



# NOAA Community-based Restoration Program



## Town Brook Herring Run Restoration Plymouth, Massachusetts

Town Brook is a 1.5-mile stream that runs from the Billington Sea, a 269-acre freshwater pond, to Plymouth Harbor in Plymouth, Massachusetts. Historically, the river provided important anadromous fish runs for alewives (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*), and rainbow smelt (*Osmerus mordax*). Herring were used as an important food for the native Americans and is also believed to have sustained the early European settlers. According to legend, Squanto, showed the Pilgrims to plant herring as fertilizer with their corn seeds likely using fish from Town Brook. Today, blueback herring and alewives are still an important component to sport and commercial fisheries in New England. However, due to a variety of factors including overfishing, habitat degradation and development, anadromous fish populations have severely declined. Beginning with the construction of the Billington Street dam in the 1790's, six dams were built on Town Brook further contributing to fish decline. While each dam has been outfitted with fish ladders, two were in such disrepair that fish were unable to migrate upstream unaided. The stream currently supports an annual run of approximately 7,000 herring, which is far below the stream's estimated capacity. In efforts to save the dwindling anadromous fish run the Massachusetts Division of Marine Fisheries had for the past 15 years been capturing and trucking the fish around the dams and releasing them at their spawning grounds upstream.



**Billington Street Dam and Fishway**

With assistance from the NOAA Community-based Restoration Program, the Town of Plymouth along with support from other project partners took the lead to restore fish passage on Town Brook through replacement of a fish ladder at the Newfield Street Dam as well as dam removal and stream restoration at the Billington Street Dam.

At Newfield Street, the lower 30 feet of the notched fishway had deteriorated and was replaced in 2001 with an aluminum Alaskan Steeppass Fishway.



The Billington Street dam was constructed in the 1790's on Town Brook as a foundation for the Holms and Packard Anchor Forge mill. The mill burned down in the 1960's leaving the 70 foot long and 110 foot wide earthen dam behind. The brook was formerly carried through a 4 x 67-foot metal culvert under the dam and emptied into a nonfunctional fish ladder. Lead and asbestos were found at the site and the contaminated soils had to be removed prior to dam removal. Both the dam and the nonfunctioning fish ladder were removed in 2002 as part of a training exercise by the 368<sup>th</sup> Engineering Battalion (Heavy) of the US Army Reserves. The stream was then regraded and cobbles were added to mimic the downstream and upstream habitat and to recreate riffles and pools. Native riparian and wetland vegetation was planted along the restored stream in the spring of 2003.



**US Army Reserves help to remove the Billington Street Dam**



**Restored stream after Dam Removal**



**Newfield Street Fish Ladder**

**For additional information, contact:**

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Restoring fish passage at Town Brook will allow alewives and blueback herring to reach historic spawning grounds and restore habitat for resident fish and birds. Removing the Billington Street Dam was the first dam removal in Massachusetts for anadromous fish passage and provides a precedent for future dam removals for fish passage in the state.

Throughout the project, community support was important in promoting stewardship and involvement. Students from the Plymouth Community Intermediate School News Team have been actively involved in video-documentation of the project's progress and an intermediate school student has been monitoring the brook before and after the dam removal to report in a science fair project. Local Boy Scouts maintain a covered footbridge near the Billington Street Dam and high school and college students have helped to remove debris from the stream. The Town Brook corridor was highlighted during a Biodiversity fair in 2001 where visitors were informed about the importance of the river to the survival of the Pilgrims. The Town of Plymouth maintains a nature trail named the Pilgrim Trail along Town Brook and hopes to create an educational walkway along the stream.

In addition to the NOAA Community-based Restoration Program and the Town of Plymouth, a number of organizations and agencies provided support to restore anadromous fish passage through replacement of the fishway at the Newfield Street Dam and the removal and stream restoration of the Billington Street Dam including the National Resource Conservation Service, US Fish and Wildlife Service, US Environmental Protection Agency, Inland Fisheries Committee, Town Brook Alliance, Massachusetts Coastal Zone Management, Massachusetts Division of Marine Fisheries, American Rivers, Massachusetts Watershed Initiative, Massachusetts River Restore Program, Battelle Marine Science Laboratory, Coastal America, US Army Reserves and FishAmerica Foundation. The total cost for this project was approximately \$550,000.

This project is part of a larger effort to restore anadromous fish runs on Town Brook as well as create a green-way and integrated nature trail stretching from Billington Sea to Plymouth harbor. Additional anadromous fish run restoration projects are currently being considered at Jenny Grist Mill and Brewster Gardens.

The NOAA Community-based Restoration Program seeks to involve communities in the restoration of marine and estuarine habitat. Partnerships with Federal agencies, states and local governments, non-governmental and non-profit organizations, businesses, industry and schools have assisted over 700 projects nationally including 49 within the Gulf of Maine to restore coastal habitat. The NOAA Community-based Restoration Program and its partners provide funding and expertise to projects that promote coastal stewardship and a conservation ethic. Through partnerships, the Community-based Restoration Program has been able to leverage \$3-\$5 on average for every NOAA dollar invested.