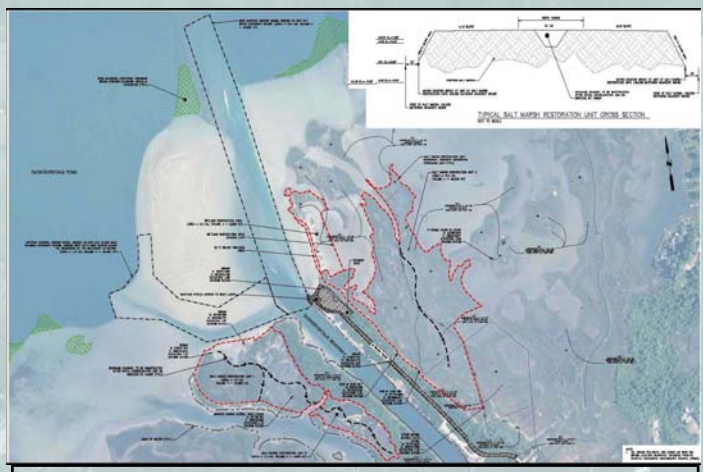
Battling Sea Level Rise Impacts with Elevation Enhancement and Dredging in Quonochontaug Pond

Picture of Quonochontaug marsh showing areas of vegetation die-off from prolonged flooding. (Photo: CRMC)

The Problem:

Rhode Island's salt marshes are beginning to drown. Large areas of Quonochontaug salt marsh have transitioned into open water or are severely degraded, with dead marsh vegetation clearly visible during low tide. Each year in Rhode Island, sea level rises approximately four millimeters, while our salt marshes only accrete, or accumulate, just over one millimeter of material on their surfaces. And sea levels have risen exponentially over the last 30 years, putting much of our coastal salt marshes in peril. Why do we care?



A schematic showing the restoration area, areas to be dredged, and the natural channels to be dug. (Courtesy of Fuss & O'Neill)

Salt marshes serve many important roles in the health and resilience of our coast, from improving water quality to providing valuable habitat for birds and fish and shellfish, and serving as natural storm buffers that protect our coastal communities.

The Solution:

The RI Coastal Resources Management Council and its project partners will be restoring and elevating approximately 30 acres of heavily degraded salt marsh in Quonochontaug Pond through sediment placement. The placed material will increase the elevation of the degraded marsh so that it can better withstand increased flooding from storm events and sea level rise. Native marsh grasses will be planted in the spring to help with revegetation.

JF Brennan Company Inc., an environmental services and marine construction firm specializing in waterway remediation and habitat restoration, will conduct both the dredging and the placement of material on the marsh. The area north of the Quonochontaug Breachway will be dredged for the first time since the breachway's construction, creating an eight-foot-deep channel, and the other area to be dredged, an east-west channel, will be dredged to a four-foot depth optimal for eelgrass growth. A small barrier spit at the end of the parking area will also be restored with dredged material and plantings to create a small beach for recreational use.

Project Status:

Dredging began the second week in December, and will occur 24 hours per day, six days a week until the project is complete. Dredging is anticipated to be completed by the end of January. Work within the salt marsh has already begun, and will continue through January as well. The salt marsh work will be done using lightweight and low-ground-pressure equipment, 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 sandy material, with little vegetation. Over time, salt marsh grasses will begin to recolonize those areas naturally. Save The Bay will be working with CRMC to replant portions of the restored areas with native grasses, to assist in this process. In addition to the plantings, Save The Bay will also be using low ground pressure equipment to create a series of meandering drainage channels to mimic the natural hydrology of the salt marsh.

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:

An aerial view of Ninigret salt marsh immediately after the restoration and elevation enhancement. Notice the mud-flat appearance on the restored areas. (Photo: J.F. Brennan)

Ninigret salt marsh in the fall of 2017, after plantings were added in the spring (Photo: CRMC)

Save The Bay
National Oceanic and Atmospheric Administration (NOAA)
Town of Charlestown
Shelter Harbor Conservation Society
Salt Ponds Coalition
RI Department of Environmental Management, Division of Fish and Wildlife
US Fish and Wildlife Service
Fuss & O'Neill
JF Brennan Company, Inc.