

R E P O R T
OF THE
UNITED STATES COMMISSIONER OF FISH AND FISHERIES
FOR THE
FISCAL YEAR ENDING JUNE 30, 1895.

During the period covered by this report, owing to the ill health of Commissioner Marshall McDonald, who died September 1, 1895, the work was for a portion of the time under the direction of the chief clerk, Mr. Herbert A. Gill. The late Commissioner was unable to prepare a report for the year under consideration, and the work of the Commission is shown in the following reports of the several assistants in charge of divisions.

The money available for the work of the Commission during this period was as follows:

Salaries	\$168,020.00
Miscellaneous expenses:	
Administration	9,000.00
Propagation of food-fishes	92,181.94
Maintenance of vessels	30,500.00
Inquiry respecting food-fishes	13,800.00
Statistical inquiry	3,500.00
For completion of fish-hatcheries:	
Vermont	12,554.15
New York	11,509.60
Colorado	7,159.25
Texas	17,526.53
Iowa	15,000.00
Montana	11,731.95
Tennessee	12,000.00

The expenditures under the above appropriations, a detailed report of which, in accordance with the law, was made to Congress December 13, 1895 (House Doc. 69, Fifty-fourth Congress, first session), were as follows:

Salaries	\$163,381.51
Miscellaneous expenses:	
Administration	8,885.78
Propagation of food-fishes	92,814.79
Maintenance of vessels	29,990.65
Inquiry respecting food-fishes	13,559.91
Statistical inquiry	3,610.02
Fish-hatcheries:	
Vermont	9,580.95
New York	234.91
Colorado	539.43
Texas	9,596.25
Iowa	793.15
Montana	1,264.16

On February 15, 1895, the Senate passed the following:

Resolved, That the Commissioner of Fisheries is hereby directed to make inquiry in reference to the extent, methods, and present condition of the coast fisheries of Florida, more particularly the sponge and oyster fisheries, and to report as to the desirability of establishing a station for investigation, experiment, and fish-culture at some suitable point on the coast.

Some preliminary investigations were begun by the Commissioner shortly after the passage of the resolution, but his declining health preventing their completion, Dr. Hugh M. Smith, the assistant in charge of the Division of Statistics, was detailed to make further investigations, and examined several localities on the east coast of Florida with a view to their suitability for a fish cultural station. His report on Biscayne Bay, found hereafter, embodies the results of this partial investigation.

Under direction of the architect and engineer of the Commission, work of constructing new stations was carried on at San Marcos, Tex., Bozeman, Mont., and Manchester, Iowa.

At San Marcos it was deemed advisable, on account of the delay in building the dam across the San Marcos River, which was by agreement to be erected by the San Marcos Water Company and the citizens of San Marcos, to sink an artesian well for the purpose of supplying some of the ponds intended to be built on the higher ground. A contract was entered into with Judson Bros., of San Antonio, Tex., who were the lowest bidders, and work was promptly begun. A depth of about 1,300 feet was reached by the end of the fiscal year, with a light flow of water at a temperature of 80 degrees. The plan for laying out the ponds was completed and excavations were begun.

There remained on July 1, 1894, an available balance of \$11,731.95 of the money appropriated for the construction of a fish-hatchery at Bozeman, Mont., after paying for the land and incidental expenses. Plans and specifications were prepared for the construction of a fish-hatchery, outbuildings, and ice-house, and after due advertisement bids were received and a contract entered into on December 24, 1894, with Peter T. Morris, the lowest bidder. Owing to the severe climate and the lateness of the season the work was not begun until the latter part of April, 1895. Mr. Juan J. Jiminez was employed to superintend the laying out of the ponds, as well as the construction of the hatchery and other buildings. This work was nearly completed at the close of the fiscal year.

In January, 1894, the Commissioner recommended to Congress the establishment of a station at either Manchester or Decorah, Iowa, and Congress, by act approved August 18, 1894, appropriated \$15,000 for the establishment of such a station. Accordingly, in October, the Commissioner directed the architect and engineer to make a further examination of these two places. After a careful consideration of the advantages of each place a site at Manchester, comprising 25 acres, and which was donated by the citizens, was selected and surveyed, and the deed of this property from Charles Thorpe and others was transmitted

to the United States Attorney-General for examination and certification as to its sufficiency to vest a valid title in the United States.

