

# FY14 RSM-EWN IPR

## Baltimore District, U.S. Army Corps of Engineers, Atlantic Coast of Maryland Sediment Budget Update

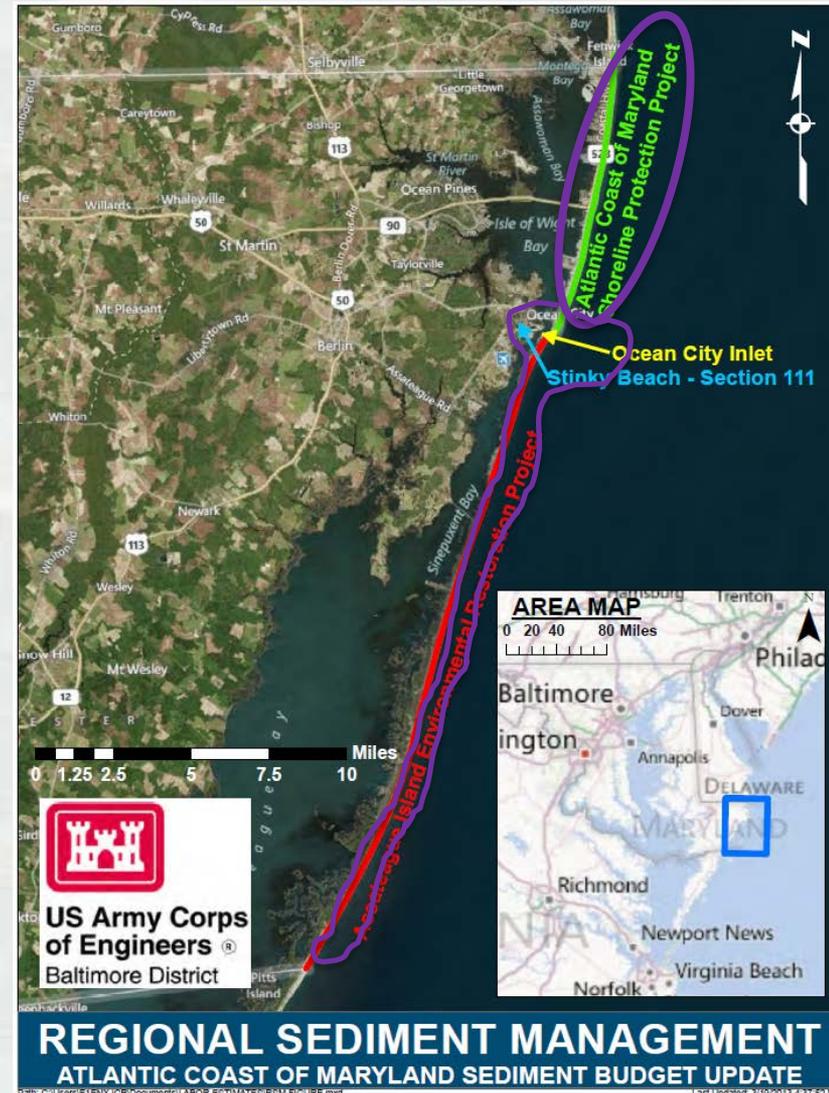
**BLUF:** Update the sediment budget for the remainder of the Atlantic Ocean NAB AOR to provide an up-to-date overview of the sediment trends. This will aid in maximizing the efficiency of the manual bypassing and other dredging events.

### Description/Challenges

- Ocean City Inlet, Assateague Island Environmental Restoration Project, Stinky Beach (Section 111 Rivers & Harbors Act), series of federally authorized navigation channels, Atlantic Coast of Maryland Shoreline Protection Project
- Historic sediment budgets have been created for varying epochs
- Most recent budgets generated post-construction (1995-2002 & 2004-2008)
- Needed to update the budget to reflect the past five years (2008-2012) of data
- Part of a larger plan (whole AOR is goal)

