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ANNUAL REPORT

OF THE

DEPARTMENT OF FISHERIES,

DOMINION OF CANADA,

FOR THE CALENDAR YEAR

1889.

PRINTED BY ORDER OF PARLIAMENT.

OTTAWA:
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To His Excellency the Right Honorable Lord Stanley of Preston, P.C., G.C.B., &c., &c., &c., Governor General of Canada, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY :

The undersigned has the honor to present to Your Excellency the Annual Report of the Department of Fisheries for the Calendar year 1889.

All of which is respectfully submitted,

CHARLES H. TUPPER,
Minister of Marine and Fisheries.

OTTAWA, 10th April, 1890.

INDEX

TO THE

REPORT ON THE FISHERIES OF CANADA

FOR THE YEAR 1889.

Introductory Report by the Deputy Minister.

PAGE.

REPORT on the general condition and yield of the Fisheries in 1889 ix
Nova Scotia x
New Brunswick xi
Prince Edward Island xi
Quebec xi
Ontario xii
Manitoba and North-West Territories xii
British Columbia xii
GENERAL RECAPITULATION of the yield and value of the Fisheries, 1888-1889 ... xiii
Comparative Recapitulation by Provinces, 1888-1889 xiv
Comparative Statement of yield and value, 1888-1889 :—
Nova Scotia xv
New Brunswick xvi
Prince Edward Island xvii
Quebec xviii
Ontario xix
Manitoba and North-West Territories xix
British Columbia xx
Schedule of Close Seasons and Synopsis of Fishery Laws xxi
Fish-Breeding (See also Part II) xxii
Fisheries Protection Service (See also Part III) xxii
Fishing Bounties (See also Appendix 2) xxiii
Total Expenditure xxiv
Summary of Expenditure, Fisheries and Fish-Breeding xxv
Fisheries Expenditure, Sub-Divided by Provinces xxvi
Fish-Breeding Expenditure, sub-divided by Hatcheries xxvii
Fisheries Protection Service Expenditure, sub-divided xxix
" " " Recapitulation xxx
Statement of Revenue, Receipts xxx
The Oyster Fishery xxxi
Pollution of Streams xxxiii
Outside Staff xxxix
Re-organization xlii
Statement of Work xlii

PART I.

APPENDICES.

PAGE.

APPENDIX No. 1.—SCHEDULE OF FISHERY OFFICERS IN THE DOMINION—
Ontario 3
Quebec 8
Nova Scotia 11
New Brunswick 18
Prince Edward Island 21
Manitoba and North-West Territories 22
British Columbia 22
Fish-Breeding 22
Recapitulation 22

APPENDIX No. 2.—DETAILED STATEMENT OF FISHING BOUNTY CLAIMS FOR THE YEAR 1888—
General Statement of Claims Received 23
" Payments to Boats and Vessels 24
" " Vessels 25
Detailed Statement of Payments to Boats 26
" " Vessels, Nova Scotia 27
" " " New Brunswick 39
" " " Prince Edward Island 42
" " " Quebec 43
Statement Showing Bounty Payments annually since 1882. 45

APPENDIX No. 3.—NOVA SCOTIA—
Report of Mr. A. C. Bertram, Inspector of Fisheries for District No. 1, with Synopses of Fishery Overseers' Reports 49
Report of Mr. Robert Hockin, Inspector of Fisheries for District No. 2, with Synopses of Fishery Overseers' Reports 59
Report of Mr. J. R. Kinney, Inspector of Fisheries for District No. 3, with Synopses of Fishery Overseers' Reports 68
Detailed Statistics of the Fisheries of District No. 1, Inspector Bertram 74
Recapitulation, District No. 1 82
Comparative Statement, District No. 1 83
Detailed Statistics of the Fisheries of District No. 2, Inspector Hockin 84
Statement by Counties, District No. 2 96
Recapitulation, District No. 2 98
Comparative Statement, District No. 2 99
Detailed Statistics of the Fisheries, District No. 3, Inspector Kinney 100
Statement, by Counties, of Fisheries, District No. 3 114
Recapitulation of Fisheries, District No. 3 116
Tables of Vessels and Fishing Materials, District No. 3 117
Recapitulation of the Total Yield of Nova Scotia 118

APPENDIX No. 4.—NEW BRUNSWICK—

Report of Captain J. H. Pratt, Inspector of Fisheries for District No. 1, with synopses of Fishery Overseers' Report 119
Report of Mr. R. A. Chapman, Inspector of Fisheries for District No. 2, with synopses of Fishery Overseers' Reports 124
Report of Mr. David Morrow, Inspector of Fisheries for District No. 3, with synopses of Fishery Overseers' Reports 128
Detailed Statistics of the Fisheries of District No. 1, Inspector Pratt 132
Recapitulation, District No. 1 134
Table of Vessels and Fishing Materials, District No. 1 135
Detailed Statistics of the Fisheries of District No. 2, Inspector Chapman 136
Recapitulation, District No. 2 142
Statistics, by Counties, of the Fisheries of District No. 3, Inspector Morrow 143
Recapitulation, District No. 3 145
Statement, by Counties, of the total yield of New Brunswick. 146
Recapitulation of the total yield of New Brunswick 149

APPENDIX No. 5.—PRINCE EDWARD ISLAND—

Report of Mr. Edward Hackett, Inspector of Fisheries 150
Detailed Statistics of the Fisheries 155
Statistics, by Counties, of the Total Yield of Prince Edward Island 161
Recapitulation of the total yield of Prince Edward Island, &c. 162

APPENDIX No. 6.—QUEBEC—

Report of Mr. Wm. Wakeham, Officer in charge of the Fisheries Protection Service in the Gulf and Lower River St. Lawrence, with synopses of Fishery Overseers' Reports 163
Detailed Statistics of the Fisheries, Gulf Division, Commander Wakeham 171
Statement, by Counties, Gulf Division 190
Statement of Value of Lobster Canneries and Outfits, Gulf Division 191
Recapitulation of Materials and Men employed in the Fisheries, Gulf Division 192
Recapitulation of the Yield of the Fisheries, Gulf Division. 193
Synopses of Fishery Overseers' Reports, South Shore from Cape Chatte to Point Lévis 194
Synopses of Fishery Overseers' Reports, North Shore, from Quebec to Bersimis 195
Synopses of Fishery Overseers' Reports, from Quebec to Upper Ottawa 195
Detailed Statistics of the Fisheries, South Shore, from Cape Chatte to Point Lévis 200
Detailed Statistics of the Fisheries, North Shore, from Quebec to Bersimis 202
Detailed Statistics of the Fisheries, from Quebec to Upper Ottawa 204
Comparative Recapitulation, South Shore, from Cape Chatte to Point Lévis 206

APPENDIX No. 6.—QUEBEC.—*Concluded.*
Comparative Recapitulation, North Shore, from Quebec to Bersimis..... 206
Comparative Recapitulation from Quebec to Upper Ottawa 207
Recapitulation of the yield of the Province, exclusive of Gulf Division..... 207
Recapitulation of the total yield of the Province of Quebec 208

APPENDIX No. 7.—ONTARIO—
Synopses of Fishery Overseers' Reports by Divisions..... 209
Detailed Statistics of the Fisheries by Divisions..... 220
Summary of Statistics..... 230
Recapitulation of the total yield of the Fisheries..... 232

APPENDIX No. 8.—MANITOBA and NORTH-WEST TERRITORIES—
Report of Mr. Alexander McQueen, Inspector of Fisheries, with Synopses of Reports of Overseers and Guardians, Recapitulation of Catch and Map of Lakes and Waters in Manitoba..... 233

APPENDIX No. 9.—BRITISH COLUMBIA—
Report of Mr. Thomas Mowat, Inspector of Fisheries..... 247
Statement of Salmon canned since 1876..... 249
Synopses of Reports of Fishery Guardians..... 255
Detailed Statistics of the Fisheries..... 259
Recapitulation of the total yield of the Fisheries..... 261
Statement of vessels and material employed in the Fisheries 262

APPENDIX No. 10.—Special Report on Sawdust, Lahave River, Nova Scotia, by Lieut. A. R. Gordon, R.N., with Chart showing soundings, &c..... 263

APPENDIX No. 11.—Special Report on Sawdust, Otonabee River, Ontario, by Mr. Samuel Wilmot, with Chart showing soundings, &c.... 269

PART II.

FISH BREEDING OPERATIONS.—Report of Mr. S. Wilmot, Superintendent of Fish Culture. (Separately indexed.)

PART III.

FISHERIES PROTECTION SERVICE.—Report by Lieut. A. R. Gordon, R.N. (Separately indexed.)

PART IV.

HERRING FISHING INDUSTRY OF GREAT BRITAIN AND HOLLAND.—Report with illustrations, by delegates William Gunn and M. G. McLeod, appointed in 1889 to enquire into methods of catching, curing and packing herring. (Separately indexed.)

SIXTH ANNUAL REPORT

OF THE

DEPUTY MINISTER OF FISHERIES

FOR THE YEAR 1889.

To the Honorable
CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR,—I have the honor to submit the annual report of the Department of Fisheries, for the calendar year ending 31st December, 1889.

With the exception of the Province of Nova Scotia, which shows a decrease in the yield of cod, mackerel and herring, and that of Manitoba, where a slight falling off is noticed in the catch of pickerel, pike and tullibee, it is satisfactory to be able to state that the fishing industry of the Dominion is in a thriving condition, and shows a general increase of $236,745 over the yield of last year. In this connection the Province of British Columbia takes a leading rank, showing an increase of nearly twelve million pounds of salmon in the canning industry.

CONDITION AND YIELD OF THE FISHERIES IN 1889.

The total value of the fisheries of Canada for the year 1889 is as follows:—

Nova Scotia	$6,346,722
British Columbia	3,348,067
New Brunswick	3,067,039
Ontario	1,963,122
Quebec	1,876,194
Prince Edward Island	886,430
Manitoba and North-West Territories	167,679
Showing an aggregate of	$17,655,256

As against $17,418,510 for the year 1888, or an increase of $236,745. This increase is made up as follows:—

British Columbia	$1,445,872
New Brunswick	125,176
Ontario	123,254
Quebec	16,181
Prince Edward Island	9,568

The other Provinces show a decrease as follows:—

Nova Scotia	$1,470,308
Manitoba and the North-West Territories	12,997

The above is exclusive of the consumption by Indians in British Columbia, which is given at $3,257,500, and that of Manitoba and the North-West Territories, also estimated at $58,000.

DETAILS.

The following table shows the value of the principal kinds of commercial fishes exceeding $100,000.

Kind of Fish.	Amount.	Decrease.	Increase.
	$	$	$
Cod	3,618,240	585,268	
Salmon	3,141,925		1,234,525
Herring	2,498,357		144,123
Lobsters	1,484,488		1,100
Mackerel	930,396	51,263	
Whitefish	685,096	17,228	
Trout	553,369		43,308
Haddock	532,948	415,784	
Hake	474,856	11,684	
Pollock	308,784	75,500	
Fish oils	407,815		17,165
Seal skins	367,283		55,766
Smelts	298,951		76,277
Oysters	189,897		25,995
Pickerel	182,381	12,077	
Alewives	166,441		37,900
Halibut	160,059		34,654
Eels	153,708	167,640	
Sturgeon	102,127	8,989	

GENERAL REMARKS.

The above table shows at a glance which particular branch of the fishing industry prospered and which failed or remained stationary.

The decline of over one million dollars is to be found in the cod, haddock, hake and pollock fisheries, the staple commercial fish of the Dominion. This unsuccessful result was not due to any scarcity of fish, but to the stormy and unfavorable weather which prevailed during the season.

Salmon shows a large increase of over one million dollars, due principally to an unprecedentedly large catch in British Columbia.

A slight decrease is noticeable in the mackerel fishery, owing to the fact that these fish visited our shores too late in the season to make fishing profitable. Still, as prices ruled high, the fishermen did not fare too bad in this respect.

Whitefish shows a slight falling off from the yield of last year, undoubtedly due to a less vigorous prosecution of the fishery in certain parts of Ontario.

The smelt fishery shows a decided improvement, the increase over the previous year being given at $76,277. Whether this is due to the effect of more stringent regulations for the protection of this valuable industry, and to a strict enforcement of the law, it is too early to determine.

REMARKS RELATING TO THE FISHERIES OF

NOVA SCOTIA.

The total value of the fisheries in this Province again show a large shortage, the figures being $6,346,722, against $7,817,030 in 1888, or a decrease of $1,470,308. This decline was pretty general, not being confined to a few localities. In the case of Cape Breton, it is ascribed to the use of purse seines and to a scarcity of bait, while

in the division of Nova Scotia proper the falling off in the yield of the deep-sea fisheries is partially due to the withdrawal of banking vessels.

The cod fishery in Cape Breton was a failure. It shows a decrease of 165,901 cwts., as compared with 1888 which was of itself a poor year.

The catch of herring was small; mackerel, a little below that of last year; bus the high prices realized did a good deal towards alleviating the heavy deficienciet which occurred in nearly all other branches of the fisheries. Lobster fishing may be described as satisfactory, an early spring being of material advantage to fishermen and packers. Salmon shows a decrease of ten per cent.

The Inspector of Fisheries for the Island of Cape Breton again lays great stress on the damage done to the inshore fisheries by purse seines, as well as by trawls or set lines, and he strongly urges the advisability of prohibiting these modes of fishing within three miles of headlands.

NEW BRUNSWICK.

The returns of this Province show an increase of $125,175, which is very satisfactory, considering the succession of bad years experienced since 1886. This increase is especially noticeable in cod, smoked herrings, halibut, shad and smelts. The shad fishery of the Bay of Fundy was abundant, and it is suggested that, in order to give it due protection, a regulation be made prohibiting the catching of these fish before the 1st July. Salmon continues to show a decline. The catch of mackerel was poor. These fish failed to visit the coasts of New Brunswick in large numbers, although abundant in Nova Scotia. The catch of lobsters was about the same as that of last year. The yield of oysters is increasing.

PRINCE EDWARD ISLAND.

The yield of the fisheries in this Province shows an increase of $9,568, as compared with that of 1888, although some branches of the fishery exhibit a considerable falling off. The catch of mackerel was about equal to that of 1888. The fish struck in early, but very few schools were seen later in the season. Herring were abundant. Lobsters show an increase, although about 2,000 less traps were used. This success is due to the early season, which gave fishermen a fortnight's additional fishing. The oyster fishery shows an increase of 5,396 barrels. The protection afforded to the inshore fisheries by Government cruisers is said to have been greatly appreciated by the fishermen.

QUEBEC.

The returns for the Lower St. Lawrence and Gulf Division show and increase of $131,167 over the yield of 1888, while the total increase for the whole Province is set down at $16,181.

Cod fishing was good, and fish struck earlier than usual, although scarcity of bait and rough weather in the fall somewhat interfered with the catch in some localities. Spring herring were abundant; the fall fishery, however, proved a failure, This is attributed to the enormous destruction of herring for manuring purposes. Mackerel fishing proved a complete failure, except at Magdalen Islands, where some 4,000 barrels were caught. Lobsters show a slight increase, due to an early spring, and a larger number of traps. The seal fishery was again a failure.

The inland waters of the Province show a decrease of $114,986.

ONTARIO.

It is again a pleasing duty to have to record a continuance of an increase in the yield and value of the fisheries of this Province. Last year's statistics gave the total value of the fisheries of Ontario at $1,839,869, while this year they are set down at $1,963,123, an increase of $123,254. The whitefish and salmon-trout fisheries—the staple fishing industries of this Province—are in a healthy condition, while the strict enforcement of the fishery laws gives assurance of continued prosperity for the future.

MANITOBA AND NORTH-WEST TERRITORIES.

The yield of the fisheries in the above Provinces shows a slight decline, undoubtedly due to a less vigorous prosecution of the fishery in certain localites.

The Inspector treats at length on the alleged depletion of whitefish in the Manitoba waters, and claims that there is no cause for undue alarm so long as the fishery laws and regulations are strictly enforced. He recommends the establishment of a hatchery at Winnipeg for the purpose of stimulating the yield of whitefish and other varieties as may be made indigenous to the waters of Manitoba. A change is suggested in the close season for whitefish, as it is established that the present dates do not cover the most important breeding period of this valuable fish.

There does not seem to be any improvement in the matter of checking the injudicious slaughter of whitefish on their spawning beds by Indians and Hudson's Bay officials, who kill them in immense numbers, just at a time when they are reproducing their species, for the purpose of feeding dogs. I cannot help repeating the remarks made on that head in my report of last year: that until Indian Agents are sufficiently convinced of the great injury such wanton abuses will eventually entail upon Indians themselves, very little good can be accomplished in the direction of protecting the fisheries of Manitoba and the North-West Territories.

BRITISH COLUMBIA.

The returns from this Province show an enormous increase of nearly $1,500,000 over the yield of 1888; due to the unprecedented run of salmon in the Fraser River, where the pack reached 14,789,856 lbs. The yield of salmon on the Skeena and Naas Rivers was also large. It is scarcely possible that this phenomenal catch can be maintained, and it has been deemed expedient to limit the number of licenses to 500; 350 to be divided among canneries on the Fraser and 150 to be issued to local fishermen.

The operation of the regulations of 1888, were, by Order in Council, partially suspended for 1889. Recently a delegation representing the salmon canners of British Columbia visited Ottawa and presented in person their views on certain regulations which they claimed would operate injuriously to the canning industry on the Fraser River. Owing to these representations, it was considered expedient by the Department that the size of mesh of salmon nets should be reduced to $5\frac{3}{4}$ inches instead of 6 in., to change the weekly close season to commence at 6 p.m. Saturday instead of 6 a.m., and as above mentioned to limit the number of licenses to be issued.

Reference to part II Supt. of Fish Culture's Report, will show that many canners attribute the enormously increased catch in a great measure to the operations of the hatchery at New Westminster. It is gratifying to note this increase in the face of a steady decline in the Columbia River.

GENERAL RECAPITULATION

Of the Yield and Value of the Fisheries in the Dominion of Canada, for the Years 1888 and 1889.

Kinds of Fish.	1888.		1889.	
	Quantity.	Value.	Quantity.	Value.
		$ cts.		$ cts.
Cod ..... Cwt.	1,050,847	4,203,388 00	904,560	3,618,240 00
Boneless Cod ..... Lbs.	3,000	120 00	.....	.....
Herring, pickled ..... Brls.	341,077	1,364,308 00	286,678	1,165,724 00
do smoked ..... Boxes.	1,497,890	373,272 50	2,685,170	666,342 25
do frozen ..... No.	22,305,500	133,833 00	} 32,895,881	666,291 41
do fresh ..... Lbs.	9,653,308	482,821 40		
Lobsters, preserved, in cans ..... "	9,597,773	1,207,033 80	10,637,233	1,276,468 20
do in shell, alive, &c ..... Tons.	6,288	276,354 76	5,247	208,020 00
Salmon, pickled ..... Brls.	8,464	109,978 00	6,704	84,740 00
do fresh ..... Lbs.	4,640,660	680,432 00	4,267,173	634,734 20
do preserved, in cans ..... "	8,878,156	1,110,874 80	20,141,152	2,417,508 16
do smoked ..... "	30,576	6,115 20	24,714	4,943 00
Mackerel, preserved, in cans ..... "	63,563	7,883 01	196,212	23,544 88
do fresh ..... "	540,600	32,436 00	542,500	32,550 00
do pickled ..... Brls.	62,756	941,340 00	62,237	874,302 00
Haddock ..... Cwt.	237,183	948,732 00	125,662	532,948 00
Hake ..... "	121,635	486,540 00	118,714	474,856 00
Pollock ..... "	121,071	484,284 00	77,196	308,784 00
Trout ..... Lbs.	4,499,860	449,381 00	5,125,493	512,549 30
do pickled ..... Brls.	6,088	60,680 00	4,082	40,820 00
Whitefish, pickled ..... "	7,563	75,630 00	3,986½	39,865 00
do fresh ..... Lbs.	8,677,256	626,694 28	9,009,122	645,231 30
Smelt ..... "	3,723,772	222,674 66	5,011,058	298,951 78
Sardines ..... Hogsheads.	16,941⅔	104,428 00	23,804	71,412 00
Oysters ..... Brls.	56,234	163,902 00	63,049	189,897 00
Hake Sounds ..... Lbs.	103,557	103,557 00	79,489½	79,489 50
Cod, Tongues and Sounds ..... "	16,606	21,560 00	307,247	19,253 50
Alewives ..... Brls.	28,565	128,541 50	37,470	166,441 00
Shad ..... Lbs.	514,251	30,855 06	170,330	10,219 80
do pickled ..... Brls.	3,950	39,500 00	4,868	48,145 00
Eels do ..... "	22,594	206,570 00	7,100	71,000 00
do ..... Lbs.	1,590,145	114,778 70	1,378,473	82,708 38
Halibut ..... "	1,368,808	125,405 80	1,903,115	160,059 00
Sturgeon ..... "	1,892,518	111,116 28	1,773,685	102,127 72
Maskinongé ..... "	786,981	47,218 86	755,203	45,312 18
Bass ..... "	1,034,846	62,090 76	1,153,487	55,725 16
Pickerel ..... "	3,484,416	194,458 96	3,264,501	182,381 92
Pike ..... "	1,500,878	55,333 90	1,743,444	69,287 79
Winninish ..... "	100,000	6,000 00	100,000	6,000 00
Tom Cod or Frost Fish ..... Lbs.	1,299,895	51,995 80	.....	26,580 00
Flounders ..... "	83,650	8,365 00	84,300	8,430 00
Squid ..... Brls.	12,446	49,784 00	11,649	46,596 00
Oolâchans, pickled ..... "	282	2,820 00	380	3,800 00
do fresh ..... Lbs.	20,200	2,020 00	82,500	8,250 00
do smoked ..... "	200	40 00	6,700	1,340 00
Clams	.....	3,000 00	.....	19,950 00
Fur Seal Skins ..... No.	27,983	279,830 00	33,570	335,700 00
Hair do ..... "	32,562	31,687 00	33,333	31,583 00
Sea Otter Skins ..... "	100	7,500 00	115	11,500 00
Porpoise Skins ..... "	455	1,847 00	777	3,151 00
Fish Oils ..... Galls.	960,541	390,650 90	984,183	407,815 00
Coarse and Mixed Fish ..... Brls.	40,202	208,851 63	27,275	147,852 48
Fish used as Bait ..... "	159,391	231,586 50	217,609	261,347 00
Fish used as Manure ..... "	126,449	63,224 50	60,563	30,281 00
Guano ..... Tons.	1,158	28,950 00	984	24,600 00
Crabs and Prawns, in B.C	.....	7,500 00	.....	10,750 00
Fish, assorted, in B.C	.....	.....	942,325	52,486 25

GENERAL RECAPITULATION

Of the Yield and Value of the Fisheries in the Dominion of Canada, &c.—*Concluded.*

Kinds of Fish.	1888.		1889.	
	Quantity.	Value.	Quantity.	Value.
		$ cts.		$ cts.
Fish, assorted, Halifax markets	.....	45,500 00	.....	40,500 00
Fish for home consumption not included in Returns	.....	203,235 20	.....	295,870 87
Total	.....	17,418,510 76	.....	17,655,256 03

RECAPITULATION.

Provinces.	Value.		Decrease.	Increase.
	1888.	1889.		
	$ cts.	$ cts.	$ cts.	$ cts.
Nova Scotia	7,817,030 42	6,346,722 00	1,470,308 40	.....
New Brunswick	2,941,863 05	3,067,039 04	.....	125,176 00
Quebec	1,860,012 96	1,876,194 19	.....	16,181 23
Prince Edward Island	876,862 74	886,430 84	.....	9,568 10
British Columbia	1,902,195 50	3,348,067 61	.....	1,445,872 11
Ontario	1,839,869 09	1,963,122 80	.....	123,253 79
Manitoba and North-West Territories	180,677 00	167,679 55	12,997 45	.....
Totals	17,418,510 76	17,655,256 03	1,483,305 87	1,720,051 23
Increase over 1888	.....	.....	.....	236,745 36

COMPARATIVE STATEMENT

Of Production in each Branch of the Fisheries in the respective Provinces of the Dominion of Canada, in 1888 and 1889.

PROVINCE OF NOVA SCOTIA.

Kinds of Fish.	1888.		1889.	
	Quantity.	Value.	Quantity.	Value.
		$ cts.		$ cts.
Salmon ..... Brls.	3,236	51,776 00	2,377	38,032 00
do fresh ..... Lbs.	477,214	95,442 80	407,454	81,490 40
do smoked ..... "	10,176	2,035 20	7,516	1,503 00
do preserved ..... Cans.	33,210	4,981 50	9,784	1,466 80
Mackerel ..... Brls.	45,009	675,135 00	43,038	586,317 00
do preserved ..... Cans.	20,688	2,482 56	62,258	7,470 40
do fresh ..... Lbs.	540,600	32,436 00	542,500	32,550 00
Herring ..... Brls.	175,285	701,140 00	127,605	529,432 00
do smoked ..... Boxes.	33,000	8,250 00	35,835	8,958 50
do frozen or fresh ..... Lbs.	3,120	312 00	5,760	691 20
Alewives ..... Brls.	14,841	66,784 50	22,858	102,862 00
do smoked ..... No.	100,000	800 00	150,000	1,200 00
Cod, dried ..... Cwt.	753,459	3,013,836 00	587,558	2,350,232 00
do boneless ..... Lbs.	3,000	120 00	.....	.....
Cod Tongues and Sounds ..... Brls.	16,029	15,790 00	1,328	13,280 00
Haddock ..... Cwt.	216,505	866,020 00	115,956	492,324 00
Finnan Haddies ..... Lbs.	49,000	1,960 00	280,000	11,200 00
Pollock ..... Cwt.	84,609	338,436 00	56,326	225,304 00
Hake ..... "	77,699	310,796 00	79,690	318,760 00
do Sounds ..... Lbs.	68,580	68,580 00	42,328	42,328 00
Halibut ..... "	991,690	99,169 00	1,155,924	115,592 40
Shad ..... Brls.	765	7,650 00	1,012	9,585 00
Bass ..... Lbs.	23,690	1,421 40	251,541	1,608 40
Trout ..... "	161,522	16,152 20	148,448	14,844 80
Squid ..... Brls.	12,268	49,072 00	11,360	45,440 00
Smelt ..... Lbs.	491,138	29,468 28	480,760	28,845 50
Eels ..... Brls.	4,379	43,790 00	3,468	34,680 00
Oysters ..... "	1,589	4,767 00	2,532	7,596 00
Lobsters, preserved ..... Cans.	5,756,891	690,826 92	6,181,763	741,811 80
do shipped fresh, alive, &c ..... Tons.	4,340	217,914 76	4,212	176,970 00
Fish Oils ..... Galls.	511,357	204,542 80	368,290	147,315 80
Guano ..... Tons.	893	22,325 00	661	16,525 00
Fish used as Bait ..... Brls.	72,434	108,651 00	59,102	88,653 50
do Manure ..... "	26,509	13,254 50	18,256	9,127 50
Amount sold in Halifax market	.....	45,500 00	.....	40,500 00
Home consumption of various counties, as per return	.....	5,412 00	.....	20,400 00
Clams	.....	.....	.....	1,825 00
Total	.....	7,817,030 42	.....	6,346,722 00
Decrease in 1889	.....	.....	.....	1,470,308 42

COMPARATIVE STATEMENT

Of Productions in each Branch of Fisheries, &c.—*Continued.*

PROVINCE OF NEW BRUNSWICK.

Kinds of Fish.		1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
			$ cts.	$ cts.	$ cts.
Codfish	Cwt.	86,695	346,780 00	110,003	440,012 00
Herring	Brls.	95,225	380,900 00	81,241	324,964 00
do smoked	Boxes.	1,448,250	362,062 50	2,614,900	653,725 00
do frozen	No.	22,305,500	133,833 00	22,247,860	133,487 16
Mackerel	Brls.	2,094	31,410 00	2,147	32,205 00
do preserved	Lbs.	8,515	1,277 25	34,684	4,162 08
Haddock	Cwt.	18,226	72,904 00	7,507	30,028 00
Pollock	"	36,462	145,848 00	20,870	83,480 00
Hake	"	31,476	125,904 00	31,906	127,624 00
Halibut	Lbs.	17,970	1,797 00	47,560	4,756 00
Salmon, pickled	Brls.	98	1,568 00	30	480 00
do fresh, in ice	Lbs.	1,186,740	237,348 00	1,120,239	224,047 80
do preserved, in cans	"	11,002	1,650 30	9,240	1,386 00
do smoked	"	7,000	1,400 00	4,300	860 00
Alewives	Brls.	12,951	58,279 50	13,405	60,322 50
Trout	Lbs.	53,725	5,372 50	72,230	7,223 00
Smelt	"	3,149,468	188,968 08	3,960,938	237,656 28
Shad	Brls.	3,185	31,850 00	3,855	38,550 00
Eels	"	16,185	161,850 00	1,668	16,680 00
Sardines	Hogsheads.	15,963	95,778 00	18,145	54,435 00
Bass	Lbs.	151,827	9,109 62	87,806	5,268 36
Pickerel	"	132,200	7,932 00	157,900	9,474 00
Perch	"	45,500	1,365 00	24,700	741 00
Oysters	Brls.	16,384	49,152 00	17,760	53,280 00
Lobsters, preserved	Cans.	1,843,368	276,505 20	1,800,573	216,068 76
do	Tons.	1,948	58,440 00	1,035	31,050 00
Cod Tongues and Sounds	Brls.	17	170 00	40	400 00
Hake Sounds	Lbs.	34,977	34,977 00	37,161½	37,161 50
Fish Oil	Galls.	90,692	36,276 80	104,724	41,889 60
Fish Guano	Tons.	265	6,625 00	323	8,075 00
Fish used as Manure	Brls.	25,100	12,550 00	29,207	14,603 50
do Bait	"	30,605	45,907 50	45,185	67,777 50
Squid	"	178	712 00	289	1,156 00
Frost Fish	Lbs.	174,895	6,995 80	214,500	8,580 00
Flounders	"	83,650	8,365 00	84,300	8,430 00
Clams	Brls.	.....	.....	2,000	12,000 00
Total		.....	2,941,863 05	.....	3,067,039 04
Increase in 1889		.....	.....	.....	125,176 00
Fish used in District No. 1, not included above		.....	.....	.....	75,000 00

COMPARATIVE STATEMENT

Of Production in each Branch of Fisheries, &c.—*Continued.*

PROVINCE OF PRINCE EDWARD ISLAND.

Kinds of Fish.		1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
			$ cts.		$ cts.
Cod	Cwt.	39,062	156,248 00	21,196	84,784 00
do boneless	Lbs.	.....	.....	.....	.....
Herring	Brls.	32,883	131,532 00	33,940	135,760 00
do smoked	Boxes.	.....	.....	.....	.....
Mackerel	Brls.	12,648	189,720 00	12,450	186,750 00
do preserved	Cans.	34,360	4,123 20	99,270	11,912 40
Haddock	Lbs.	92,600	3,704 00	90,000	3,600 00
Hake	Cwt.	12,460	49,840 00	7,118	28,472 00
Salmon, fresh	Lbs.	1,563	312 60	1,400	280 00
Alewives	Brls.	595	2,677 50	457	2,056 50
Halibut	Lbs.	8,700	870 00	3,730	373 00
Bass	"	700	42 00	1,600	96 00
Trout	"	74,900	7,490 00	56,820	5,682 00
Smelt	"	.....	.....	346,100	20,766 00
Eels	Brls.	1,937	19,370 00	1,814	18,140 00
Oysters	"	35,861	107,588 00	41,257	123,771 00
Lobsters preserved in cans	Lbs.	1,446,227	173,547 24	2,060,947	247,313 64
Cod and hake sounds	"	168	1,680 00	13,647	4,573 50
Fish Oils	Galls.	18,333	7,333 20	13,852	5,540 80
Manure	Brls.	11,580	5,790 00	13,100	6,550 00
Guano	Tons.	.....	.....	.....	.....
Fresh fish for consumption	Lbs.	.....	15,000 00	.....	.....
Shad	Brls.	.....	.....	.....	10 00
Total		.....	876,862 74	.....	886,430 84
Increase in 1889		.....	.....	.....	9,568 10

COMPARATIVE STATEMENT

Of Production in each Branch of Fisheries, &c.—*Continued.*

PROVINCE OF QUEBEC.

Kinds of Fish.		1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
			$ cts.		$ cts.
Cod	Cwt.	171,631	686,524 00	185,803	743,212 00
Herring, pickled	Brls.	30,569	122,276 00	36,356	145,424 00
do smoked	Boxes.	8,640	2,160 00	1,435	358 75
Mackerel	Brls.	3,005	45,075 00	4,602	69,030 00
Haddock	Cwt.	1,036	4,144 00	1,749	6,996 00
Halibut	Lbs.	104,948	10,494 80	90,851	9,085 10
Salmon, pickled	Brls.	889	14,224 00	548	8,768 00
do fresh	Lbs.	498,143	99,628 60	551,080	110,216 00
do preserved, in cans	"	.....	.....	.....	.....
Shad	"	514,251	30,855 06	170,330	10,219 80
Eels	"	1,490,295	89,417 70	1,236,591	74,195 46
do pickled	Brls.	93	930 00	150	1,500 00
Sardines	"	2,780	8,340 00	5,659	16,977 00
Sturgeon	"	.....	.....	.....	.....
do	Lbs.	584,220	35,053 20	458,325	27,499 50
Trout	"	538,550	53,855 00	489,700	48,970 00
do	Brls.	161	1,610 00	123	1,230 00
Winninish	Lbs.	100,000	6,000 00	100,000	6,000 00
Bar and Whitefish	"	.....	.....	193,333	15,466 64
Whitefish	"	293,472	23,477 76	.....	.....
Maskinongé	"	136,160	8,169 60	129,130	7,747 80
Bass	"	186,775	11,206 50	110,920	6,655 20
Pickerel	"	655,465	39,327 90	482,619	28,957 14
Pike	"	388,530	19,426 50	354,880	17,744 00
Tom Cod	Bush.	75,000	45,000 00	30,000	18,000 00
Cod Tongues and Sounds	Brls.	392	3,920 00	100	1,000 00
Lobsters, canned	Lbs.	551,287	66,154 44	593,950	71,274 00
Small and Mixed Fish	Brls.	24,487	104,412 00	11,216	60,303 00
Seal Skins	No.	29,062	29,062 00	26,333	26,333 00
Porpoise Skins	"	455	1,847 00	777	3,151 00
Fish Oils	Galls.	275,814	110,325 60	355,897	142,358 80
Fish used as Bait and Manure	Brls.	114,612	108,658 00	113,322	104,916 00
Guano	Tons.	.....	.....	.....	.....
Smelts	Lbs.	75,166	3,758 30	171,160	8,558 00
Fish used as local consumption	Brls.	18,670	74,680 00	21,012	84,048 00
Total		.....	1,860,012 96	.....	1,876,194 19
Increase		.....	.....	.....	16,181 23

COMPARATIVE STATEMENT

Of Production in each Branch of Fisheries, &c.—*Continued.*

PROVINCE OF ONTARIO.

Kinds of Fish.		1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
			$ cts.		$ cts.
Whitefish	Brls.	4,287	42,870 00	3,518½	35,185 00
do	Lbs.	6,134,244	490,739 52	6,298,507	503,880 56
Salmon trout	Brls.	5,907	59,070 00	3,959	39,590 00
do	Lbs.	3,650,563	365,056 30	4,344,270	434,427 00
Herring	Brls.	7,115	28,460 00	7,536	30,144 00
do	Lbs.	9,527,288	476,364 40	10,452,261	522,613 05
Maskinongé	"	650,821	39,049 26	626,073	37,564 38
Bass	"	671,854	40,311 24	701,620	42,097 20
Pickerel	"	2,209,901	132,594 06	2,174,344	130,460 64
Pike	"	455,348	22,767 40	792,417	39,620 85
Sturgeon	"	1,064,818	63,889 08	886,022	53,161 32
Eels	"	99,850	5,991 00	141,882	8,512 92
Coarse Fish	"	2,152,121	64,563 63	2,314,767	69,443 01
Fish for Home Consumption	"	271,440	8,143 20	547,429	16,422 87
Total			1,839,869 09		1,963,122 80
Increase in 1889					123,253 79

Approximate Yield and Value of the Fisheries for the Years 1888 and 1889.

MANITOBA AND NORTH-WEST TERRITORIES.

Kinds of Fish.		1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
			$ cts.		$ cts.
Whitefish, fresh	Lbs.	2,249,540	112,477 00	2,517,282	125,884 10
do salt	Brls.	3,276	32,760 00	468	4,680 00
Pickerel (Doré)	Lbs.	486,850	14,605 00	449,638	13,490 14
Pike (Jackfish)	"	657,000	13,140 00	596,147	11,922 94
Sturgeon	"	27,980	1,399 00	110,738	5,536 90
Catfish	"			24,025	480 50
Trout	"	12,100	605 00		
Tullibee	"	273,000	2,730 00	172,704	1,727 04
Mixed fish	"	286,580	2,961 00	395,793	3,951 93
Total			180,677 00		167,679 55
Decrease in 1889					12,997 45

COMPARATIVE STATEMENT

Of the Production in each Branch of Fisheries, &c.—*Continued.*

PROVINCE OF BRITISH COLUMBIA.

Kinds of Fish.		1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
			$ cts.		$ cts.
Salmon	Brls.	4,241	42,410 00	3,749	37,460 00
do fresh	Lbs.	2,477,000	247,700 00	2,187,000	218,700 00
do preserved, in cans	Lbs.	8,833,944	1,104,243 00	20,122,128	2,414,655 36
do smoked	Lbs.	13,400	2,680 00	12,900	2,580 00
Herring, fresh	Lbs.	122,900	6,145 00	190,000	9,500 00
do smoked	Lbs.	8,000	800 00	33,000	3,300 00
Trout, fresh	Lbs.	8,500	850 00	14,025	1,402 50
Sturgeon	Lbs.	215,500	10,775 00	318,600	15,930 00
Skil, salted	Brls.	484	8,712 00	1,560	18,720 00
Clams	Sacks.	.....	3,000 00	3,500	6,125 00
Halibut, fresh	Lbs.	229,500	11,475 00	605,050	30,252 50
do smoked	Lbs.	16,000	1,600 00	.....	.....
Oysters	Sacks.	2,400	2,400 00	3,000	5,250 00
Oolachans, pickled	Brls.	282	2,820 00	380	3,800 00
do smoked	Lbs.	200	40 00	6,700	1,340 00
do fresh	Lbs.	20,200	2,020 00	82,500	8,250 00
Fur Seal Skins	No.	27,983	279,830 00	33,570	335,700 00
Hair do	No.	3,500	2,625 00	7,000	5,250 00
Sea Otter Skins	No.	100	7,500 00	115	11,500 00
Walrus	No.	21	378 00	.....	.....
Fresh Oil	Galls.	64,345	32,172 50	141,420	70,710 00
Crabs and Prawns		.....	7,500 00	.....	10,750 00
Sardines	Lbs.	3,100	310 00	.....	.....
Smelt, fresh	Lbs.	8,000	480 00	52,100	3,126 00
Assorted or Mixed Fish	Lbs.	310,000	23,730 00	322,725	16,136 25
Fish for home consumption, Chinese laborers		.....	100,000 00	.....	100,000 00
Rock Cod	Lbs.	.....	.....	39,250	1,962 50
Tooshqua, fresh	Lbs.	.....	.....	268,350	13,417 50
Fish products		.....	.....	.....	2,250 00
Total		.....	1,902,195 50	.....	3,348,067 61
Increase		.....	.....	.....	1,445,872 11

THE FISHERY LAWS OF THE DOMINION.

TABLE of Close Seasons in force on 31st December, 1889.

Kinds of Fish.	Ontario.	Quebec.	Nova Scotia.	New Brunswick.	P. E. Island.	Manitoba and N. W. Ter.
Salmon (net fishing)	.....	Aug. 1 to May 1.	Aug. 15 to March 1.	Aug. 15 to March 1.	.....	.....
Salmon (angling)	.....	Aug. 15 to Feb. 1.	Aug. 15 to Feb. 1.	Aug. 15 to Feb. 1	.....	.....
Speckled Trout (*Salvelinus Fontinalis*).	Sept 15 to May 1.	Oct. 1 to Jan. 1.	Oct. 1 to April 1.	Oct. 1 to April 1.	Oct. 1 to Dec. 1.	Oct. 1 to Jan. 1.
Large Grey Trout, Lunge, Winninish and Land-locked Salmon.	.....	Oct. 15 to Dec. 1.	Oct. 1 to April 1.	Oct. 1 to April 1.	.....	.....
Pickerel (Doré)	April 15 to May 15.	April 15 to May 15.	.....	.....	.....	April 15 to May 15.
Bass and Maskinongé	April 15 to June 15.	April 15 to June 15.	.....	.....	.....	.....
Whitefish and Salmon Trout	Nov. 1 to Nov. 30.	.....	.....	.....	.....	.....
Whitefish	.....	Nov. 10 to Dec. 1.	.....	.....	.....	Oct. 5 to Nov. 10.
Sea Bass	.....	.....	.....	March 1 to Oct. 1.	.....	.....
Smelts	.....	April 1 to July 1.	April 1 to July 1.	April 1 to July 1.	April 1 to July 1.	.....
		Bag net fishing prohibited, except under license.				
Lobsters	.....	July 15 to Dec. 31.	July 1 to Dec. 31. On Atlantic coast, from Cape Canso to boundary line, U.S., July 15 to Dec. 31, in remaining waters of Nova Scotia and New Brunswick.	July 1 to Dec 31.	July 15 to Dec. 31.	.....
Sturgeon	.....	.....	.....	Aug. 31 to May 1.	.....	May 1 to June 15.
Oysters	.....	June 1 to Sept. 15.	June 1 to Sept. 15.	June 1 to Sept. 15.	June 1 to Sept. 15.	.....

NOTE.—The following Regulations are applicable to the Province of British Columbia :—

1. Net fishing allowed only under license.
2. Salmon nets to have meshes of at least $5\frac{3}{4}$ inches extension measure.
3. Drift nets confined to tidal waters. No nets to bar more than one-third of any river. Fishing to be discontinued from 6 p.m. Saturday to 6 a.m. Monday.
4. The Minister of Marine and Fisheries to determine number of boats, seines or nets to be used on each stream.
5. The close season for trout is fixed from the 15th October to 15th March.

SYNOPSIS OF FISHERY LAWS.

Net fishing of any kind is prohibited in public waters, except under leases or license.

The seizure of nets is regulated so as to prevent the killing of young fish. Nets cannot be set or seines used so as to bar channels or bays.

A general weekly close-time is provided in addition to special close seasons.

The use of explosives or poisonous substances, for catching or killing fish, is illegal.

Mill dams must be provided with efficient fish-passes. Models or drawings will be furnished by the Department on application.

The above enactments and close seasons are supplemented in special cases, under authority of the Fisheries Act, by a total prohibition of fishing for stated periods.

FISH BREEDING.

Complete details and statements connected with fish breeding operations during the season of 1889 will be found in Part II of this Report.

FISHERIES PROTECTION SERVICE.

As the report of Lieut. Gordon, R.N., which forms part III of this report, deals very fully with the operations of the vessels engaged in the Protection Service during the year, it seems only necessary to here state that the following vessels comprised the fleet during the year—the steamers "Acadia," "La Canadienne," "Stanley" and "Cruiser," owned by the Government and commanded respectively by Lieut. Gordon, R. N., Commander Wakeham, Captains McLaren and Holmes; the steamer "Dream" (chartered), commanded by Captain J. H. Pratt; the schooner "Vigilant," owned by the Government, under command of Captain C. T. Knowlton, and the "Critic" (chartered), commanded by Captain J. H. Pouliot.

It will be observed that the number of schooners used in the fleet during the past season was reduced to two, the steamer "Stanley" taking the place of the sailing vessels formerly employed. This change has been found in the interest of the service, as a steamer is not dependent upon the wind to get about, and consequently can patrol a much more extensive coast than a sailing vessel. The question of employing steamers altogether for this service is one now being considered, and there is little doubt, should it be necessary to retain the Force, but that small steamers with a light draft of water and a small consumption of coal could be very advantageously used.

In addition to the work done the past season, several of the vessels rendered very material aid in the enforcement of the lobster regulations, securing a much more rigid observance of these than heretofore, and demonstrating very conclusively the advantage of having officers on the coast who are at all times in a position to act independently of the influences that very naturally embarrass a local officer. In this connection, I may state that one or two cases have been brought to the notice of the Department during the season in which local prejudices were so strong against the enforcement of fishery regulations that no local officer could be found who would execute the warrants issued by the Department's officials. The total cost of the Protection Service, the particulars of which appear under the proper heading, giving that of each vessel, amounted to the sum of $69,045.89. This sum will be reduced by the share of the cost of the "Cruiser," for the season chargeable to the Customs Department (the vessel being used jointly by the two Departments) amounting to $2,631.41, leaving the net cost of the Protection Service for the calendar year at $66,414.48, as against $77,102.00 in 1888.

The service during the past season has been carried on most satisfactorily, there being an evident desire on the part of United States fishing vessels to fairly observe the regulations, and friction between the masters and the officers of the Protection Force has been avoided, while the existence of the so called *modus vivendi* license system, has been an important factor in the maintenance of order and goodwill. The licenses issued numbered 78, as against 36 in 1888; the amount collected being $9,589.50, as against $3,831.00 in 1888, an increase of 42 licenses and $5,758.50 in collections in 1889 over the previous year.

As the two years for which the *modus vivendi* made provision in connection with the granting of these licenses expires on the 15th of February of next year, unless some new arrangement is reached or provision made for continuing the present system, recourse will be necessary to the much discussed provisions of the Treaty of 1818.

The only seizure made during the year was that of the United States' fishing schooner "Mattie Winship," Captain Conrod W. Ericson, 73 tons, of Gloucester, Mass., seized by Captain Knowlton, of the "Vigilant," for illegally fishing off the North Cape coast of Victoria County on the 31st May, 1889. This vessel was released under bond, and subsequently discharged upon the payment to the Crown of a fine of $2,000 and all expenses.

In the month of November judgment was given by the Vice Admiralty Court of Nova Scotia in the case of the schooner "David J. Adams," seized in 1886 for preparing to fish in the offing near Digby, N.S., decreeing the vessel's forfeiture and ordering that she be disposed of by public auction. This was done after due notice, when the vessel sold for the sum of $1,400.

FISHING BOUNTIES.

The payments made for this service are under the authority of an Act passed in 1882, intituled:—

"An Act to encourage the development of Sea Fisheries and the building of Fishing Vessels."

Since that period, the sum of $150,000 has annually been distributed among fishermen and fishing vessels entitled to receive the same under the regulations which the Act empowers the Governor General in Council to enact.

The total number of fishing bounty claims received for the year 1888 was 16,027, against 15,576 in 1887, an increase of 451 claims for the year 1888. Of this number 113 were rejected for non-compliance with the regulations and 328 held in abeyance for investigation.

The total number of claims paid during the year 1888 was 15,599, an increase of 183 as compared with the year 1887.

The total amount of bounties paid on the basis of $1.50 per ton to vessels, $3 per man to boat fishermen, was $150,185.53, a decrease of $13,572.39 as compared with the previous year. The decrease is chiefly due to a reduction of 50 cents per ton in the rate of bounty payable to vessels, in order to bring the expenditure within the statutory appropriation.

The number of vessels which received bounty in 1888 was 827, with a tonnage of 31,640 tons, an increase of 15 vessels and a tonnage of 671 tons.

The number of boats on which bounty was paid was 14,772, as against 14,605 in 1887, and the number of fishermen who received bounty was 28,256, an increase of 167 boats, as compared with the previous year.

For details of payments to vessels and boats, see Appendix No. 2.

Representations having been made to the Department that a change in the manner of distributing this bounty was desirable, circular letters of the form below were addressed to members of Parliament and others in the counties in which bounty money was distributed.

The circular, as will be seen, explains in detail the present mode of making the payments, and suggestions were requested looking to an improvement in the system:—

"OFFICE OF THE MINISTER OF MARINE AND FISHERIES,
"OTTAWA, 3rd June, 1889.

SIR,—You will doubtless remember that a discussion took place in the House of Commons last Session touching the system of distributing the annual grant of $150,000 in aid of the development of the sea fisheries, &c., under the provisions of chapter 96, Consolidated Statutes of Canada.

The method for securing the payment of the fishing bounty (so called) is at present as follows:—

Blank forms of claims are supplied to the fishermen through the fishery officers and Collectors of Customs, or other persons, at specified points, authorized to assist in the distribution of the bounty.

The claims, when completed, are delivered to the above named officers, and by them certified and transmitted to this Department.

Cheques in favor of each claimant, with schedules, are transmitted to the officers who certified the claims, for distribution.

Nova Scotia claims are paid by cheque on the Bank of Montreal at Halifax; New Brunswick claims are paid at the Bank of Montreal, St. John; Quebec claims at the Bank of Montreal, Ottawa; and Prince Edward Island claims at the Bank of Nova Scotia, at Charlottetown.

The regulations governing the payment of fishing bounties, approved of by an Order in Council of 30th September, 1888, and still in force, are appended.

Having promised to carefully consider suggestions for a change tending to the improvement of the mode of disbursing this money, I will be glad to have any opinion you may wish to offer on the subject.

I am, yours faithfully,
CHARLES H. TUPPER.

Of the replies received, at least two-thirds favor a continuance of the present system; one complains of the manner in which claims are verified; but in no case is any suggestion made looking to the payment of these claims by any other mode than a cheque in favor of the claimant.

The Department may therefore fairly conclude that the system, as a whole, is not susceptible of improvement.

EXPENDITURE.

The total expenditure of the Department for the fiscal year was $355,595.93, out of appropriations amounting to $375,000, leaving an unexpended balance of $19,904.07, which lapses to the treasury, no portion of this sum having been brought down for expenditure during the current fiscal year.

The sub-division of this expenditure is as follows:—

Fisheries	$	83,684 18
Fish-breeding		41,315 12
Fisheries protection service		69,693 82
Fishing bounty		149,990 63
Miscellaneous expenditure		10,912 18
Total	$	355,595 93

The details are printed in the Auditor General's Report, under the proper heading.

In addition to the above the following summary shows the salaries and disbursements of Fishery officers in the several provinces, together with the expenses for maintenance of the different fish-breeding establishments throughout the Dominion:—

Fisheries, Ontario	$	19,264 98
do Quebec		12,991 63
do Nova Scotia		20,201 09
do New Brunswick		20,298 00
do Prince Edward Island		3,746 69
do British Columbia		4,333 63
do Manitoba		2,848 16
Total	$	83,684 18

Fish-breeding, Newcastle hatchery	$	6,122 62
do Sandwich do		3,784 70
do Tadoussac do		2,457 71
do Gaspé do		1,773 93
do Magog do		1,287 98
do Ristigouche do		4,709 10
do Bedford do		3,824 61
do Sydney do		2,864 14
do Miramichi do		1,929 17
do St. John River do		1,221 00
do Dunk River do		140 31
do Fraser River do		4,933 26
General account		6,266 59
Total	$	41,215 12

This Expenditure in sub-divided as follows —

	$ cts.	$ cts.
Ontario.		
Salaries of officers	9,958 83	
Disbursements of officers	8,617 27	
Miscellaneous	688 88	
Total		19,264 98
Quebec.		
Salaries of officers	8,229 53	
Disbursements of officers	4,572 10	
Miscellaneous	190 00	
Total		12,991 63
Nova Scotia.		
Salaries of officers	14,537 19	
Disbursements of officers	5,352 28	
Miscellaneous	311 62	
Total		20,201 09
New Brunswick.		
Salaries of officers	12,805 31	
Disbursements of officers	7,339 41	
Miscellaneous	153 28	
Total		20,298 00
Prince Edward Island.		
Salaries of officers	3,110 08	
Disbursements of officers	636 61	
Total		3,746 69
British Columbia.		
Salaries of officers	3,039 50	
Disbursements of officers	1,198 76	
Miscellaneous	95 37	
Total		4,333 63
Manitoba.		
Salaries of officers	1,560 00	
Disbursements of officers	1,273 16	
Miscellaneous	15 00	
Total		2,848 16
Total by Provinces		83,684 18
MISCELLANEOUS.		
Legal and incidental expenses	1,220 31	
Canadian fisheries exhibits	1,150 20	
Expenditure in connection with the distribution of fishing bounty	7,136 96	
Victoria Hall (Hatchery)	1,404 71	
Total		10,912 18
Grand Total		94,596 36

FISH BREEDING.

	$ cts.	$ cts.
Newcastle Hatchery.		
Salaries	1,388 75	
Miscellaneous expenditure	4,733 87	
Total		6,122 62
Sandwich Hatchery.		
Salaries	849 96	
Miscellaneous expenditure	2,934 74	
Total		3,784
Tadoussac Hatchery.		
Salaries	984 00	
Miscellaneous expenditure	1,473 71	
Total		2,457 71
Gaspé Hatchery.		
Salaries	666 63	
Miscellaneous expenditure	1,107 30	
Total		1,773 93
Magog Hatchery.		
Salaries	600 00	
Miscellaneous expenditure	687 98	
Total		1,287 98
Ristigouche Hatchery.		
Salaries	960 00	
Miscellaneous expenditure	3,749 10	
Total		4,709 10
Bedford Hatchery.		
Salaries	1,300 00	
Miscellaneous expenditure	2,524 61	
Total		3,824 61
Sydney Hatchery.		
Salaries	860 00	
Miscellaneous expenditure	2,004 14	
Total		2,864 14
Miramichi Hatchery.		
Salaries	500 00	
Miscellaneous expenditure	1,429 17	
Total		1,929 17

FISH BREEDING—*Concluded.*

	$ cts.	$ cts.
St. John River Hatchery.		
Salaries	600 00	
Miscellaneous expenditure	621 00	
Total		1,221 00
Dunk River Hatchery.		
Salaries	99 99	
Miscellaneous expenditure	40 32	
Total		140 31
Fraser River Hatchery.		
Salaries	2,100 00	
Miscellaneous expenditure	2,833 26	
Total		4,933 26
GENERAL ACCOUNT.		
Salaries	2,250 00	
Miscellaneous expenditure	4,016 59	
Total		6,266 59
Total, Fish Breeding		41,315 12

NOTE.—Dunk River Hatchery closed 30th September, 1888.

STATEMENT of Expenditure in connection with Fisheries Protection Service for the Year ended 31st December, 1889.

Service.	Amount.	Total.
Steamer "Acadia."	$ cts.	$ cts.
Wages of officers and men	7,349 92	
Provisions	2,466 99	
Coal	3,723 01	
Repairs to engines	655 00	
Miscellaneous expenditure	3,600 72	
		17,795 64
Steamer "La Canadienne."		
Wages of officers and men	7,283 81	
Provisions	2,941 08	
Coal	1,061 41	
Miscellaneous expenditure	4,747 74	
		16,034 04
Steamer "Stanley."		
Wages of officers and men	4,597 34	
Provisions	2,496 23	
Fuel	2,281 01	
Miscellaneous expenditure	1,397 10	
		10,771 68
Steamer "Cruiser."		
Wages of officers and men	1,815 32	
Provisions	468 24	
Fuel	514 82	
Repairs	1,719 54	
Miscellaneous expenditure	744 99	
		5,262 91
Steamer "Dream."		
Wages of officers and men	2,778 17	
Provisions	754 85	
Fuel	941 21	
Charter, 13⅓ months	4,000 00	
Miscellaneous expenditure	272 58	
		8,746 18
Schooner "Vigilant."		
Wages of officers and men	3,172 53	
Provisions	1,223 57	
Miscellaneous expenditure	964 77	
		5,360 87
Schooner "Critic."		
Wages of officers and men	1,946 38	
Provisions	687 97	
Charter	1,204 66	
Miscellaneous expenditure	353 00	
		4,192 01
Customs Steam Yacht "Argus," while employed on special services		128 91
General Account, Miscellaneous Expenditure		642 40
Fisheries Intelligence Bureau		110 62
Total		69,045 89

STATEMENT of Expenditure in connection with Fisheries Protection—*Concluded.*

Service.	Amount.	Total.
Recapitulation	$ cts.	$ cts.
Steamer "Acadia."	17,795 64	
do "La Canadienne."	16,034 04	
do "Stanley."	10,771 68	
do "Cruiser."	5,262 91	
do "Dream."	8,746 81	
Schooner "Vigilant."	5,360 87	
do "Critic."	4,192 01	
Steamer "Argus," special	128 91	
General Account	642 40	
Fisheries Intelligence Bureau	110 62	
Total		69,045 89
This amount will be reduced in the sum of $2,631.45 being the share of "Cruiser" expenses paid by Customs Department		2,631 45
Net expenditure, Fisheries Protection Service		66,414 44

RECEIPTS.

STATEMENT of Fisheries Revenue paid to the credit of the Receiver General of Canada, for the Fiscal Year ended 30th June, 1889.

	$ cts.	$ cts.
Ontario—		
Rents, license fees and fines	24,266 06	
Quebec—		
Rents, license fees and fines	3,390 79	
Nova Scotia—		
Fishery licenses and fines	2,744 23	
New Brunswick—		
Rent, fishery licenses and fines	8,642 88	
British Columbia—		
Rents, license fees and fines	6,416 00	
Manitoba—		
Fishery licenses and fines	848 00	
P. E. Island—		
Fishery license and fines	140 00	
		46,447 96
Proceeds of sale of speckled trout		352 50
		46,800 46
LESS—refund		360 00
Total		46,440 46

THE OYSTER FISHERY.

Its condition and restoration considered.

The consumption or demand for oysters in Canada is considerable, there being imported in the year 1888 as many as 1,698 barrels, 234,502 gallons shelled in bulk, and 198,543 pounds canned or preserved.

Only about $165,000 worth are annually produced in the Provinces of Nova Scotia, New Brunswick and Prince Edward Island, fully two-thirds of which are taken in the last named Province. It is claimed that, of all the oysters consumed in Canada less than one-third is supplied from native sources.

There is no sufficient reason why the demand for oysters throughout the Dominion should not be supplied by our own people. The inland markets are easily accessible, and the domestic consumption would, no doubt, be increased if the article was produced and supplied with our own resources, at a lessened cost. The area of oyster grounds on the Canadian coasts is very extensive, and is situated in localities admirably adapted for the growth and nutrition of oysters. This mollusk has been found from Bay des Chaleurs to Bay Verte, in the following places, viz.: between Caraquet Banks, at Caraquet, St. Simon, Shippegan Harbor and Gully, Tabusintac, Burnt Church, Bay du Vin, and many other places in Miramichi Bay; Kouchibouguac, Richibucto, Bouctouche, Cocagne, Shediac and Bay Verte. In Nova Scotia, the oyster is found at River Philip, Pugwash, Tatamagouche, River John, Pictou, Tracadie, Mabou, Margaree, Sydney, Albert Bridge, Country Harbor, St. Mary's River, Liscomb Harbor, Jeddore Head, and nearly everywhere in the Bras d'Or Lakes. It is found around the whole cost of the Island of Prince Edward, and many places in British Columbia are also adapted for the growth and cultivation of oysters.

In most of these places there are remnants of a stock which, for delicacy of flavor and nutritive properties, is not excelled by the choicest varieties grown and caught on the United States' coasts. Along the whole tidal shores of Prince Edward Island, and New Brunswick especially, oysters of the finest description might be raised in enormous quantities were the natural facilities for their culture enhanced by a proper system of cultivation and protection. When it is borne in mind that the mother oyster yields nearly 1,000,000 of spat each season, some slight conception may be formed of the probable return from any careful system of cultivation.

In 1880, this industry yielded in the States $13,403,852, eighty per cent. of which came from Chesapeake Bay. This high state of productiveness has been attained only by an economic use of existing oyster grounds, accompanied by careful and intelligent cultivation, after the areas of oyster shores had been apportioned among private individuals and regularly farmed. Similar results would be attained by like measures adapted to the oyster fishery on the shores of the Maritime Provinces.

In 1881, in France, 29,431 men, women and children were employed in taking 374,985,770 oysters from September to June, worth 12,061,753 francs, equal to $412,350.60. This was from public grounds alone, independent of private beds.

The strict observance of the decrees of 1852 in the conduct of the fisheries may be regarded as having contributed largely to the success of the oyster culture in France and to the actual prosperity of this industry. These decrees, the wisdom and opportuneness of which the event has demonstrated, were intended to stop the spoliation and exhaustion of the oyster beds, and subject their exportation to strict

regulations The persevering application of these measures, the care unceasingly renewed, the encouragement and the example which the Administration of the Marine continually gave, resulted in bringing about the restoration of the natural beds which were approaching exhaustion, and in invoking a revival of oyster culture by private individuals.

In England, in 1883, the value of oysters taken was nearly $10,000,000.00—£2,000,000.

Professor Huxley, Sir James Caid and Mr. Shaw Lefebvre reported to the English Government about the year 1863, calling attention to the falling off of the supply of oysters from the failure of spat. They recommended the acquisition by individuals or companies of sea-bottom for oyster culture.

Mr. Archibald Young, Inspector of Fisheries for Scotland, in a report on the oyster and mussel fisheries, remarks that: "Promiscuous and ill-regulated fishing on any bed or scalp to which oysters or mussels are attached simply means the extinction of these oysters or mussels in a longer or shorter space of time—especially, if no close season is observed, and if immature fish are carried away and sold, instead of being returned to the bed."

"The secret of the whole matter is that, where oyster and mussel cultivation has proved successful, the person undertaking the same has obtained a concession from the Government to work the beds exclusively himself, and has not been hampered by other persons claiming a right to fish on his grounds; in other words, fishings are worked in precisely the same way as farms on the land, where the farmer sows his seed, and at the proper season reaps his corn. The allowance of the general public to fish for oysters or mussels without restrictions or regulations means the inevitable destruction of the beds—some sooner, some later."

In view of the condition of our oyster beds, Prof. W. F. Ganong, a native of New Brunswick, at present a professor in the University of Harvard, says:—

"There are two futures open to the oyster industry of Acadia—free fishing by the people and a lingering death; or a vigorous Government interference and a great and lasting prosperity. This is the kernel of the whole matter—Government interference. It has worked well in other countries; it would, under the same conditions, work well in this. The duty of the Government, if it take charge of it, would be two-fold—to regulate the fishery on the public beds, and to give encouragement to culture by corporations and individuals."

"As to the first, the position and extent of the beds must be determined, and each one given a period of rest, being fished not oftener than once in three years; the close season should be vigorously enforced; fishermen should be made—under heavy penalties—to return to the water all oysters under a certain size; mud machines must be restricted to certain places in each district, being given ample liberty, but not allowed within a certain distance of any living bed; fishing through the ice should be regulated, so that refuse cannot be allowed to fall on the beds. As to the encouragement of culture, laws should be enacted which would give to a culturist as good a right to his product and as full protection from theft as has a farmer. Areas in good localities should be set aside and leased for long periods, but, as a rule, the public beds should not be trespassed upon.

"Some beds should always be reserved for public fishing. Freedom to take wild game under common sense conditions, the Dominion should be very slow to take from its citizens. Private individuals should be encouraged to take their seed oysters from our own beds, as there are none better nor so good for our climate."

During the course of an interesting debate which took place last Session in the Senate regarding the oyster fisheries of the Dominion, Senator Poirier brought the subject to the notice of the Senate, and especially alluded to the great destruction caused by winter fishing through the ice when small oysters and spat are destroyed in great num-

bers. Senator Macfarlane, whose great experience renders his views important, pointed out the hardship which the prevention of winter fishing would cause to many people. He, however, strongly advocated the restoration of exhausted beds by the Government.

A special Commission appointed in 1887 to investigate the condition of the oyster fishery in Canada, among several recommendations and suggestions as to the necessity for additional regulations to ensure the preservation and improvement of this important industry, shows that, upon personal examination of the oyster beds, they learned with surprise of the great extent of the area suitable for oyster culture in the Dominion. Many of the beds were found extinct, while others were rapidly becoming exhausted, from want of proper cultivation and protection from indiscriminate and improvident raking.

In France and in the British Isles, as well as in some parts of the United States, the oyster beds are divided into private and public fisheries, and a leasing or licensing system prevails.

It was the intention of Parliament, so long ago as 1868, to encourage in the same manner the development of this industry, as evinced by the provisions of 31 Vic., cap. 60.

By this Act, Parliament provides for the granting of licenses or leases for the exclusive right of fishing oyster beds in any of the bays, inlets, harbors, creeks, rivers, or between any of the islands of the coast of Canada.

POLLUTION OF STREAMS.

The habit of discharging the refuse from sawmills into public waters is a very serious evil, especially when it prevails on streams frequented by fish or on navigable waters, to the detriment of navigation. The milling interest being of such momentary importance to the country, it commands more attention than either the fishing privileges or right of navigation pertaining to the public. It is sometimes exceedingly difficult to deal with an enlarged industry of a lucrative and ramified character, when the object is either to promote, what may seem at the moment to be of secondary interest, or to insure public rights against some contingency more or less remote. Still, it is an undeniable fact that the damage caused to our fresh water fishing and navigation by polluting and obstructing the waters with refuse from sawmills and manufactories is increasing. Unless, therefore, speedy measures are taken to abate a nuisance which threatens serious permanent injury to the navigation and fisheries, private interests which are now profiting by a neglect of duty due to the public will possibly suffer most in the end, and be placed in antagonism to the public generally. The question of devising means to obviate such extensive injuries is simply one of expense. A moderate and judicious outlay, representing but a trifling percentage of the profits of mill-owners, would in most cases provide effectually against the injurious consequences of past and present neglect.

A very great deal of forbearance has been exercised towards mill-owners and manufacturers in years past. Many of them made repeated promises to devote some little attention towards remedying the evil; but, instead of doing so, they would seem to have rested securely in the belief that the tolerated practices of former years having become a sort of recognized privilege—excused, at least, if not

justified, by the importance and widespread benefits of manufacturing industries—were meant to be subjected merely to the formality of a periodical protest and abortive remonstrances. It is, therefore, very much to be regretted that men of such vast energy and practical resources did not earnestly consult or combine together with a view to mitigating, if not removing entirely, the evils of which the public so justly complains.

Pursuant to certain provisions of the statute 22 Vic., cap. 62, Consolidated Statutes of Canada, the following regulation was adopted on the 16th May, 1860:—

By-Law No. 9.—"Hereafter no slabs or edgings or other mill rubbish shall be sent adrift in any river or stream which may have been leased or reserved by the Crown for propagation, or where fish-ways have been erected."

Sub-sec. 2 of Sec. 18 of the Fisheries Act of 1865 (29 Vic., cap. 11), after providing against the throwing of lime or other poisonous substances into streams, goes on to say:—"And sawdust or mill rubbish shall not be drifted or thrown into any stream frequented by salmon, trout, pickerel or bass, under a penalty not exceeding one hundred dollars."

The statute 31 Vic., cap. 60, assented to on the 22nd May, 1868, contains the following provision regarding injuries to fishing grounds and pollution of rivers:—

"Lime, chemical substances or drugs, poisonous matter (liquid or solid), dead or decaying fish, or any other deleterious substance, shall not be drawn into or allowed to pass into, be left or remain in any water frequented by any of the kinds of fish mentioned in this Act; and sawdust or mill rubbish shall not be drifted or thrown into any stream frequented by fish, under a penalty not exceeding one hundred dollars."

On the 23rd May, 1873, the following Act was passed by Parliament:—

ANNO TRICESIMO-SEXTO.

VICTORIÆ REGINÆ.

CAP. LXV.

An Act for the better protection of Navigable Streams and Rivers.

(*Assented to* 23*rd May*, 1873.)

WHEREAS it is expedient to provide for the better protection of navigable streams and rivers: Therefore Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. From and after the passing of this Act, no owner nor tenant of any saw-mill, nor any workmen therein, nor other person or persons whosoever, shall throw or cause to be thrown, or suffer or permit to be thrown, any sawdust, edgings, slabs, bark or rubbish of any description whatsoever, into any navigable stream or river, either above or below the point at which such stream or river ceases to be navigable.

2. Any person or persons violating the preceding section shall be liable, for the first offence, to a fine of not less than twenty dollars, and for the second, and each subsequent offence, to a fine of not less than fifty dollars, which fine shall be recoverable summarily in the same manner as provided for the recovery of the penalties by "*The Fisheries Act.*"

3. It shall be the duty of the several fishery officers to examine and report on the condition of the navigable streams and rivers under this Act from time to time, and to prosecute all parties contravening the terms of this Act; and such officers shall, for enforcing the provisions of this Act, have and exercise all the powers conferred upon them for like purposes by "*The Fisheries Act.*"

4. Provided always, that when it can be shown to the satisfaction of the Governor in Council that the public interest would not be injuriously affected thereby, the Governor in Council shall have power, from time to time, by Proclamation in the *Canada Gazette*, to declare any such stream or river, or part or parts thereof, exempted from the operation of this Act, in whole or in part, and shall also have power from time to time to revoke the same.

This was repealed on the 2nd June, 1886, by the Act 49 Vic., cap. 36, which reads as follows:—

7. No owner or tenant of any sawmill, or any workman therein or other person shall throw or cause to be thrown, or suffer or permit to be thrown, any sawdust, edgings, slabs, bark or rubbish of any description whatsoever, into any river, stream or other water any part of which is navigable, or which flows into any navigable water; and every person who violates the provisions of this section shall, on summary conviction, be liable, for a first offence, to a penalty of not less than twenty dollars, and for each subsequent offence to a penalty of not less than fifty dollars:

2. The several fishery officers shall, from time to time, examine and report on the condition of such rivers, streams and waters, and prosecute all persons violating the provisions of this section; and for enforcing the said provisions, such officers shall have and exercise all the powers conferred upon them for like purposes by "*The Fisheries Act:*"

3. The Governor in Council, when it is shown to his satisfaction that the public interest would not be injuriously affected thereby, may from time, by proclamation published in the *Canada Gazette*, declare any such river, stream or water, or part or parts thereof, exempted from the operation of this section, in whole or in part, and may, from time to time, revoke such proclamation.

The above provisions, relative to sawdust and mill rubbish, were subsequently incorporated in chapter 91, Revised Statutes of Canada, intituled: "An Act respecting the Protection of Navigable Rivers," and are now in force

Under the above provisions, the following streams have, from time to time, been exempted from the operation of the statute as regards sawdust or mill rubbish:—

Crooked Creek, County of Albert, New Brunswick; Nashwaak River, New Brunswick; Beaver Creek, County of Waterloo, Province of Ontario.

That portion of the St. Francis River known as Brompton Falls, in the Province of Quebec.

The Ottawa River, between the Chaudière Falls and Mackay's Bay, and the Gatineau River, from the mill pond above Gilmour & Co.'s mill at Chelsea to its junction with the Ottawa at Gatineau Point.

The baneful effects of sawdust as one of the most destructive agents for polluting streams and otherwise causing injury to fish life has called forth the efforts of different countries to stay its progress. Wherever mill dams have been built across streams, and where sawdust, mill rubbish, and other deleterious substances have been thrown into the waters from sawmills and manufactories, fish-life and vegetation of all kinds have invariably been lessened and in many instances wholly destroyed. This is particularly noticeable among the higher orders of fishes, especially the salmon family, which are of a migratory nature, ascending rivers and streams for breeding purposes. These waters are invariably of the purest, coldest and most limpid description, and therefore best adapted for the propagation of their species. The salmon at the time of the first settlement of the Maritime Provinces was found frequenting almost every river and stream emptying into the sea. So plentiful were they in

many of the waters before the lumbering industry took such a strong hold in the erection of mill dams and saw-mills, with the consequent injurious effect upon fish-life, that salmon were in great abundance and freely used by the inhabitants generally for domestic purposes, and also produced a large amount of traffic and commercial wealth for the country. But as sawmills and mill dams increased in numbers, with greater capacity for their work, they formed impassable barriers to the ascent of salmon and other fishes to their natural spawning grounds above, and then the hurtful and pernicious effects from the sawdust and mill rubbish being constantly cast into the streams, poisoned the spawning beds below, and stayed the growth of all vegetation in the streams, thus driving away insect life, which is the principal sustenance for fish in their younger stages of existence.

As this improvident work of the mills increased in magnitude, so did the yield of all kinds of fish decrease in the streams, until it had been found in some cases that, after stripping the neighborhood of all lumbering material and destroying all fish-life, these mills have gone into ruin and decay.

By a strict and impartial application of the law for regulating mill dams, for the easy ascent of salmon, shad and alewives to their proper spawning grounds; by the enforcement of the statutes forbidding the drifting or throwing of sawdust, mill rubbish and other deleterious substances into the rivers; by the due observance of proper close seasons; by a stoppage of the use of the deadly torch and spear; by the judicious enforcement of regulations regarding the use and setting of nets of all kinds, and by increasing the supplementary aid to be derived from artificial fish culture, it is believed that only a few years would pass before the increase in the yield of salmon, shad, alewives and other fishes would be noticed in the whole extent of the waters of the Dominion. There are yet to be found sufficient numbers of these fish, natives of the rivers, left, from which, by proper protection and good husbandry, an immense supply of fish food and commercial wealth could be readily obtained for the general benefit of the inhabitants of the Dominion of Canada.

The question of navigation is also of paramount importance, the gradual accumulation of sawdust having already proved very detrimental in several cases.

All authorities agree upon these points, that the surest mode of effecting permanency of the fisheries is to preserve the natural condition of the spawning beds; to allow the fish free access thereto, and to prevent their molestation while engaged in reproducing their species. None of these conditions can be carried out if the waters are polluted.

In 1872 the Government appointed a Commission to enquire into the condition of navigable streams, and the injurious effects of sawdust therein. The labors of this Commission were, however, limited to a few rivers in the Provinces of Ontario and Quebec.

After recommending the introduction of a Bill to prohibit the throwing in the water of every kind of refuse, except sawdust; that no opening be allowed in the floors or walls of mills, unless covered with gratings, and the appointment of some officer whose special duty it would be to see that the provisions of this Act were strictly carried out, the report concluded as follows:—

"After all descriptions of sawmill waste, except sawdust, have been prevented by the Act from being thrown into any lake, river or stream whatever, should it be proved to the satisfaction of the Government that the continued discharge of pure

sawdust does, and will, impair the navigation, or create impediments thereto in any manner, the Government shall have the power in such case to exclude it, in the same manner as provided against the deposit of other refuse. Six months' notice thereof to be given to the mill proprietors."

A Select Committee appointed by order of the Senate "to enquire and report upon the extent and effect upon the Ottawa River of the deposit therein of sawdust and other refuse," submitted the result of its labors in a report dated 15th May, 1888, concluding with the following recommendations :—

"Your Committee desire to acknowledge the readiness with which information was furnished them by the various mill-owners and manufacturers of sawn lumber who appeared before them, and whose interests were ably represented by counsel, as well as the valuable information afforded by all other witnesses.

"Your Committee are of opinion that it is established beyond question that extensive deposits of sawdust and other mill refuse exist in the Ottawa River, from the Chaudière Falls to the head of the Grenville Canal, and that these constitute a very serious and steadily increasing interference with public rights of navigation, which has already become seriously obstructed, and must, at no distant period, if immediate measures are not taken to arrest the evil, become irretrievably destroyed. These deposits also prevent the utilization of property along the banks of the river for the construction of wharves and for other similar purposes, and likewise cause further damage to riparian proprietors by the depreciation in value of property on the river front.

"Your Committee find, from the evidence given before them, that sawdust and other refuse of sawmills can be economically utilized, and that the destruction thereof is successfully accomplished in at least one sawmill upon the Ottawa River, and in many others in Canada and in the United States of America.

"Your Committee are also of opinion that these large deposits of decaying vegetable matter constitute at times a dangerous menace, if not a positive injury to health.

"Your Committee accordingly recommend that the proclamation, made on the 17th April, 1885, by which that portion of the Ottawa River lying between the Chaudière Falls and McKay's Bay, and also all that part of the Gatineau River from the mill pond above Gilmour & Company's mill at Chelsea to the mouth of the said Gatineau River, are exempted, so far as regards sawdust only, from the operation of the seventh section of the 'Act respecting the protection of Navigable Waters' (R.S.C., chap. 91), be rescinded by the Government as soon as practicable, having regard to the large and important interests involved in a business of such extent and public importance as is the lumber trade, and that thereafter the provisions of the said section should, in the public interest, be strictly enforced."

The enforcement of the statutory enactments respecting sawdust and mill rubbish means but a relatively insignificant expenditure during the time the mills may be in operation; while, to the community at large, it means, coupled with other regulations, the permanency of valuable fishing interests long after the mills have ceased to run, and for these reasons it was considered advisable to strictly enforce the law in certain cases.

One of such cases brought most urgently to the notice of this Department was that of the Otonabee River, a stream of considerable magnitude, which takes its rise in a chain of lakes back of Peterborough, and after a tortuous course enters Rice Lake, where it changes its name to the Trent, and runs into the Bay of Quinté at Trenton.

As early as 1879, representations were made by municipal bodies, members of Parliament and influential residents, urging a strict enforcement of the statute on this stream, in view of the danger to navigation and the preservation of public health.

In 1886, these representations were followed by strong remonstrances from medical practitioners, the Provincial Board of Health, inhabitants of Peterborough and Ashburnham. The Messrs. Gilmour & Co., mill owners at Trenton, complained that, large deposits of sawdust at the mouth of the Otonabee, where it joins Rice Lake, impeded navigation and the driving of their logs.

Overseer Chas. Gilchrist, of Rice Lake, reported that, in the spring of 1886, water being then very high in Otonabee River, in fact higher than for ten years past, and the current so swift as to make that stream a perfect torrent, he noticed, on several occasions, old sawdust which had been deposited on drowned lands for years, forced into the river again. In several places where the depth of water was 8 or 10 feet it is now only 3 or 5 inches, and a skiff can with difficulty go over them. Steamboats used to ascend the east branch, but this is now closed, owing to the immense deposits of sawdust. Great apprehensions are entertained that the west branch will also become choked up.

An understanding was then arrived arrived at between this Department and the mill owners, by which the latter undertook to keep all their refuse out of the water, except what fell through the pitman holes.

In 1888, the Corporation of the city of Peterborough and others, represented that, the conditions of the above agreement were imperfectly complied with, and in some cases deliberately violated. The mill owners were accordingly notified, but denied the impeachment. The local fishery officer having reported in 1889 that the law was constantly ignored, he was instructed to prosecute. Upon this, the mill owners made strong representations, urging that they had done all that they possibly could towards keeping the terms of the agreement, and eventually sent a deputation to Ottawa to urge their claims to special consideration.

Mr. S. Wilmot, of this Department, was thereupon instructed to proceed to Peterborough and carefully enquire into all statements and counter statements by personally inspecting the mills.

The result of his investigations shows that :

1. The Otonabee River is fast filling up, and the navigation becoming impeded by deposits of sawdust.

2. Fish-life is seriously affected thereby.

3. The agreement made in 1886 with the Fisheries Department was not complied with.

4. It would be unadvisable to remit the fines imposed for violations of the law.

5. It is quite possible to arrange these mills, by means of comparatively inexpensive appliances, so as to almost entirely prevent the escape of sawdust through the pitman holes.

6. To exempt these mills from the operation of the statute as regards sawdust only, would be tantamount to exempting them from the operation of the statute altogether.

7. Through the exercise of a small amount of ingenuity and the application of comparatively inexpensive machinery, sawdust could easily be disposed of otherwise than by letting it fall into the water.

Prosecutions were then instituted day by day, and heavy fines imposed, which are now in course of collection.

A special report by Mr. Wilmot on sawdust in Otonabee River forms Appendix II to this report.

THE STAFF.

The following changes in, and appointments to the outside staff of the Department have been made during the year.

The Inspector of Fisheries for Prince Edward Island was superannuated on the 13th July 1888, on an allowance of $200 per annum, and Mr. Edward Hackett, of Tignish, P. E. Island, appointed to the Inspectorship of that Province.

The office of Inspector of Fisheries for Nova Scotia was, by Order in Council, abolished, and the Province, for the better administration of the fishery laws and regulations, divided into three districts. The late Inspector was superannuated from 1st July 1889, on an allowance of $756; per annum, and appointments as inspectors made to the new districts as follows:—

No. 1 District.—A. C. Bertram, North Sydney, re-appointed, comprising the Island of Cape Breton.

No. 2 District.—Robert Hockin, Pictou, comprising the Counties of Cumberland, Colchester, Pictou, Antigonish, Guysboro', Halifax and Hants.

No. 3 District.—J. R. Kinney, Yarmouth, comprising the Counties of Lunenburg, Queen's, Shelburne, Yarmouth, Digby. Annapolis and King's.

The office of Inspector for New Brunswick was also abolished by Order in Council, and the services of the Inspector dispensed with. As in the case of Nova Scotia, the Province was divided into three districts and Inspectors appointed thereto as follows:—

No. 1 District.—Capt. J. H. Pratt, St. Andrews, comprising the County of Charlotte, including the Islands of Campobello and Grand Manan, and the fisheries of Passamaquoddy Bay.

No. 2 District.—Robert A. Chapman, Moncton, comprising the Counties of Restigouche, Gloucester, Northumberland, Kent and Westmoreland.

No. 3 District.—David Morrow, Oromocto, comprising the Counties of Albert, St. John, King's, Queen's, Sunbury, York, Carleton and Victoria.

The following changes occurred in the Province of Ontario:—

Mr. Joseph Boismier, of Sandwich, was appointed Fishery Overseer on 1st September, 1889, to replace his late father, Ed. Boismier.

Mr. David Girardin, of Pelee Island, was appointed Fishery Overseer, 1st July, 1889, in place of James Cummins, retired from service.

Upon the resignation of Mr. Donald Cameron, of Sault Ste. Marie, his salary and district were divided between Messrs. John Marks, of St. Joseph's Island, and Alex. Brinkman, of Manitowaning.

The large district rendered vacant by the death of Overseer J. W. Kerr in May, 1888, and the salary attached thereto, was, during the past year, divided between Messrs. Fred Kerr, of Hamilton, and Wm. Sargent, of Bronte. A small portion thereof was also added to the district of Overseer G. B. McDermot, of Port Perry.

Mr. J. C. Pollock, of Forest, was appointed Fishery Overseer at River St. Clair and Lake Huron, to replace Mr. David McMaster.

On the resignation of Overseer, J. A. Couse, on Lake Huron, Mr. H. B. Quarry, of Parkhill, was appointed in his place, 1st July, 1889.

An additional Fishery Overseer, H. W. Ball, of Goderich, was appointed for a portion of Lake Huron, 9th September, 1889.

Mr. John Hoar, Light House Keeper at Christian Island, Lake Huron, was appointed a Fishery Overseer 14th November, 1889.

Mr. Jas. McFadden, of Carleton Place, Fishery Overseer for Mississippi Lake and River, having resigned, was replaced by Mr. Alexander Wilson, 1st November, 1889.

And in the Province of Quebec, the following :—

Mr. Philip Vibert, late Fishery Overseer, at Gaspé Basin, died in June last. Vacancy not yet filled.

The services of Overseer J. Bilodeau, for Lake St. John, were dispensed with.

On the death of Overseer James Mohr, Pontiac County, his son, Edwin Mohr, was appointed in his place, 23rd May, 1889.

The services of Mr. Joseph Desaulniers, Fishery Overseer for St. Maurice and Maskinonge Counties, were dispensed with 31st December, 1888.

Mr. J. L. Martel, Overseer for County Joliette, was dispensed with 28th January, 1889.

The services of Mr. J. B. Saucier, Fishery Overseer at Matane, were discontinued for greater efficiency, and he was replaced by Mr. Johnny Joncas, 18th October, 1889.

The services of Fishery Overseer Odilon Lacoursière, County Champlain, were dispensed with in December, 1888.

Overseer J. W. Hanson, of Berthier, resigned 8th July, 1889. District merged in that of Overseer S. A. Grant.

The services of Overseer John Cullen, of Paspebiac, were dispensed with, and his salary and district divided between two new officers, Messrs. Pierre Cyr, of Nouvelle, and John Smith, of New Carlisle, 1st June, 1889.

Mr. George Boisvert, of Becancour, was appointed a Fishery Overseer for the district of Nicolet, on the St. Lawrence River, 1st September, 1889.

In addition to the changes already noted in the Inspectorship of the Province of Nova Scotia, the following have taken place among the subordinate officers :—

Warden H. M. Fulton died, Colchester County, 12th January, 1889.

Mr. Patrick Taggart was appointed a Fishery Warden in Cumberland County, 1st November, 1888.

The services of Warden A. L. Gavil, Pictou County. dispensed with, April, 1889, and Charles T. Potter appointed in his place.

Mr. Wm. Munro was appointed a Fishery Warden at Cole Harbour River, Guysboro' County, 1st January, 1889, in place of James Harrigan, jr., deceased.

Mr. Geo. Sears was appointed, 1st January, 1889, a Fishery Warden at West River, St. Mary's, Guysboro County, to replace D. A. McDonald, previously dispensed with.

Mr. J. L. Smith, Warden at West River, Guysboro' County, having removed from the locality, was replaced by J. P. Smith.

Fishery Overseer T. B. O'Brien, for the Eastern Division of Hants County, died in August, 1888, and his salary and district were divided between two officers, Messrs. Wm. B. Smith, of Maitland, and John Snide, of Shubenacadie, 10th April, 1889.

Warden Daniel McDermot, Inverness County, removed same date.

Mr. Lewis A. Murphy was appointed Fishery Warden for Gaspereaux River, 10th April, 1889, to replace Joseph Angus, deceased.

Mr. H. S. Jost, Fishery Overseer for the Western Division of Lunenburg County, died in April, 1889, and was replaced by Mr. W. M. Solomon.

Mr. Nicholas Schmeisser was appointed Fishery Warden on Lahave River, County Lunenburg, 1st May, 1889, in place of Charles Pernette, deceased.

Warden John Andrews, of Mushamush River, was dispensed with 11th July, 1889.

Mr. James Davis, Warden of East River, County Lunenburg, removed from the locality, and was replaced by Michael Keating.

Mr. Duncan G. McDonald, Fishery Overseer Eastern Division Pictou County, died 30th November, 1889,

Fishery Warden William Kehoe, of River Bourgeoise, County Richmond, died July, 1889.

The services of Warden M. Greenwood, of Clyde River, County Shelburne, were dispensed with, and he was replaced by William McLean and Lewis McKinnon, 23rd May, 1889.

Overseer Donald McRae, of Baddeck, Victoria County, was retired from the service, and Fishery Warden Donald MeQuarrie promoted to his place, 1st October, 1889.

Mr. Duncan McDonald was appointed Fishery Overseer at Aspy Bay, County Victoria, in place of Malcolm McIntosh, dispensed with, 26th October, 1889.

The services of Warden Thomas Donovan, of Victoria County, were dispensed with, 16th November, 1889.

Mr. George H. Robertson, Fishery Overseer at Yarmouth, resigned in June, 1889.

And the following additional changes occurred in the Province of New Brunswick :—

Mr. Wm. Robichaud, Fishery Overseer in Gloucester County, having removed from the locality, was replaced by Mr. William Walsh, 1st July, 1889.

Mr. Valentine Gibbs, of Pokemouche, was appointed a Fishery Warden to replace Mr. James Walsh, dispensed with.

Mr. S. F. Ryan, Fishery Warden of Mill Stream, King's County, died, and was replaced by Edwin Fenwick, 1st January, 1889,

Fishery Overseer John Stymeist, of Northumberland County, was dispensed with, and replaced by John Robertson, 1st November, 1889.

The services of Overseer Murdock Sutherland, of Northumberland County, were dispensed with, 14th September 1889.

On the resignation of Warden J. C. McCluskey, Victoria County, Daniel Lortie was appointed in his place.

Among the Wardens of P. E. Island the following changes took place:—

Mr. Charles W. McDonald, appointed for Blooming Ponds, in Queen's County, June, 1889.

Mr. Stanislaus P. Arseneault, appointed fishery Warden at Egmont Bay, County Prince, August, 1889, to replace J. A. Arseneault, dispensed with.

A detailed list of Fishery officers forms appendix No. 1 to this report.

RE-ORGANIZATION.

It has been ascertained that in many cases fishery wardens whose pay is little more than nominal, do not, at busy seasons of the year, give that attention required to properly guard the fisheries. To remedy this it may be advisable to change the system, and instead of appointing permanent wardens with wholly inadequate pay, to hire patrol men at a per diem allowance for such periods during the year as their services are necessary; these men should be obliged to furnish a diary showing each day's work and should act under the immediate supervision of the inspector of fisheries or overseer for the district in which they may be employed.

This change, if generally adopted, will necessitate an increased appropriation, but the benefits derivable therefrom are very apparent in the few districts in which the system has already been put in force.

The license system has been extended to the North-West Territories, additional guardians have been appointed and it is proposed, to such an extent as may be considered practicable, to secure the co-operation of the mounted police and Indian agents in the protection of the fisheries.

In the Province of British Columbia a re-arrangement of the fishery districts is contemplated, special guardians being named for the different districts.

SUMMARY of work performed in the Department of Fisheries during the year 1889:

7,090 letters and communications received.

5,775 letters written, covering 5,709 pages.

195 reports to Council, covering 364 pages.

2,888 circulars to outside officers.

2,350 special statements and memoranda prepared.

4,085 licenses issued by Department.

1,272 receipts issued (918); Departmental requisitions (236); contingencies certificates (118).

4,850 cheques issued for salaries and disbursements in connection with the fisheries service.

36,900 cheques issued in payment of fishing bounties.

16,400 claims for fishing bounty examined, entered and paid

Preparing, compiling and revising issue of annual report, 368 pages of print.

I have the honor to be, Sir,

Your obedient servant,

JOHN TILTON,

Deputy Minister of Fisheries.

PART I.

APPENDICES.

APPENDIX No. 1.

SCHEDULE of Fishery Officers in the Dominion of Canada for the Year 1889.

PROVINCE OF ONTARIO.

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
W. C. Dobie	Overseer	Port Arthur	About 270 miles of the waters along the north shore of Lake Superior, extending from Pigeon River to Slate Island.
Joseph Wilson	do	Sault Ste. Marie	About 280 miles of the waters along the north coast of Lake Superior, from Slate Island to Sault Ste. Marie and about 186 miles north channel Georgian Bay to Collins' Inlet.
John Marks	do	Marksville	About 200 miles of the waters around the shores of Manitculin, St. Joseph's, Cockburn and other islands in Georgian Bay.
Alex. Brinkman	do	Manitowaning	About 230 miles of the shores of Manitoulin, Club, Lonely, Squaw and other islands in Lake Huron and Georgian Bay.
F. G. M. Fraser	do	Victoria Harbor	About 150 miles of the coast of Georgian Bay, extending from Collins' Inlet to Victoria Harbor.
Samuel Frazer	do	Midland	About 140 miles of the waters of Georgian Bay from Victoria Harbor, Allenwood, including Christian, Hope, Beckwith Grants and Tomb Islands.
John Hoar	do	Lafontaine	About 18 miles of the waters of Georgian Bay around Christian Island.
George S. Miller	do	Owen Sound	About 110 miles of the Georgian Bay from Allenwood to Colpoy's Bay.
John Shackelton	do	Oxenden	About 90 miles of the waters of Georgian Bay from Colpoy's Bay to Cape Hurd. Beside the inland waters of the Townships of Albermarle, Estnor, Lindsay and St. Edmunds, Co. Bruce; comprised within an area of 600 square miles.
R. H. Murray	do	Allenford	About 70 miles of the waters of Lake Huron from Cape Hurd to Southampton, beside the inland waters of the County of Bruce, south of division line between Amable and Albermarle, comprised within an area of about 800 square miles.
H. W. Ball	do	Goderich	About 60 miles of the waters of Lake Huron, from Southampton to Goderich.
H. B. Quarry	do	Parkhill	About 65 miles of the waters of Lake Huron, extending from Goderich to Blue Point.
J. C. Pollock	do	Forest	About 45 miles of the waters of Lake Huron and St. Clair River, extending from Blue Point, on Lake Huron, to Baby's Point in River St. Clair.
C. W. Raymond	do	Mitchell's Bay	About 30 miles of the waters of Lake St. Clair, from Little Lake to its head.
A. Quenneville	Warden	Stony Point	About 10 miles of the waters of Lake St. Clair, from division line between Dover, East and West, to Stony Point.
Joseph Boismier	Overseer	Sandwich	About 20 miles of the waters of Lake St. Clair, from Stony Point to Detroit River.
Wm. Prosser	do	Leamington	About 50 miles of the waters of Lake Erie, from the mouth of Detroit River to Point Pelee.
David Girardin	do	Point Pelee	About 50 miles of the waters of Lake Erie, around Point Pelee Island and adjacent islands.
Horace Bartlett	Warden	North Harbor Island.	About 20 miles of the waters of Lake Erie, around North Harbor and Middle Sister Islands.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF ONTARIO—*Continued*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
John McMichael	Overseer	Blenheim	About 110 miles of the waters of Lake Erie, fronting on the Counties of Kent and Elgin.
David Sharp	do	Port Ryerse	About 70 miles of the waters of Lake Erie, fronting on the Counties of Norfolk and part of Haldimand as far as South Cayuga.
W. A. McRae	do	Dunnville	About 10 miles of the waters of Lake Erie, from Cayuga to Moulton Bay and Grand River (30 miles), from mouth to Caledonia.
Peter Price	do	St. Williams	About 30 miles of the waters of Lake Erie, around Long Point Island.
Fred. Kerr	do	Hamilton	About 50 miles of the waters of Lake Ontario, from Brant House, Burlington Beach, to Niagara, including the Niagara River, 50 miles; in all, 100 miles.
Wm. Sargent	do	Bronte	About 20 miles of the waters of Lake Ontario, extending from Port Credit to Burlington Beach, at Brant House.
Wm. Helliwell	do	Highland Creek	About 26 miles of the waters of Lake Ontario fronting on the County of York.
Chas. Gilchrist	do	Port Hope	About 40 miles of the waters of Lake Ontario fronting on the County of Northumberland. Together with Rice Lake and tributaries about 60 square miles of water.
Chas. Wilkins	do	Belleville	Bay of Quinté, comprising about 80 miles of coast line of Counties of Prince Edward and Hastings.
Joseph Redmond	do	Picton	About 90 miles of the waters of Lake Ontario fronting on the County of Prince Edward.
A. D. Sills	do	Napanee	About 35 miles of the waters of Lake Ontario fronting on the Counties of Lennox and Addington, and upper part of Amherst Island; also the inland waters of the Counties of Lennox and Addington, comprised within an area of about 1,600 square miles.
R. R. Finkle	do	Bath	About 25 miles of the waters of Lake Ontario fronting on the Township of Earnestown in the Counties of Lennox and Addington, and the lower part of Amherst Island.
Peter Kiel	do	Wolfe Island	About 60 miles of the waters of Lake Ontario around Wolfe, Simcoe, Horseshoe and Pigeon Islands.
Thomas Merritt	do	Kingston	About 20 miles of the waters of Lake Ontario fronting on the Township of Pittsburgh and Kingston, County Frontenac, including part of Bay Quinté and River St. Lawrence.
John Cox	Overseer	Howe Island	About 16 miles of the waters of Lake Ontario and River St. Lawrence, around Howe Island.
Nassau Acton	do	Gananoque	About 6 miles of the waters of the River St. Lawrence, from Howe Island to Jack Straw Lighthouse, together with the waters around Admirality group of Islands; also, Gananoque River, comprising 10 miles inland waters.
J. G. Wallace	Warden	Ivy Lea	About 10 miles of the waters of the River St. Lawrence, extending from Jack Straw Lighthouse to Rockport, including the islands therein.
Henry Hunt	do	Rockport	About — miles of the waters of River St. Lawrence around LaRue's Island.
John H. Davis	do	Gananoque	About — miles of the waters of the River St. Lawrence, extending from Sheriff's Point to head of Grenadier Island.
Wm. Pool	Overseer	Rockport	About 32 miles of the waters of the River St. Lawrence, extending from Rockport to Prescott.
Sydney Pattison	Warden	do	About 32 miles of the waters of the River St. Lawrence from Gananoque to Brockville.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF ONTARIO—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
John Mooney	Overseer	Maitland	About 60 miles of the waters of the River St. Lawrence from Brockville to Cornwall.
Robt. P. Boyd	do	Lyn	About 6 miles of the waters of the River St. Lawrence, extending 3 miles above and 3 miles below Cole's Shoal Lighthouse.
T. McGarity	Overseer	Cornwall	About 40 miles of the waters of the River St. Lawrence, fronting on the Counties of Stormont and Glengarry.
Pierre St. Pierre	do	Point Fortune	About 40 miles of the waters of the Ottawa River extending from Point Fortune to Wendover, in the County of Prescott.
Olivier Miron	do	Alfred	The waters of the South Nation River, County of Prescott, comprising about 50 miles of inland waters.
W. W. Boucher	do	South March	About 60 miles of the waters of the Ottawa River fronting on the Counties of Russell and Carleton.
John Grant	do	Forester's Falls	About 55 miles of the Ottawa River fronting on the County of Renfrew from the foot of Upper Allumette Lake to Des Joachims, together with about 75 miles of inland waters, comprising Petawawa River and tributaries.
Archibald Acheson	do	Westmeath	About 25 miles of the Ottawa River, comprising Lower Allumette and Coulonge Lakes.
J. S. Richardson	do	Sturgeon Falls	The waters of Lake Nipissing, comprising about 160 miles, together with the Mattawa River, about 36 miles, and French River and tributaries, about 100 miles of inland waters.
E. C. Roper	do	Bracebridge	Inland waters of the Townships of Watt, Stephenson, Brunnel, Franklin, Monk, McAulay, McLean, Ridout, Muskoka, Draper, Oakley, Morrison and Ryde, in the District of Muskoka, comprised within an area of about 1,000 square miles.
Geo. R. Steele	do	Lorimer Lake	The inland waters of the Townships of Cowper, Foley, Christie, McDougall, McKeller, Ferguson, Carling, Shawanaga, Burpee, Hagerman, Brown and Wilson, in the Districts of Muskoka and Parry Sound, comprised within an area of about 1,000 square miles.
J. G. Rumsey	do	Huntsville	The inland waters of the Townships of Chaffey, Cardwell, Stisted, Sinclair, Bethune, Montieth, McMurrich, Perry, Spence, Ryerson, Armour and Proudfoot, in the Districts of Muskoka and Parry Sound. comprised within an area of about 1,000 square miles.
Wm. Lockhart	do	Denville	The inland waters of the Townships of Croft, Chapman, Strong, Jolly, Ferries, Lount, Machar, Laurier Mills, Pringle, Gurd and Himsworth, in the Districts of Muskoka and Parry Sound, comprised within an area of about 1,000 square miles.
L. S. Sanders	do	Barrie	About 110 miles of the waters of the north shore of Lake Simcoe and its tributaries, Couchiching and Holland Rivers.
Wm. Hastings	do	Roach's Point	About 30 miles of the waters of the South Shore of Lake Simcoe from Cook's Bay to Beaverton.
Fred. Webber	do	Orillia	About 40 miles of the waters of Lake Couchiching and Severn River in the County of Simcoe.
Wm. McDermot	do	Beeton	The inland waters of the South Riding of the County of Simcoe, comprised within an area of about 900 square miles.
H. McFayden	Overseer	Durham	The head waters of Saugeen River and tributaries, comprising an area of about 1,000 square miles.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF ONTARIO—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
Patrick McCarron	do	Wallaceburg	The waters of Sydenham River and tributaries, comprising about 65 miles.
J. B. Moody	do	Waubuno	The north branch of Sydenham River, from junction with main river to its sources, comprising about 20 miles.
Peter McCann	do	London	About 65 miles of the River Thames, from Wardsville to London.
John Crotty	do	Bothwell	About 25 miles of the River Thames, extending from Wardsville to Lewisville.
Timothy McQueen	do	Chatham	About 25 miles of the River Thames, from Lewisville to its mouth.
W. P. Croome	do	Brantford	About 150 miles of the waters of the Grand River and its tributaries, from Brantford upward.
W. B. Jelly	do	Bowling Green	The inland waters of the North Riding of the County of Wellington, comprised within an area of about 600 square miles.
Andrew Hughson	do	Orangeville	About 25 miles of the waters of River Credit, extending from Orangeville to Norval; together with the inland waters of the Townships of Mono, East Garafraxa, Amaranth, Albion and Luther, comprised within an area of about 500 square miles.
Robert Stewart	Overseer	Claude	The inland waters of the County of Cardwell, comprised within an area of about 400 square miles.
Wellington Hull	do	Erin	The inland waters of the Townships of Eramosa, Erin, Caledon and Esquessing, comprised within an area of about 400 square miles.
Alex. Blakely	do	Port Credit	About 1½ miles of the waters of the River Credit —from Norval to its mouth, in the County Peel.
Nelson Simmons	do	Meyersburg	The waters of Trent River, in the Counties of Northumberland and Hastings, comprising about 80 miles.
J. R. Graham	do	Fenelon Falls	The inland waters of the North Riding of the County of Victoria, lying north of Fenelon Falls, and comprised within an area of about 800 square miles.
G. B. McDermot	do	Port Perry	About 22 miles of the waters of Lake Ontario, fronting on the County of Ontario, together with Lake Scugog, including Lindsay and Scugog Rivers, in the Counties of Durham, Victoria and Ontario, about 50 miles.
George Cochrane	do	Lakefield	The waters of Pigeon, Deer, Salmon Trout, Stony, Sturgeon and Chemong Lakes, in the County of Peterboro', comprised within an area of about 500 square miles.
.....	.....	.....	The waters of Gull and Burnt Rivers and tributaries, together with Drag, Eagle, Moose, Redstone, Crooked and other lakes, lying within the East Riding of the County of Peterboro', and comprised within an area of about 400 square miles.
B. H. Sweet	Overseer	Bancroft	The inland waters of the Townships of Wollaston, Limerick, Cashel, Farraday, Dungannon, Mayo, Herschel, Monteagle, Carlow, McClure, Wicklow, Bangor, in the County of Hastings, and comprised within an area of about 1,000 square miles.
H. R. Purcell	do	Colebrook	The inland waters of the Townships of Camden, Portland, Loughboro', Sheffield and Kennebec, in the Counties of Addington and Frontenac, comprised within an area of about 500 square miles.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF ONTARIO—*Concluded.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
Robt. Gilbert	do	Ompah	The inland waters of the Townships of Palmerston, Clarendon, North Canonto, South Canonto and Miller, in the County of Frontenac, and comprised within an area of about 500 square miles.
George Lake	do	Tichbourne	The inland waters of the Townships of Bedford, Hinchinbrooke, Olden and Oso, in the County of Frontenac, and comprised within an area of about 400 square miles.
W. H. Johnston	do	Farmersville	The waters of Charleston Lake and Gananoque Lake and River, in the County of Leeds, comprising about 50 miles.
James Greer	Overseer	Warburton	The inland waters of the Townships of Leeds and Lansdowne in the County of Leeds, and comprised within an area of about 200 square miles.
Wm. Hicks	do	Athens	The waters of Upper and Lower Beverley Lakes, in the County of Leeds, comprising about 40 miles.
Geo. Jeacle	do	Westport	The waters of Rideau, Upper Rideau, Openicon, Otty, and neighboring lakes, in the County of Leeds, comprised within an area of about 200 square miles.
A. E. Mills	do	Smith's Falls	About 20 miles of the waters of Rideau River and Canal from Poonamalee Locks to Burritt's Rapids.
John Murphy	do	Perth	The inland waters of the South Riding of the County of Lanark from the narrows between Upper and Lower Rideau Lakes to Smith's Falls, comprising about 25 miles.
Eph. Deacon	do	Bolingbroke	The waters of River Tay and tributaries and Fall Bay River, in the County of Lanark comprising about 35 miles.
Alexander Wilson	do	Carleton Place	About 60 miles of the waters of Mississippi River and Lake in the County of Lanark.
Guy Read	do	Ottawa	Rideau River and tributaries from Ottawa to Burrett's Rapids, including Jock River, in the County of Carleton, comprising 55 miles.
A. Telfer	do	Braeside	The waters of Bonnechère River and lakes in the County of Renfrew, comprising about 45 miles.
M. L. Russell	do	Renfrew	The waters of Bonnechère River and tributaries in the County of Renfrew, comprising about 50 miles.
Hugh Gallagher	do	Sebastopol	The inland waters of Townships Sebastapol, Radcliffe, Lyndoch and Gratton in the County of Renfrew, comprised within an area of about 400 square miles.
Thomas McKibbon	do	Eganville	The waters of Mink and Doré Lakes in the County of Renfrew, comprised within an area of about 100 square miles.
Geo. Douglas	do	Snake River	The waters of Muskrat Lake and Snake River in the County of Renfrew, comprising about 25 miles.
Joseph Bélanger	do	High Falls	The waters of Calabogie Lake and the inland waters of the Township of Bagot, County of Renfrew, comprised within an area of about 100 square miles.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF QUEBEC—TIDAL DIVISIONS—SOUTH SHORE.

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
Wm. Wakeham.....	Officer in charge of the Fishery Protection Str. "La Canadienne."	Gaspé Basin.....	Lower St. Lawrence River and Gulf.
J. A. Verge.....	Overseer....	Cross Point.....	The estuary division of the River Restigouche, extending from Point Maguasha to Head of Tide, on the Quebec side, and from Dalhousie to Head of Tide on the New Brunswick side, comprising about 60 miles.
Pierre Cyr.....	do	Nouvelle.....	About 35 miles of the waters of Bay Chaleur, extending along the coast from Maguasha to Grand Cascapedia River, including the estuary thereof.
John Smith.....	do	New Carlisle.....	About 40 miles of the waters of Bay Chaleur, extending along the coast from the mouth of Grand Cascapedia River to Paspebiac.
John Phelan.....	do	Port Daniel.....	About 30 miles of the waters of Bay Chaleurs, extending along the coast from Paspebiac to Point Macquereau.
.....	.....	.....	About 80 miles of the waters of the south shore of the Gulf of St. Lawrence, extending along the coast from Point Macquereau, the division line between Gaspé and Bonaventure Counties, to Gaspé Basin, together with the York, Dartmouth and St. John Rivers, in Gaspé County, comprising about 100 miles of inland waters.
Ant. Chevrier.....	Overseer....	Amherst.....	About 100 miles of the waters of the Gulf of St. Lawrence around the Magdalen Islands.
Joseph Lemieux.....	do	Mountlouis.....	About 80 miles of the waters of the south shore of the River St. Lawrence, fronting on the County of Gaspé, and extending from Cape Rosiers to Mountlouis.
Jos. I. Letourneau.....	do	Ste. Anne des Monts.	About 80 miles of the waters of the south shore of River St. Lawrence, fronting on the County of Gaspé, and extending from River Ste. Anne des Monts to Cap Chatte.
Johnny Joncas.....	Overseer....	Matane.....	About 54 miles of the waters of the south shore of River St. Lawrence, fronting on the County of Rimouski, and extending from Cap Chatte to River Blanche; together with the River Matane, comprising about 12 miles of inland waters.
L. E. Grondin.....	do	Rimouski.....	About 45 miles of the waters of the south shore of River St. Lawrence, fronting on the County of Rimouski, and extending from River Blanche to Rimouski.
H. Martin.....	do	do	About 35 miles of the waters of the south shore of the River St. Lawrence, fronting on the County of Rimouski, and extending from Rimouski to the division line between the Counties of Rimouski and Temiscouata.
Nap. Levesque.....	do	Isle Verte.....	About 30 miles of the waters of the south shore of River St. Lawrence, fronting on the County of Temiscouata.
Xavier Pelletier.....	do	Ste. Anne de la Pocatière. .	About 45 miles of the waters of the south shore of the River St. Lawrence, fronting on the County of Kamouraska.
Eug. Pelletier.....	do	St. Roch des Aulnais.....	About 70 miles of the waters of the south shore of River St. Lawrence, fronting on the Counties of l'Islet Montmagny, Bellechasse and Lévis, extending from Ste. Anne de la Pocatière to Point Lévis.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF QUEBEC—TIDAL DIVISIONS—NORTH SHORE.

Name.	Rank.	P.O. Address.	Extent of Jurisdiction.
L. P. Huot.....	do	St. Roch de Québec	About 50 miles of the waters of the north and south shores of the River St. Lawrence around the Island of Orleans.
U. Bhéreur.....	do	Malbaie.....	About 60 miles of the waters of the north shore of River St. Lawrence, fronting on the County of Charlevoix, and extending from River du Gouffre to the division line between the Counties of Charlevoix and Saguenay.
L. N. Catellier.....	Overseer....	Tadoussac.....	About 80 miles of the waters of the north shore of the River St. Lawrence, fronting on the County of Saguenay and extending from the division line between the Counties of Charlevoix and Saguenay to Bersimis; and the tidal waters of the River Saguenay from its mouth to Chicoutimi, comprising 70 miles; in all, 150 miles.
Jos. Boily	Warden....	Milles Vaches.....	About 45 miles of the waters of the north shore of the River St. Lawrence, fronting on the County of Saguenay and extending from Escoumains to Bersimis.
N. A. Comeau.....	Overseer....	Godbout.....	About 115 miles of the waters of the north shore of the River and Gulf of St. Lawrence fronting on the County of Saguenay and extending from Manicouagan to Baie des Rochers, including the estuaries of Godbout, Trinity and Penticost Rivers.
T. Mignault.....	do ...	Montmagny	About 75 miles of the waters of the north shore of the Gulf of St. Lawrence, fronting on the County of Saguenay and extending from Baie des Rochers to Point St. Charles, including the estuaries of Marguerite and Moisie Rivers.
Geo. L. Duguay	do ...	Murray Bay.....	About 105 miles of the waters of the north shore of the Gulf of St. Lawrence, fronting on the County of Saguenay, and extending from Point St. Charles to Esquimalt Point, including the estuaries of the St. John and Mingan Rivers.
Geo. Gaudin	do ...	Natashquan	About 100 miles of the waters of the north shore of the Gulf of St. Lawrence fronting on the County of Saguenay and extending from Esquimalt Point to Natashquan River, including the estuaries of the Rivers Agwanus, Nabissippi and Natashquan.
G. Mathurin.....	Overseer....	Montmagny	About 100 miles of the waters of the north shore of the Gulf of St. Lawrence, fronting on the County of Saguenay, and extending from River Natashquan to Cape Whittle, including the estuaries of Washeecoutai, Kegashca, Musquarro and Olomonosheeboo Rivers.
Jean Legouvé.....	Warden	Pacachoo.....	About 140 miles of the waters of the north shore of the Gulf of St. Lawrence, fronting on the County of Saguenay, and extending from Cape Whittle to Checatica.
W. H. Whitely.....	do	Bonne Espérance..	About 65 miles of the waters of the north shore of the Gulf of St. Lawrence, fronting on the County of Saguenay, and extending from Checatica to Blanc Sablon, the boundary line between Quebec and Newfoundland, on the coast of Labrador, including the estuary of the Esquimault River.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF QUEBEC—NON-TIDAL DIVISIONS.

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
Alf. Blais.	Overseer	Causapscal	About 30 miles of the waters of Lake and River Matapedia, in the County of Matapedia, from head of Lake to Causapscal.
George Gagnon	Warden	St. Hubert	The inland water to the County of Temiscouata, comprised within an area of about 2,000 square miles.
Henri Coté	do	Baie St. Paul	Lakes in rear of Murray Bay and Bay St. Paul.
Edward Martin	do	do	do do
Jos. Simard	do	Ste. Agnes	do do
J. F. Picotin	do	Drummondville	About 60 miles of the River St. Francis, in the Counties of Yamaska and Drummond, extending from its mouth to Richmond.
N. A. Beach	Overseer	Georgeville	The waters of Lake Memphremagog, in the Counties of Brome and Stanstead, comprising about 50 miles.
P. C. Bourke	do	Somerset	The inland waters of the County of Megantic, comprised within an area of 850 square miles.
J. Laberge	Warden	Chateauguay	About 40 miles of the waters of the River St. Lawrence, fronting on the County of Chateauguay, including Chateauguay River.
John Kelly	Overseer	Beauharnois	About 50 miles of the waters of River St. Lawrence, fronting on the Counties of Beauharnois and Huntingdon; together with about 35 miles of the waters of Chateauguay and Trout Rivers.
J. O. Dion	do	Chambly	About 42 miles of the Richelieu River, extending from Sorel to Richelieu Village.
J. B. Chevalier	do	Iberville	About 30 miles of the waters of Richelieu River, extending from St. John to Lake Champlain.
P. E. Luke	do	Phillipsburg	About 15 miles of the waters of Missisquoi Bay and Pike River, in the County of Missisquoi.
P. W. Nagle	do	Sherbrooke	The inland waters of the County of Stanstead, comprised within an area of about 540 square miles.
Joel Shurtleff	do	Compton	The inland waters of the County of Compton, comprised within an area of about 1,600 square miles.
A. L. Darche	do	Sherbrooke	About 10 miles of the waters of Lake Megantic, in the County of Megantic.
J. B. McDonald	Overseer	Echo Vale	About 10 miles of the waters of Lake Megantic in the County of Megantic.
John McCaw	do	Sherbrooke	Lakes in Counties of Megantic and Wolfe.
V. Veilleux	Warden	St. Ephrim de Tring	The inland waters of the County of Beauce, comprised within an area of about 1,600 square miles.
Jos. Lambert	Overseer	Three Rivers	About 25 miles of the River St. Lawrence and Lake St. Peter, fronting on the County of St. Maurice.
Geo. Boisvert	do	Becancour	About 36 miles of the waters of the River St. Lawrence and Lake St. Peter, fronting on the County of Nicolet.
Jos. Gingras	do	Rivière David	About 30 miles of the waters of Yamaska River in the Counties of Yamaska and St. Hyacinthe.
J. A. Grant	do	Louiseville	About 35 miles of the waters of the River St. Lawrence and Lake St. Peter, fronting on the Counties of Maskinongé and Berthier, including the islands in front.
Jos. Boivin	do	River Beaudet	About 20 miles of the waters of the River St. St. Lawrence, fronting on the County of Soulanges, and extending from Point Beaudet to Coteau Landing.
Félix Latraverse	Warden	Sorel	About 60 miles of the waters of the River St. St. Lawrence and Lake St. Peter, fronting on the Counties of Richelieu, Yamaska and Berthier, including the waters around Sorel and adjoining islands.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF QUEBEC—NON-TIDAL DIVISIONS.

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
John Morris	Overseer	St. Lambert	About 50 miles of the waters of the River St. Lawrence, fronting on the Counties of Laprairie, Chambly and Verchères.
André Robert	do	Lachine	About 15 miles of the waters of the River St. Lawrence, fronting on the County of Jacques-Cartier.
Julien Montpetit	Overseer	Isle Perrot	About 15 miles of the waters of the River St. Lawrence, surfounding Isle Perrot.
Jos. Lauzon	do	Terrebonne	The Rivers Jesus and Des Prairies, comprising about 50 miles.
Jos. Filiatrault	do	Ste. Adèle	The inland waters of the Townships of Morin and Beresford, in Terrebonne and Wolfe Counties, and de Salaberry and Grandison, in Argenteuil County, comprised within an area of about 500 square miles.
Toussaint Cloutier	do	Piedmont	The inland waters of the Townships of Abercrombie, Wexford and Kilkenny, in Terrebonne and Montcalm Counties, comprised within an area of about 300 square miles.
R. W. Jones	do	St. Andrews	About 15 miles of the waters of the north side of the Ottawa River, extending from Oka to Carillon.
Theo. Sabourin	do	Rigaud	About 30 miles of the waters of the south side of the Ottawa River, extending from Cascades to Point Fortune.
Pierre St. Pierre	do	Point Fortune	About 40 miles of the waters of the Ottawa River, extending from Calumet to Carillon.
Jos. Marion	do	Hull	The waters of the Ottawa River, fronting on the County of Ottawa, comprising about 75 miles.
Ed. Mohr	do	South Onslow	The waters of the Ottawa River, fronting on the County of Pontiac, extending from the division line between the Counties of Ottawa and Pontiac to Fort Coulonge, and comprising about 50 miles.
J. T. Coghlan	do	Chapeau	The waters of the Ottawa River, fronting on the County of Pontiac, extending from Fort Coulonge to Des Joachims, and comprising about 75 miles.
Robt. Joynt	Warden	Joynt	The inland waters of the Township of Masham, in the County of Ottawa, including Bernard Lake, comprised within an area of about 90 square miles.

PROVINCE OF NOVA SCOTIA.

A. C. Bertram	Inspector of Fisheries.	North Sydney	District No. 1, comprising the Island of Cape Breton.
Robert, Hockin	do	Pictou	District No. 2, comprising the Counties of Cumberland, Colchester, Pictou, Antigonish, Guysborough, Halifax and Hants.
J. R. Kinney	do	Yarmouth	District No. 3, comprising the Counties of Lunenburg, Queen's, Shelburne, Yarmouth, Digby, Annapolis and King's.
		Annapolis County.	
Bailey, W. M	Overseer	Round Hill	Annapolis County, west of a line drawn through Round Hill, including Round Hill Brook.
Carty, W. T	do	Annapolis	Annapolis County, east of a line drawn through Round Hill.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Antigonish County.	
Aymer, J. R.	Warden	Pomquet Forks, Antigonish	From mouth of harbor to Forks; from thence on the Pomquet River to V. Chisholm's Mills, and from Forks, on the Black River, to Falls.
Cameron, Lochlin	do	Upper South River, Antigonish	From McWilliam's Bridge to head of lake.
Chisholm, Hugh	do	Lower South River, Antigonish	From Antigonish Harbor to McWilliam's, or St. Andrew's Bridge.
Chisholm, Donald	do	Salt Springs, Antigonish	From Trotter's Mill Brook to W. Thompson's Dam.
Chisholm, James	do	St. Andrews	From Campbell's Rock, on Pomquet River, to V. Chisholm's Mill on the Eastern Branch, and to Alex. McDonald's Mill on the Western Branch.
Dexter, Jno.	do	Antigonish	From Antigonish Harbor (foot of marsh) to Trotter's Mill Brook; thence up said brook to Trotter's Mill, including both branches of West River and Bailey's Brook.
Fraser, Duncan	do	St. Joseph	From Pinkeytown Bridge to Stewart's Mills.
Macadam, Alex	do	West River	From Thompson's Dam to Addington Fork's Bridge.
McDonald, Alex	do	Addington Forks	West River; from Fork's Bridge to Pinkeytown Bridge, including Jones' River and Beaver River.
McDonald, Angus	do	Tracadie	From mouth of harbor to foot of marsh; thence up Tracadie Stream to lake; from marsh up to Monastry Brook, including French Settlement Brook and Tarbitts.
McDonald, John	Overseer	Doctor's Brook	Antigonish County.
McDougall, Arch'd.	Warden	McNair's Cove, Cape George	From John McDonald (Bun's) Cove, north side of Cape George, to Crebbing Head, St. George's Bay.
Randall, Albert	do	Bayfield	From shore to Lake.
		Cape Breton County.	
Barrington, York.	Overseer	Sydney Mines	North of East Bay to Head of Sydney River, including part of Boularderie Island.
Burke, Jas. P.	do	Main-à-Dieu	Main-à-Dieu and Mira Bay.
Burke, Wm.	Warden	Burk's Bridge, Mira River	Mira Bridge and Trout Brook.
Curry, James N.	do	Sydney Forks	Sydney River and Forks.
Howie, Donald	do	do	do do
Fleming, Michael	do	Little Bras d'Or	Little Bras d'Or District.
Keefe, P.	do	Lingan	North-West Brook, Grand Lake and tributaries.
Morrison, Angus	do	Marion Bridge, Mira	Marion Bridge, Mira.
McAdam, Allan	do	Eskasoni	Eskasoni.
McCormack, Donald	do	Leitche's Creek	Leitche's Creek and George's River.
McDonald, Alex	Overseer	East Bay	South of East Bay to Salmon River.
McDonald, Archibald	Warden	Ball's Creek	Ball's Creek.
McEachen, Jno.	do	Grand Mira, North	Salmon River.
McLean, Alex.	do	Boisdale	Mill Brook.
McLellan, M.	do	Rory Brack's Brook	Rory Brack's Brook.
McNeil, D. J.	do	Benacadie River	Benacadie River and Lake.
Quinan, Francis	Overseer	Sydney	From Low Point to south head of Cow Bay, and north side of Mira Bay, including Salmon and Sydney Rivers.

SCHEDULE of the Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Colchester County.	
Corbett, H.	Warden.	Five Islands.	Harrington and North Rivers.
Davison, J. W.	Overseer.	Upper Economy.	Colchester County, Western Division.
Frame, Samuel.	Warden.	Shubenacadie Riv'r	Shubenacadie River and Gay's River.
Fulton, George.	do	Stewiacke River, Brookfield	Stewiacke River (upper portion).
Fulton, R. K.	do	Folly Village.	De Bert River.
Fulmer, Jesse.	do	Five Islands.	East and Bass Rivers.
Gass, H.	Overseer.	Tatamagouche.	Northern Division, County Colchester, comprising Tatamagouche Bay, French and Waugh's Rivers.
Johnson, A. O. B.	Warden.	Middle Stewiacke.	Lower Stewiacke River.
Johnson, T.	do	Salmon Riv., Truro	Salmon River.
Moore, George.	do	Economy.	Economy River.
Murray, Math. G.	do	Truro.	Salmon River.
McKay, Dan.	do	Tatamagouche Riv.	Waugh's River.
Pollock, R. J.	Overseer.	Lower Stewiacke.	Stewiacke River (lower portion).
Rutherford, Ed.	Warden.	Stewiacke.	Stewiacke River.
Urquhart, Hy.	do	Folly Village.	Folly River.
		Cumberland County.	
Fowler, Elijah.	Overseer.	Parrsboro'.	Cumberland County, Western Division, including all streams flowing into the Bay of Fundy.
Gilroy, Geo. W.	do	Oxford.	Cumberland County, Eastern Division, embracing all streams emptying into the Straits of Northumberland.
Harrison, Moses.	Warden.	Maccan.	Maccan River.
Jenks, Frs. L.	do	Parrsboro'.	Parrsboro' Head.
Logan, Isaac.	do	Amherst Point.	Laplanche and Nappan Rivers.
Murphy, Wm.	Overseer.	Wallace.	Wallace River.
McPherson, Samuel.	Warden.	Pugwash River.	Pugwash River.
Porter, Jos.	do	River Herbert.	River Herbert.
Smith, Sydney.	do	Advocate Harbor.	Apple River.
Smith, Thos. R.	do	Shinimicas River.	Shinimicas River.
Taggart, Pat.	Overseer.	Pugwash.	Smelt and oyster fisheries at Pugwash.
Wills, Alex. M.	Warden.	Moose River.	Moose and Harrington Rivers.
		Digby County.	
Collins, J. A.	Overseer.	Westport.	Western Division of Digby County, Long and Brier Islands.
Hanley, Wm.	do	Digby.	Digby County, Eastern Division.
Journey, Robt.	Warden.	Weymouth.	Sissiboo River.
McKay, Lochlin.	do	Barton.	St. Mary's Bay.
Potter, Chs. T.	do	Joggins' River.	Joggins River to Bear River.
		Guysboro' County.	
Bruce, J. R.	Warden.	Guysboro'.	From mouth Clam Harbor River to Upper Falls.
Cameron, Angus.	do	East River.	East River, St. Mary's.
Cameron, D., sen.	do	Upper Caledonia.	West River, St. Mary's, from Wallace's Bridge to head of River.
Cook, Jas.	do	Salmon River.	Salmon River, from mouth to Graham's West Line.
Cross, John.	do	Indian River.	Indian River, from mouth to source, District of St. Mary's.
Gunn, Donald.	do	Cross Roads.	From mouth to Scott's Place, to Country Harbor Lake, including Gunn's Brook, from Main River to Hurley's Lake.
Henderson, Jas.	do	Isaac Harbor.	Isaac Harbor and River.
Hudson, Saml. (Lewis' son).	Warden.	Country Harbor.	Country Harbor and River, from Bridge at Narrows to Mouth.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Guysboro' County —Con.	
Jones, John	Warden	Mouth of Salmon River	Mouth of Salmon River.
Jordan, Wm	do	Glenelg	St. Mary's River, extending from Alex. Ross' (above still water) to Hugh Halters', on the West River.
Kenny, Chas	do	Salmon Riv., West Branch Guysboro'	From foot of Neil's Lake to Beaver Dam Lake, inclusive, and all the lakes through which it passes.
Manson, Alex	do	Lochaber Lakes	St. Mary's Rvier, from Wallace's Lake to Fischer's Mill Dam.
Mattie, Frederick	do	Tracadie, County of Antigonish	Tracadie River to Counties of Guysboro' and Antigonish.
Munroe, W. M.	do	Cole Harbor	Cole Harbor River.
McDonald, Wm.	do	Stillwater	St. Mary's River.
McKay, Robt.	do	Guysborough, Intervale	From head of tide to head of Intervale, on the North Branch, and to Cameron's Mill, on the Valley Branch.
McKeen, Thos	do	Melrose	From Forks to County Line, including McQueen's Mill and Brook to Lake.
McEllum, Jas	do	Salmon River	From Graham's West Line to foot of Neil's Lake, including North Branch and Lake.
McGrath, Adam	do	Cross Roads, St. Mary's	From junction of Antigonish Branch, St. Mary's River, to the head of Two Mile Lake.
McQuarrie, Allan	Overseer	Sherbrooke	District of St. Mary.
Pride, Wm	Warden	Sherbrooke, St. Mary's	From mouth of St. Mary's River to Sinclair Point, including stream from Wine Harbor to Lake.
Sinclair, Robt.	do	Goshen	Eight Island Lake, from Sinclair's Mill to head waters.
Smith, J.	do	Cross Roads	From Cross Road Bridge, Country Harbor River to Eight Island Lake.
Smith, J. P.	do	West River	From H. Hattie's north line to Indianman's Brook, including all tributaries.
Sears, George	do	Sherbrooke	Sherbrooke.
Tory, Jas. A.	Overseer	Guysborough	Guysborough County.
		Halifax County.	
Blakely, Jas	Warden	Ship Harbor	From Ship Harbor to Chezzetcook inclusive.
Coolen, Chas	do	Shad Bay	Peggy's Cove to Torrence Bay including Prospect and Nine Mile Rivers.
Conrad, Chas.	do	Cole Harbor	Cole Harbor.
Fitzgerald, John	Overseer	Portuguese Cove	Halifax Harbor to Margaret Bay, Portuguese Cove.
Fraser, John	Warden	Moser's River	Moser's River and Ecum Secum and Smith's Brook.
Fraser, O. P	do	Ecum Secum, Co. Guysboro'	Ecum Secum River.
Henry, Chas. G.	do	Upper Musquodoboit	Upper Musquodoboit River.
Hughes, P.	do	Tangier River	Tangier River.
Hemlan, Joshua	do	Nine Mile River	Upper Nine Mile River.
Keizer, Geo.	do	Lake Porter	Lake Porter and Streams.
Mason, Nath.	do	Head of Margaret's Bay	From Hubert's to Peggy's Cove, Margaret's Bay, Ingraham and Indian Rivers.
Mosher, Dan.	do	Cow Bay, Dartmouth	Cow Bay Run.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Halifax—Con.	
McDonald, Jno	do	Lawrencetown	Big Salmon River, or Lawrencetown River.
McKiel, Nath	do	Sheet Harbor	Sheet Harbor.
McCleam, Donald	do	Chezzetcook River.	Chezzetcook River.
McLeod, George	do	Little Musquodoboit	Middle Musquodoboit River.
Rowlings, Geo.	Overseer	Musquodoboit Harbor	Halifax County, East Division, Dartmouth to Ecum Secum.
Shatford, H. A	Warden	Hubbard's Cove	Pennant River.
Stevens, Robt	do	Musquodoboit Harbor	Musquodoboit River.
Walker, Wm. G	do	Little Salmon R., Preston Road	Little Salmon River.
Whitman, James E	do	Salmon River	Salmon River.
		Hants County.	
Burnham, P. S	Overseer	Windsor	Hants County, Western Division, from Western County Line to Walton.
Colter, John B	do	Milford	Shubenacadie River.
Horne, Arch	Warden	Enfield	South end of Shubenacadie and Nine Mile River.
Mosher, Jas	do	Brooklyn	Rivers Meander and Herbert, from mouth to source.
Mosher, Noah	do	Mosherville	Kennetcook River, from mouth to head of tide.
O'Brien, Jas	do	Maitland	Walton and Kennetcook Rivers.
Smith, W. B	Overseer	Maitland	Shubenacadie River from Five Mile River to its mouth and the south side of Cobequid Bay to Noel.
Snide, John	do	Shubenacadie	Shubenacadie River from Shubenacadie to and including Five Mile River.
		Inverness County.	
Benvie, Peter	Warden	Mabou, Brook Village	Mabou River.
Coady, James	Overseer	S. W. Margaree	Inverness County, East Division.
Crowdis, Mark	Warden	Big Interval	From Bridge to Forks, North-East Margaree River.
Dowling, David	do	Riverside	River Inhabitants.
Gillies, Peter	do	S. W. Mabou	S. W. Mabou.
Graham, Stephen	do	Long Point	Long Point and Judique Rivers.
Murphy, Moses	do	N. E. Margaree	Ainslie Lake.
McDonald, M. B	do	River Dennis	River Dennis.
McDougall, Murdock	do	Lake Ainslie	Trout River.
McEachan, P.	Overseer	Glendale	South Inverness District.
McFarlane, Angus (Angus' son)	Warden	Upper South-West Margaree River.	Upper South-West Margaree River.
McKay, Neil	do	S.W. Margaree Riv	Upper waters and tributaries, Margaree River.
McKay, Neil	do	Trout Brook	Trout Brook, Lake Ainslie.
McKinnon, Angus	do	N.E. Margaree Riv	Crowdis Bridge to head of river.
McLean, D. F	Overseer	Port Hood	Inverness County, Western Division.
McLennan, Allan	Warden	River Dennis	River Dennis and Basin.
Ross, David	Overseer	N. E. Margaree	Inverness County, East Division.
		King's County.	
Bishop, C. E	Warden	Horton	Gaspereaux River.
Brown, Philip	do	Blomidon	Blomidon.
Miller, Jas. S	Overseer	Canning	King's County.
Murphy, L. A	Warden	Gaspereaux	Gaspereaux River.
McIntyre, W	do	Aylesford	Annapolis River.
Reid, R. F	Overseer	Wolfville	King's County.
Thorpe, J. W	Warden	Hall's Harbor	Hall's Point to Cape Split.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Lunenburg County.	
Besancon, Isaiah	Warden	Chester Basin	Middle River.
Boylan, Edward	do	New Ross	Gold River, Upper.
Burns, Amon	do	Upper La Have	From Cooks to source of La Have River.
Cooney, Wilbur	do	Chester	East Branch, Middle River.
Croft, Wm	do	Chester Basin	East Gold River, from Bongard's Point to Gold River Branch, thence to Clarke's, Clinton's and Henry's Lakes.
Demon, David	do	Lower Gold River	Lower Gold River.
Evans, David	Overseer	Chester	Lunenburg County, East Division, Middle Gold, Martin's and Mushamush Rivers.
Godard, C. E	do	Bridgewater	La Have River.
Hebb, Elie	Warden	Hebb's Cross, West Conquerall	Petite River, from Wallace Brook to source.
Hutt, John	do	Beach Hill, Chester	Middle Gold River.
Keating, Michael	do	East River	East River.
Keddy, J. H	do	New Ross	Larder's River.
Langille, James	do	Chester	Martin's River.
Mossman, Josiah	do	Lunenburg	From Henry Kock's to Knock's.
Meisner, Jacob	Warden	Chester	East River.
Nesbitt, G. A	do	Petite River	Petite River mouth to Wallace Brook.
Schmeisser, N	do	East LaHave Ferry	La Have River, from mouth to Wilkie's Cove.
Solomon, W. M	Overseer	Lunenburg	Western Division, Lunenburg County.
		Pictou County.	
Cameron, Allan	Warden	Kenzeeville, Barney's River	East Branch, Barney's River, from Sutherland's Marshy Hope to Barney's River.
Cameron, Thos	do	West Durham	West River.
Campbell, Peter	do	New Glasgow	East River.
Campbell, A. F	do	Pictou Island	Pictou Island Lobster Fishery.
Douglas, Alex	do	Alma	Middle River.
Foot, Jas	do	Lower French Riv.	Lower French River.
Fraser, Donald	do	Hopewell	Fork and West Branch Lake.
Fraser, Thos	do	Island Hopewell	East River, from Tide Head to Grant's Factory.
Fraser, Samuel	do	Bridgeville	Grant's Factory to East Branch Lake.
Murray, D. A	do	Avondale	Barney's River, from McDonald's Bridge to head.
	Overseer	Lismore	Pictou County, East Division, including Sutherland's, French and Barney's Rivers, Bailey's Brook and Shore Factory, from Pictou Harbor eastward to County Line.
McDonald, Donald	Warden	New Glasgow	Sutherland's River.
McDonald, Wm	do	French River	French River.
McDougall, Chas	do	Garden of Eden	East River of St. Mary's and Garden Lake.
McKay, John	do	River John	River John.
McKenzie, Geo	do	Lower Cariboo Riv.	Cariboo River.
McLean, Donald	do	Avondale	Barney's River.
McLean, Donald	do	Bailey's Brook	Bailey's Brook.
Pritchard, A. O	Overseer	New Glasgow	Central Pictou County, including Middle, East and West Rivers.
Sutherland, Robt	do	River John	Pictou County, West Division, including Middle, East, West, Cariboo, Tony and John Rivers.
		Queen's County.	
Fitzgerald, John	Overseer	Mill Village	From Steam Mills to Salter's Falls on Port Medway River.
Ford, Theo	Warden	Milton	Milton Bridge up to Port Liverpool River.
Foster, I. C	do	Port Medway	Puddingpan Island to Toby's Island.
Miles, Barnabas	do	Greenfield	Salter's Falls to Pawn Hook, on Port Medway River.
Sellon, S. T. N	Overseer	Liverpool	Queen's County.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Richmond County.	
Cameron, Duncan	Overseer	St. Peter's	Eastern Division, from River Bourgeois to east boundary of County, including said River.
Grant, Charles	Warden	River Inhabitants.	River Inhabitants.
Gerroir, Felix.	do	Arichat	Grand Ruisseau.
Grouchy, J. P	do	do	Descousse River.
Kyte, Patrick	do	River Tier, St. Peter's	River Tier.
Marmeau, Frs	Overseer	Arichat	Western Division, from River Bourgeois to west boundary of County.
Murchison, Donald	Warden	Grand River	Grand River.
McPherson, Farquhar	do	Riv. Moulin, Grandigue Ferry	River Moulin.
McRae, Allan	do	West Bay	West Bay, Black River.
Proctor, John, sen.	do	Port Hawkesbury	Inhabitants River.
Sampson, M.	do	Petit de Grat	Petit de Grat Inlet.
Sampson, J	do	L'Ardoise	L'Ardoise.
		Shelburne County.	
Acker, Timothy	Warden	Birchtown	Birchtown River.
Crowell, P.	do	Barrington	Barrington River.
Goudy, E. S.	Overseer	do	Clyde River to Yarmouth County Line.
Holden, C. A.	Warden	Jordan River	Ogden's Brook and Indian River.
Kehoe, M.	do	Lockeport	Green Harbor.
McGill, W. Jno.	Overseer	Shelburne	Shelburne County.
McKinney, Lewis.	Warden	Round Bay	Round Bay River.
McLean, Wm.	do	Port Saxon	Port Saxon.
Nichol, F. G.	do	Clyde River	Clyde River.
Ryer, George	do	Shelburne	Roseway River.
		Victoria County.	
Beaton, Roderick	Warden	McNaughton	Hume's River.
Bingham, Wm	Overseer	Englishtown	Englishtown and Ingonish Division.
Buchanan, Donald	Warden	Barachois River	Barachois River.
Capstick, Thos.	do	Bay St. Lawrence.	Salmon River, Bay St. Lawrence.
Finlayson, Donald	do	Middle River	Middle River.
Foyle, Wm	do	Baddeck River	Peter's Brook.
Hellen, Robt.	do	Cape North	Cape North.
Ingraham, G.	do	Baddeck	From Baddeck to head of Long Point.
McAuley, Donald	do	do	Baddeck River.
McCharles, D.	do	S. Gut, St. Ann's.	South Gut, Ste. Ann's.
McDonald, Duncan	Overseer	Aspy Bay	Victoria County, North Division, from Smoky Head to Bay St. Lawrence.
McDonald, Archd.	Warden	do	South Branch, Middle River.
McDonald, Archd.	do	North Harbor	North Harbor.
McDougall, Michael	do	Washabuck River.	Washabuck River.
McGregor, Frs.	do	Hunter's Mount'ns	Entrance of Baddeck River.
McIver, Malcolm	do	Indian Brook	Indian Brook.
McKenzie, Chris.	do	Baddeck	Middle River.
McLeod, Donald	do	St. Ann's River	River St. Ann's.
McLellan, John.	do	Middle River	Middle River.
McMillan, Donald	do	Baddeck	Baddeck River.
McNeil, John S.	do	Grand Narrows	From Grand Narrows to McKay's Point.
McQuarrie, Donald.	Overseer	Baddeck	Victoria County, South Division.
McRae, John (Rory's son)	Warden	McLeod	Middle River.
McRae, Donald.	do	Baddeck.	Baddeck River and tributaries.
McRae, Kenneth.	do	Middle River	Indian Brook.
McRae, Donald.	do	Red Head, Baddé'k	Red Head, Baddeck.
McRae, John	do	Gold Diggings, Mlddle River	Gold Diggings, Middle River.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NOVA SCOTIA—*Concluded.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Yarmouth County.	
Brand, J. I.	Warden	West Pubnico	Pubnico and Argyle.
Doucet, Jérôme	do	Tusket	Tusket River.
Hatfield, J. A	Overseer	do	Yarmouth County.
Jeffrey, James	Warden	Overton	From Chebogue Point to Chegoggin Point.
Kavanagh, Wm.	do	Tusket	Gurill's Bridge to Coldstream.
Muise, Vital	do	Tusket Forks	Tusket Forks.
Nickerson, E.	do	Yarmouth	Salmon River.
Porter, Z.	do	Beaver River	Beaver River.
Porter, John B	do	Eel Lake	Eel Lake.
Thurston, Wm., sr.	do	Chegoggin	Chegoggin River.

PROVINCE OF NEW BRUNSWICK.

J. H. Pratt	Inspector of Fisheries and officer in command of 'Cruiser'	St. Andrew's	District No. 1, comprising the County of Charlotte, including the Islands of Campobello and Grand Manan, and Passamaquoddy Bay.
Robert A. Chapman	Inspector of Fisheries.	Moncton	District No. 2, comprising the Counties of Restigouche, Gloucester, Northumberland, Kent and Westmoreland.
David Morrow	do	Oromocto	District No. 3, comprising the Counties of Albert, St. John, King's, Queen's, Sunbury, York, Carleton and Victoria.
		Albert County.	
Dryden, J. W	Warden	Hillsboro'	Mouth of Petitcodiac River and Dorchester Bay.
Oliver, Bartlet	do	Harvey, Little Rocher	Rocher Bay.
Stewart, Suthd	Overseer	Alma	County of Albert.
Taylor, Wallace	Warden	Coverdale	Petitcodiac River.
Wilbur, Kinnear T.	do	Midway, Harvey	Germantown Lake and Shepody River.
		Carleton County.	
Burt, George R.	Overseer	Upper Woodstock.	St. John River and tributaries, from Long Creek, to Tobique River.
Lindsay, G. Alex	do	Highlands	Miramichi River (S. W.) from head waters to forks.
Scott, J. W.	Warden	Canterbury	St. John River, from Eel River to Woodstock.
		Charlotte County.	
Ash, Wm.	Overseer	Beaver Harbour	East District of County Charlotte.
Barry, Thos	Warden	Lower Falls, Magaguadavic	Lower Falls, Magaguadavic River.
Best, G. S.	Overseer	Beaver Harbour	East Division, from La Tête to Lepreaux.
Brown, Barth.	do	Campobello	Campobello and West Isles, with coasts and streams in Charlotte County.
Campbell, D. F.	do	St. Andrew's	Inner Bay of Passamaquoddy.
Carrol, Edward	Warden	Grand Manan	Whitehead Island.
Dick, Samuel	do	La Tête	Inner Bay, Passamaquoddy.
Dixon, Robert	do	Lepreaux	Seely's Cove to Lepreaux.
Holmes, Thomas	do	Deer Island	West side, Deer Island.
Johnson, Robt.	do	Upper Falls, Magaguadavic	Upper Falls, Magaguadavic River.
Lord, J. M.	Overseer	Deer Island	Deer Island.
McLaughlin, W. B.	do	Grand Manan	Grand Manan Island and spawning grounds.
Todd, Frank.	do	St. Stephen	St. Croix River and tributaries.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NEW BRUNSWICK—*Continued.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Gloucester County.	
Aché, Adolphe	Warden	Shippegan	Shippegan.
Boyd, Alex	Overseer	Miscou Harbour	Little Shippegan to Miscou.
Calnan, John, jun	Warden	Kinsale	That part of River Tête à Gauche, from a mile above the Mill Dam to the source of said river.
Comeau, Frédéric	do	Petit Rocher	Petit Rocher, from Belledune to Mill Stream.
Cormier, Gustave	Overseer	Caraquet	Caraquet Herring Banks.
Dempsey, Miles	Warden	Salmon Beach	Salmon Beach, from Bass River to Grindstone Point.
Gibbs, Valentine	do	Pokemouche	Pokemouche.
Hache, J. L	Overseer	Caraquet	Caraquet and Shippegan oyster beds with St. Cimon's Inlet and River.
Hickson, James	Overseer	Bathurst	River Nepissiguit and tributaries, with sea coast and streams, from Belledune River to Grindstone Point.
Poirier, Joseph	do	Grande Anse	Bay Chaleurs, between Grand Anse and Point Mizzonette.
Robicheau, Olivier	Warden	Ferguson's Point	Coast from Northumberland County line to Green Point, with Big and Little Tracadie Rivers.
Rogers, W	do	Tête à Gauche, Bathurst	Tête à Gauche River.
Sisk, William	do	Black Rock	Grindstone Point to Grand Anse.
Trudel, Camille	do	Shippegan	Shippegan.
Walsh, William	Overseer	Pokemouche	The District of Pokemouche.
		Kent County.	
Collet, A. L	Warden	Buctouche	Buctouche Bay.
Cormier, Chas	Overseer	Cocagne	Cocagne River.
Girouard, M. A	do	Buctouche	Big Buctouche River.
Guimon, Lazare	do	St. Louis	From Kouchibouquacis to Chockfish River.
Hannah, Wm. F	do	Richibucto	Richibucto River.
Leger, F. B	Warden	Little Buctouche River	Little Buctouche River.
Leblanc, A. T	Overseer	Legerville	Canaan River (upper part).
Mauzerolles, Nicholas	Warden	Kouchibouquacis	From Kouchibouquacis River to Point Sapin.
Miller, Jas. L	do	Kingston	From mouth of Nicholas River, on the Buctouche, upwards, including Nicholas River.
		King's County.	
Belyea, J. A	Overseer	Westfield	St. John River and Belle Isle Bay and streams running thereinto.
Fenwick, Edwin	Warden	Studholm	Millstream.
Gosline, Samuel	Overseer	Smith's Creek	From mouth of Smith's Creek, upwards.
Pearson, I. R	Warden	English Settlement	Washademoak Lake and its tributaries in King's and Queen's Counties.
Spragg, Z. S	do	Belle Isle	Belle Isle Bay.
		Northumberland County.	
Parker, Thos	Overseer	Newcastle	Main S. W. Miramichi River from Doaktown to Beaubair's Island.
Wyse, William	do	Chatham	Main Miramichi River and Bay, from Nelson to Burnt Church, both sides.
Williston, J. G	do	Bay du Vin	Miramichi Bay from Point aux Car to Fox Island.
Noble, John	do	Miramichi Bay	Miramichi Bay, from Fox Island to Point Escuminac.
Robertson, John	do	Tabusintac	Coast line and Miramichi Bay, from Gloucester County line to Neguac.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF NEW BRUNSWICK—*Concluded.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Northumberland County—Con.	
Robichaud, P.	do	Upper Neguac	Inner Miramichi Bay, from Neguac to Burnt Church.
Hogan, John	do	Newcastle	Main Miramichi River and North-West Miramichi, from Chatham upwards, including Little South West and Sevogle Rivers.
Martin, Alex	Warden	Neguac	Miramichi Bay at Neguac.
Irving, William	do	Lower Newcastle	Main Miramichi at Lower Newcastle.
Watling, Tubal	do	Black River	Black River.
		Queen's County.	
Hetherington, I. T	Overseer	Jenkins, Johnson	From Cole's Island to foot of Washademoak Lake
Langan, Isaih	Warden	Chipman, Gaspereaux	Salmon River.
Philips, Robert	do	Canaan Rapids	Head waters, Washademoak Lake.
		Restigouche County.	
McPherson, Alex	Overseer	River Charlo	From Belledune to Dalhousie.
		Sunbury County.	
Griffith, Chas	Overseer	Burton	St. John River, Indiantown to County Line of York.
Hoben, G. W	Warden	Sheffield	do do do
		St. John County.	
O'Brien, Jos	Overseer	Carleton, St. John.	St. John County.
Rourke, E. V	do	St. Martin's	Eastern part of St. John County, from Quaco Head to Goose River.
		Victoria County.	
Caron, Magloire	Warden	Middle St. Francis	Above Fish River Rapids.
Edgar, Thos	do	Three Rivers	Middle Division, Tobique River.
Larlie, Daniel	do	Andover	Salmon River.
McDougall, John	do	Rocky Brook, Parish of Lorne.	Three Brooks, Branch of Tobique River.
Pelletier, Beloni	do	Caron's Brook	Baker's Lake and adjoining streams.
Roberts, Chas., jun	do	Andover	Lower Division, Tobique River.
Ryan, Thos. D	Overseer	Grand Falls	County of Victoria.
		Westmoreland County.	
Cormier, D. T	Overseer	Pré-d'en-haut	Dorchester Bay.
Deacon, W. B	do	Shediac	Shediac Harbor and River.
Goodwin, Robt	do	Bay Verte	The Parish of Sackville and Westmoreland.
		York County.	
Campbell, J. A.	Warden	Kingsclear, Fredericton	Grand Pass, on St. John River, upwards, from Crock's Point to Lower Line of York County, including Nashwaak River.
Cronkhite, A. B	do	Southampton	St. John River, from Upper Line of York County to Crock's Point, on River St. John.
Cunningham, A.	Overseer	Canterbury St'tion	Skiff and Palfry and other lakes.
Glendenning, D.	Warden	Harvey Station	Magaguadavic Stream and Lake Oromocto and other lakes.
McNelly, L.	do	Upper Kingsclear.	From Burgoyne's Ferry to Nackawack.
Moir, A	Overseer	Bloomfield	From Price's Bend to Burnt Hill, S.W. Miramichi.
Orr, Robt	do	Fredericton	County of York.

SCHEDULE of Fishery Officers, &c.—*Continued.*

PROVINCE OF PRINCE EDWARD ISLAND.

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
Edward Hackett.....	Inspector of Fisheries.	Tignish	Prince Edward Island.
		King's County.	
Conaghan, John.....	Warden	Bay Fortune.....	Bay Fortune, from Little River to Rollo Bay.
Cuddie, James.....	do	Murray Harbor...	Murray Harbor and River, with Lots 63 and 64.
Dingwell, J. H.....	do	Morell River.....	Fourth District of Morell.
Duffy, Peter.....	do	St. Peter's.....	St. Peter's and Morell.
Griffin, Henry.....	do	Georgetown.....	Cardigan Bay and Montague River.
Mathewson, M.....	do	Grand River	Grand River.
Mitchel, James..	do	Peake's Road.....	First District of Morell.
Morrow, Henry.....	do	Souris River	Souris River.
McCullough, Patrick....	do	Peake's Road.....	Third District of Morell.
McDonald, Allan.....	do	North Lake.....	North Lake.
McDonald, Ronald.....	do	Naufrage River...	Naufrage River.
O'Brien, John.....	do	Morell River.....	Second District of Morell.
Reilly, Daniel.....	do	Montague River..	Montague, from Georgetown Road to Whim Road, and from County Line to the coast.
		Queen's County.	
Beers, George F.....	Warden	Cherry Valley....	Pownal Bay and Seal River.
Buotte, Dominique.....	do	Rustico.....	District of Rustico.
Currie, Neil.....	do	Long Creek, West River.....	Shore of Lot 65, South of West River.
Delaney, Jonathan.....	do	New London.....	New London.
Garnum, Lionel.....	do	Winter River.....	Winter River.
Howatt, James.....	do	Crapaud.....	Crapaud.
Loughrin, John	do	Orwell.....	Orwell and Newton.
MacKenzie, Finlay.....	do	Pinette River.....	Lots 60 and 62.
Murphy, Thomas.....	do	Stanley Bridge....	Trout River.
Murphy, Joseph.....	do	China Point, Lot 50	District of Pownal Bay and Seal River.
McDonald, Charles C...	do	Blooming Ponds..	Alewife fishery of Blooming Ponds.
Powers, James.....	do	Hunter River.....	Huntly and Wheatley Rivers.
Ready, Michael.....	do	Tracadie.....	Winter River.
Shaw, A. C.....	do	Long Creek, Lot 65	District of West River.
Stanley, Francis.....	do	Charlottetown	Charlottetown, including East, West and North Rivers.
Stephenson, George.....	do	New Glasgow.....	New Glasgow River.
Whitehead, Willam.....	do	S. W. River.....	South-West River.
		Prince County.	
Arsenault, S. P.....	Warden	Egmont Bay.....	Lot 15, Egmont Bay.
Aylward, Peter..	do	Tignish	Skinner's Pond, southward, from south end of Nail Pond to Black Pond, inclusive, and east to railway.
Bryant, D. L.....	do	Mount Pleasant, Lot 18.....	From western bank of Big Pierre Jacques River to the point where the north line of Lot 15 touches the shore of Egmont Bay.
Chiasson, John..... (Chapel)	do	Tignish.....	Tignish, from line of Lot 2, northward to include Little and Big Tignish, and westward to Railway.
Clark, Henry.	Overseer....	Lower Freetown..	Dunk River and Egmont Bay.
Doyle, Lawrence..	Warden	Lot 3.....	From Little Miminigash to Cape Wolfe.
Gillis, V. S.....	do	Indian River, Lot 18.....	Richmond Bay and Malpeque.
Holland, J. F. B.....	do	Bedeque	From Graham's Head, Lot 26, to Cape Traverse.
Howat, Calvin.....	do	Tryon River.....	Tryon River.
McBride, Patrick.....	do	Central Bedeque..	Dunk River.
McDonald, James A....	do	Grand River.....	Grand River.
McDonald, Alex.....	do	Alberton	Cascumpeque Bay and Inlet, from the Narrows to Kildare Capes.

SCHEDULE of Fishery Officers, &c.—*Concluded.*

PROVINCE OF PRINCE EDWARD ISLAND—*Concluded.*

Name.	Rank.	P. O. Address.	Extent of Jurisdiction.
		Prince Co.—Con.	
Nelligan, James M.	Warden	Nail Pond	Nail Pond, Skinner's Pond.
Ramsey, J. A.	do	Hamilton, Lot 18.	Oyster Cove, Richmond Bay.
Ramsey, James	do	Tyne Valley	Lot 13, Trout River.
Ramsey, J. K.	do	West Cape	From Cape Wolfe to Brae River.
Reid, Peter	do	Coleman	Lots 5, 6 and 10.
Rix, John	do	Miminigash	Miminigash.
Sharpe, John A.	do	Summerside	Summerside, including Bedeque Bay and South part of Richmond Bay.
Sharpe, George A.	do	Lot 12	Lot 12, on the Narrows.
PROVINCE OF MANITOBA AND NORTH-WEST TERRITORIES.			
Alex. McQueen	Inspector	Winnipeg	Province of Manitoba.
F. C. Gilchrist	Overseer	Fort Qu'Appelle	Qu'Appelle River and adjoining lakes.
O. T. Stone	do	Sussex, Craven P.O	Long Lake, North-West Territories.
PROVINCE OF BRITISH COLUMBIA.			
Thomas Mowat	Inspector	New Westminster	Province of British Columbia.

FISH CULTURE.

Name.	Rank.		P. O. Address.
Samuel Wilmot	Superintendent of Fish Culture for the Dominion		Ottawa.
Charles Wilmot	Officer in charge of Government Fish Hatchery		Newcastle, Ont.
William Parker	do	do	Sandwich, Ont.
L. N. Catellier	do	do	Tadoussac, Que.
	do	do	Gaspé Basin, Que.
Alex. Mowat	do	do	Deeside, Metapedia, Que.
A. H. Moore	do	do	Magog, Que.
A. B. Wilmot	do	do	Bedford Basin, N. S.
C. A. Farquharson	do	do	Sydney, C. B., N. S.
Isaac Sheasgreen	do	do	South Esk, N. B.
Charles, McCluskey	do	do	Grand Falls, N. B.
Thomas Mowat	do	do	New Westminster, B. C.

RECAPITULATION.

Provinces.	No. of Officers.
Ontario	93
Quebec	64
Nova Scotia	257
New Brunswick	88
Prince Edward Island	51
Manitoba and North-West Territories	3
British Columbia	1
Fish Culture	12
Officers and crews of seven fisheries protection vessels	161
Total	730

In addition to the above regular staff, 102 temporary local Guardians were employed during the year as occasion required.

APPENDIX No. 2.

FISHING BOUNTIES.

GENERAL STATEMENT of Fishing Bounty Claims received for the Year 1888.

Province.	County.	No. of Claims Received.	No. of Claims Rejected.	No. of Claims held in abeyance.	No. of Claims Paid.
Nova Scotia	Annapolis	203	2		201
	Antigonish	160	1		159
	Cape Breton	514	7		507
	Colchester	1			1
	Digby	314	1		313
	Guysboro'	1,190	1		1,189
	Halifax	1,388	3	14	1,372
	Inverness	684	2		682
	King's	54	1		53
	Lunenburg	812	1	1	810
	Pictou	15			15
	Queen's	209	1		208
	Richmond	1,290	2		1,288
	Shelburne	693	2		691
	Victoria	729	6		723
	Yarmouth	225	8		217
	Totals	8,481	38	15	8,429
New Brunswick	Charlotte	773	4		769
	Gloucester	952	15		937
	Kent	240	3		237
	Northumberland	27	13		14
	Restigouche	1			1
	St. John	61	4		57
	Westmoreland	11			11
	Totals	2,065	39		2,026
Prince Edward Island	King's	624	14	313	304
	Prince	389	3		389*
	Queen's	140			141
	Totals	1,153	17	313	834
Quebec	Bonaventure	1,459	3		1,456
	Gaspé	2,320	10		2,311*
	Rimouski	11	5		6
	Saguenay	538	1		537
	Totals	4,328	19		4,310

RECAPITULATION.

Nova Scotia	8,481	38	15	8,429
New Brunswick	2,065	39		2,026
Prince Edward Island	1,153	17	313	834
Quebec	4,328	19		4,310
Grand Totals	16,027	113	328	15,599

*NOTE.—The number of Bounty Claims paid for 1888 includes several claims of previous years held in in abeyance for enquiry. This will explain the difference between claims paid and claims received after deducting those rejected and held in abeyance.

GENERAL STATEMENT of Payments made on account of Fishing Bounty Claims to **Boats** and **Vessels**, for the year 1888.

Province.	County.	Amount Paid.	Total.
		$ cts.	$ cts.
Nova Scotia	Annapolis	1,370 51	
	Antigonish	1,063 50	
	Cape Breton	4,041 33	
	Colchester	85 50	
	Digby	3,446 18	
	Guysboro'	9,564 21	
	Halifax	11,615 99	
	Inverness	6,679 90	
	King's	395 95	
	Lunenburg	17,687 81	
	Pictou	110 50	
	Queen's	2,669 82	
	Richmond	10,499 15	
	Shelburne	9,036 09	
	Victoria	4,999 50	
	Yarmouth	6,519 96	
			89,785 90
New Brunswick	Charlotte	6,561 00	
	Gloucester	8,749 96	
	Kent	2,014 98	
	Northumberland	228 34	
	Restigouche	28 50	
	St. John	799 64	
	Westmoreland	72 50	
			18,454 92
Prince Edward Island	King's	2,721 06	
	Prince	4,608 50	
	Queen's	1,763 40	
			9,092 96
Quebec	Bonaventure	9,891 50	
	Gaspé	17,625 55	
	Rimouski	27 50	
	Saguenay	5,314 20	
			32,858 75
			150,192 53
	LESS—Refund		7 00
	Grand Total		150,185 53

NOTE.—Of the above amount $194.90 has been charged against the appropriation for 1889-90.

DETAILED STATEMENT showing Fishing Bounties paid to **Vessels** in each County, for the Year 1888.

Province.	County.	No. of Vessels.	Tonnage.	Average Tonnage.	No. of Men.	Amount Paid.
						$ cts.
Nova Scotia	Annapolis	8	180	22	31	217 01
	Cape Breton	17	332	20	55	423 33
	Colchester	1	57	57	5	85 50
	Digby	57	1,248	22	335	1,696 68
	Guysboro'	27	884	33	184	1,289 71
	Halifax	102	2,657	26	606	3,809 99
	Inverness	24	880	37	137	1,247 90
	King's	6	91	15	16	123 45
	Lunenburg	133	9,411	71	1,667	13,893 81
	Queen's	18	1,023	57	228	1,495 82
	Richmond	58	1,638	28	407	2,390 65
	Shelburne	69	3,727	54	788	5,193 59
	Victoria	2	24	12	6	36 00
	Yarmouth	67	3,856	57	985	5,661 46
	Totals	589	26,008	44	5,450	37,564 90
New Brunswick	Charlotte	90	1,514	17	317	2,113 50
	Gloucester	24	369	15	88	537 46
	Kent	8	191	24	28	244 48
	Northumberland	5	118	24	26	155 34
	Restigouche	1	19	19	4	28 50
	St. John	22	334	15	81	487 64
	Totals	150	2,545	17	544	3,566 92
Prince Edward Island	King's	19	504	26	110	654 06
	Prince	14	618	44	64	782 00
	Queen's	4	123	31	75	180 90
	Totals	37	1,245	34	249	1,616 96
Quebec	Gaspé	21	783	37	183	1,098 05
	Saguenay	30	1,059	35	205	1,573 20
	Totals	51	1,842	36	388	2,671 25

RECAPITULATION.

Nova Scotia	589	26,008	44	5,450	37,564 90
New Brunswick	150	2,545	17	544	3,566 92
Prince Edward Island	37	1,245	34	249	1,616 96
Quebec	51	1,842	36	388	2,671 25
Grand totals	827	31,640	38	6,631	45,420 03

DETAILED STATEMENT of Fishing Bounties paid to **Boats** for the Year 1888.

Province.	County.	No. of Boats.	No. of Men.	Amount Paid.
				$ cts.
Nova Scotia	Annapolis	193	319	1,153 50
	Antigonish	159	296	1,063 50
	Cape Breton	490	998	3,618 00
	Digby	256	492	1,749 50
	Guysboro'	1,162	2,258	8,274 50
	Halifax	1,270	2,057	7,806 00
	Inverness	658	1,520	5,432 00
	King's	47	74	272 50
	Lunenburg	677	973	3,794 00
	Pictou	15	31	110 50
	Queen's	190	317	1,174 00
	Richmond	1,230	2,094	8,108 50
	Shelburne	622	1,058	3,842 50
	Victoria	721	1,396	4,963 50
	Yarmouth	150	232	858 50
	Totals	7,840	14,115	52,221 00
New Brunswick	Charlotte	679	1,221	4,447 50
	Gloucester	913	2,311	8,212 50
	Kent	229	493	1,770 50
	Northumberland	9	19	73 00
	St. John	35	85	312 00
	Westmoreland	11	19	72 50
	Totals	1,876	4,148	14,888 00
Prince Edward Island	King's	285	575	2,067 00
	Prince	375	1,105	3,826 50
	Queen's	137	461	1,582 50
	Totals	797	2,141	7,476 00
Quebec	Bonaventure	1,456	2,681	9,891 50
	Gaspé	2,290	4,177	16,527 50
	Rimouski	6	7	27 50
	Saguenay	507	987	3,741 00
	Totals	4,259	7,852	30,187 50

RECAPITULATION.

Nova Scotia	7,840	14,115	52,221 00
New Brunswick	1,876	4,148	14,888 00
Prince Edward Island	797	2,141	7,476 00
Quebec	4,259	7,852	30,187 50
Grand Totals	14,772	28,256	104,772 50

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, for the Year 1888.

PROVINCE OF NOVA SCOTIA.

ANNAPOLIS COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
83,258	Alfred	Annapolis	22	Chas. Longmire	Hillsburn	2	21 20
90,667	Edward Everett	Digby	57	David Hayden	Lower Granville	5	66 50
83,255	Floyd	Annapolis	20	Jno. W. Sproule	Litchfield	7	30 00
77,766	Laconic	Shelburne	15	David Milner	Parker's Cove	3	18 00
77,958	Maggie M	Annapolis	16	Parker, Zwicker	Clements	3	19 20
83,253	Rescue	do	17	Josiah Burrell	Clementsport	4	22 95
59,347	Sea Gull	do	20	Joseph Hall, Agent		4	23 56
77,956	Speed	do	13	Alf. J. Burrell	Clementsport	3	15 60

CAPE BRETON COUNTY.

88,507	Belle of Rome	Sydney	14	Thos. Bagnell	Gabarouse	3	16 80
77,851	Buxom	do	11	Daniel McGrath	Little Bras d'Or.	2	16 50
92,592	Dreadnot	do	10	Peter Leblanc	do	3	15 00
90,718	Gladys	do	57	D. A. Smith, M.O	North Sydney	3	68 40
88,513	Ida	do	10	Joseph Jessome	Little Bras d'Or.	2	15 00
80,977	J. W. Ingraham	do	14	Chas. Anesty, sen	North Sydney	4	21 00
80,966	J. R. Washington	do	39	Joseph Stacey	Gabarouse	4	43 86
88,516	King Fisher	do	10	P. S. Young, *et al*	Lingan	5	11 68
92,600	Merit	do	13	Alex. Leblanc	Little Bras d'Or.	3	19 50
88,509	Marion	do	16	Arthur Kendall	Louisburg	2	16 80
80,973	Ocean Wave	do	20	Samuel Moore	Little Bras d'Or.	4	30 00
88,504	Quick Step	do	12	Fred. Marsh	Lingan	3	18 00
74,038	River Queen	do	32	Peter Desveaux	Little Bras d'Or.	6	48 00
75,707	R. Grant	do	43	Jonathan Noel	North Sydney	1	36 29
77,857	Sailor's Bride	do	10	Edward O'Brien	Little Bras d'Or.	3	15 00
75,703	Stella Maria	do	10	T. McLellan	North Sydney	4	15 00
92,599	Thistle	do	11	Patrick O'Toole	Little Bras d'Or.	3	16 50

COLCHESTER COUNTY.

88,435	Snow Drift	Halifax	57	John Roberts	Tatamagouche	5	85 50

DIGBY COUNTY.

72,978	Annie Coggins	Digby	22	Livingstone Coggins	Westport	6	28 86
75,721	Angeline	Yarmouth	67	Wm. Snow	Digby	10	86 14
71,032	Arthur	do	21	Wesley Outhouse	Tiverton	5	25 60
75,612	Alice	do	17	Handly Bates	Freeport	6	25 50
83,431	Acadian	Weymouth	32	Eloi L. Comeau	Meteghan River.	9	45 60
74,331	Condor	Yarmouth	11	Howard Titus	Westport	5	16 50
85,684	Constitution	Digby	28	James W. Dillon	Digby	6	33 60
88,403	David Sprague	do	31	Collins Titus	Westport	1	25 18
75,711	Dove	Yarmouth	20	Joseph Ossinger	Tiverton	8	30 00
85,683	Edith L	Digby	16	Isaac Peters, M.O	Westport	5	22 00
77,740	Elmer	do	15	Walter Coggins	do	6	22 50
75,757	Etta	Yarmouth	17	J. W. C. Webber	do	6	25 50
90,662	Edward A. Horton	Digby	67	Jos. E. Snow	Digby	7	75 37

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, &c.—Nova Scotia—*Con.*

DIGBY COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner. or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
80,797	Ella H	do	13	M. & E. Haines	Freeport	5	19 50
75,614	Fawn	do	17	Isaac Peters, M.O.	Westport	4	21 26
75,601	Flash	do	10	James A. Peters	do	5	15 00
74,329	Fairy Queen	Yarmouth	12	Wallace Coggins	do	5	16 50
80,798	Freddie G	Digby	18	George Gower	do	6	27 00
85,550	Fair Play	Yarmouth	11	John Sollows, sen.	Port Maitland	5	16 50
85,686	Gladstone	Digby	16	Augustus Haycock	Westport	6	24 00
83,260	Gazelle	Annapolis	20	D. & O. Sproul	Digby	3	24 00
80,799	Hattie T.	Digby	16	Frank P. Titus	Westport	4	20 00
80,800	Helen Maud	do	20	Chas. McDormand	do	7	30 00
80,650	Happy Home	Yarmouth	14	John Pugh, *et al*	do	5	19 25
75,751	Helen Gertrude Nickerson	do	16	M. & E. Haines	Freeport	6	24 00
80,604	Jennie C	do	16	Charles Hicks	Westport	6	24 00
75,597	Little Fury	Digby	13	Benjamin Taylor	Digby	3	19 50
75,594	Lizzie G	do	16	Wm. McGrath	Granville	6	22 27
88,408	Live Yankee	do	57	Howard Anderson	Digby	7	76 00
85,685	L. M. Ellis	do	35	Holland Outhouse	Tiverton	11	52 50
77,783	Lost Heir	Port Medway	15	Amos H. Outhouse	Tiverton	7	21 09
85,690	Lora T.	Digby	15	Joseph Thurber, *et al*	Freeport	7	22 50
80,786	Lizzie P	do	12	Mary E. Wyman	do	5	18 00
77,618	May Queen	Barrington	34	Livingstone Coggins	Westport	11	51 00
85,682	Malapert	Digby	23	James Glaven	do	8	34 50
80,704	Minnie C	do	18	Chas. H. Bailey	do	6	27 00
59,356	M. P. Reed	Annapolis	30	D. & O. Sproule	Digby	5	45 00
57,108	May Rose	Yarmouth	26	Jno. W. Snow	do	5	30 32
74,322	Morning Star	do	25	James W. Cousins	do	6	37 50
85,533	Minnie C	do	12	Jno. N. Sanders	Port Maitland	4	16 20
83,434	Mary May	Weymouth	19	J. & O. White	Gilbert's Cove	2	21 37
72,977	Nellie H. Ham	Digby	26	Isaac Peters, M.O.	Westport	7	34 68
90,873	Primrose	Yarmouth	34	Wm. Mackensie	Port Maitland	7	45 32
75,714	Prince	do	10	Geo. H. Stevens	Freeport	5	15 00
83,132	Restless	Digby	25	Frank Suthern	Westport	7	35 15
80,784	Silver Cloud	do	41	Andrew Coggins	do	8	58 08
75,725	Stella	Yarmouth	24	Byard Powell	Freeport	5	29 25
85,558	S. A. Crowell	do	23	Luke Leblanc	Salmon River	5	29 56
75,726	Thrush	do	13	Hanley Outhouse	Tiverton	4	17 55
37,282	Victoria	Digby	29	Handford Outhouse	do	9	41 32
80,630	Vanity	Yarmouth	11	Chas. Cann & Co	Port Maitland	4	16 50
74,317	Willie	do	21	Henry Glaven	Westport	9	31 50
75,595	West Wind	Digby	25	Syda & Cousins	Digby	6	32 80
72,980	Wave	do	11	Samuel Thurber	Freeport	4	13 74
85,559	Willie F	Yarmouth	12	Edward C. Thurber	do	4	15 00
71,334	Watchman	Barrington	15	Moïse Thibodeau	Church Point	5	20 62
75,722	Yuba	Yarmouth	15	Geo. H. Denton	Westport	6	22 50

GUYSBORO' COUNTY.

80,985	Annie Roy	Guysboro'	80	Geo. Jost	Guysboro'	14	120 00
90,736	Alert	Port Hawkesb'ry	11	W. A. Keating	Port Mulgrave	2	16 50
41,771	Atalia	Guysboro'	34	T. H. Peeples	Pirate Harbor	5	51 00
80,992	Annie W	do	10	Elijah Walters	Wine Harbor	2	11 24
80,991	Atalanta	do	80	Stephen Sweet	Isaac's Harbor	18	120 00
80,990	Bonnie Doon	do	13	Robt. H. Morrisson	Guysboro'	6	19 50
90,841	C. W. Lundy	do	12	Alex. Avery	Larry's River	4	18 00
88,432	Drucilla	Halifax	33	James Jamieson	Canso	5	38 50
80,988	Dido	Guysboro'	59	Stephen Sweet	Isaac's Harbor	11	79 01
80,994	Esperance	do	10	T. Munroe, sr	Whitehead	3	12 00
80,999	Guardian Angel	do	21	Joseph Fougère, jr	Larry's River	6	31 50

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

GUYSBORO' COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
80,996	Gertie Bell	Guysboro'	15	Alex. Munroe	Whitehead	6	20 89
83,400	Hope	Halifax	14	Frederick Pelrine	Larry's River	4	21 00
80,997	Hippomenes	Guysboro'	80	Stephen Sweet	Isaac's Harbor	15	120 00
57,715	John Laurence	Halifax	23	Alex. Henderson	New Harbor	6	34 50
85,724	Jumbo	Lunenburg	21	Henry Linden	Charlo's Cove	5	28 87
83,091	Jennie	Port Hawkesb'ry	11	Jno. Jamieson	Steep Creek	2	16 50
74,039	James Henry	Sydney	18	Wm. A. Archibald	Sherbrooke	2	27 00
80,989	Laura	Guysboro'	80	Henry M. Jost	Guysboro'	14	120 00
69,964	Lizzie A	Port Hawkesb'ry	20	J. F. & A. H. Reeves	Pirate Harbor	4	30 00
80,998	Lorne	Guysboro'	50	Stephen McMillan	Isaac's Harbor	15	75 00
69,141	Mary Elizabeth	Halifax	16	Wm. G. Webber	Torbay	5	24 00
83,092	Maud F	Port Hawkesb'ry	11	Wm. Critchett	Steep Creek	2	16 50
80,970	Orion	Halifax	24	Edward B. Pelrine	Larry's River	6	36 00
75,892	Peter Mitchell	Port Hawkesb'ry	26	Wm. & Wm. P. Power	Pirate Harbor	4	39 00
80,852	Victory	Halifax	80	E. J. Purcell	Port Mulgrave	14	120 00
36,991	Vegete	do	32	John Maskell	Jeddore	4	43 20

HALIFAX COUNTY.

