

117.—NOTES UPON FISH AND THE FISHERIES.**Compiled by CHAS. W. SMILEY.**

[Mainly derived from the official correspondence.]

APPEARANCE OF MACKEREL.—M. R. Sampson, keeper of the United States life-saving station at Manomet Point, writing under date of July 15, 1885, says: "Mackerel have made their appearance in schools near this station, and a few have been taken with hook and line."

STRANDING OF A FINBACK WHALE AT MOUNT DESERT LIGHT STATION.—Writing under date of July 4, 1885, Thomas Milan, keeper, says: "There was a male finback whale came ashore at this station July 3. He is 56 feet long, circumference about 25 feet. The flukes have a breadth of 12 feet 1 inch; back fin, 1 foot 3 inches; depth of flukes, 3 feet 2 inches; from snout to back fin, 40 feet; length of mouth, 12 feet. The outside skin was nearly all stripped off, as he had been eaten considerably by the sharks. The color of his back was a dark lead color or nearly black; flukes, upper side, same color, under side, grayish-white."

A CODFISH BANK NEAR NOONIVAK ISLAND.—On June 5, 1884, discovered a cod bank off western end of Noonivak Island in latitude $60^{\circ} 23' 40''$ N. and longitude $168^{\circ} 57'$ W. Depth of water on bank about 25 fathoms; bottom, sand, gravel, and rock. Again, on June 9, 1884, in latitude $60^{\circ} 03'$ N. and longitude $167^{\circ} 58'$ W., caught a large number of cod, weighing from 12 to 16 pounds. This seems to be a part of the same bank discovered June 5. Depth of water on this bank about 19 fathoms, sand and shell bottom. The fish on both occasions seemed to be very plentiful. [Extract from log of schooner Ounalaska.]

APPEARANCE OF FISH AT ATLANTICVILLE, N. Y.—David A. Vail, keeper of the Tiana Life-Saving Station, Atlanticville, N. Y., wrote, May 1, 1885: "The appearances of fish on this coast have been as follows: Alewives first appeared on February 26; porgies, April 20; sea-robins, April 22; Boston mackerel, April 30; butterfish, April 30. I have caused a watch to be kept for whale and porpoises, but have seen none. Neither have I heard of any being seen in this vicinity this spring."

June 19, Mr. Vail again wrote: "I have been unable to observe the advent of fish on the coast as closely as I desired. The inlet to our bay, which is small, is too small for fish to enter the bay, and it closed entirely on the 15th of May. During the week ending June 6 menhaden were abundant on this coast. On June 3 two whales were observed directly

off this place, apparently 8 or 10 miles from shore; when they blew the spray therefrom fell over all around like a fountain."

DRUMFISH IN BUSH RIVER.—The Harford Democrat, published in Belair, Md., August 7, 1885, announces that a drumfish had been taken in Bush River by Mr. John Leight, who has fished the river for many years, but never caught one before. It measured 31 inches in length, 11½ inches depth, and weighed 14½ pounds.

CULTIVATING THE RED-MOUTH BUFFALO-FISH.—Under date of March 2, 1885, Mr. John Farrington, of Fayette, Howard County, Mo., writes that he considers the red-mouth buffalo-fish (*Ictiobus bubalus*) to be superior to the mirror carp, having cultivated the former for several years past. Four years ago he put 12 *Ictiobus bubalus*, weighing from one-half to three-fourths of a pound, in a pond covering an area of 1 acre, with a maximum depth of 12 feet, and last summer caught 21 fish that averaged 9 pounds, their weights ranging from 7 to 13½ pounds. Mr. Farrington further states that on account of the small bones these fish should not be eaten when weighing less than 7 pounds. He says their flesh is of fine grain and of a good flavor. He is also cultivating large-mouth bass, crappies, rock bass, and pike.

SWISS FISH-CULTURE.—During the year 1883-'84 the state fish-cultural establishment at Zurich, Switzerland, raised 40,000 salmon, 10,000 salmon hybrids, 51,000 lake and river trout, 30,000 grayling, 100,000 mullets, 7,000 German murænas, 20,000 American salmon, and 18,000 whitefish, all of which were set free in the Lake of Zurich and in the Limmat River. In the establishment of the forest of Sihl, 30,940 eggs have been used, and from the middle of January to the end of March, 1884, there have been transferred 28,000 fish obtained from these eggs. [Bulletin of French Acclimatization Society, June, 1884, p. 513.]

TROUT CULTURE IN ENGLAND.—Trout culture has made astonishing strides in Great Britain the last two or three years. Owners of fisheries are beginning to find that by far the best plan is to put in yearling or two-year-old fish. A trout of a year old will live in water in which fry cannot thrive; even if they do thrive in it, still it is better to put in older fish, as they will spawn naturally, and their offspring will be more hardy than fry bred artificially. Many millions of fry have been wasted by turning them into the open water instead of rearing them until they can take care of themselves.

Any one in doubt as to what breed of trout to put into a water for stocking purposes should procure one-year or two-year-old Loch Leven trout from Mr. T. Andrews, Westgate House, Guildford; or Mr. Silk, Burleigh Park, Stamford; or Mr. T. Ford, Caistor, Lincolnshire. [Fishing Gazette, April 4, 1885.]

TIME REQUIRED TO HATCH CARP EGGS.—Mr. John H. Brakeley states that at Bordentown, N. J., he has found carp eggs to hatch in ninety-six hours or less.

LARGE SALMON.—In the river Tay, not far from Perth, was taken, in the middle of December, 1884, a male salmon which weighed 39 kilograms (86 pounds) and measured 1.68 meters (about 5½ feet) in length. Its greatest circumference was 0.76 meter. After it was weighed and measured it was liberated again. (Norsk Fiskeritidende, part 2, April, 1885, p. 236.)

FROG-FARMING.—The Bailey Brothers, of Minneola, Sumter County, Florida, contemplate engaging in this business, and would like information as to the best method of catching frogs and preparing the meat for market.

