Advancing Science-Based Ecological Restoration Across N.J. Coasts

2025 Coastal Ecological Restoration Technical Workshop

September 11, 2025
RU EcoComplex
Bordentown, NJ

NJ CRC
COASTAL RESILIENCE COLLABORATIVE

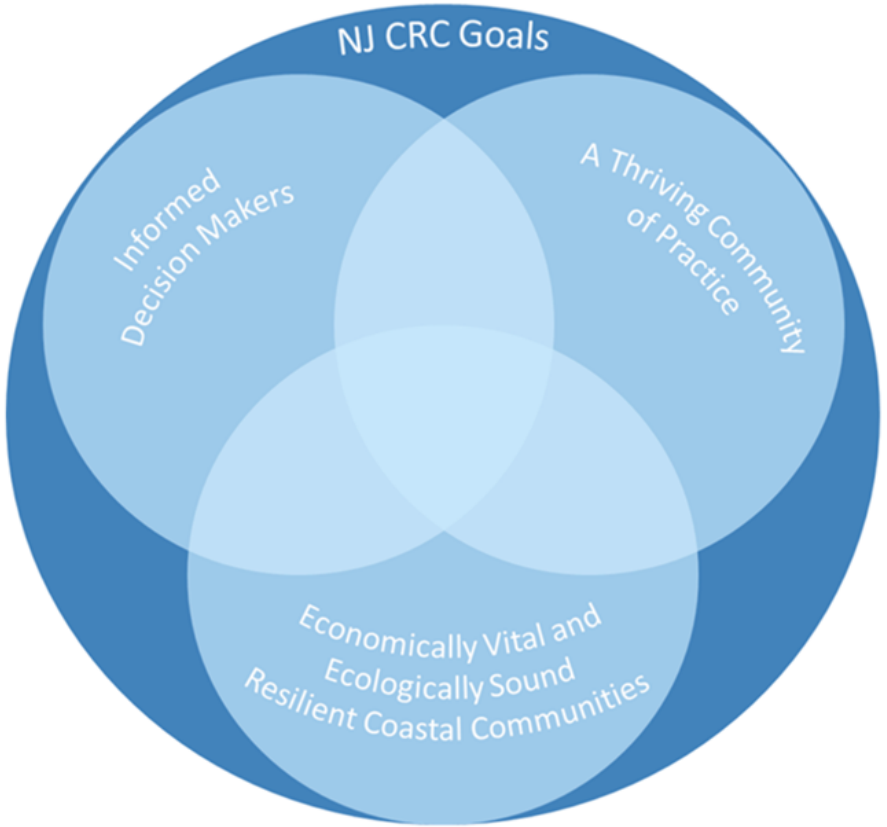
NJ COASTAL RESILIENCE COLLABORATIVE

Mission

Professional network established to foster **sustainable and resilient coastal communities and ecosystems** by generating informed action.

Methods

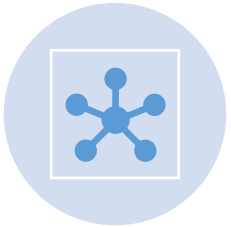
By advancing **science** to inform **policy** and enable **community action**



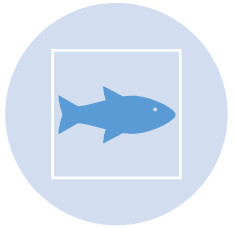
Current Workgroups

TECHNICAL ASSISTANCE COFFEE CHATS AND DIRECTORY

COASTAL ECOLOGICAL RESTORATION



BENEFICIAL USE LEARNING NETWORK



COASTAL HABITAT AND AQUATIC RESOURCE RESEARCH MONITORING (CHARRM)

