The N.J. Coastal Resilience Collaborative:

Building Partnerships and Networks
to Advance Coastal Community Resilience

NJ COASTAL RESILIENCE COLLABORATIVE

TECHNICAL ASSISTANCE COFFEE CHAT

FOR NJ COASTAL COMMUNITIES

The views expressed during this Technical Assistance Coffee Chat are the presenter's own and do not reflect the official policies or positions of the New Jersey Coastal Resilience Collaborative or any of its organizational partners.

The N.J. Coastal Resilience Collaborative:

Building Partnerships and Networks to Advance Coastal Community Resilience

NJ COASTAL RESILIENCE COLLABORATIVE

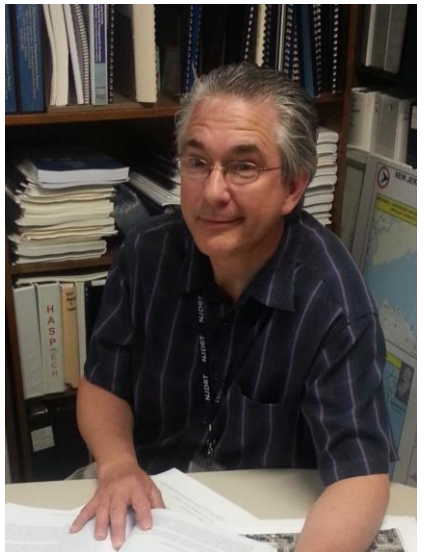
Panel Speakers

Dr. Lenore Tedesco, The Wetlands Institute

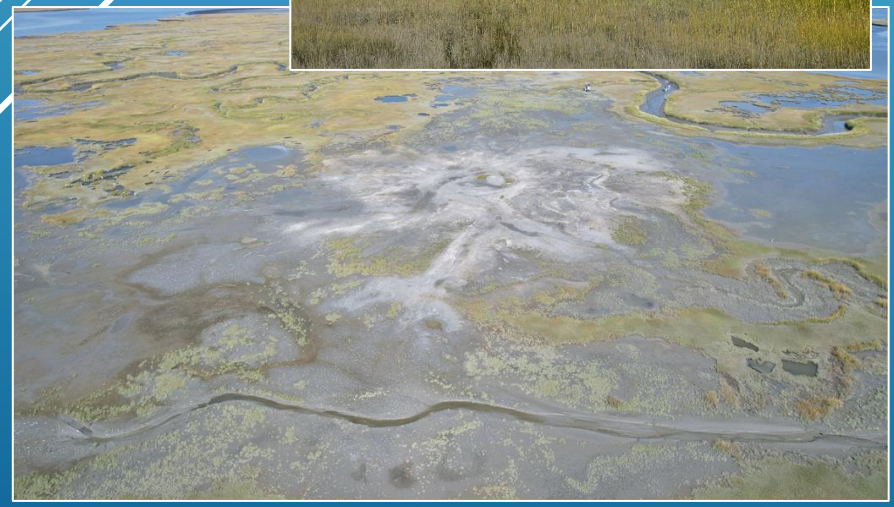
Colleen Keller, NJDEP Division of Land Resource Protection

Quinn McHerron, NJDEP Office of Climate Resilience

Elissa Commins, Brick Township



Scott Douglas, *Retired* NJDOT Office of Maritime Resources



Overview of BUDM Projects in the Seven Mile Island Innovation Laboratory

Lenore P. Tedesco, The Wetlands Institute

wetlandsinstitute.org/smiil-2-2/

US Army Corps of Engineers®

Wetlands INSTITUTE

ERDC

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

NEW JERSEY Fish and Wildlife

VALUE OF COASTAL WETLANDS

- Recreation and aesthetic beauty
- Among most biodiverse ecosystems on earth
- Support fisheries and wildlife
  - Provide shelter, food and nursery grounds for more than 75% of commercial fish and shellfish
  - Provide important habitat for a variety of birds, waterfowl and imperiled species
- Filter runoff and excess nutrients to help maintain water quality in coastal bays
- Store carbon at a rate 10x higher than mature tropical forests helping to moderate effects of climate change

www.pewtrusts.org/en/research-and-analysis/articles/2021/03/01/11-facts-about-salt-marshes-and-why-we-need-to-protect-them

Coastal Wetlands Protect Our Communities

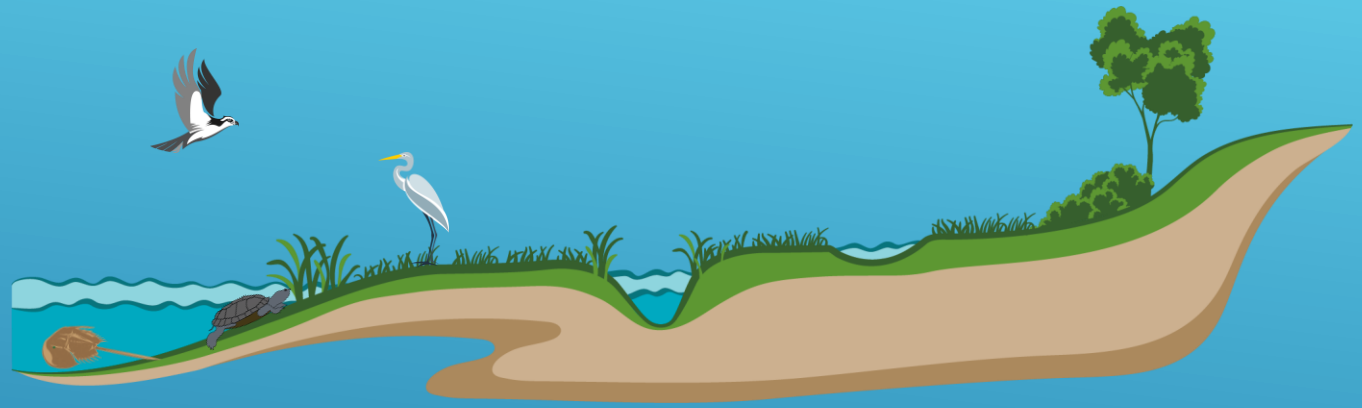
- 1 acre of salt marsh can absorb 1.5 million gallons of water
- During storms, they absorb flood waters and wave energy
  - Decrease property damage in adjacent communities by up to 20% (NOAA)
  - On average provide $695,000 of value per square mile during storms by reducing impacts of storm surge and flooding
  - Were shown to reduce storm damage to coastal communities backed by wetlands during Hurricane Sandy by 20-30%

Seaside Heights NJ; Image: Tim Lawson, NJ Governor's Office

We are losing 80,000 acres of coastal wetlands each year mainly due to sea-level rise and development (NOAA)

www.pewtrusts.org/en/research-and-analysis/articles/2021/03/01/11-facts-about-salt-marshes-and-why-we-need-to-protect-them

MARSHES FLOURISH IN A DELICATE BALANCE WITH TIDAL WATERS

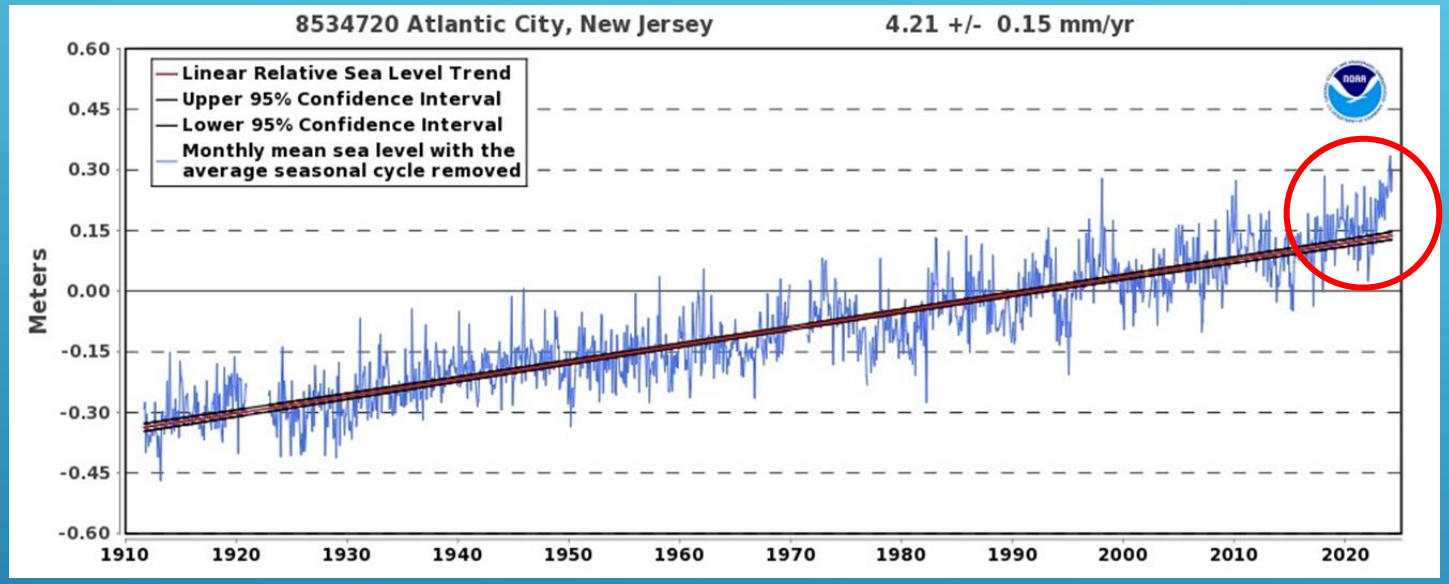


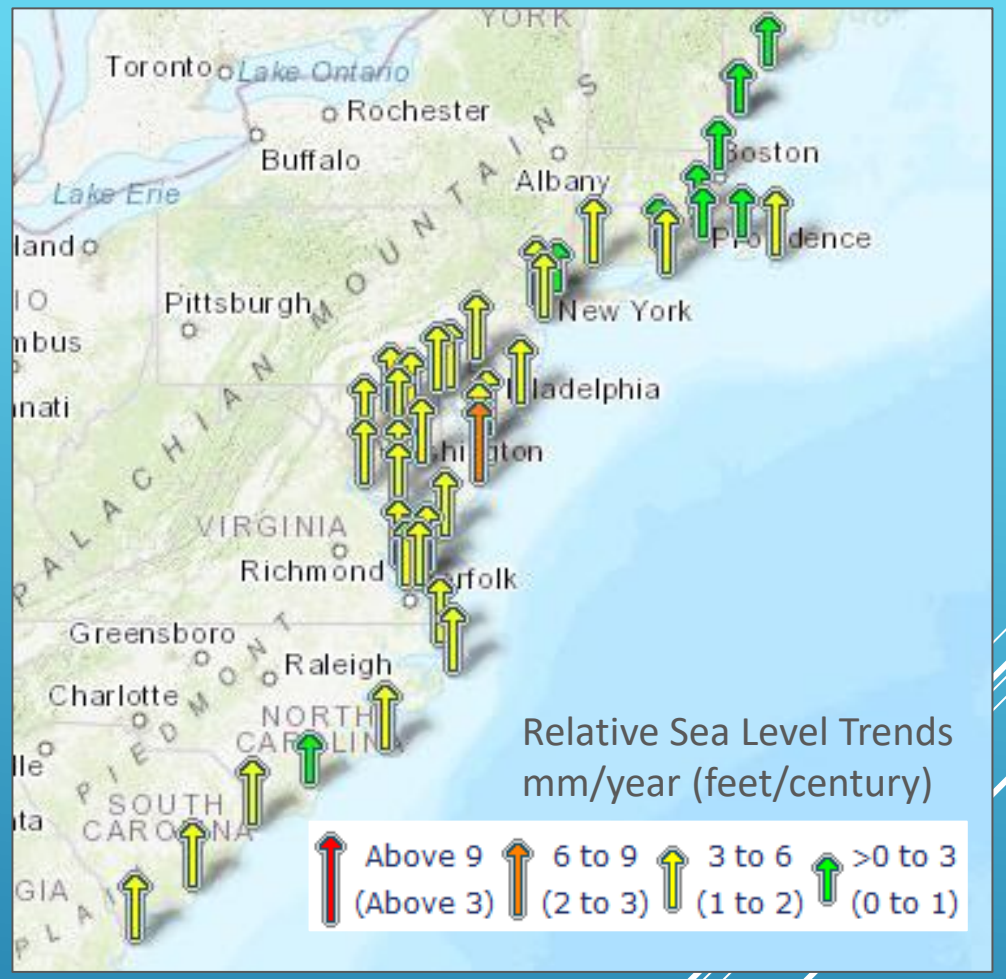
- Marshes are "at" sea level
  - Daily tides nourish marshes
  - Moon tides and storm tides bring waters onto the marsh
- Wetlands occur over very narrow elevations relative to sea level and can "keep up' with sea level under certain sea level rise scenarios

Too much flooding slows marsh growth and leads to drowning

Wetlands® INSTITUTE ~ SINCE 1969

RELATIVE SEA LEVEL TREND

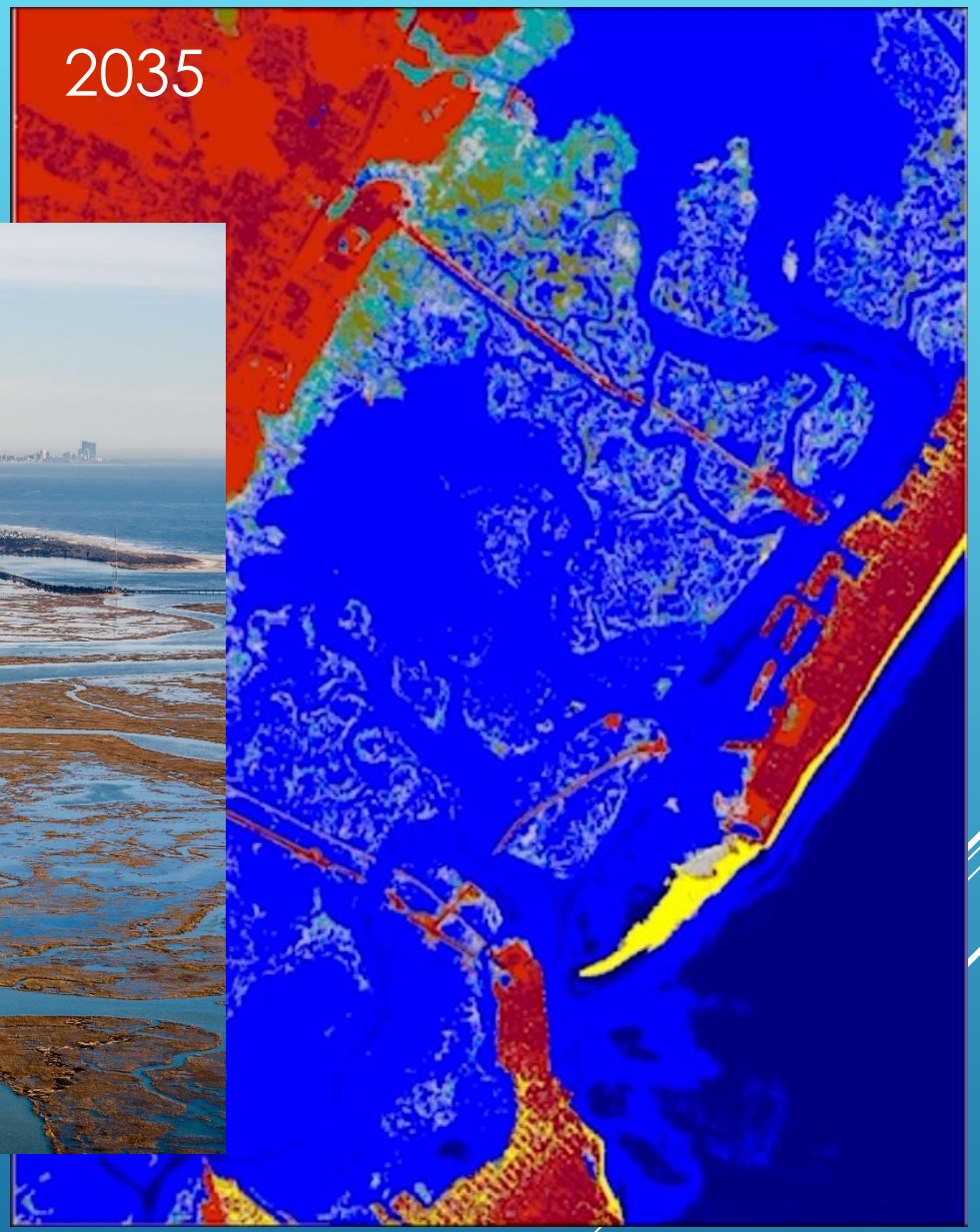




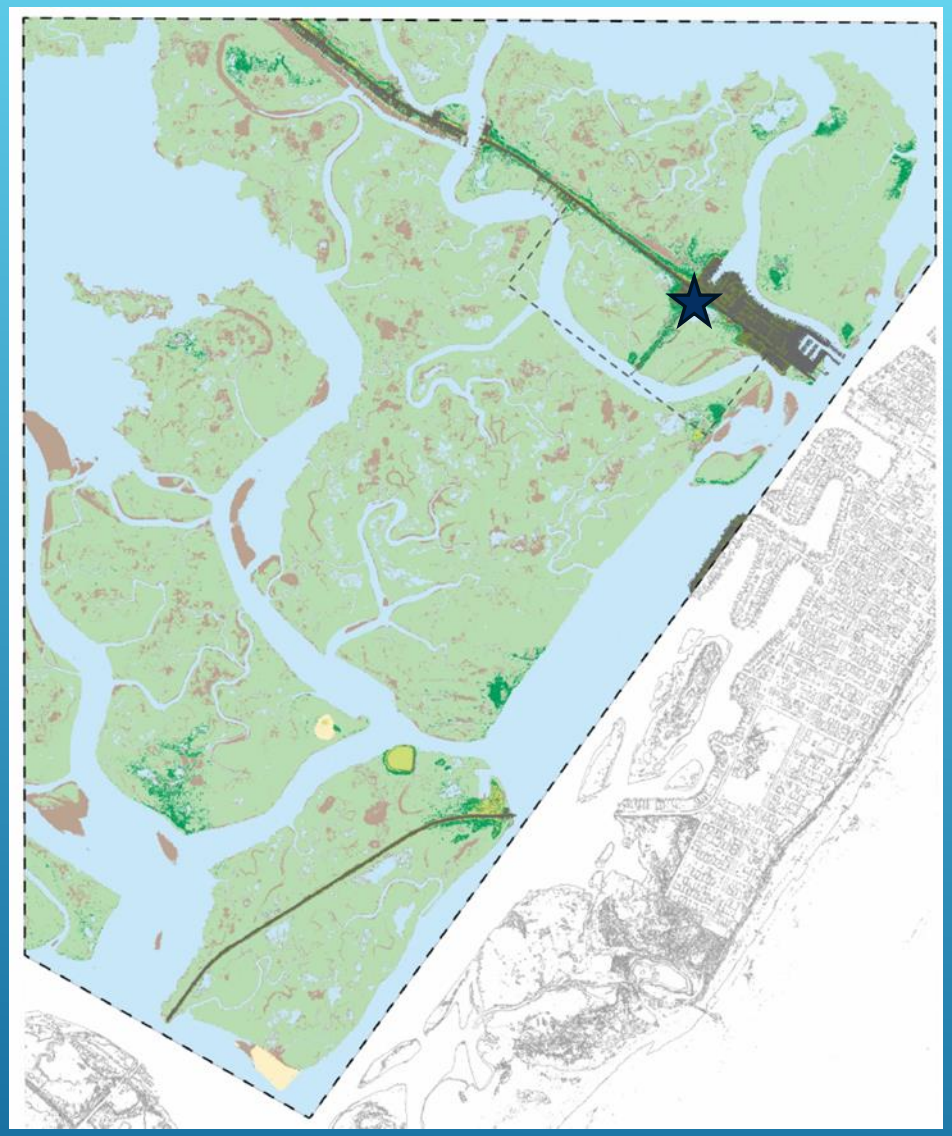
- New Jersey SLR is 2x Global Average
- 1911 – 2021 rose 1.4 feet in 100 years
- Rate has increased from 2010 of 4.04 mm/year to 4.21 (0.15”/yr) mm/year
- Rate over the last 15 years = 6.1 mm/year (0.25”/yr)

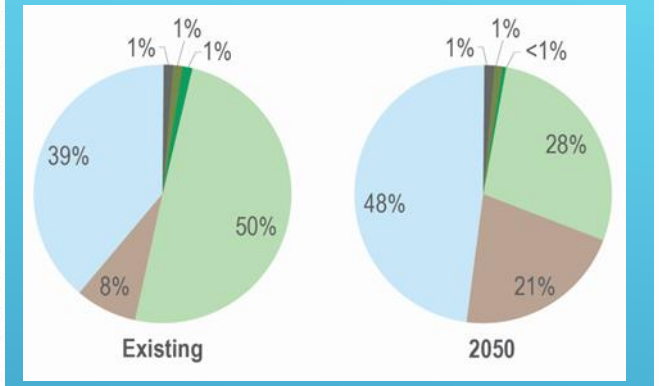
- Typical marsh accretion rates in the area are 4 mm/year (0.15”/yr)
- Regional subsidence rates are ~2 mm/year

https://tidesandcurrents.noaa.gov/sltrends/sltrends.html



HIGH TIDE FLOODING (MHW SLAMM) AND COASTAL RESILIENCE





Legend (SLAMM)

- Open Ocean
- Estuarine Water
- Developed Dry Land
- Undeveloped Dry Land
- Shrub/ Scrub
- Regular Flooded Marsh (Low Marsh)
- Irregular Flooded Marsh (High Marsh)
- Tidal Flat
- Ocean Beach

2020 Existing Conditions

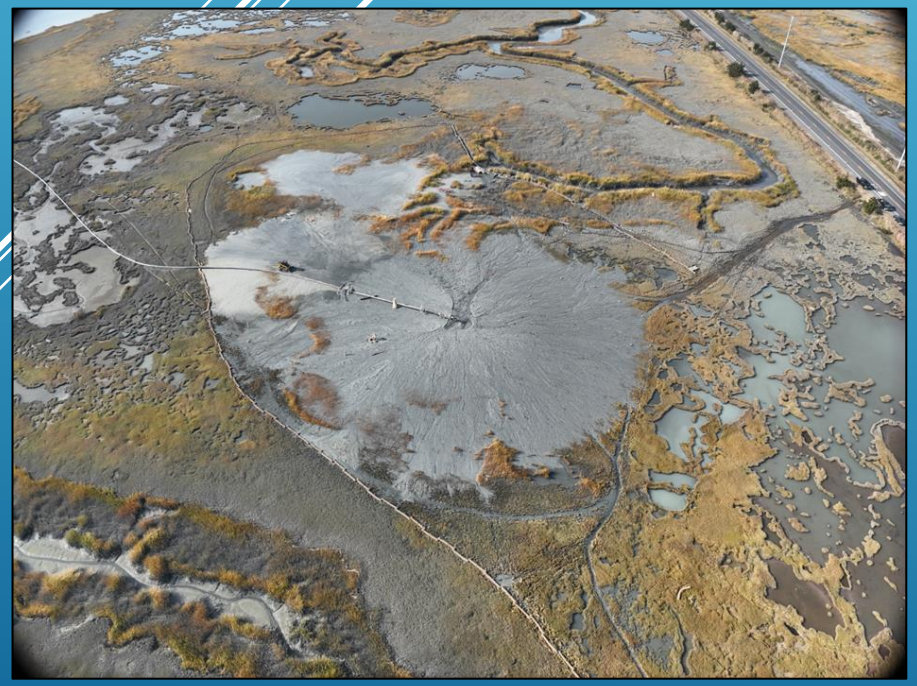
2050 Predicted Conditions

ELEVATION DERIVED HABITAT DISTRIBUTIONS VIA SLAMM

EMLAB

SEVEN MILE ISLAND INNOVATION LABORATORY

A Proving Ground Using Natural and Nature-Based Features to Provide Ecological Uplift and Enhanced Resilience for Ecosystems and Coastal Communities