PLANTS AND SEEDS RECEIVED AT THE CARP PONDS.—The following plants and seeds were received at the Carp Ponds of the United States Fish Commission at Washington, in March, 1885, from the Royal Gardens at Kew, London:

Seeds.—*Nelumbium speciosum*, *Nymphaea ampla*, *Nymphaea cyanea* (*stellata*), *Nymphaea lotus*, *Victoria regia* (50).

Plants.—*Nelumbium speciosum* (1), *Thalia dealbata* (1), *Sagittaria heterophylla* (6), *Villarsia nymphæoides* (1), *Polygonum amphibium* (1 bunch), *Ranunculus lingua* (6), *Nymphaea alba* (2).

AMERICAN FISH-EGGS IN ENGLAND.—Mr. Henry Ffennell, writing in Land and Water of February 28, 1885, says: "Foremost among the more interesting consignments of eggs which have been received from abroad are a large number of ova of various kinds forwarded by the American Government, through their Fishery Commissioner, Professor Baird. The United States Government has been most liberal in its presents of fish-eggs, and English pisciculturists owe it a hearty vote of thanks for giving the National Fish Culture Association an opportunity of carrying on experiments with a view of ascertaining whether the introduction of certain fish from American waters into our English, Irish, and Scotch rivers and lakes can be practically and advantageously carried out. The advisability of introducing some appears to me very doubtful, while in other cases it seems highly probable that the nature of our streams and rivers may not be suitable for the propagation of American-bred fish. As to the introduction of one American fish, the *Salmo fontinalis*, I think we have now ample proof that it has proved a failure. Thousands of *fontinalis* have been turned into various waters in England, and, so far as I can gather, I do not think that in any single instance can it be said that they have been established. They appear to be of a wandering nature, and when put into any fishery they are said generally to push up stream, but I have not heard of their increase in the higher districts. A batch of some 7,000 *fontinalis* ova arrived at the aquarium on Saturday last, in fine condition.

"Among the presents of ova sent by the American Government are those of the whitefish (*Coregonus albus*), the Penobscot or Atlantic salmon, the Schoodic or land-locked salmon, the lake trout (*Salvelinus na-*

maycush), and the California salmon (*Salmo gairdneri*). I doubt much if any of the above are better sporting or edible fish than our own *Salmo salar*. I may here add that the association is now prepared to distribute whitefish fry, and any one wishing for some should apply at once at South Kensington. Doubtless some of the large Scotch or Irish lakes would be suitable to them. Lord Exeter has had a number of the fry taken to Burleigh Park. Up to the present they appear to be doing well, and eventually it is proposed to turn them into the large lake. The MacLaine, of Lochbuy, also contemplates turning a number into some of his lakes in the north.”

TABLE.—Record of shad-hatching operations conducted by Lieut. W. F. Low, U. S. N., at Havre de Grace, Md., on the Susquehanna River, under the direction of the United States Fish Commission, from April 19 to June 1, inclusive, 1883.

Date.	Eggs obtained.	Eggs lost.	Eggs hatched.		Disposition of young fish.		
			Date.	Number.	Released in local waters.	Date.	Transplanted to other waters.
1883.			1883.			1883.	
April 19	25,000	25,000	May 2	28,000	28,000	May 4	
April 20	30,000	2,000	May 2	50,000	50,000	May 4	
April 21	75,000	25,000	May 7	79,000	79,000	May 10	
April 28	95,000	16,000	May 7	65,000	65,000	May 10	
April 30	110,000	45,000	May 8	35,000	35,000	May 11	
May 1	49,000	5,000	May 10	143,000	143,000	May 11	
May 2	155,000	12,000	May 10	160,000	160,000	May 12	
May 3	180,000	20,000	May 10	65,000	65,000	May 12	
May 4	75,000	10,000	May 12	212,000	212,000	May 13	
May 5	240,000	28,000	May 13	440,000	440,000	May 14	
May 7	500,000	60,000	May 15	176,000	176,000	May 16	
May 8	200,000	24,000	May 16	214,000	214,000	May 17	
May 9	270,000	56,000	May 18	125,000	125,000	May 19	
May 10	175,000	50,000	May 17	64,000	64,000	May 19	
May 11	100,000	36,000	May 19	141,000	141,000	May 20	
May 12	180,000	39,000	May 20	30,000	30,000	May 21	
May 13	*45,000	15,000	May 20	232,000	232,000	May 21	
May 14	286,000	54,000	May 21	29,000	29,000	May 22	
May 15	32,000	3,000	May 23	308,000		May 24	†308,000
May 16	356,000	48,000	May 24	296,500	296,500	May 25	
May 17	‡323,500	27,000	May 23	187,000	187,000	May 25	
May 18	226,000	39,000	May 24	820,000	820,000	May 26	
May 19	§1,000,000	180,000	May 27	426,000		May 28	‡300,000
May 21	505,000	79,000	May 28	396,000		May 30	‡126,000
May 22	468,000	72,000	May 29	203,000		May 30	‡396,000
May 23	237,000	34,000	May 30	140,000		May 30	‡203,000
May 24	149,000	9,000	May 31	60,000		June 2	‡140,000
May 25	63,000	5,000	June 3	25,000	25,000	June 2	‡60,000
May 28	30,000	5,000	June 4	15,000	15,000	June 4	
May 31	38,000	23,000	June 4	120,000	120,000	June 4	
June 1	153,000	33,000					
Total..	6,363,500	1,079,000		5,284,500	3,751,500		1,533,000

* 27,000 eggs from fish in pool; 25,000 eggs from fish in pool hatched successfully.

† Delivered to the Pennsylvania fish commission.

‡ Of a number of eggs taken from roe after shad was dressed and impregnated with milt from males in live box, 50 per cent. came up and 10 per cent. hatched.

§ Of 55,000 eggs taken from shad that had been dead from 1 to 1½ hours, 45,000 hatched successfully.

|| Delivered to Fish Commission car No 1.

¶ Delivered to H. E. Quinn, messenger.

