

Singer Island Erosion Control Project

A Palm Beach County Shore Protection Project

Project Location

- The Singer Island shoreline from Ocean Reef Park north to the J.D. MacArthur Beach State Park

The Problem

- Storm events and chronic erosion have deflated the beach beyond what is considered a stable beach profile

The Solution

- Short term efforts have been focused on restoring sacrificial dunes
- The long term solution is to construct a segmented breakwater designed to stabilize the beach

Benefits

- Structures will allow the beach to grow through natural accretion processes
- Structures stabilize the beach yet allow natural longshore sand transport
- A stabilized beach and dune will provide storm protection, recreational opportunities, and turtle nesting habitat

Funding

- 39.95% is funded by the Florida Department of Environmental Protection (real estate doc stamps)
- 20% is funded by the City of Riviera Beach
- 40.05% is funded by Palm Beach County (Tourist Development Council bed tax and Ad valorem funds)



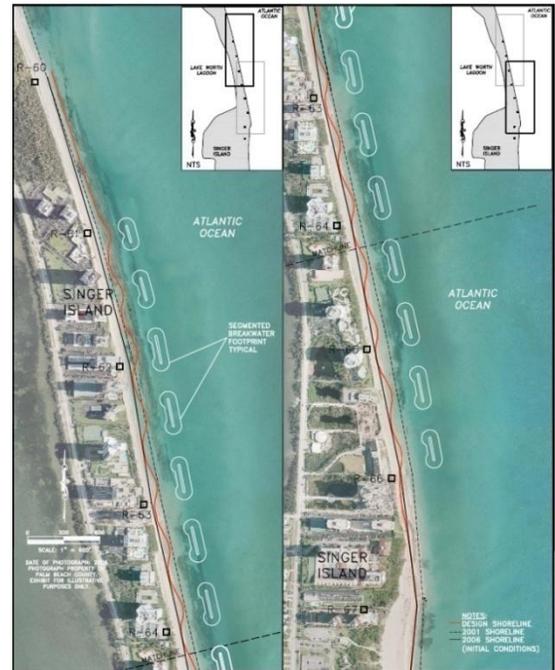
Tel Aviv, Israel Breakwaters

Project Overview

- 11 breakwater segments ranging from 150' to 240' long at the crest, with approximately 300' between structures
- Each structure will be 3' emergent at low tide and sit in 12' to 15' of water approximately 300' offshore
- The structures will require an estimated 200,000 tons of stone
- Over 7 acres of hardbottom habitat will be created by the structures
- The project is designed stabilize the beach to the average 2001 profile
- Construction is anticipated to begin in 2009 (pending permits) and take two years to complete



Peanut Island Breakwaters



Proposed Project Plan

FAQ

- How much will the project cost?
The total estimated cost of the project is \$30 million.
- What are the breakwaters made of?
The base and body of each structure will be constructed using limestone boulders and the crest with granite boulders.
- How will the structures be built?
Each structure will be constructed from the water by barge and crane beginning with the southernmost structure and working north.
- How do the breakwaters work?
Breakwaters modify the wave energy and reduce the sand transport that causes erosion. The low energy in the lee of the structures also allows the sand to fall out of suspension to create beach salients.
- Have they been used successfully in other locations?
Yes, they have been extensively used throughout the world since the Roman era. There are three existing breakwater installations in Florida. A local example is the breakwater at Peanut Island inside the Lake Worth Inlet.
- Will the structures have any impact on sea turtle hatchlings?
The project will stabilize the beach nesting habitat. Studies have shown that predation of hatchlings is proportional to the amount of time the hatchlings spend in the nearshore environment. It is also known that hatchlings use the directional energy of waves as a cue to navigate once entering the water. The refraction of the waves around each breakwater structure will help direct turtle hatchlings between structures and out of the nearshore environment.

Additional project information can be viewed online at :

<http://www.co.palm-beach.fl.us/erm/coastal/shoreline/beach/reports.htm>

Project Partners: Palm Beach County, Florida Department of Environmental Protection, City of Riviera Beach



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