US Army Corps of Engineers

Wetlands Institute

ERDC

New Jersey Department of Environmental Protection

New Jersey Fish and Wildlife

SEVEN MILE ISLAND INNOVATION LABORATORY

- A **Test Bed** and **Think Tank** to Advance and Improve **Dredging Techniques** and **Marsh Restoration** Techniques in Coastal New Jersey
- Based on an **International Concept** Pioneered by the Dutch
- 24 sq mi **Back Bay Marsh** Dominated System with **Shallow Bays**, Sounds and Tidal Inlets Bisected by the **NJ Intracoastal Waterway Behind 7 Mile Island**
- **50+ Member Working Group** for Knowledge Sharing
- More than **30 Scientists** Working in SMIIL

US Army Corps of Engineers®

Wetlands Institute

ERDC

New Jersey Department of Environmental Protection

NJ New Jersey Fish and Wildlife

SAVING DROWNING MARSHES

- **A. Marsh under ideal conditions**. Blue lines are tide flooding levels - dark blue is daily tidal flooding, light blue is intermittent flooding (spring and storm tides).
- **B. Current marsh flooding** scenario. Repetitive flooding is too frequent and too high, stifling healthy marsh growth and leading to **marsh drowning**.
- **C. Elevated marsh surface** using clean **dredged sediment** to **raise marsh elevation** to ideal tidal flooding levels. Initially this creates a **short-term impact** to the marsh grasses, resulting in a **temporary muddy surface**.
- **D. Rehabilitated marsh 2-3 years post placement**. Marsh level is at suitable elevation for tidal flooding, promoting marsh grass recovery and **healthy marsh function.**

A. Healthy Marsh

B. Drowning Marsh

C. Newly Elevated Marsh

D. Rehabilitated Marsh

Wetlands® INSTITUTE ~ SINCE 1969

Beach replenishment (>90% coarse)

Confined Upland Disposal (everything else)

+/- Upland Beneficial Use

HISTORIC DREDGED MATERIAL MANAGEMENT

A Sediment Progression:
From Confinement to Beneficial Use

Island Restoration

Island Creation

Habitat Creation

Marsh Enhancement

Marsh Edge Protection

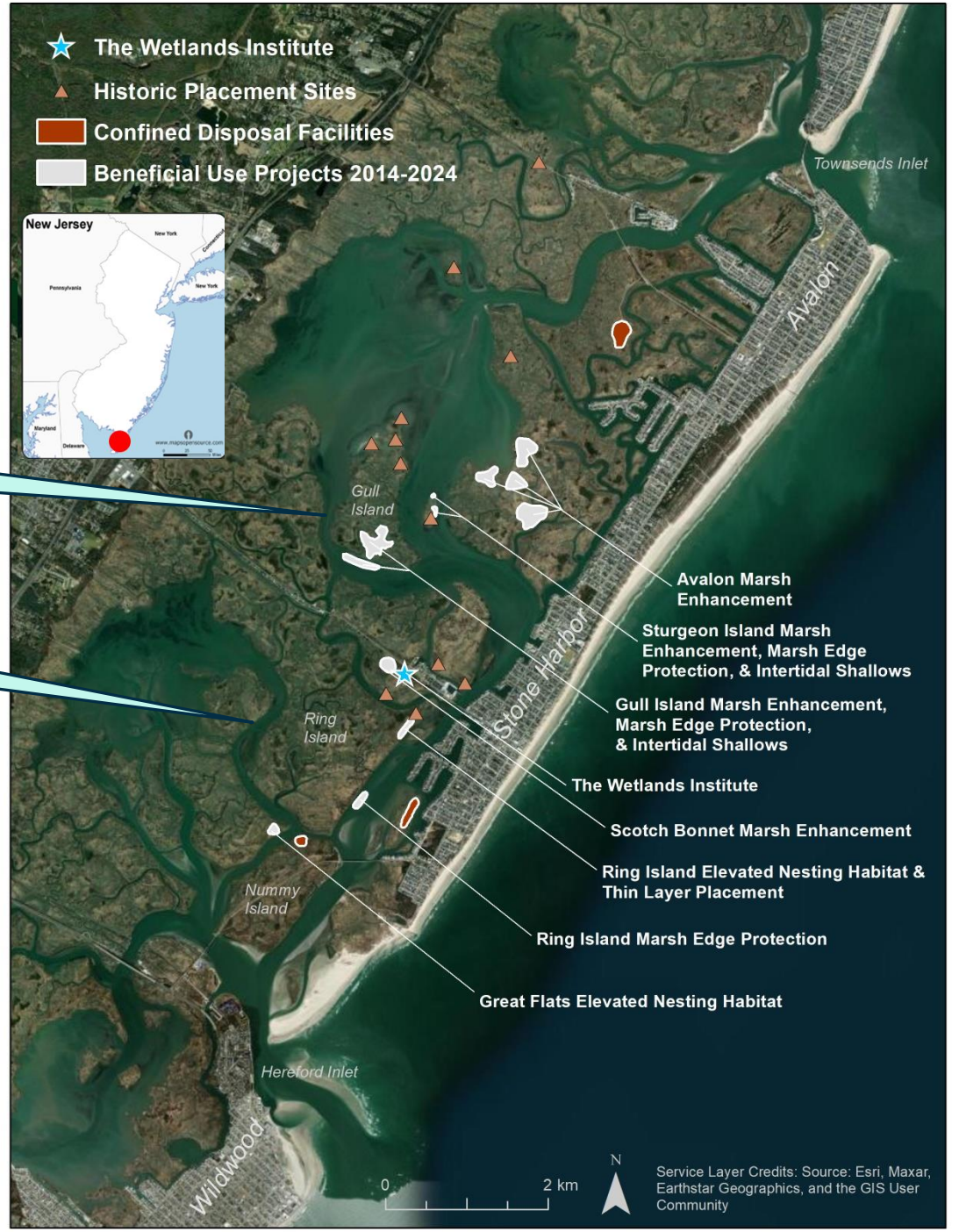
SMIIL BENEFICIAL USE PROJECTS

Project drivers are maintenance dredging of NJIWW
Placement methods are hydraulic dredging and transport

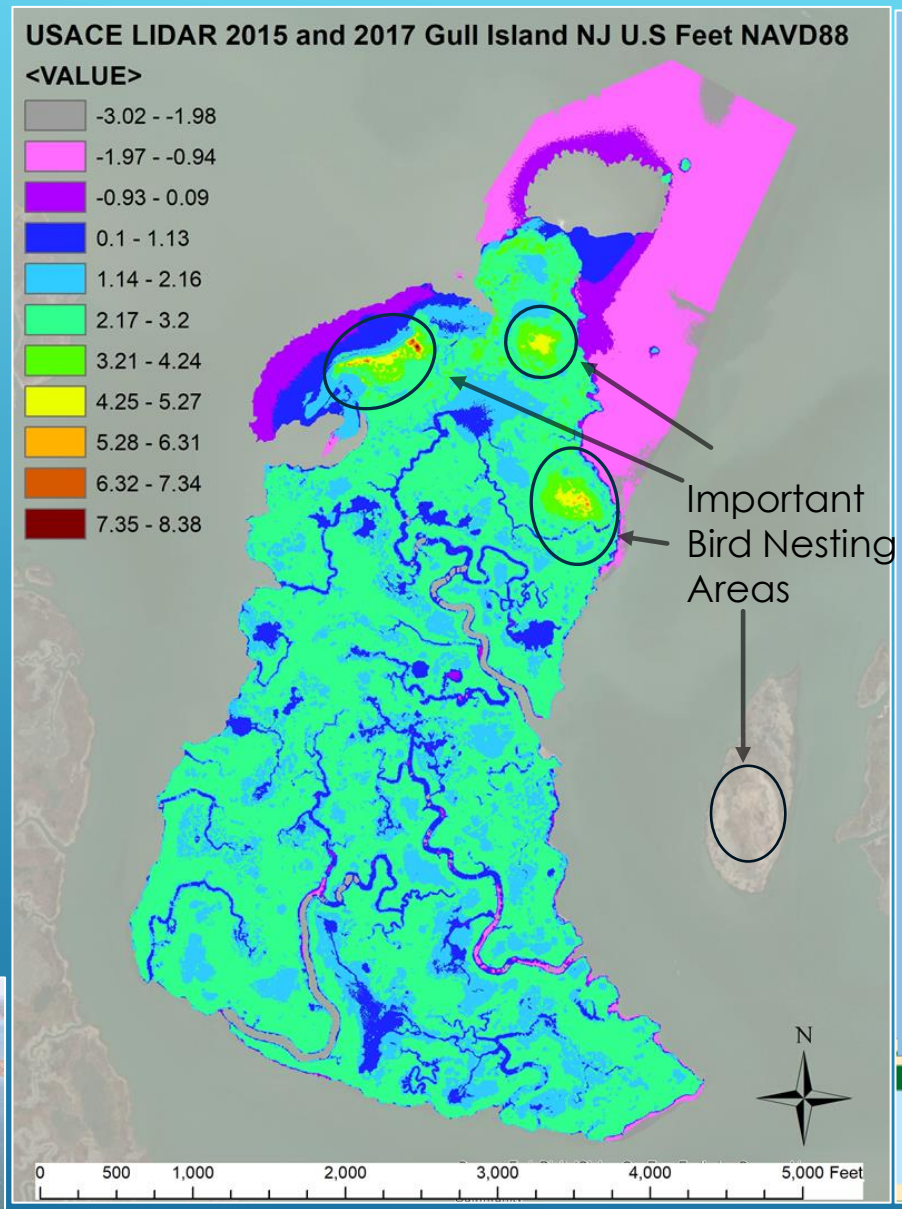
Sediment Type Mixed Fine Sand and Mud

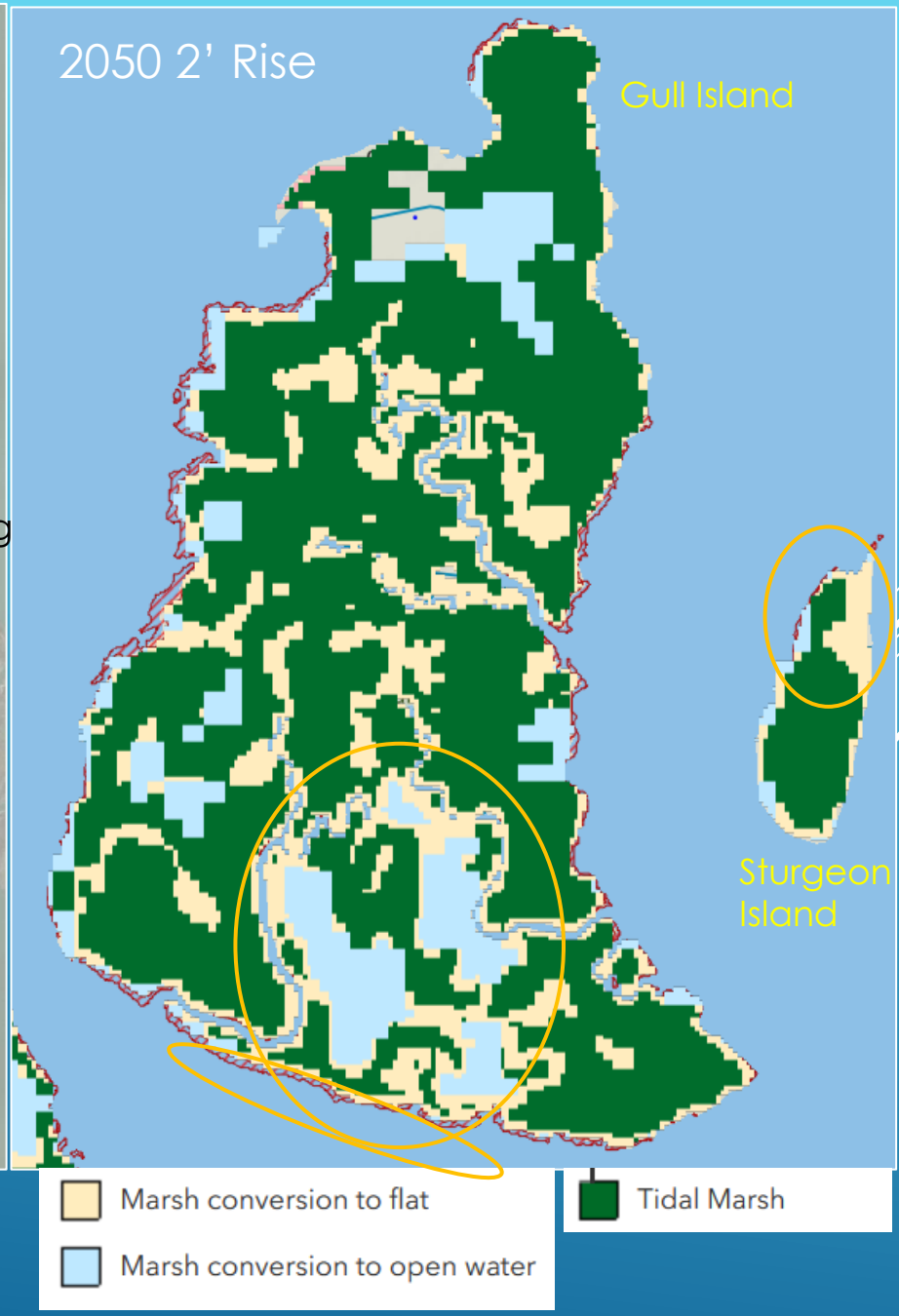
Sediment Type: Fine to Medium Sand

- Marry site selection with dredging needs
- Sediments and their location drive site selection
- Marsh condition assessment then drives project development
- Marsh need is so great that marrying ecological and dredging needs is effective



- Needs Assessment Identified Two Islands for BUDM Projects
  - Marsh projected to convert to mud flats and open water and already happening
  - Marsh edge erosion and risks of breaching
- Thickness of placement based on target elevation goals for marsh stability and habitat needs
- Large area of coverage favored unconfined placement





NJ Floodmapper

SAVING DROWNING MARSHES: GULL ISLAND

- Placed 40,000 CY of clean dredged sediment over 21 acres to elevate marsh by more than 2 feet in places
- Restored open water pool to marsh to increase marsh acreage and stabilize the marsh
- Offset sea level rise by decades

US Army Corps of Engineers®

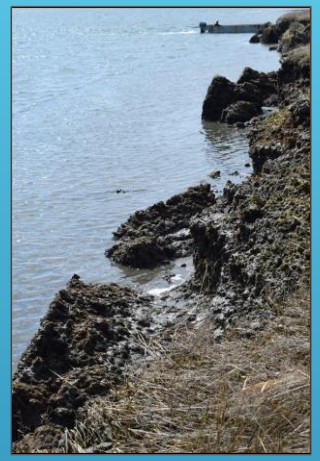
Wetlands Institute

ERDC

New Jersey Department of Environmental Protection

NJ New Jersey Fish and Wildlife

- Marsh Edge Erosion is Occurring at Rapid Rates
  - Related to storm waves and boat wakes
  - Hydraulic loading of saturated marshes/seepage erosion
- Accelerates marsh loss through pool breaching
- Marsh Edge Loss at Gull Island
  - 25 meters of retreat since 1937
  - ~0.3 m/year retreat rate



USING FINE-GRAINED SEDIMENT TO BUILD MARSH EDGE PROTECTION FEATURES

1 Month Post Placement

2 Years Post Placement

- Placed ~9000 cy via direct subtidal placement
- Gained 1 – 2.5’ of elevation
- 50% volume reduction after 3 years
- Turbidity plume localized, short lived and on par with winter storm generated turbidity

USING FINE-GRAINED SEDIMENT TO BUILD MARSH EDGE PROTECTION FEATURES

June 25 ,2022

Elevated Nesting Habitat for Beach Nesting Birds

- Built Two 1-acre Sandy Habitats With Repetitive Placement Cycles
- Established Ecological Benefit to Endangered and Threatened Species
- Built Resilience into Marsh Ecosystem

US Army Corps of Engineers

Wetlands Institute

ERDC

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

NEW JERSEY Fish and Wildlife

ADVANCING SCIENCE AND PRACTICE AT THE SEVEN MILE ISLAND INNOVATION LABORATORY

For more information:

- Lenore Tedesco – ltedesco@wetlandsinstitute.org
- Monica Chasten - Monica.A.Chasten@usace.army.mil
- Wetlandsinstitute.org/SMIIL

Beneficial Use of Dredged Material in EWN Projects
State Regulatory Process Considerations

January 13, 2025

NJDEP's Division of Land Resource Protection

The NJDEP's Division of Land Resource Protection regulates development, including living shorelines and other nature-based solutions, such as the beneficial use of dredged material, within areas governed by the following regulations:

- Coastal Zone Management (CZM) Rules at N.J.A.C. 7:7
  - CAFRA, Waterfront Development, Mapped Coastal Wetlands
- Flood Hazard Area Control Act (FHACA) Rules at N.J.A.C. 7:13
  - Flood Hazard Areas, Riparian Zones
- Freshwater Wetlands Protection Act (FWPA) Rules at N.J.A.C. 7:7A
  - Freshwater Wetlands, Transition Areas, State Open Waters, Unmapped Coastal Wetlands

Courtesy of the Partnership for the Delaware Estuary

Pre-Sandy Permitting Constraints

Revised Coastal Rules

June 2013 – Emergency adoption of New Coastal Zone Management Rules

- Revisions made to Coastal Regulations to facilitate the establishment of living shorelines:
  - The general permit for habitat creation and enhancement was modified to include living shoreline activities (General Permit #24 - N.J.A.C. 7:7-6.24)
  - A new general water area rule was added for living shorelines (N.J.A.C. 7:7-12.23)

State and Federal Permitting for EWN Projects

State Permits

- **CZM General Permit 24 at N.J.A.C. 7:7-6.24**
- **Waterfront Development Individual In-Water Permit**
  - Sediment Sampling and Analysis Plan (SSAP)
  - Dredging Technical Manual (1997), Appendix G
- **FWW General Permit 16 at N.J.A.C. 7:7A-7.16**
- **FHA General Permit 4 at N.J.A.C. 7:13-9.4**
- **Individual Permits**

Federal Permits

- **Beneficial use of dredged material projects require permits from the Army Corps of Engineers.**
- **Army Corps Regulatory Contacts**
  - Philadelphia District
    - Phone: (215)656-6728
  - New York District
    - Phone: (917) 790-8511

General Permit 24

Living shoreline activities shall comply with the following:

- Generally, <1 acre of disturbance below the mean high water but can be larger if the applicant is a county, state or federal agency that demonstrates the project size is necessary to satisfy goals.
- The project shall disturb the minimum amount of special areas, as defined by N.J.A.C. 7:7-9, necessary to successfully implement the project plan.
- Shall not exceed the footprint of the shoreline as it appeared on the applicable Tidelands Map adopted by the Tidelands Resource Council (base map photography dated 1977/1978).
  - Except for a structural component of the project intended to reduce wave energy

Permitting Considerations

Application Recommendations

- **Administratively and Technically Complete Permit Application**
- **Project development details**
- **Due diligence in pre-construction monitoring instead of adaptive management.**
  - Full understanding of the system and site specific conditions (i.e. hydrology, sediment transport, placement, etc.)
  - Next steps
- **Post-construction monitoring details**

Other considerations

- **Let the end goal of the project be the driver.**
- **Avoid Overdesign**
- **Containment**
  - Utilizing the marsh platform instead of full containment

Supportive documentation for Permit Applications

Do Your Due Diligence – Better Information

Upfront allows more efficient permit review/response

Assessment of Pre-Placement Conditions

-What is the goal of the project?
-Erosional History
-Analysis of Current Condition of Marsh (is it degraded?)
-Assessment of Existing Special Areas (SAV/Shellfish/Fish Habitat)
-Hydrodynamic Assessment
    Fetch, Currents, Wakes
-Sediment Dynamics/Availability
-Existing Slope/nearshore and onshore depth
-Soil Bearing Capacity (if installing structural component)

Supportive documentation for Permit Applications

Placement and Assessment of Post-Placement Conditions

-Discussion of Dredged Material Composition (Percentage Sand/Silt)
-How/where will the material be placed
-How will the goal of the project be obtained and maintained?
-How will the project maintain or enhance the ecosystem functions/services
Is the project habitat restoration, to improve water quality/carbon sequestration/wave attenuation/storm protection
-Based on pre-placement analysis, how will the placed material move on the marsh?
-Potential turbidity concerns/controls if necessary
-If in a special area, how will this placement minimize disturbance/be environmentally beneficial to outweigh the negative effects of the decrease
-Anticipated Timing of Project (Dredging/Placement)
-Potential End Effect Impacts/Issues with Constructability
-Project Monitoring

NJ REAL Proposed
Projected Adoption Late Summer/Early Fall

REAL Action

Adjust Coastal Flood Hazard Areas to account for increasing storm surge due to rising sea levels, extending jurisdiction further inland, requiring elevation (i.e., residential, infrastructure) or floodproofing.

Create an Inundation Risk Zone to address risk from sea-level rise for proposed residential buildings and critical structures in areas of permanent or daily inundation.

Improve Water Quality and Reduce Flooding through sound stormwater practices in areas where stormwater is unmanaged or is not adequately managed.

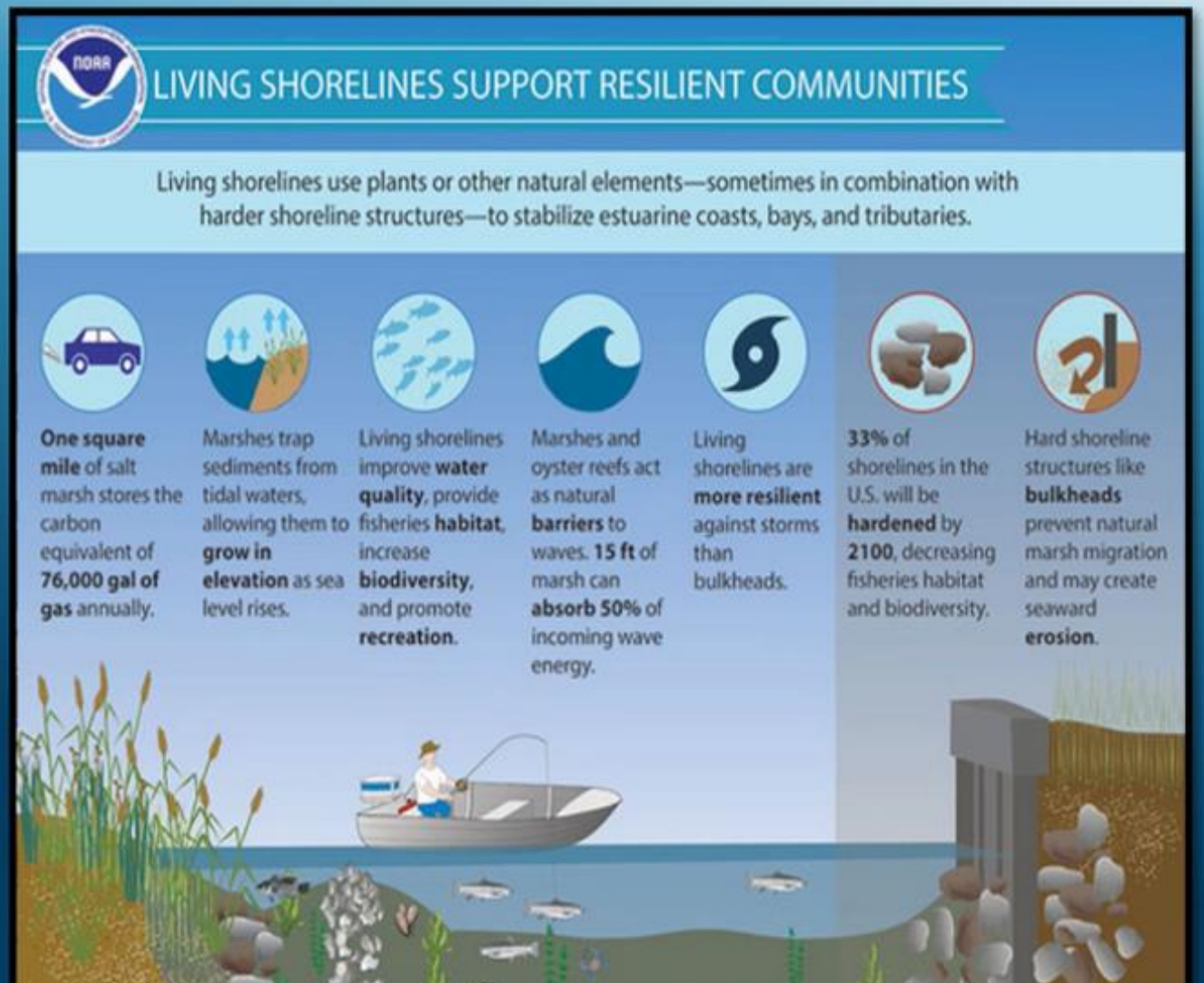
Encourage Nature-Based Solutions by working with nature to protect our communities and resources.

