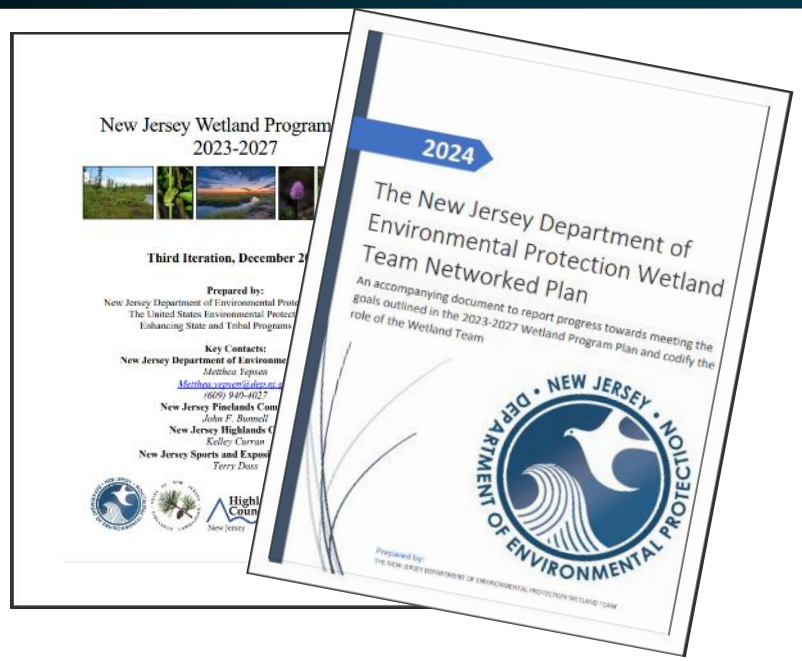
New Jersey 2025 Updates

Josh Moody DSR
Scarlett Simpson BFWM
Ildiko Pechmann NJ SEA

- Key Accomplishments
- Obstacles & Challenges
- Planned Progress in 2026

Progress Tracking: EPA Wetland Program Plan & NJDEP Networked Wetland Plan



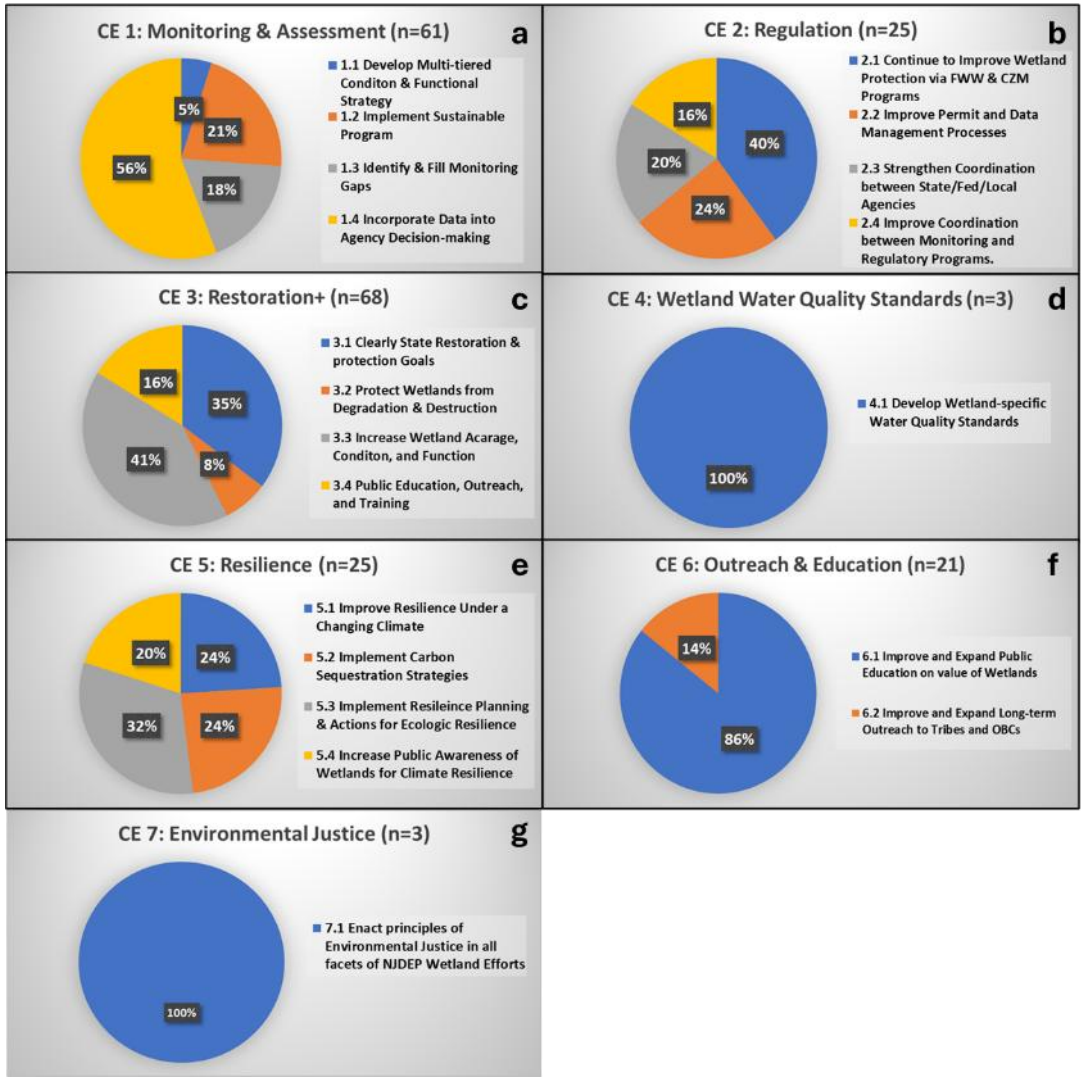
- 71 activities
- 18 Program Areas
- 85%: 1 Prioritized Activity
- 35%: 2 Prioritized Activities

