Buzzards Bay Project National Estuary Program
2870 Cranberry Highway
East Wareham, MA 02538

Salt Marsh Restoration in the Buzzards Bay Watershed

What Is a Salt Marsh?

Salt marshes are transitional areas between land and sea. A salt marsh is a coastal wetland that extends up to the highest high tide line and is characterized by plants that are adapted to or prefer living in saline soils. A salt marsh may contain tidal creeks, ditches, and pools. Subjected to the daily rise and fall of the sea, the salt marsh environment is constantly moving and changing. In salt marshes, incoming freshwater from rivers, streams and wetlands mixes with the tidal saltwater, resulting in frequent and rapid changes in salinity, temperature, and water depth within the marsh system.

Salt marshes are typically divided into two sections; the lowest portion or “low marsh” is submerged twice daily at high tide. Vegetation in the low marsh consists primarily of salt marsh cordgrass (*Spartina alterniflora*). The “high marsh” section is flooded infrequently, only during storms and unusually high tides. Dominated by salt meadow cordgrass (*Spartina patens*), the high marsh serves as a nesting area for marsh birds. Both the salt marsh and salt meadow cordgrasses survive in this salt flooded environment by excreting unneeded salt from their leaf edges. In addition, cordgrasses possess air passages in the stem that allow oxygen to reach the roots.

Spartina patens in a salt marsh

Why Are Salt Marshes Important?

Salt marshes rank among the most productive ecosystems on earth. They are diverse in marine life and provide habitat and nursery areas for finfish, shellfish, crabs, shrimp, birds, small mammals, and turtles. Without the benefit of an abundance of food and protection given by marsh plants, few younger animals would survive to adulthood.

Blue heron

Salt marshes act as filters. Pollutants from upland activities flow through the marsh and are trapped by marsh vegetation and sediments, reducing the pollutant load entering estuaries. However, excessive pollutants can overburden the cleansing capabilities of marshes.

Marshes act as buffers for the mainland by slowing and absorbing storm surges, thereby reducing erosion of the coastline.

Because some commercially and recreationally important fish and shellfish species spend part of their lives in salt marshes, indirectly these marshes provide people with food or income.

Many people visit salt marshes simply to watch birds and enjoy nature's beauty.

Everyone benefits from cleaner water!!!

What Is a Tidally Restricted Salt Marsh?

Many salt marshes have been adversely impacted by human activities. Usually these activities are transportation related, such as the construction of roads, bridges, railroads, and footpaths. Bridges and culverts are commonly installed during construction to allow movement of tidal waters. However, these structures are often too small to allow full tidal flows necessary to maintain natural salt marsh vegetation upstream.

Culvert restricting tidal flow

Structures that limit water from freely passing from the upstream to the downstream salt marsh and vice versa are referred to as "tidal restrictions." Restricting the tidal flow of a salt marsh can result in significant changes in its ecology. The strongly saline environment can change to one that is brackish or freshwater when seawater is unable to reach the restricted areas. This change in marsh hydrology enables plants that can tolerate lower salinities, such as the common reed *Phragmites australis*, to invade the marsh and replace the natural salt marsh plants. This in turn leads to the displacement of wildlife species dependent on salt marsh vegetation.

Tidally Restricted Salt Marshes in Buzzards Bay...

In the winter of 1998, the Buzzards Bay Project (BBP), in partnership with the Massachusetts Wetlands Restoration Program, began locating areas of impaired salt marsh vegetation along the coast of Buzzards Bay. Of particular concern were salt marshes impacted by human activity.

Maps of degraded habitat along with information on the potential causes of degradation (tidal restrictions, fill placement, etc.) were compiled into the *Atlas of Tidally Restricted Salt Marshes in the Buzzards Bay Watershed*. This document has been made available for use by municipalities, state agencies, and other local organizations to initiate salt marsh restoration activities at these sites where appropriate.

Phragmites

Winsegansett Marsh – Our First Demonstration Project

The Buzzards Bay Project (BBP) used information contained in the Atlas to help in the selection of Winsegansett marsh as the first demonstration project for salt marsh restoration. The marsh was chosen because of its degraded habitat condition as well as the opportunity it offered for the BBP to work with both private landowners and the town of Fairhaven.

The Winsegansett salt marsh system is a 30-acre coastal wetland. The upper portion of Winsegansett had been separated from the rest of the marsh by the construction of a road. The culvert located under this road was too small to allow necessary tidal flow into the upper marsh. Also restricting flow were three privately owned culverts placed under footpaths that cross the marsh.

As part of the restoration process, these four culverts were recently replaced with larger culverts that allow more of an adequate tidal flow. The restoration of this site was simple and cost effective mainly due to the involvement of the town and the cooperation of the private landowners. The project was paid for with funding provided by various state and federal grant programs.

What Can You Do to Help the Salt Marsh Restoration Effort?

Although a great number of the restrictions identified in the Atlas are located on municipal properties, the majority are located on private property. Tidal restrictions on private property tend to be small scale and have a correspondingly lesser cost than those located on town property. This makes them perfect candidates for restoration projects. Unfortunately, many private citizens don't understand the effects of such restrictions and/or don't realize that a restriction is located on their property.

If you believe you have a salt marsh restriction on your property that you may be interested in fixing, please contact the BBP. Chances are the restriction is already included in our Atlas. The inclusion of a restriction in the Atlas does not imply action should be taken at that site and contacting us does not put you under any obligation, financial or otherwise, to take restoration action. Rather, it gives you an opportunity to find out whether or not you do indeed have a tidal restriction on your property. If it turns out that you do, we can help you explore restoration alternatives if you wish to do so. The BBP has funds available for small restoration projects and would be more than willing to assist in securing additional funds from other grant sources if necessary.

What Is the Buzzards Bay Project?

The Buzzards Bay Project (BBP), established in 1985, is one of 28 National Estuary Programs in the United States. The BBP is a unit of the Massachusetts Office of Coastal Zone Management and receives funding from the U.S. Environmental Protection Agency. The mission of the BBP is to provide technical assistance and funding opportunities to municipalities surrounding the Bay to facilitate implementation of the recommendations contained in the Buzzards Bay Comprehensive Conservation Management Plan (CCMP). The CCMP, which was completed by the BBP in 1991, outlines research conclusions and management strategies for the protection and restoration of water quality and living resources in the Bay and its surrounding 432 square mile watershed.

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This brochure was made possible with funds from the Massachusetts Environmental Trust. The contents of this document do not necessarily reflect the views and policies of the U.S. Government or the Commonwealth of Massachusetts, nor does the mention of trade names or commercial products constitute endorsement by the U.S. government or the Commonwealth.

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Final 5/1/02