Support Renewable Energy by balancing habitat conservation with novel infrastructure demands.

Improve State Alignment with FEMA's National Flood Insurance Program.

Encouraging the use of nature-based solutions for shore protection

"Nature-based solutions" are projects designed to protect, restore, or enhance shorelines, wetlands, and in-water areas, utilizing natural features and processes to address erosion and flooding issues, and to restore or create ecological habitat.



Examples of Tidal Marsh Restoration Projects in NJ

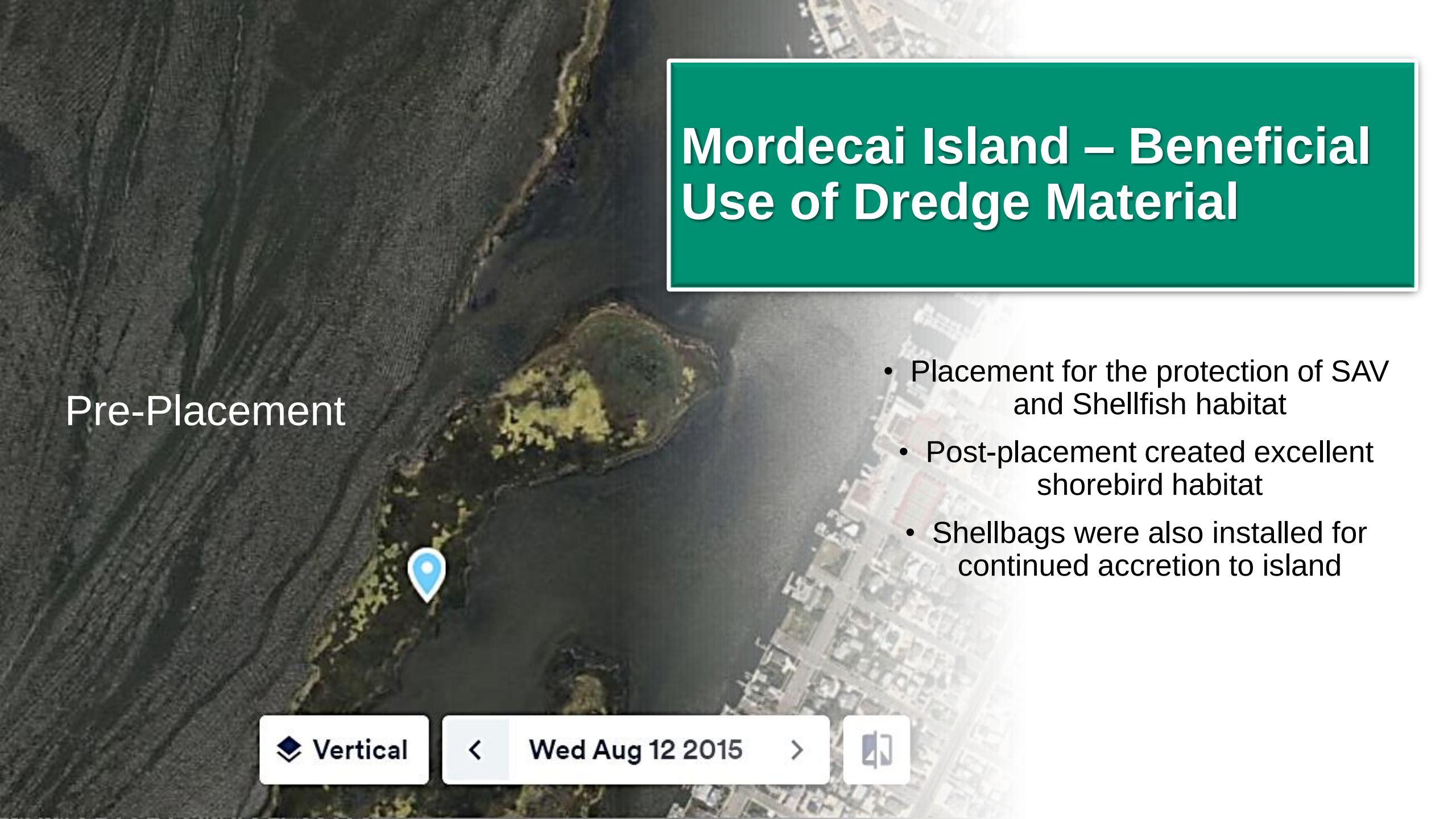
- Projects to Address Marsh Edge Erosion

Tidal Marsh Restoration Projects

- Beneficial Use of Dredged Material – Placement to Address Loss of Elevation of the Marsh Platform for Marsh and Habitat Enhancement

Money Island Shoreline Restoration Project

Mordecai Island – Beneficial Use of Dredge Material

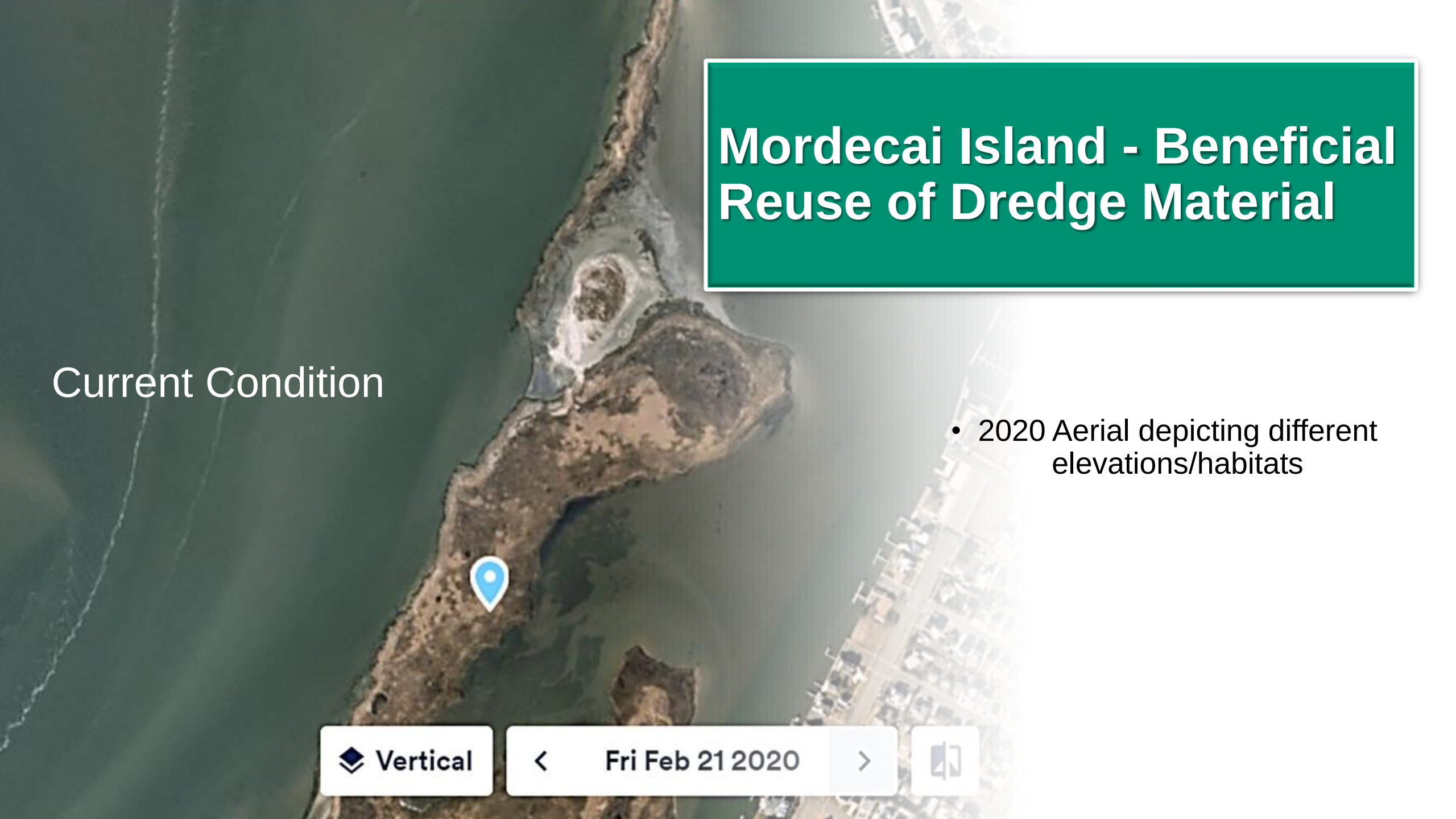


- Placement for the protection of SAV and Shellfish habitat
- Post-placement created excellent shorebird habitat
- Shellbags were also installed for continued accretion to island

Mordecai Island - Beneficial Reuse of Dredge Material

Current Condition

- 2020 Aerial depicting different elevations/habitats



Section 1122 – Barnegat Bay

Section 1122 – Island Creation

Section 1122 – Nearshore Placement

NJDEP Contacts

- Mark Davis, NJDEP Division of Land Resource Protection
  - Email: Mark.Davis@dep.nj.gov
- Lindsey Davis, NJDEP Division of Land Resource Protection
  - Email: Lindsey.Davis@dep.nj.gov
- Kara Turner, NJDEP Division of Land Resource Protection
  - Email: Kara.Turner@dep.nj.gov
- Application Materials, Laws, and Regulations can found on the Division's webpage at www.nj.gov/dep/landuse/

colleen.keller@dep.nj.gov

NJCRC Coffee Chat January 13, 2025

Edwin B. Forsythe National Wildlife Refuge, Galloway, NJ

Your Mud Matters: Community & Ecological Resilience

Quinn McHerron

Restoration Program Coordinator, Bureau of Climate Resilience Planning

Office of Climate Resilience | Coastal Management Program

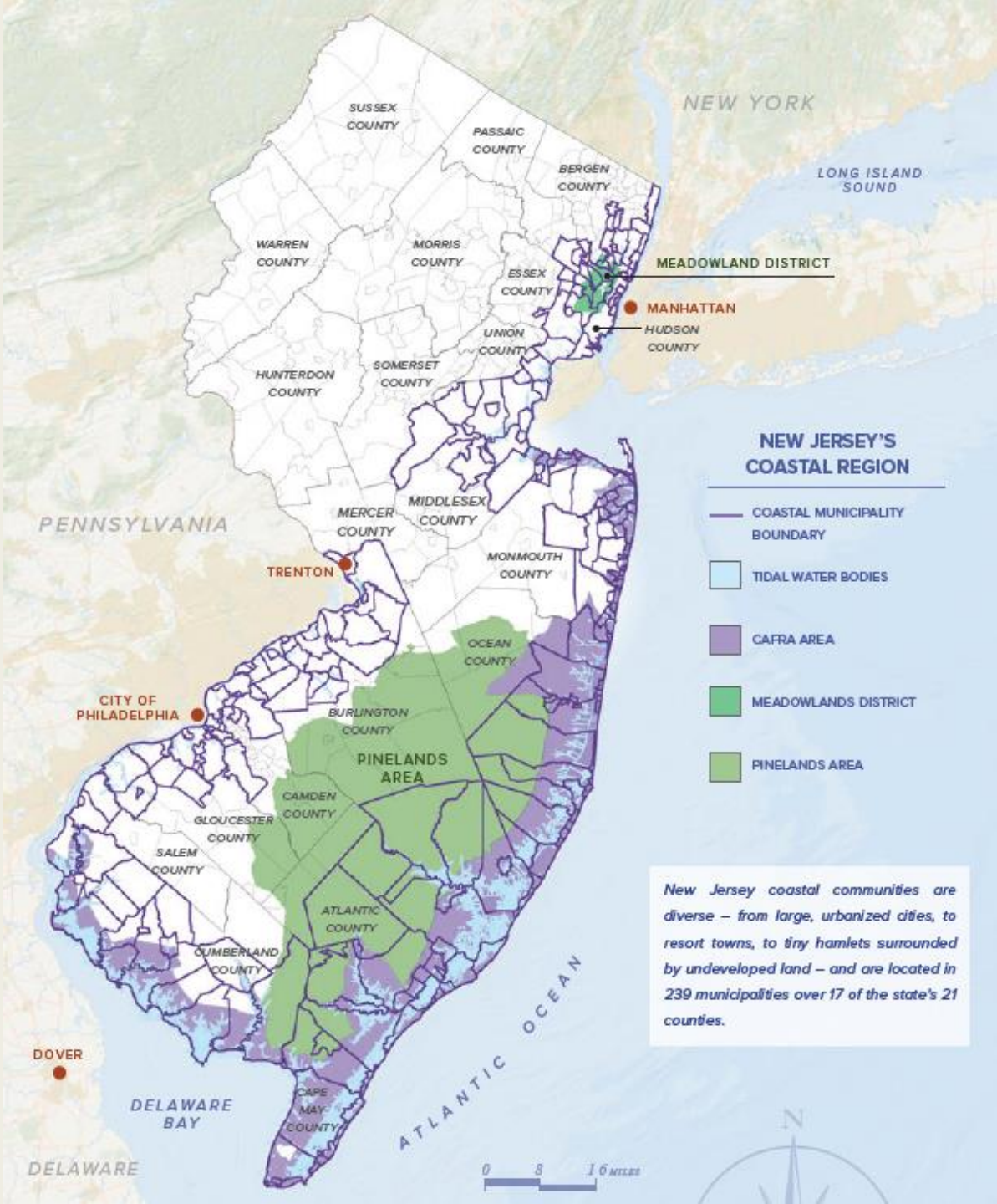
New Jersey's Networked Program

New Jersey's coastal management program is a networked program and that the activities to protect and enhance the coastal zone are shared across many programs within the state.

- Office of Climate Resilience
  - Bureau of Climate Resilience Planning
  - Blue Acres
- Watershed and Land Management
  - Division of Land Resource Protection
  - Bureau of Coastal and Land Use Compliance and Enforcement
  - Dredging and Sediment Technology
- Division of Science and Research
- NJ Fish and Wildlife
- Historic Preservation Office
- Green Acres Program
- Water Resource Management
- NJ Parks and Forestry

NJ's Coastal Zone

- 239 municipalities across 17 counties
- 1,800 miles of tidal coastline
- 80% of NJ's year-round population lives within the Coastal Zone
- 200,000 acres of tidal wetlands



Source: State of New Jersey Climate Change Resilience Strategy, 2021

Coastal marshes are of significant value

- Coastal protection
- Recreation & tourism
- Carbon sequestration
- Support fisheries
- Provide critical habitat
- Stores floodwater & improves water quality

…and value $

- NY & NJ: Prevented $625 in direct flood damages during Hurricane Sandy
  - Reduced damages by 22% in half of the affected areas
- Barnegat Bay: properties fronted by marsh experienced 16% lower annual flood losses

Source: Narayan et al., 2017. *The Value of Coastal Wetlands for Flood Damage Reduction in the Northeastern USA.*

Vulnerability to Sea Level Rise in NJ

- Global sea level rise rate 1.1-1.9mm per year
- NJ sea level rise since early 1900s is 4mm per year, double the historic rate

Under moderate GHG emissions:

2050 → 1-2 feet sea level rise

2100 → 2-5 feet sea level rise

2050 → Close to 3,600 buildings & structures anticipated to be impacted daily or permanently

2100 →11,000 structures

2050 → Loss of 28% salt marshes in NJ

2100 → Loss of 92% brackish marshes in Delaware Estuary

2050 → 45 annual sunny day flooding events in Atlantic City

2100→ 83% chance of 240 annual events

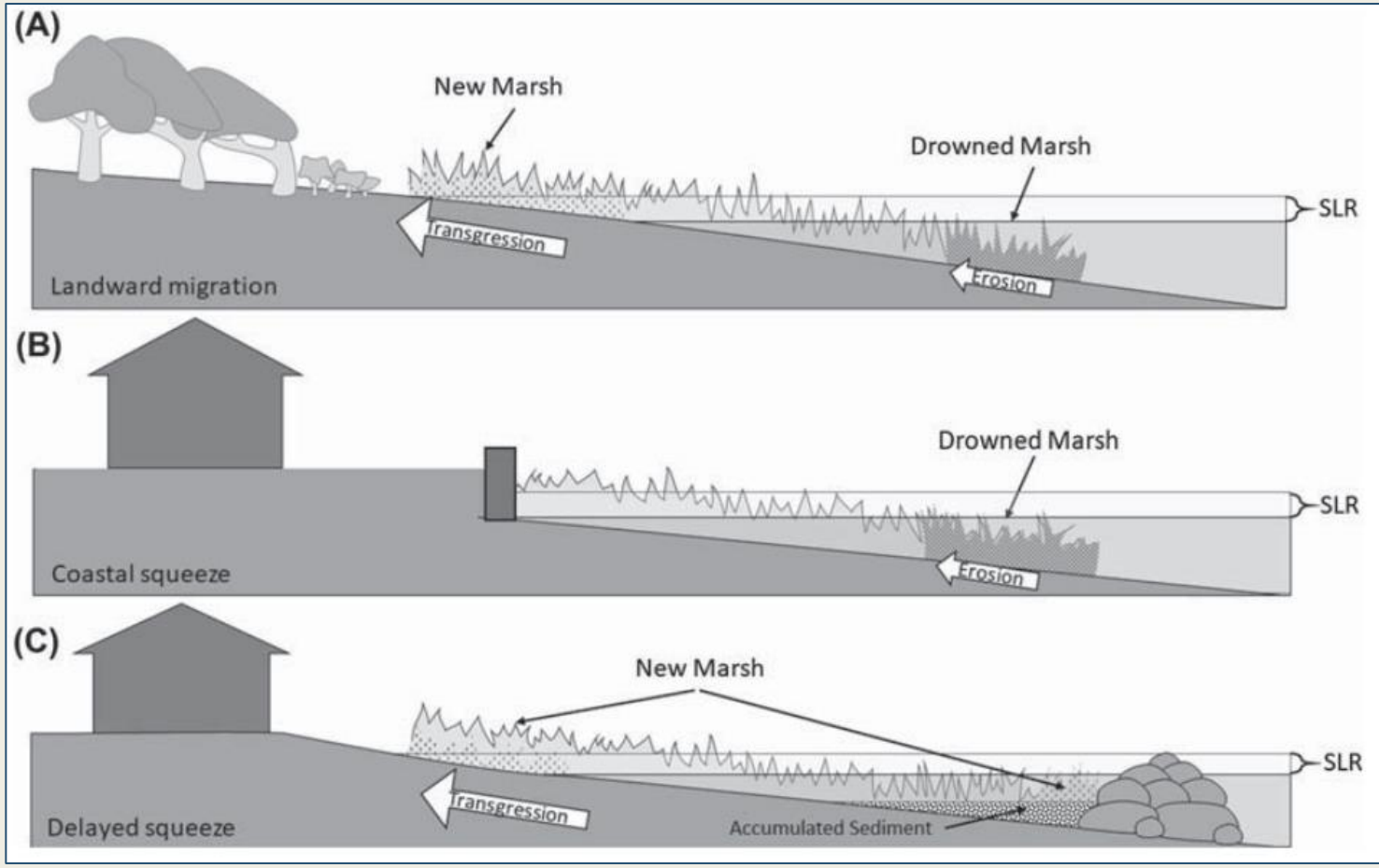
Sources:

State of New Jersey Climate Change Resilience Strategy, 2021

New Jersey's Rising Seas and Changing Coastal Storms: Report of the 2019 Science & Technical Advisory Panel

Responding to Sea Level Rise

- Marshes migrate landward as a mechanism to adapt
- In NJ – nearly 1/3 of possible migration areas are hindered by development
- Complex interplay between natural areas & development
- Added complex of historic land uses
- Marshes have become more susceptible to edge slumping, tidal channel widening, & general landscape fragmentation



Source: Carolyn A. Currin, Living Shorelines for Coastal Resilience

Sediment for Community & Ecological Resilience

- Beach nourishment & replenishment
- Marsh platform enhancement
- Stabilization of marsh edges
- Island restoration & creation

Priority 6. Coastal Resilience Plan

- Incentivize and Support Community Resilience Planning
- Update Coastal Management Regulations to Reflect Sea-Level Rise and Other Climate Change Projections
- Sustain and Strengthen Tidal Marshes to Provide Ecological and Community Resilience
  - Improve coordination within DEP to coordinate efforts to protect and enhance tidal marshes
  - Support an expanded tidal wetland monitoring program and assessment program
  - Conserve and acquire land as necessary to allow for landward marsh migration
  - Develop regional sediment management plans for back bay dredging to support beneficial use of dredged material for habitat restoration
- Manage Shoreline Stabilization with Nature-Based Features
- Manage Coastal Beaches and Dunes to Reduce Erosion and Storm Damage

RESILIENT NJ

CLIMATE RESILIENCE FUNDING DIRECTORY

EXPLORE RESILIENCE FUNDING OPPORTUNITIES

The NJDEP Climate Resilience Funding Directory, your gateway to discovering funding opportunities to enhance your community's resilience.

