

116.—REPORT ON DISTRIBUTION OF FISH AND EGGS FROM NORTHVILLE AND ALPENA STATIONS FOR SEASON OF 1885-'86.

By FRANK N. CLARK.

The following tables and statements contain some details regarding the distribution of eggs and fry from these stations which are not included in the report of operations at Northville and Alpena in the Fish Commission Report for 1885, beginning at page 121.

WHITEFISH (Coregonus clupeiiformis).

Shipments of whitefish eggs from Northville Station, season of 1885-'86.

Date.	Destination.	Address.	Shipments.	No. of eggs.
1885-'86.				
Nov. 20—Jan. 8.	Hatchery of Pennsylvania Fish Commission.	Erie, Pa	5	*16,500,000
Dec. 21.....	E. B. Hodge, for New Hampshire Fish Commission.	Plymouth, N. H.	1	‡500,000
Dec. 21.....	Otto Gramm, for Wyoming Fish Commission.	Laramie City, Wyo	1	‡500,000
Jan. 1.....	Central Station, United States Fish Commission.	Washington, D. C.....	1	‡2,000,000
Jan. 1.....	Druid Hill Hatchery, Maryland Fish Commission.	Baltimore, Md	1	‡500,000
Jan. 5, 23.....	W. Oldham Chambers, for National Fish Culture Association.	South Kensington, London, England.	2	‡2,000,000
Jan. 5, 20.....	Herr von Behr, for Deutsche Fischerei-Verein	Geestemünde, Germany ..	2	‡2,000,000
Jan. 5.....	Swiss Government.....	Berne, Switzerland	1	‡1,000,000
Jan. 11.....	E. G. Shortlidge, for private hatchery	Wilmington, Del.....	1	‡800,000
Jan. 18—Feb. 4.	R. O. Sweeny, for Minnesota Fish Commission.	Saint Paul, Minn.....	7	‡15,000,000
Feb. 5.....	Sir Julius Vogel, care of C. R. Buckland, San Francisco.	Wellington, New Zealand.	1	1,000,000
Mar. 6.....	Herr von Behr, care of E. G. Blackford, New York.	Geestemünde, Germany ..	1	‡1,000,000
	Total		24	42,800,000

* Reached destination in good condition; hatched with moderate loss, so that 14,625,000 were planted in Lake Erie between March 12 and 31.

† Reached destination in good condition.

‡ Reached destination in good condition; hatched with loss of 10 per cent; planted 460,000 in Wyoming lakes, and retained 50,000 at hatchery.

§ Reached Cold Spring Harbor in good condition, and were reshipped by Fred Mather.

|| Reached destination in good condition; hatched with loss of 3 per cent eggs and 500 fry; planted 775,300 in rivers and bay of Delaware.

Summary of fry from Northville and Alpena planted in the Great Lakes, spring of 1886.

Lake Huron.....	30,000,000
Lake Michigan	29,000,000
Lake Erie.....	15,000,000
Lake Ontario.....	12,000,000
Lake Superior	6,000,000
Total.....	*92,000,000

* About 5 per cent were lost in transit; really about 87,000,000 live fry were planted.

Record of trips made by Fish Commission cars with whitefish fry from Northville Station in the spring of 1886.

CAR NO. 2.

