

Meeting Outcomes and Agenda

- Engineering update
 - WeMo info/Shoreline erosion/shoreline condition
- Project Prioritization (inland) - poll or ranking – good expression of values? did we miss anything? Which are most important?
 - Risk/flood history/repetitive loss properties
 - Structures to protect
 - Evacuation routes, critical assets/infrastructure
 - Marsh protection / green infrastructure
 - Property ownership
 - Access points
 - Land use
- Regulations
 - State & Fed & CAMA ets.
- Survey (?)

An aerial photograph of the Nags Head coastline, showing a mix of residential areas, greenery, and sandy areas along the shore. The ocean is a deep blue, and the sky is clear.

The Town of Nags Head
Estuarine Shoreline Management Plan

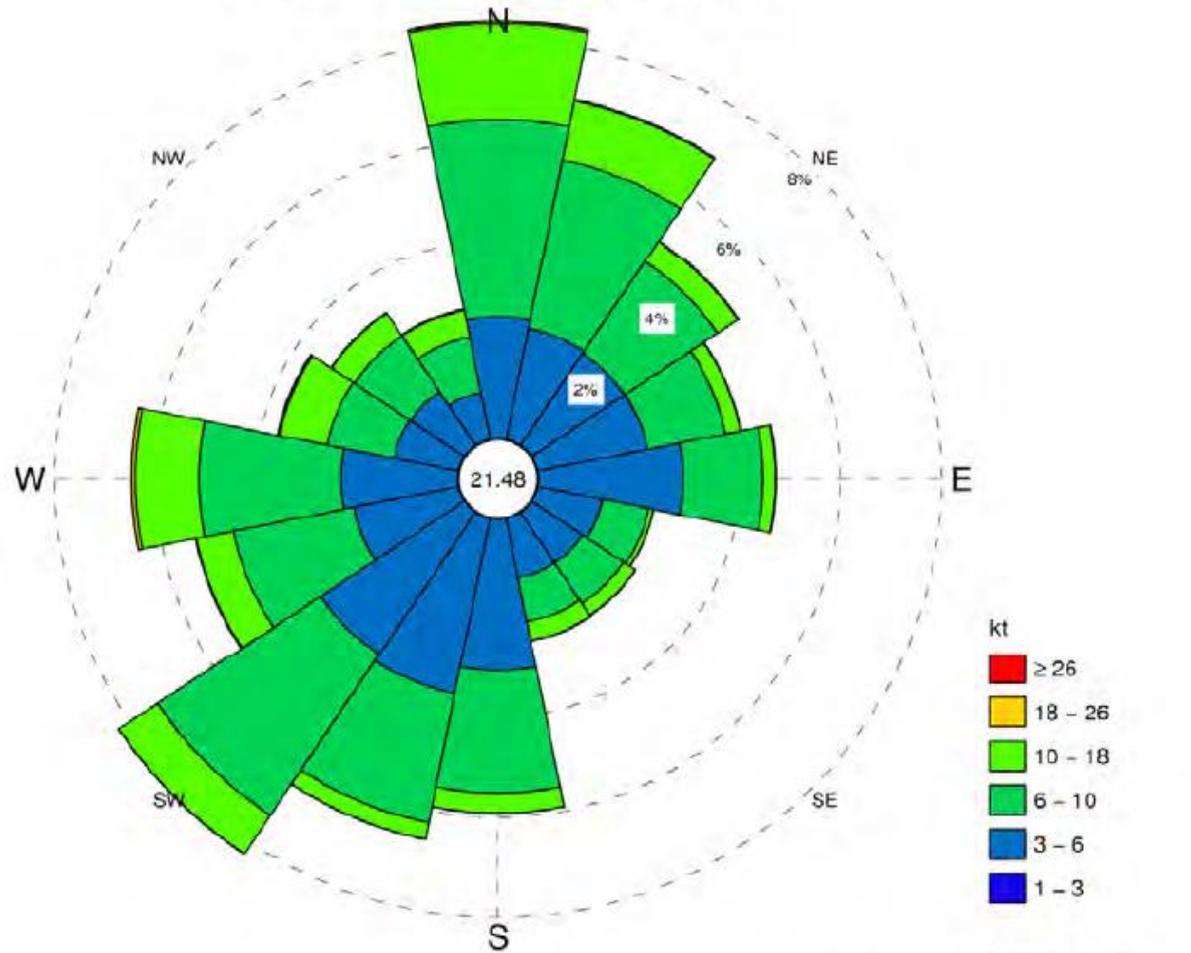
Meeting Outcomes and Agenda

- Welcome 5 minutes
- Engineering/Typology Update 15 minutes
- Regulatory Overview 5 minutes
- Values for Project Prioritization (Discussion) 25 minutes
- Survey Intent & Content 10 minutes

