			79,606	2,954				
Mason	214,253	5,315			86,386	3,515				
Menominee	217,900	2,379	6,929,400	114,287	22,760	1,013	5,600	274	6,520	106
Muskegon	10,204	230			36,875	1,685			2,190	81
Oceana	44,534	598			16,591	744			53	2
Ottawa	1,270,712	31,038			100,664	4,031			30,170	767
Schoolcraft	20,050	301			282,807	14,873				
Van Buren	150	2							10,000	250
Total	3,007,954	65,146	6,168,963	119,840	2,601,112	102,093	71,837	3,148	285,162	6,184
Indiana:										
Lake	27,100	529			3,500	180			27,400	678
Laporte	232,705	6,477			28,952	1,706			139,540	3,275
Porter	11,950	215			2,560	141			40,330	977
Total	271,755	7,221			35,012	2,027			207,270	4,930
Illinois:										
Cook	139,640	3,520			9,700	520			550,600	18,696
Lake	216,165	6,383			66,828	3,983			127,115	3,130
Total	354,805	9,903			76,528	4,503			677,715	21,826
Wisconsin:										
Brown	276,925	4,060	22,000	386	650	27			1,131,274	12,776
Door	1,051,248	14,254	3,750,800	66,307	878,334	36,920	10,000	518	239,665	3,249
Kenosha	158,040	4,296			17,850	865			13,200	490
Kewaunee	43,550	1,044	11,000	220	73,977	3,947			1,650	23
Manitowoc	1,073,951	29,568	65,800	1,164	568,444	22,811			3,229	76
Marinette	602,400	6,752	477,800	8,879	8,220	488			77,529	1,008
Milwaukee	812,975	24,646			412,655	23,308			60,600	1,963
Oconto	1,171,195	13,291	851,700	15,389	1,920	98			357,165	4,778
Ozaukee	448,493	13,485			267,668	13,251			6,450	156
Racine	101,780	3,252			97,200	5,838			9,600	335
Sheboygan	850,552	24,866			477,640	24,839			7,250	188
Total	6,591,109	139,514	5,179,100	92,405	2,794,458	132,387	10,000	518	1,907,594	25,032
Grand total	10,225,653	221,784	11,348,063	212,245	5,407,110	241,018	81,837	3,666	3,077,741	57,972

States and counties.	Pike and pickerel.		Rock bass.		Pike perch (wall-eyed), fresh.		Pike perch (wall-eyed), salted.		White bass.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:										
Allegan	752	\$40								
Benzie					507	\$22				
Charlevoix			161	\$6						
Delta	17,622	813			100,423	4,146				
Mackinac	1,551	85			1,467	76				
Manistee	472	24			472	24				
Muskegon					424	34			118	\$8
Ottawa	134	6			153	8			42	2
Schoolcraft	350	14								
Total	20,881	982	161	5	103,446	4,309			160	10
Indiana:										
Lake	100	12							200	8
Laporte	184	12							300	12
Porter	72	5							120	5
Total	356	29							620	25
Wisconsin:										
Brown	40,528	2,038	4,000	38	32,552	1,481			3,200	96
Door	8,998	487			20,035	878	400	\$22		
Marinette	2,030	112			2,700	132				
Oconto	14,640	851			14,600	733			400	15
Total	66,196	3,488	4,000	38	69,887	3,224	400	22	3,600	111
Grand total	87,433	4,499	4,161	43	173,333	7,533	400	22	4,380	146

Table showing, by States and counties, the yield of the fisheries of Lake Michigan in 1899—Continued.

States and counties.	White-fish, fresh.		White-fish, salted.		White-fish (bluefin), fresh.		White-fish (bluefin), salted.		White-fish (Menominee), fresh.		White-fish (Menominee), salted.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Michigan:												
Allegan	9,684	\$424										
Antrim	3,640	186					3,100	\$165				
Benzie	187,995	8,549	8,000	\$400	15,221	\$410						
Berrien	12,486	688										
Charlevoix	466,105	20,911	40,340	2,110	3,923	102			1,634	\$20	44,030	\$1,111
Delta	88,971	4,797	2,300	138					44,833	1,338		
Emmet	190,354	8,853	1,945	46	590	16			1,136	37		
Grand Traverse	14,565	847										
Leelanaw	110,041	4,412	48,237	2,616	22,727	533	2,820	121				
Mackinac	64,602	3,266							103,160	2,686	24,800	812
Manistee	8,448	358			19,593	493						
Mason					100,417	2,294						
Menominee	5,865	412	2,400	157	27,410	685						
Muskegon	796	46										
Oceana	2,752	140			826	21						
Ottawa	201	9			51,530	1,293						
Schoolcraft	182,149	10,320			451	21			41,670	1,074		
Total	1,348,454	64,217	103,222	5,467	242,694	6,869	5,920	276	192,333	5,156	68,830	1,923
Indiana:												
Lake	2,950	182										
Laporte	5,308	336										
Porter	2,040	130										
Total	10,358	648										
Illinois:												
Lake	200	10										
Wisconsin:												
Brown	83,040	2,020			158,000	4,010			125,465	3,141	75,200	2,637
Kewaunee	50	4							55,005	1,383		
Manitowoc	2,475	176			55,624	1,589			2,250	68		
Marquette	1,510	86			12,800	320						
Oconto	3,135	234										
Ozaukee	3,080	238			8,593	261						
Sheboygan	4,840	392			14,637	469						
Total	48,130	3,150			249,704	6,649			182,720	4,692	75,200	2,687
Grand total	1,407,142	68,025	103,222	5,467	492,398	12,518	5,920	276	375,053	9,747	144,030	4,560

States and counties.	Fresh-water drum.		Sturgeon.		Suckers, fresh.		Suckers, salted.		Crawfish.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Michigan:										
Allegan	740	\$7	14,295	\$1,544	2,653	\$22	831	\$7		
Benzie			664	24			3,600	63		
Berrien	4,160	42	10,243	870	41,559	1,189				
Charlevoix			596	18	1,300	16	14,705	152		
Delta			21,710	1,267	230,226	2,283				
Emmet			218	7						
Leelanaw			24	6			9,600	183		
Mackinac			7,727	347	20,800	249				
Manistee			5,160	400						
Menominee			2,050	94	7,000	70	62,800	1,196		
Muskegon	8,000	60	4,656	294	15,980	205				
Oceana			3,395	451	4,668	40				
Ottawa	9,245	92	2,460	192	10,287	89				
Schoolcraft			2,859	124	14,650	206				
Total	22,145	201	76,057	5,628	949,073	4,369	91,586	1,601		
Indiana:										
Lake	8,850	133	4,050	190	5,550	54				
Laporte	18,127	292	8,775	409	4,280	84				
Porter	6,250	106	4,822	232	2,704	51				
Total	33,227	521	17,647	831	12,534	189				
Illinois:										
Cook					1,500	40				
Lake					39,655	524				
Total					41,055	564				
Wisconsin:										
Brown			350	16	305,450	2,625			135,861	\$3,498
Door			5,420	259	56,930	604				
Kewaunee					6,550	78				
Manitowoc			1,670	109	2,950	32				
Marquette			2,450	98	15,850	168	13,600	258		
Milwaukee					8,000	60				
Oconto			3,550	162	127,600	1,294	4,000	72		
Ozaukee			250	20	2,200	24				
Sheboygan			885	64	11,450	136				
Total			14,575	728	531,980	6,021	17,600	830	135,861	3,498
Grand total	55,372	722	108,279	7,187	934,642	10,143	109,186	1,931	135,861	3,498

Table showing, by States, counties, apparatus, and species, the yield of the vessel fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Michigan—continued.							
	Mason.		Ottawa.		Schoolcraft.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Found nets:								
Herring, salted.....					55	\$3	3,000	\$30
Sturgeon.....							55	3
Suckers, salted.....							600	6
Trout.....					220	11	35,170	1,257
White-fish, fresh.....					12,140	728	46,544	2,286
Total.....					12,415	742	85,369	3,582
Gill nets:								
Herring, fresh.....	194,889	\$4,905	1,127,319	\$28,248			2,289,294	54,779
Herring, salted.....							9,000	540
Sturgeon.....							113	4
Suckers, fresh.....							36,000	1,080
Suckers, salted.....							3,000	52
Trout.....	39,175	1,845	86,743	3,469	236,972	12,776	1,498,484	61,851
White-fish, fresh.....					67,263	3,910	495,798	24,046
White-fish, salted.....							3,445	102
White-fish (bluefin).....	100,417	2,294	51,530	1,295	451	21	164,516	3,919
Yellow perch.....							1,470	29
Total.....	334,481	9,044	1,265,592	33,012	304,686	16,707	4,501,120	146,402
Lines:								
Sturgeon.....							40	2
Yellow perch.....							20,000	600
Total.....							20,040	602
Grand total.....	334,481	9,044	1,265,592	33,012	317,101	17,449	4,606,529	150,586

Apparatus and species.	Wisconsin.									
	Door.		Kenosha.		Kewaunee.		Manitowoc.		Milwaukee.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:										
Herring, fresh.....	206,815	\$4,655	154,540	\$4,236	22,950	\$803	943,756	\$27,329	774,155	\$23,574
Ling or lawyers.....			8,000	80					43,200	186
Trout.....	310,355	12,775	17,850	865	8,412	415	275,164	8,897	351,365	20,072
White-fish, fresh.....	11,610	730								
White-fish (bluefin).....							55,624	1,589		
White-fish (Menominee).....	10,500	270			2,355	67				
Total.....	539,280	18,430	180,390	5,181	33,717	1,288	1,274,534	37,816	1,168,720	43,832
Lines:										
Trout.....					4,865	291				
Grand total.....	539,280	18,430	180,390	5,181	38,582	1,579	1,274,534	37,816	1,168,720	43,832

Apparatus and species.	Wisconsin—continued.							
	Ozaukee.		Racine.		Sheboygan.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:								
Herring, fresh.....	430,863	\$13,181	73,000	\$2,190	834,152	\$24,571	3,440,231	\$100,539
Ling or lawyers.....			3,500	12			54,700	278
Trout.....	235,143	11,526	85,000	5,042	238,025	11,618	1,521,594	71,213
White-fish, fresh.....					1,850	103	18,470	833
White-fish (bluefin).....	8,593	261			14,687	469	78,904	2,319
White-fish (Menominee).....							12,855	337
Total.....	674,599	24,968	161,500	7,244	1,088,724	36,761	5,121,464	175,519
Lines:								
Trout.....					117,000	6,502	121,865	6,793
Grand total.....	674,599	24,968	161,500	7,244	1,205,724	43,263	5,243,329	182,312

606 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Summary showing the yield of the vessel fisheries of Lake Michigan in 1899.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Gill nets:			Pound nets:		
Herring, fresh	6,073,951	\$165,701	Herring, salted	3,000	\$30
Herring, salted	9,000	540	Sturgeon	55	3
Ling or lawyers	62,056	352	Suckers, salted	600	6
Sturgeon	158	7	Trout	36,170	1,257
Suckers, fresh	38,295	1,116	White-fish, fresh	46,544	2,286
Suckers, salted	3,000	52	Total	85,369	3,582
Trout	3,114,494	138,701	Lines:		
White-fish, fresh	509,268	24,879	Sturgeon	40	2
White-fish, salted	3,445	102	Trout	121,865	6,793
White-fish (bluefin)	243,420	6,238	Yellow perch	20,000	600
White fish (Menominee)	12,855	337	Total	141,905	7,395
Yellow perch	85,795	2,197	Grand total	10,383,011	351,199
Total	10,155,737	340,222			

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899.

Apparatus and species.	Michigan.							
	Allegan.		Antrim.		Benzle.		Berrien.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
German carp	757	\$8					89	\$2
Fresh-water drum	740	7					4,160	42
Herring, fresh	7,422	119					5,943	115
Pike and pickerel	752	40						
Pike perch (wall-eyed)					507	\$22		
Sturgeon	11,620	1,312			664	24	10,203	868
Suckers, fresh	2,233	19					1,043	20
Suckers, salted	831	7						
Trout, fresh	625	20			5,031	260	1,177	47
Trout, salted	41	2						
White-fish, fresh	7,478	330			50,537	2,221	10,133	488
White-fish, salted					8,000	400		
Yellow perch	467	11					1,450	41
Total	32,969	1,875			64,730	2,927	34,198	1,623
Gill nets:								
German carp							3,000	60
Herring, fresh	1,015	9			778	22		
Sturgeon	150	6					4,516	89
Suckers, fresh	420	3						
Suckers, salted					600	11		
Trout, fresh	2,177	69	8,750	\$498	44,219	1,813		
White-fish, fresh	2,206	94	3,540	185	25,694	1,103		
White-fish (bluefin), fresh					3,103	101		
White-fish (bluefin), salted			3,100	155				
Yellow perch	101,235	2,161					9,805	275
Total	107,203	2,342	15,390	838	74,394	3,060	17,321	424
Lines:								
German carp	4,000	40						
Eels							100	10
Ling or lawyers	485	5						
Sturgeon	2,525	226						
Yellow perch							8,000	240
Total	7,010	271					8,100	250
Grand total	147,182	4,488	15,390	838	139,133	5,977	59,619	2,297

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Michigan—continued.									
	Charlevoix.		Delta.		Emmet.		Grand Traverse.		Leelanaw.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:										
Black bass			492	\$41	500	\$40				
Cat-fish and bullheads			98	3						
Herring, fresh			21,422	279			2,000	\$59		
Herring, salted			213,700	4,144	300	11				
Pike and pickerel			13,380	630						
Pike perch (wall-eyed)			59,555	2,435						
Sturgeon	483	\$14	21,434	1,241	186	6				
Suckers, fresh			226,888	2,208						
Suckers, salted	1,000	15							9,600	\$183
Trout, fresh	50,364	1,612	53,182	2,241	13,750	420	2,261	64	13,058	448
Trout, salted			1,600	74					2,700	131
White-fish, fresh	130,582	5,532	58,767	3,238	99,759	4,449	10,781	655	67,006	2,746
White-fish, salted			2,300	138	500	24			39,976	2,162
White-fish (Menominee), fresh			5,235	140	900	32				
Yellow perch			4,700	61	2,000	50				
Total	182,429	7,173	682,753	16,873	117,895	5,032	15,042	778	132,340	5,670
Gill nets:										
Black bass			5	52	42					
Herring, fresh	65	2	21,860	288					600	23
Herring, salted	13,263	813							300	15
Pike and pickerel			1,506	65						
Pike perch (wall-eyed)			2,098	99						
Rock bass	161	5								
Sturgeon					32	1			24	6
Suckers, fresh			1,678	51						
Trout, fresh	86,368	2,970	41,240	1,826	79,875	3,073	4,147	227	70,945	2,660
Trout, salted	37,892	1,544							24,001	1,123
White-fish, fresh	45,790	2,129	29,604	1,528	31,606	1,385	3,781	192	43,035	1,666
White-fish, salted	38,340	2,030							8,261	454
White-fish (bluefin), fresh	3,929	102			590	15			22,727	533
White-fish (bluefin), salted									2,820	121
White-fish (Menominee), fresh	1,534	20	39,570	1,196	236	5				
White-fish (Menominee), salted	44,030	1,111								
Yellow perch	46,027	671	11,500	250	12,000	270				
Total	317,399	11,397	149,608	5,354	124,239	4,749	7,931	419	181,713	6,601
Seines:										
Herring			400	6						
Pike and pickerel			2,336	96						
Pike perch (wall-eyed)			37,980	1,570						
Sturgeon				16						
Suckers, fresh	1,300	16	900	14						
Suckers, salted	13,105	131								
White-fish			600	31						
Yellow perch			1,580	24			300	6		
Total	14,405	147	44,072	1,767			300	6		
Fyke nets:										
Black bass			2,334	178						
Pike and pickerel			400	22						
Pike perch (wall-eyed)			790	41						
Suckers			760	10						
White-fish (Menominee)			28	2						
Yellow perch			1,642	27						
Total			5,954	280						
Lines:										
Trout			44,620	1,847					4,375	175
Grand total	514,233	18,717	927,007	26,111	242,134	9,781	23,273	1,203	818,428	12,446

608 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Michigan—continued.									
	Mackinac.		Manistee.		Mason.		Menominee.		Muskegon.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:										
Black bass	220	\$16								
Fresh-water drum									8,000	\$60
German carp									284	6
Herring, fresh	175,610	2,145					185,400	\$1,982	9,260	182
Herring, salted							5,929,400	114,287		
Ling or lawyers									236	8
Pike and pickerel	951	56	472	\$24						
Pike perch (wall-eyed)	1,467	76	472	24					424	34
Sturgeon	7,727	347	2,730	181			2,050	94	4,656	294
Suckers, fresh	19,850	239					4,500	45	15,930	205
Suckers, salted							62,800	1,186		
Trout, fresh	67,621	3,039					18,920	837	25,400	1,156
Trout, salted							5,600	274		
White bass									118	8
White-fish, fresh	57,622	2,891	4,602	195			5,865	412	796	46
White-fish, salted							2,400	157		
Yellow perch	8,856	112					6,520	106	2,190	81
Total	339,924	8,920	8,276	424			6,223,455	119,390	67,294	2,080
Gill nets:										
Black bass	862	65								
Herring, fresh	6,000	75	18,880	480	19,364	\$410	32,500	397	944	48
Rock bass			2,430	219						
Sturgeon	950	10					2,500	25		
Trout, fresh	29,494	1,307	79,606	2,954	47,211	1,700	1,680	84	11,475	529
White-fish, fresh	6,880	376	3,846	163						
White-fish (bluefin), fresh										
White-fish (Menominee), fresh			19,593	493			27,410	685		
White-fish (Menominee), salted	103,160	2,686								
Yellow perch	24,800	812								
Total	175,503	5,379	124,355	4,309	66,575	2,110	64,090	1,191	12,419	577
Lines:										
Pike and pickerel	600	30								
Trout	68,200	3,410					2,160	92		
Total	68,800	3,440					2,160	92		
Spears:										
Herring	1,100	35								
Trout	4,400	220								
Yellow perch	1,810	92								
Total	7,310	347								
Grand total	591,567	18,086	132,631	4,733	66,575	2,110	6,289,705	120,673	79,713	2,657

Apparatus and species.	Michigan—continued.							
	Oceana.		Ottawa.		Schoolcraft.		Van Buren.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Fresh-water drum			9,245	\$92				
German carp			680	10				
Herring, fresh	42,056	\$535	46,648	443	11,650	\$163		
Pike and pickerel			134	6				
Pike perch (wall-eyed)			153	8				
Sturgeon	3,395	451	2,460	192	2,264	97		
Suckers, fresh	4,668	40	9,107	79	7,450	96		
Trout, fresh	10,091	484	1,502	54	34,890	1,522		
White bass			42	2				
White-fish, fresh	2,752	140	201	9	75,786	5,264		
Yellow perch	53	2	3,030	77				
Total	63,015	1,652	73,202	972	152,040	7,142		

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Michigan—continued.							
	Oceann.		Ottawa.		Schoolcraft.		Van Buren.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Seines:								
Herring.....					1,000	\$16		
Pike and pickerel.....					350	14		
Suckers, fresh.....					7,200	110		
Total.....					8,550	140		
Gill nets:								
German carp.....	2,478	\$63	96,745	\$2,347	7,400	122	150	\$2
Sturgeon.....					640	24		
Suckers, fresh.....			1,180	10				
Trout, fresh.....	6,500	260	12,419	508	6,525	324		
White-fish, fresh.....					6,960	418		
White-fish (bluefin), fresh.....	826	21						
White-fish (Menominee), fresh.....					41,670	1,074		
Yellow perch.....			27,140	690			10,000	250
Total.....	9,801	344	137,484	3,555	63,095	1,962	10,150	252
Lines:								
Sturgeon.....					4,200	240		
Grand total.....	72,819	1,996	210,686	4,527	227,885	9,484	10,150	252

Apparatus and species.	Total for Michigan.		Apparatus and species.	Total for Michigan.	
	Lbs.	Value.		Lbs.	Value.
Pound nets:			Gill nets:		
Black bass.....	1,212	\$97	Black bass.....	1,414	\$107
Fresh-water drum.....	22,145	201	German carp.....	3,000	60
Cat-fish and bullheads.....	98	3	Herring, fresh.....	208,779	4,288
German carp.....	1,810	26	Herring, salted.....	13,563	828
Herring, fresh.....	507,411	6,022	Pike and pickerel.....	1,506	65
Herring, salted.....	6,143,400	118,442	Pike perch (wall-eyed).....	2,098	99
Ling or lawyers.....	236	8	Rock bass.....	161	5
Pike and pickerel.....	15,689	755	Sturgeon.....	3,176	256
Pike perch (wall-eyed).....	62,578	2,599	Suckers, fresh.....	11,244	188
Sturgeon.....	69,872	5,121	Suckers, salted.....	600	11
Suckers, fresh.....	291,669	2,951	Trout, fresh.....	541,631	20,802
Suckers, salted.....	74,231	1,404	Trout, salted.....	61,893	2,667
Trout, fresh.....	297,872	12,204	White-fish, fresh.....	202,845	9,238
Trout, salted.....	9,944	481	White-fish, salted.....	46,601	2,484
White bass.....	160	10	White-fish (bluefin), fresh.....	78,178	1,950
White-fish, fresh.....	602,667	28,616	White-fish (bluefin), salted.....	5,920	276
White-fish, salted.....	53,176	2,881	White-fish (Menominee), fresh.....	186,170	4,981
White-fish (Menominee), fresh.....	6,135	172	White-fish (Menominee), salted.....	68,830	1,923
Yellow perch.....	29,266	541	Yellow perch.....	221,064	4,625
Total.....	8,189,571	182,531	Total.....	1,658,673	54,853
Seines:			Lines:		
Herring.....	1,400	22	German carp.....	4,000	40
Pike and pickerel.....	2,686	110	Eels.....	100	10
Pike perch (wall-eyed).....	37,980	1,570	Ling or lawyers.....	485	5
Sturgeon.....	276	16	Pike and pickerel.....	600	30
Suckers, fresh.....	9,400	140	Sturgeon.....	2,525	226
Suckers, salted.....	13,105	131	Trout.....	123,555	5,764
White-fish.....	600	31	Yellow perch.....	8,000	240
Yellow perch.....	1,880	30	Total.....	139,265	6,315
Total.....	67,327	2,050	Spears:		
Fyke nets:			Herring.....	1,100	35
Black bass.....	2,334	178	Trout.....	4,400	220
Pike and pickerel.....	400	22	Yellow perch.....	1,840	92
Pike perch (wall-eyed).....	790	41	Total.....	7,340	347
Suckers.....	760	10	Grand total.....	10,068,130	246,376
White-fish (Menominee).....	28	2			
Yellow perch.....	1,612	27			
Total.....	5,954	280			

