

# Galveston Entrance Channel RSM

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**2014 RSM & EWN IPR Working Meeting**  
**22-24 July 2014**



# FY14 RSM-EWN IPR

## SWG, Galveston Entrance Channel RSM, Tricia Campbell

**BLUF:** Challenges maintaining Galveston Entrance Channel, Galveston Harbor, and upland PAs within the Galveston project. Finding ways to reduce the dredging frequency would benefit SWG and allow more flexibility with management of the overall Galveston project.

### Description/Challenges

- Galveston Entrance Channel supports Ports of Houston, Texas City, Galveston
- Dredge approx 2MCY every 18-24 months
- Funding challenges maintaining channels and PAs

### Objectives

- Develop solutions to reduce amount of sediment entering the Galveston Entrance Channel
- Develop solutions to increase the dredging cycle time
- Develop solutions to keep sediment in suspension



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### Approach

Understand existing conditions

- Develop updated sediment budget
- Model PA A and boat cut in CMS, run PTM
- Use common sense where data is lacking

Come up with possible solutions - structural and nonstructural

- Goal: Reduce channel shoaling

Analyze effectiveness of proposed alternatives

- Refer to sediment budget
- Run alternatives in CMS, PTM
- Utilize historical examples, professional experience

### Deliverables

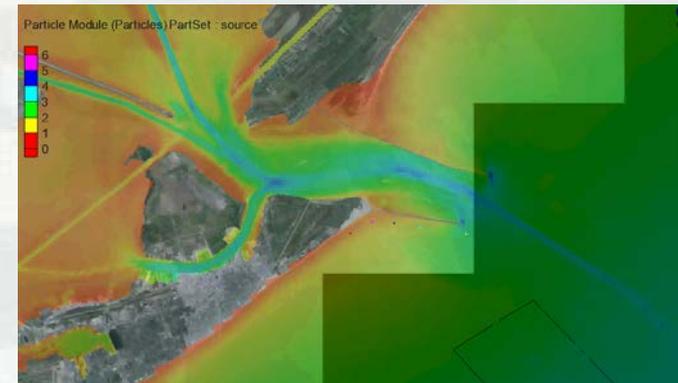
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| • Description of Alternatives to be Analyzed      | 2/27/14 |
| • Develop and Discuss Potential Solutions         | 4/02/14 |
| • Quantified Impacts of each Alternative Solution | 7/18/14 |
| • Presentation RSM IPR                            | 7/23/14 |
| • Final Report                                    | 8/29/14 |



PTM - path of neutrally buoyant particles around South Jetty →



Sediment Budget for Galveston Entrance



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### Maximum Sediment Saved by Implementing Each Alternative Individually

- Sand-tighten jetties: 113,000 CY/YR
- Prevention of wind-blown sand: 21,000 CY/YR
- Back-passing plant with spur dikes: 150,000 CY/YR
- Close boat cut in North Jetty: 160,000 CY/YR
- Place PAA material on beach: 300,000 CY/YR

MAXIMUM POSSIBLE SAVINGS OF ALL ALTERNATIVES:

707,000 CY/YR\* ~ \$2.8M/YR (based on \$4/CY)

\*Assumes eliminating all material originating at East Beach (247K CY/YR), Boat Cut (160K CY/YR), and PAA (300K CY/YR) = 707,000 CY/YR

### Recommendations

- Continue to work with TX GLO and Galveston Park Board of Trustees
  - Back-passing plant on East Beach
  - Option of dredging anchorage basin and/or Big Reef for nourishment material
- Conduct future studies and data collection



Proposed fencing/vegetation for reducing wind-blown sand



Proposed back-passing system →

# **FY14 RSM-EWN IPR**

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### **District PDT Members**

- Tricia Campbell, Operations Manager
- Sheri Willey, Planning Lead
- Kimberly Townsend, Hydraulic Engineer
- Mario Beddingfield, Hydraulic Engineer
- Robert Thomas, Chief, H&H Branch
- Andrew Morang, CHL
- Ashley Frey, CHL
- Dave King, CHL

### **Stakeholders and Partners**

- Galveston Park Board of Trustees
- Texas General Land Office

### **Leveraging/Collaborative Opportunities**

- Galveston Sand Management Plan