@newjerseydep @nj.dep & @njcoastalmanagement

Contact

Quinn.McHerron@dep.nj.gov

The Township of Brick's Mud Matters

Presented to:

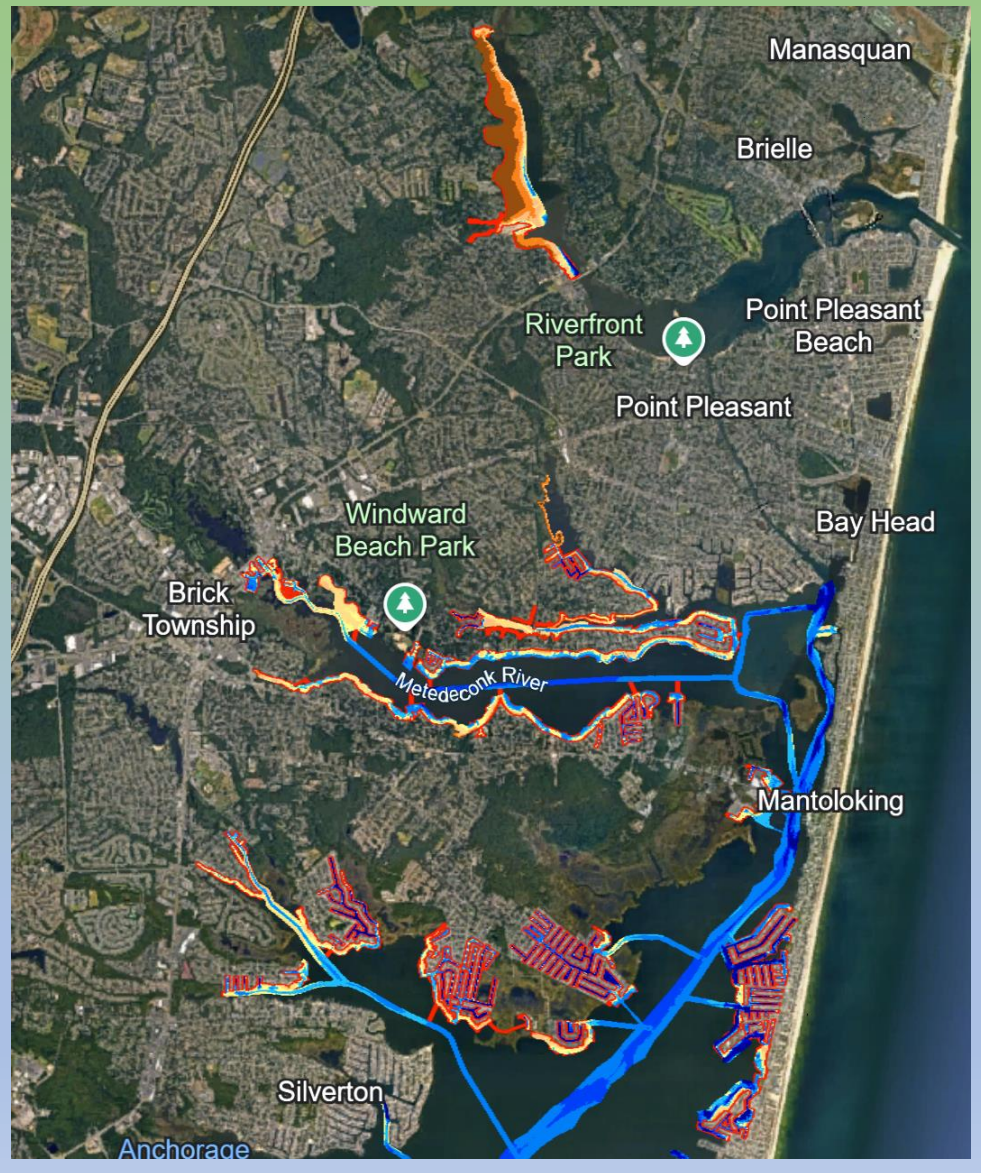
New Jersey Coastal Resilience Collaborative

Coffee Chat

January 13, 2025

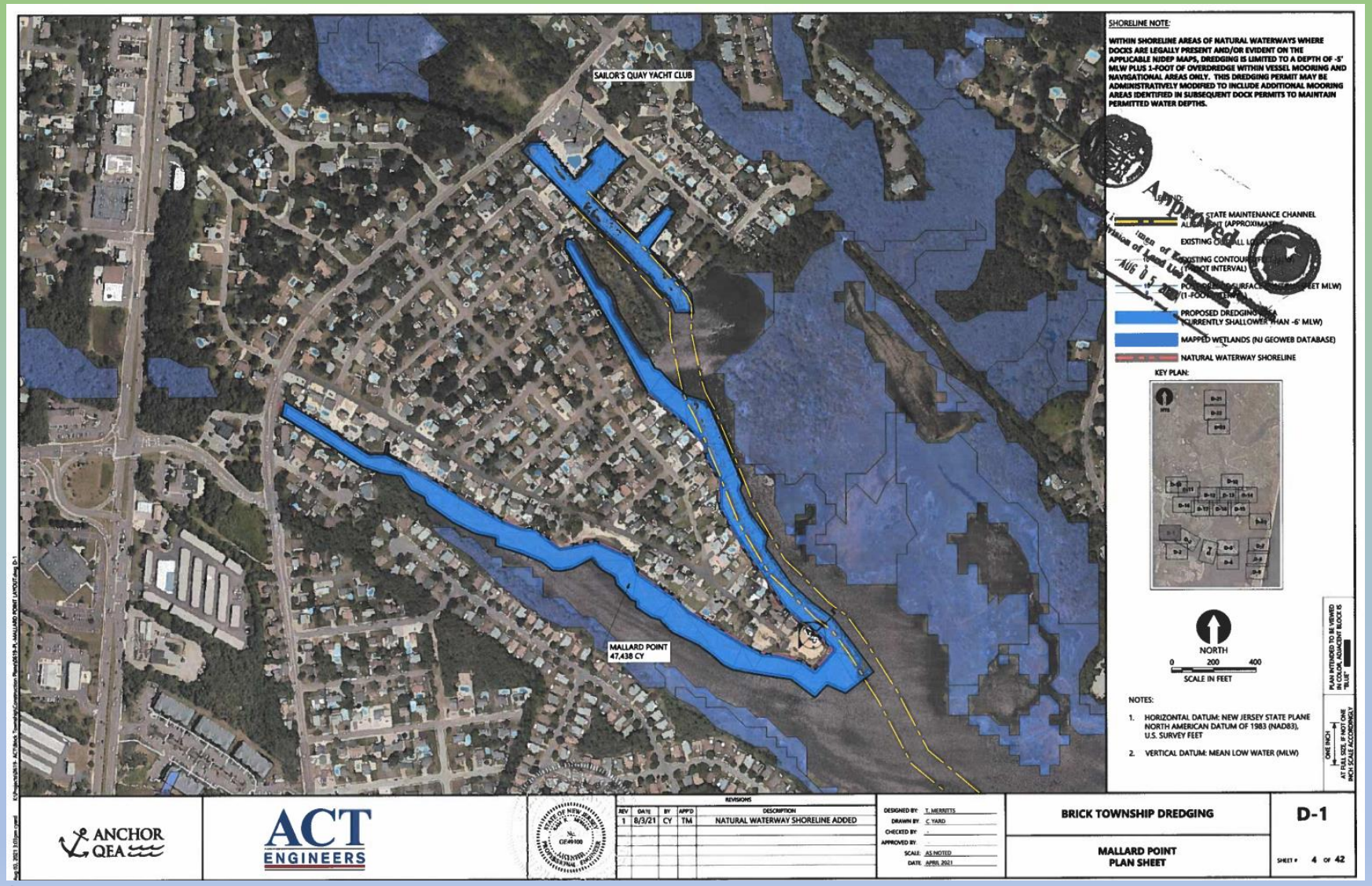
Township of BRICK

2022 Permit to Dredge Entire Coastal Municipality

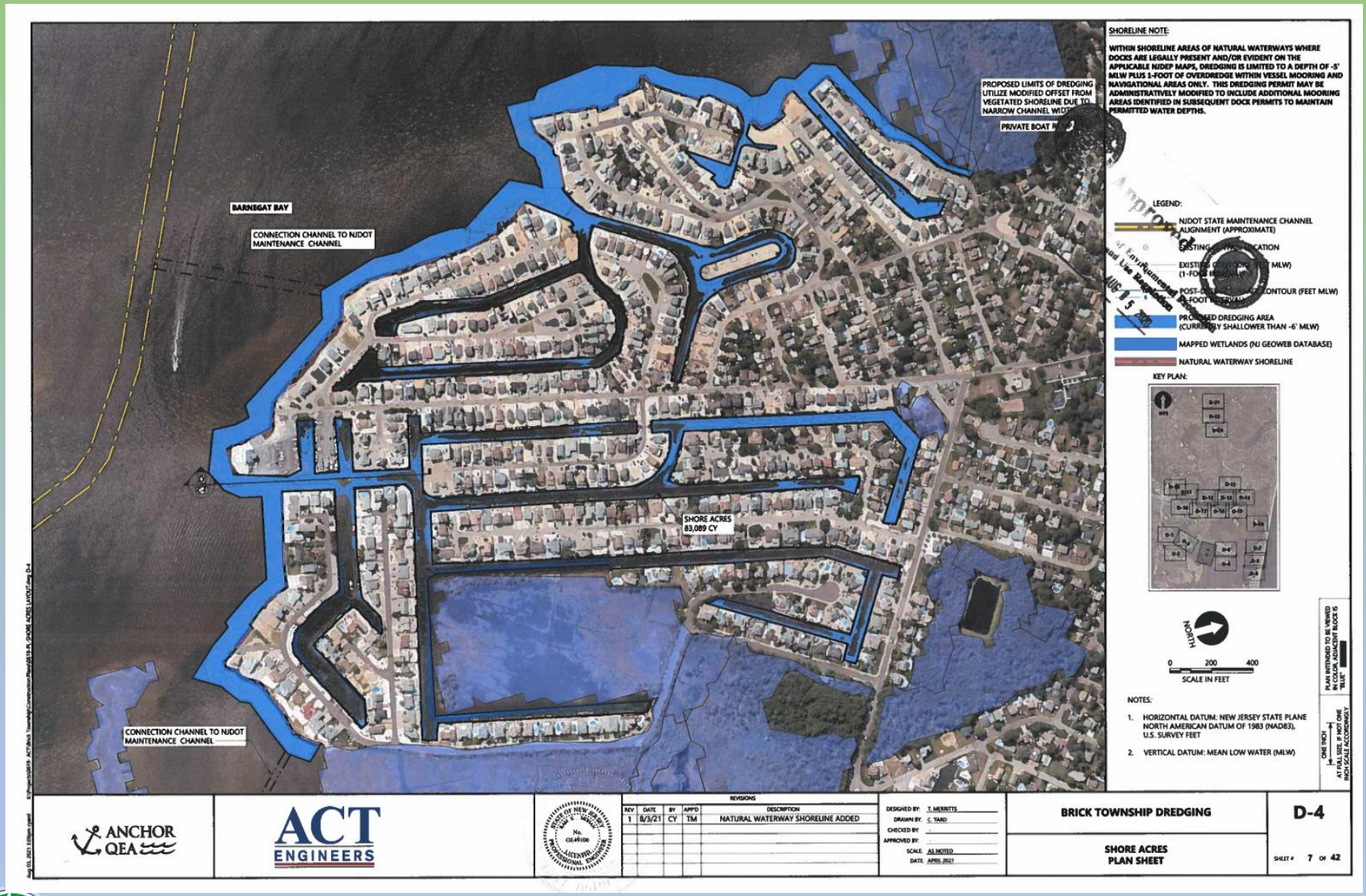


Google Earth Image -Colors represent potential material thicknesses from bathymetry collected in 2019.

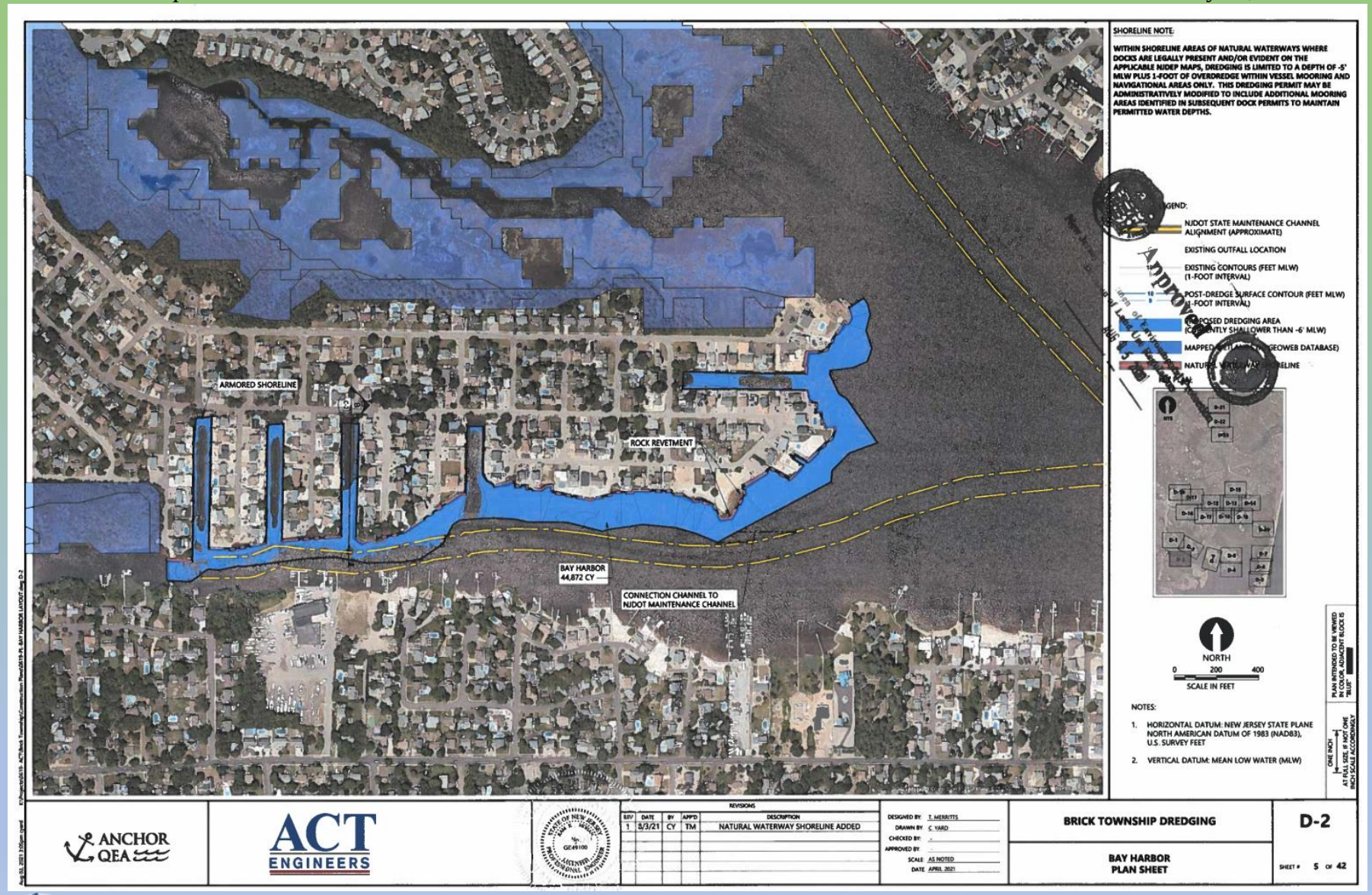
Township of BRICK



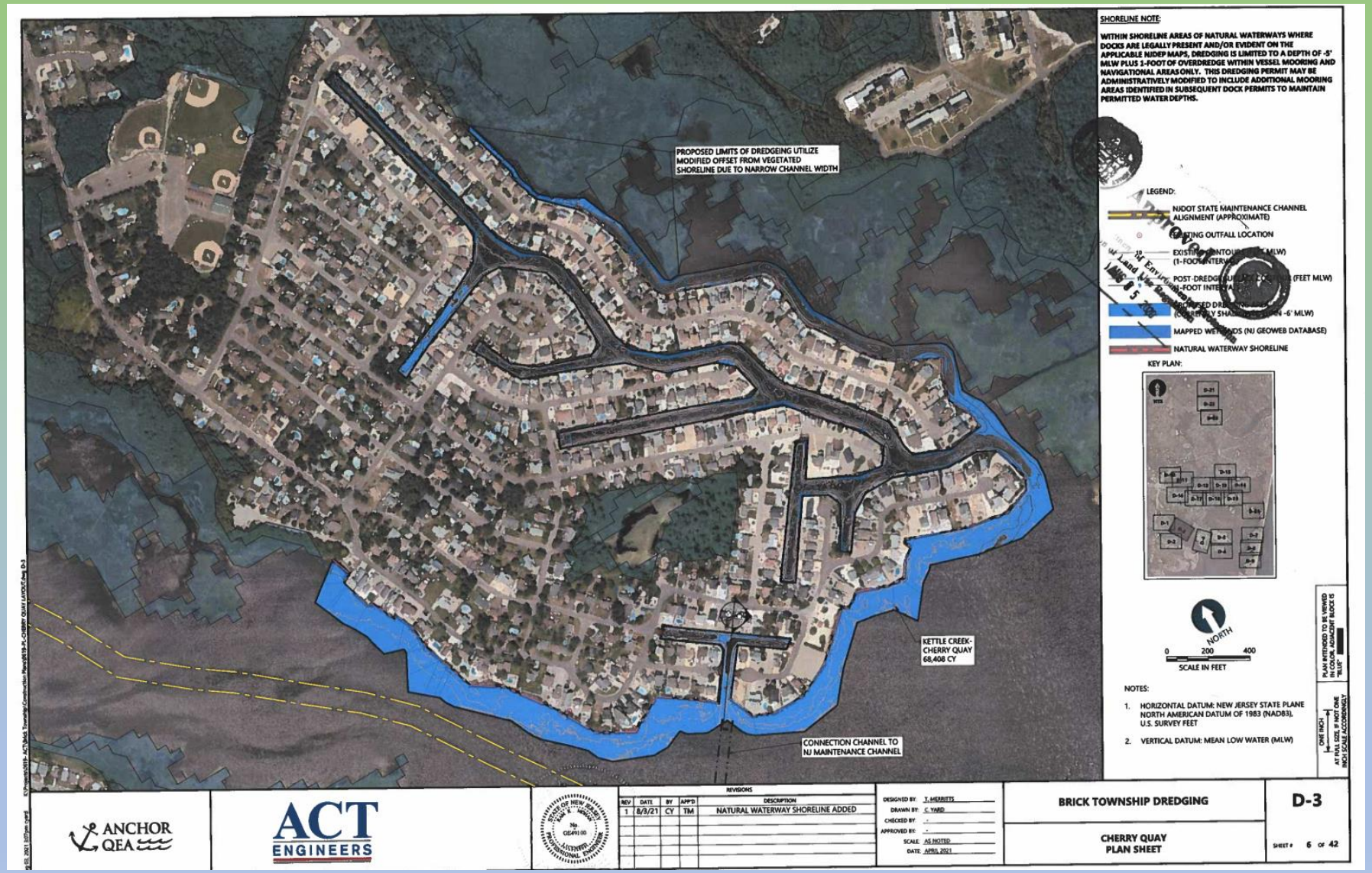
Township of BRICK



Township of BRICK



Township of BRICK



Township of BRICK

Disposal Locations

Disposal Locations

Burlington County
Department of Solid Waste
PO Box 429, Columbus, NJ 08022
Phone: (609) 499-1001 • www.co.burlington.nj.us
Jerome P. Sheehan, Director

Burlington County Commissioners:
Daniel
To

March 30, 2022

Elissa C. Commins, PE, CFM
Township Engineer & Floodplain Manager
Township of Brick
401 Chambers Bridge Road
Brick, New Jersey 08723

Dear Ms. Commins;

Thank you for considering the
the Brick Township dredge soil
yards of soil per year through
Program, including a complete
physical analyses, and any cop
order to provide documentatic
receive an Acceptable Use Det
accordance with state require

MOBILE DREDGING & VIDEO PIPE
A Carylon Company

3100 Bethel Road
Chester, PA 19013
p: (610) 497-9500
f: (610) 497-9708
www.mdvpinc.com

January 18th, 2022

Ms. Joanne Bergin
Brick Township
Business Admistrator
401 Chambers Bridge Road
Brick, NJ 08723

Re: Brick Township Navigable Waterways

hat Mobile Dredging & Video Pipe, Inc. (MDVP) is ready, willing and able to provide
euse of an estimated 250,00 cubic yards of dredge sediment removed from Brick
ey and delivered to the Tuckahoe Turf Farms site in Estelle Manor, NJ.

l material delivered to the beneficial reuse site must not exhibit free water or be
nsport. Trucks transporting the material must be watertight and be equipped with
gates and mud locks. Trucks not meeting these specifications will be dismissed from

aterial delivered to the site must meet the New Jersey Residential Soil Clean-
Township will be required to provide MDVP with all appropriate Federal, State

February 16, 2022

Timster Trucking, Inc.
128 Bartlett Avenue
West Creek, NJ 08092

RE: Material Acceptance
250,000 Cubic Yards
Navigable Waterways
Brick Township
NJDEP Permit No: 1509-21-0030.1

Elissa C Commins PE CFM
Township Engineer & Floodplain Manager
Township of Brick
401 Chambers Bridge Road
Brick, NJ 08723

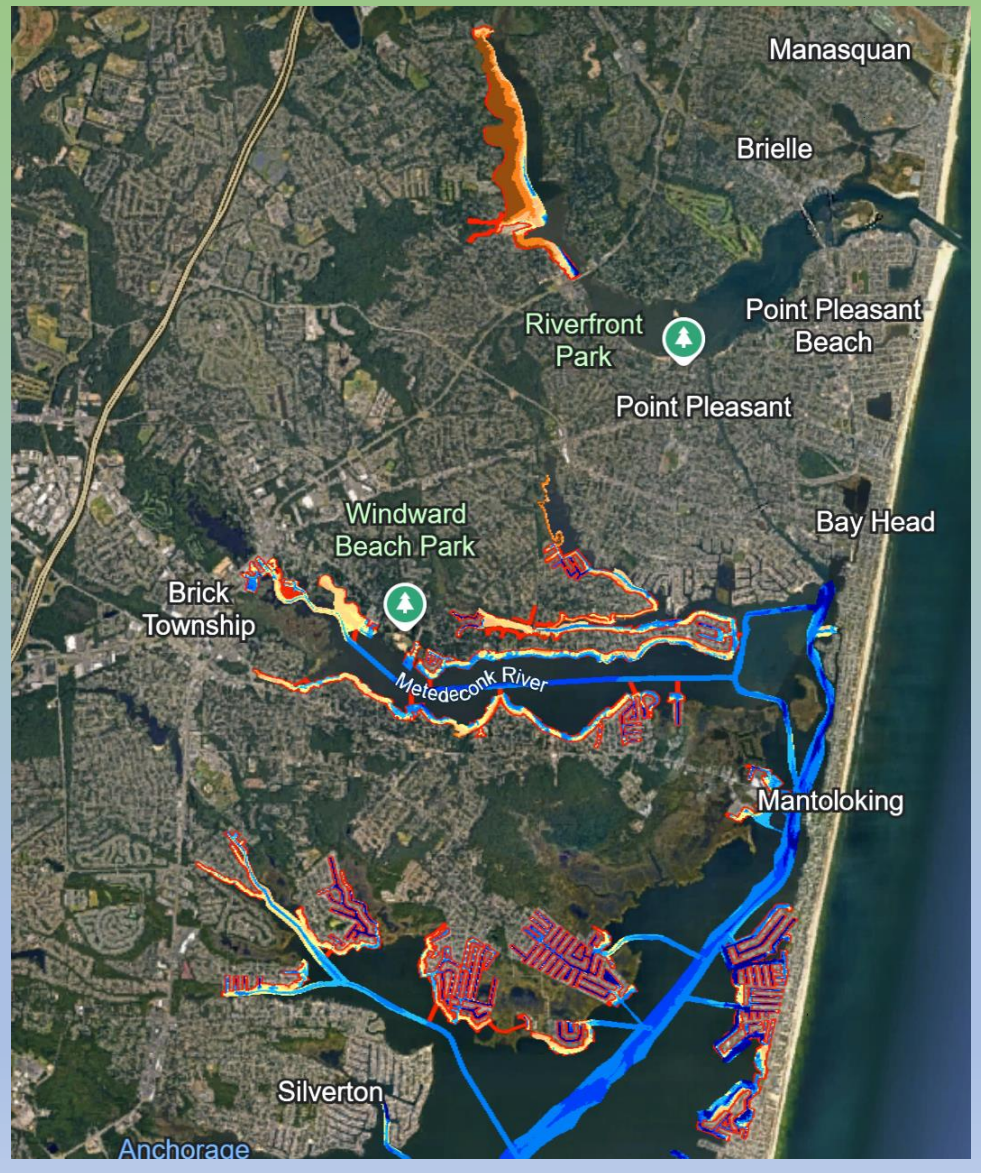
Dear Ms. Commins,

This letter is in response to your request to utilize BLK 42; LOT 25 Eagleswood, BLK 65: LOT 25, Little Egg Harbor (Timster Trucking, Inc., Renegade Real Estate, LLC) facility as part of the overall dredging proposed for Brick Township. Per the USACOE & NJDEP permit we will
Accept residential clean fill only of sediment from Navigable waterways within the township.

The acceptance of this material is conditioned on the execution of a use agreement. A

Township of BRICK

1,878,376 Cubic Yards



Google Earth Image -Colors represent potential material thicknesses from bathymetry collected in 2019.

Township of BRICK

Edwin B Forsythe Wildlife Refuge

Township of BRICK

NJDEP RGGI Funding - $5 Million

Township of Brick, $4,997,124

Forsythe Refuge Marsh Restoration

This project will lead to coastal wetland restoration of the U.S. Fish and Wildlife Service's Edwin B. Forsythe National Wildlife Refuge in Brick Township. The project will place more than 120,000 cubic yards of suitable dredged sediment into a series of 13 cells to increase tidal salt marsh elevation, protecting the marsh from drowning. The total area of sediment placement is approximately 95 acres of marsh. Added protective measures will be used to contain placed sediment and strengthen shorelines. The elevated marsh will be planted in areas that did not previously contain vegetation to ensure recolonization of vegetation occurs to ultimately restore the health of the marsh.