83,106	Annie Isabella	Halifax	23	J. & T. Bowser	Musquodoboit Harbor	7	32 34
69,143	Arequipa	do	36	Geo. Barnard *et al*	Ecum Secum	6	50 14
61,625	Alpha	do	18	Joshua Dauphiney	French Village	6	25 07
74,020	Addie	do	16	Denis Fagan	Ketch Harbor	3	19 20
90,721	Brilliant Star	do	36	P. & J. Hartlin	Jeddore	10	54 00
94,662	Bessie Florence	Lunenburg	12	Chas. W. Twohig	Pennant	3	18 00
64,914	Bloomingdale	Halifax	14	James York	Eastern Passage	5	21 00
73,969	Bertha E	do	21	Henry A. Shatford	Hubbard's Cove	4	31 50
74,071	Condor	do	20	John Julien *et al*	W. Chezzetcook	3	24 00
74,108	City Belle	do	21	Joseph Graves	West Dover	6	31 50
85,381	Champion	do	17	Jno. H. Slaunwhite	Terrence Bay	3	20 40
85,655	Daisy	do	16	C. & W. Johnson	Indian Harbor	4	24 00
85,663	Daring	do	18	Chas. Slaunwhite, sr	Terrence Bay	3	23 62
83,320	Dessie M	Port Medway	80	James T. Thompson	Halifax	15	112 94
85,667	Dart	Halifax	10	George Julien, jr	W. Chezzetcook	2	15 00
92,564	Evangeline	do	23	Daniel Baker	West Jeddore	7	34 50
90,674	Eddie	Shelburne	74	C. W. Anderson	Halifax	16	111 00
80,832	Ella May	Lunenburg	16	George Adam	Indian Harbor	3	24 00
74,091	Eastern Clipper	Halifax	35	John H. Fader, jr	Head Harbor	3	45 93
90,726	Ellen Maud	do	16	George Schnare	Pennant	4	21 60
88,227	Fleetwing	do	32	Thomas Lapierre, sr	W. Chezzetcook	10	48 00
61,972	Fanny	do	17	Gilbert Kempt	Petpiswick Hbr	5	25 50
55,836	Frank Newton	Sydney	40	Theo. Conrod	Spry Bay	7	60 90
90,717	Florence	Halifax	80	C. W. Anderson, M.O.	Halifax	16	120 00
83,180	Friend	do	17	S. Hubley and Charles Garrison	Indian Harbor	5	26 50
77,751	Flora Dell	do	63	Geo. W. Smith	do	13	91 12
90,489	Greenleaf	do	44	James Julien, M.O	W. Chezzetcook	12	63 46
57,760	Guardian Angel	do	36	Alex. McCarthy	Taylor's Head	7	54 00
88,220	Grandee	do	14	Wm. Hart	Sambro	4	18 90
85,382	G. H. Marryatt	do	24	G. H. Marryatt	Halifax	7	36 00
37,488	Gipsy Lass	do	26	John P. Slaunwhite	Terrence Bay	5	39 00
80,987	Geraldine	do	80	Arthur N. Whitman	Halifax	18	120 00
69,097	Highland Jane	do	32	George Hartlin	East Jeddore	10	48 00
92,574	H. W. Wentzel	do	36	Wm. Wentzel *et al*	W. Chezzetcook	11	54 00
42,295	Hero	do	34	Peter Mason	Tangier	8	51 00
88,213	H. H. Belle	do	13	Isaiah Covey *et al*	Hacketts Cove	2	19 50

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

HALIFAX COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
69,172	Hope	Lunenburg	31	Michael McGrath	Upper Prospect	4	41 85
85,379	Helena	Halifax	17	Denis Ryan	Lower Prospect	5	25 50
90,484	Helena May	do	70	Arthur N. Whitman	Halifax	14	98 42
83,134	Infant	Lunenburg	15	Alex. Coolen	Herring Cove	3	22 50
83,306	Iona	Halifax	26	Andrew Sullivan	do	7	39 00
74,080	J. A. Kirk	do	16	John Jackson	Spry Harbor	5	22 00
54,132	John Franklin	do	18	Edward Dempsey	Herring Cove	6	27 00
75,779	John Millard	Barrington	68	Thos. H. Renner	Halifax	11	102 00
37,590	Lark	Halifax	20	R. & T. Dukes	West Jeddore	5	30 00
74,099	Leading Breeze	do	15	D. & G. Covey	Hackett's Cove	5	22 50
94,661	L. C. Tough	do	12	John Tough	Pennant	3	15 75
69,105	Lady of the Lake	do	20	Edward Walsh, sr	Upper Prospect	3	24 00
85,385	Minnie M	do	27	Wm. Nieforth *et al*	Seaforth	9	40 50
88,431	Mayflower	do	21	J. & P. Lapierre	W. Chezzetcook	6	31 50
83,123	Margaret	do	18	James McDonald	Harrigan's Cove	6	27 00
90,722	Minnie Bell	do	11	John Kent	Musquodoboit Harbor	2	13 75
85,388	Mary Alice	do	21	Chas. Beaver	Spry Bay	5	31 50
46,498	Mariner	do	56	W. C. & J. Henley	do	9	84 00
92,568	Mary Kate	do	13	John Westhaver	Sheet Harbor	5	19 50
90,269	Maud Carter	do	80	Walter C. Boak	Halifax	12	105 00
85,646	Maud	do	15	Alfred Boutilier	Indian Harbor	5	22 50
59,474	Merit	Lunenburg	41	Louis Garnier	Halifax	1	35 87
61,935	Maria	Halifax	17	John Hubley, sr	French Village	3	25 50
83,408	M. A. Franklyn	do	22	J. Morash & A. Launt	West Dover	3	26 40
85,653	Mary O'Dell	do	10	James L. Richardson	Indian Harbor	1	10 00
83,108	Maud	do	15	Joseph Reyno, jr	Herring Cove	4	22 50
85,664	Mary E	do	14	Andrew Twohig	Pennant	3	21 00
92,576	Mayflower	do	13	James Young	Sambro	3	19 50
83,107	North Star	do	26	James Lapierre *et al*	W. Chezzetcook	7	39 00
90,716	New Dominion	do	34	J. & J. Fillis	do	11	51 00
80,843	Nettie, B. H	do	23	W. & J. Hearn	Upper Prospect	6	34 50
85,665	Nellie D	do	12	Daniel Smith	Sambro	4	18 00
37,608	Ocean Belle	Halifax	68	Jno. Allan & Sons	Halifax	7	102 00
92,571	Primrose	do	14	Jas. F. Slaunwhite	Terrence Bay	3	21 00
57,681	Quickstep	do	22	Edward Gallagher	Ketch Harbor	5	33 00
59,462	Rival	do	20	Henry Falconer	Ship Hbr. Lake	6	30 00
73,119	Royal	do	12	Edward Corney	East Dover	5	18 00
88,223	River Belle	do	11	Richard Christian	Upper Prospect	3	16 50
90,275	Ralph, E. S.	do	19	Louis H. Gray	Sambro	5	24 42
88,439	Ripple	do	20	Fredk. Horne, jr	S. E. Passage	5	30 00
92,575	Robinetta	do	14	Wm. Henneberry	Sambro	4	18 90
88,229	Seaway	do	22	Gabriel Murphy	W. Chezzetcook	7	33 00
37,519	Safeguide	do	36	Jno. T. Abriel	Pope's Harbor	9	54 00
41,787	Silver Dart	do	30	John Hutt	Tangier	7	45 00
85,390	Susan C	do	21	Daniel Croucher	Hackett's Cove	4	28 35
83,118	Spray	do	15	Charles Fader, sr	Head Harbor	4	22 50
61,985	Squirrel	do	15	Geo. J. Longard	Upper Prospect	4	20 25
83,114	Sailors Fancy	do	16	Lawson Pace	Glen Margaret	4	21 60
74,087	Sea Gem	do	30	Wm. Jennex	East Jeddore	7	42 18
75,833	Twilight	do	14	Eli Baker	do	6	19 50
90,494	Two Brothers	do	21	Thos. Nieforth	Seaforth	6	31 50
90,490	T. W. Wolf	do	31	Robert Wolf *et al*	W. Chezzetcook	9	46 50
90,482	Two-forty	do	18	Geo. H. Slaunwhite	Terrence Bay	3	21 60
61,946	Union	do	23	Colin Mitchell	East Jeddore	4	27 09
90,485	Violet West	do	36	Thos. A. Gaetz *et al*	Seaforth	8	46 62
88,228	Welcome	do	33	Geo. Bonang, M. O	W. Chezzetcook	9	49 50
90,723	Winnie L	do	31	Daniel Manette *et al*	do	10	49 50
90,488	Wave	do	19	Jno. Blackburn	Upper Prospect	4	23 74
92,569	Walter	do	15	Charles Gray	Sambro	4	22 50
92,578	Willetta	do	13	Joseph Gray	do	3	19 50

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

HALIFAX COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
66,727	Willow	Halifax	18	Jeffrey Gorman	Herring Cove	3	23 62
75,578	Wily	Lunenburg	13	James Morash, jr	West Dover	6	19 50
88,222	Wave	Halifax	15	F. Slaunwhite, jr., and A. Jollimore	Terrence Bay	3	18 00
71,368	Zelu	do	21	A. & S. Publicover	West Dover	5	28 87
85,378	Zephyr	do	14	Robt. Slaunwhite	Terrence Bay	3	21 00

INVERNESS COUNTY.

90,731	Annie E. Paint	Pt. Hawkesbury	80	W. H. & F. L. M. Paint	Pt. Hawkesbury	11	104 00
75,561	Boreas	Lunenburg	41	John Colford	Port Malcolm	6	61 50
37,063	British Pearl	Guysboro'	78	Peter Paint, jr	Pt. Hawkesbury	6	117 00
88,343	Ceylon	Pt. Hawkesbury	80	W. H. & F. L. M. Paint	do	11	104 00
75,782	Crescent	Arichat	27	Camille White	Margaree Hbr	5	34 70
37,565	Defiance	Guysboro'	24	Anthony Walker	Basin River Inhabitants	3	36 00
83,082	Emma	Pt. Hawkesbury	24	Sévérin Arseneau	Margaree Hbr	7	36 00
77,763	Fanny Young	do	80	W. H. & F. L. M. Paint	Pt. Hawkesbury	13	112 00
83,088	Good Intent	do	22	George Walker	Riv. Inhabitants	2	33 00
69,154	Head Reaches	do	56	Robt. Murray	Port Richmond	6	84 00
90,735	Hector	do	11	Nicholas McDonald	Basin River Inhabitants	2	16 50
90,734	H. M. Crosby	do	64	Peter Paint, jr	Pt. Hawkesbury	13	89 60
69,969	Morning Light	do	39	David Walker	Basin River Inhabitants	4	58 50
69,125	Mayflower	Halifax	11	P. Cormier *et al*	E. Harbor Cheticamp	5	16 50
80,841	Nina	do	13	Thomas Stevens	Halifax	2	16 25
61,630	Olive J.	do	57	Peter Malcolm	Port Malcolm	8	80 75
64,033	Ripple	Pt. Hawkesbury	34	J. W. Cruickshanks	Riv. Inhabitants	8	51 00
83,094	Saint Mary	do	15	Désiré Chiasson	Margaree Hbr	7	22 50
75,830	St. Thomas	Guysboro'	37	Médéric Aucoin	Cheticamp	4	55 50
53,603	Seaflower	Pt. Hawkesbury	25	P. Robin & Co	E. Harbor Cheticamp	7	37 50
83,093	Swallow	do	12	Angus McIsaac	Port Hood	2	12 60
83,096	St. Patrick	do	11	A. Welsh and A. McDonald	Port Hastings	3	16 50
92,567	Trial	Halifax	13	Fred. Chiasson *et al*	Margaree Hbr	6	19 50
64,718	Temperance	Pt. Hawkesbury	26	Jno. McFarlane	do	4	32 50

KING'S COUNTY.

92,487	Alice Maud	Windsor	12	W. Bishop & H. Parker	Hall's Harbor	3	18 00
88,397	Ada B.	do	10	Carr Bolsor	Blomidon	3	15 00
75,430	Dolphin	Annapolis	11	Henry E. Ogilvie	Kingsport	3	16 50
49,411	Ellen	Yarmouth	29	Isaac Cook	Harborville	2	30 45
85,442	Mystery	Windsor	14	John F. Paul	Hall's Harbor	3	21 00
85,629	Unexpected	do	15	Fred. Parker	do	2	22 50

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

LUNENBURG COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
85,739	Aubrey A.	Lunenburg	80	Benj. Anderson	Lunenburg	14	120 00
92,621	A. G. Heisler	do	80	Alf. Heisler	do	14	120 00
90,870	Arietis	do	80	Chas. Hewitt, M.O.	do	14	120 00
90,600	Acadia	do	79	David Smith	do	12	118 50
83,176	Amazon	do	73	Chas. L. Silver, M. O.	do	13	102 20
77,601	Atlas	do	52	Emmanuel Seller	Feltz South	11	78 00
90,852	Athlete	do	78	Jno. B. Young, M.O.	Lunenburg	12	117 00
94,644	Angler	do	80	Arthur H. Zwicker	do	14	120 00
88,602	Algeria	do	80	Ephraim Lohnes, M.O.	Ritcey's Cove	14	120 00
46,476	Amiel Corkum	do	53	Josiah Wilkie, M.O.	La Have	11	79 50
92,637	Bertie C. H.	do	80	Thos. Hamm, M. O.	Lunenburg	14	120 00
88,341	Blizzard	do	80	A. J. Wolf	do	16	120 00
85,347	Brilliant	do	80	Jno. B. Young, M.O.	do	14	120 00
85,345	Beatrice	do	78	Wm. A. Zwicker, M.O.	do	13	117 00
94,647	Bonus	do	80	Geo. Kresor, M.O.	Ritcey's Cove	14	120 00
85,730	Beulah	do	80	Ephraim Lohnes, M.O.	do	14	120 00
94,651	Bessie A.	do	80	Wm. McGregor, M.O.	La Have	14	120 00
94,648	Batavia	do	80	Jas. Spearwater, M.O.	do	14	120 00
85,732	Conductor	do	80	S. Watson Oxner, M.O.	Lunenburg	14	120 00
90,869	Clara E. Mason	do	80	David Smith	do	12	120 00
94,646	Carrie C. W.	do	80	Martin Westhaver	do	14	109 41
92,622	Coronet	do	80	Arthur H. Zwicker	do	14	120 00
74,014	Corsica	do	79	Henry Greser, M.O.	La Have	12	118 50
90,857	Capio	do	72	Albt. McKean, M.O.	Pleasantville	14	108 00
94,652	Cashier	do	80	W. N. Reinhardt, M.O.	La Have	16	120 00
90,856	Cleta	do	80	do	do	14	120 00
88,348	Cymbeline	do	80	Norman Rafuse, M.O.	do	14	120 00
85,642	Charlotte E. C.	do	80	Wm. Colp	Mahone Bay	12	120 00
94,645	C. A. Chisholm	do	80	Abraham Ernst	do	12	120 00
94,658	C. A. Ernst	do	57	Timothy Hebb	do	12	85 50
94,653	C. U. Mader	do	80	C. U. Mader	do	14	120 00
94,643	Carrie M. C.	do	39	Wm. Chandler	Fox Point	9	55 57
88,358	Dolphin	do	80	H. Wynacht & C. Silver	Lunenburg	13	115 71
85,736	Dominion	do	80	Wm. Young	do	14	120 00
77,607	Dianthus	do	45	Geo. Parks	La Have	8	67 50
88,618	Darling	do	80	Jacob B. Sarty, M.O.	do	14	120 00
88,355	D. A. Mader	do	80	J. Alex. Mader	Mahone Bay	12	120 00
83,136	Eva Stewart	do	80	Samuel Risser	Lunenburg	14	120 00
69,173	Ellen May	do	60	David Westhaver	do	10	79 60
90,584	Eldora	do	75	John Creaser, M.O.	La Have	14	112 50
90,865	Etta May	do	58	Edmund Hirtle, M.O.	do	12	87 00
94,650	Elsie	do	47	Jno. Schmeisser, M.O.	do	11	70 50
88,606	Egeria	do	80	J. D. Sperry, M.O.	Petite Rivière	15	120 00
88,356	Energy	do	80	Alex. Chisholm	Mahone Bay	14	120 00
85,731	Eva L. H.	do	62	James Wentzel	Martin River	10	93 00
85,738	Emma F.	do	13	J. F. Boutillier	Aspotogan	4	17 55
90,590	Evelyn	do	77	Amiel Corkum	La Have	12	96 24
88,357	Floresta	do	57	Stephen Moser	South	12	85 50
92,638	Florence M.	do	80	Alex. Silver, jr.	Lunenburg	12	120 00
85,631	Forest Belle	do	80	Leonard Young, M.O.	do	12	120 00
80,829	Florence B.	do	32	Elias Richard, sr.	La Have	7	48 00
71,338	Fish Hawk	Barrington	49	T. A. Wilson	Bridgewater	10	65 01
66,749	Flash	Halifax	24	Thomas Coolen	Pox Point	7	36 00
94,656	Florin	Lunenburg	58	Edward Wiegel	Dayspring	12	46 21
88,347	Geneva	do	80	Allan R. Morash, M.O.	Lunenburg	14	120 00
85,734	Glenola	do	80	Charles L. Silver, M.O.	do	15	120 00
90,582	G. A. Smith	Lunenburg	80	Wm. Young	Lunenburg	16	120 00
90,862	Grenada	do	80	Reuben Romkey, M.O.	La Have	14	120 00
90,859	Hector W. McGregor	do	80	Wm. McGregor, M.O.	do	14	120 00
90,585	Iris	do	80	David Smith, M.O.	Lunenburg	14	120 90
92,639	Jennie Miller	do	80	Henry Adams, M.O.	do	12	120 00

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

LUNENBURG COUNTY—*Continued.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Manging Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
90,599	J. A. Hirtle	Lunenburg	73	James A. Hirtle, M.O.	Lunenburg	14	109 50
94,654	J. W. Geldert	do	80	S. Watson Oxner, M.O.	do	17	120 00
74,019	Jewel	do	52	Leonard Young, M.O.	do	10	78 00
85,723	Jessie A. Loye	do	80	do	do	14	112 50
85,727	Jessie	do	40	James Hunt, M.O.	La Have	9	60 00
83,485	John M. Inglis	Liverpool	79	J. S. Wolfe, M.O.	New Dublin	14	114 55
90,854	Latona	Lunenburg	80	L. Anderson & Co., M.Os	Lunenburg	14	109 41
80,822	Leone	do	79	Isaac Mason	do	12	118 50
90,867	Laura A. Smith	do	80	S. Watson Oxner, M.O.	do	14	109 41
88,351	Louisa J. Selig	do	80	J. Moyle Rudolf, M.O.	do	15	120 00
88,352	Linaria	do	80	S. Hilton, jun., M.O.	Petite Rivière	14	120 00
88,360	Lettie M. Hardy	do	80	W. A. Pickels	Mahone Bay	19	120 00
36,495	Lady Speedwell	do	56	Enos Publicover	Blandford	11	84 00
92,640	Minerva	do	80	Wm. Acker	Lunenburg	12	120 00
83,177	Maggie Belle	do	72	Alfred Heisler	do	12	108 00
92,635	M. B. Smith	do	80	Chas. Hewitt	do	14	120 00
92,633	Magnolia	do	80	Joshua Heckman, M.O.	do	12	120 00
90,586	Morris Wilson	do	80	J. Henry Wilson	do	15	120 00
92,632	Monarch	do	80	James Young	do	8	120 00
90,583	Moriah	do	79	Arthur H. Zwicker	do	12	118 50
83,173	Maggie Smith	do	80	Reuben Smith, M.O.	La Have	14	120 00
90,851	Niagara	do	73	Henry Gerhart	South	12	98 53
92,634	Nellie B.	do	80	Alfred Heisler, M.O.	Lunenburg	14	116 00
88,613	N. P. Christian	do	80	do	do	18	120 09
88,342	Nova Zembla	do	80	Adam Knickle	do	12	120 00
85,343	Narcissus	do	80	S. Watson Oxner, M.O.	do	16	120 00
92,636	Nonpareil	do	80	John Zinck	do	13	120 00
94,655	Nevada	do	46	James Bell	La Have	9	69 00
88,603	Nokomis	do	80	C. U. Mader	Mahone Bay	14	120 00
90,598	Osprey	do	80	Christian Geldert	Lunenburg	14	120 00
88,344	Onward	do	80	Chas. Hewitt	do	14	109 41
85,632	Ocean Belle	do	80	Leonard Young, M.O.	do	12	105 00
88,346	Olive	do	80	Daniel Getson, M.O.	La Have	14	120 00
90,587	Ornatus	do	80	James Keizer, M.O.	do	12	120 00
94,641	Ovando	do	80	Jeffry Publicover, M.O.	do	15	120 00
88,350	Orion	do	78	C. U. Mader	Mahone Bay	12	117 00
75,570	Olive Rranch	do	14	Jno. Church	Aspotogan	3	21 00
80,838	Ocean Bride	do	20	Albert E. Rafuse	Conquerall Bank	6	26 24
85,647	Pembina	do	80	L. Anderson & Co., M.Os	Lunenburg	14	120 00
85,331	Parisian	do	80	Allan R. Morash, M.O.	do	14	120 00
85,337	Parthenia	do	80	S. Watson Oxner, M.D.	do	14	120 00
85,641	Pleroma	do	80	Wm. C. Smith	do	14	109 41
77,622	Pleasantville	do	80	Albt. McKean	Pleasantville	14	120 00
85,349	Rise Over	do	80	Wm. Smeltzer	Lunenburg	14	120 00
92,320	Rialto	Liverpool	46	A. A. Currie, M.O.	New Dublin	5	48 85
83,133	Regina B.	Lunenburg	80	Reuben Ritcey, M.O.	La Have	14	120 00
90,593	Ralph	do	51	Solomon Smith, M.O.	do	11	76 50
92,631	Ray	do	11	Henry Awalt	Aspotogan	2	13 75
85,350	Saxon	do	79	James A. Hirtle, M.O.	Lunenburg	11	102 70
85,737	Scylla	do	80	James W. King	do	14	116 00
90,868	Sadie	do	79	Chas. Smith, M.O.	do	12	110 02
88,605	S. A. Morash	do	80	Henry Greser, M.O.	La Have	14	120 00
88,349	Senovar	do	80	Nathan Hiltz	Martin's River	13	120 00
74,096	Silver Stream	Halifax	35	C. E. Nass	Chester	10	52 50
92,629	Sea Queen	Lunenburg	21	Geo. Young, sen.	Mill Cove	5	31 50
94,657	T. W. Langille	do	71	Francis Conrad	South	14	106 50
74,118	True Love	Halifax	30	Chas. Bell	La Have	7	45 00
85,729	Tyrone	Lunenburg	80	Isaac Heckman, M.O.	do	15	120 00
92,623	Torridor	do	80	Wm. McGregor, M.O.	do	16	120 00
88,609	Undaunted	do	47	W. N. Reinhardt, M.O.	do	8	70 50
85,338	Viola	do	80	Alfred Heisler, M.O.	Lunenburg	18	120 00

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

LUNENBURG COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
88,609	Virgescoe	Lunenburg	57	Thos. Hamm, M.O.	Lunenburg	9	85 50
85,334	Valorus	do	57	Benjamin Lohnes	South	12	82 21
83,353	Violet	do	80	David Smith, M.O.	Lunenburg	12	115 38
90,597	Vivian	do	80	Arthur H. Zwicker	do	15	120 00
85,735	Victory	do	80	do	do	14	120 00
83,164	Valiant	do	80	Ephraim Lohnes, M.O.	Ritcey's Cove	15	120 00
85,635	Vanilla	do	80	Jas. A. Romkey, M.O.	La Have	14	120 00
94,649	Valenar	do	80	Nathan Hiltz	Martin's River	13	120 00
83,174	W. E. Young	do	80	J. Henry Wilson	Lunenburg	14	120 00
88,614	Wilhelmina	do	54	Edmund Neal, M.O.	La Have	9	81 00
94,642	Winnie C	do	55	Edmen Walter, M.O.	do	11	82 50

QUEEN'S COUNTY.

85,482	Angola	Liverpool	80	James C. Innes, M.O.	Liverpool	19	117 00
75,778	Coronila	do	64	Colin McLeod, M.O.	do	13	96 00
75,620	Cordelia	Shelburne	15	Oliver Tupper	Port Lebert	4	22 50
85,344	Donzella	Lunenburg	80	Adam Selig	Vogler's Cove	14	109 41
83,308	Ella	Liverpool	10	Amos Martin	Liverpool	3	15 00
75,571	Fanny	Lunenburg	16	C. W. Clattenburg	Vogler's Cove	5	24 00
92,624	Heloise	do	80	John W. Hutt	Port Medway	13	115 71
83,494	Lizzie Wharton	Port Medway	80	W. R. Cohoon	do	16	116 47
83,316	Lottie	do	80	S. E. Teel	Vogler's Cove	14	120 00
83,310	Myosotis	do	80	Asa Morine & Son	Port Medway	19	117 00
83,315	Mazurka	do	80	Wm. Vogler	Vogler's Cove	15	120 00
75,762	May Queen	Liverpool	17	Wm. H. Bartling, M.O.	Liverpool	4	22 95
83,493	Mary C	do	80	Hendry & McMillan, M.O.	do	20	120 00
92,313	Martha	do	11	Wm. Rhynard	Brooklyn	4	16 50
83,314	Spartan	Port Medway	80	W. R. Cohoon	Port Medway	17	120 00
83,500	Stella	Liverpool	10	Wm. A. Farquhar	Hunt's Point	3	15 00
85,387	Topaz	Halifax	80	Hendry & McMillan, M.O.	Liverpool	19	111 81
83,495	Utopia	Liverpool	80	James C. Innes, M.O.	do	16	116 47

RICHMOND COUNTY.

83,086	Ada M	Pt. Hawkesbury	20	Peter W. Gruchy	D'Escousse	5	27 50
77,544	Alpha	Arichat	41	Wm. LeVesconte	do	10	61 50
64,713	Amelia M	Pt. Hawkesbury	14	Andrew Boudrot	Gros Nez	4	21 00
35,996	Blue Bell	Arichat	25	D. Gruchy & Son	D'Escousse	7	37 50
38,501	B. Weir & Co.	do	25	Wm. J. Bissett	River Bourgeois	7	35 15
43,109	Chatham Head	Chatham, N. B.	24	Dominique Fougère	Poulamond	8	34 00
72,061	C. P. M	Arichat	22	Désiré Burke	River Bourgeois	7	33 00
74,100	Candid	do	23	do	do	7	34 50
77,822	Eliza Smith	do	44	Léonie Poirier	Low. D'Escousse	10	66 00
61,606	Edmund Russell	do	28	Dominique Boudrot	Petit de Grat	6	42 00
75,616	Eliza Jane	Shelburne	22	Alex. Vigneau	Arichat	2	33 00
83,401	E. M. McDonald	Halifax	14	M. A. McDonald	Framboise	5	21 00
38,477	Elizabeth	Arichat	18	A. Burk, *et al*	River Bourgeois	6	27 00
83,395	Elerie	Halifax	29	Charles Boudrot	do	7	43 50
69,190	Emma	Arichat	47	A. J. Boyd	do	10	70 50
77,843	Elizabeth	Halifax	30	John Stairs & Co.	Halifax	7	42 18
61,617	Eva May	Guysboro'	29	do	do	8	43 50

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

RICHMOND COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
74,116	Fama	Halifax	43	Wm. Le Vesconte	D'Escousse	10	64 50
57,733	Farewell	Arichat	23	Abram Sampson	West Arichat	2	34 50
83,399	Fannie R. C	Halifax	22	Peter Boudrot	River Bourgeois.	5	28 28
38,481	G. H. B	Arichat	36	F. W. Bissett	do	5	54 00
38,326	Harriet	do	26	Arthur Leblanc	Arichat	3	39 00
88,454	Jubilee	do	34	D. Gruchy & Son	D'Escousse	9	51 00
38,486	Julia	do	20	Louis Burk	River Bourgeois.	6	30 00
80,972	John Vincin	Sydney	17	David Sampson	L'Ardoise	6	25 50
72,070	Lennox	Arichat	46	D. Gruchy & Son	D'Escousse	10	69 00
75,875	Lida & Lizzie	do	56	Wm. LeVesconte	do	9	73 50
88,455	Laura Victoria	do	39	John Mauger	Arichat	9	55 57
38,516	Lady of the Lake	do	26	Stephen Dugas	River Bourgeois.	7	39 00
72,072	Lady Fougère	do	11	Docité Fougère	do	5	16 50
72,071	Lumen Diei	do	20	Urbain Sampson	do	7	30 00
46,082	Mary	Pt. Hawkesbury	43	D. Gruchy & Son	D'Escousse	9	61 27
36,435	Mary Stevens	Arichat	31	Alfred Poirier	Low. D'Escousse	9	46 50
38,459	Mary Ann	do	29	Désiré Poirier	do	8	43 50
38,413	Morning Star	do	25	Amable Pâté	River Bourgeois.	9	37 50
72,063	May Flower	do	12	M. Burke & M. Fougère	French Cove	5	18 00
38,522	Mary	do	23	Isaiah Boudrot	River Bourgeois.	5	29 56
72,047	Mary Moulton	do	26	Celestin Curdeau	do	7	39 00
69,109	Marcella Butler	Halifax	38	Daniel Fougère	do	7	50 66
83,100	Morning Star	Pt. Hawkesbury	13	Abraham Gerroir	Port Royal	2	19 50
72,048	Neptune	Arichat	26	Henry Sampson	River Bourgeois.	7	39 00
54,139	Ocean Belle	Halifax	20	A. J. Boyd	do	6	30 00
88,451	Port Royal	Arichat	12	Edward Leblanc	Port Royal	2	18 00
38,414	Philomen	do	26	Denis Dugas	River Bourgeois.	6	34 12
72,067	Philomen D	do	22	T. Digout & D. Dugas	do	7	33 00
38,462	Partners	do	25	Thomas Sampson	do	8	37 50
72,059	Richmond Queen	Halifax	37	Anselme Fougère	Poulamond	10	55 50
42,281	Renfrew	do	42	S. & F. Poirier	D'Escousse	9	59 85
88,452	R. Ferguson	Arichat	24	A. J. McDonald	Big Cove	7	36 00
36,521	Shooting Star	do	32	Wm. LeVesconte	D'Escousse	9	48 00
37,612	Sea Slipper	Lunenburg	41	Chas. Mauger	do	10	61 50
85,645	Sissie Belle	Halifax	40	S. & F. Poirier	D'Escousse	10	60 00
51,781	S. E. Cove	Arichat	54	Peter Campbell	Arichat	9	66 51
38,480	Two Brothers	do	32	Simon P. Landry	River Bourgeois.	9	48 00
61,990	Union	Halifax	20	Felix Burke	do	7	30 00
37,056	Victory	Arichat	37	Wm. LeVesconte	D'Escousse	10	55 50
38,523	Victoria	do	24	H. & P. Burke	French Cove	7	36 00
88,518	W. F. Elizabeth	Sydney	10	Samuel Burke	do	4	13 50

SHELBURNE COUNTY.

85,479	Alina	Shelburne	80	Churchill Locke	Lockeport	18	111 42
83,054	Ardella	do	80	Jonathan Locke	do	16	120 00
88,552	Afton	do	72	do	do	16	108 00
85,565	Alice Louise	Barrington	80	Arthur McGray	Cape Island	18	120 00
85,567	Annie Robertson	do	80	W. Wallace Kenney	Lockeport	13	97 12
90,866	Alice	Lunenburg	12	Walter Johnson	East Jordan	2	13 50
90,655	Annina	Yarmouth	12	Isaiah Smith	Wood's Harbor	6	15 74
90,426	Amanda	Barrington	38	B. C. Newell	Cape Island	11	57 00
94,632	A. C. Greenwood	Shelburne	14	T. D. Goodick *et al*	Sand Point	4	18 90
85,490	Billy Browne	do	80	Enos Churchill	Lockeport	12	105 00
85,551	Blanche M. Thorburn	do	80	W. H. Thorbourne	Jordan Bay	20	120 00
66,722	C. Averett	Liverpool	19	A. Goreham	Wood's Harbor	2	17 81
61,905	Champion	do	14	J. W. Hopkins	Barrington	6	21 00

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

SHELBURNE COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
83,492	Dessie	Liverpool	10	Amasa H. Fisk	Lockeport	5	15 00
75,624	Devina	Shelburne	52	Austen Locke	do	7	66 30
75,558	Emma B.	Barrington	80	Arch. Devine	Shag Harbor	20	120 00
83,043	Ella A. Downie	Shelburne	72	Enos Churchill	Lockeport	12	97 20
88,541	Edward T. Russel	do	77	Austen Locke	do	16	112 10
77,603	Eldon C	Barrington	27	John E. Hopkins	Barrington	8	40 50
85,476	Fleetwing	Shelburne	11	E. Hammond	Jordan Bay	5	16 50
83,047	Festina Lente	do	80	Austen Locke	Lockeport	16	116 47
75,623	Grace Greenwood	do	80	Enos Churchill	do	16	108 00
80,831	Glide	Lunenburg	16	Jacob Lloyd	West Head	6	24 00
88,555	G. C. Kelly	Shelburne	80	W. W. Kenney	Lockeport	19	114 28
85,478	Glenora	do	75	John Locke	do	12	95 95
85,568	Georgie Harold	Barrington	80	W. W. Kenney	do	16	120 00
85,563	Helena Maud	do	80	Jno. H. Lyons, M.O.	Barrington	16	120 00
85,570	Hattie Dell	do	80	W. W. Kenny	Lockeport	18	106 95
90,689	John A. McGowan	Shelburne	80	John A. McGowan, jun.	Shelburne	14	102 00
61,566	John Purney	do	66	John Purney	do	11	85 80
61,572	John Halifax	do	63	O. Taylor	Port Latour	13	88 20
85,569	Jessie B.	Barrington	35	Thos. D. Crowell	Shag Harbor	12	52 50
88,554	Jersey Lily	Shelburne	80	Enos Churchill	Lockeport	16	116 47
77,957	Kedron	Annapolis	21	Amasa H. Fisk	Lockeport	5	28 87
73,967	Katie	Liverpool	14	Wm. Doleman	do	6	21 00
77,761	Knight Templar	Shelburne	80	Enos Churchill	do	17	111 00
90,642	Komaroff	Yarmouth	10	D. B. Nickerson	Shag Harbor	3	11 25
74,051	Kate McKinnon	Barrington	73	Randall McKinnon	Cape Sable Isle	14	105 85
54,114	Lone Star	Halifax	29	C. Locke & Co.	Lockeport	8	43 50
90,429	Lettie May	Barrington	10	Thos. Banks	Barrington	4	13 50
61,837	Laughing Waters	Yarmouth	32	Raymond Wilson	do	9	39 40
83,256	Marquis of Lorne	Annapolis	26	Amasa H. Fisk	Lockeport	8	39 00
85,484	Mellacoree	Shelburne	80	Geo. J. Thorbourn	Sand Point	20	120 00
75,560	Matilda	Barrington	80	N. J. Williams *et al*	Cape Island	10	97 50
85,480	M. & A. Morrison	Shelburne	80	Don Morrison	Jordan Bay	17	113 68
88,556	Mary	do	80	Jno. A. McGowan, jun.	Shelburne	16	120 00
77,746	Magellan Cloud	do	80	Wm. H. Thorbourne	Jordan Bay	17	116 66
85,488	Mabel Somers	do	80	Enos Churchill	Lockeport	16	120 00
88,543	Max O'Rell	do	80	Churchill Locke	do	16	110 52
85,477	Myrtle	Barrington	80	D. V. Kenney, M. O.	Cape Sable Is'd	18	120 00
74,365	Nova Stella	Shelburne	52	Wm. Lloyd, jun.	Brighton	11	72 00
83,060	Nellie Morrow	do	80	C. Locke & Co.	Lockeport	16	120 00
83,052	Nautilus	do	11	James Roach	do	5	16 50
85,562	Oresa	Barrington	13	Alex. Smith	Blanche	5	19 50
55,830	Oregon	Shelburne	20	Jno. C. McGray	Cape Sable Is'd	3	30 00
74,133	Pioneer	Yarmouth	80	Peter Kenney	do	13	103 30
75,628	Rover	Shelburne	80	Jonathan Locke	Lockeport	16	108 00
90,690	Sandalphon	do	80	C. Locke & Co.	do	12	94 26
69,694	Seven Brothers	Annapolis	38	J. N. Banks	Barrington	10	54 40
85,483	Sarah H. Seeton	Shelburne	80	C. Locke & Co.	Lockeport	18	114 00
37,523	Snow Drop	Liverpool	29	James Crowell	Port Latour	4	43 50
59,496	Thetis	Lunenburg	41	C. Locke & Co.	Lockeport	2	36 89
77,759	Thos. Robertson	Shelburne	66	Austen Locke	do	11	81 51
88,542	Three Bells	do	80	do	do	17	116 66
85,541	Willie M.	Yarmouth	24	Isaac Kendrick	Barrington	6	30 00
85,487	Willie McGowan	Shelburne	80	J. A. McGowan, jun.	Shelburne	21	114 78
77,744	Whip-poor-Will	do	14	Jno. B. Harding	Lockepert	6	21 00
46,091	Wave	do	19	James Banks	Barrington	2	21 37
74,326	Zouave	Barrington	20	J. M. Shand	do	4	20 48

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia—*Con.*

VICTORIA COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
90,487	Annie Eliza.....	Halifax	14	John Donovan.....	South Bay, Ingonish.....	3	21 00
92,593	Thomas Parnell...	Sydney.....	10	Simon Hawley.....	South Bay, Ingonish.....	3	15 00

YARMOUTH COUNTY.

75,733	Alfred	Yarmouth.....	46	Parker, Eakins & Co...	Yarmouth	11	66 12
90,653	Alba.....	do	58	Thos. B. Flint.....	do	19	87 00
88,586	Alma	do	18	Maude Leblanc.....	Eel Brook.....	4	27 00
71,007	Alfarata.....	do	48	Mathurin D'Entremont	Pubnico	14	67 50
80,647	Annie M. Bell....	do	64	James Amiro.....	West Pubnico...	21	96 00
80,627	Annie D	do	71	Geo. D. D'Entremont..	Pubnico.....	14	106 50
71,030	Arizona	do	80	S. D. D'Entremont.....	do	14	120 00
61,595	Annie Louisa.....	Shelburne	40	Harvey Goodwin.....	West Pubnico...	17	60 00
88,598	Alph. B. Parker..	Yarmouth.....	39	Elie Leblanc.....	Tusket Wedge..	15	58 50
66,683	Ballarose	do	40	A. L. D'Entremont....	Pubnico.....	11	53 55
74,320	Brenton.....	do	70	Parker, Eakins & Co...	Yarmouth	14	105 00
80,644	Beatrice.....	do	80	A. F. Stoneman & Co..	do	16	120 00
66,682	Brisk.....	do	67	Leon D'Eon.....	Pubnico.....	20	100 50
85,549	Byron	do	80	Byron Hines.....	do	17	113 68
69,217	Chlorus.....	do	57	A. F. Stoneman & Co..	Yarmouth.....	12	85 50
85,536	Circassian	do	80	W. M. Ryder.....	Argyle	16	120 00
80,605	Coral Leaf.....	do	71	Chas. E. Goodwin.....	Pubnico.....	16	100 58
90,883	Donald Cann.....	do	80	H. B. Cann	Yarmouth.....	18	120 00
90,871	Dora.....	do	63	A. F. Stoneman & Co..	do	19	94 50
66,679	Diploma.....	do	80	Louis D'Eon.....	West Pubnico...	18	120 00
53,811	Electric Flash.....	Halifax.....	53	D. D'Entremont.....	Pubnico.....	19	79 50
85,552	Edith A.....	Yarmouth.....	80	Geo. D'Entremont.....	do	14	120 00
80,646	Emma S.....	do	80	Geo. Bates.....	Tusket Wedge..	20	120 00
85,551	Ethel	do	80	J. H. Porter & Co.....	do ..	16	120 00
75,720	Florence B. Parr..	do	80	Parker, Eakins & Co...	Yarmouth.....	16	120 00
90,885	Georgiana	do	80	Hilaire Leblanc.....	Tusket Wedge..	16	120 00
88,599	Guide	do	38	Thos. B. Flint.....	Yarmouth.....	15	55 21
85,554	Hazel Glen.....	do	80	Thos. J. Perry.....	do	18	120 00
90,647	Hattie Emeline...	do	11	Peter A. Amiro.....	West Pubnico...	4	16 50
75,867	Ida Peters.....	St. John, N.B..	32	Parker, Eakins & Co...	Yarmouth.....	9	45 60
85,560	Jacques	Yarmouth.. ...	58	Thos. B. Flint.....	do ...	15	79 74
80,641	Jonathan.....	do	68	David L. Amiro.	Pubnico.....	17	102 00
71,005	Kelso.....	do	80	J. H. Porter & Co.....	Tusket Wedge..	16	120 00
80,624	Lima.....	do	12	N. B. Lewis.....	Yarmouth	4	16 20
61,587	Lucretia Jane....	do	80	Thos. B. Flint.....	do	17	111 00
51,972	Lydia Ryder.....	do	57	Ls. P. D'Entremont....	Pubnico.....	20	85 50
80,614	Louise	do	80	J. H. Porter & Co.. ...	Tusket Wedge..	19	117 00
80,632	Lumen	do	30	do	do ..	13	45 00
90,888	Laura J.....	do	53	Chas. M. Boudreau....	do ..	19	79 50
90,887	L'Etoile	do	48	J. H. Porter & Co.....	do ..	14	69 60
85,539	Maggie Jane.....	do	12	Jacob Foote.....	Sandford.....	2	12 60
74,339	Maitland	do	44	H. & N. B. Lewis.....	Yarmouth.....	16	66 00
75,550	Martino	Barrington	12	Aug. A. Amiro.....	L. E. Pubnico...	6	16 71
61,510	Mansimalo.....	Shelburne	50	Remi D'Entremont....	West Pubnico...	18	75 00
80,648	Maria	Yarmouth.....	80	Byron Hines.....	Pubnico.....	20	120 00
88,596	M. A. Louis.....	do	64	Marc A. Surette.....	West Pubnico...	18	91 20
74,330	Nokomis.....	do	68	Thos. B. Flint.....	Yarmouth.....	14	102 00
90,659	N. A. Laura.....	do	59	Julien D'Entremont...	West Pubnico...	18	84 06
85,553	Onyx.....	do	80	Parker, Eakins & Co...	Yarmouth	18	120 00
80,645	Opal.....	do	80	do ...	do	16	120 00
66,675	Olika.....	do	54	J. H. Porter & Co.....	Tusket Wedge..	17	81 00

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—Nova Scotia.—*Con.*

YARMOUTH COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Entry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
90,877	Partridge	Yarmouth	47	Thos. B. Flint	Yarmouth	11	67 56
74,332	Proditor	do	54	Zacharie D'Eon	West Pubnico	17	78 75
80,628	Roseneath	do	80	Byron Hines	Pubnico	17	120 00
74,323	Regina	do	57	A. C. D'Entremont	West Pubnico	15	78 36
71,031	Sarah J. Killam	do	51	A. F. Stoneman & Co	Yarmouth	14	71 71
88,589	Sandford	do	20	Abram Thurston	Sandford	3	21 42
57,150	Salvador	do	53	Ambroise D'Eon	West Pubnico	16	75 08
90,648	Stranger	do	15	Benjamin Hines	do	2	14 05
75,724	Sea Foam	do	75	J. H. Porter & Co	Tusket Wedge	17	112 50
85,535	Sigefroi	do	40	do	do	14	58 00
90,881	Tiger	do	57	Thos. B. Flint	Yarmouth	14	85 50
88,597	Uncle Sam	do	89	Geo. D. D'Entremont	Pubnico	16	120 00
75,749	Vivid	do	43	Parker, Eakins & Co	Yarmouth	16	64 50
66,685	Wide Awake	do	77	A. F. Stoneman & Co	do	14	115 50
90,882	Will-o-the-Wisp	do	51	Anth'y M. D'Entremont	West Pubnico	19	76 50
61,921	W. E. Wier	do	41	A. F. Stoneman & Co	Yarmouth	10	48 83

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—*Continued.*

PROVINCE OF NEW BRUNSWICK.

CHARLOTTE COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
83,469	Austin, P.	St. Andrew's	12	Lincoln Richardson	Deer Island	4	18 00
88,288	Annie May	do	11	Lewis Frankland	White Head	2	13 75
83,478	Argyle	do	10	Joseph Murphy	Le Tête	2	11 24
42,096	Ada	Digby, N.S.	29	W. B. Guptill	Grand Manan	8	43 50
92,517	Ada	St. Andrew's	10	Wm. Philips	Wilson's Beach	2	12 50
59,311	Blooming Rose	do	19	Aaron Cooke	Deer Island	5	28 50
75,599	Blue Jay	Digby, N.S.	14	Eben Gaskill	North Head	3	16 80
80,888	B. R. Stevenson	St. Andrew's	17	A. Lamb *et al.*	St. Andrew's	3	25 50
88,409	Carrie	Digby, N.S.	12	James McLeese	Back Bay	1	10 80
35,338	Caroline	St. Andrew's	18	H. Stuart	Deer Island	5	27 00
59,375	Cadet	do	13	Chas. Savage	Campobello	3	19 50
88,290	Crusoe	do	13	James Starkey	St. Andrew's	3	19 50
92,519	Catherine	do	13	B. McKenzie	Le Tête	2	14 62
92,503	Defiance	do	17	Frank Calder	Campobello	4	25 50
74,326	Dreadnaught	Yarmouth	19	Wm. Mathews	Wilson's Beach	4	28 50
92,515	Dispute	St. Andrew's	13	E. R. Patch	Campobello	2	19 50
88,280	E. B. Lane	do	12	T. H. McConnell	L'Etang	3	18 00
88,281	Eastern State	do	22	N. W. Dick *et al.*	Back Bay	2	27 50
59,373	E. M. Oliver	do	14	J. & W. J. Oliver	do	2	14 70
92,505	Edith B	do	47	T. & L. Richardson	Deer Island	8	63 44
80,803	Exenia	Windsor, N.S.	18	Wm. F. Parker *et al.*	Beaver Harbor	4	27 00
59,391	Eliza Ann	St. Andrew's	12	Geo. Morse	White Head	2	13 50
77,968	Empress	do	14	G. & M. Caffary	Mace's Bay	3	18 37
80,882	Ella Mable	do	14	D. Calder	Campobello	3	21 00
88,286	Eagle	do	11	Joseph Richardson	Deer Island	3	16 50
73,965	Etta	Lunenburg, N.S.	28	Chas. Dixon	North Head	3	33 60
92,516	Emma	St. Andrew's	22	Wm. Robert & Jas. Shaw	Lepreaux	4	27 50
80,001	Florence	St. John	15	S. L. Justason	Pennfield	5	22 50
59,400	Foam Belle	St. Andrew's	10	T. Ellsworth	do	4	15 00
88,276	Falcon	do	12	Wm. Brown	Wilson's Beach	3	15 75
83,480	Fred. Taylor	do	13	Joseph Boyd	do	3	19 50
92,511	Fleetwing	do	11	A. Mathews	White Head	2	12 37
77,963	Freeman Colgate	do	26	Geo. English	Deer Island	6	39 00
57,131	Forest Flower	Yarmouth, N.S.	26	Norman Ray		5	39 00
59,393	Fannie	St. Andrew's	12	James Greenlaw	Deer Island	4	18 00
51,748	Frank L. Dickson	do	18	E. A. Grearson	St. George	4	24 30
59,396	Gertie Westbrook	do	10	James Cline	Deer Island	4	15 00
92,508	Grey Eagle	do	13	N. Mitchell	Campobello	3	19 50
37,315	Genetta	do	13	G. D. Grimmer	St. Andrew's	5	19 50
83,463	Havelock	do	33	Wm. James	Wilson's Beach	5	49 50
59,394	Hattie	do	10	Chas. Harkins	Dipper Harbor	3	15 00
51,738	Ita	do	15	M. Nodding	Beaver Harbor	3	22 50
51,965	John E. Dennis	do	10	D. M. Foster	Grand Harbor	2	10 50
83,464	Little Annie	do	19	Jacob Cook	Le Tête	4	23 74
88,273	Lillian E	do	13	Andrew McGee	Back Bay	2	16 25
59,342	Lizzie S. McGee	do	14	do	do	5	19 25
59,395	Little Minnie	do	11	Geo. Douglas	Le Tête	3	12 36
83,474	Letter B	do	12	Sophia Cook	do	2	15 00
59,388	Letitia	do	10	F. Johnson	Deer Island	3	15 00
83,472	Linden	do	12	O. G. Brown	Wilson's Beach	2	18 00
88,407	Linnet	Digby, N.S.	15	Alva Brown	do	3	22 50
77,965	Lydia B	St. Andrew's	12	J. M. Calder	Campobello	3	18 00
59,321	Little Nell	do	21	Wm. McLellan, jr	do	6	31 50
75,598	Lizzie Jane	Digby, N.S.	18	Gilbert Green	Deer Island	5	24 75
80,881	Lena May	St. Andrew's	18	Geo. Kirkpatrick	Wilson's Beach	4	27 00
83,465	Look Out	do	48	A. W. Ingersoll	Grand Harbor	6	72 00
59,399	Leona	do	12	D. Lasley & D. French	Back Bay	3	18 00
59,326	Maud Holmes	do	21	Jacob Cook	Le Tête	4	26 24

DETAILED STATEMET of Fishing Bounties paid to **Vessels**, etc.—New Brunswick—*Continued.*

CHARLOTTE COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
38,109	Mary	Yarmouth, N.S.	17	James Thompson	Black Harbor	3	25 50
92,514	Maggie Jane	St. Andrew's	10	Mrs. V. A. Cook	Mascarene	2	11 24
88,277	Maggie Jane	do	18	S. B. & A. A. Cross	Beaver Harbor	5	27 00
88,271	Magellan Cloud	do	20	Simon Brown	Wilson's Beach	4	27 00
59,125	Mount Whatley	St. John	28	Hugh Belmore	Dipper Harbor	4	42 00
92,509	Mary Jane	St. Andrew's	13	A. A. Calder	Campobello	4	19 50
88,402	Mizpah	Digby, N.S.	53	Eben Gaskill	North Head	4	55 63
92,501	Maby	St. Andrew's	11	John Kelly	White Head	3	16 50
74,337	May	Shelburne, N.S.	28	Alva B. Small	Woodwards Cove	6	36 74
77,970	Mary Emeline	St. Andrews	18	Calvados Brown	Wilson's Beach	3	27 00
77,967	Naomi	do	14	Wm. James	do	3	21 00
75,716	Onward	Yarmouth, N.S.	10	John Watt	North Head	3	15 00
52,174	Pilot	St. John	12	W. Cline, sr.	Deer Island	2	18 00
59,383	Pilgrims Progress	St. Andrews	16	Arther Porter	Wilson's Beach	3	24 00
92,518	Peril	do	18	M. Eldridge and G. Dickson	Beaver Harbor	2	22 50
75,591	Rise and Go	do	16	Wm. Sirls	Campobello	4	24 00
42,081	Randolph P	Digby, N.S.	15	John Peters	do	3	18 00
75,547	River Rose	Barrington, N.S.	13	E. C. Bowers	Westport, N.S.	3	19 50
88,284	Sea Foam	St. Andrews	13	D. & E. Leavitt	Back Bay	3	17 06
88,279	Senator	do	33	Wm. Tinker	Deer Island	4	49 50
88,287	Satellite	do	26	M. Eldridge and E. Wadlin	Beaver Harbor	5	39 00
88,272	Simeon H. Bell	do	14	Edward Mathews	Le Tête	4	21 00
59,357	Silver Bell	do	13	Peter Malloch	Wilson's Beach	4	19 50
59,387	Telephone	do	19	Joseph McGee	Back Bay	5	28 50
88,414	Trumpet	St. John	20	A. W. Holmes	Beaver Harbor	4	30 00
92,504	Tiger	St. Andrews	15	Thos. Mitchell	Campobello	3	22 50
88,282	Veritas	do	10	Enoch Mathews	Le Tête	2	12 50
83,468	Village Belle	do	15	Allan P. Dixon	North Head	3	18 00
35,331	Victory	do	16	Frank Campbell	Dipper Harbor	3	24 00
77,969	Wave Queen	do	11	Wm. McMahon	Le Tête	4	16 50
92,512	Water Witch	do	10	Geo. R. Batson	Campobello	3	15 00
83,427	Zoulu	Weymouth, N.S.	12	Eben Gaskill	North Head	3	18 00

GLOUCESTER COUNTY.

72,099	Adelina	Chatham	12	Auguste Poulin	Lamèque	4	18 00
72,079	Betsy	do	13	Cyrenus Gionet	Shippegan	3	19 50
61,431	Bee	do	11	Paul Noel	Lamèque	3	16 50
83,102	Evangeline	do	74	K. F. Burns	Bathurst	13	107 63
61,446	Esperance	do	10	Olivier Robicheau	Pokemouche	3	15 00
61,437	Flying Fish	do	11	Elie Chiasson	Lamèque	3	16 50
61,445	Flavie	do	13	Théophile Duguay	do	3	19 50
85,699	Four Sisters	do	10	Nazaire Boudreau	Maisonette	2	12 50
61,425	Hope	do	13	R. Robin	Caraquet	4	19 50
	Jean	do	13	D. Gallien	do	3	19 50
88,669	Morning Star	do	12	Gustave Gionet	Pokemouche	3	18 00
85,692	Mary	do	11	J. N. LeBoutillier	Caraquet	3	16 50
61,447	Merida	do	13	André Aché, sen	Lamèque	3	17 06
92,403	Marie	do	25	Ubalde Landry	Grand Anse	4	37 50
72,077	Mary	do	12	Moses Duguay	Shippegan	3	18 00
61,442	Marie Cécile	do	15	Olivier Duguay	Lamèque	4	22 50
72,100	Marie	do	11	Onésime Chiasson	Lamèque	3	16 50
72,076	Providence	do	12	Eutrope Duguay	Shippegan	2	15 00
61,406	Reward	do	11	J. N. LeBoutillier	Caraquet	2	12 37
61,438	Rosane	do	13	Lauge Duguay	Little Lamèque	4	19 50
85,696	Rose	do	11	Marin Basque	Tracadie	4	16 50

DETAILED STATEMENT of the Fishing Bounties paid to **Vessels**, etc.—New Brunswick—*Concluded.*

GLOUCESTER COUNTY—*Concluded.*

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
92,404	Rosa	Chatham	17	Octave Aché	Lamèque	4	25 50
74,401	Sara	do	11	Nazaire Noel	do	3	16 50
92,408	Sarah A. W	do	15	R. J. Wilson	Miscou Island	3	22 50
				KENT COUNTY.			
54,104	Annie C. Brown	Halifax, N.S.	59	Oswald Smith	Richibucto	5	60 05
55,829	Emma McMillan	Pictou, N.S.	20	Rufus Palmer	Kingston	4	30 00
61,414	Frederick William	Chatham	21	Henry Irving	Richibucto	2	26 25
83,105	Katie Bell	Richibucto	11	John Bell	do	3	16 50
35,548	Morning Star	Chatham	30	A. Arseneau	do	5	38 56
83,104	Minnie Long	Richibucto	20	Wm. Long, sen	do	3	30 00
71,308	Sea Mouse	do	10	John Doucett	Kingston	3	13 12
61,411	Telegraph	do	20	Wm. Irving	Richibucto	3	30 00
				NORTHUMBERLAND COUNTY.			
61,417	Belle	Chatham	12	P. S. Bremner	Chatham	3	18 00
74,368	Maggie Roach	Shelburne, N.S.	44	W. S. Loggie	do	7	50 78
61,373	Maria	Chatham	28	do	do	9	35 56
66,724	Nettie Cole	Liverpool, N.S.	13	A. & J. Adams	Neguac	2	19 50
78,044	Princess Louise	Chatham	21	R. J. Walls	Chatham	5	31 50
				RESTIGOUCHE COUNTY.			
61,401	Venus	Chatham	19	Joseph Windsor	Dalhousie	4	28 50
				ST. JOHN COUNTY.			
88,270	Alice May	St. John	10	Robt. Thompson, sen	Musquash	3	15 00
72,192	Ada	do	19	Wm. J. Ewart	Pisarinco	4	28 50
80,093	Anna K	do	14	Wm. Spence	Portland	3	21 00
79,977	Amanda Green	do	15	Samuel Hutton	Carleton	3	22 50
80,072	Buena Vista	do	14	John McNulty, sen	Musquash	3	21 00
74,308	Bald Eagle	Yarmouth, N.S.	14	James Wilson	Portland	3	21 00
85,972	Dove	St. John	11	Samuel McGuire	Musquash	5	16 50
88,253	E. B. Colwell	do	19	A. N. and W. A. Harned	Carleton	4	28 50
66,926	Emma	do	13	David Thompson	Chance Harbor	4	16 24
57,181	Hattie	Windsor, N.S.	13	S. Galbraith and R. Knox	Pisarinco	4	19 50
83,259	Hettie May	Annapolis, N.S.	15	John Butler	Musquash	5	22 50
88,266	Lizzie Young	St. John	12	Nathaniel Young	do	3	14 40
88,261	Little Joe	do	18	Joseph O'Brien	Carleton	4	27 00
52,159	Mary E	do	21	F. Buchanan	do	4	31 50
59,322	Sea Flower	do	11	James Thompson	Musquash	2	13 75
59,370	Sparkling Billow	St. Andrews	25	J. W. Belyea	Carleton	4	33 75
72,973	Sea Breeze	Digby, N.S.	13	J. J. Graham and D. Tolan	Musquash	5	19 50
59,156	Tom	St. John	14	Peter Boyle	do	3	21 00
42,087	Two Sisters	Digby, N.S.	14	Thomas Wilson, sen	Pisarinco	3	21 00
72,321	Widgeon	St. John	10	James Kennedy	St. John	3	15 00
88,264	Walter J. Clarke	do	20	Jno. M. Christopher *et al*	Carleton	5	30 00

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—*Continued.*

PROVINCE OF PRINCE EDWARD ISLAND.

KING'S COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
66,428	Albert	Charlottetown	40	Benj. Herring	Murray Harbor	6	52 50
66,242	Amorette	do	18	Peter Roberts	do	5	27 00
69,132	Belle of the Bay	Guysboro', N.S.	20	J. Kirby & W. Grant	do	3	21 42
74,141	Belle	do	31	A. Jackson	do	9	44 17
92,675	Can't Help It	Pictou, N.S.	39	John Herring	do	5	47 52
38,335	Elizabeth	Arichat, N.S.	17	Benj. Delorey	Georgetown	1	14 87
83,196	Ethel Blanche	Pictou, N.S.	12	R. Cahoon	Murray Harbor	4	15 00
92,457	Elmer E. Hawes	Charlottetown	40	James Hume	do	13	56 00
83,198	Harriet	Pictou, N.S.	27	Wm. Reynolds	do	7	37 96
88,644	Hattie	Charlottetown	18	Henry Dicks	do	6	27 00
75,481	Julia Ward	do	39	S.Sencabaugh&G.Dunn	do	7	46 30
92,458	Jubilee	do	76	M. McDonald	Georgetown	10	92 60
75,566	Julia A	Lunenburg, N.S.	15	John McKinnon	Murray Harbor	5	20 62
75,882	Lord McDonald	Charlottetown	15	David Cahoon	do	2	15 75
88,230	Morning Light	Halifax, N.S.	28	Robt. N. Cox	Morell	11	40 25
90,639	Morrel	Charlottetown	16	E. D. Delorey	Georgetown	5	24 00
80,937	Montague	do	16	M. Jackson	Murray Harbor	4	21 60
83,095	Mary Margaret	Pt. Hawkesbury, N.S.	17	John Cahoon	do	4	25 50
74,160	Sea Bird	Charlottetown	20	John Hyde	do	3	24 00

PRINCE COUNTY.

72,081	Annie	Chatham, N.B.	13	Jno. McDonald	Campbelton	2	11 39
71,310	Black Watch	Charlottetown	23	Jno. P. Brennan	Alberton	4	22 98
82,086	Charlie	do	64	J. H. Myrick & Co	Tignish	15	93 00
90,492	C. W. Redmond	Halifax, N.S.	80	Jno. Agnew	Alberton	7	86 25
64,867	Daring	Charlottetown	39	Walter Matheson	Campbelton	9	58 50
88,642	Express	do	46	Jno. Champion	Alberton	13	69 00
90,636	Gertie	do	42	Benj. Rogers	Tignish	5	42 75
80,946	Janet A	Chatham, N.B.	29	Donald Handrahan	do	4	28 47
59,663	Lettie	Charlottetown	57	J. H. Myrick & Co	do	15	85 50
66,948	Lois	do	67	Jno. A. Matheson	Campbelton	7	75 37
88,654	Mamie	do	15	Patk. Doyle	Tignish	5	22 50
92,455	Mikado	do	38	Terrance Farrell, jun	Alberton	7	43 83
77,619	Milford Guy	do	60	James S. Gordon	do	12	83 56
59,717	Sylvanus McDonald	do	45	J. H. Myrick & Co	Tignish	7	51 90

QUEEN'S COUNTY.

92,464	Eliza M	Charlottetown	18	Wm. Bell	New London	4	27 00
92,466	G. H. Gardiner	do	17	G. H. Pursey	North Rustico	4	25 50
92,467	Golden Ball	do	11	James Hamilton	Margate	4	16 50
74,015	Kohinoor	do	77	James E. Grant	Charlottetown	15	111 90

DETAILED STATEMENT of Fishing Bounties paid to **Vessels**, etc.—*Concluded.*

PROVINCE OF QUEBEC.

GASPÉ COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner or Managing Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
							$ cts.
33,622	Admiration	Gaspé	60	Joseph Tripp	Gaspé Basin	16	90 00
55,642	Delaney	Magdalen Isl'ds.	44	Camille Delaney	House Harbor	8	55 00
71,357	Emma Gidney	Halifax, N.S.	48	Damien Devaux	Aubert	8	64 80
85,391	Esperance	Magdalen Isl'ds.	31	Jean Bourgeois *et al*	do	7	43 59
77,604	E. D. Myra	Lunenburg, N.S.	43	P. P. Delaney	House Harbor	11	61 81
85,393	Formosa	Magdalen Isl'ds.	43	do	do	11	61 81
73,029	F. P. T	do	41	Camille Delaney	do	9	53 79
77,612	Gold Hunter	do	41	Edward Bourque	do	10	61 50
59,457	Highland Lass	Lunenburg, N.S.	15	Dominique Boudreau	Havre Aubert	4	22 50
85,395	Kate	Magdalen Isl'ds.	11	Herbert Taker	Grosse Isle	2	12 37
73,494	Marie Dolorosa	do	44	André Devaux	Aubert	7	56 10
73,021	Marie Anne	do	46	J. Arseneau, and Wm. Terrieau	House Harbor	9	60 36
73,025	Marie Euphrosyne	do	39	N. Arseneau	do	11	56 06
75,577	Mary Ann Bell	Lunenburg, N.S.	33	Jno. Arseneau	do	10	49 50
73,491	Mary Jane	Magdalen Isl'ds.	47	N. Arseneau	do	11	67 56
73,493	Marie Joseph	do	56	Philippe Gaudin	do	10	77 00
73,024	Marie Enesie	do	47	W. G. Leslie	Grindstone	12	70 50
38,351	Nancy	Arichat, N.S.	16	T. Cormier *et al*	Aubert	4	24 00
54,082	Pheasant	Magdalen Isl'ds.	32	J. N. Arseneau	Grindstone	8	43 20
73,028	Richard B	do	32	Wm. G. Leslie	do	9	45 60
73,492	Thirza	do	14	T. Larade, and E. Gallant	Magdalen Isl'ds.	6	21 00

SAGUENAY COUNTY.

74,270	Amarilda	Quebec	24	L. & M. Pineau	Bic	3	36 00
42,436	Amelia	Gaspé	50	P. Cormier & Bros.	Esquimaux Pt.	11	75 00
57,742	Acara	Halifax, N.S.	30	F. Jomphe	do	7	45 00
59,468	Busy	Quebec	39	Blais & Vigneau	do	8	55 25
83,370	C. M. G. P.	do	46	Geo. Picard	do	9	65 55
61,966	D. Cronan	Halifax, N.S.	40	P. Lemarquand	do	8	60 00
66,028	Emerillon	Quebec	14	Aug, Michaud	Isle Verte	2	21 00
92,336	Esperance	do	28	Henry Cormier	Natashquan	3	42 00
59,909	Elizabeth	do	27	Luke Cormier	Esquimaux Pt.	8	40 50
80,754	Eugenie	do	48	Vigneau & Blais	do	6	72 00
85,754	Florida	do	26	H. Bourque	Natashquan	6	39 00
75,679	Gleaner	do	41	B. Landry & Sons	Esquimaux Pt.	10	61 50
85,750	H. B	do	57	H. Boudreau	do	7	85 50
85,753	Jaon	do	46	Dom. Cormier	do	10	65 86
42,435	Labrador	Gaspé	43	Placide Doyle	do	8	64 50
77,868	Léodore	Quebec	39	F. X. Corriveau	do	8	58 50
55,912	Marie Louise	do	13	Pierrie Ouelette	Quebec	4	19 50
69,584	do	do	23	H. Vigneault *et al*	Natashquan	4	34 50
42,434	Marguerite	Gaspé	27	Michel Giasson	Esquimaux Pt.	7	40 50
69,382	Marie du Sacré Cœur	do	46	O. Turbis	do	8	69 00
69,380	Marie Anne	do	35	D. Landry	do	8	52 50
77,866	Pioneer	do	39	Lebrun & Picard	do	9	56 52
42,437	Progress	do	52	Boudreau & Leblanc	do	7	78 00
75,445	Phœnix	do	28	P. Vigneau & Bros.	do	7	42 00
73,026	Ste. Anne	Magdalen Isl'ds.	20	F. X. Corriveau	do	5	30 00
75,675	Sancta Maria	Quebec	20	H. Landry	Natashquan	4	30 00
75,680	Sea Star	do	52	J. Poirier & S. Boudreau	do	4	78 00
80,753	Stella Maris	do	51	L. Cummings & Bros.	Esquimaux Pt.	10	73 02
69,591	Ste. Marie	do	37	A. Sherrer	do	8	55 50
69,659	St. Joseph	do	18	Turgeon & Corriveau	do	6	27 00

The following Vessel claim for 1887, held in abeyance, was paid in 1888-89.

PROVINCE OF NOVA SCOTIA.

HALIFAX COUNTY.

Official Number.	Name of Vessel.	Port of Registry.	Tonnage.	Name of Owner.	Residence.	No. of Crew.	Amount of Bounty Paid.
85,653	Mary O'Dell.....	Halifax	10	James L. Richardson ..	Indian Harbor..	2	20 00

Comparative Statement of Fishing Bounties Paid, from 1882 to 1888 inclusive.

Number.	Province.	County.	1882.			1883.			1884.		
			Vessels.	Boats.	Total.	Vessels.	Boats.	Total.	Vessels.	Boats.	Total.
			Amount.	Amount.		Amount.	Amount.		Amount.	Amount.	
			$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1	Nova Scotia	Annapolis	472 00	1,998 00	2,470 00	838 00	1,207 50	2,045 50	648 00	1,503 50	2,151 50
2		Antigonish	.....	840 00	840 00	.....	482 50	482 50	.....	799 50	799 50
3		Cape Breton	294 00	5,167 00	5,461 00	436 00	2,853 50	3,289 50	383 00	3,909 00	4,292 00
4		Colchester	.....	.....	.....	.....	.....	.....	64 00	.....	64 00
5		Cumberland	.....	20 00	20 00	.....	.....	.....	7 50	.....	7 50
6		Digby	1,436 00	4,118 66	5,554 66	2,652 00	2,182 50	4,834 50	3,322 84	2,234 50	5,557 34
7		Guysboro'	2,380 73	7,913 75	10,294 48	2,914 00	4,645 00	7,559 00	3,371 90	6,485 50	9,857 40
8		Halifax	3,599 50	11,118 31	14,717 81	6,020 00	6,080 50	12,100 50	5,834 00	7,898 00	13,732 00
9		Inverness	950 00	5,432 00	6,382 00	572 00	3,422 50	3,994 50	1,208 00	4,522 00	5,730 00
10		King's	46 00	125 00	171 00	146 00	157 50	303 50	196 00	70 50	266 50
11		Lunenburg	15,161 03	3,112 00	18,273 03	17,658 00	1,850 00	19,508 00	19,648 24	3,162 00	22,810 24
12		Pictou	202 00	95 00	297 00	202 00	120 00	322 00	177 76	107 50	285 26
13		Queen's	1,638 00	1,917 00	3,555 00	1,826 00	810 00	2,636 00	2,408 00	836 50	3,244 50
14		Richmond	3,853 15	7,998 50	11,851 65	3,558 00	4,225 00	7,783 00	3,266 58	6,325 00	9,591 58
15		Shelburne	7,294 00	4,332 00	11,626 00	8,744 00	2,326 50	11,070 50	8,928 27	2,781 50	11,709 77
16		Victoria	284 00	4,861 00	5,145 00	492 00	2,830 50	3,322 50	60 00	4,045 50	4,105 50
17		Yarmouth	7,825 09	1,615 00	9,440 09	9,486 00	695 00	10,181 00	9,758 00	971 50	10,729 50
18		Totals	45,435 50	60,663 22	106,098 72	55,544 00	33,888 50	89,432 50	59,274 59	45,659 50	104,934 09
19	New Brunswick	Charlotte	2,140 00	5,641 00	7,781 00	2,380 00	2,830 00	5,210 00	2,792 00	3,035 00	5,827 00
20		Gloucester	422 00	5,368 00	5,790 00	492 00	3,568 50	4,060 50	508 00	4,799 00	5,307 00
21		Kent	768 00	965 00	1,733 00	266 00	1,197 50	1,463 50	246 00	764 50	1,010 50
22		Northumberland	.....	45 00	45 00	68 00	52 50	120 50	66 00	68 00	134 00
23		Restigouche	28 00	.....	28 00	52 00	.....	52 00	.....	.....	.....
24		St. John	984 00	591 00	1,575 00	861 20	587 50	1,448 70	956 00	260 00	1,216 00
25		Westmoreland	.....	45 00	45 00	.....	40 00	40 00	.....	81 50	81 50
26		Totals	4,342 00	12,655 00	16,997 00	4,119 20	8,276 00	12,395 20	4,568 00	9,008 00	13,576 00

Comparative Statement of Fishing Bounties Paid, from 1882 to 1888, inclusive.

Number.	Province.	County.	1882.			1883.			1884.		
			Vessels. Amount.	Boats. Amount.	Total.	Vessels. Amount.	Boats. Amount.	Total.	Vessels. Amount.	Boats. Amount.	Total.
			$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
27	P. E. Island	King's	252 00	5,024 00	5,276 00	293 14	2,790 50	3,083 64	475 44	3,028 00	3,503 44
28		Prince	316 00	6,709 00	7,025 00	418 00	3,429 50	3,847 50	520 00	3,642 00	4,162 00
29		Queen's	210 00	3,626 00	3,836 00	96 00	1,550 00	1,646 00	65 02	1,473 50	1,538 52
30		Totals	778 00	15,359 00	16,137 00	807 14	7,770 00	8,577 14	1,060 46	8,143 50	9,203 96
31	Quebec	Bonaventure		8,945 00	8,945 00		3,846 50	3,846 50		5,508 00	5,508 00
32		Gaspé	2,070 00	17,899 75	19,969 75	2,152 00	9,302 50	11,454 50	1,906 00	13,879 50	15,785 50
33		Rimouski									
34		Saguenay	2,350 00	1,773 00	4,123 00	2,320 01	2,319 00	4,639 01	2,023 93	4,687 50	6,711 43
35		Temiscouata		15 00	15 00						
36		Totals	4,420 00	28,632 75	33,052 75	4,472 01	15,468 00	19,940 01	3,929 93	24,075 00	28,004 93

RECAPITULATION.

37	Nova Scotia		45,435 50	60,663 22	106,098 72	55,544 00	33,888 50	89,432 50	59,274 59	45,659 50	104,934 09
38	New Brunswick		4,342 00	12,655 00	16,997 00	4,119 20	8,276 00	12,395 20	4,568 00	9,008 00	13,576 00
39	P. E. Island		778 00	15,359 00	16,137 00	807 14	7,770 00	8,577 14	1,060 46	8,143 50	9,203 96
40	Quebec		4,420 00	28,632 75	33,052 75	4,472 01	15,468 00	19,940 01	3,929 93	24,075 00	28,004 93
41		Totals	54,975 50	117,309 97	172,285 47	64,942 35	65,402 50	130,344 85	68,832 98	86,886 00	155,718 98

Comparative Statement of Fishing Bounties Paid, from 1882 to 1888, Inclusive.

Number.	1885.			1886.			1887.			1888.			Grand Total.
	Vessels.	Boats.	Total.	Vessels.	Boats.	Total.	Vessels.	Boats.	Total.	Vessels.	Boats.	Total.	
	Amount.	Amount.		Amount.	Amount.		Amount.	Amount.		Amount.	Amount.		
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1	430 08	1,180 00	1,610 08	431 60	1,063 50	1,495 10	305 27	1,162 00	1,467 27	217 01	1,153 50	1,370 51	12,609 96
2	.....	982 50	982 50	.....	832 00	832 00	.....	924 50	924 50	.....	1,063 50	1,063 50	5,924 50
3	210 00	4,012 50	4,222 50	392 00	3,765 00	4,157 00	374 14	3,600 00	3,974 14	423 33	3,618 00	4,041 33	29,437 47
4	74 00	.....	74 00	74 00	.....	74 00	74 00	.....	74 00	85 50	.....	85 50	371 50
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27 50
6	3,036 02	1,993 00	5,029 02	2,131 79	1,924 50	4,056 29	2,671 34	1,582 50	4,253 84	1,696 68	1,749 50	3,446 18	32,731 83
7	3,312 53	7,129 50	10,442 03	2,936 90	7,521 00	10,457 90	2,210 58	7,963 50	10,174 08	1,289 71	8,274 50	9,564 21	68,349 10
8	5,984 77	8,398 00	14,382 77	4,947 02	8,200 50	13,147 52	5,097 61	8,333 50	13,431 11	3,809 99	7,806 00	11,615 99	93,127 70
9	884 00	4,913 50	5,797 50	1,294 12	5,265 00	6,559 12	1,582 88	5,091 00	6,673 88	1,247 90	5,432 00	6,679 90	41,816 90
10	54 00	185 50	239 50	96 00	297 50	393 50	218 00	242 00	460 00	123 45	272 50	395 95	2,229 95
11	17,315 34	2,947 00	20,262 34	16,755 64	3,122 00	19,877 64	16,154 33	3,751 50	19,905 83	13,893 81	3,794 00	17,687 81	138,324 89
12	154 00	132 00	286 00	156 00	94 50	250 50	.....	130 00	130 00	.....	110 50	110 50	1,681 26
13	1,854 00	1,190 50	3,044 50	1,814 00	967 00	2,781 00	1,650 00	1,212 50	2,862 50	1,495 82	1,174 00	2,669 82	20,793 32
14	3,164 49	7,046 00	10,210 49	2,650 00	6,941 00	9,591 00	2,762 86	7,704 00	10,466 86	2,390 65	8,108 50	10,499 15	69,993 73
15	9,198 00	3,201 50	12,399 50	7,880 67	3,072 00	10,952 67	6,678 62	3,687 00	10,365 62	5,193 59	3,842 50	9,036 09	77,160 15
16	166 00	4,487 00	4,653 00	222 20	4,599 50	4,821 70	88 00	4,600 50	4,688 50	36 00	4,963 50	4,999 50	31,735 70
17	9,415 50	968 50	10,384 00	8,513 60	829 00	9,342 60	8,539 40	1,230 50	9,769 90	5,661 46	858 50	6,519 96	66,367 05
18	55,252 73	48,767 00	104,019 73	50,295 54	48,494 00	98,789 54	48,407 03	51,215 00	96,622 03	37,564 90	52,221 00	89,785 90	692,682 51
19	2,508 25	3,937 00	6,445 25	2,579 67	4,246 00	6,825 67	3,292 65	4,681 50	7,974 15	2,113 50	4,447 50	6,561 00	46,624 07
20	452 00	5,876 00	6,328 00	516 00	6,462 00	6,978 00	618 75	7,136 00	7,754 75	537 46	8,212 50	8,749 96	44,968 21
21	184 00	1,309 50	1,493 50	206 00	1,473 50	1,679 50	370 00	1,728 50	2,098 50	244 48	1,770 50	2,014 98	11,493 48
22	180 00	80 50	260 50	592 00	80 50	672 50	445 00	229 00	674 00	155 34	73 00	228 54	2,134 84
23	.....	.....	.....	28 00	7 00	35 00	.....	.....	.....	28 50	.....	28 50	143 50
24	902 00	367 50	1,269 50	1,054 40	424 00	1,478 40	786 25	291 00	1,077 25	487 64	312 00	799 64	8,864 49
25	.....	111 50	111 50	.....	225 50	225 50	.....	121 00	121 00	.....	72 50	72 50	697 00
26	4,226 25	11,682 00	15,908 25	4,976 07	12,918 50	17,894 57	5,512 65	14,187 00	19,699 65	3,566 92	14,888 00	18,454 92	114,925 59

Comparative Statement of Fishing Bounties Paid, from 1882 to 1888 inclusive.

Number.	1885.			1886.			1887.			1888.			Grand Total.
	Vessels. Amount.	Boats. Amount.	Total.	Vessels. Amount.	Boats. Amount.	Total.	Vessels. Amount.	Boats. Amount.	Total.	Vessels. Amount.	Boats. Amount.	al.	
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
27	626 15	4,090 50	4,716 65	770 44	4,149 50	4,919 94	1,225 78	4,396 00	5,621 78	654 06	2,067 00	2,721 06	29,842 51
28	426 00	3,552 50	3,978 50	967 40	3,413 00	4,380 40	1,127 00	3,636 00	4,763 00	782 00	3,826 50	4,608 50	32,764 90
29	76 00	1,433 50	1,509 50	271 53	1,364 00	1,635 53	734 73	1,409 00	2,143 73	180 90	1,582 50	1,763 40	14,072 68
30	1,128 15	9,076 50	10,204 65	2,009 37	8,926 50	10,935 87	3,087 51	9,441 00	12,528 51	1,616 96	7,476 00	9,092 96	76,680 09
31	.....	8,005 00	8,005 00	.....	9,294 00	9,294 00	.....	8,862 00	8,862 00	.....	9,891 50	9,891 50	54,352 00
32	1,524 26	14,900 50	16,424 76	1,176 98	15,465 50	16,642 48	1,233 98	15,335 25	16,569 23	1,098 05	16,527 50	17,625 55	114,471 77
33	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27 50	27 50	27 50
34	1,988 00	5,047 00	7,035 00	2,227 63	5,119 50	7,347 13	2,354 00	4,122 50	6,476 50	1,573 20	3,741 00	5,314 20	41,646 27
35	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15 00
36	3,512 26	27,952 50	31,464 76	3,404 61	29,879 00	33,283 61	3,587 98	28,319 75	31,907 73	2,671 25	30,187 50	32,858 95	210,512 54

RECAPITULATION.

37	55,252 73	48,767 00	104,019 73	50,295 54	48,494 00	98,789 54	48,407 03	51,215 00	99,622 03	37,564 90	52,221 00	89,785 90	692,682 51
38	4,226 25	11,682 00	15,908 25	4,976 07	12,918 50	17,894 57	5,512 65	14,187 00	19,699 65	3,566 92	14,888 00	18,454 92	114,925 59
39	1,128 15	9,076 50	10,204 65	2,009 37	8,926 50	10,935 87	3,087 51	9,441 00	12,528 51	1,616 96	7,476 00	9,092 96	76,680 09
40	3,512 26	27,952 50	31,464 76	3,404 61	29,879 00	33,283 61	3,587 98	28,319 75	31,907 73	2,671 25	30,187 50	32,858 75	210,512 54
41	64,119 39	97,478 00	161,597 39	60,685 59	100,218 00	160,903 59	60,595 17	103,162 75	163,757 92	45,420 03	104,772 50	150,192 53	1,094,800 73

APPENDIX No. 3.

NOVA SCOTIA.

DISTRICT No. 1.

ANNUAL REPORT ON THE FISHERIES OF CAPE BRETON ISLAND, COMPRISING THE COUNTIES OF CAPE BRETON, INVERNESS, RICHMOND AND VICTORIA, FOR THE YEAR 1889, BY INSPECTOR A. C. BERTRAM.

NORTH SYDNEY, C.B., 31st December, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries, Ottawa.

SIR,—I have the honor to submit the following as my sixth annual report of the fisheries upon the coastal waters and streams of the Island of Cape Breton, for the calendar year ending this date.

The aggregate values of the fishery production for each year since this Island was made a distinct fishery district have been:—

Year.	Product Value.
1884	$1,421,787
1885	1,501,498
1886	1,561,655
1887	1,554,288
1888	1,481,988
1889	1,382,580

These figures show a large shortage in quantity and value of fishery products. The decrease in value for 1889 as compared with that of 1888 is $99,408, and as compared with 1887, $171,708, both of which years were noted for shortages. These shrinkages in values for successive years are serious, and especially so when they are confined to four counties. The year 1889 was the least productive of any year since I have had the honor of occupying the position of fishery officer.

The following table shows the increase and decrease, by counties, for the present year as compared with last year:—

COUNTY.	PRODUCT VALUE.		INCREASE.	DECREASE.
	1889.	1888.		
	$	$	$	$
Cape Breton	195,294	271,539	.....	76,245
Inverness	378,327	342,695	35,632	.....
Richmond	566,347	644,101	.....	77,754
Victoria	242,612	223,653	18,959	.....
Total	1,382,580	1,481,988	54,591	154,999
Balance, decrease in 1889	.....	.....	.....	99,408

A decrease to the extent above shown is deserving of enquiry, and especially so in view of the fact that the comparison is made with 1888, which was, itself marked by an important decrease in fishery value. By taking the average aggregate values for the five years previous to the present, that is, from 1884 to 1888, inclusive, as the comparative amount, it is seen that the shortage in the aggregate amount for the present year is $111,664, below that of an average year. The only redeeming feature in the fishery operations of the year is, that for good qualities of fish, and particularly for mackerel, prices ruled high, and this came in as a partial alleviation to the circumstance in which fishermen were placed by failure in catch. In short, were it not for the superior prices realized the report on the fisheries of this Island might be comprehended in two words—total failure—as there would have been nothing to report but decrease from every section and county. This decrease not being confined only to one or two localities, but being a prevalent characteristic, and this being the third year in succession in which it prevails, it may not be inappropriate to point out the leading causes known to operate strongly in bringing about this succession of failures.

THE CHIEF AGENTS WHICH CAUSE SHORTAGE OF CATCH.

The first and principal of these causes, the fishermen are everywhere unanimous in agreeing upon that is, the shore fisheries are being ruined by purse-seine fishing, as well as by trawl or set-line fishing. It is now a good many years since these destructive contrivances were imported into the shore fisheries; and although their evil consequences were not very apparent after one or two years, a continuation of the system has produced ruinous effects of so marked a character that it has passed beyond the region of probability into that of established fact. Now that the shore fisheries have undergone such marked diminution, the fatal effects of fishing by seines and trawls, are each successive year becoming more apparent; and the failure of the present year is but a fuller development of a process of exhaustion which has been going on ever since the employment of these destructive methods, which, are rapidly decimating the shoal waters, from which the industry is rapidly disappearing, as it has done on most of the European shores long ago. The resident fisherman who prosecutes his calling in boats depends entirely upon hand-line and straight-net fishing; but whenever a school strikes the shore, seine fishermen appear upon the grounds and commence operations. The consequence is that the schools are broken, and such as escape the seines are scared away and lost to further capture by the boat fishermen. The mischief does not end here, for on being enclosed in seines, at least 50 per cent. on an average of the fish are of kinds not wanted. This residue is taken out dead, thrown back into the water, and to this mass of dead, rotting matter are added the offals or cleanings from the fish retained, by which a large area of bottom is strewn, by aid of wind and tide, with tons upon tons of putrid matter, which repels all approaching schools for the remainder of the season. This process repeated upon the same grounds, and within the same bays, year after year, destroys the fish beyond the powers of reproduction; and the condition of the waters, together with repeated scaring away, leads the fish by degrees to abandon these places for other grounds. There is now no more firmly and accepted fact than that the fish shun filthy and polluted waters, just as graminivarous animals on land avoid filthy pastures whenever they can, by seeking out cleaner grounds. That fish will flee from tainted bait in place of being attracted by it is known to everyone, and is a great illustration of the aversion of fish to contact with putrid or even tainted matter. Out of a haul of 500 barrels by a purse-seine, from 200 to 250 barrels will be rejected, and is thus lost to food and commerce, besides being thrown out dead to pollute the waters and the bottom. This putrid mass will be largely increased by offals from the retained fish being thrown in after it.

The question of permitting purse-seine and trawl fishing within the three mile limit from headland to headland, by foreigners or residents, narrows itself to one of two alternatives, viz.:—whether the present practice of purse-seine and trawl fishing shall be allowed to continue longer, with the result that the inshore fisheries will become

extinct. Our present active boat fishing population of about 38,000 depending upon this means of fishing for a livelihood, will be deprived of their living and driven to migrate and thus the produce of their industry will be lost to the home and foreign commerce of this country, into which it has herefore entered as an important factor. A continuance of the present system can at best only prove but of temporary advantage, to the reckless greed of those who fish in vessels; but ultimately, they too, must reap permanent loss as the result of their own methods.

The second rational alternative is, that the shore fisheries should be preserved to their rightful inheritors, the resident boat fishermen who, with their families, live by these fisheries, as their forefathers have done before them, and whose existence depends upon this, both for food and as a mean of purchasing other necessary supplies of life, and thus securing the produce of their labors to commerce in perpetuity. To accomplish these most desirable ends, it becomes an absolute necessity to prohibit the taking of fish by means of purse-seines and trawls within the three-mile limit by any and all persons subjects of Her Majesty in Canada or otherwise. The adoption of this second alternative of limiting the methods of shore fishing to hand-line and ordinary net fishing would secure the revival of the shore fisheries, and there would be then no doubt of the perpetuation of the means of livelihood to our fishing population, and that they would contribute a permanent supply to the country's wealth.

Minor causes of a temporary and local character common to the fisheries of past years, have recurred and exercised some influence in shortening the catch. One of these is an old-standing complaint, which fishermen themselves might remedy, were they to adopt the means at their disposal. This complaint is the casual appearance of fish, simultaneously with a total absence of bait at the necessary time. As yet, Cape Breton fishermen do not avail themselves of the aid of ice, wherewith to preserve bait when it can be had, and thus keep a supply in readiness for the arrival of fish. There was a general complaint on this head during the present year, and the trouble extended to the lobster fishery, which is said to be short in catch, chiefly owing to the absence of bait. Every settlement produces sufficient ice for local supply, which could be gathered with very little or no outlay, except that of labor; and as the season for this work occurs when there is no fishing to be done, each fisherman might, without loss of time to any other industry, lay up a supply of ice which would prove useful and profitable, not only as a means of preserving fresh bait, but also as an invaluable auxiliary in the curing of fish during the hot season, when, owing to the absence of method to meet circumstances, much of the best fish of the season, particulary herring, is deteriorated or wholly spoilt before it can be salted. Our fishermen are not lacking in methods of curing fish, after the manner of the British islands; but they fail taking into account the climatic differences of countries and the effects of a high temperature in summer, as contrasted with the cooler temperature of spring and autumn. They also lose sight of the fact that the simple methods of curing, which are quite successful in the latter seasons are inadequate to meet the heated condition of the former, and it is in meeting this condition that, an ample supply of ice would prove valuable alike to fishermen and purchasers of their products. The fact is, that the Cape Breton coastal waters produce superior kinds of fish to those of the coasts of Europe; but our fishermen have as yet failed, for the most part, to adapt their methods to the peculiarities of the climate.

The numerous complaints arising out of the failure in the catch, owing to the scarcity of bait, demonstrates the importance of a strict prohibition on the sale of bait to foreigners. The improvident abound amongst fishermen as well as in other classes of people, and many an improvident fisherman will if the chance offers, sell for a trifle of money in hand the bait supply on which depends his chief catch of fish for the season. The law which would prohibit his doing this would be an act of true economy, ultimately profitable to the individual as well as to the public.

CODFISH.

This valuable branch of fishing is in the main a failure this year. During the spring, there was a general scarcity of cod all around the coast. During the summer it struck at a few points in fair quantities; but in most of these instances there was a complete dearth of bait, so that the run could not be taken advantage of to any appreciable extent. During the autumn and early winter the fish visited the coast in large numbers, and a few good catches were fortunately made. but not enough to bring the year's product up to anything like an average. Numerically, the local reports of failure may be represented by *six* to *two*, and the reports of average catches by the number *two*. In connection with the cod fishery, one report mentions an increase of hake and haddock. The cod fishery is being destroyed by trawl-line fishing which wounds large numbers of fish, scares them off the grounds and destroys the mother fish.

FISH OIL.

With a heavy diminution in the quantity of fish caught, particularly of cod, fish oils must necessarily be short in supply. Could the fishermen be induced to pay more attention to separating the cod livers for the purpose of procuring medicinal oil, which operation entails but a very trifling outlay, this would add an important amount to the general profits of each season's work. I regret finding but little progress in this direction, and I believe it is mainly owing to absence of knowledge as to the simplicity and inexpensiveness of the operation.

HERRING.

The catch of herring is also marked by general failure. Decreases in catch may be indicated by the number *five*; average catches by *one*; without any increase reported from any quarter. A phenomenal catch of herring occurred in Sydney harbor last winter: that is to say, during the winter of 1888–89. After the ice had formed to a considerable thickness it was accidently discovered that the waters beneath were swarming with herring. The work of lowering nets by holes cut in the ice was at once begun, with the result that an aggregate of 1,500 barrels of superior fish were secured. Whether this run of herring was accidental, or whether it had occurred before, is not yet known. The re-appearance or discontinuance of these fish this winter is a matter now watched with interest, apart from the consideration of profit and loss.

MACKEREL.

The estimated catch may be correctly indicated, locally, by increases and good averages, *six* to *four* decreases, which will bring up the total result to about a short average. The high prices realized did much towards alleviating the heavy deficiences which occurred in nearly all other fisheries. Boat fishermen maintain that had it not been for the mischievous interference of purse-seines, invariably breaking up mackerel schools in the bays, they would have made a fair average catch. As this subject is fully dealt with in another part of this report, it is unnecessary to refer to this matter again here.

LOBSTERS.

The result of this fishery may be described as satisfactory, on an average, without any marked increase. In most localities lobsters were fairly plentiful; but scarcity of bait lessened the amount taken. I regret to have to refer to most mischievous practices resorted to by many lobster fishermen, and to which I beg to call the attention of your Department; for if not efficiently checked, it will result in the decimation of the lobster on this coast, in spite of the wise provisions already made for the perpetuation of this industry. The practices which I refer to are that, being aware it is illegal to retain female lobsters with spawn, many fishermen knock the spawn off and thus defy detection. The second practice is to destroy all lobsters

found in the traps of a size below the minimum dimension, which, by the regulations, they are allowed to retain. This killing and throwing away of small lobsters is perpetuated on the plea that, if allowed to live, they return again to the traps and thus keep on devouring the bait. Anything more vicious than these practices or more certain to result in the total extinction of the fish would be difficult to imagine, and they certainly require drastic measures to be stopped.

SALMON.

The salmon fishery shows a marked decrease all around the coast, only one locality having attained an average catch; but the ascent of salmon to the rivers was for the most part abundant, and anglers had capital sport, the Margaree River, especially, having more than sustained its usual reputation for splendid angling.

ALEWIVES.

A general decrease is reported, only one locality showing an average catch.

HALIBUT.

This fishery is generally described as a total failure, two districts only reporting an average catch. More fish were, however, canned this year than usual.

THE CANNERIES.

The prosecution of the canning industry, whilst lacking any marked increase, makes an average sufficiently encouraging for the future. The canning of lobsters attained a satisfactory average amount. The canning of herring and mackerel was not so extensively followed this year as last. The canning of halibut has been more attended to than before, and the amount preserved has been increased. The canning of halibut is but a recent industry in this division, and whether it will grow to any considerable proportions or not depends of course upon the reception of the article in the market, and sufficient trial has not yet been had to warrant a prediction as to what the industry may yet attain to.

MINOR FISHERIES.

The annexed tabulated statistics indicate at a glance the result of the year's industry in the minor fisheries—such as trout, eels, smelt, squid, &c.—without making it necessary to enter upon a detailed description of them.

THE FISHERIES PROTECTION SERVICE

by the Government cutters is invaluable in preserving the fisheries and in aiding our native fishermen to secure the fruits of their industry from off the heritage of waters that is theirs only. Were it not for this service in keeping foreigners out of the bays and from the shores within the three-mile limit it would be difficult to estimate the straits to which our boat fishermen would, in all probability, have been reduced for the past two years. The expense of this marine protection is regarded as extremely light when balanced against the good it effects, and the value of the fisheries as a food supply and its value in the commerce of the country. For this service the fishermen are thankful, and implicitly trust it will be continued for all time to come, without surrender upon any terms whatever. It is reported that, occasionally, the ubiquitous Yankee will drop down amongst Provincials when seining within headlands. If this be so it goes to confirm a suspicion hitherto entertained by many, that through the use of the telegraph and the aid of secret agents, Yankee fishermen are pretty correctly posted as to the whereabouts of the Government police vessels. Be this true or not, the fact remains that the protective service rendered is invaluable to our fisheries, and that the number of vessels in the service should rather be increased than diminished.

REMEDIAL MEASURES.

In the first pages of this report reference has been made to the destruction wrought upon the fisheries of Cape Breton by the systems of fishing with purse-seines and trawls, and to this the special attention of the Department is solicited. The boat fishermen are looking to the Department with anxious expectancy of securing a prohibition of these methods of fishing within three miles of headlands; and after careful consideration of all the circumstances and of the general situation for the past six years, since I became associated with these fisheries in an official capacity, I beg to add that my views fully concur with those of the fishermen, amongst whom are found as intelligent and observing men as in any class of our industrial population.

With reference to the practice of some lobster fishermen in the direction of evading the regulations and decimating the fish, it seems difficult to devise effective and inexpensive remedies. The simplest method might be to compel everyone engaged in lobster trapping to take a license from the Department, with the name of the owner of the boat, by whom manned, and that every person before beginning to fish for lobsters, whether as owner, sharesman or hired hand, subscribe to a statutory declaration binding himself to faithfully observe the regulations, a copy of which should be furnished him.

On page 51 of this report reference is made to the loss incurred by boat fishermen by not using ice for the purpose of preserving bait and curing fish. On page 52 it is also pointed out that the preparation of medicinal oil from cod livers is not nearly so general as might be, consistent with larger returns to the fishermen for their labors. Both of these defects are almost solely owing to the absence of knowledge of their importance, together with a lack of information on the methods to be pursued. In this connection I beg to suggest that your Department would render a most valuable service to the fishermen in issuing a bulletin, giving simple instructions in method of preparing ice-houses and storing the material, as well as in that of extracting medicinal oil from cod livers. Such a publication, written in a style free from technicalities—with a few drawings—distributed among fishermen, free of cost, would, I am sure, be productive of a large amount of good, and conduce to the economy of the fisheries.

Hereto are appended synopses of the reports of the local fishery overseers and tables of fishery statistics.

I have the honor to be, Sir,
Your very obedient servant,
A. C. BERTRAM,
Inspector of Fisheries for Division No. 1, N.S.

SYNOPSES OF FISHERY OVERSEERS' REPORTS.

COUNTY OF CAPE BRETON.

Overseer Francis Quinan, of Sydney, reports that in his district there has been a great decrease in the catch of deep-sea fish compared with previous years. The only species which show an increase are mackerel and alewives. Lobster fishing was exceptionally good at first; but from the middle of June until the close of the season they began to decrease in numbers as well as size, and towards the end the daily catch was very small. Fines were imposed on the managers of both factories at Cow Bay for having in possession lobsters under the prescribed size.

With regard to the decrease in the catch of deep-sea fish, experienced fishermen attribute it to trawling and the throwing of offal overboard, thereby polluting the waters and keeping the fish from shore. Mr. Quinan favors the total abolition of trawls and purse-seines.

A new departure in fishing in this district was the taking of 1,200 barrels of herring through the ice on the southern arm of Sydney harbor. Should these fish

continue to frequent the harbor of Sydney it will be a source of profit to the people. The fishermen of late years have been in more comfortable circumstances, and better equipped for prosecuting their calling with improved appliances. The fishery regulations were well observed, very few violations taking place.

Overseer Alexander McDonald, of East Bay, reports a large decrease in every branch of deep-sea fishing, the catch being only about one-half that of last year. The fish did not visit the shore waters. The fishermen in this district prosecuted the fishery with as much energy and perseverance as in any previous season, but their labors were poorly rewarded. On the banks, in close proximity to the shores, there were very few fish this year, as compared with former years. Halibut was a complete failure. Towards the fall, codfish, mackerel and herring made their appearance on the coast, but the season was so far advanced and the weather so blustery, that fishermen could not venture out every day. Lobsters were plentiful in this district during the season, but owing to the small catch of codfish, bait could not be had. The pack is therefore slightly under that of last year. Salmon net-fishing was poor, but in October the fish ascended the rivers in large numbers. Smelts are only taken for home consumption, there being no near market for them.

The fishery regulations were well observed.

Overseer Jas. P. Burke, of Main-à-Dieu, reports a falling off in the catch of codfish and summer herring. Mackerel fishing shows a marked increase, and the high prices obtained enable the fishermen to purchase the necessary supplies for the approaching winter. During the early part of the season codfish were very scarce, fishermen returning day after day with empty boats; but towards the end they struck inshore and good catches were made. In the herring fishery the decrease is 336 barrels, made up as follows: In Main-à-Dieu 820 barrels taken this year against 1,000 barrels last; Mira Bay, 850 barrels against 950; and at Scattarie Island, 300 barrels against 400 last year.

These fish, like cod, did not appear on the coast as plentifully as in former years. The price realized by fishermen for summer herring was $5.25 a barrel. Mackerel were abundant in the spring; large numbers passed north, but the catch in nets was small. In August they again appeared, and fishermen did well with hand lines. No. 1's sold in Halifax for $24. a barrel.

The fall mackerel fishery was the best seen for many years in this district, large hauls being made. The high prices which prevailed at the time induced fishermen to give all their attention to this fishery; the result was, that cod-fishing was neglected, which accounts, to a certain extent, for the decrease in the yield of this fishery. The catch of mackerel amounted to 611 barrels, about 300 barrels over that of last year. Overseer Burke is of the opinion that were purse-seining prohibited the mackerel fishery would improve year after year. These fish are inclined to keep close inshore, and were seining prohibited straight net and hand-line fishing would be the methods of our fishermen. The lobster fishery shows an increase, and prices were better. On the whole, the season was a good one for this fishery, there being very little destruction to traps and other gear by storms. The canned herring industry shows a decline, as compared with last year, owing to a scarcity of summer herring. Salmon were scarce, only twenty-five cases being packed this year. In halibut an increased catch is noticed over that of last year, 130 cases being canned at the Main-à-Dieu factory. Taking the season's fishing all through, it was a fairly good one, notwithstanding the shortage in cod and herring. The fair prices realized made up for the decrease in catch. The bounty is of great assistance to fishermen, it enabling them to purchase supplies at a season of the year when money is scarce in fishing districts.

Overseer Sir York Barrington, of Sydney Mines, reports a decrease in the catch of herring and mackerel. Herring did not strike in, owing to high winds, and mackerel fed outside and did not, as usual, enter the harbors and bays of this district. There is only a slight increase in the catch of cod, although boat fishermen reported them plentiful in the Bras d'Or lakes. The great drawback to this fishery is the scarcity of bait. Fishermen were employed during the season on the Cape Breton

Railway under construction; the catch of all kinds of fish was, therefere, not so large as it would have been had the fishermen been engagod at it all the season. The lobster canning establishment at Bras d'Or Gut, which had been closed for two years past, was in operation during this season, and did well. Lobsters were abundant until near the close of the season. Many shore fishermen contend that lobster pots frighten away all kinds of fish, particularly salmon. Overseer Barrington is not prepared to endorse this theory. An increase in the catch of the smaller kinds of the finny tribe is also reported.

INVERNESS COUNTY.

Overseer D. F. McLean, of Port Hood, reports a decrease in the following branches: Salmon, mackerel, herring, cod, trout, smelts and oysters; and an increase in hake, haddock, squid, lobsters and alewives. On the whole, there was a considerable falling off. The causes which lead to this state of things are often very difficult to determine, either by the most experienced fisherman or the most painstaking and practical fishery officer. One cause cannot, however, be disputed—that is, a less vigorous prosecution of the fishery than in previous years, and this applies to inland districts as well. Another cause was, in former years, very generally attributed to the falling off in the catch and with almost as much force as the foregoing, viz., stormy weather. During the current season the weather was unusually calm, up to the 1st of October; still, very few fish were taken as compared with past years. The fishermen now contend that the scarcity of bait was due to calm weather. There may be a great deal in this contention, for it is a well known fact that fish of all kinds are more abundant on the coast and more accessible to the fishermen after stormy weather. There was a fair illustration of this fact since the 15th of October. Since then stormy weather was frequent, and fish were taken in abundance all around the coast. Scientific enquiries now lead one to believe that fish keep in deep water during calm weather, and although this may be contrary to former opinions expressed on this subject by this overseer, he has, after ten years' experience and careful enquiry, come to the same conclusion.

The principal abuse which prevails in this district is seine fishing which proves very destructive to shore fisheries, both by destroying young fish and polluting fishing grounds with dead fish thrown into the water. This is invariably done with small fish, not considered large enough to cure.

The several close seasons were well observed. Salmon were late going up streams to spawn, owing to the exceedingly dry weather which prevailed in August, September and part of October. Five lobster canning establishments were in operation in the district during the past season, giving employment to 110 persons, besides the fishermen. The quality of lobsters was very fair, rather better than during previous years, and there has been an increase in the catch, as compared with the season of 1888. The party who had a license for a trap-net at Port Hood was not so successful in his fishing as he anticipated. It was, however, quite a boon to shore fishermen in the matter of securing fresh bait. The quantity and kinds of fish taken in this trap-net was as follows:—

Mackerel,	27 brls.,	value	$400
Herring	20 do.	do.	65
Squid	38,000 pounds	do.	508
			$973

Overseer David Ross, of North East Margaree, reports the catch of mackerel in his district as about double that of last year. He also mentions an increase of over 3,000 quintals of codfish; salmon and herring, however, show a decrease, arising from scarcty of fish on the coast. Fly-fishing on the north east branch of the Margaree River was never better than during the past season. The pools were filled with salmon and sea trout, and the anglers who gathered on the banks of the rivers

met with excellent sport. Indeed, the quantity of these fish landed exceeded that of any year for the past twenty years. The lobster fishery, particulary at Pleasant Bay, where two factories were in operation, was good, lobsters being large and abundant. A few violations of the regulations occurred, and the offenders were fined in every case detected. This officer recommends the appointment of an active guardian at Big Intervale. It is useless for the overseer to protect the river from tidal waters up, if vigilance is not exhibited at the source of the river as well.

Overseer James Coady, of South West Margaree, reports an increase in the catch of mackerel and codfish. Owing to the high price which ruled for mackerel, the fishermen devoted more time to this fishery than to cod fishing. Salmon net-fishing was almost a failure, the catch being more than 50 per cent. below that of last year. The result was that the American company stationed at Margaree harbor, and which is engaged in freezing these fish for the American market, did comparatively nothing. While an unusually large number of fish entered the Margaree River, few were taken in nets along the shore. Some fishermen are of the opinion that rough water and high seas caused them to keep in deep water instead of following the shore line, as formerly. There was an average catch of lobsters in this district. Three factories were operated, and the competition is so keen that great vigilance is required to prevent violations of the law. The other kinds of fish show an average catch. The season's yield of fish is not, therefore, behind that of former years, and fishermen are in fairly good circumstances.

Overseer Peter McEachern, of Glendale, reports more than an average catch of all kinds of fish, except mackerel. Codfish were scarce during the early part of the season, but during the months of August, September and October they became more plentiful. The mackerel fishery was not as good as in other districts. In October and November squid struck in plentifully, thus enabling Cod fishermen to obtain a supply of bait. The rivers of this district were not well stocked with salmon and trout, owing to the season being dry and the streams low. Several seizures of nets were made for violations of the law but the owners, could not be identified.

RICHMOND COUNTY.

Overseer Duncan Cameron, of St. Peters, reports a decrease in every branch of deep sea fishery excepting alewives. This falling off is not attributable to local causes or to a less vigorous prosecution of the industry, but to the fact that on the approach of fish inshore in the spring they are frightened away by American and Canadian seiners. This cause of the decrease in the fishery is also entertained by the most experienced fishermen of this district. A regulation prohibiting the use of purse seines and trawls in inshore waters is much wanted. Overseer Cameron recommends the appointment of special guardians at each lobster factory during the fishing season, or that the factories between River Bourgeois and Point Micheau be closed, for a term of three years, so as to allow of lobsters growing and multiplying. Those now prosecuting this fishery within the above limits do not find it a profitable occupation, owing to the run of fish being small. The close seasons were well observed. Overseer Cameron reports no fishways in his district.

Overseer Francis Marmeau, of Arichat, reports the catch of herring in his district below the average. A few fisherman on the south side did well, but taking the fishing all through, both as regards quality and quantity, the season's catch was not good. The spring mackerel fishing was also poor, but fall fishing was good, particularly at Little Anse, Gros Nez and Petit de Grat. The mackerel were the largest and fattest ever taken on the coast, and could be nearly all classed as No. 1's, the fishermen thus realizing good prices for them. The shore cod fishing during the early part of the season was a failure, fish being scarce and the weather unfavorable. Bait was also scarce, and this operated against the fishery. The vessels of this district which are engaged in the deep-sea cod fishery did very well, much better than last year. On the whole, the returns show a slight increase over the yield of last year. The lobster fishery was a success, lobster being abundant as well as

large. Packers report a good season, there being an advance in prices over the past few years. The fishery regulations were well observed.

VICTORIA COUNTY.

Overseer Wm. Bingham, of Englishtown, reports a larger number of men engaged in the fishing industry than last year. Herring were scarce, and poor catches were made all along the coast, except at the head of St. Ann's harbor, where some fishermen did fairly well. Codfish were also scarce, and the catch blow the average. Fishermen attribute this falling off to vessels trawling at distances of three to five miles from shore, which destroy the mother fish and pollute the fishing grounds with offals, thus driving fish away in search of cleaner pastures. This overseer strongly recommends that trawling be prohibited.

Mackerel were scarce in the early part of the season, and the small quantity taken sold at a very high figure; but near the close of the season large schools were seen passing southwards, which were prevented from entering the bays and harbors of this coast by prevailing winds; otherwise, the fishermen would have done remarkably well in this branch of the fishing industry, although prices became lower through large catches being taken elsewhere.

It appears by the information learnt from fishermen and from this officer's own experience that the spring and summer herring which entered the bays of his district were only parts of schools broken up by seiners scattered all along the coast outside of the limit, and which on every easterly gale ran for shelter in the harbors and bays. These vessels are believed to be the cause of breaking up the schools, which would otherwise approach the shores: hence the scarcity. Squid always follows summer herring in great abundance, and is as profitable as any fishery on the coast. Nova Scotians and Americans buy them for bait, and the French from St. Pierre send their vessels to purchase full cargoes, paying as much as 20c., 25c., 30c., and even 40c. per hundred, thus benefiting the fishermen by circulating some thousands of dollars among them. Salmon is much below the average catch of last season. The wardens, on the North River and Barachois report a disposition on the part of the people to poach. This overseer recommends that an additional warden be appointed for the upper falls of North River four miles from its mouth, and that the present warden be made to take charge of the lower branches—also, that, a warden be appointed for the Barasoe's at the Rear Settlement. The distance between the mouth of these streams and the back falls is too long for the wardens, who are active and use every means to keep down poaching, but they say it is difficult to prevent violations of the law on the rear of the rivers without further assistance. Salmon ascend to the spawning grounds from the ocean, and at the close of the season the most careful vigilance is required.

Overseer Duncan McDonald, of Aspy Bay, reports a good fishing season in his district. The increase in the catch of mackerel and the high price which ruled more than compensate any decrease in the catch of other kinds of fish. Last year mackerel fishing was a complete failure in this district, and the fishermen believed that this branch of the fisheries had seen its last days; but this season's experience dispelled such convictions, as the fall run of mackerel was both abundant and large, and the fish remained on the coast longer than before. A great many mackerel were taken this year by hook and line, and it is a pity that this ancient and successful mode of fishing was not generally practiced. It certainly would be more profitable for the local fishermen and far better for the fishery. Nothing is so calculated to destroy this fishery than the wholesale destruction caused by seines. Had it not been for seining the mackerel fishery would have been 50 per cent. better. The schools were broken up and the fish frightened away. In cod fishing, the greatest drawback was found to be in the scarcity of bait. During the first part of the season codfish were scarce, but in the fall and winter they were plentiful, and while the weather kept favorable good hauls could always be counted upon. In fact, there is no season in the year when codfishing is so good as late in the fall and during winter. Only one factory was engaged in canning lobsters in this district, and

did fairly well. The season being so short, Messrs. Zwicker & Co. refused to open their factory. This accounts for the decrease in the catch of lobsters.

Overseer Donald McQuarrie, of Middle River, reports a decrease in the catch of codfish in his district. The herring and mackerel statistics also show a slight decrease. The chief cause of this falling off is due to the fact that large numbers of fishermen were engaged working on the railway and other public works on the Island. There is quite an area of oyster beds showing life in St. Patrick's channel, and it is expected that in a few years these beds will yield fair returns.

Sea-trout were plentiful in Middle River, and the pools in October were well filled with salmon ascending the river to spawn. Two hundred fish were easily secured for the Sydney fish hatchery. There were no violations of the law.

DISTRICT No. 2.

ANNUAL REPORT ON THE FISHERIES OF DISTRICT No. 2 OF NOVA SCOTIA, COMPRISING THE COUNTIES OF CUMBERLAND, COLCHESTER, PICTOU, ANTIGONISH, GUYSBOROUGH, HALIFAX AND HANTS, FOR THE YEAR 1889, BY INSPECTOR ROBT. HOCKIN.

PICTOU, N. S., 31st December, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR,—I have the honor to submit a report of the fisheries of District No. 2, Province of Nova Scotia, for the year ending 31st December, 1889, together with synopses of the reports of the local overseers, also the statistical returns from the various counties; as compiled from the reports of these officers.

I have also prepared comparative tables showing the increase or decrease in each county, as well as a table giving the increase or decrease in each kind of fish, and a table showing the annual catch in each county from the year 1876 to 1889. this latter gives at a glance the history of the fishing industries of the county from the earliest period that returns were available.

The returns exhibit a decrease of nearly 10 per cent. in the value of fish caught in this district from that of last year. This is almost altogether attributable to the failure in the catch of deep-sea fish.

Of the Atlantic counties, Halifax shows a decrease of nearly 20 per cent. in the value of the entire catch, and 50 per cent. decrease in the quantity of deep-sea fish caught.

Guysborough shows a decrease in the quantity of deep-sea fish caught of 50 per cent.; but in values, the exhibit shows only a decrease of 4 per cent., the loss being compensated by an increase in the catch of herring, alewives and lobsters.

The decline in the deep-sea fish in this county is partially owing to the withdrawal of banking vessels.

Of the counties on the Straits of Northumberland, Antigonish shows an increase of 8 per cent., and Pictou an increase of 27 per cent. in value.

Cumberland, whose fishing areas are chiefly on the Straits of Northumberland and partially on the Bay of Fundy, shows a decrease of 2 per cent. in value.

Hants, on the Bay of Fundy, shows a decrease of 17 per cent. in value.

Colchester, practically a bay of Fundy County, shows an increase of 20 per cent.

SALMON.

The returns from the whole district show a decrease in value of 10 per cent., the greater proportion of this being in pickled or Labrador salmon. In fresh salmon returned, there is a small increase in quantity, which is, however, slightly overbalanced by the decrease in smoked and preserved salmon.

Halifax County shows a decrease of 20 per cent. in pickled, and 60 per cent. in fresh ; Guysborough,a decrease of 20 per cent. in pickled, and 12 per cent. in fresh — the other counties making no return of pickled salmon. Antigonish shows a decrease of 27 per cent. ; Hants, a decrease of 20 per cent. ; Cumberland returns about the same as last year, while Pictou County shows an increase of 41 per cent., and Colchester an increase of 140 per cent.

It will be observed, however, that 90 per cent. of the whole quantity caught is returned from the counties of Halifax, Guysborough, Antigonish and Pictou, and that of these the Atlantic counties show a decrease of about 40 per cent., while those on the Straits of Northumberland show an increase of 13 per cent., the Bay of Fundy counties showing an increase of 63 per cent.

The enemies of the salmon in the seas are the porpoise or the white whale, and upon the rivers, as is well understood, the poacher and the mill-dam. The damage done by poaching is two-fold, not only directly by killing the gravid fish at a time when its capture is comparatively easy, but indirectly, by disturbing them at a period when they should be left quiet; otherwise much of the spawn is not impregnated.

A considerable effort has been made upon the part of the Government to increase this valuable fish ; but it must not be forgotten that with the increase of the fish there will be increased aggressiveness on the part of the poacher, making it necessary to expend more money to guard the rivers. Especially will this be the case where the inhabitants of the banks of a river receive no benefit from the fishery. Now, it so happens that in the rivers flowing into the Straits of Northumberland the fish do not enter until September, and the inhabitants find themselves shut off from their riparian rights altogether in the interest of those who fish in deep waters. The consequence is, it is class against class, and the poacher meets with a a moral support in this community. If it were practicable to compromise the matter and allow the river inhabitants to participate in the benefits of the fishery, it is probable your officials would find that most important factor in upholding the regulations, viz. an appreciative public opinion, in their favor, and the law more effectively and more economically maintained.

But the chief enemy, and one which ought to be more easily controlled, is the mill-dam. As I propose, however, to discuss this at length under the head of "Fish Passes," I will only pause here to remark that it seems questionable if any or at least a very small proportion of salmon spawn deposited below a mill-dam can arrive at maturity. Several things point to the contrary. It is a well-known instinct of the gravid fish to ascend a river as far as it can to deposit its spawn. Again, the fry no sooner acquires strength after it has burst the shell than it also heads up stream This would seem to indicate that instinct teaches them that the head waters of a river are the feeding grounds, and it is probable also that the young fish meet with fewer enemies in the shallower waters than they would below the dam. I submit that it seems improbable that the fry could ascend a fish-ladder, and that hence it is doubly important that the gravid fish should have access to the head waters of a river.

ALEWIVES.

As far as I have investigated the relative importance of fish requiring the attention of the Department and legislative aid in its propagation, I am inclined to place the alewife first on the list, not because of its commercial value—although this is by no means insignificant—but on account of the probable effect it has upon the deep-sea fisheries. I have the warrant of a distinguished ichthyologist for the assertion that it is probable that the numerous schools of adult fish coming in from the depths of the ocean to the shores in the spring, and of the young that pass out seaward in the autumn, draw the larger sea fish into the vicinity of the land, keeping them there for a considerable part of the year.

SMELTS.

There is a decrease in the catch of smelts of 20 per cent. from that of last year.

FISH-PASSES.

The foregoing comprise the principal anadromous fishes, the increase or decrease in the quantities of which is largely due to and under the control of man. Valuable in themselves, and likely to give ample return for any expenditure in their cultivation, this seems still to be an insignificant proportion of their real value, for to quote an eminent writer:

"It is well known that while anadromous fish were present there was an ample supply of cod, haddock, halibut, hake and various other species close into the shore, and that a full fare could be caught at a short distance from land; and there can be no reasonable question that the great decrease in numbers of the former has been caused in large part by human agencies, and that to this fact it is owing that, year by year, the location of deep-sea fish is found further and further from shore." The truth of the foregoing is, I think, self-evident, and nothing seems clearer than that it is within the power of a very limited number of mill owners to materially injure the welfare of a whole community. That they will do so unless your officials are continually aggressive is evident. During an examination of the rivers and streams of Halifax County, one of the most important fishing counties in my district, I found two-thirds of the rivers of the County completely obstructed, so that anadromous fish could not ascend, and of eleven fish-ways in the county, not one of them effectively maintained, when visited. Why is it that new dams built across a river are never known to have a fish-way in them, although at the time of their erection a fish-way could be more economically constructed? Why is it, if a fish-way is broken or out of repair, the owner now turns to the Department? It is because of the gracious Act of Parliament which authorizes the Minister to pay one-half of the expense in constructing and maintaining a fish-way. The average mill owner relies upon the Department relieving him of a portion of the cost, and does nothing of himself to maintain a free passage for fish, or only does so under compulsion.

In the experimental stage of fish-passes it may have been judicious to contribute towards their expense; but that properly constructed fish-passes are what they purport to be is beyond the experimental stage, and I do not see why a mill owner should ignore the public rights of having free ingress and egress for fish. The erection of a dam across a stream which it is necessary for the public interest that fish should pass should be prohibited under heavy penalty, unless a certificate could be shown from the proper officer that it had an efficient fish-way; and further, the penalty should be equally heavy for allowing it to get out of repair.

Here, then we have the two enemies of anadromous fish, and consequently of the fishery interest—the poacher, active and daring, doing his work most in the night; and the respectable mill owner—nearly always an influential man in his locality.

To guard the public interest against such formidable adversaries would require for the first, men equally active and daring, and, for the second, determined men, firm and fearless. But at present the wardens, upon whom we have to depend largely for the enforcement of the law, are many of them aged men, physically unable to combat the poacher; and it does not appear that any of them will engage in an encounter with the mill owner. Indeed, I am of the opinion that the public receive very little value for the money expended in paying the salaries of wardens.

DEEP-SEA FISH.

COD.

There has been a serious decline in the quantity of this important fish caught during the year. Guysboro' shows a decline of 50 per cent. from last year, and 54 per cent. from an average; Halifax, a decline of 50 per cent. from last year, and 40 per cent. below an average. The catch with other counties is unimportant. Supposing every fisherman returned from these counties as engaged in cod fishing, it shows a decline of $30 per head, the value of an average catch being $60, more or less.

HALIBUT.

The returns from Halifax show a decline of 52 per cent. less than last year, and 54 per cent. from an average. Guysboro' shows a decline of 41 per cent. from last year, and 60 per cent. from an average.

HERRINGS.

There is a slight decrease in the quantity caught in the whole district. The Atlantic counties show a decrease of 30 per cent., a slight increase in Guysboro' being overbalanced by a decrease of 50 per cent. in Halifax.

The movements of these fish are a puzzle to fishermen generally, and it is difficult to discover the probable causes with the naked eye. The following, however, from under the microscope, may throw some light upon the subject :—

While at no time does the apparatus of the zoologist fail to reveal the presence of animal life in the ocean, even though of microscopic dimensions, at times this manifests itself in bodies, the masses of which almost stagger the imagination, the sea for hundreds of miles in extent being an animated mush. What with shrimps and other crustaceans, larvae of mollusks, worms, &c., a bucket full of water taken indiscriminately over the entire area seems filled with animal life. Nor are these organisms confined to the surface, the evidence of the beam trawl and dredge revealing their presence in equal quantities below. Where these smaller animals are aggregated in unusual numbers are generally to be found great schools of mackerel, herring and other animals pursuing them.

MACKEREL.

The returns of the year show an increase in the district of about 38 per cent. over the catch of last year. It is a fact worthy of note that the principal catch was made over that portion of this district most favorable for the production of alewives, there being a number of unobstructed rivers having their head waters in lakes and still waters, and the time mackerel struck the coast would be about the time when the young alewives are descending to the salt water.

The mackerel caught were unusually large and fat, and the high price obtained for them went a long way to compensate for the short catch of deep-sea fish. The returns from Halifax County show 13,000 barrels caught, as compared with 8,000 last year ; the average, however, is 17,000 barrels. Guysboro' shows an increase of 10 per cent. over last year, but the catch is only one-half of an average. Antigonish shows 24 per cent. over last year, and 12 per cent. over an average.

SHAD.

The number of this fish caught has been so small during the past few years, that the fishery has been almost abandoned. The returns exhibit, however, a slight increase over last year, but they are caught only in the counties of Colchester, Cumberland, and Hants, showing a return of 535 barrels, against an average of 3,410 barrels.

LOBSTERS.

It is pleasing to turn from statements of decline, the result of which, will likely be that the "woe! woe!" of the pessimist will be heard in the land, to the record of a fishery which has not gone backward—and that is the lobster. The returns show an increase of 17 per cent. over the catch of last year, being in value an increase of nearly $60,000.

Professor Rasch, president of the section for fisheries in the Royal Society for furthering the industries of Norway, presents the following in his report as the result of experiments carefully and skillfully made : "That a female lobster which has roe under the back part of its body in June is done hatching in September. That the hatching, from beginning to end, occupies a period of about three weeks. That the younger lobsters swimming near the surface are killed by violent rain. That the

summer hatching does not begin at the same time every year, which undoubtedly depends on the higher and lower temperature of water. That the newly hatched young of the lobster keep closely together near the surface of the water, and because little skilled in swimming, become an easy prey to their ennemies, and that young lobsters begin to go towards the bottom when about three to four weeks old ; and that there they soon assume their retrograde motion. It was shown that, when the young lobsters have so far developed as to seek the bottom, they can escape their enemies with comparative ease, partly on account of their quicker motions, and partly by hiding between the stones."

Prof. C. Bock, of Norway, says of this fish :—

"The lobster is a coast animal, and only stays where it can get a sufficient supply of food. Therefore, near the coast, and only as far from it as seaweed are found, amongst which it finds the animals which constitute its food. Its structure not being adapted for long journeys, even if it wanders it does not go far, moving in winter into a greater depth, and during summer into the shallow water near the coast."

The fact of the matter is, therefore, that a certain number of lobsters belong to a certain extent of coast, which, by propagating freely, may increase, if they have sufficient food, or decrease from a natural mortality or too much fishing ; and in this latter case the losses cannot be easily made up by lobsters coming in from adjoining districts. There can, consequently, be no doubt that the lobster can, on a given stretch of coast, be diminished to such a degree as to make lobster fishing unprofitale.

The Fishery Commissioners of England made a thorough inspection of the lobster fisheries of the English and Scottish coasts, and reported, in 1877, that on the whole they believe they are in the right in concluding that in small fisheries, or fisheries of a confined area, there has been a marked decrease of fish, while in large and exposed fisheries there has been no decrease whatever. Take, for example, the fisheries off the Lands End the Lizard and the Start. These fisheries comprise large areas of sea bottom, all of them in exposed situations, and the powers of man have hitherto been incapable of exhausting them.

Assuming these conclusions to be correct, it would appear that any regulation of the lobster fishery must necessarily be of a local character ; otherwise, we would have an exposed portion of the coast with a bottom naturally favorable for the abode of the lobster, and over which the fisheries would be productive and steady, needlessly restrained because another portion is easily exhausted. I am inclined to think that there are portions of the cost where extensive areas of algæ grow upon rocky bottom, which are therefore favorable localities for the breeding of lobsters and over which the fishing would not be exhausted if a close season from 1st July to 1st October were observed. I am of opinion such a close season would meet the support of the fishermen. The present law prohibits the catching of lobsters on the southern coast of Nova Scotia after 1st July, and upon the Straits of Northumberland after 15th July, until 31st December. The enforcement of this regulation is becoming more difficult and more expensive each year. In the early history of lobster canning, while the business was in the hands of large dealers, it was an easy matter to control close seasons. The factories being then the only place where they could be preserved, were directly under the eye of your officers. But things have changed. Now a class of men have been educated in canning fish, and it has been found that they resort to unfrequented islands and put the fish up there. Others catch their lobsters, boil them on some island or in the woods, and take them to their homes to can. That illicit canning meets with encouragement from large dealers seems beyond doubt ; for upon some of the cans seized by me on an island on the south shore of Nova Scotia were found the stamps of a large Portland firm. And it is probable that, the scarcity of other fish which compelled *some* of these people to fish this season for lobsters or starve, lent a sympathy to those engaged in the business which would not be extended to them in average years ; but it is nevertheless a fact that fishery officers receive little or no assistance from residents; indeed, any man who is known to have given assistance is subject to a mild species of boycott.

It would seem to be a paramount necessity that if a close season be proclaimed the law should be strictly enforced; otherwise, we have the law, abiding suffering at the hands of the lawless, and sometimes men disposed to be honest almost led into illegal fishing in self-defence.

FOOD OF DEEP-SEA FISHES.

This is a subject upon which there seems to be a very limited amount of information. One would naturally expect to find among fishermen a complete knowledge of this subject; but those who have studied the subject say that it is not a little remarkable that fishermen who are continually in contact with fish throughout the year know actually so little about them. To questions as to food of the various species, a negative answer is usually returned; and it is only occasionally that one more observant than the rest is found from whom satisfactory information can be obtained.

That deep-sea fish come upon the coast, either under the spawning impulse or in search of food, seems beyond question, and that an accurate knowledge of what constituted their food during the several seasons of the year might remove some questions from the realm of speculation to that of actual fact, and the possibility of securing information which might otherwise prove invaluable, lead me to suggest that means be taken to have a record for a season or two from fish taken upon the several grounds near the coast of what food is found in them, when caught.

The statistical returns are made up from overseers' reports, who give the aggregate quantities caught in their districts. It would add little to the cost, but much to the intrinsic value of the record, were the overseers required to give the inspector a detailed as well as an aggregate statement.

During the spawning seasons of fish there should be a daily examination of fish ways by a fishery officer, and a sworn return of its condition made to the inspector.

Under instructions, I have visited a number of the rivers in the district and have made a special report, recommending a number of fish-ways.

I have the honor to be, Sir,
Your obedient servant,

ROBT. HOCKIN
Inspector of Fisheries.

SYNOPSES OF OVERSEERS' REPORTS.

ANTIGONISH COUNTY.

Overseer John McDonald reports the total value of fish caught is slightly in excess of last year. The increase is due, first to having three lobster factories in operation, all doing a considerable business; second, to the high price offered for mackerel, which induced farmers and others living by the sea to engage in fishing. They, and a number of good fishermen from the southern shore and Arichat, C.B., selected Bayfield coast as their fishing ground during the fishing season.

There is a falling off in the catch of salmon which is difficult to account for. In this overseer's opinion, it is altogether due to prevailing winds, before and during the salmon fishing. If the wind blows towards the shore, the small fish on which salmon feed come to the coast, and generally remain there some time. The decrease in the catch of eels and smelts is principally due to the harbors being open during the greater part of last winter. During the past summer, and even up to the last of November, hake were exceedingly plentiful, but unfortunately fresh bait could not be had to the required amount, and much valuable fishing time was consequently lost to the fisherman. Cod and haddock show a small increase over last year. Herring struck the coast in the spring, and were very plenty; but during the summer the fishery was a failure.

Overseer McDonald endeavored at all times to ascertain how the fishery laws were observed, but finds it very difficult to get information that would lead to conviction. He was misled several times by secret information. All the fish-ways, except that on McGilvray's dam, require attention during the coming season. They are nearly all on the old principle, and totally out of repair. This officer visited the lobster factories and examined the fish on hand at the time, but found no desire to to overstep the law. He considers the presence of the fishery officer at the factories as often as possible as likely to prevent breaches of the law. The several wardens report that no violations of the law came to their knowledge within their districts.

COLCHESTER COUNTY

Overseer Henderson Gass thinks salmon are increasing in the rivers; but as they do not ascend until late in the season, it is very difficult to find out. Mackerel were scarce in the bay during the season, but herring have been very plentiful. Alewives ascended the river in about average quantities.

Oveerseer R. J. Pollock reports an increase of nearly 100 per cent. in his divisions—Lower Stewiacke, &c.—the season being favorable for fishing. There were some rumors of poaching, but he was unable to discover them, and thinks that the suggestion made in the inspector's report of year last, that special guardians be appointed, should be carried out.

Overseer J. W. Davison reports an increase in the shad fishery over last season, but still a very small catch as compared with former years, when four or five thousand barrels were exported. Salmon were more plentiful than for several years past. Other fish much the same as usual. This overseer recommends the appointment of a warden on Port à Pique River.

CUMBERLAND COUNTY

Overseer Wm. Murphy reports an increase in the catch of lobsters of 32,000 cans, put up by about the same number of hands as last year. The increase is partly due to their being able to can earlier, and partly to the fact that lobsters were more plentiful. Herring returned in large schools, and more were taken at Malagash than ever before. Had the inhabitants been prepared, they could have taken any quantity. Salmon appeared in increased numbers, and were very plenty. They could be seen at the head of tide in large schools, but the overseer does not think they went far up, owing to the extreme lowness of the river during the whole season. Smelts were scarce; there is a falling off in the catch. Alewives not so plentiful as last year, and of poorer quality. Oysters are becoming more plentiful, not having been so much fished during the past few years. Of other kinds of fish there has been an average catch. There is a good deal of dissatisfaction in his division on account of people not being allowed to fish for salmon. The inhabitants think the season should be extended.

Overseer Elijah Fowler reports a slight falling off in the yield of cod, haddock and herring. The first run of herring was not taken advantage of by those engaged in farming. Salmon more plentiful than last year, especially in the rivers and small streams. This officer reports that the fish-ladder at Young's dam, on Herbert River, does not reach the water, except at very high tides. This ladder has not been a success, and he recommends its being lengthened or removed to the centre of the stream.

Overseer Geo. W. Gilroy reports four fish-ways on River Philip, none of which are in efficient state. He does not think it necessary to require them to be put in order until a pass is built in the dam at Oxford, over which scarcely any salmon can pass. A pass for alewives was put on Black River, but it has never been efficient, the mouth of the fish-way being too high from the water at the time alewives are passing up. The quantity of fish taken was about the same as last year. The close seasons were fairly well observed.

GUYSBOROUGH COUNTY.

Overseer James A. Tory reports a falling off in some kinds of fish, but an increase in others, the whole aggregating an increase of $3,443 over last year. This is, however, far short of an average of former years, and a very unprofitable one for the fishermen. It will be severely felt by those who solely depend on the products of the ocean for their sustenance, as it succeeds the failure of last year. The decrease has been in salmon, line fish and bait used by boats. Mackerel, herring, alewives and lobsters, have increased, the others rating about the same. This overseer cannot account for the shortage in salmon, unless it be the dry, warm season which kept the rivers so low that the usual quantity of fresh water did not flow within their reach, and consequently they did not approach the shore, the usual place of netting them. A large portion of the catch of mackerel,which exceeds that of last year by 500 barrels, is to be credited to other fishing grounds, such as George's Bay, Cape Breton and Prince Edward Island.

The catch of alewives has materially increased, and will continue to do so if the rivers are kept clear of obstructions and the regulations respecting seining diligently carried out. The decline in cod fishing is owing to the withdrawal of banking vessels from that fishery, and along the western shore there was almost a total failure. There is an increase in the quantity of squid caught. Whether this is due to the fish having increased, this overseer cannot say; but the demand has, and fishermen have turned their attention to it. Along with squid, another profitable business is carried on in the sale of ice, both being required by the bankers of the Dominion and foreign countries. Lobsters seem to have taken a great leap over last year, there being an excess of nearly 104,000 cans, or one-eighth of the total catch. The fishery has heretofore shown a gradual decrease, and Mr. Tory, believes he is justified in the conclusion that illegal fishing has been carried on to a very large extent, leading to the destruction of over one and a-quarter million of small lobsters. Time will tell what effect this may have on next year's fishing, but he thinks if it is allowed to continue that, this fishery, so profitable to our people, will be speedily brought to an end. The river fisheries were not so good as usual, the water being very low. As soon as it rose, trout and salmon were seen ascending in considerable quantities.

Mr. Tory believes that some of the deep-sea fish are on their decline, and thinks from the wholesale destruction of the fish during their spawning season it cannot be otherwise. To perpetuate them, some regulations will have to be made, especially for herring and mackerel, and that the Americans deserve credit for their regulation respecting the catching of mackerel before the 1st of June. They ought, however, to have made it a little later in that month.

There are no wardens appointed for New Harbor Rivers, White Head Rivers, Canso and its vicinity, and the services of such officers are required in these localities.

Overseer Allan McQuarrie reports the decline in cod fishery this year as only apparent, the increase last year being due to imports from vessels not engaged in the fisheries this year. Salmon and alewives are getting fewer, the apparent cause being overfishing and insufficient protection. The streams are becoming exhausted and require re-stocking from the hatcheries. Herring, both this and last year, have been a failure, and the dependent fishermen are almost discouraged. Mr. McQuarrie considers them the poorest paid men in the district for their labor. There was a falling off in lobsters, but the shortness of the open season easily accounts for this. Fishermen have not the appliances they used to keep before the palmy days of lobster fishing, and are not in a position to prosecute the other fisheries; consequently, the poaching of lobsters has been very general, and every trick of the trade put in practice to evade the law. It was practised on a limited scale, however, and from a knowledge of their average circumstances, the overseer thinks that sheer necessity had very much to do with the matter. Lobster fishermen with whom he conversed are of the opinion that the rugged southern shore will stand a month or six weeks

fall fishing without material injury, and he entertains a strong impression of the same kind himself. Lobster fishing gave more trouble than the other fisheries combined, and something should be done to remove the cause of it before next season; otherwise, the whole shore is likely to become demoralized. He suggests the appointment of wardens at Wine and Indian Harbors, at Liscombe and Spanish Bay; also, at Marie Joseph and Ecum Secum, as the very fact of active men being located at the above named places would act as a check on poaching, and greatly help to bring guilty parties to justice.

The inland fisheries are fairly well protected. Serious obstructions, formerly referred to call for attention. These are at Indian harbor Beach and at the head of Country Harbour River. The experience of the last few years has proved that the present channel on the Indian Harbour Beach cannot be kept open without an enormous cost of $400 or $500 a year. By permission of the Department this officer asked for tenders for a new channel on the east side of the beach, where it is believed by practical men that there would be a good chance of its remaining open. He expected this could be opened for $50, but a hard substrata was discovered in the bottom, and a sum of over $200 was the lowest tender received. This is a very serious matter, requiring attention, as the stream is at present closed, and will remain so until the water rises in the lake above and forces a passage through the beach gravel. To complicate matters, the opening of the new channel necessitates the moving of a bridge on the stream, which the municipality will not do until there is a guarantee that the new channel will be opened.

The different fishways are in good working order, but two more are wanted, one at McKeen's Brook, Melrose, and another at Jordan's saw-mill.

The sawdust law is reluctantly observed by many, as it means an outlay to the miller, who will shirk it when possible.

This overseer has reason to believe that the wardens faithfully discharged their duties, and in every instance yield a cheerful assistance when called upon.

He must continue to raise his voice against purse-seining as a most pernicuous practice, which will end in a wholesale slaughter of our fisheries.

HALIFAX COUNTY.

Overseer John Fitzgerald reports that there were no herring on the coast when deep-sea fishing began, so that fishermen were unable to procure bait. Many of them had to abandon their usual calling and go in search of other employment. This partially accounts for the decrease in the yield of cod and other deep-sea fish. Mackerel struck in large schools all over this district, and a fair catch was obtained. There would have been considerable distress among the fishermen had it not been for this unusual and fortunate catch. Lobsters were more plentiful than last year and above the average size. This, Mr. Fitzgerald thinks, may be credited to the close season, which prevents their destruction during spawning time. The law was cheerfully complied with throughout the whole of this district.

Overseer George Rowlings reports that over three-fourths of the cod returned from his district were caught by vessels at North Bay and along the coast of Prince Edward Island. Fishermen complain very much of the scarcity of herring for bait, and no two of them agree as to the cause of these fish having, at least temporarily, left that part of the coast. He ascribes as the most probable cause the continual setting and hauling of lobster traps along the coast. More lobsters were caught in this district during the past year than in any other. If the same regulations are enforced next year offenders should be punished regardless of cost. Alewives were much more plentiful than last year. They are generally caught by the poorer class of farmers, and are a great help to them. The fish are not as well protected as could be desired; in fact, in many cases the wardens sadly neglect their duty. Fewer salmon were caught this year than last; but they were plentiful, especially in Musquedoboit River. Mr. A. B. Wilmot took a great many more than he did during the previous season for the Bedford hatchery, and a large number went up after he

had done fishing. The oyster bed at Musquodoboit Harbor seems to be in the same condition as it was last year. The prospects of success are apparently small.

PICTOU COUNTY.

Overseer Robt. Sutherland reports no signs of failure in the lobster fishery, the catch exceeding that of last year by some thousand cans. Codfish were scarce. Herring seemed plentiful at times, but owing to a less vigorous prosecution of the fishery not many were taken, those formerly engaged in it having sought other means of employment, such as lobster fishing. Salmon were said to be scarce, but there are evident signs of their return since efficient fish-ladders have been placed in the rivers. There are two fish-ladders on River John; another is required. The existing ladders have been kept open. The only violation of the law which came under this overseer's notice was that of a lobster packer canning undersized lobsters, and a fine was imposed.

The death of *Overseer D. G. McDonald*, an energetic and capable officer, took place late in the year. The returns from that district have been made up under the supervision of an experienced overseer.

DISTRICT No. 3.

ANNUAL REPORT ON THE FISHERIES OF DISTRICT No. 3, OF NOVA SCOTIA, COMPRISING THE COUNTIES OF KING'S, ANNAPOLIS, DIGBY, YARMOUTH, SHELBURNE, QUEEN'S AND LUNENBURG, FOR THE YEAR 1889, BY INSPECTOR J. R. KINNY.

YARMOUTH, N.S., 31st December, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries,
Ottawa.

SIR,—Herewith I have the honor of transmitting the returns showing the catch and value of fish and the product of the fisheries of this district, comprising the Counties of Annapolis, Digby, King's, Lunenburg, Queen's, Shelburne and Yarmouth, for the year just ended, together with a statement showing the number and value of vessels and boats employed in prosecuting the fisheries. These returns exhibit a decrease in the number of vessels and the value of the production, the relative difference between the years 1888 and 1889 being thus:—

No. of vessels, 1888	443
do 1889	399
A decrease of	44
Value of product, 1888	$4,798,918
do 1889	3,595,987
A decrease of	$1,202,931

This large deficit falling largely to the aggregate take of codfish, which item alone shows a decrease of 121,709, nearly one-half of which is the year's decrease in the take of Luenburg county.

SALMON.

shows a decrease of nearly one-half, when compared with the year 1888, the take of 1888 being 159,483 lbs., that of 1889, 88,230. It would be idle to adduce theories with

a view imparting information upon the much talked of and little known of question of the causes for the decrease in the catch of one kind of fish and the increase in another.

HERRINGS.

The take of 1889 shows a decrease of 34,000 barrels, as compared with 1888, while the catch in the counties of Queen's and Shelburne exhibit an increase of nearly 9,000 barrels.

ALEWIVES.

This fish shows a pleasing increase, the catch for 1889 being 4,500 barrels in excess of the previous year, the increase being almost wholly from the Gaspereaux and Tusket Rivers, where take of the salmon was greatly reduced in the past year. This fish has a greater value than would appear by its marketable quotation, inasmuch as it is used for codfish bait, and very often supplies a much felt want.

MACKEREL

would appear to be deserting our inshores, as each succeeding year the take grows smaller. The year just ended shows a falling off in this district alone of $90,000. Trap-net fishing has become an unprofitable industry. Many have abandoned this mode of fishing, and others would soon follow, but that they are living upon the hope that " something will turn up."

LOBSTERS.

The mode of taking care of these crustaceans, the manner in which they are exported, and the whole trade has, within a few years, undergone radical changes. The unlimited demand in the United States for live lobsters has stimulated the fishermen to adopt improved methods of fishing and expeditiously marketing the catch. The lobster packer can afford to buy only what the Massachusetts local law forbids the importation of; hence, the temptation to buy small lobsters, is so great that the scruples of the producer are easily overcome and the result is just what may be expected; that is to say, the frequent violation of the regulations. To rigidly enforce the regulations is, or should be, the duty of every fishery officer; but local officers are, as a general rule, useless as preventatives, inasmuch as they are poorly paid, are often fishermen themselves, or related to fishermen, and only human at best. I will have the honor of reporting specially on this question at an early date.

FISH-WAYS.

There were none constructed this year. Acting under your instructions, I am preparing a report on the rivers and fish-ways of the district, which report you will have during the month of January.

SAWDUST.

This much-vexed question is very rapidly becoming a non-debatable one. Mill owners are generally falling into line. Those who have cared to study the question, with a view of arriving at an intelligent conviction, have, in my opinion, concluded that fish cannot, as some would have us believe, thrive and reproduce their species with rotting slabs and decomposed hemlock bark as a fixed diet.

I have only had the honor of serving as an officer of your Department for the period of six months; hence, I would not, at this time, presume to enlarge upon the many reasons which might be given for the seeming anomalies and apparently excentric habits of fish. Why mackerel are deserting our shores; why codfish fight shy of the fishemen's hook or dislike his bait; why alewives seem to often

prefer streams showing a scarcity of salmon ; why salmon are so uncertain in their movements, or why lobsters may be, and are, found in every month of the year unfit for human food, are questions which I prefer not to deal with at this moment. I would rather that the utilization of observable facts be the governing rule than that the intentions and instructions of your Department be hampered with hastily drawn conclusions from passing coincidences.

I am in possession of your instructions to report upon the condition of rivers in this district, and, if necessary, to suggest remedial changes for the better protection of the inland fisheries—all of which has my best attention, and will be reported upon early in the coming year.

I enclose herewith synopses of the salient points in the reports of the overseers of the district, all of which is respectfully submitted.

I have the honor to be, Sir,
Your obedient servant,

J. R. KINNEY,
Inspector of Fisheries.

SYNOPSES OF OVERSEERS' REPORTS.

ANNAPOLIS COUNTY.

Overseer Bailey, of Round Hill, reports a shortage in the catch of herring, and say, that nine-tenths of the fishermen blame the lobster traps for this. He thinks that, this contention of the herring fishermen is reasonable, and he believes that the increasing number of steamers plying on the Annapolis Basin injures the weir fisheries. Salmon is slightly on the increase, but he says he cannot hope for much improvement without having more fish-ways. M. Bailey urges the establishment of local or branch hatcheries. He say that, the sawdust regulations were fairly carried out, but that a number of mill owners require a lot of watching. He is very emphatic in his views on the sawdust question, and gives the Round Hill River as an instance of what can be done. He say that, since the Wooden Manufacture Co., of Round Hill, have been compelled to take care of their mill rubbish, the run of fish has more than doubled. He reports that, after an absence of twenty-five years, salmon have returned to the East Branch of Bear River, but that they cannot reach the spawning grounds, and he urges the placing of fish-ways in two or more places.

Overseer Carty, of Deep Brook, states that the Annapolis River gradually lessened in productiveness since lumbering has been on the increase. No matter how energetic the overseer, there will be traces of neglect, proceeding from the saw mills. He also says that the fish-ways on Nictaux River need repairs, a fact which he has already called attention to in previous reports.

DIGBY COUNTY.

Overseer Hanley, of Digby, reports a decrease in the season's catch. This, he says, may be attributed to several causes, the principal one probably being the scarcity of bait. Shad fishing in St. Mary's Bay was a total failure as was also the herring fishery in Digby Basin. No plausible cause can be assigned for this state of things. It may be that there are natural laws governing these matters, which are yet beyond human knowledge. This overseer suggests that some protection be given to salmon on Salmon River, and that a warden be appointed on that stream.

The regulations prohibiting trawling in St. Mary's Bay are opportune. Trap net fishing at St. Mary's Bay was a failure.

Overseer Collins, of Westport, reports a decrease in the catch of lobsters, probably caused by overfishing in previous years. He is opposed to winter fishing. The regulations were strictly enforced.

KING'S COUNTY.

Overeeer Reid, of Wolfville, reports the catch of alewives greater than for any year during the last twenty. Salmon, from some unknown cause, much less than in 1888. The fish-ladders at Benjamin mills, Nictaux River, proved all that could be expected, allowing the fish to pass through to their spawning grounds without difficulty. Large numbers of young alewives were observed on their way to sea.

Overseer Miller, of Canning, says that the catch of salmon was not equal to that of last year, it having been unusually large. A great many complaints were made about lobster traps, which are said to destroy the herring fishery altogether. While the traps are out the herring fishermen get no fish. If this is true it ought to be remedied, as the lobster fishermen are usually strangers who come in this country and take the bread out of the mouth of resident fishermen.

Mr. Miller reports that the Basin of Minas fishery shows no signs of improvement, it having been a complete failure during the past season. But, as the same thing has happened many years ago, some improvement may be looked for. The fishermen are law-abiding and honorable.

QUEEN'S COUNTY.

Overseer Sellon, of Liverpool, says that the catch of salmon was about the same as in 1888. Mackerel shows an increase. The yield of herring was the best for many years, with good prices. Cod fishing not so good last year, bait being scarce. The law was well observed.

Overseer Fitzgerald, of Mill Village, regrets being obliged to record a falling off in the catch of mackerel and codfish, due, no doubt, to causes which have produced similar effects elsewhere. There is also a decrease in the catch of lobsters. This was caused, not by scarcity of lobsters, but by the shortness of the season and unfavorable weather. The catch of alewives in Port Medway harbor and river was larger than last year, and these fish sold at remunerative prices as bait for bank fishing. The yield of salmon was smaller than last year. The reason for their scarcity was not due to any agency in the harbor or river, but in the sea, the nature of which we cannot more than conjecture. I recommend that salmon net-fishing be restricted to four days in each week. Mr. Fitzgerald urges the appointment of a fishery warden at Westfield, that being an important spawning ground, 17 or 18 miles from any officer.

SHELBURNE COUNTY.

Overseer McGill, of Shelburne, reports that there were seven vessels less employed in fishing than in 1888. A number of those employed returned from the Banks with less than one-half the usual quantity of fish. He apprehends that the number of vessels for 1890 will show a further decrease. Shore mackerel fishing was a failure. Herrings were abundant, the catch being upwards of 3,000 barrels in excess of that of 1888. The present lobster regulations are good, and will have a tendency to protect and foster this branch of fishing. Mr. McGill reports an improvement in the catch of alewives, and predicts that the time is not far when an abundance of these fish will be taken. They are largely used for bait, and prove a valuable aid to our cod fisheries. The fishery at Jordan River is a failure for alewives, and something should be done to improve it.

Overseer Goudey, of Barrington, reports a decrease in the catch of cod, which he attributes to the fact that many of the bankers feeling discouraged with their first trips put their vessels into the coasting trade. Nearly all the mackerel taken were shipped to the United States in ice, and brought good prices. The live lobster trade is increasing, and Mr. Goudey predicts a further enlargement of this business. Referring to the dam on Clyde River, he says that it has been partly cut away, but not sufficiently low for the passage of fish. Inasmuch as this structure has totally destroyed the usefulness of the fish-way, something should be done or there will ensue a serious loss to the residents. During the past year there were more alewives taken on that stream than in any one year since 1850.

LUNENBURG COUNTY.

Overseer Godard, of Bridgewater, reports that quite a number of young shad and alewives were seen coming down La Have River last fall, a thing not seen on that stream for over twenty years. From this fact, he concludes that the fish-ways at Davisons' second dam are a success. He believes that the expenditure of a small sum to improve the natural pass at Davison's lower dam would be productive of much good. Mr. Godard states that, the department's orders to have fish-passes through the six dams on the West Branch of La Have River will be enforced. The run of salmon up the La Have River, has been more numerous this year, although the catch was not. This the overseer can only account for, by the fact that fish find an easier passage up the river, and to a strict supervision of the waters, thus preventing violations of the Fisheries Act.

Overseer Evans, of Chester, says that the increase in the take of alewives is in excess of that of 1888, and that with a proper enforcement of the law he anticipates a further increase in the yield of this valuable fish. He urges the building of fish-ways at Mushamush, Boylan's and Wamboelt's dams, on the Gold River, and suggests that no salmon nets be allowed to be set after the 10th of June, as after that time they materially interfere with other fishing.

Overseer Soloman, of Lunenburg, says that the deep-sea fisheries have not been as successful as last year, owing to a scarcity of fish rather than to any inclination on the part of the fishermen and capitalists to abandon this industry. As a proof of this, he states that there are now in Lunenburg harbor six or seven new fishing schooners and several more on the stocks. Referring to the lobster fisheries, he suggests that these fish be allowed to be taken and used for domestic purposes from 31st of October to 31st of December. The small catch of salmon and alewives he ascribes to the pollution of the river by sawdust, &c.

YARMOUTH COUNTY.

Overseer Gardner, of Tusket, reports a shortage of $50,000 in his district, owing to a decrease in the cod and mackerel fisheries. The fishermen engaged in the lobster business are reported as having done well; and, as a general rule, the regulations were fairly observed. The salmon fishery was poor, but the catch of alewives was splendid, many localities doubling their catch of 1888. Mr. Gardner reports that fully $10,000 pounds of hake have been taken from Eel Lake, something before unknown. The fish-ways in this district give satisfaction. Large quantities of young fish having been seen above the fish-ways at Bourque's Brook, which flows into Eel Lake.

The remaining portion of the County of Yarmouth, which is outside of Mr. Gardner's jurisdiction, exhibits a decrease in the take of cod, mackerel and salmon, the causes for which can only be guessed at. It is a notable fact that mackerel are rapidly failing; but they are an erratic fish, hence, I would not attempt a prediction for the future. Trap-net fishing, once so successful in this county, proved an almost total failure. Those holding on to that mode of fishing have been out of pocket for the last two or three years. Extensive preparations are being made for a live-lobster trade with the United States.

APPENDIX No. 3.—Continued.

NOVA SCOTIA.

STATISTICS OF FISHERIES.

NOVA SCOTIA—

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in and the Total Number of Men Employed, &c., in the

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.				Boats.			Nets.							
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, in cans, lbs.	Mackerel, barrels.	Herring, barrels.	Herring, smoked, in boxes.
Cape Breton Co.			$			$			$						
From Marion Bridge to False Bay Beach	1	18	400	3	28	360	48	2100	630	....	1520	....	16	65	....
From False Bay Beach to Long Beach	3	30	600	15	37	600	58	4100	1485	....	1000	60	355	1173	....
From Long Beach to Big and Little Glace Bay and Bridgeport	....	....	....	....	21	500	42	1380	537	....	....	....	6	135	....
From Lingan to South Bar and South side of Sydney River	2	22	600	7	49	1636	87	3200	1280	....	750	....	7	261	....
From Sydney to N.W. Arm, Point Edward, Coxheath and Sydney Forks River	....	....	....	....	34	380	44	1800	536	....	12	....	3	105	120
Gabarous	1	14	300	5	64	4840	192	6980	3490	....	....	....	256	448	....
Belfry	....	....	....	....	4	240	12	400	200	....	....	....	20	50	....
Kennington	....	....	....	....	9	270	28	1000	500	....	....	....	30	54	....
Louisburg	....	....	....	....	37	3700	111	5600	2800	....	....	....	200	259	....
Big Lorraine	....	....	....	....	32	3000	96	4800	2400	....	100	....	200	230	....
Little Lorraine	....	....	....	....	20	1200	60	2000	1000	....	60	....	100	160	....
Baulin	....	....	....	....	9	540	27	450	225	....	....	....	20	40	....
Grand Mira	....	....	....	....	20	400	30	540	270	....	100	....	....	....	....
East Bay and Big Pond	....	....	....	....	21	210	40	400	200	....	....	....	....	80	....
North of East Bay	....	....	....	....	10	200	20	500	140	....	....	....	....	500	....
Escasoni	....	....	....	....	5	100	10	250	70	....	....	....	....	400	....
From George's River to Lloyd's Cove	10	200	2800	70	67	1340	134	3350	968	....	550	....	71	640	....
North Sydney to N.W. Arm	2	30	240	6	21	420	42	1050	294	....	....	....	40	320	....
From Boisdale to Grand Narrows	....	....	....	....	52	1040	104	2600	728	....	150	....	5	70	....
Mainadieu	....	....	....	....	50	3000	120	6000	3000	3	....	1200	240	820	....
Mira Bay	....	....	....	....	43	1720	92	6500	3250	6	1500	....	259	854	....
Scatarie	....	....	....	....	25	2000	100	4000	2000	4	....	....	112	300	....
Total	19	314	4940	106	658	27696	1497	58950	26053	13	5742	1260	1940	6964	120

District No. 1.

the Fisheries, Quantity and Value of Fishing Materials, Kinds and Quantities of Fish, **Province of Nova Scotia**, for the Year 1889.

Kinds of Fish.														Fish Products.			Value.
Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, brls.	Hake and Pollock, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels.	
253	52	....	25	....	5	500	2	2400	....	2000	23	14	.....	26	2	13	3,052 40
18	1870	....	....	....	320	14000	....	700	....	2500	50	....	43500	935	63	500	29,106 00
10	270	....	....	....	23	3800	....	2000	....	3500	26	....	.....	133	2	68	3,102 20
6	690	....	....	....	116	6500	....	500	....	4500	55	....	.....	345	17	172	6,891 00
95	40	....	....	....	5	500	....	3600	80	8900	48	....	.....	20	....	10	2,551 90
....	2060	....	....	....	128	....	....	.....	....	.....	....	....	72432	1000	....	50	23,550 84
....	80	....	....	....	....	....	....	.....	....	1000	....	....	.....	40	....	10	911 00
....	135	....	....	....	45	.....	....	.....	....	.....	....	....	.....	70	....	10	1,429 00
130	1110	....	....	....	740	.....	....	.....	....	.....	....	....	27360	600	....	30	15,589 20
....	800	....	....	....	800	.....	....	50	....	.....	....	....	.....	500	....	20	10,575 00
....	500	....	10	....	500	.....	....	.....	....	.....	....	....	.....	320	....	10	6,335 00
....	180	....	....	....	145	.....	....	.....	....	.....	....	....	.....	100	....	10	1,815 00
100	.....	....	....	....	....	.....	2	150	....	600	....	....	.....	....	....	....	541 00
6	100	....	....	....	....	.....	....	100	....	200	5	4	.....	40	....	....	847 00
....	400	....	....	....	....	.....	....	1000	....	.....	6	10	.....	75	....	14	3,841 00
....	280	....	....	....	....	.....	....	.....	....	.....	6	....	.....	52	....	11	2,817 30
20	3510	....	....	....	383	4160	....	560	....	1350	31	9	52153	659	....	141	27,338 46
35	610	....	....	....	10	1000	....	200	....	1200	12	....	.....	118	....	25	4,914 20
....	470	....	....	....	....	.....	....	1210	....	3000	8	....	.....	87	....	18	2,709 80
25	1420	4	25	40	390	6240	....	.....	7	.....	4	....	37680	820	....	200	20,482 10
25	1390	....	20	....	250	7150	....	.....	10	.....	2	....	.....	604	....	150	15,691 10
10	1512	4	10	....	....	8000	....	.....	15	.....	....	....	.....	1000	....	90	10,512 00
																	*691 20
733	17479	8	90	40	3860	51850	4	12470	112	28750	276	37	233125	7544	84	1552	195,293 70

* Mainadieu—Herring in cans, 5,760 cans, at 12 cts.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.						
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, in cans, lbs.	Mackerel, barrels.	Mackerel, in cans.
Inverness Co.			$			$			$					
Port Hood	1	40	400	7	140	4000	400	25000	8000	....	1000	....	200	.....
Sea Side	....	....	.....	....	30	360	90	4000	1500	....	.....	....	100	.....
Little Judique	....	....	.....	....	44	580	140	6000	3000	....	.....	....	40	.....
Judique	....	....	....	....	50	500	130	4000	1800	....	.....	....	50	.....
Long Point	....	....	.....	....	25	250	70	4000	1800	....	.....	....	60	.....
Cregnish	....	....	.....	....	20	200	45	2500	1000	....	2000	....	20	.....
Low Point	....	....	.....	....	20	200	40	2000	800	....	.....	....	10	.....
Whycocomagh	....	....	.....	....	15	180	30	200	60	....	.....	....	....	.....
Light Point	....	....	.....	....	8	80	20	400	140	....	.....	....	12	.....
Coal Mines, Mabou	....	....	.....	....	20	260	40	1000	500	....	2000	100	16	.....
Mabou Harbor	....	....	.....	....	30	500	90	2000	1000	....	1000	200	20	.....
Little Harbor	....	....	.....	....	16	160	30	1200	560	....	.....	....	10	.....
Port Hawkesbury	6	436	12000	72	30	500	70	19000	4500	10	6000	672	1882	18720
Port Hastings	....	....	.....	....	20	300	60	15000	3500	....	.....	....	20	.....
West Bay	....	....	.....	....	15	180	22	800	475	....	.....	....	....	.....
North Mountain	....	....	.....	....	40	500	80	3500	1900	....	.....	....	....	.....
Malagawatch	....	....	.....	....	34	440	68	2000	1100	....	.....	....	....	.....
Boom	....	....	.....	....	14	200	28	1200	600	....	.....	....	....	.....
Basin R. Dennis	....	....	.....	....	12	120	20	720	450	....	.....	....	....	.....
River Inhabitants	....	....	.....	....	4	40	8	600	300	....	.....	....	....	.....
S. Side Whycocomagh	....	....	.....	....	6	60	12	900	400	....	.....	....	....	.....
River Dennis	....	....	....	....	2	10	4	.....	.....	....	.....	....	....	.....
Delaney's Cove	....	....	.....	....	6	320	18	650	340	....	.....	....	60	.....
Doucett's Cove	....	....	.....	....	6	300	18	800	600	....	840	....	74	.....
East Margaree	....	....	.....	....	26	1900	86	5800	4600	....	1420	....	212	.....
West Margaree	6	131	5240	44	5	220	15	2430	1650	....	31990	....	104	.....
Margaree Forks	....	....	.....	....	.....	.....	.....	.....	.....	....	1600	....	.....	.....
Margaree River	....	....	.....	....	.....	.....	.....	.....	.....	....	480	....	.....	.....
Margaree Island	....	....	.....	....	24	640	46	540	280	....	.....	....	244	.....
Broad Cove Marsh	....	....	.....	....	12	460	25	420	180	....	.....	....	58	.....
Port Bain	....	....	.....	....	6	200	15	360	140	....	.....	....	8	.....
Broad Cove Shore	....	....	.....	....	11	220	28	630	400	....	.....	....	65	.....
Coal Mines	....	....	.....	....	4	160	9	440	310	....	.....	960	12	.....
Lake outlet and Lake Bain	....	....	.....	....	5	34	10	140	45	....	.....	....	....	.....
Trout Brook	....	....	.....	....	.....	.....	.....	.....	.....	....	.....	....	....	.....
Eastern Harbor	2	64	500	12	91	3700	283	4550	1655	8	5400	....	541	.....
Cape Rouge	....	....	.....	....	18	650	54	1000	325	....	.....	....	250	.....
Pleasant Bay	..	....	.....	....	19	600	76	800	300	....	.....	4800	300	.....
Cheticamp Point	....	....	.....	....	45	2200	170	2200	900	11	.....	....	4	.....
Big Pond	2	54	700	15	25	925	78	3200	3700	3	2000	....	225	.....
Friar Head	....	....	.....	....	14	500	44	1500	2000	....	.....	....	120	.....
Mill Brook	....	....	.....	....	5	200	15	700	750	....	.....	....	50	.....
N. E. Margaree	....	....	.....	....	....	.....	....	.....	.....	....	2000	....	....	.....
Total	17	725	18840	150	917	20849	2487	122180	51560	32	57730	6732	4767	18720

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.														Fish Products.			Value.
Herrings, barrels.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, brls.	Hake and Pollock, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as Manure, barrels.	$ cts.
1000	....	4000	....	1000	400	400	....	1000	300	1500	40	....	46285	2400	600	....	38,404 20
400	....	400	....	500	100	200	....	.....	100	.....	.....	....	33126	1000	300	....	12,825 12
2400	....	600	....	200	....	300	....	1000	40	1000	60	....	.....	300	400	....	16,240 00
1000	....	300	....	100	....	60	....	1500	....	.....	30	....	35808	200	300	....	11,866 96
400	....	240	....	....	....	40	....	1500	40	2000	20	....	.....	100	50	....	4,365 00
40	....	60	....	....	....	20	....	.....	....	.....	....	....	.....	20	20	....	1,218 00
40	....	30	....	....	....	10	....	1000	....	1000	20	....	.....	20	20	....	868 00
40	50	200	....	....	....	....	....	2000	....	1000	80	100	.....	50	....	....	2,565 00
60	....	200	....	100	....	100	....	.....	....	.....	....	....	.....	100	40	....	2,120 00
70	....	500	....	120	....	160	300	1000	20	1000	20	....	10388	200	60	....	5,941 56
60	....	600	....	40	....	180	1400	1000	30	1000	20	10	9760	300	80	....	6,111 20
50	....	200	....	100	....	60	....	.....	20	.....	....	....	.....	150	50	....	2,005 00
1200	180	2500	30	150	30	300	....	1000	100	3500	35	....	.....	1200	50	1000	51,792 20
90	....	1180	50	....	....	100	....	1000	50	6000	80	....	.....	400	30	500	8.195 00
1275	....	300	....	....	....	....	....	2000	....	1500	40	400	.....	130	20	....	8,272 00
1000	....	350	....	....	....	....	....	2500	....	1800	38	300	.....	150	15	....	7,120 50
200	....	225	....	....	....	....	....	3000	....	4000	65	250	.....	80	12	....	3,690 00
175	....	200	....	....	....	....	....	1500	....	35000	50	280	.....	60	15	....	5,136 50
125	....	150	....	....	....	....	....	2000	....	35000	50	220	.....	35	12	....	4,592 00
.....	.....	.....	.....	.....	.....	.....	.....	1500	....	1800	35	....	.....	.....	.....	....	608 00
35	15	200	....	....	....	....	....	2300	....	2500	85	....	.....	.....	.....	....	2,237 50
.....	.....	.....	.....	.....	.....	.....	.....	3800	....	2800	55	....	.....	.....	.....	....	1,098 00
54	....	530	....	6	....	56	400	.....	....	.....	.....	....	.....	290	20	....	3,670 00
68	....	680	....	8	....	68	600	.....	....	.....	.....	....	.....	360	24	....	4,814 00
420	54	3680	....	28	....	352	800	682	....	.....	14	....	.....	896	86	....	22,402 00
100	126	2940	....	12	....	286	2124	456	....	.....	10	....	6144	1758	95	....	23,817 98
20	110	53	....	....	....	....	....	690	....	....	4	....	.....	146	....	....	1,274 40
.....	188	.....	.....	.....	.....	.....	.....	1875	....	....	14	....	.....	.....	.....	....	1,269 50
140	....	254	....	24	....	49	842	.....	....	.....	.....	....	.....	120	49	....	5,733 70
48	....	176	....	....	....	51	....	.....	....	.....	.....	....	.....	86	32	....	2,052 40
34	....	98	....	....	....	15	....	.....	....	.....	.....	....	11616	26	16	....	2,136 32
142	24	261	....	....	....	57	....	.....	....	.....	.....	....	.....	214	25	....	3,046 10
25	....	92	....	....	....	14	....	.....	....	.....	.....	....	2106	54	12	....	1,140 32
....	64	.....	....	....	....	....	....	860	....	.....	24	....	.....	.....	.....	....	614 00
.....	.....	.....	.....	.....	.....	.....	.....	13400	....	.....	.....	....	.....	.....	.....	....	1,340 00
210	....	7261	....	....	335	225	....	.....	....	.....	.....	....	9744	1650	40	....	42,331 28
60	....	450	....	....	200	300	....	....	....	.....	.....	....	.....	500	60	....	7,480 00
50	....	300	....	....	....	50	....	.....	....	.....	.....	....	20160	300	200	....	9,659 20
.....	....	4600	....	....	500	200	....	.....	....	.....	.....	....	.....	2560	....	....	20,960 00
70	....	2600	....	....	50	290	....	.....	....	.....	.....	....	.....	1200	80	....	16,313 00
20	....	1200	....	....	40	150	....	.....	....	.....	.....	....	.....	800	....	....	7,640 00
10	....	400	....	....	10	50	....	....	....	.....	.....	....	.....	150	....	....	2,660 00
.....	....	.....	....	....	....	....	....	3000	....	.....	.....	....	.....	.....	....	....	700 00
11131	811	38010	80	2388	1665	4143	6466	51563	700	102400	889	1560	185137	18005	2813	1500	378,326 54

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.	
	Vessels.				Boats.			Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.
Richmond Co.			$			$			
Arichat	2	80	1200	20	60	800	120	50000	6000
West Arichat	1	40	600	6	90	1000	150	30000	4000
Petit de Grat	1	30	500	6	100	1000	180	80000	9000
Cape Au Guet					60	750	150	50000	7000
Port Royal	2	40	900	12	12	400	24	20000	3000
D'Escousse	18	750	18000	212	40	150	90	50000	7000
Polimand	3	120	3730	30	10	100	20	1000	4000
Port Richmond	4	180	4000	40	10	100	20	1000	4000
Cape Le Rond	1	45	800	15	40	400	60	5000	3000
Rocky Bay					40	600	80	8000	4000
Little Anse					50	800	100	8000	4000
Gros Nez	1	40	600	10	60	900	100	8000	4000
River Inhabitants	3	120	1900	18	20	200	20	9000	5000
Black River					20	200	20	900	400
Lower D'Escousse	4	160	2300	40	40	200	80	1000	500
Martinique and Lennox Ferry					12	400	24	1000	500
Fourchu	1	15	100	3	27	1012	81	3240	648
Framboise					15	300	45	2520	504
St. Esprit					8	192	20	2880	576
L'Archevêque					9	216	18	2520	504
Grand River					30	750	62	11400	2280
Point Micheau					12	240	25	2500	700
L'Ardoise					180	3800	370	15800	10900
St. Peter's Island					56	1080	112	7000	3980
St. Peter's	4	88	1300	22	35	575	70	8000	1500
River Bourgeois	25	620	12400	175	21	250	25	2550	750
Total	70	2328	48330	609	1057	16415	2066	381310	87742

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.												Fish Products.		Value.
Salmon, barrels.	Mackerel, barrels.	Mackerel, in cans.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, brls.	Hake and Pollock, cwt.	Haddock, cwt.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	
														$ cts.
....	100	2000	3000	200	1000	10	25	2000	.....	.....	300000	50	10	62,875 00
....	50	.....	.....	100	600	10	.....	.....	800	10	200500	60	10	27,947 00
2	200	2000	400	50	800	20	.....	700	.....	.....	600000	60	10	83,336 00
....	20	.....	600	20	1000	10	....	1500	.....	.....	.....	70	10	12,933 00
....	10	1000	400	10	500	5	.....	50	1000	.....	.....	50	10	4,260 00
....	20	.....	200	.....	40000	60	.....	100	.....	.....	30000	200	30	165,825 00
....	.. ...	.....	20	.....	5000	35	.....	.....	.....	.....	.....	600	10	20,685 00
....	.....	.....	60	40	600	10	.....	.....	.....	30	.....	50	10	3,255 00
....	30	.....	400	.....	200	5	.....	100	.....	10	80000	40	10	13,031 00
....	80	.....	100	.....	100	5	.....	100	.....	... ..	... .	50	10	2,485 00
....	100	.....	200	.....	700	10	....	600	.....	.....	.....	40	10	7,631 00
....	300	.....	300	.....	200	10	.....	300	.....	.....	.....	30	10	7,827 00
.....	.....	.....	200	60	100	5	....	.....	.....	20	.....	20	10	1,743 00
20	.....	.....	.....	.....	.....	.....	.....	.....	.....	40	.....	.....	.....	720 00
....	10	.....	100	30	3000	20	.....	60	.....	.....	.....	10	10	13,144 00
....	40	.....	100	20	.....	.....	.....	.....	.....	80	.....	.....	....	1,890 00
....	81	.....	81	.....	341	.....	.....	.....	.....	.....	86400	320	....	13,399 00
....	93	.....	87	.....	105	.....	.....	.....	.....	.....	.....	70	....	2,191 00
....	48	... ..	80	4	48	.....	.....	.....	.....	.....	.....	34	....	1,263 60
....	45	.....	72	5	63	.....	. . .	.....	.....	.....	.....	38	....	1,252 70
....	270	.....	300	30	120	.....	.....	.....	.....	.....	.....	65	....	5,891 00
....	82	.....	120	9	220	2	.....	40	.....	.....	.....	75	....	2,840 00
4	900	.....	960	370	4000	.....	.....	2500	.....	.....	.....	2550	....	46,089 00
....	20	.....	200	60	500	.....	.....	200	.....	6	120000	300	....	18,750 00
....	300	.....	100	10	850	... ..	.....	.....	.....	.....	.....	370	....	8,493 00
....	15	.....	10	10	3700	.. ...	.....	100	.....	20	.....	2200	....	16,590 00
														*20,000 00
26	2814	5000	8090	1028	63747	217	25	8350	1800	216	1416900	7352	160	566,346 80

* Amount used for home consumption, not included above.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.	
	Vessels.				Boats.			Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.
Victoria Co.			$			$			$
Englishtown	2	30	1100	8	52	1040	104	3400	1220
Black Head	....	.....	.....	.....	10	120	20	200	468
Bird Island	....	.....	.....	.....	112	5600	336	18600	9800
Barasois	....	.....	.....	.....	15	180	30	1085	450
Indian Brook	....	.....	.....	.....	20	240	40	1920	800
Little River	....	.....	.....	.....	21	240	42	2160	630
Breeding Cove	....	.....	.....	.....	15	225	30	1800	750
French River	....	.....	.....	.....	14	210	28	1680	700
Wreck Cove	....	.....	.....	.....	9	90	18	1080	450
Path End	....	.....	.....	.....	8	80	16	768	384
South Bay Ingonish	4	56	800	12	120	4200	360	9216	4608
North Bay Ingonish	3	42	600	9	80	2000	160	8112	4056
Ingonish Island	....	.....	.....	.....	6	90	3	240	120
Rocky Side St. Ann's	....	.....	.....	.....	15	150	30	1800	750
South Gut	....	.....	.....	.....	10	100	20	1200	500
North Gut	....	.....	.....	.....	9	90	18	1080	450
Munroe's Point	....	.....	.....	.....	31	310	62	3720	1550
Goose Cove	....	.....	.....	.....	8	80	16	960	400
North River	....	.....	.....	.....	40	400	80	4800	2000
Meat Cove	....	.....	.....	.....	14	280	28	528	288
Wreck Cove	....	.....	.....	.....	11	220	22	484	264
Bay St. Lawrence Pond	....	.....	.....	.....	28	560	56	1276	696
North Harbor	....	.....	.....	.....	12	240	24	660	360
White Point	....	.....	.....	.....	50	1000	100	3256	1776
New Haven	....	.....	.....	.....	34	816	68	2224	1224
Neil's Harbor	....	.....	.....	.....	40	960	80	2640	1440
Green Cove	....	.....	.....	.....	20	400	40	1320	720
S. S. Little Narrows	....	.....	.....	.....	5	60	8	220	60
Grand Narrows	....	.....	.....	.....	27	394	75	740	440
Washabuck	....	.....	.....	.....	5	60	10	170	85
Baddeck	....	.....	.....	.....	4	60	4	200	50
Boularderie	....	.....	.....	.....	3	42	4	230	115
Great Bras d'Or	....	.....	.....	.....	24	290	48	1300	320
New Campbelton	....	.....	.....	.....	48	960	40	1400	720
Total	9	128	2500	29	920	21787	2020	80469	38644

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con*

Kinds of Fish.													Fish Products.		Value.
Salmon, barrels.	Mackerel, barrels.	Herrings, barrels.	Alewives, barrels.	Cod cwt.	Hake and Pollock, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	$ cts.
50	100	550	....	570	60	100	85	3010	.....	....	.....	.....	285	156	19,848 00
18	50	90	....	150	.....	.....	15	30	.....	....	.....	.....	75	10	2,223 00
10	400	600	....	672	.....	.....	46	300	.....	....	.....	....	334	236	13,119 60
....	50	150	....	80	.....	.....	36	250	.....	....	.....	.....	40	45	2,897 50
....	250	200	...	100	.....	.....	9	40	.....	....	.....	.....	50	60	5,256 00
....	105	180	....	240	.....	.....	69	42	.....	....	.....	.....	120	63	3,841 50
....	90	120	....	270	.....	.....	75	30	.....	....	.....	.....	135	45	3,451 50
....	84	56	....	252	.....	.....	56	28	.....	....	.....	.....	126	42	2,941 40
....	54	45	....	135	.....	.....	45	18	.....	....	.....	.....	67	18	1,835 80
30	48	48	....	120	.....	.....	32	16	.....	....	.....	.....	68	16	2,115 20
50	510	640	...	6400	.....	.....	1050	840	.....	....	.....	7200	3200	492	47,052 00
12	178	836	....	4800	.....	.....	110	350	.....	....	.....	.....	2400	250	28,581 00
5	12	50	....	400	.....	.....	120	12	.....	....	.....	.....	200	30	2,713 00
25	30	300	....	30	.....	.....	.....	30	.....	....	.....	.....	15	5	2,303 00
.....	.....	200	....	.....	.....	.....	.....	200	.....	....	.....	.....	.....	.....	1,600 00
13	9	171	....	36	.....	.....	.....	150	.....	....	.....	.....	18	5	1,785 70
12	62	558	....	124	.....	.....	.....	217	.....	....	.....	.....	62	20	4,772 80
6	16	160	....	24	.....	.....	.....	24	.....	....	.....	.....	12	8	1,184 80
9	40	200	....	120	.....	.....	.....	120	.....	....	.....	.....	40	6	2,529 00
....	110	14	....	300	.....	.....	.....	.....	.....	....	.....	19200	220	40	5,358 00
7	129	15	....	325	.....	.....	.....	.....	.....	....	.....	.....	240	32	3,551 00
....	196	25	....	500	.....	.....	.....	.....	.....	....	.....	.....	350	112	5,348 00
11	296	18	....	433	.....	.....	.....	.....	.....	....	.....	.....	300	54	6,621 00
8	263	19	....	1850	.....	.....	.....	700	.....	....	.....	.....	1540	275	15,377 50
...	100	50	....	3300	.....	.....	.....	.....	.....	....	.....	.....	3000	250	16,475 00
....	6	55	....	3300	.....	.....	.....	.....	.....	....	.....	.....	3000	275	15,122 50
7	100	130	....	1200	.....	.....	100	.....	.....	....	.....	.....	700	140	7,822 00
....	10	16	4	80	.....	.....	.....	.....	2100	...	232	.....	30	4	1,392 00
....	70	470	13	350	.....	.....	.....	.....	850	15	129	.....	150	90	5,171 50
...	.....	80	....	90	.....	.....	.....	.....	900	7	81	.....	35	6	1,070 00
7	10	15	....	55	.....	.....	.....	10	.....	....	.....	.....	15	.....	588 00
3	.....	90	....	21	.....	.....	.....	.....	.....	....	.....	.....	10	.....	496 00
5	40	280	....	302	.....	.....	75	.....	.....	....	.....	.....	150	150	3,593 00
6	30	300	....	305	.....	.....	140	180	.....	....	.....	.....	280	145	4,575 50
294	3448	6731	17	26934	60	100	2063	6597	3850	22	442	26400	17267	3080	242,612 30

RECAPITULATION

OF the Yield and Value of the Fisheries of the Island of **Cape Breton**, for the Year 1889.