610 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Indiana.							
	Lake.		Laporte.		Porter.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Black bass			250	\$18			250	\$18
Eels			84	6			84	6
German carp	520	\$7	845	12	350	\$5	1,715	24
Fresh-water drum	8,850	133	18,127	282	5,250	106	33,227	521
Herring	24,500	465	22,654	370	8,100	148	55,254	983
Ling of lawyers			162	2			162	2
Pike and pickerel	100	12	184	12	72	5	356	29
Sturgeon	3,850	178	8,130	370	4,242	198	16,222	746
Suckers	4,309	59	4,280	64	1,704	81	10,284	144
Trout	2,800	145	4,174	240	1,660	96	8,634	481
White buggs	200	8	300	12	120	5	620	25
White-fish	2,950	182	5,368	336	2,040	130	10,358	648
Yellow perch	19,800	450	67,430	1,422	18,970	397	106,200	2,209
Total	67,870	1,639	131,988	3,136	43,508	1,121	243,366	5,896
Gill nets:								
Herring	2,600	64	22,400	432	3,850	67	28,850	563
Suckers	1,250	25			1,000	20	2,250	45
Trout	600	30			500	25	1,100	55
Yellow perch	4,000	120	36,240	906	9,800	270	50,040	1,296
Total	8,450	239	58,640	1,338	15,150	382	82,240	1,959
Lines:								
Ling or lawyers	100	1	1,200	12	600	6	1,900	19
Sturgeon	200	12	600	36	580	34	1,380	82
Trout	100	5	200	12	400	20	700	37
Yellow perch	3,600	108	25,080	702	11,660	310	41,240	1,120
Total	4,000	126	28,080	762	13,140	370	45,220	1,258
Grand total	80,320	2,001	218,708	5,236	71,798	1,873	370,826	9,113

Apparatus and species.	Illinois.					
	Cook.		Lake.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:						
Herring			3,000	\$80	3,000	\$80
Suckers			4,000	75	4,000	75
Trout			1,200	60	1,200	60
White-fish			200	10	200	10
Yellow perch			11,000	318	11,000	318
Total			19,400	543	19,400	543
Gill nets:						
Herring	68,060	\$1,750	62,070	1,765	131,030	3,515
Ling or lawyers	4,000	40	18,000	180	22,000	220
Suckers	1,500	40	33,260	413	34,760	453
Trout	5,200	260			5,200	260
Yellow perch	114,500	4,010	84,960	1,985	199,460	5,995
Total	194,160	6,100	198,290	4,343	392,450	10,443
Fyke nets:						
Yellow perch			8,260	228	8,260	228
Dip nets:						
German carp	3,150	110			3,150	110
Herring	64,000	1,600			64,000	1,600
Yellow perch	265,000	9,275			265,000	9,275
Total	332,150	10,985			332,150	10,985
Lines:						
Eels	300	24			300	24
Ling or lawyers	5,000	50			5,000	50
Yellow perch	102,600	3,645	16,860	442	119,460	4,087
Total	107,900	3,719	16,860	442	124,760	4,161
Grand total	634,210	20,804	242,810	5,666	877,020	26,860

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Wisconsin.							
	Brown.		Door.		Kenosha.		Kewaunee.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Cat-fish and bullheads			2,680	\$93				
Herring, fresh	69,620	\$824	722,530	7,880			13,600	\$150
Herring, salted	22,000	386	3,750,800	66,367			11,000	220
Pike and pickerel	2,200	120	8,598	467				
Pike perch (wall-eyed), fresh	500	25	17,785	766				
Pike perch (wall-eyed), salted			400	22				
Sturgeon	350	16	5,420	259				
Suckers, fresh	15,000	170	48,250	500			50	1
Trout, fresh			77,490	3,157			300	18
Trout, salted			10,000	518				
White-fish, fresh			4,850	282			50	4
White-fish (Menominee), fresh			2,050	65				
White-fish (Menominee), salted			3,900	140				
Yellow perch	32,725	528	136,825	1,709			250	5
Total	142,395	2,069	4,791,678	82,225			25,250	398
Gill nets:								
Black bass			560	37				
Herring, fresh	167,305	2,706	89,903	1,319	3,500	\$60	7,000	91
Pike and pickerel	5,200	248	400	20				
Pike perch (wall-eyed)	1,500	82						
Suckers, fresh	5,000	65	8,640	104			6,500	77
Trout, fresh	250	12	366,965	16,299			68,000	3,028
White-fish, fresh			16,580	1,008				
White-fish (bluefin), fresh			158,000	4,010				
White-fish (Menominee), fresh			112,915	2,806			52,650	1,316
White-fish (Menominee), salted			71,300	2,497				
Yellow perch	58,780	894	13,040	200	13,200	480	1,400	18
Total	238,035	4,007	838,343	28,300	16,700	540	125,550	4,530
Fyke nets:								
Black bass	2,595	193						
Cat-fish and bullheads	51,654	1,361						
German carp	10,675	157						
Herring	40,000	530						
Pike and pickerel	33,128	1,670						
Pike perch (wall-eyed)	30,552	1,374						
Rock bass	4,000	88						
Suckers	285,450	2,390						
Trout	800	15						
White bass	3,200	96						
Yellow perch	1,039,769	11,354						
Total	1,501,823	19,178						
Lines:								
Herring			32,000	400				
Trout			123,524	4,689			2,400	192
Pike perch (wall-eyed)			2,250	112				
Yellow perch			89,800	1,340				
Total			247,574	6,541			2,400	192
Crawfish pots:								
Crawfish	135,861	3,498						
Grand total	2,017,614	28,752	5,877,495	117,066	16,700	540	153,200	5,120

612 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Wisconsin—continued.							
	Manitowoc.		Marinette.		Milwaukee.		Oconto.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Cat-fish and bullheads							3,500	\$105
Herring, fresh	76,950	\$787	291,000	\$2,836			930,550	10,193
Herring, salted	65,800	1,164	477,800	8,879			851,700	15,889
Pike and pickerel			850	48			7,780	475
Pike perch (wall-eyed), fresh							8,350	385
Sturgeon	1,670	109	2,450	98			3,550	162
Suckers, fresh	2,950	32	8,950	85			90,600	907
Suckers, salted			13,600	258			4,000	72
Trout, fresh	119,200	5,958	710	37			1,600	80
White-fish, fresh	2,225	160	1,480	84			2,200	16
Yellow perch	1,620	44	31,950	412			241,030	3,003
Total	270,415	8,254	828,790	12,767			2,142,760	30,787
Gill nets:								
German carp					450	\$12		
Herring, fresh	53,245	1,452	308,400	3,880	38,820	1,072	212,045	2,774
Ling or lawyers					11,000	98		
Suckers, fresh			1,500	20	3,000	60	5,000	60
Trout, fresh	164,090	7,956	7,460	448	61,290	3,236		
White-fish, fresh	250	16					2,935	218
White-fish (bluefin), fresh			12,800	320				
White-fish (Menominee), fresh	2,250	68						
Yellow perch	1,600	32	11,500	132	29,200	995	16,075	322
Total	221,435	9,524	341,660	4,800	143,760	5,473	236,055	3,374
Fyke nets:								
Black bass							200	14
Cat-fish and bullheads			60	3			4,170	117
German carp							480	63
Herring			3,000	36			28,600	324
Pike and pickerel			1,180	64			6,860	376
Pike perch (wall-eyed)			2,700	132			6,250	348
Suckers			5,400	63			32,100	327
Trout			60	3			320	18
White bass							400	15
White-fish			30	2				
Yellow perch			34,070	434			100,060	1,453
Total			46,490	737			179,440	3,055
Lines:								
Ling and lawyers					18,300	120		
Yellow perch					31,400	968		
Total					49,700	1,088		
Grand total	491,850	17,778	1,216,940	18,304	193,460	6,561	2,558,255	37,216

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Michigan in 1899—Continued.

Apparatus and species.	Wisconsin—continued.							
	Ozaukee.		Racine.		Sheboygan.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Cat-fish and bullheads.....							6,180	\$198
Herring, fresh.....	7,010	\$110			16,400	\$235	2,127,660	23,075
Herring, salted.....							5,179,100	92,405
Ling or lawyers.....	1,200	12					1,200	12
Pike and pickerel.....							19,428	1,110
Pike perch (wall-eyed), fresh.....							26,635	1,176
Pike perch (wall-eyed), salted.....							400	22
Sturgeon.....	250	20			885	61	14,575	728
Suckers, fresh.....	2,200	24			11,450	136	179,350	1,856
Suckers, salted.....							17,600	330
Trout, fresh.....	32,165	1,704			122,615	6,714	354,080	17,668
Trout, salted.....							10,000	518
White-fish, fresh.....	3,090	238			2,980	280	14,865	1,073
White-fish (Menominee), fresh.....							2,050	65
White-fish (Menominee), salted.....							3,900	140
Yellow perch.....	650	16			7,250	188	452,300	5,935
Total.....	46,555	2,124			161,580	7,686	8,409,323	146,310
Gill nets:								
Black bass.....							560	37
German carp.....							450	12
Herring, fresh.....	10,620	194	28,780	\$1,062			919,618	14,610
Ling or lawyers.....							11,000	98
Pike and pickerel.....							5,600	268
Pike perch (wall-eyed).....							1,600	82
Suckers, fresh.....							29,680	386
Trout, fresh.....	360	21	12,200	796			670,615	31,796
White-fish, fresh.....							19,765	1,242
White-fish (bluefin), fresh.....							170,800	4,330
White-fish (Menominee), fresh.....							167,815	4,190
White-fish (Menominee), salted.....							71,300	2,497
Yellow perch.....	5,800	140	9,600	335			160,195	3,548
Total.....	16,780	355	50,580	2,193			2,228,898	63,096
Fyke nets:								
Black bass.....							2,795	207
German carp.....							11,165	220
Cat-fish and bullheads.....							55,884	1,481
Herring.....							71,600	890
Pike and pickerel.....							41,168	2,110
Pike perch (wall-eyed).....							39,602	1,854
Rock bass.....							4,000	38
Suckers.....							322,960	2,780
Trout.....							670	36
White bass.....							3,600	111
White-fish.....							30	2
Yellow perch.....							1,173,899	13,241
Total.....							1,727,253	22,970
Lines:								
Herring.....							32,000	400
Ling or lawyers.....							18,300	120
Trout.....							125,924	4,881
Pike perch (wall-eyed).....							2,250	112
Yellow perch.....							121,200	2,308
Total.....							299,674	7,821
Crawfish pots:								
Crawfish.....							135,861	3,498
Grand total.....	63,385	2,479	60,580	2,193	161,580	7,680	12,801,609	213,695

Summary showing the total shore fisheries of Lake Michigan in 1899.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Pound nets:			Fyke nets:		
Black bass	1,462	\$115	Black bass	5,129	\$385
German carp	3,525	50	German carp	11,155	220
Cat-fish and bullheads	6,278	201	Cat-fish and bullheads	55,884	1,481
Eels	84	6	Herring	71,600	890
Herring, fresh	2,693,325	30,160	Pike and pickerel	41,568	2,132
Herring, salted	11,322,500	210,847	Pike perch (wall-eyed)	40,292	1,895
Ling or lawyers	1,598	22	Rock bass	4,000	38
Pike and pickerel	35,473	1,894	Suckers	323,710	2,790
Pike perch (wall-eyed), fresh	89,213	3,775	Trout	670	85
Pike perch (wall-eyed), salted	400	22	White bass	3,600	111
Fresh-water drum	55,372	722	White-fish	30	2
Sturgeon	100,669	6,595	White-fish (Menominee)	28	2
Suckers, fresh	485,303	5,025	Yellow perch	1,183,801	13,496
Suckers, salted	91,831	1,731	Total	1,741,467	23,478
Trout, fresh	661,786	30,413			
Trout, salted	19,944	999	Scines:		
White bass	780	35	Herring	1,400	22
White-fish, fresh	628,090	30,347	Pike and pickerel	2,686	110
White-fish, salted	53,176	2,881	Pike perch (wall-eyed)	37,980	1,570
White-fish (Menominee), fresh	8,185	237	Sturgeon	276	16
White-fish (Menominee), salted	3,900	140	Suckers, fresh	9,400	140
Yellow perch	598,766	9,063	Suckers, salted	13,105	131
Total	16,861,660	335,280	White-fish	600	31
			Yellow perch	1,880	30
Gill nets:			Total	67,327	2,050
Black bass	1,974	144			
German carp	3,450	72	Lines:		
Herring, fresh	1,288,277	22,976	German carp	4,000	40
Herring, salted	13,563	828	Eels	400	34
Ling or lawyers	33,000	318	Herring	32,000	400
Pike and pickerel	7,106	333	Ling or lawyers	25,685	194
Pike perch (wall-eyed)	3,598	181	Pike and pickerel	600	30
Rock bass	161	6	Pike perch (wall-eyed)	2,250	112
Sturgeon	3,176	256	Sturgeon	3,905	308
Suckers, fresh	77,934	1,072	Trout	250,179	10,682
Suckers, salted	600	11	Yellow perch	289,900	7,756
Trout, fresh	1,218,546	52,913	Total	608,919	19,555
Trout, salted	61,893	2,667			
White-fish, fresh	222,610	10,480	Spears:		
White-fish, salted	46,601	2,484	Herring	1,100	85
White-fish (bluefin), fresh	248,978	6,280	Trout	4,400	220
White-fish (bluefin), salted	5,920	276	Yellow perch	1,840	92
White-fish (Menominee), fresh	353,985	9,171	Total	7,340	347
White-fish (Menominee), salted	140,130	4,420			
Yellow perch	630,759	15,464	Crawfish pots:		
Total	4,362,261	130,351	Crawfish	135,861	3,498
			Grand total	24,116,985	525,544
Dip nets:					
German carp	3,150	110			
Herring	61,000	1,600			
Yellow perch	266,000	9,275			
Total	332,150	10,985			

WHOLESALE FISHERY TRADE OF CHICAGO AND GREEN BAY.

The wholesale fishery trade on Lake Michigan is most extensive at Chicago, Ill., and Green Bay, Wis. The tendency toward consolidation, which is apparent in the fresh-fish trade of nearly every section of the Great Lakes, has had its effect on these two cities, a certain number of firms in each place combining under one management, which now handles the greater portion of the fresh fish.

Chicago is the most important distributing center for fishery products in the Great Lakes region. In 1899 the number of establishments in the various branches of the wholesale fishery trade of that city was 60. There were 7 firms in the fresh-fish trade, which also handled

oysters and other products, 4 in the oyster trade exclusively, 19 in the salt-fish business, and 30 engaged in preparing and marketing smoked fish. The number of persons employed was 376, and the total investment was \$1,839,700. The products embraced fresh fish, 26,850,670 pounds, \$1,584,951; salted fish, 27,716,000 pounds, \$1,545,374; smoked fish, 4,670,022 pounds, \$359,190; and a large quantity of lobsters, shrimp, oysters, and clams, valued at \$1,118,189; the total value being \$4,607,704. The fresh fish were chiefly from the Great Lakes, the more abundant species being trout, white-fish, lake herring, chubs, yellow perch, suckers, and German carp. The salted and smoked fish, while comprising a number of Great Lakes species, were obtained largely from the Atlantic coast and from various European countries. Among the imported products the principal item was 9,347,000 pounds of salted herring, having a value of \$498,578.

The following table shows the extent of the wholesale fishery trade of Chicago, Ill., in 1899:

Products.	Lbs.	Value.	Products.	Lbs.	Value.
Fresh fish:			Salted fish—continued:		
Black bass.....	304,412	\$36,836	Herring, domestic.....	2,200,000	\$39,400
Blue-fish.....	143,332	11,617	Herring, imported.....	9,347,000	498,578
Buffalo-fish.....	333,617	13,668	Lake herring.....	2,600,000	62,400
Cat-fish and bullheads.....	108,149	12,357	Mackerel.....	3,500,000	315,000
Chubs.....	2,443,506	91,252	Salmon.....	1,370,000	73,980
Cod.....	332,706	19,675	Stock-fish.....	682,000	\$4,456
Dog-fish.....	565,875	19,806	Suckers.....	200,000	4,800
Fresh-water drum.....	187,130	4,381	Trout.....	140,000	8,400
German carp.....	1,077,194	43,143	White-fish.....	145,000	8,700
Halibut.....	144,654	13,445	Total.....	27,716,000	1,545,374
Herring.....	497,866	16,758	Smoked fish:		
Lake herding.....	3,722,902	160,036	Chubs.....	2,138,000	160,120
Pike and pickerel.....	377,233	23,163	Finnan haddie.....	38,502	2,503
Pike perch (blue pike).....	64,522	3,028	Halibut.....	420,000	38,800
Pike perch (sauger).....	100,862	4,193	Herring, hard.....	585,000	9,360
Pike perch (wall-eyed).....	1,245,019	116,618	Herring, bloater.....	462,200	14,235
Red snappers.....	332,788	23,513	Lake herring.....	356,000	24,925
Salmon.....	410,786	37,812	Salmon.....	140,000	18,200
Smelt.....	152,670	9,870	Sturgeon.....	320,000	44,800
Spoonbill cat-fish.....	167,074	12,531	Trout.....	120,000	14,200
Sturgeon.....	135,410	17,454	Miscellaneous.....	100,320	12,047
Suckers.....	1,215,550	36,064	Total.....	4,670,022	359,190
Sun-fish.....	227,092	7,411	Other products:		
Trout.....	4,514,371	338,987	Lobsters.....	220,356	39,664
White-fish.....	3,738,789	330,872	Shrimp, galls.....	8,200	3,345
White-fish (bluefin).....	644,046	26,187	Oysters, opened.....do.....	930,527	1,020,319
Yellow perch.....	2,765,580	84,256	Oysters, in shell.....lbs.....	5,349	40,338
Miscellaneous.....	797,666	70,134	Clams, in shell.....do.....	3,063	14,523
Total.....	26,850,670	1,584,951	Total.....	1,118,189	
Salted fish:			Total value.....	4,607,704	
Anchovies.....	260,000	13,260			
Cod, boneless.....	4,880,000	322,080			
Cod, dried.....	2,352,000	90,720			
Eels.....	40,000	3,600			

At Green Bay 5 firms were engaged in the wholesale fishery trade, and employed 63 persons. The investment, including cash capital, was \$73,800. The products aggregated 9,301,517 pounds, valued at \$278,986. The greater part of the fish were sold fresh, but large quantities of salted fish and some smoked fish were also utilized in the trade. About 95 per cent of the salted and smoked fish consisted of lake herring, and the remainder of white-fish, trout, and other species.

The extent of the wholesale fishery trade of Green Bay is shown in detail in the following table for the year 1899:

Products.	Lbs.	Value.	Products.	Lbs.	Value.
Black bass.....	2, 813	\$254	White-fish (bluefin).....	302, 446	\$13, 621
Cat-fish and bullheads.....	65, 619	3, 419	Yellow perch.....	1, 302, 750	24, 976
Herring.....	1, 451, 466	29, 485	Other fish.....	54, 750	3, 039
Pike and pickerel.....	293, 773	19, 318	Salted fish.....	4, 151, 412	91, 601
Suckers.....	338, 314	5, 897	Smoked fish.....	137, 742	4, 285
Sturgeon.....	10, 518	1, 071	Crawfish.....	7, 814	248
Trout.....	898, 098	63, 648	Total products.....	9, 301, 517	278, 986
White bass.....	120, 025	5, 967			
White-fish.....	164, 077	12, 257			

FISHERIES OF LAKE HURON.

The greatest length of Lake Huron is 250 miles, its greatest width about 100 miles, and it has an area of about 21,000 square miles. The lake is divided into two approximately equal areas by the so-called Big Reef, which extends continuously from Point Clark, Ontario, to North Point, Mich. North of this reef the lake has a maximum depth of 125 fathoms; the southern half of the lake is shallower, the extreme depth being only 54 fathoms.

The number of persons employed in the fisheries of Lake Huron in 1899 was 1,241, of whom 62 were engaged on vessels fishing, 7 on vessels transporting, 986 in the shore or boat fisheries, and 186 were shosmen employed in various capacities.

The investment in the fisheries of this lake amounted to \$474,953. In fishing there were used 9 vessels of a value with their outfits of \$50,215, while 3 vessels were employed as transporters and were valued with their outfits at \$4,830; 527 boats were in use and were valued at \$40,835. The value of the apparatus used in the vessel fisheries was \$28,245, and in the shore fisheries \$146,939. The shore and accessory property was valued at \$148,489, and the cash capital amounted to \$55,500.

The products of the fisheries aggregated 12,418,327 pounds, worth \$308,078. The most important species in point of value was trout, of which there were taken 1,887,101 pounds, valued at \$80,423. Herring amounted to 3,699,807 pounds, worth \$60,418; yellow perch, 2,740,669 pounds, worth \$32,690; wall-eyed pike, 1,110,516 pounds, worth \$49,294; white-fish, 592,308 pounds, worth \$31,910; suckers, 1,107,490 pounds, worth \$20,320. Other important species were cat-fish and pike.