Workgroups are established by NJCRC partners

MUNICIPAL

CONFERENCE PLANNING

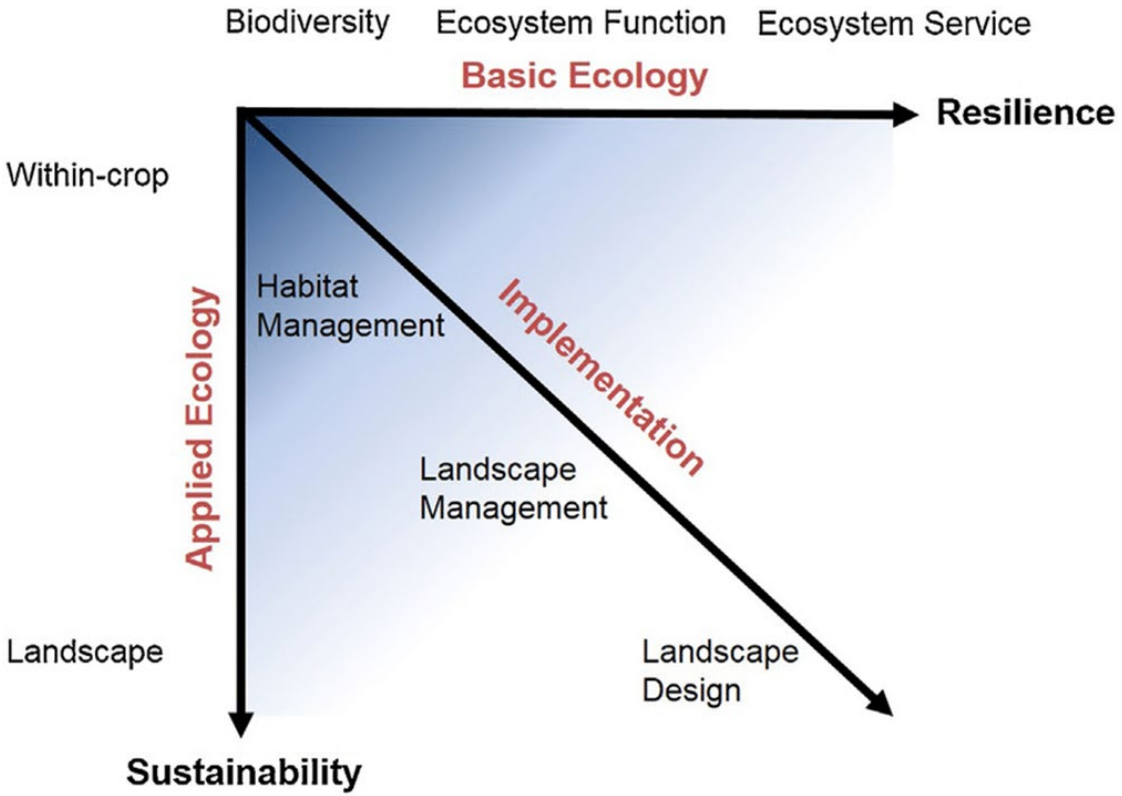
FIELD SITE VISIT WORKGROUP

COMMUNICATIONS WORKGROUP

NJ CRC COASTAL RESILIENCE COLLABORATIVE

Coastal Ecological Restoration Workgroup

Connect	Connect planning and restoration activities with the best available science. Facilitate knowledge sharing.
Support & Provide	Support science, research and innovations, provide scientific review and identify gaps when appropriate.
Promote	Promote nature-based solutions and a greater understanding of how to align restoration tactics with site-specific conditions.



Coastal Ecological Restoration Workgroup

COASTAL ECOLOGICAL RESTORATION WORKGROUP

One forum to promote and facilitate science-based ecological restoration throughout New Jersey's coast.

WORKGROUP LEADS: Terry Doss, Martha Maxwell-Doyle, Liz Semple

Tasked with reporting and connecting to NJ CRC leadership and NJ CRC Workgroups, submitting annual work plans, overseeing initiatives to achieve work plan deliverables, planning bi-annual meetings with entire CER Workgroup membership, overseeing facilitator, connecting initiatives on shared priorities and focus to include all coastal areas across the State.

STEERING COMMITTEE: Meredith Comi, Terry Doss, Tyler Kinney, Martha Maxwell-Doyle, Danielle Mcculloch, Quinn McHerron, Liz Semple, Adrianna Zito-Livingston

Tasked with helping Workgroup Leads in defining Workgroup priorities, developing annual work plan, leading initiatives, and sharing accomplishments

INITIATIVES: Applied Science, Beneficial Use Restoration Taskforce (BURT), and Coastal Habitat and Resources Restoration & Management (CHaRRM)

Focus Area 1: Promote Science & Research in Ecological Restoration Work

Focus Area 2: Inform & Facilitate Restoration Planning & Implementation

Focus Areas 3: Inform Land & Resource Management to Facilitate Ecological Restoration

Applied Science

Leads Meredith and Terry

Main Objective: Promote science and research in ecological restoration work, advise or work on science and research-related tasks developed from other workgroups or emerging issues, and promote facilitation of and knowledge sharing around green infrastructure and nature-based solutions in urban and developed areas.

Possible Tasks:

- Connect planning and restoration activities with the best available science
- NJCRC science advisory group
- Provide scientific review when appropriate
- Promote a greater understanding of how to align restoration tactics with site-specific conditions
- Advocate for scientific inquiry regarding appropriate restoration practices
- advise or work on science and research-related tasks developed from other workgroups
- PDE session and white paper
- Focus on challenges and tactics for urban and developed areas.
- Promote and knowledge share on issues related to shellfish, green infrastructure, reef-mimicking, breakwaters, ecological shoreline work, etc.

BURT

Leads Adrianna, Quinn, Tyler, Danielle

Main Objective: Connect ecological restoration needs to dredging projects in New Jersey by promoting and facilitating the beneficial use of dredged sediments for ecological restoration work.

Possible Tasks:

- Identify and aggregate habitat restoration and resilience needs and resources across NJ's coast.
- Maximize available sediment for habitat restoration and resilience needs by engaging with state, federal, and local dredging entities and Regional Dredging Teams
- Develop process and products to facilitate matching restoration and resilience needs to dredging needs
- Support a Community of Practice and open forum for Tech Transfer and knowledge sharing around beneficial use restoration and resilience projects
- Provide access to resource documents and guidance and successful examples.

CHaRRM

Leads Danielle, Adrianna, Quinn

Main Objective: Collaborate and work with land and resource managers on issues related to coastal /ecological restoration work. Also facilitate knowledge sharing, streamlining permitting processes, filling knowledge gaps, identifying perceived hurdles and working towards solutions.

Possible Tasks:

- Finalize the Mid-Atlantic permitting document for NBS /coastal habitats
- Finalize fact-sheets and continue learning webinars
- Collaborate w/ resource managers and project reviewers to overcome current hurdles related to policy and permit review of ecological restoration work
- Connect with Mid-Atlantic groups, resource managers and practitioners to subgroups

NJ CRC COASTAL RESILIENCE COLLABORATIVE

NJCRC's Workgroups:
Partners Working Together to Make Things Happen!

NJ CRC
COASTAL RESILIENCE COLLABORATIVE

Applied Science Work Group

Meredith Comi & Terry Doss
ASWG Co-chairs

Focus Area 1

NJ CRC COASTAL RESILIENCE COLLABORATIVE

Applied Science Work Group

Formerly the Ecological Restoration & Science Work Group

Leads: Terry Doss and Meredith Comi

Accomplishments:

1. Finished Coastal Resilience Resource Library
2. ER&S WG Session for the NJCRC/NJDEP conference in March 2023
3. Provide scientific review and advisement
4. Produced newsletter content
5. Presented at PDE Science Summit in Feb 2024
6. Ongoing work on Proactive Restoration Mindset White Paper
7. Worked with NJCRC leadership on reorganization and development of the CERS WG

NJ CRC
COASTAL RESILIENCE COLLABORATIVE

COASTAL ECOLOGICAL RESTORATION WORKGROUP

One forum to promote and facilitate science-based ecological restoration throughout New Jersey's coast.