Date of loading car.	Destination.	Lake.	Railroads traversed.*	Hours in transit.	Temperature of water in cans on arrival.	Temperature of water in lake.	Percentage of loss.	No. of fry transported.†
1886.					°	°		
Mar. 29	Oswego, N. Y.	Ontario ...	Michigan Central; and Rome, Watertown and Ogdensburg.	28	40	38	5	3,000,000
Apr. 1	Put-in-Bay, Ohio	Erie	Lake Shore and Michigan Southern; and Baltimore and Ohio	19	39	38	.....	3,000,000
3	Fort Gratiot, Mich.	Huron	Chicago and Grand Trunk.	17	40	34	.....	3,000,000
5	Sodus Bay, N. Y.	Ontario ...	Michigan Central; and Rome, Watertown and Ogdensburg.	27	40	.....	3	3,000,000
8	Saint-Joseph, Mich.	Michigan ...	Michigan Central; and Chicago and West Michigan.	29	40	34	4	3,000,000
12	Port Clinton, Ohio	Erie	Lake Shore and Michigan Southern.	15	43	38	5	3,000,000
14	Milwaukee, Wis.	Michigan ...	Chicago and Grand Trunk; and Chicago and Northwestern.	31	36	38	2½	3,000,000
18	Chaumont Bay, N. Y.	Ontario ...	Great Western; and Rome, Watertown and Ogdensburg.	50	43	48	5	1,500,000
18	Sackett's Harbor, N. Y.	do	do	63	43	56	5	1,500,000
Total by car No. 2								24,000,000

CAR NO. 3.

Mar. 23	Manistee, Mich.	Michigan ...	.....	22	.....	33½	0	3,000,000
26	North Bass Island, Ohio.	Erie	Lake Shore and Michigan Southern.	30	.....	35	5	3,000,000
30	Grand Haven, Mich.	Michigan ...	Detroit, Grand Haven and Milwaukee.	17	.....	35½	5	6,000,000
Apr. 2	Charlotte, N. Y.	Ontario ...	Michigan Central; and Rome, Watertown and Ogdensburg.	52	.....	35	6	3,000,000
7	Catawba Island, Ohio.	Erie	Lake Shore and Michigan Southern.	26	.....	35	24	3,000,000
9	Monroe, Mich.	do .....	.....	8	.....	40	0	3,000,000
11	Michigan City, Ind.	Michigan ...	Michigan Central.	24	.....	40	Small	3,000,000
11	Waukegan, Ill.	do	do	92	.....	40	do	13,000,000
16	Manitowoc, Wis.	do	Michigan Central; Chicago and Northwestern; Milwaukee, Lake Shore and Western.	45	.....	35	11	3,000,000
21	Escanaba, Mich.	do	Michigan Central; and Chicago and Northwestern.	43	35	34	.....	1,000,000
28	Marquette, Mich.	Superior ..	Detroit, Mackinaw and Marquette. ....	.....	.....	35	0	\$3,000,000
Total by car No. 3								31,000,000
Total by both cars								55,000,000

* The Flint and Pere Marquette Railroad was traversed on each of these trips (except the last by car No. 3), Northville being situated on that road. All furnished free transportation except the Chicago and Northwestern.

† The number of fish carried by car No. 2 was usually contained in 72 cans, holding 7½ gallons each.

‡ Started as eggs, but hatched at Chicago.

§ From the Alpena hatchery, all the others being from Northville.

*Additional shipments of whitefish fry from Alpena Station, spring of 1886.**

Date.	Place.	Lake.	No. of fry.
1886.			
Apr. 13	L'Anse, Mich	Superior	3,000,000
18	Epoufette, Mich	Michigan	1,000,000
20	Thompson, Mich	do	3,000,000
29	Thunder Bay, Mich	Huron	3,000,000
30	Alcona, Mich	do	3,000,000
May 1	Scarecrow Island, Mich	do	3,000,000
2	Thunder Bay, Mich	do	3,000,000
3	Saint Ignace, Mich	do	3,000,000
4	Scarecrow Island, Mich	do	3,000,000
6	Miller's Point, Mich	do	3,000,000
6	Sturgeon Point, Mich	do	3,000,000
8	Hammond's Bay, Mich	do	3,000,000
12	Epoufette, Mich	Michigan	3,000,000
	Total		37,000,000

* These shipments were all made by boat direct from Alpena.

Total distributed from Northville *52,000,000

Total distributed from Alpena 40,000,000

BROOK TROUT (*Salvelinus fontinalis*).

Shipments of brook trout eggs from Northville Station during the season of 1835-'86.

