

# ACCELERATING PROGRESS AFTER HURRICANE SANDY

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And the Team....



US Army Corps  
of Engineers®



# An Innovative (Persistent) Approach

- Post-Sandy, Federal channels in inlets and waterways require dredging
- **Navigation and Nature:** District took action to restore the navigation mission, but also looked for opportunities to assist with shoreline & ecosystem recovery
- **Technical Expertise:** Use of Engineering with Nature (EWN) and Regional Sediment Management (RSM) concepts to develop short-term (post-Sandy) and long-term dredging strategies
- **Team Approach:** Short-term actions were aided by support from USACE North Atlantic Division (\$), Wilmington (equipment), ERDC (science) and NJDEP (approvals)



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# Post-Sandy Navigation Mission

- Superstorm Sandy impacts NJ/DE Region on Oct 29, 2012
- Project assessments began Oct 30, 2012
- Stakeholder & Resource Agency coordination initiated early
- Emergency work begins November 2012
- Short & Long-term technical and strategic work with USACE ERDC & Baltimore began January 2013 to help restore region and bolster system resilience
- USACE Philadelphia awards Lease of Plant Dredging Contract (Feb 2013); *a key element for success since built in flexibility*
- Recovery and resiliency work continues.....



# RSM = Sustainable Solutions for.....

## Navigation/ Dredging



## Flood Risk Management



## Environmental Restoration



## RSM Operating Principles

- Recognize sediment as a regional resource
- Balanced, economically viable, environmentally sustainable solutions
- Improve economic performance by linking multiple projects
- Optimize operational efficiencies & natural exchange of sediments
- Consider local & regional impacts (physical, environmental, social )
- Apply/develop technology & tools to optimize system
- Share information & data, reduce data duplication
- Coordinate/Communicate/Collaborate with stakeholders & partners



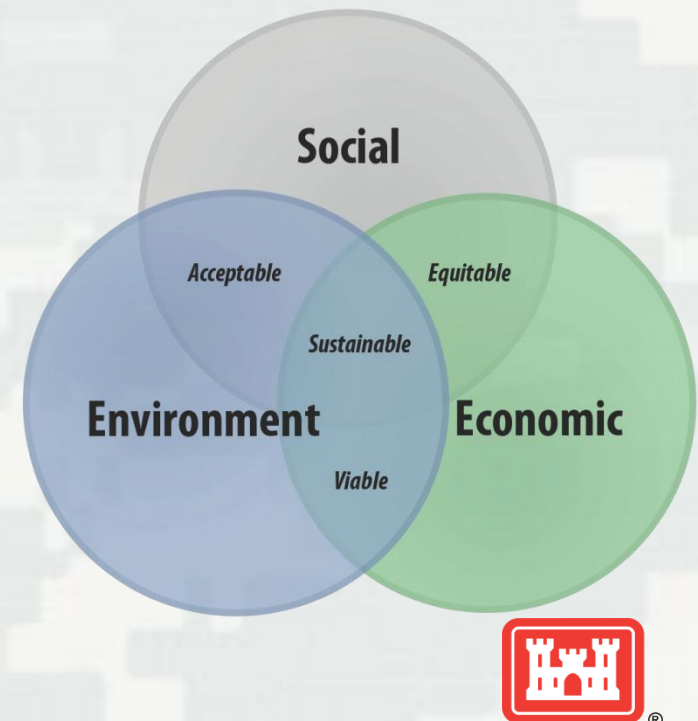


# Engineering With Nature...

***...the intentional alignment of natural and engineering processes to efficiently and sustainably deliver economic, environmental and social benefits through collaborative processes.***

## Key Ingredients

- Science and engineering that produces operational efficiencies
- Using natural process to maximum benefit
- Broaden and extend the benefits provided by projects
- Science-based collaborative processes to organize and focus interests, stakeholders, and partners



# *A Sediment Progression: From Confinement to In-Water Creation*

Somewhere in Jersey....

