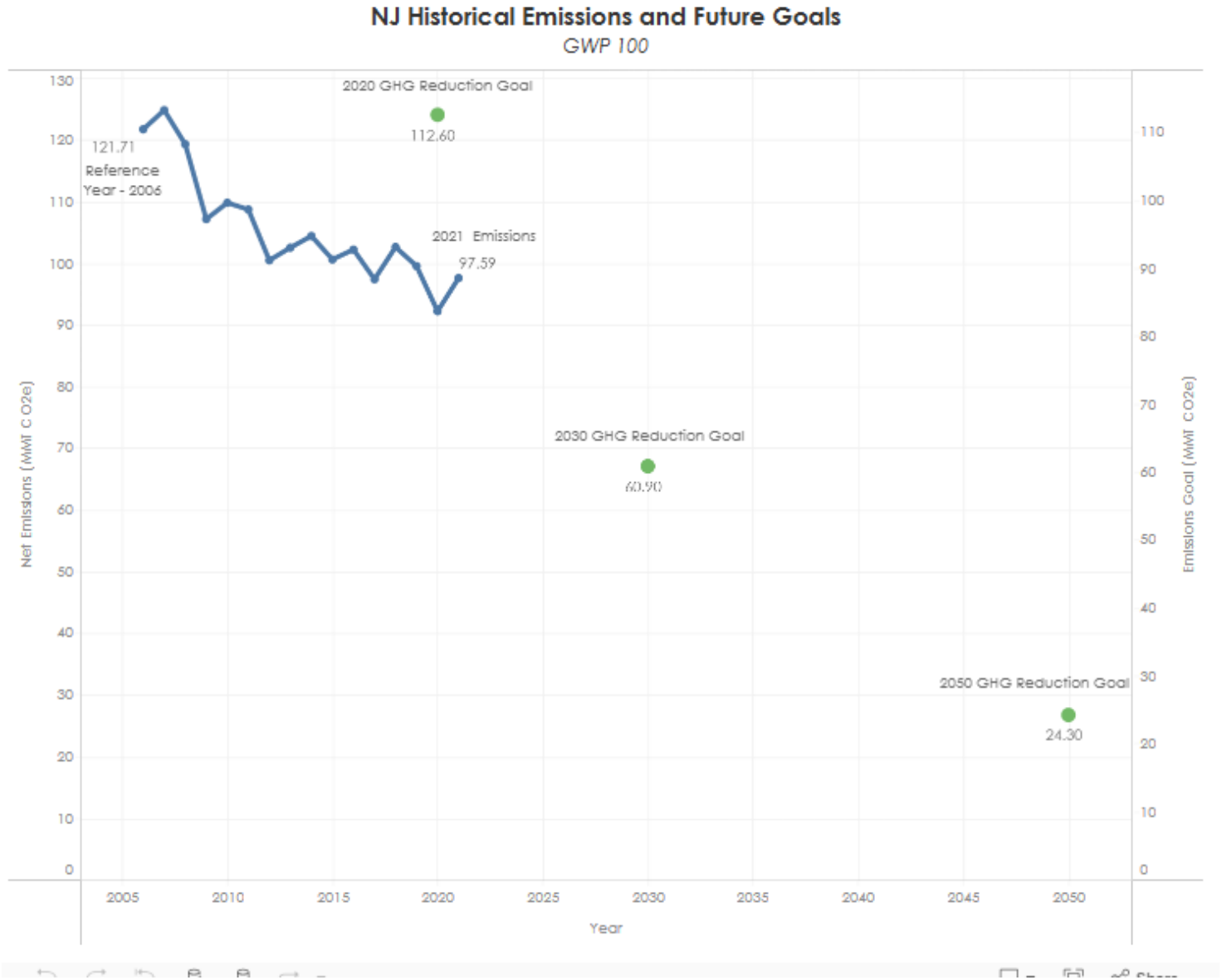
State Updates: New Jersey

November 2024

MAWWG-NEBAWWG Joint Meeting

Carbon Sequestration

- **Natural Climate Solutions Grant - $24.3 million for blue and green funding projects**
  https://dep.nj.gov/climatechange/mitigation/ncs-grant/
- **Improving GHG Inventory for NWL**
- **Measuring net carbon flux in forested wetlands**
- **Natural and Working Lands Strategy**
  https://dep.nj.gov/climatechange/mitigation/nwls/



