

The section covered by the above table extends from Deep River, situated on the Connecticut River, 10 miles from its mouth, to Madison, 18 miles westward on Long Island Sound.

The following table shows the annual number of shad taken during a period of thirty years by a single pound-net located about 6 miles west of the mouth of the Connecticut River, near Westbrook, at a station called Money Point, the location of the net being the same each year:

Year.	Shad.	Year.	Shad.	Year.	Shad.
1856 .....	3,643	1867 .....	12,500	1878 .....	4,550
1857 .....	5,183	1868 .....	13,000	1879 .....	19,175
1858 .....	6,111	1869 .....	11,000	1880 .....	13,275
1859 .....	3,000	1870 .....	16,558	1881 .....	10,500
1860 .....	6,000	1871 .....	13,508	1882 .....	9,637
1861 .....	6,100	1872 .....	8,271	1883 .....	6,200
1862 .....	6,853	1873 .....	7,343	1884 .....	7,200
1863 .....	10,730	1874 .....	9,290	1885 .....	7,858
1864 .....	12,265	1875 .....	20,037		
1865 .....	9,410	1876 .....	11,041	Total .....	291,297
1866 .....	10,594	1877 .....	10,465	Average .....	9,710

In 1872, 1873, and 1874 fishing was allowed by law for only three days a week. In 1878 the nets were much injured by jelly-fish. There was a good run of shad in that year, but it was impossible to continue pound-fishing after May 5. The above table is thought to indicate a fair average of increase in the catch of pound-nets since their introduction in place of hauling-seines, though of recent years there has been somewhat of a falling off. The first pound-net set for shad in the town of Westbrook was in 1849.

SAYBROOK, CONN., October 28, 1885.

#### 129.—REPORT ON EXAMINATION OF CLUPEOIDS FROM CARP PONDS.

By TARLETON H. BEAN,

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I have to-day re-examined the *Clupeoids* which were sent over in large numbers from the carp ponds in November and December, 1885, and desire to present herewith a brief report upon them.

Most of the fishes received on the 28th of November were glut alewives, *Clupea astivalis*. I selected out of the lot 3 specimens, catalogue No. 37380, and 43 specimens, No. 37381. These examples range from 5 to 6 inches in length. There was one specimen of the branch alewife, *Clupea vernalis*, 4 $\frac{3}{4}$  inches long, No. 37379. There were also 8 shad, *Clupea sapidissima*, varying from 4 to 6 inches in length, No. 37378. Only two of these shad were of the shorter length.

We did not preserve all of the fishes sent over, but the statement already made will show that the great mass of them were glut alewives and that the percentage of shad was small.

On the 10th of December, 1885, Mr. Hessel sent over upwards of 7,000 *Clupeoids*, consisting almost entirely of shad. In a half-gallon jar, selected at random from the mass of the fish and preserved in alcohol, I have counted 48 shad, catalogue No. 37401, ranging in length from 4 to 5 inches. Thirty-four shad, No. 37403, in another jar, varied in length from  $3\frac{7}{8}$  to 5 inches. Another jar contained 17 shad, No. 37404, measuring about the same as the preceding. The total number of shad selected is, therefore, 107. With them were received 13 specimens of the glut alewife, *Clupea æstivalis*, Nos. 37402 and 37405, varying in length from 5 to  $5\frac{1}{2}$  inches.

On the 10th of November, 1885, Mr. Hessel sent over a shad, No. 37368, measuring  $4\frac{1}{4}$  inches in length. On July 24, 1885, we received from the carp ponds a shad measuring  $2\frac{7}{8}$  inches in length, No. 37406.

Shad have been obtained in the United States carp ponds before last year; for example, on November 6, 1880, we received a lot, of which I preserved 23 individuals, No. 26419, ranging in length from 6 to  $6\frac{5}{8}$  inches. There has not, however, been such a multitude of shad in the carp ponds until last year, as far as our observation goes, and we are justified in believing that this mass is the result of an experiment by Col. M. McDonald, in April, 1885, at which time about 10,000 young shad were introduced into one of the ponds.

The shad taken in the carp ponds in November of last year represent about the maximum size of the species at the time of the fall migration, as will be seen from reference to the specimens mentioned below.

On September 20, 1874, Dr. J. D. Hyer sent to the Museum a shad taken in the Potomac at Washington, No. 15238, measuring  $6\frac{3}{4}$  inches in length. These November shad, taken in the carp ponds and in the Potomac, correspond in size with individuals sometimes taken in the river in the spring. On the 26th of April, 1884, the Fish Hawk obtained 2 shad, No. 37030, at York Spit, measuring  $5\frac{1}{2}$  and  $6\frac{3}{4}$  inches in length.

Shad of smaller size are also found in the Potomac late in the fall. On the 26th of October, 1881, Col. M. McDonald obtained some specimens, No. 29092, of which 12 are preserved, the smallest measuring 3 inches and the largest 4 inches in length. These in all probability represent a late spawning of the species, and the larger examples previously referred to an earlier one.

In connection with this examination of the shad from the carp-ponds I have again studied a bottle of "whitebait" received from New York Bay in May, 1878, and find that 8 of the fish, No. 21258, are *Clupea æstivalis*, ranging in length from  $3\frac{3}{8}$  to  $4\frac{3}{8}$  inches, and 2 are shad, *Clupea sapidissima*, No. 37400, measuring 4 inches and  $4\frac{3}{8}$  inches, respectively. I mention this here in order to bring out the fact that the time at which shad may be found in salt water is subject to great variation.

U. S. NATIONAL MUSEUM,

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