



Town of Nantucket

Nantucket Harbors Sediment Transport and Dredge Plan

August 2024

PROJECT OVERVIEW

Our Team



- Client management
- Alignment with Nantucket priorities
- Modeling QA/QC
- Dredge planning
- Permitting
- Beach nourishment



- Sediment transport study lead
- Survey and field coordination
- Dredge planning
- Beach nourishment support



- Survey lead
- Permitting support



- Alyssa Novak, PhD
- Sensitive habitats subject matter expert

Project Purpose

Support Nantucket's understanding of sediment transport within Nantucket, Madaket and Polpis Harbors through a data-driven modeling approach informed by our team's understanding of the island and its resilience goals. Use results to guide decision-making, improve navigation and maximize sediment resources.



Project Goals & Objectives

DATA-DRIVEN DECISION MAKING

- Incorporate best available information
- Leverage state-of-the-art modeling
- Strategic, town-led engagement of key interest groups
- Recommend priority dredge and nourishment locations that maximize co-benefits

MAXIMIZING CO-BENEFITS (achieving multiple objectives)

- Identify opportunities to use sand resources to further objectives outlined in the CRP & HMP
- Collect additional information about eelgrass and shellfish populations in the study area
- Develop strategies to reduce impacts on these populations
- Leverage ongoing Harbors Management Plan process

OTHER

- Project should align with, and support, select board strategic plan & sustainability goals
- Outreach & engagement will be needed to gain project awareness and support
- Metrics of success include:
 - Completed plan
 - Permits in hand
 - Well on the road to construction funding

1 Understand how and when sand moves

2 Understand how sand can be moved and used

3 Prepare and apply for required permits



We Are Here



Collecting and synthesizing literature and other data



Understanding how sand moves over time using two different models



Clarifying if and where sand can be used for beach nourishment



Preparing and developing required permitting applications



We Want to Get Here!



A scientifically-backed plan to manage Nantucket's sediment in Nantucket Harbor, Polpis Harbor and Madaket Harbor



Determining where sand can be stored and if it can be sold



Determining where and how often dredging will be needed



- Set of concepts and priorities laid out in CRP
- A starting point of collaboration and refinement



Achieving Multiple Objectives

RESILIENCE BUILDING



COASTAL RESILIENCE ADVISORY COMMITTEE | ARCADIS | one architecture | THE CRAIG GROUP | STOSS

- Use outputs of the sediment transport study to guide resilient decision-making

SAND AS A RESOURCE



- Identify opportunities to use sand for beach nourishment and dune restoration
- Develop an island sand bank

SENSITIVE HABITATS



- Collect imagery and perform surveys to better understand and protect sensitive habitats

OTHERS?

- Align and integrate with other completed and ongoing planning efforts

Project Tasks



Over the course of 24-months, the Nantucket Harbors Sediment Transport and Dredge Plan project team will collect data and conduct analyses to understand sediment movement, supply and demand within Nantucket Harbor, Madaket Harbor and Polpis Harbor. This will include four primary tasks outlined below.