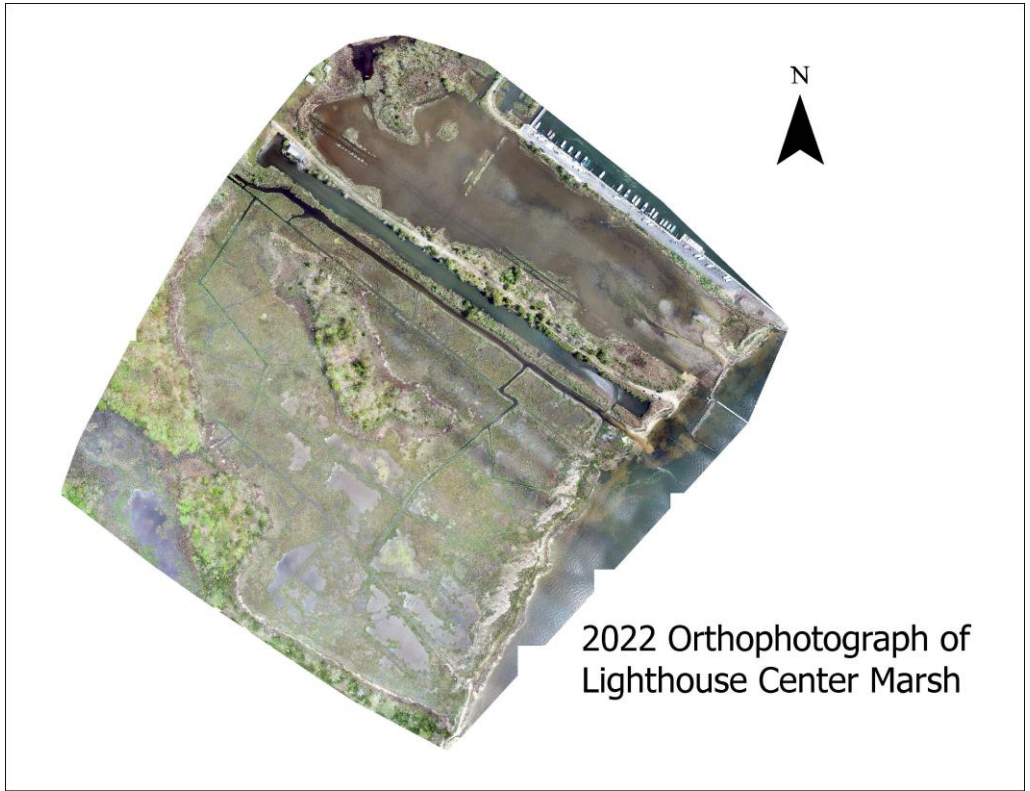
Natural Climate Solutions Grants

NCS Grant

AEMS is responsible for the NCS (Natural Climate Solutions) grants. Funding is provided through NJDEP by proceeds from RGGI auctions. NJDEP has awarded nearly $24.3 million for blue and green funding projects.

Ongoing NCS Wetlands Projects include:

- Funding to the American Littoral Society to restore marches in the Maurice River, including 19.5 acres and 3,500 feet of living shoreline ($5 million)
- Brick Township: Wetland restoration in the Forsythe Refuge Marsh across 95 acres ($5 million)
- Nature Conservancy –Salt Marsh restoration at the lighhouse center in Waretown covering 7.58 acres ($1.8 million)
- Partnership for Delaware Estuary –Living Shorelines salt march carbon sequestration at Matt's Landing, covering 1,300 feet of shoreline ($766,000)
- Stafford Township – restoration on 33 acres of tidal salt march ($5 million).