Q4
Track program area progress

Q1
Report annual results to DEP WT

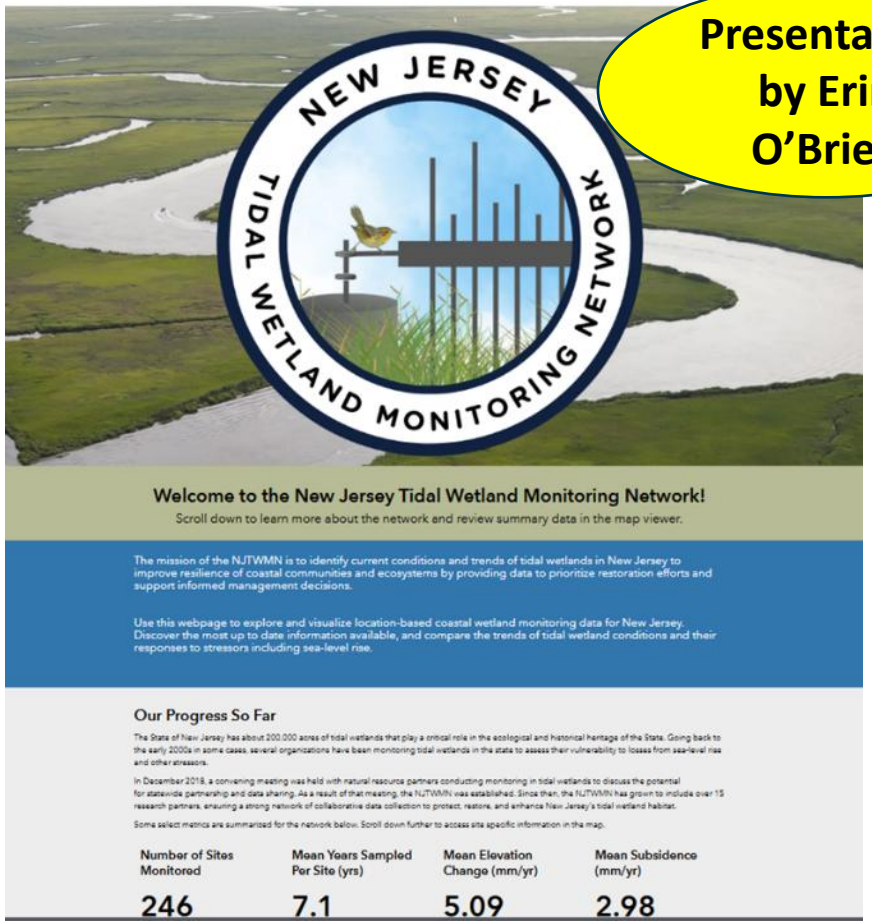
Q2
Report results to upper management

Q3
Incorporate upper mgmt feedback



NJ Tidal Wetland Monitoring Network

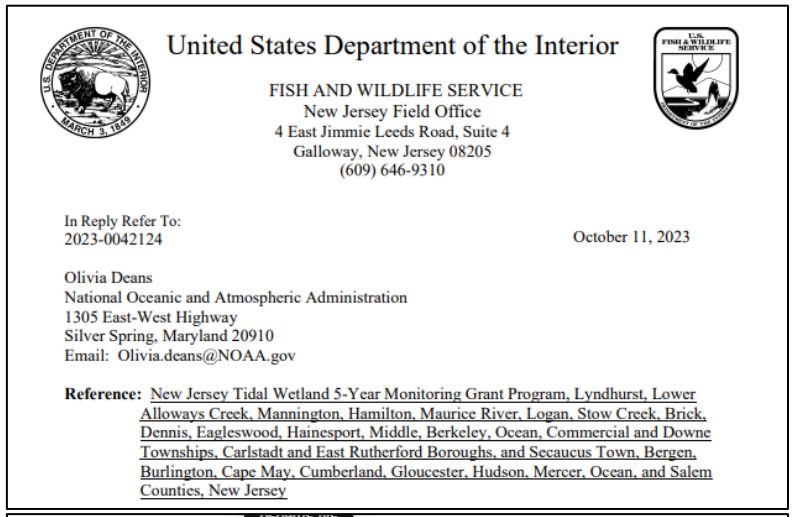
1. SET Database & Mapping Platform



Presentation by Erin O'Brien

2. Long-term NEPA Compliance for SET Monitoring

- Monitoring funded through CZM so required SAC approval
- Can delay approval until out of monitoring season
- 250+ SETs locations approved
- Monitoring during TOYR following agreed upon protocols



United States Department of the Interior

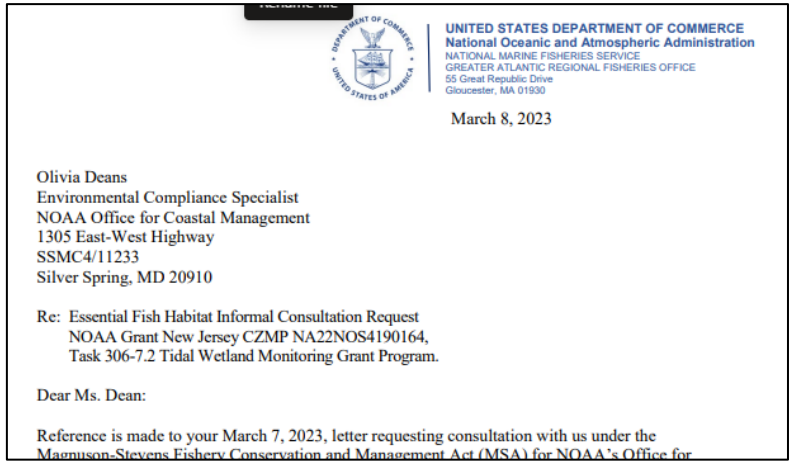
FISH AND WILDLIFE SERVICE
New Jersey Field Office
4 East Jimmie Leeds Road, Suite 4
Galloway, New Jersey 08205
(609) 646-9310

In Reply Refer To:
2023-0042124

October 11, 2023

Olivia Deans
National Oceanic and Atmospheric Administration
1305 East-West Highway
Silver Spring, Maryland 20910
Email: Olivia.deans@NOAA.gov

Reference: New Jersey Tidal Wetland 5-Year Monitoring Grant Program, Lyndhurst, Lower Alloways Creek, Mannington, Hamilton, Maurice River, Logan, Stow Creek, Brick, Dennis, Eagleswood, Hainesport, Middle, Berkeley, Ocean, Commercial and Downe Townships, Carlstadt and East Rutherford Boroughs, and Secaucus Town, Bergen, Burlington, Cape May, Cumberland, Gloucester, Hudson, Mercer, Ocean, and Salem Counties, New Jersey



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

March 8, 2023

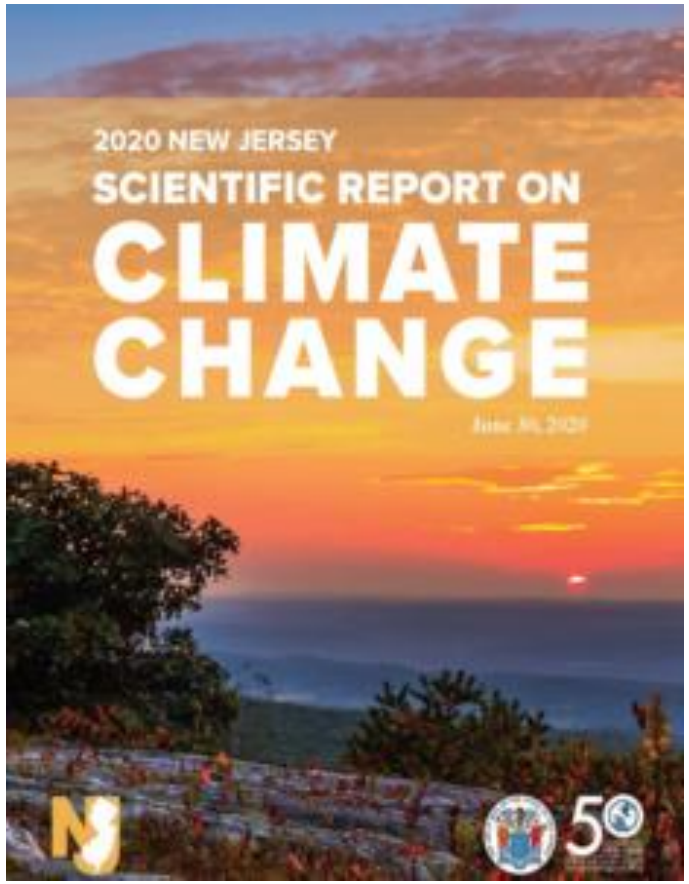
Olivia Deans
Environmental Compliance Specialist
NOAA Office for Coastal Management
1305 East-West Highway
SSMC4/11233
Silver Spring, MD 20910

Re: Essential Fish Habitat Informal Consultation Request
NOAA Grant New Jersey CZMP NA22NOS4190164,
Task 306-7.2 Tidal Wetland Monitoring Grant Program.

Dear Ms. Dean:

Reference is made to your March 7, 2023, letter requesting consultation with us under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for NOAA's Office for

Wetland Updates to 2020 Climate Change Report



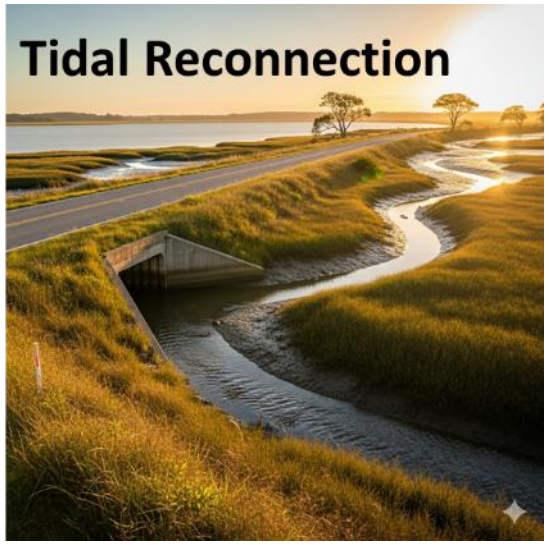
LULC Freshwater Wetland Type	2020%	2015%	% Change
Deciduous Wooded Wetlands	48.4%	48.5%	-0.1%
Coniferous Wooded Wetlands	9.5%	10.3%	-0.8%
Mixed Wooded Wetlands - Conif Dom	10.6%	10.3%	0.3%
Mixed Wooded Wetlands - Decid Dom	9.1%	8.4%	0.7%
Atlantic White Cedar Wetlands	5.8%	5.9%	-0.1%
Deciduous Scrub/Shrub Wetlands	5.6%	5.6%	0.0%
Mixed Scrub/Shrub Wetlands - Conif Dom	1.3%	1.8%	-0.5%
Mixed Scrub/Shrub Wetlands - Decid Dom	2.0%	1.2%	0.8%
Coniferous Scrub/Shrub Wetlands	0.9%	0.9%	0.0%
Herbaceous Wetlands	4.0%	4.3%	-0.3%
Phragmites Dominated Interior Wetlands	1.8%	1.7%	0.1%
Freshwater Tidal Marshes	0.90%	1.2%	-0.3%