Applied Science

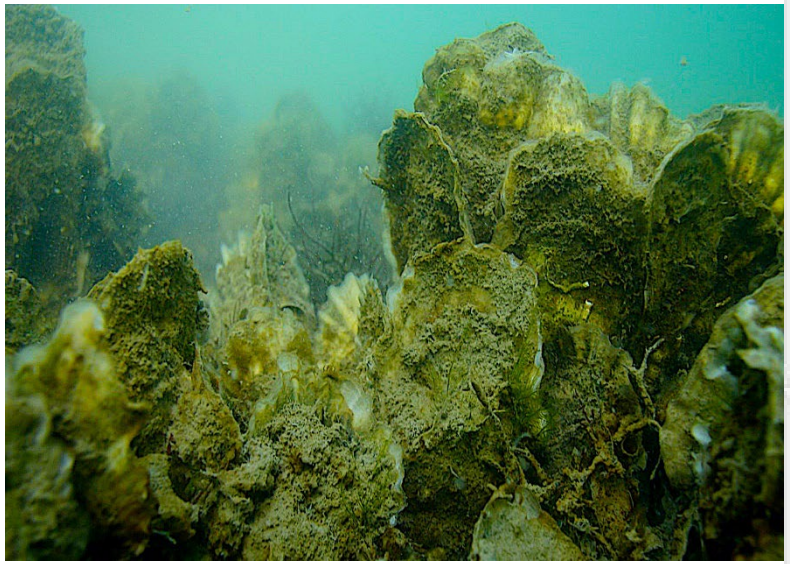
Main Objective: Promote science and research in ecological restoration work, advise and work on science and research-related tasks developed from other workgroups, work with the NJCRC on emerging issues, and promote facilitation of and knowledge sharing around green infrastructure and nature-based solutions.

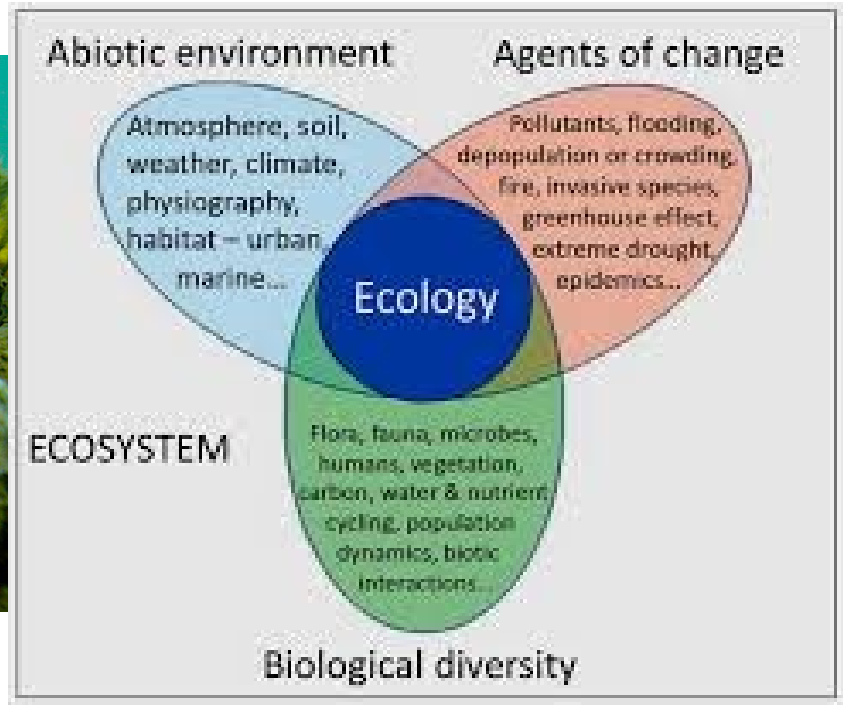
Possible Tasks:

- Connect planning and restoration activities with the best available science
- Provide scientific review when appropriate
- Promote a greater understanding of how to align restoration tactics with site-specific conditions
- Advocate for scientific inquiry regarding appropriate restoration practices
- Advise or work on science and research-related tasks developed from other workgroups
- Continue work on white paper
- Bring more focus to challenges and tactics for urban and developed areas.
- Knowledge-share on issues related to shellfish, green infrastructure, breakwaters, ecological shoreline work, etc.

Ecological restoration is….

- science-driven, with science and research at the core.
- theoretical and applied science working together towards a common goal: restoring ecosystem structure and function to maximize ecological functionality, biodiversity, and long-term resilience under changing environmental conditions.

