Landscape Conservation in Delaware:

Milford Neck Conservation Area

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THE NATURE CONSERVANCY IN DELAWARE

THE NATURE CONSERVANCY

WHO ARE WE?

The Nature Conservancy is the largest, science-driven multi-channel conservation organization in the world.

MISSION: To conserve the lands and waters on which all life depends.

THE NATURE CONSERVANCY

50
state chapters

1mm+
active members

4,000/ 550
employees/ scientists

69
countries

120MM
acres of land protected

100
marine conservation projects
in 21 countries & all U.S. coastal states

5,000
river miles protected

1,400
preserves managed

Landscapes

Definition: Relatively large unit of land and water delineated by the biotic and abiotic factors that regulate the structure and function of the communities within it

- Includes both people and nature

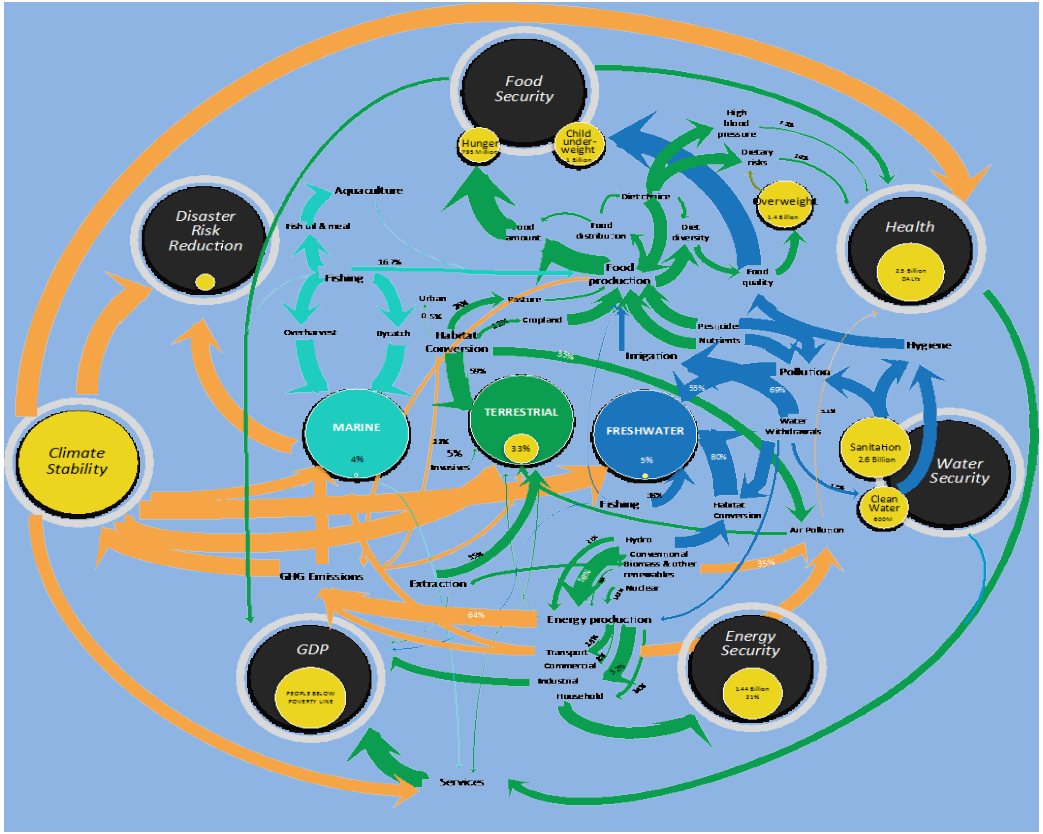
Considerations

- Scale
- Planning Context

Landscapes

EXAMPLES

Conservation by Design



Delaware Bayshore

City of New Castle to the City of Lewes

- 220,000 acres
- ~50% in conservation

Ecologically significant

- Wetland of International Significance by the Ramsar Convention on Wetlands
- Western Hemisphere Shorebird Reserve Network
- Audubon/American Bird Conservancy Important Bird Area