Kinds of Products.		Quantities.	Rate.	Value.
			$ cts.	$ cts.
Salmon, pickled	Brls.	365	16 00	5,840 00
do fresh, in ice	Lbs.	63,472	0 20	12,694 40
do	Cans	7,992	0 15	1,198 80
Mackerel, pickled	Brls.	12,969	15 00	194,535 00
do	Cans.	23,720	0 12	2,846 40
Herrings, pickled	Brls.	32,916	4 00	131,664 00
do smoked	Boxes.	120	0 25	30 00
do	Cans.	5,760	0 12	691 20
Alewives	Brls.	2,589	4 50	11,650 50
Cod, dried	Cwt.	146,170	4 00	584,680 00
Cod Tongues and Sounds	Brls.	305	10 00	3,050 00
Hake and Pollack	Cwt.	2,563	4 00	10,252 00
Hake Sounds	Lbs.	1,805	1 00	1,805 00
Haddock	Cwt.	18,416	4 00	73,664 00
Halibut	Lbs.	58,316	0 10	5,831 60
Shad	Brls.	4	10 00	40 00
Trout	Lbs.	64,033	0 10	6,403 30
Squid	Brls.	7,409	4 00	29,636 00
Smelt		136,800	0 06	8,208 00
Eels	Brls.	1,403	10 00	14,030 00
Oysters	"	2,039	3 00	6,117 00
Lobsters, preserved	Cans.	1,861,562	0 12	223,387 44
Fish Oil	Galls.	50,168	0 40	20,067 20
do Guano	Tons.	84	25 00	2,100 00
do used as bait	Brls.	7,605	1 50	11,407 50
do do manure	"	1,500	0 50	750 00
do do for home consumption in Richmond County				20,000 00
Total				1,382,579 34

COMPARATIVE STATEMENT of the Value of Fisheries for the Four Counties of the Island of **Cape Breton**, for the Years 1888 and 1889.

Counties.	1888.	1889.	Decrease.	Increase.
	$ cts.	$ cts.	$ cts.	$ cts.
Cape Breton	271,538 68	195,293 70	76,244 98	
Inverness	342,694 96	378,326 54		35,631 58
Richmond	644,101 54	566,346 80	77,754 74	
Victoria	223,652 90	242,612 30		18,959 40
Total	1,481,988 08	1,382,579 34	153,999 72	54,590 98
Decrease			99,408 74	

TABLE showing the Number and Value of Vessels and Boats, Nets and Seines, &c., engaged in the Fisheries of the Island of **Cape Breton**, and the Approximate Estimates of the Value of other Material not included in the Returns for 1889.

Material.	Value.	Total.
	$	$
115 vessels	74,610	
3,552 boats	88,747	
642,909 fathoms of nets	203,999	
		367,356
Canning establishments	58,426	
Seines (not included in returns)	5,630	
Lobster traps	32,450	
Hand lines, trawls, &c	33,275	
Steamers, smacks, punts, canoes, &c	13,782	
Fishing piers, houses and other sundries	57,300	
		200,863
Total		568,219

NOVA SCOTIA—

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in and the Total Number of Men Employed in the

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herrings, barrels.
			$			$			$		$			
Antigonish Co.														
Tracadie	..	....	....	..	70	2000	155	34000	14000	..	.....	6000	1450	100
Antigonish	..	....	....	..	40	900	79	20000	9000	..	.....	20000	60	30
Morristown	..	....	....	..	82	2200	170	41000	18000	..	.....	1200	200	150
Arisaig	..	....	....	..	62	1500	135	32000	12000	..	.....	9000	109	150
Totals	..	....	....	..	254	6600	539	127000	53000	..	.....	47000	1819	430
Value $	..	....	....	..	....	....	....	.....	.....	..	.....	9400	21828	1935
Colchester Co.														
Stirling	..	....	....	..	3	60	11	600	500	..	.....	100	6	40
Lower Stewiacke	..	....	....	..	12	72	12	180	105	..	.....	1800	.....	...
Forest Glen	..	....	....	..	5	30	5	83	60	..	.....	1000	.....	....
Middle Stewiacke	..	....	....	..	5	30	5	40	30	..	.....	500	.....	....
Masstown	..	....	....	..	4	150	8	1000	160	..	.....	2325	.....	....
Little Dyke	..	....	....	..	7	210	14	2100	245	..	...	1500	.....	....
Great Village	..	....	....	..	3	90	6	900	95	..	..	1550	.....	....
Great Village Point	..	....	....	..	3	90	6	850	85	..	.....	1700	....	....
Highland Village	..	....	....	..	5	150	10	1500	200	..	.....	2500	.....	....
Five Houses	..	....	....	..	1	30	2	300	50	..	.....	500	.....	....
Birch Hill	..	....	....	..	....	....	....	.....	.....	1	400	.....	...	....
Bass River	..	....	....	..	2	50	4	600	80	..	.....	1000	....	....
Little Bass River	..	....	....	..	1	40	2	350	50	..	....	800	.....	....
Upper Economy	..	....	....	..	5	160	10	1500	200	..	.....	3500	.....	....
Central Economy	..	....	....	..	....	....	....	.....	.....	..	.....	.....	.....	....
Lower Economy	..	....	....	..	....	....	2	.....	.....	1	200	.....	.....	....
Five Islands	..	....	....	..	5	150	12	.....	.....	2	400	.....	.....	10
Totals	..	..	....	..	61	1312	109	10003	1860	4	1000	18775	6	50
Values $	..	....	....	..	....	....	....	.....	.....	..	.....	3755	72	225

District No. 2.

the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, **Province of Nova Scotia** for the year 1889.

Kinds of Fish.												Fish Products.			Value.
Herrings, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Hake, cwt.	Haddock, cwt.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish, oil, gallons.	Hake Sounds, lbs.	Fish used as bait, barrels.	$ cts.
....	50	230	150	150	.....	280	3000	4000	100	220	90000	210	250	1200	36,445 80
....	30	110	100	60	....	2600	4500	16000	200	30	....	200	300	300	10,556 00
....	140	500	2500	200	.....	800	200	6000	....	....	74400	1200	2000	500	31,491 00
....	120	300	1700	300	.....	700	350	10000	....	....	42000	900	3200	320	23,280 00
....	340	1140	4450	710	.....	4380	7050	36000	300	250	206400	2510	5750	2320	.....
....	1530	4560	17800	2840	.....	263	705	2160	3000	750	24768	1004	5750	3480	101,772 80
60	.....	.....	.....	....	.....	.....	....	29000	....	15	....	....	.....	200	2,372 00
....	5	.....	.....	....	10	600	200	.....	.....	.....	.....	.....	.....	.....	529 00
....	.....	.....	.....	....	11	.....	300	....	.....	.....	.....	.....	.....	.....	329 00
....	.....	.....	.....	....	5	.....	400	.....	.....	.....	.....	.....	.....	.....	185 00
....	.....	.....	.....	....	21	.....	.....	.....	.....	.....	.....	.....	.....	.....	654 00
....	.....	.....	.....	....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	453 00
....	.....	.....	.....	....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	463 00
....	.....	.....	.....	....	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	466 00
....	.....	.....	.....	....	25	.....	.....	.....	.....	.....	.....	.....	.....	.....	725 00
....	.....	.....	.....	....	5	.....	.....	.....	.....	.....	.....	.....	.....	.....	145 00
....	.....	.....	.....	....	8	.....	.....	.....	.....	.....	.....	.....	.....	.....	72 00
....	.....	.....	.....	....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	254 00
....	.....	.....	.....	....	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	214 00
....	.....	.....	.....	....	41	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,069 00
....	.....	5	....	....	....	.....	900	.....	.....	.....	.....	.....	.....	.....	110 00
1200	.....	10	.....	....	1	.....	....	.....	.....	.....	.....	.....	.....	.....	349 00
....	.....	140	.....	....	14	.....	600	.....	.....	.....	.....	80	.....	.....	823 00
1260	5	155	.....	....	201	600	2400	29000	....	15	.....	80	.....	200	.....
315	23	620	.....	....	1809	36	240	1740	....	45	.....	32	.....	300	9,212 00

RETURN Showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herrings, barrels.	Alewives, barrels.
			$			$			$		$				
Cumberland Co.															
Pugwash, Port Philip and Gulf Shore	..	....	.....	..	22	525	22	76	92	..	.....	.....	....	.....	....
Wallace	..	....	.....	..	60	1200	65	1400	560	..	.....	.....	3	400	280
River Phillip	1	32	1200	4	2	40	6	150	225	..	.....	3500	....	....	500
LaPlanch River	..	....	.....	..	2	36	4	350	240	..	.....	400	....	....	15
Nappan	..	....	.....	..	1	20	2	60	50	..	.....	400	....	....	3
Minudie	..	....	.....	..	3	70	7	520	375	..	.....	300	....	....	4
Apple River	..	....	.....	..	3	80	7	150	125	1	40	1600	....	30	....
Advocate	..	....	.....	..	11	190	22	300	275	..	.....	500	....	50	....
Spencer Island	..	....	.....	..	3	60	6	50	40	3	100	.....	....	80	....
Port Greville	..	....	.....	..	7	180	14	100	80	..	.....	400	....	10	....
Parrsboro'	..	....	.....	..	2	40	4	10	10	..	.....	100	....	5	....
Two Islands	..	....	.....	..	2	40	4	.....	.....	1	50	150	....	5	....
Totals	1	32	1200	4	118	2481	163	3166	2072	5	190	7350	3	580	802
Value $	..	....	.....	..	....	.....	....	.....	.....	..	.....	1470	36	2611	3609

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.												Fish Products.			Value.
Cod, cwt.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
															$ cts.
.....	.....	.....	.....	.....	.....	.....	.....	66582	....	50	126160	....	280	....	19,704 00
....10	.....	.....	.....	.....	5	300	800	28600	2	125	156000	....	575	100	25,023 00
.....	.....	.....	.....	.....	15	....	1600	1000	20	28	.....	....	.....	....	3,589 00
.....	.....	.....	.....	.....	20	....	.....	500	....	....	.....	....	.....	....	357 00
.....	.....	.....	.....	.....	12	....	.....	400	....	....	.....	....	.....	....	226 00
.....	.....	.....	.....	.....	60	....	.....	200	....	....	.....	....	.....	....	630 00
60	50	20	40	400	.....	....	.....	.....	....	....	.....	10	.....	....	1,179 00
100	60	....	70	1000	.....	....	.....	300	....	....	50	20	.....	....	1,377 00
80	30	....	35	500	.....	....	.....	.....	....	....	.....	....	.....	....	990 00
100	10	....	30	600	.....	....	.....	.....	....	....	.....	....	.....	....	745 00
10	2	....	15	250	.....	....	.....	.....	....	....	.....	....	.....	....	176 00
5	.....	....	8	200	.....	....	.....	.....	....	....	.....	....	.....	....	125 00
365	152	20	198	2950	112	300	2400	97582	22	203	282210	30	855	100	.....
1460	608	80	792	295	1008	18	240	5855	220	609	33865	12	1283	51	54,121 00

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.				Boats.			Nets.		Weirs, Seines & Traps.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, Smoked, lbs.	Salmon, in cans, lbs.
Guysboro' without the District of St. Mary's.			$			$			$		$				
From and including E. Side Beckerton, Fisherman's Harbor, Country Harbor, Isaac's Harbor Island and Coddle's Harbor to New Harbor	4	188	5700	51	190	5928	228	20860	10430	..	.....	.....	.....	....	....
From thence to White Head, Torbay Point, Larry River, Charlo's Cove, Cole Harbor, Port Felix and White Head	8	202	6700	49	366	10063	488	65300	32650	..	.....	.....	.....	....	....
From thence to Canso and Tittle Rasberry, Big and Little Dover, Canso and Tittle	1	49	700	8	182	4700	346	30000	15000	23	3300	.....	4000	....	....
From thence to Salmon River, Fox Island, Black Point, Half-Island Cove and Philip's Harbor, Crow Harbor, Peas Brook and to Salmon River	.....	.....	.....	...	227	3372	250	35360	17680	16	1750	.....	1000	....	....
From thence *viâ* Guysboro', Manchester, North Shore Straits of Canso to County Line	6	274	12250	40	353	8060	446	70400	35200	10	1050	.....	7000	....	....
Total Boats	.....	.....	.....	...	1318	32123	1758	221920	110960	49	6100	.....	12000	....	....
Total Vessels	19	713	25350	148	....	....	....	.....	.....	..	.....	.....	.....	....	....
14 Traps	..	...	.....	...	....	.....	....	.....	.....	14	8450	....	.....	....	....
12 Canneries	..	...	.....	...	....	.....	....	.....	....	..	...	.....	.....	....	1392
Value	..	..	.....	...	....	.....	....	.....	....	..	.....	.....	.....	....	....

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.														Fish Products.			Value.
Mackerel, barrels.	Mackerel, in cans.	Herrings, barrels.	Alewives, barrels.	Cod, cwt.	Pollack, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Squid, barrels,	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels	
																	$ cts.
262	.....	2610	52	461	..	.....	100	3000	1600	.....	4500	10	.....	160	....	58	18,348 00
1178	.....	4595	545	3317	..	.....	941	1000	4200	.....	.....	41	....	1643	....	471	56,591 70
380	.....	280	5	2200	..	....	420	2000	1000	.....	.....	25	.....	1100	....	368	18,664 50
428	.....	900	81	960	..	....	460	.....	.....	1675	.....	6	.....	322	....	380	22,889 30
1306	.....	3188	1394	1451	..	100	694	.....	2000	.....	1250	20	.....	300	....	153	47,495 50
3554	.....	11573	2077	8389	..	100	2615	6000	8800	1675	5750	102	.....	3525	....	1430	163,989 00
371	.....	1503	19	2877	..	....	.....	.....	.....	80	.....	....	.....	768	....	....	23,436 20
382	.....	202	388	.....	..	....	303	.....	.....	1783	.....	....	.....	50	....	....	15,603 00
.....	26576	.....	.....	.....	..	....	.....	.....	.....	....	.....	...	819809	....	....	....	101,775 00
.....	.....	.....	.....	.....	..	....	.....	.....	.....	.....	.....	....	.....	....	....	....	304,803 20

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.				Boats.			Nets.		Weirs Seines & Traps.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, Smoked, lbs.	Salmon, in cans, lbs.
Guysboro' Co.—Concluded.			$			$			$		$				
St. Mary's Bay and River	..	..	.....	..	45	600	65	6040	380	..	.....	10	11200	640	400
Gegogin Harbor and River	..	..	.....	..	12	190	20	2700	200	..	.....	2	400	480	....
Indian Harbor	2	140	4000	11	30	600	50	9500	900	2	140	800	.....	.....	....
Beckerton	..	..	.....	..	35	650	60	4500	700	..	.....	.....	650	.....	....
Holland's Harbor and Indian River	..	..	.....	..	14	275	24	2500	350	..	.....	.....	1000	400	....
Wine Harbor	1	10	300	3	30	450	50	3000	750	..	.....	.....	1200	200	....
Liscomb and Spanish Bay	..	..	.....	..	95	3000	180	9000	1400	2	240	.....	200	.....	....
Marie Joseph	..	..	.....	..	60	1300	150	5400	1200	..	.....	.....	200	500	....
Ecum Secum	..	..	.....	..	54	1200	140	5500	1300	..	.....	.....	1400	600	....
Head of Country Harbor and River	..	..	.....	..	3	30	3	100	30	..	.....	.....	200	.....	....
Value	..	..	.....	..	....	....	....	.....	.....	..	.....	.....	.....	.....	....
St. Mary's, A. McQuarrie, Overseer	3	150	4300	14	378	8295	742	48240	7210	4	380	812	16450	2820	400
Guysboro', exclusive of St. Mary's	19	713	25350	148	1318	32123	1758	221920	110960	63	14550	.....	12000	....	1392
Total	22	863	29650	162	1696	40418	2500	270160	118170	67	14930	812	28450	2820	1792
Value	..	..	.....	..	....	.....	....	.....	.....	..	.....	12992	5690	564	268

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.														Fish Products.			Value.
Mackerel, barrels.	Mackerel, in cans.	Herrings, barrels.	Alewives, barrels.	Cod, cwt.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels.	
																	$ cts.
.....	.....	125	60	200	2	2	15	1500	9560	.....	2000	20	41000	110	20	80	11,306 50
.....	.....	40	.....	120	3	4	10	700	2200	.....	1500	15	.....	60	....	40	1,550 00
4	.....	760	.....	150	..	....	16	1000	2450	.....	3000	24	.....	80	10	70	18,084 00
10	.....	650	.....	75	..	....	15	2000	.....	.....	800	10	84000	40	20	100	14,629 00
20	.....	100	.....	20	..	....	5	700	8000	.....	700	10	.. ..	10	....	40	2,146 00
.....	.....	300	.....	50	.	....	10	1000	1300	.....	900	15	.....	30	....	120	2,496 00
6	.....	280	250	2400	..	5	10	2000	2500	.....	1400	10	96000	1200	60	1600	28,691 00
10	.....	100	.....	700	..	30	50	3000	.....	.....	1100	20	40800	500	80	1100	13,142 00
20	.....	120	10	300	..	20	100	1300	5000	.....	2000	15	15000	135	10	800	7,109 00
.....	.....	.....	10	.....	..	..	.....	.....	1200	.....	200	....	.....	....	....	....	217 00
.....	.....	.....	.....	.....	..	....	.....	.....	.....	.....	.....	....	....	....	....	....	99,370 50
70	.....	2475	330	4015	5	61	231	13200	32210	.....	13600	139	276800	2165	200	3950	99,370 50
4307	26576	13278	2484	11266	..	100	2918	6000	8800	3538	5750	102	819809	4343	....	1430	304,803 20
4377	26576	15753	2814	15281	5	161	3149	19200	41010	3538	19350	241	1096609	6508	200	5380	....
52524	3189	70889	12663	61124	20	644	12596	1920	4101	14152	1161	2410	131593	2603	5000	8070	404,173 70

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.				Boats.			Nets.		Seines.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Mackerel, barrels.
Halifax Co.			$			$			$		$				
North Shore	3	75	1800	18	216	6480	200	45200	4520	48	9600	.....	.....	....	1600
East St. Margaret's	4	80	2600	24	180	5400	190	48000	4800	67	13400	.....	2000	....	800
Indian Harbor	7	140	3700	48	130	3900	115	20000	2000	38	7600	.....	2000	....	620
Peggy's Cove	....	....	....	....	96	2880	100	70000	7000	62	12400	.....	2000	....	275
Dover	8	160	5600	48	106	3180	130	60000	7200	48	9600	.....	1400	....	1600
Prospect	5	120	3360	30	425	12750	370	255000	38250	100	20000	.....	2000	....	1700
Terrence Bay	7	140	5000	48	125	2500	115	45000	6750	32	6400	.....	.....	....	270
Pennant	6	70	2800	30	80	3200	100	18000	2700	10	2000	.....	.....	....	100
Sambro	6	90	2800	24	140	5600	150	18000	2700	2	400	.....	.....	....	150
Keitch Harbor	2	40	1000	10	95	2850	90	21000	2310	9	1800	.....	.....	....	300
Portuguese Cove	....	....	....	....	70	1750	96	110000	17600	23	4600	.....	7900	....	1560
Herring Cove	13	310	10000	84	110	3200	115	42000	5040	41	8200	.....	.....	....	1900
Ferguson's Cove	1	25	750	6	25	500	30	12000	1440	30	6000	.....	.....	....	300
Bedford	....	....	....	....	12	250	20	4500	540	3	600	.....	200	....	15
Halifax	2	140	4000	24	...	.....	...	..	.....	....	.....	1200	.....	....	220
Ecum Secum to Quoddy	....	....	.....	....	119	2417	122	5661	334	2	370	.....	... .	835	17
Sober Island and Beaver Harbor to Spry Bay	10	296	7000	56	139	2777	149	33805	2349	1	25	.....	270	1106	184
Gerrard's Island to Ship Harbor	3	95	1750	18	125	2259	130	31570	2099	....	.....	.....	160	....	66
Clam Harbor to Petpeswick Hbr.	13	320	7050	88	236	4646	223	34370	2176	3	1350	.....	900	1490	255
East Chezzetcook to Seaforth	12	455	15900	137	212	2832	130	98270	3327	....	.....	.....	.....	...	325
Three Fathom Harbor to Eastern Passage	2	35	650	10	58	1000	71	12890	719	....	.....	.....	954	200	313
Fish used for Home Consumption	....	....	.....	....	....	.....	....	....	.....	....	.....	.....	800	....	450
Totals	104	2591	75760	703	2699	70371	2646	985266	113854	519	104345	1200	20589	3631	13020
Value $	....	....	.....	....	....	.....	....	....	....	....	.....	19200	4116	726	156240

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.														Fish Products			Value.
Mackerel, in cans.	Herring, barrels.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Hake Sounds, lbs.	Fish used as bait, barrels.	$ cts.
.....	50	50	120	3	..	560	....	.....	....	.....	....	.....	420	560	70	23,233 00
.....	500	....	500	10	..	1000	....	.....	....	.....	20	.....	900	1000	200	20,210 00
.....	600	....	520	11	..	1600	....	...	....	.....	....	50000	1260	1600	250	27,609 00
.....	60	....	80	2	..	.....	....	.....	....	.....	....	.....	60	....	20	4,364 00
.....	410	175	440	9	..	1800	....	.....	....	.....	....	.....	270	1800	320	33,550 00
11962	250	20	1000	20	..	40	....	.....	....	.....	....	29168	600	40	280	32,011 00
.....	76	....	250	5	..	250	....	.....	....	.....	....	.....	300	250	50	6,077 00
.....	50	100	1200	24	..	.....	....	.....	....	.....	....	.....	720	....	240	7,563 00
.....	500	....	2000	40	..	200	....	.....	....	.....	....	120000	1320	200	275	28,791 00
.....	100	75	900	18	..	.....	....	.....	....	.....	....	.....	540	....	90	8,518 00
.....	750	20	110	....	..	.....	50	.....	....	.....	....	.....	70	....	20	24,463 00
.....	100	....	1200	24	..	.....	....	80000	...	.....	....	.....	720	....	140	36,788 00
.....	10	....	150	3	..	.....	....	8000	....	.....	....	13776	90	....	40	6,824 00
.....	20	....	25	1	..	.....	....	.....	....	.....	....	.....	30	....	5	439 00
.....	12000	....	..	....	..	.....	....	.....	....	.....	....	.....	48000	....	....	95,041 00
.....	67	10	701	....	..	.....	29	130	858	1553	13	411536	355	....	26	53,525 00
.....	525	36	1841	4	..	175	48	1470	670	1200	30	180144	666	220	71	36,100 00
.....	76	827	1622	2	..	23	93	668	520	1250	17	98880	620	16	51	24,429 00
.....	1098	29	5312	6	18	161	203	2038	2090	12100	75	184450	2201	208	209	56,870 00
.....	799	79	6310	4	4	24	142	930	550	4200	11	.....	2846	58	262	35,910 00
.....	379	232	1190	....	..	39	58	3600	850	28300	15	.....	432	46	34	14,447 00
.....	1800	....	1750	....	..	.....	750	.....	....	.....	....	.....	.....	....	....	23,660 00
Fresh fish sold in Halifax markets.....																40,500 00
11962	20220	1653	27221	186	22	5872	1373	96836	5538	48603	181	1087954	62420	5998	2653	.....
1435	90990	7439	108884	1860	88	23488	5492	9684	554	2916	1810	130555	24968	5998	3979	640,922 00

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Weirs.		Salmon, fresh, in ice, lbs.	Mackerel, barrels.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.		
Hants Co.			$			$			$		$		
Shubenacadie River to Maitland					17	232	20	1128	450			2000	
Grand Lake to Shubenacadie					82	246	82	738	328			3236	
West Hants					10	1000	20	2435	1500	4	150	322	
Totals					109	1478	122	4301	2278	4	150	5558	
Value $												1112	
Pictou Co.													
Pictou Island	1	32	1000	4	6	30	12	600	2000				15
Chance Harbor					10	120	10	1170	1580			30300	50
Little Harbor					15	180	15	1105	1490			2000	100
Big Island					10	120	10	800	1150			45300	100
North Beach					12	144	12	1000	1350			29200	180
Ponds					5	60	5	600	918			12500	11
Lismore					5	60	5	800	680			4800	20
Middle District													
West Pictou	2	60	2000	6	85	800	180	4500	2450			5000	50
Totals	3	92	3000	10	148	1514	249	10575	11618			129100	526
Value $												25800	6312

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.													Fish Products.				Value.
Herrings, barrels.	Herrings, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Hake, cwt.	Haddock, cwt.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Hake Sounds, lbs.	Fish used as bait, barrels.	Fish used as manure, barrels.	
																	$
.....	....	40	....	.....	..	9	....	....	.....	.....	...	.....	....	....	....	.....	661
...	....	1566	....	.....	..	136	19690	....	.....	10	...	.....	....	....	....	.....	10,199
85	325	....	50	.....	24	77	.....	....	.....	.....	...	.....	....	....	....	.....	1,518
85	325	1606	50	.....	24	222	19690	....	.....	10	...	.....	....	....	....	.....	.....
383	81	7227	200	.....	96	1998	1181	....	.....	100	...	.....	....	....	....	.....	12,378
133	....	....	....	6	..	.....	.....	...	.....	.....	...	219000	....	....	....	.....	27,083
100	....	....	...	50	..	.....	.....	....	.....	.....	...	.....	....	....	....	.....	7,310
50	....	....	....	100	..	.....	.....	....	.....	.....	...	.....	....	....	....	.....	2,225
50	....	....	....	50	..	.....	.....	....	.....	.....	...	30000	....	....	....	.....	14,285
220	....	....	....	1250	..	.....	.....	....	.....	.....	...	.....	....	....	....	.....	13,990
23	....	....	....	106	..	.....	.....	....	.....	.....	...	.....	....	....	....	.....	3,159
25	...	....	....	2500	..	.....	.....	....	.....	.....	...	.....	....	....	3	13	11,324
.....	....	100	....	.....	..	.....	.....	...	5000	25	...	.....	....	....	....	.....	1,000
300	....	....	200	80	..	.....	.....	150	6000	300	25	457000	100	200	400	4000	65,200
901	....	100	200	4142	..	.....	.....	150	11000	325	25	706000	100	200	403	4013	.....
4055	....	450	800	16568	..	.....	.....	15	660	3250	75	84720	40	200	605	2006	145,576

RECAPITULATION of the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed, &c., in District No. 2, **Province of Nova Scotia,** for the Year 1889.

COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.				KINDS OF FISH.								
	Vessels.				Boats.			Nets.		Weirs.										
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.	Salmon, Smoked, lbs.	Salmon, in cans, lbs.	Mackerel, barrels.	Mackerel, in cans.	Herrings, barrels.	Herrings, smoked, in boxes.	Alewives, barrels.
District No. 2.			$			$			$		$									
Antigonish	.....	.....	.....	.....	254	6600	539	127000	53000	.....	.....	.....	47000	.....	.....	1819	.....	430	.....	340
Colchester	.....	.....	.....	.....	61	1312	109	10003	1860	4	1000	.....	18775	.....	.....	6	.....	50	1260	5
Cumberland	1	32	1200	4	118	2481	163	3166	2072	5	190	.....	7359	.....	.....	3	.....	580	.....	802
Guysboro'	22	863	29650	162	1696	40418	2500	270160	118170	67	14930	812	28450	2820	1792	4377	26576	15753	.....	2814
Halifax	104	2591	75760	703	2699	70371	2646	985266	113854	519	10435	1200	20584	3631	.....	13020	11962	20220	.....	1653
Hants	.....	.....	.....	.....	109	1478	122	4301	2178	4	150	.....	5558	.....	.....	.....	.....	85	325	1606
Pictou	3	92	3000	10	148	1514	249	10575	11618	.....	.....	.....	129100	.....	.....	526	.....	901	.....	100
Totals	130	3578	109610	879	6085	124174	6328	1410471	302752	599	26705	2012	256817	6451	1792	19751	38538	38019	1585	7320

RECAPITULATION of the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—**Nova Scotia**—*Concluded.*

COUNTIES.	KINDS OF FISH.														FISH PRODUCTS.					VALUE.
	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollock, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish Roes, barrels.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
District No. 2.																				$
Antigonish	1140	....	.....	4450	710	....	....	4380	7050	.....	36000	300	250	206400	2510	5750	.....	2320	.....	101,773
Colchester	155	....	.....	.....	.....	.....	201	600	2400	.....	29000	...	15	.....	80	.....	.....	200	.....	9,212
Cumberland	365	.....	152	20	198	2950	112	300	2400	.....	97582	22	203	282210	30	.....	.....	855	100	54,121
Guysboro'	15281	.....	5	161	3149	19200	....	.....	41010	3538	19350	241	....	1096609	6508	.....	200	5380	.....	404,173
Halifax	27221	186	22	5872	1373	96836	....	.....	5538	.....	48603	181	....	1087954	62420	5998	.....	2653	.....	640,922
Hants	50	.....	.....	....	24	.....	222	19690	.....	.....	.....	10	....	.....	.....	.....	.....	.....	.....	12,378
Pictou	200	.....	.....	4142	...	.....	....	....	150	.....	11000	325	25	706000	100	200	.....	403	4013	145,576
Totals	44412	186	179	14645	5454	118986	535	24970	58548	3538	241535	1079	493	3379173	71648	11948	200	11811	4113	1,368,155

RECAPITULATION

Of the Yield of Fisheries in District No. 2, **Nova Scotia.**

Kinds of Products.		Quantities.	Rate.	Value.	Total.
			$ cts.	$	$
Salmon, pickled	Brls.	2,012	16 00	32,192	
do fresh, in ice	Lbs.	256,817	0 20	51,363	
do smoked	"	6,451	0 20	1,290	
do cans	"	1,792	0 15	268	
					85,113
Mackerel, pickled	Brls.	19,751	12 00	237,012	
do preserved, in cans	Cans.	38,538	0 12	4,624	
					241,636
Herrings, pickled	Brls.	38,019	4 50	171,088	
do smoked	Boxes	1,585	0 25	396	
					171,484
Alewives, pickled	Brls.	7,320	4 50	.....	32,941
Cod, dried	Cwt.	44,412	4 00	177,648	
Cod Tongues and Sounds	Brls.	186	10 00	1,860	
					179,508
Pollock, dried	Cwt.	179	4 00	716	
Hake, dried	"	14,645	4 00	58,580	
Hake Sounds	Lbs.	11,948	1 00	11,948	
					71,244
Haddock, dried	Cwt.	5,454	4 00	.....	21,816
Halibut	Lbs.	118,986	0 10	.....	11,899
Shad	Brls.	535	9 00	.....	4,815
Bass	Lbs.	249,701	0 06	.....	1,498
Trout	"	58,548	0 10	.....	5,855
Squid	Brls.	3,538	4 00	.....	14,152
Smelts	Lbs.	241,535	0 06	.....	14,492
Eels	Brls.	1,079	10 00	.....	10,790
Oysters	"	493	3 00	.....	1,479
Lobsters	Cans.	3,379,173	0 12	.....	405,501
Fish Oil	Galls.	71,648	0 40	.....	28,659
do Guano	Tons.	200	25 00	.....	5,000
do used as bait	Brls.	11,811	1 50	.....	17,717
do do manure	"	4,113	0 50	.....	2,056
Total		.....	.....	.....	1,327,655
Amount sold in Halifax fish market		.....	.....	.....	40,500
			.....	.....	1,368,155

COMPARATIVE STATEMENT of Increase and Decrease of the several Products of the Fisheries, District No. 2, Province of **Nova Scotia,** for the Years 1888 and 1889.

Kinds of Products.		Increase.	Decrease.
Salmon, pickled	Brls.		606
do fresh, in ice	Lbs.	1,406	
do smoked	"		715
do preserved	"		2,330
Mackerel, pickled	Brls.	5,353	
do preserved	Cans.	24,250	
Herring, pickled	Brls.		8,818
do smoked	Boxes	10	
Alewives, pickled	Brls.	4,164	
Cod, dried	Cwt.		39,370
Cod Tongues and Sounds	Brls.		355
Pollock and Hake	Cwt.		1,263
Hake Sounds	Lbs.		6,877
Haddock, dried	Cwt.		7,434
Halibut	Lbs.		122,051
Shad	Brls.	86	
Bass	Lbs.	3,130	
Trout	"		4,392
Squid	Brls.	1,912	
Smelts	Lbs.		70,238
Eels	Brls.		941
Oysters	"	146	
Lobsters	Cans.	488,838	
Fish Oil	Galls.		9,216
Guano	Tons.	200	
Fish used as bait	Brls.		11,099
do manure	"	513	

COMPARATIVE STATEMENT of Value of Fisheries in each County of District No. 2, **Nova Scotia,** for the Years 1888 and 1889.

Counties.	1888.	1889.	Increase.	Decrease.
	$	$	$	$
Antigonish	93,988	101,773	7,785	
Colchester	6,796	9,212	2,416	
Cumberland	56,245	54,121		2,124
Guysborough	421,445	404,173		17,272
Halifax	808,607	640,922		167,685
Hants	15,005	12,378		2,627
Pictou	114,089	145,576	31,487	
Total	1,516,175	1,368,155	41,688	189,708
Decrease				*148,020

*Or 9¾ per cent. nearly.

NOVA SCOTIA—

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in and the Total Number of Men Employed, &c., in the

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Herrings, barrels.	Herrings, smoked in boxes.
Annapolis Co.			$			$			$		$			
Margaretvale	2	27	700	8	9	270	18	1800	900	....	.....	....	910	520
Port George	....	....	....	....	12	200	24	1200	600	2	300	1000	200	.....
Hampton and Young's Cove	....	....	....	....	30	500	60	4000	2000	....	.....	....	700	.....
Annapolis River, East of Round Hill	....	....	....	....	8	40	16	80	160	....	.....	700	....	.....
Granville Ferry to Thorne's Cove	....	....	....	....	15	300	30	700	350	7	1400	....	20	3550
Thorne's Cove to Digby Gut	3	127	3810	29	45	900	75	2700	1350	3	300	....	490	2500
Litchfield to Hillsburn	1	15	450	7	19	380	46	1140	570	....	.....	....	320	.....
Parker's Cove and Young's Cove	....	....	....	....	40	700	61	2800	1400	....	.....	....	1187	.....
South side Annapolis Basin	3	42	1260	13	23	540	47	400	250	10	2000	....	270	12000
Lequille	....	....	....	....	....	....	7	40	20	1	40	540	....	.....
Annapolis and Round Hill Rivers	....	....	....	....	....	....	20	30	15	2	200	3000	....	.....
Indian Lake and River	....	....	....	....	....	....	....	.....	....	....	.....	....	....	.....
Total	9	211	6220	57	201	3830	404	14890	7615	25	4240	5240	4097	18570

District No. 3.

the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, Province of **Nova Scotia**, for the Year 1889.

Kinds of Fish.											Fish Products.					Value.
Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, brls.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Eels, barrels.	Fish Oil, gallons.	Hake Sounds, lbs.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as Manure, barrels.	
																$ cts.
....	60	....	35	.....	25	2500	....	.....	.....	....	90	.....	....	250	20	4,921 00
....	200	....	100	.....	100	1000	....	.....	.....	....	300	.....	....	200	20	3,130 00
....	200	....	100	.....	200	4000	....	.....	.....	....	.....	.....	....	100	30	5,365 00
....	.....	....	.....	.....	.....	.....	....	900	.....	....	.....	.....	.....	.....	....	194 00
....	20	....	10	.....	25	.....	....	.....	.....	....	.....	.....	20	20	....	1,717 50
....	1930	14	340	1800	2000	15094	....	.....	.....	....	2300	2000	100	1200	...	35,734 40
....	600	6	182	505	620	2050	....	.....	.....	....	454	500	75	360	....	12,269 60
....	209	3	130	68	70	474	....	.....	.....	....	287	70	42	312	....	8,436 20
....	458	6	15	320	335	5630	....	.....	.....	....	640	.....	100	700	....	13,021 00
20	.....	....	.....	.....	.....	.....	....	200	450	5	.....	.....	...	....	....	305 00
..	.....	....	..	.....	.....	.... .	5	740	250	4	.....	....	14	.....	...	1,109 40
....	.....	....	....	.....	.....	.....	....	.....	4000	....	.....	.....	....	....	....	400 00
20	3677	29	912	2693	3375	30748	5	1840	4700	9	4071	2570	351	3142	70	86,603 10

Live Lobsters shipped to United States, 261 tons, at $35....$ 9,135 00

95,738 10

RETURN showing the Number, Tonnage and Value of Vessels and Boats Engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Herrings, barrels.	Herrings, smoked in boxes,
Digby Co.			$			$			$		$			
Digby	8	334	6200	77	8	400	16	1600	1000	14	1800	....	....	1480
Broad Cove	..	....	.....	....	7	350	14	600	300	....	....	....	....	....
Gulliver's Cove	..	....	.....	....	6	300	12	550	275	....	....	100	....	....
Shelving Cove	..	....	.....	....	6	320	13	600	300	....	....	....	....	....
Centreville	..	....	.....	....	15	750	30	1300	760	....	....	....	....	....
Sandy Cove	..	....	.....	....	20	850	40	1850	1000	2	100	....	....	....
Little River	..	....	.....	....	40	1560	80	2600	1600	....	....	....	....	....
Weymouth	..	....	.....	....	14	620	28	1100	700	2	100	....	....	....
Church Point	..	....	.....	....	15	620	30	1200	700	....	....	....	....	....
Meteghan	..	....	.....	....	7	350	14	600	300	....	....	....	....	....
Salmon River and Cape St. Mary	..	....	.....	....	41	1590	82	2650	1620	....	....	....	....	....
Head St. Mary's Bay	..	....	.....	....	....	.....	....	.....	.....	4	650	....	....	....
Westport	23	460	19000	160	38	1200	120	14000	7000	....	....	....	650	....
Freeport	14	290	11000	110	80	2700	240	12000	6000	....	....	....	720	....
Tiverton	5	100	3000	32	40	1300	120	7000	3500	....	....	....	150	....
Total	50	1184	39200	379	337	12910	839	47650	25055	22	2650	100	1520	1480

the Fisheries, Quantity and Value of Fishing Materials, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.											Fish Products.				Value.
Cod, cwt.	Cod Tongues and Sounds, brls.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Hake Sounds, lbs.	Fish used as bait, barrels.	Fish used as Manure, barrels.	
															$ cts.
3000	....	600	2000	5000	41000	....	500	1000	4	22896	6200	1000	1500	1540	56,267 52
351	....	90	700	800	1000	....	....	....	....	.....	600	400	450	540	9,445 00
340	....	80	500	650	2000	....	....	....	....	.....	450	360	340	300	7,700 00
360	....	140	700	560	1700	....	....	....	....	.....	550	280	340	100	8,270 00
1400	....	460	2866	1500	2960	....	..	....	....	.....	2000	800	680	400	28,020 00
2000	....	560	2820	2000	3500	....	....	....	....	.....	2200	850	775	600	33,062 50
3000	....	565	2900	2500	4000	....	....	....	....	.....	2500	920	900	680	39,870 00
310	....	545	775	650	640	....	....	....	....	.....	1050	360	750	710	11,444 00
360	....	493	754	660	700	....	....	....	....	.....	100	310	860	730	11,143 00
389	....	300	360	410	2000	....	....	....	6	.....	750	200	500	540	7,616 00
4500	...	3000	1750	1000	13500	....	....	....	11	.....	3200	340	1200	500	46,130 00
.....	.....	.....	.....	.....	.....	3	....	....	3	.....	100	.....	50	150	250 00
30500	40	18400	21200	25700	80000	..	....	....	....	.....	43600	10160	4800	500	429,250 00
20000	28	11600	16800	14250	45000	....	....	....	....	.....	26500	7600	3000	600	281,260 00
3500	12	2850	3000	2500	12000	....	....	....	....	.....	5000	1200	1000	200	54,120 00
70009	80	39683	57125	58180	210000	3	500	1000	24	22896	94800	24780	17145	8090	1,023,848 02

Live Lobsters shipped to United States, 741 tons, at $35....	$ 25,935 00
Fresh Haddock sold abroad, 750,000 lbs., at 4c.....	30,000 00
Finnan Haddies exported, 140,000 lbs., at 8c.....	11,200 00
	67,135 00
	1,090,983 02

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herring, barrels.
King's.			$			$			$		$			
Gaspereaux	....	.....	.....	....	....	.....	.....	.....	.....	....	.....	500	....	.....
Aylesford	....	....	.....	...	....	.....	.....	.....	.....	....	.....	2100	....	.....
Kentville	....	.....	.....	....	....	.....	.....	.....	.....	....	.....	.....	....	.....
Avonport	....	.....	.....	....	12	200	12	2000	1000	1	500	.....	....	.....
Boat Island	....	.....	.....	...	....	.....	.....	2200	1100	1	400	.....	....	.....
Blomidon	2	27	400	5	....	.....	.....	400	200	2	200	.....	....	10
Baxter's Harbor	1	10	250	3	13	200	26	600	300	1	200	1500	....	525
Black Rock	....	.....	.....	....	10	150	20	500	250	4	800	1200	....	700
Canada Creek	....	.....	.....	....	6	120	12	250	125	....	....	400	....	125
Hall's Harbor	3	45	800	8	20	400	40	1250	625	7	1500	9000	6	500
Harborville	1	15	200	3	2	40	4	500	250	6	1200	1400	....	1070
Kingsport	1	11	150	3	....	.....	.....	400	200	....	....	.....	....	100
Long Island	....	.....	.....	....	....	.....	.....	3000	1500	2	500	.....	....	.....
Morden	....	.....	.....	....	....	.....	.....	1200	600	4	800	2500	....	550
Medford	....	.....	.....	....	...	.....	.....	200	100	2	300	.....	....	.....
Pereaux	....	.....	.....	....	....	.....	.....	200	100	2	300	.....	....	15
Starr's Flats	....	.....	.....	....	...	.....	.....	3000	1500	2	800	.....	....	.....
Scott's Bay	....	.....	.....	....	....	.....	.....	4000	2000	3	1500	.....	....	.....
Totals	8	108	1800	22	63	1110	114	19700	9850	37	9000	18600	6	3595

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.										Fish Products.			Value.
Herring, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Pollock, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	$ cts.
.....	650	.....	.....	.....	.....	.....	1000	7000	10	.....	.....	.....	3,745 00
.....	.....	.....	.....	.....	.....	.....	750	.....	.....	.....	.....	.....	495 00
.....	.....	.....	.....	.....	.....	.....	.....	2000	.....	.....	.....	.....	120 00
.....	600	.....	.....	.....	.....	12	.....	.....	.....	.....	.....	.....	2,820 00
.....	.....	.....	.....	.....	.....	20	.....	.....	.....	.....	.....	.....	200 00
80	.....	4	.....	2	.....	2	.....	.....	.....	.....	.....	10	97 00
.....	.....	168	98	168	.....	.....	.....	.....	.....	.....	70	50	4,266 00
10500	.....	200	150	130	.....	.....	.....	.....	.....	300	300	350	8,330 00
400	.....	60	60	200	.....	.....	.....	.....	.....	150	80	150	2,404 00
1000	.....	300	150	250	1500	.....	.....	.....	.....	100	200	400	7,630 00
1050	.....	50	40	30	.....	.....	.....	.....	.....	.....	50	350	5,474 50
500	.....	40	25	.....	.....	.....	.....	.....	.....	.....	10	.....	800 00
.....	.....	.....	.....	.....	.....	35	.....	.....	.....	.....	.....	.....	350 00
.....	.....	50	40	.....	.....	.....	.....	.....	.....	.....	12	100	3,128 00
50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	50	37 50
100	.....	15	4	.....	.....	.....	.....	.....	.....	.....	.....	40	181 00
.....	.....	.....	.....	.....	.....	75	.....	.....	.....	.....	.....	.....	750 00
.....	.....	.....	.....	.....	.....	274	.....	.....	.....	.....	15	200	2,662 50
13680	1250	887	567	780	1500	418	1750	9000	10	550	737	1700	43,490 50

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.				Boats.			Nets.		Weirs.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Mackerel, barrels.	Herrings, barrels.	Alewives, barrels.
Lunenburg Co.			$			$			$		$					
Chester	4	234	5000	44	59	1365	58	14350	2945	4	2000	6220	450	400	90	225
Martin's River	3	257	11500	48	57	1325	47	12400	1365	1	400	1100	100	100	55	55
Fox Point	2	63	3000	17	83	2240	124	62400	7505	..	....	800	....	800	697	25
Mill Cove	1	21	400	5	67	1235	75	51400	5820	..	....	800	....	500	325	20
Lodge	....	.....	.....	...	20	385	27	23000	1825	..	....	400	....	250	90	15
N. W. Cove	...	.....	.....	....	45	1580	54	38800	3450	..	..	1000	....	675	240	12
Aspotogen	2	25	600	6	27	655	32	15000	1750	.....		500	60	250	190	15
Sandy Beach	....	.....	.....	....	40	1195	48	36000	3400	..	....	450	....	190	250	10
Blandford	1	56	1000	5	70	2015	70	57000	5720	..	....	775	....	900	360	25
Little Tancook	....	.....	.....	....	48	1750	49	47000	4700	..	....	150	....	200	450	10
Big Tancook	....	.....	.....	....	136	8760	176	136000	15500	..	....	1100	....	720	1950	45
Deep Cove	....	.....	.....	....	22	680	32	22500	2225	1	600	350	....	155	95	40
Lunenburg to Cross Island	85	7650	400500	1200	150	5300	200	18000	11063	..	....	.....	....	400	1000	20
Mahone Bay and Indian Point Islands	19	1487	91500	240	5	218	10	1500	480	..	....	.....	....	4	100	30
E. S. La Have River to New Dublin	57	42135	229500	818	425	9000	325	40625	17875	..	....	50	30	776	3995	65
Petite Rivière to E. Port Medway	8	640	43200	112	200	4280	180	23500	8090	..	. .	35	25	600	2500	50
Totals	182	14668	786200	2495	1454	41983	1507	599475	93713	6	3000	13730	665	6920	12387	6625

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.											Fish Products.					Value.
Cod, cwt.	Cod Tongues and Sounds, brls.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Hake Sounds, lbs.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.	$ cts.
650	10	225	.....	.....	100	..	550	7	950	30	95000	250	....	..	55	30	24,355 00
2614	15	....	.....	.....	1200	..	315	2	800	18	.....	1500	....	..	145	....	14,018 50
725	2	15	1000	.....	500	..	165	7	250	4	.....	550	1000	..	105	30	23,582 50
185	1	15	200	.....	.....	..	....	2	225	6	.....	145	75	..	15	10	10,902 00
95	....	50	50	.....	.. ..	..	....	2	.....	....	.....	50	40	..	5	5	5,115 50
250	3	40	25	150	.....	..	25	2	150	4	.....	125	10	..	35	15	13,408 50
150	2	10	10	.....	135	..	60	2	.....	2	50000	75	5	..	10	6	11,490 00
155	1	15	50	.....	110	..	.. .	1	.....	2	.....	95	35	..	20	10	5,018 00
475	5	25	25	... ..	.....	..	....	12	.....	10	.... .	415	10	..	15	20	17,714 00
355	....	25	10	.....	485	..	....	2	.....	2	.....	235	5	..	40	20	6,680 50
1250	15	50	50	.....	550	..	....	12	.....	5	45000	875	45	..	105	110	30,733 00
55	....	15	.....	.....	.....	..	75	2	250	12	.....	160	....	..	5	10	3,462 00
92500	300	2500	1200	7500	130600	..	....	20	.....	6	68750	31000	....	10	106	...	462,149 00
17480	76	525	260	1275	29560	..	....	....	.....	....	.....	7800	....	2	6	....	85,650 00
42272	120	135	420	1135	260000	10	200	200	5500	50	14988	32000	....	12	1000	....	249,125 06
7350	20	50	75	225	43350	4	....	80	2700	10	12500	5050	....	2	550	....	59,589 00
166561	570	3695	3375	10285	466590	14	1390	353	10825	161	286238	80325	1225	26	2217	266	1,022,992 56

Clams, 5,000 cans, at 12c	$600 00	
Scallops, 800 doz., at 50c	400 00	
		1,000 00
		1,023,992 56

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Mackerel, barrels,	Herrings, barrels.
Queen's Co.			$			$			$				
Liverpool	3	276	13000	56	20	300	25	1080	540	4500	....	10	940
Port Mouton	3	145	4000	24	78	3600	161	3600	1600	200	...	15	2500
Brooklyn	2	142	9500	25	17	892	34	1140	400	2000	...	....	120
Port Joli	....	.....	.....	....	29	550	37	60	30	.....	....	....	.....
Port L'Hébert	1	15	100	5	12	240	12	150	60	.....	....	....	.....
Somerville	....	.....	.....	....	7	70	8	120	500	.....	....	....	40
Hunt's Point	...	.. ..	.....	....	25	500	39	1000	975	.....	....	15	160
White Point	....	.....	.....	....	7	175	14	1300	104	.....	....	100	250
Beach Meadows	....	.....	.....	....	10	140	10	260	400	250	....	....	63
Coffin Island	....	.....	.....	....	11	270	23	1000	120	30	....	....	137
Eagle Head	....	.....	.....	....	8	324	14	340	378	300	....	....	30
West Berlin	....	.....	.....	....	18	220	17	1275	360	160	....	....	140
East Berlin	....	.....	.....	....	17	204	15	900	981	840	....	....	30
West Head	....	.....	.....	....	36	540	39	2180	250	.....	....	41	986
Moose Harbor	....	.....	.....	....	9	108	11	500	160	.....	....	5	310
Black Point	....	.....	.....	....	6	90	8	700	210	.....	....	....	105
Milton	....	.....	.....	....	6	72	10	160	80	3750	....	....	.....
Gull Island	....	.....	.....	....	5	100	8	360	180	10	....	10	180
East Head	....	.....	.....	....	10	150	8	380	175	360	....	1	85
Mill Village	....	.....	.....	....	55	410	51	1900	680	3575	200	....	.....
Port Medway	10	845	35100	149	85	1600	90	8790	1875	7225	150	112	693
Ponhook	....	.....	.....	....	8	96	32	180	120	1700	50	....	.....
Total	19	1423	61700	259	479	10651	666	27575	10178	24900	400	309	6819

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.													Fish Products.			Value.
Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, brls.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as Manure, barrels.	$ cts.
15	3410	20	....	....	12	1000	....	2000	....	.....	10	.....	1100	25	60	19,673 00
10	2600	2	....	70	50	2000	....	500	....	.....	50	56200	2000	300	200	30,139 00
30	1667	6	....	....	50	1500	....	100	....	200	3	.....	800	150	240	8,770 00
24	140	....	....	....	5	....	....	200	....	2000	40	...	110	540	....	2,082 00
.....	100	....	....	....	....	.....	....	250	....	.....	60	288	80	200	....	1,391 56
.. ...	70	....	....	....	12	.....	....	100	....	.....	....	.....	86	140	40	762 40
.....	450	....	....	....	50	.....	....	....	....	.....	5	.....	400	150	100	3,350 00
.....	200	....	....	....	50	.....	....	200	....	.....	....	.....	180	100	150	3,817 00
.....	40	....	....	....	4	100	....	.....	....	.....	....	.....	30	5	22	518 50
.....	331	4	....	....	30	200	....	.....	....	. . .	....	20400	150	25	120	4,663 50
.....	210	....	....	....	20	.....	....	.....	....	.....	....	.....	100	20	15	1,177 50
5	60	....	....	....	10	400	....	.....	....	.....	....	.....	30	6	50	980 50
.....	70	....	....	....	15	90	....	.....	....	.....	....	.....	35	5	40	878 50
.....	603	....	10	....	36	650	....	.....	....	.....	....	.....	300	50	400	7,615 00
.....	55	....	....	....	12	....	....	....	....	.....	....	.....	25	6	60	1,632 00
....	80	....	....	....	10	.....	....	.....	....	.....	....	24000	40	8	50	3,713 00
50	.....	....	....	....	....	.....	....	500	...	600	5	.....	.....	.....	....	1,111 00
.....	60	....	....	....	6	200	....	.....	....	.....	....	.....	30	6	40	1,197 00
.....	50	....	....	....	5	120	....	.....	....	.....	....	.....	25	5	30	691 50
2050	.....	....	....	....	....	....	25	1750	....	18200	14	.....	.....	.....	....	11,637 00
1250	8438	12	50	480	150	5000	....	200	60	6100	23	20200	6175	315	....	54,866 50
505	... .	....	....	....	....	.....	....	2250	....	.....	12	.....	. ..	.....	....	2,882 50
3939	18634	44	60	550	517	11260	25	8050	60	27100	222	121088	11696	2056	1617	163,548 96

Shipped to United States, live lobsters	$ 2,720 00
175 barrels clams, at $7.00	1,225 00
	3,945 00
	$ 167,493 96

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.				
	Vessels.				Boats.			Nets.		Weirs and Traps.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.
Shelburne Co.			$			$			$		$	
Barrington	7	319	10250	71	42	1000	37	11640	951	....	.....	540
Wood's Harbor	4	67	1600	24	92	1826	93	20000	1651	1	2000	....
Shag Harbor	4	87	2350	30	35	775	30	15000	1250	....	.....	....
Bear Point	2	34	700	18	50	960	29	10710	950	....	.....	....
Cape Island	6	373	12250	69	325	6350	380	35000	4575	*7	10125	....
Port Latour and Baccaro	2	22	505	7	196	2744	110	53000	4050	....	.....	....
Upper Port Latour	1	29	250	5	37	350	40	5160	600	....	.....	....
Cape Negro and Blanche	....	....	.....	....	63	698	60	11600	725	....	.....	....
Cape Negro Island	....	....	.....	....	46	850	48	5600	850	1	950	....
Port Clyde	....	....	.....	....	3	15	3	400	30	....	.....	3350
N. E. Harbor and East Clyde	....	....	....	....	16	700	22	6300	900	....	.... ..	700
Black Point and Red Head	....	....	.....	....	42	2950	90	19300	1450	....	.....	....
Roseway and McNutt's Island	....	....	.....	....	45	2800	80	15750	1600	....	.....	....
Churchover and Birchtown	....	....	.....	....	33	1450	58	5000	500	....	.....	180
Shelburne and Sandy Point	5	504	21500	92	45	920	68	18750	2000	....	.....	500
Jordan Ferry	....	....	.....	..	27	850	38	5000	500	....	.....	200
Jordan Bay	2	193	7500	38	16	800	25	7500	700	....	.....	....
Lockeport	19	1480	80000	300	45	2300	80	8000	1000	....	.....	225
Total	52	3108	136705	654	1158	28338	1291	254210	24282	9	13075	5695

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.											Fish Products.		Value.
Mackerel, barrels.	Herrings, barrels.	Alewives, barrels.	Cod, cwt.	Pollock, cwt.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	$ cts.
13	375	490	4212	141	383	14600	525	.....	60	.....	1955	2059	28,035 00
35	1675	.....	279	12	75	12000	.....	.....	.....	106270	50	3250	27,536 40
28	610	.....	1400	111	225	8000	.....	.....	.....	.....	380	305	11,213 50
11	220	.....	850	40	324	2400	.....	.....	.....	120000	331	325	21,160 90
50	3360	.....	12000	250	3350	80000	.....	.....	.....	.....	5250	5000	94,040 00
103	1051	26	1500	2562	1035	1800	.....	.....	.....	.....	4067	1325	30,048 30
45	460	20	1000	250	300	3000	.....	.....	.....	.....	1050	380	10,095 00
13	852	12	1000	55	600	.....	.....	.....	.....	.....	1591	150	11,138 40
90	1400	.....	2575	300	900	3000	.....	.....	.....	.....	2600	600	24,290 00
.....	.....	300	15	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,080 00
.....	165	30	300	.....	60	.....	.....	.....	12	.....	160	.....	2,559 00
.....	1637	.....	888	4	1000	.....	.....	.....	.....	.....	625	50	14.441 00
.....	1410	25	727	229	764	.....	.....	.....	.....	.....	1615	40	13,338 50
.....	462	50	172	.....	202	.....	.....	.....	.....	.....	175	.....	3,675 00
.....	1860	35	8200	.....	354	.....	5000	.....	.....	.....	2635	300	43,917 50
.....	150	.....	100	.....	160	.....	.....	10000	.....	30912	80	.....	6,021 44
.....	834	.....	3490	.....	257	.....	.....	.....	.....	39000	1300	.....	23,524 00
100	2000	35	28000	25	600	30000	1000	.....	.....	22560	6000	.....	132,559 70
488	18521	1023	66708	3979	10589	154800	6525	10000	72	318742	29864	13784	500,573 64
													*115,730 00
													616,303 64

*Live lobsters exported, 2,079,500, at 4c..... $83,180 00
Fresh mackerel shipped, in ice, 542,500, at 6c..... 32,550 00

$115,730 00*

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						
	Vessels.				Boats.			Nets.		Weirs.				
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herrings, barrels.
Yarmouth Co.			$			$			$		$			
Arcadia and Little River	..	....	.....	....	130	4500	230	5000	1200	*1	2000	.....	130	280
Tusket Wedge	10	714	20000	170	30	1500	80	14000	5500	*1	2000	.....	250	500
Salmon River	..	....	.....	....	60	600	75	12000	4000	..	...	900	....	.....
Tusket	2	47	1200	12	180	2500	200	30000	7500	..	.. ..	1500	120	320
East River	..	....	.....	....	60	600	70	8000	2000	..	.....	500	....	.....
Eel Lake and Eel Brook	1	18	700	10	50	400	80	2000	1500	..	.. ..	.....	40	450
Argyle	2	131	6500	26	60	1000	110	5000	1600	..	.....	.....	45	125
Argyle Sound	..	....	....	....	55	1400	120	9000	4000	..	.....	.....	180	650
East and West Pubnico	27	1896	115000	528	45	2200	90	15000	6000	*1	2000	.....	230	150
Yarmouth	25	1775	64420	375	56	800	104	6000	2200	*3	6000	16000	505	4630
Maitland	9	83	2000	38	31	500	58	3800	1800	*3	7000	.....	370	790
Sanford	3	40	1300	16	43	760	84	4600	2160	*2	4000	.....	725	1836
Totals	79	4704	211120	1175	800	16760	1301	114400	39260	11	23000	18900	2595	9731

*Traps.

the Fisheries, Quantity and Value of Fishing Material, &c.—**Nova Scotia**—*Con.*

Kinds of Fish.													Fish Products.			Value.
Herrings, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, brls.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
																$ cts.
....	20	140	2	30	....	120	4500	....	.....	1500	12	94400	40	....	500	16,594 00
....	60	9620	20	395	....	550	9620	....	.....	.....	....	.....	4700	....	....	51,322 00
....	1870	.....	....	.....	....	.....	.....	....	350	12000	16	.....	.....	....	....	9,510 00
....	2240	360	4	50	....	80	.....	....	1200	25000	60	.....	140	....	....	17,736 00
....	760	.....	....	.....	....	.....	.....	....	800	.....	15	.....	.....	....	....	3,750 00
....	650	250	2	50	20	50	.....	....	.....	6000	280	.....	60	....	....	10,009 00
....	380	2150	2	.....	....	.....	.....	....	.....	.....	25	38400	1000	....	200	16,863 00
....	35	350	....	.....	....	.....	.....	....	.....	.....	....	.....	.....	....	....	6,857 50
....	40	22220	54	445	....	3095	15000	8	.....	.....	60	21264	9868	....	200	116,588 88
400	....	32600	21	3860	....	3685	20600	....	600	.....	20	38000	7500	400	....	200,665 00
....	....	1610	5	680	....	260	10000	....	.....	.....	....	.....	1000	120	....	20,540 00
....	....	1200	4	460	....	145	44000	....	.....	.....	....	.....	860	85	....	30,350 50
400	6055	70500	114	5970	20	7985	103720	8	2950	44500	488	192064	25168	605	900	499,985 88

Live Lobsters shipped to the United States, 1,600 tons, at $35..... $56,000 00
Smoked Alewives, 150,000, at 80c. per 100..... .... 1,200 00

57,200 00

$557,985 8

RECAPITULATION of the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed in District No. 3 of the **Province of Nova Scotia,** for the Year 1889.

COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.				KINDS OF FISH.						
	Vessels.				Boats.			Nets.		Weirs.								
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Mackerel, barrels.	Herring, barrels.	Herring, smoked, in boxes.	Alewives, barrels.	Cod, cwt.
District No. 3.			$			$			$		$							
Annapolis	9	211	6220	57	201	3830	404	14890	7615	25	4240	5240	.....	.....	4097	18570	20	3677
Digby	50	1184	39200	379	337	13910	839	47650	25055	22	2650	100	.....	.....	1520	1480	.....	70009
King's	8	108	1800	22	63	1110	114	19700	9400	37	9000	18600	.....	6	3595	13680	1250	887
Lunenburg	182	14668	786200	2495	1454	41983	1507	599475	93713	6	3000	13730	665	6920	12387	.....	662	166561
Queen's	19	1423	61700	259	479	10651	666	27375	.....	.....	.....	24900	400	309	6819	.....	3939	18634
Shelburne	52	3108	136705	654	1158	28338	1291	254210	24282	9	13075	5695	.....	488	18521	.....	1023	66708
Yarmouth	79	4704	211120	1175	800	16760	1301	114400	39260	11	23000	18900	.....	2595	9731	400	6055	70500
Totals	399	25406	1242945	5041	4492	116582	6122	1077700	199325	110	54965	87165	1065	10318	56670	34130	12949	396976

RECAPITULATION of the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—**Nova Scotia**—*Concluded.*

COUNTIES.	KINDS OF FISH.												FISH PRODUCTS.					VALUE.
	Cod Tongues and Sounds, brls.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Squid, barrels.	Smelt, lbs.	Eels, barrels.	Lobsters, Cans.	Fish, Oil, gallons.	Hake Sounds, lbs.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.	
District No. 3.																		$ cts.
Annapolis	29	912	2693	3375	30748	5	1840	4700	....	.....	9	.....	4071	2570	351	31425	70	95,738 10
Digby	80	39683	57125	58180	210000	3	.....	500	....	1000	24	22896	94800	24780	.....	17145	8090	1,090,983 02
King's	.....	567	.....	780	1500	418	.....	1750	....	9000	10	.....	550	.....	.....	737	1700	43,490 50
Lunenburg	570	3695	3375	10285	466590	14	.....	1390	353	10825	161	286238	80325	1225	26	2217	266	1,023,992 56
Queen's	44	60	550	517	11260	25	.....	8050	60	27100	222	121088	11696	.....	.....	2056	1617	167,493 96
Shelburne	.....	3979	.....	10589	154800	.....	.....	6525	....	10000	72	318742	29864	.....	.....	13784	.....	616,303 64
Yarmouth	114	5970	20	7985	103720	8	.....	2950	....	44500	488	192064	25168	.....	.....	605	900	558,785 88
Total	837	54866	63763	91711	978618	473	1840	25865	413	102425	986	941028	246474	28575	377	39686	12643	3,595,987 66

Added to above:—

Annapolis—Fresh lobsters	$ 9,135 00	
Digby—Live lobsters shipped to United States	67,135 00	
Fresh haddock		
Finnan haddies		
Lunenburg—Clams	1,000 00	
Scallops		
Queen's—Live lobsters shipped to United States	3,945 00	
Clams		
Shelburne—Live lobsters shipped to United States	115,730 00	
Fresh mackerel do		
Yarmouth—Live lobsters do	57,200 00	
Smoked alewives		
		254,145 00
Total		$ 3,850,133 66

RECAPITULATION OF THE YIELD OF THE FISHERIES FOR DISTRICT No. 3, **Nova Scotia**, 1889.

Kinds of Products.		Quantities.	Rate.	Value.
			$ cts.	$ cts.
Salmon, fresh	lbs.	87,165	0 20	17,433 00
do smoked	lbs.	1,065	0 20	213 00
Mackerel, pickled	brls.	10,318	15 00	154,770 00
do shipped, fresh	fish.	542,500	0 06	32,550 00
Herrings, pickled	brls.	56,670	4 00	226,680 00
do smoked	boxes.	34,130	0 25	8,532 50
Alewives, pickled	brls.	12,949	4 50	58,270 50
do smoked	fish.	150,000	80c. per 100	1,200 00
Cod, dried	cwt.	396,976	4 00	1,587,904 00
do tongues and sounds	brls.	837	10 00	8,370 00
Pollock, dried	cwt.	54,866	4 00	219,464 00
Hake, dried	cwt.	63,763	4 00	255,052 00
do sound	lbs.	28,575	1 00	28,575 00
Haddock, dried	cwt.	91,711	4 00	366,844 00
do fresh	lbs.	750,000	0 04	30,000 00
Finnan haddies	fish.	140,000	0 08	11,200 00
Halibut	lbs.	978,618	0 10	97,861 80
Shad	brls.	473	10 00	4,730 00
Bass	lbs.	1,840	0 06	110 40
Trout	lbs.	25,865	0 10	2,586 50
Squid	brls.	413	4 00	1,652 00
Smelt	lbs.	102,425	0 06	6,145 50
Eels	brls.	986	10 00	9,860 00
Lobsters, preserved	cans.	941,028	0 12	112,923 36
do shipped alive	tons.	2,602	35 00	91,070 00
do do	fish.	2,147,500	0 04	85,900 00
Fish oil	galls.	246,474	0 40	98,589 60
do guano	tons.	377	35 00	9,425 00
do used as bait	brls.	39,686	1 50	59,529 00
do do manure	brls.	12,643	0 50	6,321 50
				*2,225 00
				3,595,987 66

*Miscellaneous. *See* County Returns—

Clams, Lunenburg	600 00
do Queen's	1,225 00
Scallops, Lunenburg	400 00
	2,225 00

TABLE showing the Number and Value of Vessels and Boats, Nets and Weirs, engaged in the Fisheries of District No. 3 of **Nova Scotia**, and Approximate Estimates of other Material not included in the Returns.

Articles.	$ cts.	$ cts.
399 vessels		1,242,945 00
4,492 boats		116,582 00
1,077,700 square fathoms of nets		199,325 00
110 weirs		54,965 00
		1,613,817 00
Canning Establishments	55,300 00	
Seines not included in above	7,700 00	
Lobster traps and nets	30,000 00	
Steamers and smacks	9,100 00	
Smoke houses, &c	2,400 00	
		104,500 00
		1,718,317 00

RECAPITULATION of the yield of Fisheries in the whole Province of **Nova Scotia**, 1889.

Kinds of Fish.		Quantities.	Value.	Total.
			$ cts.	$ cts.
Salmon, pickled	brls	2,377	38,032 00	
do fresh	lbs.	407,454	81,490 40	
do smoked	do	7,516	1,503 00	
do preserved in cans	do	9,784	1,466 80	
				122,492 20
Mackerel, pickled	brls.	43,038	586,317 00	
do preserved in cans	lbs.	62,258	7,470 40	
do fresh	No.	542,500	32,550 00	
				626,337 40
Herrings, pickled	brls.	127,605	529,432 00	
do smoked	boxes	35,835	8,958 50	
do in cans	lbs.	5,760	691 20	
				539,081 70
Alewives	brls.	22,858	102,862 00	
do smoked	No.	150,000	1,200 00	
				104,062 00
Cod, dried	cwt.	587,558	2,350,232 00	
do tongues and sounds	brls.	1,328	13,280 00	
				2,363,512 00
Pollock	cwt.	56,326		225,304 00
Hake	do	79,690	318,760 00	
do sounds	lbs.	42,328	42,328 00	
				361,088 00
Haddock, dried	cwt.	115,581	462,324 00	
do fresh	lbs.	750,000	30,000 00	
do finnan haddies	No.	140,000	11,200 00	
				503,524 00
Halibut	lbs.	1,155,920		115,592 40
Shad	brls.	1,012		9,585 00
Bass	lbs.	251,541		1,608 40
Trout	do	148,446		14,844 80
Squid	brls.	11,360		45,440 00
Smelts	lbs.	480,760		28,845 50
Eels	brls.	3,468		34,680 00
Oysters	do	2,532		7,596 00
Lobsters, in cans	lbs.	6,181,763	741,811 80	
do fresh	tons.	2,602	176,970 00	
do alive	No.	2,147,500		
				918,781 80
Fish oil	galls.	368,290		147,315 80
Guano	tons.	661		16,525 00
Fish used as bait	brls.	59,102		88,653 50
do manure	do	18,256		9,127 50
Clams				1,825 00
Scallops				400 00
Fish sold in Halifax market, not included above				40,500 00
do consumed in Richmond Co., not included above				20,000 00
Total Value, 1889				6,346,722 00
do 1888				7,817,030 42
Decrease				1,470,308 42

APPENDIX No. 4.

NEW BRUNSWICK.

DISTRICT No. 1.

REPORT ON THE FISHERIES OF THE COUNTY OF CHARLOTTE, NEW BRUNSWICK, FOR THE YEAR 1889, BY INSPECTOR JOHN H. PRATT.

ST. ANDREWS, N.B., 31st December, 1889.

To the Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR, I have the honor to submit herewith my first annual report on the fisheries of the western division of New Brunswick, together with condensed reports of the several fishery officers and tabulated statements of product and values.

These reports show a falling off in the total catch, due mainly to a less vigorous prosecution of the fisheries, and a large reduction in the demand for sardine herring which were never so plentiful as this season; but the prices dropped so low that it would not pay the outlay necessary to rebuild many badly damaged weirs.

On the St. Croix River, there are thirteen sawmills, some of which are on the United States side of the river; each of these allowing their sawdust to escape into the stream. It has been exempted from the operations of the Statute prohibiting sawdust from being thrown into rivers; but, as the output of lumber is annually decreasing, this evil will ultimately enact its own cure. The cotton mills are also situated on this river and allow the contents of their dyehouse vats (when the dyeing operations are completed) to escape into the river; but the attention of your Department having been called to this matter in former reports, I have no doubt it will receive every attention at your hands. There were several sawmills in operation on the Magaguadavic River during the past season. It had been the custom to allow all sawdust and mill refuse to run into the river. One mill I succeeded in stopping from further dumping sawdust into the stream, and the others which are situated some distance up stream have been notified that such illegal practices shall not be allowed to continue next season with impunity.

The several close seasons have, as a general rule, been very well observed; but I regret to say that there are many fishermen who can only be kept in check by fear of the law, and who require constant and vigilant watching.

A careful personal inspection has been made of all the fishways in my division. With one or two exceptions, where slight repairs are required, they are all in excellent condition and serve the intended purposes admirably.

While on a tour of inspection, I visited Lake Utopia (a splendid sheet of water situated near St. George) and found that a party of wealthy gentlemen had erected a club-house, and intended next season to build a number of cottages, and they stated that it was their intention to plant a quantity of salmon fry next season in this lake at their own expense. Owing to its fine gravelly beds, and the lakes and streams flowing into it, it would be an unexcelled location for the reception of a quantity of the coming stock of salmon fry, and I would respectfully suggest that the Department consider favorably the advisability of planting some in this lake next season.

With reference to the salmon fry planted in the inland waters of Charlotte county, I may say that the results appear most encouraging, due to the protection given by efficient fishery officers, and the facilities afforded by these waters for

spawning purposes. Poaching which was hitherto praticed on a large scale on the St. Croix River has now been completely stopped, thanks to the earnest efforts of our border fishery officers and of those of the United States. I might mention that the State of Maine Commissioners are most anxious to assist in having this river re-stocked with salmon; they being fully aware of its many advantages for the purposes of fish culture.

SALMON.

This branch of the fisheries is confined to the Chamcook Lakes and Ste. Croix River; and as fishing is principally carried on by sportsmen, it is impossible to obtain the correct statistics. The salmon fry planted in these waters have been productive of highly gratifying results to overseers and sportsmen, and afford ample proof of the success which has attended the planting of fry in the rivers and other waters of this county.

Thorough protection and strict observance of the close seasons will ultimately lead to the end so earnestly desired by your Department, that of re-stocking the rivers and lakes of this division.

MACKEREL.

This is a fish which has been very seldom seen of late years in these waters, although the catch was large at one time and yielded fair profits; but for some unknown reason, they do not school now, and only a few were taken this season.

HERRING.

The catch of herring shows a large increase over last year, and it is quite a pleasure to report that instead of decreasing, as some confidently predicted, they swarmed into every weir and cove, in larger schools than ever. In several weirs the fish were allowed to swim in and out; the supply, which far exceeded the demand, having made prices very low. The quantity of pickled herrings was below that of last year, but frozen and smoked herrings show quite an increase. At the present time our fishermen are putting their gear and vessels in order so as to prosecute winter fishing on the Penfield shore, where herrings usually strike about the 1st day of January.

HALIBUT.

The returns show a pleasing increase in the catch of halibut over that of last year. Nearly all the fish were caught at Grand Manan, although small quantities were recently taken with trawls in St. Andrew's Bay and Penfield shores.

COD AND HADDOCK.

A decrease is noticeable in the number of these fish taken this year. This is not due to any scarcity of fish, but to a less vigorous prosecution of the fishery. All that were taken found a ready market at remunerative prices.

POLLOCK.

The returns also show a decrease in the yield of this fish. This is also attributed to a less vigorous prosecution of the fishery.

HAKE.

No change is noticeable in the catch of hake, and I am pleased to report that fishermen are still catching them in large numbers.

TROUT.

It is somewhat difficult to ascertain, with any degree of accuracy, the number of trout caught during the season, owing to these fish being mostly taken with the fly, but the returns show a large increase over last year's catch.

FROSTFISH, SQUID AND FLOUNDERS.

As shown by the returns, the catch of the above-named fish evince no material difference from last year, and our fishermen experienced no difficulty in making large hauls when prosecuting this branch of the fisheries.

SMELT AND PICKEREL.

These fisheries are not entered into with any degree of vigor in this division, the fishermen preferring the more remunerative pursuits of herring and line fishing.

SARDINES.

The number of sardine herring taken this year shows an increase over last year's returns; but, as the supply far exceeded the demand, this caused a very depressing influence on prices. There was no illegal seining nor "torching" carried on this season, owing to the means adopted by the Department to enforce the fishery regulations.

OYSTERS.

This crustacean is not a native of this division, but an experiment is being tried this season by a Montreal firm to plant several barrels of seed oysters in Passamaquoddy Bay. I have been endeavoring to obtain all possible information in reference to the artificial breeding of oysters, with a view to discover other localities where its cultivation might be successfully carried on.

LOBSTERS.

A decrease is observed in this branch of the fishing industry, due partly to its not being prosecuted with the same vigor as in former years, as well as to a slight decrease in numbers and to the statistics being made with more care than in years gone by. I have not the slightest doubt but this fishery will return to its former importance if the regulations regarding close seasons and minimum size of lobsters are strictly enforced.

Appended hereto are the reports of the several local fishery officers of this division, together with the usual statistics.

In concluding this report I have much pleasure in testifying to the ready assistance given me by the several fishery officers of this division. They have always, without a single exception, manifested an earnest desire to perform their duties, which are at times very trying, to the satisfaction of Department.

I have the honor to be, Sir,
Your obedient servant,

JOHN H. PRATT,
Inspector of Fisheries, Western Division of New Brunswick.

SYNOPSES OF FISHERY OVERSEERS' REPORTS.

Overseer McLaughlin, of Grand Manan, reports as follows:—There is an increase in herring for smoking purposes, and a slight increase in the catch of hake over last year; but in all other kinds of fish taken in the waters of Grand Manan, there is a slight falling off, except in mackerel, halibut, and haddock. The increase in the catch of herring is attributed to the building of four new weirs; all being deep water weirs which catch large medium herring. The residents are building a finer class of boats for herring fishing, and where 90 years ago the weir boats would take about five hogsheads to a boat, now one that takes less than twenty hogsheads is considered a small boat. Many of these boats are also used in line fishing. There was a slight falling off in the catch of cod and pollock; not an account of any lack of fish on the old fishing grounds, but, for some cause unknown, they refused to take the bait. This Overseer's opinion is that the fish were surfeited with herring as in

nearly every case when large fish were taken, their stomach's were found full of large herring. As a rule, there was a vigorous prosecution of the fisheries in this district; the only abuse being the slaughter of small lobsters. This seems to be an abuse which cannot be effectually reached, and this season exceeds any thing of the kind ever known before. In this officer's opinion, the lobster fishery will not be worth the money expended in its protection, until a regulation is passed compelling fishermen to have their names on their cars; all cars in which short and spawn lobsters are found to be immediately destroyed. Vigorous efforts were made to save the lobsters this season, and thousands of illegal fish were returned to the water, along with a great many legal fish. The visits of the Fisheries Protection steamer "Dream" to the waters of this distict, were a great help at that time. The several close seasons which are of great importance to the preservation of the fine fisheries of this division were only observed so far as the Overseer compelled their observance. One-third of the fishermen will comply with the law, but seizures, fines, and confiscations are the only remedies to ensure compliance with the other two-thirds.

Overseer Ash, of Beaver Harbor, reports a fair catch of line fish, about the same as last year. Sardine-herring plentiful, but so low in price that fishermen were unable to make any wages by catching them. Large herrings were extremely plentiful. Lobsters show a gain over last year's catch due to a more vigorous prosecution of this fishery. The close seasons were duly observed. The total catch is about the same as last year.

Overseer Todd, of St. Stephen, reports the total catch of fish in his district to have been below that of last year, especially that of salmon and sardine-herrings. In the case of salmon, the falling off was due to the abolishment of swing-nets, by which means all these fish were heretofore taken, except those captured with the rod. The early run of salmon was not large, but during the months of August and September immense numbers passed up the river. The catch of sardine-herring would have been as large as last year had there been a market for the fish. They could only be sold during July and August, and then the prices realized were only one-third those of 1888.

The close seasons were well observed, and the night watchman employed by direction of the Department; acting with the America Warden, entirely prevented drifting for salmon. There are five fish-ways on the St. Croix and two on Denis stream, all in good repair. That at Baring should be lengthened.

Overseer Lord, of West Isles, sends the following report: This has not been a prosperous season for the fishermen of this district. This was not due to scarcity of fish, as the catch, except that of lobsters having been fully up to the average of past seasons, but to the low prices paid for sardines. Lobsters show a large falling off, owing to the close season beginning so early in the summer. There was an abundance of sardines, the catch of some five thousand hogsheads last year having been fully doubled this season. But while prices of all kinds of line fish were fully up to the average, that for sardines, owing to the large catch, ruled very low, the same as when this business was in its infancy. The majority of the fishermen of this district being engaged in this business, feel the effect of low prices very materially. The large catch of herring and the low prices of sardines induced those who were properly situated to smoke large quantities, so that while about 10,000 boxes were reported from this district last year, there were fully 75.000 boxes this year; but prices, owing to the large amount smoked, were very low, leaving but a small profit, if any. This large catch is attributed to the protection of the spawning grounds. No fines or forfeitures are reported, fishermen as general rule, with few exceptions, being willing to observe the laws.

Overseer Campbell, of St. Andrew's Bay, reports that this year has been an unprofitable one to the fishermen of his district. The main fishing industry is the taking of sardine-herring for the American canneries at Eastport, Maine. Owing to various causes the output of those factories was small as compared with other years, while the supply of herring in St. Andrew's Bay was abundant. The fish were so plentiful in the waters of this county that buyers did not resort to the inner

bay for fish, and, as a consequence, sales were small and prices low, not averaging over $2.50 per hogshead, while some sold as low as $1. Owing to these causes, several weirs were not fished at all, nor put in order for fishing; many which were repaired were not seined once in the season. The great excitement and competition for weir priveleges of 1887 and 1888 is past and over, and not likely to come up again. There was but little more than half the weirs fished or licenses renewed in 1889 as compared with 1888. In connection with the sardine fishing, this overseer recommends that the Department fix some limit as to the size of the herring allowed to be caught—say 7 inches. Much difficulty has been experienced in preventing the wholesale use of small herrings for manure and compost.

There was not much line fishing in this district, and only for local consumption. Net herring were not very plentiful in Quoddy Bay last winter, but some were taken and prices were fair.

Lobster fishing was about the same as in 1888 and the lobsters were of a fair size. This officer was unable to find lobsters taken under the legal size, and he does not believe that any were caught smaller than 9½ inches. These are all sent fresh to the United States or to Canadian markets, and not to the factories. It is perhaps for this reason that there has been so few temptations to take the smaller fish. Numbers of cages and several large lots of lobsters ready for shipment were examined, and none found under the legal size. The present close time should be maintained for two or three years if the lobster fishery is to be preserved. There was no "torching" for herring during the year, owing to the sardine-herrings being so plentiful; but there will always be trouble whenever a scarcity of the fish makes them fetch higher prices.

Messrs. D. Hatton & Co., Montreal, oyster dealers, after a visit to our waters by one of the firm, sent down and planted several barrels of seed oysters, with the view of cultivating these mollusks. These were planted near the mouths of Digdeguash and Bocabec rivers, and the experiment will be watched with interest. This officer afforded the Messrs. Hatton all the assistance in his power in showing them over the district, and they seemed to think the trial would be a success. Land-locked salmon in Chamcook lakes are growing in numbers and size, and afforded fine sport in May and June.

Overseer Brown, of Campo Bello, reports that an average catch of all kinds of fish, except herring for smoking purposes, and lobsters. Although there were more herring smoked than usual, the greater part were bought by the hogshead from weirs in West Isles district and then smoked. Half the weirs did nothing, on account of prices for smoked herring being so low that nothing could be made by putting up smoked herring. The catch of lobsters was not so large as last year, owing to this branch of fishery not being prosecuted so vigorously as in the past. Winter herring yielded about an average catch, but the mildness of the winter injuriously affected prices. Cod, hake, haddock and pollock yielded a fair catch and prices held good. So long as the inshore fisheries of this district are protected against foreign intrusion the fish will increase and prices hold good. Should smoked herring advance in price our fishermen will do well, large stocks being held back for an advance. But should the winter be mild, they will have a hard struggle to make both ends meet. The close seasons were well observed in this district during the past year.

Overseer Barry, of St. George, reports a somewhat small catch of alewives at the head of tide on Magaguadavic River during the spring of the year. These fish are all used for home consumption; the close seasons were well observed. Trout in this district are, as a rule, taken only for sport, and not for commercial purposes. These fish were, as usual, abundant. No abuses exist of which this officer is aware. The six fish-ways—four at the lower falls, one at the second falls and one on Linton stream—are in good repair and were kept so during the season. The dam at the lower end of the fishway across the main river at Lower Falls was carried away by freshets, and the fish are likely to pass up by the main river instead of going up by the fish-way. This dam has been standing for sixty years. This officer suggests that it be rebuilt, as it would not need a very large outlay.

DISTRICT No. 2.

REPORT ON THE FISHERIES OF DISTRICT No. 2, COMPRISING THE COUNTIES OF RESTIGOUCHE, GLOUCESTER, NORTHUMBERLAND, KENT AND WESTMORELAND, FOR THE YEAR 1889, BY INSPECTOR R. A. CHAPMAN.

MONCTON 31st December, 1889.

HON. CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR,—I have the honor to submit my first report on the fisheries of the counties of Restigouche, Gloucester, Northumberland, Kent and Westmoreland, in the Province of New Brunswick, for the year 1889, with extracts &c., from the reports of local fishery officers. The returns show an actual increase in quantity over last year, though, owing to causes given in my special report, there is no corresponding increase in the sum total. I am quite sure, from the best information I have been able to collect from all parts of my district, that what is wanted is thorough protection during the spawning time of the different kinds of fish, and if this is thoroughly done there is very little to fear from over-fishing. In this connection I would beg to recommend that all rivers (in which fish breed) should be at once opened by proper and efficient fish-ways wherever mills are built thereon, and, that the law and regulations in force against throwing sawdust and other refuse in such streams be strictly enforced.

SHAD.

There is an immense increase over the catch of last year, but to renew the nearly exhausted supply of this fine fish it is absolutely necessary to make a regulation prohibiting their being taken before 1st July. These fish come into St. John harbour during the latter part of May, and what are not caught go up into fresh waters to spawn during the first half of June, and then proceed up to the feeding grounds, arriving about the 20th of June in Westmoreland, Cumberland, &c. It is not over-fishing that has destroyed the once lucrative Shad fishery, but the catching of gravid fish in St. John River and harbor during the month of June, when they are on their way to the spawning grounds.

SALMON.

The returns show a falling off in the Miramichi, but a small increase in most other districts; yet the run of salmon in nearly all of the rivers, and especially in the Miramichi was greater this fall than for many years. It cannot be that over-fishing has much to do with the supply, when we consider that the whole reported catch is only equal to about 120,000 fish, or about what the spawn of fifteen or twenty full grown parent fish would produce under favorable circumstances. No doubt some years a large proportion of spawn is lost from natural causes, and in other years more mature; consequently, we will have years of scarcity and years of plenty, but certainly what is wanted is good protection of the parent fish, as well as of the spawning grounds, and with this I am satisfied there is little danger of over-fishing on the coasts, whatever there may be in the estuaries and rivers.

BASS.

I can say little about this fish until the result of present regulations has developed.

HERRINGS.

An increase is reported in the quantity of herrings taken, and there seems to be no scarcity of or diminution in this very important local food product.

SMELTS.

The catch of 1888, was very large, but the fish were smaller in size, I believe, than usual; and this year, I have been among the fishermen, and find the fish exceedingly small, and consequently only worth about half of last year's prices. It would appear from this that smelts are being over-fished, and that some scheme should be devised to prevent the great increase which is yearly taking place in the number of bag nets.

COD.

A marked increase is reported in the catch of this staple fish, especially in Gloucester County, where people appear to be giving more attention to this fishery than ever heretofore.

MACKEREL.

There is again a very small catch to report of this valuable product of the sea, due more, it would appear, to the uncertain movements of these fish than to any general scarcity, as large numbers were reported on the coast of Nova Scotia late this season.

TROUT.

The same may be said of trout as of salmon with reference to protection, &c., but this is rendered very difficult, owing to provincial and reparian rights on small streams.

LOBSTERS.

The past has been a fair year for this fishery, but I am satisfied from the full enquiries I made that something must be done to prevent the using of so many small lobsters when the officers are not around, and in connection with this matter I would beg to suggest that the traps be made with slats so open and nets with meshes sufficiently large as to allow of undersized ones to escape. There is no doubt but the destruction of useless small fish is very large.

OYSTERS.

The oyster beds in Gloucester and Northumberland are very productive, and appear to be increasing rather than diminishing; but most of the local officers say that winter fishing has destroyed the beds in Kent and Westmoreland, and that it will do the same in the first mentioned counties, if allowed, as the small fish are left on the ice to perish, in place of being put back into the water.

SYNOPSES OF FISHERY OVERSEERS' REPORTS.

RESTIGOUCHE COUNTY.

Overseer J. A. Verge, of the River Division, reports the catch of salmon for 1889 as amounting to 71,200 lbs., against 55,116 lbs. for 1888, an increase of 16,084 lbs. There was no big run of fish at any time, but a fairly good daily catch of fine, large fish. The Sunday close time was well observed, the licensees doing their best to comply with the Fisheries Act and regulations.

Overseer A. McPherson, of the Coast Division states that the catch of salmon in his district while still under the average, was better than last year. He reports a further decline in the quantity of lobsters taken year by year and that this valuable fish appears to be getting scarcer. He suggests a change in mode of building lobster traps, which if it were enforced, would in his opinion enable all undersized lobsters to escape—that is by leaving a space of about 2 inches between the bottom of the traps and the laths on both sides. Any lobster that could pass through that space would be

practically useless to packers. There are at present no fish-ways in this districts. One was built on Charlo River and carried away by last fall's freshet. The owner has been notified to replace it.

GLOUCESTER COUNTY.

Overseer F. Comeau reports the present year as rather an off one as regards the salmon fishery in his district. In his opinion, the fish are not so well protected on the spawning grounds as they should be, and are over-fished in the streams. The regulations are carefully observed.

There is a large increase in the catch of codfish, due to a more vigorous prosecution of this fishing. Lobster fishing is getting worse every year. The only way of saving this fishery is to get the canners to make their traps with the slats for enough apart to allow of the small ones escaping.

Overseer Hickson reports, that the fishermen had a good average year, codfishing particularly, being above the average. The coast salmon fishery shows a falling off. The angling season was a poor one. The Nepissiguit is over-fished, although the protection is good and the close time strictly enforced. It appears as if the fishermen all over the county were getting more appreciative of the policy of protection of the valuable fisheries of the coast, and there is a desire among them to meet the various regulations made by the Department much more readily than formerly.

Overseer J. Poirier reports that salmon fishing is very poor, but lobster fishing something better than last year.

Overseer G. Cormier reports an increase in the catch of codfish of about 11,000 quintals. The yield of other fish is about the same, except a small increase in mackerel. There was a good run of fall herrings but codfish being abundant, the fishermen neglected the former for the latter.

Overseer Joseph L. Hache reports fishing as very successful—Cod, smelt, and trout show an increase over last year, but oysters are something less.

Overseer Adolphe Ache reports the catch of salmon during season just passed as very poor. Herring were plentiful in the spring but the fall fishery almost completely failed, owing to the large fleet of Nova Scotia and Prince Edward Island schooners surrounding the Miscou banks with their innumerable nets and preventing our fishermen having access to the fishing grounds. The quantity of codfish taken would have been much larger only for the want of bait. There is a falling off in the catch of lobsters.

Overseer A. Boyd reports a small increase in lobsters and cod, and states that, the regulations were well observed.

Overseer W. Walsh's returns show that there is little change in his district from last year.

Overseer Olivier Robichaud reports an increase in the catch of smelts, lobsters, mackerel, codfish and hake; lobsters about the same.

NORTHUMBERLAND COUNTY.

Overseer Prudent Robichaud reports codfishing as very good during the summer but indifferent in the fall, owing to stormy weather. Salmon struck in early and fishing was good for a time, but owing to stormy weather the whole catch falls short of last year's. Mackerel fishing better than last year.

Overseer J. Stymest reports a very small catch of salmon, a fair one of lobsters, but fish very small; a good take of smelts, but smaller than formerly.

Overseer J. Noble reports a falling off in most kinds of fish in his district, except oysters.

Overseer J. G. Williston reports salmon fishing very poor, not much over half that of last year. Fishermen attribute this to continuous southerly winds. A very heavy run went up the main river this fall, but owing to low freshets very few salmon went up the small streams. Smelts are holding their own wonderfully well, and in his opinion, if present regulations are not altered, it will be all right; but the spring fishing is injurious. He reports a large catch of oysters, and suggests a tax of about

$1. on each rake or tongs, to enable fishery officers to have better control of this very valuable fishery.

Overseer W. Wyse reports a smaller catch of salmon, and no material change in other kinds of fish in his district.

Overseer J. Hogan reports a very small catch of Salmon, owing partly to an early spring, and the first run entering the river before the fishermen thought of putting out their nets and urges increased protection in this connection. He says that, notwithstanding, all his efforts, the spring run was largely interfered with by poachers, there being no guardians on until the middle of September, and this would seem to imply that a smaller quantity of ova was deposited than usual, as fewer grilse were observed than in formeryears. If restrictive and protective measures are not made to keep pace with the legal and illegal methods of destruction, this fishery must soon be one of the past. Moreover, to silence adverse popular criticism respecting the manner in which fry are transported and deposited in June, this officer suggests that the inspector be authorized to superintend the work, in order that more frequent renewals of water be made and more attention given to the temperature of that the water. The quantity of bass taken was about the same as last year, but the average weight greater, pointing to a scarcity of young fish, a fact well explained by the unprecedented destruction of bass fry four or five years ago, as well as by the continual drain made on them since by the smelt bag-nets. It is to be hoped that this important industry will be revived through the wholesome provisions lately put in force by the Department.

Overseer Thos. Parker reports a poor run of salmon during the early part of the season, but a good one in the fall. He urgues increased protection.

KENT COUNTY.

Overseer L. Guimond reports a large increase in the catch of salmon. Mackerel, herring, cod, hake, and eels were about the same as last year There a falling off in smelts, owing to soft weather during the month of December. Oysters are being entirely ruined by winter raking and this overseer strongly urges its prohibition. Lobsters are about the same as last year. Salmon were plentiful in Kouchbouquac River this fall, but they could not get up to the spawning grounds for want of fish-ways.

Overseer W. F. Hannah reports very little change in this season's fishing from last year's. There is an improvment in the salmon and lobster fisheries, but trout, bass, eels, &c., are about the same. The regulations were well observed.

Overseer M. A. Girouard reports the catch of herrings, alewives, cod, hake and flounders as having been below that of last year, but mackerel, trout, smelts, eels, oysters and lobsters were caught in larger quantities, and as prices were good, fishermen are well satisfied.

Overseer C. Cormier says that the catch of herring was good; that of mackerel small, though something better than last year; lobsters more plentiful, and packers did very well, and appear satisfied with the close season. The oysters are still on the decline, and it cannot be otherwise so, as long as they are fished in winter. The catch of smelt was better than last year's. The other kinds of fish about the same. The close seasons were generally well observed, with the exception of two parties who were fined for having lobsters in possession under the legal size. There is only one fishway in this district, on Cocagne River, and it was kept open during the season.

Overseer A. T. LeBlanc reports the close season for trout as having been well observed. The proximity of Canaan River to Moncton, and its easy access by rail, makes it a desirable place for sport.

WESTMORELAND COUNTY.

Overseer W. B. Deacon reports that fifteen lobster factories were operated in his district, being two more than last year. More factories are being built for next year's operations, last season having been a remarkably favorable one for the packers, and a fair pack was made of 188,784 pounds more than in 1888. The

mackerel fishery was a total failure, and it is no wonder, while the food fishes are being slaughtered as they are. The catch of smelt is large, as compared with last year, but small when compared with 1887. The fish were very small, a good fair-sized smelt being seldom caught now. Fair quantities of other fish were taken. Complaints came to this office, last summer, about people putting nets across streams to catch trout. He paid but little attention to them, as he wanted to keep expense down, and the parties would not furnish evidence to convict.

Overseer R. Goodwin reports the whole yield of his division as a little in excess of last year's, not that the catch was better, but prices on the whole ranged high. The river fisheries were pretty good, especially the alewives, which have not been so plentiful for the past twenty years. Large numbers were taken, and they were of excellent quality. Trout and smelts are plentiful, and some good catches were made. The shad fishermen of Sackville, &c., want a close time made from 15th June to 1st July all over the Province, to prevent the destruction of this fish during the spawning season. The several close seasons were well observed. The abuses arising from sawdust are becoming less every year. There are no fish-ways at present on any of our streams, the last one, on Tidnish River, having been carried away by a freshet two years ago. This officer recommends that fish-ways be put in Port Elgin and Tidnish river as soon as practicable.

Overseer D. T. Cormier reports the catch of shad and salmon as being larger than last year, and urges a close season to 1st July to prevent the wholesale destruction of fish before spawning time.

I have the honor to be, Sir,
Your obedient servant,

R. A. CHAPMAN,
Inspector of Fisheries for District No. 2.

DISTRICT No. 3.

REPORT ON THE FISHERIES OF DISTRICT No. 3, COMPRISING THE COUNTIES OF VICTORIA, CARLETON, YORK, SUNBURY, QUEEN'S KING'S, ST. JOHN AND ALBERT, FOR THE YEAR 1889, BY INSECTOR DAVID MORROW.

HON. CHARLES H. TUPPER,
Minister of Marine and Fisheries.

OROMOCTO, 31st December, 1889.

SIR,—I have the honor to submit herewith the first annual report of the fisheries of District No. 3, New Brunswick, for the year 1889, with condensed reports from local officers. Appended to these are returns of the catch of the several districts in each county, and in the whole district, with comparative statements of Albert and St. John counties for each year since 1885; also, a comparative statement of the catch in the district for the last five years. By these returns it will be seen that there has been an aggregate falling off in the total value of the catch during the past year of $114,622.50, as compared with the previous year, the total value in 1888, having been $290,707.50, and for 1889, $176,085.

SALMON.

The returns show a falling off of about 20,000 pounds. If net fishing in non-tidal waters had not been prohibited there is no doubt but the catch of this fish would have been considerably increased over that of last year. Over-fishing is causing a steady decline in this fishery. At St. John, in the harbor below the falls, and in the bay, salmon fishing is pursued by about 100 boats, with over 70,000 fathoms, or 80 miles of nets. How any fish can escape is a wonder. Should salmon continue to

decrease, it might be advisable to prohibit the catch of these fish for one to three years, giving the fishermen a year's notice, and stock the streams and rivers with young fish by artificial culture.

BASS.

This fish shows a decrease of nearly 60,000 pounds. The principal bass fishery is in Belle Isle Bay, King's County, and the fish are caught only in a small part of this water. It is probable that they are over-fished.

SHAD.

The returns show a slight improvement in this fishery as compared with last year. Comparative statements for the last years go to show that they are steadily decreasing in this district. The returns for Albert County indicate that these fish must have abandoned the head of the Bay of Fundy. In 1889 the returns give 25 barrels; in 1888 the catch amounted to 30 barrels; in 1885 the take was 3,900 barrels. It is therefore unreasonable to suppose that over-fishing could have so effectually destroyed this valuable fishery at the head of the Bay.

ALEWIVES.

These fish show a decrease of 745 barrels, as compared with last year's catch. The close time from Friday night to Monday morning must have a benefical effect on this fishery, and the regulation should be strictly enforced.

TROUT.

All the lakes and streams of this district abound in trout. Few are caught for market. The regulations extending the close time to the 1st of May will prevent fishing through the ice when the fish are in poor condition. As fishing is confined to angling, no great danger of exhaustion exists.

PICKEREL AND PERCH.

Pickerel are still increasing in the St. John River and tributaries. They prefer lakes, ponds and dead water streams with soft mud bottoms. The catch of perch is not equal to that of last year. Both these fish are plentiful in the waters of Sunbury and Queen's counties. I would recommend a close time of three months, to cover the spawning season.

COD, POLLOCK, HAKE AND HADDOCK.

The returns of these fish show a small increase over the catch of last year.

HERRING.

The yield is very much below that of last year, and the prices lower. This accounts in part for the small catch.

Large numbers of spawned herring were taken on the Nova Scotia side of the bay, and sold cheap to fish dealers. If allowed to continue, this practice will be the means of driving good herring out of our market.

LOBSTERS.

The returns show a falling off from last year. The catch of 1889 is a little more than one-fourth that of 1887. Overseer O'Brien, of St. John, says that "lobsters are being over-fished. There is one continuous line of traps from Point Lepreau to Split Rock and from Black Rock to Quaco." The rapid falling off in the product of this fishery, in both size and numbers, demands investigation and attention. Should the diminution continue in the future as in the past, this industry must soon become extinct. At present, there appears to be no possible remedy, beyond that of restricting the catch for a greater or less period of time. The most simple regulation would be one absolutely prohibiting for a certain time the capture of lobsters.

SYNOPSES OF FISHERY OVERSEERS' REPORTS.

ALBERT COUNTY.

Overseer Stewart reports the total value of the catch for this county at only $620. He says that salmon were late coming into the fresh waters, owing to the lowness of the streams, but that they reached here in large numbers. On the whole, they were well protected against poachers. The fish-ways were kept open and in repair, and fish were constantly passing to and fro through them. This officer recommends that tightbrush weirs, such as are used along our shores, be prohibited, as they destroy the young fish.

CARLETON COUNTY.

Overseer Lindsay, whose district includes that part of the Main South-West Miramichi River, in this county, reports that gaspereaux arrived in immense numbers in May, and after leaving the Main South-West, twelve miles below the Forks, entered Lake Brook, and passed up to the lake called after their name, to spawn. Next to arrive are the sea trout. They reached the head of the river during the first days of June; and, though found in every part of the waters, Bedell Brook, a large tributary of the North Branch, is their favorite stream. Last of all come the salmon, during the latter part of June. The river kept exceptionally low for the greater part of the season, but just at the beginning of the close season heavy rains fell, and continued falling in such quantity, and the water was so high, that illegal fishing was impossible. No rubbish is placed in the water. The catch is about the same as in other years, and the fish are increasing. Sportsmen from all parts of the Province and the United States frequent these waters.

Overseer Burtt reports the run of salmon about the same as usual, but the number taken much less, owing to the enforcement of the regulation prohibiting net-fishing in fresh waters. The run of shad was about the same, and the quantity taken also. The abolition of net fishing in fresh waters will tend to increase illegal fishing unless the streams are closely guarded. To more effectually prevent the spearing of salmon on this river, it will be necessary to have assistance.

YORK COUNTY.

Overseer Orr reports that the use of nets being confined to tidal waters, there is quite a falling off in the catch of salmon in his division. On the St. John River there are only about ten miles where nets can be used. In that distance the catch was good. This officer had some trouble in enforcing the law as to nets in non-tidal waters. Salmon were killed on the South-West Miramichi, in a pool at Rocky Brook, with dynamite. Ninety-eight salmon were killed with one charge, besides a large number of small fish. Sportsmen on the South-West Miramichi report the sport as fine, considering the low state of the water during the angling season. Salmon were very abundant in the river and larger than usual. Mr. Orr seized one from a poacher that would weigh upwards of 50 pounds. During the last part of October and in November salmon were numerous on the spawning grounds. The water had risen and the fish were not molested.

Warden Glendenning reports a decrease in the catch of trout, caused by the erection of mill-dams and the deposit of sawdust and waste lumber. The close time was strictly observed. This officer recommends the building of fish-ways in each of the three mill-dams on the north-east branch of the Magaguadavic stream, and that the mill owners be compelled to discontinue the throwing of sawdust and waste lumber in the stream.

Warden Cronkhite reports that after receiving orders that it was illegal to use nets for the capture of salmon in non-tidal waters he notified the fishermen. There are about thirty of them in this district. Some of them stopped willingly; others were very reluctant to do so. In carrying out the law, stringent measures had to be used to sustain it. If the present regulations are strictly carried out this will very much increase the number of salmon. This officer suggests prohibiting net-fishing for salmon from the mouth of the St. John River to Grand Falls, during three or four years.

SUNBURY COUNTY.

Overseer Hoben reports nearly all kinds of fish on the increase, particularly shad, gaspereaux and pickerel. The close seasons were fairly observed—as well as could be, under the old regulations. He suggests that a bounty be paid per barrel to all persons engaged fishing eels, on account of these fish damaging nets and destroying other kinds of fish. It is also his opinion that the time has arrived when a very vigilant observance of the fishery laws and regulations should be put in force by fishery officers in each district, and he recommends that the law against allowing mill owners putting sawdust in the rivers or any other place where fish are caught in this Province be strictly enforced.

QUEEN'S COUNTY.

Overseer Hetherington reports shad as being plentiful. Alewives are nearly always abundant, but the people do not prosecute this fishery to any extent. Pickerel are as abundant as ever. They cannot increase unless some restrictions are enacted. This officer recommends that no nets be used to take them having a smaller mesh than $2\frac{7}{8}$ inches, it being proved that as many pounds of fish can be taken in a net of that size, as in one of $2\frac{1}{2}$-inch mesh, and not kill more than half the number of fish, leaving the rest to grow. He also suggests that something be done by way of artificial hatching of shad, and this at once, before the present stock is exhausted. The fishery laws were tolerably well observed.

KING'S COUNTY.

Overseer Gosline reports that the unusual dry spring and summer left the water low, and that, in consequence, only a few salmon reached the spawning grounds, unusually late in the season. Shad were very numerous in the Kennebeccasis, and more than the ordinary number were taken. This officer urges the necessity of enforcing the law in reference to sawdust and mill rubbish, and says that it is impossible for fish to increase in water that is turbid with buckwheat hulls and sawdust. Farmers living below the mills are constantly complaining of damages done in their meadows by sawdust and mill rubbish.

ST. JOHN COUNTY.

Overseer O'Brien reports 72 boats fishing for salmon in the bay. Each boat fishes from 800 to 1,000 fathoms of net. They fish from Cape Spencer to the Wolves, or about 35 miles below Partridge Island, and from one to ten miles off shore. It is almost impossible for a salmon to get into the harbor, the schools being scattered and broken. In the harbor they are met with 30 boats, and from 200 to 300 fathoms of net to each boat drifting between the falls and Partridge Island, so that there cannot be any mystery as to the decrease of this fish. Gaspereaux continue to fall off. This is greatly caused by the destruction of young fish in weirs and seines. This officer is pleased to see the Department prohibiting seining for alewives and shad, a step in the right direction. Spring shad is about the same as last year, but the fall shad have nearly disappeared from our waters. This is caused by sawdust being allowed to run from the mills at the upper end of the bay, and cover the flats and bottoms of the bays where shad formerly went to feed and were caught in large numbers.

Overseer Rourke, of St. Martin's District, reports the catch of herring as small—far below that of last season. The lobster catch is a mere cipher, only one man being engaged in this branch of the fishery for a short time. The catch at Tynemouth Creek is nothing to former years. This officer had no infringements to report. The regulations were well observed.

I have the honor to be, Sir,
Your obedient servant,

DAVID MORROW,
Inspector of Fisheries, District No. 3, New Brunswick.

NEW BRUNSWICK—District No. 1.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed, &c., in District No. 1, of the **Province of New Brunswick,** for the Year, 1889.

No.	Districts.	Vessels and Boats Employed in Fishing.							Fishing Material.						Kinds of Fish.								
		Vessels.				Boats.			Nets.		Weirs.		Lobster Traps.		Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Herrings, barrels.	Herrings, frozen, per 100.	Herrings, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	
		No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.									
	Charlotte Co.			$			$			$		$		$									
1	West Isles	12	218	6500	48	260	17800	260	12000	6000	68	34000	2000	1000	150	....	2500	2000000	75000		600	....	
2	Ste. Croix	....	....	....	....	....	....	....	....	....	8	1600	....	....	....	....	25	....	1700	100	....	....	
3	Magaguadavic	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
4	Passamaquoddy	3	40	1500	11	70	1750	100	3000	1500	51	22950	1223	1223	....	....	....	2700000	2500	....	125	....	
5	Beaver Harbor	21	250	10000	100	100	2500	250	18300	15250	47	4700	3700	3700	....	....	1800	5500000	69000	....	1000	....	
6	Grand Manan	14	293	14000	50	450	40000	593	20000	10000	36	36000	8000	8000	....	10	10000	5000000	1500000	....	12000	10	
7	Campo-Bello	24	516	10478	101	114	52811	166	8323	6075	24	1580	998	572	....	....	1684	1547860	950900	....	1288	....	
	Total	74	1317	42478	310	994	114861	1369	61623	38825	234	100830	15921	14495	150	10	16009	21747860	2599100	100	15013	10	

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c., District No. 1 of **New Brunswick**—*Concluded.*

No.	KINDS OF FISH.														FISH PRODUCTS.				VALUE.
	Pollock, cwt.	Hake, cwt.	Hake, Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, barrels.	Flounders, lbs.	Smelt, lbs.	Pickerel, lbs.	Sardines, hds.	Lobsters, tons.	Lobsters, cans.	Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.	$ cts.
1	6000	1700	2200	300	500	.....	.....	.....	.....	.....	.....	10000	75	.....	11400	10	200	600	115,090 00
2	.....	.....	.....	.....	.....	3000	1000	....	.....	3500	1000	400	.....	.....	.....	.....	.....	.....	2,785 00
3	.....	.....	.....	.....	.....	5000	.....	.....	.....	2000	.....	.....	.....	.....	.....	.....	.....	.....	620 00
4	170	.....	.....	230	900	5000	.....	.....	20000	.....	.....	2140	77	.....	700	53	75	2500	33,212 50
5	6200	4500	4500	1000	.....	.....	.....	.....	2000	.....	.....	4000	172	.....	9000	160	15000	1000	160,710 00
6	5000	17000	17000	1000	40000	.....	2500	60	3000	.....	.....	1500	300	.....	40000	.....	2000	6000	642,390 00
7	3000	2216	3940	1877	.....	.....	.....	159	.....	.....	.....	115	61	48000	1119	.....	985	207	331,781 76
	20370	25416	27640	4407	41400	13000	3500	219	25000	5500	1000	18145	685	48000	62219	223	18260	10307	

Clams, 2,000 barrels	$	12,000
Home Consumption not included above.		75,000
		87,000 00
		1,373,582 26

RECAPITULATION

SHOWING Yield and Value of the different Fisheries, in District No. 1, of **New Brunswick** for the Year 1889.

Kinds of Fish.		Quantities.	Rate.	Value.
			$ cts.	$ cts.
Salmon, fresh, in ice	Lbs.	150	0 20	30 00
Mackerel	Brls.	10	15 00	150 00
Herring	"	16,009	4 00	64,036 00
do frozen	No.	21,747,860	p. 100 0 60	130,487 16
do smoked	Boxes	2,599,100	0 25	649,775 00
Alewives	Brls.	100	4 50	450 00
Cod	Cwt.	15,013	4 00	60,052 00
Cod Tongues and Sounds	Brls.	10	10 00	100 00
Pollock	Cwt.	20,370	4 00	81,480 00
Hake	"	25,416	4 00	101,664 00
Hake Sounds	Lbs.	27,640	1 00	27,640 00
Haddock	Cwt.	4,407	4 00	17,628 00
Halibut	Lbs.	41,400	0 10	4,140 00
Lobsters	Cans.	48,000	0 12	5,760 00
do	Tons.	685	30 00	20,550 00
Trout	Lbs.	13,000	0 10	1,300 00
Frost Fish	"	3,500	0 04	140 00
Squid	Brls.	219	4 00	876 00
Flounders	Lbs.	25,000	0 10	2,500 00
Smelt	"	5,500	0 06	330 00
Pickerel	"	1,000	0 06	60 00
Sardines	Hhds.	18,145	3 00	54,435 00
Clams	Brls.	2,000	6 00	12,000 00
Fish Oil	Galls.	62,219	0 40	24,887 60
do Guano	Tons.	223	25 00	5,575 00
do used as bait	Brls.	18,260	1 50	27,390 00
do do manure	"	10,307	0 50	5,153 50
do for local consumption, not in returns of districts	"	18,750	4 00	75,000 00
Total, 1889				1,373,589 26
do 1888				1,173,449 50
Increase				200,139 76

NUMBER and Value of Vessels, Boats, Nets, Weirs, Traps, &c., engaged in the Fisheries of District No. 1 of **New Brunswick** for the Year 1889.

Material.	Value.	Total.
	$ cts.	$ cts.
74 vessels (aggregate tonnage, 1,317)	42,478 00	
994 boats	114,861 00	
61,623 fathoms of nets	38,825 00	
234 weirs	100,830 00	
15,921 lobster traps	14,495 00	
smelt nets		
801 trawls	18,820 00	
		330,309 00
1 lobster factory	3,500 00	
2 sardine factories	6,500 00	
549 smoke houses	219,400 00	
78 oil presses with fixtures	3,850 00	
503 fish houses	179,570 00	
		412,820 00
Total		743,129 00

NEW BRUNSWICK—District No. 2.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed, &c., in District No. 2, of the Province of **New Brunswick,** for the Year 1889.

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.								KINDS OF FISH.									
	Vessels.				Boats.			Nets.		Weirs.		Smelt Nets.		Lobster Traps.		Salmon, brls.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, brls.	Mackerel, in cans.	Herrings, brls.	Herrings, smoked, in boxes.	Alewives, brls.	Cod, cwt.	Cod Tongues and Sounds, brls.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.	No.	Value.											
Restigouche County.			$			$			$		$		$		$											
Dalhousie to Head Tide.	..	....	.....	....	35	358	35	8100	1000	..	....	....	.....	.....	.....	..	71200	....	....	....	....	.....	....	....	.....	....
Dalhousie to Belledune.	..	....	.....	....	80	800	100	20000	6000	..	....	5	100	2500	1250	..	124400	....	5000	....	....	100	....	....	40	....
Totals.....	..	....	.....	....	115	1158	135	28100	7000	..	....	5	100	2500	1250	..	195600	....	5000	....	.....	100	....	....	40	....
Gloucester County.																										
Petit Rocher	..	....	.....	....	350	1500	700	10000	8000	..	....	....	.....	.....	.....	..	70000	....	....	15	16000	5012	....	....	1200	....
Bathurst.....	..	....	.....	....	100	2000	200	7500	6000	..	....	7	212	.....	.....	..	130000	....	....	100	.....	900	....	....	200	....
New Bandon	..	....	.....	....	100	2000	200	5000	4300	..	....	...	.....	4000	4000	..	150000	....	....	150	.....	2000	....	....	3500	....
Grand Anse	2	40	600	6	100	4000	300	3500	1200	1	500	....	.....	3750	3750	..	38000	....	....	200	2000	200	....	200	2600	8
Upper Caraquet	7	82	2300	27	137	3800	411	6080	26125	..	....	....	.....	.....	.....	..	.....	....	....	51	.....	8000	....	....	33000	....
Lower Caraquet	4	48	1700	12	142	13700	426	5660	6500	..	....	29	1160	1200	1200	..	.....	....	....	25	.....	2800	....	....	33000	....
Shippegan	20	246	8500	68	243	22500	549	10700	7400	..	....	50	1500	12100	12000	..	11380	....	....	35	3700	1540	....	....	14000	....
Miscou Island	2	27	1000	7	35	5950	133	840	420	..	....	28	728	7000	6300	..	.....	....	3160	17	3360	200	....	....	2000	....
Pokemouche	..	....	.....	....	149	3980	258	13820	6500	..	...	70	2000	.....	.....	..	10000	....	....	40	.....	2330	50	400	600	....
Tracadie	5	58	1500	19	7	650	22	27000	1350	..	....	101	1200	1600	1600	..	9780	....	580	....	3500	1850	....	250	900	2
Totals.....	40	501	15600	139	1363	60080	3199	90100	67795	1	500	285	6800	29650	28850	..	419160	....	3740	633	28560	24832	50	850	91000	10

NEW BRUNSWICK—District No. 2—*Continued.*

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c.—*Continued.*

DISTRICTS.	KINDS OF FISH—*Concluded.*																FISH PRODUCTS.				VALUE.
	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Bass, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, brls.	Flounders, lbs.	Smelt, lbs.	Perch, lbs.	Eels, brls.	Oysters, brls.	Lobsters, tons.	Lobsters, cans.	Fish Oil, galls.	Fish Guano, tons.	Fish used as bait, brls.	Fish used as manure, brls.	
Restigouche County.																					$ cts.
Dalhousie to Head Tide																					14,240 00
Dalhousie to Belledune							500				7000				4	46300			300		32,786 00
Totals							500				7000				4	46300			300		47,026 00
Gloucester County.																					
Petit Rocher											4000					56641			1200	4000	51,829 92
Bathurst							2000				300000										50,100 00
New Bandon																100000			700		67,300 00
Grand Anse									20							88000	2600		1000	400	36,400 00
Upper Caraquet	140	840	100	800			1000		20				10				3000		4500	500	175,125 00
Lower Caraquet	500		100	200			500				36024		10	3900		50400	23900		1500	500	178,114 44
Shippegan	1200	2700	730								69290					147300	9200		3500	5200	109,188 90
Miscou Island	25										59580					22232	1000		600	500	17,824 84
Pokemouche					5	300	2000				22500		50				120				18,298 00
Tracadie	250	1½	70				650				121200		24		16	3200	120				24,378 50
Totals	2115	3541½	1000	1000	5	300	6150		40		612594		94	3900	16	467773	39940		13000	11100	728,559 60

NEW BRUNSWICK—District No. 2—*Continued.*

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c.—*Continued.*

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.								KINDS OF FISH.										
	Vessels.				Boats.			Nets.		Weirs.		Smelt Nets.		Lobster Traps.		Salmon, brls.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, brls.	Mackerel, in cans.	Herrings, brls.	Herrings, smoked, in boxes.	Alewives, brls.	Cod, cwt.	Cod Tongues and Sounds, brls.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.	No.	Value.											
Northumberland County			$			$			$		$		$		$											
Neguac to Portage Isl'd	..	....	.....	....	100	2100	115	11234	3360	..	....	22	880	.....	.....	..	61764	....	....	70	.....	2400	....	....	500	....
Tabusintac	..	....	.....	....	5	150	10	364	250	..	....	122	2060	1000	1000	..	400	....	....	.....	.....	213	....	230	.....	....
Escuminac	..	....	.....	....	42	840	60	4450	4000	..	....	50	1500	8000	8000	..	41330	....	100	100	.....	.....	....	80	500	....
Bay du Vin	2	95	4000	10	150	3000	400	12000	3600	..	....	124	2480	.....	.....	..	21880	....	....	.....	.....	300	....	250	.....	....
Chatham	10	300	15000	40	105	1525	105	9000	4500	..	....	350	10800	.....	.....	..	64380	200	....	100	.....	.....	....	1000	.....	....
Newcastle & North Esk.	..	....	.....	....	....	.....	....	1615	2300	..	....	38	950	.....	.....	..	44577	....	....	.....	.....	.....	....	200	.....	....
Derby, &c	..	....	.....	....	....	.....	....	2080	624	..	....	....	.....	.....	.....	30	30010	1600	....	.....	.....	.....	....	520	.....	....
Totals	12	395	19000	50	402	7615	690	40743	18634	..	....	706	18670	9000	9000	30	264341	1800	100	270	.....	2913	....	2280	1000	....
Kent County.																										
Eel River to Kouchibouguacis	..	....	.....	....	180	6000	500	10000	7000	..	....	100	3600	11000	11000	..	30000	....	....	75	5000	3000	....	225	200	...
Thence to Chockfish Riv.	9	144	4320	54	288	8640	576	20400	6120	..	....	188	5640	6290	6290	..	12000	....	400	621	.....	3024	....	940	1500	....
Richibucto River and Branches	..	....	.....	....	7	140	14	1800	700	..	....	47	1100	.....	.....	..	.....	....	....	.....	.....	.....	....	780	.....	....
Buctouche River & Bay	..	....	.....	....	122	2838	244	6860	2340	..	....	127	4550	2225	2225	..	.....	....	....	103	624	830	....	125	105	....
Cocagne River and Bay	..	....	.....	....	280	5600	560	17000	8500	..	....	38	760	2946	2946	..	.....	....	....	25	.....	2500	....	65	25	....
Canaan River	..	....	.....	....	9	20	4	.....	.....	..	....	.....	.....	.....	.....	..	.....	....	....	.....	.....	.....	....	.....	.....	....
Totals	9	144	4320	54	886	23238	1898	56060	24660	..	...	500	15650	22461	22461	..	42000	....	400	824	5624	9354	....	2135	1830	....

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c.—*Continued.*

DISTRICTS.	KINDS OF FISH—*Concluded.*																FISH PRODUCTS.				VALUE.
	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Bass, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, brls.	Flounders, lbs.	Smelt, lbs.	Perch, lbs.	Eels, brls.	Oysters, brls.	Lobsters, tons.	Lobsters, cans.	Fish Oil, galls.	Fish Guano, tons.	Fish used as bait, brls.	Fish used as manure, brls.	
Northumberland County.																					$ cts.
Neguac to Portage Isl'nd	200	200	..	600	....	10346	400	.....	....	800	69224	.....	40	90	.....	.....	400	....	.....	800	32,187 00
Tabusintac	....	.....	....	.....	....	.....	1000	.....	....	.....	429600	.....	90	100	.....	18780	.....	....	300	.....	31,746 60
Escuminac	250	.....	....	.....	....	.....	.....	.....	....	1000	104000	.....	....	3000	.....	165000	.....	....	1600	.....	50,681 00
Bay du Vin	....	.....	....	....	10	.....	.....	70000	....	40000	215422	.....	20	8500	.....	.....	.....	....	.....	600	52,526 32
Chatham	....	.....	....	....	10	1000	500	120000	....	6000	700000	.....	500	500	.....	.....	.....	....	.....	2000	74,026 00
Newcastle & North Esk.	....	.....	....	....	1	4000	300	.....	....	.....	73924	.....	22	.....	.....	.....	.....	....	.....	.....	14,750 84
Derby, &c.	....	.....	....	....	....	.....	750	.....	....	.....	.....	.....	....	.....	.....	.....	.....	....	.....	.....	9,217 00
Totals	450	200	....	600	21	15346	2950	190000	....	47800	1,592,170	.....	672	12190	.....	183780	400	....	1900	3400	265,134 76
Kent County.																					
Eel River to Kouchibouguacis	700	700	....	....	5	600	.....	.....	....	2000	138409	10000	125	300	.....	196000	300	100	3000	.. ...	66,718 04
Thence to Chockfish Riv.	2500	4900	....	4500	14	1800	1480	.....	....	3500	520000	.....	94	320	....	192000	480	....	2400	.....	110,129 00
Richibucto River and Branches	....	.....	....	.....	....	780	.....	.....	....	.....	109000	.....	75	210	.....	.....	.....	....	.....	.....	11,476 80
Buctouche River & Bay.	100	180	....	.....	....	.....	3400	2500	....	4000	583900	.....	53	725	.....	69360	205	....	1125	.....	55,174 08
Cocagne River and Bay.	100	.....	100	60	....	180	250	5500	....	.....	118880	.....	45	65	.....	140688	180	....	1500	.....	38,811 66
Canaan River	....	.....	....	.....	....	.....	4000	.....	....	.....	.....	.....	5	.....	.....	.....	.....	....	.....	.....	450 00
Totals	3400	5780	100	4560	19	3360	9130	8000	....	9500	1,470,189	10000	397	1620	.....	598048	1165	100	8025	.....	282,759 58

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c.—*Continued.*

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.								KINDS OF FISH.											
	Vessels.				Boats.			Nets.		Weirs.		Smelt Nets.		Lobster Traps.													
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.	No.	Value.	Salmon, brls.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, brls.	Mackerel, in cans.	Herrings, brls.	Herrings, smoked, in boxes.	Alewives, brls.	Cod, cwt.	Cod Tongues and Sounds, brls.
Westmoreland County.			$			$			$		$		$		$												
Shediac and Botsford	..	....	.....	....	600	9000	1200	10000	10000	..	....	150	3000	10000	8000	..	400	....	....	400	500	12000	2000	....	20	....
Bay Verte to Sackville	..	....	.....	....	28	1050	56	4900	1300	..	....	24	580	54	54	..	2160	....	....	10	.....	3000	750	....	.....	....
Dover and Gautreau	..	....	.....	....	22	1100	44	5500	1100	..	....	....	.....	.....	.....	..	6108	....	....	....	.....	.....	.....	....	.....	....
Pré d'en Haut and Belliveau	..	....	.....	....	15	770	30	3750	750	..	....	....	.....	.....	.....	..	3440	....	....	....	.....	.....	.....	....	.....	....
Dorchester Cape	..	....	.....	....	....	.....	5	1000	100	..	....	....	.....	.....	.....	..	100	....	....	....	.....	.....	.....	....	.....	....
Woodpoint	..	....	.....	....	8	480	16	2000	400	..	....	....	.....	.....	.....	..	1280	....	....	....	.....	.....	.....	....	.....	....
Totals	..	....	.....	....	673	12400	1351	27150	13650	..	....	174	3580	10054	8054	..	13488	....	....	410	500	15000	2750	....	20	....
Grand Totals for District No. 2	61	1040	38920	243	3439	104491	7273	242153	131739	1	500	1670	44800	73665	69615	30	934589	1800	9240	2137	34684	52199	2800	5265	93890	10

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c.—*Concluded.*

DISTRICTS.	KINDS OF FISH—*Concluded.*																FISH PRODUCTS.				VALUE.
	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Bass, lbs.	Trout, lbs.	Frost fish, lbs.	Squid, brls.	Flounders, lbs.	Smelt, lbs.	Perch, lbs.	Eels, brls.	Oysters, brls.	Lobsters, tons.	Lobsters, cans.	Fish Oil, galls.	Fish Guano, tons.	Fish used as bait, brls.	Fish used as manure, brls.	
Westmoreland County.																					$ cts.
Shediac and Botsford	....	.....	....	....	....	1000	1000	8000	30	2000	216050	. . .	150	50	200	456672	....	....	2600	4000	136,833 64
Bay Verte to Sackville	....	.....	....	....	350	200	1000	5000	....	.....	57435	.....	12	.....	30	.....	.....	....	600	400	22,147 60
Dover and Gautreau	....	.....	....	....	440	....	.....	.....	....	.....	.....	.....	....	.....	....	.....	.....	....	.....	.....	5,621 60
Pré d'en Haut and Belliveau	....	.....	....	....	280	.....	.....	.....	....	.....	.....	.....	....	.....	....	.....	.....	...	.....	.....	3,488 00
Dorchester Cape	....	.....	....	....	20	.....	.....	.....	....	.....	.....	.....	....	.....	....	.....	.....	....	.....	.....	220 00
Woodpoint	....	.....	....	....	120	.....	.....	.....	....	.....	.....	.....	....	.....	....	.....	.....	....	.....	.....	1,456 00
Totals	....	.....	....	....	1210	1200	2000	13000	30	2000	273485	.....	162	50	230	456672	.....	....	3200	4400	169,766 84
Grand Totals for District No. 2	5965	9521½	1100	6160	1255	20206	20730	211000	70	59300	3,955,438	10000	1325	17760	250	1,752,573	41505	100	26425	18900	1,493,246 78

RECAPITULATION of the Yield and Value of the Fisheries in District No. 2, **New Brunswick.**

Kinds of Fish,		Quantity.	Price.	Value.
			$ cts.	$ cts.
Salmon	Brls.	30	16 00	480 00
do fresh	Lbs.	934,589	0 20	186,917 80
do smoked	"	1,800	0 20	360 00
do in cans	"	9,240	0 15	1,386 00
Mackerel	Brls.	2,137	15 00	32,055 00
do in cans	Lbs.	34,684	0 12	4,162 08
Herrings	Brls.	52,199	4 00	208,796 00
do smoked	Boxes.	2,800	0 25	700 00
Alewives	Brls.	5,265	4 50	23,692 50
Cod	Cwt.	93,890	4 00	375,560 00
Cod Tongues and Sounds	Brls.	10	10 00	100 00
Hake	Cwt.	5,965	4 00	23,860 00
Hake Sounds	Lbs.	9,521½	1 00	9,521 50
Haddock	Cwt.	1,100	4 00	4,400 00
Halibut	Lbs.	6,160	0 10	616 00
Shad	Brls.	1,255	10 00	12,550 00
Bass	Lbs.	20,206	0 06	1,212 36
Trout	"	20,730	0 10	2,073 00
Frost Fish	"	211,000	0 04	8,440 00
Squid	Brls.	70	4 00	280 00
Flounders	Lbs.	59,300	0 10	5,930 00
Smelts	"	3,955,438	0 06	237,326 28
Perch	"	10,000	0 03	300 00
Eels	Brls.	1,325	10 00	13,250 00
Oysters	Brls.	17,760	3 00	53,280 00
Lobsters	Cans.	1,752,573	0 12	210,308 76
do	Tons.	250	30 00	7,500 00
Fish Oil	Galls.	41.505	0 40	16,602 00
Fish Guano	Tons.	100	25 00	2,500 00
Fish as bait	Brls.	26,425	1 50	39,637 50
Fish as manure	"	18,900	0 50	9,450 00
Total				1,493,246 78

NEW BRUNSWICK—*Continued*—District No. 3.

RECAPITULATION showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed, &c., in District No. 3, of the Province of **New Brunswick**, for the Year, 1889.

COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						KINDS OF FISH.			
	Vessels.				Boats.			Nets.		Weirs.		Lobsters Traps.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Salmon, smoked, lbs.	Herrings, barrels.	Herrings, frozen, per 100.
District No. 3.			$			$			$		$		$				
Albert					2	100	4	500	200					1000			
Victoria					20	200	40	500	400					5000			
Carleton					55	850	110	600	350					7000			
York					73	1030	72	250	125					12800			
Sunbury	1	6	150	4	69	690	138	1610	785					750			
Queen's	1	6	150	4	194	3340	388	11475	3725					2950			
King's					44	440	42	2700	1176					15000			
St. John	19	370	7770	76	242	5040	454	75120	55060	24	9000	3528	3525	140000	2500	13033	500000
Totals	21	382	8070	84	699	11690	1248	92755	61821	24	9000	3528	3525	185500	2500	13033	500000

RECAPITULATION showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, &c., in District No. 3 of **New Brunswick**—*Concluded.*

COUNTIES.	KINDS OF FISH.															FISH PRODUCTS.		VALUE.
	Herrings, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollock, cwt.	Hake, cwt.	Haddock, cwt.	Shad, barrels.	Bass, lbs.	Trout, lbs.	Pickerel, lbs.	Perch, lbs.	Eels, barrels.	Lobsters, tons.	Fish Oil, gallons.	Fish used as bait, barrels.	
District No. 3.																	$ cts.
Albert								25		2000							650 00
Victoria								25		10000		500					2,265 00
Carleton								50		16000		1000	1				3,540 00
York								30	2000	8000	12000	2000	100				5,560 00
Sunbury		470						50	9900		42000	4000	10				6,099 00
Queen's		920						690	2300		64900	6000	70				16,532 00
King's		870				25		230	50400	1000	38000	1200	102				15,975 00
St. John	13000	5780	1100	20	500	500	2000	1500	3000	1500			60	100	1000	500	149,582 00
Total	13000	8040	1100	20	500	525	2000	2600	67600	38500	156900	14705	343	100	1000	500	200,203 00

RECAPITULATION of the Yield and Value of the Fisheries in District No. 3—New Brunswick.

Kinds of Fish.		Quantity.	Price.	Value.
			$ cts.	$ cts.
Salmon, fresh	Lbs.	185,500	0 20	37,100 00
do smoked	do	2,500	0 20	500 00
Herring	Brls.	13,033	4 00	52,132 00
do frozen	No.	500,000	60c. per 100	3,000 00
do smoked	Boxes	13,000	0 25	3,250 00
Alewives	Brls.	8,040	4 50	36,180 00
Cod	Cwt.	1,100	4 00	4,400 00
Cod tongues and sounds	Brls.	20	10 00	200 00
Pollock	Cwt.	500	4 00	2,000 00
Hake	do	525	4 00	2,100 00
Haddock	do	2,000	4 00	8,000 00
Shad	Brls.	2,600	10 00	26,000 00
Bass	Lbs.	67,600	0 06	4,056 00
Trout	do	38,500	0 10	3,850 00
Pickerel	do	156,900	0 06	9,414 00
Perch	do	14,700	0 03	441 00
Eels	Brls.	343	10 00	3,430 00
Lobsters	Tons.	100	30 00	3,000 00
Fish oil	Galls.	1,000	0 40	400 00
Fish as bait	Brls.	500	1 50	750 00
Total for 1889				200,203 00

RECAPITULATION by Counties showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—
New Brunswick—*Continued.*

COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.								KINDS OF FISH.	
	Vessels.				Boats.			Nets.		Weirs.		Smelt Nets.		Lobster Traps.			
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	No.	Value.	No.	Value.	No.	Value.	Salmon, barrels.	Salmon, fresh, in ice, lbs.
			$			$			$		$		$		$		
Restigouche	....	....	....	....	115	1158	135	28100	7000	....	....	5	100	2500	1250	.....	195600
Gloucester	40	501	15600	139	1363	60080	3199	90100	67795	1	500	285	6800	29650	28850	.....	419160
Northumberland	12	395	19000	50	402	7615	690	40743	18634	....	....	706	18670	9000	9000	30	264341
Kent	9	144	4320	54	886	23238	1898	56060	24660	....	....	500	15650	22461	22461	.....	42000
Westmoreland	....	....	....	....	673	12400	1351	27150	13650	....	....	174	3580	10054	8054	.....	13488
Albert	....	....	....	....	2	100	4	500	200	....	....	....	....	....	....	.....	1000
St. John	19	370	7770	76	242	5040	454	75120	55060	24	9000	....	....	3528	3525	.....	140000
King's	....	....	....	....	44	440	42	2700	1176	....	....	....	....	....	....	.....	16000
Queen's	1	6	150	4	194	3340	388	11475	3725	....	....	....	....	....	....	.....	2950
Sunbury	1	6	150	4	69	690	138	1610	785	....	....	....	....	....	....	.....	750
York	....	....	....	....	73	1030	72	250	125	....	....	....	....	....	....	.....	12800
Carleton	....	....	....	....	55	850	110	600	350	....	....	....	....	....	....	.....	7000
Victoria	....	....	....	....	20	200	40	500	400	....	....	....	....	....	....	.....	5000
Charlotte	74	1317	42478	310	994	114861	1369	61623	38825	234	100830	.....	.....	15921	14495	.....	150
Totals	156	2739	89468	637	5132	231042	9890	396531	232385	259	110330	1670	44800	93114	87635	30	1120239

RECAPITULATION by Counties showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—
New Brunswick—*Continued.*

COUNTIES.	KINDS OF FISH.																
	Salmon, smoked, lbs.	Salmon, in cans, lbs.	Mackerel, barrels.	Mackerel, in cans.	Herrings, barrels.	Herrings, frozen, per 100.	Herrings, smoked, in boxes.	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Pollock, cwt.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shads, barrels.	Bass, lbs.
Restigouche	.....	5500	.....	.....	100	.....	.....	.....	40	.....	.....	.....	.....	.....	.....	.....	.....
Gloucester	.....	3740	633	28560	24832	.....	50	850	91000	10	.....	2115	3541½	1000	1000	5	300
Northumberland	1800	100	270	.....	2913	.....	.....	2280	1000	.....	.....	450	200	.....	600	21	15346
Kent	.....	400	824	5624	9354	.....	.....	2135	1830	...	.....	3400	5780	100	4560	19	3360
Westmoreland	.....	...	410	500	15000	.....	2750	.....	20	....	....	.....	.....	.....	.....	1210	1200
Albert	.....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25	.....
St. John	2500	....	.....	.....	13033	500000	13000	5780	1100	20	500	500	.....	2000	.....	1500	3000
King's	.....	....	.....	.....	.....	.....	.....	870	.....	....	.....	25	.....	.....	.....	230	50400
Queen's	.....	....	.....	.....	.....	.....	.....	920	.....	....	.....	.....	.....	.....	.....	690	2300
Sunbury	.....	....	.....	.....	.....	.....	.....	470	.....	...	.....	.....	.....	.....	.....	50	9900
York	.....	....	.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	30	2000
Carleton	.....	....	.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	50	.....
Victoria	.....	....	.....	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	25	.....
Charlotte	....	....	10	....	16009	21747860	2599100	100	15013	10	20370	25416	27640	4407	41400	.....	.....
Totals	4300	9240	2147	34684	81241	22247860	2614900	13405	110003	40	20870	31906	37161½	7507	47560	3855	87806

REECAPITULATION by Counties showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c.—
New Brunswick—*Concluded.*

DISTRICTS.	KINDS OF FISH.												FISH PRODUCTS.				VALUE.
	Trout, lbs.	Frost fish, lbs.	Squid, barrels.	Flounders, lbs.	Smelt, lbs.	Pickerel, lbs.	Perch, lbs.	Eels, barrels.	Sardines, hds.	Oysters, barrels.	Lobsters, tons.	Lobsters, cans.	Fish Oil, gallons.	Fish Guano, tons.	Fish used as bait, barrels.	Fish used as manure, barrels.	$ cts.
Restigouche	500				7000						4	46300			300		47,026 00
Gloucester	6150		40		612594			94		3900	16	467773	39940		13000	11100	728,559 60
Northumberland	2950	190000		47800	1592170			672		12190		183780	400		1900	3400	265,134 76
Kent	9130	8000		9500	1470189		10000	397		1620		598048	1165	100	8025		282,759 58
Westmoreland	2000	13000	30	2000	273485			162		50	230	456672			3200	4400	169,766 84
Albert	2000																650 00
St. John	1500							60			100		1000		500		149,582 00
King's	1000					38000	1200	102									15,975 00
Queen's						64900	6000	70									16,532 00
Sunbury						42000	4000	10									6,099 00
York	8000					12000	2000	100									5,560 00
Carleton	16000						1000	1									3,540 00
Victoria	10000						500										2,265 00
Charlotte	13000	3500	219	25000	5500	1000			18145		685	48000	62219	223	18260	10307	*1,373,589 26
Totals	72230	214500	289	84300	3960938	157900	24700	1668	18145	17760	1035	1800573	104724	323	45185	29207	3,067,039 04

See County Returns.

RECAPITULATION of the Yield and Value of the Fisheries of the Whole Province of New Brunswick, 1889.

Kinds of Fish.	Quantity.	Value.	Total.
		$ cts.	$ cts.
Salmon ..... Brls.	30	480 00	
do fresh in ice ..... Lbs.	1,120,239	224,047 80	
do smoked ..... do	4,300	860 00	
do cans ..... do	9,240	1,386 00	
			226,773 80
Mackerel ..... Brls.	2,147	32,205 00	
do ..... Cans.	34,684	4,162 08	
			36,367 08
Herring ..... Brls.	81,241	324,964 00	
do smoked ..... Boxes	2,614,900	653,725 00	
do frozen (60c. per 100) ..... No.	22,247,860	133,487 16	
			1,112,176 16
Alewives ..... Brls.	13,405	.....	60,322 50
Cod ..... Cwt.	110,003	440,012 00	
do tongues and sounds ..... Brls.	40	400 00	
			440,412 00
Pollock ..... Cwt.	20,870	.....	83,480 00
Haddock ..... do	7,507	.....	30,028 00
Hake ..... do	31,906	127,624 00	
do sounds ..... Lbs.	37,161½	37,161 50	
			164,785 50
Halibut ..... Lbs.	47,560	.....	4,756 00
Shad ..... Brls.	3,855	.....	38,550 00
Bass ..... Lbs.	87,806	.....	5,268 36
Trout ..... do	72,230	.....	7,223 00
Flounders ..... do	84,300	.....	8,430 00
Smelts ..... do	3,960,938	.....	237,656 28
Pickerel ..... do	157,900	.....	9,474 00
Perch ..... do	24,700	.....	741 00
Frost fish ..... do	214,500	.....	8,580 00
Eels ..... Brls.	1,668	.....	16,680 00
Squid ..... do	289	.....	1,156 00
Sardines ..... Hhds.	18,145	.....	54,435 00
Oysters ..... Brls.	17,760	.....	53,280 00
Clams ..... do	2,000	.....	12,000 00
Lobsters, in cans ..... Lbs.	1,800,573	216,068 76	
do fresh ..... Tons.	1,035	31,050 00	
			247,118 76
Fish oil ..... Galls.	104,724	.....	41,889 60
do as bait ..... Brls.	45,185	.....	67,777 50
do as manure ..... do	29,207	.....	14,603 50
do guano ..... Tons.	323	.....	8,075 00
do used in District No. 1, not included above	.....	.....	75,000 00
Total for 1889	.....	.....	3,067,039 04
do 1888	.....	.....	2,941,863 05
Increase	.....	.....	125,176 00

APPENDIX No. 5.

PRINCE EDWARD ISLAND.

REPORT ON THE FISHERIES OF PRINCE EDWARD ISLAND FOR THE YEAR 1889, BY INSPECTOR ED. HACKETT.

TIGNISH, P.E. ISLAND, 31st December, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR,—I have the honor to submit my annual report on the fisheries of the Province of Prince Edward Island for the year 1889, together with statement of product and values for each of the three counties of Prince, Queen's and King's. Also, an estimate of capital employed in the fisheries of the Province for the season just closed.

The returns show a slight increase in the aggregate value of $9,568.10, as compared with the previous year, as follows :—

Total value of Prince Edward Island fisheries 1888...	$876,862 74
do do do 1889...	886,430 84
Increase.....	$9,568 10

Although the returns exhibit this slight increase, many branches of the fishery show a considerable falling off. The cod fishery was not prosecuted with vigor, resulting in a decrease if 17,886 cwt. in this fishery alone. This falling off was not due to a scarcity of fish, but to the fact that fishermen generally prepared for the supposed more lucrative and less laborious mackerel fishery, thereby neglecting this valuable branch of the coast fisheries.

Mackerel appeared early, and being of large size and great value, the fishermen hoped to reap a rich harvest.

They were, however, doomed to dissappointment, this valuable fish being scarce during the whole season, and as very few schools were seen, and fish exceedingly shy of the hook, both seiners and hook-and-line fishermen failed in their efforts to take them. The catch is therefore much below the average, but is about equal to that of last year.

Herring was abundant, and large quantities were taken. This fish is not prepared for export, almost the whole catch being used for bait in the lobster and mackerel fisheries.

Lobsters show an increase of 614,720 lbs., the total quantity canned being 2,060,947 lbs., as against 1,446,227 lbs. in 1888. Eighty-one factories were in operation, being two more than in the previous year, but the returns show that about 2,000 less traps were worked. The increase was largely due to the season opening early, giving the fishermen from ten to fifteen days additional fishing. The lobsters, expecially on the south side, were of much better quality than of late years; and it is to be hoped that this fishery has reached its lowest point, and will henceforth improve.

Oysters were plentiful, and the season being remarkably favorable, the fishery was actively prosecuted. The total shipments were 41,257 barrels, being 5,396 barrels in excess of last year. Smelts for export appear in the returns for the first

time, 346,100 lbs. being shipped during the year. Fishing smelts for shipment is a new industry. Quite a member of people are engaged in it this year, and it is believed to be capable of great development.

Rivers and streams were not in a good condition. As a consequence, trout shows a decrease of 18,080 lbs. The greatest falling off occurs in Queen's, which has a deficiency of about 12,000 lbs.

The season's operations generally cannot be considered satisfactory, and with the exception of the lobster and oyster fisheries, show poor results. More extended details under the respective headings are given below.

HERRINGS

first strike the Island coast about the end of April, or immediately on the breaking up of the ice, and continue until about the 15th June. This run is known as "Spring Herring," and are taken chiefly for bait, only a small quantity being packed for food. They were most abundant this year, and a full supply was secured at small cost. This was of advantage to the fishermen, who were thus enabled to prosecute the lobster and mackerel fisheries with greater chances of success. No fall herring were taken this year. Large schools were noticed off the southern coast of King's County in November. Fishermen, however, report them as being too small to net and of no commercial value. For several years past large quantities of fall herring have been taken at Souris, Cardigan, Georetown, and other eastern points. The fish are large and fat, and with improved methods of curing and packing, might become a remunerative branch of industry.

CODFISH.

This fishery shows a marked decrease, which very materially reduces the returns for the year. The deficit, however, is not due to any scarcity, codfish being most abundant during the whole season. With mackerel selling at $20 a barrel, Island fishermen will not prosecute the cod fishery, but follow the more uncertain mackerel fishery, hoping that each day will bring them better luck. In this way much valuable time is lost, and when the season is over the disappointed fisherman regrets (when it is too late) that he did not follow the fishery that would have yielded him sure returns.

About one hundred and fifty sails of large boats from the north shore of New Brunswick were engaged cod fishing in the vicinity of Cascumpec and North Cape all summer, and loaded up several times. A small fleet of vessels from Nova Scotia made their headquarters at St. Peters and Rustico during the season, and were most successful. As the mackerel fishery is evidently becoming worse each successive year, Island fishermen should provide themselves with suitable and properly equipped boats for cod fishing, which, if actively and intelligently prosecuted, is the most remunerative of all the fisheries.

MACKEREL.

The Island mackerel fishery may be pronounced a failure, only 12,450 barrels and 99,270 one pound cases being packed. Considering the vast preparations made, the year's catch is most insignificant. Ten or fifteen years ago the whole pack of this season would only be considered a fair year's work for a single establishment. The fish struck early, some good catches with hook and line being made about the 1st July. They were of excellent quality, and commanded high prices: consequently, fishermen and buyers were in great spirits, in anticipation of a successful year's operations. In this they were dissapointed. The fish did not show up in any quantity, and did not remain inshore for any length of time. A remarkable falling off in the catch on some parts of the coast is noticeable, particularly from East Point to Rustico, where the quantity taken was not half that of last year. Various reasons are given for the decline of the mackerel fishery, but it is generally conceded that the use of the purse-seine more than any other cause has reduced this valuable

industry to its present unfortunate condition. Mackerel are, however, very erratic in their movements; and even before purse-seines were introduced, fishermen were compelled to submit to occasional bad years, owing to a scarcity of fish. It is not contended that the quantity taken by seiners can materially diminish the supply. The injury is caused by breaking up the schools, driving the fish off their old feeding grounds and compelling them to seek new haunts. Mackerel are amongst the most wary of fish. They are ever on the alert, and the slightest noise or disturbance will break up a school and cause the fish to scatter in all directions. At present, when a school is noticed at any point on the coast, it is immediately pursued by seiners, and, if not captured, is driven off, never to return. This year seiners were very unsuccessful; hook-and-line fishermen having generally done better. A number of American vessels came into the Gulf early, but being kept well outside the three-mile limit, did not remain long, many of them returning home with only a few barrels of fish.

HAKE AND HADDOCK.

Hake shows a decrease of 5,342 cwt. There was an abundance of fish during the season, but fishermen did not make any efforts to take them. This fishery is mainly prosecuted at night, and unless prices are good fishermen will not embark in it. This year there was no inducement: hence the small catch. Fishing for haddock is not pursued as a separate industry, the small quantity appearing in the returns being taken in connection with the cod and hake fisheries.

LOBSTERS.

Owing to the early spring lobster fishermen were at work ten or fifteen days earlier than in 1888. As a result, the fishery shows a considerable increase.

The season was also favorable, little or no time being lost by stormy weather.

It is difficult to determine whether the shortened season of 1888 had any effect in increasing the supply this year.

All the packers report good fishing, with good-sized lobsters the first thirty days. After that time they commenced to run small, and towards the close of the season it was found difficult to keep the factories running on fish of the legal size—consequently, many closed about the 1st July. Eighty-one factories were in operation, being two more than last year. A number of these, although called factories, are not such in reality, but merely fishing places, the product being conveyed to the main factory, where it is packed. The returns show that 77,000 traps were worked, a decrease of 1,715. The production per trap was $26\frac{5}{7}$ 1-pound cans. This shows an increased production of $8\frac{1}{5}$ cans per trap over the previous year. Fishermen and packers are beginning to realize that a large number of traps is not necessary to a successful year's fishing. Lobsters, unlike other fish, do not move up and down the coast to any great extent.

They come in from deep water to certain points along the coast in the spring, and if the conditions are favorable, remain there. In the present condition of the fishery it is not necessary, therefore, to have a large number of traps, as a comparatively small number, well attended, will take all the lobsters frequenting any particular ground. The lobster fishery, though greatly depleted, continues to be the most valuable of the fisheries of this Province, yielding this year $247,313.64, or 28 per cent. of the whole export. It is the first of the fisheries giving employment in the spring, and although there is no distinct fishing class in the Province, yet there are numbers of people in all the villages on the Island coast who depend largely upon it as a means of subsistence. Its perpetuation is therefore of the highest importance, and the prompt and decisive action taken by the Department in shortening the fishing season and rigorously enforcing the regulations is generally approved.

OYSTERS.

This fishery shows an increase of 5,396 barrels, the total production for the year being 41,257 barrels, as compared with 35,861 barrels in 1888. Warm weather at

the beginning of the fishing season somewhat retarded operations for a while, and some of the shipments reached the markets in bad order, causing prices to rule low. October and November, however, were favorable months, and business was more satisfactory. A mild winter and a dry summer were favorable to the growth of the oyster, and beds that have been raked season after season produced the usual quantity. Richmond Bay continues to supply the bulk of the oysters exported, but large quantities were also shipped from the Narrows, Grand River and other places in Prince County. That the oyster fishing of this Province can continue for many years to yield the large quantity now taken from it annually, is improbable. There is also the possibility of a still larger quantity being required from it in the future. For some years past the supply has been about equal to the demand, a glut in the market only occurring when a protracted period of warm weather forced the shippers to sell their product at any price they could obtain. With the growth of population in the cities and towns of the western Provinces it is evident that an increased demand will be created and the fishery will be required to produce a larger supply. The beds in Queen's County are now greatly overfished, and unless proper care is taken the Prince County beds may soon be in the same condition. The protection given by the present close season, while fairly satisfactory, is not sufficient. Large quantities of small oysters are landed during the fishing season, and as they are unfit for shipment, and cannot be utilized in any way, are allowed to rot in heaps, where culled. Action should be taken to prevent this reckless waste, and prohibit the landing of small oysters.

In the interest of the fishery, winter fishing should be prohibited also. Fishing oysters in winter, while of advantage to a few fishermen, is most destructive to the beds, and some of the best beds in the rivers of Queen's County have been ruined by it. To preserve the beds at Orwell, York River, and West River, in Queen's County, decisive action is necessary; and the question of totally closing the fishery on them for a term of years is deserving of serious consideration. Oyster culture might be carried on to great advantage in this Province, the numerous rivers and bays of the Island being specially adopted for that industry. Large areas, now vacant, could be utilized for the growing of oysters, and, if surveyed and offered on lease, under proper and reasonable restriction, would, no doubt, be readily taken up. The system of leasing grounds for the cultivation of oysters in the States of Connecticut, Rhode Island, &c., has resulted in a marvellous expansion of the industry, and it would seem as if the time had arrived when a similar policy should be adopted in Canada. The natural beds should be properly protected, and the control of them retained by the Department to be used as a public fishery.

TROUT.

Owing to the generally bad condition of the rivers and streams, trout shows a decrease of 18,080 lbs. There is no export of this fish, the quantity appearing in the returns being taken by local sportsmen and others, who follow angling as a recreation. Not many years since trout of large size and fine quality were abundant in nearly all the streams of this Province. Now, however, it is not so, some of the finest rivers being sadly depleted. Many causes have combined to bring about this result. The rivers being small, were easily overfished.

Poaching has, no doubt, also been carried on to a certain extent. The clearing away of the forest, by reducing the volume of water in the rivers and causing it to become warmer, must have a bad effect on the fish frequenting them. Sawdust and mill rubbish, in many instances, add to the pollution of the streams. All these agencies being at work assisted to diminish the supply, and bring about the present scarcity. Some of the rivers are yet, however, in fairly good condition, and if properly protected will continue for many years to afford healthful exercise and recreation to the legitimate sportsman.

SALMON.

Clean salmon are not found in the rivers of this Province, the small quantity appearing in the returns being taken in nets set on the coast, chiefly in the vicinity

of St. Peter's Bay. The wardens report a great abundance of breeding salmon in the principal rivers this fall. They were noticed in great numbers in the Morell, Midgell, Brudenell and Fortune rivers, in King's County, and in the Winter, West, Tryon, Dunk and other rivers in Prince and Queen's counties.

Poachers on Dunk River gave considerable trouble. The abundance of fish increased their audacity, and setting all law at defiance, they made most determined efforts to take them, coming in collision with the wardens on more than one occasion.

EELS.

Considerable quantities of eels are taken and exported each year. They are chiefly taken by spearing in the fall and winter months. It is believed that spearing for eels from boats is injurious to the other river fisheries, and that under the pretence of spearing eels poachers capture large quantities of salmon and trout. I would beg to recommend that spearing eels be prohibited from 1st June to 1st December in each year.

OTHER FISHERIES.

Halibut shows a decrease of 4,970 lbs. No special effort is made to take halibut, the quantity landed being taken in connection with the cod fishery. Those taken are of excellent quality, and find ready sale in the local markets.

Shad is not fished for in the Island waters, the only barrel appearing in the returns being taken early in the season in the trap-net at Tignish.

Bass shows an increase of 1,600 lbs., this small quantity being caught near Tracadie, on the north side of the Island.

GENERALLY.

As a result of the falling off in the catch of cod, fish oil, tongues and sounds and other fish products show a decrease. Unmanufactured fish manure is returned at 1,520 barrels in excess of the previous year. This product might be largely increased if properly attended to. Tons of valuable fertilizers are lost each year through neglect and want of enterprise in not having it manufactured.

The protection afforded on inshore fisheries by Government cruisers was greatly appreciated by shore fishermen this year. No seining by foreigners was allowed this year inside the three-mile limit, and although the catch made by shore fishermen was smaller than usual it would have been much less had the vessels hovering on the outside edge of the three-mile belt been permitted to fish inshore.

In conclusion, I have much pleasure in stating that during the short time I have been in office I found the wardens and others in the service ready and willing to perform their duty. They are generally active and intelligent men, and I believe endeavor to faithfully carry out any instructions given them.

Two additional wardens are urgently required in King's County, one at Cardigan, which has been vacant for some time, and one at least on the Brudenell River. Both places are of importance, and have no protection of any kind at present.

I have the honor to be, Sir,
Your obedient servant,

EDWARD HACKETT,
Inspector of Fisheries for Prince Edward Island.

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed, &c., in the Province of **Prince Edward Island**, for the Year 1889.

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						KINDS OF FISH.			
	Vessels.				Boats.			Nets.		Seines.		Trap.		Salmon, fresh, in ice, lbs.	Mackerel, barrels.	Mackerel, in cans.	Herrings, barrels.
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.				
Prince Co.			$			$			$		$						
From North Line of Lot 3 to Sea Cow Pond	3	150	3000	45	50	2000	150	1200	600	850	1700	1	800	200	1500	36400	1000
From Sea Cow Pond to South Nail Pond	....	....	....	....	55	1650	180	1848	924	300	600	....	....	....	346	.....	2251
South Nail Pond to Line of Lot 1	....	....	....	....	47	1200	149	1040	520	830	1660	....	....	....	502	7200	1708
From Line of Lot 1 to Line of Lot 3	2	80	1600	24	70	3500	280	1500	750	1280	2560	....	....	....	950	22500	1500
South Line of Lot 3 to Seal Point	5	179	3580	40	15	450	45	1020	510	320	640	....	....	....	229	960	526
From Seal Point to South Line of Lot 8	1	17	340	6	20	800	50	800	400	150	300	....	....	....	250	14400	1000
Line of Lot 8 to Egmont Bay	....	....	....	....	10	200	20	500	250	.....	.....	....	....	....	24	.....	626
From Egmont Bay to Fifteen Point	1	19	380	5	52	1438	104	2014	1007	440	880	....	....	....	278	.....	2414
Bedeque Bay, Summerside and Richmond Bay	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
From Graham Head to Cape Traverse	....	....	....	....	8	168	12	200	100	.....	.....	....	....	....	.....	.....	400
The Narrows and Lot 12 shore	....	....	....	....	7	300	19	520	260	200	400	....	....	....	20	.....	600
Narrows to Kildare Cape	9	455	9100	90	50	4000	140	3000	1500	1566	3132	....	....	....	1525	.....	1630
Malpeque and Indian River	....	....	....	....	20	600	40	.....	.....	.....	.....	....	....	....	250	.....	500
Lot 10 River	1	18	360	5	3	60	6	60	30	.....	.....	....	....	....	.....	.....	20
Grand River, Lot 14	....	....	....	....	2	60	8	400	200	.....	.....	....	....	....	12	80	.....
From Carleton Point to Queen's County Line	1	29	580	5	4	150	9	140	70	.....	.....	....	....	....	12	190	60
Rivers and Streams, viz.: Dunk, Trout and others	....	....	....	....	....	....	....	.....	.....	.....	.....	....	....	....	.....	.....	.....
Totals	23	947	18940	220	413	16568	1212	14242	7131	5936	11872	1	800	200	5898	81730	14235

DISTRICTS.	KINDS OF FISH.													FISH PRODUCTS.		VALUE.
	Alewives, barrels.	Cod, cwt.	Cod Tongues and Sounds, barrels.	Hake, cwt.	Hake Sounds, brls.	Haddock, cwt.	Halibut, lbs.	Shad, barrels.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as manure, barrels.	
Prince Co.—Concluded.																$ cts.
From North Line of Lot 3 to Sea Cow Pond	....	1100	....	200	400	50	1500	1	500	3000	....	.....	119568	700	.....	51,526 16
From Sea Cow Pond to South Nail Pond	20	187	....	165	250	....	.....	....	650	.....	5	.....	56160	352	450	23,037 00
South Nail Pond to Line of Lot 1	10	354	....	130	.....	.....	.....	.....	200	.....	.....	.....	151440	230	350	35,666 80
From Line of Lot 1 to Line of Lot 3	....	220	....	600	900	40	950	....	1200	2800	17	.....	94128	450	.....	38,868 36
South Line of Lot 3 to Seal Point	....	124	1	248	132	....	.....	....	1000	.....	3	.....	43008	155	500	12,821 16
From Seal Point to South Line of Lot 8	....	125	....	80	100	....	.....	....	.....	.....	2	....	103208	75	1200	23,382 96
Line of Lot 8 to Egmont Bay	9	.....	....	.....	.....	....	.....	....	2600	.....	3	60	.....	.....	.....	3,374 50
From Egmont Bay to Fifteen Point	....	12	....	.....	.....	.....	.....	....	.....	.....	.....	.....	178416	.....	.....	35,283 92
Bedeque Bay, Summerside and Richmond Bay	....	.....	....	.....	.....	.....	.....	....	.....	120000	30	21930	.....	.....	.....	73,290 00
From Graham Head to Cape Traverse	....	.....	....	.....	.....	.....	.....	....	200	.....	.....	.....	.....	.....	.....	1,620 00
The Narrows and Lot 12 shore	...	300	....	.....	.....	.....	.....	....	.....	.....	.....	2400	26928	100	.....	14,371 36
Narrows to Kildare Cape	....	500	6	.....	.....	.....	.....	....	100	30000	270	50	80400	250	800	46,263 00
Malpeque to Indian River	...	3000	...	500	.....	.....	.....	....	200	10000	80	4606	58944	400	800	42,621 28
Lot 10 River	10	.....	....	.....	.....	.....	.....	....	200	100000	80	20	.....	.....	.....	7,005 00
Grand River, Lot 14	...	24	....	.....	.....	.....	.....	....	.....	.....	20	2250	.....	.....	.....	7,235 60
From Carleton Point to Queens County Line	15	6	....	5	.....	.....	.....	....	5000	.....	...	.....	56580	10	600	8,147 90
Rivers and Streams, viz.: Dunk, Trout and others	....	.....	....	....	.....	.....	.....	....	7200	60000	90	800	.....	...	.....	7,620 00
Totals	64	5952	7	1928	1782	90	2450	1	19050	325800	600	32116	968780	2722	4700	432,135 00

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c, in the Province of **Prince Edward Island**—*Continued.*

DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.				KINDS OF FISH.			
	Vessels.				Boats.			Nets.		Seines.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Mackerel, barrels.	Mackerel, in cans.	Herrings, barrels.	Alewives, barrels.
Queen's Co.			$			$			$		$				
From S.E. Line of Prince Co. to New London	2	30	600	9	18	1200	54	2000	1000	640	1280	150		200	
Hunter River to Cavendish					11	330	33	200	100			120		112	
New London to Sand Hill Point					6	140	20	160	80			18		160	20
Wheatley River to Robinson's Island					5	500	25	100	50			12		150	
Clifton Bridge to County Line W					1	60	4	40	20			5		10	
Upper Hillsborough and tributaries															
From Black Point to Birch Point	2	100	2000	8	10	300	20	500	250	115	230	50		400	50
Pownal Bay and Seal River															
From Savage Harbor to Cove Head	1	16	400	6	44	2200	176	11289	5644	1750	3500	622	11400	1048	
Rustico District	1	18	360	10	55	3400	250	3000	1500	1800	3600	1235		3000	
St. Peter's Island and Lot 65					51	1115	88	1220	610					499	
Charlottetown District															
S.W. Line of King's Co. to Point Prim	8	210	4000	118	6	110	10	750	375	150	300	45	4000	80	
Orwell District					4	600	6					6		30	
Rivers and Streams, viz.: Vernon, West Winter and others					16	192	16					8			4
Totals	14	374	7360	151	227	10147	702	19259	9629	4455	8910	2271	15040	5689	74

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c., in the Province of **Prince Edward Island**—*Continued.*

DISTRICT.	KINDS OF FISH.												FISH PRODUCTS.		VALUE.
	Cod, cwt.	Cod Tongues and Sounds, barrels.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, barrels.	Oysters, barrels.	Lobsters, cans.	Fish Oil, gallons.	Fish used as manure, barrels.	
Queen's Co.—Concluded.															$ cts.
From S.E. Line of Prince Co. to New London	785		10	5								65088	345	200	14,281 06
Hunter River to Cavendish	116					30		900		25			50		3,075 00
New London to Sand Hill Point	420		85					850	400	10					3,229 00
Wheatley River to Robinson's Island	250		100					120		105					3,242 00
Clifton Bridge to County Line W	50							100	2000	30	130				1,135 00
Upper Hillsborough and tributaries								1000	2500	400	1200				7,850 00
From Black Point to Birch Point	20		10		15			1000	1000	10		31680	20		6,824 60
Pownal Bay and Seal River								200	800	3	540				1,718 00
From Savage Harbor to Cove Head	1810						1600		1000	150		74544	100		33,088 08
Rustico District	1000				100			600	2000	200		48000	300	500	43,235 00
St. Peter's Island and Lot 65											1100	140064		500	22,353 68
Charlottetown District											1025				3,075 00
S.W. Line of King's Co. to Point Prim	25	1	60	60	20			350	2000	2	10	78680	30	500	11,843 60
Orwell District								300			2600				8,040 00
Rivers and Streams, viz.: Vernon, West Winter and others								1500	4000	90	2536				9,036 00
Totals	4476	1	265	65	135	30	1600	6920	15700	1025	9141	438056	1745	1700	172,026 02

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c., in the Province of **Prince Edward Island**—*Continued.*

DISTRICTS.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.				KINDS OF FISH.			
	Vessels.				Boats.			Nets.		Seines.					
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Salmon, fresh, in ice, lbs.	Mackerel, brls.	Mackerel, in cans.	Herrings, brls.
King's Co.			$			$			$		$				
Fortune District, Rollo Bay to Lake Pond	2	25	500	8	27	324	81	540	270	480	960	.....	60	.....	250
From Little River to DeGros Marsh, including Broughton Island	....	.....	.....	.....	110	2200	220	5000	2500	500	1000	.....	200	.....	4000
Lots 46 and 47 to Red Point	....	.....	.....	.....	193	4500	570	8500	4250	180	360	.....	1093	.....	2186
St. Peter's Harbor to Ore River	1	30	600	8	55	2490	126	12815	6408	.....	.....	1000	1448	.....	558
Lot 63 to South-East Line of Queen's	15	375	7540	90	55	2200	165	2500	1250	250	500	.....	100	.....	300
Red Point to Souris Head	2	160	3200	32	20	600	40	1000	500	600	1200	.....	200	....	300
St. Peter's Harbour to Queen's North-East Line	....	.....	.....	.....	18	845	45	4740	2370	.....	.....	.....	305	.....	422
Schooner Pond to Naufrage	....	.....	.....	.....	65	600	185	5000	2500	300	600	200	200	2500	200
Georgetown to Murray Harbour	4	141	2820	30	80	2000	250	6000	3000	180	360	.....	475	.....	5000
Montague	3	90	1800	20	30	400	90	350	175	100	200	.....	200	.....	800
Totals	27	821	16460	188	653	16159	1772	46445	23223	2590	5180	1200	4281	2500	14016

RETURN showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, &c., in the Province of **Prince Edward Island**—*Concluded.*

DISTRICTS.	KINDS OF FISH.											FISH PRODUCTS.		VALUE.
	Alewives, brls.	Cod, cwt.	Cod Tongues and Sounds, brls.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Trout, lbs.	Smelt, lbs.	Eels, brls.	Lobsters, cans.	Fish Oil, galls.	Fish used as manure, brls.	
King's Co.—Concluded.														$ cts.
Fortune District, Rollo Bay to Lake Pond	.....	100	....	75	.....	60	.....	2000	400	4	4500	120	.....	3,692 00
From Little River to DeGros Marsh, including Broughton Island	.....	100	....	150	150	.....	.....	.....	.....	20	8454	100	500	30,708 36
Lots 46 and 47 to Rea Point	50	3895	....	900	900	75	500	7000	2300	25	69368	3595	700	56,544 16
St. Peter's Harbor to Ore River	100	1051	5	200	50	10	500	.....	.....	.....	33600	1000	.....	34,203 00
Lot 63 to South-East Line of Queen's	.....	4500	10	3000	5500	500	.....	300	.....	75	300719	3770	5000	78,424 28
Red Point to Souris Head	.....	350	....	200	100	.....	.....	.....	.....	.....	27840	200	.....	9,870 80
St. Peter's Harbor to Queen's North-East Line	105	352	...	10	.....	20	250	1000	1800	25	18420	120	500	11,254 90
Schooner Pond to Naufrage	4	200	....	300	.....	10	....	1500	100	.....	35136	200	.....	10,650 32
Georgetown to Murray Harbour	50	100	....	50	100	.....	.....	.....	.....	.....	80000	200	.....	37,680 00
Montague	10	120	2	40	.....	.....	.....	1000	.....	40	.....	80	.....	7,437 00
Rivers, viz. :—Morell, Marie, Midgell and others	.....	.....	....	.....	.....	.....	.....	18050	.....	.....	.....	....	.....	1,805 00
Totals	319	10768	17	4925	6800	675	1250	30850	4690	189	654111	9385	6700	282,269 82

RECAPITULATION showing the Number, Tonnage and Value of Vessels and Boats engaged in the Fisheries, Quantity and Value of Fishing Material, Kinds and Quantities of Fish, and the Total Number of Men Employed, &c., in the Province of **Prince Edward Island,** for the Year 1889.

COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						KINDS OF FISH.				
	Vessels.				Boats.			Nets.		Seines.		Trap.						
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	Salmon, fresh, in ice, lbs.	Mackerel, brls.	Mackerel, in cans.	Herrings, brls.	Alewives, brls.
			$			$			$		$		$					
Prince	23	947	18,940	220	413	16,568	1,212	14,242	7,121	5,936	11,872	1	800	200	5,898	81,730	14,235	64
Queen's	14	374	7,360	151	227	10,147	702	19,259	9,629	4,455	8,910	....	....	....	2,271	15,040	5,689	74
King's	27	821	16,460	188	653	16,159	1,772	46,445	23,223	2,590	5,180	....	....	1,200	4,281	2,500	14,016	319
Totals	64	2,142	42,760	559	1,293	42,874	3,686	79,946	39,973	12,981	25,962	1	800	1,400	12,450	99,270	33,940	457

COUNTIES.	KINDS OF FISH—*Concluded.*													FISH PRODUCTS.		VALUE.
	Cod, cwt.	Cod Tongues and Sounds, brls.	Hake, cwt.	Hake Sounds, lbs.	Haddock, cwt.	Halibut, lbs.	Shad, brls.	Bass, lbs.	Trout, lbs.	Smelt, lbs.	Eels, brls.	Oysters, brls.	Lobsters, cans.	Fish Oil, galls.	Fish used as manure, brls.	
																$ cts.
Prince	5,952	7	1,928	1,782	90	2,450	1	.....	19,050	325,800	600	32,116	968,780	2,722	4,700	432,135 00
Queen's	4,476	1	265	65	135	30	....	1,600	6,920	15,700	1,025	9,141	438,056	1,745	1,700	172,026 02
King's	10,768	17	4,925	6,800	675	1,250	....	.....	30,850	4,600	189	.....	654,111	9,385	6,700	282,269 82
Totals	21,196	25	7,118	8,647	900	3,730	1	1,600	56,820	346,100	1,814	41,257	2,060,947	13,852	13,100	886,430 84

RECAPITULATION.

YIELD and Value of the different Fisheries in the Province of **Prince Edward Island** during the Year 1889.

Kinds of Fish.		Quantity.	Price.	Value.	Increase. Quantity.	Decrease. Quantity.
			$ cts.	$ cts.		
Salmon, fresh	Lbs.	1,400	0 20	280 00	.....	163
Mackerel	Brls.	12,450	15 00	186,750 00	.....	198
do canned	Lbs.	99,270	0 12	11,912 40	64,910	.....
Herring	Brls.	33,940	4 00	135,760 00	1,057	.....
Alewives	do	457	4 50	2,056 50	.....	138
Cod	Cwt.	21,196	4 00	84,784 00	.....	17,866
Cod Tongues and Sounds	Brls.	25	10 00	250 00	.....	143
Hake	Cwt.	7,118	4 00	28,472 00	.....	5,342
Hake Sounds	Lbs.	8,647	0 50	4,323 50	8,647	.....
Haddock	Cwt.	900	4 00	3,600 00	.....	26
Halibut	Lbs.	3,730	0 10	373 00	.....	4,970
Shad	Brls.	1	10 00	10 00	1	.....
Bass	Lbs.	1,600	0 06	96 00	900	.....
Trout	do	56,820	0 10	5,682 00	.....	18,080
Smelts	do	346,100	0 06	20,766 00	346,100	.....
Eels	Brls.	1,814	10 00	18,140 00	.....	123
Oysters	do	41,257	3 00	123,771 00	5,396	.....
Lobsters, canned	Lbs.	2,060,947	0 12	247,313 64	614,720	.....
Fish oil	Galls.	13,852	0 40	5,540 80	.....	4,531
Unmanufactured fish manure	Brls.	13,100	0 50	6,550 00	1,520	.....
Total value of P. E. I. Fisheries in 1889				886,430 84		
do do 1888				876,862 74		
Increase in 1889				9,568 10		

ESTIMATE

Of Capital employed in the Fisheries of the Province of **Prince Edward Island** in the Year 1889.

	Value.	Total.
	$ cts.	$ cts.
64 vessels, 2,142 tons	42,760 00	
1,293 boats	42,874 00	
79,946 fathoms of nets	39,973 00	
12,981 do seines	25,962 00	
95,450 do trawls	5,000 00	
50 smelt nets	1,000 00	
77,000 lobster traps	46,200 00	
1 trap	800 00	
Fish stages and appliances, say	15,000 00	
81 lobster factories in operation, with outfit	64,800 00	
600 oyster boats and rakes	9,000 00	
		293,369 00

APPENDIX No. 6.

QUEBEC.

REPORT OF THE FISHERY OFFICER IN CHARGE OF THE GOVERNMENT VESSEL "LA CANADIENNE," ENGAGED IN THE PROTECTION OF THE GULF OF ST. LAWRENCE FISHERIES, FOR THE YEAR 1889.

GASPÉ, 31st December, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR,—I beg herewith to present my report on the fisheries of the Gulf Division for the season just closed, together with synopses of the reports of the various local officers in charge of sub-divisions, and statistical returns for each of the sub-divisions and counties forming the division.

These returns show an increase of the total of the fishery product, over the similar returns for 1888, of $131,167.31.

SALMON.

The returns from this fishery show a decrease, over the whole division, of 53,140 lbs. The salmon struck along the coast of Gaspé and Bonaventure about the middle of May; the run was not steady. As a rule, the fish taken were large, many reaching the unusual weight of 50 lbs. The decrease in the catch may, without doubt, be attributed, on the south shore, to the fine and early spring and the consequent quick subsidence of the spring freshets, so that the fish did not remain in the tideway, but pushed up the rivers. On the upper part of the north shore the fishery in the estuaries was good, being above the average, while on that part of the north coast to the eastward of Natashquan the fishery failed. This failure was attributed by the fishermen to rough weather and a late run of the fish. On many of the Labrador rivers it was noticed that the fish began to take the rivers during the last week of the fishing season. This was clearly proved by the fact that only such nets as were kept out right up to the close of the season took anything worth while. Over the greater part of the coast, between Natashquan and Blanc Sablon, the nets were taken up early in July, as the fishermen had got discouraged. A few old hands, believing that the run had not taken place, re-set their nets during the last week of the season. These were in every case rewarded by a good week's fishing. The fact that the run was late was clearly demonstrated on that part of the Labrador coast to the eastward of the Province of Quebec, where, there being no limit to the open season, nets that were fished in August did well.