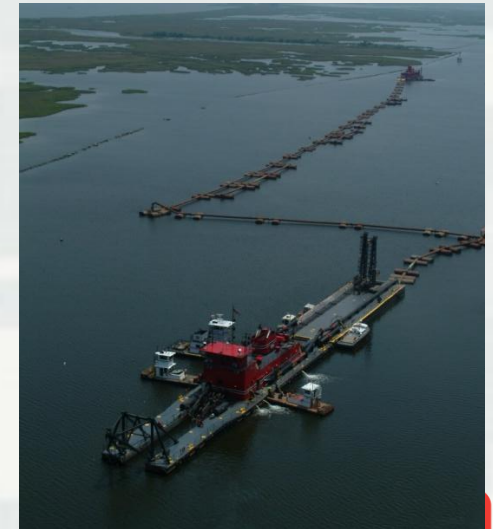
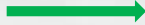


“Business as Usual”....Confined Disposal Facilities (CDF)



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# *A Sediment Progression: From Confinement to In-Water Creation*



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# Post-Sandy Mission: Restore the Channels & Maximize the Opportunities

“Easy” Ones First.....



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# TAKING ACTION

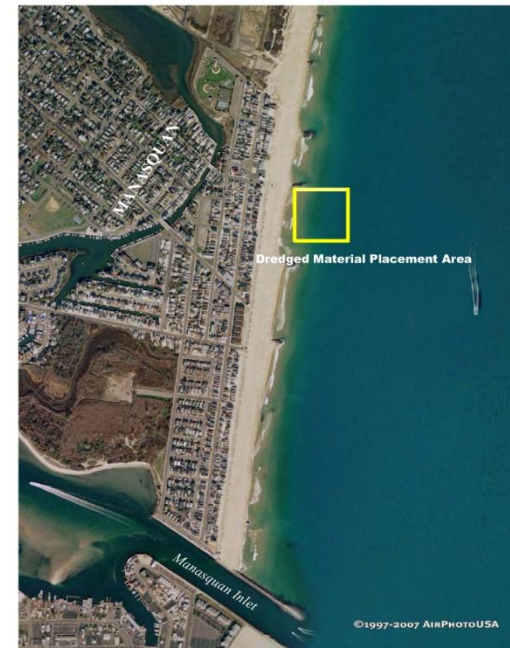
## Mantoloking - Lyman Street Breach NJIWW Dredging and Beach Placement



- Superstorm Sandy caused breach in Oct 2012 moving sand & debris into NJIWW
- Govt Plant SNELL responded in Dec 2012
- Coordination of emergency work with NJDEP & Borough were critical