SPAWNING OF AMERICAN BLACK BASS IN GERMANY.—Max von dem Borne, writing from Berneuchen, June 22, 1885, says: "My 13 black bass have spawned. I have caught 11,800 of the fry and placed them in ponds that have no other fish. I am now almost certain that this fish will be plentiful in a few years in my neighborhood."

FOOD OF CARP.—"It is almost incredible," says the *Deutsche Fischerei-Zeitung*, "that for hundreds of years man should have been engaged in the culture of an animal without knowing on what it feeds; and yet such is the case with respect to the carp. The fish is treated in the methods bequeathed by tradition, and nature is left to do the rest. One after another has said that carp feed on vegetable matter." It appears from a long and carefully carried out series of experiments made by Mr. J. Susta, director of the Wittingau carp fishery, that carp feed chiefly—indeed, he asserts exclusively—on animal food, and that what little vegetable matter it takes into its stomach is taken in by accident when the fish is grubbing after larvæ and insects. "The greenish color of the food found in the carp's stomach has given rise to the idea that it was vegetable matter; but as soon as Mr. Susta made a closer examination he got rid of the green color arising from the gall, by washing, and found the contents of the stomach to consist almost exclusively of animal-remains. Carp full of food were taken from a whole series of ponds and examined, and it was proved that the larvæ of flies, small crustaceans of the *Daphnia* and *Cyclops* genera, as well as the larvæ of *Phryganidæ*, form the principal food of carp."

"It has been calculated that in one year a female *Cyclops* would become the progenitor of more than four billions of young." The various species of the genus *Cyclops* abound in inland waters all over the world. [Fishing Gazette, April 4, 1885.]

WHITE HERONS EAT THEIR WEIGHT.—Among the entertaining features of the State carp ponds are two white herons under domestication. Mr. Logan Terrell winged two of these snow-white creatures, and has for some days kept them tied to a pole with a small cord. At times he takes the birds upon his arm and conveys them to the edge of the large pond. Then, throwing in bits of cracker, he attracts myriads of shiners and roaches near the feet of the birds, who immediately begin to feed. One fish after another is caught between the beak and swallowed head foremost. It is strange that as slick as a fish is they never drop one. Each bird takes forty-five fish per day, the minnows being 4 inches long. Mr. Terrell wonders why any fish exist when such greedy foes beset them every day. [Raleigh Register, July 22, 1885.]

GRASS FOR CARP PONDS.—Dr. Rud. Hessel says that he has found carp eggs adhering in greater numbers to *Festuca fluitans* than to any other plant. "Its narrow, long, strap-shaped, thin leaves spread softly over the water's surface, as also its numerous branches in the water, affording to the fish the sought-for opportunity to deposit its eggs upon the tender leaves."

This grass is known to American botanists as *Glyceria fluitans*. It is called *Glyceria* on account of the sweet taste of the seeds. This genus is known by the common name of manna-grass. This species grows to a height of from 3 to 5 feet and has leaves about 1 foot long. It grows in shallow water and blossoms from June to August. Its spikelets contain from seven to thirteen flowers each. It is frequently found in the United States.

In addition to its usefulness in holding the eggs, it is valuable on account of the sweet seeds which drop from it into the water and are eaten by the carp. Persons owning carp ponds can frequently find it growing wild and transplant it to their ponds by securing the aid of some local botanist to identify it. In cases of uncertainty in regard to specimens supposed to be *Glyceria fluitans* it would be well to send for identification a specimen containing leaves, flower, and fruit.

CARP PLANTED IN RIVANNA RIVER.—On June 25, 1885, Colonel M. McDonald took from the carp ponds at Washington seventy-five thousand carp from three to ten days old, and deposited them without loss at Charlottesville, Va., in the Rivanna River. The oldest of the fish were from $1\frac{1}{4}$ inches to $1\frac{1}{2}$ inches in length. Only a few of the fish died in transit. The river selected is a muddy stream containing no other fish, except suckers. The dams below Charlottesville prevent the ascent of bass and other predaceous fish from the James River.

HOW TO CONSTRUCT MUSKRAT TRAPS.—Mr. Charles H. Sturr, Preston, Hamilton County, Ohio, gives the following simple method of constructing a practicable and efficient trap for the capture of muskrats:

Take a barrel containing both heads. Nail a strip of board across each end near the center, and projecting far enough so that strips running lengthwise of the barrel may be nailed on them and form a platform around the barrel. Bore a number of small holes in each end of the barrel below the strips; the strips will prevent its sinking too low and getting too full of water. Then cut a square hole, 6 by 6 inches, in what will be the top of your barrel. Set it afloat on your pond, and bait with apples, carrots, parsnips, or anything the rats like. They will go in after it and cannot get out. The trap is always set, need be looked after only at your pleasure, and is easily shifted from point to point. [National Journal of Carp Culture, May, 1885.]

THE STEAMER SPENCER F. BAIRD.—Messrs. D. L. Fernald & Co., inspectors and packers of fish at Portland, Me., are building a steamer to use in the mackerel fishery. The hull will be 156 feet long, 26 feet and 4 inches wide, and 11 feet and 3 inches deep, and about 300 tons register. The cost of the vessel will be \$30,000.—March 30, 1885.

SCHOONER SPENCER F. BAIRD.—In a letter from Port Townsend, Wash., Mr. Jas. G. Swan, under date of April 15, 1885, writes:

"Yesterday Capt. Henry Martin arrived here with a new fishing schooner of 8 tons, which he has had built for experimenting with the fisheries of Puget Sound. She is a beautiful model, a perfect little

yacht. I went to examine her this forenoon and I was much pleased with her. Captain Martin has named this little gem of a vessel the 'Spencer F. Baird.' As she is the first vessel of her size built here expressly to experiment and develop our fisheries, I told Captain Martin I thought her name a felicitous one, of good omen to his little craft, and I trust he may be so successful in his fisheries that he may induce others to engage in this industry, and the little schooner Spencer F. Baird be the beginning of an enterprise which may develop into large proportions.

