

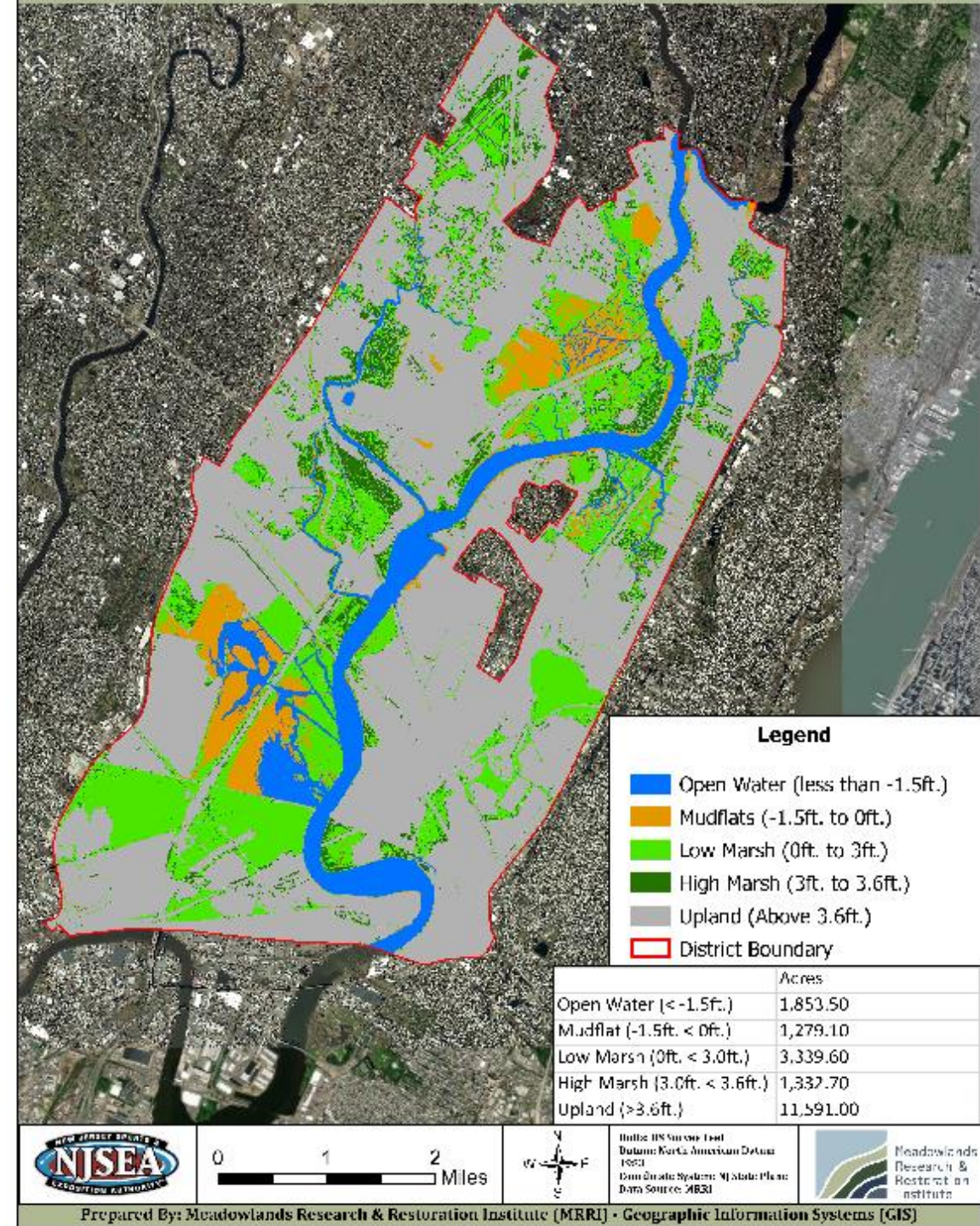
# **New Jersey Sports and Exposition Authority – Meadowlands Research & Restoration Institute**



