

FY13 RSM IPR

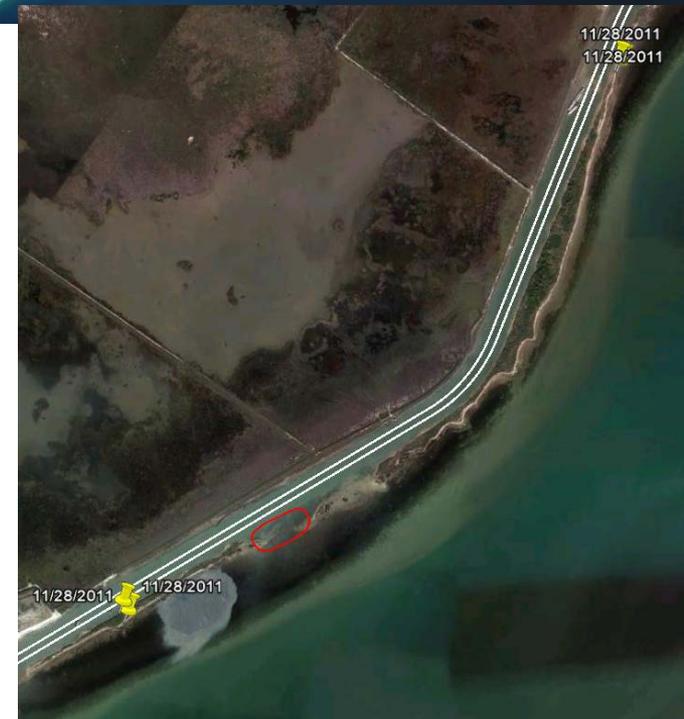
Galveston, Gulf Intracoastal Waterway RSM, Tricia Campbell, CPT Derek Thornton

Description/Challenges

- PA's along the GIWW are eroding on both the channel and the bay side due to currents, wind generated waves and ship wakes
- Once breached, material is deposited into the GIWW
- Once they become submergent they become potentially unavailable

Objectives

- Determine/Confirm Erosion of barrier islands
- Identify causes of erosion and erosion rates (sediment budget)
- Design/Evaluate methods to decrease erosion



BLUF: SWG needs to identify sediment management options to prevent erosion of the Gulf Intracoastal Waterway (GIWW) Placement Areas. .

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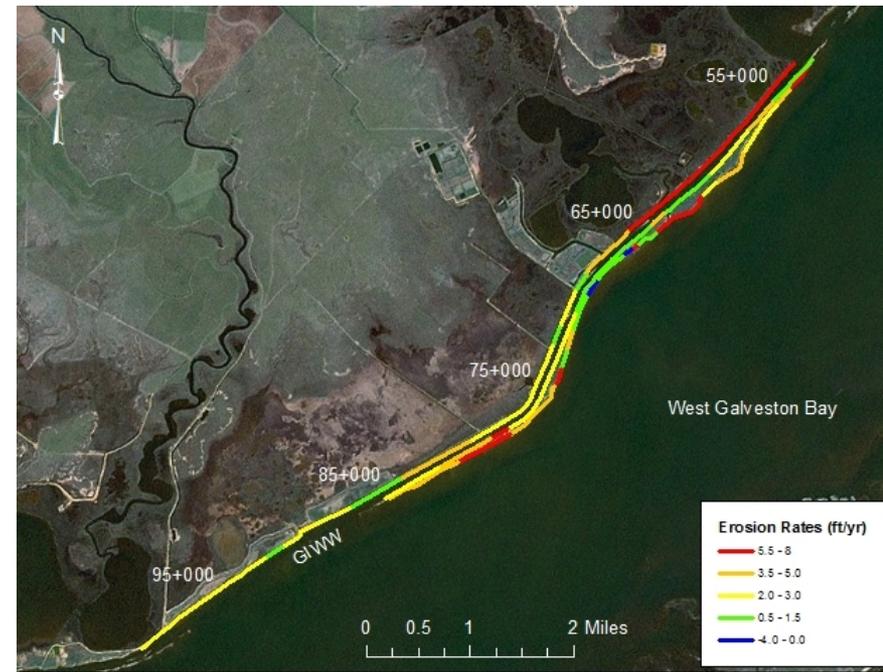
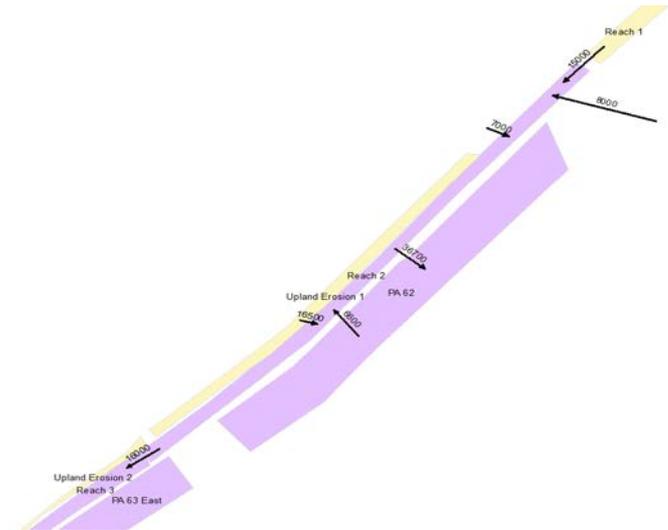
Approach

