

A Regional Sediment Management Approach to Coastal Projects: Restoring Navigation and Enhancing Coastal Resilience following Hurricane Sandy

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A 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 Regional Sediment Management (RSM) concepts to develop short-term (post-Sandy) and long-term dredging strategies
- **Team Approach:** Actions were aided by support from USACE North Atlantic Division (\$), Wilmington (**equipment**), ERDC (**science**) and NJDEP (**approvals**)



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Post-Sandy Coastal Navigation Mission

- Superstorm Sandy impacts NJ/DE Region on Oct 29, 2012
- Stakeholder & Resource Agency coordination initiated early
- Emergency work begins Nov 2012 (SAW Plant)
- Short & long-term efforts with USACE ERDC & NAB began Jan 2013
- NAP awards Lease of Plant Dredging Contracts (Feb 2013 & Aug 2015); *key element for success since built in flexibility*
- Recovery work objective is to restore region and bolster system resilience



Post-Sandy Mission:
Restore the Channels & Repair Damages
(& Maximize the Opportunities for Sustainable Solutions)

- Assess Channels & Structures
- Secure Funds for Repair and Restoration
- Evaluate Potential Actions by Government Plant
- Sample and Analyze Sediment
- Determine Placement Areas (State Provides for Corps)
- Evaluate Constructability (initial & throughout)
- Engineering Design & Reviews (National/Regional)
- Contracting
- Construct (specialty work)
- Monitor & Develop Lessons Learned



RSM = Sustainable Solutions for.....

Navigation/ Dredging



Flood Risk Management



Environmental Restoration

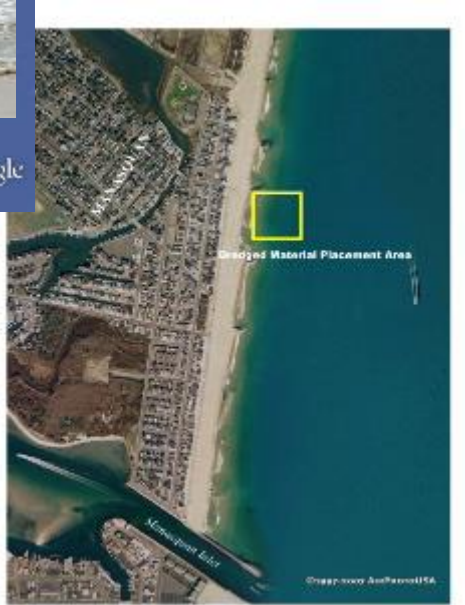


Regional Sediment Management Operating Principles

- 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)



Navigation Channels with Nearshore Placement of Sand



A Sediment Progression: From Confinement to In-Water Creation

Somewhere in Jersey....

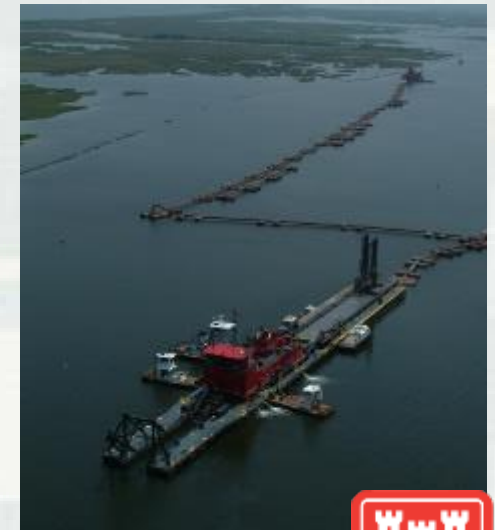


“Business as Usual”....Confined Disposal Facilities (CDF)



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A Sediment Progression: From Confinement to In-Water Creation



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Accelerating Progress with an RSM/EWN Approach: Mordecai Island



Mordecai Island CONSTRUCTED! November 2015



Mordecai Island Plantings May 2016



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Mordecai Island

9 months after construction



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NJIWW Channel Dredging and Placement Ring Island and Avalon NJ

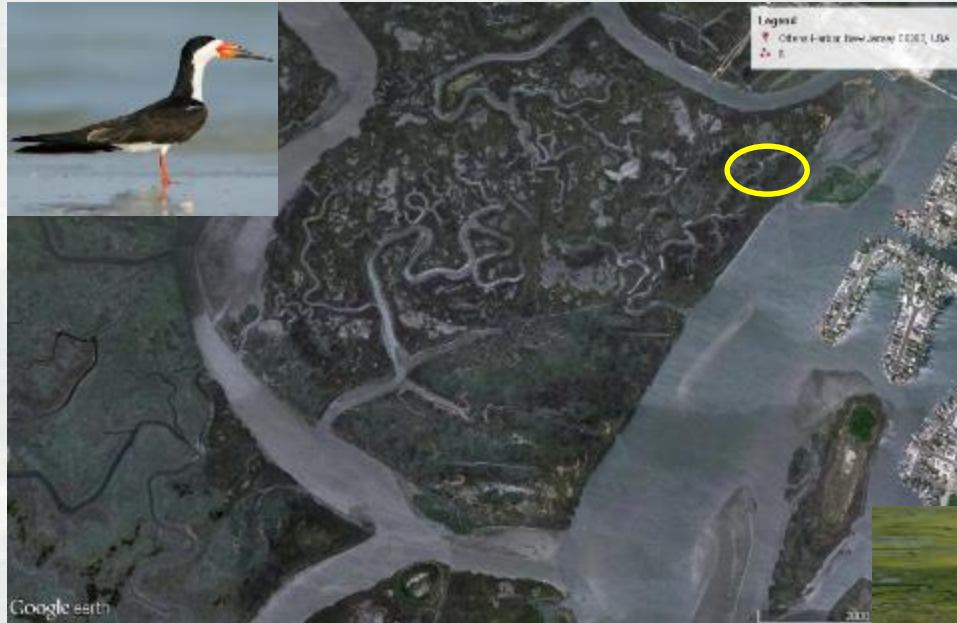
Demonstration Projects on Land owned by
NJ Division of Fish & Wildlife and a
NFWF Grant with NJDFW, TNC and Green
Trust Alliance