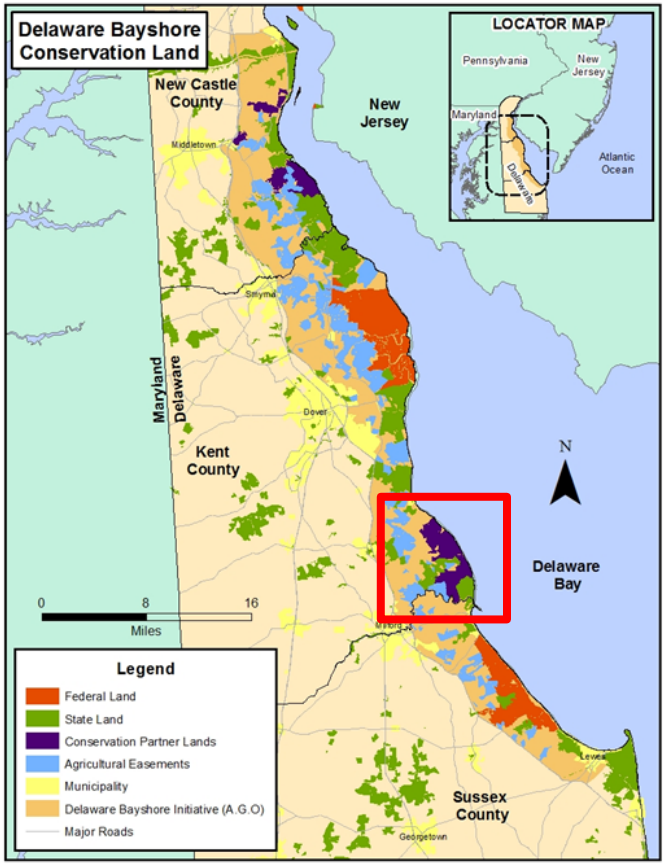
Recreational opportunities

- Hunting, fishing, wildlife viewing, etc.

Rural character

- Farms, small communities

Agriculture, commercial fishing, ecotourism and recreation economy



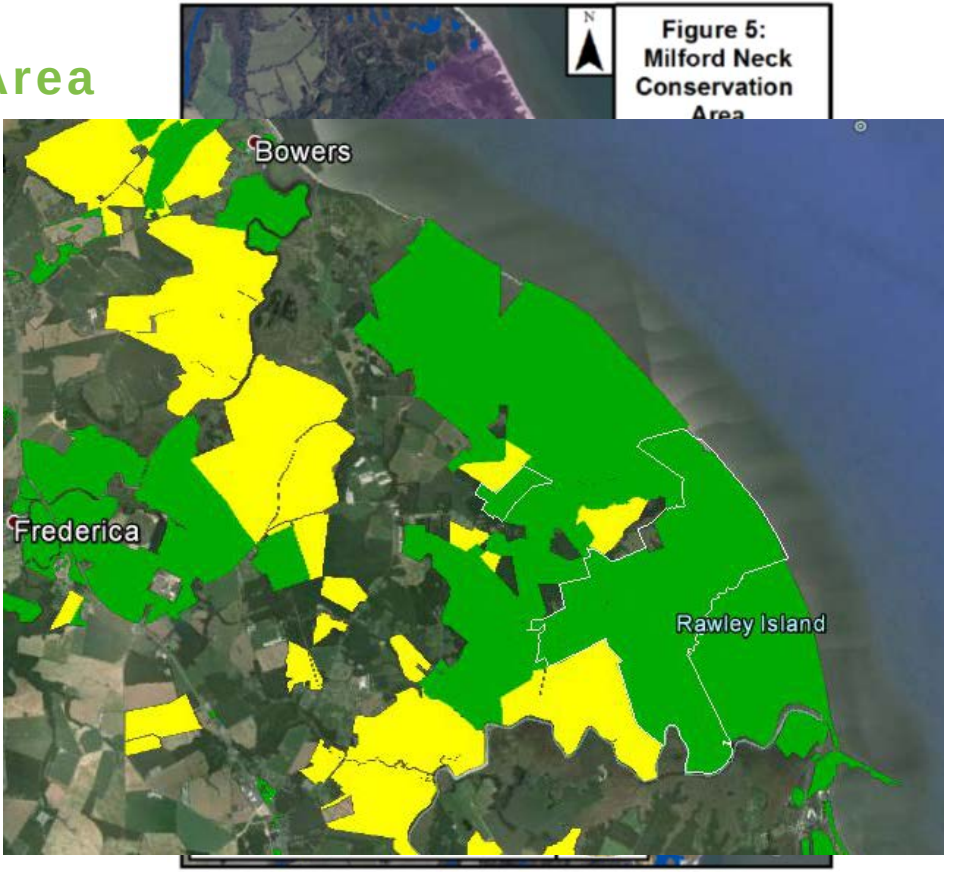
Milford Neck Conservation Area

OWNERSHIP

- Division of Fish & Wildlife – 5,051 acres
- Delaware Wild Lands – 3,125 acres
- The Nature Conservancy – 2,801 acres

CONSERVATION

- Large forest blocks
- Natural salt pannes and unimpounded salt marsh
- Sandy beaches and dunes
- Productive farmland
- Stewardship and community involvement



Coordinated Management

LANDSCAPE PLANNING AND IMPLEMENTATION

Partner collaboration since 1990

- North American Waterfowl Management Plan (Atlantic Coast Joint Venture)
- North American Wetlands Conservation Act
- Land protection – 5,750 acres added

First coordinated management plan in 1998

- Focus on habitat conservation and restoration in particular for birds
- Acknowledgement of compatible human use

Current coordinated management plan

- Focus on intersect of nature and people
- Explicit about support of communities

MILFORD NECK CONSERVATION AREA:
A FRAMEWORK FOR COORDINATED MANAGEMENT

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Milford Neck Conservation Area

