



Building Shoreline Resiliency in Marshfield & Duxbury Through Beach & Dune Nourishment

Public Meeting – March 19, 2024



Meeting Agenda

- Project Overview
 - Project Goals
 - Sediment Characterization
 - Pre/Post Nourishment
- Requirements for Shorebird Monitoring
- Opportunities for Future Nourishment
- Questions and Comments



Project Goals



Photo Source:
MyCoast



Photo
Source:
MyCoast

Enhance Resiliency of Critically Eroded Shorelines

1. Protect public & private properties from storm damage
2. Protect existing seawalls & revetments
3. Minimize wave overtopping & flooding
4. Restore recreational beach
5. Restore coastal ecosystem



Construction Details

- Dec. 26 thru Feb. 23 (9 weeks)
- Placed 85,935 cy of material
 - ✓ Marshfield – 30,778 cy
 - ✓ Duxbury – 55,157 cy
 - ✓ 109 Gurnet Rd. to 64 Bay Ave.
- Designed/permitted project calls for 480,640 cy of material
- Placed 18% of designed project
 - ✓ 36% of Marshfield design
 - ✓ 14% of Duxbury design
- Additional 394,705 cy needed

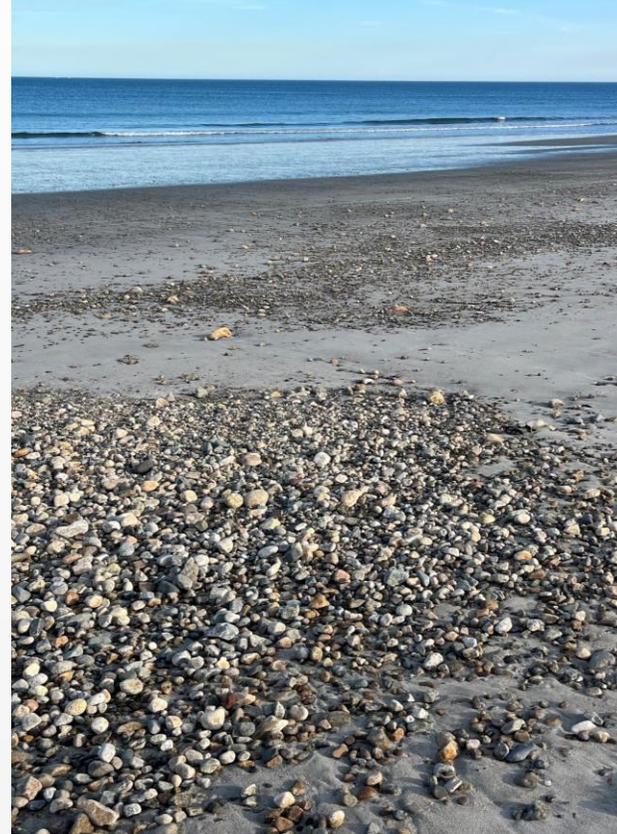
2023/2024 Construction Funding

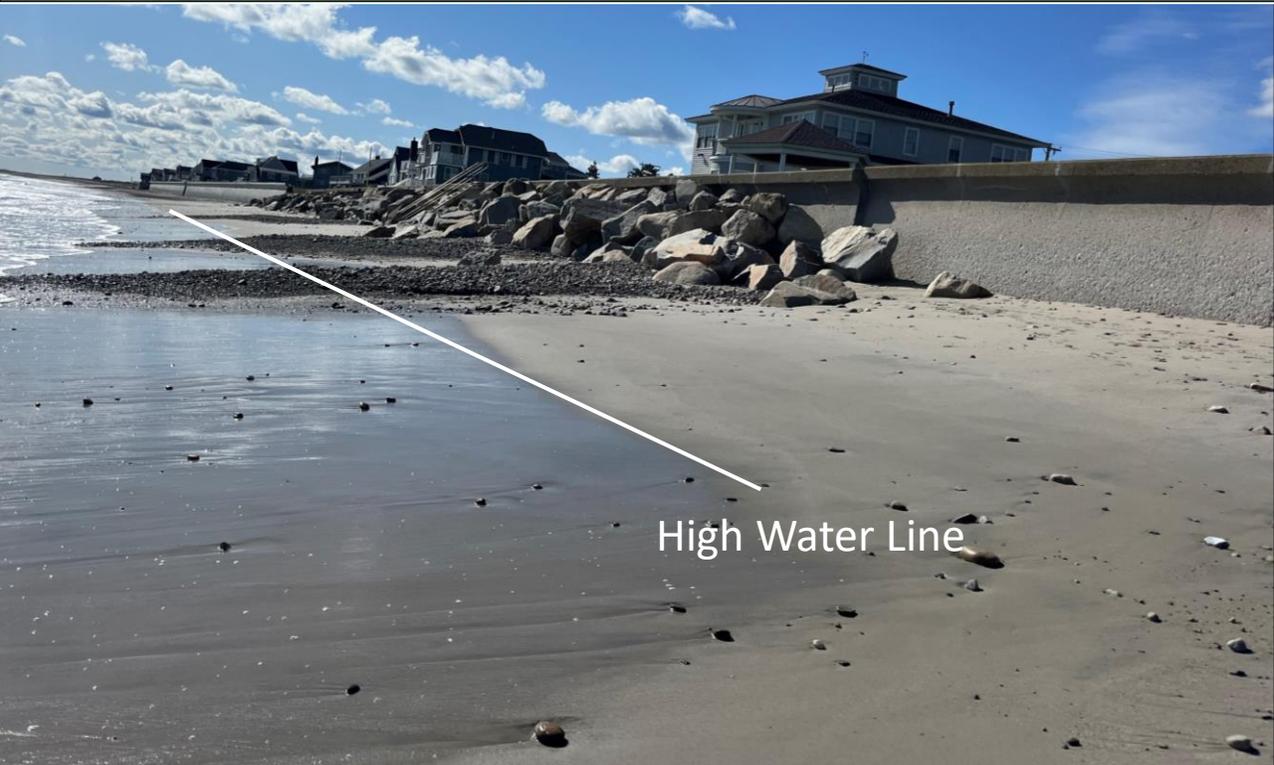
	Grant Funding	Match Funding	
		In-Kind	Cash
Marshfield	\$1,200,000	> \$15,000	\$350,000
Duxbury	\$2,000,000	\$10,000	\$727,340



Sediment Used for Nourishment

- Mixture of sand, gravel & cobble used throughout the project footprint to match native beach material





Pre-Nourishment (October 2023)

Post-Nourishment (March 2024)



Pre-Nourishment (October 2023)



Post-Nourishment (March 2024)



Pre-Nourishment (October 2023)



Post-Nourishment (March 2024)



Pre-Nourishment (October 2023)



Post-Nourishment (March 2024)



Pre-Nourishment (October 2023)



Post-Nourishment (March 2024)



Pre-Nourishment (October 2023)