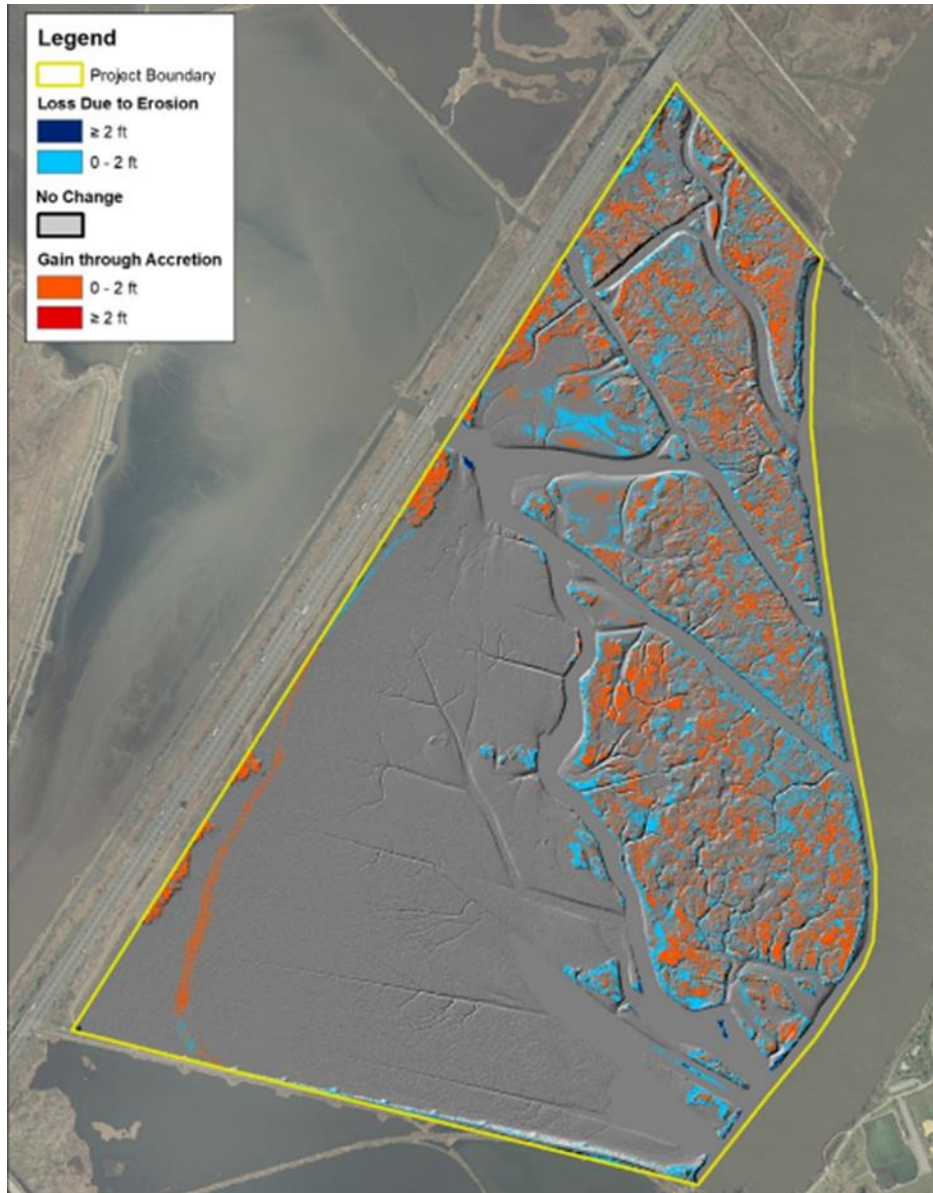
**2024 Joint Meeting Mid-Atlantic Wetland Work Group & New England Wetland Work Group**

# The New Jersey – Hackensack Meadowlands

- **New Technologies**
- **Concerns over Recontamination after Tidal Wetland Restoration**
- **Creating a Transformational and More Resilient Meadowlands – Restoring the Sawmill Creek Wildlife Management Area**
- **Climate Resiliency**



# New Technologies



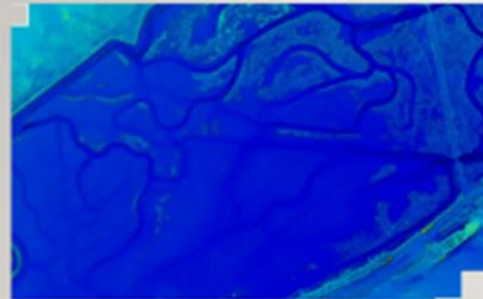
**Drones – living shoreline mapping**

**LIDAR – marsh differences over time**

**Hyperspectral imagery – habitat mapping**



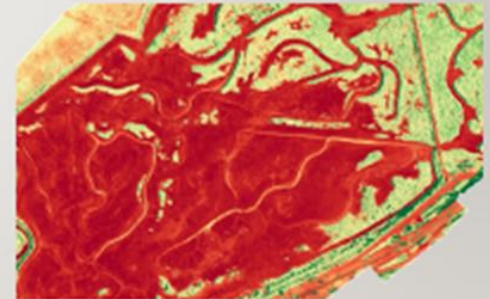
**DEM derived from DJ 4 Pro drone imagery**