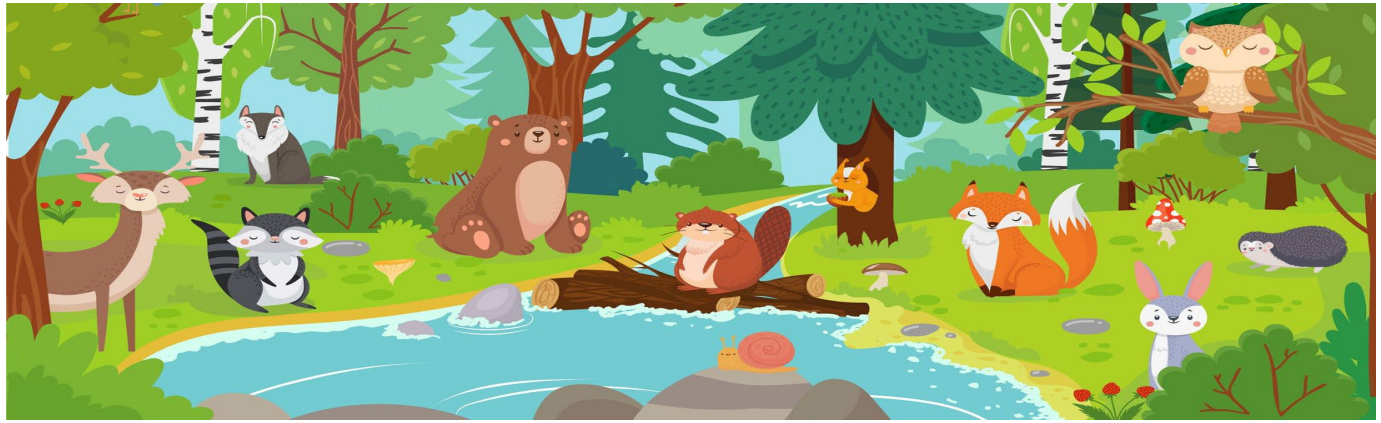




Nature-based solutions and green infrastructure are critical in urban and developed areas to restore essential functions and enhance resilience of these impaired habitats.

- Cost-effective
- Socially inclusive and easily integrated into urban planning
- Mitigate flooding
- Improve water quality
- Mitigate heat island effects
- Increase biodiversity and provide habitat
- Provide public access and recreation

Although we are one state, ecological restoration is not a one size fits all approach. In order to move projects forward, knowledge sharing and working across groups/disciplines/sectors is necessary.



NJ RC
COASTAL RESILIENCE COLLABORATIVE

Beneficial Use Restoration Taskforce

Adrinna Zito-Livington & Tyler Kenny
BURT Co-chairs

Focus Area 2

LEVERAGING LEARNINGS TO CATALYZE ACTION

The Beneficial Use Learning Network facilitated project-based knowledge transfer, created resources

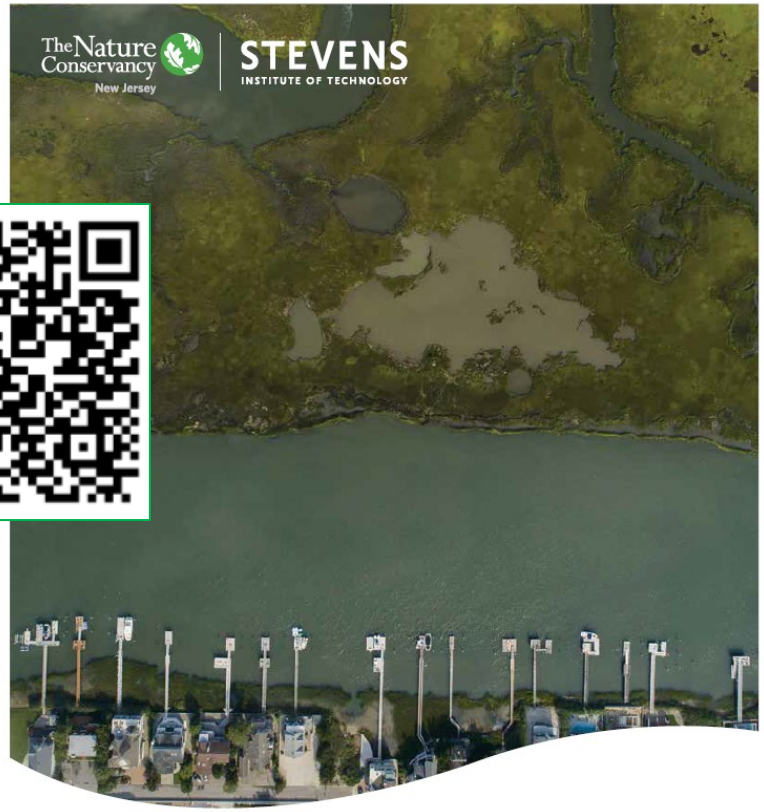
CASE STUDIES

Habitat Restoration with Dredged Sediment

The Nature Conservancy New Jersey | STEVENS INSTITUTE OF TECHNOLOGY

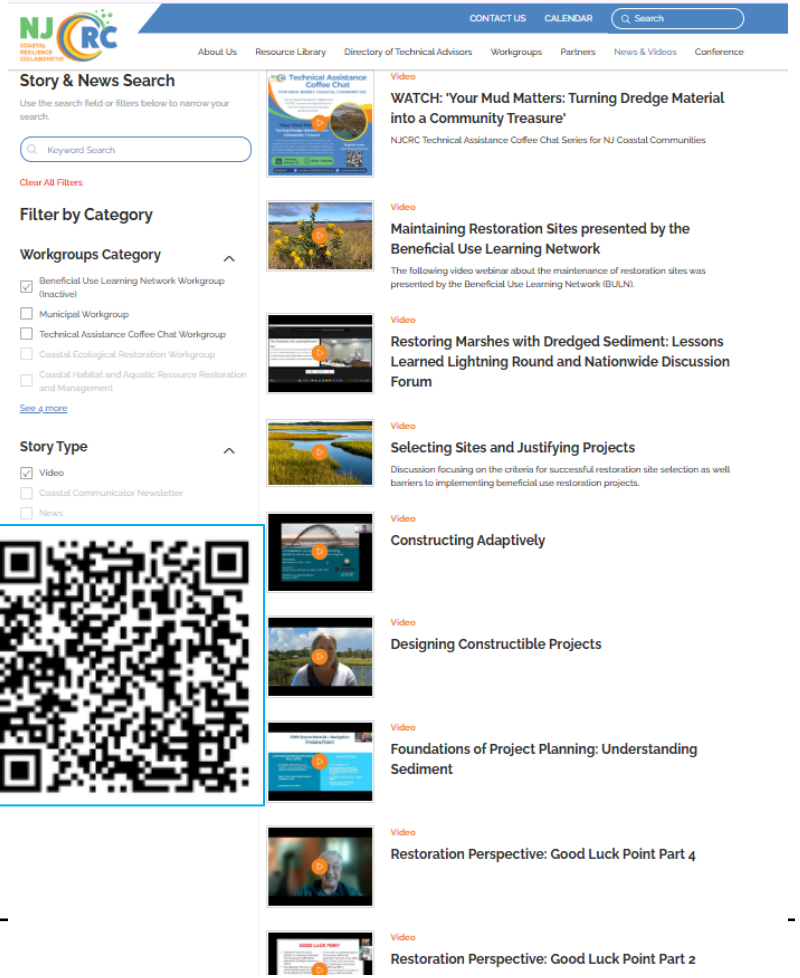
Presented through the Beneficial Use Learning Network

