Increasing Coastal Resilience at Hammonasset Beach State Park

PRESENTED BY AUDUBON CONNECTICUT

Saltmarsh Sparrow. Sydney Walsh/Audubon

Audubon

CONNECTICUT & NEW YORK

A little about us…

Jack Matthias

Manager of Coastal Resilience

&

Corrie Folsom-O'Keefe

Director of Bird Conservation

Project Partners

- **NOAA** – Restoration Center, Rhode Island Office
- **USFWS** – Southern New England Coastal Program
- **CT DEEP** – Parks, Wildlife, Land Water Resource Divisions
- **Ducks Unlimited** – Northeast Regional Office
- **Menunkatuck Audubon Society**
- **UConn** – Dr. Chris Elphick's Lab
- **Friends of Hammonasset**-Meigs point visitor center


MADISON
Hammonasset Beach State Park
Griswold Airport
Webster Point
Hammonasset Natural Area Preserve
Clinton Harbor
Cedar Island
Natural Areas Preserve
Meigs Point
A - Western Culvert
B - Central Culvert
C - Eastern Culvert
Liberty St
Pratt Rd
Grove St
Commerce St
Waterside Ln
Osprey Cmns
Riverside Dr
Uncas Rd
Legend
Natural Area Preserve
Hammonasset Beach State Park
Salt Marsh Assessment Area
Living Shoreline Assessment Area
Culvert Assessment Area
Municipal Boundary

Project Status

Phase 1 complete!

Funded by CT DEEP - ~600K

- **Culvert, Salt Marsh and Eastern Shorelines assessments**
- **Existing conditions reports**
- **Coastal and H&H modeling**
- **Avian, Fish , Plant, NDDB surveys**
- **RTK data collection**
- **Public engagement**
- **Alternatives analysis and 30% Designs**
- **Climate Change Impacts Report**
- **Technical team meetings**

Phase 2 ongoing

Funded by NOAA- ~2.6M

- **Additional sediment transport modeling**
- **Avian, Fish , Plant, NDDB surveys**
- **Cultural surveys**
- **Full project permits**
- **60%-100% designs for 3 components**
- **Public engagement**
- **Replacement of 2 culverts**
- **Technical team meetings**

Impacts of Climate Change on Hammonasset Beach State Park in Connecticut

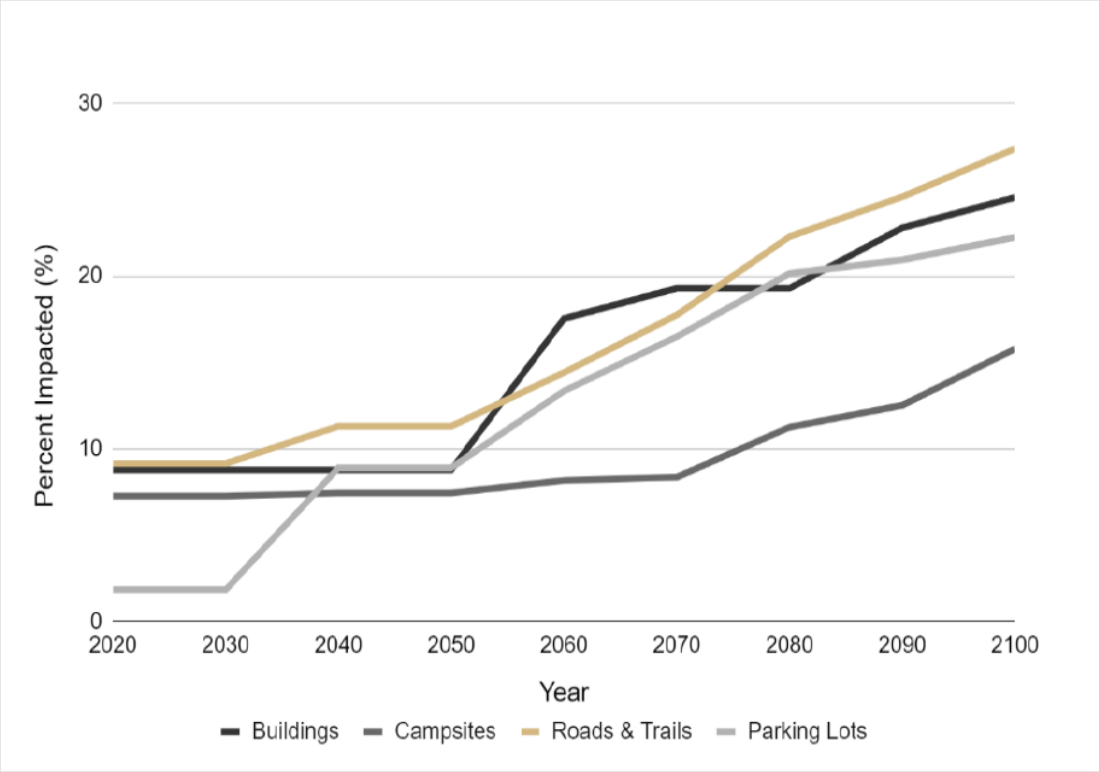
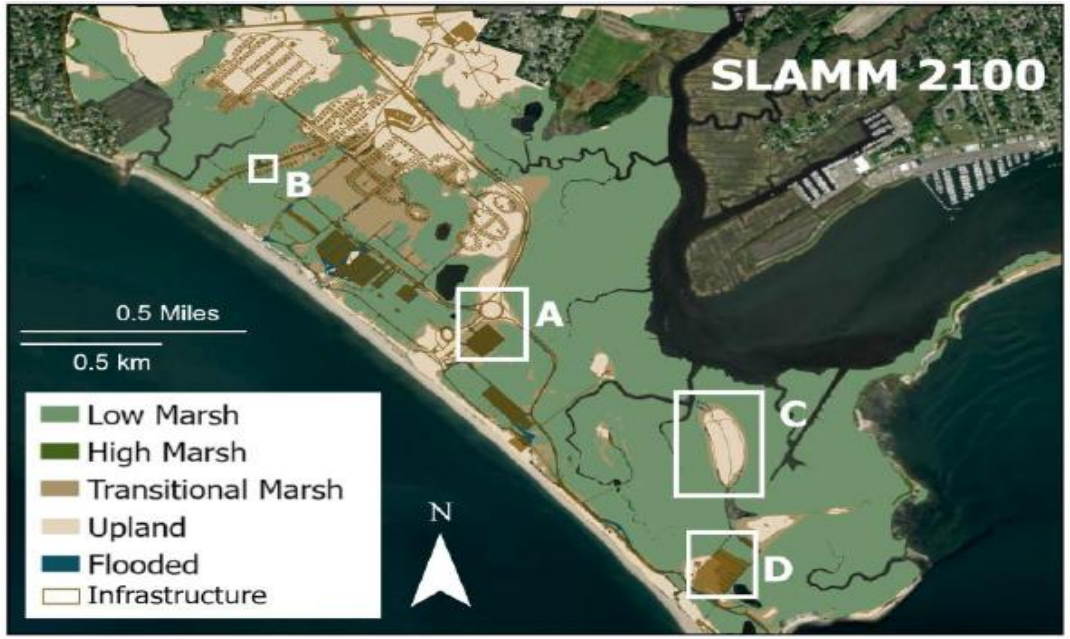
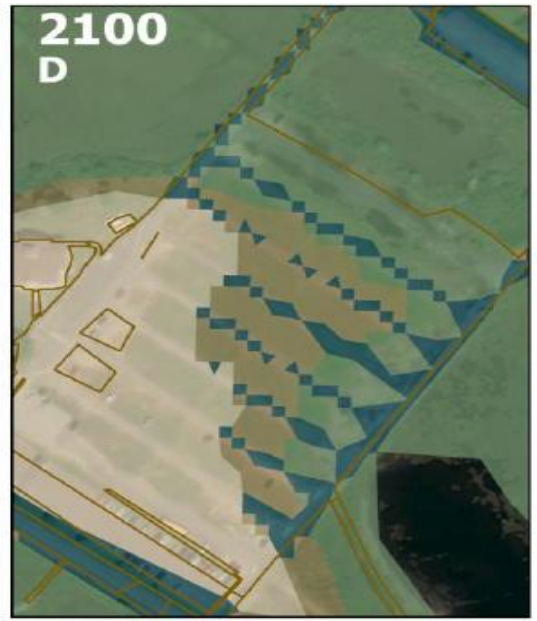


