

Meeting Summary

Nags Head Estuarine Shoreline Management Plan Scoping Meeting

November 23, 2022

10:30 AM

Web-Ex Meeting Attendees:

Doug Huggett, Moffatt & Nichol	Justin Park, BioHabitats	Holly Snider, DWR-401
Dawn York, Moffatt & Nichol	Pace Wilber, National Marine Fisheries	Carl Dunn, DEMLR-Stormwater
Brian Joyner, Moffatt & Nichol	Kathy Matthews, USFWS	Randall Jones, DEMLR-Land Quality
David Ryan, Town of Nags Head	Gregg Bodnar, Coastal Management	Lyn Hardison, NCDEQ
Andy Garman, Town of Nags Head	Yvonne Carver, Coastal Management	
Kate Jones, Town of Nags Head	Christa Sanderson, DMF-Shellfish	
Hunter Freeman, McAdams Co	Maria Dunn, NCWRC	
Jessica Norris, BioHabitats	Jimmy Harrison, NCDMF	

Interagency Scoping Meeting

The purpose of this meeting is to discuss a proposed project and provide environmental permitting and regulatory information which will improve communications and the permitting process.

Background

Kate Jones discussed the project background, including:

- Town of Nags Head developed partnership with North Carolina Sea Grant in 2015 to adopt initial adaptive practices and policies for SLR and climate change.
- Partnership underwent vulnerability consequences and action planning scenario, or V caps process, which was community centered.
- Involved decision makers and community residents understanding of coastal hazards.
- Town of Nags Head entered into a redo of a Comprehensive Plan.
- Action identified as important was the estuarine shoreline and ways to make it more resilient and the importance of habitat there and how that affects the community and water quality.
- Develop funding for estuarine shoreline management plan.
- Town was awarded in 2020 from NFWF for the creation of the estuarine shoreline master plan.

Project Outcomes

Kate Jones discussed the project outcomes, including:

Outcome 1: Provide action plan of projects or project ideas. Project focused on natural based solutions.

Outcome 2: Build on community engagement.

Outcome 3: Produce usable data.

Outcome 4: Have a plan that other communities can replicate.

Community and Stakeholder Engagement

Kate Jones discussed community and stakeholder engagement, including:

- We have involved the Nature Conservancy, North Carolina Council Federation, recreational users, residential property owners.
- Cultural Studies Institute has been integral.
- 20+ people on specific advisory committee.
- 4 advisory committee meetings.

Design Questions

This is not a project we are looking to permit within 6 months. The effort today is to think broadly to understand opportunities to streamline the permitting process. We are thinking large scale since we moved things we want to propose further out into the water and thinking about shore, land, and water interfaces and how it evolves.

Jessica Norris discussed the designed questions, including:

- What does it look like to scale up nature-based solutions?
 - Jockey's Ridge example. What does it look like to get some of that function and habitat creation going on a bigger scale in a bigger area?
- What natural habitats and ecological functions can shoreline stabilizations recreate?
 - Taken bulkheads and worked in front of them to recreate a sloping condition where you can have some up slope migration and energy attenuation of sloping condition.
 - Engineered solutions are working around bulkheads to restore ecosystem functions.
 - Innovative approaches where you can work in front of degrading bulkhead and create vegetative terrace to restore ecological functions of natural shoreline.
- Can we create quiescent, accreting conditions?
 - We can there is a lot of material moving from dunes. Because of series of changes, what we have now is no longer able to retain this material.

When we are restoring the shoreline, what are the processes that we must consider? And how can we get some of that marsh back?

Mostly thinking about what the protections are and surfaces we can get out of these designs.

Potential Project Locations

Jessica Norris discussed the potential project locations and found community and stakeholder interest in larger and bigger scale solutions.

Through the selection process, got a lot of interest in dealing with erosion around Nags Head Woods. Wondering if we can control the day-to-day erosion.

The second site was three sites moved together. Heavily eroding cove that is caused by hardening of the shoreline. 500 feet of shoreline lost.

Another site shows complications about access and other needs for end users.

Concept Designs

Jessica Norris discussed the following concept designs:

Nags Head Woods

- Focused on living berm idea. Living berm has harder structure to the waterward side and then has a marsh vegetation as fill behind it or stored and planted on it.
- With appropriate engineering, we can create conditions to get some accretion or settlement of material.
- To be effective at this scale, you need to get above the water level. In less protected areas there is a real concern with big wind events. Living berms are response to conditions that you need to have some altitude.

West Soundside Road

- Creating bigger slopping heterogenous marsh conditions coming up to the road.
- Coming out about 20 feet.
- Extends from shoreline down to give softer, more energy absorptive interface with water and to get vegetation and marsh habitat restored.

Harvey Sound Access

- A lot going on in terms of access and public use.
- Trampling and marsh degradation due to recreational activity.
- Formalize access to have controlled place where people can get to the water without degrading the marsh and without causing more erosion.
- Need to reduce obstruction between shore and water.
- There is a proposal for gazebo and boardwalk to offer more pathways and protection.
- There is no living berm in this concept.
- Extend low marsh and actively increase marsh area.
- Originally discussed recreating marsh, but now people are keen to have sandy beach to access recreational uses to get out onto the water.

General Questions

Jessica Norris discussed the following questions:

As we move into the next phase of the project, what are the ones that are most important to consider?

Thinking about data gaps or sediment transport modeling to make sure that ideas about the eddies will work.

There is a lot of material that cannot be captured by vegetation anymore and it is coming off Jockey's Ridge and traveling south and getting swept away. There is fair amount that is remobilized and heads back North.

How to anticipate sediment movements and where we can use it to our advantage to get nature-based designs that are restoring habitat.

What is the best general approach to permitting for this sort of work? Would permitting a pilot or portion of the living breakwater with the expectation of monitoring and reporting help meet regulatory concerns?

We should think about permitting processes or operating at larger scale.

Discussion

Dawn York: The Town has options to implement a pilot project that will allow for the scientific perspective and physical and biological of some of these concepts that have not been previously permitted in North Carolina. We understand some of the permitting constrains already around living shorelines. This is an opportunity for the Town to think outside the box for the future. Biohabitats created concepts and technologies that are extremely important. There is a lot of federal and state funding resources.

Dawn York: We need to look for future adaptations that can support both the restoration ecological side and from a shoreline protection storm impact reduction standpoint.