To the vessel fisheries are credited 1,275,650 pounds of products, valued at \$55,535, and to the shore fisheries 11,142,677 pounds, valued at \$252,543. The yield of the vessel fisheries was derived almost entirely from gill nets, while in the shore fisheries nearly four-fifths of the catch was taken with pound and trap nets.

While the yield and value of the fisheries of this lake were greater in 1899 than in any previous year for which figures have been obtained, there has been a falling off since 1893 in the catch of trout, white-fish, and some other species. In 1893 29 per cent of the entire catch of the lake was trout, while in 1899 the percentage that this species bore to the entire catch was only 15, showing a falling off of 14 per cent.

Owing to the decided decline in white-fish since 1893 the value of the catch of this species has dropped below that of both wall-eyed pike and perch. The northern half of Lake Huron shows an increase in trout and a decrease in white-fish, while in the southern half the reverse is the case. The deep waters of the northern half of the lake seem to be more favorable to the trout than to the white-fish. The greatest quantities of white-fish are taken in depths of water ranging from 10 to 25 fathoms. The decline in white-fish, mentioned above, shows a decided change in the conditions existing when the fisheries first began on Lake Huron, when this fish was the principal object of capture. It is the opinion generally of the fishermen that, owing to fish-cultural work, the supply of this species is being gradually replenished.

There has been a very noticeable increase in the value of the herring catch as compared with 1893. About 80 per cent of the catch of this species was taken in pound nets set in Saginaw Bay.

The species which show the greatest increase in value since 1893 are the wall-eyed pike, yellow perch, cat-fish and bullheads. The center of abundance of the wall-eyed pike is in Saginaw Bay and River, which yielded 88 per cent of the catch. This species was caught chiefly in pound nets, but large numbers were also speared through the ice on Saginaw River during the winter months.

German carp appeared in the statistics of this lake in 1899 for the first time, none being found there during the previous canvass for 1893. It is probable that this species came from Lake Erie, where it has been very plentiful for several years.

The species in which the greatest decrease has occurred during the past ten years is the sturgeon, the catch in 1899 amounting to only one-twelfth of that taken in 1890. Prior to 1875 this species had no special value, but the price now paid for it is but little lower than that paid for trout. Its present increased value, however, does not compensate to any great extent for the decided falling off in the catch since 1880. Most of the sturgeon are taken in pound nets.

The two least valuable species in the lake are ling or lawyers and fresh-water drum, which until recent years were very seldom saved by the fishermen, owing to their inability to dispose of them. The market value of the fresh-water drum seems to be increasing.

Apparatus.—The most important apparatus of capture used in the fisheries of Lake Huron are pound nets, trap nets, gill nets, fyke nets, and lines, the catch by pound and trap nets representing nearly three-

fourths of the quantity and value of the entire products of the lake. Pound nets are used all along the shores of the lake, but are found in greatest numbers in Saginaw Bay. They are usually set in water from 6 to 25 feet in depth, except off Cheboygan County, where many of them are much farther out in the lake in from 40 to 60 feet of water. Their average value in Saginaw Bay is about \$140 each, while for the entire lake it is about \$130. In this region the terms "pound net" and "trap net" are sometimes used interchangeably, although the two forms are distinct from each other, the former being set with driven stakes, while the latter is held in position by buoys and anchors. Trap nets are set in shallow water, and catch the cheaper varieties of fish, especially in the vicinity of Detour. In the Saginaw Bay region a net of this character is also called a submarine net, and is used very successfully in taking cat-fish.

The amount of money invested in pound nets in 1899 was more than double that invested in gill nets. The most valuable species taken in pound nets are herring, wall-eyed pike, perch, and white-fish. As a rule the pound-net fishermen, especially at Saginaw Bay, depend upon herring for their principal catch, but in 1899 there was an exceptionally large run of perch and a corresponding diminution in the catch of herring.

The most extensive gill-net fisheries of the lake are carried on from Alpena, Harbor Beach, Au Sable, East Tawas, and Detour, and to a less extent at Rogers City, Cheboygan, and other points. Trout is by far the most important species taken by means of gill nets, its value being more than four times the value of all the other species combined. White-fish also form a very important feature of the gill-net catch. At Harbor Beach an extensive gill-net fishery is carried on for perch, suckers, and Menominee white-fish, the season being from December to July. The nets used have a smaller mesh and are shorter than those used for trout and white-fish. The average length of the gill nets used in the shore fisheries of the lake is about 170 yards, each being valued at about \$8, while the average length of those used on vessels is about 230 yards and the value about \$12 each. The history of gill nets on Lake Huron dates back to 1835, when crude forms were used in the vicinity of Alpena. They soon gained popularity, and within fifteen years from their introduction were found from the Straits of Mackinac to almost the head of the St. Clair River.

The principal species taken in fyke nets are perch and suckers, but bullheads, pike, and wall-eyed pike are also captured. Most of the fyke-net fishing is carried on in Saginaw River between Saginaw and the mouth of the river. The nets are worth from \$15 to \$25, and they are fished from late in the fall until early in the spring when the ice begins to leave, practically all of the fishing being done through the ice. The local name given to this net is "gobbler."

Lines are next to fyke nets in the value of their catch, the species taken being chiefly trout, cat-fish, and perch. The most important point at which line fishing is carried on is St. Ignace, where, during the winter, large numbers of the inhabitants are engaged in fishing through the ice for trout. The lines are usually made of linen and soft maitre twine, with one hook, and cost about \$1.50 each, the hook alone costing half that amount.

Seines are used in the fisheries of Lake Huron, chiefly at Au Sable and Pine River. The fishing at the former town is done in the Au Sable River near its entrance into the lake; at the latter town the fishing is in the lake itself. Suckers and wall-eyed pike comprise about five-sixths of the fish caught in seines. This apparatus was introduced in Lake Huron in about 1841, but its use has been much less extensive than that of pound nets, gill nets, and fyke nets.

The spear is quite an important apparatus of capture in the Saginaw River, near Bay City, and is used to some extent at other places, principally at Sebawaing and Harbor Beach. Wall-eyed pike and perch form three-fourths of the catch.

Since 1893 there has been a slight decline in the number of steamers fishing gill nets, due no doubt to the falling off in trout and white-fish. The principal points from which steamers fish are Alpena, Harbor Beach, Au Sable, and Saginaw. The catch consists almost exclusively of trout and white-fish, wall-eyed pike being taken incidentally. One steamer fished gill nets of small mesh for Menominee white-fish.

A decrease has taken place in the extent of the fisheries carried on from Port Huron in 1899 as compared with 1893, due to the fact that the wholesale dealers at that town in 1893 furnished twine to fishermen living on the United States side of the lake, while in 1899 this practice had been discontinued and a similar quantity of twine was furnished to Canadian fishermen.

Statistics.—The five tables which follow exhibit by counties the extent of the fisheries of Lake Huron in 1899:

Table showing the number of persons employed in the fisheries of Lake Huron in 1899.

Counties.	On ves- sels fish- ing.	On ves- sels trans- porting.	In shore or boat fisheries.	Shores- men.	Total.
Alcona			4		4
Alpena	32	2	25	23	82
Arenac			33		33
Bay		6	346	73	424
Cheboygan			52	7	59
Chippewa	4		40	10	54
Huron	16		218	39	273
Iosco	7		59	4	70
Mackinac			76	3	79
Presque Isle			10	2	12
Saginaw	3		73	8	84
St. Clair			9	16	25
Sanilac			24	1	25
Tuscola			17		17
Total	62	7	986	186	1,241

620 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the apparatus and capital employed in the fisheries of Lake Huron in 1899.

Items.	Alcona.		Alpena.		Arenac.		Bay.		Cheboygan.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing.....			4	\$22,500						
Tonnage.....			83							
Outfit.....				4,655						
Vessels transporting.....			1	250			2	\$4,000		
Tonnage.....			9				90			
Outfit.....				220				360		
Boats.....	2	\$85	11	630	17	\$755	192	12,695	27	\$2,400
Apparatus—vessel fisheries:										
Gill nets.....			1,140	17,100						
Apparatus—shore fisheries:										
Seines.....			1	50	1	150				
Gill nets.....	6	42	293	4,121	22	210	23	151	880	6,910
Pound nets and trap nets.....	2	250	17	1,250	24	3,480	421	50,167	24	3,150
Fyke nets.....						310	154	3,092		
Lines.....								55		20
Spears.....							50	100		
Shore and accessory property.....		15		24,690		1,875		60,780		5,675
Cash capital.....								25,000		2,500
Total.....		392		75,466		6,780		156,400		20,555

Items.	Chippewa.		Huron.		Iosco.		Mackinac.		Presque Isle.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing.....	1	\$2,500	2	\$7,000	1	\$7,000				
Tonnage.....	14		29		24					
Outfit.....		20		1,285		1,170				
Boats.....	35	3,010	112	11,920	24	2,280	27	\$3,300	6	\$360
Apparatus—vessel fisheries:										
Gill nets.....			616	5,580	270	3,240				
Trap nets.....	35	525								
Apparatus—shore fisheries:										
Seines.....					6	423				
Gill nets.....	273	2,359	555	3,194	621	4,650	371	2,267	60	600
Pound nets and trap nets.....	134	5,660	179	30,080	46	4,845	21	3,755	6	192
Fyke nets.....	30	180	61	900	3	75				
Lines.....		50		90				86		
Spears.....			55	110						
Shore and accessory property.....		6,965		14,175		3,490		550		750
Cash capital.....		2,500		500						
Total.....		23,769		74,834		27,173		9,958		1,902

Items.	Saginaw.		St. Clair.		Sanilac.		Tuscola.		Total.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing.....	1	\$3,500							9	\$42,500
Tonnage.....	7								157	
Outfit.....		585								7,715
Vessels transporting.....									3	4,250
Tonnage.....									99	
Outfit.....										580
Boats.....	41	960	5	\$505	16	\$1,180	12	\$755	527	40,835
Apparatus—vessel fisheries:										
Gill nets.....	240	1,800							2,266	27,720
Trap nets.....									35	525
Apparatus—shore fisheries:										
Seines.....	1	50							9	673
Gill nets.....	80	600	30	240	196	1,320			3,410	26,664
Pound nets and trap nets.....	31	1,760	8	1,450	14	2,625	34	2,650	961	111,314
Fyke nets.....	98	2,685					24	390	398	7,632
Lines.....		45								346
Spears.....									105	210
Shore and accessory property.....		8,019		16,885		4,720		450		148,489
Cash capital.....		2,000		23,000						55,500
Total.....		22,004		42,080		9,395		4,245		474,953

Table showing, by counties, the products of the fisheries of Lake Huron in 1899.

Species.	Alcona.		Alpena.		Arenac.		Bay.		Cheboygan.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Black bass			4,119	\$285					75	\$5
Cat-fish and bullheads					13,101	\$366	363,142	\$9,829		
German carp					200	1	1,310	35		
Eels							634	35		
Fresh-water drum, fresh					3,177	16	97,237	516		
Herring, fresh	700	\$35	10,600	130	8,607	113	332,021	2,448	4,500	65
Herring, salted	750	25	38,450	782	165,870	2,147	547,910	9,388	27,600	436
Pike and pickerel, fresh					10,854	449	71,799	3,130	200	5
Pike perch (wall-eyed), fresh										
Pike perch (wall-eyed), salted	950	66	28,305	1,556	28,674	1,041	543,055	20,958	6,350	347
Rock bass					4,674	64	2,970	102		
Sturgeon	167	8	8,367	291	2,225	8	41,277	864	50	1
Suckers, fresh			3,500	47	24,467	331	2,147	65	2,885	95
Suckers, salted			12,500	250	990	17	498,176	8,316		
Sun-fish							7,040	135	7,350	91
Trout, fresh	50	4	738,495	34,743	550	31	24,389	350	65,498	2,655
Trout, salted							2,908	146	770	29
White-fish, fresh			73,524	3,816	21,339	1,036	185,769	11,013	22,600	1,259
White-fish, salted					770	28	4,620	208		
White-fish (Menominee), fresh	650	50	1,100	82	2,752	78	512	11		
White-fish (Menominee), salted							5,830	237	2,000	40
Yellow perch, fresh	170	13	10,460	273	42,597	634	1,947,397	20,662	1,880	34
Frogs							8,000	520		
Total	3,437	201	929,410	42,255	318,847	6,260	4,688,913	88,977	140,988	5,033

Species.	Chippewa.		Huron.		Iosco.		Mackinac.		Presque Isle.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Black bass			500	\$30			865	\$69	100	\$7
Cat-fish and bullheads	32,811	\$710	64,402	2,648	5,821	\$108				
German carp			438	10	1,000	10				
Eels			65	5	71	4				
Fresh-water drum, fresh			42,080	331	3,416	16				
Fresh-water drum, salted			2,420	47						
Herring, fresh			474,977	4,844	403	3	35,000	350		
Herring, salted	38,500	673	1,190,230	24,234	395,770	7,809	8,000	160		
Herring, smoked			2,700	90						
Ling or lawyers	880	17								
Pike and pickerel, fresh	70,788	1,533	745	38	387	14				
Pike perch (wall-eyed), fresh	66,300	3,149	319,023	16,983	16,957	769			1,560	97
Pike perch (wall-eyed), salted					330	16				
Rock bass	6,000	44	300	4						
Sturgeon	1,725	58	5,729	202	4,087	140	160	5		
Suckers, fresh	58,370	206	84,890	1,359	60,443	1,112			600	3
Suckers, salted	51,355	654	13,750	220	30,710	423	2,500	25	600	3
Sun-fish	6,600	47	115	2	72	1				
Trout, fresh	164,690	6,237	257,145	9,994	283,405	11,425	156,620	6,916	53,000	1,605
Trout, salted	1,800	90			220	12	4,400	195		
White-fish, fresh	37,070	1,838	67,275	4,153	98,620	4,101	83,020	1,615		
White-fish, salted			1,650	93	1,100	56				
White-fish (Menominee), fresh			67,780	1,344	1,378	34	2,900	64		
White-fish (Menominee), salted					1,330	59	14,900	474		
Yellow perch, fresh	25,940	213	440,348	7,097	66,946	853	2,333	103		
Yellow perch, salted							500	10		
Total	562,829	15,469	3,036,572	73,628	972,466	26,965	261,198	9,986	55,800	1,715

622 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, the products of the fisheries of Lake Huron in 1899—Cont'd.

Species.	Saginaw.		St. Clair.		Sanilac.		Tuscola.		Total.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Black bass									5,659	\$396
Cat-fish and bullheads	46,090	\$1,759	140	\$7			48,899	\$1,300	574,406	16,627
German carp	2,900	98	300	7			221	2	6,369	145
Eels	50	2					41	3	861	49
Fresh-water drum, fresh	170	2	4,000	40	8,000	\$40	146	1	158,226	962
Fresh-water drum, salted									2,420	47
Herring, fresh			109,730	1,214	92,000	1,460	5,419	34	1,073,957	10,696
Herring, salted			30,000	527	184,400	3,340	5,610	111	2,623,150	49,632
Herring, smoked									2,700	90
Ling or lawyers	20,000	150							20,880	167
Pike and pickerel, fresh	34,644	1,750	100	5			2,278	83	191,795	7,007
Pike and pickerel, salted							440	9	440	9
Pike perch (wall-eyed), fresh	19,930	1,294	26,715	1,077	13,400	559	35,947	1,276	1,107,106	49,172
Pike perch (wall-eyed), salted							110	4	3,410	122
Rock bass	30,750	632					293	8	83,344	1,612
Sturgeon			2,855	120	*2,150	276			30,497	1,268
Suckers, fresh	240,855	7,065	800	5			8,594	58	980,695	18,502
Suckers, salted									126,795	1,818
Sun-fish	29,750	338					186	1	61,062	739
Trout, fresh	117,335	4,940	260	12	39,455	1,869			1,879,411	80,077
Trout, salted					500	20			7,690	346
White-fish, fresh	27,500	1,750	2,355	102	6,250	298	8,846	544	584,168	31,525
White-fish, salted									8,140	385
White-fish (Menominee), fresh			350	13	35,015	991			112,417	2,667
White-fish (Menominee), salted									24,060	810
Yellow perch, fresh	120,986	1,849	550	8	13,500	366	67,072	675	2,740,169	32,690
Yellow perch, salted									1,500	10
Frogs									8,000	520
Total	690,960	21,629	178,155	3,137	394,700	8,719	184,052	4,104	12,418,327	308,078

* Includes 300 pounds of caviar, valued at \$195, being a part of the product of the pound-net fishery of Sanilac County.

Table showing, by counties and apparatus, the products of the vessel fisheries of Lake Huron in 1899.

Apparatus and species.	Alpena.		Huron.		Iosco.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:						
Trout	673,270	\$31,292	185,000	\$7,295	161,760	\$6,678
Pike perch (wall-eyed)			1,000	55	3,000	165
White-fish	46,020	2,375	2,500	110	5,000	220
White-fish (Menominee)			46,000	690		
Total	719,290	33,667	234,500	8,150	118,500	5,670
Apparatus and species.	Chippewa.		Saginaw.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:						
Trout			96,000	\$4,140	1,116,030	\$49,400
Pike perch (wall-eyed)					4,000	220
White-fish			22,500	1,530	76,020	4,235
White-fish (Menominee)					46,000	690
Total			118,500	5,670	1,242,050	54,545
Trap nets:						
Cat-fish and bullheads	1,800	\$40			1,800	40
Pike and pickerel	8,500	170			8,500	170
Pike perch (wall-eyed)	4,300	150			4,300	150
Trout	15,000	600			15,000	600
Yellow perch	4,000	30			4,000	30
Total	33,600	990			33,600	990
Grand total	33,600	990	118,500	5,670	1,275,650	56,535

Table showing, by counties and apparatus, the products of the shore fisheries of Lake Huron in 1899.

Apparatus and species.	Alcona.		Alpena.		Arenac.		Bay.		Saginaw.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Bound and trap nets:										
Black bass			4,119	\$285						
Cat-fish and bullheads					3,854	\$100	324,220	\$8,535	14,445	\$562
German carp					200	1	994	11	1,585	54
Eels							467	26	30	1
Fresh-water drum, fresh					3,177	16	86,535	513	90	1
Herring, fresh	200	\$10	10,100	105	7,587	98	323,114	2,417		
Herring, salted			87,700	757	154,440	2,120	545,160	9,325		
Ling, or lawyers									12,000	90
Pike and pickerel, fresh					1,320	54	61,140	2,611	18,820	938
Pike perch (wall-eyed), fresh	800	56	26,222	1,451	14,338	683	486,548	17,297	10,835	713
Pike perch (wall-eyed), salted							2,970	102		
Rock bass					92	1	29,333	645	16,720	330
Sturgeon	167	8	8,367	231	225	3	2,022	59		
Suckers, fresh					7,013	108	422,150	6,523	129,470	3,795
Suckers, salted			7,500	150	330	5	6,600	129		
Sun-fish							16,487	210	15,870	170
Trout, fresh					550	31	2,908	146		
Trout, salted							770	23		
White-fish, fresh			12,789	662	21,157	1,025	185,737	11,011		
White-fish, salted					770	28	4,020	208		
White-fish (Menominee), fresh			400	32	2,676	75	512	11		
White-fish (Menominee), salted							5,830	237		
Yellow perch	100	8	10,150	262	29,031	367	1,623,236	17,126	65,120	990
Total	1,267	82	117,347	3,995	246,760	4,690	4,146,633	77,180	234,965	7,644
Gill nets:										
Cat-fish and bullheads					725	20				
Herring, fresh	500	25	500	25			2,140	15		
Herring, salted	750	25	750	25						
Pike and pickerel					7,500	305	74	4		
Pike perch (wall-eyed)	150	10	283	15	60	4	129	6		
Rock bass					500	6				
Suckers, fresh			3,500	47			488	17		
Suckers, salted					440	8	440	6		
Trout, fresh	50	4	65,225	3,451					21,335	800
White-fish			14,715	779	132	8			5,000	220
Yellow perch	70	5	100	6	500	7	1,000	8		
White-fish (Menominee), fresh	650	50	700	50						
Total	2,170	119	85,773	4,398	9,857	358	4,271	56	26,335	1,020
Fyke nets:										
Cat-fish and bullheads					7,840	231	29,800	1,035	11,735	450
Fresh-water drum							402	3	80	1
German carp							316	4	1,305	44
Eels							167	9	20	1
Herring, fresh					1,020	15	1,767	16		
Herring, salted					1,320	25	2,750	60		
Ling or lawyers									8,000	60
Pike and pickerel					1,865	84	10,585	515	15,424	792
Pike perch (wall-eyed)					783	45	10,093	495	8,895	563
Rock bass					4,082	57	11,944	219	13,680	295
Sturgeon							125	6		
Suckers, fresh					12,007	185	75,538	1,770	105,885	3,105
Suckers, salted					220	4				
Sun-fish							7,922	140	13,530	164
White-fish					50	3	32	2		
White-fish (Menominee)					76	3				
Yellow perch					11,242	146	321,661	3,493	53,265	823
Total					40,505	798	473,102	7,772	231,820	6,303
Seines:										
Cat-fish and bullheads					682	15			910	37
Herring, salted					110	2				
Pike and pickerel					169	6			400	20
Rock bass									350	7
Suckers, fresh					5,447	38			5,500	165
Suckers, salted			5,000	100						
Sun-fish									350	4
White-fish									200	13
Pike perch (wall-eyed)			1,800	90	13,493	389			2,600	36
Yellow perch			200	5	1,824	14				
Total			7,000	195	21,725	414			10,310	282

624 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties and apparatus, the products of the shore fisheries of Lake Huron in 1899—Continued.