"True cod have appeared in large numbers in Port Angeles harbor, a rather unusual thing. I think they will be in Port Townsend Bay in a few weeks."

FISHWAYS REQUIRED IN ILLINOIS.—An important fishway case, of which a résumé will be found on pages 266–268 of the F. C. Bulletin for 1883, has been decided in favor of the people of the State of Illinois. The decision establishes the requirement that every person who builds a dam or other obstruction across a stream in that State must erect a suitable fishway over the same.

STATISTICS OF GLOUCESTER, MASS., FOR 1884.—In 1884 the number of vessels fishing from this port was 473, of 30,283 tonnage, employing 6,436 men; capital invested in vessels and outfits, \$2,125,000. The leading products for that year were 186,929 inspected barrels of mackerel, of \$1,175,000 value; 553,063 quintals, equal to 61,943,056 pounds, of codfish, valued at \$1,984,000; 9,029,265 pounds of halibut, of \$541,665.90 value. The haddock fleet landed some 50,000,000 pounds of fish, mostly sold fresh. Of the amount and value of fish-oil we have no statistics on hand. Total investments in the fisheries, \$4,759,000. (Cape Ann Breeze, May 9, 1885.)

NOTE FROM THE McCLOUD RIVER STATION.—Mr. Loren W. Green, writing under date of August 5, 1885, says: "Salmon are very scarce in McCloud, Pitt, and Sacramento Rivers. The Hat Creek hatchery has taken no eggs as yet, and prospects are that they will take but very few, if any, as all salmon reaching Hat Creek must pass up Pitt River, and no salmon are seen in the Pitt as yet. Indians on the McCloud have never seen the scarcity of salmon compare with this season. Our trout here in the ponds are doing very well. The summer is very dry; water very low; thermometer ranging between 95° and 108° in the shade."

THE GLOUCESTER MACKEREL-FISHERY OF 1884.—The following table has been compiled from sworn statements of masters of vessels engaged in the mackerel-fishery, made to F. J. Babson, collector of customs at Gloucester, Mass. These statements were forwarded to the Secretary of the Treasury, who turned them over to the U. S. Commission of Fish and Fisheries. Nearly all of the vessels went to the Gulf of Saint Lawrence for mackerel.

Date of report.	Vessel.	Tons.	Men.	Time.	Mackerel taken in Gulf of Saint Lawrence.			Estimated loss on trip to Gulf of Saint Lawrence.	Mackerel taken elsewhere than in Gulf of Saint Lawrence.			Remarks on mackerel taken elsewhere than in the Gulf of Saint Lawrence.
					Total	Within 3-mile limit.	Value of mackerel taken within 3-mile limit.		Where.	Amount.	Value.	
1884.				<i>Weeks.</i>	<i>Bbls.</i>	<i>Bbls.</i>			<i>Bbls.</i>			
July 15	W. H. Foye	64	15	6	0	0		\$3,000	Coast of Maine	313		Taken on return from the Gulf.
19	Lelia E. Norwood	74	17	3	0	0		3,000	do	374	\$1,500	Do.
22	Fred. P. Frye	80	16	8	0	0		5,000	.....	.....	.....	.....
27	John W. Bray*	79	16	5	15	0		.....	.....	.....	.....	.....
30	Com. Foote	61	16	6	30	0		3,000	Off Cape Sable	180		Taken before entering Gulf. Its mackerel-fishery is of no value this season.
30	M. S. Ayer	76	16	4½	0	0		3,500	Off Mount Desert	370		Taken on return from Gulf.
30	Henry Dennis	91	16	6	138	0		.....	.....	.....	.....	The Gulf mackerel-fishery is of no value to our people.
30	Ethel Maud	77	16	1	0	0		.....	Off Mount Desert .....	.....	.....	Full fare taken on return from Gulf. The Gulf mackerel-fishery is of no value to our fishermen.
Aug. 15	Samuel V. Colby	95	16	7	113	10	\$50	2,000	.....	400		Taken in 10 days.
15	Gussie Blaisdell	85	16	9	20	0	6	4,000	.....	400		Taken in 6 days on return from Gulf.
15	Jennie Seaverns	107	16	9	55	0		4,000	Coast of Maine	400	1,800	Taken during September and October.
17	M. A. Bradley	76	16	9	25	0		.....	.....	1,000		Touched the Gulf late in season, but took no mackerel.
20	William H. Jordan	86	18	4	30	0		2,000	Coast of Maine	300		Taken in 10 days on return from Gulf.
20	William F. Frye	74	15	9	15	5	80	.....	.....	1,600		While in the Gulf my other vessel took 1,030 barrels of mackerel.
20	J. W. Campbell	79	16	13	95	95	475	3,000	.....	.....	.....	Taken in 2½ months. Went into Gulf latter part of October, but took no mackerel.
21	Landseer	94	16	9	105	50	250	2,000	.....	.....	.....	.....
25	Bartie Pierce	90	17	5	20	0		.....	.....	.....	.....	.....
29	Edward S. Eveleth	84	16	9	370	75	375	.....	.....	.....	.....	.....
30	William D. Daisley	100	17	10	130	45	180	6,000	.....	.....	.....	The Gulf mackerel-fishery is of no value to our fishermen.
30	Sarah M. Jacobs	76	16	11	250	0		4,000	.....	.....	.....	.....
Sept. 1	Fleetwing	57	15	8	0	0		2,500	.....	.....	.....	The Gulf mackerel-fishery is of no value to our fishermen.
1	Robin Hood	88	16	9	250	50	250	2,000	.....	.....	.....	Do.
6	Helen M. Adams	84	15	9	12	6	30	3,000	.....	.....	.....	Do.
7	Hattie Evelyn	66	16	11	131	15	75	3,000	.....	.....	.....	Plenty of mackerel in Gulf, but the nature of its bottom prevents use of seine. The weather was also unfavorable.