Date.	Consignee.	Number of eggs.
1885-'86.		
Dec. 17	George A. Seagle, for hatchery at Wytheville, Va.	*50,000
Jan. 22	A. W. Aldrich, for Iowa commission, Anamosa, Iowa	110,000
22	B. F. Ferris, for Cold Creek Trout Club, Castalia, Ohio	15,000
22	John H. Rockland, for Rhode Island commission, Rockland, R. I.	11,000
22	E. B. Hodge, Plymouth, N. H., for Hiram A. Cutting, Lunenburg, Vt.	10,000
22	W. I. Coon, Millville Depot, Pa., for Frishmuth Bro. & Co., Philadelphia, Pa.	\$15,000
23	W. Oldham Chambers, for the National Fish Culture Association, London, England	110,000
27	Herr von Behr, for the Deutsche Fischerel-Verein, Berlin, Germany	25,000
27	Government of Switzerland	110,000
	Total	¶145,000

* Reached destination in very good condition. Loss of eggs and fry before planting was 7,518, leaving 42,482 planted in ponds at station.

† Reached destination in good condition.

‡ Reached destination in excellent condition. Fry planted with loss of 5 per cent.

§ Reached destination in good condition. Loss of eggs and fry before planting was 4,803, leaving 10,197 planted in Blooming Grove and Shohola Creeks, Pike County, Pennsylvania.

|| Reshipped from Cold Spring Harbor by Fred Mather.

¶ Also 25,000 eggs were exchanged for an equal number from the State fish commission at Paris.

During April and May 4,000 brook trout fry were shipped away to the following persons:

W. S. Woodward, Plymouth, Ind	1,000
Rev. Father Maher, Notre Dame, Ind	1,000
J. S. Little, Niles, Mich	1,000
C. H. Bates, Lake Station, Mich., for Flint and Pere Marquette Railroad	1,000
Total	4,000

* Of these, 3,000,000 left Northville as eggs, but were hatched at Chicago and then planted.

RAINBOW TROUT (*Salmo irideus*).

Of the 167,000 rainbow trout eggs taken, only 5,000 were sent away, as follows:

B. F. Ferris, Castalia, Ohio	3,000
S. B. Smith, Zauesville, Ohio	2,000

During the season 3,364 yearling and two-year-old rainbow trout were distributed, partly by car No. 2, and the remainder by special messengers. They were delivered to 7 persons and 2 railroad companies, for stocking streams and lakes, as indicated in the following statement:

Samuel E. Williams, La Porte, Ind	390
A. W. Hendry, Angola, Ind	525
Rev. Father Maher, Notre Dame, Ind	125
Philip Smethurst, Warren, Ind	75
C. H. Dougherty, Fremont, Ind	774
M. P. Hammond, Howard, Ohio	75
J. L. Delano, Mount Vernon, Ohio	100
Flint and Pere Marquette Railroad	500
Grand Rapids and Indiana Railroad	800
Total	3,364

LAKE TROUT (*Salvelinus namaycush*.)

Shipments of lake trout eggs from Northville Station during the season of 1885-'86.

Date.	Consignee.	No. of eggs.
1885-'86.		
Nov. —	Central Station, Washington, D. C.	*100,000
—	W. M. Cary, for Nevada commission, Carson City, Nev.	125,000
19	Charles G. Atkins, Bucksport, Me.	150,000
19	Thomas J. and Hardy Dean, Nesbitt, Miss.	8,000
20	John Gay, for Pennsylvania commission, Erie, Pa.	25,000
Dec. 15	Fred Mather, Cold Spring Harbor, N. Y.	*150,000
15	Charles G. Atkins, Bucksport, Me.	\$100,000
22	W. M. Cary, for Nevada commission, Carson City, Nev.	||75,000
22	Dr. Charles F. Hoeting, Jersey City, N. J.	10,000
22	G. W. Delawder, for Druid Hill hatchery, Oakland, Md.	*25,000
22	B. E. B. Kennedy, for Nebraska commission, Omaha, Neb.	*50,000
22	John Pierce, for Colorado commission, Denver, Colo.	*10,000
23	George A. Seagle, for hatchery at Wytheville, Va.	¶100,000
23	E. B. Hodge, for New Hampshire commission, Plymouth, N. H.	*50,000
24	Hiram A. Cutting, South Lancaster, N. H.	*40,000
Jan. 1	Thomas J. and Hardy Dean, Nesbitt, Miss.	*8,000
5	W. Oldham Chambers, for the National Fish Culture Association, London, England.	*50,000
5	Herr von Behr, for the Deutsche Fischerel-Verein, Berlin, Germany.	**50,000
5	Government of Switzerland	**50,000
9	Dr. E. G. Shortlidge, Wilmington, Del.	†30,000
18	E. Chazari, Mexico, Mexico	†25,000
	Total	1,031,000