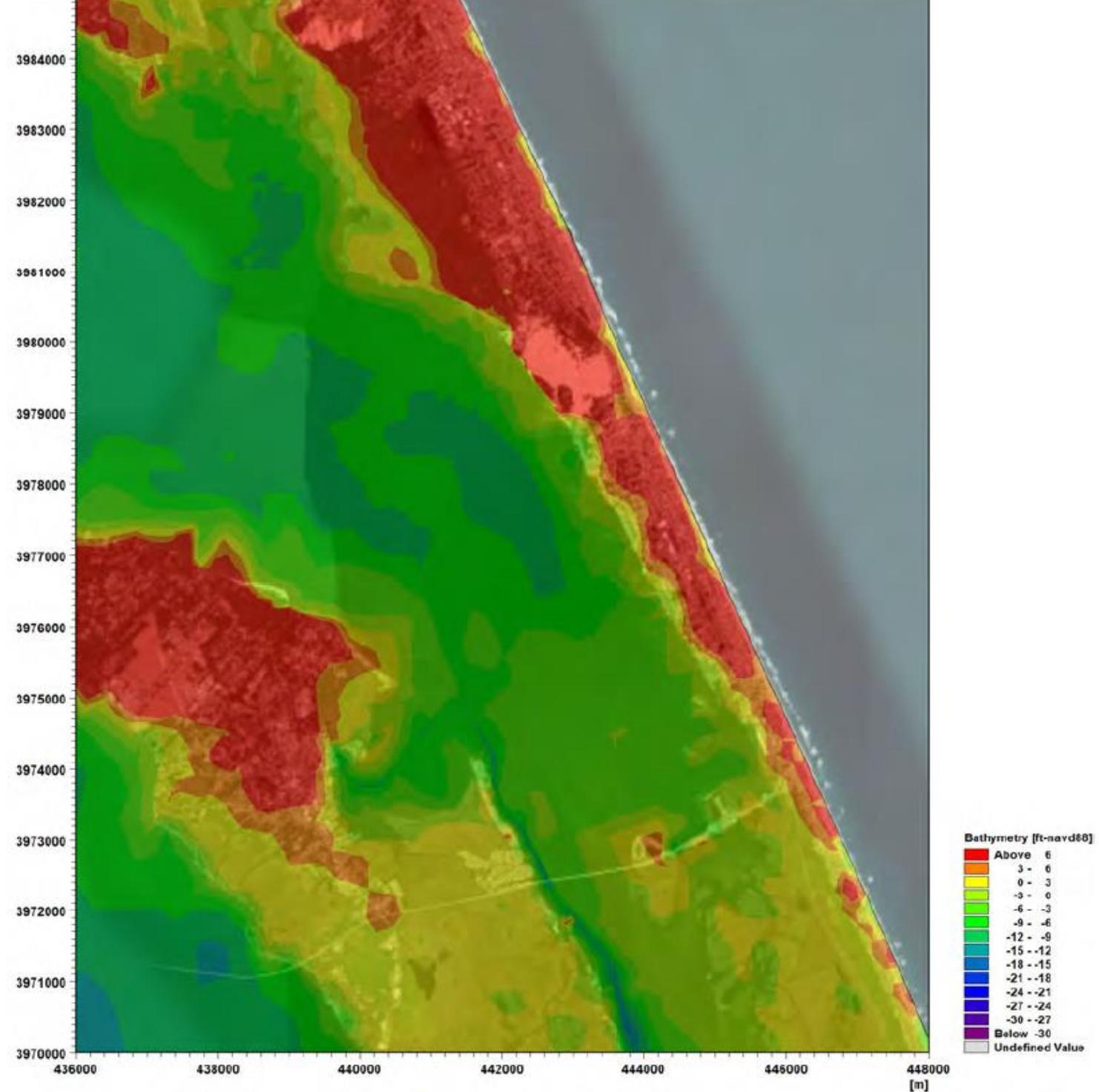
Engineering Synthesis

- WEMo – Wave Exposure Model
- Shoreline Erosion
- Shoreline Condition

Wind Speed (Annual)
 Station KFFA – Kill Devil Hills, North Carolina
 Period 29-Feb-2004 to 05-Aug-2021



Direction FROM is shown
 Center value indicates calms below 1 kt
 Total observations 416211, calms 89399
 About 5.66% of observations missing



WEMo Waves

- Generates wave heights and frequencies for predictable events and exceptional storms

