



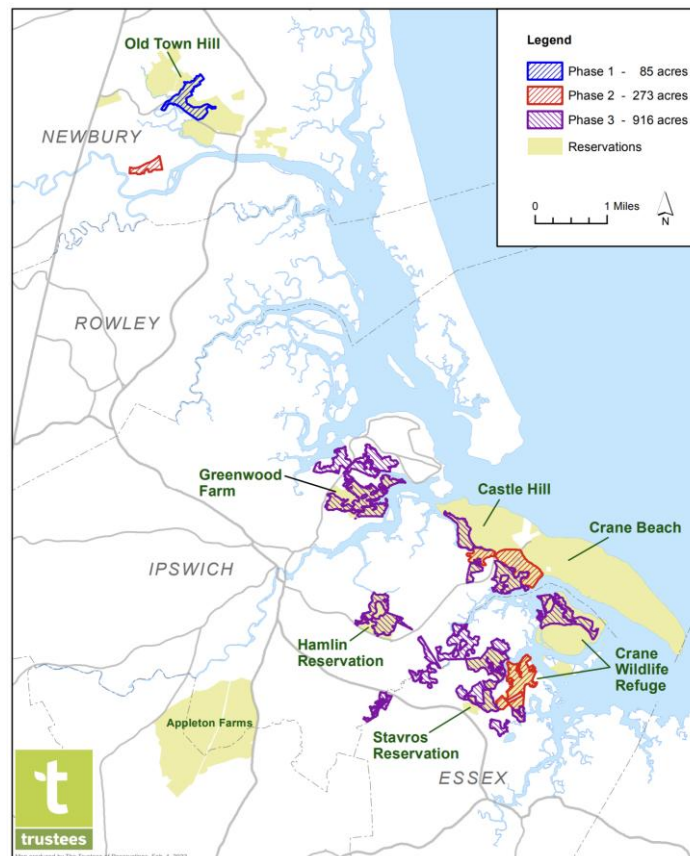
Advancing Coastal Resilience at The Trustees: Coastal Projects Report (2025)

The Trustees launched its coastal initiative in 2016 to address sea level rise and associated threats to its coastal properties. The initiative has focused on making habitats (e.g., salt marsh and beaches), as well as operations related to these habitats (e.g., public access) resilient due to the highly dynamic nature of coastal properties. Due to the scale, costs and regulatory requirements, coastal projects often require years of planning, permitting, implementation, and monitoring to complete. Since the start of the coastal initiative, The Trustees has made considerable progress on priority projects. The following summarizes the status of each project as of the end of 2025.

NORTHSHORE

Great Marsh Restoration

The Great Marsh Restoration Project is The Trustees' largest restoration effort, with four active phases of work amounting to almost 1,400 acres of salt marsh across six Trustees' properties, two Trustees' conservation restrictions and partner lands protected by Essex County Greenbelt Association and the MA Division of Fisheries & Wildlife (MassWildlife). In 2025, work continued across Phases I, II, and III through monitoring, permitting, and pre-construction planning. Phase IV, which includes tidal restriction removal sites, advanced as well through technical assessments and data collection.



Locus map of all active phases of Great Marsh restoration led by The Trustees.

Phase I (85 acres – Old Town Hill Reservation) completed its 5th year of monitoring in 2025, which documented continued marsh response to restoration. This was the first location in Massachusetts to apply ditch remediation, a nature-based restoration technique that remediates ditches dug on the marsh for agriculture and mosquito control, at a large scale. This technique uses salt marsh hay secured into the open auxiliary ditches to increase sediment deposition and accelerate the creation of peat at the ditch bottom, slowly healing ditches to restore single-channel hydrology to the marsh. Monitoring has confirmed ground water levels and residency have increased as desired to stop peat oxidation resulting in marsh subsidence. Monitoring, however, has also confirmed that runnels (shallow ditches that drain trapped surface water) are needed as adaptive management to complete restoration of 5% of the total linear feet of remediated ditches to prevent degradation from waterlogging. Funding to design and permit runnel work has been secured and initiated as of early January 2026.



View of marsh being restored at Old Town Hill from the observation deck constructed in 2024 with restoration interpretive sign.

