



Regional Sediment Management Program Wilmington District (SAW): Carolina Beach Inlet Sediment Budget



Description

Carolina Beach Inlet is a Federal shallow draft inlet that is typically dredged using side cast or shallow hopper dredging equipment. Additionally, a portion of the inlet serves as a borrow source for the adjacent Carolina Beach Coastal Storm Damage Reduction (CSDR) project to the south of the inlet. The inlet is flanked on the north by an uninhabited natural island. The main objective of this study is to develop a sediment budget which identifies sediment sources, sinks, and transport pathways allowing the Corps to address sand bypassing requirements. A second goal is to simulate dredging and placement alternatives within the inlet to determine more efficient scenarios of navigation dredged material placement that will reduce costs and benefit the CSDR borrow source while not impacting shoaling rates within the intercoastal waterway crossing or navigation channel.

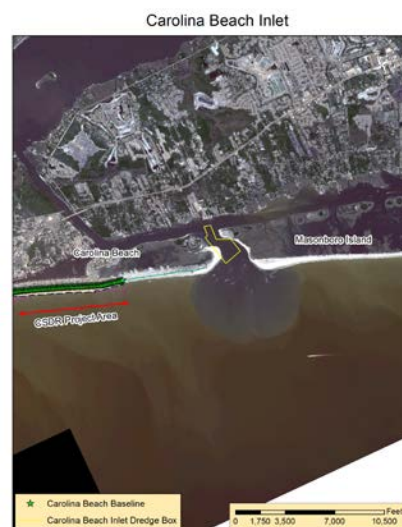


Figure 1. Carolina Beach Inlet

Issue/Challenge To Address

Carolina Beach Inlet is currently dredged approximately every four months via side cast dredge or shallow draft hopper with material being placed in nearshore disposal areas seaward of Carolina Beach. Additionally, a portion of the inner inlet throat not within the navigation channel serves as the borrow source for the Carolina Beach CSDR. Funding for the channel dredging has been provided exclusively from the local government since 2006. The possibility of placing dredged material from the shallow draft inlet into the CSDR borrow source will be investigated. This would increase the amount of material available to the CSDR within the approved borrow source and increase efficiency by decreasing the travel time of the hopper between the dredge site and the placement site. The major concern with this proposed scenario is the impact on shoaling in the adjacent Intracoastal Waterway.

Currently no material is backpassed to Masonboro Island to the north which through monitoring surveys has been found to be eroding significantly along the southern half of the island. The Coastal Modeling System (CMS) and the sediment budget will be used to determine sediment bypassing/backpassing requirements between the adjacent islands. Water level and current data will be measured in the inlet for model calibration.

Successes Lessons Learned

Lessons learned will be compiled during the duration of this study.

Expected Products

- Carolina Beach CMS model with particle tracking, FY16
- Carolina Beach sediment budget, FY17
- Completion of NEPA/EA requirements for potential disposal in CSDR borrow area
- RSM Technical Note

Stakeholders/Users

Wilmington District: New Hanover County, NC; Town of Carolina Beach, NC



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Projected Benefits

Increased efficiency over current dredging practices. Increase of sediment contained within the inlet system and improved management of sediment between adjacent islands.

Leveraging Opportunities

The current sediment budget will be integrated with the sediment budget completed for Masonboro Inlet in FY14. This budget included Wrightsville Beach, Masonboro Inlet, and Masonboro Island to Carolina Beach Inlet. When complete the two systems will combine to represent nearly 20 miles of coast and two inlets.

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Participating Partners

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