	10	Belle Franklin	76	16	10	220	116	550	1,000			
	20	Harry G. French	95	17	2	0	0			Off Mount Desert	660	
Oct.	15	Emma W. Brown	74	16	20	607	30	150				
	23	Mary R. Smith	90	16	20	120	20	80	2,500			While in the Gulf one of my vessels took 4,000 barrels of mackerel on our coast.
Nov.	1	Albert H. Harding	61	15	20	320	20	100	3,600			
	3	Ralph F. Hodgdon	85 $\frac{1}{2}$	16	22	700	0					
	4	Ralph E. Eaton	66	16	9	115	20	100	2,500			
	5	Mabel Dillaway	77	16	22	452	350	1,800				
	5	Spencer F. Baird	74	16	11	370	180	900				
	5	Lizzie M. Center	80	16	22	1,100	500	3,500				
	8	Rapid Transit	80	16	15	398	0					
	10	Volunteer	66	15	13	350	4	20				
	10	Howard Helbrook	92	17	17	550	150	750	5,000			Made 2 trips to Gulf. Its mackerel-fishery is of no value to our fishermen.
	10	Orient	89	16	26	845	150	750				
	13	Martha C	75	15	23	540	175	900				Made 2 trips to the Gulf.
	13	Gertie Evelyn	81	16	24	418	90	700	3,000			
	15	Mascot	77	16	9	135	0		2,000			
	15	Mary A. Clark	80	16	9	130	0		2,500			The Gulf mackerel-fishery is of no value to our fishermen.
	15	Commonwealth	81	16	22	700	100	500				
	15	Mollie Adams	118	18	22	800	50	400				
	15	Warren J. Crosby	107	17	18	500	100	400	5,000			The Gulf mackerel-fishery is of no value to our fishermen.
	15	Fannie Belle	80	19	20	930	150	750				
	15	Henri N. Woods	84	16	15	256	75	350	5,000			Made 2 trips to the Gulf. Its mackerel-fishery is of no value to our fishermen.
	18	Laura Nelson	85	16	17	150	0					
	18	Isaac Patch	69	15	22	375	0					
	19	P. S. Roberts	76	16	22	840	300	2,600				
	20	William V. Hutchins.	59	16	7	7	0		2,000			The mackerel-fishery of the Gulf is of no value to American fishermen.
	20	Ossipee	69	15	22	218	18	100				
	20	Edward S. Eveleth	84	16	8	0	0		3,000			
	20	Electric Light	93	16	20	485	25	100	4,000			Made 2 trips to the Gulf.
	20	Ivanhoe	76	16	22	270	0					Do.
	22	W. H. Foye	64	15	6 $\frac{1}{2}$	0	0		2,500			
	23	Pendragon	68	16	25	600	170	850				
	23	Frank A. Rackliffe	99	17	6	0	0		2,000			
	30	Henry L. Phillips	73	16	7	0	0		1,500			The mackerel-fishery of the Gulf is of no value to our fishermen.

* On our shores mackerel always move in large bodies, but when they go into the Gulf of Saint Lawrence they break up and scatter in search of food. When the hand-line was used there were from 500 to 600 vessels in one fleet, the mackerel being brought together by the large amount of bait thrown to them. No bait being used now, the mackerel-fishery of the Gulf of Saint Lawrence is valueless to American fishermen.

SUMMARY.

Number of vessels engaged in Gulf mackerel-fishery.....	58
Total number of tons burden.....	4,593
Average number of tons burden.....	79
Total number of men employed.....	933
Average number of men to each vessel.....	16
Number of trips made.....	64
Number of men employed.....	1,028
Total number of weeks employed.....	750
Average number of weeks each trip (nearly).....	12
Total number of barrels of mackerel taken.....	15,299
Value of mackerel taken.....	\$86,852
Average number of barrels of mackerel taken each trip.....	239
Value of mackerel taken each trip.....	\$1,357.28
Average amount each man received.....	\$84.48
Number of barrels taken within 3-mile limit.....	3,138
Value of mackerel taken within 3-mile limit.....	\$18,081
Average number of barrels of mackerel taken within 3-mile limit each trip.....	47
Value of mackerel taken within 3-mile limit each trip.....	\$282.51
Number of trips on which an estimated loss has been rendered.....	36
Estimated loss on the 36 trips.....	\$101,500
Average estimated loss.....	\$2,819.44
Average estimated loss each man.....	\$175.30
Number of fares taken on shores on return home.....	*7
Total number of barrels of mackerel of the 7 fares.....	†3,537
Average number of barrels of mackerel.....	505
Number reported the mackerel-fishery of the Gulf as of no value.....	13

* One vessel took full fare; no figures given.

† 180 barrels were taken off Cape Sable, just before entering the Gulf.

THE RELATION OF FISH TO SEWAGE.—Mr. Charles J. Alger, of Burlington, Vt., under date of March 8, 1885, states that in endeavoring to enlarge the water supply of that city, a point about 1,500 feet off shore in Lake Champlain was selected from which to draw the supply. It was found that a large number of smelts gathered there during the winter months, and the question is raised whether there may not be a current of sewage or of other impurities, which induces the fish to congregate. The place is located near the end of a breakwater.

SALMON IN THE CONNECTICUT.—Mr. E. G. Blackford, of Fulton Market, writing under date of May 16, 1885, says: "I received yesterday one salmon, caught at Saybrook, on the Connecticut River, weighing 18½ pounds."

SEA-LION INVESTIGATION.—Mr. Joseph D. Redding, one of the California fish commissioners, writes, August 11, 1885, that he has invited Dr. H. W. Harkness, Dr. H. H. Behr, and Mr. Adolph Sutro to investigate and report upon this question. The sea-lions occupy the bays and coast near San Francisco in countless thousands. They are very voracious, and it is alleged that they destroy hundreds of thousands of pounds of edible fish daily. The fishermen declare that their business is rapidly declining from this cause. Their curious manner of living upon the rocks about the Golden Gate, renders the sea-lions one of the curiosities of the Pacific coast. It may be thought best to protect them within a national reservation rather than to try to exterminate them. Mr. Redding intends to present an exhaustive report to the California legislature and to the U. S. Fish Commission.