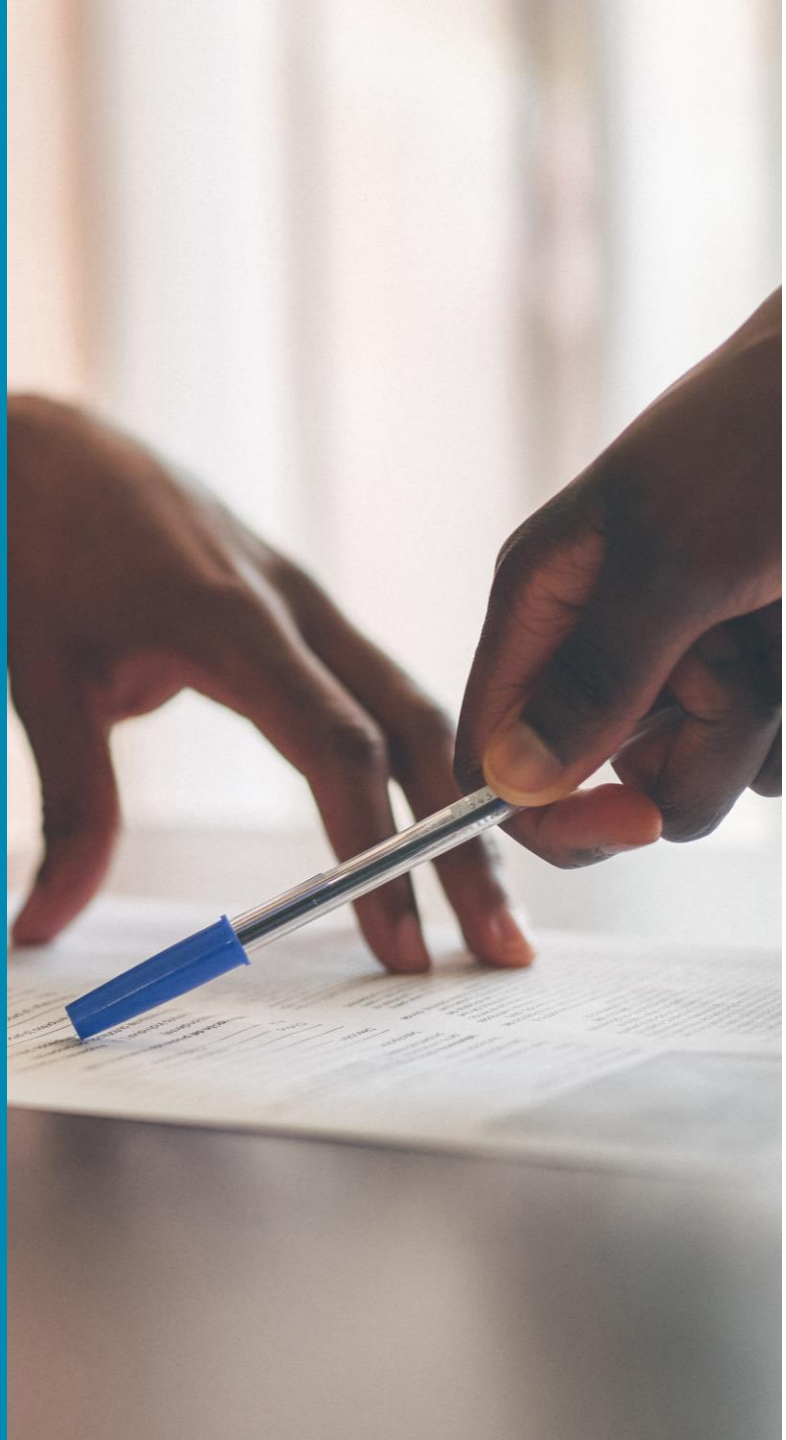


2022 Orthophotograph of Lighthouse Center Marsh

Other AEMS work

Improving Sequestration Calculations

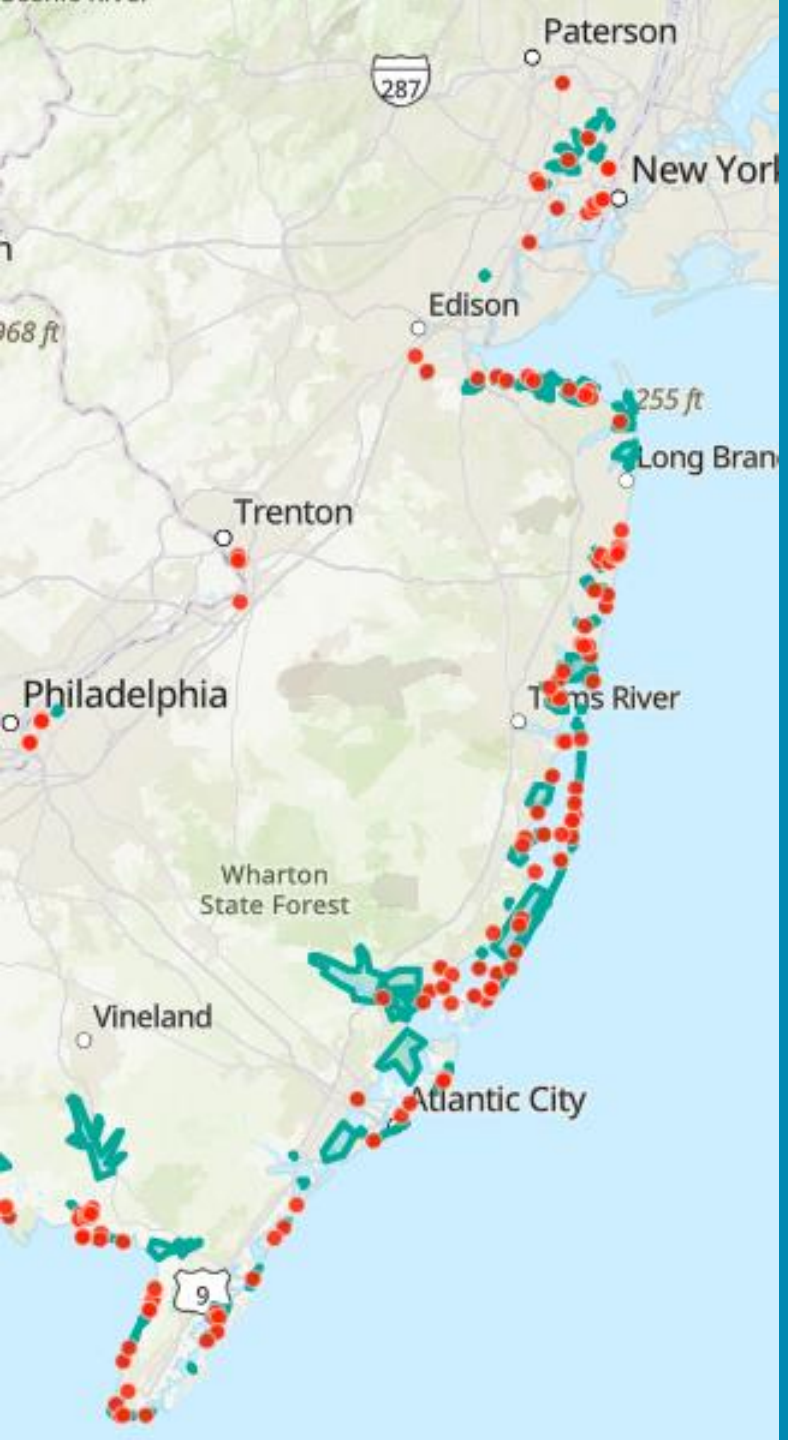
- NJDEP received a CPRG grant to improve carbon sequestration modeling in Natural and Working Lands (NWLs)
- This will help to quantify C-Sequestration across the state
- The results should help in wetland preservation
- AEMS and DSR are collaborating on implementation of this grant.



