

narrower, and more pointed than that of the female, while the female is a little more dish-faced.

(2) By "stripping" or squeezing the genital parts. The male fish always has more or less milt in the duct leading to the genital opening, and a slight pressure with the thumb and forefinger will bring some milt to the surface at any season of the year. If the fish is a female no effect will be produced, as the eggs will not be emitted unless ripe and detached, or partly so, from the bulk of the spawn. I think that this "stripping" will do no injury, unless it is so violent as to bruise the fish.

I have never tried to distinguish the sex of carp less than one year old, and do not think that it can be done. Nor have I experimented in determining the sex of other varieties of living fish. [Kemp Gaines, Springfield, Ohio, January 27, 1885.]

165.—REPORT OF HATCHING OPERATIONS AT COLD SPRING HARBOR, N. Y., DURING THE SEASON OF 1884-'85, AND THE DISTRIBUTION IN THE SPRING OF 1885.

By FRED MATHER.

(a) SALMON (*Salmo salar*).—Two lots of eggs, each containing 250,000, were received on January 15 and January 22, 1885, in good condition, from the station at Bucksport, Me. There were 2,310 dead eggs on unpacking, and 5,204 died before hatching. Of the fry there was a loss of 68,124 before planting. The disposition of the remaining 425,000 will be found in the appended table. One hundred and fifty yearling salmon, from 4 to 6 inches long, were planted in Clendon Brook, Warren County, New York, near Glen's Falls, where a plant of fry was also made in 1884. Mr. A. N. Cheney, of Glen's Falls, writes that the fishermen report this brook as being "alive" with young salmon; and he has promised to send specimens.

(b) LANDLOCKED or SCHOODIC SALMON.—Received from Mr. Charles G. Atkins, in charge of the station at Grand Lake Stream, Maine, 60,000 eggs on March 19, 1885, in excellent order; 45 dead on unpacking. The total loss of eggs in hatching to April 4, 15 days, was 142. Up to April 20 the fry did well, the loss being 7,484, but with increasing temperature the sac was absorbed rapidly, and the fish should have been planted at that time. It was the intention to place them in Woodhull or Bisby Lake, Herkimer County, New York, but my letters remained unanswered because of the absence of the gentleman interested in these waters. We kept the fish until May 13, and the death-rate increased; and I finally decided to plant them on Long Island, after loosing over 38,000 fry. The table annexed will show how the fry were distributed.

(c) BROOK TROUT (*Salvelinus fontinalis*).—We received 7,000 eggs from the station at Northville, Mich., on January 31, 1885. The moss was

frozen in places and the eggs were rather dry and badly indented, The loss in eggs was 687, and in fry was 836, total loss 1,523. We delivered 5,500 fry to Mr. George Snyder, Manhasset, Queen's County, New York. We also distributed 22,500 fry, on account of the State of New York, from eggs obtained at the station, and hatched and distributed 100,000 Rangeley (Me.) brook trout for Mr. Francis H. Weeks, of Cold Spring Harbor, N. Y.

(d) BROWN TROUT (*Salmo fario*).—On February 24, 1885, I received a package of 40,000 eggs of this fish from Herr von Behr, president of the *Deutsche Fischerei-Verein*, one-half on account of Mr. E. G. Blackford and the remainder to me. The condition of the eggs was good. On unpacking we removed 1,020 dead. There were distributed 28,900, as shown by Table III. I believe this fish to be one of great value to our trout streams.

(e) RAINBOW TROUT (*Salmo irideus*).—We received a case of 10,000 eggs of rainbow trout from the Northville station of the U. S. Fish Commission on February 25. Condition, good; loss on unpacking, 498. Another package containing 10,000 was received from the same place on March 9, and 288 dead ones were picked out. From these 20,000 we lost 1,343 eggs and 4,254 fry, and distributed 14,500 fry. (See Table IV.)

(f) WHITEFISH (*Coregonus clupeiformis*).—On January 1 we received from the Northville, Mich., station one case containing one million eggs of whitefish in good order. From these we lost 2,445 eggs and 7,500 fry, leaving 99,000 for distribution, as is shown by Table V. In this connection I would say that most favorable reports come from the stocking of Great Pond, near Riverhead, Long Island, but I have not been able to secure specimens. Mr. Nathaniel W. Foster, of Riverhead, president of the Suffolk County Agricultural Society, has written me that small whitefish have been taken from the pond and sent to the New York City markets; and others say that the fish are in the pond, but we lack the absolute proof of specimens.

(g) BLUE-BACKED TROUT (*Salvelinus oquassa*).—On February 20 we received a package of blue-backed trout eggs from the Maine Fish Commission, purchased by Mr. Francis H. Weeks, of Cold Spring Harbor. The number of eggs as estimated by the shipper is not known, owing to an error in his mixing the lot for this station with one purchased by Mr. Weeks for the Adirondack Club. We estimate the number at about 7,000; for the number of dead eggs picked out was 3,647 and the fry lost numbered 2,269, while about one thousand were placed in our ponds; but thus far we do not know that a single fish survived.

OTHER WORK.—As this station is leased by the New York State Fish Commission and its expenses paid by them, except those legitimately belonging to the United States in the work of the General Government, there is no necessity of reporting in full the work done for the State. Still it may be well to say that the hatching of smelts has been successful and many thousands have been turned out. In the salt-water department

the hatching of tomcod, or frost-fish (*Microgadus tomcodus*), has met with most encouraging results, while the artificial propagation of oysters has been very successful.

TABLE I.—Distribution of salmon from Cold Spring Harbor, N. Y., in April and May, 1885.