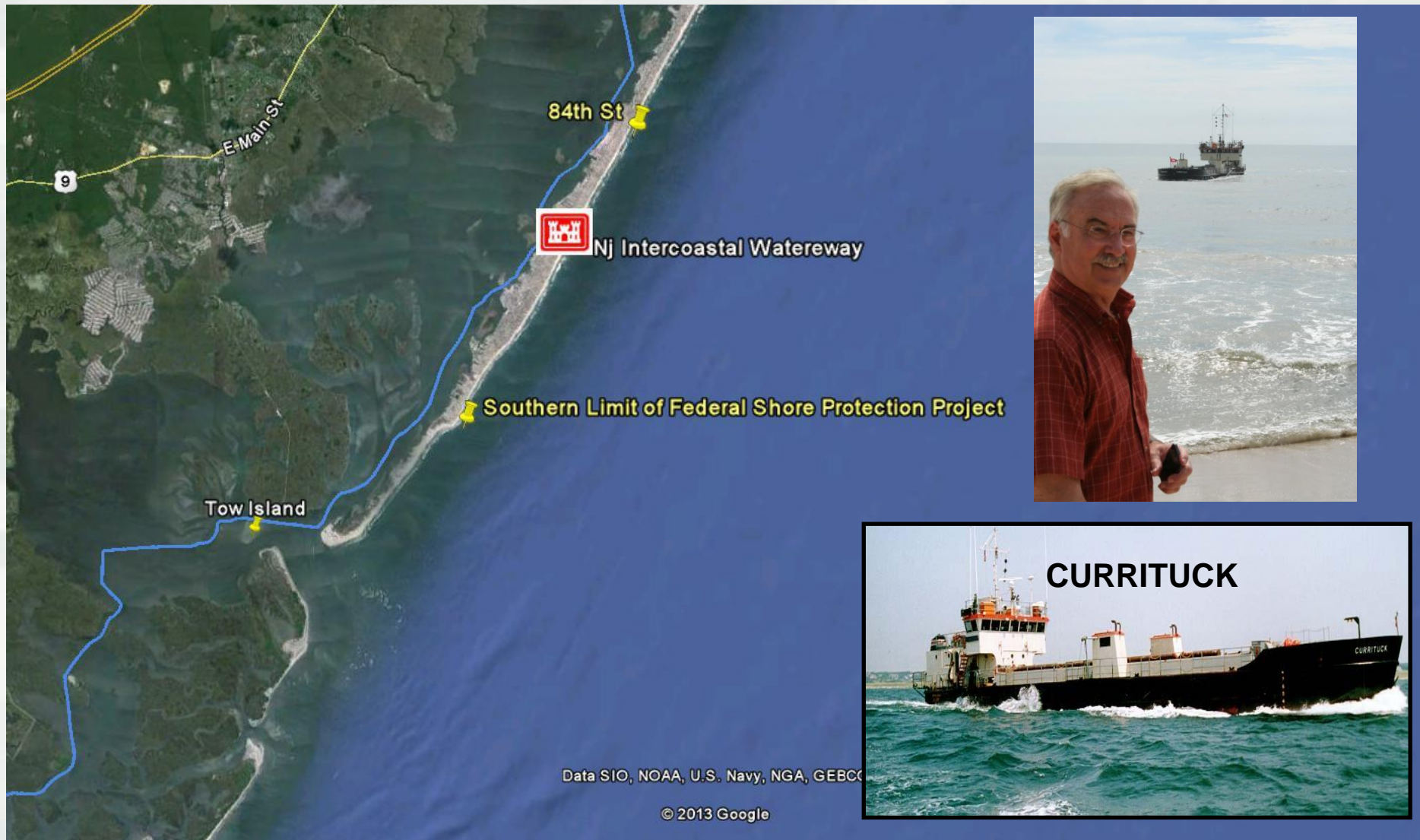
# Inlet Navigation Channels with Nearshore Placement



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# NJIWW Dredging at Tow Island w/ Placement on Long Beach Island Beachfill Template: August 2013



# Absecon Inlet Channel Dredging & Beachfill

## Collaborative Post-Sandy Effort between FRM and O&M





# Some were not so progressive....



Obstacles: USFWS Timing, Process and Restrictions

The Progress: ERDC now working as a consultant for USFWS which should help with future USACE actions



# Barnegat Inlet Federal Navigation Project



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# But More Progress Ahead!!

(fingers crossed, knock on wood, etc. etc.)

Dredging Season begins TODAY!



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# Upcoming NJIWW Project 1 Mordecai Island, NJ

In conjunction with USACE Planning Study  
(ongoing for 12 years)



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# Accelerating Progress with an RSM/EWN Approach: Mordecai Island



