

APPENDIX 15

Inlet Management Study for Bunces Pass And Pass-A-Grille Inlet

INLET MANAGEMENT STUDY FOR BUNCES PASS AND PASS-A-GRILLE INLET USF COASTAL RESEARCH LABORATORY

Study Components

1. Physical and historical data collection and analysis
 - a. Document historical morphology of inlets and beaches (includes north Shell Key).
 - b. Collect field data on existing inlet and beach morphology, sand characteristics, and currents for numerical model construction.
2. Numeric modeling and Sediment Budget to quantify:
 - a. Wave and current characteristics of inlets.
 - b. Sediment transport processes through the inlets.
 - c. Morphological evolution of inlets, shoals, and adjacent beaches from months to 5 years into the future. Specific modeling scenarios to be determined with Technical Advisory Committee input during the project.
 - d. Inlet – beach interactions along adjacent shorelines.
 - e. Develop a sediment budget for the dual inlet system (sand quantities entering and leaving defined dual inlet system components).
3. Evaluate inlet management strategies that include:
 - a. Maintenance dredging and ebb shoal borrow area dredging with focus on Pass-a-Grille ebb shoal as sand source for beach nourishment.
 - b. Balancing the sediment budget (alternatives to balance the sand entering the system compared to sand lost from the system).
 - c. Enhancing the performance and longevity of adjacent beach nourishments.
4. Case Study 1. Erosion and mitigation of north Mullet Key Beach
 - a. Clarify and quantify processes that cause beach erosion
 - b. Develop alternative mitigation measures to restore Ft. De Soto's North Beach
5. Case Study 2. Stability and evaluation of North Shell Key Pass channel
 - a. Questions to address:
 - i. How the Pass closed?
 - ii. What sand sources caused the closure?
 - iii. What conditions led to Pass closure?
 - iv. What conditions could favor a sustained Pass?
 - v. Will the channel stay open for an extended period of time?
 - vi. How will an open channel influence circulation in the Preserve back bay?
 - vii. How will an open channel impact sediment and water currents of Pass-a-Grille inlet?
 - viii. How will an open channel impact Shell Key beach conditions?