The season was a poor one for anglers, as owing to the slight snowfall of the previous winter and the early and dry spring, the rivers fell rapidly, so that during the fishing season the water was in most rivers too low and clear for good sport.

COD.

The first cod were taken along the Gaspé coast about the 22nd of May, being a couple of weeks earlier than has been usual of late years. The fish struck in great abundance and the summer fishery was the best that has been made for a long time. The fishery was particularly good off Percé and Point St. Peter. There is no doubt that the fish had struck in before the boats were ready, it being the custom of recent years not to expect the fish in quantity before the middle of June.

It was noticed that the fish kept pretty well inshore, and was abundant right up the Bay of Chaleur, where it had not been seen for many years. Had bait been plenty and the weather continued fine we should have had a very heavy fishery, as at the close of the summer season, on the 15th August, the average stood high; but unfortunately, from the 15th September to the close of navigation, the weather was so continuously rough that the boats were only able to make a couple of trips to the banks.

On the north coast and Labrador the fishery was slightly better than in 1888. At Natashquan, and below as far as the Straits, it was of short duration, not lasting more than three weeks. During this time fish were very abundant, and boats that kept constantly at work did well, several at Natashquan taking over 100 cwt. with the hook and line within the three weeks. On the little north shore, that is, from Natashquan west, the fishery was not up to the average, save at St. John's River and Magpie, where the catch was fairly good. At Anticosti cod-fishing was poor all through the season. At the Magdalen Islands the catch was also poor, being at least 5,000 cwt. below that of the preceding year. This was, however, altogether due to the striking in of the mackerel early in August, for as soon as the crews of the island cod-fishing vessels found that the shore boats were taking mackerel they abandoned the cod-fishery, and for the remainder of the season most of the vessels never left the harbor. The few that stuck to the bank fishing did well.

On the whole, the cod fishery in the Gulf Division was good. The spring was early and the summer fine; the fish struck in abundantly and much earlier than usual; they were taken up the Bay of Chaleur throughout the season, a thing that has not been done for years.

The cod-fishing fleet from Esquimaux Point did nothing. They left Natashquan just as the fish struck, and by the time they got down to Bonne Esperance the fishery was over.

HERRING.

Spring herring were abundant at Magdalen Island, over 70,000 lbs. being taken during the first spring tides of May. The bulk of these herrings were shipped to St. Pierre Miquelon, slightly salted, round and in bulk, to be used as bait for cod. A small quantity was taken to Prince Edwards Island and Nova Scotia for lobster bait. The run of large, fat summer herring, which usually comes on in August, failed completely. Herring as bait for cod was, over most of the coast, fairly abundant during the summer. This bait is used when obtainable after capelin, and before squid. Fat fall herring were not by any means abundant; in fact, they only struck the coast at a few points, and did not remain long.

It is now the pretty general impression that the practice of seining and netting spring herring in enormous quantities for manure, before they have spawned, is ruining the herring fishery. It was, until quite recently, the generally accepted opinion that nothing that man could do, either in the time or manner of capture, would make any impression on the bulk of the herring in the sea; but judging by our experience along the coasts of the river and Baie des Chaleurs, this idea can no longer be held. It is certain that our summer and fall herring fishery is failing, and the only cause for this failure is the enormous destruction of herring in the spring for manuring purposes. The fall herring fishery has so greatly fallen off that along the greater part of the Gulf coast there are now barely enough taken for local consumption.

Fall herring struck on the coast of Labrador early in August, and remained only a few days. The herring fleet from Esquimaux Point only arrived at Bras d'Or Bay after the herring had passed. The vessels crossed to the west coast of Newfoundland, but never fell in with the herring, and were obliged to return home with only an average of 50 barrels per vessel.

Complaint is made by the masters of these vessels that, when on the coast of Newfoundland, they were compelled to pay duty on the salt and barrels they had on board for their own use in the prosecution of their fishery, which articles were not

landed in Newfoundland, and were not used for purposes of trade. On hearing of this complaint I communicated with Mr. D. B. McGie, Collector of Customs at Esquimaux Point, for information as to the actual facts. His reply was as follows:—

"21st November, 1889.

"SIR,—I am in receipt of your favor of the 18th inst. Reverting to same, I beg to state that the captains held no receipts for the amounts they paid to the Newfoundland collector, but on each clearance was mentioned 'Duty paid by order.' Did not mention how much; nineteen vessels from Esquimaux Point paid duty on salt and barrels they had on board for their fishing voyage, and which they brought back to Esquimaux Point. One vessel from Natashquan, Captain Bourke, I was told, paid $16 cash on his salt, barrels and sealing guns. The captains state that they went to the collector at Flower's Cove, Newfoundland, to enter, and he told them 'that their fishing licenses were all right; to go and fish; that there was nothing to pay.' But there came an official from Bonne Bay, by the name of Kelly, who ordered them to go again to the collector to pay their duty and clear, or else he would seize their vessels. Enclosed you will find the names of the vessels and the captains who paid duty."

"I am, yours, etc.,
"D. B. McGIE, *Collector*."

I have also written to Mr. Whitely, fishery officer for the Bonne Esperance subdivision, who is wintering in St. John's, Newfoundland, to have him find out the reason for this unusual treatment of our fishing vessels, but up to the date of closing this report I have had no answer.

MACKEREL.

Excepting at Magdalen, Islands this fishery was a complete failure. The Baie des Chaleur, Port Daniel Bay, Gaspé Bay and Islands Bay, each of which were a one time favorite haunts of the mackerel, were this past season almost entirely abandoned by them, only a few straggling fish being taken. At Magdalen Islands, however, the fishery was better than it has been for some years, the shore boats having taken 4,600 barrels. The fish first showed about the 1st of August; they, however, kept to the bottom, did not school, and never took the bait very freely, A fleet of twenty-five United States fishermen arrived off the Islands about the 16th of August, and remained on the grounds until the 20th of October. Most of them took their fish with the "bob," or brought the fish to the surface with "toll bait," and then shot the seine around them. There is no doubt that the shore fishery would have been much better had it not been for the disturbance caused by these seines. It was the general opinion that there was a considerable body of fish in the Gulf, but they did not show at the surface. Wherever mackerel were taken they were of unusual size and fatness. Prices ran high, some of the inland fishermen getting as much as $28 per barrel.

LOBSTERS.

The total quantity of lobsters packed this season amounts to 593,950 lbs., being an increase of 52,663 lbs. over the product of 1888. This increase took place at Magdalen Islands, where 329,412 lbs. were canned, as against 257,380 lbs. in 1888, giving the considerable increase of 72,032 lbs. There were no more canneries, but a good many more traps were fished, and owing to an early spring, the season was longer; so that the increased yield was due to a greater number of traps, and to a longer and more favorable season, rather than to any improvement in the fishery. On the mainland of Gaspé and Bonaventure the take shows a decrease of 10,519 lbs. This is altogether attributable to the fact that cod struck in abundantly after the middle of May; and, as it paid better to fish for cod than for lobsters, it became difficult, and in some places impossible, to get men to attend the traps. Some of the larger factories, owing to this cause, closed down in June. Had it not

been for this interruption to the fishery we would, without doubt, have had a considerable increase in the mainland output.

In view of the fact that the artificial propagation of lobsters seems to have been successfully carried out in Newfoundland by Mr. Nielson, and at a small cost, it is the opinion of those engaged in the lobster industry that your Department should try the same thing here. As the eggs are fertilized within the body of the mother, it would only become necessary to detach them from her, when taken in the trap. They are then subjected to the action of running sea water into jars for a longer or shorter period, which depends upon their ripeness when detached. When hatched out, it is necessary to feed them for a few weeks. After this they may be liberated, and will take care of themselves. The shoal waters of the lagoons at Magdalen Islands, and inside many of the barachois on the mainland, would seem to offer splendid natural nurseries for these young fish. These ponds should be distinctly set apart for this purpose.

SEALS.

The number of seals killed amounts to 26,333, yielding 160,630 gallons of oil. These seals were taken by the fleets from Magdalen Islands, Esquimaux Point and Natashquan, with the exception of about 7,000, which were caught in the sedentary seal fisheries, or from shore, on the ice. The Magdalen Island vessels average about 300 seals. The six small vessels from Natashquan took an average of 888 seals, some of them even taking a second load of large seals. The 22 vessels from Esquimaux Point missed the seals as they did the cod and the herring, and only averaged 80 seals apiece. The result of these repeated failures was, that supplies had to be sent to the people of Esquimaux Point in the fall by the Local Government, as they could no longer get the necessary advances to tide them over the winter.

SMELTS.

The yield of smelts for the past season amounts to 171,160 lbs., or 95,994 lbs. more than last year. Of this, 30,300 lbs. were taken last winter in the estuary of the Restigouche with bag nets, under the ice, leaving 140,860 lbs. as the result of seine fishery this fall on that part of the coast between Gaspé and Port Daniel. This seining began on the 15th October, at which date permission was given by your Department to seine. The fishery closed on the 20th November, the day on which the steamer "Admiral" made her last trip from Gaspé to Dalhousie. Smelts were more abundant at the close of the fishery than they were when it began, as it is not until the middle of November that they begin to push into the estuaries and channels. As there was, when the "Admiral" had made her last trip, no other means of shipping the fish to market, the fishery had to be abandoned, and this condition of affairs must exists so long as the Peninsula of Gaspé is without railway communication.

The total quantity shipped is insignificant, and as long as the fishery is confined to the season between the beginning of October, when the fish first come in, and the end of November, when communication by water with Dalhousie ends, there can be no fear of the smelts being exhausted. It seems reasonable, in view of the exceptional position of the people of this coast, as regards the means of transport to market after the close of navigation, that a change be made in the fishing season for smelts along that part of the coast between Port Daniel Bay and Cape Gaspé.

BAIT.

During the early part of the fishing season bait was fairly abundant; but in summer, and before the advent of the squid, herring—then, over all that part of the coast where clams and launce are not obtainable—the only bait to be had, was scarce. A good deal of discontent is felt along the coast at the order prohibiting the seining of smelts, except under special licenses, as in the fall, when the squid has passed, and herring is not to be had, smelt is the only avilable bait. It is never used when anything else can be had, as it is too soft and delicate to make good bait.

There can be no doubt that the principal bait fishes, such as capelin and herring, are becoming scarce. At one time, when the inshore cod fishery was at its best, capelin struck in abundance all along the coast, and the first run of cod was known as the capelin school; and as long as this run lasted—generally about three or four weeks—there was a good spurt of fishing. This state of things now no longer exists. The capelin school does not strike all along shore, and with the exception—on the south shore—of a few points, such as Paspebiac and Newport, it is hardly ever seen. The only visible cause for this decrease would seem to be the practice, which has existed on the coast from time immemorial, of taking these fish in enormous quantities for manure, when they first strike the coast for the purpose of spawning. The question is one which should receive the attention of your Department, for nothing can be more certain than the dependence of the cod upon the bait.

I beg to append synopses of the reports of the local officers.

I have the honor to be, Sir,
Your obedient servant,

WM. WAKEHAM.

SYNOPSES OF FISHERY OVERSEERS' REPORTS.

RESTIGOUCHE SUB-DIVISION.

Overseer J. A. Verge reports an improvement in the take of salmon in nets on the Quebec side of the Restigouche for the season of 1889, the yield being 52,880 lbs., an increase over last year of 3,748 lbs. There was no heavy run of salmon at any time, but a steady regular daily catch. Fishermen believe that their fishing was greatly damaged by the working of the dredge "St. Lawrence" between Campbellton and Dalhousie. The season was an early and exceptionally fine one, and the close time was fully and regularly observed. Smelt fishermen are increasing in number, but they have not been able to track the smelt under the ice; many more smelt would be taken if the grounds which they frequent were known.

CARLETON SUB-DIVISION.

Overseer Peter Cyr reports salmon fishing poor; only 37,805 lbs. were taken in the 28 salmon stations of his division. Cod was very abundant, more so than it has been for many years, but owing to the scarcity of bait the catch was not proportionately great.

BONAVENTURE SUB-DIVISION.

Overseer John L. Smith reports that salmon fishing with nets has been a failure in his division. Fly-fishing on the Bonaventure was good. Only one lobster factory was open, and in proportion to the number of traps fished the take was good. Spring herring were abundant at Paspebiac and New Carlisle, but scarce elsewhere. The summer catch of cod was good but bait was scarce, and fishermen had to use clams. Fall fishing was above the average. Small herring struck in about the 10th of October, giving plenty of bait; boats at Bonaventure and Paspebiac landed as much as 40 drafts of cod a week. Capelin were plenty at Paspebiac for a week in the spring, but never struck above. Summer herring and mackerel were a failure. No smelts were taken in this division.

PORT DANIEL SUB-DIVISION.

Overseer John Phelan reports that, taking the fishery all in all, he has to record the most successful season that has been seen for many years. Salmon fishing began on the 20th May and ended on the 29th July; the yield is a trifle less than last year,

but this is attributable to a change of fishermen which took place on some of the stands, as it is with them that the shortage appears. Most of the old fishermen exceeded last year's catch. The run of salmon was large, some being taken of 50 lbs. Cod fishing began on the 29th May with a large catch, the result being a much larger spring catch than usual. In July bait became scarce, and the fishing fell off. The falling off was not so great at Port Daniel as at other places, as it was there possible to get clams for bait. The fall fishing of squid and herring shows the largest catch that has been made for years. Lobster fishing began on the 3rd of May, or about two weeks earlier than usual. The increase in the catch is partly due to a longer season, and to the increased number of traps, but the lobsters are showing signs of improvement, the general run this season being large. Spring herring were abundant in May, hundreds of barrels being taken for manure and lobster bait. Fall herring afforded plenty of bait and a fair supply for local consumption, but the fish were very small and chiefly taken with seines. Cod fishing was carried on until the close of November. A few small schools of mackerel were seen, but none taken. There was no capelin taken in Port Daniel Bay. Smelt fishing was better than last year. When the fishermen at Port Daniel found that permission had been granted to the Gaspé fishermen to seine smelt they began to fish as well, and it was with great difficulty that they were compelled to desist and await similar permission. This was the only breach of the Fisheries Act that came under Mr. Phelan's notice.

MONT LOUIS SUB-DIVISION.

Overseer Jos. Lemieux reports salmon fishing poor along the coast from Gaspé to Mont Louis. Cod struck early and in abundance, but in July bait gave out altogether. Fish were abundant until December, but owing to rough weather and scarcity of bait after August fall fishing was a failure. However, in spite of these drawbacks, the fishery is above the average of recent years. This was entirely due to the early and abundant spring catch. No mackerel was seen. Herring were plenty in May and June, but scarce during the rest of the season. The white porpoises did not put in an appearance this season.

STE. ANNE DES MONTS SUB-DIVISION.

Overseer J. I. Letourneau reports the summer cod fishing as a little better than last year, but owing to the scarcity of bait, the occasional raids of the white porpoises, and the fact that the people are turning their attention more to farming than to fishing, the catch continues small. Fish were abundant in the fall, but bait continued scarce, and the weather unusually rough. Only one salmon net was set at Rivière Marthe, and one at Cap Chatte, all the other licenses having either been cancelled or abandoned. Fly-fishing in Ste. Anne's River was poor, owing to the state of the water, which was too clear and low to give good sport. Herrings were scarce. No makerel were taken, though a few schools were seen off shore. Capelin were scarce, none at all having been taken at St. Anne's.

GODBOUT SUB-DIVISION.

Overseer N. A. Comeau reports salmon net fishing as good; the yield being 43,250 lbs., as compared with 32,626 lbs. in 1888. Fly fishing was hardly up to the average of recent years, the water keeping low in the rivers. The cod fishery was at times good, the yield better than last year, but the season on the whole was poor, much time being lost owing to the scarcity of bait, and heavy weather. A few schools of mackerel were seen in Godbout Bay, but none anywhere else in this division. Small fat herring were plentiful in the fall about Egg Island and Godbout Bay.

MOISIE SUB-DIVISION.

Overseer T. Migneault reports that salmon net fishing began in Moisie River on the 18th May. The fishery in the river was good, but the nets on the sea shore in Moisie Bay did badly, several of them being carried away by a gale during the middle of

the fishery. Fly fishing was good, there having been taken 404 fish, weighing in all 9,000 lbs. Cod fishing, both during the summer and fall, was poor. Herring were abundant during the fall in the western part of this division. Two Nova Scotia mackerel schooners arrived in Seven Islands Bay during the last days of July. There being no mackerel seen on this part of the north shore, they returned to the south on the 8th of August.

MINGAN SUB-DIVISION.

Overseer G. L. Duguay reports an increase in the quantity of salmon taken, especially in the estuaries of the St. John and Magpie rivers. Cod fishing was also above the average of recent years, in spite of the fact that the Esquimaux Point vessels did nothing. The bulk of the fish was taken in July and August. Owing to constant rough weather the fall fishing was poor. The 22 sealing schooners from Esquimaux Point did badly at the ice, not averaging more than 80 seals apiece. On their return from the ice fields they fitted out for the cod fishery, from which they returned with not more than 1,300 cwt. of cod altogether. They again fitted out for the fall herring fishery in the Straits, but missed the herring, and returned with only 1,000 barrels among the fleet, or an average of about 45 barrels per vessel. The consequence is, that merchants who were in the habit of advancing these people, have refused to do so any longer, the fact being that they have been losing by them for years.

NATASHQUAN SUB-DIVISION.

Overseer Geo. Gaudin reports a large deficiency in the salmon fishery of his division. This he attributes not to any decrease in the salmon, but to the prevalence of heavy gales and boisterous weather during the month of June, which scattered the fish and caused them to keep off shore. Several of the nets were either carried away or damaged, or rendered useless, and fishermen being poor were not able to replace them at once. The cod fishery was much better than for the three preceding years. The season was short, lasting only from the 22nd June, to 20th July. The fishermen, however, took full advantage of it, and did well. During the remainder of the season several boats made successful trips to the banks off Kegashka. A few herring were taken in the spring, but the fall fishery was a failure. The seal fishery has been the most important of the year, one of the six small schooners that were engaged in it having taken 2,160 seals. Some of the schooners made a second trip, and all of them did well. These small vessels of only 20 tons averaged 888 seals, most of those taken during the second trip being large seals. Every family at Natashquan had a share in this fishery, so that with the cod caught later on they were all for the time well off.

WASHEECOOTAI SUB-DIVISION.

Overseer G. Mathurin reports a failure all round. The salmon only began to run into the rivers as the season was closing. Cod struck in for a day or two off Romaine, but lasted no time and never showed again. The fleet from Esquimaux Point remained some time between Romaine and Coacoachoo, but did nothing, and continued further down the coast. A lobster factory was opened to the westward of Beacon Island, but they only canned about 7,000 lbs. of lobsters. The big factory put up by some Nova Scotains at Wolf Bay has been abandoned.

ST. AUGUSTIN SUB-DIVISION.

Overseer J. Legouvè reports salmon fishing a failure, there having been taken only 116 barrels in the 50 stations comprised in this division. In a fair year the yield should be at least 250 barrels. Cod fishing was again poor, though slightly better than last year. The bulk of the fish were taken in deep water by fishermen of Mutton Bay and Harrington. Bait was always short, as the capelin never come

inshore in quantity. A few herring were taken with seines during the month of September, at Harrington and Meccatina. The sedentary seal fishery, made with nets in the month of December was much below the average, the return giving only 1,151 seals, as compared with 3,356 the previous year.

BONNE ESPERANCE SUB-DIVISION.

Overseer W. H. Whitely reports salmon fishing a failure. The weather was fine and the spring early, but from some unaccountable cause the run of fish only began as the season was closing. The same occurrence has been noticed here before, in former times, when the nets used to be kept out during the month of August. Codfish was fair—that is, slightly below a good average. The season began on the 22nd June. Fish were taken with hook and line in deep water. The fishery was entirely over by the 15th July, and nothing was done after that. The sedentary seal fishery, which in this division is made in the spring as the seals are passing out, through the straits, was again poor, owing to the very early disappearance of the ice. The cod fishing vessels began moving into the bays and runs early in May. This shied the seals off, and spoilt the fishery. Fall herring struck in during the early part of August. They did not remain more than a few days on the coast, and a small catch was made. Very few vessels from Newfoundland and Nova Scotia visited the coast, and none of them remained any length of time. They all kept on down north after the fish. One United States mackerel seiner, the "Emma C. Brown," called at Bonne Esperance during the month of August. Finding no mackerel here, she ran down to Red Bay in the Straits, and filled up with fall herring.

APPENDIX No. 6.—Continued.

QUEBEC.

FISHERY STATISTICS, GULF OF ST. LAWRENCE.

RETURN showing the Number and Value of Vessels, Boats and Fishing Materials, **County of Bonaventure,** Province

RISTIGOUCHE SUB-DIVISION

NAME OF PLACE.	NUMBER OF VESSELS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Seines.		Trap-Nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.
			$			$			$		$		$
Estuary of the Ristigouche, Quebec side					23	230	23	7420	7420			11	275
CARLETON SUB-DIVISION													
Maguasha					20	400	60	1500	750				
Nouvelle					40	800	120	2500	1250				
Carleton					100	2000	300	3500	1750	1500	500		
Maria					140	2800	420	10600	5300	1500	500		
Total					300	6000	900	18100	9050	3000	1000		
BONAVENTURE SUB-DIVISION													
New Richmond					30	420	24	992	468				
Black Capes					26	250	20	1800	1200				
Capelin					135	1410	80	5625	2500	125	75		
Bonaventure					200	2700	120	6850	3200	1000	600		
New Carlisle					45	460	45	1062	900	480	400		
Paspebiac	7	330	6500	33	100	1450	180	3120	1690	450	320		
Total	7	330	6500	33	536	6690	469	19449	9958	2055	1395		
PORT DANIEL SUB-DIVISION													
Paspebiac					35	1600	50	1280	660	200	280		
Nouvelle and Shigawake					72	3420	120	3200	1400	140	270		
Point Loup-Marin					65	800	70	1000	840	100	160		
Port Daniel Bay					60	4000	100	3440	2400	120	200		
L'Anse à la Barbe					33	1580	60	1200	620	60	100		
L'Anse à Gascon					66	3460	120	2300	1350	200	400		
Total					331	14860	520	12420	7270	820	1410		
TOTAL FOR COUNTY													
Ristigouche Sub-division					23	230	23	7420	7420			11	275
Carleton do					300	6000	900	18100	9050	3000	1000		
Bonaventure do	7	330	6500	33	536	6690	469	19449	9958	2055	1395		
Port Daniel do					331	14860	520	12420	7270	820	1410		
Total	7	330	6500	33	1190	27780	1912	57389	33689	5875	3805	11	275

the Number of Men Employed, with the Kinds and Quantities of Fish, &c., in the of Quebec, for the Year 1889.

(Tide Head, Ristigouche, to Maguasha).

Kinds of Fish.									Fish Products.				Value.
Smelt, lbs.	Salmon, fresh, lbs.	Cod, cwt.	Haddock, cwt.	Herring, barrels.	Herring, smoked, boxes.	Eels, barrels.	Cod Tongues and Sounds, barrels.	Lobsters, in cans, lbs.	Cod Oil, gallons.	Fish used as Bait, barrels.	Fish used as Manure, barrels.	Fish use for Local Consumption, barrels.	
													$ cts.
30300	52880	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	12,091 00
(Maguasha Head to Big Cascapedia).													
.....	8000	.....	.....	50	.....	.....	....	.....	.....	10	1500	330	3,885 00
.....	7500	1000	.....	140	.....	.....	....	.....	800	50	2300	400	9,205 00
.....	12000	1000	.....	150	.....	40	....	.....	820	60	7000	400	12,918 00
.....	10305	1575	.....	210	400	60	....	.....	1280	80	8000	900	18,133 00
.....	37805	3575	.....	550	400	100	....	.....	2900	200	18800	2030	44,141 00
(Big Cascapedia to Paspebiac Point)													
.....	6969	100	.....	25	100	.....	....	.....	40	20	400	300	3,364 80
.....	8650	175	.....	50	75	.....	....	.....	70	25	900	500	5,164 25
.....	.....	640	.....	200	150	.....	....	.....	300	220	1950	600	7,222 50
.....	515	1725	.....	400	300	.....	....	17516	800	395	4000	1000	17,692 42
.....	915	750	15	20	100	.....	....	.....	300	115	3000	500	7,140 50
.....	.....	2600	200	300	200	.....	....	.....	1500	540	7000	800	20,560 00
.....	17049	5990	215	995	925	.....	....	17516	3010	1315	17250	3700	61,144 47
(Paspebiac Point to Point Macquereau).													
.....	200	1550	20	50	.....	.....	5	.....	1200	500	500	150	8,650 00
.....	200	1700	.....	150	.....	.....	....	36000	1500	600	600	300	14,760 00
.....	.....	1200	.....	40	.....	.....	....	.....	1000	400	400	150	6,760 00
19000	20200	1600	20	50	.....	.....	....	35388	1500	500	650	250	18,591 56
.....	2300	1500	.....	65	.....	.....	....	.....	1000	500	400	150	8,670 00
.....	750	2500	20	65	.....	.....	10	8000	2000	750	300	250	14,625 00
19000	23650	10050	60	420	.....	.....	15	79388	8200	3250	2850	1250	72,056 56
OF BONAVENTURE.													
30300	52880	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	12,091 00
.....	37805	3575	.....	550	400	100	....	.....	2900	200	18800	2030	44,141 00
..	17049	5990	215	995	925	.....	....	17516	3010	1315	17250	3700	61,144 47
19000	23650	10050	60	420	.....	.....	15	79388	8200	3250	2850	1250	72,056 56
49300	131384	19615	275	1965	1325	100	15	96904	14110	4765	38900	6980	189,433 03

RETURN showing the Number and Tonnage of Vessels, Boats and Fishing Materials, **County of Gaspé**, Province

GASPÉ SUB-DIVISION

NAME OF PLACE.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.			
	Vessels.				Boats.			Nets.		Seines.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.
			$			$			$		$
Black Point	....	.....	....	....	12	250	20	300	180	....	.....
Newport	....	.....	....	....	17	770	25	490	200	.....	.....
Anse à Blondel	....	.....	....	....	20	2000	60	800	400	30	20
Newport Point	....	.....	....	....	30	1700	90	1800	800	.....	.....
Anse aux Canards	....	.....	....	....	17	500	34	400	160	.....	.....
Grand Pabos	....	.....	....	....	20	1420	40	800	360	60	45
Anse aux Basques	....	.....	....	....	33	2520	66	1300	650	60	50
Little Pabos	....	.....	....	....	6	480	12	360	200	30	30
Little River, West	....	.....	....	....	20	1200	45	800	400	25	30
Grand River	....	.....	....	....	135	9740	325	4625	2825	175	180
Little River, East	....	.....	....	....	29	1470	58	1220	600	50	35
Cape Despair	....	.....	....	....	21	830	37	740	370	90	60
Cape Cove	1	36	500	4	44	3630	88	1960	880	125	136
Anse au Beaufils	....	.....	....	....	28	1400	54	1080	540	50	60
Bonaventure Island	....	.....	....	....	67	2680	134	4824	2680	.....	.....
Percé	....	.....	....	....	127	7705	254	7070	2740	100	235
Corner of the Beach	2	110	1800	8	10	500	20	400	200	150	150
Barachois	2	174	5000	10	48	2400	101	1920	960	300	400
Belle Anse	....	.....	....	....	8	480	16	900	450	30	15
Malbaie	....	.....	....	....	30	1900	60	1480	740	30	20
Chien Blanc and Red Head	....	.....	....	....	35	1750	75	1830	915	115	200
Point St. Peter	1	80	1600	6	65	3900	130	2700	1350	130	200
Anse Brilliante and Seal Cove	....	....	....	....	28	920	46	380	300	30	30
Douglastown	2	170	5000	12	50	1750	70	1160	580	120	100
Haldimand and Sandy Beach	2	130	4000	10	20	600	38	2150	1500	60	50
Gaspé, North and South	2	125	2500	10	60	600	60	4000	2100	300	350
Peninsula	....	.....	....	....	17	300	20	1500	1200	.....	.....
Cape aux Os	....	.....	....	....	12	280	24	2000	1000	.....	.....
Little Gaspé	1	50	700	5	14	230	28	540	400	.....	.....
Grand Grêve	2	150	4000	13	26	601	52	1000	500	250	200
St. George's and Indian Cove	....	.....	....	....	20	500	40	750	450	.....	.....
Ship Head	2	100	2000	10	24	550	48	400	250	25	25
Total	17	1125	27100	88	1093	55556	2170	51679	26880	2335	2621

the Number of Men Employed, with the Kinds and Quantities of Fish, &c., in the of Quebec, for the Year 1889.

(Point Macquereau to Cape Gaspé).

Kinds of Fish.											Fish Products.				Value.
Smelt, lbs.	Salmon, fresh, lbs.	Cod, cwt.	Haddock, cwt.	Halibut, lbs.	Herrings, barrels.	Herrings, smoked, in boxes.	Trout, barrels.	Eels, barrels.	Cod Tongues and Sounds, barrels.	Lobsters, in cans, lbs.	Cod Oil, gallons.	Fish used as Bait, barrels.	Fish used as Manure, barrels.	Fish used for Local Consumption, barrels.	
															$ cts.
.....	.....	380	....	....	....	....	....	....	.. .	.....	380	150	....	50	2,097 00
.....	625	775	....	....	....	....	....	....	....	11356	775	320	....	115	5,837 72
.....	.....	1500	....	....	....	....	....	....	....	9920	1500	500	....	100	8,940 40
.....	546	3200	100	....	40	....	....	....	10	.....	3000	900	....	150	16,719 20
.....	1344	600	....	....	20	....	....	....	....	.....	500	400	....	75	3,848 80
20000	6000	1860	....	....	300	20	....	....	....	5472	1750	450	....	100	13,276 64
.....	.....	2910	....	....	....	....	....	....	....	.....	2600	620	....	125	14,110 00
.....	2449	600	....	....	....	50	....	....	3	.....	600	180	....	25	3,542 30
.....	.....	1800	....	600	....	40	....	....	....	18768	1800	500	40	200	11,812 16
.....	2300	10080	....	....	4	....	....	....	1	5400	9747	3525	....	965	54,500 30
.....	.....	2780	....	....	30	....	....	....	2	.....	2780	750	....	285	14,637 00
.....	.....	1750	....	....	....	....	....	....	....	31008	1750	250	....	100	12,195 96
.....	300	4010	....	....	....	....	....	....	5	.....	3760	1205	....	360	20,901 50
.....	.....	2550	....	....	....	....	....	....	....	.....	2500	750	....	250	13,325 00
.....	.....	5444	4	....	....	....	....	....	....	3300	5000	1100	....	400	27,438 00
.....	.....	10485	....	....	50	....	....	....	....	13296	9650	4025	....	780	56,753 02
.....	2444	1000	....	....	....	....	....	....	....	11856	1000	250	....	50	6,886 52
15000	8981	3500	....	2000	...	....	....	....	4	.....	3500	950	1400	250	21,311 20
.....	.....	560	....	....	....	....	....	....	....	12000	475	240	1000	32	4,858 00
.....	2207	2100	....	....	60	....	....	....	....	.....	1750	900	...	120	11,611 40
.....	.....	1750	....	....	20	....	....	....	....	9012	1500	1050	....	140	10,896 44
.....	.....	5200	....	....	30	....	....	....	....	7200	4500	1950	....	260	27,549 00
.....	.....	1000	....	....	40	....	....	....	....	11904	720	360	....	100	6,816 48
.....	4162	1400	....	....	40	....	....	....	....	.....	1200	700	....	300	9,322 40
.....	11902	500	....	....	....	....	....	....	....	.....	400	200	....	100	5,240 40
86860	22171	100	....	....	....	....	60	20	....	.....	70	20	....	160	10,675 20
.....	14100	110	...	....	20	....	....	....	....	.....	70	25	....	120	3,885 50
.....	.....	240	....	....	25	....	....	....	....	9792	150	120	....	60	2,715 04
.....	6150	490	....	....	10	....	....	....	....	.....	300	140	....	30	3,680 00
.....	5350	1500	....	....	16	....	....	....	....	.....	950	260	....	50	8,104 00
.....	.....	950	....	....	10	....	....	....	....	.....	750	250	....	40	4,675 00
.....	.....	1,000	.. .	....	....	....	....	....	....	.....	750	300	....	30	4,870 00
121860	91031	72124	104	2600	715	110	60	20	25	160284	66177	23340	2440	5922	423,031 58

RETURN showing the Number and Value of Vessels, Boats

MAGDALEN RIVER SUB-DIVISION

NAME OF PLACE.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Seines.			
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Salmon, brls.	Salmon, fresh, lbs.
			$			$			$		$		
Cap Rosiers	....	....	....	....	220	2220	224	2760	3700	160	250	....	....
Griffin Cove	....	....	....	....	150	3030	170	2780	3000	140	175	....	850
Fern Cove	....	....	....	....	6	85	8	100	45	....	....	....	....
Fox River	....	....	....	....	115	3300	161	3125	2090	180	250	....	....
Little River	....	....	....	....	26	470	38	525	350	....	....	....	....
Little Cape	....	....	....	....	28	470	38	600	320	....	....	....	....
Grand Anse	....	....	....	....	6	50	8	120	48	....	....	....	....
Echourie	....	....	....	....	13	225	20	255	105	....	....	....	....
Anse à Valeau	....	....	....	....	24	360	41	530	190	....	....	....	....
Grand Etang	....	....	....	....	25	480	25	554	430	120	140	....	....
Pointe Sêche	....	....	....	....	125	1000	130	2000	1000	....	....	....	....
Chlorydorme	....	....	....	....	125	2400	130	2080	1050	....	....	....	....
Grand Vallée	....	....	....	....	35	605	37	230	450	100	200	....	....
Magdalen River	....	....	....	....	26	295	27	300	260	30	35	8	800
Mont Louis	....	....	....	....	70	1125	78	1621	820	130	65	12	2000
Claude	....	....	....	....	18	540	35	400	200	....	....	....	....
Totals	....	....	....	....	1012	16655	1170	17980	14058	860	1115	20	3650

and Nets, &c., in the **County of Gaspé**, &c.—*Continued.*

(Cape Gaspé to Claude River.)

Kinds of Fish.									Fish Products.								Value.
Cod, cwt.	Haddock, cwt.	Halibut, lbs.	Herring, brls.	Mackerel, brls.	Trout, brls.	Cod Tongues and Sounds, barrels.	Lobsters, in cans, lbs.	Coarse and Mixed Fish, barrels.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Porpoise Oil, galls.	Cod Oil, galls.	Fish used as Bait, brls.	Fish used as Manure, barrels.	Fish used for Local Consumption, barrels.	$ cts.
4700	....	2000	275	....	....	20	....	....	....	....	....	....	2250	575	100	320	23,392 50
2300	....	4000	50	....	....	....	....	....	....	....	....	....	1800	285	100	90	11,527 50
100	....	300	4	....	....	....	....	....	....	....	....	....	70	11	....	8	522 50
4300	....	8000	60	....	....	....	....	....	8	1	24	....	2500	405	150	250	20,940 10
600	....	1000	15	....	....	....	....	....	....	....	....	....	380	48	....	20	2,864 00
600	....	800	18	....	....	....	....	....	....	....	....	....	380	45	....	30	2,891 50
150	....	250	5	....	....	....	....	....	....	....	....	....	90	15	....	10	743 50
280	....	250	6	....	....	....	....	....	....	....	....	40	200	28	....	20	1,387 00
665	....	750	16	....	....	....	....	....	....	....	....	....	235	39	75	30	3,109 00
1250	....	1700	8	....	....	3	....	....	....	....	....	....	1220	128	50	30	6,057 00
1400	....	.....	....	....	....	....	....	....	....	....	....	....	1200	100	50	150	6,855 00
2900	....	.....	150	....	....	....	....	....	....	....	....	....	2200	200	100	200	14,230 00
850	....	.....	10	....	3	....	....	....	....	....	....	....	500	108	....	125	4,332 00
350	....	1500	5	....	....	....	....	....	....	....	....	....	200	142	50	30	2,296 00
1468	....	2000	40	....	5	....	....	....	....	....	....	....	1000	500	150	160	8,739 00
200	....	.....	65	....	3	....	....	....	....	....	....	....	115	45	150	50	1,478 50
22113	....	22550	727	....	11	23	....	....	8	1	24	40	14340	2674	975	1523	111,365 10

RETURN showing the Number and Value of Vessels, Boats and

ST. ANNE DES MONTS SUB-DIVISION

NAME OF PLACE.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.									
	Vessels.				Boats.			Nets.		Seines.		Trap-nets.					
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Smelt, lbs.	Salmon, barrels.	Salmon, fresh, lbs.	Cod, cwt.
			$			$			$		$		$				
Martin River	..	....	.....	....	5	200	10	150	113	....	....	..	....	.....	4	.....	171
Marsouis	..	....	.....	....	8	325	16	200	170	....	....	..	....	.....	..	.....	325
Ste. Ann's	2	120	2600	9	39	1750	74	1802	1760	256	98	..	....	.....	..	2080	1930
Cape Chatte	1	45	200	4	28	1150	50	730	550	106	60	..	....	.....	2	120	650
Total	3	165	2800	13	80	3425	150	2882	2593	362	158	..	....	.....	6	2200	3076

MAGDALEN ISLANDS

Amherst Island	4	138	3950	27	130	3610	312	18192	8522	720	1075	1	350	.....	..	.....	6100
Grindstone do	8	352	1270	80	73	4380	219	3136	1434	880	960	..	....	.....	..	.....	5410
Allright do	14	551	19050	114	63	1260	168	2094	840	240	120	..	....	.....	..	.....	615
Bryon do	..	...	.....	....	12	240	24	250	96	....	....	..	....	.....	..	.....	250
Entry do	..	....	.....	....	8	160	18	400	160	....	....	..	....	.....	..	.....	15
Grosse Isle and Grand Entry	..	....	.....	....	65	1300	153	912	386	....	....	..	....	.....	..	.....	68
Total	26	1041	35700	221	351	10950	894	24984	11438	1840	2155	1	350	.....	..	.....	12458

TOTAL FOR THE

Sub-divisions—																	
Gaspé	17	1125	27100	88	1093	55556	2170	51679	26880	2335	2621	..	....	121860	..	91031	72124
Magdalen River	..	....	.....	....	1012	16655	1170	17980	14058	860	1115	..	....	.....	20	3650	22113
Ste. Ann's	2	165	2800	13	80	3425	150	2882	2593	362	158	..	....	.....	6	2200	3076
Magdalen Isl'ds	26	1041	35700	221	351	10950	894	24984	11438	1840	2155	1	350	.....	..	.....	12458
Totals	45	2331	65600	322	2536	86586	4384	97525	54969	5397	6049	1	350	121860	26	96881	109771

Fishing Materials, &c., in the **County of Gaspé**, &c.—*Concluded.*

(Martin River to Cape Chatte.)

Kinds of Fish.									Fish Products.									Value.
Haddock, cwt.	Halibut, lbs.	Herring, barrels.	Herring, smoked, boxes.	Mackerel, barrels.	Trout, barrels.	Eels, barrels.	Cod Tongues & Sounds, brls.	Lobsters in Cans, lbs.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, gallons.	Porpoise Oil, gallons.	Whale Oil, gallons.	Cod Oil, gallons.	Fish used as Bait, barrels.	Fish used as Manure, barrels.	Fish used for Local Consumption, barrels.	
																		$ cts.
.. ..	800	30	....	....	1	..	..	.. ..	.....	..	.....	....	....	96	11	430	32	1,355 90
....	500	36	....	....	..	..	..	.....	.....	..	.....	....	....	112	18	315	20	1,803 30
....	2000	150	....	....	6	..	3	.....	.....	2	....	180	160	420	185	53	301	10,848 00
....	1200	250	....	....	2	..	1	.....	.. ..	..	.. ..	....	....	350	120	100	281	5,300 00
....	4500	466	....	...	9	..	4	.....	.....	2	.....	180	160	978	334	898	634	19,307 20

SUB-DIVISION.

1075	4200	12000	....	747	..	..	12	44160	1750	..	5820	...	....	3430	890	610	555	103,054 20
185	10000	2000	....	1513	..	..	10	93540	7400	..	63100	....	....	2800	1180	660	1000	105,259 80
96	.....	.....	....	1070	..	..	..	23616	2150	.	8600	....	....	340	950	630	550	31,393 92
10	.....	.....	....	190	..	..	..	32640	780	..	2300	....	....	125	280	....	30	10,096 80
4	.....	80	....	70	..	..	..	.....	.....	..	.....	....	....	10	40	....	100	1,910 00
....	.....	.....	....	1010	..	..	..	135456	33	..	125	....	....	34	1130	....	380	34,988 32
1370	14200	14080	....	4600	..	..	22	329412	12113	..	79945	....	....	6739	4470	1900	2615	286,703 04

COUNTY OF GASPÉ.

104	2600	715	110	....	60	20	25	160284	.....	..	.....	..	....	66177	23340	2440	5922	423,031 58
....	22550	727	....	....	11	..	23	.....	8	..	24	40	....	14340	2674	975	1523	111,365 10
....	4500	466	....	....	9	..	4	.....	.....	2	....	180	160	978	334	898	634	19,307 20
1370	14200	14080	....	4600	..	..	22	329412	12113	..	79945	....	....	6739	4470	1900	2615	286,703 04
1474	43850	15988	110	4600	80	20	74	489696	12121	2	79969	220	160	88234	30818	6213	10694	840,406 92

RETURN showing the Number and Value of Vessels, Boats and Fishing Materials, **County of Saguenay,** in the Province

POINT DES MONTS SUB-DIVISION

NAME OF PLACE.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.							
	Vessels.				Boats.			Nets.		Seines.		Trap-Nets.			
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Salmon, barrels.	Salmon, fresh, lbs.
			$			$			$		$		$		
Manicouagan	1	24	300	3	7	140	14	90	30	....	....	1	300	....	300
Godbout	1	24	600	4	12	250	16	900	450	500	750	....	....	....	9500
Point des Monts	....	....	....	....	5	100	5	650	325	60	50	....	....	....	3588
Trinity Bay	1	5	150	2	7	140	6	640	320	....	....	....	....	....	8825
Cariboo Islands	6	116	2600	15	17	340	16	600	300	....	....	....	....	....	13178
Egg Island	1	16	400	3	10	200	13	400	250	....	....	....	....	....	.....
English Bay	....	....	....	....	26	600	43	720	575	....	....	....	....	....	7759
Pentecost	1	11	75	2	5	150	10	230	125	....	....	....	....	....	100
Cailles Rouge	....	....	....	....	2	60	4	90	45	60	95	....	....	....	.....
Totals	11	196	4125	29	91	1980	127	4320	2420	620	895	1	300	....	43250

MOISIE SUB-DIVISION

Jambons	....	....	....	....	10	600	14	643	475	....	....	....	....	....	.....
Ste. Marguerite	....	....	....	....	2	75	4	556	508	36	28	....	....	....	3800
Seven Islands	2	31	800	7	19	157	35	1280	1050	152	150	....	....	....	7549
Moisie	....	....	....	....	17	1200	87	4903	4300	425	350	....	....	4	154353
Pigou	....	....	....	....	5	200	10	425	305	425	359	....	....	....	.....
Totals	2	31	800	7	53	2232	150	7807	6638	1038	887	....	....	4	165702

the Number of Men Employed, with the Kinds and Quantities of Fish, &c., in the of Quebec, for the Year 1889.

(Manicouagan to Jambons.)

Kinds of Fish.						Fish Products.							Value.
Cod, cwt.	Halibut, lbs.	Herring, barrels.	Mackerel, barrels.	Trout, barrels.	Cod Tongues and Sounds, barrels.	Seal Skins, number.	Porpoise Skins, number.	Seal Oil, gallons.	Porpoise Oil, gallons.	Cod Oil, gallons.	Fish used as bait, barrels.	Fish used for Local Consumption, barrels.	$ cts.
.....	.....	.....	.....	.....	.....	30	1	180	60	.....	.....	10	231 00
268	1515	91	2	6	.....	92	1	552	70	134	7	15	4,047 40
123	2750	48	.....	2	.....	140	.....	840	.....	62	4	9	2,239 40
104	.....	11	.....	.....	.....	.....	.....	.....	.....	52	4	6	2,275 80
1535	8915	126	.....	.....	.....	.....	.....	.....	.....	773	152	31	10,832 30
55	3500	95	.....	.....	.....	.....	.....	.....	.....	23	2	7	990 20
1463	450	147	.....	.....	.....	.....	.....	.....	.....	732	148	60	8,791 60
62	.....	17	.....	1	.....	.....	.....	.....	.....	31	2	20	441 40
25	.....	22	.....	.....	.....	.....	.....	.....	.....	13	3	12	245 70
3635	17130	557	2	9	.....	262	2	1572	130	1820	322	170	30,094 80

(Jambons to Rivière au Bouleau.)

486	1400	525	.....	.....	1	.....	.....	.....	.....	220	143	15	4,556 50
52	100	25	.....	1	1	4	.....	12	.....	25	12	6	1,158 80
1170	2200	189	.....	.....	2	72	39	125	83	547	250	70	8,409 80
1109	4321	.....	.....	7	3	38	.....	98	.....	500	200	75	36,779 90
234	500	.....	.....	.....	2	8	.....	30	.....	120	60	8	1,196 00
3051	8521	739	.....	8	9	122	39	265	83	1412	665	174	52,101 00

RETURN showing the Number and Value of Vessels, Boats,

MINGAN SUB-DIVISION

NAME OF PLACE.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Seines.		Trap-Nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.
			$			$			$		$		$
Chaloupe	....	....	.....	....	3	150	6	70	30	50	100	....	....
Little River	....	....	.....	....	4	200	8	75	35	50	100	....	....
Sheldrake	....	....	.....	....	46	1800	109	150	200	200	250	2	160
Thunder River	....	....	.....	....	30	1500	65	150	200	150	120	....	....
Dock	....	....	.....	....	15	600	45	100	75	100	75	....	....
Rich Point	....	....	.....	....	10	400	30	100	75	100	75	....	....
Jupitagan	....	....	.....	....	4	160	9	200	200	.....	.....	....	....
Magpie	....	....	.....	....	60	2400	150	400	400	400	400	....	....
Magpie River	....	....	.....	....	3	75	3	200	200	.....	.....	....	....
St. John's	....	....	.....	....	40	1600	90	600	500	200	200	....	....
Long Point	....	....	.....	....	20	800	40	100	100	100	100	....	....
Mingan	....	....	.....	....	2	40	2	100	75	.....	.....	....	...
Romaine	....	....	.....	....	2	30	1	50	50	.....	.....	....	....
Esquimaux Point	22	550	20000	150	80	2400	200	2000	750	800	750	....	....
Betchouan	1	44	500	6	4	160	9	100	50	.....	.....	....	....
La Corneille	....	....	.....	....	2	75	3	200	125	.....	.....	....	....
Piashter Bay	....	....	.....	....	1	40	2	100	70	.....	.....	....	....
Watsheeshoo	....	....	.....	....	1	15	1	75	30	.....	.....	....	....
Totals	23	594	20500	156	327	12445	773	4700	3165	2150	2170	2	160

NATASHQUAN SUB-DIVISION

Nabisippi	....	....	.....	....	3	90	6	120	50	.....	.....	....	....
Agwanus	1	17	500	7	5	200	10	200	80	.....	.....	....	....
Washtawooka	....	....	.....	....	1	50	2	40	16	25	20	....	....
Natashquan Harbor	....	....	.....	....	10	350	20	400	200	26	30	....	....
Natashquan Village	6	157	3600	24	18	500	40	720	360	50	40	....	....
Natashquan River	....	....	.....	....	2	80	4	80	48	24	30	....	....
Totals	7	174	4100	31	39	1270	82	1560	754	125	120	....	....

Nets, &c., in the **County of Saguenay**, &c.—*Continued.*

(Chaloupe to Watsheeshoo).

Kinds of Fish.						Fish Products.							Value.
Salmon, barrels.	Salmon, fresh, lbs.	Cod, cwt.	Halibut, lbs.	Herring, barrels.	Trout, barrels.	Cod Tongues and Sounds, barrels.	Seal Skins, No.	Seal Oil, gallons.	Cod Oil, gallons.	Fish used as Bait, barrels.	Fish used as Manure, barrels.	Fish used for Local Consumption, barrels.	
													$ cts.
.....	.....	450	.....	.....	.....	.....	.....	.....	300	75	.....	15	2,092 50
.....	.....	550	.....	.....	.....	.....	10	50	450	80	.....	16	2,594 00
.....	.....	2000	1000	.....	.....	.....	5	25	2000	800	20	120	10,605 00
.....	.....	1200	1200	.....	.....	.....	15	75	1100	800	20	100	7,015 00
.....	.....	2000	.....	.....	.....	.....	.....	.....	1700	400	.....	15	9,340 00
.....	.....	1000	.....	.....	.....	.....	.....	.....	1200	300	.....	10	4,970 00
8	.....	400	.....	.....	.....	.....	20	100	300	80	.....	6	2,052 00
.....	.....	5000	1200	240	.....	.....	.....	.....	4300	950	50	220	25,130 00
45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	732 00
.....	40000	3400	900	250	.....	.....	.....	.....	3000	700	50	220	25,845 00
.....	.....	750	300	.....	.....	.....	20	100	500	130	15	50	3,692 50
8	.....	.....	.....	.....	3	.....	50	250	.....	.....	.....	3	320 00
.....	.....	.....	.....	.....	5	.....	10	50	.....	.....	.....	2	88 00
.....	.....	1650	.....	1000	....	.....	5000	25000	1000	500	.....	438	28,502 00
....	.....	150	.....	150	.....	.....	150	600	100	25	.....	20	1,747 50
9	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	3	176 00
12	.....	.....	.....	.....	2	.....	25	125	.....	.....	.....	2	295 00
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
82	40000	18550	4600	1640	12	.....	5305	26375	15950	4840	155	1243	125,196 50

(Watsheeshoo to English Point).

19	.....	60	.....	.....	.....	.....	.....	.....	50	50	.....	20	719 00
18½	.....	150	.....	5	.....	.....	7	28	135	100	.....	40	1,298 20
3	.....	70	.....	.....	.....	.....	.....	.....	60	20	.....	5	402 00
.....	.....	480	400	30	.....	.....	.....	.....	450	250	.....	50	2,835 00
18½	.....	1200	600	110	.....	2	5318	38000	1100	360	.....	100	27,514 00
75	.....	72	.....	8	4	.....	10	50	70	20	.....	20	1,728 00
134	.....	2032	1000	153	4	2	5335	38078	1865	800	.....	235	34,496 20

RETURN showing the Number and Value of Vessels, Boats,

WASHEECOOTAI SUB-DIVISION

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Seines.		Trap Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.
			$			$			$		$		$
Kegashka					4	80	3	75	50	20	15		
Mistassini					1	20	1	50	30				
Curlew Point					1	20	1	30	25				
Washeecootai					2	30	3	250	150				
Romaine East					5	150	7	275	200	40	40		
Coacoachoo					2	70	2	50	35				
Totals					15	370	17	730	490	60	55		

ST. AUGUSTIN SUB-DIVISION

Wolf Bay					3	120	4	150	100	40	25		
Etamamin					4	112	3	200	110				
Point du Morier					1	100	2	150	100				
Harrington					26	390	23	100	70	380	500		
Little Meccatina					5	75	8	80	50	50	60		
Whale Head					16	200	20	240	200	240	200	1	100
Mutton Bay					26	700	29	460	400	360	300	2	200
La Tabatière					7	200	11	1400	1600	200	200		
Big Meccatina					6	85	6	800	700	160	160	1	100
Kikapoe					2	23	3	450	330				
Poacachoo					2	95	2	400	300	43	20		
Rigolet					2	22	2	342	200				
St. Augustin Bay					3	33	3	630	520				
St. Augustin River					2	48	2	360	200				
Sandy Island					1	50	1	400	400				
Cawcasippi					1	30	1	120	80				
L'Anse à Portage					2	87	2	330	240				
Canso Harbor					1	40	2	150	100				
Chicatica					2	60	5	117	100	80	50		
Totals					112	2470	129	6879	5800	1553	1515	4	400

Nets, &c., in the **County of Saguenay**, &c.—*Continued.*

(English Point to Coacoachoo).

Kinds of Fish.							Fish Products.					Fish used for Local Consumption, barrels.	Value.
Salmon, barrels.	Salmon, fresh, lbs.	Salmon, in cans, lbs.	Cod, cwt.	Herring, barrels.	Trout, barrels.	Lobsters, in cans, lbs.	Seal Skins, No.	Seal Oil, gallons.	Cod Oil, gallons.	Fish used as Bait, barrels.	Fish used as Manure, barrels.		$ cts.
24	.....	.....	120	.....	.....	.....	7	21	70	20	.....	6	961 40
5	.....	.....	.....	.....	.....	.....	2	6	.....	.....	.....	.....	84 40
4	.....	.....	.....	.....	3	.....	25	75	.....	.....	.....	2	157 00
6	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	116 00
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12	304 00
2	.....	.....	35	.....	5	7350	7	21	25	5	.....	2	1,144 90
57	.....	.. .	155	.....	10	7350	41	123	95	25	.... .	22	2,767 70

(Coacoachoo to Chicatica).

½	.....	.....	75	.....	.....	.....	.....	.....	60	20	.....	5	382 00
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	408 00
1	.....	....	26	12	.....	.....	65	230	20	10	.....	3	360 00
4	.....	.....	1560	796	.....	.. ..	.....	.....	1400	300	.....	60	10,738 00
1	.....	.....	186	.....	.....	.....	120	440	150	50	.....	9	1,227 00
7	.....	.....	450	.....	....	.....	57	214	400	75	.....	30	2,447 10
17	.....	.....	1820	175	.....	.....	.....	.....	1750	400	.....	75	9,852 00
14	.... .	... .	214	200	.....	.....	665	2330	200	50	.....	20	3,712 00
2	.....	.. ..	435	202	.....	.....	168	536	400	70	.....	15	3,287 40
6	.....	.....	.....	28	.....	.....	76	250	.....	.....	.....	3	396 00
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	200 00
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6	72 00
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.. ...	.....	6	216 00
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	76 00
2	.....	.....	.....	.....	.....	.....	...	.....	.....	.....	.....	2	40 00
1½	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	32 00
1	.....	.....	32	.....	.....	.....	.....	.....	30	5	.. ...	3	175 50
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	24 00
2	.....	.....	120	28	.....	.....	.....	.....	100	20	.....	4	710 00
116	.....	.....	4918	1441	. ....	.....	1151	4000	4510	1000	.....	252	34,355 00

RETURN showing the Number and Value of Vessels, Boats,

BONNE ESPÉRANCE SUB-DIVISION

NAME OF PLACE.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Seines.		Trap-Nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.
			$			$			$		$		$
Nabitippi	....	....	....	....	1	20	1	80	40	....	....	....	....
Bull Cove	....	....	....	....	2	80	2	200	200	100	20	....	....
Rocky Bay	....	....	....	....	6	200	10	200	200	....	....	....	....
Lydia's Cove	....	....	....	....	2	100	2	200	200	....	....	....	....
Dog Islands	....	....	....	....	4	200	6	600	600	....	....	....	....
Pêche-à-Lizotte	....	....	....	....	1	30	1	300	100	....	....	....	....
Old Fort Island	....	....	....	....	10	400	20	100	50	100	50	....	....
St. Paul's River	....	....	....	....	4	100	4	600	400	....	....	....	....
Bonne Espérance	1	40	1400	12	60	3000	120	300	200	1600	2000	2	400
Waby Island	....	....	....	....	8	400	25	....	....	100	100	....	....
Burnt Island	....	....	....	....	10	800	25	....	....	100	100	....	....
Pigeon Island	....	....	....	....	10	800	24	100	100	600	200	....	....
Stick Point	....	....	....	....	4	300	10	200	200	400	100	....	....
Salmon Bay	....	....	....	....	60	3000	130	200	100	800	400	....	....
Little Fishery	....	....	....	....	2	100	3	200	200	100	100	....	....
Five Leagues	....	....	....	....	3	150	6	100	70	....	....	....	....
Middle Bay	....	....	....	....	30	1500	80	50	20	900	600	....	....
Belles Amour	....	....	....	....	1	50	2	60	60	....	....	....	....
Bradore Bay	....	....	....	....	20	1000	30	600	600	200	200	2	400
L'Anse des Dunnes	....	....	....	....	6	200	10	200	200	100	50	....	....
Long Point	....	....	....	....	4	200	6	600	600	100	60	....	....
Gulch Cove	....	....	....	....	10	400	15	200	200	500	400	2	400
Blanc Sablons	1	90	3000	8	4	100	5	400	400	300	200	....	....
Green Island	....	....	....	....	40	1600	100	500	500	1000	1200	....	....
Totals	2	130	4400	20	302	14730	637	5990	5240	7000	5780	6	1200

Nets, &c., in the **County of Saguenay**, &c.—*Continued.*

(Chicatica to Blanc Sablons).

Kinds of Fish.							Fish Products.						Fish used for Local Consumption, barrels.	Value.
Salmon, barrels.	Salmon, Fresh, lbs.	Salmon in Cans, lbs.	Cod, cwt.	Haddock, cwt.	Halibut, lbs.	Herring, barrels.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Cod Oil, galls.	Fish used as Bait, barrels.	Fish used as Manure, barrels.		
														$ cts.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	16 00
9	.....	.....	20	.....	.....	.....	.....	.....	.....	20	5	.....	4	255 50
6	.....	.....	150	.....	.....	.....	.....	.....	.....	150	40	.....	12	864 00
10	.....	.....	20	.....	.....	.....	.....	.....	.....	20	5	.....	4	271 50
2	.....	.....	.....	.....	.....	.....	300	.....	1800	..	... ..	.....	2	1,060 00
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	..	.....	.....	1	36 00
. ....	.....	.....	300	.....	.....	.....	.....	.....	.....	300	75	.....	25	1,532 50
20	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4	336 00
2	.....	.....	4000	.....	.....	300	.....	.....	.....	4000	1000	.....	250	21,332 00
.....	.....	.....	600	.....	.....	.....	.....	.....	.....	600	150	.....	25	2,965 00
.....	.....	.....	800	.....	.....	.....	.....	.....	.....	800	200	.....	25	3,920 00
2	.....	.....	400	.....	.....	.....	30	.....	180	400	100	.....	30	2,164 00
6	.....	.....	200	.....	.....	.....	30	.....	180	200	50	.....	10	1,193 00
.....	.....	.....	3000	.....	.....	.....	.....	.....	.....	3000	700	.....	300	15,450 00
6	.....	.....	50	.....	.....	.....	40	.....	240	50	10	.....	4	483 00
4	.....	.....	100	.....	.....	.....	60	.....	360	100	20	... ..	6	762 00
.....	.....	.....	1600	.....	.....	300	.....	.....	.....	1600	300	.....	60	8,930 00
6	.....	.....	30	.....	.....	.....	.....	.....	.....	30	10	.....	4	259 00
.... .	.....	.....	2000	.....	.....	.....	200	.....	1200	2000	400	.....	50	10,280 00
.....	.....	.....	400	.....	.....	.....	500	.....	3000	400	75	.....	10	3,612 50
.....	.....	.....	400	.....	.....	50	300	.....	1500	400	75	.....	20	3,052 50
. ....	.....	.....	1500	.. ...	.....	.....	.....	.....	.....	1500	300	.....	10	7,090 00
.....	.....	.....	1200	.....	.....	60	250	.....	1000	1200	200	.....	10	6,510 00
.....	.....	.....	3000	.....	... ..	100	.....	.....	.....	3000	400	.....	120	14,680 00
75	.....	.....	19770	.... .	.....	810	1710	.....	9460	19770	4115	.....	990	107,054 50

RETURN showing the Number and Value of Vessels, Boats,

ISLAND OF ANTICOSTI

NAME OF DISTRICT.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.					
	Vessels.				Boats.			Nets.		Seines.		Trap-Nets.	
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.
			$			$			$		$		$
Fox Bay	....	....	.....	....	10	400	20	400	200	100	100	....	.....
Salmon River	....	....	.....	....	3	120	6	130	130	.....	.....	....	.....
Mauzerolle	....	....	.....	....	10	400	20	400	200	.....	.....	....	.....
Potato River	....	....	.....	....	4	160	8	50	50	....	.....	....	.....
Wreck Cove	....	....	.....	....	6	240	12	80	100	.....	.....	....	.....
Tapp's Cove	....	....	.....	....	6	240	12	80	100	.....	.....	....	.....
Cow Cove	....	....	.....	....	6	240	12	80	100	.....	.....	....	.....
Capelin Bay	....	....	.....	....	8	320	16	120	150	.....	.....	....	.....
Macdonald's Cove	....	....	.....	....	36	1440	75	1000	500	120	100	....	.....
Indian Harbor	....	....	.....	....	6	240	12	100	150	.....	.....	....	.....
English Bay	....	....	.....	....	20	600	40	800	500	.....	.....	....	.....
Strawberry Cove	....	....	.....	....	12	240	26	500	300	100	80	....	.....
Becscie River	....	....	.....	....	1	30	1	50	50	.....	.....	....	.....
Jupiter River	....	....	.....	....	2	60	2	200	200	....	.....	....	.....
Shallop River	....	....	.....	....	2	100	2	150	150	.....	.....	....	.....
Dauphin River	....	....	.....	....	1	20	1	100	75	.....	.....	....	.....
Cormorant Point	....	....	.....	....	....	.....	...	.....	.....	.....	.....	....	.....
Totals	....	....	.....	....	133	4850	265	4240	2955	320	280	....	.....

RECAPITULATION FOR THE

SUB-DIVISIONS.													
Point des Monts	11	196	4125	29	91	1980	127	4320	2420	620	895	1	300
Moisie	2	31	800	7	53	2232	150	7807	6638	1038	887	....	...
Mingan	23	594	20500	156	327	12445	773	4770	3165	2150	2170	2	160
Natashquan	7	174	4100	31	39	1270	82	1560	754	125	120	....	.....
Washeecootai	....	....	.....	....	15	370	17	730	490	60	55	....	.....
St. Augustin	....	....	.....	....	112	2470	129	6879	5800	1553	1515	4	400
Bonne Espérance	2	130	4400	20	302	14730	637	5990	5240	7000	5780	6	1200
Anticosti	....	....	.....	....	133	4850	265	4240	2955	320	280	....	.....
Totals	45	1125	33925	243	1072	40347	2180	36296	27462	12866	11702	13	2060

Nets, &c., in the **County of Saguenay**, &c.—*Concluded.*

SUB-DIVISION.

Kinds of Fish.										Fish Products.							Fish used for Local Consumption, brls.	Value.
Salmon, brls.	Salmon, fresh, lbs.	Cod, cwt.	Halibut, lbs.	Herring, brls.	Mackerel, brls.	Trout, brls.	Eels, brls.	Cod Tongues and Sounds, brls.	Lobsters, in cans, lbs.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Porpoise Oil, galls.	Cod Oil, galls.	Fish used as Bait, brls.	Fish used as Manure, brls.		$ cts.
5	....	180	1200	....	....	....	....	....	....	10	..	30	....	100	125	50	30	1,314 50
10	.....	.....	.....	9	....	....	....	....	....	120	..	300	....	.....	.....	10	6	465 00
3	.....	200	300	30	....	....	....	....	....	.....	..	.....	....	120	30	....	6	1,115 00
4	.....	100	200	15	....	....	....	....	....	....	..	.....	....	75	15	....	2	604 50
....	.....	110	200	20	....	....	....	....	....	.....	..	.....	....	78	15	....	3	605 70
....	.....	118	200	25	....	....	....	....	....	.....	..	.....	....	80	15	....	3	658 50
....	.....	118	200	25	....	....	....	....	....	.....	..	.....	....	80	15	....	3	658 50
2	.....	160	750	200	....	....	....	....	....	.....	..	.....	....	100	120	....	10	1,807 00
4	....	1180	1200	150	....	....	....	....	....	.....	..	.....	....	750	200	....	40	6,264 00
....	.....	190	.....	30	....	....	....	....	....	.....	..	.....	....	130	30	....	3	989 00
....	.....	1000	8000	75	....	....	....	....	....	75	..	215	....	700	180	100	80	6,181 00
....	.....	900	3500	50	....	....	30	....	....	56	..	168	....	630	150	75	60	5,327 70
2	.....	.....	.....	.....	....	....	....	....	....	15	..	45	....	.....	.....	....	2	73 00
10	.....	.....	.....	.....	....	....	....	....	....	.....	..	.....	....	.....	.....	....	1	164 00
10	.....	.....	.....	.....	....	....	....	....	....	10	..	30	....	.....	.....	....	2	190 00
4	.....	.....	.....	.....	....	....	....	....	....	.....	..	.....	....	.....	.....	....	....	64 00
....	.....	50	....	....	....	....	....	....	....	.....	..	.....	....	25	10	....	1	229 00
54	.....	4306	15750	629	..	..	30	....	....	286	..	788	....	2868	905	235	252	26,710 40

COUNTY OF SAGUENAY.

....	43250	3635	17130	557	2	9	..	....	....	262	2	1572	130	1820	322	....	170	30,094 80
4	165702	3051	8521	739	..	8	..	9	...	122	39	265	83	1412	665	....	174	52,101 00
82	40000	18550	4600	1640	..	12	..	....	....	5305	..	26375	....	15950	4840	155	1243	125,196 50
134	.....	2032	1000	153	..	4	..	2	....	5335	..	38078	....	1865	800	....	235	34,496 20
57	.....	155	.....	.....	..	10	..	....	7350	41	..	123	....	95	25	....	22	2,767 70
116	.....	4918	.....	1441	..	..	..	....	....	1151	..	4000	....	4510	1000	....	252	34,355 00
75	.....	19770	.....	810	..	..	..	....	....	1710	..	9460	....	19770	4115	....	990	107,054 50
54	.....	4306	15750	629	..	..	30	....	....	286	..	788	....	2868	905	235	252	26,710 40
522	248952	56417	47001	5969	2	43	30	11	7350	14212	41	80661	213	48290	12672	390	3338	412,776 10

RETURN showing the Number and Value of Vessels, Boats and Fishing Materials, the Number of Men Employed, with the Kinds and Quantities of Fish, &c., in the **Gulf Division**, Province of Quebec, for the Year 1889.

GRAND TOTAL OF GULF DIVISION.

NAME OF COUNTIES.	VESSELS AND BOATS EMPLOYED IN FISHING.							FISHING MATERIAL.						KINDS OF FISH.				
	Vessels.				Boats.			Nets.		Seines.		Trap-Nets.						
	Number.	Tonnage.	Value.	Men.	Number.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Smelt, lbs.	Salmon, barrels.	Salmon, fresh, lbs.	Cod, cwt.	Haddock, cwt.
			$			$			$		$		$					
Bonaventure	7	330	6,500	33	1,190	27,780	1,912	57,389	33,698	5,875	3,805	11	275	49,300	.....	131,384	19,615	275
Gaspé	45	2,331	65,600	322	2,536	86.586	4,384	97,525	54,969	5,397	6,049	1	350	121,860	26	96,881	109,771	1,474
Saguenay	45	1,125	33,925	243	1,072	40,347	2,180	36,296	27,462	12,866	11,702	13	2,060	.....	522	248,952	56,417	.....
Total	97	3,786	106,025	598	4,798	154,713	8,476	191,210	116,129	24,138	21,556	25	2,685	171,160	548	477,217	185,803	1,749

NAME OF COUNTIES.	KINDS OF FISH.								FISH PRODUCTS.								FISH used for Local Consumption, barrels.	TOTAL.
	Halibut, lbs.	Herring, barrels.	Herring, smoked, boxes.	Mackerel, barrels.	Trout, barrels.	Eels, barrels.	Cod Tongues and Sounds, barrels.	Lobsters, in cans, lbs.	Seal Skins, No.	Porpoise Skins, No.	Seal Oil, galls.	Porpoise Oil, galls.	Whale Oil, galls.	Cod Oil, galls.	Fish used as Bait, barrels.	Fish used as Manure, barrels.		
																		$ cts.
Bonaventure	.....	1,965	1,325	.....	.....	100	15	96,904	.....	.....	.....	.....	.....	14,110	4,765	38,900	6,980	189,433 03
Gaspé	43,850	15,988	110	4,600	80	20	74	489,696	12,121	2	79,969	220	160	88,234	30,818	6,213	10,694	840,406 92
Saguenay	47,001	5,969	.....	2	43	30	11	7,350	14,212	41	80,661	213	....	48,290	12,672	390	3,338	412,776 10
Total	90,851	23,922	1,435	4,602	123	150	100	593,950	26,333	43	160,630	433	160	150,634	48,255	45,503	21,012	1,442,616 05

STATEMENT of the Value of Lobster Canneries and Outfit, in the Gulf Division, Season of 1889.

COUNTY OF BONAVENTURE.

Locality.	Number of Traps.	Value of Traps, Boats, &c.	Value of Buildings, Machinery, &c.	Total Value.
		$	$	$
Bonaventure	750	550	750	1,300
Nouvelle	1,100	900	900	1,800
Port Daniel	800	1,040	1,600	2,640
L'Anse au Gascon	600	520	600	1,120
Totals	3,250	3,010	3,850	6,860
COUNTY OF GASPÉ (Mainland).				
Newport	800	900	600	1,500
do	600	700	500	1,200
Grand Pabos	600	425	300	725
Little River West	750	875	600	1,475
Grand River	800	700	200	900
Cape Despair	1,200	1,300	1,200	2,500
Percé	500	500	1,200	1,700
Bonaventure Island	500	550	325	875
Corner of the Beach	735	835	800	1,635
Belle Anse	600	500	300	800
Chien Blanc	350	375	200	575
Bois Brulé	600	600	200	800
Seal Cove	800	850	1,200	2,050
Cap aux Os	500	450	300	750
Totals	9,335	9,560	7,925	17,485
COUNTY OF GASPE (Magdalen Islands).				
Bryon Island	1,000	880	1,000	1,880
do	500	440	600	1,040
Grosse Isle	500	440	420	860
do	300	270	325	595
Grand Entry	500	440	400	840
do	1,500	1,320	2,300	3,620
do	1,200	1,080	2,000	3,080
Old Harry	800	690	750	1,440
Wolf Island	700	620	1,000	1,620
Cap au Meulles	1,000	880	1,500	2,380
do	2,000	1,700	2,500	4,200
do	2,000	1,820	3,000	4,820
House Harbor	240	220	60	280
Etang du Nord	1,200	970	2,000	2,970
do	2,000	1,740	3,200	4,940
Amherst	1,500	1,320	2,500	3,820
Etang des Caps	2,000	1,740	2,000	3,740
Dune du Sud	600	570	4,000	4,570
Totals	19,540	17,140	29,555	46,695
COUNTY OF SAGUENAY (Labrador).				
Coacoachoo	400	500	300	800
TOTAL OF LOBSTER CANNERIES IN GULF DIVISION.				
County Bonaventure ... 4 canneries	3,250	3,010	3,850	6,860
do Gaspé (Mainland) ... 14 do	9,335	9,560	7,925	17,485
do do (Magdalen Islands) ... 18 do	19,540	17,140	29,555	46,695
do Saguenay ... 1 do	400	500	300	800
Grand Totals ... 37	32,525	30,210	41,630	71,840

STATEMENT of the Value of Material Employed in Fisheries of the Gulf Division, Season of 1889.

Description.	Value.
	$
Vessels, 97, of 3,786 tons	106,025
Boats, 4,798	154,713
Nets, 191,210 fathoms	116,129
Seines, 24,138 fathoms	21,556
Traps and smelt bag nets, 25	2,685
37 lobster factories and plant, 19,540 traps	46,695
Total	447,803

STATEMENT of Men Employed in Gulf Fisheries, Season of 1889.

Description.	Number.
Sailors	598
Fishermen and shoremen	8,476
Total	9,074

RECAPITULATION.

STATEMENT of the Yield and Value of the Fisheries of the **Gulf Division,** Province of Quebec, during the Year 1889.

Description.		Quantity.	Price.	Value.
			$ cts.	$ cts.
Smelt, fresh	Lbs.	171,160	0 05	8,558 00
Salmon, salt	Brls.	548	16 00	8,768 00
do fresh	Lbs.	477,217	0 20	95,443 40
Cod, salt	Cwt.	185,803	4 00	743,212 00
Haddock, salt	"	1,749	4 00	6,996 00
Halibut, fresh	Lbs.	90,851	0 10	9,085 10
Herring, salt	Brls.	23,922	4 00	95,688 00
do smoked	Boxes	1,435	0 25	358 75
Mackerel, pickled	Brls.	4,602	15 00	69,030 00
Trout	"	123	10 00	1,230 00
Eels	"	150	10 00	1,500 00
Cod tongues and sounds, pickled	"	100	10 00	1,000 00
Lobsters, canned	Lbs.	593,950	0 12	71,274 00
Seal skins	Pieces	26,333	1 00	26,333 00
Porpoise skins	"	43	5 00	215 00
Seal oil	Galls.	160,630	0 40	64,252 00
Porpoise oil	"	433	0 40	173 20
Whale oil	"	160	0 40	64 00
Cod oil	"	150,634	0 40	60,253 60
Fish as bait	Brls.	48,255	1 50	72,382 50
do as manure	"	45,503	0 50	22,751 50
do for local consumption	"	21,012	4 00	84,048 00
Total Value in 1889				1,442,616 05
do 1888				1,311,448 74
Increase for 1889				131,167 31

SYNOPSES OF FISHERY OVERSEERS' REPORTS IN THE PROVINCE OF QUEBEC, EXCLUSIVE OF THE GULF DIVISION, FOR THE YEAR 1889.

SOUTH SHORE DIVISION, FROM CAPE CHATTE TO POINT LÉVIS.

Overseer J. Joncas, who took the place of Mr. Saucier, whose services were dispensensed with, has charge of that portion of the River St. Lawrence extending from Cape Chatte to River Blanche, including Matane River. He reports a further decline in the salmon fishery, only 3,540 lbs. of fish having been caught. There were forty salmon killed with the fly in Matane River, against fifty-one last year. The river kept very low, which may, to some extent, account for this poor sport. One hundred and fifty barrels of sardine herrings are reported, when none were caught in 1888. Four hundred porpoises were killed. This is an unprecedented yield on this part of the coast of the St. Lawrence, and swells the total value of the fisheries of this division to $15,138.

Overseer L. E. Grondin's division extends from Rivière Blanche to Rimouski. He reports a decrease in the yield of salmon and herring, but an increase in sardines. No violations of the law came to his knowledge. The value of the fisheries in this district is given at $33,992.

Overseer H. Martin, whose division extends from Rimouski to Pointe à la Loupe, reports a slight improvement in the condition of the fisheries of his district. Salmon were more abundant in Rimouski River than for several years past, twenty-two fish having been caught by the anglers. The same cannot be said of south-west Bic River, which is almost ruined for want of protection. The local lessee had a guardian this summer. The total value of the fisheries of this division is put down at $15,775.

Overseer Napoléon Levesque, who has charge of the frontage of the County of Temiscouata, reports that although fish may seem as plentiful as ever, the catch was much below the average, especially in that of shad at Isle Verte, where a decrease of 50 per cent. was experienced. This is attributed to the stormy weather which prevailed during the whole fishing season. No violations of the fishery regulations were detected. The fishways were kept in good order. The value of the fisheries of this district foot up to only $13,296. Last year the fishermen of Ile Verte killed forty-three porpoises and twenty-four seals; this season none are reported.

Overseer X. Pelletier, whose district extends from Ste. André to Ste. Anne de la Pocatière, reports a considerable increase in the yield of the fisheries of his division. Salmon show an increase of 80 per cent. Eels more than doubled, 156,750 lbs. being returned. Thirty-six porpoises were killed in the sedentary fisheries of Ste. Anne and Riviere Ouelle. The total value of the fisheries is given at $22,557.

Overseer Eugene Pelletier's division extends from Ste. Anne de la Pocatière to Point Levis. With the exception of the shad fishery, which was a partial failure, owing to violent north-east storms destroying most of the fisheries, the other branches show well enough, yielding about 70 per cent. on invested capital. This overseer complains of an alarming destruction of small fish in the brush fisheries of the north coast as well as in those of the south. He is credibly informed that the small fish destroyed at one time in some of those fisheries might have supplied the wants of the fishermen for ten years had they been allowed to grow, instead of finding their way to the manure heap. Another cause of abuse exists in the eel weirs, which, being usually set in May, before farming time, are never visited till late in summer. The boxes are then found full of rotten fish of all kinds. The bottom of these weirs are indeed supplied with wire netting, as the law directs, but they are left so long without being visited that they destroy thousands of food fish. Mr. Pelletier expects to be able to check the injurious practice of seining for smelts by next season. The otal value of the fisheries amounts to about $20,000.

NORTH SHORE OF THE RIVER ST. LAWRENCE, FROM QUEBEC TO BERSIMIS

QUEBEC AND MONTMORENCY DIVISION

Overseer L. P. Huot's division comprises the coast of the Island of Orleans and that part of the north shore of the River St. Lawrence extending from Château Richer to St. Joachim. Shad and eels show a steady decline. The absence of the former fish was not only noticed in the division, but in all others in the Quebec district, hardly any being seen on the city market. Smelts have also decreased. Salmon shows an improved yield as compared with last year; so does bar and whitefish. Several fishermen in this division gave up fishing, three salmon stations and as many eel weirs being unoccupied. It is to be hoped that a few more of those which are too closely set may drop out. The total value of the fish caught in this division comes up to nearly $20,000, and is all disposed of in the local markets.

Overseer U. Bhereur's division extends from River du Gouffre to River aux Canards, including Coudres Island. Salmon shows a steady decline. Herring and sardines have increased. One hundred and forty-six porpoises were killed by the fishermen of Coudres Island. The total value of the fisheries of this division is $20,000, including the estimated yield of the inland waters, where a good catch of trout is reported.

Overseer L. N. Catellier, who has charge of the Saguenay District, says that the salmon appeared earlier than usual. Fishing was good, showing an increase of 50 per cent. over the yield of last year, and would have been still larger had not the nets been partly carried away by heavy gales during the fishing season. In six weeks' time the hatchery net at Point Rouge caught 559 fish, 310 of which were kept for manipulating purposes, while the others were liberated alive. The herring fishery shows some improvement. Complaints of seining in Petite Bergeronnes River could not be substantiated. Speckled trout were abundant, and good catches are reported. One party caught 85 lbs. and another 100 lbs. in two tides. Illegal salmon fishing is said to have been carried on by poachers from Ha! Ha! Bay.

There are only three fish-ways in this division. Two of them are in good order, but the third one, on Escoumains River, although built at considerable expense, never proved efficient.

The total value of the fisheries of this division is given at $19,061.

FROM QUEBEC TO UPPER OTTAWA.

RICHELIEU COUNTY DIVISION.

Overseer Félix Latraverse, who has charge of this division, reports a catch of 46,000 lbs. of eels, 12,000 lbs. of pickerel and 15,000 lbs. of pike. He recommends that seining be prohibited during the months of July and August, in order to give additional protection to the fry. The weather was very propitious, and thanks to an early spring the fishermen had a remunerative season.

Overseer J. F. Picotin, who has charge of the St. Francis River, reports an increased yield of eels. He is not aware of any abuse existing in his division, as fishermen generally conform to the regulations. During the close season he confiscated a few fish. The Nicolet River is said to be unprovided with fish-passes. The total value of the fisheries of these two dvisions amounts to $15,659.80.

VERCHÈRES DIVISION.

Overseer John Morris, of the Montreal district, is in charge of this division. Shad shows a decline; eels have slightly increased, a catch of 326,000 lbs. being reported. Although the number of licensed fishermen was under that of last year, the yield of the fisheries exceeds that of 1888 by nearly $2,000, being reckoned at $27,100.

IBERVILLE DIVISION, INCLUDING THE RICHELIEU RIVER.

Overseer J. B. Chevalier, who has charge of the Richelieu River from St. John to Lake Champlain, reports the fishery regulations as having been well observed by the majority of the fishermen. It is only a few who cause trouble. The decline noticed in the fisheries of the Richelieu is attributed to the excessive number of hoop nets, which, with their leaders, almost bar the channels of the river. The meshes of these nets should be 1½ inch, the same as the seines. The Richelieu is now much frequented by sportsmen from Montreal and from across the border, who, by angling and trolling, average from fifty to seventy-five fish per day, such as bass, pickerel and perch. The total value of the fisheries of this division is put down at $5,000; a decrease of 50 per cent.

Overseer J. O. Dion, who has charge of the lower part of the Richelieu River from Richelieu village to Sorel, reports a large falling off in the number of fish frequenting this part of the river. This he ascribes to the inefficient fish-pass at the Government dam at St. Ours, which prevents the fish from Lake St. Peter from ascending. He approves of the present regulation allowing the use of seines between 1st October and 15th April. The value of the fisheries of this division is small, amounting to barely $2,000.

CHATEAUGUAY DIVISION.

Overseer J. Laberge, who has charge of the Chateauguay River, reports an increased catch of bass. The other kinds of fish are said to be about the same. There were only five licensed gill-net fishermen in this district; five others fished all summer in the neighboring district; thirteen took licenses for night lines, but a large number refused to pay any licenses at all. There are two fish-passes in this division, both in good order, but that at Ste. Martine was damaged by ice in the spring, and the water kept so high during the whole summer that it was impossible to repair it. To properly protect bass, all kinds of fishing should be prohibited in Chateauguay River from the 15th April to the 15th June in each year. It might also be advisable to enact a close season for perch—from 1st to 15th May. This fish being handy for the farmers during the summer, it should be protected. The value of the fisheries of this division is set down at $22,240.

BEAUHARNOIS DIVISION.

Overseer John Kelly, who has charge of that part of Lake St. Francis fronting on the counties of Beauharnois and Huntington, reports bass as being less plentiful than formerly. This might have been caused by the destruction of young fish and spawn by seines in the spring. Pickerel gave about an average yield. Maskinongé seems to have increased. The close seasons were fairly well observed. Six fish-ways were erected in this division during the summer, four on Chateauguay River, one on Hinchinbrooke River and another on Trout River. Mr. Kelly prides himself in having succeeded in compelling all mill-owners in his division to desist from the injurious practice of throwing sawdust and other mill refuse into the water. Some constructed elevators, while others took proper steps to abate the nuisance. The farmers along the stream fully appreciate what the Department did for them in this matter. The total yield of the fisheries of this division is valued at $15,607.

MISSISQUOI BAY DIVISION.

Overseer P. E. Luke, who has charge of Missisquoi Bay, returns a falling off in every kind of fish in his division, which he attributes to a less vigorous prosecution of the fishery. No violations of the law occurred, the different close seasons being well observed. Only one fish-way was kept open; the other three could not be completed, owing to the high water. The total value of the fisheries of this division is put down at $3,000.

MAGOG AND BROME DIVISIONS.

Overseer N. A. Beach, who has charge of Lake Memphremagog, states that there seems to be a steady increase of lake trout, bass and whitefish. Pickerel are declining. For this he is unable to account. He recommends that the close season for lake trout or lunge be made to read from 1st October to 1st December. Some difficulty was experienced with poachers during the close season. One party was fined $20 and had his boat confiscated.

Overseer T. Marchessault, who had charge of Brome Lake, resigned in the fall.

The total value of these two divisions is reckoned at $12,970.

SHERBROOKE AND MEGANTIC DIVISIONS.

Overseer P. W. Nagle, who has charge of the waters of the County of Stanstead, states that, owing to his vigilance, the different regulations were well observed and very few violations of the law occurred. Fishing was good, over 15,000 lbs. of trout being returned. No impediments to the ascent of fish exist; all the fish-ways are in proper repair.

Overseer Joel Shurtleff, who has charge of the waters of the County of Compton, reports the catch of fish as an average one. Trout are said to be getting more abundant, 10,000 lbs. at least being taken in his division. The close seasons are fairly observed. Mr. Shurtleff made only two seizures of nets, but could not discover the owners. Out of eight fish-ways in this district, some are not in good repair.

Overseer A. L. Darche, whose division comprises the inland waters of the counties of Richmond and Wolfe, reports a fair observance of the fishery regulations and no violations of the close seasons. Only one net was seized and destroyed. The four fish-ways in the streams of this division were kept open and in satisfactory order. Mr. Darche returns 66,000 lbs. of trout, 14,000 lbs. of sturgeon, 17,000 lbs. of bass, 14,800 lbs. of pickerel—and other fish, valued altogether at $7,560.

Overseer J. B. McDonald, who has charge of Lake Megantic, states that since nothing but angling is permitted in his division speckled and lake trout are becoming more abundant. He still has trouble with poachers. A case is now pending in court. Mr. McDonald claims that the close season for speckled trout should begin about the 1st September, and that for lunge on the 1st October, to suit the waters of his division.

Overseer John McCaw, who supervises lakes in the Wolfe and Megantic divisions, returns the catch of trout at 22,000 lbs., pickerel 17,000 lbs., and pike 12,000 lbs. A great deal of damage is done to the waters of Lake Aylmer by mill owners allowing the sawdust and refuse of their mills to run into the rivers. Speckled trout caught on the 18th September were this year full of spawn. Very little illegal fishing is carried on, a sharp look out being kept all the time.

Overseer P. C. Bourk, who has charge of the inland waters of the County of Megantic, reports that the laws were well enforced, with the exception that sawdust was allowed to drift in Becancour, Noire and Blanche rivers.

ST. MAURICE AND CHAMPLAIN DIVISION

Overseer Joseph Lambert, of Three Rivers, has charge of that portion of the St. Lawrence fronting on the County of St. Maurice. He reports a falling off of 50 per cent. in the yield of the fisheries of his division as compared with last year. This the fishermen attribute to a scarcity of fish, but the overseer is of opinion that more than one-half of them did not fish, in order to escape paying license fees. There was only 30,000 bushels of tom-cods taken, as against 75,000 in 1888. The total value of the fisheries of his district is given at $50,250.

BERTHIER, MONTCALM AND JOLIETTE DIVISION.

Overseer S. A. Grant, who had charge of that part of the River St. Lawrence fronting on the County of Maskinongé, was also entrusted with the Berthier Division, in the place of ex-overseer Hanson, resigned.

He reports a considerable falling off in the yield of the fisheries of his division, which he attributes to a less vigorous prosecution of this industry, and to the fact that several fishermen preferred not to fish with hoop nets rather than to pay license fees.

The total value is $3,539 for the present season.

MONTREAL DIVISION.

Overseer John Morris, whose division comprises the waters around the Island of Montreal, reports that the fishery laws were better observed this season than during former years.

The most noticeable increase is in maskinongé; bass and doré also exceeded the catch of 1888. Mr. Morris recommends the extending of close season for doré until 1st June, if not longer, in order to give this fish better protection.

The total value of the fisheries of this division reaches only $18,436, a decrease of $10,000, caused by the failure of shad only.

TERREBONNE DIVISION.

Overseer Jos. Lauzon, who has charge of Rivers Jésus and Des Prairies, reports a large falling off in sturgeon and shad; the other kinds of fish yielded about the same as last year. He is at a loss to explain the reason. No illegal fishing came to his knowledge. All the fish caught in this division are used for local consumption.

Overseers Cloutier and *Filiatrault*, who have charge of the inland waters of the County of Terrebonne, return, the former 35,000 lbs. and the latter 6,000 lbs. of trout. Upon complaints of illegal fishing, Mr. Cloutier visited his division in the fall, but failed to establish sufficient proofs to warrant prosecutions.

The total value of the fisheries of this whole division is given at $5,240.

LAKE OF THE TWO MOUNTAINS AND ISLE PERROT DIVISIONS.

Overseer Théophile Sabourin's division comprises the south shore of the River Ottawa, from Oka to Carillon. He states that, fishermen are now reconciled to the license system and conform to the regulations. There is a falling off in the yield of sturgeon, but an increase in the catch of coarse fish.

Overseer Julien Monpetit, who has charge of the waters around Isle Perrot, returns eighteen licensed fishermen, besides sportsmen. He had some trouble with poachers from Lachine and Montreal, but hopes to keep the upper hand another season. The yield was an average one; fishermen being very reluctant in giving statement of their catch, apprehending an increase in the license fee.

The total value of the fish caught in this division is put down at $3,566.

Overseer R. W. Jones, who attends to the north shore of the Ottawa, from Oka to Carillon, states that, for some unexplained reason, maskinongé and bass only made their appearance in September. The yield is, therefore, considerbly diminished. Other kinds of fish were about the same as in 1888. There are no fish-ways on the North River yet; the prevailing notion being that manufactures and the lumber industry are of more importance than fish. The weekly close time and other close-seasons were fairly well observed.

The total value of the fish caught in this division is reckoned at $6,042.

UPPER OTTAWA AND GATINEAU DIVISIONS.

Overseer Joseph Marion, who has charge of the fisheries of the County of Ottawa, reports as follows:—

"According to your instructions, directing me to make a visit of my division for the purpose of collecting the fishery statistics and ascertaining the state of the fisheries generally, I visited the following places: The bays around River Blanche, Petrie Islands, the bays between L'Ange Gardien and the Lièvre, Campbell's Bay, Black Bay, Pentecost Bay, &c., &c., down to Salmon River.

"Generally speaking, the yield of the fisheries has been satisfactory enough, and the value of fish caught will be fully equal to that of last year, but there is a great falling off in the quality. Most of the fish caught this year consists of carp, pike, perch, catfish, mudpouts and eels. The best grades of fish, such as bass, whitefish, pickerel and maskinongé have almost entirely disappeared, and there is only one voice to attribute this state of things to sawdust and mill rubbish, which, after filling up the bays, are now spreading to the beds where fish spawn. At all these places sawdust to the depth of 2, 3, 4, and sometimes 10 feet is noticed. The main channel opposite the Blanche is mostly choked up with mill rubbish and sawdust; the large bay of L'Ange Gardien and the Lièvre are also full of sawdust. Opposite these bays, on the south side of the River Ottawa, are large bays where the fishermen used to take great numbers of fish. Now, however, the mouths of these bays are completely blocked up with sawdust. Between these last places, on the same side of the Ottawa, down to the Nation River, there is not quite so much mill rubbish, but it must be observed that the spawning grounds are mostly on the north side, such as Campbell's Bay, Black Bay and Pentecost Bay, where a good deal of sawdust is found.

"It is the same on the islands and low lands, where farmers used to gather much hay. These places are now entirely covered with sawdust, so much so that the land is not even fit for grazing purposes.

"On Lake des Chênes, on the upper part of my division, where no net fishing is allowed, angling and night-line fishing have been very satisfactory. The fish are of a better quality than in the lower part of my division, and the sawdust nuisance is not so great. Maskinongé, bass and pickerel afforded great sport to anglers, while large numbers of catfish, mudpouts and eels were caught with night lines. The Aylmer markets were amply supplied with fish during the whole season.

"Warden Joynt, of Lake Bernard, reports good catches of trout and bass in the inland waters of Masham and Aldfield."

The total value of the fisheries of this division is set down at $23,763.

STATISTICS OF FISHERIES IN THE PROVINCE OF QUEBEC

RETURN of Fishing Stations, Number and Value of Fishing Boats and Nets, Number
the River St. Lawrence, from **Cape Chatte**

NAMES OF PLACES.	FISHING BOATS.		Number of Fishermen.	KINDS OF NETS USED.								
				Gill Nets.			Seines.		Brush Fisheries.		Eel Fisheries.	
	Number.	Value.		Number.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Number.	Value.
		$				$		$		$		$
Capucins, Mechins, Grosses Roches, Ste. Félicité, Matane	98	1960	300	76	1660	1680	....	....	21	525	3	20
Boules and Rivière Blanche	....	....	....	....	....	....	....	....	8	128	....	....
Métis	....	....	....	....	....	....	....	....	5	100	....	....
St. Flavie	....	....	....	....	....	....	....	....	1	16	....	....
St. Luce	....	....	....	....	....	....	....	....	13	208	....	....
St. Anne	....	....	....	....	....	....	....	....	11	220	....	....
Rimouski	....	....	....	....	....	....	....	....	3	60	....	....
Rivière Rimouski	1	20	6	....	....	....	....	....	....	....	....	....
Islet à Canuel	11	220	20	2	50	24	....	....	7	400	3	40
Rivière Hâtée	14	175	28	....	....	....	1	30	13	500	....	....
L'Anse au Foin and St. Fabien	8	83	19	1	250	75	1	20	9	290	....	....
St. Simon	9	100	20	1	125	75	6	100	6	200	9	100
Lake Temiscouata & Touladi River	12	120	24	20	300	126	....	....	2	40	....	....
Inland Waters, Co. Temiscouata	....	....	....	....	....	....	....	....	....	....	....	....
Ile aux Pommes	1	100	2	....	....	....	....	....	1	100	....	....
Trois Pistoles	2	100	11	....	....	....	....	....	9	330	....	....
Isle Verte	6	800	10	....	....	....	....	....	4	250	4	40
do (mainland)	17	2150	40	1	30	25	....	....	19	1900	....	....
Cacouna	....	....	18	1	30	30	....	....	11	2200	6	110
Rivière du Loup	....	....	7	17	397	410	....	....	3	320	4	40
Notre Dame du Portage	....	....	10	....	....	....	....	....	4	110	9	118
St. André	....	....	....	....	....	....	....	....	7	380	14	275
Kamouraska	....	....	....	....	....	....	....	....	5	580	2	110
St. Denis	....	....	....	....	....	....	....	....	5	465	13	540
Rivière Ouelle	....	....	....	....	....	....	....	....	1	40	40	2535
Ste. Anne la Pocatière	....	....	....	....	....	....	....	....	....	....	18	858
Inland waters, County L'Islet	....	....	....	....	....	....	....	....	....	....	....	....
St. Roch	....	....	36	....	....	....	....	....	....	....	36	1820
St. Jean	....	....	46	....	....	....	....	....	....	....	46	2160
L'Islet	....	....	20	....	....	....	....	....	....	....	20	1190
Isle aux Grues	....	....	23	....	....	....	....	....	23	4900	....	....
L'Anse à Gill	....	....	10	....	....	....	....	....	10	1000	....	....
Cap St. Ignace	....	....	10	....	....	....	....	....	10	690	....	....
St. Thomas	....	....	40	....	....	....	....	....	40	2000	....	....
Berthier	4	48	26	....	....	....	....	....	3	1800	23	425
St. Valier	3	120	2	....	....	....	....	....	2	2900	....	....
St. Michel	5	180	5	....	....	....	....	....	5	2800	....	....
Beaumont	9	270	4	....	....	....	....	....	4	2100	....	....
Point Levis	10	400	6	....	....	....	....	....	5	3000	....	....
Totals	210	6846	743	119	2842	2445	8	150	270	30552	250	10381

EXCLUSIVE OF THE GULF OF ST. LAWRENCE.

of Men, together with the Yield, Value and Kinds of Fish, &c., on the South Shore of to Point Lévis, during the Year 1889.

Kinds of Fish.										Fish Products.			Value.
Salmon, lbs.	Trout, lbs.	Shad, lbs.	Herring, brls.	Eels, lbs.	Sturgeon, lbs.	Sardines, brls.	Whitefish, lbs.	Pickerel, lbs.	Coarse and Small Fish, brls.	Fish for manure, brls.	Porpoise Skins, No.	Porpoise Oil, galls.	
													$ cts.
3540	1000	.....	250	1000	.....	150	.....	.....	600	.....	400	24000	15,318 00
1125	.....	.....	300	.....	.....	50	.....	.....	.....	50	.....	.....	1,6000 00
840	.....	.....	1680	.....	.....	490	.....	.....	.....	180	.....	.....	8,448 00
120	.....	.....	50	.....	....	12	.....	.....	.....	20	.....	.....	270 00
1950	.....	.....	2285	.....	.....	432	.....	.....	.....	380	.....	.....	11,016 00
2805	.....	.....	1915	.....	.....	135	.....	.....	.....	875	.....	.....	9,063 50
450	.....	.....	850	.....	.....	35	.....	.....	.....	.....	.....	.....	3,595 00
220	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	44 00
940	.....	240	1020	1260	.....	62	.....	.....	23	1050	.....	.....	5,138 00
1280	.....	500	1000	.....	.....	100	.....	.....	13	1000	.....	.....	5,125 00
2040	.....	150	400	.....	.....	75	.....	.....	15	525	.....	.....	2,549 50
5360	.....	375	350	2500	.....	36	.....	.....	7	290	.....	.....	2,918 50
.....	10500	.....	110	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,490 00
.....	4200	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	420 00
.....	.....	.....	3	.....	.....	3	.....	.....	.....	1000	.....	.....	521 00
525	.....	50	300	.....	400	70	.....	.....	.....	1000	.....	.....	2,042 00
.....	.....	40	9	100	200	35	.....	.....	.....	150	.....	.....	236 40
1950	.....	16000	100	.....	200	305	.....	.....	.....	3900	.....	.....	4,627 00
2800	.....	800	466	1300	1400	500	.....	.....	.....	170	.....	.....	4,219 00
800	.....	900	180	2000	800	7	.....	.....	.....	509	.....	.....	1,377 50
.....	.....	.....	.....	4200	40	2	.....	.....	.....	27	.....	.....	273 90
.....	.....	.....	280	12250	1450	671	.....	.....	.....	328	.....	.....	4,119 00
500	.....	5400	20	3700	4250	1460	.....	.....	.....	780	.....	.....	5,751 00
1490	.....	800	8	29400	300	600	.....	.....	.....	111	.....	.....	4,015 50
720	.....	8000	.....	84800	500	.....	.....	.....	.....	153	23	1380	6,462 50
.....	.....	620	.....	26600	2300	.....	240	.....	.....	110	13	780	2,209 40
.....	6000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	600 00
.....	.....	.....	.....	21100	.....	.....	.....	.....	201	.....	.....	.....	1,869 00
.....	.....	.....	.....	35360	.....	.....	.....	.....	175	.....	.....	.....	2,646 60
.....	.....	.....	.....	15100	.....	.....	.....	.....	95	.....	.....	.....	1,191 00
.....	.....	.....	.....	60100	.....	.....	.....	.....	.....	.....	.....	.....	3,606 00
.....	.....	.....	.....	7000	1800	.....	40	.....	32	.....	.....	.....	627 20
.....	.....	.....	.....	640	5800	.....	160	.....	20	.....	.....	.....	459 20
.....	.....	.....	.....	7200	6100	.....	400	.....	28	.....	.....	.....	914 00
230	.....	1160	.....	10425	5650	.....	3140	110	17	.....	.....	.....	1,388 90
380	.....	2200	.....	16000	4800	.....	8476	816	15	.....	.....	.....	2,228 04
540	.....	3300	.....	15750	3100	.....	1680	576	18	.....	.....	.....	1,659 96
630	.....	3675	.....	5750	1200	.....	1875	240	12	.....	.....	.....	963 90
1000	.....	8375	.....	11875	1000	.....	2090	425	20	.....	.....	.....	1,727 70
32235	21700	52585	11576	375410	41290	5230	18101	2167	1291	12608	436	26160	122,731 20

RETURN of Fishing Stations, Number and Value of Fishing Boats and Nets, together with the Number of Fishermen employed in the Fisheries of the River and Gulf St. Lawrence from Quebec to

NAMES OF PLACES.	FISHING BOATS.		Number of Fishermen.	KINDS OF NETS USED.								
				Gill Nets.			Seines.		Brush Fisheries.		Eel Fisheries	
	Number.	Value.		Number.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Number.	Value.
Island of Orleans.		$				$		$		$		$
St. Laurent			8	8	2300	1620	90	75				
St. Jean			9	8	1580	1005					1	50
St. François (south side of island)			15	10	2290	2160					5	92
Argentenay			9	4	820	660					5	122
St. François (north side of island)			6						6	175		
Ste. Famille			11						11	263		
North Coast.												
St. Pierre			4	4	880	800						
Isle Madame			4	4	800	480						
Isle aux Réaux			1	1	200	120						
St. Joachim			22						5	1700	17	417
Ste. Anne			8						2	40	6	105
Chateau Richer			6	1	500	600			5	102		
Bay St. Paul and neighboring lakes			57								36	870
Ile aux Coudres			84						33	340	84	520
St. Irenée			18						18	200		
Les Eboulements			65						31	330	44	430
Malbaie			16	1	100	18			15	150		
St. Fidèle			8	2	210	46			6	75		
St. Siméon			9	3	300	60			6	70		
Port aux Quilles			1	1	100	25						
Baie des Rochers			1						1	10		
Island waters, County Charlevoix												
Saguenay Division.												
Rivière aux Canards	2	25	2						2	45		
Anse Ste. Catherine	2	25	2						2	50		
Tadoussac	3	45	3						2	40		
Pointe Rouge	2	50	4	2	150	150						
Moulin Baude	1	10	1	1	80	60						
Pointe à la Cariole	1	15	1	1	80	80						
Anse au Pilote	2	30	3	2	130	100						
Petites Bergeronnes (anglers)												
Bon Desir	2	25	2						2	45		
Escoumains	7	84	7	4	274	152			4	84		
Baie des Bacons			4						4	150		
Sault au Mouton			1						1	40		
Mille Vaches	1	10	3						3	75		
Pointe Boisvert	1	10	3	1	140	75			2	60		
Portneuf	2	38	3	2	212	107						
Sault au Cochon	1	20	1	1	140	70						
Pointe Colombier	1	600	3	2	184	92						
Bersimis	2	25	2						2	30		
Inland waters												
Lake St. John Division.												
*St. Joseph d'Alma to Roberval			380	300	9000	1500						
Totals	30	1002	528	363	20470	9980	90	75	163	4074	198	2606

* 100,000 pounds winninish included.

with the Yield, Value and Kinds of Fish, &c., on the North Shore of the River **Bersimis,** during the Year, 1889.

Kinds of Fish.												Fish Products		Value.
Salmon, lbs.	Trout, lbs.	Shad, lbs.	Herring, brls.	Eels, lbs.	Sturgeon, lbs.	Sardines, brls.	White Fish and Barfish, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse and Small Fish, brls.	Fish for Manure, brls.	Porpoise Skins, No.	Porpoise Oil, Galls.	
														$ cts.
840	.....	8700	.....	12000	200	.....	12480	2436	.....	...	.....	....	.....	2,566 56
832	.....	6140	.....	14800	.....	.....	11880	2748	.....	...	.....	....	.....	2,538 08
376	.....	2900	.....	15500	.....	.....	8008	2916	.....	...	.....	....	.....	1,994 80
112	.....	900	.....	8350	.....	.....	5280	1260	.....	...	.....	....	.....	1,075 40
.....	.....	.....	.....	1000	800	.....	1592	840	.....	24	.....	....	.....	357 76
.....	.....	.....	.....	1550	3600	.....	5112	2356	.....	124	.....	....	.....	1,231 32
96	.....	200	.....	7400	.....	.....	6360	1440	.....	...	.....	....	.....	1,070 40
448	.....	3250	.....	6800	3200	.....	8040	1200	.....	...	.....	....	.....	1,599 80
.....	.....	.....	.....	1400	2000	.....	4800	480	.....	...	.....	....	.....	616 80
.....	.....	.....	.....	26606	.....	.....	1080	360	.....	...	.....	....	.....	1,704 36
.....	.....	.....	.....	2250	.....	.....	1200	540	.....	11	.....	....	.....	296 40
16	.....	80	.....	3000	10000	.....	31440	6516	.....	133	.....	....	.....	4,093 16
.....	52400	.....	.....	19700	.....	.....	.....	.....	.....	...	.....	....	.....	6,422 00
.....	.....	.....	.....	9400	.....	120	.....	.....	.....	40	691	146	8760	5,477 50
.....	.....	.....	3	.....	.....	100	.....	.....	.....	...	1200	....	.....	912 00
.....	.....	.....	6	6000	.....	60	.....	.....	.....	10	1500	....	.....	1,344 00
400	.....	.....	30	.....	.....	25	.....	.....	.....	20	1300	....	.....	985 00
200	.....	.....	10	.....	.....	10	.....	.....	.....	18	450	....	.....	389 00
260	.....	.....	6	.....	.....	10	.....	.....	.....	10	400	2	120	392 00
140	1000	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	128 00
.....	4000	.....	1	.....	.....	1	.....	.....	.....	...	50	....	.....	432 00
.....	†35000	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	3,500 00
396	.....	.....	15	.....	.....	5	.....	.....	.....	...	30	....	.....	169 20
270	500	.....	12	.....	.....	10	.....	.....	.....	...	60	....	.....	212 00
180	2000	.....	25	.....	.....	.....	.....	.....	.....	...	500	150	9000	4,786 00
10062	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	2,012 40
3294	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	658 80
2700	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	540 00
5472	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	1,094 40
.....	2000	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	200 00
.....	.....	.....	21	.....	.....	5	.....	.....	.....	...	25	....	.....	111 50
3564	300	.....	152	.....	.....	15	.....	.....	.....	...	300	....	.....	1,545 80
.....	.....	.....	130	.....	.....	25	.....	.....	.....	...	50	....	.....	620 00
.....	.....	.....	12	.....	.....	13	.....	.....	.....	...	20	....	.....	97 00
.....	.....	.....	22	.....	.....	10	.....	.....	.....	...	200	....	.....	218 00
3348	.....	.....	400	.....	.....	20	.....	.....	.....	...	150	....	.....	2,404 60
2484	1000	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	596 80
2808	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	561 60
2970	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	594 00
360	.....	.....	13	.....	.....	.....	.....	.....	.....	...	30	....	.....	139 00
.....	25000	.....	.....	.....	.....	.....	.....	.....	.....	...	.....	....	.....	2,500 00
.....	10000	.....	.....	.....	.....	.....	40000	100000	40000	650	.....	....	.....	20,150 00
41628	133200	22170	858	135756	19800	429	137272	123092	40000	1040	6956	298	17880	78,337 44

† Estimated.

RETURN of Fishing Stations, Number and Value of Fishing Boats and Nets, extending from **Quebec** to **Upper**

NAMES OF PLACES.	FISHING BOATS.		Number of Fishermen.	KINDS OF NETS USED.								
				Gill Nets.			Seines.		Brush Fisheries.		Eel Fisheries.	
	Number.	Value.		Number.	Fathoms.	Value.	Fathoms.	Value.	Number.	Value.	Number.	Value.
		$				$		$		$		$
Richelieu County (including St. Francis and Yamaska Rivers)	70	280	85	17	180	69	330	155	....	.....	239	412
Verchères	6	90	12	....	.....	....	170	115	....	.....	....	.....
Chambly and Iberville (including Richelieu River)	28	374	10	...	.....	.....	300	305	....	.....	1	3000
Chateauguay	45	810	90	5	110	15	447	447	....	.....	....	.....
Beauharnois	47	900	122	41	.....	.....	570	960	....	.....	....	.....
Missisquoi Bay	10	90	28	....	.....	.....	814	330	....	.....	....	.....
Magog and Brome	75	750	100	....	.....	.....	.....	.....	....	.....	....	.....
Sherbrooke and Megantic	20	300	150	....	.....	.....	.....	.....	....	.....	....	.....
*Three Rivers	47	410	40	94	1415	470	.....	.....	....	.....	25	75
Berthier, Joliette and Montcalm	43	370	11	....	.....	.....	370	665	....	.....	....	.....
Terrebonne	256	1536	386	....	.....	.....	.....	....	....	.....	14	38
Montreal, from Longueuil to Lachine Rapids	14	60	40	....	.....	.....	170	110	....	....	11	11
River Beaudet	....	.....	2	....	.....	.. ..	60	30	....	.....	....	.....
Lake of Two Mountains (including Isle Perrot)	38	392	45	80	1080	185	.....	.....	....	.....	1	4
Lower Ottawa (including inland waters of County Argenteuil	16	15	22	50	1140	420	.. ..	.....	....	.....	....	.....
Upper Ottawa	80	500	95	300	3200	2000	.....	.....	....	.....	....	.....
Gatineau Lakes	....	.....	.....	....	.....	.....	.....	.....	....	.....	....	.....
Totals	795	6877	1238	587	7125	3159	2940	2817	....	.....	291	3540

*30,000 bushels tom cods.

together with the Yield, Value, and Kinds of Fish, &c., within the District **Ottawa,** during the year 1889.

Kinds of Fish.										Value.
Trout, lbs.	Shad, lbs.	Eels, lbs.	Sturgeon, lbs.	White Fish, lbs.	Maskinonge, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse and Small Fish, lbs.	$ cts.
.....	3000	49000	100000	360	4700	1450	13200	15800	152000	15,659 80
.....	2000	326000	20000	10000	10000	3000	4000	34000	90000	27,100 00
.....	.....	59900	300	.....	80	945	1735	3710	90600	6,681 10
.....	.....	40000	80000	.....	7000	20000	32000	50000	300000	22,240 00
.....	.....	44400	41250	.....	5550	7700	11350	28650	252000	15,607 50
.....	11375	.....	.....	.....	.....	.....	22000	.....	33400	3,004 50
16000	.....	2000	.....	.....	.....	15500	151000	.....	42000	12,970 00
65200	4150	16500	14000	4500	22800	23400	39950	31300	48300	17,142 00
55000	60000	20000	75000	.....	2000	1000	10000	30000	505000	50,230 00
6000	.....	30450	100	.....	200	3000	4300	400	21200	3,539 00
41000	3100	1975	1760	.....	.....	5575	3330	3920	.....	5,240 40
.....	11100	100200	25000	1500	50000	8500	30300	30200	110000	18,436 00
.....	.....	20000	400	.....	300	250	300	250	.....	1,287 50
.....	.....	3000	7425	.....	7100	5200	11470	11150	31900	3,566 20
11600	850	2500	24000	3100	1400	1000	7400	15100	55000	6,042 00
.....	.....	9500	8000	.....	18000	.....	15025	.....	45600	4,399 50
140000	.....	.....	.....	18500	.....	14400	.....	60400	.....	19,364 00
334800	95575	725425	397235	37960	129130	110920	357360	314880	1777000	232,509 50

COMPARATIVE RECAPITULATION

OF the Quantity and Value of the different Fisheries, from **Cape Chatte to Point Lévis,** in 1888 and 1889.

Kinds of Fish.		Prices for 1889.	1888.		1889.	
			Quantity.	Value.	Quantity.	Value.
		$ cts.		$ cts.		$ cts.
Shad	Lbs.	0 06	103,456	6,207 36	52,585	3,155 10
Eels	Lbs.	0 06	443,548	26,612 88	375,410	22,524 60
Herring	Brls.	4 00	13,628	54,512 00	17,576	46,304 00
Sturgeon	Lbs.	0 06	117,250	7,035 00	41,290	2,477 40
Sardines	Brls.	3 00	2,656	7,968 00	5,230	15,690 00
Trout	Lbs.	0 10	21,600	2,160 00	21,700	2,170 00
Salmon	Lbs.	0 20	25,130	5,026 00	32,235	6,447 00
Whitefish and bar fish	Lbs.	0 08	50,664	4,053 12	18,101	1,448 08
Pickerel	Lbs.	0 06	5,440	326 40	2,167	130 02
Porpoise skins	No.	4 00	83	322 00	436	1,744 00
do oils	Galls.	0 40	4,980	1,992 00	26,160	10,464 00
Coarse and mixed fish	Brls.	3 00	11,219	33,657 00	1,291	3,873 00
Fish for manure	Brls.	0 50	4,646	2,323 00	12,608	6,304 00
Seal skins	No.	1 00	24	24 00	.....	.....
do oil	Galls.	0 40	172	68 80	.....	.....
Total Value of the Fisheries		.....	.....	152,297 56	.....	122,731 20
Decrease		.....	.....	.....	.....	29,566 36

COMPARATIVE RECAPITULATION

OF the Quantity and Value of the different Fisheries, from **Quebec** to **Bersimis,** in 1888 and 1889.

Kinds of Fish.		Prices for 1889.	1888.		1889.	
			Quantity.	Value.	Quantity.	Value.
		$ cts.		$ cts.		$ cts.
Shad	Lbs.	0 06	11,835	710 10	22,170	1,330 20
Eels	Lbs.	0 06	142,237	8,534 22	135,756	8,145 36
Herring	Brls.	4 00	134	536 00	858	3,432 00
Sturgeon	Lbs.	0 06	26,200	1,572 00	19,800	1,188 00
Sardines	Brls.	3 00	124	372 00	429	1,287 00
Salmon	Lbs.	0 20	27,906	5,581 20	41,628	8,325 60
Trout	Lbs.	0 10	131,500	13,150 00	133,200	13,320 00
Pickerel	Lbs.	0 06	111,230	6,673 80	123,092	7,385 52
Pike	Lbs.	0 05	50,000	2,500 00	40,000	2,000 00
Bar and whitefish	Lbs.	0 08	161,648	12,931 84	137,272	10,981 76
Winninish	Lbs.	0 06	100,000	6,000 00	100,000	6,000 00
Coarse and mixed fish	Brls.	3 00	1,204	3,612 00	1,040	3,120 00
Fish as manure	Brls.	0 50	10,370	5,185 00	6,956	3,478 00
Porpoise skins	No.	4 00	345	1,380 00	298	1,192 00
do oil	Galls.	0 40	5,760	2,304 00	17,880	7,152 00
Total Value of the Fisheries		.....	.....	71,042 16	.....	78,337 44
Increase		.....	.....	.....	.....	7,295 28

COMPARATIVE RECAPITULATION

OF the Quantity and Value of the different Fisheries, from **Quebec** to **Upper Ottawa**, in 1888 and 1889.

Kinds of Fish.	Prices for 1889.	1888.		1889.	
		Quantity.	Value.	Quantity.	Value.
	$ cts.		$ cts.		$ cts.
Shad..... Lbs.	0 06	398,960	23,937 60	95,575	5,734 50
Eels..... "	0 06	904,510	54,270 60	725,425	43,525 50
Sturgeon..... "	0 06	440,770	26,446 20	397,235	23,834 10
Trout..... "	0 10	385,450	38,545 00	334,800	33,480 00
Whitefish..... "	0 08	81,160	6,492 80	37,960	3,036 80
Maskinongé..... "	0 06	136,160	8,169 60	129,130	7,747 80
Bass..... "	0 06	186,775	11,206 50	110,920	6,665 20
Pickerel..... "	0 06	538,795	32,327 70	357,360	21,441 60
Pike..... "	0 05	338,530	16,926 50	314,880	15,744 00
Mixed fish..... "	0 03	2,063,400	61,902 00	1,777,000	53,310 00
Tom Cod..... Bush.	0 60	75,000	45,000 00	30,000	18,000 00
Total Value of the Fisheries.....			325,224 50		232,509 50
Decrease for 1889.....					92,715 00

RECAPITULATION.

YIELD and Value of the Fisheries of the **Province of Quebec** (*Exclusive of the Gulf Division*) for 1889.

Kinds of Fish.	Quantity.	Value.
		$ cts.
Shad..... Lbs.	170,330	10,219 80
Eels..... "	1,236,591	74,195 46
Herring..... Brls.	12,434	49,736 00
Sturgeon..... Lbs.	458,325	27,499 50
Sardines..... Brls.	5,659	16,977 00
Trout..... Lbs.	489,700	48,970 00
Salmon..... "	73,863	14,772 60
Pickerel..... "	482,619	28,957 14
Pike..... "	354,880	17,744 00
Whitefish and Bar fish..... "	193,333	15,466 64
Maskinongé..... "	129,130	7,747 80
Bass..... "	110,920	6,655 20
Tom Cod..... Bush.	30,000	18,000 00
Winninish..... Lbs.	100,000	6,000 00
Mixed fish..... Brls.	11,216	60,303 00
Fish as manure..... "	19,564	9,782 00
Seal skins..... No.	.....	.....
do oils..... Galls.	.....	.....
Porpoise skins..... No.	734	2,936 00
do oils..... Galls.	44,040	17,616 00
Total in 1889.....	.....	433,578 14
do 1888.....	.....	548,564 22
Decrease.....	.....	114,986 08

GENERAL RECAPITULATION.

YIELD and VALUE of the Fisheries in the **Whole Province of Quebec**, for 1889.

Kinds of Fish.		Quantity.	Value.
Cod	Cwt.	185,803	743,212 00
Herring, pickled	Brls.	36,356	145,424 00
do smoked	Boxes.	1,435	358 75
Mackerel	Brls.	4,602	69,030 00
Haddock	Cwt.	1,749	6,996 00
Halibut	Lbs.	90,851	9,085 10
Salmon, pickled	Brls.	548	8,768 00
do fresh	Lbs.	551,080	110,216 00
Shad	do	170,330	10,219 80
Eels	do	1,236,591	74,195 46
do pickled	Brls.	150	1,500 00
Sardines	do	5,659	16,977 00
Smelt	Lbs.	171,160	8,558 00
Sturgeon	do	458,325	27,499 50
Trout	do	489,700	48,970 00
do	Brls.	123	1,230 00
Winninish	Lbs.	100,000	6,000 00
Bar and whitefish	do	193,333	15,466 64
Maskinongé	do	129,130	7,747 80
Bass	do	110,920	6,655 20
Pickerel	do	482,619	28,957 14
Pike	do	354,880	17,744 00
Tom cod	Bush.	30,000	18,000 00
Cod, tongues and sounds	Brls.	100	1,000 00
Lobsters, canned	Lbs.	593,950	71,274 00
Small and mixed fish	Brls.	11,216	60,303 00
Sealskins	No.	26,333	26,333 00
Porpoise skins	No.	777	3,151 00
Fish oils	Galls.	355,897	142,358 80
Fish used as bait and manure	Brls.	113,322	104,916 00
Fish used for local consumption	do	21,012	84,048 00
Total for 1889			1,876,194 19
do 1888			1,860,012 96
Increase			16,181 23

APPENDIX No. 7.

ONTARIO.

SYNOPSES OF FISHERY OVERSEERS' REPORTS IN THE PROVINCE OF ONTARIO FOR THE YEAR 1889.

LAKE SUPERIOR DIVISION.

Overseer W. C. Dobie has charge of that portion of Lake Superior extending from Pigeon River to State Island. He reports the season's fishing successful and remunerative. Fishing began early (the ice leaving on the 22nd of April) and continued till the end of December, so that with fewer men and boats, a larger catch was effected. It was specially remunerative in Thunder Bay. This is ascribed to the fact that very little fishing has been done there for a couple of years. The blasting operations carried on at Caribou Island in connection with the building of a breakwater have been completed. This accounts for the run of whitefish returning to this locality. The placing of a guardian at Rossport, the only shipping place in this division besides Port Arthur, ensured a strict observance of the close season. Mr. Dobie favors the opinion that the decrease of fish in certain localities is due to fluctuations in various localities, and to the fact that nets are sometimes driven from their moorings during storms when full of fish, lodging on reefs, where other fish will not stay while any vestiges of the old nets or decayed fish remain. Many old fishermen share the officer's opinion on this point. They have also found out by experience that a larger weight of fish can be caught with larger mesh than smaller ones, and it is recommended that merchants selling nets of illegal-sized mesh be made liable to a penalty. There is an increased demand for pound nets. These are, however, mostly used for sturgeon and pickerel in shoal water, where gill-net fishing is impossible. Although this is a large division, the fishing grounds are somewhat limited. Owing to the great depth of water the reefs and shoals favorable to fishing operations are few compared with those of Lake Huron, where fishing can be carried on in almost any part of the lake. The total value of the fisheries is given at $108,984, exceeding that of 1888 by $40,000.

Overseer Jos. Wilson's division extends from Slate Island, on Lake Superior, to Collin's Inlet, Georgian Bay. He reports whitefish fully as numerous as during the previous season. Sturgeon are not so plentiful as they were, owing undoubtedly to their having been fished during the spawning time. The close seasons were well observed by fishermen between the Sault and Michipicoton River, as well as by those at Jackfish Bay; but the same cannot be said about Peninsula Harbor and Port Caldwell, which were frequented by unlicensed fishermen. On Lake Huron the licensees observed the law, but much illegal fishing was carried on by Indians or half-breeds, and even a few white men, who seemed determined to fish, irrespective of close season. Their headquarters were at Grant's Island and near the mainland opposite. For proper protection of the fish during the close seasons, nothing short of steam tugs will enable the fishery officers to efficiently perform their duties. Guardian Strain rendered valuable services; he seized several nets during the close season. With the exception of Nepigon River, nothing has been done by the Local Government for the protection of speckled trout in the rivers of the north shore of Lake Superior. Large numbers are caught in nets and exported to the United States, where they bring a high price. Mr. Wilson again urges the necessity of adopting a

close time for sturgeon. The total value of both divisions under his charge amounts to $84,223, that is to say: $64,862 in Lake Superior and $19,361 in Manitoulin Division.

MANITOULIN ISLAND DIVISION.

Overseers John Marks, of St. Joseph Island, and *Alex. Brinkman*, of Manitowaning, have charge of the waters around Manitoulin Island. The former found it impossible to obtain reliable data from the fishermen of his district, some of them having left for the woods immediately after the fishing season. He states that fishing was fully as good as last year.

Mr. Brinkman reports the close seasons as fairly well observed. Some of the pound-net fishermen neglected to remove their stakes. He ordered them to do so, as it would have endangered navigation. Squaw Island, with its five tugs and forty-five boats manned by 155 fishermen, using over one hundred thousand fathoms of nets, is the principal fishing ground of this division. The value of its fisheries, consisting chiefly of whitefish and salmon trout, is $116,000. South Bay and Duck Islands stations come next, the former with two tugs and ten boats, yielding $70,000; the latter with four tugs and twenty boats, producing $55,000 Forty pound nets were fished in the whole of this division. The total value of the fisheries is given at $328,386.

GEORGIAN BAY DIVISION.

Overseer F. G. M. Fraser, who has charge of that part of Georgian Bay between Collins Inlet and Victoria Harbor, reports a serious decline in the yield of whitefish, which he ascribes to over-fishing and illegal practices during the close season. He is of the opinion that poaching is increasing, and that the officers are powerless to check it without the use of a steam craft. Whitefish is killed in close season by spearing, and to chase such offenders in the fall is a hard as well as a dangerous work. During the month of November this officer found a large number of gill nets full of whitefish between Indian Harbor and Shawanaga Islands. These nets had evidently been used during the close season, before being washed ashore on the shoals by the strong gales which prevailed at that time. It is needless to state that both the nets and the fish were completely destroyed. Although the catch of whitefish seems large, when it is taken into consideration that 350,000 fathoms of nets are used in this district, it should be larger. No mesh under 5 inches should be used for whitefish. During the spring close season Mr. Fraser seized at Moose River a very destructive pound net, full of pickerel, which were liberated alive. Small creeks and inlets are dammed up, and pickerel caught during the close season are penned there for safe-keeping till the close season is over, when they are shipped to some fishing station. The increased catch in bass, pickerel and pike is due to a more active prosecution of these fisheries, and not to an increase of fish. There are no fish-ways in this division. Large quantities of sawdust and rubbish are allowed to escape from the Parry Sound and Muskoka mills. The total value of the fisheries is put down at $120,972.

Overseer Samuel Fraser, who has charge of that part of Georgian Bay extending from Victoria Harbor to Allenwood, reports the yield of fisheries in his division about the same as last year. Fish seem as plentiful now as they have been during the last ten years. The individual catch may not be quite as large, as compared with the increased number of boats and men in the business; yet, the aggregate quantity is fully up to the standard. The close seasons were fairly observed by the regular fishermen; but during the spring close time poachers were out the moment he left the grounds, and fished as long as pickerel could be caught. The same may be said of whitefish, because there was no officer there to prevent illegal fishing. Herring fishing was good; one man alone took ninety barrels. There must have been at least 500 barrels caught by unlicensed fishermen. Pickerel is coming into great favor as table fish, and is fished through the winter, giving employment to a great many persons who otherwise would be idle. Although the demand for this fish

increases, there seems to be no decline is the supply. It is reported that bass are caught in hoop-nets and shipped with mudpouts and other coarse fish, which cover the bass. The total value of the fisheries in this division is given at $33,869.

Overseer G. S. Miller's division comprises that part of Georgian Bay extending from Allenwood to Colpoy's Bay. He states that, with the exception of whitefish, which has almost entirely disappeared from that part of the coast of Georgian Bay, the yield will exceed that of the previous year. The use of small mesh nets is more prevalent now than ten or twelve years ago. Several fishermen from Lake Huron have of late come to this division with small mesh nets, and the other fishermen follow their example. If this is not soon remedied the valuable fisheries of Georgian Bay will soon be a thing of the past, as is the case in Lake Michigan. During the close season, with the assistance of Capt. Holmes and the Government cruiser, Mr. Miller was enabled to seize several nets and one boat. Fines were also imposed on the owners.

The fisheries in this district are valued at $91,484, an increase of 100 per cent. over last year.

LAKE HURON DIVISION.

Overseer R. H. Murray, who has charge of that portion of the coast of Lake Huron extending from Stoke's Bay to Point Clark, sent no report.

Overseer Hugh McFayden, who has charge of the Saugeen River, reports that, owing to rainy weather in June, the waters rose as high as during the spring, thus shortening the fishing season. One fish-way was erected during the summer, which will, it is hoped, prove efficient. The sawdust nuisance is abating.

Overseer H W. Ball, of Goderich, has charge of that part of the Lake Huron shore extending from Southampton to Goderich. He reports the catch at Kincardine as much below the average. This he attributes to stormy weather, and to the wasteful destruction of young whitefish by herring seines at Sauble Beach. It is stated that hundreds of barrels of young fish were thus taken last season and buried along the Sauble shore. An average yield is returned for Goderich and Southampton. Gill-net fishermen complain of the use of pound nets with smaller meshes than theirs, and contend that if the former are allowed to use such engines, the mesh should be identical with that of the gill-nets, in order to afford protection to the young fish.

The yield of the fisheries of this district is valued at $43,600.

Overseer H. B. Quarry, of Parkhill, who has charge of that portion of Lake Huron from Goderich to Blue Point, states that he experienced great difficulties in obtaining accurate returns of the catch from the fishermen of his division. He returns an average yield, valued at about $10,726.

Overseer J. C. Pollock, whose division extends from Blue Point, on Lake Huron, to Baby's Point, on River St. Clair, reports a falling off in the fisheries. This he ascribes to the excessive use of pound-nets on both sides of his division, and to the oil refinery at Sarnia, which allows the refuse to pollute the waters of the St. Clair River. Fishermen complain of being compelled to pay to the Indians from $30 to $70 every season for the privilege of having their shanties on the beach of the reserve.

LAKE AND RIVER ST. CLAIR DIVISION, INCLUDING THAMES RIVER.

Overseer C. W. Raymond attends to the upper part of Lake St. Clair. With the exception of coarse fish, he reports a small catch. This he attributes to the fact that the close season begins so early that the seiners have no chance to fish, and if they use their seines after the 15th of April they are liable to injure the spawning beds. He would rather see them fish early in the spring, and prohibit seining all summer.

Overseer A. Quenneville's district comprises that part of Lake St. Clair near the mouth of Thames River. He reports a poor catch, owing to the pound-nets between Belle River and Detroit River.

Overseer T. McQueen's division extends from the mouth of Thames River to Lewisville. Twenty stations were fished, giving employment to 100 men. The principal kinds of fish caught are pickerel, pike and coarse fish. Prices in the American markets were good. The only complaint from the fishermen was about sunken logs and limbs of trees; but, generally, the season was favorable. The close season was well observed, and no infractions of the law came to this officer's notice.

Overseer John Crotty, who has charge of the central portion of the Thames River, between Lewisville and Wardsville, reports a small catch, owing to ice jams in the spring. No violations of the fishery laws came to his notice.

Overseer P. McCann, who has charge of the upper portion of the Thames River, reports fishing satisfactory. The laws were well observed, with the exception of two cases of alleged spearing, in which he was unable to secure sufficient evidence to convict the parties concerned. There are fourteen fish-ways in this division, four of which were put in this season under this officer's supervision. Two other mill-owners have been notified to replace their old fish-passes by new ones, one of which will be completed before the next run of fish. The fisheries of the Thames River division are valued at $30,711; an increase of 30 per cent.

DETROIT RIVER DIVISION.

Overseer Joseph Boismier, who has charge of the Detroit River, states that the catch of whitefish was not quite so good as in 1888. Herrings show a large increase. This officer believes that, fishermen undervalue their catch. They complain of the length of the close season for whitefish. The total value of the fisheries of this division is about the same as last year, $19,191.

LAKE ERIE DIVISION.

Overseer David Girardin, who succeeded James Cummins, has charge of the Pelee Island division. He reports an enormous catch of herring in the spring, but prices were then very low. The fall catch, when prices were higher, was light, owing to the heavy winds which kept the fish off shore. The catch of whitefish was much in excess of that of last year. The total value of the fisheries of this division is set down at $66,979.

Overseer Wm. Prosser's division (*Pelee Main*) extends from the mouth of Detroit River to the county line of Kent. The falling off in the catch of herring cannot properly be attributed to a scarcity of fish; but, there being no market for them in the spring, fishermen lowered their pound nets and let them escape, so that the returns comprise only the fall catch. The close seasons were well observed. The catch of herring is given at two and a half million pounds. The total value of the fisheries foots up to $140,950.

Overseer John McMichael, has charge of the *Kent* and *Elgin* divisions. He states that the fishing season was long, lasting in fact to the very end of December; but, the unusually severe easterly gales which prevailed at times kept the waters on shore so very rough that, fishing could hardly be carried on. In some cases the damaged nets could not be reset for five weeks. Four of the 97 pound nets licensed in this division were not set at all, while the others remained unfished half the time. Some fishermen complain of sawdust and rubbish from Coatsworth mill being allowed to wash away in the lake. The total value of the fisheries of the Kent division is valued at $112,091, and that of Elgin at $100,436.

Overseer David Sharp, who has charge of the Norfolk Division, states that the fishermen above Long Point caught more fish than ever before, while those east of Long Point did not do as well as last year. This he attributes to the strong winds which continually blew from the east. The close seasons were well observed; one party only being fined for having bass in his possession during the close time. These fish were caught at Long Point, outside of his division. It was reported that different parties went there for the same purpose without being checked. As sturgeon is becoming one of the principal commercial fish of Lake Erie, Overseer Sharp

recommends its protection during the breeding time. The total value of the fisheries of this division is put down at $49,235.

Overseers W. A. McCrae and *W. P. Croome* have charge of Grand River. The former was unable to make a report through illness. The latter states that the catch was fully up to that of last year. The close seasons were fairly observed. The fish-ways were badly damaged last spring; but all the mill-owners were notified to put them in proper repair. The only abuse in this division is the dye liquid escaping from manufactories in the stream. There is no direct evidence that it is injurious to the fish. In most instances it would be a very expensive affair for the owners to pump this refuse into properly constructed sink-holes.

LAKE ONTARIO DIVISION.

Overseer Fred. Kerr's division extends from Moulton Bay, on Lake Erie, to Burlington Beach, on Lake Ontario, including the Niagara River. There was a great run of common herring, more than noticed for the past ten years; these fish were of large size and fetched good prices. Ciscoes were not so plentiful as formerly; they have been over-fished, and as there is no close season for them, some other means of protection should be adopted, otherwise this valuable fishery will be injured. The run of whitefish was of short duration, but the fish were superior both in quality and size. Some good catches were made at Moulton Bay. Quite a number of salmon trout were caught at Grimsby; they seem to be a different variety, and are supposed to be the outcome of the fry deposited in Lake Ontario. Should this contention prove correct, a good run may be expected next year, if proper sized nets are used. Large quantities of sturgeon were caught, mostly with night lines, at Niagara; some fishermen took as much as seven tons. All these fish were disposed of in Buffalo at fair prices.

On the Lake Erie portion of this division fishing was very poor, all kinds of fish having greatly fallen off during the past few years. The reasons ascribed for this depletion are the numerous pound nets in the upper part of the lake, and the excessive fishing carried on on the American side by the Buffalo fishermen, who, with improved nets and tugs, even encroach on our waters. Overseer Kerr made a large seizure of gill nets at Point Abino from these foreign poachers during the early part of the summer, which somewhat checked their ardor. With the exception of a couple of seizures, he reports no violations to the close seasons. The total value of the fisheries of this division is given at $53,526.

Overseer William Sargent's division extends from Burlington Beach to Port Credit on, Lake Ontario. Herring and ciscoes are the staple fish of this district, and the catch of over *one million* pounds exceeds that of previous years. Salmon trout seem to have returned to these waters; a few being caught this season, some weighing twenty-five pounds. Whitefish, though scarce, are increasing. The total value of the fisheries of this division is reckoned at $53,894.

Overseer William Helliwell has charge of that part of the coast of Lake Ontario fronting on the County of York. He reports a good year for fishermen who realized remunerative prices for their labor. The several close seasons were rigidly enforced. He suggests that licensed fishermen be made to keep better accounts of their catch. Some people advise a reduction in the mesh of herring nets, but this overseer thinks three inches quite small enough. These fisheries are valued at $10,314.

Overseer Charles Gilchrist has charge of that part of Lake Ontario fronting on the County of Northumberland and of Rice Lake, in rear of Cobourg. He reports a poor catch, which can only be ascribed to a scarcity of fish. Some years ago, five fishermen at Presqu'Isle Bay, with 2,000 fathoms of gill nets each, would average 3,000 lbs. of fish a week per man. The decline has been so steady that this ground is now completely abandoned.

Rice Lake is still keeping up its reputation. The quantity of yellow bass caught through the ice by Indians is enormous. They peddle these fish through the country, exchanging them advantageously for flour and pork. During the month of June, when summer fishing began, 496 permits were issued, including 26 to foreigners and

100 to Indians. To the best of this overseer's knowledge, no less than 200,000 lbs. of maskinongé and 150,000 lbs. of bass were caught with hook and line. The Otonabee River fisheries of late years have dwindled to nothing. This is justly ascribed to the sawdust and mill rubbish thrown into this beautiful stream by the Peterborough mill-owners. The foul stuff has destroyed all the spawning beds, and fish ova decay with it. While on this subject Mr. Gilchrist writes the following:—

"I beg to call your attention to the great injury done by sawdust and rubbish to Rice Lake and the Otonabee River up to Peterboro'. I have seen articles written by an ex-fishery inspector of the Maritime Provinces, contending that sawdust did not injure rivers nor destroyed fish life. I beg to differ from him, so far as the Otonabee is concerned. Shortly after my appointment as Overseer over Rice Lake and its tributaries (sixteen years ago), the Otonabee River could not be surpassed for bass and maskinongé fishing, particularly at the mouth of the river; that is to say, the east branch. Not more than five years ago, where the water used to be twelve feet deep at low water it is now three inches; and right at the mouth, there is a bed of sawdust about half an acre entirely out of water, extending south for about three hundred yards and east and west for a mile. Last summer, when coming from the west branch of the river to Harwood, my skiff stuck in this sawdust before I got 200 yards. I had to turn back and follow the steamer's track out into the lake and down to Harwood. From the mouth of the river to Peterboro', the spawning beds are one mass of sawdust. The spring freshets drive this sawdust on the drowned lands and marshes where fish deposit their eggs never to be hatched out. Several years ago, the Little Lake, at Peterboro' was a good ground for bass and maskinongé; now it is nothing but a deep sawdust bed. The same can be said of the whole river where fishing steadily declined as sawdust increased. It is a shame that so fine a stream should be ruined to suit the convenience of four mill-owners who could at a trifling expense remedy the evil. Some years ago, accompanied by a competent man, I was sent to enquire about the probable cost of removing this rubbish by combustion. He estimated that for a thousand dollars, a burner could be built to consume all the rubbish; but nothing further was done. Heavy fines were imposed this season on the mill-onwers who refused to comply with the law. It has been calculated that, this season, over three hundred cords of sawdust, &c., was allowed to escape daily in the Otonabee while the mills were running. The mills are now closed down till June next."

The total value of the fisheries of this district is reckoned at $16,793.

Overseer N. Simmons, of Meyersburg, who has charge of the Trent River, states that the catch of coarse fish was inferior to that of 1888, there being no net fishing allowed. Pickerel are not so plentiful; they are prevented from ascending the river by the Miller & Co.'s mill dam, which is still unprovided with a fish-way, although the owners have been repeatedly notified to build one. The fish-pass at Chisholm's Rapids is out of order and should be repaired.

Overseer Geo. B. McDermot has charge of that part of Lake Ontario from Oshawa to Ashbridge's Bay, as well as of Lake Scugog. In the Lake Ontario division, ciscoes and pike are the only kinds of fish sought after. It is to be regretted that a number of fishermen who established fishing stations at Whitby and Frenchman's Bay, had to removed their plant to Bronte, it being found impossible to visit the nets in rough weather, and these being repeatedly carried away by a strong undertow which always happens here after a heavy gale. Fish being plentiful on these grounds the fishermen had built curing and smoke-houses at the above named places; it seems a hardship to be compelled to thus abandon their property. A few salmon were seen in Duffin's Creek this fall, the first noticed during the last three years. The fisheries in this part of his district are valued at $27,494.

The quantity and quality of fish taken in Lake Scugog far exceeds that of last year. The amount of maskinongé and bass killed through the ice was simply wonderful. This wholesale destruction does not seem to have affected the parent stock which were never before noticed to visit the spawning beds in such large numbers as they did last spring. The water of the lake was kept at a higher level during the

summer, owing to the Lindsay mills having been closed for repairs. The result was that the spawning beds did not dry up as usual and fully ninety-five per cent. of the ova deposited was hatched. The lake was literally swarming with maskinongé and bass fry during the latter part of the summer. This shows what could be achieved were the water kept at its natural level. At one time this fall it was apprehended that great destruction of fish life would ensue on account of low water in this fine lake, thirty miles long by seven in breadth, converted into a private pond to run six large turbine water wheels; but fortunately the heavy rains at the end of December raised the level by three feet and a half, removing all danger during the present mild winter. Violations of the close seasons were frequent; nineteen parties were convicted and fines to the amount of $100 imposed. Two of the aggrieved parties appealed against the Police Magistrate's decision, but withdrew their appeal at the last moment, and Mr. McDermott secured costs in the County Court against them. This will have the effect of showing the public that the fishery laws cannot be violated with impunity in the Scugog division. The fish-way built at Lindsay, some years ago, by the Department of Public Works is practically useless, and in a dilapidated condition. This might be remedied during the winter at a small outlay and the overseer urges the Government to attend to it Overseer McDermot built an efficient fish-way at Balsover on the Talbot River and when the proposed fish-passes are finished on Black River all obstructions to the ascent of fish to their spawning grounds will be removed in this division. The Lake Scugog fisheries for 1889 are valued at $19,800.

PRINCE EDWARD AND BAY OF QUINTÉ DIVISIONS.

Overseer Chas. Wilkins, who has charge of the Bay of Quinté Division, reports that the fisheries of his district have fully kept up with former years. The catch of whitefish, though large, was made in ten days. These fish came earlier than usual, and by the 5th November were all out of the bay. There were loud complaints before the removal of the gill nets east of Deseronto, which completely barred the passage of fish to the upper part of the bay. All the fishways are in good condition, with two exceptions; both promised to repair them by next season. The mill-owners of this district are all complying with the Sawdust Act. Overseer Wilkins again complains of the reluctance with which fishermen give returns of their catch. The total yield of the fisheries of this division is valued at $28,364.

Overseer Joseph Redmond, whose division comprises the waters of Lake Ontario around the county of Prince Edward, returns an average catch of fish, and gives the total value at $26,560, an increase of $2,440 over last year.

LENNOX, ADDINGTON AND FRONTENAC DIVISIONS.

Overseer A. D. Sills, who has charge of the fisheries of the county of Lennox, reports a large increase in the catch of fish in his division, as compared with the previous year. The close seasons were well observed, with one exception, when the nets were promptly seized. No other abuses are reported. The whole fisheries are valued at $8,131.

Overseer R. R. Finkle, whose division comprises that part of Lake Ontario fronting on the township of Ernestown, including Amherst Island, reports a good catch of salmon-trout and whitefish, especially in August. The fish were of an unusually large size, averaging one and a-half pounds more than ever before. The fishermen complied with the regulations. The yield of whitefish which was given last year at 12,000 lbs., is returned at 150,000 lbs. for 1889. The total value of the fisheries in this district is set down at $20,610.

Overseer Geo. Lake, who has charge of part of the inland waters of the County of Frontenac, reports fishing about the same as last season. He is unaware of any abuses, or of any contravention of the fishing regulations. He urges the construction of a fish pass at the foot of Bob Lake.

Overseer Robert Gilbert, who has charge of some eighteen lakes in the upper portion of the County of Frontenac, reports that no licenses for net fishing are issued

in these waters ; the only fishing done during the months of May and October being by angling and trolling. The close seasons are reported to have been well observed. The sawdust from the various mills of this division is not allowed to drift into the streams and lakes. There are no fish-ways.

Overseer H. R. Purcell, who has charge of the lakes of the County of Addington, reports little fishing ; the demand for labor on the railways being more remunerative than angling or trolling. This officer seized and destroyed two hoop-nets and some gill-nets in Loughboro' and Nepean Lakes. The owners could not be identified. The lakes stocked with trout fry are doing well, and he recommends that Beaver and Varty Lakes be stocked with pickerel fry.

WOLFE ISLAND AND KINGSTON DIVISION.

Overseer Thos. Merritt, who has charge of the lake shore frontage of the County of Frontenac, reports a slight increase over the yield of 1888, which would have been greater had not several fishermen been engaged in other pursuits. The close seasons were strictly observed. The only abuse that exists in this division is that American sportsmen, and parties frequenting these waters with steam yachts, invariably have small meshed seines which they use for taking bait for trolling, and in certain localities often catch the fry of salmon-trout, whitefish, and bass. The close seasons were well observed.

Overseer Peter Kiel, who has charge of the fishing grounds around Wolfe Island, states that fish are not decreasing, and that besides the Kingston market being always well supplied at moderate prices, a considerable surplus is sold in the States. The catch of coarse fish at Big Bay was large; this proves that there is no decline in the supply of fish. The yield of salmon trout at Pigeon Island was not large; this, however, may be due to the laxity of the licensees in not vigorously prosecuting their business, and to their using inferior fishing gear. Some of the most valuable fishing grounds were left unoccupied; better inducements having deterred many fishermen from engaging in the risky business of fishing.

ROCKPORT, BROCKVILLE AND CORNWALL DIVISIONS.

Overseers Wallace, Hunt, Poole, McGarity and *Mooney,* have charge of that portion of the River St. Lawrence, extending from Gananoque to Glengarry. Nothing but angling is allowed in these divisions. Although the total value of the fisheries was greater than ever before; it is still worth more to the people living in the vicinity of the summer resorts. There were two hundred and forty-six boats employing three hundred and thirty-six men to row tourists, who spent more money than all the fish caught is worth. The catch of bass is reported at nearly 50,000 lbs.; pike, 96,000 lbs.

PRESCOTT, RUSSELL AND CARLETON COUNTIES DIVISION.

Overseers P. St. Pierre, of Point Fortune, *Olivier Miron,* of Alfred, and *W. Boucher,* of South March, have charge of the above named counties fronting on the Ottawa River. The fisheries of this division are not important; their total value being under $5,000. It is contended that the want of a fishway on the Government dam at Carillon prevents the fish from increasing. Mr. Boucher says, the residents in the vicinity of Carp River would like to have a fish-way built on that stream, so to allow the fish to ascend from the Ottawa.

LEEDS, LANARK AND RIDEAU DIVISIONS.

Overseers W. H. Johnston, Jas. Greer, and Wm. Hicks, have charge of Charleston, Gananoque and other lakes in the County of Leeds. No net fishing is allowed in these waters. Several nets were confiscated in Charleston Lake. The close seasons

were fairly observed. The above officers are of the opinion that the fall close season should commence fifteen days earlier, so as to suit the shoal waters of Charleston Lake.

Overseers Geo. Jeacle, A. E. Mills and Guy Reid, have charge of the Rideau river and Canal. Angling and trolling were good and the fish are on the increase. The close seasons were generally well observed. *Mr. Jeacle* says that residents complain of being denied the privilege of fishing for herring and coarse fish which cannot be taken otherwise than with nets. He favors their request. Several small nets were seized and destroyed. The three fish-ways of this division are in good order; mill-owners comply with the regulations.

Overseer Eph. Deacon, who has charge of Fall Bay and Tay Rivers in Lanark, reports fish plentiful and angling good, but it would be greatly improved were the principal spawning beds, two miles west of Christie's Lake, cleared of the accumulation of sawdust and rubbish from the late John Deacon's mill, although this mill has been shut down for five years; the rubbish remains a hindrance to the spawning fish. *Mr. Deacon* also favors the issuing of permits to residents to fish for their own use.

RENFREW COUNTY DIVISION.

Overseers A. Telfer, of Breaside; and *M. L. Russell,* of Renfrew, attend to the Bonnechére River.

Overseers John Grant and *Arch. Archeson* are in charge of that portion of the Ottawa River fronting on the County of Renfrew.

Overseers Douglas, Bélanger and *Warden Hugh Gallagher's* divisions comprise the inland lakes.

The fisheries of these divisions are unimportant, no net fishing being allowed. The total value of the fisheries is given at only $4,651.

LAKE NIPISSING DIVISION.

Overseer J. S. Richardson, who has charge of the whole of this division returns an increased catch. This beautiful lake is well stocked with fish, chiefly pickerel, pike, sturgeon, herring, and whitefish. There is as yet very little fishing done in summer; it being too far from markets to ship fresh, and as this vast sheet of water is shallow, it might be judicious not to permit net fishing till September. Most of the fishing is done through the ice. Tourists from all parts of Canada and the United States are increasing every year; and there is no doubt but Lake Nipissing will soon become a favorable resort for shooting and fishing. The whole yield of the fisheries is valued at $6,373.

PARRY SOUND AND MUSKOKA DIVISION.

Overseer G. R. Steele, of Lorimer Lake, who has charge of the inland waters of Parry Sound, visited all the saw-mills of his division, and, with the exception of one party who was fined and cautioned with a much heavier penalty should the offence be repeated, he found mill-owners well disposed to carry out the law. Alleged complaints of illegal fishing, upon investigation, proved groundless. Settlers are complaining of not being allowed to use herring nets to fish for their own use.

Overseer Wm. Lockhart, of Denville, who has charge of the inland waters of several townships in Muskoka and Parry Sound, reports the close season as having been fairly observed. Spearing may be still going on in certain localities, but it is difficult to check it, as it takes place at night.

WELLINGTON COUNTY INCLUDING RIVER CREDIT.

Overseers Andrew Hughson of Orangeville, and *W. Hull* of Erin, who have charge of the River Credit, return about the same catch as last year. They claim that speckled trout spawn three weeks earlier than the beginning of the close-season, and a change is advocated to suit those waters. *Mr. Hughson* brought some poachers before the magistrates, but failed to convict, although certain of their guilt. Saw-mills and tanneries in this district do not throw their refuse in the streams.

LAKE SCUGOG DIVISION.

See *Overseer G. B. McDermot's* report, page 214.

LAKES SIMCOE AND COUCHICHING DIVISION.

Overseer Wm. Hastings, who has charge of the south shore of Lake Simcoe states that the great depth of snow last winter, caused such a rise of the water, that little fishing could be carried on. Some fishing was attempted during close season, and over a thousand yards of nets were confiscated and destroyed.

Overseer L. S. Sanders, who has charge of the west shore of Lake Simcoe, states it is impossible for him to give an accurate idea of the quantity of fish caught by angling, trolling and spearing. Poachers were determined to violate the law, and although not successful in every case, the overseer succeeded in having several fines imposed. Some people contended that all the fish caught could not possibly be taken with lines, and that nets must be used. In order to satisfy himself on this point, Overseer Sanders examined three or four night lines and took about three dozen whitefish in them. These lines of from 100 to 500 yards long, have hooks attached at every fifteen inches apart. They are baited with fat pork, minnows, beef, worms &c., and are mostly used by poor people—they take quite a lot of fish.

Overseer Wm. McDermot attends to the inland waters of the county of Simcoe. Mill owners seem to better understand the law respecting sawdust, and are better disposed to comply with its requirements; there were, however, three convictions against mill owners. Illegal fishing with nets or spears has almost ceased, though this officer suspects certain poachers on Holland River, but was unable to catch them. The fishways in this divssion are all in good working order. Mr. McDermot reports bass getting more plentiful on Holland River. Speckled trout are also on the increase near the head waters of Mead River.

Overseer F. Webber attends to Lake Couchiching and the Severn River. He reports a marked improvement in maskinongé which appear to be coming back. Some four thousand pounds were captured with trolls; a few weighing as high as 47 pounds. Whitefish are increasing. Black bass and pickerel gave excellent fishing and the yield exceeds that of last year. Some mill-owners are still careless about the disposal of their rubbish. Mr. Webber visited all the mills complained of, and thinks that no more will be heard from them. The resident Indians, though somewhat improved, still give trouble. The latitude allowed them in regard to game leads them to expect similar concessions in regard to fish. Some of them are, however, well disposed towards our laws; two nets taken up by them were brought to the overseer. As usual Severn River was frequented by a large number of American anglers; a single party from Pittsburg, Pa., numbering over one hundred, had excellent sport. Five persons were convicted of spearing and one of offering for sale illegally caught fish.

VICTORIA COUNTY DIVISION.

Overseer J. R. Graham has to look after some twenty lakes in the above named county, north of Sturgeon Lake. He reports that maskinongé and bass are the princi-

pal kinds of fish, and that they show no sign of decrease. Unknown parties used explosives in Balsam Lake, destroying large numbers of fish. So far he has been unable to find out the guilty parties. Some persons were brought before the magistrate, but he failed to convict. The value of the fisheries of this division is given at $3,475.

PETERBORO' COUNTY DIVISION.

Overseers Geo. Cochrane of Lakefield, *J. Dancey* of Minden, and *B. H. Sweet* of Bancroft, have charge of this division. The principal fish are bass and maskinongé. Speckled trout are abundant in some lakes, attracting quite a number of sportsmen. The total value of the fisheries of this division is put down at $11,240.

RETURN of the Number and Value of Vessels, Boats and Fishing Materials, the Province of **Ontario,**

NAMES OF STATIONS.	VESSELS AND BOATS EMPLOYED.							FISHING			
	Vessels or Tugs.				Boats.			Gill Nets.		Seines.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.
Lake Superior Division.			$			$			$		$
Thunder Bay					3	200	6	10000	600		
Welcome Islands					5	375	10	15500	930		
Point Porphyry					4	350	8	12000	720		
Black Bay	2	80	1800	6	2	190	4	6000	360		
Roche Debout					4	350	8	12000	720		
Nepigon Bay	1	45	850	3	9	900	18	27000	1600		
Jackfish Bay					4	600	9	1800	1800		
Caribou Island					2	200	4	9000	600		
Lizard Island	2	98	8000	10	16	3200	52	58500	5760		
Mica Bay					2	300	4	7500	750		
North Mamainse					3	400	5	12600	1025		
Pancake Bay					1	45	2				
Totals	5	223	10650	19	55	9110	130	171300	14865		
Manitoulin Islands.											
Macbeth Bay					2	350	3	250	200		
Grand Sable					2	400	4				
Grand Batture	2	40	7000	12	2	400	3	2500	800		
Spanish Bay					4	800	10				
South Bay	2	52	2500	10	10	1000	40	35800	7000	70	375
Club Island	1	10	800	5	6	600	18	14000	2000		
Squaw Islands	5	125	11000	25	45	4500	135	100500	18700	60	300
Manitowaning											
Little Current											
Kagawong					6	600	20	15000	1800		
Gore Bay											
Duck Islands	4	75	14000	20	20	5000	50	100000	12000		
Cape Robert	2	30	7000	12	3	600	12	3000	3000		
Rattlesnake Island					1	200	4				
St. Joseph's Island					4	800	10				
Manitoulin Island (north side)	2	80	6000	6	5	1000	15				
Totals	18	412	48300	90	100	16250	324	271050	45500	130	675

Number of Men Employed, &c., with the Kinds and Quantities of Fish, in the for the Year 1889.

MATERIALS.		KINDS OF FISH.											
Pound Nets.													VALUE.
No.	Value.	Whitefish, brls.	Whitefish, lbs.	Trout, lbs.	Trout, brls.	Herring, fresh, lbs.	Sturgeon, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse Fish, lbs.	Home Consumption, lbs.	
	$												$ cts.
1	250	45	38000	40000	100	5000	.....	.....	.....	.....	.....	24000	9,460 00
.....	.....	10	80000	40000	20	.....	.....	.....	.....	.....	.....	.....	10,700 00
.....	.....	60	100000	65000	95	.....	.....	.....	.....	.....	.....	.....	16,050 00
8	2400	10	20000	30000	25	.....	70129	.....	117940	.....	40000	.....	17,434 14
2	600	20	175000	120000	100	.....	.....	.....	.....	.....	.....	.....	27,200 00
1	350	40	200000	100000	150	.....	.....	.....	.....	.....	.....	8000	28,140 00
.....	.....	50	30000	50000	150	.....	.....	.....	.....	.....	.....	.....	9,400 00
.....	.....	.....	.....	.....	300	.....	.....	.....	.....	.....	.....	.....	3,000 00
1	700	50	120000	300000	195	.....	1200	.....	.....	.....	.....	.....	42,122 00
.....	.....	25	22500	23500	15	.....	.....	.....	.....	.....	.....	.....	4,550 00
.....	.....	15	20000	18000	20	.....	.....	.....	.....	.....	.....	.....	3,750 00
1	350	.....	25500	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,040 00
14	4650	325	831000	786500	1170	5000	71329	.....	117940	.....	40000	32000	173,846 14
.....	.....	.....	32500	5780	.....	.....	150	.....	.....	.....	.....	.....	3,187 00
2	800	8	33000	2100	.....	.....	916	.....	.....	.....	.....	.....	2,984 96
4	1650	.....	32000	41000	.....	.....	26000	.....	.....	.....	.....	.....	8,220 00
3	1200	.....	8500	4500	.....	.....	16000	.....	4800	.....	.....	.....	4,970 00
2	550	300	779514	.....	500	.....	.....	.....	.....	.....	.....	2000	70,421 12
.....	.....	125	75710	.....	150	.....	.....	.....	.....	.....	.....	25	8,807 55
.....	.....	500	953000	300000	100	.....	2000	1000	50000	2500	.....	10000	115,845 00
.....	.....	100	.....	.....	25	.....	.....	.....	.....	.....	.....	.....	1,250 00
.....	.....	150	.....	.....	50	.....	.....	.....	.....	.....	.....	.....	2,000 00
3	900	200	155265	.....	90	.....	40000	.....	.....	2500	.....	2000	17,906 20
.....	.....	250	50000	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,500 00
8	4000	.....	160000	400000	.....	.....	15000	.....	25000	.....	.....	.....	55,200 00
5	2000	.....	120000	40000	.....	.....	20000	.....	2000	.....	.....	.....	14,920 00
2	800	.....	10000	2000	.....	.....	5000	.....	3000	.....	.....	.....	1,480 00
7	3500	138	53170	22000	15	.....	3000	.....	7200	.....	.....	1500	8,640 60
4	2000	.....	75000	.....	.....	.....	.....	.....	.....	.....	.....	1800	6,054 00
40	17400	1771	2537659	817380	930	.....	128066	1000	135200	5000	.....	17325	328,386 43

RETURN of the Number and Value of Vessels, Boats

NAME OF STATION.	VESSELS AND BOATS EMPLOYED.							FISHING MATERIALS.							
	Vessels.				Boats.			Gill Nets.		Seines.		Pound Nets.		Hoop Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
Georgian Bay Division.			$			$			$		$		$		$
Bustard Islands	..	....	.....	....	14	2100	40	85000	5000	25	75	....	....	2	20
Point au Barril	..	....	.....	....	8	1200	22	50000	2560	....	.....	....	....	....	....
Byng Inlet	1	30	2500	4	6	1500	18	60000	4000	....	.....	....	....	....	....
Mink Islands	..	....	.....	....	8	1200	18	50000	3500	....	.....	....	....	....	....
Moose Deer Point	..	....	.....	....	5	750	12	30000	2000	....	.....	....	....	2½	20
Baxter	..	....	.....	....	8	1500	25	30000	1900	....	.....	....	....	6	75
Sturgeon Bay	..	....	.....	....	3	150	6	15000	1000	200	400	....	....	....	....
Waubaushene	..	....	.....	....	3	100	6	15000	1000	150	200	....	....	1	12
Victoria Harbor	..	....	.....	....	2	50	4	4000	500	....	.....	....	....	6	120
Fesserton	..	....	.....	....	1	50	2	3000	190	....	.....	....	....	12	150
From Victoria Harbor to Allenwood	..	....	.....	....	12	1030	25	13770	3320	....	.....	....	....	5	40
Nottawasaga River	..	....	.....	....	1	150	3	.....	.....	180	30	....	....	....	....
Collingwood	2	75	4300	10	5	700	12	6000	900	....	.....	....	....	....	....
Meaford	2	40	3500	8	14	2000	30	8550	1282	....	.....	....	....	....	....
Vail's Point	..	....	.....	....	10	1500	20	2000	300	....	.....	....	....	....	....
Owen Sound	1	15	3000	4	8	1200	16	2500	375	....	.....	....	....	....	....
Colpoy's Bay to Cape Hurd	7	147	24000	26	37	8000	113	223440	55860	....	.....	....	....	....	....
Totals	13	307	37300	52	145	23180	372	598260	83687	555	705			34½	437
Lake Huron Division.															
Fighting Islands	..	....	.....	....	15	2000	45	35000	4000	....	.....	....	....	....	....
Sauble Beach	..	....	.....	....	6	120	24	.....	.....	1200	5000	....	....	....	....
Saugeen and River	..	....	.....	....	2	500	6	2000	6000	....	.....	....	....	....	....
Southampton	..	....	.....	....	6	850	17	5900	3200	....	.....	....	....	....	....
Kincardine	1	20	1000	4	5	1000	15	5900	3550	....	.....	....	....	....	....
Inverhuron	..	....	.....	....	2	500	5	2000	1100	....	.....	....	....	....	....
Goderich	..	....	.....	....	3	900	17	6400	1950	....	.....	....	....	....	....
Bayfield	..	....	.....	....	1	.....	2	6525	420	....	.....	....	....	....	....
Grand Bend	..	....	.....	....	5	165	20	.....	.....	640	525	....	....	....	....
Blue Point	..	....	.....	....	5	300	5	.....	.....	....	.....	4	1000	....	....
Stony Point	..	....	.....	....	3	350	5	.....	.....	....	.....	4	680	....	....
Kettle Point	..	....	.....	....	2	400	5	.....	.....	....	.....	5	1200	....	....
Ravenswood	..	....	.....	....	2	125	3	.....	.....	....	.....	2	300	....	....
From Blue Point to Baby's Point	..	....	.....	....	41	1104	128	.....	.....	2038	2828	....	....	....	....
Totals	1	20	1000	4	98	8314	297	63725	20220	3878	8353	15	3180	....	....

and Fishing Materials, &c.—**Ontario**—*Continued.*

Kinds of Fish.												Fish used for Home Consumption, lbs.	Value.
Whitefish, barrels.	Whitefish, lbs.	Trout, lbs.	Trout, barrels.	Herring, barrels.	Herring, fresh, lbs.	Sturgeon, lbs.	Maskinonge, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse Fish, lbs.		$ cts.
100	200000	80000	100	.....	.....	1000	....	5000	100000	.....	.....	6000	32,540 00
50	130000	10000	50	.....	.....	.....	....	15000	30000	.....	.....	10000	15,400 00
50	130000	20000	50	.....	.....	1000	...	40000	60000	.....	10000	10000	20,060 00
30	120000	40000	25	.....	.....	.....	....	5000	10000	.....	10000	4000	15,470 00
20	50000	75000	30	100	.....	1200	500	40000	75000	.....	10000	10000	20,002 00
25	5000	2000	30	75	40000	.....	....	10000	25000	100000	10000	10000	11,150 00
.....	3000	.....	.....	.....	2000	.....	1000	2000	20000	10000	5000	2000	2,430 00
.....	.....	.....	.....	.....	1000	1000	2000	.....	10000	15000	5000	3000	1,820 00
.....	.....	.....	.....	50	10000	.....	....	2000	4000	2000	1000	2000	1,250 00
...	.....	.....	.....	.....	.....	1000	2000	2000	5000	2000	2000	3000	850 00
62½	188000	122000	138	90	.....	.....	....	.....	32210	1784	13770	61000	33,869 90
15	12000	45000	30	.....	.....	4000	....	.....	600	.....	400	1000	6,228 00
30	60000	200000	40	.....	.....	.....	....	.....	800	.....	300	4000	25,677 00
80	35000	150000	75	.....	.....	.....	....	.....	600	.....	800	2000	19,470 00
.....	2000	200000	100	.....	.....	.....	....	.....	400	.....	500	1000	21,229 00
.....	.....	175000	120	.....	.....	.....	....	.....	300	.....	400	5000	18,880 00
75	1068900	910000	450	120	.....	.....	....	.....	11000	.....	.....	.....	182,902 00
537½	2003900	2029000	1238	435	53000	9200	5500	121000	384910	130784	69170	134000	429,227 90
600	.....	.....	400	1000	.....	.....	....	.....	.....	.....	.....	.....	14,000 00
.....	.....	.....	.....	500	2500	.....	....	.....	.....	.....	.....	.....	2,125 00
.....	20000	68000	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	8,400 00
.....	50500	120500	.....	.....	.....	.....	....	5000	2000	.....	2000	4500	16,705 00
.....	.....	139000	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	13,900 00
.....	.....	25000	.....	.....	.....	.....	....	.....	.....	.....	.....	.....	2,500 00
.....	.....	82300	20	62	10000	.....	....	1500	5000	300	6000	24100	10,486 00
.....	2800	.....	25	65	.....	.....	....	.....	.....	.....	.....	.....	734 00
8	6800	.....	.....	.....	7000	3400	....	.....	5900	.....	2900	.....	1,619 00
.....	3500	4000	.....	130	30000	38160	....	.....	55655	.....	.....	1500	8,373 90
.....	4519	1467	.....	16	.....	636	....	.....	20265	.....	1500	.....	1,871 28
.....	500	.....	.....	40	20000	10000	....	.....	30000	.....	2000	.....	3,660 00
.....	.....	.....	.....	25	14000	6800	....	.....	5000	.....	.....	.....	1,508 00
.....	.....	.....	.....	876	189600	75155	....	.....	113078	.....	150	2000	24,342 48
608	88619	440267	445	2714	273100	134151	....	6500	236898	300	14550	32100	110,224 66

RETURN of the Number and Value of Vessels, Boats

NAME OF STATION.	VESSELS AND BOATS EMPLOYED.							FISHING MATERIALS.							
	Vessels.				Boats.			Gill Nets.		Seines.		Pound Nets.		Hoop Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
			$			$			$		$		$		$
River and Lake St. Clair Division (including Thames River.)															
From Point Edward to Baby's Point	..	....	.....	....	24	482	68	....	....	768	918	....	.....	..	....
Mitchell's Bay	..	....	.....	....	5	273	12	....	....	355	300	....	.....	..	....
Sydenham River	..	....	....	....	3	25	8	....	....	135	60	....	.....	4	50
Thames River	..	....	.....	....	21	194	110	....	....	955	598	....	.....	..	....
Stony Point	..	....	.....	....	10	470	43	....	....	1220	1220	....	.....	..	....
Total	..	....	.....	....	63	1444	241	....	....	3433	3096	..	.....	4	50
Detroit River Division.															
Detroit River, Peach Island and Bois Blanc Island	1	10	1500	40	27	803	87	....	....	28	2665	4	1200	1	20
Lake Erie Division.															
Point Pelée (Island)	..	....	....	....	27	3430	54	....	....	....	....	28	6450	..	....
do (Mainland)	..	....	....	....	53	4710	61	....	....	....	....	39	12305	..	....
Romney to Oxford	..	....	....	....	45	3713	74	1300	100	725	425	48	17800	..	....
New Glasgow	..	....	....	....	2	170	4	....	....	....	....	4	1000	..	....
Eagle	..	....	....	....	2	150	3	....	....	....	....	3	600	..	....
Tyrconnel	..	....	....	....	8	545	9	....	....	....	....	10	3800	..	....
Port Stanley	2	54	5300	12	12	1380	4	....	....	500	55	10	4500	..	....
Port Bruce	2	16	1900	14	9	725	4	....	....	200	150	13	4100	..	....
Port Burwell	3	34	7500	9	4	375	....	....	....	....	....	9	3200	..	....
Long Point	..	....	....	....	4	90	14	1750	210	....	....	....	.....	..	....
Houghton to Rainham, including Inner and Outer Bays and Turkey Point	5	34	7500	8	42	2434	127	1597	770	3805	2518	25	9020	..	....
Cayuga to Moulton Bay, including Grand River	3	15	400	6	10	68	24	1545	175	103	355	3	1000	10	60
Low Banks to Fort Erie	..	....	....	....	15	730	38	2200	695	600	450	3	1800	10	100
Total	15	153	22600	49	233	18520	416	8392	1950	5933	3953	195	65575	20	160

and Fishing Materials, &c.—**Ontario**—*Continued.*

Kinds of Fish.														Value.
Whitefish, brls.	Whitefish, lbs.	Trout, lbs.	Trout, brls.	Herring, brls.	Herring, fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maskinonge, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse fish, lbs.	Fish used for Home Consumption, lbs.	$ cts.
				573	72200		9600			20750			1350	7,763 50
									2650		1900	14600		692 00
							500			5500	1000	18700		971 00
127	23300	54600	176	750	140300		1000	1347	3400	63722	3310	190402	9900	30,711 70
							1500	950	2800	3600	2100	13000	6500	1,221 00
127	23300	54600	176	1323	212500		12600	2297	8850	93572	8310	236702	17750	41,359 20
	81170				177440		31140	900	965	5885	9865	32200	1100	19,191 25
	25220				1117000		34880		64825	29675		42875	2100	66,979 65
	26200				2552922		33340		27765	42150		167103		140,950 49
	56998				1718633	4257	115611	1215	3240	129098	1550	106754	103812	112,091 23
	2000				138070		5819		600	42285		2100	300	10,057 74
	3500				40000		4000			3000		3000	200	2,796 00
	18661				257560		9120		200	52543	398	7000	34326	19,342 34
	43000				310000		40000			185000		3500	118750	36,107 50
	42510	75			152153		23880		15	137257	8	26519	29744	22,373 36
	19736				61600		22851			38458		7300	100	9,759 42
							21675				1469			1,373 95
	61050				402805		76565	400	8085	163469	105557	112289	21772	49,235 07
	3338				48820		9200	200	4186	48342	19070	40800	550	8,617 72
	4000				103000		14800		1050	10400	1000	26000	1500	7,920 00
	306213	75			6902563	4257	411741	1815	109966	901677	129052	545240	313154	487,604 47

RETURN of the Number and Value of Vessels, Boats

NAME OF STATION.	VESSELS AND BOATS EMPLOYED.							FISHING MATE			
	Vessels.				Boats.			Gill Nets.		Seines.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.
Lake Ontario (including Niagara River).			$			$			$		$
Fort Erie	....	....	.....	....	3	70	10	.....	.....	390	380
Queenston	....	....	.....	....	4	90	9	.....	.....	100	90
Niagara	....	....	.....	....	15	1065	38	12500	2250	625	400
Grantham	....	....	.....	....	3	55	6	650	125	25	25
Port Dalhousie to Winona	....	....	.....	....	16	965	35	14750	2640	125	70
Burlington Beach	....	....	.....	....	21	1615	43	16650	3720	1825	840
Bronte to Humber Bay	1	40	2500	4	20	1900	59	36500	5200	200	150
Oshawa to Ashbridge's Bay	1	15	800	3	12	1075	31	34000	4100	....	....
Ashbridge's Bay to Port Union	1	10	250	4	9	975	20	7084	1916	250	210
Brighton to Bowmanville	....	....	.....	....	19	615	51	4000	320	600	535
Rice Lake and tributaries	....	....	.....	....	*	.....	....	.....	.....	....	....
Trent River	....	....	.....	....	....	.....	....	.....	....	....	....
Totals	3	65	3550	11	122	8425	302	126134	20271	4140	2700
Prince Edward Co. and Bay of Quinte Division.											
Wellington Beach, Weller's Beach, Smith's Bay	3	30	8000	9	40	800	70	40200	3150	1000	350
Bay of Quinte, Ameliasburg, Sophiasburg, Thurlow, Tyendenaga	....	....	....	....	69	1915	213	1400	300	2800	3005
Totals	3	30	8000	9	109	2715	283	41600	3450	3800	3355

* 200 skiffs and canoes.

and Fishing Materials, &c.—**Ontario**—*Continued.*

RIALS.		KINDS OF FISH.												VALUE.
Hoop Nets.		Whitefish, brls.	Whitefish, lbs.	Trout, lbs.	Herring, brls.	Herring, Fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maskinonge, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse Fish, lbs.	
Number.	Value.													
	$													$ cts.
....	....	.....	.....	.....	4	11500	.....	.....	.....	8000	10600	500	14800	2,176 00
†3	550	.....	.....	.....	110	46424	25	1863	.... ..	188	1263	1134	1400	3,060 24
...	....	.....	500	.....	.....	234500	... .	44200	.....	15500	11300	.....	10800	16,349 00
1	4	.....	.....	.....	.....	2900	.....	.....	.....	.....	.....	270	1200	194 50
2	10	.. ...	800	6200	.....	221900	.....	2000	.....	2200	. ....	2900	2800	12,260 00
....	....	.....	732	848	.....	363600	.....	180	.....	5340	.....	16650	.....	19,487 06
....	....	.....	825	9000	.....	1050000	450	....	.....	600	...	1600	9500	53,894 00
....	....	.....	...	.....	.....	520000	400	.. ...	.....	....	.....	24000	9000	27,494 00
....	....	.....	4000	4000	258	141100	400	.....	1000	1050	.....	6500	34500	10,314 00
19	190	.....	8075	500	.....	.....	.....	.....	.....	.....	... ..	19300	74400	3,893 00
....	....	.....	.....	.. ...	.....	.....	.....	.....	200000	15000	.....	.....	.....	12,900 00
....	....	.....	.....	.....	.....	.....	10000	2000	36000	35000	35000	22000	50000	9,680 00
25	754	.....	14932	20548	372	2591924	11275	50243	237000	82878	58163	94854	208400	171,701 80
40	320	.... .	120000	90000	300	50000	.. ..	... ..	.....	4000	8000	30000	68000	26,560 00
102	2530	150	104464	.....	392	110884	230	156	510	6706	32189	31188	248280	28,364 58
142	2850	150	224464	90000	692	160884	230	156	510	10706	40189	61188	316280	54,924 58

†Machines.