# Mordecai Island Restoration with NJIWW Dredge Material



# Upcoming NJIWW Project 2 Stone Harbor, NJ

Demonstration Project with Land  
owned by NJ Fish & Wildlife Service



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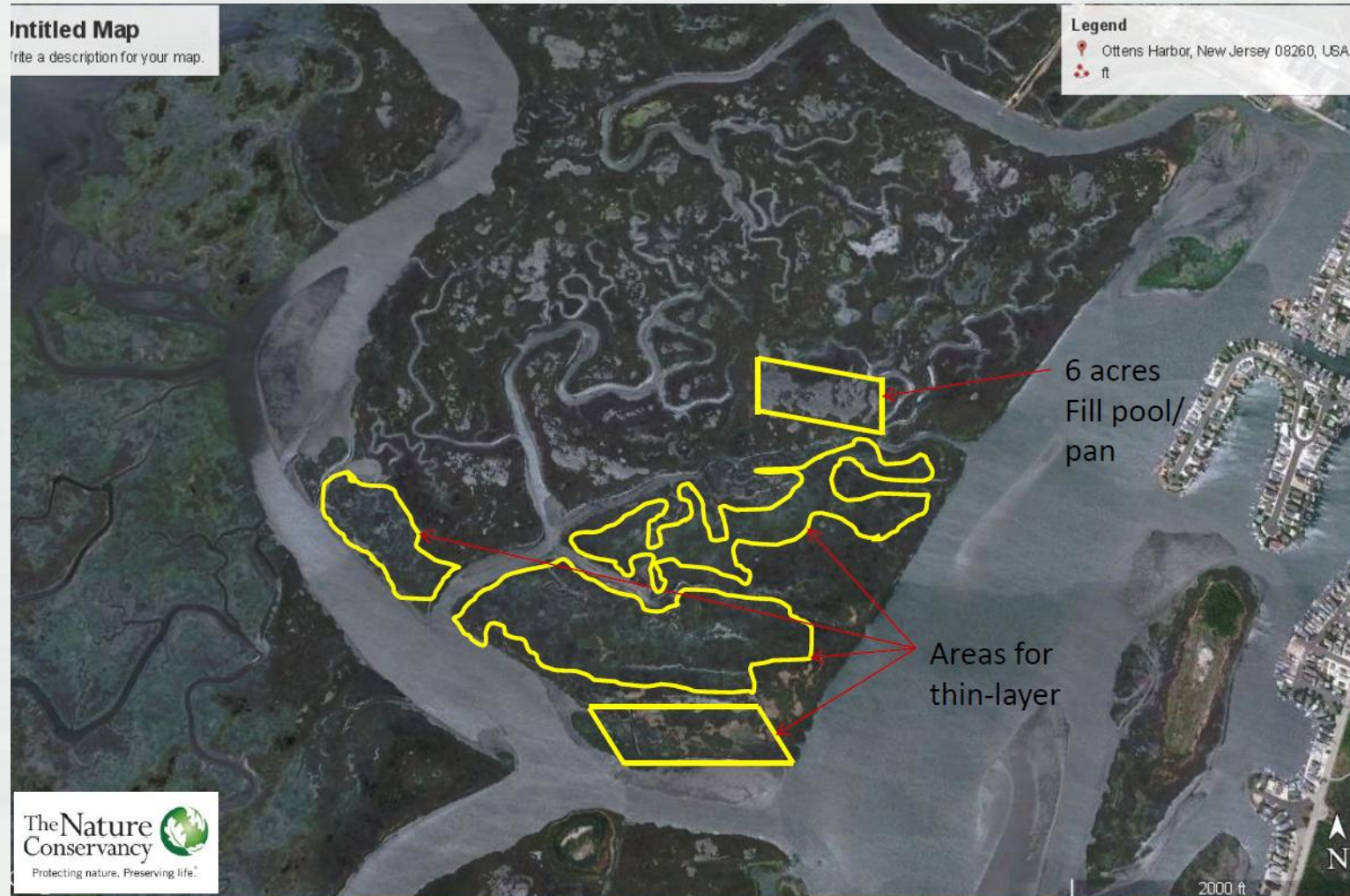