CONSERVATION CHALLENGES

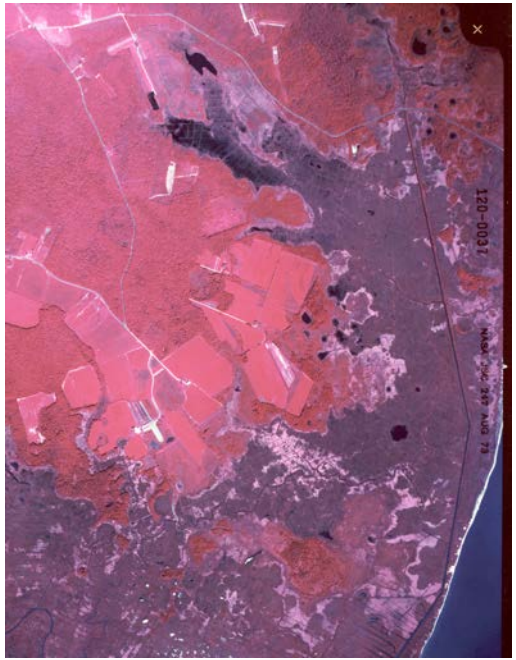
- Legacy forest fragmentation
- Shoreline erosion
- Marsh conversion to open water
- Saltwater intrusion-induced dieoff of forests and crops
- Sustained flooding of infrastructure and roads
- Maintenance of rural character
- Enhancement of economic opportunities for communities