**True color drone imagery**



**NDVI imagery derived from multispectral drone**

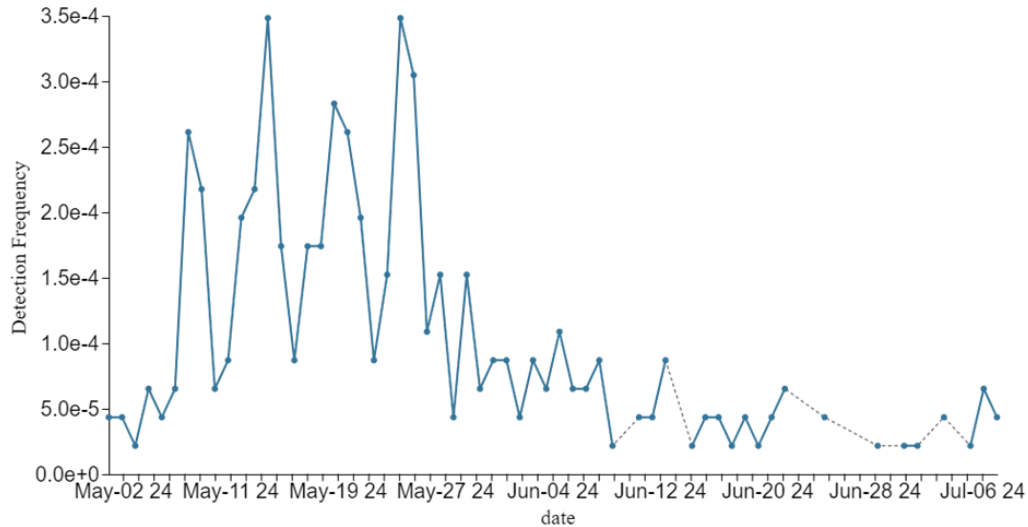


# New Technologies - ARUs

## Acoustic Recording Units

**Target:** Rare or species of concern (~ 20 secondary targets)

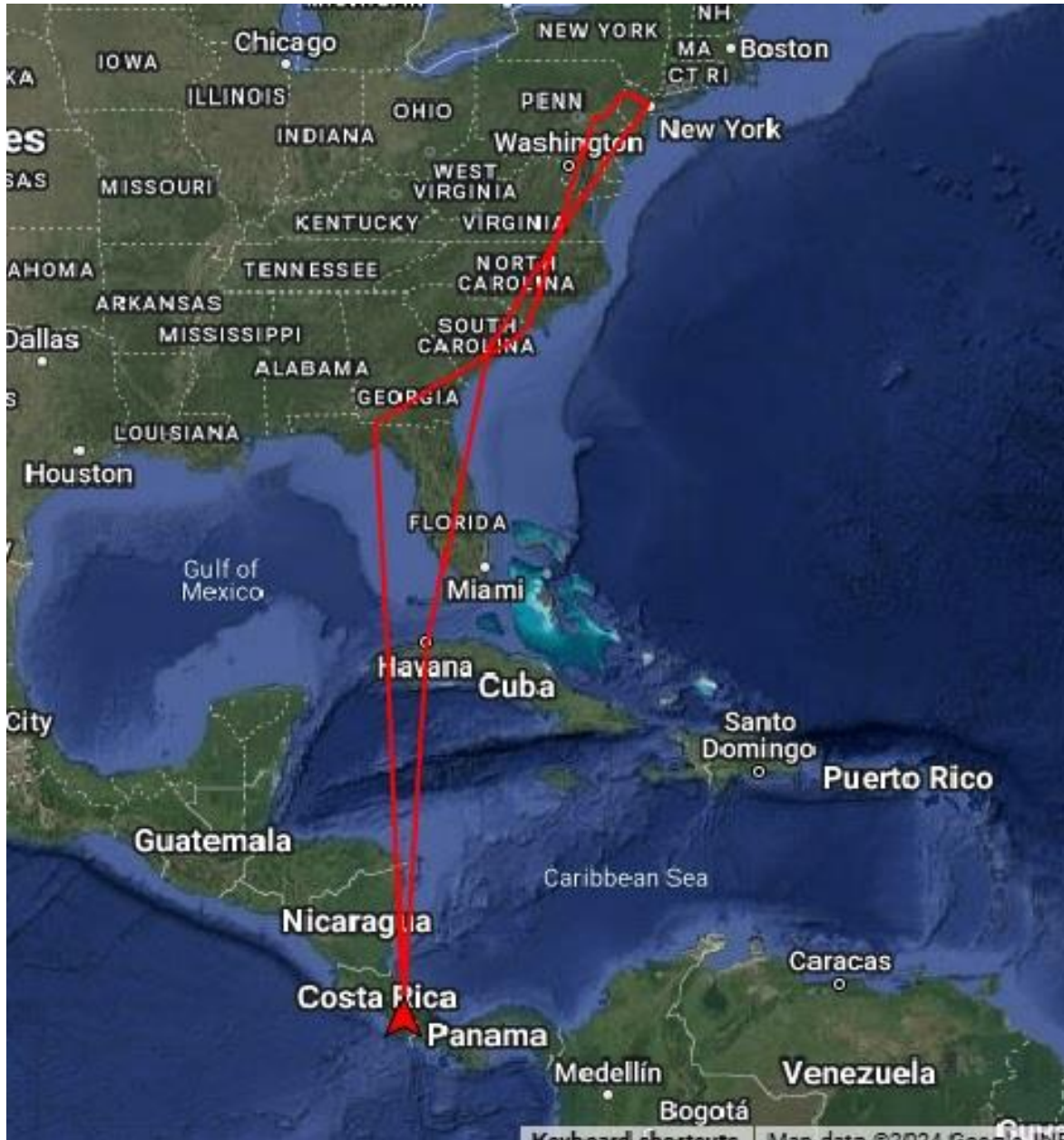
- Atlantic Coast Leopard Frog
- Eastern Black Rail and other secretive marsh birds
- Tricolored Bat
- Saltmarsh Sparrow



2024 detection frequency of saltmarsh sparrows across all points throughout the season