CARP FOR MEXICO.—On March 14, 1885, the Fish Commission representative at New Orleans delivered to Dr. Barroeta a pail of twenty-five carp, to be taken by him to Mexico, the smallest and strongest carp of the different varieties being selected.

SMALL-MOUTHED BLACK BASS.—This fish can be taken in considerable quantities from the lake for stocking purposes from April 20 to June 15, and in decreasing quantities from June 15 to September. Application should be made to Capt. William Clark, Life-Saving Station, Capt. J. D. Pasch, or Capt. Fred Knobloch, Erie, Pa.

CARP FOR SOUTH AMERICA.—March 23, 1885, the U. S. Fish Commission sent 100 carp from 1 to 2 inches in length to Preston A. Rambo, care of John C. Uhler, M. D., Baltimore, who left for Rio Janeiro, Brazil, March 30th.

HATCHING RAINBOW TROUT.—Mr. H. J. Pierre, of Winsted, Conn., wrote, March 19, 1885, as follows: "The 2,000 California rainbow trout eggs came to hand last Saturday in first-class condition. I placed them in my hatching trough after slowly bringing them to about the temperature of my spring water, and now I think they bid fair to give an excellent product. I believe I lost only from twelve to fifteen out of the lot, which were killed by the moving."

A SHARK'S BILL OF FARE.—Mr. A. H. Myers, keeper of Quoddy Head life-saving station, wrote from Lubec, Maine, March 6, 1885:

"The specimen shark will leave Eastport by express Monday, the 9th, and will probably reach you in four days.

"Old fishermen here say it is a young one, of the liver shark family, one of the largest known here. I removed the liver and stomach and filled the cavity with rock weed and snow. I took out about 15 gallons of liver, and from the stomach, a peck of large herring and 6 yards of gill-net."

APPEARANCE OF FISH.—Mr. John F. Holmes, keeper of the Gurnet life-saving station, writing under date of July 8, 1885, says that on July 5th schools of whales and porpoises appeared near that station, and on July 7 quite a large quantity of mackerel was taken.

OTHER FISH MISTAKEN FOR CARP.—Mr. Samuel McClelland, of Salt Springs, Saline County, Missouri, reported April 13, 1885, that thousands of little fish had appeared in his carp pond, which with the best of care did not grow more than 6 inches in length, while draining the pond proved that the carp were all large, none weighing less than 4 pounds. Neither he nor his neighbors being able to decide the question, some specimens were consequently forwarded to the Fish Commission, and proved to be *Pimephales promelas* Raf., commonly known as fat-head or black-head minnow, a species very abundant in sluggish waters, from the Ohio Valley to the Upper Missouri.

INTRODUCING CATFISH INTO ENGLAND.—The London Saturday Review of July 25, 1885, in commenting upon the recent transfer of catfish from America to England, says: "It seems almost incredible that any one should introduce the accursed catfish to our shores. Yet we read with horror that a consignment of catfish has been received by the National Fish Culture Association from the Fish Commission of the United States. Is America to be allowed to export the paupers and

criminals of her brooks and rivers into our innocent waters? If mere sport is the object of the National Fish Culture Association, perhaps they intend to set a dogfish at the catfish, and enjoy the brutal pleasures of a one-sided conflict."

The writer then lets out that he is speaking in the sporting interest and not in the interest of food for the people when he says: "Of course, if the brute does not rise to fly, it will cause less annoyance to anglers of the right sort; but over here it might change its habits and acquire a passion for black gnats or March browns. As to its edible qualities, the catfish is said to resemble the eel, and that is saying enough. We have a sufficiency of eels, and need not reinforce our 'food stuffs' with catfish."

THE TIME OF SPAWNING OF OYSTERS IN RHODE ISLAND.—The following note is by Robert Pettis, of Providence, R. I., and dated August 11, 1885: "The native oysters of Providence River and Narragansett Bay, so far as I know, have all done spawning for this season. They began to spawn this year about the 18th of June (at least that was the date when I noticed the first ones that had spawned), and about the 25th of July they had all finished and the native Providence River oysters will not spawn again this season. I can furnish you with all you may want of them for \$5 per barrel. At present the meats of them are very thin and poor and not very good for eating or cooking.

"The oysters planted in this river and bay from Virginia and Maryland go in and out of their spawn several times during the season, but the native Providence River only once. The natives are what we get our seed from in Providence River. The spawn from the Virginia and Maryland oysters planted here I do not think amounts to anything, as I do not think that any spawn except the native grows in this river."

Weekly comparison of the inspections of shad and herring in the Washington market during March, April, May, and June of 1879 to 1885, inclusive.

SHAD.

Week.	1879.	1880.	1881.	1882.	1883.	1884.	1885.
	Number.	Number.	Number.	Number.	Number.	Number.	Number.
March 1-5		192		52	28		6
6-12		184		778	115		8
13-19		2,126	470	3,054	543		283
20-26	740	2,523	4,862	7,733	1,183	6,275	1
27-April 2	4,711	11,699	13,881	12,567	10,646	25,740	95
April 3-9	14,037	27,740	11,489	54,740	22,165	35,655	4,494
10-16	18,900	38,145	57,019	66,129	51,771	35,256	13,037
17-23	38,200	49,529	73,439	51,710	58,667	42,454	22,194
24-30	43,860	43,163	68,630	48,296	57,777	34,138	14,440
May 1-7	58,596	52,724	84,142	40,223	52,283	24,890	31,791
8-14	45,019	38,578	49,586	22,841	20,431	13,158	20,357
15-21	36,100	29,937	36,513	19,019	13,149	8,339	9,147
22-28	23,200	14,502	25,639	14,401	9,130	3,068	6,058
29-June 4	11,640	6,627	8,744	4,846	2,205	1,833	2,501
June 5-11	11,593	3,218	3,904	2,505	1,381	494	443
12-18	3,090			720			
19-25	880						
26-30	105						
Total	311,241	320,767	458,368	350,223	261,474	231,111	125,458

HERRING.