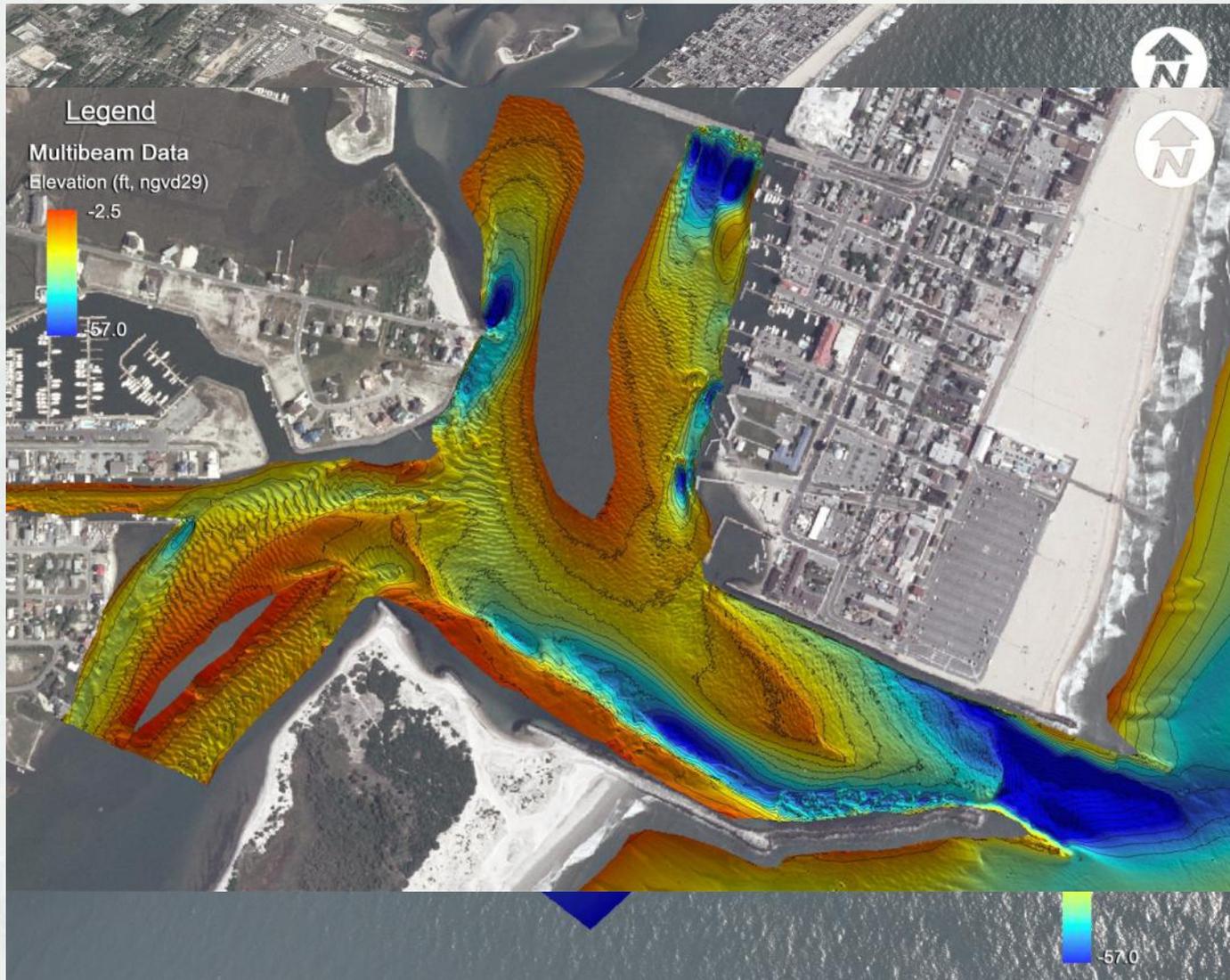
### Objectives

- Define the magnitude and direction of sediment movement in the ebb & flood shoal system
- Define the growth rate of the ebb & flood shoals
- Define the bypassing rate of the ebb-shoal and compare to previous epochs
- Define the magnitude of material flux into the back bays
- Define the nodal point along Assateague Island
- Define how the diffusivity and end loss at the boundaries compare to the past
- Optimize USACE dredging activities