Compiled by The Nature Conservancy and Stevens Institute of Technology

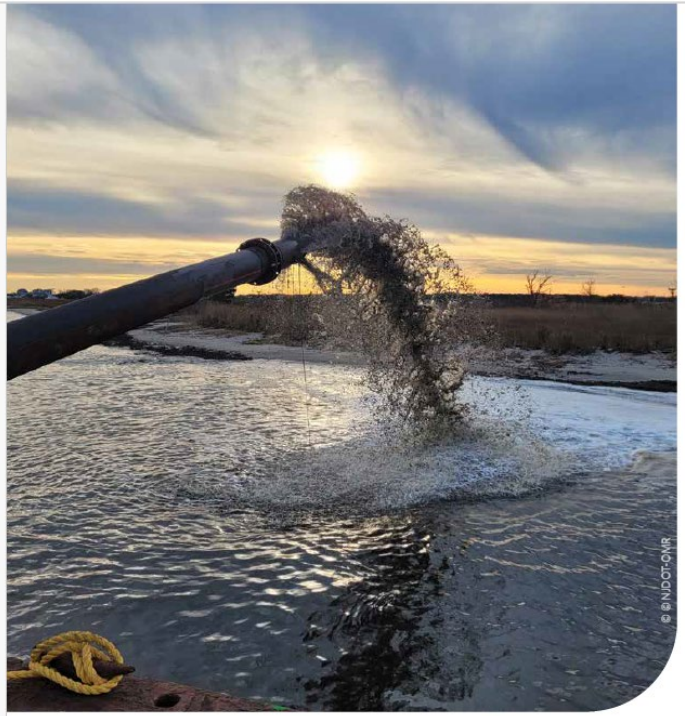


TECHNOLOGY APPLICATIONS

Beneficial Use of Dredged Material for Coastal Habitat Restoration



TAPPING INTO REGIONAL SEDIMENT MANAGEMENT



A Framework for Managing Sediment
in the Back Bays of New Jersey

From *A Framework for Managing Sediment in the Back Bays of New Jersey* (NJDOT 2024

BURT OBJECTIVES:

Facilitate the use of dredged sediments for ecological restoration and community resilience in NJ by:

Identify and **aggregate habitat restoration needs** and **share them with sediment managers** and their contractors**.**

Coordinate with state, federal, and local dredging teams and entities, to match needs, resources, expertise and opportunities.

Develop **processes, resources and tools to match** restoration needs with dredging projects.

Support a beneficial use of dredged material **Community of Practice** for sharing knowledge, aligning objectives, compiling resources, and advancing beneficial use projects.

BURT RELATED ACTIVITIES

- NJ Summit on Beneficial Use December 2024
- Restructure under Coastal and Ecological Restoration Working Group
  - Knowledge sharing
  - Resource Development
- Formation of a Steering Committee
  - Continued Engagement with Landowners
  - Engagement with Navigation Managers
- Work in progress
  - Leveraging existing resources and efforts
  - Directory of Ecological Restoration Projects (where sediment could play a role)

FOCUS AREA 2:BENEFICIAL USE RESTORATION TASKFORCE

- NJDOT Overview
- Purpose and Mission
- Prioritizing Beneficial Use to Achieve Co-Benefits

Legend

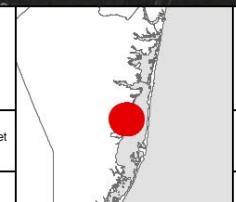
- Study Area
- Beneficial Use Area
- Parcels

Stouts Creek Restoration Site
Forsythe National Wildlife Refuge

Sources:
ESRI Bing Map Web Service
NJOGIS Parcels of Ocean County

Coordinate System:
NAD 1983 StatePlane New Jersey FIPS 2900 Feet
Datum: North American 1983

March 2023



Attachment 4 - Project Location Map
Stouts Creek Environmental Screening
Barnegat Bay, Lacey Township
Ocean County, New Jersey