Apparatus and species.	Alcona.		Alpena.		Arenac.		Bay.		Saginaw.	
	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.	Lbs.	Val.
Lines:										
Cat-fish and bullheads.							9,122	\$259	19,000	\$710
Miscellaneous apparatus:										
Pike perch (wall-eyed)							46,285	3,160		
Frogs							8,000	520		
Yellow perch							1,500	30		
Total							55,785	3,710		
Grand total	3,437	\$201	210,120	\$8,588	318,847	\$6,260	1,688,913	\$8,977	572,460	15,959

Apparatus and species.	Mackinac.		Presque Isle.		St. Clair.		Sanilac.		Tuscola.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound and trap nets:										
Black bass	100	\$8	100	\$7						
Cat-fish and bullheads.					140	\$7			45,605	\$1,228
German carp.					300	7				
Eels									25	2
Fresh-water drum					4,000	40	8,000	\$10	146	1
Herring, fresh	35,000	350			109,730	1,214	92,000	1,460	5,419	34
Herring, salted	8,000	160			30,000	527	184,400	3,340	5,610	111
Pike and pickerel, fresh					100	5			2,253	82
Pike and pickerel, salted									440	9
Pike perch (wall-eyed), fresh			1,500	97	22,515	909	13,400	559	35,747	1,266
Pike perch (wall-eyed), salted									110	4
Rock bass									193	2
Sturgeon					2,855	120	2,150	276		
Suckers, fresh			600	3	800	5			7,003	46
Suckers, salted	2,500	25	600	3						
Sun-fish									136	1
Trout, fresh	4,900	160			260	12	13,190	485		
White-fish, fresh	16,400	940			2,355	102	6,250	298	8,846	544
White-fish (Menominee), fresh					350	13	295	6		
Yellow perch	200	2			550	8	7,000	230	60,000	603
Total	67,100	1,645	2,800	110	178,955	2,969	326,685	6,694	171,533	3,933
Gill nets:										
Black bass	765	61								
Sturgeon	160	5								
Trout, fresh	63,920	2,028	53,000	1,605			26,265	884		
Trout, salted	4,400	195					500	20		
Pike perch (wall-eyed)					4,200	168				
White-fish	16,620	675								
White-fish (Menominee), fresh	1,500	30					34,750	985		
White-fish (Menominee), salted	14,900	474								
Yellow perch	133	1					6,500	136		
Total	102,398	3,469	53,000	1,605	4,200	168	68,015	2,025		
Fyke nets:										
Cat-fish and bullheads.									3,294	72
German carp									221	2
Eels									16	1
Pike and pickerel									25	1
Pike perch (wall-eyed)									200	10
Rock bass									100	1
Suckers, fresh									1,591	12
Yellow perch									7,072	72
Total									12,519	171
Lines:										
Trout	87,800	4,728								
White-fish (Menominee)	1,400	34								
Yellow perch, fresh	2,000	100								
Yellow perch, salted	500	10								
Total	91,700	4,872								
Grand total	261,198	9,986	55,800	1,715	178,155	3,137	394,700	8,719	184,052	4,104

Table showing, by counties and apparatus, the products of the shore fisheries of Lake Huron in 1899—Continued.

Apparatus and species.	Cheboygan.		Chippewa.		Huron.		Iosco.	
	Lbs.	Val.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound and trap nets:								
Black bass	75	\$5						
Cat-fish and bullheads			23,061	\$495	54,268	\$2,320	5,821	\$108
German carp					438	10	1,000	10
Eels					65	5	71	4
Fresh-water drum, fresh					42,080	331	3,416	16
Fresh-water drum, salted					2,420	47		
Herring, fresh	4,500	65			464,727	4,664	403	3
Herring, salted	27,000	430	38,500	673	1,190,290	24,234	392,030	7,732
Herring, smoked					2,700	90		
Ling or lawyers			880	17				
Pike and pickerel, fresh	200	5	56,288	1,183	184	10	229	10
Pike perch (wall-eyed), fresh	6,350	347	61,000	2,962	303,066	16,188	6,368	239
Pike perch (wall-eyed), salted							330	16
Rock bass	50	1	6,000	44	300	4		
Sturgeon	1,035	35	1,725	58	5,729	202	4,087	140
Suckers, fresh			58,370	206	28,050	853	24,058	191
Suckers, salted	6,500	82	46,355	604	13,760	220	30,710	423
Sun-fish			6,000	47	115	2	72	1
Trout, fresh	34,076	1,409	53,215	1,926	945	49	27,610	994
Trout, salted							220	12
White-fish, fresh	22,000	1,229	35,960	1,772	62,275	3,943	67,875	2,808
White-fish, salted					1,650	93	1,100	66
White-fish (Menominee), fresh					430	15	1,378	34
White-fish (Menominee), salted	2,000	40					1,830	59
Yellow perch	1,800	33	19,940	163	251,362	4,284	65,272	829
Total	105,586	3,681	407,891	10,150	2,424,834	57,014	633,380	13,685
Gill nets:								
Herring, fresh					4,000	55		
Herring, salted	600	6					3,300	68
Pike and pickerel					100	6		
Pike perch (wall-eyed)					9,294	480	6,976	328
Suckers, fresh					44,740	893	1,600	16
Suckers, salted	850	9						
Trout, fresh	31,422	1,246	89,475	3,501	61,200	2,200	94,035	3,758
Trout, salted			1,800	90				
White-fish	600	30	1,110	66	2,500	100	25,335	1,053
White-fish (Menominee), fresh					21,300	639		
Yellow perch	80	1			116,405	1,744	47	1
Total	33,562	1,292	92,385	3,657	259,539	6,117	131,293	5,224
Fyke nets:								
Cat-fish and bullheads			7,950	175	7,480	173		
Pike and pickerel			6,000	180	105	4		
Pike perch (wall-eyed)			1,000	37	2,100	91		
Suckers, fresh					12,100	113	300	4
Suckers, salted			5,000	50				
Yellow perch			2,000	20	39,100	468	1,500	20
Total			21,950	462	60,885	839	1,800	24
Seines:								
Herring, salted							440	9
Pike and pickerel							158	4
Pike perch (wall-eyed)							613	37
Suckers, fresh							31,485	901
White-fish							410	20
Yellow perch							127	3
Total							36,233	974
Lines:								
Cat-fish and bullheads					2,664	55		
Sturgeon	1,850	60						
Trout			7,000	210	10,000	450		
Yellow perch, fresh					9,863	139		
Total	1,850	60	7,000	210	22,527	644		
Miscellaneous apparatus:								
Black bass					500	30		
Herring					6,250	125		
Pike and pickerel					366	18		
Pike perch (wall-eyed)					3,563	219		
Yellow perch					23,618	472		
Total					34,287	864		
Grand total	140,988	5,033	529,229	14,479	2,802,072	65,478	802,706	19,907

626 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Summary of the products of the shore fisheries of Lake Huron in 1899.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Pound nets and trap nets:			Fyke nets:		
Black bass.....	4,394	\$305	Cat-fish and bullheads...	68,099	\$2,136
Cat-fish and bullheads....	471,404	13,355	Eels.....	203	11
Eels.....	658	38	Fresh-water drum.....	482	4
Fresh-water drum, fresh.....	157,744	958	German carp.....	1,842	50
Fresh-water drum, salted.....	2,420	47	Herring, fresh.....	2,787	31
German carp.....	4,527	93	Herring, salted.....	4,070	85
Herring, fresh.....	1,057,780	10,420	Ling or lawyers.....	8,000	60
Herring, salted.....	2,613,130	49,412	Pike and pickerel.....	34,004	1,576
Herring, smoked.....	2,700	90	Pike perch (wall-eyed)....	23,071	1,246
Ling or lawyers.....	12,880	107	Rock bass.....	29,806	572
Pike and pickerel, fresh.....	140,534	4,898	Sturgeon.....	125	6
Pike and pickerel, salted.....	440	9	Suckers.....	207,421	5,189
Pike perch (wall-eyed), fresh.....	988,689	42,687	Suckers, salted.....	5,220	54
Pike perch (wall-eyed), salted.....	3,410	122	Sun-fish.....	21,452	304
Rock bass.....	52,688	1,027	White-fish.....	82	5
Sturgeon.....	28,362	1,197	White-fish (Menominee)....	76	3
Suckers, fresh.....	677,514	11,236	Yellow perch.....	435,841	5,037
Suckers, salted.....	114,845	1,641	Total.....	842,581	16,396
Sun-fish.....	39,260	431	Seines:		
Trout, fresh.....	137,654	5,212	Cat-fish and bullheads...	1,592	52
Trout, salted.....	990	41	Herring, salted.....	550	11
White-fish, fresh.....	441,644	24,334	Pike and pickerel.....	727	30
White-fish, salted.....	8,140	385	Pike perch (wall-eyed)....	16,106	479
White-fish (Menominee), fresh.....	6,041	186	Rock bass.....	350	7
White-fish (Menominee), salted.....	9,160	336	Suckers, fresh.....	45,432	1,104
Yellow perch.....	2,133,761	24,905	Suckers, salted.....	5,000	100
Total.....	9,110,769	193,472	Sun-fish.....	350	4
Gill nets:			White-fish.....	410	20
Black bass.....	765	61	Yellow perch.....	4,751	58
Cat-fish and bullheads....	725	20	Total.....	75,268	1,865
Herring, fresh.....	7,140	120	Lines:		
Herring, salted.....	5,400	124	Cat-fish and bullheads...	30,786	1,024
Pike and pickerel.....	7,674	315	Sturgeon.....	1,850	60
Pike perch (wall-eyed)....	21,092	1,011	Trout.....	104,800	5,388
Rock bass.....	600	6	White-fish (Menominee)....	1,400	31
Sturgeon.....	160	5	Yellow perch, fresh.....	11,863	239
Suckers, fresh.....	50,328	973	Yellow perch, salted.....	600	10
Suckers, salted.....	1,730	23	Total.....	151,199	6,755
Trout, fresh.....	505,927	19,477	Miscellaneous apparatus:		
Trout, salted.....	6,700	305	Black bass.....	500	30
White-fish.....	66,012	2,931	Frogs.....	8,000	520
White-fish (Menominee), fresh.....	58,900	1,754	Herring.....	6,250	125
White-fish (Menominee), salted.....	14,900	474	Pike and pickerel.....	356	18
Yellow perch.....	124,835	1,909	Pike perch (wall-eyed)....	49,848	3,379
Total.....	872,788	29,508	Yellow perch.....	25,118	602
			Total.....	90,072	4,574
			Grand total.....	11,142,677	252,543

WHOLESALE FISHERY TRADE OF LAKE HURON.

In 1899 there were 13 establishments engaged in the wholesale fishery trade of Lake Huron. The persons employed numbered 87; the wages paid amounted to \$23,314; the cash capital was \$55,500, and the value of the establishments, with their apparatus, etc., was \$57,295. This business is centered principally at West Bay City, Essexville, and Port Huron, but is carried on to some extent at Detour, Mackinaw City, Sebawaing, and Saginaw. The firms at West Bay City and Essexville handle most of the fish taken in the Saginaw Bay region, except those taken at Bay Port and on the Saginaw River above Bay City. The greater part of the fish, fresh and salted, caught in these two localities is shipped by the fishermen to different sections of the country. The fish handled by the wholesale dealers are caught chiefly by fishermen living on the American side of the lake, but large quantities of Canadian fish are also utilized in the trade.

The following table shows the extent of the wholesale trade in fishery products in all localities on Lake Huron for the year 1899:

Products sold.	Lbs.	Value.	Products sold.	Lbs.	Value.
Black bass.....	804	\$72	Salt-water fish.....	27,721	\$1,697
Cat-fish and bullheads.....	321,910	21,838	Sturgeon.....	95,394	22,011
Eels.....	562	40	Suckers, fresh.....	573,757	15,103
Fresh-water drum, fresh.....	236,721	2,079	Suckers, salted.....	198,912	3,257
Fresh-water drum, salted.....	1,430	28	Sun-fish.....	19,707	292
German carp.....	1,456	36	Trout, fresh.....	799,917	52,241
Herring, fresh.....	775,962	13,401	Trout, salted.....	3,410	196
Herring, salted.....	1,706,653	34,122	White-fish, fresh.....	599,571	45,695
Herring, smoked.....	22,060	920	White-fish, salted.....	9,460	525
Ling or lawyers.....	792	19	White-fish (Menominee), fresh.....	6,952	304
Pike and pickerel, fresh.....	181,617	8,791	White-fish (Menominee), salted.....	125,462	4,445
Pike and pickerel, salted.....	440	11	Yellow perch, fresh.....	2,336,134	44,070
Pike perch (wall-eyed), fresh.....	1,180,170	65,268	Yellow perch, salted.....	6,600	150
Pike perch (wall-eyed), salted.....	3,410	133			
Rock bass.....	62,832	1,538	Total.....	9,299,806	338,282

NOTE.—Included in the above is 636,865 pounds of fish imported from Canada, valued at \$40,922. Of this quantity sturgeon comprised 65,190 pounds and caviar 22,060 pounds, the combined value of which was \$21,474.

FISHERIES OF LAKE ST. CLAIR, ST. CLAIR AND DETROIT RIVERS.

The fisheries of Lake St. Clair and tributaries in 1899 gave employment to 442 persons, of whom 374 were engaged in the shore fisheries and 68 on shore in fish-houses. The total amount of capital invested was \$54,535. The number of boats in use was 188, valued at \$3,770. The apparatus of capture was valued at \$3,820, the greater part of which represented the value of seines and pound nets. The shore and accessory property was valued at \$26,945, while the cash capital employed amounted to \$20,000.

The total yield of the fisheries was 579,067 pounds of products, valued at \$23,864. Wall-eyed pike is the most important species in these fisheries, the catch being 268,350 pounds, worth \$11,877. Among other important species were trout, 69,915 pounds, worth \$2,884; pike and pickerel, 42,715 pounds, valued at \$1,821; perch, 40,000 pounds, valued at \$1,202; sturgeon, 7,600 pounds, valued at \$1,352, and white-fish, 69,902 pounds, valued at \$3,087.

Nearly half of the catch, or 256,425 pounds, valued at \$10,464, was made with lines. Seines are next in importance in these waters, the yield being 184,402 pounds, worth \$7,678. The catch by gill nets and pound nets was much smaller, being valued at \$2,958 for the former and \$502 for the latter.

Owing to restrictions placed upon the fisheries of this region, especially in Lake St. Clair, the results of the present canvass show a very decided falling off as compared with the returns for 1893. In that year there were in use 380 gill nets, 91 pound nets, 60 fyke nets, and 20 seines, while in 1899 there were only 60 gill nets, 5 pound nets, and 13 seines, fyke nets being no longer in use.

The most valuable species taken are wall-eyed pike, white-fish, trout, pike, sturgeon, and yellow perch. The value of the catch of wall-eyed pike is about equal to that of all the other species combined. They are taken mostly on lines and in seines, two-thirds of the quantity being caught with lines on the St. Clair River. The line catch is divided between those who follow "chugging" and those fishing with trolling lines. In "chugging" a short line is used, this being continually jerked up and down to attract the attention of the fish. This is followed by both white men and Indians, very few of the latter, however, fishing from the United States side of the river.

White-fish are second in the value of the catch, and are taken mostly in the Detroit River by means of seines. An arrangement was made with a fishing firm at Detroit whereby the latter furnished the men, apparatus, and boats in return for the white-fish after they had been stripped of eggs by employees of the Commission.

Nearly all of the pike were taken by means of spears through the ice on the St. Clair River. Perch were taken mostly on hand lines.

Following are the statistical tables showing by counties the extent of the fisheries of Lake St. Clair and the St. Clair and Detroit rivers in 1899:

Table showing, by counties, the number of persons employed in the fisheries of Lake St. Clair and the St. Clair and Detroit rivers in 1899.

Counties.	In shore fisheries.	On shore, in fish houses, etc.	Total.
Macomb.....	5		5
St. Clair.....	297	8	305
Wayne.....	72	60	132
Total.....	374	68	442

Table showing, by counties, the apparatus and capital employed in the fisheries of Lake St. Clair and the St. Clair and Detroit rivers in 1899.

Items.	Macomb.		St. Clair.		Wayne.		Total.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Boats.....	5	\$50	171	\$2,165	12	\$1,555	188	\$3,770
Apparatus—shore fisheries:								
Seines.....			5	575	8	680	13	1,255
Gill nets.....					60	600	60	600
Found nets.....					5	1,050	5	1,050
Lines.....		22		610		12		644
Other apparatus.....				270		1		271
Shore and accessory property.....		10		1,750		25,185		26,945
Cash capital.....						20,000		20,000
Total.....		82		5,370		49,083		54,535

Table showing, by counties, the yield of the fisheries of Lake St. Clair and the St. Clair and Detroit rivers in 1899.

Species.	Macomb.		St. Clair.		Wayne.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass			200	\$14			200	\$14
Cat-fish and bullheads	13,000	\$475	1,700	35	2,805	\$119	17,606	629
Fresh-water drum			12,050	61	5,000	70	17,050	131
German carp			3,600	18	4,500	203	8,000	221
Minnows					280	100	280	100
Pike and pickerel			42,250	1,783	465	38	42,715	1,821
Pike perch (wall-eyed)			265,150	11,688	3,200	189	268,350	11,877
Rock bass			2,100	62	1,600	155	3,700	217
Sturgeon			3,200	972	4,400	380	7,600	1,362
Suckers			25,000	125	8,600	200	33,600	325
Sun-fish			200	2	50	2	250	4
Trout					69,915	2,884	69,915	2,884
White-fish					69,902	3,087	69,902	3,087
Yellow perch			38,000	900	2,000	212	40,000	1,202
Total	13,000	475	393,350	15,760	172,717	7,639	579,067	23,864

Table showing, by counties and apparatus of capture, the yield of the fisheries of Lake St. Clair and the St. Clair and Detroit rivers in 1899.

Apparatus and species.	Macomb.		St. Clair.		Wayne.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Cat-fish and bullheads					230	\$9	230	\$9
Fresh-water drum					4,000	20	4,000	20
German carp					500	3	500	3
Suckers					6,000	30	6,000	30
Sturgeon					4,400	380	4,400	380
Pike and pickerel					90	4	90	4
Pike perch (wall-eyed)					900	44	900	44
Yellow perch					400	12	400	12
Total					16,520	502	16,520	502
Gill nets:								
Trout					69,915	2,884	69,915	2,884
White-fish					1,675	71	1,675	71
Total					71,590	2,958	71,590	2,958
Scines:								
Fresh-water drum			12,000	\$60	1,000	50	13,000	110
German carp			3,500	18	4,000	200	7,500	218
Pike and pickerel			400	12	875	34	775	46
Rock bass					1,600	155	1,600	155
Sturgeon			3,200	972			3,200	972
Suckers			25,000	125	2,600	170	27,600	295
Sun-fish					50	2	50	2
Pike perch (wall-eyed)			58,550	2,522	2,300	145	60,850	2,667
White-fish					68,227	3,073	68,227	3,073
Yellow perch					1,600	200	1,600	200
Total			102,650	3,709	81,752	3,969	184,402	7,678
Lines:								
Fresh-water drum							50	1
Black bass							200	14
Cat-fish and bullheads	13,000	\$475	1,700	35	2,575	110	17,275	620
Pike and pickerel			600	25			600	25
Rock bass			2,100	62			2,100	62
Sun-fish			200	2			200	2
Pike perch (wall-eyed)			201,000	8,825			201,000	8,825
Yellow perch			35,000	915			35,000	915
Total	13,000	475	240,850	9,879	2,575	110	256,425	10,464
Miscellaneous apparatus:								
Minnows					280	100	280	100
Pike and pickerel			41,250	1,746			41,250	1,746
Pike perch (wall-eyed)			5,600	341			5,600	341
Yellow perch			3,000	75			3,000	75
Total			49,850	2,162	280	100	50,130	2,262
Grand total	13,000	475	393,350	15,760	172,717	7,639	579,067	23,864

The trout shown in the foregoing products tables were taken in Lake Huron by a steam tug owned at Detroit, which at the same time took 1,675 pounds of white-fish. The catch of the tug has been credited, for the sake of comparison, to this region to conform with the practice followed in 1893.

FISHERIES OF LAKE ERIE.

The total number of persons employed in the fisheries of Lake Erie in 1899 was 3,728. Of this number 574 were engaged on vessels fishing, 65 on vessels transporting, 2,401 in the shore or boat fisheries, and 688 were shoresmen. The number of persons credited to the different States bordering on this lake is as follows: New York, 976; Pennsylvania, 464; Ohio, 2,168, and Michigan, 120. The total investment in the fisheries was \$2,720,554. There were 85 vessels engaged in fishing, which were valued with their outfits at \$352,281. There were also 19 transporting vessels, having a value with their outfits of \$87,696; the number of boats, including steamboats and launches under 5 net tons, was 876, valued at \$79,466. The gill nets employed in the vessel fisheries numbered 29,018, and were valued at \$160,870. The total value of the apparatus employed in the shore fisheries was \$425,564, which sum includes \$313,125, representing the value of 1,298 pound nets. Shore and accessory property was valued at \$1,050,977, and the cash capital employed amounted to \$563,700. By far the greater part of the investment is credited to Ohio, the amount being \$1,872,522. Pennsylvania ranks next in the importance of its fisheries, the investment being \$456,102, followed by New York with an investment of \$321,393 and Michigan with \$70,537.

The fisheries yielded 58,393,864 pounds of products, valued at \$1,150,895. Herring is the principal species represented in the fisheries of this lake, both in respect to quantity and value, the yield being 33,427,797 pounds, valued at \$431,037. White-fish amounted to 2,066,314 pounds, valued at \$152,009; blue pike, 4,544,786 pounds, valued at \$139,301, while other species yielded in important quantities were yellow perch, valued at \$52,625; saugers, valued at \$75,313; sturgeon, valued at \$53,392; wall-eyed pike, valued at \$86,455, and carp, at \$51,456. The value of the yield of the fisheries in Lake Erie is divided among the different States as follows: Ohio, \$677,305; Pennsylvania, \$275,887; New York, \$140,919, and Michigan, \$56,784.