Gregg Bodnar: Nags Head Woods is new design than what is typically seen. The other two concepts are more typical. DCM is charged with public trust and keeping navigation and public trust open. Need to consider distance offshore. There is some concern with loss of public trust rights and traditional navigation sources. Another hurdle is the number of different types of property that this is spanning, residential, Town owned, etc. Riparian rights associated with these properties. This may influence how you go about applying for certain pieces of this. May not be overarching permit for these designs. Might want to look at how to effectively break these into pieces.

Gregg Bodnar: These areas have a lot of SAV habitat. Understand what the habitat tradeoffs are.

Yvonne Carver: There are a lot of SAV beds out in Nags Head. Could be beneficial to try to do a co-application. The larger the project, the more successful it might be. Worth looking into to see how many would like to join in on this.

Doug Huggett: Keep in mind that if there are unique pathways, try to streamline permitting and not making every individual apply for piece of it. Would it be appropriate for Town of Nags Head to be single overarching applicant for this, to avoid permit application package showing many co-applicants on it?

Gregg Bodnar: The Town would likely be the only permittee for that reason. Would be difficult to issue concepts to properties that you do not have any legal right at this time to do work. As you look at legal side of it, there could be changes that would require going back to individual properties owners.

Holley Snider: Would prefer to see this as cumulative project. For DWR and USACE it would be cleaner and easier to have this has one common plan of development as a strategic shoreline management plan proposed by the Town. DWR would be concerned of the overall acreage of the total open water impacts

associated with the project as well as the acreage of any or mapped known habitat. Availability of planting should be considered.

Holley Snider: Important for us to know proposed anticipated impacts for acreage, what the sill material will be, where the fuel source will be coming from, and where plants are coming from. Shellfish resources are present in that area. Would want to know tradeoffs. Town of Nags Head as the overall permittee would likely be that they would be financially responsible for the monitoring as well as any mitigation.

Doug Huggett: Does this scoping meeting satisfy the pre-filing notification process?

Holley Snider: Yes.

Jimmy Harrison: Concerned with SAV. Want to see description of habitat tradeoffs. Want to see minimization measures for SAV and benefits to SAV. Maintenance of structures is a concern. Who will be responsible for cost and maintenance of structures? Impacts to SAV might require mitigation. Be ready for push back from homeowners that do not get shoreline protection measures.

Maria Dunn: SAV survey. Distance offshore is considerable. Some of living breakwater segments, there are some docks that look close by. Maintenance and access concerns.

Kathy Matthews: Prefer nature-based materials. Also, there are records of Black rail across the sound, and this is a species that may come up in review. Black rail is listed as threatened.

Pace Wilber: What you do after construction is as important as what you do leading up to construction. Know what monitoring is in place and how to deal with unexpected consequences. Make sure that staff is not leading you to a grant resource that is not permissible.

Christa Sanderson: Concerns are same as Holley's.

Randall Jones: From the permitting perspective, the Town can select to divide this project however they wish.

Meeting Adjourned

SIGN UP SHEET INTERAGENCY/SCOPING MEETING

Scoping Meeting - Nags Head Estuarine Shoreline Management Plan

Purpose of this meeting is to discuss a proposed project and provide environmental permitting and regulatory information which will improve communications and the permitting processes.

November 23, 2022 at 10:30 am
Web-EX

Name	Agency	Phone	Email
Doug Huggett	Moffatt & Nichol Engineers	919-645-0649	dhuggett@moffattnichol.com
Dawn York	Moffatt & Nichol Engineers		dyork@moffattnichol.com
Brian Joyner	Moffatt & Nichol Engineers		bjoyner@moffattnichol.com
David Ryan	Town of Nags Head	252-441-6221	David.Ryan@nagsheadnc.gov
Andy Garman	Town of Nags Head	252-449-2006	andy.garman@nagsheadnc.gov
Kate Jones	Town of Nags Head	252-449-4209	kate.jones@nagsheadnc.gov
Hunter Freeman	McAdams Co		freeman@mcadamsco.com
Jessica Norris	BioHabitats		JNorris@biohabitats.com
Justin Park	BioHabitats		jpark@biohabitats.com
Pace Wilber	National Marine Fisheries		pace.wilber@noaa.gov
Kathy Matthews	USFWS	919-856-4520 Ext. 27	kathryn_matthews@fws.gov
Gregg Bodnar	Coastal Management	919-515	gregg.bodnar@ncdenr.gov
Yvonne Carver	Coastal Management	252-264-3901	yvonne.carver@ncdenr.gov
Christa Sanderson	DMF-Shellfish	252-726-7021	Christa.Sanderford@ncdenr.gov
Maria Dunn	NCWRC	252-948-3916	maria.dunn@ncwildlife.org
Jimmy Harrison	NCDMF	252-946-6481	James.A.Harrison@ncdenr.gov
Holley Snider	DWR-401	910-796-7303	holley.snider@ncdenr.gov
Carl Dunn	DEMLR - Stormwater	252-948-3959	Carl.dunn@ncdenr.gov
Randall Jones	DEMLR – Land Quality	252-948-3900	Randall.jones@ncdenr.gov
Lyn Hardison	NCDEQ	252-948-3842	Lyn.hardison@ncdenr.gov

This document can be used as proof the 30-day pre-filing meeting requirement for 401 has been satisfied.

<https://deq.nc.gov/about/divisions/water-resources/water-quality-permitting/401-buffer-permitting/application-forms-help-documents>

Estuarine Shoreline Management Plan Discussion – interested in State and Federal permitting and resource agencies feedback on living shoreline placement and concepts to mitigating the impacts of flooding, storm surge, erosion, and sea level rise on the estuarine shoreline.