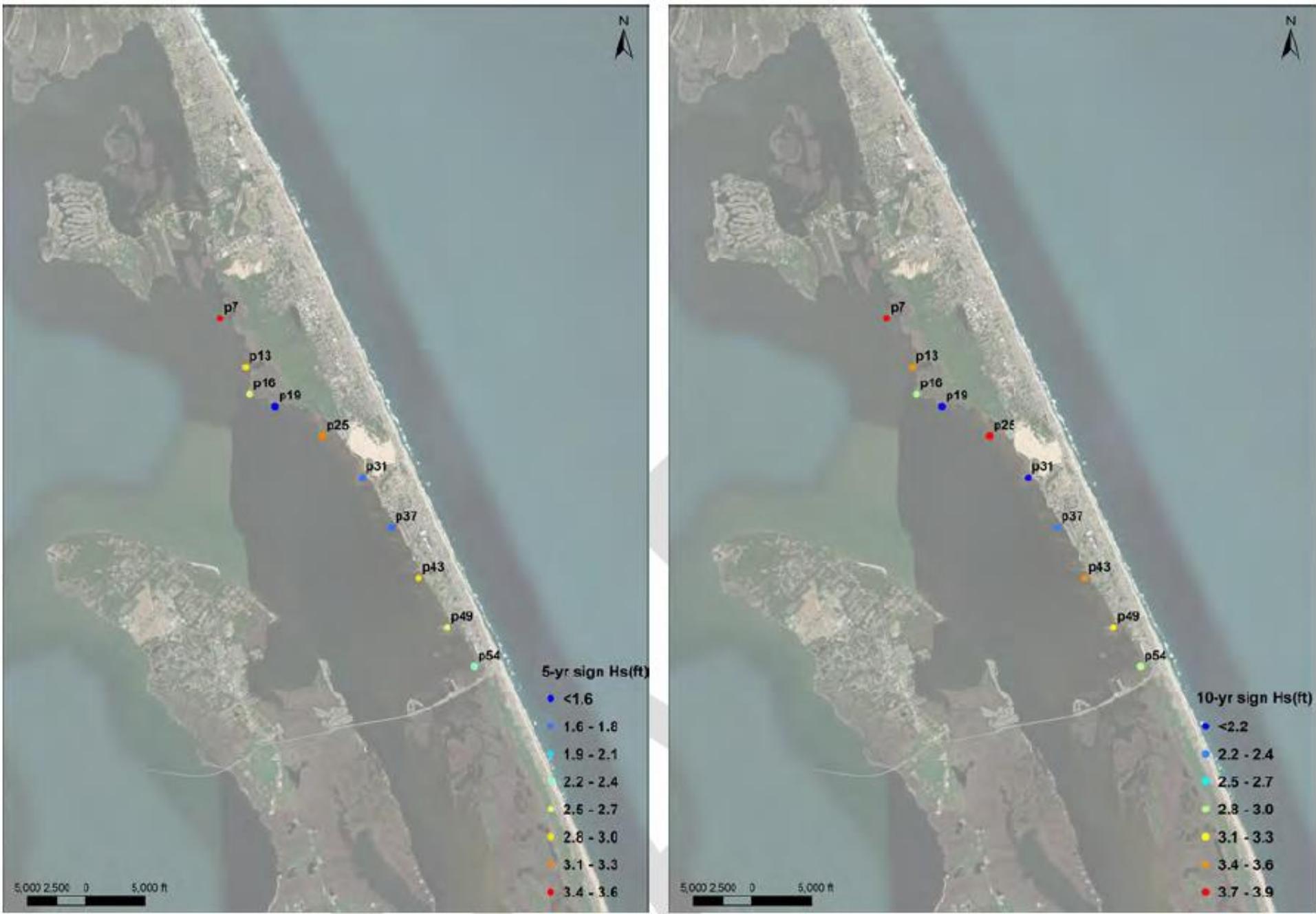
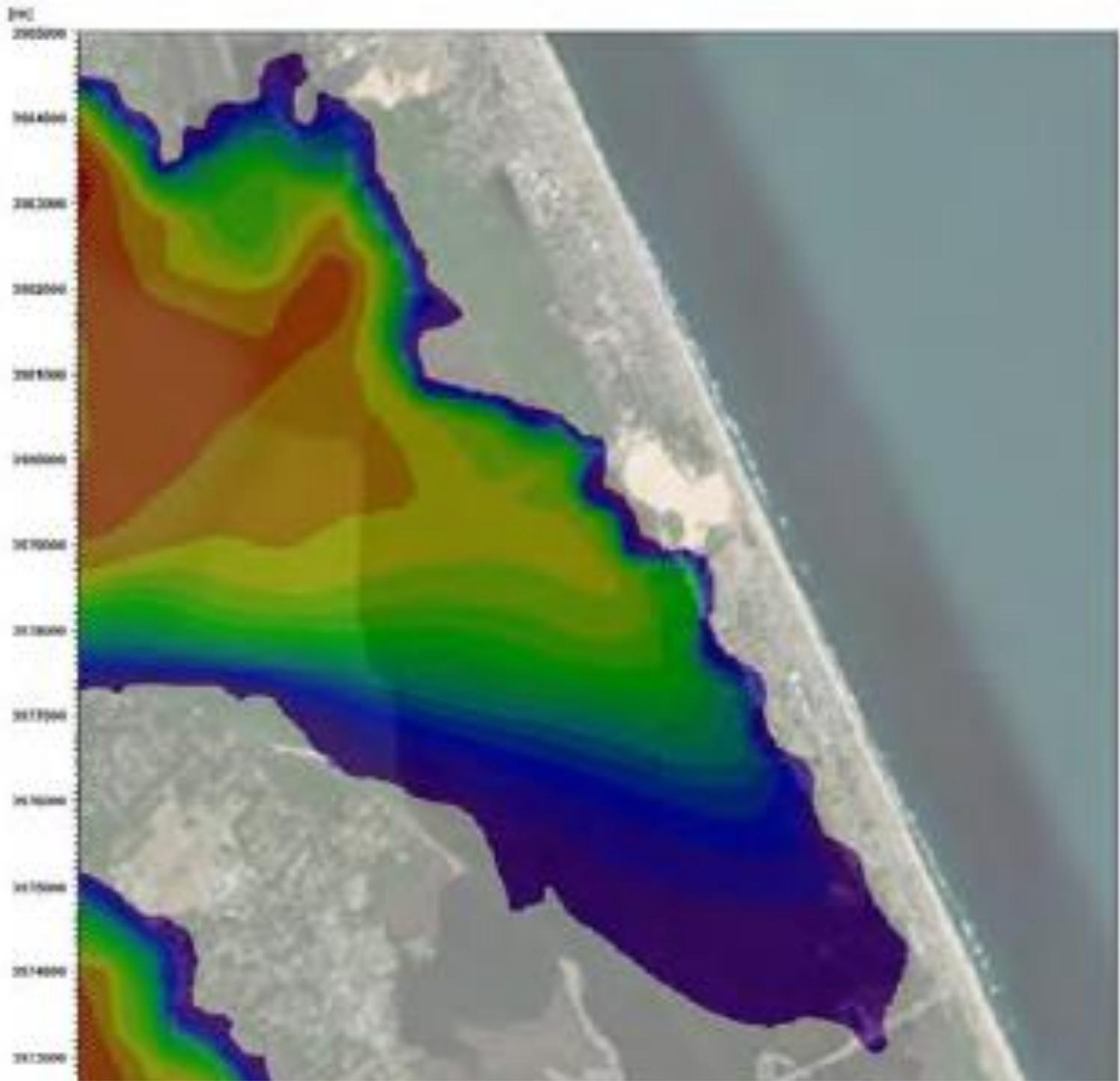
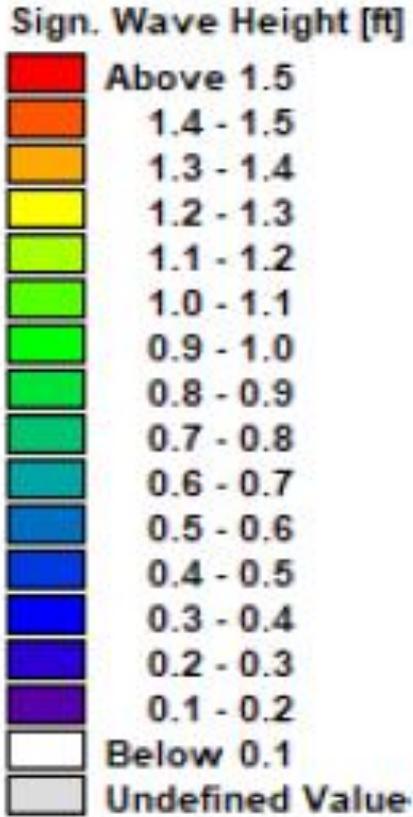