The fisheries of Lake Erie are nearly equal in extent to those of all the other Great Lakes combined. Owing to the shallowness of this lake it is especially adapted to the prosecution of the pound-net fisheries. The gradual development of the gill-net fishery with steam vessels has resulted in the extension of fishery operations to all parts of the lake. In 1899 the yield was nearly as great as in 1890, but there was a great decrease as compared with that year in the quantity of apparatus employed and in the amount of capital invested. In 1890, 34 steam vessels fished 19,046 gill nets, while in 1899, 85 vessels fished 29,018 gill nets. As the number of gill nets in the vessel fisheries increases, the number used in the shore fisheries decreases. In

1890, 30,274 gill nets were operated in the shore fisheries, while in 1899 only 12,660 were employed. As a result of this change the catch made by vessels is much more important than that by boats. In 1890 the quantity of fish taken with gill nets by vessels was 14,079,281 pounds and by boats 14,769,072 pounds, while in 1899 the vessel gill-net catch had increased to 32,166,659 pounds and the boat gill-net catch had decreased to 6,495,514 pounds.

As compared with 1893 there has been an increase in the products of the fisheries of this lake of 15,425,539 pounds in quantity and of \$344,916 in value. This increase obtained chiefly in the yield of herring and white-fish.

As has been already stated, gill nets only are used in the vessel fisheries; herring is the most important species secured, the catch being 27,170,534 pounds, worth \$347,017. Yellow perch, blue pike, and white-fish are also taken in large quantities.

In the shore fisheries pound nets yielded 11,470,675 pounds of products, valued at \$314,763; gill nets, 6,495,514 pounds, valued at \$146,480; seines, 3,417,818 pounds, worth \$50,690; trap nets, 2,007,105 pounds, worth \$42,881; fyke nets, 1,356,744 pounds, worth \$27,582; and lines, 1,409,944 pounds, worth \$60,735. The catch with other forms of apparatus amounted to 69,405 pounds, valued at \$2,514.

Attention should be called to the great development of the carp fishery. In 1890 the catch of this species was unimportant, while in 1899 it amounted to 3,633,697 pounds, and was valued at \$51,456. The carp is now very abundant in western Lake Erie, and there is an increased demand for it, especially in the larger towns of the Ohio and Mississippi valleys.

A number of fishery firms on Lake Erie are constructing ponds for retaining large quantities of carp until they can be disposed of to the best advantage. They are shipped to New York and other markets on the Atlantic seaboard in ice and without being dressed, while for markets south of Lake Erie they are usually dressed and skinned. Most of the carp taken in Lake Erie are procured along shore with seines, but they are also taken by other means.

The quantity and value of the carp yielded by each form of apparatus is as follows:

Apparatus.	Lbs.	Value.
Seines.....	3,417,818	\$50,692
Pound and trap nets.....	291,555	5,638
Fyke nets.....	248,781	4,102
Gill nets.....	60,819	965
Minor apparatus.....	1,234	19

632 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

The following tables, by States and counties, relate to the number of persons employed, the capital invested, and the quantity and value of the products of the fisheries of Lake Erie in 1899:

Table showing, by States and counties, the number of persons employed in the fisheries of Lake Erie in 1899.

States and counties.	On ves- sels fishing.	On ves- sels trans- porting.	In shore or boat fisheries.	Shores- men.	Total.
New York:					
Erie	38		743	75	856
Chautauque	17		74	29	120
Total	55		817	104	976
Pennsylvania:					
Erie	156	2	206	100	464
Ohio:					
Ashtabula	67		12	37	116
Lake	12	2	36	2	52
Cuyahoga	100	5	43	154	302
Lorain	27	3	52	14	96
Erie	110	28	364	194	696
Ottawa	28	8	505	57	598
Lucas	19	9	256	24	308
Total	363	55	1,268	482	2,168
Michigan:					
Monroe		8	110	2	120
Grand total	574	65	2,401	688	3,728

Table showing, by States and counties, the vessels, boats, apparatus, and capital employed in the fisheries of Lake Erie in 1899.

States and counties.	Vessels fishing.				Vessels transporting.				Boats.		Steamboats and launches.	
	No.	Ton- nage.	Value.	Value of outfit.	No.	Ton- nage.	Value.	Value of outfit.	No.	Value.	No.	Value.
New York:												
Erie	7	136	\$21,500	\$1,760					98	\$3,900		
Chautauque	3	31	9,500	2,310					35	5,205	1	\$850
Total	10	167	31,000	7,070					133	9,105	1	850
Pennsylvania:												
Erie	25	284	60,200	20,485	1	16	\$1,000	\$150	47	5,855	2	2,200
Ohio:												
Ashtabula	10	115	33,000	10,005					10	830		
Lake	2	11	2,000	1,200	1	9	400	185	19	712	1	450
Cuyahoga	13	236	68,500	13,290	2	23	2,400	780	17	1,255	3	4,600
Lorain	4	35	10,700	3,841	1	13	1,000	300	25	2,390	2	1,800
Erie	14	247	57,500	12,256	8	165	37,700	5,810	163	17,045	6	5,300
Ottawa	4	117	8,500	1,162	2	50	11,000	2,005	224	17,115	2	1,500
Lucas	3	35	7,000	1,512	2	91	11,000	1,050	157	4,400	1	400
Total	60	796	187,200	43,326	16	351	63,500	9,630	615	43,747	15	14,050
Michigan:												
Monroe					2	51	10,200	3,216	63	3,659		
Grand total ..	85	1,247	281,400	70,881	19	418	74,700	12,996	858	62,366	18	17,100

Table showing, by States and counties, the vessels, boats, apparatus, and capital employed in the fisheries of Lake Erie in 1899—Continued.

States and counties.	Gill nets, vessel fisheries.		Apparatus of capture, shore fisheries.										Value of minor apparatus.	Value of lines.	
	No.	Val.	Pound nets.		Gill nets.		Trapnets.		Fykenets.		Sines.				
			No.	Val.	No.	Val.	No.	Val.	No.	Val.	No.	Val.			
New York:															
Erie.....	1,775	\$9,898			1,060	\$7,402	17	\$770					1	\$160	\$2,252
Chautauqua ..	1,220	7,235			2,224	14,633	7	265					3	250	368
Total.....	2,995	17,133			3,284	22,035	24	1,035					4	400	2,620
Pennsylvania:															
Erie.....	9,024	51,962	50	\$19,900	2,340	14,130	102	3,710							90
Ohio:															
Ashtabula.....	4,700	29,570			750	2,100	10	400							30
Lake.....	450	2,250	40	16,200			28	1,120					1	35	64
Cuyahoga.....	3,976	19,880	39	14,750	700	3,500									16
Lorain.....	1,140	6,000	90	35,500	150	750	21	990	15	\$150					
Erie.....	4,843	24,915	252	92,050	2,573	12,262	78	2,920	244	8,165	21	1,340		\$17	45
Ottawa.....	1,140	5,410	318	79,495	2,851	13,485	121	4,850	183	6,195	40	2,300		125	105
Lucas.....	750	3,750	249	22,480	12	60	4	120	113	1,620	30	3,750			500
Total.....	16,999	98,775	988	259,475	7,036	32,147	257	10,400	555	15,130	92	7,425		142	760
Michigan:															
Monroe.....			260	33,750			43	1,230	62	620	8	565			
Grand total.....	*29,018	160,870	1,298	313,125	*12,660	68,312	426	16,375	617	15,750	104	8,390		142	3,470

States and counties.	Shore and accessory property.	Cash capital.	Total investment.
New York:			
Erie.....	\$122,625	\$86,500	\$262,757
Chautauqua.....	5,520	12,500	68,636
Total.....	128,145	99,000	321,393
Pennsylvania:			
Erie.....	171,420	105,000	456,102
Ohio:			
Ashtabula.....	29,080	38,000	143,015
Lake.....	17,320		40,996
Cuyahoga.....	200,380	100,650	430,001
Lorain.....	25,000		88,421
Erie.....	344,320	139,300	760,435
Ottawa.....	81,125	45,000	278,372
Lucas.....	36,890	36,760	131,282
Total.....	734,115	359,700	1,872,522
Michigan:			
Monroe.....	17,297		70,587
Grand total.....	1,050,977	563,700	2,720,564

* Length of gill nets on vessels, 6,598,476 feet, length of gill nets in shore fisheries, 2,870,091 feet.

634 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, and species, the yield of the fisheries of Lake Erie in 1899.

States and counties.	Black bass.		Rock bass.		German carp.		Cat-fish.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	9,053	\$705			2,790	\$56	107,866	\$3,236
Chautauqua.....	1,526	117			6,715	134	28,377	851
Total.....	10,579	822			9,505	190	136,243	4,087
Pennsylvania:								
Erie.....	38,299	3,031			12,195	244	100,727	3,022
Ohio:								
Ashtabula.....	1,801	144			22	1	62,760	1,882
Lake.....	3,905	236			27,398	471	106,156	3,531
Cuyahoga.....	826	66			5,652	113	40,124	1,204
Lorain.....	3,340	268			10,806	216	16,860	506
Erie.....	14,288	1,049			468,165	7,152	120,971	3,663
Ottawa.....	56,308	3,943	5,110	\$88	1,011,261	23,771	219,433	6,584
Lucas.....	3,246	227	186	3	993,790	15,452	137,725	4,133
Total.....	83,714	5,933	5,296	91	3,417,094	47,176	704,029	21,503
Michigan:								
Monroe.....	1,154	80			194,903	3,846	61,705	1,839
Grand total.....	133,746	9,866	5,296	91	3,633,697	61,466	1,002,704	30,461
States and counties.	Crapple.		Dog-fish or bowfin.		Eels.		Pike and pickerel.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....					200	\$14		
Pennsylvania:								
Erie.....	60,000	\$1,800					8,687	\$693
Ohio:								
Cuyahoga.....					10	1		
Lorain.....							9	1
Erie.....					89	7		
Ottawa.....							11	1
Lucas.....							719	36
Total.....					99	8	739	38
Michigan:								
Monroe.....			540	\$5	550	39	10,199	510
Grand total.....	60,000	1,800	540	5	849	61	19,625	1,241
States and counties.	Fresh-water drum.		Herring.		Moon-eye.		Yellow perch.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	7,130	\$72	1,609,526	\$22,041			163,056	\$2,963
Chautauqua.....	3,000	30	1,712,032	21,513			94,876	1,428
Total.....	10,130	102	3,321,558	43,554			257,932	4,391
Pennsylvania:								
Erie.....	57,993	580	10,742,315	134,142			815,553	16,911
Ohio:								
Ashtabula.....			4,027,729	50,348			244,727	3,683
Lake.....	45,988	231	600,820	7,777			25,021	382
Cuyahoga.....	48,940	220	6,792,008	84,899			611,892	9,114
Lorain.....	20,899	105	1,387,000	18,993			100,282	1,515
Erie.....	442,214	3,762	4,530,154	60,317	38,451	\$766	766,350	10,250
Ottawa.....	479,676	2,418	1,312,519	17,922	5,385	101	364,360	4,459
Lucas.....	11,101	66	695,766	12,546			61,932	907
Total.....	1,043,818	6,792	19,345,986	252,802	43,836	867	2,174,564	30,810
Michigan:								
Monroe.....	35,181	177	17,938	589			67,447	1,013
Grand total.....	1,147,122	7,651	33,427,797	431,037	43,836	867	3,315,496	52,625

Table showing, by States, counties, and species, the yield of the fisheries of Lake Erie in 1899—Continued.

States and counties.	Sturgeon.		Suckers.		Sun-fish.		Trout.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	508,925	\$35,922	63,486	\$760			943	\$75
Chautauqua.....	118,508	6,075	29,884	299			28,299	1,435
Total.....	627,433	40,997	93,370	1,068			29,242	1,510
Pennsylvania:								
Erie.....	99,570	7,090	120,245	1,339	125,000	\$3,750	722	61
Michigan:								
Monroe.....	12,305	786	183,337	2,750	13,640	205		
Ohio:								
Ashtabula.....			11,616	118			1,546	124
Lake.....	20,906	2,567	63,673	637			504	40
Cuyahoga.....	1,712	60	30,428	305			10	1
Lorain.....	7,500	425	70,735	790	800	8		
Erie.....	8,075	313	467,015	4,671				
Ottawa.....	11,851	1,162	305,569	3,118	35,200	387		
Lucas.....	50	2	222,716	3,281	800	12		
Total.....	50,091	4,519	1,171,782	12,920	36,800	407	2,060	165
Grand total.....	789,402	53,392	1,568,734	18,077	175,440	4,362	32,024	1,736

States and counties.	Pike perch (blue pike).		Pike perch (sauger).		Pike perch (wall-eyed).		White bass.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	499,109	\$21,579	9,000	\$630	11,099	\$668	32,719	\$654
Chautauqua.....	300,772	8,932	115	3	11,149	567	12,713	254
Total.....	808,881	30,511	9,115	633	22,248	1,225	45,432	908
Pennsylvania:								
Erie.....	1,522,939	44,520	11,110	327	67,354	3,048	464,434	8,639
Michigan:								
Monroe.....			44,244	990	449,867	24,859	40,707	1,010
Ohio:								
Ashtabula.....	160,336	4,809	6,488	194	7,980	479	24,285	485
Lake.....	361,463	10,642	768	25	12,288	740	140,240	2,805
Cuyahoga.....	1,030,787	30,925	68,347	2,051	14,072	610	56,858	1,187
Lorain.....	243,000	3,716	76,190	2,247	42,324	2,179	202,437	4,050
Erie.....	392,556	13,065	1,208,685	30,265	181,081	9,131	411,469	7,183
Ottawa.....	3,648	110	1,216,264	27,127	586,629	24,581	204,268	3,990
Lucas.....	81,176	1,103	885,354	11,464	351,331	19,603	16,404	396
Total.....	2,212,966	64,270	2,962,096	73,363	1,195,705	57,323	1,055,951	20,046
Grand total.....	4,544,786	139,301	3,026,565	76,313	1,735,174	86,455	1,596,524	30,603

States and counties.	White-fish.		Turtles.		Frogs.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	53,522	\$3,214					3,078,424	\$92,598
Chautauqua.....	118,934	7,693					2,475,900	48,321
Total.....	172,456	10,907					5,554,324	140,919
Pennsylvania:								
Erie.....	615,821	46,690					14,852,964	275,857
Michigan:								
Monroe.....	228,459	18,136					1,362,176	56,784
Ohio:								
Ashtabula.....	265,143	20,696					4,814,463	82,963
Lake.....	111,896	7,845					1,511,026	37,829
Cuyahoga.....	62,323	4,404					8,758,989	135,110
Lorain.....	66,000	4,620					2,248,182	39,639
Erie.....	246,124	17,974	4,189	\$118			9,299,866	169,686
Ottawa.....	285,077	19,701	63,022	2,206	982	\$172	7,066,573	141,831
Lucas.....	13,015	1,036					2,925,301	70,247
Total.....	1,049,578	76,276	67,211	2,324	982	172	36,624,400	677,305
Grand total.....	2,066,314	162,009	67,211	2,324	982	172	58,393,864	1,150,895

636 · REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, and species, the yield of the gill-net vessel fisheries of Lake Erie in 1899.

State and county.	Herring.		Suckers.		Sturgeon.		Trout.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	1,425,891	\$19,133	5,626	\$113	12,411	\$659	843	\$67
Chautauqua.....	755,393	9,442	2,797	28	8,472	321	27,286	1,365
Total.....	2,181,284	28,575	8,423	141	20,883	980	28,129	1,432
Pennsylvania:								
Erie.....	9,651,865	120,648	6,001	83	3,716	186	705	60
Ohio:								
Ashtabula.....	3,844,071	48,052	1,493	16			1,546	124
Lake.....	447,894	6,598					604	40
Cuyahoga.....	6,012,018	75,150	2,446	25			10	1
Lorain.....	725,000	9,063						
Erie.....	2,818,386	37,257	2,027	20				
Ottawa.....	806,096	10,481	195	2				
Lucas.....	683,920	12,193						
Total.....	15,337,385	197,794	6,161	63			2,060	165
Grand total.....	27,170,534	347,017	20,585	287	24,599	1,166	30,894	1,657

State and county.	Pike perch (saugers).		Pike perch (wall-eyed).		Pike perch (blue pike).	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:						
Erie.....			4,501	\$225	224,948	\$6,870
Chautauqua.....			5,661	283	156,027	4,681
Total.....			10,162	508	380,975	11,551
Pennsylvania:						
Erie.....	5,555	\$169	28,740	1,138	837,951	24,921
Ohio:						
Ashtabula.....	4,527	136	7,892	473	151,410	4,541
Lake.....	513	15			24,575	737
Cuyahoga.....	30,624	919	1,698	69	387,422	11,624
Lorain.....	29,266	878				
Erie.....	69,929	1,771	45	2	63,681	1,929
Ottawa.....	87,695	2,421	2,319	96	2,194	66
Lucas.....	99,686	2,990	185	7	30,776	1,083
Total.....	322,240	9,130	12,139	647	660,058	19,980
Grand total.....	327,795	9,299	51,041	2,293	1,878,984	66,452

State and county.	White bass.		White-fish.		Yellow perch.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
New York:								
Erie.....	662	\$13	42,371	\$2,542	105,487	\$1,582	1,822,740	\$31,204
Chautauqua.....			40,893	2,791	51,582	780	1,048,511	19,691
Total.....	662	13	83,264	5,333	157,469	2,362	2,871,251	50,895
Pennsylvania:								
Erie.....			415,206	33,223	543,996	8,332	11,493,785	188,760
Ohio:								
Ashtabula.....			250,460	19,521	229,858	3,449	4,491,257	76,312
Lake.....			380	30	10,304	155	484,170	6,575
Cuyahoga.....	3,703	74	4,130	330	440,880	6,549	6,882,931	94,741
Lorain.....					60,119	902	814,385	10,843
Erie.....	50	2	3,593	287	326,826	4,483	3,284,537	45,751
Ottawa.....			116	9	90,305	1,344	985,919	14,419
Lucas.....			1,032	83	39,875	598	855,474	16,954
Total.....	3,763	76	269,710	20,260	198,167	17,480	17,801,673	265,595
Grand total.....	4,415	89	768,180	58,816	1,899,632	28,174	32,166,659	505,260

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Erie in 1899.

Apparatus and species.	Pennsylvania.		Michigan.	
	Erie County.		Monroe County.	
	Lbs.	Value.	Lbs.	Value.
Round nets:				
Black bass	1,139	\$85	1,038	\$72
Cat-fish and bullheads	7,207	216	28,115	832
Dog-fish or bowfin			540	5
Eels			150	11
Fresh-water drum	50,831	509	34,708	174
German carp	1,677	34	86,308	1,700
Herring	67,593	707	17,938	539
Moon-eye			36,869	554
Pike and pickerel	190	13	1,518	76
Pike perch (wall-eyed)	15,567	721	430,652	24,257
Pike perch (blue pike)	426,832	11,114		
Pike perch (sauger)	2,404	64	43,332	962
Sturgeon	56,376	4,629	12,305	786
Suckers	31,274	332	166,549	2,497
Sun-fish			1,200	18
White bass	66,198	1,096	26,387	660
White-fish	77,756	4,862	228,459	18,136
Yellow perch	33,043	496		
Total	838,087	24,878	1,116,068	51,279
Trap nets:				
Black bass	15,160	1,186	116	8
Cat-fish and bullheads	93,520	2,806	4,743	141
Fresh-water drum	7,162	71	473	3
German carp	10,518	210	9,813	195
Herring	5,446	69		
Pike and pickerel			3,217	161
Pike perch (wall-eyed)	4,988	240	17,151	601
Pike perch (blue pike)	19,151	534		
Pike perch (sauger)	3,151	94		
Sturgeon	10,400	471		
Suckers	80,588	900	819	13
Sun-fish			7,512	113
White bass	388,236	7,543		
White-fish	496	40		
Yellow perch	3,066	51	16,562	218
Total	641,882	14,215	60,406	1,383
Fyke nets:				
Cat-fish and bullheads			28,847	866
Eels			400	28
German carp			782	16
Pike and pickerel			5,464	273
Pike perch (wall-eyed)			2,064	101
Pike perch (sauger)			912	28
Suckers			15,969	240
Sun-fish			4,928	74
White bass			14,320	350
Yellow perch			14,016	211
Total			87,702	2,187
Gill nets:				
Herring	1,017,411	12,718		
Pike perch (wall-eyed)	13,539	514		
Pike perch (blue pike)	200,005	6,001		
Sturgeon	29,078	1,804		
Suckers	2,382	21		
Trout	17	1		
White-fish	122,363	8,565		
Yellow perch	55,448	832		
Total	1,440,263	30,189		
Seines:				
German carp			98,000	1,935
Lines:				
Black bass	22,000	1,760		
Crappie	60,000	1,800		
Pike and pickerel	8,497	680		
Pike perch (wall-eyed)	4,500	405		
Pike perch (blue pike)	89,000	1,950		
Sun-fish	125,000	3,750		
Yellow perch	180,000	7,200		
Total	488,997	17,545		
Grand total	8,359,229	87,127	1,862,176	56,784

638 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Erie in 1899—Continued.