The hatchery at St. Johnsbury, Vt., being sufficiently complete to begin work of propagation, was turned over to the superintendent of the station.

Under the supervision of the mechanical engineer, the pumps, boilers and other machinery located at the various stations of the Fish Commission and on board the steam launches attached to those stations have been kept in condition for use, and such repairs and alterations made as would tend to greater economy and efficiency, or provide for an expansion of the work at the various stations. In addition to the other duties of the office, plans, specifications, and estimates for equipping a hatchery located at Cape Vincent, N. Y., were prepared.

The following papers were published during the year:

- Fish nets: some accounts of their construction and the application of the various forms in American fisheries, by C. H. Augur. Bulletin 1893, pp. 381 to 388.
- Statistics of the fisheries of the United States, by Hugh M. Smith. Bulletin 1893, pp. 389 to 417.
- The fisheries of Japan, by the Bureau of Agriculture of Japan. Compiled by Hugh M. Smith. Bulletin 1893, pp. 418 to 438.
- The exhibit of pearls at the World's Columbian Exposition, by George F. Kunz. Bulletin 1893, pp. 439 to 457.
- Results of explorations in western Canada and Northwestern United States, by Carl H. Eigenmann. Bulletin 1894, pp. 101 to 132.
- Report of the Commissioner for the year ending June 30, 1892, Marshall McDonald, Commissioner; pp. VII to CCIV.
- Report upon the investigations of the U. S. Fish Commission steamer *Albatross* for year ending June 30, 1892, by Z. L. Tanner, U. S. N. Report 1891-92, pp. 1 to 64.
- The myxosporidia or psorosperms of fishes, and the epidermics produced by them, by R. R. Gurley. Report 1891-92, pp. 65 to 304.
- A bibliography of the publications in the English language relative to oysters and the oyster industries, by C. H. Stevenson. Report 1891-92, pp. 305 to 359.
- The fisheries of the Great Lakes, by Hugh M. Smith. Report 1891-92, pp. 361 to 462.
- Notes on the fishes of western Iowa and eastern Nebraska, by Seth E. Meek. Bulletin 1894, pp. 133 to 138.
- List of the fishes inhabiting Clear Lake, California, by D. S. Jordan and C. H. Gilbert. Bulletin 1894, pp. 139, 140.
- Notes on the fresh-water species of San Luis Obispo County, California, by David Starr Jordan. Bulletin 1894, pp. 133 to 142.
- On the appliances for collecting pelagic organisms, with special reference to those employed by the U. S. Fish Commission, by Z. L. Tanner. Bulletin 1894, pp. 143 to 151.
- The salmon fisheries of the Columbia River basin, by Marshall McDonald, together with a report upon physical and natural-history investigations in the region, by C. H. Gilbert and B. W. Evermann. Bulletin 1894, pp. 153 to 207. Also issued as Senate Miscellaneous Document 200, 53rd Congress, second session.
- Notes on the oyster industry of New Jersey, by Ansley Hall. Report 1892, pp. 463 to 528.
- Notes on fishes collected in Florida in 1892, by James A. Henshall. Bulletin 1894, pp. 209 to 221.
- Notes on a reconnoissance of the fisheries of the Pacific Coast of the United States, by Hugh M. Smith. Bulletin 1894, pp. 223 to 288.
- Feeding and rearing fishes, particularly trout, under domestication, by W. F. Page. Bulletin 1894, pp. 289 to 314.
- Report upon investigations in the Maumee River Basin during the summer of 1893, by Philip H. Kirsch. Bulletin 1894, pp. 315 to 338.
- A statistical report upon the fisheries of the Middle Atlantic States, by Hugh M. Smith. Bulletin 1894, pp. 339 to 466.
- A list of the species of fishes known from the vicinity of Neosho, Mo., by B. W. Evermann and W. C. Kendall. Bulletin 1894, pp. 467 to 472.
- The fishes of the Colorado Basin, by B. W. Evermann and Cloud. Rutter. Bulletin 1894, pp. 473 to 490.

There were also issued the completed annual report for 1892 and Bulletins for 1892 and 1893, the latter of which was made up of papers presented at the Fisheries Congress of the World's Columbian Exposition of 1893.