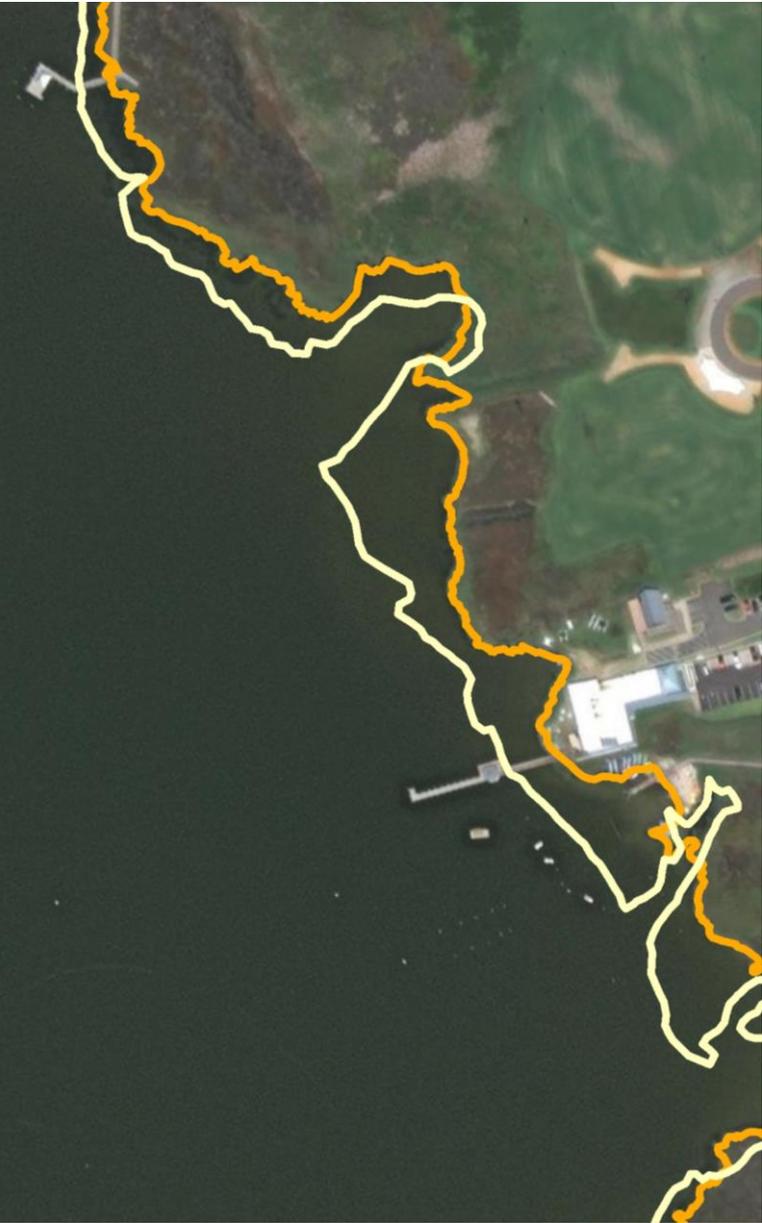
Figure 19: Significant Wave Height (Hs) for 5-year(left) and 10-year(right) return period