Apparatus and species.	New York.					
	Eric County.		Chautauqua County.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Trap nets:						
Black bass	8,853	\$689	1,526	\$117	10,379	\$806
Cat-fish and bullheads	29,166	875	5,853	175	35,019	1,050
Fresh-water drum	6,660	67	3,000	30	9,660	97
German carp	2,200	44			2,200	44
Herring	1,135	23	214	4	1,349	27
Pike perch (wall-eyed)	632	32	191	9	823	41
Pike perch (blue pike)	5,361	165	10,810	224	16,171	389
Sturgeon	1,560	78	10,633	435	12,193	513
Suckers	47,456	542	13,572	136	61,028	678
White bass	25,357	507	3,813	76	29,170	583
White-fish	51	4			51	4
Yellow perch	4,656	88	5,808	89	10,464	177
Total	133,087	3,114	55,420	1,295	188,507	4,409
Gill nets:						
Herring	182,500	2,885	956,425	12,067	1,138,925	14,952
Pike perch (wall-eyed)	366	19	5,297	265	5,663	284
Pike perch (blue pike)	106,400	3,192	142,935	4,027	249,335	7,219
Pike perch (sauger)			115	3	115	3
Sturgeon	309,598	25,896	67,087	2,981	376,685	28,877
Suckers	2,004	30	1,415	14	3,419	44
Trout	100	8	1,013	70	1,113	78
White-fish	11,100	668	78,041	4,902	89,141	5,570
Yellow perch	47,513	915	37,086	559	84,599	1,474
Total	659,581	33,613	1,289,414	24,888	1,948,995	58,501
Netes:						
Cat-fish and bullheads	5,500	165	8,600	258	14,100	423
Fresh-water drum	470	5			470	5
German carp	590	12	6,715	134	7,305	146
Suckers	8,400	84	12,100	121	20,500	205
White bass	6,700	134	8,900	178	15,600	312
Total	21,660	400	36,315	691	57,975	1,091
Lines:						
Black bass	200	16			200	16
Cat-fish and bullheads	73,200	2,196	13,924	418	87,124	2,614
Eels	200	14			200	14
Pike perch (wall-eyed)	5,600	392			5,600	392
Pike perch (blue pike)	162,400	11,352			162,400	11,352
Pike perch (sauger)	9,000	630			9,000	630
Sturgeon	185,356	9,289	32,316	1,338	217,672	10,627
Yellow perch	5,400	378			5,400	378
Total	441,356	24,267	46,240	1,756	487,596	26,023
Grand total	1,255,684	60,394	1,427,389	28,630	2,683,073	90,024

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Erie in 1899—Continued.

Apparatus and species.	Ohio.							
	Ashtabula.		Lake.		Cuyahoga.		Lorain.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Black bass			13	\$2	826	\$66	500	\$40
Cat-fish and bullheads			20,312	956	4,124	124	12,600	378
Eels					10	1		
Fresh-water drum			45,988	231	43,940	220	14,000	70
German carp			17,998	283	5,652	113	9,392	188
Herring			152,726	2,175	254,355	3,179	570,000	8,550
Pike perch (wall-eyed)			11,523	694	12,374	541	24,000	1,440
Pike perch (blue pike)			824,218	9,725	587,108	17,613	240,000	3,600
Pike perch (sauger)			55	2	33,453	1,004	38,000	1,170
Sturgeon			20,906	2,567	1,712	60	7,500	425
Suckers			40,573	406	27,982	280	16,000	240
White bass			83,418	1,669	53,155	1,063	40,000	800
White-fish			110,526	7,736	58,193	4,074	66,000	4,620
Yellow perch			12,517	194	117,747	1,766	22,463	337
Total			840,768	26,640	1,200,631	30,104	1,060,455	21,868
Trap nets:								
Black bass	1,431	\$114	3,892	234			840	68
Cat-fish and bullheads	760	22	36,200	1,086			3,360	101
Fresh-water drum							6,899	35
German carp			2,700	64			1,414	28
Herring			200	4				
Pike and pikeperch							9	1
Pike perch (wall-eyed)	29	2	765	46			18,324	739
Pike perch (blue pike)	906	27	2,675	80			2,000	104
Pike perch (sauger)	1,961	58	200	8			2,024	61
Suckers	7,965	80	23,100	231			52,800	528
Sun-fish							800	8
White bass	24,111	482	56,822	1,136			112,937	2,260
White-fish	20	2	980	79				
Yellow perch	2,138	43	2,200	33			1,100	22
Total	39,321	830	129,744	2,991			203,107	3,955
Fyke nets:								
Black bass							2,000	160
Cat-fish and bullheads							900	27
Pike perch (sauger)							6,300	126
Suckers							1,800	20
White bass							49,600	990
Yellow perch							1,000	20
Total							61,500	1,343
Gill nets:								
Herring	183,658	2,296			525,635	6,570	92,000	1,380
Pike perch (wall-eyed)	46	3						
Pike perch (blue pike)	7,889	237			56,257	1,688	400	12
Pike perch (sauger)					4,270	128	600	12
Suckers							135	2
White-fish	14,663	1,173						
Yellow perch	12,731	191			53,265	799	15,600	234
Total	218,987	3,900			639,427	9,185	108,735	1,640
Seines:								
German carp			6,700	134				
Lines:								
Black bass	370	30						
Cat-fish and bullheads	62,000	1,860	49,644	1,489	36,000	1,080		
German carp	22	1						
Pike perch (wall-eyed)	13	1						
Pike perch (blue pike)	131	4						
Suckers	2,188	22						
White bass	174	3						
Total	64,898	1,921	49,644	1,489	36,000	1,080		
Grand total	323,206	6,661	1,026,856	31,254	1,876,058	40,369	1,433,797	28,796

640 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Erie in 1899—Continued.

Apparatus and species.	Ohio—continued.							
	Erie.		Ottawa.		Lucas.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Pound nets:								
Black bass	5,029	\$398	11,851	\$830	87	\$6	18,309	\$1,312
Cat-fish and bullheads	8,199	246	121,874	3,657	15,705	472	182,814	5,833
Eels							10	1
Fresh-water drum	341,370	2,118	478,405	2,392	11,000	65	934,703	5,086
German carp	15,070	244	28,703	636	74,255	1,466	151,070	2,830
Herring	548,791	8,243	134,049	2,189	11,836	353	1,671,757	24,689
Mooneye			4,635	93			4,635	93
Pike perch (wall-eyed)	133,209	6,867	499,038	21,375	311,865	17,579	992,009	48,486
Pike perch (blue pike)	256,143	8,684			400	20	1,407,864	39,612
Pike perch (sauger)	929,669	23,430	703,622	13,369	124,880	3,664	1,829,679	42,639
Rock bass			2,457	37	40	1	2,497	38
Sturgeon	8,075	313	11,811	1,150			50,054	4,517
Suckers	227,561	2,277	175,164	1,812	106,034	1,564	593,394	6,579
White bass	225,934	3,518	141,950	2,852	7,041	166	551,498	10,068
White-fish	185,853	13,685	126,934	8,708	10,793	858	557,799	39,681
Yellow perch	236,426	2,923	169,051	1,712	10,314	150	568,518	7,082
Total	3,120,829	72,936	2,609,537	60,712	684,300	26,356	9,516,520	238,606
Trap nets:								
Black bass	2,496	177	23,469	1,613			32,128	2,226
Cat-fish and bullheads	9,942	334	16,154	484	840	25	67,256	2,052
Fresh-water drum			1,096	22	101	1	8,096	58
German carp	12,700	181	11,314	225	1,841	37	29,969	525
Herring	40	1	35	1			275	6
Pike and pickerel					719	36	728	37
Pike perch (wall-eyed)	17,200	818	33,709	1,188	2,311	117	72,338	2,910
Pike perch (blue pike)							6,181	211
Pike perch (sauger)	13,361	401	170,044	3,195			187,590	3,723
Rock bass			1,106	17			1,106	17
Sturgeon			40	2			40	2
Suckers	125,845	1,258	63,982	641	500	8	274,192	2,746
Sun-fish					800	12	1,600	20
White bass	132,652	2,630	46,722	934			373,244	7,412
White-fish			250	18			1,260	99
Yellow perch	24,642	367	25,627	256	4,600	69	60,307	790
Total	338,878	6,167	393,548	8,626	11,712	305	1,116,310	22,874
Fyke nets:								
Black bass	6,570	460	3,230	226	3,159	221	14,959	1,067
Cat-fish and bullheads	64,893	1,946	29,528	887	23,180	696	118,501	3,556
Eels	89	7					89	7
Fresh-water drum	100,844	1,644	175	4			101,019	1,648
German carp	114,591	1,790	90,833	1,474	42,575	822	247,999	4,086
Mooneye	37,286	743	750	8			38,036	751
Pike perch (wall-eyed)	27,367	1,325	45,008	1,565	22,970	1,240	95,345	4,130
Pike perch (blue pike)	2,472	121					2,472	124
Pike perch (sauger)	137,871	2,758	66,916	944	16,369	467	227,455	4,295
Rock bass			1,447	32	146	2	1,593	34
Suckers	106,813	1,068	58,756	588	57,282	825	224,651	2,501
Sun-fish			2,700	32			2,700	32
White bass	52,623	1,029	15,519	202	9,363	230	127,005	2,451
White-fish			189	12			189	12
Yellow perch	37,007	370	21,879	221	7,143	90	67,029	701
Total	688,426	13,264	336,929	6,195	182,187	4,593	1,269,042	25,395

Table showing, by States, counties, apparatus, and species, the yield of the shore fisheries of Lake Erie in 1899—Continued.

Apparatus and species.	Ohio—continued.							
	Erie.		Ottawa.		Lucas.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:								
Black bass			59	\$5			59	\$5
Cat-fish and bullheads	186	\$6	501	15			687	21
German carp	20,607	358	30,312	607			50,819	965
Herring	1,161,937	14,786	367,339	6,101			2,330,569	30,133
Pike and pickerel			11	1			11	1
Pike perch (wall-eyed)	715	43	878	42			1,639	88
Pike perch (blue pike)	70,260	2,328	1,454	44			136,260	4,309
Pike perch (sauger)	35,304	853	65,705	1,152			105,879	2,146
Suckers	4,084	41	5,097	51			9,316	94
White bass			77	2			77	2
White-fish	57,178	4,002	157,589	10,954	1,190	\$95	230,620	16,224
Yellow perch	133,903	1,930	24,821	349			240,320	3,503
Total	1,484,074	24,347	653,843	18,323	1,190	95	3,106,256	57,490
Selnes:								
Black bass	193	14	17,696	1,239			17,889	1,253
Cat-fish and bullheads	8,158	243	26,256	787			34,414	1,030
German carp	304,035	4,561	1,760,099	20,929	875,119	13,127	2,936,003	38,751
Mooneye	1,165	23					1,165	23
Pike perch (wall-eyed)	2,345	70	1,877	69	14,000	660	18,222	799
Pike perch (sauger)	2,533	51	2,283	46	144,419	4,333	149,235	4,430
Rock bass			100	2			100	2
Suckers	685	7	2,385	24	58,900	884	61,970	915
Sun-fish			32,500	355			32,500	355
White bass	200	4					200	4
Yellow perch	2,468	25	7,677	77			10,145	102
Total	321,832	4,998	1,840,873	23,528	1,092,438	19,004	3,261,843	47,664
Lines:								
Black bass							370	30
Cat-fish and bullheads	29,593	888	25,120	754	98,000	2,940	300,367	9,011
German carp							22	1
Herring	1,000	30	5,000	150			6,000	180
Pike perch (wall-eyed)							2,188	22
Pike perch (blue pike)	200	16	3,800	246			4,013	263
Pike perch (sauger)							131	4
White bass	20,018	1,001	120,000	6,000			140,018	7,001
White-fish							174	3
Yellow perch	5,078	152	25,000	500			30,078	652
Total	55,889	2,087	178,920	7,650	98,000	2,940	483,351	17,167
Minor apparatus:								
Frogs			982	172			982	172
German carp	1,212	18					1,212	18
Turtles	4,189	118	63,022	2,206			67,211	2,324
Total	5,401	136	64,004	2,378			69,405	2,514
Grand total	6,015,329	123,935	6,077,654	127,412	2,069,827	53,293	18,822,727	411,710

642 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Summary of the yield of the shore fisheries of Lake Erie in 1899.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Pound nets:			Gill nets:		
Black bass	20,486	\$1,499	Black bass	59	\$5
Cat-fish and bullheads	218,136	6,881	Cat-fish and bullheads	687	21
Dog-fish or bowfin	540	5	German carp	50,819	965
Eels	160	12	Herring	4,486,905	57,803
Fresh-water drum	1,020,242	5,769	Pike and pickerel	11	1
German carp	239,055	4,564	Pike perch (wall-eyed)	20,861	916
Herring	1,757,288	25,935	Pike perch (blue pike)	585,600	17,529
Mooneye	41,504	647	Pike perch (sauger)	105,994	2,148
Pike and pickerel	1,708	89	Sturgeon	406,763	30,681
Pike perch (wall-eyed)	1,438,228	73,464	Suckers	15,117	162
Pike perch (blue pike)	1,834,696	50,756	Trout	1,130	79
Pike perch (sauger)	1,875,415	43,665	White bass	177	2
Rock bass	2,497	38	White-fish	442,124	30,359
Sturgeon	118,735	9,932	Yellow perch	380,367	5,809
Suckers	791,127	9,408	Total	6,495,514	146,480
Sun-fish	1,200	18			
White bass	614,083	11,824	Seines:		
White-fish	864,014	62,679	Black bass	17,889	1,253
Yellow perch	601,561	7,578	Cat-fish and bullheads	48,514	1,453
Total	11,470,675	314,763	Fresh-water drum	470	6
			German carp	3,041,308	40,832
Trap nets:			Mooneye	1,165	23
Black bass	57,783	4,236	Pike perch (wall-eyed)	18,222	799
Cat-fish and bullheads	200,538	6,049	Pike perch (sauger)	149,235	4,430
Fresh-water drum	25,391	229	Rock bass	100	2
German carp	52,500	974	Suckers	82,470	1,120
Herring	7,070	102	Sun-fish	32,500	355
Pike and pickerel	3,945	198	White bass	15,800	316
Pike perch (wall-eyed)	95,300	3,692	Yellow perch	10,145	102
Pike perch (blue pike)	41,603	1,134	Total	3,417,818	50,690
Pike perch (sauger)	190,741	3,817			
Rock bass	1,106	17	Lines:		
Sturgeon	22,633	986	Black bass	22,570	1,806
Suckers	416,627	4,337	Cat-fish and bullheads	387,481	11,625
Sun-fish	9,112	133	Crappie	60,000	1,900
White bass	790,550	15,568	Eels	200	14
White-fish	1,807	143	German carp	22	1
Yellow perch	90,399	1,266	Herring	6,000	180
Total	2,007,105	42,881	Pike and pickerel	8,497	680
			Pike perch (wall-eyed)	14,113	1,060
Flye nets:			Pike perch (blue pike)	201,631	13,306
Black bass	14,959	1,067	Pike perch (sauger)	149,018	7,631
Cat-fish and bullheads	147,348	4,422	Sturgeon	217,672	10,627
Eels	489	35	Suckers	2,188	22
Fresh-water drum	101,019	1,648	Sun-fish	125,000	3,750
German carp	248,781	4,102	White bass	174	3
Mooneye	38,036	761	Yellow perch	215,478	8,230
Pike and pickerel	5,464	273	Total	1,409,944	60,735
Pike perch (wall-eyed)	97,409	4,231			
Pike perch (blue pike)	2,472	124	Minor apparatus:		
Pike perch (sauger)	228,367	4,323	Frogs	982	172
Rock bass	1,593	34	German carp	1,212	18
Suckers	240,620	2,741	Turtles	67,211	2,324
Sun-fish	7,628	106	Total	69,405	2,514
White bass	141,325	2,801			
White-fish	189	12	Grand total	26,227,205	615,645
Yellow perch	81,045	912			
Total	1,356,744	27,582			

WHOLESALE FISHERY TRADE.

The wholesale trade in fishery products is very important along Lake Erie, and is carried on at all the principal cities and towns. There are 42 establishments engaged, representing a total investment of \$1,305,380. They were valued at \$741,680, and the cash capital utilized was \$563,700. The persons employed numbered 615, and the amount paid in wages was \$209,714. The total quantity of products handled was 61,369,911 pounds, valued at \$1,664,838. These products include, of course, a portion of the catch from the Canadian side of the lake.

In the year 1899 the quantity of fresh fish imported at Sandusky was 3,500,298 pounds and of salted fish 650 pounds. The quantity imported at Buffalo amounted to 6,669,004 pounds of fresh fish, 43,877 pounds of salted fish, 152,080 pounds of skinned and boned fish, and 195 pounds of canned fish.

The cities in which the trade is most extensive are Sandusky, Erie, Cleveland, Toledo, and Buffalo.

Several fishery firms at each of these cities have considerable capital invested in fishing apparatus, principally pound nets, on the Canadian side of the lake, and a large proportion of the products imported was procured by this means.

Table showing the wholesale fishery trade of Lake Erie in 1899.

Items.	Toledo, Ohio.		Port Clinton, Ohio.		Sandusky, Ohio.		Vermillion, Ohio.		Cleveland, Ohio.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Establishments	4	\$31,180	2	\$30,000	9	\$206,000	2	\$30,000	9	\$139,230
Cash capital		36,750		45,000		103,800		35,500		100,650
Wages paid		6,457		13,032		37,620		10,000		41,088
Employees	22		45		146		61		108	
Products handled.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Fresh:										
Black bass			16,601	\$1,494	27,658	\$2,441	959	\$96	1,738	\$174
Cat-fish and bullheads	166,390	\$5,465	206,396	8,256	114,494	7,041	17,368	695	74,252	3,290
Eels					72	11	1,020	68	1,555	117
Fresh-water drum	735,000	4,225			857,788	3,873	571	3	55,045	464
German carp	550,574	7,183	2,900,652	43,510	501,142	7,928	3,809	29	32,340	639
Herring	1,181,346	35,439	245,104	7,353	3,876,144	88,794	1,752,420	28,810	5,323,090	104,475
Ling									5,685	144
Pike perch:										
Wall-eyed	2,165,142	117,878	374,763	17,010	839,236	30,091	1,160	81	103,209	7,747
Blue pike					142,914	4,288	40,020	1,188	1,169,544	35,183
Sauger	641,207	16,030	536,395	8,046	1,175,628	21,215	56,690	1,417	92,140	2,206
Rock bass					62	2				
Sturgeon, dressed	12,568	1,274	7,525	602	126,485	14,890			19,561	1,889
Suckers	582,057	7,370			255,143	3,034	31,197	234	44,158	632
Sun-fish					72,669	1,090				
Trout	36,736	2,573			10,718	857			148,250	10,918
White bass	48,668	1,251	151,156	3,654	158,524	4,601	17,105	428	95,073	2,439
White-fish	717,992	53,473	69,739	5,579	331,971	25,961	908	64	301,765	24,584
Yellow perch	183,056	3,910	81,673	1,633	437,111	7,787	209,914	2,413	636,434	12,729
Caviar	2,188	1,533	220	198	81,040	60,780				
Frogs					3,960	82				
Turtles					3,789	189				
Total	7,022,924	257,594	4,590,224	97,335	9,016,648	284,955	2,133,147	35,526	8,108,929	207,580
Salted:										
Herring					160,000	4,000	140,500	2,810	1,145,000	30,300
Smoked:										
Eels	1,000	150							300	54
Herring	124,800	7,488			314,900	6,732			700,667	35,033
Sturgeon	2,667	480			20,500	4,860			31,734	5,496
Trout									28,650	4,011
Total	128,467	8,118			344,400	11,652			761,351	44,594
Miscellaneous:										
Oil					135,000	3,750				
Scrap					2,000,000	5,000				
Total					2,135,000	8,750				
Grand total	7,151,391	265,712	4,590,224	97,335	11,656,048	309,367	2,273,647	38,336	10,015,280	282,474

644 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing the wholesale fishery trade of Lake Erie in 1899—Continued.

Items.	Ashtabula Harbor, Ohio.		Erie, Pennsylvania.		Dunkirk and Barcelona, New York.		Buffalo, New York.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Establishments	3	\$24,000	4	\$158,100	4	\$3,650	5	\$119,520
Cash capital		88,000		105,000		12,500		86,500
Wages paid		9,840		38,735		3,900		48,742
Employees	31		100		27		75	
<hr/>								
Products handled.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Fresh:								
Black bass	1,915	\$192	20,771	\$1,801	4,000	\$300	22,000	\$1,980
Cat-fish and bullheads	5,244	210	13,704	575	2,000	70	28,400	1,278
Fresh-water drum			67,652	1,258	2,000	25	40,000	500
German carp	95	4	7,396	146	1,500	30		
Herring	2,846,621	45,299	7,107,618	148,203	1,332,073	22,641	6,060,967	121,219
Pickarel			7,360	447			27,000	2,160
Pike perch (wall-eyed)	16,301	693	48,966	3,764	15,733	1,101	7,845	627
Pike perch (blue pike)	212,569	6,329	1,162,513	44,608	291,479	9,859	415,850	16,634
Pike perch (sauger)	2,394	72	2,303	92				
Sturgeon, dressed			40,840	3,860	6,080	518	97,545	9,755
Suckers	2,316	37	54,674	1,035	18,017	248	42,000	840
Sun-fish					2,000	25		
Trout			24,867	1,990	49,538	3,468	29,100	2,619
White bass	1,015	25	46,871	1,226	2,500	81	6,645	133
White-fish	248,183	11,585	500,217	39,840	60,010	4,182	193,000	17,370
Yellow perch	822,768	5,242	407,825	11,278	55,903	1,232	346,800	10,389
Caviar			6,559	5,267		216	7,202	5,207
Isinglass							208	31
Total	3,659,361	69,688	9,520,136	260,390	1,843,179	43,946	7,324,062	190,742
<hr/>								
Salted:								
Herring	1,100,000	24,750	1,633,900	40,847			244,033	2,030
<hr/>								
Smoked:								
Eels			16,125	806			700	105
Herring							204,000	15,120
Sturgeon			5,600	728			132,000	22,440
Trout							225	32
Total			21,725	1,534			336,925	37,697
Grand total	4,759,361	94,438	11,175,761	302,771	1,843,179	43,946	7,905,020	230,469

Summary of the wholesale trade of Lake Erie in 1899.