During the year there were distributed over 3,400 bound volumes of the annual reports and bulletins, and over 8,800 pamphlet extracts therefrom.

The following papers were published by the Museum of Comparative Zoology, at Cambridge, Mass., on the results of the explorations off the west coast of Mexico, Central and South America, and off the Galapagos Islands, carried on in charge of Prof. Alexander Agassiz, by the United States Fish Commission steamer *Albatross* during 1891:

- The Pelagic Schizopoda, by Arnold Ortmann.
- Die Opisthobranchien, by Rudolph Bergh.
- Die Palagischen Copepoden, by Wilhelm Giesbrecht.
- The Holothuriodea, by Herbert Ludwig.
- The Stalk-eyed Crustacea, by Walter Faxon.

There have been added to the library of the Commission 1,205 volumes and reports.

Acknowledgments are due to the United States Coast and Geodetic Survey for the charts of that Bureau furnished the Commission as issued, as well as for meeting special requests for such additional copies of charts as were needed for use in the inquiries conducted by the Commission.

The health officer of the District of Columbia continued to furnish monthly returns of the receipts of fishery products at the Washington fish-markets.

The Commission is again indebted to Gen. Albert Ordway, commanding the District of Columbia militia, for the loan of tents and accessories for use at Bryan Point Station during the shad-hatching season.

The commercial department, Board of Trade, London, England, furnished monthly statements of the fisheries of the coasts of England and Wales, and the Fishery Board of Scotland, Edinburgh, furnished similar information for the coast of Scotland.

To the courtesy of the managers of many railroad companies, mentioned in the report of the Division of Fish Culture, the Commission is indebted for the gratuitous transportation of its cars over 65,000 miles of road, as well as for permission to carry fish and eggs in the baggage cars of their roads.

During the year the policy of extending to the various State and Territorial Fish Commissions all possible aid in stocking the waters of their respective States was continued, and over 40,800,000 eggs, 6,900,000 fry, and 3,868,000 yearling or adult fish were furnished to the fish commissioners of twenty-one States and Territories.

Several consignments of eggs were sent to foreign countries—eggs of the quinnat salmon to Mr. A. Geoffroy St. Hilaire, president of the

Société d'Acclimatation, Paris, France, and rainbow trout eggs to Mr. Raveret-Wattel, Fécamp, France; Mr. William Burgess, of the Midland Counties Fish-cultural Establishment, England; Rev. H. B. Wolryche-Whitmore, of Bridgenorth, England, and Maj. W. Turner, of Bertrix, Belgium. Whitefish eggs were also sent to Mr. William Burgess, of the Midland Counties Fish-cultural Establishment. Details of these distributions appear in the following report of the Division of Fish-culture.

The Swiss Government sent to this Commission in March, 1895, 80,000 eggs of the Lake Geneva trout, but owing to delay in delivery in New York, the majority of the eggs were lost.

The stean launch *Petrel*, with her crew, was loaned to the State of Virginia, at the request of the governor of that State, for the purpose of completing the survey of the natural oyster beds, and to the Commissioners of the District of Columbia while the municipal harbor boat was being repaired.

During the encampment of the District National Guard at Fort Washington, on the Potomac, the steam launch *Blue Wing*, with crew, was placed at the disposal of Gen. Albert Ordway, commander in chief of the militia of the District of Columbia.

By direction of the President, the United States Fish Commission steamer *Albatross* was designated to take part in enforcing "regulations governing vessels employed in fur-seal fishery," but was directed to act independently of the Bering Sea fleet.

Changes in the personnel have been few. Lieut. Robert Platt, U. S. N., at his own request, was relieved of the command of the United States Fish Commission steamer *Fish Hawk* and ordered to special duty with the Commission. Lieut. Franklin Swift, U. S. N., was detailed to succeed him, and took command of the vessel on June 27, 1895.

Dr. Tarleton H. Bean, who had long been connected with the Commission as ichthyologist and editor, and later as assistant in charge of the Division of Fish-culture, tendered his resignation of the latter position to accept that of director of the New York Aquarium. Mr. W. de C. Ravenel, who had been acting as assistant in charge of the Division of Fish-culture was appointed to fill the vacancy May 23, 1895.