- Recent studies on Cseq in freshwater wetlands indicated that they have significant capacity for storing carbon over long time periods; up to 10x
  - (Bernal and Mitsch, 2021; Sapkota et al., 2025; Valack et al., 2021).
- Soil carbon data are currently on the EPA's National Aquatic Resource Survey National Wetland Condition Assessment website and are pending publication approval (Nahlik et al., 2023). https://www.epa.gov/national-aquatic-resource-surveys/nwca

2025 Natural Climate Solutions Grant Program

- $15mil from RGGI
- 5 projects funded in Round 1
- Round 2 is rolling application process

Salt Marsh Revegetation



NJ Tidal Wetland Monitoring Network

1. **Evaluating Survey Methods to Accurately Relate Marsh Elevation & Inundation**

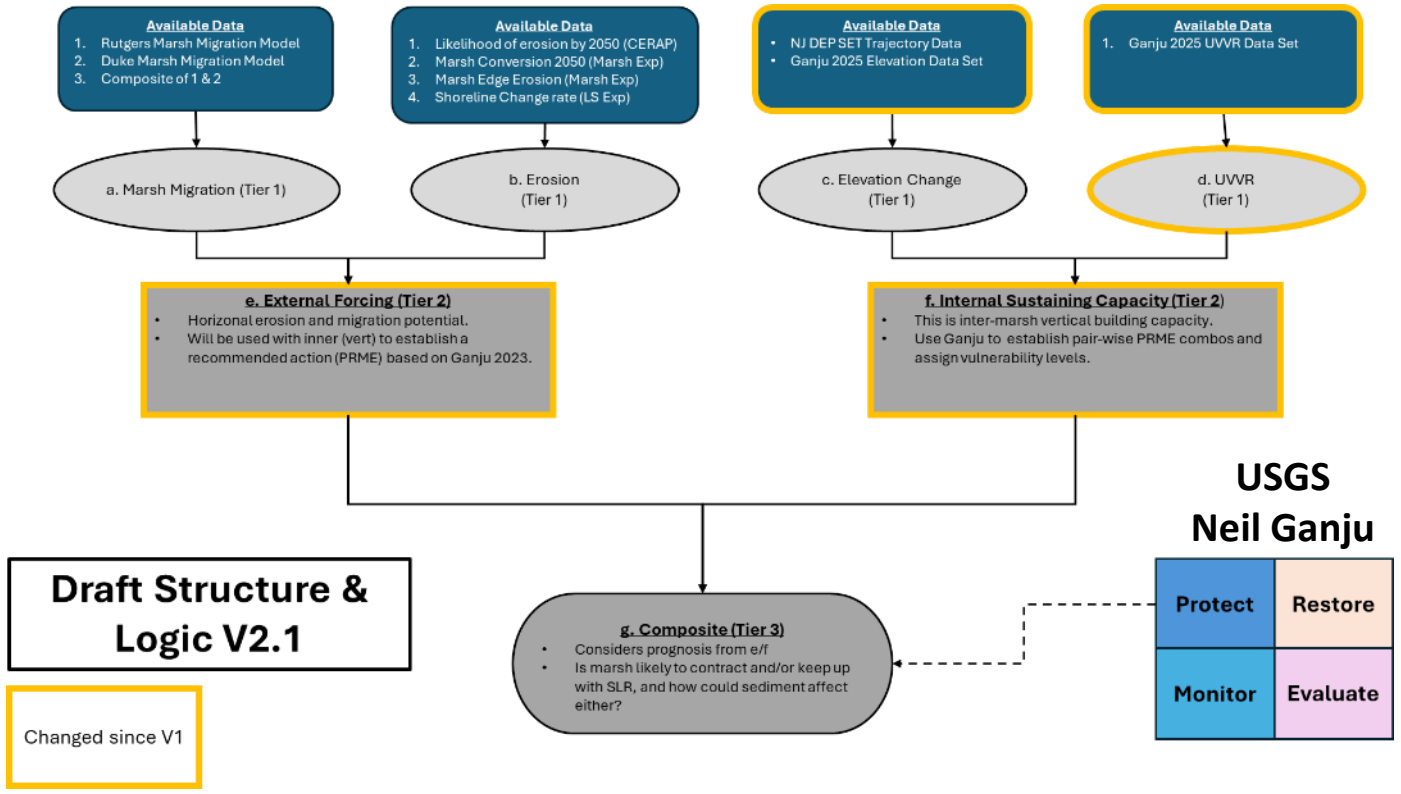
- Needs
  - Certainty in SET base elevation
  - Tracking elevation of water-level stations
  - Very expensive/time consuming

- Potential Solution is better technology
  - NPS: Jim Lynch, Neil Winn
  - NGS: Philippe Hensel, Dan Martin

- Compare
  - Absolute Elevation
    - Static Occupation: 12+ h/site
    - 3m Base-resolved Solution (10m/site)
  - Relative Elevation
    - Digital Level: Requires known ele
    - 5m Network Solution

2. NJResTOrS – **Res**toration **T**ool **Or**ganization **S**uite

New marsh migration & restoration tactic consideration data layer



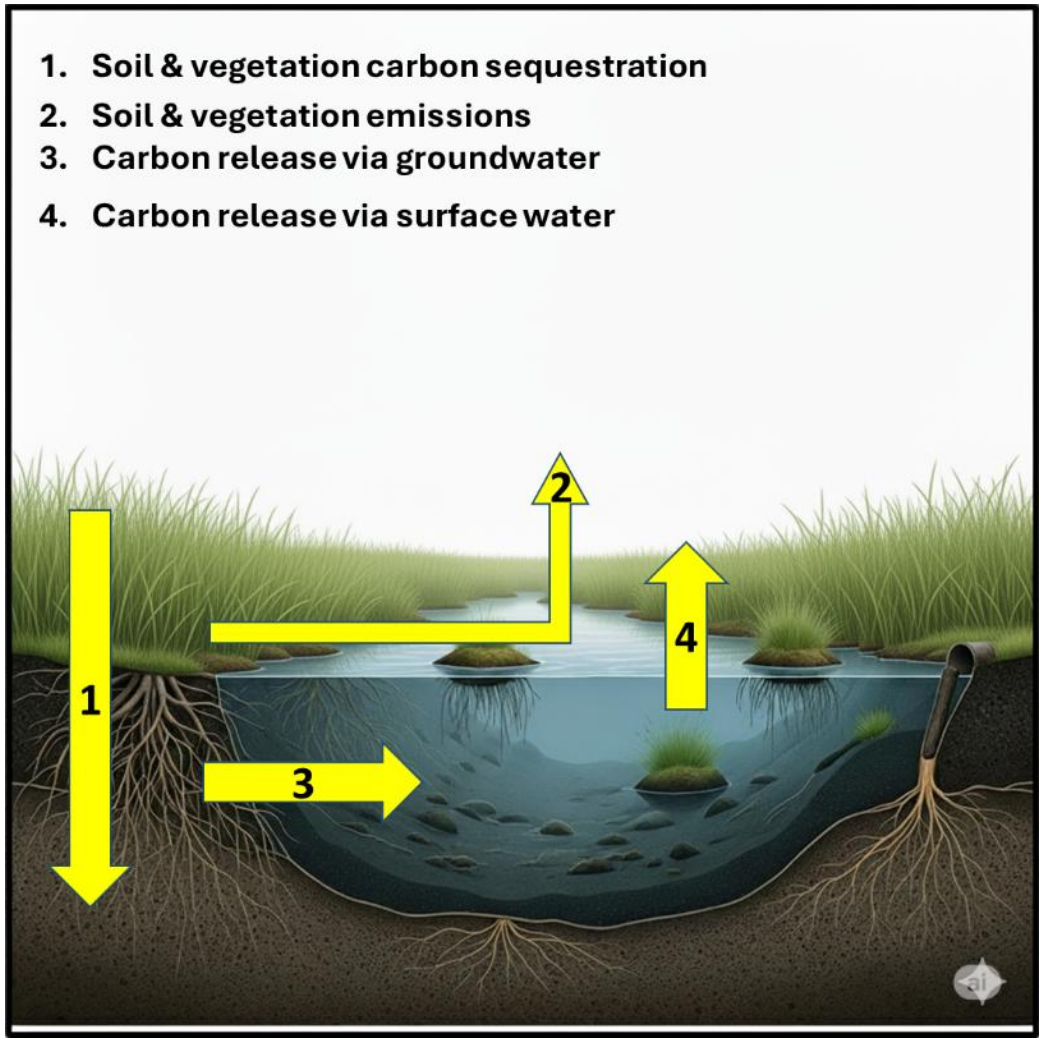
Carbon Sequestration Projects

1. **Determining a Method in Non-tidal Forested Wetlands**
   - AWC on Manahawkin Soils
   - Deciduous on Manahawkin Soils
   - Pitch Pine on Atsion Soils
   - Deciduous on Atsion Soils

