

FY16 RSM IPR

Jacksonville District, Palm Beach Harbor O&M Nearshore vs. Beach Placement

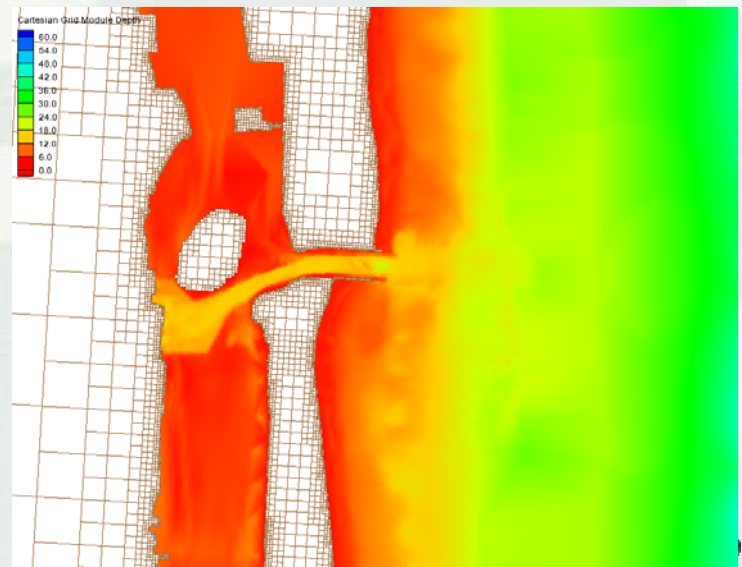
BLUF: Determine optimum placement location for O&M material.

Description/Challenges

- Nearly annual O&M dredging (122,000 cy/yr)
- Local stakeholders prefer sediment on beach
- Least cost placement option is nearshore
- Hardbottom resources limit placement
- Apply 1-D and 2-D models to 3-D problems

Objectives

- Identify optimum alongshore and cross shore placement locations
- Determine if nearshore or beach placement is more effective method of incorporating sediments into littoral system (Active vs Storage)
- Compare the results of models and tools



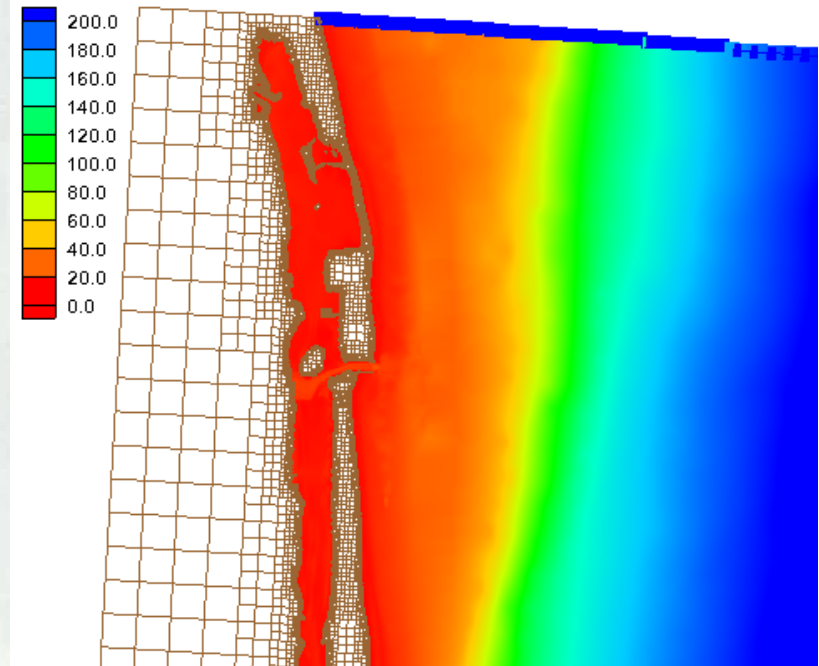
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Approach

- Coastal Modeling System driven with tidal constituents and WIS
- WIS time series and hypercube
- CMS morphology change compared to:
 - CSHORE 1-D cross shore model
 - ERDC Sediment Mobility Tool
- Test cross shore and alongshore nearshore berm placement locations
- Test alongshore beach placement locations

Cartesian Grid Module Depth



Deliverables

Product or Milestone	Sch. Del. Date (mm/dd/yy)	Percent Comp
Set up CMS/CSHORE	03/28/16	60
Submit ASBPA abstract	05/09/16	100
RSM annual meeting presentation	05/19/16	33
Provide inputs to ERDC for SMT	06/01/16	0
CMS/CSHORE production	06/30/16	10
Stakeholder meeting notes	09/31/16	0
Tech Note	09/31/16	0
Newsletter Article	09/31/16	0
Conference presentation	10/25/16	0



