

Improving Salt Marsh and Community Resilience Using Dredged Materials in Ninigret Pond

The Problem:

We know that sea levels in Rhode Island have been rising at an increasing rate, particularly over the last 30 years. Observations in many of Rhode Island's salt marshes—including the marshes in Ninigret Pond—confirm what our models are telling us: that salt marshes are beginning to drown in place, converting to mud flats or open water. Why is this a problem? Salt marshes perform many important functions, including acting as a natural buffer to storms and providing protection for communities along our shorelines.

Within the Charlestown breachway in Ninigret Pond, sand has been accumulating as it is swept in by shoreline currents. As it enters the pond it covers eelgrass beds—an important habitat—and makes navigation difficult for the many boaters who enjoy the pond.



Picture of Ninigret marsh showing areas of vegetation die-off from prolonged flooding. (Photo: Ayla Fox)



A schematic showing the restoration area, areas to be dredged, and the pipeline location. (Courtesy of Town of Charlestown)

The Solution:

The RI Coastal Resources Management Council and its partners have designed a project that will use sediment dredged from the breachway channel to build up the elevation of the adjacent marsh. The goals of the project are to restore and enhance the functions of the existing salt marsh making it more resilient to future sea level rise, to slow the entry of sediment into the pond and to improve navigation by creating a deeper breachway channel.

The CRMC has contracted with JF Brennan Company Inc., an environmental services and marine construction firm that specializes in waterway remediation and habitat restoration to dredge two sedimentation basins within the breachway channel. Most of the material that is dredged will be discharged from

pipes onto the marsh to the west of the channel. The discharged material will then be spread and graded to elevations that are appropriate for salt marsh plants. Some of the material dredged from the basins will be discharged along the shore, in the intertidal area to the east of the breachway. This will help to re-nourish the beach along the shoreline.

When Will This Happen?

Dredging is scheduled to begin during the first week in December. Prior to that, JF Brennan will be delivering the equipment needed to do the job to the area near the state boat ramp and campground to the east

of the breachway. During dredging, access to the boat ramp will remain open, but will be restricted temporarily as equipment is mobilized. Boaters should use caution when navigating the breachway channel while the dredging machinery is in operation. Dredging will occur 6 days a week, 24 hours per day until the project is complete. Dredging is anticipated to be completed by the end of January. Work on the salt marsh will begin shortly after dredging begins, and will continue through January. The salt marsh work will be done using a lightweight, amphibious excavator, and is anticipated to be completed no later than mid-April. Planting of the marsh will occur in the mid to late spring. Ecological monitoring of the site is ongoing and will continue after the project is completed.

How Will It Look?

Immediately after the dredged material is spread and graded, the marsh will look much like a mud flat—a bare area of exposed sediment. Over time, salt marsh grasses will begin to recolonize the covered areas. Save The Bay will be working with CRMC to plant a portion of the restored area to “jump start” the natural recolonization process. Many of the plants to be planted will come from seeds collected here in Rhode Island with the help of the New England Wildflower Society. Over the next few years, it is anticipated that healthy salt marsh grasses will again cover the restored marsh. The breachway channel will be deepened significantly to create basins where sediment can accumulate over time.



Picture of Sachuest marsh in Middletown, after a restoration project similar to the one planned for Ninigret. (Photo: CRMC)

Partners:

The RI CRMC has worked with many partners to fund, design, permit and implement this project. It has been a collaborative effort with ecological as well as community benefits that would not have been possible without the contributions from these organizations:

- Town of Charlestown*
- Salt Ponds Coalition*
- RI Department of Environmental Management, Division of Fish and Wildlife*
- US Fish and Wildlife Service*
- Save The Bay*
- Narragansett Bay National Estuarine Research Reserve*
- Fuss & O’Neill*
- JF Brennan Company, Inc.*
- US Environmental Protection Agency, Atlantic Ecology Division*

