

Benefits of Near-Coast Wetland Restoration for Coastal Resilience



Overview

Windswept Bog is a retired cranberry farm owned by a local land trust, the Nantucket Conservation Foundation (NCF). For the site's conversion to agricultural use, uplands and wetlands were altered extensively and contain a drainage/irrigation system of ditches, weirs, culverts, and buried irrigation lines. The result is a simplified landscape that concentrates surface water's flow through the site, reducing its residence time and hindering wetland development in the retired bogs. Since 2018 NCF has partnered with Fuss & O'Neill and MA Division of Ecological Restoration (MassDER) to restore 40.6 acres of retired cranberry bogs to historical freshwater wetlands.

The site drains to a tidally influenced stream that empties into Polpis Harbor, an embayment of Nantucket Harbor impaired for nitrogen and bacteria. By 2100, NOAA predicts that sea level rise will affect northwest quadrant of Windswept Bog. Continued loss of estuarine habitats and their buffering capacity have been identified as two of the main coastal resilience challenges facing Nantucket Island.

Goals of Ecological Restoration

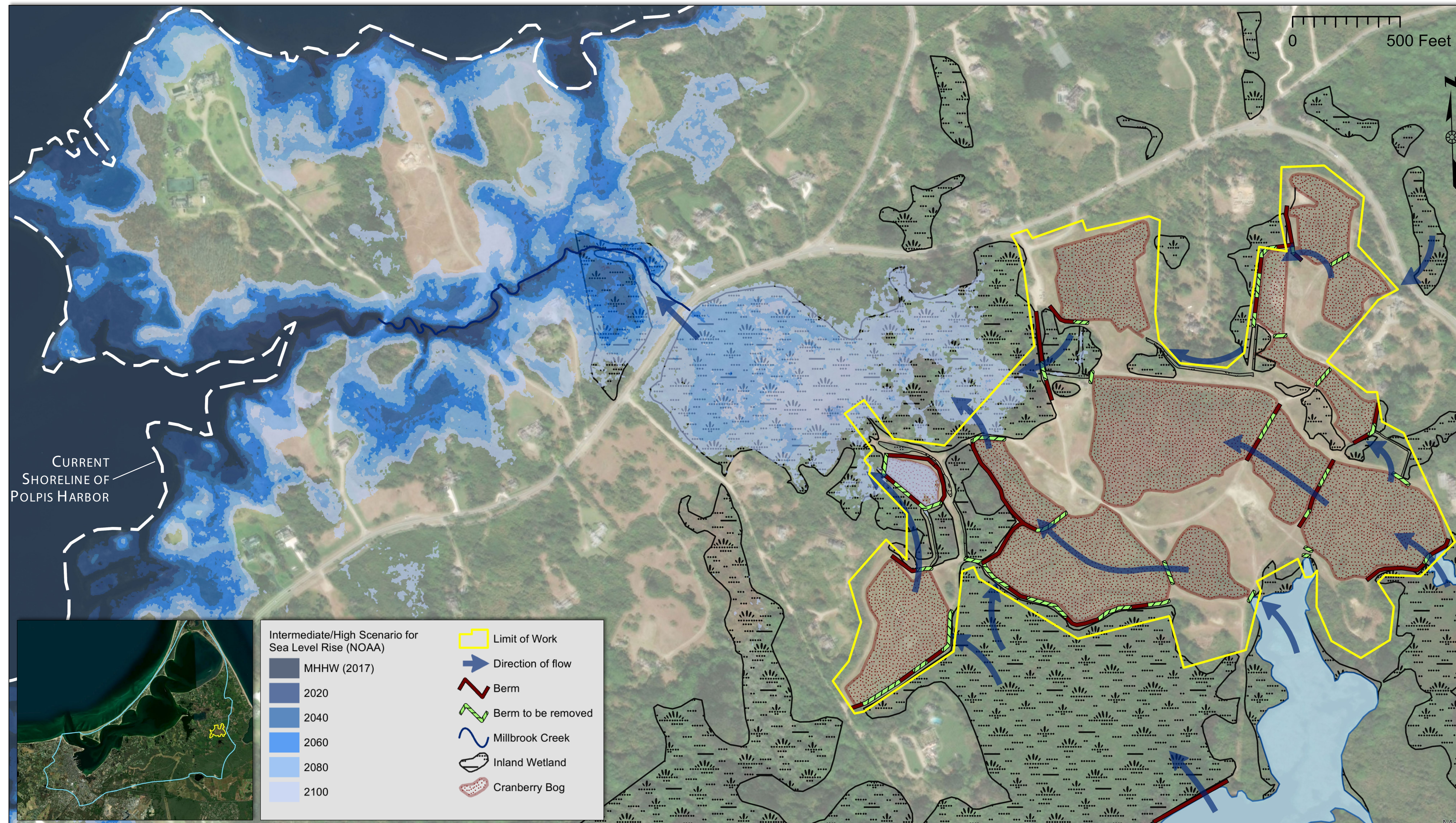
The project's goals focus on re-introducing landscape diversity to:

1. Initiate and sustain the development of a continuum of freshwater wetland habitat zones by restoring the natural movement and storage of surface water.
2. Restore groundwater expression and expose native seed banks in the bogs by roughening the artificial sanded surfaces and mixing sand with underlying deposits of native peat (3-14+ feet in thick).
3. Create new habitat for rare species and for species/communities unique to Nantucket Island.
4. Create new near-coast freshwater wetlands to accommodate future saltmarsh migration and sea level rise.

Design

Re-introducing landscape diversity is being achieved through earthwork across the 86-acre site, with the majority of the restoration activity occurring within the retired cranberry bogs (40.6 acres) to eliminate the flat, well-drained soils of the bogs and the system water control for farming (ditches, weirs, culverts, and berms) that altered hydrology and still prevents wetland development.

Windswept Bog's wetland restoration will have immediate benefits to coastal resources in terms of water quality improvements/filtration and storm dampening. In addition, the project has been designed to support, and possibly accelerate, the Town of Nantucket's future resiliency actions by increasing the acreage of near-coast wetlands. For retired bogs in the site's northwest quadrant, the extent of berm removal and final grades proposed have been selected to expand the footprint of low-lying wetlands, which offer an opportunity to significantly improve the coastal resilience of Nantucket and Polpis Harbors.



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