Figure 4. Proportion of infrastructure type within Hammonasset Beach State Park, CT impacted by sea level rise driven marsh migration. Predictions are based on the low accretion rate of 2 mm/year for mapping marsh migration from 2020-2100 (NOAA 2017).

Meigs Point Impacts

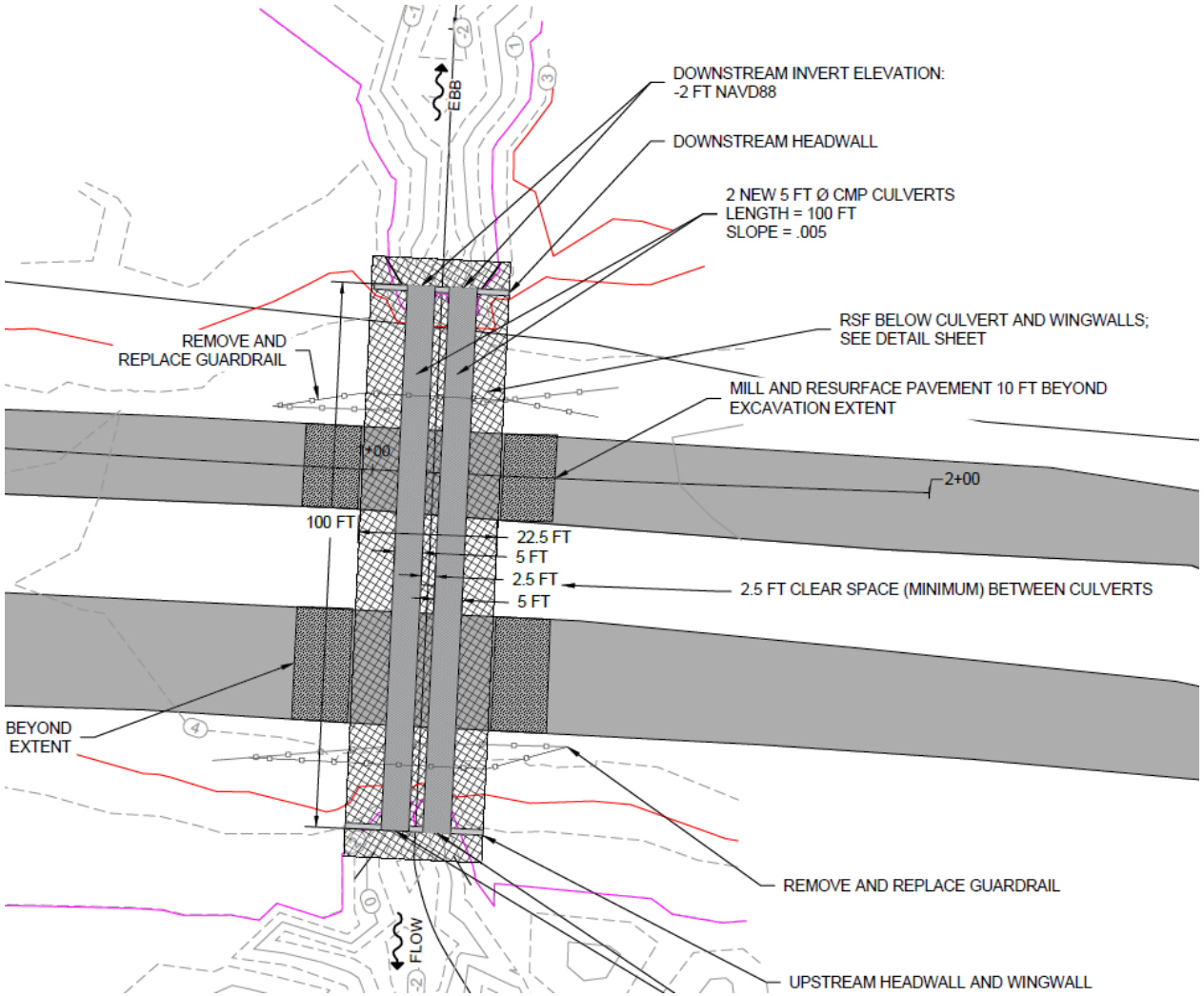
- By 2100, The NOAA marsh migration model predicts approximately half of the lot will be impacted by marsh migration
- It is predicted that 62% of the parking areas will become flooded by 2100





