**Date: December 20, 2018**

**To: NOAA Restoration Center**

**From: Nick Wildman**

**Re: Fish Presence Monitoring Report**

**Cotley River Restoration Project- Taunton, MA; Award #NA16NMF4630306**

**Summary**

The Massachusetts Division of Ecological Restoration (DER) was a recipient of grant funds from the NOAA Restoration Center to support the Cotley River Restoration Project. This project was focused on the removal of the Barstowe’s Pond Dam, which precluded the passage of all fish except American eel. This report is submitted as a deliverable of that grant and summarizes DER’s efforts to document usage of the Cotley River by diadromous fish in the project vicinity. Five monitoring trips were made to the site in the spring of 2018 following removal of the dam. DER staff made observations of the river at multiple locations on each trip looking for fish for 10 minute duration at each location. Water temperature and weather conditions were also noted. Zero (0) fish were observed during this effort, however this level of effort did not yield a statistically sufficient data set to determine whether or not the dam removal resulted in diadromous fish using habitat upstream of the dam site.

**Project Background**

The Taunton River Watershed supports one of the largest populations of river herring in New England. River herring migrate up the Taunton River from Narragansett Bay and move into tributaries, a number of which have significant, high quality spawning and rearing habitats. Yet, many high quality tributaries to the Taunton River, like the Cotley River, are blocked by dams, thus limiting the overall productivity of river herring and American eel in the watershed. The goal of this project was to restore diadromous fish to the Cotley River watershed by removing the Barstow’s Pond Dam.

The Barstowe’s Pond Dam was removed in February of 2018 in accordance with the design plans and specifications provided by Inter-Fluve, Inc. and in compliance with several regulatory permits from local, state, and federal agencies.

This project re-connected 8 miles of upstream riverine habitat to diadromous species including river herring (*Alosa pseudoharengus* and *Alosa aestivalis*), sea lamprey (*Petromyzon marinus*), and American eel (*Anguilla rostrata*). These species have undergone a dramatic decline in Massachusetts over the last 400 years. Data collected by the MA Division of Marine Fisheries contribute to information used to manage the harvest of these species. Because of the decline of the Commonwealth’s diadromous fish runs, Massachusetts has prohibited the taking of river herring, American eel, and other such species since 2005. While several of these runs have rebounded during the last two decades, removal of man-made barriers to these species from reaching critical spawning habitats remains the most critical threat to restoration of populations of these species[[1]](#footnote-1).

**Monitoring Plan**

In an effort to collect information on the number and types of fish using the reconnected reach following the dam removal, DER staff employed a monitoring framework used by volunteer fish counts across coastal Massachusetts. This involved visual counts of fish by a stationary observer for a 10 minute duration. Weather conditions, approximate water depth at the viewing location, and water temperature at the Middleboro Avenue bridge were also recorded. This is the protocol used by volunteer herring count groups across coastal Massachusetts and is based on guidance from the Massachusetts Division of Marine Fisheries[[2]](#footnote-2).

For the Cotley River Restoration Project, visual fish counts were located to ascertain whether fish were above to move past three critical sites: the upstream side of the Middleboro Avenue bridge, the former dam site, and the rail bridge upstream of the former dam.

[map]

**Results and Recommendations**

Because the monitoring effort was relatively small, no statistical inferences can be made about the fish population using this part of the Cotley River during this time period. The lack of any fish presence during any of the survey periods may be a result of many factors including, but not limited to, an unknown barrier to fish passage downstream of Middleboro Avenue, lack of monitor presence at times of fish movement, or lack of fish presence on the days surveyed.

**Data**

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| **COTLEY RIVER RESTORATION** | **TAUNTON, MA** | **FISH MONITORING** |
| Date: May 2, 2018 | Water Temp.: 14 °C | Weather: Sunny, 21 °C, No rain in last 24 hours. |
|  |  |  |
| Middleboro Avenue Bridge | Water Depth: ≤ 50.8 cm |  |
| Start: 8:48 | Stop: 8:49 | Result: 0 fish observed |
|  |  |  |
| Former Dam Location | Water Depth: ≤ 45.72 cm |  |
| Start: 9:03 | Stop: 9:13 | Result: 0 fish observed |
|  |  |  |
| Railroad Bridge | Water Depth: variable |  |
| Start: 9:26 | Stop: 9:37 | Result: 0 fish observed |

|  |  |  |
| --- | --- | --- |
| COTLEY RIVER RESTORATION | TAUNTON, MA | FISH MONITORING |
| Date: May 7, 2018 | Water Temp.: 20 °C | Weather: Overcast 21.1 °C, 0.6 cm rain yesterday |
|  |  |  |
| Middleboro Avenue Bridge | Water Depth: ≤ 40.64 cm |  |
| Start: 13:43 | Stop: 13:53 | Result: 0 fish observed |
|  |  |  |
| Former Dam Location | Water Depth: ≤ 30.48 cm |  |
| Start: 13:56 | Stop: 14:06 | Result: 0 fish observed |
|  |  |  |
| Railroad Bridge | Water Depth: ≤ 15.24 cm |  |
| Start:14:16 | Stop: 14:26 | Result: 0 fish observed |

|  |  |  |
| --- | --- | --- |
| COTLEY RIVER RESTORATION | TAUNTON, MA | FISH MONITORING |
| Date: May 23,2018 | Water Temp.: 18 °C | Weather: Mostly sunny, 20 °C |
|  |  |  |
| Former Dam Location | Water Depth: ≤ 25.4 cm |  |
| Start: 8:59 | Stop: 9:09 | Result: 0 fish observed |
|  |  |  |
| Railroad Bridge | Water Depth: ≤ 30.38 cm |  |
| Start: 8:36 | Stop: 8:46 | Result: 0 fish observed |

|  |  |  |
| --- | --- | --- |
| COTLEY RIVER RESTORATION | TAUNTON, MA | FISH MONITORING |
| Date: May 25,2018 | Water Temp.: 19 °C | Weather: Mostly sunny, 20 °C, 0.25 cm rain in last 24 hours |
|  |  |  |
| Middleboro Avenue Bridge | Water Depth: ≤ 30.38 cm |  |
| Start: 8:45 | Stop: 8:55 | Result: 0 fish observed |
|  |  |  |
| Former Dam Location | Water Depth: ≤ 20.32 cm |  |
| Start: 9:15 | Stop: 9:25 | Result: 0 fish observed |

|  |  |  |
| --- | --- | --- |
| COTLEY RIVER RESTORATION | TAUNTON, MA | FISH MONITORING |
| Date: May 27, 2018 | Water Temp.: 14.5 °C | Weather: Sunny. 20°C |
|  |  |  |
| Middleboro Avenue Bridge | Water Depth: ≤ 40.5 cm |  |
| Start: 9:37 | Stop: 9:47 | Result: 0 fish observed |
|  |  |  |
| Former Dam Location | Water Depth: ≤ 30.1 cm |  |
| Start: 9:57 | Stop: 10:07 | Result: 0 fish observed |
|  |  |  |
| Railroad Bridge | Water Depth: ≤ 15.0 cm |  |
| Start: 12:09 | Stop: 12:20 | Result: 0 fish observed |

1. Reback, K. E., P. D. Brady, K. D. McLaughlin, and C. G. Milliken. 2004. A survey of anadromous fish passage in coastal Massachusetts: Part 1. Southeastern Massachusetts.    [↑](#footnote-ref-1)
2. Nelson, G. 2006. A guide to Statistical Sampling for the Estimation of River Herring Run Size Using Visual Counts. Massachusetts Division of Marine Fisheries Technical Report 25. [↑](#footnote-ref-2)