N.J.A.C. 7:7A Freshwater Wetlands Protection Act: Proposed Rule changes

- Clarifying that applicants must justify that wetland impacts are necessary for conducting a project regardless of whether the impacts meet other criteria established in the rules.
- Requiring applicants to demonstrate compliance with the Stormwater Management rules for any project impacting wetlands or transition areas, which is associated with, or part of, a major development.
- In non-surface water connected wetlands, requiring onsite assessment when impacts are proposed in vernal habitats.
- Requiring a permit for horizontal directional drilling to protect against accidental release of contaminants.
- Requiring the removal of existing impervious surface, where practicable, within 25 feet of wetlands under a special activity transition area waiver for redevelopment of a significantly disturbed area to promote restoration and more closely align with the FHACA rules.
- Ensuring all activities in transition areas are situated at least 25 feet from freshwater wetlands.
- Requiring the entire transition area to be protected by a conservation restriction once modified through an averaging plan.

https://dep.nj.gov/njreal/



Tools

Coastal Ecological Restoration & Adaptation Planning (CERAP) –

- Web-based atlas of existing coastal restoration efforts in NJ – from concept to implementation
- ID projects that can increase community resilience, ecosystem health, and carbon sequestration
- https://njrestors.rutgers.edu/nj-cerap/

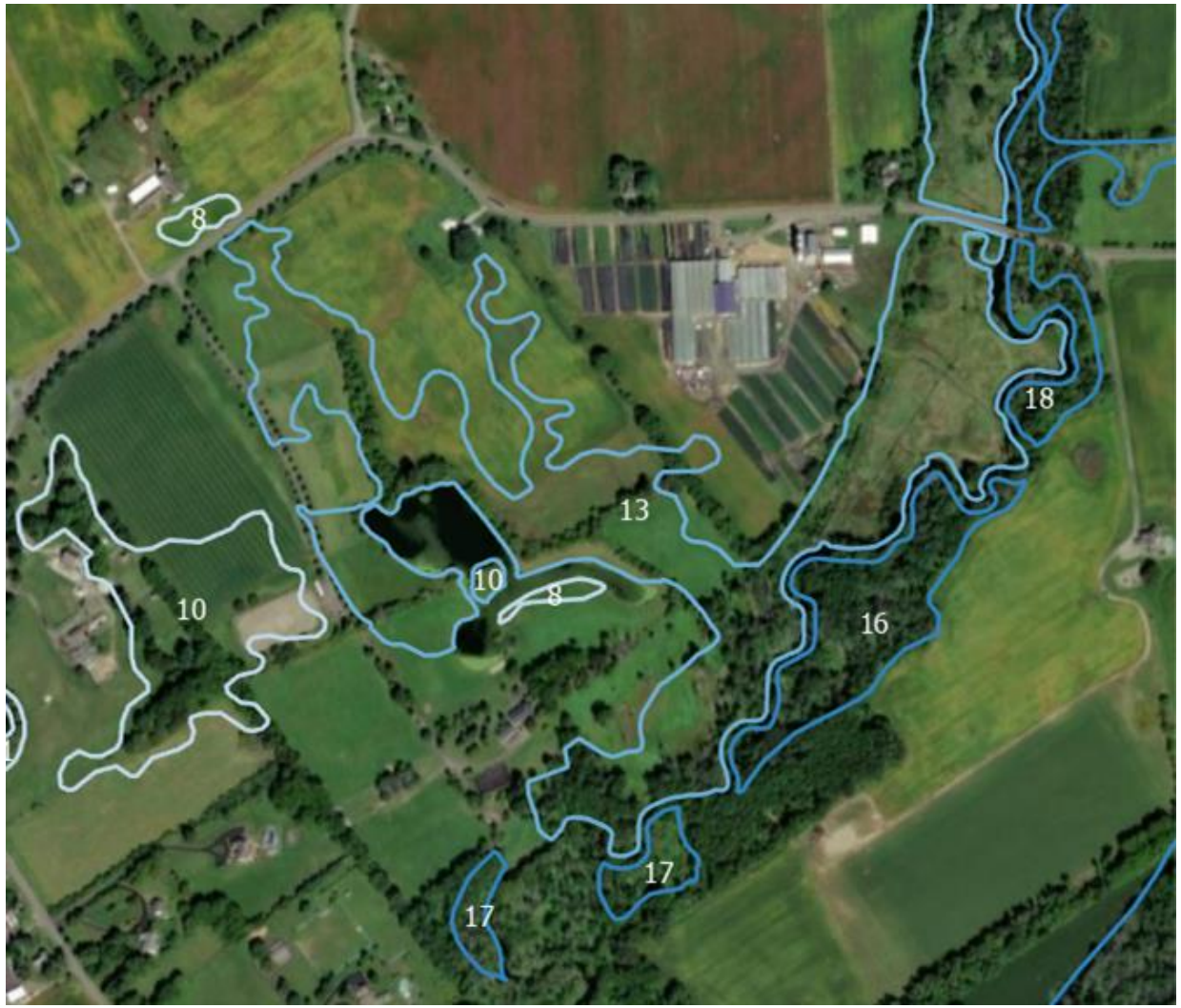
- Watershed NJ
  - Developed a statewide, GIS-based Wetland Functional Assessment following the WV Wetland Rapid Assessment Method
  - Focuses on three major functions:
  - Water Quality Improvement
  - Flood Attenuation
  - Ecological Integrity and Habitat