wsp

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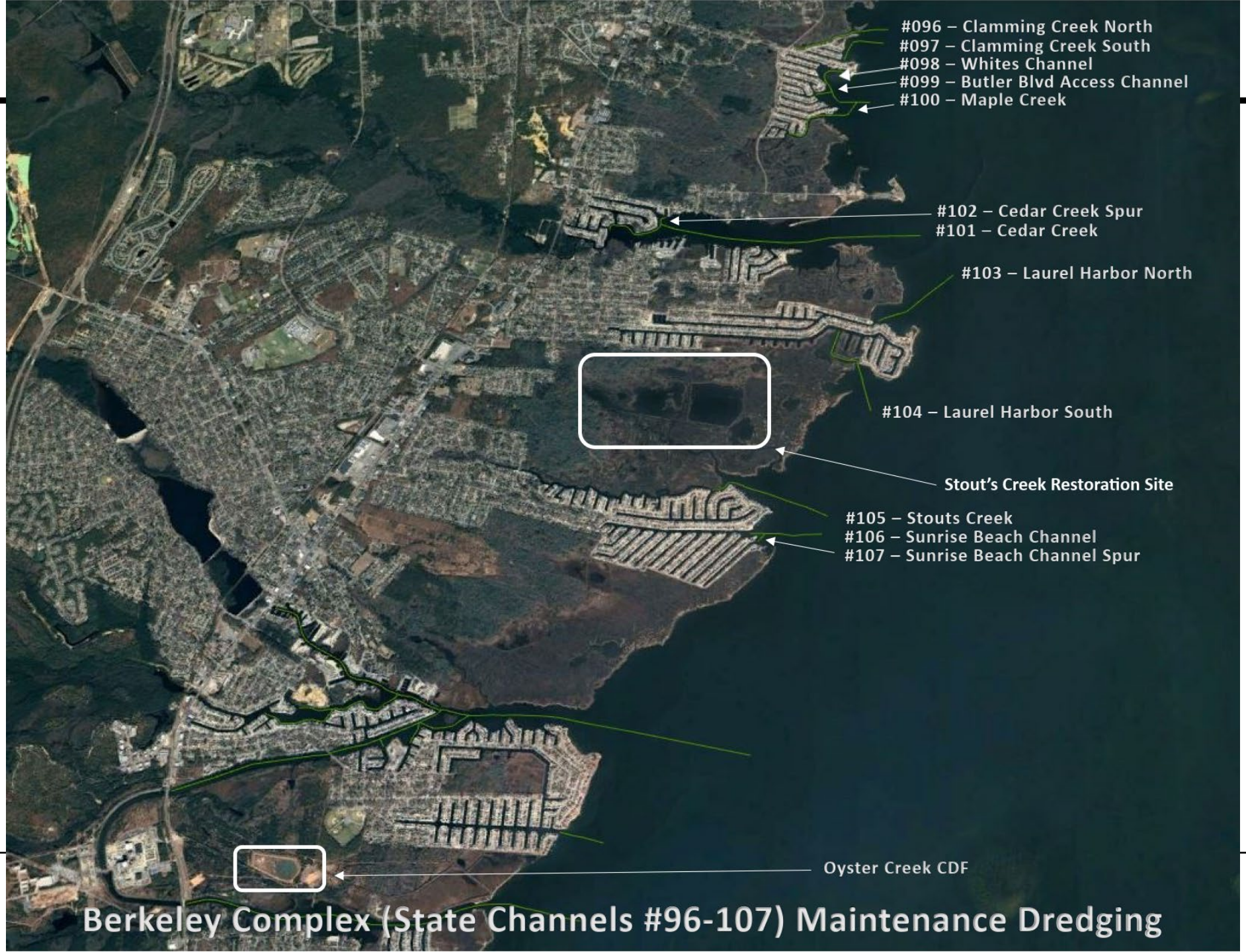


Berkeley Complex (State Channels #96-107) Maintenance Dredging

Lighthouse Center Restoration Site
Upper Barnegat Bay Wildlife Management Area

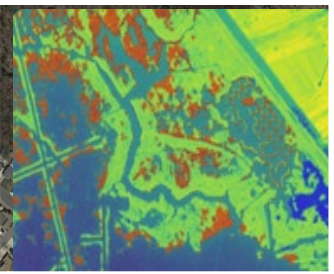
Waretown & Barnegat Light Complex (State Channels #117-135) Maintenance Dredging

1. **Creating a pipeline of restoration sites that need sediment to achieve ecological goals - Landowner + Ecology Partners**
2. **Define areas of opportunity + assess - Landowner + Ecology Partner + OMR**
   - **Existing conditions - Landowner + Ecology Partner**
   - **Bio-benchmarks and sea level rise Landowner + Ecology Partner**
   - **Design and Capacity - Landowner + Ecology Partner + OMR**
   - **Constructability - OMR**
3. **Funding + Implementation**
   - **Scenario 1: State navigation need**
   - **Scenario 2: Restoration and resilience need**

Coastal Habitat and Aquatic Resource Restoration and Management

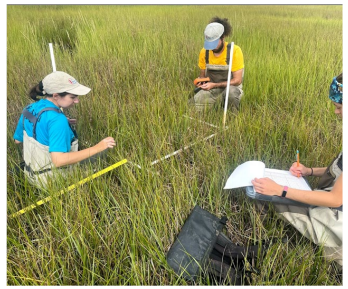
Jessie Murray & vacant
CHaRRM Co-chair

Focus Area 3







What has CHaRRM been up to?