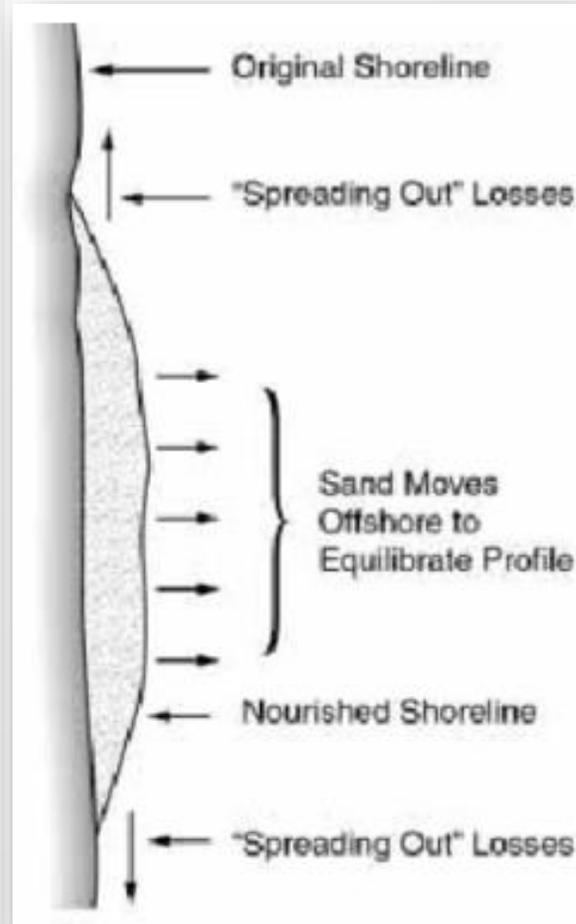
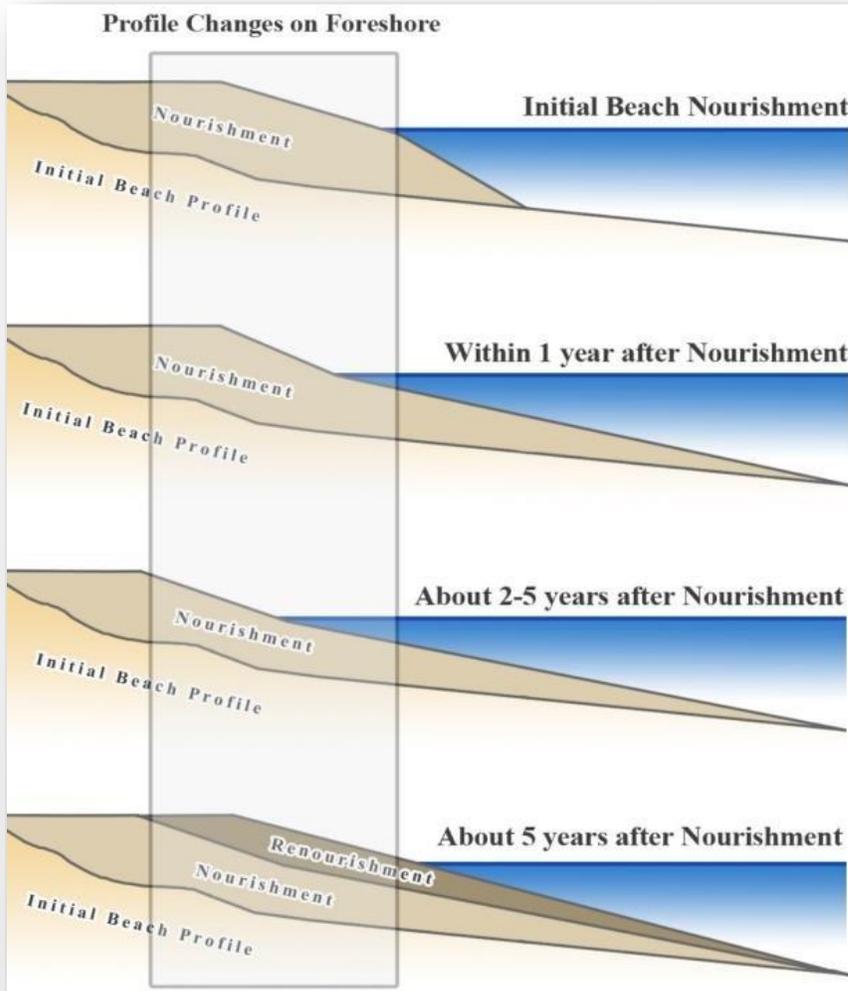
Post-Nourishment (March 2024)



Pre-Nourishment (October 2023)



Post-Nourishment (March 2024)