FOR IMMEDIATE RELEASE
January 18, 2023

Contact:
Caryn Shinske (609) 984-1795
Lawrence Hajna (609) 984-1795
Vincent Grassi (609) 984-1795

MURPHY ADMINISTRATION AWARDS $24.3 MILLION THROUGH ITS NATURAL CLIMATE SOLUTIONS GRANT PROGRAM

PROJECTS WILL MITIGATE CARBON EMISSIONS BY ENHANCING URBAN AND NATURAL FORESTS AND RESTORING COASTAL ECOSYSTEMS

(23/P003) TRENTON – New Jersey Department of Environmental Protection Commissioner Shawn M. LaTourette today announced the award of $24.3 million in Natural Climate Solutions Grants to local governments and nonprofits to create, restore, and enhance New Jersey's green spaces and tree canopies in urban areas, salt marshes and forests.

"With Governor Phil Murphy's vision and leadership, New Jersey is waging its fight against climate change on multiple fronts," **said Commissioner LaTourette** during a ceremony in Trenton. "New Jersey will avoid the worst effects of our changing climate not only by reducing emissions of climate pollutants, but by investing in natural solutions that sequester carbon causing the extreme heat and flooding repeatedly striking our communities. Through DEP's nation-leading Natural Climate Solutions Grant Program, we will better support communities in their work to mitigate climate impacts – from our urban core, to the Atlantic coast, to our bay shores. And, with over $24 million of investments in urban and community forestry, marsh restoration, and living shorelines, we will beautify neighborhoods and build greater climate resilience in the process."

The announcement, made at Mill Hill Park in Trenton, underscores the

Beneficial Reuse Reduces the Cost of Dredging

CONTINUATION SHEET *AIA DOCUMENT G703*

AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply. ARCE

A ITEM NO.	B DESCRIPTION OF WORK	C PRICE	D QTY.	C VALUE	E QTY. THIS PERIOD	F AMOUNT THIS PERIOD	PREVI AMO COMPL
1	MOBILIZATION / DEMOBILIZATION	$52,000.00	1	$52,000.00	0.6	$31,200.00	
2	SOIL EROSION & SEDIMENT CONTROL	$41,000.00	1	$41,000.00	0.60	$24,600.00	
3	WATER MANAGEMENT CONTROL	$40,000.000	1	$40,000.00	0.2	$8,000.00	
4	MECHANICAL DREDGE & HANDLING	$55.00	2,190	$120,450.00	200	$11,000.00	
5	PLACEMENT AND GRADING	$18.00	2,190	$39,420.00	200	$3,600.00	
6	PRIVATE AIDS TO NAVIGATION	$6,000.00	1	$6,000.00	0.50	$3,000.00	

Township of BRICK

Beneficial Reuse Reduces the Cost of Dredging

BASIC PAY ITEMS

All Basic Pay Items will be included in the Work. Bidder shall include all Basic Pay Items in the Total Bid Amount.

1. Mobilization, LUMP SUM WORK at
.....Six Hundred Nineteen Thousand Eighty One Dollars.....Dollars and
.....No..... Cents per LUMP SUM
for an estimated
1 LUMP SUM equals:
$ 619,081.00

2. Perimeter Controls for Area A Wetland Restoration Cells, LUMP SUM WORK at
Four Hundred Eighty Four Thousand Two Hundred Sixty Six...Dollars and
.....No..... Cents per LUMP SUM
for an estimated
1 LUMP SUM equals:
$ 484,266.00

3. Hydraulic Dredging of Traders Cove and Transport to Area A Cells, UNIT PRICE WORK at
.....Forty Three.....Dollars and
.....Eighty One..... Cents per CUBIC YARD
for an estimated
9,400 CUBIC YARDS, equals:
Four Hundred Eleven Thousand Eight Hundred Fourteen Dollars and No Cents $ 43 .81

4. Wetland Restoration of Area A Cells – Traders Cove, UNIT PRICE WORK at
.....Ninety Four.....Dollars and
.....Eighty One..... Cents per CUBIC YARD
for an estimated
9,400 CUBIC YARDS, equals:
Eight Hundred Ninety One Thousand Two Hundred Fourteen Dollars and No Cents $ 94 .81

5. Site Restoration and Demobilization, LUMP SUM WORK at
.....Fifty Thousand.....Dollars and
.....No..... Cents per LUMP SUM
for an estimated
1 LUMP SUM equals:
$ 50,000 .00

AIA DOCUMENT G703

ARCH

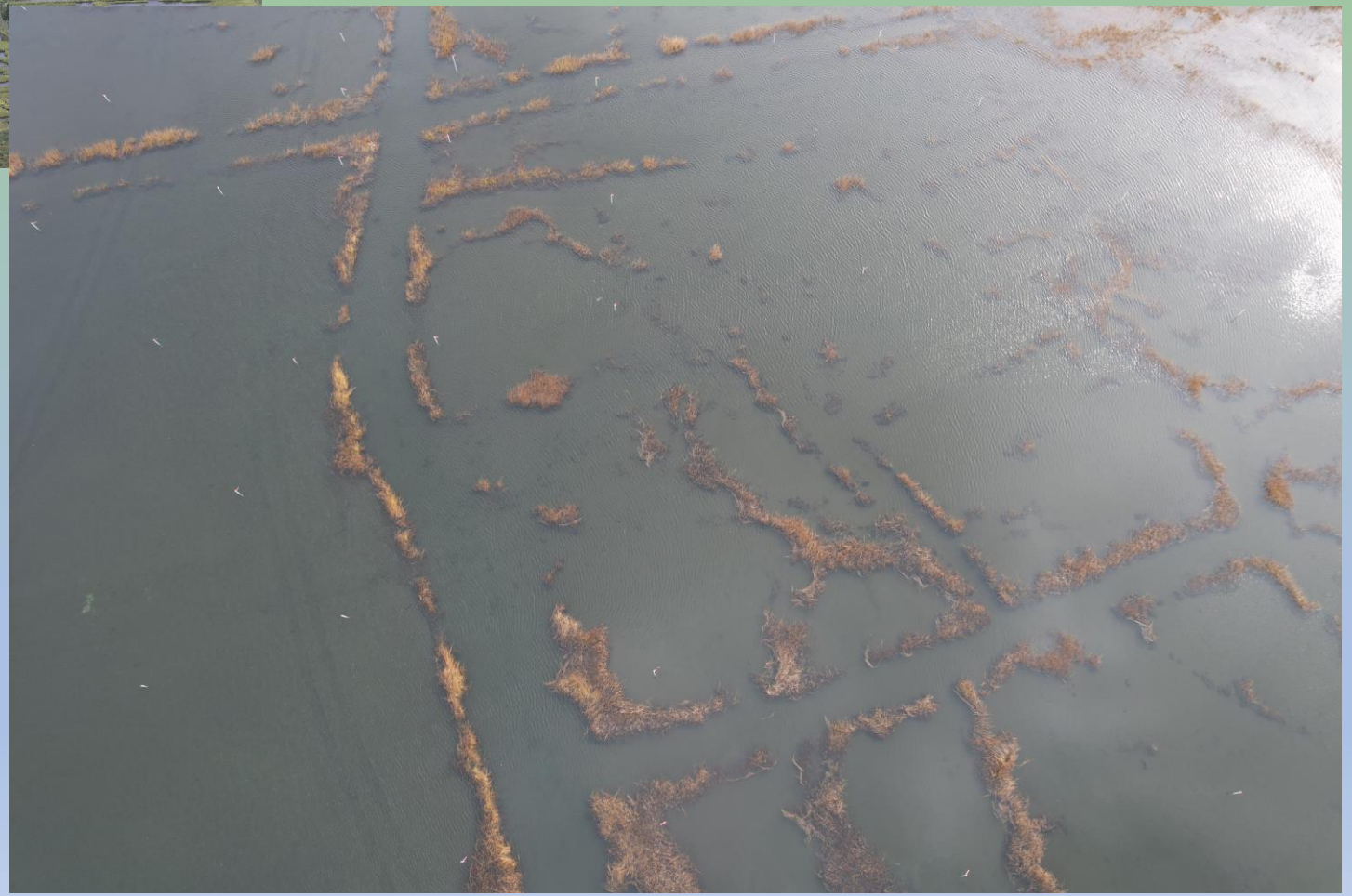
D TY.	C VALUE	E QTY. THIS PERIOD	F AMOUNT THIS PERIOD	PREV AMO COMPL
1	$52,000.00	0.6	$31,200.00	
1	$41,000.00	0.60	$24,600.00	
1	$40,000.00	0.2	$8,000.00	
2,190	$120,450.00	200	$11,000.00	
2,190	$39,420.00	200	$3,600.00	
1	$6,000.00	0.50	$3,000.00	

Township of BRICK

Marsh Restoration Area

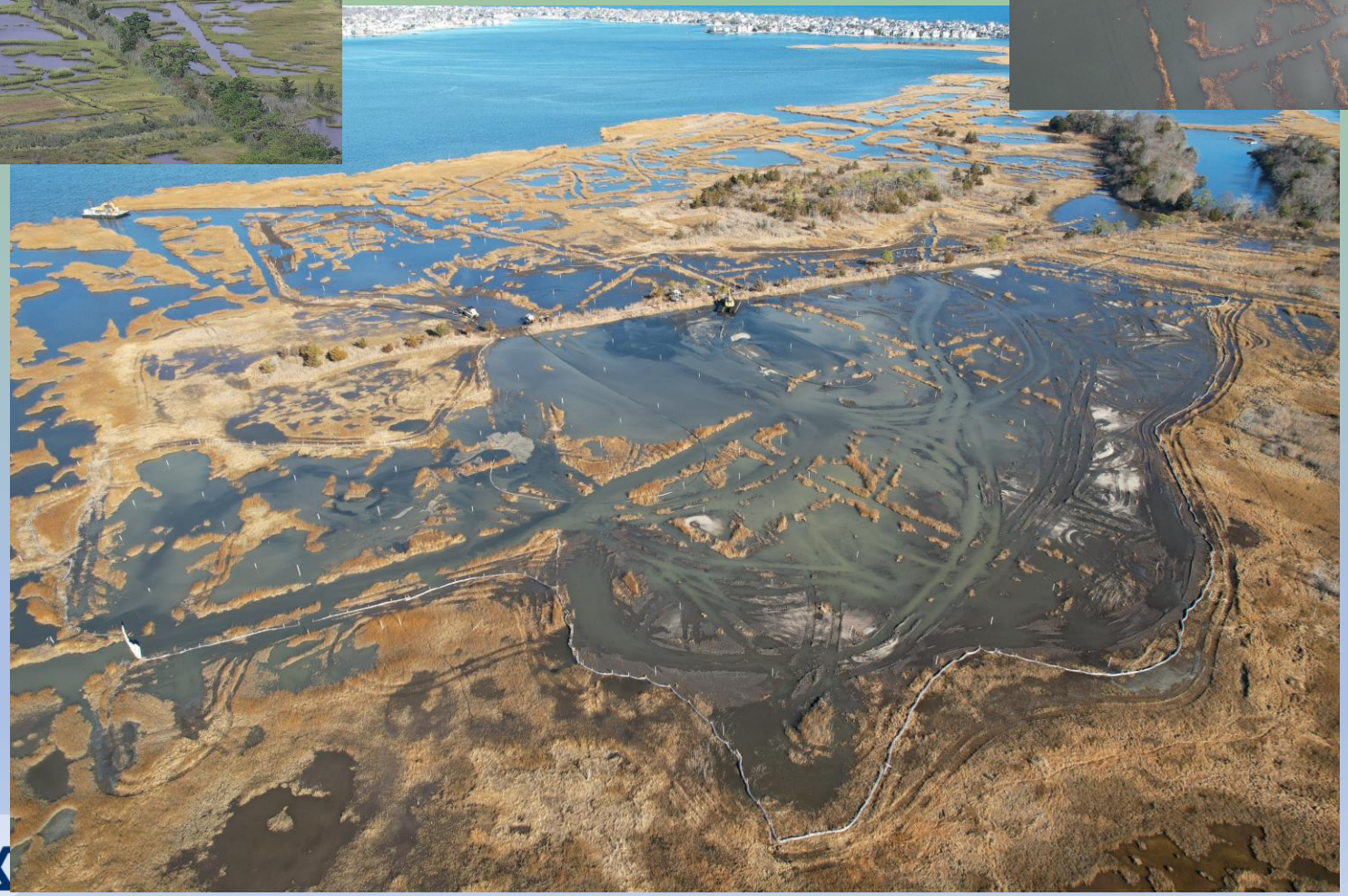
Township of BRICK

Marsh Restoration Area



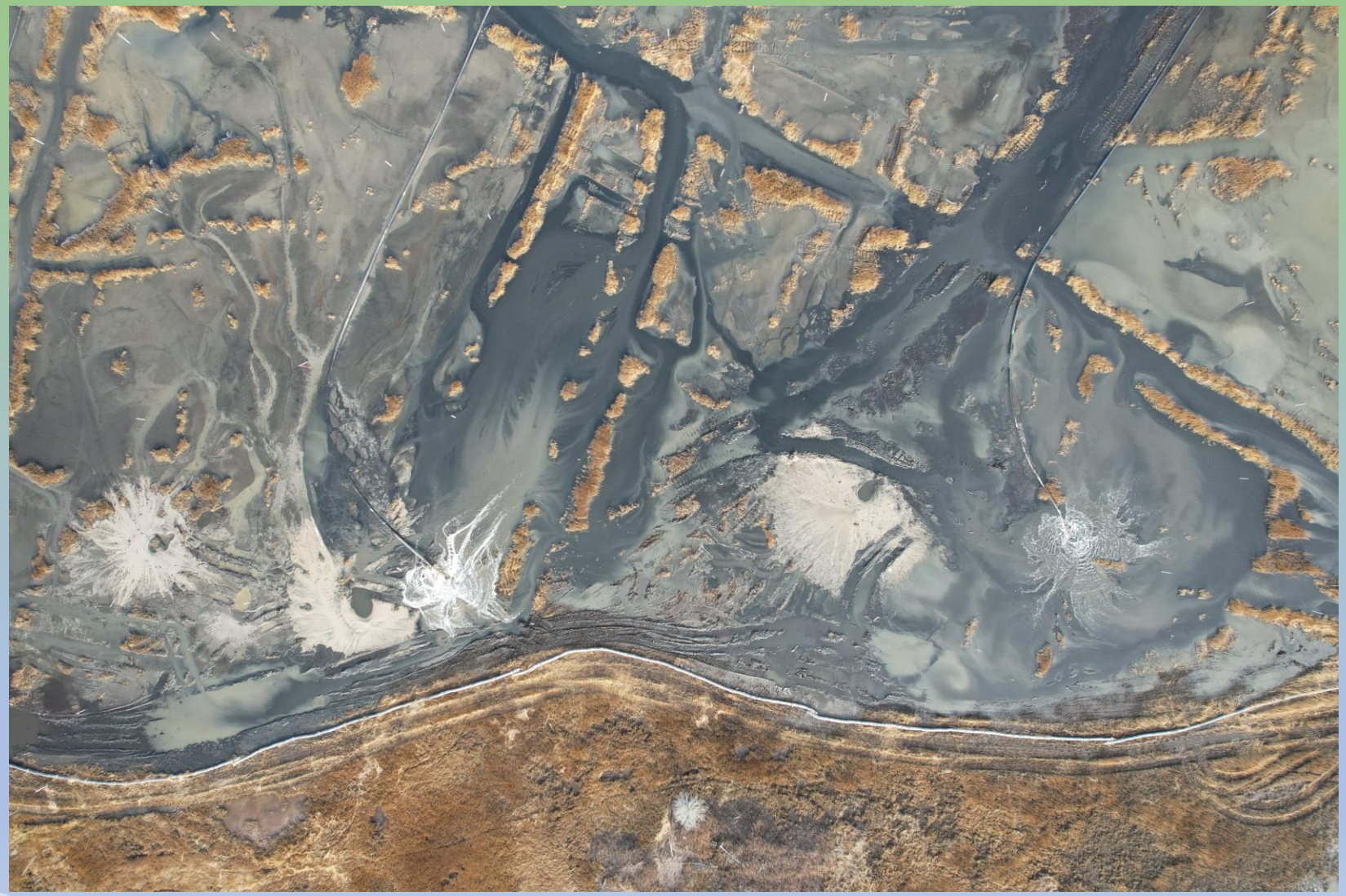
Township of BRICK

Marsh Restoration Area Under Construction



Township of BRICK

Marsh Restoration Area Under Construction



Township of BRICK

Trader's Cove Marina Dredged

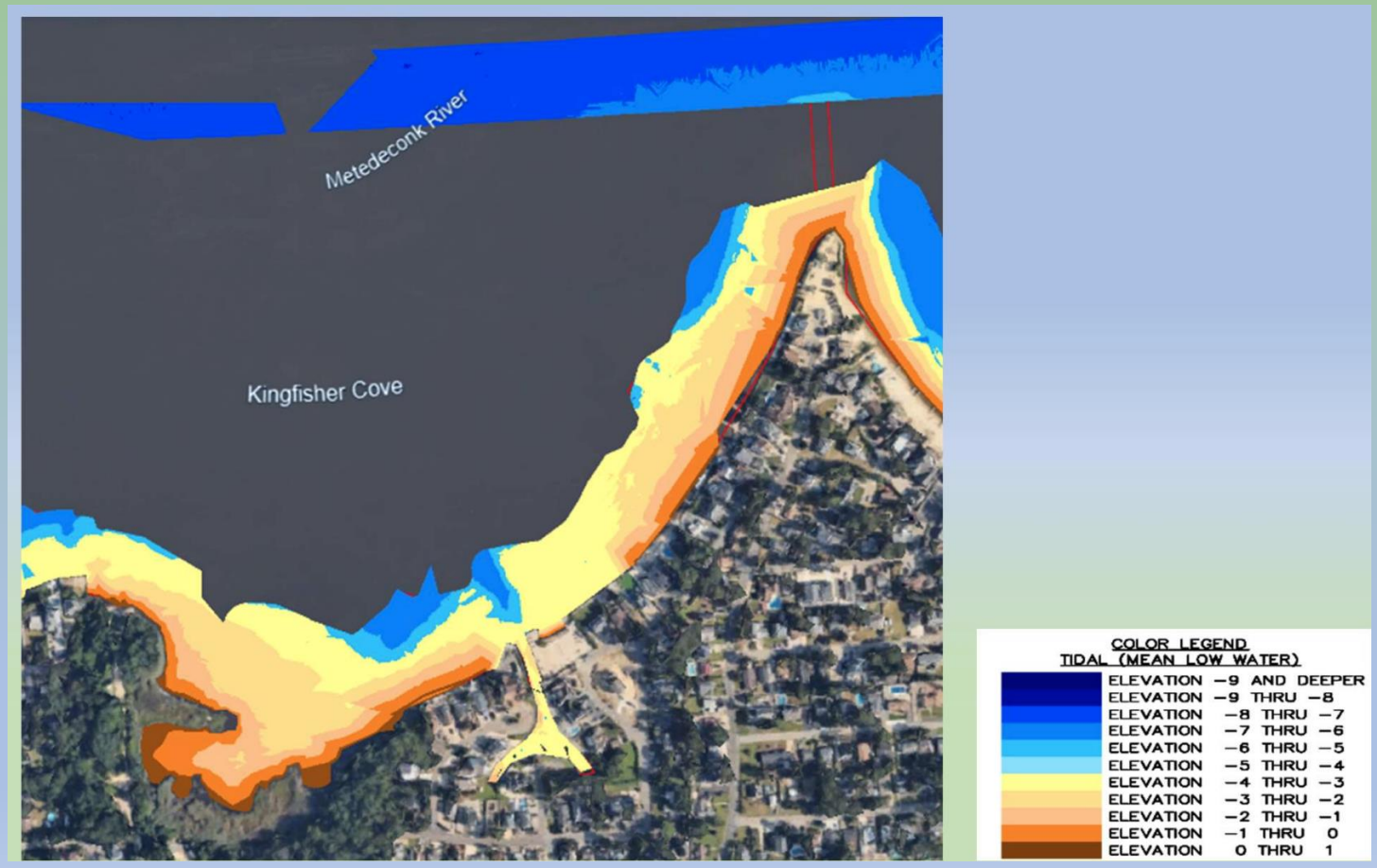
Township of BRICK

...setbacks along the way...

1. Municipal Bond

...setbacks along the way...

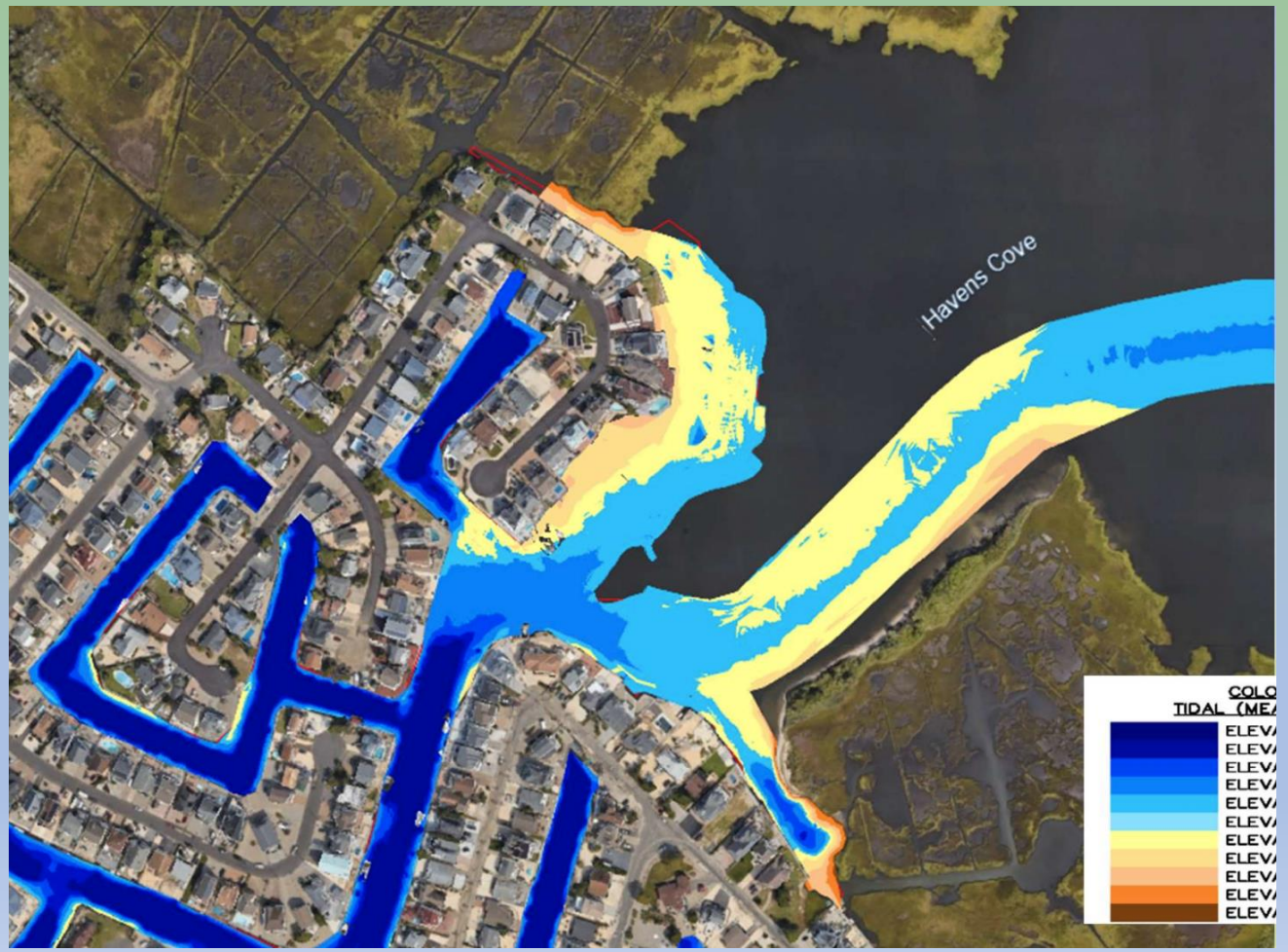
1. Municipal Bond
2. Not everyone who qualifies for dredging wants to be dredged



Township of BRICK

...setbacks along the way...

