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)
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…..

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

Use of SAW Government Dredge Fleet
A Sediment Progression: From Confinement to In-Water Creation

Somewhere in Jersey….

“Business as Usual”….Confined Disposal Facilities (CDF)
A Sediment Progression: From Confinement to In-Water Creation
Accelerating Progress with an RSM/EWN Approach: Mordecai Island
Mordecai Island Plantings
May 2016
Mordecai Island
9 months after construction
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
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
NJIIWW 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
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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