RETURN of the Number and Value of Vessels, Boats

NAMES OF STATIONS.	VESSELS AND BOATS EMPLOYED.						
	Vessels.				Boats.		
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.
Lennox, Addington and Frontenac Division.			$			$	
Lake Coast fronting on Lennox and Addington, including Napanee River	....	....	....	....	23	390	31
Amherst Island	....	....	....	....	26	400	34
Inland Waters, County Frontenac	....	....	....	....	.....	.....	.....
Totals	....	....	....	....	49	790	65
Wolfe Island and Kingston Division.							
Pigeon Island	....	....	....	....	2	100	4
Reeds Bay	....	....	....	....	1	40	2
Big Bay	....	....	....	....	2	75	4
South side Wolfe Island	....	....	....	...	1	25	2
Brother's to Howe Island	....	....	....	....	5	200	8
Howe Island	....	....	....	....	6	128	7
Gananoque	....	....	....	....	1	20	1
Totals	....	....	....	....	18	588	28
Rockport, Brockville and Cornwall Division.							
St. Lawrence River, from Rockport to Glengarry Co. Line	....	....	....	....	246	7200	336
Prescott, Russell and Carleton Cos. Division.							
Ottawa River fronting on these Counties and Inland waters	....	....	....	....	25	250	25
Leeds and Lanark Division.							
Charleston Lake	....	....	....	....	4	20	4
Beverly and Rideau Lakes	....	....	....	....	.....	.....	.....
Rideau and Jock Rivers	....	....	....	....	.....	.....	.....
Smith's Falls to Long Reach	....	....	....	....	.....	.....	.....
River Tay and Tributaries	....	....	....	....	1	20	1
Mississippi River and Lake	....	....	....	....	....	.....	....
Totals	....	....	....	....	5	40	5
Renfrew Co. Division.							
Ottawa River, including Bonnechère River	....	....	....	....	24	114	40
Lake Nipissing Division	..	....	....	....	12	385	16
Parry Sound and Muskoka	....	....	....	....	.....	.....	.....
Wellington Co. Division	....	....	....	....	.....	.....	.....
Lake Simcoe	....	....	....	....	....	.....	.....
Lake Scugog Division	1	15	1800	3	200	3000	225
Victoria Co. Division	....	....	....	....	.....	.....	....
Peterboro' Co. Division	....	....	....	....	59	740	59

and Fishing Materials, &c.—**Ontario**—*Continued.*

Fishing Materials.				Kinds of Fish.											Value.
Gill Nets.		Hoop Nets.		Whitefish, lbs.	Trout, lbs.	Herring, barrels.	Herring, Fresh, lbs	Eels, lbs.	Sturgeon, lbs.	Maskinongé, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse Fish, lbs.	
Fathoms.	Value.	No.	Value.												
	$		$												$ cts.
3875	548	45	905	27000	.....	.....	.....	3800	.....	.....	.....	59950	11250	52800	8,131 50
7493	410	..	....	150000	10000	1000	.....	.....	4000	.....	7000	45000	5000	.....	20,610 00
.....	....	..	....	2000	6500	....	4200	.....	....	100	6000	2200	8700	3400	2,055 00
11368	958	45	905	179000	16500	1000	4200	3800	4000	100	13000	107150	24950	56200	30,796 50
880	160	..	....	.....	6000	....	.....	.....	750	.....	.....	.....	.....	.....	645 00
260	50	2	25	.....	.....	....	.....	....	3500	.....	50	200	200	150	239 50
.....	....	10	150	.....	.....	....	.....	3000	200	.....	.....	700	2000	12800	718 00
350	75	..	....	.....	.....	....	.....	.....	.....	.....	.....	500	100	100	38 00
576	64	23	161	.....	.....	....	.....	2000	.....	.....	.....	.....	6100	19000	995 00
1030	126	7	280	.....	.....	....	.....	800	800	.....	300	150	1850	8025	456 25
276	36	..	....	.....	.....	....	.....	2500	500	1200	3990	.....	52100	11600	3,444 40
3372	511	42	616	.....	6000	....	.....	8300	5750	1200	4340	1550	62350	51675	6,536 15
. ....	.....	..	....	.....	.....	....	.....	29400	11100	6875	49840	11350	96100	198000	17,258 90
.....	....	..	....	200	.....	...	.....	2050	5000	9000	6900	12700	9700	76500	4,935 00
.....	....	10	150	.....	10000	....	.....	.....	.....	.....	22000	.....	1800	58600	4,168 00
....	....	..	....	.....	.....	...	.....	..	.....	...	2000	.....	4000	25000	1,070 00
....	....	..	....	.....	.....	....	.....	3000	.....	5000	4500	6000	5000	14000	1,780 00
.....	....	..	....	...	.....	....	.....	1300	... .	1200	8000	2650	9200	12000	1,609 00
.....	....	6	120	.....	.....	1000	.....	.....	.....	.....	1600	2000	4000	8300	4,665 00
.....	....	..	....	.....	.....	....	.....	.....	.....	.....	4000	....	20000	18000	1,780 00
.....	....	16	270	.....	10000	1000	.....	4300	.....	6200	42100	10650	44000	135900	15,072 00
350	147	..	....	1500	1400	....	....	2270	2020	4350	3725	4140	7550	100800	4,651 80
13350	1130	..	....	4350	.....	.. ..	9600	.....	7526	1126	2650	31370	50614	15150	6,373 52
.....	....	..	....	200	20000	....	1550	.....	.....	500	2500	6000	300	14000	3,068 50
.....	....	..	....	.....	6000	....	37000	60000	.....	.....	3500	.....	2500	45000	7,735 00
.....	....	..	....	.....	23000	....	13500	.....	200	18200	30200	10000	55000	20000	9,949 00
.....	. ..	..	....	.....	.....	....	.....	.....	.....	200000	80000	.....	.....	100000	19,800 00
... ..	....	..	....	.....	1000	....	4000	1000	.....	15000	25000	5000	.....	6000	3,240 00
.....	...	..	....	2000	22000	....	6000	15000	.....	115500	96000	.....	.....	33000	1,240 00

RECAPITULATION of the Number and Value of Vessels, Boats and Fishing Materials, &c., with the Kinds and Quantities and Value of Fish, in the Province of **Ontario**, for the Year 1889.

NAME OF STATION.	VESSELS AND BOATS EMPLOYED.							FISHING MATERIALS.							
	Vessels or Tugs.				Boats.			Gill Nets.		Seines.		Pound Nets.		Hoop Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
			$			$			$		$		$		$
Lake Superior Division	5	223	10650	19	55	9110	130	171300	14865			14	4650		
Manitoulin do	18	412	48300	90	100	16250	324	271050	45500	130	675	40	17400		
Georgian Bay do	13	307	37300	52	145	23180	372	598260	83687	555	705			34	437
Lake Huron do	1	20	1000	4	98	8314	297	63725	20220	3878	8353	15	3180		
River and Lake St. Clair Division					63	1444	241			3433	3096			4	50
Detroit River Division	1	10	1500	40	27	803	87			28	2665			1	20
Lake Erie do	15	153	22600	49	233	18520	416	8392	1950	5933	3953	195	65575	20	160
Lake Ontario do	3	65	3550	11	122	8425	302	126134	20271	4140	2700			25	754
Prince Edward and Bay of Quinté Division	3	30	8000	9	109	2715	283	41600	3450	3800	3355			142	2850
Lennox, Addington and Frontenac do					49	790	65	11368	958					45	905
Wolfe Island Kingston Division do					18	588	28	3372	511					42	616
Rockport, Brockville and Cornwall do					246	7200	336								
Prescott, Russell and Carleton do					25	250	25								
Leeds, Lanark and Rideau do					5	40	5							16	270
Renfrew County Division					24	114	40	350	147						
Lake Nipissing do					12	385	16	3350	1130						
Parry Sound and Muskoka Division															
Wellington County Division															
Lake Simcoe do															
Lake Scugog do	1	15	1800	3	200	3000	225								
Victoria County do															
Peterboro' County do					59	740	59								
Total	60	1235	134700	277	1590	101868	3251	1298901	192689	21897	25502	264	90805	329	6062

RECAPITULATION of the Number and Value of Vessels, Boats and Fishing Materials, &c.—Province of **Ontario**—*Concluded.*

NAME OF STATION.	KINDS OF FISH.													Fish used for Home Consumption, lbs.	Value.
	Whitefish, barrels.	Whitefish, lbs.	Trout, lbs.	Trout, barrels.	Herring, barrels.	Herring, fresh, lbs.	Eels, lbs.	Sturgeon, lbs.	Maskinonge, lbs.	Bass, lbs.	Pickerel, lbs.	Pike, lbs.	Coarse Fish, lbs		$ cts.
Lake Superior Division	325	831000	786500	1170	....	5000	.....	71329	.....	.....	117940	.....	40000	32000	173846 14
Manitoulin do	1771	2537659	817380	930	....	.....	.....	128066	.....	1000	135200	5000	.....	17325	328386 43
Georgian Bay do	537½	2003900	2029000	1238	435	53000	.....	9200	5500	121000	384910	130784	69170	134000	429227 90
Lake Huron do	608	88619	440267	445	2714	273100	.....	134151	.....	6500	236898	300	14550	32100	110224 66
River and Lake St. Clair Division	127	23300	54600	176	1323	212500	.....	12600	2297	8850	93572	8310	236702	17750	41359 20
Detroit River Division	.....	81170	.....	....	....	177440	.....	31140	900	965	5885	9865	32200	1100	19191 25
Lake Erie do	.....	306213	75	.....	....	6902563	4257	411741	1815	109966	901677	129052	545240	313154	487604 47
Lake Ontario do	.....	14932	20548	....	372	2591924	11275	50243	237000	82878	58163	94854	208400	.....	171701 80
Prince Edward and Bay of Quinté Division	150	224464	90000	....	692	160884	230	156	510	10706	40189	61188	316280	.....	54924 58
Lennox, Addington and Frontenac do	.....	179000	16500	....	1000	4200	3800	4000	100	13000	107150	24950	56200	.....	30796 50
Wolfe Island and Kingston do	.....	.....	6000	.....	.....	.....	8300	5750	1200	4340	1550	62350	51675	.....	6536 15
Rockport, Brockville and Cornwall do	.....	.....	.....	.....	.....	.....	29400	11100	6875	49840	11350	96100	198000	.....	17258 90
Prescott, Russell and Carleton do	.....	200	.....	.....	.....	.....	2550	5000	9000	6900	12700	9700	76500	.....	4935 00
Leeds, Lanark and Rideau do	.....	.....	10000	....	1000	.....	4300	.....	6200	42100	10650	44000	135900	.....	15072 00
Renfrew County Division	.....	1500	1400	.....	.....	.....	2270	2020	4350	3725	4140	7550	100800	.....	4651 80
Lake Nipissing do	.....	4350	.....	.....	.....	9600	.....	7526	1126	2650	31370	50614	15150	.....	6373 52
Parry Sound and Muskoka Division	.....	200	20000	.....	.....	1550	.....	.....	500	2500	6000	300	14000	.....	3068 50
Wellington County Division	.....	.....	6000	.....	.....	37000	60000	.....	.....	3500	.....	2500	45000	.....	7735 00
Lake Simcoe do	.....	.....	23000	.....	.....	13500	.....	2000	18200	30200	10000	55000	20000	.....	9949 00
Lake Scugog do	.....	.....	.....	.....	.....	.....	.....	.....	200000	80000	.....	.....	100000	.....	19800 00
Victoria County do	.....	.....	1000	.....	.....	4000	1000	.....	15000	25000	5000	.....	6000	.....	3240 00
Peterboro' County do	.....	2000	22000	.....	.....	6000	15000	.....	115500	96000	.....	.....	33000	.....	17240 00
Total	3518½	6298507	4344270	3959	7536	10452261	141882	886022	626073	701620	2174344	792417	2314767	547429	1963122 80

RECAPITULATION

Of the Yield and Value of the Fisheries in the Province of **Ontario,** during the Year 1889.

Kinds of Fish.		Quantity.	Price.	Value.
			$ cts.	$ cts.
Whitefish	Brls.	3,518½	10 00	35,185 00
do	Lbs.	6,298,507	0 08	503,880 56
Trout	"	4,344,270	0 10	434,427 00
do	Brls.	3,959	10 00	39,590 00
Herring	"	7,536	4 00	30,144 00
do	Lbs.	10,452,261	0 05	522,613 05
Eels	"	141,882	0 06	8,512 92
Sturgeon	"	886,022	0 06	53,161 32
Maskinongé	"	626,073	0 06	37,564 38
Bass	"	701,620	0 06	42,097 20
Pickerel	"	2,174,344	0 06	130,460 64
Pike	"	792,417	0 05	39,620 85
Coarse fish	"	2,314,767	0 03	69,443 01
Home Consumption	"	547,429	0 03	16,422 87
Total for 1889				1,963,122 80
do 1888				1,839,869 09
Increase				123,253 79

STATEMENT showing the Number and Value of Vessels and Boats and Fishing Material used in Ontario during the Year 1889.

——	Value.
	$
60 vessels or tugs (tonnage 1,235)	134,700
1,590 boats	101,868
1,298,901 fathoms of nets	192,689
21,897 do seines	25,502
264 pound nets	90,805
329 hoop nets	6,062
3,528 men employed.	
	551,626

RECAPITULATION of the Number and Value of Vessels, Boats and Fishing Materials, &c., with the Kinds and Quantities and Value of Fish, in the Province of **Ontario**, for the Year 1889.

NAME OF STATION.	VESSELS AND BOATS EMPLOYED.							FISHING MATERIALS.							
	Vessels or Tugs.				Boats.			Gill Nets.		Seines.		Pound Nets.		Hoop Nets.	
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	No.	Value.
			$			$			$		$		$		$
Lake Superior Division	5	223	10650	19	55	9110	130	171300	14865			14	4650		
Manitoulin do	18	412	48300	90	100	16250	324	271050	45500	130	675	40	17400		
Georgian Bay do	13	307	37300	52	145	23180	372	598260	83687	555	705			34	437
Lake Huron do	1	20	1000	4	98	8314	297	63725	20220	3878	8353	15	3180		
River and Lake St. Clair Division					63	1444	241			3433	3096			4	50
Detroit River Division	1	10	1500	40	27	803	87			28	2665			1	20
Lake Erie do	15	153	22600	49	233	18520	416	8392	1950	5933	3953	195	65575	20	160
Lake Ontario do	3	65	3550	11	122	8425	302	126134	20271	4140	2700			25	754
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Renfrew County Division					24	114	40	350	147						
Lake Nipissing do					12	385	16	3350	1130						
Parry Sound and Muskoka Division															
Wellington County Division															
Lake Simcoe do															
Lake Scugog do	1	15	1800	3	200	3000	225								
Victoria County do															
Peterboro' County do					59	740	59								
Total	60	1235	134700	277	1590	101868	3251	1298901	192689	21897	25502	264	90805	329	6062

for hindering the development of the fishing industry, or depriving Icelanders, half-breeds and even Indians, of what has become to them a tangible means of support throughout the year. Those who have been agitating for a suppression of the fish trade, have tried to convey the idea that the southern end of Lake Winnipeg was so much depleted of whitefish that traders have been forced to operate in other sections of the lake. This statement is not in accordance with the facts, for this end of the lake was never very largely fished by traders, it being for the most part a resort for winter fishing by smaller fishermen, who still fish there every winter with very fair success. Messrs. Reid & Clark, who were the first traders to operate on Lake Winnipeg, on a large scale, first set their nets in the summer of 1881, ten miles from the mouth of Red River, but caught no whitefish there. They then tried the vicinity of Elk Island, 20 miles further north, with no better results. They next operated at Big Island, 80 miles from the mouth of Red River, where they caught only four tons of whitefish during the summer of 1881. The winter following they secured ten tons of whitefish, mostly purchased from Icelandic settlers. In the summer of 1882 they had fair success again at Big Island, until the middle of July, but they were compelled to transfer their operations to Little Saskatchewan River, as they could not have covered expenses had they remained at the south end of the lake. The large traders, on this account, never operated in any succeeding summer at this end of the lake, but established themselves at Berens Island, twelve miles south of Berens River, and at Little Saskatchewan River, where they have operated every summer since, with fair success. The firm of Robinson & Co., who have had a transportation line of steamers to Grand Rapids for a number of years, built freezers and ice houses at this point, where they have carried on fishing operations for a short time each summer, during the last two years. It will thus be seen that the fishing operations on Lake Winnipeg are not, after all, carried on upon so large a scale as those promoting the agitation would endeavor to convey.

THE FISHING INDUSTRY.

The trade during the past year was fairly successful, and has been the means of giving considerable employment to a class of people, who, without it, would have been subjected to much privation and hardship. Fully two thousand people, directly and indirectly, have found this industry a means of assisting them to earn a livelihood. There were five tugs and three barges, of 955 tons burthen, engaged in the trade during the season, on Lake Winnipeg valued at $38,000; twenty-four clinker-built boats, valued at $6,200; and 31,167 fathoms of gill net, valued at $4,474, used by the principal firms engaged in this business. There were besides 510 other boats used by other fishermen, who operated 21,833 fathoms of gill net, valued at $3,926; 175 gill nets, five seines and three pound net licenses were issued during the year, realizing $792; fines, $29; total, $821. The tugs and barges were used exclusively on Lake Winnipeg. The pound nets ($8\frac{1}{2}$ inch mesh in the crib) were used at Pigeon Bay and Grand Marais Point.

Subjoined is a summary of the catch for the year, as compared with that of the previous year:—

	Lbs.	Value.
1888.....	4,648,250	$180,677
1889.....	4,359,927	167,679

The Indian consumption is a somewhat difficult thing to get at, but a careful estimate by the overseers places it at 1,500,000 lbs., valued at $58,000. This will make the aggregate catch for the year, 5,859,927 lbs., and valued at $225,679. Apart from the fishing itself, other industries have sprung up with the trade. A man named W. J. Guest, manufactured at Reindeer Island and Saskatchewan River, 850 gallons of oil from the fat and refuse of whitefish and other kinds of fish. He sold it in Winnipeg at 40 cents per gallon, and it is used for lubricating machinery. The process of manufacture is simple. The refuse is boiled in sheet-iron vats, and when rendered is strained and put into barrels ready for market. The Indians at

Grand Rapids, Little Saskatchewan River, and Fort Alexander district, manufactured and sold to the trade 200 gallons of the same oil. Messrs. C. W. Gauthier & Co. manufactured 18½ kegs, or 2,260 lbs. of caviare from the roe of sturgeon caught at Pigeon Bay and Grand Marais. It was marketed in New York, realizing, at 60 cents a pound, $1,356. They also manufactured 270 gallons of oil from the fat of their catch of sturgeon.

C. W. GAUTHIER & CO.

Subjoined is a summary of the business done by this firm, during the year, on Lake Winnipeg :—

Catch.	Lbs.	Value.
Whitefish (fresh)	897,500	$44,875
do (salted)	30,000	981
Pickerel	70,000	2,100
Sturgeon	83,000	2,490
Pike	4,555	91
Catfish	600	18
	1,083,335	$50,555

Vessels, boats and men employed :—

Tug "Glendevon," 7 men	$ 8,000
do "Miles," 3 men	6,000
Barge "New Brunswick," 2 men	3,000
13 sail-boats, 39 men	3,900
18,850 fathoms whitefish gill-net	1,939
1,750 do sturgeon do	245
3 pound-nets	600
2 boats for pound-net fishing	200
Freezers, ice-houses, and other buildings	14,000
	$37,884

W. ROBINSON & CO.

The following is a statement of the business of the firm during the year :—

Catch.	Lbs.	Value.
Whitefish (fresh)	610,667	$27,480
do salted	18,600	558
Sturgeon	38	2
Pickerel	53,126	1,594
Pike	4,787	95
Tullibee	1,476	30
	688,694	$29,759

Vessels, boats and men employed :—

	Value.
"Ogema & Lady Ellen," 10 men	$ 9,000
Barge, "North Star," 2 men	2,000
8 sail boats, 16 men	1,400
13,500 fathoms gill net	1,890
10 ice houses and freezers	12,000
	$25,000

SELKIRK FISH CO.

The business of this firm for last season is as follows:—

Catch.	Lbs.	Value
Whitefish (fresh)	91,090	$4,099
do salted	45,000	1,350
Pickerel	3,500	140
Pike	1,400	35
	140,990	$5,624

Vessels, boats and men employed:—

1 tug, 1 barge, 3 sail boats and 7 men $10,900

EXPORT OF FISH.

Through the courtesy of Lieut.-Col. Scott, Collector of Customs at this port, I am enabled to submit the following statement of export of fish to the United States during the year 1889:—

	1888.	1889.
	Lbs.	Lbs.
Whitefish, fresh	1,249,109	1,083,112
do salted	236,600	63,800
Pike	430,204	364,628
Pickerel	142,325	154,779
Tullibee	10,454	58,343
Perch	4,545	3,601
Catfish	525	180
Gold-eyes	.....	500
Sturgeon	2,316	45,830
Suckers	.....	5,793
Sheepshead-bass	.....	900
Salmon trout	29	121
	2,063,107	1,781,587

The above figures show a falling off from last year's. This is accounted for by the fact that there was but little demand and poor prices last winter. Traders therefore held over a large quantity of their fish. The open season in eastern lakes last winter and the abundant supply of fish, overstocked the market, thus affecting the demand for those of Manitoba. The value of fish exported in 1888 is quoted by the Customs authorities at $86,944; this year the value is placed at $85,827. The traders found a market for their fish in New York, Chicago, St. Paul, Minneapolis, Detroit, Buffalo, Helena, Butte City, Fargo, Grand Forks and other small towns in the neighboring States. A considerable quantity of fish was shipped east to Windsor, Toronto and Montreal. The balance remained in Manitoba.

LAKE OF THE WOODS.

In accordance with instructions received last year, I have refused to issue licenses for net-fishing in the Lake of the Woods District during the past season. This proved a disappointment to one or two traders who had made preparations during the previous summer to operate in our waters. Mr. D. F. Reid, one of the principal men applying for fishing privileges, concluded to operate in Buffalo Bay, on the American side. In addition to dealing with American fishermen, he purchased fish from Canadian Indians. Mr. Reid stored his fish at Rat Portage, from which point he shipped to American markets.

The following is a statement of his business during the past year:—

Sturgeon,	46	tons,	caught in Buffalo Bay.	
Pickerel,	12	do	purchased from Indians.	
Whitefish,	29	do	do	do
Trout,	1	do	do	do

Messrs. Bostedt & H. P. Asmass, from Michigan, manufactured and exported, *viâ* the Canadian Pacific Railway to New York, 230 lbs. of sounds and 4,900 lbs. of caviare.

FISH-WAYS.

The question of obstructions to the ascent of fish up the rivers, is sometimes a source of annoyance to people residing in the vicinity of some of our small streams. Complaints are sometimes made against railway corporations and mill-owners, who have placed dams across streams, that they do not provide the necessary fish-ways. The chief accusation during the year was against the Manitoba and North-Western Railway Company for their dam at Westbourne. I visited the locality several times, and the railway authorities evinced a strong desire not only to comply with the law, but to meet the wishes of the people. Although the dam was provided, after its reconstruction last year, with a proper fish-way, yet it was claimed that the fish did not get up in sufficient quantity, so, after visiting the place again, the railway authorities put in an additional fish-way which, I believe, will fully meet the requirements next spring. Another difficulty presented itself at Birtle, where, owing to a freshet, the dam on Bird Tail Creek was carried away. The owners, when rebuilding the dam, neglected putting in a fish-way. When I learned of this fact I notified the manager in charge to have a legal fish-way put in. This was done in November last. In a number of places weirs were put across streams to intercept the passage of fish. Indians were found to be the principal transgressors in this respect. Two cases near the mouth of Little Saskatchewan River gave some considerable annoyance for a time. Mr. Clay, of Rapid City, acting upon my instructions, destroyed the weirs. I would suggest that the Indian agents be asked to advise the Indians to stop this practice, otherwise I will be compelled to prosecute them if they continue it another year.

THE CLOSE SEASONS.

The close season for whitefish, according to the existing regulations, extends from the 5th of October to the 10th November. All persons who have experience in our waters, are agreed that those dates cover the vital period for the spawning of whitefish, particularly in Lake Winnipeg. Some, however, maintain that the date is later in portions of Lakes Manitoba and Winnipegoosis. Overseer Gilchrist, in his report for Assiniboia, also claims that the date for the Qu'Appelle and Long Lakes should be fixed not only later, but for a longer period. It is difficult, in view of such discrepancies, to adopt a uniform regulation for the close season. I am, however, strongly impressed in favor of the spawning season beginning not later than the 5th of October, as at present,; but, if a change is to be made at all, I would recommend an extension of time, say from the 10th to the 30th November. Mr. Gilchrist admits that whitefish caught on the 30th of November, were "spent fish." Whitefish commence to seek the shoals in Lakes Winnipeg, Manitoba, and Winnipegoosis early in October; and on this account it would not be in the interest of protection to fix a later date than the 5th October, for the commencement of the close season.

The close seasons for fish during the past year were fairly well observed, and the guardians report but few violations of the regulations. The parties found guilty of an infraction of the law, were arraigned before the magistrates, and fined. The Indians still continue the practice of fishing during the close season, and I would suggest the advisability of asking the Indian authorities to assist in restricting this evil. As the trade increases, other avenues of employment will open up for Indians, and render them less dependent upon this mode of fishing. The wages they could otherwise earn would be sufficient to tide them over winter. Indians can earn fair wages,

and do now receive considerable supplies from the fish traders and lumbermen, who employ them in their camps and mills at all seasons of the year.

FISH-CULTURE.

This question is now becoming a live topic amongst those who take an interest in fishery matters. The agitation which has been going on for years, in fact ever since the inception of the trade, may do some good, if it only hastens the establishment of hatcheries for the propagation and culture of fish in our waters. Experiments have been made, both by myself and private individuals, in the direction of depositing fry, imported from the United States, in a number of small lakes, with what success remains to be seen. Gen. Supt. Baker, of the Manitoba and North-Western Railway, procured 250 black bass from the Minnesota State Hatchery, in October, 1886, and had them deposited in Shoal Lake, near Birtle. He reports that a person caught one of them in July last, weighing one and a-quarter pounds, although when put in the fry did not average more than one ounce in weight. This would indicate that the waters in question are well adapted for the propagation of this species of fish. Through the courtesy of Col. Marshall McDonald, United States' Fishery Commissioner at Washington, I obtained a supply of German carp fry, which were planted, late in the fall, in a mill pond near Rapid City, and Lake Minnewawa, near Glenboro', in Southern Manitoba. Should hatcheries be established next year, the good work thus begun can be carried out on a more extensive scale, and it is to be hoped with fruitful results. I have many enquiries from different sections of the country for German carp and black bass fry, to deposit in the smaller lakes, but for lack of facilities am unable to supply the demand. With a hatchery once in operation this difficulty will be overcome, and the Fishery Department will have the hearty co-operation of the people in the culture and propagation of fish. In many of the neighboring States the question of fish-culture has received the special attention of the fishery authorities, with the result that hatcheries are now rapidly propagating the growth of whitefish, trout, bass, carp and other varieties of food fishes, in American waters. I believe they have set us an example in this respect, well worthy of emulation.

HATCHERIES.

In view of the fact that the Department of Fisheries have now under consideration the subject of establishing two hatcheries in the North-West; one in Manitoba, and the other in Assiniboia, I might be allowed to offer a suggestion as to the location of one of them. I believe the one for Manitoba would best suit the purposes for which it is intended were it located at Winnipeg. It can be constructed more cheaply than elsewhere; and from the fact that there is a system of water-works in operation here, its maintenance would be more economical, not only in avoiding the cost of steam-power, but in securing for the purposes of the hatchery at all times, a good supply of pure filtered water. There is also another reason why it should be located in Winnipeg. The city is the centre of the railway system of the Province and on this account affords every facility for the transport of fry to the different sections of the country.

WATER AREAS OF MANITOBA.

The question of the depletion of fish in Lake Winnipeg and other inland lakes of Manitoba having become a theme of considerable discussion, and a fear being entertained that the supply of food fishes might become exhausted in this country. I caused a civil engineer to prepare an estimate of the extent of the water areas of this Province. I herewith submit his statement, and accompanying map, so that the Department may get a better idea of the extent of water in this country:

"WINNIPEG, 15th November, 1889.

"ALEX. MCQUEEN, Esq.,
"Inspector of Fisheries.

"SIR,—In compliance with your request, I have carefully estimated the area of the waters and lakes of Manitoba and in that part of the District of Saskatchewan lying north of the Province of Manitoba, south of the 54° of north latitude, and west of, and including the northern part of Lake Winnipeg, also that part of the Province of Ontario lying west of a meridian line drawn north from the east of 'Hunter's Island.'

"As a basis for estimating these areas I took the map of the Province of Manitoba and the North-West Territories, published by the Department of the Interior in 1885, and find the total area of the waters within the above limits, as shown on this map, to be 22,017 square miles.

"This, of course, does not include the rivers, nor the great number of lakes known to exist, but which are not shown on any map.

"I am of the opinion that at least fifty per cent. might be added to these figures on this account, which would make the total area 33,025 square mile, and this will probably prove ultimately, when complete surveys have been made, to be less than the actual figures. I attach a schedule showing the detailed areas of the various lakes, &c.

"SCHEDULE showing areas of the lakes and waters in Manitoba and adjacent thereto:—

MANITOBA.

	Sq. Miles.
That part of Lake Winnipeg in Province	4,963
do Winnipegoosis do	1,347
do Lake of the Woods in Province	50
Lake Manitoba	1,712
Whitemouth Lake	16
Cross Lake, Lakes Rennie, Falcon, Benton and Agnes	25
Lac du Bonnet and Lake on Winnipeg River	41
Bear Lake, 21; Goose Lake, 35; Leaf Lake, 33; Crow Lake, 39	128
Poplar Lake and Big Fish Lake	25
Pickerel Lake, Heron Lake, Long Lake, &c	75
Island Lake, 28; Trout Lake, 85; Goose Lake, 78	191
Waterhen Lake	87
Pelican Lake, No. 2	29
St. Martin's Lake	125
Otter Lake, 8; Dog Lake, 36; Swan Lake, (No. 1) 9	53
Shoal Lake	109
Rock Lake and Pelican Lake (No. 2), 25; Swan Lake, 8	33
Oak Lake, 12; Shoal Lake, Clear Lake and other lakes, Riding Mountains, 36	48
Lake Dauphin, 387; Ebb and Flow Lake, 43	430
Swan Lake and Pelican Lake (No. 3)	123
Deer Lake, 44; Eagle Lake, 29; Deer Lake (No. 2), 54; Bad Lake, 18	145
Red Lake, 257; Albina Lake, 41; Swan Lake, 43	341
Shoe Lake, 35; Gull Lake and Pugwash, &c	87
Cat Lake, 257; Lakes on Cat Lake River, 37	294
Family Lake, 262; Whitewater Lake, 35	297
That part of lakes on English River, in Manitoba	49
do Lac Seul, in Manitoba	445
do Lake St. Joseph, in Manitoba	231
Other small lakes, for the most part not named	1,593
Total water area in Manitoba	13,129

"Water areas of that part of the North-West Territories lying north of Manitoba and south of the 54° of north latitude and west of and including Lake Winnipeg:—

	Sq. miles.
Part of Lake Winnipeg	4,588
do Winnipegoosis	774
do Big and Little Playgreen Lakes	164
William Lake, 46; Moose Lake, 211	257
Indian Bear Island Lake	117
Cross Lake, 42; Red Deer Lake, 39	81
Cedar Lake, 246; Buffalo Lake, 11	257
Small lakes not named	115
Total	6,353

Water areas in that part of Ontario lying west of a meridian drawn north from the east end of Hunter's Island:—

	Sq. miles.
That part of Lake of the Woods in Ontario	876
do Rainy Lake in Ontario	298
do Lac Seul do	568
do lakes in English River in Ontario	58
Area of other lakes shown on map	735
Total area	2,535
Grand Total	22,017

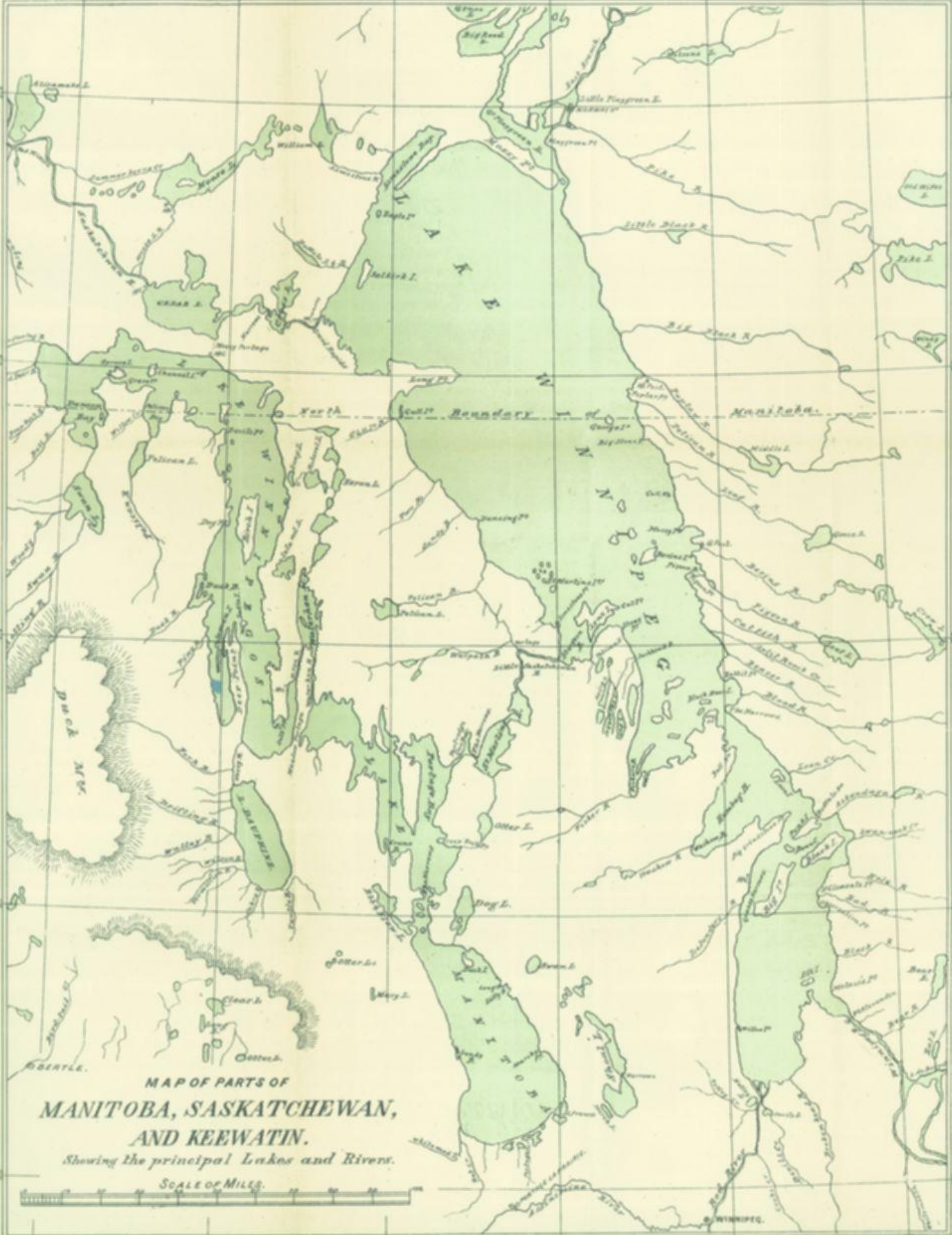
Note.

Total area of Lake Winnipeg	9,551
do Winnipegosis	2,011
do of the Woods	1,015
do Rainy Lake	638

I have the honor to be, Sir,
Your obedient servant,
D. CODD, *C. E.*

REPORTS OF GUARDIANS.

The work of the fishery guardians has on the whole been satisfactory. There are no postal facilities to many points on Lake Manitoba and Lake Winnipeg; and it is therefore exceedingly difficulty for them to communicate with the inspector as freely and often as desirable, even in summer; and it is worse in winter. Guardians Johnson and Archer, the former at Berens River, and the latter at Lake St. Martins, find it difficult on this account to send in their returns in time for my annual report, except they making a special trip, or when they happen to catch a person coming to Winnipeg, which is not always possible in the early part of January. The result is that, every year, at this time, I am delayed in my report, on account of not hearing from two or three of the most important districts, under my supervision. In view of this difficulty, I would recommand the alteration of the fishery year, so as to correspond with that of the fiscal year, and that of some of the other Departments. By doing this ample time would be given for the preparation of a more exhaustive report, than it is possible to do, in a hurry, after the close of the calendar year, and so near the date of the meeting of Parliament. The facilities for travelling are also better in summer than in winter, and guardians have more leisure, too, at that time, than in winter. These officers have been vigilant in the matter of enforcing the close season and the fishery regulations generally; and with the experience gained, I


MAP OF PARTS OF
MANITOBA, SASKATCHEWAN,
AND KEEWATIN.
Showing the principal Lakes and Rivers.
SCALE OF MILES.

expect to have the work even better done in the future. I herewith append synopses of their reports for the year ending 31st December, 1889.

ST. LAURENT—LAKE MANITOBA.

Guardian Daniel Devlin who has charge of the fisheries on the south-east shore of Lake Manitoba, in the vicinity of St. Laurent, reports the catch in his district a little less than during the previous year. He visited all the fishing stations from Long Point at the north to the Mission, thence southwesterly to Totogan, and found the close season well observed, except by two persons whom he intends prosecuting for a violation of the regulations.

The quantity of gill nets used amounted to about 7,000 fathoms, valued at $1,400; and 25 boats and skiffs were employed, ranging in value from $10 to $20, and with a carrying capacity varying from 600 to 1,000 pounds. The reason of the decrease in the number of boats from that of last year, is that no fishing was carried on until the lake was frozen, except for home consumption.

Subjoined is a statement of the catch for the trade during the season :—

	Pounds.	Value.
Whitefish	35,780	$1,789
Pickerel	100,000	3,000
Pike	250,000	3,750
Tullibee	8,000	160
Total	393,780	$8,699

This officer estimates the home consumption at 40,000 pounds of whitefish value, $2,000; 20,000 pounds pickerel and pike, value $375; 25,000 pounds mixed fish, value, $375. This makes the total catch of all kinds of fish, 478,780 pounds; of which the aggregate value would be $11,449.

The reason of the diminished catch for the year is ascribed to the early spring. Traders stopped buying two weeks earlier than in previous years, and the fishing season began two weeks later than usual in the autumn.

There were 100 men engaged in fishing in this district. They used 25 boats, valued at $350, and had 7,000 fathoms of gill nets. As most of the nets are supplied by the traders, they report no increase during the year. Twenty-seven licenses were issued. The use of seines was discontinued, the season being found to be too short.

The different kinds of fish caught in Lake Manitoba are as follows :—whitefish. buffalo fish, pike, pickerel, tullibee, gold eye, suckers and catfish. The principal buyers were A. G. Hepworth, John McKenny, Pierre Chaboyer, Fillion & Coy., Hugh Armstrong, N. D. Bradstock, Joseph Hamlin and Smalley & Chantler. The shipping stations for this district, are at Westbourne, on the Manitoba and North-Western Railway, and at Redburn, on the Canadian Pacific Railway.

FORT ALEXANDER, LAKE WINNIPEG.

Guardian John Wood reports fishing somewhat better during the past year, particularly the catch of whitefish. This district extends along the east shore of Lake Winnipeg, from Loon Straits southerly to the mouth of Red River. This officer has resided upwards of thirteen years in the district, and never found it a good place for summer fishing, although there has always been a fair catch in winter. The catch of whitefish is given as follows :—

	Lbs.
Port Alexander	88,000
Grand Marais	3,800
Black River	21,945
Hole River	9,400
Bad Throat River	5,010
Total	128,155

The catch of other varieties was as follows:—

	Lbs.
Pickerel	11,112
Sturgeon	8,900
Tullibee	1,428
Catfish	13,375
Mixed fish	73,943
Total	108,758

This makes a total catch for this district of 236,913 lbs.; 117,058 lbs. of which was used for home consumption. There were 139 men engaged fishing, using 149 boats and canoes, valued at $1,192, with 5,920 fathoms of gill-nets. Of this number 112 were Indians, and the remainder licensed fishermen. Mr. C. W. Gauthier, used one pound-net at Grand Marais for sturgeon fishing. The saw-mill owners of this district paid more attention to the matter of sawdust and refuse, and are endeavoring, as far as possible, to comply with the law.

THE NARROWS, LAKE MANITOBA.

Guardian H. Martineau had charge of the west, east, north and north-east shores of Lake Manitoba, Ebb and Flow Lake, Dog Lake, with creeks and small streams adjacent thereto. The close season was generally well observed, and the Indians did not fish so extensively as usual during the spawning period. They are beginning to understand the advantage of not fishing during that time. This officer reports whitefish the staple catch of his district, and that they are caught in abundance during the months of May, November, December and January; but during the rest of the year their catch does not amount to much. When taken in May the fish are prepared as follows: They are first dried and smoked, then pounded into a mass as fine as powder; this is next mixed with oil made from the offal, and, with smoked fish, forms the principal food supply of both Indians and half-breeds during the summer. Pickerel, pike, tullibee, suckers and perch are also plentiful in these waters; but, strange to say, Indians will not fish for them as long as they can procure whitefish. Oil is not manufactured to any extent, and whitefish are not caught simply for the purpose of making oil from them, as was formerly done. Some oil is, however, yet made from the offal of fish, and answers the purpose of both food and light for the Indians.

One hundred and seventy-five persons fished during the year. Of this number, 155 fished for their own use. There were 6,900 fathoms of gill-nets used, valued at $1,380; one small sloop of about 5 tons, valued at $100; 55 small skiffs, and as many birch-bark canoes, worth from $8 to $50 each, were all the crafts used by fishermen in this district. Mr. Martineau reports the catch as follows:—

	Lbs.	Value.
Whitefish	20,000	$1,000
Pickerel	15,000	450
Pike	30,000	600
	65,000	$2,050

The home consumption, apart from the Indians, is estimated at 250,000 lbs. whitefish, valued at $7,500; 7,000 lbs. of pickerel, value, $140; 30,000 lbs. pike, value, $300; making the total value for home consumption $7,940.

BIG ISLAND, LAKE WINNIPEG.

Guardian John Helgason has a district extending from Hoosavick, near the mouth of Red River, along the west shore of Lake Winnipeg, to Grindstone Point, opposite Loon's Straits. At Hoosavick, fifteen men fished for their own use, during

the months of September and October, there being no whitefish in this locality during the fall of the year. Ten men fished at Gimli, fifteen at Drunken Point, and ten at Sandy Bar. At all these points fishing is carried on to some extent the whole year round. The kinds of fish caught are pickerel, pike, tullibee, gold eye, and a small quantity of coarse fish. This officer reports whitefish as the principal catch in winter. Eighteen men carried on fishing at Big Island the whole year round, only suspending operations during the close seasons. There are quite a number of whitefish spawning grounds, in the vicinity of this Island. At Grindstone Point, the northern limit of this district, seven fishermen fished during the winter; their catch being principally whitefish. Fishing was as good, if not better, than during the previous year at this point, considering the number of men employed, and the small quantity of twine used. Guardian Helgason visited all the fishing stations in October, and found the close season well observed. He complains that Indians still continue to fish during the spawning period, on the shoals contiguous to Big, Black, and Deer Islands, thus greatly injuring the fisheries of the locality.

Subjoined is a statement of the catch of fish in this district: —

	Lbs.	Value.
Whitefish	53,020	$2,120
Pike	70,400	704
Catfish	9,050	181
Sturgeon	3,100	124
Gold eye	4,550	45
Pickerel	39,900	798
Tullibee	81,000	810
Mixed fish	117,500	1,175
Home consumption	160,200	1,602
Total	538,220	$7,559

No large boats were used by the fishermen of the district, except that Capt. Bamfield worked a sloop for a short time at Big Island. The appliances, for the most part, consisted of small boats and canoes, and of gill-nets. There were in all 86 boats valued at $1,298, and fished by 94 men; 11,826 gill-nets were used, valued at $1,288.

FAIRFORD, LAKE MANITOBA.

Guardian W. Archer, Lake St. Martin's Narrows, reports the catch in his district considerably below that of last year. This falling off is attributed to two causes, shallowness of the water on the rapids of the Little Saskatchewan River, two miles from the mouth, at Lake Winnipeg, and to the setting of a large number of nets in Sturgeon Bay near the mouth of the same river, which prevented the fish from ascending the river to Lake St Martin. It is suggested that the men who fish at Sturgeon Bay should move their nets further out into the lake. Fishing was also poor this year at Fairford Narrows. The Indians finding fish scarce started early in December to hunt, at which they were very successful; game being plentiful this year. An estimate of the catch of fish in this district is given as follows: —

	Lbs.	Value.
Whitefish	50,000	$1,500
Pickerel	20,000	400
Mixed fish	180,000	1,800
Total	250,000	$3,700

The catch of whitefish last year amounted to 247,500 lbs., but in this was included 40,000 lbs., caught on Lake Winnipegoosis and Water Hen River. At this

latter point 90,000 lbs. of whitefish were caught this year; also 50,000 lbs. of pickerel. This would make the aggregate catch at both places for this year 390,000 lbs., as against 463,000 lbs., during the previous year. Of the 250,000 lbs., caught in the Fairford district, 50,000 lbs. were marketed, and the remainder used for home consumption. All the fishing in the latter district was done by Indians and half-breeds, who used about 7,000 fathoms of gill-nets, valued at $1,400, and 75 boats and canoes worked by 80 men. At Water Hen River, three traders engaged in winter fishing employed 20 men. They used 5,000 fathoms of gill-nets, valued at $1,000.

SHOAL LAKE, STONEWALL.

Guardian J. A. Fraser, reports that fish were not so plentiful here as in previous years. Pike is the only marketable fish in this locality. None were sold from the south end, the catch being barely sufficient for home consumption. The catch for market was principally done at the Narrows, where 60,000 lbs. of pike were sold, realizing $1,200. The total catch for the year is estimated at 75,000 lbs., realizing $1,500. During the month of April, when fish were ascending streams to spawn, he was compelled to stop the practice among settlers of killing them with guns and pitchforks. Twelve men were engaged fishing with 600 fathoms of gill-net, valued at $90.

BERENS RIVER, LAKE WINNIPEG.

Guardian J. B. Johnson, who has charge of this most important district on Lake Winnipeg, reports winter fishing better than in the previous year. The principal stations in this district are at Beren's or Swampy Island, Pigeon Bay, Flat Head, Bull Head, Little Saskatchewan River and Reindeer Island. The close seasons were well observed. Two men were prosecuted and fined for catching sturgeon out of season at Pigeon Bay. The winter fishing began about the 25th November, and the catch for the trade was 149,270 lbs. of whitefish; 29,270 lbs. more than during the previous year. There were also caught 5,700 lbs. of sturgeon, valued at $220. The Indian consumption is estimated at 225,000 lbs. of all kinds of fish. All these fish were caught south of Beren's River. The whitefish caught this winter averaged 4½ lbs. weight. The principal fishermen engaged in the trade were: Raymond and Anderson, Vincent Smith, Charles French and Jesse Matheson. Beside these, fifteen Indians fished in this district.

The summer fishing in this district is nearly all done by the large fishing firms, and the season extends from about the 8th June until the 4th October. The firms operating were those of C. W. Gauthier & Co., Wm. Robinson & Co., and the Selkirk Fish Co. Their total catch amounted to 1,913,039 lbs. of all kinds of fish, valued at $85,938. Of this quantity, 1,692,767 were whitefish, and 77,000 lbs. sturgeon. It may be as well to state here that, this aggregate includes 202,894 lbs. of whitefish caught at Selkirk Island, near Grand Rapids. The above firms employed 5 tugs, valued at $30,000; 3 barges, valued at $8,000; and 24 sail boats, valued at $6,200. They used 37,350 fathoms of gill-nets, valued at $5,479. Besides this, Messrs. C. W. Gauthier & Co. used 2 pound-nets and 2,000 fathoms of sturgeon gill-nets, both valued at $800.

RED RIVER DISTRICT.

The amount of fishing done in this district is somewhat limited; the catch consisting chiefly in coarse fish. Four men fished here during the summer, and sold their catch in Winnipeg. Their names are A. L. Davis, Joseph Samson, Daniel Sewell and Etienne Dupré. They employed 8 men and used 200 fathoms of seines, valued at $150, and 6 boats, worth about $120.

The total catch of this district may be summarized as follows:—

	Lbs.	Value.
Pickerel	50,000	$1,500
Pike	30,000	600
Sturgeon	10,000	500
Mixed fish	175,000	1,750
	265,000	$4,350

Of this quantity 75,000 lbs. were sold to the trade in Winnipeg.

REPORT OF OVERSEER F. C. GILCHRIST.

FORT QU'APPELLE, ASSA., 31st December, 1889.

I beg to submit my annual report for the year ending 31st December, 1889, of the fisheries of the Qu'Appelle River and adjacent lakes. The following is the estimated catch for the past year:—

	Lbs.	Value.
Whitefish	25,000	$1,250
Tullibee	80,800	3,232
Pike	100,000	2,000
Pickerel	10,000	300
Total	215,800	$6,782

The above statement shows a considerable falling off in the catch of whitefish as compared with that of 1888; caused partly by a number of the best fishermen not fishing for the market, and by the smaller catch in some of our lakes whose fisheries are rapidly failing, owing to the ruinous fishing of the Indians during the spawning season. No licenses were issued, and unless the license system is enforced over the whole of Assiniboia, none of the fishermen of my district will fish for market, and consequently no licenses will be taken out.

There were 22 men engaged in the fisheries with 17 boats, value, $200, and 100 nets, value, $400. The Indians have done more fishing this year than usual, especially during the spawning season. Their total catch amounted to 250,000 lbs., made up principally of tullibee, pike and coarser fish.

A great injustice is being done to the Indians by certain officials of the Indian Department in encouraging them to fish during the close seasons, thus helping to destroy in a few years that inestimable boon to any community—fresh fish.

The lakes and rivers of Assiniboia are getting lower every year, owing to the long continued drought. This is, of course, having a very bad effect upon the fisheries.

The present close season, 5th October to 10th November, does not cover the spawning time of whitefish in this district. The tullibee commence to run about 15th October, and this year were not through spawning until 15th November. The whitefish took to the shoals about 1st November, and were in the height of their run about 15th November; and on 23rd November I saw two females and two males from which the ova and milt ran freely, as they were being lifted from the net. After 30th November all the whitefish I saw taken from the nets, with the exception of two females, which were full of spawn, were spent fish. When the fact at last becomes recognized that our lakes are small, that not only are they fished during the summer, but are also subject to a heavy drain all winter, a more rational treatment, and one more suited to the local conditions than the one now in vogue will be adopted. For the district of Assiniboia, I would recommend a close season for whitefish, commencing 15th October and continuing until 31st December, both days inclusive.

REPORT OF OVERSEER O. T. STONE.

CRAVEN P.O., N.W.T., 31st December, 1889.

I have the honour to submit the following report of the fisheries of Long Lake and vicinity for the year ending 31st December, 1889:—

I am pleased to state that throughout the past year there occurred no infractions of the Fishery Regulations worthy of note during the close or open seasons. A larger quantity of whitefish has been taken, as the fishing industry at Long Lake has been carried on to a greater extent than heretofore.

Since the opening of the season for whitefish, viz.: 10th November, there have been engaged in the fishery four outfits of whitemen and twenty families, and about one hundred Indians and Half-breeds. Of these there is but a small percentage of Half-breeds; all of whom, both Indians and Half-breeds, belong to Treaty No. 4. About 140 gill nets (the only nets used) are the most that have been in use at any time, and the aggregate of fish caught for the year may be put down as follows:

Whitefish	16,400
Pike	11,800
Pickerel	500

A considerable number of suckers and Buffalo-fish were also taken: but not being marketable fish, were principally consumed by the Indians.

RECAPITULATION.

Kinds.	Quantity.	Value.
Whitefish, fresh	2,517,282 lbs.	$125,884 10
do salt	93,600 "	4,680 00
Pickerel	449,638 "	13,490 14
Pike	596,147 "	11,922 94
Sturgeon	110,738 "	5,536 90
Tullibee	172,704 "	1,727 04
Catfish	24,025 "	480 50
Mixed fish	395,793 "	3,957 93
Total	4,359,927 lbs.	$167,679 55

The Indian consumption, including Assiniboia, is estimated at 1,500,000 lbs.; valued at $58,000; making the aggregate catch for the year 5,859,927 lbs. for all kinds of fish and a total value of $225,679.55.

I have the honor to be, Sir,
Your obedient servant,

ALEX. McQUEEN,
Inspector of Fisheries.

APPENDIX No. 9.

BRITISH COLUMBIA.

ANNUAL REPORT ON THE FISHERIES OF BRITISH COLUMBIA FOR THE YEAR 1889, BY INSPECTOR THOMAS MOWAT.

NEW WESTMINSTER, B.C., 31st December, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries, Ottawa.

SIR,—I have the honor to transmit my annual report on the fisheries of this Province for the past year, with statistical returns and condensed reports from the several guardians. These returns show a much larger increase in value than that of any previous year since fishing operations commenced in this Province. The comparative figures show an increase over last season, exclusive of Indian consumption, as follows:—

Total value, 1889	$3,348,067 61
do 1888	1,902,198 50
Increase, 1889	$1,445,869 11

This enormous increase was caused by the unprecedented run of salmon in the Fraser River; a slight increase in the coast pack; a large increase in the catch of skil, and a small increase in the catch of fur seals and sea otter.

The total capital invested, as compared with last season, stands as under:—

1888	$1,036,132 00
1889	1,315,272 00
Increase, 1889	$ 279,140 00

This increase was caused by the addition of eight new canneries, there being four additional on the Fraser River, two on the Naas, and two on the Skeena.

There is also an additional number of new schooners in the fur seal fleet of a larger size, higher class and better equipped than those previously in the trade.

The number of hands employed in the fisheries, as compared with last season, is as follows:—

Season of 1888	5,940
do 1889	7,789
Increase, 1889	1,849

SALMON.

The pack of canned salmon, which is always looked upon as the chief commercial product of the fisheries in this Province, reached the enormous quantity of 20,122,128 1-lb. tins, aggregating alone, at 12 cents per pound, $2,414,655.36, being an increase of 11,288,184 lbs. over the season of 1888. Of this increase, the Fraser River alone contributed 11,112,288 lbs.; but, notwithstanding this enormous increase, I feel satisfied sufficient fish ascended it to pack at least 15,000,000 additional 1-lb. cans, had there been sufficient labor, appliances and material to handle and cure them.

The residents on the Fraser are unanimous in the belief that never before in the history of the river was there such an exceptional run. During the early spring the outlook was not bright, the conditions of the river being against the prospect of a large run. The water was remarkably low, and very clear all through the summer, the light fall of snow in the mountains having melted by the excessive warm weather in the early spring, so that the freshets were well over before fishing commenced. The fish were more plentiful in small streams where we deposited the "fry," and in fair quantities in other streams, where they had been found before being stocked. Therefore, those who had doubts as to the success of the Fraser River hatchery are now loudest in its praise, and seem to think that the annual output of fry will go far to assist nature in keeping up the constantly increasing demand which is likely to be made upon its fish.

The pack of the coast canneries was larger than last season, although there was not so much packed per cannery; River's Inlet being the only place where the run of fish approached anything like the Fraser.

The proportional pack of the canneries on the coast and Fraser River was as follows:—

	1-lb. Cans.
Fraser River, 16 canneries	14,789,856
Coast, 12 canneries	5,332,272
Total	20,122,128

The run in the Skeena and Naas rivers was very high—so much so, that several of the canneries fished with seines on the outside coast and carried the catch to the canneries with small steamers.

A number of the northern packers are now preparing large seines to prosecute the outside fishery more vigorously next season.

I herewith append a table showing the individual pack of each cannery in the Province since canning operations began, including the new canneries erected this season:—

British Columbia Salmon Pack for 14 Years—Cases.

Name of Company.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.	1889.	Total.
Ewen & Co	3,125	8,334	13,700	8,380	6,191	18,900	20,000	10,438	9,600	23,000	15,000	23,000	10,470	33,700	203,838
Findlay, Durham & Brodie	4,122	11,087	7,885	4,162	5,300	10,200	9,600	4,926	.....	.....	5,300	5,915	3,300	12,410	84,207
Holbrooke & Co	2,600	9,000	12,000	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	23,600
Finlayson & Lane	.....	11,966	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,966
English & Co	.....	24,000	17,166	8,813	5,061	18,500	26,000	.....	.....	.....	.....	.....	.....	.....	99,540
British Columbia Packing Co.	.....	.....	12,625	5,200	2,048	19,987	21,500	5,250	.....	12,952	5,000	10,000	5,000	21,056	120,618
Delta Canning Co	.....	.....	16,500	11,500	9,500	19,989	26,700	11,735	.....	21,315	7,506	10,324	6,771	22,150	163,990
King & Co	.....	.....	13,570	5,585	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	19,155
Lane, Pike & Nelson	.....	.....	11,655	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,655
B. Haigh & Sons	.....	.....	.....	6,850	9,722	21,000	15,401	9,630	.....	.....	.....	.....	.....	.....	62,603
Adair & Co	.....	.....	.....	.....	4,333	17,590	20,478	.....	.....	.....	.....	.....	.....	.....	42,401
Laidlaw & Co	.....	.....	.....	.....	.....	16,350	27,365	11,440	6,650	.....	7,894	10,324	6,771	22,150	108,944
British Union Packing Co	.....	.....	.....	.....	.....	.....	7,560	6,170	.....	.....	.....	.....	.....	.....	13,730
British American Packing Co	.....	.....	.....	.....	.....	.....	15,000	4,600	.....	12,000	6,000	11,000	10,000	25,000	83,600
Richmond Canning Co	.....	.....	.....	.....	.....	.....	9,600	9,200	4,952	7,850	10,127	10,150	7,804	17,170	76,853
E. A. Wadhams	.....	.....	.....	.....	.....	.....	.....	11,856	.....	.....	14,600	9,850	5,720	18,334	60,360
Wellington Packing Co	.....	.....	.....	.....	.....	.....	.....	10,055	8,780	12,500	11,250	11,500	7,200	20,100	81,385
Phœnix Canning Co	.....	.....	.....	.....	.....	.....	.....	10,401	4,055	.....	10,000	9,000	4,000	20,917	58,373
Spratt's Ark	.....	.....	.....	.....	.....	.....	.....	4,000	4,400	.....	.....	.....	.....	.....	8,400
Bon Accord Fishing Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,500	12,525	5,140	17,771	41,936
Harlock Packing Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,500	4,440	15,480	26,420
Inverness Canning Co	.....	3,000	5,500	5,812	9,924	11,560	12,137	7,480	12,345	6,300	10,587	11,729	13,805	8,125	118,304
Windsor Canning Co	.....	.....	3,000	4,791	9,770	10,000	12,385	7,304	10,546	.....	.....	12,000	12,872	8,772	91,440
Metlakatlah	.....	.....	.....	.....	.....	.....	5,000	6,871	9,772	.....	8,300	.....	.....	.....	29,943
British American Packing Co	.....	.....	.....	.....	.....	.....	.....	5,200	11,297	.....	12,000	12,965	17,709	12,332	71,503
Skeena River Canning Co	.....	.....	.....	.....	.....	.....	.....	7,000	12,247	6,600	15,000	13,548	15,060	10,100	79,555
Balmoral Packing Co	.....	.....	.....	.....	.....	.....	.....	4,173	7,351	.....	.....	8,350	10,660	9,081	39,615
Alert Bay Canning Co	.....	.....	.....	.....	.....	5,500	4,600	6,400	7,000	6,000	1,200	4,200	5,000	7,162	47,062
H. E. Croasdaile	.....	.....	.....	.....	.....	7,700	9,600	10,983	.....	.....	.....	.....	.....	.....	28,283
Douglas Packing Co	.....	.....	.....	.....	.....	.....	6,500	9,400	.....	.....	.....	.....	.....	.....	15,900
Naas River Fishery	.....	.....	.....	.....	.....	.....	.....	.....	8,500	.....	.....	.....	.....	.....	8,500
A. J. McLellan	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12,318	10,200	22,518
Rivers Inlet Canning Co	.....	.....	.....	.....	.....	.....	5,635	10,780	11,887	.....	15,000	7,023	12,000	16,700	79,025
Wannock Packing Co	.....	.....	.....	.....	.....	.....	.....	.....	8,496	.....	.....	4,180	8,000	9,022	29,698
Quashela Packing Co	.....	.....	.....	.....	.....	.....	.....	11,000	3,364	.....	.....	.....	.....	.....	14,364
Sea Island Cannery Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	18,225	18,225
Canoe Pass Canning Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,300	14,300
Beaver Canning Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14,253	14,253
C. G. Hobson & Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15,106	15,105
Cascade Packing Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,600	4,600
North Pacific Canning Co	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,995	9,995
B. C. Canning Co. (Ltd), Naas	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5,000	5,000
Total Pack each Year—Cases—(48 1-lb. cans)	9,847	67,387	113,601	61,093	61,849	177,276	255,061	196,292	141,242	108,517	161,264	204,083	184,040	419,211	2,160,763

The decrease in the quantity of fresh and salt salmon was small, and was principally owing to a scarcity of labor and the limitation of licenses on the Fraser.

Reverting to my report of last year on the pack of the Columbia River and the Territory of Alaska, I have to say that the Columbia again shows a decrease of 30,000 cases, the total pack amounting to only 352,000 cases, while that of Alaska amounted to 600,000 cases. The number of canneries increased in Alaska 50 per cent. over 1888. Grave apprehensions are entertained by the Fish Commissioners of the United States, and it will be seen by Livingstone Stone's report that the waters of Alaska will soon be in a more depleted state than even those of California, Oregon or Washington. He states that, "in a small river only 60 yards wide and 30 miles long he saw 10,000 salmon caught with one haul of the seine, and during the day, 150,000 salmon were taken from this same river." His mission to Alaska, at that time, was for the purpose of locating a site for a hatchery, and to report on the feasibility of enacting regulations which would prevent the streams of Alaska being depleted.

HALIBUT.

The trade done by our own people in this fish amounts to comparatively nothing. Nearly all the catch was used for local consumption. According to the American tariff of 1882 a Customs officer would be entitled to add a half cent per pound duty on halibut shipped there on ice. Even if our people were allowed to ship their iced halibut into United States free of duty they would hardly find a market, as the American combines in the fresh fish trade are so interested in the American fishing schooners that they would try to keep our people out.

This state of things will continue as long as our coast remains unguarded and the Americans are allowed to fish with impunity in our waters.

SKIL.

These fish show an increase of 1,076 barrels over last season, the largest quantity being put up by Captain C. A. Lundberg, of Vancouver, who brought a small colony of some fifteen of his relatives and established fishing stations on the west coast of Queen Charlotte Island. These fish were split down the back, the bone taken out, and the head and tail cut off, so that a 200 pounds barrel of fish is as good to a consumer as 300 pounds of herring, mackerel, &c. It only required a small portion of the above pack to supply the local demand, and the enterprising merchants of Vancouver and Victoria are trying to open a market for the balance in Australia, South America, Honolulu, the United States and Eastern Canada, under the name of "Blackerel." Like all other new fish, it is not an easy matter to establish a market for them; but so soon as their excellent quality becomes known to the public it will be a difficult matter to supply the trade. It is not definitely known what proportion of these fish were caught by Americans, in our waters, but it is estimated that the quantity would compare with that of the halibut.

OOLACHANS.

As the delicacy of these fish becomes better known, each year finds an increasing demand, and when the Fraser River fails to supply them they are brought from the Naas, these being the only two streams in this Province where they are found in quantities, especially in the latter, and where hundreds of tons are wasted each season by being caught (principally by American Indians) and allowed to decay on the bank.

This dissatisfies our own natives, and gives them cause for complaint. The practice of destroying these fish ought to be stopped and the Indians who left British Columbia and emigrated to Alaska should be compelled to seek their food supply where they now reside.

SHAD.

To my knowledge none has been taken in the Fraser this season, but a few are occasionally caught in the Gulf, around Race Rocks and at other points. The light-house-keeper on the Fraser Sand Heads reported having collected a number of fish which were strange to him, but looked like large herrings. He was of opinion they were schooling on the flood tide, and were killed by coming in contact with the iron arches of the structure. I did not see the fish, but have no doubt they were shad. It is difficult to say whether there was a run of them in the Fraser this season or not, as the nets used for salmon fishing are of too large a mesh to catch these fish, and salmon are the only kinds fished for.

The Fish Commissioners of Oregon state that they made their appearance in large numbers in the Columbia River, and are now becoming a source of revenue to the State. If our people have the patience to wait a few years they will likely see them also abundant in the Fraser.

SMELTS.

The increase of these fish over last year is considerable, and will continue, so long as the population continues to increase.

The demand for them is better than for most classes of fresh fish, as they can be caught at nearly any season of the year in the salt waters of the Straits.

It will only be a matter of time when the Miramichi fishery will be so reduced that the supply will have to be drawn from this coast.

SARDINES AND ANCHOVIES.

These are consumed fresh, in about the same quantities as in previous seasons; but, to my knowledge, no one has thought of erecting a factory for preserving them. The species of sardines here are very large and of excellent quality.

HERRINGS.

These fish are abundant along the west coast of Vancouver Island and farther north. They are said to be large, and of fine quality for curing. Those sold in the local markets are caught in the bays and harbors of the Gulf, and are small and of poor quality. However, they are abundant, and, were labor cheap, could be manufactured quite as inexpensively as in other places.

STURGEON.

The consumption of this fish has also increaeed in our local markets, largre quantities having been exported than in the previous year. The increase reaches 103,100 lbs., but if there were a regular sturgeon fishery on this river the quantities caught would far exceed that shown by any previous returns from the Province. Numerous enquiries have been made, but to this date no one has attempted fishing exclusively for them.

MARINE FURS.

The returns show an increase in the catch this season of 5,587 fur seal skins, and 25 sea otters. There were 1,922 more seal skins taken on the coast by our vessels than in 1888, and 2,558 more by foreigners, who sold their catches in Victoria.

The following table shows the detailed catch of the sealing fleet for this season:—

RETURN showing the Number of Vessels, Boats and Men engaged in the Marine Fur Fishery of British Columbia, with the Products and Values, for the Season of 1889.

Name of Vessel.	Name of Owner.	Tonnage.	No. of Boats.	No. of Men.	Seals caught on coast of British Columbia.	Seals caught in Behring Sea.	Total No. of Seals.	Value.
								$
Pathfinder	Carne & Muusie	66	6	24	942	48	990	9,900
Viva	do	92	6	22	1,481	2,182	3,663	36,630
Mary Taylor	do	42	11	25	748	.....	748	7,480
Teresa	Babbington & Co	63	7	23	482	828	1,310	13,100
Annie C. Moore	C. Hackett	213	7	23	802	1,318	2,120	21,200
Lily	Morris Moss	70	18	41	500	532	1,032	10,320
Penelope	do	70	6	21	384	1,769	2,180	21,800
Lily	do	68	13	26	280	74	354	3,540
Sapphire	E. B. Marvin	123	25	52	1,364	1,626	2,990	20,900
Aurora	Adolph Wasburg	41	13	38	816	.....	816	8,160
Juanita	Hall & Goepel	40	13	29	135	29	164	1,640
Ariel	E. W. Bucknam	90	6	22	934	1,400	2,334	23,340
Kate	Chas. Spring	58	10	24	624	800	1,424	14,240
Favourite	do	79	10	25	340	1,764	2,104	21,040
Maggie Mack	J. Dodd	70	6	25	777	1,290	2,067	20,670
W. P. Sayword	J. D. Warren	59	12	29	557	1,643	2,200	22,000
Minnie	Victor Jacobsen	46	10	21	200	500	700	7,000
Mountain Chief	do	26	5	13	210	.....	210	2,100
Wanderer	H. Payton	15	6	15	178	.....	178	1,780
Black Diamond	M. Moss	81	12	29	629	55	684	6,840
Beatrice	Wm. Grant	67	7	22	500	700	1,200	12,000
Sierra		10	2	5	80	.....	80	800
Winnifred		10	2	5	22	.....	22	220
		1,499	213	559	12,985	16,585	29,570	295,700
Sea Otter caught by sealing fleet, 15, at $100 each							.....	1,500
Estimate of Seals purchased from Indians							4,000	40,000
do Sea Otter do 100, at $100 each							.....	10,000
do Hair Seals, 7,000							.....	2,625
Grand Total by Canadian Vessels							33,570	349,825

FUR Seals caught by Foreign Vessels and disposed of in Victoria, B.C.

Name of Vessel.		No. of Seals caught on British Columbia coast.	No. of Seals caught in Behring Sea.	Total No. of Seals.	Total value.
					$
Walter L. Rich	American	1,419	.....	1.419	14,190
San Diego	do	69	.....	69	690
T. H. Lewis	do	242	.....	242	2,420
Venture	do	317	.....	317	3,170
Allie S. Alger	do	253	.....	253	2,530
Harry Dinnes	do	18	700	718	7,180
Lottie	do	.....	625	625	6,250
Mollie Adams	do	.....	1,553	1,553	15,530
Bessie Rulter	do	.....	525	525	5,250
Adele	German	240	1,467	1,707	17,070
Total by Foreigners		2,558	4,870	7,428	74,280

It will thus be seen that there are more vessels in the trade than last year. This was on account of an anticipated settlement of the Behring Sea question. The vessels had been previously purchased on the Atlantic coast for the purpose of prosecuting this trade in Behring Sea, but when they reached this coast and found the question was still unsettled they paid more attention to hunting on the coast.

DOGFISH.

These fish appear to show no decline in numbers. They are so plentiful that it will be many years before they are fished out. The quantity of oil extracted from them this year largely increased. I am informed by one of the dealers that the home consumption is increasing at such a rate that the present factories cannot supply the demand. I have had enquiries from some of the sardine packers of Eastport, Maine, asking for samples of fish oil, for the purpose, I presume, of using it in their business.

WHALES.

Our vessels have not yet embarked in this business, and only a chance one is killed by Indians.

TROUT.

The consumption of these fish has increased by 5,525 lbs., although there are not sufficient caught to supply the local demand.

MIXED FISH.

These are made up of the following kinds:—Herrings, rock-cod, whitings, flounders, soles, tom-cod and skates—all of which were consumed in about the same proportion as last year.

SHELL-FISH.

Oysters were consumed in increasing numbers, and as the beds are limited and the variety small the demand is always in excess of the supply.

The beds where these mollusks are now caught are few in number, the principal ones being Chemainus, Sooke and Comox. Guardian Lomas reports that if the modes of fishing, as at present practised, are not changed, the beds will be ruined.

The consumption of clams is on the increase. They are abundant in all parts of the coast, and little fear is entertained of their being over-fished.

Mussels are being used in larger quantities every year, but they are not considered plentiful.

LOBSTERS.

Reports from American papers on the lobsters planted by the United States Fish Commission are favorable. It is stated that a number of young lobsters were found in the Chinese markets of San Francisco during the summer, which are supposed to be the output from those planted in San Francisco Bay.

SHRIMPS AND PRAWNS.

These are found in considerable quantities in the markets, and new fishing grounds have of late been discovered. The United States Fish Commissioners' steamer "Albatros" reported having found excellent ones on the west coast.

PROTECTION.

The fishery regulations passed on the 26th November, 1888, seemed to be unfavorable to the canners, the length of weekly close time, the size of mesh, and the restriction against putting offal in the water being especially objected to; but, as these were modified before the canning season began, most of the canners were fairly satisfied.

The order limiting the number of boats to 450 for the Fraser was at first unpopular, and excitement among a certain class ran high But most of this disturbance was created by men who had never been in the fishing business, backed up by a number of aliens, the majority of whom always worked on wages for canners previous to the limitation. Seeing that the licenses were limited, and that the canneries would have to purchase fish from outside boats, they thought they would have a chance of making a profitable season, and they therefore pressed what they were pleased to call their rights, regardless of any effect that an over-crowding of boats might have upon the river. Many people applied for licenses who never fished before, or, in my opinion, had any intention of doing so; and those who claimed rights were the very men who fished for canners on wages, and never held licenses in their own names. There were a few exceptions to this rule, as the 100 licenses allowed for outsiders did not supply all *bonâ fide* fishermen who had previously held licenses in their own names.

The weekly close time and the other regulations were as well observed on the Fraser as it was possible to do with the staff employed. A few fines were imposed on account of fishing within limits, and one for breaking the weekly close time.

I ordered each licensee to mark his initials and the number of his license in 4½-inch letters and figures upon each side of the bow of his boat, and canners holding licenses for more than one boat were instructed to number them consecutively from No. 1 to the number allotted in their license. By this means the guardians were able to see that there were not an excess of boats fishing under the licenses. There was only one case where an instance of this kind was detected.

The restriction compelling canners to keep the offal from drifting into the water was very difficult to enforce, as the enclosures were constantly breaking away, either from the pressure of the offal, the swell caused by passing steamers, or heavy sea waves rolling in from the Gulf—in each case allowing a portion of it to escape.

The defining of tidal boundaries of estuary fishing, as set apart by the Minister during the past year on the following streams, was much needed, namely: The boundary of Skeena River, being defined at Kitsap Indian village; Naas River, at Finsbury Bay; Fraser River, at Sumas River; Wannuck River, at Victoria Packing Company's wharf; and Cowichan River, at Cowichan wharf. This will prevent salmon being caught and packed in the upper and narrow reaches of these streams.

Mr. A. E. Pittendreigh, fishery guardian at Lulu Landing, reports that the weekly close time was fairly well observed, but owing to the thick fog which prevailed during most of the fishing season it was quite impossible to guard the river properly at all times.

Mr. C. D. Grant, stationed on the upper portion of the Fraser, reported that the regulations were well observed, and that canners and others got all the fish they required.

Mr. J. R. Berkeley, guardian on the Comox River, reports that the regulations were strictly enforced in his district, and that the natives procured sufficient fish for their wants.

Guardian Lewis A. Good, of Nanaimo, sends no report, but I have learned that there is a return of the salmon fry planted there some four years ago.

I have the honor to be, Sir,
Your obedient servant,

THOMAS MOWAT,
Inspector of Fisheries for British Columbia.

REPORTS OF THE DIFFERENT FISHERY GUARDIANS TO THE INSPECTOR OF FISHERIES IN BRITISH COLUMBIA.

SKEENA RIVER.

BY M. K. MORRISON, FISHERY GUARDIAN.

I have the honor to submit the following report as guardian of the Skeena River for the season of 1889:—

I went on duty on the 15th May, which was too late, many people having been fishing before that date. The Indians had their nets ready to put into the water without knowing the size of mesh required by the regulations. It would save a lot of trouble and be a simple justice to the Indians to send an officer among them, while they are making their nets and seines, to inform them of the size of mesh and length of nets and seines as required by the regulations. They cannot read or talk English; some of their villages are not visited by a white man during the year. Consequently, they are unaware that their labor may be of no use until they come to put their nets into the water, as was the case on the day I assumed duty.

About one thousand Indians live by fishing alone in this district; they fish the whole year round. Every month sees a different kind of fish caught, namely:—Candle fish, halibut, codfish, herring, dog-fish, seals and salmon. They complain that the Alaska Indians come over and fish in what they call their waters—that is, British Columbia water—and would like to see this stopped. There were not so many salmon caught at the mouth of the Skeena this year as usual, while at the head of tide water a larger number than usual were caught. Towards the head waters more salmon were caught than for the last eight years. The cause of so few salmon being caught at the mouth of the river is accounted for by the fact that there were no freshets in the river this year to keep the water dirty enough for drift nets, it being very clear. Towards the end of the fishing season about 40,000 hump-back salmon were caught per day.

During close time, especially Sunday, the guardian should be on the river.

I was compelled to fine some boats and drive others ashore every Sunday.

The Skeena is a good salmon river, and, if properly protected and guarded, would always maintain its present reputation.

The Indians consume about 20,000 salmon each year.

My report of the quantity of salmon already canned you have received.

LOWER FRASER RIVER.

BY C. F. GREEN, FISHERY GUARDIAN.

I have the honor to hand you my annual report on the salmon fishing in this district. I am glad to be able to state that the *Saw-quai* salmon were more numerous in the lower river than I ever saw them before. This increase, I think, it would be only fair to attribute to the benefit of the hatchery. The catches were consequently larger than usual, many of the contract fishermen earning as much as $1,500 in the six weeks of the *Saw-quai* run with a single net and boat. The *Cohoe* run was very poor; they never came into the river in paying quantities, and were of little benefit to the canneries.

During the summer, I forwarded a sample of the fish refuse from the salmon oil factory down here to the Experimental Farm at Ottawa. It was analyzed by Mr. Shutt, chemist, who reported it was worth $34.16 per ton. Since the analysis was made I have had several enquiries after the manure, and I am strongly of opinion that the refuse from canneries could be made to pay if properly handled.

I may state that the new regulations were strictly observed by all the canneries under my supervision.

COWICHAN RIVER.

BY W. H. LOMAS, FISHERY GUARDIAN.

I have the honor to report, for the information of your Department, that, during the past year there has been no seine fishing for salmon in the Cowichan Bay. One gill-net license was taken out, but the owner subsequently decided not to use it. The success of placing *Saw-quai* ova in the Cowichan River has been satisfactorily proved, quite a number being taken by the Indians last fall, and I saw a large number of these fish at the head of the Cowichan Lake in October.

With regard to the taking of oysters in Oyster Harbor, I can give no reliable statistics, no regulation with regard to this fishing having yet been made, and unles this done the supply must rapidly decrease.

The yield of fish oil during the year was somewhat less than usual, Indians and others finding more renumerative employment during the large run of salmon on the Fraser River.

NAAS RIVER,

BY JOHN MCNAB, FISHERY GUARDIAN.

In accordance with your instructions, I left New Westminster on the first day of June for Naas Harbor and River, *viâ* Victoria, and from there to Port Essington, on the Skeena River, per steamer "Sardonax." After having the Department's boat put in good repair for the season's work, and having conferred with Mr. Morrison, the guardian on the Skeena River, I would have proceeded to the Naas in the boat had the weather allowed, but as there was a continuation of strong north and north-west winds I was compelled to remain until the 24th, at which date the mission steamer "Glad Tidings" called at the Skeena on its way to the Naas, and I arranged for a passage, and to have my boat towed to Naas Harbor.

On my arrival I found that operations had already begun at McLennan's cannery, Naas Harbor, that the Cascade Co's. new cannery at Echo Cove was being got ready as speedily as circumstances would allow, and that a new cannery was being put up for the British Columbia Canning Co., situated at Saw-Mill Cove, on the west side of the river, about five miles from the harbor. A salting establishment had also been started at Fishery Bay, 20 miles up the river, by parties calling themselves the "Naas River Industrial Co." They had licenses for ten boats and nets, but sold most of the salmon which they caught fresh to the canneries. I am not sure whether the offal from either McLennan's or the Cascade Co.'s canneries would, if left to escape, do any injury to the river, the former being situated at least two miles and the latter nearly four miles from the nearest point at which salmon are caught. The managers, however, on my recommendation, prepared scows, which, when filled, were towed to a place indicated by me and the contents there dumped. As the British Columbia Canning Co. employed no steamer, and being situated a long distance from any suitable place for depositing their offal, they had a large perforated tank constructed, in which it was confined.

The number of Indians on the Naas who own fishing boats and nets, or who get boats and nets from the managers of the canneries and catch salmon for them on contract, at a stipulated price per fish, is yearly increasing. Formerly the cannery managers knowing how opposed the Indians were to taking license—as they believe that by so doing they would renounce forever the peculiar privileges which they now claim—always paid the license fee for as many as were fishing for them, preferring to do so rather than to have the Indians excited by being asked to take out licenses for themselves. This practice was having a bad effect, by tending to confirm the Indians in the belief that the law could not reach them, some of them going so far as to forbid their employers to pay for licenses for them.

On the 13th day of July I seized and detained a boat and net belonging to an Indian who had evidently been fishing, and on the 15th two more under the same

circumstances. This caused quite an excitement and a great deal of loud and threatening talk; but, after a few days, better counsels prevailed. Those more immediately interested listened to reason and signed applications for licenses. Upon their doing so I released the boats without exacting a fine—which, indeed, could not have been collected without the assistance of a large special force—but the point was gained. Afterwards, the Indians for whom Mr. McLennan applied for licenses came forward and made application in their own names. And here I would say that in any future regulation limiting the number of licenses to be issued on the Naas River the fact that a large number of Indians will doubtless make application for the same should be taken into account, and that to refuse them, would likely be productive of unpleasant results.

Several quarrels occasioned by Indian fishermen fouling each others' boats and nets occurred and threatened, to become formidable; but I succeeded in each case in inducing them to make good the damage when any had been done, and to promise to keep a proper distance apart when fishing in future. I considered this more advisable than the instituting of legal proceedings, which would have caused enmities and provoked retaliation, which is yet looked upon by a majority of the Indians as the first of all virtues. In a former communication I had the honor to call your attention to the very objectionable practice, common amongst Indian fishermen on the Naas, of carrying fire-arms in their boats when fishing. I will here only express the hope that means will be found to abate the evil.

The catch of salmon on the Naas and Skeena was less satisfactory than during the two preceding years. I have not been able to ascertain if years of scarcity and plenty occur at regular intervals on these rivers. At River's Inlet the same rule seems to hold good as on the Fraser—that on every fourth year there is an abundance of salmon. In connection with the Skeena, a fact came to my knowledge which will be interesting to you. In the year 1863, long before there was a cannery on the coast, there was a great scarcity, if not a total failure of salmon on that river, and the Indians who depended to a great extent on them for their supply of food for the winter, were reduced to a state of great destitution, and whole tribes had to remove to the Naas, where fortunately there had been an abundant supply of salmon saved, an where a trading post of the Hudson Bay Company had been established, and there they traded their furs, and any thing else they might have, and in some cases their children to the Naas Indians, for dried salmon. I have made many enquiries, but could not learn that anything approaching a total failure had occurred since that time on the Skeena.

I would recommend, that no net fishing for salmon be allowed on the Naas above Fishery Bay, which is well up towards the head of tide water, and above which the river is comparatively small.

Another very important matter, which I beg to submit for your information, is the fact that after the canneries are closed the Indians repair to the upper reaches of the river, in the vicinity of their villages, and proceed to catch a supply of salmon for their winter use, and also for sale fresh, to any persons who may wish to purchase for salting. They are well supplied with nets sufficiently good for their use; they fish almost entirely above tidal water, where the river is small, and in the vicinity of the spawning grounds.

I do not make this statement from my own observation, never having been on the Naas after the canning season was over, but from enquiries carefully made; and from what I know of the habits and methods of the Indians, no doubt need be entertained in regard to its correctness.

It is only within the last three years that the Indians on the Naas have been in the habit of using other than their native methods for securing salmon for their winter use.

The oolachan fishing on the Naas was quite successful in March, and the Indians obtained an abundant supply of the oil, which is such an important article of food with them, but no improvement has been effected in the wasteful and imperfect method used to extract it.

Salmon are the only fish sought after on the mainland side, although halibut are plentiful in many places. I heard of two American schooners catching good fares in the vicinity of Queen Charlotte Sound early in the summer.

In future more attention will be paid to seine fishing for salmon in the vicinity of the smaller rivers and creeks of the islands and mainland of the Province; and I would recommend that great care be taken to prohibit the very objectionable practice which prevails on the Alaskan coast, and in other places, of placing nets or obstructions across the entrance to small streams when the tide is out, so that the salmon which seeks to ascend with the flood tide may be kept back until a sufficient number has collected for a good haul with a seine.

In conclusion, I beg to state that a larger and more suitable boat is required, to enable a guardian on the Naas to perform his duties in a thoroughly efficient manner.

In regard to the catch of salmon on the Naas, I may say, by way of explanation, that in 1888 there was but one cannery, and the pack was about 12,000 cases, and there were about 1,500 barrels salted, and about 55 boats and nets used. This season the pack is between 19,000 and 19,500 cases, and in the vicinity of 500 barrels salted, and 124 boats and nets were employed. I consider this to be not far from the average capacity of the river.

RETURN showing the Number, Tonnage and Value of Vessels and Boats, and the Number of Men engaged in the Fisheries, Quantity and Value of Fishing Materials, Kinds and Quantities of Fish, &c., in the Province of **British Columbia**, for the Year 1889.

LOCALITY.	VESSELS AND BOATS EMPLOYED.							FISHING MATERIALS.						KINDS OF FISH.				
	Vessels.				Boats.			Gill Nets.		Seines.		Trawl Lines.						
	No.	Tonnage.	Value.	Men.	No.	Value.	Men.	Fathoms.	Value.	Fathoms.	Value.	No.	Value.	Salmon, barrels.	Salmon, fresh, lbs.	Salmon, smoked, lbs.	Salmon, in cans.	Sturgeon, lbs.
			$			$			$		$		$					
Fraser River and South to American Boundary	21	336	73000	57	645	33450	4435	120600	79760	1450	3700	....	....	2639	1708000	8700	14789856	258600
From Fraser River to Howe Sound	3	90	4000	15	10	1000	30	1500	1500	8	1600	50	500	40	120000	1000	.....	40000
Howe Sound to Smith's Inlet	....	....	....	....	6	310	18	940	580	200	700	....	....	....	3000	.....	.....	.....
Smith's Inlet to River's Inlet	1	15	5000	3	76	2805	389	16480	15360	.....	.....	.....	.....	443	25000	.....	1234656	.....
River's Inlet to Skeena River	5	75	24000	16	317	13805	1324	92300	79800	460	1500	.....	.....	95	60000	.....	2803440	.....
Skeena River to Alaska Boundary	2	25	3700	8	195	6795	485	16975	11937	.....	.....	20	200	169	25000	.....	950400	.....
East Coast of Queen Charlotte Island	....	....	....	....	25	1500	50	2000	2000	600	800	100	1000	100	5000	.....	.....	.....
West Coast of Queen Charlotte Island	2	150	7500	15	10	1800	80	.....	.....	500	700	150	2000	....	.....	.....	.....	.....
Cape Scott, V. I., to Comox River	2	70	10000	12	12	520	85	....	....	400	1200	....	....	10	5000	1000	343776	.....
Comox River, V. I., to Victoria	6	75	4200	12	50	5000	125	.....	.....	3000	5000	150	2500	50	125000	1200	.....	.....
Victoria to San Juan	10	100	7000	25	10	1000	25	5000	2500	200	3000	100	1800	....	110000	1000	.....	20000
San Juan to Barkley Sound	2	40	1000	4	2	200	4	.....	.....	200	250	12	300	200	1000	.....	.....	.....
Barkley Sound to Cape Scott	2	80	400	10	6	800	....	.....	.....	200	300	....	....	....	.....	.....	.....	.....
Fur Seal Fleet from Victoria	23	1499	125000	559	213	21300	....	.....	.....	.....	.....	20	500	....	.....	.....	.....	.....
Sea Otter, Hair and Fur Seals purchased from Indians and others	....	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	.....	.....	.....
Totals	79	2555	264800	736	1577	90285	7050	255795	193437	7218	18750	602	8800	3746	2187000	12900	20122128	318600

RETURN showing the Number, Tonnage and Value of Vessels and Boats, &c.—Province of **British Columbia**—*Continued.*

LOCALITY.	KINDS OF FISH.												FISH PRODUCTS.				VALUE.
	Halibut, lbs.	Herrings, lbs.	Herrings, smoked.	Oolachans, salted, barrels.	Oolachans, fresh, lbs.	Oolachans, smoked, lbs.	Trout, lbs.	Assorted or Mixed Fish, lbs.	Smelts.	Rock Cod.	Skil, barrels.	Tooshqua.	Fur Seal Skins, No.	Hair Seal Skins, No.	Sea Otter Skins, No.	Fish Oils, gallons.	$ cts.
Fraser River and South to American Boundary	16050	12000	1500	40	8500	1000	2025	16725	2100	1250	....	8350	.....	.....	.....	.....	1,991,289 97
From Fraser River to Howe Sound	150000	53000	4500	15	45000	....	3000	34000	45000	22000	....	130000	.....	.....	.....	.....	42,150 00
Howe Sound to Smith's Inlet	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	300 00
Smith's Inlet to River's Inlet	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	155,088 72
River's Inlet to Skeena River	2000	.....	.....	50	.....	500	.....	.....	.....	.....	25	.....	.....	.....	.....	3750	346,237 80
Skeena River to Alaska Boundary	5000	4000	2000	250	2000	5000	.....	.....	.....	.....	.....	.....	.....	.....	.....	350	122,763 00
East Coast of Queen Charlotte Island	20000	.....	12000	....	.....	....	.....	10000	.....	.....	25	.....	.....	.....	.....	30000	19,500 00
West Coast of Queen Charlotte Island	50000	.....	2000	....	.....	....	.....	50000	.....	.....	1510	.....	.....	.....	.....	2000	24,320 00
Cape Scott, V.I., to Comox River	5000	10000	.....	.....	.....	.....	2000	5000	.....	1000	....	.....	.....	.....	.....	500	43,553 12
Comox River, V.I., to Victoria	200000	50000	6000	10	12000	200	2000	90000	5000	10000	....	50000	.....	.....	.....	2000	36,680 00
Victoria to San Juan	150000	50000	50000	15	15000	....	5000	100000	.....	5000	....	80000	.....	.....	.....	1000	34,600 00
San Juan to Barkley Sound	6000	10000	.....	.....	.....	.....	.....	15000	.....	.....	.....	.....	.....	.....	.....	1500	4,400 00
Barkley Sound to Cape Scott	1000	1000	.....	.....	.....	.....	.....	2000	.....	.....	.....	.....	.....	.....	.....	100000	50,200 00
Fur Seal Fleet from Victoria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	29570	....	15	320	297,360 00
Sea Otter, Hair and Fur Seals purchased from Indians and others	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4000	7000	100	.....	55,250 00
Total	605050	190000	33000	380	82500	6700	14025	322725	52100	39250	1560	268350	33570	7000	115	141420	3,223,692 61

Oysters, 3,000 sacks, at $1.75, $5,250 ; Clams, 3,000 sacks, at $1.75, $6,125	11,375 00
Mussels, 250 sacks, at $2, $500 ; Crabs, 175,000, at 3c., $5,250	5,750 00
Abelones, 100 boxes, at $5, $500 ; Isinglass, 5,000 lbs., at 35c., $1,750	2,250 00
Estimate Fish consumed in the Province	100,000 00
do Shrimps, Prawns, &c., consumed in the Province	5,000 00
Grand Total	3,348,067 61

RECAPITULATION.

YIELD and Value of the Fisheries of the **Province** of **British Columbia** for the Year 1889.

Kinds of Fish.		Quantity.	Price.	Value.
			$ cts.	$ cts.
Salmon in cans	Lbs.	20,122,128	0 12	2,414,655 36
do fresh	"	2,187,000	0 10	218,700 00
do salted	Brls.	3,749	10 00	37,460 00
do smoked	Lbs.	12,900	0 20	2,580 00
Sturgeon, fresh	"	318,600	0 05	15,930 00
Halibut do	"	605,050	0 05	30,252 50
Herrings do	"	190,000	0 05	9,500 00
do smoked	"	33,000	0 10	3,300 00
Oolachans, fresh	"	82,500	0 10	8,250 00
do smoked	"	6,700	0 20	1,340 00
do salted	Brls.	380	10 00	3,800 00
Trout, fresh	Lbs.	14,025	0 10	1,402 50
Fish, assorted and mixed	"	322,725	0 05	16,136 25
Smelts, fresh	"	52,100	0 06	3,126 00
Rock Cod	"	39,250	0 05	1,962 50
Skil, salted	Brls.	1,560	12 00	18,720 00
Tooshqua, fresh	Lbs.	268,350	0 05	13,417 50
Fur Seal Skins	No.	33,570	10 00	335,700 00
Hair do	"	7,000	0 75	5,250 00
Sea Otter Skins	"	115	100 00	11,500 00
Fish Oils	Galls.	141,420	0 50	70,710 00
Oysters	Sacks.	3,000	1 75	5,250 00
Clams	"	3,500	1 75	6,125 00
Mussels	"	250	2 00	500 00
Crabs	No.	175,000	0 03	5,250 00
Abelones	Boxes	100	5 00	500 00
Isinglass	Lbs.	5,000	0 35	1,750 00
Estimate of fish consumed in the Province				100,000 00
do shrimps, prawns, &c., consumed in the Province				5,000 00
Total				3,348,067 71
Estimated consumption by Indian population—				
Salmon	$2,732,500 00			
Halibut	190,000 00			
Sturgeon and other fish	260,000 00			
Fish oils	75,000 00			
				3,257,500 00
Grand Total, approximate yield, 1890				6,605,567 61

NUMBER and Value of Vessels, Boats, Nets, Trawls, &c., engaged in the Fisheries of **British Columbia** during the Season of 1889.

Material.	Value.	Total.
	$ cts.	$ cts.
79 Vessels, 2,555 tons	264,800 00	
1,577 Boats	90,285 00	
255,795 Fathoms Gill Net	193,437 00	
7,218 do Seines	18,750 00	
602 Dogfish and Halibut Trawls	8,800 00	
		572,672 00
31 Canneries, complete	681,000 00	
3 Oil Factories	18,500 00	
2 Freezing Establishments	10,000 00	
9 Salting do	30,000 00	
		739,500 00
Grand Total		1,315,772 00
736 Sailors and Hunters		7,786
7,050 Fishermen and Cannerymen		

THOMAS MOWAT,
Inspector of Fisheries for British Columbia.

APPENDIX No. 10.

SPECIAL REPORT ON SAWDUST, LAHAVE RIVER.

DOMINION SS. "ACADIA,"
GEORGETOWN, 24th September, 1889.

Hon. CHARLES H. TUPPER,
Minister of Marine Fisheries,
Ottawa.

SIR,—In accordance with the direction given me in your letter of the 27th June, to visit the Lahave River and report fully on each allegation contained in a certain petition, addressed by the Messrs. Davidson and the inhabitants of the Lahave valley to the Minister of Marine and Fisheries, I have the honor to report as follows:—

On Monday, the 8th September, I proceeded to the Lahave and spent the four days, Tuesday to Friday inclusive, in making a personal examination of the river bed between Conquerall Bank and the town of Bridgewater.

In considering the various clauses of the petition sent me for report I find that, stripped of superfluous verbiage, the following are the definite allegations made:—

1. Clause one states that the subsequent clauses contain the opinions of the signers after forty years lumbering on the river.

2. Clause two contains three allegations, viz.: (*a*) That the current and tide carry the sawdust out to sea; (*b*) that the fisheries have not been injuriously affected by sawdust; (*c*) that the channel of the river has not been made any shallower.

3. Clause three states somewhat as in (*a*) of 2, adding that the steep banks and straight course of the river admits of free discharge of the sawdust.

4. That the water mills were constructed prior to the passing of the Act of 1873, and that the water-power would have to be abandoned if compelled to remove the sawdust.

5. That cheap manufacture is necessary to enable these mills to compete with the United States lumber producers in foreign markets.

Clause one requires no comment, save to remember that the following clauses are said to be matters of opinion; they are not declared to be statements of fact, and an investigation of the facts will show how far the opinions of the signers of the petition have been carefully and correctly formed.

Section (*a*) of Clause 2 says that the current and tide between Bridgewater and the sea are sufficiently powerful to sweep all the sawdust out to sea.

In the course of my enquiries I only met one person who claimed to have seen any quantity of sawdust floating at sea, and he claimed to have seen sawdust floating off Ironbound Island at the mouth of the river.

I have, however, myself made a careful examination of the portion of the river between Conquerall Bank and Bridgewater, and find a vast accumulation of sawdust extending from Wegel's Island to the railway wharf. The current, purely tidal, flows at the rate of from half a knot to a knot an hour, with a considerable period of slack water at the turn of the tide. Higher velocities than these occur in places, but at the ships' anchorage this was the average rate of surface flow at the time of spring tides when we were there. And as the distance from Mosher's Island light to Bridgewater, that from the sea to Bridgewater is thirteen nautical miles, it would require a constant excess of ebb over flow of a considerable amount and a current velocity of upwards of two knots per hour throughout the whole time of ebb in order to carry the sawdust out to sea. As a matter of fact the velocity

decreases with the depth, and therefore the surface flow of one knot per hour measured at Conquerall Bank is not likely to be exceeded, and is, I consider, a fair estimate of the average velocity at spring tides; and as ebb and flow are nearly equal it follows that sawdust taken by the tide is carried down so far and brought back again. And apart from the question of the observed fact of the presence of the sawdust, the action of the tidal current would lead one to expect that the vast bulk of the sawdust must be deposited within a comparatively short distance of the head of the tide, as is here found to be the case, all the sawdust being located within two miles of the railway wharf just below the town.

This allegation (*a*) of 2 is, therefore, clearly erroneous; the current and tide in the Lahave do not carry the sawdust out to sea.

Section (*b*) of 2 is the old statement that sawdust does not, and in this instance has not injured the fisheries of the Lahave.

The evidence I was able to procure was unanimous on the one point, that the fisheries of the Lahave were formerly very productive; one witness quotes the case of a ship being loaded at Bridgewater, with salted fish, salmon and gaspereaux, and shipped to the West Indies, the whole cargo being the produce of the river. As against this I give the following table compiled for me by Mr. C. E. Godard, fishery overseer at Bridgewater.

Year.	Salmon. Lbs.	Alewives. Brls.	Shad. Doz.	Smelts. Brls.
1881	2,800	20	1	15
1882	2,600	18	1½	13
1883	2,400	22	2	15
1884	3,200	23	2	10
1885	3,000	25	2	12
1886	3,500	20	5	10
1887	4,900	21	6	13
1888	3,600	6	2	16
1889	3,360	5	2½	18
Average	3,262	18	2½	13½

The whole value of the average annual catch has therefore been reduced to something less than five hundred dollars. Hence the injury to the fishery is clearly proven, and it remains to show what part the defilement of the river by sawdust has played in this injury.

Opinions of experts are divided on the subject; all admit that sawdust deposited on a spawning bed ruins it; but the case is not now one of defiling a spawning bed, but of the absolute pollution of the whole body of the river by a festering mass of rotting sawdust which is, in places, six feet thick. The water is constantly, or was so during my stay on the river, turbid, its waters have a great lack of transparency, so much was this the case that, on one occasion when my sounding boat grounded on a sunken crib, sitting in the stern of the boat, I could not see the crib, though within a few feet of it and it only a few inches below the surface. It is conceivable that this mass of matter if allowed to rest inert might not affect the passage of the anadromous fishes, but the passage up and down the river of steamers and tug boats, and indeed of sailing vessels too, stirs up this deposit and gives the water in the neighborhood a hue of ink and an odor to which assafœtida would be preferable. Such a condition of the water maintained permanently, would, I believe, bar the fish as effectually as a dam, and its occasional occurrence must militate against the good of the fishery, even if the noxious gases generated fail to kill them. Some of the theorists who hold that a fish cannot be hurt by sawdust, ask their opponents to produce the dead bodies of the fish which have been killed by the sawdust accumulations; but I hold that it is in no sense necessary to kill these mother fish in order to ruin the fishery. If, by foul waters, you turn these anadromous fishes back to the sea, you injure the fishery as effectually as if you had killed the fish; and it seems

to me that, in the process of nature, nothing is more likely than that fish seeking their spawning places, and coming into water, turbid and charged with noxious gases, should, with that instinct of self-preservation implanted by the Creator in all His living creatures, turn back towards that ocean whose magnitude renders it impossible of defilement. I think it may be fairly conceded that there is no more injury to a river in fresh floating sawdust than there is in fresh floating boards, but the boards will continue to float, whilst the sawdust becomes soaked, sinks to the bottom, and becomes the foul and rotting mass which does defile the waters.

In the course of a former investigation, I have got evidence of salmon having been found dead away from nets and having sawdust in their gills, and showing no mark of any disease or injury of any kind. I think in this case it is a legitimate inference, that the water-soaked sawdust, disturbed and floating thick in the foul water did kill these fish, either by drowning or being poisoned by the gases, the fish died or was rendered helpless, and when the body relaxed and the gills opened, the sawdust would get in and drown the fish if it was not dead before.

As an authority on this subject I quote the following from a recent report by Mr. A. D. Berrington, Chief Inspector of Fisheries to the Imperial Board of Trade. He says: "I have drawn the attention of the Fishing Board to these cases, and also "to the introduction of sawdust into the river, which is deadly to fish from its "choking their gills." That the almost total destruction of the fisheries on the Lahave River is entirely due to sawdust defilement, no one will be found to assert, but that sawdust is injurious to river fisheries is, I think, equally certain, and in the case under consideration, the physical characteristics of the river make it, in my opinion, particularly noxious.

I, therefore, consider that section (*b*) of clause 2 is incorrect, and that the sawdust in the Lahave River has injuriously affected the fisheries therein.

Section (*c*) of clause 2 contains the assertion that the channel of the river has not been made any shallower by the sawdust deposit.

The only and complete answer to this is to be found in the plans and sections attached to this report, showing the condition of the bed of the river along the lines laid down and lettered in the plan. In the sections the horizontal scale is 250 feet to the inch, and the vertical scale is 10 feet to the inch. This, of course, distorts the view of the channel, but the relative depths of water and sawdust are in true proportion as seen on these sections.

In making the survey all soundings were reduced as nearly as possible to Admiralty datum, which is mean low water level at spring tides, and I think that the soundings are comparable with those on the Admiralty chart within a few inches. In mid-channel along the line EF the chart gives 24 feet where now only 17 and 18 feet can be found, thus showing that the depth of the channel has been reduced. I was also informed when at work that on the flats represented on the sections FG and GH, vessels used to lie and load without grounding. The cause of the present inability to do this is readily seen on examining these sections, for we find now on FG only 7 and 5 feet of water where formerly 11 and 9 existed, and on GH 6 feet of sawdust is fairly heaped up nearly all the way across. The deep water channel represented on the plan as lying within the red dotted lines is a channel of 10 feet and over at low water, and by the accumulation of sawdust in the channel and on the flats this has been contracted just below the point F to but little over 100 feet in width and reduced in depth by from 4 to 5 feet. Capt. Holmes' letter, quoted by the Messrs. Davidson as evidence of the non-obstruction of the channel, bears to me the very opposite construction, for though his ship was lightened to 15 feet 6 inches at high water neap tides, she would have, as the neap rise over low springs is 4 feet, two places to pass over where she would be ploughing through six inches of sawdust. Under these circumstance it is scarcely surprising that the valves choked and the ship stayed on the bank over a tide.

In order to obtain some idea not only of the magnitude of the interests involved but of the quantity of sawdust manufactured, I obtained from the Collector of Customs at Bridgewater the following return.

STATEMENT of Lumber shipped from the Port of Bridgewater, during the two years ending 31st December, 1887 and 1888.

DESCRIPTION OF LUMBER.	Unit of Quantity.	SHIPPED TO FOREIGN COUNTRIES.		* SHIPPED COASTWISE.		TOTAL.	
		Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
1887.			$		$		$
Boards and plank	M. ft.	7,877	86,226	1,603	*13,444	9,480	99,670
Scantling	"	29	389	.....	.....	29	389
Laths	M.	644	654	134	199	778	853
Shingles	"	1,352	1,980	2,733	2,605	4,085	4,585
Palings	"	71	480	4	25	.....	505
Totals	.....	.....	89,729	.....	16,273	.....	106,002
1888.							
Boards and plank	M. ft.	9,179	98,705	1,718	*13,868	10,897	112,573
Scantling	"	27	272	20	150	47	422
Laths	M.	1,605	2,676	164	245	1,769	2,921
Shingles	"	631	633	4,448	4,056	5,079	4,689
Palings	"	143	1,057	12	73	155	1,130
Totals	.....	.....	103,343	.....	18,392	.....	121,735

* Shipments coastwise are only estimated, for an accurate statement cannot be had, owing to vessels with coasting licenses not been required to mention cargo.

JAS. A. RUSSELL,
Acting Collector.

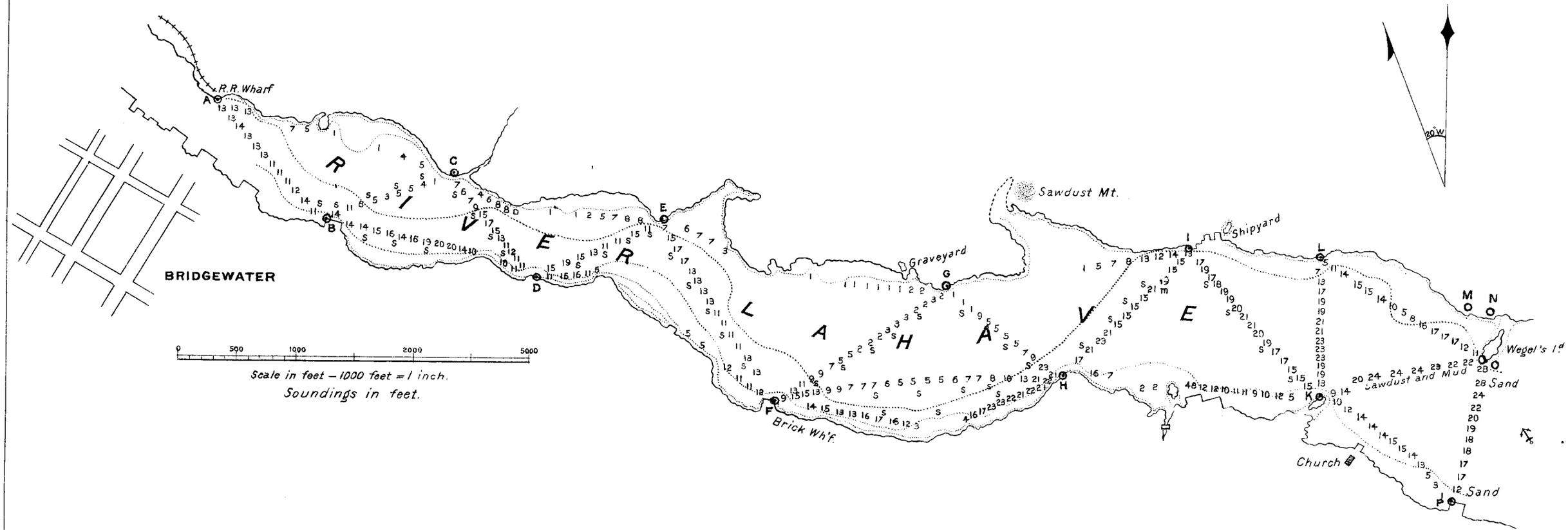
OUTPORT OF BRIDGEWATER, 12th September, 1889.

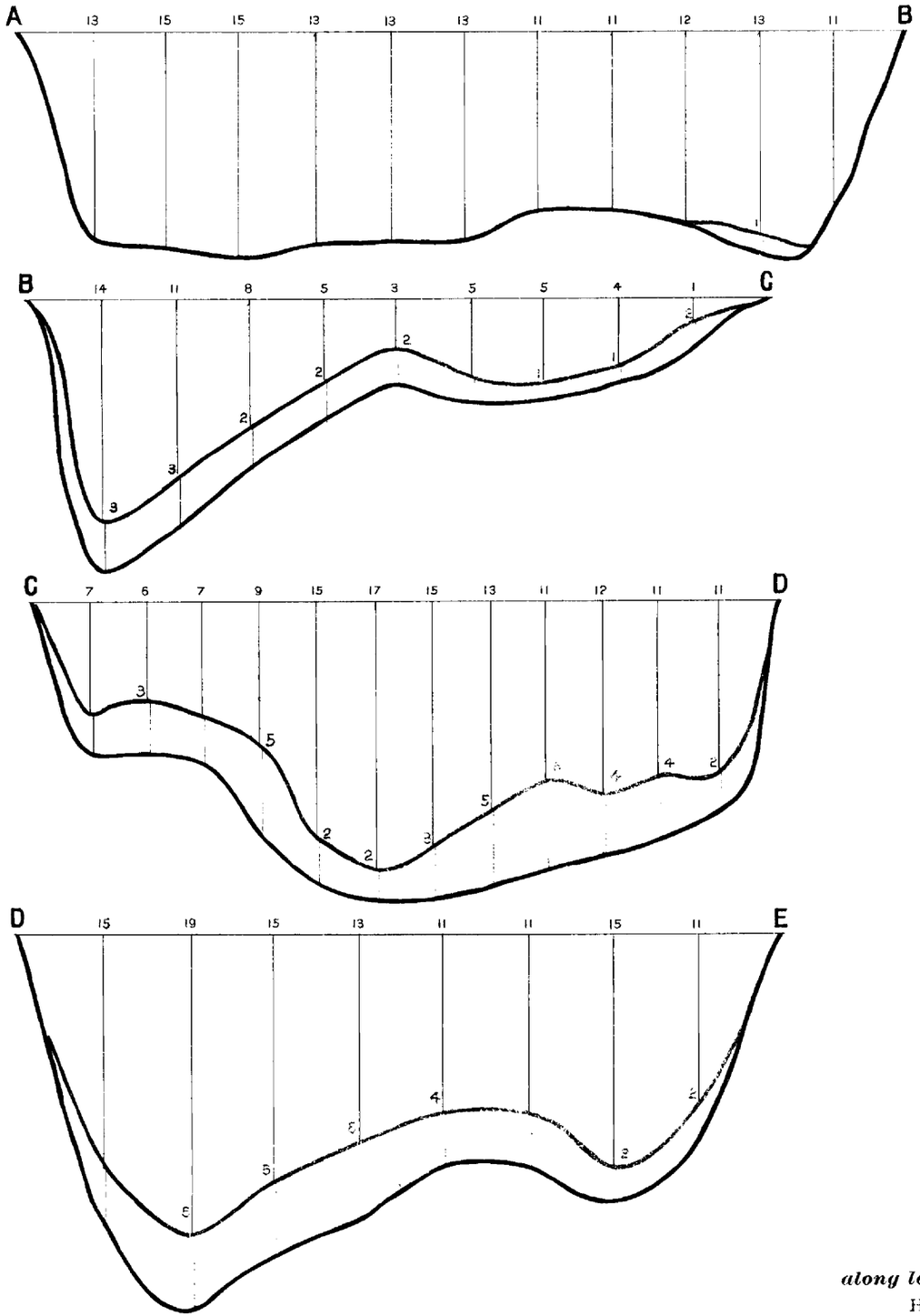
The above return shows that the actual amount of sawn lumber exported from Bridgewater in the years 1887 and 1888 was 20,377,000 ft., B.M., or upwards of 10,000,000 ft. per year. These years were, I understand, considered under the average; and in considering the amount of sawdust produced in order to cover that made in the manufacture of lumber for home consumption in the district, and that arising from the manufacture of shingles, laths, paling, &c., it will be, therefore, I think, a fair estimate if we allow that as much sawdust has been produced as if the mills cut regularly 14,000,000 ft. per annum.

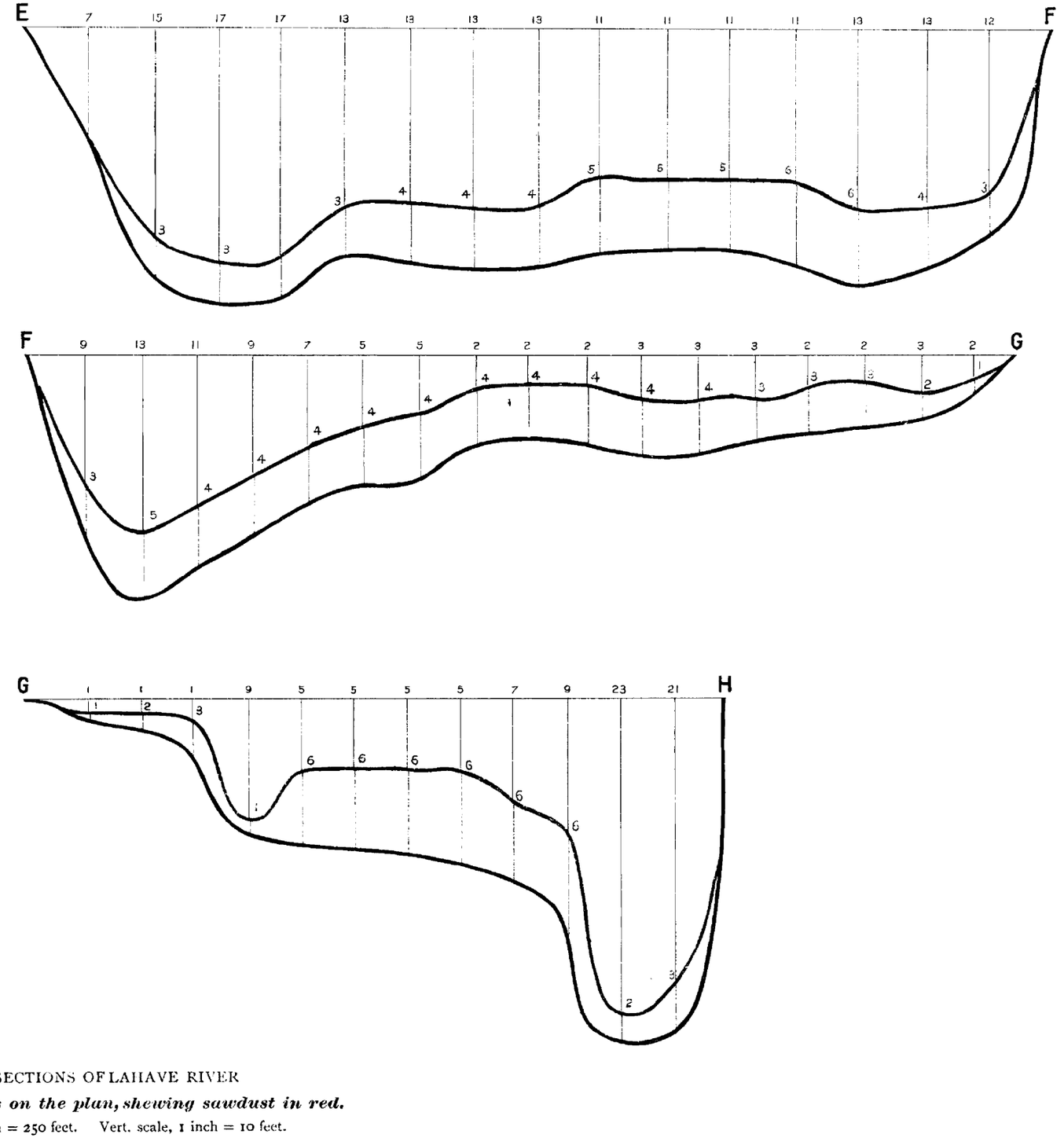
In sawing approximately twenty-five per cent. of the cut is made into sawdust. Now, this 14,000,000 ft. represents, say, 1,166,666 cub. ft., and twenty-five per cent. of this will be the cubical mass of solid wood which is reduced to dust in the process of manufacture, and amounts to 291,666 cub. ft. As sawdust this bulk will be increased between three and four hundred per cent., and in the loose state in which it is found at the bottom it will occupy a space four times or more that of the solid wood, hence we may say, assuredly, that very nearly 1,200,000 cub. ft. of sawdust annually has found its way into the Lahave, say for the past twenty years, and we have 24,000,000 cub. ft.

If we now turn to the plan we find that the sawdust area between the railway wharf and the ship is, approximately, 9,000 ft. long by 800 ft. wide, and on examination of the section shows an average depth of sawdust of say three feet, thus giving a mass of sawdust within the area of 21,600,000 ft.; and if we allow that the average depth is nearly $3\frac{1}{2}$ ft. we should have an amount very closely agreeing with the sawdust accumulation of twenty years.

And when it is borne in mind that the gauge which we had for measuring the sawdust was blunt at the end, and did not in all cases get through the sawdust to


R.R. Wharf
A
B
C
D
E
F
G
H
K
L
M
N
O
BRIDGEWATER
RIVER
LAHAVE
Sawdust Mt.
Shipyard
Graveyard
Brick Wh'f.
Church
Wegel's l.d
Sawdust and Mud
28 Sand
12 Sand
20°W
0 500 1000 2000 5000
Scale in feet — 1000 feet = 1 inch.
Soundings in feet.

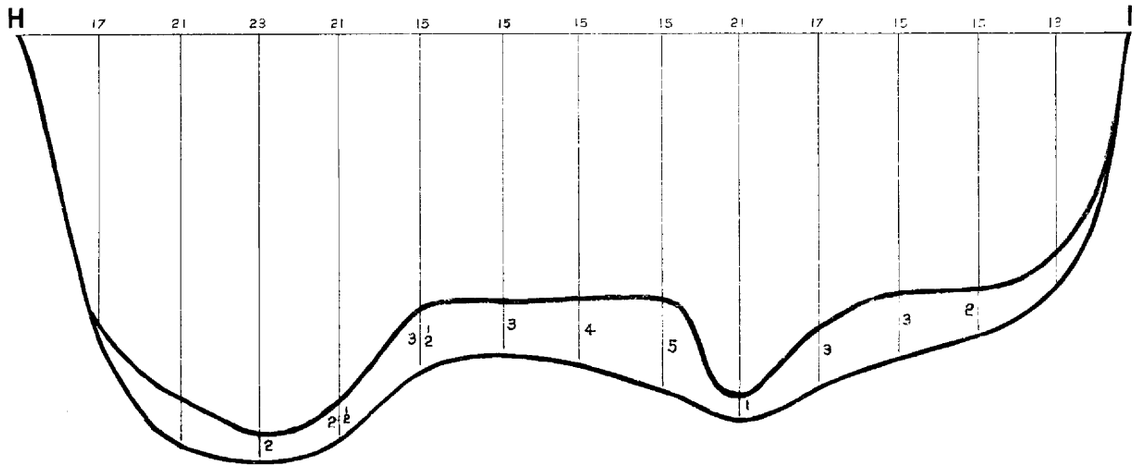


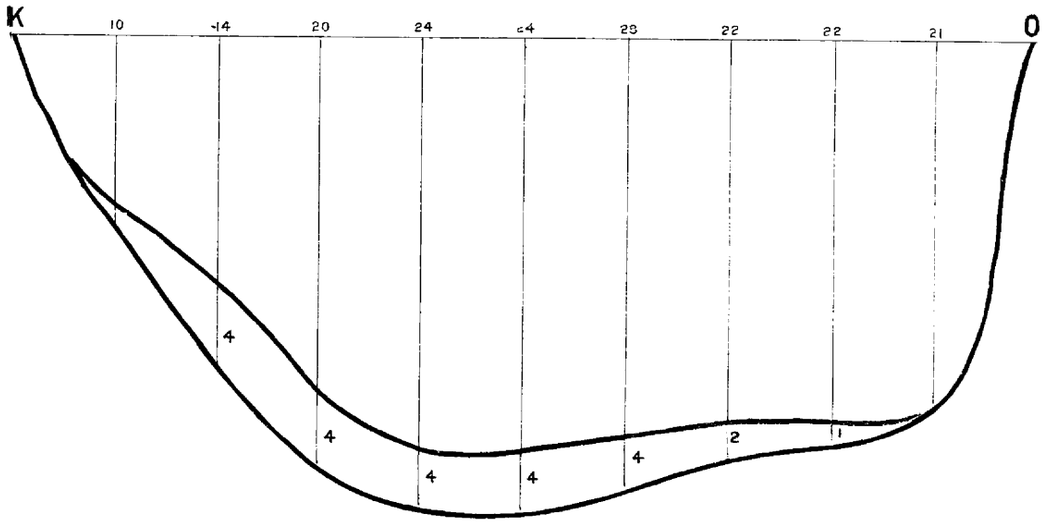


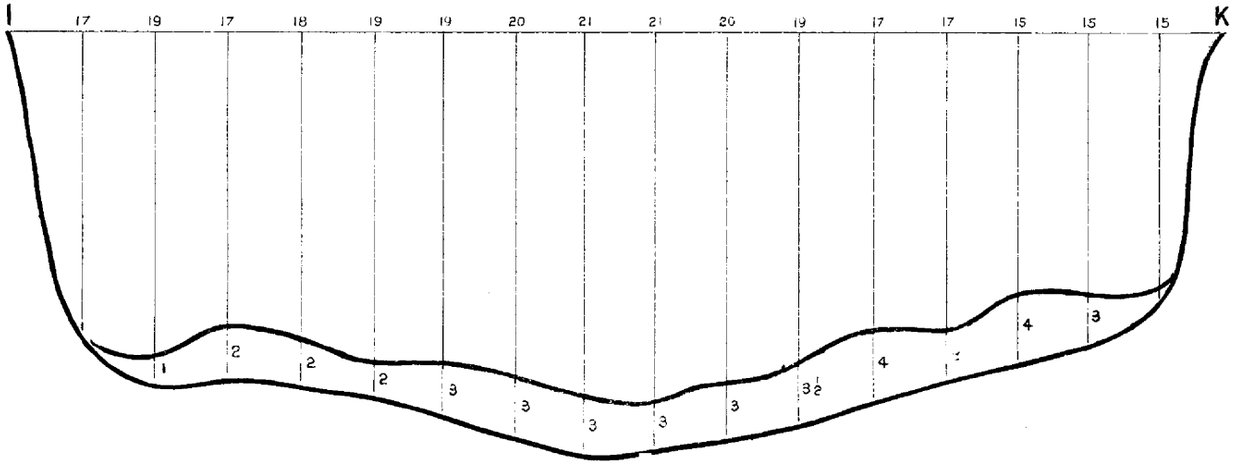
CROSS SECTIONS OF LAHAVE RIVER

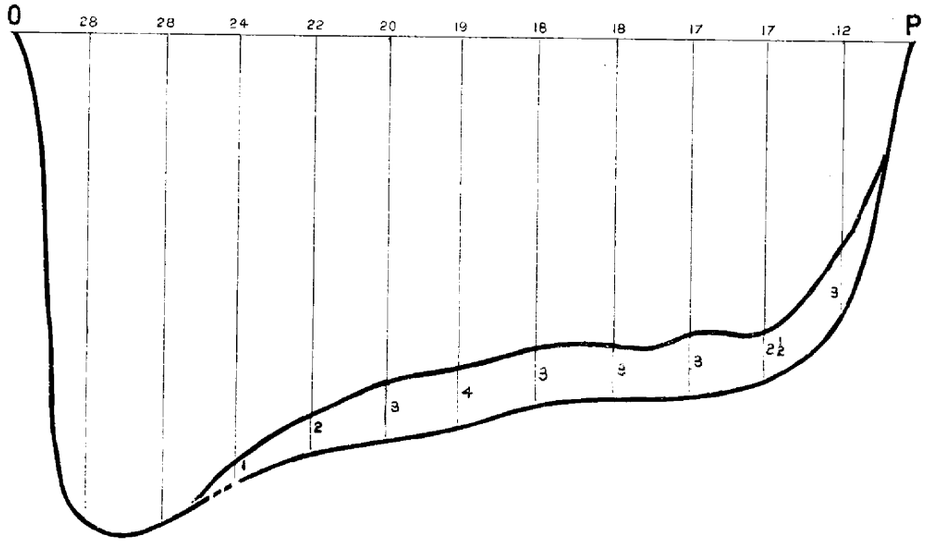
along lettered lines on the plan, shewing sawdust in red.

Hor. scale, 2 inch = 250 feet. Vert. scale, 1 inch = 10 feet.









NOTE.--*In the figures* **KO**, *and* **OP**, *the accumulation marked in red consists of sawdust, mixed with mud, all other diagrams show pure sawdust.*

the true bed of the river, and, further, that the lumbering business has been carried on in this river for forty years, the difficulty of obtaining anything like exact measures will be understood. Suffice it to say that in the part of the river examined there is deposited a vast mass of sawdust; that this sawdust has contracted and shallowed the navigable channel of the river, and I consider that to permit the continuance of the practice of running the sawdust into the river would be to assent to injury, if not to the obstruction of the navigation of the river.

Section *c* of clause 2 therefore incorrectly states that the channel of the river has not been made any shallower.

Clause 3 of the petition states that the banks of the river are steep and its course straight from Bridgewater to the sea. The facts that the channel is tortuous and alternating between open stretches and narrow bends: on the open stretches are wide flats and bays and coves line the banks, with here and there sharp points and islands, the channel winding from side to side of the river.

Clause 4 says that the water-power would have to be abandoned if compelled to remove the sawdust. I duly examined the three large gang mills situated at Bridgewater, two being Messrs. Davidson's mills and the third Messrs. Cook & Co.'s. At Messrs. Cook's and at Davidson's upper mills it will be quite possible to save the sawdust, but the lower mill is very awkwardly situated on the edge of the river with the highway immediately contiguous and the railway just beyond and on the far side of the railway the hill rises abruptly. At this mill the only way of disposing of the sawdust will be by the erection of a furnace.

Mr. Davidson, senior, told me that he considered under the old system that he could saw the lumber very cheaply and from what I can learn it is with most of the millers a question only of so much extra cost to arrange for the legal disposal of the sawdust, nor do I, as a matter of individual opinion, think that the due enforcement of the Sawdust Act will necessitate the abandonment of the water-power mills.

Clause 5 speaks of the competition with United States' lumber producers in foreign markets; but it should be remembered that much of this competition in the West Indies and South American markets is not that of United States' lumbermen, but of Canadian lumber exported *via* New York, and manufactured by people who are subject to the enforcement of the Act petitioned against.

In any case such as the present, the popular tendency is to magnify the value to the community of the threatened industry, and it was impressed on me by almost every one whom I met at Bridgewater, that it would be a fatal blow to the district if the mills were shut down. I hold very strongly that there will be no necessity for such shutting down, but that the whole matter is in the hands of the saw-millers, to whom it undoubtedly means reduced profits, more or less dependent on the particular surroundings of each mill. Now, let us compare the value produced by the lumber interest in the Lahave district with another great industry whose success or failure is more or less interwoven with this subject. I allude to the fishing industry. This industry here employs in all 1,746 men, in 76 ships and 750 boats, these men had a capital afloat and fishing gear of $212,300, and they actually produced, according to the official returns for 1888, fish and fish products to the value of $615,-107.50. Whilst the lumber business employing less than one-tenth the number of men, produced in the same year for export, over and above district consumption, lumber and wood products to the value of $121,735. The fishing industry is the employment of the people, and the prosperous community whose picturesque and comfortable homes line the banks of the Lahave river, from Mosher's Island to Conquerall Bank, are in no sense dependent for their living on the success or failure of the lumber industry, but in a certain sense a large number of them are gravely interested in the pollution of the river and its effect on the supply of anadromous fishes.

It has been a matter of common observation for some years that the deep sea fish are continually receding from our shores, and as a consequence those who are engaged in the shore or boat fishery have continually to go farther to sea after their fares,

and the fishery is, as a matter of necessity, much more affected by unfavorable meteorological conditions.

The cod-fishery, in which as a boat fishery, there are 1,060 men in 750 boats employed in the Lahave district, is the sea-fishery more than any other bound up in the existence of the anadromous fishes. Where there are no anadromous fishes as on the New England coast, we find no shore cod-fishery. The cod-fish comes into shore to feed, the herring comes in to spawn. If, by the destruction of anadromous fisheries, we destroy the countless millions of young fry of gaspereaux, shad, salmon, trout and smelts, we remove a source of food supply from our people in the destruction of the parent fish, but the loss of the young fry is the loss of the cod-fishery, for when there is no bait the fish will not come in. It is on this ground that the pollution and obstruction of our rivers must be looked at, not that the pollution or obstruction of this river has merely destroyed the fish that formerly frequented the river, but that it has seriously and injuriously affected our great standard fishery, the shore cod-fishing.

Viewing the whole circumstances connected with the Lahave River I can see no possible reason or excuse for granting the exemption prayed for in the petition.

I have the honor to be, Sir,
Your obedient servant,

ANDREW R. GORDON,
Commander Fisheries Protection Service.

APPENDIX No. 11.

SPECIAL REPORT ON SAWDUST.

OTONABEE RIVER.

OTTAWA, 9th October, 1889.

To the Honourable CHARLES H. TUPPER,
Minister of Marine and Fisheries, Ottawa.

SIR,—The undersigned submits the following regarding the subject of sawdust and mill refuse being cast into the Otonabee River:—

Pursuant to your instructions, I proceeded to Peterboro' on the 28th ult., to examine into certain statements and counter-statements regarding the casting of sawdust and mill rubbish into the Otonabee River, and to personally inspect the mills thereon, with the view to deal intelligently with the particulars which were submitted to your Department in certain reports from Mr. Chas. Gilchrist relating to this matter.

After making a personal inspection of the several sawmills referred to in your letter of instructions, and from interviews had with the proprietors of these sawmills and other leading persons, I have to report that the position of affairs, as represented to your Department in the reports made by Mr. Gilchrist regarding the casting of sawdust and mill refuse into the Otonabee River by the proprietors of the sawmills thereon, is, from what I witnessed myself and learned from the proprietors themselves, and from other reliable sources, substantially correct, and can be readily verified by numerous eye-witnesses of the facts as therein related.

The Otonabee River is one of considerable magnitude, and the principal outlet of numerous lakes in the rear of Peterboro', from which it takes a southerly course of some thirty miles and discharges into Rice Lake, the waters of which pass down the Trent River to the Bay of Quinté and into Lake Ontario. Some twenty miles up the Otonabee from Rice Lake is the town of Peterboro'; above this town, up the river to the village of Lakefield is about twelve miles, and on this stretch of the stream are the saw mills herein referred to. Along this twelve miles the river is quite rapid, across which several dams are built, forming numerous water-powers for driving sawmills and other manufactories of various kinds. The portion of the river below the town of Peterboro', down to Rice Lake, is dull and sluggish in its current and navigable for steamboats and other crafts.

On the 12-mile stretch above Peterboro' six large sawmills have been running for several years past. The sawdust and mill refuse made from them has been unrestrictedly cast into the river until quite lately. In 1886 the corporation of Peterboro' the Board of Health and many of the leading citizens of Peterboro' petitioned for the enforcement of the law to stop this hurtful agency for destroying fish-life and impeding navigation. Action was taken by the Fisheries Department to carry out the demand of the petitioners by enforcing the provisions of the Act, and notices were given to the several mill-owners to stop this illegal and injurious work. The mill-owners demurred to this, stating that sawdust and mill-refuse did not seriously affect fish life, nor did it retard navigation; and should they be compelled to carry out the law in its entirety they would be obliged to close down their mills, and thereby deprive many men of their usual means of employment. Whereupon, in April, 1886, a sort

of compromise was made, by which it was understood that if the proprietors of the mills would keep out of the river all mill rubbish as well as sawdust, except that falling from the saws into the pitman-holes the mill-owners on the Otonabee River would not be prosecuted at the instance of the Department.

In April, 1888, it was represented to the Department by the Corporation of the Town of Peterboro' and by leading men that this promise made by the mill-owners had been evaded and was not kept, and they were notified in January, 1889, that the law regarding sawdust and mill refuse would be enforced the following spring, and Fishery Officer Gilchrist was instructed to prosecute any violations of the Act.

During the months of July and August last past Officer Gilchrist made several visits to these mills, and found the promises made by the mill-owners were evaded, and that sawdust was being cast into the river, contrary to the law; whereupon complaints were made before the police magistrate, convictions were obtained, the penalties on which, in most cases, remain at the present time unpaid.

Whilst some of these mill-owners have shown a disposition to put in machinery for preventing sawdust from falling into the river, others, notably Messrs. Hazlett and Irwin, have made no effort to do so, their contention being that the former agreement made by them in 1886 to dispose of all sawdust and mill refuse, except what might necessarily fall through the pitman-holes, has been fairly kept, and that they cannot do more without in effect closing up their mills.

Having visited the locality, and closely examined these mills, I submit the following facts in relation to them; and for brevity, and better comprehension, the mills will be numbered from 1 to 6, inclusive, commencing with Nos. 1, 2 and 3, which are lowest down on the river and within the limits of the town of Peterboro'. All three are owned by the Hazlett Company:

No. 1. This mill is on the east side of the river, and is worked by circular saws, and no difficulty should be experienced on this account, for fully complying with the requirements of the law. At the time of my visiting this mill there were no outward indications of sawdust running into the river from the tailrace; workmen were engaged carting it away. I was, however, informed by credible persons who passed by the mill daily, that sawdust was frequently seen floating down the tail race into the river.

No. 2 is on the west side of the river, and is also worked with circular saws, principally for manufacturing shingles and laths. Here the Act appears to be fairly complied with.

No. 3 is the largest of the Hazlett mills, with a large capacity for work, having four gangs of upright saws, with one large circular saw and several smaller ones. No satisfactory provision is made at this mill to dispose of the sawdust, all made by the gang-saws falling directly into the water underneath the pitman-holes, showing constant streams of sawdust running from both tail-races of the mill. Carriers were in operation, for carrying away sawdust and other refuse from the circular saws on the main floor of the mill.

No. 4. This mill is further up the river, and belongs to Mr. Hilliard. It is of much less capacity than those above mentioned, having one set of gang-saws and one circular saw. Here an arrangement is made by which the larger proportion of sawdust falling through the pitman-hole drops on an inclined platform, then slides into carriers, which convey it outside the mill to be carted away. Some sawdust, nevertheless, falls into the river from the saw, and from the floor, which is sufficiently open to permit it passing through.

No. 5 is Irwin's mill, still further up stream. This is a large mill, with a capacity for cutting 100,000 feet of lumber daily. It has four large gangs of saws, one large circular saw, and several smaller ones for cutting laths, edgings, &c. This mill was not in operation at the time of my visit to it, being shut down for the season; therefore, no visible evidence was presented regarding the action of sawdust. It was quite apparent, however, that no provision was made to carry sawdust, &c., away from the four gangs of saws; it must necessarily all fall directly into the river, as there is nothing to prevent it. The quantity of sawdust passing into the river from

these four gangs would be fully three-fourths of the whole product of the mill. These facts were obtained from and freely given by the foremen of the mill. The sawdust and refuse from the large circular saw and smaller ones on the main floor were, apparently, intended to be taken away by carriers, arranged to convey refuse, to a burning pit some distance away, but the numerous holes and other means for leakages through the floors would indicate the chances of a considerable portion of sawdust, &c., falling through into the water below. The impression given by the foreman (who was a very intelligent man) was that the mill would require considerable remodelling to insure the prevention of sawdust and refuse going into the river.

No. 6 is Strickland's mill, about six miles above No. 5, at the village of Lakefield. A large amount of lumber is made here. The mill runs two gangs of saws, and and one circular saw, and other smaller ones. The disposition of these owners to prevent sawdust and refuse going into the river is at present very satisfactory. Since the notification given them by your Department they have put inclined tables under the gang-saws, which catch the sawdust falling down the pitman holes, sliding it into carriers, which convey it some distance out of the mill, to be carted on waste land, and filled into open piers under construction alongside the mill. The slabs and coarser refuse from this mill are consumed in a fire pit. The proprietors of this mill not only gave practical evidence, but also expressed a strong desire to comply with the law, in so far as it was possible to do so. The appliances put in this Strickland mill to prevent sawdust and refuse going into the river, although not quite perfect, might be made complete, and equally applied to the Hazlett and Irwin mills, if there were any disposition on their parts to do so.

In a summary of particulars regarding these mills on the Otonabee River, from the personal inspection of them made by myself, together with the information obtained from the mill-owners themselves, and from persons engaged in the navigation of the river, and others interested in the protection of fish and their propagation, and also from leading prominent men, citizens of Peterboro'—voluntarily given by all —I submit the following to be my conclusions regarding the subject under consideration, viz.:—

1. That it can be established beyond all doubt that the Otonabee River is filling up, and its navigation is being impeded, by the sawdust and mill refuse cast into it, contrary to law, from the sawmills herein mentioned.

2. That fish-life, and the reproduction of fish, has been and is at the present time very seriously affected, by reason of the vast quantities of sawdust and mill rubbish cast into the waters of the Otonabee River from the sawmills referred to above.

3. That the understanding come to in 1886 between the Department of Fisheries and the mill-owners on the Otonabee River, for "allowing all sawdust falling through the pitman holes from gang-saws to pass into the river," was so largely in favor of the mill-owners that they ought to have most willingly complied with it; but from avarice and evasion they did not, and do not, comply with that agreement.

4. That with the due notice given by your Department to the mill-owners of the Otonabee River to desist from their illegal course and to comply with the laws relating to sawdust, &c., and their refusal to do so, fines have been inflicted upon them, which, if remitted, will undoubtedly seriously reflect upon the interests of your Department, should cases of a like nature regarding sawdust, &c., arise in other parts of the country.

5. That the statement put forth by the mill-owners on the Otonabee River "That all sawdust and mill refuse which they can reasonably be asked to keep out of the river is kept out, and that their mills are so constructed as to render it impossible to entirely prevent sawdust from falling into the river; and that to enforce the provisions of the 'Fisheries and Navigable Rivers Act' will result in a stoppage of their work, and the throwing out of employment of some six hundred men," are incorrect and untenable, from the simple fact that two out of the four of these same mill-owners are, at the present time, by a simple and comparatively inexpensive appliance in their mills, preventing almost the whole of the sawdust which falls

through the pitman holes from their gang-saws from going into the river; and this same remedial measure is equally applicable to the other mills worked on this river by Messrs. Hazlett and Irwin, or in fact anywhere else.

6. That any concession made to sawmill owners by which they may be allowed to let all sawdust, made from gang-saws, to pass through the pitman-holes into the river, is almost tantamount to exempting that mill from the operations of the "Fisheries and Navigable Rivers Acts" relating to sawdust, &c.—for in the manufacturing of ordinary lumber, from ordinary saw logs, it is held that about one-fifth becomes sawdust, and seven-eighths of this sawdust will necessarily fall down through the pitman holes into the river below, unless otherwise prevented.

7. That all sawdust can, by the exercise of a certain amount of ingenuity and by the application of comparatively inexpensive machinery, be conveyed out of nearly all sawmills in the country, when it can be dumped into fire pits to be consumed, or it may be otherwise disposed of. This is practically illustrated in a very great measure at the Strickland's mills on the Otonabee River, where nearly the whole of the sawdust from their two gangs of saws, is thus kept out of the river, and where it can be readily seen also, that, by the application of a further simple remedy, the whole of the sawdust would be carried off from the pitman, leaving none to fall into the water. Sawdust can be conveyed out of all sawmills in like manner (by means of properly constructed carriers) and as readily as grain and offal are conveyed from place to place in the ordinary grain mills of the country, and would be so disposed of if the owners of sawmills of every class, without fear, favor or distinction, are compelled to obey the restrictions relating to sawdust and mill refuse so wisely embodied in the statute laws of the country.

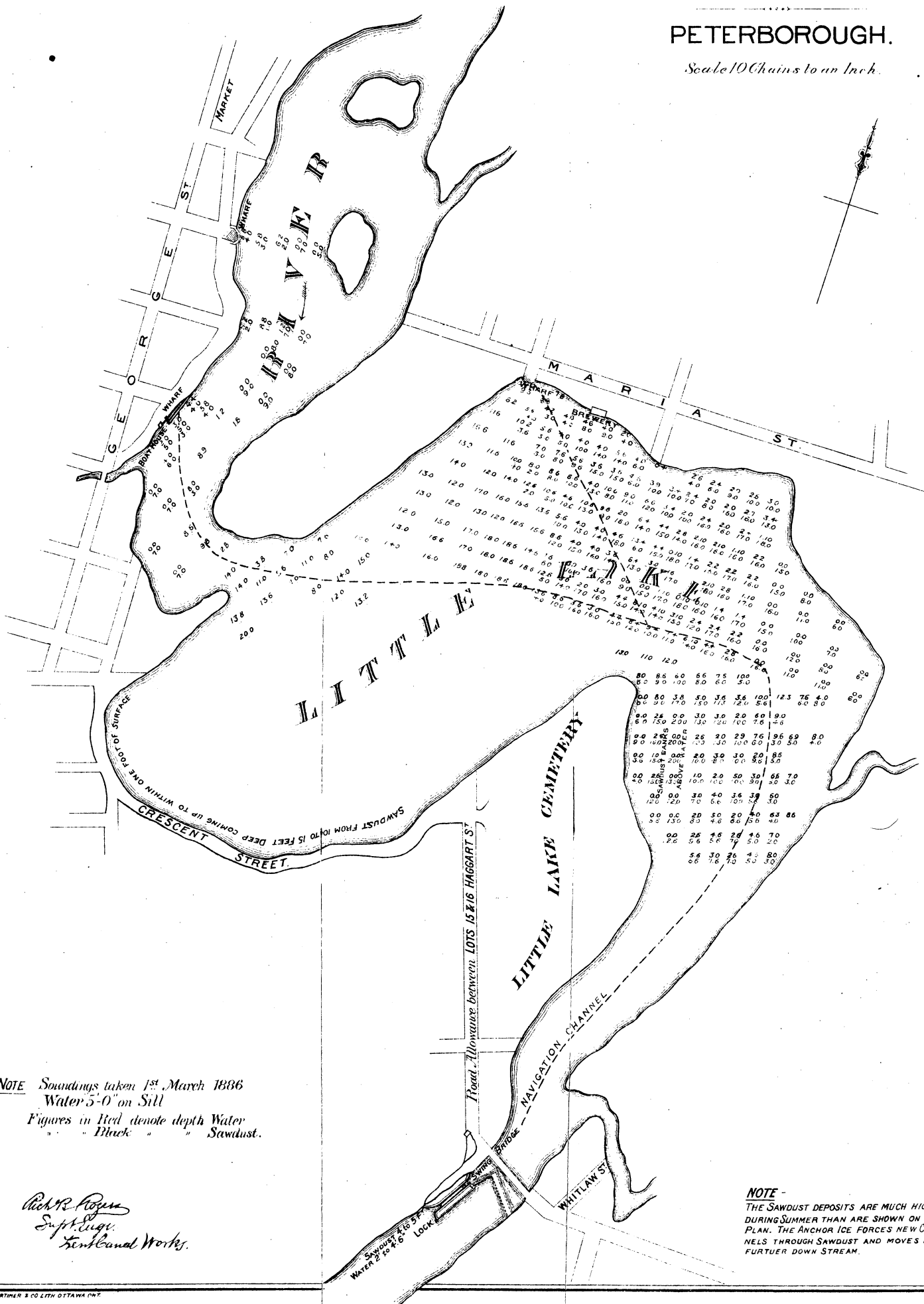
Attached hereto is a plan of the Little Lake at the town of Peterboro, on which is given the soundings, where unmistakeable evidence is furnished of the evil effects resulting from the unrestricted casting of sawdust and mill refuse into the river above where the saw mills are located. It is proposed also to obtain soundings of the river, from this Little Lake, down to where it enters Rice Lake. The deposits of sawdust and rubbish have become so great here, as to close up two of the three former outlets of the river into the lake, and the deposits are becoming so great of late, as to cause alarm for the early closing up of the third outlet, impeding navigation and preventing steamers going up the river to Peterboro.

Respectfully submitted,

SAMUEL WILMOT.

PLAN
OF
RIVER AND LAKE,
PETERBOROUGH.

Scale 10 Chains to an Inch.



NOTE Soundings taken 1st March 1886
Water 5'-0" on Sill
Figures in Red denote depth Water
" " Black " " Sawdust.

Richd R Rogers
Supt. Engr.
Kent Canal Works.

NOTE -
THE SAWDUST DEPOSITS ARE MUCH HIGHER DURING SUMMER THAN ARE SHOWN ON THIS PLAN. THE ANCHOR ICE FORCES NEW CHANNELS THROUGH SAWDUST AND MOVES IT FURTUER DOWN STREAM.

MORTIMER & CO LITH OTTAWA ONT.

INDEX

FISH BREEDING REPORT.

SUPERINTENDENT'S REPORT ON FISH-BREEDING OPERATIONS, 1889.

PAGE.

Introductory remarks 5
General statement of work of the several Hatcheries 7
Statement of output of fry and eyed-eggs from each hatchery 7
Statement of eggs collected and laid down in each hatchery 8
Statement showing position of each hatchery and the number of fry annually distributed from each since erection 9
Lobster, proposed cultivation of the 10
Sawdust, evidence of injurious effects of upon fish-life 12–42

SUMMARY OF OPERATIONS OF THE SEVERAL FISH HATCHERIES.

Fraser River, B.C., Hatchery 23
Sydney, N.S. do 24
Bedford, N.S. do 24
Dunk River, P.E.I. do 25
St. John River, N.B. do 25
Miramichi, N.B. do 25
Restigouche, Quebec do 26
Gaspé do do 27
Tadoussac do do 27
Magog do do 28
Newcastle, Ont. do 28
Sandwich do do 29
Form of applying for fish fry 30

EVIDENCE OF PRACTICAL RESULTS FROM FISH-BREEDING.

From British Columbia 33
do New Brunswick 39
Conclusion 43

APPENDICES.

1.	Report on	Fraser River	Hatchery,	B.C., by Thos. Mowat	44
2.	do	Sydney	do	N.S., by C. A. Farquharson	47
3.	do	Bedford	do	N.S., by A. B. Wilmot	48
4.	do	Dunk River	do	P.E.I. (not operated)	52
5.	do	St. John River	do	N.B., Charles McCluskey	52
6.	do	Miramichi	do	N.B., by Isaac Sheasgreen	55
7.	do	Restigouche	do	Que., by Alexander Mowat	58
8.	do	Gaspé	do	Que., by Henry Davis	61
9.	do	Tadoussac	do	Que., by L. N. Catellier	62
10.	do	Magog	do	Que., by A. H. Moore	65
11.	do	Newcastle	do	Ont., by C. Wilmot	66
12.	do	Sandwich	do	Ont., by Wm. Parker	71

ANNEX.

TRANSLATION of a report by SUPERINTENDENT G. M. DANNEVIG to the Board of Directors of the Arendal and Omegn's Branch of the SOCIETY FOR THE ENCOURAGEMENT of NORWEGIAN FISHERIES on his experimental operations in the ARTIFICAL HATCHING of COD, LOBSTERS and OYSTERS at the Flodevigen Establishment 74

REPORT

OF MR. S. WILMOT, SUPERINTENDENT OF FISH CULTURE FOR THE DOMINION OF CANADA, FOR THE YEAR 1889.

The Honorable CHARLES H. TUPPER,
Minister of Marine and Fisheries,
Ottawa.

SIR,—I beg to submit the annual report on fish-breeding operations in the Dominion of Canada for the year 1889, in which will be given the particular transactions which relate to each of the hatcheries, especially as to the number of fish-eggs which have been laid down in each nursery, and the young fish of various species which have been bred and turned out of the several establishments during the past year; a summary of the work performed at, the wants required for, and the general standing of each nursery will be included.

There will also be found appended to this general report, the individual reports of the several officers in charge of their respective institutions in the several Provinces. In these, fuller details will be given, descriptive of the varied operations of capturing parent fish, hatching the ova, and distributing the several species of young fish in the waters of the various sections of the country.

The output of fry during the past year has been under that of former years, by reason of the reduced supplies of ova that were obtained in the season of 1888. Great success, however, has attended the collecting of eggs during the autumn just closed. The gross number amounting to upwards of 136,000,000, or an increase of some 37,000,000 over the previous year.

Taking the work as a whole the year's operations are of the most satisfactory character, and judging from the numerous applications which are being continually made by individuals, and public bodies throughout almost every section of the country, for fry bred at these nurseries to stock waters which are failing, or have become depleted of their former supplies of fish, but one conclusion can be arrived at, namely:—the growing popularity of the work of fish culture and the undoubted benefits which have been, and are to be derived from a judicious application of it as a supplementary aid to the natural method of producing from the waters of the country more plentiful supplies of fish-food for the inhabitants generally, and for enlarging commercial traffic in fish.

It may not be considered as inappropriate to briefly refer here, to the views entertained by two of the adjoining countries regarding the importance for extending in the one,—and introducing into the other, the work of fish culture, with a view to improve their former extensive, but now somewhat declining fisheries.

The Federal Government of the United States, and the Government of our own sister colony of Newfoundland are both making strenuous efforts to foster the fishing industry of their separate countries. The former by enlarging its fish cultural operations which have been already so successfully carried on by the United States Fish Commission at Washington, and its friendly co-operation with individual State Fish Commissioners for the erection of Federal Hatcheries and the taking over, and working some of the fish nurseries which were built by these individual States; thus relieving them from carrying on an industry which the Federal Government considers to be of such general benefit to the whole Union, that the expenditure in erecting these establishments and maintaining them should be borne from federal grants alone.

Newfoundland hitherto occupying the position of one of the leading fish countries of the world and desirous of maintaining that distinction in the future, has also just acknowledged fish culture to be a means by which to recuperate, and sustain her cod, and lobster fisheries.

The Government of that Island has secured the services of an expert in lobster breeding from Norway, Mr. Adolph Neilsen, who has already fitted up on Dildo Island, Trinity Bay, a fish hatchery of considerable magnitude for the propagation of codfish and lobsters; his success in breeding the latter during the past season has been very encouraging, and his convictions are that he will be enabled to turn out the coming season vast numbers of the young of the cod, and the lobster, to supplement the natural product of these valuable fish in the waters of Newfoundland.

In a further reference to the growing popularity of artificial fish culture in Canada, and in corroboration of the statement, it may be mentioned that applications are being made for enlarging some of the present hatcheries, and for building several additional fish nurseries:—The Fraser River hatchery in British Columbia, by the almost unanimous voice of the salmon canners there, who are a very important, wealthy, and influential class of persons, with one accord, give credit, in a great degree, for the enormous catch of salmon in the Fraser River the past season to the output of fry from that institution into the tributaries of that river. These practical men, all largely engaged in the fishing industry of British Columbia, almost without a dissenting voice, now earnestly ask that fish culture may be extended by the enlargement of the present hatchery, and for the construction of additional ones. A series of letters, under the signatures of these canners, expressing their views and faith in the results of artificial salmon culture on the Fraser River, will be found embodied in this report, and will repay a careful perusal by all persons who may feel interested in the maintenance of the fisheries of the country.

Manitoba and the North-West Territories, though but lately and sparsely settled, find that in some waters a decline is being felt already in the fish crop, and they now ask as a remedy to avert the disastrous results to their fisheries which have been so sadly experienced in the older settled Provinces, that artificial fish culture be introduced at once, and that one or more establishments be erected there to aid in maintaining the whitefish industry in Lakes Manitoba, Winnipeg, and other waters in the North-West.

In Prince Edward Island, where a salmon hatchery had been in operation for some time, but from an unforeseen accident by a freshet in the river, it became seriously damaged, and its operations have been stopped for the past two years. The inhabitants, noticing the benefits which have accrued from it in several streams, now apply for its renovation, and that it should be placed in a position for active work next season.

In the the city of Ottawa a fish hatchery has been fitted up, and will be in full operation during the approaching Session of Parliament, having a capacity to hatch several millions of young fish, of different species, annually. This nursery is on the lower flat of the present Fishery Exhibition building, and being at the seat of Government, will, no doubt, add materially to still further popularize the science by making this an educator on fish cultural matters for the numerous visitors coming to the Capital. In addition, this establishment will afford an opportunity to members of Parliament and others for obtaining, both ocular and practical, demonstrations of the *modus operandi* of propagating and rearing fish by the artificial methods.

GENERAL STATEMENT OF WORK PERFORMED AT THE SEVERAL HATCHERIES IN 1889.

The gross output of young fish of all kinds from the hatcheries in 1889 amounted to sixty-eight millions seven hundred thousand (68,700,000) and were of the following species, namely:

Atlantic salmon (*Salmo salar*)	7,254,500
Pacific salmon (saw-quai) (*Oncorhynchus nerka*)	4,419,000
Salmon trout (Great Lakes) (*Namaycush*)	5,140,000
Brook trout (speckled trout) (*Salmo fontinalis*)	206,500
Whitefish (Lake region) (*Coregonus albus*)	30,600,000
Pickerel, doré (Wall Eyed Pike) (*Lucioperema*)	21,000,000
Black bass (small mouth) (*Micropterus dolemei*)	80,000
Total	68,700,000

The following table will show the number of young fish, and semi-hatched eggs turned out from each of the hatcheries in the Dominion in 1889. The reports from the several officers in charge, are of the most satisfactory description, regarding the healthy state of the fry when planted in the waters; and of the soundness of the eyed-eggs which were obtained from the Ontario hatcheries, and deposited in the Quebec, New Brunswick, and Nova Scotia nurseries. The particular lakes, rivers, and streams and their localities in the several Provinces, will be found minutely described in the individual reports of the several officers in charge of hatcheries, in the appendices hereto attached:

SCHEDULE showing Number of **Fry** and Eyed-eggs turned out from each Hatchery in 1889.

Number.	Hatchery.	Province.	Fry put out.	Eyed-eggs sent to other Hatcheries.	Eyed-eggs received from other Hatcheries.	Species.
1	Fraser River	British Columbia	4,419,000			Salmon (*Nerka*).
2	Sydney	Nova Scotia	2,034,500			do (*Salar*).
3	Bedford	do	900,000			do do
	do	do	450,000		500,000	Salmon trout (*Namaycush*).
	do	do	2,500,000		3,000,000	Whitefish (*Coregonus*).
4	Dunk River	P. E. Island	Not in operation.			
5	St. John River	New Brunswick.	140,000		150,000	Salmon (*Salar*).
	do	do	830,000		1,000,000	Salmon trout (*Namaycush*).
	do	do	2,600,000		3,000,000	Whitefish (*Coregonus*).
6	Miramichi	do	850,000		50,000	Salmon (*Salar*).
7	Restigouche	Quebec	1,280,000	200,000		do do
8	Gaspé	do	450,000			do do
9	Tadoussac	do	1,600,000			do do
10	Magog	do	1,100,000		1,200,000	Salmon trout (*Namaycush*).
	do	do	1,700,000		2,000,000	Whitefish (*Coregonus*).
11	Newcastle	Ontario	2,760,000	2,700,000		Salmon trout (*Namaycush*).
	do	do	206,500			Brook trout (*Fontinalis*).
	do	do	2,800,000		3,000,000	Whitefish (*Coregonus*).
	do	do	80,000			Black bass (small mouth).
12	Sandwich	do	21,000,000	11,000,000		Whitefish (*Coregonus*).
	do	do	21,000,000			Pickerel, doré (*Lucioperca*).
	Total		68,700,000	13,900,000	13,900,000	

FISH EGGS COLLECTED AND LAID DOWN IN THE HATCHERIES IN 1889.

The following table will show the numbers and descriptions of ova collected and laid down in the hatching troughs and incubators of the several breeding establishments in the Dominion. No eggs were procured by the Magog and St. John River hatcheries in their own localities, but supplies of semi-hatched eggs will be transferred to the Magog establishment from Newcastle and Sandwich in Ontario; and to the St. John River nursery from the Ontario and Restigouche hatcheries. The total number of eggs collected for the year amounts to 136,122,000, and judging from the weekly reports which are regularly sent in by the officers in charge, the loss of eggs so far has been very small, and their present general appearance would indicate a satisfactory yield of fry for the coming season of 1890.

The following will give the eggs collected in 1889, the name of the hatchery and Province, and the species.

No.	Hatchery.	Province.	No. of Eggs.	Species.
1	Fraser River	British Columbia	9,233,000	Salmon (*Nerka*).
2	Sydney	Nova Scotia	2,540,000	do (*Salar*).
3	Bedford	do	2,300,000	do do
4	Dunk River	Prince Edward Island.		
5	St. John River	New Brunswick		
6	Miramichi	do	1,100,000	do do
7	Restigouche	Quebec	3,022,000	do do
8	Gaspé	do	820,000	do do
9	Tadoussac	do	2,557,000	do do
10	Magog	do		
11	Newcastle	Ontario	11,150,000	Salmon Trout (*Namaycush*)
	do	do	300,000	Brook Trout (*Fontinalis*).
	do	do	3,000,000	Whitefish (*Coregonus*).
	do	do	100,000	Black Bass (Small Mouth).
12	Sandwich	do	30,000,000	Pickerel, doré (*Luciopercha*).
	do	do	70,000,000	Whitefish (*Coregonus*)
13	Ottawa	do		
	Total Eggs, 1889		136,122,000	

NOTE—The St. John River, Magog and Ottawa hatcheries will be supplied with eggs later on from other nurseries.

GRAND TOTAL OF YOUNG FISH OF ALL KINDS WHICH HAVE BEEN TURNED OUT OF THE CANADIAN HATCHERIES FROM THE COMMENCEMENT OF FISH BREEDING AT EACH HATCHERY.

The following table will exhibit the gross out-put of fry of every description. Separate columns will give the names of the Provinces, and hatcheries, and quantities of fry bred at each nursery, and the year of the establishment, making in the whole a grand total of 705,544,900; consisting of Atlantic salmon, Pacific salmon, salmon trout of the Great Lakes, speckled trout of the rivers and streams, whitefish, lake pickerel or doré, and black bass.

STATEMENT showing the Places where, and the Years in which the several Fish Hatcheries have been erected; also the number of Fry distributed from each Establishment, annually, since they were built.

YEAR.	ONTARIO.		QUEBEC.				NEW BRUNSWICK.		NOVA SCOTIA.		PRINCE EDWARD ISLAND.	BRITISH COLUMBIA	TOTALS.
	Newcastle.	Sandwich.	Magog.	Tadoussac.	Gaspé.	Restigouche.	Miramichi.	St. John River.	Bedford.	Sydney.	Dunk River.	Fraser River.	
	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.	Fry.
1868-1873	1,070,000												1,070,000
1874	350,000					100,000	60,000						510,000
1875	650,000			60,000	110,000	600,000	150,000						1,570,000
1876	700,000	8,000,000		150,000	50,000	300,000	60,000		395,000				9,655,000
1877	1,300,000	8,000,000		1,180,000	1,051,000	600,000	320,000		1,000,000				13,451,000
1878	2,605,000	20,000,000		707,000	650,000	1,015,000	665,000		1,400,000				27,042,000
1879	2,602,700	12,000,000		1,250,000	1,597,000	1,470,000	1,025,000		1,740,000				21,684,700
1880	1,923,000	13,500,000		1,155,000	730,000	1,500,000	805,000	170,600	730,000		500,000		21,013,600
1881	3,300,000	16,000,000	200,000	334,000	500,000	740,000	770,000	50,000	680,000		375,000		22,949,000
1882	4,841,000	44,000,000	975,000	600,000	530,000	1,400,000	640,000	588,000	850,000	315,000	1,060,000		55,799,000
1883	6,053,000	72,000,000	250,000	995,000	520,000	300,000	925,000	72,600	800,000	659,000	1,216,000		83,784,600
1884	8,800,000	37,000,000	100,000	985,000	859,000	940,000	795,000	811,000	1,000,000	853,000	1,000,000		53,143,000
1885	5,700,000	68,000,000	300,000	720,000	290,000	660,000	900,000	155,000	670,000	772,000	1,100,000	1,800,000	81,067,000
1886	6,451,000	57,000,000	1,400,000	1,627,000	576,000	1,380,000	945,000	2,181,000	960,000	1,179,000	400,000	2,625,000	76,724,000
1887	5,130,000	56,500,000	675,000	900,000	630,000	1,500,000	900,000	2,479,000	4,230,000	1,415,000	500,000	4,414,000	79,273,000
1888	8,076,000	56,000,000	3,475,000	850,000	800,000	1,720,000	1,290,000	4,142,000	4,390,000	1,559,000		5,807,000	88,109,000
1889	5,846,500	21,000,000	2,800,000	1,600,000	450,000	1,280,000	850,000	3,570,000	3,850,000	2,034,500		4,419,000	68,700,000
Totals	65,398,200	489,000,000	10,175,000	13,113,000	9,343,000	15,505,000	11,100,000	14,210,200	22,695,000	8,786,500	6,145,000	19,065,000	705,544,900

NOTE.—The particular descriptions of Fry above enumerated were as follows:—

Salmonidae—Atlantic and Pacific salmon, salmon trout of the Great Lakes, and speckled trout of the Streams	176,079,000
do Whitefish (*Coregonus*) of the Great Lake region	335,250,000
Percidae—Pickerel, or Doré (*Lucioperca*) and Black Bass	194,215,900
Grand Total of all kinds	705,544,900

PROPOSED CULTIVATION OF THE LOBSTER.

Regarding the contemplated action of your Department to erect one or more establishments for the artificial propagation of lobsters, I desire to state that, as lobster hatching has proved to be a successful undertaking in the United States and in Newfoundland, as well as in several of the European countries, there can be no reason whatever to doubt its applicability to the waters of the Maritime Provinces of Canada.

From the information obtained on this subject by correspondence with Colonel Macdonald, Commissioner of Fish and Fisheries for the United States, and with Mr. Neilson, Superintendent of Fish Culture for Newfoundland, there will be little difficulty experienced either in the erection of properly arranged lobster hatcheries or in carrying on the work, and turning out millions of young lobsters annually.

Our Maritime Provinces are, perhaps, in a position better calculated to make lobster hatching more successful than is found to be the case in the United States, from the fact of the parent lobster being yet found in many localities along the coasts quite numerously, and consequently giving greater facilities for securing almost unlimited supplies of eggs; and whilst this enterprise has been successful in the United States, in so far as the hatching of the young fish is concerned, yet a difficulty arises with that country in procuring adequate numbers of lobsters to supply them with eggs. I here quote Colonel Macdonald's words: "I am well satisfied, however, that if it were practicable in any locality to obtain all the fertilized eggs from the female lobsters which are taken for market, hatch them out and return them to the waters, the result of this work pursued systematically would make it possible to maintain the supply without imposing any unreasonable restrictions upon the catch. As a matter of fact, however, the exhaustion of the fisheries in the vicinity of Wood's Holl has gone so far that it is very difficult to obtain eggs in any number.

"We find no difficulty in hatching the eggs in any quantities that can be obtained, and with a very moderate percentage of loss. * * * The number of young lobsters hatched and planted last year in the vicinity of Vineyard Sound amounted to about a million and a-half. The apparatus used by us in lobster hatching is the automatic hatching jar employed in hatching shad and whitefish."

From the above it would appear that no difficulty presents itself to the artificial propagation of lobsters in Canada, and that the obstacle of not getting sufficient supplies of parent lobsters, referred to by Colonel Macdonald, would be overcome in the Maritime Provinces, as there are many localities where abundant supplies of the parent fish and their eggs could be readily got.

I also quote here a few paragraphs from Mr. Neilson's letters, who is engaged with the Newfoundland Government in lobster hatching. He came from Norway, where he was previously employed as an expert in lobster breeding. He says:

"A hatching station is built on Dildo Island, Trinity Bay, dimensions 75 x 45 x 20, with hatching room on first floor, dwelling above. A steam pump is used, capable of throwing 200 gallons of water per minute, and drawing the water from the sea at five fathoms depth, in order to procure water of great specific gravity, and keep an even temperature, which is of the utmost importance in hatching lobsters. * * The apparatus used here is the automotic jar; it does not work as well as the apparatus I used in Norway, but still I hatch out about 50 per cent. I collect all my eggs from the lobster factories, and thus save a large amount of eggs from destruction, and that otherwise would be cooked. The time of hatching from the eggs depends upon the state of the ova when taken from the parent lobster, and the temperature of the water. I prefer to take them when they will hatch in about three weeks. From the 19th July I have collected 2,600,000 lobster ova. * * * We collect our eggs in Placentia Bay and carry them across the country, which is troublesome; but we intend to put up a new hatchery in Placentia Bay."

From the above statements of Mr. Neilson, I should say that equal facilities are obtainable at many points in Nova Scotia, New Brunswick and Prince Edward Island for carrying on the work of lobster hatching successfully.

Again, I will quote from a letter of Prof. Gilbert V. Bourne, of the Marine Biological Association of Great Britain, who, in his concluding remarks, says:

"In conclusion, I would say that, in our opinion, the rearing of lobsters is perfectly possible, and that after the first installation it could be carried on at no great expense, and should the Government of Canada wish to know of a competent person to undertake the matter on their behalf, I could with the greatest confidence recommend one."

Prof. Bourne's views would indicate that, after building and furnishing an establishment with all necessary appliances, lobster breeding could be successfully carried on.

In Norway, where lobster hatching has been entered upon somewhat largely, Capt. G. M. Dannevig, an authority on the subject in that country, says:

"My opinion, as far as regards the coasts of Norway, where the lobster, practically speaking, is on the point of being exterminated, is that artificial hatching of all the eggs that can be had from the fishermen and exporters, and which of course are doomed to destruction, will prove to be of great benefit, but that the young ones at present, at least, must be liberated shortly after their birth, as their voracity leads them to kill and eat one another when crowded in the apparatus in large numbers."

It would therefore appear from all of the above practical statements, which are given by prominent persons actually engaged in the work of lobster culture, that there are no insuperable difficulties in the way of commmencing the enterprise in Canada, and that the present falling off of the lobster fisheries in parts of the Maritime Provinces calls for some effort to be put forth by your Department to stay, if possible, so great a calamity as the extinction of the lobster fisheries in these Provinces."

I beg to add here one more extract from Prof. Neilson's letters regarding his experiments. He says:—"I closed the hatchery the 12th November for this season (1889). Of 7,995,400 collected lobster ova, 3,956,400 were rejected, and 4,039,000 hatched and planted out in good condition. This gives me 50½ per cent., which I consider good, when considered that I collected all this ova from lobsters brought to the factories for canning purposes, and handled very roughly, too."

From the foregoing, lobster hatching can be readily carried on. Information on three important points in connection with the work will be asked, viz.:—Where to locate the hatcheries? and the cost of the necessary buildings and apparatus? and the maintenance of the establishments afterwards.

In reply to the first, as to location, I would say that it would be necessary to locate the establishments near to where an ample supply of parent lobsters could be readily got, for it would be almost useless to commence artificial breeding unless upon a very large scale, and an important point in the location must be that the sea water should be pure and strongly saline in quality, and of low temperature.

In the matter of cost of necessary buildings and apparatus, it will be extremely difficult for me to give a very clear estimate, but I should judge from the statement given by Col. Macdonald and Mr. Neilson that the building should be somewhat extensive in size and appliances, in order to carry on the work up to a standard of a producing power that would give ultimate success and satisfaction with the undertaking. In this view I would say that a building fitted up similar to the Sandwich hatchery, where the water is supplied by steam power, and the automatic glass incubators are used, would cost between $4,000 and $5,000. The average cost of the maintenance of the Sandwich hatchery during the past three years has been about $3,000 per annum—and I would conclude that a less sum than this could not be expected to run a lobster hatchery.

It may be asked, why not utilise some of the present fish hatcheries in the Lower Provinces, and combine salmon and lobster hatching together. This, I fear, could not be done, for the following reasons: Lobster hatching requires the purest saline water: salmon hatching the purest fresh water. The sea water for lobster breeding would necessarily have to be drawn from a depth of four or five fathoms, to give it the requisite purity, density and temperature. The water for salmon breeding is taken from running streams of fresh water. The location of a lobster establishment should,

of necessity to procure adequate supplies of eggs, be at or near some extensive lobster packing establishment, or where they could be taken in great numbers on the coast adjacent to the hatchery. None of the present salmon hatcheries are so situated.

In selecting a proper location, having the necessary conveniences for a lobster hatchery, another essential point must be held in view, namely: facilities for transporting the fry to other places where it may be found desirable to plant them. Nothing is said in any of the correspondence had with the authorities already referred to regarding the transport of the young lobsters, but I should conclude that with the facilities which are afforded by the lines of railways running along the coasts of the lower Provinces that no difficulty would arise on account of the safe carriage of the young lobsters to almost any point necessary for their distribution. When young salmon, salmon trout, and whitefish are transported hundreds of miles by railway and waggons without any appreciable losses, I would conclude that the same means could be applied for the safe carriage of the young lobster to almost any point if the location of the hatchery or hatcheries were in the first place made somewhat central.

In order, then, to make successful the enterprise of lobster hatching, locations as just described must be obtained, commodious buildings erected, and the best known apparatus placed in it, with the view that their capacity for producing should be counted by tens of millions, so that their output of fry should somewhat approximate to the natural production of these valuable crustaceans.

SAWDUST—ITS INJURIOUS EFFECTS UPON FISH-LIFE IN THE WATERS OF THE COUNTRY.

The specialty of artificial fish culture, to which the undersigned has closely applied himself for many years, has necessarily given him particular opportunities for observing from a practical standpoint fish-life in its varied forms, from the egg to the adult stage. The fish culturist from his calling, therefore, should be enabled to form a better idea than most others regarding the character, habits, nature and wants of fishes; and that which may be most beneficial for them at their critical periods of spawning, and the necessity also that exists for the river, stream and other waters where fish resort to spawn being kept as nearly as possible in their normal state, devoid of deleterious or polluted matter of all kinds.

The following conclusions regarding the destructive effects upon fish-life from mill-dams, and the casting of sawdust, mill refuse and other deleterious substances into waters frequented by fish (at their spawning times more especially), are based upon information derived, and facts personally obtained, during nearly half a century of close observations and practical knowledge in relation to the subject:

The poisonous effects of sawdust, when allowed to pass into rivers and streams, are so manifold and self-evident to the rational or practical observer that it would appear almost needless, in the present enlightened state of the world, to require any special pleas or arguments to convince even the most skeptical person of its disastrous workings upon all aquatic life, of an animal or vegetable character, found in the tidal, lacustrine or fluvial waters of any country. Wherever mill-dams have been built across streams, and where sawdust, mill rubbish and other deleterious substances have been cast into the water from saw-mills and other manufactories, fish-life and vegetation of all kinds have been greatly lessened, and in many instances wholly destroyed. This is particularly noticeable amongst the higher order of fishes,

ESPECIALLY THE SALMON FAMILY,

which are largely of a migratory nature, many of them ascending rivers and other streams for breeding purposes. These waters are usually of the purest, coldest and most limpid description, and therefore best adapted for the propagation of the

salmon species. These fish at the time of the first settlements of Canada were found frequenting almost every river and stream emptying into the sea, and the great lakes also. So plentiful were they in many of our waters, before the lumbering industry took such a strong hold in the erection of dams and saw-mills, with the consequent injurious effects from them upon fish-life, that fish of all kinds were in great abundance. They were freely used by the inhabitants generally for domestic purposes, and also produced a large amount of traffic and commercial wealth for the country. But as the saw-mills and mill-dams increased in numbers with greater capacity for their work, the mill-dams formed impassable barriers to the ascent of salmon and other fishes to their natural spawning grounds above—and then the hurtful and pernicious effects arising from the sawdust and mill rubbish being constantly cast into the streams poisoned the spawning beds below, and stayed the growth of all vegetation, thus driving away insect life, which is the principal sustenance for fish in their younger stages of existence. As this improvident work of the mills increased in magnitude, so did the yield of all kinds of fish decrease in these waters until it has been found in some cases that, after stripping the neighborhoods of all lumbering material and

DESTROYING ALL FISH-LIFE,

these mills have gone into ruin and decay, leaving sorrowful mementos only of their destructive workings in the waters of the country for the inhabitants who follow after. It is, therefore, of the greatest importance that any law which provides "that sawdust or mill rubbish shall not be drifted or thrown into any streams or other waters frequented by fish," should be maintained and strictly enforced wherever the continuance of fish life is held to be of any benefit to the people. By a strict and impartial application of a law for regulating mill-dams for the easy ascent of salmon, shad and all other migratory fishes to their proper spawning grounds; by the enforcement of any statute forbidding sawdust, mill rubbish and other deleterious substances being drifted or thrown into the streams and other waters; by the due observance of a proper close time; by a stoppage of the deadly torch and spear, and the accursed use of dynamite for killing fish; by judicious regulations regarding the use and setting of nets of all kinds, and by increasing the supplementary aid to be obtained from artificial culture, it is believed that only a few years would pass before an increase would be experienced in the catch of salmon and all other fishes throughout the whole extent of the Dominion. There are yet to be found sufficient numbers of fish, natives of the rivers and other waters, left, from which, by proper protection and good husbandry, an immense supply of fish food and commercial wealth would be readily obtained for the general benefit of the inhabitants of the several sections of the country. Sawdust, as previously stated, is manifold in its range of destruction when allowed to be cast into waters to which fish are indigenous, or where animal or vegetable life is to be sustained. It is an artificial product, alien to and engendering latent diseases of various kinds, with fatal results in all waters where fish life exists. Its introduction into streams and other waters through the improvident agency of mankind has so changed their purity and fouled their beds as to

RUINOUSLY OPERATE AGAINST

the many natural requirements indispensably necessary for the production and growth of the better descriptions of fish. Sawdust in its locomotion, when drifted from mills, becomes water soaked, and settles upon the gravel beds and other places where fish resort for depositing their eggs. These coming in contact with this extraneous matter become infected; impregnation is prevented, vitality is destroyed, and they die. Should the ova escape contact with the sawdust or the foul matter from it during the earlier stages of incubation the same direful effects will be brought about later on, in the embryo state, and also when hatched into fry. In this last-mentioned stage death is almost certain, from the total absence of vegetable growth, the nuclei for insectivora, crustacea, and other insect tribes upon which the young

fish largely exist in early life. Sawdust, from its resinous nature, becomes almost indestructible, even on land or in the water, and wherever it takes lodgment to any extent, must sooner or later destroy all animal or vegetable life. In certain cases it becomes intermixed with sedimentary matter and alluvial deposits, when partial decomposition sets in, and gaseous explosions of a fœtid and noxious character are thrown up over large areas, and with such violence as to cause upheavals of this putrid matter through ice and water surfaces hundreds of yards in extent; and in some rivers these explosions are found to be extremely dangerous to life, property and navigation.

