



NOAA Community-based Restoration Program



Island Road Salt Marsh Restoration Essex, Massachusetts

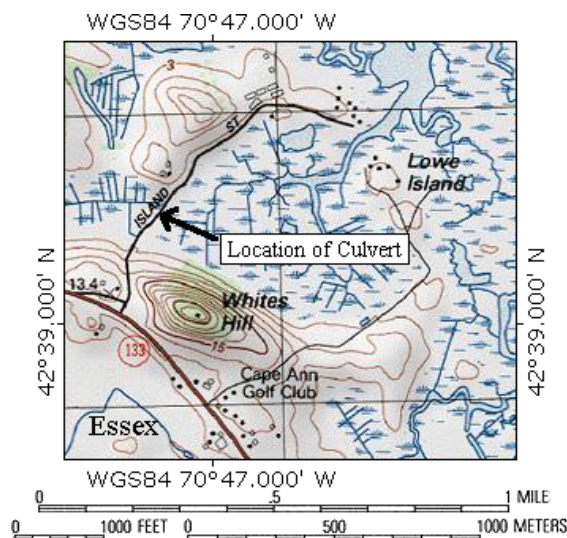
Island Road, located in Essex, Massachusetts, is a causeway dividing an area of high marsh between the mainland and an island. Unlike most areas where there is a unidirectional tidal flow, both sides of the causeway receive tidal waters though there is considerably greater flow from the Essex River side. Under normal conditions, this greater flow of water would simply flow over the marsh to the other side, but the causeway has created a barrier to such movement. Two culverts were installed in the early 1900's to prevent flooding on the road and promote tidal exchange. Both, however, are undersized and severely limit the amount of tidal exchange between the two sides. In addition, the north culvert has collapsed allowing tidal flows to undercut the road and washing eroded sediment from the road into the creek. The undersized culvert and buildup of eroded sediments is having a profound effect on the salt marsh and tidal creeks. The tidal restriction has led to decreased salinity levels favoring the spread of invasive vegetation such as purple loosestrife (*Lythrum salicaria*), poison ivy (*Toxicodendron radicans*), pasture rose (*Rosa carolina*) and hedge bindweed (*Calystegia sepium*), which displace native salt marsh vegetation such as salt marsh hay (*Spartina patens*), black grass (*Juncus gerardii*) and spike grass (*Distichlis spicata*). Changes in vegetation have diminished the habitat value of the marsh for use by fish and other estuarine species.



A westward view of Island Road Marsh

With assistance from the NOAA Community-based Restoration Program, the Town of Essex has undertaken the lead along with the support from Ducks Unlimited and other project partners to restore tidal exchange to the marsh. In order to do so, the existing 24" culvert will be replaced with a 3' x 4' box culvert increasing the flow capacity by over 400%. In addition, the creek will be restored through sediment removal and aligned to better facilitate the new location of the culvert. Creek Restoration will be completed with volunteer labor using shovels and wheelbarrows and plants removed will be used at other restoration sites in the region. The road will be stabilized and an unused manmade pool adjacent to the culvert will be filled and planted with salt marsh vegetation. The south culvert will be left alone at this time, but may be replaced at a later date. The total estimated cost of the project is \$38,000 with project completion expected in Fall 2003.

Improving tidal exchange will promote growth of native salt marsh vegetation as well as combat the growth of the invasive vegetation by raising salinity levels. Improved habitat conditions should increase the habitat value to wildlife especially by enhancing fish and invertebrate migrations between the two marsh areas. Moreover, increasing tidal flow will help keep tidal creeks clear of sediment and minimize future impacts associated with storm tides that currently erode the road embankments. In total, 20 acres of salt marsh are estimated to benefit from the restoration of tidal flow.





An eastward view of Island Road Marsh



Existing culvert

The salt marsh surrounding Island Road is part of a larger marsh system commonly referred to as the Great Marsh. Extending from Cape Ann to Salisbury, New Hampshire, the Great Marsh contains 20,000 acres of marsh, barrier beach, tidal rivers, estuary, mudflats and upland islands and is the largest contiguous stretch of salt marsh north of Connecticut. Three major river systems, the Parker, Essex and Ipswich Rivers, flow through the area and all three possess important anadromous fish runs of alewives (*Alosa pseudoharengus*), blueback herring (*Alosa aestivalis*) and rainbow smelt (*Osmerus mordax*). Moreover, the Great Marsh is internationally recognized as an Important Birding Area not only for local, but also migratory birds.

In addition to the NOAA Community-based Restoration Program, the Town of Essex and Ducks Unlimited, a number of organizations and agencies are working together to restore tidal exchange at Island Road including Massachusetts Wetlands Restoration Program, Natural Resources Conservation Service, and Eight Towns and the Bay. James Richardson, a local architect and owner of much of the restoration site, has also been actively involved with the planning and design of this project.

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.

For additional information, contact:

John Catena or Eric Hutchins
National Marine Fisheries Service
One Blackburn Drive
Gloucester, MA 01930
(978) 281-9313

<http://www.nmfs.noaa.gov/habitat/restoration/>