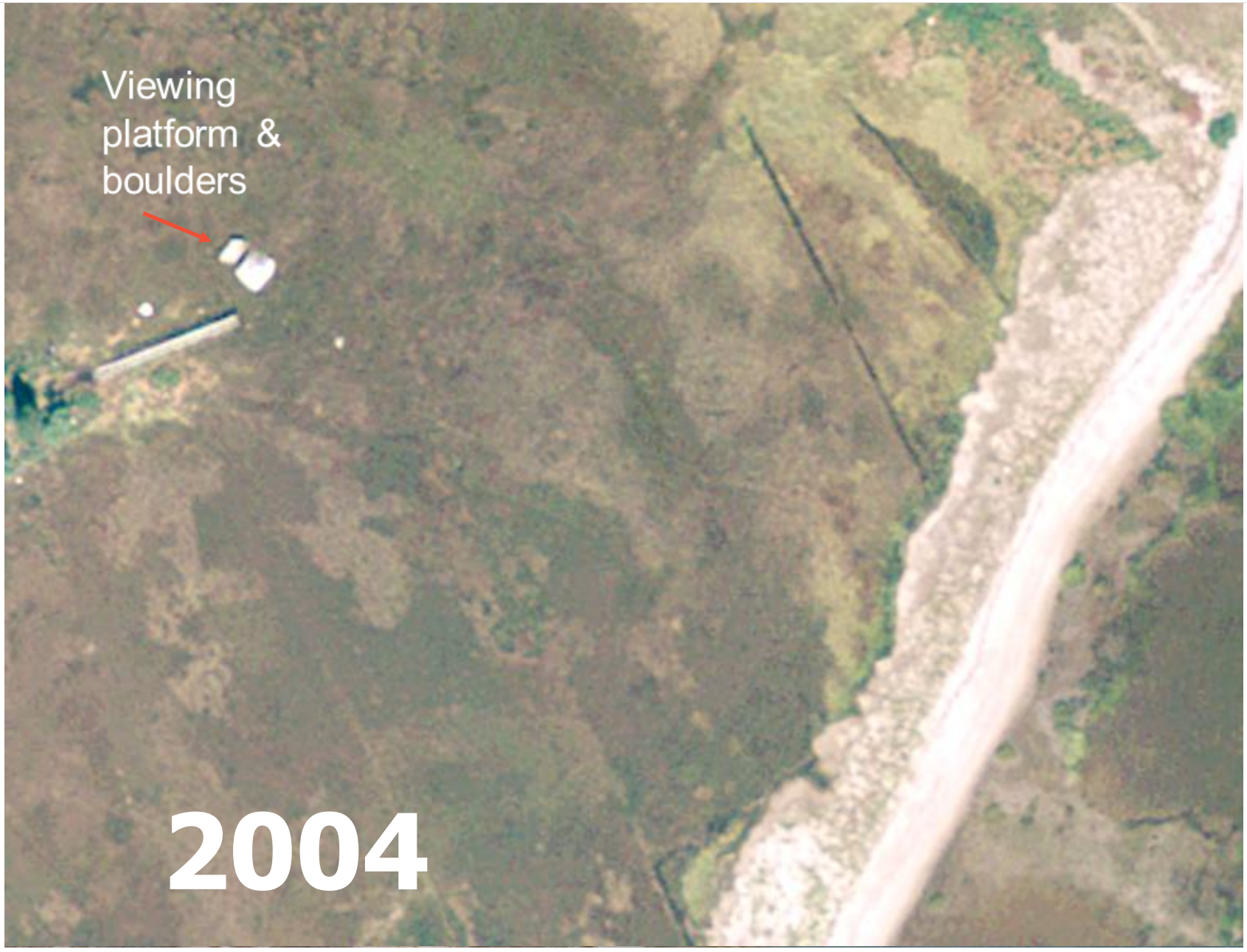
Culvert Replacement

60% Designs



Threats to Hammonasset Natural Area Preserve

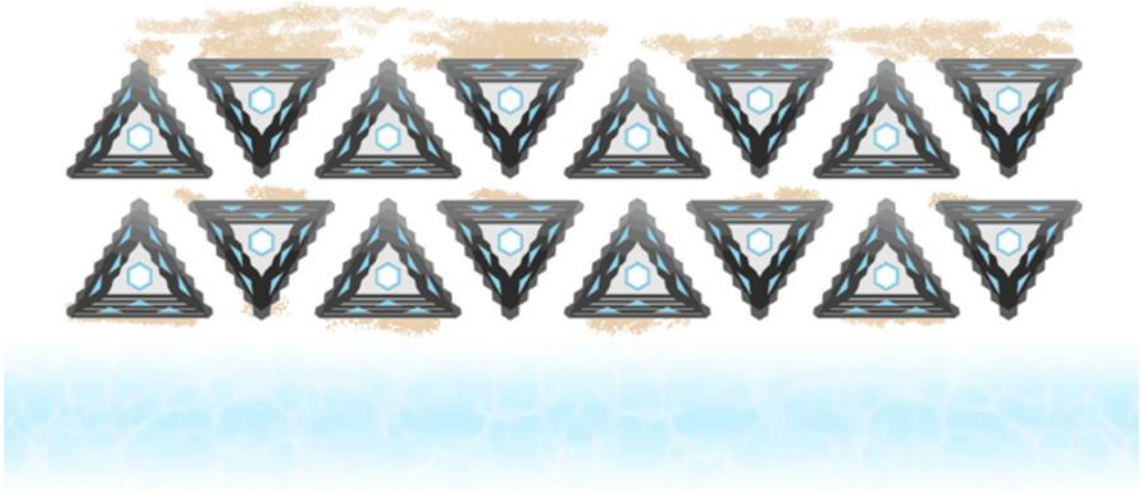
Accelerated Erosion at Hammonasset-South



Accelerated Erosion at Hammonasset-South

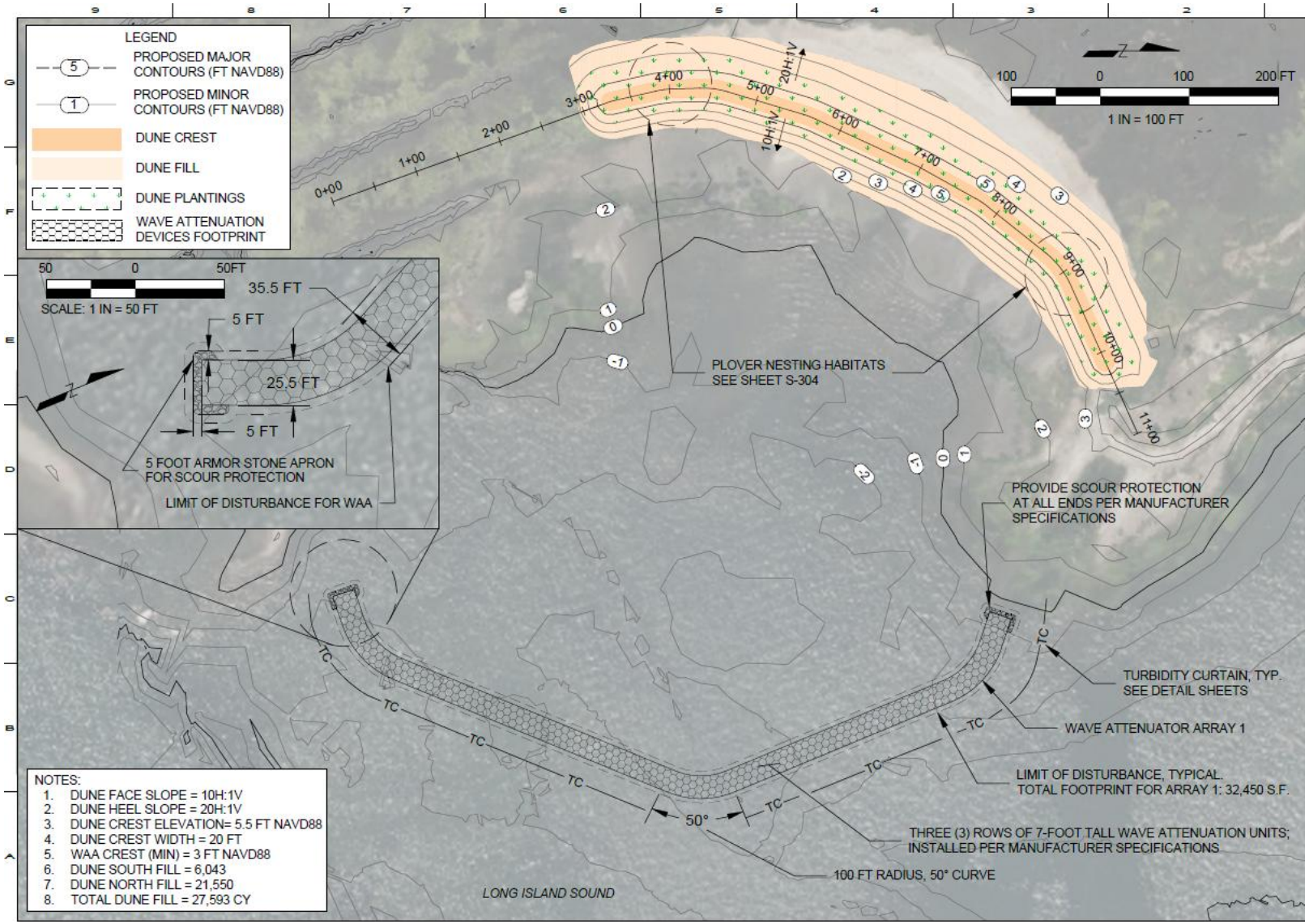
Accelerated Erosion at Hammonasset

Nature Based Solution!