NJCRC Coastal Ecological Restoration Workshop - September 11, 2025

Quinn McHerron
Program Specialist
NJDEP - Office of Climate Resilience

Jessie Murray
Marine Habitat Resource Specialist
NOAA Fisheries

Mid-Atlantic Coastal Habitat and Resources Restoration & Management Workgroup

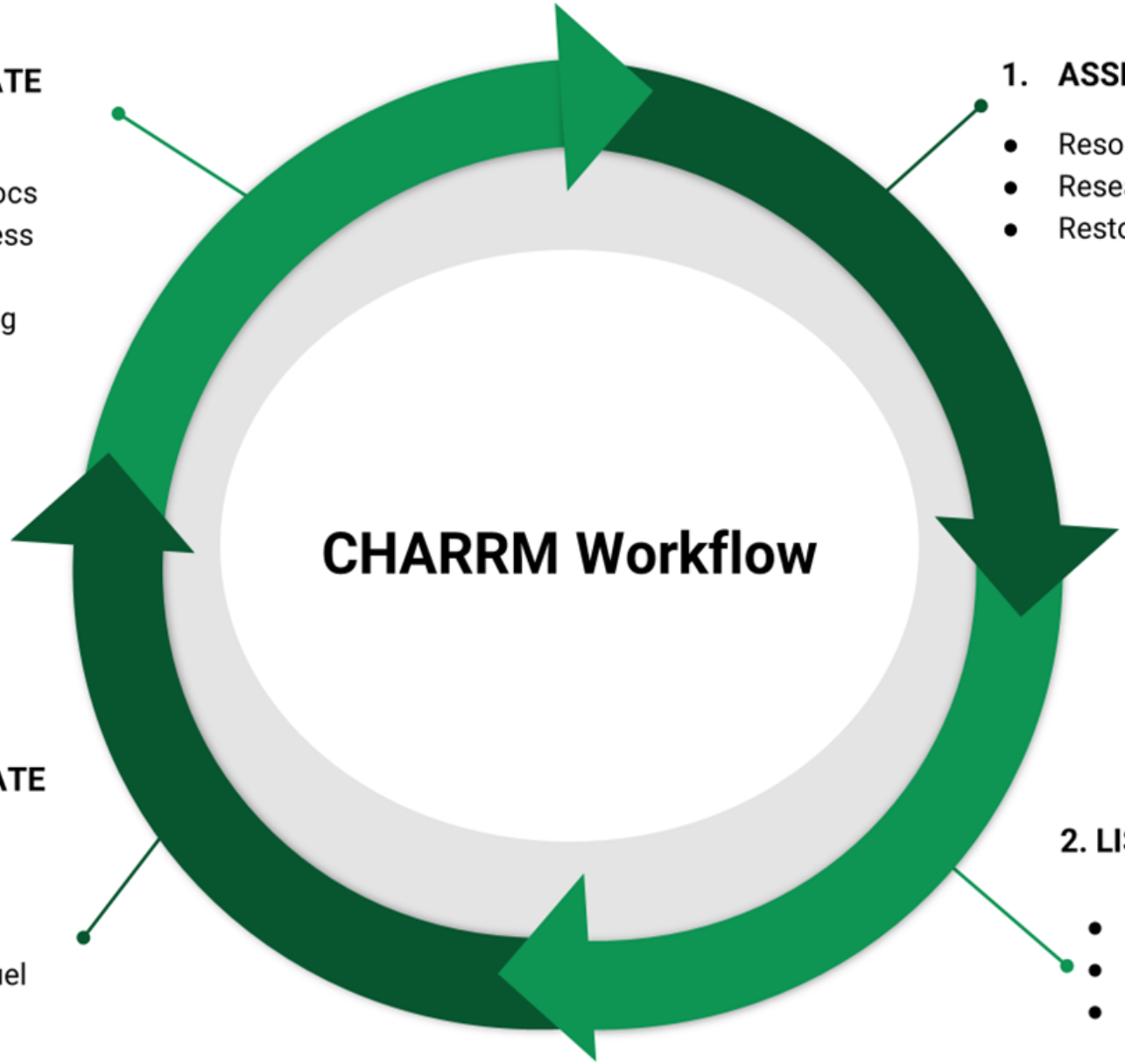
Regulatory Agencies / Resource Managers
Restoration Practitioners
Research Scientists

Tackle issues related to coastal habitats and the resources impacted by restoration and regulations

CHaRRM Objectives

- **Facilitate education and collaboration**
  - ❑ Resource managers and regulatory agencies
  - ❑ Restoration practitioners
  - ❑ Research scientists
- **Streamline efficiencies among these groups**
- **Facilitate science-based coastal habitat restoration**

Now an initiative under the NJCRC Coastal Ecological Restoration Workgroup!



1. ASSEMBLE

- Resource Managers & Regulatory Agencies
- Research Scientists
- Restoration Practitioners

2. LISTEN

- Hold an open forum for collaboration
- Create listening sessions
- ID information gaps, communication hurdles, etc.

3. EDUCATE

- Facilitate discussions around relevant topics
- Use Learning Webinars for knowledge integration and to fuel discussions