Presentation by Josh Moody

2. **Evaluating Climate Cooling Potential of Natural Climate Solutions Projects & Tactic Types**
   - Baseline data NCS Round 1&2 Projects
   - Mature living shorelines and sediment placement projects (replicates, Barnegat & Del Bay)

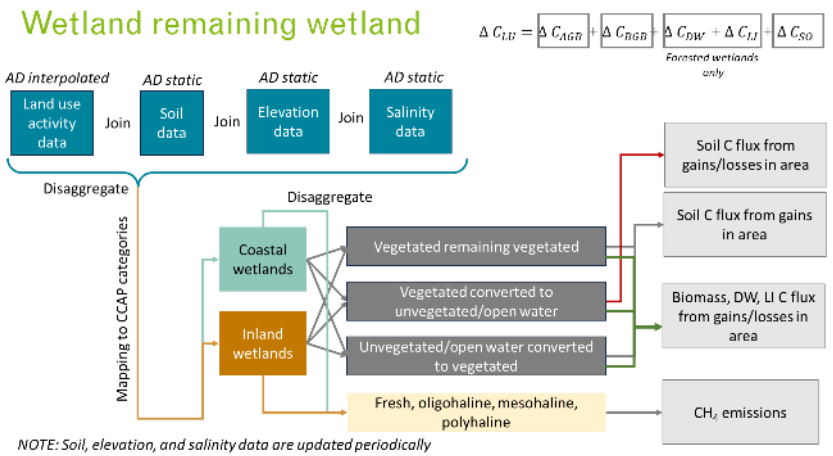
- Partners on both
  - Rowan University: Drs Charles Schutte, Lauren Kipp
  - NRCS: David Stienmann
  - PDE: Dr. LeeAnn Haaf



Production of a Greenhouse Gas Calculator for Natural & Working Lands

Project Goals

- Methods to quantify GHG sources/sinks NWL
  - Croplands & Pasture, Forests, Settlements, & **Wetlands**
  - WL remain or converted to WL
  - Calc Cflux/CH_4 Emissions
    - Δ Biomass C
    - Δ Soil C
    - CO_2 flux = C flux x 44/12
    - **Soil CH_4 = area × CH_4 emission rate × GWP_{CH4}**



NJ DEP Wetland Classifications	CCAP Classification
Disturbed Wetlands (Modified) Severe Burned Wetland Vegetation Wetland Rights-Of-Way	Palustrine Aquatic Bed (key assumption – vegetation will come back to disturbed areas)
Coniferous Wooded Wetlands Deciduous Wooded Wetlands Mixed Wooded Wetlands (Deciduous Dom.) Mixed Wooded Wetlands (Coniferous Dom.) Mixed Wooded Wetlands (Deciduous Dom.) Mixed Wooded Wetlands (Coniferous Dom.) Atlantic White Cedar Wetlands	Palustrine Forested Wetland
Former Agricultural Wetland (Becoming Shrubby, Not Built-Up) Mixed Scrub/Shrub Wetlands (Coniferous Dom.) Mixed Scrub/Shrub Wetlands (Deciduous Dom.) Coniferous Scrub/Shrub Wetlands Deciduous Scrub/Shrub Wetlands	Palustrine Scrub/Shrub Wetland
Freshwater Tidal Marshes Herbaceous Wetlands Managed Wetland In Maintained Lawn Greenspace Managed Wetland In Built-Up Maintained Rec Area Phragmites Dominate Interior Wetlands Agricultural Wetlands (Modified) Phragmites Dominate Coastal Wetlands	Palustrine Emergent Wetland (Persistent)
Tidal Mud Flat Exposed Flats Unvegetated Flats	Estuarine Aquatic Bed
NA	Estuarine Forested Wetland
NA	Estuarine Scrub/Shrub Wetland
Saline Marsh (High Marsh) Saline Marsh (Low Marsh) Disturbed Tidal Wetlands	Estuarine Emergent Wetland

Questions & Discussion

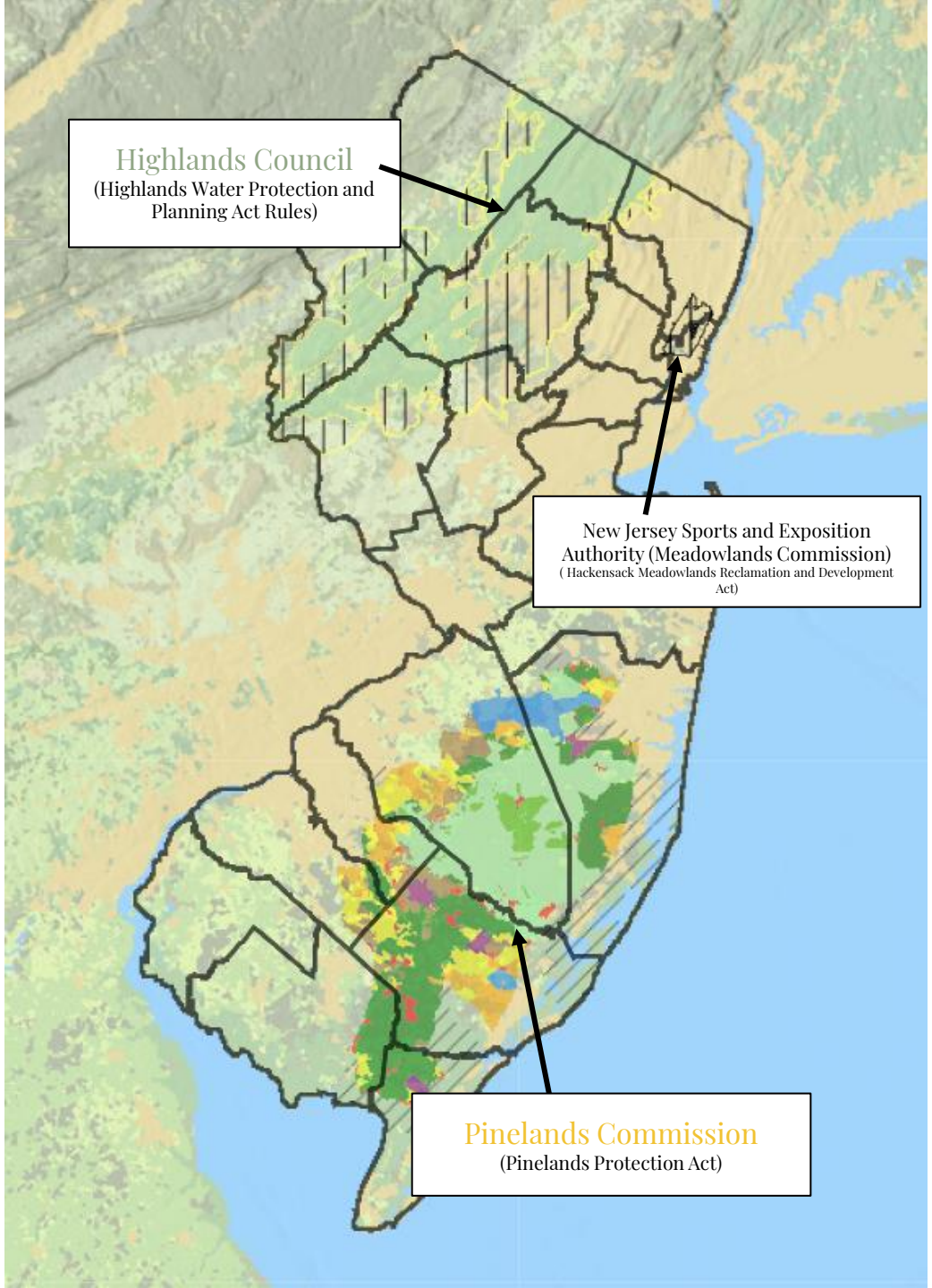
Joshua Moody: Joshua.Moody@dep.nj.gov

Metthea Yepsen: Metthea.Yepsen@dep.nj.gov

Erin O'Brien: erin.obrien@dep.nj.gov

Kathleen Walz: Kathleen.Walz@dep.nj.gov

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



New Jersey Department of Environmental Protection
Watershed and Land Management
Land Resource Protection
Bureau of Freshwater Wetlands & Highlands Permitting

