

### III.—REPORT ON THE WORK OF THE UNITED STATES FISH COMMISSION STEAMER LOOKOUT FOR THE YEAR ENDING DECEMBER 31, 1885.

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[Abstract.]

At the beginning of the year the Lookout was at Waters's wharf, Baltimore, Md., as stated at the close of my last report.

On January 22 instructions were received to prepare for a cruise to the Gulf of Mexico for the purpose of making an investigation into the fish resources of the Gulf coast of Florida. On the completion of the equipment, February 4, sailed from Baltimore, touched at Norfolk for coal, proceeded by way of Chesapeake and Albemarle Canal and through Pamlico and Core Sounds to Beaufort, N. C., arriving there on February 12, where we were detained by bad weather till the 21st. Arrived at Charleston, S. C., on the 22d, and, continuing, touched at Tybee Roads and Fernandina, coaled ship at Key West, and arrived at Cedar Keys, Fla., on March 12, where we awaited the arrival of Assistant Commissioner T. B. Ferguson, who joined the vessel on March 14.

On March 17 sailed from Cedar Keys for Pensacola, stopped on the way at Saint Joseph's and Saint Andrew's Bays, and on March 24 arrived at Pensacola at 5 p. m. The next day sailed for Mobile, Ala., reaching there on the 26th, during the afternoon of which day hauled the vessel out on the floating dock to make some repairs, a slight leak in the stern having been discovered during the passage. On March 30, repairs being finished, the vessel was launched, and sailed for Pensacola, arriving on the 31st. Coaled ship, and sailed for Cedar Keys on April 1, touched at Saint Joseph's Bay and Appalachicola Bay, and arrived at Cedar Keys on the 4th. Was at Anclote Keys on the 5th and at Clear Water Harbor on the 6th. On April 7 was at Tampa, coaled ship, and proceeded to Punta Rassa, which was reached on the 9th, and remained in that vicinity till the 13th, when we sailed for Key West, arriving there at 2 p. m. Coaled ship, and sailed for Havana, Cuba, at 4 a. m. on April 17, and reached there at 5.45 p. m.; and on the 22d Assistant Commissioner T. B. Ferguson left the vessel.

Received instructions from the assistant commissioner to proceed to Washington, D. C., but was detained until April 25, on which day sailed for Key West, reaching there at noon. Coaled ship, and sailed on the 26th for Charleston, touched at Fernandina and Port Royal, and arrived on the 30th. Coaled and proceeded on May 3. Passed in Hatteras Inlet on the 5th, steamed up Pamlico Sound and through the Chesapeake and Albemarle Canal, touching at Norfolk, and arrived at the Washington navy-yard on May 7.

On May 8 the hatching equipment was taken on board, and on May 13 shad operations were begun in the Chesapeake Bay, near Battery Station and in Elk River, and continued till the 17th, taking 1,406,000 eggs. From May 17 to June 5 the Lookout was engaged in two trips to the Delaware River and one in the upper part of Chesapeake Bay, procuring shad eggs and investigating the shad fisheries, especially those in the Delaware above Philadelphia. Many fishermen were interviewed as to the condition of the fishery, and the spawn-takers were kept busy in visiting the fishing-shores and gill-boats to obtain eggs. During these three trips 3,003,000 eggs were collected, making a total of 4,409,000 shad eggs taken during the season. Of this number 2,115,000 eggs and 454,000 fry were transferred to Battery Station, and 340,000 fry were successfully planted, 190,000 being put into the Delaware River and 150,000 into the Chesapeake Bay and its tributaries.\*

On June 6 proceeded to Baltimore, and on the 8th hauled the vessel out on Skinner's marine railway and had top, sides, and deck calked, and also some repairs made on boiler, which work lasted until the 19th.

On June 20 Assistant Commissioner Ferguson joined the vessel, and we proceeded to Saint Jerome Station, which Mr. Ferguson inspected. At 1 p. m., on the 21st, got under way and proceeded up the Potomac River, arriving at the Washington navy-yard on the next day. On June 23 left the navy-yard with launch No. 68 in tow, and proceeded to Battery Station, where we awaited orders until July 3, when Assistant Commissioner Ferguson came on board, and we proceeded to Baltimore. On July 6, with Mr. Ferguson on board, went down the bay to Saint Jerome Station, arriving there at 9 a. m. on the 7th. At 3 p. m. got under way and steamed down to Tangier Island and anchored in Cod Harbor over night. On July 8 started for Old Point, Va., touched at Hunger's Creek, and anchored near Fortress Monroe at 4 p. m.

From July 9 to the 15th were engaged in the lower part of the bay, communicating with fishermen, carrying lumber to the Fish Hawk, taking on coal, &c., stopping at Saint Jerome Station, and reaching Battery Station at 7.15 a. m. on the 16th. On July 14 and 15, with hy-

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\* For a detailed account of these shad operations, see the report on this work in the F. C. Bulletin for 1885, p. 386.

drometer No. 5247, took the density and temperature of the water at the following places :

Date.	Locality.	Density.	Temperature.
1885.			°
July 14	Off Tangier Island .....	1. 0122	77
July 14	At pound-nets near Fortress Monroe.....	1. 0140	78
July 14	At mouth of Cherrystone Creek.....	1. 0184	78
July 15	At Poole Island .....	1. 0034	78

On July 16 left Battery Station, stopped at Havre de Grace, coaled ship, and started for New York, going by way of the Chesapeake and Delaware Canal to the Delaware River, then down Delaware Bay and along the coast of New Jersey, reaching New York on the 18th. At 1 p. m. of this day Assistant Commissioner Ferguson came on board, and we proceeded up East River and Long Island Sound to Wood's Holl, Mass., touching at New London, Bristol, and Newport, taking in coal at the latter place, and arriving at Wood's Holl on the 20th, where we awaited orders until the 28th.

