

# Nourishing Ecology and Society with Beachgrass



The largest Atlantic hurricane on record, Hurricane Sandy in 2012 hit parts of New England causing enormous damage and requiring a correspondingly enormous response. Recognizing that recovery was not sustainable by simply replacing past systems, partners at the national, regional, local, and tribal levels also incorporated efforts to enhance coastal resilience at the same time. Adopting this philosophy, the Wampanoag Tribe of Gay Head (Aquinnah) developed a plan to restore part of their ancestrally important Commonlands by nourishing and stabilizing coastal dunes in a project area of both tribal and municipal lands at Lobsterville Beach in Aquinnah, on Martha's Vineyard. Hurricane Sandy and subsequent storms damaged Lobsterville Road and the culvert beneath it while erosion of the dunes put the adjacent marsh ecology at risk. To address these issues, the tribe partnered with the town of Aquinnah to carry out a SNEP-funded coastal enhancement project that included dune nourishment, plantings, reinforcements, and a culvert replacement.

Lobsterville Road runs parallel to the beach and is a major local access way. People rely on the road to reach their fishing boats or to hunt, and nearly everyone relies on the road to support their livelihoods. The marsh, too, is a culturally significant place for the Wampanoag and is home to several endangered and threatened plant species. In addition, the Commonlands support some of Massachusetts' very few naturally occurring cranberry bogs.

Dunes were the key to protecting the marsh and the road alike. The tribe worked with the Army Corps of Engineers to move 43,000 cubic yards of dredged sand from another project into place along the shoreline. After initial delays, the work was finished in just under three weeks. Volunteers came in to plant the newly formed dunes in 2016 with 19,000 plugs of beach grass on one section of the beach. Native shrubs were planted near the roadside and cedar shakes—small wooden planks that catch windswept sand—were added to amplify the effects of the beach grass. Each subsequent year, volunteers repeated the process in another area, for a total of three finished installations.



The tribe and town also needed to stabilize the road and improve drainage from the marsh by replacing a culvert along Lobsterville Road. The culvert was designed to capture nutrients and sediment to reduce impacts on the beach. Consideration was also given to climate change impacts, and the culvert was sized to accommodate higher flows resulting from more intense storms.

*Volunteers plant beachgrass on Lobsterville Beach. Photo by Wampanoag Tribe of Gay Head Aquinnah Natural Resources Department*



# Nourishing Ecology and Society with Beachgrass (continued)



The results have been astonishing. After the initial nourishment with dredged sand, the beach grew from a depleted ten-foot width to around seventy feet. The grasses have taken root and continue to send out shoots and runners, stabilizing the dunes with new growth. Experiments measuring the efficacy of the cedar shakes showed that the implants functioned like an artificial beachgrass and succeeded at capturing sand before biodegrading. Water can be seen moving from the brackish wetlands under the road and out to the ocean through the improved culvert. Even the plovers have come back.

While it may seem like a straightforward planting project, this restoration highlights the connections between human society and the ecologies we depend on. The tribe's millennia-long relationship with the land inspired members to join the volunteer crews each year. Every October, they mark the cranberry harvest with a festival celebrating the significance of their entanglement with the land. The planting days have built relationships between the tribe and other civic organizations. The Girl Scouts turned out to plant alongside local fishermen and garden club members, all united in a desire to keep the land.

The effort continues this year despite delays and limitations caused by the Coronavirus pandemic. The tribe has about 90 native shrubs on order waiting to go in along Lobsterville Road when restrictions are lifted. In the meantime, the project managers have divided up the beach into planting zones spaced so that individual families can safely start planting the 20,000 beachgrass plugs and enjoy some time outside.

The tribe has made a long-term commitment to restore this part of their Commonlands and is making binding relationships around the ecological restoration effort. Water quality monitoring will continue for at least another five years to get a data set that can effectively demonstrate the improvements made by the culvert replacement. Plantings will continue, too, and the enhanced ecology and the local social fabric will restore one another in turn.

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