Contractor: Barnegat Bay Dredging Co



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Habitat Creation on Land Managed by NJ Division of Fish and Wildlife



- Partnered with NJDFW & TNC
- NJIWW Dredging & Placement was 100% funded through O&M Emergency Supplemental
- Approx 6,000 cy of sand



Ring Island Habitat Creation and Thin-layer Placement



- Constructed August 2014
- Small thin layer placement demo with sand
- Created shore bird habitat



NJIWW Dredging & Avalon Placement Thin Layer Placement Project Constructed Nov 2015 to Feb 2016



NJIWW Avalon Pilot Project: Dredging “The Football Field” and Thin-layer Placement

- Pilot Project constructed Dec 2014
- Small thin layer placement demo with fine-grained material and filled pools and pannes to restore marsh
- Larger project continued from Nov 2015 to Feb 2016 (approx. 45,000 cy)
- Monitoring to continue for several years



Barnegat Inlet, NJ

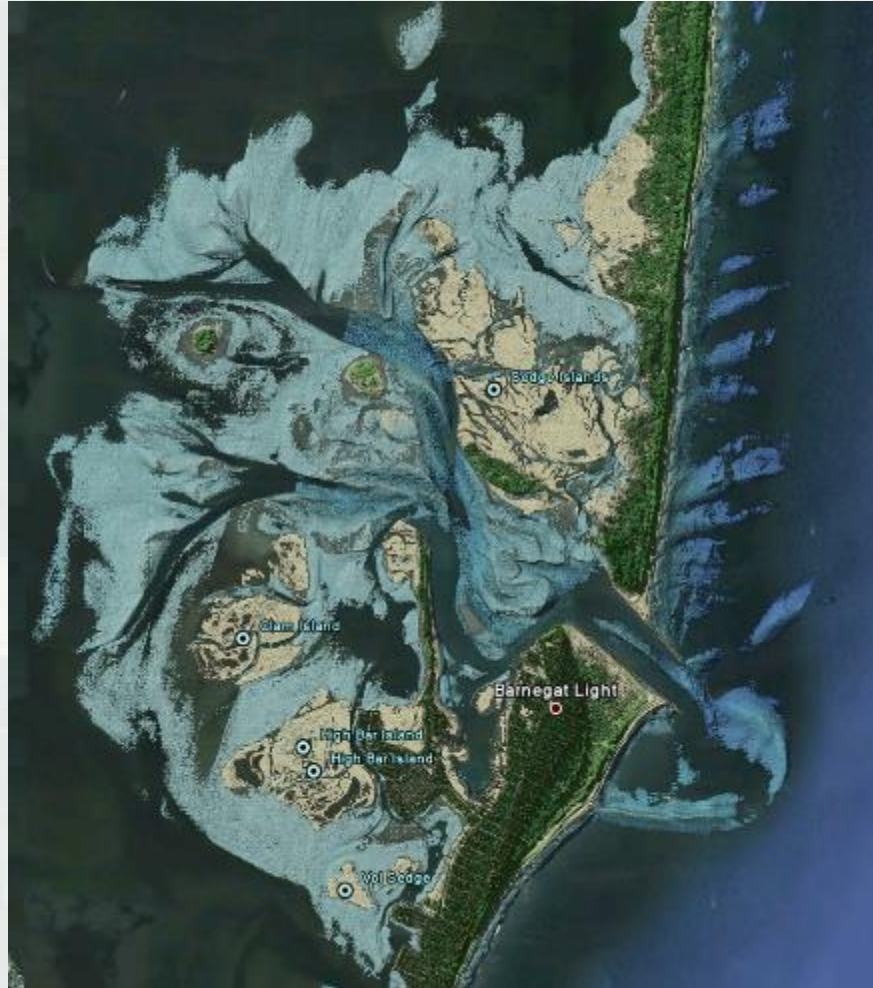
Continued RSM Opportunities



- Inlet Sediment Budget
- Analysis of dredged channels
- Optimization of Placement with the Currituck
- Beneficial Use Opportunities including island creation



Barnegat Inlet Post-Sandy CHARTS Survey



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Summary

- USACE Navigation Mission is succeeding on limited funds by collaborating with shore protection and ecosystem restoration efforts
- Implementing RSM actions for dredging and placement when possible
 - ▶ Sediment is a resource, not “spoils”; keep in system by placing, not “disposing”
 - ▶ If material can be used beneficially, saves CDF capacity
- Momentum in NJ for more innovative placement, but these techniques aren’t always easy; they take *time, \$\$ and commitment*
- Sediment Testing and Constructability Up front! Talk to Regulators and Dredging Industry



Questions?



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