(including Tools/Models/Data Used)

- Aerial Imagery Analysis
- Sediment Budget
- Design of protection system / prioritization of areas
- CMS modeling Scenarios
- Review of Modeling, quantify the impacts

Deliverables

- Problem Statement Brief (27NOV12)
- Workshop (19FEB13)
- CHETN – Identification of alternatives to reduce shoaling in the GIWW and prevent erosion of the barrier islands (TBD, SEP13)



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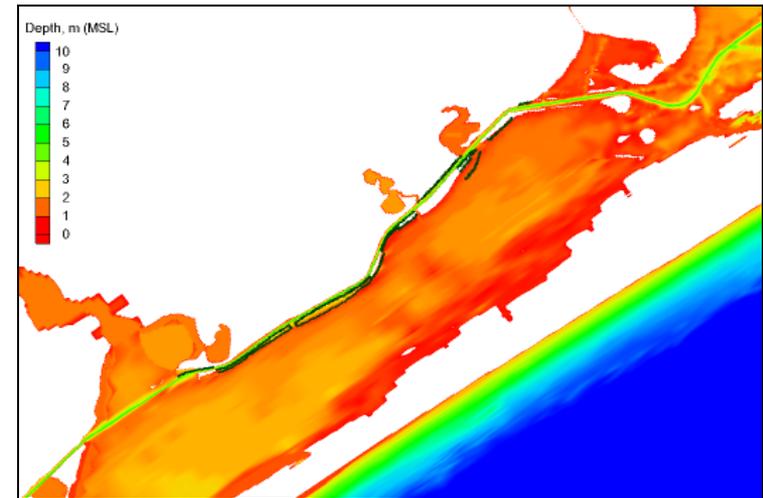
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Accomplishments/Benefits/Lessons Learned

- Verified importance of barrier islands in reducing channel shoaling.
- Put forward several design alternatives (both structural and non structural) to protect the barrier islands and reduce shoaling in the GIWW.
- Developed a cost comparison to determine the most economical designs for the channel & Bay sides.
- Used CMS to verify reduction in shoaling when proposed structures are placed in the system.

Opportunities to take action

- Implement construction by phase: PA 62 through PA 64 - Phase 1, North of Greens Lake & PA 65 to Chocolate Bay - Phase 2.
- Address each individual reach according to its designated priority - How rapid is channel shoaling and shoreline erosion here?
- Recommend rip rap revetment on the channel side of the barrier islands based on cost, but ACB is more practical for this reach.
- Recommend a combination of oyster castles, rip rap revetment, and sacrificial berms on the Bay side.



CMS Model Bathymetry with All Proposed Structures and Berms



Proposed layout of protection along PA 62

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District PDT Members

- Tricia Campbell, PE, Navigation
- CPT Derek Thornton, Navigation
- Kimberly Townsend, Coastal H&H
- Eric Wood, Coastal H&H
- Sheri Wiley, Planning
- Robert Thomas, ERDC
- Jantzen Miller, Project Engineer

Leveraging/Collaborative Opportunities

- SWG O&M
- FY12 RSM Upper Texas Coastal Sediment Budget Analysis

Stakeholders and Partners

- GIWW ICT
- TX-GLO
- TXDOT
- GICA
- USFW
- TX Parks and Wildlife
- Galveston Bay Foundation

Channel Sections	Existing Channel	Priority 1 Structures	All Priorities
1	83,985	84,045	85,530
2	51,920	45,090	22,650
3	42,270	15,640	13,730
4	480	1,620	2,060
5	6,120	6,100	5,220
6	16,490	16,430	17,860
Total (Sec1-6)	201,260	168,930	147,050

Table 3. Model volume change (CY), Jan-Mar 2010