NCDEQ WASHINGTON REGIONAL OFFICE

943 WASHINGTON SQUARE MALL WASHINGTON, NC 27889 252-946-6481, FAX 252-975-3716

SIGN UP SHEET

INTERAGENCY/SCOPING MEETING

Name	Invited	Response
Hardison, Lyn	Meeting Organizer	None
Coats, Heather	Required Attendee	None
Dunn, Maria T.	Required Attendee	None
billy.w.standridge	Required Attendee	None
Pelletier, Josh R SAW	Required Attendee	None
kathryn_matthews@fws.gov	Required Attendee	Accepted
Ellis, John	Required Attendee	None
Harrison, James A	Required Attendee	None
Renaldi, Ronald	Required Attendee	Accepted
Carver, Yvonne	Required Attendee	Accepted
Pace Wilber - NOAA Federal	Required Attendee	Tentative
Stewart, Glenn A	Required Attendee	Accepted
Snider, Holley	Required Attendee	Accepted
Howell, Jonathan	Required Attendee	None
Sanderford, Christa N	Required Attendee	Accepted
Haines, Andrew	Required Attendee	None
Dunn, Carl	Required Attendee	None
Jones, Jerry R	Required Attendee	None
Huggett, Douglas	Required Attendee	Accepted
Jones, Nathan	Required Attendee	Accepted
David Ryan	Required Attendee	None
York, Dawn	Required Attendee	Accepted
Raleigh W SAW Bland	Required Attendee	None
Hunter Freeman	Optional Attendee	Accepted
Martinez, Jose	Optional Attendee	Accepted
Joyner, Brian	Optional Attendee	Accepted
Jessica H. Norris	Optional Attendee	Accepted
Justin Park	Optional Attendee	Accepted
Shelden, Jeff	Optional Attendee	Declined
Vanderbeke, Nicole	Optional Attendee	Accepted

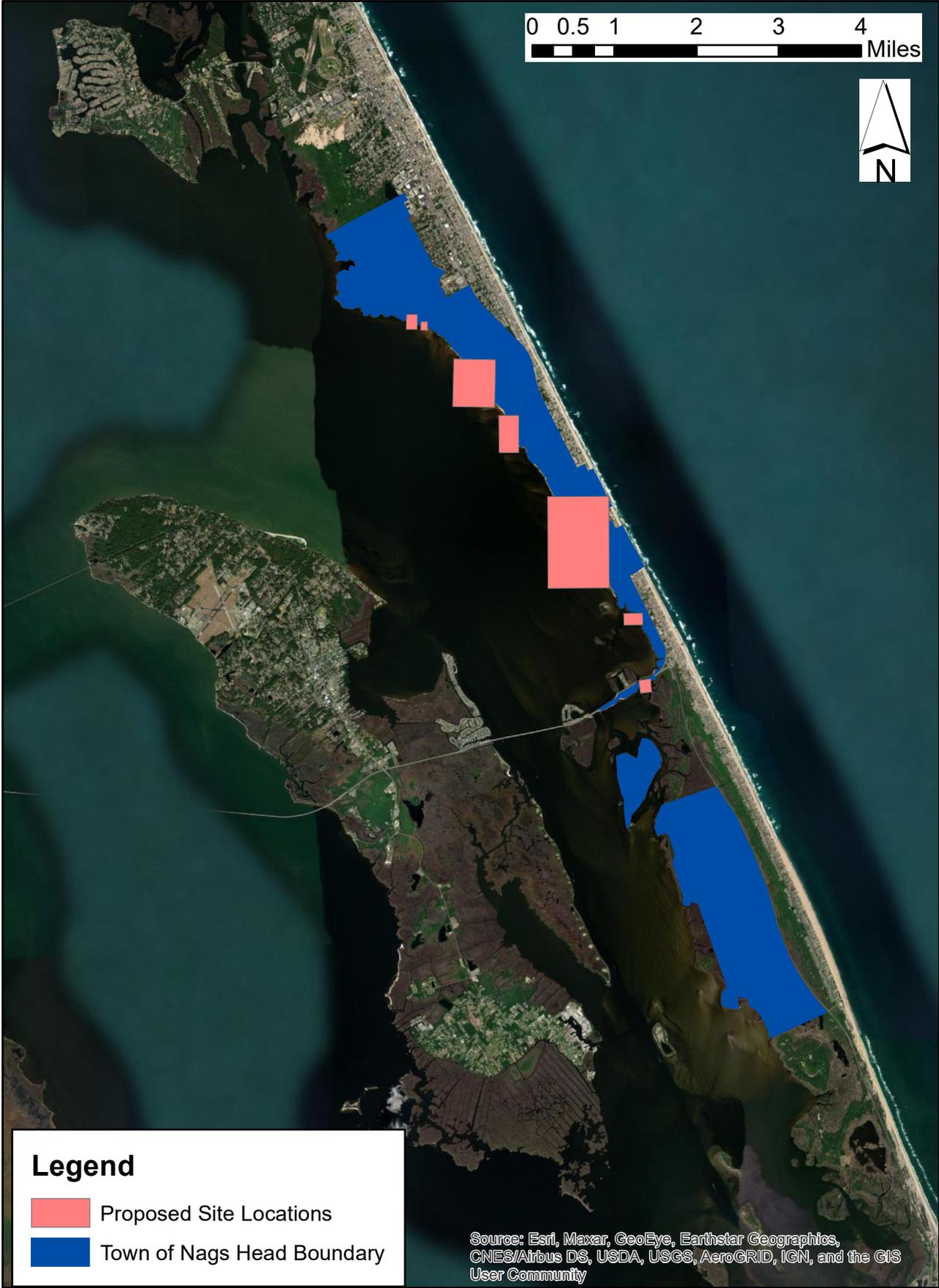
**Town of Nags Head, North Carolina
Estuarine Shoreline Management Plan
Project Narrative**

The Town of Nags Head is affected by impacts from coastal hazards like hurricanes, nor'easters, erosion, and sea level rise. The negative impacts of these hazards affect private and public property as well as key infrastructure and natural resources. Mitigating the impacts of these hazards to preserve the community's distinctive heritage and unique lifestyle, critical natural resources and coastal ecosystem are important to the Town and its economy, as reflected in the Town's vision. The Town of Nags Head Estuarine Shoreline Management Plan is an essential step in mitigating the impacts of flooding, storm surge, erosion, and sea level rise on the estuarine shoreline.

The principal purpose of the Plan is to develop strategies that will prioritize living and nature-based shoreline management projects appropriate for each segment of the Town's shoreline. The Town of Nags Head planning staff and volunteer members of the Advisory Committee will work together to identify strategies and sites where Nags Head's estuarine shoreline can be managed to safeguard critical structures, enhance habitat values, and provide aesthetic and community benefits; build public awareness of the risks to the current estuarine shoreline from sea level rise and storm events; and describe regulatory barriers and pathways to implementation of nature-based solutions.

The Town of Nags Head Estuarine Shoreline Management Plan will comprehensively address the management of 17 miles of estuarine shoreline in the northern portion of the Town while balancing land use, ecosystem health, public health, and recreational opportunities. The objectives of the plan would be to prioritize shoreline management opportunities through a biogeographical inventory of existing shorelines, historical changes, and impacts; identification of shoreline best management practices, uses, and policy; exploration of legal barriers to shoreline management natural solutions and regulatory issues, and consideration of the impacts of future hazards, such as sea level rise, on the estuarine system. Project outcomes include: a prioritized list of estuarine shoreline projects to be incorporated into the strategic CIP Funding Plan; science-based policy direction to support projects and next steps; land use guidance for adjacent uses both today and under future sea level rise scenarios; monitoring plan for projects; overall increased resilience to flooding/erosion; improved ecosystem health; minimized impacts of future sea level rise; and increased presence of nature-based solutions. This project is funded by the National Fish and Wildlife Foundation National Coastal Resilience Fund.

