

# Estuarine Shoreline Management Plan

## Advisory Committee #1 Summary & Notes

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### Estuarine Shoreline Background/Problem Statement

- A former shoreline known as the Suffolk Scarp runs along North Carolina's eastern coast at ~10' elevation as testament to the transitory nature of coastal shorelines.
- Existing North Carolina coastal beach stretches approximately 300 miles
- People tend to think of the beachside Land/water boundary, but it's also the marsh boundary. That land/water boundary is moving west (forest shifting to marsh, marsh to open water). It's important to understand the time scale of the shift and respond appropriately.
- The shifting boundary is not a new phenomenon, but is ongoing. "No people, no problem" refers to the understanding that this is a natural process. Only when it is experienced by people and damage to property is it cause for concern.
- Adaption will be required for the Town of Nags Head and understanding adaptation as an opportunity is beneficial.
- Marshes carry out important ecological roles, including habitat, nutrient cycling, water quality benefits, and wave attenuation to name a few.
- The shoreline types identified in the study area include swamp forest, marsh, exposed sediment banks, or modified (vertical wall, revetment, boat ramp, etc). Shoreline type can define type/practice of adaptation.
- Coastal Studies Institute produced high resolution shoreline typology mapping of NC shoreline (freely available DEQ) by identifying and digitizing the shoreline type. Modified conditions, including piers, docks, boat launches, were outlined and included.
  - o 5% of 12,000 miles (entire state of North Carolina) is modified (20% Swamp, 10% sediment, 65 marsh)
  - o 9% modified for Dare County respectively
- Dare County shorelines over several timeframes (1949, 1974, 2012) were digitized and compared to uncover shifts in extents.
- Several factors significantly impact shoreline erosion:
  - o Shoreline type (varying protection and erodibility values)
  - o Shoreline bank elevation (low elevations erode faster)
  - o Impacting energy (fetch, near shore slope)

## Estuarine Management Plan

### Advisory Committee Meeting - The Town of Nags Head

- Modifying/stabilizing shorelines can eliminate immediate erosion threat but the processes that caused erosion don't change after completion. There are applications for hardened shorelines, but they are highly dependent on site characteristics and not the recommended fix in most cases.
- Modified shorelines pass on the energy and can negatively affect the surrounding property owners.
- Shoreline solutions should be understood as existing on a spectrum– green (soft engineering/natural) to grey (hard engineering/inflexible)

Consultant Team – Biohabitats (Project Manager, Ecological Consultants), Moffatt & Nichol (Coastal Engineers, Outreach Specialists)

### Technical Considerations

- In addition to engineering parameters/factors describing the shore conditions (wave energy, depth), this plan must consider attributes based on use/location (viewsheds, roads, recreational access).
- There are few precedent projects that closely mirror this one.

### Planning Department – The Town of Nags Head

#### Project Background

- The need for this management plan was identified during 2015 VCAPS work and the action item was formally adopted in 2017.
- Submitted and received the \$75,000 National Fish and Wildlife grant to fund the management plan (which was matched by TONH)
- The project was identified and consistently reinforced by citizen and grassroots groups
- This planning effort is a holistic approach to planning and management. Unlike most projects that identify and complete site projects, this will provide a framework for evaluating and identifying possibilities all along the shoreline.
- Will be a tool for homeowners for understanding factors impacting their property/community, potential nature-based solutions for protecting the shoreline and how the larger community can work together to adapt to changing conditions.

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### Consultant Team

#### Schedule

- Physical project site selection will be determined later in the process
- No outcomes are predetermined, and site characteristics will determine solutions
- Initial concept project locations will be identified Summer 2022
  - o Will identify 10 priority sites and, from those, 3 will carry forward with concept plans that can be implemented in the short term.

#### Project Elements

- Regulatory/permitting and feasibility will be addressed in this effort.
- Public education/engagement is critical
- Visualizations and a final report will assist in effort to secure grant funding for future project implementation
- What are the most important outcomes to the plan? Keys to success?
  - o *Discussion*
    - *North of Villas (condos), bulkheaded shorelines could be modified or softened*
    - *Bulkheads may feel like a failsafe but they are not. Living systems are cheaper long-term and can repair themselves.*
    - *Prioritization: How will outcomes of plan (private vs public) be prioritized?*
    - *Waterside owner vs recreational user – differing priorities and needs*
    - *Based on site parameters highest risk factors*
    - *AC members can offer or help find sites for experimental or pilot approaches*
    - *Engaging community is key to success*
    - *There are many recreational users that will be impacted by these projects*

#### Outreach Plan Overview

- 200+ property owners along the shoreline
- The Town of Nags Head as an impressive social media following
- Advisory Committee roles:
  - o Shape goals/recommendations
  - o Engage stake holders
  - o 5 advisory committee meetings, one public workshop meeting

## Estuarine Management Plan

### Advisory Committee Meeting - The Town of Nags Head

- Provide targeted input
- Committee meeting schedules and products description
- Advertising and Marketing
  - Website, project fact sheet
  - Public survey
  - Social media, email campaign (how to engage and play a role)
  - Newspaper, press releases, printed outreach materials
  - In person outreach events
  - *Comments*
    - *Advisory members should be listed and provide emails for direct outreach*
    - *Stakeholder perspective – Division of Coastal Management, Funding agency NFWF – playing a part in the planning process, input*
  - NOAA Conference (January)
    - To present planning effort within nature-based solutions as tools for resilience
    - Linked with Division of Coastal Management at state level
    - Communication open during process, permitting and implementation funding
  - *Discussion*
    - *Hospital has great turnout at events*
    - *Piggyback off that and provide outreach*
    - *Other events/concerts/festivals/kite boarding events*
    - *Neighborhood ambassadors and handouts to pass around*
      - *Project information fact sheet will be developed and can be distributed*

### Project Goals

***Consultants provided draft for discussion and feedback – will be finalized with TONH staff following meeting***

- Should include and express priorities that will guide the efforts
- Will likely structure the plan and how it is communicated
- Jockey's Ridge marsh restoration project provides excellent example
  - Marsh vegetation developing nicely
  - Oysters not doing so well and working with Coastal Federation to install Granite to supplement breakwater protection

## **Estuarine Management Plan**

### Advisory Committee Meeting - The Town of Nags Head

- The Village of Nags Head
  - o Successful design and implementation at shoreline
  - o Angled groins accumulated sand beach

#### **Draft Goals**

- Build public awareness of shoreline loss and causes/consequences
- Identify priority sites and strategies to protect estuarine shoreline at risk
- Describe legal and permitting barriers and pathways to implementation
- Preserve or enhance recreational access to sound

#### Comments

- Want to protect what's behind the shoreline, not only the shoreline itself.
- Work here could not only preserve but also enhance recreational access