# NJ Intracoastal Waterway Dredging Stone Harbor Placement





# Partnering with NJ Fish & Wildlife and The Nature Conservancy



# Upcoming NJIWW Project 3 Avalon, NJ

Land owned by NJ FWS  
No other placement sites available

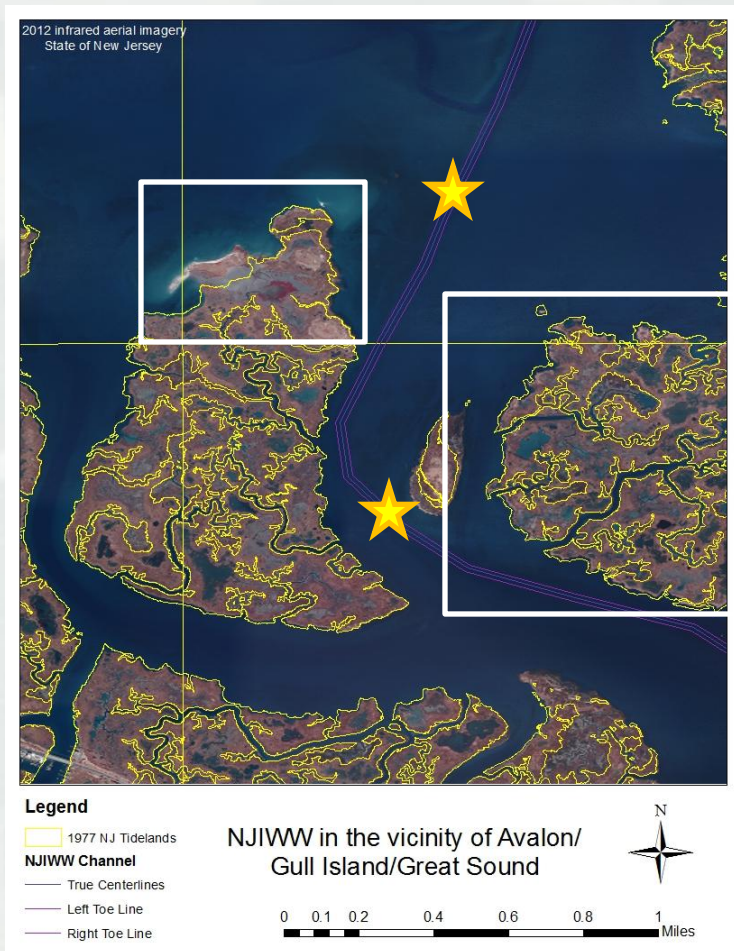


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# NJIWW Avalon vicinity

## Partnering with NJ F&W/TNC



- 75,000 yd<sup>3</sup> to be dredged (mixed fines, up to 60% sand)
- Gull Island north tip
  - ▶ Pro: existing permitted placement area
  - ▶ Con: existing DM mounds are quality bird habitat
- Avalon back barrier
  - ▶ Pro: area targeted by TNC/NJDEP for restoration
  - ▶ Con: cannot place all material due to production/time constraints