Town of Nags Head Estuarine Shoreline Management Plan
Site Plan

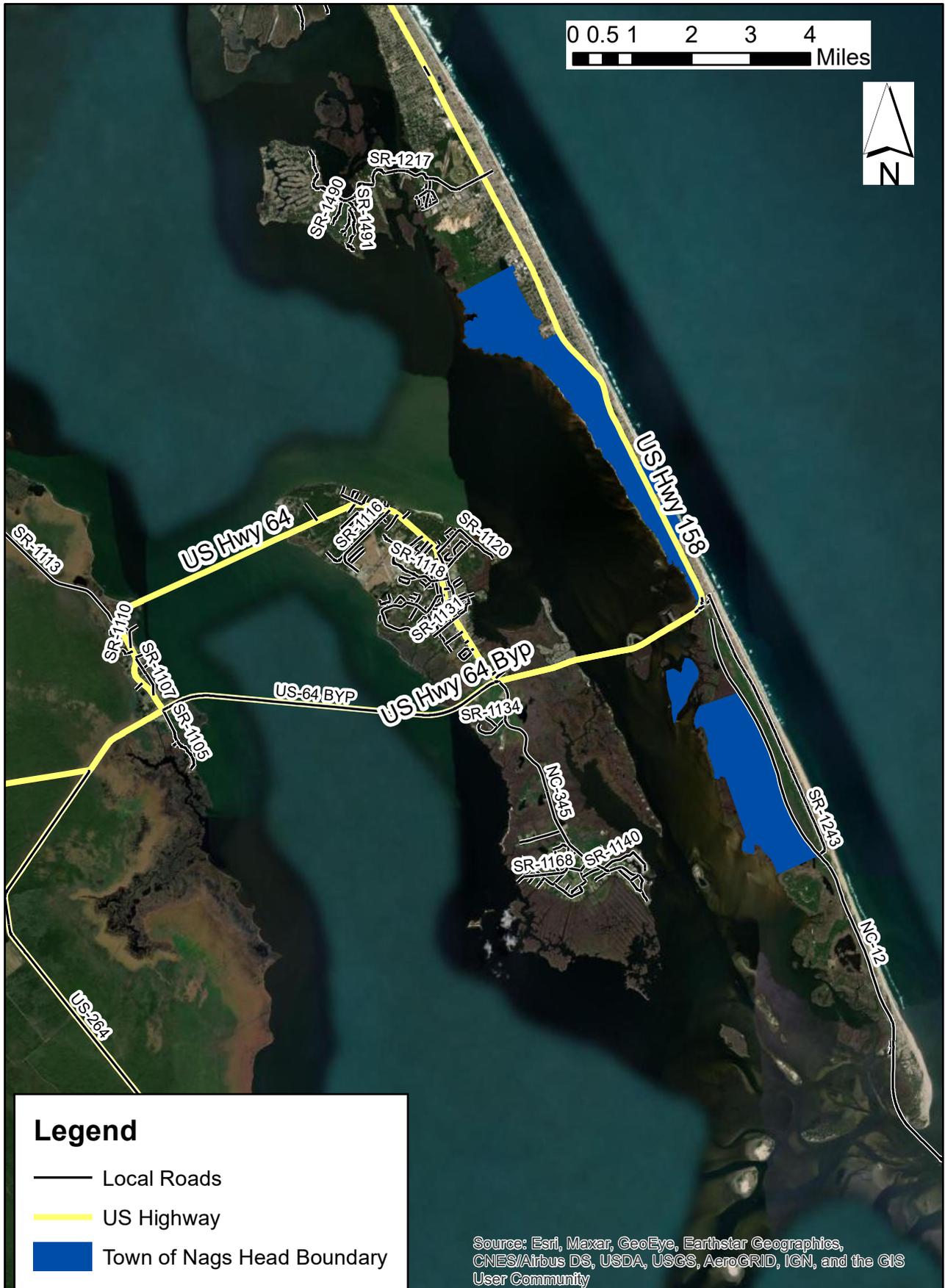


Legend

- Proposed Site Locations
- Town of Nags Head Boundary

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Town of Nags Head Estuarine Shoreline Management Plan
Vicinity Map

