

# NORTH KEEWAYDIN ISLAND EROSION CONTROL PROJECT NAPLES, FLORIDA



## COMPREHENSIVE SOLUTIONS TO EROSION NEAR TIDAL INLETS

Humiston & Moore Engineers (H&M) was hired by the owner of the north end of Keewaydin Island to design and implement an erosion control project to address the on-going erosion along the downdrift side of Gordon Pass. Keewaydin Island is located near the south end of the City of Naples, in Collier County, Florida. The south jetty at Gordon Pass was constructed in 1960 at the time when Gordon Pass became a Federal Navigation Project. Sand maintenance dredged from Gordon Pass has historically been placed on the downdrift side of the inlet. Due to budget constraints the Corps maintenance dredging of Gordon Pass has fallen behind schedule. Additionally, the south jetty has settled to the point where sand is being lost to the inlet due to sediment transport reversals. This has resulted in significant sand losses at the north end of Keewaydin Island.

To reduce the sand losses to the inlet, H&M designed and permitted the sand tightening of the south jetty at Gordon Pass. The Corps of Engineers completed the maintenance dredging of Gordon Pass in April 2003 and the sand was placed along the beach on Keewaydin Island. H&M coordinated the dredging between the Corps of Engineers, the City of Naples and the upland property owner.

H&M also designed a series of T-groins on which construction started upon completion of the dredging project. Part of the T-groin design included wave refraction and sediment transport modeling to establish a background and projected sand budget for the north end of Keewaydin Island. The projected sand budget included the effects of the jetty improvements as well as the T-groins. This modeling satisfied the regulatory requirements of DEP to justify regulatory approvals for the project.

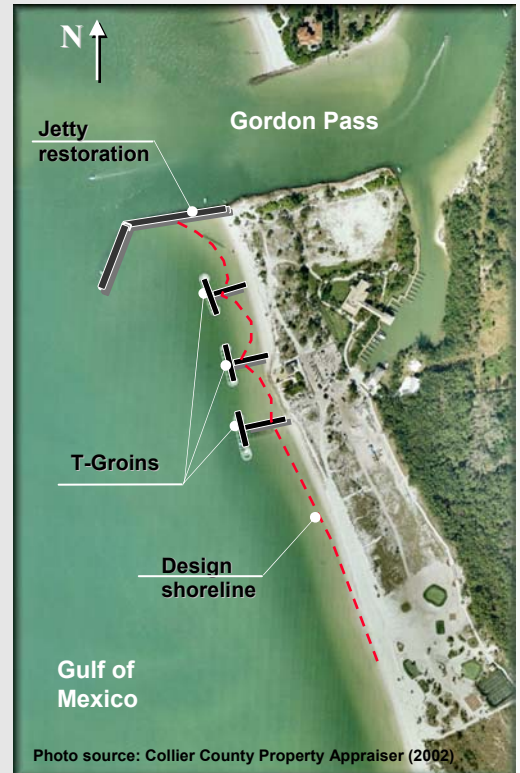


Photo source: Collier County Property Appraiser (2002)

### PROJECT DESIGN

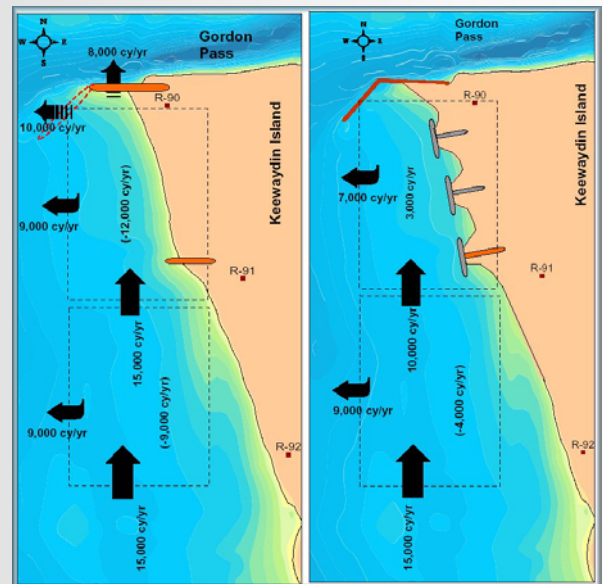


Photo source: London Aerials (2003)

### PROJECT UNDER-CONSTRUCTION MAY 2003

### KEY PROJECT ELEMENTS

- Inlet Impact Analysis
- Wave & Sediment Transport Modeling
- Sediment Budget Modeling & Analysis
- Inlet Management
- Coordination of Local, State & Federal Interests
- Construction Observation
- Bid Documents & Specifications



PRE-CONSTRUCTION  
CONDITIONS

PROJECTED  
POST-CONSTRUCTION  
CONDITIONS