Marco Island Segmented Breakwater and Advance Implementation of Caxambas Pass Inlet Management

Inlet Management Implementation

This project was constructed in two phases. The first phase was 600,000 cubic yards of beach fill and two terminal groins. A segmented breakwater was permitted as a second phase to be constructed upon demonstration to DEP that it was a necessary element of the project.

Purpose

To reduce sand transport into Caxambas Pass. The breakwater design is less intrusive than conventional long jetties have been proven to be at many inlets in Florida. The breakwater was designed to attenuate wave energy and has reduced sand losses from the south end of Marco Island by approximately 75% and reestablished a beach in front of an existing seawall and rock revetment. Successful sea turtle nesting has been documented in this area since construction of the breakwater. This challenging project resulted in a unique breakwater design which considers wave attenuation as well as the tidal current velocity field on the entrance of Caxambas Pass. Monitoring has shown that erosion caused by severe weather exposes northern portions of the seawall. Modifications to the segmented breakwater have been recommended to improve the stability of the beach to maintain the beach along the seawall.

Project Tasks

- Beach restoration design
- Sand transport modeling
- Terminal structures design
- Breakwater design, modeling of nearshore wave refraction and difraction.
- Design and permitting of Caxambas Pass navigation channel aids to navigation for Collier County
- Monitoring

Scope:

- Regulatory coordination
- Construction plans and specifications
- Construction observations and project certifications

Project Information:

Reference:
Ron Hovell
Collier County
3301Tamiami Trail East
Building W
Naples, FL 34112
Phone: (239) 774-8380

Completed: 1996
Cost: $500,000
H&M Fees: $75,000 ±