Phase II (273 acres – Essex, Ipswich, & Newbury) completed its 3rd year of restoration work in 2025, with monitoring efforts continuing alongside the work. Restoration largely entailed a third year of treatment for ditch remediation. Monitoring carried out by The Trustees and University of New Hampshire (UNH) tracked ongoing hydrologic, vegetative, and wildlife response to restoration. Similar to Phase I, monitoring has highlighted that the restoration is benefiting the marsh (e.g., ground water is improving, and surface waterlogging has been reduced), but some adaptation is needed in 2026. Specifically, some minor adjustments to the runnels are needed to prevent vegetation from clogging runnels. The Trustees are working to identify permitting needs to carry out this adaptation in 2026.

Phase III (1,006 acres – Essex & Ipswich) of restoration reached a major milestone in late 2025, having finalized the permitting process and having all necessary permits secured, with assistance from Rimmer Environmental Consulting (REC). Additionally, the team carried out all required pre-construction notification steps and meetings with regulatory agencies and is now under contract with Northeast Wetland Restoration (NWR) to begin implementation in early 2026. The first year of monitoring was also carried out in 2025 for Phase III, with pre-implementation baseline data being collected by the teams at UNH and The Trustees in accordance with regulatory requirements.

A key challenge moving forward with Phase III is a significant funding gap for implementation, which is driven by increased costs since The Trustees secured funding for this work from the North American Wetlands Conservation Act (NAWCA) in 2021. Cost increases are primarily tied to



Wastewater outfall surrounded by phragmites at Greenwood

increased labor costs in the last four years, along with regulatory requirements for the projects, including the need for a 200-acre pilot area and detailed as-builts created by the contractor. Though the team secured a grant from the Massachusetts Department of Environmental Protection (MassDEP) to support monitoring for this work in early 2026, the funding gap for implementation costs remains significant. The Trustees are actively searching and applying for funding opportunities to close this gap.

Phase IV (various tidal restriction removals)

Given the scale of this work, restoration and resiliency needs have grown to include addressing impacts from the failing or outdated infrastructure, mainly culverts and tidal restrictions that are numerous throughout the marsh. This work is critical for a comprehensive resiliency approach to the Great Marsh. In 2025, the team continued advancing various tidal restriction removal sites throughout the Great Marsh with partners including Ipswich River Watershed Association (IRWA), the National Oceanic and Atmospheric Association (NOAA), MassWildlife, and the Town of Essex.

Old Hay St (Newbury): Initial data collection and hydraulic modeling of the site revealed a minor tidal constriction, with minimum impact to upstream salt marsh habitat. While this site includes significant erosion around the restriction, data analysis has confirmed it is historical. Due to permitting timeline constraints and minimal habitat benefit of removing the restriction, the team is working to shift the funds allocated to other priority tidal restriction sites in the Great Marsh, including Greenwood Farm and Crane Estate, both in Ipswich and within the Phase III project area.

Greenwood Farm (Ipswich): Initial data collection and hydraulic modeling revealed a significant tidal restriction at the site within salt marsh that is part of Phase III, which largely impacts outgoing tides and increases residency time of fresh and salt water upstream of the restriction. Due to the presence of an outflow from the Ipswich Wastewater Treatment Plant upstream of the restriction, reducing the residency time of nutrient-rich freshwater is critical in addressing the extensive stands of invasive phragmites in this area of Greenwood Farm and maximizing restoration benefits. Sediment sampling required by permitting revealed the presence of arsenic in the soil surrounding the restriction, which requires additional sampling to determine the extent of the contaminant and finalize the amount of sediment that will need to be disposed of in designated lined landfills. This finding has significantly increased costs for the project, not just in terms of data collection needed but the likely cost of implementation due to higher disposal costs for contaminated sediment. Work is continuing into 2026, with additional sediment sampling happening in early 2026 and goals to complete permitting by mid-2026.