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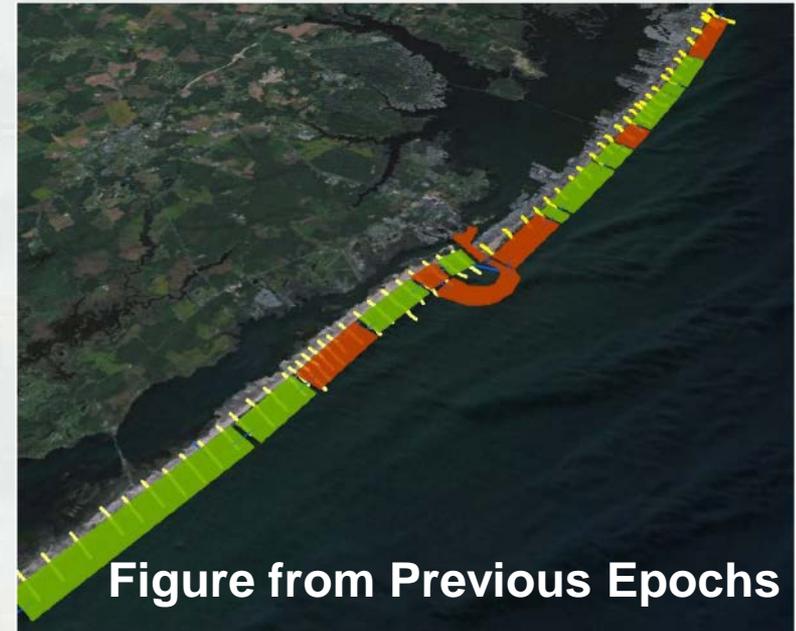


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### Approach

(including Tools/Models/Data Used)

- Tools used for analysis:
  - Beach Morphology Analysis Package (BMAP)
  - MATLAB
  - Sediment Budget Analysis System (SBAS)
- Datasets available for analysis:
  - Multi-beam surveys of Inlet
  - Beach profiles at historic monitoring stations
  - Dredging records from daily reports
  - Previous SBAS files from other epochs



Retrieved datasets from Archives

Converted data to consistent datums

Analyzed data to derive volumes (BMAP & MATLAB)

Imported results into SBAS

Exported final Sediment Budgets & Create CHETN

### Deliverables

IPR @ RSM/EWN Workshop  
Sediment Budget (SBAS) & CHETN

24 July 2014  
30 Sept 2014



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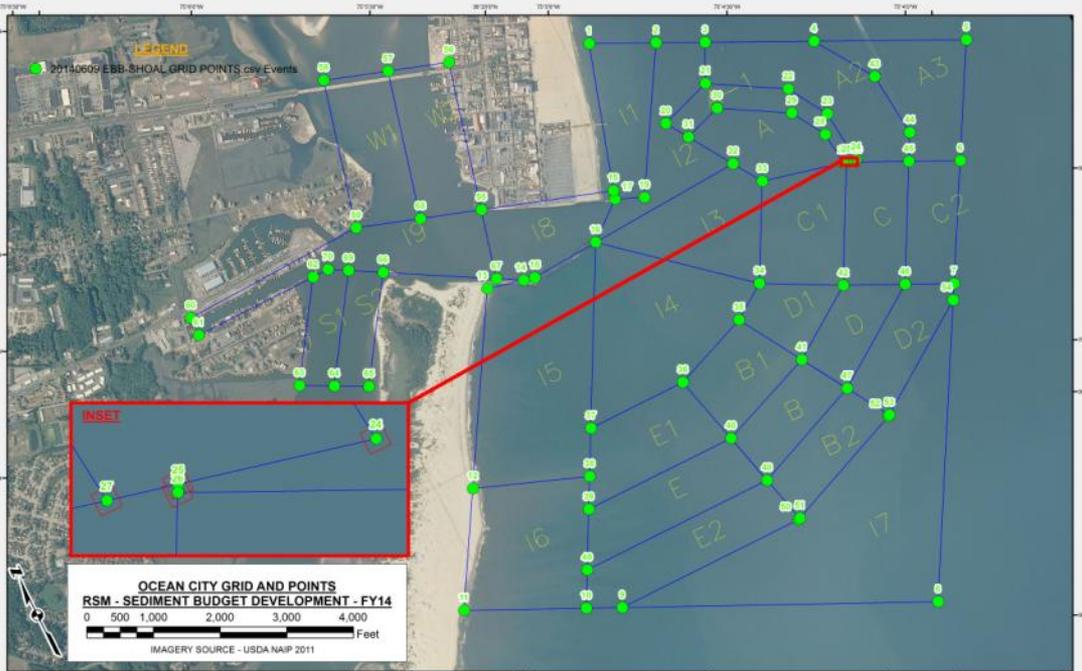
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### Accomplishments/Benefits/Lessons Learned/Actions-construction