1. Municipal Bond
2. Not everyone who qualifies for dredging wants to be dredged



Township of BRICK

All Mud Matters!!!!

Thank you

Presented by:

Elissa C. Commins, PE PP CME CPWM CFM
Township of Brick
Township Engineer & Floodplain Manager
ecommins@twp.brick.nj.us

Beneficial Use of Dredged Material: How to Get in the Game

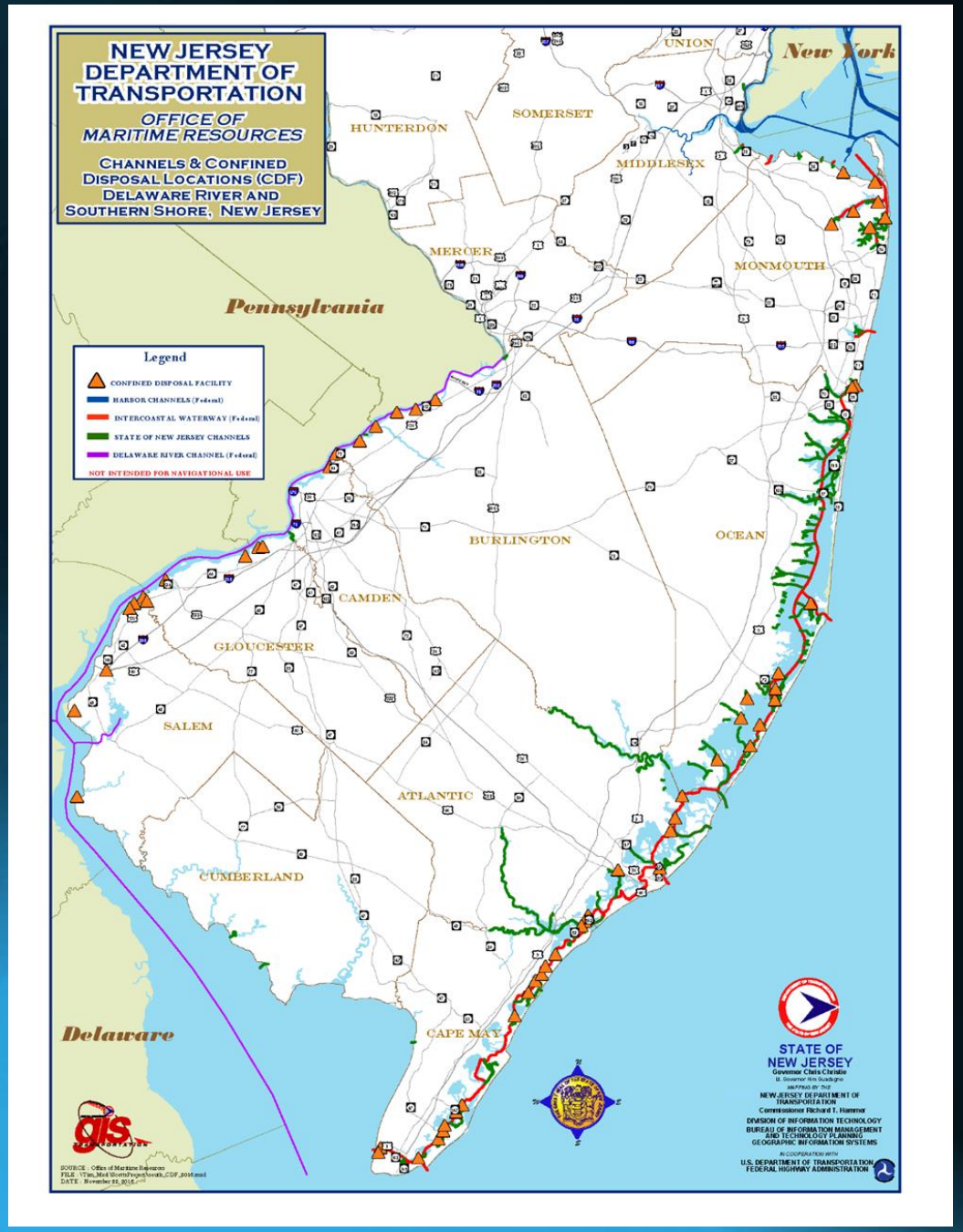
NJCRC Coffee Chat

January 13, 2025

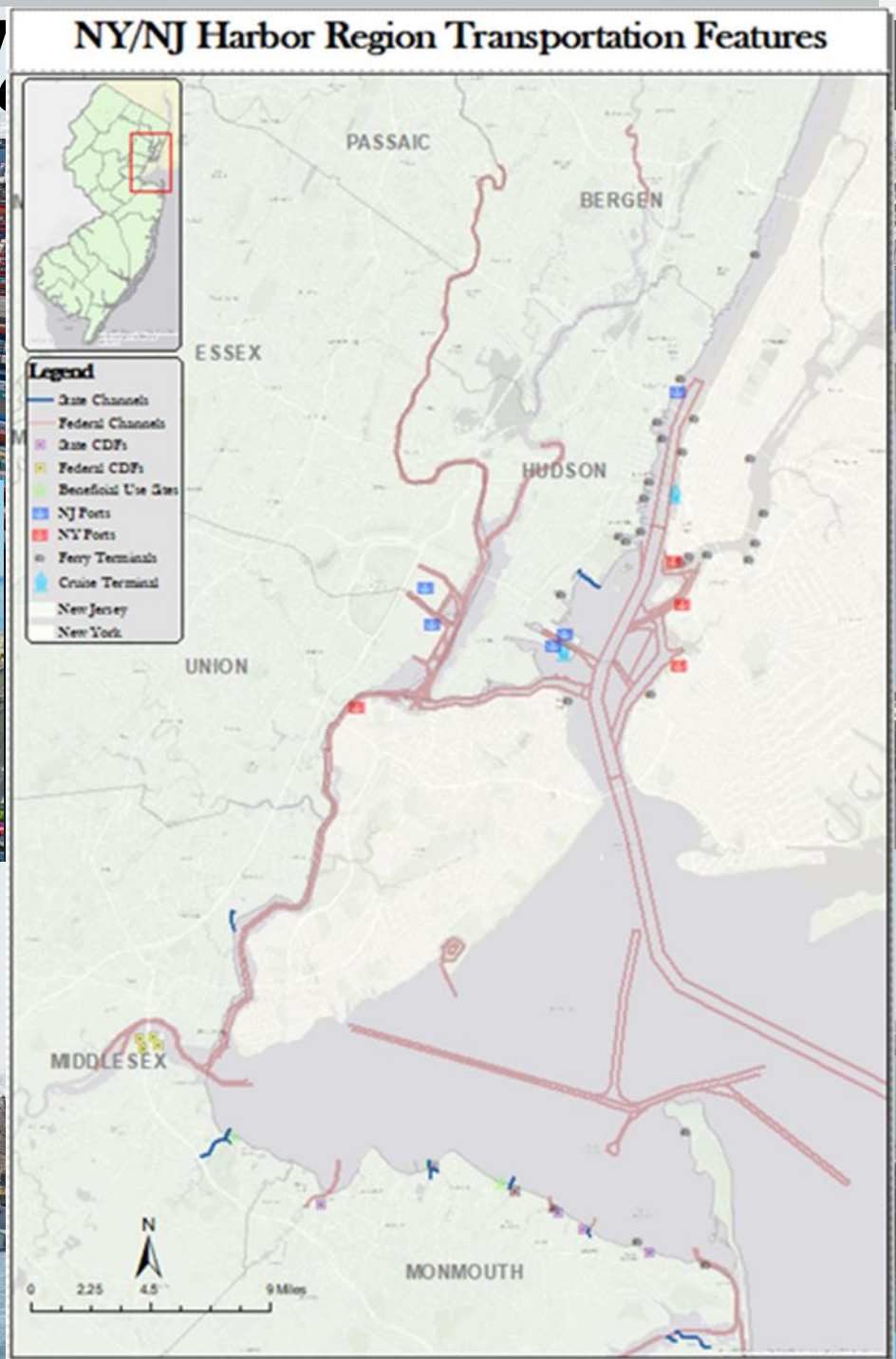
W. Scott Douglas, Dredging Program Manager (retired), NJDOT Office of Maritime Resources

New Jersey's Marine Transportation System

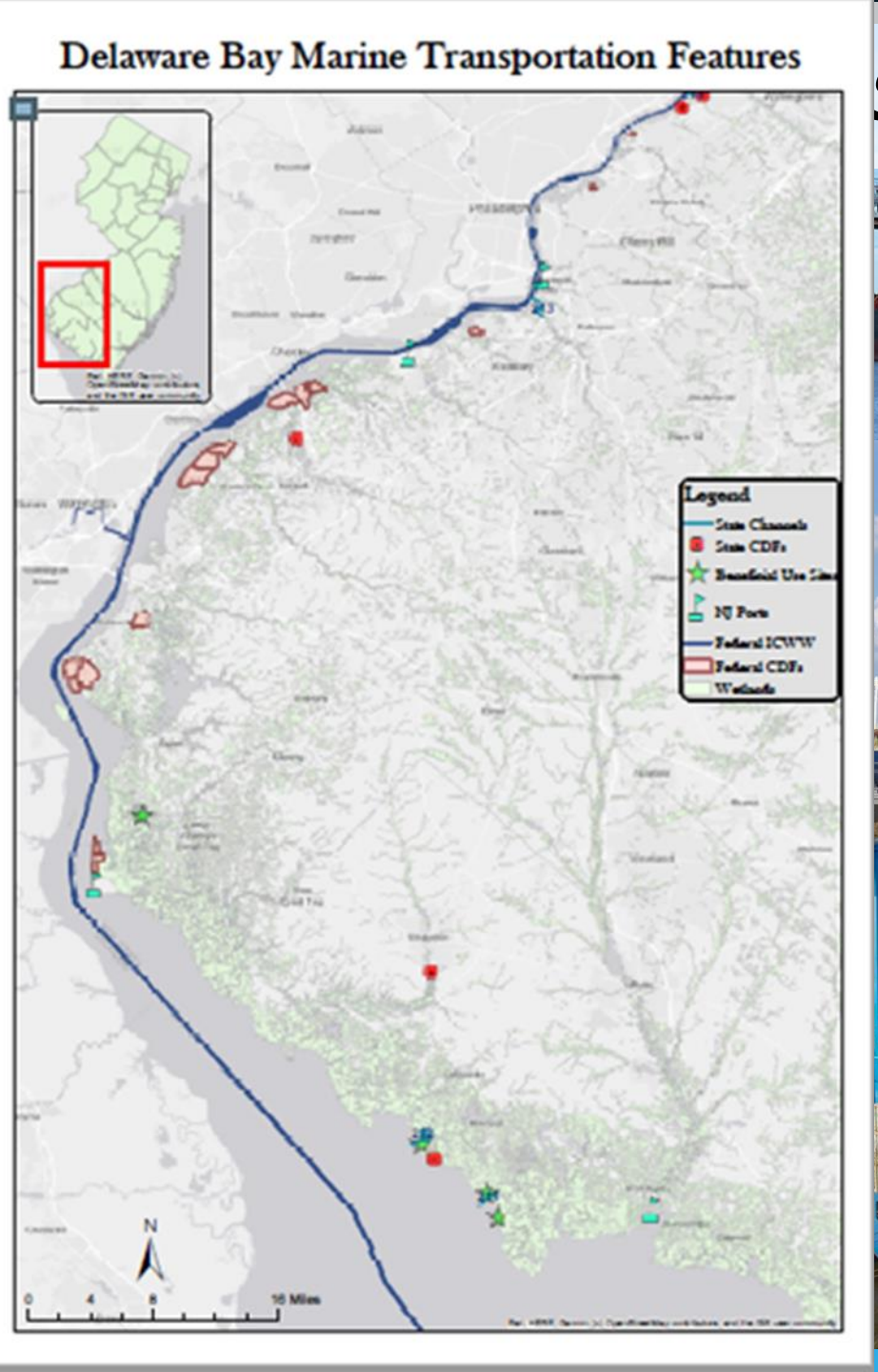
- Federal Channels in NY/NJ Harbor, Delaware River, and NJ Intracoastal Waterway; over 465 nm (860 km) of engineered waterways
- State Channel Network - 215 Marked and Identified Channels; over 200 nm (370 km) of engineered waterways
- Two International Ports (PONYNJ and South Jersey Port Corporation)
- Internationally recognized tourism destination
- World Class Fishery (most lucrative shellfishery in the U.S.)
- Worth over $50 billion annually to the New Jersey economy



NY/NJ Ha[illegible]lssets

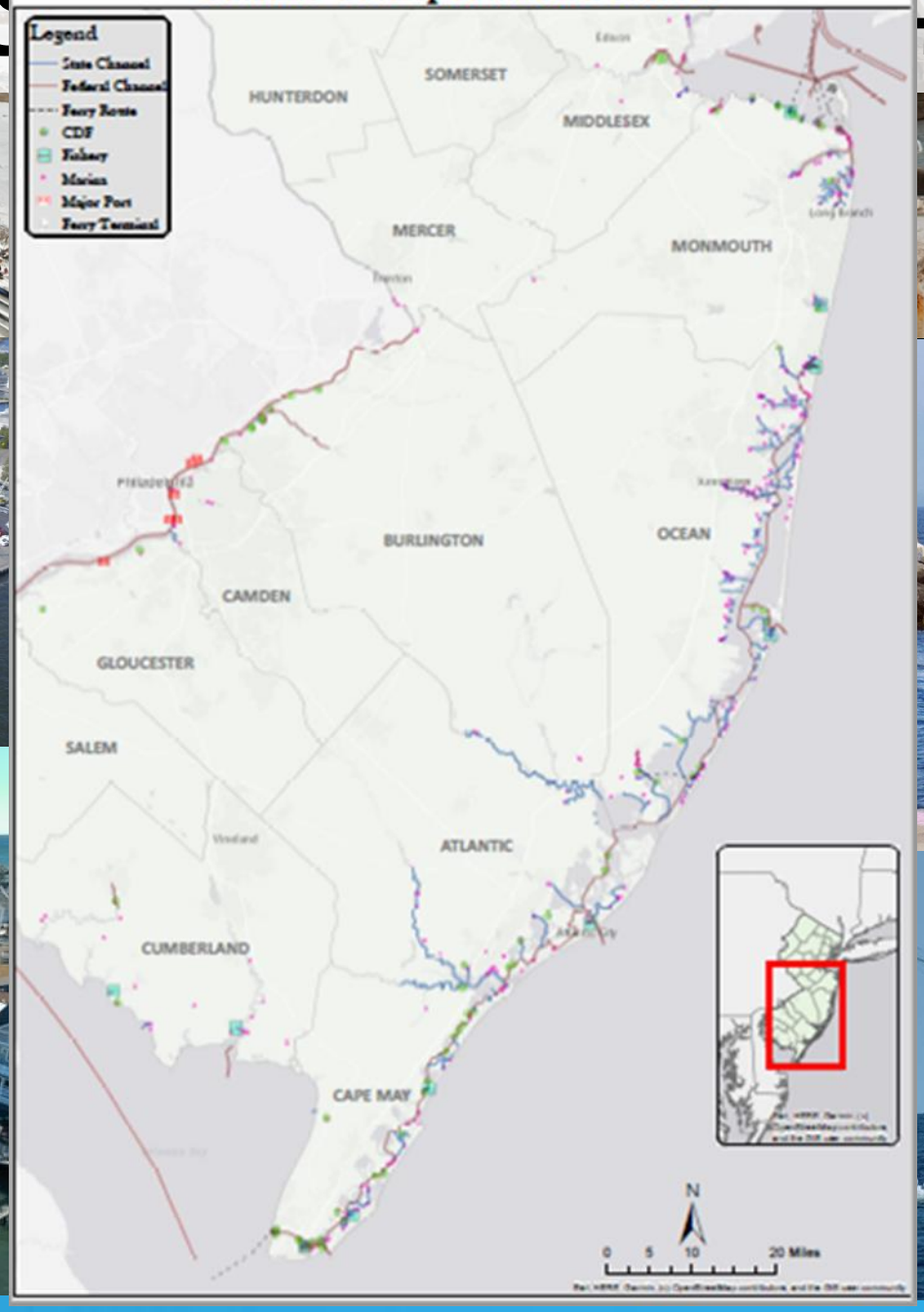


Delawar sets

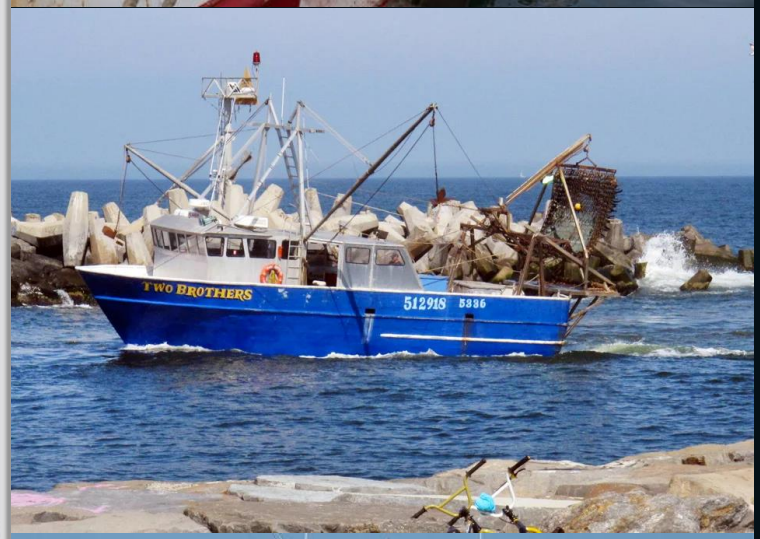


Atlantic S

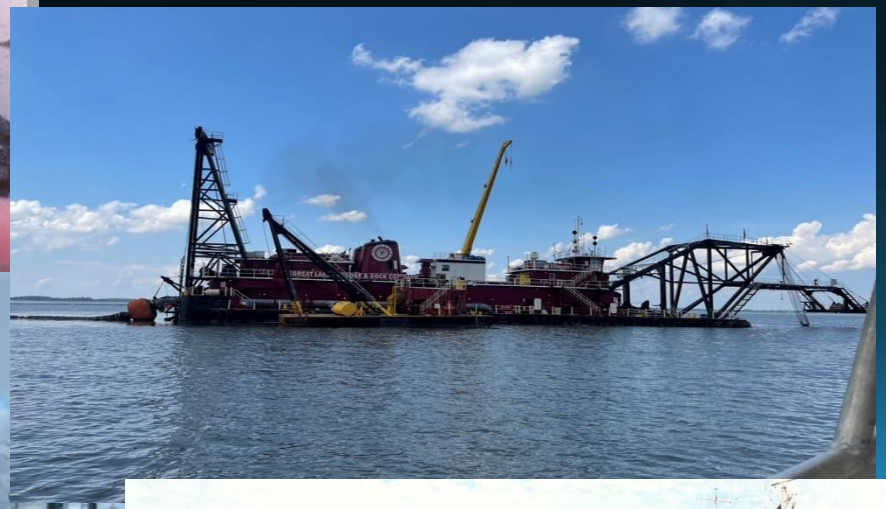
New Jersey Atlantic Coastal Zone Marine Transportation Features

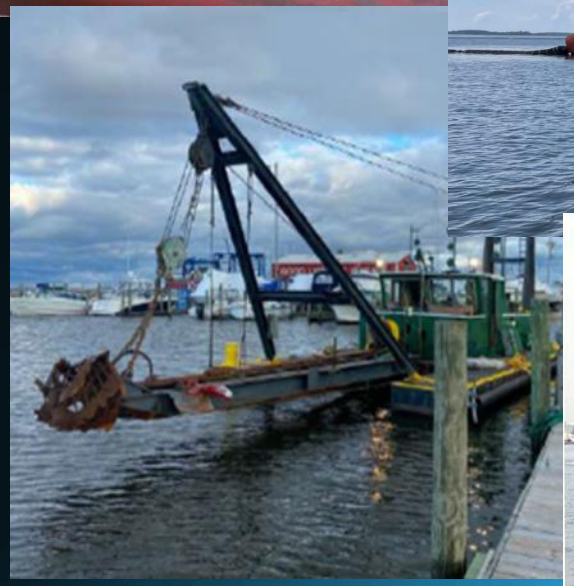


Assets



Maintaining the Channel Network

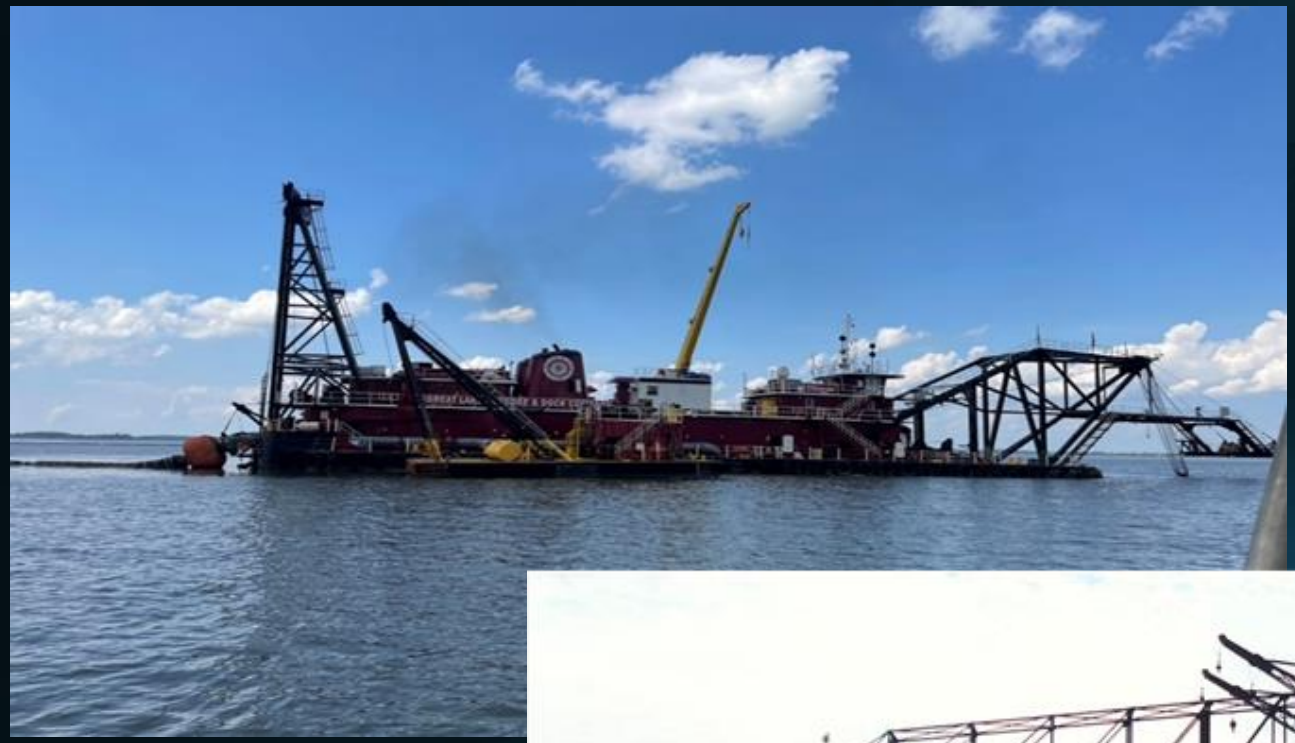




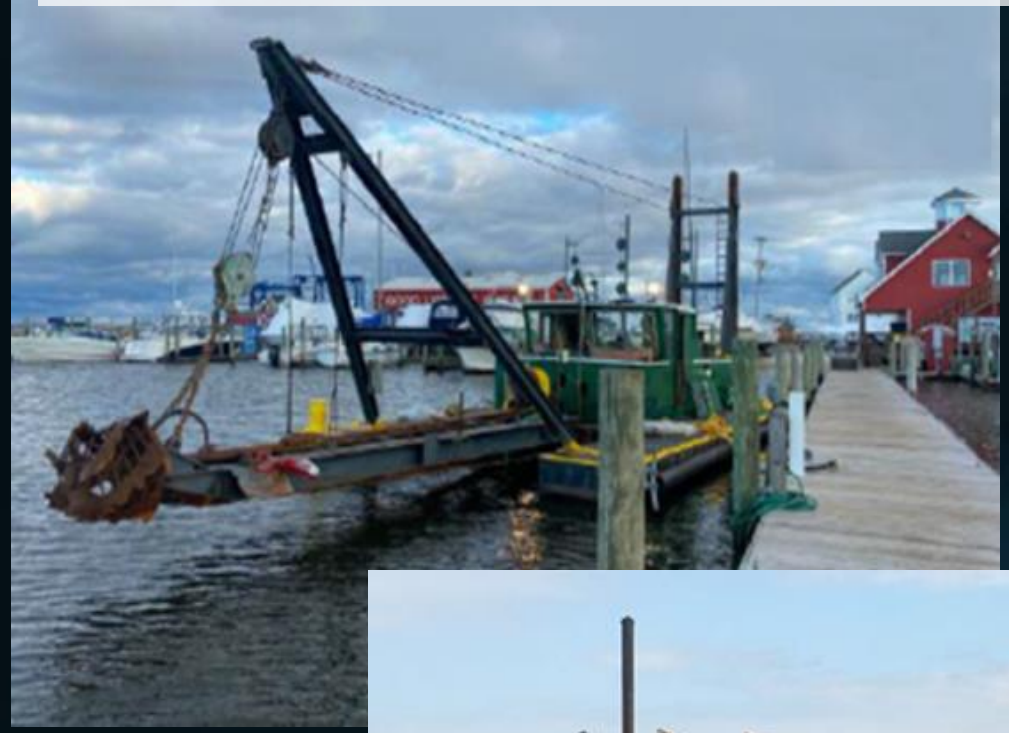
- NY/NJ Harbor
  - 2-4 Million CY/year
  - Mechanical Dredging
- Delaware River
  - 3-5 Million CY/year
  - Hydraulic Dredging with large equipment
- Atlantic Coast
  - 1.2-1.5 Million CY/year
  - Hydraulic Dredging with small equipment