Open Water Expansion

1938

1968

1973



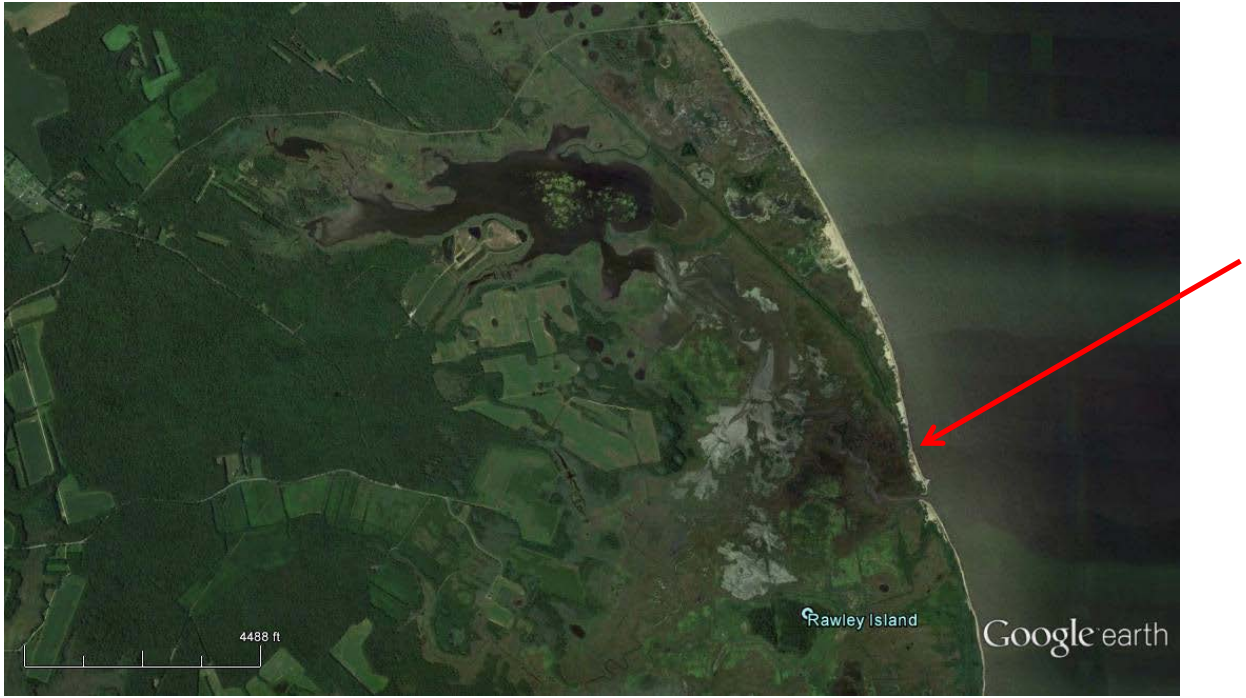
Open Water Expansion

1981

1992

Open Water Expansion

PRESENT – 500 ACRES



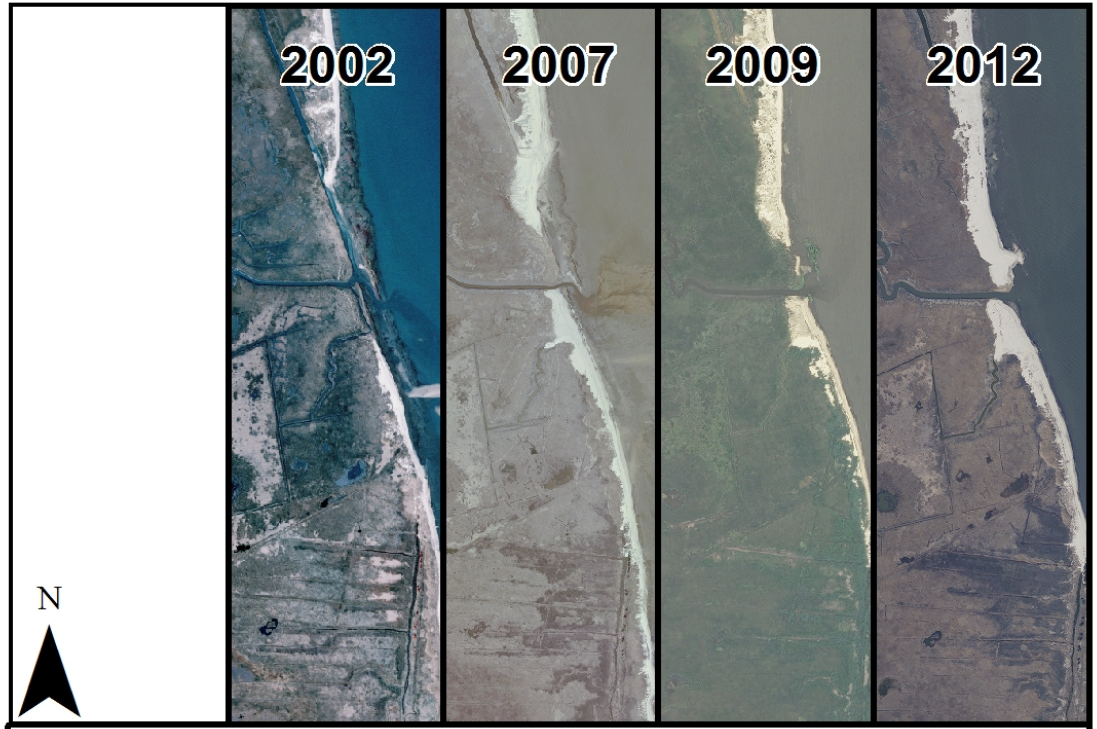


Figure 6: Description of Greco's Canal and breach

WATER
ON
ROAD

Wetland Restoration – Planning and Design

PURPOSE

Develop an optimized wetland restoration plan that will improve wetland function and enhance community resilience

- Improve hydrologic/hydraulic conditions
- Encourage natural marsh regeneration
- Enhance habitat diversity
- Improve resiliency of bayfront wetlands and adjacent lands to storms and sea level rise
- Reestablish a buffer to saltwater intrusion and inundation
- Reduce sustained flooding of infrastructure

APPR

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Milford Neck Conservation Area Project Location