Cedar Point (Crane Estate, Ipswich): The old road from Castle Hill to Cedar Point travels through more than 1,000 feet of salt marsh included in Phase III where a failed culvert has washed away but remaining rocks and debris are causing a tidal restriction that affects salt marsh health and

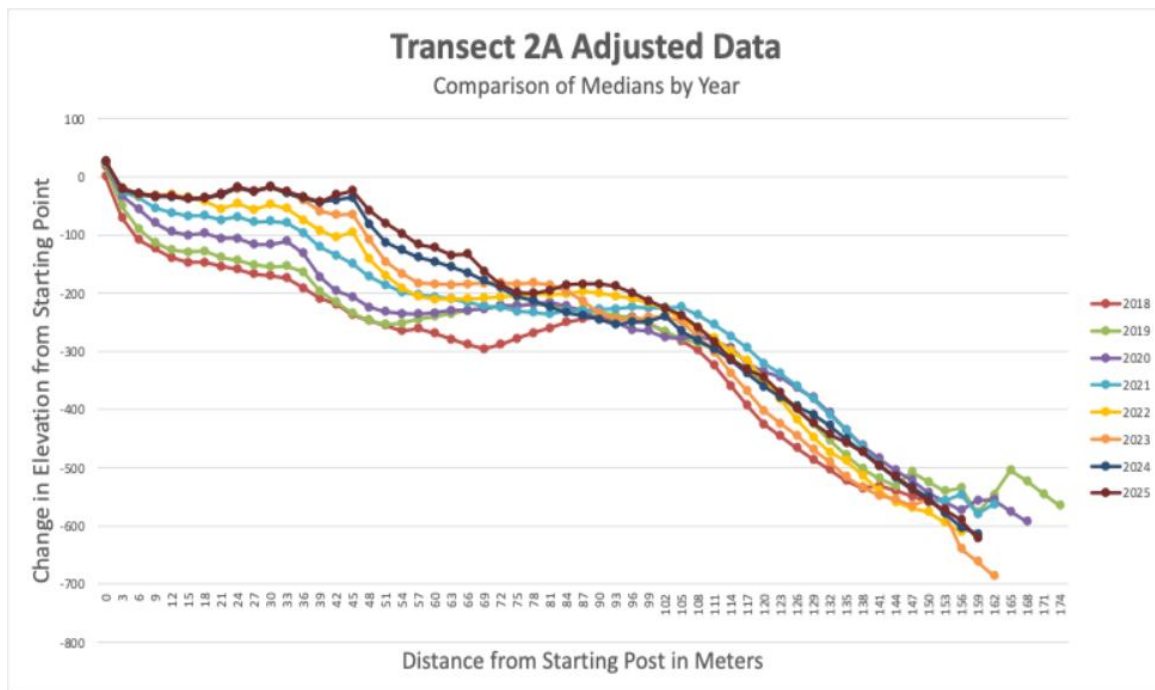
migration. The area upstream of the restriction has a significant presence of invasive phragmites, and the current restriction site is experiencing accelerating horizontal erosion. Funds shifted from Old Hay St in 2025 will go towards advancing a site assessment at Cedar Point in 2026 to restore beneficial tidal flow and allow for salt marsh migration.

Island Road Culvert (Essex): Phase III includes salt marsh restoration on both sides of Island Road in Essex. Unfortunately, the culvert is undersized and failing, with high velocities at daily high tides resulting in significant salt marsh erosion on the east side of the road. The Trustees secured funding through MassDEP to assess, design and permit a replacement culvert in partnership with the Town of Essex in 2026.

Crane Beach Profiling

The Beach Profiling project at Crane Beach began in August 2018 as a means of documenting beach changes, especially the impacts of climate change, and engaging our visitors in these changes. 2025 marked the seventh year of monitoring. The project has grown to encompass eight transects distributed between Steep Hill and the most eastern boardwalk (i.e., the Main Beach) that are monitored monthly by a core of eleven volunteers led by Ian Hayes. In total, this team provided over 240 volunteer hours in 2025.

Despite a series of significant weather events during the year (Nor’easter in May, Hurricane Erin in August as well as two October storms), the data shows that Crane Beach was more stable in 2025 than in 2024 within the transect area. While conditions vary by transect, overall, the upper beach and dune areas saw little erosion while mid-beach and tidal areas lost sand resulting in the lower beach becoming flatter. A large quantity of sand was also blown into higher mid-beach and dune areas resulting in vegetation getting buried and highlighting the importance of beach grass for dune building.