- NJ Restoration Tool Organization Suite (ResTOrS)
  - The NResTOrS work flow proceeds from the statewide perspective of the CERAP tool to a landscape scale evaluation of the marsh landscape with the Marsh Explorer and Living Shorelines Explorer tools to more detailed site level assessment and guidance provided by the Wetlands Assessment Tool for Condition & Health (WATCH) and the Living Shoreline Feasibility Model (LSFM).
  - https://njrestors.rutgers.edu/

WatershedNJ Wetland Function Mapping

- Developed a statewide, GIS-based Wetland Functional Assessment following the WV Wetland Rapid Assessment Method
- Focuses on three major functions:
  - Water Quality Improvement
  - Flood Attenuation
  - Ecological Integrity and Habitat
- Map scores all freshwater wetland polygons in Land Use/Land Cover. Parallel system for coastal wetlands is under development.
- Status: under final review of publication on the WatershedNJ website.

Right: Example of Water Quality Improvement scores (out of 25).



NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

RUTGERS THE STATE UNIVERSITY OF NEW JERSEY

Coastal Ecological Restoration & Adaptation Planning (CERAP)

Web-based decision support tool

Continued Expansion

- Update existing projects from project leads
- Request nominations for new projects & target areas

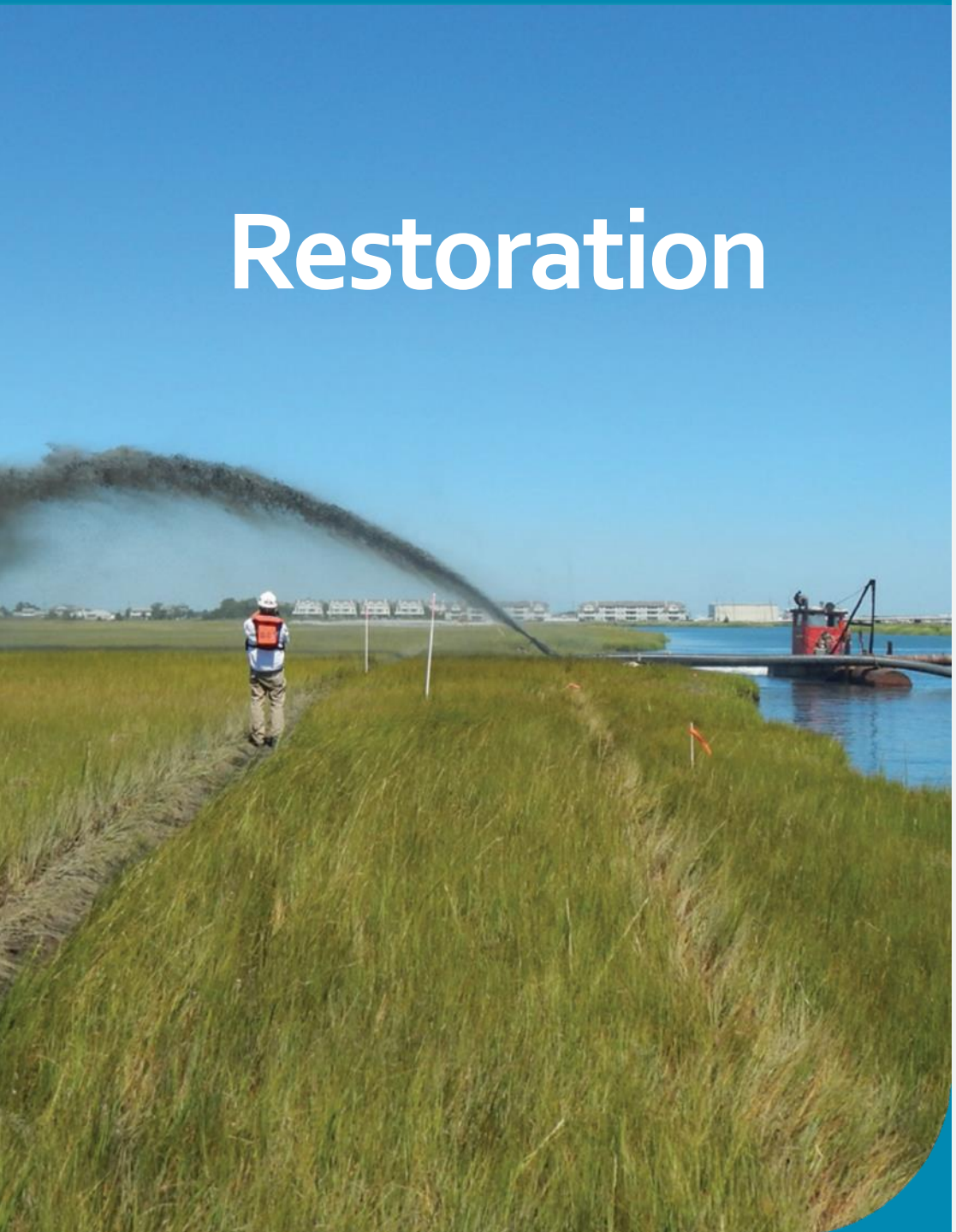
CERAP Training

- Initiate, develop, & conduct guided programs & trainings
- Foster peer-to-peer learning & expand access to the tool

Develop Project Catalogue

- CERAP to serve as atlas of existing coastal restoration efforts in NJ – from concept to implementation
- Use to match potential projects with future funding opportunities

Restoration



Beneficial Use of Dredged Material

- Numerous projects happening across the state
- Regional workgroups
- Regional Sediment Management Plan
- Research: Carbon sequestration and nitrogen cycling in marshes enhanced with dredged material

Internal DEP Nature Based Features Workgroup

- Developing an adaptive management plan template

Scotch Bonnet Island Restoration Cape May Coastal Wetlands Wildlife Management Area

- **Scotch Bonnet Island** is a low-lying marsh island in the **Cape May Coastal Wetlands Wildlife Management Area (WMA)**, NJ whose elevations have fallen into the lower limit of low marsh elevation. The platform is undergoing rapid marsh loss through conversion to open water and dissection via tidal creek expansion.

- The project aims to **stabilize the marsh platform using sediment addition** with materials from maintenance dredging of the NJ Intracoastal Waterway to uplift approximately 12 acres of marsh.

- **NJDEP Fish and Wildlife, USACE Philadelphia District, USACE ERDC, US Naval Academy, University of Pennsylvania and The Wetlands Institute are involved with site and placement monitoring efforts to document and inform pre-placement conditions and material placement methodologies before and during placement. Outcomes will be monitored for marsh response and recovery, diamondback terrapin and avian usage.**

Expanding mudflats at Scotch Bonnet Island Cape May Coastal Wetlands WMA

Beneficial Use of Dredged Material

- Regional Sediment Management Framework – *in draft form*
  - Plan tailored to NJ Atlantic back bays to beneficially use dredged material wherever possible & to keep that sediment in the system
  - Spearhead by DOT OMR
  - Steering Committee: State & Federal agencies, academic partners, NGOs
  - Objectives & recommendations include actions around policy, regulations & permitting, coordination of planning, research & technology, and cost
- BUDM Summit – December 2024
  - Bring together representatives for key BUDM-related efforts in NJ
  - Consolidate resources & ID planning gaps/needs
  - Establish momentum to continue regular practitioner convenings for updates on BUDM-related efforts

Higbee Beach WMA Restoration Project

- Project Commencement - February 2024
- 400 acres of restored and enhanced wetland and maritime habitat and the creation of high marsh islands, habitat clusters, mud flats, open water features, and sand-shell islands
- Restore tidal inundation to the marsh by widening the channel and adding secondary and tertiary channels
- ≈3 miles of public trail systems added with multiple wildlife viewing and bird blind structures
- Engineered coastal flooding control systems which includes a 6,000ft berm constructed with flow control structures to manage tidal inundation