SW Winds

- Significant Wave Height (Hs) for SW wind direction and 10% exceedance value 1% - 23 kt
- Exceedance = the chance a value will be exceeded within a certain time



Shoreline Erosion



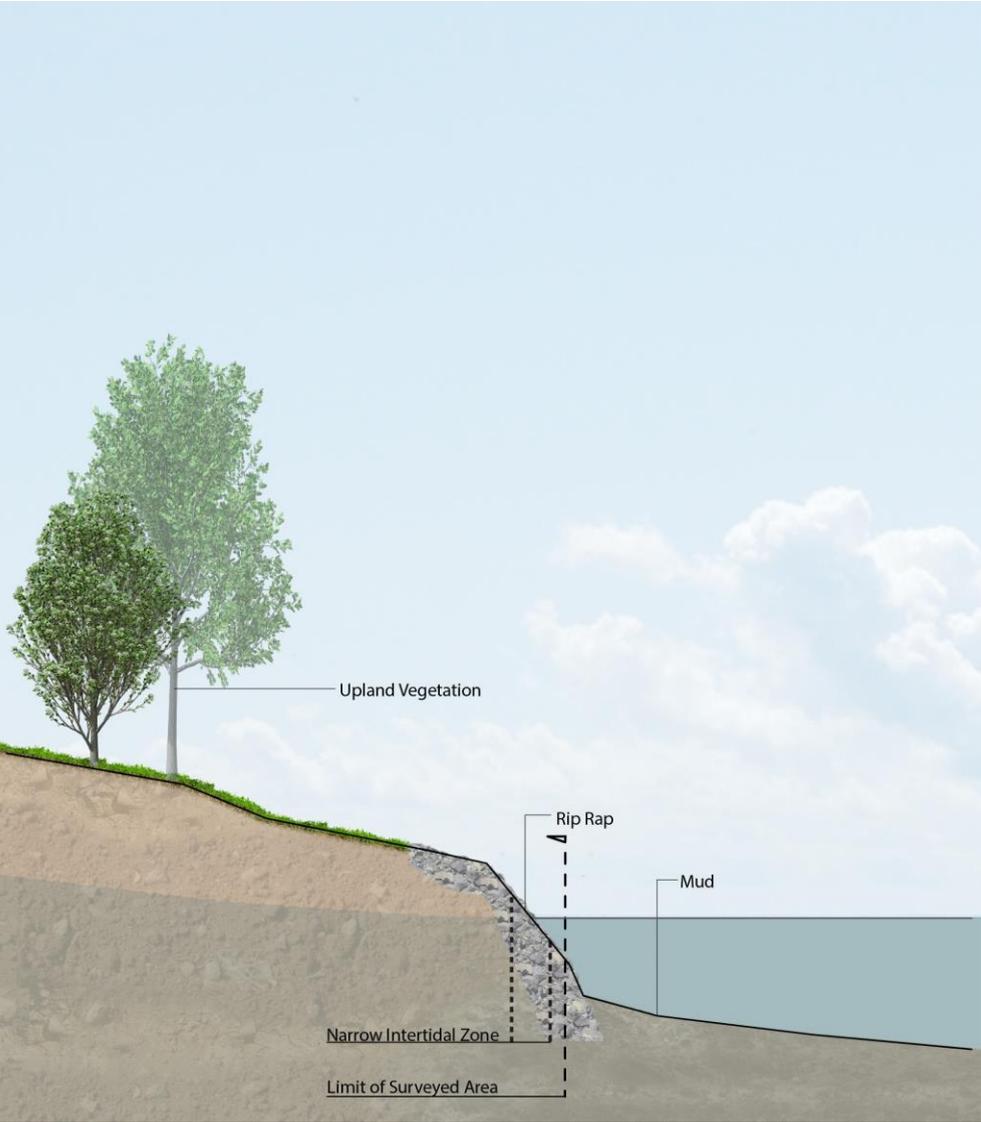
Shoreline Character

	Feet	%
Salt- and brackish-water marshes	72,335.90	50%
Swamps	211.38	0%
Scrub-shrub wetlands	5,059.46	4%
Exposed, man-made structures	20,159.71	14%
Fine- to medium sand beaches	1,419.99	1%
Exposed riprap	10,314.17	7%
Sheltered man-made structures	18,852.57	13%
Sheltered riprap	761.32	1%
Sheltered, vegetated low banks	14,231.97	10%
<i>Total estuarine shoreline length</i>	<i>143,346.48</i>	<i>100%</i>