Data Collection

Hydrodynamic – water level, salinity, temperature

Atmospheric – air temperature, pressure

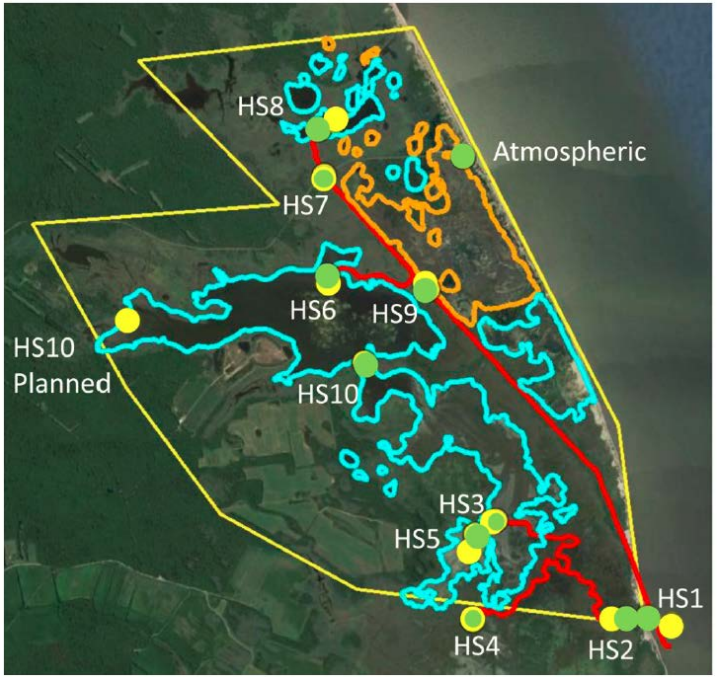
Water velocity

Elevation

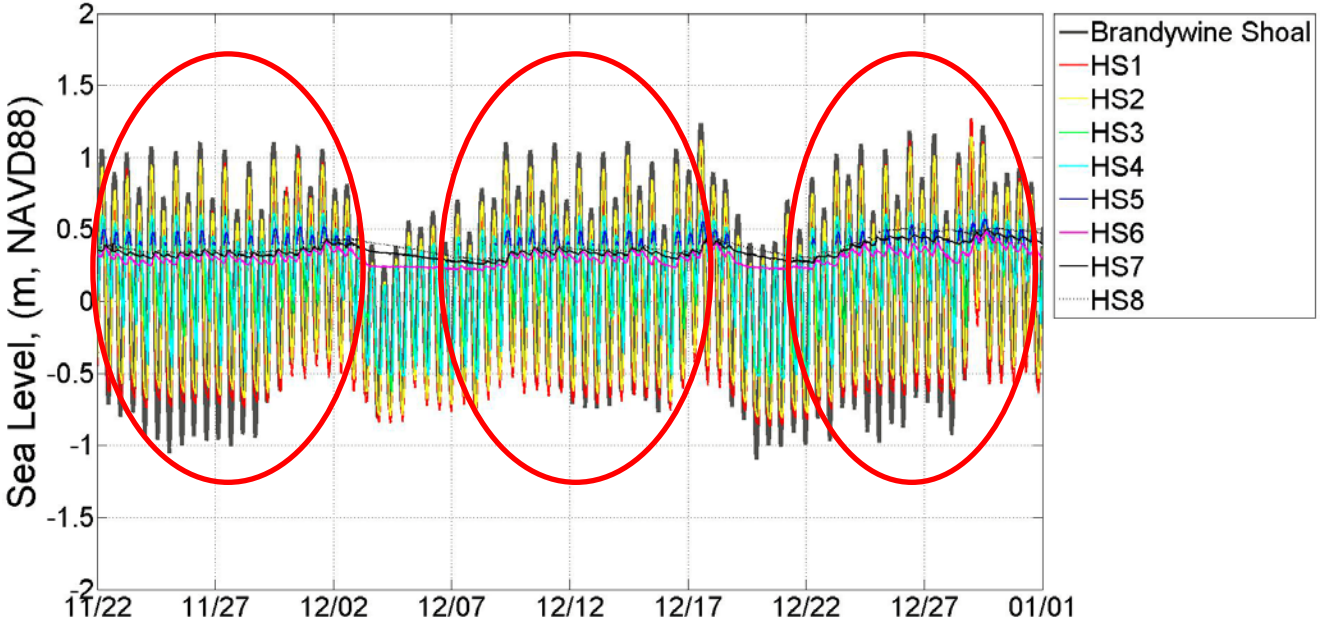
Deployment: November 18-22, 2015

Recovery: January 5-6, 2016

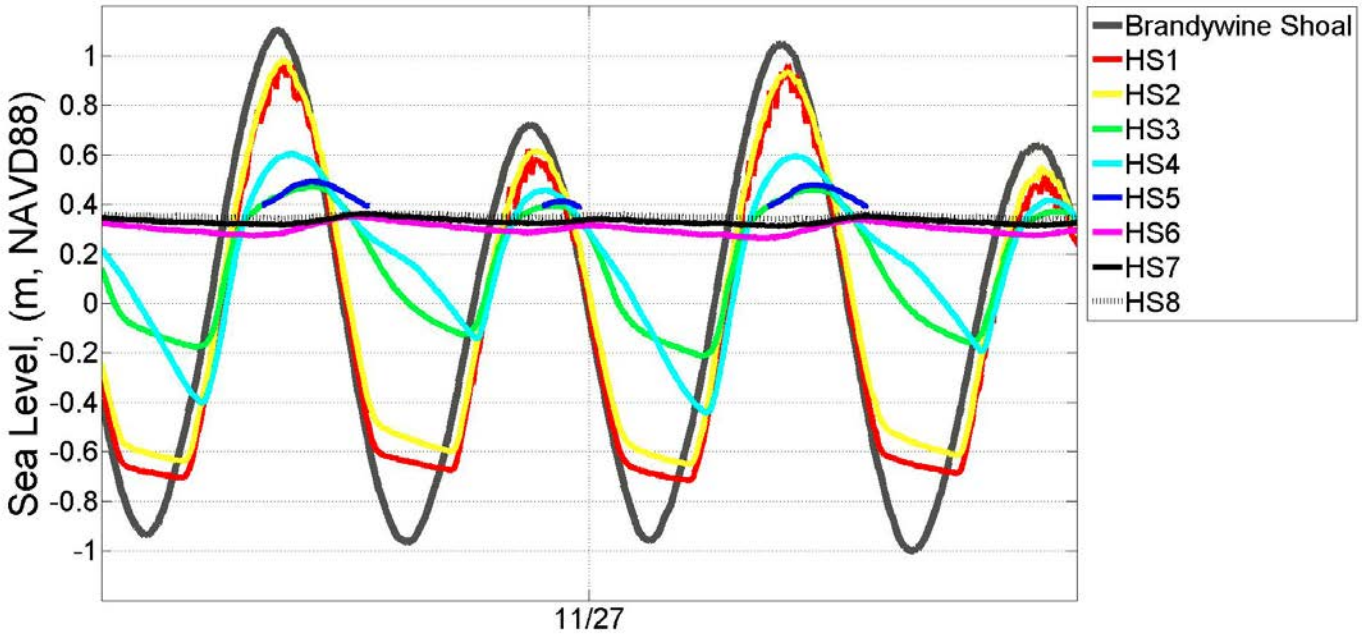
Redeployment: May 2016



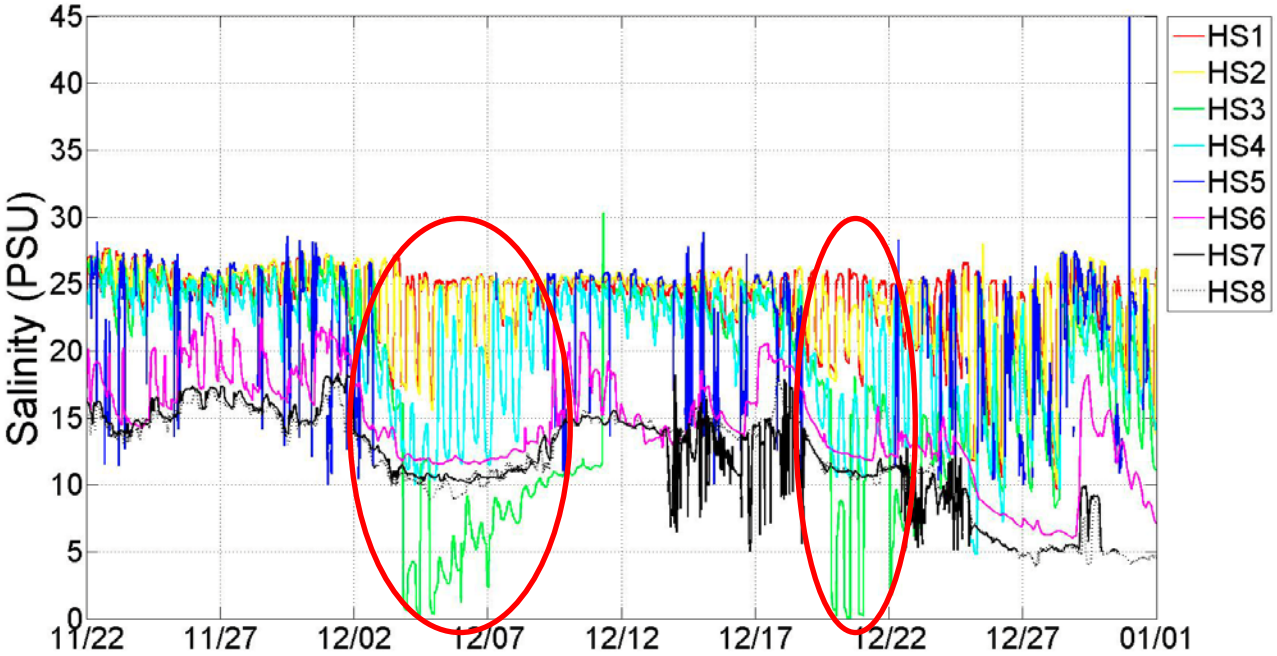