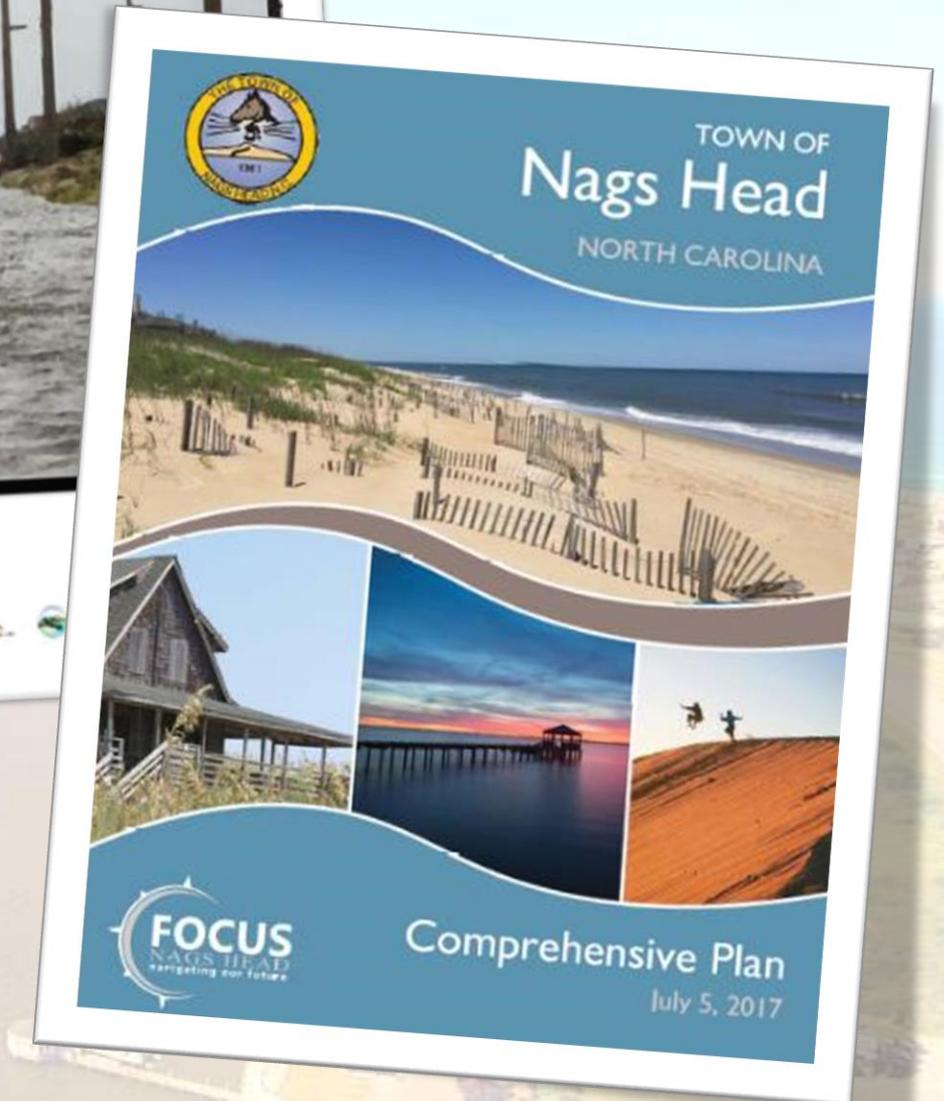
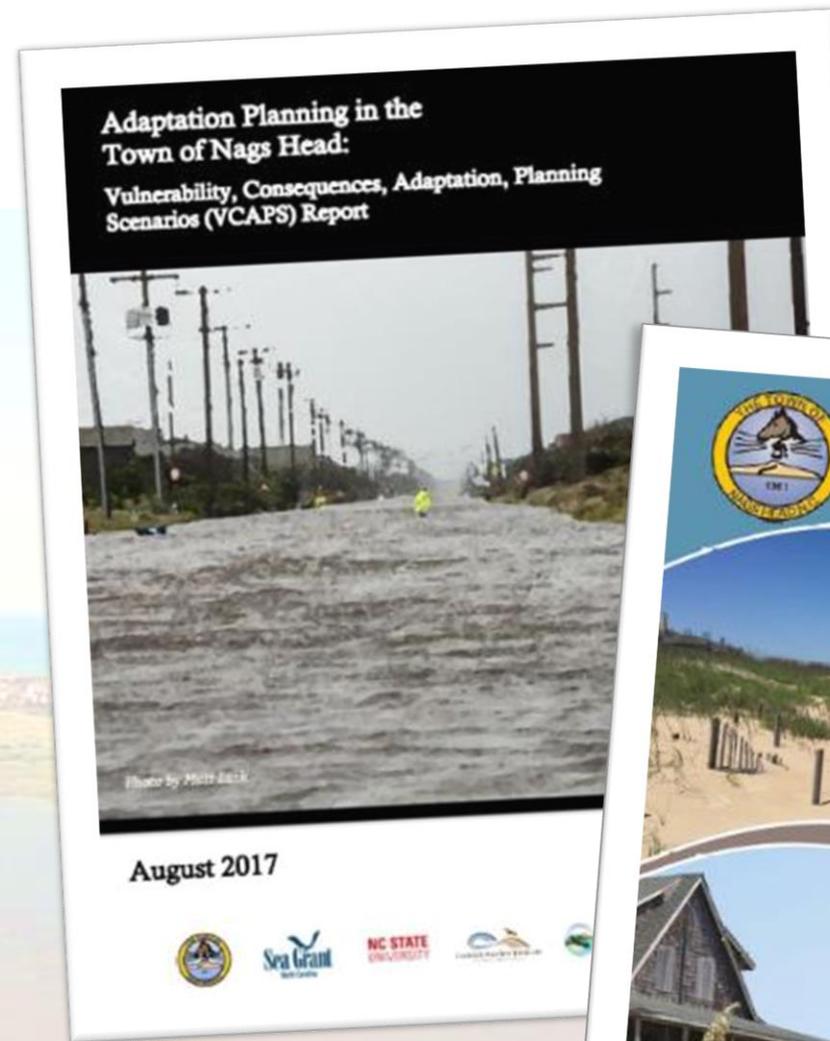


The Town of Nags Head

Estuarine Shoreline Management Plan

Project Background

- 2015-Vulnerability, Consequences, Adaption, Planning Scenarios (VCAPS)
- 2017- Comprehensive Plan
- 2019- Citizen Champions
- 2020- National Fish Wildlife Foundation Funding - ESMP



Project Outcomes

- **Outcome 1-** An action plan of projects specific to each segment of the Town's estuarine shoreline including private and public property. These projects can be systematically included in the yearly budget and 5-year Capitol Improvement Plan (CIP) resulting in expeditious implementation. Completion of the projects identified in the plan will result in the use of more nature-based solutions for shoreline management, a more contiguous, connected marsh system, and overall improved water quality, habitat, and protection.
- **Outcome 2** – Inclusion of stakeholder feedback through the Advisory Group and input into the Estuarine Shoreline Management Plan will result in a robust and comprehensive set of proposed projects, policies, and actions.
- **Outcome 3-** Production of bathymetric data for the Roanoke Sound by CSI- Complete coverage of bathymetric data for the Roanoke Sound for incorporation into wave energy modeling. The Town, in partnership with CSI, will produce this usable data for the entire Town. While the Town will use this data for projects led by the Town, this data will also be made available to individuals, non-profits, or other stakeholders wishing to do similar projects.
- **Outcome 4-** Development of resources that are useful for other communities conducting similar estuarine shoreline management projects.