Week.	1879.	1880.	1881.	1882.	1883.	1884.	1885.
March 1-5.....		15,150	175	1,917	1,310	4,978	.....
6-12.....		12,420	1,900	9,288	3,225	5,700	4,100
13-19.....		22,810	55,044	8,221	8,841	35,301	8,046
20-26.....	8,700	131,822	73,129	21,090	11,946	72,119	3,154
27-April 2.....	69,845	142,485	113,712	118,729	50,785	100,098	159,220
April 3-9.....	225,539	456,093	98,991	417,718	218,950	353,606	635,978
10-16.....	370,000	346,698	480,018	552,810	556,986	757,114	1,226,820
17-23.....	341,000	828,212	1,132,422	979,311	990,392	1,294,895	2,176,088
24-30.....	650,200	1,044,318	1,885,363	996,674	899,715	1,032,511	1,632,609
May 1-7.....	827,085	1,627,568	2,080,700	1,132,945	1,055,129	1,185,808	1,549,874
8-14.....	640,400	1,554,432	2,185,750	627,591	598,158	486,875	1,260,669
15-21.....	303,000	560,670	929,923	661,089	447,703	223,294	825,000
22-28.....	118,400	95,948	436,441	694,479	107,088	67,602	236,074
29-June 4.....	47,000	12,500	133,000	292,317	24,967	9,951	89,067
June 5-11.....	3,600	.....	27,000	54,559	4,278	.....	6,236
12-18.....	450	.....	.....	8,467	.....	.....	.....
19-25.....	150	.....	.....	.....	.....	.....	.....
26-30.....	60	.....	.....	.....	.....	.....	.....
Total.....	3,605,429	6,850,626	9,633,568	6,487,805	4,879,473	5,630,812	9,813,544

Yearly statement of the number of shad and herring inspected in the Washington market during the thirteen years 1873 to 1885, inclusive.

Year.	Shad.	Herring.	Year.	Shad.	Herring.
1873.....	852,900	3,780,800	1881.....	458,968	9,653,568
1874.....	628,637	6,567,240	1882.....	350,223	6,487,805
1875.....	464,215	1,674,465	1883.....	261,474	4,879,473
1876.....	319,079	1,488,050	1884.....	231,111	5,630,812
1877.....	131,190	2,572,124	1885.....	125,458	9,813,544
1878.....	121,785	2,507,500			
1879.....	311,241	3,993,429	Total.....	4,576,457	65,501,336
1880.....	320,767	6,850,626			

AMERICAN TROUT IN NORWAY.*—At the suggestion of Mr. Landmark, inspector of fisheries, the Norwegian Assembly (*Storting*) in 1882 appropriated a sum for making experiments with the so-called American trout (*Salmo fontinalis*), which, both in its home and in those countries where it has been recently introduced, is favorably known as a rapidly-growing and hardy fish, being especially adapted to cultivation in ponds and small lakes. During the following winter (1882-'83) this appropriation was used to obtain some roe of this fish from a hatching-house near New York, whence it was sent to Norway by one of the steamers of the Thingvalla line. Only a small quantity of the roe perished during the voyage, and the remainder was hatched here toward spring in a small hatching-apparatus prepared by Mr. Landmark. The resulting fry later in spring were placed in three specially-prepared ponds in the neighborhood, at Røken, Hurum, and Fron. Some days ago the fish in these ponds were examined, and it appeared that also with us the *Salmo fontinalis* had maintained its reputation for rapid growth. In one of the ponds belonging to B. Kjekstad, in Røken, the fish had reached the very unusual length, for so young an age, of 18½ centi-

* "Amerikansk Orret." A clipping from a Norwegian newspaper. Translated from the Danish by HERMAN JACOBSON.

meters and the weight of 75 grams. In the other ponds, which had more of a provisional character and are much smaller than the Røken pond, the fish certainly were much smaller, and were not so well shaped and heavy as the specimens from Røken, but they had reached the very respectable length of 13 centimeters, and seemed to be in excellent condition. This experiment, therefore, promises well for the future, and it is probable that during the coming autumn (1885) these fish will be ready to propagate, so that in the spring of 1886 some of the young fish can be placed in other waters.

CALIFORNIA TROUT PROPAGATION AT WYTHEVILLE, VA.—Mr. George A. Seagle, writing under date of January 27, 1885, reports that the two boxes of California trout eggs (50,000) received on the 24th instant from Baird, Cal., were almost a total loss; only about 14,000 live eggs being in the two boxes. They were very badly frozen; the bottoms of the cases being frozen hard, so that not a dozen eggs were saved from the last four crates, although six hours were spent in thawing them out and bringing them to the required temperature.

We still continue to get a few eggs from our own fish. I suppose we average 800 eggs per day. The first eggs of the season are hatching out nicely. One fish yielded 962 eggs, January 26th. The first eggs were taken on the 26th of December, and on the 26th of January they began to hatch. The young fish seem to be strong and in good condition.

PETITION FOR PROTECTIVE LAWS ON MACKEREL.—At a meeting of the Massachusetts Fish and Game Protective Association at the Parker House, Friday evening, January 30, 1885, Mr. E. E. Small, of Provincetown, offered the following resolution:

“That the committee on fisheries consider the expediency of petitioning Congress for the enactment of a law preventing the catching of mackerel by seiners before the 25th of May, and for a law preventing the importation of mackerel caught before that day from any foreign country.”