On July 28 went to Clark's Cove, near New Bedford, took scow in tow, and returned to Wood's Holl. The scow was towed back on August 5.

On July 29 took out a party of four scientists of the Fish Commission to No Man's Land for the purpose of catching swordfish, and returned to Wood's Holl at 5.30 p. m.

On July 31 left for New Haven, where we took on board 20 bushels of oysters to be used at Wood's Holl for spawning purposes, and returned to Wood's Holl on August 2, stopping at New London on the way. The density of the water off Southwest Ledge, New Haven harbor, was found to be 1.0204.

On August 7 left Wood's Holl with Assistant Commissioner T. B. Ferguson and Prof. G. Brown Goode on board, and steamed out to No Man's Land looking for swordfish, but found none. On the 8th went off towards Southwest Ledge hunting unsuccessfully for swordfish, and at night returned to Wood's Holl, where we awaited orders till the 12th.

On August 12 left Wood's Holl for New York, arrived there on the 14th, and reported for duty to E. G. Blackford, a fish commissioner of the State of New York, to assist him in making an investigation of the oyster-beds in different parts of Long Island Sound, Prince's Bay, Kill von Kull, and Hudson River. Several trips were made to these points, and the vessel was engaged in this duty till August 27.\*

On August 28 left New York for Wood's Holl, stopping at Newport to get a refrigerator, which was delivered at the Wood's Holl Station on the 29th. From this time to September 5 were making arrangements

\* For report on this subject, see article of Mr. Blackford in this volume.

to transport some live sole and turbot, which were expected from England, from New York to Wood's Holl. On September 5 went to the assistance of steamer Monohanset, which was aground, took off about two hundred passengers, and landed them at the Old Colony Railroad wharf.

On September 6, with Assistant Commissioner Ferguson on board, left Wood's Holl, stopped at New London over night, and reached New York on the 7th. On the 11th went alongside the steamer Republic at Jersey City to get the expected fish; but none having arrived, the transporting equipment was removed and shipped to Washington, and on the 13th we returned to Wood's Holl.

On September 21 left Wood's Holl, with Secretary of State Thomas F. Bayard on board, and proceeded to Newport, where Secretary Bayard left the vessel. On the 22d took on board a beam-trawl and carried it to Wood's Holl, where we awaited orders.

On October 2 carried several boxes of specimens to New Haven for the Peabody Museum, and then took on board 50 bushels of oysters, with which returned to Wood's Holl on the 5th. From October 6 to 17 were engaged in cleaning and painting the vessel.

On October 17 Assistant Commissioner Ferguson came on board, and we proceeded to New York, touching at Newport (where launch Cygnet and a cat-boat were taken in tow) and New Haven on the way, and arriving at New York on the 20th, when Mr. Ferguson left the vessel. With the launch and cat-boat in tow, we passed through the Delaware and Raritan Canal and down the Delaware River, coaled ship at Philadelphia, and reached Wilmington on the 22d. From the 22d to the 28th were loading barge with old piles at the mouth of Christiana Creek, with which arrived at Battery Station on the 29th. On the 31st towed the barge through the Chesapeake and Delaware Canal, and delivered it in Wilmington, after which returned to Battery Station, arriving on November 1.

On November 2 towed a lighter of coal from Havre de Grace to Battery Station, and on the 3d left the station with Assistant Commissioner Ferguson on board, and went to Baltimore, where Mr. Ferguson left the vessel. On the 5th took some freight back to the superintendent of Battery Station. On the 9th brought a lot of lumber from Havre de Grace to the station for use there.

On November 12 left Battery Station and proceeded by way of the canal to the League Island navy-yard, below Philadelphia, where we took on several pieces of heavy machinery and transferred them to Battery Station, reaching there on the 14th, from which date to the 30th we awaited orders, the crew being employed at the station in building a wharf, &c. On the 30th two trips were made to Havre de Grace and back.

On December 1 left Battery Station, having on board Messrs. Sauerhoff, Tolbert, and Kenly, and proceeded to Saint Jerome Station, there

to erect a wharf and clear the channel of sea-weed, in which work the vessel and crew were engaged till the 10th, when it was finished, and on the 11th left Saint Jerome Station and went to Baltimore, where we took in coal on the 12th.

On December 14 left Baltimore bound to Battery Station, with Assistant Commissioner Ferguson on board, but on reaching Sassafras River we were compelled to turn back on account of the great quantity of ice in the bay, and so we returned to Baltimore, and Mr. Ferguson left the vessel. On the 15th made a second attempt to reach the station, but after getting within half a mile of it were obliged to return to Baltimore. On the 18th made another trial, and anchored for the night near the station, the channel being still full of ice; but on the 19th reached the station without difficulty, the tide having taken out the ice during the night.

We hauled the vessel into the basin, moored her with chains 15 feet from the west side of the basin, secured the boats on shore, unrove running gear, and otherwise prepared the vessel for winter-quarters. On December 24 hauled fires on main boiler, blew it down, disconnected all pipes in danger of freezing, and moved crew from vessel to quarters on shore which had been provided for them by instructions of Assistant Commissioner Ferguson. Such was the condition of things at the end of the year.

The number of geographical miles made during the year was 9,887, and the number of revolutions of the engine was 8,524,234.

U. S. FISH COMMISSION STEAMER LOOKOUT,

*Havre de Grace, Md., June 26, 1886.*