Transect 2A Elevation Change Since Start of Beach Profiling (upper beach has gained roughly 3 meters of sand/elevation)

[Argilla Road](#)

At the entrance to the Crane Estate, undersized culverts on Argilla Road are restricting tidal flow, and the road itself is projected to be underwater at a daily high tide by 2050. Through a partnership with the Town of Ipswich, The Trustees secured state funding to do preliminary design for a road elevation project that will protect public access to this amazing property into the future and greatly increase tidal exchange. We hope this project will be a model of how to address infrastructure resilience in a way that supports marsh health and together with adjacent marsh restoration, increased coastal resiliency. We have secured \$5.4 million for construction through the state's Transportation Improvement Project list but will not be able to take advantage of this funding unless we, in partnership with Ipswich, can raise the \$800,000 needed to finish the design and permitting for the project.

GREATER BOSTON

[Neponset Estuary Salt Marsh Restoration](#)

The Trustees partnered with the Neponset River Watershed Association (NepRWA) in an assessment of marsh health and potential restoration solutions for salt marsh within the Neponset River Estuary. As a densely developed watershed, the Neponset community has high risk factors for coastal flooding, particularly for housing and infrastructure surrounding the salt marsh. These risks are particularly high for the various income-, minority-, and language-isolation-based Environmental Justice communities around the estuary.

In 2025, consultants at Woods Hole Group (WHG) finalized a "State of the Estuary" study and report with funding from a DCR earmark secured by NepRWA. Additionally, WHG and SCAPE Landscape Architect Consulting (SCAPE) worked on carrying out hydraulic modeling within the estuary to better design a restoration plan that optimizes both habitat benefits and minimizes coastal flooding for the surrounding communities. Based on modeling results, restoration that maintains the current extent of marsh while promoting migration is the best chance at protecting surrounding infrastructure from coastal flooding in current conditions and under sea-level rise conditions projected for 2050, 2070, and 2100. Consultants are now finalizing a "catalytic project" restoration design that will be advanced in a future phase of work, pending grant applications.

[World's End \(Damde Meadows and "The Bar"\) Salt Marsh Restoration](#)

The World's End Salt Marsh Restoration project is focused on piloting two low-cost restoration techniques that aim to reduce erosion on the leading edge of fringe salt marsh habitat and assist with the re-establishment of salt marsh vegetation within Damde Meadows near the entrance to World's End Reservation in Hingham. The first technique will pilot the use of wire structures that look like lobster traps in front of the leading edge of fringe marsh habitat alongside the bar connecting the property's two primary drumlins to reduce incoming wave energy and further establish marsh vegetation. The second technique will use hay bales to improve growing conditions within the subsided 14-acre basin of Damde Meadows to accelerate salt marsh grasses establishing.

The Trustees is partnering with Center for Coastal Studies (CCS), Northeast Wetland Restoration (NWR), Ian Sloane Landscape Architectural Consulting (ISLA), and Rimmer Environmental

Consulting (REC) to carry out this work. Contracts were established in 2025, after securing funding from various sources, including an earmark from the Department of Conservation and Recreation (DRC), a grant from 11th Hour Foundation, and a grant from Restore America’s Estuaries (RAE).

Due to requirements from RAE, a Quality Assurance Project Plan (QAPP) was required prior to work beginning. Following a lengthy QAPP process, The Trustees received full approval for the scope of work from the Environmental Protection Agency (EPA) in December 2025. Data collection and design are scheduled to proceed in early 2026.



Pilot site in Swansea, MA where 20 structures were placed in front of fringe marsh to reduce incoming wave energy and erosion.

ISLANDS

[Norton Point \(Martha's Vineyard\) - COMPLETED](#)

Norton Point was one of the first projects undertaken by The Trustees as part of the Coastal Initiative. Erosion was rapidly threatening the access to Norton Point Beach, then managed by The Trustees. Since 2006, Norton Point Beach has breached three times. To maintain access, habitat and minimize threats to adjacent infrastructure, The Trustees, with a grant from the Massachusetts Office of Coastal Zone Management (CZM) and in partnership with the Town of Edgartown, completed a beach and dune nourishment project that occurred in two phases. This work was completed in 2023; Phase I included rebuilding a 400 linear foot dune using 11,000 cubic yards of

sand, relocating the access trail, and planting approximately 0.5 acres of beach grass and beach plum to stabilize the dune. Phase II included expanding the newly created dune with an additional 5,622 cubic yards of sand, grading to an elevation of 14 feet with 10:1 slopes, and planting 2.5 acres with native beach grass for stability and resiliency. In 2023 The Trustees relinquished its management of this County-owned beach to the Town of Edgartown.