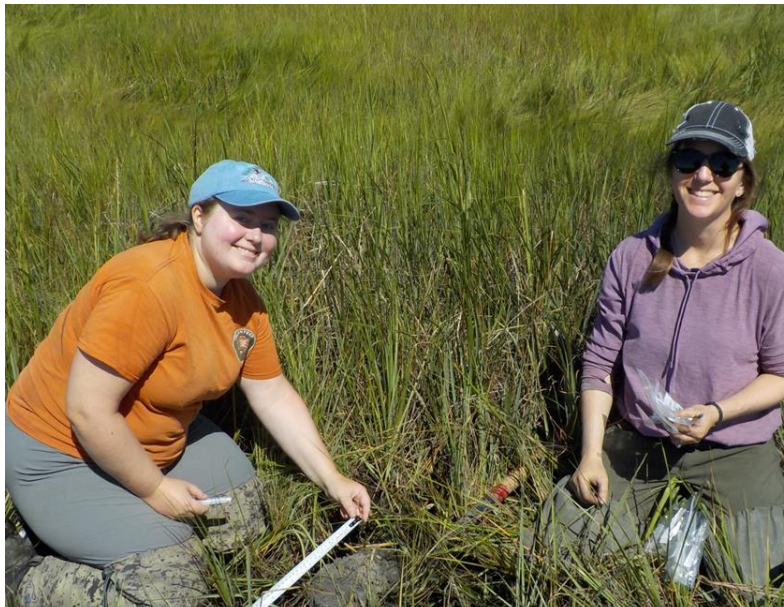
Coordination

- **First NJDEP Networked Wetland Plan**
  - ID top 5 priorities for DEP over the next 5 years
  - Tracks progress
  - Codifies the DEP Wetland Team
- **DEP What's Happening in NJ's Wetlands Seminar Series**
- **New Jersey Tidal Wetlands Monutoring Network**
  - DEP provides financial support
  - Developed database
  - Developing website with interpretive and interactive map
  - Developing new standardized methods – accurate elevation measurements

Research

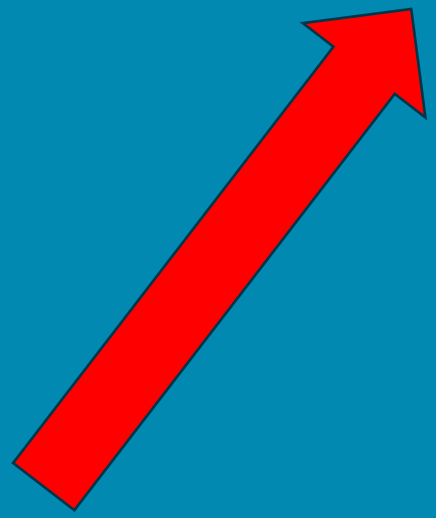
- Is the maximum freshwater wetland buffer size required by New Jersey State Law sufficient to protect sensitive wildlife from shifts in land use? TBD
- Are ponds in salt marshes reservoirs for harmful algal blooms?
- Mapping and Assessing Tidal Marsh Condition Via Multispectral Imaging
- Last millennium relative sea-level change on the western coast of southern New Jersey
- Groundtruthing New Wetland Land Use/Land Cover Mapping Methods

- https://dep.nj.gov/dsr/wetlands/



Division of Science and Research

https://dep.nj.gov/dsr/wetlands/



Mapping and Assessing Tidal Marsh Condition Via Multispectral Imaging (2024)

Fact Sheet & Full Report

A Multi-Metric Site Evaluation Tool for Restoration of New Jersey's Tidally Influenced Wetlands (2024)

Fact Sheet | Full Report

New Jersey Wetland Program Plan, 2023-2027 (2023)

Full Plan

Beneficial Use of Dredged Material to Enhance Salt Marsh Habitat in New Jersey : Project Summary and Lessons Learned (2021)

Project Summary Lessons Learned | Monitoring Plan

The New Jersey Reference Wetland Tool by Riparia at Penn State and NJDEP (2021)

NJ Reference Wetland Online Tool

Nutrient and Carbon Fluxes to Barnegat Bay from Marginal Saline Wetlands (2021)

Full Report | Research Project Summary

Developing a Watershed-scale Baseline for Tidal Wetlands (2020)

Full Report

Diatom Flora of the New Jersey Coastal Wetlands (2019)

Full Report

New Jersey Wetland Program Plan 2019-2022 (2019)

Full Report

New Jersey (USA) Wetlands Past, Present and Future: Using Sediment Archives to Inform and Guide Wetland Protection, Restoration and Res

Full Report

Investigating the Effectiveness of State-Imposed Wetland Buffers on Continued Habitat Viability for Pine Barrens Treefrogs (*Dryophytes andersonii*)

Sally Florio[1*] (Sally.Florio@dep.nj.gov), Allegra Mitchell[1], Christine Healy[2]
Div. Of Watershed Protection and Restoration, Department of Environmental Protection[1], Conserve Wildlife Foundation of New Jersey[2]

Background

- Vernal pools are a critical habitat for numerous species including amphibians, reptiles, invertebrates, migratory waterfowl, raptors and songbirds.
- Due to their isolated nature, these pools are sensitive to changes in proximal land use.
- Pine Barrens treefrogs (PBTF) are listed as a threatened species in New Jersey due to restricted range, specific and declining habitat, and pollution.
- New Jersey's Freshwater Wetlands Protection Act requires buffers of 50 or 150 ft, depending on significance, "to preserve the purity and integrity of freshwater wetlands from random, unnecessary or undesirable alternation or disturbance from pressures [of] commercial and residential

Figure 1: Adult Pine Barrens treefrog. Credit: Nikki Griffiths.