Freshwater Wetlands Protection Act Rules
Flood Hazard Area Control Act Rules

Region-Specific:
Highlands Water Protection & Planning Act Rules
Coastal Zone Management Rules
Pinelands Protection Act
Hackensack Meadowlands Reclamation and Development Act

Freshwater Wetlands Protection Act Rules (N.J.A.C. 7:7A)

- Assumption of Section 404 of the CWA
  - Federal Program is suspended in most areas within state
- **<u>REGULATED AREAS</u>**
  - **Freshwater wetlands**; based on 1987 Corp Manual
  - **State open waters**; ≠ WOTUS
  - **Transition area**; most wetlands have buffer protection
    - oft (Ordinary), 50ft (Intermediate), 150ft (Exceptional)
    - Exceptional = documented for T/E wetland species, drain to trout production waters
- Own set of General Permits, which have equivalent or stricter requirements
- Transition area waivers, including averaging plan (for general activities), special activity (linear, redevelopment, stormwater, individual), & "(d) clause"
- Individual permits

FWW Rule Updates

- ★ Regulated activities must be *necessary* (no practicable way to avoid impacts for planned project)
- ★ Stormwater review now required when an overall project is a “major development” (i.e. >¼ acre impervious or >1 acre disturbance) vs. if the regulated portion meets the definition
- ★ For Transition Area Waivers:
  - Removal of impervious surfaces w/i 25 ft of wetlands (where feasible)
  - No disturbance within 25 ft of wetlands
  - Averaging Plans require *all* remaining TA/FWW to be deed-restricted.

Flood Hazard Area Control Act Rules (N.J.A.C. 7:13)

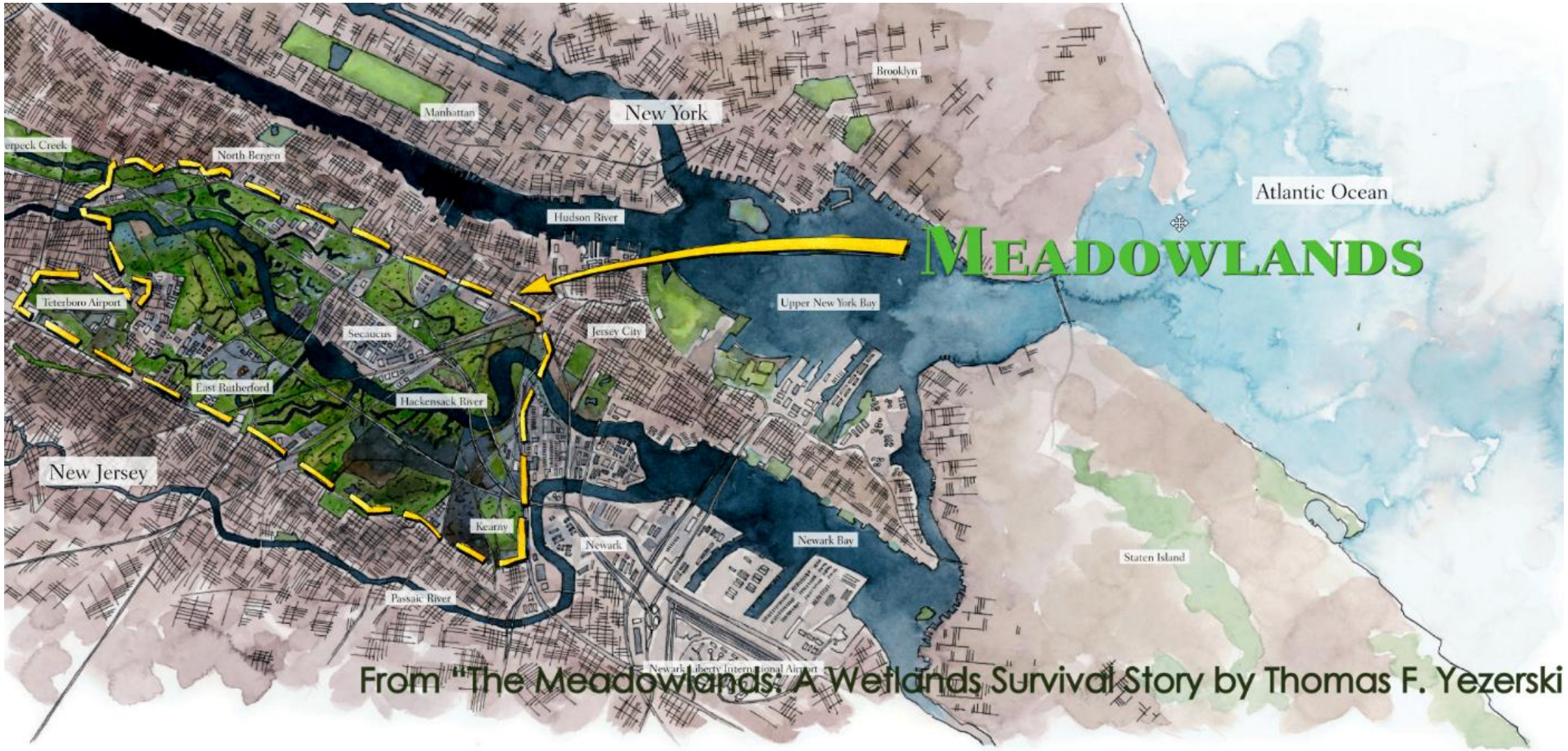
- **Regulates** flood hazard areas (beyond FEMA mapping) and riparian zone (50, 150, 300ft) associated with regulated waters
- Permit-by-rules exempt many activities, *but* not generally w/i forest
- General permits limited; most non-PBR activities require an Individual Permit
- Under an IP:
  - Activities in excess of certain limits & most in 300-foot RZ require mitigation
  - Impacts must be well-justified beyond limits
  - Specific enviro/engineering requirements based on specific activities
- Inland Flood Protection Rule (passed Summer 2023)
  - Added two feet to the NJDEP 100-year design flood elevation
  - More stringent stormwater management requirements

FHA Rule Updates

- ★ Certain permit-by-rules replaced by permit-by-registrations
  - General construction, construction of most structures, etc
  - Meant to improve tracking of impacts - requires compliance documents after registration
- ★ Mitigation now required for:
  - Where disturbance within 150 ft riparian zone >2,000 SF
  - Where disturbance within 50 ft riparian zone >0.1 AC (4,356 SF)
- ★ Bridge/culvert replacements are automatic IPs
  - IP encourages bridge/three-sided culvert installation & requires wildlife passage

QUESTIONS?