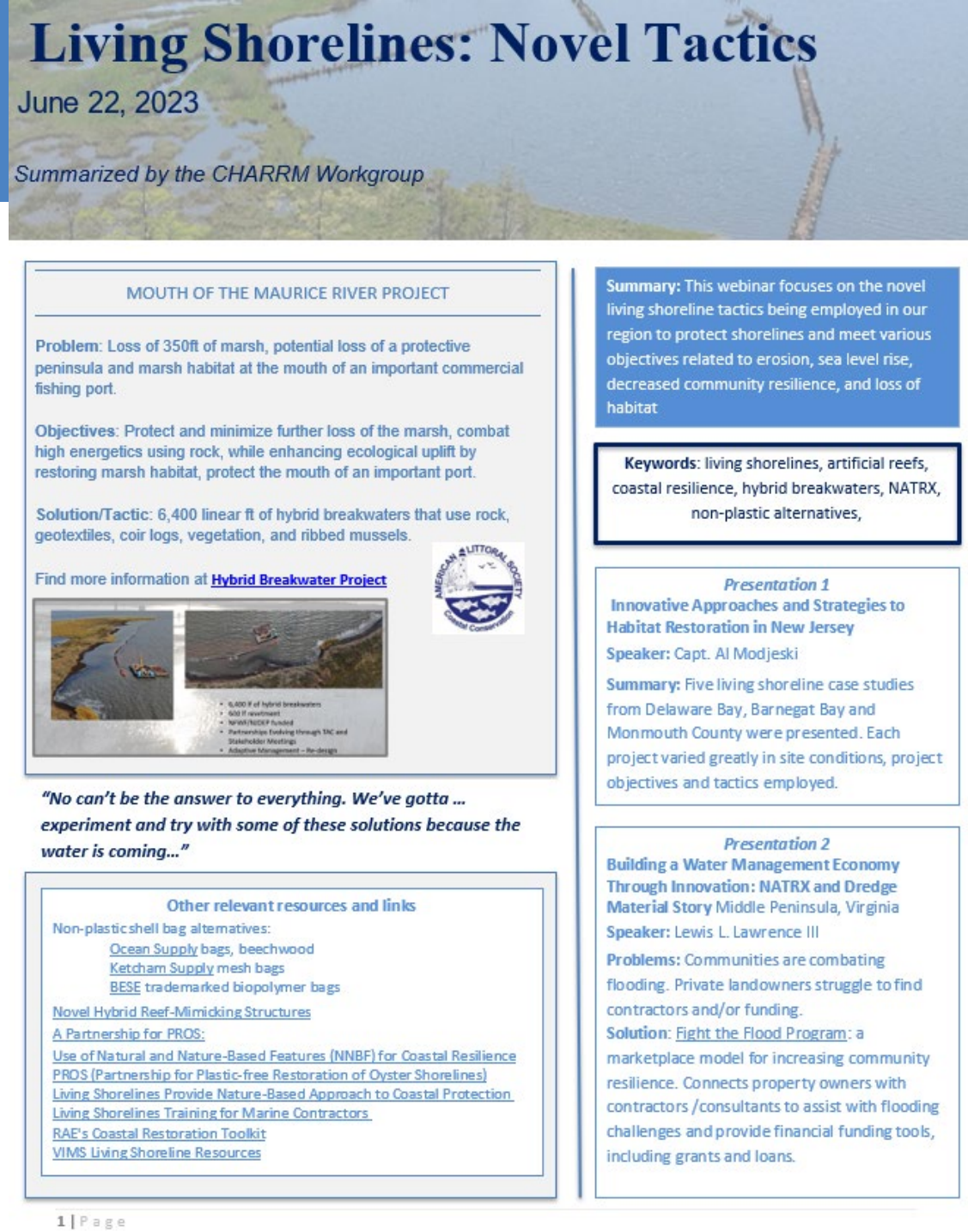
4. COLLABORATE

- Find efficiency opportunities
- Develop/ update guidance docs
- Establish/standardize success metrics
- Develop proposals for funding research
- Streamline permitting review processes for all

CHaRRM Learning Webinars

- **Seagrasses & SAV**
  - Biology and Basics
  - Regulations and Mgmt
- **Living Shorelines**
  - Biology and Basics
  - Case Studies and Lessons Learned
  - Novel Tactics
- **Mid-Atlantic Marshes**
  - Biology, Processes, and Trends
  - **Sediment Pancakes:** Riverine Contributions to Tidal Wetland Accretion

FACTS SHEETS COMING SOON!



Living Shorelines: Novel Tactics

June 22, 2023

Summarized by the CHARRM Workgroup

MOUTH OF THE MAURICE RIVER PROJECT

Problem: Loss of 350ft of marsh, potential loss of a protective peninsula and marsh habitat at the mouth of an important commercial fishing port.

Objectives: Protect and minimize further loss of the marsh, combat high energetics using rock, while enhancing ecological uplift by restoring marsh habitat, protect the mouth of an important port.

Solution/Tactic: 6,400 linear ft of hybrid breakwaters that use rock, geotextiles, coir logs, vegetation, and ribbed mussels.

Find more information at Hybrid Breakwater Project

"No can't be the answer to everything. We've gotta … experiment and try with some of these solutions because the water is coming…"

Other relevant resources and links

Non-plastic shell bag alternatives:
- Ocean Supply bags, beechwood
- Ketcham Supply mesh bags
- BESE trademarked biopolymer bags

Novel Hybrid Reef-Mimicking Structures
A Partnership for PROS:
Use of Natural and Nature-Based Features (NNBF) for Coastal Resilience
PROS (Partnership for Plastic-free Restoration of Oyster Shorelines)
Living Shorelines Provide Nature-Based Approach to Coastal Protection
Living Shorelines Training for Marine Contractors
RAE's Coastal Restoration Toolkit
VIMS Living Shoreline Resources

Summary: This webinar focuses on the novel living shoreline tactics being employed in our region to protect shorelines and meet various objectives related to erosion, sea level rise, decreased community resilience, and loss of habitat

Keywords: living shorelines, artificial reefs, coastal resilience, hybrid breakwaters, NATRX, non-plastic alternatives,

Presentation 1

Innovative Approaches and Strategies to Habitat Restoration in New Jersey

Speaker: Capt. Al Modjeski

Summary: Five living shoreline case studies from Delaware Bay, Barnegat Bay and Monmouth County were presented. Each project varied greatly in site conditions, project objectives and tactics employed.

Presentation 2

Building a Water Management Economy Through Innovation: NATRX and Dredge Material Story Middle Peninsula, Virginia

Speaker: Lewis L. Lawrence III

Problems: Communities are combating flooding. Private landowners struggle to find contractors and/or funding.

Solution: Fight the Flood Program: a marketplace model for increasing community resilience. Connects property owners with contractors /consultants to assist with flooding challenges and provide financial funding tools, including grants and loans.

Field Trips

- Cattus Island – April 17
- Very high energy, severe erosion
- Discussed NJ back bay marsh degradation issues, historical land management, and how a large LS project and innovative marsh restoration solutions are being planned at Cattus Island County Park.

Where to next??

Listening Sessions: Shellfish Restoration Hurdles & Challenges

Which tactics are and are not successful in your area?

What are the hurdles?

What science or research is necessary to facilitate & inform?

Lessons learned

New or innovative projects

Any proven benefits in your area?

Any pitfalls to avoid?

Next Steps:

- Compile lessons learned & notes from listening session
- Collaborative coalition?
- Bring in experts to talk to CHaRRM

What's next for CHARRM?

- Learning Webinar Series
  - BULN technical documents
  - USFWS & NOAA ecosystem approach to coastal marsh restoration document
  - Shellfish restoration series
- Support Grant Proposal for research funding
- Adaptive Management and Mitigation Guidance
- Standardizing monitoring metrics guide to meet resource manager objectives
- Expand CHARRM network

Interested? Sign up

Jessie.Murray@noaa.gov

Interactive Question and Answer Session

Challenges and Needs for Coastal Restoration in 2025

Opportunities to leverage with one another?

How Can NJCRC Help?

nj-crc.org/home

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