# New Technologies – Motus Tower



## Migratory ecology of birds that use the Meadowlands –

- **Breeding grounds, or**
- **Stopover sites**

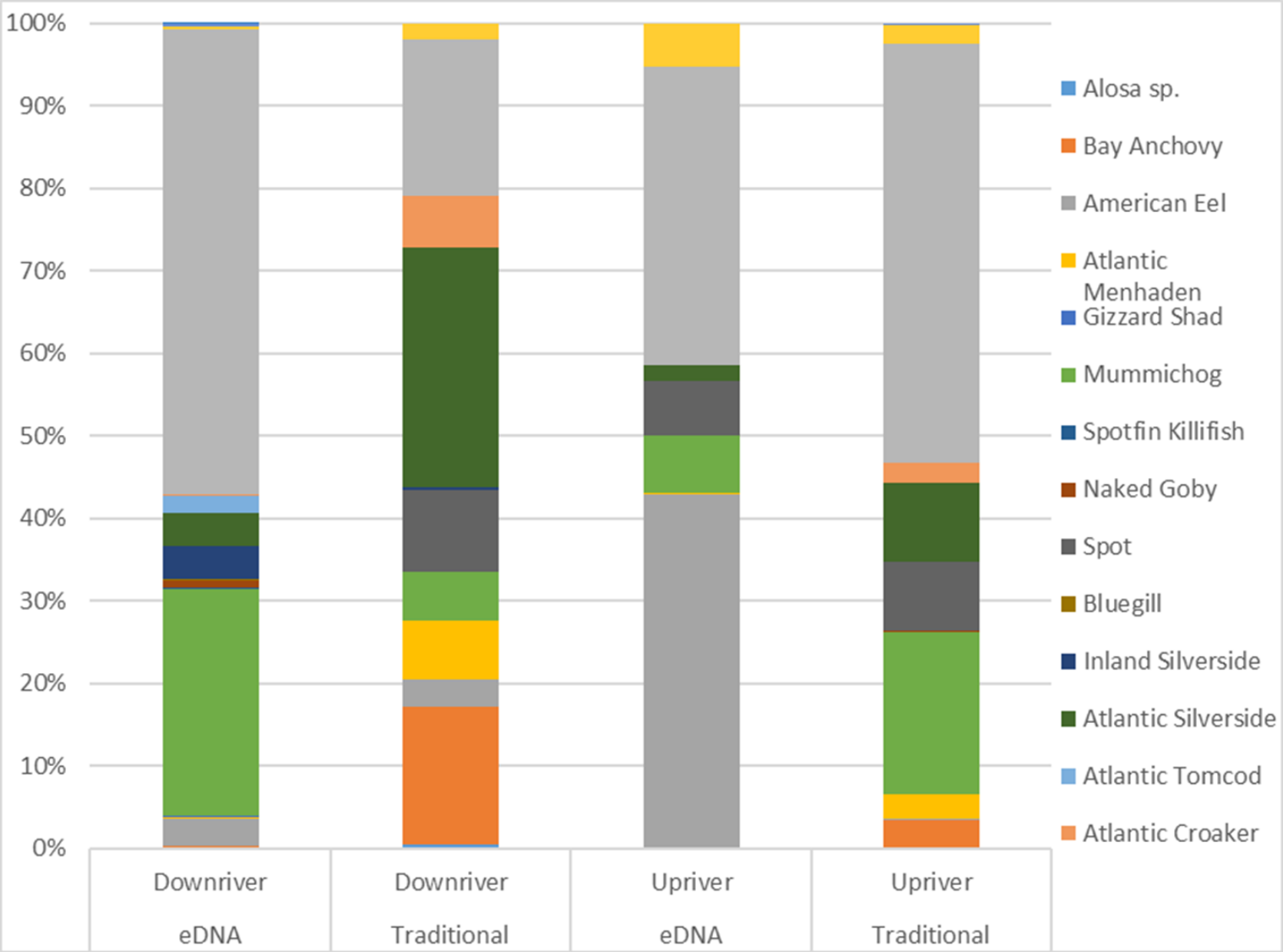


## Data –

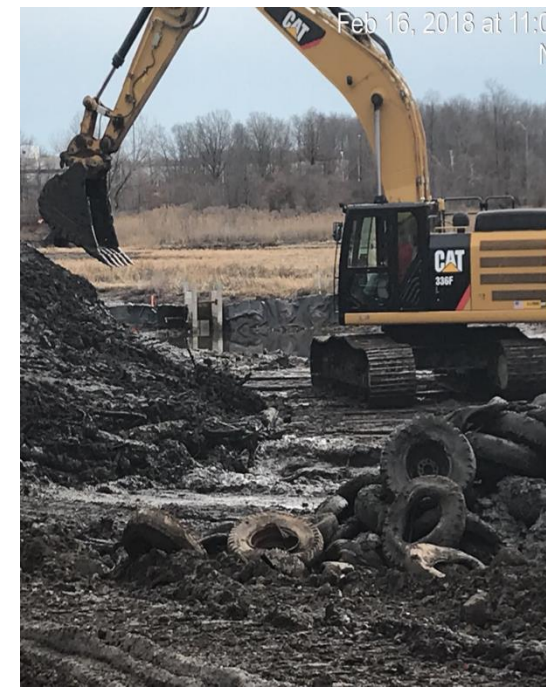
- **Fall migration routes**
- **Migration timing,**
- **Stopover sites**
- **Overwintering locations, and**
- **Subsequent northbound spring migration**