- 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

Community & Stakeholder Engagement

Many partners & engaged stakeholders-

- Residential property owners
- Recreational users
- The Nature Conservancy
- Jockey's Ridge State Park
- Nags Head Golf Links Golf Course
- NC DOT
- North Carolina Coastal Federation
- Coastal Studies Institute (CSI)
- 20 person Advisory Committee (citizen)



Site Visits and Advisory Committee Meetings



Design Questions

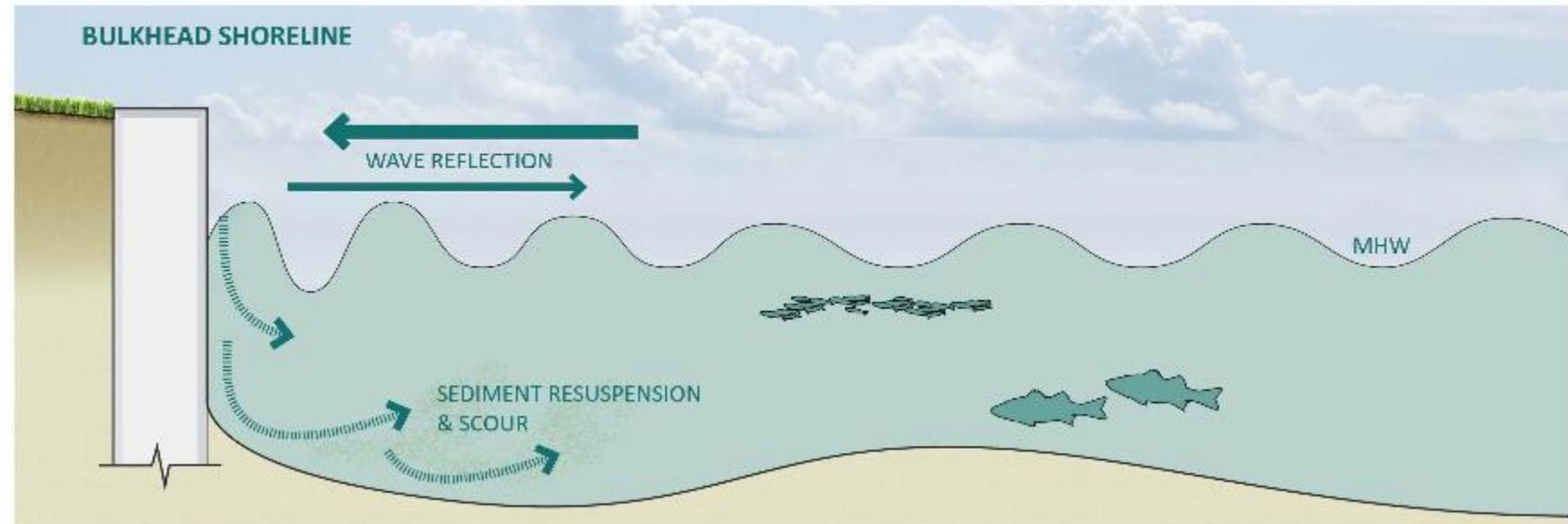
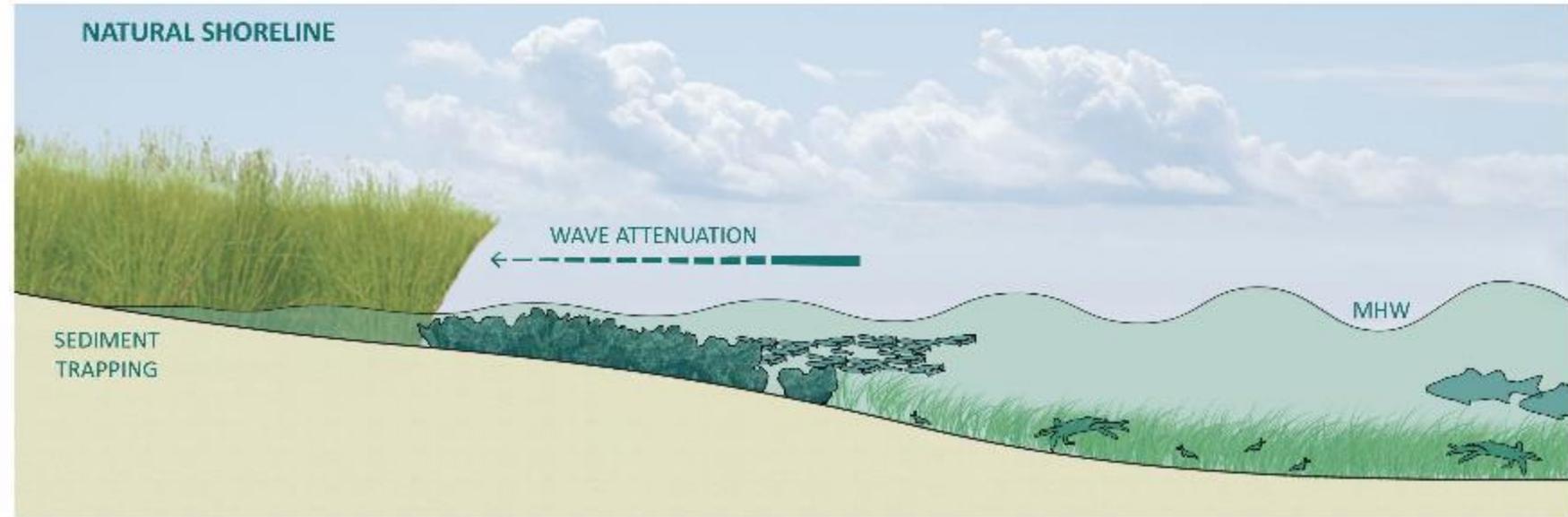
- **What does it look like to scale up nature-based solutions?**
- **What natural habitats and ecological functions can shoreline stabilization recreate?**
- **Can we create quiescent, accreting conditions?**



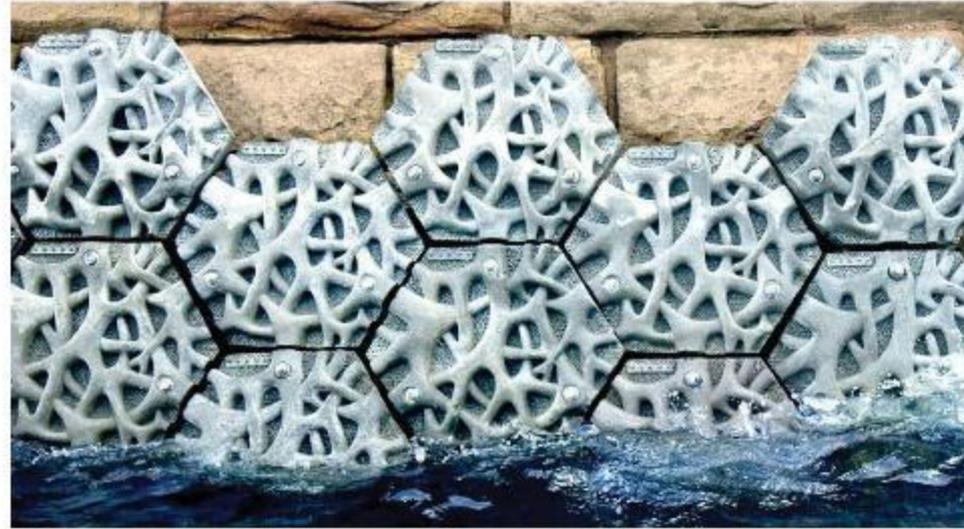


Ecological Lens: Ecosystem Functions

- Carbon Sequestration
- Erosion Regulation
- Flood Risk Reduction
- **Habitat Complexity**
- **Nutrient Cycling**
- Sea-level Rise Resiliency
- **Supporting Biodiversity**
- **Water Quality/Filtration**