* Reached destination in good condition.

† Reached destination in poor condition.

‡ Total loss. Storm-bound 5 days on the way.

§ Reached destination in good condition. From this shipment 73,802 fry were planted at Orland, Me., 2,500 at Phippsburgh, Me., and 12,700 kept at the hatchery, the rest being lost.

|| Reached destination in good condition. From this shipment 50,000 fry were deposited in Carson, Walker, and Humboldt Rivers, and in the tributaries of Lake Tahoe.

¶ Reached destination in very good condition. Only 74,060 were reported as received. Subsequent losses were heavy, only 11,450 living till released in ponds at station.

** Reshipped from Cold Spring Harbor, N. Y., by Fred Mather.

†† Reached destination in good condition. Subsequent losses were heavy, leaving only 8,000 to be planted in tributaries of the Delaware.

‡‡ Reached destination in poor condition, owing to the long distance and high temperature. Only about 2,200 remained for cultivation and propagation.

Shipments of lake trout fry from Northville Station during the spring of 1886.

Date.	Consignee.	No. of fry.
1886.		
Apr. 15	John Stevenson, Cedarville, Ohio.....	2,500
22	E. R. Aldrich, Saline, Mich.....	*2,500
24	A. W. Hendry, Angola, Ind.....	15,000
24	Joseph Butler, Angola, Ind.....	12,000
24	W. W. Snyder, Angola, Ind.....	12,500
24	Lawrence Yates, Angola, Ind.....	14,500
24	Rev. Father Maher, Notre Dame, Ind.....	12,000
27	Flint and Pere Marquette Railroad.....	110,000
May 1	J. J. Shaver, Laingsburgh, Mich.....	\$10,000
12	C. H. Andrews, Youngstown, Ohio.....	115,000
27	C. H. Dougherty, Fremont, Ind.....	120,500
	Total.....	75,500

* Shipped by car No. 3.
 † Shipped by car No. 2.
 ‡ Planted in Arnold's Lake, Clare County, Michigan.
 § Planted in Round Lake, Clinton County, Michigan.
 ¶ Reached destination in good condition.
 ¶¶ Planted in Green, Waldon, Fish, Clear, George, and Pleasant Lakes, Indiana.

LANDLOCKED SALMON (*Salmo salar* var. *sebago*).

On March 19, 1886, a case containing 29,000 eggs was received from the station at Grand Lake Stream, Maine. These were hatched with a loss of only 575 dead eggs. Of the resulting young fish, 22,000 fry were successfully shipped and planted as follows:

Date.	Destination.	No. of fry.
Apr. 27	Lake in Clare County, Michigan.....	10,000
May 15	Rapid River, Kalkaska and Antrim Counties, Michigan.....	12,000

NORTHVILLE, MICH., August 14, 1886.

117.—SALMON STATISTICS ON THE PACIFIC COAST FOR THE SEASONS OF 1884, 1885, AND 1886.

The following tables have been prepared from salmon statistics issued by the firm of Field & Stone, brokers, of San Francisco, Cal. Other figures and accounts, covering more or less closely the same ground, may be found on pages 90, 139, 288, and 313, of this volume.

TABLE I.—*Shipments of cases of packed salmon to Australia and New Zealand.*

Where from.	1884.	1885.	1886.
San Francisco, by sail and steam.....	88,406	61,135	70,874