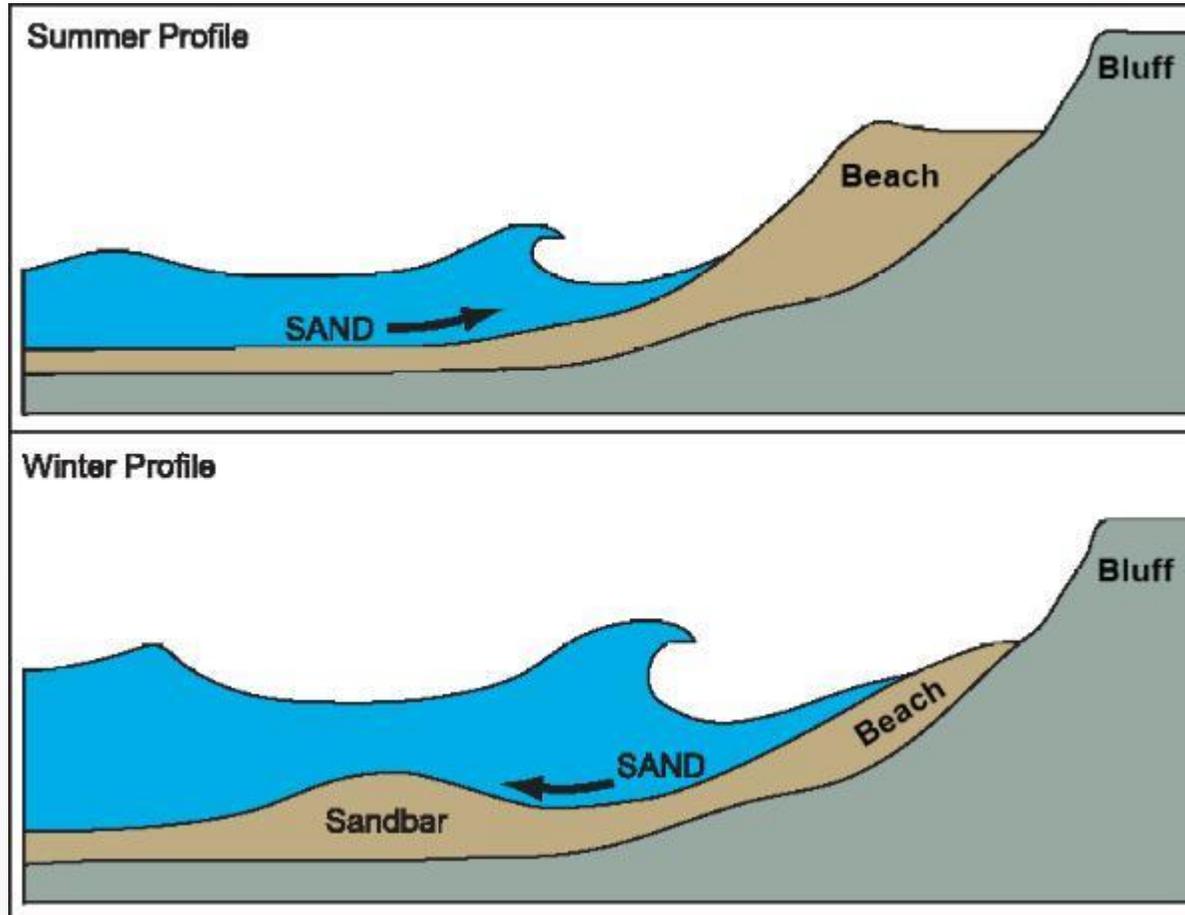
Permitted Project

- Renourishment ~ every 5 yrs

Constructed Project

- Built 18% of permitted project
- Sediment will spread more quickly as it reaches equilibrium profile
- Sediment will be redistributed to the north, south, and into the nearshore zone
- Renourishment needed more frequently

Changes in Beach are Expected



Seasonal Beach Changes

- Wider high tide beach in summer
- High tide beach shifts to nearshore sandbar in winter
- Sandbar helps to break wave energy

Incremental renourishment can help to build resiliency

Photo Source:
Groundspeak, Inc.