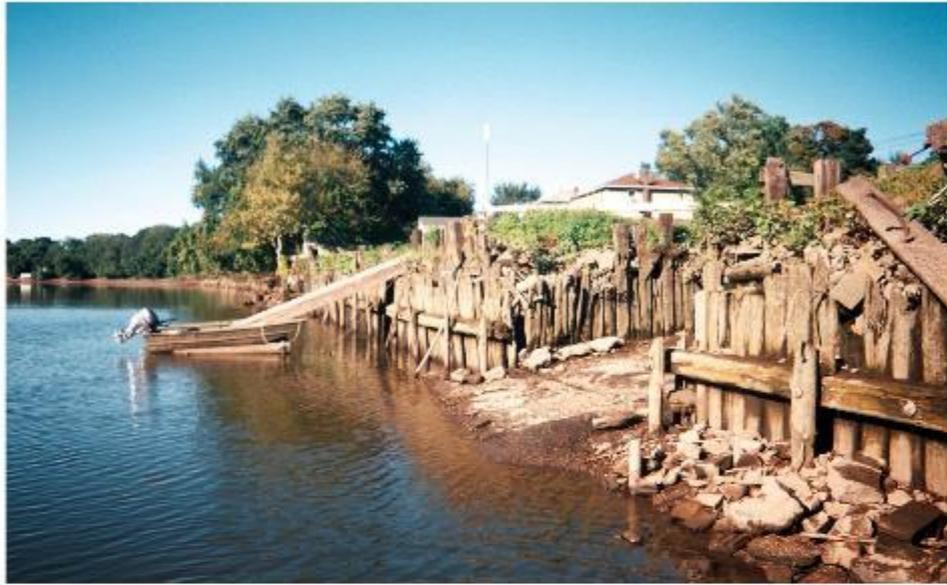


Ecosystem Functions: **Habitat Complexity**



Habitat baskets/Facade treatments

Ecosystem Functions: Sea-level Rise Resiliency

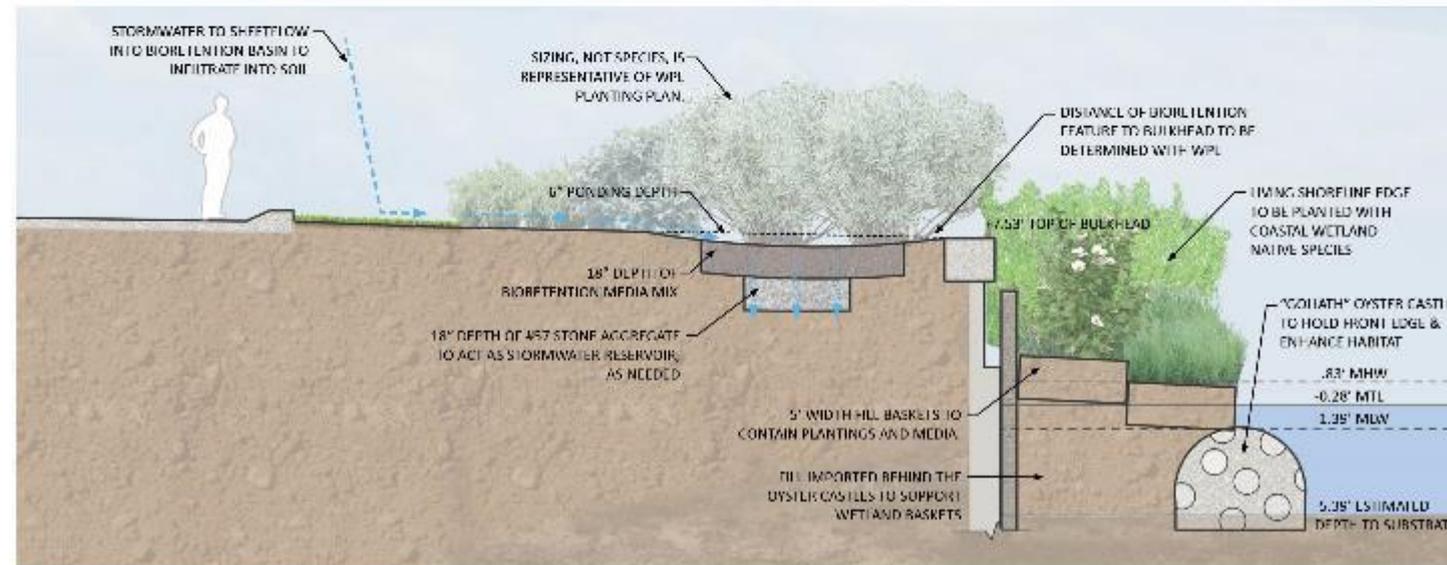


Vegetated migration slopes

Ecosystem Functions: Nutrient Cycling



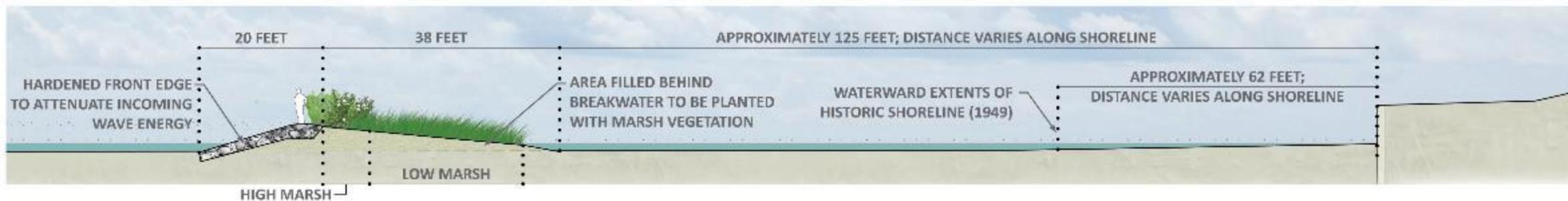
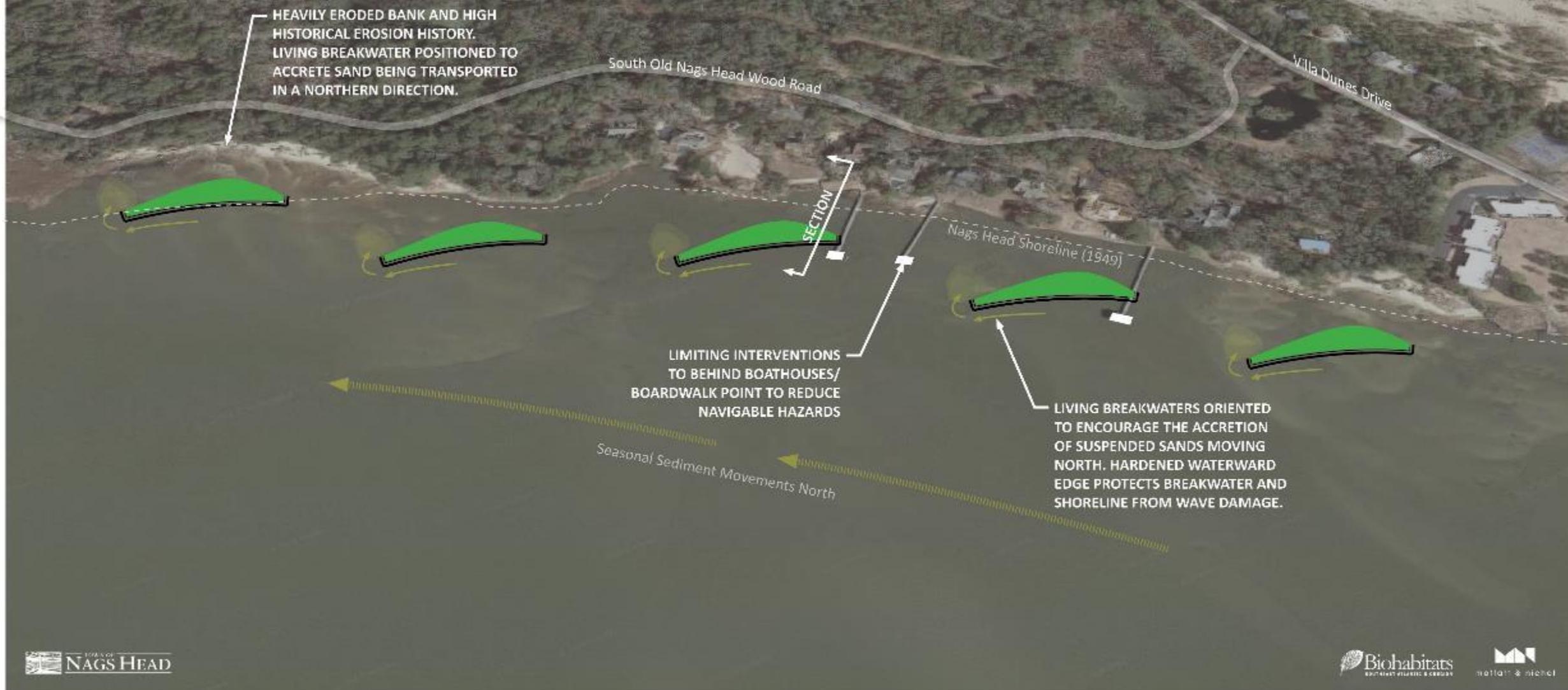
IMAGE CREDIT: MOFFATT & NICHOL



Wetland baskets

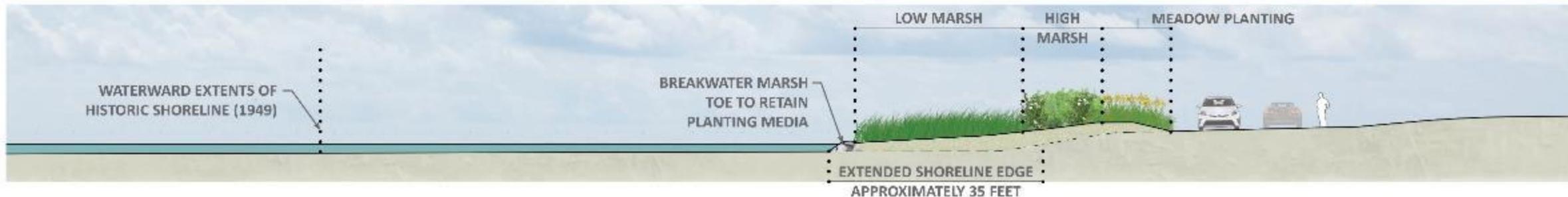
Nags Head Woods Preserve & Villa Dunes Drive

Nags Head, NC



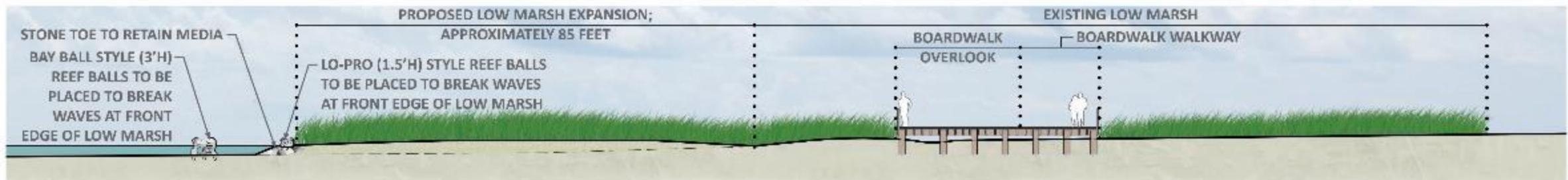
West Soundside Road

Nags Head, NC



Harvey Sound Access

Nags Head, NC



General Questions

- **What resource concerns should be at the top of our minds as we prepare for the next phase?**
- **What constraints should the design team consider?**
- **What data or modeling would help reviewers as this goes to design?**
- **Would permitting a pilot or portion of the living breakwater with the expectation of monitoring and reporting help meet regulatory concerns?**
- **Any thoughts for TONH about permitting processes and operating at this larger scale?**

Contact me with any questions:

Kate Jones

Town of Nags Head Deputy Planning Director, PLA, ASLA

kate.jones@nagsheadnc.gov