Sea level


Sea Level, (m, NAVD88)
2
1.5
1
0.5
0
-0.5
-1
-1.5
-2
11/22
11/27
12/02
12/07
12/12
12/17
12/22
12/27
01/01
Brandywine Shoal
HS1
HS2
HS3
HS4
HS5
HS6
HS7
HS8

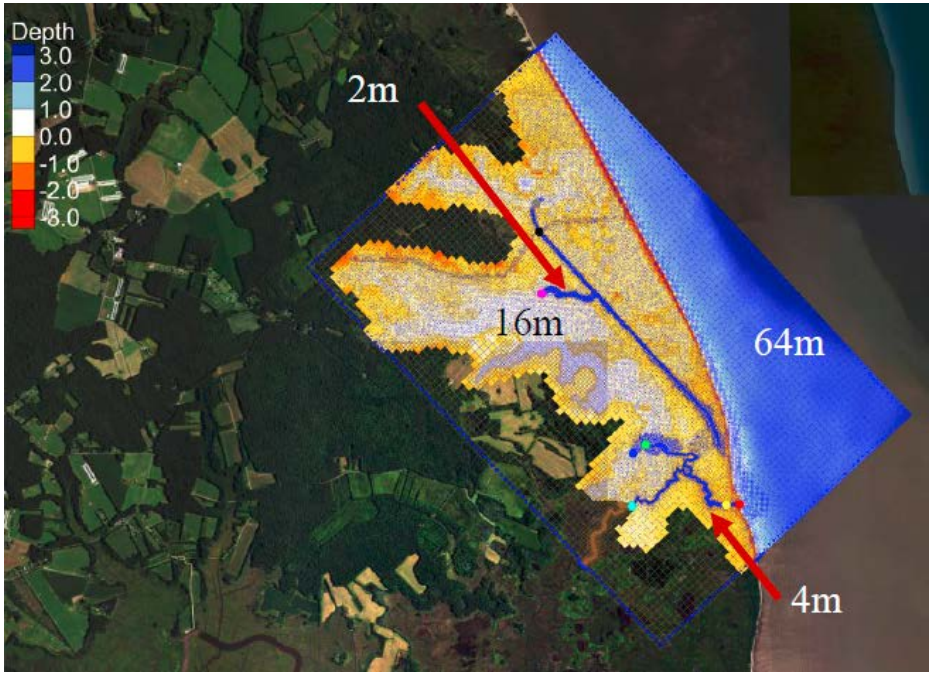
Sea level


Sea Level, (m, NAVD88)
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
11/27
Brandywine Shoal
HS1
HS2
HS3
HS4
HS5
HS6
HS7
HS8