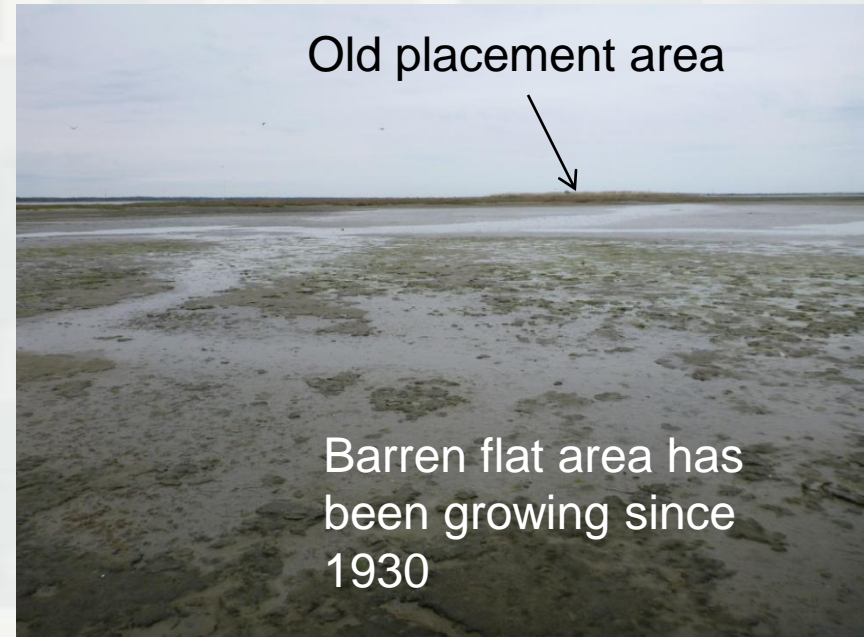
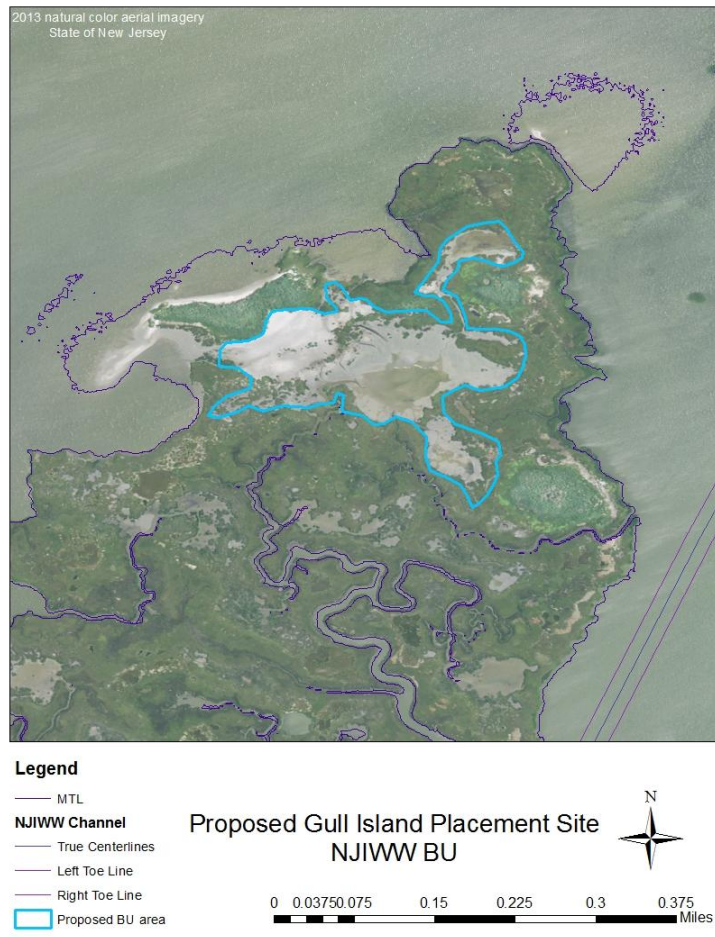


**Hope to use combination of placement sites to balance restoration goals with navigation needs**

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# Gull Island north tip – fill interior flat between old placement areas to create marsh



Area is too low in elevation to support vegetation, will require accretion rate ( $\sim 8$  mm/yr) double rate of sea level rise ( $\sim 4$  mm/yr) to support low marsh within 100 years



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# Wetland condition

## Gull Island



Active edge  
erosion and die-  
off



Patches of  
subsidence in  
marsh interior

## Avalon Back Barrier



Extensive pools  
and pannes –  
actively growing

# Avalon back barrier thin layer

- Assuming 300 ft extent from shore
- Only considering shoreline within 2000 ft from channel
- THIS ONE WILL BE A CHALLENGE!
- Obstacles are regulations, resource agencies, **cost and constructability**





# Next Steps

- \$ to Dredge thru Oct 14
- Obtain approvals
- Balance remaining projects
- Constructability
- MONITOR
- Tell the Good News!
- Small actions hopefully lead to large shift within NJ and future O&M funding





# WwN in Action: What Progress?



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