A NOTABLE CASE IN POINT

is the Ottawa River. In order to comprehend the desolating influences of sawdust and mill rubbish even on the land, an inspection of one of the many mill yards, where acres in extent are covered with this refuse at establishments now in operation, as well as at places where the mills have long since gone to ruin and decay, and the spectacle presented to the eye is but a barren, death-like waste of all vegetation; not a blade of grass, nor an evidence of any growth whatever is to be found on these deposits of sawdust. Here, if nature's laws for giving growth to all things could have been carried out, something having life, or showing vitality in some manner, would be produced during long years. But no; it is still an inanimate mass of rubbish stricken with death, annihilated for growing anything. Who, then, would cover his garden, or his lands with this non-producing, desolating substance, in the expectation that vegetation would come forth, or that animal life of any kind could be sustained from it? The ruinous effects of this sawdust scourge when deposited in the waters of the country are still greater than when cast upon the land. Its floatability at first gives it more widespread areas in which to work out its blasting influences; even passing down in some instances till it reaches the estuaries of streams and the small inlets and bays along the coasts of the sea and shores of lakes. Here, it likewise

KILLS THE SOURCES WHICH GIVE LIFE.

and food for the smaller races of insects and other marine animals, whose absence from these secluded nurseries of fish-life turns away from the adjacent shores the more important commercial fishes that formerly resorted to these places for prey. Settling here and there in its course down the streams, it forms a compact mass of pollution all along the bottoms and margins of the rivers and inlets, filling up the crevices on the gravel beds, and among stones, where aquatic life is invariable produced and fed. It becomes a fixed, imperishable foreign matter, and adheres to the beds of streams and other waters, and forms a long, continuous mantle of death, and constitutes an endless graveyard to the innumerable colonies of insect life which inhabited these former well-adapted natural abodes for their existence. These, then, are only some of the pestilential effects produced by sawdust and mill rubbish in the waters of the country on fish-life; and independant of its evil influences, from a sanitary point of view on human life and its damaging effects by seriously impeding navigation on many waters. Then why should the few, for self-aggrandisement only, be permitted to continue this

WICKED DEVASTATING WORK.

for depleting the waters of their legitimate supplies of food, originally providid by an All-wise Providence for the use of mankind? And why should the many suffer for the few who still pursue and unscrupulously advocate a continuance of this insidious and direful proceeding for entailing ruin upon the fisheries of our country?

The following extracts, taken from official reports and other public documents, relative to the evil effects of sawdust, mill refuse and mill-dams upon fish-life, are hereto given in corroboration of the foregoing remarks:—

Extract from a report prepared for the Vienna Exposition, on the decrease of Food Fishes:

"The basis on which a rational system of pisciculture is founded is very simple, and can be limited to the following rules:

"Preserve the natural condition of those places where the fish spawn, conditions which favor the spawning process and tend to preserve the spawn and protect the first development of the eggs; thus, everything which diminishes the supply of fresh water; everything which changes the quality of the water or the character of the bottom; everything which hinders the growth of aquatic plants; in fact, everything which, at its very source, can destroy the health of fish of a whole basin. * * * Leave a free passage for the fish to pass to the places which are favorable for spawning. * * * Protect the young generation, so that it can arrive at the age of maturity and contribute its share towards the increase of its species."—*U. S. F. R.*, 1874.

Prof. J. W. Milner, of the United States Fish Commission, in reporting on pollution of lake waters from sawdust, said:

"The refuse from the saw-mills, slabs, sidings and sawdust is thrown into the streams in immense quantities, to float out and sink into the lake. It is having a very injurious effect upon the fisheries. The water-logged slabs, tilted on the bottom and moved by currents, tear and carry away the nets. The sawdust covers the feeding and breeding grounds of the fish, and is so obnoxious to them that, in the vicinity of numerous mills, the fisheries become greatly reduced in numbers and success.

"Observations have discovered the salmon ova, diseased and decaying, with particles of sawdust adhering. Its contaminating effects extend far and wide from the vicinity of the mills, as the contents of a dredge, from one hundred fathoms depth, in Grand Taverse Bay, contained numerous blackened and decaying particles of sawdust.

"The gradual deposit of water-logged sawdust, an inert substance in the water, with occasional slabs, forms nuclei for sand-bars in the mouths of the rivers, and in some of them will contribute to an injury to navigation, as it has to a considerable extent in rivers of Wisconsin and Michigan.

"In the Sault Ste. Marie River, and in the Detroit River, in the fall of the year whitefish congregate in great numbers for the purpose of spawning. In a number of rivers the whitefish was formerly taken in abundance in the spawning season; saw-mills are numerous on all of these streams at the present day, and the great quantity of sawdust in the streams is offensive to the fish, and has caused them to abandon them.

"As everywhere civilized man disturbs the balance of nature, and becomes the great enemy of all forms of life that do not conform to his artificial methods for their protection. Not only by the hundreds of artifices for the capture of the fish, but in the foul drainage from the cities, and manufactories, and in quantities of sawdust from the mills, they are driven from their favorite haunts and spawning grounds, and their food destroyed by waters tainted with fatal chemical combinations."

In the seventh report of the Fish Commissioner for the State of Michigan, 1886, when alluding to fouling of the waters with sawdust, &c., it is stated:

"There are some places, nevertheless, where the practice of running sawdust and edgings into the water has become not only an intolerable nuisance from a sanitary point of view, but a great annoyance to navigators of steam craft, and utterly destructive of fishing grounds which, before, were the natural spawning resorts of the whitefish. Particularly is this state of facts true in several places on the north shore of Lake Michigan, and Muskegon, and other places on the east shore of the same lake. The surface of the water for miles around each of the places named is covered with this stuff, and both vessel men and fishermen report that the natural formation of the bottom has been completely covered by the rotting sawdust deposited there. This unnecessary destruction of the feeding and spawning grounds of the fish should have been prevented long ago, but even at this late day there is

no good reason why early legislative action should not intervene to prevent the few mill men who still persist in this practice from so using the waters of the great lakes and the streams emptying therein as to subvert the rights of every other class."

In the New Hampshire Fishery Commissioner's Report, 1885, the following passage occurs :—

"Another method of securing an increase of fish consists in taking the necessary measures to prevent the introduction of foul waste, such as will kill or injure the adult fish, or young, or interfere with the development of the eggs, such as paper and dying establishments, &c., &c., and refuse of saw-mills, the sawdust getting into the gills of the parent fish, or covering up the spawing beds. Many a fine stream has been ruined by saw-mills which have allowed the sawdust to pollute the water. Dams near the mouth of a stream often obstruct the water, so that fish cannot reach a suitable place to deposit fertilized eggs. At the end of two or three years there will be a continued lessening of the run of fish. At the end of this time, when all of the fish born in that stream have been caught, or destroyed, the run ceases. Although the obstruction be removed the stream will remain barren of fish until restocked by human agencies."

Extract from the Michigan State Laws, Section 10 :—

"No person shall put in any of the waters bordering land where fish are taken by the legal owners, or occupants thereof, any ship's ballast, stone, sand, ashes, slabs, sawdust or filth of any other description * * * shall be subject to a fine not exceeding $50."

Extract from a report of Chief Inspector of Fisheries to the Imperial Board of Trade :—

"The ascent of salmon in the rivers is considerably impeded by a number of small weirs, many of which have been built or raised since 1861, and are without the required fish-pass. I have drawn the attention of the Fishery Board to these cases, and also to the introduction of sawdust into the rivers, which is deadly to fish from its choking their gills, and of the refuse from slate grinding, which fills up the spawning beds."

The National Fish Cultural Association Journal, April, 1887, states :—

"Another impediment to the rapid accomplishment of the desired result (for increasing the supply of valuable fishes, and other aquatic forms,), is the absence of concurrent protective legislation of a sufficiently stringent character to prevent unnecessary waste of the fish during the critical period of spawning; and the erection and maintenance of impediments to their movements in reaching the spawning grounds. This is especially the case with the shad and the salmon."

Extract from report of Fish and Game Commissioner for the State of New Hampshire, U.S.A., for 1889 :—

"The Commissioners call the attention of the Governor and Council to the great injury done to many of our trout streams by sawdust and mill refuse being dumped into the streams. A great deal of this is done by portable steam mills that move from place to place, and generally locate so as to run the refuse into the stream to avoid the trouble of taking care of it. The extent of this evil will be understood when we consider that for every thousand feet of lumber sawed forty bushels of sawdust go into the stream. The greatest injury to our streams by mill refuse is the distruction of the spawning beds and young fry. The clear, gravelly eddies just below rapids are the places that are selected by the fish for spawning

purposes, and unfortunately these are the places in which the sawdust accumulates, and the bottom is no longer clear sand andgravel, but a foul mass of decomposing vegetable matter, capable, if present in large quantities, of generating heat enough to emit gas."

Another extract is here given from the report of the Fish Commissioners for the State of Michigan for 1887-88:—

"At Manistee, Seedington, Muskegon, Grand Haven, Pentwater and Montague, while whitefish are scarce in consequence of the depositing of refuse from saw-mills, yet the fishermen believe in artificial propagation, and that planting would be a success if the water was free from that refuse."

Extract from a letter of the late Professor Baird, United States Fishery Commissioner to the Commissioner of Fisheries of the State of Maine:—

"My opinion is asked as to the probable cause of the rapid diminution of the supply of food fishes on the coast of New England, and especially of Maine. The fact as stated needs no question: it is too patent to the experience of every man who has been interested in the fisheries, whether as a matter of business, or as an amateur. An examination of the early records of the country, in which the subject is referred to, cannot fail to convince even the most skeptical.

"We are all very well aware that fifty or more years ago the streams and rivers of New England emptying into the ocean were crowded, and almost blockaded at certain seasons, by the numbers of shad, salmon and alewives seeking to ascend for the purpose of depositing their spawn, and that even after these parent fish had returned to the ocean their progeny swarmed to an almost inconceivable extent in the same localities, and later in the year descended to the sea in immense shoals. It was during this period that the deep-sea fisheries of the coast were also of great value and extent. Cod, halibut, haddock, and the line fish generally, occupied the fishing grounds close to the shore, and could be caught from small open boats—ample fares being readily taken within short distances of the fishermen's abodes, without the necessity of resorting to distant seas. Now, however, the state of things is entirely different. The erection of impassable dams upon the waters of the New England States, and especially of the State of Maine, has prevented the upward course of the anadromous fishes referred to, and their numbers have dwindled away, until at present they are almost unknown in many otherwise most favorable localities. The fact has been observed, too, that with the decrease of these fish there has been a corresponding diminution in the numbers of cod, and other deep sea fishes near our coast; but it was not until quite recently that the relationship between two series of phenomena were appreciated as those of cause and effect."

The following is copied from the annual report of the Commissioners of Fisheries and Game of the State of Maine for 1886, viz.:—

"It is a fact that the State of Maine has the most rigid and best enforced code of laws for the protection of game and game fish of any State in the Union.

"Moosehead Lake is evidently to be the grand fish pond of the Union. * * * The waters are forever protected by law from such deposits of mills or factories as would drive away the fish.

"The diminished volume of water in our rivers, caused by the demands of our industries, and ravages of fire, the obstruction of our watercourses by milling enterprises, the throwing into our our streams of sawdust and waste of our sawmills, the poisonous washings from our various factories, all have tended to destroy our fishes. * * * A great portion of the spawning grounds of our salmon has been destroyed by being covered with sawdust and waste from our thousands of manufactories, compelling our migratory fishes to seek other spawning beds, or leave their ova to be poisoned, or its young to be starved.

"The future of Maine is artificial hatching and planting, or the entire extinction of salmon in our rivers. For the last decade the work of the Commission, in yearly planting young salmon fry in the Penobscot, has alone preserved the salmon to our

river. Had the Commission not yearly supplied hundreds of thousands of young salmon to stock the great rivers of Maine the salmon would now be a thing of the past and extinct."

EXTRACT FROM THE REPORT OF THE SELECT COMMITTEE OF THE SENATE OF CANADA, FOR ENQUIRING INTO THE EXPEDIENCY FOR PREVENTING SAWDUST AND OTHER REFUSE BEING CAST IN THE OTTAWA RIVER.

(ABBREVIATED.)

"Your Committee are of opinion that it is established beyond question, that extensive deposits of sawdust and other mill refuse exists in the river * * *, and that these constitute a very serious and steadily increasing interference with public rights of navigation, which has already become seriously obstructed, and must at no distant period, if immediate measures are not taken to arrest the evil, become irretrievably destroyed. That sawdust, and other refuse of sawmills, can be economically utilized, and that, the destruction thereof is successfully accomplished in at least one mill on the Ottawa, and in many others in Canada, and in the United States of America. * * * That these large deposits of decaying vegetable matter constitute at times a dangerous menace, if not a positive injury to health."

"Your Committee accordingly recommend that the provisions of the Act (Chap. 91, R. S. C.) 'To prevent sawdust or sawmill rubbish from being thrown into navigable waters' be stringently enforced."

The following are abridgments of the evidence given before the above named commission, showing the destructive effects of sawdust and mill rubbish, when thrown into rivers:—

1. *Jno. R. Arnoldi*, Chief Mechanical Engineer of Public Works, said:—

"Before retiring I want to put in something, as one of the most important facts against the sawdust nuisance that has yet been brought to notice. I live right over the cliff, and can see the barges, and cribs, and sawdust coming down the river. The most serious thing is the danger arising from sawdust deposits. These piles of sawdust in the bottom of the river generate a gas which produces explosions by which the steamer 'Peerless' might be broken to atoms. I have seen three explosions a week in front of my house; I have seen a barge thrown clear up on top of the water by one of these explosions. One explosion blew up about two acres of solid ice a couple of feet thick—the broken ice froze together again, and within a week or ten days it blew up again in the same place. This was right in the track of the steamer when coming in with passengers. The obstruction of the river is a commercial loss, but the danger of life is still more serious."

2. *Henry A. Gray*, Assistant Chief Engineer, said:—

"It is no common occurrence for explosions to take place in the gas generated from sawdust. In January last an explosion took place opposite the Rideau River, and broke up the ice, bringing from the bottom of the river a large amount of mill refuse. Another explosion took place and ice 14 inches thick, covering an area of 1,500 feet, was thrown up and broken into small pieces. Decomposing sawdust will not float; it sinks; it never rots. The smell is very obnoxious, and injurious to health. The sickening smell made me ill and also some of the men. At Spanish River, Byng Inlet, the men after going there took typhoid fever, which the doctors said was attributable to the gases arising from the decomposed sawdust. I have no doubt if the steamer 'Peerless' was passing over at the time of one of these explosions it would destroy her."

3. *Robert Surtees*, C.E., of Ottawa, said:—

"We have had difficulty in connection with the recent epidemic of typhoid fever, and the analysts all agree that it came from pollution of the water by organic matter, bark, sawdust and sewage. About twenty-eight years ago there was good

fishing in the river; about five years ago I fished and did not get any then. I used often to get a dozen in the evening before. The sawdust could be burnt as it comes from the mills without incurring vast expense. Three mills now make steam with the sawdust. An explosion occurred one night and blew up 50 or 60 square feet of the ice, right on the road. If any teams had been there they would have been lost."

4. *William P. Lett*, City Clerk of Ottawa, said:—

"I used to fish in the river in my early days and it was one of the best rivers for fish that I know of. Every eddy was full of fish. The fish was a matter of some importance, though they are of little consideration now. There was no salmon, but there were pickerel pike, black bass, and a great many mascalonge. I could catch any number of fish I wanted; now you might fish a week and would not catch two. The bottom of the river is covered with sawdust, and the pickerel, which is a ground fish, could not remain; it has disappeared; it must have sand, earth or gravel. There were fifty thousand people besides the children, and the fish they caught and were benefited by were worth $2.00 each adult, for the year, over and above what it is now, when the river was in good condition. This is a loss of $100,000 a year alone, although it is the smallest consideration in this matter."

5. *A. L. Dunning*, of Ottawa, being examined, said:—

"I have been backward and forwards here for forty years. In those days there was no sawdust to be seen, the shores were perfectly clear, the bays were clean, and there was any depth of water, where now they are filled with sawdust. There were lots of fish in those days, any quantity of them, but not so many now; they are a good deal scarcer."

6. *Dr. Robillard*, of Ottawa, was examined, and said:—

"I have lived here fifty years; the river, when I first knew it, was a free, unobstructed stream, where game and fish used to abound. There was no accumulation of sawdust at that time; the bays and creeks were free from sawdust and mill refuse. The condition now is, that it is obstructed by sawdust, and mill refuse from the mills, all along the coves, and creeks; portions of the river are choked up altogether. I am quite aware of the fact that the river is much obstructed by sawdust, and is a great injury to navigation, and may be an injury to the health of parties on the lower parts of the river. There is no doubt that it is the principal cause for the disappearance of fish from the Ottawa River."

7. *T. C. Keefer, C.E.*, Ottawa, examined, says:—

"I have resided here since 1864. The shores were then entirely clean, rock, sand, and gravel, and the beach sandy and gravelly. The water was all depths, beginning at the shore, it went out to 40 feet. Ten years ago I examined it, and there was a deposit of several acres of sawdust, and the outer edge of it was steeper than an ordinary sand-bank and 40 feet in depth. There are acres and acres of a rotten mass of sawdust. In the early days fish were very plentiful; I do not think any respectable fish would come up here now; the shad used to come in my early days to within eighteen miles of Ottawa. I know that fish are very scarce—we cannot get any now."

7. *John Stewart*, of Ottawa, being examined, said:—

"Sawdust covers the spawning beds of fish, and it gets into the gills of the fish, and of course they will not come up the river. The gas that comes from it is the same as that which comes from the swamps of ague malarial districts; it is also explosive. I do not think that the majority of lumbermen are against the utilisation of sawdust; the thing is to get them all harmonious, of one mind."

8. *Hon. Mr. Dever*, examined, said:—

"I found at the harbor of St. John, N.B., and on the river also, that numerous mills of the same kind as at Ottawa throw their sawdust and mill refuse into the river and harbor. The practice was so injurious to the waters of the harbor,

destroying the fish, &c., that we deemed it necessary to prevent it, and we did prevent it by by-law. They have also to dispose of their slabs, and bark, and refuse of all kinds. They burn it; in our primitive state this was not done, but we were compelled to prevent it because our harbor and fish pools would have been filled up with this decomposing matter. It became ruinous to the fish, destroying their spawning grounds and lessening the supply of fish generally."

9. *John Mather*, engaged in lumbering at Keewatin, was examined, and said:

"I am engaged in water and steam mills, principally water mills; at Keewatin we do not let any sawdust in; that is a water mill; we keep all sawdust out; we catch it as it falls and take it out with carriers and then cart it away. The mills are driven with waterwheels and belts on the wheels; it is the same action as the steam mills."

10. *Hon. Senator Glasier*, examined, said:—

"There are seven or eight mills at the St. John, N.B., harbor, all steam mills; they burn all their sawdust and a large portion of slabs. They have worked thirty and forty years with no accidents from fire, though they are in the middle of the place. Right in the city of Fredericton, on the St. John River, there is a mill which has been running for twenty years, and they burn their sawdust; there are other mills along the river; they all cart their sawdust and refuse out and burn it. The only mill on the river that does not consume its sawdust and refuse is Gibsons. By arrangement with the Government he is allowed to put his sawdust in the river, but he burns his slabs right alongside his mill. A channel has been dug through the sawdust half a mile long and 10 feet deep; sawdust is ruining the fish in the river.

"The salmon have decreased where the sawmills are located. The streams are comparatively ruined for fishing. The Nashwauk River, where Gibson's mill is situated, used to be a good salmon river, but they are now completely gone. The salmon used to spawn there; I have taken seventy in a day right on the shore, below Fredericton. The shad, the gaspereaux and the salmon and sturgeon were then in large quantities; now they are diminished very greatly. The salmon that we now get are mostly from the north shore, Baie des Chaleurs and Miramichi. A considerable number of salmon are still in the St. John harbor and around the bays. The obstruction to the river is a very serious thing, and if Gibson is allowed to put sawdust and refuse in the river a few years longer without check it will be worse. I have been in the lumber business sixty years, on the River St. John and its tributaries."

From the "American Angler and Hook and Line":—

* * * "In considering this question as briefly as possible, it is quite superfluous to enquire to what family or particular genus river fish belong. All fresh water river fish demand similar conditions of the water upon the spawning beds for the vivification of the spawn, the health of the ova and the prosperity of the fry. It is known to be essential that the milt and spawn admix in a clear state, and that if any acid or gas should come in contact with spawn and be absorbed at this critical stage, the result would be disastrous, and simply cured by experience. The absorption of oxygen is necessary for the development of the embryo, and should this be contaminated by other acids or soluble gas than the natural hydrogen found in pure water death is inevitable.

"Now it is known that sawdust, being greatly composed of coniferous woods, combines with its resinous properties chemical agents capable, under certain conditions of heat, of generating deadly quantities of carbonic acid gas, humic acid and others, all of which are factors in the destruction of fish life. If sawdust is advantageous to the healthy state of the ova, why do not those favoring it employ sawdust, instead of carefully boiled gravel in the tanks of their hatching houses? It is quite impossible that in waters where sawdust accumulates, or even passes in its descent over the beds, that the ova are not corrupted, or that algæ or rust will not

settle upon them, and it is too well known that one dead egg will soon contaminate others in its vicinity. * * * *

"But why is it that all fish seek running water, if it is not from a natural instinct to get oxygenated waters, untainted by anything like muric acid or like gases? To say that salmon seek clear water, and yet are not inconvenienced by waters wherein decayed vegetable matter gains admission, is a contradiction. But again, the aromatic odor emenating from coniferous wood is sufficient to decide fish to vacate its vicinity, even if it could furnish an unperceptible quantity of food. There is certainly no reason to conclude that fish do not die from sawdust because their dead bodies are not found, because the fact is they die before maturity, and that it is the ova and the fry which suffer, not the adult.

"Is the heat occasioned by the fermentation of decaying sawdust not calculated to render noxious any water where this may take place? As to sawdust not collecting upon spawning beds, that idea is exploded, for it cannot be contradicted that water-logged sawdust becomes little less heavier than light gravel, or sand, its specific gravity little less, and that it can accumulate in quite appreciable quantities in every small depression or inequality of the bottom of a stream whose speed attains four miles an hour. To say that fish can escape from taking through their mouths certain quantities of sawdust is equally absurd, for they do, and cannot help it. Hence we must suppose they must suffer by this fact alone. That vegetable matter in a state of decay, as given out from the sawmills, is not beneficial to fish, but on the other hand entirely adverse to their propagation, with all respect to those holding opposite views we cannot conclude otherwise."—*G.B.*

SAWDUST IN COLORADO.

"The sawmills of Colorado, as a general rule, cut pine lumber, and anyone who has seen a bank of pine sawdust extending into a stream has noticed, if he has been in the least observing, the turpentine and resinous oils exuding from the sawdust and spreading abroad upon the surface of the water in all the gaudy colours of the rainbow. The deep pools in such a stream for miles below, instead of offering to its finny inhabitants healthful bottoms of sand and gravel, are cased and lined with sawdust. In Colorado sawdust kills and drives out fish. The experience of thirty years has taught the people this, not as as a theory, but as a fact."—*Sports Afield.*

SAWDUST ON LAHAVE RIVER, NOVA SCOTIA.

EXTRACT from a Report made by Mr. S. Wilmot to the Department of Fisheries in 1884, regarding Sawmills and Sawdust on the Lahave River.

"It is advanced by the mill-owners and other parties interested with them that should they be restricted from allowing the sawdust made at their mills to pass into the river they would be obliged to shut down their mills, and thus stop a large industry in the country. These, to my mind, fallacious and irrational statements, need only to be considered and investigated by the reasonable and dispassionate mind to show how futile is the plea, and why it is put forth for self-aggrandisement only, whilst the public generally are the sufferers. Not only in the fishing industry of the country is it found that many valuable fish-producing waters have been almost wholly deprived of fish-life from the noxious and wide-spreading evil influences produced from sawdust deposits, but also in many instances navigation has become seriously impeded by the operations of this too long practised habit which is forbidden in the statute books of this and almost every other civilized country where the safety of the fishing and navigable interests are considered worthy of legislative protection.

"One of the largest water mills with a double gang of saws is situated on the estuary waters of the Lahave River below Bridgewater. It is driven by water power alone; it has been running for about six months in the year during the past thirteen years. The river is navigable for vessels to come to the mill for the lumber made in it. But no sawdust is cast into the water; it is all carried into a ravine a short distance from the mill, the owners preferring to do this, which they admit entails

but little expense, rather than throw it into the water, where it would obstruct the passage of vessels coming to the mill to carry the lumber away. Now, here is a case which, taken from a navigable point of view, shows clearly the interest of the mill owner for his own preservation in the course he should pursue for economically carrying on his milling business, and not injuring the navigation of the river by depositing the sawdust in it. The whole of the sawdust and mill rubbish here is caught as it falls from the large gang-saws, by a simple and cheap appliance of carriers, and dumped into carts and conveyed to the ravine; here, during thirteen years or rather six and a half years of the actual working of this mill, a mountain of sawdust has been found covering a surface area of about six acres, with an average depth of about 40 feet; one side of the ravine, from information obtained from the manager of the mill, was originally about 60 feet deep, the other side about 20, giving an average depth of 40 feet; it is therefore mere matter of calculation to show the extent of river bottom this vast quantity of sawdust would cover, and the injury that would necessarily result to the navigation of the river, independent of the fully greater calamity to be produced on fish-life from the noxious gasses arising from it by its partial decomposition on the bed of the river.

"This mill is the only one of the many on the Lahave River that does not allow this refuse matter to pass into the streams; and it is a deplorable fact that nearly every mill owner throughout Nova Scotia pursues the pernicious course of putting sawdust into the streams, rather than otherwise disposing of it. In the one case referred to, it is got rid of for self-interest, to prevent blocking the passage of vessels to the mill for carrying the lumber away. In the other cases it is disposed of likewise from selfish motives, by allowing it to pass into the streams without labor or expense, to the detriment of every other interest of the inhabitants below them.

"It may then be asked, how is it that this one very extensive saw-mill on the Lahave River, manufacturing, as it does, ten and twenty times more lumber than many of the other mills on the same river, finds no difficulty in catching and carrying its sawdust away on the land for convenience and financial benefits in the transaction of its large business, while the other mill-owners, from other interested motives, and to hoodwink and deceive the fishery authorities and the public, declare that if compelled to carry out the law by 'not allowing their sawdust or mill refuse to be cast into the streams,' they would have to close their mills, which would seriously affect the lumber trade of the country. The great wonder is, that the public and fishery authorities should have so long countenanced the violation of the law which 'forbids sawdust and mill refuse being cast into streams frequented by fish.'

"With every saw-mill examined, and they have been very numerous, I have not yet found a single case where the sawdust, by a little ingenuity, and with small expense, could not be readily caught when falling from the saws and carried away, in like manner as at this large gang-mill on the Lahave River. But so long as the mill owners are permitted to cast sawdust and mill refuse into the streams, contrary to the provisions of the law, and with the sanction of the fishery officers, just so long will this destructive agency to fish-life be continued, and the prospects for maintaining the fisheries of the country be overthrown and eventually ruined."

EXTRACT FROM REPORT MADE TO THE DEPARTMENT OF FISHERIES, REGARDING SAWDUST AND MILL REFUSE IN THE OTONABEE RIVER, ONTARIO, BY MR. S. WILMOT, 1889.

"That the statements put forth by the mill-owners on the Otonabee River 'That all sawdust and mill refuse which they can reasonably be supposed to keep out of the river is kept out; and that their mills are so constructed as to render it impossible to entirely prevent sawdust from falling into the river; and that to enforce the provisions of the 'Fisheries and Navigable Streams Acts' would result in a stoppage of their work, and the throwing out of employment of some six hundred men.'

"The above statements are not only incorrect, but also untenable, from the simple fact that two out of the four of these mill-owners are, at the present time, by

a simple and comparatively inexpensive appliance in their mills, preventing sawdust from going into the river; and this same remedial measure is equally applicable to the other mills worked on this river, or in fact anywhere else in the country.

"That any concessions made to sawmill owners by which they may be allowed to let all sawdust, made from gang or other saws, pass through the pitman holes into the river, is tantamount to exempting that mill from the operations of the 'Fisheries and Navigable Streams Act,' relating to sawdust, &c., for in the manufacturing of ordinary lumber from ordinary logs it is held that about one-fifth of the log is made into sawdust, and that fully seven-eights (or it may be said all) of the sawdust will necessarily drop through the pitman holes into the water below unless otherwise prevented.

"That all sawdust can, by the exercise of some small ingenuity, and by the application of comparatively inexpensive machinery, be conveyed out of nearly every sawmill in the country, when it can be dumped into fire pits, to be consumed, or otherwise disposed of.

"This is practically illustrated in a very great measure at the upper mills on the Otonabee River, where nearly the whole of the sawdust from the large gangs of saws is kept out of the river, and where it can also be easily seen that, by some further simple appliance, the whole of the sawdust could be carried from the pitman holes, leaving none whatever to drop into the river. Sawdust can be conveyed out of all sawmills in like manner, by means of properly constructed carriers, quite as readily as grain and offal are carried from place to place throughout the ordinary grain mills of the country, and would be so disposed of, if the owners of all saw-mills of every class were compelled without fear, favor, or distinction, to obey the restrictions relating to sawdust and mill refuse, so wisely embodied in the 'Fisheries and Navigable Rivers Acts' of the Statutes of Canada."

SUMMARY OF OPERATIONS AT EACH OF THE HATCHERIES IN THE DOMINION DURING THE SEASON OF 1889.

1. *Fraser River Hatchery, British Columbia.*—During the past year this hatchery planted in the Fraser River and its tributaries and other streams 4,419,500 salmon fry of the saw-quai (*Nerka*) species. Very few eggs of the quinnat (*Chouicha*) family were obtained the previous autumn of 1888. The fry were planted in good condition in rivers well adapted for their aftergrowth, and that were found to be most accessible at the proper time for distribution. About 373,000 of the above number were put out, in the egg state, just previous to hatching; these were quinnat eggs. The loss of eggs during incubation was generally much less than formerly. No fry were planted in Vancouver waters last season. Experience went to show that fry kept in the nursery until the sac was wholly absorbed were safer to transport and more able to take care of themselves when turned out in the streams.

The officer in charge again recommends the introduction of shad in the British Columbia waters. He reports some of these fish were caught in the Columbia River, and at Puget Sound, and along the Vancouver coast, but none in the Fraser River. Applications are made for Ontario whitefish for British Columbia waters. Those which are native to British Columbia lakes are inferior, and cannot be obtained on account of the remoteness of the lakes inland. The gross number of salmon put out of the hatchery since commencement is 19,065,500, from which it is said unmistakable evidences of success are shown. In the Harrison the increase is most marked. The Indians were at first unbelievers in fish culture; they are converts now, after seeing the masses of fish in the streams supplied with young from the hatchery. Satisfactory certificates from canners regarding the general improvement of the fisheries, which they attribute in a great degree to this hatchery, will be found appended to the general report.

The number of ova collected in the fall of 1889 was very large, double that of 1888. Some 9,233,000 were laid down, all Saw-quai eggs; the quinnat are not taken

at the same time as the saw-quai. The latter are most valuable for canning purposes. These eggs are at present in the best of condition.

Repairs, to a considerable extent, must be made upon the hatchery another year. Foundations require renewing; new hatching troughs must be had; the upper floor should be fitted up for hatching purposes; the roof is leaking; the present water flume is absolutely unsafe and must be made anew to avoid the total stoppage of the water supply another year.

2. *Sydney Hatchery, Cape Breton, Province of Nova Scotia.*—There were turned out of this nursery into the waters of Cape Breton Island, in 1889, 2,034,500 young salmon. The yield from eggs laid down in 1888 was very fair—about 76 per cent. No less than seventeen of the principal streams of the island received their quota of fry. They were reported to be planted out in the best possible condition.

The catch of parent salmon the present season of 1889 was very good in the rivers where the operation of capturing them was carried on; the streams were largely filled with salmon, but it was noticeable that they were uniformly smaller in size—many grilse were also taken, a circumstance hardly hitherto known in these waters; the rivers were actually teeming with young salmon. This increase is pretty unanimously attributed to the work from the Sydney hatchery.

The number of parent salmon caught this season was 631. They were taken in the Margaree, Middle, Lower Middle, Sydney and Salmon rivers—the greater portion, or 280, of these fish were captured in the Margaree. Of the whole lot, 379 were females from which were collected 2,540,000 eggs, an average of about 6,700 to each: these eggs are now undergoing incubation, and a large crop of fry is expected from them. But slight repairs of any kind or improvements were made at the hatchery during 1889. A new floor will be required another year for the hatching room; also a coating of paint for the whole building—in other ways the establishment is in very good condition. A request is made for a supply of land-locked salmon to stock a number of fresh-water lakes in Cape Breton, which are said to be well adapted for these fish.

3. *Bedford Hatchery, Province of Nova Scotia.*—A large number of salmon-trout and whitefish eggs were received by this hatchery from the Ontario nurseries —about 3,000,000 of whitefish eggs from Sandwich, and 500,000 salmon-trout from Newcastle. These were transferred during the winter in the semi-hatched state. Upon their arrival about 1,200,000 of these were sent on from Bedford to temporary auxilliary hatching huts at Antigonish, Queen's, Yarmouth, Halifax and King's counties. These small temporary hatcheries have been found to answer the purpose admirably, from an economic standpoint, as well as insuring greater certainty of success in the planting of the fry in the localities proposed to be supplied. It would be found almost impossible to transport the fry from the Bedford establishment at these long distances in the spring of the year without very great loss, whereas in the egg state they can be readily conveyed any time during the winter to these auxiliary hatcheries, which are built near to where the fry are required, so that when hatched the little fish can be planted in the waters at comparatively trifling expense, and with a much greater certainty against loss.

The planting of the salmon and whitefish was performed satisfactorily; some losses took place with the salmon trout. The officer in charge of the Bedford hatchery advises the continuance of this work of stocking the numerous inland lakes of Nova Scotia with the salmon-trout and whitefish of Ontario. He also advocates the erection of one of these small auxiliary hatcheries in each of the counties as the best means for accomplishing this end. The number of salmon fry distributed in the several counties of this Province was 900,000; of salmon-trout fry, 450,000 were put out, and of whitefish fry 2,500,000, making a total of 3,850,000 fry of the salmon family that were planted in the waters of Nova Scotia from the Bedford institution during 1889. Mention is made of a marked increase in the salmon fisheries of Nova Scotia since the introduction of artificial fish culture, which should warrant the work to be carried on upon a much more extended scale.

The success attending the capturing of parent salmon, and collecting of eggs during the past season, was very satisfactory. At Musquodoboit River 270 were taken, and at West River 67, were netted in all 337 salmon. Of these, 231 were females, which gave 2,300,000 eggs, an average of about 9,950 to each female fish. These eggs at the present time are showing the embryo fish within them and the prospects of a successful crop of fry at the coming spring is confidently expected. The establishment throughout is reported to be in good condition.

4. *Dunk River Hatchery, Province of Prince Edward Island.*—This hatchery has not been in operation during the past two years, by reason of the breakage of the dam which gave the water supply to the breeding troughs. It will be put in order for general fish-breeding purposes during the coming season of 1890. Beneficial effects have been felt from its former operations in many of the streams of the Island.

Mr. Hackett, Inspector of Fisheries for Prince Edward Island, says:—"Salmon was reported as being plentiful in all the principal rivers of the Province this season, and in many small rivers where they have not been seen for years numbers have been seen this fall. This is, no doubt, the result of the fry placed in the rivers a few years ago.

"If the work of hatching and distributing fry were continued, and better protection given the rivers than that afforded them of late years, I am convinced that salmon would become most abundant in our coast waters, and instead of being practically of no account, as at present, the salmon fishery would in a few years become a valuable industry."

5. *St. John River Hatchery, Province of New Brunswick.*—A series of misfortunes has befallen this hatchery with regard to getting parent fish for supplying it with eggs. numerous trials have been made to capture salmon on the Tobique, a branch of the St. John River; some seasons moderate success has attended the work, but upon the whole failures have prevailed. The past season not a fish was taken, and supplies of eggs for this hatchery will have to be got from the Ontario hatcheries and from the Restigouche establishment. The recommendation of the officer in charge for procuring parent salmon at the St. John Harbor fisheries in like manner as at Restigouche, Gaspé and Tadoussac, should be carried out, as sufficient numbers of salmon are taken in the harbor weirs to warrant full supplies of ova for this nursery, and at less cost than has attended the fruitless trials on the Tobique. The supply of ova for the St. John hatchery for the season of 1889 was obtained as follows—3,000,000 whitefish and 1,000,000 salmon-trout eggs were transferred from Sandwich and Newcastle, in Ontario, and 150,000 salmon eggs were got from the Restigouche hatchery. These were safely transported in the semi-hatched state, and duly hatched out in the spring of 1889, and planted in many of the lakes and rivers of New Brunswick, in the following proportions of fry—2,600,000 whitefish, 830,000 salmon-trout, and 140,000 salmon. Mention is made of whitefish and salmon trout being caught in some localities where the fry had been planted from this hatchery in previous years, and where they were not formerly known to inhabit. These evidences of practical results from the introduction of salmon-trout and whitefish into New Brunswick waters are encouraging, and should be continued on a much larger scale.

Some repairs are required to give permanency to portions of the building, and should be carried out next season.

6. *Miramichi Hatchery, New Brunswick.*—This hatchery produced 800,000 fry from Miramichi River salmon eggs, and 50,000 from ova obtained from the Restigouche hatchery. These were all successfully planted in the Miramichi River and its branches. They were in accordance with instructions, put far up into the head waters of the stream.

A request is made by the officer for a supply of white fish eggs to stock a lake a short distance from the hatchery, in order to introduce this fish into that section of New Brunswick. The lake is well adapted for the experiment. Evidence is given of the certainty of the growth of the salmon fry to "parrs" and "smolts," where these young salmon were found in great numbers in small streams in which fry from the

hatchery were planted, and where parent salmon could not get to lay their eggs. This fact, with so many others previously known, must disprove the theory of many skeptics in that section who assert that all fry put out of the Miramichi hatchery die, or are eaten up by other fish. The officer in charge reports that salmon fishing in that section was just as remunerative last season as for any previous five or six years; and that the majority of the fishermen give credit for this steady catch to the supplementary aid received from the great number of young fry put in the river from the hatchery. They say in fact, that if there were no other source of supply than the natural one the salmon fisheries on the Miramichi would soon become a failure. A well-drawn comparison is made by citing the almost complete extermination of the bass fishery on that river, where their natural reproduction is the only means for keeping up the bass fisheries. The smelt fisheries of that river are also given in proof of the fact that some other than the present method of protection, and natural propagation, must be resorted to, to save this fishery from total destruction in a few years. With these facts of the bass and smelt fisheries rapidly declining, and the salmon fisheries increasing their yield from former years, positive evidence must be drawn that some strong factor is at work to produce this result; and why should not the many millions of artificially bred fry put into these rivers annually, which otherwise would not exist, be entitled to a reasonable share of credit for this improvement of the salmon fisheries, whilst without this aid the bass and smelt fisheries, especially the former, are fast declining.

The fall run of the salmon was late in entering the river. It was remarked that many of them were very large fish. Some fishermen advance the idea that these larger salmon were the product of the Restigouche fry previously put in the river. Grilse were very abundant in the river; as many as a hundred were taken at a single sweep of the net in some pools when seining for the parent salmon. Fishermen now seem to generally admit that the aid from the hatchery has shown itself to be the surest safe-guard against the depletion of salmon in the Miramichi.

The gathering of eggs last autumn was more successful than for years previous notwithstanding a heavy freshet prevented the taking of many more parent fish. The statement is made that poachers held full sway and destroyed great numbers of breeding fish during the close time, on account of the guardians not being appointed at the proper time. The number of parent salmon captured on the different branches of the river was 293, of these 153; were females, from which were taken 1,100,000 eggs or an average of some 7,190 from each. This high average of eggs from each female is proof of the larger life of the salmon this year, as only an average of 5,530 ova were got from each fish last year.

The hatchery and its appliance generally are in good working order, and the eggs, from present appearances give prospects of a larger crop of fry.

7. *Restigouche River Hatchery, Province of Quebec.*—This hatchery turned out 1,280,000 young salmon, and transferred 200,000 semi-hatched eggs to other nurseries; 100,000 of the fry were put in the Métis River; the balance were planted in the Restigouche and its principal tributaries, namely the Kedgewick, Upsalquitch, Patapedia, Metapedia River and lake, and the several brooks entering the Restigouche. The method of planting the fry is admirable; they are towed up in scows, so constructed that the little fish escape gradually through openings, and are seeded so to speak all along the extent of the river, where they immediately hide amongst the gravel and stones in the shallow water, along the edge of the stream. In locations where scows cannot be towed the fry are carried in cans in canoes to their destination. The distribution was perfect, and safe throughout.

Greater success than usual attended the capture of parent salmon; 584 were procured in May, June and July; 475 of these were taken in the Departmental net at the reservoir; 30 in the other Government net at Mission Point, and only 79 purchased from fishermen. The daily catch is shown in official report, Appendix No. 7. A small number were injured in the nets; those not likely to recover were sold on account; 259 females were spawned, and gave 3,022,000 eggs, an average of 11,667 ova to each female. The impregnated ova were carried some fifteen miles up

river to the hatchery. It will be necessary to transfer some of these eggs to other hatcheries, as their number would be too great and cause overcrowding and loss of fry at the hatching time if not thinned out. It is proposed to supply the St. John River hatchery from this stock of eggs. Important repairs will be needed at the salmon pen or reservoir before another season, by building substantial block piers for strengthening the wire-work or casing of the pond to prevent the escape of the parent salmon. Great precaution is required to make this enclosure perfectly safe, otherwise the whole season's catch of parent salmon might escape, and a year's operations of the hatchery would be lost. These piers, and additional wire fencing, are absolutely necessary to insure safety for the reservoir next season. Some new twine netting for repairing the salmon nets must be procured also.

The officer in charge reports the first run of salmon to have been a fortnight sooner than usual, caused by the very early spring, which opened up the river long in advance of former years, before the netters were prepared to set their nets, thereby losing the benefit of this first run. Yet the general catch of salmon in the estuary and bay was good, and the anglers also did well. Certificates are hereto appended from most intelligent fishermen and proprietors up river, giving conclusive evidence of the healthy state of the salmon fisheries of the Restigouche and the bay, which they attribute in a great degree to the continual annual supply of young salmon put into the river from the hatchery. Parrs and young salmon were very plentiful in the river the past season. The river guardians of the Kedgewick and of the main river also, and scowmen traversing the river, make statements that the spawning beds and bars all along these rivers were literally covered with salmon in the act of spawning last autumn. It is also reported that a great deal of poaching was practised by drifting and otherwise during the past season.

8. *Gaspé Hatchery, Province of Quebec.*—By the death of the late officer in charge of this hatchery, Mr. P. Vibert, another appointment was made in June last, of Mr. Henry Davis, who reports having captured 110 parent salmon in the Dartmouth River; of these 65 were females, and gave 820,000 eggs, making an average of 12,600 ova from each. Not one parent fish was lost from confinement in the reservoir from May till late in November, when they were turned out quite healthy. The planting out of fry commenced in June; 450,000 were distributed; 250,000 were put above the falls on the Dartmouth, 100,000 below the falls. and 100,000 in the York River. The building is in good repair, but requires painting outside. The apparatus, generally speaking, is in good condition. A pleasing circumstance in connection with this hatchery is that its beneficial effects have been felt in giving an increased average weight to the salmon caught in the adjoining River St. John which empties in the Gaspé Bay. The young fry bred from eggs of the larger salmon, natives of the Dartmouth River have, for many years been planted in the St. John River, where native salmon were formerly of a much less size than the Dartmouth fish. The average weight of the salmon taken in the St. John in 1889 was 22 lbs. The account given by an old reliable fisherman is that, from 1870 up to 1880, the average was 12 to 15 lbs. This increased till 1887-88, when it reached 18 and 19 lbs., and in 1889 reached 22 lbs. Some individual fish were taken at 30 lbs. The canoe men and fishermen assert that this extra size of the salmon is to be attributed to the operations of the hatchery in planting the fry bred from Dartmouth salmon in the St. John River. Reports go to show that great number, of young salmon parrs and smolts were observable in the upper waters, and the estuaries of the Gaspé Rivers.

9. *Tadoussac Hatchery, Province of Quebec.*—There were successfully bred at this establishment during 1889, 1,600,000 salmon fry, and safely planted in the principal tributary streams to the Saguenay River. It has been found that the fry put in the small lakes (Mowats) a short distance from the hatchery have thriven in a most satisfactory manner. Distribution in these waters will be continued, as the facilities offered for their ready growth, and passage to the sea are very great. A suggestion is made to discontinue the planting of fry in the St. Margaret and Little Saguenay rivers, as they are so largely filled with trout, and that additional supplies should be given to the extreme upper waters of the Main Saguenay, as salmon have

already been taken above Chicoutimi, where they were not previously known, and where fry were planted from the Tadoussac hatchery.

It has been somewhat difficult to obtain full supplies of parent salmon for this hatchery. The improvement this year has been very marked as a surplus, of 249 salmon were turned out of the net, over and above the number required to fill the hatchery with eggs. A total of 559 salmon were taken in the Departmental net; 249 were let loose again keeping 310 of the largest for hatchery purposes. The perfection of the mode of retaining parent salmon in the salt water reservoir from early in Juue till November, is shown by the loss of only two fish. There were 206 females spawned, from which 2,557,000 eggs were obtained, with an average of 12,400 ova to each, thus showing the fish to be of very large size. Spawning commenced 21st October, and terminated 9th November. The fish, when turned into the Saguenay, were perfectly sound and active, and gave the utmost satisfaction to numerous leading visitors who came to see their liberation.

The increase of salmon taken by netters was shown to be very good in 1888; an increase of 50 per cent. has been shown this year over that of last year, and the catch this year is nearly 300 per cent. over that of 1886, and with the same number of nets; an evidence of success which is substantiated by the letters of leading persons, who state that salmon were caught in the river Shipshaw and other streams above the town of Chicoutimi for the first time, which they consider to be the result from fry planted from Tadoussac hatchery. The officer in charge reports the hatchery to be in a dangerous state. It stands upon a pier of slabs which is badly decayed, and the building also is showing signs of decay, and either a large outlay for repairing or building anew must be done. A better and safer site can be obtained close by the small pond, from which the water could be run directly into the building, and thus save the expenditure and precarious nature of the long dall or raceway which conveys water to the present hatchery. It is urgent that something should be done during next summer to put the Tadoussac hatchery in a safe and proper working condition.

10. *Magog Hatchery, Province of Quebec.*—From this institution 1,700,000 whitefish fry were planted in Oxford, Massawippi, Megantic and Memphremagog lakes, in the Eastern Townships. There were also bred in this hatchery 1,100,000 salmon-trout from eggs from Newcastle, which were planted in the lakes of the counties of Brome, Sherbrooke, Megantic, Stanstead and Beauce. Both trout and whitefish were put out in good condition, and with very slight loss. The officer in charge reports again, as previously, that whitefish are seen in considerable numbers in some of the above lakes since being put there from the Magog hatchery; and that they were not known in these water previously. Netting and spearing being prohibited in these waters, few whitefiish can be taken.

Salmon-trout and black bass are still increasing, the spawning grounds were largely covered by these fish the past season. Illegal fishing is practised in these waters, and the reduction of means for guarding the shoals at the spawning time has given an impetus to the poacher to extend his illegal work. Necessary repairs to the floors are in progress and when complete the establishment will be in first class condition. The usual quota of salmon-trout and whitefish eggs in the semi-hatched state, will be transferred from Newcastle and Sandwich hatcheries to Magog at the proper time.

11. *Newcastle Hatchery, Province of Ontario.*—There was a very large output of fry and semi-hatched eggs of various kinds from this hatchery during 1889, forming a grand total of 8,566,000, consisting of salmon-trout, whitefish, speckled-trout and black bass. Their distribution was spread over numerous sections of the country; salmon-trout and whitefish were planted in many of the lakes of Quebec, Nova Scotia, New Brunswick and Ontario. The speckled trout were widely disposed of in localities where the numerous applicants desired them.

From the satisfactory acknowledgments received concerning the distribution generally, the eggs and fry were received at their destination in the most healthy condition; and the fry were liberated to the satisfaction of all concerned.

The officer in charge reports the necessity for procuring larger supplies of speckled trout ova, in order to fill the numerous and increasing demands which are being made by individuals to re-stock various streams of the county, which, in many cases, from improvidence, have become very much exhausted.

The system adopted the past season for procuring supplies of salmon trout eggs was eminently satisfactory. By the selection of certain fishing stations in Colpoy's Bay, at Wiarton, and working them with Departmental nets, under the supervision of Mr. Charles Wilmot, officer in charge of the Newcastle hatchery, the success in getting full supplies of ova within a shorter period of time, and at less cost, was very gratifying, showing that 11,000,000 of eggs were collected during sixteen days in November, as against 5,000,000 during the whole of November in 1888, under the then system of employing nets and fishing gear of all kinds from pound net fishermen. With the nets and fishing plant now owned by the Department, it may be safely concluded that the expenditure connected with gathering salmon-trout eggs for the several Dominion hatcheries requiring them will be considerably lessened in the future.

Appended to the Newcastle report is a schedule giving the numbers of fish netted, the quantities of eggs, and the dates in which they were collected. From this diary, and those of former years similarly kept, the most indisputable evidence is brought out, proving the wisdom of selecting the month of November as the proper close time for the protection of salmon-trout at their spawning time. It is asserted, however, by interested parties, that November is not the true spawning time for salmon-trout. The practical work of the fish cultural service after many years experience has shown that the eggs of the salmon trout are principally shed during November. If taken at an earlier period they are, in the majority of cases, not sufficiently mature to be susceptible of proper impregnation. This evidence should suffice to show that the present close season of the month of November is the correct one for salmon-trout.

The condition of the ova in the Newcastle nursery is very satisfactory. They are, however, somewhat overcrowded by the increased numbers now on hand. Relief must be given shortly, by transferring large quantities to Magog, St. John River, Bedford and Ottawa hatcheries.

With the now increasing demands from the Maritime Provinces for supplies of eggs of the commercial fishes of the great lakes, for introduction into their waters, it will be necessary to increase the hatching capacity of the parent establishment at Newcastle. Repairs of certain descriptions are, however, requisite, and will demand consideration the ensuing summer.

12. *Sandwich Hatchery, Province of Ontario.*—From the supply of eggs collected in 1888 there were turned out of this hatchery 21,000,000 of whitefish fry and 11,000,000 of semi-hatched ova; the former were planted in many of the principal lakes of Ontario, and the eyed eggs were transferred to hatcheries in Quebec, New Brunswick and Nova Scotia. The work of distributing the fry and transferring the eggs was satisfactorily carried out. When the work of whitefish hatching had been completed, operations commenced in collecting the ova of the pickerel, (doré), when 30,000,000 were obtained in Lake Huron; about 21,000,000, or 70 per cent. of these were hatched and planted in various places in Lakes Huron, St. Clair and Erie, and in the Detroit River. These fish are reported by the fishermen to be considerably on the increase through the agency of the hatchery.

The collection of whitefish during the past fall has been most satisfactory, nearly doubling the quantities of former years. This success is due to the means adopted by the Department in operating the Bois Blanc fishery by its own employés and fishing apparatus, together with the enforcement of a regulation that, fishermen who we permitted to fish during November should allow the eggs to be taken from the fish for hatchery purposes. The result was that 70,000,000 of ova were placed in the Sandwich nursery and in addition about 4,000,000 eggs were impregnated and scattered here and there in the Detroit River. Whitefish fishing on the river the past season was generally speaking much better than the previous year. It will be found neces-

sary to erect a temporary breakwater at Bois Blanc fishing station, to prevent injury to the fish put in the pens caused by the receding of the water from the effects of strong winds; $100 would make this provision.

The officer in charge says necessity exists for erecting another wind-mill, where the pickerel are caught in Lake Huron, in order to supply more water for the tanks in which the parent pickerel are kept till ripe for spawning.

The hatching capacity of the Sandwich hatchery must be enlarged: its growing importance demands this. The present deposit of 70,000,000 eggs in it causes great anxiety for their safety, by overcrowding; only half of the floor area is at present utilized for hatching purposes, the other half being used for dwelling purposes by the officer in charge and his family; outside provision should be made for the officer in charge, and the wholefloor area supplied with additional apparatus. In this way hatching room would be obtained for 150,000,000 whitefish eggs.

APPLICATION FOR YOUNG FISH.

From the numerous applications which are continually coming in from all parts of the country, it has been considered expedient to issue the following form of application and directions so that all parties desirous of obtaining fry of any kind from any of the hatcheries can be furnished with this blank form of application and directions which when duly filled in by the applicant and returned, will enable the fish cultural branch of the Fishery Department to form a more intelligent idea regarding the adaptability of the waters for the growth of the fish, where they are proposed to be planted.

DEPARTMENT OF FISHERIES,
FISH CULTURAL BRANCH, OTTAWA.

In consequence of the increasing number of applications for young fish, and for the distribution of fry from the Government hatcheries, the following regulations have been made by the Department: —

Hereafter no application can be entertained unless these regulations are strictly adhered to, and the application made at the time specified.

All applications must be made upon a blank form, a specimen of which is hereto appended. These forms may be obtained on application to the Superintendent of Fishculture, Ottawa, or from the various inspectors of fisheries and officers in charge of hatcheries throughout Canada.

DIRECTIONS.

The appended form of application for procuring young fish, and directions for planting them, is given to all persons who are desirous of applying for fry of such description as are bred at the several Government hatcheries.

It is requisite that the appended blank form shall be intelligibly filled in, and the directions strictly adhered to by all applicants, in order to insure successful results from the action of the Government and from such persons as are desirous of replenishing the waters of the country with increased supplies of fishes.

All applications for fry, or ova, of any description, must be made in writing on or before the 1st day of February of the year in which they may be required, addressed to the Department of Fisheries, Fish Cultural Branch, at Ottawa. If not made upon the appended form, one will be forthwith sent to the applicant, which must be promptly returned, duly filled up, when in due time the applicant will be notified of the quantity of fry that may be allotted to him, and the time when and the manner in which the young fish are to be obtained by him.

Special attention must be given by all persons receiving young fish to their being carefully and properly planted. They must not be thrown out by the pails full, so to speak, in one spot, but spread thinly over long areas, in well selected parts of rivers, lakes, streams or other waters.

Salmon fry (*Salmo Salar*) must be carefully distributed on the gravelly beds of rivers and streams, far up and near their sources as possible, where the water is pure and cold, with a temperature not exceeding 60 or 65 degrees.

Salmon Trout and *White-fish* fry, in order to thrive well, should be planted out on the shoals and reefs of deep lakes, having pure, cold water of a temperature ranging under 65 degrees.

Speckled-trout should be put in the pure, cold rapid parts of brooks or larger streams, on gravel beds, in sheltered places. Ponds and lakes fed by springs are also well adapted for them. They will not thrive well in waters of a temperature above 60 degrees.

Pickerel (Doré) and *Black Bass* may be planted in waters more sluggish, warmer, and less pure in their nature than is required for the salmonoid species previously mentioned.

Special attention must be given by all applicants to the foregoing directions.

SAMUEL WILMOT,
Superintendent of Fish Culture for Canada.

OTTAWA, October, 1889.

NOTE.—This page page of directions is to be kept by the applicant for his information when forwarding the appended application for fry.

FORM OF APPLICATION.

The undersigned applies for of the species

which are to be planted in the public or private waters hereinafter described, to be procured from the Newcastle hatchery, Ontario, or from such other nursery as may be nearest and most convenient to the waters to be stocked.

1. Name of stream, pond or lake.

2. Name of Province, county, township or town.

3. Approximate size of stream or other water.

4. What kinds of fish have been, or are now, native to it?

5. What is the nature of surrounding country? Is it wild or cultivated?

6. If a lake, stream or pond, what is its character as to temperature, depth, bottom and purity?

7. What constitutes the ordinary food for fish in the water to be stocked?

8. Have the fish hitherto found in this water thriven well?

9. What is the sentiment of the inhabitants in the locality regarding protective laws for fish?

10. Are the fishery laws well enforced? Give the name of the nearest fishery officer.

11. Give the name of the railway and station nearest to the water to be stocked.

12. If for a public water, what provision will be made upon arrival at station to carry fry to their destination? Give the distance, description of road and conveyance to be had.

13. If for private waters, give similar information as for question 12, but all expenses connected with transport and planting of young fish must be paid by the applicant. If convenient, an expert will be supplied from the nursery to perform this work, whose expenses must be prepaid.

14. Applicants will give the most direct route by land or water by which the fry can be most safely and speedily transported to their destination.

15. Applicants for speckled trout fry will be charged a moderate price per thousand to cover cost of eggs and hatching.

Prompt and complete answers to the foregoing queries will enable the Department to act intelligently on the application.

Date of Application, Name of Applicant,

P. O. Address,

EVIDENCE OF THE PRACTICAL RESULTS FROM ARTIFICIAL FISH BREEDING IN CANADA.

The following letters from reliable sources are herewith given, in evidence of some of the benefits which have been experienced from the planting of fry in certain localities, which were bred in the hatcheries :—

BRITISH COLUMBIA.

NEW WESTMINSTER, B.C., 23rd August, 1889.

SIR,—At a meeting of the Board of Trade, held last night, the following resolution was unanimously carried:—

"That this Board of Trade has every reason to believe that the Fraser River hatchery has been productive of much good, and the experience of this and last season proves beyond doubt that the numbers of fish coming into the river has greatly increased; therefore, this Board is of opinion that it would be mistaken economy to close said hatchery, and that the fishing interests of the Province are such as to make it desirable that the efficiency of the hatchery should be increased rather than decreased, and that an additional hatchery should be established at Harrison River, or some other suitable point."

Yours truly,
D. ROBSON, *Secretary.*

DEN'S ISLAND, 19th August, 1889.

SIR,—In reply to yours of 12th August, referring to the fisheries service, &c., I think by all means the hatchery should be kept up and the output increased. I also think some means ought to be taken to protect the natural spawning beds.

I remain, yours sincerely,

H. KIRKLAND,
Fraser River Fishery, Den's Island.

(*Extract.*)

NEW WESTMINSTER, B.C., 7th August, 1889.

"In regard to the Fraser River hatchery, I think I am able to speak more correctly on its work than any fisherman on the river. For over thirty years I have fished salmon on the river, and therefore know what should be expected from the various years as they came along. Last year and this I have caught many more spring salmon than ever before, and very many of these fish were under the usual size—a fact which convinces me that they are the product of the hatchery. My thirty years' experience teaches me that the large number of these small fish is not the result of accident.

"The unprecedented run of 'sockeyes' this year brings with it a phenomenon never before observed on the Fraser, viz., a great run of 'sockeyes,' averaging from 3½ to 4½ pounds in weight each. This has never happened before in my thirty years' experience, and I attribute it solely to the work of the hatchery. Last year there was a small run of these fish also.

"On the whole, I consider the hatchery a very important factor in maintaining the fisheries of the Fraser, and the removal of the hatchery, in my opinion, would be a genuine calamity. I trust the Fisheries Department will do nothing rashly in this matter, and in conclusion I would urge a strict maintenance of the efficiency now prevailing.

"I am, Sir, your obedient servant,

"WM. H. VINCENT."

LADNERS' LANDING, 19th August, 1889.

SIR,—Replying to your letter asking for my opinion regarding the utility of the hatchery, I would state that it is favorable. The fact that fish have been propagated in rivers to which they were previously unknown is evidence that their numbers may, by similar methods, be increased in their native waters. This has actually been done at Rogue River, Oregon, where Mr. R. D. Hume erected a salmon cannery and a hatchery some twelve years ago. The hatchery since its establishment has increased the supply of salmon three-fold.

I believe further that the hatchery under your supervision on this (Fraser) river has been of great benefit this year. The "sockeye" run is not ended, yet there are already more fish packed on the Fraser than were ever before put up in the whole Province during an entire season. Each and every cannery on the river has exceeded its greatest previous packs made on this run. The increased number of canneries this year partially accounts for the large aggregate output, but not for the uniformly greater pack of individual canneries.

To discontinue work at the hatchery would be a mistake which the Province cannot afford to have made.

Yours truly,

E. A. WADHAMS.

CANOE PASS, 15th August, 1889.

DEAR SIR,—I am in receipt of yours of the 12th inst., and in answer would say that in the matter of the hatchery it is my firm opinion that the big run of salmon this year is to be attributed to a great extent from the output of the hatchery, and it is to be hoped that the Government, instead of curtailing the expenses on the existing one, will establish another in some suitable place on the Fraser River. The salmon industry on this river has been a great success, and a great source of revenue to the Province this year, and will always continue to be so as long as it is fostered and protected by the Government. How any one (unless it could be through prejudice) can say but that the great sources of fish supply this season can be attributed to any cause outside the hatchery I cannot see. You can take, for instance, the supply of salmon for the year 1885, when there were only six canneries running, and it did not nearly average to each boat as much as they did this with sixteen canneries running.

I would strongly recommend that the hatchery should be continued and for the next three years let it prove its value, and I think it will convince the most bitterly prejudiced of these parties that may write against it.

I might quote instances of the great success of hatcheries, such as Rogue River, and also the hatchery of shad on this coast, but you of course are thoroughly conversant on these subjects, and I will not occupy your time in doing so.

I will conclude by strongly recommending that the hatchery should be continued.

Yours very truly,

THOS. E. LADNER.

LADNER'S LANDING, 16th August, 1889.

SIR,—We learn that the Department has been informed that the hatchery has been of no benefit to the river. How any one could make such a statement and give reasons for it greatly surprises us, and we can only think that there must be some other reason than the welfare of the country has made them do so.

Till this year the hatchery could not prove itself according to the accepted four year return. This year the run has been the best that we ever saw on the river when the hatchery had a chance to make returns, and we have no doubt in following years will greatly add to the output of the river, and be a source of revenue to the country at large, very much in excess of the present expenditure, and we think it would be a very great mistake if the Department should curtail or hamper the hatchery in the least.

Had they spoken of increasing its capacity instead of diminishing it, at least till it had a fair trial, it would have been much more reasonable, and we consider when the Department pays a much larger subsidy to eastern Provinces that do not turn out one-tenth of the returns of the Fraser, it would be very unjust to British Columbia. That the hatchery has not shown much return till now is not strange. You would not plant fruit trees and, unless they bore fruit in two or three years, dull them up. But that, in our opinion, would be the action of the Department should it decrease the capacity of the hatchery at this time.

We think the hatchery should be continued for at least three years longer, in order to see whether or not it improves the poor years, as otherwise it would not have been in operation long enough to prove its usefulness.

We remain, dear Sir,

Very truly yours,

LAIDLAW & CO.,
Delta Canning Co.

CANOE PASS, B.C., 15th August, 1889.

In answer to yours *re* hatchery on Fraser River, beg to state that, judging by the results this year, my opinion is that the salmon hatchery established on the Fraser River has increased the salmon run enormously.

I have the honor to be, Sir,
Your obedient servant,

D. DRYSDALE,
Manager Canoe Pass Canning Co.

LULU ISLAND, B.C., 16th August, 1889.

SIR,—I should say by all means maintain the salmon hatcheries. It has already done good, and we are just beginning to see the result. There is no doubt, in my mind, but that it will eventually fill up the off years, so that we will see no difference in the seasons, which at present are, as you know, very marked. There can be no doubt but that the salmon hatchery will be attended with the same good results as other fish hatcheries have on this coast. I have no doubt of the success of propagating, both for increasing numbers and improving quality. It is so in vegetable—why not in animal life?

We all know there were no shad on this coast until they were hatched and planted here.

I will respectfully recommend this to the Department. Do not protect trout in the rivers carrying large amounts of salmon, or the tributaries thereto, as they are the salmon's greatest enemy. I would rather encourage their destruction.

Trusting the hatchery will be maintained at any cost.

I am,
Yours very respectfully,

M. M. ENGLISH.

ANNISVILLE, 16th August, 1889.

SIR,—I am in receipt of yours asking my opinion on the utility of the fish hatchery. I beg to say, that I wish others engaged in the canning business advocated and petitioned the Minister of Fisheries to establish a hatchery on this river. Since its establishment I am more confirmed in my opinion that it was a wise step in the interest of the fish industry, and I think it would be a most serious mistake should the Government consider it necessary to discontinue such a useful establishment.

I am, dear Sir,
Yours respectfully,

PETER BURELL,
British Columbia Packing Co.

BON ACCORD CANNERY, 15th August, 1889.

SIR,—In reply to yours, I may say that I am certainly in favor of continuing hatchery operations for a time at least. I do not think sufficient time has elapsed from date of its inception until the present to decide its results as a failure or success.

Spring salmon, I believe, take longer to mature than the "sockeye," and I understand very few of the latter were hatched until the run of 1886. I feel satisfied that we need not look for these until next year. From my view the hatchery on this river is but an experiment yet, and for that reason would continue it until results are proved beyond a doubt.

Aiding and protecting the natural spawning grounds, however, is something I would advocate most strongly. You, perhaps, know my views on this matter

already; and anyway I have not time to write them here; but as settlement and development on the river banks continue, correspondingly should efforts be made to maintain by all means the safest source of supply of salmon for the Fraser River, the natural spawning grounds.

To do this, if your Department cannot afford to expend anything in this direction, apart from the hatchery expenses, something worth while, I would suggest that the amount be equally divided with a natural spawning ground protective service until such time as the hatchery results are proved conclusively.

Yours respectfully,

D. T. MANN,
Manager.

VICTORIA, B.C., 13th August, 1889.

SIR,—We had always been under the impression that the hatchery has been beneficial towards increasing, or at least maintaining, the supply of salmon in the Fraser River, and this impression was gained from remarks made by fishermen.

Our own knowledge on such matters is very imperfect, and an opinion is therefore not of much value, but we beg to submit the following for consideration of the Department:—

Has the hatchery been in operation for a length of time sufficient to afford a practical test of its efficiency in increasing the supply of fish? If not, should it not be continued until a practical test has been made?

We presume you are the best judges as to whether any results have been obtained or not.

We remain, yours faithfully,

FINLAY, DURHAM & BRODIE.

SAN FRANCISCO, 1st February, 1889.

DEAR SIR,—Your favor of 4th ultimo has been forwarded from Ellensburg, and in reply will say that I have been operating a hatchery on Rogue River with some success for the past twelve years.

Being only an amateur at the business, have had many difficulties to overcome, but am gradually improving, and can see evidences of its benefits.

The pack at Rogue River the season of 1877 was 3,500 cases; spring of 1878, about 14,000 cases. The season of 1878 I turned out 350,000 salmon fry, and four years later packed 15,000 cases spring fish.

We have until this season only propagated "salmo quinnat," what are called "Chinook." This year we have also spawned "silversides." The ova is from fifty to sixty days hatching, according to temperature of the water. We kept the young alewives in troughs until umbilical sack is absorbed, and they are ready to feed. My hatchery has a capacity of 3,500,000 eggs. Owing to its situation, the cost of working is comparatively light. I think outside of repairs and improvements can operate for $1,500 per annum. I have not the figures at hand, but am sure it would come inside that amount. Trusting that I have answered clearly on the various points, I can assure you it will be no trouble to answer any further enquiries you may wish to make, although I may be rather slow in answering, as I am very busy, but would like to take leisure time to write up the matter more fully.

Yours truly,

R. D. HUME.

ASTORIA, OREGON, 14th September, 1889.

DEAR SIR,—Your favor of the 4th inst. is at hand, and contents noted. In answer will say that the pack of salmon for the Columbia River the past season is 320,000 cases, as near as I have been able to ascertain. The pack on the Sacramento is not far from 75,000 cases. The small streams along our coast are just commencing their fall pack, which will not be very large. I think it will not exceed 100,000, if it reaches that figure.

We turned out from the Clackamas hatchery this spring 5,500,000 fry, and have a good prospect of obtaining enough ova for that amount the coming season. The United States Fishery Commission still operate the Clackamas Station, in conjunction with the State Commission.

The shad are gaining very rapidly in the Columbia River; indeed, many have been taken and sent to market this season; some have been taken to weigh as high as five and six pounds, and the fish is far ahead of the Atlantic shad, being much fatter and of better flavor, and in a few years will be a source of revenue to our country.

Your reports came to hand with the letter, for which accept thanks. I have none of our reports for 1887–88 at hand, but will try and find one for you.

I have found a few copies of 1887–88, and will forward them with this. Your pack on Fraser River exceeds all expectations, and must go far to convince the most skeptical that artifical hatching can be made a success. I believe in the near future that all our streams will be re-stocked with an abundant supply of food fish by means of artificial propagation.

Yours truly,

F. C. REED.

ELLENSBURG, CURRY CO., OR., 17 September, 1889.

DEAR SIR,—Your favor of 23rd August received. The pack on this river has been greater so far this season than ever before, although of modest proportions as compared with Fraser. However, it is a small river in comparison. The benefits of the hatchery are conclusively shown, when we compare the conditions with other streams on the coast. This river has increased its pack every year since the hatchery was established, while the other streams have decreased, and as Rogue River is a very easy stream to fish, and has been done very closely, it seems as strong evidence that our work has been a great benefit.

The spring pack will be about 16,000 cases, about five times as much as was packed in a season before the hatchery was started.

I do not consider that we are fairly started at the hatching business yet, as we have in the past labored under many difficulties, which are now about overcome, and in future think we will be able to make a fair showing.

Yours truly,

R. D. HUME.

WESTMINSTER JUNCTION, 27th November, 1889.

SIR,—In regard to "sockeyes" salmon running up the Coquitlam River: I have lived here, and have fished in the Coquitlam River for the last eight years, and this is the first year that I have seen "sockeyes" salmon ascending the Coquitlam, which they did in considerable quantities for about six weeks this fall, showing clearly that they are the young salmon deposited in the stream from the hatchery. But the upper portion of the river is badly obstructed by log dams, preventing the fish from reaching the lake, and consequently a large spawning ground. If the river was cleared of obstruction, which a few thousand dollars would do, it would be a good investment for the country.

Respectfully yours,

R. B. KELLY.

HALL'S PRAIRIE, SURREY, B.C., 30th November, 1889.

DEAR SIR,—In reply to your inquiry dated 19th November, relating to the salmon fry distributed by you in the Nicomekle River last spring, I have the pleasure and satisfaction of being in a position to inform you that the young fish here have done remarkably well, and that large numbers of them may be seen 6 inches and upwards in length. I think the experiment so far has been very satisfactory, so much so that the Council of the Corporation of the District of Surrey at their last meeting adopted the enclosed memorial (which please forward to the proper authorities), requesting that the waters of the Serpentine, Nicomekle and Campbell Rivers may all be stocked with salmon and shad fry. Thanking you for your willingness to place the fish in our river, and believing you will be perfectly satisfied with the results.

Respectfully yours,

HENRY T. THRIFT,
Clerk Municipal Council.

MEMORIAL *RE* SALMON AND SHAD FRY FOR SURREY RIVERS.

On motion of Councillor Armstrong, seconded by Councillor Shannon:

That whereas the waters of the Nicomekle, Serpentine and Campbell Rivers, in the opinion of this Council, are well adapted for the propagation and development of several species of food fish, which if introduced therein would soon be a source of profit to the residents of the neighborhood and a great benefit to the cities and towns of the mainland;

And whereas the salmon fry distributed in the Nicomekle River last spring by the officer in charge of the Government fish hatchery have so far exceeded our expectations, many of the young fish being 6 inches and upwards in length;

And whereas this Council believing that were the Government to undertake to stock the waters of the above named rivers with salmon and shad fry, it would be the means of inducing a most desirable class of settlers to locate on the Government lands near the rivers, besides proving a great attraction for tourists, etc., and furnishing settlers with a constant supply of those excellent fresh food fish;

Be it therefore resolved:

That the clerk prepare a memorial addressed to to the Minister of Marine and Fisheries, directing the attention of the Department to the above facts and requesting that action may be taken immediately, with a view to depositing a number of both kinds of young fish in the above named rivers in the coming spring.

Carried unanimously.

HENRY T. THRIFT,
Clerk of Municipal Council.

NANAIMO, B.C., 20th November, 1889.

SIR,—The "sockeye" salmon, or a trout-like fish which I believe must have been the "sockeye," were seen in great number in the spring, and the Indians remarked that they never saw so many trout in the river before. Since the spring I have not heard of or seen any strange fish in Nanaimo River.

I am, Sir,
Your obedient servant,

LOUIS A. GOOD.

QUAMICHAN, B.C., 20th November, 1889.

SIR,—I have the honor to report that the "sockeye" fry and eyed ova placed in the Cowichan River are now showing good results; a great number of fish of this species have been taken during the year, and when I was at the head of the Cowichan Lake last month we saw shoals of them from four and a-half to six pounds in weight. They seemed to be waiting to get up the mountain streams.

The Indians say that they have never been seen here before, and they now have faith in your fish culture, which before, when they assisted in placing the ova in the river, they thought would prove fruitless. Congratulating you on the result.

I have the honor to be, Sir,
Your obedient servant,

W. THOMAS,
Fishery Guardian.

NEW BRUNSWICK, MIRAMICHI HATCHERY.

SOUTH ESK, 16th December, 1889.

Jared Tozer, Esq., says: "Salmon were as plentiful this season as they have been for the past four or five years, some nets having taken even more than a uniform catch, while others have not done so well. Those nets which were in readiness to take the June run of fish, which entered our river this season about the middle of May, made good catches, while those which did not get to work before the usual commencement of the fishing season show a slight falling off."

John McColm, Esq., says: "My nets have taken more salmon this season than for any during the past five years. Our June run of salmon entered the river in May, on account of the early spring, and some fishermen complain of poor catches, but this is simply because they had not their nets in readiness to take this first run. Altogether, salmon do not show the slightest signs of decreasing in our waters during the past six years. This is, I think, greatly due to the benefits derived from artificial breeding, without which our supply of salmon would run short in a very few years."

Patrick Gillis, fisherman, says: "I have fished a set of nets near the head of the tide for past ten years, and I am of the opinion that salmon have been on the increase for the past six years. Certainly the catches of fish by nets in this vicinity do not show any falling off, and one would almost think it impossible for ten salmon out of one thousand to reach here when the way in which the river and bay is obstructed with netting below this point is considered, of which one-fifth was not in operation eight or ten years ago. Grilse have been very plentiful during the past summer. It is my opinion that artificial breeding is an almost incalculable benefit to our rivers, in keeping up the suply.

RESTIGOUCHE HATCHERY.

CAMPBELLTON, N.B., 9th December, 1889.

DEAR SIR,—In answer to your enquiry as to the state of the salmon fisheries at present, in comparison to what they were years ago, I beg to say I am the owner of a fishing station situated some two miles above Campbellton. I have been engaged in the salmon fishery for twenty years, and I believe, notwithstanding all the anglers and the great increase of nets in the bay and on the coast of late years, the salmon are more plentiful than they were years ago, the catch each year is more uniform, and the fish were larger this last season than I ever saw them before. I certainly believe these results are largely due to the planting of the millions of fry from the hatchery.

I am, yours truly,

WILLIAM PRATT.

METAPEDIA, 15th December, 1889.

DEAR SIR,—In reply to yours of the 10th inst., I can say I have been living on the Restigouche for forty years. I am the owner and still retain my angling privilege, some eighty rods fronting on one side of the river. I leased it last season to some sporting gentleman of New York for $100, it being the second year it was possible to lease it. The R. S. Club refused to lease, saying there was no fishing on it, but two years ago some thirty fish were caught, and last season twenty-five fish taken, averaging over 20 lbs. It is only of late years, and since the fish began to increase, that the anglers could be persuaded to fish in the long reaches of the river. I actually believe there are ten fish in the river now to where there was one twenty years ago, and the fishery has enhanced in value 500 per cent. It is reported by all parties that the river is full of fish. I have no doubt but what the hatchery, combined with protection, has been the main factor of bringing about this result.

I am, yours very truly,

NATHANIEL MOORES.

RUNNEYMEDE P.O., METAPEDIA, 16th December, 1889.

DEAR SIR,—In reply to your inquiry respecting the benefits (if any) of the Restigouche hatchery to the river, would say, my opinion is, owing to the increased numbers of nets on the coast and estuary since 1872 and the increase of anglers since 1880, that only for the hatchery the salmon would be nearly extinct, and the great increase of nets above referred to plainly shows that there must have been a corresponding increase of the fish.

I own over 480 rods of frontage on the river. I formerly set a salmon net thereon and never took, or caught, over four barrels per annum. Since 1880 I have only fished with my rod and have regularly leased my fishery to anglers, at an average of $200 per annum, and I attribute the extra benefits and regular annual supply to the Restigouche hatchery, which is no doubt also supplemented by the better protection afforded by the leesees. I may say, when properly angled by those who know how, my fishery averages from forty to fifty salmon yearly.

I am, Sir, your obedient servant,

JAS. H. MOORES.

TIDE HEAD, 13th December, 1889.

DEAR SIR,—In reply to your letter of the 10th inst. asking my views on the state of the salmon fisheries and the benefits of the hatchery: I have, as you know, been in the employ of the Restigouche Salmon Club, acting as guardian of the river around Tide Head for the last three years. I am the owner of a net fishery, but as it is in the boom limits and the great number of logs coming down annually has completely spoiled it. But some of my neighbors, who are more favorably situated, and also in the boom limits, made a very good fishing last season, the best for a number of years, and I am positive there was a very large run of salmon. I heard of some good catches among the net fishermen. Of course, there is a falling off in the estuary, but I think this is very easy accounted for when it is taken into consideration that the nets on the coast have increased of late years 50 per cent. The catch has also increased accordingly, and the fish that do escape the multitude of nets below, by the time they have reached the estuary they become by instinct so cautious as to avoid the nets, that they will not go into these only when the water is dirty, or the wind is blowing strong. The fishermen say they are so shy that they will not even mesh when in the pounds. They have to be hooked out with the gaff.

In going over my beat at night I have often seen the fish running in all directions over the shallow bars and places, and I believe there are ten fish in the river now to where there was one twenty years ago. I have noticed the young "smolts" playing about at the Tide Head in schools like smelts on their way out to sea. From what I have seen and read about artificial fish breeding, I believe the hatchery is

justly entitled to be credited with a large share of the preservation and healthy condition of the salmon fisheries as they now exist on the Restigouche and Bay des Chaleurs.

I am, yours very truly,

ROBT. D. GERRARD.

BROADLANDS, QUE., 9th December, 1889.

The Honorable

The Minister of Marine and Fisheries.

SIR,—In reply to your request for my opinion of the value of the hatcheries on the catch of salmon on the Restigouche River, I beg leave to say that, in my opinion, it is a very difficult, I may say impossible question to answer, as so many other things have to be considered.

It is a well known fact that for several years after Confederation, when spearing salmon was prohibited, and drifting in a great measure stopped, the salmon increased very rapidly until the year 1878, when the catch reached its highest point. But, since the year 1888, though the number of nets in the river above Campbellton has been reduced one-third, the catch has fallen off at least one-half on an average in the estuary.

I would account for this falling off in the catch partly by the great increase in the number of nets in the Bay des Chaleurs, and the trap nets which are used there, and partly to the excessive angling on the spawning grounds on the Restigouche and its tributaries.

From what I have read of the beneficial results of fish-breeding in other places, and what I would suppose should be the result here, I would say that the placing of young salmon in the different streams must be of great benefit. The only thing is that the number placed has been too small.

As I cannot give a more positive answer to your question,

I have the honour to be, Sir,

Your obedient servant,

MELVIN ADAMS.

CAMPBELLTON, 20th August, 1889.

DEAR SIR,—Being always in favor of pisciculture and of salmon breeding in particular, since it was first started in this place, I feel much pleased with the statements of overseers and guardians on the River Restigouche, of the immense numbers of salmon in the pools and on the spawning beds this season, since all fishing has ceased. In my opinion no better proof could be given of the success of your efforts in artificial breeding. From 1830 until 1860 there were but few stands of nets comparatively in the Bay des Chaleurs and River Restigouche, and although only the most choice spots were occupied it was only in exceptional years they were considered remunerative. My business led me to be on the river towing and otherwise for thirty to forty years, and I can truly say it was a rare thing to see salmon anywhere in the stream after the 1st of August in any year within that time. What a change now! The pools in places are crowded with them, and they can be seen after the 20th October almost anywhere on the bars from the First Islands to the head of the river, in the act of spawning. Although the complaint may be true that there has not been so many salmon taken from Dalhousie up to the First Islands in the last seven years, on an average, as there was in the preceding seven years, it can be accounted for by the great number of new stands placed along the Bay des Chaleurs shores, and the great improvement in the mode of fishing in late years. I may also state in my experience I find the salmon much more wary of late than they used to be, and shun the nets in calm weather. I think I am not wrong in stating that the breeding establishment has been a good thing for all concerned on Bay des Chaleurs and Restigouche Rivers.

I am, Sir, Yours truly,

ALEX. R. CHAMBERLIN.

After that portion of this report dealing with the subject of sawdust (from page 12 to page 23) was in print, other letters of importance treating upon the effects of sawdust on fish life, came to hand, namely, from Commissioner Stillwell from Maine, and Mr. Cheney from Glen's Falls, New York State. Extracts from these letters are hereto added as follows:—

Extract from letter of Henry O. Stanly, Fish Commissioner, State of Maine, *in re* sawdust:

"In regard to the disposition of mill waste in this country, would say the only method (except that of turning it into the stream) at present is by burning. Large quantities of sawdust and other waste are thrown into the Penobscot, Kennebec and other rivers. The coarser parts, such as edgings, bark, &c., which is not used for firewood for domestic purposes, is in part burned on the premises, in a receptacle for that purpose, but much of it finds its way into the rivers, and in many places fills the rivers to a great extent and damages the navigation very much.

"It does not seem to have injured the salmon so much as any one would be likely to suppose. The reason (in my opinion) is that the mills are located low down on the river below the natural spawning or breeding haunts of the salmon. The fish when they come into the mouths of the rivers stop but a short time, but run up past the mills, escaping the injurious effects of the sawdust, &c., &c. I think the most injury is done by its filling the beds of the rivers and obstructing navigation.

"I have no doubt it has a very injurious effect on other kinds of fish which do not run far up rivers, such as the alewife, shad, &c. Where the sawdust and other *débris* cover the bottom of spawning grounds I think they are ruined. What we fear much at the present time is the waste and chemicals from the pulp mills which are now being built on every stream in this country. It is death to every living thing in the water in the vicinity where the waste is turned into the river. Unless a remedy for the evil is soon solved the salmon fisheries in Maine will be a thing of the past."

Extract from letter of A. N. Cheney, Esq., editor *Fishing and Shooting:*

"Saw-mills on the upper Hudson are water-mills, and since the first one was built it has been the custom of the mill-owners to dump the sawdust into the river. It has been the custom also to throw edgings and other woodwaste into the river; but it ceased a short time ago, when the edgings, etc., were sawed into stove wood. Only during the last winter have the saw-mills at this place arranged to save the sawdust that it may be used as fuel in a paper-mill near at hand. Tight boxes with sloping bottoms are built under all the saws, gangs, slabbers, butting, stave, heading and lath saws. The sloping bottoms of the boxes conduct the sawdust to a wooden trough through which passes an endless belt of leather, on which are fastened iron cups or buckets (similar to the buckets used in flour-mills for raising flour) that draw the sawdust through the trough to a storing pit, from which it is carted to the paper-mills. As this storing pit is at the bottom of the mill, the sawdust is lifted to the ground floor by another series of iron cups or buckets on an endless chain. These are called conveyors, and are placed horizontally under the mill floor, and all lead from the different saws to the storing pit. *The manner of saving the sawdust is simplicity itself, and as it requires no hand labor it is inexpensive.* * * * * That sawdust in one way does do injury to the fish there is no question in my mind, for it covers the spawning beds, smothering eggs and young, and except in very swift water it leaves no place after a time for a fish to make a decent spawning bed.

"How much poison comes from the tons of hemlock sawdust deposited annually in the river I cannot say, but I believe the Pharmacopœia says that it takes only eight pounds of hemlock to make one ounce of the oil, and as Socrates came to his death from hemlock water, it does not seem that our fishes should be able to withstand what proved to be the undoing of the Grecian Sage, unless modern fishes are tougher than the ancient Greek. Nor can I say what poisonous gasses are generated by the rotting of the masses of sawdust which covers the river bed and lines the rivers banks, partly in the sun and air, and partly in the water, a soggy offensive

sight if not a breeder of disease. The tannin in oak troughs, and the turpentine in pine troughs will kill young fish, if the troughs are not covered with tar or asbestos, as it has done in hatcheries where these precautions have been neglected. Why then should not hemlock and pine sawdust under some conditions be injurious to older fishes ?"

CONCLUSION.

Having submitted the various matters relative to the operations of artificial fish culture in Canada during the past year, as related above, it will be unnecessary to add more, but simply draw the attention of your Department to the importance of extending its operation, so that all parts of the country may be enabled to partake of the benefits of an industry which has now become world-wide in its operations.

In the appendices hereto will be found the reports of the several fishery officers in charge of the hatcheries of the Dominion.

All of which is respectfully submitted,

SAMUEL WILMOT,
Superintendent of Fish Culture for Canada.

FISH CULTURE.

1889.

APPENDICES.

REPORTS FROM THE SEVERAL OFFICERS IN CHARGE OF FISH-BREEDING ESTABLISHMENTS IN THE SEVERAL PROVINCES OF CANADA FOR 1889.

1.—FRASER RIVER HATCHERY.

PROVINCE OF BRITISH COLUMBIA.

Report of the Officer in Charge of the Fraser River Hatchery for 1889.

I have the honor to submit the sixth annual report of this hatchery, together with a statement of the distribution of fry and collection of eggs during the season of 1889.

From the eggs laid down in the hatchery during the fall of 1888 the following numbers of fry were distributed on the dates and at the places here mentioned, namely:—

Saw-quay Salmon (Nerka.)

February	13, 1889,	Pitt Lake	200,000
do	20, 1889,	do	425,000
do	28, 1889,	Harrison River	600,000
March	6, 1889,	Sumas Lake	400,000
do	14, 1889,	Pitt Lake	600,950
do	21, 1889,	Chilawheck Rapids	600,000
do	23, 1889,	Harrison River	600,000
do	26, 1889,	do do	550,000
April	3, 1889,	Silver Creek	223,000
do	11, 1889,	Nicklemockel	60,000
do	13, 1889,	Coquitlam	161,000
Total			4,419,500

Included in the above number were 373,000 fry of the quinnat salmon (chouicha), which were put in the Fraser and Harrison Rivers. Of these the percentage of loss was much greater than the "Nerka," on account of the fish having been caught by gill nets and kept in floating cribs, which caused bruises that developed fungus and unhealthiness of the fish. At the time these salmon were caught and stripped there was only one experienced man in charge of operations, the caretaker being at Okanagan, and Mr. McNish at River's Inlet, where each were doing duty as fishery guardians. The "quinnat" fish were no doubt roughly handled by the Indian fishermen, for it was impossible for one man to be up day and night watching them. They were also the first eggs laid in the hatchery, and as the season was very mild

and the water warm, fungus had a better chance of developing. But notwithstanding the loss on the "quinnat" salmon ova, taking the whole number laid in the nursery, the rate of mortality was nearly one-half less than in any previous season. This success is attributed to the fact that the parent fish last season were handled by men who had had experience and a knowledge of the business, and that my orders in stripping fish were strictly adhered to, which was that only three fish should be stripped at a time, and that it should be done under the shade of a tent or tree, so that the sun's rays would not strike on the eggs, and that only a portion of the eggs should be taken from a fish at a time, and if the slightest disease was noticeable the fish were to be rejected.

The eggs were laid in wire baskets as soon as they reached the hatchery, in place of being left on the trays, so that sedimentary matter had less chance of collecting on them and fungoid growth was less likely to prevail.

There was no fry distributed in the rivers on Vancouver Island last season, as the capacity of the hatchery was capable of hatching the quantity of eggs laid in, and as the intention of the hatchery was to keep up the supply of fish in the Fraser, it was thought best to distribute them in it and its tributaries.

Owing to the lateness of instructions and the difficulty to obtain suitable steamers at the proper time, the fish were held in the nursery until the sack was absorbed and many of them were taking food before leaving the troughs. The cost of distributing them at this age came to a little more than in previous years, as there could not be so many put in the distributing scows at once, which caused a greater number of trips with the steamers. But from this year's experience I have learned that it is better to keep the fry in the nursery until the sack is all absorbed. They are then more active and better fitted to protect themselves.

No shad were caught in the Fraser this season to my knowledge, but a good many were caught in the Columbia River, Puget Sound, and along the Vancouver Island coast. I would again recommend, as in previous years, that some shad fry be secured and put in the Fraser and other streams in this Province.

Whitefish have not yet been introduced in any of these waters from Ontario, although enquiries still continue to be made for them. The lakes that produce native whitefish are so isolated that they can not be got to market without heavy cost, and even then the quality of the fish is quite inferior to those of the east.

The quantities of salmon fry distributed from the hatchery since its erection are as follows:—

The year	1885	1,800,000
do	1886	2,625,000
do	1887	4,414,000
do	1888	5,807,000
do	1889	4,149,500
	Grand Total	19,065,500

From this output of fry there has been unmistakably a great deal of benefit derived, as will be seen by the enclosed certificates from the canners of the Fraser River, the fishery guardians of Nanaimo and Cowichan River, the corporation of the municipallty of Surrey, and Mr. Robert Kelly, of Couquitlam. From my own experience on the Harrison River I must say that, I think the fish have increased tenfold, as in the year of 1885–86 we could hardly secure any parent fish in the Morris Creek, where we now catch them numerously. Formerly they had to be swept from the lake with a net, and only a few hundred entered our traps the first two seasons. Last year the fish were in greater numbers than before, but of a smaller size. I believe the large run in Morris Creek in the year 1888 was caused by the output of fry from this nursery and the extraordinary masses of "suckeye" salmon that ascended all the streams of the Harrison, but more particularly the Morris Creek were also due to the output of fry from this establishment. It would be almost im-

possible for me to attempt to describe the quantities of fish that were in some of those streams, so I enclose with this report two photographs, one showing the fish in the stream ascending it to the traps, and the other showing the masses of fish that were crowded into the pens during the spawning season.

The Indians living on the Harrison, where the parent fish are captured, were previous to this season unbelievers as to the benefits from the hatchery. But now they are decided to a man that the enormous swarms of fish seen this season were caused by the fry put into this hatchery.

I enclose also for publication, in addition to the canner's certificates, a letter from the State Fish Commissioners of Oregon, United States, which gives their views on the success of the Clackamas hatchery; and a letter from R. W. Hume, of Ellensburg, who operated at his own expense a hatchery on Rogue River, State of Oregon.

Collection of Ova.

The number of eggs laid in the hatchery this fall amounted to 233,000, all of the "suckeye salmon" (Nerka). Operations were commenced on 23rd September and ended on 7th November. There were no "quinnat" salmon eggs taken this season, as the fish are not procurable in traps at the points where the "suckeye" salmon are captured. The "quinnat" have to be caght by gill nets, which is more expensive, and so injures the fish that they give unhealthy eggs. In any case the "suckeye" salmon are considered of better color, and of more value to the general trade.

There was no count kept of the fish captured, or that passed through our traps; in fact, it could hardly be done by any other means than a salmon register, as you will notice by the enclosed photo, that our pens were crowded all the time. We therefore only selected the healthiest and strongest salmon, allowing the others to pass up the stream by the opening of a slide gate in the trap. However, the suckeye salmon will not average over 5,000 eggs to the fish, and from the majority of the fish stripped this season there was seldom more than 3,000 eggs taken from them.

Repairs.

This establishment has now run six years without any repairs, and a building of this kind soon goes to wreck. During the month of April or May next it should be fitted with a new gutter pipe, as the old one has fallen off. New hatching troughs are necessary to replace some that are very leaky. The foundations of the building under the water tank requires re-blocking, as the old ones are quite rotten. The upper part of the building should be fitted with a new races and troughs, in order to increase the capacity of the hatchery. The roof of the building should be repaired, as it is leaking in places. The grounds should be put in new shape, and the entire building should have a coat of paint. A new and larger flume for conveying the water supply is absolutely necessary, as the one used now is unsafe and may at any time break down, causing the destruction of all the eggs or fry in the hatchery.

I have the honor to be, Sir,

Your obedient servant,

THOS. MOWAT,
Officer in Charge.

2.—SYDNEY HATCHERY.

PROVINCE OF NOVA SCOTIA.

Report of the Officer in Charge of Sydney Hatchery, 1889.

SIR,—I have the honor herewith to submit my annual report upon the work done at this hatchery during the past year.

As stated in a former report, I laid down in the hatching troughs in the fall of 1888, 2,678,000 ova; of these, 2,034,500 fry were hatched and distributed in the best possible condition in the following streams, viz.:—

Margaree River (Inverness Co.)	200,000
Shubenacadie River (Cape Breton Co.)	50,000
Sydney River do	350,000
Ball's Creek do	150,000
Trout Brook do	150,000
Black Brook do	134,000
Grand Lake do	100,000
Eskasoni River do	50,000
Salmon River do	100,000
George's River do	150,000
Leitch's Creek do	50,000
McLean's Brook do	150,000
Middle River (Victoria Co.)	150,000
Baddeck River do	150,000
Grand River (Richmond Co.)	50,000
Iron River do	50,000
Hatching Brook (Cape Breton Co.)	50,000
Total	2,034,500

The following table shows the number of parent salmon caught this season and the rivers in which they were caught, also the number of ova laid down in the hatching troughs this season.

Name of River.	Males.	Females.	Total.	No. of Ova.
Margaree River	76	204	280	1,470,000
Middle River	60	50	110	254,000
Lower Middle River	55	45	100	236,000
Sydney River	30	50	80	400,000
Salmon River	21	30	51	180,000
Total	242	379	621	2,540,000

The above is not strictly correct as to numbers of male and female, it being almost impossible to make an accurate count at Margaree and Middle Rivers. The number of ova is taken from the actual condition of the trays; after they were laid down and all the ova picked out that were affected by transportation from the different spawning places.

In the waters of this Island it is hard to show an increase in the salmon fisheries. The rivers stocked from the hatchery were in years gone by good salmon rivers, and if to-day a goodly number of salmon were caught, the artificial means employed would not be fully credited for its assistance. This season all our fish seem to have left us; even the cod, mackerel and herring deserted our shores; the catch of salmon was also below the average. There must be some general cause for this. If we look back over the last ten or fifteen years we find that every year is not equally prosperous with fishermen; some years they reap a goodly harvest, while perhaps the

next year they are disappointed, and the fisherie is a failure. This is true of all kinds of fish, particularly salmon. Does not this lead us to believe that salmon do very frequently break the law and stray to other waters, the law governing their actions being the supply of food. Last season our salmon fishery during the open season was, if anything, above the average; this year it was below, but during the months of September, October and November they were as plenty as usual in the river and the average high. There was one thing very noticeable in the fish handled this season: they were small and of a uniform size; we have handled more fish from 7 to 9 pounds than ever before. We also handled some female grilse which we never saw in these waters before. Our rivers are teeming with young salmon, their increase being unanimously attributed to the work of this hatchery.

The improvements done about the place this year were not great. As reported last year, the floor of the hatchery room required thorough repairing—in fact, a new floor. I received no instructions to proceed with the placing of a new floor, and consequently confined myself to the repairing of it. I found it in a very bad condition. Two pieces of joist had to be removed and new ones put in. About one-quarter of the whole floor had also to be replaced. The remainder is scarcely good enough to do for the winter. The whole floor will require to be taken out next summer and a new one put in. I also did some work to the outhouses. One required some shingling and roof boarding. Everything in and about the hatchery now is in thorough condition, except the floor already mentioned. The outside of the house also is sorely in need of paint. I would recommend that the painting be attended to as early as possible in the spring. The flooring can be done any time during the summer.

We have in this Island some of the finest fresh water lakes in the world, and it seems now the time has come when we should get a supply of land-locked salmon for them. With the facilities we have now of conveying fry and ova from the other Provinces to this most easterly part of the Dominion, there is no reason why we should not have these fish introduced here. I understand that strong efforts are to be made this season to secure some of these fish for our lakes. I hope you will favor the scheme and give us at least enough for our lakes.

All of which is respectfully submitted.

I have the honor to be, Sir,
Your obedient servant,
C. A. FARQUHARSON.

3.—BEDFORD HATCHERY.

PROVINCE OF NOVA SCOTIA.

Report of the Officer in Charge of the Bedford Hatchery for 1889.

SIR,—I have the honor herewith to submit my report upon the operations at this hatchery during the past year.

As previously reported, the number of salmon ova laid down last year was 1,100,000. To this number was subsequently added 3,000,000 whitefish, 500,000 salmon-trout ova, making a total of 4,600,000.

Shortly after the arrival of the whitefish and salmon trout ova from Ontario, I received instructions to distribute portions of them amongst the several small auxiliary hatcheries located in different parts of this Province.

This distribution was as follows:—

Lochaber,	Antigonish	County,	Salmon-trout ova	.....	120,000
do	do	do	Whitefish	"	300,000
Kempt,	Queen's	do	Salmon trout	"	100,000
do	do	do	Whitefish	"	500,000
Tusket,	Yarmouth	do	Salmon-trout	"	60,000
Sheet Harbor,	Halifax	do	do	"	60,000
Kentville,	King's	do	do	"	70,000
					1,210,000

Making a total of 1,210,000 semi-hatched ova disposed of in the month of April. At the same time I conveyed to these hatcheries their usual supplies of partially hatched salmon, as follows: Lochaber, 100,000; Tusket, 40,000; Sheet Harbor, 40,000—or a total distribution at that date of 1,390,000 ova, leaving the balance of 3,720,000 in the troughs of this establishment.

With the salmon and whitefish ova the most satisfactory success was met with in their hatching; and while at Lochaber, Sheet Harbor and Kentville the percentage of salmon trout hatched was fully up to the average, some losses were met with at Kempt, Tusket, and at this hatchery.

I have as yet been unable to solve the difficulty heretofore experienced in hatching the ova of the salmon trout in the water with which this hatchery is supplied, but from the results obtained at the different temporary hatcheries, and noting the temperature and condition of the waters at these points, I am led to believe that in some way to those features the loss is attributable. During the next season I propose instituting such observations at these small temporary hatcheries as will be likely to throw some light on the subject.

Notwithstanding the partial failures to which I have alluded, I would respectfully urge upon your Department the advisability of continuing the effort to stock the numerous lakes of this Province with these fish. Considering the number and extent of these inland waters and their apparent adaptability for supporting fish life, the extent, magnitude and commercial importance of which this prospective fishery is capable, a much more decided effort in future would be warranted, and to this end each of the counties in the western portion of this Province should be provided with an auxiliary hatchery. These could be built at but slight expense; being used only during the spring months they need not be so substantially constructed as this building, and the cost of working them would not exceed $100 per year. They could be so arranged that a considerable number of whitefish could be hatched at the same time, and they could also accommodate a number of salmon ova, and thus materially assist in the economical prosecution and extension of the work to which this institution has been particularly devoted. Such hatcheries as I refer to, capable of hatching 4,000,000 or 5,000,000 of whitefish, 200,000 salmon-trout, and a similar number of salmon ova, could be erected at a cost not exceeding $600.

Distribution of Fry.

The distribution of fry from this hatchery for the past year, including the semi-hatched ova already mentioned, was as follows:—

Salmon Fry.

Musquodoboit River,		Halifax County	40,000
Sackville	do	do	20,000
Nine Mile	do	do	40,000
Pennant	do	do	20,000
Little Salmon	do	do	20,000
Ecum Secum	do	do	40,000
Salmon	do	Colchester County	40,000
Stewiacke	do	do	40,000
Wallace	do	Cumberland County	40,000
Philip	do	do	40,000
West	do	Pictou County	40,000
East	do	do	40,000
Middle	do	do	40,000
Gaspereau	do	King's County	40,000
Cornwallis	do	do	40,000
La Have	do	Lunenburg County	40,000
Gold River,		Lunenburg County	20,000
Middle	do	do	20,000
East	do	do	40,000

Annapolis River, Annapolis County	40,000
Round Hill do do do	40,000
Tusket do Yarmouth do	40,000
Lochaber do Antigonish do	100,000
Roseway do Shelburne do	20,000
Total salmon fry	900,000

Salmon-Trout Fry.

Lochaber Lake, Antigonish County	120,000
Gaspereau do King's do	70,000
Little River Lake, do do	20,000
Rossignol do Queen's do	100,000
Tusket do Yarmouth do	60,000
Sheet Harbor do Halifax do	60,000
Hubley's do do do	20,000
Total salmon-trout fry	450,000

Whitefish Fry.

Grand Lake, Halifax County	500,000
Hubley's do do	200,000
Williams' Lake do	200,000
Governor's do do	200,000
Sandy do do	200,000
Lochaber do Antigonish County	300,000
Rossignol do Queen's do	500,000
Gaspereau do King's do	200,000
Milford do Annapolis do	200,000
Total whitefish fry	2,500,000

Totals.

Salmon	900,000
Salmon trout	450,000
Whitefish	2,500,000
Grand total	3,850,000

I am able to report that this work was performed with almost perfect success, no loss being met with, except among one lot, which I was ordered to take to the Roseway River, in Shelburne County. Knowing the difficulties to be encountered on such a long journey by steamer I took every possible precaution to avoid loss. I provided six large casks of water, and so arranged the barrels containing the young fish that a stream of water could be kept passing through them. Owing to rough weather and detention by fog, Shelburne was not reached until the following morning, over twenty hours after leaving Halifax, and my supply of ice and fresh water being exhausted, I met with considerable loss of fry.

I would respectfully suggest that if any further attempts to stock the rivers of Shelburne County be contemplated by your Department that a small auxiliary hatchery be erected at Shelburne town, to which the ova could be taken some time before hatching with perfect safety, and from which the young fry could be readily conveyed to the different rivers. The rivers of Lunenburg County, which I have been endeavoring to re-stock for some years past, owing to their great distance by road from this hatchery, have not been served as generously or successfully as their

importance would warrant, and I would suggest that a small hatchery be erected at some central point in that county. The same plan should also be adopted in Digby and Annapolis counties. The very marked increase in the salmon fisheries of this Province since the introduction of fish culture, as shown by the fishery statistics, and which I endeavored to demonstrate to your Department in my annual report of last year, should warrant the work being undertaken on a much larger scale than at present.

It can be justly claimed that fish culture has passed through the experimental stage, and has established itself as a practical art, upon which any expenditure made will give satisfaction and highly remunerative returns. The continual decline in the salmon fisheries of the Province up to the year 1882 clearly demonstrates the fact that in the present condition of our rivers the natural reproduction is quite insufficient to maintain the supply, and that to retain our present stock in the presence of the continuously increasing demand, more hatcheries are necessary, and all parts of our coast should receive a bountiful supply of young fry annually.

The almost universally expressed desire of those of the inhabitants of the western counties of this Province with whom I have come in contact for the extension of the fish cultural operations of your Department prompts me to respectfully urge upon you compliance with their requests, and the introduction of such appliances as will enable us to produce such a number of young fry as will bear a reasonable proportion to the natural reproduction of past years.

If I might be permitted to offer a suggestion in reference to the extension of fish cultural operations, I would say that probably the most economical manner in which an increased output would be effected would be to enlarge the hatching capacity of this institution to the desired extent, make this the general depôt from which the auxiliary hatcheries located in such counties as are beyond the scope of this establishment, could receive their supplies of semi-hatched ova each spring.

The work of collecting the ova for this larger institution and the necessary care to be given them during the winter months would be obtained at very little over the cost of the present work, while the final hatching and the distribution of the fry from these points could be performed by the overseers or wardens of the districts at a cost not exceeding $100 per year.

Collection of Ova.

In the work of capturing a supply of parent fish from which to procure a stock of ova for this season's operations I was very successful. Having obtained permission from your Department to operate on the Musquodoboit River, on the 1st September I engaged the fishermen and put them in charge of the trap, which had been placed in the natural pass around the dam at the mouth of the stream. Very dry weather having set in about that time the river became so low that no fish could enter—in fact, during the greater part of September no water passed through the ladder. In the mean time large numbers of salmon congregated in the pools below the dam, and early in October, when the first freshet occurred, they commenced to ascend the pass, where they were captured in the trap. In this way a large number were taken, but as the water fell off again rendering this trap useless, I was obliged to resort to setting a net in the pools below. Altogether 270 salmon were taken from this river and conveyed by means of water-tight boxes to a raceway about one mile distant, where a tank and spawning shed was provided. Here they were eventually shipped and returned to their native stream. Permission was also obtained from your Department to operate upon the West River, in Pictou County, but at this point it was not as successful as in former years.

As in the Musquodoboit River, low water also prevailed during the season when salmon usually enter this river, and the fish were obliged to remain in the tidal waters, where I have reason to believe large numbers were caught by the inhabitants. The catch by the fishermen amounted to 67 fish in all at the West River.

The total catch from these two rivers amounted 337 fish, as follows: Musqudoboit River, 82 males, 188 females; West River, 24 males and 43 females. Of these 231 were females, producing about 2,300,000 ova. The loss up to the present time has not exceeded the usual percentage, and as the embryos are now visible in the greater portion of them, the prospects of a successful hatching are favorable.

I beg to report that the hatchery and all its appliances are in good condition, and no extraordinary outlay will be required during the next year.

I have the honor to be Sir,

Your obedient servant,

A. B. WILMOT,
Officer in Charge.

4.—DUNK RIVER HATCHERY.

PROVINCE OF PRINCE EDWARD ISLAND.

Not running in 1889. *See* summary (4).

5.—ST. JOHN RIVER HATCHERY.

PROVINCE OF NEW BRUNSWICK.

Report of the Officer in Charge of the St. John River Hatchery. 1889.

SIR,—I have the honor to make the following report on the operations of the St. John River fish hatchery for the present year.

In order to give an intelligent account of the work it will be necessary for me to state that in the autumn of 1888 I was informed by the Deputy Minister of Fisheries that it was not the intention of the Department to take any parent salmon on the Tobique River that year, out that this hatchery would be supplied with ova from the Restigouche nursery; consequently, there were no eggs put in this house the first part of the hatching season. However, in the month of March I received from the Newcastle and Sandwich hatcheries, in Ontario, by the hands of Mr. Charles Wilmot, 3,000,000 whitefish and 1,000,000 salmon-trout eggs; and on the first day of May I got another consignment of 150,000 Restigouche salmon eggs from Mr. Alexander Mowat, making in all 4,150,000 fish eggs of the different species above named. They were all received in fair condition. The only loss sustained was with a few of the Restigouche eggs, which hatched out prematurely, on account of the lateness ef the season when they were transferred. With this exception the different classes of eggs did very well and a large percentage hatched out.

On the 5th of April I commenced the distribution of whitefish fry, a labor that is fraught with a great deal of hardship, owing to the very bad state of the roads at that season of the year. On the 5th of June I started to distribute the salmon-trout and salmon fry, and finished planting the entire lot on the 4th day of July. The work was successfully performed, without any appreciable loss of young fish, notwithstanding the long distances that the majority of them are carried. They were apportioned amongst the Counties of Victoria, Carlton, York, Sunbury, Queen's King's and Charlotte. Below I give a tabulated statement of the several localities in which I planted the different kinds of fry, the quantity put into each, the name of the river, lake or stream, and the distance in miles that each lot was carried, and the mode of conveyance.

Whitefish Fry Planted and Distance from the Hatchery.

	No.	By rail.	By waggon.	Miles.
Magaguadavic Lake, York Co.	350,000	....	...	128
Harvey do do	350,000	....	...	138
Oromocto do do	350,000	138	10	148
Lakeville Lake, Carleton Co.	350,000	46	13	59
Skiff do do	350,000	97	7	104
Foster do Charlotte do	350,000	145	...	145
Portage do Victoria do	200,900	....	7	7
Long do do do	300,000	....	9	9
Total.....	2,600,000			738

Salmon-Trout Fry Planted and Distance from the Hatchery.

Lakeville Lake, Carleton Co.	106,000	46	13	59
Skiff do York Co.....	140,000	97	7	104
Harvey do do	150,000	138	...	138
Chamcook do Charlotte Co.	150,000	157	...	157
Foster do do	120,000	145	...	145
Long do Victoria Co.	90,000	...	9	9
To a Mr. Thompson, Woodstock, Carleton County.....	36,000	...	...	...
To Fishery Overseer Burt, Hartland, Carleton Co.....	30,000	...	...	...
Run out at the Hatchery about	8,000	..	...	...
Total.....	830,000			612

Salmon Fry planted and Distance from the Hatchery.

Lake Alva, Kings Co.....	30,000	By rail	190	Waggon	7	197
Washademoak River, Queen's Co.....	25,000	do	210	Steamer	65	275
Salmon River, Queen's Co.	25,000	do	210	do	70	280
Oromocto, North Branch Sunbury Co.....	25,000	do	135	Waggon	10	148
St. Croix River, Charlotte Co.....	25,000	do	132	Boat	2	134
St. John River, Victoria Co	10,000		....		..	....
	140,000					1,034

Recapitulation—

Whitefish fry.....	2,600,000	Miles travelled.	738
Salmon Trout.....	830,000	do	612
Grand total.....	3,570,000	do	2,384

I respectfully desire to inform you that in transporting the young fry such long distances as I am compelled to entails a vast amount of care and necessitates a heavy expenditure to perform the work in compliance with my instructions.

There is a redeeming feature in connection with the work, that the applicants are delighted to get the young fry; but there is a special preference for the salmon fry, particularly for waters where sport is the object in view, but where the fish are required for food purposes the people are well pleased to see the salmon trout and whitefish introduced in the lakes, although they know very little about this class of

fish; but I have endeavored to explain to them their quality and usefulness as a food fish. Some very fine specimens of the salmon trout were caught by Doctor Gove and another gentleman from St. Andrew's, in Chamcook Lake last summer, weighing from three to seven pounds. I was also informed that salmon trout were taken by some of the New Brunswick railroad employés in Williamstown lakes, and no doubt both salmon-trout and whitefish were caught in other lakes. Some of these lakes are held by lessees, who will not permit outsiders to fish them, nor will the proprietors allow net fishing. It is, therefore, difficult to ascertain what quantity of these fish have matured in these waters.

Last autumn I got instructions by your Department to proceed up the Tobique and Serpentine rivers, with the view of capturing parent salmon to stock the nursery. When I arrived at the spawning grounds on the Serpentine I found scarcely any salmon there. I caught a few, but they had already spawned. I then abandoned the work and returned at once, in order to avoid expenses, being fully convinced that it was useless to spend time so late in the season.

I was not unprepared to find the salmon scarce on the Serpentine, for on my way up I was informed that the lumber drive on that river was kept back last spring for the want of water to take it down; consequently, I was satisfied that if there was not water enough to float the lumber down there would not be sufficient water for the fish to get over the falls, as no salmon can ascend the several falls that are upon it except in the hight freshet in the spring. I learned from all the information that I could gather that the salmon are slaughtered by every conceivable means that the poachers could invent, even to dynamite. There seems to have been no protection for the salmon on the Tobique waters last summer, and if some authority does not take the matter in hand to protect this river the salmon will soon be as scarce on the Tobique and its tributaries as they were before the artificially hatched fry were first planted in them.

Parent Salmon.

It is much to be regretted that your Department does not come to a final conclusion to have the parent salmon for this hatchery taken in the St. John harbor. I cannot see any valid objections against the scheme, but on the contrary there is good reasons for adopting it. In the first place, a sufficient number of fish would be caught every year; in the second place, it would be the most certain and economical plan; and in the third place, it would be the most prudent system for the improvement of the St. John River fisheries. The eggs taken from the salmon now caught in the harbor for food purposes would be saved and hatched in the nursery, for the benefit of our waters, and the parent salmon would also be saved and liberated alive, whereas at present both the salmon and their eggs are wholly lost to the river.

I understand that some objections have been raised by certain parties against using the Carleton Pond, in St. John, as a safe resevoir for the salmon until they became ripe for spawning. The Superintendent of Fish Culture should be good authority on this point, and his opinion is that the pond in question could be made suitable at trifling expense for the purpose named. At any rate, some convenient place above or below the falls at Indiantown (St. John) should be provided, so that salmon when caught in the harbor could be put into scows and carried to the place and then safely kept till the spawning time, the same as is done at the Restigouche, Miramichi and Tadoussac hatcheries. At Bucksport, below Bangor, in the State of Maine, the Americans tow their parent fish from 6 to 8 miles with row boats from their nets to the shore; they are then taken some distance up a river to their reservoir. I would respectfully request your Department to give this your serious consideration, as it is absolutely necessary that some such scheme should be adopted for supplying this nursery with salmon ova in the future. Both salmon and speckled trout fry are in great demand by the people here and in the adjoining counties, and I have to request your Department of Fisheries to make full provision to supply these wants of the inhabitants. Very little repairs have been made about the house the past summer, although some were much needed, but the frequent admonitions not to incur expenses

coming from the Departments has deterred me from making necessary repairs. The floor of the hatchery where the tanks are placed is in a bad condition. It is now 9 or 10 years old, and being constantly exposed to wet and dry weather, decay has set in. The platform outside the door is also in a most dilapidated condition, and the plaster on the walls requires repairing. These and other minor matters must be attended to next summer.

Respectfully submitted,

CHAS. McCLUSKEY,
Officer in Charge of St. John River Hatchery.

6.—MIRAMICHI HATCHERY.

PROVINCE OF NEW BRUNSWICK.

Report of the Officer in Charge of the Miramichi Hatchery for 1889.

I herewith submit my annual report upon the operations in connection with this hatchery for the past year. The eggs laid down in the hatching troughs on the 1st December, 1888, received the closest attention during the winter months, and I am pleased to state a very small loss was met with. In addition to the ova collected from parent salmon on this river, I received 50,000 "eyed eggs" from the Restigouche hatchery. Every exertion was made to have the young salmon hatched from these eggs planted as far up the streams as possible, and on the grounds best adapted for them to grow.

Following is a list of the rivers, with the numbers of fry planted in each, viz.:—

North-West Miramichi (native fry)	400,000
do (Restigouche fry)	30,000
Stony Brook (Restigouche fry)	20,000
South-West Miramichi (native fry)	50,000
Little South-West Miramichi (native fry)	240,000
Sevogle (native fry)	100,000
Stewart Brook	10,000
Total	850,000

I was very successful in the work of distribution this season, the weather being cool and favorable. Thirty thousand of the Restigouche fry were planted at the request of the Hon. Mr. Adams on the North-West Miramichi, a distance of about 45 miles up river by the road and nearly 75 by the river. The upper 22 miles of this road is only a portage, and required the greatest care to be taken in the carrying of the fry safely to this destination.

The remaining portion of the Restigouche fry, along with the 800,000 native fish, were planted as far as possible up the streams to which access was most easily gained.

I would here respectfully ask that a quantity of whitefish eggs be forwarded from some of the Ontario hatcheries to this nursery, the product of which I propose planting in the lake about seven miles distant from this establishment. I am of the opinion that this body of water would be well suited for this fresh-water fish. This lake is now almost destitute of fish of any kind, except some perch and a few lake trout. If the hatching and planting were successful, and as the growth of fish could easily be ascertained from time to time, it would be the means of introducing another valuable fish now altogether unknown in our waters.

In order to illustrate the benefits which must be derived from artificially-bred fry being planted in small streams which empty into the large rivers, and to refute other statements that are sometimes made by persons who decry the worth of fish culture, let us take the small stream which runs into the Miramichi River and supplies this hatchery as an example.

Previous to the erection of this hatchery not a salmon, smolt, or parr was to found in it, and what do we find now? Towards the latter part of August and 1st of September it was literally alive with young salmon, which are the results of planting in it eight or ten thousand fry every season. The small pools swarm with these young salmon, and hundreds could be taken with hook and line. When this result is obtained in this small brook (where any one can satisfy himself of the fact if he desires it) in which trout and other fish are also plentiful, and where the temperature and quality of the water does not differ materially from the up-river streams in which the fry are annually planted from this hatchery, then why should not this one simple fact give the strongest evidence of similar success attending the planting of the many thousands of fry from this hatchery into all the branches of the Miramichi for years past? But then there are designing persons who always oppose any progressive work, and who are so closely set in their own opinions that they will neither fairly consider nor inspect the workings of these *public* institutions, but prefer to circulate misleading statements and reports, which have no foundation whatever but in enmity. Look at the senseless fabrication which appeared some time ago in the columns of one of the local papers: "That thousands upon thousands of young salmon fry were found dead along the shores of the river." And this was sixty miles below the place where they were planted. When the successful results that I have pointed out can be attained in this little stream, why should it not be the same in similar streams up river? Where is the supply coming from if the product of naturally-deposited ova is not greatly augmented by these artificial means? Even the salmon, that may reach the spawning grounds, after having passed poachers' nets and other difficulties, will deposit their ova where ice, freshets, frost, and all the other elements may make war upon them. What has become of the ova naturally deposited this season, and what return can be expected from these eggs after 3,000,000 feet of lumber has been driven over the beds, besides two heavy freshets, accompanied each time by running ice? This occurs nearly every season in our rivers, and surely must destroy the greater number of naturally-laid ova. But still the salmon are not decreasing in the waters, although the fishermen are enlarging their operations and employing all the means they can to exhaust them. Nets are placed upon nearly every available stand upon the river, and salmon fishing was just as remunerative during the past season as for any time during the previous five or six years. The majority of fishermen believe this to be the beneficial results of artificial breeding. These fishermen and dealers—who take an interest in keeping the supply equal to the demand—plainly see that if there was no other resource besides the natural one their business would soon be a failure, and the enterprise and activity which this industry now creates would have to be directed into other channels in order to be remunerative.

Why is our striped bass fishery completely exhausted; and why is our smelt fishery yearly decreasing? The answer is plain—the natural supply cannot equal the enormous drain that is put upon it year by year,—alongside of the startling facts that the bass fishery is depleted, and the smelt fishery yearly decreasing—how favorably can the salmon fishing be compared, when it is known that it was better this season just passed than it was six years ago. Some of the fishermen in tidal waters say they have not taken as great a number of salmon this season as others, but they account for this falling off in the following manner: springtime set in about three weeks earlier than usual, and naturally the salmon entered the rivers at a much earlier date than other seasons—so early, in fact, that but very few fishermen had their nets or rigging in readiness to take the first run—while those men who owned fishing stands further up river, and who had their nets set before the run reached them—claim that, they caught more fish by the last of May than they would, other seasons, up to the last of June.

The fall run of salmon did not enter the rivers until October. There were some very large fish, and some of the fishermen are of the opinion that these large fish are the results of planting Restigouche fry in these head waters. Grilse were also very

plentiful, some of the up-river pools being literally alive with them about the latter days in September and first of October. Then the fishermen engaged to procure parent salmon for this house were seining in these pools; they have taken as many as a hundred and more of these young salmon at one sweep.

When the enormous drain upon our salmon fishery is considered—the almost endless number of nets from the mouth of the bay to the rapids—which are year by year doing a remunerative work—along with the facts that the waters are abounding with "parrs" "smolts" and "grilse"—it points to the conclusion that artificial hatching is the feeder that keeps up this supply, and is one of the greatest boons and benefits that can be granted to the fishermen of any river,—certain it is that, the natural sources could not supply the enormous demand—men of all opinions agree in this—and I may here add that the uniform good catches of fish for the past five years are now convincing the most skeptical of fishermen that the artificial breeding is most beneficial, as supplementing the products of natural-laid ova with millions of healthy—artificially bred fry—which are the surest safeguards against the depletion of our waters of these most valuable fish in future years.

Collection of Parent Salmon.

The work of collecting ova has been more successful this season than for the previous three or four years. The work was commenced about the first of September, but owing to extreme low water, very few salmon entered the River until the 25th of that month. Then there was a slight rise of water caused by heavy rain, which greatly lowered the temperature of the stream, in consequence of which great numbers of salmon and grilse which had been lying in the lower tidal waters began to ascend the upper parts of the rivers. As no wardens were appointed—until two weeks later—to guard the districts immediately below where our operations are carried on the poachers held full sway, and a great number of breeding salmon must have been destroyed by them. Therefore, our men did not meet with as great success as was expected. Then, again, when the guardians had been appointed, and when our men were doing good fishing, a large drive of lumber, which had been left at the heads of the streams since spring, came down with the high water, and our operations had to be suspended for five days, which caused us to lose part of the best run of fish. We succeeded, however, in capturing 261 parent salmon on the North-West and Little South-West Branches; and the man whom I had previously engaged procured 32 fish on the Big South-West Branch. Male fish predominated very largely. In some instances the men had to liberate as many as 100 or 150 grilse and male fish from the nets on one seining ground. Some of the female fish were very large, and the number of ova taken from each was above the usual average for our salmon of this river; quite a number of very small females were also taken.

The number of fish taken from the North-West Branch was 141, from the Little South-West 120 and from the Big South-West 32, making a total of 293 parent fish. Of these, 153 were females, from which I gathered 1,100,000 ova, giving an average to each fish of about 7,190 eggs.

In conclusion, I may say that this hatchery and its appliances, retaining ponds, etc., are all in good order, and I am pleased to state the ova is progressing favorably, and there is every appearance of a good crop of fry.

I am, Sir,
Your obedient servant,

ISSAC SHEASGREEN.

7.—RESTIGOUCHE HATCHERY.

PROVINCE OF QUEBEC.

Report of the Officer in charge of the Restigouche Hatchery for 1889.

I beg to lay before you a detailed report of the operations carried on at the Restigouche hatchery during the past year of 1889.

From the crops of eggs obtained last year, 1,280,000 fry were successfully hatched and distributed in good condition in the several streams, as follows:—

Restigouche River, from Indian House to Tracy Brook, including Brook, and 41 miles from hatchery	480,000
From Tracy Brook to Kedgewick, 50 miles from hatchery	200,000
Upsalquitch River above the Great Falls, 20 miles from hatchery	200,000
Restigouche River, from hatchery to Patapedia, including river, 20 miles	200,000
Metapedia Lake, 50 miles from hatchery	100,000
Metice River, 150 miles from hatchery	100,000
Total fry	1,280,000

Besides the above number of fry, 200,000 eyed eggs were distributed from the hatchery as follows:—50,000 were conveyed to the Miramichi establishment in the latter part of April, and 150,000 were conveyed at the same time to the St. John River nursery, all of which were deposited in the establishments in fine condition.

Distribution of Fry.

The distribution of fry began the 10th of June, and lasted until the 26th. The fry distributed in the Restigouche and its branches were all towed in large cribs 30 feet long by 3½ feet wide and 15 inches deep, divisioned off and so arranged that any desired supply of pure fresh water could flow amongst the fish while on their journey. In this way the little fish were kept healthy and lively until they reached their destination, and they are allowed to gradually drop out through little gates in the scows as they are being towed along at the rate of three or four miles an hour, and in this way they are distributed all along the river.

The fry distributed in the Metapedia Lake, and Metice River were conveyed in cans over the Intercolonial Railway. They were very lively when liberated, and hid themselves among the stones and moss immediately.

Net at Island to capture Parent Salmon.

Owing to the very early spring this net was set out in May, it being two weeks earlier than usual, and I am able to give a very satisfactory report on this important branch of the work, and herewith is given the catch of this net in detail:—

	No. of Fish.	Weight in lbs.
May, 30	2	40
do 31	4	80
June, 1	6	120
do 2	7	140
do 3	11	220
do 4	21	420
do 5	7	140
do 6	7	140
do 7	14	280
do 8	8	160
do 9	16	320
do 10 (Nets lifted to clean.)		
do 11	15	300
do 12	8	160
do 13	24	480

June	14	14	280
do	15	21	420
do	16	16	320
do	17	13	260
do	18	33	660
do	19	8	160
do	20	17	340
do	21	5	100
do	22	9	180
do	23	19	380
do	24	5	100
do	25	11	220
do	26	11	220
do	27	9	180
do	28	8	100
do	29	5	100
do	30	3	60
July	1	37	540
do	2	12	240
do	3	4	80
do	4	4	80
do	5	5	100
do	6 (Nets lifted to clean.)		
do	7	3	60
do	8	1	20
do	9	4	80
do	10	6	120
do	11	4	80
do	12	2	40
do	13 (Nets lifted on account of freshet.)		
do	14 do do		
do	15 do do		
do	16	3	60
do	17	2	40
do	18	1	20
do	19	2	40
do	20 (Nets lifted to clean.)		
do	21	2	40
do	22	1	20
do	23	1	20
do	24	1	20
do	25 (Nets lifted.)		
do	26	1	20
do	27	1	20
do	28 (Nil.)		
do	29	1	20
do	30 (Nil.)		
do	31 (Nil.)		
Aug.	1 (Nil.)		
do	2	2	40
do	— Grilse	28	84
		475	9,024
	Purchased from McAdams net	79	1,580
	Caught in Mission net	30	600
	Total	584	11,204

Some 70 of these fish, from injuries received in the nets and in towing them to the reservoirs, were useless for spawning purposes; those which were not affected with fungus were sold and accounted for.

Manipulation of Fish.

The work of spawning the fish began on the 15th October and lasted till the 10th of November; 512 fish were found in the reservoir—259 females and 253 males. From these were collected 3,022,000 eggs, which were packed in moss and conveyed some 15 miles up river to the hatchery by scows at various times during the spawning period. A small loss occurred in conveying the last batch to the hatchery, from the roughness of the road. The eggs in the hatchery at present are looking very well, and there is every reason to believe there will be a very successful hatching. But it will be necessary that a large number of the eyed eggs should be removed to some of the other establishments, to prevent overcrowding of the fry in the spring.

Repairs to the Retaining Pond.

As the instructions to build the block piers mentioned in my report were not received until too late in the season, the pond was only fitted up in a temporary way. It was also too late to obtain the necessary screen netting that was needed, the factory where it is made having closed down before the order was received.

To carry on this work successfully another year three small block piers will have to be built, and one hundred yards of fine mesh screen netting obtained. The old wire screens have been in use for four or five years, and they have become so decayed as to be unsafe and useless.

Repairs to Cribs and Plant Required.

The cribs for transporting the fry will need to be repaired, and one new one built. It will be necessary to get fifty fathoms of new small mesh net, also to put both fishing stations in good condition.

General Remarks.

The several letters obtained from net fishermen and others holding angling property on the Restigouche, hereto appended, are conclusive evidences that the salmon fisheries on the Restigouche and the Bay are in a very healthy condition and are improving. Some large catches among the net fishermen were reported; one party caught sixty and seventy at one tide, with an average weight of twenty-three pounds. With conversations had with some parties owning nets on the coast below Dalhousie, they told me they made very fine fishing this season. Many of the anglers made excellent scores. Mr. Rogers and his friend, in two weeks angling at the mouth of the Kedgewick, killed 100 salmon. I have not been able to ascertain the correct angling catch, but from information gathered from fishery officers and guardians the angling catch on the Restigouche and its tributaries was about 1,400 salmon. Angling in the latter part of the year was poor. Owing to the continuous dry weather the water in the river became so low and warm the fish would not rise to the fly.

The river was literally teeming with young "parr" and "smolt" this season. The rod fishermen complained of them as being a nuisance when angling for salmon. I have seen and conversed with many of the fishery officers and guardians, some of whom were forty miles up the Kedgewick, and with others stationed along the River in various places, and they all say they never saw more fish in the river than there was this fall. The scowmen, who have been towing seventy and eighty miles up the river, corroborate this statement and say all the spawning grounds and gravelly bars and shallows were overturned by the spawning salmon. Great numbers of fish spawned this season between the tide head and the hatchery, which is an unusual

occurence, and it is only of late years, and since the fish began to increase, that they spawned in this portion of the river at all.

A good deal of illegal fishing by drift nets and otherwise was reported having been carried on last season. It is to be hoped greater efforts will be made to stop this illegal fishing in the future.

I am, Sir,
Your obedient servant,

ALEX. MOWAT,
Officer in Charge of Restigouche Hatchery.

8.—GASPÉ HATCHERY.

PROVINCE OF QUEBEC.

Report of the Officer in Charge of the Gaspe Hatchery for 1889.

I beg to report on the operations of the Gaspé hatchery as follows:—

The management of this hatchery came under my control on the 13th of June last, upon the death of the late Philip Vibert.

The Department net was set on the 28th of May and taken up finally on the 6th August. One hundred and ten parent fish were taken, sixty-five females and forty-five males; all these fish were saved in good order, and not one was lost during the season. Owing to heavy freshets during the month of June the net had to be raised for some days.

I began planting the fry in the rivers on the 3rd of June, and had completed the distribution by the 21st of the same month. The fry were in good condition, strong and healthy.

The estimate of the number of ova placed in the trays last fall by Mr. Vibert proved to be below the actual quantity. The number of fry planted in June of this season is as follows:—

Dartmouth River, above the falls	250,000
do below do	100,000
York River	100,000
Total	450,000

I began spawning operations on the 1st October and finished the work by the 6th of November. I estimate the number of ova placed in the hatchery as follows:—

40	females,	averaging	14,000	560,000
20	do	do	11,000	220,000
5	do	do	8,000	40,000
65		Total		820,000

At present these eggs are looking well.

By your instructions I purchased a stove for the house at the reserve pond at a cost of $13.50. Scows, flats and cribs are all in safety for the winter. The trays and troughs were varnished in July and the interior of the hatchery was cleaned and aired, and everything is in good condition for the winter. The exterior of the building should receive a fresh coat of paint next season.

During the month of August the establishment was visited by the Hon. C. H. Tupper, Minister of Marine and Fisheries, who made a personal inspection of the property and ordered certain improvements and repairs which were accordingly made.

I beg also to report the following statements of facts in connection with the Gaspé nursery. Information is received from an old experienced canoeman, who has been employed the last twenty years by fly fishermen on these Gaspé rivers. He is a reliable man, and being well acquainted with him, his statement can be depended upon.

When he first became acquainted with the St. John River here in, 1870, he says the average weight of the salmon varied from 12 to 15 lbs.; that average continued up to the year 1880: But since that year there has been a continued increase in the size of most of the fish. In 1887–88, the average weight of the salmon taken in the St. John River ran up to 18 and 19 lbs., and in 1889 the average was 22 lbs. This is a most decided increase; and there has been salmon taken with the fly this season weighing 30 lbs.

The gill net fishermen of that river complain of losing many salmon this season by the meshes of their nets being too small. Now, all this goes to show that a very considerable increase has taken place in the size of the St. John River salmon, and the impression prevails that the cause of this increase is due to the work from this hatchery, and the canoemen say this comes from the numbers of young salmon which have been regularly put in the St. John River from the Gaspé hatchery, and hatched from the eggs of the larger breed of salmon belonging to the Dartmouth River. They say the form of these larger St. John River salmon resemble those of the Dartmouth, and that they enter the St. John two and three weeks earlier than formerly. These things certainly give good evidences of some benefits from the Gaspé nursery.

The reports from the York River are that a very great number of salmon were seen in the upper waters, and that a great quantity of young salmon were also seen in the estuary and tideway.

I cannot say much about the salmon in the upper parts of the Dartmouth River, but during the fall of 1885 I was up there and saw a great many parent salmon. In the year 1886 we planted fry above the falls; since that date I have particularly noticed a very great increase in the number of young salmon. The estuary waters of Dartmouth River this season were alive with little salmon of two and three years' growth; the greater number appeared to be "smolts," ready for their first migration to the sea.

In conclusion, I may say that before this hatchery was established the Gaspé Basin rivers contained few parent salmon; and "parrs" and "smolts," the young of the salmon, were not often seen, but at present all the rivers appear to be well supplied with parent salmon and their young. The latter are very numerous indeed in all the streams and in the estuaries.

I have the honor to be, Sir,
Your obedient servant,

HENRY DAVIS,
Officer in Charge of Gaspé Hatchery.

9.—TADOUSSAC HATCHERY.

PROVINCE OF QUEBEC.

Report of the Officer in Charge of the Tadoussac Hatchery for 1889.

I herewith submit my annual report of the operations connected with the fish hatchery under my charge. From the eggs laid down in the fall of 1888 there were successfully hatched 1,600,000 young fry, which were planted in the following rivers and lakes:—

Ste. Margaret River, N.-W. Branch	100,000
do do N.-E. Branch	300,000
St. John River	300,000

A Mars River	200,000
Little Saguenay River	100,000
Ste. Anne River "Côte Beaupré"	20,000
Mowat's Lake	450,000
Hatchery Lake	130,000
Total	1,600,000

All these fry were distributed in the best condition, every river receiving its complement. By the order from the Department no more fry will be planted in the Ste. Margaret River, and I hope a similar order will be given for the Little Saguenay River, as both rivers are considered unsafe for the salmon fry, on account of the enormous quanties of trout in them. The first consideration in the planting of fry should be their safety, and they should be taken as far up as possible to the head waters of the river at the head of the Saguenay.

Immediately after the distribution of the young fry the building was cleaned and ventilated. The improvements made in this house this year were very small, only repairing a certain number of troughs, and varnishing them and the taps; but the repairs necessarily required and mentioned in my report of 1888, estimated at a cost of $500, are now most urgent. The part of the building occupied for the hatchery is in a dangerous state. If the Department considers the sum of $500 too much to expend on the present old building, which stands on a wharf of slabs, and on that account being always a cause of trouble, with increasing expense, a new hatchery with stone foundation could be put up on the rock close by, on the stream which supplies the present house, which could be built for about $1,200. A good deal of the old building could be used, such as windows, doors and boards for covering the roof under the shingles.

Capture of Parent Salmon, 1889.

We caught in the Government nets 559 salmon; 310 were kept for breeding purposes, and 249 were liberated again, keeping only the largest sized fish. Those that were liberated were nearly all of the same size. On one occasion there were 70 salmon taken—the best tide of the season; of that number 42 salmon were put back in the water. The uniformity of size was very remarkable in these fish. During the whole summer we lost only one female and one male. Their cause of death was unknown, thus leaving 206 females and 102 males for manipulation. The 206 females were of large size and gave 2,557,000 ova. The eggs were all laid down in the hatching trays in good condition. The work of spawning commenced on the 21st of October, and was completed on the 9th of November. All the parent fish were retained in the pond after being stripped, and in a healthy condition. Residents of the place were invited to see them liberated. The Mayor of Tadoussac, J. E. Caron, Esq., and many others, saw that the salmon were as lively as before manipulation. No loss occurred in the spawning of the fish.

Very few smolts came down from the Hatchery Lake this season, on account of the dryness of the summer and fall; the water of the lake did not flow over the dams as usual. It is not desirable to put as large a quantity of fry in this little lake as formerly, for in a dry summer the water does not flow over the dams; and the young fish cannot get a free passage to the salt water; and for the last two years the trout have been encreasing enormously in the lake. I would only advise the planting of a small number, only to show to the public how they grow and what they are like.

A lake like Mowat's Lake is far better adapted to receive a large quantity of fry. This lake has a good stréam running from it to the salt water. In July last I went down to this lake with my nephew, son of J. A. Gagné, Esq., ex-M.P., and now Judge. We caught young salmon of one, two and three years. The first planting of fry was in 1886; they were of the size of 4, 8 and 12 inches for the three years. It was a matter of the greatest satisfaction to see the great number of young fish that were jumping at the fly. On one occasion I permitted the Bishop of Chicoutimi

to fish in the hatchery lake. He was accompanied by the Rev. Mr. Mathieu, Superior of the Quebec Seminary, and the Rev. Mr. Lemieux, of Tadoussac; they were astonished at the number of young salmon that could be caught.

Increase of Salmon.

In my report of last year I said that there was a steady increase of salmon in my district. I am happy to state that for this season, with the same number of nets, the salmon fishing shows an increase of over 50 per cent. above last season, and the percentage would, no doubt, have been much better if there had not been so much time lost by repeated gales of winds, and the breaking up of the nets so often. I may also mention that we have taken nearly 300 per cent. more salmon with the same number of nets this season than we did in 1886—the first year of my taking charge of the Tadoussac hatchery. Salmon have been seen, and some were caught for the first time as far up as the River Shipshaw, about eighty-five miles from the mouth of the River Saguenay, and ten miles above the town of Chicoutimi. It is the opinion of many people in Chicoutimi that these salmon are the product of the Tadoussac hatchery. The editor of the *Progrès du Saguenay*, of the 26th of September, says: "One of the strongest evidence in favor of the Tadoussac hatchery is the fact that great quantities of smolts, of good size, have been seen at the entrance of rivers where there were none before." After this had been written, a gentleman from Ste. Anne du Saguenay, Mr. Joseph Villeneuve, when fishing for Winninish, caught a splendid salmon of 18 lbs. in the river Shipshaw; and another gentleman of the town of Chicoutimi, Mr. François Guay, caught another salmon of 8 lbs., close to the entrance of River du Moulin, in the town. I have been told the several salmon rivers are well stocked with salmon, but I cannot give full particulars, as the local guardians have not answered my enquiries regarding any of these rivers.

As an evidence of the salmon growing to a good size in the lakes where they were planted, a hunter of the name of Herménégilde Otis, whom I know well, when fishing trout to bait his traps caught in Lake de la Boule, through the ice, a salmon of 2 feet 9 inches long, and saw another one caught in the same lake by one of his friends of about 3 feet long. He knows that others have been taken, but he did not see the salmon. These are the fruit of some salmon fry planted by the late Mr. Radford in that lake.

I have received by the last mail a letter from Mr. I. D. Guay, proprietor of the newspaper *Le Progrès du Saguenay*. I send you a copy of his letter and a certificate of Mr. Guay, the gaoler of Chicoutimi, about some salmon caught in and around Chicoutimi. It is the first time that salmon have been seen above Ha! Ha! Bay, and they all give credit to the Tadoussac hatchery for the appearance of these salmon.

I have the honor to be, Sir,
Your obedient servant,

L. N. CATELLIER,
Officer in Charge Tadoussac Hatchery.

(*Translation.*)

CHICOUTIMI, 15th December, 1889.

L. A. CATELLIER, Esq.,
Officer in Charge Tadoussac Hatchery.

SIR,—As you are on the eve of making and sending your annual report, I wish to draw your attention to the importance for the Department of Fisheries to plant salmon fry in many rivers above Ha! Ha! Bay. We have in the following rivers: River of Pelletier's Cove, River Valin, River Caribou, River Shipshaw, &c., &c., some places favorable for the artificial reproduction of salmon, and it seems to me that the Government should give you orders to plant salmon fry in some of them. I take the liberty of enclosing a certficate showing the fact that many salmon, quite enough, have been caught by chance at Chicoutimi. I know a gentleman named Joseph

Villeneuve, from "Terres Rompues," caught a salmon of eighteen pounds in the River Shipshaw, ten miles above Chicoutimi. I am not able for the present to send you the certificate of the gentleman in question. Good many facts come to confirm me in the good opinion I always had in favor of the fish breeding in Tadoussac. My own experience, and the reports made to me, make me believe that the Government must continue its work and place your hatchery on a good footing. There is room in Tadoussac for important improvements, that would be prized with satisfaction by all.

I wish to congratulate you on your success since you are at the head of the Tadoussac hatchery.

Believe me, dear Sir,
Your obedient servant,
(Signed) I. D. GUAY.

(*Translation.*)

I, the undersigned, certify by these presents, that I have myself caught a salmon of 8½ pounds in the River Saguenay a little lower than River du Moulin, and about one mile below the Government wharf, and I certify also that it is in my personal knowledge that two more salmon have been caught, one in the River Shipshaw and the other in the basin of the River Chicoutimi. The first one caught by Mr. Francis Mattais, and the second, a salmon of 20 pounds, caught by a man named Harvey.

(Signed) FRS. GUAY.

CHICOUTIMI, 12th, December, 1889.
Witness—I. D. GUAY.

10.—MAGOG HATCHERY.

PROVINCE OF QUEBEC.

Report of the Officer in Charge of the Magog Hatchery for 1889.

I herewith submit the annual report of the operations of the Magog fish hatchery for the year 1889.

From the eggs received from the Newcastle hatchery in March, 1889, I had the good fortune to hatch out 1,700,000 whitefish, and 1,100,000 salmon-trout fry, which were safely deposited in the following named bodies of water, to wit:—

Whitefish.

Oxford Lake, Brome and Sherbrooke Counties	400,000
Massawippi Lake, Stanstead County	200,000
Megantic Lake, Megantic County	100,000
Memphremagog Lake, Stanstead and Brome Counties	1,000,000
Total	1,700,000

Salmon Trout.

Oxford Lake, Brome and Sherbrooke Counties	250,000
Megantic Lake, Megantic County	100,000
Massawippi Lake, Stanstead County	125,000
People's Lake, Stanstead County	50,000
Lake Fortin, Beauce County	25,000
Lake St. Charles, Beauce County	50,000
Memphremagog Lake, Stanstead and Brome Counties	500,000
Total	1,100,000

On account of the forwardness of the spring and consequently the high temperature of the water the fry were successfully developed and deposited in the above named sheets of water a fortnight earlier than usual. Whitefish did especially well this season, the loss being comparatively small. The glass incubators working well, kept themselves free, by carying off all bad eggs. The hatching proceeded regularly and the fry were exceptionally strong.

The salmon-trout eggs I consider were above the average, and the mortality was slight until hatching time, when a slight loss was sustained.

There were no whitefish in any of the waters hereinbefore named previous to their artificial propagation in the Magog hatchery. At the present time they are seen in large numbers, but as netting and spearing are prohibed, and as they do not take the hook, but few have been caught.

Guardians of Memphremagog Lake (the largest sheet of water in the Province) inform me that during the close season last autumn the shoals were visited by a much larger number of salmon-trout than ever before. Black bass are still rapidly increasing; the spawning beds in June last were fairly alive with them. Two were caught last fall, weighing respectively 7 and 7¾ lbs.

Illegal fishing still continues, and the cutting down of the appropriations the present season for guarding the shoals during the spawning season weakened the force of the guardians, and stimulated the feelings of poachers to break the law.

Repairs thus far have been slight but there now requires to be a new floor and underlays, the old one having become too much decayed by constant wetting to be safe. It will require about fifty dollars to put the hatchery in first-class condition.

All of which I most respectfully submit.

A. H. MOORE,
Officer in Charge of Magog Hatchery.

11.—NEWCASTLE FISH HATCHERY.

PROVINCE OF ONTARIO.

Report of the Officer in Charge of the Newcastle Establishment for 1889.

Herewith is submitted the annual report of operations carried on at this hatchery during the past year.

The fry distributed from this nursery last spring were liberated in excellent condition, notwithstanding the fact that a large proportion of them were subjected to long journeys.

The following detailed statement shows the number of semi-hatched eggs shipped to the different hatcheries in the Lower Provinces last winter; also the number and kinds of fry planted in the various waters of Ontario during the spring of 1889:—

Whitefish.

Lake Ontario, Newcastle	500,000
do Toronto	500,000
Bay of Quinté, Belleville	500,000
Lake Ontario, Port Hope	200,000
Georgian Bay, Meaford	200,000
do Thornberry	200,000
Lake White, Arnprior	100,000
Singleton Lake, north of Gananoque	100,000
Delta Lake do do	100,000
Couchiching Lake, Orillia	200,000
Simcoe Lake, Barrie	200,000
Total	2,800,000

Salmon-Trout.

Howard Lake, Toronto	50,000
Georgian Bay, Wiarton	300,000
Lake Ontario, Hamilton	100,000
do Toronto	100,000
do Whitby	100,000
do Port Hope	100,000
do Toronto	100,000
do Newcastle	800,000
Georgian Bay, Meaford	200,000
Crow Bay and Ely's Falls, Campbellford	100,000
Charleston Lake, North of Gananoque	50,000
Bay of Quinté, Belleville	100,000
Doctor Dean's Lake, Brighton	50,000
Rosseau Lake, Muskoka	100,000
Vernon Lake, Huntsville	50,000
Fary Lake do	50,000
Peninsula Lake do	50,000
Simcoe Lake, Barrie	100,000
Stoco Lake, Tweed	50,000
Humphrey's Lake, North Hastings	25,000
Nick's Lake do	10,000
Wilson's Lake do	25,000
Bear Shanty Lake do	25,000
Eagle Lake do	25,000
Total	2,760,000

Speckled Trout.

J. B. Thompson, Orillia	4,000
Henry Pellat, Orillia	4,000
Slanley Trout Club, Hagersville	5,000
William Henry, Niagara Falls	5,000
D. Martin, Guelph	2,500
Thomas Goldie, Guelph	7,000
G. W. Lawrence, Stratford	10,000
Samuel Grigg, London	5,000
Warren Tolton, Woodstock	20,000
R. C. Hulme, Belleville	4,000
Cyrus Teal, Wooler	4,000
George Hoar, Clinton	1,000
J. H. McCall, Vittoria	8,000
E. R. C. Clarkson, Toronto	10,000
Thomas Ford, Credit Forks	20,000
Mr. Gouin, Ottawa	10,000
S. Dice, Milton	6,000
R. J. Laidlaw, Hamilton	1,000
R. Southam, London	7,000
W. Myres, Orangeville	10,000
H. C. Dennis, Cobourg	40,000
Government Museum, Ottawa	3,000
Kept for pond at Newcastle hatchery	20,000
Total	206,500

Black Bass.

Howard Lake, Toronto	30,000
Thos. Elliott, Hampton	30,000
Ponds at Newcastle hatchery	20,000
Total	80,000

Salmon-Trout Eggs shipped toLower Provinces in semi-hatched state.

Magog Hatchery, Quebec	1,200,000
Bedford Hatchery, Nova Scotia	500,000
St. John Hatchery, New Brunswick	1,000,000
Fishery Museum, Ottawa	20,000
Total	2,720,000

Grand Total.

Whitefish fry	2,800,000
Salmon-trout	2,760,000
Salmon-trout eggs semi-hatched	2,720,000
Speckled trout	206,500
Grand total of all kinds	8,566,000

Applications for Fry.

On account of the increased demand for speckled trout I am of the opinion that it would be advisable for the Department to authorize the purchase of a larger number of eggs than have been obtained in past years. The Superintendent's form of application for fry recently issued by the Department, which is being circulated throughout the Dominion, will impart information to parties interested in the culture of fish which has not been generally understood heretofore, in consequence of which it is only reasonable to assume that the applications from persons living in remote parts of the country will be more numerous. Trout eggs can be purchased from American breeders at a very low figure when taken in large quantities, and I trust the Department will sanction more extensive operations than have formerly been carried on under this branch of our work. The form of application referred to contains full directions as to where the several kinds of fry should be deposited to ensure successful results. This valuable information to parties receiving fry will enable them to plant the young fish with perfect safety, a duty hitherto wholly devolving upon the officers in charge of hatcheries to perform. The regulations set forth in the application will enable them to carry on the work more expeditiously; the fry will in this way be planted in more desirable localities and as early in the spring as it is practicable, and all trouble and annoyance will be avoided from parties sending in applications for fry subsequent to the proper time for distribution.

Repairs to Hatchery.

After the disposal of the fry last spring the hatchery was put in a satisfactory working condition, with the expectation of receiving a larger supply of eggs than usual. The following autumn the main reservoir was repaired and all the appliances connected with the establishment thoroughly overhauled. It has been found that the large number of hatching trays transferred with eggs to other hatcheries on previous occasions to the lower Provinces were permanently required there. This has considerably diminished our stock, and we will require upwards of five hundred new trays in order to ensure the successful hatching of our own supply. The building has not been painted for a number of years. This should be done during the coming summer, otherwise, it will be damaged to a considerable extent. The continued dampness arising from the water is causing premature decay of the wood.

Importance of the Newcastle Hatchery.

The increasing usefulness, coupled with the more enlarged operations which are now carried on at this hatchery, call for greater consideration as regards its general efficiency and management. In addition to its former work, it has become the parent institution for annually supplying large quantities of semi-hatched eggs of the more important kinds of fresh water commercial fishes to many of the Maritime Province hatcheries. On this account, this establishment has necessarily annually to collect at Wiarton, on the Georgian Bay, a much larger number of salmon-trout eggs than its own requirements would demand. This additional supply so obtained is also cared for and kept in this hatchery until the 1st of February, and even later, and then transferred in semi-hatched condition to Magog, Bedford, St. John and such other hatcheries as may require them, and now that a hatchery has also been established at Ottawa, requiring annually a large supply of salmon-trout eggs, additional importance is given to this establishment, and necessitates the work being carried on at this hatchery on a much more extensive scale than has been the case hitherto. These several institutions in the Maritime Provinces have no means within their range of operations for collecting supplies of salmon-trout or whitefish eggs, and, even if they had, it would necessitate almost as large an expenditure for each hatchery as is at present incurred by this establishment in collecting a sufficient number for all. The duty and extra work devolving upon us of looking after these eggs in addition to our own supply makes it necessary to employ a larger staff of officers than otherwise would be required.

Collection of Salmon-Trout Eggs.

In former years the system adopted for collecting a supply of salmon-trout eggs for Newcastle and the other hatcheries was carried on by employing an expert fisherman to set three pound nets in Colpoy's Bay at such cost as might be agreed upon.

In addition to the sum paid for this service, pound net licenses were granted by the Department to the fisherman so employed, which enabled him to fish these pound nets in open season in this locality up to the first of November, where pound net licenses were formerly prohibited. This caused considerable dissatisfaction among other fishermen, so much so, that it was deemed advisable by the Department to purchase an outfit for its own use. I was, therefore, directed to secure the requisite appliances necessary for carrying on the work of collecting eggs, and to visit Wiarton, with a view to the selection of proper grounds for setting the nets. The department forwarded to me at Wiarton two confiscated nets, with instructions that if at all suitable they were to be used in connection with the work. A few repairs placed them in proper condition, and after purchasing one new net I was enabled to proceed with the work. This new net was set at Gravelly Point, an old reliable fishing ground inside Colpoy's Bay. With the knowledge of the Indian Department, the other two nets were set in the vicinity of Hay and White Cloud Islands, on the reserve of the Cape Croker Band of Indians. All the nets were fairly successful in capturing parent fish, but by far the largest number was taken from the Gravelly Point net. The undertaking last autumn was the most satisfactory one we have ever experienced, not only from a financial standpoint, but also from the number of eggs secured. The unusually large quantity of *eleven millions* was collected in the short space of sixteen days, and many more could have been gathered, but this amount filled the hatchery to its utmost capacity. This record surpasses that of any other year, and to a certain extent may be attributed to the setting of the nets at an earlier date than in former seasons, thus allowing a supply of fish to enter the nets before the "close time." Last year every effort was put forth during the entire close season of the month of November, and we only succeeded in obtaining five millions of eggs.

I am convinced from experience, that two nets set in the vicinity of Gravelly Point in Colpoys Bay, will secure an ample supply of parent fish from which a sufficient quantity of eggs can be collected to stock all of the hatcheries requiring them.

By the proposed means a considerable reduction in the expenses can be effected. The cost of tug hire will not be so great, as the distance from Wiarton will be much shorter than when the nets were set at Hay and White Cloud Islands the past season. Further reduction in the running expenses will also be made as only one guardian will be required to protect the two nets against the encroachment of poachers as they will be situated only a short distance apart.

Daily Statement.

A statement showing the daily operations at Wiarton during the past close season is herewith appended, which gives the gross number of eggs taken, the fish manipulated, those injured and salted, and also the dates when the eggs were collected.

STATEMENT showing the daily operations of collecting Salmon Trout Eggs at Wiarton during the Season of 1889.

Date of Lifting Nets.	No. of Nets Lifted.	No. of Fish from which Spawn was collected and liberated.		No. of Fish Spawned out before entering Nets and liberated.	No. of Fish found injured or dead in Nets.		No. of Eggs collected.	Remarks.
		Males.	Females.		Whitefish.	Salmon Trout.		
Oct. 31	1	83	297	3	3	17	1,100,000	Spawn running freely ; have evidently struck an early run of fish ; blowing fresh.
Nov. 1	.....	.....	.....	.....	.....	.....	.....	Too rough to lift ; did not go down to nets.
do 2	3	71	245	8	5	22	900,000	Upwards of 1,000 fish in Gravelly Point net ; spawning freely.
do 3	.....	.....	.....	.....	.....	.....	.....	A large number of fresh fish in nets which are not ripe ; the Indian reserve nets are doing well now.
do 4	1	68	160	10	4	12	550,000	These eggs were collected from Indian reserve nets.
do 5	2	49	141	7	1	15	450,000	Wind blowing fresh ; cold weather.
do 6	.....	.....	.....	.....	.....	.....	.....	Lifted Gravelly Point net, but fish not ripe ; very windy.
do 7	.....	.....	.....	.....	.....	.....	.....	Weather very fine ; did not lift ; fish not ripe for spawning.
do 8	3	182	607	59	4	47	2,000,000	Weather favorable ; upwards of 2,000 fish in nets ; Indian reserve nets have a good many fish in them ; this is a very large number of eggs for one day.
do 9	.....	.....	.....	.....	.....	.....	.....	Fish left in nets are not ripe for spawning ; favorable weather.
do 10	.....	.....	.....	.....	.....	.....	.....	Sunday.
do 11	3	189	650	71	5	19	2,500,000	Weather fine ; fish spawning freely ; this is the largest number of eggs ever taken in one day by us.
do 12	.....	.....	.....	.....	.....	.....	.....	Fish left in nets not ready for spawning ; fine weather.
do 13	3	127	525	51	2	25	2,200,000	Cloudy, but smooth water ; this is a very large number of eggs to be taken in one day.
do 14	1	24	97	20	5	14	300,000	Snowing ; took one net up at White Cloud Island, and liberated a large number of fish from which spawn could have been collected.
do 15	.....	.....	.....	.....	.....	.....	.....	Blowing and freezing ; slight fall of snow.
do 16	1	145	317	67	7	37	1,150,000	Lifted and took up the other two nets ; weather cold but fine.
do 17	.....	.....	.....	.....	.....	.....	.....	Put all nets and appliances away carefully.
		938	3,039	296	36	208	11,150,000	

By an examination of this year's daily statement in conjunction with similar reports of former years it will be found that the Government had adopted the proper period for the protection of salmon-trout during the spawning season in the waters of the Georgian Bay and Lake Huron, where extensive fishing operations are carried on. I have noticed that complaints have been forwarded to your Department to the effect that the present close season for salmon-trout and white fish is not in the interest of the country for the preservation of these valuable fish in our inland waters. My practical observations in collecting the ova of these fish during many years past leads me to conclude otherwise, and the very fact that large numbers of ripe eggs can be gathered only during the month of November is conclusive evidence also that the month of November is the proper close time for the protection of these fish, as it is their true spawning time.

Condition of Eggs.

At the present time the eggs in this establishment are in a very healthy condition, but owing to their being overcrowded in numbers and the continued rainfall this season, causing more sedimentary matter to settle upon them has given more work than usual to clean them. A large number of these ova must be transferred in a short time to the other hatcheries requiring them; otherwise many will die from suffocation during the period of hatching.

I have the honor to be, Sir,
Your obedient servant,

C. WILMOT,
Officer in Charge of Newcastle Hatchery.

12.—SANDWICH HATCHERY.

PROVINCE OF ONTARIO.

Report of the Officer in Charge of the Sandwich Hatchery for 1889.

I herewith submit my annual report of the works of this hatchery for the past year.

In my last report I stated that there were in the hatchery 40,000,000 whitefish eggs, and that I expected to obtain from them a good return. This report will show that I was not far astray in my view of the numbers of fry which would be turned out. From this number of eggs were hatched 21,000,000 young fish, and in addition 11,000,000 eyed eggs were sent to other hatcheries, making a total of 32,000,000, or a product of 80 per cent. of the whole. The young fish were placed in the waters at the following places:—

Belle River, Lake St. Clair	2,000,000
Peach Island, Detroit River	1,000,000
Fighting Island do	2,000,000
Stoney Island do	1,000,000
Bois Blanc Island do	2,000,000
Bar Point, Lake Erie	1,000,000
Pigeon Bay do	1,000,000
Colchester do	1,000,000
Kingsville do	1,000,000
Leamington do	1,000,000
Port Stanley do	1,000,000
Hamilton, Lake Ontario	1,000,000
Niagara do	1,000,000

In river at Hatchery.		5,000,000
Sent to Newcastle, Ont.		3,000,000
do St. John, N. B.	Semi-hatched	3,000,000
do Bedford, N. S.		3,000,000
do Magog, Que.		2,000,000
Total		32,000,000

After having distributed all the young whitefish, the next part of the work was to clean up the hatchery, and re-fill it with the eggs of the pickerel (doré). From four fishing grounds we were successful in gathering 30,000,000 eggs of this fish, and placing them in the hatchery. I might here state that while gathering these eggs at Port Lambton, during one night, when about a million eggs were in the floats ready to be conveyed to the hatchery, some person or persons either stole or destroyed the lot. As I could place the blame on no particular person, I was obliged to put up with this loss without any remedy. The fishing grounds where the eggs were gathered were as follows, in Lake Huron :—

Wees Bros	8,000,000
Joseph Leazeu	7,000,000
Stead & Hitchcock	10,000,000
Soloman's, River St. Clair	5,000,000
Total	30,000,000

From these eggs we hatched out 70 per cent., or 21,000,000 young pickerel, and placed them in the following waters :—

Point Edward, Lake Huron	2,000,000
Port Lambton, River St. Clair	2,000,000
Belle River, Lake St. Clair	2,000,000
Stony Island, Detroit River	1,000,000
Bois Blanc Island do	1,000,000
Fighting Island do	2,000,000
Pigeon Bay, Lake Erie	2,000,000
Port Stanley do	1,000,000
In river at Hatchery.	8,000,000
	21,000,000

The fishermen throughout this quarter believe that through the agency of the hatchery this fishery is greatly improved. The run of pickerel this year was very much the same as last, and all seem to be satisfied with the catch.

Eggs Collected, Season of 1889.

The number of whitefish eggs laid down in the hatchery this year was far greater than any previous year since the hatchery was started—in fact, nearly double. This is accounted for by the measures adopted by the Department in securing many fishing grounds at which we could handle the fish. The number of eggs put in the hatchery this year was 70,000,000. They were secured at the following places :—

Bois Blanc Island, Detroit River		30,000,000
Stony Island	do	20,000,000
Fighting Island	do	20,000,000
Total		70,000,000

In addition to this number put in the hatchery, 4,000,000 eggs were taken from fish at different stations, and impregnated and then thrown into the river. The places where this work was done were as follows:—

Bois Blanc Island	1,000,000
Fighting Island (pier fishery)	1,000,000
Jollie's (main land fishery)	1,000,000
Gauthier's do	500,000
McKee's do	500,000
Total	4,000,000

The fishing at all points of the river this year was considered good by all the fishermen. At Bois Blanc Island (the Government fishery) the fishing was much better than it was last year, but a good deal of trouble was experienced from high winds at Bois Blanc Island, which at times would cause the water to recede some 20 paces from the shore, leaving dry land where at other times it was covered with water. This necessitated a great deal of work—so much so, that we were obliged to frequently carry the racks with fish into deeper water. The way to remedy this will be to build a movable breakwater, which could be filled with stone and sunk in deep water, and taken up again every year after the fishing season was over. This breakwater would cost about $100. This provision is very requisite for the preservation of the parent fish placed in the pens, from the heavy seas which dash the fish against the rocks and so injures them as to make many of them useless for spawning purposes.

Provision must also be made for the building of another windmill on Lake Huron, at Wees's ground, for the purpose of supplying water for the tanks in which the pickerel are kept until ripe enough to take the spawn from them.

In my last report it was shown to be a necessity for having more room in the building for hatching purposes. This year, with the large amount of eggs put into the house, they are altogether too over-crowded for their safety. As quite a lot of repairs will have to be made to the building next season, I would again ask the Department to consider the advisability of building a dwelling for the officer in charge and his family. If this were done the whole floor of the house could be used for fish-breeding purposes. By doing this there would be plenty of room to run 700 incubators, with a capacity of turning out over a hundred millions of fish. The repairs required will be quite general. The foundations of the building have rotted away and must be replaced, together with a new floor, as the present one is much decayed.

The hatchery in Detroit, on the American side, formerly run 300 jars, but this year the capacity has been increased to 1,000 jars. I would, therefore, urge upon the Government to make the change I have proposed, when I feel certain we can maintain the credit which the Sandwich hatchery has hitherto held as being the original whitefish nursery of America, and the good work it has done since in replenishing many of the waters of Canada with these valuable fish.

Respectfully submitted.

WM. PARKER,
Officer in Charge of Sandwich Hatchery.

We, the undersigned, hereby acknowledge that we saw Mr. Wm. Parker, of the Sandwich fish-breeding establishment, turn out from the racks at Bois Blanc Island a large number of whitefish, he having received instructions from the Department of Fisheries at Ottawa to do so.

ANDREW HACKETT,
Lighthouse Keeper, Bois Blanc Island,
H. A. HACKETT,
WM. HILL,
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ANNEX TO FISH-BREEDING REPORT.

REPORT

OF

OPERATIONS OF THE HATCHERY AT FLODEVIGEN

DURING THE FIVE YEARS 1883-1888

BY

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ARENDAL, 1889.

(*Translation from the Report of the Board of Directions for Arendal and Omegn's Branch of the Society for the Encouragement of the Norwegian Fisheries.*)

To the Directors of the Arendal and Omegn's Branch of the Society for the Encouragement of Norwegian Fisheries:

I have the honor to submit herewith the following report of the labors of the hatchery at Flodevigen for 1888, as well as a recapitulation of labors during the last five years.

1.—The History of the Hatchery.

In the beginning of 1880 there appeared in the local press lively articles discussing the fisheries in the district. It was universally agreed that the fish were steadily and alarmingly decreasing, and that some remedial measures were necessary, but nothing was done. There was but one opinion with regard to the decrease complained of as well as the means of counteracting it. About this time there appeared a report by Mr. F. M. Walkem upon the Fisheries Exhibition in Berlin, in which amongst other things, was given an account of experiments in the United States during 1878-79 of artificially hatching cod, and which were considered to be successful. These experiments were referred to, as follows: After a special grant by Congress was allowed, a steamboat was constructed to carry on cod hatching on a greater scale, and is now in full operation, supplying suitable areas with the hatched brood.

It was very promising, and I supposed that as with us there would always be a sufficient stock of spawn and the cost of labour seemed to me very small, it appeared the most suitable, and for the general public, least expensive means of restoring the fisheries; consequently, I commenced, through the medium of the press, to disclose my plans, and when the branch of Arendal was instituted in 1882 I submitted to them a report on the matter. The construction of a hatchery for salt-water fish was included in the programme of the institution's labors. As the establishment was just started, and

was without capital or sufficient members for so large an undertaking, special arrangements had to be made to get the necessary means to carry out the plans; therefore, application for voluntary grants were forwarded to the Savings Bank of Arendal; the Society for Norway's Welfare; Arendal's Spirituous Liquor Association, and to the Society for the Encouragement of Norwegian Fisheries, all of which replied favorably. I was also instructed to proceed to all the villages along the coast to take up subscriptions from private individuals and to do anything in my power to promote the undertaking. However, as the Fisheries Exhibition was to be opened in London, in the spring of 1883, and as it was generally believed that correct and reliable information respecting hatching of salt water-fish could be obtained there, I went there, to enable me to study the matter. Here I was met with disappointment of a very serious nature. It was shown that the reports by Mr. Walkem respecting the American Fishery Commission's Labors had been exaggerated inasmuch, as the vessel had never been used for hatching salt-water fish. An attempt had been made in 1878-79, but it was characterized by the Americans themselves as anything but satisfactory. After that the matter was dropped. I had occasion to inspect the apparatus used, but this was of little benefit to me, as I was informed they were considered inapplicable. My position was therefore not improved. Instead of finding a path cut out for me, as I was led to believe, I was met by doubts and uncertainties, which the most prominent men and the best informed on the subject had been unable to solve.

My own limited knowledge of the practical side of fish culture, and anything concerning it, did not improve my situation, but I condoled myself with the thought of having undertaken the job in good faith, and I knew that with a little perseverance I could inform myself on the subject, as it was too late to give it up.

Furnished with all the information I could possibly get, for which my thanks are principally due to the very polite American gentlemen, I left for home after a sojourn of about three weeks, to make practical use of what I had learned.

The erection of the building was commenced that fall and finished in January, 1884. The building is a two-story one, 40 feet long and 30 feet wide, and contained at that time as many appliances as were thought necessary for a yearly production of a brood of about 80 millions. The American appliances and experiments not having met with success, I was left on my resources. I adopted the rotary apparatus used by the Americans, and Clark's hatching-trough, before tried. These seemed to me most suitable, and I hoped after a short time to know both their good and bad points, and to be able to use them as a kind of foundation for more useful improvements. Later on I gave up altogether the rotary apparatus and made many improvements in the other one, rendering it more suitable for our business. The Americans have, however, given up both, and are working now with a new, very cleverly arranged apparatus, which, for reasons I will give further on, could not be used by us, because other improvements planned by myself had been adopted.

The size of the building and the number of the appliances, I may state, was entirely experimental, which, if successful, would be enlarged. In measuring the lot the directors got right of pre-emption of such quantity of ground as would be necessary for the extensions. When the rotary appliances were discarded, the space previously occupied by them was used for tanks for the stock-fish, thus reducing the factory's production-stock to only half of what was originally calculated, and causing an extension of the factory to be much more needed.

To give a detailed statement of the fittings of the building, I consider at present quite unnecessary, as already application for a grant towards the extension and removal of the factory is submitted for the consideration of the Parliament at its first sitting; the extension and removal necessary which will be specified below.

2.—The Procurement and Keeping of Stock Fish.

The common belief that a female cod each year develops 2,000,000 of spawn does not hold good with the common bay or coast cod. The number is large enough, but when only about 400,000 to 500,000 matured spawn can be accredited to one fish, it must be a very prolific cod to develop 1,000,000, not to say 2,000,000. As a rule, the cod caught

on the coast is very small compared to the sea cod proper. The reasons for this are that the coast or bay cod seldom lives long enough to be fully grown. The greatest numbers are caught between one to ten years of age.

When a hatchery is to be provided with stock fish to enable a certain number of receptacles to be filled with spawn, there are circumstances which are to be taken into consideration, and which, for safety, necessitates purchasing far in excess of calculations.

For instance, if you begin before the spawn is sufficiently developed, and you cannot determine the sexes, you are liable to get a greater number of males than females; hence, a scarcity of eggs would result. Again, you may get fish that may have already spawned, or for some reasons produce less spawn than expected; and others again, from various causes produce dead spawn.

The prevailing method of spawning the fish is to carefully press the hand over the belly and the spawn flows out. Notwithstanding the greatest care, considerable immature and dead spawn, incapable of impregnation, is sure to become mixed with the mature and vivified ova, resulting in considerable loss. There is no doubt this process is much in need of improvement. I have therefore kept my attention fixed on this subject, and have succeeded in finding a plan by which the stock fish can, without being touched by human hands, themselves accomplish the fecundation in a natural way, after which the eggs are carried to an especially constructed apparatus and conducted to the hatching boxes. I shall further on explain this method, when I describe my plan for the extension and removal of the hatchery.

I have already stated that from a living cod you will sometimes get dead spawn. This strange fact can be accounted for by the manner in which the fish is taken, as the spawn gets destroyed just when the fish is removed from salt to fresher water. That it is this sudden change which causes the loss of eggs has been proven by the fact that fishes which have for a year, or at least a good while, been kept in less saline water, produce healthy spawn.

If you have got such fish, which often happens, there is no other way but to remove them into stronger saline water. Of course, the diseased spawn cannot be saved by this or any other means, but the later developed eggs will be of use, and much is saved thereby. The cod does not bring forth all the spawn at once; some will not ripen or mature until several weeks after the first are laid. The most suitable as well as the cheapest method regarding the stock fish and their treatment would be to have the fish bring forth their spawn themselves, by transferring them to the basin for fecundation at the proper time, and when done to return them to the tanks, to be kept, if necessary, until the following year. Of course, they have to be fed the whole year, but this will be a very small expense compared with buying a new stock each year. The fish will both grow and thrive, and produce a considerable amount of spawn. * * * * *

3.—The Hatching Process.

On the 19th February, 1884, the first eggs were put into the apparatus, and, as was expected, one difficulty arose after the other. On account of the weakness of the salt water the majority of the eggs sank to the bottom of the apparatus, and as the water was not filtered the eggs became dirty and would not rise again and were thus spoiled. To arrange the apparatus to keep the water running all the time and prevent the eggs from remaining on the bottom was the first problem to solve. Work was continued at this for a long time, until at length, towards the end of the season, I succeeded in inventing an arrangement suitable, and which is described in my report for 1885. To prevent the apparatus from becoming unclean from the water running through it, a very simple filter was attached, which afterwards was exchanged for a more perfect one, with moveable frames, which caught the sediment; but I regret to say a great deal of it went back into the water when the frames were lifted up to get cleaned. This inconvenience can be avoided, if when the hatchery is rebuilt, there are constructed several smaller filter-boxes, instead of only one large one. To use in turns one or two of them and let those that are to be cleaned run dry

before the frames are touched, the filtering process will be regular and to be depended upon. A complete cleansing of the water is of great importance, not alone because the eggs will thrive better, but also because you avoid the additional labor connected with cleaning the apparatus.

Often the question has been raised how the hatching process takes place and in what way the spawn or brood are counted. I will give a short description of the plan followed here.

When a number of the stock fish is supposed to bear ripe spawn it is necessary to get hold of them, and this is done in the following manner:—In a small tub of salt sea water (spec. weight, 1.024) enough of the male fish's milt is put to give the water a milky color. Then one of the female fish is examined, and if the eggs come freely let them drop into the tub, and move the water slightly with the hand. After the fish are examined they are thrown into another tank, and thus every fish is tried until none are left. This work is gone over again every other or third day for a couple of months, and when you have several hundred fishes to work with, it is easily understood that this work is very tedious, and at the same time trying to the fish. The fertilised spawn is then washed clean and put into an 18-inches-high glass cylinder, which is half-filled with clear, salt sea water. In a few minutes a change takes place, and the living eggs gather in a close layer on the surface, and the dead spawn and sediment sink to the bottom. Between the layers of good and bad eggs is a belt of clean water. With a ladle perforated at the bottom transfer the living spawn into a smaller cylinder, as a measure which may be found after careful measurement and weighing to contain 60.000. After this the spawn is transferred into the hatching troughs. These are 8 feet long and 2 feet wide, and contain each ten spawn boxes, which hold 3,000,000 spawn, or 300,000 in each box. In this trough let a steady current of water run for two or three days. The eggs may then be taken up to allow the apparatus to be cleaned, and the spawn will have to undergo another sorting, in the same manner as before, the living spawn to be returned to the boxes and the sinking or dead ones to be thrown away.

In this way the work is continued every second or third day until the eggs mature. The living spawn is quite transparent, so that the growth or development of the embryo can be followed in every detail. Dead spawn will be greyish white, and altogether opaque.

A few days before the fry is ready to break through the shells the apparatus and spawn is cleansed for the last time, and notes made as to how much of the good spawn is left. The loss may run from 20 to 70 per cent., and depends mostly on the saltness of the water during the time of development. If, at the collection of the eggs, unripe ones are taken, of course the loss will be greater.

By following this very easy process you can keep track of the hatched quantity. A difficulty is when some of the brood die after being hatched. Measure and weight are then of no use, but the loss may be made up by calculation, which, after some experience, can be made pretty accurately.

Sometimes the sea water gets too fresh, and when this takes place the greatest loss is experienced.

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That the greater or less saltness of the water plays an important part over the fish which inhabit it is well known. There are fishes that spend all their time in fresh water, and others that alternately live in fresh and salt water, and others again that never leave the ocean Some fishes, for instance the salmon, go from the ocean up into the rivers to lay their spawn. The eel, on the contrary, leaves the fresh water for the open sea.

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If the spawn of different kinds of fish is examined it will be seen that the so-called mikropyle (the opening through which the fecundation takes place, and through which the egg is provided with air and water) is alike with all fishes, but in regard to the place where it is situated is very different. At the salmon spawning, the female fish places her eggs in the gravel purposely dug up, after which the male

fish oversprays it with his fertilizing fluid. The micropyle here turns upward, which is necessary in order that fecundation may take place. This is also the most suitable posture, because the opening then cannot be closed up, which might happen very often if the opening were on the under side of the egg, in which case it would rest upon the bottom.

In regard to the cod, what has been said of the salmon does not hold good. It is just the opposite, but still the results will be always the same and most satisfactory. The spawning of codfish takes place in the middle water; the male fish swims below, and as the eggs as well as the melt are lighter than the sea water, they float upwards and the fecundation takes place from below. This agrees perfectly with the construction of the eggs of the cod, as the opening or womb is on the underside of the egg.

In another respect, and one of great importance, is that the opening for impregnation is placed on the underside of the floating egg. In this way the channel through which they become vitalized is not open to the outer world, being constantly under water, even though the eggs in calm weather should remain a long time on the surface.