**GUIDELINES FOR MANAGING RECREATIONAL USE OF BEACHES TO PROTECT
PIPING PLOVERS, TERNS, AND THEIR HABITATS IN MASSACHUSETTS**

Massachusetts Division of Fisheries and Wildlife
Natural Heritage and Endangered Species Program
Field Headquarters, Rt. 135
Westborough, MA 01581

21 April 1993

**GUIDELINES FOR MANAGING RECREATIONAL ACTIVITIES
IN PIPING PLOVER BREEDING HABITAT ON THE U.S. ATLANTIC COAST
TO AVOID TAKE UNDER SECTION 9 OF THE ENDANGERED SPECIES ACT**

Northeast Region, U.S. Fish and Wildlife Service

April 15, 1994

Permits Require Monitoring

- Orders of Conditions
- MESA Determinations
- USACE General Permits

Monitoring Must be in Compliance with State & Federal Guidelines for Recreational Beach

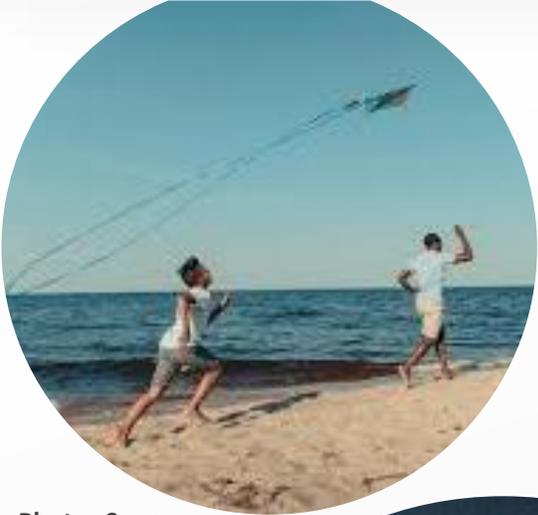
- Certified shorebird monitor
- Mass Audubon

Shorebird Monitoring Requirements



- Symbolic fencing of prime shorebird habitat areas by April 1
- Fencing above high water line – Mass Audubon only
- Surveillance surveys 2x/week until Plover/Tern egg laying begins (mid-late April)
- Install/move fencing if territorial or nesting behavior detected
- Surveys 5x/week until chicks have fledged (mid-late August)
- Fencing removed by mid July if no territorial or nesting activity observed

Allowable Activities Per State & Federal Regulations



Photos Source:
Sweetgrass
Properties



Photos Source:
Cranberry County
Blog



Photos Source:
Cranberry County
Blog



Photos Source: Hakai
Magazine

- Beach walking outside fenced areas
- Dogs on leash
- Kite flying 200 yards or greater from fencing
- Stairways in by April 1 if possible & consider sharing with neighbors
- Stairways in after April 1 need coordination with monitors
- Stairways may be closed if interfering with bird behavior
- Fireworks/bonfires not allowed by local regulations

Enforcement of Shorebird Regulations



Photo Source:
Vineyard Gazette



Photo Source:
Vineyard Gazette

Responsibilities:

- Mass Audubon monitoring & educating public
- Enforcement at local level

Incident Reporting:

- Incident report filed if signs of harassment
- Violation could result a “Take” of endangered species
- “Take” could result in fine and/or requirement to obtain a Conservation Management Permit
- Incidents jeopardize future projects



Photo Source: Cape
Cod Times

Project Highlights



2023/2024 Project

- Increase in width & elevation of high tide/intertidal beach
- Added protection for public and private infrastructure from wave overtopping
- Supply of material to sediment starved beaches
- Enhanced recreational beach
- Shortened period of construction (DBR trucking thru March 25)
- Protects investments in seawall reconstruction/repair

Funding & Next Steps



CZM Coastal Resiliency Grants

- FY20: \$234,546 (engineering)
- FY21: \$281,318 (permitting)
- FY23: \$94,141 (permitting)
- FY24: \$4.3 million (construction)

TOTAL: 4.9 million

FY25 Grant Programs

- CZM Coastal Resiliency
- Municipal Vulnerability Preparedness

Thank you

Question and Answer Session

Submit Written Questions/Comments to:

- gguimond@townofmarshfield.org
- ssgarzi@duxbury-ma.gov