Date.	Fry sent.	Loss on way.	Fry planted.	Stream.	Tributary of—	Messenger.
Apr. 27	*60,000	300	59,700	Clendon	Hudson River	F. A. Walters.
May 5	80,000	100	79,900	13th brook	do	Do.
8	70,000	200	69,800	Carr's brook	do	Do.
13	60,000	100	59,900	Cedar River	do	Do.
14	1,000	.....	1,000	Pond near Brooklyn†	Jamaica Bay	P. McGovern.
20	50,000	250	49,750	Paulin's River, N. J.	Delaware River	F. A. Walters.
22	50,000	400	49,600	Pequest Creek, N. J.	do	Do.
27	50,000	‡4,000	46,000	Oswego River	Oswego River	Do.
30	4,000	100	3,900	Massapequa	Great South Bay	W. S. Stoots.
	425,000	5,450	419,550			

* Also put 150 yearlings in Clendon brook at the same time.
 † Private pond of Mr. McGovern, by request of Mr. E. G. Blackford.
 ‡ Last lot of fish, and were weak.

TABLE II.—Distribution of landlocked salmon on Long Island from the station at Cold Spring Harbor, N. Y., May, 1885.

Date.	No. of fry.	Where planted.	By whose order.	Messenger.
May 13	4,000	Pond at Montauk Point	E. G. Blackford	L. I. R. R. Co.'s Express.
22	1,500	Pond of J. Ramsbottom	do	James Ramsbottom.
30	6,000	Pond of John D. Jones	do	W. S. Stoots.
30	8,000	Lake Ronkonkoma	Fred Mather	F. A. Walters.
	19,500			

NOTE.—The pond at Montauk Point is owned by Mr. A. D. Benson and is said to be deep and cold. The pond of Mr. John D. Jones empties into Great South Bay, and the fish can go to salt water if they choose. Lake Ronkonkoma is about 60 feet deep in parts and is said to be cool; we have planted white-fish there. I do not know the character of Mr. Ramsbottom's pond or stream, but think it empties into the Great South Bay.

TABLE III.—Distribution of brown trout from the station at Cold Spring Harbor, N. Y., in 1885.

Date.	No. of fish.	Delivered to—	Post-office address.	For stream.	By order of—
Apr. 30	3,000	H. S. Jennings	Islip, N. Y.	Near Islip	E. G. Blackford.
May 3	6,000	George Snyder	Manhasset, N. Y.	Private ponds	Do.
4	3,000	J. R. Wood	Cold Spring Harbor, N. Y.	do	Fred Mather.
12	2,000	F. H. Weeks	do	Swamp brook	Do.
13	1,700	H. Scudder	Northport, N. Y.	do	E. G. Blackford.
15	3,500	Dr. A. K. Fisher	Sing Sing, N. Y.	Near Sing Sing	Fred Mather.
21	2,000	A. W. Humphries	Sterlington, N. Y.	Sterling Lake	E. G. Blackford.
30	2,200	Weeks & De Forest.	Cold Spring Harbor, N. Y.	At Oyster Bay	Do.
	5,500	Townsend & Jones	do	Mill-ponds	Fred Mather.
	28,900				

TABLE IV.—*Distribution of rainbow trout from Cold Spring Harbor, N. Y., in May, 1885.*

Date.	No. of fish.	Delivered to—	Post-office address.	For stream.	By order of—
May 3	1, 000	George Snyder	Manhasset, N. Y.	Private pond	E. G. Blackford.
4	1, 000	J. R. Wood	Cold Spring Harbor, N. Y.	.....do	Fred Mather.
12	1, 000	F. H. Weeks .....	.....do	Swamp brook	Do.
13	4, 000	A. W. Benson	Brooklyn, N. Y.	Pond at Montauk...	E. G. Blackford.
14	500	P. McGovern .....	.....do	Private pond	Do.
15	2, 500	Dr. A. K. Fisher	Sing Sing, N. Y.	Brooks at Sing Sing	Fred Mather.
21	3, 000	A. W. Humphries	Sterlington, N. Y.	Sterling Lake	E. G. Blackford.
22	500	J. Ramsbottom	Baldwin, N. Y.	In South Bay	Do.
30	1, 000	Weeks & De Forest.	Cold Spring Harbor, N. Y.	In Oyster Bay	Do.
	14, 500				

TABLE V.—*Distribution of whitefish from Cold Spring Harbor, N. Y., in 1885.*

Date.	No. of fish.	Where planted.	Messenger.
Mar. 4	60, 000	Great Pond, Riverhead, Long Island	F. A. Walters.
11	5, 000	Mill-pond, Cold Spring Harbor	Do.
Apr. 8	34, 000	Lake Ronkonkoma, Long Island	Do.
	99, 000		

166.—ON A DISEASE AFFECTING THE RAINBOW TROUT AT McCLOUD RIVER STATION.

By LOREN W. GREEN.

A disease has recently come among our trout which was never known here before, and it has killed several of our largest breeding trout, while the small trout in ponds near by have not suffered at all. The disease has been as bad in the river as in our ponds, and a great many large trout have died in the river. The first symptom of our trout in the ponds was that they refused all food. They would eat heartily one day, and the next refuse all food, and on the following day would be lying quietly on their left sides at the bottom of the pond, where they would remain in this state for about five days, eating nothing, after which they would die. While remaining at the bottom their breathing was a little faster than was natural. If disturbed they would swim away as though well, but only for a short distance, and then turn on their sides again. Nothing can be seen about the outward appearance of the fish to indicate the disease. Their eyes, gills, &c., appear perfectly healthy, and all the fish are fat, but upon opening them there appears around the heart and stomach a yellow substance which seems hard and contracted. Not a trout affected has lived. I have used every means available to prevent the further spread of this disease, and I think that now I have it checked, as the remaining trout are looking very well.

BAIRD, CAL., *September 24, 1885.*