I have before mentioned about how the less salt water is destructive for the spawn even before it is emitted, and I have by means of special trials found that the same takes place with the already fertilized spawn. I have also stated that the water on this coast at times is below the normal saltness, and that this is unnatural for the cod-spawn consequently, one would easily think that the destruction would be enormous. This is, however, not the case everything here, as well as anywhere else in nature, is well arranged, and therefore necessary precautions are provided. When the fresh water's specific weight is 1.000 the weight of the cod-spawn is 1,022, and the salt water 1.025; consequently, the spawn floats in the salt water but sinks in fresh water. This is the course which nature has prescribed, and which we soon will find as infallible. If, for instance, a quantity of the cod-spawn is carried by the current towards the mouth of a river or other gathering of fresh water, it will at once sink until it again strikes a current of salt water, which is heavy enough to support it. The spawn has thus simply settled under the river water to avoid coming into too close proximity of the dangerous fresh water.

Respecting our more common kinds of fish, I may only remark that the mackerel, haddock, whiting (sey and lyng,—kinds of haddock), and all kinds of flounders have floating spawn, lay their spawn in lumps on the bottom, and that the spawn of the herring, after being shed and fertilized, sinks to the bottom and sticks to it. Of all kinds of spawn I have examined I have found the spawn of the herring most hardy, and consequently the loss during the development very insignificant. The newly-born herring-brood is well fitted out for swimming facilities, and surpasses in this respect, from the very beginning, the helpless cod-brood. Also here the wise arrangement of nature can be seen, because upon the presence of the necessary number of herrings depend to a large degree the existence of the other fishes. On the contrary, the fishes with floating spawn seem to be better fitted out in another way, viz; in the quantity of spawn produced, and which, for each one, may be counted in millions. There is not the least doubt of this wise arrangement of nature here, when one takes into consideration the myriads of herring broods which, at the time the floating spawn is developed, are swarming in the upper parts of the water. After having shown thus how the great teacher, Nature has arranged precautions against unnecessary dangerous influence, I will show these circumstances when in the apparatus. We have seen above how the spawn, to avoid the fresh water, sinks to the bottom. When the water pumped into the apparatus is not of sufficient saltness the same thing occurs, but as the apparatus is only about 8 to 10 inches deep, the spawn will go to the bottom and remain there. This is two-fold dangerous, firstly, because the spawn is in most unsuitable water, and secondly, because it is on the bottom, which is against its nature. To avoid this I have made arrangements so that with the help of the current and other mechanical inventions the eggs are always kept in motion, but in regard to the saltness of the water I am no further ahead. But the only true way will be to have at all times the water of enough saline

strength to cause the spawn to float in the apparatus, which can be easily managed in the following manner:—

To the hatchery is connected a salt water basin, with a capacity of about 2,500 cubic meters, the surface water of which is about 8 meters over the one in the apparatus. It is sheltered from the south by a wall 5 meters high. After the plan now under consideration, it is the intention to remove the building from its present site to this wall. The surface of the water in the basin will then lay about 3 meters higher than the floor of the building, and through this arrangement the necessary pressure is obtained to conduct the water to all the apparatus placed all round in the building. This basin is thus a reservoir, from which the necessary quantity of water can at any time be got. To keep this basin full of water always the engine is used for pumping, now as before, but with this difference, that the water is only pumped from the sea such days when it is sufficiently salt, when on the other side the water is pumped back to the basin after having passed through the apparatus, and for this purpose is retained in a tank under the floor of the building. Fears may arise that the water in passing through the apparatus may lose the air contained in it, but this is easily remedied by making a fine hole in the pipe between the pump and the basin. Through this hole the air will enter and mix with the water in the valves, and the water will become like a fine foam. A person is also apt to fear that the temperature in the basin may become too low for the development of the brood. To prevent this the waste steam from the engine is let into a box where it is condensed, and through this, the pipe from the basin runs, and should the heat not be sufficient a supply of steam direct from the boiler may, be let in. The considerable heat which passes through the chimney would be used also for this purpose. There is then nothing hindering me to overcome this, the greatest difficulty I have had in a technical respect to fight against. It only remains to get the hatchery removed and fitted up according to proposed plans, because upon this removal depends all the improvements I have made on the work of hatching at present.

The specific weight of the sea water was found to be in the apparatus:

1884	1.0217.	An average for four years 1,023.
1885	1.0252.	
1886	1.0231.	
1887	1.0249.	

Maximum was 1,027, and mininum 1,015–4. The proportion between for the development favorable and unfavorable days was as 3 to 1. The changes come often very suddenly, and it sums up as above cited. They are results of the strength or direction of the wind. In the four years the hatching process has produced a total of 101½ millions young codfish.

4.—Breeding of Cod.

This question, which stands in connection with the hatching, I have also tried to solve, and met with favorable results. True, the number or quantity brought up is not considerable, but sufficient enough to show the possibility of breeding, which is all that is necessary. My intention was, first, to show the public that the fish hatched at this place also had enough vital power to develop themselves further, to which, later on, came the wish to know the reason for the great difference in color reigning between the different families of cod, and for which, to my knowledge, science has failed to give any explanation. As regards the breeding, trials were made by me in 1884, and continued during the winter of 1885. Direct results were not attained, but I acquired a great deal of information and experience, and came to the conclusion of how the matter had to be commenced to meet with success.

When the young fish is delivered from the hatchery, it is only 6 to 8 days old, and has a length of 3 to 4 m.m. To keep it longer would not do, as the fish requires, for its further development, nourishment, which, of course, cannot be got in the filtered water where it has been kept. To do away with the filtering process would be of no use, as the comparatively small quantity of water in the apparatus (about

15 litres to 200,000 fry) could not contain any nourishment worth mentioning, even if the speed of the current was increased over the average, viz., full change of water each time. Thus there are only some trifling and helpless difficulties to be met with.

If a number of the young fish is let into a glass cylinder, with sea-water of suitable saltness, one will see them attempt to reach the surface, and when this is reached, gather together at the edge that is turned towards the light. Under these circumstances, it is quite possible, with most careful changing of water, to keep them alive a longer period. If, on the contrary, water of less saltness is used, the results will be opposite. The young fish, the swimming capacity of which is limited to a few intervals of interrupted movements, or pushes, attempts now to reach the surface, but its weight, being more than the water, will pull it back and cause it to sink to the bottom, where its destruction is certain. Thus the first and most essential condition to make the breeding a success is, that the water in which the young fish is placed may have so much specific weight that the fish, without exertion, may be able to keep away from the bottom. Besides this, care must be taken that the water has not got too high a temperature, which has proven itself to have a dangerous influence upon the eggs, as well as the young fish. Lastly, the water must contain necessary nourishment, and must be changed at regular intervals.

To cut off a ground bay, and let the change of water be made direct from the sea-water outside, would not do, because this water at the surface would be too much mixed with fresh water; and I selected, therefore, a more costly, but more sure course, to build a large basin up on the shore, and filled, it by means of the steam pump, with water from the depths of the sea.

The basin was finished in the fall of 1885, and has, as before stated, a capacity of about 2,500 c. m., and the greatest depth of 4·75 metres. After having been cleansed in April, 1886, and provided with different sea-weeds, etc., it was filled with sea-water, in which, on the 3rd May, was placed about 500,000 cod and a few thousands of flounders and herring brood. It may here be remarked that, when the basin was new, with well-washed walls and bottom, it contained too little nourishment for such a great number of fish, and to this may be ascribed as the most essential reason why a great number did not grow. The same basin, which is now all over covered with sea-weeds, and which, especially in the spring, shows a great deal of vegetation, would now, without any difficulty, be able to give nourishment to a manifold number.

In regard to the young cod's further development and growth, I refer to my report of 1886 as follows :

Date.	Age.	Size in M. M.
April 26	0 days	3 M. M.
May 3	6 do	5 do
do 16	19 do	7 do
do 18	21 do	8 do
do 21	24 do	9 do
do 31	1 month, 5 days	10 do
June 3	1 do 8 do	12 do
do 6	1 do 11 do	15 do
July 12	2 do 15 do	55 do
Aug. 12	3 do 15 do	70 do
Sept. 12	4 do 15 do	85 do
Oct. 12	5 do 15 do	115 do

Between the 6th June and the 12th July, there is, as can be seen from the table above, a great leap in the development, which, however, must be explained by the fact that the young fish at this time commenced to eat the food thrown to them twice a day, and in considerable quantity.

Since the above was written the fish have gradually increased in size, but their number has had a considerable falling off. The most essential reason to the death

rate has been the cold of the winter which, especially last winter (1887–88) was both piercing and of long continuance, so that on the 1st April there was ice 20 inches thick in the basin. The size of the fish is, at present (at 2½ years of age) from 9 to 18 inches. The biggest fishes keep themselves mostly in the deepest hidings, and are seldom to be seen. The present number is 200 to 400, and there is a chance that they will spawn in the spring. Further information respecting them will be given in the next yearly report. That the brood hatched in the hatchery is in possession of enough vitality to further develop itself is thus proven: That, in proportion, only a small number has been brought up to eatable fish, depends, as shown before, upon other circumstances altogether than the vitality of the brood.

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5.—The Lobster.

After some time, studying the development of lobster spawn, I found proofs that it may, without great difficulty, be hatched after being taken from the mother. I constructed, during the spring of 1885, necessary apparatus, and commenced then experiments after a certain manner. In my report for said year is given the successful results obtained, why the problem of hatching lobsters, upon which so much time has been spent, may be said to have been solved.

The only difference in my method was, as mentioned before, that I worked with the spawn alone, and not as my predecessors in this line, who all seem to have been of the opinion that the spawn absolutely must remain attached to the mother during the development, and therefrom put them into the hatching boxes. The difference may seem, to the ignorant, to be of no importance, but, really, it is extremely so. To illustrate the difference, I wish to show that when the loosened spawn of 6,000 lobsters, the number which the hatchery will be able to hold after the extensions are made, can be easily handled by four men, it will take a great deal of work to attend to 600 in the water-flowing boxes, with ten lobsters in each. The food alone, of 6,000 lobsters, at ½ ore each, is Kr. $30\frac{00}{00}$ per day, or twice what the whole hatching after my method will cost. The same year, experiments were made at breeding of the young lobsters, and which met with success, which is well known never happened before. I believe, though, as mentioned in my report of 1885, that the breeding of the young lobsters will never reach any importance, as the young lobster's repugnant or voracious nature is such that they can never be kept together in any great number like other fish. What the result would be, should the breeding be done in larger basins, I cannot at present say. That some could be brought up is without doubt, but whether the number would agree with the expenditure, is another question. Although I entertain some doubts, I believe that an experiment ought to be made as soon as the hatchery is removed inasmuch as no other extra arrangements need be made, because the hatchery has all the necessary basins, and the expenditure would be very small. In regard to the hatching of the spawn, I believe this business has a grand future. "What *can* be done and what *ought* to be done is that yearly, in the months of May or June, gather as much spawn as possible and send it to the nearest hatchery, to be hatched there, and then when the young lobster is about eight days old let it loose. To do this, and thus save a part, anyhow, of the immense quantity of spawn which yearly is destroyed and of no use to man, has been the aim of my labour, and as shown above, also reached.

6.—Oysters.

In my last yearly report, I gave a statement of the results arrived at during the two previous years with breeding of oysters in artificial basins. The work was continued this summer, and, notwithstanding the low temperature during part of the summer, the results were very satisfactory. As the basin now used for oysters was constructed for another purpose altogether, I sent the Government a petition, asking for a grant of Kr. $3{,}000\frac{00}{00}$ for the construction and running of a more suitable basin, and to get a chance to prove my oft uttered assertion, that oyster breeding can be carried on successfully in artificial basins.

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As well known, the oyster-breeding in our country has been carried on more or less by companies of considerable capital, which have, to begin with, procured one or more of the so-called ponds, without which oyster-breeding, up to this, has been considered impossible. That these ponds, when properly managed, can give very good profits, I have no doubt, but as their number is very small, the Norwegian oyster breeding, if exclusively depending upon these, will never be of any importance; and what I most fear is the business will never come into the hands of the coast inhabitants, who are most in need of such an extra income. To make the oyster-breeding independent of these few natural ponds, and so that it may be carried on all along along the coast, and to find out a simple and cheap method of working, by which old people, women and children could find a paying employment, has been the problem I put before myself, and which, if three years' successful labors can be considered decisive, has been solved in a satisfactory manner. There are now sure proofs that the oysters spawn in small closed-in basins with artificial water temperature, and that the young oysters thrive with very little change of water; that they, after swarming time, attach themselves to the traps or tiles put out, and that the labors in connection will be very insignificant compared to the gain derived. Thus there is a chance offered to use all the little bays, as well as coves or hollows in the rocks, all along the coast, which could easily be closed in, and in that way be useful for oyster breeding. To show further the importance of such an industry is considered unnecessary. That the experiment ought to be continued is plain, partly to gain more experience and partly to endeavor to make the work cheaper; but there are two questions which cannot be solved with the means that now are at my disposal, and I believed it just to submit this petition. These questions are:—

1. With how low water can work be done without fears of a failure?

2. In what proportion does the cost of running of a rationally managed basin stand to the average profits?

In regard to the first question, it is a very important one, as the dimensions of the walls and the strength of the pumps, and thus the whole cost of the undertaking, is depending upon it. To close in a bay, for instance, 10 feet deep, will, in many places, be a very easy task, when an additional building of, for instance, 5 feet, may be impossible. My present basin has a depth of 16 feet, and has, as will be shown below, given very satisfactory results, but it is necessary to gain knowledge if not a shallower water, for instance of 8 feet, would be sufficient; that this would make a great change in the running expenses is plain.

To lower the water to any extent in my basin would not help to any result, as the area would then be only too small and the surface would lay so far down between steep walls that the wind could not cause the least movement, which I consider to be of a very great importance. That my experiment will be successful I am pretty sure, notwithstanding I know that others have in other places made trials and met with failure. The reasons for this were, perhaps, that those parties could not spend so much of their time to follow the development in all its details, which, besides a thorough knowledge of the business, is absolutely necessary if these experiments may reach good results.

The basin I intend to build, and in which the work would be carried on next summer, has now 1 foot of water at ordinary water height, which, after closing up and pumping, is increased to 8 or 9 feet. The capacity will then be about 400 cubic fathoms. The bottom is very even, and consists of sand and shells. It was by the owner, Mr. C. T. Boe, kindly given to the hatchery, in the close vicinity of which it is situated. To fill this basin there is one windmill and two vessel pumps to be used.

The next question is to show the proportion between cost of running and profits, and I had thought to keep special accounts over this. This is so much more necessary, as artifical hatching, for the present, is looked upon with distrust.

The only work with the running is to chalk the tiles, to place them upon the trestle-work, to tie and put out the brush-wood, and to keep the windmill going when pumping is necessary. To do this one only man is required from 1st of May to 31st of

October, and during the greater part of this time he will have very little to do. The yearly cost of running such a brood-basin can, when everything is to be paid, be placed at about Kr. 400. The plans are, to, after sometime use brush-wood exclusively and thus make the work more simple and more easy to be performed by old people, women and children. In regard to the possible results in such a basin, I cannot very well say, as this experiment would differ so much from any previous ones, but if successful, which I venture to hope, I think, taking in consideration my present basin, that the new one may produce about 200,000 brood. I calculate then, that in the basin is placed 10,000 tiles, and an amount of brush-wood compared to that, the average number of, on each tile attached, oysters, would be 10, which I consider for my present basin a very poor result.

After this calculation the production of brood, rents of ground, etc., will cost about 25 to 30 ore per 100. By using the method proposed by me, the main work can be done by the members of a family, so that the father can attend to his regular work.

To show of what importance the oyster breeding may be to a country, I refer to Professor Browne Goode's work, "The Oyster Industry of the World;" that the oyster culture in France employs 29,431 persons; the yearly production is 680,400,000, and that these, valued at Kr. 1.83 per hundred, represent a capital of 13,000,000 Kr.

This colossal industry, which is not 20 years old, received from the very start, and later, considerable assistance from the French Government.

With regard to my earlier operations with oysters, I beg to refer to my report of 1887. This year the work has been as follows:—

From Tysnees and Stavanger, 650 small oysters and 25 older ones were bought last May, which, together with 25 from previous year, were placed in frames, with bottom of wire, and hung out in the basin. During the first fortnight a few died, probably from the transport; but during the last three months I have only found two dead ones out of about 600, which shows that the natural circumstances were very favorable in the basin for the oysters.*

Swarming brood were first seen the 5th July, and increased in number until the end of the month. From the 9th August it again increased, and still continues, but widely spread.†

The first discovered young oysters attached to tiles were found on 29th July, thus 24 days after the commencement of spawning time. The first traps, or gatherers, were placed out on 18th July, and were kept on until the 14th August, or long after the first cold had come.

Besides being put out on different occasions, the traps were put out in different positions and depths, from the surface down to 10 feet. The reason for so doing was to gain as much knowledge as possible, which seems to me to be of much more importance than to obtain the largest quantity of oysters. For traps have been used 1,000, tiles and a quantity of brushwood, of which 500 tiles and five-sixths of the brush were put out after the cold had come. The birch brush, which was brought from Stavanger, reached here too late. On examining the traps, one comes to the following results:—Those first put out are most covered with young oysters, and of them those that are put deepest down. Tiles put out from 18th to 21st July, in 9 feet deep water, have from 113 to 24 attached oysters, an average of 55. Tiles put out 23rd to 24th July, in 1 to 3 feet deep water, have from 2 to 34 oysters, an average of 14. (The last number were arranged in three layers). Tiles placed out at the same time all over the basin, in different depths, were all well covered, but on account of the water not being transparent, I am unable to tell the average number. Oyster and other shells, fastened to wire or twine, and suspended from other wires down to about 8 feet depth, are covered up to 15 oysters on one shell. A number of 8 to 10 is very common. The original stock oysters placed out are also covered with young oysters, and these in proportion to the depth they were placed. The greatest number found hitherto on one single oyster was 7. Still more uneven than the tile were

*Since the above was written (middle of September), and up to New Year, none are dead.
†Middle of September.

the brush wood bundles covered. On one very small bundle, smaller than a common broom, I have found 83 young oysters, when on others, many times that size, I did not find one. A third reason arises for to explain this. When new birch brush-wood is placed into salt water it is covered by a kind of white spots, or a kind of thin salivary coating, which hinders the attachment of the oysters. Brush-wood already used is, therefore, better. A more specified report will be given in my annual report for this year. The number of young oysters gathered are supposed to be 12,000 to 15,000, and the number of tiles or traps used for the first swarm, 600, thus 20 to 25 on each. Respecting the last swarm, no information can be given; if the oysters attach themselves even, it is expected to be small, and of little importance. Taken on the whole, the culture of oysters this year has been under the average, on account of the unusual low temperature of the sea water. For instance, + 9° R in the middle of July. The temperature in the basin has this year been 15°, and 20° last year. The results of my experiments during the last three years have shown that broods of oysters can easily be produced in small artificial basins, and this yearly, as a rule. The many difficulties and uncertainties generally met with by oyster breeders have not occurred to me, and I have found that the whole oyster culture depends on two main conditions, namely, the saltness of the water and its temperature. The biological circumstances appear to be pretty even all the time, and do not seem to prevent the breeding any. In regard to the breeding, I have many plans, but want of means has prevented me from putting them into operation. If necessary, the young oysters could be placed in the sea, their natural home, and where they could pass the winter. I intend, however, to let the greater part remain in the basin, to find how much the oysters can stand, and which way to success I find the most suitable. To continue the gathering of spawn in my present basin I consider of small use. Having only a capacity of about 15 cubic fathoms and keeping in it a large number of cod, it is quite natural that it is hard to be worked, and will never give the results that I wish for in the interest of the business.

As the nature and the position of the basin used has made it possible to make daily observations of the stock molluscs as well as the swarming brood, I have succeeded in clearing up a number of circumstances which, by some oyster breeders, were explained in a different manner.

The assertion that oysters do not spawn the same year they are removed has been shown by experiments in three successive years to be erroneous, and the same thing with the same assertion about stock oysters when placed upon suspended frames. These results are, however, quite natural. The oyster must spawn when the time has come, like any other creature, as the process is not in any way depending upon the well-being of the oyster.

That a very low temperature is unfavorable to the oyster is admitted; but it is going too far to say that oysters do not spawn during cold summers. In 1886 the temperature in the basin was 12°, in 1887 20°, and in 1888 15° + R. In the first year the temperature was exceedingly low, but this notwithstanding, the spawning went on as usual during the right season, namely, the first part of July. With regard to the development of the swarming brood the process was slow, so that it took thirty-five days from the time the first young ones were discovered in the basin until they attached themselves on the tiles or brushwood. In 1888, with a temperature of 15° R., it took only twenty-four days. In the year between, in every way so favorable to oyster-breeding, I took however no notes, as all work with the oysters was discontinued on account of the bad economical position of the hatchery.

As a lower temperature than 12° + R. is very rare at our coasts in the month of July, I believe, and for good reasons, that the oysters spawn every year, provided no sickness caused by local casualties, have made them unfit for propagation. That the slow development of the swarming brood in a low temperature, can contribute to that the harvest of oysters becomes very small, is very likely, and it is therefore necessary to receive from the oyster-breeders of our country information about the number of oysters and temperature during the different years.

The amount of dangerous effects upon oysters by low temperature in an oyster basin is also dependent upon other very important accessory circumstances. In an open basin, where the water can run in and out, the loss of swarming brood will be larger for want of warmth than in a basin closed in. The depth of the water always changes. In an open basin there will always be a constant current that at outgoing or incoming will cause a large loss of brood, and it is plain that the longer the time of swarming lasts the greater the loss. But this is not all. During warm summers easterly winds with calm and low waters prevail, when during cold summers, as a rule, strong westerly wind with rough water is usual. The current in the inlet to the basin will then be stronger and more changing, and consequently still more diminish the number of swarming brood in the basin. That the harvest of oysters in such a basin during a cold summer may be very insignificant or perhaps a total failure is easy understood. One thing of great importance to the oyster-breeding is to find out the reasons why the oysters in different years attach themselves on different depths. Two factors seem to account for this, namely, the saltness of the water and the temperature. Which one of these is the most important I cannot at present say, and a reliable result can only be arrived at from satisfactory and large experiments in the course of years. If this question is solved, so that one only by the help of the thermometer or the areometer can give the depth at which the traps have to be put, much useless work can be done away with and a security in the whole oyster breeding be assured. Besides these, there are a number of other questions to be solved, which I now, from lack of means, am unable to determine.

7. How the Hatchery has Solved its Problems.

The hatchery was erected and put into operation to find some means to restore the number of fish at our coasts.

The first questions to answer were:—

1. Can artificial hatching be carried on under any circumstances?
2. Can the hatching be carried on on such a large scale that through its help it may be expected to increase the number of fish?
3. Can the work be done so cheap that full value may be expected from the money laid out?

After five years' operation, the reply is as follows:—

Saltwater fish can, without difficulty, be hatched. Yearly thousands of millions can be produced, and when all the information gained is utilized, 8 days' old cod can be sold at the rate of 4 ore per 1,000.

Besides this, the original problem, the hatchery has shown the possibility of hatching and breeding lobsters, which before this was considered impossible, and it has furthermore carried the oyster culture in on a track which, if everything goes as up to this, will make this a national industry and provide many families with a paying extra income. When to this is added that the hatchery in no way has been a failure, and that none of the money spent has been thrown away, it must be acknowledged that the hatchery of Flodevigen in every way has solved the problem in a most satisfactory manner.

That the operations just now concluded should have been able to increase the number of fish in any considerable quantity I never expected, as much more, when the large devastations by the eels are taken into consideration. However, the increase of small cod has not only been noticeable but very striking where the young brood were left out, because an unusual large number of small cod have been caught in those places during the last years. During the first time the young fish were put out in Flodevigen, Hovekilen and adjoining bays, during the two last years in Tromosund; the results in both places were striking, but the eel nets and a lot of other more rational fishing gear made soon a clean sweep, so that it will soon be as ever before.

The catch of small cod in the so-called boudcayb (shallow waters) has been very great during the two last years; two fishermen with lines have been able to pull up

about 14 dozen per day each boat. Something similar occurred in Hovekilen and in the strait outside, but did not last long. To communicate with the fishermen about the results of the operations of the hatchery is of no use or satisfaction, when most of them consider the hatchery an encroachment upon the rights of the Creator and thus damnable. The information received from that quarter is, therefore, everything but reliable. There are, though, a few who possess sounder powers of comprehension regarding the rights and duties of man, and from them can be heard unanimous testimonials to the usefulness of the hatchery, provided it is carried on on a large scale. My own observations, gradually developed, have convinced me that the artificial hatchery of saltwater fish, especially in our country, with its many closed-in bays and gulfs, will be of great importance to the community if carried on with proper vigor.

8.—Is Artificial Hatching of Saltwater Fish Required.

Not only with us, but from most of the foreign countries, there is a complaint that the fish, as well as the lobsters and oysters, are decreasing along the coasts, and that the fishermen on account of this must go farther out into the sea to make their living. The American Fishery Commission, the extensive experiments of which throw good light on the question, says, among other things: "It may with safety be said that as soon as the white man puts his foot on new discovered ground and commences the so-called civilization the inhabitants of the air and sea and earth quickly diminish in number. The fishes, immensely profuse from the beginning, will first feel the influence, and especially those kinds that belong to fresh water, and whose increase is much more limited. That the reason of this is not a natural and needed use of the animals to satisfy the want for livelihood is shown by the fact, that the original wild inhabitants, who were far more dependent upon the products of nature than the white man, could supply their demand through centuries without a noticeable decrease. It is the frequent shameful destruction in masses, which so often is undertaken merely for a few moment's pleasure or to secure a few; in some instances, only to use parts of the creatures destroyed. As an example, how the number of fish has decreased is given that of shad, there was caught in the Potomac River:—

In 1833	25,500,000
1866	1,326,000
1878	224,000

Of other freshwater fish, there was captured in same place:—

In 1833	750,000,000
1866	21,000,000
1876	12,000,000
1878	5,000,000

In both cases the catch, notwithstanding the improved appliances, is reduced to below $\frac{1}{100}$ of what it was in 1833. Of bass, there was:—

	Lbs.
In 1866 caught	316,000
1876	100,000
1878	50,000

Similar proofs of the decrease of the saltwater fish can be given in great numbers. During the first days of the Republic the fish were swarming along the Atlantic coast, when now, on the contrary, they are pretty scarce. Hatteflyndrau (*Hippoglorue vulgaris*), which was so numerous once on the New England coast that it was considered a plague by the fishermen, is now nearly all rooted out, so that it must be sought after on the outside banks: Even the Mackerel, whose home is the great ocean, and which thus seemed to have been safe against the destruction, has been made to feel the intrusion of man. The largest catch that was ever brought on shore by the fishermen of Massachusetts was in 1831, when there were 385,000

barrels salted, and which was mostly caught on hooks. In spite of numerous steamboats and other vessels, and a much larger fleet of fishermen, has the largest catch in the '80's been only 305,000 barrels and in 1886, which was a bad year, 65,000 barrels.

One of the best proofs for the decrease of the fish is the decreasing size of them, and on this the American reports gives some information. The statement below shows how large a part of the mackerel caught that each five years has been put down as No. 1 by the Fishery Inspectors.

1865–69	53	per cent.
1870–74	38	do
1875–79	14	do
1880–84	10	do
1885	7	do

The formerly valuable lobster fisheries are now in many places given up, and those remaining diminish year from year. Even the fishermen themselves have come to the conclusion that nothing but the wholesale catching of spawning fish could have caused such results.

The natural oyster beds on the Atlantic coasts of the United States, that hitherto were considered inexhaustible, show now such an alarming decrease that the sharpest rules of prohibition have come into operation for its conservation. In 1860 the market was nearly altogether supplied with oysters from the natural beds, while, on the contrary, in 1886, about 60 per cent. came from private beds. What has been said above in regard to the United States may also be said of the Atlantic coast of Canada. As well known, these are the seats of the greatest lobster fisheries in the world, but which have just as little, as the European, been able to escape the common danger to diminish year after year, and this to such a degree that now there are proposed certain prohibitory regulations, to which I will revert, and which approach nearly total prohibition.

From Scotland, where, during the last few years, a committee of fisheries has been appointed, the same complaint is heard in regard to the decrease of fish, lobsters and oysters. In a letter from the committee received lately, it is stated that the oysters are practically exterminated. Similar reports have been received from the most different countries, as well as in outside Europe; but I suppose that what has been said above is sufficient to show that a decrease in the number of fish on our coasts is nothing singular, but an exhibition to be found all over, and which draws the attention of the respective authorities. In regard to our home circumstances, it would be expected that they should be well known, but this is, however, not the fact. There are persons yet who, by looking at the residue in the cauf at their wharves, consider that they have sufficient proofs that there is yet enough fish in the ocean, and who do not know or do not wish to know that the number of the fish has increased with the growing efficiency of the fishing appliances, and that a considerable number of fish is imported from Sweden and Denmark.

When to this is added that our natural oyster grounds are destroyed, and that the export of lobsters during the last 20 years has been down from 1,858,000 to 835,000 which, at the current price, is a national loss of over half a million kroners per year, then an attempt to get these matters corrected must not be considered out of place. One must not expect or entertain any allusion that these things will become better by themselves; when in year after year the capital is spent, it is plain that this as well as the interest will grow less.

When the results of prodigality with the richness of nature commence to be felt in a higher degree, and people slowly get their eyes opened to see that the reproduction cannot keep steps with the increasing devastation, as a rule the nearest means are grasped at, to decrease the catch by means of prohibition. The usefulness of this will, at all times, stand in a decided comparison to the length of the prohibition and the way in which it is watched. I will give a few samples. If a certain water can stand a yearly assessment of 1,000 fishes, and the owner, to save against

loss, agrees only to fish one month during the year and keep strictly to this agreement, there would be no use of this, supposing there are caught during the allowed period, for instance, 5,000. The stock will in this case always decrease and the owners can rightly assert that prohibition has been of no use. How a real good law becomes valueless through neglected inspection is shown at our salmon fisheries. The law prescribes here a certain size of the mesh of the netting, allowing fish of about 18 inches length to slip through, and this is quite right. But what is the use of such a regulation when the fisher with the small meshed nets catches as many young salmon as he can get hold of when it only has a length of 8 inches, and without grumbling these are sold under the name of "blegers." It is plain that the law in this case is without aim, when the just mentioned abuse is so common, that after my experience there are in this district many more young salmon under than over 18 inches length caught. When prohibitory laws on account of above named reasons and others so seldom have proven themselves to be of use, and as a consequence come into discredit, especially amongst the fishermen, who say that the more prohibited the more the fish disappear. That this in most cases is true cannot be denied, but the reason for this is not that there is prohibition, but that the prohibition is not strong enough. To cause any perceivable increase in the number of fish through prohibitory laws alone is very doubtful, or rather impossible, as for many districts or fisheries nothing but absolute prohibition during a longer period could produce results so that a reasonable catch in the future could satisfy the daily want. With us, where the daily fisheries plays such an important part, these arrangements with prohibition would be impossible, and there remains nothing but either to allow the fish to gradually diminish until totally destroyed, or use the artificial hatchery. The best proof that in foreign parts people have got their eyes opened to see that the case is as above stated, is the eagerness with which they seem to explore the causes. Expeditions sent and sustained by the different Governments and provided with scientific and practical expedients have been employed for some years and have already produced rich results and assisted in explaining many hitherto enigmatical problems in regard to the ocean and its inhabitants.

Regarding the main question, the reasons for the decrease of the fishes, as well as other useful sea animals, it has been agreed upon that increased consumption, mainly caused by improved means of communication, has caused a stronger assessment than the stock could bear, and consequently a decrease takes place. On the other hand, the statistics of fishery has shown what enormous interest is at stake, and strongly urged that the respective Governments take steps to correct the matters in an energetic manner. In regard to this, how it can be done, the well known Prof. Spencer F. Baird says, that there are only two ways towards the increase of the fisheries, and that is, strict prohibitory laws or artificial hatching. He says that one of these may, in single cases, be sufficient to reach the desired aim, but by using both one gets the power to restore the fishery to its old position, and, on the whole, produce results that, without the experierience gained during the last ten years, would have been considered impossible. That the professor does not stand alone in his opinion is shown by the many existing hatcheries, in different methods, that have commenced operations, or are planned, and which will give this business an importance never before thought of.

The United States have now two hatcheries in operation for salt-water fish designed to produce each 100 millions at a time, which, when the work is extended over the whole spawning season, is equal to a yearly production of about 500 millions. Of lobsters there is a quantity hatched, both for output on the Atlantic coast and to send to the Pacific, on which coast it is desired to be introduce them.

That in Newfounland it is intended to follow the same plan, is seen by an enquiry received, asking for a man well posted with the labors of a hatchery to take the place of manager in such an institution.

In Europe this one was the first institution of its kind, and has been, during its short duration, visited by many foreigners seeking information.

A hatchery for lobsters is now under construction in Durham, England, and is expected to commence operations next summer. It is calculated to cost about Kr. 30,000, and it is built for the Government. A sample apparatus was sent from here some time ago, and by what is known as my method to be used,which is clearly proven by the fact that I have been requested to go over there when the work is to commence.

The Marine Fisheries Society of Grimsby is constructing a hatchery for salt-water fish, to commence operations this winter if possible. The secretary of the society, Mr. A. T. Olson, visited our hatchery some time ago to get information and advice.

Also, from other places in Europe—for instance, France, Austria, Russia, Denmark, Iceland, etc.—many enquiries have come respecting the hatching operations in their different branches.

Before I finish this chapter I will briefly give a few words as to how in foreign parts the laws of prohibition are, and in what way they are enforced.

In the United States, the history of which is so short, and where the results of spawn fisheries can so easily be seen, the regulations prescribed are very strict. I may say, for an example, that the punishment for having put out during time of prohibition one so-called pound (a kind of net) is confiscation of the implements, $1,000 fine and six months imprisonment. For having brought on shore mackerel during the time from 1st March to 1st June, caught otherwise than with hooks, the punishment is the loss of the catch and loss of license to carry on fishery.*

Quite lately a collision took place between some fishermen who were fishing oysters on prohibited beds and one steamer of the inspectors. The result was that two schooners were sunk, four were driven aground and one captured; nine of the oyster fishermen, who were looked upon as pirates, were drowned, and some were wounded. In Canada, as is above said, proposition made to restricted prohibitory rules for lobsters, which stipulates that the time for fishing would be limited to two months in the year. The half of the number of the members of the committee proposes furthermore that the minimum length, which is now 9½ in., shall be increased to 10½ inches, and that all canning factories for lobsters in Canada be closed for a period of from three to five years. When it is said that the number of these latter are about 500, with a ground capital of about $1,000,000. it is easily understood, that there is really danger ahead. In 1886, over half of the factories in Prince Edward Island had to be closed for want of lobsters in the middle of July. Compared with above mentioned strict regulations, our laws, with their insignificant fines and want of superintendence, look rather innocent. The main contention of all above said is this, that the number of fish at the coasts of all civilized countries are rapidly declining, and that the laws of prohibition, as generally put in force, never will be able to stop this decrease, but only delay the total destruction. I find, therefore, and may once more say it, that the only way that we can find to save what we have and to effect an increase is artificial hatching.

9.—What Remains to be Done.

To continue with experiments after the problems that caused them were solved in a satisfactory manner is, according to my ideas, a superflous labor. What to do, is to get proofs that artificial hatching of salt-water fish also is able to increase the quantity of fish, and for this purpose the present hatchery is too small. When I therefore, repeatly, have proposed the extension of the hatchery, and now strongly urge the same, it is because I feel sure that it will never fill its destiny to such a degree that this matter will gain the assistance of the public, which I consider absolutely necessary if it will ever be, what it ought to or could be, a blessing to the coast inhabitants.

If it was thus that the expenditure rose in the same degree as the production, people might be right to entertain doubts, but this is far from the case. In my

*This law was proposed in the House of Representatives on 21st May, 1886, and also passed through the Senate, and, as far as known, is probably in force now.

report for last year I gave an average calculation of what the production of brood would cost in hatcheries of different sizes, which is below:—

30	millions	will cost	Kr. 5,000,—	thus	$16\frac{2}{3}$	ore per	1,000
100	do	do	6,500	do	$6\frac{1}{2}$	do	1,000
200	do	do	8,000	do	4	do	1,000

If the hatchery is removed, as proposed, the expenditures will be still more reduced, and, to a considerable degree, this saving will be accomplished in two months —first, directly from the method of working being cheaper, and then indirectly that the mortality becomes less and the gain consequently larger for the same amount of work. Would a person calculate further, it will be seen that where there is now produced 3,000,000 to a price of $16\frac{2}{3}$ ore per 1,000. the hatchery will, after the extension, produce the balance of 70,000,000 for $1\frac{1}{2}$ ore per 1,000. Taking these numbers into consideration,it must be admitted that if it pays to run a smaller hatchery it will do so to a much greater extent with a larger one.

From one source has been heard the saying that the hatchery in its present extension is large enough, but this is not easy to understand. If the intention was only to supply a single closed-in bay with brood, this assertion may have its reasons, but not when our long-stretched and our depleted fishing coasts are taken into consideration. Here may the saying fit in—the more the better.

Besides the number of hatched brood, which, according to above statement, causes the said expenditure, one gets for the same money received the work that the manager can perform outside the time of hatching, and which, if he is fit for his position, can be of great importance to the fisheries. In regard to myself, I beg to refer to my experiments with lobsters and oysters, which have cost hardly anything, and consequently, when the building is removed closer to the basins, such work will be performed in a larger degree, as the necessary quantity of water then can be taken from the basins, the contents of which, however, has to be renewed from time to time.

In regard to the future work, I wish to propose that after the hatchery is removed and extended the cod hatching be again taken up on the largest possible scale, and then that the experiments with hatching and breeding of lobsters may be continued on a smaller scale, if possible, to introduce improvements in the method of working. Finally, oyster culture should be tried for two years in the proposed new basin, and their breeding in a similar long period. If the work brings forth good results, which, to judge from work done up to this, is most probable, we may then be able to direct the public as to the most advantageous method in the business, and with this the work of the hatchery may be said to have finished. Later on experiments ought to be made with the breeding of the hatched cod-brood, thus, that it reached a length of about 1 inch before being liberated, and thus much be gained. This breeding ought to be done in a bay separated from the sea of a couple of fathoms' depth and would hardly cost anything. The most important improvements to overcome the worst difficulties have all been planned, and the reason that I will not explain them now is that this question is only for publication when reply has been received (regarding the future of the hatchery and its cause) to these my above proposed plans.

10.—Who Pays the Expenditure of the Hatchery at Flodevigen.

That there appears, in this era of inventions in which we now live, manifold propositions more or less suitable to the assistance of industry, is plain, and it must not be considered asking too much if those making the propositions, and who believe themselves to work for the general good of the people, believe themselves also entitled to some support to have their plans realized. In this they do not succeed well, as the Government, as a rule, and of course, rightly enough, takes a watchful position before new and doubtful enterprises, and only renders its assistance in connection with and on account of the utterances given on the subject from that quarter which

will be benefited by the work. That such an order, referring to the great carefulness with which, in this country, new ideas are met with, in some single instances may stop or delay the introduction of new improvements, is true, but on the other hand it has many advantages. The issuer of those propositions is then forced to look to the great public, and especially to that class of people he will through his invention be of most use to, and who understand the thing best of all and its possible practical usefulness.

The change of opinions taking place thus between the opposition and the defence opens up his eyes, and causes him to look at the thing from other sides and in a new light. If the plan be practicable, and the inventor has succeeded in convincing the public of this, and its being of great importance to the community, it will seldom occur that it will be dropped for lack of assistance, provided not too much money is required for its realization. The practical experiments then commenced leave the decision altogether to the public. If these fail, the cause will soon be given up by that side; if happy results are met with on the other hand, the cause has gained a place in the practical life and will cause itself to be acknowledged. With these suppositions I took up the question of artificial hatching of salt-water fish, which, looking at the great decrease in our daily fishery, was greatly needed.

I turned with my petitions for money contributions, first to private gentlemen and corporations, and not in vain.

The income of the hatchery has been, up to the end of 1888, Kr. 43,000—of which Government assistance.

1884, through the Fishery Society	Kr.	2,000
1885, do do		2,000
1887, de do		2,000
1887, through Parliament		2,500
1888, through the Fishery Society		3,500

Thus, Government assistance, Kr. 13,000.
Private assistance, Kr. 30,000.

In this sum is included Kr. 2,000 from the Royal Society for the Welfare of Norway. I believe thus to have fulfilled the common rule in a case like this—to have principally, with assistance of private contributions, brought the thing so far that its practicability is proven, when the reasons that caused the construction of the hatchery always are at hand and never, either in foreign countries or here, was there any other or better means found to restore the quantity of fish than artificial hatching. It is plain that the work ought to be continued, and then comes the question, who will in the future have to defray the expenses. The last five years' statement from the bailiff in Nedeuces shows that the coast district of the bailiwick have together a population of 42,600 inhabitants. If to this is added the poplation of the villages, the total number will be above 50,000 souls who thus can be said to have an interest in the daily fishery.

The gain of this, as well as the indirect advantages of a rich supply of fresh fish, is so evenly dealt out that, outside of this, the original fishermen cannot be said to make a great pecuniary gain. On the whole, this matter is of the greatest importance. If it is supposed that the above-named 50,000 people form 10,000 families, and each of them uses about 80 ore worth of fish per week, the total amount for the year will amount to 400,000 kroners. This only refers to the bailiwick of Nedeuces. In the country between the Swedish boundary and Lindosuœs, along the coast, where the number of inhabitants is about 400,000 individuals, the value of the consumption as above would amount to close upon three and a-half millions, and for the whole country to about six million kroners per annum. It is thus this income which is on the decrease, and which is to be saved. To look to those men who, with such liberality seldom seen, have helped the undertaking over the first and worst difficulties, will not do. They have shown their interest in the matter, and this is the only correct way, namely, by assisting at one time so plentifully that the work could be per-

formed in a satisfactory manner. This has, more than anything else, helped to reach satisfactory results. To petition the great public is of no use, as every single individual, when asked for a pecuniary help, considers the question out of his line; also it is impossible to ask for assistance, by contributions, from the community of surrounding villages or districts, when this question is not yet quite clear to the public generally. First there must be such plain proofs produced of the usefulness of the hatchery that all doubts and opposition are silenced; but this can never be done with the hatchery in its present state. As the daily fishery is of such an enormous importance, and private voluntary contributions to any extent can no longer be expected to run the hatchery in the future, it seems but rea sonable that the Government should now take up the case or rather allow a sum yearly sufficiently large to run the hatchery without the help of private people, except what comes in as contingencies from the members. This is also the rule for the Fishery Society of Bergen, as well as other branches. That this branch at Arendal is in need of assistance to larger extent is a consequence of its greater operations. In the yearly report for 1884, page xi, the Fishery Society says, in regard to this matter: "Should these experiments fail, this allowance will probably be taken away in five years. If again successful there will arise the question to establish similar hatcheries in other places, and as no individual is specially benefitted by it, but the matter becomes an interest of the public generally, and consequently should be kept up by public funds. If the society, by saying public funds means exclusively allowances from the Government, I may say that I cannot agree to that. I know the disposition of the coast inhabitants, and feel sure that as soon as the increase of the number of fish through the operation of the hatchery is proven, the different districts will gladly contribute towards the running of the new established hatcheries. But to produce these proofs is in the hands of the Government. For instance, some would say that too much is expected from the Government. I will give a comparative statement between the salmon and fresh-water fisheries on one hand and the daily fish and lobster fisheries on the other. The value of the first named is, if I remember right, put down to about 800,000 kroner per annum, when the income of the daily fishery may be put down to about six and the lobster fishery to about one million, or about seven million kronor per annum. The salmon fisheries are pursued principally by well-off persons, while, on the other hand, the daily fishery is what may be called the daily bread of the poorer inhabitants of the coast. The salmon fisheries form, truly enough, a valuable export article, but the same can be said about the lobster fisheries, the amount of both being about the same. In regard to the daily consumption, then the salmon is a luxury that only comes upon the table of the wealthy, while, on the contrary the daily fishery forms such a valuable and common industry that, for the coast, inhabitants, it may be considered an article of exigency. The daily fishery may then be said to be of far more economical importance to the country than the salmon fishery, and when to these latter during a number of years considerable sums (in 1888 23,940 kronors) have been allowed, it cannot be considered too much to be asking a yearly allowance of seven to eight thousand kroners towards the hitherto neglected daily fishery.

(Signed) G. M. DANNEVIG.

FLODEVIG, February, 1889.

PART III.

REPORT

ON THE

FISHERIES PROTECTION SERVICE

OF

CANADA.

1889.

PRINTED BY ORDER OF PARLIAMENT.

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1890.

INDEX.

PAGE.

Dominion Cruisers and their Commanders 5
Seizure of U. S. fishing vessel "Mattie Winship" 5
Detention of U. S. fishing vessel "Lizzie M. Center" 5
The *Modus Vivendi* 6
Customs Regulations 6
The Mackerel fishery 6
U. S. Mackerel fleet and their catch 7
Purse seines 8
The Lobster fishery 10
Lobster hatching 11
Closing certain areas against fishing 13
Recommendations 13
The shore or boat fishery 14
Collection of statistics 16
Fisheries Intelligence Bureau 17
Storm signals 18
Distinctive mark for Canadian fishing vessels 19

APPENDIX "A":—

List of U. S. fishing vessels under trading register which visited Canso, N.S. 20
List of U. S. fishing vessels holding licenses under *modus vivendi*, issued in Canada, which visited Canso, N.S. 20
List of U. S. fishing vessels holding licenses under *modus vivendi*, issued in Newfoundland, which visited Canso N. S 21
List of U. S. fishing vessels taking Cod or Halibut without holding *modus vivendi* licenses, which visited Canso, N. S 22
List of U. S. Mackerel seiners not holding licenses under *modus vivendi*, which visited Canso, N. S. 23

REPORT

ON THE

FISHERIES PROTECTION SERVICE

OF

CANADA.

1889.

By Lieutenant ANDREW R. GORDON, R. N.

TORONTO, 17th December, 1889.

The Hon. CHARLES H. TUPPER,
Minister of Marine and Fisheries,
Ottawa.

SIR,—I beg to report on the work of the Fisheries Protection Service under my command, during the past season, as follows:—

The vessels forming the fleet were: The s.s. "Acadia," under my own command; the s.s. "La Canadienne," Commander Wakeham; the s.s. "Stanley," Capt. McLaren; the s.s. "Dream," Capt. Pratt; and the schooners "Vigilant," Capt. Knowlton, and "Critic," Capt. Pouliot. The steam tender "Argus," belonging to the Department of Customs, was also used, for a short time, in the month of November, as a fishery cruiser, under the command of Mr. W. H. Kent, chief officer of the "Acadia," who is also a Fishery Officer.

The s. s. "La Canadienne" was, as usual, employed in the Labrador district and the Gulf fisheries on the Quebec shores. The s. s. "Dream," in the Fisheries and Customs patrol, cruised in the waters of the Bay of Fundy, about the boundary line. The "Acadia" and the "Stanley," with the schooners "Vigilant" and "Critic," were engaged on the Nova Scotia shores and in the Gulf of St. Lawrence, in protecting the inshore fishery from depredations by foreign fishing vessels, and in the enforcement of the various regulations established by the Department for the protection of the fisheries.

The only seizure of a foreign fishing vessel was that of the United States schooner "Mattie Winship," of Gloucester. This vessel was arrested and held for fishing within the territorial waters of the Dominion of Canada, being anchored, at the time of the seizure, one and a half miles from Cape North in Cape Breton Island, with her dories away from the ship, manned and carrying their baited trawls. The vessel was subsequently bonded, and finally released on payment of a fine of two thousand dollars, together with the costs of all proceedings. It is worthy of remark that this vessel, whose master had previously contended that United States fishermen required nothing of Canada beyond their rights under the Treaty of 1818, immediately on his return to our waters after being released, purchased a license under the *modus vivendi* of the Treaty of Washington.

The schooner "Lizzie M. Center," Captain Smith, of Gloucester, was detained in Aspy Bay, for non-compliance with customs laws, but released on Captain Smith pleading ignorance of the existence of a custom house there, and his subsequently reporting in proper form.

The officers and men of the several vessels in the fleet under my command performed their duties most satisfactorily; the commanding officers being worthy of special notice for the zeal and tact with which they have performed their duties; and it says much for the manner in which their work has been accomplished, that while there have been very few complaints of acts of trespass by foreign vessels, there still exists the greatest good feeling between our officers and the masters of foreign fishing vessels.

The Modus Vivendi.

This pendicle to the rejected Fishery Treaty which terminates on the 14th of February next, has been much more largely taken advantage of by United States fishing vessels this year, and it may be broadly stated that there are certain lines of fishing which no opportunity, however favorable, could make remunerative to them, unless they can use either our ports or those of Newfoundland for purposes other than the four guaranteed to them under the Treaty of 1818. As an instance, I may quote the "fresh halibut fishing" on the Grand Banks. Unless these vessels can come to our ports or those of Newfoundland for bait and ice, this fishing will not pay them. As showing how this privilege is availed of, I append to this report a table showing the names of United States fishing vessels which visited the Port of Canso Nova Scotia, during the season of 1889. This table shows that at this port alone 252 visits were paid by United States fishing vessels; of these 153 were paid by licensed vessels seeking bait, ice or supplies to prosecute their calling; 11 were fishing vessels having no gear on board and bound as trading vessels under register to the Magdalen Islands or Newfoundland to purchase cargoes of fish; and of the remaining 88, which were unlicensed fishing vessels, 55 were mackerel seiners, leaving only 33 visits by unlicensed bankers, as against 153 quoted above as paid by those that had taken out licenses. Many other ports would make a similar showing, and it is safe to conclude that the privileges granted under the *modus vivendi* are now highly appreciated by the United States' fishermen.

Customs Regulations.

In the early days of the work of fishing protection, most of the friction which occurred was the result of infractions of Customs regulations by fishing vessels. These regulations had been practically in abeyance during the term of the old Washington Treaty, and were only revived for enforcement against both our own and foreign fishing vessels in consequence of the conditions of the Treaty of 1818 being brought into force by the abrogation of the fishery clauses of the Treaty of Washington; in this respect, we have now no trouble; the masters of foreign fishing vessels understand all the requirements of the law, and willingly comply with them.

In order to meet the convenience of foreign fishing vessels seeking bait, the preventive officers of Customs at Crow Harbour and Whitehaven, in Guysboro' County, N.S., have been granted authority to enter and clear vessels. The appointment of an officer of a similar grade at Port Malcolm, in Habitant's Bay, Cape Breton, would also be much appreciated, and would ensure real compliance with the law, which can only now be made at very considerable inconvenience, inasmuch as vessel masters have at present to go overland a distance of some seven miles to Port Hawkesbury in order to enter or clear their vessels. In the early part of the year many vessels call here for bait during the spring run of gaspereaux; and this port is also a place of shelter in the spring for vessels bound west to wait for the ice to clear out of the Straits of Canso. I would therefore urge upon your notice the advisability, both in the interest of revenue and fishery protection, of having an officer appointed at Port Malcolm.

THE MACKEREL FISHERY OF 1889.

The United States mackerel fleet which visited the Canadian waters during the season of 1889 consisted of sixty-two vessels, their catch being recorded in the

table subjoined. In the cases when a vessel made two trips a double row of figures indicates the catch in each voyage:—

Name.	Port.	Catch	Name.	Port.	Catch
		Bbls.			Bbls.
Ambrose H. Knight	Gloucester	.....	John W. Campbell	Gloucester	35
A. R. Crittenden	do	250	John M. Plummer	Portland	.....
Augusta E. Herrick	Boston	.....	Lizzie M. Center	Gloucester	90
Alice C. Jordan	Gloucester	231	do	do	110
Agnes	do	50	Lizzie W. Hannum	do	40
Bluejacket	do	9	Leona	do	5
do	do	168	Mayflower	do	425
Belle Nauss	do	280	Marion Grimes	do	40
Belle Franklin	do	47	M. L. Wetherell	do	290
Chas. Levi Woodbury	do	7	Moro Castle	do	.....
do	do	190	Margie Smith	do	.....
David F. Law	do	14	Northern Eagle	do	.....
David Crockett	do	80	Orient	do	200
D. A. Wilson	do	51	Procyon	do	0
Edith Rowe	do	213	do	do	180
Ernest F. Norwood	do	34	Rushlight	do	50
Elsie M. Smith	Portland	5	Rapid Transit	do	0
Epes Tarr	Gloucester	50	do	do	180
Enola C	do	150	Rattler	do	50
Emma W. Brown	do	330	Robin Hood	do	50
Eastern Queen	do	105	S. F. Maker	do	270
Electra A. Eaton	do	272	Senator Saulsbury	do	110
Ellen Lincoln	do	.....	Senator Morgan	do	30
Flash	do	114	do	do	140
Flora Dilloway	do	80	Sterling	do	30
do	do	120	Star of the East	do	160
Geo. F. Edmonds	Portland	32	W. H. Foye	do	23
Governor Butler	Gloucester	140	W. H. Wellington	do	.....
G. P. Whitman	do	60	do	do	95
Herald of the Morning	do	.....	W. W. Rice	do	93
Henry Wilson	do	28	do	do	153
do	do	48	Willie Irving	do	30
Harry G. French	do	150	W. D. Daisley	do	113
Isaac A. Chapman	do	190	W. H. Oakes	do	98
J. S. McQuinn	do	95	Wm. M. Gaffney	do	.....
J. J. Clark	do	72			

Sixty-two schooners. Total take, 6,775 bbls.

The following is the take of mackerel for the years 1888 and 1889, made by United States fishing vessels off the Nova Scotian coast and in the Gulf of St. Lawrence:—

1888—83 vessels, take 10,418 bbls., average 126 bbls. per vessel.
1889—62 do 6,755 do 109 do

So far as the New England fleet are concerned, both in the Gulf and on the Nova Scotian and New England coasts, the mackerel season has been an unprecedentedly poor one, and the following table exhibits in a marked manner the continued decadence of the United States mackerel fishery. The returns not being yet available, the Canadian catch for 1889 is estimated, but that for the New England fleet is taken from the published returns of the Boston Fish Bureau, as stated in their circular of 13th December.

	1885.	1886.	1887.	1888.	1889.
Caught by U. S. vessels—Bbls.	330,000	80,000	78,000	40,000	17,794
" Canadians— do	148,450	152,292	131,653	65,777	65,000
Total product	478,450	232,292	209,653	105,777	82,974

If from the above figures for United States vessels for 1888-1889 we take the quantities quoted as being taken off the coasts of Canada, the remainder will represent the quantities obtained on the fishing grounds off the New England coasts. These remainders are: for 1888, 29,572 bbls., and for 1889 the minimum quantity of 11,219 bbls. Figures like these need no comment.

In Canada the fishing has remained about the same as last year, and the prospects are encouraging to this extent, that large quantities of small fish have been seen during the latter part of the season, which, if not destroyed in purse seines before reaching merchantable age, will go a long way towards restoring our fishery to its normal condition of late years, if not to its former degree of plenteousness.

Our Canadian fishery shows to great advantage when compared with the mackerel fishery of the United States, and it is safe to say that, without any great increase in the means of capture, our Canadian catch has been fully up to, if not in excess of, that of last year.

The habits of the fish seem to have changed completely; they no longer herd in large schools, and play about on the surface as they feed, but small quantities of fish are found almost everywhere. At one time this year fish could be raised at any point between Miscou Island and the Magdalens, making in the whole unqestionably a vast mass of fish, but far short of the multitudes which formerly frequented the waters of the Gulf.

I cannot help thinking that the apparent change in the habits of the fish is largely due to their diminished numbers, which would naturally make them more timid. The change, however, is not without its advantage, as it tells largely in favor of Canadian methods of fishing, the success of the hook and line fishing and the boat fishing inshore being quite marked during the past season.

In my report on the operations of the year 1888 I went very fully into the condition and prospects of the Canadian mackerel fishery, and subsequent experience has only tended to confirm and strengthen the views expressed therein, viz., that the depletion of the mackerel fishery was largely due, not only to the use of improper means of capture, but to the use of those means at improper seasons.

The United States Government recognising the importance of this fishery has legislated very effectively to prohibit the use of the purse seine in their southern waters during the season when the mackerel are about to spawn, the law being that no mackerel caught in a purse seine between the first day of January and the first day of June in each year shall be permitted to be landed in the United States, thus using the machinery of the Customs Department to inforce a law for the protection of deep sea fish on the high seas.

The United States fishermen recognising the fact that this law is a necessity, if there is to be any future for their mackerel fishery, loyally adhere to its provisions.

Owing, however, to the geographic position of our Canadian fishing grounds, a season which will protect spawning fish on the New England coasts will not protect them on those of Nova Scotia, and the season within the St. Lawrence is later still.

I would strongly urge upon your notice the advisability of endeavoring to make an arrangement with the Government of the United States for the preservation of the mackerel fishery. The best method of protecting the fishery would be the absolute prohibition of the use of the purse seine, and this prohibition could be made quite effectual by the passage of a law in Canada similar to that in force in the United States, but to extend over the whole year, and the extension of the United States term of prohibition to the whole twelve months. If this were done experimentally, say for a period of five years, the beneficial effects of the legislation would, I am sure, justify its enactment. But if it is thought that this measure is too drastic, then let the following fishing areas and close times be agreed upon, and laws similar to that now in force in the United States be enacted for the protection of the areas;

First, the present close season, or prohibition of the purse seine, to extend to all the waters of the north-west Atlantic. Second, that no purse seine shall be used north of the parallel of Cape Sable until after the first day of July in each calendar year. Third, that no purse seine shall be used within the waters of the Gulf of St.

Lawrence until after the first day of August in each calendar year—the boundaries of the Gulf of St. Lawrence for the purposes of this law to be the line joining Bear Island and Eddy Point, Straits of Canso, and the lines joining Money Point lighthouse, Cape Breton, with the lighthouse south end of St. Paul's Island, and thence to Cape Ray lighthouse, Newfoundland. If similar laws are passed by the United States and Canada for the protection of these areas, no costly or complicated police system will be necessary: the machinery of the Customs Department in each country can easily and effectually enforce the law.

The above-named limits may be described as (1) the New England mackerel grounds; (2) the Nova Scotia mackeral grounds; (3) the North Bay ground, the latter name being that applied by the mackerel fishermen to the whole Gulf of St. Lawrence. These separate limits are easily defined, and no difficulty could arise in administering the law on the ground of difficulty of defining a limit, and the divisions proposed are those which agree most nearly with the gradations of marine climate which govern the movements of these fish.

The destruction of these migratory fish before the spawning season must result in the depletion of the fishery, and if it is desired to prevent this destruction by wholesale, the abolition of the use of the purse seine in the above limits, and for the periods mentioned, is the minimum of protection that must be insisted on; for it is a fact, capable of demonstration quite simply, that spawning or gravid fish are taken on the Nova Scotian coast up till 1st July, and though the spawning season in the southern part of the Gulf is pretty well over by 20th July in an average year, we have in these waters so much fluctuation in marine climate that there is great variation in the period of spawning. I have therefore fixed on 1st August as the date of commencement of the purse seining, to allow for a late season and to cover the more northerly portions of these waters where the spawning season is later.

Many of the masters of United States fishing vessels admit that the unrestrained use of the purse seine has ruined the mackerel fishery, but some of them being part owners of vessels and gear are indisposed to support a measure, the passage of which would practically wipe out a portion of their capital for a time. In Canada the sum invested in these seines is comparatively small, and I do not think that there would be any real opposition from Canadians to the enactment of the proposed laws for the protection of the mackerel. In fact, I consider that continued comparative productiveness of the Canadian mackerel fishing grounds as compared with those on the New England coasts is largely due (1) to the protection afforded to fishermen, by securing the inshore fishing grounds from molestation and continual harassment by a large fleet of foreign fishermen, thus affording the fish an area in which to spawn comparatively undisturbed; and (2) to the fact that Canadian fishermen have not so extensively adopted the use of the purse seine as a means of capture.

One of the best arguments in favor of the abolition of the purse seine is that many of the most experienced fishermen are already discarding the use of it, and all are relegating it to a secondary place in their operations. In the past, the mackerel schooner stood off and on, with one, two, or even three men at the masthead, looking for fish, and when a school was sighted, the seine boat was manned and the school surrounded; then, after the seine was pursed the schooner sailed up alongside the boat. To-day the *modus operandi* is entirely changed. The vessel now carries many barrels of bait, herrings, porgies and clams; these are ground up in a mill and mixed with water to the consistency of thin porridge; the vessel still carries a man at the masthead, but instead of sailing to and fro, she is allowed to drift slowly over the surface of the sea and the toll bait is constantly thrown over, two or three men meanwhile have their lines over the side, and if the fish rise to the bait and are taken on the hooks, all hands immediately get their lines over, and if the fish show in any number, the bait is kept going over steadily, the seine boat is manned and the seine quietly swept round both vessel and fish, and when the net is pursed up those left on board run the head of the jib up, the vessel pays off and rides easily and harmlessly over the cork rope, the haul occasionally amounting to a few barrels, but all the fishermen seem to admit that after sweeping the seine they have to change their

ground whilst they might have continued hooking successfully for some time longer had they not made the haul of the seine.

This purse seine fishing is in one sense like prospecting for gold or boring for oil, it being purely a speculative business, in which there still certainly remain a few prizes, but in which there are very many blanks; but each crew looks forward to making a big haul, and not to the continuous work which the hook and line fishing imposes on the men. As an instance of the prizes made, one vessel, the "Emma W. Brown," of Gloucester, got one hundred and sixty barrels of sea-packed mackerel at a single haul of her seine, which at the extraordinary prices which have prevailed would mean a take worth nearly four thousand dollars, or say upwards of one hundred dollars per man.

Another vessel, the "Mayflower," of Gloucester, made a somewhat similar haul, but these were the only two fortunate schooners in the whole fleet; yet the effect of these two hauls was to keep many of the fleet down on our coasts for some weeks later than they otherwise would have been.

One marked and of late years somewhat unusual feature of this season's fishing was the run of fine mackerel which struck in on the Nova Scotia coasts during the earlier half of November. These were exceptionally large and fine fish, and would, in some instances that came under my notice, run from 130 to 160 fish to the packed barrel. I estimate that about three thousand barrels were taken of this fall run; and as many of them were marketed fresh in ice, this run was worth nearly sixty thousand dollars to the fishermen. In some parts of the coast this lot of fish when netted were considerably damaged by squid, which actually eat the fish after they are meshed in the nets, never totally consuming a whole fish, but eating a piece out of one and then testing the flavour of a second, till in some instances quite a serious proportion of the fish were damaged.

The Canadian mackerel net fishery by boats from the shore, and the net fishery by small schooners, requires regulation. This subject will be dealt with more fully in another part of the report; suffice it to say, that the two great points which it is desirable to attain are, first, the marking with registered marks all nets or other fishing buoys, and second, the absolute prohibition of day fishing by drift nets, say between the hours of 8 a.m. and 5 p.m.

In concluding these remarks on the mackerel fishery, I would state again that the additional experience which I have acquired only confirms my opinion as to the desirability, almost the necessity, of the prohibition, or at any rate the limitation, of the use of the purse seine.

To be really effectual, any arrangement must be of an International character; and I am of opinion that the majority of both Canadian and United States fishermen would be willing to accept some such arrangement as that suggested, at any rate tentatively, for a period of five years, and they would readily admit that, whilst it might in the first instance be the occasion of loss to those of them who owned their seines and vessels, some such regulation of the fishing is most desirable.

THE LOBSTER FISHERY.

Like the mackerel fishery this valuable industry has of late years greatly declined, and as during the past season part of the duty of the officers of the Fisheries Protection Service was the enforcement of the regulations for the protection of this fishery, I had the opportunity of examining more closely into the conditions of this fishery and the facts relating thereto than I had previously been able to do.

The present regulations are apart from the question of close time that lobsters under $9\frac{1}{2}$ inches in length, or carrying exuded ova, may not be taken. Speaking generally, in the Gulf of St. Lawrence the close season is loyaly observed and all the large canneries in eastern Nova Scotia were closed at the proper time, though a certain amount of desultory fishing was carried on by individual fishermen during the months of September and October; and it should, I think, be pointed out that all through the months of July, August and September it was quite possible at any time

to buy a freshly, caught and boiled lobster in the Halifax market, though such parties as either bought or sold them were clearly liable to a penalty under the Fisheries Act.

The present regulations in regard to size limit and the destruction of females carrying exuded ova are intended as protective measures, and are without doubt protective enactments; but the question arises, how far the enforcement of these enactments is possible with the existing means at the command of the Department, and the still wider question of whether the enforcement of the regulation is compatible with the existence of the industry. I consider the fact undeniable, that taking the Gulf of St. Lawrence district, if the above quoted regulations were strictly enforced, not one single packing factory could run for one single day; and if the packers whose interest and desire it undoubtedly is to maintain this fishery were to attempt to enforce the law; the fishermen would directly reply that they could not make a living at fishing with adherence to those regulations, and therefore could not fish for the packers. The rigid enforcement of the existing regulations is therefore tantamount to the closure of the factories, and would in practice have the effect of diverting the business from the hands of the responsible citizens who are now engaged in it to those of fishermen of small means, who would get their supplies of cans from the merchants, and by boiling the lobsters in their houses and barns render it almost impossible to exercise any control whatever over them; and if these men were caught breaking the law the whole property which could be seized would probably be insufficient to pay the fine, and the alternative of imprisonment would have to be inflicted.

The history of restrictive legislation of this nature has been everywhere the same in every country where enacted, it has failed to protect the fish, and it is worthy of consideration whether shorter seasons for packing and the aid of artificial progagation may not attain in a greater measure the desired end, viz., the increased productiveness of the fishery, without the actual stoppage of an important industry.

The shortened season, coupled with the reduction in the number of factories, has already, to a perceptible extent, benefitted the fishery; and, from the information given me, I am led to believe that the lobster catch for the season of 1889 will show in the Gulf a marked increase over that of 1888; and further, whether the result be due to the mild winter or to the legislative enactment of the close season, the fact is stated that in the early part of the season the run of lobsters averaged larger than they have done for some years—that is to say, that the packers reported that fewer lobsters were required to fill a can than formerly.

Before considering what course it will be best to follow, it is desirable to discuss the life and habits of the lobster.

The lobster may be termed one of the scavengers of the ocean, frequenting principally the shallower waters near the shores; they are believed to remain always at or near the same place, only retiring in the winter to a little deeper water off shore. They are oviferous, the eggs being fertilized by actual contact of the male and female prior to the exudation of the eggs by the latter. When exuded the eggs are attached on the under part of the belly of the female in little bunches to the swimmerets, and are thus maintained in direct mechanical connection with the mother until individually hatched out. The attachment of the eggs to these hair-like swimmerets on the body of the female serves the double purpose of the aeration and movement of the egg, and also is its defence from attacks by other fish; but this attachment to the mother being purely mechanical, there is between the period of exudation and hatching out no process of nourishment by the mother, and therefore the eggs if detached may be easily hatched out under suitable conditions.

On first being hatched out the lobster assumes a free swimming form, and continues in this condition for some time; and in former years when lobsters were abundant in the Gulf of St. Lawrence their young formed a valuable bait, which attracted the schools of mackerel in to the shore waters; and it is during this epoch of their existence that they are carried up and down by the ebb and flow of the tidal current and thus distributed about our shores.

When once the free swimming stage is over and our lobster assumes his shell jacket, his rate of growth is an undetermined quantity. Col. J. Hunter Duvar, who

made a study of the question, estimates the age of reproduction at three years; the late Professor Baird, I believe, considered the lobster to grow much more slowly, but whether the age of becoming adults be three or five years, the rate of actual growth is known to be very rapid under favorable conditions. Cases have been quoted to me where lobsters have been caged and fed, and have shown astonishing rates of growth. These were, however, abnormal conditions from which it would be unsafe to draw any conclusions. I am, however, inclined to think with Col. Duvar that the average age of maturity will be found to be about three years.

Canada has perhaps suffered less than most countries from the comparatively unrestricted fishery which formerly prevailed ; for we find the United States lobster fishery practically extinct, that of Great Britain in a state of decadence, and the Norwegian fishery also much depleted. All have sought to protect their fisheries by restrictive legislation, and all have alike failed. In regard to this, I cannot do better than quote from Professor J. C. Ewart, of Edinburgh University ; and T. Wemyss Fulton, M.B., Commissioner of Fishery for Scotland, in their Sixth Annual Report of the Fishery Board of Scotland :

" The failure of restrictive enactments having been generally recognized, attention has been directed to the succouring of the dwindling lobster fishery by means of artificial culture. It is desirable to consider the principles underlying the procedure :

" If in any species or group of animals the destruction of individuals is by any means increased beyond their powers of natural fertility to make good the loss, then that group begins to diminish in numbers ; and if the exceptional destruction is continued, the species will ultimately become extinct, and the process will be more rapid the more limited the distribution of the species."

This is the biological explanation of the results of overfishing which, in an economic sense, simply means that the demand for the product of the particular fishery over-fished is greater than unaided nature can supply ; and there can be no doubt that the trap of the fisherman is the greatest enemy of the lobster. On the other hand, if the fertility of the lobster is increased sufficiently, as it would be in practice by adding largely to the number of young lobsters by artificial propagation, then the number of adults would be largely increased.

Messrs. Ewart and Fulton further point out that there is another point of importance in considering the *rationale* of the artificial culture of the lobster, namely, that by far the greatest amount of destruction takes place in the early stages, when the lobster is in the larval form, by artificially hatching the eggs of the lobsters, and rearing the young through the larval stages ; until they have reached a certain size they are protected from their natural enemies, and if they were then transferred to the sea they would be better able to take care of themselves.

In the colony of Newfoundland, the Government have secured the services of Mr. Nielsen, a Norwegian expert, and have already commenced the artificial propation of the lobster.

In Norway, also, Mr. Dannevig has hatched out large numbers of young lobsters, and at very inconsiderable expense, and this eminent expert is strongly of opinion that the best way of improving the yield of lobsters is by systematically carrying on the hatching of eggs on a large scale.

In the United States, also, although the amount done has been limited in quantity, owing to the difficulty in procuring ova, lobsters have been successfully hatched out, and I am informed by the United States Commissioner of Fisheries that it is his intention to go more extensively into this work.

The principal questions now to be determined are, (*a*) On what scale is it necessary to carry on this work, that it may appreciably affect the supply? and (*b*), At what age is it best to set free the young lobster in the sea ? The Scottish Commissioners advise raising the young through the larval stages, whilst the practice in the United States has been to deposit them in the sea very shortly after they are hatched out.

It has now been demonstrated that the artificial culture of the lobster is not only feasible, but is a comparatively simple and inexpensive operation. In Canada we are still in the happy position of being able to secure an unlimited quantity of ova, and are, therefore, in a very favourable position to embark in this undertaking. Our laws, as already quoted, have, for years, forbidden the capture of female lobsters carrying exuded ova, but this law has been found in practice impossible of enforcement. Berried lobsters are captured throughout the entire packing season, and I am informed that occasionally as much as 30 per cent. of the lobsters delivered at a cannery would be these illegally-captured females. It is asking a great deal of a fisherman's respect for the law to require him, when he is out alone in his boat, to put this female lobster back into the water, when he knows full well that the freshly-baited trap will be no sooner at the bottom than that same lobster will enter it and eat its bait, thereby preventing the traps from taking more fish. What actually happens is, if the man is working for a packer who is particular, he just scrapes the eggs off the belly of the lobster and drops them overboard, and what might have been 20,000 young lobsters becomes a single mouthful for the first cod fish that happens along; or if the packer is not a particular man, the female lobster, eggs and all, goes into the factory boiler and the 20,000 in embryo are equally destroyed.

By permitting the capture of these female lobsters, but insisting on saving all these eggs, at the expense of the packer, either by charging license or otherwise, we should obtain all the ova required for hatching out, and add enormously to the annual crop of young lobsters.

In order to commence this system, I would suggest that a certain area be set apart, and the factories therein placed under license. As an experimental area, I think that the portion of the east coast of Prince Edward Island, from Boughton Island to a point three miles west of Cape Bear, on the Straits side, would suit well; the hatchery to be located in Georgetown harbour. This district contains only four factories, averaging a pack of about two thousand cases per annum each. At a license fee of 10 cents per case, which these packers have signified their willingness to contribute, a sum of $800 per annum would be raised, to go towards the cost of maintaining the hatchery, and we should have the further great advantage of enlisting on the side of the law, or the protection of the fish the hearty co-operation of the packers.

There is another system for the protection of the lobster fishery which has up to this time not been put in operation, but which will, I think, commend itself, as being a protective measure suited to our needs, and *practically capable of enforcement.* I refer to the establishment of CLOSED AREAS, to form nurseries for the lobster. In these closed areas no traps would be allowed, and from them the young fry, when in their free swimming state, will be carried up and down by the tide, and thus by natural propagation in these undisturbed fields the supply in general might be maintained.

These closed areas should be strips of water two miles in width, and extending out at right angles to the general trend of the shore.

The boundaries to be marked by the alignment of two small beacons, and a closed area of two miles out of every ten to be set apart. There would thus be alternately eight miles fishing area and two miles closed area.

I may now, in concluding my remarks on this fishery, sum up the recommendations which I have the honour to make in regard to the measures likely to improve the yield :

First.—That the packing season in the Gulf of St. Lawrence close on the 5th July, instead of the 15th, as at present.

Second.—That every buoy to lobster trawl, net trawl, or in fact every fisherman's buoy, be marked with a registered number or mark, register to be kept with the nearest Custom House officer, or fishery officer, all unnumbered or unmarked buoys to be confiscated and destroyed.

Third—That the artificial culture of lobsters be undertaken and proceeded with on a commensurate scale as soon as possible. The packers to save all the ova.

Fourth—That the system of nurseries, or closed areas, be adopted for the waters of the Gulf of St. Lawrence.

If these measures are adopted, I believe that we may without injury permit the capture, during the short fishing season, of lobsters without regard to sex or size. Neither the packers nor the fishermen want the small lobsters, as they pay no one for handling; but the present regulations are very difficult to enforce, and really somewhat difficult to comply with; but given the adoption of the above proposals, and I think that the result will be that in a short time our lobster fishery will show marked improvement, and become again one of our most valuable shore fisheries.

THE SHORE FISHERY.

The shore fishery is that which is carried on in boats from the shore, as distinguished from the sea fishery, carried on in decked vessels. The number of men employed in the sea and shore fisheries respectively is given below for the three Maritime Provinces:—

	Sea Fishing in Vessels.	Shore Fishing in Boats.
Nova Scotia	6,644	21,463
New Brunswick	699	9,141
Prince Edward Island	816	3,563
Maritime Provinces	8,159	34,167

The above table shows what a vast number of our population are engaged in, if not all actually dependent on, the shore fishery. Anything, therefore, which tends to maintain or improve the yield of this fishery is worthy of the closest consideration.

The relation which exists between this fishery and our river fisheries is that of pure interdependence; if the supply of anadromous bait is cut off there is no longer any inducement for the sea fish to come in, and the shore fisherman has to seek his fare at his peril, miles from land, when formerly he fished at the harbor's mouth. In the interest, then, of this our great fishery, I would urge on your notice the necessity, rather than the desirability, of strictly enforcing all those legislative enactments which have been passed to preserve our rivers from being blocked to the passage of fish by dams, or polluted by the discharge into them of sawdust or any other offal of mills or factories.

The results of all recent investigations on fishery matters go to show that it is almost impossible to over-rate the value of the inshore waters in this relation to the productiveness of the fisheries, and I think it desirable in the interests of the fishermen themselves that (*a*) the methods of prosecuting the fishery within the territorial waters should be subject to regulation, and that (*b*) some system should be adopted for the better collection of information in regard to the actual catches and movements of the various fishes, our knowledge of which at present rests largely on the empirical views of fishermen.

The inshore or territorial waters possess as fishing grounds, peculiar value; not only that, they should furnish the fishermen with the reward of his toil at less risk and with more certainty, but also and particularly because they are the the sheltered spawning grounds of some of the sea fishes and the nurseries for the young of these, and of the anadromous fishes which have been brought down by the river currents and drift with ebb and flood in the protected waters of our deeply indented coast line, and if netting is incessantly carried on on an immense scale the movements of the fish will be so interfered with as to injure the fishery.

It is a cardinal principle for the protection of a fishery that the fish must be allowed freely to come in to the shores for the purposes of reproduction.

Taking the returns for the year 1888, the following table shows the amount of net in actual use on our Atlantic and Gulf shores. The nets are so-called drift nets,

anchored at one end and drifting or swinging with the tide; they average abont 5 fathoms deep, and without including seines, the figures are:—

Nova Scotia	762¼	miles.
New Brunswick	334¾	"
Prince Edward Island	56¼	"
Total	1,153¼	"

It is difficult to realize what such a quantity of net means, but if the nets were joined end to end they would be sufficient to form a wall of net continuously, and reaching from the United States boundary line up the Bay of Fundy to Quaco Head; thence across the Bay to the Nova Scotian coast, and following this coast round Cape Sable and along the shore to Canso; thence around Cape Breton and down to Port Hood; thence to Cape George, and continuously up the shores of Nova Scotia and New Brunswick to Miscou; thence across the Bay Chaleur to Cape Gaspé, and we shall still have net enough left to almost encircle Prince Edward Island—in fact, we are using nets enough to wall the fish off the coast.

The cheapened cost of net, coupled with the high prices for mackerel and herring, have induced our fishermen to go more largely into net fishing than formerly, and the consequence is that many of them have now more nets set than they are able to handle daily. They are thus left out night and day, on the idea that the nets may rot, but the fish will pay for them; and hence we have occasionally great waste of fish, since, being unable to attend to the nets, they may be left over for a few days in bad weather, and when overhauled the fish are decayed, and unfit even for lobster bait.

The old statute law of Prince Edward Island was that these drift nets were not allowed to be kept set during the day time, and the necessity for such a law is certainly very much greater now than formerly, and the principle should be established that no man should fish more nets than he can, under ordinary circumstances, attend to daily.

In England, or more correctly, in the North Sea, it is, I believe, the custom that trawlers fish in the day time and the netters have the night, when both are fishing the same ground; and if in Canada we wish to prevent the injury of the inshore fishery we must regulate this net fishing so as to allow the fish to come in, whether they be gaspereaux, herring or mackerel.

Fishermen may object to regulations, and claim, for instance, that the herring fishery is as good as ever. They cannot say this of the Gaspereaux, and the value of having all these fish plentiful in shore is less in the fact of capturing themselves *but that they bring the cod in after them.*

It must always be borne in mind that of late years the means of capture have been greatly increased; hence while there is no apparent decrease shown in the returns, the damage to a fishery may be very real, and the plaint of many fisherman is the same, viz.: that it takes a great deal more twine (*i e.* net) to take the fish now than formerly; and instancing particular waters, I may state that I have seen, St. Peter's Bay, C.B., Habitant's Bay, the North Bay of Prince Edward Island, off St. Peter's, so full of nets that it was almost impossible to work a steamer through them. These must form a regular dead wall to keep the fish off shore, as they are left set day and night, thus keeping the fish from their spawning grounds, and consequently keeping the cod off shore.

I have therefore the honour to recommend that (1) all buoys be marked with a registered mark, and (2) that no drift nets be allowed to remain set in the water during fine weather, between the hours of 8 a.m. and 5 p.m., within the territorial waters of the Dominion. This would at once reduce the amount of net used, as fishermen would not take out more than they could handle daily.

I would further recommend the extension of the system of nurseries, or preservation of spawning beds, which is now followed by the Department in its administration of the Bay of Fundy herring fishery at Grand Manan.

There is, I am informed, a very valuable spawning ground for herring off the mouth of the St. Mary's River, N.S., near Wedge Island, and I have myself seen a whole fleet of netting schooners, some carrying a hundred nets, at anchor there. I would urge upon your notice the advisability of having this fishery specially reported on by the Inspector of Fisheries, and if found to be a regular spawning place for herring, that a closed area or nursery be set apart in which nets shall not be allowed to be set.

All fishermen at first object to restrictions, but experience on Grand Manan Island has shown how valuable to the existence of the herring fishery are these regulations, and as this fish forms one of the staple articles of food of a large number of our maritime population, its proper maintenance is a matter of great importance to the country.

Secondly,—As to the collection of careful and accurate information in regard to the takes of fish on the different grounds:

Our present statistics, whilst doubtless valuable from a commercial point of view, fail entirely to present that particular view of the question which, in the interest of the economic management of our fisheries, it is desirable should be studied. What we want is more definite information of the fishing from year to year on the individual fishing grounds, and the entire separation of the takes by boats and those by decked vessels. We have at present no means of watching this increase or decrease in the fertility of the different grounds, and the causes of any change in the movements of the fish. As an instance of how small a matter will occasionally, at any rate temporarily, injure a fishery, I may instance a case which was reported to me at Port Hood, the circumstances of which were as follows.—

There is a small bank or slight rise in the bottom about eight miles off Henry Island, on which the Port Hood fishermen fish in their boats; this bank had yielded very well during the season, until late in October an American banker came and set his trawls there and commenced cleaning the fish on the ground and throwing the gurry overboard. For the next day or so the fish taken were found full of this gurry but then the fishing ceased. I do not mean to assert positively that we have here a causal connection between the deposit of gurry on the bank and the departure of the fish, but we certainly have matter for the closest possible investigation.

The method of gathering information which I propose should be adopted is partly that of the Scottish Fishery Commission, who, speaking of the system, say: "If the system for collecting statistics recently instituted is faithfully carried out for a series of years under proper supervision, our fishery statistics will be far more complete and valuable than those of any other country; and the necessity of periodic Royal Commissions of inquiry will be at an end."

The method consists in supplying each of a certain number of fishermen at each port in the area from which it is desired to obtain information with a specially pre-prepared book, in which he will record his daily catch throughout the season. Accompanying the book would be a small chart, ruled off in squares, each square having a distinguishing number, The fisherman then records in his book the number of the square in which he has been fishing, and his catch giving average size and condition of the fish, bait used, and all particulars.

I think it would be possible to obtain volunteer reporters, but in each port a small money prize might be given for the most complete and valuable record sent in at the close of the season.

I would further suggest that to every decked vessel whose master was willing to make reports there should be given a similar book to that supplied to the boat fishermen, and also a copy of the chart of the fishing grounds of Eastern Canada as shown on the Imray chart, "Belle Isle to Boston." This chart to be ruled off in numbered squares, and the master to enter daily in the journal the number of the square in which the ship was at noon on that day, the kind and quantity of fish taken, the average size and condition of the fish, and the bait used. We should in this way collect a vast amount of valuable information in regard to the fisheries, which

would be available for the study of the many questions which arise and the complex conditions which surround and affect this great industry.

FISHERIES INTELLIGENCE BUREAU.

In accordance with your instructions, during the month of May last, I organized this Bureau in Halifax, Mr. D. McLennan, clerk to the Board of Examiners of Masters and Mates, taking charge of the receipt of the information and preparing for publication a daily synopsis of the movements of the fish, as shown by the information when placed on the daily map.

The measure of success which attended the work of the Bureau is chiefly due to the public-spiritedness of the Collectors of Customs at the various ports, and to others who kindly acted as volunteer reporters, many of them giving a considerable amount of time and trouble to the work of collecting information for the Bureau; and I now desire to publicly acknowledge the value of the services rendered by these gentlemen, and to tender them my thanks for the same.

Thanks are also due to the Western Union Telegraph Company for the liberal character of the arrangements made by them for the transmission of certain information to the Bureau by telegraph.

As a question of immediate and practical benefit to the fishermen, the Bureau was only a limited success—the cause being, that owing to the lapse of time, which, as the reports came principally by mail, was generally from three to four days between occurrence and publication of the events reported, the conditions had frequently changed before they could be acted on by the fishermen.

As, however, the total expenditure on this service, apart from the salary of Mr. McLennan was only $135, the experience gained, the information collected, and the several occasions on which the fishermen were able to avail themselves of the work of the Bureau, is a showing of great value for the above small expenditure.

The system is correct in principle, but requires for its practical application to the modern needs of the fishermen that information should be obtained by telegraph daily from a sufficient number of stations to make up the map and issue the synopsis. If these messages were to be sent from the reporting stations to Halifax daily, about 6 p.m., and the map prepared at 9 p.m., the synopsis could be ready for the press that night, and any fishermen wiring for information to the Bureau would be sure of having the very latest news, whilst the publication of the synopsis of the previous day's fishing by the morning papers would in many cases give the information required by the fishermen in ample time for them to act upon it.

I have not yet been able, owing to pressure of other work, to examine all the data collected, but the maps and reports contain valuable matter for the study of the movements of the fish.

I regret to say that we had one case of false information being transmitted to the Bureau, but as in this case the information was given to the Bureau reporter at second hand, no action was taken, beyond ascertaining beyond question who actually first gave utterance to the falsehood.

I do not think it is claiming too much to say that the work of the Bureau was favourably regarded by the Maritime Province public, and that this year's tentative work, at an almost minute cost, has opened the way to the establishment of a really valuable Branch of the public service.

I have the honour to suggest that the sum of $2,000 be voted for the work of the Fisheries Intelligence Bureau during the season of 1890, the work to be considered still of a purely tentative character, and the reports to be gathered from a limited number of stations only, but to be forwarded to the bureau by telegraph.

If this work is carried on, and the proposed system of supplying record books to the fishermen is adopted, the Department would soon be in possession of much valuable information in regard to the life, history and habits of the fishes, which would enable them to deal intelligently with the many and vexed questions which arise, and on which, at present, our only knowledge is derived from the somewhat empirical views of the fishermen themselves. Among the ends which it is hoped we

may ultimately attain are: first, the education of the fishermen up to the idea that all restrictive enactments are really enforced for his benefit; and second, the conservation of the large source of wealth and food supply to our people. To attain these ends the money spent in collection of accurate observations on the life-habits of fish is certainly spent in the best interests of the people.

STORM SIGNALS.

During the season of 1889 storm signals for the benefit of the fishermen have been erected at Escuminac, Souris, Canso and Ingonish. These were all in successful operation at the close of the season, and were much appreciated by the fishermen.

I would respectfully urge the re-establishment of the storm signal service station at Louisburg, C.B., now that telephone communication has been made with Sydney, and inasmuch as the expenditure on account of the meteorological service is more useful to the boat fishermen who fish at a distance from land than to any other class of mariners I would strongly urge upon your notice the advisability of erecting masts at the following places:—

New Brunswick—	Shippegan.	Nova Scotia—	Port Hood.
do	Caraquet.	do	Arichat.
P. E. Island,—	Tignish.	do	Liscomb.

The actual cost of erection of the storm signal apparatus at the four stations organized this year was:—

Adapting mast at Escuminac	$ 5 00
Erecting mast at Ingonish	50 00
do Canso	50 00
do Souris	75 00

I estimate the cost of erecting the six proposed masts at $400, and the subsequent maintenance at:—

Five stations, for nine months each	$225 00
do petty expenses, oil, &c	25 00
One station, twelve months	60 00
do petty expenses, oil, &c	5 00
Total maintenance	$315 00

There is another point which is of great importance when considering the successful working of the storm signal system, which it is desirable to elucidate most thoroughly, and which can I think be profitably worked out from observations taken in Canada—I allude to the relation which exists between the velocity of the wind at sea and the barometric gradient.

The observations which are now made at some of our stations near the sea coast are most misleading in this respect; the exposures of the wind instruments whilst they may be the best obtainable near the residence of the observer, are so poor that the wind frequently reaches the force of a gale outside of either Sydney or Halifax harbours whilst the anemometers at the meteorological stations only indicate a strong breeze. I would urge upon your notice, in the interests of our fishermen, the advisability of establishing, for a period of at least two years, three special wind stations and one barometric station, according to the following plan:

Place one anemometer with anemograph at Low Point lighthouse, near Sydney, Cape Breton; a second on Sambro Island, off Halifax harbour, and a third with the barometer at the temperature station which we now have on Sable Island.

The Meteorological Service has the instruments in stock, which can be loaned for the purpose, and the cost would only be the setting up of the instruments—say in all $50, and an allowance of $50 a year to each of the observers, making the total cost of the observations $350, which would be spread over two years.

The resulting benefit will be the improvement of the predictions in regard to the force of the wind in the Maritime Provinces, which may reasonably be expected to follow the solution of the problem in question.

On the licensing and marking of

CANADIAN FISHING VESSELS,

I beg to call your attention to the difficulty which our police vessels continue to find in distinguishing, at any little distance, the difference between Canadian and United States fishing vessels.

In my previous reports I have drawn attention to this point, and have suggested that the difficulty might be overcome either by licensing or otherwise controlling our fishing vessels. These vessels draw a very considerable sum in the shape of tonnage bounty, and it would be no great hardship to insist that a vessel, in order to receive the bounty, should, in the interest of the more efficient working of the Fisheries Protection Service, be compelled to carry, either on her stem foresail or mainsail, some distinctive mark, such as a large diagonal cross made of brown, tanned cotton, and stitched on both sides of the sail, the cross to be of sufficient size to be easily distinguished at a distance.

The lack of some mark of this kind has frequently given rise to rumours of trespass within the limits by foreign fishing vessels, and when the investigation has been held the reported trespass proves to have been a Nova Scotian schooner, many of which now compare very favourably with the best specimens of United States fishing vessels.

I have the honour to be, Sir,
Your obedient servant,
ANDREW R. GORDON,
Commanding Fisheries Protection Service.

APPENDIX "A,"

BEING Lists of United States Fishing Vessels which visited the Port of Canso, N. S., during the Year 1889.

UNITED STATES Fishing Vessels under Trading Register visiting Canso, N.S., during the Year 1889.

Name.	Tonnage.	Port.	No. of Visits.	Remarks.
Bertie Pierce	90	Gloucester	1	Bound to Newfoundland to purchase herring.
Commonwealth	81	do	1	do do
Chas. L. Woodbury	100	do	1	do do
Edith Rowe	80	do	1	do do
Harry G. French	95	do	2	do do
Henry Wilson	88	do	1	do do
M. L. Wetherell	65	do	2	Magdalens, to buy herring to sell in St. Pierre
Senator Morgan	86	do	1	Bound to Newfoundland to purchase frozen herring.

FISHING VESSELS of United States holding Licenses under *Modus Vivendi* issued in Canada, which visited Canso, N. S., during the Year 1889.

Name.	Tonnage.	Port.	No. of Visits.	Remarks.
A. T. Gifford	81	Gloucester	3	Seeking bait; fishing off Canso.
Annie C. Hall	84	do	2	do
Amy Hausen	103	do	1	do
Annie Wesley	88	Boston	1	Bait and stores.
Abbie F. Morris	77	Gloucester	1	Seeking bait.
Ben Hur	100	do	2	do
Bessie M. Wells	92	do	1	do fishing off Canso.
Cecil H. Low	78	do	2	Bait and supplies.
Carleton Belle	132	Booth Bay	1	Bait.
Centennial	110	Gloucester	1	do
Charles H. Griffin	117	do	1	do
Chester R. Lawrence	86	do	1	do
Charles H. Boynton	71	do	2	do
D. A. Story	86	do	2	do
D. A. Wilson	86	Beverley, Mass.	2	do
Edgar S. Foster	94	do	1	do
Emma E. Wetherell	109	Boston	2	do
Frank A. Smith	73	Gloucester	3	Bait, ice and supplies.
Gatherer	90	do	4	do
Geo. F. Keene	66	Portland	4	do
Herman Babson	95	Gloucester	1	do
Hereward	85	do	2	do
H. A. Duncan	83	do	2	do
Henry L. Phillips	76	do	6	do
John Lomis	62	Portland	1	Bait.
J. W. Campbell	79	Gloucester	1	Mackerel seining.
Lizzie Griffin	100	do	5	Bait, ice and supplies.

FISHING VESSELS of United States holdinn Licenses in Canada, etc.—*Con.*

Name.	Tonnage.	Port.	Number of Visits	Remarks.
Laura Sayward	64	do	4	Bait.
Lucy M. Dyer	78	Portland	3	do
Lizzie Greenleaf	88	Gloucester	1	do
Mystery	114	do	2	Bait, ice and supplies.
Mabel W. Woodford	104	do	4	Bait.
Mary G. Wells	86	do	1	do
Martha A. Bradley	76	do	1	do
Nellie M. Davies	89	do	1	do
Nettie G. Thurston	81	do	1	do
Ossipee	68	do	2	do
Plymouth Rock	92	do	2	do
Pendragon	68	do	1	Bait, and to ship men.
Ralph E. Eaton	65	do	1	Bait.
Reporter	79	do	1	do
Sarah B. Putnam	76	Beverley, Mass.	5	do
Starry Flag	56	Gloucester	2	do
Samuel V. Colby	95	do	1	In for shelter.
Thetis	91	do	3	Bait.
Velocipede	64	do	4	do
W. H. Oakes	68	do	1	Mackerel seining.

LIST of United States Fishing Vessels holding Licenses issued in Newfoundland, which visited Canso, N.S., during the Year 1889.

Alert	87	Gloucester	2	Bait and ice.
Agnes E. Downs	80	Portsmouth	1	Bait.
Admiral	73	Gloucester	2	do
Annie M. Jordan	80	do	1	do
Carrie and Annie	90	Boston	2	do
D. M. Story	71	Gloucester	1	In for shelter ; fishing on Grand Bank.
Ellen M. Adams	85	do	2	Bait.
Epes Tarr	86	do	2	do and mackereling in the fall.
Ella G. King	71	do	1	do
Edith S. Whalen	78	do	1	do
Ethel	68	do	1	do
G. P. Whitman	89	do	1	Mackereling.
Gertie E. Foster	85	do	1	Bait.
Henrietta	74	do	1	do
Horace B. Parker	93	do	1	Water and stores.
Henry Morganthen	85	Portland	1	Bait.
Howard Holbrook	92	Gloucester	4	do and supplies.
H. B. Griffin	117	do	1	do
John M. Bray	79	do	1	do
J. G. Whittier	99	do	2	do
Marguerite	103	do	1	do
Mascot	77	do	2	do
Margaret Mathers	91	do	2	do
Mist	68	do	3	do
Maggie and Lily	77	do	2	do
M. B. Stitson	114	do	1	Coal and supplies.
Maud M. Story	71	do	1	Bait.
Porter S. Roberts	72	do	3	do
Reuben L. Richardson	92	do	2	do
Rigel	107	do	1	Water.
Stranger	82	do	3	Bait.
Samuel R. Crane	74	do	2	do
Thos. F. Bayard	95	do	1	do
Wachuset	75	do	1	do
W. E. McDonald	93	do	1	do

LIST of United States Fishing Vessels taking Cod or Halibut, without holding Licenses under *modus vivendi*, which visited the Port of Canso, N.S., during the Year 1889.

Name.	Tonnage.	Port.	No. of Visits.	Remarks.
Alice M. Strople	89	Gloucester	2	In for water; fishing off Canso.
Admiral	75	do	1	do do
Alaska	49	Southport	1	do do
Agnes	111	Gloucester	1	Water; hand-lining on Grand Bank.
A. D. Storey	98	do	1	Shelter; bound to Iceland for halibut.
Chester R. Lawrence	86	do	1	do off Canso, fishing.
Carl W. Baxter	70	do	1	Water; fishing on Quero Bank.
Cecil H. Lowe	75	do	1	Repairs.
Carleton Belle	80	Booth Bay	1	Water; hand-lining on Grand Bank.
David Sherman	67	Gloucester	1	Water.
Edgar S. Foster	94	Beverly, Mass	1	do
Edward Grover	73	Gloucester	1	Shelter.
Geo. F. Keene	66	Portland	1	Water; fishing off Canso.
Henry S. Woodruff	209	LeMoine	1	do and repairs.
Joseph B. Maguire	88	Gloucester	1	Water.
J. J. Clark	66	do	1	do
John Brown	63	Portland	1	Shelter.
Josie M. Calderwood	86	Gloucester	2	Water.
Knight Templar	69	do	1	do fishing off Canso.
Leila Linwood	62	do	3	do do
Magnolia	108	do	1	do do
Mattie Winship	73	do	1	do do
Mathew Kearney	66	do	2	do do
M. H. Perkins	77	do	1	Shelter and water; fishing on Grand Bank.
Marion Grimes	58	do	1	Shelter.
Nettie G. Thurston	82	do	2	Water.
Nellie Burns	64	Portland	1	Seeking medical assistance.
Richard Lester	69	Gloucester	2	Water; fishing off Canso.
Sigfrid	72	do	3	do do
W. H. Jordan	86	do	1	do

LIST of United States Mackerel Seiners, not holding Licenses under the *modus vivendi* which visited the Port of Canso, N.S., during the Year 1889.

Name.	Tonnage.	Port.	No. of Visits.	Remarks.
Ambrose Knight	91	Gloucester	2	
Augusta E. Herrick	94	Boston	1	
A. R. Crittenden	81	Gloucester	3	
Belle A. Nauss	88	do	1	
Commonwealth	81	do	1	
David F. Low	57	do	2	
Davy Crockett	80	do	1	
Edith Rowe	80	do	2	
Ernest F. Norwood	71	do	1	
Ellen Lincoln	92	Portland	1	
Enola C	62	Gloucester	1	
Frank A. Rackliffe	99	do	1	
Flora Dilloway	77	do	1	
Flash	69	do	1	
Geo. F. Edmunds	141	do	2	
Georgie Willard	52	Portland	1	
Governor Butler	87	Gloucester	2	
Gertie Evelyn	81	do	1	
Henry Wilson	88	do	2	
Herald of the Morning	68	do	1	
Isaac A. Chapman	80	do	1	
John M. Plummer	96	Portland	2	
Jeanie Seaverns	106	Gloucester	1	
Kate Florence	96	do	1	
Lizzie M. Hannum	71	do	3	
Lizzie M. Center	77	do	2	
Margie Smith	58	do	1	
Moro Castle	89	do	1	
Northern Eagle	35	do	1	
Procyon	107	do	2	
Rattler	94	do	2	
Rushlight	66	do	1	
Rapid Transit	80	do	2	
Senator Morgan	86	do	1	
Wm. M. Gaffney	70	do	1	
Wm. H. Foye	66	do	1	
Wm. H. Wellington	81	do	1	

SUMMARY.

Fishing Vessels under trading register	8	vessels paid	10	visits.
Mackerel seiners, unlicensed	37	do	52	do
Cod and halibut, unlicensed	30	do	39	do
do licensed, Newfoundland	35	do	55	do
do do Dominion	47	do	96	do
Total	157		252	

NOTE.—The summary of the table shows, in regard to the cod and halibut bankers, that 82 vessels holding licenses paid 151 visits to this port, as against 30 unlicensed which paid 39 visits.

In regard to the mackerel seiners, the failure of the fishery accounts for the small number of licenses taken out.

PART IV.

REPORT

OF

Mr. William Gunn, of Walkerton, Ont., and Mr. M. G. McLeod, of New Haven, N.S.

APPOINTED TO ENQUIRE INTO THE

HERRING FISHING INDUSTRY

OF

GREAT BRITAIN AND HOLLAND.

1889.

OTTAWA:
PRINTED BY BROWN CHAMBERLIN, PRINTER TO THE QUEEN'S MOST EXCELLENT MAJESTY.

1889.

To His Excellency the Right Honourable Lord Stanley of Preston, P.C., G.C.B., &c. &c., &c., Governor General of Canada, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY :

The undersigned has the honor to present to Your Excellency the Special Report of the delegates appointed in 1889 to enquire into the Herring Fishing Industry of Great Britain and Holland.

All of which is respectfully submitted.

CHARLES H. TUPPER,
Minister of Marine and Fisheries.

OTTAWA, 1st February, 1890.

INDEX.

A

PAGE

Auction sale of Herring by fishermen 19, 24

B

Barrels 7, 27, 28, 29, 68, 72
Bloaters 30, 31, 21
Boats 20, 69
Brand, Classification and Inspection 18, 25, 26, 28, 29, 34, 35, 36, 37, 38, 40, 41 42, 43, 44, 45, 46, 48, 50, 74, 75

C

Canadian Green Herring, equal to Scotch 14
" Herring Industry 63, 64
" Home Consumption 14
" Method of curing, Committee of House of Commons, 1869 ..... 5, 6, 7, 14
Canned Herring 17, 74
Catch in Canada 14, 15, 16
Classification, Brand and Inspection 18, 25, 26, 28, 29, 34, 35, 36, 37, 38, 40, 41 42, 43, 44, 45, 46, 48, 49, 50, 74, 75
Close season 62
Curing and salting, mode of 5, 6, 7, 14, 25, 26, 27, 40, 47, 62, 63, 72

D

Dutch Herring, superiority of 65, 66

E

Enemies of Herring 56, 57, 58
Export from Canada, decline in 8, 9, 10, 11, 12, 13
" of Scotch cured Herring from Germany and Holland 14

F

Fishery Boards and Legislation 26, 28, 39, 40, 42, 43, 46, 47, 50, 51, 52, 56

G

Gutting girls 24, 25, 68

H

Herring auction sale by fishermen 19, 24
" diversion of through timidity 61
" enemies of 56, 57, 58
" Industry in Canada 63, 64
" Medicinal 14
" Migrations and movements of 59, 60, 61, 76, 77
" Natural supply in the sea 56, 57, 58
" Progress of industry in Scotland 17, 18, 19, 39, 47, 64, 65, 66
" Repacked in small bulk for re-export 29

I

Importation by United States from Germany and Holland 13
Inspection, Classification and brand 18, 25, 26, 28, 29, 34, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 46, 48, 50, 74, 75

K

Kippered Herrings..... 33, 72, 73

L

Legislation and Fishery Boards..... 26, 28, 39, 40, 42, 43, 46, 47, 50, 51, 52, 56
Letter of Transmission 3

M

Medicinal..... 14
Movements and Migrations of Herrings..... 59, 60, 61, 76, 77

N

Netting prohibited during day time 61
Nets and meshes 21, 22, 23, 24, 57, 58, 59

O

Offal..... 62, 82

P

Progress of Herring Fishing Industry in Scotland.....17, 18, 19, 39, 47, 64, 65, 66
Prohibition of netting during day time..... 61

R

Red Herrings 31, 32, 44, 73
Re-exportation of Herring repacked in small bulk..... 29
Remedial recommendations.....66 to 82
Curing 67, 69, 71, 72
Classification, Brand and Inspection..... 67, 74, 75, 76
Importation Scotch Cooper..... 67
" " Gutting Girls 68
Improvement in Barrel 68, 69
Small Packages..... 69
Gutting..... 90
Ungutted Herring.....71
Bloaters..... 72, 73
Kippered Herring.....72, 73
Canning Herring.....74
Red Herring.....93
Deepsea Drift Net Fishery..... 77
Bounties.....78
Trawling 78
Government Model Boats.....78
Washing Herring.....80, 81
Use for Manure 81
Offal 82
Conclusion 82

S

Salt, excusive use of..... 7
Spawn..... 54, 55, 56
Swedish Improvements in Curing. 47

T

Timidity of Herring.....61
Trawling.....51, 52, 53, 54, 78

W

Washing Herring.....62, 80, 81

LIST OF ILLUSTRATIONS.

SCOTCH HERRING FISHERY.

Bound for the Herring Fishing.....Frontispiece.
Shooting the nets—Sun down..... 21
Making Home—Dawn..... 25
Gutting Herring..... 27

WALKERTON, 2nd December, 1889.

HON. CHARLES H. TUPPER,
Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honor to transmit the joint report of myself and Mr. M. G. McLeod, appointed delegates under Order in Council of 27th June last, to proceed to Scotland and Holland to inspect and enquire into the methods of catching, curing and packing herring in those countries.

This report contains considerable matter, original and extracted, bearing upon every point connected with the herring fishing industry, including sketches of its history and struggles; discussions on controversies from time to time arising; deliverances of commissioners appointed by the British Government at various times to investigate important questions affecting the subject, all contributing towards the adoption of the modes at present in vogue in Great Britain of curing, supervising, inspecting and branding herring, after the numerous conflicts through which the industry has passed, from its infancy up to the present time.

The extensive ground covered in the annexed report is due as well to a desire to show what has been done in the past by Great Britain to build up the herring fishing industry, as to anticipate objections which may be urged against any contemplated improvements in this branch of the fishing industry of Canada.

I have the honor to be, Sir,
Your obedient servant,
WM. GUNN.

A. MORTIMER, LITH. OTTAWA.

BOUND FOR THE HERRING FISHING

REPORT

ON

THE MOST APPROVED MODES OF CATCHING, CURING AND PACKING HERRINGS.

To The Honorable
CHARLES H. TUPPER,
Minister of Marine and Fisheries.

SIR,—We, the undersigned delegates appointed to enquire into the most approved methods of catching, curing and packing herrings in England, Scotland and Holland, have the honor to submit the following report :—

In pursuance of our instructions we proceeded from Quebec to Liverpool on the 11th day of July last, and prosecuted our investigations at Liverpool, London, Great Yarmouth, Edinburgh, Glasgow, Loch Fyne, Inverness, Wick, Aberdeen, Fraserburgh, Leith, Hamburg, Stettin, &c., &c.

Before stating the result of our mission, it may be well to refer to and consider the necessity at present, and for a number of years past, existing for the present enquiry. The condition of the herring fishing industry of the Maritime Provinces of Canada, as far back as 1869, may be learned from the following answers made to questions submitted by a Committee of the House of Commons of Canada to practical fishermen, shipmasters, collectors of Customs, fishery inspectors, overseers, and others, in different parts of the Dominion, in reference to maritime and river fisheries, and the inspection of fish.

The following is a copy of Question No. 4, submitted by said Committee, namely:

State the different manners of curing and packing fish, and what way, in your opinion, improvements in curing and preparing might be made.

Answer of—

Mayor Painchaud, of the Magdalen Islands :

" The fish are badly prepared. This is because the fishermen do not know how to do better. Old customs are hard to alter. The curing would be improved if inspection was compulsory, before the fish was sent to market."

J. W. Fox, Collector, Magdalen Islands :

" In my opinion, great improvements are required and ought to be made here to give the fish a better character than it now bears. This could only be done by the merchant giving more encouragement to the fisherman making a superior article, and by the Government giving an annual prize or bonus to the boat or vessel bringing in the largest quantity and best quality of fish, and by the erection of proper curing houses and flakes, and more attention being paid to the handling, splitting and curing of cod, as well as splitting, salting and curing herring."

Hon. J. Ferguson, Senator, Bathurst :

"The fishermen should be required to salt and pickle herring immediately after removing them from the nets. By the present system herring are landed before being cured, and being thus out of salt from six to twenty-four hours the quality becomes deteriorated in consequence."

Mr. Mathews, Fisherman, Létête, N.B.:

"Herrings are salted loosely in casks or barrels, using about half a bushel of salt to the barrel. In four or five days after the salting they are re-packed in tight barrels, a layer of herrings and then a layer or sprinkling of salt being placed till as many are placed in the barrel as it will hold (about the same quantity of salt being used as before). The barrel is then filled with strong pickle."

Mr. Heney, Fisherman, Deer Island:

"All herring caught here are cured in pickle, either for packing or smoking."

Mr. Tory, Guysboro', Fisherman:

"Improvement might be made in curing fish if proper care was taken, and the fish had to pass through the hands of proper inspectors and cullers. Improperly cured fish would not then find purchasers, and this would compel fishermen to take more pains in curing."

Collector Tremain, Port Hood:

"Fish are cured here by salting, and drying, and pickling. I know of no improvement *except more care in the curing.*"

Collector Ruggles, West Port:

"Herring should be all opened with a knife and *filled with salt;* otherwise they cannot be properly cured."

Collector Ratchford, Parrsboro':

"No established method of curing."

Mr. Gordon, ex-Fish Dealer, Pictou:

"It is the universal practice of the Nova Scotia fishermen to steep the fish for hours in water before salting down, and expose to the action of the sun, during the hottest period of the season, until the water becomes warm, under the erroneous impression that they are thus benefited by the extraction of the blood.

"Although pickled fish may be cured after the most perfect manner, unsuitable materials used for the package will render them to a great extent valueless, and although the barrels may be made by professed coopers, and of the best materials, if not carefully handled in shipping and stowage will sustain damage that cannot be afterwards remedied."

C. C. Fox, Collector, Gaspé Basin:

"As all pickled fish is prepared by the fishermen themselves, you cannot see what the barrel contains; and the system of large advances in vogue in the fishing districts induces the merchant to take gladly anything he can get, to help liquidate his debt, *without being particular as to quality.*"

The answers above given to the questions above quoted afford abundant evidence of the very unsatisfactory condition in which much of the pickled herring of the Lower Provinces reached Quebec and Montreal in 1869. At this distance of time it is impossible to say what degree of improvement followed the exposure of the state of the herring trade as indicated by those answers. But whatever it may have been, it is evident that there has been a relapse, and that the condition of much of the herring reaching western Ontario of late has been very inferior in quality.

Enquiries instituted during last winter among wholesale and retail dealers established the fact that the herring barrel at present in use in the Maritime Provinces is deficient in strength and incapable of standing the rough usage to which it is exposed in the course of transportation, for long distances, by the railways; that consquently, in the majority of cases a part of the chine, breaks or a stave dinges in, thus permitting the brine to run off, and so causing certain and serious deterioration of the fish—that this deterioration is accelerated and intensified in all cases in

which the herring have not been gutted, the result in such cases being quick decay and putridity; and in the case of properly gutted herring, rust, which renders the fish hard, bitter and unfit for use. In Scotland we ascertained that some years ago herring barrels had been made by machinery. Captain Clarke, to whom we had a letter from the Department, was absent from Glasgow all the time we were there, but we obtained from the Captain of the "McBrayne" steamer on Loch Awe, satisfactory information concerning these barrels. He had commanded a steamer on the West Coast of Scotland, and had carried from Glasgow to Stornaway, and other ports many hundreds of these machine made barrels for Glasgow firms engaged in the herring trade. They were used for a very short time, having been found insufficient, too weak and not tight enough. They were found quite unsuitable for the trade, and their use was totally abandoned. Another fault in the curing of Lower Province herring complained of by retail dealers and customers, is the inordinate and unnecessary quantities of salt too frequently used, especially in the case of the unbranded herring, by which the nutritious qualities of the fish are entirely destroyed and the fish rendered quite unsuitable for food. An experienced retail dealer pronounced large quantities of Lower Province herring as being quite unfit to eat. These enquiries established the fact that only a comparatively small percentage of herring barrels reached western retail dealers in a sound state, and also the further fact that the condition of the herring was seriously interfering with the sale of the fish, rapidly destroying the demand for it and driving it out of the western markets. This has been the case as far west as Minnesota, in the United States; a prominent gentleman from that State having informed us in Edinburgh that much of the herring reaching that State from the Maritime Provinces, was unfit for use, and that if Labrador herring were put up and cured as well as the Scotch herring, there would be a very great demand for them, not only in Minnesota, but also in the other Western States.

An intelligent New Brunswick fisherman, writing under date of 17th May, 1889, says :—

"Our fish are put up in a shameful way. Most of the fishermen use more salt than is needed. One object is to cheat; the other is careless neglect. The fish remain so long out of the water before they go in the salt that it is impossible to cure them. Then the fishermen fill the barrel half full of salt, under the mistaken idea that the injury done in this way will be remedied, and that the fish will be all right. Our barrels are got up cheap—45 cents for large and 25 cents for half barrels. They are made of poor stuff—staves too thin, with poor hoops. There is not much money in the herring trade for the honest fisherman, as bad fish bring the same price as the good. For that reason the fisherman is careless. We put up a lot of fish last year (1888) well cleaned, washed, good and sweet, 100lbs. in each half barrel, with half a bushel of salt, and we only received 5 cents a barrel more for them than those who put up bad fish. In fact, the fisherman is not encouraged. The fish merchant buys of the fisherman in large packages; then he re-packs into half barrels, making a gain in quantity, and so the consumer is cheated right and left."

In a letter dated 26th April, 1889, from a gentleman in Nova Scotia of much experience in the herring trade, while virtually admitting the weakness of the herring barrel now in use in the Maritime Provinces, the writer is of the opinion, as we are, that more careful handling on the railways would obviate many of the evils arising from the breakage of chines and staves. He says: "The package can be made stronger, if that be found necessary."

With regard to the excessive use of salt, he says: "That it is a well-known fact that it requires a bushel and a-half of salt to cure and pack one barrel of herrings, and when more than this quantity is used there must be shortage in the weight of fish—as the barrel commonly used for exporting the article is made with a view to hold this quantity, and no more—and that if enough salt is used in some cases, as alleged, to cure two or three barrels of herrings, it must be evident that the full weight of fish cannot be in the package. For instance, the ordinary herring barrel, as required by law, will of itself hold only three and a-half bushels, and if, after the

herring is taken out, enough salt remains to cure one or more barrels, the package would be one-fourth or more filled with salt, and as a consequence could not contain the proper quantity of fish, as by law required; so that something must be wrong here."

As to the color of the brine, and the offensive smell so frequently complained of by retail dealers and consumers, the same gentleman says: "In the first place, when in consequence of carelessness the fish is poorly or only half washed before salting, the blood still remaining in the fish will come out after salting and give the brine a dark color; and, in the next place, if the fish is not properly salted, or has an insufficient quantity of that article, it will become tainted, and have an offensive smell. This, however, can be soon discovered by tasting the fish, or by breaking it open, when it will be found tainted at the bone, and unfit for use. But all this can be obviated by exercising proper care in handling the fish in the first place; by washing thoroughly, and afterwards using the proper quantity of salt in order to cure perfectly. An over quantity of salt, however, is not desirable, as it dries up the fish, and destroys the nutritious qualities of the herring in a marked degree."

On curing herring, in general, this gentleman says: "Certainly every care should be taken to cure the fish properly, and every step taken in this direction is laudable and worth considering. Could we get our people educated up to a proper standard of curing, it would be a great matter. But they have a great deal to learn, and it is almost impossible to get our fishermen to understand this, yet I hope the time is not far distant when more successful efforts will be made to teach them, as there is no denying the fact that our system of curing fish has been found faulty."

In a letter dated 17th April, 1889, from a large wholesale house in western Ontario, that deals extensively in sea herrings, the wish and hope are expressed that a stronger barrel may be introduced, and that Labrador and all other herrings will be properly gutted and cured before packing.

From the foregoing, it clearly appears that great inefficiency, imperfection, carelessness, and misapprehension still obtain in the Maritime Provinces as to the curing of herring. And, in the face of the very strenuous efforts, now, and for some years past, made by those nations of Europe interested in the herring fisheries to push the sale of their herrings in all markets, it need not surprise us to find that our exportation of herrings from Canada has seriously declined during the last three years, as the following statement of exports for 1885, 1886, 1887 and 1888 plainly shows:—

GENERAL STATEMENT of the Quantity and Value of Pickled Herring Exported from the Dominion of Canada during the following years :—

1885.

ARTICLES AND COUNTRIES TO WHICH EXPORTED.	PROVINCES WHENCE EXPORTED.	GOODS, THE PRODUCE OF CANADA.		GOODS, NOT THE PRODUCE OF CANADA.		TOTAL EXPORTS, PRODUCE AND NOT PRODUCE.	
		Quantity.	Value.	Quan'y.	Value.	Quantity.	Value.
		Brls.	$	Brls.	$	Brls.	$
Great Britain	Quebec	27	75	.....	.....	27	75
	Nova Scotia	19	76	.....	.....	19	76
	New Brunswick	346	806	.....	.....	346	806
		392	957	.....	.....	392	957
United States	Ontario	10	40	1	7	11	47
	Quebec	11,376	28,671	1,102	6,278	12,478	34,949
	Nova Scotia	66,511	200,594	.....	.....	66,511	200,594
	New Brunswick	20,488	61,200	.....	.....	20,488	61,200
	P. E. Island	5	29	.....	.....	5	29
		98,390	290,534	1,103	6,285	99,493	296,819
Newfoundland	Quebec	57	117	.....	.....	57	117
	P. E. Island	.....	.....	124	496	124	496
		57	117	124	496	181	613
B. W. Indies	Quebec	329	680	.....	.....	329	680
	Nova Scotia	30,084	101,436	.....	.....	30,084	101,436
	New Brunswick	1,182	2,908	.....	.....	1,182	2,908
	P. E. Island	2	7	.....	.....	2	7
		31,597	105,031	.....	.....	31,597	105,031
S. W. Indies	Nova Scotia	14,820	49,431	.....	.....	14,820	49,431
D. W. Indies	do	1,285	4,499	.....	.....	1,285	4,499
F. W. Indies	do	1,589	5,318	.....	.....	1,589	5,318
British Guiana	do	2,997	7,322	.....	.....	2,997	7,322
Germany	do	7	20	.....	.....	7	20
Portugal	do	5	20	.....	.....	5	20
Brazil	do	10	50	.....	.....	10	50
Madeira	do	20	90	.....	.....	20	90
Total	Ontario	10	40	1	7	11	47
	Quebec	11,789	29,543	1,102	6,278	12,891	35,821
	Nova Scotia	117,347	368,856	.....	.....	117,347	368,856
	New Brunswick	22,016	64,914	.....	.....	22,016	64,914
	P. E. Island	7	36	124	496	131	532
		151,169	463,389	1,227	6,781	152,396	470,170

GENERAL STATEMENT of the Quantity and Value of Pickled Herring, &c.—*Continued.*

1886.

ARTICLES AND COUNTRIES TO WHICH EXPORTED.	PROVINCES WHENCE EXPORTED.	GOODS, THE PRODUCE OF CANADA.		GOODS, NOT THE PRODUCE OF CANADA.		TOTAL EXPORTS, PRODUCE AND NOT PRODUCE.	
		Quantity.	Value.	Quan'y.	Value.	Quantity.	Value.
		Brls.	$	Brls.	$	Brls.	$
Great Britain	Quebec	113	440	.....	.....	113	440
	Nova Scotia	275	999	.....	.....	275	999
		388	1,439	.....	.....	388	1,439
United States	Quebec	632	1,959	4	16	636	1,975
	Nova Scotia	18,236	50,085	.....	.....	18,236	50,085
	New Brunswick.	9,423	26,096	.....	.....	9,423	26,096
	P. E. Island	8	32	.....	.....	8	32
		28,299	78,172	4	16	28,303	78,188
Germany	Nova Scotia	75	225	.....	.....	75	225
Portugal	do	100	230	.....	.....	100	230
B. W. Indies	Quebec	55	112	.....	.....	55	112
	Nova Scotia	23,593	72,392	225	572	23,818	72,964
	New Brunswick.	8	24	.....	.....	8	24
		23,656	72,528	225	572	23,881	73,100
S. W. Indies	Nova Scotia	12,501	37,166	150	450	12,651	37,616
F. W. Indies	do	632	1,353	.....	.....	632	1,353
D. W. Indies	do	1,089	3,272	.....	.....	1,089	3,272
British Guiana	do	2,205	7,559	.....	.....	2,205	7,559
	New Brunswick.	150	413	.....	.....	150	413
		2,355	7,972	.....	.....	2,355	7,972
Brazil	Nova Scotia	5	10	.....	.....	5	10
Newfoundland	Quebec	1	4	.....	.....	1	4
	Nova Scotia	109	127	.....	.....	109	127
	P. E. Island	20	20	101	305	121	325
		130	151	101	305	231	456
St. Pierre	Nova Scotia	16	52	.....	.....	16	52
Madeira	do	10	35	.....	.....	10	35
Total	Quebec	801	2,515	4	16	805	2,531
	Nova Scotia	58,846	173,505	375	1,022	59,221	174,527
	New Brunswick.	9,581	26,533	.....	.....	9,581	26,533
	P. E. Island	28	52	101	305	129	357
		69,256	202,605	480	1,343	69,736	203,948

GENERAL STATEMENT of the Quantity and Value of Pickled Herring, &c.—*Continued.*

1887.

ARTICLES AND COUNTRIES TO WHICH EXPORTED.	PROVINCES WHENCE EXPORTED.	GOODS, THE PRODUCE OF CANADA.		GOODS, NOT THE PRODUCE OF CANADA.		TOTAL EXPORTS, PRODUCE AND NOT PRODUCE.	
		Quantity.	Value.	Quan'y.	Value.	Quantity.	Value.
		Brls.	$	Brls.	$	Brls.	$
United States	Quebec	1	4	.....	.....	1	4
	Ontario	1,645	3,365	100	500	1,745	3,865
	Quebec	1,413	4,854	260	930	1,673	5,784
	Nova Scotia	20,310	72,971	827	3,314	21,137	76,285
	New Brunswick	10,017	34,849	.....	.....	10,017	34,849
	British Columbia	1	8	.....	.....	1	8
	P. E. Island	.....	3	.....	.....	.....	3
		33,386	116,050	1,187	4,744	34,573	120,794
France	Nova Scotia	45	135	.....	.....	45	135
B. W. Indies	Quebec	57	139	.....	.....	57	139
	Nova Scotia	21,024	80,777	100	216	21,124	80,993
	New Brunswick	38	133	.....	.....	38	133
		21,119	81,049	100	216	21,219	81,265
S. W. Indies	Nova Scotia	10,787	32,858	.....	.....	10,787	32,858
F. W. Indies	do	291	1,013	.....	.....	291	1,013
D. W. Indies	do	822	2,804	.....	.....	822	2,804
B. Guiana	do	2,389	8,502	.....	.....	2,389	8,502
Newfoundland	Quebec	576	2,041	256	512	832	2,553
	Nova Scotia	26	56	.....	.....	26	56
	P. E. Island	110	310	.....	.....	110	310
		712	2,407	256	512	968	2,919
Portuguese Poss. in Africa	Nova Scotia	40	188	.....	.....	40	188
Total	Ontario	1,645	3,365	100	500	1,745	3,865
	Quebec	2,047	7,038	516	1,442	2,563	8,480
	Nova Scotia	55,734	199,304	927	3,530	56,661	202,834
	New Brunswick	10,055	34,982	.....	.....	10,055	34,982
	British Columbia	1	8	.....	.....	1	8
	P. E. Island	110	313	.....	.....	110	313
		69,592	245,010	1,543	5,472	71,135	250,482

GENERAL STATEMENT of the Quantity and Value of Pickled Herring, &c.—*Continued.*

1888.

ARTICLES AND COUNTRIES TO WHICH EXPORTED.	PROVINCES WHENCE EXPORTED.	GOODS, THE PRODUCE OF CANADA.		GOODS, NOT THE PRODUCE OF CANADA.		TOTAL EXPORTS, PRODUCE AND NOT PRODUCE.	
		Quantity.	Value.	Quan'y.	Value.	Quantity.	Value.
		Brls.	$	Brls.	$	Brls.	$
Great Britain	Quebec	222	905	.....	.....	222	905
	Nova Scotia	17	74	.....	.....	17	74
		239	979	.....	.....	239	979
United States	Ontario	25	120	.....	.....	25	120
	Quebec	617	2,406	.....	.....	617	2,406
	Nova Scotia	32,151	117,227	5,182	11,969	37,333	129,196
	New Brunswick.	2,525	8,164	.....	.....	2,525	8,164
	P. E. Island	71	347	.....	.....	71	347
		35,389	128,264	5,182	11,969	40,571	140,233
B. W. Indies	Quebec	18	45	.....	.....	18	45
	Nova Scotia	26,164	104,744	.....	.....	26,164	104,744
	New Brunswick.	59	161	.....	.....	59	161
		26,241	104,950	.....	.....	26,241	104,950
S. W. Indies	Nova Scotia	12,955	49,189	324	1,371	13,279	50,560
F. W. Indies	do	292	1,071	.....	.....	292	1,071
D. W. Indies	do	682	2,698	.....	.....	682	2,698
B. Guiana	do	2,711	9,053	.....	.....	2,711	9,053
Newfoundland	do	.....	.....	3	13	3	13
	P. E. Island	410	1,290	.....	.....	410	1,290
		410	1,290	3	13	413	1,303
St. Pierre	Nova Scotia	81	122	.....	.....	81	122
U. S. of Colombia	do	68	404	.....	.....	68	404
Portuguese Poss. in Africa	do	234	926	.....	.....	234	926
Total	Ontario	25	120	.....	.....	25	120
	Quebec	857	3,556	.....	.....	857	3,356
	Nova Scotia	75,355	285,508	5,509	13,353	80,864	298,861
	New Brunswick.	2,584	8,326	.....	.....	2,584	8,325
	P. E. Island	481	1,637	.....	.....	481	1,637
		79,302	298,946	5,509	13,353	84,811	312,299

GENERAL STATEMENT of the Quantity and Value of Pickled Herring, &c.—*Concluded.*

RECAPITULATION.

YEAR.	PRODUCE OF CANADA.		NOT THE PRODUCE OF CANADA.		TOTAL, PRODUCE AND NOT PRODUCE.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
	Brls.	$	Brls.	$	Brls.	$
1885	151,169	463,389	1,227	6,781	152,396	470,170
1886	69,256	202,605	480	1,343	69,736	203,948
1887	69,592	245,010	1,543	5,472	71,135	250,482
1888	79,302	298,946	5,509	13,353	84,811	312,299

From this statement it appears that the total exports of herrings from Canada were:

	Barrels.
In 1885	152,396
1886	69,736
1887	71,135
1888	84,811

Making the decreases as follows, from 1886 :—

	Barrels.
In 1886	82,660
1887	81,261
1888	67,585

The decreases in our exportation of herrings for the years named are chiefly confined to two of the countries to which we export herrings—the United States and British West Indies.

Our export of herrings to the United States were :—

	Barrels.
In 1885	99,493
1886	28,303
1887	34,573
1888	40,571

Our exports to the British West Indies were :—

	Barrels.
In 1885	31,397
1886	23,881
1887	21,219
1888	26,241

The significant fact that in the case of both countries the sudden falling off in our exports of herring took place in 1886 shows that the decrease as to the United States cannot be attributable solely or perhaps in any perceptible degree to tariff changes in the duties on herrings in that country. Then to what other causes can we attribute the sudden and permanent decline in our exportations? Two causes may be assigned. It is possible that the quality of our herring in 1885 may have been exceptionally bad, and this happening concurrently with the opening up of the new trade with Holland in herrings may have tended materially to diminish our herring trade with the United States. The imports of herring into the United States from Germany and Holland in 1888 exceeded the decrease in our exportations in any of the years since 1885.

It is a remarkable fact, and a fact worthy of the best consideration of our Canadian fishermen and dealers, that nearly all the herring exported from Germany and Holland are Scotch-cured herring of the best qualities, carefully selected from the large Scotch barrels, and tastefully put up in neat, fancy kegs of the size of one-eighth and one-sixteenth of a Scotch herring barrel. Now, if we are correct in assuming that the causes named operate in the direction of diminishing our exportations, then it is in our own power to remedy the evil—in the first place, by furnishing a better quality of herring, and secondly by an effort to meet the increasing demand in the United States and some portions of Canada, for what are called Dutch herring.

But besides this, by furnishing an article of herring equal to Scotch herring, the consumption of herring in the interior Provinces of Canada can be greatly increased. It is a well known fact that all peoples living far inland from the sea are fond of salt sea herring, if supplied to them of good quality. Almost every body is fond of a good salt herring now and then, and especially in the winter time. We heard in Scotland of a physician of great skill and experience who advised his patients to eat a salt herring every morning, not simply as an article of nourishing diet, but as having a wonderful influence on the general health of the eaters, and acting on the system in some secret, salutary manner of which he was certain, although unable to explain. In an essay on the herring in 1872, Dr. James Silvis Dodds, of England, says: "The herring is highly medicinal, and good for food in the plagues." He also recommends the oil of herrings as "of excellent service in cramps and convulsions." The extent of the herring trade in Europe proves the universality of the demand for herring among all nations, and the inexhaustible supplies of herring contained in the sea tends to show, in a remarkable degree, the wise and generous beneficence and goodness of the Great Creator. As to the suitability of the herring, when furnished in a sound state, for food, we have only to consider the robust health and longevity of the peasantry of Scotland and Ireland, and other continental countries where herring are largely used as an article of food.

The value of the fish taken in Canada in 1888 was $17,418,510, of which there was exported to the value of $7,793,183, leaving for home consumption the value of $9,625,327, being the greater portion of the entire catch, including the fresh water fisheries of Ontario, Manitoba and British Columbia. It is safe to predict that if our herring were as carefully cured as the European herring that nearly the entire catch of herring in the Maritime Provinces would be consumed in Canada, leaving only a small balance for the United States and the West Indies, thus securing for our fishermen better prices in a market at their door.

From all we have seen and learned, we are satisfied that our herring on the Atlantic coast will compare favorably with the herring of Europe, not even excepting that of the west coast of Scotland, and that all that is needed is the ability to prepare and put them up after the European methods. This it is quite possible to do if our people are willing to learn and to adopt those methods. This can be secured by the dissemination of information, a determination and disposition to learn, and an intelligent, patriotic co-operative effort on the part of all concerned, fishermen, merchants and consumers, press, people and legislators, to make Canadian herring, constituting as it does, such an important element of our national industries, our trade and commerce, second to none in the world, in quality at least.

The following statement, compiled from the Fishery Reports, shows the quantity and value of the catch in the Provinces of Nova Scotia, New Brunswick, Quebec and Prince Edward Island in the years 1886, 1887 and 1888, also the quantity and value of pickled, smoked and frozen herrings, respectively, put up in the several Provinces, together with the names of the principal fishing grounds.

From papers annexed to this statement it will be seen that the price received by the fishermen for herring is very low; also, that under present arrangements, the merchants do not feel warranted in giving higher prices. In answer to one of the questions sent out by the Committee of the House of Commons in 1869, Alex. Cormier, trader and farmer, Amherst, Magdalen Islands, says that in his locality fresh herring at that time sold at one shilling per 200 pounds. The Canadian fish-

erman receives much less for his herring than English and Scotch fishermen receive. Were the herring industry of Canada once placed upon a proper basis the fisherman would receive a higher and more certain price for his fish, and the merchant would secure higher prices and more certain profits.

STATISTICS of the Herring Fishery in the Maritime Provinces, as compiled from the Fisheries Reports.

NOVA SCOTIA.

—	1886.		1887.		1888.	
	Quantity.	Value.	Quantity.	Value.	Quantity.	Value.
		$		$		$
Pickled ..... Brls.	155,750	623,000	181,146	815,157	175,285	701,140
Fresh, frozen. ..... Lbs.	260,700	10,428	No returns.		3,120	312
Smoked ..... Boxes	36,761	9,190	85,910	21,477	33,000	8,250
		642,618		836,634		709,702

NEW BRUNSWICK.

Pickled ..... Brls.	95,180	380,720	82,819	372,685	95,225	380,900
Frozen. ..... Lbs.	21,023,300	126,139	21,986,700	109,933	22,305,500	133,833
Smoked ..... Boxes	1,081,384	270,346	1,478,996	369,749	1,448,250	362,062
		777,205		852,367		876,795

PRINCE EDWARD ISLAND.

Pickled . ..... Brls.	43,204	129,612	38,874	174,933	32,883	131,532

QUEBEC.

Pickled ..... Brls.	18,560	74,240	18,938	85,221	16,807	67,228
Smoked ..... Boxes	7,560	1,890	9,762	2,440	8,640	2,160
		76,130		87,661		69,388
Total Value	.....	1,615,565	.....	1,951,595	.....	1,787,417

RECAPITULATION of the Catch.

PICKLED HERRINGS—Brls.

—	1886.	1887.	1888.	
Nova Scotia	155,750	181,146	175,285	
New Brunswick	95,180	82,819	95,225	Value, $4.
Prince Edward Island	43,204	38,874	32,883	
Quebec	18,560	18,938	16,807	
Totals	312,694	321,677	320,200	954,671

SMOKED HERRINGS—Boxes.

Nova Scotia	36,761	85,910	33,000	
New Brunswick	1,081,384	1,478,996	1,448,250	Value, 25 cts. per box.
Quebec	7,560	9,762	8,640	
Totals	1,025,705	1,574,668	1,489,890	4,190,263

FROZEN HERRINGS—Lbs.

Nova Scotia	260,700	.....	3,120	
New Brunswick	21,023,300	21,986,700	22,305,500	
Totals	21,284,000	21,986,700	22,308,620	

The greatest portion of smoked herrings comes from New Brunswick.
The same may be said of fresh-frozen herrings.
Smoked and frozen herrings are mostly all caught in Charlotte County.

FISHING GROUNDS.

In Nova Scotia, the principal fishing grounds are Digby, Yarmouth, the Strait of Canso, Guysboro' and around Cape Breton Island.

In New Brunswick: Passamaquoddy Bay, Grand Manan Island, Bay des Chaleurs, opposite Caraquet, N.E. part of Gloucester County and Northumberland Strait.

In Quebec: the coast of Labrador and around Magdalen Islands.

CHIEF MARKETS.

Canada and the West Indies.

PRICES OBTAINED.

Pickled herring are generally purchased from the fishermen, who sell them from their vats at so much per barrel. The schooner furnishes the barrels and repacks the fish.

The price paid to the fishermen is on the average basis of $2 a barrel; but this varies considerably, according to circumstances.

(*Extracts from Fishery Inspector Bertram's Report*, 1887.)

HERRING.

"Though the catch of herring has, in some localities, not been an abundant one, yet the total results of the year's catch in this old and standard branch of the fishing industry shows a gratifying increase of 6,199 barrels over that of last year, together with an increase of 12 per cent in the current market price. The industry of "smoked herring" has not yet attained any importance in Cape Breton. But a new departure in "herring curing" for export has been tried this year, that is, canned herring put up as salmon and mackerel usually are, fresh in cans. Owing to the unequalled excellent quality of the summer herring of this coast, if the experiment of canned herring meets with a favorable reception on public markets, then a new era of profit and prosperity will dawn upon the herring fishery of this island coast. The finest quality of herring is caught on this coast during the middle of the hot season, and, being large and fat, much of it is frequently lost before it can be cleansed and salted. If the canned article proves acceptable to foreign markets, much of the loss heretofore experienced can be averted in the future."

(*Extract from Fishery Inspector Bertram's Report*, 1888.)

HERRING.

"This has proved the staple branch of the Cape Breton fisheries for the year 1888. With two or three minor exceptions, the herring fishery turned out remunerative to a degree that went far to compensate for the loss in other branches. Considering the value of herring as an article of profitable foreign commerce, and as a staple of food for home consumption, the wanton destruction of thousands of barrels of fish on the coasts of this island, annually thrown back in the sea by mackerel seiners, is a most serious matter in the economy of one of the most valuable natural resources of this country. This point will be found more fully referred to in this report under the heading of "Destructive Methods of Fishing." It may be remarked that the summer herring taken on the coasts of this island is unequalled in size and excellence of quality of herring caught on any other coast in North America. This is a local peculiarity of this island, but a never failing one, and this herring always commands two or three dollars more per barrel than other herring in this country. It follows that owing to its being set down at the average price, the true market value of the catch is not by a considerable amount represented in the tables hereto appended.

CANNED HERRING.

I referred to this in my report for 1887 as being then, for the first time, tried as an experiment, which, if it proved acceptable in the market, would in the near future become an important industry in adding to the value of our island fisheries. I am pleased to be able to report that the experiment proved a success, and that the pioneers of the industry received a cordial reception for the product at remunerative prices. Encouraged by the successful issue of the last, they have this year enlarged their canning business, and regard it as being now established on a permanent basis."

The rise and progress of the herring industry in Scotland shows what can be done by a thrifty people under wise legislation and judicious governmental supervision. There was a time in the history of the herring fishery in Scotland when the industry in that country was at as low an ebb as it is with us in Canada now.

In his very interesting work on the herring published in 1864, Mr. Mitchell refers to the wonderful progress made in the fishing industry of Scotland during the last eighty years. He says:—

"The herring fishing has been increasing with steady, as well as rapid progress, since 1808, when the Fishing Board was established. In that year there were cured, in Scotland 90,185 barrels of herring, and in the year ending 1855, 766,703 barrels, besides the quantity caught and sold fresh, 130,759 barrels, making the total quantity of herring caught in 1855, 897,462 barrels. The great increase of this fishery has tended in no small degree to increase the wealth and the number of the population of the Scottish coasts, and the annual addition of the value of the herring trade must have a great and beneficial influence on the prosperity, not only of Scotland, but of the whole British Islands. The addition of nearly one million pounds sterling every year to our national wealth must be extremely gratifying to every patriotic mind. The success of the enterprising inhabitants, at the old curing stations, roused the exertions of the inhabitants of other places where the herring fishery had not been before attempted. While the fishery had been carried on for years previously in the Clyde, in the Firth of Forth, off Berwickshire, and in the northern counties of Caithness and Sutherlandshire, it is only since 1815 that extensive herring fishing stations have been established in Aberdenshire, Banffshire, Morayshire and Rosshire; at Lossie Mouth, Port Roy, Cullen, Portnockie, Findochtie, Portessie, Banff, Whitehills, Macduff, Gardenstowns, Rosehearty, Pitulie, Fraserburgh, Peterhead, &c., and these have become noted places for herring of the best quality, and as such have added greatly to the number, and the wealth, and the prosperity of the inhabitants.

"The increase of the herring fishery depends very much on the demand for exportation, and this demand requires to be carefully cultivated, not merely by the curers, who may be viewed as the manufacturers of the goods, but by the Government, which by impartial and just legislation protects the interests of the fisherman, the consumers at home, and the merchants and consumers abroad. That there was an abundance of herrings on the Scottish coasts was known for centuries past; but when considerable quantities of them appeared, they were of little remunerative value when caught, because the demand was limited to the mere local consumption. Before the specific and legalized size and quality of the manufactured article—the barrel of well-cured herrings—could be obtained as goods for commerical purposes, a merchant abroad could not buy herrings in Scotland, there having been no legal, distinct specific form and quality. The curer might say: My barrels are of every size, and various in quality and price; but the foreigner could not order nor buy such goods, and he therefore bought herrings which were of legalized size and good quality elsewhere; and although he paid a high price he obtained what he wished in Holland and other countries, and these countries are ready to supply any quantity if Scotland should be unable to do so."

"Before a proper system of legislation was adopted in Scotland, and even for some time after the system was introduced, the demand from abroad was inconsiderable; but confidence having been given from years of experience, and the trade based on a solid foundation, under legal enactments fixing measure and quality, the business progresses, and bids fair every year to extend and increase. To prove the progress of the increase we may state that in 1812 the total quantity of herrings exported to the continent was 4,720 barrels.

	Barrels.
In 1815 it amounted to	35,891
1840	82,515
1845	143,754
1850	257,108
1885	344,029

"If any evidence were necessary to prove that a fixed legal standard, applying to quantity as well as quality, is necessary to ensure success, this statement is all that can be wished. But we have more direct and convincing evidence still; for when the curers in Scotland thought any size and quality of herrings would sell abroad, and persisted in attempting to supply foreign markets, the attempts were failures, and the demand for fresh herring being limited, the price was so low as not to induce fishermen to proceed to fish, and there was consequently a limited or losing trade. But additional evidence that a staple article, at a fair price, will obtain its position in the market, is obtained by the account of the importations at one of the principal importing ports on the continent (Stettin) for a series of years past.

"In 1825 there was imported there of white herrings in barrels from:—

	Great Britain.	Holland.	Denmark.	Norway.
1825	18,160	4,295	1,960	6,758
1845	81,189	2,457	307	44,264
1850	116,538	568	470	12,507

"In 1885 the quantity exported to Stettin of Scottish herring was 160,572 barrels, being about nine times the quantity sent from this country in 1825, double the quantity in 1845, and more than a third greater than the quantity exported thither in 1850. There were exported to other places on the continent in 1855 344,029 barrels.

"The number of herring fishing boats employed in Scotland in 1856 was 11,251; the number of fishermen, coopers, &c., 91,139. Of these 91,139 people directly employed, 39,266 are fishermen; but if we add those employed indirectly by the money derived from the fishery, namely, the boat-builders, sail-makers, rope-makers, mast-makers, salt-makers, grocers, carters, porters, shipowners, sailors and other

trades, the number will appear incredible to those who have not an opportunity of closely observing the incalculable benefits accruing to the nation from the prosperous state of such a fishery. Here we see employment to the industrious classes, while they are adding an abundant supply of cheap and wholesome food for the numerous population of the British Islands.

"The great extent of the commerce that arises from the fisheries may be judged of from the number of ships and men employed in importing salt and materials for the fisheries, in conveying the fish on the coasts, and carrying the same to British or foreign ports.

"It would be difficult to give any correct estimate of the capital employed by the fish curers of Scotland; but when it is known that in 1855 there were 1,054 fish curers directly employed in purchasing herrings and curing them for the home and foreign market, it may be supposed that the capital put in circulation must be very great, without reference to the amount circulated by those merchants who principally carry on business in buying the cured herrings.

"The more rapidly the manufactured articles cease to be of use the more employment is afforded to the people; and as the fishing vessels or boats last only a few years, and the nets a shorter time, and as the barrels are generally only available for one year, the continual employment of great numbers of working classes in procuring materials and making them is of no small advantage to the community, and a ready sale is besides afforded for numerous cargoes of hoops from the English, and of stave wood from the Scottish forests, as well as from foreign countries.

"We think it necessary thus to point out not only the great extent, but also the great importance of herring fishery, as proving how much the knowledge of the natural history of the herring is connected with the prosperity of these kingdoms; for without such knowledge this important fishery is in danger of being destroyed."

Although Canada cannot hope to develop such a trade as the herring fisheries of Scotland, yet a great deal can be done to improve the present condition of the herring industry with us, and there is encouragement for us in the foregoing sketch of the rise and progress of the trade in Scotland from 1808 to 1855. But the herring industry has attained to very great dimensions in Scotland since 1855.

To proceed, however, with the purpose and work of our mission, we beg to state that immediately on our arrival in England we waited upon the Honorable the High Commissioner for Canada in London, who procured for us numerous letters of introduction, addressed to fish curers in various parts of Britain; also a letter from the Home Office to the British Consul in Stettin, from whom we received every possible kindness and information. We were also treated most kindly by Mr. Dundas, the British Consul at Hamburgh, although we had no letter of introduction to him. We as soon as possible delivered our letter of introduction to Capt. Graham, Secretary of the Fishery Board of Scotland, who received us most kindly, evinced the deepest interest in the objects of our mission, and furnished us with a general letter adressed to all local fishery officers throughout Scotland. All of these gentlemen upon whom we called were most courteous, painstaking and assiduous in giving us every information in their power—introducing us to fish curers, giving us much of their time, and in every way facilitating the attainment of our purpose. Indeed, we found the fish curers, and all classes engaged in the herring trade with whom we came in contact, ready and willing to give us all the information in their power.

The first great fishing station we visited was Great Yarmouth, England, where the herring fishing on a large scale is carried on. On our arrival there we found ourselves out of the herring fishing season proper, which does not commence there until nearly or about the first of October. Many of the smaller fishing boats were away prosecuting the herring fishing on the east coast of Scotland. From fishermen, owners of boats and fish curers, we obtained much information respecting the herring industry in Yarmouth. We saw herring arrive by trains from Scotland. These herring, well mixed with salt, were put up loosely in barrels. When delivered at the established herring mart they were put up to sale by auction and sold to the highest bidder at so much per last of 13,000 fish. When counted they were again thrown

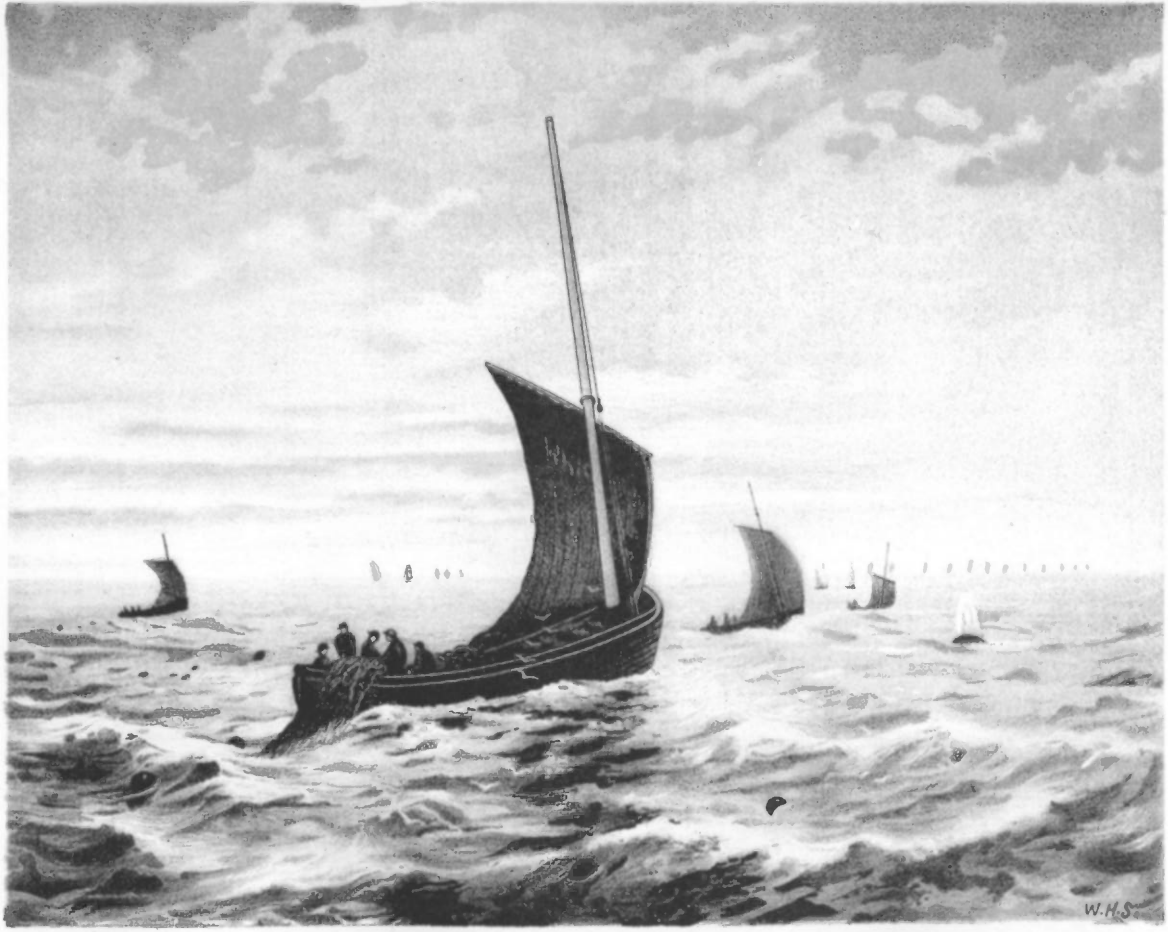
loosely into the barrels, and at once, without being gutted, dispatched to London and other adjacent cities and towns. The system of putting up pickled herring is the same as in Scotland, and is very carefully done. In fact, many of the Scotch gutting girls go south to Yarmouth, Lowestoft and other fishing towns in that region in the fall of the year, to work at the gutting and pickling of herring there. The greater portion of the herring taken at Yarmouth are either sold fresh or manufactured into bloaters and kippers, for which there is an enormous demand, and of which we shall treat elsewhere.

BOATS.

The style of fishing boat in use in Yarmouth is a three-masted decked lugger, of from 35 to 60 or 70 tons, with lug-sails, top-sails, mizzen, foresail and jib. They are very strongly built, and can remain out in almost any weather. These vessels are fitted up with compartments in the sides amidships, on each side of the hold, carefully secured and water-tight. Before proceeding on the fishing voyage these compartments are filled with the best salt. The most of them have small donkey engines for hoisting sail and hauling in their nets. They go off to fish a considerable distance from land, about midway in the English Channel, where the herring caught are more suitable for bloaters than those taken nearer land. They carry drifts of nets numbering from 200 to 210 nets, measuring each 48 to 60 feet in length, and 30 feet deep. They use only one-half of their nets at one time, reserving the other half to be used in case of losing the other through stress of weather or other casualty. These nets are of a two different-sized mesh, one for the larger herring and one for the smaller. Their system of fishing is the drift net deep-sea fishing, which is the principal mode of catching herring all round the British Isles, except in some of the firths and arms of the sea. These Yarmouth boats go off in fleets and fish not far from each other. They remain out for days, for a week or more, accord-to the weather, the temperature and the quantity of fish taken. Recently there has been added to the fleets a mission ship for religious service and worship, and a hospital ship, where the sick and injured may have medical attendance. As is the general custom everywhere, the nets are "shot" or set at sundown and taken in at sunrise. As the nets are hauled in the fish are shaken out of them on deck, where the herring are at once well sprinkled with salt, and then shovelled into the hold, where, by means of a raised platform floor, the blood and liquid offal can drain off, leaving the fish clean, firm and sound. When they come ashore the herring are sold by auction, as already stated, and used up either for sale, fresh, pickled, or manufactured into bloaters and kippers, the fresh fish generally being sent to the London market.

The herring fishing boats and smacks on the south coast of England, the Dutch busses, and the French galliots in general all resemble each other in build, differing somewhat in rigging, being all intended for the same kind of work—the deep-sea drift-net fishing—at considerable distances from land. In the north of England, in Scotland and in Ireland, the herring fishing boats are smaller in size. They are strong, staunch, substantial sea-going boats, of good tonnage capacity for the length of keel, and they are easily handled. In some respects, as to model, rigging and cut of sails, the boats of one port in Scotland differ from those of other ports; the boats of one port may be nearly all alike—good, serviceable boats, without much symmetry of form—while those of other ports are built on finer lines, and present a more graceful appearance to the eye. All, however, are well adapted to the work for which they are intended, in the boisterous North Sea and North Atlantic Ocean.

The fishermen of some ports having what they consider superior sea boats, are looked upon as more venturesome, in going to sea in rough weather, than others—a natural spirit of bold daring as well as confidence in the style of boats, may lead to this. The nearness and accessibility of a harbor, in case of rough weather, would, no doubt, be a consideration in such cases. The following is a description of the Wick herring fishing boat, as taken by us from one of the boats :—



A. POSTINGER, LITH. OTTAWA.

SHOOTING THE NETS—SUNDOWN

Scotland, has to say about nets and meshes. From this it will be seen that the question of the mesh and its size has been very thoroughly discussed in Scotland. Our own opinion, frequently expressed to fishermen and others in Britain, is, that the present mesh in use in Scotland is too small, and calculated to take immature herring of small size and to allow the larger herring to escape. Wherever we saw newly caught herring we were surprised at the small size of the fish, showing either that the large herring had been fished out years ago, leaving only small young fish to be taken now, or else that the small mesh fails to secure or gill the larger fish. Old people in the north of Scotland know that the herring taken now are not, in size equal to the herring of fifty years ago, and for this there must be some cause. The Scotch fishermen, however, entertain very decided opinions upon the subject, and universally express their preference for the small mesh of 2 inches, which is the smallest mesh for herring allowed by law—when the net is new—but which, as a matter of fact, diminishes in size from the action of the water by swelling the twine, especially the cotton twine, when the nets are put in use.

On this head the British Commissioners in 1878 say :

"Some of the reasons which prevent us from recommending a close season equally deter us from adopting another recommendation which was constantly made to us, namely, that the mesh of the herring nets should be regulated.

"It was over and over again contended by the witnesses who appeared before us that the present mesh of herring nets was too small, and that it would be wiser to have the old mesh of inch from knot to knot. The history of the old mesh is curious. So long ago as 1868 an Act was passed making it illegal to take herrings in any part of Great Britain with any net having a mesh less than inch from knot to knot. This Act still applies to Scotland, but it is practically incapable of enforcement, because it only applies to the territorial seas, and the greatest part of the herrings are not caught in those seas. In the Convention which was concluded with the French Government in 1843, and which was confirmed by the British Act of the same year, the same provision was introduced (Article 28.) And while the provision was in force it was undoubtedly illegal for any fisherman to use a net for herrings with less than an inch mesh. The Convention Act was, however, repealed by the Sea Fisheries Act of 1868, and since then no law of mesh has been enforced on the Scotch herring fishermen.

"There is then a precedent for the law of mesh. The first objection to it is that such a law can only be enforced by a fresh Convention, and that it must therefore depend on the views of foreign Governments. Apart, however, from this objection, there are grave reasons for thinking that any interference with the mesh would be inexpedient. The law of mesh was passed to prevent the capture of immature fish. The immature fish will not readily take the salt, and are therefore useless to the fish curer. But the immature fish, it may be observed, command a fair price in the fresh fish markets, and furnish a considerable supply of wholesome food, especially to the poor. Unless it could be shown that the capture of immature fish was diminishing the capture of mature fish, we think that the Legislature should refrain from interference.

"It is indeed true that many fishermen are of opinion (1878) that a larger mesh would actually prove more profitable than the smaller mesh which is now in use. The larger herring are imperfectly meshed in the smaller mesh, and drop out of the nets and are lost. We are inclined to believe that the fishermen are, in many cases, using too small a mesh. Some of the most intelligent among them are of this opinion, and are ordering meshes of a larger size, even down to 33 to the yard; but it would evidently not be wise in the interests of the fishermen to interfere with the fishermen on this ground. It might under certain circumstances be necessary to provide a certain mesh to save immature fish. That course has long been adopted in the case of salmon, but it could hardly be justifiable to institute a larger mesh for the sake of increasing the immediate profits of the fishermen. The fishermen themselves must, in the long run, be the best judges of the mesh which it pays them to

use; and (excepting for the protection of the fisheries) there can be no reason for interfering by legislation.

"There is another reason against any interference with the mesh. A cotton net, when it leaves the factory, has a larger mesh than after it is barked. The mesh shrinks with every fresh barking. The stouter cotton shrinks more than the finer cotton, and inferior thread shrinks more than the better thread. A net weighing 20 lbs., with 32 meshes to the yard; a net weighing 16 lbs., with 33 meshes to the yard; a net weighing 14 lbs., with 34 meshes to the yard; and a net weighing 13 lbs., with 35 meshes to the yard, would all shrink to about the same size, or to about 36 meshes to the yard. A fisherman ignorant of this fact, ordering a net with a little stronger thread, or employing a manufacturer who supplied him with an inferior article, might unwittingly be led to an infraction of the law.

"This circumstance has so much force that many of the witnesses who have recommended the regulation of the mesh are in favor of enforcing the law in the manufactories. The manufacturers, as a rule, would not object to this arrangement, because it would give less trouble, and then pay them better to make a net with a wider than a narrower mesh. We should imagine, however, that Her Majesty's Government would hesitate to institute machinery for examining all nets made in every factory."

The nets now (1889) in use in Britain are made of cotton with 2, and in some cases 2¼-inch mesh, 360 meshes deep and 20 fathoms long unmounted. A single head rope of about 2¼-inch manilla, made expressly for the purpose, and which will not kink, the norsels are very large, and when fastened will leave a space of about 5 inches between the net and the head rope. There is a round piece of cork-wood on every second norsel, which is put on before the norsel is made fast to the head rope, the norsel being put through a hole in the cork wood. This cork-wood keeps up, or floats the head rope toward the surface of the water, while the lower part of the net is kept down by stone sinkers placed at intervals of 5 to a net.

Before leaving harbor the nets are carefully laid in the hatch, the head rope being placed aftermosts the stone sinkers placed, one directly on top of the other at the forward end of the hatch, the twine or body of the nets being in the middle, sheepskin or dogskin buoys being made fast, with 3 fathoms of scope line, at the ends, or fastening, of each net to the other, along the whole drift, or number of nets carried by the boat. Having the nets so carefully laid enables the crew when they arrive at the fishing ground, to "shoot" or set them as fast as the boat can sail. When the nets are all in the water they are 3 fathoms from the surface. This secures them from all danger from passing vessels, while the sheepskin buoys and the corks prevent them from sinking, 3 fathoms being the distance the buoy is from the net.

The usual end-mounting is used along the end of the nets, and a small line run along the foot, while the head, which requires to be very strong, owing to the depth of them, is mounted with a line about the size of an 18 thread hemp cod line, the norsels being made fast to this line, and on the net side of the line, or between the real net and the line, first one mesh deep of large twine doubled, and five meshes deep of large twine single. When the nets are set for fishing the nearest one to the boat would be about 100 feet distant from the boat, for which purpose a large hawser is used, one end made fast to the end of the head rope of the nearest net to the other to a timber head in the stern of the boat, which they have in the boat for this purpose.

The time for "shooting" or setting the nets is at sunset. The regulations of the Scottish Fishery Board render this imperative; but, as too often happens in the case of the most salutary regulations, violations do occur. The commission appointed by the British Government in 1878, already referred to in their report on this subject, says:

"It is also desirable to prohibit the shooting of any movable or drift nets between sunrise and sunset, as no doubt shooting in daylight scares the fish, and in this way causing the shoal of herring to sink the act of one or two improvident

crews or persons, may cause great loss to all the rest. The herring is a timid fish, and is easily scared by noise or any circumstances; and, however little effect the enormous mass of netting may have on the general stock of herrings, we think it feasible to conclude that the fish may be scared by these means from the immediate fishing ground, and deterred or interrupted from entering the lochs and firths of Scotland, and may possibly have the effect of scaring the fish from entering those narrow waters."

In this connection a very curious circumstance happened in one of the lochs on the west coast of Scotland some years ago. Certain fishermen disregarding the rule for setting nets, shot their nets in the loch in the day time, and were rewarded by a good catch of fish for several days. Great surprise was expressed at the fact of so many herring being gilled in broad day light, until it was discovered that the fish were all blind, a film having formed on the eyes of all the herring, and this it was supposed happened from the fact of the fish having been enclosed in the loch for some time in water comparatively shallow, and exposed to the rays of the sun.

It is customary for the night watch on the boat to try the nets during the night to ascertain what fish has been gilled. This is done by hauling in the hawser made fast to the drift and the whole or part of the first net, but in any event the nets are hauled in at day break and the herrings shaken out or not as may be found most convenient. The nets are taken in by a machine which Scotch fishermen call an iron man. This machine is made of iron, having three sheaves on one side through which the head rope of the net goes, the twine or body of the net going along between the machine and the rail. This machine is worked by a crank which one man turns, while one holds the turn of the head rope, and the others of the crew gather the twine or body of the net and the fish in. Very often the boats go off long distances to fish, 10, 12, 30, 40 and more miles. Under such circumstances the crews are naturally anxious to return to port, and therefore, as a rule, they do not and cannot take time to shake out the fish as the nets are hauled in; so that nets and fish have to remain in one mass until the boats reach harbor.

This is to be regretted, as there can be no doubt that the superincumbent weight of nets and fish, especially in hot weather and on calm days, must affect the quality of the fish more or less injurously—whereas, could the fish be at once shaken out of the nets at sea, and salt at once applied, as is done by the Yarmouth smacks and the Dutch, all deterioration would be avoided and the fish delivered in perfect condition.

When the fish are not shaken out of the nets at sea of course the salt cannot be applied, and it often happens that boats do not reach harbor until late in the afternoon or evening

ARRIVAL IN HARBOR.

In former times herring were contracted for, beforehand, by the fish curers, at so much a cran, which was a measure containing a sufficient quantity of green herring to make a barrel of gutted and packed herring, at the final filling up of the barrel. Now, however, in Scotland as in Yarmouth and elsewhere in England, all herring are sold by auction to the lighest bidder—the auctioneer being responsible to the fishermen for the purchase money, less commission, which is generally about 3 per cent.—the auctioneer settling with the fishermen every Saturday.

Immediately on their arrival in the harbor the fishermen take a sample of their catch in a basket to the auctioneer, who at once calls a sale, at which the fish curers attend, when the fish is sold, as already stated, to the highest bidder. When the fish are sold the purchaser sends carts alongside the boats, and the fish are measured into the carts, 4 statute baskets to the cran. The cran contains a barrel and a-half of herrings. The fish are then emptied from the carts into large square shallow vats and sprinkled with salt, where they remain until a number of deliveries are made, and the herring-gutting girls commence work.

THE HERRING GUTTING GIRL.

The herring-gutting girl is an institution in Scotland.—An important factor in the great herring fishing industry of that country. Without her, the gutting, curing

MAKING HOME — DAWN

and packing of herring could not go on as it does at present. These girls come in hundreds from the Highland districts. While many of them belong to families of the poorer class, many of them belong to families who are better off, but who find it convenient to earn something in this way, annually, for the benefit of the family. These girls are a robust, able-bodied, respectable, modest, well-behaved class. They perform their work cheerfully, honestly and efficiently. They require no scolding, they indulge in no levity of manner nor trifling, and often in the afternoon, when most other women would be used up over the hard work, some one of them will start up a lively Highland song to help the time and the work along. When off duty and dressed up, they would never be taken for herring girls. They work in crews, each crew consisting of three girls. The work of gutting and packing is done with amazing rapidly and dexterity. An expert and experienced crew of three girls can gut and pack 80 barrels of herrings in one day. And be it remembered that the Scotch herring barrel contains 250 to 275 lbs of herrings, while our Canadian barrel contains only 200 lbs. of fish, so that 80 Scotch barrels would be equal at the very least to 100 barrels of Canadian herrings. We saw a Wick girl who had packed 80 barrels in one day. When at work, one girl, the head of the crew, packs, the other two gut or gibb the herrings. The head girl of each crew has a number. This number is written in blue or red chalk or pencil, by the cooper, on the bottom of every barrel filled by the crew : so that in the event of improper or defective curing and packing appearing at the time of inspection, the same by means of the number can be traced to the crew whose work it is, and all the fish packed by that crew in the lot undergoing inspection can be laid aside for examination instead of having to examine the whole lot, comprising the work of a number of crews. In this way the work of inspection is not retarded, as would be the case if the evil could not be localized, but is really facilitated. These girls are paid so much per barrel, generally 6 pence to 8 pence sterling, about 14 to 16 cents of our money, at which rates they can make good wages, when fish is abundant.

In the British report already referred to, the late Mr. Frank Buckland says:—

"Herrings are classed into what are called 'Matties,' a word of Dutch origin, believed to signify 'Maidens.' They are immature fish, with the milt and roe undeveloped. They are principally sold in the Russian market, where they are regarded as a great delicacy, and the great Russian families are in the habit of obtaining for their own use, an early barrel of Scotch 'Matties.'

"The other designations are 'Fulls' and 'Crown Fulls,' terms used when the fish are partly full and full of milt and roe. And the term 'Spent' or 'Shotten' is used to designate herring immediately after they have spawned. These latter fish being of an inferior quality receive an inferior brand, and are branded as 'Spent.' They fetch a lower price, but are readily sold in the great continental markets."

This classification still prevails, and nearly all the newly caught herring we saw consisted of those four kinds of herring, not separately, but mixed up in almost every single catch.

It is the business of the gutting girl to separate the different classes of herring and this she does, as she proceeds with her work of gutting without interfering with the usual rapidity of the gutting operation. And so perfectly is the separation effected, that a fishery officer informed us that it rarely happened that a wrong herring is ever found in any barrel on inspection. In front of the herring girl, in the great shallow vat containing the green herring, are placed three baskets, or four, into which she assorts the herring as she guts them. Not only are great care and skill exercised in so perfectly separating the different classes of herring, but equal care is taken to exclude all poor, sickly immature fish—every unsound and bruised fish. The herring girls, the coopers, the fish curers themselves and the inspectors, all see to this. And this is most important, as experience has shown them that one unsound or damaged fish may taint a whole barrel, and one bad barrel may damage the character of a whole shipment. In Scotland, according to the Scotch mode, the gutting girls do not rip the fish at all, but the herring are gutted with a short, sharp, three-cornered knife, deftly inserted at the upper part of the gills

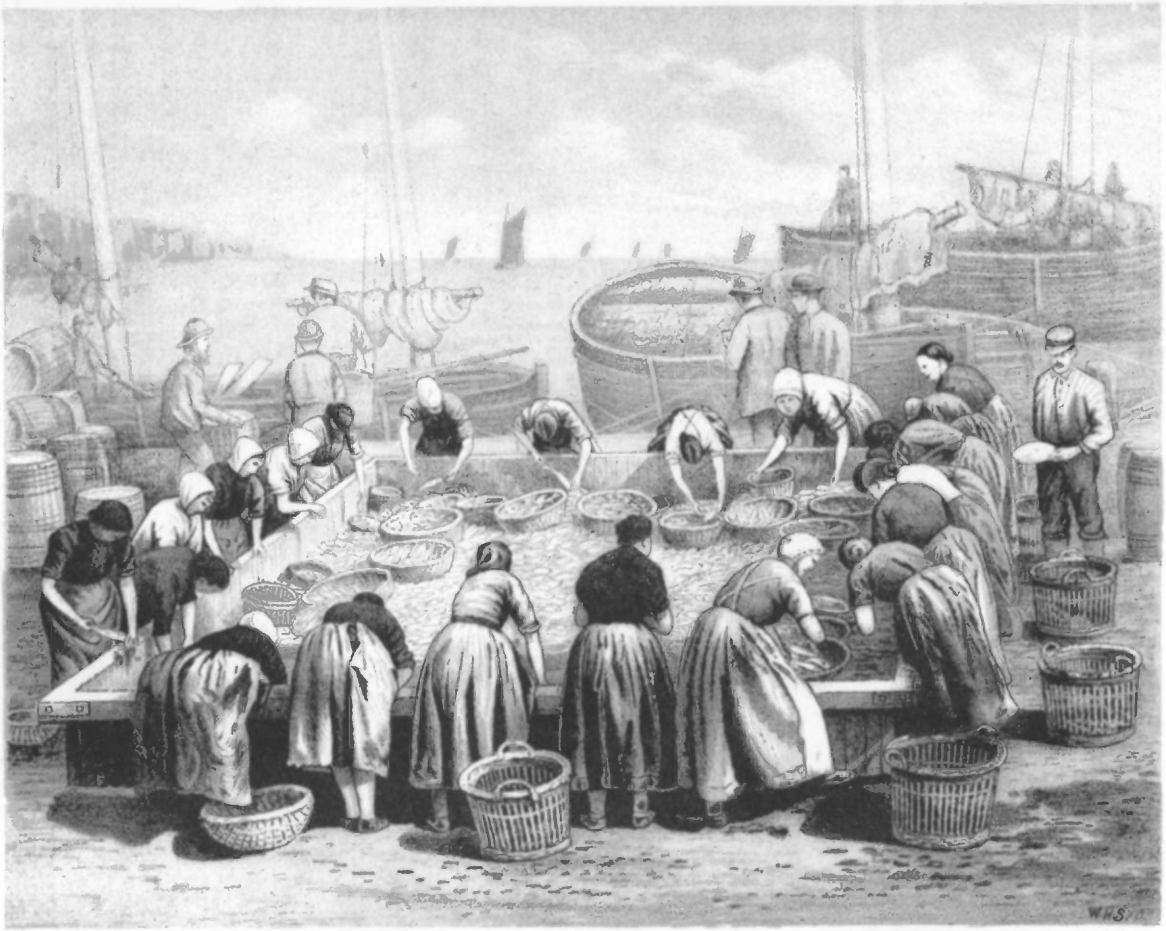
which takes away the fore fins, the gills, the stomach and the crown gut, all that will follow with one cut. The herrings which have previously been sprinkled are then roosed with salt and taken and packed in the barrels. The packer sprinkles a quantity of salt on the bottom of the barrel, then a tier or layer of herring packed slantingly on their back, as a general rule, with alternate sprinklings of salt and herring until the barrel is full, in the proportion of a half bushel of salt to the barrel, the whole quantity of salt, including the first sprinkling and roosing being about one bushel to the Scotch barrel, which is larger than the Canadian barrel. The kind of salt called "Rincom" is that much used and preferred in Scotland—the "Tripani" being preferred in America.

When the herring are intended for the Irish market they are packed flat on their sides, and when intended for the German market they are packed straight on their backs, belly upwards, which, by pressing out the sides of the fish laterally, certainly improves the appearance of the fish and gives it a better and plumper appearance than they had before. The fish, as with us, are laid in the barrels with the heads towards the staves, and the tails to the centre—the layers being laid across, alternately.

When the barrel is filled up it is, after settling some, headed up and left standing on end for 3 or 4 days to allow time for the settling, shrinking, or "pining" of the fish. It is then unheaded, when the herring, which have settled 6 or 8 inches, or more, are found floating in pickle. This pickle is drawn off, and preserved in buckets, from the small bung hole in the side of the barrel, about 15 or 16 inches from the bottom, when the herring will settle still more in the barrel. A sufficient quantity of herring of the same day's catch is then taken from other barrels and carefully packed in to fill up. A small quantity of salt is laid on top of the last tier or layer of herrings. The cooper then takes the "dunt," which is a stout, round piece of wood, made to fit the inside of the mouth of the barrel, on top of the herring which have been repacked in to come above the top of the staves; he then, by standing or jumping on the "dunt," presses down the herring so as to insert the head, heads up the barrel, which is laid down on its side, bung-hole up, when the brine, previously drawn off, and which has been preserved, is replaced, the bung driven in, and the barrel allowed to remain on its side ten clear days, so as to allow the fish to mature, or season, before it can be inspected. For transportation, the tighter the herring are in the barrel the better they will keep. By the British Act of 24th, July 1851, 14 and 15 Vict. Chap. 26, the law which required herrings to lie in the barrel fifteen days after being refilled, and before inspection, was repealed, and the Fishery Commissioners were empowered to fix any other period and they accordingly reduced the time to ten days. This change was made principally to enable curers to make shipments, and realize on consignments or bills of lading five days earlier.

Results in the continental markets, as hereafter referred to, and as developed in this year (1889), seem to indicate unmistakably, together with other conducing causes, that the change was injudicious, and that the character of Scotch herring has been lowered at Stettin and elsewhere by placing in these markets, herrings immaturely cured and unseasoned. Each curer has his own private mark and name, as well as the Government brand; also the name of the inspecting officer and date of inspection, stamped on the barrels with hot iron brands. There is a small blow-hole in the top end of the barrel, by which the cooper, by blowing into it, can test the tightness of the barrel, and if found not air tight, he remedies the defect by the insertion of flags in the leaky joints.

There appears to be no compulsory rule as to the exact quantity of salt to be used. The fishery officer satisfies himself that sufficient salt has been applied for the preservation of the fish before he attaches the brand. For certain markets and for transportation a few more pounds of salt are used. One authority says that the British herring barrel should contain, when for home sumption, 235 lbs. of herrings, and when for the continental markets, 224 lbs. As already stated, the herring required to refill the barrels must be of the same day's catch, and if any of these look dirty or oily they are washed in salt water, but no



GUTTING HERRING

water touches the rest of the fish, as it is universally held by all parties that washing before packing is most injurious to the substance of the herring, rendering it hard and brittle, and that by the use of water all the delicate, delicious flavor of the herring is washed away. There can be no doubt of this, as any one can prove who will fairly test the great difference between a fresh-broiled herring that has not touched water and a herring that has been well washed in water before cooking.

In the European markets the natural flavor of the herring counts for much, therefore, every effort is made by all the herring fishing nations, to retain that flavor.

So particular are the Dutch in this respect that in gutting the herring they use a knife differing in shape from that used in Scotland, having a larger handle and sharper pointed blade, which they insert into the neck between the gills and the bone, and then by turning the knife, they bring away the gills and stomach, leaving the crown gut or *appendices cæci*, which they consider materially improves the flavour of the herring. As a matter of course the gutting, after this mode, is done more slowly, and the packing more carefully; therefor we may infer that both are better done. Any degree of superiority which Dutch-cured herring are said to possess over the Scotch-cured article is not due so much to any substantial difference in the respective modes of curing as to the greater care and pains taken in the different departments of the entire process of curing and packing, and negligent carelessness on the part of some of the Scotch curers. Sometimes the Dutch adopt a fanciful mode of packing the herring in the barrels, placing the head of one to the tail of the other, instead of tail to tail, the common mode, but laying the subsequent tier across the previous one. At other times they pack the herring in circular form around the inside of the barrel, commencing at the outside of the circle, next to the staves, and filing up the layers towards the centre. This latter mode of packing may be for the purpose of facilitating the packing of herring into the small kegs, hereinafter referred to, and to give the contents of these kegs such a neat and artistic appearance as could not be secured in the case of the ordinary stiff, straight herring, packed in the usual way.

The Dutch are particular in skimming off any oil or greasy substance that may gather on the top of the pickle in the barrels, as the oil is held to injure, by rust or otherwise, herrings kept for any length of time. Mr. Mitchell, in his book on the herring, says:—

"Having carefully observed the system of curing practised by the Dutch, both on our own coasts and elsewhere, it may be stated that the curing of herring, as *soon as caught, with superior salt in oak barrels*, may be the cause of the Dutch herring having obtained such a high character."

THE BARREL.