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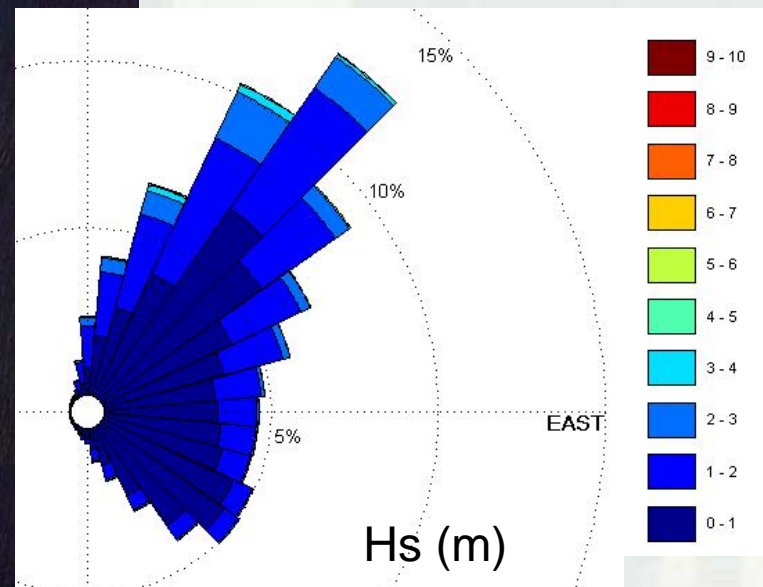
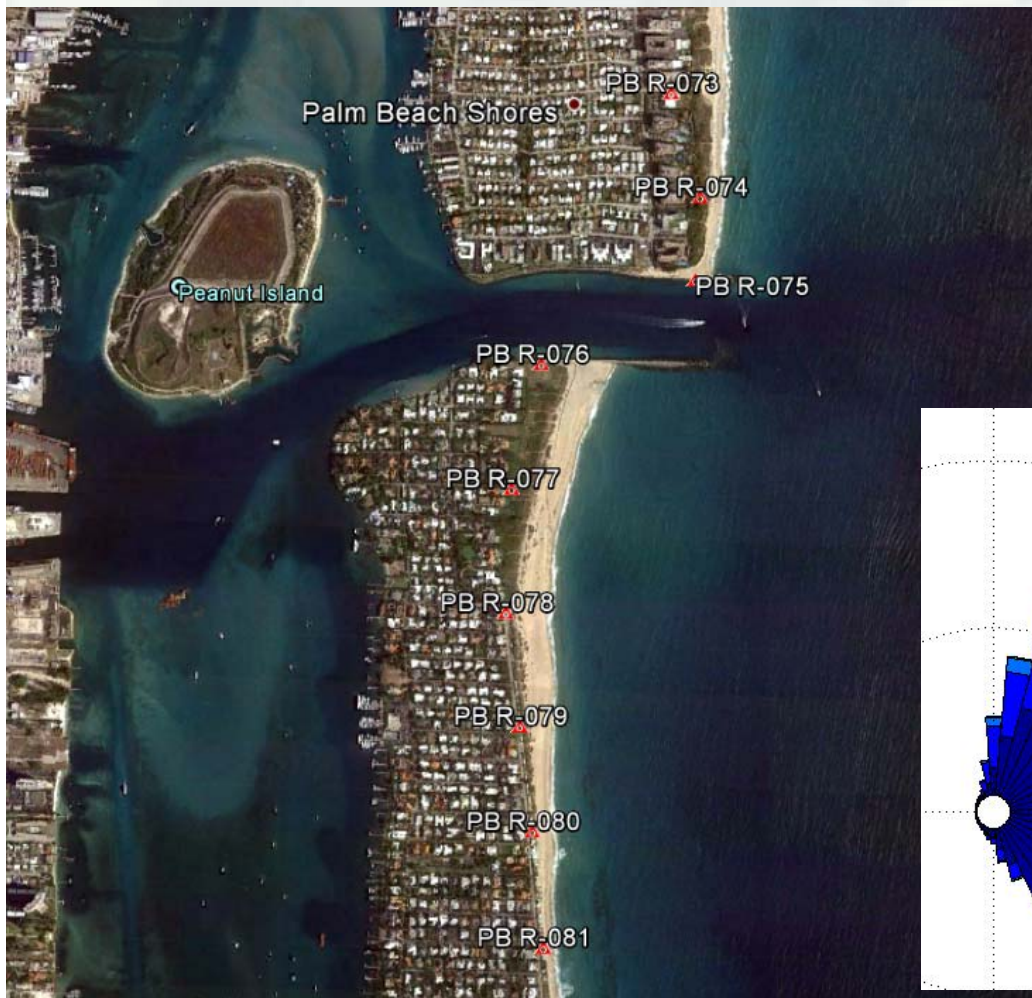
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Accomplishments/Benefits/Lessons Learned/Actions-construction

Benefit the coastal community by pushing the limits of CMS and exploring the area recognized as needing model development

Low tidal flows, tide range < 1 m

Expecting transport to be wave dominated



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What is working? Ups? Success?

Collaborating with Dr. Kelly Legault.

Hypercube method for wave field characterization.

CMS reproduces the measured morphology change patterns very well in the inlet.

What is not working? Downs? Issues?

Fitting work in with other district responsibilities

Pushing the boundaries of the model...will results be realistic?

Figure out how to interpret results of different models/tools and determine consistency or effectiveness



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District, Title

District/Other USACE PDT Members

Dr. Kelly Legault, SAJ

Dr. Katie Brutsché, ERDC

Dr. Brian McFall, ERDC

Leveraging/Collaborative Opportunities

Similar project situations in FL and around nation.

Analysis methods helpful for other CMS applications.

Confidence increased in Sediment Mobility Tool.

Stakeholders and Partners

Town of Palm Beach

Palm Beach Harbor

FDEP

FFWS, FWC



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Value to the Nation

- Cost savings – trying to support least cost with modeling
- Value added
 - prevention of additional coastal structures
 - reduces erosion pressure for locals
 - Enhances environmental features*
- Extension of results could provide insight to hardbottom impacts of the various placement methods
- Leverage study results with application of the Sediment Mobility Tool
- Improved partnerships, happy stakeholders
 - Maybe disgruntled stakeholders but if increase shore protection potential maybe not

