ACCELERATING PROGRESS AFTER HURRICANE SANDY

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And the Team....
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)
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.....

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<th>Navigation/Dredging</th>
<th>Flood Risk Management</th>
<th>Environmental Restoration</th>
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<td><img src="image1" alt="Navigation/Dredging" /></td>
<td><img src="image2" alt="Flood Risk Management" /></td>
<td><img src="image3" alt="Environmental Restoration" /></td>
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**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)
A Sediment Progression: From Confinement to In-Water Creation
Post-Sandy Mission: Restore the Channels & Maximize the Opportunities

“Easy” Ones First.....
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
NJIIWW 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

Exposed peat on island (sand dike)

Exposed peat

Oyster Creek Channel Dredging (40K cy)

Overboard disposal at PK 26A&B
But More Progress Ahead!!
(fingers crossed, knock on wood, etc. etc.)

Dredging Season begins TODAY!
Upcoming NJIWW Project 1
Mordecai Island, NJ

In conjunction with USACE Planning Study
(ongoing for 12 years)
Accelerating Progress with an RSM/EWN Approach: Mordecai Island
Mordecai Island Restoration with NJIWW Dredge Material

- Hay Bales
- Unconfined or Hay Bales
Upcoming NJIWW Project 2
Stone Harbor, NJ

Demonstration Project with Land owned by NJ Fish & Wildlife Service
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
NJIWW Avalon vicinity
Partnering with NJ F&W/TNC

- 75,000 yd$^3$ 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
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 (~ 8 mm/yr) double rate of sea level rise (~ 4 mm/yr) to support low marsh within 100 years.
Wetland condition

Gull Island

- Active edge erosion and die-off

Avalon Back Barrier

- Patches of subsidence in marsh interior
- 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?