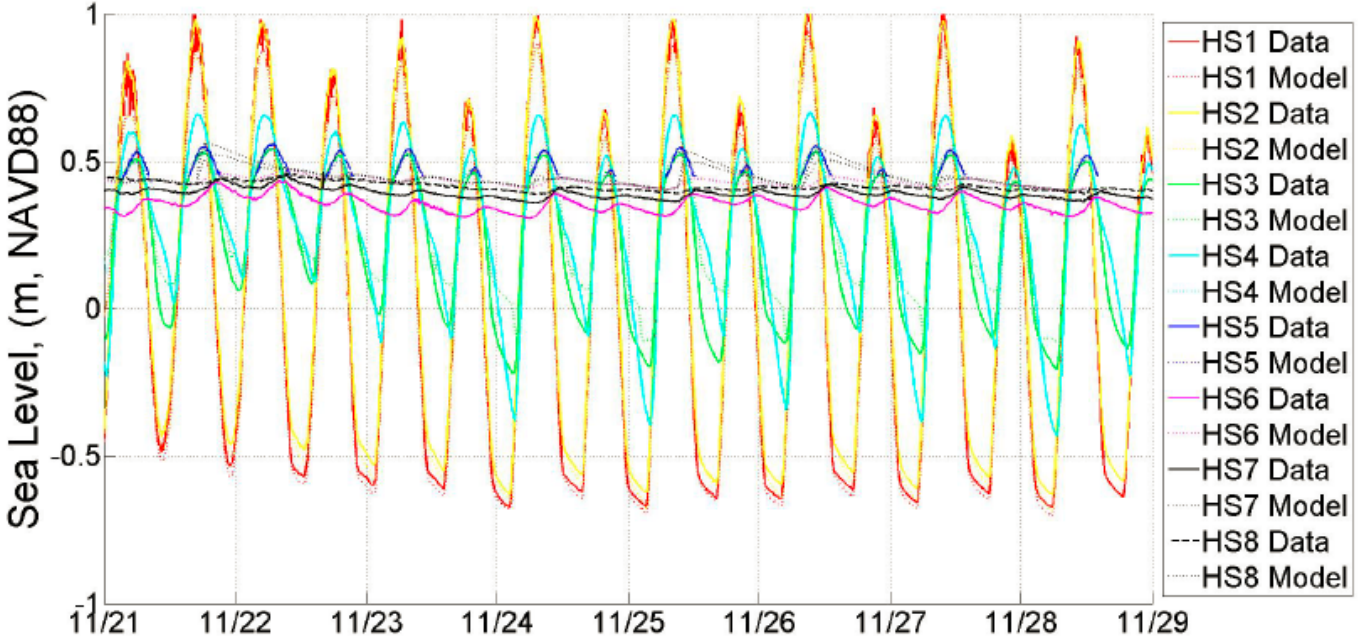
Salinity


Salinity (PSU)
45
40
35
30
25
20
15
10
5
0
11/22
11/27
12/02
12/07
12/12
12/17
12/22
12/27
01/01
HS1
HS2
HS3
HS4
HS5
HS6
HS7
HS8