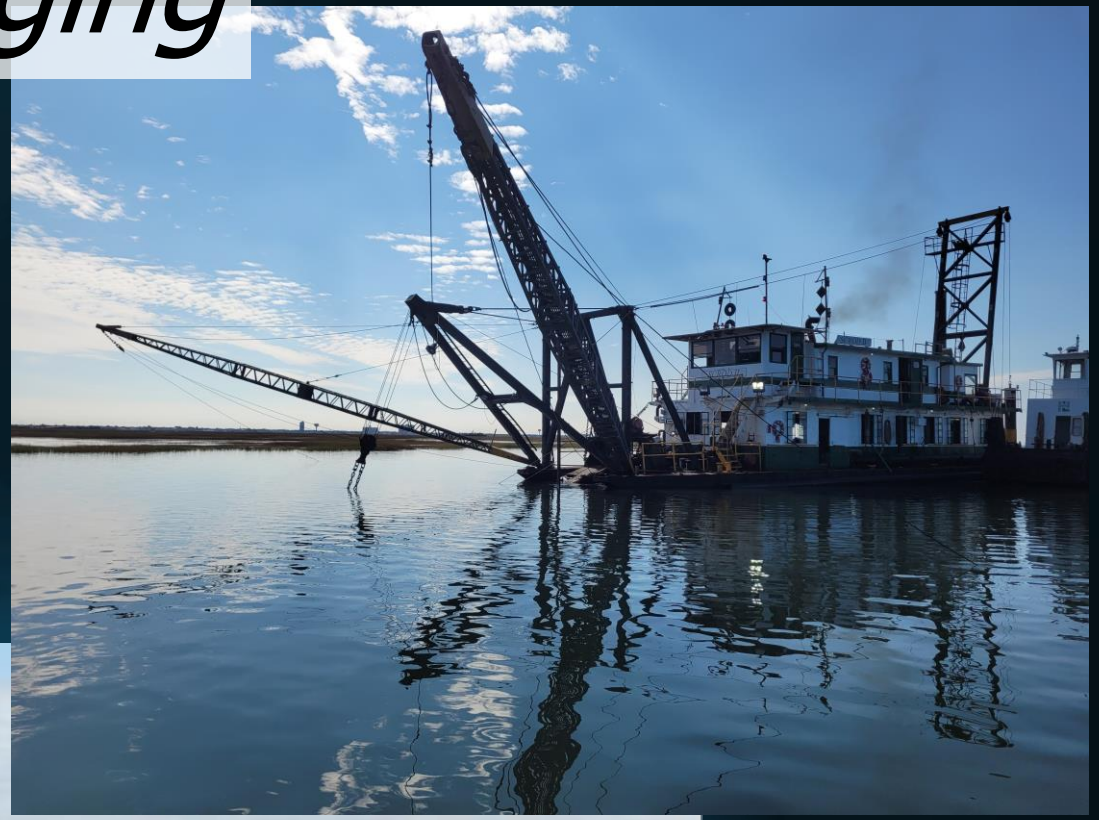
NY/NJ Harbor Dredging

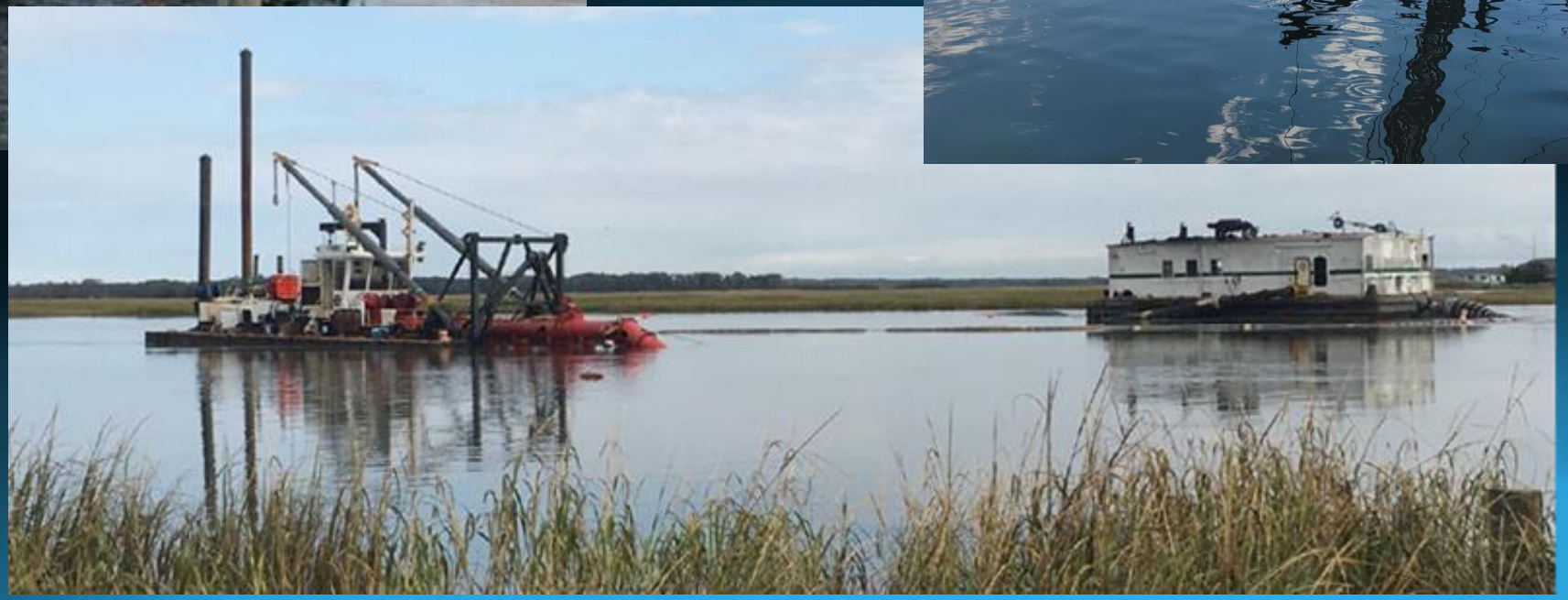
Delaware River Dredging



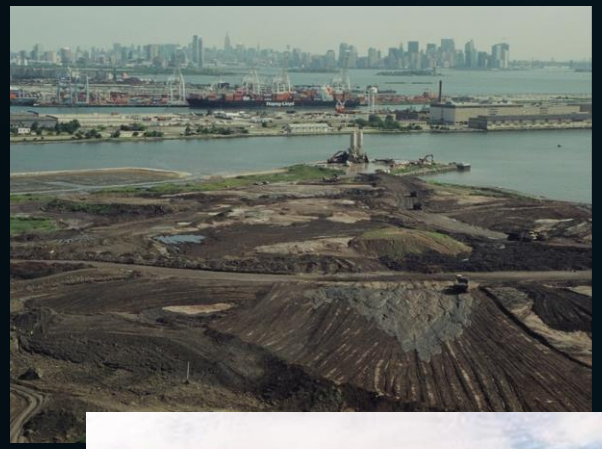
Atlantic Back Bay Dredging







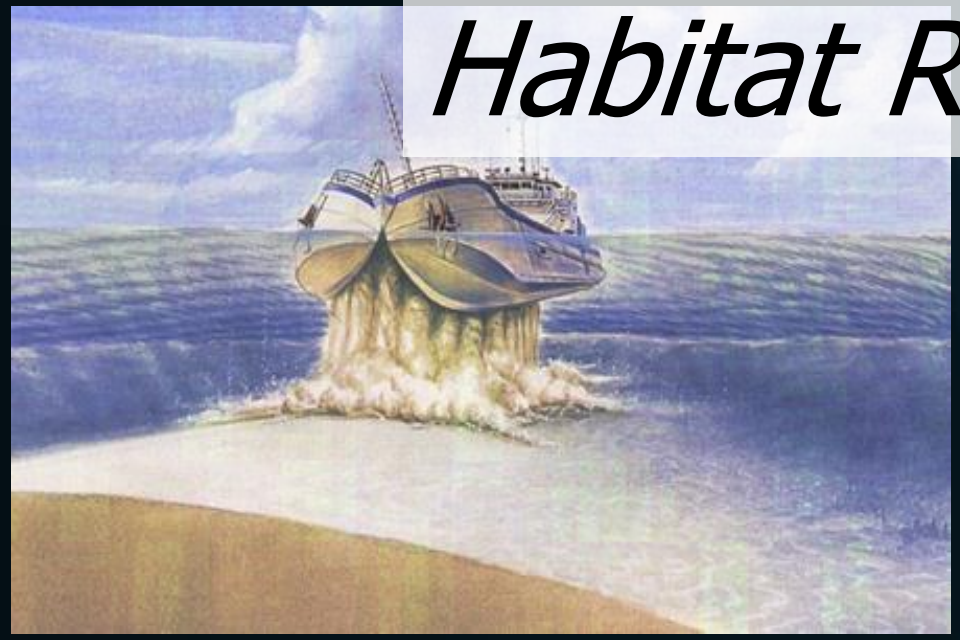
Dredged Material Management

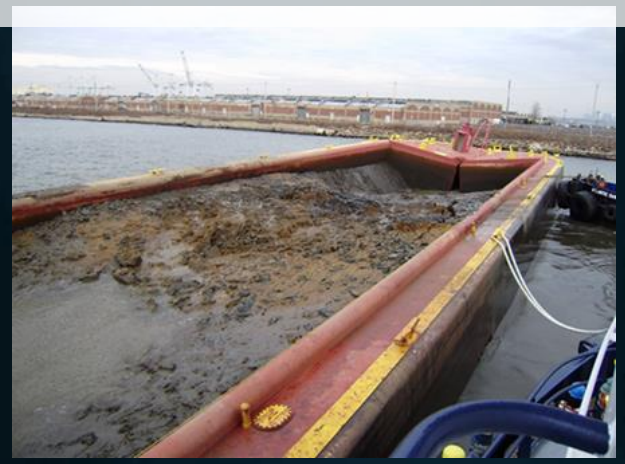


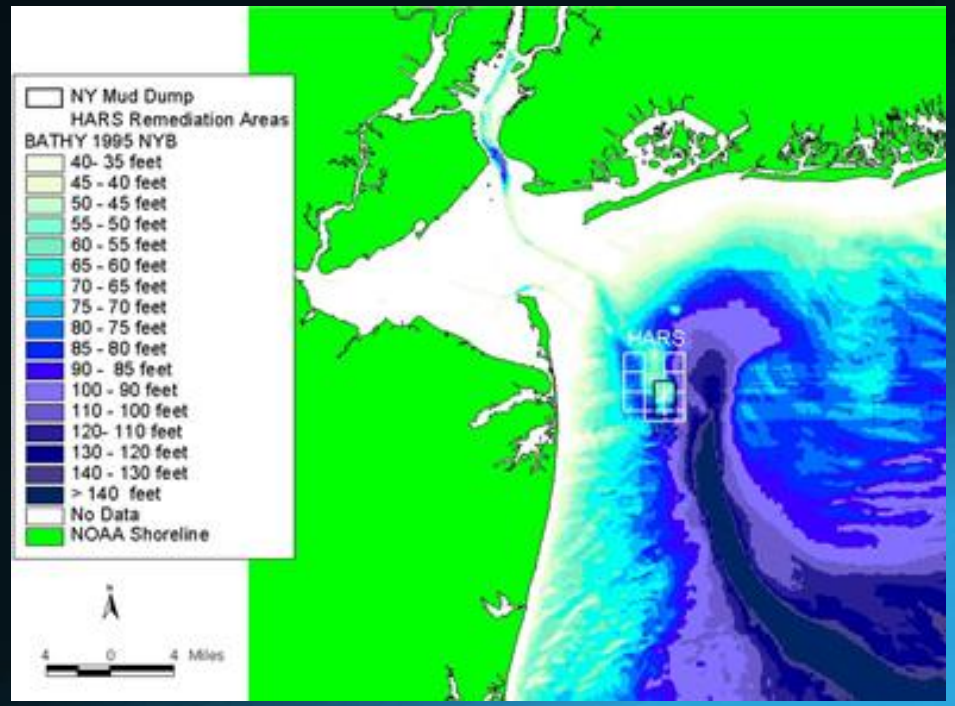
- NY/NJ Harbor
  - 100% Beneficial Use
    - Clean to HARS or Beach
    - Contaminated is Processed and Placed Upland
- Delaware River
  - Some beneficial use
    - Confined Disposal Facilities
    - Beach Replenishment
    - Upland Beneficial Use
    - Marsh Enhancement
- Atlantic Coast
  - 50-60% Beneficial Use
    - Confined Disposal
    - Beach Replenishment
    - Upland Beneficial Use
    - Habitat Enhancement
    - Resiliency Projects