Products handled.	Lbs.	Value.	Products handled.	Lbs.	Value.
Fresh:			Fresh—continued.		
Black bass	95,642	\$8,478	Frogs	3,960	\$82
Cat-fish and bullheads	628,248	26,870	Turtles	3,789	189
Eels	2,747	196	Total	53,218,610	1,447,766
Fresh-water drum	1,758,056	10,348	<hr/>		
German carp	3,997,508	59,469	Salted:		
Herring	29,780,383	597,233	Herring	4,423,483	104,737
Ling	5,685	144	Smoked:		
Pickarel	34,360	2,607	Eels	18,125	1,115
Pike perch (wall-eyed)	3,572,445	178,992	Herring	1,344,367	64,483
Pike perch (blue pike)	3,434,835	118,039	Sturgeon	201,501	34,004
Pike perch (sauger)	2,606,757	49,078	Trout	28,875	4,043
Rock bass	62	2	Total	1,592,868	103,695
Sturgeon, dressed	310,604	32,788	<hr/>		
Suckers, dressed	1,029,562	13,430	Miscellaneous:		
Sun-fish	74,669	1,115	Oil	* 135,000	8,750
Trout	299,209	22,425	Scrap	2,000,000	5,000
White bass	527,557	13,788	Total	2,135,000	8,750
White-fish	2,423,785	182,638	Grand total	61,369,911	1,664,838
Yellow perch	2,680,984	56,613			
Caviar	97,555	73,201			
Isinglass	208	31			

* 15,000 gallons.

FISHERIES OF LAKE ONTARIO.

The fishing industry of Lake Ontario in 1899 gave employment to 315 persons, 297 of whom were engaged in the shore fisheries, the remainder being employed as shoresmen and on vessels transporting.

The total investment in the fisheries of the lake was \$78,543. Of this sum \$55,348 is credited to Jefferson County. The fishing apparatus in which the greatest amount of capital was invested was gill nets, the number employed being 1,187, valued at \$18,674. Next in importance were 144 trap nets, valued at \$5,790, and 451 fyke nets, valued at \$5,412.

The yield of the fisheries of Lake Ontario in 1899 amounted to 2,311,262 pounds, valued at \$93,393. The principal species taken were: White-fish, 161,935 pounds, valued at \$10,978; herring, 85,478 pounds, valued at \$3,736; pike perch, 197,436 pounds, valued at \$10,266; pike and pickerel, 100,365 pounds, valued at \$5,861; yellow perch, 397,117 pounds, valued at \$11,426; cat-fish and bullheads, 518,423 pounds, valued at \$18,834; eels, 123,840 pounds, valued at \$6,163; sturgeon, 139,385 pounds, valued at \$12,049. Other species taken in important quantities were suckers, sun-fish, and rock bass.

The most important form of apparatus of capture with respect to the quantity of fish taken was fyke nets, which yielded 833,982 pounds, the principal species being cat-fish and bullheads, yellow perch, suckers, sun-fish, and eels. Gill nets yielded 703,077 pounds, consisting chiefly of white-fish, pike perch, yellow perch, and herring. Pound and trap nets produced 551,975 pounds, consisting principally of cat-fish and bullheads, yellow perch, and pickerel.

The quantities taken in other forms of apparatus were much smaller. The set-line fishery, which is carried on chiefly for sturgeon, yielded 75,905 pounds.

As compared with the year 1893, there has been an increase of 74 in the number of persons employed; \$22,412, or nearly 40 per cent, in the amount of capital invested; 1,383,247 pounds, or 149 per cent, in the quantity, and \$61,883, or 196 per cent, in the value of products. The increased yield of this lake in 1899 consisted almost wholly in the cheaper varieties of fishes. The only increase among the more valuable species was in white-fish, sturgeon, and trout, the yield of which was more than twice that of 1893.

The imports of fresh fish from Canada entered at custom-houses on Lake Ontario and the Niagara River during the year 1899 aggregated 2,650,939 pounds, the greater part of which was consumed in the interior towns of the State of New York.

The following tables present by counties the statistics of the fisheries of Lake Ontario for the year 1899:

Table showing, by counties, the persons employed in the fisheries of Lake Ontario in 1899.

Counties.	On ves- sels trans- porting.	In shore fisheries.	Shores- men.	Total.
Jefferson		130	12	142
Oswego	2	17	1	20
Cayuga		9		9
Wayne	3	39		42
Monroe		17		17
Orleans		26		26
Niagara		59		59
Total	5	297	13	315

Table showing, by counties, the vessels, boats, apparatus, and capital employed in the fisheries of Lake Ontario in 1899.

Items.	Jefferson.		Oswego.		Cayuga.		Wayne.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels transporting			1	\$400			1	\$600
Tonnage			8				14	
Outfit				50				40
Boats	119	\$3,202	13	585	9	\$360	27	815
Apparatus of capture:								
Seines	2	50					4	65
Gill nets	507	8,743	54	1,500	2	5	110	950
Pound nets	1	60						
Trap nets	125	5,000	14	540			4	200
Fyke nets	328	4,110	9	90	15	150	50	600
Hand lines		19				12		6
Set lines, yards	9,501	171	35,834	118			8,334	25
Spears	6	3						
Shore and accessory property		13,990		1,065		25		815
Cash capital		20,000		200				
Total		55,348		4,518		552		4,116

Items.	Monroe.		Orleans		Niagara.		Total.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels transporting							2	\$1,000
Tonnage							22	
Outfit								90
Boats	12	\$455	18	\$795	35	\$1,910	233	8,122
Apparatus of capture:								
Seines			1	3	1	8	* 8	126
Gill nets	88	440	52	1,042	374	5,994	† 1,187	18,674
Pound nets							1	60
Trap nets					1	50	144	5,790
Fyke nets	18	200	15	150	16	112	461	5,412
Dip nets	4	20					4	20
Hand lines								37
Set lines, yards	3,334	10	27,668	163	99,668	472	184,339	949
Spears							6	3
Shore and accessory prop- erty		215		285		1,665		18,060
Cash capital								20,200
Total		1,340		2,428		10,211		78,543

* Total length, 407 yards.

† Total length, 151,085 yards.

Table showing, by counties and species, the yield of the fisheries of Lake Ontario in 1899.

Species.	Jefferson.		Oswego.		Cayuga.		Wayne.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	39,965	\$2,398			2,500	\$200	5,581	\$535
Cat-fish and bullheads	329,991	11,474	15,914	\$552	7,200	288	43,868	1,701
Eels	118,034	5,902	1,706	57	400	20	2,552	127
German carp	1,000	50						
Herring, fresh	5,750	281					18,396	781
Herring, salted	25,600	1,024						
Minnows							800	50
Pike and pickerel	46,339	2,789	1,410	71	2,500	200	33,955	1,862
Pike perch (blue pike)	20,773	1,009	9,436	472			27,714	1,485
Pike perch (wall-eyed)	9,385	750	150	8	700	56		
Rock bass	26,460	265	26,000	520			38,778	1,112
Sturgeon	30,086	1,741	20,887	2,066			3,000	340
Suckers	124,764	1,434	38,700	774	1,200	36	67,474	1,987
Sun-fish	107,129	1,070	11,900	238	2,100	63	20,032	653
Trout	14,400	774						
White-fish	14,280	986					460	28
White-fish (long-jaw)					1,200	72	100	5
Yellow perch	149,938	2,070	25,600	707	7,200	304	69,769	2,823
Frogs	1,750	306						
Total	1,065,634	34,323	151,703	5,465	25,000	1,239	332,479	13,389

Species.	Monroe.		Orleans.		Niagara.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass							48,046	\$3,133
Cat-fish and bullheads	16,850	\$635	22,200	\$888	82,400	\$3,296	618,423	18,834
Eels	548	27			600	30	123,840	6,163
German carp							1,000	50
Herring, fresh	26,106	1,195	800	56	8,826	399	59,878	2,712
Herring, salted							25,600	1,024
Minnows			500	25	2,700	135	4,000	210
Pike and pickerel	3,561	204	2,100	105	10,500	630	100,365	5,861
Pike perch (blue pike)	4,127	221	6,846	347	118,100	5,905	186,996	9,439
Pike perch (wall-eyed)	175	11			30	2	10,440	827
Rock bass	3,900	117	1,596	59	6,244	250	102,068	2,323
Sturgeon	2,943	449	29,539	2,736	52,930	4,717	139,385	12,049
Suckers	10,400	272	4,000	100	17,800	426	264,338	5,029
Sun-fish	2,888	87			4,400	88	148,449	2,099
Trout			25	2	1,007	77	16,432	853
White-fish	80	5	17,215	1,174	129,900	8,785	161,935	10,978
White-fish (long-jaw)							1,800	77
Yellow perch	25,285	924	14,050	565	105,275	4,033	897,117	11,426
Frogs							1,750	306
Total	96,863	4,147	98,871	6,057	540,712	28,773	2,311,262	93,393

648 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

Table showing, by counties, apparatus, and species, the yield of the fisheries of Lake Ontario in 1899.

Apparatus and species.	Jefferson.		Oswego.		Cayuga.		Wayne.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:								
Black bass							1,381	\$115
Cat-fish and bullheads							1,800	18
Herring, fresh							18,396	781
Herring, salted	25,600	\$1,024						
Pike and pickerel	6,400	384	800	\$40	800	\$64	27,411	1,382
Pike perch (blue pike)	5,800	260	6,100	305			19,073	1,041
Rock bass								85
Sturgeon	21,680	1,285	13,370	1,325			1,200	184
Suckers			3,600	72			6,800	204
Trout	14,400	774						
White-fish	8,000	484					250	15
White-fish (long-jaw)					1,200	72	100	5
Yellow perch	5,600	112	9,000	270	2,600	104	21,864	913
Total	87,480	4,323	32,870	2,012	4,600	240	101,120	4,743
Pound nets and trap nets:								
Black bass	11,765	824						
Cat-fish and bullheads	103,622	3,628	1,600	40			1,400	56
Eels	79,321	3,966	1,100	33			225	11
German carp	1,000	50						
Herring	5,750	281						
Pike and pickerel	24,546	1,491	210	11				
Pike perch (wall-eyed)	9,385	750	150	8				
Pike perch (blue pike)	14,973	749	3,336	167			1,200	72
Rock bass	21,950	220	26,000	620			5,100	102
Sturgeon	1,440	104						
Suckers	50,020	687	27,900	558			5,500	128
Sun-fish	36,551	365	8,100	162			4,812	96
White-fish	6,280	502					210	13
Yellow perch	58,829	923	10,500	315			4,200	126
Total	425,432	14,540	78,896	1,814			22,647	604
Fyke nets:								
Cat-fish and bullheads	218,369	7,566	14,314	512	7,200	288	34,684	1,387
Eels	38,113	1,906	606	24	400	20	1,706	85
Pike and pickerel	14,093	836	400	20	500	40	1,444	72
Pike perch (blue pike)							7,441	372
Rock bass	3,500	35					25,300	759
Suckers	57,944	579	7,200	144	1,200	36	35,664	1,070
Sun-fish	69,858	698	3,800	76	2,100	63	9,820	295
Yellow perch	83,709	1,017	6,100	122	3,000	120	16,100	588
Total	485,586	12,637	32,420	898	14,400	567	132,159	4,628
Seines:								
Cat-fish and bullheads	8,000	280					5,984	240
Eels	600	30					621	31
Minnows							800	50
Pike and pickerel	1,300	78						
Rock bass	1,000	10					5,533	166
Suckers	16,800	168					19,510	585
Sun-fish	720	7					5,400	162
Yellow perch	1,800	18					12,405	506
Total	30,220	591					50,253	1,740
Hand lines:								
Black bass	28,200	1,574			2,500	200	4,200	420
Pike and pickerel					1,200	96	5,100	408
Pike perch (wall-eyed)					700	56		
Yellow perch					1,600	80	15,200	690
Total	28,200	1,574			6,000	432	24,500	1,518
Set lines:								
Sturgeon	6,966	352	7,517	741			1,800	156
Dip nets and spears:								
Frogs	1,750	306						
Grand total	1,065,634	34,328	151,703	5,465	25,000	1,239	382,479	13,389

Table showing, by counties, apparatus, and species, the yield of the fisheries of Lake Ontario in 1899—Continued.

Apparatus and species.	Monroe.		Orleans.		Niagara.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Gill nets:						
Herring, fresh	26,106	\$1,195	800	\$56	8,826	\$399
Pike and pickerel	2,705	157			30	2
Pike perch (wall-eyed)			6,846	347	118,100	5,905
Pike perch (blue pike)	4,127	221	1,596	59	6,244	250
Rock bass			10,060	842	15,730	1,466
Sturgeon					1,007	77
Trout			25	2		
White-fish	80	5	17,215	1,174	129,900	8,785
Yellow perch	13,385	493	12,750	613	101,475	3,919
Total	46,403	2,071	49,292	2,993	381,312	20,803
Pound nets and trap nets:						
Cat-fish and bullheads					12,400	496
Eels					600	30
Suckers					3,800	76
Sun-fish					4,400	88
Yellow perch					3,800	114
Total					25,000	804
Fyke nets:						
Cat-fish and bullheads	16,850	635	22,200	888	70,000	2,800
Eels	548	27				
Pike and pickerel	856	47	2,100	105	10,500	630
Pike perch (wall-eyed)	175	11				
Rock bass	3,900	117				
Suckers	10,400	272	4,000	100	14,000	350
Sun-fish	2,888	87				
Yellow perch	9,700	321	1,300	52		
Total	45,317	1,517	29,600	1,145	94,500	3,780
Seines:						
Minnows			500	25	2,700	135
Set lines:						
Sturgeon	2,943	449	19,479	1,894	37,200	3,251
Dip nets:						
Yellow perch	2,200	110				
Grand total	96,863	4,147	98,871	6,057	640,712	28,773

Summary showing the products of the fisheries of Lake Ontario in 1899.

Apparatus and species.	Lbs.	Value.	Apparatus and species.	Lbs.	Value.
Gill nets:			Fyke nets—continued:		
Black bass	1,381	\$115	Pike and pickerel	29,893	\$1,750
Cat-fish and bullheads	1,800	18	Pike perch (wall-eyed)	7,175	11
Herring, fresh	54,128	2,431	Pike perch (blue pike)	32,700	372
Herring, salted	25,600	1,024	Rock bass	130,408	911
Pike and pickerel	38,116	2,027	Suckers	88,466	1,219
Pike perch (wall-eyed)	30	2	Sun-fish	119,909	2,220
Pike perch (blue pike)	160,046	8,079	Yellow perch		
Rock bass	10,685	394	Total	833,982	25,172
Sturgeon	62,040	5,102	Seines:		
Suckers	10,400	276	Cat-fish and bullheads	13,984	520
Trout	15,432	853	Eels	1,221	61
White-fish	155,445	10,469	Minnows	4,000	210
White-fish (long-jaw)	1,800	77	Pike and pickerel	1,800	78
Yellow perch	166,674	6,324	Rock bass	6,533	176
Total	703,077	37,185	Suckers	36,310	753
Pound nets and trap nets:			Sun-fish	6,120	169
Black bass	11,765	824	Yellow perch	14,205	524
Cat-fish and bullheads	119,022	4,220	Total	83,673	2,491
Eels	81,246	4,040	Hand lines:		
German carp	1,000	50	Black bass	34,900	2,194
Herring	5,750	281	Pike and pickerel	6,300	504
Pike and pickerel	24,756	1,502	Pike perch (wall-eyed)	700	56
Pike perch (wall-eyed)	9,535	758	Yellow perch	16,800	770
Pike perch (blue pike)	19,509	988	Total	58,700	3,524
Rock bass	53,050	842	Set lines:		
Sturgeon	1,440	104	Sturgeon	75,905	6,843
Suckers	87,220	1,449	Dip nets and spears:		
Sun-fish	53,863	711	Yellow perch	2,200	110
White-fish	6,490	515	Frogs	1,750	306
Yellow perch	77,329	1,478	Total	3,950	416
Total	551,975	17,762	Grand total	2,311,262	93,393
Fyke nets:					
Cat-fish and bullheads	383,617	14,076			
Eels	41,373	2,062			

FISHERIES OF THE ST. LAWRENCE RIVER.

The fisheries of the St. Lawrence River employed 69 persons, the investment amounted to \$1,323, and the catch, consisting of sturgeon, minnows, and suckers, amounted to 81,900 pounds, worth \$6,988. The minnows taken in these waters are sold to sportsmen for bait.

Table showing, by counties, the persons, apparatus, etc., employed in the fisheries of the St. Lawrence River in 1899.

Items.	St. Lawrence.		Jefferson.		Total.	
	No.	Value.	No.	Value.	No.	Value.
Fishermen.....	48		21		69	
Boats.....	43	\$250	11	\$110	54	\$360
Seines.....	3	60	13	234	16	294
Set lines.....		360		9		369
Shore property.....		300				300
Total.....		970		353		1,323

Table showing, by counties, apparatus, and species, the yield of the fisheries of the St. Lawrence River in 1899.

Apparatus and species.	St. Lawrence.		Jefferson.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Seines:						
Minnows.....	800	\$40	17,900	\$1,343	18,700	\$1,383
Suckers.....	14,400	72			14,400	72
Total.....	15,200	112	17,900	1,343	33,100	1,455
Set lines:						
Sturgeon.....	48,000	5,400	800	133	48,800	5,533

FISHERIES OF NIAGARA RIVER.

The fisheries of the Niagara River were of minor importance; the yield, consisting of perch, white bass, and sturgeon, was 13,170 pounds, valued at \$616. Practically all of the catch from this river was taken in a form of apparatus known locally as a "fishing machine." The use of this unique device, which was prohibited for a number of years, has recently been permitted by the State of New York, within the limits of the town of Lewiston. It consists of a framework of timbers extending out from the shore about 20 or 30 feet, which is heavily weighted with large stones to prevent its being carried away by the swift current. In the center of the covering of this framework is a well or opening enclosed on all sides except the one facing down the river. A square wooden box with sides about 8 inches in height and a bottom of fine-meshed iron screen, arranged to fit loosely in this space, is raised and lowered by means of a windlass. When in use the fish passing close to the shore to avoid the current enter the sunken box, which is raised to the level of the platform about every half hour. The apparatus is in use from about the middle of May until late in the fall. The remainder of the catch from this river, consisting of sturgeon, is taken by Indians with spears.

The fisheries of this river are all to be credited to Niagara County.

Table showing persons, apparatus, etc., employed in the fisheries of Niagara River in 1899.

Items.	No.	Value.
Fishermen	7	.....
Fishing machines.....	4	\$400
Spears.....	3	4
Shore property.....		80
Total.....		484

Table showing, by apparatus and species, the yield of the fisheries of Niagara River in 1899.

Apparatus and species.	Lbs.	Value.
Fishing machines:		
Yellow perch	9,900	\$396
Sturgeon	300	13
White bass	2,300	92
Total	12,500	506
Spears:		
Sturgeon	670	110

THE FISHERIES CONSIDERED BY STATES.

There are eight States bordering on the Great Lakes, all of which are interested in the fisheries. The States located on more than one lake are Michigan, which borders on four lakes, and New York and Wisconsin each on two lakes.

In Michigan 3,427 persons were employed in 1899; in Ohio, 2,168; in New York, 1,367, and in Wisconsin, 1,352. In each of the other States the fisheries are comparatively limited in extent and therefore give employment to a much smaller number of persons.

The investment in Ohio was \$1,872,522, being larger than in any other State. Next in importance in this respect is Illinois, which has an investment of \$1,871,341, although its fisheries are not extensive. The greater part of this amount, however, represents the capital utilized in the wholesale fishery trade of Chicago. Michigan has an investment of \$1,287,448, Wisconsin \$619,339, Pennsylvania \$456,102, New York \$401,743, Minnesota \$76,007, and Indiana \$33,214.

The value of the yield is perhaps a better basis on which to determine the importance of the Great Lakes fisheries in the various States than either the number of persons employed or the amount of capital invested. The products of the fisheries of Michigan, which were greater in value than those of any other State in this region, aggregated 32,368,852 pounds, valued at \$894,060. The fisheries of Ohio exceeded those of any of the other States in the quantity of products, the yield being 36,624,400 pounds, valued at \$677,305. Wisconsin's fisheries produced 19,530,430 pounds, valued at \$454,165. The value of the fishery products in other States was as follows: Pennsylvania \$275,887, New York \$241,916, Illinois \$37,284, Indiana \$16,490, and Minnesota \$14,332.

652 REPORT OF COMMISSIONER OF FISH AND FISHERIES.

In the following tables the fisheries of the Great Lakes for 1899 are presented by States, while States bordering on more than one lake are also treated in separate tables:

Table showing the number of persons employed in the fisheries of the Great Lakes in 1899.

States.	On vessels fishing.	On vessels transporting.	In shore fisheries.	Shoresmen.	Total.
New York	55	5	1,190	117	1,367
Pennsylvania	156	2	206	100	461
Ohio	363	55	1,268	482	2,168
Michigan	321	15	2,632	459	3,427
Indiana	8	.....	42	6	56
Illinois	20	.....	286	379	685
Wisconsin	233	15	906	198	1,352
Minnesota	.....	.....	127	24	151
Total	1,156	92	6,657	1,765	9,670

Table showing, by States, the apparatus and capital employed in the fisheries of the Great Lakes in 1899.