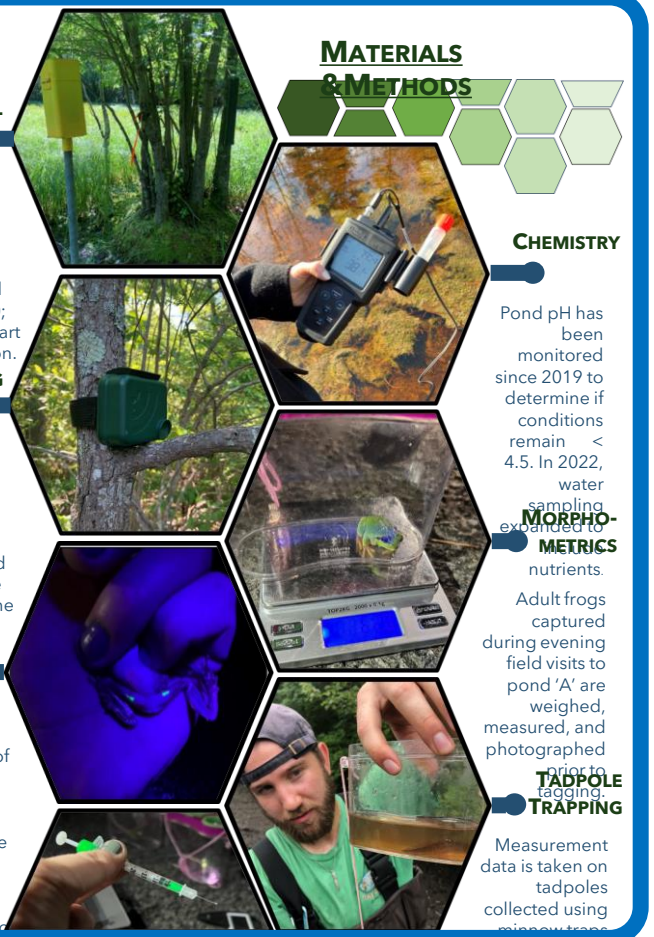
Study Site

Figure 2: 2023 Aerial Imagery of the study site in southern New Jersey. Ponds 'A' (left) and 'B' (right) qualify for 150-ft buffers as they support breeding populations of PBTF.

Research Questions

•Is the maximum freshwater wetland buffer size required by New Jersey State Law sufficient to protect sensitive wildlife from shifts in land use?
•Does runoff from development occurring outside 150-ft buffers continue to impair water quality and alter hydrology?
•Are there quantifiable changes to abundance, adult longevity, and juvenile survival in populations beyond the maximum buffer?

Materials & Methods



Water Level

Data loggers have been tracking daily water level in ponds 'A' and 'B' since 2020; prior to the start of construction.

Call Monitoring

AudioMoth recording devices capture calls occurring in ponds 'A' and 'B' during the duration of the breeding season.

Elastomer Tagging

To enable identification in the event of recapture, frogs were marked with unique visible implant elastomers (VIE). Total sample size to

Chemistry

Pond pH has been monitored since 2019 to determine if conditions remain < 4.5. In 2022, water sampling expanded to include nutrients.

Morpho-metrics

Adult frogs captured during evening field visits to pond 'A' are weighed, measured, and photographed prior to tagging.

Tadpole Trapping

Measurement data is taken on tadpoles collected using minnow traps

Preliminary Findings

- Droughts during the 2021/2022 season dried the main breeding pond before many tadpoles metamorphosed, and water levels look similarly deficient in 2023.
- Fourteen Pine Barren treefrog individuals were captured and marked in pond 'A' across four field nights in 2022 and 2023. None of the 2022 frogs were recaptured in 2023.
- No individuals were captured in Pond "B"
- AudioMoth devices collected >3,000 recordings to be processed for population estimates. Manual call surveys were conducted and an estimate of >20 individual calls were noted.
- >130 tadpoles were collected via minnow traps and dip-

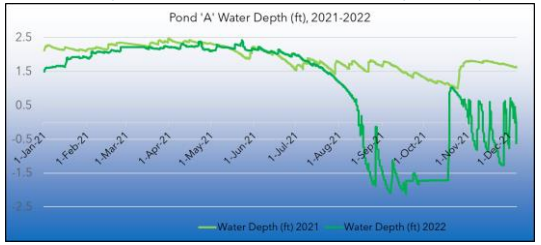


Figure 3: Comparison of water level recorded in Pond 'A' during 2021 to results from 2022.

Future Direction

We will continue monitoring this site over the next few years through the final phase of construction. We hope to strengthen our analyses by establishing a control site nearby to help identify "normal" population changes in response to abnormal weather conditions vs. changes influenced by altered land use. We will be collaborating with the United States Geological Survey (USGS) on this work.

References

See Us in Action!

Acknowledgements

Thanks to our interns and field crew including Connor Zrinko, Nikki Griffiths, Eleanor Dunlevy, and Mare Noel. Additional assistance from Kelly Smalling, USGS, and NJDEP Div. of Science and Research. Special thanks to Tom Bovino for funding.

Wetlands Delineations for NJ Fish and Wildlife Habitat Projects

Contracted Delineations

NJ Fish and Wildlife recently hired a private firm to delineate wetland boundaries for a 53-acre field reclamation project that overlapped potential wetland areas.

In-house Delineations

Five NJ Fish and Wildlife staff recently completed the Wetland Delineation Certification Program. We are currently working on purchasing equipment to conduct in-house surveys.

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