Duxbury Beach Reservation, Inc. is a 501(c)3 non-profit organization

DUXBURY BEACH RESERVATION, INC.

Southern Dune Restoration

Project Overview

Duxbury Beach Reservation, Inc. has a long and successful history of maintaining Duxbury Beach, including extensive dune restoration. This work is undertaken both proactively in vulnerable areas and in response to storm impacts. In September 2017, Tropical Storm Jose caused significant damage to an 850-foot section of dune along the southern section of Duxbury Beach. However, repairs made following Jose were undone during the March nor'easters of 2018. In the wake of the storms, emergency repairs were made, and while these repairs were vital in protecting a narrow part of the beach, they were only a portion of the work needed. Duxbury Beach Reservation proposes continuing restoration of the dune by re-nourishing and re-planting the western slope. This work bolsters the ability of the beach to protect the communities behind it, particularly in the face of sea level rise and increased storm impacts.

Project Benefits

- **Strengthen** the dune by adding sand to the barrier beach
- **Slow erosion** of the dune by decreasing the slope and mitigating impacts of runoff
- **Lessen likelihood of breaching** by widening the dune
- **Reinforce** the dune by planting beach grass and woody shrubs

Project Costs

MESA Review Filing	$300
Equipment Mobilization & Demobilization	$3,100
Sand Import	$34,662*
Remove/Reset Post & Cable Fence	$2,750
Planting of Beach Grass and Woody Shrubs	$11,850
Estimated Total Project Cost	**$52,662**

***(based on $21.80 per ton delivered and installed, 1,590 tons estimated)**

Project Specs

- ⇒ 700 linear feet
- ⇒ Add 1,590 tons of compatible material
- ⇒ Extend toe of dune 10-feet west on the backside
- ⇒ Decrease dune slope to 5:1
- ⇒ Plant ~10,600 culms of American beach grass 36-inch on center
- ⇒ Plant ~1,750 woody shrubs (bayberry, beach plum & rugosa rose) 36-inch on center

Due to the steep slope, gullies have formed along the backside of the dune, eroding sediment and impairing vegetation growth

Problem and Solution

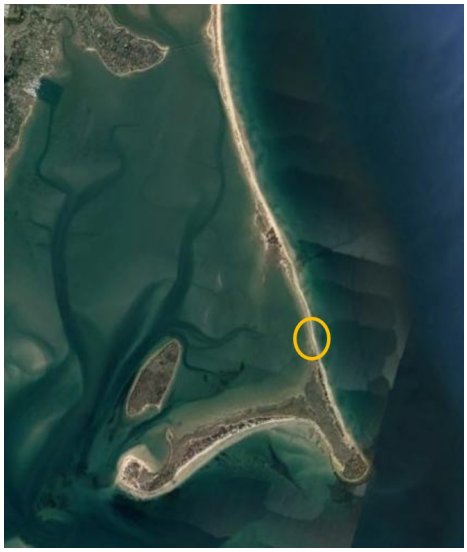
Following the March 2018 nor'easters, Duxbury Beach Reservation faced numerous challenges with a tight timeline for repairs. The back road was washed out in multiple locations, the oceanside dune was washed over at several spots from the bridge to Plum Hills, sand fencing was wiped out along much of the beach, and more.

In the weeks following the nor'easters crews worked tirelessly to put the beach back together to restore access for homeowners at Gurnet-Saquish, provide recreational opportunities, and most importantly, strengthen the barrier beach. This meant pushing the cobble and sand that washed onto the back road back up onto the dune.

In order to increase the resilience of the barrier beach in the area first impacted by Tropical Storm Jose, it is necessary to add material to the back of the dune to create a more gradual slope—widening the dune and decreasing erosion caused by run-off.

Restoration Steps

1) Survey the project area for changes
2) Design dune to regulations and to increase coastal resilience
3) Permit construction through appropriate agencies
4) Import & Grade compatible material
5) Reinstall fencing
6) Plant beach grass and shrubs
7) Monitor changes to the dune, vegetation, and sediment color



Circled area indicates project location

Dune Restoration Plan