The Hackensack Meadowlands



Tidal Wetland Resiliency Against Sea Level Rise

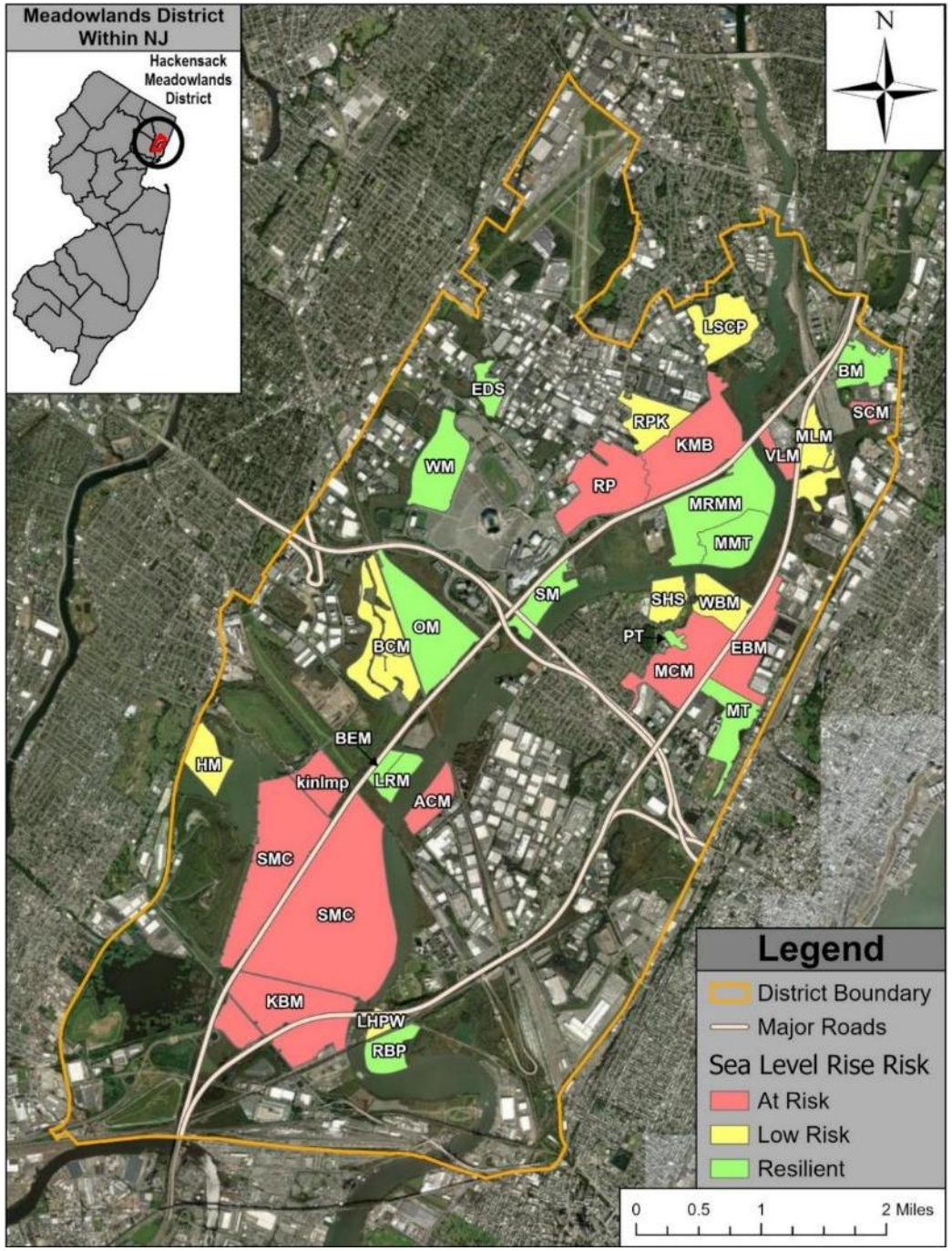
EPA WPDG - CD- 96247300

Two decades of

- water level monitoring
- sediment elevation table measurements
- tidal datum analysis
- tidal creek profile monitoring
- digital elevation model and
- hyperspectral and aerial image analysis

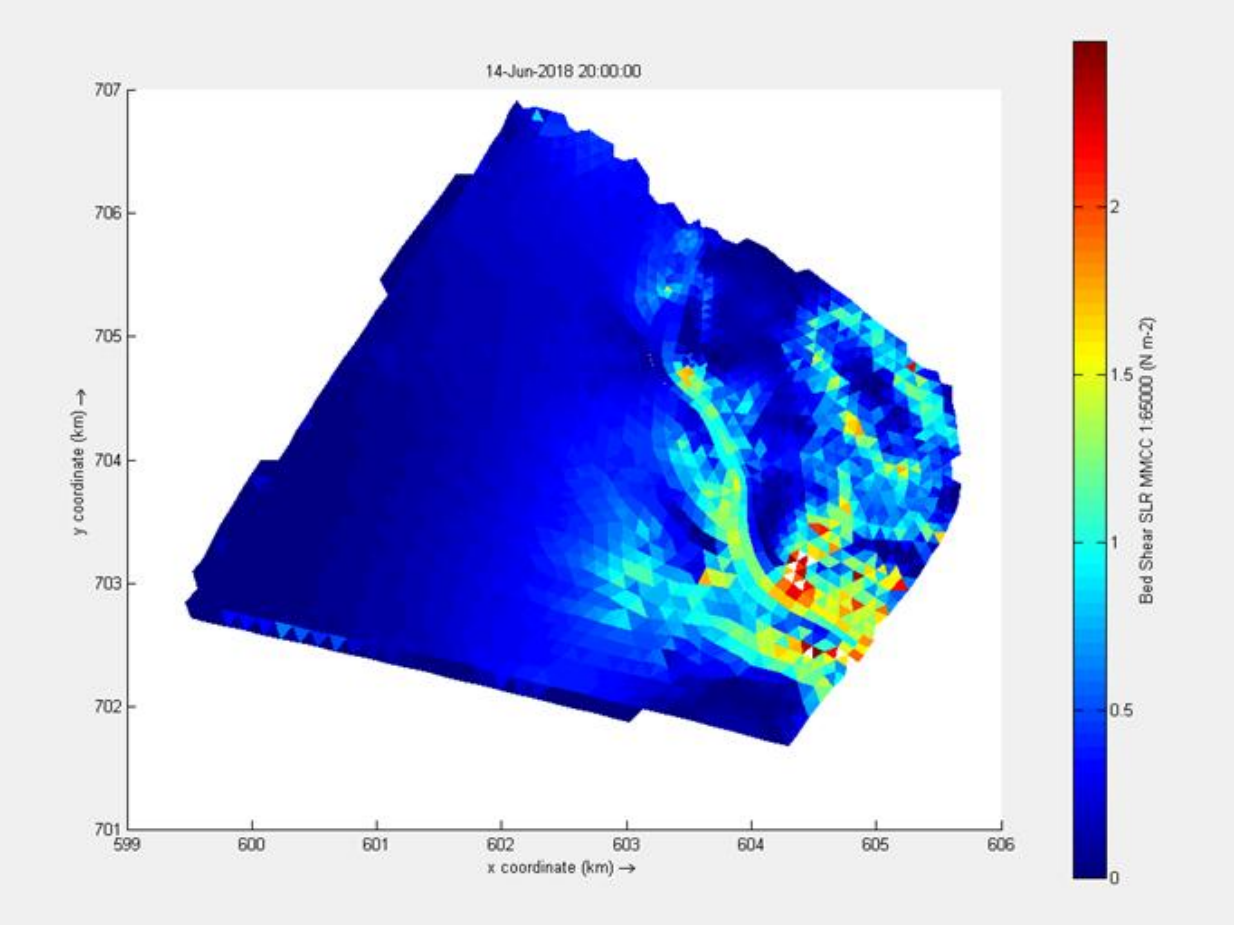
Results

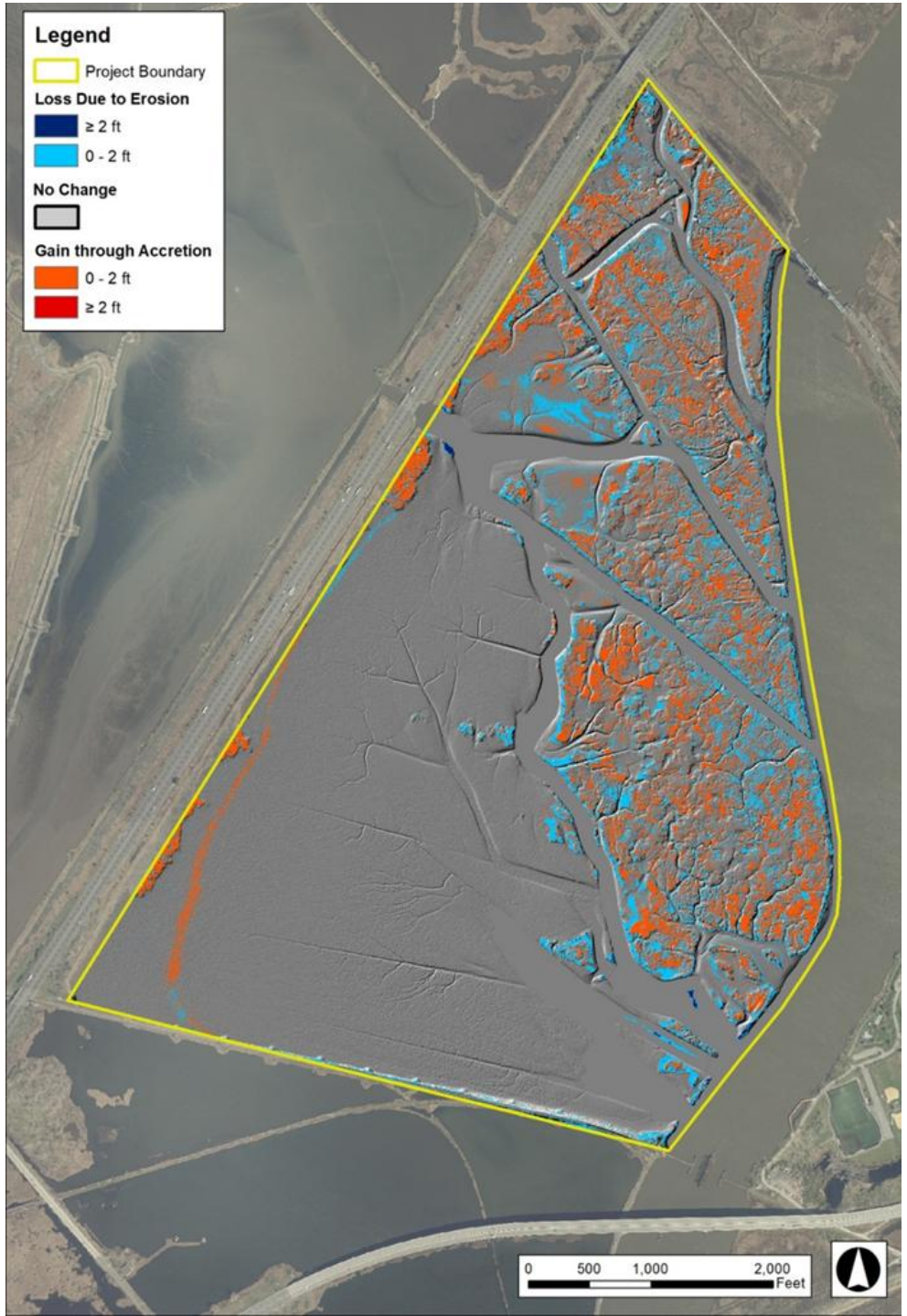
- 33% resilient
- 23% is at low risk, while
- 45% of the of will require various levels of restoration action to become resilient.



