



Section 319

NONPOINT SOURCE PROGRAM SUCCESS STORY

Massachusetts

As Salt Water Returns to Winsegansett Marsh, So Does Natural Vegetation

Waterbody Improved

When human activities reduced the amount of tidal flushing in Winsegansett Marsh, causing overall salinity to decline, marsh vegetation responded to the change. Salt-intolerant species, including the invasive common reed, began to dominate the plant community. In 2002 public and private partners installed large culverts at strategic locations to improve tidal flushing. Within three years, the natural salt marsh vegetation had begun to return.

Problem

Winsegansett Marsh is on the western shore of Sciticut Neck, in the town of Fairhaven. Human activities over the years have exacted a toll on the health of this 30-acre transition zone between the land and Buzzards Bay. Long ago, the construction of a road divided the marsh into two sections. In addition, residents installed footpaths leading through the marsh to the beach. Although culverts below these structures allowed some tidal flow into the marsh, it wasn't enough to maintain the salinity.

With a reduced amount of tidal water reaching the upper marsh, the overall salinity of the marsh decreased. This change directly affected the natural salt marsh vegetation. The salt-tolerant species declined in number and were replaced by salt-intolerant species, including common reed (*Phragmites australis*), an invasive plant that forms tall, reedy thickets, chokes out many native plant species, and has very limited value as wildlife habitat.

Project Highlights

To tackle this problem, various granting agencies, private landowners, the Fairhaven Conservation Commission, the Fairhaven Board of Public Works, and the Buzzards Bay National Estuary Program initiated the Winsegansett Salt Marsh Project. With the goal of restoring the upper marsh habitat, the

project partners first set out to increase tidal flow. To do this, they needed to replace the four small existing culverts with more and larger ones. In 2002 they replaced one 18-inch culvert with two 30-inch culverts. In addition, they used twin 24-inch culverts to replace several 12-inch culverts elsewhere.

Project leaders expected these actions to improve tidal exchange between the upper marsh and Buzzards Bay, causing the common reed to die off and be replaced by native salt meadow grasses.

Results

Before and after culvert replacement, the Buzzards Bay National Estuary Program, with the assistance of local volunteers, surveyed the marsh's dominant and subdominant vegetation and mapped the results.

As the tidal exchange between the upper marsh and Buzzards Bay improved, the increase in salinity caused the common reed and other freshwater plants to die off and be replaced by native salt meadow grasses. By 2005 the freshwater species had declined significantly. For example, while common reed constituted 44 percent of the marsh in 2000, it made up 38 percent in 2005. Areas dominated by *Spartina patens* (a native salt marsh grass) increased from 20 percent to 32 percent in the

three years following construction. High-tide bush (*Iva frutescens*) has been displaced from the middle of the marsh to the edges, another sign that natural salinity conditions are returning and that Winsegansett Marsh is being restored to the healthy and productive coastal wetland it once was.

Partners and Funding

The Town of Fairhaven, the Buzzards Bay National Estuary Program, several town departments, state and federal agencies, and private citizens led the effort to complete the Winsegansett Salt Marsh restoration

project. Grant funding, totaling more than \$67,000, came from several sources. The Massachusetts Department of Environmental Protection contributed \$22,500 in section 319 funds. The remaining funds came from the Fish America Foundation (\$20,000), a U.S. Environmental Protection Agency 5 Star Restoration Challenge Grant (\$9,700), the Massachusetts Environmental Trust (\$8,400), and the Buzzards Bay National Estuary Program (\$6,600). The Buzzards Bay National Estuary Program continues to donate the staff and equipment necessary to monitor habitat changes annually.



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