Southern Section Design

- Wave Attenuation Devices
- Sediment would accrete along the shore allowing the barrier beach and marsh to reestablish
- Dunes would buffer wave energy when waves overtop the typical high-water mark
- Sediment would likely spread out across the marsh over time



Accelerated Erosion at Hammonasset-Northern Section

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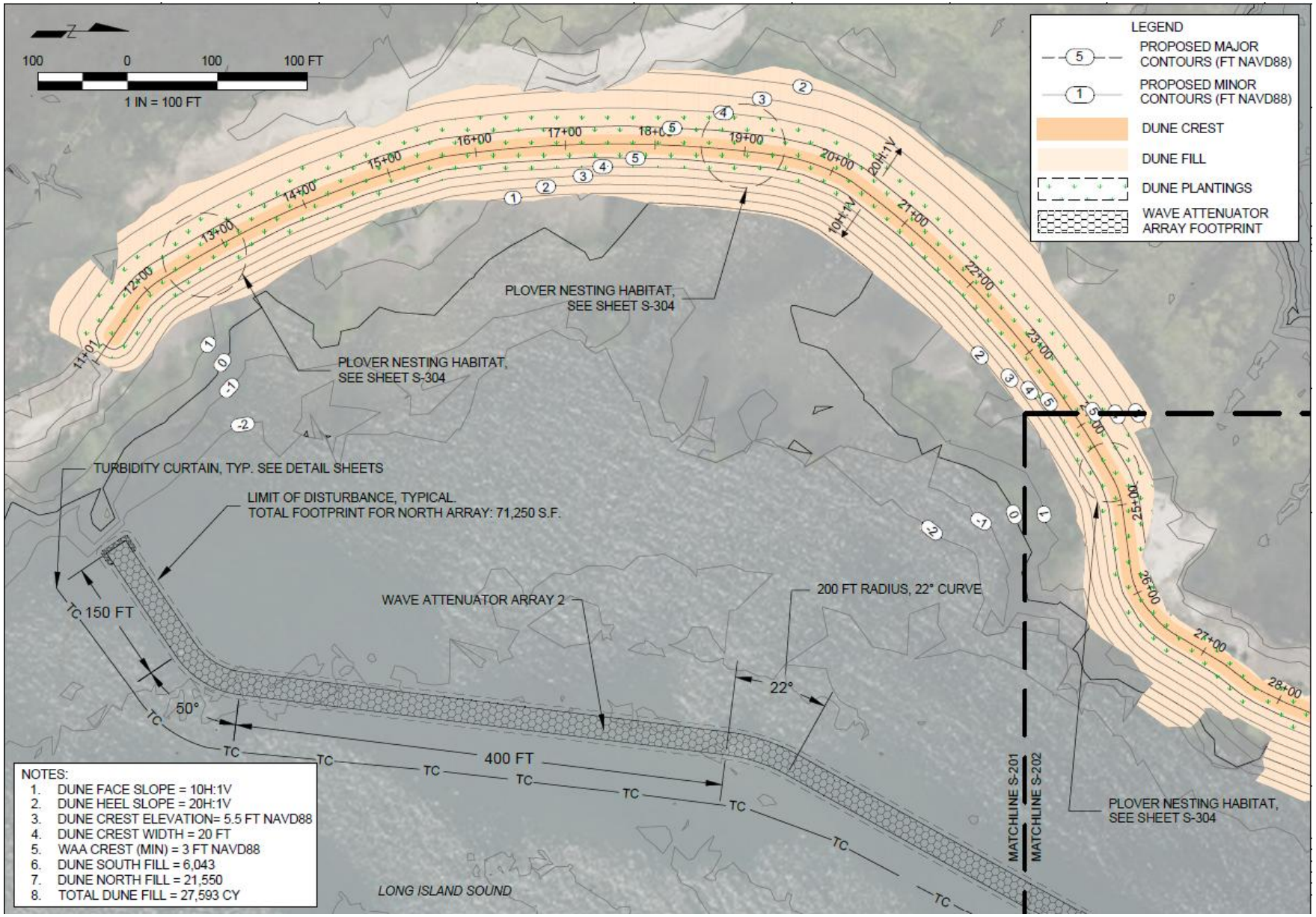
Northern Section Design



Stratford Point

2015: Less than one year after reef balls were first placed in front of Stratford Point's highly degraded shoreline; PC: Jason Krumholtz (UCONN)

2025: Marsh grass flourishing behind reef balls at Stratford Point; PC: Jason Krumholtz (UCONN)

Project Status - Fundraising

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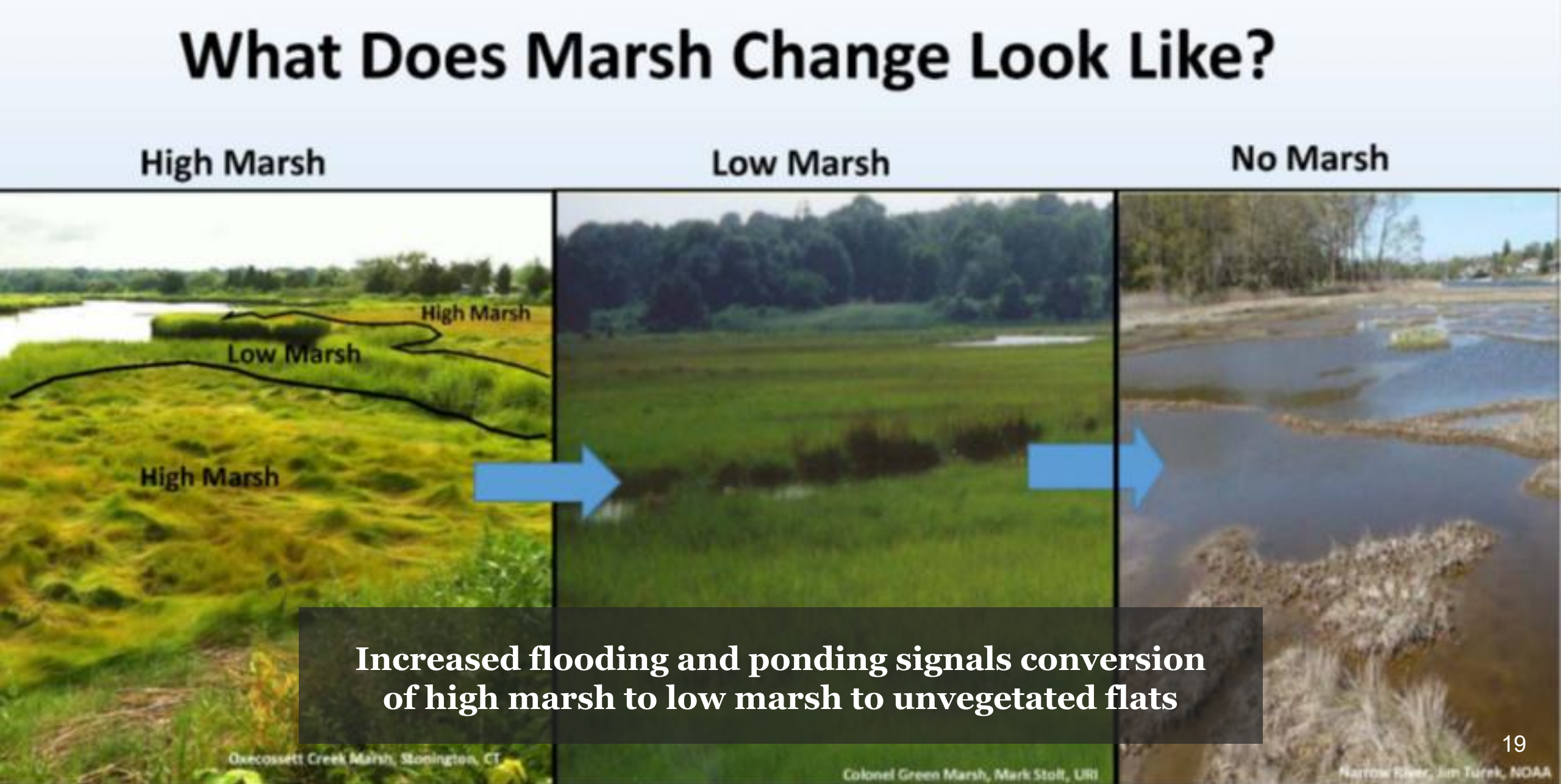
Estimate of Probably Cost (60% designs) $10M - $15M