Beach Management Plans

Part of the coastal initiative looked at modifying our beach operations for resiliency. This effort quickly coalesced around using property or beach management plans as the most efficient and practical approach following state best practices while upholding The Trustees mission of protecting special places for the public's use and enjoyment. Beginning in 2020, The Trustees developed a plan for the Cape Poge Wildlife Refuge, Leland Beach (owned by the Division of Marine Fisheries (DMF)), Wasque and Norton Point Beach (County) complex on Chappaquiddick Island in Martha's Vineyard. The public and user groups had concerns with this plan, centering largely around issues of Over-Sand Vehicle (OSV) access to the properties.

The Trustees then regrouped, forming a stakeholder group to reassess climate change impacts on beach operations. This lengthy process resulted in a new plan in 2024 that focuses on retiring and restoring OSV trails subject to flooding and wetland migration, adaptive management for OSV access on the remaining OSV trails and corridors depending on beach conditions, maintenance of the trails and corridors (including nourishment using dredge spoil) and setting quotas for the maximum number of OSVs allowed access to the complex on a daily basis.

Though currently in review by the MA DEP due to an appeal of the concomitant Order of Conditions, the adaptive management and ecological protection strategies are in practice. Under this adaptive management approach, approximately 4.0 miles of OSV trails have been retired to allow marsh migration. At Cape Poge Wildlife Refuge, The Trustees and the Town of Edgartown nourished approximately 6,400 lineal feet of OSV trail raising the grade three feet with dredge material from Cape Poge Bay and replanted 1,540 lineal feet of retired OSV trail with locally grown dune grass.

Chappaquiddick Salt Marsh Restoration (Martha's Vineyard)

In 2025, The Trustees partnered with various local landowners and organizations to carry out a feasibility study and preliminary design for salt marsh restoration within Cape Poge Bay and Poucha Pond on the island of Chappaquiddick (Martha's Vineyard). Similar to the Great Marsh, this project approaches restoration at the ecosystem level. The Cape Poge Bay ecosystem is one of the least developed and pristine of its kind in Massachusetts. This work was funded by a grant from National Fish and Wildlife Foundation's (NFWF) National Coastal Resilience Fund (NCRF). Partners for this work included the Martha's Vineyard Commission, Sheriff's Meadow Foundation, Martha's Vineyard Land Bank, Martha's Vineyard Shellfish Group, Massachusetts Division of Marine Fisheries, and BiodiversityWorks, which formed a Project Advisory Group to provide feedback to our consultants throughout the assessment and design development process.



Salt marsh around Poucha Pond.