Items.	New York.		Pennsylvania.		Ohio.		Indiana.		Michigan.	
	No.	Value.	No.	Value.	No.	Value.	No.	Val.	No.	Value.
Vessels fishing	10	\$34,000	25	\$60,200	50	\$187,200	1	\$6,000	49	\$153,500
Tonnage	167	.....	284	.....	796	.....	53	.....	916	.....
Outfit	.....	7,070	.....	20,485	.....	43,326	.....	450	.....	35,845
Vessels transporting	2	1,000	1	1,000	16	63,500	.....	.....	5	14,450
Tonnage	22	.....	16	.....	351	.....	.....	.....	160	.....
Outfit	.....	90	.....	150	.....	9,630	.....	.....	.....	3,796
Boats	421	18,437	49	8,055	630	57,797	34	1,195	1,447	91,969
Apparatus—vessel fisheries:										
Pound nets	.....	.....	.....	.....	.....	.....	.....	.....	46	2,565
Gill nets	2,995	17,133	9,024	51,962	16,999	91,775	750	5,250	20,203	153,286
Lines	.....	.....	.....	.....	.....	.....	.....	.....	.....	70
Apparatus—shore fisheries:										
Pound nets and trap nets	169	6,885	152	23,610	1,245	269,875	15	4,675	1,809	253,478
Gill nets	4,471	40,709	2,340	14,130	7,036	32,147	135	725	14,458	99,772
Seines	28	820	.....	.....	92	7,425	.....	.....	42	3,053
Fyke nets	451	5,412	.....	.....	555	15,130	.....	.....	635	9,242
Lines	.....	3,975	.....	90	.....	760	.....	144	.....	2,237
Other apparatus	.....	427	.....	.....	.....	142	.....	.....	.....	807
Shore and accessory property	.....	146,585	.....	171,420	.....	734,115	.....	9,775	.....	340,928
Cash capital	.....	119,200	.....	105,000	.....	359,700	.....	5,000	.....	123,000
Total	.....	401,743	.....	456,102	.....	1,872,522	.....	33,214	.....	1,287,448

Items.	Illinois.		Wisconsin.		Minnesota.		Total.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	4	\$10,500	40	\$121,600	.....	.....	179	\$573,000
Tonnage	58	.....	603	.....	.....	.....	2,877	.....
Outfit	.....	1,935	.....	19,184	.....	.....	.....	127,795
Vessels transporting	.....	.....	5	6,700	.....	.....	29	86,650
Tonnage	.....	.....	125	.....	.....	.....	664	.....
Outfit	.....	.....	.....	1,510	.....	.....	.....	15,176
Boats	37	2,145	572	40,238	91	\$7,930	3,281	227,766
Apparatus—vessel fisheries:								
Pound nets	.....	.....	.....	.....	.....	.....	45	2,565
Gill nets	1,369	8,780	12,157	105,680	.....	.....	63,497	433,816
Lines	.....	.....	.....	410	.....	.....	.....	480
Apparatus—shore fisheries:								
Pound nets and trap nets	5	1,385	391	96,935	6	1,000	3,792	657,843
Gill nets	713	3,210	12,262	51,335	775	14,674	42,190	256,702
Seines	.....	.....	.....	.....	.....	.....	162	11,298
Fyke nets	12	180	1,405	22,607	.....	.....	2,958	62,571
Lines	.....	296	.....	1,424	.....	155	.....	9,081
Other apparatus	.....	1,710	.....	784	.....	.....	.....	8,870
Shore and accessory property	.....	693,700	.....	91,732	.....	87,248	.....	2,225,503
Cash capital	.....	1,147,500	.....	59,200	.....	15,000	.....	1,933,600
Total	.....	1,871,341	.....	619,339	.....	76,007	.....	6,617,716

Table showing, by States, the products of the fisheries of the Great Lakes in 1899.

Species.	New York.		Pennsylvania.		Ohio.		Indiana.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	58,625	\$3,955	38,299	\$3,031	83,714	\$5,933	250	\$18
Cat-fish and bullheads	654,666	22,921	100,727	3,022	704,029	21,503		
Crappie			60,000	1,800				
Eels	124,040	6,177			99	8	84	6
Fresh-water drum	10,130	102	57,993	580	1,043,818	6,792	33,227	521
German carp	10,505	240	12,195	244	3,417,094	47,176	1,715	24
Herring, fresh	3,382,736	46,343	10,742,315	134,142	19,345,986	252,802	271,755	7,221
Herring, salted	25,600	1,024						
Ling or lawyers							2,062	21
Mooneye					43,836	867		
Pike and pickerel	100,365	5,861	8,687	693	789	38	356	29
Pike perch (wall-eyed)	32,688	2,052	67,364	3,048	1,195,705	57,323		
Pike perch (blue pike)	995,877	39,950	1,522,939	44,520	2,212,966	64,270		
Pike perch (sauger)	9,115	633	11,110	327	2,962,096	73,363		
Rock bass	102,968	2,323		6,296		91		
Sturgeon	816,588	58,707	99,570	7,090	50,094	4,519	17,647	831
Suckers, fresh	372,108	6,169	120,245	1,339	1,171,782	12,920	12,584	189
Sun-fish	148,449	2,099	125,000	3,750	36,800	407		
Trout, fresh	44,674	2,363	722	61	2,060	165	35,012	2,027
White bass	47,732	1,000	454,434	8,639	1,055,951	20,046	620	25
White-fish, fresh	334,391	21,885	615,821	46,690	1,049,578	76,276	10,358	648
Yellow perch	664,949	16,213	815,553	16,911	2,174,564	30,310	207,270	4,930
Other fish	22,700	1,593						
Frogs	1,750	306			982	172		
Turtles					67,211	2,324		
Total	7,960,656	241,916	14,852,964	275,887	36,624,400	677,305	592,890	16,490

Species.	Illinois.		Michigan.		Wisconsin.		Minnesota.		Total.	
	Lbs.	Val.	Lbs.	Value.	Lbs.	Value.	Lbs.	Val.	Lbs.	Value.
Black bass			11,973	\$872	3,355	\$244			196,216	\$14,053
Cat-fish and bullheads			661,314	19,402	62,064	1,679			2,182,800	68,527
Crappie									60,000	1,800
Eels	300	\$24	1,511	98					126,034	6,313
Fresh-water drum			236,022	1,518					1,380,190	9,513
German carp	3,150	110	218,082	4,336	11,605	232			3,674,346	52,362
Herring, fresh	354,805	9,903	4,168,090	77,666	7,283,218	143,089	125,698	\$2,094	45,674,603	673,260
Herring, salted			8,817,513	170,091	5,183,950	92,454	211,910	4,238	14,236,973	267,807
Ling or lawyers	34,356	344	21,601	180	85,200	508			143,219	1,053
Mooneye									43,836	867
Pike and pickerel			280,681	10,589	66,196	3,488			457,024	20,698
Pike perch (wall-eyed)			1,944,648	90,797	71,497	3,283			3,311,892	156,503
Pike perch (blue pike)									4,731,782	148,740
Pike perch (sauger)			44,244	990					3,026,565	75,313
Rock bass			88,139	1,862	4,000	38			200,403	4,314
Sturgeon			130,844	9,209	14,605	729			*1,129,348	81,085
Suckers, fresh	41,055	564	1,551,905	26,001	582,227	5,023			3,801,856	52,205
Suckers, salted			223,581	3,523	18,600	340			242,131	3,863
Sun-fish			74,952	948					385,201	7,204
Trout, fresh	76,528	4,503	6,319,147	246,396	3,420,309	151,614	170,278	5,008	10,068,730	412,137
Trout, salted			372,280	13,878	93,561	3,024	77,017	2,237	5,422,858	19,139
White bass			40,867	1,020	3,600	111			1,603,204	30,841
White-fish, fresh	200	10	2,817,740	138,380	102,621	5,206	6,422	239	4,937,131	289,334
White-fish, salted			143,162	7,139	7,071	284	6,650	266	156,883	7,689
White-fish (blue-fish)			657,038	16,801	265,376	7,060	10,964	250	933,378	24,111
White-fish (Menominee) fresh			304,750	7,822	182,720	4,592			487,470	12,414
White-fish (Menominee) salted			92,890	2,733	75,200	2,637			168,090	5,370
Yellow perch	677,716	21,826	3,137,157	41,128	1,907,594	25,032			9,584,802	156,850
Other fish			1,771	161					24,471	1,764
Crawfish					135,861	3,498			135,861	3,498
Frogs			8,000	520					10,732	998
Turtles									67,211	2,324
Total	1,188,109	37,284	32,368,852	894,060	19,530,430	454,165	608,939	14,332	118,727,240	2,611,439

* Includes 47,470 pounds of caviar, valued at \$30,510, apportioned among the States as follows; New York, 31,287 lbs., \$20,424; Pennsylvania, 6,274 lbs., \$3,992; Ohio, 3,340 lbs., \$2,669; Michigan, 6,569 lbs., \$3,435.

FISHERIES OF MICHIGAN.

The State of Michigan is located on Lakes Erie, St. Clair and tributaries, Huron, Michigan, and Superior. The extent of its fisheries on each of these waters is shown in the following tables:

Table showing the number of persons employed in the fisheries of Michigan in 1899.

How employed.	Lake Erie.	Lake St. Clair.*	Lake Huron.	Lake Michigan.	Lake Superior.	Total.
On fishing vessels.....			62	208	51	321
On transporting vessels.....	8					15
In shore fisheries.....	110	374	986	952	210	2,632
Shoresmen.....	2	68	186	170	33	459
Total.....	120	442	1,241	1,330	294	3,427

* Includes St. Clair and Detroit rivers.

Table showing, by lakes, the apparatus and capital employed in the fisheries of Michigan in 1899.

Items.	Lake Erie.		Lake St. Clair.*		Lake Huron.		Lake Michigan.		Lake Superior.	
	No.	Value.	No.	Value.	No.	Value.	No.	Value.	No.	Value.
Vessels fishing.....					9	\$42,500	33	\$78,200	7	\$32,800
Tonnage.....					157		659		200	
Outfit.....						7,715		21,780		5,860
Vessels transporting.....	2	\$10,200			3	4,250				
Tonnage.....	51				99					
Outfit.....		3,216				580				
Boats.....	63	3,659	188	\$3,770	527	40,835	531	31,025	138	12,080
Apparatus—vessel fisheries:										
Pound nets.....					35	525	10	2,040		
Gill nets.....					2,266	27,720	15,464	91,152	2,473	34,364
Lines.....								70		
Apparatus—shore fisheries:										
Pound nets and trap nets.....	303	34,980	5	1,050	961	111,314	416	87,639	124	18,495
Gill nets.....			60	600	3,410	26,664	8,728	39,098	2,260	33,410
Fyke nets.....	62	620			398	7,632	60	840	15	150
Seines.....	8	565	13	1,255	9	673	11	510	1	60
Lines.....				644		346		1,140		107
Other apparatus.....				271		210		6		320
Shore and accessory property.....		17,297		26,945		148,489		88,687		69,510
Cash capital.....				20,000		55,500		13,500		123,000
Total.....		70,537		54,535		474,953		456,287		231,136

SUMMARY.

Items.	No.	Value.	Items.	No.	Value.
Vessels fishing.....	49	\$153,500	Apparatus—shore fisheries:		
Tonnage.....	916		Pound nets and trap nets.....	1,809	\$253,478
Outfit.....		35,345	Gill nets.....	14,458	99,772
Vessels transporting.....	5	14,450	Fyke nets.....	535	9,242
Tonnage.....	150		Seines.....	42	3,053
Outfit.....		3,796	Lines.....		2,237
Boats.....	1,447	91,969	Other apparatus.....		807
Apparatus—vessel fisheries:			Shore and accessory property.....		340,928
Pound nets.....	45	2,565	Cash capital.....		123,000
Gill nets.....	20,203	153,236			
Lines.....		70	Total.....		1,287,448

* Includes St. Clair and Detroit rivers.

Table showing, by lakes and species, the yield of the fisheries of Michigan in 1899.

Species.	Lake Erie.		Lake St. Clair.*		Lake Huron.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	1,154	\$80	200	\$14	5,659	\$396
Cat-fish and bullheads	61,705	1,839	17,505	629	574,406	16,627
Eels	550	39			861	49
Fresh-water drum	35,181	177	17,050	131	160,646	1,009
German carp	194,903	3,846	8,000	221	6,369	143
Herring, fresh	17,938	539			1,073,957	10,696
Herring, salted					2,625,850	49,722
King or lawyers					20,880	167
Pike and pickerel	10,199	510	42,365	1,795	191,751	6,995
Pike perch (wall-eyed)	449,867	24,859	268,350	11,877	1,110,516	49,294
Pike perch (sauger)	44,244	990				
Rock bass			3,700	217	83,344	1,612
Sturgeon	12,305	786	7,600	1,352	30,497	1,268
Suckers, fresh	183,337	2,750	33,600	325	980,695	18,502
Suckers, salted					126,795	1,818
Sun-fish	13,640	205	250	4	61,062	739
Trout, fresh			69,915	2,884	1,879,411	80,077
Trout, salted					7,690	846
White bass	40,707	1,010				
White-fish, fresh	228,459	18,136	69,902	3,087	584,168	31,525
White-fish, salted					8,140	385
White-fish (Menominee), fresh					112,417	2,667
White-fish (Menominee), salted					24,060	810
Yellow perch	67,447	1,013	40,000	1,202	2,740,669	32,690
Other fish	540	6	630	126	484	21
Frogs					8,000	520
Total	1,362,176	56,784	579,067	23,864	12,418,327	308,078

Species.	Lake Michigan.		Lake Superior.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	4,960	\$382			11,973	\$872
German carp	8,810	126			218,082	4,356
Cat-fish and bullheads	98	3	7,600	\$301	661,314	19,402
Eels	100	10			1,511	98
Fresh-water drum	22,145	201			235,022	1,518
Herring, fresh	3,007,984	65,146	68,211	1,255	4,168,090	77,666
Herring, salted	6,168,963	119,840	22,700	529	8,817,513	170,091
King or lawyers	721	13			21,601	180
Pike and pickerel	20,764	973	15,602	316	280,681	10,589
Pike perch (wall-eyed)	103,446	4,309	12,469	458	1,944,648	90,797
Pike perch (sauger)					44,244	990
Rock bass	161	5	934	28	88,139	1,862
Sturgeon	76,057	5,628	4,385	175	130,844	9,209
Suckers, fresh	349,073	4,369	5,200	55	1,531,905	26,001
Suckers, salted	91,536	1,601	5,200	104	223,531	3,523
Sun-fish					74,952	948
Trout, fresh	2,501,112	102,098	1,868,709	61,337	6,319,147	246,396
Trout, salted	71,837	3,148	292,753	10,384	372,280	13,878
White bass	160	10			40,867	1,020
White-fish, fresh	1,848,464	64,217	586,757	21,415	2,817,740	138,380
White-fish, salted	103,222	5,467	31,800	1,287	143,162	7,139
White-fish (bluefin)	248,614	6,145	408,424	10,656	657,038	16,801
White-fish (Menominee), fresh	192,333	5,155			304,750	7,822
White-fish (Menominee), salted	68,830	1,923			92,890	2,733
Yellow perch	285,162	6,184	3,879	89	3,137,157	41,128
Other fish	117	9			1,771	161
Frogs					8,000	520
Total	14,674,669	396,962	3,334,623	168,372	32,368,852	894,060

* Includes St. Clair and Detroit rivers.

FISHERIES OF WISCONSIN.

The fisheries of Wisconsin are prosecuted in Lakes Michigan and Superior, but are much more important in the former than in the latter. Their extent on each lake is shown in the following tables:

Table showing the number of persons employed in the fisheries of Wisconsin in 1899.

How employed.	Lake Michigan.	Lake Superior.	Total.
On fishing vessels	217	16	233
On transporting vessels	10	5	15
In shore fisheries	765	141	906
Shoresmen	192	6	198
Total	1,184	168	1,352

Table showing the apparatus and capital employed in the fisheries of Wisconsin in 1899.

Items.	Lake Michigan.		Lake Superior.		Total.	
	No.	Value.	No.	Value.	No.	Value.
Vessels fishing	38	\$115,600	2	\$6,000	40	\$121,600
Tonnage	544		59		603	
Outfit		16,530		2,654		19,184
Vessels transporting	4	3,700	1	3,000	5	6,700
Tonnage	107		18		125	
Outfit		210		1,300		1,510
Boats	496	33,003	76	7,235	572	40,238
Apparatus—vessel fisheries:						
Gill nets	11,357	97,680	800	8,000	12,157	105,680
Lines		410				410
Apparatus—shore fisheries:						
Pound nets and trap nets	359	90,610	32	6,325	391	96,935
Gill nets	11,341	42,500	921	8,835	12,262	51,335
Fyke nets	1,405	22,607			1,405	22,607
Lines		1,098		326		1,424
Other apparatus		784				784
Shore and accessory property		77,467		14,265		91,732
Cash capital		62,200		7,000		69,200
Total		554,399		64,940		619,339

Table showing, by lakes and species, the yield of the fisheries of Wisconsin in 1899.

Species.	Lake Michigan.		Lake Superior.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	3,355	\$244			3,355	\$244
Cat-fish and bullheads	62,064	1,679			62,064	1,679
German carp	11,605	232			11,605	232
Herring, fresh	6,591,109	139,514	692,109	\$3,575	7,283,218	143,089
Herring, salted	5,179,100	92,405	4,850	49	5,183,950	92,454
Ling or lawyers	85,200	508			85,200	508
Pike and pickerel	66,196	3,488			66,196	3,488
Pike perch (wall-eyed)	70,287	3,246	1,210	37	71,497	3,283
Rock bass	4,000	28			4,000	28
Sturgeon	14,575	728	30	1	14,605	729
Suckers, fresh	531,980	5,021	247	2	532,227	5,023
Suckers, salted	17,600	330	1,000	10	18,600	340
Trout, fresh	2,794,458	132,387	625,851	19,227	3,420,309	151,614
Trout, salted	10,000	518	83,561	2,506	93,561	3,024
White bass	3,600	111			3,600	111
White-fish, fresh	48,130	3,150	54,491	2,056	102,621	5,206
White-fish, salted			7,071	284	7,071	284
White-fish (bluefin)	249,704	6,649	15,672	411	265,376	7,060
White-fish (Menominee), fresh	182,720	4,592			182,720	4,592
White-fish (Menominee), salted	76,200	2,637			76,200	2,637
Yellow perch	1,907,594	25,032			1,907,594	25,032
Crawfish	135,861	3,498			135,861	3,498
Total	18,044,338	426,007	1,486,092	28,158	19,530,430	464,165

FISHERIES OF NEW YORK.

The fishery interests of New York in the Great Lakes region embrace the fisheries of Lake Ontario, including the St. Lawrence and Niagara rivers, and also those of two counties in that State, Erie and Chautauqua, located on Lake Erie. The yield from Lake Erie was 5,554,324 pounds, valued at \$140,919, and from Lake Ontario 2,406,332 pounds, valued at \$100,997.

Table showing the number of persons employed in the fisheries of New York in 1899.

How employed.	* Lake Ontario.	Lake Erie.	Total.
On fishing vessels		55	55
On transporting vessels	5		5
In shore fisheries	373	817	1,190
Shoemen	13	104	117
Total	391	976	1,367

Table showing the apparatus and capital employed in the fisheries of New York in 1899.

Items.	* Lake Ontario.		Lake Erie.		Total.	
	No.	Value.	No.	Value.	No.	Value.
Vessels fishing			10	\$34,000	10	\$34,000
Tonnage			167		167	
Outfit				7,070		7,070
Vessels transporting	2	\$1,000			2	1,000
Tonnage	22				22	
Outfit		90				90
Boats	287	8,482	134	9,955	421	18,437
Apparatus—vessel fisheries:						
Gill nets			2,995	17,133	2,995	17,133
Apparatus—shore fisheries:						
Pound nets and trap nets	145	5,850	24	1,035	169	6,885
Gill nets	1,187	18,674	3,284	22,035	4,471	40,709
Fyke nets	451	5,412			451	5,412
Scines	24	420	4	400	28	820
Lines		1,355		2,620		3,975
Other apparatus		427				427
Shore and accessory property		18,440		128,145		146,585
Cash capital		20,200		99,000		119,200
Total		80,350		321,393		401,743

Table showing, by lakes and species, the yield of the fisheries of New York in 1899.

Species.	* Lake Ontario.		Lake Erie.		Total.	
	Lbs.	Value.	Lbs.	Value.	Lbs.	Value.
Black bass	48,046	\$3,133	10,579	\$822	58,625	\$3,955
Cat-fish and bullheads	518,423	18,834	136,243	4,087	654,666	22,921
Eels	123,840	6,163	200	14	124,040	6,177
Fresh-water drum			10,130	102	10,130	102
German carp	1,000	50	9,605	190	10,505	240
Herring, fresh	61,178	2,789	3,321,568	43,554	3,382,736	46,343
Herring, salted	25,600	1,024			25,600	1,024
Pike and pickerel	100,365	5,861			100,365	5,861
Pike perch (wall-eyed)	10,440	827	22,248	1,225	32,688	2,052
Pike perch (blue pike)	186,996	9,439	808,881	30,511	995,877	39,950
Pike perch (sauger)			9,115	633	9,115	633
Rock bass	102,968	2,323			102,968	2,323
Sturgeon	*189,155	17,710	627,433	40,997	816,588	58,707
Suckers	278,738	5,101	93,370	1,068	372,108	6,169
Sun-fish	148,449	2,099			148,449	2,099
Trout	15,432	853	29,242	1,510	44,674	2,363
White bass	2,300	92	45,432	908	47,732	1,000
White-fish	161,935	10,978	172,466	10,907	334,391	21,885
Yellow perch	407,017	11,822	257,932	4,391	664,949	16,213
Other fish	22,700	1,593			22,700	1,593
Frogs	1,750	306			1,750	306
Total	2,406,332	100,997	5,554,324	140,919	7,960,656	241,916

* Includes St. Lawrence and Niagara rivers.