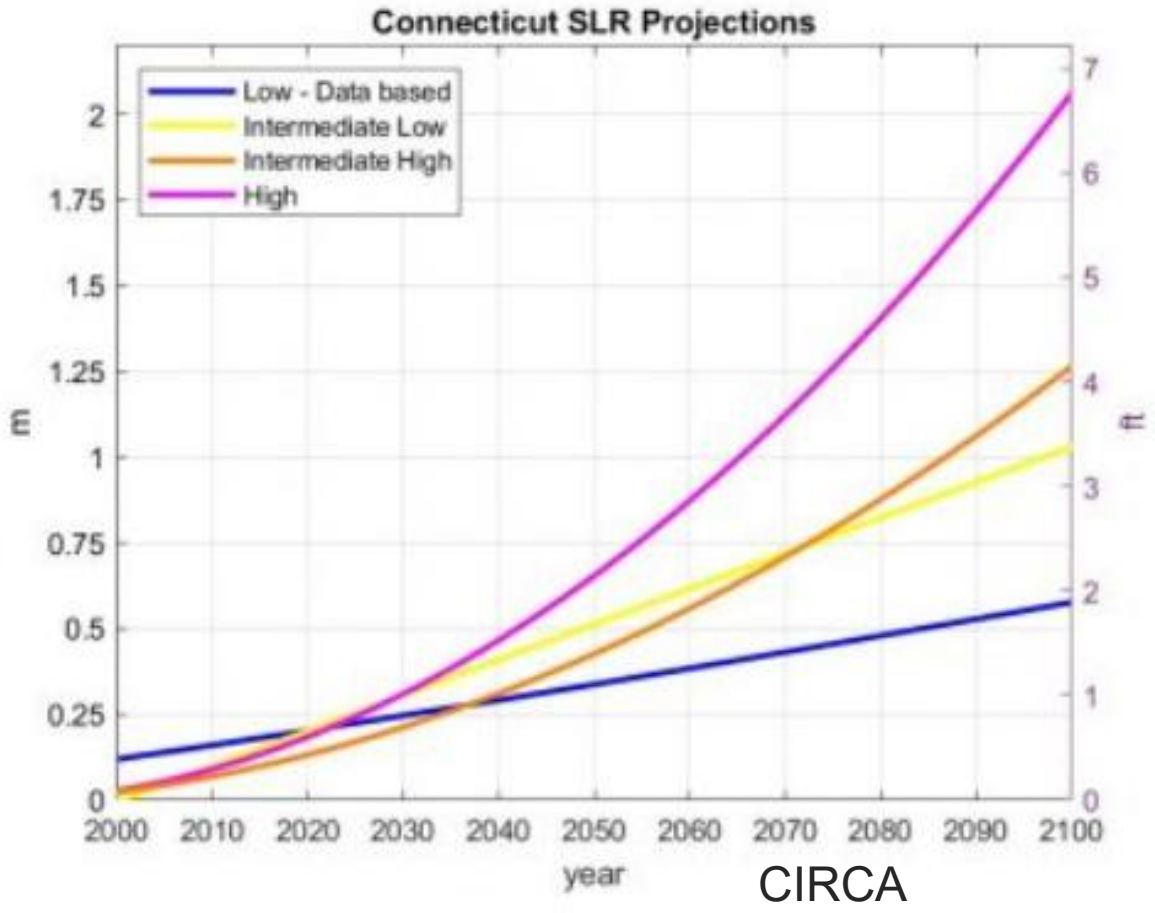
Source	Name	Due Date	Request	Status
federal	NFWF National Coastal Resilience Fund	LOI Submitted	$3.5M	Apply next year
federal	NOAA - Congressionally Directed Spending	Application Submitted	$5M	Pending
federal	NFWF Long Island Sound Futures	Application submitted	$2M	Pending
federal	LIS Partnership Supplemental Grants	January 2027		
state	CT DEEP Climate Resilience Fund	Fall 2026		
state	CT DEEP Ecosystem Grants	Late 2026		
private	Private Foundation	Application submitted	$500K	Challenge grant awarded
private	Audubon In-Lieu-Fee Program	LOI Submitted	$1.9M	Marsh restoration better fit
private	Family Foundation	March 2027		
private	Family Foundation	Feb - Mar 2027		
private	Individual Donors	Starting fall 2026		