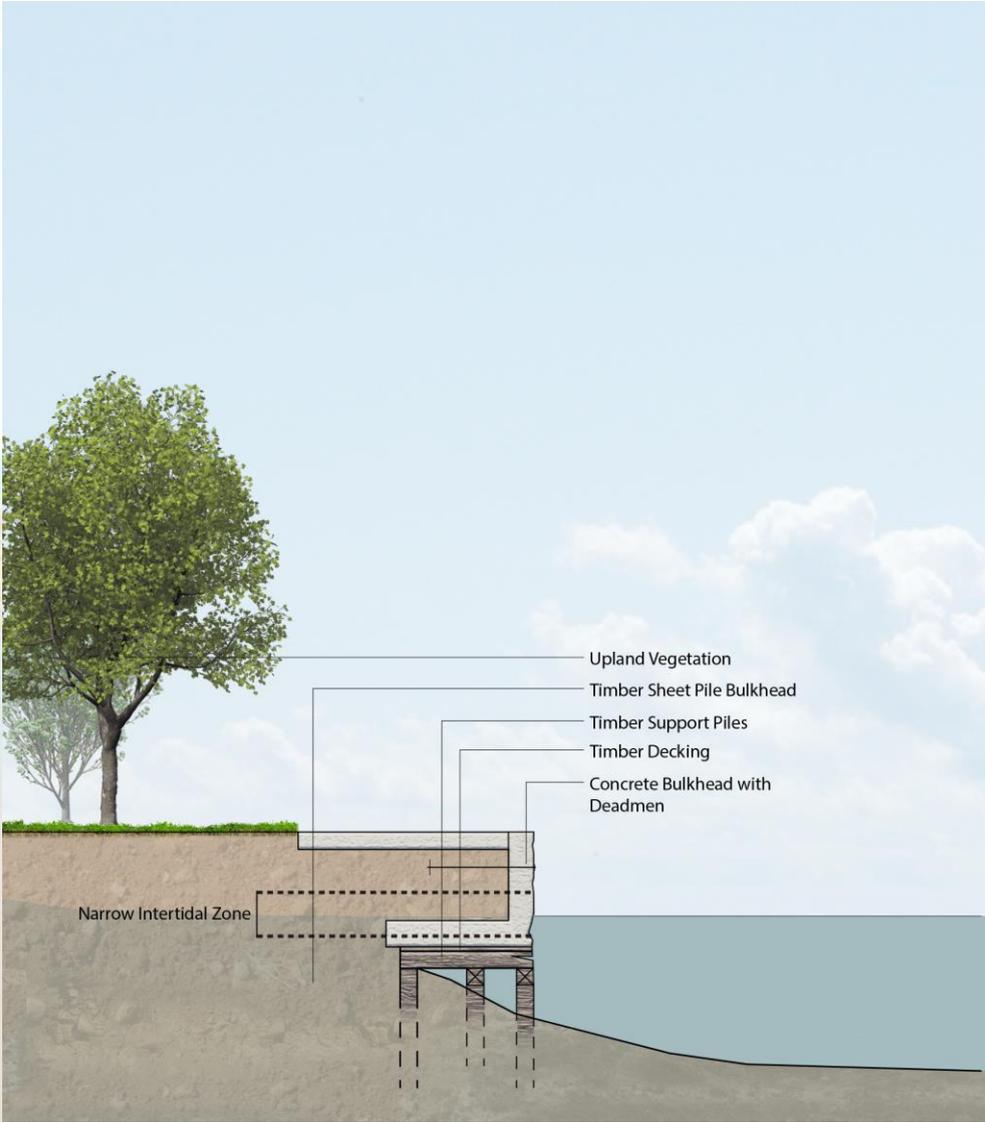
40% Hardened



Engineering, Erosion & Character inform Typologies

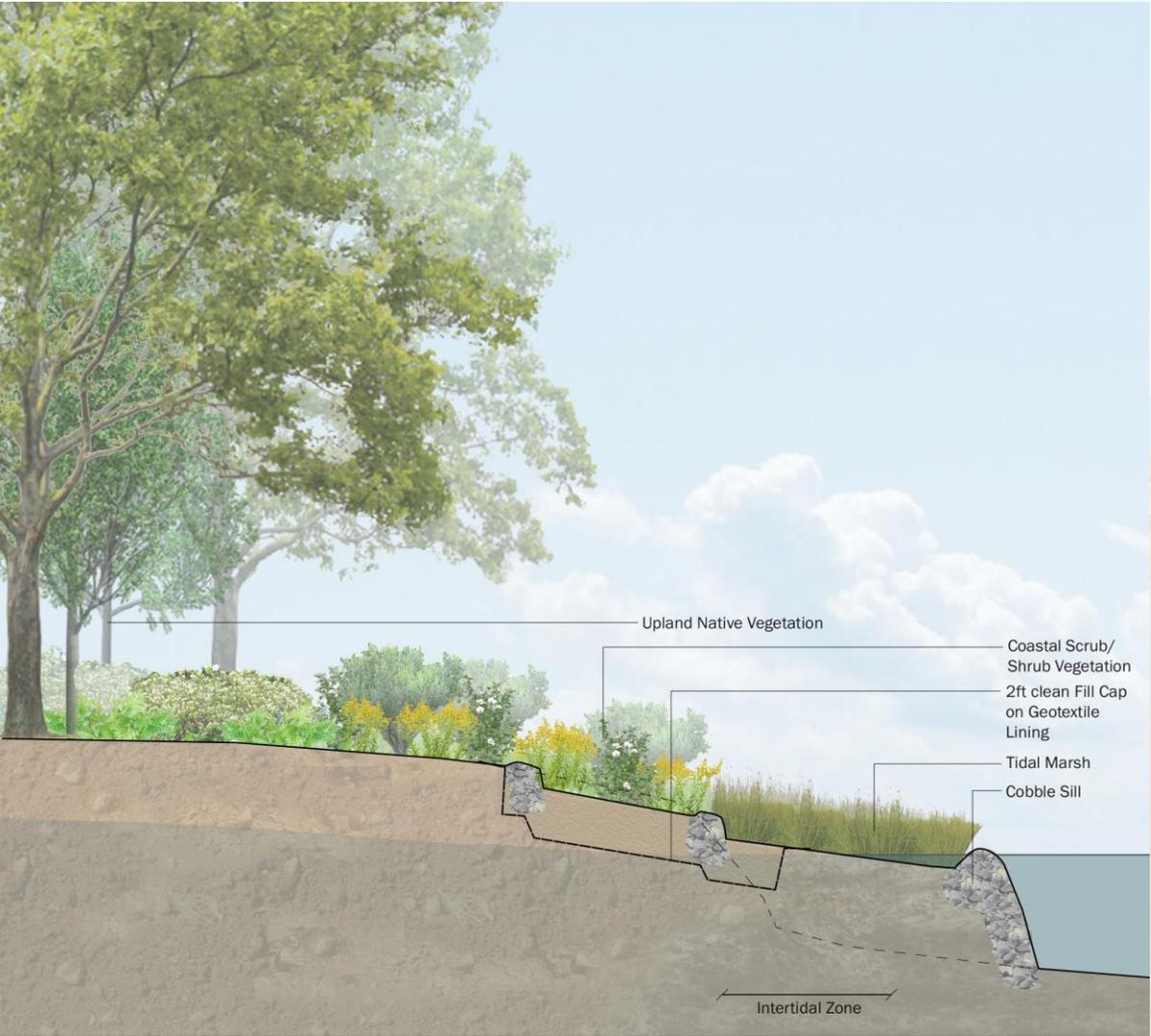


High Erosion + Medium Wave E + Rip Rap

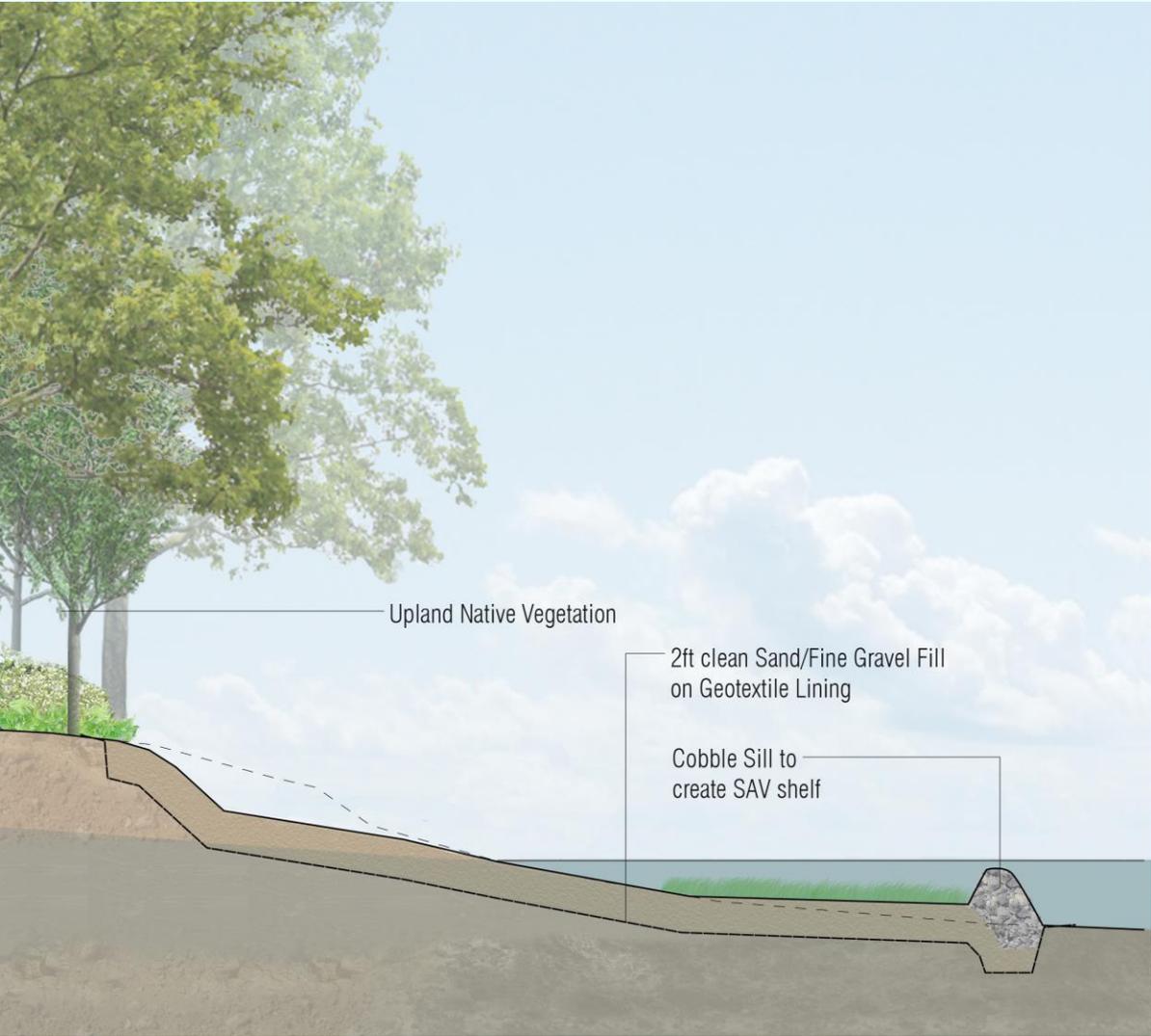


High Erosion + High Wave E + Bulkhead - concrete

Existing Typologies get Proposed Typologies



Rip Rap on Steep Slope



Sandy shore on Low Slope

Regulatory Overview

- USACE (United States Army Corps of Engineers)
- CAMA - Major & General Permits
- Resource Agencies
- North Carolina DCM (Division of Coastal Management)
- North Carolina DWR (Division of Water Resources)
- Zoning
 - SED-80, SPD-20
 - R-1, 2, & 3; C-2
 - PUD
- Section 11 Part 1- Land Disturbance/Stormwater/Erosion and Sediment Control



- 10 Residential
- 3 Unknown