# New Technologies – eDNA



# Concerns over Recontamination after Tidal Wetland Restoration

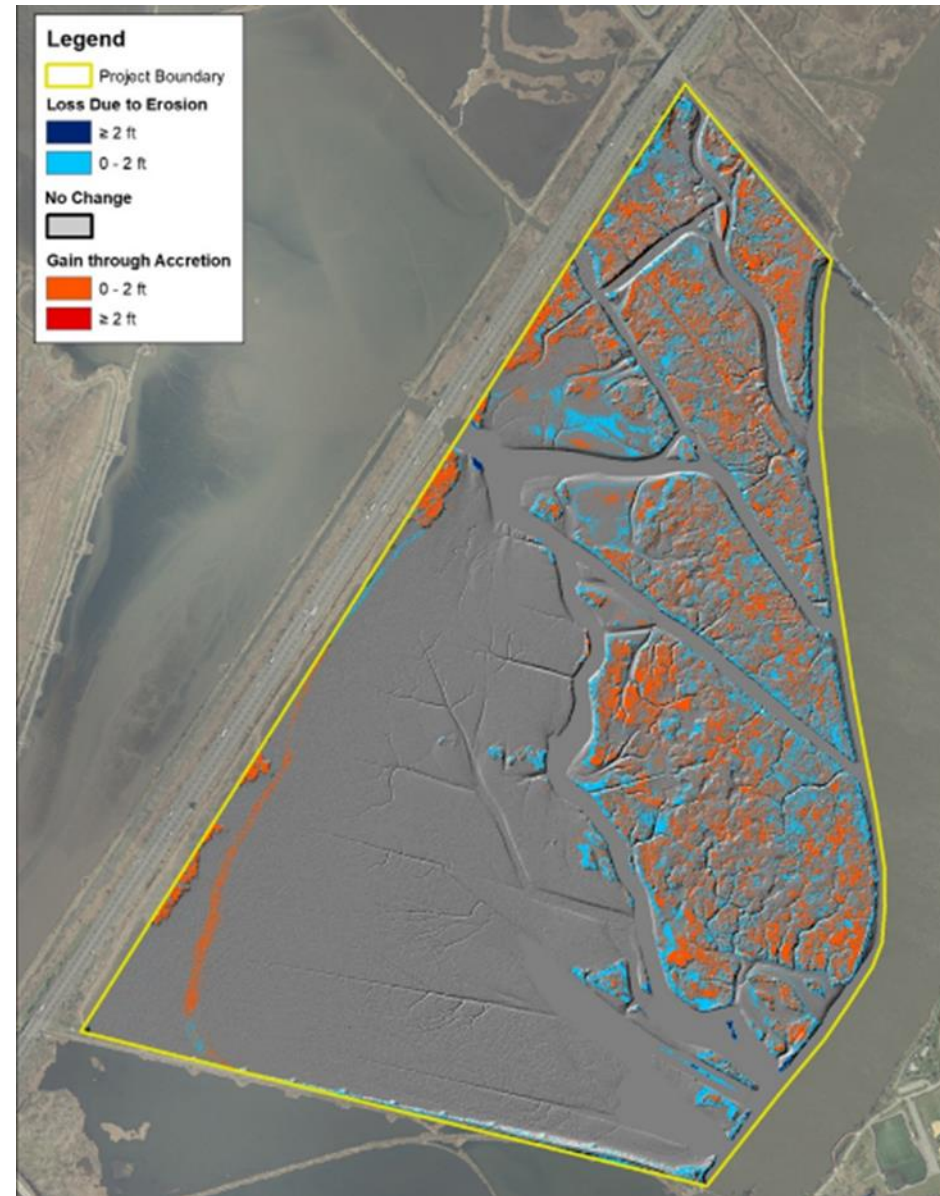


## Staten Island Wetland Restoration/Mitigation

- Sediment composite samples:
  - Years 2, 3 and 4 monitoring results comparable to the range of sediment concentrations from baseline results
  - sediment composition has not substantially changed since construction
- Tissue concentrations in mummichogs, fiddler crabs, spiders and amphipods
  - Years 2, 3 and 4 tissue concentrations were comparable to Reference Area and comparable or less than the baseline PCB tissue concentrations

# Creating a More Resilient Meadowlands – Restoring Sawmill Creek Wildlife Management Area

	1960-1979 Epoch The Battery	1983-2001 Epoch The Battery	2019 Riverbend	Nov 2022-Aug 2023 Sawmill Creek	Oct 2023-Sep 2024 Sawmill Creek
MHWS		2.72			
MHHW	2.29	2.45	2.46	3.09	2.97
MHW	2.04	2.22	2.2	2.77	2.65
MTL	-0.46	-0.27	-0.22	0.24	0.15
MLW	-2.974	-2.76	-2.64	-2.29	-2.35
MLLW	-3.2	-2.98	-3	-2.53	-2.58
MLWS	-3.47	-3.27			





# Climate Resiliency

## Monitoring

- Sediment Elevation Tables
- Tidal elevations and water quality
- Habitat mapping
- Carbon sequestration

## Collaboration

- NJ Interagency Council on Climate Resilience
- NJ Tidal Wetland Monitoring Network
- NJ Coastal Resilience Collaborative
- NY-NJ Harbor and Estuary Program