Salt Marsh Restoration

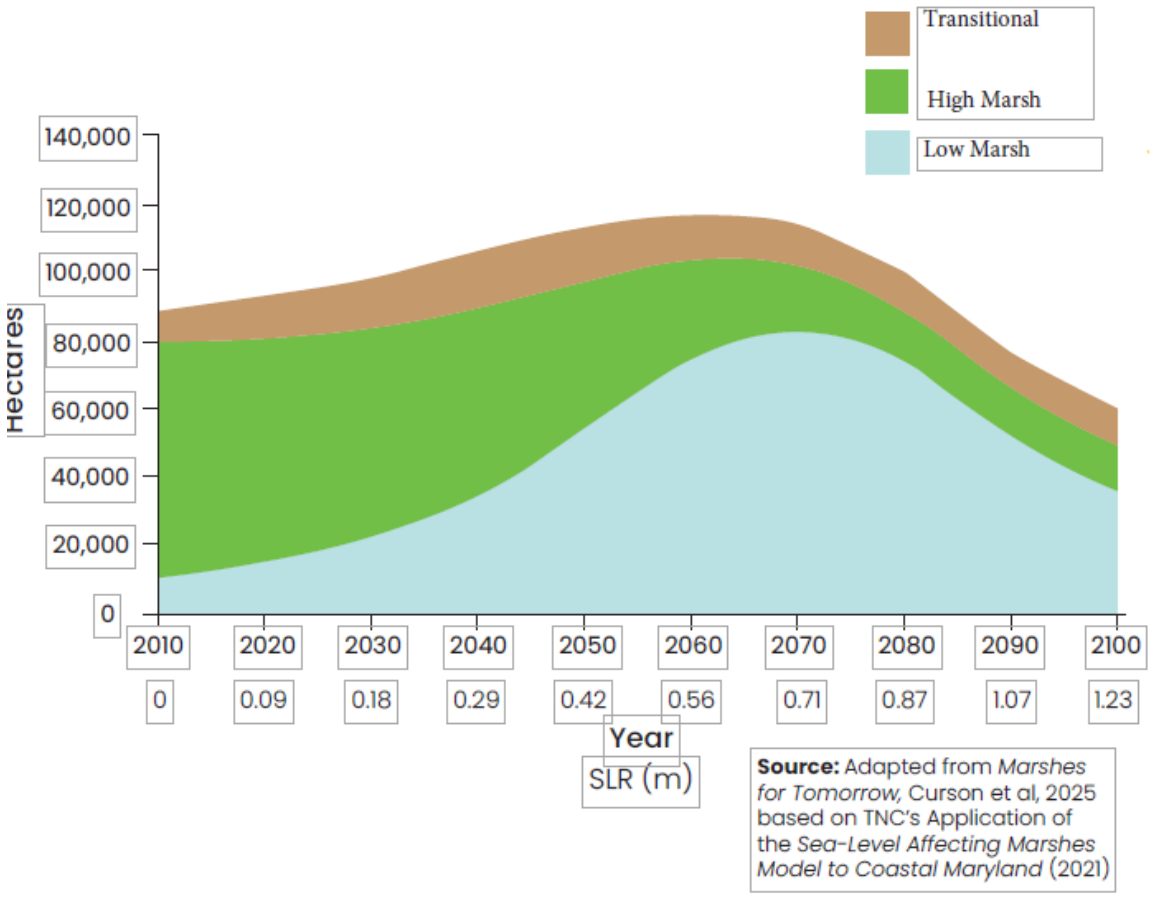


Increased flooding and ponding signals conversion of high marsh to low marsh to unvegetated flats

Salt Marsh Restoration



CIRCA



Source: Adapted from *Marshes for Tomorrow*, Curson et al, 2025 based on TNC's Application of the *Sea-Level Affecting Marshes Model to Coastal Maryland* (2021)

Salt Marsh Restoration

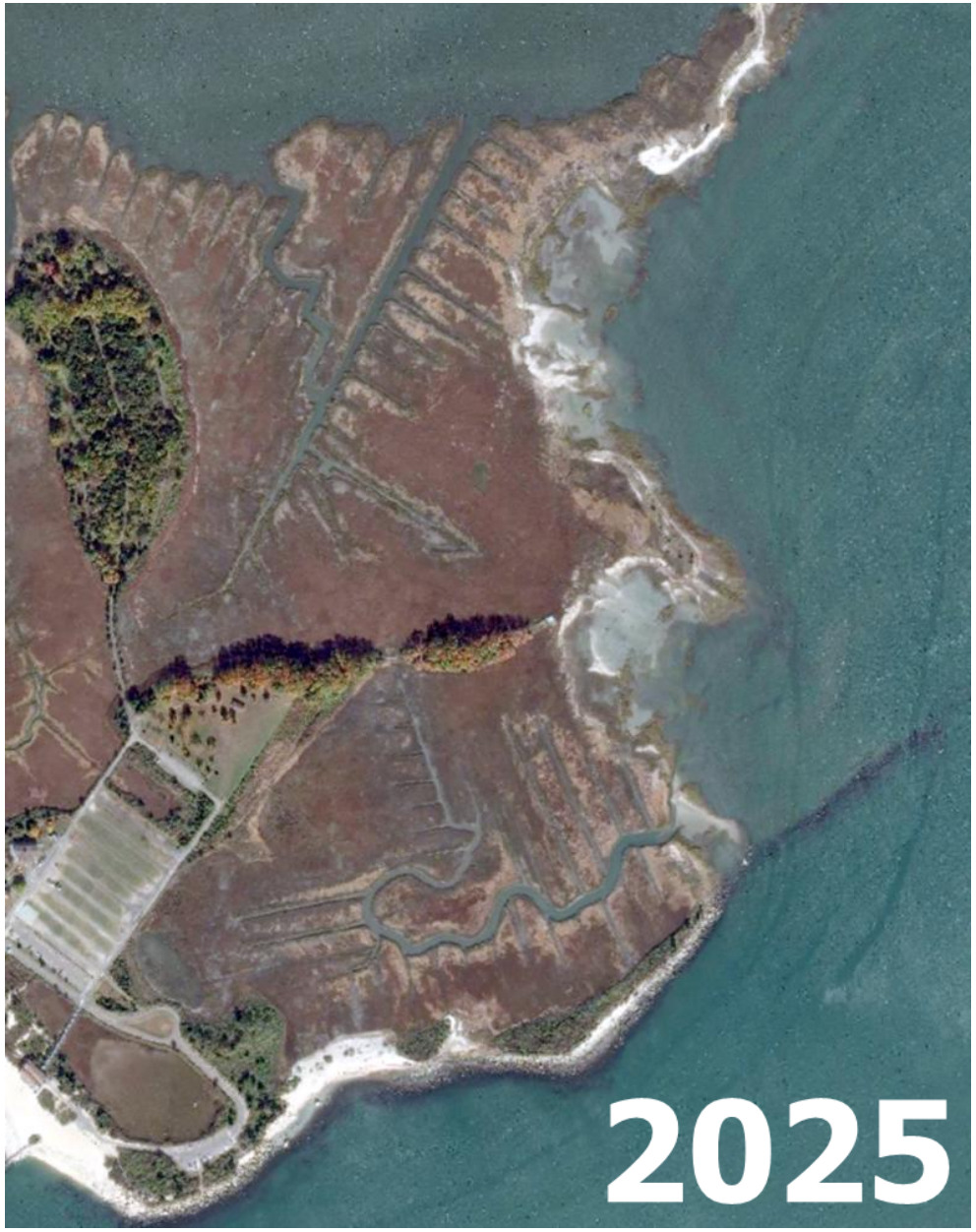
Restoring hydrology from historic impacts

- Fill in ditches
- Increase the sinuosity of ditch channels
- Runneling to prevent ponding and associated vegetation die-off