Assessment of marsh elevation change in preparation for restoration

EPA WPDG - CD- 96247200





Sawmill Creek Marsh Restoration – Building a Climate Ready NJ – *NOAA and EPA WPDG CD-96228400*

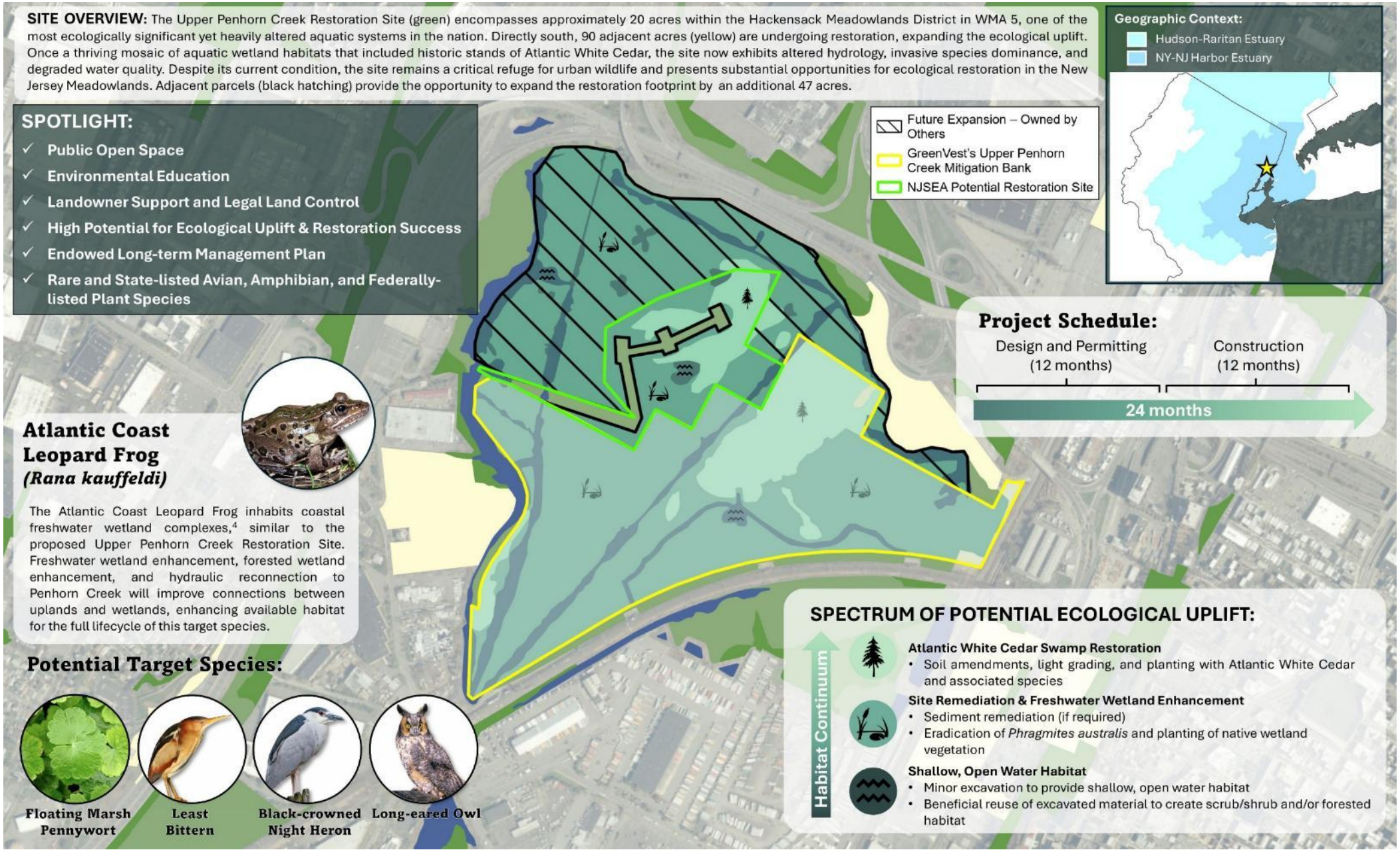
https://www.maine.gov/dacf/mgs/explore/marine/living-shorelines/

Upper Penhorn Creek Restoration

SITE OVERVIEW: The Upper Penhorn Creek Restoration Site (green) encompasses approximately 20 acres within the Hackensack Meadowlands District in WMA 5, one of the most ecologically significant yet heavily altered aquatic systems in the nation. Directly south, 90 adjacent acres (yellow) are undergoing restoration, expanding the ecological uplift. Once a thriving mosaic of aquatic wetland habitats that included historic stands of Atlantic White Cedar, the site now exhibits altered hydrology, invasive species dominance, and degraded water quality. Despite its current condition, the site remains a critical refuge for urban wildlife and presents substantial opportunities for ecological restoration in the New Jersey Meadowlands. Adjacent parcels (black hatching) provide the opportunity to expand the restoration footprint by an additional 47 acres.

SPOTLIGHT:

- ✓ Public Open Space
- ✓ Environmental Education
- ✓ Landowner Support and Legal Land Control
- ✓ High Potential for Ecological Uplift & Restoration Success
- ✓ Endowed Long-term Management Plan
- ✓ Rare and State-listed Avian, Amphibian, and Federally-listed Plant Species



Geographic Context:

Project Schedule:

Design and Permitting (12 months) | Construction (12 months)

24 months

Atlantic Coast Leopard Frog *(Rana kauffeldi)*

The Atlantic Coast Leopard Frog inhabits coastal freshwater wetland complexes,[4] similar to the proposed Upper Penhorn Creek Restoration Site. Freshwater wetland enhancement, forested wetland enhancement, and hydraulic reconnection to Penhorn Creek will improve connections between uplands and wetlands, enhancing available habitat for the full lifecycle of this target species.