The Scotch herring barrel is a substantial, well-made package. It is made principally of hardwood,—oak, birch, white ash, maple, and the harder species of larch and spruce. The staves come chiefly from Norway. Oak is the best, and is nearly the only kind used by the Dutch. Hardwood is preferable, being stronger, and also because it does not sour the pickle, as softwood does. In consequence of the scarcity of stave wood, the regulations have been relaxed, and spruce and larch are now allowed to be used, but the staves must be heavier. The hardwood stave is $\frac{5}{8}$ of an inch thick in the barrel, head and bottom about $\frac{7}{8}$ of an inch thick when cleaned. The bottom end of the barrel is full hooped, whereas the top end is only quarter and end hooped—three quarter hoops and four end hoops—on the bottom end eleven or twelve hoops. In many instances now one iron hoop, 2 inches wide, and $\frac{1}{12}$ to $\frac{1}{16}$ of an inch thick, takes the place of the four end hoops. This iron hoop on the top end is an improvement suggested by one of the fishery officers in Scotland, and has been very generally adopted. It greatly protects the chine of the barrel *in transitu*. It greatly facilitates the unheading and heading of the barrels. One of the oldest and most reliable fish-curers in Scotland told us that a cooper can unhead and head three or four barrels with the iron hoop in the same space of time as would

be required to do one barrel with the wooden hoops, and that by the use of the iron hoop the staves can be drawn tighter together than with the wooden staves, because it can be drawn tighter without breaking. This gentleman, one of the largest fish-curers in Scotland, has adopted the iron hoop, together with many others. In some places where it was adopted its use has, in some cases, been abandoned, and in some places opinions differ as to its value. We think the objections made to its use arise more from a sort of prejudice against all innovations than from any well founded reason. We heard of only two objections to the use of the iron hoop: one was, that the roughness of the outer edge of the iron hoop, caused by the iron driver used by the coopers, hurt the hands of those engaged in handling the barrels; the other was, that if the iron-hooped barrels full of herring were kept over for two or more years, the action of the salt on the iron hoop would corrode, not only the hoop, but the wood of the chine under the hoop, so rendering it weak and liable to break in the course of transportation. The use of a stout glove or mitten would meet the first objection, and the fact that the iron hoop is iron painted to prevent rust, and that it very seldom happens that herrings are kept over for two years, disposes of the second objection. So careful has the Fishery Board of Scotland been in regard to the handling of herring barrels that the use of can hooks was prohibited; but this rule must be relaxed now, for we saw great quantities of herring barrels lowered into the holds of vessels by the use of can hooks. The Scotch herring barrel must contain not less than 27 Imperial gallons. Half barrels are permitted, if made of the legal size. Under the permission granted as to the use of certain soft woods for herring barrels, the fishery officers in some places found that they had to deal with a new offence. They found, with reference to the soft wood barrels, that staves and headings were made so thick as to interfere with the capacity of the barrel, and so reduce the quantity of fish which the barrels should contain. Seizures were made and barrels confiscated, because of these attempts to impose upon the purchaser. The matter was discussed in the press and brought up in Parliament in August last (1889), when the Government promised to bring in a Bill next Session regulating the herring barrel, and establishing a fixed standard for the same. Hitherto, this has not been done, the regulations referring only to the minimum size. The maximum size had not been fixed. While the law, according to Mr. Mitchell, has been that a barrel of herring for home consumption should not be less than 235 pounds, exclusive of salt, and for export to the European markets not less than 224 pounds, as a matter of fact some barrels contain 260 to 275 pounds of fish and salt. The weight of a barrel of herrings will vary, if properly packed, because one class of herrings differs from another class. This was tested while we were in Scotland, the "Crown Full" proving the heaviest, and the "Spents" the lightest, "Matties" and "Fulls" being intermediate. The difference in weight ran from 15 to 25 or 30 pounds per barrel.

In his reply to questions sent out in 1869, already referred to, Mr. Gordon, of Pictou, a practical and intelligent Scotch herring cooper, at one time says:—"That herring barrels should be made of white ash, elm, maple, yellow birch, clear of sap and heart, and that hacmatac or the Norway larch is used by Scotch curers." He prefers oak where it can be had, and holds that hardwood staves retain the pickle without "souring" it. Mr. Mitchell, of Scotland, in his book, in one of his suggestions for the improvement of the herring fishing, says:—"Encouragement should be given to the fish curers to cure the herring in oaken barrels; the Dutch do not generally use any other. We are of opinion that oak is not only, for its strength and retentive qualities, the best suited for the purpose, but that there is also a preservative quality in this wood, and that it moreover imparts a pleasant flavor to the herring."

THE CANADIAN HERRING BARRELS.

In order to have the opinion of competent experts in Scotland, as to the sufficiency of our Canadian herring barrels, we took with us a new barrel from Halifax—a barrel of average make—neither the very best nor the very worst. The barrel

was exhibited publicly in the principal business street of the town of Wick, and the "Monthly Herring Circular," published at the office of *The Northern Ensign* newspaper of August 31, 1889, gives its opinion of the barrel as follows:—

"We have seen the sample herring barrel brought over to this country by the Canadian delegates who are here enquiring into the different modes of curing herring. If this barrel is a fair specimen of barrel manufacturing in the Dominion of Canada, there is certainly room for improvement. It is a rougher article of the kind than Scotch coopers put through their hands, and it is also less substantial than the average Scotch herring barrels. The Canadian gentlemen would do well to take back with them a sample of the work done at one of the Wick cooperages, and the coopers in Canada will then be able to compare notes, and see wherein they fall short of their brother handicraftsmen in the Old Country."

Since the above was written the Canadian barrel has been examined by experienced fish curers and coopers. While admitting that the workmanship of the barrel is passably fair, with the exception of the hoops, the hoop knots of which are too short, and therefore apt to spring asunder, and while they consider the barrel sufficient to contain herrings on the spot where packed, they all consider it too light and too weak for purposes of transportation, especially by railways or other modes of conveyance where all kinds of freight are very roughly handled. They consider the staves altogether too thin, and the hoops too few, there being only 4 hoops at each end and 3 hoops on each quarter, 14 hoops in all; while on the Scotch or British barrel there are 11 hoops on the bottom end, 4 on the upper quarter and 4 on the upper end, being 23 hoops in all; or where the iron hoop is adopted, the iron hoop standing for the upper 4, 19 hoops in all.

HERRINGS IN SMALL PACKAGES.

The Germans and Dutch—the Dutch especially—have for some years been doing quite a large and lucrative business in herrings re-packed from the large barrels, put up in packages of small size, which are sold under the name of Dutch herring. Considerable quantities of these are consumed on the continent of Europe, and large quantities are exported to the United States, where they command a ready sale and good prices. The herring chiefly used for this business are the best brands of the Scotch-cured herring, the "Crown Fulls" and "Fulls." Stettin imports principally from the north and east coast of Scotland—the west coast herring nearly all go to Hamburgh and Holland. The Germans re-pack chiefly into half barrels and quarter barrels, there being a great demand in Germany for packages of that size for family use. The packages used for this purpose are of substantial make, having nothing of a fancy appearance. The Dutch re-pack into neat, fancy looking packages, chiefly of one-eighth and one-sixteenth of a barrel. The Germans re-pack the fish as they come out of the barrels; the Dutch separate the fish—the male or milt fish from the female or roe fish—putting the roe fish into one keg and the milt fish into another. The milt fish retails at 25 cents more than the roe fish, and the white hooped keg retails at 25 cents more than the dark hooped keg. In re-packing, the original brine from the original barrel is used for the small kegs, and should there be a deficiency it is made up with new brine; but the new brine should be used as sparingly as possible, as it hardens the fish and takes away much of the natural flavor of the herring. The dark hoops are hoops with the bark on; the white hoops are hoops made of the white or yellow cultivated willow, which is extensively cultivated in Europe for basket-making, fancy hoops, &c., with the bark peeled off. The smaller kegs are principally machine-made, and are sold very cheap.

Successful attempts have been made in England and Scotland to put up herrings in this way for the American market, but it was found that the Dutch had secured such a footing in that market that some effort would be necessary to push the British article. The business was not pushed and it died out. This season (1889) a leading fish curer in Wick has decided to engage in this branch of the herring business, and for this purpose imported many thousand small kegs, one-eighths and one sixteenths, from Holland. He had them brought over by a ship in ballast, at a

low rate of freight, on condition that he would give the ship a return load of Scotch herring.

The total quantity of herring imported into Germany annually is about 400,000 barrels. Of this quantity about 200,000 barrels are imported into Stettin, and the export of herring from Germany to the United States is about 40,000 barrels. The exact imports of herring into Holland we could not exactly ascertain but, as already stated, the Dutch import considerable quantities from Scotland, and catch large quantities of herring themselves. They export largely to the United States, principally, we understand, in small packages, and probably about as much as Germany, or more. These small Dutch kegs of herrings—white and dark hoop, separated milt or roe fish—are now imported from New York into Canada, at Montreal, Que., and Berlin, Ont., and are much in demand wherever anything is known of them. In the latter town they are much sought after by the well-to-do Germans of Waterloo County. There is no mystery in this branch of the herring business.

Knowledge which comes by observation and experience, together with experience, and common sense and good judgment, are required. In order to establish and to maintain a good character for the fish thus put up, special care and attention must be given that the fish taken to fill up these kegs with is of the best quality—that the re-packing is carefully and properly done—that the fish has been properly seasoned and "pined," and that in re-packing the fish should be as little exposed to the atmosphere as possible—that is, as soon as a barrel of herring has been opened it should be re-packed into the kegs with all possible expedition—so as to avoid any action by the atmosphere on the contents while exposed. The herring taken to fill these small kegs should be at least several weeks old, and also it should be seen that no inferior or bruised herring should be used.

We were informed in Stettin that there is a great demand in Germany for herrings put up in half barrels and quarter barrels, for family use, and that the the sale of herring in that country is very materially increased by having much of the Scotch herring put up in that way. We ascertained that, in reference to these small packages, much diversity of opinion exists among dealers in various countries and localities as to the most convenient and most desirable sizes. Some localities preferring one size, some another. It is considered prudent by those who think of entering into the business to find out, by enquiry, the sizes preferred in different places or by different dealers, and as nearly as possible to meet their wishes. In Britain the arrangements by the dealers from the largest wholesale dealer to the smallest huckster, are very complete, and the distribution is made expeditiously and perfectly. Each retailer has his regular customers, can tell to a nicety how much fish he requires, which is dealt out to him promptly by the middlemen, who purchase from the large dealers. In this way the public are promptly supplied, and very little fish is ever lost.

BLOATERS.

Although we arrived in Yarmouth out of the fishing season, and had not therefore an opportunity there of personally observing the various processes of manufacturing bloaters, yet from several reliable sources we procurred all necessary information on the subject, and afterwards in Scotland we had the opportunity of seeing the process, as carried out in the curing house of one of the largest curing firms in Britain. Yarmouth is the great centre of the bloater manufacture in Britain, not only as to quantity but also as to quality. Although excellent bloaters are put up in many other localities, the Yarmouth bloaters seem to be the favorite bloaters in the London market. We saw large quantities of bloaters in Billingsgate market, London, manufactured in Lowestoft, Shields and other towns in England. In fact the bloater branch of the great herring industry is a very extensive business. The number of bloater manufacturers in Yarmouth alone is very great, and all find a ready market for their goods, although a few are said to excel, and for whose bloaters there is always an active demand by the first fish dealers of London.

Yarmouth possesses one great advantage over many other localities in the bloater line, because the quality of the herring taken by the fishermen of that place in October and November is exactly adapted for the manufacture of bloaters, and no doubt the season of the year, the weather being then cold, is also favorable to this branch of the business.

One of the best bloater curers in Yarmouth informed us that one reason why his fish stood so high in the market was, that he was always very careful, in the first place, to select the very best fish for the manufacture of bloaters, reserving for other purpose all inferior and unsuitable fish. Then he is very careful in salting, curing and smoking them. We saw in the fish stores in Yarmouth, also on Billingsgate market in London, and on the tables in the hotels, a bloater very slightly salted, and smoked so slightly that there was no discoloration at all of the herring. This bloater so prepared is a most delicious fish. It is prepared in this way for immediate use in the nearest cities, towns and country places, and will only keep some three or four days. Other classes of bloaters, intended for consumption at greater distances, and therefore designed to keep longer, are more highly salted, smoked in various grades. The bloaters we saw were fairly fat, but very fat herring will not do for bloaters. Bloaters are salted in heaps on the stone floors of the warehouses—some for a few hours, some for one or two days or more. They are never so highly smoked as the mildest red herring. There is no difficulty in manufacturing bloaters. All that is required is intelligence, good judgment, quick observation, and honesty of purpose, together with a knowledge of the tastes of the consumers; and also whether the fish is required for immediate use near by or for exportation to places at a distance. The gentleman who gave us so much information said that first of all he required to know exactly the kind of bloater required, and that he then did his best to supply the article. When the herring have been quite sufficiently salted they are then washed clean on the outside, but are not opened, gibbed or gutted. They are then strung on rods and hung up to drip and dry, and then smoked. The fuel preferred in Britain for smoking purposes is the sawdust, or the waste from the turning lathe of birch, although oak and elm are sometimes used. All agreed that the birch made the sweetest smoke. The white bloaters put up for immediate use are packed in neat, light boxes containing 50 herrings each. Those more highly salted and smoked, are put up in larger packages. The bloaters we saw were considerably smaller than our own herring; they are deep from back to belly, and are an excellent fish. Too much attention cannot be given to the selection of the herring used for bloaters and to the respective curing processes. The excellence of any particular curer's bloaters does not arise from any special mode of curing, but from special care and attention, together with that practical knowledge which close observation and experience alone can confer. At the hotel the bloaters were opened and split from the belly to the back bone, the gills, gut and stomach taken out, and the herring, without being washed, cooked with the milt and the roe. The roe furnishes pleasant eating.

In the case of bloaters for immediate use, the herring may be put immediately after being landed and selected, into a strong pickle from six to eight hours. They are then put on the spits, and washed by dipping in large tubs of salt water or very weak brine, and then hung up in the smoke house. The fires should have been burning previously, therefore emitting only a slight smoke. A few hours—six to ten—in the smoke room will suffice. They should be cooled off before being packed for the market.

The bloater business in Britain is simply enormous, and uses up an immense amount of herrings, thus greatly benefitting the fishermen and the curers, who realize at once on this branch of the herring industry, while the public are supplied with herring in an agreeable and popular form.

RED HERRINGS.

There is not so much activity in this branch of the herring industry, either in Britain or Canada, as formerly. The cause of this is said to be want of inspection and great negligence and want of care in curing and packing the fish. We were

informed that the shipment from Canada to Britain of inferior smoked herrings did great injury to this trade.

Mr. Mitchell, in his book, treating of the trade in red herrings in Britain, says :—

" The trade in red herrings was formerly much more considerable that it now (1864) is; at almost all the principal fishing stations large buildings were erected for the purpose ; but excepting at Yarmouth, the trade has diminished considerably. This may be attributed to there being no legislative enactments applied to the curing and preparation of red herrings, in the same manner as applied to the curing of British white herrings. The consequence has been that the purchaser can have no confidence in the quality of the herrings nor in the size of the barrels, and therefore merchants at home and abroad do not purchase cargoes as merchandise; and the curers, as is the practice at Yarmouth, must export the red herrings not used in this country to forign countries for sale on their own account.

" In explanation of the preceding remarks, we have to quote an extract of a letter from a house which ventured to purchase a cargo of herrings, to prove that neither respectable names, nor even a judicious selecter, can guarantee the merchant who buys, that the article intended to be bought has been purchased :—

" ' We think it fair to admit that we are thoroughly persuaded, although we are strong advocates for free trade when it can be properly carried out, that the curing and preparing of herrings is of such a complicated nature that without the superintendence and care of the fishery officer, mercantile transactions could not be carried on safely to any considerable extent, and we shall give you an exact account of our dear-bought experience to prove this.

" ' We sent one of our fast sailing coppered schooners to one of the principal places for red herrings to load a cargo purchased by us. One of ourselves went and examined the different kinds of red herrings for sale in the hands of the most respectable curers. He saw many casks opened, and thought he had bought the quality necessary ; but to make assurance doubly sure, we engaged two of the leadings agents at two neighboring ports to examine the parcels purchased, at shipment, so that error or fraud might be prevented.

" ' The captain, a most intelligent man, was also acquainted with the qualities of red herrings, and to him we confided the shipment for sale. He went to sell his herrings, and when he began to deliver them to the buyers it was found that the barrels generally contained a better kind on the top ; that refuse qualities were in the middle ; and, although we bought the whole cargo as well-packed barrels of ' Full ' herrings, the barrels when emptied out by the buyers were found to be very inferior, to our serious loss, namely, part of the herrings were not properly cured, and part of them were ' Shotten ' or ' Spent ' herrings. From that time we resolved neither to buy red herrings for ourselves nor to take the responsibility to buy them for our correspondents abroad, and we do not know any one who would do so who knows the trade. We attribute the inferiority of the quality partly to the reckless conduct of the servants of these curers, who really sold a fraudulent article ; and until the fishery laws are extended to the curing of red herrings we do not think this trade will flourish.'

"We think it right, " Mr. Mitchell says, " to quote this letter, and to remark, that if such difficulties arise as to making red herrings a staple article, which can be, comparately speaking, easily examined in the barrels, how much more difficult it would be, if our British white herring trade (the barrels with the herring lying in salt and pickle) were left to the frauds, blunders and ignorance of curers. We admit that the name of the honest curer might go far to secure quality in some cases, but there are so many circumstances connected with curing herrings that we do not know any security sufficiently strong in the most honest curer that would guarantee to the buyer that perfection of quality which is obtainable by our fishery laws."

It is quite possible and very probable that the red herring industry has suffered from due regard not having been given to the selection of the fish used for this purpose, and it may be that fish rejected for bloaters may in many cases have been used for red herring. If so, then this has been a great mistake. Sound, rejected herring,

if used at all, should be utilized as pickled herring and sold for what they really are, but all unsound, sickly or bruised fish should be thrown away. In order to retain the red or smoked herring trade, just as much care and pains are necessary as in the case of bloaters. In addition to carelessness in the selection of the fish, the red herring industry has also suffered from careless washing of the fish, and the use of too much salt, heat and smoke. As has been remarked in the case of bloaters, herring should be prepared with a view to meet the different tastes of the consumers in the respective markets to which red herring are exported. Care should also be taken to have the fish properly packed, and properly cooled off before they are packed.

The fish curer who gave us so much information in Yarmouth informed us that he had been recently opening up a trade with some parts of Italy in the red herring line, and that the demand in some places there is for a herring smoked to the color of a sovereign or other coin of gold, whilst in some places they require them to be pretty well browned, and in other places they will have them nearly black. All these matters of detail are important, and will be attended to by the intelligent, enterprising curer and dealer.

Herring intended for smoking may be salted either in heaps on the floor in dry salt, or in vats in pickle, for periods of one, two or three days. They are then put on the spits, round pieces of wood capable of holding about 20 herrings run through the mouth and gills of the fish, they are then washed in large, square boxes or vats, wide enough to admit of the two ends of the spit resting on each side of the vat. They are then hung up to drip and dry for a day in the open air, or in the smoke-house before the fire is applied. Herring for home consumption are smoked from ten to twelve days, and herring for exportation are smoked from fourteen or fifteen to twenty or twenty-one days. The extent of the heat and the amount of the smoke are regulated with a view to the color desired for the fish. It is said that herrings can be given a bright yellow color by the use of oak sawdust, after the fish have been smoked for some time with smoke from other wood.

The statistical return shows a very heavy falling off, in 1888, in the exportation of smoked herring from Canada, as compared with 1887.

KIPPERED HERRING.

There is a very large business done in kippered herring in Britain. Herring put up in this way are in great demand everywhere, and are preferred by many to the bloater. The very best herring are required for the kippering process. The herring of the west coast of Scotland are in great request for this purpose. The fish used for kippers should be had as soon as possible after they are taken out of the water. They are then carefully selected as to size and quality. Where we saw them at work an active girl stood at a bench laying the herring on its side with the back towards her; with two cuts of a sharp knife she split it from mouth to tail, and with a third motion of the knife she scraped out the stomach and gut, and any loose blood inside the fish. She did her work with great rapidity. The herring were then placed carefully into vats of pickle, where, being for immediate use, they remained for 35 minutes, then carefully taken out and placed in baskets to drip. They were then spitted on fine rods, containing from 12 to 20 herrings each, and hung up in the smoke-house and smoked for a few hours—5 or 6—then cooled off and packed up in small boxes and dispatched to London by train before midnight of the day on which the fish were caught. When the fish are intended to be kept longer more salt and more smoke are applied. Where circumstances are favorable kippering may be carried on to advantage either on a larger or smaller scale. Herring put up in this way are most delicious. They cost a trifle more because of the extra labor and the greater care requisite in handling them. The same materials are used for smoking kippers as are used for smoking bloaters, and the same conditions apply, only that kippers, presenting a larger surface to the smoke, as they do, do not require to be so long exposed to the smoke. As in the case of bloaters and red herring, the tastes of the consumers must be ascertained, and the curing as to salt and smoke regulated accordingly. The manufacture of kippers is

greatly on the increase in Britain. It is an important branch of the herring industry, and utilizes a large proportion of the British catch of herrings.

INSPECTION.

From sundry incidental allusions and references in the foregoing pages it will be seen that much importance is attached to the twin subjects of inspection and brands by able men, competent to judge, who have devoted much attention to the whole question of the herring industry, and whose opinions, founded on practical experience, are entitled to favorable consideration.

From what follows it will clearly appear that a very large number of those most conversant with our own herring fisheries, and the great importance of the herring trade of the Dominion, fishermen, fish merchants, fishery inspectors and overseers, master mariners, collectors of Customs and others, were strongly in favor of a system of inspection thorough, impartial and reliable, and that the same should be compulsory.

One of the questions sent out by the Committee of the House of Commons in 1869 was in the words following:—

Question—"Is an inspection of fish necessary, and should it be compulsory or otherwise?"

In his answer to that question, *D. Thompson, M.P., Haldimand, Ont*; says:—
"Inspection is very necessary."

C. E. Anderson, Merchant, Toronto:

"In the western part of the Province, I speak particularly of Toronto, the present mode of inspection is looked upon as of little or no value, and no guarantee of quantity, I cite an instance: About a month ago I had on sale in Toronto, from Quebec, 200 barrels No. 1 herring, worth in Quebec $6 to $7 per barrel. I offered them to the dealers in Toronto at $4 per barrel in Quebec, and would have taken $3½, but could not get a bid, the cause alleged being that they could not depend on the curing or inspection, and that ten chances to one they would have to throw them all into Lake Ontario, as was the case almost every season in Toronto with many dealers. If inspection was compulsory, it would have a most beneficial effect on this most valuable branch of industry, especially in Ontario."

Mr. Dumaresq, Merchant, Gaspé Basin:

"In my opinion it is necessary that all kinds of fish should be inspected, more especially all pickled fish, and that all fish arriving at any market without having been first inspected should be inspected at the expense of the owner. This would remedy the great evil of having so much bad and inferior fish in the Canadian markets, from the Gulf ports, not only bad in quality but short in weight. I have known fish shipped to Quebec that was only fit for manure. Had that fish been inspected before being shipped it would have been rejected; or had it been inspected on arrival in Quebec it would have been confiscated. Compelling the shipper (or owner) to have fish inspected either before shipping or on arrival would be the means of preventing bad and inferior fish being shipped. Only practical men should be employed as inspectors."

P. Enright, Fisherman, and others, Gaspé Bay:

"The inspection of fish of all kinds would be very necessary and beneficial to the fishermen."

Mr. La Parelle, Merchant, Cape Cove, Gaspé:

"The inspection in Quebec should, in my opinion, be rigidly attended to, especially of green and pickled fish, which is put up in such a slovenly manner by many parties on the coast that it must disgust purchasers, reduce consumption and eventually ruin the market."

Mr. Baudin, Grand River, Gaspé, Fisherman:

"Inspection is necessary and should be compulsory. The inspector should continue on the ground and maintain immediate superintendence."

Mr. Stors, Merchant, Gaspé:

"Inspection of pickled fish is necessary, and should be compulsory."

Mr, Price, Fisherman and Farmer, Little Gaspé:

"Inspection necessary and should be compulsory."

Mr. Chiasson, Fisherman, Magdalen Islands:

"Inspection is, perhaps, required, but should not be compulsory."

Mr. Cormier, Trader and Farmer, Amherst:

"Inspection may be necessary without being compulsory. In the latter case it might be liable to abuse. The inspectors might be partial, or trade in fish themselves."

Mr. Grenier, Municipal Councillor, New Port, Gaspe:

"The inspection of fish is absolutely necessary, and should be compulsory. Great advantage would consequently accrue to the fisherman in the sale of his fish."

C. C. Fox, Collector, Gaspe Basin:

"A compulsory inspection of all pickled fish exported is absolutely necessary if the Government wish to develope an important branch of foreign trade, and for the security of consumers the same measure is necessary in the home markets.

"I have seen the pickled fish of the Maritime Provinces, the United States and that prepared at Wick, in Scotland, and I have no hesitation in saying that that put up in the Province of Quebec is the worst of all; badly salted, badly cleaned, badly pickled, badly barrelled and almost invariably short of weight. In the Magdalen Islands, where between 100,000 and 200,000 barrels of herring and a large quantity of mackerel are annually taken, I have seen herring taken from the same seine, by Magdalen Island and Nova Scotian fishermen, and some months later I have seen the same fish sold in Halifax, when that put by the Magdalen Island fishermen brought about 50 per cent. less than the other, solely from the difference in curing. Nova Scotian herring and mackerel are advertised and fetch a higher price in Quebec and Ontario than those cured by the Quebec fishermen, although the mackerel are from the Gulf and the herring from Labrador and New foundland; because for some time there was a compulsory in spection of pickled fish in Nova Scotia, and although the law was repealed several years ago (contrary to the opinion of many good judges), *the people had acquired the habit of making good fish.*

"All pickled fish is prepared by the fishermen themselves; you cannot see what the barrel contains, and the system of large advances in vogue in the fishing districts induces the merchants to take gladly anything he can get to help liquidate his debt, without being particular as to quality.

"The inspection should be compulsory, because fishermen, as a class, have but little ambition or foresight. Self-interest is but a feeble influence with them, and although they know that better fish would command a higher price, ninety-nine out of a hundred would prefer a small profit and little trouble to greater care and a larger return. At the same time, it cannot be too strongly insisted upon that if inspection is to produce a proper effect the salary attached to the office of inspector must be high enough to induce competent men to fill it. Under the Fishery Act of the late Province of Canada all fish taken by licensed vessels was inspected. But how? In the Magdalen Islands the inspector very properly inspected and weighed each barrel. The consequence was that many refused to have their fish inspected by him preferring to take it to Quebec, where, they said, by paying a small fee, the inspector

would open three or four barrels, and then give them a certificate for the whole. I know another inspector in this district whom no merchant would consider competent to cure his fish, and who never saw any but the miserable fish put up on this coast, and I have known him (a sworn inspector) to give certificates of the quantity and quality of fish *that he had never seen* or been within twelve miles of."

J. W. J. Fox, Collector, Magdalen Islands:

"I do not think an inspection of fish necessary at the places where the fish are caught, unless they are to be exported to a foreign market; but an inspection of fish is very necessary and should be compulsory in the ports of the Dominion on importations for consumption or foreign market."

Mr. Riverin, Fisherman, Malbaie:

"Inspection of fish is necessary, but if compulsory would sometimes be productive of injury."

Mr. Bonique, Merchant, and others, Grindstone Island, Etang du Nord:

"Inspection necessary, and should be compulsory."

Mr. Sirois, Merchant, L'Islet:

"The inspection of fish is most essential, and should be obligatory, but the inspector should be fully competent to discharge his duties."

Mayor Painchaud, of Magdalen Islands, Amherst:

"Inspection should be compulsory. The question is where it should take place? I say in the place where the fish is taken and sold in the first instance."

Mr. Whalen, Fisherman, Gaspé:

"Inspection necessary, and should be compulsory."

Mr. Dimock, Farmer, Bonaventure:

"I would say, in order to bring our Bay of Chaleurs herrings into good repute, a compulsory inspection is necessary."

Quebec Board of Trade:

"We are strongly of opinion that the compulsory inspection of fish and oil is a necessity, and have frequently urged the Government to enact such a law."

Hon. J. Ferguson, Senator, Bathurst:

"Inspection absolutely necessary and should be compulsory."

Mr. Mathews—Letête, Charlotte Co.—Fisherman:

"I believe the inspection of fish is necessary and should be compulsory, as it would prevent the sale of a great quantity of poorly cured fish, the sale of which has a tendency to injure the reputation of those who might be innocent of carelessness in this respect."

Mr. Heney, Fisherman, Deer Island, Charlotte:

"The inspection of all kinds of fish is necessary and should be compulsory. All parties who put up pickled fish of any description should have the owner's name on each package before selling; and when the inspector inspects them, he should put the brand on them of the quality they are, and his name. There is a great deal of fraud practised in putting up pickled fish of every description. Smoked herring should also be marked and branded in the same way, as there is a great deal of fraud in putting up smoked fish as well as pickled. Both pickled and smoked fish are often sold as good and merchantable, when in reality quite unfit for use."

J. and S. Leonard, Fishermen, Deer Island, Charlotte:

"Inspection is necessary, and should be compulsory."

D. W. Stewart, Collector, Dalhousie:

"Inspection might tend to establish a character for excellence that would be desirable, but if attended with heavy cost would prove an annoyance and tax on the trade."

Collector Robertson, Moncton; Collector, Hickman, Dorchester; Messrs. Cormier and Bourgeois, Fishermen, Cocagne:

"Inspection necessary, and should be compulsory."

Messrs. Snell, Light-keeper, Campo Bello; Tory, Fisherman, Guysboro'; Challoner, Aspy Bay, Sidney, Fisherman; Huston, Liscombe, Guysboro'; Fisherman, and Pride, St. Mary's River, Fisherman:

"Inspection necessary, and should be compulsory."

Collector Perry, Beaver River:

"I think inspection of pickled fish necessary, and should be compulsory, as our local inspectors seldom act."

Collector De Wolf, Horton:

"Doubtless fish exported would sell better if inspected."

Collector Thurber, Freeport:

"Inspection necessary, but should not be compulsory."

Mr. Gordon, Pictou:

"Inspection should be compulsory for exportation and the home market."

Mr. Wylde, Merchant, Port Mulgrave:

"Fish should be classed and inspected. Inspection should be compulsory."

A. M. Rudolph, Harbor Master, Montreal:

"Inspection necessary and should be compulsory."

M. McDonald, Collector, Port Hawkesbury:

"Inspection necessary, and should be compulsory."

Collector Ross, Port Margaree:

"Inspection necessary, and should be compulsory."

Collector Sargent, Barrington:

"I think a strict inspection necessary, and it should be compulsory."

Collector McNeill, Kelly's Cove; and Mr. Bell, Shipmaster, La Have:

"I think inspection necessary, and should be compulsory."

S. T. N. Sellon, Fishery Officer, Liverpool, N.S.:

"An inspection is necessary to give confidence in a foreign market, and should be compulsory."

Mr. Starr, Fisherman, Cornwallis:

"I consider an inspection of fish highly desirable, and it should be made compulsory, in order to prevent an inferior article from injuring the sale of our fish."

Mr. Ross, Merchant, St. Ann's, Victoria:

"Inspection law to be generally useful should be compulsory."

Collector McAulay, St. Ann's, Victoria:

"Inspection is generally useful, causing fishermen to cure their fish in a better manner."

Of some 70 answers made to Question No. 6, in 1869, as to the necessity of inspection, only eight replied in the negative. Two replied contingently, not considering inspection necessary in their own immediate localities.

One gentleman says that the inspection should be made by the present fishery officers of the Dominion.

Another says that inspection would be very beneficial to the fishermen, provided the Government would pay the expense; otherwise, it would only crush them closer to the ground.

(The fee for inspection and branding in Scotland is 4 pence sterling, or 7 cents, per barrel, which has to be paid beforehand by the fish curer, who has to give notice of the number of barrels of herring ready for inspection and branding, and to deposit the amount. Should any of the number be rejected, the fee for such is refunded. The inspection and branding is performed by an officer of the Fishery Board of Scotland, who has to affix his name with the brand, and who is held responsible for his work).

Another, who considers inspection unnecessary says, that "the purchaser should be his own inspector, and that if incompetent, he should not engage in the trade."

(This does not seem reasonable or business-like. On mercantile grounds, the seller and purchaser should know what is being sold and bought. There is reason, however, to believe that many dealers act loosely in the matter of the sale and purchase of fish, and provided that there be a fair margin of profit the dealer is too often indifferent as to the quality. Were the case otherwise, and inspection compulsory in the first instance, there could not be a possibility of so much fish unfit for use reaching Quebec and Toronto as is stated in some of the answers to have been the case).

Another says:—"Inspection is not necessary, the fish being generally inspected on arrival in Quebec."

Another says that "the proper place to inspect is where the fish are caught, packed and sold in the first instance."

Another, who does not consider inspection necessary, considers that where the fishing grounds are so far from each other inspection would entail too much expense on the fishermen, and would therefore effect but little good.

Another, who considers inspection unnecessary, seems to arrive at this conclusion from the fact, as stated by him, that the inspectors are annually appointed by the General Sessions, and are, apparently, therefore, seldom called upon to act.

(If the officers were appointed by the Government this objection would have no force).

Another says, that "an inspection of fish is useless, as at present parties buy on the character of the seller, and generally examine a few barrels of the fish; that when an inspection law was in operation it was of no benefit, as no one would buy on the brand, as no confidence could be placed in it, and that frauds were practised to an immense extent under cover of inspection."

These answers and extracts show most conclusively the necessity of inspection, and of having the same performed by competent Government officers—and the necessity of having the inspection made where the fish are caught and cured—such inspectors being prohibited from trafficking in herring, and to be responsible for their work.

If inspectors could grant certificates of inspection for fish they never saw, and were never within 12 miles of, it is not to be wondered at that inspection has been held to be of no value, either as to quantity or quality.

The foregoing answers also show a very general and intelligent appreciation of the disadvantages under which the herring industry of the Maritime Provinces of the Dominion labored in 1869, in consequence of the absence of an inspection law for pickled herring, and a very widespread desire that this condition of things, still existing in 1889, should be remedied.

Towards the end of the 18th century, notwithstanding that much had been done in the way of legislation and bounties to stimulate and encourage the herring industry in Scotland, a careless negligence and indifference seem to have prevailed among the fish curers of that country. The Dutch were masters in the herring markets of the continent of Europe. Treating of that period, and after fully discussing the different modes or making salt, and comparing the Dutch herring laws with our own then existing laws, the Earl of Dundonald, in his able pamphlet "On the Manufacture of Salt, and on the Herring Fisheries," published in 1784, says:—

"The Dutch, in supplying the different markets, seem to pay attention to the condition the fish are in, to the purity and size of the salt, and to the season of the year. No such attention is paid in Britain; the season of the year, the condition the fish are in and the purity of the salt are all disregarded, and as the saying is, 'all is fish that comes to our nets,' and this will always be the case until proper regulations be made and strictly enforced."

Remarking on this, Mr. Mitchell says:—

"The wisdom of these remarks has been fully proved and established. Wise and salutary laws and regulations having been made and strictly enforced under the directions of a Board of gentlemen acting gratuitously, with practical men as inspectors on the spot, watching that the abundant supply of wholesome food shall be properly cured and packed in sufficient barrels; and thus the ignorant or dishonest curer is prevented from destroying his own trade and profit, and made to prepare the herrings in the best and most scientific manner."

The British Fishery Board was established in 1809. Subsequently a branch of this Board was established in Scotland, under the name of the Fishery Board of Scotland. This Board has done good work, it has an intelligent, active and experienced body of men, general and local inspectors and local fishery officers, thoroughly conversant with the duties devolving upon them, all capable and competent men. These are the officers to whom are entrusted the duties of inspection and branding in Scotland, and their entire honesty and impartiality have never been questioned.

Of this Board, the Commission appointed by the British Government, in 1878, to enquire into the herring fishing industry in Scotland, consisting of the late Mr. Frank Buckland, Spencer Walpole and Archibald Young, already referred to, in their report, thus speak:—

"The Scotch herring fisheries have for nearly 70 years been regulated by the British Board and the Fishery Board for Scotland. These Boards have exercised an important and beneficial influence upon the herring fishery of Scotland. In its carefully prepared annual reports it has accumulated a mass of accurate statistics relating to every point connected with that fishery, and it has trained up a body of officers of remarkable intelligence and energy to carry out the various duties of the Board at the different fishing stations in Scotland.

"The duties of the Board are to give clearances to herring fishery vessels going to sea; to receive notices from fish curers on shore of their intention to cure; to examine the measures for the delivery of fresh herrings as between buyer and seller, and the size of the barrel for cured herrings; to ascertain the quality of the cure; to brand the herrings accordingly, and to collect the branding fees; to attend to the exportation of the fish and inspect the exports, to see that they are in proper order; to maintain order on the fishing grounds, and to carry out the regulations for naming and numbering boats and their sails; to receive and restore lost fishing property; to build fishery piers and harbors, and to furnish returns and statistics of the herring fisheries in Scotland."

Between 1784 and 1857 the Scotch had outstripped the Dutch in the curing and packing of herring, and gained the ascendancy in the European markets, on account

of the improved quality of the Scotch-cured herrings. But in 1857 the Dutch established a Board similar to the Fishery Board of Scotland, and the Dutch Government then determined to take active measures to restore so important an industry, and what they did was to adopt, to a great extent, the regulations of the Fishery Board of Scotland. They constituted a Herring Fishery Board, composed of nine members, and introduced a system of inspection, and of marks or brands.

As the brand is so inseparably connected with the inspection of herring, we will now proceed to consider

THE BRAND AND ITS VALUE.

In some parts of Scotland we found that many of the fish curers labor under the disadvantage of having no sheds or shelter under which to protect the fresh fish from the sun, wind and rain, or to protect the herring in the barrels prior to and after inspection and branding. It must be evident to every one conversant with the injurious effects of the sun on all kinds of animal products exposed to its action, how detrimental to the herring it must be to have the barrels exposed for hours in the shallow vats while delivery is going on, and before the gutting commences, and afterwards to have the herring in the barrels, subsequent to inspection, exposed for weeks or months on the docks and quays without a particle of shade or shelter. We were not, therefore, greatly surprised to find in Stettin, the great continental market for Scotch herrings, that in some instances the Scotch brand was disregarded, while the herring of curers whose gutting, curing and packing we knew to have been done altogether under cover, and their herring in barrels afterwards stored in like manner, and without brand, pass unchallenged by the Stettin dealers, on the strength of the name and established character of the curers alone.

In Fraserburgh, Scotland, the whole process of delivery, gutting, curing, packing and storing is done under ample sheds, substantially built and slate-covered. In the herring curing yards of Messrs. Bruce & Co., and other herring curers in that town, we found the curing processes carried out to perfection, and all appliances complete. The house of Bruce & Co. was established about 70 years ago. They took the first prize, a valuable gold medal, for the best cured herrings at the great Fish Exhibition held in Berlin, Germany, in 1880. Accompanied by Mr. Melville, the local fishery officer, we were kindly shown over the whole premises by Mr. Bruce, who had his coopers unhead numerous barrels of packed herrings, at alternate ends, in order to give us the back view of the fish in the one end, and the belly view in the other. The character of this firm and a number of other fish-curing firms, and the excellence of their fish, are so well established and so universally known on the continental markets that they no longer have their herring branded, but sell freely on the reputation attaching to their own name.

One great advantage in Britain of having good sheds is that in calm weather, and when the boats have a long way to come from the fishing grounds, and the delivery of fish takes place late in the day, the gutting girls can at once go to work, gutting and packing all night by gas light, instead of letting the fish remain over until morning, to the great detriment of the quality and flavor of the herring.

It requires, however, great experience and practical knowledge of the whole business to enable a fish curer to dispense with the brand, and the degree of excellence in the art of curing necessary to beget this confidence in the name and reputation of any firm can only be attained under the operation of a law compelling inspection and branding. The history of the rivalry between the Dutch and the Scotch for supremacy in the herring markets of Europe abundantly proves this, as we have seen. In 1784 the Dutch were ahead of the Scotch. By the adoption of a rigid law of inspection the Scotch got ahead of the Dutch. In 1857 the Dutch adopted the system of the Fishery Board of Scotland and its regulations, and by stricter attention to details in curing and packing, under their law of inspection and brand, the Dutch are again, but only in a general way, ahead of the Scotch, because a very large proportion of Scotch-cured herring are as eagerly sought after in the markets of the continent as the very best Dutch-cured herring.

In common with all important measures of a national character, the brand has, from time to time, been attacked but the result of discussion and experience has been to re-establish the inspection and brand, as related to the herring industry more firmly than ever. We here repeat what in his historical sketch of the herring industry in Scotland Mr. Mitchell says: "The increase of the herring fishery depends very much on the demand for exportation, and this demand requires to be carefully cultivated, not merely by the curers, who may be viewed as the manufacturers of the goods, but by the Government, which, by impartial and just legislation, protects the interests of the fisherman, the consumers at home and the merchants and consumers abroad. That there was an abundance of herring on the Scottish coasts was known for centuries past; but when considerable quantities of them appeared they were of little remunerative value when caught, because the demand was limited to the mere local consumption. Before the specific and legalized size and quality of the manufactured article—the barrel of well-cured herring—could be obtained as goods for commercial purposes, a merchant abroad could not buy herring in Scotland, there having been no legal, distinct, specific form and quality. The curer might say, "My barrels are of every size, and various in quality and price;" but the foreigner could not order nor buy such goods, and he therefore bought herrings which were of legalized size and good quality elsewhere; and although he paid a high price, he obtained what he wished in Holland and other countries; and these countries are ready to supply any quantity if Scotland should be unable to do so.

"Before a proper system of legislation was adopted in this country, and even for some time after the system was introduced, the demand from abroad was inconsiderable; but confidence having been given from years of experience, and the trade based on a solid foundation, under legal enactments fixing measure and quality, the business progresses and bids fair every year to extend and increase."

The tangible symbol and final result of all British legislation may be said to centre in the brand—as that is what has given Scotch herring the reputation they have earned in the markets of Europe—the brand being the seal or impress of inspection.

In 1851 an agitation was raised against the brand. Mr. Mitchell publishes a letter addressed by Mr. Alexander Wellman, one of the principal merchants of Stettin, to Mr. Traill, M. P., London, on the subject of the brand. In that letter Mr. Wellman says: "I take the liberty of stating that the official Brand of Scotch, Crown and Full branded herrings obtains the greatest confidence, not only in our own market here in Stettin, but also in the interior of Germany, where the meaning of that brand is understood; and my own firm belief, and also that of other people engaged in this branch of business is, that it would be most injurious to the trade should the brand cease to exist, for Scotch herrings are only sold in small quantities in this market and neighborhood, they are chiefly sent great distances of from 100 to 800 miles, English, into the interior of Germany and Poland, either by orders or offers without the assistance of commission merchants; for the great expense of forwarding them will not permit a commission to a third party. The great distance likewise prevents dealers from inspecting the herrings on the spot here, who therefore make their purchases solely on their trust in the official brand, knowing that the fish must be well selected and properly cured—that the barrels be of legal size, and that they require to be well and tightly made before the brand can be affixed.

"The abolition of the official brand would entail great difficulties in this trade. When a party purchasers *Crown* and Full brand herrings at present he is bound to receive them, if they bear *that* brand, independent of the quality; and our courts of law have frequently given their decision in accordance with this statement, upon the ground that the British Fishery Board is a Government establishment, and therefore that reliance can be placed on their impartial inspection and strict superintendence.

"Part of the present business consists of consignments by the curer in Scotland, who receives an advance when the herrings are shipped; and my opinion is, that this advance will cease to be given as soon as the official brand is removed, as our merchants here would then be unable to judge what proceeds they will receive out of

them, when sent to the interior; and consequently the Scotch curer must feel it seriously whenever this brand is taken away. This would injurously affect the trade, and seriously affect the fisherman.

"In my opinion, it will be very injurous to the trade should the British Government insist upon the trade to pay for the brand, for the cheaper herrings can be made the greater distance they can be exported, and the larger the consumption will be; because herrings are a substitute for meat, and have therefore to stand in competition in price with beef, bacon, &c.

"Other articles in casks, such as oil, butter, &c., can be sold according to sample, or their quality and contents can be stated; but such is not the case with herrings, for it is impossible to describe each fish in each barrel, or their number, and neither how the cure has been effected, nor whether they have been cured immediately after capture.

"How could the Scotch herring trade in Germany be protected if the superintendence of the British Fishery Board ceased to look after this? So long as the Board keeps up its present character and brand there is no fear of a decline in the importation of Scotch herring into Germany."

In the report of his visit round the herring coasts of Scotland in 1856, Mr. Barry, one of the Inspecting Commissioners of the Irish Fisheries, says:—

"I saw quite enough to impress me with the vast importance, the great magnitude, of the herring fishery on the east coast of Scotland.

"It is quite evident that a great deal of excitement and anxiety prevails among persons interested in the trade on the subject of the proposed abolition of the branding system, and consequent reduction of the Fishery Board establishment. The subject being at present under the consideration of a commission appointed by the Government, it would not be becoming in me to venture my opinion upon the expediency of relinquishing altogether the practice of branding, but I should not only fear that the absence of all superintendence would be highly prejudicial to the herring fisheries, but would tend to diminish materially the hopes which I have formed to see the growing germ of an enterprising spirit on the part of our east coast fishermen not checked in its bud. Notwithstanding the high standard of moral conduct which I am willing to recognize in our north British neighbors, I should be very unwilling to advise Irish fishermen to resort to many parts of the coast of Scotland if the present Fishery Board be extinguished."

Commenting on the establishment of the Dutch Fishery Board in 1857, Mr. Mitchell says:—

"The Dutch herring fishery laws have lately been considerably modified; and the advantages of a Fishery Board and inspecting officers having been fully ascertained from the great success of the British system, the Dutch Government has created a Board of Commissioners, with similar powers to those possessed by the Commissioners of the British Herring Fishery.

"And again, the Herring fishery in Holland, once so successful, having gradually declined, partly in consequence of the improved quality of the Scotch-cured herrings supplanting the Dutch herrings in the continental markets, the Government of Holland wished to take active measures to resuscitate or improve the system in that country, and in 1857 adopted, and copied, to a considerable extent, the regulations which have been so successfully followed out by the Fishery Board in Scotland, and which have brought the Scotch herring fishery to be one of unexampled prosperity. For the first time a Herring Fishery Board was appointed this year in Holland, and several important laws and regulations were enacted, and among others *the Crown Brand has been introduced, together with various brands and marks, expressive of the different qualities,* so that everything proves that great efforts will be used to increase a fishery which, at one time brought so much wealth into Holland, and laid the foundation of its great industrious prosperity.

"For the first time also, the Commissioners of the Dutch Fishery Board, nine in number, are required, in imitation also of our Fishery Board, to give an annual report of the fishery.

"Several rules have been issued by the Dutch authorities relating to salt, which seem very judicious, as well as those relating to the assorting of the herrings, the quality and size of the barrels and the orders to the inspectors, several new ones having been appointed; but everything we see in this report proves that we owe the great increase of the fishery on our coast to the system of management under a well regulated Board, and to the care and attention of the fishery officers, who have become thoroughly instructed and acquainted with their useful, responsible duties, from the great number of years the various laws and rules have been elaborated by the test of experience.

"About the year 1848 several herring curers having been discovered," says Mr. Mitchell, "in attempting to pass off their herrings as entitled to the Crown Brand, which herrings were either inferior in quality or not properly assorted, or the casks not of full size, had their herrings seized by the officers of the Board; or what was also severe punishment on account of the exposure, the purchasers were informed of the error or fraud, and rejected the purchases made. In consequence of this, an attempt was made by the guilty parties to get the Fishery Board and their officers into odium. Some of the English Members of Parliament, ignorant of the impossibility of carrying on the wholesale trade in herring of a marketable quality without a continued surveillance of experienced men, as the fishery officers are, were induced to object to the maintenance of the Fishery Board, and the inspectors or officers; and it was thought necessary in that year to make enquiry 'as to the utility or efficiency of the Fishery Board'. Accordingly, the Right Hon. J. G. S. Lefevre was sent to Scotland to enquire and report; and although he came to Scotland in no way prepossessed in favor of the system, he seems to have been fully convinced of the great advantages of the system carried on; and his report fully proves that he, after the most careful enquiry and examination, was convinced that the system was useful, necessary, and tended to promote the success of the fishery. We beg to quote from this report such passages as have reference to the brand only. Mr. Lefevre says: "Of the various duties devolving upon the officers of the Fishery Board it appeared to me that those which relate to the branding of herrings first demanded my attention, inasmuch as if the continuance of that system were deemed expedient the establishment by which it is conducted must of necessity continue, subject, of course, to any possible reductions.

"At, or previous to the commencement of my enquiries, various representations reached me, both from individuals and bodies of fish curers, which led me to believe that the continuance of the system of branding was deemed to be objectionable by a considerable portion even of those who are in the habit of availing themselves of it; and some anxiety was expressed by the more distant fish curers that I should personally visit Wick, with a view to inform myself as to the opinions entertained on this subject.

"The lateness of the season, and my other public engagements, prevented me from acceding to this suggestion; but in order to give all the fish curers on the east coast of Scotland the opportunity of bringing their views before me, I addressed to them a circular letter, containing certain queries framed for the purpose of eliciting their opinions.

"From the answers to these queries, and from the oral replies of a considerable number of fish curers and fish merchants whom I examined when in Edinburgh, I believe myself to have procured a body of information with respect to the effects of the branding system sufficient to justify me in the statement and suggestions I am about to submit to their Lordships on that subject.

"The representations to which I have alluded as having been made against the continuance of the branding system adverted to the general objections to which such systems are liable. In reference to these objections I may observe that the practice of stamping or branding articles of commerce by public officers, with a view to authenticate their genuineness or good quality, which existed in this country in respect of various kinds of goods, has, by degrees, been almost wholly discontinued.

"It was found that although it might secure to the purchaser that the article should not fall below a given standard, it tended to prevent its rising above that standard; that it discouraged the improvements of private enterprise, inasmuch as it promoted a uniform limit of price, which it was very difficult to pass by any difference in quality.

"These and other similar objections have been stated in various forms by such of the fish curers as have expressed themselves desirous that the system of branding herrings should be discontinued. These parties concur in the representation that it places upon the same level the careful and industrious curer and the less careful and less industrious, inasmuch as the price of branded herrings at the same time and place is uniform, whoever may be the curer, and whatever may be the pains and care he bestows on the cure; and this important point is admitted by many of those who are favorable to the branding system.

"They further state that the dealers who purchase at the fishery stations make their bargains, in the first instance, with those who cure their herring, not under cover, but in the open air, which is not so good a process, and who sell them at a cheap rate, and thus depress the price of the better article.

"They complain that, whereas, in other kinds of business, industry, skill and honesty have their reward in increased custom and better prices, this is not the case with respect to the exportation trade in cured herring, owing to the levelling effect of the official brand.

"It is pointed out that, although the brand is by law optional, and no one is compelled to obtain it, yet so long as a considerable number of the trade use it, it cannot be safely dispensed with by the remainder; and that the delay and trouble necessarily occasioned by the conditions requisite to be fulfilled produce some expense and inconvenience, and sometimes the loss of markets. They complain that the detention of the herrings during the number of days required before they can be lawfully branded leads to a large simultaneous export, which gluts the foreign market. Some of the witnesses, moreover, have stated that the export trade to the continent of Europe is over-stimulated by the facilities to which I shall presently more particularly allude, and that exporters pay too little regard to the state of the demand in the continental markets, but export at all hazards; and as an illustration of this practice, they advert to the enhanced price of green—that is, uncured fish; and they assert that the curers are at the mercy of the fishermen. [NOTE.—This is reversed now (1889), as all fish being sold by auction, the fishermen are at the mercy of the curers, and in Yarmouth the fishermen complained of this]. They refer to the increase of the red herring trade, and the improvements in that branch of cure, to which the branding regulations do not extend, and which is conducted on the ordinary principles of competition, without the artificial aid of the Government officer, as a fair illustration of the result of placing the white herring trade on the same footing."

(NOTE.—We beg to refer to the chapter in this report on "Red Herring," where it will be seen that the absence of inspection and the branding system has been ruinous to the red herring industry, and paved the way for all kinds of dishonesty in putting up and preparing red herring).

"On the other hand, I feel bound to state that a very large majority of curers, measured both in number and in amount of herring branded by them, are decidedly favorable to the continuance of the brand, as compared with those who have expressed unfavorable opinions. Of those whom I orally examined, Messrs. Methuen, Simpson, Robertson and others, brand amongst them upwards of 50,000 barrels of herrings out of the total brand of 148,000; and amongst the replies from the fish curers to whom my printed queries were sent, those who urged the continuance of the brand (not including the parties orally examined) represented more than between 40,000 and 50,000 barrels.

"The facts and considerations adduced in the evidence favorable to the continuation of the brand appear to me to support the following propositions:—

"That of the branded herrings, by far the greater portion go to Prussia and the countries adjacent to the south of the Baltic.

"That (unless in the early part of the season) few herrings are sent to those countries except under the sanction of the brand.

"That a high minimum of quality and cure is secured under the system of branding, not only by the refusal of the brand when the herrings are not duly prepared and cured, but because during the whole process of preparing and curing (a process so rapid in its operation, and carried on by such large bodies of persons, as to render it very difficult for each separate curer to watch over those whom he employs), the fishery officer circulates among those employed, examines from time to time the progress of their operations, points out defects in the cure or selection, and stimulates the negligent, by warning them of the possible refusal of the brand. This service performed by the fishery officer many of the fish curers notice as being particularly useful.

"That the brand has the full confidence of the merchants and consumers in those countries is a fact testified, not only by the replies and evidence of the great majority of the fish curers on the east coast and of the fish merchants whom I examined, but also by various representations from continental merchants with whom I have corresponded.

"That branded herrings are accepted with little examination, and pass from merchant to merchant on the continent, and without the necessity of opening the barrel, except in comparatively few instances.

"That the brand prevents disputes as to quantity, quality and cure, and especially those disputes which originate in a falling market, from a desire on the part of the purchaser to throw them back on the seller.

"That the currency (if such an expression be allowed) of the branded barrels facilitates dealings in them, and among those facilities advances on bills of lading, in which the articles being described as Crown, Full branded herrings, are known to be of a definite quality and readily saleable.

"That the brand being an authoritative declaration of the quantity, quality, selection and cure, herrings can be and are ordered by foreign merchants more freely than if such an authentication did not exist, and they can be and are purchased on the spot at the fishery station, without any previous knowledge of or relation with the fish curer.

"That the discontinuance of the branding system might, at all events, temporarily alter the course of the export trade; that some time might elapse before confidence in the individual curers would take the place of the brand.

"That at first, there might be distrust sufficient to occasion some diminution of the demand, which might be still further diminished if (which is by no means improbable) any falling off in the cure by the inferior class of curers were to damage the reputation of British herrings in the continental market.

"That these results would be aggravated if an official Government brand for Norwegian herrings were established—a possibility which is adverted to by one of the witnesses.

"That the existing state of the continent of Europe (1856) and the diminution of the demand for white herrings in Ireland, occasioned by the failure in the potato crop, render the present not a favorable juncture for making a change in the established system of the herring trade."

"After giving my best attention to the facts and considerations which I have above set forth on both sides of this question, I deem it my duty to state that if the question of continuing the brand related only to the home trade in white herring, these appear to me to be not adequate grounds for supporting it; but, as respects the foreign trade, which is sufficiently large to be an object of the highest importance to Scotland, the branding system forms so essential a part of its arrangements, that its abandonment might cause such derangement and contraction of that trade, and consequent loss and inconvenience to those engaged in it, and to the large bodies of the working classes employed, not only in fishing, but in the various operations

of curing for the continental market, that I feel compelled, notwithstanding the objection in principle to which it is liable, to recommend that it should still be maintained, and, as a necessary consequence, that the establishment of the east coast fishery officers should be continued.

"I am disposed to think, however, that it may be worthy of consideration whether it may not be advisable to charge a small fee or duty upon the branding of each barrel. This would throw a portion of the expense of the establishment upon those who immediately benefit by it, and would thus lessen what is, in effect, a bounty on the export herring trade, at the expense of the other classes of the community. It would likewise encourage the enterprising curer to rely on his own brand, as the saving of this fee might counteract the disadvantage of his contending against the Government brand."

* * * * * *

The contingency apprehended by Mr. Lefevre, in the seventh last foregoing paragraph is just what has happened to damage to some extent the character, and to injure, to some extent, the demand for Scotch cured herrings in Stettin, the great continental market, and to give the Norwegians and the Dutch an ascendancy, the former to a very considerable extent, in the German markets—an ascendancy which otherwise they could not have obtained. It said that the quality of the Norwegian herrings, in the first instance, as taken from the sea, is much inferior on the whole to the quality of the Scotch herring, although at times, and especially in 1889, the quality of a large portion of the catch taken on the north-east coast of Scotland was very inferior, consisting largely of "Spents." But the Norwegians, like the Dutch, take very great care and pains in curring their herring and in packing them, and they are thoroughly alive to the necessity of doing so, in order to secure a share, a name and position in the markets of the continent.

In the course of our inquiries we ascertained that the Governments of the maritime countries of Europe, having herrings upon their coasts, are all deeply sensible of the great importance of the herring industry; but from all we could learn, it would appear that the Norwegian Government takes the most active interest in the development and promotion of their fishery industry, and the promotion of their herring trade—if we measure that interest by the wise and paternal legislation of that Government and the Parliament of that country, and the liberal and judicious expenditure of money made on behalf of the fishing population, not only by direct encouragement to the fishermen, but also by the improvement and construction of local harbors and landing piers, for the benefit of those engaged in the Norweigian fisheries.

Next to the Norwegian Government, probably the French Government manifests the greatest interest in the development, increase and protection of the herring fishing industry in that country. Much useful legislation has been enacted, and a heavy protective duty imposed by the French for the promotion of their herring trade.

The Dutch Government also appear to be indefatigable in devising and adopting legal measures for the promotion of the great herring industry in that country in every way.

In Britain there has been much legislation for the regulation, protection and promotion of the herring industry since A.D. 1240, and the establishment of the British and Scottish Fishery Boards have been of the utmost benefit to the herring fishing industry of Britain. Complaints, however, are made as to the want of local harbors on the north and north-east coasts of Scotland, and the imposition of the branding fee is felt by many to be a hardship. While large sums of money are expended on harbors in the south, and for the advancement of the general prosperity in other directions, it is felt, generally, that the fishing industry of Scotland, being a very important item of the national trade, has not received from the Legislature that degree of consideration, encouragement and aid to which it is entitled.

Between all these Governments there is a race, and a keen rivalry for the markets of interior Europe, Germany especially, where the consumption of herrings

is very great, and it would naturally be supposed that a knowledge of this fact, which must be well known to every fish curer and fish merchant in Scotland, would have put them on their guard and prevented the exportation, by any of them, of herring to Stettin, of an inferior quality, thereby jeopardizing an important trade, and giving other nations a footing in that market which otherwise they could not have gained. Yet this was what was done; and the exportation to Stettin some years ago of unbranded herrings and of branded herrings, cured in the open air and exposed to the elements for weeks subsequent to branding, has done much to injure the herring trade and temporarily, at least, to impair the implicit confidence heretofore placed in the Crown Brand.

In 1888, the Fishery Board of Scotland, through the Home Office, sent out circulars to all the British Consuls on the continent of Europe and parts of North Africa, soliciting information as to the demand or probable demand, for Scotch-cured herring in their respective consulates. In his reply, the Acting Consul at Stettin gave the following figures, showing the importations at Stettin of herrings from all countries in the year 1887. These are as follows:—

	Barrels.
Scotch herring	310,191
Norwegian herring	186,652
Dutch do	5,876
Swedish do	1,295
Bornholm, Pomeranian, herrings	598
In all	504,612

As elsewhere stated, the sales of Scotch-cured herring in Stettin in 1885 amounted to 402,982 barrels, and in 1886 to 371,954 barrels, showing a very considerable falling off. In relation to this very serious decrease we cannot do better than quote the following editorial article from the *Glasgow Herald* of 1st October, 1889, the leading paper of that city:—

"THE SCOTTISH HERRING TRADE WITH STETTIN.

"We regret to find, from a consular report, that the demand for Scottish herrings in Stettin, which forms an important feature of our trade in these fish, continues to decline. According to the tabular statement given, the number of barrels exported from Scottish ports in 1888 was only 292,105, as against 310,191 in 1887, and 371,954 in 1886; whilst in 1885 the figure was still higher, 402,932 barrels having been forwarded to Stettin. It appears that Swedish herrings are beginning to find more favor in some of the German markets than Scotch-cured fish, which are decidedly less in favor than they were a few years ago. It is complained that 'Scotch production' has remained stationary, or indeed retrograded a little, a result, perhaps, of the ease with which the necessary brand can be obtained; whilst Norwegian, and latterly Swedish curers as well, have been making great efforts to study the demand, and prepare for it, by curing their fish in the mode desired. It is pointed out in the present report that the early caught Scotch herring are packed before they have been perfectly cured; the fish not having been sufficiently *pined* (or shrunk) the barrels are not properly filled. Another fault which is referred to is, that the selection of the fish might be greatly improved, and that the 'brand' in the case of branded foods, ought to be an undoubted guarantee for the contents. An equal standard in the size of the herring barrels, it is recommended, should be maintained, in order that retail purchasers may be aware of the average contents.

"Swedish curers are improving upon the Scottish system of curing, by carefully avoiding all its defects. The packing is equal to the average Scotch filling, and the selection of the fish is carefully attended to, with this result, that the Swedish and in many cases the Norwegian herrings, are supplanting the Scotch cure in the German markets; and should the supply of fish hold good, the Swedish herrings, unless Scottish curers make a united effort to amend the defects in their cure, are likely to

obtain and maintain a still better position in the markets than has yet fallen to their share."

This article goes to confirm the opinions we formed on the subject, namely, that the present unfavorable position of Scotch-cured herring in Stettin is due to the negligence of some Scotch curers in exporting herring before they have had time to *pine* or shrink, to season and mature in the barrels, and in the exposure of herrings to the sun, both before being cured and after inspection. It is quite possible, and we think very probable, that what may be considered an injury to the herring by exposure to the sun before curing may be such an injury as may not develope into visible or perceptible deterioration within the ten days, the time allowed the fish to "season" before the brand is affixed, and yet that the results of such injury, aggravated by subsequent exposure to the sun in the barrels, may develope into serious deterioration before the fish reach Stettin. A celebrated physician of Edinburgh holds that a bottle of olive oil may be completely injured and its medicinal qualities completely destroyed by one day's exposure to the sun in a shop window. So there is nothing here at all inimical to the value and integrity of the brand.

The able and well worded report of Mr. Lefevre did not finally settle the battle of the brand; for it is stated, as recorded by Mr. Mitchell, that in the year 1856, in consequence of objections by some members of the English House of Commons to the expenditure incurred in supporting the Fishery Board, and the system of superintendence and branding, and notwithstanding the elaborate and carefully prepared report of the Right Hon. J. G. S. Lefevre, which went fully into the question, and proved the advantage and propriety of continuing the system, a second Commission of Inquiry, consisting of two English gentlemen, Bonamy Price and Frederick St. John, and an Irish gentleman, Capt. Sullivan, R.N., was appointed, whose opinions did not agree, and the members of the Commission, therefore, gave in separate reports, the majority in number having reported in favor of the continuance of the brand and of the system. To exhibit the opinions of the different members, we give the following extracts from the report of Messrs. Price and St. John, a remarkably well written and elaborate report, going over all the arguments for and against the inspection by the fishery officers, and the system of branding, which is too extensive to give at length; but the most striking remarks furnished by them are the following:—

"The first argument pleaded by the defenders of the brand states, we conceive, the real issue to be tried. We have to deal with an established and flourishing trade. It employs an immense capital, draws out of the sea a large proportion of the revenue of Scotland, and is the chief means of subsistence of a considerable part of the population of that kingdom. Still more, it exhibits those signs of healthy life for which the invigorating impulses of competition are sought and valued. It is progressive. It grapples with formidable rivals and conquers them. Since 1848 the quantity of herrings imported from Great Britain into the ports of Stettin, Dantzig, Hamburg, and Konigsberg has increased from 100,297 to 318,263 barrels in 1855, whilst the Dutch imports into the same places have declined from 5,019 to 1,300 barrels, and the Norwegian from 194,862 to 122,423 barrels.

"Is it politic to disturb such an organization? Can an adequate motive be alleged strong enough to call for and justify interference? Is it desirable to destroy, in exchange for another, a machinery which is certainly the concomitant, but which is also represented by a majority of those who carry on the trade to be an efficient instrument of its prosperity? Such we consider to be the practical question to which we are required to give an answer.

"Now, it is essential to observe that the services performed by the branding are necessary for the herring trade and must, under any system, be accomplished by some machinery or other. Every part of the work done by the fishery officers is not only useful, but indispensable. Gutters and picklers must be watched, for a few broken or ill-assorted fish would greatly impair the mercantile value of a barrel of herrings. *There must be inspection before purchase.* That the fishery officers discharge their duties with admirable judgment is cheerfully, and even gratefully,

acknowledged by all parties. Amidst the many attacks made on the brand, there was no accusation that the vast export which it covered ever deceived the confidence of the buyers.

"It cannot be said that the abolition of the brand is demanded by public opinion in Scotland. It encounters the active hostility of some portion of the press, but the great majority of the traders are loud in its favor. On the west coast, which supplies the home markets, and does not use the brand, there is no marked demand for its abolition. We are at a loss for a principle on which we could urge the Government to take away from a great trade a convenience which we have shown to be harmless, which will cost the nation nothing, and whose value will be attested by the surest of proofs—the free demand of the traders to purchase (and use) it.

"On all these grounds, we have come to the opinion that the abolition of the brand is inexpedient; and we beg to recommend to my Lords its continuance, on condition that it shall be self-supporting."

Capt. Sullivan concludes his minority report as follows:—

"Having given the whole subject, which was entirely new to me, my most serious consideration, I have no hesitation in advising strongly, that instead of attempting to continue the Government interference in this objectionable manner, it should be entirely withdrawn, after sufficient notice being given, and the trade left to depend upon its own merits alone. I cannot conclude the subject without bearing my testimony to the merits of the officers of the Fishery Board as a body. It is highly creditable to them, that out of the large number of witnesses examined privately, many of course opposed to the officers, and some few annoyed because at one time or other their fish had been rejected for the brand, on what they considered too slight grounds, not one failed to do justice to the strictly honorable conduct of every officer they had met with."

Further, on the subject of the brand, Mr. Mitchell refers to the matter, as under:—

"Were any additional evidence requisite to prove the great advantages of the system of inspection and superintendence by the fishery officers, we would suggest the perusal of a very able pamphlet written at this time (1856) by a gentleman of high standing, and of great practical experience, who, for many years, was largely engaged in exporting herrings to the continent of Europe—Walter Biggar, Esq.—and who is now retired from business, and has no connection with the Board or the fishery.

In this pamphlet Mr. Biggar says:—

"'I maintain that it is next to impossible for a man to buy a cargo of herrings, entirely upon his own skill and judgment, unless he has been present at the curing and packing of the fish from the commencement. There are rogues in all trades; and it was only the other day that a butcher was fined £10, by the sitting magistrate in Edinburgh, for offering unwholesome meat for sale. If a man will attempt this on a stall in open market, how much easier to escape detection when the unwholesome article is packed in the middle of a cask, and covered with salt and pickle.

"'Though I was upwards of thirty years engaged in the herring trade, and understand it as well as most men, I confess myself unable to buy a cargo of herrings, with safety to myself, if the seller be a rogue, and determined to cheat me. I should feel quite as incapable to do so, on my own judgment, as I should be to buy a silver spoon on my own judgment, which had not first passed through the assay office.'"

It is worthy of note and remarkably coincident, that in 1849 the appointment of Right Hon. Mr. Lefevre to make certain inquires respecting the Fishery Board, and the Crown Brand, with a view to the abolition of both, took place after certain fish-curers had been detected in attempting to pass inferior herrings as entitled to the Crown brand, and had their herrings seized by the fishery officers in consequence.

That the appointment of the Commission consisting of Messrs. Price and St. John, and Captain Sullivan, in 1856, for the same purpose, took place after some fish-curers had been annoyed, because at one time or other their herring had been rejected for the brand; and

That while we were in Scotland in 1889, some of the fishery officers on the east coast of Scotland seized a quantity of herring, in barrels made of pine staves, because the staves were abnormally thick, although dressed off at the ends to represent the lawful thickness, whereby the capacity of the barrel was diminished so materially as to diminish the quantity of fish in the barrel to the purchaser. Following closely on this seizure, an agitation commenced in several of the fishing stations on the east coast, demanding the abolition of the brand. A meeting had been held in Wick before we left, for the purpose of discussing the subject. Referring to that meeting, and the agitation in general, the "*John O. Groat Journal*" of Wick, a paper thoroughly conversant with the whole fishery trade and its requirements, says:—

"Well, suppose the brand to be abolished. How is the curing business then to be made profitable? This is a question which cannot be well answered. As to the fishery officers, it is not to be believed, from anything said or written, that many barrels which were branded along the east coast should not have been branded at all, so, reflecting, as it were, on the judgment of the fishery officers. Any one who may attempt to argue for the abolition of the Board, from this point will utterly fail, and it would be well that no one should attempt it. We are glad to see that in Scotland this is not being done. The fact is, the quality of the herrings of this year has disappointed many, and perhaps none more so than those who made c. i. f.—costs, insurance and freight—purchases. Inferior quality and a falling market mean, in many cases, repudiation, from repudiation arise complaints.

"'In too many instances, we regret to say, blame has been cast upon the fishery officers, for which they have not in the very slightest degree been responsible."

The "*John O'Groat Journal*" newspaper, of Wick, above quoted, of December 24th, 1889, contains the following, which very probably settles the question of the brand, for some time to come:—

"Fishery Board and the Herring Brand."

"A meeting of the fish curing trade was held in the Town Hall, Fraserburg, on Wednesday. Chief Magistrate Park presided. The business was to consider the question of abolishing or retaining the crown brand for cured herrings exported to foreign countries. Representatives of the larger firms appear to be in favor of abolishing the brand, while the representatives of the smaller firms were almost unanimous for retaining it, with certain modifications, suggested in recommendations, read by Mr. J. S. Davidson, from a previous meeting of exporters, who had sent to the continent this season over 300,000 barrels. The recommendations, which were agreed to by a large majority, were to the effect that, in order to give the continental merchants confidence in their purchases, no full herrings under 11 inches in length should receive the brand; "Medium Fulls and "Spent" not to be branded under 10 inches and 10½ inches respectively; smaller fish, in their several classes, if branded at all, to be branded as mixed, thus dispensing with what hitherto was know as the "Mattie" brand. A committee was appointed to communicate the views of the meeting to the Fishery Board."

The Fishery Board of Scotland had previously sent a delegation of their officers to Stettin, to ascertain all particulars in relation to the rejection of some of the brands, and no doubt the modifications proposed will meet the difficulty.

One thing clearly established by the foregoing testimonies is, that the herring trade, as at present constituted in Britain and the other European nations engaged in it, cannot be successfully conducted independent of the supervision and inspection of some organization invested with authority in the premises, and the use of the Crown brand—and that it is imperatively necessary that every possible care be taken to protect the fish from the sun or its influence before curing, so as to prevent the slightest injury to the herring, or taint of incipient deterioration, which may not become apparent within the legal ten days, but is sure, nevertheless, to develope in its own time—even subsequent to the inspection and branding of the officer—and the necessity of carrying on all the processes of curing under cover.

BEAM TRAWLING.

Beam trawling is practiced to a considerable extent around the British coasts, greatly to the annoyance and discouragement, and we believe the detriment of the established coast fishermen, who look upon the beam trawler as a sort of marine marauder, taking all he can, by unfair means and machinery, out of the sea, wantonly destroying what he cannot use, and inflicting serious injury upon the herring fisheries by disturbing the herring, scaring the shoals of herrings from the fishing grounds—and destroying the spawn.

On the subject of beam trawling, as on every other subject relating to the herring fisheries, much discussion has taken place, and the weight of evidence, as well as the preponderance of popular opinion, so far as we could learn, are against the trawlers. One thing is very certain, and that is, that they have to a great extent depleted the flat fish fisheries, because one does not see, either in the markets or on the tables, such sole, plaice or flounders as were to be had in Britain twelve years ago. The most of this kind of fish we saw were poor, small, immature fish, mostly unfit for food. The beam trawler scoops up everything that comes in his way—immature fish, fry spawn and shell fish—and it is said that the destruction of these is very great and, ruinous to the local fisheries—quite unnecessary, and should be either entirely prohibited or else regulated by stringent regulations rigidly enforced.

From Mr. Mitchell's excellent book on the herring, we learn that the subject of beam trawling has been thoroughly discussed since 1852, and although we are not aware that this mode of fishing has made much progress in the Maritime Provinces of Canada, yet we deem it our duty, in connection with the objects of our mission, to refer to this matter in a general way and in connection with the subject of spawn. On this subject as on nearly every other relating to the herring fishery, great difference of opinion seems at one time to have prevailed, but in the light of an intelligent experience and the exercise of some degree of common sense, it is quite possible to arrive at correct conclusions on this, as on all other controverted fishery subjects.

Beam trawling on some parts of the coast of Ireland gave rise to serious disturbances, on the part of the drift-net fishermen, in certain portions of that country.

In some instances Commissioners appointed by the Government to investigate the causes leading to such disturbances reported in favor of the beam trawlers, while others reported against the system. In consequence of certain action on the part of Lord Vernon in 1817, a Parliamentary enquiry by a Select Committee on the South Devon fisheries was ordered, at the instance of the great body of the fishermen on that coast, by whom a document was signed to the following effect:—

"BRIXHAM QUAY, TORBAY, 11th June, 1817.

"The undersigned, being persons concerned in the fisheries between Start and Exmouth Bay, do humbly declare our opinion that it will materially promote and benefit the said fisheries if trawls and drag nets are prohibited being used in Torbay from 1st May to 1st November, and in Start Bay from 1st May to 1st October."

The recommendation of this Parliamentary Committee, after hearing evidence, was:—

"That it will conduce to the benefit both of the public and of the fishermen themselves if Start Bay, Torbay and Exmouth Bay, on the southern coast of Devonshire, are kept free from trawl and shore drag-nets during the spawning season; and they are the more induced to recommend some regulations to that effect, as it has been clearly shown that it will not throw any fishermen out of employment during these months, and will be the means of increasing the quantity of cheap and nutritious food, on which all the lower ranks of society in that part of the country chiefly subsist.

The Convention Act, that is, the Act regulating the fishery arrangements between France and Britain in 1843, was the first measure of legislation restraining trawling on the English and Scotch coasts generally. But after nine years' experience of the Act, the guardians of the British herring fisheries have, in a special

statute, 14 and 15 Victoria, chap. 26, sec. 6, repeated the restriction upon trawling in the vicinity of herring fisheries, when the regular herring fishing has commenced.

Mr. Mitchell quotes from the report of a Parliamentary Committee of the British House of Commons in 1853, the following:—

"The last measure of legislation, 14 and 15 Victoria, chap. 26, sec. 6, extending to the whole coasts of Scotland and England, has been enacted at the instance of the Commissioners of British fisheries, having a large and well trained staff of officers, watching closely the interests of the most important and most prosperous fishing community in the Empire, and that it may be considered an unqualified affirmation of a similar regulation in the French Convention Act, but in more stringent terms and after nine years' experience of its effects."

Further, on this subject, Mr. Mitchell publishes a letter from Mr. Thomas Anderson, an extensive fish merchant of Glasgow, on the injury to spawn and fry caused by the beam trawlers. Mr. Anderson says:—

"Having been extensively engaged in the fish trade in Scotland for the last fifteen years, I have observed, with very much regret, the great injury done to the white herring fishings by the use of trawl nets. Nearly about ten years ago the trawl was introduced into the Firth of Forth, and in accordance with the increase of the use of the trawl net the gradual decrease in the take of white herrings has been the result. Also, on the west coast of Scotland (particularly the Ayrshire coast) it is a well known fact that ever since the introduction of the trawl net there has also been a gradual decrease in the take of herrings, and I am fully convinced in my opinion that the use of the trawl net must destroy either the spawn of the fish or the young fry.

"I may also mention that from one station I had from 700 to 800 young turbot in one day lately, and scarcely a marketable fish among the whole lot, the most of them not weighing more than from 1 to 1½ lbs. These were some of the produce of the trawls; and my objection principally applies to inlets, bays, firths, &c., or anywhere near the shore. My object being to get as many marketable fish as possible, I am, of course, in no way interested in the prevention of any particular mode of taking fish which shall not be injurious to the fisheries in general.

"I speak from great experience, being the owner of large stations in the Island of Lewes, in the Firth of Forth and the east coast of Scotland, my principal headquarters being in Glasgow, and employing in one way or other 800 to 900 hands."

"In 1858 the Fishery Commissioners of Ireland, seeing the advantage of restricting river trawling, ordered that the following localities on the Irish coast be subjected to the fence law, pointing out to other Governments the propriety of following such a wise example. This order prohibited trawling inside of certain lines in Dublin Bay, east coast Dundram Bay, Galway Bay, Dingle Bay, Bantry Bay, Waterford Harbor and the Wexford coast.

"They also ordered that in regard to Galway Bay and Wexford coast, trawling be prohibited in all places where there are boats engaged in herring or mackerel drift-net fishing, and that trawl boats shall keep at a distance of at least three miles from all boats engaged in herring or mackerel fishing, and that whenever herring or mackerel boats shall commence drift-net fishing in any place on or off the coast of Wexford, the trawl boats shall depart therefrom.

"By the British Act, passed August 13, 1860, the Scottish Fishery Commissioners were authorized to prohibit, on the coasts of Scotland, the use of any trawl, drag, or beam net, injurious to the spawn of herring or to the herring fisheries, under a penalty of not less than £5, and not exceeding £20 sterling."

In concluding his interesting references to beam trawling, and in reference to the investigation had in 1860, as to the alleged injuries inflicted on the herring fishery in Galway Bay by trawlers, Mr. Mitchell very correctly says:—

"We have no doubt, from careful observation, not only at Galway, but also in other quarters, that beam trawling is injurious to herring shoals, and may diminish

or utterly destroy the annual visits of the herrings, as they are so easily scared away. For instance, as soon as a herring shoal spawns, thither the various kinds of flat fish assemble, and the beam trawls following these tear up and annihilate the spawn in large quantities, and the herring may cease to return."

In their report to the British Government in 1878, the Commission, of which the late Mr. Frank Buckland, the celebrated naturalist, was a prominent member, arrived at certain conclusions which are referred to elsewhere in this report. We here refer to the following heads:—

"No. 3.—Nothing that man has done, and nothing that man can do, has diminished, or is likely to diminish, the general stock of herrings in the sea."

"No. 4—Either from the operations of man however, or from some other cause, herrings have been deterred from entering the firths and sea lochs, of Scotland, the in the same numbers as formerly."

"No. 5—The fishing for herring has, in consequence, been gradually prosecuted farther and farther from the land, especially on the east coast."

Mr. Buckland and the other members of the Commission arrived at the conclusion that beam trawling did not cause any destruction of herring spawn around the British coasts, and that therefore there existed no necessity for prohibiting or regulating the beam trawling fishery—in this respect differing from all the authorities we have seen or heard of on the subject. But it appears that Mr. Buckland, after the writing of that report, and before his death, had changed his mind in this repect. We met a Yorkshire gentlman in Edinburgh who is a member of one of the local Boards, under the Board of Trade for the protection of salmon, and the regulation of salmon fishing, who informed us that Mr. Buckland was an intimate friend of his; that before his death he had changed his mind on the subject of beam trawling, and became fully convinced that it was most injurious and destructive to the spawn of the herring, and that it should be prohibited on all herring spawning grounds. This gentleman also informed us that the local Salmon Fishery Board, of which he was a member, had devoted much attention to this subject, and that they were so fully convinced of the destruction to herring spawn caused by the trawlers on their section of the coast of Yorkshire that they had decided to apply this fall to the Board of Trade for enlarged powers under the Fisheries Acts of Great Britain, authorizing and empowering them to interfere, for the protection of herring spawn, with the operations of trawlers, and to regulate and prohibit their movements within territorial waters.

And so convinced were the present Government and Parliament of Great Britain of the destruction caused by trawlers to herring spawn in certain forths of Scotland, heretofore exempted from the protection extended to many other spawning grounds on the British coasts, that on the urgent representations of the fishermen and others interested in the success of the herring fisheries in those localities, an act was passed by the Parliament of Britain in August last (1889) extending the operations of previous Acts, regulating and prohibiting beam trawling in certain others of the great firths of Scotland. And we know from press reports that the passing of this Act gave very great satisfaction to the fishermen and others of those localities which had been suffering from the operations of the beam trawlers. So that the latest utterance of the Parliament of Great Britain on the subject of beam trawling, its regulation and prohibition in certain districts where the herring are known to spawn, is to the effect that the system, uncontrolled, is injurious to the herring fisheries, and destructive of the herring spawn.

While it is desirable that the fishermen should be hampered as little as possible by legal enactments, it is wise and proper, and necessary, that the Legislature should regulate and control such a vast and important industry. Man cannot change the arrangements of nature, or minimize the great ravages committed on the herring by the myriads of fishes and birds who prey upon it! But man can avoid and prevent all needless waste, and all reckless, wanton destruction of fish and spawn.

In Great Britain, in addition to the quantities of immature flat fish taken by the trawlers immense quantities of immature haddock, whiting and other such fish less than the size of a small herring are taken, as can be seen everywhere in the markets, and on the tables of the people. It is also very common for large quantities of immature fish taken by the trawlers to be carted away by the farmers and used as manure, a reprehensible practice, to which we shall refer further on. On this continent, in the depletion of the fisheries of our neighbors we have example and proof of what a reckless system of fishing can accomplish. While it may to some extent be true that man, by the use of fair and reasonable appliances, and careful modes of fishing, cannot diminish the general stock of herrings in the sea, yet, as in the case of our neighbors we see what man can do, by the adoption of needlessly destructive measures; and Mr. Buckland and his fellow commissioners in their conclusion No. 4, admit that on the east coast of Scotland the herring have been driven further off the land—no doubt by a reckless mode of fishing. How much better would it be for the fisherman, the trader and the consumer, to allow all kinds of fish to attain to some degree of size and maturity, so that they may be "good for food," rather than to be taken, at such stages of their existence, as to be fit only for manure. We should, as a people, guard against all tendencies leading to such results in the case of our fisheries. The meshes of all trawl nets, or other nets used for surrounding fish should be large enough to allow the escape of all immature fish—and time and space should be afforded for such escape. These immature fish are really not fit for food, and the Governments and Legislatures of the fishing nations should put a stop to such widespread destruction.

SPAWN.

Intimately connected with the subject of beam-trawling as we have seen, is the question of spawn. This question too, has been much discussed in Britain, and has not yet been definitely settled. One party to the controversy contends that the herring spawns on sandy, stony or gravelly bottom in shallow water. Anotherr party contends that it spawns in the water loosely altogether off from the bottom and that the spawn can be seen immediately afterwards floating in the water in the sea giving it a whitish appearance by day, and a brilliant phosphorescence by night. Mr. Mitchell says.—

"The male herring has two milts of an oblong shape and whitish color; and the female has two roes, which are darker than the milts; The number of eggs contained in a female herring was found by Dr. Harmer to be 36,960. Herrings have been sometimes found with the roe of the previous season in a bag, or covered with a skin, in addition to the roe of the following season. At Thurso, an intelligent fish curer told me that in the inside of a herring he found the old roe of the previous season, the eggs of full size, covered over with two layers of fat, and a thick dark film adhering closely to the back, and outside of this the two other parts fully formed, about 3 inches in length.

"After remaining on the coast for a number of weeks, the herring deposits its spawn on hard, clayey or rocky ground, or gravel before leaving the bays or estuaries where it resorts. The female first ejects the roe, which is afterwards impregnated by the ejection of the milt of the male. Sauer describes the mode of impregnation from actual observation, and states that in the inner harbor of St. Peter and St. Paul, Kamschatka, the herring were extremely numerous; and he observed that on the 7th June, the herrings made circles of about 6 feet in diameter, and in the middle of this circle, at the bottom another, no doubt the female, was fixed. When the tide went out he saw the acquatic plants and the stones covered with the spawn, which was devoured by dogs, gulls and crows.

"We have fully ascertained that the shoals generally fix in one locality for deposition, and that immediately after spawning the herrings proceed to sea. The nets of the fishermen are then often covered with the detached, unfecundated eggs of the female; but those eggs found loose in the nets are driven out by the pressure of the twine. The really oviparous fecundated spawn, of which we have specimens, is

of a different description, and wonderfully manifests the sublime behests of creation. The proper incubation, as before mentioned, is as follows:—The female remains quiescent at the bottom; the whole of the roe is at once deposited; the milt thoroughly ripened in the male herring, has become changed from a solid mass to a liquid of the colour and consistency of cream; the roe although placed in the briny flood, becomes a firm, united mass somewhat larger than, but similar in shape to the roe in a full herring. This lifeless mass or egg-bed has the power of adhesion—it grasps firmly the stones, the rocks, the sea-weed, &c., so much so, that we have found it difficult to remove or separate it, until the mass was dried or dead; the young being thus protected from the effects of storms and currents, to a certain extent from being devoured by fishes, and firmly fixed, probably in a suitable feeding ground. Thereafter the eyes are first observable—at least, a small black spot is first seen in the egg. Then the head appears and in fourteen days or perhaps three weeks the young are seen in great abundance near the shore, of a very small size; in six or seven weeks more they are observed to be about 3 inches in length and move about in large shoals in winter and spring on the various coasts, and in the rivers and bays generally resorted to by the herring shoals, and it is likely that they attain to full size and maturity in about eighteen months. Lacepede says, that in North America the spawn of the herring have been carried by the inhabitants and deposited at the mouth of a river which had never been frequented by that fish, and to which place the individual fishes from these spawn *acquired a habitude, and returned each year bringing with them probably a great many other individuals of the same species.*

In the Firth of Forth it is sometimes found that the herrings deposit their spawn on the ground or banks between a mile or two to the westward of Queensferry and Inchkeith, being an extent of about ten miles; but many spawned herrings deposit their spawn on the clayey and rocky bottom between Inchkeith and the Island of May."

"Man applies many means to add to the destruction of this useful fish, the herring. The most unwarrantable is the ground, or beam trawl net, which, if at all used on gravelly, hard or rocky bottoms, must annihilate vast shoals of herrings in a state of spawn; and considering the quality of the fish taken by it this instrument should be prohibited in certain localities at certain times."

Mr. Mitchell further says:—

"1861.—The fishery off the coast and near Dunbar, was very abundant this year, and yielded several thousand barrels, the great proportion of which was sold fresh of which no account was obtainable. About the 30th of August the shoals began to deposit their spawn a short distance from the harbor, and on the 3rd day of September the fishermen found that a large body of herrings remained fixed to the ground in the process of spawning, the ground being of a rocky or stony nature. When the fishermen ascertained this, several of the boats proceeded to the spawning ground, and letting their nets down to the bottom took up large quantities of herrings, some of the boats having each about 60 crans (or barrels) of herrings. When discharging their cargoes, the boats and nets were covered with the ripened and expelled spawn. The fishermen most unwarrantably continued to fish the herrings in this state even during the day, thus disturbing the fish on their spawning ground on Sunday the 1st September and two following days. This disturbance of the spawning shoal was most injudicious and the more to be condemned when it is considered that the fishermen had just about finished a most successful season. The ground upon which the herring deposited their spawn is about half a mile from the shore and about three-quarters of a mile in length and a quarter of a mile in breadth. It was easily known from the sea having a whitish opaque appearance and from the strong fishy or oily odour. Immediately after the spawning the herring shoal started off."

"1862. As it was considered of material importance by the Honorable The Commissioners of the Fishery Board to ascertain the circumstances connected with the depositing of the spawn of the herring, the cutter "Princess Royal" was appointed to proceed to the localities where the herring were supposed to deposit their spawn,

in the spring or beginning of the year 1862, and men accustomed to use the diving apparatus were employed to go down to the bottom of the sea and examine the ground, and to bring up such spawn as might be discovered by them. They went down at two different places and found no spawn, but having been told that "spent" herrings had been taken near the May they went down in the beginning of March to the west of the May in 15 fathoms of water, where they fouud spawn firmly attached to the stones, and they sent up a considerable number of such stones, of from 3 to 16 pounds in weight, with the spawn fixed upon them. The bottom there was found to be stones, shells, sand and shingle."

"On the east of the May, a considerable quantity was found in 20 fathoms water adhering to coarse, shelly sand. The deposit was about three-fourth of an inch thick and was attached to a cake of the rough shells and sand."

In the debate on the "Fisheries Bill in the Legislative Council of Canada, in 1865, the Hon. Mr. Price said:—

"The herring go near the shore to deposit their eggs, and when ripe for spawning cannot retain them any longer. Sometimes a gale comes on, and the fish are thrown up upon the beach. I have seen herring and capelin lying 6 inches or a foot in depth along the shore in the Gulf, and not only they, but their spawn, are destroyed."

Surely, such a mass of direct testimony should settle the controversy, as to whether the herring spawn on the bottom as above set forth, or whether they spawn in the sea off the bottom, leaving the spawn tossing about, at the mercy of the waves, the tide currents, and the winds. It is agreed on all hands that the movements of the herring shoals, commencing in June, are towards the spawning grounds. If they don't spawn on the bottom, why these movements? Because, if the spawn is merely deposited in the sea loosely, any part of the ocean would do as well.

THE SUPPLY OF HERRING IN THE SEA.

The take of herring in Scotland is enormous. The late Mr. Buckland, in 1878 estimated it at 1,000,000 barrels. Referring to this, in the report of Commission of that year he says:—

"Consider what this prodigious take represents. A barrel of herrings contains, on an average, 750 fish; but as a certain number of fish are wasted in the operation of curing, 800 fish must be taken for every barrel of herring cured. In that case, 800,000,000 herring must be taken annually by Scotch fishermen alone. The Norwegian herring fishery is as productive as, or more productive than the Scotch fishery; and the English, the Irish, the French and the Dutch fisheries, are also very productive. Estimating the gross produce of these four fisheries at only the same amount as the Scotch fishery, 2,400,000,000 herrings must be annually taken by four nations, the British, the French, the Dutch and the Norwegian, or in other words, two herrings for every man, woman and child in the world.

"But prodigious as this capture is, there are grounds for believing that the destruction of herring by man sinks into insignificance, if compared with the destruction effected by enemies over which man has no control whatsoever."

"Consider," wrote the Royal Commission of 1862, on trawling for herrings on the coast of Scotland, the destruction of large herring by cod and ling alone. It is a very common thing to find a codfish with six or seven large herrings, of which not one has remained long enough to be digested, in the stomach. If, in order to be safe, we allow a codfish only two herrings *per diem*, and let him feed on herrings for only seven months in the year, then 2 herrings+210 days=420 herrings is his allowance during that time. In round numbers 3,500,000 cod, ling and hake were taken in Scotland alone in 1876. It would be a great exaggeration to suppose that one cod was taken out of every 20 in the sea, but assuming that 5 per cent. of the cod in the sea were actually caught, 70,000,000 cod, ling and hake must have existed off the coast and islands of Scotland. If, however, each of these 70,000,000 cod, ling and hake consumed 420 herrings in a year, they must altogether have consumed 29,400,000,000 herrings or 12 times more than all the herring caught by Scotch, English, Irish, Dutch, French

and Norwegian fishermen put together, and nearly 30 times as many herrings as are taken by Scotch fishermen alone.

"The destruction of herrings by gannets is also enormous. It is estimated that on Ailsa Craig alone there are 10,000 gannets. Assuming that each bird only takes 6 herrings a day, the gannets on Ailsa Craig alone must consume 60,000 herrings a day, 1,800,000 herrings a month, or 21,600,000 herrings a year. On the assumption that there are 50 gannets in all the rest of Scotland for every one on Ailsa Craig, the Scotch gannets must consume more than 1,110,000,000 herrings a year, or 37 per cent. more than all the Scotch fishermen catch in their nets."

"Gannets and codfish are, however, by no means the only enemies to which the herrings are exposed. Whales, porpoises, seals, dog-fish, and predaceous fish of every description are constantly preying upon them from the moment of their birth. The shoals of herrings in the ocean are always accompanied by flocks of gulls and other sea birds, which are constantly feeding upon them, and it seems therefore no exaggeration to conclude that man does not destroy 1 herring for 50 destroyed by other enemies.

For many years, we were informed, the herring shoals did not visit Shetland, and very little was done by the Shetland fishermen in the way of catching them. Of late years, however, the shoals made their appearance, and the result has been that some 400 boats or more, with the corresponding drift of nets, have been built and purchased by the fishermen of the Islands. And the fishing proved remunerative until 1889, when such extensive bodies of dogfish appeared off the coasts, that the fishermen could not venture to put their nets in the water, as the dogfish, if they come in contact with a net, will so roll up and entangle themselves in it, by means of the long horny spikes attached to the fins and the tail, as to render the work of disentanglement simply impossible. These dogfish remained in the Shetland waters during the whole period of the autumn herring fishing and completely destroyed it. We were in the house of a curer in Scotland, who had made arrangements to pack 50,000 barrels, and who had sent up a large quantity of material, barrels and salt, with coopers. Before we left Wick he had returned, and had not succeeded in securing 5,000 barrels. This serious loss to himself and to the fishermen was caused entirely by the continued presence of the dogfish in such numbers, and to such an extent, on the coasts, as to render herring fishing impossible. The dogfish, therefore, may be looked upon as the natural enemy, not only of the herring, but also of the fishermen, and the herring curer. When the dogfish finds herrings gilled in a net he bites off the tail half as clean as could be done with the sharpest knife. When he gets entangled in a net, the manner in which he rolls himself up in the net, and rolls up the net with him, is simply incredible. So the fishermen have good reason to dread the dogfish.

"The destructive powers of man, therefore, is insignificant when compared with the destructive agencies which nature has provided; and nothing that man has hitherto done, or can do, has produced, or will produce, any appreciable effect on the number of herrings in the sea."

To give an idea of what man is doing, and the great increase which has taken place in recent years, and the improvement in the means of capture, Mr. Buckland says :—

"During the last 20 years the substitution of cotton nets for hemp nets has, it may almost be said, revolutionized the herring fishery. Twenty years ago a boat carried 24 nets made of hemp, each net 40 yards long, with 28 or 29 meshes to the yard 10 to 12score meshes deep, and weighing 25 lbs. Each boat carries now (the boats are larger than then) 50 to 60 nets made of cotton, each net 60 yards long, with 35 meshes to the yard; 18 score meshes deep, and weighing 12 to 14 lbs. A boat, in other words, used to carry 960 yards of netting, it now carries 3,300 yards. The nets used to be 6 or 7 yards, now they are over 10 yards deep. They used to present a catching surface of 3,000 square yards, they now present a catching surface of 33,000 square yards. The 3,000 square yards of hemp netting used to weigh

600 lbs; the 33,000 square yards of cotton netting, now, weighs a little more than 600 lbs.

"Without increasing the weight of nets to be worked, each boat has increased its catching power five fold. There are more than 7,000 boats in Scotland fishing for herrings. These boats must, in the aggregate, have nets 23,000,000 yards long, and certainly, in the aggregate 230,000,000 square yards of netting. The Scotch herring nets would, in other words, reach in a continuous line 12,000 miles. They would go more than three times across the Atlantic from Liverpool to New York."

The concluding words of the third last paragraph will, of course, be read subject to, and in connection with the fact that before his death Mr. Buckland changed his mind as to man's ability to cause an appreciable destruction of herring by an unnecessary destruction of spawn.

Mr. Mitchell, who has made the study of herring, in all its phases, a prominent work of his life, in his book in connection with the subject, and preliminary to his insertion of a letter by Mr. Cleghorn, of Wick, makes the following appropriate remarks:—

"*The fecundity of the herring* may generally be supposed to make up for the great quantities fished and destroyed by birds and the finny tribes; yet it is unquestionably a subject of national importance to consider how far the Legislature should further protect the growth of the herring, and prevent all unnecessary disturbance or destruction of the shoals of herrings and their fry and spawn. We have stated different causes which may tend to diminish the supply; and it will be seen by the letter, of which we subjoin a copy, from Mr. Cleghorn, of Wick, a gentleman who has paid particular attention to the subject, that there may be reasonable grounds for all due care being taken that legislation shall be applied when necessary. We see, almost every session of Parliament, new Acts as to the salmon fisheries, which are comparatively of much smaller value than the herring fishery. The following is the letter referred to:—

"'WICK, 7th October, 1856.

"'SIR,—Since you have taken the herring in hand, allow me to give you some facts which may be of use to you. There is no subject that more requires elucidation.

"'In the "Quarterly Journal of Agriculture, and Highland and Agricultural Society's Transactions" for June, 1839, you will find a good paper on the herring by Mr. Mitchell, of Leith. Please turn it up and read it. The herring is much more local than you fancy. The reason why they are found apparently suddenly making their appearance on the shores is, that they just then have matured their milt and roe, and self-preservation is then lost in their anxiety to preserve the species. Then milters and spawners come together. Till now they were bent on individual preservation; each was on his own hook; they avoided nets and other dangers. Now all sense of danger is lost—their only aim now is the preservation of the race, and when in this state sudden destruction comes upon them in a cloud of nets.

"'We have on our shores races of herrings that we know come to maturity in July, August and September. Up to 1851 we took yearly on an average 20,000 barrels, but in July, 1851, we took 30,000 barrels. This seems to have been their culminating point, for in July, 1852, we took only 7,618 barrels; in July, 1853, 7,829; in July, 1854, 2,396; in July, 1855, 2,664; and in July, 1856, 2,977 barrels.

"'Our July races then are done; we have fished them out; we have all but extinguished them. We are now doing for the August and September races what we have already done for the July ones. Of these, in 1856 we were only able to take 90,000 barrels, although we brought to bear on them 19,000,000 square yards of netting, the greatest extent of netting ever used here. In 1855 they afforded us 135,000 barrels.

"'If the herring belong to the waters in which they are fished, my conclusion, that we are extinguishing the races or reducing them so low that the produce of the fishery will be less than the outfit, is not so absurd as some would insinuate; but it

may be made more apparent when I tell you that the space over which our boats fish here is from the Pentland Skerries to Clythness, about 30 miles. On this portion of sea our 1,051 boats every night during the fishing season spread 19,000,000 square yards of netting, or nets 500 miles long. The wonder is not that we are extinguishing the races, but that they should have lasted so long. The netting has been every year expanding, in consequence of the shoals contracting. The poorest districts use the finest and most extended netting. In 1818 the netting of all Scotland was 10,000,000 square yards, and with that we took 340,894 barrels; while it appears by the Fishery Report of last year that we employed 80,031,507 square yards, and caught 766,703 barrels, showing that with eight times the extent of netting we were able only to double the quantity of herring caught.

"'The late Mr. Wilson, of the Board of Fisheries has settled the character of ground on which the herring spawns—see *Blackwood's Magazine* for April last (1856). Were the Government anxious to aid the fisheries they ought to survey the ocean bottom, and map it out, and let us see at least the portions on which the herring cannot spawn. They never spawn on sand; I believe it must be on rough ground. At all events something must be done. Our summer shoals are now so much reduced that we must change our time and the place for fishing. New ground must be sought, longer voyages made, or we must take to winter instead of summer fishing. We must get deep and safe harbors.

"'I believe, unless the matter be viewed in the light I have done, this fishery is lost. My views are most unpalatable to all engaged in the trade; and they have so long looked on the herrings as being as enduring as the ocean that my doctrines have been spit upon by them.

"'I am, your obedient servant,

"'JOHN CLEGHORN."'

It is only right to say that although Mr. Cleghorn appears to have had authentic facts and data in his favor at the time he wrote, that subsequent results as to the Wick fishery did not verify his predictions. Mr. Cleghorn was not engaged in the herring business, but devoted much of his time to the study of the herring industry, and was animated purely by a desire to guard and protect that industry. This we learned from a fishery officer who was well acquainted with Mr. Cleghorn. Our own opinion is that the herring are excessively fished on the east coast of Scotland, and that Mr. Cleghorn's voice was in the right direction.

THE MOVEMENTS OR MIGRATION OF HERRINGS.

The question of the periodical migration of the herring, whether they annually come from long distances or from the seas immediately adjacent to the coasts where taken, is still unsettled. On this subject Mr. Mitchell says:—

"Various accounts have been given of the visits of the herring upon our coasts. Many writers have stated, and some scientific works still state, that the herring comes from the Artic circle in large shoals of some leagues extent, dividing into lesser shoals on coming towards the north of Scotland; one body proceeding to the west coast of Scotland and to Ireland, and another to the east coast, each directing its course southward. Others state that although the herrings do not come from the Artic circle, they at least come from a considerable distance northward of Scotland. But we consider that the herrings inhabit the seas adjacent to the coasts, bays or rivers where they resort for the purpose of spawning, and that after spawning they return to the sea in the neighborhood, where they continue and where they feed until the spawning season again approaches, while the fry, on being vivified, continues near the spawning ground until it is of sufficient size."

Both theories have difficulties to encounter, no doubt, but the theory of Mr. Mitchell seems to have the greater of the two, and that is in the well known fact that from time immemorial great shoals of herring, accompanied by a numerous contingent of whales, gulls and gannets, hake and dog-fish, covering great areas of

the sea, periodically make their appearance off Cape Wrath, the north-west point of Scotland, setting in to all appearance from the north, and on nearing the land dividing into two great divisions, the larger one taking eastward along the north of Scotland, and thence heading southward on the east coast, occupying weeks in its progress, the other and smaller wing taking down the west coast. By the time these herrings reach Wick they are generally pretty full of roe and milt. Whence do they come, and for what purpose? What becomes of the fry from the spawn deposited on the east coast of Scotland? Do they remain in those seas, or are they led by instinct to return by the Pentland Firth and the Orkneys and Shetland to the winter grounds in the north, whence their progenitors came? Mr. Barry, a member of the Fish Inspection Commission, after his tour on the Scottish coasts, on this subject says:

"The steady periodical resort of the great shoals of herrings to the east coast of Scotland, for the last fifteen years, goes far to contradict the general belief in the capricious migratory habits of that fish; but although they keep their ground upon the shores of the North Sea, they frequently vary their position, sometimes abounding on the shores of Caithness, and as far north as the Orkneys, and sometimes on the shores of Aberdeen, Kincardine, Forfar, Fife and Haddington, and as far south as the Tweed. It is an object of great importance to the fishermen to be made acquainted speedily with the most favorable localities. Along the whole east coast there are stationed intelligent officers, whose duty it is to communicate constantly with headquarters at Edinburgh, and the facilities afforded by telegraph would enable the authorities to keep us informed of the movements of the fish."

In the debate on the Fisheries Act, in the Legislative Council of Canada, in 1865, Hon. Mr. Letellier said:—

"The subject of the migration of fish is not yet well understood. There is an annual migration, but it is not so regular that we can base calculations upon it. As far as the herring are concerned, they do not frequent the river now as much as they used to do. The character of the shore changes, and the fish go elsewhere to spawn. Near my residence the sea carried off a shoal, and there are now very few herrings caught on the shores of the parishes of St. Denis or River Ouelle. In Rimouski the fish are now more abundant than they used to be. In Témiscouata they stay longer than formerly. The changes in the bed of the river and the constant navigation of certain channels are the chief causes of the difference."

FLUCTUATIONS IN THE MOVEMENTS OF THE HERRING.

Mr. Buckland on this head says:

"It is worthy of remark that the herring fishery in time past has always been liable to remarkable fluctuations, over which man apparently has had no control; and there is no reason to suppose that the fishery will be exempt from such fluctuations in the future. The herrings, without any assignable cause, have suddenly left whole lochs, or even portions of the coast for long periods of years, and have afterwards, equally without any assignable cause, returned to them. We received accounts of such occurrences in numerous places in Scotland, but these fluctuations in the herring fishery are by no means confined to Scotland alone. The same thing has occurred in Norway, Denmark and other countries. There is no evidence that it has been due to excessive fishing, and we are bound to conclude that the migrations of the herrings have been, and still are, subject to laws which man up to the present time has been unable to discover. A failure of the fishery at any portion of the coast ought, under such circumstances, to occasion little or no disquietude; on the contrary, as in times past, the herring has been variable in its movements, it is reasonable to assume that its movements will be variable in the future. Failure, therefore, in particular places, even though protracted over a series of years, ought not only to be regarded with equanimity, but even to be expected. It is possible, however, that in the case of the narrow firths and lochs of Scotland the great increase in the number, length and depth of the nets may have some bearing on the fluctuations."

On this subject Mr. Mitchell says :—

"From 1690 to 1709 a very extensive fishery was carried on at Cromarty, whither the herrings annually resorted in considerable abundance. Shortly after the Union (1707) an immense shoal was thrown or rather ran themselves on shore, in a little bay to the east of the town. The beach was covered with them to the depth of several feet, and salt and casks failed the packers. The residue was carried away for manure by farmers in the neighborhood. Strange to say, however, they left the firth in a single night, and no shoals again made their appearance for more than half a century."

Further, Mr. Mitchell says :—

"The herring is very capricious, and has been driven away by injudicious action on the part of fishermen," as stated in another chapter of this report. On the subject of the return of herring to forsaken grounds in the north, the British Consul at Gothenburg, Sweden, addressed to the Earl of Derby the following letter :—

"BRITISH CONSULATE, GOTHENBURG, 4th January, 1878.

"MY LORD,—I have the honor to report that great shoals of herrings, of the large kind, which disappeared from the coast in 1809, have now made their appearance again north of Gothenburg, on the coast of this country. This information I have thought proper to communicate to Her Majesty's Government, as British subjects came to this country during the former herring periods with ships to trade in this article. I may here make mention that my own father, Thomas Duff, a native of Inverness, and cooper by trade, came over to this country to teach the Swedish people the art of curing the herring according to the Scotch method. The first appearance of the herring took place at Christmas, when whales were seen following the shoals of herring to the coast.

"I have, &c.,

"F. W. DUFF.

"The Right Honorable
"The Earl of Derby."

THE HERRING A TIMID FISH.

Mr. Mitchell says :—

"The herring is a very capricious fish, and we have before stated instances where the shoals have been driven away, such as from the Swedish coast, and where they were scared away by continuous fishing, night and day, and the shoals never returned."

Mr. Mitchell's book was published in 1864. The herring had not returned then, but they returned, as Mr. Duff shows, above, in 1878, after an absence of sixty-nine years. Mr. Mitchell, speaking of the extent of the herring industry in the town of Burntisland in 1775, says :—

"The want of judicious superintendence was the cause of the shoal of herring being driven away. Herrings like other gregarious animals, are easily disturbed, and the fishing during the day fairly drove the shoals off in the course of time from their haunts."

In 1819 an act was passed for the encouragement of the herring fishery on the coast of Ireland—Mr. Mitchell quotes clause 15 :—"And whereas shoals of he rrings are frequently frightened from the entrance of the bays and creeks by vessels moving and shooting the nets at improper places, and by shooting long lines at the entrance of the bays and creeks, no vessel on the coast of Ireland shall moor or shoot nets or lines in any place forbidden by the Inspector under the penalty of £20.

"Clause 16. No net shall be shot or set on the coast of Ireland during the day time, under a penalty of £10, nor at any time or place fordidden by the Inspector, under a penalty of £20."

The British Commission of 1878, of which Mr. Buckland was a member, found, as already quoted elsewhere, that, "It is desirable to prohibit the shooting of movable nets between sunrise and sunset, as no doubt shooting nets in daylight scares

the fish, causing the fish to sink. In this way the act of one or two improvident fishermen may cause loss to all the others."

An old intelligent fisherman in Wick told us that the fishery there, he had no doubt, had suffered greatly from the objectionable action of many fishermen in shooting the nets early in the afternoon, as soon as they reached the fishing ground.

OFFAL.

Throwing offal or refuse of herring into the sea in the neighborhood of the fishing grounds is another reprehensible practice, certain to drive the herring away, as they appear to be very sensitive to offensive sights and smells. It appears that in Sweden this had something to do in scaring away the fish, as above referred to.

Mr. Mitchell says:—"Those vessels which, after gutting the herring on board, throw the refuse into the sea, ought not to be permitted to fish where there are herring shoals; and this law ought to be enforced by the Dutch Government (whose fishing vessels cure on board), which might order that the portions taken out of the herrings at gutting be barreled up for use, for the purpose of making oil, or for manure, or for both purposes.

"The quantity of herrings fished in Sweden, prior to 1809, was about as great as that fished in Scotland; yet by allowing the refuse of the herring which had been boiled at places on the coast, for the purpose of obtaining the oil, to reach and taint the sea, the shoals left," and as we have seen, did not return for 69 years.

Mr. Mitchell further says:—"We are of opinion that any operation which tends to disturb or scare the herring may drive away or diminish the shoals, such as leaving the nets loaded with herrings in the water, when they are unable to be taken out in consequence of their weight, throwing the refuse into the sea after gutting the herring, as is done by the Dutch busses, or allowing the refuse of the oil of the herring to go into the sea, as was done on the Swedish coast."

CLOSE SEASON FOR HERRING.

"The question of a close season for herring was very fully discussed by the British Commission in 1878, and much evidence taken in relation to the point. The fish-curers were almost unanimously in favor of a close season for herrings. So were many of the fishermen, with other witnesses, to whose opinions much weight was attached. The Commissioners arrived at the conclusion that it would be impossible to adopt a close season in respect to the herring, chiefly because the same close season would not suit every locality, as the great shoals or armies of herrings appear in the north-west of Scotland in the beginning or middle of May. The great fishery in the Minch, the sea between the Long Island on the west and the Mainland is prosecuted from about the middle of May to the beginning of July. The fishery on the east coast commences about the middle or end of July, and continues until the beginning or end of September. By the Act of 1860 (23 and 24 Vict., cap. 92), a close season was instituted on the west coast of Scotland, but it was found to work so oppressively on the fishermen that in 1865 it was partly repealed by 28 Vict., cap. 22. The Commission strongly urged the entire abolition of the Act, and they concluded that the objections which may be urged to a close season more than outweigh the benefits which would result from it.

WASHING HERRING.

The washing of salt herring is condemned in Britain—the curers holding that the brine formed of the salt, the blood and the fat adhering to the packed herring helps, contrary to an opinion at one time prevalent in a very marked degree, to preserve the fish, and to retain all the delicate flavor and the nutritious qualities of the herring—and that the use of the proper quantity of salt and the exclusion of contact with the air of the atmosphere, the chemical action of the salt is sufficient to prevent deterioration of the brine and tainting of the fish. The Scotch curers consider that the washing of herring before salting is most detrimental to the fish, injurious in every way, and destructive of the quality of the herring. The only

washing done in Scotland to herring is, as mentioned elsewhere, in washing, sometimes, the herring used to re-fill the barrels after packing, should the fish appear dirty or greasy.

ROUND, OR UNGUTTED HERRING.

Although at one time a considerable quantity of ungutted herring, exclusive of red herring, were put up in Scotland, the practice has been discontinued, and we were told by leading curers that no one would now think of packing in pickle ungutted herrings—that to do so would be a waste of time and material. The Dutch at a very early period in the history of their herring fishery found out the benefit of gutting herring. They claim that after the fishing of herring commenced in the Meuse in 1163 the fishermen of Zurich Zee were the first to fish them and put them in barrels; and "that the fishermen of Biervlief were the first who invented the better method of preserving them salted, *by gutting and taking out those parts of the herring which before caused them to spoil much sooner.*"

In an essay published in England in the early part of the 17th century, entitled, "Some Observations on the Present State of the British Fisheries, and the Means of Improving Them," the writer says:—"We want only encouragement to carry this trade entirely from the Dutch, and one of the greatest would be to make early herrings fashionable. Indeed, all lovers of their country ought to have them on their tables in the month of July, if possible."

BORACIC ACID.

It is said that the Norwegians use boracic acid in curing herrings, but whether they do so in combination with salt, in the large barrels we cannot say. In Edinburgh, however, we met persons who had used Norwegian herrings, put up in tins, and preserved by boracic acid. They said those herrings were pleasant to the taste, and that they did not consider the nutritious qualities of the fish in any way impaired. They said they had heard that scientific men disapproved of the use of boracic acid in this way as being detrmental to health.

In London we were informed that a large portion of the milk used in that city was treated with boracic acid before it was offered for sale, in order to preserve its sweetness.

If this be true, we can only say that the most pleasant milk we had on our journey was the milk we used in London.

THE HERRING INDUSTRY OF THE DOMINION.

The herring industry of the Dominion, which has attained to very respectable proportions, in which a large amount of capital is invested, and in which a large amount of labor and energy are engaged, is known to be at present in a languid and unsatisfactory condition. The demand for our herrings has been checked, in consequence, in many instances, of the inferior quality of the herrings placed upon the market, and of the packages in which they were contained. This inferiority of our fish does not arise from natural causes, because there can be no doubt that the herrings on the Atlantic coasts of the Maritime Provinces are equal to the herrings of any nation in Europe, excepting, perhaps, the Lochfyne herring of Scotland. The inferiority of our herring as placed on the market arises from preventible causes—from careless handling of the fish, when taken, exposure to the sun, deficient curing and packing. This condition of things is well known to the retail dealers and the consumers, and it is admitted largely by many of the large dealers engaged in the trade. The answers made to the questions sent out by the Committee of the Dominion House of Commons in 1869, and what we have recently learned of the views of many of the Nova Scotia merchants on this subject, show this. This knowledge is encouraging, because it implies co-operation, and the co-operation of all concerned in the trade will be necessary in order to place this important industry upon a satisfactory, mercantile, national basis.

This industry with us is very much in the condition in which the herring industry of Scotland was over 100 years ago. A Scotch writer in 1749, referring to the state of the herring industry in Scotland at that time, says :—

"It is very plain that our not succeeding hitherto (in the herring fishery) in any degree proportionable to what might be expected from the possession of such advantages, has been owing rather to want of care, to want of diligence, to the want of due regulations, to the want of sufficient capital, and finally to the want of a proper authority to guide, instruct and inspect the conduct of such fisheries. These and these alone must be the causes of former failures and miscarriages." and Again :

"In the five years from 1779 to 1785, notwithstanding all the expenditure of public money, and the enterprise of private individuals, the herring fishery, for want of sound legislation and judicious superintendence, had nearly ceased to be of any importance." And again :

"From the irregular manner of curing herrings at that time on the Scottish coast, no progress of any importance had hitherto been made. Although abundance of fish might have been caught, the ignorance or dishonesty of curers in preparing inferior fish, put up in unfit, inferior packages, with inferior salt, prevented herrings from being received with favor either at home or abroad."

At that time Scotch herring were generally cured by the fishermen themselves, and that being the case, it could not be expected that the work would be well done. Take, for instance, the great pork industry of Ontario. What would it be if every farmer cut up, cured and packed his own pork? Instead of doing this, he brings it to the market in the carcase at the proper season of the year, and sells it to the pork packers, men who have facilities for the work men who have knowledge of and experience in the trade, who can divide the carcasses into the different grades required by the trade, and who can put it up in a uniform manner, and in accordance with the laws and customs regulating that particular and important industry.

Mr. Bruce, of Frazerburgh, told us that his father was one of the first fish-curers who made the curing of herrings a special business on the east coast of Scotland, and that as soon as the business of curing and packing was taken out of the hands of the fishermen, and performed by a new class of men, devoting their capital, their intelligence, skill and energy to the work of curing, leaving the fishermen all their time to attend to their boats and nets, the character of Scotch herrings at once went up in the markets of Europe, and kept gaining ground in every market in which they were offered for sale.

The whole history of the herring industry of Scotland, in its earlier struggles, and its later successes, shows that well cured herring will always find a market, and that stagnation in the trade is generally due to the action of careless, indifferent, ignorant, or dishonest curers.

The Fishery Board of Scotland is indefatigable in its efforts to increase the demand for Scotch herrings on the continent of Europe and elsewhere, and to this end, through the Foreign Office in London, it has been the means of procuring much useful and important statistical information as to the herring trade in the markets of the several countries of Europe, in Morroco, Tripoli, Tunis, Turkey, and the United States.

The replies received in answer to the circulars of the Fishery Board of Scotland, so sent out, from British Consuls abroad, show, that notwithstanding the great efforts of the Norwegians, the Swedes and the Dutch, and the temporary check to the Scotch herring trade in Stettin, there is still a large demand for Scotch-cured herring on the continent of Europe and elsewhere, proving that properly cured and well packed herrings will always command a ready sale. Mr. Wellman, from whose letter to Mr. Traill, M.P., London, we have already quoted, says that a large portion of the herrings imported at Stettin are sent inland 800 miles or more.

It is well known that people living far inland from the sea must and will have herrings, but they are particular as to quality, and must have them properly cured and packed.

REPLIES OF BRITISH CONSULS.

From the reply of the Consul at Vienna, Austria, we learn that the increase in the imports of Scotch herrings in that city amounted in 1887 to £23,000 more than 1886; that these herring all bore the "Scotch Government stamp," as it is there called, and the endeavors to introduce Dutch herrings there had failed, Scotch being preferred, and that those herrings all came from Stettin, also, that bloaters are imported into Vienna from Bergen, Norway, showing that bloaters can be sent long distances with perfect safety to quality and sale.

From the reply of the Consul at Brussels, Belgium, we learn that smoked or red herrings packed in barrels do not find sale there, but that they must be put up in hampers containing 100 to 200 fish. It also appears that a considerable amount of Scotch herrings find their way indirectly into Belgium through Holland, where the barrels are unpacked, and re-packed by the Dutch in small packages.

From the reply of the Consul at Copenhagen, Denmark, we learn that Norwegian herring caught in the autumn, and put up in packages of various sizes, are preferred to Scotch herrings, although the Norwegian herrings caught in the spring of the year are not liked, because they lack the requisite fatness.

From the reply of the Consul at Paris, we learn that Scotch pickled herrings are rigourously excluded from France by the imposition of a high duty; also, that the French railways were to be asked (in 1888) to lower the rates for carrying fish, and increase the facilities for through traffic, so as to give a better market to fresh or lightly salted and smoked fish, such as bloaters, kippers and others. In Bordeaux the general preference is for small packages of pickled fish.

From the report of the Consul at Stettin, it appears that the demand for herring in Germany can be increased by careful selection and curing of the herrings, and putting up in small packages. The designation or classification of herring at Stettin imported from Scotland is as follows:—"Full Brands," "Unbranded Fulls," "Spents," "Matties" and "Lewis," thus showing that the "Lewis" herrings—that is, the western coast herrings—are, on account of their excellence, rated as a distinct class of herring.

From Genoa, Italy, the British Consul reports as follows:—"As far as my information goes it would seem that Scotch fish as at present packed will never sell freely; but I am told that there might well be a considerable market for Scotch herrings, pickled in brine, if carefully prepared and brought to market in a nice-looking, attractive condition. The Italians are an artistic people, and like things not only to be good but to look pretty." (May not this be the case, to some extent, with the people of other nations, too).

In his reply, the British Consul at the Hague, Netherlands, says:—"It appears that in consequence of the present (1888) low price of Dutch salt herrings, and their very superior quality as compared with those cured in Scotland, the demand for the latter has so fallen off in this country that the total importation is reduced to 500 or 600 barrels annually and that unless the Scotch curers can either succeed in so *improving the quality of their fish* as to make it equal to that cured by the Dutch fishermen, or should be unable to undersell the latter considerably in the Dutch markets, there seems little or no probability of an increased demand arising for them in this country.

"*The superiority of the Dutch fish, lies altogether in the fact of the herring being cleaned and slightly salted immediately on being caught, on board the cutter whereas the Scotch fish is cured on shore.*"

The British Consul at Togaurog, Russia, reports that "the best quality of herrings sold in this neighborhood received by way of St. Petersburg, are designated 'Dutch Royal,' and 'Scotch' herring, but are all of the same quality, and probably imported from Wick, Scotland."

"The British Consul at Riga, Russia, says: The demand for Scottish cured herrings, which were originally introduced into this town many years ago, has steadily increased, and the fish are much liked by the consumers, not only throughout the Provinces, but they also find purchasers in the interior of Russia. A large

quantity of the Norwegian-cured fish are imported here, and are brought into competition with the Scotch herring."

"As far as I have been able to gather from merchants engaged in this trade, it appears that it is thought that a reduction in the present high rate of import duty would cause an immediate increase in the demand, and another point on which they lay great stress is, that if the curers wish to find a good market and a greater demand for their fish, *more attention should be paid to quality, cure and packing*, and it is also suggested that there should be *an obligatory Government Inspection*."

These extracts show conclusively that the tastes of people as to herring, in different countries, vary considerably some customers at the same time preferring Scotch, and some preferring Dutch-cured herrings. They also show that it is quite possible and very probable that the large quantities of herrings sold as "Dutch," are really the "Lewis" or west coast of Scotland best herrings, re-packed into small packages of neat and attractive make, and sometimes mixed with Dutch herrings. They also show the necessity of a careful selection of the fish, and of bringing the salt into contact with the fish so soon as caught; and all through the reports the fact is prominently set forth that a good article will always find a ready market, especially if that article be carefully selected, well-cured herring.

Mr. Reid, Vice-Consul at Stettin, from whom we received much kindness and information, and who is largely engaged in the herring trade himself, in his report to Lord Salisbury, in 1888, says.—

"The increase of the demand for Scotch cured herrings can best be promoted by good quality and improved selections, and particularly in the 'selection of the fish,' which should be made suitable for the requirements of the different customers. That the various kinds and selections of herrings imported at Stettin are so numerous, that it is impossible to explain graphically and exhaustively what is required, and suggests that the best way of obtaining information on the subject, would be that one or two practical and technical members or officers of the Fishery Board, were afforded the opportunity of studying the requirements of the trade at Stettin, which is the largest market for cured herrings of all kinds."

The Scotch sent to Holland for skilled coopers to teach them the art of curing herring. The Swedes and the Norwegians, respectively, sent to Scotland for trained coopers to teach them the same thing. There can be nothing derogatory in Canada doing likewise.

REMEDIAL MEASURES.

From the evidence before us, as well as from our own personal knowledge of facts relating thereto, we consider the herring industry of the Dominion of Canada to be at present in an unsatisfactory condition. We consider that very great and important changes in nearly all present methods of cure are imperatively necessary.

These changes, calculated to benefit the whole trade, cannot injure any, but must inevitably and materially improve the position of all concerned, the fisherman, the merchant and the consumer-while promoting and consolidating an important branch of the commerce of the Dominion. Therefore, the co operation of all concerned will be required in order to bring about effectually and economically the necessary reform in this important industry. The country has done much already for the promotion of the agricultural, and commercial and the manufacturing interests, and there can be no doubt that the country, through the Legislature and the Government, will do whatever may be necessary to place the herring fishery of the Maritime Provinces upon an improved, permanent and satisfactory basis.

We consider the Scotch system of treating herring, as an article of commerce, to be as perfect as any system can be when honestly carried out in all its integrity, and that improvements in the herring industry of Canada can safely be made after the Scotch model, so far as our somewhat different circumstances may permit.

In one most important respect the Scotch fishermen have an immense advantage over the Canadian fisherman, and that is in having all the curing and packing of herrings performed by a distinct and independent class of merchants known as

fish curers. We have seen that the herring industry of Scotland never amounted to anything, never prospered, until an enterprising and energetic body of men came forward and assumed the position of fish curers, taking that part of the business entirely out of the hands of the fishermen, to the great relief of the latter, and the promotion of this important business. In order, therefore, to place this industry in Canada upon a satisfactory and permanent basis, we are of opinion:

1 That while some slight degree of improvement in the details of curing and packing herrings may be at once attained by changes in the present methods, yet no real permanent improvement can take place nor can the herring industry in Canada be placed upon a satisfactory commercial basis, until the fisherman ceases to be his own fish curer, and until the business of curing is taken in hand by a class of merchant fish curers, as in Scotland men of energy, business experience and capital, with all the necessary appliances to carry on the business on fixed principles and in accordance with such regulations as may be promulgated for the benefit of the trade from time to time.

In Scotland nearly all the curers devote their whole time to the supervision of their own curing operations. In former times if a fish curer did not so superintend his own curing business he made arrangements, as Mr. Gordon, of Pictou, in his reply to question No. 4, 1869, states with a master cooper to furnish the barrels, and generally to superintend the cure and putting up, guaranteeing that the same would pass the Crown brand; or he hired journeymen coopers and a foreman, laid in materials for the manufacture of barrels, and the foreman attended to the curing for the market. This was the method, to a great extent in Scotland 55 years ago, and to some extent still.

Mr. Gordon also very truly says, as the result of his own experience, and as we know to be the case, that when a fisherman cures his own fish it is done with the least possible labor and cost, and once they pass into the hands of the merchant or trader, paying up so much of his indebtedness to the former, he feels no more interest in the matter; but it is different with the merchant or curer; his capital, his credit and his good name are at stake, and unless his fish are properly cured he will be the loser. Thus the strongest of all motives, self interest, would induce him to cure and put up for market an article calculated to render a return for his outlay.

2 (*a.*) That there should be a chief fishery officer, inspector or superintendent, having jurisdiction, under the Department, over all matters of detail pertaining to the herring fishing industry in all the Maritime Provinces, whose business it should be, in association with one or more of the most experienced and most intelligent officers in each Province, to arrange a general classification of herring, and a graded branding standard, as well as an unbrandable grade for the Dominion; having due regard to any special kind of herring peculiar to any one Province or locality; the object being to secure, as nearly as possible, a general Dominion standard on the same lines as the graded standard of Scotland, as nearly as circumstances will permit. Such an arrangement providing such officer we consider as necessary as the establishment of a merchant fish-curing class, in order to attain to anything like perfection of system and permanent improvement. While such an officer would instruct the local officers in technical as well as practical knowledge in relation to fish and fisheries, they would communicate to him all necessary local information having reference to his position and the duties of his office.

To such an officer also, in the first instance, at least might be referred for settlement all disputes arising within his jurisdiction having reference to the herring industry from the catch to the brand. In short, his whole time would be given to the task of re-organizing the entire business, under the law and the regulations of the Department, and of securing an improved and uniform system in all the Provinces as speedily, as economically and as effectually as possible.

(*b.*) That there should be imported and established in each sea-board county, where the importance of the herring fishing may so warrant, a thoroughly trained Scotch herring cooper, of long experience in the herring curing business, who should act as head inspector for his district, with power, after instructions, to appoint his

deputies, and who should be responsible for their work as well as his own, in inspecting and branding—whose duty it should further be, within his district, to exercise a general supervision at all points where necessary, over the curing of herring, the proper classification, selection, packing, inspecting and branding of herring, to examine the barrels, and to instruct all herring coopers in his district in relation to the mechanical and other duties devolving upon them, and pertaining to their occupation—such county inspectors to interfere in no way with the existing staff of fishery inspectors and overseers.

(*c.*) That there should be imported from Scotland, for each such county, one crew of expert herring-gutting girls, whose business it should be to go from station to station, teaching all concerned, willing to learn the art of gutting, selecting, classifying, curing and packing herrings, and re-filling barrels preparatory to inspection, as practised in Scotland.

This step we consider most important, not merely as to the modes, but also as to the expedition with which the work can be done, especially when we learn from a reliable source that in some places in New Brunswick it took four men eight days to put up, in a very indifferent way, 200 barrels; and four men over four weeks to put up the same quantity in good order and style—whereas, as already stated, an expert crew of three Scotch gutting girls, can gut and pack 80 Scotch barrels, equal to 100 Canadian barrels of herring, in one long summer day. If the women at or near the several herring fishing stations in the Dominion, and the young lads on the herring schooners were taught, so that a crew of three of these could gut, cure and pack even 50 or 60 barrels a day, or more, what a good work would be done, and what a saving of time and money would be effected.

In this way not only would the women at the large stations be taught, but also the women in small hamlets and out-of-the-way places along the coasts, where the catch is so small as not to induce merchant curers to establish stations, fishermen, their wives and daughters, could be instructed how to gut, assort, cure and put up herring so as to claim the brand for home consumption. Such an arrangement would be of incalulable benefit to isolated fishermen on many parts of the coast. These gutting girls could thoroughly educate all the women on the coasts in the art of gutting and packing in two or three years, and might, if the Department saw fit, be allowed to work for some of the large curers, when necessary, on such terms as might be decided upon, and so reducing expenses.

THE BARREL.

3. That the present Canadian barrel, being too weak to stand the rough handling to which it is exposed on the railways in transportation, should be greatly improved. We think the present capacity of the barrel should be retained. That it should contain not less than 200lbs. of herrings, exclusive of salt; that it should be made of stronger material; that the staves should be of hardwood wherever possible, and that if spruce is permitted to be used, the stave should be thicker and stronger than the present stave. Fir and pine should be prohibited. The rule in Scotland has been that the barrel might be made of any kind of wood, fir excepted. Mr. Gordon, of Pictou, in his answer to question 4, 1869, says:—"Hardwood is calculated to retain the pickle without souring it." It seems very probable that a fir or pine barrel may "sour" fish or other animal food packed in it for the first time. If a new pine barrel or cask be filled full of pure water, and covered up, and allowed to stand for some weeks, there will be formed in the water a pretty firm gelatinous substance, which, if allowed to remain for some time, becomes very offensive, as has been the case often in regard to pipes made of tamarac and pine, used for conveying water underground, where frequently pipes with a three-inch bore have been nearly clogged up from end to end with this offensive matter. If cleaned out, however, and the pipes relaid, the gelatinous substance will not again form.

The Scotch rule also enjoined that the heads, or ends, must be in pieces not exceeding 8 inches in breadth, and that when the herrings were barrelled up, the

head must be supplied with a flag or bulrush round the edges, but that tow or flax might be used as a substitute.

The rules further required that if herrings were intended for home consumption or exportation to any place in Europe, the barrels to be full bound with hoops at one end and generally three at the bilge, and four at the top. But if the herrings were intended for exportation to places out of Europe, the barrels must be full bound at both ends, and have, besides, two iron hoops, one at each end.

It is universally conceded that oak barrels are the best of all, and where procurable, the Dutch use no other kind. The present barrel, we think, after sufficient notice, should be prohibited. We are of opinion that a little more bilge would add to the strength of the barrel. The hoops should be of better quality than they are now, and there should be more of them; and all barrels intended for transportation beyond the province where the fish are put up, should have at least one iron hoop at the top, and should the barrel be of spruce or Norway larch, then in addition to a thicker stave there should be an iron hoop at each end. If, however, hardwood staves can be procured in sufficient quantity, we think that softwood barrels should not be allowed. The knot of the hoop should be longer than it is in the case of the present hoop, to prevent it suddenly springing off. There should be in the side of the barrel, above the bottom hoops, 15 or 16 inches from bottom, a bunghole about one inch in diameter, with well-fitting bung, and the usual rule as to crossing the heads should be observed. The new standard barrel, when decided upon, should be made a legal standard by Act of Parliament, as is intended to be done in Britain next session of the Imperial Parliament. There should also be a legalized half barrel built of the same material, and in proportion to the size of material used in the large barrels.

SMALL PACKAGES.

4. We are of opinion that in addition to the barrel and half barrel, there should be established a grade of small packages in which to put up re-packed herrings, after the manner of the Dutch and Germans. That these packages or kegs should be integral parts of the large barrels, say one-fourth, one-eighth and one-tenth parts of the full sized barrels. These kegs have been already described. We believe that kegs in every way suitable for this purpose may be procured in Canada. A gentleman largely interested in the sugar refining business told us that he gets a very neat small keg or kit, for holding syrup, made in Ontario, at reasonable prices, and he considers that the small herring keg can be made here as well and nearly as cheap as in Holland. If so, then a very great step is assured towards the establishment of what we believe to be a most important and profitable branch of the herring industry of the Dominion.

We are of opinion that the very first movement towards improvement in this industry, should be in the direction of improving the herring barrel and consequent discouragement to the manufacture of the present barrel.

As already stated, there can be no doubt that a very large business can be done in the small package line if properly gone into and taken hold of with energy and in a business manner. Canada should be able to largely supply the demand on this Continent for herring put up in this way.

CURING.

5. That next in importance to the catching of the herring, is the proper curing of them. This process commences in having the salt brought into contact with the herring, as soon as caught, and if it could be done at sea as soon as the herring come out of the water, so much the better and so much more thorough the cure. All the printed evidence, all the experience of the Dutch, the Yarmouth fishermen and others, and all that we heard on the subject, goes to confirm this. If attention to this preliminary salting be so necessary, and so salutary in results in Britain, how much more necessary is it in the Maritime Provinces, where the temperature in summer is so much higher. In order, therefore, to preserve the herring from incipient taint, and to retain

all the delicate flavour and natural excellence of the fish, it is absolutely necessary that at the earliest possible moment, the curing process shall commence, and that the herring be scrupulously shaded and sheltered, from the damaging effects of the sun—throughout all the stages of gutting, curing, packing, &c. This is most important because injury caused to the herring by exposure to the sun can never be remedied. The injury sustained by herring in this way, is beyond the power of man to remedy. Inordinate quantities of salt, soaking and washing in water may cover up the damage done and prevent further taint, but the lost excellence of the fish can never be restored. There can be no doubt that the great bulk of the injury sustained by the herring of the Maritime Provinces is caused in this way—and if this can be avoided in the future by the adoption of some feasible inexpensive measures to protect the herring from the sun, from the time of catch to the time of shipment, a great point will be gained and much done to redeem the character of Canadian herrings. The next step in the curing process is the "roosing" of the herring after gutting, and the proper salting of the fish when being packed.

Should it happen that the preliminary salting cannot be effected before delivery, then the herring should be well sprinkled with salt during delivery.

The Western consumer is about tired of eating herrings, out of which all excellence has been extracted by soaking in water and over-salting, and if these western markets are to be retained the quality of the fish must be improved, and that at once.

GUTTING.

6. That we consider the Scotch mode of gutting to be as good as any for all commercial purposes, and all that can be desired when properly carried out, and the curing properly attended to. In Scotland the early herrings are very fat, and are not branded. These are the herrings which Mr. Mitchell says are in such request by the wealthy families of Russia, and they are hurried over to Stettin for immediate sale and use. A fish-curer told us that some of these herrings sold in June, 1889, for £10 sterling ($50) per barrel. There is no material difference in the mode of curing these herrings. In Canada, however, it appears, that in the case of fat herrings caught in July and August, special treatment has been found necessary. Mr. Gordon, of Pictou, who has had much experience in the herring business in Scotland and in Nova Scotia, in his answer to question No. 4, submitted in 1869, says:—

"I beg to advert to the only additional detail, which, in my experience, I have discovered as applicable to the perfect cure of herrings in the months of July and August, on the coasts of Nova Scotia. Having engaged on my own account in a sailing vessel trading on the coast of Nova Scotia and Cape Breton, and provided with salt and barrels, I preferred purchasing the herrings in their green state, and cured a few barrels after the Scottish manner. On examination of the fish after being struck, I discovered an incipient taint along the backbone of the fish, which would increase with age, so as to render them unsuitable for a distant market in a tropical climate. I came to the conclusion that the taint was owing to excess of temperature here over that common on the Scottish coasts, and besides the herrings are larger and fatter in the months of July and August on this coast, than on the coast of Scotland. Thereafter, I ripped, with a sharp knife, the belly of the fish, and filled the belly with salt, and immediately packed them in tight barrels, with one bushel of Liverpool salt to each barrel, and protected the barrels from sun and rain."

Another gentleman, replying to the same question, says:—"Herrings should be all opened with a knife and filled with salt, otherwise they cannot be properly cured." This latter statement, as applying to all herrings, seems rather general. Mr. Gordon only recommends this treatment in the case of herrings caught in July and August on the coast of Nova Scotia, when the fish are very fat. Even then it can hardly be possible that the belly of every herring need be filled with salt. To fill a herring with salt must effectually destroy the flavour of the herring and leave it as innutritious as a piece of basswood.

It may be, however, that some of these July and August herrings may be utilized for the manufacture of kippered herrings. In October, 1889, a very fine and well-flavoured kipper, said to come from Baltimore, U. S., was for sale in Toronto at high prices. It was very fat. The "Ciscoes" of Lake Ontario are very fat, fully one-fourth or one-third oil, yet they make most delicious kippers. are in great demand and sell at high prices. The "Ciscoe" is a herring and is taken in deep water in the fall of the year. Many of them are put up as bloaters.

All this shows how necessary it is that some one or more competent men, experts, technically and practically in all pertaining to the classification of herring, should fully investigate all the different kinds of herrings on our Atlantic coasts, and decide upon the different modes of cure adapted to special kinds of herrings, in special localities, and at special seasons of the year.

ROUND, OR UNGUTTED HERRINGS.

7. That between the mode above recommended by Mr. Gordon, and the mode of putting up round, or ungutted herrings, there must exist many degrees of difference. We have already referred to ungutted herring, and to the fact that the Scotch curers strongly disapprove of packing ungutted herring, and expressed their surprise that any people of the present day would waste salt and time for such a purpose. In the case of the best packed herrings, if a stave breaks, and the brine runs off the herrings undergo very serious deterioration, but in the case of ungutted herrings, under similar circumstances, total destruction of the contents of the barrel would take place, from the setting free of the elements of decomposition contained in the ungutted herring, theretofore held in check by the preservative qualities of the salt and pickle, round, or ungutted herrings put on the market in any quantity can only do harm by damaging the character of the whole catch of any given locality. We therefore consider that the putting up of all such herring for commercial purposes, should be strictly prohibited.

PICKLED HERRINGS.

8. Having already described the Scottish method of curing and packing herrings, and having expressed our opinion of that system as being entirely adapted to the curing of herrings on our Atlantic coasts, we feel convinced that its general adoption and its legal enforcement would, in a very short time give Canadian herrings a very high standard and character in the markets in which they are now held in very low estimation. We have given this subject our best consideration, and so convinced are we of the vital importance of proper curing, and protection from sun and rain, that we would again urge that every diligence and care be exercised in these respects, as well as to the quality, selection and separation of the fish in the first instance. It is most desirable that the fish, especially during the hot season should be handled and shifted as little as possible, as every time they are turned over they part with a portion of the scales, and become softer and softer, more flabby and less ready to absorb the salt.

In the matter of packing pickled herrings for the purpose of repacking into small packages, very great care should be taken to have the fish of the best quality in every respect. In Holland and Scotland, as we have shewn, "fulls" and "crown fulls," the highest brands, are taken for this purpose. The repacking should be done well and neatly and the kegs, as already stated, filled up with the brine from the large barrel out of which the fish has been taken. A slight sprinkling of salt on the bottom of the keg and the top tier of the herring should be given.

This branch of the business is worthy of the special consideration and effort of all who may engage in the curing of herring. We know that in western Ontario there is now a demand for herring put up in small packages, especially in the rural districts. It can readily be seen that in a country where there is so much beef and pork, not many families will purchase whole barrels of herrings, while many would gladly purchase herrings in half barrels, quarter barrels, and the smaller packages.

If the Dutch and Germans can afford to pay freight and shipping charges on herrings from Scotland to Holland and Germany; unpack and repack into small packages, pay freight and shipping charges to New York, and sell these herrings in Quebec and Ontario, with a good margin of profit, surely the herring traders of the Maritime Provinces should be able to supply herrings in this shape as good in quality at lower prices, and with a better margin of profit. By supplying a proper article this branch of the trade can be increased immeasurably both in the United States, the Western States especially, and in the inland provinces of the Dominion.

BLOATERS.

9. We have already also fully described the mode of curing bloaters. Great care should be taken in selecting the fish. The herring may be pretty fat, but should not be too lean, and all unsound and inferior fish should be carefully picked out. The salting and smoking must be carefully and judiciously done. We believe that a large and profitable business can be done in bloaters from the Maritime Provinces, if proper arrangements can be made for curing, packing, transportation, distribution and sale throughout the country. By the use of refrigerator cars on express trains at stated periods, the mildest kind of bloater manufactured to keep without ice for three or four days, can easily be delivered at Toronto and all intermediate points in time for sale and consumption—and a bloater intended to keep without ice for seven or eight days can be delivered all over Ontario, while a bloater intended for use in ten or twenty days, can be distributed in Winnipeg and all along the lines of railway in Manitoba and the North-West. In England, as we have stated, almost everybody eats bloaters. This is a most desirable mode of curing herrings, retaining as it does all the delicate flavour and natural juices of the fish—and these increased by the peculiar mode of treatment. In all the towns and villages bordering on the railways from Halifax to Calgary, a great demand for bloaters can be created by the exercise of intelligence, energy and enterprise well directed, and the production of a good article. The business should commence on a somewhat small scale and gradually extend, as the demand increases, as the business is better understood, and as the machinery for distribution and sale throughout the Dominion becomes perfected. One point to be observed is not to force this article upon the market, but first to ascertain through the larger dealers as nearly as possible what the demand may be; to meet that and no more, but to meet it as it gradually increases. In this way there will be no surplus stock left over, and therefore no temptation to sell an unsound article to the injury of the trade. In England we were told by retail dealers that they very seldom lost any perishable fish, because they had their regular customers, and received only from the supply dealers such quantities of bloaters as they knew their customers would at once require.

We consider the neat light box in which bloaters for immediate use are put up in Britain, containing 50 herrings, a convenient and desirable size. Small packages are easier handled and easier disposed of, and do the fish more justice. This is a branch of the business in which by close observation and good judgment, perfection can be soon attained. As stated elsewhere, the degree of salt to be given must be regulated according to the length of time the bloater is intended to keep, and the smoking should be graduated from the pure white color of the herring to a slight yellow color. The smoke from the sawdust and very fine chips of birch is preferred, as it makes the sweetest bloater and increases the delicious flavour of the fish. Great care should be taken to keep down the heat in the smoke house. The fish should not be cooked there. They should be thoroughly cooled before being packed in the boxes.

KIPPERED HERRING.

The mode of manufacturing and putting up kippered herring for the market has been fully explained already. It involves more labor, and more exact treatment, consequently fish put up in this way sell at a slightly higher price than bloaters. Although the bloaters are an excellent fish, and used in very large quantities in Britain, the kippers are even more delicious eating, and are in great demand, especi-

ally in the cities and large towns. Immense quantities of them are manufactured in England and Scotland. As in the case of bloaters, the proper class of herring must be carefully selected, and all unsound, sickly and immature and unsuitable fish excluded. We have already stated how very quickly herring can be kippered, prepared for the market, and shipped on board the cars, all in eight or nine hours from the delivery of the herring from the boats. As in the case of bloaters, so kippers are made to keep for shorter or longer periods, the graduation depending on the quality of salt and smoke used. The trade in kippers, by judicious action, can be increased to very large proportions in the Dominion. By judicious management and careful distribution, a large and remunerative trade in kippers can be established from Halifax westward, a trade, with that in bloaters, of the utmost benefit to the fishermen, dealers and consumers of the Dominion. When properly developed, the trade in kippers will use up a large quantity of herrings annually. It may be found expedient to import some kipper cleaning girls to teach expertly the art of splitting and cleaning herring, for the manufacture of kippers.

RED HERRINGS.

10. The modes of manufacturing red herring in Britain have been fully described. We have also shown on good authority how this branch of the herring industry has been seriously injured in Britain by defective selection, imperfect curing and dishonest packing, and that this condition of things arose because there existed in Britain no law for the supervision by the fishery officers, and inspection of red herrings. On this subject Mr. Mitchell says:—"We have in another part of this work endeavored to explain the cause of the diminution of the quantity of red herrings, which in former years was large in some of the towns. Now, it is very well known, that in the curing process of red herrings, the assortment of the different kinds, the size of the barrel, are not in any way subjected to the inspection of the fishery officer, there being no law yet applicable to the curing of red herrings; the trade in most places has, therefore, very much decreased.

"We have seen the red herrings, sold by the principal curers, examined, and found the barrels filled with a mixed variety of inferior fish, the barrels two small, and the herrings improperly packed; so that orders to purchase for foreign countries have quite diminished, and now the curers at the principal port, Yarmouth, have to ship the greater part to the Mediterranean for sale, and often lose considerably by such shipments. We consider that if the red herring cure were placed by the Fishery Board under proper legislation, the quantity required for consumption abroad would be largely increased. One inferior cargo sent by an inferior curer to a foreign port, will tend to destroy the whole trade."

We have already referred to what was told us as to a consignment of inferior smoked herrings from Nova Scotia to Britain, having seriously checked an important trade for some years to come. We are of opinion that a good red herring trade may be established in the Dominion by careful selection of the fish, the exercise of a wise discretion and good judgment in salting, smoking and packing, and, in due time, the enactment of a judicious law of inspection. We think that in the inland provinces, and in the Western States, an extensive market will be found for red herring, as well as for herring put up in any other way.

The herring of the Maritime Provinces, at certain seasons of the year, are well adapted to the manufacture of red herring. The fish should not be too fat, neither too lean. We think that red herrings should be put up, as in Belgium, in hampers or slat made, open boxes, containing 100, 150 and 200 lbs. each, or such other size as convenience and demand may indicate. Careful inspection and branding would ensure greater care in curing, and greater uniformity in quality. Very large quantities of red herring are sold in London, England, and there can be no doubt, that under proper regulations, the red herring industry can be so greatly increased in Canada, as also to utilize very large quantities of herring.

CANNING OF HERRING.

11. Through a letter of introduction procured for us by the High Commissioner in London, and accompanied by the local Fishery Officer, we were courteously shown through a cannery for herrings in Scotland, where some 400 hands are employed. This establishment uses up an immense quantity of herring, all of the very best quality, and of medium or rather small size. The greatest care is exercised if the selection of these fish. They are put up in one pound tins. Herrings put up in this way are very delicious, many people preferring them to canned salmon. The girls who clean these herrings and put them up, do their work very rapidly. The herring canned at this establishment are not for sale in Britain. They are all exported to the East Indies, Australia, and the Cape of Good Hope. It is gratifying to know that a herring suitable for canning is found on the coast of Cape Breton, and that a commencement has already been made there in the canning line. No doubt herring suitable for this branch of the herring industry will be found on other parts of the Atlantic coast, and that canneries will be established in other places. After we had gone over the establishment in question, we were treated to the contents of a can of herring, and can truly testify that we never before tasted anything in the herring line so delicious and fine flavored. The herring were cooked in the tins by steam, thus preserving and concentrating all the natural and delicate flavor and juices of the fish.

By putting up herrings in the different modes mentioned, new demands for such fish would be created, and the parties interested in the trade could realize largely on bloaters, kippers, canned herring, and red herring, all throughout the fishing season, instead of waiting for returns until near the close of the season, a matter of great consequence to all concerned.

INSPECTION AND THE BRAND.

12. In the foregoing pages we have quoted largely from the best authorities and have said much ourselves on the subject of inspection and the brand, which is, so to speak, the seal of inspection. The only hope of establishing the herring fishing industry of the Maritime Provinces of the Dominion upon a sound and permanent basis, as one of the great commercial interests of the country, rests on the adoption of a rigid system of inspection, and the establishment of a fixed standard for herrings. All other measures that may be adopted with a view to accomplishing the improvements necessary in regard to our fisheries industry should be carried out as being merely preliminary to the establishment of a judicious system of inspection as the ultimate aim, for without inspection all efforts to improve the herring industry will amount to very little. We all know of how much benefit to the farmers, the grain dealers and the millers of the Dominion have been the establishment of the present grain standards and grading of grain. A thorough knowledge of the grain trade, experience and skill in the handling of grain, consideration towards the farmer and the grain dealer, co-operation and perseverance have been necessary to bring our grain standards to their present state of perfection. So in like manner the co-operation, the consideration, the intelligence, the patriotism, the technical skill and the practical knowledge of all concerned or interested in the development of the herring fisheries of the Dominion are required in order to bring about the necessary reforms in that industry, and finally to establish the necessary grades and standards for herring, and a wise and judicious system of supervision, inspection and branding.

From the answers made to question No. 5, sent out by the Committee of the House of Commons of Canada in 1869, it will be seen that the majority of those who replied are not only in favor of inspection but also ask that it should be compulsory. They all feel the very great importance of this matter, looking upon it as the only means of resuscitating this drooping industry and placing it upon a prosperous, satisfactory and enduring foundation. From those answers and all the other evidence before us it is clear that there is at present no standard, no system, no uniformity in any degree as to the modes of treating or curing herring, but that every man does so in his own way—indifferent to results if only he can dispose of

his fish. It also appears from these answers that some of the merchants dealing in herring have been indifferent as to the quality of the fish they accept from the fishermen, the same, without inspection, being transferred from hand to hand until they finally reach the hands of the retail dealer, who has to face the consumer. And the only safety the consumer now has is in the determination of many to purchase no more herrings until the quality shall be improved. It is not creditable to the trade that, as stated in one of these answers, consignments of herrings should be landed at Quebec fit only for manure, or, as stated in another answer, that wholesale dealers in Toronto should have to throw large quantities of Lower Province herrings into Lake Ontario. Such transactions are destructive to the trade and most damaging to the fisherman, because they destroy all confidence in the product of his hard labor and check all demand for a staple and healthy article of food, which would otherwise be in request, more or less, by almost every family in the Dominion and by thousands in the Western States of America.

Some of those answers reveal a difference of opinion as to when and where the inspection should take place. We consider that it should take place where the fish are caught and before removal, under regulations such as govern the officers of the Fishery Board of Scotland.

We think that the period for seasoning, maturing or "pining" the herring before inspection and branding should be fifteen clear days between the day of refilling and the day of inspection, being the time originally allowed in Scotland. As we have seen, however, under a pressure of commercial exigency, the time was changed, and by the Commissioners under legislative sanction, reduced to ten days, so that the fish curers, or some of them, might be able to realize on Bills of Lading five days earlier than under the old arrangement.

We think the same exigency could not arise in the case of our own fish merchants, the circumstances being quite different, so that a few days more or less in the matter of realizing on the fish would not put our dealers to any inconvenience. We think that the results of the ten day rule, this year especially, in consequence of the inferior quality of a large portion of the catch in Scotland, have been very unfortunate, and have tended to bring the brand into disrepute, in the manner indicated by the "Glasgow Herald," already quoted. Our own opinion, as already stated, is that from exposure to the sun or rain, or from other injurious conducing causes, incipient deterioration may take place and yet not be apparent within the ten days, while such might unmistakeably manifest itself in fifteen days. We are therefore in favor of fifteen clear days between refilling and inspection.

To hold that the inspection and branding should be done by the purchaser, and after the herrings have been landed at a distant port, would be unreasonable and unbusiness-like, being uncertain, because in such case the inspection might never take place, and the old condition of things would still obtain. But the herring should be inspected at the port of catch and cure and by the inspector under whose supervision the fish have been put up. To hold otherwise would, we fear, indicate indifference to the true interests of the fisherman. Herring fishing is a precarious business at best. It is doubly so where the industry is not organized, and based on strict commercial principles. Many fishermen are never able to get out of debt. If herring are worth catching they are worth curing, and if worth curing at all they are worth curing well, and upon the most approved methods, so that through the supply of a standard article the merchant may have such a demand for his fish as to establish the relations between himself and the fisherman on a sure and permanent basis, and thus enable the fisherman to reap to the fullest extent the legitimate reward of his industry.

In the meantime there is an educational work to do, the work of instructing the fishermen as to the changes and improvements necessary and preliminary to the introduction and establishment of the brand.

Another important point in connection with the brand, claims our attention. It is surmised and said that considerable quantities of pickled herring, inferior and badly put up, are annually imported into Canada and, in many instances sold as

Canadian herrings. Now it would only be fair and just to our own fishermen, that no pickled herring inferior to the herring of the Dominion, either as to gutting, cure, packing or barrel, shall be allowed to come into the country, and that when inspection and the brand shall have been established no herring of inferior grades shall be imported into the Dominion.

There can be no doubt that much of the feeling which has been manifested in Britain against the brand, has arisen from the imposition of the branding fee of 4d. sterling per barrel. The imposition of that fee was a compromise. The herring industry is of national importance, we therefore think the brand, when adopted, should be free to all using it, and that for a time at least, it should be compulsory.

MOVEMENTS OF THE HERRING.

13. The migratory movements and habits of the herring have not, so far as we know, been much observed or studied in Canada, especially as to the deep waters of the Atlantic coast. We have no reason to conclude that the movements and habits of the herring on this side the Atlantic differ materially from those of the same fish on the coasts of Europe. If, then, the habits of this fish are the same on both sides the Atlantic, there must be great migratory shoals of herrings in deep water off our coasts that are never seen or touched or fished. All that appears to be known in this way is merely as to the appearance of small bodies of herrings mooring close in shore and in the St. Lawrence.

Mr. Mitchell, from whose book we have quoted so much, has very little to say about the movement of herrings on the American coast of the Atlantic. He quotes as follows:—

"In the month of January the herring came upon the coast of Carolina, and are said to proceed northwards."

"They visit the coast of Virginia in February and all the bays and rivers as far north as the Bay of Fundy, and they continue spawning until the month of May, and in some places may be caught until July."

AMERICAN TRANS., VOL. 2, PAGE 237.

"Nova Scotia—A small and very fat herring approach the shores of Nova Scotia from the Bay of Fundy in the month of May, and about the end of May enter the Annapolis Basin and on the shore of Clements are caught in considerable quantities."

"South Coast—Another herring of a large size and full of spawn arrive on the south coast of Nova Scotia in May, but they are lean and not much esteemed, although taken in considerable quantities."

"West Coast—In Chedebucto Bay, and particularly in Crow Harbor, and near Fox Island, a considerable fishery takes place in the months of Autumn. These herring are of good and excellent quality."

McGregor's British America, Vol. 2, pp. 171–172.

It would be interesting and perhaps profitable to know from what directions these several bodies of herrings, so different in quality, come. It is hardly probable that the shoals of herring which make their annual appearance off the coast of Carolina in January are the same fish met with in the Bay of Fundy and elsewhere in May, or that the small, fat herring coming to the shores of Nova Scotia from the Bay of Fundy, and the large, lean herring arriving on the south coast of Nova Scotia in the same month can come from the same waters or belong to the same moving shoals. Is it not more likely that the movement of herring in January off Carolina may be but the commencement of a general movement, in *echelon*, of the great army of herrings from the depths of the Atlantic, extending northward, and approaching the shore as the season advances? And yet this would not account for the great difference in quality, above referred to.

We are of opinion that it is very important, and in the interest of all concerned in the herring industry of the Atlantic coast, that the movements and habits of the

herring in deep water should be closly observed and studied; and that special attention to this matter might be given by the officers and men of the Government cruisers, and of the local shipping engaged in the fisheries of the Atlantic coast, as much information of a useful character, bearing on the future development of the herring fishery, may be procured in this way.

Such knowledge would have an important bearing upon the subject of the protection of the herring fisheries; the question of spawn; the operations of trawlers; the take of fish under present circumstances; modes of fishing and the development of the

DEEP SEA OR DRIFT NET HERRING FISHERY.

14. We have already described the mode of herring fishing on the east and west coasts of Scotland, with the exception of the lochs and bays, known as the deep sea, or drift net herring. It is difficult to believe that this mode of fishing cannot be prosecuted with success on many parts of the coasts of Nova Scotia, New Brunswick and Prince Edward Island. The establishment of a deep sea, or drift net fishery on our Atlantic coast is a matter of the utmost importance to our fishermen, seeing that all the evidence on the subject establishes the fact that all kinds of fish are gradually receding from the shore, and that the inshore fisheries are yearly becoming of less and less value, and that unless a deep sea fishery of herring can be established, the position of the inshore fishermen will become very serious and critical indeed.

We are glad to observe that some scraps of valuable information, bearing on this matter, are at hand, and to be found in the reports of some of the Fishery Inspectors and Overseers ef the Maritime Provinces for 1887. Overseer Sellon, of Liverpool, Nova Scotia, in his report says:—

"Herring and mackerel were plenty outside, but did not come into the harbours, and consequently boat fishing was a comparative failure."

Overseer McGill of Shelburne, N. S. says:—

"Herring did not enter the harbour as usual, and, as a result, the fishery was a failure."

Overseer McQuarrie of Sherbrooke, N. S., says:—

"Herring and cod are the main dependence of fishermen on this division, and the catch of these fish was rather below the average. Late in the season, large quantities of herring appeared in some places, and remained a few days; but the quantity taken was confined to a few. Of late years both cod and herring appear to be receding from the shore, and small boats have been unsuccessful in securing large fares. Bait, which was formerly caught in abundance inshore, has of late to be sought after at considerable distances out, in deep water."

From the report of Inspector Duvar, of Alberton P. E. I., for 1887, we make the following extracts:—

"Actual proof has this year been obtained, of the correctness of an impression which I have frequently expressed in reports and otherwise, that the coasts of Prince Edward Island might be made the seat of an extensive fall fishery."

"Along the north coast, especially off King's County, herrings were seen this fall and some thousands of barrels were taken, equal to Labrador. According to appearance this fishery has only to be pursued with energy to attain large proportions . . . . Were this fishery established, its ramifications would extend far. Fishermen would have employment after mackerel left."

"The hands now engaged in lobster packing, would find equally profitable employment in the various processes of the herring fishery, as is the case on the coasts of Scotland. Teamsters, and other persons on shore, would find no falling off in their employment, while coopers, &c. would see their business largely increase. With an increasing energy this business would organize itself . . . . I am very sanguine as to the success of a fall herring fishery, after a beginning has been made, and in conversation with several firms interested in the fisheries, there seems to be a growing belief, that the herring fishing will, some day, be of much more importance than the

lobster fishery ever was . . . . To properly pursue the herring fishery drift nets and a better class of boats are necessary. Were such a permanent herring fishery developed, it would be mainly, a Canadian industry, with little to fear for competition with the United States. Although I have no great faith in the principle of fishing bounties, it might be worthy of consideration whether a special bonus might not be offered for a limited term for the development of the fall herring fishery in the gulf."

These words of Mr. Duvar's are in harmony with the opinions we formed on this subject, from our observation of the herring fishery in Scotland.

While, from certain favorable circumstances, referred to by Mr. Duvar, Prince Edward Island would be a good locality in which to commence experiments in drift net fishing, we think that experiments should not be confined to the coast of that Island, although there seems little reason to doubt that such a fishery could be successfully established there. We think that experiments with a view to deep sea drift net fishing should be made along the entire Atlantic coast of the Dominion. We think that such experiments and the preliminary expense would be more than any combination of our fishermen could bear, and more than any syndicate of fish merchants would be disposed to furnish, especially in a branch of the fishing business, in which, when once developed, everybody could participate. The subject is one of great national importance, and could only be successfully undertaken and successfully carried out by Parliament and the Government, through the Department. The Governments of the herring fishing nations of Europe, Britain, Holland, Norway, Sweden and France have spent large sums of money in developing and encouraging the herring fishery in their respective countries; and there can be no doubt that Canada will do what may be necessary in this matter. To this end we are of opinion that at least six boats, being two for each Province, of the class and build of the Wick boat, with modifications, bringing the boat more into harmony with American lines, and rendering the boat more suitable for our coasts in the prosecution of drift net fishing, should be procured by the general Government, together with the necessary number of nets, a drift of 40 or 50 to each boat.

That 4 men out of the 7 constituting a crew, one of whom should be skipper for each boat, should be imported, of the best men to be had on the east coast of Scotland—with 3 local men additional for each boat, picked men, supplied from among the fishermen of the respective Provinces, practical herring fishermen thoroughly acquainted with the local tides and currents and the harbors on the coasts. As fast as these local men became instructed in the system of deep sea drift net fishing, they could retire, leaving their places to be filled by others ready to avail themselves of the advantages of this educational process.

Scotland imported experienced fishermen from Holland, in 1750, to teach her fishermen the proper modes of fishing herring. Boats can be modelled and built, and nets made by our own people. The whole amount necessary to test and develop drift net fishing would not be great, while the results of the experiments, if successful, would be of the greatest importance not only to the fishermen individually, and the Provinces locally, but to the trade, commerce and national wealth of the Dominion at large.

BOUNTIES.

15. In England and Scotland, in the infancy of the herring fishing industry, large sums of money were expended by the Government in the shape of bounties; by joint stock companies, and by private individuals, for the advancement and promotion of the fisheries, but it was not until Parliament took the matter up, as we have already seen, by wise legislation and the introduction of a judicious system of supervision and encouragement, established this industry upon sound commercial foundations, that any real progress in the development of the fisheries was made. The bounty system then gradually fell into disuse. The bounty system is not so much in favour now as it was then. In Scotland, at present, the cry of the herring

fishermen is for more harbour accommodation. That is the shape in which they would like to have Government aid.

One of the questions (No. 9) sent out by the Committee of the House of Commons in 1869, is as follows:—

"Are some of these fisheries in a backward state, and if so, what obstacles impede their development, and what means are required to foster them?"

Many of the replies point to the necessity of a better class of boats, as being the principal means of fostering and improving the fisheries, but state that the fishermen are too poor to procure them, unless the Government introduce a system of aid in the shape of bounties. One says:—"The mackerel and herring fisheries are in a very backward state; the obstacles that impede their development are the want of properly fitted vessels and boats, which the inhabitants have not the means of procuring, and there being no merchants here having enterprise sufficient to fit one out." Another says:—"All that is now required to make our fisheries the best on the continent, is encouragement from the Government in the shape of bounties."

Another says:—"The fisheries have fallen off a good deal within the last four years, and will have to be discontinued unless the Government should give aid," and much more to the same effect.

No doubt the sum, for some time past annually distributed among the fishermen in the shape of bounties, has led to a large amount of amelioration of their circumstances as set forth in 1869, and that in many places boats and vessels have been improved to some extent. But it is well known that great improvement in that respect is still needed, and it appears to us that perhaps there is no way in which the Government could do more to improve the fisheries, at a moderate expense, than by furnishing model boats, suited to the requirements of the respective localities, after careful investigation by competent men, assisted by the opinions of the fishermen themselves. We consider this a better way than any new system of bounties, and many of the answers made to question 9, in 1869, agree in this.

TRAWLING.

16. From all that has been already said and quoted on the subject of trawling, it will be seen that we consider trawling, especially within the territorial limits, to be exceedingly injurious to the herring fishery. It is established on undoubted authority in Britain and Ireland, that trawling scares away the herring from the fishing grounds, drives them away from the spawning grounds, and disturbes and destroys the spawn when deposited. The salmon, halibut, lobster and flat fish fisheries generally have been seriously injured, and in many cases destroyed by the operations of the trawlers.

We therefore consider that trawling and the use of all destructive seines and traps, calculated to disturb the herring in any way and to destroy large quantities of immature fish and spawn, should be absolutely prohibited within the 3-mile headland limit, and that efforts should be made by the Government to effect an international arrangement by which trawling on the high seas should be regulated and restrained when the herring shoals are in motion off the coasts, so as not to drive them away from the fishing or spawning grounds, or disturb and destroy the spawn when deposited on banks outside the territorial waters. There can be no doubt that trawling of any kind on herring fishing grounds or where herring do congregate must prove highly injurious to the herring fishing industry, by scaring the fish and driving them from their native or selected haunts. It is now generally held that the salmon returns to its native streams, and there are those who contend that the herring is endowed, in like manner, with a similar instinct, and being as already stated, a timid fish, anything tending to scare or drive it away should not only be avoided, but as far as possible, in the general interest of the country, strictly prohibited.

Public sentiment in Britain, which at first was largely in favor of the trawlers, has undergone a great change, and now supports the Legislature and the Government in the recent legislation still further restraining and regulating the operations

of the trawlers, and the change in public sentiment is still going on in the same direction the more the damaging effects of trawl fishing becomes known. We think that under no circumstances should foreign trawlers be allowed to fish within the Territorial waters.

We are glad to see, since writing the foregoing, that many of the inspectors and overseers are of the same opinion. Overseer Rawlings, of Musquodoboit, Harbour in his report for 1887, says: "There is a large increase of herring and mackerel as compared with last year. The prevailing opinion is, that were the present protective system kept up and purse seine fishing prohibited, the herring and mackerel would always be abundant on our shores."

Mr. Bertram, Fishery Officer for Cape Breton Island, in his report for 1887 says:

"In my previous reports reference is made to injurious methods and contrivances for taking fish, and I beg leave to refer again to the subject as the one primary condition on which the perpetuity of coast fishing depends, at least within the three-mile headland limit. The evils entailed by the wasteful destruction of fish and removal of such as escape from their usual grounds of resort, in consequence of seining near or within the bays, has already been referred to in previous reports. This is the greatest objection to allowing foreigners to share in our shore fisheries. But like practices by our own people are equally mischievous, the difference being that the evil is lessened by fewer being engaged in destructive methods when foreigners are excluded. The use of seines, traps and trawls should be prohibited anywhere inside of the three mile limit, from headland to headland, from which aliens are at present debarred, if our fisheries are to be preserved in perpetuity. Most fishermen acknowledge this, and would like to see an Act enforced for the exclusion of all such methods of catching fish within the limit specified, excepting hand lines and straight nets—even the latter with certain restrictions. The only parties who would raise any objection to such a regulation are a few capitalists who can afford the more destructive instruments, and who invest only for present and immediate profit, utterly regardless of consequences to follow. The staple and most valuable branches of fishing were regarded in the purely commercial aspect, or as food production, are those of cod, herring and mackerel. These are the three lines of fishing upon which the ordinary fisherman depends for his subsistence, and those upon which the trader essentially relies, whether for sale in the home market or for foreign export. Yet they are the branches which suffer first and most heavily by the methods of seining, trawling and trapping. On the principle of the greatest good to the greatest number and of the eventual greatest possible good to all, seines, trawls and traps should be rigidly excluded by law from the inside limits named, if not from the Gulf of St. Lawrence entirely."

WASHING OF HERRING.

17. As stated elsewhere, the washing of herring before curing is not practised in Scotland, and so far as we could learn, never has been. The Scotch curers with whom we conversed on the subject, were surprised to hear of herring in Canada being washed before curing. They could hardly believe such a practice possible. To show what has been the practice in the Maritime Provinces in time past, we quote from the answer of Mr. Gordon, Pictou, to question No. 4, in 1869; he says:—

"It is the universal practice of Nova Scotia fishermen to steep the fish for hours in water before salting down, and expose them to the action of the sun during the hottest period of the season, until the water becomes warm, under the erroneous impression that they are thus benefitted by the extraction of the blood. Under this treatment herring part with their scales and juice, and are deprived of that taste and flavor peculiar to herring properly cured. Besides, the body of the fish thus saturated with water is rendered tasteless, brittle and short, and not calculated to turn out satisfactorily at the end of a long sea voyage. The Scotch curers take every precaution to keep the herring from contact with water, before and after salting. Salt the fish in their blood, and the salt will extract the blood."

Now, it must be quite clear to every man who realizes the importance of retaining, intact, all those qualities of substance and flavor which render the herring so valuable as a healthy and pleasant article of food, and which are so highly prized in Europe, as already stated, that there could be no more effectual mode devised or adopted for the total destruction of all those qualities, than the mode above described by Mr. Gordon. What would be thought of any man or body of men who should treat any kind of animal flesh, beef or pork, for instance, in such a manner, and what would be thought of any one who should subject those articles of food to such treatment? Who would think of selling or buying meat so treated? Then to cover up the damage done by the water soaking to the herring, inordinate quantities of salt are used, and this extracts any vestige of flavor the water may have left, and destroys all the nutritive qualities of the herring.

Here we may be permitted to refer to another pernicious habit, already adverted to, the practice of putting brine on the newly packed herring, in addition to the salt in which they have been cured. This practice is highly objectionable, and is one also that effectually destroys the good qualities of the herring in flavor and substance. This practice may arise from the custom of putting herring down in large casks or vats, and then, after a time, repacking into the common tight herring barrel. Herring treated in this way cannot be much better than those soaked for hours in warm water. The herring should be packed in the tight herring barrels in the first instance, and fully salted, when the necessary quantity of pickle will be formed from the dissolution of the salt caused by the moisture in the fish. The addition of newly made pickle not only interferes with the curing process going on in the barrel, but, as already stated, as effectually destroys the natural qualities of the herring as soaking in water, or the action of the sun's rays acting through the medium of water. We therefore consider that the practice of washing and soaking herring in water and of adding newly made pickle to newly packed herring should be strictly prohibited.

CATCHING HERRING FOR MANURE.

18. This is done, we were informed, sometimes by and for landlords in Ireland, but the practice it is said is not approved of by the people; being in their opinion a wanton perversion and inexcusable waste of the bounties of Providence, intended for the food of man. It is held by many that while nature is generous and profuse in her gifts to man, yet that she revolts at the wanton waste and needless destruction of those blessings.

We share this opinion. We consider that such reckless waste leads to recklessness and improvidence in other respects, and begets a spirit of lawlessness which may interfere more or less with the observance of the Fishery laws, and the Regulations of the Department, enacted and promulgated solely in the best interests of the fishermen themselves. We regret to see that the habit of catching herring for the sole purpose of manure prevails in several places, as appears from the reports of inspectors and overseers, and that attempts are made to justify the practice, on the ground that the herrings enter the bays in the spring in such masses that many are literally blocked with them; and also that it is not possible to export herrings from those localities at a profit. It is to be hoped that such changes and improvements will be carried out in relation to the herring industry, as will make the curing of herring profitable, in every place where herring suitable for commercial purposes may be found. A French Canadian gentleman well informed in fishery matters informed us that much of the herring taken in Quebec is soft and unsuitable for exportation. If so, there must exist a cause for this deterioration, and this may arise from the herring, which is emphatically a salt water fish, entering the Gulf waters containing a large admixture of fresh water, which must inevitably lead to the deterioration of the fish, and this may be from the great quantity of fresh water in the Gulf.

Such fish should not be caught nor put up for sale. The herring come into the bays referred to in the spring either in search of spawning ground, or in an

exhausted condition after spawning, or in search of suitable food which may abound in those localities. In any case, if they cannot be taken profitably for commercial purposes they should be left alone, to remain while they stay, unmolested until they return by the way by which they came, to the deep waters of the sea, there to join other shoals, and where in improved condition, at some future time, they will amply reward the labour of the more considerate and less reckless fishermen. We consider the habit of catching herring for manure to be inconsistent with the Christian civilization of the age, and that the practice should be strictly prohibited.

HERRING OFFAL.

19. We have already shewn from unquestionable authority the evil effects upon the herring shoals of throwing offal or fish refuse into the sea, resulting, in the case of Sweden, in combination with day light net fishing, in banishing the herring from the shores of that country, for a period of 69 years.

All experience shews that the practice of throwing offal into the sea near the grounds frequented by the herring shoals, invariably results in scaring the fish away for a time, or driving them away permanently, and we consider the practice should be prohibited under heavy penalties. And that, as in the case of trawling, the prevention of the practice on the high seas, should be brought about by international arrangement.

In Scotland all herring offal is carefully placed in barrels and sold to the farmers for manure, at so much per cart load, in some places 25 cents, in some places 50 cents. Mixed with vegetable mould or black muck, it makes a most excellent compost for manuring purposes.

In some parts of Europe large quantities of oil are extracted from the offal of herrings, by the process of boiling in water in large pans, the water purifying the oil and making it suitable for commercial purposes. We think the law as to the disposal of offal should be strictly enforced.

CONCLUSION.

While striving earnestly and faithfully to fulfil the duties imposed upon us by the Government in the matter of this investigation, we desire to be permitted to say that we are, at the same time, animated by a strong personal interest in the welfare of the fishermen of the Maritime Provinces, and a strong desire to see such changes brought about, for the improvement of the herring industry, as will greatly improve the condition of the fishermen, and lead largely to an amelioration of existing evils, as well as to the establishment upon a sound commercial basis of this important branch of the commerce of the Dominion.

The Hon. Mr. Wells, a prominent citizen of the United States, some time ago visited the Maritime Provinces, carefully investigated the position and circumstances of the Canadian fishermen of the Atlantic coast, and satisfied himself as to what a hard struggle they have for an existence.

On his return to his own country he told his countrymen that the only farm the Canadian fishermen on the coast of the Atlantic had was the sea. That that was his sole patrimony, and that no man had a right to trespass upon it, or rob him of its products.

While amply protected from the encroachments of envious or covetous neighbours, let us hope that he may be assisted by his brother Canadians, in every way consistent with justice to the rest of the Dominion, in the profitable working of his estate and the development of its rich natural products, and its unbounded resources.

All of which is respectfully submitted.

WM. GUNN,
M. G. McLEOD.
Delegates.

December 2th, 1889.