- 1 Vacant Land (Private)
- 1 Secondary Improvement

The State of North Carolina
Jockey's Ridge State Park

- 2 Recreation
- 68 Residential
- 3 Property owners association
- 1 County of Dare
- 2 Secondary Improvement
- 1 Vacant Land (Dare County)
- 2 Vacant Land (Nags Head)
- 10 Vacant Land (Private)

- 3 Recreation
- 1 Retail
- 1 Restaurant
- 1 Condo (undeveloped)

- 3 Recreation
- 2 Retail
- 62 Residential
- 2 Hotel, Motel, Cottage
- 2 Multi-Use
- 10 Secondary Improvement
- 14 Vacant Land (Private)
- 2 Restaurant

Town of Nags Head/The Nature Conservancy
Nags Head Woods Preserve

Spatial Prioritization & Values

Roads/Bridges

Water lines

Homes

Business

Docks/piers

Marsh

Conservation areas

Viewsheds

Recreation access

Sandy beach



Rate your concern about these management issues

	Very	Somewhat	Less/not
Changes to shoreline appearance and character			
Loss of marsh habitat			
Water quality in the estuary			
Land loss along the estuarine shoreline			
Erosion alongside bulkheads			
Flooding from the estuarine side			



Which of the following estuarine shoreline benefits are most important to you?

	Least	Somewhat	Neutral	Important	Most Important
Cultural: Viewsheds, open character, natural vistas					
Recreational: Water access, recreational opportunities					
Ecological: Habitat and water quality					
Ecosystem services: Absorbing wave energy, protecting roads					

Community Values Discussion



Next Steps

- Legal & Permitting Analysis
- Shoreline Typologies
- Conceptual designs for 3 prioritized sites