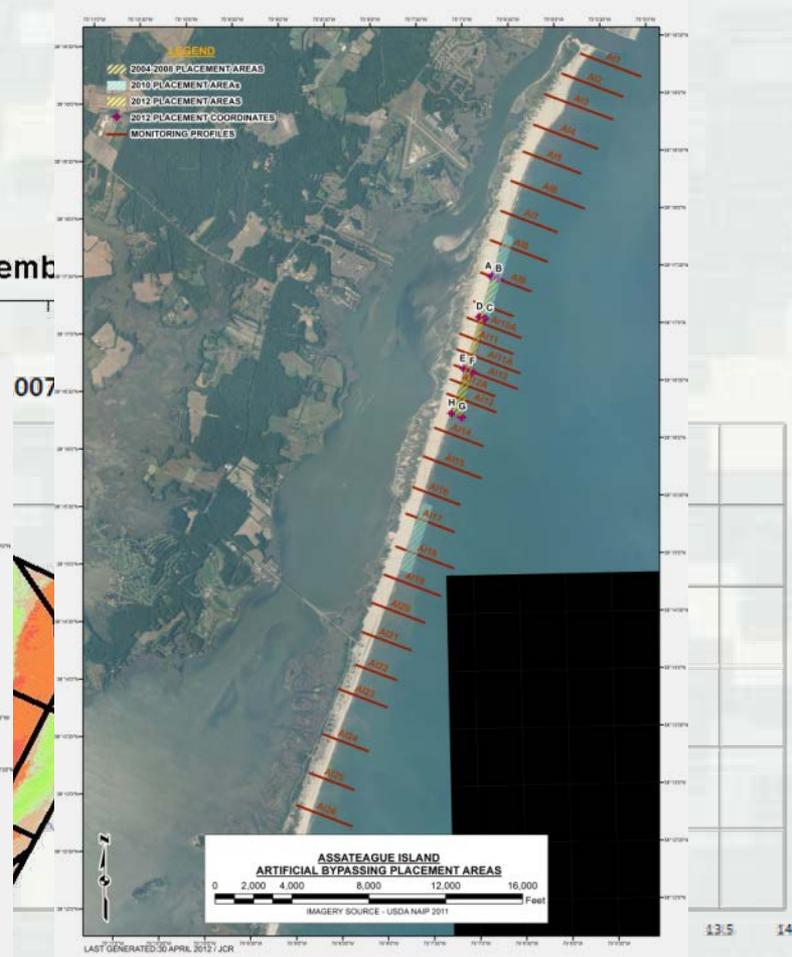
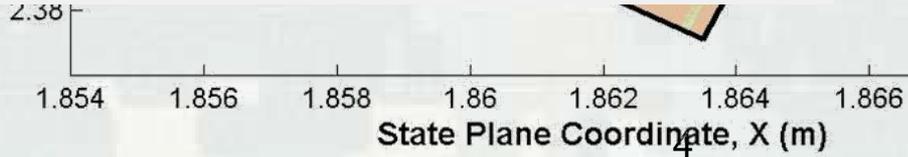
- Completed Beach Profile Volume Analysis
- Completed Inlet Volume Analysis
- Currently organizing dredging records
- Tasks to complete: SBAS & CHETN

Bathymetry Change: March 2008 to November 2013

x 10<sup>2.5</sup>



LAST GENERATED: 9 JUNE 2014 / JOSEPH.C.REED@USACE.ARMY.MIL



## Baltimore District, U.S. Army Corps of Engineers, Atlantic Coast of Maryland Sediment Budget Update

### District PDT Members

- Robin Armetta, Environmental Protection Specialist, Planning Division
- Bob Blama, Project Manager (Biologist), Operations Division
- Michele Gomez, Supervisory Program Manager, Planning Division
- Tom Laczko, Hydraulic Engineer, Engineering Division
- Joe Reed, PE, CFM; Civil Engineer, Engineering Division
- Ernie Smith, Ph.D, P.E., D.CE.; Research Hydraulic Engineer, Coastal Hydraulics Laboratory
- Danielle Szimanski, Project Manager (Biologist), Operations Division

### Stakeholders and Partners

- U.S. Army Corps of Engineers, Baltimore District
- ERDC – CHL
- Coastal Inlet Research Program – DOTS
- National Park Service
- Maryland Department of Natural Resources
  - Town of Ocean City, Maryland
  - Worcester County, Maryland

### Leveraging/Collaborative Opportunities

- Data collection paid for by project funds
- Provides a basis of decision making for upcoming engineering events
- Serves as a foundation inclusion in greater regional sediment budgets



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of Engineers** ®  
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