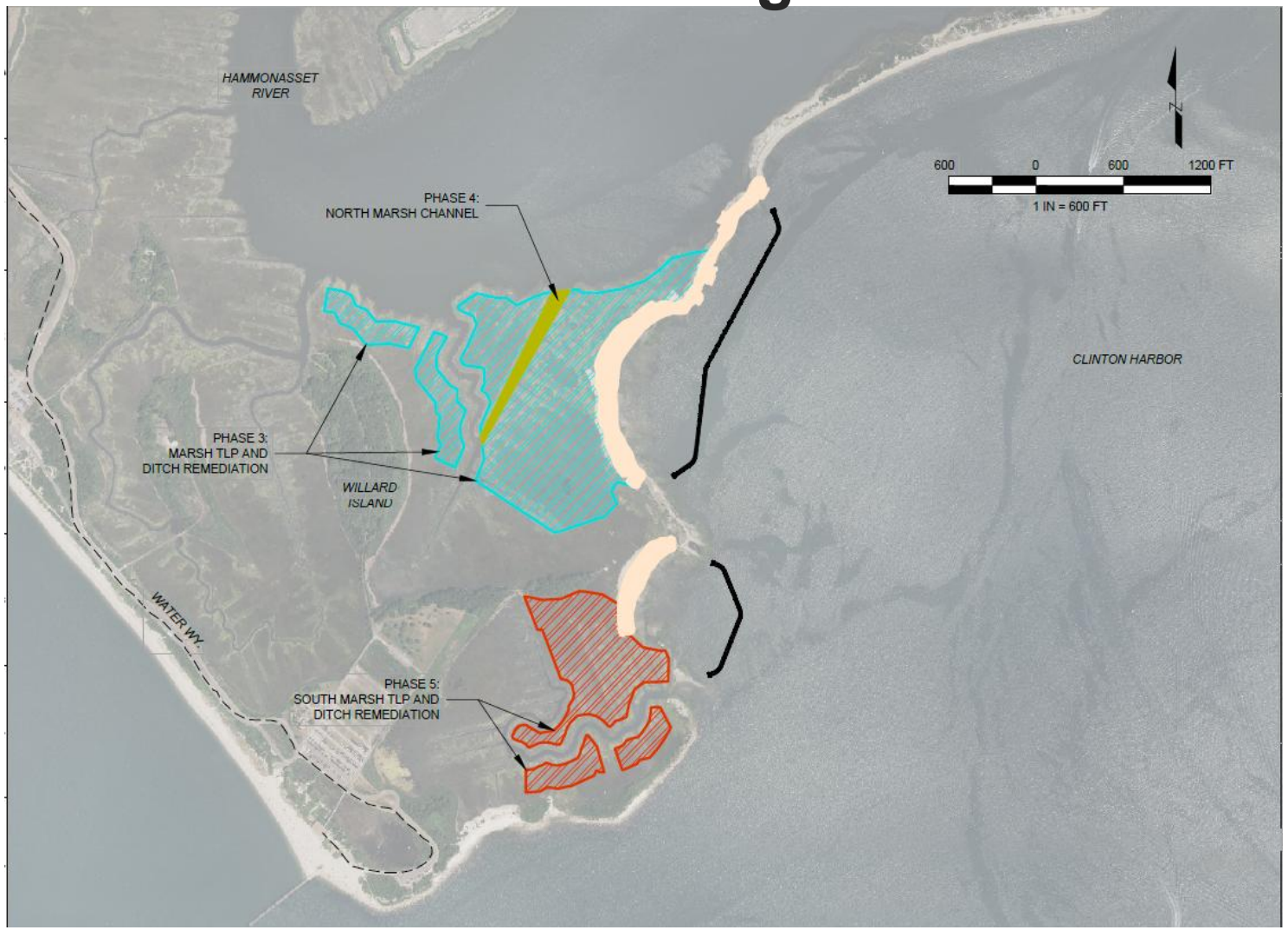
Sediment addition to increase marsh elevation