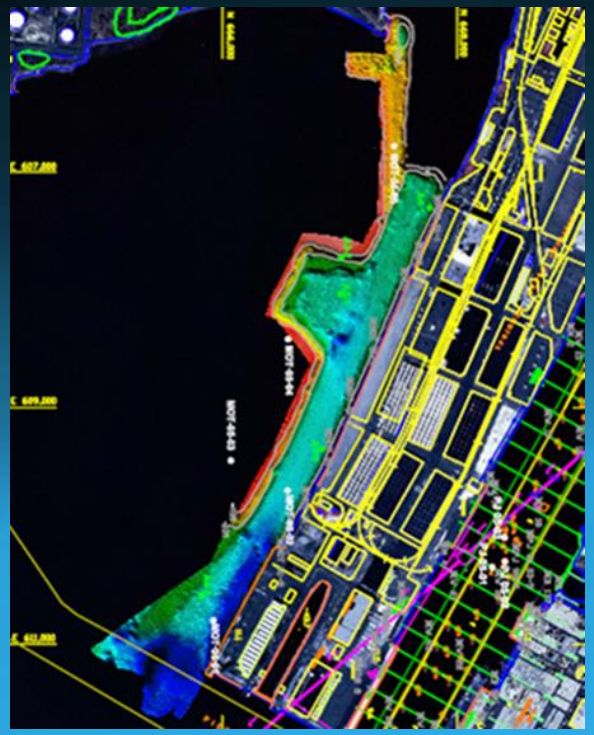
Upland Remediation

Habitat Restoration





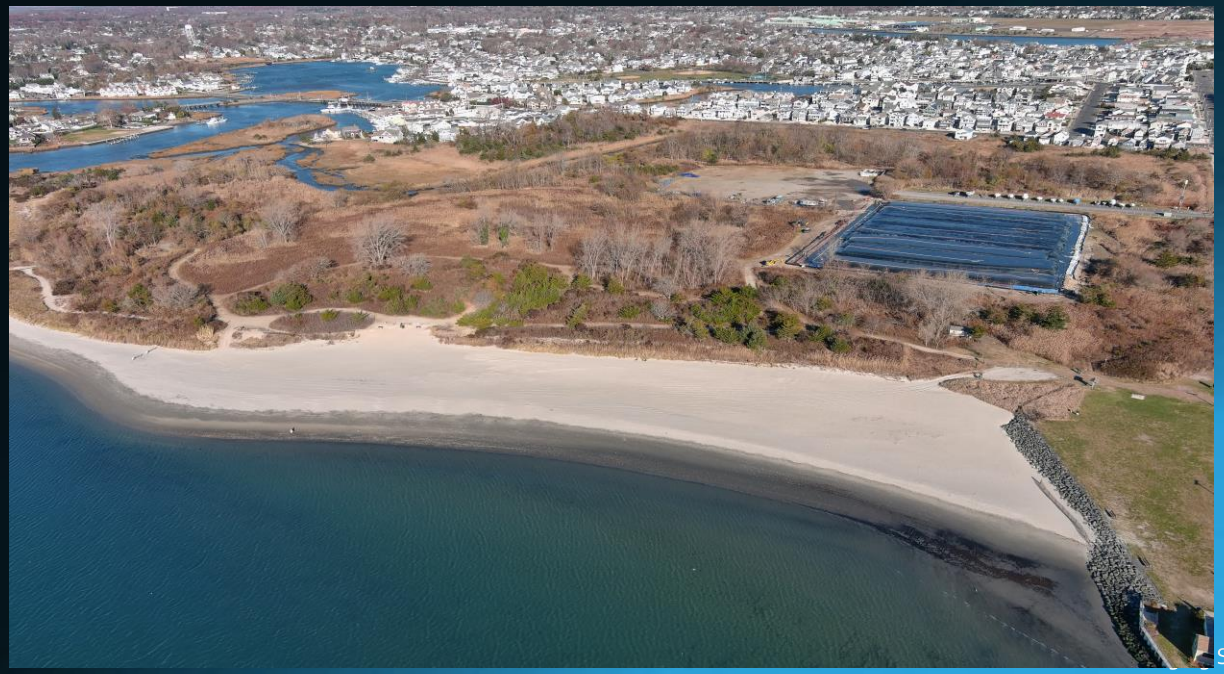


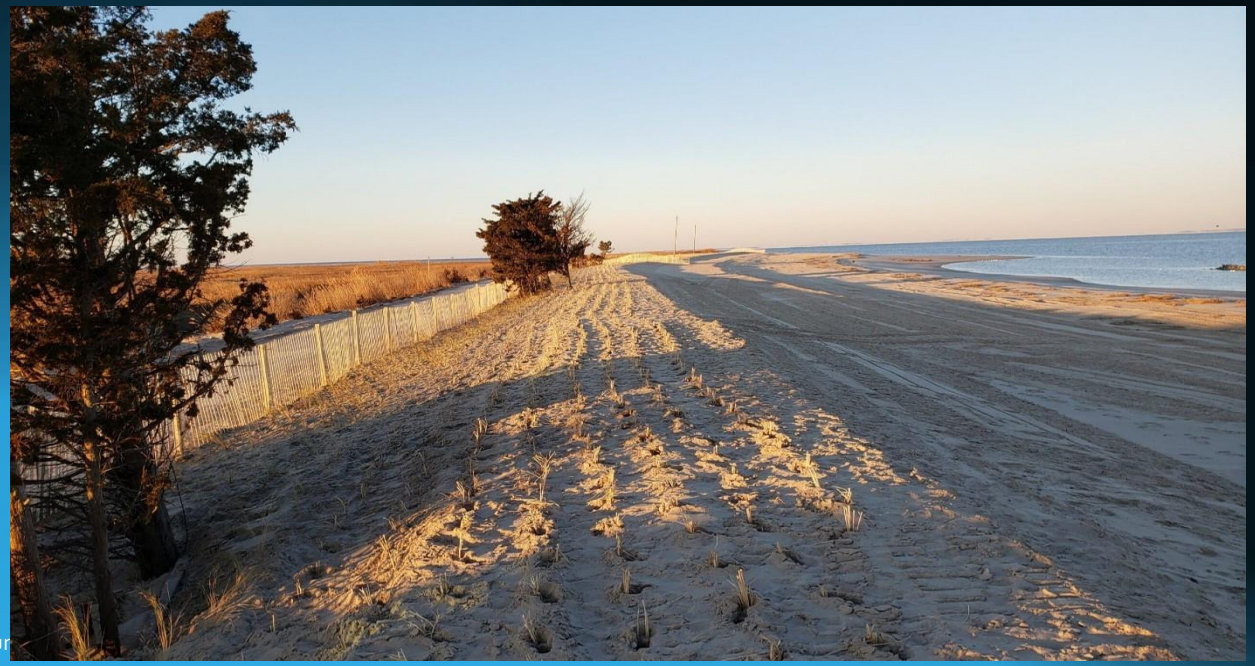


Upland Confined Disposal

Summ

Beach Replenishment





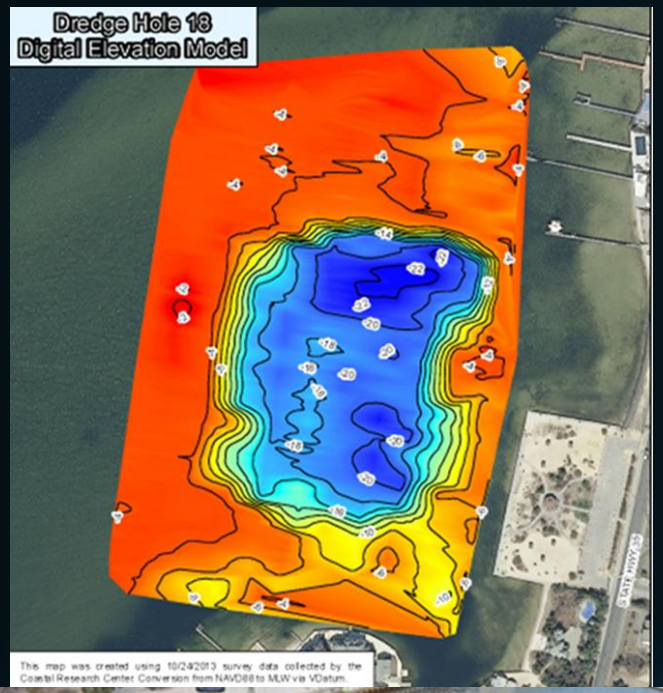
Construction with CDF material

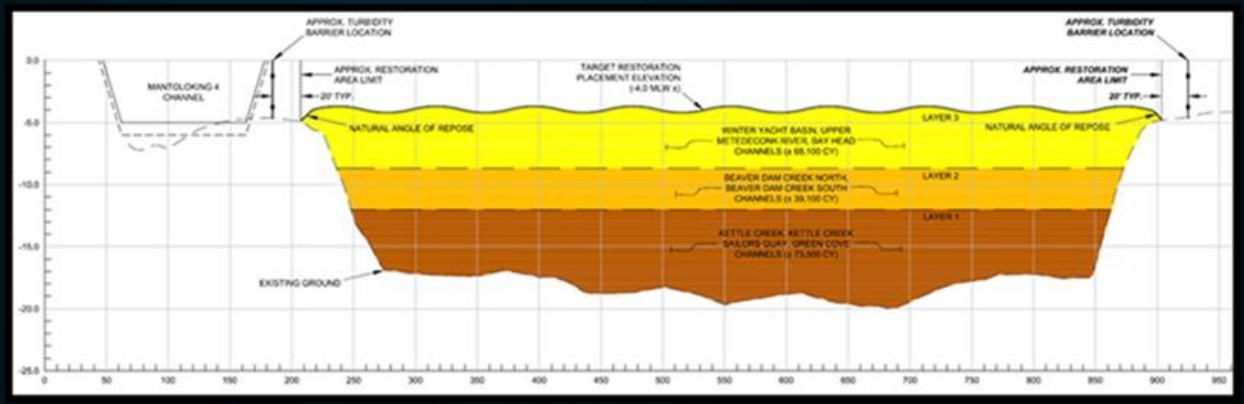
Habitat Restoration

Upland Beneficial Use of CDF Material

Upland Habitat Creation

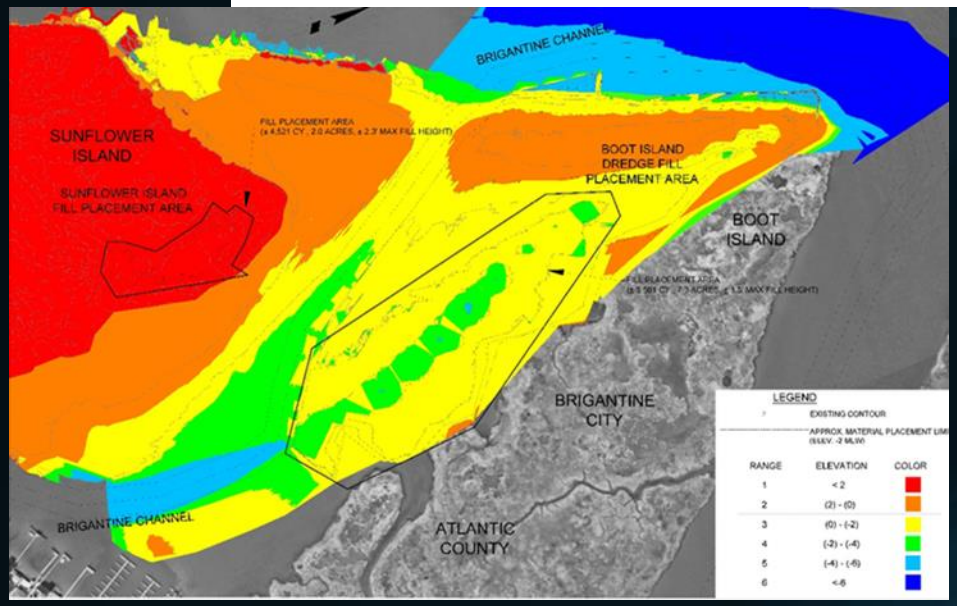
Confined Benthic Enhancement

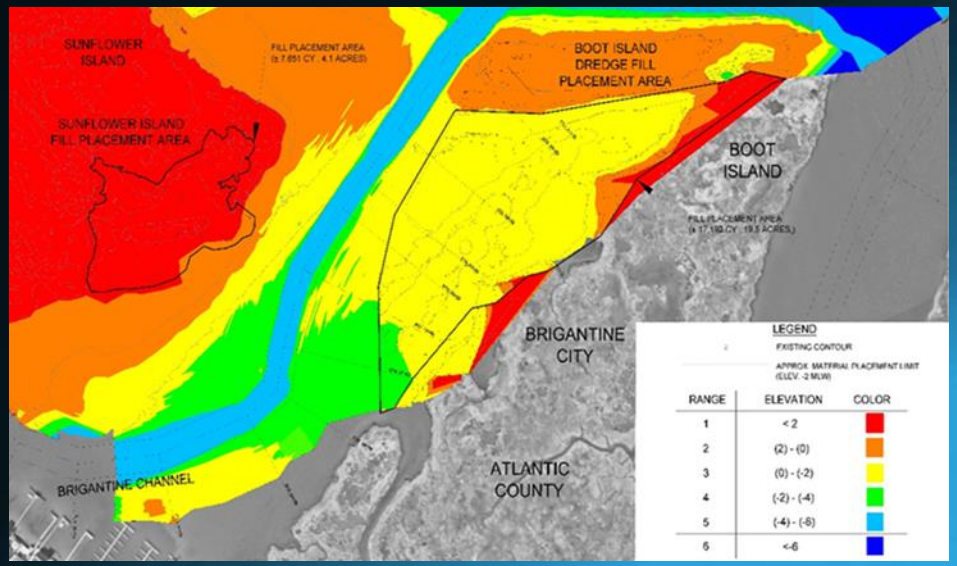




Upland Beneficial Use

Unconfined Benthic Enhancement

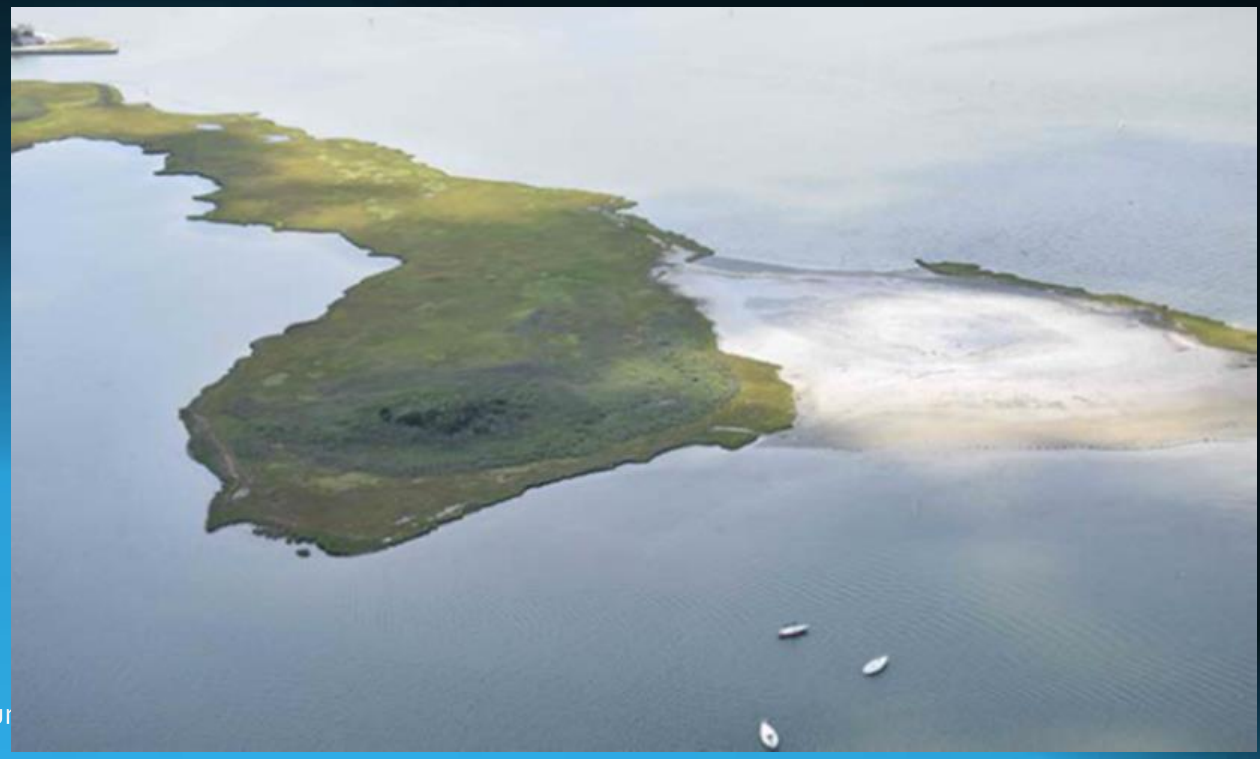




Shoreline Stabilization

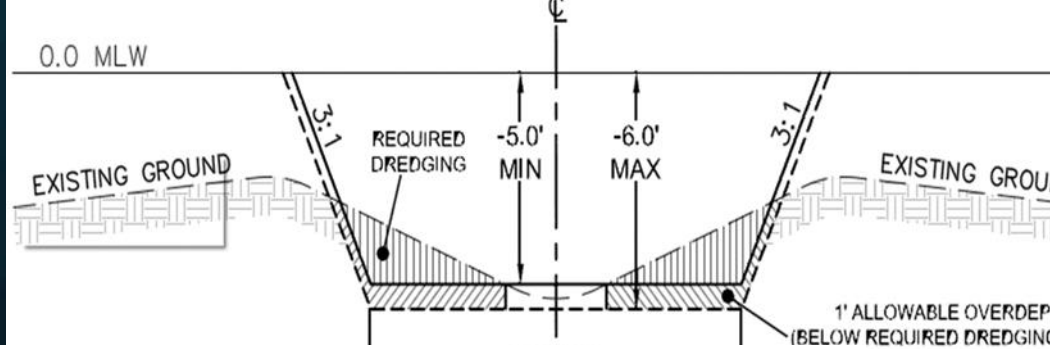
Marsh Enhancement

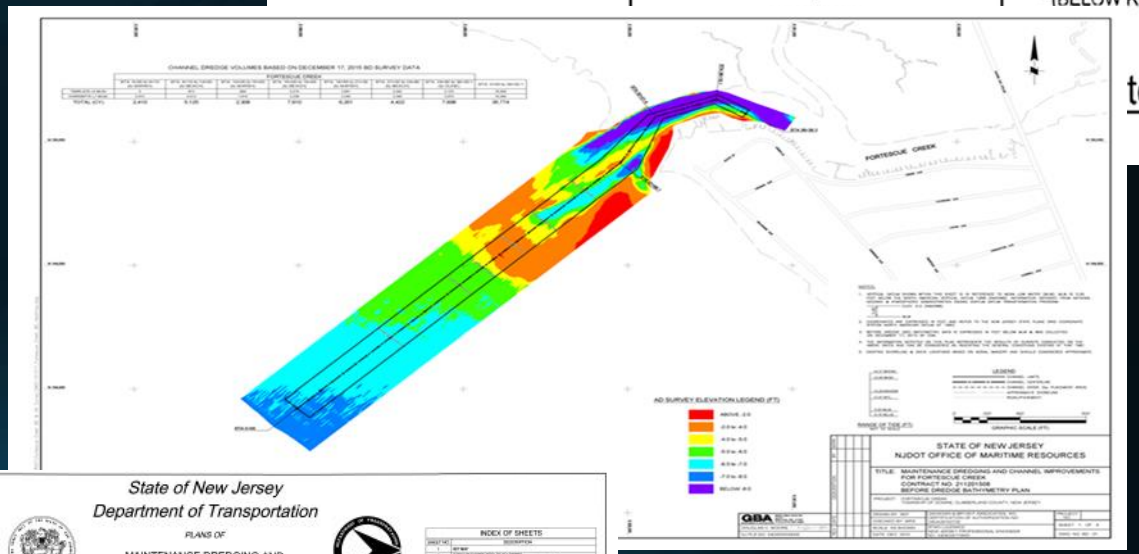
Island Restoration



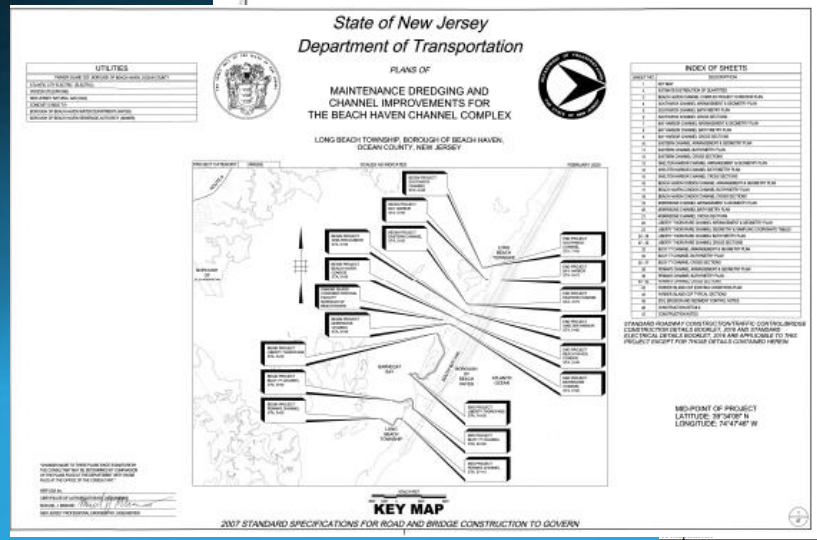
What To Do Next

- Evaluate Condition of your Asset
  - Hydrographic Survey
  - Sediment Characterization
  - Volume Estimate
- Determine Management Options
  - Traditional
  - Non traditional
  - Meet with NJDOT/OMR
- Partner Up
  - Restoration Task Force
  - Municipalities
- Design Project
  - Work with an experienced engineer
  - Consult with regulatory agencies
- Dredge!





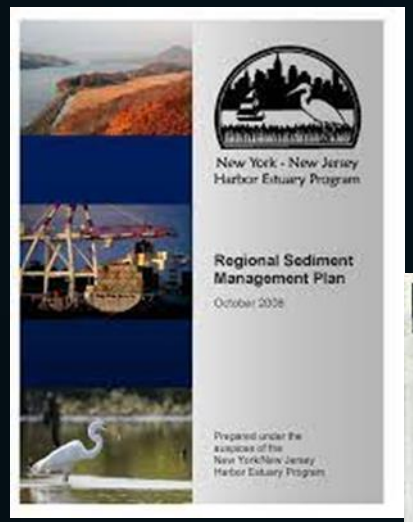
to 152+06.3

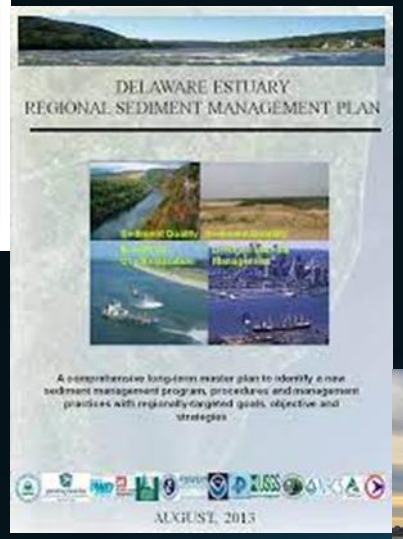


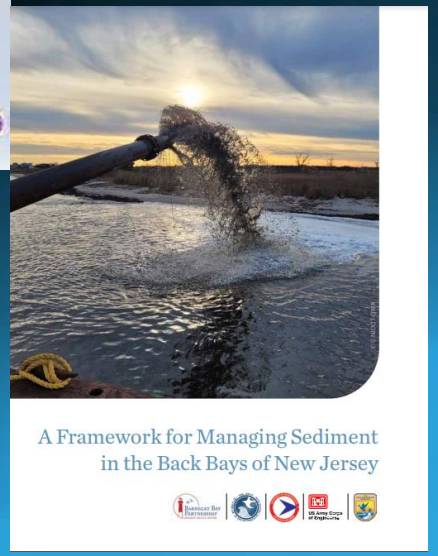
Semivolatile Analysis of Bulk Sediment (NJDEP, Residential)

		NJDEP Residential Direct Contact Soil Remediation Standards	PQL*	Unamended Sediment (Units:µg/kg) Composite CH 72/73 20190403 K2909-02			Unamended Sediment (Units:µg/kg) Composite CH 74 20190404 K2909-03		
	CAS No.	µg/kg (ppb)	µg/kg	Result[1]	RL	Q	Result[1]	RL	Q
	92-52-4	3,100,000	200	ND	780		ND	830	
	103-33-3	700	700	ND	780		ND	830	
	95-95-4	6,100,000	200	ND	780		ND	830	
	88-06-2	19,000	200	ND	780		ND	830	
	120-83-2	180,000	200	ND	780		ND	830	
	105-67-9	1,100,000	200	ND	780		ND	830	
	51-28-5	120,000	300	ND	780		ND	830	
	121-14-2	N/A	200	ND	780		ND	830	
	606-20-2	N/A	200	ND	780		ND	830	
	121-14-2/606-20-2	700	200	ND			ND		
	95-57-8	310,000	200	ND	780		ND	830	
	91-57-6	230,000	170	ND	780		ND	830	
	95-48-7	310,000	200	ND	780		ND	830	
	88-74-4	39,000	300	ND	780		ND	830	
	91-94-1	1,000	200	ND	780		ND	830	
o-cresol)	534-52-1	6,000	300	ND	780		ND	830	
	65794-96-9	31,000	200	ND	780		ND	830	
	83-32-9	3,400,000	200	ND	780		ND	830	
Acenaphthylene	208-96-8	N/A	200	ND	780		ND	830	
Acetophenone	98-86-2	2,000	200	ND	780		ND	830	
Anthracene	120-12-7	17,000,000	200	ND	780		ND	830	

Dredging and DMM Planning





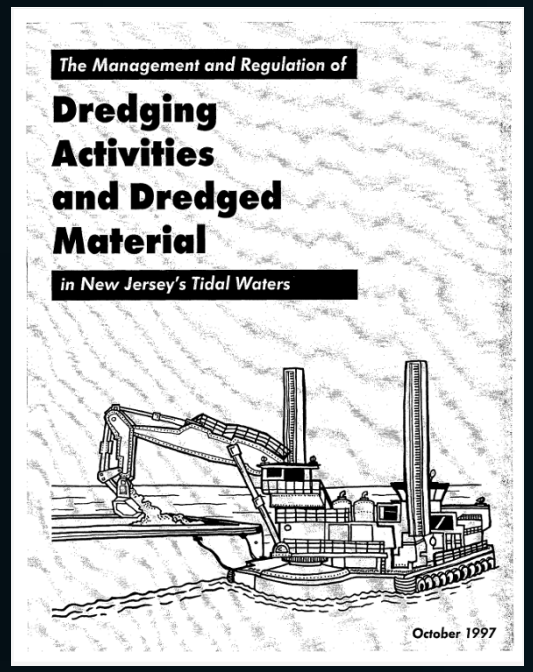


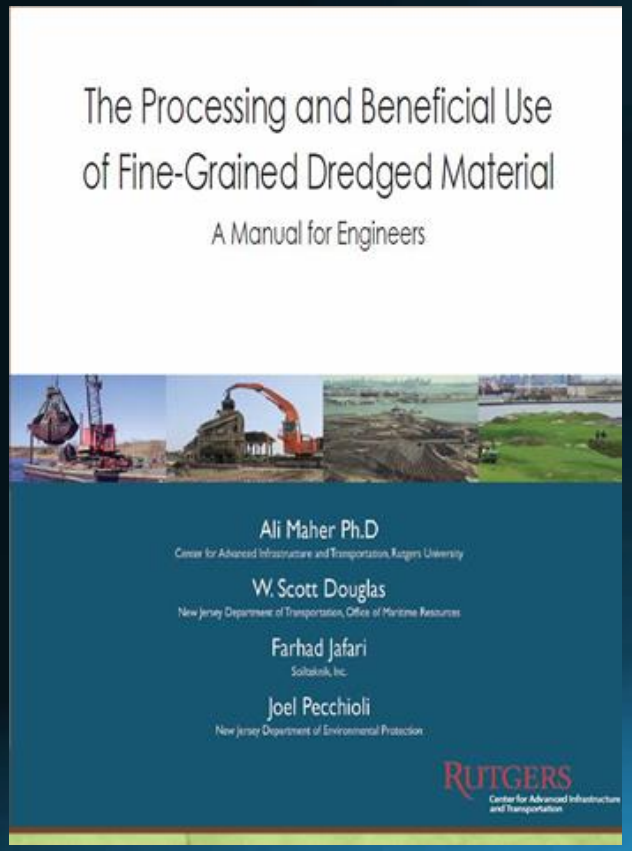
- NY/NJ Harbor – 2008
  - https://www.hudsonriver.org/article/hudson-river-foundation-publications
  - Regional Dredging Team established 2008
- Delaware River and Estuary – 2013
  - https://www.nap.usace.army.mil/Missions/Civil-Works/Regional-Sediment-Management/Delaware-Estuary-Regional-Sediment-Management
  - Regional Dredging Team established 2012
- NJ Back Bays (coming soon!)
  - Regional Dredging Team soon to be established
  - Restoration Task Force being established

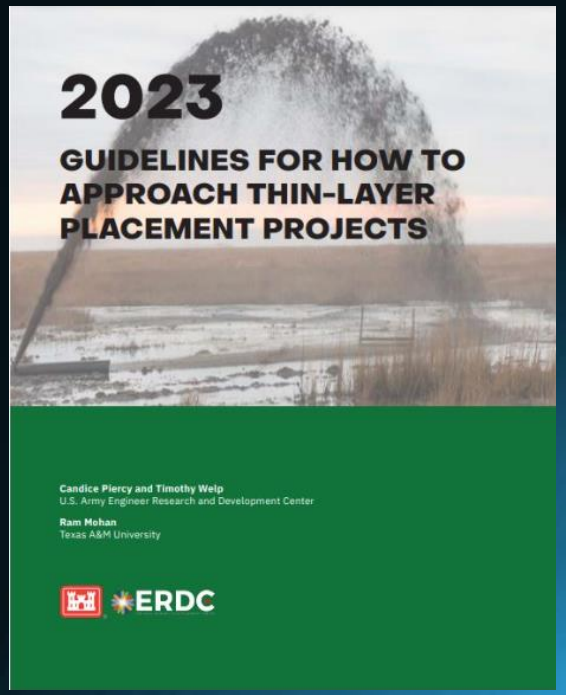
Additional Resources

- Partnership for the Delaware Estuary - Marsh Explorer
  - https://coastalresilience.org/project/marsh-explorer/
- New Jersey Bay Islands Initiative (NJBII)
  - https://njbayislands.org/, Bay Island Restoration Planner tool
- Resilient Communities Decision Support Tool - The Nature Conservancy
  - https://nrcsolutions.org/strategies/?_hazards=coastal&_region=midatlantic
- NJDOT/OMR – call us to set up a meeting. 609-530-2008

Technical Assistance







- NJDEP 1997 Dredging Manual
  - https://www.nj.gov/dep/cmp/analysis_dredging.pdf
- Rutgers/NJDOT 2013 Fine Grained Engineering Manual
  - https://rucore.libraries.rutgers.edu/rutgers-lib/45067/
- USACE 2023 Thin Layer
  - Guidance: http://dx.doi.org/10.21079/11681/47724
- Rutgers/NJDOT 2025 (coming soon!) Beneficial Use Engineering Manual

Adaptive Management and Monitoring

- For EWN and NNBFF projects, the permit will require an Adaptive Management Plan
- Divide the project into three areas:
  - Predesign data collection
    - Wind/waves/tides
    - Site hydrology
    - Wildlife and Fisheries Utilization
  - Construction monitoring and adaptive management
    - Elevation
    - Turbidity
    - Sediment retention
  - Post construction monitoring and adapative management
    - Engineering (elevation, consolidation/settlement/retention and hydrology)
    - Biological (wildlife and vegetation)
  - Make sure to decide who is responsible for what up front and how it will be funded
  - Guidance for AMPs can be found at
    - https://www.doi.gov/sites/doi.gov/files/uploads/TechGuide-WebOptimized-2.pdf

Questions?

The N.J. Coastal Resilience Collaborative:

Building Partnerships and Networks to Advance Coastal Community Resilience

njcoastalresilience.org

Email: NJCRC@NJSeaGrant.Org

Adrianna Zito-Livingston, The Nature Conservancy, azito-livingston@tnc.org

Lenore Tedesco, The Wetlands Institute, ltedesco@wetlandsinstitute.org

Colleen Keller, NJDEP Division of Land Resource Protection, colleen.keller@dep.nj.gov

Quinn McHerron, NJDEP Office of Climate Resilience, quinn.mcherron@dep.nj.gov

Elissa Commins, Brick Township, ecommins@twp.brick.nj.us

Scott Douglas, NJDOT Office of Maritime Resources (*retired*), scott@acdcpa.com