In support of his motion Mr. Small said that every year about the middle of March the mackerel fleet went into southern waters, and along the northern edge of the Gulf Stream they met the schools of mackerel on their way to northern waters for the purpose of depositing their spawn. “These fish,” said he, “are full of spawn; they are easily caught, and when caught they are destroyed in immense numbers. With every mackerel thus destroyed there are also destroyed thousands and thousands of spawn. I know that one of the largest catches on record was taken the past year. But out of the 476,000 barrels taken I am positive that at least 400,000 barrels were little tinkers, about ten inches long—fish that a few years ago would have been passed by with disdain. Unless something is done to prevent the destruction of the spawn the mackerel fishery will soon be in the same condition as the menhaden fishery is now on the coast of Maine. All the large fish will soon be exterminated. It is true that menhaden or porgies are now caught in

great numbers, but they are small fish. The large ones that were once so plentiful have wholly disappeared. If Congress would pass a law forbidding the catching of mackerel by seines before May 25th it would give the fish time to deposit their spawn, and then the young fish would have a greater opportunity to grow. Of course the State or National laws would have no effect except within three miles of the shore. But if such a law was passed, the custom-house officials could withhold a vessel's papers until after that date, and if she went out without them the crew would be liable to prosecution under the piracy laws. A similar law should be passed to protect cod and haddock, but it would do more harm than good to saddle too many sections upon the bill."

The motion was unanimously adopted, and Mr. Small was requested to favor the association with an evening's talk upon the subject of protecting salt-water fish. (Boston Journal, February 9, 1885.)

FISH IN FLORIDA WATERS.—Mr. H. R. Clarke writes from Kissimmee, Fla., February 2, 1885:

"I am taking some nice large-mouth bass here on the fly. At Tampa I took a number of squeteague, or weak-fish (called there sea trout), on the fly; largest, $3\frac{1}{2}$ pounds. Also caught a rockfish (our striped bass) on small fly-casting, with light tackle, weighing $10\frac{1}{2}$ pounds; both very gamy. The lakes in Central Florida are handsome sheets of clean, pure water, and abound in large-mouth bass (Oswego) and croppies, and I am astonishing the natives by catching them with fly-casting. They take them in the lake here to Hopetilige, and down the river to Kissimmee Lake, and so on to Okechobee, 225 miles to the Gulf, on trawling tackle, that weigh up to 16 pounds. My largest so far weighed 7 pounds."

DECLINE IN FISH HATCHING IN VERMONT.—Mr. L. Stone writes from Charlestown, N. H., January 16, 1885:

"Should very much enjoy hatching the 100,000 salmon eggs for Vermont waters, but having changed my base of operations in trout hatching to Plymouth, Mass., I unfortunately tore down my hatching-house here last fall. Mr. G. A. Starkey, of Troy, N. H., would be a good man to hatch them, but his place is 25 miles from Vermont, and I cannot, at this moment, think of a single hatching establishment in Vermont that is in active operation this winter."

TROUT CULTURE IN CONNECTICUT.—Mr. Richard E. Follett, writing from Worcester, Mass., February 21, 1885, says:

"I started, December 1, 1883, by building a hatching-house in which I put 100,000 eggs. I had good success in hatching and also in growing them last season, many of them now measuring from 6 to 7 inches in length. The eggs I obtained from Mr. W. L. Gilbert, of Plymouth, Mass. I have also received from him a few thousand English trout eggs that are now beginning to hatch. As I stated in my former letter, my location is Windham, Conn. I have abundance of cold spring water with ample room for ponds and out of danger from freshets."

BLACK BASS SENT TO AMSTERDAM.—March 10, 1885, Mr. Blackford arranged with Captain Taat, of the Edam, for sending out by him five black bass to the Zoological Garden at Amsterdam. April 8, Dr. C. Kerbert acknowledged their receipt as follows :

“I have the pleasure of communicating the fact that I have received the five black bass in excellent condition. Many thanks for this valuable present for the aquarium of our society. You write me in your letter of March 17, ‘If you want more of these fish, they can probably be supplied later in the season.’ With great pleasure I accept your offer. I would like to have a tank with American black bass alone, and will try to breed these fish here in our country. On the 2d of May the Edam will start from New York for Amsterdam. Captain Taat will receive the fish in case that you have more to send at present.”

THE GREENLAND WHALE-FISHING.—The whaler Alert arrived at Lerwick yesterday from the Greenland seal and whale fishing with 30 tuns of oil. The whale fishing this year has been a comparative failure, the catches of the other vessels up to June 30th being as follows: Eclipse, 1 fish, 14 tuns; Erik, 3 fish, with seals, 70 tuns; Hope, 3 fish, with seals, 90 tuns; Earl of Mar, 80 tuns; Catherine, 35 tuns; Alert, 30 tuns; Polar Star, 40 tuns; Star, 60 tuns; Active, 25 tons; Remania, 7 tons; Intrepid, no report. The weather in Greenland this season has been moderate, the prevailing winds being easterly.

Yesterday forenoon the Norwegian vessels Franklin (Captain Andersen) and Ora (Captain Pedersen) arrived at Dundee from the Greenland bottle-nose whale-fishing. The captains report that during the fishing foggy and stormy weather was experienced; but, notwithstanding this, the crews of the Franklin and Ora secured 50 and 36 bottle-nose whales respectively. The only British vessel spoken was the Catherine, of Peterhead, which had on the 25th of May 25 bottle-nose whales and a few seals. The Ora proceeded to the White Sea fishing, but it turned out to be a complete failure, and Captain Pedersen attributes his small catch to the time he spent at these grounds. During the fishing the crew of the Ora harpooned a large-sized whale, which, after being fastened, turned round and struck the boat, sending the crew and the boat spinning into the air. The crew, however, managed to get into the boat again. Unfortunately the line which was attached to the fish broke, and the whale sunk and was lost. All the Norwegian vessels were very successful at the Greenland seal and whale fishing. The fleet, which consists of 25 vessels, secured a catch which will yield in the aggregate over 1,000 tuns of oil.

The Germania (Captain Walker), of Peterhead, arrived yesterday from the Greenland whale-fishing, bringing 14 bottle-nose whales, calculated to yield a tun of oil each. No news has been brought of other vessels since the month of May. (From the Herald, Glasgow, Scotland, July 22, 1885.)