Potential Target Species:

Floating Marsh Pennywort

Least Bittern

Black-crowned Night Heron

Long-eared Owl

SPECTRUM OF POTENTIAL ECOLOGICAL UPLIFT:

Habitat Continuum

Atlantic White Cedar Swamp Restoration
- Soil amendments, light grading, and planting with Atlantic White Cedar and associated species

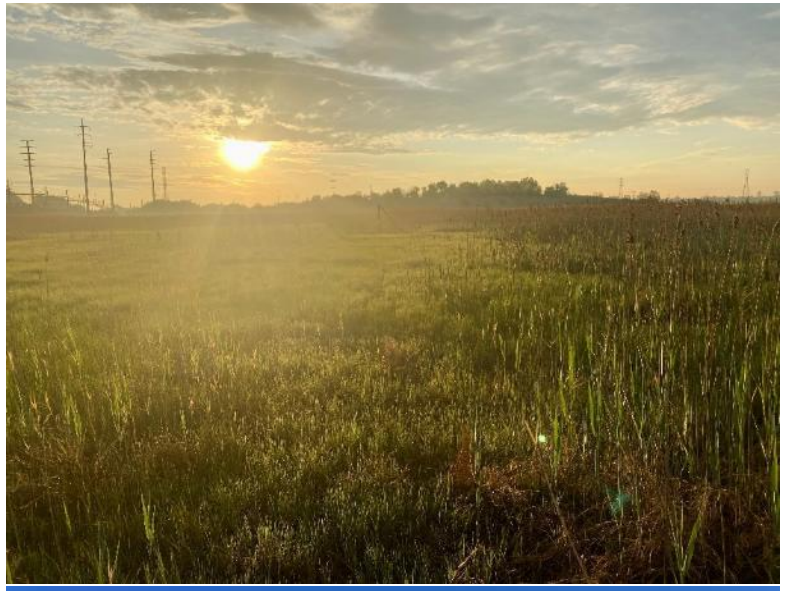
Site Remediation & Freshwater Wetland Enhancement
- Sediment remediation (if required)
- Eradication of *Phragmites australis* and planting of native wetland vegetation

Shallow, Open Water Habitat
- Minor excavation to provide shallow, open water habitat
- Beneficial reuse of excavated material to create scrub/shrub and/or forested habitat

Concept Credit: GreenVest – Bank Sponsor and Operator

High Marsh Restoration - Saltmarsh Sparrow

- Breeding season (May – August) monitoring at five sites
- Monitoring local population changes in response to high marsh restoration and climate change
- Informing regional best monitoring practices



Fisheries Monitoring

- Since1987-89, four fisheries resource inventories have been undertaken
- 2023-25 survey - first to combine the traditional sampling methods with eDNA sampling, to test this emerging technique in urban estuaries

The results from the traditional methods show that diversity and population #s continue to increase, and this year we've seen large increases in coastal species indicating that the Meadowlands is functioning more like a coastal ecosystem

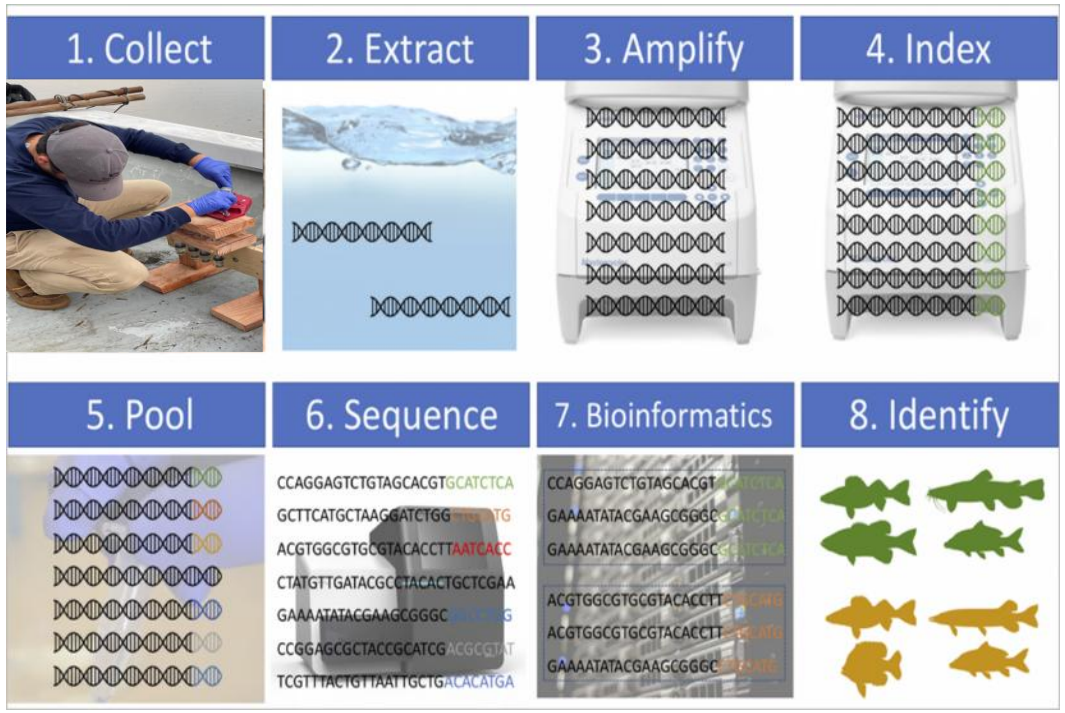
Atlantic Croaker

American Oyster

Oyster Toadfish

Black Seabass

The eDNA results indicated that this methodology was a useful but imperfect tool for monitoring fish in urban waters, but especially useful in sampling for rare and sensitive species like the Atlantic Sturgeon



Via JonahVentures

MRRI Drone Program

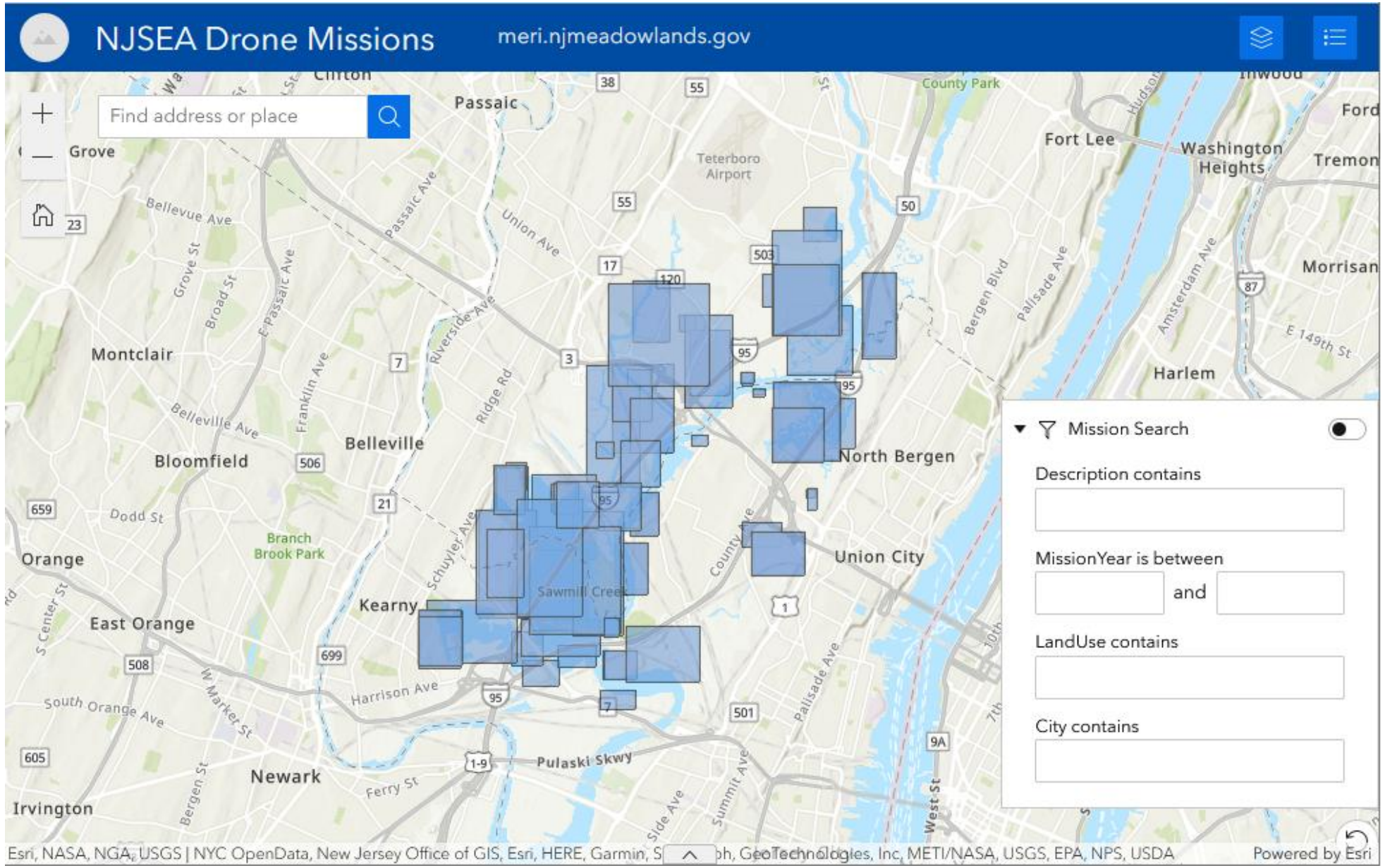
Equipment

DJI Mavic 3M Multispectral

DJI Phantom Pro 4 and Phantom 4 RTK

ArcGIS Online Map Application

EN GRANT-84030401



Filter on:

- Description
- Mission Year
- Land Use
- City