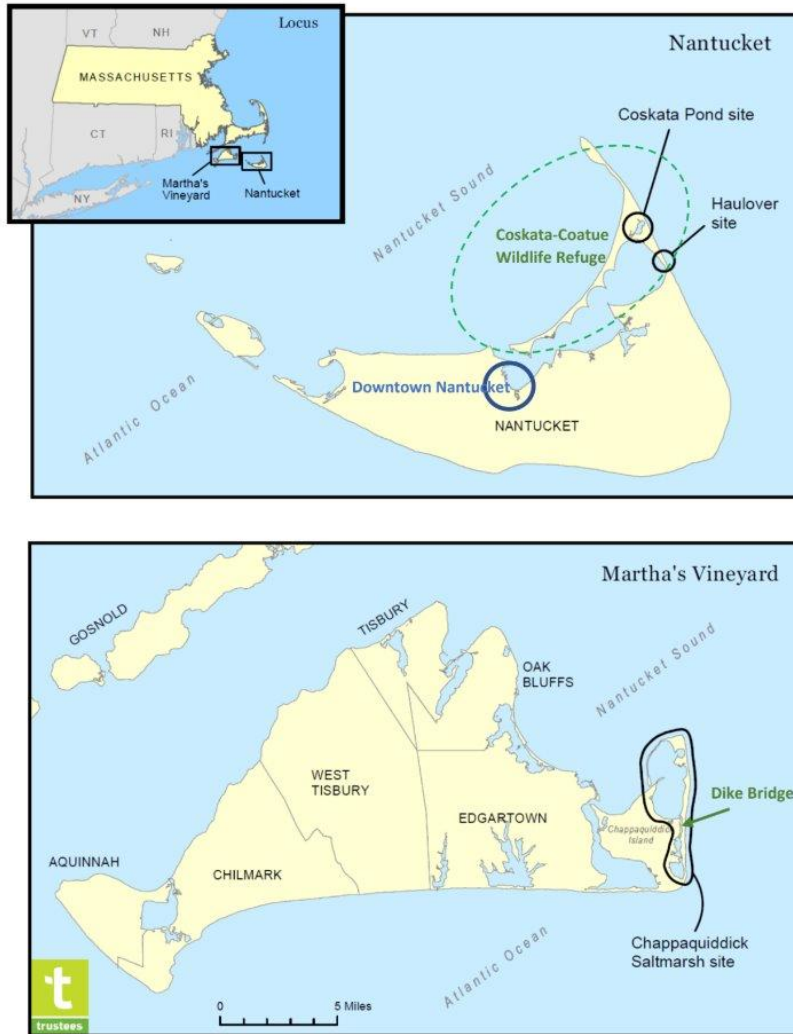
Hydraulic modeling, feasibility studies, and preliminary designs were completed by consultants at GZA GeoEnvironmental and Northeast Wetland Restoration in 2025. Following review of feasible restoration approaches, the team determined a phased approach to restoration was best, starting with baseline Phase I salt marsh.

At the end of 2025, The Trustees secured funding from Southeast New England Program (SNEP) through their Watershed Implementation Grants (SWIG) opportunity to complete permitting for the marsh restoration within Cape Poge Bay and Poucha Pond on Chappaquiddick.

Coskata-Coatue Barrier Beach Resilience (Nantucket)

Also funded by the grant from NFWF NCRF that supported work on Chappaquiddick, The Trustees and Nantucket Conservation Foundation (NCF) partnered on a resilience project at Coskata-Coatue Wildlife Refuge on Nantucket. The two organizations jointly manage and co-own the 2,000-acre complex of beaches and dunes, which is now officially one of the nation's newest National Natural Landmarks—Nantucket Beaches and Wildlife Refuge. The resilience project has focused on areas within the refuge that are vulnerable to flooding, erosion, and breaching to the open ocean. Following a series of vulnerability assessments and studies, the Haulover and Coskata Pond were identified as the two areas most vulnerable to breaching, which would allow open exchange of water from the Nantucket Harbor to the Atlantic Ocean and increase habitat erosion on the refuge. In addition to accelerating habitat erosion and flooding within the refuge, such a breach would interrupt Over-Sand Vehicle (OSV) access to the refuge and potentially change Harbor conditions when it comes to sediment flow and wave dynamics for historic downtown Nantucket.

To build habitat resilience on the refuge, The Trustees and NCF worked with GZA GeoEnvironmental (GZA) to carry out hydraulic modeling efforts of the area and develop preliminary designs for the two areas of concern. This effort included significant data collection on the ground, two public meetings, and an exploration of potential nature-based alternatives to build sediment, strengthen dune integrity, promote habitat migration, and improve resilient access to the refuge.



Locus map of resilience projects on Chappaquiddick (Cape Poge Bay & Poucha Pond) and Nantucket (Coscata-Coatue Wildlife Refuge).

Resulting reports and preliminary designs for this work were completed in 2025, with designs consisting of two living shorelines (along Coskata Pond and the Haulover harborside) and a suite of conceptual alternatives in the Haulover interior to increase sediment capture and build surface roughness in the dune system to slow storm surge and reduce erosion.

The Trustees has now secured funding from Southern New England Program’s Watershed Implementation Grant (SNEP SWIG) and Remain Nantucket to proceed with finalizing designs and beginning the permitting process for the Coskata Pond living shoreline, which aims to capture wash-over sediment from the Atlantic Ocean and facilitate the barrier’s western migration to avoid a breach. The Trustees have also received a grant from the Great Harbor Yacht Club Foundation (GHYCF) on Nantucket to advance designs at the Haulover interior, setting the project up for joint permitting across sites, which would enable significant cost savings.