- Beneficial use of dredge material

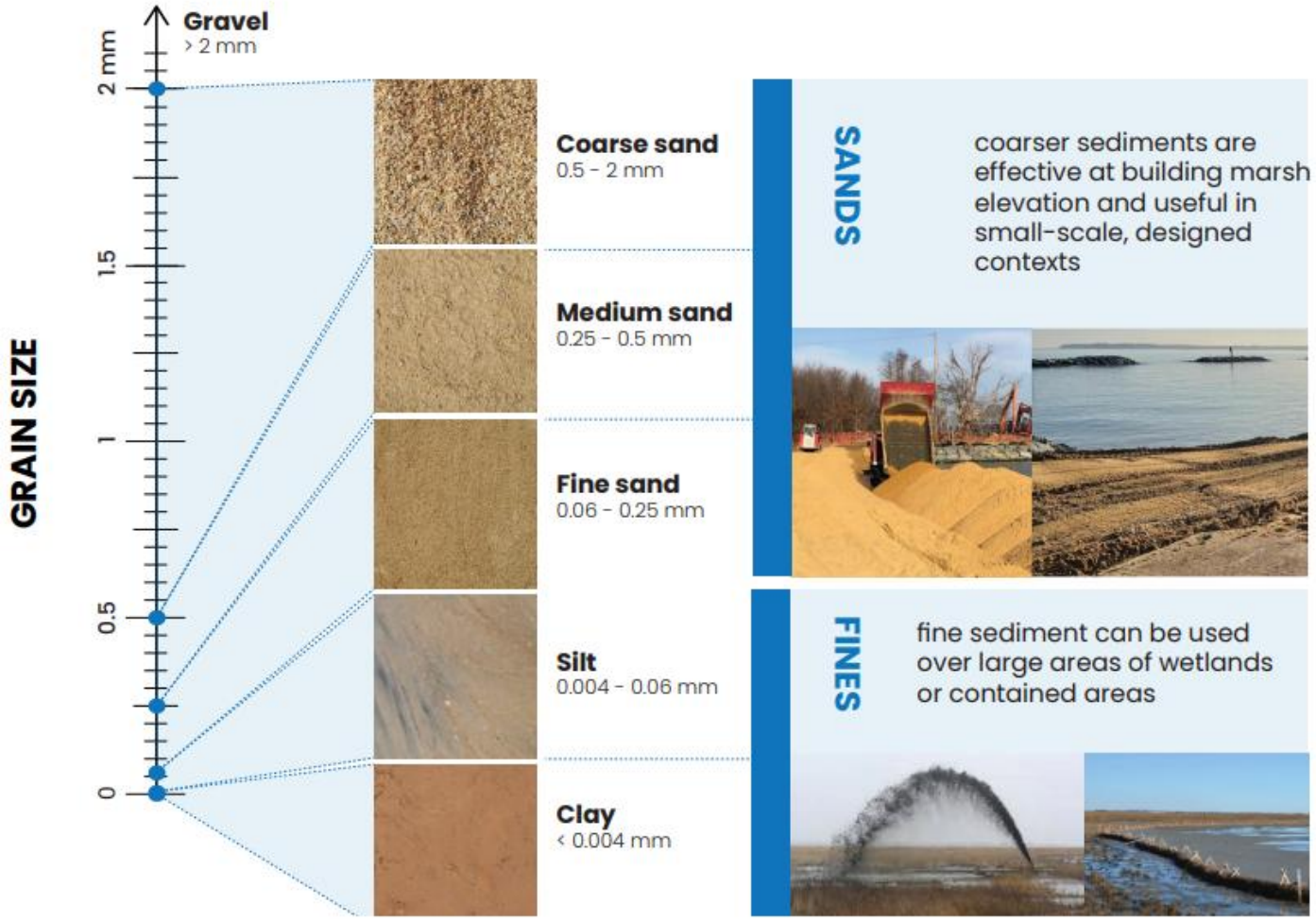
Salt Marsh Restoration

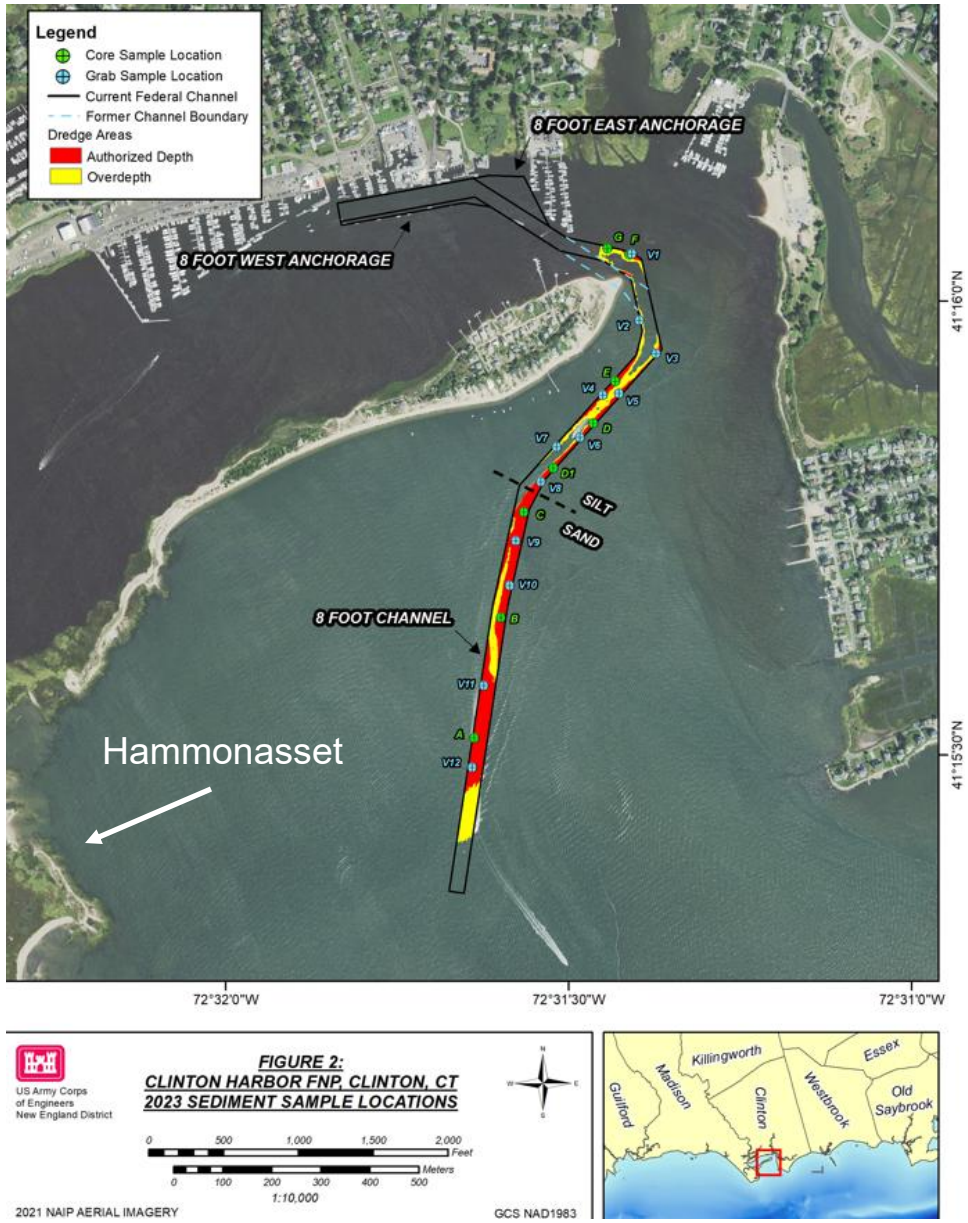


60% Designs

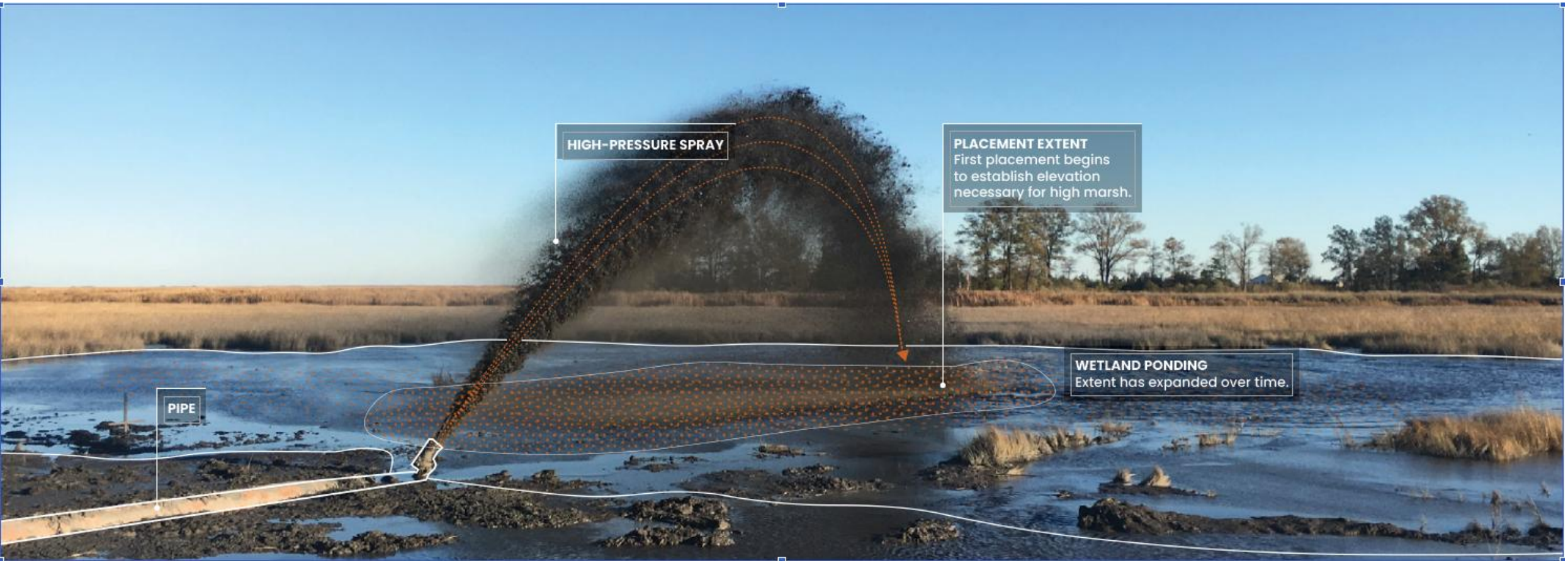


Salt Marsh Restoration





Salt Marsh Restoration



Hametz, I., Bamford, A., Davis, B., Ruswick, T., Dinicola, W., Haviland, K. (2025). Sediment Strategies: Considerations and Case Studies for Beneficial Use. The Nature Conservancy.

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Salt Marsh Restoration

Amphibious excavator moving dredge slurry pipe © Save the Bay

Marsh restoration through sediment addition at Gull Island. Sediment thickness was more than 1′ and vegetation reestablishment was by natural seed bank. © USACE

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Thank you for listening!

Q&A