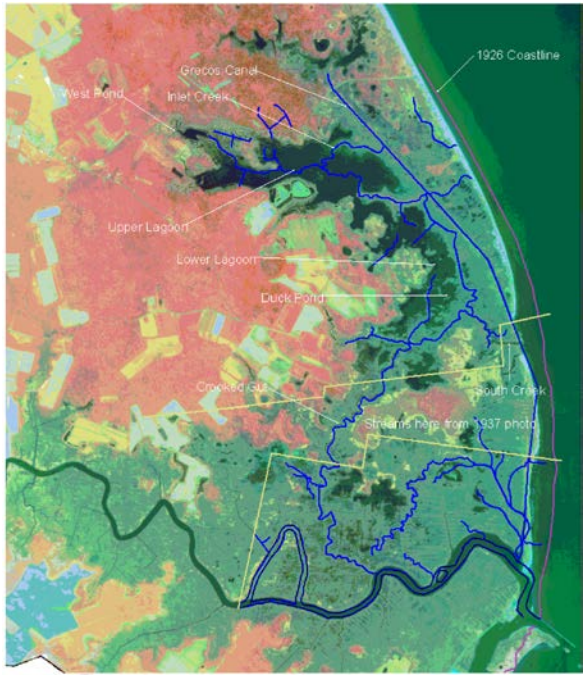
Model grid

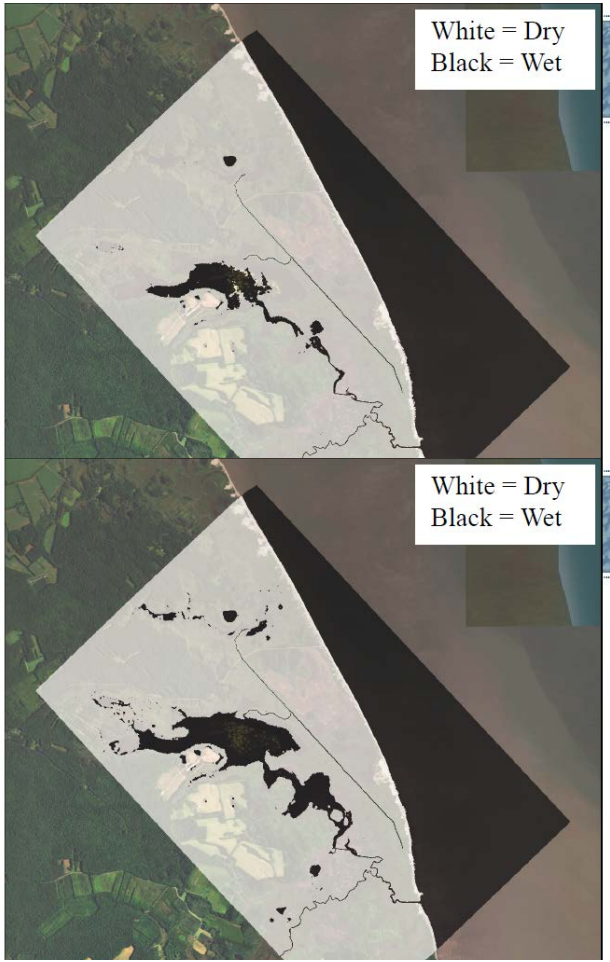


Model calibration

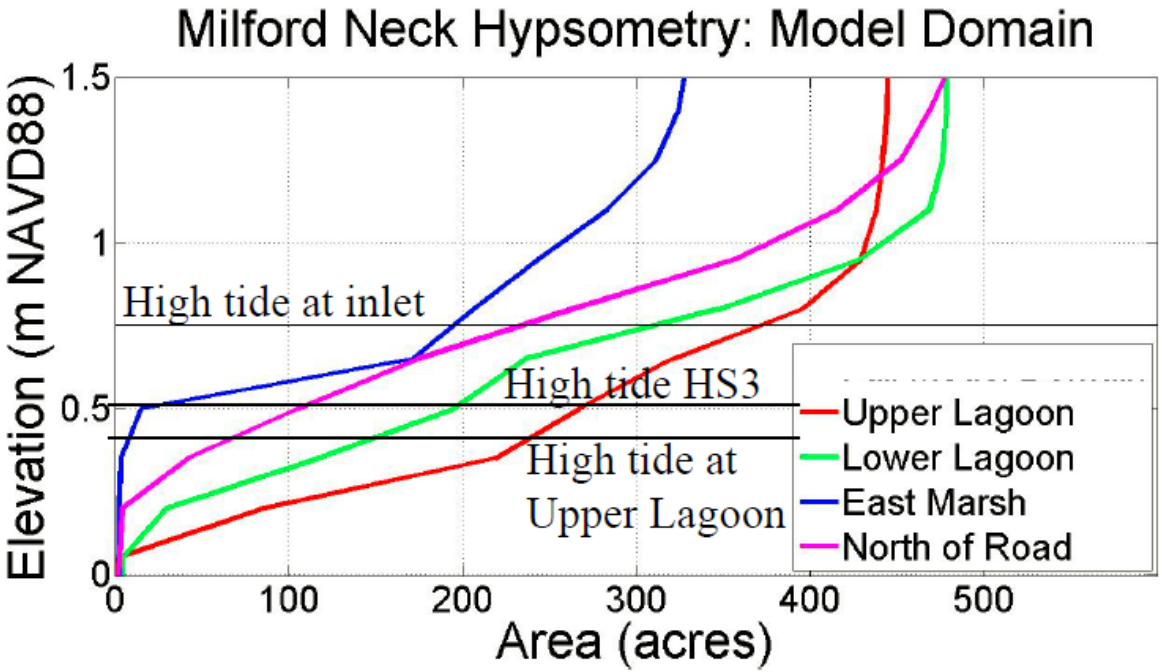


Restoration alternatives





Elevation


Milford Neck Hypsometry: Model Domain
Elevation (m NAVD88)
1.5
1
0.5
0
0
100
200
300
400
500
Area (acres)
High tide at inlet
High tide HS3
High tide at
Upper Lagoon
Upper Lagoon
Lower Lagoon
East Marsh
North of Road

Our vision

Resilient mosaic of marshes, forests, palustrine wetlands, and agricultural lands that provide outstanding wildlife habitat and abundant clean water, bolster economic opportunities, protect the rural heritage of Milford Neck, and maintain community health and wellbeing.

Thank you!